



Programmable Controller

MELSEC iQ-R
series

MELSEC iQ-R BACnet Module User's Manual (Application)

-RJ71BAC96

Powered by

unitec CORPORATION

This product was jointly developed and manufactured by Mitsubishi and UNITEC Corporation.

*Note that the warranty on this product differs from that on other programmable controller products.
(Refer to "WARRANTY" in this manual.)

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PRECAUTIONS REGARDING WARRANTY AND SPECIFICATIONS

RJ71BAC96 was jointly developed and manufactured by Mitsubishi and Unitec Corporation. Note that there are differences in warranty.

- WARRANTY

Item	RJ71BAC96	Other programmable controller products (e.g. MELSEC iQ-R series)
Repair term after discontinuation of production	12 months after the date of delivery or 18 months after manufacturing	36 months after the date of delivery or 42 months after manufacturing
Repair term after discontinuation of production	3 years	7 years

Please note that Mitsubishi will not accept repair and failure analysis of this product.

The faulty product shall be replaced.

It may take some time to respond to the problem or repair the product depending on the condition and timing.

SAFETY PRECAUTIONS

(Read these precautions before using this product.)

Before using this product, please read this manual and the relevant manuals carefully and pay full attention to safety to handle the product correctly.

The precautions given in this manual are concerned with this product only. For the safety precautions for the programmable controller system, refer to MELSEC iQ-R Module Configuration Manual.

In this manual, the safety precautions are classified into two levels: "⚠️ WARNING" and "⚠️ CAUTION".



WARNING

Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.



CAUTION

Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage.

Under some circumstances, failure to observe the precautions given under "⚠️ CAUTION" may lead to serious consequences.

Observe the precautions of both levels because they are important for personal and system safety.

Make sure that the end users read this manual and then keep the manual in a safe place for future reference.

WARNING

- Configure safety circuits external to the programmable controller to ensure that the entire system operates safely even when a fault occurs in the external power supply or the programmable controller. Failure to do so may result in an accident due to an incorrect output or malfunction.
 - (1) Emergency stop circuits, protection circuits, and protective interlock circuits for conflicting operations (such as forward/reverse rotations or upper/lower limit positioning) must be configured external to the programmable controller.
 - (2) When the programmable controller detects an abnormal condition, it stops the operation and all outputs are:
 - Turned off if the overcurrent or overvoltage protection of the power supply module is activated.
 - Held or turned off according to the parameter setting if the self-diagnostic function of the CPU module detects an error such as a watchdog timer error.
 - (3) All outputs may be turned on if an error occurs in a part, such as an I/O control part, where the CPU module cannot detect any error. To ensure safety operation in such a case, provide a safety mechanism or a fail-safe circuit external to the programmable controller. For a fail-safe circuit example, refer to "General Safety Requirements" in MELSEC iQ-R Module Configuration Manual.
 - (4) Outputs may remain on or off due to a failure of a component such as a relay and transistor in an output circuit. Configure an external circuit for monitoring output signals that could cause a serious accident.
 - In an output circuit, when a load current exceeding the rated current or an overcurrent caused by a load short-circuit flows for a long time, it may cause smoke and fire. To prevent this, configure an external safety circuit, such as a fuse.
 - Configure a circuit so that the programmable controller is turned on first and then the external power supply. If the external power supply is turned on first, an accident may occur due to an incorrect output or malfunction.
 - For the operating status of each station after a communication failure, refer to manuals relevant to the network. Incorrect output or malfunction due to a communication failure may result in an accident.
 - When connecting an external device with a CPU module or intelligent function module to modify data of a running programmable controller, configure an interlock circuit in the program to ensure that the entire system will always operate safely. For other forms of control (such as program modification, parameter change, forced output, or operating status change) of a running programmable controller, read the relevant manuals carefully and ensure that the operation is safe before proceeding. Improper operation may damage machines or cause accidents.
 - Especially, when a remote programmable controller is controlled by an external device, immediate action cannot be taken if a problem occurs in the programmable controller due to a communication failure. To prevent this, configure an interlock circuit in the program, and determine corrective actions to be taken between the external device and CPU module in case of a communication failure.
-

[Design Precautions]

WARNING

- Do not write any data to the "system area" and "write-protect area" of the buffer memory in the module. Also, do not use any "use prohibited" signals as an output signal from the CPU module to each module. Doing so may cause malfunction of the programmable controller system. For the "system area", "write-protect area", and the "use prohibited" signals, refer to the user's manual for the module used.
 - If a communication cable is disconnected, the network may be unstable, resulting in a communication failure of multiple stations. Configure an interlock circuit in the program to ensure that the entire system will always operate safely even if communications fail. Incorrect output or malfunction due to a communication failure may result in an accident.
 - To maintain the safety of the programmable controller system against unauthorized access from external devices via the network, take appropriate measures. To maintain the safety against unauthorized access via the Internet, take measures such as installing a firewall.
-

[Design Precautions]

CAUTION

- Do not install the control lines or communication cables together with the main circuit lines or power cables. Keep a distance of 100mm or more between them. Failure to do so may result in malfunction due to noise.
 - During control of an inductive load such as a lamp, heater, or solenoid valve, a large current (approximately ten times greater than normal) may flow when the output is turned from OFF to ON. Therefore, use a module that has a sufficient current rating.
 - After the CPU module is powered on or is reset, the time taken to enter the RUN status varies depending on the system configuration, parameter settings, and/or program size. Design circuits so that the entire system will always operate safely, regardless of the time.
 - Do not power off the programmable controller or do not reset the CPU module while the settings are being written. Doing so will make the data in the flash ROM or SD memory card undefined. The values need to be set in the buffer memory and written to the flash ROM or the SD memory card again. Doing so may cause malfunction or failure of the module.
 - When changing the operating status of the CPU module from external devices (such as remote RUN/STOP functions), select "Do Not Open in Program" for "Open Method Setting" in the module parameters. If "Open in Program" is selected, an execution of remote STOP causes the communication line to close. Consequently, the CPU module cannot reopen the communication line, and the external device cannot execute the remote RUN.
-

[Installation Precautions]

WARNING

- Shut off the external power supply (all phases) used in the system before mounting or removing the module. Failure to do so may result in electric shock or cause the module to fail or malfunction.
-

[Installation Precautions]

CAUTION

- Use the programmable controller in an environment that meets general specifications written in Safety Guidelines included in the base unit. Failure to do so may result in electric shock, fire, malfunction, or damage to or deterioration of the product.
 - To mount a module, place the concave part(s) located at the bottom onto the guide(s) of the base unit, and push in the module until the hook(s) located at the top snaps into place. Incorrect interconnection may cause malfunction, failure, or drop of the module.
 - Secure the module with screws especially when it is used in an environment where constant vibrations may occur.
 - Tighten the screws within the specified torque range. Undertightening can cause drop of the screw, short circuit, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.
 - When using an extension cable, connect it to the extension cable connector of the base unit securely. Check the connection for looseness. Poor contact may cause malfunction.
 - When using an SD memory card, fully insert it into the memory card slot. Check that it is inserted completely. Poor contact may cause malfunction.
 - Securely insert an extended SRAM cassette into the cassette connector of a CPU module. After insertion, close the cassette cover and check that the cassette is inserted completely. Poor contact may cause malfunction.
 - Do not directly touch any conductive parts and electronic components of the module, SD memory card, extended SRAM cassette, or connector. Doing so may cause malfunction or failure of the module.
-

[Wiring Precautions]

WARNING

- Shut off the external power supply (all phases) used in the system before installation and wiring. Failure to do so may result in electric shock or cause the module to fail or malfunction.
 - After installation and wiring, attach the included terminal cover to the module before turning it on for operation. Failure to do so may result in electric shock.
-

[Wiring Precautions]

CAUTION

- Individually ground the FG and LG terminals of the programmable controller with a ground resistance of 100 ohms or less. Failure to do so may result in electric shock or malfunction.
 - Use applicable solderless terminals and tighten them within the specified torque range. If any spade solderless terminal is used, it may be disconnected when the terminal screw comes loose, resulting in failure.
 - Check the rated voltage and signal layout before wiring to the module, and connect the cables correctly. Connecting a power supply with a different voltage rating or incorrect wiring may cause fire or failure.
 - Connectors for external devices must be crimped or pressed with the tool specified by the manufacturer, or must be correctly soldered. Incomplete connections may cause short circuit, fire, or malfunction.
 - Securely connect the connector to the module. Poor contact may cause malfunction.
 - Do not install the control lines or communication cables together with the main circuit lines or power cables. Keep a distance of 100mm or more between them. Failure to do so may result in malfunction due to noise.
 - Place the cables in a duct or clamp them. If not, dangling cable may swing or inadvertently be pulled, resulting in damage to the module or cables or malfunction due to poor contact. Do not clamp the extension cables with the jacket stripped. Doing so may change the characteristics of the cables, resulting in malfunction.
 - Check the interface type and correctly connect the cable. Incorrect wiring (connecting the cable to an incorrect interface) may cause failure of the module and external device.
 - Tighten the terminal screws or connector screws within the specified torque range. Undertightening can cause drop of the screw, short circuit, fire, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, fire, or malfunction.
 - When disconnecting the cable from the module, do not pull the cable by the cable part. For the cable with connector, hold the connector part of the cable. For the cable connected to the terminal block, loosen the terminal screw. Pulling the cable connected to the module may result in malfunction or damage to the module or cable.
 - Prevent foreign matter such as dust or wire chips from entering the module. Such foreign matter can cause a fire, failure, or malfunction.
-

[Wiring Precautions]

CAUTION

- A protective film is attached to the top of the module to prevent foreign matter, such as wire chips, from entering the module during wiring. Do not remove the film during wiring. Remove it for heat dissipation before system operation.
 - Programmable controllers must be installed in control panels. Connect the main power supply to the power supply module in the control panel through a relay terminal block. Wiring and replacement of a power supply module must be performed by qualified maintenance personnel with knowledge of protection against electric shock. For wiring, refer to MELSEC iQ-R Module Configuration Manual.
 - For Ethernet cables to be used in the system, select the ones that meet the specifications in the user's manual for the module used. If not, normal data transmission is not guaranteed.
-

[Startup and Maintenance Precautions]

WARNING

- Do not touch any terminal or connector while power is ON. Doing so will cause electric shock or malfunction.
 - Shut off the external power supply (all phases) used in the system before retightening the terminal screws or cleaning the module. Failure to do so may result in electric shock.
 - Shut off the external power supply (all phases) used in the system before mounting or removing the module. Failure to do so may cause the module to fail or malfunction.
-

[Startup and Maintenance Precautions]

CAUTION

- When connecting an external device with a CPU module or intelligent function module to modify data of a running programmable controller, configure an interlock circuit in the program to ensure that the entire system will always operate safely. For other forms of control (such as program modification, parameter change, forced output, or operating status change) of a running programmable controller, read the relevant manuals carefully and ensure that the operation is safe before proceeding. Improper operation may damage machines or cause accidents.
 - Especially, when a remote programmable controller is controlled by an external device, immediate action cannot be taken if a problem occurs in the programmable controller due to a communication failure. To prevent this, configure an interlock circuit in the program, and determine corrective actions to be taken between the external device and CPU module in case of a communication failure.
 - Do not disassemble or modify the modules. Doing so may cause failure, malfunction, injury, or a fire.
 - Use any radio communication device such as a cellular phone or PHS (Personal Handy-phone System) more than 25cm away in all directions from the programmable controller. Failure to do so may cause malfunction.
 - Tighten the screws within the specified torque range. Undertightening can cause drop of the component or wire, short circuit, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.
 - After the first use of the product, do not mount/remove the module to/from the base unit, and the terminal block to/from the module, and do not insert/remove the extended SRAM cassette to/from the CPU module more than 50 times (IEC 61131-2 compliant) respectively. Exceeding the limit may cause malfunction.
 - After the first use of the product, do not insert/remove the SD memory card to/from the CPU module more than 500 times. Exceeding the limit may cause malfunction.
 - Do not touch the metal terminals on the back side of the SD memory card. Doing so may cause malfunction or failure of the module.
 - Do not touch the integrated circuits on the circuit board of an extended SRAM cassette. Doing so may cause malfunction or failure of the module.
 - Do not drop or apply shock to the battery to be installed in the module. Doing so may damage the battery, causing the battery fluid to leak inside the battery. If the battery is dropped or any shock is applied to it, dispose of it without using.
 - Startup and maintenance of a control panel must be performed by qualified maintenance personnel with knowledge of protection against electric shock. Lock the control panel so that only qualified maintenance personnel can operate it.
 - Before handling the module, touch a conducting object such as a grounded metal to discharge the static electricity from the human body. Failure to do so may cause the module to fail or malfunction.
-

[Operating Precautions]

CAUTION

- When changing data and operating status, and modifying program of the running programmable controller from an external device such as a personal computer connected to an intelligent function module, read relevant manuals carefully and ensure the safety before operation. Incorrect change or modification may cause system malfunction, damage to the machines, or accidents.
 - Do not power off the programmable controller or reset the CPU module while the setting values in the buffer memory are being written to the flash ROM in the module. Doing so will make the data in the flash ROM or SD memory card undefined. The values need to be set in the buffer memory and written to the flash ROM or SD memory card again. Doing so can cause malfunction or failure of the module.
-

[Disposal Precautions]

CAUTION

- When disposing of this product, treat it as industrial waste.
 - When disposing of batteries, separate them from other wastes according to the local regulations. For details on battery regulations in EU member states, refer to MELSEC iQ-R Module Configuration Manual.
-

[Transportation Precautions]

CAUTION

- When transporting lithium batteries, follow the transportation regulations. For details on the regulated models, refer to MELSEC iQ-R Module Configuration Manual.
 - The halogens (such as fluorine, chlorine, bromine, and iodine), which are contained in a fumigant used for disinfection and pest control of wood packaging materials, may cause failure of the product. Prevent the entry of fumigant residues into the product or consider other methods (such as heat treatment) instead of fumigation. The disinfection and pest control measures must be applied to unprocessed raw wood.
-

CONDITIONS OF USE FOR THE PRODUCT

(1) Mitsubishi programmable controller ("the PRODUCT") shall be used in conditions;

- i) where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and
- ii) where the backup and fail-safe function are systematically or automatically provided outside of the PRODUCT for the case of any problem, fault or failure occurring in the PRODUCT.

(2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.

MITSUBISHI SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT THAT ARE OPERATED OR USED IN APPLICATION NOT INTENDED OR EXCLUDED BY INSTRUCTIONS, PRECAUTIONS, OR WARNING CONTAINED IN MITSUBISHI'S USER, INSTRUCTION AND/OR SAFETY MANUALS, TECHNICAL BULLETINS AND GUIDELINES FOR the PRODUCT.

("Prohibited Application")

Prohibited Applications include, but not limited to, the use of the PRODUCT in;

- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.
- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.
- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

Notwithstanding the above, restrictions Mitsubishi may in its sole discretion, authorize use of the PRODUCT in one or more of the Prohibited Applications, provided that the usage of the PRODUCT is limited only for the specific applications agreed to by Mitsubishi and provided further that no special quality assurance or fail-safe, redundant or other safety features which exceed the general specifications of the PRODUCTS are required. For details, please contact the Mitsubishi representative in your region.

INTRODUCTION

Thank you for purchasing the Mitsubishi Electric MELSEC iQ-R series programmable controllers.

This manual describes the performance specifications, procedures before operation, wiring, and operation examples of the relevant products listed below.

Before using this product, please read this manual and the relevant manuals carefully and develop familiarity with the functions and performance of the MELSEC iQ-R series programmable controller to handle the product correctly.

Please make sure that the end users read this manual.

Point

The program examples shown in this manual are the examples in which the BACnet module (RJ71BAC96) is assigned to the input/output No. X/Y0 to X/Y1F unless otherwise specified.

To use the program examples shown in this manual, the input/output number assignment is required.

For details on the assignment of input/output number, refer to the following manual.

 MELSEC iQ-R Module Configuration Manual

Relevant product

RJ71BAC96

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RELEVANT MANUALS

Manual name [manual number]	Description	Available form
MELSEC iQ-R BACnet Module User's Manual (Startup) [SH-081699ENG]	Explains the specifications, procedures before operation, system configuration, wiring, and operation examples of BACnet modules.	Print book e-Manual PDF
MELSEC iQ-R BACnet Module User's Manual (Application) [SH-081700ENG] (this manual)	Explains the functions, parameter setting, troubleshooting, and buffer memory of BACnet modules.	Print book e-Manual PDF

Point

e-Manual refers to the Mitsubishi Electric FA electronic book manuals that can be browsed using a dedicated tool.

e-Manual has the following features:

- Required information can be cross-searched in multiple manuals.
- Other manuals can be accessed from the links in the manual.
- Hardware specifications of each part can be found from the product figures.
- Pages that users often browse can be bookmarked.
- Sample programs can be copied to an engineering tool.

TERMS

Unless otherwise specified, this manual uses the following terms.

TERMS	Description
BACnet	A communication standard for building automation and control network established by ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) in 1995. This indicates a system configured with BACnet.
BACnet controller	A controller that provides input/output information of a BACnet system as a lower-level system.
BACnet device	A device connected to a BACnet system.
BACnet module	An abbreviation for MELSEC iQ-R series BACnet module.
BACnet workstation	A central monitoring device that controls and monitors the state of a BACnet system as an upper-level system.
COV	An abbreviation for 'Change Of Value'. A BACnet service that notifies the change of a PresentValue or a StatusFlags to a BACnet device at the timing of the change.
Data block	An area that is assigned to buffer memory to read/write property values or receive data of a BACnet device using a BACnet module.
DeviceInstanceNo	An instance number for a BACnet device. An instance number is assigned to each BACnet device to identify each BACnet device.
Engineering tool	A tool for setting, programming, debugging, and maintaining programmable controllers. For the supported tools, refer to the following manual.  MELSEC iQ-R Module Configuration Manual
Event	A communication specification defined in the BACnet standard.
EventState	A property that indicates an event status. This property links with a Reliability property and manages event status.
Index number	A number to identify the property elements of an array.
Instance number	A number is assigned for each BACnet device and object type. With this number, BACnet services can be shared in a BACnet system.
Join	To notify the existence of a BACnet controller itself to a BACnet workstation and other BACnet controllers, and to join a BACnet system. A method to join a BACnet and its procedure varies depending on the BACnet standard.
Leave	To leave the BACnet system.
Object	Information related to input/output or internal status in a BACnet device. This indicates a BACnet object.
Object type number	An identifier to distinguish each ObjectType.
ObjectIdentifier	An identifier of each object that consists of an object type and its instance number.
ObjectType	A type of a BACnet object.
OutOfService	A property that indicates a BACnet device is not available. When this property is True, an input/output device is physically disconnected.
PresentValue	A property that indicates current value. This property is a main property that handles input/output values which are related to each object.
Priority	A property that indicates priority.
Property	Detail information and attribute of each object. An object is configured with various properties. The status of a property may affects other properties, and consequently a control status is changed.
PropertyIdentifier	An identifier that distinguishes the type of a property.
Reliability	A property that indicates reliability. This property observes input/output devices if their status is normal or error.
RJ71BAC96	An abbreviation for RJ71BAC96 BACnet module.
Service	A function to share information between a BACnet device and external BACnet devices. This indicates a BACnet service.

1 FUNCTIONS

This chapter shows the details of the functions of a BACnet module.

1.1 BACnet Object Function

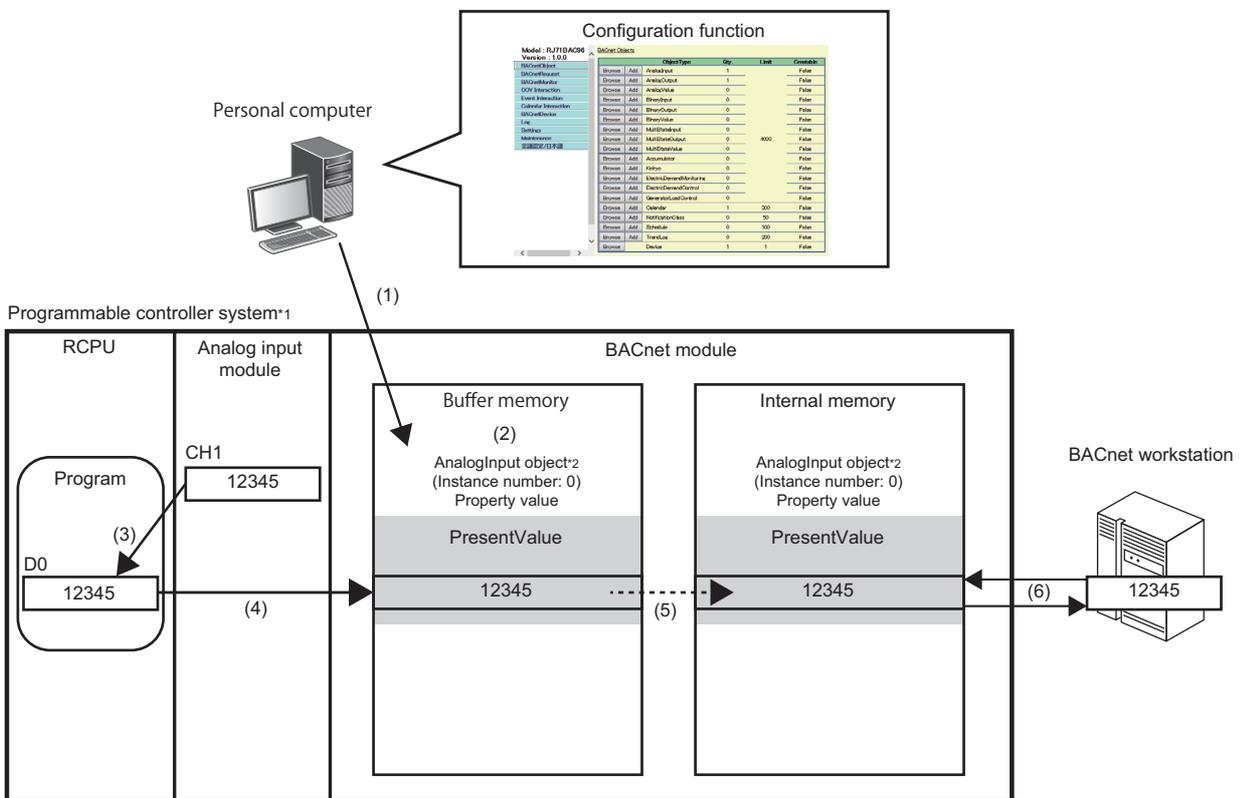
This function can be used for using a programmable controller system as a BACnet controller.

By registering objects to a BACnet module, various services can be sent to/received from a BACnet workstation and other BACnet controllers.

Some of the properties of an object are assigned to the data assignment area in the buffer memory and can be accessed from a program.

Objects can be registered with a configuration function. (Page 166 Registration of BACnet objects)

The following figure shows how a BACnet workstation reads an analog value on a programmable controller system from the AnalogInput object (instance number: 0) in a BACnet module.



*1: A programmable controller system communicates as a BACnet controller.

*2: AnalogInput object is an object that reads analog values from a programmable controller to a BACnet workstation.

(1) Connect a personal computer to a BACnet module, and register an AnalogInput object (instance number: 0) with a configuration function.

(2) Some of the properties of the AnalogInput object are assigned to the data assignment area in the buffer memory in the BACnet module.

(3) Read an analog value from an analog input module using a program of a CPU module.

(4) Write the analog value read by the program to the PresentValue property of the AnalogInput object assigned in (2).

(5) The PresentValue property value in the buffer memory of the BACnet module is applied to the PresentValue property in the internal memory.

(6) The BACnet workstation sends a service to read the PresentValue property value of the AnalogInput object in the BACnet module.

List of objects

The following shows the objects that can be registered to a BACnet module, the abbreviations of each object, object type number, and the applicability for each BACnet standard.

○: Applicable, —: Not applicable

Object name		Abbreviation	Object type number	ANSI/ASHRAE 2010	ANSI/ASHRAE 2004	IEIEJ-P-0003:2000 Addendum-a	IEIEJ-G-0006:2006 Addendum-a
Input/output object	AnalogInput	AI	0	○	○	○	○
	AnalogOutput	AO	1	○	○	○	○
	AnalogValue	AV	2	○	○	○	○
	BinaryInput	BI	3	○	○	○	○
	BinaryOutput	BO	4	○	○	○	○
	BinaryValue	BV	5	○	○	○	○
	MultistateInput	MI	13	○	○	○	○
	MultistateOutput	MO	14	○	○	○	○
	MultistateValue	MV	19	○	○	○	○
	Accumulator	AC	23	○	○	—	○
	Keiryo	KR	128	—	—	○	—
	ElectricDemandMonitoring	EDM	130	—	—	○	○
	ElectricDemandControl	EDC	131	—	—	○	○
GeneratorLoadControl	GLC	132	—	—	○	○	
Calendar	CA	6	○	○	○	○	
NotificationClass	NC	15	○	○	○	○	
Schedule	SC	17	○	○	○	○	
TrendLog	TL	20	○	○	○	○	
Device	DV	8	○	○	○	○	

For the buffer memory utilization of each object, refer to the following section.

 Page 263 Buffer memory utilization

List of data types

The following shows the basic data types mainly used for BACnet modules and their data ranges.

For data types which are not described in the following table, refer to the BACnet standard with which the BACnet module complies.

- IEIEJ-P-0003:2000 addendum-a (Institute of Electrical Installation Engineers of Japan)
- IEIEJ-G-0006:2006 addendum-a (Institute of Electrical Installation Engineers of Japan)
- ANSI/ASHRAE135-2004 (ISO16484-5-2003)
- ANSI/ASHRAE135-2010

Data type	Data range
NULL	None
BOOLEAN	0: False, 1: True
Unsigned	0 to 4294967295 (32-bit unsigned integer)
Signed	-2147483648 to 2147483647 (32-bit signed integer)
REAL	All the ranges of 32-bit floating point real number Minimum change value: 0.000001
CharacterString	0 to 128 bytes
Date	1/1/1980 to 31/12/2037 (32 bits)
Time	0:0:0.0 to 23.59.59.99 (32 bits)
ObjectIdentifier	0 to 4294967295 Object type number: 0 to 1023 Instance number: 0 to 4194303 (32 bits)

- LIST type and ARRAY type

Data type	Number of elements
LIST type	0 to 2^{31}
ARRAY type	0 to 32

*1 For the following properties, the data range differs.

Object	Property	Data range
MultiStateInput	StateText	Number of elements of LIST type: 0 to 4294967295 CharacterString: 0 to 4294967295 bytes
MultiStateOutput		
MultiStateValue		
Device	DeviceAddressBinding	Number of elements of LIST type: 0 to 4294967295
	ActiveCovSubscriptions	

Point

- How to calculate an ObjectIdentifier

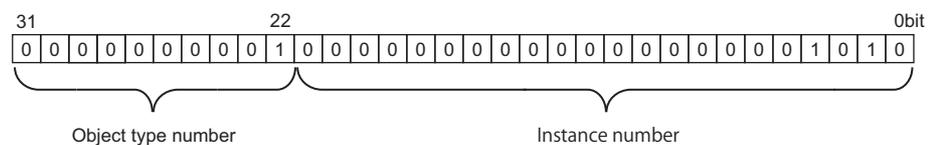
ObjectIdentifier is a 32-bit unsigned integer.

Among 32 bits, the upper 10 bits are regarded as an object type number and the lower 22 bits are regarded as an instance number.

(Example) AO-10

Object type number of AnalogOutput: 1

Instance number: 10



The ObjectIdentifier is 40000A in hexadecimal (4194314 in decimal).

AnalogInput (AI) object

This object is used for reading analog values from a programmable controller system to a BACnet device.

List of properties

The following shows the properties supported by AnalogInput objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
0	AckedTransitions	BitString	R	—
17	NotificationClass	Unsigned	R/W	—
22	CovIncrement	REAL	R/W	—
25	Deadband	REAL	R/W	—
28	Description	CharacterString	R/W	—
31	DeviceType	CharacterString	R/W	—
35	EventEnable	BitString	R/W	—
36	EventState	Enumerated	R	—
45	HighLimit	REAL	R/W	—
52	LimitEnable	BitString	R/W	—
59	LowLimit	REAL	R/W	—
65	MaxPresValue	REAL	R/W	<ul style="list-style-type: none"> • Only ANSI/ASHRAE 2004, IEIEJ-P-0003:2000 Addendum-a, and IEIEJ-G-0006:2006 Addendum-a are supported. • This property informs other BACnet devices about the maximum value of the PresentValue property of an AnalogInput object. (Unlike the MaxPresValue property of an Accumulator object, this property does not indicate the range of a PresentValue property.)
69	MinPresValue	REAL	R/W	<ul style="list-style-type: none"> • Only ANSI/ASHRAE 2004, IEIEJ-P-0003:2000 Addendum-a, and IEIEJ-G-0006:2006 Addendum-a are supported. • This property informs other BACnet devices about the minimum value of the PresentValue property of an AnalogInput object. (Unlike the MaxPresValue property of an Accumulator object, this property does not indicate the range of a PresentValue property.)
72	NotifyType	Enumerated	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
81	OutOfService	BOOLEAN	R/W	—
85	PresentValue	REAL	R	—
103	Reliability	Enumerated	R	—
106	Resolution	REAL	R	—
111	StatusFlags	BitString	R	—
113	TimeDelay	Unsigned	R/W	—
117	Units	Enumerated	R/W	—
118	UpdateInterval	Unsigned	R/W	—
130	EventTimeStamps	BACnetARRAY[3]ofBACnetTimeStamp	R	—
168	ProfileName	CharacterString	R/W	—

PropertyID	Property	Data type	R/W	Remarks
9001	PowerFactor	BOOLEAN	R/W	BACnet module proprietary properties  Page 270 Details of BACnet Module Proprietary Properties
9002	IntrinsicEventDisable	BOOLEAN	R/W	
9003	UnsolicitedCOV	Enumerated	R/W	
9006	COVSendInterval	Unsigned	R/W	

Buffer memory format of AnalogInput objects

The following shows the format of properties assigned to the buffer memory.

