

Programmable Controller

MELSEC iQ-R
series

MELSEC iQ-R Temperature Control Module
Function Block Reference

CONTENTS

| | | |
|------------------|---|-----------|
| CHAPTER 1 | FUNCTION BLOCK (FB) LIST | 2 |
| <hr/> | | |
| CHAPTER 2 | TEMPERATURE CONTROL MODULE FB | 4 |
| 2.1 | M+R60TC(BW)_StartPeakCurrentSuppressionBetweenModule | 4 |
| 2.2 | M+R60TC(BW)_StartSimultaneousTemperatureRiseBetweenModule | 8 |
| 2.3 | M+R60TC(BW)_OperateError | 13 |
| <hr/> | | |
| | INSTRUCTION INDEX | 16 |
| <hr/> | | |
| | REVISIONS | 20 |

1 FUNCTION BLOCK (FB) LIST

This chapter lists the FBs for the MELSEC iQ-R series temperature control module.

Temperature control module FBs

■R60TCTRT2TT2, R60TCRT4

| Name*1 | Description |
|---|--|
| M+R60TC_StartPeakCurrentSuppressionBetweenModule | Simultaneously turns on/off 'Setting/operation mode command' (Yn1) of the temperature control modules which use the inter-module peak current suppression function. |
| M+R60TC_StartSimultaneousTemperatureRiseBetweenModule | Simultaneously turns on/off 'Setting/operation mode command' (Yn1) of the temperature control modules which use the inter-module simultaneous temperature rise function. |
| M+R60TC_OperateError | Monitors and resets error codes. |

*1 Note that this reference does not describe the FB version information which is displayed such as "_00A" at the end of FB name.

■R60TCTRT2TT2BW, R60TCRT4BW

| Name*1 | Description |
|---|--|
| M+R60TCBW_StartPeakCurrentSuppressionBetweenModule | Simultaneously turns on/off 'Setting/operation mode command' (Yn1) of the temperature control modules which use the inter-module peak current suppression function. |
| M+R60TCBW_StartSimultaneousTemperatureRiseBetweenModule | Simultaneously turns on/off 'Setting/operation mode command' (Yn1) of the temperature control modules which use the inter-module simultaneous temperature rise function. |
| M+R60TCBW_OperateError | Monitors and resets error codes. |

*1 Note that this reference does not describe the FB version information which is displayed such as "_00A" at the end of FB name.

2 TEMPERATURE CONTROL MODULE FB

2.1 M+R60TC(BW)_StartPeakCurrentSuppressionBetweenModule

Name

■R60TCTRT2TT2, R60TCRT4

M+R60TC_StartPeakCurrentSuppressionBetweenModule

■R60TCTRT2TT2BW, R60TCRT4BW

M+R60TCBW_StartPeakCurrentSuppressionBetweenModule

Overview

| Item | Description |
|---------------------|--|
| Functional overview | Simultaneously turns on/off 'Setting/operation mode command' (Yn1) of the temperature control modules which use the intermodule peak current suppression function. |
| Symbol | |

Labels

■Input labels

| No. | Variable name | Name | Data type | Scope | Description |
|-----|---------------|-------------------|-----------|--|---|
| (1) | i_bEN | Execution command | Bit | On or off | On: The FB is activated. Off: The FB is not activated. |
| (2) | i_stModule | Module label | Structure | The scope differs depending on the module label. | Specify the module label of the temperature control module. The module label of the temperature control module, where "Peak current suppression function master/slave selection between multiple module" is set to Master (1), must be specified. |

■Output labels

| No. | Variable name | Name | Data type | Default value | Description |
|-----|---------------|-------------------|-----------------|---------------|--|
| (3) | o_bENO | Execution status | Bit | Off | On: The execution command is on. Off: The execution command is off. |
| (4) | o_bOK | Normal completion | Bit | Off | The on state indicates that the inter-module peak current suppression function has been activated. |
| (5) | o_bErr | Error completion | Bit | Off | The on state indicates that an error has occurred in the FB. |
| (6) | o_uErrId | Error code | Word [unsigned] | 0 | The error code of an error occurred in the FB is stored. |

