

## Mitsubishi Electric AC Servo System



### MR-JET-G-N1 User's Manual (Object Dictionary)

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-MR-JET-\_G\_-\_N1



# SAFETY INSTRUCTIONS

Please read the instructions carefully before using the equipment.

To use the equipment correctly, do not attempt to install, operate, maintain, or inspect the equipment until you have read through this manual, installation guide, and appended documents carefully. Do not use the equipment until you have a full knowledge of the equipment, safety information and instructions.

In this manual, the safety instruction levels are classified into "WARNING" and "CAUTION".

|                                                                                                  |                                                                                                         |
|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|  <b>WARNING</b> | Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.  |
|  <b>CAUTION</b> | Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight injury. |

Note that the CAUTION level may lead to a serious consequence depending on conditions.

Please follow the instructions of both levels because they are important to personnel safety.

Forbidden actions and required actions are indicated by the following diagrammatic symbols.

|                                                                                   |                                                                                                                                                            |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Indicates a forbidden action. For example, "No Fire" is indicated by  . |
|  | Indicates a required action. For example, grounding is indicated by  .  |

In this manual, precautions for hazards that can lead to property damage, instructions for other functions, and other information are shown separately in the "Point" area.

After reading this manual, keep it accessible to the operator.

## [Installation/wiring]

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### **WARNING**

- To prevent an electric shock, turn off the power and wait for 15 minutes or more before starting wiring and/or inspection.
  - To prevent an electric shock, ground the servo amplifier.
  - To prevent an electric shock, any person who is involved in wiring should be fully competent to do the work.
  - To prevent an electric shock, mount the servo amplifier before wiring.
  - To prevent an electric shock, connect the protective earth (PE) terminal of the servo amplifier to the protective earth (PE) of the cabinet, then connect the grounding lead wire to the ground.
  - To prevent an electric shock, do not touch the conductive parts.
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## [Setting/adjustment]

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### **WARNING**

- To prevent an electric shock, do not operate the switches with wet hands.
- 

## [Operation]

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### **WARNING**

- To prevent an electric shock, do not operate the switches with wet hands.
- 

## [Maintenance]

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### **WARNING**

- To prevent an electric shock, any person who is involved in inspection should be fully competent to do the work.
  - To prevent an electric shock, do not operate the switches with wet hands.
-

# ABOUT THE MANUAL

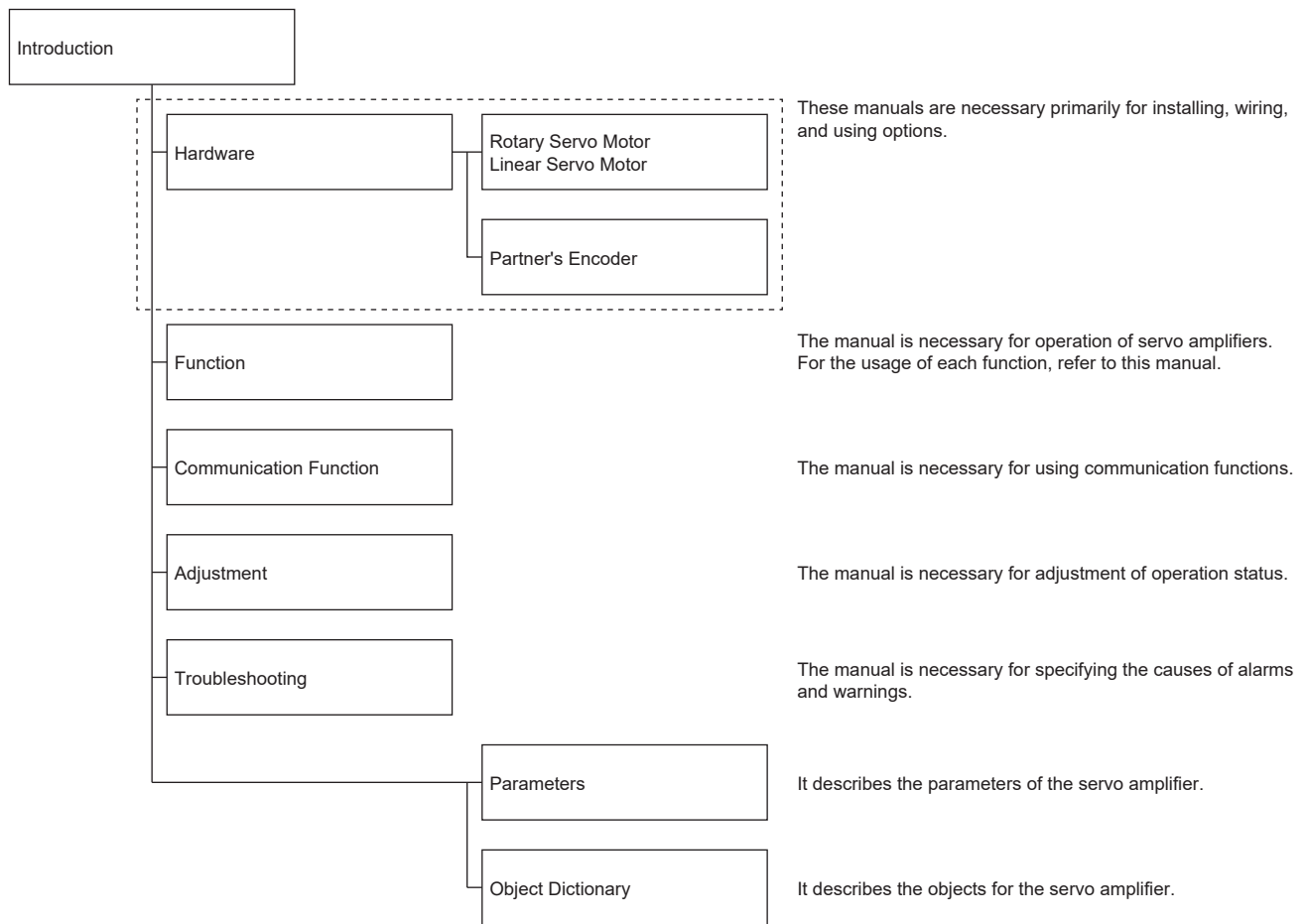


e-Manuals are Mitsubishi Electric FA electronic book manuals that can be browsed with a dedicated tool.

e-Manuals enable the following:

- Searching for desired information in multiple manuals at the same time (manual cross searching)
- Jumping from a link in a manual to another manual for reference
- Browsing for hardware specifications by scrolling over the components shown in product illustrations
- Bookmarking frequently referenced information
- Copying sample programs to engineering software

If using the servo for the first time, prepare and use the following related manuals to ensure that the servo is used safely. For the related manuals, refer to the User's Manual (Introduction).



## Global standards and regulations

Compliance with the indicated global standards and regulations is current as of the release date of this manual. Some standards and regulations may have been modified or withdrawn.

# U.S. CUSTOMARY UNITS

U.S. customary units are not shown in this manual. Convert the values if necessary according to the following table.

| Quantity                      | SI (metric) unit                         | U.S. customary unit            |
|-------------------------------|------------------------------------------|--------------------------------|
| Mass                          | 1 [kg]                                   | 2.2046 [lb]                    |
| Length                        | 1 [mm]                                   | 0.03937 [inch]                 |
| Torque                        | 1 [N•m]                                  | 141.6 [oz•inch]                |
| Moment of inertia             | 1 [ $\times 10^{-4}$ kg•m <sup>2</sup> ] | 5.4675 [oz•inch <sup>2</sup> ] |
| Load (thrust load/axial load) | 1 [N]                                    | 0.2248 [lbf]                   |
| Temperature                   | N [ $^{\circ}$ C] $\times$ 9/5 + 32      | N [ $^{\circ}$ F]              |

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|             | [SS1 Command (Obj. F701h: 02h)] . . . . .                 | 257        |
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# 1 SUMMARY OF OBJECT DICTIONARY

Each data such as control parameters, command values, and feedback values is handled as an object composed of an Index value, object name, data type, access rule, and other elements. The object data can be exchanged between the master station (external device) and the slave stations (servo amplifiers). The aggregate of these objects is called an object dictionary.

This manual describes the object dictionary which is necessary for servo amplifiers to be used via EtherCAT communication.

## 1.1 Structure

The following shows the detailed structure of the object dictionary.

| Item        | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data Type   | Indicates the object size.<br>I8: 8-bit signed integer (range: -128 (80h) to 127 (7Fh))<br>I16: 16-bit signed integer (range: -32768 (8000h) to 32767 (7FFFh))<br>I32: 32-bit signed integer (range: -2147483648 (80000000h) to 2147483647 (7FFFFFFFh))<br>I64: 64-bit signed integer (range: -9223372036854775808 (8000000000000000h) to 9223372036854775807 (7FFFFFFFFFFFFFFFh))<br>U8: 8-bit unsigned integer (range: 0 (0h) to 255 (FFh))<br>U16: 16-bit unsigned integer (range: 0 (0h) to 65535 (FFFFh))<br>U32: 32-bit unsigned integer (range: 0 (0h) to 4294967295 (FFFFFFFFh))<br>U64: 64-bit unsigned integer (range: 0 (0h) to 18446744073709551615 (FFFFFFFFFFFFFFFFh))<br>VISIBLE STRING: Character string<br>BOOL: 1-bit unsigned integer (range: 0 (0h) to 1 (1h))<br>OCTET STRING (n): Binary character string. "n" in parentheses indicates the number of bytes. |
| Access      | Indicates whether the object can be read or written.<br>RO: Only reading is available<br>RW: Reading and writing are available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Mapping     | Indicates whether the object can be mapped in cyclic communication.<br>Impossible: The object cannot be mapped to TxPDO or RxPDO.<br>TxPDO: The object can be mapped to TxPDO.<br>RxPDO: The object can be mapped to RxPDO.<br>TxPDO/RxPDO: The object can be mapped to TxPDO and RxPDO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Default     | Indicates the initial value of the object.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Range       | Indicates the object setting range. If a value outside the range is written, a parameter external error occurs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Units       | Indicates the object unit.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Save        | Indicates whether data can be stored in the non-volatile memory for objects that can be used for model replacement.<br>Impossible: Data cannot be stored in the non-volatile memory. The value of the data written from the controller returns to the value of "Default" when the power is shut off.<br>Possible: Data can be stored in the non-volatile memory with [Store parameters (Obj. 1010h)]. Data is saved in the servo parameter corresponding to the object. For the corresponding servo parameters, refer to "Parameter".                                                                                                                                                                                                                                                                                                                                              |
| Parameter   | Indicates where data is stored in the non-volatile memory.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Description | Describes the object.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| ECT         | Indicates EtherCAT.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## Object units

This section explains the pos units, vel units, and acc units used in this manual.

The degree unit is available on servo amplifiers with firmware version B6 or later.

The mm unit and inch unit are available on servo amplifiers with firmware version B8 or later in the positioning mode (point table method).

### pos units

The standard unit can be changed using [Pr. PT01.2 Unit for position data] as shown in the following table.

| Setting value | Standard unit |
|---------------|---------------|
| 0             | mm            |
| 1             | inch          |
| 2             | degree        |
| 3             | pulse         |

### vel units

The speed unit can be changed using [Pr. PT01.1 Speed/acceleration/deceleration unit selection] as shown in the following table. The command unit can be changed to "0.001 mm", "0.0001 inch", "0.001 degree", or "pulse" using [Pr. PT01.2].

| Setting value | Unit                     |
|---------------|--------------------------|
| 0             | 0.01 r/min, 0.01 mm/s *1 |
| 1             | Command unit/s           |

\*1 "0.01 mm/s" is used in the linear servo motor control mode.

### acc units

The acceleration unit can be changed using [Pr. PT01.1] as shown in the following table. The command unit can be changed to "0.001 mm", "0.0001 inch", "0.001 degree", or "pulse" using [Pr. PT01.2].

| Setting value | Unit                        |
|---------------|-----------------------------|
| 0             | ms                          |
| 1             | Command unit/s <sup>2</sup> |



## 1.2 Reading/Writing in MR Configurator2

The objects of the servo amplifier can be read and written by using MR Configurator2.

The following combinations can be used to read and write the objects. However, some objects cannot be read or written.

| —              | Software version of MR Configurator2 | Firmware version of the servo amplifier |
|----------------|--------------------------------------|-----------------------------------------|
| Object reading | 1.115V or later                      | B6 or later                             |
| Object writing | 1.145B or later                      | D8 or later                             |

When objects are read or written without being connected to the controller, some objects may behave differently than when connected to the controller.

The objects mapped to PDO cannot be written because they are overwritten by the instruction from the controller. Before writing objects, remove them from the PDO mapping.

## 1.3 Objects interlocked with servo parameters

The servo parameters can be changed by writing values on servo parameter objects. The servo parameters can also be changed with objects other than the servo parameter objects that change along with the servo parameters. The following table shows an example. Note that if the power is cycled, the changed settings are not retained at the next startup. To retain the changed settings even after cycling the power, save the servo parameter setting value to the non-volatile memory by using [Store parameters (Obj. 1010h)].

| Servo parameter          | Servo parameter object | Object other than servo parameter objects that changes along with the servo parameter |
|--------------------------|------------------------|---------------------------------------------------------------------------------------|
| [Pr. PT45 Homing method] | [PT45 (Obj. 24ADh)]    | [Homing method (Obj. 6098h)]                                                          |

# 2 OBJECT DICTIONARY LIST

## 2.1 Section definition of object dictionary

The following shows the structure of an object dictionary.

| Index                                                                | Description                                  | Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1000h to 1FFFh                                                       | Communication profile                        | <a href="#">Page 42 General Objects</a><br><a href="#">Page 51 PDO Mapping Objects</a><br><a href="#">Page 67 Sync Manager Communication Objects</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2000h to 27FFh                                                       | Servo parameter                              | <a href="#">Page 83 Parameter Objects</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2800h to 29FFh                                                       | Point table                                  | <a href="#">Page 189 Point table Mode Objects</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 2A00h to 2A7Fh                                                       | Alarm                                        | <a href="#">Page 85 Alarm Objects</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2B00h to 2BFFh                                                       | Monitor                                      | <a href="#">Page 95 Monitor Objects</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2C00h to 2C7Fh                                                       | Diagnostics                                  | <a href="#">Page 111 Manufacturer Specific Control Object</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 2D00h to 2DFFh                                                       | Manufacturer defined control                 | <a href="#">Page 111 Manufacturer Specific Control Object</a><br><a href="#">Page 189 Point table Mode Objects</a><br><a href="#">Page 201 Touch Probe Function Objects</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 2E00h to 5FFFh                                                       | Objects group defined by Mitsubishi Electric | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 6000h to 9FFFh                                                       | CiA 402 drive profile                        | <a href="#">Page 42 General Objects</a><br><a href="#">Page 146 PDS Control Objects</a><br><a href="#">Page 159 Position Control Function Objects</a><br><a href="#">Page 164 Profile Velocity Mode Objects</a><br><a href="#">Page 168 Profile Torque Mode Objects</a><br><a href="#">Page 175 Profile Position Mode Objects</a><br><a href="#">Page 184 Homing Mode Objects</a><br><a href="#">Page 195 Factor Group Objects</a><br><a href="#">Page 201 Touch Probe Function Objects</a><br><a href="#">Page 211 Optional application FE Objects</a><br><a href="#">Page 217 Cyclic Synchronous Position Mode Objects</a> |
| F000h to F0FFh                                                       | Semiconductor device profile                 | <a href="#">Page 220 SEMI Device Profile Objects</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| E600h<br>E700h<br>E900h to E9FFh<br>F601h to F60Fh<br>F700h to F70Fh | FSoE CiA 402 drive profile                   | <a href="#">Page 246 Safety Over EtherCAT Objects</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| F000h to FFFFh                                                       | Modular device profile                       | <a href="#">Page 246 Safety Over EtherCAT Objects</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

## 2.2 General Objects

| Index | Object name (Index)           | Sub Index | Object name (Sub Index)          |
|-------|-------------------------------|-----------|----------------------------------|
| 1000h | Device Type                   | 00h       | Device Type                      |
| 1001h | Error Register                | 00h       | Error Register                   |
| 1008h | Manufacturer Device Name      | 00h       | Manufacturer Device Name         |
| 1009h | Manufacturer Hardware Version | 00h       | Manufacturer Hardware Version    |
| 100Ah | Manufacturer Software Version | 00h       | Manufacturer Software Version    |
| 1010h | Store parameters              | 00h       | Store parameters                 |
|       |                               | 01h       | Save all parameters              |
| 1011h | Restore default parameters    | 00h       | Restore default parameters       |
|       |                               | 01h       | Restore all default parameters   |
| 1018h | Identity Object               | 00h       | Identity Object                  |
|       |                               | 01h       | Vendor ID                        |
|       |                               | 02h       | Product Code                     |
|       |                               | 03h       | Revision Number                  |
|       |                               | 04h       | Serial Number                    |
| 10F1h | Error Settings                | 00h       | Error Settings                   |
|       |                               | 01h       | Local Error Reaction             |
|       |                               | 02h       | Sync Error Counter Limit         |
| 67FEh | Version number                | 00h       | Version number                   |
| F050h | Detected Module List          | 00h       | Detected Module List             |
|       |                               | 01h       | Detected Module List Position 1  |
|       |                               | :         | :                                |
|       |                               | 61h       | Detected Module List Position 97 |

## 2.3 PDO Mapping Objects

| Index | Object name (Index)      | Sub Index | Object name (Sub Index)  |
|-------|--------------------------|-----------|--------------------------|
| 1600h | 1st Receive PDO Mapping  | 00h       | 1st Receive PDO Mapping  |
|       |                          | 01h       | Mapped Object 001        |
|       |                          | ⋮         | ⋮                        |
|       |                          | 20h       | Mapped Object 032        |
| 1601h | 2nd Receive PDO Mapping  | 00h       | 2nd Receive PDO Mapping  |
|       |                          | 01h       | Mapped Object 001        |
|       |                          | ⋮         | ⋮                        |
|       |                          | 20h       | Mapped Object 032        |
| 1602h | 3rd Receive PDO Mapping  | 00h       | 3rd Receive PDO Mapping  |
|       |                          | 01h       | Mapped Object 001        |
|       |                          | ⋮         | ⋮                        |
|       |                          | 20h       | Mapped Object 032        |
| 1603h | 4th Receive PDO Mapping  | 00h       | 4th Receive PDO Mapping  |
| 1608h | 9th Receive PDO Mapping  | 00h       | 9th Receive PDO Mapping  |
|       |                          | 01h       | Mapped Object 001        |
|       |                          | ⋮         | ⋮                        |
|       |                          | 24h       | Mapped Object 036        |
| 1A00h | 1st Transmit PDO Mapping | 00h       | 1st Transmit PDO Mapping |
|       |                          | 01h       | Mapped Object 001        |
|       |                          | ⋮         | ⋮                        |
|       |                          | 20h       | Mapped Object 032        |
| 1A01h | 2nd Transmit PDO Mapping | 00h       | 2nd Transmit PDO Mapping |
|       |                          | 01h       | Mapped Object 001        |
|       |                          | ⋮         | ⋮                        |
|       |                          | 20h       | Mapped Object 032        |
| 1A02h | 3rd Transmit PDO Mapping | 00h       | 3rd Transmit PDO Mapping |
| 1A03h | 4th Transmit PDO Mapping | 00h       | 4th Transmit PDO Mapping |
| 1A08h | 9th Transmit PDO Mapping | 00h       | 9th Transmit PDO Mapping |
|       |                          | 01h       | Mapped Object 001        |
|       |                          | ⋮         | ⋮                        |
|       |                          | 24h       | Mapped Object 036        |

## 2.4 Sync Manager Communication Objects

| Index | Object name (Index)             | Sub Index | Object name (Sub Index)         |
|-------|---------------------------------|-----------|---------------------------------|
| 1C00h | Sync Manager Communication Type | 00h       | Sync Manager Communication Type |
|       |                                 | 01h       | Sync Manager 0                  |
|       |                                 | 02h       | Sync Manager 1                  |
|       |                                 | 03h       | Sync Manager 2                  |
|       |                                 | 04h       | Sync Manager 3                  |
| 1C12h | Sync Manager RxPDO assign       | 00h       | Sync Manager RxPDO assign       |
|       |                                 | 01h       | Assigned PDO 001                |
|       |                                 | 02h       | Assigned PDO 002                |
|       |                                 | 03h       | Assigned PDO 003                |
|       |                                 | 04h       | Assigned PDO 004                |
| 1C13h | Sync Manager TxPDO assign       | 00h       | Sync Manager TxPDO assign       |
|       |                                 | 01h       | Assigned PDO 001                |
|       |                                 | 02h       | Assigned PDO 002                |
|       |                                 | 03h       | Assigned PDO 003                |
|       |                                 | 04h       | Assigned PDO 004                |
| 1C32h | SM output parameter             | 00h       | SM output parameter             |
|       |                                 | 01h       | Synchronization Type            |
|       |                                 | 02h       | Cycle Time                      |
|       |                                 | 04h       | Synchronization Types supported |
|       |                                 | 05h       | Minimum Cycle Time              |
|       |                                 | 06h       | Calc and Copy Time              |
|       |                                 | 09h       | Delay Time                      |
|       |                                 | 0Bh       | SM-Event Missed                 |
|       |                                 | 0Ch       | Cycle Time Too Small            |
|       |                                 | 0Dh       | Shift Time Too Short            |
|       |                                 | 20h       | Sync Error                      |
| 1C33h | SM input parameter              | 00h       | SM input parameter              |
|       |                                 | 01h       | Synchronization Type            |
|       |                                 | 02h       | Cycle Time                      |
|       |                                 | 04h       | Synchronization Types supported |
|       |                                 | 05h       | Minimum Cycle Time              |
|       |                                 | 06h       | Calc and Copy Time              |
|       |                                 | 09h       | Delay Time                      |
|       |                                 | 0Bh       | SM-Event Missed                 |
|       |                                 | 0Ch       | Cycle Time Too Small            |
|       |                                 | 0Dh       | Shift Time Too Short            |
|       |                                 | 20h       | Sync Error                      |

## 2.5 Parameter Objects

| Index               | Object name (Index) | Sub Index | Object name (Sub Index) |
|---------------------|---------------------|-----------|-------------------------|
| 2001h<br>⋮<br>202Ch | PA01<br>⋮<br>PA44   | —         | —                       |
| 2081h<br>⋮<br>20DCh | PB01<br>⋮<br>PB92   | —         | —                       |
| 2101h<br>⋮<br>2160h | PC01<br>⋮<br>PC96   | —         | —                       |
| 2181h<br>⋮<br>21C8h | PD01<br>⋮<br>PD72   | —         | —                       |
| 2201h<br>⋮<br>2258h | PE01<br>⋮<br>PE88   | —         | —                       |
| 2281h<br>⋮<br>22E3h | PF01<br>⋮<br>PF99   | —         | —                       |
| 2401h<br>⋮<br>2448h | PL01<br>⋮<br>PL72   | —         | —                       |
| 2481h<br>⋮<br>24DAh | PT01<br>⋮<br>PT90   | —         | —                       |
| 2581h<br>⋮<br>25A2h | PN01<br>⋮<br>PN34   | —         | —                       |
| 2691h               | PV group parameters | 00h       | PV group parameters     |
|                     |                     | 01h       | PV01                    |
|                     |                     | ⋮         | ⋮                       |
|                     |                     | 28h       | PV40                    |

## 2.6 Alarm Objects

| Index               | Object name (Index)                                        | Sub Index | Object name (Sub Index)                  |
|---------------------|------------------------------------------------------------|-----------|------------------------------------------|
| 2A00h               | Alarm history newest                                       | 00h       | Alarm history newest                     |
|                     |                                                            | 01h       | Alarm No.                                |
|                     |                                                            | 02h       | Alarm time (Hour)                        |
|                     |                                                            | 03h       | Alarm2 No.                               |
|                     |                                                            | 04h       | Alarm time (second)                      |
|                     |                                                            | 05h       | Alarm time (nanosecond)                  |
|                     |                                                            | 06h       | Alarm time (time zone)                   |
|                     |                                                            | 07h       | Alarm time (summer time)                 |
| 2A01h<br>⋮<br>2A0Fh | Alarm history 1<br>⋮<br>Alarm history 15                   | —         | —                                        |
| 2A40h               | Clear alarm history                                        | 00h       | Clear alarm history                      |
| 2A41h               | Current alarm                                              | 00h       | Current alarm                            |
| 2A43h               | Point table error                                          | 00h       | Point table error                        |
|                     |                                                            | 01h       | Point table error No.                    |
|                     |                                                            | 02h       | Point table error factor                 |
| 2A44h               | Parameter error number                                     | 00h       | Parameter error number                   |
| 2A45h               | Parameter error list                                       | 00h       | Parameter error list                     |
|                     |                                                            | 01h       | Parameter error list 1                   |
|                     |                                                            | ⋮         | ⋮                                        |
|                     |                                                            | FEh       | Parameter error list 254                 |
| 2A46h               | Reset alarm                                                | 00h       | Reset alarm                              |
| 2A70h               | Drive recorder history newest                              | 00h       | Drive recorder history newest            |
|                     |                                                            | 01h       | Drive recorder history index             |
|                     |                                                            | 02h       | Drive recorder history alarm number      |
|                     |                                                            | 03h       | Drive recorder history power on time     |
|                     |                                                            | 04h       | Drive recorder history time (second)     |
|                     |                                                            | 05h       | Drive recorder history time (nanosecond) |
|                     |                                                            | 06h       | Drive recorder history (time zone)       |
|                     |                                                            | 07h       | Drive recorder history (summer time)     |
| 2A71h<br>⋮<br>2A7Fh | Drive recorder history 1<br>⋮<br>Drive recorder history 15 | —         | —                                        |

## 2.7 Monitor Objects

| Index | Object name (Index)                             | Sub Index | Object name (Sub Index)                         |
|-------|-------------------------------------------------|-----------|-------------------------------------------------|
| 2B01h | Cumulative feedback pulses                      | 00h       | Cumulative feedback pulses                      |
| 2B02h | Servo motor speed                               | 00h       | Servo motor speed                               |
| 2B03h | Droop pulses                                    | 00h       | Droop pulses                                    |
| 2B04h | Cumulative command pulses                       | 00h       | Cumulative command pulses                       |
| 2B05h | Command pulse frequency                         | 00h       | Command pulse frequency                         |
| 2B08h | Regenerative load ratio                         | 00h       | Regenerative load ratio                         |
| 2B09h | Effective load ratio                            | 00h       | Effective load ratio                            |
| 2B0Ah | Peak load ratio                                 | 00h       | Peak load ratio                                 |
| 2B0Bh | Instantaneous torque                            | 00h       | Instantaneous torque                            |
| 2B0Ch | Within one-revolution position                  | 00h       | Within one-revolution position                  |
| 2B0Dh | ABS counter                                     | 00h       | ABS counter                                     |
| 2B0Eh | Load inertia moment ratio                       | 00h       | Load inertia moment ratio                       |
| 2B0Fh | Bus voltage                                     | 00h       | Bus voltage                                     |
| 2B10h | Load-side cumulative feedback pulses            | 00h       | Load-side cumulative feedback pulses            |
| 2B11h | Load-side droop pulses                          | 00h       | Load-side droop pulses                          |
| 2B12h | Load-side encoder information 1 Z-phase counter | 00h       | Load-side encoder information 1 Z-phase counter |
| 2B13h | Load-side encoder information 2                 | 00h       | Load-side encoder information 2                 |
| 2B18h | Motor-side cumu. feedback pulses (before gear)  | 00h       | Motor-side cumu. feedback pulses (before gear)  |
| 2B19h | Electrical angle                                | 00h       | Electrical angle                                |
| 2B23h | Motor-side/load-side position deviation         | 00h       | Motor-side/load-side position deviation         |
| 2B24h | Motor-side/load-side speed deviation            | 00h       | Motor-side/load-side speed deviation            |
| 2B25h | Internal temperature of encoder                 | 00h       | Internal temperature of encoder                 |
| 2B26h | Settling time                                   | 00h       | Settling time                                   |
| 2B27h | Oscillation detection frequency                 | 00h       | Oscillation detection frequency                 |
| 2B28h | Number of tough drive operations                | 00h       | Number of tough drive operations                |
| 2B2Ah | Internal temperature of amplifier               | 00h       | Internal temperature of amplifier               |
| 2B2Dh | Unit power consumption                          | 00h       | Unit power consumption                          |
| 2B2Eh | Unit total power consumption                    | 00h       | Unit total power consumption                    |
| 2B2Fh | Current position                                | 00h       | Current position                                |
| 2B30h | Command position                                | 00h       | Command position                                |
| 2B31h | Remaining command distance                      | 00h       | Remaining command distance                      |
| 2B32h | Command No.                                     | 00h       | Command No.                                     |
| 2B3Fh | Error excessive alarm margin                    | 00h       | Error excessive alarm margin                    |
| 2B40h | Overload alarm margin                           | 00h       | Overload alarm margin                           |
| 2B41h | Overshoot amount                                | 00h       | Overshoot amount                                |
| 2B42h | Torque/thrust equivalent to disturbance         | 00h       | Torque/thrust equivalent to disturbance         |
| 2B43h | Unit power consumption 2                        | 00h       | Unit power consumption 2                        |



## 2.8 Manufacturer Specific Control Object

| Index | Object name (Index)                                          | Sub Index | Object name (Sub Index)                                      |
|-------|--------------------------------------------------------------|-----------|--------------------------------------------------------------|
| 2C02h | Drive recorder status                                        | 00h       | Drive recorder status                                        |
| 2C03h | Clear drive recorder history                                 | 00h       | Clear drive recorder history                                 |
| 2C11h | External output pin display                                  | 00h       | External output pin display                                  |
|       |                                                              | 01h       | External output pin display1                                 |
| 2C18h | Power ON cumulative time                                     | 00h       | Power ON cumulative time                                     |
| 2C19h | Number of inrush relay on/off times                          | 00h       | Number of inrush relay on/off times                          |
| 2C1Ah | Number of dynamic brake stop times                           | 00h       | Number of dynamic brake stop times                           |
| 2C20h | Machine diagnostic status                                    | 00h       | Machine diagnostic status                                    |
| 2C21h | Static friction torque at forward rotation                   | 00h       | Static friction torque at forward rotation                   |
| 2C22h | Dynamic friction torque at forward rotation (at rated speed) | 00h       | Dynamic friction torque at forward rotation (at rated speed) |
| 2C23h | Static friction torque at reverse rotation                   | 00h       | Static friction torque at reverse rotation                   |
| 2C24h | Dynamic friction torque at reverse rotation (at rated speed) | 00h       | Dynamic friction torque at reverse rotation (at rated speed) |
| 2C25h | Oscillation frequency during motor stop                      | 00h       | Oscillation frequency during motor stop                      |
| 2C26h | Vibration level during motor stop                            | 00h       | Vibration level during motor stop                            |
| 2C27h | Oscillation frequency during motor operating                 | 00h       | Oscillation frequency during motor operating                 |
| 2C28h | Vibration level during motor operating                       | 00h       | Vibration level during motor operating                       |
| 2C2Fh | Machine total distance                                       | 00h       | Machine total distance                                       |
| 2C31h | Friction estimate status                                     | 00h       | Friction estimate status                                     |
| 2C37h | Phase current                                                | 00h       | Phase current                                                |
|       |                                                              | 01h       | U phase current                                              |
|       |                                                              | 02h       | V phase current                                              |
|       |                                                              | 03h       | W phase current                                              |
| 2D00h | Supported Control DI                                         | 00h       | Supported Control DI                                         |
|       |                                                              | 01h       | Supported Control DI 1                                       |
|       |                                                              | 02h       | Supported Control DI 2                                       |
|       |                                                              | 03h       | Supported Control DI 3                                       |
|       |                                                              | 04h       | Supported Control DI 4                                       |
|       |                                                              | 05h       | Supported Control DI 5                                       |
|       |                                                              | 06h       | Supported Control DI 6                                       |
|       |                                                              | 07h       | Supported Control DI 7                                       |
|       |                                                              | 08h       | Supported Control DI 8                                       |
|       |                                                              | 09h       | Supported Control DI 9                                       |
|       |                                                              | 0Ah       | Supported Control DI 10                                      |
| 2D01h | Control DI 1                                                 | 00h       | Control DI 1                                                 |
| 2D02h | Control DI 2                                                 | 00h       | Control DI 2                                                 |
| 2D03h | Control DI 3                                                 | 00h       | Control DI 3                                                 |
| 2D04h | Control DI 4                                                 | 00h       | Control DI 4                                                 |
| 2D05h | Control DI 5                                                 | 00h       | Control DI 5                                                 |

| Index | Object name (Index)                        | Sub Index | Object name (Sub Index)                    |
|-------|--------------------------------------------|-----------|--------------------------------------------|
| 2D06h | Control DI 6                               | 00h       | Control DI 6                               |
| 2D07h | Control DI 7                               | 00h       | Control DI 7                               |
| 2D08h | Control DI 8                               | 00h       | Control DI 8                               |
| 2D09h | Control DI 9                               | 00h       | Control DI 9                               |
| 2D0Ah | Control DI 10                              | 00h       | Control DI 10                              |
| 2D10h | Supported Status DO                        | 00h       | Supported Status DO                        |
|       |                                            | 01h       | Supported Status DO 1                      |
|       |                                            | 02h       | Supported Status DO 2                      |
|       |                                            | 03h       | Supported Status DO 3                      |
|       |                                            | 04h       | Supported Status DO 4                      |
|       |                                            | 05h       | Supported Status DO 5                      |
|       |                                            | 06h       | Supported Status DO 6                      |
|       |                                            | 07h       | Supported Status DO 7                      |
|       |                                            | 08h       | Supported Status DO 8                      |
|       |                                            | 09h       | Supported Status DO 9                      |
|       |                                            | 0Ah       | Supported Status DO 10                     |
| 2D11h | Status DO 1                                | 00h       | Status DO 1                                |
| 2D12h | Status DO 2                                | 00h       | Status DO 2                                |
| 2D13h | Status DO 3                                | 00h       | Status DO 3                                |
| 2D14h | Status DO 4                                | 00h       | Status DO 4                                |
| 2D15h | Status DO 5                                | 00h       | Status DO 5                                |
| 2D16h | Status DO 6                                | 00h       | Status DO 6                                |
| 2D17h | Status DO 7                                | 00h       | Status DO 7                                |
| 2D18h | Status DO 8                                | 00h       | Status DO 8                                |
| 2D19h | Status DO 9                                | 00h       | Status DO 9                                |
| 2D1Ah | Status DO 10                               | 00h       | Status DO 10                               |
| 2D20h | Velocity limit value                       | 00h       | Velocity limit value                       |
| 2D28h | Motor rated speed                          | 00h       | Motor rated speed                          |
| 2D30h | Manufacturer Device Name 2                 | 00h       | Manufacturer Device Name 2                 |
| 2D33h | Serial Number 2                            | 00h       | Serial Number 2                            |
| 2D35h | Encoder status                             | 00h       | Encoder status                             |
|       |                                            | 01h       | Encoder status 1                           |
|       |                                            | 02h       | Encoder status 2                           |
| 2D36h | Scale cycle counter                        | 00h       | Scale cycle counter                        |
| 2D37h | Scale ABS counter                          | 00h       | Scale ABS counter                          |
| 2D38h | Scale measurement encoder resolution       | 00h       | Scale measurement encoder resolution       |
| 2D3Ch | Scale measurement encoder reception status | 00h       | Scale measurement encoder reception status |
| 2D46h | Servo motor serial number                  | 00h       | Servo motor serial number                  |

| Index | Object name (Index)         | Sub Index | Object name (Sub Index)     |
|-------|-----------------------------|-----------|-----------------------------|
| 2D48h | Motor data 2                | 00h       | Motor data 2                |
|       |                             | 01h       | Motor ID 1                  |
|       |                             | 02h       | Motor ID 2                  |
|       |                             | 03h       | Encoder ID 1                |
|       |                             | 04h       | Encoder ID 2                |
| 2D50h | One-touch tuning mode       | 00h       | One-touch tuning mode       |
| 2D51h | One-touch tuning status     | 00h       | One-touch tuning status     |
| 2D52h | One-touch tuning Stop       | 00h       | One-touch tuning Stop       |
| 2D53h | One-touch tuning Clear      | 00h       | One-touch tuning Clear      |
| 2D54h | One-touch tuning Error Code | 00h       | One-touch tuning Error Code |
| 2D5Fh | Software reset              | 00h       | Software reset              |
| 2DB0h | Speed override              | 00h       | Speed override              |

## 2.9 PDS Control Objects

| Index | Object name (Index)        | Sub Index | Object name (Sub Index)    |
|-------|----------------------------|-----------|----------------------------|
| 603Fh | Error code                 | 00h       | Error code                 |
| 6040h | Controlword                | 00h       | Controlword                |
| 6041h | Statusword                 | 00h       | Statusword                 |
| 605Ah | Quick stop option code     | 00h       | Quick stop option code     |
| 605Dh | Halt option code           | 00h       | Halt option code           |
| 6060h | Modes of operation         | 00h       | Modes of operation         |
| 6061h | Modes of operation display | 00h       | Modes of operation display |
| 6502h | Supported drive modes      | 00h       | Supported drive modes      |

## 2.10 Position Control Function Objects

| Index | Object name (Index)            | Sub Index | Object name (Sub Index)        |
|-------|--------------------------------|-----------|--------------------------------|
| 6062h | Position demand value          | 00h       | Position demand value          |
| 6063h | Position actual internal value | 00h       | Position actual internal value |
| 6064h | Position actual value          | 00h       | Position actual value          |
| 6065h | Following error window         | 00h       | Following error window         |
| 6066h | Following error time out       | 00h       | Following error time out       |
| 6067h | Position window                | 00h       | Position window                |
| 6068h | Position window time           | 00h       | Position window time           |
| 60F2h | Positioning option code        | 00h       | Positioning option code        |
| 60F4h | Following error actual value   | 00h       | Following error actual value   |
| 60FAh | Control effort                 | 00h       | Control effort                 |

## 2.11 Profile Velocity Mode Objects

| Index | Object name (Index)   | Sub Index | Object name (Sub Index) |
|-------|-----------------------|-----------|-------------------------|
| 606Bh | Velocity demand value | 00h       | Velocity demand value   |
| 606Ch | Velocity actual value | 00h       | Velocity actual value   |
| 606Dh | Velocity window       | 00h       | Velocity window         |

| Index | Object name (Index)     | Sub Index | Object name (Sub Index) |
|-------|-------------------------|-----------|-------------------------|
| 606Eh | Velocity window time    | 00h       | Velocity window time    |
| 606Fh | Velocity threshold      | 00h       | Velocity threshold      |
| 6070h | Velocity threshold time | 00h       | Velocity threshold time |
| 60FFh | Target velocity         | 00h       | Target velocity         |

## 2.12 Profile Torque Mode Objects

| Index | Object name (Index)              | Sub Index | Object name (Sub Index)                  |
|-------|----------------------------------|-----------|------------------------------------------|
| 2D6Dh | Positive/Negative torque limit 2 | 00h       | Positive/Negative torque limit 2 setting |
|       |                                  | 01h       | Positive/Negative torque limit 2 select  |
|       |                                  | 02h       | Positive torque limit value 2            |
|       |                                  | 03h       | Negative torque limit value 2            |
| 6071h | Target torque                    | 00h       | Target torque                            |
| 6072h | Max torque                       | 00h       | Max torque                               |
| 6073h | Max current                      | 00h       | Max current                              |
| 6074h | Torque demand value              | 00h       | Torque demand value                      |
| 6076h | Motor rated torque               | 00h       | Motor rated torque                       |
| 6077h | Torque actual value              | 00h       | Torque actual value                      |
| 6078h | Current actual value             | 00h       | Current actual value                     |
| 6087h | Torque slope                     | 00h       | Torque slope                             |
| 6088h | Torque profile type              | 00h       | Torque profile type                      |
| 60E0h | Positive torque limit value      | 00h       | Positive torque limit value              |
| 60E1h | Negative torque limit value      | 00h       | Negative torque limit value              |

## 2.13 Profile Position Mode Objects

| Index | Object name (Index)     | Sub Index | Object name (Sub Index)  |
|-------|-------------------------|-----------|--------------------------|
| 607Ah | Target position         | 00h       | Target position          |
| 607Bh | Position range limit    | 00h       | Position range limit     |
|       |                         | 01h       | Min position range limit |
|       |                         | 02h       | Max position range limit |
| 607Dh | Software position limit | 00h       | Software position limit  |
|       |                         | 01h       | Min position limit       |
|       |                         | 02h       | Max position limit       |
| 607Fh | Max profile velocity    | 00h       | Max profile velocity     |
| 6080h | Max motor speed         | 00h       | Max motor speed          |
| 6081h | Profile velocity        | 00h       | Profile velocity         |
| 6083h | Profile acceleration    | 00h       | Profile acceleration     |
| 6084h | Profile deceleration    | 00h       | Profile deceleration     |
| 6085h | Quick stop deceleration | 00h       | Quick stop deceleration  |
| 6086h | Motion profile type     | 00h       | Motion profile type      |
| 60C5h | Max acceleration        | 00h       | Max acceleration         |
| 60C6h | Max deceleration        | 00h       | Max deceleration         |

## 2.14 Homing Mode Objects

| Index | Object name (Index)      | Sub Index | Object name (Sub Index)        |
|-------|--------------------------|-----------|--------------------------------|
| 607Ch | Home offset              | 00h       | Home offset                    |
| 6098h | Homing method            | 00h       | Homing method                  |
| 6099h | Homing speeds            | 00h       | Homing speeds                  |
|       |                          | 01h       | Speed during search for switch |
|       |                          | 02h       | Speed during search for zero   |
| 609Ah | Homing acceleration      | 00h       | Homing acceleration            |
| 60E3h | Supported homing methods | 00h       | Supported homing methods       |
|       |                          | 01h       | 1st supported homing method    |
|       |                          | ⋮         | ⋮                              |
|       |                          | 2Fh       | 47th supported homing method   |

## 2.15 Point table Mode Objects

| Index | Object name (Index) | Sub Index | Object name (Sub Index) |
|-------|---------------------|-----------|-------------------------|
| 2801h | Point table 001     | 00h       | Point table 001         |
|       |                     | 01h       | Point data              |
|       |                     | 02h       | Speed                   |
|       |                     | 03h       | Acceleration            |
|       |                     | 04h       | Deceleration            |
|       |                     | 05h       | Dwell                   |
|       |                     | 06h       | Auxiliary               |
|       |                     | 07h       | M code                  |
| 2802h | Point table 002     | —         | —                       |
| ⋮     | ⋮                   |           |                         |
| 28FFh | Point table 255     |           |                         |
| 2D60h | Target point table  | 00h       | Target point table      |
| 2D68h | Point demand value  | 00h       | Point demand value      |
| 2D69h | Point actual value  | 00h       | Point actual value      |
| 2D6Ah | M code actual value | 00h       | M code actual value     |

## 2.16 Factor Group Objects

| Index | Object name (Index)         | Sub Index | Object name (Sub Index)     |
|-------|-----------------------------|-----------|-----------------------------|
| 607Eh | Polarity                    | 00h       | Polarity                    |
| 608Fh | Position encoder resolution | 00h       | Position encoder resolution |
|       |                             | 01h       | Encoder increments          |
|       |                             | 02h       | Motor revolutions           |
| 6091h | Gear ratio                  | 00h       | Gear ratio                  |
|       |                             | 01h       | Motor revolutions           |
|       |                             | 02h       | Shaft revolutions           |
| 6092h | Feed constant               | 00h       | Feed constant               |
|       |                             | 01h       | Feed                        |
|       |                             | 02h       | Shaft revolutions           |
| 60A8h | SI unit position            | 00h       | SI unit position            |
| 60A9h | SI unit velocity            | 00h       | SI unit velocity            |
| 60AAh | SI unit acceleration        | 00h       | SI unit acceleration        |

## 2.17 Touch Probe Function Objects

| Index | Object name (Index)                     | Sub Index | Object name (Sub Index)                 |
|-------|-----------------------------------------|-----------|-----------------------------------------|
| 2DE8h | Touch probe function 2                  | 00h       | Touch probe function 2                  |
| 2DE9h | Touch probe status 2                    | 00h       | Touch probe status 2                    |
| 2DEAh | Touch probe 3 positive edge             | 00h       | Touch probe 3 positive edge             |
| 2DEBh | Touch probe 3 negative edge             | 00h       | Touch probe 3 negative edge             |
| 2DF8h | Touch probe time stamp 3 positive value | 00h       | Touch probe time stamp 3 positive value |
| 2DF9h | Touch probe time stamp 3 negative value | 00h       | Touch probe time stamp 3 negative value |
| 60B8h | Touch probe function                    | 00h       | Touch probe function                    |
| 60B9h | Touch probe status                      | 00h       | Touch probe status                      |
| 60BAh | Touch probe 1 positive edge             | 00h       | Touch probe 1 positive edge             |
| 60BBh | Touch probe 1 negative edge             | 00h       | Touch probe 1 negative edge             |
| 60BCh | Touch probe 2 positive edge             | 00h       | Touch probe 2 positive edge             |
| 60BDh | Touch probe 2 negative edge             | 00h       | Touch probe 2 negative edge             |
| 60D1h | Touch probe time stamp 1 positive value | 00h       | Touch probe time stamp 1 positive value |
| 60D2h | Touch probe time stamp 1 negative value | 00h       | Touch probe time stamp 1 negative value |
| 60D3h | Touch probe time stamp 2 positive value | 00h       | Touch probe time stamp 2 positive value |
| 60D4h | Touch probe time stamp 2 negative value | 00h       | Touch probe time stamp 2 negative value |

## 2.18 Optional application FE Objects

| Index | Object name (Index) | Sub Index | Object name (Sub Index) |
|-------|---------------------|-----------|-------------------------|
| 60FDh | Digital inputs      | 00h       | Digital inputs          |
| 60FEh | Digital outputs     | 00h       | Digital outputs         |
|       |                     | 01h       | Physical outputs        |
|       |                     | 02h       | Bitmask                 |

## 2.19 Cyclic Synchronous Position Mode Objects

| Index | Object name (Index) | Sub Index | Object name (Sub Index) |
|-------|---------------------|-----------|-------------------------|
| 60B0h | Position offset     | 00h       | Position offset         |
| 60B1h | Velocity offset     | 00h       | Velocity offset         |
| 60B2h | Torque offset       | 00h       | Torque offset           |