Additionally, the availability of reading from/writing to a CPU module is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name			Remarks	R/W	
+0	CONTROL	b15	OutOfService	0: False, 1: True • When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored.	R/W	
		b14 to b4		—		
		b3 to b0	Reliability	0: NoFaultDetected 1: NoSensor 2: OverRange 3: UnderRange 4: OpenLoop 5: ShortedLoop 6: NoOutput 7: UnreliableOther 8: ProcessError 9: MultiStateFault 10: ConfigurationError		
+1	STATUS	b15	LimitEnable	LowLimitEnable	0: False, 1: True	R
		b14		HighLimitEnable	0: False, 1: True	
		b13 to b11	EventState	0: Normal 1: Fault 2: Offnormal 3: HighLimit 4: LowLimit 5: LifeSafetyAlarm		
		b10	AckedTransition	ToOffnormal	0: False, 1: True	
		b9		ToFault	0: False, 1: True	
		b8		ToNormal	0: False, 1: True	
		b7	—		Not used	
		b6	EventEnable	ToOffnormal	0: False, 1: True	
		b5		ToFault	0: False, 1: True	
		b4		ToNormal	0: False, 1: True	
		b3	StatusFlags	InAlarm	0: False, 1: True	
		b2		Fault	0: False, 1: True	
		b1		Overridden	Always 0	
b0	OutOfService	0: False, 1: True				
+2 to +3	PresentValue			• The data type is a 32-bit unsigned real number. • When a data conversion ^{*1} setting is configured, data is read as 16-bit signed integer and converted to 32-bit floating point real number, then the value is stored to a PresentValue. The offset +3 is not used.	R/W	

*1 For details on data conversion, refer to the following section.

 Page 170 Data conversion

Operation of a BACnet module

■ Operation at startup

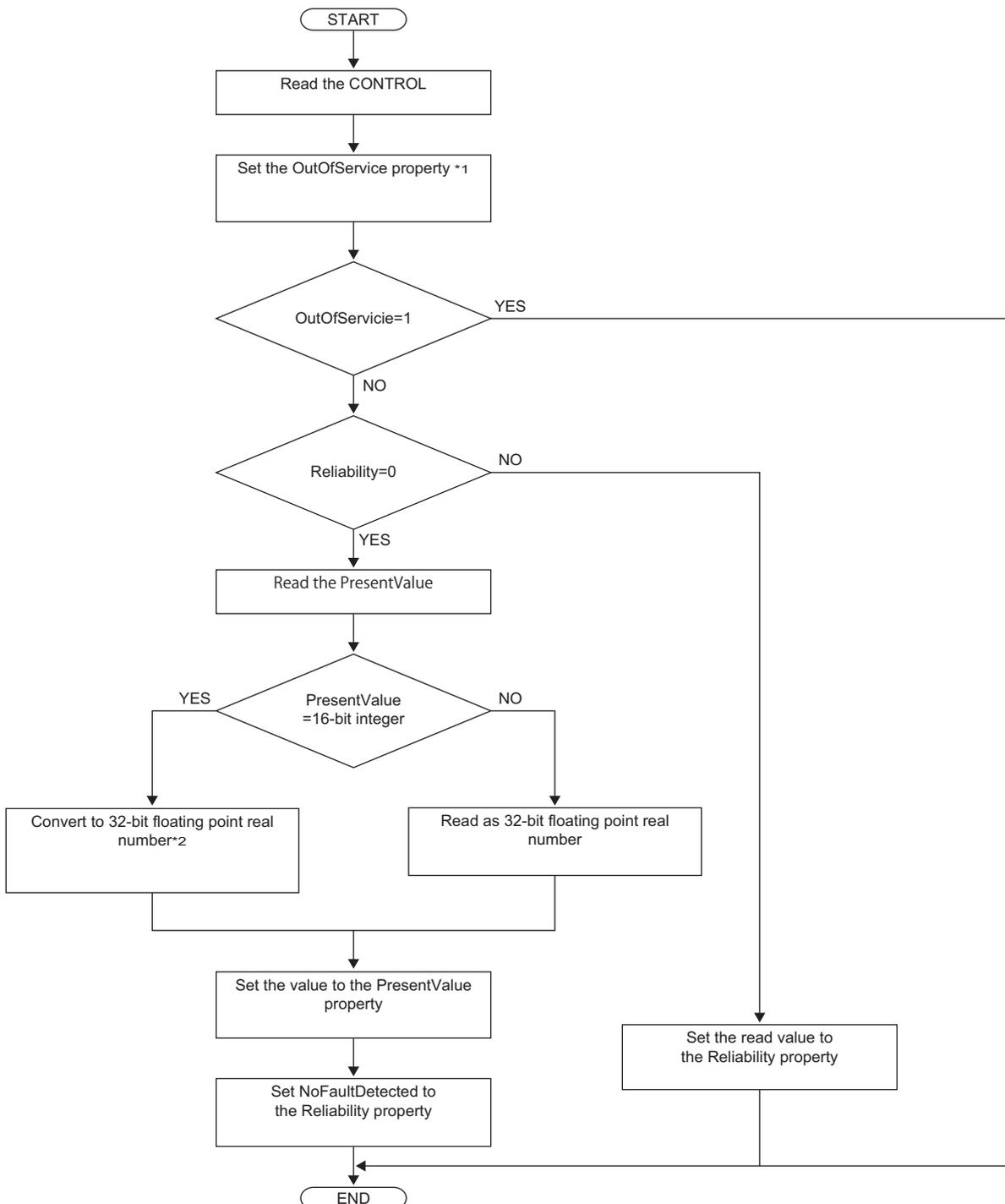
At the startup of a BACnet module, the module writes values, which are saved in the internal memory before powering OFF (or resetting) the module, to the STATUS in the buffer memory.

■ Cyclic operation

A BACnet module periodically ^{*1} reads a CONTROL in the buffer memory and applies the following processing result to the internal memory.

*1 For the reading cycle, refer to the following section.

☞ Page 264 Loading buffer memory



*1 When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored. (☞ Page 281 Interface)

*2: For data conversion, refer to the following section.

☞ Page 170 Data conversion

■ Another operation

When the value of any of the following properties is changed, a BACnet module writes the changed value to the STATUS in the buffer memory.

- LimitEnable property
- EventEnable property
- StatusFlags property
- EventState property
- AckedTransitions property

Settings using a program

The property values in a BACnet module can be changed by writing values to the buffer memory using a program.

■ Settings at normal operation

1. Write a value to the PresentValue.
2. Write the CONTROL whose OutOfService and Reliability are '0'. (No writing is required when '0' has already been written.)

■ To change an OutOfService property to True

1. Write the CONTROL whose OutOfService is '1' to the buffer memory.

Precautions

- When the OutOfService is '1', the PresentValue and the Reliability are not used.
- Leave the OutOfService of the CONTROL '1' until the OutOfService of the StatusFlags becomes '1' (1 second or more).

■ To change an OutOfService property from True to False

1. Write a value to the PresentValue.
2. Write the CONTROL whose OutOfService value is '0' and Reliability value is an appropriate one.

Precautions

- When the Reliability is other than '0', writing a value to the PresentValue is unnecessary.
- Leave the OutOfService of the CONTROL '0' until the OutOfService of the StatusFlags becomes '0' (1 second or more).

■ Settings for a Reliability property at error occurrence

1. Write the CONTROL whose OutOfService is '0' and Reliability is other than '0'.

AnalogOutput (AO) object

This object is used for applying analog values written by BACnet device to a programmable controller system.

List of properties

The following shows the properties supported by AnalogOutput objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
0	AckedTransitions	BitString	R	—
17	NotificationClass	Unsigned	R/W	—
22	CovIncrement	REAL	R/W	—
25	Deadband	REAL	R/W	—
28	Description	CharacterString	R/W	—
31	DeviceType	CharacterString	R/W	—
35	EventEnable	BitString	R/W	—
36	EventState	Enumerated	R	—
45	HighLimit	REAL	R/W	—
52	LimitEnable	BitString	R/W	—
59	LowLimit	REAL	R/W	—
65	MaxPresValue	REAL	R/W	<ul style="list-style-type: none"> • Only ANSI/ASHRAE 2004, IEIEJ-P-0003:2000 Addendum-a, and IEIEJ-G-0006:2006 Addendum-a are supported. • This property informs other BACnet devices about the maximum value of the PresentValue property of an AnalogOutput object. (Unlike the MaxPresValue property of an Accumulator object, this property does not indicate the range of a PresentValue property.)
69	MinPresValue	REAL	R/W	<ul style="list-style-type: none"> • Only ANSI/ASHRAE 2004, IEIEJ-P-0003:2000 Addendum-a, and IEIEJ-G-0006:2006 Addendum-a are supported. • This property informs other BACnet devices about the minimum value of the PresentValue property of an AnalogOutput object. (Unlike the MaxPresValue property of an Accumulator object, this property does not indicate the range of a PresentValue property.)
72	NotifyType	Enumerated	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
81	OutOfService	BOOLEAN	R/W	—
85	PresentValue	REAL	R/W	—
87	PriorityArray	BACnetPriorityArray	R	—
103	Reliability	Enumerated	R	—
104	RelinquishDefault	REAL	R/W	—
106	Resolution	REAL	R	—
111	StatusFlags	BitString	R	—
113	TimeDelay	Unsigned	R/W	—
117	Units	Enumerated	R/W	—
130	EventTimeStamps	BACnetARRAY[3]ofBACnetTimeStamp	R	—

PropertyID	Property	Data type	R/W	Remarks
168	ProfileName	CharacterString	R/W	—
9001	PowerFactor	BOOLEAN	R/W	BACnet module proprietary properties  Page 270 Details of BACnet Module Proprietary Properties
9002	IntrinsicEventDisable	BOOLEAN	R/W	
9003	UnsolicitedCOV	Enumerated	R/W	
9006	COVSendInterval	Unsigned	R/W	

Buffer memory format of AnalogOutput objects

The following shows the format of properties assigned to the buffer memory.

Additionally, the availability of reading from/writing to a CPU module is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name			Remarks	R/W	
+0	CONTROL	b15	OutOfService	0: False, 1: True • When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored.	R/W	
		b14	—	Not used		
		b13	PVWrittenClear	• A PVWrittenClear and a PVOut operate when one value is changed from '0' to '1' while the other value is '0'. • When the value is '1', the PVWritten of the STATUS is changed to '0'.		
		b12	PVOut	• A PVWrittenClear and a PVOut operate when one value is changed from '0' to '1' while the other value is '0'. • When a value is changed from '0' to '1', a PresentValue property value is written to the PriorityArray whose index number is 'PVPriority + 1'.		
		b11 to b8	PVPriority	A Priority for writing to PresentValue property ^{*1} (The value to which '1' is added is used for Priority.)		
		b7 to b4	—	Not used		
		b3 to b0	Reliability	0: NoFaultDetected 1: NoSensor 2: OverRange 3: UnderRange 4: OpenLoop 5: ShortedLoop 6: NoOutput 7: UnreliableOther 8: ProcessError 9: MultiStateFault 10: ConfigurationError		
+1	STATUS	b15	LimitEnable	LowLimitEnable	0: False, 1: True	R
		b14		HighLimitEnable	0: False, 1: True	
		b13 to b11	EventState		0: Normal 1: Fault 2: Offnormal 3: HighLimit 4: LowLimit 5: LifeSafetyAlarm	
		b10	AckedTransition	ToOffnormal	0: False, 1: True	
		b9		ToFault	0: False, 1: True	
		b8		ToNormal	0: False, 1: True	
		b7	PVWritten		• When the PresentValue property value is written, the value becomes '1'. • When changing the value to '0', always use the PVWrittenClear of a CONTROL.	
		b6	EventEnable	ToOffnormal	0: False, 1: True	
		b5		ToFault	0: False, 1: True	
		b4		ToNormal	0: False, 1: True	
		b3	StatusFlags	InAlarm	0: False, 1: True	
		b2		Fault	0: False, 1: True	
		b1		Overridden	Always 0	
b0		OutOfService	0: False, 1: True			
+2 to +3	PresentValue	<ul style="list-style-type: none"> The data type is a 32-bit unsigned real number. When the settings for data conversion^{*2} is configured, data is read as 32-bit floating point real number and converted to 16-bit signed integer, then the value is stored to a PresentValue. The offset +3 is not used. 			R	

- *1 When a value is written to the PresentValue property of an AnalogOutput object, the value is temporarily stored to the PriorityArray property whose index number is indicated by the Priority. The value stored to the PriorityArray property, whose index number is the smallest, is used for the PresentValue property.
Until the value of the PriorityArray property, whose index number is used for the PresentValue property, is returned to Null, the value of the PriorityArray property of the index number is used for the PresentValue property.
- *2 For details on data conversion, refer to the following section.
 Page 170 Data conversion

Precautions

- The STATUS in the internal memory of a BACnet module cannot be changed from a program.
- Do not change the value of a PVWritten in a program, since the PVWritten cannot be used as a flag.
A value is written to the PresentValue property regardless of the value of the PVWritten in the program (in the buffer memory) since a BACnet module operates based on the information in the internal memory.

Operation of a BACnet module

■ Operation at startup

At the startup of a BACnet module, the module writes values, which are saved in the internal memory before powering OFF (or resetting) the module, to the STATUS in the buffer memory^{*1}.

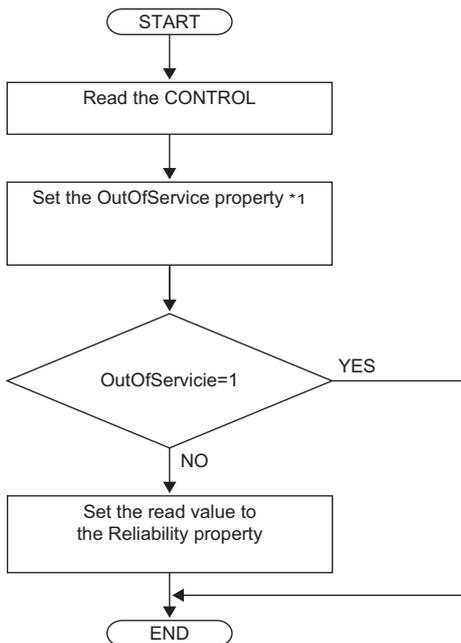
*1 When "InitialDataOutputDisable" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface" is set to '0', the PresentValue property value in the internal memory is applied to the PresentValue property in the buffer memory at the startup of the module.

■ Cyclic operation

A BACnet module periodically^{*1} reads a CONTROL in the buffer memory and applies the following processing result to the internal memory.

*1 For the reading cycle, refer to the following section.

☞ Page 264 Loading buffer memory



*1 When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored. (☞ Page 281 Interface)

■ Operation when a WriteProperty(Multiple) service is received

- When a WriteProperty(Multiple) service is received, a BACnet module writes the PresentValue property value in the internal memory to the PresentValue property in the buffer memory. After the value is written, '1' is written to the PVWritten of the STATUS in the buffer memory.
- Change the PVWritten of the STATUS in the buffer memory to '0' to receive a new WriteProperty(Multiple) service. To change the value, use the PVWrittenClear of the CONTROL.
- When a data conversion setting is configured in an object, a BACnet module stores a converted 16-bit signed integer value to the PresentValue property in the internal memory. (☞ Page 170 Data conversion)
When no data conversion setting is configured in an object, the value of a PresentValue property in the buffer memory is read as a 32-bit floating point real number value, and the value is stored to the PresentValue property in the internal memory.

Precautions

- After a WriteProperty(Multiple) service is received, a value is written to the PresentValue property and '1' is written to the PVWritten regardless of the values of PVWritten and PVWrittenClear. (A value is written even when the value is the same as the PresentValue property.)

■ Write operation to an object's own PresentValue property

- When '1' is written to the PVOut of the CONTROL in the buffer memory, a BACnet module reads both values of the PVPriority and PresentValue of the CONTROL. After the values are read, '1' is written to the PVWritten of the STATUS in the buffer memory.
- Change the value of the PVWritten of the STATUS in the buffer memory to '0' to read a new value of a PresentValue. To change the value, use the PVWrittenClear of the CONTROL.
- When a data conversion setting is configured in an object, a BACnet module stores a converted 16-bit signed integer value to the PresentValue property in the internal memory. (☞ Page 170 Data conversion)
When no data conversion setting is configured in an object, the value of a PresentValue property in the buffer memory is read as a 32-bit floating point real number value, and the value is stored to the PresentValue property in the internal memory.

■ Another operation

When the value of any of the following properties is changed, a BACnet module writes the changed value to the STATUS in the buffer memory.

- LimitEnable property
- EventEnable property
- StatusFlags property
- EventState property
- AckedTransitions property

Settings using a program

The property values in a BACnet module can be changed by writing values to the buffer memory using a program.

■ Settings at normal operation

1. Write the CONTROL whose OutOfService and Reliability are '0'. (No writing is required when '0' has already been written.)

■ To change an OutOfService property to True

1. Write the CONTROL whose OutOfService is '1' to the buffer memory.

Precautions

- When the OutOfService is '1', the PresentValue and the Reliability are not used.
- Leave the OutOfService of the CONTROL '1' until the OutOfService of the StatusFlags becomes '1' (1 second or more).

■ To change an OutOfService property from True to False

1. Write a value to the PresentValue.
2. Write the CONTROL whose OutOfService value is '0' and Reliability value is an appropriate one.

Precautions

- When the Reliability is other than '0', writing a value to the PresentValue is unnecessary.
- Leave the OutOfService of the CONTROL '0' until the OutOfService of the StatusFlags becomes '0' (1 second or more).

■ Settings for a Reliability property at error occurrence

1. Write the CONTROL whose OutOfService is '0' and Reliability is other than '0'.

■ Detection of writing by a WriteProperty service

After a value is written to a PresentValue property in the internal memory with a WriteProperty(Multiple) service, a BACnet module writes '1' to the PVWritten of a STATUS.

By using a PVWritten as a flag in a program, a write to the PresentValue property in a BACnet module can be detected. Apply the value of the PresentValue property to the program while the PVWritten is '1'.

To restore the PVWritten to '0', use the PVWrittenClear of a CONTROL as follows.

1. Set '1' to the PVWrittenClear of the CONTROL in the buffer memory.
2. Wait until the PVWritten of the STATUS in the buffer memory becomes '0'.
3. Set '0' to the PVWrittenClear of the CONTROL in the buffer memory.

■ To set a PresentValue property from a CPU module

The PresentValue property value can be changed from a CPU module.

1. Set a value to be written to the PresentValue in the buffer memory.
2. Set the value of the PVPriority of the CONTROL in the buffer memory to a Priority for writing. *1
3. Set '1' to the PVOut of the CONTROL in the buffer memory. *1
4. Wait until the PVWritten of the STATUS in the buffer memory becomes '1'.
5. Set '1' to the PVWrittenClear of the CONTROL in the buffer memory.
6. Wait until the PVWritten of the STATUS in the buffer memory becomes '0'.
7. Set '0' to the PVWrittenClear of the CONTROL in the buffer memory.

*1 Set a value to the PVPriority first, then set '1' to the PVOut.

Point

If a value is written to a PresentValue property from a WriteProperty(Multiple) service and a CPU module simultaneously, '1' will be written to the PVWritten only once.

AnalogValue (AV) object

This object can be used as for the same purpose as an AnalogInput object or AnalogOutput object.

Set whether to use this object as an AnalogInput object or AnalogOutput object by setting a ValuesOutput property.

( Page 38 Settings when using an AnalogValue object)

List of properties

The following shows the properties supported by AnalogValue objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
0	AckedTransitions	BitString	R	—
17	NotificationClass	Unsigned	R/W	—
22	CovIncrement	REAL	R/W	—
25	Deadband	REAL	R/W	—
28	Description	CharacterString	R/W	—
35	EventEnable	BitString	R/W	—
36	EventState	Enumerated	R	—
45	HighLimit	REAL	R/W	—
52	LimitEnable	BitString	R/W	—
59	LowLimit	REAL	R/W	—
72	NotifyType	Enumerated	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
81	OutOfService	BOOLEAN	R/W	—
85	PresentValue	REAL	R/W	—
87	PriorityArray	BACnetPriorityArray	R	—
103	Reliability	Enumerated	R	—
104	RelinquishDefault	REAL	R/W	—
111	StatusFlags	BitString	R	—
113	TimeDelay	Unsigned	R/W	—
117	Units	Enumerated	R/W	—
130	EventTimeStamps	BACnetARRAY[3]ofBACnetTimeStam p	R	—
168	ProfileName	CharacterString	R/W	—
9001	PowerFactor	BOOLEAN	R/W	BACnet module proprietary properties  Page 270 Details of BACnet Module Proprietary Properties
9002	IntrinsicEventDisable	BOOLEAN	R/W	
9003	UnsolicitedCOV	Enumerated	R/W	
9004	ValuesOutput	BOOLEAN	R/W	
9006	COVSendInterval	Unsigned	R/W	

Buffer memory format of AnalogValue objects

The following shows the format of properties assigned to the buffer memory.

Additionally, the availability of reading from/writing to a CPU module is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name			Remarks	R/W	
+0	CONTROL	b15	OutOfService	0: False, 1: True • When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored.	R/W	
		b14	—	Not used		
		b13	PVWrittenClear	• A PVWrittenClear and a PVOut operate when one value is changed from '0' to '1' while the other value is '0'. • When the value is '1', the PVWritten of the STATUS is changed to '0'.		
		b12	PVOut	• A PVWrittenClear and a PVOut operate when one value is changed from '0' to '1' while the other value is '0'. • When a value is changed from '0' to '1', a PresentValue property value is written to the PriorityArray whose index number is 'PVPriority + 1'.		
		b11 to b8	PVPriority	A Priority for writing to PresentValue property ^{*1} (The value to which '1' is added is used for Priority.)		
		b7 to b4	—	Not used		
		b3 to b0	Reliability	0: NoFaultDetected 1: NoSensor 2: OverRange 3: UnderRange 4: OpenLoop 5: ShortedLoop 6: NoOutput 7: UnreliableOther 8: ProcessError 9: MultiStateFault 10: ConfigurationError		
+1	STATUS	b15	LimitEnable	LowLimitEnable	0: False, 1: True	R
		b14		HighLimitEnable	0: False, 1: True	
		b13 to b11	EventState	0: Normal 1: Fault 2: Offnormal 3: HighLimit 4: LowLimit 5: LifeSafetyAlarm		
		b10	AckedTransition	ToOffnormal	0: False, 1: True	
		b9		ToFault	0: False, 1: True	
		b8		ToNormal	0: False, 1: True	
		b7	PVWritten	• When the PresentValue property value is written, the value becomes '1'. • When changing the value to '0', always use the PVWrittenClear of a CONTROL.		
		b6	EventEnable	ToOffnormal	0: False, 1: True	
		b5		ToFault	0: False, 1: True	
		b4		ToNormal	0: False, 1: True	
		b3	StatusFlags	InAlarm	0: False, 1: True	
		b2		Fault	0: False, 1: True	
		b1		Overridden	Always 0	
b0	OutOfService	0: False, 1: True				
+2 to +3	PresentValue			• The data type is a 32-bit unsigned real number. • When data conversion ^{*2} is performed, the offset +3 is not used. • This property can be written from a CPU module only when using the object as an AnalogInput object.	R/W	

- *1 When a value is written to the PresentValue property of an AnalogOutput object, the value is temporarily stored to the PriorityArray property whose index number is indicated by the Priority. The value stored to the PriorityArray property, whose index number is the smallest, is used for the PresentValue property.
Until the value of the PriorityArray property, whose index number is used for the PresentValue property, is returned to Null, the value of the PriorityArray property of the index number is used for the PresentValue property.
- *2 For details on data conversion, refer to the following section.
 Page 170 Data conversion

Settings when using an AnalogValue object

■ Using an AnalogValue object as an AnalogInput object

Operating procedure

1. Select [Maintenance] ⇒ [Pause/Restart], and click the [Pause] button on the "Pause/Restart" screen.
2. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

BACnet Objects

Object Type	Qty.	Limit	Creatable
Browse Add AnalogInput	1		False
Browse Add AnalogOutput	1		False
Browse Add AnalogValue	0		False
Browse Add BinaryInput	0		False
Browse Add BinaryOutput	0		False
Browse Add BinaryValue	0		False
Browse Add MultiStateInput	0		False
Browse Add MultiStateOutput	0	4000	False
Browse Add MultiStateValue	0		False
Browse Add Accumulator	0		False
Browse Add Keiryo	0		False
Browse Add ElectricDemandMonitoring	0		False
Browse Add ElectricDemandControl	0		False
Browse Add GeneratorLoadControl	0		False
Browse Add Calendar	1	300	False
Browse Add NotificationClass	0	50	False
Browse Add Schedule	0	100	False
Browse Add TrendLog	0	200	False
Browse Device	1	1	False

3. Click the [Browse] button of "AnalogValue".

BACnet Objects

Object Type	Qty.	Limit	Creatable
Browse Add AnalogInput	0		False
Browse Add AnalogOutput	0		False
Browse Add AnalogValue	0		False
Browse Add BinaryInput	0		False
Browse Add BinaryOutput	0		False
Browse Add BinaryValue	0		False
Browse Add MultiStateInput	0		False
Browse Add MultiStateOutput	0	4000	False
Browse Add MultiStateValue	0		False
Browse Add Accumulator	0		False
Browse Add Keiryo	0		False
Browse Add ElectricDemandMonitoring	0		False
Browse Add ElectricDemandControl	0		False
Browse Add GeneratorLoadControl	0		False
Browse Add Calendar	0	300	False
Browse Add NotificationClass	0	50	False
Browse Add Schedule	0	100	False
Browse Add TrendLog	0	200	False
Browse Device	1	1	False

4. Click the [Detail] button of the ObjectID of an object which is to be used as an AnalogInput object.

BACnet Object: AnalogValue

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion	Information	CSV
AV-0		100h	0.000000	(FFFF)	Set	Set	Delete

5. Click the [Edit] button of "ValueIsOutput".

AV-0

Back Update

PropertyID	Name	Data	Access
0	AckedTransitions	(TTT)	Edit
17	NotificationClass	0	Edit
22	CovIncrement	0.000000	Edit
25	Deadband	0.000000	Edit
28	Description		Edit
35	EventEnable	(FFF)	Edit
36	EventState	Normal	Edit WriteDisable
45	HighLimit	0.000000	Edit
52	LimitEnable	(FF)	Edit
59	LowLimit	0.000000	Edit
72	NotifyType	Alarm	Edit
75	ObjectIdentifier	AV-0	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	AnalogValue	Edit WriteDisable
81	OutOfService	False	Edit
85	PresentValue	0.000000	Edit
87	PriorityArray	Number of Array elements 16	Edit
103	Reliability	No Fault Detected	Edit
104	RelinquishDefault	0.000000	Edit
111	StatusFlags	(FFFF)	Edit WriteDisable
113	TimeDelay	0	Edit
117	Units	square_meters	Edit
130	EventTimeStamps	Number of Array elements 3	Edit
166	ProfileName		Edit
9001	PowerFactor	False	Edit
9002	IntrinsicEventDisable	False	Edit
9003	UnsolicitedCOV	No COV	Edit
9004	ValueIsOutput	False	Edit
9006	COVSendInterval	0	Edit

6. Select "False" and click the [Update] button.

AV-0 ValueIsOutput

False

Update Close

■ Using an AnalogValue object as an AnalogOutput object

Operating procedure

1. Select [Maintenance] ⇒ [Pause/Restart], and click the [Pause] button on the "Pause/Restart" screen.
2. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

BACnetObject

		ObjectType	Qty.	Limit	Creatable
Browse	Add	AnalogInput	1		False
Browse	Add	AnalogOutput	1		False
Browse	Add	AnalogValue	0		False
Browse	Add	BinaryInput	0		False
Browse	Add	BinaryOutput	0		False
Browse	Add	BinaryValue	0		False
Browse	Add	MultiStateInput	0		False
Browse	Add	MultiStateOutput	0	4000	False
Browse	Add	MultiStateValue	0		False
Browse	Add	Accumulator	0		False
Browse	Add	Keiryo	0		False
Browse	Add	ElectricDemandMonitoring	0		False
Browse	Add	ElectricDemandControl	0		False
Browse	Add	GeneratorLoadControl	0		False
Browse	Add	Calendar	1	300	False
Browse	Add	NotificationClass	0	50	False
Browse	Add	Schedule	0	100	False
Browse	Add	TrendLog	0	200	False
Browse		Device	1	1	False

3. Click the [Browse] button of "AnalogValue".

BACnet Objects

		ObjectType	Qty.	Limit	Creatable
Browse	Add	AnalogInput	0		False
Browse	Add	AnalogOutput	0		False
Browse	Add	AnalogValue	0		False
Browse	Add	BinaryInput	0		False
Browse	Add	BinaryOutput	0		False
Browse	Add	BinaryValue	0		False
Browse	Add	MultiStateInput	0		False
Browse	Add	MultiStateOutput	0	4000	False
Browse	Add	MultiStateValue	0		False
Browse	Add	Accumulator	0		False
Browse	Add	Keiryo	0		False
Browse	Add	ElectricDemandMonitoring	0		False
Browse	Add	ElectricDemandControl	0		False
Browse	Add	GeneratorLoadControl	0		False
Browse	Add	Calendar	0	300	False
Browse	Add	NotificationClass	0	50	False
Browse	Add	Schedule	0	100	False
Browse	Add	TrendLog	0	200	False
Browse		Device	1	1	False

4. Click the [Detail] button of the ObjectID of an object which is to be used as an AnalogOutput object.

BACnet Object: AnalogValue

Back Update

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion	Information	CSV
AV-0		100h	0.000000	(FFFF)	Set	Set	Delete

5. Click the [Edit] button of "ValuesOutput".

AV-0

Back Update

PropertyID	Name	Data	Access
0	AckedTransitions	(TTT)	Edit
17	NotificationClass	0	Edit
22	CovIncrement	0.000000	Edit
25	Deadband	0.000000	Edit
28	Description		Edit
35	EventEnable	(FFF)	Edit
36	EventState	Normal	Edit WriteDisable
45	HighLimit	0.000000	Edit
52	LimitEnable	(FF)	Edit
59	LowLimit	0.000000	Edit
72	NotifyType	Alarm	Edit
75	ObjectIdentifier	AV-0	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	AnalogValue	Edit WriteDisable
81	OutOfService	False	Edit
85	PresentValue	0.000000	Edit
87	PriorityArray	Number of Array elements 16	Edit
103	Reliability	No Fault Detected	Edit
104	RelinquishDefault	0.000000	Edit
111	StatusFlags	(FFFF)	Edit WriteDisable
113	TimeDelay	0	Edit
117	Units	square_meters	Edit
130	EventTimeStamps	Number of Array elements 3	Edit
166	ProfileName		Edit
9001	PowerFactor	False	Edit
9002	IntrinsicEventDisable	False	Edit
9003	UnsolicitedCOV	No COV	Edit
9004	ValuesOutput	False	Edit
9006	COVSendInterval	0	Edit

6. Select "True" and click the [Update] button.

AV-0 ValuesOutput

True

Update Close

BinaryInput (BI) object

This object is used for reading binary values (ON/OFF) from a programmable controller system to a BACnet device.