FB details

| Item | Description | |
|-----------------------------|--|--|
| Available devices | Target modules | R60TCTRT2TT2, R60TCTRT2TT2BW, R60TCRT4, R60TCRT4BW |
| | CPU modules | MELSEC iQ-R series CPU modules |
| | Engineering tool | GX Works3 |
| Language | Ladder diagram | |
| Number of basic steps | 1534 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual. | |
| Processing | <ul style="list-style-type: none"> 'Setting/operation mode command' (Yn1) of the temperature control modules which use the inter-module peak current suppression function are turned on simultaneously by turning on i_bEN (Execution command). 'Setting/operation mode command' (Yn1), which are turned on with this FB, are turned off by turning off i_bEN (Execution command). If "Peak current suppression function master/slave selection between multiple module" of the specified temperature control module is set to Slave (0), o_bErr (Error completion) turns on and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 7 Error code) If any slave modules where the inter-module peak current suppression function is enabled do not exist, o_bErr (Error completion) turns on and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 7 Error code) If "Control mode selection" of the specified temperature control module is set to other than Standard Control (0), o_bErr (Error completion) turns on and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 7 Error code) If "Peak current suppression control group setting" of the specified temperature control module and the slave modules are set to Not Divided (0) in all channels, o_bErr (Error completion) turns on and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 7 Error code) If "Peak current suppression function enable/disable between multiple module" in the specified temperature control module is set to Disable (0), o_bErr (Error completion) turns on and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 7 Error code) | |
| FB compilation method | Macro type | |
| FB operation | Pulsed execution type (multiple scan execution type) | |
| Timing chart of I/O signals | <p>■ When the operation is completed successfully</p> <ul style="list-style-type: none"> The number of master modules: 1, Master module start I/O number: 0H The number of slave modules: 2, Slave module start I/O number: 20H, 40H <p>The timing chart illustrates the execution sequence of the FB. It shows the following signals and their states over time:</p> <ul style="list-style-type: none"> i_bEN: Starts OFF, transitions to ON, and then returns to OFF. o_bENO: Starts OFF, transitions to ON when i_bEN goes ON, and returns to OFF when i_bEN goes OFF. Slave module I/Os: For slave modules 20 and 40, the start I/Os transition from OFF to ON when i_bEN goes ON and return to OFF when i_bEN goes OFF. 'Setting/operation mode command' (Y1, Y21, Y41): These signals transition from OFF to ON when i_bEN goes ON and return to OFF when i_bEN goes OFF. 'Setting/operation mode status' (X1, X21, X41): These signals transition from OFF to ON when the corresponding 'Setting/operation mode command' signals go ON and return to OFF when they go OFF. o_bOK: Transitions from OFF to ON when the slave module I/Os go ON. o_bErr: Remains OFF throughout the successful execution. o_uErrId: Remains 0 throughout the successful execution. <p>Legend: - - - -> Executed by the temperature control module. ———> Executed by the FB.</p> | |

| Item | Description |
|------------------------------|---|
| Timing chart of I/O signals | <p> ■When the operation is completed with an error </p> <ul style="list-style-type: none"> The number of master modules: 1, Master module start I/O number: 0H The number of slave modules: 2, Slave module start I/O number: 20H, 40H |
| Restrictions and precautions | <ul style="list-style-type: none"> This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. Refer to the MELSEC iQ-R Temperature Control Module User's Manual (Application) at the occurrence of an error of the temperature control module during execution of this FB. Check the error description and take the action, and then execute the FB again. If "PID continuation Flag" is set to Continue (1), 'Setting/operation mode command' (Xn1) does not turn off. This FB cannot be used in an interrupt program. Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). This FB uses Index register Z9. When using an interrupt program, do not use this index register in the interrupt program. This FB turns on and off 'Setting/operation mode command' (Yn1). Thus, do not turn on and off 'Setting/operation mode command' (Yn1) by other means while this FB is being executed. When this FB is used in two or more places, or when other FB that operates the Y signal same as the signal this FB does, create an interlock to prevent the FBs from being activated at the same time. This FB requires the configuration of the ladder for every input label. When this FB is used in two or more places, a duplicated coil warning may occur during compile operation due to the Y signal being operated by the module label. However, this is not a problem and the FB will operate without an error. To operate the temperature control module, the setting must be configured according to each connected device and system. Set up the module parameters of GX Works3 according to the application. For the setting method of the module parameter, refer to the MELSEC iQ-R Temperature Control Module User's Manual (Application). |