## 2.20 SEMI Device Profile Objects

| Index | Object name (Index)             | Sub Index | Object name (Sub Index)         |
|-------|---------------------------------|-----------|---------------------------------|
| 100Bh | Manufacturer Bootloader Version | 00h       | Manufacturer Bootloader Version |
| 10F8h | Timestamp Object                | 00h       | Timestamp Object                |
| F000h | Semiconductor Device Profile    | 00h       | Semiconductor Device Profile    |
|       |                                 | 01h       | Index Distance                  |
|       |                                 | 02h       | Maximum Number of Modules       |
| F010h | Module Profile List             | 00h       | Module Profile List             |
|       |                                 | 01h       | Profile Number                  |
|       |                                 | 02h       | Profile Number                  |
|       |                                 | 03h       | Profile Number                  |
| F380h | Active Exception Status         | 00h       | Active Exception Status         |
| F381h | Active Device Warning Details   | 00h       | Active Device Warning Details   |
|       |                                 | 01h       | Active Device Warning Details   |
|       |                                 | 02h       | Active Device Warning Details   |
|       |                                 | 03h       | Active Device Warning Details   |
| F383h | Active Device Error Details     | 00h       | Active Device Error Details     |
|       |                                 | 01h       | Active Device Error Details     |
|       |                                 | 02h       | Active Device Error Details     |
|       |                                 | 03h       | Active Device Error Details     |
| F390h | Latched Exception Status        | 00h       | Latched Exception Status        |
| F391h | Latched Device Warning Details  | 00h       | Latched Device Warning Details  |
|       |                                 | 01h       | Latched Device Warning Details  |
|       |                                 | 02h       | Latched Device Warning Details  |
|       |                                 | 03h       | Latched Device Warning Details  |
| F393h | Latched Device Error Details    | 00h       | Latched Device Error Details    |
|       |                                 | 01h       | Latched Device Error Details    |
|       |                                 | 02h       | Latched Device Error Details    |
|       |                                 | 03h       | Latched Device Error Details    |



| Index | Object name (Index)                          | Sub Index | Object name (Sub Index)                      |
|-------|----------------------------------------------|-----------|----------------------------------------------|
| F3A1h | Device Warning Mask                          | 00h       | Device Warning Mask                          |
|       |                                              | 01h       | Device Warning Mask                          |
|       |                                              | 02h       | Device Warning Mask                          |
|       |                                              | 03h       | Device Warning Mask                          |
| F3A3h | Device Error Mask                            | 00h       | Device Error Mask                            |
|       |                                              | 01h       | Device Error Mask                            |
|       |                                              | 02h       | Device Error Mask                            |
|       |                                              | 03h       | Device Error Mask                            |
| F6F0h | Input Latch Local Timestamp                  | 00h       | Input Latch Local Timestamp                  |
|       |                                              | 01h       | Input Latch Local Timestamp                  |
|       |                                              | 02h       | Input Latch Local Timestamp                  |
|       |                                              | 03h       | Input Latch Local Timestamp                  |
| F9F0h | Manufacturer Serial Number                   | 00h       | Manufacturer Serial Number                   |
| F9F1h | CDP Functional Generation Number             | 00h       | CDP Functional Generation Number             |
|       |                                              | 01h       | CDP Functional Generation Number             |
|       |                                              | 02h       | CDP Functional Generation Number             |
|       |                                              | 03h       | CDP Functional Generation Number             |
| F9F2h | SDP Functional Generation Number             | 00h       | SDP Functional Generation Number             |
|       |                                              | 01h       | SDP Functional Generation Number             |
|       |                                              | 02h       | SDP Functional Generation Number             |
|       |                                              | 03h       | SDP Functional Generation Number             |
| F9F3h | Vendor Name                                  | 00h       | Vendor Name                                  |
| F9F4h | Semiconductor SDP Device Name                | 00h       | Semiconductor SDP Device Name                |
|       |                                              | 01h       | Semiconductor SDP Device Name                |
|       |                                              | 02h       | Semiconductor SDP Device Name                |
|       |                                              | 03h       | Semiconductor SDP Device Name                |
| F9F5h | Output Identifier                            | 00h       | Output Identifier                            |
|       |                                              | 01h       | Output Identifier                            |
|       |                                              | 02h       | Output Identifier                            |
|       |                                              | 03h       | Output Identifier                            |
| F9F6h | Time since power on                          | 00h       | Time since power on                          |
| F9F7h | Total time powered                           | 00h       | Total time powered                           |
| F9F8h | Firmware Update Functional Generation Number | 00h       | Firmware Update Functional Generation Number |
| FBF0h | Device Reset Command                         | 00h       | Device Reset Command                         |
|       |                                              | 01h       | Command                                      |
|       |                                              | 02h       | Status                                       |
|       |                                              | 03h       | Response                                     |
| FBF1h | Exception Reset Command                      | 00h       | Exception Reset Command                      |
|       |                                              | 01h       | Command                                      |
|       |                                              | 02h       | Status                                       |
|       |                                              | 03h       | Response                                     |

| Index | Object name (Index)        | Sub Index | Object name (Sub Index)    |
|-------|----------------------------|-----------|----------------------------|
| FBF2h | Store Parameters Command   | 00h       | Store Parameters Command   |
|       |                            | 01h       | Command                    |
|       |                            | 02h       | Status                     |
|       |                            | 03h       | Response                   |
| FBF3h | Calculate Checksum Command | 00h       | Calculate Checksum Command |
|       |                            | 01h       | Command                    |
|       |                            | 02h       | Status                     |
|       |                            | 03h       | Response                   |
| FBF4h | Load Parameters Command    | 00h       | Load Parameters Command    |
|       |                            | 01h       | Command                    |
|       |                            | 02h       | Status                     |
|       |                            | 03h       | Response                   |

## 2.21 Safety Over EtherCAT Objects

| Index | Object name (Index)          | Sub Index | Object name (Sub Index)        |
|-------|------------------------------|-----------|--------------------------------|
| E600h | FSoE Slave Frame elements    | 00h       | FSoE Slave Frame elements      |
|       |                              | 01h       | FSoE Slave Command             |
|       |                              | 02h       | FSoE Slave ConnectionID        |
|       |                              | 03h       | FSoE Slave CRC_0               |
|       |                              | 04h       | FSoE Slave CRC_1               |
| E700h | FSoE Master Frame elements   | 00h       | FSoE Master Frame elements     |
|       |                              | 01h       | FSoE Master Command            |
|       |                              | 02h       | FSoE Master ConnectionID       |
|       |                              | 03h       | FSoE Master CRC_0              |
|       |                              | 04h       | FSoE Master CRC_1              |
| E901h | FSoE Communication Parameter | 00h       | FSoE Communication Parameter   |
|       |                              | 01h       | Version                        |
|       |                              | 02h       | FSoE Slave Address             |
|       |                              | 03h       | ConnectionID                   |
|       |                              | 04h       | Watchdog Time                  |
|       |                              | 06h       | Connection Type                |
|       |                              | 07h       | Communication Parameter Length |
|       |                              | 08h       | Application Parameter Length   |
| F601h | SafeInputs                   | 00h       | SafeInputs                     |
|       |                              | 01h       | STO Status                     |
|       |                              | 02h       | SSM Status                     |
|       |                              | 04h       | Error                          |
|       |                              | 05h       | SS1 Status                     |
|       |                              | 07h       | SDIP Status                    |
|       |                              | 08h       | SDIN Status                    |
|       |                              | 09h       | SLS1 Status                    |
|       |                              | 0Ah       | SLS2 Status                    |
|       |                              | 0Bh       | SLS3 Status                    |
|       |                              | 0Ch       | SLS4 Status                    |
|       |                              | 0Dh       | SBC Status                     |
|       |                              | 0Fh       | SLT1 Status                    |
|       |                              | 10h       | SLT2 Status                    |
|       |                              | 11h       | SLT3 Status                    |
|       |                              | 12h       | SLT4 Status                    |
| F701h | SafeOutputs                  | 00h       | SafeOutputs                    |
|       |                              | 01h       | STO Command                    |
|       |                              | 02h       | SS1 Command                    |
|       |                              | 04h       | SDIP Command                   |
|       |                              | 05h       | SDIN Command                   |
|       |                              | 06h       | Error Ack                      |
|       |                              | 07h       | SLS1 Command                   |
|       |                              | 08h       | SLS2 Command                   |
|       |                              | 09h       | SLS3 Command                   |
|       |                              | 0Ah       | SLS4 Command                   |
|       |                              | 0Ch       | SLT1 Command                   |
|       |                              | 0Dh       | SLT2 Command                   |
|       |                              | 0Eh       | SLT3 Command                   |
|       |                              | 0Fh       | SLT4 Command                   |
| F980h | Device FSoE Slave Address    | 00h       | Device FSoE Slave Address      |
|       |                              | 01h       | FSoE Address                   |

## 3 General Objects

### 3.1 [Device Type (Obj. 1000h)]

#### [Device Type (Obj. 1000h: 00h)]

| Data Type                  | Access | Mapping    | Default   | Range                | Units | Save       | Parameter |
|----------------------------|--------|------------|-----------|----------------------|-------|------------|-----------|
| U32                        | RO     | Impossible | 00020192h | 00020192h<br>(fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |           |                      |       |            |           |
| ECT                        | —      | —          | —         | —                    | —     | —          | —         |
| A4                         | —      | —          | —         | —                    | —     | —          | —         |

#### Description

Indicates supported profile information. The value "00020192h" which indicates a servo drive defined with the CiA 402 profile is returned.

| Bit      | Symbol | Description         |
|----------|--------|---------------------|
| 0 to 15  | —      | 0192h (CiA 402)     |
| 16 to 31 | —      | 0002h (Servo drive) |

### 3.2 [Error Register (Obj. 1001h)]

#### [Error Register (Obj. 1001h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|------------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | 00h to 01h | —     | Impossible | —         |
| Supported firmware version |        |            |         |            |       |            |           |
| ECT                        | —      | —          | —       | —          | —     | —          | —         |
| A4                         | —      | —          | —       | —          | —     | —          | —         |

#### Description

Whether an alarm has occurred is returned.

| Bit    | Symbol | Description                            |
|--------|--------|----------------------------------------|
| 0      | —      | Always on while an alarm is occurring. |
| 1 to 7 | —      | —                                      |

## 3.3 [Manufacturer Device Name (Obj. 1008h)]

### [Manufacturer Device Name (Obj. 1008h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| VISIBLE STRING             | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| A4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The model name of the servo amplifier is returned.

**Ex.**

If MR-JET-10G-N1 is used, the model name is returned as shown below.

"MR-JET-G-N1 " (Empty spaces after the model name are filled with blank spaces to make the name 32 characters long.)

## 3.4 [Manufacturer Hardware Version (Obj. 1009h)]

### [Manufacturer Hardware Version (Obj. 1009h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| VISIBLE STRING             | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| A4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The hardware version of the servo amplifier is returned.

## 3.5 [Manufacturer Software Version (Obj. 100Ah)]

### [Manufacturer Software Version (Obj. 100Ah: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| VISIBLE STRING             | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| A4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The firmware version of the servo amplifier is returned.

## 3.6 [Store parameters (Obj. 1010h)]

### [Store parameters (Obj. 1010h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| A4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

| Default | Range       | Description               |
|---------|-------------|---------------------------|
| 01h     | 01h (fixed) | Sub Index 1 is supported. |

### [Save all parameters (Obj. 1010h: 01h)]

| Data Type                  | Access | Mapping    | Default   | Range                  | Units | Save       | Parameter |
|----------------------------|--------|------------|-----------|------------------------|-------|------------|-----------|
| U32                        | RW     | Impossible | 00000001h | 00000000h to FFFFFFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |           |                        |       |            |           |
| ECT                        | —      | —          | —         | —                      | —     | —          | —         |
| A4                         | —      | —          | —         | —                      | —     | —          | —         |

#### Description

Writing "save" (= 65766173h) saves all parameters (servo parameters, network parameters, and point table data) that can be stored in the non-volatile memory.

The descriptions of the read values are as follows.

| Bit    | Symbol | Description                                                                                                                                                                |
|--------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0      | —      | 0: The parameters cannot be saved with the command. (The parameters are being saved.)<br>1: The parameters can be saved with the command. (No parameters are being saved.) |
| 1      | —      | 0: The parameters are not automatically saved.                                                                                                                             |
| 2 to 7 | —      | —                                                                                                                                                                          |

## 3.7 [Restore default parameters (Obj. 1011h)]

### [Restore default parameters (Obj. 1011h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| A4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

| Default | Range       | Description               |
|---------|-------------|---------------------------|
| 01h     | 01h (fixed) | Sub Index 1 is supported. |

### [Restore all default parameters (Obj. 1011h: 01h)]

| Data Type                  | Access | Mapping    | Default   | Range                  | Units | Save       | Parameter |
|----------------------------|--------|------------|-----------|------------------------|-------|------------|-----------|
| U32                        | RW     | Impossible | 00000001h | 00000000h to FFFFFFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |           |                        |       |            |           |
| ECT                        | —      | —          | —         | —                      | —     | —          | —         |
| A4                         | —      | —          | —         | —                      | —     | —          | —         |

#### Description

All parameters (servo parameters, network parameters, and point table data) that can be stored in the non-volatile memory can be reset to the factory setting. To reset the servo parameters and network parameters to the factory setting, write "64616F6Ch" (= reverse order of ASCII code of "load") in this object, and cycle the power or reset the software.

The read value is always "00000001h" (initializing values).

## 3.8 [Identity Object (Obj. 1018h)]

### [Identity Object (Obj. 1018h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 04h     | 04h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| A4                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

### [Vendor ID (Obj. 1018h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range                | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------------|-------|------------|-----------|
| U32                        | RO     | Impossible | —       | 00000A1Eh<br>(fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |                      |       |            |           |
| ECT                        | —      | —          | —       | —                    | —     | —          | —         |
| A4                         | —      | —          | —       | —                    | —     | —          | —         |

#### Description

The vendor ID of the servo amplifier is returned.

### [Product Code (Obj. 1018h: 02h)]

| Data Type                  | Access | Mapping    | Default | Range                     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|---------------------------|-------|------------|-----------|
| U32                        | RO     | Impossible | —       | 00000000h to<br>FFFFFFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                           |       |            |           |
| ECT                        | —      | —          | —       | —                         | —     | —          | —         |
| A4                         | —      | —          | —       | —                         | —     | —          | —         |

#### Description

The product code of the selected servo amplifier is returned. The following shows the product code for each model.

- MR-JET-\_G-N1: 00000305h
- MR-JET-\_G\_-HSN1: 0000030Fh



## [Revision Number (Obj. 1018h: 03h)]

| Data Type                  | Access | Mapping    | Default | Range                  | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|------------------------|-------|------------|-----------|
| U32                        | RO     | Impossible | —       | 00000000h to FFFFFFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                        |       |            |           |
| ECT                        | —      | —          | —       | —                      | —     | —          | —         |
| A4                         | —      | —          | —       | —                      | —     | —          | —         |

### Description

The revision number of the selected servo amplifier is returned.

## [Serial Number (Obj. 1018h: 04h)]

| Data Type                  | Access | Mapping    | Default | Range                  | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|------------------------|-------|------------|-----------|
| U32                        | RO     | Impossible | —       | 00000000h to FFFFFFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                        |       |            |           |
| ECT                        | —      | —          | —       | —                      | —     | —          | —         |
| A4                         | —      | —          | —       | —                      | —     | —          | —         |

### Description

The serial number of the selected servo amplifier is returned. The value "00000000h" is returned.

## 3.9 [Error Settings (Obj. 10F1h)]

### [Error Settings (Obj. 10F1h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 02h     | 02h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| A4                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

### [Local Error Reaction (Obj. 10F1h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range             | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------|-------|------------|-----------|
| U32                        | RW     | Impossible | —       | 00000000h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |                   |       |            |           |
| ECT                        | —      | —          | —       | —                 | —     | —          | —         |
| A4                         | —      | —          | —       | —                 | —     | —          | —         |

#### Description

Reserved

### [Sync Error Counter Limit (Obj. 10F1h: 02h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter  |
|----------------------------|--------|------------|---------|------------|-------|------------|------------|
| U16                        | RW     | Impossible | 9       | 0 to 32767 | —     | Impossible | [Pr. PN18] |
| Supported firmware version |        |            |         |            |       |            |            |
| ECT                        | —      | —          | —       | —          | —     | —          | —          |
| A4                         | —      | —          | —       | —          | —     | —          | —          |

#### Description

Set the threshold until [AL. 086.1 Network receive data error (Network communication error 1)] is detected.

When "0" is set, [AL. 086.1] does not occur.

If PDO data is not updated with Sync0, the internal error counter will be added by "3".

When the PDO data is updated successfully, the internal error counter is subtracted by "1".

Refer to the following for the example of the counter.

| Receive (SM2) Event                           | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0            | 1 | 0 | 1 |
|-----------------------------------------------|---|---|---|---|---|---|---|--------------|---|---|---|
| Internal Error Counter<br>(Setting value = 9) | 0 | 3 | 2 | 5 | 4 | 7 | 6 | 9<br>(error) | 9 | 9 | 9 |

If detection of [AL. 086.1] is disabled, the servo motor cannot be stopped at occurrence of a communication error. The larger the setting value, the longer it takes to stop the servo motor when there is a communication error. Be careful when changing the set value as there is a danger of collision.

## 3.10 [Version number (Obj. 67FEh)]

### [Version number (Obj. 67FEh: 00h)]

| Data Type | Access | Mapping    | Default   | Range                | Units | Save       | Parameter |
|-----------|--------|------------|-----------|----------------------|-------|------------|-----------|
| U32       | RO     | Impossible | 00040100h | 00040100h<br>(fixed) | —     | Impossible | —         |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| A4                         | — | — | — | — | — | — | — |

### Description

The version number of the supported CiA 402 profile is returned.

| Bit      | Symbol | Description           |
|----------|--------|-----------------------|
| 0 to 7   | —      | Sub version No. (0)   |
| 8 to 15  | —      | Minor version No. (1) |
| 16 to 23 | —      | Major version No. (4) |
| 24 to 31 | —      | Reserved (0)          |

## 3.11 [Detected Module List (Obj. F050h)]

### [Detected Module List (Obj. F050h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | 21h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| D8                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

### [Detected Module List Position 1 (Obj. F050h: 01h)] - [Detected Module List Position 97 (Obj. F050h: 61h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U32                        | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D8                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The supported "Module ID" is returned. Refer to the following for details.

| Sub Index  | Details        |
|------------|----------------|
| 01h        | CiA 402 ID     |
| 02h        | Parameter ID   |
| 03h        | Point table ID |
| 04h to 20h | Unassigned     |
| 21h        | FSoE ID *1     |

\*1 When the safety communication function is disabled, "00000000h" is returned.

# 4 PDO Mapping Objects

## 4.1 [1st Receive PDO Mapping (Obj. 1600h)]

### [1st Receive PDO Mapping (Obj. 1600h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter   |
|----------------------------|--------|------------|---------|------------|-------|------------|-------------|
| U8                         | RW     | Impossible | —       | 00h to 20h | —     | Impossible | PDO mapping |
| Supported firmware version |        |            |         |            |       |            |             |
| ECT                        | —      | —          | —       | —          | —     | —          | —           |
| A4                         | —      | —          | —       | —          | —     | —          | —           |

4

#### Description

Indicates the total number of objects included in PDO. To set a value in an object of Sub Index 1 or later, use the following procedure.

1. Write "00h" in the object.
2. Write values in objects of Sub Index 1 or later.
3. Write the total number of objects in which values have been written in step 2 in this object.

## [Mapped Object 001 (Obj. 1600h: 01h)] - [Mapped Object 032 (Obj. 1600h: 20h)]

| Data Type                         | Access | Mapping    | Default | Range                  | Units | Save       | Parameter   |
|-----------------------------------|--------|------------|---------|------------------------|-------|------------|-------------|
| U32                               | RW     | Impossible | —       | 00000000h to FFFFFFFFh | —     | Impossible | PDO mapping |
| <b>Supported firmware version</b> |        |            |         |                        |       |            |             |
| ECT                               | —      | —          | —       | —                      | —     | —          | —           |
| A4                                | —      | —          | —       | —                      | —     | —          | —           |

### Description

Set the object to be mapped to RPDO.

Some controllers may have restrictions on settings, such as PDO mapping arrangement in units of two bytes. Refer to the manual for the controller being used.

To adjust the PDO mapping arrangement, set the values of the Index and Sub Index of the object respectively to "0000h" and "00h" as free space.

| Index | Sub | Name                    | Default   |
|-------|-----|-------------------------|-----------|
| 1600h | 00h | 1st Receive PDO Mapping | 0Ah       |
|       | 01h | Mapped Object 001       | 60600008h |
|       | 02h | Mapped Object 002       | 00000008h |
|       | 03h | Mapped Object 003       | 60400010h |
|       | 04h | Mapped Object 004       | 2D010010h |
|       | 05h | Mapped Object 005       | 2D020010h |
|       | 06h | Mapped Object 006       | 2D030010h |
|       | 07h | Mapped Object 007       | 607A0020h |
|       | 08h | Mapped Object 008       | 60FF0020h |
|       | 09h | Mapped Object 009       | 2D200020h |
|       | 0Ah | Mapped Object 010       | 60710010h |
|       | 0Bh | Mapped Object 011       | 00000000h |
|       | 0Ch | Mapped Object 012       | 00000000h |
|       | 0Dh | Mapped Object 013       | 00000000h |
|       | 0Eh | Mapped Object 014       | 00000000h |
|       | 0Fh | Mapped Object 015       | 00000000h |
|       | 10h | Mapped Object 016       | 00000000h |
|       | 11h | Mapped Object 017       | 00000000h |
|       | 12h | Mapped Object 018       | 00000000h |
|       | 13h | Mapped Object 019       | 00000000h |
|       | 14h | Mapped Object 020       | 00000000h |
|       | 15h | Mapped Object 021       | 00000010h |
|       | 16h | Mapped Object 022       | 00000000h |
|       | 17h | Mapped Object 023       | 00000000h |
|       | 18h | Mapped Object 024       | 00000000h |
|       | 19h | Mapped Object 025       | 00000000h |
|       | 1Ah | Mapped Object 026       | 00000010h |
|       | 1Bh | Mapped Object 027       | 00000000h |
|       | 1Ch | Mapped Object 028       | 00000000h |
|       | 1Dh | Mapped Object 029       | 00000000h |
|       | 1Eh | Mapped Object 030       | 00000000h |
|       | 1Fh | Mapped Object 031       | 00000000h |
|       | 20h | Mapped Object 032       | 00000000h |

# 4.2 [2nd Receive PDO Mapping (Obj. 1601h)]

## [2nd Receive PDO Mapping (Obj. 1601h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter   |
|----------------------------|--------|------------|---------|------------|-------|------------|-------------|
| U8                         | RW     | Impossible | —       | 00h to 20h | —     | Impossible | PDO mapping |
| Supported firmware version |        |            |         |            |       |            |             |
| ECT                        | —      | —          | —       | —          | —     | —          | —           |
| A4                         | —      | —          | —       | —          | —     | —          | —           |

### Description

Indicates the total number of objects included in PDO. To set a value in an object of Sub Index 1 or later, write "00h" in the object. After setting the value for objects of Sub Index 1 or later, write the total number of objects mapped to PDO.

## [Mapped Object 001 (Obj. 1601h: 01h)] - [Mapped Object 032 (Obj. 1601h: 20h)]

| Data Type                         | Access | Mapping    | Default | Range                  | Units | Save       | Parameter   |
|-----------------------------------|--------|------------|---------|------------------------|-------|------------|-------------|
| U32                               | RW     | Impossible | —       | 00000000h to FFFFFFFFh | —     | Impossible | PDO mapping |
| <b>Supported firmware version</b> |        |            |         |                        |       |            |             |
| ECT                               | —      | —          | —       | —                      | —     | —          | —           |
| A4                                | —      | —          | —       | —                      | —     | —          | —           |

### Description

Set the object to be mapped to RPDO.

Some controllers may have restrictions on settings, such as PDO mapping arrangement in units of two bytes. Refer to the manual for the controller being used.

To adjust the PDO mapping arrangement, set the values of the Index and Sub Index of the object respectively to "0000h" and "00h" as free space.

| Index | Sub | Name                    | Default   |
|-------|-----|-------------------------|-----------|
| 1601h | 00h | 2nd Receive PDO Mapping | 0Eh       |
|       | 01h | Mapped Object 001       | 60600008h |
|       | 02h | Mapped Object 002       | 00000008h |
|       | 03h | Mapped Object 003       | 60400010h |
|       | 04h | Mapped Object 004       | 2D010010h |
|       | 05h | Mapped Object 005       | 2D020010h |
|       | 06h | Mapped Object 006       | 2D030010h |
|       | 07h | Mapped Object 007       | 607A0020h |
|       | 08h | Mapped Object 008       | 60FF0020h |
|       | 09h | Mapped Object 009       | 2D200020h |
|       | 0Ah | Mapped Object 010       | 60710010h |
|       | 0Bh | Mapped Object 011       | 60810020h |
|       | 0Ch | Mapped Object 012       | 60830020h |
|       | 0Dh | Mapped Object 013       | 60840020h |
|       | 0Eh | Mapped Object 014       | 60870020h |
|       | 0Fh | Mapped Object 015       | 00000000h |
|       | 10h | Mapped Object 016       | 00000000h |
|       | 11h | Mapped Object 017       | 00000000h |
|       | 12h | Mapped Object 018       | 00000000h |
|       | 13h | Mapped Object 019       | 00000000h |
|       | 14h | Mapped Object 020       | 00000000h |
|       | 15h | Mapped Object 021       | 00000000h |
|       | 16h | Mapped Object 022       | 00000000h |
|       | 17h | Mapped Object 023       | 00000000h |
|       | 18h | Mapped Object 024       | 00000000h |
|       | 19h | Mapped Object 025       | 00000000h |
|       | 1Ah | Mapped Object 026       | 00000000h |
|       | 1Bh | Mapped Object 027       | 00000000h |
|       | 1Ch | Mapped Object 028       | 00000000h |
|       | 1Dh | Mapped Object 029       | 00000000h |
|       | 1Eh | Mapped Object 030       | 00000000h |
|       | 1Fh | Mapped Object 031       | 00000000h |
|       | 20h | Mapped Object 032       | 00000000h |



# 4.3 [3rd Receive PDO Mapping (Obj. 1602h)]

## [3rd Receive PDO Mapping (Obj. 1602h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter   |
|----------------------------|--------|------------|---------|------------|-------|------------|-------------|
| U8                         | RW     | Impossible | —       | 00h to 20h | —     | Impossible | PDO mapping |
| Supported firmware version |        |            |         |            |       |            |             |
| ECT                        | —      | —          | —       | —          | —     | —          | —           |
| A4                         | —      | —          | —       | —          | —     | —          | —           |

### Description

Indicates the total number of objects included in PDO. To set a value in an object of Sub Index 1 or later, write "00h" in the object. After setting the value for objects of Sub Index 1 or later, write the total number of objects mapped to PDO.

## [Mapped Object 001 (Obj. 1602h: 01h)] - [Mapped Object 032 (Obj. 1602h: 20h)]

| Data Type                         | Access | Mapping    | Default | Range                  | Units | Save       | Parameter   |
|-----------------------------------|--------|------------|---------|------------------------|-------|------------|-------------|
| U32                               | RW     | Impossible | —       | 00000000h to FFFFFFFFh | —     | Impossible | PDO mapping |
| <b>Supported firmware version</b> |        |            |         |                        |       |            |             |
| ECT                               | —      | —          | —       | —                      | —     | —          | —           |
| A4                                | —      | —          | —       | —                      | —     | —          | —           |

### Description

Set the object to be mapped to RPDO.

Some controllers may have restrictions on settings, such as PDO mapping arrangement in units of two bytes. Refer to the manual for the controller being used.

To adjust the PDO mapping arrangement, set the values of the Index and Sub Index of the object respectively to "0000h" and "00h" as free space.

| Index | Sub | Name                    | Default   |
|-------|-----|-------------------------|-----------|
| 1602h | 00h | 3rd Receive PDO Mapping | 0Ah       |
|       | 01h | Mapped Object 001       | 60600008h |
|       | 02h | Mapped Object 002       | 00000008h |
|       | 03h | Mapped Object 003       | 60400010h |
|       | 04h | Mapped Object 004       | 2D010010h |
|       | 05h | Mapped Object 005       | 2D020010h |
|       | 06h | Mapped Object 006       | 2D030010h |
|       | 07h | Mapped Object 007       | 2D600010h |
|       | 08h | Mapped Object 008       | 60810020h |
|       | 09h | Mapped Object 009       | 60830020h |
|       | 0Ah | Mapped Object 010       | 60840020h |
|       | 0Bh | Mapped Object 011       | 00000000h |
|       | 0Ch | Mapped Object 012       | 00000000h |
|       | 0Dh | Mapped Object 013       | 00000000h |
|       | 0Eh | Mapped Object 014       | 00000000h |
|       | 0Fh | Mapped Object 015       | 00000000h |
|       | 10h | Mapped Object 016       | 00000000h |
|       | 11h | Mapped Object 017       | 00000000h |
|       | 12h | Mapped Object 018       | 00000000h |
|       | 13h | Mapped Object 019       | 00000000h |
|       | 14h | Mapped Object 020       | 00000000h |
|       | 15h | Mapped Object 021       | 00000000h |
|       | 16h | Mapped Object 022       | 00000000h |
|       | 17h | Mapped Object 023       | 00000000h |
|       | 18h | Mapped Object 024       | 00000000h |
|       | 19h | Mapped Object 025       | 00000000h |
|       | 1Ah | Mapped Object 026       | 00000000h |
|       | 1Bh | Mapped Object 027       | 00000000h |
|       | 1Ch | Mapped Object 028       | 00000000h |
|       | 1Dh | Mapped Object 029       | 00000000h |
|       | 1Eh | Mapped Object 030       | 00000000h |
|       | 1Fh | Mapped Object 031       | 00000000h |
|       | 20h | Mapped Object 032       | 00000000h |

# 4.4 [4th Receive PDO Mapping (Obj. 1603h)]

## [4th Receive PDO Mapping (Obj. 1603h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter   |
|----------------------------|--------|------------|---------|------------|-------|------------|-------------|
| U8                         | RW     | Impossible | —       | 00h to 20h | —     | Impossible | PDO mapping |
| Supported firmware version |        |            |         |            |       |            |             |
| ECT                        | —      | —          | —       | —          | —     | —          | —           |
| A4                         | —      | —          | —       | —          | —     | —          | —           |

### Description

Indicates the total number of objects included in PDO. To set a value in an object of Sub Index 1 or later, write "00h" in the object. After setting the value for objects of Sub Index 1 or later, write the total number of objects mapped to PDO.

## 4.5 [9th Receive PDO Mapping (Obj. 1608h)]

### [9th Receive PDO Mapping (Obj. 1608h: 00h)]

| Data Type                  | Access | Mapping    | Default     | Range | Units | Save       | Parameter   |
|----------------------------|--------|------------|-------------|-------|-------|------------|-------------|
| U8                         | RO     | Impossible | 24h (fixed) | —     | —     | Impossible | PDO mapping |
| Supported firmware version |        |            |             |       |       |            |             |
| ECT                        | —      | —          | —           | —     | —     | —          | —           |
| E4                         | —      | —          | —           | —     | —     | —          | —           |

#### Description

Indicates the total number of objects included in PDO.

### [Mapped Object 001 (Obj. 1608h: 01h)] - [Mapped Object 036 (Obj. 1608h: 24h)]

| Data Type                  | Access | Mapping    | Default | Range                  | Units | Save       | Parameter   |
|----------------------------|--------|------------|---------|------------------------|-------|------------|-------------|
| U32                        | RO     | Impossible | —       | 00000000h to FFFFFFFFh | —     | Impossible | PDO mapping |
| Supported firmware version |        |            |         |                        |       |            |             |
| ECT                        | —      | —          | —       | —                      | —     | —          | —           |
| E4                         | —      | —          | —       | —                      | —     | —          | —           |

#### Description

The objects mapped to RPDO are returned.

Some controllers may have restrictions on settings, such as PDO mapping arrangement in units of two bytes. Refer to the manual for the controller being used.

To adjust the PDO mapping arrangement, set the values of the Index and Sub Index of the object respectively to "0000h" and "00h" as free space.

| Index | Sub | Name                    | Default   |
|-------|-----|-------------------------|-----------|
| 1608h | 00h | 9th Receive PDO Mapping | 24h       |
|       | 01h | Mapped Object 001       | E7000108h |
|       | 02h | Mapped Object 002       | F7010101h |
|       | 03h | Mapped Object 003       | F7010201h |
|       | 04h | Mapped Object 004       | F7010301h |
|       | 05h | Mapped Object 005       | 00000001h |
|       | 06h | Mapped Object 006       | 00000001h |
|       | 07h | Mapped Object 007       | F7010401h |
|       | 08h | Mapped Object 008       | F7010501h |
|       | 09h | Mapped Object 009       | F7010601h |
|       | 0Ah | Mapped Object 010       | F7010701h |
|       | 0Bh | Mapped Object 011       | F7010801h |
|       | 0Ch | Mapped Object 012       | F7010901h |
|       | 0Dh | Mapped Object 013       | F7010A01h |
|       | 0Eh | Mapped Object 014       | F7010B01h |
|       | 0Fh | Mapped Object 015       | F7010C01h |
|       | 10h | Mapped Object 016       | F7010D01h |
|       | 11h | Mapped Object 017       | F7010E01h |
|       | 12h | Mapped Object 018       | E7000310h |
|       | 13h | Mapped Object 019       | F7010F01h |
|       | 14h | Mapped Object 020       | 00000001h |
|       | 15h | Mapped Object 021       | 00000001h |
|       | 16h | Mapped Object 022       | 00000001h |
|       | 17h | Mapped Object 023       | 00000001h |
|       | 18h | Mapped Object 024       | 00000001h |
|       | 19h | Mapped Object 025       | 00000001h |
|       | 1Ah | Mapped Object 026       | 00000001h |
|       | 1Bh | Mapped Object 027       | 00000001h |
|       | 1Ch | Mapped Object 028       | 00000001h |
|       | 1Dh | Mapped Object 029       | 00000001h |
|       | 1Eh | Mapped Object 030       | 00000001h |
|       | 1Fh | Mapped Object 031       | 00000001h |
|       | 20h | Mapped Object 032       | 00000001h |
|       | 21h | Mapped Object 033       | 00000001h |
|       | 22h | Mapped Object 034       | 00000001h |
|       | 23h | Mapped Object 035       | E7000410h |
|       | 24h | Mapped Object 036       | E7000210h |

## 4.6 [1st Transmit PDO Mapping (Obj. 1A00h)]

### [1st Transmit PDO Mapping (Obj. 1A00h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter   |
|----------------------------|--------|------------|---------|------------|-------|------------|-------------|
| U8                         | RW     | Impossible | —       | 00h to 20h | —     | Impossible | PDO mapping |
| Supported firmware version |        |            |         |            |       |            |             |
| ECT                        | —      | —          | —       | —          | —     | —          | —           |
| A4                         | —      | —          | —       | —          | —     | —          | —           |

#### Description

The total number of objects included in PDO is returned. To set a value in an object of Sub Index 1 or later, write "00h" in the object. After setting the value for objects of Sub Index 1 or later, write the total number of objects mapped to PDO.

## [Mapped Object 001 (Obj. 1A00h: 01h)] - [Mapped Object 032 (Obj. 1A00h: 20h)]

| Data Type                         | Access | Mapping    | Default | Range                  | Units | Save       | Parameter   |
|-----------------------------------|--------|------------|---------|------------------------|-------|------------|-------------|
| U32                               | RW     | Impossible | —       | 00000000h to FFFFFFFFh | —     | Impossible | PDO mapping |
| <b>Supported firmware version</b> |        |            |         |                        |       |            |             |
| ECT                               | —      | —          | —       | —                      | —     | —          | —           |
| A4                                | —      | —          | —       | —                      | —     | —          | —           |

### Description

Set the object to be mapped to TPDO.

Some controllers may have restrictions on settings, such as PDO mapping arrangement in units of two bytes. Refer to the manual for the controller being used.

To adjust the PDO mapping arrangement, set the values of the Index and Sub Index of the object respectively to "0000h" and "00h" as free space.

| Index | Sub | Name                     | Default   |
|-------|-----|--------------------------|-----------|
| 1A00h | 00h | 1st Transmit PDO Mapping | 0Ah       |
|       | 01h | Mapped Object 001        | 60610008h |
|       | 02h | Mapped Object 002        | 00000008h |
|       | 03h | Mapped Object 003        | 60410010h |
|       | 04h | Mapped Object 004        | 2D110010h |
|       | 05h | Mapped Object 005        | 2D120010h |
|       | 06h | Mapped Object 006        | 2D130010h |
|       | 07h | Mapped Object 007        | 60640020h |
|       | 08h | Mapped Object 008        | 606C0020h |
|       | 09h | Mapped Object 009        | 60F40020h |
|       | 0Ah | Mapped Object 010        | 60770010h |
|       | 0Bh | Mapped Object 011        | 00000000h |
|       | 0Ch | Mapped Object 012        | 00000000h |
|       | 0Dh | Mapped Object 013        | 00000000h |
|       | 0Eh | Mapped Object 014        | 00000000h |
|       | 0Fh | Mapped Object 015        | 00000000h |
|       | 10h | Mapped Object 016        | 00000000h |
|       | 11h | Mapped Object 017        | 00000000h |
|       | 12h | Mapped Object 018        | 00000000h |
|       | 13h | Mapped Object 019        | 00000000h |
|       | 14h | Mapped Object 020        | 00000000h |
|       | 15h | Mapped Object 021        | 00000000h |
|       | 16h | Mapped Object 022        | 00000000h |
|       | 17h | Mapped Object 023        | 00000000h |
|       | 18h | Mapped Object 024        | 00000000h |
|       | 19h | Mapped Object 025        | 00000000h |
|       | 1Ah | Mapped Object 026        | 00000000h |
|       | 1Bh | Mapped Object 027        | 00000000h |
|       | 1Ch | Mapped Object 028        | 00000000h |
|       | 1Dh | Mapped Object 029        | 00000000h |
|       | 1Eh | Mapped Object 030        | 00000000h |
|       | 1Fh | Mapped Object 031        | 00000000h |
|       | 20h | Mapped Object 032        | 00000000h |

## 4.7 [2nd Transmit PDO Mapping (Obj. 1A01h)]

### [2nd Transmit PDO Mapping (Obj. 1A01h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter   |
|----------------------------|--------|------------|---------|------------|-------|------------|-------------|
| U8                         | RW     | Impossible | —       | 00h to 20h | —     | Impossible | PDO mapping |
| Supported firmware version |        |            |         |            |       |            |             |
| ECT                        | —      | —          | —       | —          | —     | —          | —           |
| A4                         | —      | —          | —       | —          | —     | —          | —           |

#### Description

The total number of objects included in PDO is returned. To set a value in an object of Sub Index 1 or later, write "00h" in the object. After setting the value for objects of Sub Index 1 or later, write the total number of objects mapped to PDO.



## [Mapped Object 001 (Obj. 1A01h: 01h)] - [Mapped Object 032 (Obj. 1A01h: 20h)]

| Data Type                         | Access | Mapping    | Default | Range                  | Units | Save       | Parameter   |
|-----------------------------------|--------|------------|---------|------------------------|-------|------------|-------------|
| U32                               | RW     | Impossible | —       | 00000000h to FFFFFFFFh | —     | Impossible | PDO mapping |
| <b>Supported firmware version</b> |        |            |         |                        |       |            |             |
| ECT                               | —      | —          | —       | —                      | —     | —          | —           |
| A4                                | —      | —          | —       | —                      | —     | —          | —           |

### Description

Set the object to be mapped to TPDO.

Some controllers may have restrictions on settings, such as PDO mapping arrangement in units of two bytes. Refer to the manual for the controller being used.

To adjust the PDO mapping arrangement, set the values of the Index and Sub Index of the object respectively to "0000h" and "00h" as free space.

| Index | Sub | Name                     | Default   |
|-------|-----|--------------------------|-----------|
| 1A01h | 00h | 2nd Transmit PDO Mapping | 10h       |
|       | 01h | Mapped Object 001        | 60610008h |
|       | 02h | Mapped Object 002        | 00000008h |
|       | 03h | Mapped Object 003        | 60410010h |
|       | 04h | Mapped Object 004        | 2D110010h |
|       | 05h | Mapped Object 005        | 2D120010h |
|       | 06h | Mapped Object 006        | 2D130010h |
|       | 07h | Mapped Object 007        | 2D150010h |
|       | 08h | Mapped Object 008        | 2D170010h |
|       | 09h | Mapped Object 009        | 60640020h |
|       | 0Ah | Mapped Object 010        | 606C0020h |
|       | 0Bh | Mapped Object 011        | 60F40020h |
|       | 0Ch | Mapped Object 012        | 60770010h |
|       | 0Dh | Mapped Object 013        | 2D6A0008h |
|       | 0Eh | Mapped Object 014        | 00000008h |
|       | 0Fh | Mapped Object 015        | 2D680010h |
|       | 10h | Mapped Object 016        | 2D690010h |
|       | 11h | Mapped Object 017        | 00000000h |
|       | 12h | Mapped Object 018        | 00000000h |
|       | 13h | Mapped Object 019        | 00000000h |
|       | 14h | Mapped Object 020        | 00000000h |
|       | 15h | Mapped Object 021        | 00000000h |
|       | 16h | Mapped Object 022        | 00000000h |
|       | 17h | Mapped Object 023        | 00000000h |
|       | 18h | Mapped Object 024        | 00000000h |
|       | 19h | Mapped Object 025        | 00000000h |
|       | 1Ah | Mapped Object 026        | 00000000h |
|       | 1Bh | Mapped Object 027        | 00000000h |
|       | 1Ch | Mapped Object 028        | 00000000h |
|       | 1Dh | Mapped Object 029        | 00000000h |
|       | 1Eh | Mapped Object 030        | 00000000h |
|       | 1Fh | Mapped Object 031        | 00000000h |
|       | 20h | Mapped Object 032        | 00000000h |

## 4.8 [3rd Transmit PDO Mapping (Obj. 1A02h)]

### [3rd Transmit PDO Mapping (Obj. 1A02h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter   |
|----------------------------|--------|------------|---------|------------|-------|------------|-------------|
| U8                         | RW     | Impossible | —       | 00h to 20h | —     | Impossible | PDO mapping |
| Supported firmware version |        |            |         |            |       |            |             |
| ECT                        | —      | —          | —       | —          | —     | —          | —           |
| A4                         | —      | —          | —       | —          | —     | —          | —           |

#### Description

The total number of objects included in PDO is returned. To set a value in an object of Sub Index 1 or later, write "00h" in the object. After setting the value for objects of Sub Index 1 or later, write the total number of objects mapped to PDO.

## 4.9 [4th Transmit PDO Mapping (Obj. 1A03h)]

### [4th Transmit PDO Mapping (Obj. 1A03h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter   |
|----------------------------|--------|------------|---------|------------|-------|------------|-------------|
| U8                         | RW     | Impossible | —       | 00h to 20h | —     | Impossible | PDO mapping |
| Supported firmware version |        |            |         |            |       |            |             |
| ECT                        | —      | —          | —       | —          | —     | —          | —           |
| A4                         | —      | —          | —       | —          | —     | —          | —           |

#### Description

The total number of objects included in PDO is returned. To set a value in an object of Sub Index 1 or later, write "00h" in the object. After setting the value for objects of Sub Index 1 or later, write the total number of objects mapped to PDO.

## 4.10 [9th Transmit PDO Mapping (Obj. 1A08h)]

### [9th Transmit PDO Mapping (Obj. 1A08h: 00h)]

| Data Type                  | Access | Mapping    | Default     | Range | Units | Save       | Parameter   |
|----------------------------|--------|------------|-------------|-------|-------|------------|-------------|
| U8                         | RO     | Impossible | 24h (fixed) | —     | —     | Impossible | PDO mapping |
| Supported firmware version |        |            |             |       |       |            |             |
| ECT                        | —      | —          | —           | —     | —     | —          | —           |
| E4                         | —      | —          | —           | —     | —     | —          | —           |

#### Description

Indicates the total number of objects included in PDO.

### [Mapped Object 001 (Obj. 1A08h: 01h)] - [Mapped Object 036 (Obj. 1A08h: 24h)]

| Data Type                  | Access | Mapping    | Default | Range                  | Units | Save       | Parameter   |
|----------------------------|--------|------------|---------|------------------------|-------|------------|-------------|
| U32                        | RO     | Impossible | —       | 00000000h to FFFFFFFFh | —     | Impossible | PDO mapping |
| Supported firmware version |        |            |         |                        |       |            |             |
| ECT                        | —      | —          | —       | —                      | —     | —          | —           |
| E4                         | —      | —          | —       | —                      | —     | —          | —           |

#### Description

The objects mapped to TPDO are returned.

Some controllers may have restrictions on settings, such as PDO mapping arrangement in units of two bytes. Refer to the manual for the controller being used.

To adjust the PDO mapping arrangement, set the values of the Index and Sub Index of the object respectively to "0000h" and "00h" as free space.

| Index | Sub | Name                     | Default   |
|-------|-----|--------------------------|-----------|
| 1A08h | 00h | 9th Transmit PDO Mapping | 24h       |
|       | 01h | Mapped Object 001        | E6000108h |
|       | 02h | Mapped Object 002        | F6010101h |
|       | 03h | Mapped Object 003        | F6010201h |
|       | 04h | Mapped Object 004        | 00000001h |
|       | 05h | Mapped Object 005        | F6010301h |
|       | 06h | Mapped Object 006        | 00000001h |
|       | 07h | Mapped Object 007        | 00000001h |
|       | 08h | Mapped Object 008        | 00000001h |
|       | 09h | Mapped Object 009        | F6010401h |
|       | 0Ah | Mapped Object 010        | F6010501h |
|       | 0Bh | Mapped Object 011        | F6010601h |
|       | 0Ch | Mapped Object 012        | F6010701h |
|       | 0Dh | Mapped Object 013        | F6010801h |
|       | 0Eh | Mapped Object 014        | F6010901h |
|       | 0Fh | Mapped Object 015        | F6010A01h |
|       | 10h | Mapped Object 016        | F6010B01h |
|       | 11h | Mapped Object 017        | F6010C01h |
|       | 12h | Mapped Object 018        | E6000310h |
|       | 13h | Mapped Object 019        | F6010D01h |
|       | 14h | Mapped Object 020        | F6010E01h |
|       | 15h | Mapped Object 021        | F6010F01h |
|       | 16h | Mapped Object 022        | F6011001h |
|       | 17h | Mapped Object 023        | F6011101h |
|       | 18h | Mapped Object 024        | F6011201h |
|       | 19h | Mapped Object 025        | 00000001h |
|       | 1Ah | Mapped Object 026        | 00000001h |
|       | 1Bh | Mapped Object 027        | 00000001h |
|       | 1Ch | Mapped Object 028        | 00000001h |
|       | 1Dh | Mapped Object 029        | 00000001h |
|       | 1Eh | Mapped Object 030        | 00000001h |
|       | 1Fh | Mapped Object 031        | 00000001h |
|       | 20h | Mapped Object 032        | 00000001h |
|       | 21h | Mapped Object 033        | 00000001h |
|       | 22h | Mapped Object 034        | 00000001h |
|       | 23h | Mapped Object 035        | E6000410h |
|       | 24h | Mapped Object 036        | E6000210h |

# 5 Sync Manager Communication Objects

## 5.1 [Sync Manager Communication Type (Obj. 1C00h)]

### [Sync Manager Communication Type (Obj. 1C00h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 04h     | 04h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| A4                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The total number of Sub Indexes (= 4) is returned.

### [Sync Manager 0 (Obj. 1C00h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 01h     | 01h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| A4                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

This means Mailbox Write (from the master station to the slave station).

### [Sync Manager 1 (Obj. 1C00h: 02h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 02h     | 02h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| A4                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

This means Mailbox Read (from the slave station to the master station).

## [Sync Manager 2 (Obj. 1C00h: 03h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 03h     | 03h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| A4                         | —      | —          | —       | —           | —     | —          | —         |

### Description

This means Process Data Write (Outputs) (from the master station to the slave station).

## [Sync Manager 3 (Obj. 1C00h: 04h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 04h     | 04h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| A4                         | —      | —          | —       | —           | —     | —          | —         |

### Description

This means Process Data Read (Inputs) (from the slave station to the master station).

## 5.2 [Sync Manager RxPDO assign (Obj. 1C12h)]

### [Sync Manager RxPDO assign (Obj. 1C12h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|------------|-------|------------|-----------|
| U8                         | RW     | Impossible | 01h     | 00h to 04h | —     | Impossible | —         |
| Supported firmware version |        |            |         |            |       |            |           |
| ECT                        | —      | —          | —       | —          | —     | —          | —         |
| A4                         | —      | —          | —       | —          | —     | —          | —         |

#### Description

The total number of Sub Indexes (= 4) is returned.

### [Assigned PDO 001 (Obj. 1C12h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | Impossible | 1600h   | 1600h to 1603h | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

#### Description

Set which mapping table to be assigned to Sync Manager 2 (RxPDO). Select an object from [1st Receive PDO Mapping (Obj. 1600h)] to [4th Receive PDO Mapping (Obj. 1603h)].

When using the safety communication function, assign [9th Receive PDO Mapping (Obj. 1608h)] to Sync Manager 2 (RxPDO) in addition to the above.

### [Assigned PDO 002 (Obj. 1C12h: 02h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | Impossible | —       | 1600h to 1603h | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

#### Description

Set which mapping table to be assigned to Sync Manager 2 (RxPDO). Refer to the following for details.