List of properties

The following shows the properties supported by BinaryInput objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
0	AckedTransitions	BitString	R	—
4	ActiveText	CharacterString	R/W	—
6	AlarmValue	Enumerated	R/W	—
15	ChangeOfStateCount	Unsigned	R/W	—
16	ChangeOfStateTime	BACnetDateTime	R	—
17	NotificationClass	Unsigned	R/W	—
28	Description	CharacterString	R/W	—
31	DeviceType	CharacterString	R/W	—
33	ElapsedActiveTime	Unsigned32	R/W	—
35	EventEnable	BitString	R/W	—
36	EventState	Enumerated	R	—
46	InactiveText	CharacterString	R/W	—
72	NotifyType	Enumerated	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
81	OutOfService	BOOLEAN	R/W	—
84	Polarity	Enumerated	R/W	—
85	PresentValue	Enumerated	R	—
103	Reliability	Enumerated	R	—
111	StatusFlags	BitString	R	—
113	TimeDelay	Unsigned	R/W	—
114	TimeOfActiveTimeReset	BACnetDateTime	R	—
115	TimeOfStateCountReset	BACnetDateTime	R	—
130	EventTimeStamps	BACnetARRAY[3]ofBACnetTimeStamp	R	—
168	ProfileName	CharacterString	R/W	—
9002	IntrinsicEventDisable	BOOLEAN	R/W	BACnet module proprietary properties  Page 270 Details of BACnet Module Proprietary Properties
9003	UnsolicitedCOV	Enumerated	R/W	
9006	COVSendInterval	Unsigned	R/W	

Buffer memory format of BinaryInput objects

The following shows the format of properties assigned to the buffer memory.

Additionally, the availability of reading from/writing to a CPU module is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name			Remarks	R/W	
+0	CONTROL	b15	OutOfService	0: False, 1: True • When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored.	R/W	
		b14 to b4	—	Not used		
		b3 to b0	Reliability	0: NoFaultDetected 1: NoSensor 2: OverRange 3: UnderRange 4: OpenLoop 5: ShortedLoop 6: NoOutput 7: UnreliableOther 8: ProcessError 9: MultiStateFault 10: ConfigurationError		
+1	STATUS	b15 to b14	—	Not used	R	
		b13 to b11	EventState	0: Normal 1: Fault 2: Offnormal 3: HighLimit 4: LowLimit 5: LifeSafetyAlarm		
		b10	AckedTransition	ToOffnormal		0: False, 1: True
		b9		ToFault		0: False, 1: True
		b8		ToNormal		0: False, 1: True
		b7	—	Not used		
		b6	EventEnable	ToOffnormal		0: False, 1: True
		b5		ToFault		0: False, 1: True
		b4		ToNormal		0: False, 1: True
		b3	StatusFlags	InAlarm		0: False, 1: True
		b2		Fault		0: False, 1: True
		b1		Overridden		Always 0
		b0		OutOfService		0: False, 1: True
+2	PresentValue	b15 to b1	—	Not used	R/W	
		b0	PresentValue	0: Inactive, 1: Active		
+3	—			Not used	—	

Operation of a BACnet module

■ Operation at startup

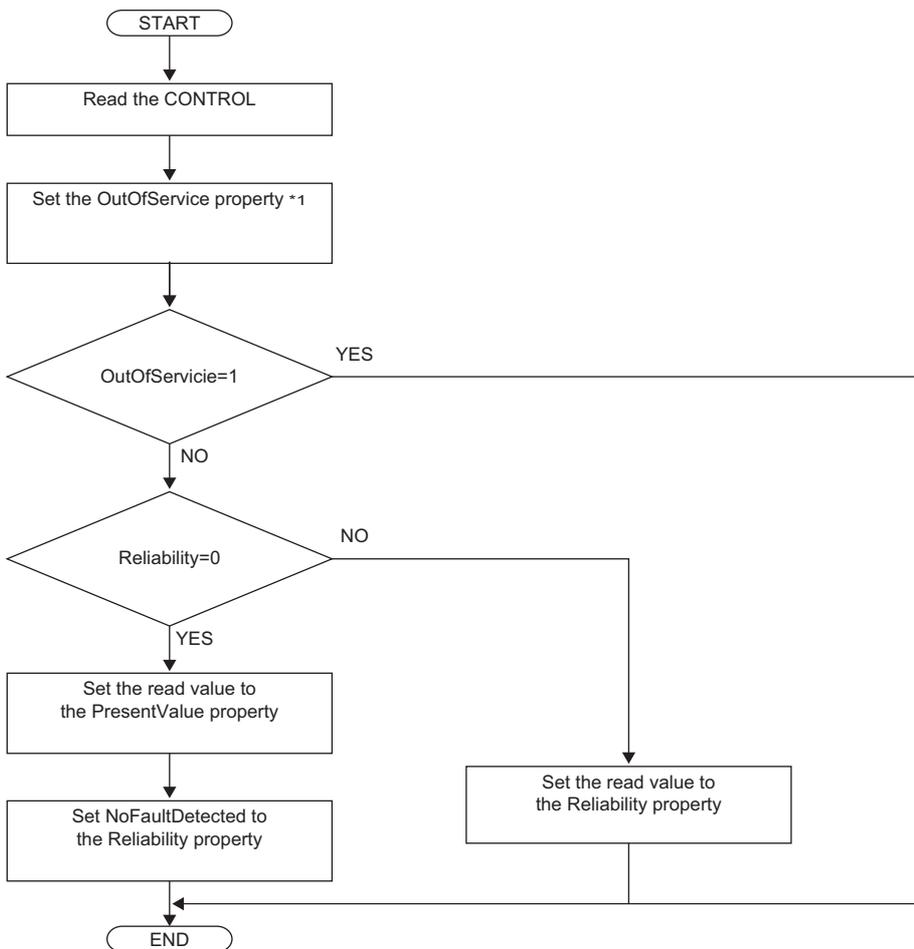
At the startup of a BACnet module, the module writes values, which are saved in the internal memory before powering OFF (or resetting) the module, to the STATUS in the buffer memory.

■ Cyclic operation

A BACnet module periodically ^{*1} reads a CONTROL in the buffer memory and applies the following processing result to the internal memory.

*1 For the reading cycle, refer to the following section.

☞ Page 264 Loading buffer memory



*1 When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored. (☞ Page 281 Interface)

■ Another operation

When the value of any of the following properties is changed, a BACnet module writes the changed value to the STATUS in the buffer memory.

- EventEnable property
- StatusFlags property
- EventState property
- AckedTransitions property

Settings using a program

The property values in a BACnet module can be changed by writing values to the buffer memory using a program.

■ Settings at normal operation

1. Write a value to the PresentValue.
2. Write the CONTROL whose OutOfService and Reliability are '0'. (No writing is required when '0' has already been written.)

■ To change an OutOfService property to True

1. Write the CONTROL whose OutOfService is '1' to the buffer memory.

Precautions

- When the OutOfService is '1', the PresentValue and the Reliability are not used.
- Leave the OutOfService of the CONTROL '1' until the OutOfService of the StatusFlags becomes '1' (1 second or more).

■ To change an OutOfService property from True to False

1. Write a value to the PresentValue.
2. Write the CONTROL whose OutOfService value is '0' and Reliability value is an appropriate one.

Precautions

- When the Reliability is other than '0', writing a value to the PresentValue is unnecessary.
- Leave the OutOfService of the CONTROL '0' until the OutOfService of the StatusFlags becomes '0' (1 second or more).

■ Settings for a Reliability property at error occurrence

1. Write the CONTROL whose OutOfService is '0' and Reliability is other than '0'.

BinaryOutput (BO) object

This object is used for applying binary values (ON/OFF) written by BACnet device to a programmable controller system.

List of properties

The following shows the properties supported by BinaryOutput objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
0	AckedTransitions	BitString	R	—
4	ActiveText	CharacterString	R/W	—
15	ChangeOfStateCount	Unsigned	R/W	—
16	ChangeOfStateTime	BACnetDateTime	R	—
17	NotificationClass	Unsigned	R/W	—
28	Description	CharacterString	R/W	—
31	DeviceType	CharacterString	R/W	—
33	ElapsedActiveTime	Unsigned32	R/W	—
35	EventEnable	BitString	R/W	—
36	EventState	Enumerated	R	—
40	FeedbackValue	Enumerated	R	—
46	InactiveText	CharacterString	R/W	—
66	MinimumOffTime	Unsigned32	R/W	—
67	MinimumOnTime	Unsigned32	R/W	—
72	NotifyType	Enumerated	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
81	OutOfService	BOOLEAN	R/W	—
84	Polarity	Enumerated	R/W	—
85	PresentValue	Enumerated	R/W	—
87	PriorityArray	BACnetPriorityArray	R	—
103	Reliability	Enumerated	R	—
104	RelinquishDefault	Enumerated	R/W	—
111	StatusFlags	BitString	R	—
113	TimeDelay	Unsigned	R/W	—
114	TimeOfActiveTimeReset	BACnetDateTime	R	—
115	TimeOfStateCountReset	BACnetDateTime	R	—
130	EventTimeStamps	BACnetARRAY[3]ofBACnetTimeStamp	R	—
168	ProfileName	CharacterString	R/W	—
9002	IntrinsicEventDisable	BOOLEAN	R/W	BACnet module proprietary properties  Page 270 Details of BACnet Module Proprietary Properties
9003	UnsolicitedCOV	Enumerated	R/W	
9006	COVSendInterval	Unsigned	R/W	

Buffer memory format of BinaryOutput objects

The following shows the format of properties assigned to the buffer memory.

Additionally, the availability of reading from/writing to a CPU module is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name			Remarks	R/W	
+0	CONTROL	b15	OutOfService	0: False, 1: True • When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored.	R/W	
		b14	—	Not used		
		b13	PVWrittenClear	• A PVWrittenClear and a PVOut operate when one value is changed from '0' to '1' while the other value is '0'. • When the value is '1', the PVWritten of the STATUS is changed to '0'.		
		b12	PVOut	• A PVWrittenClear and a PVOut operate when one value is changed from '0' to '1' while the other value is '0'. • When a value is changed from '0' to '1', a PresentValue property value is written to the PriorityArray whose index number is 'PVPriority + 1'.		
		b11 to b8	PVPriority	A Priority for writing to PresentValue property* ¹ (The value to which '1' is added is used for Priority.)		
		b7 to b4	—	Not used		
		b3 to b0	Reliability	0: NoFaultDetected 1: NoSensor 2: OverRange 3: UnderRange 4: OpenLoop 5: ShortedLoop 6: NoOutput 7: UnreliableOther 8: ProcessError 9: MultiStateFault 10: ConfigurationError		
+1	STATUS	b15 to b14	—	Not used	R	
		b13 to b11	EventState	0: Normal 1: Fault 2: Offnormal 3: HighLimit 4: LowLimit 5: LifeSafetyAlarm		
		b10	AckedTransition	ToOffnormal		0: False, 1: True
		b9		ToFault		0: False, 1: True
		b8		ToNormal		0: False, 1: True
		b7	PVWritten	• When the PresentValue property value is written, the value becomes '1'. • When changing the value to '0', always use the PVWrittenClear of a CONTROL.		
		b6	EventEnable	ToOffnormal		0: False, 1: True
		b5		ToFault		0: False, 1: True
		b4		ToNormal		0: False, 1: True
		b3	StatusFlags	InAlarm		0: False, 1: True
		b2		Fault		0: False, 1: True
		b1		Overridden		Always 0
		b0		OutOfService		0: False, 1: True
+2	PresentValue	b15 to b1	—	Not used	R	
		b0	PresentValue	0: Inactive, 1: Active		
+3	FeedbackValue	b15 to b1	—	Not used	R/W	
		b0	FeedbackValue	0: Inactive, 1: Active • The status of a BACnet device is stored.		

*1 When a value is written to the PresentValue property of a BinaryOutput object, the value is temporarily stored to the PriorityArray property whose index number is indicated by the Priority. The value stored to the PriorityArray property, whose index number is the smallest, is used for the PresentValue property.
Until the value of the PriorityArray property, whose index number is used for the PresentValue property, is returned to Null, the value of the PriorityArray property of the index number is used for the PresentValue property.

Precautions

- The STATUS in the internal memory of a BACnet module cannot be changed from a program.
- Do not change the value of a PVWritten in a program, since the PVWritten cannot be used as a flag.
A value is written to the PresentValue property regardless of the value of the PVWritten in the program (in the buffer memory) since a BACnet module operates based on the information in the internal memory.

Operation of a BACnet module

■ Operation at startup

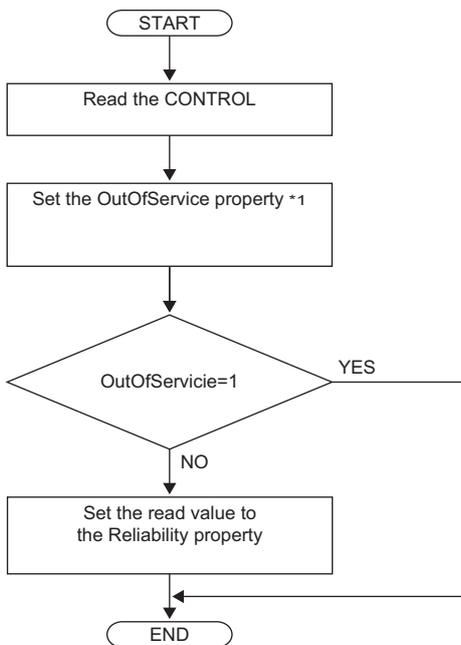
At the startup of a BACnet module, the module writes values, which are saved in the internal memory before powering OFF (or resetting) the module, to the STATUS in the buffer memory.

■ Cyclic operation

A BACnet module periodically ^{*1} reads a CONTROL in the buffer memory and applies the following processing result to the internal memory.

*1 For the reading cycle, refer to the following section.

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*1 When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored. (☞ Page 281 Interface)

■ Operation when a WriteProperty(Multiple) service is received

- When a WriteProperty(Multiple) service is received, a BACnet module writes the PresentValue property value in the internal memory to the PresentValue property in the buffer memory. After the value is written, '1' is written to the PVWritten of the STATUS in the buffer memory.
- Change the PVWritten of the STATUS in the buffer memory to '0' to receive a new WriteProperty(Multiple) service. To change the value, use the PVWrittenClear of the CONTROL.

Precautions

- After a WriteProperty(Multiple) service is received, a value is written to the PresentValue property and '1' is written to the PVWritten regardless of the values of PVWritten and PVWrittenClear. (A value is written even when the value is the same as the PresentValue property.)

■ Write operation to an object's own PresentValue property

- When '1' is written to the PVOut of the CONTROL in the buffer memory, a BACnet module reads both values of the PVPriority and PresentValue of the CONTROL. After the values are read, '1' is written to the PVWritten of the STATUS in the buffer memory.
- Change the value of the PVWritten of the STATUS in the buffer memory to '0' to read a new value of a PresentValue. To change the value, use the PVWrittenClear of the CONTROL.

■ Another operation

When the value of any of the following properties is changed, a BACnet module writes the changed value to the STATUS in the buffer memory.

- EventEnable property
- StatusFlags property
- EventState property
- AckedTransitions property

Settings using a program

The property values in a BACnet module can be changed by writing values to the buffer memory using a program.

■ Settings at normal operation

1. Write the CONTROL whose OutOfService and Reliability are '0'. (No writing is required when '0' has already been written.)

■ To change an OutOfService property to True

1. Write the CONTROL whose OutOfService is '1' to the buffer memory.

Precautions

- When the OutOfService is '1', the PresentValue and the Reliability are not used.
- Leave the OutOfService of the CONTROL '1' until the OutOfService of the StatusFlags becomes '1' (1 second or more).

■ To change an OutOfService property from True to False

1. Write a value to the PresentValue.
2. Write the CONTROL whose OutOfService value is '0' and Reliability value is an appropriate one.

Precautions

- When the Reliability is other than '0', writing a value to the PresentValue is unnecessary.
- Leave the OutOfService of the CONTROL '0' until the OutOfService of the StatusFlags becomes '0' (1 second or more).

■ Settings for a Reliability property at error occurrence

1. Write the CONTROL whose OutOfService is '0' and Reliability is other than '0'.

■ Detection of writing by a WriteProperty service

After a value is written to a PresentValue property in the internal memory with a WriteProperty(Multiple) service, a BACnet module writes '1' to the PVWritten of a STATUS.

By using a PVWritten as a flag in a program, a write to the PresentValue property in a BACnet module can be detected. Apply the value of the PresentValue property to the program while the PVWritten is '1'.

To restore the PVWritten to '0', use the PVWrittenClear of a CONTROL as follows.

1. Set '1' to the PVWrittenClear of the CONTROL in the buffer memory.
2. Wait until the PVWritten of the STATUS in the buffer memory becomes '0'.
3. Set '0' to the PVWrittenClear of the CONTROL in the buffer memory.

■ To set a PresentValue property from a CPU module

The PresentValue property value can be changed from a CPU module.

1. Set a value to be written to the PresentValue in the buffer memory.
2. Set the value of the PVPriority of the CONTROL in the buffer memory to a Priority for writing. *1
3. Set '1' to the PVOut of the CONTROL in the buffer memory. *1
4. Wait until the PVWritten of the STATUS in the buffer memory becomes '1'.
5. Set '1' to the PVWrittenClear of the CONTROL in the buffer memory.
6. Wait until the PVWritten of the STATUS in the buffer memory becomes '0'.
7. Set '0' to the PVWrittenClear of the CONTROL in the buffer memory.

*1 Set a value to the PVPriority first, then set '1' to the PVOut.

Point

If a value is written to a PresentValue property from a WriteProperty(Multiple) service and a CPU module simultaneously, '1' will be written to the PVWritten only once.

BinaryValue (BV) object

This object can be used as for the same purpose as a BinaryInput object or BinaryOutput object.

Set whether to use this object as a BinaryInput object or BinaryOutput object by setting a ValuesOutput property. (Page 55 Settings when using a BinaryValue object)

List of properties

The following shows the properties supported by BinaryValue objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
0	AckedTransitions	BitString	R	—
4	ActiveText	CharacterString	R/W	—
6	AlarmValue	Enumerated	R/W	—
15	ChangeOfStateCount	Unsigned32	R/W	—
16	ChangeOfStateTime	BACnetDateTime	R	—
17	NotificationClass	Unsigned	R/W	—
28	Description	CharacterString	R/W	—
33	ElapsedActiveTime	Unsigned32	R/W	—
35	EventEnable	BitString	R/W	—
36	EventState	Enumerated	R	—
46	InactiveText	CharacterString	R/W	—
66	MinimumOffTime	Unsigned32	R/W	—
67	MinimumOnTime	Unsigned32	R/W	—
72	NotifyType	Enumerated	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
81	OutOfService	BOOLEAN	R/W	—
85	PresentValue	Enumerated	R/W	—
87	PriorityArray	BACnetPriorityArray	R	—
103	Reliability	Enumerated	R	—
104	RelinquishDefault	Enumerated	R/W	—
111	StatusFlags	BitString	R	—
113	TimeDelay	Unsigned	R/W	—
114	TimeOfActiveTimeReset	BACnetDateTime	R	—
115	TimeOfStateCountReset	BACnetDateTime	R	—
130	EventTimeStamps	BACnetARRAY[3]ofBACnetTimeStamp	R	—
168	ProfileName	CharacterString	R/W	—
9002	IntrinsicEventDisable	BOOLEAN	R/W	BACnet module proprietary properties Page 270 Details of BACnet Module Proprietary Properties
9003	UnsolicitedCOV	Enumerated	R/W	
9004	ValuesOutput	BOOLEAN	R/W	
9006	COVSendInterval	Unsigned	R/W	

Buffer memory format of BinaryValue objects

The following shows the format of properties assigned to the buffer memory.

Additionally, the availability of reading from/writing to a CPU module is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name			Remarks	R/W	
+0	CONTROL	b15	OutOfService	0: False, 1: True • When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored.	R/W	
		b14	—	Not used		
		b13	PVWrittenClear	• A PVWrittenClear and a PVOut operate when one value is changed from '0' to '1' while the other value is '0'. • When the value is '1', the PVWritten of the STATUS is changed to '0'.		
		b12	PVOut	• A PVWrittenClear and a PVOut operate when one value is changed from '0' to '1' while the other value is '0'. • When a value is changed from '0' to '1', a PresentValue property value is written to the PriorityArray whose index number is 'PVPriority + 1'.		
		b11 to b8	PVPriority	A Priority for writing to PresentValue property ^{*1} (The value to which '1' is added is used for Priority.)		
		b7 to b4	—	Not used		
		b3 to b0	Reliability	0: NoFaultDetected 1: NoSensor 2: OverRange 3: UnderRange 4: OpenLoop 5: ShortedLoop 6: NoOutput 7: UnreliableOther 8: ProcessError 9: MultiStateFault 10: ConfigurationError		
+1	STATUS	b15 to b14	—	Not used	R	
		b13 to b11	EventState	0: False, 1: True		
		b10	AckedTransition	ToOffnormal		0: False, 1: True
		b9		ToFault		0: False, 1: True
		b8		ToNormal		0: False, 1: True
		b7	PVWritten	• When the PresentValue property value is written, the value becomes '1'. • When changing the value to '0', always use the PVWrittenClear of a CONTROL.		
		b6	EventEnable	ToOffnormal		0: False, 1: True
		b5		ToFault		0: False, 1: True
		b4		ToNormal		0: False, 1: True
		b3	StatusFlags	InAlarm		0: False, 1: True
		b2		Fault		0: False, 1: True
		b1		Overridden		Always 0
		b0		OutOfService		0: False, 1: True
		+2	PresentValue	b15 to b1		—	Not used	R/W
b0	PresentValue			0: Inactive, 1: Active • This property can be written from a CPU module only when using the object as a BinaryInput object.		
+3	—			Not used	—	

*1 When a value is written to the PresentValue property of a BinaryOutput object, the value is temporarily stored to the PriorityArray property whose index number is indicated by the Priority. The value stored to the PriorityArray property, whose index number is the smallest, is used for the PresentValue property.

Until the value of the PriorityArray property, whose index number is used for the PresentValue property, is returned to Null, the value of the PriorityArray property of the index number is used for the PresentValue property.

Settings when using a BinaryValue object

■ Using a BinaryValue object as a BinaryInput object

1

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

BACnet Objects

		ObjectType	Qty.	Limit	Creatable
Browse	Add	AnalogInput	1		False
Browse	Add	AnalogOutput	1		False
Browse	Add	AnalogValue	0		False
Browse	Add	BinaryInput	0		False
Browse	Add	BinaryOutput	0		False
Browse	Add	BinaryValue	0		False
Browse	Add	MultiStateInput	0		False
Browse	Add	MultiStateOutput	0	4000	False
Browse	Add	MultiStateValue	0		False
Browse	Add	Accumulator	0		False
Browse	Add	Keiryo	0		False
Browse	Add	ElectricDemandMonitoring	0		False
Browse	Add	ElectricDemandControl	0		False
Browse	Add	GeneratorLoadControl	0		False
Browse	Add	Calendar	1	300	False
Browse	Add	NotificationClass	0	50	False
Browse	Add	Schedule	0	100	False
Browse	Add	TrendLog	0	200	False
Browse	Add	Device	1	1	False

2. Click the [Browse] button of "BinaryValue".

BACnet Objects

		ObjectType	Qty.	Limit	Creatable
Browse	Add	AnalogInput	0		False
Browse	Add	AnalogOutput	0		False
Browse	Add	AnalogValue	1		False
Browse	Add	BinaryInput	0		False
Browse	Add	BinaryOutput	0		False
Browse	Add	BinaryValue	0		False
Browse	Add	MultiStateInput	0		False
Browse	Add	MultiStateOutput	0	4000	False
Browse	Add	MultiStateValue	0		False
Browse	Add	Accumulator	0		False
Browse	Add	Keiryo	0		False
Browse	Add	ElectricDemandMonitoring	0		False
Browse	Add	ElectricDemandControl	0		False
Browse	Add	GeneratorLoadControl	0		False
Browse	Add	Calendar	0	300	False
Browse	Add	NotificationClass	0	50	False
Browse	Add	Schedule	0	100	False
Browse	Add	TrendLog	0	200	False
Browse	Add	Device	1	1	False

- Click the [Detail] button of the ObjectID of an object which is to be used as a BinaryInput object.

BACnet Object: BinaryValue

Back Update

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion Information	CSV
Detail	BV-0	114h	InActive	(FFFF)		Set Delete

- Click the [Edit] button of "ValueIsOutput".

BV-0

Back Update

PropertyID	Name	Data	Access
0	AckedTransitions	(TTT)	Edit
4	ActiveText		Edit
6	AlarmValue	Active	Edit
15	ChangeOfStateCount	0	Edit
16	ChangeOfStateTime	{xxxx/xx/xx}{xxxxxx.xx}	Edit
17	NotificationClass	0	Edit
28	Description		Edit
33	ElapsedActiveTime	0	Edit
35	EventEnable	(FFF)	Edit
36	EventState	Normal	Edit WriteDisable
46	InactiveText		Edit
66	MinimumOffTime	0	Edit
67	MinimumOnTime	0	Edit
72	NotifyType	Alarm	Edit
75	ObjectIdentifier	BV-0	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	BinaryValue	Edit WriteDisable
81	OutOfService	False	Edit
85	PresentValue	InActive	Edit
87	PriorityArray	Number of Array elements 16	Edit
103	Reliability	No Fault Detected	Edit
104	RelinquishDefault	InActive	Edit
111	StatusFlags	(FFFF)	Edit WriteDisable
113	TimeDelay	0	Edit
114	TimeOfActiveTimeReset	{xxxx/xx/xx}{xxxxxx.xx}	Edit
115	TimeOfStateCountReset	{xxxx/xx/xx}{xxxxxx.xx}	Edit
130	EventTimeStamps	Number of Array elements 3	Edit
168	ProfileName		Edit
9002	IntrinsicEventDisable	False	Edit
9003	UnsolicitedCOV	No COV	Edit
9004	ValueIsOutput	False	Edit
9006	COVSendInterval	0	Edit

- Select "False" and click the [Update] button.

BV-0 ValueIsOutput

False ▾

Update Close

■ Using a BinaryValue object as a BinaryOutput object

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

BACnetObject

BACnetRequest

BACnetMonitor

COV Interaction

Event Interaction

Calendar Interaction

BACnetDevice

Log

Settings

Maintenance

言語設定/日本語

BACnet_Objects

		ObjectType	Qty.	Limit	Creatable
Browse	Add	AnalogInput	1		False
Browse	Add	AnalogOutput	1		False
Browse	Add	AnalogValue	0		False
Browse	Add	BinaryInput	0		False
Browse	Add	BinaryOutput	0		False
Browse	Add	BinaryValue	0		False
Browse	Add	MultiStateInput	0		False
Browse	Add	MultiStateOutput	0	4000	False
Browse	Add	MultiStateValue	0		False
Browse	Add	Accumulator	0		False
Browse	Add	Keiryo	0		False
Browse	Add	ElectricDemandMonitoring	0		False
Browse	Add	ElectricDemandControl	0		False
Browse	Add	GeneratorLoadControl	0		False
Browse	Add	Calendar	1	300	False
Browse	Add	NotificationClass	0	50	False
Browse	Add	Schedule	0	100	False
Browse	Add	TrendLog	0	200	False
Browse	Add	Device	1	1	False

2. Click the [Browse] button of "BinaryValue".

BACnet_Objects

		ObjectType	Qty.	Limit	Creatable
Browse	Add	AnalogInput	0		False
Browse	Add	AnalogOutput	0		False
Browse	Add	AnalogValue	1		False
Browse	Add	BinaryInput	0		False
Browse	Add	BinaryOutput	0		False
Browse	Add	BinaryValue	0		False
Browse	Add	MultiStateInput	0		False
Browse	Add	MultiStateOutput	0	4000	False
Browse	Add	MultiStateValue	0		False
Browse	Add	Accumulator	0		False
Browse	Add	Keiryo	0		False
Browse	Add	ElectricDemandMonitoring	0		False
Browse	Add	ElectricDemandControl	0		False
Browse	Add	GeneratorLoadControl	0		False
Browse	Add	Calendar	0	300	False
Browse	Add	NotificationClass	0	50	False
Browse	Add	Schedule	0	100	False
Browse	Add	TrendLog	0	200	False
Browse	Add	Device	1	1	False

3. Click the [Detail] button of the ObjectID of an object which is to be used as a BinaryOutput object.

BACnet Object: BinaryValue

Back Update

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion Information	CSV
Detail	BV-0	114h	InActive	(FFFF)		Set Delete

4. Click the [Edit] button of "ValueIsOutput".

BV-0

Back Update

PropertyID	Name	Data	Access
0	AckedTransitions	(TTT)	Edit
4	ActiveText		Edit
6	AlarmValue	Active	Edit
15	ChangeOfStateCount	0	Edit
16	ChangeOfStateTime	{xxxx/xx/xx}{xxxxxx.xx}	Edit
17	NotificationClass	0	Edit
28	Description		Edit
33	ElapsedActiveTime	0	Edit
35	EventEnable	(FFF)	Edit
36	EventState	Normal	Edit WriteDisable
46	InactiveText		Edit
66	MinimumOffTime	0	Edit
67	MinimumOnTime	0	Edit
72	NotifyType	Alarm	Edit
75	ObjectIdentifier	BV-0	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	BinaryValue	Edit WriteDisable
81	OutOfService	False	Edit
85	PresentValue	InActive	Edit
87	PriorityArray	Detail Number of Array elements 16	Edit
103	Reliability	No Fault Detected	Edit
104	RelinquishDefault	InActive	Edit
111	StatusFlags	(FFFF)	Edit WriteDisable
113	TimeDelay	0	Edit
114	TimeOfActiveTimeReset	{xxxx/xx/xx}{xxxxxx.xx}	Edit
115	TimeOfStateCountReset	{xxxx/xx/xx}{xxxxxx.xx}	Edit
130	EventTimeStamps	Detail Number of Array elements 3	Edit
168	ProfileName		Edit
9002	IntrinsicEventDisable	False	Edit
9003	UnsolicitedCOV	No COV	Edit
9004	ValueIsOutput	False	Edit
9006	COVSendInterval	0	Edit

5. Select "True" and click the [Update] button.

BV-0 ValueIsOutput

True ▾

Update Close

MultiStateInput (MI) object

This object is used for reading 16-bit data from a programmable controller system to a BACnet device.