Error code

| Error code | Description | Action |
|------------|---|---|
| 200H | "Peak current suppression function master/slave selection between multiple module" of the specified temperature control module is set to other than Master (1). | Review and correct the setting and then execute the FB again. |
| 201H | Any slave modules where the inter-module peak current suppression function is enabled do not exist. | Review and correct the settings of the slave modules and then execute the FB again. Check that the settings of the slave modules are configured as follows. <ul style="list-style-type: none"> • "Control mode selection": Standard Control (0) • "Peak current suppression function enable/disable between multiple module": Valid (1) • "Peak current suppression function master/slave selection between multiple module": Slave (0) |
| 202H | "Control mode selection" of the specified temperature control module is set to other than Standard Control (0). | Review and correct the settings and then execute the FB again. |
| 203H | "Peak current suppression control group setting" of the specified temperature control module or the slave modules are set to Not Divided (0) in all channels. | Review and correct the settings and then execute the FB again. |
| 204H | "Peak current suppression function enable/disable between multiple module" in the specified temperature control module is set to Disable (0). | Review and correct the settings and then execute the FB again. |

2.2 M+R60TC(BW)_StartSimultaneousTemperatureRiseBetweenModule

Name

■R60TCTRT2TT2, R60TCRT4

M+R60TC_StartSimultaneousTemperatureRiseBetweenModule

■R60TCTRT2TT2BW, R60TCRT4BW

M+R60TCBW_StartSimultaneousTemperatureRiseBetweenModule

Overview

| Item | Description |
|---------------------|---|
| Functional overview | Simultaneously turns on/off 'Setting/operation mode command' (Yn1) of the temperature control modules which use the intermodule simultaneous temperature rise function. |
| Symbol | <pre> graph LR subgraph Module [M+R60TC_StartSimultaneousTemperatureRiseBetweenModule] direction TB i_bEN((1) B: i_bEN) i_stModule((2) DUT: i_stModule) o_bENO((3) o_bENO: B) o_bOK((4) o_bOK: B) o_bErr((5) o_bErr: B) o_uErrld((6) o_uErrld: UW) end </pre> |

Labels

■Input labels

| No. | Variable name | Name | Data type | Scope | Description |
|-----|---------------|-------------------|-----------|--|---|
| (1) | i_bEN | Execution command | Bit | On or off | On: The FB is activated. Off: The FB is not activated. |
| (2) | i_stModule | Module label | Structure | The scope differs depending on the module label. | Specify the module label of the temperature control module. The module label of the temperature control module, where "Peak current suppression function master/slave selection between multiple module" is set to Master (1), must be specified. |