☞ Page 69 [Assigned PDO 001 (Obj. 1C12h: 01h)]

## [Assigned PDO 003 (Obj. 1C12h: 03h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | Impossible | —       | 1600h to 1603h | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

Set which mapping table to be assigned to Sync Manager 2 (RxPDO). Refer to the following for details.

 Page 69 [Assigned PDO 001 (Obj. 1C12h: 01h)]

## [Assigned PDO 004 (Obj. 1C12h: 04h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | Impossible | —       | 1600h to 1603h | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

Set which mapping table to be assigned to Sync Manager 2 (RxPDO). Refer to the following for details.

 Page 69 [Assigned PDO 001 (Obj. 1C12h: 01h)]



## 5.3 [Sync Manager TxPDO assign (Obj. 1C13h)]

### [Sync Manager TxPDO assign (Obj. 1C13h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|------------|-------|------------|-----------|
| U8                         | RW     | Impossible | 01h     | 00h to 04h | —     | Impossible | —         |
| Supported firmware version |        |            |         |            |       |            |           |
| ECT                        | —      | —          | —       | —          | —     | —          | —         |
| A4                         | —      | —          | —       | —          | —     | —          | —         |

#### Description

The total number of Sub Indexes (= 4) is returned.

### [Assigned PDO 001 (Obj. 1C13h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | Impossible | 1A00h   | 1A00h to 1A03h | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

#### Description

Set which mapping table to be assigned to Sync Manager 3 (TxPDO). Select an object from [1st Transmit PDO Mapping (Obj. 1A00h)] to [4th Transmit PDO Mapping (Obj. 1A03h)].

When using the safety communication function, assign [9th Transmit PDO Mapping (Obj. 1A08h)] to Sync Manager 3 (TxPDO) in addition to the above.

### [Assigned PDO 002 (Obj. 1C13h: 02h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | Impossible | —       | 1A00h to 1A03h | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

#### Description

Set which mapping table to be assigned to Sync Manager 3 (TxPDO). Refer to the following for details.

☞ Page 71 [Assigned PDO 001 (Obj. 1C13h: 01h)]

## [Assigned PDO 003 (Obj. 1C13h: 03h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | Impossible | —       | 1A00h to 1A03h | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

Set which mapping table to be assigned to Sync Manager 3 (TxPDO). Refer to the following for details.

 Page 71 [Assigned PDO 001 (Obj. 1C13h: 01h)]

## [Assigned PDO 004 (Obj. 1C13h: 04h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | Impossible | —       | 1A00h to 1A03h | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

Set which mapping table to be assigned to Sync Manager 3 (TxPDO). Refer to the following for details.

 Page 71 [Assigned PDO 001 (Obj. 1C13h: 01h)]

## 5.4 [SM output parameter (Obj. 1C32h)]

### [SM output parameter (Obj. 1C32h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 20h     | 20h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| A4                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

### [Synchronization Type (Obj. 1C32h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | Impossible | —       | 0000h or 0002h | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

#### Description

Select synchronous mode or asynchronous mode.

00h: Free Run

01h: Synchronous (not supported)

02h: DC Sync0

03h: DC Sync1 (not supported)

This can be rewritten only in the Pre-Operational state.

If the setting value of [Obj. 1C33h: 01h] is changed, this object also changes to the same value as [Obj. 1C32h: 01h].

## [Cycle Time (Obj. 1C32h: 02h)]

| Data Type | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|-----------|--------|------------|---------|-------------------------|-------|------------|-----------|
| U32       | RW     | Impossible | 250000  | Refer to the following. | ns    | Impossible | —         |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| A4                         | — | — | — | — | — | — | — |

### Description

Select an RxPDO communication cycle.

125000: 0.125 ms

250000: 0.25 ms

500000: 0.5 ms

1000000: 1 ms

2000000: 2 ms

4000000: 4 ms

8000000: 8 ms

Rewriting during the Pre-Operational state can change the PDO communication cycle.

Only the communication cycles shown above can be set.

The communication cycles are limited depending on the servo amplifiers and the functions to be used. For details, refer to "Restrictions on the MR-JET-\_G\_" in the following manual.

 MR-JET-G-N1 User's Manual (Introduction)

## [Synchronization Types supported (Obj. 1C32h: 04h)]

| Data Type                         | Access | Mapping    | Default | Range         | Units | Save       | Parameter |
|-----------------------------------|--------|------------|---------|---------------|-------|------------|-----------|
| U16                               | RO     | Impossible | 0005h   | 0005h (fixed) | —     | Impossible | —         |
| <b>Supported firmware version</b> |        |            |         |               |       |            |           |
| ECT                               | —      | —          | —       | —             | —     | —          | —         |
| A4                                | —      | —          | —       | —             | —     | —          | —         |

### Description

Bit 0: FreeRun supported  
 Bit 1: Synchronous supported (not supported)  
 Bit 2 to Bit 4: DC Type supported  
 000 = No DC (not supported)  
 001 = DC Sync0  
 010 = DC Sync1 (not supported)  
 100 = Subordinated Application with fixed Sync0 (not supported)  
 Bit 5 to Bit 6: Shift settings  
 00 = No Output Shift supported  
 01 = Output Shift with local time (not supported)  
 10 = Output Shift with Sync1 (not supported)  
 Bit 7 to Bit 9: Reserved  
 Bit 10: Delay Time should be measured (not supported)  
 Bit 11: Delay Time is fix. (not supported)  
 Bit 12 to Bit 13: Reserved  
 Bit 14: Dynamic Cycle Times (not supported)  
 Bit 15: Reserved

## [Minimum Cycle Time (Obj. 1C32h: 05h)]

| Data Type                         | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|-----------------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U32                               | RO     | Impossible | —       | —     | ns    | Impossible | —         |
| <b>Supported firmware version</b> |        |            |         |       |       |            |           |
| ECT                               | —      | —          | —       | —     | —     | —          | —         |
| A4                                | —      | —          | —       | —     | —     | —          | —         |

### Description

The minimum communication cycle is returned.

| Servo amplifier | Minimum communication cycle |
|-----------------|-----------------------------|
| MR-JET-_G_-_N1  | 125000                      |

## [Calc and Copy Time (Obj. 1C32h: 06h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U32                        | RO     | Impossible | —       | —     | ns    | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| A4                         | —      | —          | —       | —     | —     | —          | —         |

### Description

The minimum value of the delay time from data receiving to outputting is returned. The received value varies depending on the setting of the communication cycle.

## [Delay Time (Obj. 1C32h: 09h)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------|-------|------------|-----------|
| U32                        | RO     | Impossible | 0       | 0 (fixed) | ns    | Impossible | —         |
| Supported firmware version |        |            |         |           |       |            |           |
| ECT                        | —      | —          | —       | —         | —     | —          | —         |
| A4                         | —      | —          | —       | —         | —     | —          | —         |

### Description

"0" is returned.

## [SM-Event Missed (Obj. 1C32h: 0Bh)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| D4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

For the synchronous mode (DC mode), the value of Sync Error Counter is returned. For the asynchronous mode (Free-run mode), "0" is returned.

## [Cycle Time Too Small (Obj. 1C32h: 0Ch)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------|-------|------------|-----------|
| U16                        | RO     | Impossible | 0       | 0 (fixed) | ns    | Impossible | —         |
| Supported firmware version |        |            |         |           |       |            |           |
| ECT                        | —      | —          | —       | —         | —     | —          | —         |
| A4                         | —      | —          | —       | —         | —     | —          | —         |

### Description

"0" is returned.

## [Shift Time Too Short (Obj. 1C32h: 0Dh)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| D4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

"0000h" is returned.

## [Sync Error (Obj. 1C32h: 20h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| BOOL                       | RO     | Impossible | 0       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |            |         |                         |       |            |           |
| ECT                        | —      | —          | —       | —                       | —     | —          | —         |
| D4                         | —      | —          | —       | —                       | —     | —          | —         |

### Description

The following information is returned.

0: no Synchronization Error or Sync Error not supported

1: Synchronization Error

## 5.5 [SM input parameter (Obj. 1C33h)]

### [SM input parameter (Obj. 1C33h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 20h     | 20h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| A4                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

### [Synchronization Type (Obj. 1C33h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | Impossible | —       | 0000h or 0002h | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

#### Description

Select synchronous mode or asynchronous mode.

00h: Free Run

01h: Synchronous (not supported)

02h: DC Sync0

03h: DC Sync1 (not supported)

This can be rewritten only in the Pre-Operational state.

If the setting value of [Obj. 1C32h: 01h] is changed, this object also changes to the same value as [Obj. 1C32h: 01h].



## [Cycle Time (Obj. 1C33h: 02h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| U32                        | RW     | Impossible | 250000  | Refer to the following. | ns    | Impossible | —         |
| Supported firmware version |        |            |         |                         |       |            |           |
| ECT                        | —      | —          | —       | —                       | —     | —          | —         |
| A4                         | —      | —          | —       | —                       | —     | —          | —         |

### Description

Select a TxPDO communication cycle.

125000: 0.125 ms

250000: 0.25 ms

500000: 0.5 ms

1000000: 1 ms

2000000: 2 ms

4000000: 4 ms

8000000: 8 ms

Rewriting during the Pre-Operational state can change the PDO communication cycle.

Only the communication cycles shown above can be set.

If the setting value of [Obj. 1C32h: 02h] is changed, this object also changes to the same value as [Obj. 1C32h: 01h].

The communication cycles are limited depending on the servo amplifiers and the functions to be used. For details, refer to "Restrictions on the MR-JET-\_G\_" in the following manual.

 MR-JET-G-N1 User's Manual (Introduction)

## [Synchronization Types supported (Obj. 1C33h: 04h)]

| Data Type                         | Access | Mapping    | Default | Range         | Units | Save       | Parameter |
|-----------------------------------|--------|------------|---------|---------------|-------|------------|-----------|
| U16                               | RO     | Impossible | 0005h   | 0005h (fixed) | —     | Impossible | —         |
| <b>Supported firmware version</b> |        |            |         |               |       |            |           |
| ECT                               | —      | —          | —       | —             | —     | —          | —         |
| A4                                | —      | —          | —       | —             | —     | —          | —         |

### Description

Bit 0: FreeRun supported  
 Bit 1: Synchronous supported (not supported)  
 Bit 2 to Bit 4: DC Type supported  
 000 = No DC (not supported)  
 001 = DC Sync0  
 010 = DC Sync1 (not supported)  
 100 = Subordinated Application with fixed Sync0 (not supported)  
 Bit 5 to Bit 6: Shift settings  
 00 = No Output Shift supported  
 01 = Output Shift with local time (not supported)  
 10 = Output Shift with Sync1 (not supported)  
 Bit 7 to Bit 9: Reserved  
 Bit 10: Delay Time should be measured (not supported)  
 Bit 11: Delay Time is fix. (not supported)  
 Bit 12 to Bit 13: Reserved  
 Bit 14: Dynamic Cycle Times (not supported)  
 Bit 15: Reserved

## [Minimum Cycle Time (Obj. 1C33h: 05h)]

| Data Type                         | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|-----------------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U32                               | RO     | Impossible | —       | —     | ns    | Impossible | —         |
| <b>Supported firmware version</b> |        |            |         |       |       |            |           |
| ECT                               | —      | —          | —       | —     | —     | —          | —         |
| A4                                | —      | —          | —       | —     | —     | —          | —         |

### Description

The minimum communication cycle is returned.

| Servo amplifier | Minimum communication cycle |
|-----------------|-----------------------------|
| MR-JET-_G_-_N1  | 125000                      |

## [Calc and Copy Time (Obj. 1C33h: 06h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U32                        | RO     | Impossible | —       | —     | ns    | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| A4                         | —      | —          | —       | —     | —     | —          | —         |

### Description

The minimum value of the delay time from data inputting to transmitting is returned. The received value varies depending on the setting of the communication cycle.

## [Delay Time (Obj. 1C33h: 09h)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------|-------|------------|-----------|
| U32                        | RO     | Impossible | 0       | 0 (fixed) | ns    | Impossible | —         |
| Supported firmware version |        |            |         |           |       |            |           |
| ECT                        | —      | —          | —       | —         | —     | —          | —         |
| A4                         | —      | —          | —       | —         | —     | —          | —         |

### Description

The delay time from Sync0 to input is returned. The received value varies depending on the setting of the communication cycle.

## [SM-Event Missed (Obj. 1C33h: 0Bh)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| D4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

For the synchronous mode (DC mode), the value of Sync Error Counter is returned. For the asynchronous mode (Free-run mode), "0" is returned.

## [Cycle Time Too Small (Obj. 1C33h: 0Ch)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------|-------|------------|-----------|
| U16                        | RO     | Impossible | 0       | 0 (fixed) | ns    | Impossible | —         |
| Supported firmware version |        |            |         |           |       |            |           |
| ECT                        | —      | —          | —       | —         | —     | —          | —         |
| A4                         | —      | —          | —       | —         | —     | —          | —         |

### Description

"0" is returned.

## [Shift Time Too Short (Obj. 1C33h: 0Dh)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| D4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

"0000h" is returned.

## [Sync Error (Obj. 1C33h: 20h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| BOOL                       | RO     | Impossible | 0       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |            |         |                         |       |            |           |
| ECT                        | —      | —          | —       | —                       | —     | —          | —         |
| D4                         | —      | —          | —       | —                       | —     | —          | —         |

### Description

The following information is returned.

0: no Synchronization Error or Sync Error not supported

1: Synchronization Error

# 6 Parameter Objects

The objects of Parameter Objects are structured as follows. Access servo parameters other than [PV group parameters] with Sub Index set to 00h.

| Data Type                  | Access | Mapping    | Default | Range | Units | Save     | Parameter |
|----------------------------|--------|------------|---------|-------|-------|----------|-----------|
| I32                        | RW     | Impossible | —       | —     | —     | Possible | *1        |
| Supported firmware version |        |            |         |       |       |          |           |
| ECT                        | —      | —          | —       | —     | —     | —        | —         |
| A4                         | —      | —          | —       | —     | —     | —        | —         |

\*1 Corresponds to servo parameters [Pr. PA \_\_ ] to [Pr. PN \_\_ ].

## 6.1 [PA01 (Obj. 2001h)] - [PA44 (Obj. 202Ch)]

The values of the basic setting servo parameters ([Pr. PA \_\_ ]) can be obtained and set.

## 6.2 [PB01 (Obj. 2081h)] - [PB92 (Obj. 20DCh)]

The values of the gain/filter setting servo parameters ([Pr. PB \_\_ ]) can be obtained and set.

## 6.3 [PC01 (Obj. 2101h)] - [PC96 (Obj. 2160h)]

The values of the extension setting servo parameters ([Pr. PC \_\_ ]) can be obtained and set.

## 6.4 [PD01 (Obj. 2181h)] - [PD72 (Obj. 21C8h)]

The values of the I/O setting servo parameters ([Pr. PD \_\_ ]) can be obtained and set.

## 6.5 [PE01 (Obj. 2201h)] - [PE88 (Obj. 2258h)]

The values of the extension setting 2 servo parameters ([Pr. PE \_\_ ]) can be obtained and set.

## 6.6 [PF01 (Obj. 2281h)] - [PF99 (Obj. 22E3h)]

The values of the extension setting 3 servo parameters ([Pr. PF \_\_ ]) can be obtained and set.

## 6.7 [PL01 (Obj. 2401h)] - [PL72 (Obj. 2448h)]

The values of the servo motor extension setting servo parameters ([Pr. PL \_\_ ]) can be obtained and set.

## 6.8 [PT01 (Obj. 2481h)] - [PT90 (Obj. 24DAh)]

The values of the positioning control servo parameters ([Pr. PT \_\_ ]) can be obtained and set.

## 6.9 [PN01 (Obj. 2581h)] - [PN34 (Obj. 25A2h)]

The values of the network setting servo parameters ([Pr. PN \_\_ ]) can be obtained and set.

## 6.10 [PV group parameters (Obj. 2691h)]

The values of the positioning extension setting servo parameters ([Pr. PV \_\_]) can be obtained and set. 01h to 28h of Sub Indexes correspond to [Pr. PV01] to [Pr. PV40].

### [PV group parameters (Obj. 2691h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 40      | 40 (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |            |       |            |           |
| ECT                        | —      | —          | —       | —          | —     | —          | —         |
| A4                         | —      | —          | —       | —          | —     | —          | —         |

#### Description

The total number of Sub Indexes (= 40) is returned.

### [PV01 (Obj. 2691h: 01h)] - [PV32 (Obj. 2691h: 20h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save     | Parameter               |
|----------------------------|--------|------------|---------|-------|-------|----------|-------------------------|
| I32                        | RW     | Impossible | —       | —     | —     | Possible | [Pr. PV01] - [Pr. PV32] |
| Supported firmware version |        |            |         |       |       |          |                         |
| ECT                        | —      | —          | —       | —     | —     | —        | —                       |
| A4                         | —      | —          | —       | —     | —     | —        | —                       |

#### Description

The values of [Pr. PV01] to [Pr. PV32] can be obtained and set.

### [PV33 (Obj. 2691h: 21h)] - [PV40 (Obj. 2691h: 28h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save     | Parameter               |
|----------------------------|--------|------------|---------|-------|-------|----------|-------------------------|
| I32                        | RW     | Impossible | —       | —     | —     | Possible | [Pr. PV33] - [Pr. PV40] |
| Supported firmware version |        |            |         |       |       |          |                         |
| ECT                        | —      | —          | —       | —     | —     | —        | —                       |
| D0                         | —      | —          | —       | —     | —     | —        | —                       |

#### Description

The values of [Pr. PV33] to [Pr. PV40] can be obtained and set.

# 7 Alarm Objects

## 7.1 [Alarm history newest (Obj. 2A00h)]

### [Alarm history newest (Obj. 2A00h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter     |
|----------------------------|--------|------------|---------|-----------|-------|------------|---------------|
| U8                         | RO     | Impossible | 7       | 7 (fixed) | —     | Impossible | Alarm history |
| Supported firmware version |        |            |         |           |       |            |               |
| ECT                        | —      | —          | —       | —         | —     | —          | —             |
| A4                         | —      | —          | —       | —         | —     | —          | —             |

#### Description

The total number of Sub Indexes (= 7) is returned.

### [Alarm No. (Obj. 2A00h: 01h)]

| Data Type                  | Access | Mapping    | Default   | Range                  | Units | Save       | Parameter     |
|----------------------------|--------|------------|-----------|------------------------|-------|------------|---------------|
| U32                        | RO     | Impossible | 00000000h | 00000000h to FFFFFFFFh | —     | Impossible | Alarm history |
| Supported firmware version |        |            |           |                        |       |            |               |
| ECT                        | —      | —          | —         | —                      | —     | —          | —             |
| A4                         | —      | —          | —         | —                      | —     | —          | —             |

#### Description

The number of the alarm that has occurred is returned. The description is as follows.

When there is no history, "00000000h" is returned.

Bit 0 to Bit 15: Alarm detail number

Bit 16 to Bit 31: Alarm number

For example, if [AL. 538.1] occurs, "05380001h" is returned.

### [Alarm time (Hour) (Obj. 2A00h: 02h)]

| Data Type                  | Access | Mapping    | Default   | Range                  | Units | Save       | Parameter     |
|----------------------------|--------|------------|-----------|------------------------|-------|------------|---------------|
| U32                        | RO     | Impossible | 00000000h | 00000000h to FFFFFFFFh | hour  | Impossible | Alarm history |
| Supported firmware version |        |            |           |                        |       |            |               |
| ECT                        | —      | —          | —         | —                      | —     | —          | —             |
| A4                         | —      | —          | —         | —                      | —     | —          | —             |

#### Description

The accumulated power-on time from time of factory shipment until an alarm occurrence is returned. When there is no history, "00000000h" is returned.

## [Alarm2 No. (Obj. 2A00h: 03h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter     |
|----------------------------|--------|------------|---------|----------------|-------|------------|---------------|
| U16                        | RO     | Impossible | 0000h   | 0000h to FFFFh | —     | Impossible | Alarm history |
| Supported firmware version |        |            |         |                |       |            |               |
| ECT                        | —      | —          | —       | —              | —     | —          | —             |
| A4                         | —      | —          | —       | —              | —     | —          | —             |

### Description

The value "0000h" is returned.

Bit 0 to Bit 7: Alarm detail number

Bit 8 to Bit 15: Alarm number

## [Alarm time (second) (Obj. 2A00h: 04h)]

| Data Type                  | Access | Mapping    | Default   | Range                  | Units  | Save       | Parameter     |
|----------------------------|--------|------------|-----------|------------------------|--------|------------|---------------|
| U32                        | RO     | Impossible | 00000000h | 00000000h to FFFFFFFFh | second | Impossible | Alarm history |
| Supported firmware version |        |            |           |                        |        |            |               |
| ECT                        | —      | —          | —         | —                      | —      | —          | —             |
| A4                         | —      | —          | —         | —                      | —      | —          | —             |

### Description

The alarm time is returned as a 32-bit integer (time passed from January 1, 1970, 0:00:00.000000000).

If time data cannot be obtained from the network, alarm occurrence time shows the cumulative power-on time from January 1, 1970, 0:00:00.000000000.

Use this object together with [Alarm time (nanosecond) (Obj. 2A00h: 05h)] according to the system.

## [Alarm time (nanosecond) (Obj. 2A00h: 05h)]

| Data Type                  | Access | Mapping    | Default   | Range                  | Units      | Save       | Parameter     |
|----------------------------|--------|------------|-----------|------------------------|------------|------------|---------------|
| U32                        | RO     | Impossible | 00000000h | 00000000h to FFFFFFFFh | nanosecond | Impossible | Alarm history |
| Supported firmware version |        |            |           |                        |            |            |               |
| ECT                        | —      | —          | —         | —                      | —          | —          | —             |
| A4                         | —      | —          | —         | —                      | —          | —          | —             |

### Description

The digits after the ones indicating a second in alarm time are returned as a 32-bit integer. A value is returned in units of nanoseconds, but only the values in milliseconds increase.

For example, if an alarm occurs on January 1, 2000, 12:00:00.001, "000F4240h (1000000)" will be returned.



## [Alarm time (time zone) (Obj. 2A00h: 06h)]

| Data Type | Access | Mapping    | Default   | Range                  | Units  | Save       | Parameter     |
|-----------|--------|------------|-----------|------------------------|--------|------------|---------------|
| I32       | RO     | Impossible | 00000000h | 80000000h to 7FFFFFFFh | minute | Impossible | Alarm history |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| A4                         | — | — | — | — | — | — | — |

### Description

The time zone at an alarm occurrence time is returned as a 32-bit integer.

If no setting exists, "80000000h" will be returned.

## [Alarm time (summer time) (Obj. 2A00h: 07h)]

| Data Type | Access | Mapping    | Default   | Range                  | Units  | Save       | Parameter     |
|-----------|--------|------------|-----------|------------------------|--------|------------|---------------|
| I32       | RO     | Impossible | 00000000h | 80000000h to 7FFFFFFFh | minute | Impossible | Alarm history |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| A4                         | — | — | — | — | — | — | — |

### Description

The daylight saving time at an alarm occurrence time is returned as a 32-bit integer.

If no setting exists, "80000000h" will be returned.

## 7.2 [Alarm history 1 (Obj. 2A01h)] - [Alarm history 15 (Obj. 2A0Fh)]

The second (2A01h) to 16th (2A0Fh) latest alarm information of the alarm history is returned. The description of each Sub Index is the same as that of [Alarm history newest (Obj. 2A00h)].

☞ Page 85 [Alarm history newest (Obj. 2A00h)]

## 7.3 [Clear alarm history (Obj. 2A40h)]

### [Clear alarm history (Obj. 2A40h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | Impossible | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

#### Description

Writing "1EA5h" clears the alarm history.

When the object is read, "0000h" is returned.

## 7.4 [Current alarm (Obj. 2A41h)]

### [Current alarm (Obj. 2A41h: 00h)]

| Data Type                  | Access | Mapping | Default   | Range                  | Units | Save       | Parameter |
|----------------------------|--------|---------|-----------|------------------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | 00000000h | 00000000h to FFFFFFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |           |                        |       |            |           |
| ECT                        | —      | —       | —         | —                      | —     | —          | —         |
| A4                         | —      | —       | —         | —                      | —     | —          | —         |

#### Description

The latest alarm that has occurred in the servo amplifier is returned. When no alarm has occurred, "00000000h" is returned.

Bit 0 to Bit 15: Alarm detail number

Bit 16 to Bit 31: Alarm number

For example, if [AL. 538.1] occurs, "05380001h" is returned.

## 7.5 [Point table error (Obj. 2A43h)]

### [Point table error (Obj. 2A43h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter   |
|----------------------------|--------|------------|---------|-----------|-------|------------|-------------|
| U8                         | RO     | Impossible | 2       | 2 (fixed) | —     | Impossible | Point table |
| Supported firmware version |        |            |         |           |       |            |             |
| ECT                        | —      | —          | —       | —         | —     | —          | —           |
| B8                         | —      | —          | —       | —         | —     | —          | —           |

#### Description

The total number of Sub Indexes (= 2) is returned.

### [Point table error No. (Obj. 2A43h: 01h)]

| Data Type                  | Access | Mapping    | Default   | Range                  | Units | Save       | Parameter   |
|----------------------------|--------|------------|-----------|------------------------|-------|------------|-------------|
| U32                        | RO     | Impossible | 00000000h | 00000000h to FFFFFFFFh | —     | Impossible | Point table |
| Supported firmware version |        |            |           |                        |       |            |             |
| ECT                        | —      | —          | —         | —                      | —     | —          | —           |
| B8                         | —      | —          | —         | —                      | —     | —          | —           |

#### Description

The point table error number is returned.

### [Point table error factor (Obj. 2A43h: 02h)]

| Data Type                  | Access | Mapping    | Default   | Range                  | Units | Save       | Parameter   |
|----------------------------|--------|------------|-----------|------------------------|-------|------------|-------------|
| U32                        | RO     | Impossible | 00000000h | 00000000h to FFFFFFFFh | —     | Impossible | Point table |
| Supported firmware version |        |            |           |                        |       |            |             |
| ECT                        | —      | —          | —         | —                      | —     | —          | —           |
| B8                         | —      | —          | —         | —                      | —     | —          | —           |

#### Description

The point table error element is returned.

b0: Target position

b1: —

b2: Speed

b3: Acceleration time constant/acceleration

b4: Deceleration time constant/deceleration

b5: Dwell time

b6: Auxiliary function

b7: M code

## 7.6 [Parameter error number (Obj. 2A44h)]

### [Parameter error number (Obj. 2A44h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

#### Description

During [AL. 037 Parameter error] occurrence, the number of the servo parameters that caused the error is returned.

Refer to the following object for the number of each servo parameter which causes the error.

📖 Page 91 [Parameter error list 1 (Obj. 2A45h: 01h)] - [Parameter error list 254 (Obj. 2A45h: FEh)]

## 7.7 [Parameter error list (Obj. 2A45h)]

### [Parameter error list (Obj. 2A45h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter            |
|----------------------------|--------|------------|---------|-------------|-------|------------|----------------------|
| U8                         | RO     | Impossible | 254     | 254 (fixed) | —     | Impossible | Parameter error list |
| Supported firmware version |        |            |         |             |       |            |                      |
| ECT                        | —      | —          | —       | —           | —     | —          | —                    |
| A4                         | —      | —          | —       | —           | —     | —          | —                    |

#### Description

The total number of Sub Indexes (= 254) is returned.

## [Parameter error list 1 (Obj. 2A45h: 01h)] - [Parameter error list 254 (Obj. 2A45h: FEh)]

| Data Type                         | Access | Mapping    | Default | Range          | Units | Save       | Parameter            |
|-----------------------------------|--------|------------|---------|----------------|-------|------------|----------------------|
| U16                               | RO     | Impossible | 0000h   | 0000h to FFFFh | —     | Impossible | Parameter error list |
| <b>Supported firmware version</b> |        |            |         |                |       |            |                      |
| ECT                               | —      | —          | —       | —              | —     | —          | —                    |
| A4                                | —      | —          | —       | —              | —     | —          | —                    |

### Description

During [AL. 037 Parameter error] occurrence, a list of servo parameter numbers that caused the alarm is returned.

The descriptions of [Parameter error list 1 (Obj. 2A45h: 01h)] to [Parameter error list 254 (Obj. 2A45h: FEh)] are as follows.

For example, if [Pr. PC01] is the cause of the error, "0201h" is returned.

When no error has occurred, "0000h" is returned.

| Bit     | Description                                                                                                                                                                                                                          |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0 to 7  | Servo parameter number                                                                                                                                                                                                               |
| 8 to 15 | Servo parameter group number<br>00h: [Pr. PA __]<br>01h: [Pr. PB __]<br>02h: [Pr. PC __]<br>03h: [Pr. PD __]<br>04h: [Pr. PE __]<br>05h: [Pr. PF __]<br>0Bh: [Pr. PL __]<br>0Ch: [Pr. PT __]<br>0Eh: [Pr. PN __]<br>11h: [Pr. PV __] |

## 7.8 [Reset alarm (Obj. 2A46h)]

### [Reset alarm (Obj. 2A46h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | Impossible | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

#### Description

The alarm that has occurred in the servo amplifier is cleared.

Writing "1EA5h" resets an alarm. Any value other than "1EA5h" is invalid.

When the object is read, "0000h" is returned.

## 7.9 [Drive recorder history newest (Obj. 2A70h)]

### [Drive recorder history newest (Obj. 2A70h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------|-------|------------|-----------|
| U8                         | RO     | Impossible | 7       | 7 (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |           |       |            |           |
| ECT                        | —      | —          | —       | —         | —     | —          | —         |
| A4                         | —      | —          | —       | —         | —     | —          | —         |

#### Description

The total number of Sub Indexes (= 7) is returned.

The data of a different history number may be read from the drive recorder depending on when [Drive recorder history newest (Obj. 2A70h)] is read and when the history is recorded in the drive recorder. Check if the data of the desired history number has been read.

### [Drive recorder history index (Obj. 2A70h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------|-------|------------|-----------|
| U32                        | RO     | Impossible | 0       | 0 to 9999 | —     | Impossible | —         |
| Supported firmware version |        |            |         |           |       |            |           |
| ECT                        | —      | —          | —       | —         | —     | —          | —         |
| A4                         | —      | —          | —       | —         | —     | —          | —         |

#### Description

The save Index of the drive recorder is returned.

[Drive recorder history index] displays drive record data using consecutive numbers from 0 to 9999. When data is recorded in the drive recorder, the number will increase. If the number exceeds "9999", it will return to "0" and increase again.

If the drive recorder history is cleared, counting for the save Index will start from "0".

When reading data of a specific history number with the drive recorder, if the value stored in the save Index is the same before and after reading, the read data is the data of the same history number.

## [Drive recorder history alarm number (Obj. 2A70h: 02h)]

| Data Type                  | Access | Mapping    | Default   | Range                  | Units | Save       | Parameter |
|----------------------------|--------|------------|-----------|------------------------|-------|------------|-----------|
| U32                        | RO     | Impossible | 00000000h | 00000000h to FFFFFFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |           |                        |       |            |           |
| ECT                        | —      | —          | —         | —                      | —     | —          | —         |
| A4                         | —      | —          | —         | —                      | —     | —          | —         |

### Description

The alarm number that occurred when data was recorded using the drive recorder is returned. The description is as follows. When there is no history or the data of the drive recorder is recorded with the user settings, "00000000h" is returned.

Bit 0 to Bit 15: Alarm detail number

Bit 16 to Bit 31: Alarm number

For example, if [AL. 538.1] occurs, "05380001h" is returned.

## [Drive recorder history power on time (Obj. 2A70h: 03h)]

| Data Type                  | Access | Mapping    | Default   | Range                  | Units | Save       | Parameter |
|----------------------------|--------|------------|-----------|------------------------|-------|------------|-----------|
| U32                        | RO     | Impossible | 00000000h | 00000000h to FFFFFFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |           |                        |       |            |           |
| ECT                        | —      | —          | —         | —                      | —     | —          | —         |
| A4                         | —      | —          | —         | —                      | —     | —          | —         |

### Description

Returns the power-on cumulative time when data was recorded using the drive recorder. When there is no history, "00000000h" is returned.

## [Drive recorder history time (second) (Obj. 2A70h: 04h)]

| Data Type                  | Access | Mapping    | Default   | Range                  | Units | Save       | Parameter |
|----------------------------|--------|------------|-----------|------------------------|-------|------------|-----------|
| U32                        | RO     | Impossible | 00000000h | 00000000h to FFFFFFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |           |                        |       |            |           |
| ECT                        | —      | —          | —         | —                      | —     | —          | —         |
| A4                         | —      | —          | —         | —                      | —     | —          | —         |

### Description

The time at when recorded data in the drive recorder is returned as a 32-bit integer (time passed from January 1, 1970, 0:00:00.000000000).

If time data cannot be obtained from the network, alarm occurrence time shows the cumulative power-on time from January 1, 1970, 0:00:00.000000000.

Use this object together with [Drive recorder history time (nanosecond) (Obj. 2A70h: 05h)] according to the system.

## [Drive recorder history time (nanosecond) (Obj. 2A70h: 05h)]

| Data Type | Access | Mapping    | Default   | Range                  | Units | Save       | Parameter |
|-----------|--------|------------|-----------|------------------------|-------|------------|-----------|
| U32       | RO     | Impossible | 00000000h | 00000000h to FFFFFFFFh | —     | Impossible | —         |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| A4                         | — | — | — | — | — | — | — |

### Description

Returns the digits after the ones indicating seconds in the recording time of the drive recorder as a 32-bit integer. A value is returned in units of nanoseconds, but only the values in milliseconds increase.

For example, if an alarm occurs on January 1, 2000, 12:00:00.001, "000F4240h (1000000)" will be returned.

## [Drive recorder history (time zone) (Obj. 2A70h: 06h)]

| Data Type | Access | Mapping    | Default   | Range                  | Units  | Save       | Parameter |
|-----------|--------|------------|-----------|------------------------|--------|------------|-----------|
| I32       | RO     | Impossible | 00000000h | 80000000h to 7FFFFFFFh | minute | Impossible | —         |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| A4                         | — | — | — | — | — | — | — |

### Description

Returns the time zone of the time at when recorded the drive recorder.

If no setting exists, "80000000h" will be returned.

## [Drive recorder history (summer time) (Obj. 2A70h: 07h)]

| Data Type | Access | Mapping    | Default   | Range                  | Units  | Save       | Parameter |
|-----------|--------|------------|-----------|------------------------|--------|------------|-----------|
| I32       | RO     | Impossible | 00000000h | 80000000h to 7FFFFFFFh | minute | Impossible | —         |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| A4                         | — | — | — | — | — | — | — |

### Description

Returns the daylight saving time at when recorded data in the drive recorder.

If no setting exists, "80000000h" will be returned.

## 7.10 [Drive recorder history 1 (Obj. 2A71h)] - [Drive recorder history 15 (Obj. 2A7Fh)]

The second (2A71h) to 16th (2A7Fh) of the latest history information in the drive recorder is returned. The description of each Sub Index is the same as that of [Drive recorder history newest (Obj. 2A70h)].

☞ Page 92 [Drive recorder history newest (Obj. 2A70h)]



# 8 Monitor Objects

## Point

For the contents of the monitor signals, refer to "Monitor signal (analog)" in the following manual.  
 MR-JET User's Manual (Function)

## 8.1 [Cumulative feedback pulses (Obj. 2B01h)]

### [Cumulative feedback pulses (Obj. 2B01h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RW     | TxPDO   | —       | —     | pulse | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

### Description

The cumulative feedback pulses are returned.

The returned value is limited within the range from C4653601h (-999999999) to 3B9AC9FFh (999999999). If the value exceeds the upper or lower limit value, it changes to "00000000h". The cumulative feedback pulses can be cleared by writing "00001EA5h".

## 8.2 [Servo motor speed (Obj. 2B02h)]

### [Servo motor speed (Obj. 2B02h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units         | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|---------------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | r/min<br>mm/s | Impossible | —         |
| Supported firmware version |        |         |         |       |               |            |           |
| ECT                        | —      | —       | —       | —     | —             | —          | —         |
| A4                         | —      | —       | —       | —     | —             | —          | —         |

### Description

The servo motor speed is returned.

## 8.3 [Droop pulses (Obj. 2B03h)]

### [Droop pulses (Obj. 2B03h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | pulse | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The value of droop pulses (encoder pulse unit) is returned.

## 8.4 [Cumulative command pulses (Obj. 2B04h)]

### [Cumulative command pulses (Obj. 2B04h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | pulse | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The value of cumulative command pulses (command pulse unit) is returned.

The returned value is limited within the range from C4653601h (-999999999) to 3B9AC9FFh (999999999). If the value exceeds the upper or lower limit value, it changes to "00000000h".

## 8.5 [Command pulse frequency (Obj. 2B05h)]

### [Command pulse frequency (Obj. 2B05h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units    | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|----------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | kpulse/s | Impossible | —         |
| Supported firmware version |        |         |         |       |          |            |           |
| ECT                        | —      | —       | —       | —     | —        | —          | —         |
| A4                         | —      | —       | —       | —     | —        | —          | —         |

#### Description

The command pulse frequency is returned.

## 8.6 [Regenerative load ratio (Obj. 2B08h)]

### [Regenerative load ratio (Obj. 2B08h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | —       | —     | %     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The regenerative load ratio is returned.

## 8.7 [Effective load ratio (Obj. 2B09h)]

### [Effective load ratio (Obj. 2B09h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | —       | —     | %     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The effective load ratio is returned.

## 8.8 [Peak load ratio (Obj. 2B0Ah)]

### [Peak load ratio (Obj. 2B0Ah: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | —       | —     | %     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The peak load ratio is returned.

## 8.9 [Instantaneous torque (Obj. 2B0Bh)]

### [Instantaneous torque (Obj. 2B0Bh: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I16                        | RO     | TxPDO   | —       | —     | %     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The instantaneous torque is returned.

## 8.10 [Within one-revolution position (Obj. 2B0Ch)]

### [Within one-revolution position (Obj. 2B0Ch: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | pulse | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The position within one-revolution (encoder pulse unit) is returned.

The returned value range differs depending on the encoder resolution.

For the HG series rotary servo motor, the range is from 00000000h (0) to 00400000h (4194304).

For the encoder resolution of the servo motor, refer to the user's manual of each servo motor.

## 8.11 [ABS counter (Obj. 2B0Dh)]

### [ABS counter (Obj. 2B0Dh: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | rev   | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The ABS counter is returned.

The ABS counter returns the travel distance from the home position as a multi-revolution counter value of the absolute position encoder in the absolute position detection system.

For the linear servo motor control mode, the value for manufacturer setting is returned.

For the fully closed loop control mode, the ABS counter is returned in the servo motor encoder unit.

For the HG series rotary servo motor, the maximum rotation range of a multi-revolution counter is FFFF8000h (-32768 rev) to 00007FFFh (32767 rev) from the home position.

For details, refer to "Absolute position detection system" in the following manual.

📖MR-JET User's Manual (Hardware)

## 8.12 [Load inertia moment ratio (Obj. 2B0Eh)]

### [Load inertia moment ratio (Obj. 2B0Eh: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units      | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|------------|------------|-----------|
| U16                        | RO     | TxPDO   | —       | —     | 0.01 times | Impossible | —         |
| Supported firmware version |        |         |         |       |            |            |           |
| ECT                        | —      | —       | —       | —     | —          | —          | —         |
| A4                         | —      | —       | —       | —     | —          | —          | —         |

#### Description

The load to motor inertia ratio/load to motor mass ratio are returned.

For example, if the value of this object is 1000 in decimal, the load to motor inertia ratio/load to motor mass ratio will be 10.00 times as the unit is "0.01 times".

## 8.13 [Bus voltage (Obj. 2B0Fh)]

### [Bus voltage (Obj. 2B0Fh: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | —       | —     | V     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The bus voltage is returned.

## 8.14 [Load-side cumulative feedback pulses (Obj. 2B10h)]

### [Load-side cumulative feedback pulses (Obj. 2B10h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | pulse | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| C4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The cumulative feedback pulses from the load-side encoder are returned.

The returned value is limited within the range from C4653601h (-999999999) to 3B9AC9FFh (999999999). If the value exceeds the upper or lower limit value, it changes to "00000000h".

## 8.15 [Load-side droop pulses (Obj. 2B11h)]

### [Load-side droop pulses (Obj. 2B11h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | pulse | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| C4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The load-side droop pulses (load-side encoder pulse unit) are returned.

## 8.16 [Load-side encoder information 1 Z-phase counter (Obj. 2B12h)]

### [Load-side encoder information 1 Z-phase counter (Obj. 2B12h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | pulse | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| C4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The load-side encoder information 1 is returned.

The information to be returned varies as follows in accordance with the encoder being connected on the load side.

For a rotary servo motor, the position within one-revolution is returned.

For an absolute position linear encoder, the absolute position data is returned.

For an incremental linear encoder, the Z-phase counter (the distance from the linear encoder home position (reference mark)) is returned in 32-bit data after the Z-phase is passed. The value before the Z-phase is passed is undefined.

For an A/B/Z-phase differential output linear encoder, the Z-phase counter (the distance from the linear encoder home position (Z-phase)) is returned in 16-bit data (FFFF8000h (-32768) to 00007FFFh (32767)) after the Z-phase is passed.

Before the Z-phase is passed, this object returns the value of the free-run counter, which changes to "00000000h" when the power is cycled.

When the position within one-revolution is returned by an A/B/Z-phase differential output rotary encoder, set the value of the load-side encoder resolution in [Pr. PE51 Load-side encoder resolution setting].

 MR-JET-G User's Manual (Parameters)

## 8.17 [Load-side encoder information 2 (Obj. 2B13h)]

### [Load-side encoder information 2 (Obj. 2B13h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | rev   | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| C4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The load-side encoder information 2 is returned.

The information to be returned varies as follows in accordance with the encoder being connected on the load side.

For a rotary servo motor, this object returns the value of the multi-revolution ABS counter, which maintains the counter value even when the power is cycled. Note that, when using an HK-MT\_VW, this object returns the value of the multi-revolution counter, which changes to "00000000h" when the power is cycled.

For an absolute position linear encoder, "00000000h" is returned.

For an incremental linear encoder, "00000000h" is returned.

For an A/B/Z-phase differential output linear encoder, "00000000h" is returned.

For an A/B/Z-phase differential output rotary encoder, "00000000h" is returned.

## 8.18 [Motor-side cumu. feedback pulses (before gear) (Obj. 2B18h)]

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### [Motor-side cumu. feedback pulses (before gear) (Obj. 2B18h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | pulse | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The servo motor-side cumulative feedback pulses (before gear) (motor unit) are returned.

The returned value is limited within the range from C4653601h (-999999999) to 3B9AC9FFh (999999999). If the value exceeds the upper or lower limit value, it changes to "00000000h".

## 8.19 [Electrical angle (Obj. 2B19h)]

### [Electrical angle (Obj. 2B19h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | pulse | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The electrical angle is returned.

## 8.20 [Motor-side/load-side position deviation (Obj. 2B23h)]

### [Motor-side/load-side position deviation (Obj. 2B23h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | pulse | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| C4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The motor/load-side position deviation (load-side encoder pulse unit) is returned.

## 8.21 [Motor-side/load-side speed deviation (Obj. 2B24h)]

### [Motor-side/load-side speed deviation (Obj. 2B24h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | r/min | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| C4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The motor/load-side speed deviation is returned.



## 8.22 [Internal temperature of encoder (Obj. 2B25h)]

### [Internal temperature of encoder (Obj. 2B25h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I16                        | RO     | TxPDO   | —       | —     | °C    | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The internal temperature of the encoder is returned.

## 8.23 [Settling time (Obj. 2B26h)]

### [Settling time (Obj. 2B26h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I16                        | RO     | TxPDO   | —       | —     | ms    | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The settling time is returned.

## 8.24 [Oscillation detection frequency (Obj. 2B27h)]

### [Oscillation detection frequency (Obj. 2B27h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I16                        | RO     | TxPDO   | —       | —     | Hz    | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The oscillation detection frequency is returned.

## 8.25 [Number of tough drive operations (Obj. 2B28h)]

### [Number of tough drive operations (Obj. 2B28h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units           | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-----------------|------------|-----------|
| U16                        | RO     | TxPDO   | —       | —     | number of times | Impossible | —         |
| Supported firmware version |        |         |         |       |                 |            |           |
| ECT                        | —      | —       | —       | —     | —               | —          | —         |
| A4                         | —      | —       | —       | —     | —               | —          | —         |

#### Description

The number of tough drive operations is returned.

## 8.26 [Internal temperature of amplifier (Obj. 2B2Ah)]

### [Internal temperature of amplifier (Obj. 2B2Ah: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I16                        | RO     | TxPDO   | —       | —     | °C    | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The internal temperature of the servo amplifier is returned.

## 8.27 [Unit power consumption (Obj. 2B2Dh)]

### [Unit power consumption (Obj. 2B2Dh: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I16                        | RO     | TxPDO   | —       | —     | W     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The unit power consumption of the servo amplifier is returned.

## 8.28 [Unit total power consumption (Obj. 2B2Eh)]

### [Unit total power consumption (Obj. 2B2Eh: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | Wh    | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The unit total power consumption of the servo amplifier is returned.

## 8.29 [Current position (Obj. 2B2Fh)]

### [Current position (Obj. 2B2Fh: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-----------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | pos units | Impossible | —         |
| Supported firmware version |        |         |         |       |           |            |           |
| ECT                        | —      | —       | —       | —     | —         | —          | —         |
| B2                         | —      | —       | —       | —     | —         | —          | —         |

#### Description

The current position is returned.

This object is only available in the profile position mode and positioning mode (point table method).

## 8.30 [Command position (Obj. 2B30h)]

### [Command position (Obj. 2B30h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-----------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | pos units | Impossible | —         |
| Supported firmware version |        |         |         |       |           |            |           |
| ECT                        | —      | —       | —       | —     | —         | —          | —         |
| B2                         | —      | —       | —       | —     | —         | —          | —         |

#### Description

The command position is returned.

This object is only available in the profile position mode and positioning mode (point table method).

## 8.31 [Remaining command distance (Obj. 2B31h)]

### [Remaining command distance (Obj. 2B31h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-----------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | pos units | Impossible | —         |
| Supported firmware version |        |         |         |       |           |            |           |
| ECT                        | —      | —       | —       | —     | —         | —          | —         |
| B2                         | —      | —       | —       | —     | —         | —          | —         |

#### Description

The command remaining distance is returned.

This object is only available in the profile position mode and positioning mode (point table method).

## 8.32 [Command No. (Obj. 2B32h)]

### [Command No. (Obj. 2B32h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I16                        | RO     | TxPDO   | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| B8                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The point table number is returned.

## 8.33 [Error excessive alarm margin (Obj. 2B3Fh)]

### [Error excessive alarm margin (Obj. 2B3Fh: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | pulse | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The excessive error alarm margin (encoder pulse unit) is returned.

## 8.34 [Overload alarm margin (Obj. 2B40h)]

### [Overload alarm margin (Obj. 2B40h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I16                        | RO     | TxPDO   | —       | —     | 0.1 % | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The overload alarm margin is returned.

For example, if the value of this object is 100 in decimal, 10.0 % will be indicated as the unit of the overload alarm margin is 0.1 %.

## 8.35 [Overshoot amount (Obj. 2B41h)]

### [Overshoot amount (Obj. 2B41h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | pulse | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The overshoot amount (encoder pulse unit) is returned.

## 8.36 [Torque/thrust equivalent to disturbance (Obj. 2B42h)]

### [Torque/thrust equivalent to disturbance (Obj. 2B42h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I16                        | RO     | TxPDO   | —       | —     | 0.1 % | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The value for torque/thrust equivalent to disturbance is returned.

For example, if the value of this object is 100 in decimal, 10.0 % will be indicated as the unit of the torque/thrust equivalent to disturbance is 0.1 %.

## 8.37 [Unit power consumption 2 (Obj. 2B43h)]

### [Unit power consumption 2 (Obj. 2B43h: 00h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | —     | W     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| A4                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The unit power consumption of the servo amplifier is returned.