List of properties

The following shows the properties supported by MultiStateInput objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
0	AckedTransitions	BitString	R	—
7	AlarmValues	ListofUnsigned	R/W	—
17	NotificationClass	Unsigned	R/W	—
28	Description	CharacterString	R/W	—
31	DeviceType	CharacterString	R/W	—
35	EventEnable	BitString	R/W	—
36	EventState	Enumerated	R	—
39	FaultValues	ListofUnsigned	R/W	—
72	NotifyType	Enumerated	R/W	—
74	NumberOfStates	Unsigned	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
81	OutOfService	BOOLEAN	R/W	—
85	PresentValue	Unsigned	R	—
103	Reliability	Enumerated	R	—
110	StateText	BACnetARRAY[N]ofCharacterString	R/W	—
111	StatusFlags	BitString	R	—
113	TimeDelay	Unsigned	R/W	—
130	EventTimeStamps	BACnetARRAY[3]ofBACnetTimeStamp	R	—
168	ProfileName	CharacterString	R/W	—
9002	IntrinsicEventDisable	BOOLEAN	R/W	BACnet module proprietary properties  Page 270 Details of BACnet Module Proprietary Properties
9003	UnsolicitedCOV	Enumerated	R/W	
9006	COVSendInterval	Unsigned	R/W	

Buffer memory format of MultiStateInput objects

The following shows the format of properties assigned to the buffer memory.

Additionally, the availability of reading from/writing to a CPU module is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name			Remarks	R/W	
+0	CONTROL	b15	OutOfService	0: False, 1: True • When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored.	R/W	
		b14 to b4	—	Not used		
		b3 to b0	Reliability	0: NoFaultDetected 1: NoSensor 2: OverRange 3: UnderRange 4: OpenLoop 5: ShortedLoop 6: NoOutput 7: UnreliableOther 8: ProcessError 9: MultiStateFault 10: ConfigurationError		
+1	STATUS	b15 to b14	—	Not used	R	
		b13 to b11	EventState	0: Normal 1: Fault 2: Offnormal 3: HighLimit 4: LowLimit 5: LifeSafetyAlarm		
		b10	AckedTransition	ToOffnormal		0: False, 1: True
		b9		ToFault		0: False, 1: True
		b8		ToNormal		0: False, 1: True
		b7	—	Not used		
		b6	EventEnable	ToOffnormal		0: False, 1: True
		b5		ToFault		0: False, 1: True
		b4		ToNormal		0: False, 1: True
		b3	StatusFlags	InAlarm		0: False, 1: True
		b2		Fault		0: False, 1: True
		b1		Overridden		Always 0
		b0		OutOfService		0: False, 1: True
+2	PresentValue	b15 to b0	PresentValue	16-bit value	R/W	
+3	—			Not used	—	

Operation of a BACnet module

■ Operation at startup

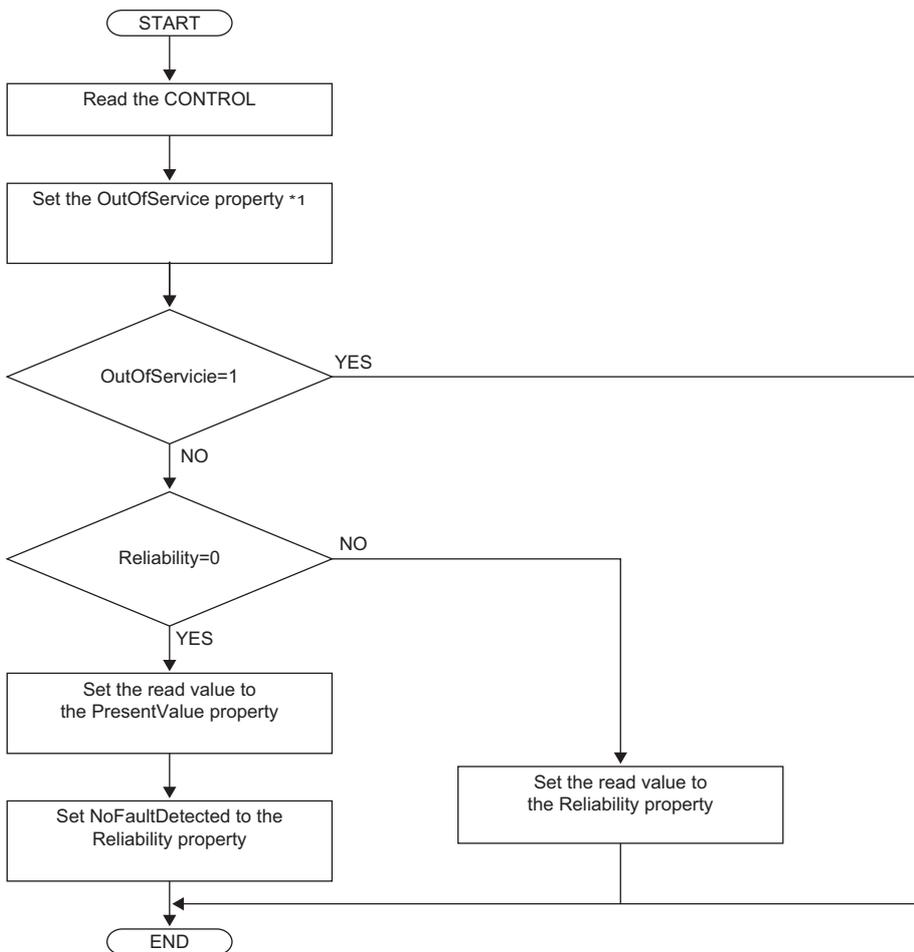
At the startup of a BACnet module, the module writes values, which are saved in the internal memory before powering OFF (or resetting) the module, to the STATUS in the buffer memory.

■ Cyclic operation

A BACnet module periodically ^{*1} reads a CONTROL in the buffer memory and applies the following processing result to the internal memory.

*1 For the reading cycle, refer to the following section.

☞ Page 264 Loading buffer memory



*1 When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored. (☞ Page 281 Interface)

■ Another operation

When the value of any of the following properties is changed, a BACnet module writes the changed value to the STATUS in the buffer memory.

- EventEnable property
- StatusFlags property
- EventState property
- AckedTransitions property

Settings using a program

The property values in a BACnet module can be changed by writing values to the buffer memory using a program.

■ Settings at normal operation

1. Write a value to the PresentValue.
2. Write the CONTROL whose OutOfService and Reliability are '0'. (No writing is required when '0' has already been written.)

■ To change an OutOfService property to True

1. Write the CONTROL whose OutOfService is '1' to the buffer memory.

Precautions

- When the OutOfService is '1', the PresentValue and the Reliability are not used.
- Leave the OutOfService of the CONTROL '1' until the OutOfService of the StatusFlags becomes '1' (1 second or more).

■ To change an OutOfService property from True to False

1. Write a value to the PresentValue.
2. Write the CONTROL whose OutOfService value is '0' and Reliability value is an appropriate one.

Precautions

- When the Reliability is other than '0', writing a value to the PresentValue is unnecessary.
- Leave the OutOfService of the CONTROL '0' until the OutOfService of the StatusFlags becomes '0' (1 second or more).

■ Settings for a Reliability property at error occurrence

1. Write the CONTROL whose OutOfService is '0' and Reliability is other than '0'.

MultiStateOutput (MO) object

This object is used for applying 16-bit data written by BACnet device to a programmable controller system.

List of properties

The following shows the properties supported by MultiStateOutput objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
0	AckedTransitions	BitString	R	—
17	NotificationClass	Unsigned	R/W	—
28	Description	CharacterString	R/W	—
31	DeviceType	CharacterString	R/W	—
35	EventEnable	BitString	R/W	—
36	EventState	Enumerated	R	—
40	FeedbackValue	Unsigned	R	—
72	NotifyType	Enumerated	R/W	—
74	NumberOfStates	Unsigned	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
81	OutOfService	BOOLEAN	R/W	—
85	PresentValue	Unsigned	R/W	—
87	PriorityArray	BACnetPriorityArray	R	—
103	Reliability	Enumerated	R	—
104	RelinquishDefault	Unsigned	R/W	—
110	StateText	BACnetARRAY[N]ofCharacterString	R/W	—
111	StatusFlags	BitString	R	—
113	TimeDelay	Unsigned	R/W	—
130	EventTimeStamps	BACnetARRAY[3]ofBACnetTimeStamp	R	—
168	ProfileName	CharacterString	R/W	—
9002	IntrinsicEventDisable	BOOLEAN	R/W	BACnet module proprietary properties  Page 270 Details of BACnet Module Proprietary Properties
9003	UnsolicitedCOV	Enumerated	R/W	
9006	COVSendInterval	Unsigned	R/W	

Buffer memory format of MultiStateOutput objects

The following shows the format of properties assigned to the buffer memory.

Additionally, the availability of reading from/writing to a CPU module is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name			Remarks	R/W	
+0	CONTROL	b15	OutOfService	0: False, 1: True • When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored.	R/W	
		b14	—	Not used		
		b13	PVWrittenClear	• A PVWrittenClear and a PVOut operate when one value is changed from '0' to '1' while the other value is '0'. • When the value is '1', the PVWritten of the STATUS is changed to '0'.		
		b12	PVOut	• A PVWrittenClear and a PVOut operate when one value is changed from '0' to '1' while the other value is '0'. • When a value is changed from '0' to '1', a PresentValue property value is written to the PriorityArray whose index number is 'PVPriority + 1'.		
		b11 to b8	PVPriority	A Priority for writing to PresentValue property* ¹ (The value to which '1' is added is used for Priority.)		
		b7 to b4	—	Not used		
		b3 to b0	Reliability	0: NoFaultDetected 1: NoSensor 2: OverRange 3: UnderRange 4: OpenLoop 5: ShortedLoop 6: NoOutput 7: UnreliableOther 8: ProcessError 9: MultiStateFault 10: ConfigurationError		
+1	STATUS	b15 to b14	—	Not used	R	
		b13 to b11	EventState	0: Normal 1: Fault 2: Offnormal 3: HighLimit 4: LowLimit 5: LifeSafetyAlarm		
		b10	AckedTransition	ToOffnormal		0: False, 1: True
		b9		ToFault		0: False, 1: True
		b8		ToNormal		0: False, 1: True
		b7	PVWritten	• When the PresentValue property value is written, the value becomes '1'. • When changing the value to '0', always use the PVWrittenClear of a CONTROL.		
		b6	EventEnable	ToOffnormal		0: False, 1: True
		b5		ToFault		0: False, 1: True
		b4		ToNormal		0: False, 1: True
		b3	StatusFlags	InAlarm		0: False, 1: True
		b2		Fault		0: False, 1: True
		b1		Overridden		Always 0
		b0		OutOfService		0: False, 1: True
+2	PresentValue	b15 to b0	PresentValue	16-bit value	R	
+3	FeedbackValue	b15 to b0	FeedbackValue	16-bit value	R/W	

- *1 When a value is written to the PresentValue property of a MultiStateOutput object, the value is temporarily stored to the PriorityArray property whose index number is indicated by the Priority. The value stored to the PriorityArray property, whose index number is the smallest, is used for the PresentValue property.
- Until the value of the PriorityArray property, whose index number is used for the PresentValue property, is returned to Null, the value of the PriorityArray property of the index number is used for the PresentValue property.

Precautions

- The STATUS in the internal memory of a BACnet module cannot be changed from a program.
 - Do not change the value of a PVWritten in a program, since the PVWritten cannot be used as a flag.
- A value is written to the PresentValue property regardless of the value of the PVWritten in the program (in the buffer memory) since a BACnet module operates based on the information in the internal memory.

Operation of a BACnet module

■ Operation at startup

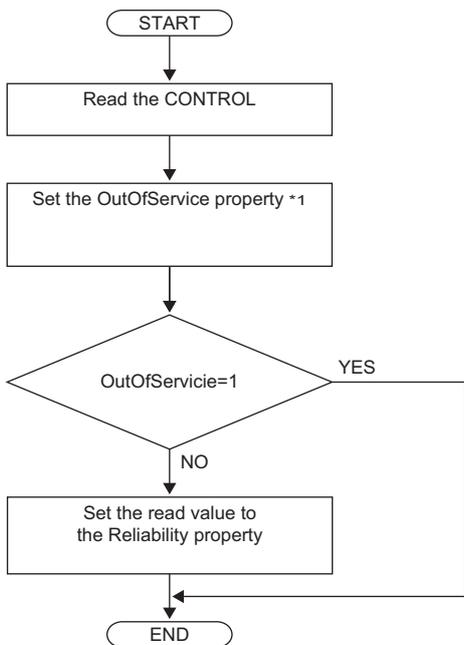
At the startup of a BACnet module, the module writes values, which are saved in the internal memory before powering OFF (or resetting) the module, to the STATUS in the buffer memory.

■ Cyclic operation

A BACnet module periodically ^{*1} reads a CONTROL in the buffer memory and applies the following processing result to the internal memory.

*1 For the reading cycle, refer to the following section.

☞ Page 264 Loading buffer memory



*1 When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored. (☞ Page 281 Interface)

■ Operation when a WriteProperty(Multiple) service is received

- When a WriteProperty(Multiple) service is received, a BACnet module writes the PresentValue property value in the internal memory to the PresentValue property in the buffer memory. After the value is written, '1' is written to the PVWritten of the STATUS in the buffer memory.
- Change the PVWritten of the STATUS in the buffer memory to '0' to receive a new WriteProperty(Multiple) service. To change the value, use the PVWrittenClear of the CONTROL.

Precautions

- After a WriteProperty(Multiple) service is received, a value is written to the PresentValue property and '1' is written to the PVWritten regardless of the values of PVWritten and PVWrittenClear. (A value is written even when the value is the same as the PresentValue property.)

■ Write operation to an object's own PresentValue property

- When '1' is written to the PVOut of the CONTROL in the buffer memory, a BACnet module reads both values of the PVPriority and PresentValue of the CONTROL. After the values are read, '1' is written to the PVWritten of the STATUS in the buffer memory.
- Change the value of the PVWritten of the STATUS in the buffer memory to '0' to read a new value of a PresentValue. To change the value, use the PVWrittenClear of the CONTROL.

■ Another operation

When the value of any of the following properties is changed, a BACnet module writes the changed value to the STATUS in the buffer memory.

- EventEnable property
- StatusFlags property
- EventState property
- AckedTransitions property

Settings using a program

The property values in a BACnet module can be changed by writing values to the buffer memory using a program.

■ Settings at normal operation

1. Write the CONTROL whose OutOfService and Reliability are '0'. (No writing is required when '0' has already been written.)

■ To change an OutOfService property to True

1. Write the CONTROL whose OutOfService is '1' to the buffer memory.

Precautions

- When the OutOfService is '1', the PresentValue and the Reliability are not used.
- Leave the OutOfService of the CONTROL '1' until the OutOfService of the StatusFlags becomes '1' (1 second or more).

■ To change an OutOfService property from True to False

1. Write a value to the PresentValue.
2. Write the CONTROL whose OutOfService value is '0' and Reliability value is an appropriate one.

Precautions

- When the Reliability is other than '0', writing a value to the PresentValue is unnecessary.
- Leave the OutOfService of the CONTROL '0' until the OutOfService of the StatusFlags becomes '0' (1 second or more).

■ Settings for a Reliability property at error occurrence

1. Write the CONTROL whose OutOfService is '0' and Reliability is other than '0'.

■ Detection of writing by a WriteProperty service

After a value is written to a PresentValue property in the internal memory with a WriteProperty(Multiple) service, a BACnet module writes '1' to the PVWritten of a STATUS.

By using a PVWritten as a flag in a program, a write to the PresentValue property in a BACnet module can be detected. Apply the value of the PresentValue property to the program while the PVWritten is '1'.

To restore the PVWritten to '0', use the PVWrittenClear of a CONTROL as follows.

1. Set '1' to the PVWrittenClear of the CONTROL in the buffer memory.
2. Wait until the PVWritten of the STATUS in the buffer memory becomes '0'.
3. Set '0' to the PVWrittenClear of the CONTROL in the buffer memory.

■ To set a PresentValue property from a CPU module

The PresentValue property value can be changed from a CPU module.

1. Set a value to be written to the PresentValue in the buffer memory.
2. Set the value of the PVPriority of the CONTROL in the buffer memory to a Priority for writing. *1
3. Set '1' to the PVOut of the CONTROL in the buffer memory. *1
4. Wait until the PVWritten of the STATUS in the buffer memory becomes '1'.
5. Set '1' to the PVWrittenClear of the CONTROL in the buffer memory.
6. Wait until the PVWritten of the STATUS in the buffer memory becomes '0'.
7. Set '0' to the PVWrittenClear of the CONTROL in the buffer memory.

*1 Set a value to the PVPriority first, then set '1' to the PVOut.

Point

If a value is written to a PresentValue property from a WriteProperty(Multiple) service and a CPU module simultaneously, '1' will be written to the PVWritten only once.

MultiStateValue (MV) object

This object can be used as for the same purpose as a MultiStateInput object or MultiStateOutput object. Set whether to use this object as a MultiStateInput object or MultiStateOutput object by setting a ValuesOutput property. ( Page 73 Settings when using a MultiStateValue object)

List of properties

The following shows the properties supported by MultiStateValue objects. Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table. R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
0	AckedTransitions	BitString	R	—
7	AlarmValues	ListofUnsigned	R/W	—
17	NotificationClass	Unsigned	R/W	—
28	Description	CharacterString	R/W	—
35	EventEnable	BitString	R/W	—
36	EventState	Enumerated	R	—
39	FaultValues	ListofUnsigned	R/W	—
72	NotifyType	Enumerated	R/W	—
74	NumberOfStates	Unsigned	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
81	OutOfService	BOOLEAN	R/W	—
85	PresentValue	Unsigned	R/W	—
87	PriorityArray	BACnetPriorityArray	R	—
103	Reliability	Enumerated	R	—
104	RelinquishDefault	Unsigned	R/W	—
110	StateText	BACnetARRAY[N]ofCharacterString	R/W	—
111	StatusFlags	BitString	R	—
113	TimeDelay	Unsigned	R/W	—
130	EventTimeStamps	BACnetARRAY[3]ofBACnetTimeStamp	R	—
168	ProfileName	CharacterString	R/W	—
9002	IntrinsicEventDisable	BOOLEAN	R/W	BACnet module proprietary properties  Page 270 Details of BACnet Module Proprietary Properties
9003	UnsolicitedCOV	Enumerated	R/W	
9004	ValuesOutput	BOOLEAN	R/W	
9006	COVSendInterval	Unsigned	R/W	

Buffer memory format of MultiStateValue objects

The following shows the format of properties assigned to the buffer memory.

Additionally, the availability of reading from/writing to a CPU module is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name			Remarks	R/W	
+0	CONTROL	b15	OutOfService	0: False, 1: True • When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored.	R/W	
		b14	—	Not used		
		b13	PVWrittenClear	• A PVWrittenClear and a PVOut operate when one value is changed from '0' to '1' while the other value is '0'. • When the value is '1', the PVWritten of the STATUS is changed to '0'.		
		b12	PVOut	• A PVWrittenClear and a PVOut operate when one value is changed from '0' to '1' while the other value is '0'. • When a value is changed from '0' to '1', a PresentValue property value is written to the PriorityArray whose index number is 'PVPriority + 1'.		
		b11 to b8	PVPriority	A Priority for writing to PresentValue property*1 (The value to which '1' is added is used for Priority.)		
		b7 to b4	—	Not used		
		b3 to b0	Reliability	0: NoFaultDetected 1: NoSensor 2: OverRange 3: UnderRange 4: OpenLoop 5: ShortedLoop 6: NoOutput 7: UnreliableOther 8: ProcessError 9: MultiStateFault 10: ConfigurationError		
+1	STATUS	b15 to b14	—	Not used	R	
		b13 to b11	EventState	0: Normal 1: Fault 2: Offnormal 3: HighLimit 4: LowLimit 5: LifeSafetyAlarm		
		b10	AckedTransition	ToOffnormal		0: False, 1: True
		b9		ToFault		0: False, 1: True
		b8		ToNormal		0: False, 1: True
		b7	PVWritten	• When the PresentValue property value is written, the value becomes '1'. • When changing the value to '0', always use the PVWrittenClear of a CONTROL.		
		b6	EventEnable	ToOffnormal		0: False, 1: True
		b5		ToFault		0: False, 1: True
		b4		ToNormal		0: False, 1: True
		b3	StatusFlags	InAlarm		0: False, 1: True
		b2		Fault		0: False, 1: True
		b1		Overridden		Always 0
b0	OutOfService	0: False, 1: True				
+2	PresentValue	b15 to b0	PresentValue	16-bit value • This property can be written from a CPU module only when using the object as a MultiStateInput object.	R/W	
+3	—			Not used	—	

*1 When a value is written to the PresentValue property of a MultiStateOutput object, the value is temporarily stored to the PriorityArray property whose index number is indicated by the Priority. The value stored to the PriorityArray property, whose index number is the smallest, is used for the PresentValue property.
Until the value of the PriorityArray property, whose index number is used for the PresentValue property, is returned to Null, the value of the PriorityArray property of the index number is used for the PresentValue property.

Settings when using a MultiStateValue object

■ Using a MultiStateValue object as a MultiStateInput object

1

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

BACnet Objects

Object Type	Qty.	Limit	Creatable
Browse Add AnalogInput	1		False
Browse Add AnalogOutput	1		False
Browse Add AnalogValue	0		False
Browse Add BinaryInput	0		False
Browse Add BinaryOutput	0		False
Browse Add BinaryValue	0		False
Browse Add MultiStateInput	0		False
Browse Add MultiStateOutput	0	4000	False
Browse Add MultiStateValue	0		False
Browse Add Accumulator	0		False
Browse Add Keiryo	0		False
Browse Add ElectricDemandMonitoring	0		False
Browse Add ElectricDemandControl	0		False
Browse Add GeneratorLoadControl	0		False
Browse Add Calendar	1	300	False
Browse Add NotificationClass	0	50	False
Browse Add Schedule	0	100	False
Browse Add TrendLog	0	200	False
Browse Device	1	1	False

2. Click the [Browse] button of "MultiStateValue".

BACnet Objects

Object Type	Qty.	Limit	Creatable
Browse Add AnalogInput	0		False
Browse Add AnalogOutput	0		False
Browse Add AnalogValue	1		False
Browse Add BinaryInput	0		False
Browse Add BinaryOutput	0		False
Browse Add BinaryValue	1		False
Browse Add MultiStateInput	0		False
Browse Add MultiStateOutput	0	4000	False
Browse Add MultiStateValue	0		False
Browse Add Accumulator	0		False
Browse Add Keiryo	0		False
Browse Add ElectricDemandMonitoring	0		False
Browse Add ElectricDemandControl	0		False
Browse Add GeneratorLoadControl	0		False
Browse Add Calendar	0	300	False
Browse Add NotificationClass	0	50	False
Browse Add Schedule	0	100	False
Browse Add TrendLog	0	200	False
Browse Device	1	1	False

3. Click the [Detail] button of the ObjectID of an object which is to be used as a MultiStateInput object.

BACnet Object: MultiStateValue

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion Information
Detail W-0		118h	1	(FFFF)	Set Delete

4. Click the [Edit] button of "ValueIsOutput".

MV-0

Back Update

PropertyID	Name	Data	Access
0	AckedTransitions	(TTT)	Edit
7	AlarmValues	Number of Sequence 0	Edit
17	NotificationClass	0	Edit
28	Description		Edit
35	EventEnable	(FFF)	Edit
36	EventState	Normal	Edit WriteDisable
39	FaultValues	Number of Sequence 0	Edit
72	NotifyType	Alarm	Edit
74	NumberOfStates	1	Edit
75	ObjectIdentifier	MV-0	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	MultiStateValue	Edit WriteDisable
81	OutOfService	False	Edit
85	PresentValue	1	Edit
87	PriorityArray	Number of Array elements 16	Edit
103	Reliability	No Fault Detected	Edit
104	RelinquishDefault	1	Edit
110	StateText	Number of Array elements 1	Edit
111	StatusFlags	(FFFF)	Edit WriteDisable
113	TimeDelay	0	Edit
130	EventTimeStamps	Number of Array elements 3	Edit
168	ProfileName		Edit
9002	IntrinsicEventDisable	False	Edit
9003	UnsolicitedCOV	No COV	Edit
9004	ValueIsOutput	False	Edit
9006	COVSendInterval	0	Edit

5. Select "False" and click the [Update] button.

MV-0 ValueIsOutput

False

Update Close

■ Using a MultiStateValue object as a MultiStateOutput object

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

BACnet Objects

Object Type	Qty.	Limit	Creatable
Browse Add AnalogInput	1		False
Browse Add AnalogOutput	1		False
Browse Add AnalogValue	0		False
Browse Add BinaryInput	0		False
Browse Add BinaryOutput	0		False
Browse Add BinaryValue	0		False
Browse Add MultiStateInput	0		False
Browse Add MultiStateOutput	0	4000	False
Browse Add MultiStateValue	0		False
Browse Add Accumulator	0		False
Browse Add Keiryo	0		False
Browse Add ElectricDemandMonitoring	0		False
Browse Add ElectricDemandControl	0		False
Browse Add GeneratorLoadControl	0		False
Browse Add Calendar	1	300	False
Browse Add NotificationClass	0	50	False
Browse Add Schedule	0	100	False
Browse Add TrendLog	0	200	False
Browse Device	1	1	False

2. Click the [Browse] button of "MultiStateValue".

BACnet Objects

Object Type	Qty.	Limit	Creatable
Browse Add AnalogInput	0		False
Browse Add AnalogOutput	0		False
Browse Add AnalogValue	1		False
Browse Add BinaryInput	0		False
Browse Add BinaryOutput	0		False
Browse Add BinaryValue	1		False
Browse Add MultiStateInput	0		False
Browse Add MultiStateOutput	0	4000	False
Browse Add MultiStateValue	0		False
Browse Add Accumulator	0		False
Browse Add Keiryo	0		False
Browse Add ElectricDemandMonitoring	0		False
Browse Add ElectricDemandControl	0		False
Browse Add GeneratorLoadControl	0		False
Browse Add Calendar	0	300	False
Browse Add NotificationClass	0	50	False
Browse Add Schedule	0	100	False
Browse Add TrendLog	0	200	False
Browse Device	1	1	False

3. Click the [Detail] button of the ObjectID of an object which is to be used as a MultiStateOutput object.

BACnet Object: MultiStateValue

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion Information	CSV Information
Detail	AV-0	118h	1	(FFFF)		Set Delete

4. Click the [Edit] button of "ValueIsOutput".

MV-0

Back Update

PropertyID	Name	Data	Access
0	AckedTransitions	(TTT)	Edit
7	AlarmValues	Number of Sequence 0	Edit
17	NotificationClass	0	Edit
28	Description		Edit
35	EventEnable	(FFF)	Edit
36	EventState	Normal	Edit WriteDisable
39	FaultValues	Number of Sequence 0	Edit
72	NotifyType	Alarm	Edit
74	NumberOfStates	1	Edit
75	ObjectIdentifier	MV-0	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	MultiStateValue	Edit WriteDisable
81	OutOfService	False	Edit
85	PresentValue	1	Edit
87	PriorityArray	Number of Array elements 16	Edit
103	Reliability	No Fault Detected	Edit
104	RelinquishDefault	1	Edit
110	StateText	Number of Array elements 1	Edit
111	StatusFlags	(FFFF)	Edit WriteDisable
113	TimeDelay	0	Edit
130	EventTimeStamps	Number of Array elements 3	Edit
168	ProfileName		Edit
9002	IntrinsicEventDisable	False	Edit
9003	UnsolicitedCOV	No COV	Edit
9004	ValueIsOutput	False	Edit
9006	COVSendInterval	0	Edit

5. Select "True" and click the [Update] button.

MV-0 ValueIsOutput

True ▾

Update Close

Accumulator (AC) object

This object is used for reading the value of the pulse counter from a programmable controller system to a BACnet device.