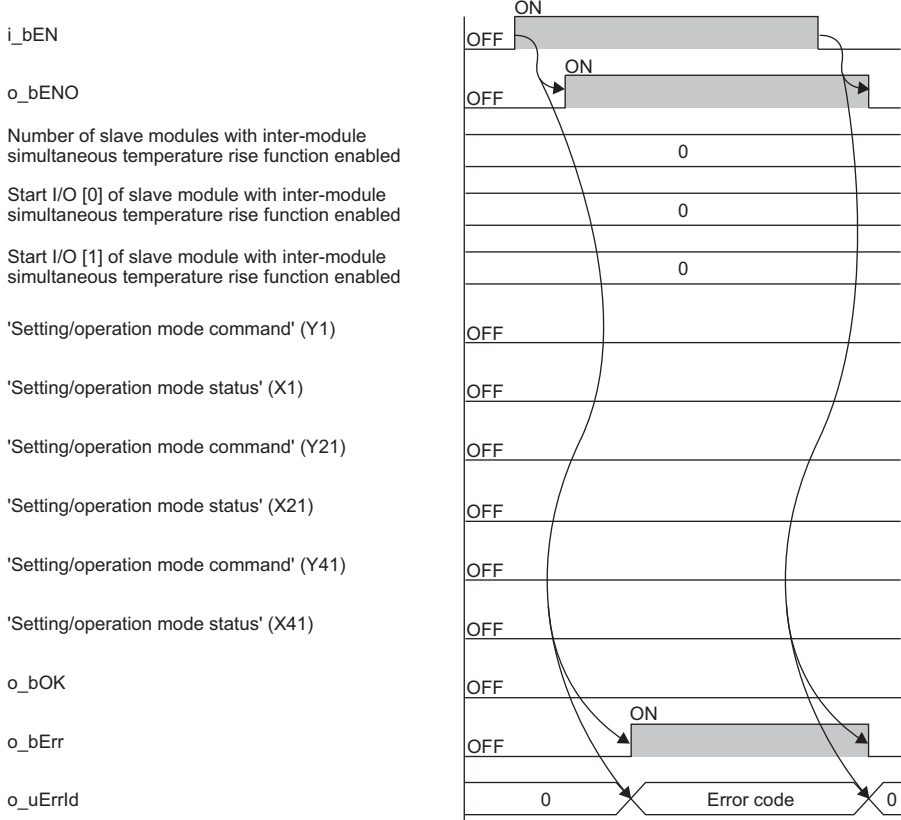
■Output labels

| No. | Variable name | Name | Data type | Default value | Description |
|-----|---------------|-------------------|-----------------|---------------|--|
| (3) | o_bENO | Execution status | Bit | Off | On: The execution command is on. Off: The execution command is off. |
| (4) | o_bOK | Normal completion | Bit | Off | The on state indicates that the inter-module peak current suppression function has been activated. |
| (5) | o_bErr | Error completion | Bit | Off | The on state indicates that an error has occurred in the FB. |
| (6) | o_uErrld | Error code | Word [unsigned] | 0 | The error code of an error occurred in the FB is stored. |

FB details

| Item | Description |
|-----------------------|---|
| Available devices | Target modules R60TCTRT2TT2, R60TCTRT2TT2BW, R60TCRT4, R60TCRT4BW |
| | CPU modules MELSEC iQ-R series CPU modules |
| | Engineering tool GX Works3 |
| Language | Ladder diagram |
| Number of basic steps | 1606 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual. |
| Processing | <ul style="list-style-type: none"> 'Setting/operation mode command' (Yn1) of the temperature control modules which use the inter-module simultaneous temperature rise function are turned on simultaneously by turning on i_bEN (Execution command). 'Setting/operation mode command' (Yn1), which are turned on with this FB, are turned off by turning off i_bEN (Execution command). If "Simultaneous temperature rise function master/slave selection between multiple module" of the specified temperature control module is set to Slave (0), o_bErr (Error completion) turns on and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 12 Error code) If any slave modules where the inter-module simultaneous temperature rise function is enabled do not exist, o_bErr (Error completion) turns on and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 12 Error code) If "Control mode selection" of the specified temperature control module is set to other than Standard Control (0), Mix Control (Normal Mode) (3), or Mix Control (Expanded Mode) (4), o_bErr (Error completion) turns on and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 12 Error code) If "Simultaneous temperature rise group setting" of the specified temperature control module and the slave modules are set to Do not rise temperature simultaneously (0) in all channels, o_bErr (Error completion) turns on and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (However, when "Control mode selection" is set to Mix Control (Normal Mode) (3) or Mix Control (Expanded mode) (4), the target channels for the check whether "Do not rise temperature simultaneously (0)" is set or not are CH3 and CH4.) (Page 12 Error code) If "Simultaneous temperature rise function enable/disable between multiple module" in the specified temperature control module is set to Disable (0), o_bErr (Error completion) turns on and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 12 Error code) |
| FB compilation method | Macro type |
| FB operation | Pulsed execution type (multiple scan execution type) |