## 8.38 [FSoE safety statusword monitor (Obj. 2DC5h)]

### [FSoE safety statusword monitor (Obj. 2DC5h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 01h     | 01h to 01h | —     | Impossible | —         |
| Supported firmware version |        |            |         |            |       |            |           |
| ECT                        | —      | —          | —       | —          | —     | —          | —         |
| E8                         | —      | —          | —       | —          | —     | —          | —         |

#### Description

The number of entries is returned.

This object is available when the safety communication function is used.

### [FSoE safety statusword 1 monitor (Obj. 2DC5h: 01h)]

| Data Type                  | Access | Mapping | Default   | Range                  | Units | Save       | Parameter |
|----------------------------|--------|---------|-----------|------------------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | 00000000h | 00000000h to FFFFFFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |           |                        |       |            |           |
| ECT                        | —      | —       | —         | —                      | —     | —          | —         |
| E8                         | —      | —       | —         | —                      | —     | —          | —         |

## Description

The output status of the safety sub-function sent by FSoE Slave is returned.

| Bit      | Description                       |
|----------|-----------------------------------|
| 0        | STOS (STO output) is returned.    |
| 1        | SSMS (SSM output) is returned.    |
| 2        | —                                 |
| 3        | Error (Error status) is returned. |
| 4        | SS1S (SS1 output) is returned.    |
| 5        | —                                 |
| 6        | SDIPS (SDIP output) is returned.  |
| 7        | SDINS (SDIN output) is returned.  |
| 8        | SLS1S (SLS1 output) is returned.  |
| 9        | SLS2S (SLS2 output) is returned.  |
| 10       | SLS3S (SLS3 output) is returned.  |
| 11       | SLS4S (SLS4 output) is returned.  |
| 12       | SBCS (SBC output) is returned.    |
| 13       | —                                 |
| 14       | SLT1S (SLT1 output) is returned.  |
| 15       | SLT2S (SLT2 output) is returned.  |
| 16       | SLT3S (SLT3 output) is returned.  |
| 17       | SLT4S (SLT4 output) is returned.  |
| 18 to 31 | Reserved                          |

## 8.39 [FSoE safety controlword monitor (Obj. 2DC6h)]

### [FSoE safety controlword monitor (Obj. 2DC6h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 01h     | 01h to 01h | —     | Impossible | —         |
| Supported firmware version |        |            |         |            |       |            |           |
| ECT                        | —      | —          | —       | —          | —     | —          | —         |
| E8                         | —      | —          | —       | —          | —     | —          | —         |

#### Description

The number of entries is returned.

This object is available when the safety communication function is used.

### [FSoE safety controlword 1 monitor (Obj. 2DC6h: 01h)]

| Data Type                  | Access | Mapping | Default   | Range                  | Units | Save       | Parameter |
|----------------------------|--------|---------|-----------|------------------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | 00000000h | 00000000h to FFFFFFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |           |                        |       |            |           |
| ECT                        | —      | —       | —         | —                      | —     | —          | —         |
| E8                         | —      | —       | —         | —                      | —     | —          | —         |

#### Description

The input status of the safety sub-function sent by FSoE Master is returned.

| Bit      | Description                                  |
|----------|----------------------------------------------|
| 0        | STOC (STO command) is returned.              |
| 1        | SS1C (SS1 command) is returned.              |
| 2        | —                                            |
| 3        | SDIPC (SDIP command) is returned.            |
| 4        | SDINC (SDIN command) is returned.            |
| 5        | Error Ack (Error clear command) is returned. |
| 6        | SLS1C (SLS1 command) is returned.            |
| 7        | SLS2C (SLS2 command) is returned.            |
| 8        | SLS3C (SLS3 command) is returned.            |
| 9        | SLS4C (SLS4 command) is returned.            |
| 10       | —                                            |
| 11       | SLT1C (SLT1 command) is returned.            |
| 12       | SLT2C (SLT2 command) is returned.            |
| 13       | SLT3C (SLT3 command) is returned.            |
| 14       | SLT4C (SLT4 command) is returned.            |
| 15 to 31 | Reserved                                     |



# 9 Manufacturer Specific Control Object

## 9.1 [Drive recorder status (Obj. 2C02h)]

### [Drive recorder status (Obj. 2C02h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range  | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|--------|-------|------------|-----------|
| U16                        | RO     | Impossible | 0       | 0 to 1 | —     | Impossible | —         |
| Supported firmware version |        |            |         |        |       |            |           |
| ECT                        | —      | —          | —       | —      | —     | —          | —         |
| A4                         | —      | —          | —       | —      | —     | —          | —         |

#### Description

The enabled/disabled status of the drive recorder is returned.

When the drive recorder does not operate or when the single sampling ends in manual setting mode, this object returns "0" (disabled status).

When the drive recorder function is operating, this object returns "1" (enabled status).

0: Disabled status

1: Enabled status

## 9.2 [Clear drive recorder history (Obj. 2C03h)]

### [Clear drive recorder history (Obj. 2C03h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | Impossible | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

#### Description

Writing "1EA5h", cycling the power, or performing a software reset clears the data in the drive recorder history.

When the object is read, "0000h" is returned.

## 9.3 [External output pin display (Obj. 2C11h)]

### [External output pin display (Obj. 2C11h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 1       | 00h to FFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |            |       |            |           |
| ECT                        | —      | —          | —       | —          | —     | —          | —         |
| B6                         | —      | —          | —       | —          | —     | —          | —         |

#### Description

The number of entries in external output pin status is returned.

### [External output pin display1 (Obj. 2C11h: 01h)]

| Data Type                  | Access | Mapping | Default | Range                  | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|------------------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | —       | 00000000h to FFFFFFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                        |       |            |           |
| ECT                        | —      | —       | —       | —                      | —     | —          | —         |
| B6                         | —      | —       | —       | —                      | —     | —          | —         |

#### Description

The external output pin status 1 is returned.

• MR-JET- \_G-N1

| Bit | Connector pin | Bit | Connector pin | Bit | Connector pin | Bit | Connector pin |
|-----|---------------|-----|---------------|-----|---------------|-----|---------------|
| 0   | CN3-13        | 8   | —             | 16  | —             | 24  | —             |
| 1   | CN3-15        | 9   | —             | 17  | —             | 25  | —             |
| 2   | CN3-9         | 10  | —             | 18  | —             | 26  | —             |
| 3   | —             | 11  | —             | 19  | —             | 27  | —             |
| 4   | —             | 12  | —             | 20  | —             | 28  | —             |
| 5   | —             | 13  | —             | 21  | —             | 29  | —             |
| 6   | —             | 14  | —             | 22  | —             | 30  | —             |
| 7   | —             | 15  | —             | 23  | —             | 31  | —             |

• MR-JET- \_G\_-HSN1

| Bit | Connector pin | Bit | Connector pin | Bit | Connector pin | Bit | Connector pin |
|-----|---------------|-----|---------------|-----|---------------|-----|---------------|
| 0   | CN3-1B        | 8   | —             | 16  | —             | 24  | —             |
| 1   | CN3-2B        | 9   | —             | 17  | —             | 25  | —             |
| 2   | CN3-2A        | 10  | —             | 18  | —             | 26  | —             |
| 3   | —             | 11  | —             | 19  | —             | 27  | —             |
| 4   | —             | 12  | —             | 20  | —             | 28  | —             |
| 5   | —             | 13  | —             | 21  | —             | 29  | —             |
| 6   | —             | 14  | —             | 22  | —             | 30  | —             |
| 7   | —             | 15  | —             | 23  | —             | 31  | —             |

## 9.4 [Power ON cumulative time (Obj. 2C18h)]

### [Power ON cumulative time (Obj. 2C18h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range                  | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|------------------------|-------|------------|-----------|
| U32                        | RO     | Impossible | —       | 00000000h to FFFFFFFFh | hour  | Impossible | —         |
| Supported firmware version |        |            |         |                        |       |            |           |
| ECT                        | —      | —          | —       | —                      | —     | —          | —         |
| A4                         | —      | —          | —       | —                      | —     | —          | —         |

#### Description

The cumulative energization time of the servo amplifier is returned.

## 9.5 [Number of inrush relay on/off times (Obj. 2C19h)]

### [Number of inrush relay on/off times (Obj. 2C19h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range                  | Units           | Save       | Parameter |
|----------------------------|--------|------------|---------|------------------------|-----------------|------------|-----------|
| U32                        | RO     | Impossible | —       | 00000000h to FFFFFFFFh | number of times | Impossible | —         |
| Supported firmware version |        |            |         |                        |                 |            |           |
| ECT                        | —      | —          | —       | —                      | —               | —          | —         |
| A4                         | —      | —          | —       | —                      | —               | —          | —         |

#### Description

The number of times that the inrush relay of the servo amplifier has been turned on/off is returned.

## 9.6 [Number of dynamic brake stop times (Obj. 2C1Ah)]

### [Number of dynamic brake stop times (Obj. 2C1Ah: 00h)]

| Data Type                  | Access | Mapping    | Default | Range                  | Units           | Save       | Parameter |
|----------------------------|--------|------------|---------|------------------------|-----------------|------------|-----------|
| U32                        | RO     | Impossible | —       | 00000000h to FFFFFFFFh | number of times | Impossible | —         |
| Supported firmware version |        |            |         |                        |                 |            |           |
| ECT                        | —      | —          | —       | —                      | —               | —          | —         |
| A4                         | —      | —          | —       | —                      | —               | —          | —         |

#### Description

The number of times that the dynamic brake of the servo amplifier has been stopped is returned.

## 9.7 [Machine diagnostic status (Obj. 2C20h)]

### [Machine diagnostic status (Obj. 2C20h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

#### Description

The machine diagnostic status is returned.

[Bit 0 to 3: Friction estimation status at forward rotation]

0: Estimation in progress. (normal)

1: Estimation has finished. (normal)

2: The motor may have rotated/traveled more frequently in one direction than the other. (warning)

3: The servo motor speed may be too slow for friction estimation. (warning)

4: The change in the servo motor speed may be too small for friction estimation. (warning)

5: The acceleration/deceleration time constants may be too short for friction estimation. (warning)

6: The operation time may be insufficient. (warning)

When warning conditions for 2 to 6 are met at the same time, the lower number takes priority.

Even if a warning occurs during estimation, upon completion the status will change to "Estimation has finished".

[Bit 4 to 7: Friction estimation status at reverse rotation]

0: Estimation in progress. (normal)

1: Estimation has finished. (normal)

2: The motor may have rotated/traveled more frequently in one direction than the other. (warning)

3: The servo motor speed may be too slow for friction estimation. (warning)

4: The change in the servo motor speed may be too small for friction estimation. (warning)

5: The acceleration/deceleration time constants may be too short for friction estimation. (warning)

6: The operation time may be insufficient. (warning)

When warning conditions for 2 to 6 are met at the same time, the lower number takes priority.

Even if a warning occurs during estimation, upon completion the status will change to "Estimation has finished".

[Bit 8 to 11: Vibration estimation status]

0: Estimation in progress.

1: Estimation has finished.

[Bit 12 to 15: reserved]

## 9.8 [Static friction torque at forward rotation (Obj. 2C21h)]

### [Static friction torque at forward rotation (Obj. 2C21h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------------|-------|------------|-----------|
| I16                        | RO     | Impossible | —       | -32768 to 32767 | 0.1 % | Impossible | —         |
| Supported firmware version |        |            |         |                 |       |            |           |
| ECT                        | —      | —          | —       | —               | —     | —          | —         |
| A4                         | —      | —          | —       | —               | —     | —          | —         |

#### Description

The static friction at forward rotation torque is returned.

## 9.9 [Dynamic friction torque at forward rotation (at rated speed) (Obj. 2C22h)]

### [Dynamic friction torque at forward rotation (at rated speed) (Obj. 2C22h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------------|-------|------------|-----------|
| I16                        | RO     | Impossible | —       | -32768 to 32767 | 0.1 % | Impossible | —         |
| Supported firmware version |        |            |         |                 |       |            |           |
| ECT                        | —      | —          | —       | —               | —     | —          | —         |
| A4                         | —      | —          | —       | —               | —     | —          | —         |

#### Description

The dynamic friction at forward rotation torque at the rated speed is returned.

## 9.10 [Static friction torque at reverse rotation (Obj. 2C23h)]

### [Static friction torque at reverse rotation (Obj. 2C23h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------------|-------|------------|-----------|
| I16                        | RO     | Impossible | —       | -32768 to 32767 | 0.1 % | Impossible | —         |
| Supported firmware version |        |            |         |                 |       |            |           |
| ECT                        | —      | —          | —       | —               | —     | —          | —         |
| A4                         | —      | —          | —       | —               | —     | —          | —         |

#### Description

The static friction at reverse rotation torque is returned.

## 9.11 [Dynamic friction torque at reverse rotation (at rated speed) (Obj. 2C24h)]

[Dynamic friction torque at reverse rotation (at rated speed) (Obj. 2C24h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------------|-------|------------|-----------|
| I16                        | RO     | Impossible | —       | -32768 to 32767 | 0.1 % | Impossible | —         |
| Supported firmware version |        |            |         |                 |       |            |           |
| ECT                        | —      | —          | —       | —               | —     | —          | —         |
| A4                         | —      | —          | —       | —               | —     | —          | —         |

### Description

The dynamic friction at reverse rotation torque at the rated speed is returned.

## 9.12 [Oscillation frequency during motor stop (Obj. 2C25h)]

[Oscillation frequency during motor stop (Obj. 2C25h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------------|-------|------------|-----------|
| I16                        | RO     | Impossible | —       | -32768 to 32767 | Hz    | Impossible | —         |
| Supported firmware version |        |            |         |                 |       |            |           |
| ECT                        | —      | —          | —       | —               | —     | —          | —         |
| A4                         | —      | —          | —       | —               | —     | —          | —         |

### Description

The vibration frequency during stop and servo-lock is returned.

## 9.13 [Vibration level during motor stop (Obj. 2C26h)]

[Vibration level during motor stop (Obj. 2C26h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------------|-------|------------|-----------|
| I16                        | RO     | Impossible | —       | -32768 to 32767 | 0.1 % | Impossible | —         |
| Supported firmware version |        |            |         |                 |       |            |           |
| ECT                        | —      | —          | —       | —               | —     | —          | —         |
| A4                         | —      | —          | —       | —               | —     | —          | —         |

### Description

The vibration level during stop/servo-lock is returned.

## 9.14 [Oscillation frequency during motor operating (Obj. 2C27h)]

### [Oscillation frequency during motor operating (Obj. 2C27h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------------|-------|------------|-----------|
| I16                        | RO     | Impossible | —       | -32768 to 32767 | Hz    | Impossible | —         |
| Supported firmware version |        |            |         |                 |       |            |           |
| ECT                        | —      | —          | —       | —               | —     | —          | —         |
| A4                         | —      | —          | —       | —               | —     | —          | —         |

#### Description

The vibration frequency during operation is returned.

## 9.15 [Vibration level during motor operating (Obj. 2C28h)]

### [Vibration level during motor operating (Obj. 2C28h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------------|-------|------------|-----------|
| I16                        | RO     | Impossible | —       | -32768 to 32767 | 0.1 % | Impossible | —         |
| Supported firmware version |        |            |         |                 |       |            |           |
| ECT                        | —      | —          | —       | —               | —     | —          | —         |
| A4                         | —      | —          | —       | —               | —     | —          | —         |

#### Description

The vibration level during operation is returned.

## 9.16 [Machine total distance (Obj. 2C2Fh)]

### [Machine total distance (Obj. 2C2Fh: 00h)]

| Data Type                  | Access | Mapping    | Default | Range                  | Units    | Save       | Parameter |
|----------------------------|--------|------------|---------|------------------------|----------|------------|-----------|
| U32                        | RO     | Impossible | —       | 00000000h to FFFFFFFFh | rev<br>m | Impossible | —         |
| Supported firmware version |        |            |         |                        |          |            |           |
| ECT                        | —      | —          | —       | —                      | —        | —          | —         |
| A4                         | —      | —          | —       | —                      | —        | —          | —         |

#### Description

The machine total travel distance is returned.

## 9.17 [Friction estimate status (Obj. 2C31h)]

### [Friction estimate status (Obj. 2C31h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range    | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0 to 100 | %     | Impossible | —         |
| Supported firmware version |        |            |         |          |       |            |           |
| ECT                        | —      | —          | —       | —        | —     | —          | —         |
| A4                         | —      | —          | —       | —        | —     | —          | —         |

#### Description

The progress of friction estimation is returned.

## 9.18 [Phase current (Obj. 2C37h)]

### [Phase current (Obj. 2C37h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | 3 (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |           |       |            |           |
| ECT                        | —      | —          | —       | —         | —     | —          | —         |
| B0                         | —      | —          | —       | —         | —     | —          | —         |

#### Description

The total number of Sub Indexes (= 3) is returned.

### [U phase current (Obj. 2C37h: 01h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------------|-------|------------|-----------|
| I16                        | RO     | TxPDO   | —       | -32768 to 32767 | 0.1 % | Impossible | —         |
| Supported firmware version |        |         |         |                 |       |            |           |
| ECT                        | —      | —       | —       | —               | —     | —          | —         |
| B0                         | —      | —       | —       | —               | —     | —          | —         |

#### Description

The U-phase current value is displayed in increments of 0.1 % in relation to the rated current as 100 %.



## [V phase current (Obj. 2C37h: 02h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------------|-------|------------|-----------|
| I16                        | RO     | TxPDO   | —       | -32768 to 32767 | 0.1 % | Impossible | —         |
| Supported firmware version |        |         |         |                 |       |            |           |
| ECT                        | —      | —       | —       | —               | —     | —          | —         |
| B0                         | —      | —       | —       | —               | —     | —          | —         |

### Description

The V-phase current value is displayed in increments of 0.1 % in relation to the rated current as 100 %.

## [W phase current (Obj. 2C37h: 03h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------------|-------|------------|-----------|
| I16                        | RO     | TxPDO   | —       | -32768 to 32767 | 0.1 % | Impossible | —         |
| Supported firmware version |        |         |         |                 |       |            |           |
| ECT                        | —      | —       | —       | —               | —     | —          | —         |
| B0                         | —      | —       | —       | —               | —     | —          | —         |

### Description

The W-phase current value is displayed in increments of 0.1 % in relation to the rated current as 100 %.

## 9.19 [Supported Control DI (Obj. 2D00h)]

### [Supported Control DI (Obj. 2D00h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 10      | 10 (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |            |       |            |           |
| ECT                        | —      | —          | —       | —          | —     | —          | —         |
| A4                         | —      | —          | —       | —          | —     | —          | —         |

#### Description

The number of supported Control DI is returned.

### [Supported Control DI 1 (Obj. 2D00h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

#### Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

### [Supported Control DI 2 (Obj. 2D00h: 02h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

#### Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Control DI 3 (Obj. 2D00h: 03h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Control DI" in the following manual.

MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Control DI 4 (Obj. 2D00h: 04h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Control DI" in the following manual.

MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Control DI 5 (Obj. 2D00h: 05h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Control DI" in the following manual.

MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Control DI 6 (Obj. 2D00h: 06h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Control DI 7 (Obj. 2D00h: 07h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Control DI 8 (Obj. 2D00h: 08h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Control DI 9 (Obj. 2D00h: 09h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Control DI 10 (Obj. 2D00h: 0Ah)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.20 [Control DI 1 (Obj. 2D01h)]

### [Control DI 1 (Obj. 2D01h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | RxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The input device status is returned and set. For details, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.21 [Control DI 2 (Obj. 2D02h)]

### [Control DI 2 (Obj. 2D02h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | RxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The input device status is returned and set. For details, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.22 [Control DI 3 (Obj. 2D03h)]

### [Control DI 3 (Obj. 2D03h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | RxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The input device status is returned and set. For details, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.23 [Control DI 4 (Obj. 2D04h)]

### [Control DI 4 (Obj. 2D04h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | RxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The input device status is returned and set. For details, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.24 [Control DI 5 (Obj. 2D05h)]

### [Control DI 5 (Obj. 2D05h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | RxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The input device status is returned and set. For details, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.25 [Control DI 6 (Obj. 2D06h)]

### [Control DI 6 (Obj. 2D06h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | RxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The input device status is returned and set. For details, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.26 [Control DI 7 (Obj. 2D07h)]

### [Control DI 7 (Obj. 2D07h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | RxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The input device status is returned and set. For details, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.27 [Control DI 8 (Obj. 2D08h)]

### [Control DI 8 (Obj. 2D08h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | RxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The input device status is returned and set. For details, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.28 [Control DI 9 (Obj. 2D09h)]

### [Control DI 9 (Obj. 2D09h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | RxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The input device status is returned and set. For details, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)



## 9.29 [Control DI 10 (Obj. 2D0Ah)]

### [Control DI 10 (Obj. 2D0Ah: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | RxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The input device status is returned and set. For details, refer to "Bit definition of Control DI" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.30 [Supported Status DO (Obj. 2D10h)]

### [Supported Status DO (Obj. 2D10h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 10      | 10 (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |            |       |            |           |
| ECT                        | —      | —          | —       | —          | —     | —          | —         |
| A4                         | —      | —          | —       | —          | —     | —          | —         |

#### Description

The number of supported Status DO is returned.

### [Supported Status DO 1 (Obj. 2D10h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

#### Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Status DO 2 (Obj. 2D10h: 02h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Status DO 3 (Obj. 2D10h: 03h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Status DO 4 (Obj. 2D10h: 04h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Status DO 5 (Obj. 2D10h: 05h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Status DO 6 (Obj. 2D10h: 06h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Status DO 7 (Obj. 2D10h: 07h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Status DO 8 (Obj. 2D10h: 08h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Status DO 9 (Obj. 2D10h: 09h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## [Supported Status DO 10 (Obj. 2D10h: 0Ah)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| A4                         | —      | —          | —       | —              | —     | —          | —         |

### Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details on each bit, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.31 [Status DO 1 (Obj. 2D11h)]

### [Status DO 1 (Obj. 2D11h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The output device status is returned. For details, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.32 [Status DO 2 (Obj. 2D12h)]

### [Status DO 2 (Obj. 2D12h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The output device status is returned. For details, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.33 [Status DO 3 (Obj. 2D13h)]

### [Status DO 3 (Obj. 2D13h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The output device status is returned. For details, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.34 [Status DO 4 (Obj. 2D14h)]

### [Status DO 4 (Obj. 2D14h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The output device status is returned. For details, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.35 [Status DO 5 (Obj. 2D15h)]

### [Status DO 5 (Obj. 2D15h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The output device status is returned. For details, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.36 [Status DO 6 (Obj. 2D16h)]

### [Status DO 6 (Obj. 2D16h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The output device status is returned. For details, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.37 [Status DO 7 (Obj. 2D17h)]

### [Status DO 7 (Obj. 2D17h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The output device status is returned. For details, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.38 [Status DO 8 (Obj. 2D18h)]

### [Status DO 8 (Obj. 2D18h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The output device status is returned. For details, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.39 [Status DO 9 (Obj. 2D19h)]

### [Status DO 9 (Obj. 2D19h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The output device status is returned. For details, refer to "Bit definition of Status DO" in the following manual.

📖MR-JET-G-N1 User's Manual (Communication Function)

## 9.40 [Status DO 10 (Obj. 2D1Ah)]

### [Status DO 10 (Obj. 2D1Ah: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The output device status is returned. For details, refer to "Bit definition of Status DO" in the following manual.

MR-JET-G-N1 User's Manual (Communication Function)

## 9.41 [Velocity limit value (Obj. 2D20h)]

### [Velocity limit value (Obj. 2D20h: 00h)]

| Data Type                  | Access | Mapping | Default                 | Range           | Units     | Save     | Parameter               |
|----------------------------|--------|---------|-------------------------|-----------------|-----------|----------|-------------------------|
| U32                        | RW     | RxPDO   | Refer to the following. | 0 to 4294967295 | vel units | Possible | Refer to the following. |
| Supported firmware version |        |         |                         |                 |           |          |                         |
| ECT                        | —      | —       | —                       | —               | —         | —        | —                       |
| A4                         | —      | —       | —                       | —               | —         | —        | —                       |

#### Description

Set the speed limit value of the cyclic synchronous torque mode (cst) and the profile torque mode (tq).

The input value will be clamped at the servo motor maximum speed. When changing the speed to the permissible speed, set the speed in [Pr. PA28.4 Speed range limit selection].

The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

| [Pr. PT01.2] | [Pr. PT01.1]     | Connected servo motor | Default    | Units          | Parameter  |
|--------------|------------------|-----------------------|------------|----------------|------------|
| —            | 0 (encoder unit) | Rotary servo motor    | 300000     | 0.01 r/min     | [Pr. PT67] |
|              |                  | Linear servo motor    |            | 0.01 mm/s      |            |
| 2 (degree)   | 1 (command unit) | —                     | 2147483647 | 0.001 degree/s | [Pr. PV21] |
| 3 (pulse)    |                  |                       |            | pulse/s        |            |



## 9.42 [Motor rated speed (Obj. 2D28h)]

### [Motor rated speed (Obj. 2D28h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range           | Units                   | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------------|-------------------------|------------|-----------|
| U32                        | RO     | Impossible | —       | 0 to 4294967295 | Refer to the following. | Impossible | —         |
| Supported firmware version |        |            |         |                 |                         |            |           |
| ECT                        | —      | —          | —       | —               | —                       | —          | —         |
| A4                         | —      | —          | —       | —               | —                       | —          | —         |

#### Description

The servo motor rated speed is returned. The unit of the returned data varies depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

| [Pr. PT01.2] | [Pr. PT01.1]     | Connected servo motor | Units          |
|--------------|------------------|-----------------------|----------------|
| —            | 0 (encoder unit) | Rotary servo motor    | r/min          |
|              |                  | Linear servo motor    | mm/s           |
| 0 (mm)       | 1 (command unit) | —                     | 0.001 mm/s     |
| 1 (inch)     |                  |                       | 0.0001 inch/s  |
| 2 (degree)   |                  |                       | 0.001 degree/s |
| 3 (pulse)    |                  |                       | pulse/s        |

## 9.43 [Manufacturer Device Name 2 (Obj. 2D30h)]

### [Manufacturer Device Name 2 (Obj. 2D30h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| VISIBLE STRING             | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| B2                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The model name including the capacity of the servo amplifier (Example: MR-JET-10G-N1) is returned.

## 9.44 [Serial Number 2 (Obj. 2D33h)]

### [Serial Number 2 (Obj. 2D33h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| VISIBLE STRING             | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| B2                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The serial number of the servo amplifier is returned.

## 9.45 [Encoder status (Obj. 2D35h)]

### [Encoder status (Obj. 2D35h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------|-------|------------|-----------|
| U8                         | RO     | Impossible | 2       | 2 (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |           |       |            |           |
| ECT                        | —      | —          | —       | —         | —     | —          | —         |
| A4                         | —      | —          | —       | —         | —     | —          | —         |

#### Description

The number of entries of the encoder status is returned.

### [Encoder status 1 (Obj. 2D35h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range                  | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|------------------------|-------|------------|-----------|
| U32                        | RO     | Impossible | —       | 00000000h to 00000001h | —     | Impossible | —         |
| Supported firmware version |        |            |         |                        |       |            |           |
| ECT                        | —      | —          | —       | —                      | —     | —          | —         |
| A4                         | —      | —          | —       | —                      | —     | —          | —         |

#### Description

The encoder status is returned.

| Bit     | Description                                                                                                                                                                               |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0       | The encoder status is returned by the servo amplifier and confirms whether it is an absolute position detection system.<br>0: Incremental system<br>1: Absolute position detection system |
| 1 to 31 | —                                                                                                                                                                                         |

## [Encoder status 2 (Obj. 2D35h: 02h)]

| Data Type                  | Access | Mapping    | Default | Range                  | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|------------------------|-------|------------|-----------|
| U32                        | RO     | Impossible | —       | 00000000h to 00000007h | —     | Impossible | —         |
| Supported firmware version |        |            |         |                        |       |            |           |
| ECT                        | —      | —          | —       | —                      | —     | —          | —         |
| A4                         | —      | —          | —       | —                      | —     | —          | —         |

### Description

The status of the scale measurement encoder is returned.

When the scale measurement mode is disabled, "00000000h" is returned.

| Bit     | Description                                                                                                                                                                                                    |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0       | The encoder status is returned by the servo amplifier and confirms whether it is an absolute position detection system.<br>0: Incremental system<br>1: Absolute position detection system                      |
| 1       | The encoder status is returned by the servo amplifier and confirms whether the scale measurement function is enabled or disabled.<br>0: Disabled<br>1: Enabled                                                 |
| 2       | The encoder status is returned by the servo amplifier and confirms whether the currently connected scale measurement encoder is an absolute position type.<br>0: Incremental type<br>1: Absolute position type |
| 3 to 31 | —                                                                                                                                                                                                              |

## 9.46 [Scale cycle counter (Obj. 2D36h)]

### [Scale cycle counter (Obj. 2D36h: 00h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | —       | 0 to 4294967295 | pulse | Impossible | —         |
| Supported firmware version |        |         |         |                 |       |            |           |
| ECT                        | —      | —       | —       | —               | —     | —          | —         |
| E4                         | —      | —       | —       | —               | —     | —          | —         |

#### Description

The position within one-revolution of the scale measurement encoder is returned. The description varies depending on the scale measurement encoder type.

When the scale measurement encoder is disabled, "0" is returned.

| Scale measurement encoder                                               | Description            |
|-------------------------------------------------------------------------|------------------------|
| Linear encoder A/B/Z-phase differential output type<br>Incremental type | Scale free-run counter |
| Rotary encoder A/B/Z-phase differential output type<br>Incremental type | Cycle counter          |

## 9.47 [Scale ABS counter (Obj. 2D37h)]

### [Scale ABS counter (Obj. 2D37h: 00h)]

| Data Type                  | Access | Mapping | Default | Range                     | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|---------------------------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | -2147483648 to 2147483647 | rev   | Impossible | —         |
| Supported firmware version |        |         |         |                           |       |            |           |
| ECT                        | —      | —       | —       | —                         | —     | —          | —         |
| E4                         | —      | —       | —       | —                         | —     | —          | —         |

#### Description

The ABS counter of the scale measurement encoder is returned. The description varies depending on the scale measurement encoder type.

When the scale measurement encoder is disabled, "0" is returned.

| Scale measurement encoder                                               | Description |
|-------------------------------------------------------------------------|-------------|
| Linear encoder A/B/Z-phase differential output type<br>Incremental type | Fixed to 0  |
| Rotary encoder A/B/Z-phase differential output type<br>Incremental type | Fixed to 0  |

## 9.48 [Scale measurement encoder resolution (Obj. 2D38h)]

### [Scale measurement encoder resolution (Obj. 2D38h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range           | Units   | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------------|---------|------------|-----------|
| U32                        | RO     | Impossible | —       | 0 to 4294967295 | inc/rev | Impossible | —         |
| Supported firmware version |        |            |         |                 |         |            |           |
| ECT                        | —      | —          | —       | —               | —       | —          | —         |
| E4                         | —      | —          | —       | —               | —       | —          | —         |

#### Description

The resolution of the scale measurement encoder is returned.

When the scale measurement encoder is disabled, "0" is returned.

| Scale measurement encoder                                               | Description        |
|-------------------------------------------------------------------------|--------------------|
| Linear encoder A/B/Z-phase differential output type<br>Incremental type | Fixed to 0         |
| Rotary encoder A/B/Z-phase differential output type<br>Incremental type | Encoder resolution |

## 9.49 [Scale measurement encoder reception status (Obj. 2D3Ch)]

### [Scale measurement encoder reception status (Obj. 2D3Ch: 00h)]

| Data Type                  | Access | Mapping | Default | Range                     | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|---------------------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | —       | 00000000h to<br>FFFFFFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                           |       |            |           |
| ECT                        | —      | —       | —       | —                         | —     | —          | —         |
| E4                         | —      | —       | —       | —                         | —     | —          | —         |

#### Description

The alarm data of the scale measurement encoder is returned.

When the scale measurement encoder is disabled, "00000000h" is returned.

0: Normal

Other than 0: Error

## 9.50 [Servo motor serial number (Obj. 2D46h)]

### [Servo motor serial number (Obj. 2D46h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| VISIBLE<br>STRING          | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| B2                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The serial number of the servo motor is returned.

When the serial number cannot be read, an empty value is returned.

## 9.51 [Motor data 2 (Obj. 2D48h)]

### [Motor data 2 (Obj. 2D48h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 00h     | 00h to 04h | —     | Impossible | —         |
| Supported firmware version |        |            |         |            |       |            |           |
| ECT                        | —      | —          | —       | —          | —     | —          | —         |
| B2                         | —      | —          | —       | —          | —     | —          | —         |

#### Description

The number of entries is returned.

### [Motor ID 1 (Obj. 2D48h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U32                        | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| B2                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The servo motor series ID is returned.

When an encoder is not connected, "00000000h" is returned.

For the correspondence between ID codes and servo motor models, refer to "Rotary servo motor ID codes" in the following manual.

 Rotary Servo Motor User's Manual (For MR-JET)

## [Motor ID 2 (Obj. 2D48h: 02h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U32                        | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| B2                         | —      | —          | —       | —     | —     | —          | —         |

### Description

The servo motor type ID is returned.

When an encoder is not connected, "00000000h" is returned.

For the correspondence between ID codes and servo motor models, refer to "Rotary servo motor ID codes" in the following manual.

 Rotary Servo Motor User's Manual (For MR-JET)

## [Encoder ID 1 (Obj. 2D48h: 03h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U32                        | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| B2                         | —      | —          | —       | —     | —     | —          | —         |

### Description

The encoder ID is returned.

When an encoder is not connected, "00000000h" is returned.

For the correspondence between ID codes and servo motor models, refer to "Rotary servo motor ID codes" in the following manual.

 Rotary Servo Motor User's Manual (For MR-JET)

## [Encoder ID 2 (Obj. 2D48h: 04h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U32                        | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| B2                         | —      | —          | —       | —     | —     | —          | —         |

### Description

The value for manufacturer setting is returned.

## 9.52 [One-touch tuning mode (Obj. 2D50h)]

### [One-touch tuning mode (Obj. 2D50h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|------------|-------|------------|-----------|
| U8                         | RW     | Impossible | 00h     | 00h to 03h | —     | Impossible | —         |
| Supported firmware version |        |            |         |            |       |            |           |
| ECT                        | —      | —          | —       | —          | —     | —          | —         |
| A4                         | —      | —          | —       | —          | —     | —          | —         |

#### Description

One-touch tuning command is returned and set. After one-touch tuning, the setting value automatically changes to "00h".

00h: One-touch tuning stop in progress

01h: Basic mode

02h: High mode

03h: Low mode

## 9.53 [One-touch tuning status (Obj. 2D51h)]

### [One-touch tuning status (Obj. 2D51h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range    | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------|-------|------------|-----------|
| I8                         | RO     | Impossible | —       | 0 to 100 | %     | Impossible | —         |
| Supported firmware version |        |            |         |          |       |            |           |
| ECT                        | —      | —          | —       | —        | —     | —          | —         |
| A4                         | —      | —          | —       | —        | —     | —          | —         |

#### Description

The one-touch tuning progress is returned. Regardless of whether one-touch tuning is properly completed or not, "100" is returned at the completion.



## 9.54 [One-touch tuning Stop (Obj. 2D52h)]

### [One-touch tuning Stop (Obj. 2D52h: 00h)]

| Data Type                         | Access | Mapping    | Default | Range        | Units | Save       | Parameter |
|-----------------------------------|--------|------------|---------|--------------|-------|------------|-----------|
| U16                               | RW     | Impossible | 0000h   | 0000h, 1EA5h | —     | Impossible | —         |
| <b>Supported firmware version</b> |        |            |         |              |       |            |           |
| ECT                               | —      | —          | —       | —            | —     | —          | —         |
| A4                                | —      | —          | —       | —            | —     | —          | —         |

#### Description

Set a one-touch tuning stop command. To check whether the setting is reflected, read [One-touch tuning mode (Obj. 2D50h)].

- 1EA5h: Stops one-touch tuning.
- Other than 1EA5h: Triggers a parameter out of range error.

When the object is read, whether one-touch tuning can be stopped is returned.

| Bit     | Description                                                                                                                                                                       |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0       | 0: One-touch tuning can be stopped with the command. (One-touch tuning in progress)<br>1: One-touch tuning cannot be stopped with the command. (One-touch tuning not in progress) |
| 1 to 31 | —                                                                                                                                                                                 |

## 9.55 [One-touch tuning Clear (Obj. 2D53h)]

### [One-touch tuning Clear (Obj. 2D53h: 00h)]

| Data Type                         | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|-----------------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                               | RW     | Impossible | 0000h   | 0000h to 0001h | —     | Impossible | —         |
| <b>Supported firmware version</b> |        |            |         |                |       |            |           |
| ECT                               | —      | —          | —       | —              | —     | —          | —         |
| A4                                | —      | —          | —       | —              | —     | —          | —         |

#### Description

The servo parameter that was changed in one-touch tuning is returned to the value before the change. To check whether the setting is reflected, read [One-touch tuning mode (Obj. 2D50h)].

- 0000h: Restores to factory setting
- 0001h: Restores to the value from before one-touch tuning

When the object is read, whether the servo parameter that changed in one-touch tuning can be restored to the value before the change is returned.

| Bit     | Description                                                                                                                                                                                                                                                                                                                    |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0       | 0: Cannot be restored to factory setting with the command. (One-touch tuning in progress)<br>1: Can be restored to factory setting with the command. (One-touch tuning not in progress)                                                                                                                                        |
| 1       | 0: Cannot be restored to the value before one-touch tuning with the command. (One-touch tuning has not been performed for the axis, one-touch tuning is in progress for the axis, or an incorrect axis was selected.)<br>1: Can be restored to the value before one-touch tuning with the command. (One-touch tuning executed) |
| 2 to 31 | —                                                                                                                                                                                                                                                                                                                              |

## 9.56 [One-touch tuning Error Code (Obj. 2D54h)]

### [One-touch tuning Error Code (Obj. 2D54h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |            |         |                         |       |            |           |
| ECT                        | —      | —          | —       | —                       | —     | —          | —         |
| A4                         | —      | —          | —       | —                       | —     | —          | —         |

#### Description

An error code of the one-touch tuning is returned.

Refer to "One-touch tuning error" in the following manual.

📖MR-JET User's Manual (Adjustment)

0000h: Properly completed

C000h: Tuning canceled

C\_01h: Overshoot exceeded

C\_02h: Servo-off during tuning

C\_03h: Control mode error

C\_04h: Time-out

C\_05h: Load inertia moment ratio misestimated

C\_06h: Servo amplifier built-in command start error

C\_07h: Servo amplifier built-in command generation error

C\_08h: Stop signal

C\_09h: Parameter

C\_0Ah: Alarm

C00Fh: One-touch tuning disabled

## 9.57 [Software reset (Obj. 2D5Fh)]

### [Software reset (Obj. 2D5Fh: 00h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | Impossible | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |            |         |                |       |            |           |
| ECT                        | —      | —          | —       | —              | —     | —          | —         |
| C4                         | —      | —          | —       | —              | —     | —          | —         |

#### Description

Writing "1EA5h" performs the software reset. Writing a value other than "1EA5h" triggers a parameter out of range error.

When the object is read, "0000h" is returned.

## 9.58 [Speed override (Obj. 2DB0h)]

### [Speed override (Obj. 2DB0h: 00h)]

| Data Type                  | Access | Mapping | Default | Range    | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------|-------|------------|-----------|
| U16                        | RW     | RxPDO   | 100     | 0 to 360 | %     | Impossible | —         |
| Supported firmware version |        |         |         |          |       |            |           |
| ECT                        | —      | —       | —       | —        | —     | —          | —         |
| D4                         | —      | —       | —       | —        | —     | —          | —         |

### Description

The override value is returned and set.

When the setting value of [Pr. PT38.1 Override selection] is "3" (the override function is enabled) and C\_OVR (Override selection) (bit 7 of [Control DI 7 (Obj.2D07h)]) is turned on, the setting value of this object is enabled.

# 10 PDS Control Objects

## 10.1 [Error code (Obj. 603Fh)]

### [Error code (Obj. 603Fh: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

### Description

The No. of the latest error which occurred after power-on is returned.

**Ex.**

When [AL. 118.1 Encoder communication circuit diagnosis in progress] occurs, this object returns "0118h".

## 10.2 [Controlword (Obj. 6040h)]

### [Controlword (Obj. 6040h: 00h)]

10

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | RxPDO   | 0000h   | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| A4                         | —      | —       | —       | —              | —     | —          | —         |

### Description

PDS status switching command is given, or control commands are returned and set.

Use bit 0 to bit 3 and bit 7 in the PDS status transition.

| Bit | Name | Description                                                                                                                                                   |
|-----|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0   | SO   | Switch-on                                                                                                                                                     |
| 1   | EV   | Enable voltage                                                                                                                                                |
| 2   | QS   | Quick stop                                                                                                                                                    |
| 3   | EO   | Enable operation                                                                                                                                              |
| 4   | OMS  | Differs depending on the value of [Modes of operation (Obj. 6060h)]. Refer to the following for details.<br>☞ Page 148 [Bit 4: OMS]                           |
| 5   | OMS  | Differs depending on the value of [Modes of operation]. Refer to the following for details.<br>☞ Page 148 [Bit 5: OMS]                                        |
| 6   | OMS  | Differs depending on the value of [Modes of operation]. Refer to the following for details.<br>☞ Page 148 [Bit 6: OMS]                                        |
| 7   | FR   | Fault reset                                                                                                                                                   |
| 8   | HALT | 0: Operation ready<br>1: Pauses the operation according to [Halt option code (Obj. 6050h)].<br>Refer to the following for details.<br>☞ Page 149 [Bit 8: OMS] |
| 9   | OMS  | Differs depending on the value of [Modes of operation]. Refer to the following for details.<br>☞ Page 149 [Bit 9: OMS]                                        |
| 10  | —    | —                                                                                                                                                             |
| 11  | CPTL | Positive Torque Limit switching                                                                                                                               |
| 12  | CNTL | Negative Torque Limit switching                                                                                                                               |
| 13  | —    | —                                                                                                                                                             |
| 14  |      |                                                                                                                                                               |
| 15  |      |                                                                                                                                                               |

## ■[Bit 4: OMS]

| Setting value | Symbol         | Description                                                                                           |
|---------------|----------------|-------------------------------------------------------------------------------------------------------|
| 1 (pp) *1     | New set-point  | Obtains a new positioning parameter at bit rising                                                     |
| 3 (pv) *1     | —              | —                                                                                                     |
| 4 (tq) *1     |                |                                                                                                       |
| 6 (hm)        | HOS            | Homing operation start<br>0: Do not start homing procedure<br>1: Start or continue homing procedure   |
| 8 (csp)       | —              | —                                                                                                     |
| 9 (csv)       |                |                                                                                                       |
| 10 (cst)      |                |                                                                                                       |
| -100 (jg) *2  | Rotation start | 0: Servo motor stop<br>1: Servo motor start                                                           |
| -101 (pt) *2  | New set-point  | Starts operation from the point table specified with [Target point table (Obj. 2D60h)] at bit rising. |

\*1 Available on servo amplifiers with firmware version B2 or later.

\*2 Available on servo amplifiers with firmware version B8 or later.

## ■[Bit 5: OMS]

| Setting value | Symbol                 | Description                                                                          |
|---------------|------------------------|--------------------------------------------------------------------------------------|
| 1 (pp) *1     | Change set immediately | 0: Set of set-points<br>1: Single set-point                                          |
| 3 (pv) *1     | —                      | —                                                                                    |
| 4 (tq) *1     |                        |                                                                                      |
| 6 (hm)        |                        |                                                                                      |
| 8 (csp)       |                        |                                                                                      |
| 9 (csv)       |                        |                                                                                      |
| 10 (cst)      |                        |                                                                                      |
| -100 (jg) *2  | Direction              | 0: Forward rotation (Address increasing)<br>1: Reverse rotation (Address decreasing) |
| -101 (pt) *2  | —                      | —                                                                                    |

\*1 Available on servo amplifiers with firmware version B2 or later.

\*2 Available on servo amplifiers with firmware version B8 or later.

## ■[Bit 6: OMS]

| Setting value | Symbol  | Description                                                  |
|---------------|---------|--------------------------------------------------------------|
| 1 (pp) *1     | abs/rel | 0: Absolute position command<br>1: Relative position command |
| 3 (pv) *1     | —       | —                                                            |
| 4 (tq) *1     |         |                                                              |
| 6 (hm)        |         |                                                              |
| 8 (csp)       |         |                                                              |
| 9 (csv)       |         |                                                              |
| 10 (cst)      |         |                                                              |
| -100 (jg) *2  |         |                                                              |
| -101 (pt) *2  |         |                                                              |

\*1 Available on servo amplifiers with firmware version B2 or later.

\*2 Available on servo amplifiers with firmware version B8 or later.

## ■[Bit 8: OMS]

| Setting value           | Symbol | Description                                                                                          |
|-------------------------|--------|------------------------------------------------------------------------------------------------------|
| 1 (pp) <sup>*1</sup>    | HALT   | 0: Drives the servo motor.<br>1: Stops the servo motor according to [Halt option code (Obj. 605Dh)]. |
| 3 (pv) <sup>*1</sup>    |        |                                                                                                      |
| 4 (tq) <sup>*1</sup>    |        |                                                                                                      |
| 6 (hm)                  |        |                                                                                                      |
| 8 (csp)                 | —      | —                                                                                                    |
| 9 (csv)                 |        |                                                                                                      |
| 10 (cst)                |        |                                                                                                      |
| -100 (jg) <sup>*2</sup> | HALT   | 0: Drives the servo motor.<br>1: Stops the servo motor according to [Halt option code (Obj. 605Dh)]. |
| -101 (pt) <sup>*2</sup> |        |                                                                                                      |

\*1 Available on servo amplifiers with firmware version B2 or later.

\*2 Available on servo amplifiers with firmware version B8 or later.

## ■[Bit 9: OMS]

| Setting value           | Symbol             | Description                                                                                                                                                                                                                                                                                                       |
|-------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 (pp) <sup>*1</sup>    | Change on setpoint | Enabled only in Set of set-points (when the bit 5 of [Obj. 6040h: 00h] is "0").<br>0: Shifts to the next positioning after completing the current positioning.<br>1: Shifts to the next positioning after performing positioning up to the current set-point with the setting of [profile velocity (Obj. 6081h)]. |
| 3 (pv) <sup>*1</sup>    | —                  | —                                                                                                                                                                                                                                                                                                                 |
| 4 (tq) <sup>*1</sup>    |                    |                                                                                                                                                                                                                                                                                                                   |
| 6 (hm)                  |                    |                                                                                                                                                                                                                                                                                                                   |
| 8 (csp)                 |                    |                                                                                                                                                                                                                                                                                                                   |
| 9 (csv)                 |                    |                                                                                                                                                                                                                                                                                                                   |
| 10 (cst)                |                    |                                                                                                                                                                                                                                                                                                                   |
| -100 (jg) <sup>*2</sup> |                    |                                                                                                                                                                                                                                                                                                                   |
| -101 (pt) <sup>*2</sup> |                    |                                                                                                                                                                                                                                                                                                                   |

\*1 Available on servo amplifiers with firmware version B2 or later.

\*2 Available on servo amplifiers with firmware version B8 or later.