List of properties

The following shows the properties supported by Accumulator objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
0	AckedTransitions	BitString	R	—
17	NotificationClass	Unsigned	R/W	—
28	Description	CharacterString	R/W	—
31	DeviceType	CharacterString	R/W	—
35	EventEnable	BitString	R/W	—
36	EventState	Enumerated	R	—
45	HighLimit	Unsigned	R/W	—
52	LimitEnable	BitString	R/W	—
59	LowLimit	Unsigned	R/W	—
65	MaxPresValue	Unsigned	R/W	—
72	NotifyType	Enumerated	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
81	OutOfService	BOOLEAN	R/W	—
85	PresentValue	Unsigned	R	The value greater than the value of a MaxPresValue property (PropertyID: 65) cannot be set to a PresentValue property. Change the value of a MaxPresValue property in accordance with the maximum value set to a PresentValue property.
103	Reliability	Enumerated	R	—
111	StatusFlags	BitString	R	—
113	TimeDelay	Unsigned	R/W	—
117	Units	Enumerated	R/W	—
130	EventTimeStamps	BACnetARRAY[3]ofBACnetTimeStamp	R	—
168	ProfileName	CharacterString	R/W	—
182	Limit_Monitoring_Interval	Unsigned	R/W	—
183	Logging_Object	BACnetObjectIdentifier	R/W	—
184	Logging_Record	BACnetAccumulatorRecord	R	—
185	Prescale	BACnetPrescale	R/W	—
186	Pulse_Rate	Unsigned	R/W	—
187	Scale	BACnetScale	R/W	—
190	Value_Before_Change	Unsigned	R	—
191	Value_Set	Unsigned	R/W	—
192	Value_Change_Time	BACnetDateTime	R	—
9002	IntrinsicEventDisable	BOOLEAN	R/W	BACnet module proprietary properties  Page 270 Details of BACnet Module Proprietary Properties
9003	UnsolicitedCOV	Enumerated	R/W	
9006	COVSendInterval	Unsigned	R/W	

Buffer memory format of Accumulator objects

The following shows the format of properties assigned to the buffer memory.

Additionally, the availability of reading from/writing to a CPU module is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name			Remarks	R/W	
+0	CONTROL	b15	OutOfService	0: False, 1: True • When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored.	R/W	
		b14 to b4	—	Not used		
		b3 to b0	Reliability	0: NoFaultDetected 1: NoSensor 2: OverRange 3: UnderRange 4: OpenLoop 5: ShortedLoop 6: NoOutput 7: UnreliableOther 8: ProcessError 9: MultiStateFault 10: ConfigurationError		
+1	STATUS	b15	LimitEnable	LowLimitEnable	0: False, 1: True	R
		b14		HighLimitEnable	0: False, 1: True	
		b13 to b11	EventState		0: Normal 1: Fault 2: Offnormal 3: HighLimit 4: LowLimit 5: LifeSafetyAlarm	
		b10	AckedTransition	ToOffnormal	0: False, 1: True	
		b9		ToFault	0: False, 1: True	
		b8		ToNormal	0: False, 1: True	
		b7	—		Not used	
		b6	EventEnable	ToOffnormal	0: False, 1: True	
		b5		ToFault	0: False, 1: True	
		b4		ToNormal	0: False, 1: True	
		b3	StatusFlags	InAlarm	0: False, 1: True	
		b2		Fault	0: False, 1: True	
		b1		Overridden	Always 0	
b0	OutOfService	0: False, 1: True				
+2 to +3	Pulse input			Initialize this property with a program before a BACnet module joins BACnet. After the property is initialized, turn Y1 ON. ☞ Page 250 Joining of BACnet (Y1)	R/W	

■ Pulse input

The usage of a pulse input area differs depending on the value set to "PulseDirectInput" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface". (☞ Page 281 Interface)

- When the value is '0': The offset +3 is not used.

Bit position	Name	Remarks
b15	Reset flag	—
b14 to b0	CTA	Pulse counter value

- When the value is '1'^{*1}: The offset +2 and the offset +3 are used.

Bit position	Name	Remarks
b31 to b0	PresentValue	32-bit unsigned integer

- *1 When '1' is set to "PulseDirectInput", an Event notification cannot be sent from an Accumulator object. To send an Event notification, set '0'. (☞ Page 184 Accumulator object)

Operation of a BACnet module

■ Operation at startup

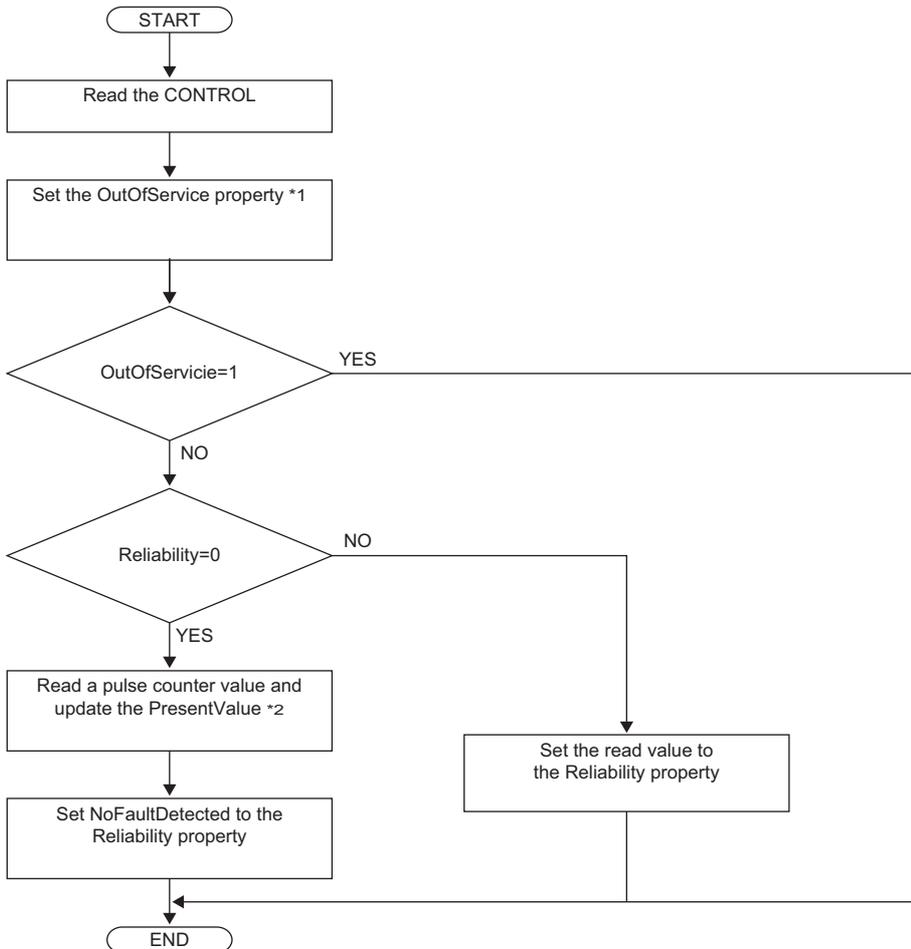
At the startup of a BACnet module, the module writes values, which are saved in the internal memory before powering OFF (or resetting) the module, to the STATUS in the buffer memory.

■ Cyclic operation

A BACnet module periodically *1 reads a CONTROL in the buffer memory and applies the following processing result to the internal memory.

*1 For the reading cycle, refer to the following section.

☞ Page 264 Loading buffer memory



*1 When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored. (☞ Page 281 Interface)

*2: The value to be stored to the PresentValue property varies depending on the value set to "PulseDirectInput" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface". (☞ Page 281 Interface)

■ Another operation

When the value of any of the following properties is changed, a BACnet module writes the changed value to the STATUS in the buffer memory.

- LimitEnable property
- EventEnable property
- StatusFlags property
- EventState property
- AckedTransitions property

Settings using a program

The property values in a BACnet module can be changed by writing values to the buffer memory using a program.

■ Settings at normal operation

1. Write a value to the pulse input.
2. Write the CONTROL whose OutOfService and Reliability are '0'. (No writing is required when '0' has already been written.)

■ To change an OutOfService property to True

1. Write the CONTROL whose OutOfService is '1' to the buffer memory.

Precautions

- When the OutOfService is '1', the PresentValue and the Reliability are not used.
- Leave the OutOfService of the CONTROL '1' until the OutOfService of the StatusFlags becomes '1' (1 second or more).

■ To change an OutOfService property from True to False

1. Write a value to the pulse input.
2. Write the CONTROL whose OutOfService value is '0' and Reliability value is an appropriate one.

Precautions

- When the Reliability is other than '0', writing a value to the PresentValue is unnecessary.
- Leave the OutOfService of the CONTROL '0' until the OutOfService of the StatusFlags becomes '0' (1 second or more).

■ Settings for a Reliability property at error occurrence

1. Write the CONTROL whose OutOfService is '0' and Reliability is other than '0'.

Keiryo object

This object is used for reading scaling values (electrical energy, water dosage, etc.) from a programmable controller system to a BACnet device.

List of properties

The following shows the properties supported by Keiryo objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
0	AckedTransitions	BitString	R/W	—
17	NotificationClass	Unsigned	R/W	—
28	Description	CharacterString	R/W	—
31	DeviceType	CharacterString	R/W	—
35	EventEnable	BitString	R/W	—
36	EventState	Enumerated	R	—
52	LimitEnable	BitString	R/W	—
72	NotifyType	Enumerated	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
81	OutOfService	BOOLEAN	R/W	—
85	PresentValue	Unsigned	R/W	—
103	Reliability	Enumerated	R	—
111	StatusFlags	BitString	R	—
117	Units	Enumerated	R/W	—
520	MaxCountValue	Unsigned integer	R/W	—
521	Weight	Real number	R/W	—
522	ValueSet(J)	Unsigned integer	R/W	—
523	ValueBeforeChange(J)	Unsigned integer	R/W	—
524	ValueChangeTime(J)	BACnetDateTime	R/W	—
525	LimitMonitoringInterval(J)	Unsigned integer	R/W	—
526	AccumulatedCountHighLimit	Unsigned integer	R/W	—
527	ListOfCounterData	ListOfHistoricalData	R/W	—
530	LastListOfCounterDataAdded	BACnetDateTime	R	—
9002	IntrinsicEventDisable	BOOLEAN	R/W	BACnet module proprietary properties  Page 270 Details of BACnet Module Proprietary Properties
9003	UnsolicitedCOV	Enumerated	R/W	
9006	COVSendInterval	Unsigned	R/W	

Buffer memory format of Keiryo objects

The following shows the format of properties assigned to the buffer memory.

Additionally, the availability of reading from/writing to a CPU module is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name		Remarks	R/W		
+0	CONTROL	b15	OutOfService	0: False, 1: True • When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored.	R/W	
		b14 to b4	—	Not used		
		b3 to b0	Reliability	0: NoFaultDetected 1: NoSensor 2: OverRange 3: UnderRange 4: OpenLoop 5: ShortedLoop 6: NoOutput 7: UnreliableOther 8: ProcessError 9: MultiStateFault 10: ConfigurationError		
+1	STATUS	b15	LimitEnable	LowLimitEnable	0: False, 1: True	R
		b14		HighLimitEnable	0: False, 1: True	
		b13 to b11	EventState	0: Normal 1: Fault 2: Offnormal 3: HighLimit 4: LowLimit 5: LifeSafetyAlarm		
		b10	AckedTransition	ToOffnormal	0: False, 1: True	
		b9		ToFault	0: False, 1: True	
		b8		ToNormal	0: False, 1: True	
		b7	—	Not used		
		b6	EventEnable	ToOffnormal	0: False, 1: True	
		b5		ToFault	0: False, 1: True	
		b4		ToNormal	0: False, 1: True	
		b3	StatusFlags	InAlarm	0: False, 1: True	
		b2		Fault	0: False, 1: True	
		b1		Overridden	Always 0	
b0	OutOfService	0: False, 1: True				
+2 to +3	Pulse input		Initialize this property with a program before a BACnet module joins BACnet. After the property is initialized, turn Y1 ON. ☞ Page 250 Joining of BACnet (Y1)	R/W		

■ Pulse input

The usage of a pulse input area differs depending on the value set to "PulseDirectInput" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface". (☞ Page 281 Interface)

- When the value is '0': The offset +3 is not used.

Bit position	Name	Remarks
b15	Reset flag	—
b14 to b0	CTA	Pulse counter value

- When the value is '1': The offset +2 and the offset +3 are used.

Bit position	Name	Remarks
b31 to b0	PresentValue	32-bit unsigned integer

Operation of a BACnet module

■ Operation at startup

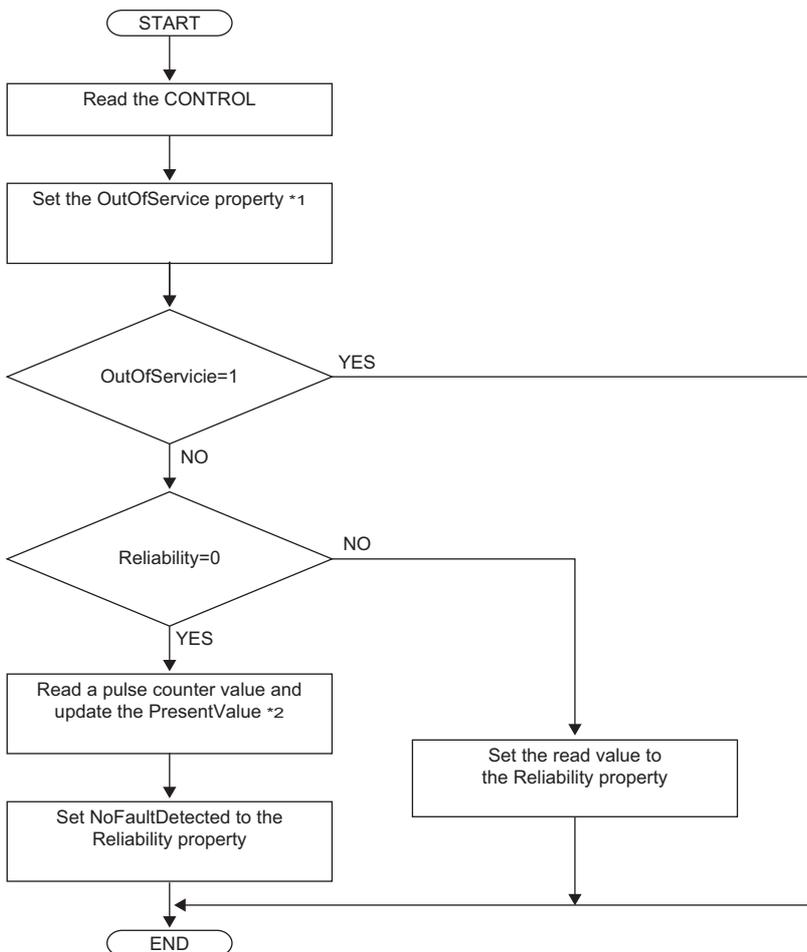
At the startup of a BACnet module, the module writes values, which are saved in the internal memory before powering OFF (or resetting) the module, to the STATUS in the buffer memory.

■ Cyclic operation

A BACnet module periodically ^{*1} reads a CONTROL in the buffer memory and applies the following processing result to the internal memory.

*1 For the reading cycle, refer to the following section.

☞ Page 264 Loading buffer memory



*1 When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored. (☞ Page 281 Interface)

*2: The value to be stored to the PresentValue property varies depending on the value set to "PulseDirectInput" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface". (☞ Page 281 Interface)

■ Another operation

When the value of any of the following properties is changed, a BACnet module writes the changed value to the STATUS in the buffer memory.

- LimitEnable property
- EventEnable property
- StatusFlags property
- EventState property
- AckedTransitions property

Settings using a program

The property values in a BACnet module can be changed by writing values to the buffer memory using a program.

■ Settings at normal operation

1. Write a value to the pulse input.
2. Write the CONTROL whose OutOfService and Reliability are '0'. (No writing is required when '0' has already been written.)

■ To change an OutOfService property to True

1. Write the CONTROL whose OutOfService is '1' to the buffer memory.

Precautions

- When the OutOfService is '1', the PresentValue and the Reliability are not used.
- Leave the OutOfService of the CONTROL '1' until the OutOfService of the StatusFlags becomes '1' (1 second or more).

■ To change an OutOfService property from True to False

1. Write a value to the pulse input.
2. Write the CONTROL whose OutOfService value is '0' and Reliability value is an appropriate one.

Precautions

- When the Reliability is other than '0', writing a value to the PresentValue is unnecessary.
- Leave the OutOfService of the CONTROL '0' until the OutOfService of the StatusFlags becomes '0' (1 second or more).

■ Settings for a Reliability property at error occurrence

1. Write the CONTROL whose OutOfService is '0' and Reliability is other than '0'.

ElectricDemandMonitoring (EDM) object

This object is used for reading the monitoring information of electric power from a programmable controller system to a BACnet device.

List of properties

The following shows the properties supported by ElectricDemandMonitoring objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
0	AckedTransitions	BitString	R/W	—
7	AlarmValues	List of Unsigned	R/W	—
17	NotificationClass	Unsigned	R/W	—
28	Description	CharacterString	R/W	—
35	EventEnable	BitString	R/W	—
36	EventState	Enumerated	R	—
39	FaultValues	List of Unsigned	R/W	Only IEIEJ-P-0003:2000 Addendum-a is supported.
72	NotifyType	Enumerated	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
81	OutOfService	BOOLEAN	R/W	—
85	PresentValue	Unsigned (1 to 3)	R/W	For IEIEJ-P-0003:2000 Addendum-a, (0 to 2).
103	Reliability	Enumerated	R	—
111	StatusFlags	BitString	R	—
113	TimeDelay	Unsigned	R/W	Only IEIEJ-G-0006:2006 Addendum-a is supported.
117	Units	Enumerated	R/W	—
130	EventTimeStamps	BACnetTimeStamp	R/W	Only IEIEJ-G-0006:2006 Addendum-a is supported.
168	ProfileName	CharacterString	R/W	Only IEIEJ-G-0006:2006 Addendum-a is supported.
560	Start_Time_Of_Monitoring	Time	R/W	—
561	Time_Of_Alarm_Lock	Unsigned integer (0 to 30)	R/W	Only IEIEJ-P-0003:2000 Addendum-a is supported.
562	Contract_Receiving_Power	REAL	R/W	—
563	Target_Value_Of_Power	REAL	R/W	—
564	Alarm_Value_Of_Power	REAL	R/W	—
565	Elapsed_Time	Unsigned (1 to 30)	R/W	For IEIEJ-P-0003:2000 Addendum-a, (0 to 30).
566	Consumed_WH_In_This_Term	BACnetARRAY[30] of ListOfWHData	R/W	—
567	Estimated_Power	REAL	R/W	—
568	Adjust_Power	REAL	R/W	—
569	Time_Width_Of_WH_Trend	Unsigned integer (0 to 2)	R/W	Only IEIEJ-P-0003:2000 Addendum-a is supported.
580	Consumed_WH_In_Last_Term	BACnetARRAY[30] of ListOfWHData	R/W	—
581	List_Of_Pulse_Counter_Reference	SEQUENCE Of BACnetDeviceObjectPropertyReference	R/W	Only IEIEJ-G-0006:2006 Addendum-a is supported.
9002	IntrinsicEventDisable	BOOLEAN	R/W	BACnet module proprietary properties Page 270 Details of BACnet Module Proprietary Properties
9003	UnsolicitedCOV	Enumerated	R/W	
9006	COVSendInterval	Unsigned	R/W	

Buffer memory format of ElectricDemandMonitoring objects

The following shows the format of properties assigned to the buffer memory.

Additionally, the availability of reading from/writing to a CPU module is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name			Remarks	R/W	
+0	CONTROL	b15	OutOfService	0: False, 1: True • When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored.	R/W	
		b14 to b4	—	Not used		
		b3 to b0	Reliability	0: NoFaultDetected 1: NoSensor 2: OverRange 3: UnderRange 4: OpenLoop 5: ShortedLoop 6: NoOutput 7: UnreliableOther 8: ProcessError 9: MultiStateFault 10: ConfigurationError		
+1	STATUS	b15 to b14	—	Not used	R	
		b13 to b11	EventState	0: Normal 1: Fault 2: Offnormal 3: HighLimit 4: LowLimit 5: LifeSafetyAlarm		
		b10	AckedTransition	ToOffnormal		0: False, 1: True
		b9		ToFault		0: False, 1: True
		b8		ToNormal		0: False, 1: True
		b7	—	Not used		
		b6	EventEnable	ToOffnormal		0: False, 1: True
		b5		ToFault		0: False, 1: True
		b4		ToNormal		0: False, 1: True
		b3	StatusFlags	InAlarm		0: False, 1: True
		b2		Fault		0: False, 1: True
		b1		Overridden		Always 0
b0	OutOfService	0: False, 1: True				
+2	PresentValue			An alarm occurrence state is stored. 1: Recovery state (the value at the start of monitoring) 2: Level-one demand alarm occurred (target electric power exceeded) 3: Level-two demand alarm occurred (alarm electric power exceeded)	R/W	
+3	Start_Time_Of_Monitoring			The time (hours and minutes) when the monitoring of electric power was started is stored. b15 to b8: Hours (0 to 23) b7 to b0: Minutes (0 to 59)	R/W	
+4 to +5	Contract_Receiving_Power			The amount of electricity contracted with an electric company is stored.	R/W	
+6 to +7	Target_Value_Of_Power			The amount of target electric power is stored.	R/W	
+8 to +9	Alarm_Value_Of_Power			The amount of alarm electric power is stored.	R/W	
+10 to +11	Estimated_Power			The estimated electric power consumption in a demand monitoring cycle is stored.	R/W	
+12 to +13	Adjust_Power			The amount of adjusted electric power which are calculated from the difference between an Estimated_Power and Alarm_Value_Of_Power is stored.	R/W	
+14	Elapsed_Time			The elapsed time since demand monitoring was started is stored.	R/W	
+15	Time_Width_Of_WH_Trend			A tendency interval is stored.	R/W	

Offset	Name	Remarks	R/W
+16 to +17	Consumed_WH_In_This_Term1	The amount of electric power consumption every 30 minutes from the monitoring start time is stored.	R/W
⋮	⋮		
+74 to +75	Consumed_WH_In_This_Term30		
+76	Consumed_WH_In_This_Term1 (State)	The data state of the amount of electric power consumption every 30 minutes from the monitoring start time is stored. 0: Normal 1: Error 2: Disable	R/W
⋮	⋮		
+105	Consumed_WH_In_This_Term30 (State)		
+106 to +107	Consumed_WH_In_Last_Term1	The amount of electric power consumption every 30 minutes from the monitoring start time which is acquired from the previous monitoring is stored.	R/W
⋮	⋮		
+164 to +165	Consumed_WH_In_Last_Term30		
+166	Consumed_WH_In_Last_Term1 (State)	The data state of the amount of electric power consumption every 30 minutes from the monitoring start time which is acquired from the previous monitoring is stored. 0: Normal 1: Error 2: Disable	R/W
⋮	⋮		
+195	Consumed_WH_In_Last_Term30 (State)		

■ Operation at startup

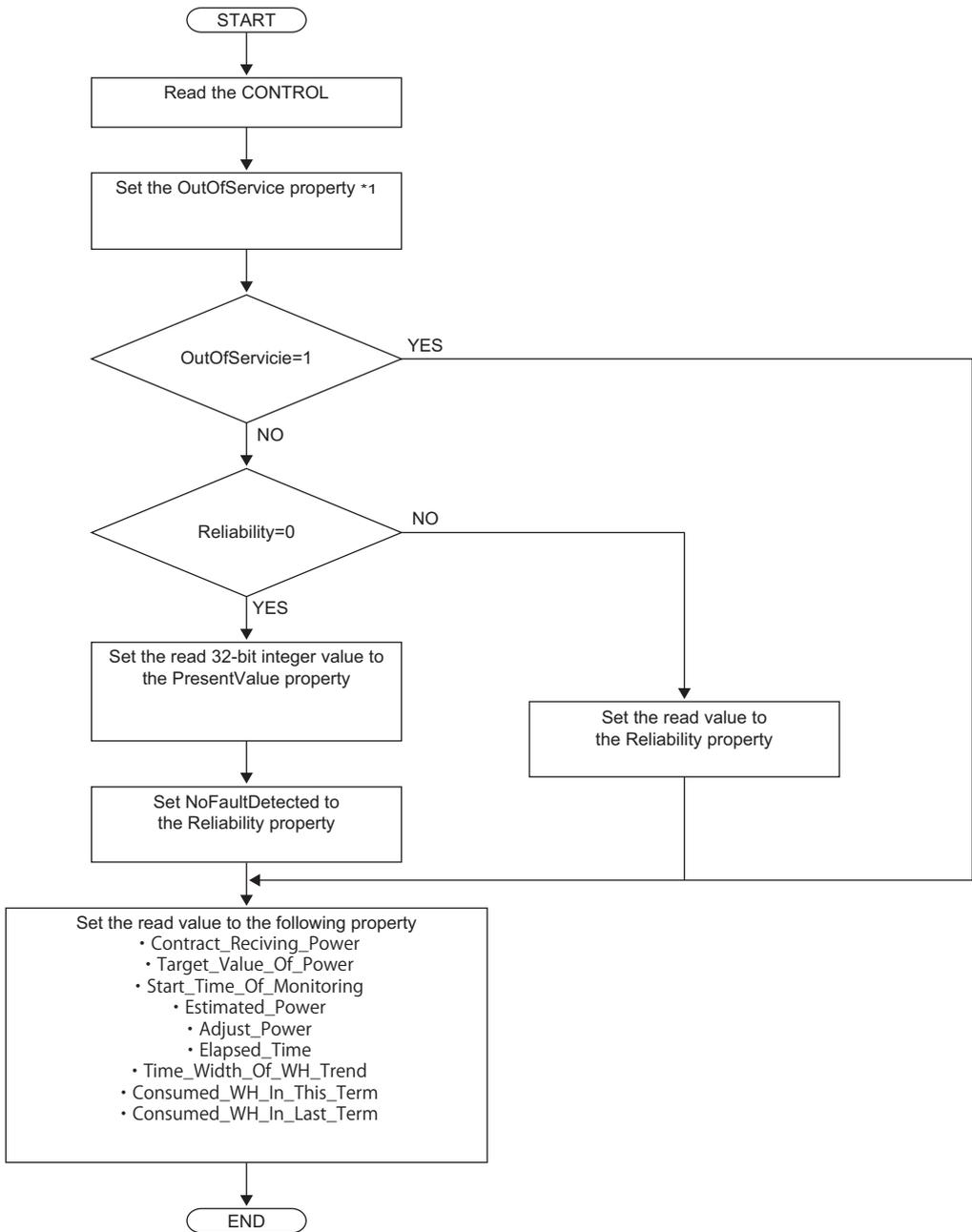
At the startup of a BACnet module, the module writes values, which are saved in the internal memory before powering OFF (or resetting) the module, to the STATUS in the buffer memory.

■ Cyclic operation

A BACnet module periodically ^{*1} reads a CONTROL in the buffer memory and applies the following processing result to the internal memory.

*1 For the reading cycle, refer to the following section.

☞ Page 264 Loading buffer memory



*1 When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored. (☞ Page 281 Interface)

■ Another operation

When the value of any of the following properties is changed, a BACnet module writes the changed value to the STATUS in the buffer memory.

- EventEnable property
- StatusFlags property
- EventState property
- AckedTransitions property

Additionally, when the value of any of the following properties is changed, the changed value is written to the buffer memory.

- Contract_Receiving_Power property
- Target_Value_Of_Power property
- Alarm_Value_Of_Power property
- Start_Time_Of_Monitoring property
- Estimated_Power property
- Adjust_Power property
- Elapsed_Time property
- Time_Width_Of_WH_Trend property
- Consumed_WH_In_This_Term property
- Consumed_WH_In_Last_Term property

Settings using a program

The property values in a BACnet module can be changed by writing values to the buffer memory using a program.

■ Settings at normal operation

1. Write a value to the PresentValue.
2. Write the CONTROL whose OutOfService and Reliability are '0'. (No writing is required when '0' has already been written.)

■ To change an OutOfService property to True

1. Write the CONTROL whose OutOfService is '1' to the buffer memory.

Precautions

- When the OutOfService is '1', the PresentValue and the Reliability are not used.
- Leave the OutOfService of the CONTROL '1' until the OutOfService of the StatusFlags becomes '1' (1 second or more).

■ To change an OutOfService property from True to False

1. Write a value to the PresentValue.
2. Write the CONTROL whose OutOfService value is '0' and Reliability value is an appropriate one.

Precautions

- When the Reliability is other than '0', writing a value to the PresentValue is unnecessary.
- Leave the OutOfService of the CONTROL '0' until the OutOfService of the StatusFlags becomes '0' (1 second or more).

■ Settings for a Reliability property at error occurrence

1. Write the CONTROL whose OutOfService is '0' and Reliability is other than '0'.

■ Another setting

Manage the data of the following properties with a program. If any changes are made, write the changed data to the buffer memory.

- Start_Time_Of_Monitoring property
- Contract_Receiving_Power property
- Target_Value_Of_Power property
- Alarm_Value_Of_Power property
- Estimated_Power property
- Adjust_Power property
- Elapsed_Time property
- Time_Width_Of_WH_Trend property
- Consumed_WH_In_This_Term property 1 to 30
- Consumed_WH_In_This_Term property 1 to 30 (State)
- Consumed_WH_In_Last_Term property 1 to 30
- Consumed_WH_In_Last_Term property 1 to 30 (State)

ElectricDemandControl (EDC) object

This object is used for controlling power control devices connected to a programmable controller system from a BACnet device.

List of properties

The following shows the properties supported by ElectricDemandControl objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
0	AckedTransitions	BitString	R/W	—
7	AlarmValues	List of Unsigned	R/W	—
17	NotificationClass	Unsigned	R/W	—
28	Description	CharacterString	R/W	—
35	EventEnable	BitString	R/W	—
36	EventState	Enumerated	R	—
39	FaultValues	List of Unsigned	R/W	Only IEIEJ-P-0003:2000 Addendum-a is supported.
72	NotifyType	Enumerated	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	BACnetObjectType	R	—
81	OutOfService	BOOLEAN	R/W	—
85	PresentValue	Unsigned (1 to 16)	R/W	For IEIEJ-P-0003:2000 Addendum-a, (0 to 15).
88	PriorityForWriting	Unsigned (1 to 16)	R/W	—
103	Reliability	Enumerated	R	—
111	StatusFlags	BitString	R	—
113	TimeDelay	Unsigned	R/W	Only IEIEJ-G-0006:2006 Addendum-a is supported.
130	EventTimeStamps	BACnetTimeStamp	R/W	Only IEIEJ-G-0006:2006 Addendum-a is supported.
168	ProfileName	CharacterString	R/W	Only IEIEJ-G-0006:2006 Addendum-a is supported.
570	Level_Value	BACnetARRAY[16] of REAL	R/W	—
9002	IntrinsicEventDisable	BOOLEAN	R/W	BACnet module proprietary properties  Page 270 Details of BACnet Module Proprietary Properties
9003	UnsolicitedCOV	Enumerated	R/W	
9006	COVSendInterval	Unsigned	R/W	

Buffer memory format of ElectricDemandControl objects

The following shows the format of properties assigned to the buffer memory.