| Item | Description |
|-----------------------------|---|
| Timing chart of I/O signals | <p>■ When the operation is completed successfully</p> <ul style="list-style-type: none"> • The number of master modules: 1, Master module start I/O number: 0H • The number of slave modules: 2, Slave module start I/O number: 20H, 40H <p>The timing chart illustrates the sequence of I/O signals during a successful operation. It shows the following signals and their states:</p> <ul style="list-style-type: none"> i_bEN: Transitions from OFF to ON. o_bENO: Transitions from OFF to ON. Number of slave modules with inter-module simultaneous temperature rise function enabled: Value 2. Start I/O [0] of slave module with inter-module simultaneous temperature rise function enabled: Value 20. Start I/O [1] of slave module with inter-module simultaneous temperature rise function enabled: Value 40. 'Setting/operation mode command' (Y1): Transitions from OFF to ON. 'Setting/operation mode status' (X1): Transitions from OFF to ON. 'Setting/operation mode command' (Y21): Transitions from OFF to ON. 'Setting/operation mode status' (X21): Transitions from OFF to ON. 'Setting/operation mode command' (Y41): Transitions from OFF to ON. 'Setting/operation mode status' (X41): Transitions from OFF to ON. o_bOK: Transitions from OFF to ON. o_bErr: Remains OFF. o_uErrId: Value 0. <p>Legend:</p> <ul style="list-style-type: none"> ---▶ Executed by the temperature control module. —▶ Executed by the FB. |

| Item | Description |
|------------------------------|---|
| Timing chart of I/O signals | <p>■ When the operation is completed with an error</p> <ul style="list-style-type: none"> The number of master modules: 1, Master module start I/O number: 0H The number of slave modules: 2, Slave module start I/O number: 20H, 40H  <p>Timing chart showing the sequence of I/O signals for a temperature control module. The chart includes signals: i_bEN, o_bENO, Number of slave modules with inter-module simultaneous temperature rise function enabled (0), Start I/O [0] of slave module with inter-module simultaneous temperature rise function enabled (0), Start I/O [1] of slave module with inter-module simultaneous temperature rise function enabled (0), 'Setting/operation mode command' (Y1), 'Setting/operation mode status' (X1), 'Setting/operation mode command' (Y21), 'Setting/operation mode status' (X21), 'Setting/operation mode command' (Y41), 'Setting/operation mode status' (X41), o_bOK, o_bErr, and o_uErrId. The chart shows that i_bEN and o_bErr are active during the execution period, while o_uErrId is active when an error occurs. The error code is shown as a pulse during the error period.</p> |
| Restrictions and precautions | <ul style="list-style-type: none"> This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. Refer to the MELSEC iQ-R Temperature Control Module User's Manual (Application) at the occurrence of an error of the temperature control module during execution of this FB. Check the error description and take the action, and then execute the FB again. If "PID continuation Flag" is set to Continue (1), 'Setting/operation mode command' (Xn1) does not turn off. This FB cannot be used in an interrupt program. Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). This FB uses Index register Z9. When using an interrupt program, do not use this index register in the interrupt program. This FB turns on and off 'Setting/operation mode command' (Yn1). Thus, do not turn on and off 'Setting/operation mode command' (Yn1) by other means while this FB is being executed. When this FB is used in two or more places, or when other FB that operates the Y signal same as the signal this FB does, create an interlock to prevent the FBs from being activated at the same time. This FB requires the configuration of the ladder for every input label. When this FB is used in two or more places, a duplicated coil warning may occur during compile operation due to the Y signal being operated by the module label. However, this is not a problem and the FB will operate without an error. To operate the temperature control module, the setting must be configured according to each connected device and system. Set up the module parameters of GX Works3 according to the application. For the setting method of the module parameter, refer to the MELSEC iQ-R Temperature Control Module User's Manual (Application). |