## 10.3 [Statusword (Obj. 6041h)]

### [Statusword (Obj. 6041h: 00h)]

| Data Type                         | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|-----------------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                               | RO     | TxPDO   | —       | 0000h to FFFFh | —     | Impossible | —         |
| <b>Supported firmware version</b> |        |         |         |                |       |            |           |
| ECT                               | —      | —       | —       | —              | —     | —          | —         |
| A4                                | —      | —       | —       | —              | —     | —          | —         |

### Description

The PDS status transition and other drive conditions are returned.

| Bit | Symbol | Description                                                                                                                                                                                                                                                                                         |
|-----|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0   | RTSO   | Ready-to-switch-on                                                                                                                                                                                                                                                                                  |
| 1   | SO     | Switch-on                                                                                                                                                                                                                                                                                           |
| 2   | OE     | Operation-enabled                                                                                                                                                                                                                                                                                   |
| 3   | F      | Fault                                                                                                                                                                                                                                                                                               |
| 4   | VE     | Voltage-enabled<br>0: The bus voltage is lower than the specified (RA) level.<br>1: The bus voltage is equal to or higher than the specified level.                                                                                                                                                 |
| 5   | QS     | Quick stop<br>When [Pr. PF29.1 State selection with forced stop in progress] is set to "1" (Quick stop active), the value of this bit changes to "0" during a forced stop.<br>0: In a Quick stop<br>1: Not in a Quick stop (including in the test mode)                                             |
| 6   | SOD    | Switch on disabled                                                                                                                                                                                                                                                                                  |
| 7   | W      | Warning<br>0: No warning has occurred.<br>1: A warning has occurred.                                                                                                                                                                                                                                |
| 8   | —      | —                                                                                                                                                                                                                                                                                                   |
| 9   | RM     | Remote<br>0: Not following the Controlword<br>1: In operation following the Controlword                                                                                                                                                                                                             |
| 10  | OMS    | Differs depending on the value of [Modes of operation (Obj. 6060h)]. Refer to the following for details.<br> Page 151 [Bit 10: OMS]                                                                              |
| 11  | ILA    | Internal limit active<br>0: The forward rotation stroke end, reverse rotation stroke end, and software position limit have not been reached.<br>1: The forward rotation stroke end, reverse rotation stroke end, or software position limit has been reached.<br>(Enabled in csp, csv, and hm mode) |
| 12  | OMS    | Differs depending on the value of [Modes of operation (Obj. 6060h)]. Refer to the following for details.<br> Page 152 [Bit 12: OMS]                                                                              |
| 13  | OMS    | Differs depending on the value of [Modes of operation (Obj. 6060h)]. Refer to the following for details.<br> Page 152 [Bit 13: OMS]                                                                              |
| 14  | —      | —                                                                                                                                                                                                                                                                                                   |
| 15  | —      | —                                                                                                                                                                                                                                                                                                   |



## ■[Bit 10: OMS]

| Setting value           | Name                           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 (pp) <sup>*1</sup>    | Target reached                 | 0: Halt (Bit 8) = 0: Target position not reached.<br>0: Halt (Bit 8) = 1: Axis decelerates.<br>1: Halt (Bit 8) = 0: Target position reached.<br>1: Halt (Bit 8) = 1: Velocity of axis is 0.<br>Judgment condition of Target position reached:<br>When the time set in [Position window time (Obj. 6068h)] elapses in a state where the difference between the values in [Position actual value (Obj. 6064h)] and [Target position (Obj. 607Ah)] is equal to or below the value set in [Position window (Obj. 6067h)], the state becomes "Target position reached". |
| 3 (pv) <sup>*1</sup>    |                                | 0: Halt (Bit 8) = 0: Target velocity not reached.<br>0: Halt (Bit 8) = 1: Axis decelerates.<br>1: Halt (Bit 8) = 0: Target velocity reached.<br>1: Halt (Bit 8) = 1: Velocity of axis is 0.<br>Judgment condition of Target velocity reached:<br>When the time set in [Velocity window time (Obj. 606Eh)] elapses in a state where the difference between the values in [Velocity actual value (Obj. 606Ch)] and [Target velocity (Obj. 60FFh)] is equal to or below the value set in [Velocity window (Obj. 606Dh)], the state becomes "Target velocity reached". |
| 4 (tq) <sup>*1</sup>    | Target reached (not supported) | 0: Halt (Bit 8) = 0: Target torque not reached.<br>0: Halt (Bit 8) = 1: Axis decelerates.<br>1: Halt (Bit 8) = 0: Target torque reached.<br>1: Halt (Bit 8) = 1: Velocity of axis is 0.<br>Judgment condition of Target torque reached:<br>When the time set in [Torque window time] elapses in a state where the difference between the values in [Torque actual value (Obj. 6077h)] and [Target torque (Obj. 6071h)] is equal to or below the value set in [Torque window], the state becomes "Target torque reached".                                           |
| 6 (hm)                  | Target reached                 | Bit 13 off/bit 12 off/bit 10 off: Homing procedure is in progress.<br>Bit 13 off/bit 12 off/bit 10 on: Homing procedure is interrupted or not started.<br>Bit 13 off/bit 12 on/bit 10 off: Homing is attained, but target is not reached.<br>Bit 13 off/bit 12 on/bit 10 on: Homing procedure is completed successfully.<br>Bit 13 on/bit 12 off/bit 10 off: Homing error occurred, velocity is not 0.<br>Bit 13 on/bit 12 off/bit 10 on: Homing error occurred, velocity is 0.<br>Bit 13 on/bit 12 on/bit 10 off: -                                               |
| 8 (csp)                 | —                              | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 9 (csv)                 |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 10 (cst)                |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| -100 (jg) <sup>*2</sup> | Target reached                 | 0: Halt (Bit 8) = 0: Target position not reached.<br>0: Halt (Bit 8) = 1: Axis decelerates.<br>1: Halt (Bit 8) = 0: Target position reached.<br>1: Halt (Bit 8) = 1: Velocity of axis is 0.<br>Judgment condition of Target position reached:<br>When the time set in [Position window time (Obj. 6068h)] elapses in a state where the difference between the current position and the command position is equal to or below the value set in [Position window (Obj. 6067h)], the state becomes "Target position reached".                                         |
| -101 (pt) <sup>*2</sup> |                                | 0: Halt (Bit 8) = 0: Target position not reached.<br>0: Halt (Bit 8) = 1: Axis decelerates.<br>1: Halt (Bit 8) = 0: Target position reached.<br>1: Halt (Bit 8) = 1: Velocity of axis is 0.<br>Judgment condition of Target position reached:<br>When the time set in [Position window time (Obj. 6068h)] elapses in a state where the difference between the current position and the point table command position is equal to or below the value set in [Position window (Obj. 6067h)], the state becomes "Target position reached".                             |

\*1 Available on servo amplifiers with firmware version B2 or later.

\*2 Available on servo amplifiers with firmware version B8 or later.

## ■[Bit 12: OMS]

| Setting value           | Name                            | Description                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 (pp) <sup>*1</sup>    | Set-point acknowledge           | 0: Positioning completed (waiting for next command)<br>1: Positioning in progress (possible to overwrite a setpoint)                                                                                                                                                                                                                                                  |
| 3 (pv) <sup>*1</sup>    | Speed                           | 0: Speed is not equal 0<br>1: Speed is equal 0<br>Judgment condition of Speed is not equal 0:<br>When the time set in [Velocity threshold time (Obj. 6070h)] elapses in a state where the absolute value of [Velocity actual value (Obj. 606Ch)] is equal to or above the setting value of [Velocity threshold (Obj. 606Fh)], the bit becomes "Speed is not equal 0". |
| 4 (tq) <sup>*1</sup>    | —                               | —                                                                                                                                                                                                                                                                                                                                                                     |
| 6 (hm)                  | Homing attained                 | Refer to the following.<br>☞ Page 151 [Bit 10: OMS]                                                                                                                                                                                                                                                                                                                   |
| 8 (csp)                 | Drive follows the command value | 0: [Target position (Obj. 607Ah)] is being discarded.<br>1: [Target position (Obj. 607Ah)] is being used as a position control loop input.                                                                                                                                                                                                                            |
| 9 (csv)                 |                                 | 0: [Target velocity (Obj. 60FFh)] is being discarded.<br>1: [Target velocity (Obj. 60FFh)] is being used as a speed control loop input.                                                                                                                                                                                                                               |
| 10 (cst)                |                                 | 0: [Target torque (Obj. 6071h)] is being discarded.<br>1: [Target torque (Obj. 6071h)] is being used as a torque control loop input.                                                                                                                                                                                                                                  |
| -100 (jg) <sup>*2</sup> | —                               | —                                                                                                                                                                                                                                                                                                                                                                     |
| -101 (pt) <sup>*2</sup> | Set-point acknowledge           | 0: Positioning completed (waiting for next command)<br>1: Positioning in progress                                                                                                                                                                                                                                                                                     |

\*1 Available on servo amplifiers with firmware version B2 or later.

\*2 Available on servo amplifiers with firmware version B8 or later.

## ■[Bit 13: OMS]

| Setting value           | Name               | Description                                                                                                                                                                                                                                                                         |
|-------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 (pp) <sup>*1</sup>    | Following error    | 0: No following error<br>1: Following error                                                                                                                                                                                                                                         |
| 3 (pv) <sup>*1</sup>    | Max slippage error | 0: Maximum slippage not reached<br>1: Maximum slippage reached (not supported)<br>Max slippage is the maximum slippage of the asynchronous servo motor.                                                                                                                             |
| 4 (tq) <sup>*1</sup>    | —                  | —                                                                                                                                                                                                                                                                                   |
| 6 (hm)                  | Homing error       | Refer to the following.<br>☞ Page 151 [Bit 10: OMS]                                                                                                                                                                                                                                 |
| 8 (csp)                 | Following error    | 0: No following error<br>1: Following error<br>When the time set in [Following error time out (Obj. 6066h)] elapses in a state where the value of [Following error actual value (Obj. 60F4h)] exceeds the value set in [Following error window (Obj. 6065h)], this bit becomes "1". |
| 9 (csv)                 | —                  | —                                                                                                                                                                                                                                                                                   |
| 10 (cst)                |                    |                                                                                                                                                                                                                                                                                     |
| -100 (jg) <sup>*2</sup> | Following error    | 0: No following error<br>1: Following error                                                                                                                                                                                                                                         |
| -101 (pt) <sup>*2</sup> |                    |                                                                                                                                                                                                                                                                                     |

\*1 Available on servo amplifiers with firmware version B2 or later.

\*2 Available on servo amplifiers with firmware version B8 or later.

# 10.4 [Quick stop option code (Obj. 605Ah)]

## [Quick stop option code (Obj. 605Ah: 00h)]

10

| Data Type                  | Access | Mapping    | Default | Range  | Units | Save     | Parameter    |
|----------------------------|--------|------------|---------|--------|-------|----------|--------------|
| I16                        | RW     | Impossible | 2       | 0 to 6 | —     | Possible | [Pr. PT68.0] |
| Supported firmware version |        |            |         |        |       |          |              |
| ECT                        | —      | —          | —       | —      | —     | —        | —            |
| A4                         | —      | —          | —       | —      | —     | —        | —            |

### Description

Set how to decelerate the servo motor to a stop at Quick Stop reception.

Forced stop deceleration by turning off EM2 (Forced stop 2) is the same as "2" (servo-off after deceleration to a stop with [Quick stop deceleration (Obj. 6085h)]) regardless of the setting value of this object.

When [Pr. PA04.3 Forced stop deceleration function selection] is set to "0" (forced stop deceleration function disabled), the servo motor stops with the dynamic brake regardless of the setting value of this object.

| Setting value     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0 *1              | Stop with dynamic brake<br>The state shifts immediately to "Switch On Disabled" (ready-off/servo-off), and the servo motor stops with the dynamic brake.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 1 *1              | Servo-off after deceleration to a stop at the deceleration time constant of any of the control modes<br>In the cyclic synchronous positioning/velocity mode (csp/csv), the servo motor decelerates to a stop with [Quick stop deceleration (Obj. 6085h)] and the state shifts to "Switch On Disabled" (ready-off/servo-off).<br>In the cyclic synchronous torque mode (cst), the profile torque mode (tq), and the continuous operation to torque control mode (ct), the state immediately shifts to "Switch On Disabled" (ready-off/servo-off) and the servo motor stops with the dynamic brake.<br>In the profile positioning/velocity mode (pp/pv) and JOG operation mode (jg), the servo motor decelerates to a stop with [Profile deceleration (Obj. 6084h)] and the state shifts to "Switch On Disabled" (ready-off/servo-off).<br>In the homing mode (hm), the servo motor decelerates to a stop with [Homing acceleration (Obj. 609Ah)] and the state shifts to "Switch On Disabled" (ready-off/servo-off).<br>In the point table mode (pt), the servo motor decelerates to a stop at the deceleration time constant of the point table number during positioning operation, and the state shifts to "Switch On Disabled" (ready-off/servo-off).                         |
| 2                 | Servo-off after deceleration to a stop with [Quick stop deceleration (Obj. 6085h)]<br>In the cyclic synchronous positioning/velocity mode (csp/csv), profile positioning/velocity mode (pp/pv), point table mode (pt), JOG operation mode (jg), and homing mode (hm), the servo motor decelerates to a stop with [Quick stop deceleration (Obj. 6085h)] and the state shifts to "Switch On Disabled" (ready-off/servo-off).<br>In the cyclic synchronous torque mode (cst), the profile torque mode (tq), and the continuous operation to torque control mode (ct), the state immediately shifts to "Switch On Disabled" (ready-off/servo-off) and the servo motor stops with the dynamic brake.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 3 (not supported) | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 4 (not supported) | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 5 *1 *2 *3        | Maintain servo-on after deceleration to a stop at the deceleration time constant of any of the control modes<br>In the cyclic synchronous positioning/velocity mode (csp/csv), the servo motor decelerates to a stop with [Quick stop deceleration (Obj. 6085h)] and the state remains as "Quick Stop Active". (Servo-on is maintained.)<br>In the cyclic synchronous torque mode (cst), the profile torque mode (tq), and the continuous operation to torque control mode (ct), the state immediately shifts to "Switch On Disabled" (ready-off/servo-off) and the servo motor stops with the dynamic brake.<br>In the profile positioning/velocity mode (pp/pv) and JOG operation mode (jg), the servo motor decelerates to a stop with [Profile deceleration (Obj. 6084h)] and the state remains as "Quick Stop Active". (Servo-on is maintained.)<br>In the homing mode (hm), the servo motor decelerates to a stop with [Homing acceleration (Obj. 609Ah)] and the state remains as "Quick Stop Active". (Servo-on is maintained.)<br>In the point table mode (pt), the servo motor decelerates to a stop at the deceleration time constant of the point table number during positioning operation, and the state remains as "Quick Stop Active". (Servo-on is maintained.) |
| 6 *1 *2 *3        | Maintain servo-on after deceleration to a stop with [Quick stop deceleration (Obj. 6085h)]<br>In the cyclic synchronous positioning/velocity mode (csp/csv), profile positioning/velocity mode (pp/pv), point table mode (pt), JOG operation mode (jg), and homing mode (hm), the servo motor decelerates to a stop with [Quick stop deceleration (Obj. 6085h)] and the state remains as "Quick Stop Active". (Servo-on is maintained.)<br>In the cyclic synchronous torque mode (cst), the profile torque mode (tq), and the continuous operation to torque control mode (ct), the state immediately shifts to "Switch On Disabled" (ready-off/servo-off) and the servo motor stops with the dynamic brake.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 7 (not supported) | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 8 (not supported) | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

- \*1 Available on servo amplifiers with firmware version D0 or later.
- \*2 When canceling Quick stop in the cyclic synchronous position mode (csp), cancel it after servo-off or perform position follow-up with the controller. If Quick stop is canceled without performing position follow-up, the servo motor may suddenly accelerate.
- \*3 When the controller being used cannot perform follow-up in the "Quick stop active" state (during servo-on), do not use this setting value in the cyclic synchronous position mode (csp). For information on whether the controller being used can perform follow-up in the "Quick stop active" state, refer to the manual for the controller.

## 10.5 [Halt option code (Obj. 605Dh)]

### [Halt option code (Obj. 605Dh: 00h)]

10

| Data Type                         | Access | Mapping    | Default | Range     | Units | Save     | Parameter    |
|-----------------------------------|--------|------------|---------|-----------|-------|----------|--------------|
| I16                               | RW     | Impossible | 1       | 1 (fixed) | —     | Possible | [Pr. PT68.2] |
| <b>Supported firmware version</b> |        |            |         |           |       |          |              |
| ECT                               | —      | —          | —       | —         | —     | —        | —            |
| A4                                | —      | —          | —       | —         | —     | —        | —            |

### Description

Set how to decelerate the servo motor to a stop at Halt reception.

| Setting value     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0                 | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1                 | The servo motor decelerates to a stop in accordance with [Profile deceleration (Obj. 6084h)] during the profile positioning/velocity mode (pp/pv) and JOG operation mode (jg), in accordance with the point table deceleration time constant/point table deceleration during the point table mode (pt), and in accordance with [Homing acceleration (Obj. 609Ah)] during the homing mode (hm), and the servo motor remains "Operation Enabled".<br>During the profile torque mode (tq), [Torque demand value (Obj. 6074h)] becomes "0" stopping the servo motor in accordance with the amount of torque change set in [Torque slope (Obj. 6087h)], and the state remains "Operation Enabled". |
| 2 (unsupported)   | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 3 (not supported) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 4 (not supported) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

The following shows the case where Halt Bit (Bit 8 of [Controlword (Obj. 6040h)]) is set to "1" and "0", and the reflective timing of the deceleration time setting in each control mode.

| Control mode               | Halt Bit is set to "1"                                                                                                                                                                                                                                                                                                                                                                                                    | Halt Bit is set to "0"                                                         | Reflective timing of deceleration time setting                                                                                                                       |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Profile position mode (pp) | The servo motor decelerates to a stop in accordance with [Profile deceleration (Obj. 6084h)].                                                                                                                                                                                                                                                                                                                             | The operation resumes after decelerating to a stop.                            | Reflected when New set-point (bit 4 of [Controlword (Obj. 6040h)]) is set to "1".                                                                                    |
| Profile velocity mode (pv) | The servo motor decelerates to a stop in accordance with [Profile deceleration (Obj. 6084h)].                                                                                                                                                                                                                                                                                                                             | The operation resumes after decelerating to a stop.                            | Reflected constantly.                                                                                                                                                |
| Profile torque mode (tq)   | [Torque demand value (Obj. 6074h)] becomes "0" stopping the servo motor in accordance with the amount of torque change set in [Torque slope (Obj. 6087h)].                                                                                                                                                                                                                                                                | The operation resumes after [Torque demand value (Obj. 6074h)] changes to "0". | Reflected constantly.                                                                                                                                                |
| Point table mode (pt)      | The servo motor decelerates to a stop in accordance with the point table deceleration time constant/point table deceleration.                                                                                                                                                                                                                                                                                             | The operation resumes after decelerating to a stop.                            | Reflected when New set-point (bit 4 of [Controlword (Obj. 6040h)]) is set to "1".<br>In the continuous operation, reflected when it is switched to next point table. |
| JOG operation mode (jg)    | The servo motor decelerates to a stop in accordance with [Profile deceleration (Obj. 6084h)].                                                                                                                                                                                                                                                                                                                             | The operation resumes after decelerating to a stop.                            | Reflected when Rotation start (bit 4 of [Controlword (Obj. 6040h)]) is set to "1".                                                                                   |
| Homing mode (hm)           | When Halt Bit is set to "1", the servo motor decelerates to a stop with [Homing acceleration (Obj. 609Ah)], and the status remains as "Operation Enabled (servo-on)". Then, homing is restarted with the following procedure: (1) set Halt Bit to "0", (2) reset Homing Operation Start (Bit 4 of [Controlword (Obj. 6040h)]) to "0", and (3) change Homing Operation Start (Bit 4 of [Controlword (Obj. 6040h)]) to "1". |                                                                                | Reflected when "Homing Operation Start" is set to "1".                                                                                                               |

## 10.6 [Modes of operation (Obj. 6060h)]

### [Modes of operation (Obj. 6060h: 00h)]

| Data Type                         | Access | Mapping | Default | Range                   | Units | Save       | Parameter |
|-----------------------------------|--------|---------|---------|-------------------------|-------|------------|-----------|
| I8                                | RW     | RxPDO   | 0       | Refer to the following. | —     | Impossible | —         |
| <b>Supported firmware version</b> |        |         |         |                         |       |            |           |
| ECT                               | —      | —       | —       | —                       | —     | —          | —         |
| A4                                | —      | —       | —       | —                       | —     | —          | —         |

### Description

Set a control mode.

The available control modes are limited depending on the setting values of [Pr. PA01.0 Control mode selection] and [Pr. PT01.2 Unit for position data]. Refer to "Selecting control mode (Modes of operation)" in the following manual.

 MR-JET-G-N1 User's Manual (Communication Function)

| Setting value | Description                            |
|---------------|----------------------------------------|
| 0             | No mode change                         |
| 1 *1          | Profile position mode (pp)             |
| 2             | —                                      |
| 3 *1          | Profile velocity mode (pv)             |
| 4 *1          | Profile torque mode (tq)               |
| 5             | —                                      |
| 6             | Homing mode (hm)                       |
| 7             | —                                      |
| 8             | Cyclic synchronous position mode (csp) |
| 9             | Cyclic synchronous velocity mode (csv) |
| 10            | Cyclic synchronous torque mode (cst)   |
| -100 *2       | Jog mode (jg)                          |
| -101 *2       | Point table mode (pt)                  |

\*1 Available on servo amplifiers with firmware version B2 or later.

\*2 Available on servo amplifiers with firmware version B8 or later.

## 10.7 [Modes of operation display (Obj. 6061h)]

### [Modes of operation display (Obj. 6061h: 00h)]

10

| Data Type                         | Access | Mapping | Default | Range                   | Units | Save       | Parameter |
|-----------------------------------|--------|---------|---------|-------------------------|-------|------------|-----------|
| I8                                | RO     | TxPDO   | —       | Refer to the following. | —     | Impossible | —         |
| <b>Supported firmware version</b> |        |         |         |                         |       |            |           |
| ECT                               | —      | —       | —       | —                       | —     | —          | —         |
| A4                                | —      | —       | —       | —                       | —     | —          | —         |

#### Description

The current control mode is returned.

The value to be returned as the initial value varies depending on the setting values of [Pr. PA01.0 Control mode selection] and [Pr. PT01.2 Unit for position data]. Refer to "Selecting control mode (Modes of operation)" in the following manual.

MR-JET-G-N1 User's Manual (Communication Function)

Even if [Modes of operation (Obj. 6060h)] is set to "0", this object does not return "0".

| Setting value | Description                                |
|---------------|--------------------------------------------|
| 0             | No mode change/No mode assigned            |
| 1 *1          | Profile position mode (pp)                 |
| 2             | —                                          |
| 3 *1          | Profile velocity mode (pv)                 |
| 4 *1          | Profile torque mode (tq)                   |
| 5             | —                                          |
| 6             | Homing mode (hm)                           |
| 7             | —                                          |
| 8             | Cyclic synchronous position mode (csp)     |
| 9             | Cyclic synchronous velocity mode (csv)     |
| 10            | Cyclic synchronous torque mode (cst)       |
| -1            | Test Operation mode: JOG Operation         |
| -2            | Test Operation mode: Positioning Operation |
| -4            | Test Operation mode: DO forced output      |
| -6            | Test Operation mode: Machine analyzer      |
| -9            | Test Operation mode: Test Exit             |
| -10 *2        | Test Operation mode: Single-step feed      |
| -100 *2       | Jog mode (jg)                              |
| -101 *2       | Point table mode (pt)                      |

\*1 Available on servo amplifiers with firmware version B2 or later.

\*2 Available on servo amplifiers with firmware version B8 or later.

## 10.8 [Supported drive modes (Obj. 6502h)]

### [Supported drive modes (Obj. 6502h: 00h)]

| Data Type                         | Access | Mapping | Default | Range | Units | Save       | Parameter |
|-----------------------------------|--------|---------|---------|-------|-------|------------|-----------|
| U32                               | RO     | TxPDO   | —       | —     | —     | Impossible | —         |
| <b>Supported firmware version</b> |        |         |         |       |       |            |           |
| ECT                               | —      | —       | —       | —     | —     | —          | —         |
| B2                                | —      | —       | —       | —     | —     | —          | —         |

### Description

"1" is returned to the supported control mode. The available control modes vary depending on the setting of [Pr. PA01.0 Control mode selection] and the network settings.

| Bit      | Description                                                     | Defined value |
|----------|-----------------------------------------------------------------|---------------|
| 0        | Profile position mode (pp) *1                                   | 1: Supported  |
| 1        | Velocity mode (vl)                                              | 0             |
| 2        | Profile velocity mode (pv) *1                                   | 1: Supported  |
| 3        | Profile torque mode (tq) *1                                     | 1: Supported  |
| 4        | Reserved                                                        | 0             |
| 5        | Homing mode (hm)                                                | 1: Supported  |
| 6        | Interpolated position mode (ip)                                 | 0             |
| 7        | Cyclic synchronous position mode (csp)                          | 1: Supported  |
| 8        | Cyclic synchronous velocity mode (csv)                          | 1: Supported  |
| 9        | Cyclic synchronous torque mode (cst)                            | 1: Supported  |
| 10       | Cyclic synchronous torque mode with communication angle (cstca) | 0             |
| 11 to 15 | Reserved                                                        | 0             |
| 16       | Jog mode (jg) *2                                                | 1: Supported  |
| 17       | Point table mode (pt) *2                                        | 1: Supported  |
| 18 to 31 | Reserved                                                        | 0             |

\*1 Available on servo amplifiers with firmware version B2 or later.

\*2 Available on servo amplifiers with firmware version B8 or later.



# 11 Position Control Function Objects

## 11.1 [Position demand value (Obj. 6062h)]

### [Position demand value (Obj. 6062h: 00h)]

| Data Type                  | Access | Mapping | Default | Range                     | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|---------------------------|-----------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | -2147483648 to 2147483647 | pos units | Impossible | —         |
| Supported firmware version |        |         |         |                           |           |            |           |
| ECT                        | —      | —       | —       | —                         | —         | —          | —         |
| B6                         | —      | —       | —       | —                         | —         | —          | —         |

#### Description

The command position inside the servo amplifier is returned.

## 11.2 [Position actual internal value (Obj. 6063h)]

### [Position actual internal value (Obj. 6063h: 00h)]

| Data Type                  | Access | Mapping | Default | Range                     | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|---------------------------|-------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | -2147483648 to 2147483647 | inc   | Impossible | —         |
| Supported firmware version |        |         |         |                           |       |            |           |
| ECT                        | —      | —       | —       | —                         | —     | —          | —         |
| A4                         | —      | —       | —       | —                         | —     | —          | —         |

#### Description

The current position is returned.

## 11.3 [Position actual value (Obj. 6064h)]

### [Position actual value (Obj. 6064h: 00h)]

| Data Type                  | Access | Mapping | Default | Range                     | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|---------------------------|-----------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | -2147483648 to 2147483647 | pos units | Impossible | —         |
| Supported firmware version |        |         |         |                           |           |            |           |
| ECT                        | —      | —       | —       | —                         | —         | —          | —         |
| A4                         | —      | —       | —       | —                         | —         | —          | —         |

#### Description

The current position of the command unit is returned.

## 11.4 [Following error window (Obj. 6065h)]

### [Following error window (Obj. 6065h: 00h)]

| Data Type                  | Access | Mapping | Default   | Range                  | Units     | Save     | Parameter  |
|----------------------------|--------|---------|-----------|------------------------|-----------|----------|------------|
| U32                        | RW     | RxPDO   | 00C00000h | 00000000h to FFFFFFFFh | pos units | Possible | [Pr. PC67] |
| Supported firmware version |        |         |           |                        |           |          |            |
| ECT                        | —      | —       | —         | —                      | —         | —        | —          |
| A4                         | —      | —       | —         | —                      | —         | —        | —          |

#### Description

In the cyclic synchronous position mode (csp), profile position mode (pp), point table mode (pt), and JOG operation mode (jg), when the time set with [Following error time out (Obj. 6066h)] elapses with the number of droop pulses exceeding the setting value of this object, bit 13 of [Statusword (Obj. 6041h)] is turned on. When the setting value of this object is "FFFFFFFh", bit 13 of [Statusword] is always off.

## 11.5 [Following error time out (Obj. 6066h)]

### [Following error time out (Obj. 6066h: 00h)]

| Data Type                  | Access | Mapping | Default | Range      | Units | Save     | Parameter  |
|----------------------------|--------|---------|---------|------------|-------|----------|------------|
| U16                        | RW     | RxPDO   | 10      | 0 to 65535 | ms    | Possible | [Pr. PC69] |
| Supported firmware version |        |         |         |            |       |          |            |
| ECT                        | —      | —       | —       | —          | —     | —        | —          |
| A4                         | —      | —       | —       | —          | —     | —        | —          |

#### Description

Refer to the following object.

☞ Page 160 [Following error window (Obj. 6065h)]

## 11.6 [Position window (Obj. 6067h)]

### [Position window (Obj. 6067h: 00h)]

| Data Type                  | Access | Mapping | Default   | Range | Units     | Save     | Parameter  |
|----------------------------|--------|---------|-----------|-------|-----------|----------|------------|
| U32                        | RW     | RxPDO   | 00000064h | —     | pos units | Possible | [Pr. PC70] |
| Supported firmware version |        |         |           |       |           |          |            |
| ECT                        | —      | —       | —         | —     | —         | —        | —          |
| B2                         | —      | —       | —         | —     | —         | —        | —          |

### Description

The descriptions of this object is as follows.

| Setting value          | Detailed explanation                                                                                                                                                                                                                                                                |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 00000000h to FFFFFFFEh | In the profile position mode (pp), point table mode (pt), and JOG operation mode (jg), when the time set with [Position window time (Obj. 6068h)] elapses with the number of droop pulses under the setting value of this object, bit 10 of [Statusword (Obj. 6041h)] is turned on. |
| FFFFFFFFh              | In the profile position mode (pp), point table mode (pt), and JOG operation mode (jg), bit 10 of [Statusword (Obj. 6041h)] is always turned on.                                                                                                                                     |

## 11.7 [Position window time (Obj. 6068h)]

### [Position window time (Obj. 6068h: 00h)]

| Data Type                  | Access | Mapping | Default | Range      | Units | Save     | Parameter  |
|----------------------------|--------|---------|---------|------------|-------|----------|------------|
| U16                        | RW     | RxPDO   | 10      | 0 to 65535 | ms    | Possible | [Pr. PC71] |
| Supported firmware version |        |         |         |            |       |          |            |
| ECT                        | —      | —       | —       | —          | —     | —        | —          |
| B2                         | —      | —       | —       | —          | —     | —        | —          |

### Description

Refer to the following object.

☞ Page 161 [Position window (Obj. 6067h)]

## 11.8 [Positioning option code (Obj. 60F2h)]

### [Positioning option code (Obj. 60F2h: 00h)]

| Data Type                  | Access | Mapping | Default | Range         | Units | Save     | Parameter    |
|----------------------------|--------|---------|---------|---------------|-------|----------|--------------|
| U16                        | RW     | RxPDO   | 0000h   | 0000h (fixed) | —     | Possible | [Pr. PT03.2] |
| Supported firmware version |        |         |         |               |       |          |              |
| ECT                        | —      | —       | —       | —             | —     | —        | —            |
| A4                         | —      | —       | —       | —             | —     | —        | —            |

#### Description

Set the following conditions of the profile position mode (pp).

| Bit                    | Detailed explanation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Defined value |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 0 to 1                 | 00b: Operates at the relative position determined by the internal absolute target position.<br>01b: Operates at the relative position determined by [Position demand actual value (Obj. 60FCh)]. (Not supported)<br>10b: Operates at the relative position determined by [Position actual value (Obj. 6064h)]. (Not supported)<br>11b: reserved                                                                                                                                                                                                                               | 00b           |
| 2 to 3                 | 00b: Immediately reflects new information including [Target position (Obj. 607Ah)], [Profile velocity (Obj. 6081h)], and Acceleration.<br>01b: Continues positioning, and reflects new information including [Target position (Obj. 607Ah)], [Profile velocity (Obj. 6081h)], and Acceleration when reaching the target position. (Not supported)<br>10b: reserved<br>11b: reserved                                                                                                                                                                                           | 00b           |
| 4 to 5                 | Reserved                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0             |
| 6 to 7 (not supported) | 00b: Rotates to the target position in the direction specified with the sign of the position data.<br>01b: Rotates in the address decreasing direction regardless of the sign of the position data.<br>10b: Rotates in the address increasing direction regardless of the sign of the position data.<br>11b: Rotates in the direction with the shorter distance from the current position to the target position.<br>If the distance from the current position to the target position is the same in the CCW and CW directions, the servo motor rotates in the CCW direction. | 00b           |
| 8 to 15                | Reserved                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0             |

## 11.9 [Following error actual value (Obj. 60F4h)]

### [Following error actual value (Obj. 60F4h: 00h)]

| Data Type                  | Access | Mapping | Default | Range                     | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|---------------------------|-----------|------------|-----------|
| I32                        | RO     | TxPDO   | —       | -2147483648 to 2147483647 | pos units | Impossible | —         |
| Supported firmware version |        |         |         |                           |           |            |           |
| ECT                        | —      | —       | —       | —                         | —         | —          | —         |
| A4                         | —      | —       | —       | —                         | —         | —          | —         |

#### Description

The droop pulses are returned.

## 11.10 [Control effort (Obj. 60FAh)]

### [Control effort (Obj. 60FAh: 00h)]

| Data Type                         | Access | Mapping | Default | Range                     | Units     | Save       | Parameter |
|-----------------------------------|--------|---------|---------|---------------------------|-----------|------------|-----------|
| I32                               | RO     | TxPDO   | —       | -2147483648 to 2147483647 | vel units | Impossible | —         |
| <b>Supported firmware version</b> |        |         |         |                           |           |            |           |
| ECT                               | —      | —       | —       | —                         | —         | —          | —         |
| A4                                | —      | —       | —       | —                         | —         | —          | —         |

### Description

The speed command is returned. The unit of the returned data varies depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

| [Pr. PT01.2] | [Pr. PT01.1]        | Connected servo motor | Units          |
|--------------|---------------------|-----------------------|----------------|
| —            | 0 (encoder unit)    | Rotary servo motor    | 0.01 r/min     |
|              |                     | Linear servo motor    | 0.01 mm/s      |
| 0 (mm)       | 1 (command unit) *1 | —                     | 0.001 mm/s     |
| 1 (inch)     |                     |                       | 0.0001 inch/s  |
| 2 (degree)   |                     |                       | 0.001 degree/s |
| 3 (pulse)    |                     |                       | pulse/s        |

\*1 When [Pr. PT01.1] is set to "1", the returned value may differ due to unit conversion.

# 12 Profile Velocity Mode Objects

## 12.1 [Velocity demand value (Obj. 606Bh)]

### [Velocity demand value (Obj. 606Bh: 00h)]

| Data Type | Access | Mapping | Default | Range                     | Units     | Save       | Parameter |
|-----------|--------|---------|---------|---------------------------|-----------|------------|-----------|
| I32       | RO     | TxPDO   | —       | -2147483648 to 2147483647 | vel units | Impossible | —         |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| A4                         | — | — | — | — | — | — | — |

#### Description

The speed command is returned. The unit of the returned data varies depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

| [Pr. PT01.2] | [Pr. PT01.1]        | Connected servo motor | Units          |
|--------------|---------------------|-----------------------|----------------|
| —            | 0 (encoder unit)    | Rotary servo motor    | 0.01 r/min     |
|              |                     | Linear servo motor    | 0.01 mm/s      |
| 2 (degree)   | 1 (command unit) *1 | —                     | 0.001 degree/s |
| 3 (pulse)    |                     |                       | pulse/s        |

\*1 When [Pr. PT01.1] is set to "1", the returned value may differ due to unit conversion.

## 12.2 [Velocity actual value (Obj. 606Ch)]

### [Velocity actual value (Obj. 606Ch: 00h)]

| Data Type | Access | Mapping | Default | Range                     | Units     | Save       | Parameter |
|-----------|--------|---------|---------|---------------------------|-----------|------------|-----------|
| I32       | RO     | TxPDO   | —       | -2147483648 to 2147483647 | vel units | Impossible | —         |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| A4                         | — | — | — | — | — | — | — |

#### Description

The current speed is returned. The unit of the returned data varies depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

| [Pr. PT01.2] | [Pr. PT01.1]        | Connected servo motor | Units          |
|--------------|---------------------|-----------------------|----------------|
| —            | 0 (encoder unit)    | Rotary servo motor    | 0.01 r/min     |
|              |                     | Linear servo motor    | 0.01 mm/s      |
| 0 (mm)       | 1 (command unit) *1 | —                     | 0.001 mm/s     |
| 1 (inch)     |                     |                       | 0.0001 inch/s  |
| 2 (degree)   |                     |                       | 0.001 degree/s |
| 3 (pulse)    |                     |                       | pulse/s        |

\*1 When [Pr. PT01.1] is set to "1", the returned value may differ due to unit conversion.

## 12.3 [Velocity window (Obj. 606Dh)]

### [Velocity window (Obj. 606Dh: 00h)]

| Data Type                  | Access | Mapping | Default                 | Range      | Units     | Save     | Parameter               |
|----------------------------|--------|---------|-------------------------|------------|-----------|----------|-------------------------|
| U16                        | RW     | RxPDO   | Refer to the following. | 0 to 65535 | vel units | Possible | Refer to the following. |
| Supported firmware version |        |         |                         |            |           |          |                         |
| ECT                        | —      | —       | —                       | —          | —         | —        | —                       |
| B2                         | —      | —       | —                       | —          | —         | —        | —                       |

#### Description

In the profile velocity mode (pv), when the time set in [Velocity window time (Obj. 606Eh)] elapses in a state where the difference between the command velocity and the current velocity is equal to or below the setting value of this object, bit 10 of [Statusword (Obj. 6041h)] turns on.

The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

| [Pr. PT01.2] | [Pr. PT01.1]     | Connected servo motor | Default | Units          | Parameter  |
|--------------|------------------|-----------------------|---------|----------------|------------|
| —            | 0 (encoder unit) | Rotary servo motor    | 2000    | 0.01 r/min     | [Pr. PC72] |
|              |                  | Linear servo motor    |         | 0.01 mm/s      |            |
| 2 (degree)   | 1 (command unit) | —                     | 20000   | 0.001 degree/s | [Pr. PV19] |
| 3 (pulse)    |                  |                       |         | pulse/s        |            |

## 12.4 [Velocity window time (Obj. 606Eh)]

### [Velocity window time (Obj. 606Eh: 00h)]

| Data Type                  | Access | Mapping | Default | Range      | Units | Save     | Parameter  |
|----------------------------|--------|---------|---------|------------|-------|----------|------------|
| U16                        | RW     | RxPDO   | 10      | 0 to 65535 | ms    | Possible | [Pr. PC73] |
| Supported firmware version |        |         |         |            |       |          |            |
| ECT                        | —      | —       | —       | —          | —     | —        | —          |
| B2                         | —      | —       | —       | —          | —     | —        | —          |

#### Description

Refer to the following object.

☞ Page 165 [Velocity window (Obj. 606Dh)]

## 12.5 [Velocity threshold (Obj. 606Fh)]

### [Velocity threshold (Obj. 606Fh: 00h)]

| Data Type                  | Access | Mapping | Default                 | Range      | Units     | Save     | Parameter               |
|----------------------------|--------|---------|-------------------------|------------|-----------|----------|-------------------------|
| U16                        | RW     | RxPDO   | Refer to the following. | 0 to 65535 | vel units | Possible | Refer to the following. |
| Supported firmware version |        |         |                         |            |           |          |                         |
| ECT                        | —      | —       | —                       | —          | —         | —        | —                       |
| B2                         | —      | —       | —                       | —          | —         | —        | —                       |

### Description

In the profile velocity mode (pv), when the time set in [Velocity threshold time (Obj. 6070h)] elapses in a state where the current velocity is equal to or below the setting value of this object, bit 12 of [Statusword (Obj. 6041h)] turns on.

The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

| [Pr. PT01.2] | [Pr. PT01.1]     | Connected servo motor | Default | Units          | Parameter  |
|--------------|------------------|-----------------------|---------|----------------|------------|
| —            | 0 (encoder unit) | Rotary servo motor    | 5000    | 0.01 r/min     | [Pr. PC65] |
|              |                  | Linear servo motor    |         | 0.01 mm/s      |            |
| 2 (degree)   | 1 (command unit) | —                     | 20      | 0.001 degree/s | [Pr. PV20] |
| 3 (pulse)    |                  |                       |         | pulse/s        |            |

## 12.6 [Velocity threshold time (Obj. 6070h)]

### [Velocity threshold time (Obj. 6070h: 00h)]

| Data Type                  | Access | Mapping | Default | Range      | Units | Save     | Parameter  |
|----------------------------|--------|---------|---------|------------|-------|----------|------------|
| U16                        | RW     | RxPDO   | 10      | 0 to 65535 | ms    | Possible | [Pr. PC66] |
| Supported firmware version |        |         |         |            |       |          |            |
| ECT                        | —      | —       | —       | —          | —     | —        | —          |
| B2                         | —      | —       | —       | —          | —     | —        | —          |

### Description

Refer to the following object.

📖 Page 166 [Velocity threshold (Obj. 606Fh)]



## 12.7 [Target velocity (Obj. 60FFh)]

### [Target velocity (Obj. 60FFh: 00h)]

| Data Type                  | Access | Mapping | Default | Range                     | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|---------------------------|-----------|------------|-----------|
| I32                        | RW     | RxPDO   | 0       | -2147483648 to 2147483647 | vel units | Impossible | —         |
| Supported firmware version |        |         |         |                           |           |            |           |
| ECT                        | —      | —       | —       | —                         | —         | —          | —         |
| A4                         | —      | —       | —       | —                         | —         | —          | —         |

### Description

Set the speed command used in the cyclic synchronous velocity mode (csv) and the profile velocity mode (pv). The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

| [Pr. PT01.2] | [Pr. PT01.1]     | Connected servo motor | Units          |
|--------------|------------------|-----------------------|----------------|
| —            | 0 (encoder unit) | Rotary servo motor    | 0.01 r/min     |
|              |                  | Linear servo motor    | 0.01 mm/s      |
| 2 (degree)   | 1 (command unit) | —                     | 0.001 degree/s |
| 3 (pulse)    |                  |                       | pulse/s        |

# 13 Profile Torque Mode Objects

## 13.1 [Positive/Negative torque limit 2 (Obj. 2D6Dh)]

### [Positive/Negative torque limit 2 setting (Obj. 2D6Dh: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 03h     | 03h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| A4                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

### [Positive/Negative torque limit 2 select (Obj. 2D6Dh: 01h)]

| Data Type                  | Access | Mapping    | Default | Range          | Units | Save     | Parameter  |
|----------------------------|--------|------------|---------|----------------|-------|----------|------------|
| U16                        | RW     | Impossible | 0000h   | 0000h to 0001h | —     | Possible | [Pr. PC42] |
| Supported firmware version |        |            |         |                |       |          |            |
| ECT                        | —      | —          | —       | —              | —     | —        | —          |
| A4                         | —      | —          | —       | —              | —     | —        | —          |

#### Description

Select the torque limit. The description is as follows.

| [Pr. PC42.0]/<br>[Positive/Negative<br>torque limit 2 select<br>(Obj. 2D6Dh: 01h)] | Forward rotation torque limit value                          |                                                                    | Reverse rotation torque limit value                          |                                                                    |
|------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------|
|                                                                                    | CPTL: 0                                                      | CPTL: 1                                                            | CNTL: 0                                                      | CNTL: 1                                                            |
| 0h/<br>0000h                                                                       | [Pr. PA11]/<br>[Positive torque limit value<br>(Obj. 60E0h)] | [Pr. PA11]/<br>[Positive torque limit value<br>(Obj. 60E0h)]       | [Pr. PA12]/<br>[Negative torque limit value<br>(Obj. 60E1h)] | [Pr. PA12]/<br>[Negative torque limit value<br>(Obj. 60E1h)]       |
| 1h/<br>0001h                                                                       | [Pr. PA11]/<br>[Positive torque limit value<br>(Obj. 60E0h)] | [Pr. PC43]/<br>[Positive torque limit value2<br>(Obj. 2D6Dh: 02h)] | [Pr. PA12]/<br>[Negative torque limit value<br>(Obj. 60E1h)] | [Pr. PC44]/<br>[Negative torque limit value2<br>(Obj. 2D6Dh: 03h)] |

## [Positive torque limit value 2 (Obj. 2D6Dh: 02h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save     | Parameter             |
|----------------------------|--------|------------|---------|------------|-------|----------|-----------------------|
| U16                        | RW     | Impossible | 10000   | 0 to 10000 | 0.1 % | Possible | [Pr. PC43]/[Pr. PC44] |
| Supported firmware version |        |            |         |            |       |          |                       |
| ECT                        | —      | —          | —       | —          | —     | —        | —                     |
| A4                         | —      | —          | —       | —          | —     | —        | —                     |

### Description

The torque generated by the servo motor or the thrust generated by the linear servo motor can be limited. Set the limit value of the torque of the servo motor for CCW power running or CW regeneration, or the limit value of the thrust of the linear servo motor for positive direction power running or negative direction regeneration.

If this object is set to "0", the servo motor does not generate torque or thrust.

When POL is disabled, the value of [Pr. PC43 Forward rotation torque limit 2] will be set, and when POL is enabled, the value of [Pr. PC44 Reverse rotation torque limit 2] will be set.

## [Negative torque limit value 2 (Obj. 2D6Dh: 03h)]

| Data Type                  | Access | Mapping    | Default | Range      | Units | Save     | Parameter             |
|----------------------------|--------|------------|---------|------------|-------|----------|-----------------------|
| U16                        | RW     | Impossible | 10000   | 0 to 10000 | 0.1 % | Possible | [Pr. PC43]/[Pr. PC44] |
| Supported firmware version |        |            |         |            |       |          |                       |
| ECT                        | —      | —          | —       | —          | —     | —        | —                     |
| A4                         | —      | —          | —       | —          | —     | —        | —                     |

### Description

The torque generated by the servo motor or the thrust generated by the linear servo motor can be limited. Set the limit value of the torque of the servo motor for CW power running or CCW regeneration, or the limit value of the thrust of the linear servo motor for negative direction power running or positive direction regeneration.

If this object is set to "0", the servo motor does not generate torque or thrust.

When POL is disabled, the value of [Pr. PC44 Reverse rotation torque limit 2] will be set, and when POL is enabled, the value of [Pr. PC43 Forward rotation torque limit 2] will be set.

## 13.2 [Target torque (Obj. 6071h)]

### [Target torque (Obj. 6071h: 00h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------------|-------|------------|-----------|
| I16                        | RW     | RxPDO   | —       | -32768 to 32767 | 0.1 % | Impossible | —         |
| Supported firmware version |        |         |         |                 |       |            |           |
| ECT                        | —      | —       | —       | —               | —     | —          | —         |
| A4                         | —      | —       | —       | —               | —     | —          | —         |

#### Description

Set the torque command used in the cyclic synchronous torque mode (cst) and the profile torque mode (tq).

## 13.3 [Max torque (Obj. 6072h)]

### [Max torque (Obj. 6072h: 00h)]

| Data Type                  | Access | Mapping | Default | Range      | Units | Save     | Parameter  |
|----------------------------|--------|---------|---------|------------|-------|----------|------------|
| U16                        | RW     | RxPDO   | —       | 0 to 10000 | 0.1 % | Possible | [Pr. PE53] |
| Supported firmware version |        |         |         |            |       |          |            |
| ECT                        | —      | —       | —       | —          | —     | —        | —          |
| A4                         | —      | —       | —       | —          | —     | —        | —          |

#### Description

The maximum torque of the servo motor is returned.

When [Pr. PC78.1] is set to "0" (disabled), the torque limit with this object and the torque limit with the value of [Pr. PE53] will be disabled. The values notified by this object are the maximum current and feedback values and may not match the maximum torque described in the user's manual for the servo motor being used.

When [Pr. PC78.1] is set to "1" (enabled), the torque or thrust generated by the servo motor can be limited with the setting value of this object.

When this object is set to "0", the torque limit is disabled.

The PDO Mapping attribute can be changed with the setting value of [Pr. PN03.3 Object attribute selection]. For details, refer to "[Pr. PN03.3 Object attribute selection]" in the following manual.

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## 13.4 [Max current (Obj. 6073h)]

### [Max current (Obj. 6073h: 00h)]

| Data Type                  | Access | Mapping | Default | Range      | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|------------|-------|------------|-----------|
| U16                        | RW     | RxPDO   | —       | 0 to 65535 | 0.1 % | Impossible | —         |
| Supported firmware version |        |         |         |            |       |            |           |
| ECT                        | —      | —       | —       | —          | —     | —          | —         |
| C0                         | —      | —       | —       | —          | —     | —          | —         |

#### Description

The maximum current of the servo motor is returned.