Additionally, the availability of reading from/writing to a CPU module is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name			Remarks	R/W	
+0	CONTROL	b15	OutOfService	0: False, 1: True • When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored.	R/W	
		b14 to b4	—	Not used		
		b3 to b0	Reliability	0: NoFaultDetected 1: NoSensor 2: OverRange 3: UnderRange 4: OpenLoop 5: ShortedLoop 6: NoOutput 7: UnreliableOther 8: ProcessError 9: MultiStateFault 10: ConfigurationError		
+1	STATUS	b15 to b14	—	Not used	R	
		b13 to b11	EventState	0: Normal 1: Fault 2: Offnormal 3: HighLimit 4: LowLimit 5: LifeSafetyAlarm		
		b10	AckedTransition	ToOffnormal		0: False, 1: True
		b9		ToFault		0: False, 1: True
		b8		ToNormal		0: False, 1: True
		b7	—	Not used		
		b6	EventEnable	ToOffnormal		0: False, 1: True
		b5		ToFault		0: False, 1: True
		b4		ToNormal		0: False, 1: True
		b3	StatusFlags	InAlarm		0: False, 1: True
		b2		Fault		0: False, 1: True
		b1		Overridden		Always 0
		b0		OutOfService		0: False, 1: True
+2	PresentValue			The level of an electric demand control is stored. 1: Recover all control levels. (No demand control) 2 to 16: Demand control ('2' is the lowest control level and '16' is the highest control level.)	R/W	
+3	—			Not used	—	
+4 to +5	Level_Value[1]			The amount of adjusted electric power for each level of an electric demand control is stored.	R/W	
⋮	⋮					
+34 to +35	Level_Value[16]					

Operation of a BACnet module

■ Operation at startup

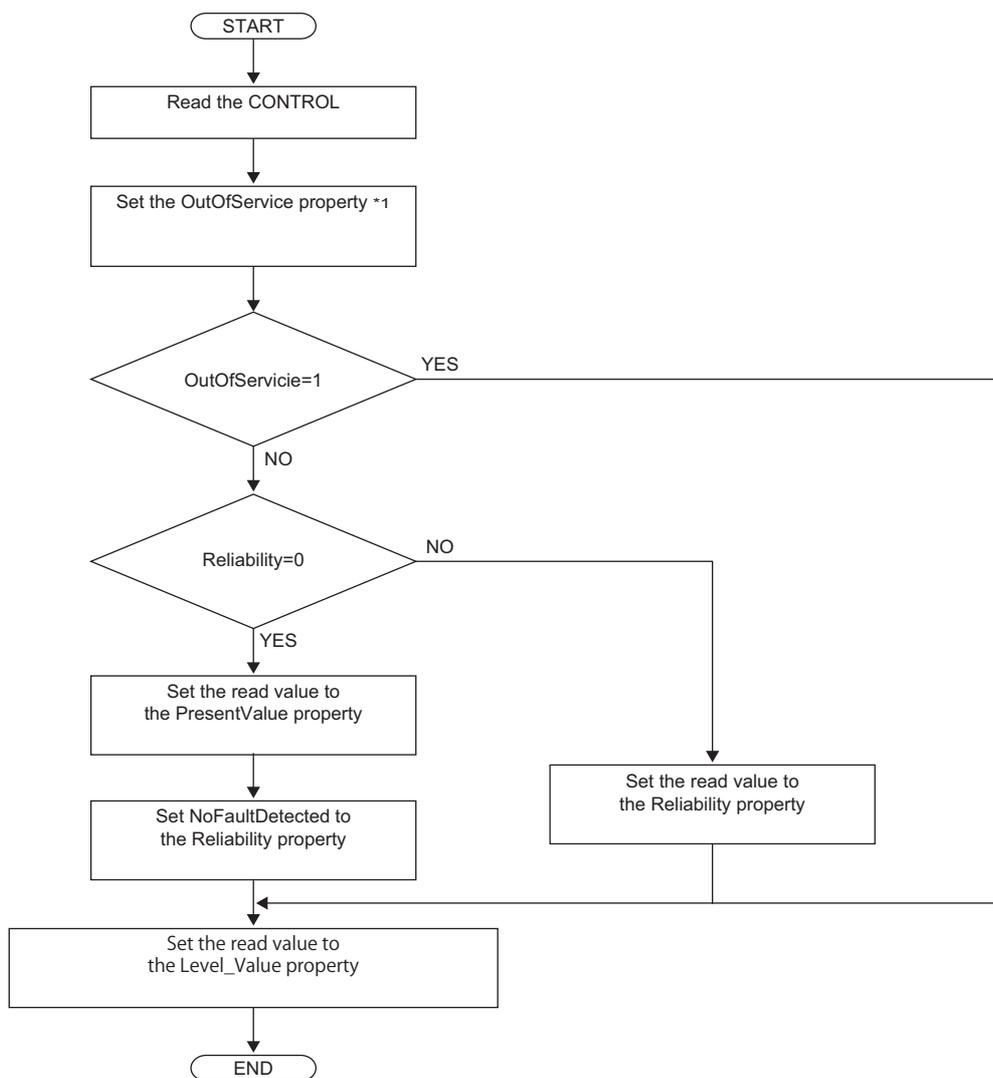
At the startup of a BACnet module, the module writes values, which are saved in the internal memory before powering OFF (or resetting) the module, to the STATUS in the buffer memory.

■ Cyclic operation

A BACnet module periodically ^{*1} reads a CONTROL in the buffer memory and applies the following processing result to the internal memory.

*1 For the reading cycle, refer to the following section.

☞ Page 264 Loading buffer memory



*1 When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored. (☞ Page 281 Interface)

■ Another operation

When the value of any of the following properties is changed, a BACnet module writes the changed value to the STATUS in the buffer memory.

- EventEnable property
- StatusFlags property
- EventState property
- AckedTransitions property

Settings using a program

The property values in a BACnet module can be changed by writing values to the buffer memory using a program.

■ Settings at normal operation

1. Write a value to the PresentValue.
2. Write the CONTROL whose OutOfService and Reliability are '0'. (No writing is required when '0' has already been written.)

■ To change an OutOfService property to True

1. Write the CONTROL whose OutOfService is '1' to the buffer memory.

Precautions

- When the OutOfService is '1', the PresentValue and the Reliability are not used.
- Leave the OutOfService of the CONTROL '1' until the OutOfService of the StatusFlags becomes '1' (1 second or more).

■ To change an OutOfService property from True to False

1. Write a value to the PresentValue.
2. Write the CONTROL whose OutOfService value is '0' and Reliability value is an appropriate one.

Precautions

- When the Reliability is other than '0', writing a value to the PresentValue is unnecessary.
- Leave the OutOfService of the CONTROL '0' until the OutOfService of the StatusFlags becomes '0' (1 second or more).

■ Settings for a Reliability property at error occurrence

1. Write the CONTROL whose OutOfService is '0' and Reliability is other than '0'.

■ Another setting

Manage the data of the following properties with a program. If any changes are made, write the changed data to the buffer memory.

- Level_Value property

GeneratorLoadControl (GLC) object

This object is used for controlling the electric generator connected to a programmable controller system from a BACnet device.

List of properties

The following shows the properties supported by GeneratorLoadControl objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
0	AckedTransitions	BitString	R/W	—
7	AlarmValues	List of Unsigned	R/W	—
17	NotificationClass	Unsigned	R/W	—
28	Description	CharacterString	R/W	—
35	EventEnable	BitString	R/W	—
36	EventState	Enumerated	R	—
39	FaultValues	List of Unsigned	R/W	Only IEIEJ-P-0003:2000 Addendum-a is supported.
72	NotifyType	Enumerated	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
81	OutOfService	BOOLEAN	R/W	—
85	PresentValue	Unsigned (1 to 16)	R/W	—
88	PriorityForWriting	Unsigned (1 to 16)	R/W	—
103	Reliability	Enumerated	R	—
111	StatusFlags	BitString	R	—
113	TimeDelay	Unsigned	R/W	Only IEIEJ-G-0006:2006 Addendum-a is supported.
130	EventTimeStamps	BACnetTimeStamp	R/W	Only IEIEJ-G-0006:2006 Addendum-a is supported.
168	ProfileName	CharacterString	R/W	Only IEIEJ-G-0006:2006 Addendum-a is supported.
570	Level_Value	BACnetARRAY[16] of REAL	R/W	Only IEIEJ-G-0006:2006 Addendum-a is supported.
576	Target_Value_To_Supply	REAL	R/W	—
577	Adjust_Value_Of_Load	REAL	R/W	—
578	Level_Value	ListOfLevelValue	R/W	Only IEIEJ-P-0003:2000 Addendum-a is supported.
9002	IntrinsicEventDisable	BOOLEAN	R/W	BACnet module proprietary properties  Page 270 Details of BACnet Module Proprietary Properties
9003	UnsolicitedCOV	Enumerated	R/W	
9006	COVSendInterval	Unsigned	R/W	

Buffer memory format of GeneratorLoadControl objects

The following shows the format of properties assigned to the buffer memory.

Additionally, the availability of reading from/writing to a CPU module is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name			Remarks	R/W	
+0	CONTROL	b15	OutOfService	0: False, 1: True • When '1' is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored.	R/W	
		b14 to b4	—	Not used		
		b3 to b0	Reliability	0: NoFaultDetected 1: NoSensor 2: OverRange 3: UnderRange 4: OpenLoop 5: ShortedLoop 6: NoOutput 7: UnreliableOther 8: ProcessError 9: MultiStateFault 10: ConfigurationError		
+1	STATUS	b15 to b14	—	Not used	R	
		b13 to b11	EventState	0: Normal 1: Fault 2: Offnormal 3: HighLimit 4: LowLimit 5: LifeSafetyAlarm		
		b10	AckedTransition	ToOffnormal		0: False, 1: True
		b9		ToFault		0: False, 1: True
		b8		ToNormal		0: False, 1: True
		b7	—	Not used		
		b6	EventEnable	ToOffnormal		0: False, 1: True
		b5		ToFault		0: False, 1: True
		b4		ToNormal		0: False, 1: True
		b3	StatusFlags	InAlarm		0: False, 1: True
		b2		Fault		0: False, 1: True
		b1		Overridden		Always 0
b0	OutOfService	0: False, 1: True				
+2	PresentValue			The current value of a generator load control level is stored. 1 to 16	R/W	
+3	—			Not used	—	
+4 to +5	Target_Value_To_Supply			The target value to provide an electric power generated by a generator is stored.	R/W	
+6 to +7	Adjust_Value_Of_Load			The adjusted electric power, which is obtained by subtracting the currently supplied electric power from a Target_Value_To_Supply, is stored.	R/W	
+8 to +9	Level_Value[1]			The amount of adjusted electric power for each level of a generator load control level is stored.	R/W	
⋮	⋮					
+38 to +39	Level_Value[16]					

Operation of a BACnet module

■ Operation at startup

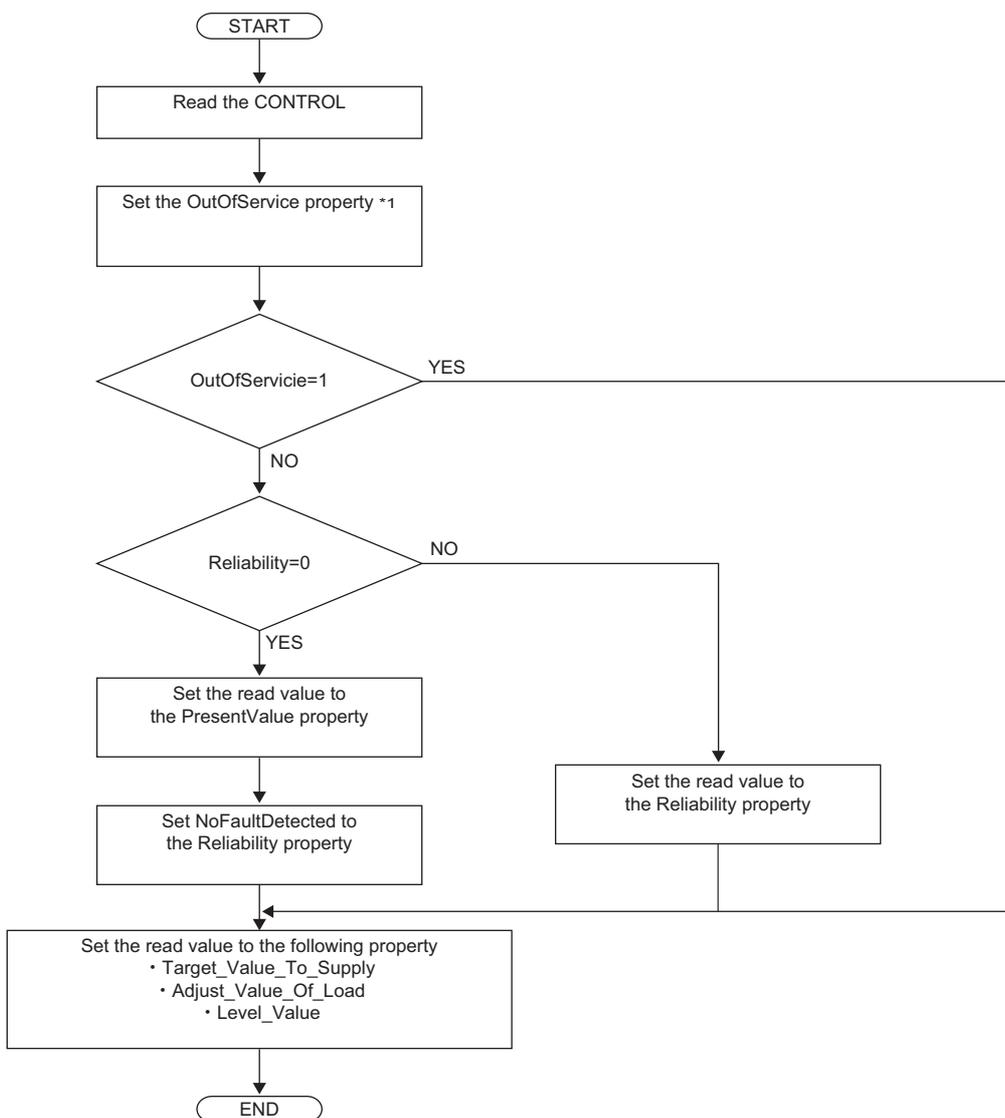
At the startup of a BACnet module, the module writes values, which are saved in the internal memory before powering OFF (or resetting) the module, to the STATUS in the buffer memory.

■ Cyclic operation

A BACnet module periodically ^{*1} reads a CONTROL in the buffer memory and applies the following processing result to the internal memory.

*1 For the reading cycle, refer to the following section.

☞ Page 264 Loading buffer memory



*1 When *1 is set to "OutOfServiceControl" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", the value of an OutOfService property is stored. (☞ Page 281 Interface)

■ Another operation

When the value of any of the following properties is changed, a BACnet module writes the changed value to the STATUS in the buffer memory.

- EventEnable property
- StatusFlags property
- EventState property
- AckedTransitions property

Additionally, when the value of any of the following properties is changed, the changed value is written to the buffer memory.

- Target_Value_To_Supply property
- Adjust_Value_Of_Load property
- Level_Value property

Settings using a program

The property values in a BACnet module can be changed by writing values to the buffer memory using a program.

■ Settings at normal operation

1. Write a value to the PresentValue.
2. Write the CONTROL whose OutOfService and Reliability are '0'. (No writing is required when '0' has already been written.)

■ To change an OutOfService property to True

1. Write the CONTROL whose OutOfService is '1' to the buffer memory.

Precautions

- When the OutOfService is '1', the PresentValue and the Reliability are not used.
- Leave the OutOfService of the CONTROL '1' until the OutOfService of the StatusFlags becomes '1' (1 second or more).

■ To change an OutOfService property from True to False

1. Write a value to the PresentValue.
2. Write the CONTROL whose OutOfService value is '0' and Reliability value is an appropriate one.

Precautions

- When the Reliability is other than '0', writing a value to the PresentValue is unnecessary.
- Leave the OutOfService of the CONTROL '0' until the OutOfService of the StatusFlags becomes '0' (1 second or more).

■ Settings for a Reliability property at error occurrence

1. Write the CONTROL whose OutOfService is '0' and Reliability is other than '0'.

■ Another setting

Manage the data of the following properties with a program. If any changes are made, write the changed data to the buffer memory.

- Target_Value_To_Supply property
- Adjust_Value_Of_Load property
- Level_Value property

Calendar (CA) object

This object is used for managing a date list that lists holidays and closings.

List of properties

The following shows the properties supported by Calendar objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
23	DateList	ListofBACnetCalendarEntry	R/W	—
28	Description	CharacterString	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
85	PresentValue	BOOLEAN	R	—
168	ProfileName	CharacterString	R/W	—

Buffer memory format of Calendar objects

The following shows the format of properties assigned to the buffer memory.

Additionally, the availability of reading from/writing to a CPU module is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name			Remarks	R/W
+0	—			Not used	—
+1	STATUS	b15	PresentValue	0: False, 1: True	R
		b14 to b0	—	Not used	

At the startup of a BACnet module or at 0:00, the module calculates the value of the current day to be stored to the PresentValue property, and writes the value to the buffer memory.

Even when the DateList property is changed by a WriteProperty (Multiple) service, the module calculates a value to be stored to the PresentValue, and writes the value to the buffer memory.

NotificationClass (NC) object

This object is used for setting a send destination of Event notifications.

For the setting of the Event notification send setting, refer to the following section.

 Page 180 Event notification send setting

List of properties

The following shows the properties supported by NotificationClass objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
1	AckRequired	BitString	R	—
17	NotificationClass	Unsigned	R	—
28	Description	CharacterString	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
86	Priority	BACnetARRAY[3]ofUnsigned	R/W	—
102	RecipientList	ListofBACnetDestination	R/W	—
168	ProfileName	CharacterString	R/W	—

Setting RecipientList property

Set a send target and a day/time to send Event notifications to a RecipientList property.

1

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

BACnet Objects

Object Type	Qty.	Limit	Creatable
Browse Add AnalogInput	1		False
Browse Add AnalogOutput	1		False
Browse Add AnalogValue	0		False
Browse Add BinaryInput	0		False
Browse Add BinaryOutput	0		False
Browse Add BinaryValue	0		False
Browse Add MultiStateInput	0		False
Browse Add MultiStateOutput	0	4000	False
Browse Add MultiStateValue	0		False
Browse Add Accumulator	0		False
Browse Add Keiryo	0		False
Browse Add ElectricDemandMonitoring	0		False
Browse Add ElectricDemandControl	0		False
Browse Add GeneratorLoadControl	0		False
Browse Add Calendar	1	300	False
Browse Add NotificationClass	0	50	False
Browse Add Schedule	0	100	False
Browse Add TrendLog	0	200	False
Browse Add Device	1	1	False

2. Click the [Browse] button of "NotificationClass".
3. Click the [Detail] button of an ObjectID to set a send target and a day/time to send Event notifications.

BACnet Object: NotificationClass

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion	CSV Information
Detail	NC-0					Set Delete

4. Click the [Add] button of "RecipientList".

NC-0

Back Update

PropertyID	Name	Data	Access
1	AckRequired	(FFF)	Edit
17	NotificationClass	0	Edit
28	Description		Edit
75	ObjectIdentifier	NC-0	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	NotificationClass	Edit WriteDisable
86	Priority	Number of Array elements 3	Edit
102	RecipientList	Number of Sequence 0	Edit
168	ProfileName		Edit

5. Set the following items.

Item of RecipientList	Description	
Recipient	Specify the send target of Event notifications with a DeviceID or a BACnetAddress. When specifying a send target with DeviceID, enter the instance number of a send target device in the rightmost textbox. When specifying a send target with BACnetAddress, select "BACnetAddress" from the leftmost pull-down list, and specify the send target device by referring to the following section. Page 104 How to specify a BACnetAddress	
ValidDays	Select the days of the week to enable sending Event notifications.	
FromTime	Specify a starting time to enable sending Event notifications.	
ToTime	Specify an ending time to send Event notifications.	
ProcessID	Specify the ProcessID that is included in Event notifications.	
IssueConfirmed	False	Send an UnconfirmedEventNotification that expects no reply from the send target.
	True	Send a ConfirmedEventNotification that expects reply from the send target.
Transitions	ToOffnormal	Select this to send an Event notification when an EventState is changed to Offnormal.
	ToFault	Select this to send an Event notification when an EventState is changed to Fault.
	ToNormal	Select this to send an Event notification when an EventState is changed to Normal.

6. Click the [Update] button.

■ How to specify a BACnetAddress

Operating procedure

- Enter the number of the octets of a value to "OctetCount".
For IPv4, enter '6'.
For IPv6, enter '18'.
- Enter an IP address in order from the top in the textbox of "OctetData".
- Enter the port number*¹ (BAC0 in hexadecimal) of a BACnet module in the remaining two text boxes of "OctetData". For decimal, enter '186' and '192'.

In "OctetData", hexadecimal numbers can be set by adding 'h' at the end of an address.

Decimal/ Hexadecimal	IP address				Port number of BACnet module* ¹	
	Decimal	192	168	0	255	186	192
Hexadecimal	C0h	A8h	0h	FFh	BAh	C0h

*¹ Note that the port number of a BACnet module to be specified to BACnetAddress and PortNo in [Settings] ⇒ [Network Information] are different.

Schedule (SC) object

This object is used for managing periodic processing (scheduled operation) which is repeated for a specific period of date.

List of properties

The following shows the properties supported by Schedule objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
28	Description	CharacterString	R/W	—
32	EffectivePeriod	BACnetDateRange	R/W	—
38	ExceptionSchedule	BACnetARRAY[N]ofBACnetSpecialEvent	R/W	—
54	ListOfObjectPropertyReferences	ListofBACnetDeviceObjectPropertyReference	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
81	OutOfService	BOOLEAN	R/W	Only ANSI/ASHRAE 2010 is supported.
85	PresentValue	Any	R	—
88	PriorityForWriting	Unsigned (1 to 16)	R/W	—
103	Reliability	BACnetReliability	R	Only ANSI/ASHRAE 2010 is supported.
111	StatusFlags	BitString	R	—
123	WeeklySchedule	BACnetARRAY[7]ofBACnetDailySchedule	R/W	—
168	ProfileName	CharacterString	R/W	—
174	Schedule_Default	Any	R/W	—
9011	ScheduleOutputDisable	BOOLEAN	R/W	BACnet module proprietary properties  Page 270 Details of BACnet Module Proprietary Properties
9012	ScheduleExpand	BOOLEAN	R/W	
9014	ScheduleDefaultDisable	BOOLEAN	R/W	

Settings to perform a scheduled operation

To perform a scheduled operation, set the following properties.

Property	Description
ListOfObjectPropertyReferences	Refer to the following section. ☞ Page 106 Setting ListOfObjectPropertyReferences property
WeeklySchedule	Refer to the following section. ☞ Page 108 Setting WeeklySchedule property
ExceptionSchedule	Refer to the following section. ☞ Page 110 Setting ExceptionSchedule property
Schedule_Default	Set the default value which is output when the date of a schedule is changed (0:00).
ScheduleExpand	Set this property only when "BACnet Standard Applied" selected in [Settings] ⇨ [Basic Information] is IEIEJ-P-0003:2000 Addendum-a. By setting this property to "True", a scheduled operation is performed in accordance with the specification of the Institute of Electrical Installation Engineers of Japan. (☞ Page 271 ScheduleExpand)

Point

- To set a Schedule object using another BACnet device
Set a scheduled operation to each property and send a WriteProperty(Multiple) service.

■ Setting ListOfObjectPropertyReferences property

Set the object which is controlled by a Schedule object and its properties.

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

BACnet Objects

Object Type	Qty.	Limit	Creatable
AnalogInput	1		False
AnalogOutput	1		False
AnalogValue	0		False
BinaryInput	0		False
BinaryOutput	0		False
BinaryValue	0		False
MultistateInput	0		False
MultistateOutput	0	4000	False
MultistateValue	0		False
Accumulator	0		False
Keiryo	0		False
ElectricDemandMonitoring	0		False
ElectricDemandControl	0		False
GeneratorLoadControl	0		False
Calendar	1	300	False
NotificationClass	0	50	False
Schedule	0	100	False
TrendLog	0	200	False
Device	1	1	False

2. Click the [Browse] button of "Schedule".

- Click the [Detail] button of an ObjectID to set the details of a schedule.

BACnet Object: Schedule

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion Information
SC-0			Null	(FFFF)	Set Delete

- Click the [Add] button of "ListOfObjectPropertyReferences".

SC-0

Back Update

PropertyID	Name	Data	Access
28	Description		Edit
32	EffectivePeriod	{XXXX/XX/XX}{XXXX/XX/XX}	Edit
38	ExceptionSchedule	Number of Array elements 0	Edit
54	ListOfObjectPropertyReferences	Number of Sequence 0	Edit
75	ObjectIdentifier	SC-0	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	Schedule	Edit WriteDisable
81	OutOfService	False	Edit
85	PresentValue	Null	Edit
88	PriorityForWriting	0	Edit
108	Reliability	No Fault Detected	Edit
111	StatusFlags	(FFFF)	Edit
123	WeeklySchedule	Number of Array elements 7	Edit
168	ProfileName		Edit
174	Schedule_Default	Null	Edit
9011	ScheduleOutputDisable	False	Edit
9012	ScheduleExpand	False	Edit
9014	ScheduleDefaultDisable	False	Edit

// Schedule

Scheduled Items (Created)

Scheduled Items (Completed)

- Set the following items.

SC-0 ListOfObjectPropertyReferences

Device Specify Device

ObjectID AnalogInput 0

PropertyID PresentValue

ArrayIndex Specify ArrayIndex

Update Close

Item	Description
Device	When setting the scheduled operation of another BACnet device, select the "Specify Device" checkbox and enter the instance number of the device.
ObjectID	Select the ObjectType of an object which contains the property for scheduled operation, and enter an instance number.
PropertyID	Select a property for a scheduled operation.
ArrayIndex	When the property for a scheduled operation is ARRAY type, select this item and enter the index number of the property to be controlled.

- Click the [Update] button.

Precautions

When setting multiple properties, all the data types of the property of the object type to be set should be the same. For example, the following properties cannot be set together because the data type of each property is different.

- PresentValue property of BinaryOutput object (BinaryPV/Enumerated type)
- PresentValue property of AnalogOutput object (REAL type)

■ Setting WeeklySchedule property

Set the details of weekly schedule.

Point

When a WeeklySchedule property is set using a configuration function, a changed schedule is applied to a BACnet module when the date changes to the next day (0:00).

To apply the change to a BACnet module immediately, turn the power OFF and ON, or reset the CPU module after setting the property.

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

		ObjectType	Qty.	Limit	Creatable
Browse	Add	AnalogInput	1		False
Browse	Add	AnalogOutput	1		False
Browse	Add	AnalogValue	0		False
Browse	Add	BinaryInput	0		False
Browse	Add	BinaryOutput	0		False
Browse	Add	BinaryValue	0		False
Browse	Add	MultiStateInput	0		False
Browse	Add	MultiStateOutput	0	4000	False
Browse	Add	MultiStateValue	0		False
Browse	Add	Accumulator	0		False
Browse	Add	Keiryo	0		False
Browse	Add	ElectricDemandMonitoring	0		False
Browse	Add	ElectricDemandControl	0		False
Browse	Add	GeneratorLoadControl	0		False
Browse	Add	Calendar	1	300	False
Browse	Add	NotificationClass	0	50	False
Browse	Add	Schedule	0	100	False
Browse	Add	TrendLog	0	200	False
Browse		Device	1	1	False

2. Click the [Browse] button of "Schedule".
3. Click the [Detail] button of an ObjectID to set the details of a schedule.

BACnet Object: Schedule

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion Information	GSV
Detail	SC-0		Null	(FFFF)		Set Delete

4. Click the [Detail] button of "WeeklySchedule".

SC-0

Back Update

PropertyID	Name	Data	Access
28	Description		Edit
32	EffectivePeriod	{XXXX/XX/XX}{XXXX/XX/XX}	Edit
38	ExceptionSchedule	Number of Array elements 0	Edit
54	ListOfObjectPropertyReferences	Number of Sequence 0	Edit
75	ObjectIdentifier	SC-0	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	Schedule	Edit WriteDisable
81	OutOfService	False	Edit
85	PresentValue	Null	Edit
88	PriorityForWriting	0	Edit
108	Reliability	No Fault Detected	Edit
111	StatusFlags	(FFFF)	Edit
123	WeeklySchedule	Number of Array elements 7	Edit
168	ProfileName		Edit
174	Schedule_Default	Null	Edit
9011	ScheduleOutputDisable	False	Edit
9012	ScheduleExpand	False	Edit
9014	ScheduleDefaultDisable	False	Edit

2000/01/03 Schedule

Scheduled Items (Created)

Scheduled Items (Completed)

5. WeeklySchedule[1] to WeeklySchedule[7] correspond to Monday to Sunday.
Click the [Edit] button of the day of the week to be set.