Error code

| Error code | Description | Action |
|------------|--|--|
| 205H | "Simultaneous temperature rise function master/slave selection between multiple module" of the specified temperature control module is set to other than Master (1). | Review and correct the setting and then execute the FB again. |
| 206H | Any slave modules where the inter-module simultaneous temperature rise function is enabled do not exist. | Review and correct the settings of the slave modules and then execute the FB again. Check that the settings of the slave modules are configured as follows. <ul style="list-style-type: none"> • "Control mode selection": Standard Control (0), Mix Control (Normal Mode) (3), or Mix Control (Expanded Mode) (4) • "Simultaneous temperature rise function enable/disable between multiple module": Valid (1) • "Simultaneous temperature rise function master/slave selection between multiple module": Slave (0) |
| 207H | "Control mode selection" of the specified temperature control module is set to other than Standard Control (0), Mix Control (Normal Mode) (3), or Mix Control (Expanded Mode) (4). | Review and correct the setting and then execute the FB again. |
| 208H | "Simultaneous temperature rise group setting" of the specified temperature control module or the slave modules are set to Do not rise temperature simultaneously (0) in all channels. (However, when "Control mode selection" is set to Mix Control (Normal Mode) (3) or Mix Control (Expanded mode) (4), the target channels for the check whether "Do not rise temperature simultaneously (0)" is set or not are CH3 and CH4.) | Review and correct the setting and then execute the FB again. |
| 209H | "Simultaneous temperature rise function enable/disable between multiple module" in the specified temperature control module is set to Disable (0). | Review and correct the setting and then execute the FB again. |

2.3 M+R60TC(BW)_OperateError

Name

■R60TCTRT2TT2, R60TCRT4

M+R60TC_OperateError

■R60TCTRT2TT2BW, R60TCRT4BW

M+R60TCBW_OperateError

Overview

| Item | Description | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------|---|----------------------|----------|-----------|-----|-------|-----------------|----------|-----|-------|----------------|-----------------|-----|--|--|--------------------|-----|--|--|----------------------|-----|--|--|-----------|-----|--|--|--------------|------|
| Functional overview | Monitors and resets error codes. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Symbol | <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 10px auto;"> <p style="text-align: center;">M+R60TC_OperateError</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; vertical-align: top;">(1) —</td> <td style="width: 40%;">B: i_bEN</td> <td style="width: 40%; text-align: right;">o_bENO: B</td> <td style="width: 10%; text-align: right;">(4)</td> </tr> <tr> <td style="vertical-align: top;">(2) —</td> <td>DUT: i_stModule</td> <td style="text-align: right;">o_bOK: B</td> <td style="text-align: right;">(5)</td> </tr> <tr> <td style="vertical-align: top;">(3) —</td> <td>B: i_bErrReset</td> <td style="text-align: right;">o_bModuleErr: B</td> <td style="text-align: right;">(6)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">o_uModuleErrId: UW</td> <td style="text-align: right;">(7)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">o_uModuleErrAddr: UW</td> <td style="text-align: right;">(8)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">o_bErr: B</td> <td style="text-align: right;">(9)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">o_uErrId: UW</td> <td style="text-align: right;">(10)</td> </tr> </table> </div> | (1) — | B: i_bEN | o_bENO: B | (4) | (2) — | DUT: i_stModule | o_bOK: B | (5) | (3) — | B: i_bErrReset | o_bModuleErr: B | (6) | | | o_uModuleErrId: UW | (7) | | | o_uModuleErrAddr: UW | (8) | | | o_bErr: B | (9) | | | o_uErrId: UW | (10) |
| (1) — | B: i_bEN | o_bENO: B | (4) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (2) — | DUT: i_stModule | o_bOK: B | (5) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (3) — | B: i_bErrReset | o_bModuleErr: B | (6) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | o_uModuleErrId: UW | (7) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | o_uModuleErrAddr: UW | (8) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | o_bErr: B | (9) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | o_uErrId: UW | (10) | | | | | | | | | | | | | | | | | | | | | | | | | | |

Labels

■Input labels

| No. | Variable name | Name | Data type | Scope | Description |
|-----|---------------|---------------------|-----------|--|---|
| (1) | i_bEN | Execution command | Bit | On or off | On: The FB is activated. Off: The FB is not activated. |
| (2) | i_stModule | Module label | Structure | The scope differs depending on the module label. | Specify the module label of the temperature control module. |
| (3) | i_bErrReset | Error reset command | Bit | On or off | On: Errors are reset. Off: Errors are not reset. |