This object is automatically set by the servo motor being connected. Do not write a value to this object. Writing a value will result in a write error. In addition, the maximum current values notified by this object may not match the maximum current value described in the user's manual for the servo motor being used.

Unit: 0.1 % (with rated current being 100 %)

## 13.5 [Torque demand value (Obj. 6074h)]

### [Torque demand value (Obj. 6074h: 00h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------------|-------|------------|-----------|
| I16                        | RO     | TxPDO   | —       | -32768 to 32767 | 0.1 % | Impossible | —         |
| Supported firmware version |        |         |         |                 |       |            |           |
| ECT                        | —      | —       | —       | —               | —     | —          | —         |
| A4                         | —      | —       | —       | —               | —     | —          | —         |

#### Description

The torque command is returned.

## 13.6 [Motor rated torque (Obj. 6076h)]

### [Motor rated torque (Obj. 6076h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range           | Units    | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------------|----------|------------|-----------|
| U32                        | RO     | Impossible | —       | 0 to 4294967295 | mN•m, mN | Impossible | —         |
| Supported firmware version |        |            |         |                 |          |            |           |
| ECT                        | —      | —          | —       | —               | —        | —          | —         |
| C0                         | —      | —          | —       | —               | —        | —          | —         |

#### Description

The rated torque of the motor is returned.

The unit is [mN•m] in control modes other than the linear servo motor control mode, and [mN] in the linear servo motor control mode. In addition, the maximum torque values notified by this object may not match the rated torque value described in the user's manual for the servo motor being used.

## 13.7 [Torque actual value (Obj. 6077h)]

### [Torque actual value (Obj. 6077h: 00h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------------|-------|------------|-----------|
| I16                        | RO     | TxPDO   | —       | -32768 to 32767 | 0.1 % | Impossible | —         |
| Supported firmware version |        |         |         |                 |       |            |           |
| ECT                        | —      | —       | —       | —               | —     | —          | —         |
| A4                         | —      | —       | —       | —               | —     | —          | —         |

#### Description

The current torque is returned.

## 13.8 [Current actual value (Obj. 6078h)]

### [Current actual value (Obj. 6078h: 00h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------------|-------|------------|-----------|
| I16                        | RO     | TxPDO   | —       | -32768 to 32767 | 0.1 % | Impossible | —         |
| Supported firmware version |        |         |         |                 |       |            |           |
| ECT                        | —      | —       | —       | —               | —     | —          | —         |
| B6                         | —      | —       | —       | —               | —     | —          | —         |

#### Description

The actual current value is returned.

Unit: 0.1 % (with rated current being 100 %)

The value is equivalent to [Torque actual value (Obj. 6077h)].

## 13.9 [Torque slope (Obj. 6087h)]

### [Torque slope (Obj. 6087h: 00h)]

| Data Type                  | Access | Mapping | Default | Range         | Units   | Save     | Parameter  |
|----------------------------|--------|---------|---------|---------------|---------|----------|------------|
| U32                        | RW     | RxPDO   | 0       | 0 to 10000000 | 0.1 %/s | Possible | [Pr. PT53] |
| Supported firmware version |        |         |         |               |         |          |            |
| ECT                        | —      | —       | —       | —             | —       | —        | —          |
| B2                         | —      | —       | —       | —             | —       | —        | —          |

#### Description

Set the amount of change in the torque command per second which is used in the profile torque mode. When "0" is set, the amount of change cannot be set. In this case, the torque command will be input by step input.

## 13.10 [Torque profile type (Obj. 6088h)]

### [Torque profile type (Obj. 6088h: 00h)]

| Data Type                  | Access | Mapping | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------|-------|------------|-----------|
| I16                        | RW     | RxPDO   | 0       | 0 (fixed) | —     | Impossible | —         |
| Supported firmware version |        |         |         |           |       |            |           |
| ECT                        | —      | —       | —       | —         | —     | —          | —         |
| A4                         | —      | —       | —       | —         | —     | —          | —         |

#### Description

Set the torque command pattern. Only the value "0" can be set.

| Setting value | Description                   |
|---------------|-------------------------------|
| 0             | Linear ramp                   |
| 1             | $\sin^2$ ramp (Not supported) |

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## 13.11 [Positive torque limit value (Obj. 60E0h)]

### [Positive torque limit value (Obj. 60E0h: 00h)]

| Data Type                  | Access | Mapping | Default | Range      | Units | Save     | Parameter             |
|----------------------------|--------|---------|---------|------------|-------|----------|-----------------------|
| U16                        | RW     | RxPDO   | —       | 0 to 10000 | 0.1 % | Possible | [Pr. PA11]/[Pr. PA12] |
| Supported firmware version |        |         |         |            |       |          |                       |
| ECT                        | —      | —       | —       | —          | —     | —        | —                     |
| A4                         | —      | —       | —       | —          | —     | —        | —                     |

#### Description

The torque generated by the servo motor or the thrust generated by the linear servo motor can be limited. Set the limit value of the torque of the servo motor for CCW power running or CW regeneration, or the limit value of the thrust of the linear servo motor for positive direction power running or negative direction regeneration.

If this object is set to "0", the servo motor does not generate torque or thrust.

When POL is disabled, the value of [Pr. PA11 Forward rotation torque limit] will be set, and when POL is enabled, the value of [Pr. PA12 Reverse rotation torque limit] will be set.

## 13.12 [Negative torque limit value (Obj. 60E1h)]

### [Negative torque limit value (Obj. 60E1h: 00h)]

| Data Type                  | Access | Mapping | Default | Range      | Units | Save     | Parameter             |
|----------------------------|--------|---------|---------|------------|-------|----------|-----------------------|
| U16                        | RW     | RxPDO   | —       | 0 to 10000 | 0.1 % | Possible | [Pr. PA11]/[Pr. PA12] |
| Supported firmware version |        |         |         |            |       |          |                       |
| ECT                        | —      | —       | —       | —          | —     | —        | —                     |
| A4                         | —      | —       | —       | —          | —     | —        | —                     |

#### Description

The torque generated by the servo motor or the thrust generated by the linear servo motor can be limited. Set the limit value of the torque of the servo motor for CW power running or CCW regeneration, or the limit value of the thrust of the linear servo motor for negative direction power running or positive direction regeneration.

If this object is set to "0", the servo motor does not generate torque or thrust.

When POL is disabled, the value of [Pr. PA12 Reverse rotation torque limit] will be set, and when POL is enabled, the value of [Pr. PA11 Forward rotation torque limit] will be set.



# 14 Profile Position Mode Objects

## 14.1 [Target position (Obj. 607Ah)]

### [Target position (Obj. 607Ah: 00h)]

| Data Type                  | Access | Mapping | Default | Range                   | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|-------------------------|-----------|------------|-----------|
| I32                        | RW     | RxPDO   | —       | Refer to the following. | pos units | Impossible | —         |
| Supported firmware version |        |         |         |                         |           |            |           |
| ECT                        | —      | —       | —       | —                       | —         | —          | —         |
| A4                         | —      | —       | —       | —                       | —         | —          | —         |

### Description

Set the position command used in the cyclic synchronous position mode (csp) and the profile position mode (pp). Check the setting value of [Gear ratio (Obj. 6091h)] before setting a value in this object.

The setting range varies depending on the value of [Pr. PT01.2 Unit for position data].

| Control mode                           | [Pr. PT01.2] | Range                                              |
|----------------------------------------|--------------|----------------------------------------------------|
| Cyclic synchronous position mode (csp) | —            | 80000000h to 7FFFFFFFh (-2147483648 to 2147483647) |
| Profile position mode (pp)             | 2 (degree)   | FFFA81C0h to 00057E40h (-360000 to 360000)         |
|                                        | 3 (pulse)    | 80000000h to 7FFFFFFFh (-2147483648 to 2147483647) |

## 14.2 [Position range limit (Obj. 607Bh)]

### [Position range limit (Obj. 607Bh: 00h)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------|-------|------------|-----------|
| U8                         | RO     | Impossible | 2       | 2 (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |           |       |            |           |
| ECT                        | —      | —          | —       | —         | —     | —          | —         |
| A4                         | —      | —          | —       | —         | —     | —          | —         |

#### Description

The total number of Sub Indexes (= 2) is returned.

### [Min position range limit (Obj. 607Bh: 01h)]

| Data Type                  | Access | Mapping | Default | Range                   | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|-------------------------|-----------|------------|-----------|
| I32                        | RW     | RxPDO   | —       | Refer to the following. | pos units | Impossible | —         |
| Supported firmware version |        |         |         |                         |           |            |           |
| ECT                        | —      | —       | —       | —                       | —         | —          | —         |
| A4                         | —      | —       | —       | —                       | —         | —          | —         |

#### Description

Set the range for limiting the command position. The setting range varies depending on the value of [Pr. PT01.2 Unit for position data].

[Position range limit] is automatically set in accordance with [Pr. PT01.2]. Do not write a value to [Position range limit]. Writing a value will result in a write error.

| [Pr. PT01.2] | Range                                              |
|--------------|----------------------------------------------------|
| 0 (mm)       | 80000000h to 7FFFFFFFh (-2147483648 to 2147483647) |
| 1 (inch)     | 80000000h to 7FFFFFFFh (-2147483648 to 2147483647) |
| 2 (degree)   | 00000000h to 00057E3Fh (0 to 359999)               |
| 3 (pulse)    | 80000000h to 7FFFFFFFh (-2147483648 to 2147483647) |

### [Max position range limit (Obj. 607Bh: 02h)]

| Data Type                  | Access | Mapping | Default | Range | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-----------|------------|-----------|
| I32                        | RW     | RxPDO   | —       | —     | pos units | Impossible | —         |
| Supported firmware version |        |         |         |       |           |            |           |
| ECT                        | —      | —       | —       | —     | —         | —          | —         |
| A4                         | —      | —       | —       | —     | —         | —          | —         |

#### Description

Refer to the following object.

☞ Page 176 [Min position range limit (Obj. 607Bh: 01h)]

## 14.3 [Software position limit (Obj. 607Dh)]

### [Software position limit (Obj. 607Dh: 00h)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------|-------|------------|-----------|
| U8                         | RO     | Impossible | 2       | 2 (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |           |       |            |           |
| ECT                        | —      | —          | —       | —         | —     | —          | —         |
| A4                         | —      | —          | —       | —         | —     | —          | —         |

#### Description

The total number of Sub Indexes (= 2) is returned.

### [Min position limit (Obj. 607Dh: 01h)]

| Data Type                  | Access | Mapping | Default | Range                     | Units     | Save     | Parameter  |
|----------------------------|--------|---------|---------|---------------------------|-----------|----------|------------|
| I32                        | RW     | RxPDO   | 0       | -2147483648 to 2147483647 | pos units | Possible | [Pr. PT17] |
| Supported firmware version |        |         |         |                           |           |          |            |
| ECT                        | —      | —       | —       | —                         | —         | —        | —          |
| A4                         | —      | —       | —       | —                         | —         | —        | —          |

#### Description

Set the range for limiting the command position.

For [Min position limit (Obj. 607Dh: 01h)], set the stroke limit value for the address increasing direction in units of commands.  
For [Max position limit (Obj. 607Dh: 02h)], set the stroke limit value for the address decreasing direction in units of commands.  
[Target position (Obj. 607Ah)] is limited within the range between [Min position limit (Obj. 607Dh: 01h)] and [Max position limit (Obj. 607Dh: 02h)].

If the same value is set for [Min position limit (Obj. 607Dh: 01h)] and [Max position limit (Obj. 607Dh: 02h)], the function of [Software position limit (Obj. 607Dh)] is disabled.

Setting [Home offset (Obj. 607Ch)] will compensate for the software position limit.

After compensation, [Max position range limit] = [Max position range limit] - [Home offset]

After compensation, [Min position range limit] = [Min position range limit] - [Home offset]

- When the unit is set to "mm", "inch", or "pulse"

When [Min position limit (Obj. 607Dh: 01h)] is set to a value greater than [Max position limit (Obj. 607Dh: 02h)], the function of [Software position limit (Obj. 607Dh)] is disabled.

- When the unit is set to "degree"

Set [Min position limit] as the starting point and [Max position limit] as the ending point. For details, refer to "Software position limit" in the following manual.

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## [Max position limit (Obj. 607Dh: 02h)]

| Data Type                  | Access | Mapping | Default | Range                     | Units     | Save     | Parameter  |
|----------------------------|--------|---------|---------|---------------------------|-----------|----------|------------|
| I32                        | RW     | RxPDO   | 0       | -2147483648 to 2147483647 | pos units | Possible | [Pr. PT15] |
| Supported firmware version |        |         |         |                           |           |          |            |
| ECT                        | —      | —       | —       | —                         | —         | —        | —          |
| A4                         | —      | —       | —       | —                         | —         | —        | —          |

### Description

Refer to the following object.

☞ Page 177 [Min position limit (Obj. 607Dh: 01h)]

## 14.4 [Max profile velocity (Obj. 607Fh)]

### [Max profile velocity (Obj. 607Fh: 00h)]

| Data Type                  | Access | Mapping | Default                 | Range                   | Units     | Save     | Parameter               |
|----------------------------|--------|---------|-------------------------|-------------------------|-----------|----------|-------------------------|
| U32                        | RW     | RxPDO   | Refer to the following. | Refer to the following. | vel units | Possible | Refer to the following. |
| Supported firmware version |        |         |                         |                         |           |          |                         |
| ECT                        | —      | —       | —                       | —                       | —         | —        | —                       |
| B2                         | —      | —       | —                       | —                       | —         | —        | —                       |

### Description

Set the speed limit value of the profile position mode (pp), profile velocity mode (pv), and JOG operation mode (jg). When a value exceeding the value in this object or in [Max motor speed (Obj. 6080h)] is set in [Target velocity (Obj. 60FFh)] or [Profile velocity (Obj. 6081h)], the servo motor operates limiting the speed. The speed limit with [Max motor speed (Obj. 6080h)] has the priority.

The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

| [Pr. PT01.2] | [Pr. PT01.1]     | Connected servo motor | Default    | Range           | Units          | Parameter  |
|--------------|------------------|-----------------------|------------|-----------------|----------------|------------|
| —            | 0 (encoder unit) | Rotary servo motor    | 2000000    | 0 to 2000000    | 0.01 r/min     | [Pr. PT66] |
|              |                  | Linear servo motor    |            |                 | 0.01 mm/s      |            |
| 0 (mm)       | 1 (command unit) | —                     | 2147483647 | 0 to 4294967295 | 0.001 mm/s     | [Pr. PV03] |
| 1 (inch)     |                  |                       |            |                 | 0.0001 inch/s  |            |
| 2 (degree)   |                  |                       |            |                 | 0.001 degree/s |            |
| 3 (pulse)    |                  |                       |            |                 | pulse/s        |            |

## 14.5 [Max motor speed (Obj. 6080h)]

### [Max motor speed (Obj. 6080h: 00h)]

| Data Type                         | Access | Mapping | Default | Range           | Units                   | Save       | Parameter |
|-----------------------------------|--------|---------|---------|-----------------|-------------------------|------------|-----------|
| U32                               | RW     | RxPDO   | 10000   | 0 to 4294967295 | Refer to the following. | Impossible | —         |
| <b>Supported firmware version</b> |        |         |         |                 |                         |            |           |
| ECT                               | —      | —       | —       | —               | —                       | —          | —         |
| A4                                | —      | —       | —       | —               | —                       | —          | —         |

#### Description

The maximum speed of the servo motor is returned. Operation cannot be performed at a speed exceeding the value of this object.

The data unit changes depending on the connected servo motor.

When changing the returning value to the permissible speed, set "1" in [Pr. PA28.4 Speed range limit selection].

| Connected servo motor | Unit  |
|-----------------------|-------|
| Rotary servo motor    | r/min |
| Linear servo motor    | mm/s  |

The PDO Mapping attribute can be changed with the setting value of [Pr. PN03.3 Object attribute selection]. For details, refer to "[Pr. PN03.3 Object attribute selection]" in the following manual.

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## 14.6 [Profile velocity (Obj. 6081h)]

### [Profile velocity (Obj. 6081h: 00h)]

| Data Type                         | Access | Mapping | Default                 | Range              | Units     | Save     | Parameter               |
|-----------------------------------|--------|---------|-------------------------|--------------------|-----------|----------|-------------------------|
| U32                               | RW     | RxPDO   | Refer to the following. | 0 to maximum speed | vel units | Possible | Refer to the following. |
| <b>Supported firmware version</b> |        |         |                         |                    |           |          |                         |
| ECT                               | —      | —       | —                       | —                  | —         | —        | —                       |
| A4                                | —      | —       | —                       | —                  | —         | —        | —                       |

#### Description

Set the speed command to be used in the profile position mode (pp) and JOG operation mode (jg). If [Pr. PT02.7 Internal position command - Process speed selection] is set to "0" and the set speed exceeds 8000 r/min (or mm/s), the servo motor speed is clamped at 8000 r/min (or mm/s). When changing the maximum value of "Range" to the permissible speed, set [Pr. PA28.4 Speed range limit selection] to "1". The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

| [Pr. PT01.2] | [Pr. PT01.1]     | Connected servo motor | Default | Units          | Parameter  |
|--------------|------------------|-----------------------|---------|----------------|------------|
| —            | 0 (encoder unit) | Rotary servo motor    | 10000   | 0.01 r/min     | [Pr. PT65] |
|              |                  | Linear servo motor    |         | 0.01 mm/s      |            |
| 0 (mm)       | 1 (command unit) | —                     | 0       | 0.001 mm/s     | [Pr. PV01] |
| 1 (inch)     |                  |                       |         | 0.0001 inch/s  |            |
| 2 (degree)   |                  |                       |         | 0.001 degree/s |            |
| 3 (pulse)    |                  |                       |         | pulse/s        |            |

## 14.7 [Profile acceleration (Obj. 6083h)]

### [Profile acceleration (Obj. 6083h: 00h)]

| Data Type                         | Access | Mapping | Default                 | Range                   | Units     | Save     | Parameter               |
|-----------------------------------|--------|---------|-------------------------|-------------------------|-----------|----------|-------------------------|
| U32                               | RW     | RxPDO   | Refer to the following. | Refer to the following. | acc units | Possible | Refer to the following. |
| <b>Supported firmware version</b> |        |         |                         |                         |           |          |                         |
| ECT                               | —      | —       | —                       | —                       | —         | —        | —                       |
| A4                                | —      | —       | —                       | —                       | —         | —        | —                       |

### Description

Set the acceleration time constant or acceleration to be used in the profile position mode (pp), profile velocity mode (pv), and JOG operation mode (jg). The description of the object varies as shown in the table below depending on the settings of [Pr. PT01.2 Unit for position data] and [Pr. PT01.1 Speed/acceleration/deceleration unit selection]. When [Pr. PT01.1] is set to "0", set the time required for the servo motor to reach the rated speed. The value that can be set varies for each control mode.

| [Pr. PT01.2] | [Pr. PT01.1]     | Default | Range                                              | Units                       | Parameter  |
|--------------|------------------|---------|----------------------------------------------------|-----------------------------|------------|
| —            | 0 (encoder unit) | 0       | pp: 0 to 20000<br>pv: 0 to 50000<br>jg: 0 to 20000 | ms                          | [Pr. PT49] |
| 0 (mm)       | 1 (command unit) | 0       | 0 to 4294967295 *1                                 | 0.001 mm/s <sup>2</sup>     | [Pr. PV05] |
| 1 (inch)     |                  |         |                                                    | 0.0001 inch/s <sup>2</sup>  |            |
| 2 (degree)   |                  |         |                                                    | 0.001 degree/s <sup>2</sup> |            |
| 3 (pulse)    |                  |         |                                                    | pulse/s <sup>2</sup>        |            |

\*1 When "0" is set, the servo motor accelerates in accordance with the setting value of [Pr. PT49].

## 14.8 [Profile deceleration (Obj. 6084h)]

### [Profile deceleration (Obj. 6084h: 00h)]

| Data Type                  | Access | Mapping | Default                 | Range                   | Units     | Save     | Parameter               |
|----------------------------|--------|---------|-------------------------|-------------------------|-----------|----------|-------------------------|
| U32                        | RW     | RxPDO   | Refer to the following. | Refer to the following. | acc units | Possible | Refer to the following. |
| Supported firmware version |        |         |                         |                         |           |          |                         |
| ECT                        | —      | —       | —                       | —                       | —         | —        | —                       |
| A4                         | —      | —       | —                       | —                       | —         | —        | —                       |

#### Description

Set the deceleration time constant or deceleration to be used in the profile position mode (pp), profile velocity mode (pv), and JOG operation mode (jg). The description of the object varies as shown in the table below depending on the settings of [Pr. PT01.2 Unit for position data] and [Pr. PT01.1 Speed/acceleration/deceleration unit selection]. When [Pr. PT01.1] is set to "0", set the time required for the servo motor to reach the rated speed. The value that can be set varies for each control mode.

| [Pr. PT01.2] | [Pr. PT01.1]     | Default | Range                                              | Units                       | Parameter  |
|--------------|------------------|---------|----------------------------------------------------|-----------------------------|------------|
| —            | 0 (encoder unit) | 0       | pp: 0 to 20000<br>pv: 0 to 50000<br>jg: 0 to 20000 | ms                          | [Pr. PT50] |
| 0 (mm)       | 1 (command unit) | 0       | 0 to 4294967295 *1                                 | 0.001 mm/s <sup>2</sup>     | [Pr. PV07] |
| 1 (inch)     |                  |         |                                                    | 0.0001 inch/s <sup>2</sup>  |            |
| 2 (degree)   |                  |         |                                                    | 0.001 degree/s <sup>2</sup> |            |
| 3 (pulse)    |                  |         |                                                    | pulse/s <sup>2</sup>        |            |

\*1 When "0" is set, the servo motor decelerates in accordance with the setting value of [Pr. PT50].

## 14.9 [Quick stop deceleration (Obj. 6085h)]

### [Quick stop deceleration (Obj. 6085h: 00h)]

| Data Type                  | Access | Mapping | Default                 | Range                   | Units     | Save     | Parameter               |
|----------------------------|--------|---------|-------------------------|-------------------------|-----------|----------|-------------------------|
| U32                        | RW     | RxPDO   | Refer to the following. | Refer to the following. | acc units | Possible | Refer to the following. |
| Supported firmware version |        |         |                         |                         |           |          |                         |
| ECT                        | —      | —       | —                       | —                       | —         | —        | —                       |
| A4                         | —      | —       | —                       | —                       | —         | —        | —                       |

#### Description

Set the deceleration time constant or deceleration for the Quick stop function. When [Pr. PT01.1] is set to "0", set the time required for the servo motor to stop from the rated speed.

The description of the object varies as shown in the table below depending on the settings of [Pr. PT01.2 Unit for position data] and [Pr. PT01.1 Speed/acceleration/deceleration unit selection].

| [Pr. PT01.2] | [Pr. PT01.1]     | Default | Range              | Units                       | Parameter  |
|--------------|------------------|---------|--------------------|-----------------------------|------------|
| —            | 0 (encoder unit) | 100     | 0 to 20000 *1      | ms                          | [Pr. PC24] |
| 0 (mm)       | 1 (command unit) | 0       | 0 to 4294967295 *2 | 0.001 mm/s <sup>2</sup>     | [Pr. PV09] |
| 1 (inch)     |                  |         |                    | 0.0001 inch/s <sup>2</sup>  |            |
| 2 (degree)   |                  |         |                    | 0.001 degree/s <sup>2</sup> |            |
| 3 (pulse)    |                  |         |                    | pulse/s <sup>2</sup>        |            |

\*1 When the setting value of this object is "0", the deceleration time constant is 100 ms.

\*2 When "0" is set, the servo motor decelerates in accordance with the setting value of [Pr. PC24].

## 14.10 [Motion profile type (Obj. 6086h)]

### [Motion profile type (Obj. 6086h: 00h)]

| Data Type                  | Access | Mapping | Default | Range      | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|------------|-------|------------|-----------|
| I16                        | RW     | RxPDO   | -1      | -1 (fixed) | —     | Impossible | —         |
| Supported firmware version |        |         |         |            |       |            |           |
| ECT                        | —      | —       | —       | —          | —     | —          | —         |
| B2                         | —      | —       | —       | —          | —     | —          | —         |

#### Description

Set the acceleration/deceleration pattern applied in the profile position mode (pp). The description is as follows.  
The value of this object always returns "-1". Only the value "-1" can be set.

| Setting value | Description                           |
|---------------|---------------------------------------|
| -1            | S-pattern                             |
| 0             | Linear ramp (not supported)           |
| 1             | Sin <sup>2</sup> ramp (not supported) |
| 2             | Jerk-free ramp (not supported)        |
| 3             | Jerk-limited ramp (not supported)     |

## 14.11 [Max acceleration (Obj. 60C5h)]

### [Max acceleration (Obj. 60C5h: 00h)]

| Data Type                  | Access | Mapping | Default | Range           | Units     | Save       | Parameter  |
|----------------------------|--------|---------|---------|-----------------|-----------|------------|------------|
| U32                        | RW     | RxPDO   | —       | 0 to 4294967295 | acc units | Impossible | [Pr. PV29] |
| Supported firmware version |        |         |         |                 |           |            |            |
| ECT                        | —      | —       | —       | —               | —         | —          | —          |
| C0                         | —      | —       | —       | —               | —         | —          | —          |

#### Description

Set the acceleration limit value of the profile position mode (pp), profile velocity mode (pv), homing mode (hm), and JOG operation mode (jg).

The unit can be changed to 0.001 mm/s<sup>2</sup>, 0.0001 inch/s<sup>2</sup>, 0.001 degree/s<sup>2</sup>, or pulse/s<sup>2</sup> with [Pr. PT01.2 Unit for position data].  
When this object is set to "0", the acceleration limit is disabled.

This function is enabled when [Pr. PT01.1 Speed/acceleration/deceleration unit selection] is set to "1".

The servo motor accelerates by the setting value of this object when the following conditions are met:

- The setting value of [Profile acceleration (Obj. 6083h)] is "0" in pp, pv, or jg mode
- The setting value of [Homing acceleration (Obj. 609Ah)] is "0" in hm mode



## 14.12 [Max deceleration (Obj. 60C6h)]

### [Max deceleration (Obj. 60C6h: 00h)]

| Data Type                  | Access | Mapping | Default | Range           | Units     | Save       | Parameter  |
|----------------------------|--------|---------|---------|-----------------|-----------|------------|------------|
| U32                        | RW     | RxPDO   | —       | 0 to 4294967295 | acc units | Impossible | [Pr. PV31] |
| Supported firmware version |        |         |         |                 |           |            |            |
| ECT                        | —      | —       | —       | —               | —         | —          | —          |
| C0                         | —      | —       | —       | —               | —         | —          | —          |

### Description

Set the deceleration limit value of the profile position mode (pp), profile velocity mode (pv), homing mode (hm), and JOG operation mode (jg).

The unit can be changed to 0.001 mm/s<sup>2</sup>, 0.0001 inch/s<sup>2</sup>, 0.001 degree/s<sup>2</sup>, or pulse/s<sup>2</sup> with [Pr. PT01.2 Unit for position data].

When this object is set to "0", the deceleration limit is disabled.

This function is enabled when [Pr. PT01.1 Speed/acceleration/deceleration unit selection] is set to "1".

The servo motor accelerates by the setting value of this object when the following conditions are met:

- The setting value of [Profile deceleration (Obj. 6084h)] is "0" in pp, pv, or jg mode
- The setting value of [Homing acceleration (Obj. 609Ah)] is "0" in hm mode

# 15 Homing Mode Objects

## 15.1 [Home offset (Obj. 607Ch)]

### [Home offset (Obj. 607Ch: 00h)]

| Data Type | Access | Mapping | Default | Range                     | Units     | Save     | Parameter  |
|-----------|--------|---------|---------|---------------------------|-----------|----------|------------|
| I32       | RW     | RxPDO   | 0       | -2147483648 to 2147483647 | pos units | Possible | [Pr. PT08] |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| A4                         | — | — | — | — | — | — | — |

#### Description

Set the difference between zero position of the machine coordinate system and homing position.

The PDO Mapping attribute can be changed with the setting value of [Pr. PN03.3 Object attribute selection]. For details, refer to "[Pr. PN03.3 Object attribute selection]" in the following manual.

📖MR-JET-G-N1 User's Manual (Introduction)

## 15.2 [Homing method (Obj. 6098h)]

### [Homing method (Obj. 6098h: 00h)]

| Data Type | Access | Mapping | Default | Range     | Units | Save     | Parameter  |
|-----------|--------|---------|---------|-----------|-------|----------|------------|
| I8        | RW     | RxPDO   | 37      | -43 to 37 | —     | Possible | [Pr. PT45] |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| A4                         | — | — | — | — | — | — | — |

#### Description

Set a homing method.

For the contents of the homing methods, refer to "Homing method list" in the following manual.

📖MR-J5 User's Manual (Function)

## 15.3 [Homing speeds (Obj. 6099h)]

### [Homing speeds (Obj. 6099h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------|-------|------------|-----------|
| U8                         | RO     | Impossible | 2       | 2 (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |           |       |            |           |
| ECT                        | —      | —          | —       | —         | —     | —          | —         |
| A4                         | —      | —          | —       | —         | —     | —          | —         |

#### Description

The total number of Sub Indexes (= 2) is returned.

### [Speed during search for switch (Obj. 6099h: 01h)]

| Data Type                  | Access | Mapping | Default                 | Range              | Units     | Save     | Parameter               |
|----------------------------|--------|---------|-------------------------|--------------------|-----------|----------|-------------------------|
| U32                        | RW     | RxPDO   | Refer to the following. | 0 to maximum speed | vel units | Possible | Refer to the following. |
| Supported firmware version |        |         |                         |                    |           |          |                         |
| ECT                        | —      | —       | —                       | —                  | —         | —        | —                       |
| A4                         | —      | —       | —                       | —                  | —         | —        | —                       |

#### Description

Set the servo motor speed for homing. If [Pr. PT02.7 Internal position command - Process speed selection] is set to "0" and the set speed exceeds 8000 r/min (or mm/s), the servo motor speed is clamped at 8000 r/min (or mm/s). When changing the maximum value of "Range" to the permissible speed, set [Pr. PA28.4 Speed range limit selection] to "1". The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

| [Pr. PT01.2] | [Pr. PT01.1]     | Connected servo motor | Default | Units          | Parameter  |
|--------------|------------------|-----------------------|---------|----------------|------------|
| —            | 0 (encoder unit) | Rotary servo motor    | 10000   | 0.01 r/min     | [Pr. PT05] |
|              |                  | Linear servo motor    |         | 0.01 mm/s      |            |
| 0 (mm)       | 1 (command unit) | —                     | 500000  | 0.001 mm/s     | [Pr. PV11] |
| 1 (inch)     |                  |                       |         | 0.0001 inch/s  |            |
| 2 (degree)   |                  |                       |         | 0.001 degree/s |            |
| 3 (pulse)    |                  |                       |         | pulse/s        |            |

## [Speed during search for zero (Obj. 6099h: 02h)]

| Data Type | Access | Mapping | Default                 | Range              | Units     | Save     | Parameter               |
|-----------|--------|---------|-------------------------|--------------------|-----------|----------|-------------------------|
| U32       | RW     | RxPDO   | Refer to the following. | 0 to maximum speed | vel units | Possible | Refer to the following. |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| A4                         | — | — | — | — | — | — | — |

### Description

Set a creep speed after proximity dog at homing. If [Pr. PT02.7 Internal position command - Process speed selection] is set to "0" and the set speed exceeds 8000 r/min (or mm/s), the servo motor speed is clamped at 8000 r/min (or mm/s). When changing the maximum value of "Range" to the permissible speed, set [Pr. PA28.4 Speed range limit selection] to "1". The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

| [Pr. PT01.2] | [Pr. PT01.1]     | Connected servo motor | Default | Units          | Parameter  |
|--------------|------------------|-----------------------|---------|----------------|------------|
| —            | 0 (encoder unit) | Rotary servo motor    | 1000    | 0.01 r/min     | [Pr. PT06] |
|              |                  | Linear servo motor    |         | 0.01 mm/s      |            |
| 0 (mm)       | 1 (command unit) | —                     | 100000  | 0.001 mm/s     | [Pr. PV13] |
| 1 (inch)     |                  |                       |         | 0.0001 inch/s  |            |
| 2 (degree)   |                  |                       |         | 0.001 degree/s |            |
| 3 (pulse)    |                  |                       |         | pulse/s        |            |

## 15.4 [Homing acceleration (Obj. 609Ah)]

### [Homing acceleration (Obj. 609Ah: 00h)]

| Data Type                  | Access | Mapping | Default                 | Range                   | Units     | Save     | Parameter               |
|----------------------------|--------|---------|-------------------------|-------------------------|-----------|----------|-------------------------|
| U32                        | RW     | RxPDO   | Refer to the following. | Refer to the following. | acc units | Possible | Refer to the following. |
| Supported firmware version |        |         |                         |                         |           |          |                         |
| ECT                        | —      | —       | —                       | —                       | —         | —        | —                       |
| A4                         | —      | —       | —                       | —                       | —         | —        | —                       |

#### Description

Set the acceleration/deceleration time constants at homing. Set a time for the servo motor to reach the rated speed. The description of the object varies as shown in the table below depending on the settings of [Pr. PT01.2 Unit for position data] and [Pr. PT01.1 Speed/acceleration/deceleration unit selection].

| [Pr. PT01.2] | [Pr. PT01.1]     | Default | Range              | Units                       | Parameter  |
|--------------|------------------|---------|--------------------|-----------------------------|------------|
| —            | 0 (encoder unit) | 0       | 0 to 20000         | ms                          | [Pr. PT56] |
| 0 (mm)       | 1 (command unit) | 0       | 0 to 4294967295 *1 | 0.001 mm/s <sup>2</sup>     | [Pr. PV15] |
| 1 (inch)     |                  |         |                    | 0.0001 inch/s <sup>2</sup>  |            |
| 2 (degree)   |                  |         |                    | 0.001 degree/s <sup>2</sup> |            |
| 3 (pulse)    |                  |         |                    | pulse/s <sup>2</sup>        |            |

\*1 When "0" is set, the servo motor decelerates in accordance with the setting value of [Pr. PT56].

## 15.5 [Supported homing methods (Obj. 60E3h)]

### [Supported homing methods (Obj. 60E3h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| A4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

### [1st supported homing method (Obj. 60E3h: 01h)] - [47th supported homing method (Obj. 60E3h: 2Fh)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| I8                         | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| A4                         | —      | —          | —       | —     | —     | —          | —         |

## Description

The supported homing type is returned. "Range" is fixed to the value in "Default".

For the contents of the homing methods, refer to "Homing method list" in the following manual.

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The following table lists the homing methods and "Default" values for firmware version C0.

| Sub Index | Name                         | Default |
|-----------|------------------------------|---------|
| 01h       | 1st supported homing method  | 37      |
| 02h       | 2nd supported homing method  | 35      |
| 03h       | 3rd supported homing method  | 34      |
| 04h       | 4th supported homing method  | 33      |
| 05h       | 5th supported homing method  | 28      |
| 06h       | 6th supported homing method  | 27      |
| 07h       | 7th supported homing method  | 24      |
| 08h       | 8th supported homing method  | 23      |
| 09h       | 9th supported homing method  | 22      |
| 0Ah       | 10th supported homing method | 21      |
| 0Bh       | 11th supported homing method | 20      |
| 0Ch       | 12th supported homing method | 19      |
| 0Dh       | 13th supported homing method | 18      |
| 0Eh       | 14th supported homing method | 17      |
| 0Fh       | 15th supported homing method | 14      |
| 10h       | 16th supported homing method | 13      |
| 11h       | 17th supported homing method | 12      |
| 12h       | 18th supported homing method | 11      |
| 13h       | 19th supported homing method | 10      |
| 14h       | 20th supported homing method | 9       |
| 15h       | 21st supported homing method | 8       |
| 16h       | 22nd supported homing method | 7       |
| 17h       | 23rd supported homing method | 6       |
| 18h       | 24th supported homing method | 5       |
| 19h       | 25th supported homing method | 4       |
| 1Ah       | 26th supported homing method | 3       |
| 1Bh       | 27th supported homing method | 2       |
| 1Ch       | 28th supported homing method | 1       |
| 1Dh       | 29th supported homing method | -1      |
| 1Eh       | 30th supported homing method | -2      |
| 1Fh       | 31st supported homing method | -3      |
| 20h       | 32nd supported homing method | -4      |
| 21h       | 33rd supported homing method | -6      |
| 22h       | 34th supported homing method | -7      |
| 23h       | 35th supported homing method | -8      |
| 24h       | 36th supported homing method | -9      |
| 25h       | 37th supported homing method | -10     |
| 26h       | 38th supported homing method | -11     |
| 27h       | 39th supported homing method | -33     |
| 28h       | 40th supported homing method | -34     |
| 29h       | 41st supported homing method | -36     |
| 2Ah       | 42nd supported homing method | -38     |
| 2Bh       | 43rd supported homing method | -39     |
| 2Ch       | 44th supported homing method | -40     |
| 2Dh       | 45th supported homing method | -41     |
| 2Eh       | 46th supported homing method | -42     |
| 2Fh       | 47th supported homing method | -43     |

# 16 Point table Mode Objects

## 16.1 [Point table 001 (Obj. 2801h)]

### [Point table 001 (Obj. 2801h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------|-------|------------|-----------|
| U8                         | RO     | Impossible | 7       | 7 (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |           |       |            |           |
| ECT                        | —      | —          | —       | —         | —     | —          | —         |
| B8                         | —      | —          | —       | —         | —     | —          | —         |

#### Description

The total number of Sub Indexes (= 7) is returned.

### [Point data (Obj. 2801h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units     | Save     | Parameter   |
|----------------------------|--------|------------|---------|-------------------------|-----------|----------|-------------|
| I32                        | RW     | Impossible | 0       | Refer to the following. | pos units | Possible | Point table |
| Supported firmware version |        |            |         |                         |           |          |             |
| ECT                        | —      | —          | —       | —                       | —         | —        | —           |
| B8                         | —      | —          | —       | —                       | —         | —        | —           |

#### Description

Set the travel distance of the point table.

The setting range varies depending on the value of [Pr. PT01.2 Unit for position data].

| [Pr. PT01.2] | Range                                              |
|--------------|----------------------------------------------------|
| 0 (mm)       | 80000000h to 7FFFFFFFh (-2147483648 to 2147483647) |
| 1 (inch)     | 80000000h to 7FFFFFFFh (-2147483648 to 2147483647) |
| 2 (degree)   | FFFA81C0h to 00057E40h (-360000 to 360000)         |
| 3 (pulse)    | 80000000h to 7FFFFFFFh (-2147483648 to 2147483647) |

## [Speed (Obj. 2801h: 02h)]

| Data Type | Access | Mapping    | Default | Range              | Units     | Save     | Parameter   |
|-----------|--------|------------|---------|--------------------|-----------|----------|-------------|
| I32       | RW     | Impossible | 0       | 0 to maximum speed | vel units | Possible | Point table |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| B8                         | — | — | — | — | — | — | — |

### Description

Set the command speed of the servo motor while positioning is executed.

When changing the maximum value of "Range" to the permissible speed, set [Pr. PA28.4 Speed range limit selection] to "1".

When "0" is set and the servo motor is started, it is not driven. Refer to "Interruption of point table operation" in the following manual and clear the remaining distance.

 MR-JET User's Manual (Function)

The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

| [Pr. PT01.2] | [Pr. PT01.1]     | Connected servo motor | Units          |
|--------------|------------------|-----------------------|----------------|
| —            | 0 (encoder unit) | Rotary servo motor    | 0.01 r/min     |
|              |                  | Linear servo motor    | 0.01 mm/s      |
| 0 (mm)       | 1 (command unit) | —                     | 0.001 mm/s     |
| 1 (inch)     |                  |                       | 0.0001 inch/s  |
| 2 (degree)   |                  |                       | 0.001 degree/s |
| 3 (pulse)    |                  |                       | pulse/s        |

## [Acceleration (Obj. 2801h: 03h)]

| Data Type | Access | Mapping    | Default | Range                   | Units     | Save     | Parameter   |
|-----------|--------|------------|---------|-------------------------|-----------|----------|-------------|
| I32       | RW     | Impossible | 0       | Refer to the following. | acc units | Possible | Point table |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| B8                         | — | — | — | — | — | — | — |

### Description

Set a time required for the servo motor to reach the rated speed or the acceleration to reach the command speed.

The description of the object varies as shown in the table below depending on the settings of [Pr. PT01.2 Unit for position data] and [Pr. PT01.1 Speed/acceleration/deceleration unit selection].

| [Pr. PT01.2] | [Pr. PT01.1]     | Range              | Units                       |
|--------------|------------------|--------------------|-----------------------------|
| —            | 0 (encoder unit) | 0 to 20000         | ms                          |
| 0 (mm)       | 1 (command unit) | 0 to 2147483647 *1 | 0.001 mm/s <sup>2</sup>     |
| 1 (inch)     |                  |                    | 0.0001 inch/s <sup>2</sup>  |
| 2 (degree)   |                  |                    | 0.001 degree/s <sup>2</sup> |
| 3 (pulse)    |                  |                    | pulse/s <sup>2</sup>        |

\*1 When "0" is set, the servo motor accelerates in accordance with the setting value of [Pr. PT49].



## [Deceleration (Obj. 2801h: 04h)]

| Data Type | Access | Mapping    | Default | Range                   | Units     | Save     | Parameter   |
|-----------|--------|------------|---------|-------------------------|-----------|----------|-------------|
| I32       | RW     | Impossible | 0       | Refer to the following. | acc units | Possible | Point table |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| B8                         | — | — | — | — | — | — | — |

### Description

Set the time required for the servo motor to stop from the rated speed or the deceleration from the command speed to the stop.

The description of the object varies as shown in the table below depending on the settings of [Pr. PT01.2 Unit for position data] and [Pr. PT01.1 Speed/acceleration/deceleration unit selection].

| [Pr. PT01.2] | [Pr. PT01.1]     | Range              | Units                       |
|--------------|------------------|--------------------|-----------------------------|
| —            | 0 (encoder unit) | 0 to 20000         | ms                          |
| 0 (mm)       | 1 (command unit) | 0 to 2147483647 *1 | 0.001 mm/s <sup>2</sup>     |
| 1 (inch)     |                  |                    | 0.0001 inch/s <sup>2</sup>  |
| 2 (degree)   |                  |                    | 0.001 degree/s <sup>2</sup> |
| 3 (pulse)    |                  |                    | pulse/s <sup>2</sup>        |

\*1 When "0" is set, the servo motor decelerates in accordance with the setting value of [Pr. PT50].

## [Dwell (Obj. 2801h: 05h)]

| Data Type | Access | Mapping    | Default | Range      | Units | Save     | Parameter   |
|-----------|--------|------------|---------|------------|-------|----------|-------------|
| I32       | RW     | Impossible | 0       | 0 to 20000 | ms    | Possible | Point table |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| B8                         | — | — | — | — | — | — | — |

### Description

Set the dwell time of point table.

When the dwell is set, the position command of the selected point table is completed, and the position command for the next point table is started after the set dwell elapses.

When "0" or "2" is set for the auxiliary function, dwell is disabled.

When "1", "3", "8", "9", "10", or "11" is set for the auxiliary function and "0" is set in the dwell, continuous operation is executed.

## [Auxiliary (Obj. 2801h: 06h)]

| Data Type                  | Access | Mapping    | Default | Range           | Units | Save     | Parameter   |
|----------------------------|--------|------------|---------|-----------------|-------|----------|-------------|
| I32                        | RW     | Impossible | 0       | 0 to 3, 8 to 11 | —     | Possible | Point table |
| Supported firmware version |        |            |         |                 |       |          |             |
| ECT                        | —      | —          | —       | —               | —     | —        | —           |
| B8                         | —      | —          | —       | —               | —     | —        | —           |

### Description

Set the auxiliary function of the point table.

Setting "1" or "3" for the last point table triggers an alarm.

- Absolute position command method

0: Execute the automatic operation of one selected point table.

1: Execute the automatic continuous operation without stopping the next point table.

8: Execute the automatic continuous operation without stopping the point table selected at startup.

9: Execute the automatic continuous operation without stopping the point table No.1.

- Relative position command method

2: Execute the automatic operation of one selected point table.

3: Execute the automatic continuous operation without stopping the next point table.

10: Execute the automatic continuous operation without stopping the point table selected at startup.

11: Execute the automatic continuous operation without stopping the point table No.1.

## [M code (Obj. 2801h: 07h)]

| Data Type                  | Access | Mapping    | Default | Range    | Units | Save     | Parameter   |
|----------------------------|--------|------------|---------|----------|-------|----------|-------------|
| I32                        | RW     | Impossible | 0       | 0 to 255 | —     | Possible | Point table |
| Supported firmware version |        |            |         |          |       |          |             |
| ECT                        | —      | —          | —       | —        | —     | —        | —           |
| B8                         | —      | —          | —       | —        | —     | —        | —           |

### Description

Set the code to be outputted when the positioning operation is completed.

## 16.2 [Point table 002 (Obj. 2802h)] - Point table 255 (Obj. 28FFh)]

Positioning data of the point table can be obtained and set.

The contents of each Sub Index are the same as [Point table 001].

## 16.3 [Target point table (Obj. 2D60h)]

### [Target point table (Obj. 2D60h: 00h)]

| Data Type                  | Access | Mapping | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------|-------|------------|-----------|
| l16                        | RW     | RxPDO   | 0       | -1 to 255 | —     | Impossible | —         |
| Supported firmware version |        |         |         |           |       |            |           |
| ECT                        | —      | —       | —       | —         | —     | —          | —         |
| B8                         | —      | —       | —       | —         | —     | —          | —         |

### Description

The values of the specified point table number can be obtained and set.

| Operation mode        | Description                                                                                      |
|-----------------------|--------------------------------------------------------------------------------------------------|
| Point table mode (pt) | 0: Does not operate.<br>1 to 255: Specified point table execution<br>-1: Positioning to the home |

## 16.4 [Point demand value (Obj. 2D68h)]

### [Point demand value (Obj. 2D68h: 00h)]

| Data Type                  | Access | Mapping | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------|-------|------------|-----------|
| l16                        | RO     | TxPDO   | —       | -1 to 255 | —     | Impossible | —         |
| Supported firmware version |        |         |         |           |       |            |           |
| ECT                        | —      | —       | —       | —         | —     | —          | —         |
| B8                         | —      | —       | —       | —         | —     | —          | —         |

### Description

The point table number which is currently being commanded is returned.

When the servo motor is stopped, the setting value of [Target point table] is returned.

| Operation mode        | Description                                                                                                            |
|-----------------------|------------------------------------------------------------------------------------------------------------------------|
| Point table mode (pt) | 0: Not specified<br>1 to 255: The point table number which is currently being commanded<br>-1: Positioning to the home |

## 16.5 [Point actual value (Obj. 2D69h)]

### [Point actual value (Obj. 2D69h: 00h)]

| Data Type                  | Access | Mapping | Default | Range    | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------|-------|------------|-----------|
| I16                        | RO     | TxPDO   | —       | 0 to 255 | —     | Impossible | —         |
| Supported firmware version |        |         |         |          |       |            |           |
| ECT                        | —      | —       | —       | —        | —     | —          | —         |
| B8                         | —      | —       | —       | —        | —     | —          | —         |

#### Description

The point table number at which operation has completed most recently is returned.

| Operation mode        | Description                                                                                         |
|-----------------------|-----------------------------------------------------------------------------------------------------|
| Point table mode (pt) | 0: Homing completion<br>1 to 255: Point table number at which operation has completed most recently |

## 16.6 [M code actual value (Obj. 2D6Ah)]

### [M code actual value (Obj. 2D6Ah: 00h)]

| Data Type                  | Access | Mapping | Default | Range    | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------|-------|------------|-----------|
| U8                         | RO     | TxPDO   | —       | 0 to 255 | —     | Impossible | —         |
| Supported firmware version |        |         |         |          |       |            |           |
| ECT                        | —      | —       | —       | —        | —     | —          | —         |
| B8                         | —      | —       | —       | —        | —     | —          | —         |

#### Description

The M code of the point table at which execution has completed is returned.