SC-0 WeeklySchedule

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Index	Data
WeeklySchedule[1]	Edit {Null}
WeeklySchedule[2]	Edit {Null}
WeeklySchedule[3]	Edit {Null}
WeeklySchedule[4]	Edit {Null}
WeeklySchedule[5]	Edit {Null}
WeeklySchedule[6]	Edit {Null}
WeeklySchedule[7]	Edit {Null}

6. Set the following items.

SC-0 WeeklySchedule

Time	Data Type	Value
0	0	0
	Null	Null

Update Close

Item	Description
Time	Select "Hour", "Minute", and "Second" to perform a scheduled operation.
Data Type	Specify the data type of the property of an object for a scheduled operation. For the data types of each property, refer to the list of properties for the respective objects.
Value	Enter a value to be written to the property for a scheduled operation.

7. Click the [Update] button.

■ Setting ExceptionSchedule property

Set the details of an exceptional schedule.

Point

When an ExceptionSchedule property is set using a configuration function, a changed schedule is applied to a BACnet module when the date changes to the next day (0:00).

To apply the change to a BACnet module immediately, turn the power OFF and ON, or reset the CPU module after setting the property.

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

BACnet Objects

Object Type	Qty.	Limit	Creatable
Browse Add AnalogInput	1		False
Browse Add AnalogOutput	1		False
Browse Add AnalogValue	0		False
Browse Add BinaryInput	0		False
Browse Add BinaryOutput	0		False
Browse Add BinaryValue	0		False
Browse Add MultiStateInput	0		False
Browse Add MultiStateOutput	0	4000	False
Browse Add MultiStateValue	0		False
Browse Add Accumulator	0		False
Browse Add Keiryo	0		False
Browse Add ElectricDemandMonitoring	0		False
Browse Add ElectricDemandControl	0		False
Browse Add GeneratorLoadControl	0		False
Browse Add Calendar	1	300	False
Browse Add NotificationClass	0	50	False
Browse Add Schedule	0	100	False
Browse Add TrendLog	0	200	False
Browse Device	1	1	False

2. Click the [Browse] button of "Schedule".
3. Click the [Detail] button of an ObjectID to set the details of a schedule.

BACnet Object: Schedule

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion Information	GSV
Detail	SC-0		Null	(FFFF)		Set Delete

4. Click the [Edit] button of "ExceptionSchedule".

SC-0

Back Update

PropertyID	Name	Data	Access
28	Description		Edit
32	EffectivePeriod	{XXXX/XX/XX}{XXXX/XX/XX}	Edit
38	ExceptionSchedule	Number of Array elements 0	Edit
54	ListOfObjectPropertyReferences	Number of Sequence 0	Edit
75	ObjectIdentifier	SC-0	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	Schedule	Edit WriteDisable
81	OutOfService	False	Edit
85	PresentValue	Null	Edit
88	PriorityForWriting	0	Edit
103	Reliability	No Fault Detected	Edit
111	StatusFlags	(FFFF)	Edit
123	WeeklySchedule	Number of Array elements 7	Edit
168	ProfileName		Edit
174	Schedule_Default	Null	Edit
9011	ScheduleOutputDisable	False	Edit
9012	ScheduleExpand	False	Edit
9014	ScheduleDefaultDisable	False	Edit

2000/01/03 Schedule

Scheduled Items (Created)

Scheduled Items (Completed)

5. Enter the number of days to enable the exceptional schedule. Enter a value larger than 7.

SC-0 ExceptionSchedule[0]

Update Close

6. Click the [Detail] button of "ExceptionSchedule".

SC-0

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PropertyID	Name	Data	Access
28	Description		Edit
32	EffectivePeriod	{XXXX/XX/XX}{XXXX/XX/XX}	Edit
38	ExceptionSchedule	Number of Array elements 3	Edit
54	ListOfObjectPropertyReferences	Number of Sequence 0	Edit
75	ObjectIdentifier	SC-0	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	Schedule	Edit WriteDisable
81	OutOfService	False	Edit
85	PresentValue	Null	Edit
88	PriorityForWriting	0	Edit
103	Reliability	No Fault Detected	Edit
111	StatusFlags	(FFFF)	Edit
123	WeeklySchedule	Number of Array elements 7	Edit
168	ProfileName		Edit
174	Schedule_Default	Null	Edit
9011	ScheduleOutputDisable	False	Edit
9012	ScheduleExpand	False	Edit
9014	ScheduleDefaultDisable	False	Edit

2000/01/03 Schedule

Scheduled Items (Created)

Scheduled Items (Completed)

7. ExceptionSchedule[1] to ExceptionSchedule[n] are corresponding to the period from the first day to the last day of the days on which an exceptional schedule is enabled.

Click the [Edit] button of an exceptional schedule to be set.

SC-0 ExceptionSchedule

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Index	Data
ExceptionSchedule [1]	[Edit] {CA-0}{Null}{16}
ExceptionSchedule [2]	[Edit] {CA-0}{Null}{16}
ExceptionSchedule [3]	[Edit] {CA-0}{Null}{16}

8. Set the following items.

SC-0 ExceptionSchedule

Period: ObjectID Calendar 0

Time	Data Type	Value
0 0 0	Null	Null Add

EventPriority: 16

Update Close

Item	Description	
Period	When referring the date to perform scheduled operations from a Calendar object, enter the instance number of the Calendar object to be referred to the rightmost textbox.	
TimeValueList	Time	Select "Hour", "Minute", and "Second" to perform a scheduled operation.
	Data Type	Specify the data type of the property of an object for a scheduled operation. For the data types of each property, refer to the list of properties for the respective objects.
	Value	Enter a value to be written to the property for a scheduled operation.
EventPriority	Set the priority to execute the schedule among 1 to 16 when the schedule is overlapped in one day.	

Temporary stop of scheduled operations

■ To stop all scheduled operations temporarily

Turn 'Schedule execution prohibited' (Y3) OFF to stop all the scheduled operations which are registered to a BACnet module.

(☞ Page 250 Schedule execution prohibited (Y3))

■ To stop a specific scheduled operations temporarily

Set 'True' to the value of the OutOfService property of a Schedule object where the scheduled operation to be stopped temporarily is set.

Precautions

A scheduled operation is restarted at the timing when 'Schedule execution prohibited' (Y3) is turned OFF or an OutOfService property value is changed to 'False', and all the schedules which are not executed at the day are executed.

TrendLog (TL) object

Save (log) the value and time stamp of the property of the specified object periodically.

List of properties

The following shows the properties supported by TrendLog objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
0	AckedTransitions	BitString	R	—
17	NotificationClass	Unsigned	R/W	—
28	Description	CharacterString	R/W	—
35	EventEnable	BitString	R/W	—
36	EventState	Enumerated	R	—
72	NotifyType	Enumerated	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R/W	—
79	ObjectType	Enumerated	R	—
103	Reliability	Enumerated	R	Only ANSI/ASHRAE 2010 is supported.
111	StatusFlags	BitString	R	Only ANSI/ASHRAE 2010 is supported.
126	BufferSize	Unsigned32	R	—
127	ClientCovIncrement	BACnetClientCOV	R/W	—
128	COVResubscriptionInterval	Unsigned	R	—
129	CurrentNotifyTime	BACnetDateTime	R/W	Only ANSI/ASHRAE 2004, IEIEJ-P-0003:2000 Addendum-a, and IEIEJ-G-0006:2006 Addendum-a are supported.
130	EventTimeStamps	BACnetARRAY[3]ofBACnetTimeStamp	R	—
131	LogBuffer	ListofBACnetLogRecord	R	—
132	LogDeviceObjectProperty	BACnetDeviceObjectPropertyReference	R/W	—
133	LogEnable	BOOLEAN	R/W	For ANSI/ASHRAE 2010, "Enable" is displayed.
134	LogInterval	Unsigned	R/W	—
137	NotificationThreshold	Unsigned32	R/W	—
138	PreviousNotifyTime	BACnetDateTime	R/W	Only ANSI/ASHRAE 2004, IEIEJ-P-0003:2000 Addendum-a, and IEIEJ-G-0006:2006 Addendum-a are supported.
140	RecordsSinceNotification	Unsigned32	R/W	—
141	RecordCount	Unsigned32	R/W	—
142	StartTime	BACnetDateTime	R/W	—
143	StopTime	BACnetDateTime	R/W	—
144	StopWhenFull	BOOLEAN	R	—
145	TotalRecordCount	Unsigned32	R	—
168	ProfileName	CharacterString	R/W	—
173	Last_Notify_Record	Unsigned32	R	—
193	Align_Intervals	BOOLEAN	R/W	Only ANSI/ASHRAE 2010 is supported.
195	IntervalOffset	Unsigned	R/W	Only ANSI/ASHRAE 2010 is supported.
197	Logging_Type	Enumerated	R/W	Only ANSI/ASHRAE 2010 is supported.
205	Trigger	BOOLEAN	R/W	Only ANSI/ASHRAE 2010 is supported.

Settings to start logging

■ To start logging

Set the property of a TrendLog object to start logging.

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

BACnet Objects

		ObjectType	Qty.	Limit	Creatable
Browse	Add	AnalogInput	1		False
Browse	Add	AnalogOutput	1		False
Browse	Add	AnalogValue	0		False
Browse	Add	BinaryInput	0		False
Browse	Add	BinaryOutput	0		False
Browse	Add	BinaryValue	0		False
Browse	Add	MultiStateInput	0		False
Browse	Add	MultiStateOutput	0	4000	False
Browse	Add	MultiStateValue	0		False
Browse	Add	Accumulator	0		False
Browse	Add	Keiryo	0		False
Browse	Add	ElectricDemandMonitoring	0		False
Browse	Add	ElectricDemandControl	0		False
Browse	Add	GeneratorLoadControl	0		False
Browse	Add	Calendar	1	300	False
Browse	Add	NotificationClass	0	50	False
Browse	Add	Schedule	0	100	False
Browse	Add	TrendLog	0	200	False
Browse		Device	1	1	False

2. Click the [Browse] button of "TrendLog".
3. Click the [Detail] button of an ObjectID to set logging conditions.

BACnet Object: TrendLog

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion	CSV Information
Detail	TL-0					Set Delete

4. Set the following properties.

Property ID	Property	Description	Remarks
126	BufferSize	Specify the number of records to be sampled.	To sample records every one minute for two days, specify '2880'.
132	LogDeviceObjectProperty	Specify a logging target object and its property.	—
133	LogEnable(Enable)	To start logging, select True. To stop logging, select False.	—
134	LogInterval	Specify a logging cycle. (Unit: 10 milliseconds)	To perform logging every one minute, specify '6000'.
142	StartTime	Specify a time to start logging.	When a time is not specified, data logging is started immediately after the LogEnable(Enable) property becomes True.
143	StopTime	Specify a time to stop logging.	When a time is not specified, the timings to stop logging are as follows: <ul style="list-style-type: none"> • The LogEnable(Enable) property became False. • The number of logs exceeded the capacity of the LogBuffer when the StopWhenFull property is True.
144	StopWhenFull	Select whether to stop logging or continue logging by overwriting old records when the number of records specified to a BufferSize property is sampled by a LogBuffer property.	—
197	Logging_Type	Select "Polled" when logging data with the cycle specified to the LogInterval property. Select "COV" when logging data at the timing of sending a COV from a logging target object.	Only ANSI/ASHRAE 2010 is supported.

- To check log records

Click the [Show] button on the LogBuffer property of a TrendLog object to display log records.

Point

- To check log records using another BACnet device
Send a ReadRange service in which a LogBuffer property is specified.

■ To stop logging

The following shows a method to stop logging.

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71 BAC96
Version : 1.0.0

BACnet Objects

		ObjectType	Qty.	Limit	Creatable
Browse	Add	AnalogInput	1		False
Browse	Add	AnalogOutput	1		False
Browse	Add	AnalogValue	0		False
Browse	Add	BinaryInput	0		False
Browse	Add	BinaryOutput	0		False
Browse	Add	BinaryValue	0		False
Browse	Add	MultiStateInput	0		False
Browse	Add	MultiStateOutput	0	4000	False
Browse	Add	MultiStateValue	0		False
Browse	Add	Accumulator	0		False
Browse	Add	Keiryo	0		False
Browse	Add	ElectricDemandMonitoring	0		False
Browse	Add	ElectricDemandControl	0		False
Browse	Add	GeneratorLoadControl	0		False
Browse	Add	Calendar	1	300	False
Browse	Add	NotificationClass	0	50	False
Browse	Add	Schedule	0	100	False
Browse	Add	TrendLog	0	200	False
Browse		Device	1	1	False

2. Click the [Browse] button of "TrendLog".
3. Click the [Detail] button of an ObjectID to stop logging.

BACnet Object: TrendLog

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion	CSV Information
Detail	TL-0					Set Delete

4. Click the [Edit] button of the LogEnable(Enable) property.

TL-0

Back Update

PropertyID	Name	Data	Access
0	AckedTransitions	(TTT)	Edit
17	NotificationClass	0	Edit
28	Description		Edit
35	EventEnable	(FFF)	Edit
36	EventState	Normal	Edit WriteDisable
72	NotifyType	Alarm	Edit
75	ObjectIdentifier	TL-0	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	TrendLog	Edit WriteDisable
126	BufferSize	0	Edit
127	ClientCovIncrement	0.000000	Edit
128	CovResubscriptionInterval	4294967295	Edit
129	CurrentNotifyTime	{xxxx/xx/xx}{xxxx:xxxx}	Edit
130	EventTimeStamps	Detail Number of Array elements 3	Edit
131	LogBuffer	Show ?	Edit
132	LogDeviceObjectProperty	{A-I-0}{[65]}	Edit
133	LogEnable	False	Edit
134	LogInterval	0	Edit
137	NotificationThreshold	0	Edit
138	PreviousNotifyTime	{xxxx/xx/xx}{xxxx:xxxx}	Edit
140	RecordsSinceNotification	0	Edit
141	RecordCount	0	Edit
142	StartTime	{xxxx/xx/xx}{xxxx:xxxx}	Edit
143	StopTime	{xxxx/xx/xx}{xxxx:xxxx}	Edit
144	StopWhenFull	False	Edit
145	TotalRecordCount	0	Edit
168	ProfileName		Edit
173	Last_Notify_Record	0	Edit

5. Select "False" and click the [Update] button.

TL-0 LogEnable

False ▾

Update Close

Point

- To stop logging using another BACnet device
Send a WriteProperty(Multiple) service to which "False" is specified to a LogEnable(Enable) property.
The setting is unnecessary because a BACnet module automatically processes received services.

Device (DV) object

This object is used for referencing the basic information of a BACnet from a BACnet device.

List of properties

The following shows the properties supported by Device objects.

Additionally, the availability of reading/writing data from/to a BACnet device is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

PropertyID	Property	Data type	R/W	Remarks
5	ActiveVTSessions	ListofBACnetVTSession	R/W	Only ANSI/ASHRAE 2004, IEIEJ-P-0003:2000 Addendum-a, and IEIEJ-G-0006:2006 Addendum-a are supported.
10	ApduSegmentTimeout	Unsigned	R/W	—
11	ApduTimeout	Unsigned	R/W	—
12	ApplicationSoftwareVersion	CharacterString	R	—
28	Description	CharacterString	R/W	—
24	DaylightSavingsStatus	BOOLEAN	R	—
30	DeviceAddressBinding	ListofBACnetAddressBinding	R	—
44	FirmwareRevision	CharacterString	R	—
55	ListOfSessionKeys	ListofBACnetSessionKey	R/W	Only ANSI/ASHRAE 2004, IEIEJ-P-0003:2000 Addendum-a, and IEIEJ-G-0006:2006 Addendum-a are supported.
56	LocalDate	Date	R	—
57	LocalTime	Time	R	—
58	Location	CharacterString	R/W	—
62	MaxApduLengthAccepted	Unsigned	R	—
63	MaxInfoFrames	Unsigned	R/W	—
64	MaxMaster	Unsigned (1 to 127)	R/W	—
70	ModelName	CharacterString	R	—
73	NumberOfAPDURetries	Unsigned	R/W	—
75	ObjectIdentifier	BACnetObjectIdentifier	R	—
76	ObjectList	BACnetARRAY[N]ofBACnetObjectIdentifier	R	—
77	ObjectName	CharacterString	R	—
79	ObjectType	Enumerated	R	—
96	ProtocolObjectTypesSupported	BitString	R	—
97	ProtocolServicesSupported	BitString	R	—
98	ProtocolVersion	Unsigned	R	—
107	SegmentationSupported	Enumerated	R	—
112	SystemStatus	Enumerated	R	—
116	TimeSynchronizationRecipients	ListofBACnetRecipient	R/W	—
119	UTCOffset	INTEGER	R/W	—
120	VendorIdentifier	Unsigned16	R	—
121	VendorName	CharacterString	R	—
122	VTClassesSupported	ListofBACnetVTClass	R/W	Only ANSI/ASHRAE 2004, IEIEJ-P-0003:2000 Addendum-a, and IEIEJ-G-0006:2006 Addendum-a are supported.
139	ProtocolRevision	Unsigned	R	—
152	ActiveCovSubscriptions	ListofBACnetCOVSubscription	R	—
153	BackupFailureTimeout	Unsigned16	R/W	—
154	ConfigurationFiles	BACnetARRAY[N]ofBACnetObjectIdentifier	R	—
155	DatabaseRevision	Unsigned	R	—
157	LastRestoreTime	BACnetDateTime	R	—

PropertyID	Property	Data type	R/W	Remarks
167	MaxSegmentsAccepted	Unsigned	R/W	—
168	ProfileName	CharacterString	R/W	—
193	Align_Intervals	BOOLEAN	R/W	Only ANSI/ASHRAE 2010 is supported.
195	Interval_Offset	Unsigned	R/W	Only ANSI/ASHRAE 2010 is supported.
196	Last_Restart_Reason	Enumerated	R/W	—
202	Restart_Notification_Recipients	ListofBACnetRecipient	R/W	—
203	Time_of_Device_Restart	BACnetTimeStamp	R/W	—
204	Time_Synchronization_Interval	Unsigned	R/W	Only ANSI/ASHRAE 2010 is supported.
206	UTC_Time_Synchronization_Recipients	ListofBACnetRecipient	R/W	—
338	Backup_And_Restore_State	Enumerated	R	Only ANSI/ASHRAE 2010 is supported.
339	Backup_Preparation_Time	Unsigned16	R	Only ANSI/ASHRAE 2010 is supported.
340	Restore_Completion_Time	Unsigned16	R	Only ANSI/ASHRAE 2010 is supported.
341	Restore_Preparation_Time	Unsigned16	R	Only ANSI/ASHRAE 2010 is supported.

Format of buffer memory

Data is assigned to Un\G16 to 31 in the buffer memory fixedly.

For details, refer to the following section.

☞ Page 261 Device object (Un\G16 to Un\G31)

Operation of a BACnet module

- A BACnet module joins/leaves BACnet by the turning ON of "Joining of BACnet" (Y1) using a program or the pause/restart operation using a web browser.
After that, the value of the SystemStatus in the internal memory of a Device object is changed and the value is applied to the SystemStatus in the buffer memory.
- After a TimeSynchronization service or an UTCTimeSynchronization service is received, day-of-week, time, date, and year are set in the buffer memory and "Time setting request flag" is changed to '1' (setting request) for only one or two seconds. After the CPU module recognized that "Time setting request flag" is '1' (setting request), the day-of-week, time, date, and year are read and '2' (set) is written to "Time setting request flag". If a new TimeSynchronization service or UTCTimeSynchronization service is received while "Time setting request flag" is '1' (setting request), the data will be discarded. (☞ Page 163 To change the time in a CPU module)

OutOfService property

The value of an OutOfService property can be set using a program^{*1}. The value can also be set by using a WriteProperty(Multiple) service or a configuration function.

The value of an OutOfService property is the logical sum of the value set with a program and the value set with a WriteProperty(Multiple) service or a configuration function.

Value set with program ^{*1} .	Value set with WriteProperty service/configuration function	Value of OutOfService property
1	True	True
1	False	True
0	True	True
0	False	False

*1 Set a value by storing '1' (True) or '0' (False) to the OutOfService of a CONTROL in the buffer memory using a program.

1.2 Backup Function

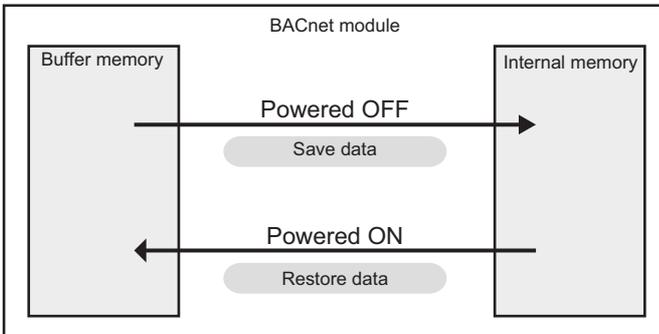
This function saves property values and data set with configuration functions in a BACnet module automatically when a programmable controller system is powered OFF.

Data is saved in the internal memory. The saved data is held even after the power is OFF.

When powering ON, data is automatically restored from the internal memory.

Even if a power discontinuity occurred due to a power failure, the system can be restarted immediately after a recovery.

The time available for backups is limitless.



After recovering from a power interruption, the property values and data set using configuration functions (BACnet request function, BACnet monitoring function, COV interaction function, Event interaction function, network information, basic information, etc.) are restored from an internal memory to buffer memory.

The data blocks which can be used for each function are as follows:

Function		Data block	Description	Reference
BACnet request function	Read function	Access block for reading	A data block for reading values from the properties in a BACnet module or a BACnet device.	Page 291 Format of access blocks for reading
	Write function	Access block for writing	A data block for writing values to the properties in a BACnet module or a BACnet device.	Page 292 Format of access blocks for writing
BACnet monitoring function		Access block for BACnet monitoring	A data block for monitoring the values of properties in a BACnet module or another BACnet device.	Page 293 Format of access blocks for BACnet monitoring
COV interaction function		Access block for COV interaction	A data block for receiving COV notifications from a BACnet module or a BACnet device.	Page 294 Format of access blocks for COV interaction
Event interaction function		Access block for Event interaction	A data block for receiving Event notifications from a BACnet module or a BACnet device.	Page 295 Format of access blocks for Event interaction
BACnet request function BACnet monitoring function COV interaction function		RDTB	A data block for storing property values.	Page 289 Format of RDTB

Precautions

- Each data block has a limit of number that can be registered. (IMELSEC iQ-R BACnet Module User's Manual (Startup))
- Be aware of the number of buffer memory to be used. (Page 263 Buffer memory utilization)

1.4 BACnet Request Function (Read Function)

This function reads property values from a BACnet module or another BACnet device.

A BACnet module sends a ReadPropertyMultiple service to the read target property set to a data block (access block for reading).

The property values of the data types described in the following section can be read.

☞ Page 289 PrimitiveDataType

How to use the read function

Operating procedure

1. Select [Maintenance] ⇒ [Pause/Restart], and click the [Pause] button on the "Pause/Restart" screen.
2. Select [Settings] ⇒ [BACnetRequest] ⇒ [Read], and click the [Add] button.

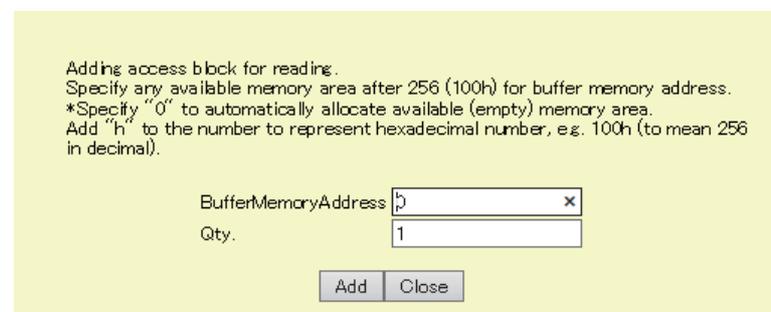


3. Specify "BufferMemoryAddress" and "Qty." of a data block (access block for reading). *1

Specify an even number within the range of 256 to 32767 (100h to 7FFFh).

To specify a buffer memory address in hexadecimal, add 'h' at the end of it.

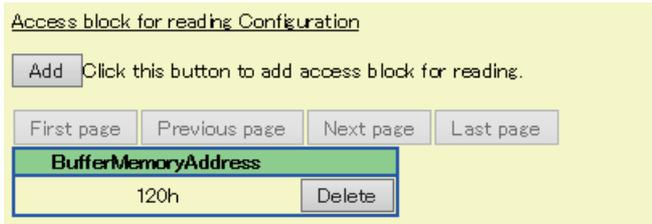
When '0' is specified to the buffer memory address, the data blocks are automatically assigned to the free space in the buffer memory.



*1 For the method to assign multiple data blocks in a batch, refer to the following section.

☞ Page 207 Assigning data blocks using a CSV file

4. Check the buffer memory address.



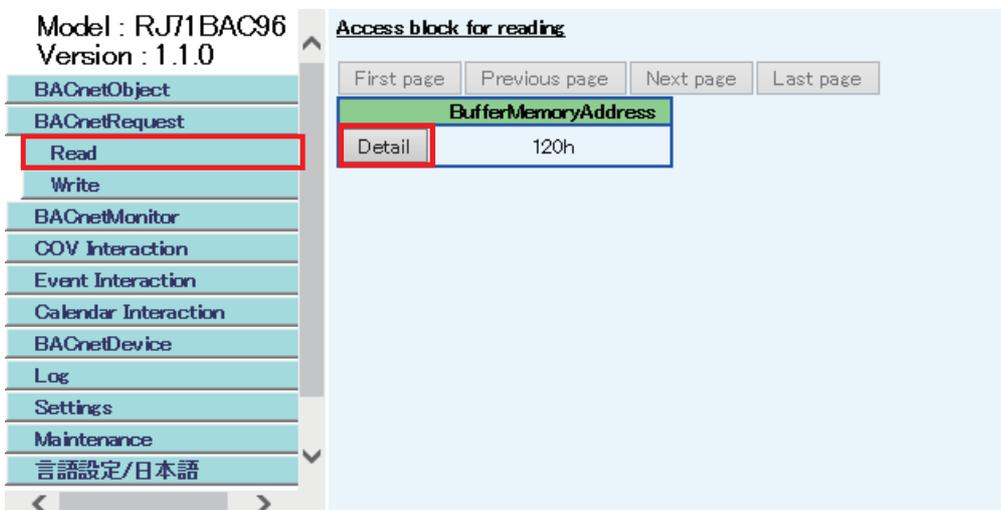
Create a program to set a read target by referring to the format of access blocks for reading. Replace the offset +0 in the format of access blocks for reading with the buffer memory address displayed with a configuration function. (Page 291 Format of access blocks for reading)

5. Store '1' to the CONTROL of the access block for reading using a program. (The BACnet module sends a ReadPropertyMultiple service. (Page 128 Execution example of the read function))

For the operation of a BACnet module, refer to the following section.

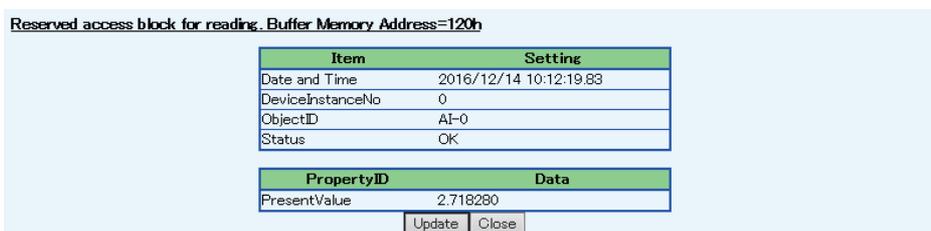
(Page 126 Operation of a BACnet module)

6. Select [BACnetRequest] ⇒ [Read], and click the [Detail] button of the data block to which the read function is executed.



7. Check the execution result.

If an error occurred, check the row of "Status" and take corrective actions.



Operation of a BACnet module

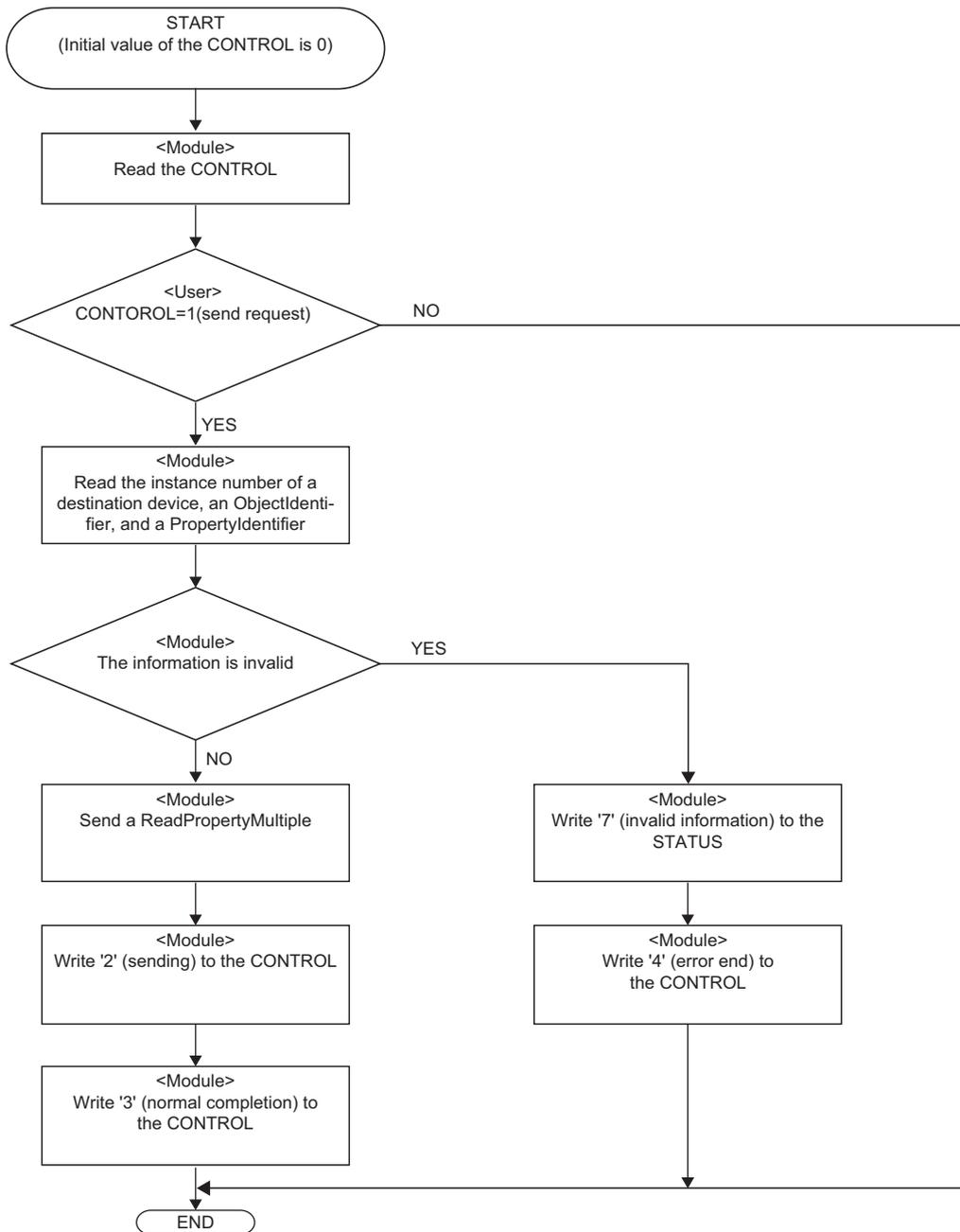
Operation at startup

A BACnet module initializes an access block for reading with '0' at the startup of the module.