■Output labels

| No. | Variable name | Name | Data type | Default value | Description |
|------|------------------|------------------------|-----------------|---------------|--|
| (4) | o_bENO | Execution status | Bit | Off | On: The execution command is on. Off: The execution command is off. |
| (5) | o_bOK | Normal completion | Bit | Off | The on state indicates that resetting the errors has been completed. |
| (6) | o_bModuleErr | Module error detection | Bit | Off | The on state indicates that an error has occurred. |
| (7) | o_uModuleErrId | Module error code | Word [unsigned] | 0 | The error code of the error that has occurred in the temperature control module is stored. |
| (8) | o_uModuleErrAddr | Error address | Word [unsigned] | 0 | The address where an error has occurred is output. |
| (9) | o_bErr | Error completion | Bit | Off | Always off |
| (10) | o_uErrId | Error code | Word [unsigned] | 0 | Always 0 |

FB details

| Item | Description | |
|------------------------------|--|--|
| Available devices | Target modules | R60TCTRT2TT2, R60TCTRT2TT2BW, R60TCRT4, R60TCRT4BW |
| | CPU modules | MELSEC iQ-R series CPU modules |
| | Engineering tool | GX Works3 |
| Language | Ladder diagram | |
| Number of basic steps | 152 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual. | |
| Processing | <ul style="list-style-type: none"> By turning on i_bEN (Execution command), errors are monitored. When a module error has occurred, o_uModuleErr (Module error detection) is turned on and description of the error is stored in o_uModuleErrId (Module error code) and o_uModuleErrAddr (Error address). After i_bEN (Execution command) is turned on, the generated error is reset by turning on i_bErrReset (Error reset command). | |
| FB compilation method | Macro type | |
| FB operation | Arbitrary execution type | |
| Timing chart of I/O signals | <p>■ When the operation is completed successfully</p> <p>The timing chart illustrates the following sequence of events:</p> <ol style="list-style-type: none"> i_bEN transitions from OFF to ON. o_bENO transitions from OFF to ON. i_bErrReset transitions from OFF to ON. 'Error reset command' (Yn2) transitions from OFF to ON. 'Error flag' (Xn2) transitions from OFF to ON. o_bModuleErr transitions from OFF to ON. o_uModuleErrId (Module error code) and o_uModuleErrAddr (Error address) both transition from 0 to 0. o_bOK transitions from OFF to ON. o_bErr transitions from OFF to OFF. o_uErrId transitions from 0 to 0. <p>Legend: - - - - -> Executed by the temperature control module. ———> Executed by the FB.</p> | |
| Restrictions and precautions | <ul style="list-style-type: none"> This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation. This FB cannot be used in an interrupt program. Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned off and the normal operation cannot be acquired. Always use this FB in programs that can turn off i_bEN (Execution command). This FB requires the configuration of the ladder for every input label. When this FB is used in two or more places, a duplicated coil warning may occur during compile operation due to the Y signal being operated by the module label. However, this is not a problem and the FB will operate without an error. To operate the temperature control module, the setting must be configured according to each connected device and system. Set up the module parameters of GX Works3 according to the application. For the setting method of the module parameter, refer to the MELSEC iQ-R Temperature Control Module User's Manual (Application). | |

Error code

| Error code | Description | Action |
|------------|-------------|--------|
| None | None | None |

INSTRUCTION INDEX

M

| | |
|---|----|
| M+R60TCBW_OperateError | 13 |
| M+R60TCBW_StartPeakCurrentSuppression BetweenModule | 4 |
| M+R60TCBW_StartSimultaneousTemperature RiseBetweenModule | 8 |
| M+R60TC_OperateError | 13 |
| M+R60TC_StartPeakCurrentSuppression BetweenModule | 4 |
| M+R60TC_StartSimultaneousTemperature RiseBetweenModule | 8 |

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REVISIONS

*The manual number is given on the bottom left of the back cover.

| Revision date | *Manual number | Description |
|---------------|------------------|---------------------------------------|
| July 2015 | BCN-P5999-0565-A | First edition |
| April 2016 | BCN-P5999-0565-B | ■ Added or modified part Chapter 2 |
| March 2017 | BCN-P5999-0565-C | ■ Added or modified part Chapter 2 |

Japanese manual number: BCN-P5999-0516-C

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BCN-P5999-0565-C(1703)

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