When the mode is other than the point table mode (pt), "0" is returned.

# 17 Factor Group Objects

## 17.1 [Polarity (Obj. 607Eh)]

### [Polarity (Obj. 607Eh: 00h)]

| Data Type | Access | Mapping | Default | Range      | Units | Save     | Parameter                  |
|-----------|--------|---------|---------|------------|-------|----------|----------------------------|
| U8        | RW     | RxPDO   | 00h     | 00h to E0h | —     | Possible | [Pr. PA14]<br>[Pr. PC29.3] |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| A4                         | — | — | — | — | — | — | — |

### Description

The rotation direction selection can be set.

| Bit | Description                                                                                                                                           |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0   | reserved                                                                                                                                              |
| 1   | reserved                                                                                                                                              |
| 2   | reserved                                                                                                                                              |
| 3   | reserved                                                                                                                                              |
| 4   | reserved                                                                                                                                              |
| 5   | 0: Servo motor CCW rotation at positive torque<br>1: Servo motor CW rotation at positive torque                                                       |
| 6   | 0: Servo motor CCW rotation at positive speed<br>1: Servo motor CW rotation at positive speed                                                         |
| 7   | 0: Servo motor CCW rotation in the positioning address increase direction<br>1: Servo motor CW rotation in the positioning address increase direction |

## 17.2 [Position encoder resolution (Obj. 608Fh)]

### [Position encoder resolution (Obj. 608Fh: 00h)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------|-------|------------|-----------|
| U8                         | RO     | Impossible | 2       | 2 (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |           |       |            |           |
| ECT                        | —      | —          | —       | —         | —     | —          | —         |
| A4                         | —      | —          | —       | —         | —     | —          | —         |

#### Description

The total number of Sub Indexes (= 2) is returned.

### [Encoder increments (Obj. 608Fh: 01h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------------|-------|------------|-----------|
| U32                        | RW     | RxPDO   | —       | 0 to 4294967295 | inc   | Impossible | —         |
| Supported firmware version |        |         |         |                 |       |            |           |
| ECT                        | —      | —       | —       | —               | —     | —          | —         |
| A4                         | —      | —       | —       | —               | —     | —          | —         |

#### Description

The encoder resolution is returned. When the linear servo motor is connected, the virtual resolution per revolution is returned. When the servo motor is used on a fully closed loop system configuration, the number of the load-side pulses of one revolution of the servo motor-side is returned.

Writing a value triggers an error.

The PDO Mapping attribute can be changed with the setting value of [Pr. PN03.3 Object attribute selection]. For details, refer to "[Pr. PN03.3 Object attribute selection]" in the following manual.

 MR-JET-G-N1 User's Manual (Introduction)

### [Motor revolutions (Obj. 608Fh: 02h)]

| Data Type                  | Access | Mapping | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------|-------|------------|-----------|
| U32                        | RW     | RxPDO   | 1       | 1 (fixed) | rev   | Impossible | —         |
| Supported firmware version |        |         |         |           |       |            |           |
| ECT                        | —      | —       | —       | —         | —     | —          | —         |
| A4                         | —      | —       | —       | —         | —     | —          | —         |

#### Description

The number of revolutions of the servo motor is returned. The value for the number of revolutions of the servo motor is fixed to "1".

Writing a value triggers an error.

The PDO Mapping attribute can be changed with the setting value of [Pr. PN03.3 Object attribute selection]. For details, refer to "[Pr. PN03.3 Object attribute selection]" in the following manual.

 MR-JET-G-N1 User's Manual (Introduction)

## 17.3 [Gear ratio (Obj. 6091h)]

### [Gear ratio (Obj. 6091h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------|-------|------------|-----------|
| U8                         | RO     | Impossible | 2       | 2 (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |           |       |            |           |
| ECT                        | —      | —          | —       | —         | —     | —          | —         |
| A4                         | —      | —          | —       | —         | —     | —          | —         |

#### Description

The total number of Sub Indexes (= 2) is returned.

### [Motor revolutions (Obj. 6091h: 01h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save     | Parameter  |
|----------------------------|--------|---------|---------|-----------------|-------|----------|------------|
| U32                        | RW     | RxPDO   | 1       | 1 to 2147483647 | rev   | Possible | [Pr. PA06] |
| Supported firmware version |        |         |         |                 |       |          |            |
| ECT                        | —      | —       | —       | —               | —     | —        | —          |
| A4                         | —      | —       | —       | —               | —     | —        | —          |

#### Description

The number of revolutions of the servo motor shaft (numerator) can be set. Refer to "[Pr. PA06 Electronic gear numerator (\*CMX)]" in the following manual for the range of settable values.

MR-JET-G User's Manual (Parameters)

### [Shaft revolutions (Obj. 6091h: 02h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save     | Parameter  |
|----------------------------|--------|---------|---------|-----------------|-------|----------|------------|
| U32                        | RW     | RxPDO   | 1       | 1 to 2147483647 | rev   | Possible | [Pr. PA07] |
| Supported firmware version |        |         |         |                 |       |          |            |
| ECT                        | —      | —       | —       | —               | —     | —        | —          |
| A4                         | —      | —       | —       | —               | —     | —        | —          |

#### Description

The number of revolutions of the drive shaft (denominator) can be set. Refer to "[Pr. PA07 Electronic gear denominator (\*CDV)]" in the following manual for the range of settable values.

MR-JET-G User's Manual (Parameters)

## 17.4 [Feed constant (Obj. 6092h)]

[Position actual value (Obj. 6064h)] is calculated from [Gear ratio (Obj. 6091h)] and [Feed constant (Obj. 6092h)] as follows.

$$[\text{Position actual value (Obj. 6064h)}] = \frac{[\text{Position actual internal value (Obj. 6063h)}] \times [\text{Feed constant (Obj. 6092h)}]}{[\text{Position encoder resolution (Obj. 608Fh)}] \times [\text{Gear ratio (Obj. 6091h)}]}$$

The following table shows the description returned by [Feed (Obj. 6092h: 01h)] and [Shaft revolutions (Obj. 6092h: 02h)].

| [Pr. PT01.2] | [Feed]                                   | [Shaft revolutions] |
|--------------|------------------------------------------|---------------------|
| 0 (mm)       | Connected servo motor encoder resolution | 1                   |
| 1 (inch)     | Connected servo motor encoder resolution | 1                   |
| 2 (degree)   | 360000                                   | 1                   |
| 3 (pulse)    | Connected servo motor encoder resolution | 1                   |

### [Feed constant (Obj. 6092h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------|-------|------------|-----------|
| U8                         | RO     | Impossible | 2       | 2 (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |           |       |            |           |
| ECT                        | —      | —          | —       | —         | —     | —          | —         |
| A4                         | —      | —          | —       | —         | —     | —          | —         |

#### Description

The total number of Sub Indexes (= 2) is returned.

### [Feed (Obj. 6092h: 01h)]

| Data Type                  | Access | Mapping | Default | Range | Units     | Save     | Parameter |
|----------------------------|--------|---------|---------|-------|-----------|----------|-----------|
| U32                        | RW     | RxPDO   | —       | —     | pos units | Possible | —         |
| Supported firmware version |        |         |         |       |           |          |           |
| ECT                        | —      | —       | —       | —     | —         | —        | —         |
| A4                         | —      | —       | —       | —     | —         | —        | —         |

#### Description

The travel distance per revolution of the output shaft is returned. [Feed] is automatically set in accordance with [Pr. PT01.2 Unit for position data]. Do not write a value to [Feed]. Writing a value triggers an error.

### [Shaft revolutions (Obj. 6092h: 02h)]

| Data Type                  | Access | Mapping | Default | Range     | Units | Save     | Parameter |
|----------------------------|--------|---------|---------|-----------|-------|----------|-----------|
| U32                        | RW     | RxPDO   | —       | 1 to 1000 | rev   | Possible | —         |
| Supported firmware version |        |         |         |           |       |          |           |
| ECT                        | —      | —       | —       | —         | —     | —        | —         |
| A4                         | —      | —       | —       | —         | —     | —        | —         |

#### Description

The number of revolutions of the servo motor is returned. Writing a value triggers an error.



## 17.5 [SI unit position (Obj. 60A8h)]

### [SI unit position (Obj. 60A8h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| U32                        | RW     | Impossible | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |            |         |                         |       |            |           |
| ECT                        | —      | —          | —       | —                       | —     | —          | —         |
| A4                         | —      | —          | —       | —                       | —     | —          | —         |

#### Description

This object value is automatically set in accordance with [Pr. PT01.2 Unit for position data].

| [Pr. PT01.2] | Range                    |
|--------------|--------------------------|
| 0 (mm)       | FA010000h (0.001 mm)     |
| 1 (inch)     | FCC00000h (0.0001 inch)  |
| 2 (degree)   | FD410000h (0.001 degree) |
| 3 (pulse)    | 00000000h (1 pulse)      |

## 17.6 [SI unit velocity (Obj. 60A9h)]

### [SI unit velocity (Obj. 60A9h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| U32                        | RW     | Impossible | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |            |         |                         |       |            |           |
| ECT                        | —      | —          | —       | —                       | —     | —          | —         |
| A4                         | —      | —          | —       | —                       | —     | —          | —         |

#### Description

The SI unit velocity is returned.

The SI unit velocity is automatically set in accordance with the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

| [Pr. PT01.2] | [Pr. PT01.1]     | Connected servo motor | Range                      |
|--------------|------------------|-----------------------|----------------------------|
| —            | 0 (encoder unit) | Rotary servo motor    | FEB44700h (0.01 r/min)     |
|              |                  | Linear servo motor    | FB010300h (0.01 mm/s)      |
| 0 (mm)       | 1 (command unit) | —                     | FA010300h (0.001 mm/s)     |
| 1 (inch)     |                  |                       | FCC00300h (0.0001 inch/s)  |
| 2 (degree)   |                  |                       | FD410300h (0.001 degree/s) |
| 3 (pulse)    |                  |                       | 00000300h (pulse/s)        |

## 17.7 [SI unit acceleration (Obj. 60AAh)]

### [SI unit acceleration (Obj. 60AAh: 00h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| I32                        | RW     | Impossible | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |            |         |                         |       |            |           |
| ECT                        | —      | —          | —       | —                       | —     | —          | —         |
| A4                         | —      | —          | —       | —                       | —     | —          | —         |

### Description

The SI unit acceleration is returned.

The SI unit acceleration is automatically set in accordance with the combination of the settings of [Pr. PT01.2 Unit for position data] and [Pr. PT01.1 Speed/acceleration/deceleration unit selection].

| [Pr. PT01.2] | [Pr. PT01.1]     | Range                                    |
|--------------|------------------|------------------------------------------|
| —            | 0 (encoder unit) | FD030000h (ms)                           |
| 0 (mm)       | 1 (command unit) | FA015700h (0.001 mm/s <sup>2</sup> )     |
| 1 (inch)     |                  | FCC05700h (0.0001 inch/s <sup>2</sup> )  |
| 2 (degree)   |                  | FD415700h (0.001 degree/s <sup>2</sup> ) |
| 3 (pulse)    |                  | 00005700h (pulse/s <sup>2</sup> )        |

# 18 Touch Probe Function Objects

## 18.1 [Touch probe function 2 (Obj. 2DE8h)]

18

### [Touch probe function 2 (Obj. 2DE8h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | RxPDO   | —       | 0000h to 0037h | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| C4                         | —      | —       | —       | —              | —     | —          | —         |

### Description

Set the detail of the touch probe function.

By setting [Pr. PT26.4 Touch probe latch position selection], the reflecting patterns of [Pr. PA14 Travel direction selection] and [Pr. PT08 Homing position data] to the latched position feedback can be changed.

When the touch probe function is not available for the servo amplifier being used, set "0000h".

| Bit     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0       | 0: Touch probe 3 disabled<br>1: Touch probe 3 enabled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1       | 0: Single trigger mode<br>1: Continuous trigger mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 2       | 0: Triggered by inputting touch probe 3<br>1: Triggered at the zero point of the encoder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3       | (reserved) The value at reading is undefined. Set "0" when writing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 4       | 0: Stop sampling the rising edge of touch probe 3<br>1: Start sampling the rising edge of touch probe 3<br>If input of touch probe 3 is set as a trigger (bit 2 = 0), the position feedback latched at the rising edge of touch probe 3 is stored in [Touch probe 3 positive edge (Obj. 2DEAh)], and the time stamp in [Touch probe time stamp 3 positive value (Obj. 2DF8h)].<br>If the zero point of the encoder is set as a trigger (bit 2 = 1), the position feedback at passing the zero point of the encoder *1 is stored in [Touch probe 3 positive edge (Obj. 2DEAh)].    |
| 5       | 0: Stop sampling the falling edge of touch probe 3<br>1: Start sampling the falling edge of touch probe 3<br>If input of touch probe 3 is set as a trigger (bit 2 = 0), the position feedback latched at the falling edge of touch probe 3 is stored in [Touch probe 3 negative edge (Obj. 2DEBh)], and the time stamp in [Touch probe time stamp 3 negative value (Obj. 2DF9h)].<br>If the zero point of the encoder is set as a trigger (bit 2 = 1), the position feedback at passing the zero point of the encoder *1 is stored in [Touch probe 3 negative edge (Obj. 2DEBh)]. |
| 6       | (reserved) The value at reading is undefined. Set "0" when writing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 7       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 8 to 15 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

\*1 For linear servo motors, the zero point of the encoder is a position between homing stop intervals [pulse] (changeable with [Pr. PL01.2 Homing stop interval setting]) based on the linear encoder home position. When multiple linear encoder home positions exist during the full stroke of the linear encoder, the trigger cannot be set to the zero point of the encoder.

## 18.2 [Touch probe status 2 (Obj. 2DE9h)]

### [Touch probe status 2 (Obj. 2DE9h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | —       | 0000h to 00FFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| C4                         | —      | —       | —       | —              | —     | —          | —         |

#### Description

The status of the touch probe function is returned.

| Bit     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0       | 0: Touch probe 3 disabled<br>1: Touch probe 3 enabled                                                                                                                                                                                                                                                                                                                                                                                         |
| 1       | 0: The position at the rising edge of touch probe 3 has not been stored.<br>1: The position at the rising edge of touch probe 3 has been stored.<br>When the position feedback is stored in [Touch probe 3 positive edge (Obj. 2DEAh)] and the time stamp is stored in [Touch probe time stamp 3 positive value (Obj. 2DF8h)], "1" is set.<br>This bit is cleared to "0" when bit 4 of [Touch probe function 2 (Obj. 2DE8h)] is set to "0".   |
| 2       | 0: The position at the falling edge of touch probe 3 has not been stored.<br>1: The position at the falling edge of touch probe 3 has been stored.<br>When the position feedback is stored in [Touch probe 3 negative edge (Obj. 2DEBh)] and the time stamp is stored in [Touch probe time stamp 3 negative value (Obj. 2DF9h)], "1" is set.<br>This bit is cleared to "0" when bit 5 of [Touch probe function 2 (Obj. 2DE8h)] is set to "0". |
| 3 to 5  | (reserved) The value at reading is undefined.                                                                                                                                                                                                                                                                                                                                                                                                 |
| 6       | Toggle status for latch completion at the rising edge of touch probe 3<br>0 or 1: When bit 1 of [Touch probe function 2 (Obj. 2DE8h)] is set to "1" (continuous trigger mode), the status toggles between "0" and "1" every time the position feedback is stored in [Touch probe 3 positive edge (Obj. 2DEAh)] and the time stamp is stored in [Touch probe time stamp 3 positive value (Obj. 2DF8h)].                                        |
| 7       | Toggle status for latch completion at the falling edge of touch probe 3<br>0 or 1: When bit 1 of [Touch probe function 2 (Obj. 2DE8h)] is set to "1" (continuous trigger mode), the status toggles between "0" and "1" every time the position feedback is stored in [Touch probe 3 negative edge (Obj. 2DEBh)] and the time stamp is stored in [Touch probe time stamp 3 negative value (Obj. 2DF9h)].                                       |
| 8 to 15 | (reserved) The value at reading is undefined.                                                                                                                                                                                                                                                                                                                                                                                                 |

## 18.3 [Touch probe 3 positive edge (Obj. 2DEAh)]

### [Touch probe 3 positive edge (Obj. 2DEAh: 00h)]

| Data Type                  | Access | Mapping | Default | Range                     | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|---------------------------|-----------|------------|-----------|
| I32                        | RO     | TxPDO   | 0       | -2147483648 to 2147483647 | pos units | Impossible | —         |
| Supported firmware version |        |         |         |                           |           |            |           |
| ECT                        | —      | —       | —       | —                         | —         | —          | —         |
| C4                         | —      | —       | —       | —                         | —         | —          | —         |

#### Description

The position latched at the rising edge of touch probe 3 is returned.

## 18.4 [Touch probe 3 negative edge (Obj. 2DEBh)]

### [Touch probe 3 negative edge (Obj. 2DEBh: 00h)]

| Data Type                  | Access | Mapping | Default | Range                     | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|---------------------------|-----------|------------|-----------|
| I32                        | RO     | TxPDO   | 0       | -2147483648 to 2147483647 | pos units | Impossible | —         |
| Supported firmware version |        |         |         |                           |           |            |           |
| ECT                        | —      | —       | —       | —                         | —         | —          | —         |
| C4                         | —      | —       | —       | —                         | —         | —          | —         |

#### Description

The position latched at the falling edge of touch probe 3 is returned.

## 18.5 [Touch probe time stamp 3 positive value (Obj. 2DF8h)]

### [Touch probe time stamp 3 positive value (Obj. 2DF8h: 00h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | 0       | 0 to 4294967295 | ns    | Impossible | —         |
| Supported firmware version |        |         |         |                 |       |            |           |
| ECT                        | —      | —       | —       | —               | —     | —          | —         |
| C4                         | —      | —       | —       | —               | —     | —          | —         |

#### Description

The time stamp latched at the rising edge of touch probe 3 (the lower 32 bits of the network time (unit: ns)) is returned.

"0" is returned in the following cases.

- The touch probe function is disabled.
- The servo amplifier does not support the touch probe function.
- Bit 2 of [Touch probe function 2 (Obj. 2DE8h: 00h)] is set to "1".

## 18.6 [Touch probe time stamp 3 negative value (Obj. 2DF9h)]

### [Touch probe time stamp 3 negative value (Obj. 2DF9h: 00h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | 0       | 0 to 4294967295 | ns    | Impossible | —         |
| Supported firmware version |        |         |         |                 |       |            |           |
| ECT                        | —      | —       | —       | —               | —     | —          | —         |
| C4                         | —      | —       | —       | —               | —     | —          | —         |

#### Description

The time stamp latched at the falling edge of touch probe 3 (the lower 32 bits of the network time (unit: ns)) is returned. "0" is returned in the following cases.

- The touch probe function is disabled.
- The servo amplifier does not support the touch probe function.
- Bit 2 of [Touch probe function 2 (Obj. 2DE8h: 00h)] is set to "1".

## 18.7 [Touch probe function (Obj. 60B8h)]

### [Touch probe function (Obj. 60B8h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RW     | RxPDO   | —       | 0000h to FFFFh | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| C4                         | —      | —       | —       | —              | —     | —          | —         |

## Description

Set the detail of the touch probe function.

By setting [Pr. PT26.4 Touch probe latch position selection], the reflecting patterns of [Pr. PA14 Travel direction selection] and [Pr. PT08 Homing position data] to the latched position feedback can be changed.

When the touch probe function is not available for the servo amplifier being used, set "0000h".

| Bit | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0   | 0: Touch probe 1 disabled<br>1: Touch probe 1 enabled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1   | 0: Single trigger mode<br>1: Continuous trigger mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 2   | 0: Triggered by inputting touch probe 1<br>1: Triggered at the zero point of the encoder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 3   | (reserved) The value at reading is undefined. Set "0" when writing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 4   | 0: Stop sampling the rising edge of touch probe 1<br>1: Start sampling the rising edge of touch probe 1<br>If input of touch probe 1 is set as a trigger (bit 2 = 0), the position feedback latched at the rising edge of touch probe 1 is stored in [Touch probe 1 positive edge (Obj. 60BAh)], and the time stamp in [Touch probe time stamp 1 positive value (Obj. 60D1h)].<br>If the zero point of the encoder is set as a trigger (bit 2 = 1), the position feedback at passing the zero point of the encoder <sup>*1</sup> is stored in [Touch probe 1 positive edge (Obj. 60BAh)].      |
| 5   | 0: Stop sampling the falling edge of touch probe 1<br>1: Start sampling the falling edge of touch probe 1<br>If input of touch probe 1 is set as a trigger (bit 2 = 0), the position feedback latched at the falling edge of touch probe 1 is stored in [Touch probe 1 negative edge (Obj. 60BBh)], and the time stamp in [Touch probe time stamp 1 negative value (Obj. 60D2h)].<br>If the zero point of the encoder is set as a trigger (bit 2 = 1), the position feedback at passing the zero point of the encoder <sup>*1</sup> is stored in [Touch probe 1 negative edge (Obj. 60BBh)].   |
| 6   | (reserved) The value at reading is undefined. Set "0" when writing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 7   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 8   | 0: Touch probe 2 disabled<br>1: Touch probe 2 enabled                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 9   | 0: Single trigger mode<br>1: Continuous trigger mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 10  | 0: Triggered by inputting touch probe 2<br>1: Triggered at the zero point of the encoder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 11  | (reserved) The value at reading is undefined. Set "0" when writing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 12  | 0: Stop sampling the rising edge of touch probe 2<br>1: Start sampling the rising edge of touch probe 2<br>If input of touch probe 2 is set as a trigger (bit 10 = 0), the position feedback latched at the rising edge of touch probe 2 is stored in [Touch probe 2 positive edge (Obj. 60BCh)], and the time stamp in [Touch probe time stamp 2 positive value (Obj. 60D3h)].<br>If the zero point of the encoder is set as a trigger (bit 10 = 1), the position feedback at passing the zero point of the encoder <sup>*1</sup> is stored in [Touch probe 2 positive edge (Obj. 60BCh)].    |
| 13  | 0: Stop sampling the falling edge of touch probe 2<br>1: Start sampling the falling edge of touch probe 2<br>If input of touch probe 2 is set as a trigger (bit 10 = 0), the position feedback latched at the falling edge of touch probe 2 is stored in [Touch probe 2 negative edge (Obj. 60BDh)], and the time stamp in [Touch probe time stamp 2 negative value (Obj. 60D4h)].<br>If the zero point of the encoder is set as a trigger (bit 10 = 1), the position feedback at passing the zero point of the encoder <sup>*1</sup> is stored in [Touch probe 2 negative edge (Obj. 60BDh)]. |
| 14  | (reserved) The value at reading is undefined. Set "0" when writing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 15  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

<sup>\*1</sup> For linear servo motors, the zero point of the encoder is a position between homing stop intervals [pulse] (changeable with [Pr. PL01.2 Homing stop interval setting]) based on the linear encoder home position. When multiple linear encoder home positions exist during the full stroke of the linear encoder, the trigger cannot be set to the zero point of the encoder.

## 18.8 [Touch probe status (Obj. 60B9h)]

### [Touch probe status (Obj. 60B9h: 00h)]

| Data Type                  | Access | Mapping | Default | Range          | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|----------------|-------|------------|-----------|
| U16                        | RO     | TxPDO   | —       | 0000h to 0707h | —     | Impossible | —         |
| Supported firmware version |        |         |         |                |       |            |           |
| ECT                        | —      | —       | —       | —              | —     | —          | —         |
| C4                         | —      | —       | —       | —              | —     | —          | —         |

### Description

The status of the touch probe function is returned.

When the touch probe function is disabled or when the function is not available for the servo amplifier used, "0000h" is returned.

| Bit      | Description                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0        | 0: Touch probe 1 disabled<br>1: Touch probe 1 enabled                                                                                                                                                                                                                                                                                                                                                                                |
| 1        | 0: The data at the rising edge of touch probe 1 has not been stored.<br>1: The data at the rising edge of touch probe 1 has been stored.<br>When the position feedback is stored in [Touch probe 1 positive edge (Obj. 60BAh)] and the time stamp is stored in [Touch probe time stamp 1 positive value (Obj. 60D1h)], "1" is set.<br>This bit is cleared to "0" when bit 4 of [Touch probe function (Obj. 60B8h)] is set to "0".    |
| 2        | 0: The data at the falling edge of touch probe 1 has not been stored.<br>1: The data at the falling edge of touch probe 1 has been stored.<br>When the position feedback is stored in [Touch probe 1 negative edge (Obj. 60BBh)] and the time stamp is stored in [Touch probe time stamp 1 negative value (Obj. 60D2h)], "1" is set.<br>This bit is cleared to "0" when bit 5 of [Touch probe function (Obj. 60B8h)] is set to "0".  |
| 3 to 5   | (reserved) The value at reading is undefined. Set "0" when writing.                                                                                                                                                                                                                                                                                                                                                                  |
| 6        | Toggle status for latch completion at the rising edge of touch probe 1<br>0 or 1: When bit 1 of [Touch probe function (Obj. 60B8h)] is set to "1" (continuous trigger mode), the status toggles between "0" and "1" every time the position feedback is stored in [Touch probe 1 positive edge (Obj. 60BAh)] and the time stamp is stored in [Touch probe time stamp 1 positive value (Obj. 60D1h)].                                 |
| 7        | Toggle status for latch completion at the falling edge of touch probe 1<br>0 or 1: When bit 1 of [Touch probe function (Obj. 60B8h)] is set to "1" (continuous trigger mode), the status toggles between "0" and "1" every time the position feedback is stored in [Touch probe 1 negative edge (Obj. 60BBh)] and the time stamp is stored in [Touch probe time stamp 1 negative value (Obj. 60D2h)].                                |
| 8        | 0: Touch probe 2 disabled<br>1: Touch probe 2 enabled                                                                                                                                                                                                                                                                                                                                                                                |
| 9        | 0: The data at the rising edge of touch probe 2 has not been stored.<br>1: The data at the rising edge of touch probe 2 has been stored.<br>When the position feedback is stored in [Touch probe 2 positive edge (Obj. 60BCh)] and the time stamp is stored in [Touch probe time stamp 2 positive value (Obj. 60D3h)], "1" is set.<br>This bit is cleared to "0" when bit 12 of [Touch probe function (Obj. 60B8h)] is set to "0".   |
| 10       | 0: The data at the falling edge of touch probe 2 has not been stored.<br>1: The data at the falling edge of touch probe 2 has been stored.<br>When the position feedback is stored in [Touch probe 2 negative edge (Obj. 60BDh)] and the time stamp is stored in [Touch probe time stamp 2 negative value (Obj. 60D4h)], "1" is set.<br>This bit is cleared to "0" when bit 13 of [Touch probe function (Obj. 60B8h)] is set to "0". |
| 11 to 13 | (reserved) The value at reading is undefined. Set "0" when writing.                                                                                                                                                                                                                                                                                                                                                                  |
| 14       | Toggle status for latch completion at the rising edge of touch probe 2<br>0 or 1: When bit 9 of [Touch probe function (Obj. 60B8h)] is set to "1" (continuous trigger mode), the status toggles between "0" and "1" every time the position feedback is stored in [Touch probe 2 positive edge (Obj. 60BCh)] and the time stamp is stored in [Touch probe time stamp 2 positive value (Obj. 60D3h)].                                 |
| 15       | Toggle status for latch completion at the falling edge of touch probe 2<br>0 or 1: When bit 9 of [Touch probe function (Obj. 60B8h)] is set to "1" (continuous trigger mode), the status toggles between "0" and "1" every time the position feedback is stored in [Touch probe 2 negative edge (Obj. 60BDh)] and the time stamp is stored in [Touch probe time stamp 2 negative value (Obj. 60D4h)].                                |



## 18.9 [Touch probe 1 positive edge (Obj. 60BAh)]

### [Touch probe 1 positive edge (Obj. 60BAh: 00h)]

| Data Type                  | Access | Mapping | Default | Range                     | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|---------------------------|-----------|------------|-----------|
| I32                        | RO     | TxPDO   | 0       | -2147483648 to 2147483647 | pos units | Impossible | —         |
| Supported firmware version |        |         |         |                           |           |            |           |
| ECT                        | —      | —       | —       | —                         | —         | —          | —         |
| C4                         | —      | —       | —       | —                         | —         | —          | —         |

#### Description

The position latched at the rising edge of touch probe 1 is returned.

When the touch probe function is disabled or when the function is not available for the servo amplifier used, "0" is returned.

## 18.10 [Touch probe 1 negative edge (Obj. 60BBh)]

### [Touch probe 1 negative edge (Obj. 60BBh: 00h)]

| Data Type                  | Access | Mapping | Default | Range                     | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|---------------------------|-----------|------------|-----------|
| I32                        | RO     | TxPDO   | 0       | -2147483648 to 2147483647 | pos units | Impossible | —         |
| Supported firmware version |        |         |         |                           |           |            |           |
| ECT                        | —      | —       | —       | —                         | —         | —          | —         |
| C4                         | —      | —       | —       | —                         | —         | —          | —         |

#### Description

The position latched at the falling edge of touch probe 1 is returned.

When the touch probe function is disabled or when the function is not available for the servo amplifier used, "0" is returned.

## 18.11 [Touch probe 2 positive edge (Obj. 60BCh)]

### [Touch probe 2 positive edge (Obj. 60BCh: 00h)]

| Data Type                  | Access | Mapping | Default | Range                     | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|---------------------------|-----------|------------|-----------|
| I32                        | RO     | TxPDO   | 0       | -2147483648 to 2147483647 | pos units | Impossible | —         |
| Supported firmware version |        |         |         |                           |           |            |           |
| ECT                        | —      | —       | —       | —                         | —         | —          | —         |
| C4                         | —      | —       | —       | —                         | —         | —          | —         |

#### Description

The position latched at the rising edge of touch probe 2 is returned.

When the touch probe function is disabled or when the function is not available for the servo amplifier used, "0" is returned.

## 18.12 [Touch probe 2 negative edge (Obj. 60BDh)]

### [Touch probe 2 negative edge (Obj. 60BDh: 00h)]

| Data Type                  | Access | Mapping | Default | Range                     | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|---------------------------|-----------|------------|-----------|
| I32                        | RO     | TxPDO   | 0       | -2147483648 to 2147483647 | pos units | Impossible | —         |
| Supported firmware version |        |         |         |                           |           |            |           |
| ECT                        | —      | —       | —       | —                         | —         | —          | —         |
| C4                         | —      | —       | —       | —                         | —         | —          | —         |

#### Description

The position latched at the falling edge of touch probe 2 is returned.

When the touch probe function is disabled or when the function is not available for the servo amplifier used, "0" is returned.

## 18.13 [Touch probe time stamp 1 positive value (Obj. 60D1h)]

### [Touch probe time stamp 1 positive value (Obj. 60D1h: 00h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | 0       | 0 to 4294967295 | ns    | Impossible | —         |
| Supported firmware version |        |         |         |                 |       |            |           |
| ECT                        | —      | —       | —       | —               | —     | —          | —         |
| C4                         | —      | —       | —       | —               | —     | —          | —         |

#### Description

The time stamp latched at the rising edge of touch probe 1 (the lower 32 bits of the network time (unit: ns)) is returned.

"0" is returned in the following cases.

- The touch probe function is disabled.
- The servo amplifier does not support the touch probe function.
- Bit 2 of [Touch probe function (Obj. 60B8h: 00h)] is set to "1".

## 18.14 [Touch probe time stamp 1 negative value (Obj. 60D2h)]

### [Touch probe time stamp 1 negative value (Obj. 60D2h: 00h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | 0       | 0 to 4294967295 | ns    | Impossible | —         |
| Supported firmware version |        |         |         |                 |       |            |           |
| ECT                        | —      | —       | —       | —               | —     | —          | —         |
| C4                         | —      | —       | —       | —               | —     | —          | —         |

#### Description

The time stamp latched at the falling edge of touch probe 1 (the lower 32 bits of the network time (unit: ns)) is returned. "0" is returned in the following cases.

- The touch probe function is disabled.
- The servo amplifier does not support the touch probe function.
- Bit 2 of [Touch probe function (Obj. 60B8h: 00h)] is set to "1".

## 18.15 [Touch probe time stamp 2 positive value (Obj. 60D3h)]

### [Touch probe time stamp 2 positive value (Obj. 60D3h: 00h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | 0       | 0 to 4294967295 | ns    | Impossible | —         |
| Supported firmware version |        |         |         |                 |       |            |           |
| ECT                        | —      | —       | —       | —               | —     | —          | —         |
| C4                         | —      | —       | —       | —               | —     | —          | —         |

#### Description

The time stamp latched at the rising edge of touch probe 2 (the lower 32 bits of the network time (unit: ns)) is returned. "0" is returned in the following cases.

- The touch probe function is disabled.
- The servo amplifier does not support the touch probe function.
- Bit 10 of [Touch probe function (Obj. 60B8h: 00h)] is set to "1".

## 18.16 [Touch probe time stamp 2 negative value (Obj. 60D4h)]

### [Touch probe time stamp 2 negative value (Obj. 60D4h: 00h)]

| Data Type                  | Access | Mapping | Default | Range           | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | 0       | 0 to 4294967295 | ns    | Impossible | —         |
| Supported firmware version |        |         |         |                 |       |            |           |
| ECT                        | —      | —       | —       | —               | —     | —          | —         |
| C4                         | —      | —       | —       | —               | —     | —          | —         |

#### Description

The time stamp latched at the falling edge of touch probe 2 (the lower 32 bits of the network time (unit: ns)) is returned. "0" is returned in the following cases.

- The touch probe function is disabled.
- The servo amplifier does not support the touch probe function.
- Bit 10 of [Touch probe function (Obj. 60B8h: 00h)] is set to "1".

# 19 Optional application FE Objects

## 19.1 [Digital inputs (Obj. 60FDh)]

### [Digital inputs (Obj. 60FDh: 00h)]

| Data Type                         | Access | Mapping | Default | Range                  | Units | Save       | Parameter |
|-----------------------------------|--------|---------|---------|------------------------|-------|------------|-----------|
| U32                               | RO     | TxPDO   | —       | 00000000h to 037F0007h | —     | Impossible | —         |
| <b>Supported firmware version</b> |        |         |         |                        |       |            |           |
| ECT                               | —      | —       | —       | —                      | —     | —          | —         |
| A4                                | —      | —       | —       | —                      | —     | —          | —         |

### Description

The ON/OFF status of the input device connected to the servo amplifier is returned.

| Bit | Name    | DI pin        |                  |
|-----|---------|---------------|------------------|
|     |         | MR-JET- _G-N1 | MR-JET- _G_-HSN1 |
| 17  | DI1     | CN3-2         | CN3-5A           |
| 18  | DI2     | CN3-12        | CN3-5B           |
| 19  | DI3     | CN3-19        | CN3-6B           |
| 20  | DI4     | CN3-10 *1     | CN3-4A           |
| 21  | DI5     | CN3-1 *1      | CN3-4B           |
| 22  | EM2/EM1 | CN3-20        | CN3-3B           |

\*1 Available on servo amplifiers with firmware version C4 or later and manufactured in July 2022 or later.

| Bit     | Description                                                                                                                                                                                                                                                                                                                                                             |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0       | Negative limit switch<br>The output can be reversed with the [Pr. PC76.3 Limit switch status read selection] setting.<br>When [Pr. PA14] is set to "0":<br>0: LSN (Reverse rotation stroke end) off<br>1: LSN (Reverse rotation stroke end) on<br>When [Pr. PA14] is set to "1":<br>0: LSP (Forward rotation stroke end) off<br>1: LSP (Forward rotation stroke end) on |
| 1       | Positive limit switch<br>The output can be reversed with the [Pr. PC76.3] setting.<br>When [Pr. PA14] is set to "0":<br>0: LSP (Forward rotation stroke end) off<br>1: LSP (Forward rotation stroke end) on<br>When [Pr. PA14] is set to "1":<br>0: LSN (Reverse rotation stroke end) off<br>1: LSN (Reverse rotation stroke end) on                                    |
| 2       | Home switch<br>0: DOG (Proximity dog) off<br>1: DOG (Proximity dog) on                                                                                                                                                                                                                                                                                                  |
| 3 to 16 | (reserved)<br>The value at reading is undefined.                                                                                                                                                                                                                                                                                                                        |
| 17      | DI1<br>Refer to the following for details.<br>📄 Page 212 DI1                                                                                                                                                                                                                                                                                                            |
| 18      | DI2<br>Refer to the following for details.<br>📄 Page 213 DI2                                                                                                                                                                                                                                                                                                            |
| 19      | DI3<br>Refer to the following for details.<br>📄 Page 213 DI3                                                                                                                                                                                                                                                                                                            |

| Bit              | Description                                                        |
|------------------|--------------------------------------------------------------------|
| 20               | DI4<br>Refer to the following for details.<br>Page 214 DI4         |
| 21               | DI5<br>Refer to the following for details.<br>Page 214 DI5         |
| 22               | EM2/EM1<br>Refer to the following for details.<br>Page 214 EM2/EM1 |
| 23               | (reserved)<br>The value at reading is undefined.                   |
| 24 <sup>*1</sup> | Safe torque off 1<br>0: STO1 off<br>1: STO1 on                     |
| 25 <sup>*1</sup> | Safe torque off 2<br>0: STO2 off<br>1: STO2 on                     |
| 26 to 31         | (reserved)<br>The value at reading is undefined.                   |

<sup>\*1</sup> The value at reading is undefined for servo amplifiers other than the MR-JET-\_G\_-HSN1.

## ■ DI1

| [Pr. PC79.0]<br>Setting digit (BIN): __ x<br>— <sup>*1</sup> | [Pr. PD03.0-1] <sup>*2*3</sup> | [Pr. PD60.0]<br>Setting digit (BIN): ___<br>x <sup>*4</sup> | Description of DI1 <sup>*5</sup>                                                                                        |
|--------------------------------------------------------------|--------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 0                                                            | With assigned function         | —                                                           | 0: Input device selected with [Pr. PD03.0-1] is turned off<br>1: Input device selected with [Pr. PD03.0-1] is turned on |
|                                                              | No assigned function           | 0                                                           | 0: Input 0 V to DI1 pin<br>1: Input 24 V to DI1 pin                                                                     |
|                                                              |                                | 1                                                           | 0: Input 24 V to DI1 pin<br>1: Input 0 V to DI1 pin                                                                     |
| 1                                                            | —                              | 0                                                           | 0: Input 0 V to DI1 pin<br>1: Input 24 V to DI1 pin                                                                     |
|                                                              |                                | 1                                                           | 0: Input 24 V to DI1 pin<br>1: Input 0 V to DI1 pin                                                                     |

<sup>\*1</sup> With the setting value of this servo parameter, whether to return the on/off state of the input device selected in [Pr. PD03.0-1] or to return the on/off state of DI1 pin can be selected.

<sup>\*2</sup> With the setting value of this servo parameter, the input device to be assigned to DI1 pin can be changed. When LSP/LSN is assigned, the output can be reversed with the [Pr. PC76.3] setting.

<sup>\*3</sup> "With assigned function" is applicable when this servo parameter is set to specific values such as "04 (PC)" and "0A (LSP)" and a device is assigned to DI1 pin.

<sup>\*4</sup> With the setting value of this servo parameter, the polarity of DI1 pin can be selected.

<sup>\*5</sup> Refer to "[Pr. PD03 Input device selection 1 (\*DI1)]" in the following manual for DI pins which correspond to DI1.

MR-JET-G User's Manual (Parameters)

## DI2

| [Pr. PC79.0]<br>Setting digit (BIN): _ x _<br>— <sup>*1</sup> | [Pr. PD04.0-1] <sup>*2*3</sup> | [Pr. PD60.0]<br>Setting digit (BIN): __ x<br>— <sup>*4</sup> | Description of DI2 <sup>*5</sup>                                                                                        |
|---------------------------------------------------------------|--------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 0                                                             | With assigned function         | —                                                            | 0: Input device selected with [Pr. PD04.0-1] is turned off<br>1: Input device selected with [Pr. PD04.0-1] is turned on |
|                                                               | No assigned function           | 0                                                            | 0: Input 0 V to DI2 pin<br>1: Input 24 V to DI2 pin                                                                     |
|                                                               |                                | 1                                                            | 0: Input 24 V to DI2 pin<br>1: Input 0 V to DI2 pin                                                                     |
| 1                                                             | —                              | 0                                                            | 0: Input 0 V to DI2 pin<br>1: Input 24 V to DI2 pin                                                                     |
|                                                               |                                | 1                                                            | 0: Input 24 V to DI2 pin<br>1: Input 0 V to DI2 pin                                                                     |

\*1 With the setting value of this servo parameter, whether to return the on/off state of the input device selected in [Pr. PD04.0-1] or to return the on/off state of DI2 pin can be selected.

\*2 With the setting value of this servo parameter, the input device to be assigned to DI2 pin can be changed. When LSP/LSN is assigned, the output can be reversed with the [Pr. PC76.3] setting.

\*3 "With assigned function" is applicable when this servo parameter is set to specific values such as "04 (PC)" and "0A (LSP)" and a device is assigned to DI2 pin.

\*4 With the setting value of this servo parameter, the polarity of DI2 pin can be selected.

\*5 Refer to "[Pr. PD04 Input device selection 2 (\*DI2)]" in the following manual for DI pins which correspond to DI2.

MR-JET-G User's Manual (Parameters)

## DI3

| [Pr. PC79.0]<br>Setting digit (BIN): x _ _<br>— <sup>*1</sup> | [Pr. PD05.0-1] <sup>*2*3</sup> | [Pr. PD60.0]<br>Setting digit (BIN): _ x _<br>— <sup>*4</sup> | Description of DI3 <sup>*5</sup>                                                                                        |
|---------------------------------------------------------------|--------------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 0                                                             | With assigned function         | —                                                             | 0: Input device selected with [Pr. PD05.0-1] is turned off<br>1: Input device selected with [Pr. PD05.0-1] is turned on |
|                                                               | No assigned function           | 0                                                             | 0: Input 0 V to DI3 pin<br>1: Input 24 V to DI3 pin                                                                     |
|                                                               |                                | 1                                                             | 0: Input 24 V to DI3 pin<br>1: Input 0 V to DI3 pin                                                                     |
| 1                                                             | —                              | 0                                                             | 0: Input 0 V to DI3 pin<br>1: Input 24 V to DI3 pin                                                                     |
|                                                               |                                | 1                                                             | 0: Input 24 V to DI3 pin<br>1: Input 0 V to DI3 pin                                                                     |

\*1 With the setting value of this servo parameter, whether to return the on/off state of the input device selected in [Pr. PD04.0-1] or to return the on/off state of DI3 pin can be selected.

\*2 With the setting value of this servo parameter, the input device to be assigned to DI3 pin can be changed. When LSP/LSN is assigned, the output can be reversed with the [Pr. PC76.3] setting.

\*3 "With assigned function" is applicable when this servo parameter is set to specific values such as "04 (PC)" and "0A (LSP)" and a device is assigned to DI3 pin.

\*4 With the setting value of this servo parameter, the polarity of DI3 pin can be selected.

\*5 Refer to "[Pr. PD05 Input device selection 3 (\*DI3)]" in the following manual for DI pins which correspond to DI3.

MR-JET-G User's Manual (Parameters)

## DI4

| [Pr. PC79.1]<br>Setting digit (BIN): ___<br>x *1 | [Pr. PD38.0-1] *2*3    | [Pr. PD60.0]<br>Setting digit (BIN): x __<br>— *4 | Description of DI4 *5                                                                                                   |
|--------------------------------------------------|------------------------|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 0                                                | With assigned function | —                                                 | 0: Input device selected with [Pr. PD38.0-1] is turned off<br>1: Input device selected with [Pr. PD38.0-1] is turned on |
|                                                  | No assigned function   | 0                                                 | 0: Input 0 V to DI4 pin<br>1: Input 24 V to DI4 pin                                                                     |
|                                                  |                        | 1                                                 | 0: Input 24 V to DI4 pin<br>1: Input 0 V to DI4 pin                                                                     |
| 1                                                | —                      | 0                                                 | 0: Input 0 V to DI4 pin<br>1: Input 24 V to DI4 pin                                                                     |
|                                                  |                        | 1                                                 | 0: Input 24 V to DI4 pin<br>1: Input 0 V to DI4 pin                                                                     |

- \*1 With the setting value of this servo parameter, whether to return the on/off state of the input device selected in [Pr. PD38.0-1] or to return the on/off state of DI4 pin can be selected.
- \*2 With the setting value of this servo parameter, the input device to be assigned to DI4 pin can be changed. When LSP/LSN is assigned, the output can be reversed with the [Pr. PC76.3] setting.
- \*3 "With assigned function" is applicable when this servo parameter is set to specific values such as "04 (PC)" and "0A (LSP)" and a device is assigned to DI4 pin.
- \*4 With the setting value of this servo parameter, the polarity of DI4 pin can be selected.
- \*5 Refer to "[Pr. PD38 Input device selection 4 (\*DI4)]" in the following manual for DI pins which correspond to DI4.  
 MR-JET-G User's Manual (Parameters)

## DI5

| [Pr. PC79.1]<br>Setting digit (BIN): __ x<br>— *1 | [Pr. PD39.0-1] *2*3    | [Pr. PD60.1]<br>Setting digit (BIN): ___<br>x *4 | Description of DI5 *5                                                                                                   |
|---------------------------------------------------|------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 0                                                 | With assigned function | —                                                | 0: Input device selected with [Pr. PD39.0-1] is turned off<br>1: Input device selected with [Pr. PD39.0-1] is turned on |
|                                                   | No assigned function   | 0                                                | 0: Input 0 V to DI5 pin<br>1: Input 24 V to DI5 pin                                                                     |
|                                                   |                        | 1                                                | 0: Input 24 V to DI5 pin<br>1: Input 0 V to DI5 pin                                                                     |
| 1                                                 | —                      | 0                                                | 0: Input 0 V to DI5 pin<br>1: Input 24 V to DI5 pin                                                                     |
|                                                   |                        | 1                                                | 0: Input 24 V to DI5 pin<br>1: Input 0 V to DI5 pin                                                                     |

- \*1 With the setting value of this servo parameter, whether to return the on/off state of the input device selected in [Pr. PD39.0-1] or to return the on/off state of DI5 pin can be selected.
- \*2 With the setting value of this servo parameter, the input device to be assigned to DI5 pin can be changed. When LSP/LSN is assigned, the output can be reversed with the [Pr. PC76.3] setting.
- \*3 "With assigned function" is applicable when this servo parameter is set to specific values such as "04 (PC)" and "0A (LSP)" and a device is assigned to DI5 pin.
- \*4 With the setting value of this servo parameter, the polarity of DI5 pin can be selected.
- \*5 Refer to "[Pr. PD39 Input device selection 5 (\*DI5)]" in the following manual for DI pins which correspond to DI5.  
 MR-JET-G User's Manual (Parameters)

## EM2/EM1

| [Pr. PC79.1]<br>Setting digit (BIN): _ x _<br>— *1 | [Pr. PA04.3] | Description of EM2/EM1 *2                                   |
|----------------------------------------------------|--------------|-------------------------------------------------------------|
| 0                                                  | 2            | 0: EM2 (Forced stop 2) off<br>1: EM2 (Forced stop 2) on     |
|                                                    | 0            | 0: EM1 (Forced stop 1) off<br>1: EM1 (Forced stop 1) on     |
| 1                                                  | —            | 0: Input 24 V to EM2/EM1 pin<br>1: Input 0 V to EM2/EM1 pin |

- \*1 With the setting value of this servo parameter, whether to return the on/off state of EM2 (Forced stop 2)/EM1 (Forced stop 1) or to return the on/off state of EM2/EM1 pin can be selected.
- \*2 The DI pin corresponding to EM2/EM1 is the CN3-20 pin.



## 19.2 [Digital outputs (Obj. 60FEh)]

### [Digital outputs (Obj. 60FEh: 00h)]

| Data Type                  | Access | Mapping    | Default | Range     | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-----------|-------|------------|-----------|
| U8                         | RO     | Impossible | 2       | 2 (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |           |       |            |           |
| ECT                        | —      | —          | —       | —         | —     | —          | —         |
| B6                         | —      | —          | —       | —         | —     | —          | —         |

#### Description

The total number of Sub Indexes (= 2) is returned.

### [Physical outputs (Obj. 60FEh: 01h)]

| Data Type                  | Access | Mapping | Default   | Range                  | Units | Save       | Parameter |
|----------------------------|--------|---------|-----------|------------------------|-------|------------|-----------|
| U32                        | RW     | RxPDO   | 00000000h | 00000000h to 000E0000h | —     | Impossible | —         |
| Supported firmware version |        |         |           |                        |       |            |           |
| ECT                        | —      | —       | —         | —                      | —     | —          | —         |
| B6                         | —      | —       | —         | —                      | —     | —          | —         |

#### Description

Set the ON/OFF states of the output devices connected to the servo amplifier.

When DOA, DOB, and DOC are disabled with [Bitmask (Obj. 60FEh: 02h)], the values of bits 17, 18, and 19 in [Physical outputs (Obj. 60FEh: 01h)] are "0" regardless of the values.

| Bit      | Description                                                                                                                                                                                                                                                                         |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0 to 16  | (reserved) The value at reading is undefined.                                                                                                                                                                                                                                       |
| 17       | DO1<br>0: DOA (general-purpose output A) off<br>1: DOA (general-purpose output A) on<br>To turn on or off the general-purpose output with the settings of this object, use [Pr. PD07] to [Pr. PD09] to assign general-purpose output A (DOA) to any of the pins in the table below. |
| 18       | DO2<br>0: DOB (general-purpose output B) off<br>1: DOB (general-purpose output B) on<br>To turn on or off the general-purpose output with the settings of this object, use [Pr. PD07] to [Pr. PD09] to assign general-purpose output B (DOB) to any of the pins in the table below. |
| 19       | DO3<br>0: DOC (general-purpose output C) off<br>1: DOC (general-purpose output C) on<br>To turn on or off the general-purpose output with the settings of this object, use [Pr. PD07] to [Pr. PD09] to assign general-purpose output C (DOC) to any of the pins in the table below. |
| 20 to 31 | (reserved) The value at reading is undefined.                                                                                                                                                                                                                                       |

| Servo amplifier | Corresponding pin                  |
|-----------------|------------------------------------|
| MR-JET-_G-N1    | CN3-9 pin, CN3-13 pin, CN3-15 pin  |
| MR-JET-_G_-HSN1 | CN3-2A pin, CN3-1B pin, CN3-2B pin |

## [Bitmask (Obj. 60FEh: 02h)]

| Data Type | Access | Mapping | Default   | Range                  | Units | Save       | Parameter |
|-----------|--------|---------|-----------|------------------------|-------|------------|-----------|
| U32       | RW     | RxPDO   | 00000000h | 00000000h to 000E0000h | —     | Impossible | —         |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| B6                         | — | — | — | — | — | — | — |

### Description

Set masks for the output devices connected to the servo amplifier.

When DOA, DOB, and DOC are disabled with [Bitmask (Obj. 60FEh: 02h)], the values of bits 17, 18, and 19 in [Physical outputs (Obj. 60FEh: 01h)] are "0" regardless of the values.

| Bit      | Description                                                                                    |
|----------|------------------------------------------------------------------------------------------------|
| 0 to 16  | (reserved) The value at reading is undefined.                                                  |
| 17       | DO1<br>0: DOA (general-purpose output A) disabled<br>1: DOA (general-purpose output A) enabled |
| 18       | DO2<br>0: DOB (general-purpose output B) disabled<br>1: DOB (general-purpose output B) enabled |
| 19       | DO3<br>0: DOC (general-purpose output C) disabled<br>1: DOC (general-purpose output C) enabled |
| 20 to 31 | (reserved) The value at reading is undefined.                                                  |

# 20 Cyclic Synchronous Position Mode Objects

## 20.1 [Position offset (Obj. 60B0h)]

### [Position offset (Obj. 60B0h: 00h)]

| Data Type                  | Access | Mapping | Default | Range                  | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|------------------------|-----------|------------|-----------|
| I32                        | RW     | RxPDO   | 0       | 80000000h to 7FFFFFFFh | pos units | Impossible | —         |
| Supported firmware version |        |         |         |                        |           |            |           |
| ECT                        | —      | —       | —       | —                      | —         | —          | —         |
| A4                         | —      | —       | —       | —                      | —         | —          | —         |

### Description

Set the position offset.

## 20.2 [Velocity offset (Obj. 60B1h)]

### [Velocity offset (Obj. 60B1h: 00h)]

| Data Type                  | Access | Mapping | Default | Range                     | Units     | Save       | Parameter |
|----------------------------|--------|---------|---------|---------------------------|-----------|------------|-----------|
| I32                        | RW     | RxPDO   | 0       | -2147483648 to 2147483647 | vel units | Impossible | —         |
| Supported firmware version |        |         |         |                           |           |            |           |
| ECT                        | —      | —       | —       | —                         | —         | —          | —         |
| A4                         | —      | —       | —       | —                         | —         | —          | —         |

### Description

Set the velocity offset.

The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

| [Pr. PT01.2] | [Pr. PT01.1]     | Connected servo motor | Units          |
|--------------|------------------|-----------------------|----------------|
| —            | 0 (encoder unit) | Rotary servo motor    | 0.01 r/min     |
|              |                  | Linear servo motor    | 0.01 mm/s      |
| 0 (mm)       | 1 (command unit) | —                     | 0.001 mm/s     |
| 1 (inch)     |                  |                       | 0.0001 inch/s  |
| 2 (degree)   |                  |                       | 0.001 degree/s |
| 3 (pulse)    |                  |                       | pulse/s        |

# 20.3 [Torque offset (Obj. 60B2h)]

## [Torque offset (Obj. 60B2h: 00h)]

| Data Type                  | Access | Mapping | Default | Range           | Units                                 | Save       | Parameter |
|----------------------------|--------|---------|---------|-----------------|---------------------------------------|------------|-----------|
| I16                        | RW     | RxPDO   | 0       | -32768 to 32767 | 0.1 % (with rated torque being 100 %) | Impossible | —         |
| Supported firmware version |        |         |         |                 |                                       |            |           |
| ECT                        | —      | —       | —       | —               | —                                     | —          | —         |
| A4                         | —      | —       | —       | —               | —                                     | —          | —         |

### Description

Set the torque offset.

# 21 SEMI Device Profile Objects

## 21.1 [Manufacturer Bootloader Version (Obj. 100Bh)]

### [Manufacturer Bootloader Version (Obj. 100Bh: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| VISIBLE<br>STRING          | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The bootloader version of the servo amplifier is returned.

## 21.2 [Timestamp Object (Obj. 10F8h)]

### [Timestamp Object (Obj. 10F8h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range                                                 | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------------------------------------|-------|------------|-----------|
| U64                        | RO     | Impossible | —       | 00000000000000<br>000h to<br>FFFFFFFFFFFFFFF<br>FFFFh | ns    | Impossible | —         |
| Supported firmware version |        |            |         |                                                       |       |            |           |
| ECT                        | —      | —          | —       | —                                                     | —     | —          | —         |
| D4                         | —      | —          | —       | —                                                     | —     | —          | —         |

#### Description

The value of the local time stamp of the servo amplifier is returned in units of nanoseconds.

## 21.3 [Semiconductor Device Profile (Obj. F000h)]

### [Semiconductor Device Profile (Obj. F000h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 02h     | 02h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| D4                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

### [Index Distance (Obj. F000h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range         | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|---------------|-------|------------|-----------|
| U16                        | RO     | Impossible | 1000h   | 1000h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |               |       |            |           |
| ECT                        | —      | —          | —       | —             | —     | —          | —         |
| D4                         | —      | —          | —       | —             | —     | —          | —         |

#### Description

For the object groups defined by Mitsubishi Electric (2000h to 5FFFh), "1000h", which is the Index offset, is returned.

### [Maximum Number of Modules (Obj. F000h: 02h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U16                        | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The number of supported modules is returned.

"0001h" is returned.

## 21.4 [Module Profile List (Obj. F010h)]

### [Module Profile List (Obj. F010h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

"01h" is returned.

### [Profile Number (Obj. F010h: 01h)]

| Data Type                  | Access | Mapping    | Default   | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|-----------|-------|-------|------------|-----------|
| U32                        | RO     | Impossible | 00000000h | —     | —     | Impossible | —         |
| Supported firmware version |        |            |           |       |       |            |           |
| ECT                        | —      | —          | —         | —     | —     | —          | —         |
| D4                         | —      | —          | —         | —     | —     | —          | —         |

#### Description

The supported profile number is returned.

## 21.5 [Active Exception Status (Obj. F380h)]

### [Active Exception Status (Obj. F380h: 00h)]

| Data Type                  | Access | Mapping | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------------------------|-------|------------|-----------|
| U8                         | RO     | TxPDO   | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |         |         |                         |       |            |           |
| ECT                        | —      | —       | —       | —                       | —     | —          | —         |
| D4                         | —      | —       | —       | —                       | —     | —          | —         |

#### Description

The overview of the warnings and alarms of [Active Device Warning Details (Obj.F381h)] and [Active Device Error Details (Obj. F383h)] is returned. The values masked by [Device Warning Mask (Obj. F3A1h)] and [Device Error Mask (Obj. F3A3h)] are returned.

| Bit    | Description                             |
|--------|-----------------------------------------|
| 0      | Device Warning (0: Not occur, 1: Occur) |
| 1      | Manufacturer Warning (fixed to 0)       |
| 2      | Device Error (0: Not occur, 1: Occur)   |
| 3      | Manufacturer Error (fixed to 0)         |
| 4 to 7 | Reserved                                |



## 21.6 [Active Device Warning Details (Obj. F381h)]

### [Active Device Warning Details (Obj. F381h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.  
"01h" is returned.

### [Active Device Warning Details (Obj. F381h: 01h)]

| Data Type                  | Access | Mapping | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------------------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |         |         |                         |       |            |           |
| ECT                        | —      | —       | —       | —                       | —     | —          | —         |
| D4                         | —      | —       | —       | —                       | —     | —          | —         |

#### Description

The warning status is returned.  
The status changes if a warning occurs in the servo amplifier.

| Bit     | Description                                               |
|---------|-----------------------------------------------------------|
| 0       | Warning Present (0: Warning not occur, 1: Warning occurs) |
| 1 to 31 | Reserved                                                  |

## 21.7 [Active Device Error Details (Obj. F383h)]

### [Active Device Error Details (Obj. F383h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.  
"01h" is returned.

### [Active Device Error Details (Obj. F383h: 01h)]

| Data Type                  | Access | Mapping | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------------------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |         |         |                         |       |            |           |
| ECT                        | —      | —       | —       | —                       | —     | —          | —         |
| D4                         | —      | —       | —       | —                       | —     | —          | —         |

#### Description

The error status is returned.  
The status changes if an alarm occurs in the servo amplifier.

| Bit     | Description                                         |
|---------|-----------------------------------------------------|
| 0       | Error Present (0: Alarm not occur, 1: Alarm occurs) |
| 1 to 31 | Reserved                                            |

# 21.8 [Latched Exception Status (Obj. F390h)]

## [Latched Exception Status (Obj. F390h: 00h)]

| Data Type                  | Access | Mapping | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------------------------|-------|------------|-----------|
| U8                         | RO     | TxPDO   | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |         |         |                         |       |            |           |
| ECT                        | —      | —       | —       | —                       | —     | —          | —         |
| D4                         | —      | —       | —       | —                       | —     | —          | —         |

### Description

The overview of the warnings and alarms of [Latched Device Warning Details (Obj. F391h)] and [Latched Device Error Details (Obj. F393h)] is returned. The values masked by [Device Warning Mask (Obj. F3A1h)] and [Device Error Mask (Obj. F3A3h)] are returned.

| Bit    | Description                             |
|--------|-----------------------------------------|
| 0      | Device Warning (0: Not occur, 1: Occur) |
| 1      | Manufacturer Warning (fixed to 0)       |
| 2      | Device Error (0: Not occur, 1: Occur)   |
| 3      | Manufacturer Error (fixed to 0)         |
| 4 to 7 | Reserved                                |

## 21.9 [Latched Device Warning Details (Obj. F391h)]

### [Latched Device Warning Details (Obj. F391h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

"01h" is returned.

### [Latched Device Warning Details (Obj. F391h: 01h)]

| Data Type                  | Access | Mapping | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------------------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |         |         |                         |       |            |           |
| ECT                        | —      | —       | —       | —                       | —     | —          | —         |
| D4                         | —      | —       | —       | —                       | —     | —          | —         |

#### Description

The warning status is returned.

The status changes if a warning occurs in the servo amplifier. The status is held until the power is cycled, the software is reset, and [Exception Reset Command (Obj. FBF1h)] is executed. The status does not change even if the alarm is reset.

| Bit     | Description                                               |
|---------|-----------------------------------------------------------|
| 0       | Warning Present (0: Warning not occur, 1: Warning occurs) |
| 1 to 31 | Reserved                                                  |

## 21.10 [Latched Device Error Details (Obj. F393h)]

### [Latched Device Error Details (Obj. F393h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.  
"01h" is returned.

### [Latched Device Error Details (Obj. F393h: 01h)]

| Data Type                  | Access | Mapping | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------------------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |         |         |                         |       |            |           |
| ECT                        | —      | —       | —       | —                       | —     | —          | —         |
| D4                         | —      | —       | —       | —                       | —     | —          | —         |

#### Description

The error status is returned.

The status changes if an alarm occurs in the servo amplifier. The status is held until the power is cycled, the software is reset, and [Exception Reset Command (Obj. FBF1h)] is executed. The status does not change even if the alarm is reset.

| Bit     | Description                                         |
|---------|-----------------------------------------------------|
| 0       | Error Present (0: Alarm not occur, 1: Alarm occurs) |
| 1 to 31 | Reserved                                            |

## 21.11 [Device Warning Mask (Obj. F3A1h)]

### [Device Warning Mask (Obj. F3A1h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

"01h" is returned.

### [Device Warning Mask (Obj. F3A1h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save     | Parameter  |
|----------------------------|--------|------------|---------|-------------------------|-------|----------|------------|
| U32                        | RW     | Impossible | —       | Refer to the following. | —     | Possible | [Pr. PN33] |
| Supported firmware version |        |            |         |                         |       |          |            |
| ECT                        | —      | —          | —       | —                       | —     | —        | —          |
| D4                         | —      | —          | —       | —                       | —     | —        | —          |

#### Description

Set the mask values in [Active Device Warning Details (Obj. F381h: 01h)] and [Latched Device Warning Details (Obj. F391h: 01h)].

| Bit     | Description                                |
|---------|--------------------------------------------|
| 0       | Warning Present (0: Masked, 1: Not masked) |
| 1 to 31 | Reserved                                   |

## 21.12 [Device Error Mask (Obj. F3A3h)]

### [Device Error Mask (Obj. F3A3h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.  
"01h" is returned.

### [Device Error Mask (Obj. F3A3h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save     | Parameter  |
|----------------------------|--------|------------|---------|-------------------------|-------|----------|------------|
| U32                        | RW     | Impossible | —       | Refer to the following. | —     | Possible | [Pr. PN34] |
| Supported firmware version |        |            |         |                         |       |          |            |
| ECT                        | —      | —          | —       | —                       | —     | —        | —          |
| D4                         | —      | —          | —       | —                       | —     | —        | —          |

#### Description

Set the mask values in [Active Device Error Details (Obj. F383h: 01h)] and [Latched Device Error Details (Obj. F393h: 01h)].

| Bit     | Description                              |
|---------|------------------------------------------|
| 0       | Error Present (0: Masked, 1: Not masked) |
| 1 to 31 | Reserved                                 |

## 21.13 [Input Latch Local Timestamp (Obj. F6F0h)]

### [Input Latch Local Timestamp (Obj. F6F0h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.  
"01h" is returned.

### [Input Latch Local Timestamp (Obj. F6F0h: 01h)]

| Data Type                  | Access | Mapping | Default | Range                  | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|------------------------|-------|------------|-----------|
| U32                        | RO     | TxPDO   | —       | 00000000h to FFFFFFFFh | μs    | Impossible | —         |
| Supported firmware version |        |         |         |                        |       |            |           |
| ECT                        | —      | —       | —       | —                      | —     | —          | —         |
| D4                         | —      | —       | —       | —                      | —     | —          | —         |

#### Description

The time when PDO data is written to Input SyncManager is returned in units of microseconds.



## 21.14 [Manufacturer Serial Number (Obj. F9F0h)]

### [Manufacturer Serial Number (Obj. F9F0h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| VISIBLE<br>STRING          | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The serial number of the servo amplifier is returned.

## 21.15 [CDP Functional Generation Number (Obj. F9F1h)]

### [CDP Functional Generation Number (Obj. F9F1h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

"01h" is returned.

### [CDP Functional Generation Number (Obj. F9F1h: 01h)]

| Data Type                  | Access | Mapping    | Default   | Range                | Units | Save       | Parameter |
|----------------------------|--------|------------|-----------|----------------------|-------|------------|-----------|
| U32                        | RO     | Impossible | 00000002h | 00000002h<br>(fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |           |                      |       |            |           |
| ECT                        | —      | —          | —         | —                    | —     | —          | —         |
| D4                         | —      | —          | —         | —                    | —     | —          | —         |

#### Description

Common Device Profile Functional Generation Number is returned.

## 21.16 [SDP Functional Generation Number (Obj. F9F2h)]

### [SDP Functional Generation Number (Obj. F9F2h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

"01h" is returned.

### [SDP Functional Generation Number (Obj. F9F2h: 01h)]

| Data Type                  | Access | Mapping    | Default   | Range                | Units | Save       | Parameter |
|----------------------------|--------|------------|-----------|----------------------|-------|------------|-----------|
| U32                        | RO     | Impossible | 00000000h | 00000000h<br>(fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |           |                      |       |            |           |
| ECT                        | —      | —          | —         | —                    | —     | —          | —         |
| D4                         | —      | —          | —         | —                    | —     | —          | —         |

#### Description

Specific Device Profile Functional Generation Number is returned.

"00000000h" is returned.

## 21.17 [Vendor Name (Obj. F9F3h)]

### [Vendor Name (Obj. F9F3h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| VISIBLE<br>STRING          | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The vendor name is returned.

## 21.18 [Semiconductor SDP Device Name (Obj. F9F4h)]

### [Semiconductor SDP Device Name (Obj. F9F4h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.  
"01h" is returned.

### [Semiconductor SDP Device Name (Obj. F9F4h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| VISIBLE STRING             | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

Semiconductor SDP Device Name is returned.  
"N/A" is returned.

## 21.19 [Output Identifier (Obj. F9F5h)]

### [Output Identifier (Obj. F9F5h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| D4                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

"01h" is returned.

### [Output Identifier (Obj. F9F5h: 01h)]

| Data Type                  | Access | Mapping     | Default | Range      | Units | Save       | Parameter |
|----------------------------|--------|-------------|---------|------------|-------|------------|-----------|
| U8                         | RW     | TxPDO/RxPDO | 00h     | 00h to FFh | —     | Impossible | —         |
| Supported firmware version |        |             |         |            |       |            |           |
| ECT                        | —      | —           | —       | —          | —     | —          | —         |
| D4                         | —      | —           | —       | —          | —     | —          | —         |

#### Description

The value written from the controller is returned.

## 21.20 [Time since power on (Obj. F9F6h)]

### [Time since power on (Obj. F9F6h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range                  | Units  | Save       | Parameter |
|----------------------------|--------|------------|---------|------------------------|--------|------------|-----------|
| U32                        | RO     | Impossible | —       | 00000000h to FFFFFFFFh | second | Impossible | —         |
| Supported firmware version |        |            |         |                        |        |            |           |
| ECT                        | —      | —          | —       | —                      | —      | —          | —         |
| D4                         | —      | —          | —       | —                      | —      | —          | —         |

#### Description

The cumulative time from power-on is returned in units of seconds.

When the software is reset, the cumulative time from power-on is cleared.

## 21.21 [Total time powered (Obj. F9F7h)]

### [Total time powered (Obj. F9F7h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range                  | Units  | Save       | Parameter |
|----------------------------|--------|------------|---------|------------------------|--------|------------|-----------|
| U32                        | RO     | Impossible | —       | 00000000h to FFFFFFFFh | second | Impossible | —         |
| Supported firmware version |        |            |         |                        |        |            |           |
| ECT                        | —      | —          | —       | —                      | —      | —          | —         |
| D4                         | —      | —          | —       | —                      | —      | —          | —         |

#### Description

The cumulative energization time of the servo amplifier is returned in units of seconds.

When the software is reset or the power is cycled, the energization time may return to the time last stored in the non-volatile memory.

## 21.22 [Firmware Update Functional Generation Number (Obj. F9F8h)]

### [Firmware Update Functional Generation Number (Obj. F9F8h: 00h)]

| Data Type                  | Access | Mapping    | Default   | Range             | Units | Save       | Parameter |
|----------------------------|--------|------------|-----------|-------------------|-------|------------|-----------|
| U32                        | RO     | Impossible | 00000001h | 00000001h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |           |                   |       |            |           |
| ECT                        | —      | —          | —         | —                 | —     | —          | —         |
| D4                         | —      | —          | —         | —                 | —     | —          | —         |

#### Description

Firmware Update Functional Generation Number is returned.

## 21.23 [Device Reset Command (Obj. FBF0h)]

### [Device Reset Command (Obj. FBF0h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 03h     | 03h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| D4                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

### [Command (Obj. FBF0h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| OCTET STRING<br>(6)        | RW     | Impossible | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |            |         |                         |       |            |           |
| ECT                        | —      | —          | —       | —                       | —     | —          | —         |
| D4                         | —      | —          | —       | —                       | —     | —          | —         |

#### Description

When the following command is sent, the servo amplifier resets the software.

| Byte | Device reset |
|------|--------------|
| 0    | 0x74         |
| 1    | 0x65         |
| 2    | 0x73         |
| 3    | 0x65         |
| 4    | 0x72         |
| 5    | 0x00         |

[Status (Obj. FBF0h: 02h)]

| Data Type | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|-----------|--------|------------|---------|-------------------------|-------|------------|-----------|
| U8        | RO     | Impossible | —       | Refer to the following. | —     | Impossible | —         |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| D4                         | — | — | — | — | — | — | — |

Description

Status is returned.

| Value    | Description                                |
|----------|--------------------------------------------|
| 0        | Default value                              |
| 1        | Reserved                                   |
| 2        | last command completed, error, no response |
| 3 to 254 | Reserved                                   |
| 255      | command is executing                       |

[Response (Obj. FBF0h: 03h)]

| Data Type        | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| OCTET STRING (2) | RO     | Impossible | —       | Refer to the following. | —     | Impossible | —         |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| D4                         | — | — | — | — | — | — | — |

Description

Response is returned.

| Byte | Description                                                      |
|------|------------------------------------------------------------------|
| 0    | Refer to the following.<br>📄 Page 237 [Status (Obj. FBF0h: 02h)] |
| 1    | Unused (0x00)                                                    |

## 21.24 [Exception Reset Command (Obj. FBF1h)]

### [Exception Reset Command (Obj. FBF1h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 03h     | 03h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| D4                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

### [Command (Obj. FBF1h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| OCTET STRING<br>(5)        | RW     | Impossible | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |            |         |                         |       |            |           |
| ECT                        | —      | —          | —       | —                       | —     | —          | —         |
| D4                         | —      | —          | —       | —                       | —     | —          | —         |

#### Description

When the following command is sent, [Latched Device Warning Details (Obj. F391h)] and [Latched Device Error Details (Obj.F393h)] are cleared.

| Byte | Device reset |
|------|--------------|
| 0    | 0x74         |
| 1    | 0x65         |
| 2    | 0x73         |
| 3    | 0x65         |
| 4    | 0x72         |



## [Status (Obj. FBF1h: 02h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |            |         |                         |       |            |           |
| ECT                        | —      | —          | —       | —                       | —     | —          | —         |
| D4                         | —      | —          | —       | —                       | —     | —          | —         |

### Description

Status is returned.

| Value    | Description                                   |
|----------|-----------------------------------------------|
| 0        | last command completed, no error, no response |
| 1        | Reserved                                      |
| 2        | last command completed, error, no response    |
| 3 to 254 | Reserved                                      |
| 255      | command is executing                          |

## [Response (Obj. FBF1h: 03h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| OCTET STRING (2)           | RO     | Impossible | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |            |         |                         |       |            |           |
| ECT                        | —      | —          | —       | —                       | —     | —          | —         |
| D4                         | —      | —          | —       | —                       | —     | —          | —         |

### Description

Response is returned.

| Byte | Description                                                                                                                                        |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 0    | Refer to the following.<br> Page 239 [Status (Obj. FBF1h: 02h)] |
| 1    | Unused (0x00)                                                                                                                                      |

## 21.25 [Store Parameters Command (Obj. FBF2h)]

### [Store Parameters Command (Obj. FBF2h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 03h     | 03h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| D4                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

### [Command (Obj. FBF2h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| OCTET STRING (4)           | RW     | Impossible | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |            |         |                         |       |            |           |
| ECT                        | —      | —          | —       | —                       | —     | —          | —         |
| D4                         | —      | —          | —       | —                       | —     | —          | —         |

#### Description

Executing the following command saves all the parameters (servo parameters, network parameters, and point table data) that can be stored in the non-volatile memory.

| Byte | Write |
|------|-------|
| 0    | 0x73  |
| 1    | 0x61  |
| 2    | 0x76  |
| 3    | 0x65  |

When the object is read, the value is returned as shown in the following table.

| Byte | Read                                                                                 |
|------|--------------------------------------------------------------------------------------|
| 0    | 0x01 (slave saves the non-volatile parameters when writing FBF2h:01 with 0x65766173) |
| 1    | 0x00                                                                                 |
| 2    | 0x00                                                                                 |
| 3    | 0x00                                                                                 |

## [Status (Obj. FBF2h: 02h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |            |         |                         |       |            |           |
| ECT                        | —      | —          | —       | —                       | —     | —          | —         |
| D4                         | —      | —          | —       | —                       | —     | —          | —         |

### Description

Status is returned.

| Value    | Description                                   |
|----------|-----------------------------------------------|
| 0        | last command completed, no error, no response |
| 1        | Reserved                                      |
| 2        | last command completed, error, no response    |
| 3 to 254 | Reserved                                      |
| 255      | command is executing                          |

## [Response (Obj. FBF2h: 03h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| OCTET STRING (2)           | RO     | Impossible | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |            |         |                         |       |            |           |
| ECT                        | —      | —          | —       | —                       | —     | —          | —         |
| D4                         | —      | —          | —       | —                       | —     | —          | —         |

### Description

Response is returned.

| Byte | Description                                                                                                                                        |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 0    | Refer to the following.<br> Page 241 [Status (Obj. FBF2h: 02h)] |
| 1    | Unused (0x00)                                                                                                                                      |

## 21.26 [Calculate Checksum Command (Obj. FBF3h)]

### [Calculate Checksum Command (Obj. FBF3h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 03h     | 03h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| D4                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

### [Command (Obj. FBF3h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| OCTET STRING (4)           | RW     | Impossible | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |            |         |                         |       |            |           |
| ECT                        | —      | —          | —       | —                       | —     | —          | —         |
| D4                         | —      | —          | —       | —                       | —     | —          | —         |

#### Description

Executing the following command calculates the checksum of the parameters (servo parameters, network parameters, and point table data) stored in the non-volatile memory.

| Byte | Bit    | Write                                       |
|------|--------|---------------------------------------------|
| 0    | 0      | Use default checksum algorithm of the slave |
|      | 1      | CRC-32                                      |
|      | 2      | MD5 (unsupported)                           |
|      | 3      | SHA-1 (unsupported)                         |
|      | 4 to 6 | Reserved                                    |
|      | 7      | Other algorithm (unsupported)               |
| 1    | —      | 0x00                                        |
| 2    | —      | 0x00                                        |
| 3    | —      | 0x00                                        |

When the object is read, "00000003h" is returned. For details, refer to the following table.

| Byte | Bit    | Read                              |
|------|--------|-----------------------------------|
| 0    | 0      | Non-volatile parameters supported |
|      | 1      | CRC-32                            |
|      | 2      | MD5 (unsupported)                 |
|      | 3      | SHA-1 (unsupported)               |
|      | 4 to 6 | Reserved                          |
|      | 7      | Other algorithm (unsupported)     |
| 1    | —      | 0x00                              |
| 2    | —      | 0x00                              |
| 3    | —      | 0x00                              |

[Status (Obj. FBF3h: 02h)]

| Data Type | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|-----------|--------|------------|---------|-------------------------|-------|------------|-----------|
| U8        | RO     | Impossible | —       | Refer to the following. | —     | Impossible | —         |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| D4                         | — | — | — | — | — | — | — |

Description

Status is returned.

| Value    | Description                                         |
|----------|-----------------------------------------------------|
| 0        | Default value if the command has not been initiated |
| 1        | last command completed, no error, reply there       |
| 2        | last command completed, error, no response          |
| 3 to 254 | Reserved                                            |
| 255      | command is executing                                |

[Response (Obj. FBF3h: 03h)]

| Data Type        | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| OCTET STRING (6) | RO     | Impossible | —       | Refer to the following. | —     | Impossible | —         |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| D4                         | — | — | — | — | — | — | — |

Description

Response is returned.

| Byte   | Description                                                      |
|--------|------------------------------------------------------------------|
| 0      | Refer to the following.<br>📄 Page 243 [Status (Obj. FBF3h: 02h)] |
| 1      | Unused (0x00)                                                    |
| 2 to 5 | Checksum return value.                                           |

## 21.27 [Load Parameters Command (Obj. FBF4h)]

### [Load Parameters Command (Obj. FBF4h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 03h     | 03h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| D4                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The total number of Sub Indexes is returned.

### [Command (Obj. FBF4h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| OCTET STRING (4)           | RW     | Impossible | —       | Refer to the following. | —     | Impossible | —         |
| Supported firmware version |        |            |         |                         |       |            |           |
| ECT                        | —      | —          | —       | —                       | —     | —          | —         |
| D4                         | —      | —          | —       | —                       | —     | —          | —         |

#### Description

Executing the following command reads all the parameters (servo parameters, network parameters, and point table data) stored in the non-volatile memory.

Do not execute the command during operation. The operation may become unstable.

| Byte | Write |
|------|-------|
| 0    | 0x6C  |
| 1    | 0x6F  |
| 2    | 0x61  |
| 3    | 0x64  |

When the object is read, the value is returned as shown in the following table.

| Byte | Read                                                                                 |
|------|--------------------------------------------------------------------------------------|
| 0    | 0x01 (slave loads the non-volatile parameters when writing FBF4h:01 with 0x64616F6C) |
| 1    | 0x00                                                                                 |
| 2    | 0x00                                                                                 |
| 3    | 0x00                                                                                 |

## [Status (Obj. FBF4h: 02h)]

| Data Type | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|-----------|--------|------------|---------|-------------------------|-------|------------|-----------|
| U8        | RO     | Impossible | —       | Refer to the following. | —     | Impossible | —         |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| D4                         | — | — | — | — | — | — | — |

### Description

Status is returned.

| Value    | Description                                   |
|----------|-----------------------------------------------|
| 0        | last command completed, no error, no response |
| 1        | Reserved                                      |
| 2        | last command completed, error, no response    |
| 3 to 254 | Reserved                                      |
| 255      | command is executing                          |

## [Response (Obj. FBF4h: 03h)]

| Data Type        | Access | Mapping    | Default | Range                   | Units | Save       | Parameter |
|------------------|--------|------------|---------|-------------------------|-------|------------|-----------|
| OCTET STRING (2) | RO     | Impossible | —       | Refer to the following. | —     | Impossible | —         |

| Supported firmware version |   |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|---|
| ECT                        | — | — | — | — | — | — | — |
| D4                         | — | — | — | — | — | — | — |

### Description

Response is returned.

| Byte | Description                                                                                                                                        |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 0    | Refer to the following.<br> Page 245 [Status (Obj. FBF4h: 02h)] |
| 1    | Unused (0x00)                                                                                                                                      |

# 22 Safety Over EtherCAT Objects

## 22.1 [FSoE Slave Frame elements (Obj. E600h)]

### [FSoE Slave Frame elements (Obj. E600h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | 04h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| E8                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The number of entries is returned.

### [FSoE Slave Command (Obj. E600h: 01h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| U8                         | RO     | SFTxPDO | 00h     | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

"Command" sent by FSoE Slave is returned.

### [FSoE Slave ConnectionID (Obj. E600h: 02h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| U16                        | RO     | SFTxPDO | 0000h   | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

"Connection ID" sent by FSoE Slave is returned.



## [FSoE Slave CRC\_0 (Obj. E600h: 03h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| U16                        | RO     | SFTxPDO | 0000h   | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

"CRC\_0" sent by FSoE Slave is returned.

## [FSoE Slave CRC\_1 (Obj. E600h: 04h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| U16                        | RO     | SFTxPDO | 0000h   | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

"CRC\_1" sent by FSoE Slave is returned.

## 22.2 [FSoE Master Frame elements (Obj. E700h)]

### [FSoE Master Frame elements (Obj. E700h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | —       | 04h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| E8                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The number of entries is returned.

### [FSoE Master Command (Obj. E700h: 01h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| U8                         | RO     | SFTxPDO | 00h     | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

"Command" sent by FSoE Master is returned.

### [FSoE Master ConnectionID (Obj. E700h: 02h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| U16                        | RO     | SFTxPDO | 0000h   | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

"Connection ID" sent by FSoE Master is returned.

## [FSoE Master CRC\_0 (Obj. E700h: 03h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| U16                        | RO     | SFTxPDO | 0000h   | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

"CRC\_0" sent by FSoE Master is returned.

## [FSoE Master CRC\_1 (Obj. E700h: 04h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| U16                        | RO     | SFTxPDO | 0000h   | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

"CRC\_1" sent by FSoE Master is returned.

## 22.3 [FSoE Communication Parameter (Obj. E901h)]

### [FSoE Communication Parameter (Obj. E901h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 08h     | 08h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| E8                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The number of entries is returned.

### [Version (Obj. E901h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| VISIBLE STRING             | RO     | Impossible | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| E8                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

The version of FSoE is returned.

The character string "01" is returned.

### [FSoE Slave Address (Obj. E901h: 02h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U16                        | RO     | Impossible | 0000h   | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| E8                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

"Safety Address" of FSoE Slave is returned.

The value set in [Pr. PSC07 FSoE Address setting] is returned.

### [ConnectionID (Obj. E901h: 03h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| U16                        | RO     | SP      | 0000h   | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

"Connection ID" is returned.

## [Watchdog Time (Obj. E901h: 04h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| U16                        | RO     | SP      | 0064h   | —     | ms    | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

"FSoE Watchdog Time" set on the controller is returned.

## [Connection Type (Obj. E901h: 06h)]

| Data Type                  | Access | Mapping    | Default | Range         | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|---------------|-------|------------|-----------|
| U16                        | RO     | Impossible | 0001h   | 0001h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |               |       |            |           |
| ECT                        | —      | —          | —       | —             | —     | —          | —         |
| E8                         | —      | —          | —       | —             | —     | —          | —         |

### Description

The connection type of FSoE is returned.

"0001h" that indicates the slave connection is returned.

## [Communication Parameter Length (Obj. E901h: 07h)]

| Data Type                  | Access | Mapping | Default | Range         | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|---------------|-------|------------|-----------|
| U16                        | RO     | SP      | 0002h   | 0002h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |         |         |               |       |            |           |
| ECT                        | —      | —       | —       | —             | —     | —          | —         |
| E8                         | —      | —       | —       | —             | —     | —          | —         |

### Description

The data length of "Communication parameter" mapped to "Safety Parameter Set" is returned.

"0002h" is returned.

## [Application Parameter Length (Obj. E901h: 08h)]

| Data Type                  | Access | Mapping | Default | Range         | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|---------------|-------|------------|-----------|
| U16                        | RO     | SP      | 0000h   | 0000h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |         |         |               |       |            |           |
| ECT                        | —      | —       | —       | —             | —     | —          | —         |
| E8                         | —      | —       | —       | —             | —     | —          | —         |

### Description

The data length of "Application parameter" mapped to "Safety Parameter Set" is returned.

"0000h" is returned.

## 22.4 [SafeInputs (Obj. F601h)]

### [SafeInputs (Obj. F601h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 12h     | 12h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| E8                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The number of entries is returned.

### [STO Status (Obj. F601h: 01h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The output status of the functional safety sent by FSoE Slave is returned. STOS (STO output) is returned.

### [SSM Status (Obj. F601h: 02h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The output status of the functional safety sent by FSoE Slave is returned. SSMS (SSM output) is returned.

[Error (Obj. F601h: 04h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

Description

The error status of the functional safety sent by FSoE Slave is returned.

[SS1 Status (Obj. F601h: 05h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

Description

The output status of the functional safety sent by FSoE Slave is returned. SS1S (SS1 output) is returned.

[SDIP Status (Obj. F601h: 07h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

Description

The output status of the functional safety sent by FSoE Slave is returned. SDIPS (SDIP output) is returned.

## [SDIN Status (Obj. F601h: 08h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

The output status of the functional safety sent by FSoE Slave is returned. SDINS (SDIN output) is returned.

## [SLS1 Status (Obj. F601h: 09h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

The output status of the functional safety sent by FSoE Slave is returned. SLS1S (SLS1 output) is returned.

## [SLS2 Status (Obj. F601h: 0Ah)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

The output status of the functional safety sent by FSoE Slave is returned. SLS2S (SLS2 output) is returned.

## [SLS3 Status (Obj. F601h: 0Bh)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

The output status of the functional safety sent by FSoE Slave is returned. SLS3S (SLS3 output) is returned.



[SLS4 Status (Obj. F601h: 0Ch)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

Description

The output status of the functional safety sent by FSoE Slave is returned. SLS4S (SLS4 output) is returned.

[SBC Status (Obj. F601h: 0Dh)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

Description

The output status of the functional safety sent by FSoE Slave is returned. SBCS (SBC output) is returned.

[SLT1 Status (Obj. F601h: 0Fh)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

Description

The output status of the functional safety sent by FSoE Slave is returned. SLT1S (SLT1 output) is returned.

## [SLT2 Status (Obj. F601h: 10h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

The output status of the functional safety sent by FSoE Slave is returned. SLT2S (SLT2 output) is returned.

## [SLT3 Status (Obj. F601h: 11h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

The output status of the functional safety sent by FSoE Slave is returned. SLT3S (SLT3 output) is returned.

## [SLT4 Status (Obj. F601h: 12h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

The output status of the functional safety sent by FSoE Slave is returned. SLT4S (SLT4 output) is returned.

## 22.5 [SafeOutputs (Obj. F701h)]

### [SafeOutputs (Obj. F701h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 0Fh     | 0Fh (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| E8                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The number of entries is returned.

### [STO Command (Obj. F701h: 01h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFRxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The input status of the functional safety sent by FSoE Master is returned. STOC (STO command) is returned.

### [SS1 Command (Obj. F701h: 02h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

#### Description

The input status of the functional safety sent by FSoE Master is returned. SS1C (SS1 command) is returned.

## [SDIP Command (Obj. F701h: 04h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

The input status of the functional safety sent by FSoE Master is returned. SDIPC (SDIP command) is returned.

## [SDIN Command (Obj. F701h: 05h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

The input status of the functional safety sent by FSoE Master is returned. SDINC (SDIN command) is returned.

## [Error Ack (Obj. F701h: 06h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

The input status of the error clear command sent by FSoE Master is returned.

## [SLS1 Command (Obj. F701h: 07h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

The input status of the functional safety sent by FSoE Master is returned. SLS1C (SLS1 command) is returned.

[SLS2 Command (Obj. F701h: 08h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

Description

The input status of the functional safety sent by FSoE Master is returned. SLS2C (SLS2 command) is returned.

[SLS3 Command (Obj. F701h: 09h)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

Description

The input status of the functional safety sent by FSoE Master is returned. SLS3C (SLS3 command) is returned.

[SLS4 Command (Obj. F701h: 0Ah)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

Description

The input status of the functional safety sent by FSoE Master is returned. SLS4C (SLS4 command) is returned.

## [SLT1 Command (Obj. F701h: 0Ch)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

The input status of the functional safety sent by FSoE Master is returned. SLT1C (SLT1 command) is returned.

## [SLT2 Command (Obj. F701h: 0Dh)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

The input status of the functional safety sent by FSoE Master is returned. SLT2C (SLT2 command) is returned.

## [SLT3 Command (Obj. F701h: 0Eh)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

The input status of the functional safety sent by FSoE Master is returned. SLT3C (SLT3 command) is returned.

## [SLT4 Command (Obj. F701h: 0Fh)]

| Data Type                  | Access | Mapping | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|---------|---------|-------|-------|------------|-----------|
| BOOL                       | RO     | SFTxPDO | —       | —     | —     | Impossible | —         |
| Supported firmware version |        |         |         |       |       |            |           |
| ECT                        | —      | —       | —       | —     | —     | —          | —         |
| E8                         | —      | —       | —       | —     | —     | —          | —         |

### Description

The input status of the functional safety sent by FSoE Master is returned. SLT4C (SLT4 command) is returned.

## 22.6 [Device FSoE Slave Address (Obj. F980h)]

### [Device FSoE Slave Address (Obj. F980h: 00h)]

| Data Type                  | Access | Mapping    | Default | Range       | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------------|-------|------------|-----------|
| U8                         | RO     | Impossible | 01h     | 01h (fixed) | —     | Impossible | —         |
| Supported firmware version |        |            |         |             |       |            |           |
| ECT                        | —      | —          | —       | —           | —     | —          | —         |
| E8                         | —      | —          | —       | —           | —     | —          | —         |

#### Description

The number of entries is returned.

### [FSoE Address (Obj. F980h: 01h)]

| Data Type                  | Access | Mapping    | Default | Range | Units | Save       | Parameter |
|----------------------------|--------|------------|---------|-------|-------|------------|-----------|
| U16                        | RO     | Impossible | 0000h   | —     | —     | Impossible | —         |
| Supported firmware version |        |            |         |       |       |            |           |
| ECT                        | —      | —          | —       | —     | —     | —          | —         |
| E8                         | —      | —          | —       | —     | —     | —          | —         |

#### Description

"Safety Address" of FSoE Slave is returned.

The value set in [Pr. PSC07 FSoE Address setting] is returned.

# REVISIONS

\*The manual number is given on the bottom left of the back cover.

| Revision date | *Manual number      | Description                                                                                                                                                                                                                                                                                          |
|---------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| November 2019 | IB(NA)-0300505ENG-A | First edition                                                                                                                                                                                                                                                                                        |
| July 2020     | IB(NA)-0300505ENG-B | ■Objects related to the following function are changed:<br>Profile mode                                                                                                                                                                                                                              |
| November 2020 | IB(NA)-0300505ENG-C | ■Objects related to the following functions are changed:<br>Degree unit, general-purpose output                                                                                                                                                                                                      |
| January 2021  | IB(NA)-0300505ENG-D | ■Objects related to the following function are added:<br>Positioning mode (point table method)                                                                                                                                                                                                       |
| July 2021     | IB(NA)-0300505ENG-E | ■Objects related to the following function are changed:<br>Homing                                                                                                                                                                                                                                    |
| July 2022     | IB(NA)-0300505ENG-F | ■Object dictionary list is added.<br>■Objects related to the following functions are added:<br>Fully closed loop system, touch probe<br>■The following objects are added and changed:<br>Software reset, Max current, Motor rated torque, Max acceleration, Max deceleration, Quick stop option code |
| January 2023  | IB(NA)-0300505ENG-G | ■Objects related to the following standard are added:<br>ETG.5003<br>■Objects related to the following functions are added:<br>Override function                                                                                                                                                     |
| July 2023     | IB(NA)-0300505ENG-H | ■Reading/Writing in MR Configurator2 is added:                                                                                                                                                                                                                                                       |
| January 2024  | IB(NA)-0300505ENG-J | ■"Objects Interlocked with Servo Parameters" is added.                                                                                                                                                                                                                                               |
| October 2024  | IB(NA)-0300505ENG-K | ■Objects related to the following model are added/edited:<br>MR-JET-_G_-HSN1                                                                                                                                                                                                                         |

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# WARRANTY

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## Warranty

### **1. Warranty period and coverage**

We will repair any failure or defect hereinafter referred to as "failure" in our FA equipment hereinafter referred to as the "Product" arisen during warranty period at no charge due to causes for which we are responsible through the distributor from which you purchased the Product or our service provider. However, we will charge the actual cost of dispatching our engineer for an on-site repair work on request by customer in Japan or overseas countries. We are not responsible for any on-site readjustment and/or trial run that may be required after a defective unit are repaired or replaced.

[Term]

For terms of warranty, please contact your original place of purchase.

[Limitations]

(1) You are requested to conduct an initial failure diagnosis by yourself, as a general rule.

It can also be carried out by us or our service company upon your request and the actual cost will be charged. However, it will not be charged if we are responsible for the cause of the failure.

(2) This limited warranty applies only when the condition, method, environment, etc. of use are in compliance with the terms and conditions and instructions that are set forth in the instruction manual and user manual for the Product and the caution label affixed to the Product.

(3) Even during the term of warranty, the repair cost will be charged on you in the following cases;

1. a failure caused by your improper storing or handling, carelessness or negligence, etc., and a failure caused by your hardware or software problem
2. a failure caused by any alteration, etc. to the Product made on your side without our approval
3. a failure which may be regarded as avoidable, if your equipment in which the Product is incorporated is equipped with a safety device required by applicable laws and has any function or structure considered to be indispensable according to a common sense in the industry
4. a failure which may be regarded as avoidable if consumable parts designated in the instruction manual, etc. are duly maintained and replaced
5. any replacement of consumable parts (battery, fan, smoothing capacitor, etc.)
6. a failure caused by external factors such as inevitable accidents, including without limitation fire and abnormal fluctuation of voltage, and acts of God, including without limitation earthquake, lightning and natural disasters
7. a failure generated by an unforeseeable cause with a scientific technology that was not available at the time of the shipment of the Product from our company
8. any other failures which we are not responsible for or which you acknowledge we are not responsible for

### **2. Term of warranty after the stop of production**

(1) We may accept the repair at charge for another seven (7) years after the production of the product is discontinued. The announcement of the stop of production for each model can be seen in our Sales and Service, etc.

(2) Please note that the Product (including its spare parts) cannot be ordered after its stop of production.

### **3. Service in overseas countries**

Our regional FA Center in overseas countries will accept the repair work of the Product. However, the terms and conditions of the repair work may differ depending on each FA Center. Please ask your local FA center for details.

### **4. Exclusion of loss in opportunity and secondary loss from warranty liability**

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation to:

- (1) Damages caused by any cause found not to be the responsibility of Mitsubishi.
- (2) Loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products.
- (3) Special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products.
- (4) Replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

### **5. Change of Product specifications**

Specifications listed in our catalogs, manuals or technical documents may be changed without notice.

### **6. Application and use of the Product**

- (1) For the use of our AC Servo, its applications should be those that may not result in a serious damage even if any failure or malfunction occurs in AC Servo, and a backup or fail-safe function should operate on an external system to AC Servo when any failure or malfunction occurs.
- (2) Our AC Servo is designed and manufactured as a general purpose product for use at general industries. Therefore, applications substantially influential on the public interest for such as atomic power plants and other power plants of electric power companies, and also which require a special quality assurance system, including applications for railway companies and government or public offices are not recommended, and we assume no responsibility for any failure caused by these applications when used.  
In addition, applications which may be substantially influential to human lives or properties for such as airlines, medical treatments, railway service, incineration and fuel systems, man-operated material handling equipment, entertainment machines, safety machines, etc. are not recommended, and we assume no responsibility for any failure caused by these applications when used. We will review the acceptability of the abovementioned applications, if you agree not to require a specific quality for a specific application. Please contact us for consultation.
- (3) Mitsubishi Electric shall have no responsibility or liability for any problems involving programmable controller trouble and system trouble caused by DoS attacks, unauthorized access, computer viruses, and other cyberattacks.

# TRADEMARKS

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IB(NA)-0300505ENG-K(2410)MEE

MODEL:

MODEL CODE:

## **mitsubishi electric corporation**

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