Cyclic operation

- When '1' (send request) is stored to the CONTROL in a BACnet module, the instance number of a destination device, ObjectIdentifier, PropertyIdentifier, and ArrayIndex of an access block for reading are read. Then, a ReadPropertyMultiple service, which reads property values, is sent, and '2' (sending) is stored to the CONTROL.
- If invalid information is stored to the instance number of the destination device, ObjectIdentifier, PropertyIdentifier, or ArrayIndex, '7' (invalid information) will be stored to the STATUS, and '4' (error end) will be stored to the CONTROL.
- After a reply (ComplexAck) to the ReadPropertyMultiple service is received from a read target device, the read data is stored to the access block for reading, and '3' (normal completion) is stored to the CONTROL.
- If an error response (Error, Reject, or Abort) or the excess of the maximum number of retries (Retry limit exceeded) is received from the read target device, '7' (invalid information) will be stored to the STATUS, and '4' (error end) will be stored to the CONTROL.

However, when a Reject (unrecognized-service) is received, the ReadPropertyMultiple service is changed to a ReadProperty service, and the service is sent again.



Precautions

- Before storing values to an access block for reading, check that the CONTROL is other than '1' (send request) or '2' (sending).
- After '1' (send request) is stored to a CONTROL, do not change the values of an access block for reading until the CONTROL becomes '3' (normal completion) or '4' (error end).

Execution example of the read function

The following shows an execution example of the read function which reads the PresentValue property value of an AnalogInput object (instance number: 0) in a BACnet device (instance number of a device: 3) from a BACnet module.

Assignment of an access block for reading

Assign the following access block for reading in [Settings] ⇒ [BACnetRequest] ⇒ [Read].

Adding access block for reading.
Specify any available memory area after 256 (100h) for buffer memory address.
*Specify "0" to automatically allocate available (empty) memory area.
Add "h" to the number to represent hexadecimal number, e.g. 100h (to mean 256 in decimal).

BufferMemoryAddress

Qty.

Item	Description
BufferMemoryAddress	300
Qty.	1

For the assignment method, refer to the operating procedure from 1 to 4 described in the following section.

☞ Page 124 How to use the read function

Creation of a program

Create a program to store the following data in a read target BACnet device to an access block for reading: instance number of a destination device, ObjectIdentifier of an object, PropertyIdentifier and ArrayIndex (up to 4).

■ Values to be stored to an access block for reading

Offset (Decimal address)	Name	Value to be stored	
+0 (300)	CONTROL	Store '1' (send request) when sending a ReadPropertyMultiple(ReadProperty) service.	
+1 (301)	STATUS	— (No settings)	
+2 to +3 (302 to 303)	Instance number of a destination device	3 (instance number of read target device)	
+4 to +5 (304 to 305)	ObjectIdentifier	K10 (Ah) b32 to b22: 0 (object type number of an AnalogInput) b21 to b0: 10 (instance number of an object) For the ObjectIdentifier, refer to Point in the following section.  Page 19 List of objects	
+6 (306)	Property-1	PropertyIdentifier	85 (PropertyIdentifier of a PresentValue)
+7 (307)		ArrayIndex	FFFFh
+8 (308)		Read data	4 (The data type of the PresentValue of an AnalogInput object is REAL.)
+9 (309)			0 (No priority)
+10 to +11 (310 to 311)			— (No settings)
+12 (312)	Property-2	PropertyIdentifier	FFFFh
+13 (313)		ArrayIndex	— (No settings)
+14 to +17 (314 to 317)		Read data	— (No settings)
+18 (318)	Property-3	PropertyIdentifier	FFFFh
+19 (319)		ArrayIndex	— (No settings)
+20 to +23 (320 to 323)		Read data	— (No settings)
+24 (324)	Property-4	PropertyIdentifier	FFFFh
+25 (325)		ArrayIndex	— (No settings)
+26 to +29 (326 to 329)		Read data	— (No settings)

For details on the format of access blocks for reading, refer to the following section.

 Page 291 Format of access blocks for reading

■ Devices to be used

Device name	Device	Description
Special relay	SM400	Always ON
Data register	D100	A device for storing an error code
	D102	A device for storing an execution result of the read function
Internal relay	M10	A device to send a ReadPropertyMultiple(ReadProperty) service
Buffer memory	U0\G300	Refer to the following section.  Page 129 Values to be stored to an access block for reading
	U0\G301	
	U0\G302	
	U0\G304	
	U0\G306	
	U0\G307	
	U0\G308	
	U0\G309	
	U0\G310	
	U0\G312	
	U0\G318	
	U0\G324	

1.5 BACnet Request Function (Write Function)

This function writes property values to a BACnet module or another BACnet device.

A BACnet module sends a WritePropertyMultiple service to the write target property set to a data block (access block for writing).

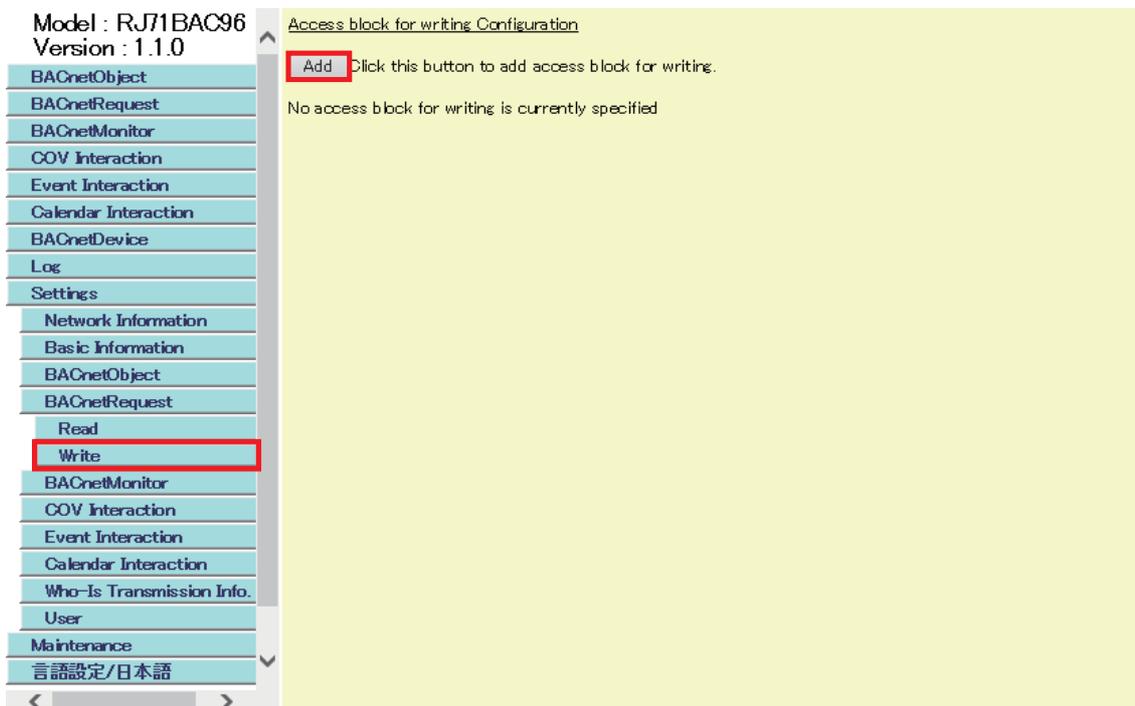
Values can be written to the properties of the following data types.

☞ Page 289 PrimitiveDataType

How to use the write function

Operating procedure

1. Select [Maintenance] ⇒ [Pause/Restart], and click the [Pause] button on the "Pause/Restart" screen.
2. Select [Settings] ⇒ [BACnetRequest] ⇒ [Write], and click the [Add] button.

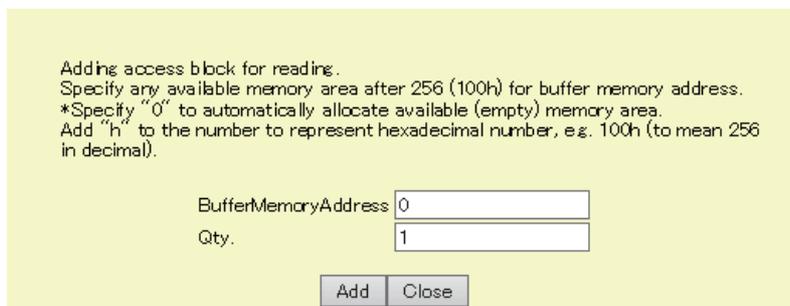


3. Specify "BufferMemoryAddress" and "Qty." of a data block (access block for writing).

Specify an even number within the range of 256 to 32767 (100h to 7FFFh).

To specify a buffer memory address in hexadecimal, add 'h' at the end of it.

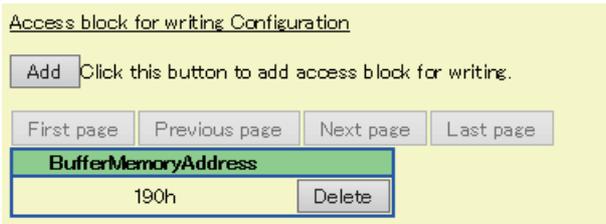
When '0' is specified to the buffer memory address, the data blocks are automatically assigned to the free space in the buffer memory.



*1 For the method to assign multiple data blocks in a batch, refer to the following section.

☞ Page 209 Assigning data blocks using a CSV file

4. Check the buffer memory address.



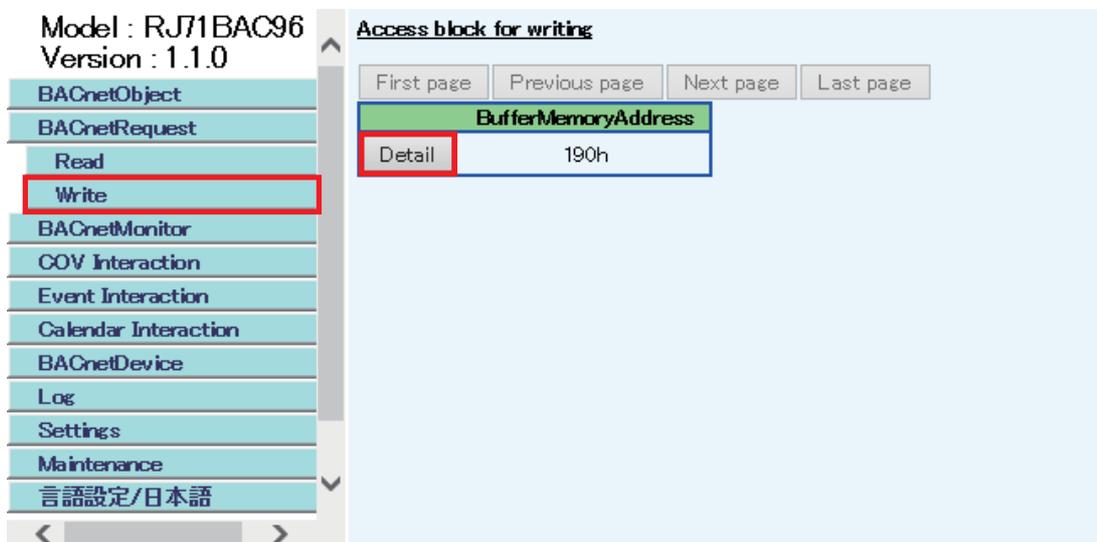
Create a program to set a write target by referring to the format of access blocks for writing. Replace the offset +0 in the format of access blocks for writing with the buffer memory address displayed with a configuration function. (☞ Page 292 Format of access blocks for writing)

5. Set the property of a write target to the access block for writing using a program, and store '1' to the CONTROL. (The BACnet module sends a WritePropertyMultiple service. ☞ Page 136 Execution example of the write function)

For the operation of a BACnet module, refer to the following section.

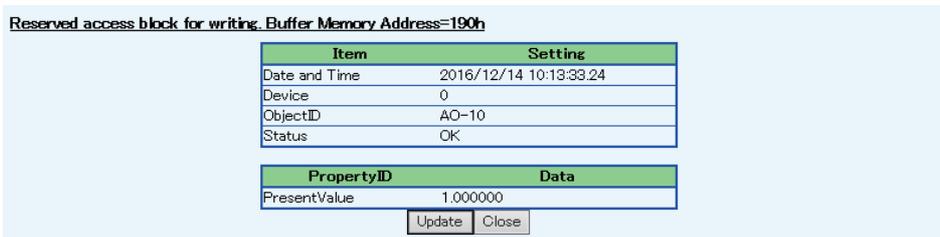
☞ Page 134 Operation of a BACnet module

6. Select [BACnetRequest] ⇒ [Write], and click the [Detail] button of the data block to which the write function is executed.



7. Check the execution result.

If an error occurred, check the row of "Status" and take corrective actions.



Operation of a BACnet module

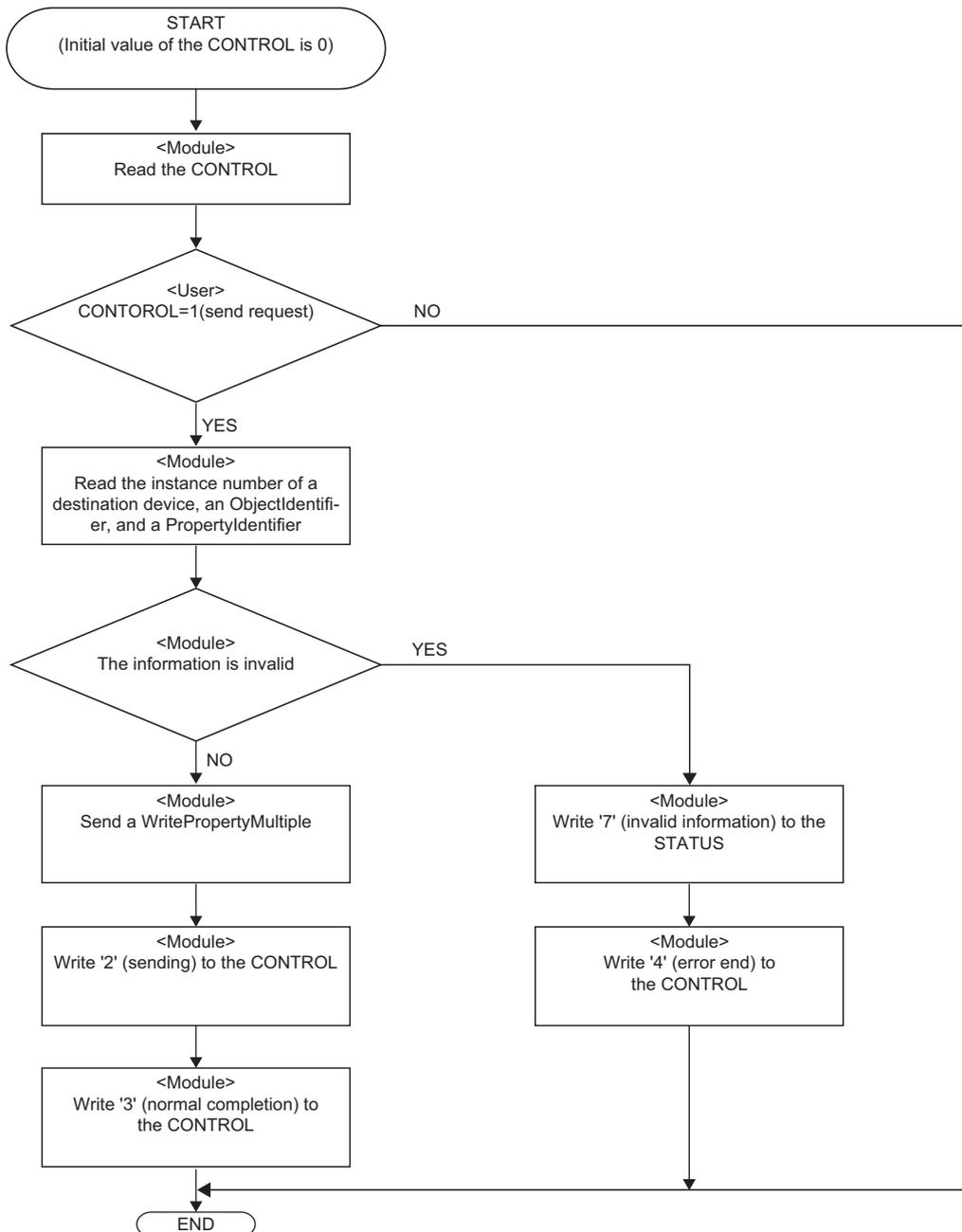
Operation at startup

A BACnet module initializes an access block for writing with '0' at the startup of the module.

Cyclic operation

- When '1' (send request) is stored to the CONTROL in a BACnet module, the instance number of a destination device, ObjectIdentifier, PropertyIdentifier, and ArrayIndex of an access block for writing are read. Then, a WritePropertyMultiple service, which writes property values, is sent, and '2' (sending) is stored to the CONTROL.
- If invalid information is stored to the instance number of the destination device, ObjectIdentifier, PropertyIdentifier, or ArrayIndex, '7' (invalid information) will be stored to the STATUS, and '4' (error end) will be stored to the CONTROL.
- After a reply (SimpleAck) to the WritePropertyMultiple service is received from a write target device, '3' (normal completion) is stored to the CONTROL.
- If an error response (Error, Reject, or Abort) or the excess of the maximum number of retries (Retry limit exceeded) is received from the write target device, '7' (invalid information) will be stored to the STATUS, and '4' (error end) will be stored to the CONTROL.

However, when a Reject (unrecognized-service) is received, the WritePropertyMultiple service is changed to a WriteProperty service, and the service is sent again.



Precautions

- Before storing values to an access block for writing, check that the CONTROL is other than '1' (send request) or '2' (sending).
- After '1' (send request) is stored to a CONTROL, do not change the values of an access block for writing until the CONTROL becomes '3' (normal completion) or '4' (error end).

Execution example of the write function

The following shows an execution example of the write function which writes a real number (1.0) to the PresentValue of an AnalogOutput object (instance number: 10) in a BACnet device (instance number of a device: 3) from a BACnet module.

Assignment of an access block for writing

Assign an access block for writing in [Settings] ⇒ [BACnetRequest] ⇒ [Write] as follows.

Adding access block for reading.
Specify any available memory area after 256 (100h) for buffer memory address.
*Specify "0" to automatically allocate available (empty) memory area.
Add "h" to the number to represent hexadecimal number, e.g. 100h (to mean 256 in decimal).

BufferMemoryAddress

Qty.

Item	Description
BufferMemoryAddress	400
Qty.	1

For the assignment method, refer to the operating procedure from 1 to 4 described in the following section.

☞ Page 132 How to use the write function

Creation of a program

Write the following data in a write target BACnet device to the access block for writing which is assigned to the buffer memory using a program: instance number of a destination device, ObjectIdentifier of an object, PropertyIdentifier and ArrayIndex (up to 4).

■ Values to be stored to an access block for writing

Offset (Decimal address)	Name	Value to be stored	
+0 (400)	CONTROL	Store '1' (send request) when sending a WritePropertyMultiple(WriteProperty) service.	
+1 (401)	STATUS	— (No settings)	
+2 to +3 (402 to 403)	Instance number of a destination device	3 (instance number of a write target device)	
+4 to +5 (404 to 405)	ObjectIdentifier	K4194314 (4000Ah) b32 to b22: 1 (object type number of AnalogOutput) b21 to b0: 10 (instance number of an object) For the ObjectIdentifier, refer to Point in the following section.  Page 19 List of objects	
+6 (406)	Property-1	PropertyIdentifier	85 (PropertyIdentifier of a PresentValue)
+7 (407)		ArrayIndex	FFFFh
+8 (408)		Write data	4 (The data type of the PresentValue of an AnalogOutput object is REAL.)
+9 (409)			0 (No priority)
+10 to +11 (410 to 411)			E1 (real number 1.0)
+12 (412)	Property-2	PropertyIdentifier	FFFFh
+13 (413)		ArrayIndex	— (No settings)
+14 to +17 (414 to 417)		Write data	— (No settings)
+18 (418)	Property-3	PropertyIdentifier	FFFFh
+19 (419)		ArrayIndex	— (No settings)
+20 to +23 (420 to 423)		Write data	— (No settings)
+24 (424)	Property-4	PropertyIdentifier	FFFFh
+25 (425)		ArrayIndex	— (No settings)
+26 to +29 (426 to 429)		Write data	— (No settings)

For details on the format of access blocks for writing, refer to the following section.

 Page 292 Format of access blocks for writing

■ Devices to be used

Device name	Device	Description
Special relay	SM400	Always ON
Data register	D200	A device for storing an error code
Internal relay	M100	A device to send a WritePropertyMultiple(WriteProperty) service
Buffer memory	U0\G400	Refer to the following section. ☞ Page 137 Values to be stored to an access block for writing
	U0\G401	
	U0\G402	
	U0\G404	
	U0\G406	
	U0\G407	
	U0\G408	
	U0\G409	
	U0\G410	
	U0\G412	
	U0\G418	
	U0\G424	

1.6 BACnet Monitoring Function

This function monitors (reads with the set cycle) the property values from a BACnet module or another BACnet device. A BACnet module reads the value of a property in accordance with the value of the CONTROL of an access block for BACnet monitoring with the set cycle when assigning the access block for BACnet monitoring. The properties of the data types described in the following section can be monitored.

☞ Page 289 PrimitiveDataType

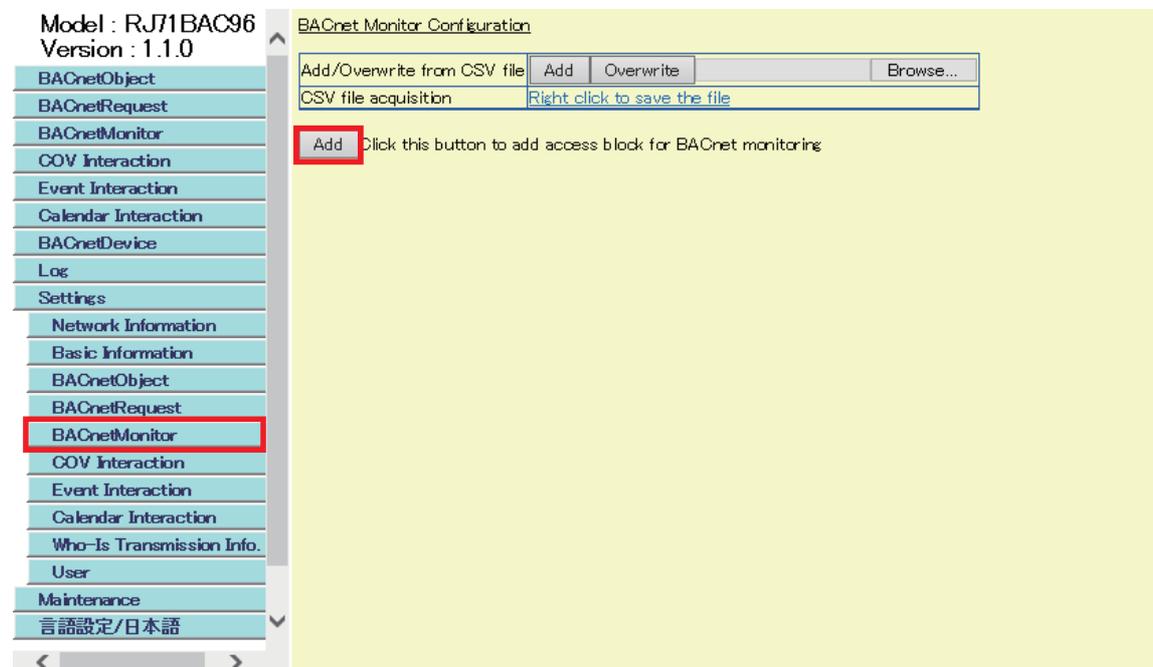


By creating a program using read data, the control linked with monitoring can be performed.

How to use the BACnet monitoring function

Operating procedure

1. Select [Maintenance] ⇒ [Pause/Restart], and click the [Pause] button on the "Pause/Restart" screen.
2. Select [Settings] ⇒ [BACnetMonitor], and click the [Add] button.



3. Set the following items, and click the [Add] button.

Adding access block for BACnet monitoring.
 Leave ArrayIndex as empty if not in use.
 Specify any available memory area after 256 (100h) for buffer memory address.
 * Specify '0' to automatically allocate available (empty) memory area.
 Add 'h' to the number to represent hexadecimal number, e.g. 100h (to mean 256 in decimal).

DeviceInstanceNo

ObjectID

PropertyID

ArrayIndex

Interval(Sec)

BufferMemoryAddress

Item	Description
DeviceInstanceNo	Specify the instance number of the device which has an object to be monitored. When the instance number of a BACnet module itself is specified, the DeviceInstanceNo after an access block for BACnet monitoring is added is displayed as '4194303' in accordance with the BACnet standard.
ObjectID	Select the ObjectType of an object which contains the property for monitoring, and enter an instance number.
PropertyID	Select the property to be monitored. For the operation of a BACnet module when monitoring a PresentValue property or a SystemStatus property, refer to the following sections. Page 143 When monitoring a PresentValue property Page 143 When monitoring a SystemStatus property
ArrayIndex	When the monitoring target property is ARRAY type, enter an index number.
Interval (Sec)	Specify the cycle to read property values in seconds.
BufferMemoryAddress	Specify the start buffer memory address of an access block for BACnet monitoring ^{*1} . Specify an even number within the range of 256 to 32767 (100h to 7FFFh). To specify a buffer memory address in hexadecimal, add 'h' at the end of it. When '0' is specified to the buffer memory address, the data blocks are automatically assigned to the free space in the buffer memory.

*1 For the method to assign multiple data blocks in a batch, refer to the following section.

[Page 210 Assigning data blocks using a CSV file](#)

4. Click the [Detail] button.

BACnet Monitor Configuration

Add/Overwrite from CSV file

CSV file acquisition [Right click to save the file](#)

Click this button to add access block for BACnet monitoring

	DeviceInstanceNo	Number of the objects	Number of the properties
<input type="button" value="Detail"/>	0	1	1

5. Check the buffer memory address.

Device-0

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ObjectID	PropertyID	Interval	BufferMemoryAddress
AI-10	PresentValue	60 Seconds	1F4h

Delete

Create a program to read the monitored value by referring to the format of access blocks for BACnet monitoring. Replace the offset +0 in the format of access blocks for BACnet monitoring with the buffer memory address displayed with a configuration function. (Page 293 Format of access blocks for BACnet monitoring)

6. When the CONTROL of the access block for BACnet monitoring is '1', read the monitored value from the access block for BACnet monitoring using a program.

For the operation of a BACnet module, refer to the following section.

Page 143 Operation of a BACnet module

7. Select [BACnetMonitor], and click the [Detail] button of "DeviceInstanceNo" to check the monitored value.

Model : RJ71BAC96
Version : 1.0.0

BACnetObject
BACnetRequest
BACnetMonitor
COV Interaction
Event Interaction
Calendar Interaction
BACnetDevice
Log
Settings
Maintenance
言語設定/日本語

BACnet Monitor

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DeviceInstanceNo	Number of the objects	Number of the properties
Detail	3	1

8. Check the monitored value.

If an error occurred, check the row of "Status" and take corrective actions.

Device-3

Back Update

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ObjectID	PropertyName	Interval	BufferMemoryAddress	Last updated	Status	Property value
AI-10	PresentValue	60s	1F4h	2017/08/17 10:21:00.03	OK	0.000000

Operation of a BACnet module

Operation at startup

A BACnet module initializes an access block for BACnet monitoring with '0' at the startup of the module.

Cyclic operation

- A BACnet module sends ReadProperty(Multiple) services with a set cycle to sample property values of a monitoring target.
- When a reply to the ReadProperty(Multiple) service is received from the monitoring target, the received data is discarded while the CONTROL of an access block for BACnet monitoring is other than '0' (idling).
- When a normal response (ComplexAck) is received from a monitoring target while the CONTROL of an access block for BACnet monitoring is '0' (idling), the received data is stored to the access block for BACnet monitoring, and '1' (data reception) is stored to the CONTROL.
- When an error response is received from the monitoring target, error information is stored to the STATUS, and '2' (error end) is stored to the CONTROL.

Precautions

- Be sure to store '0' (idling) to the CONTROL after reading the received data.
The Status and Data are not updated while the CONTROL is '1' (data reception).

Point

- With the following setting, the STATUS and Data of an access block for BACnet monitoring can be updated (overwritten) every time when new data is received. This makes it unnecessary to store '0' to the CONTROL after reading data.
Set '1' to "RecDataOverwriteMonitor" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ [Edit] button ⇒ "Interaction".
- The Status and Data can also be updated when a COV notification or an Event notification is received from the property which is monitored by an access block for BACnet monitoring.
(COV notification)
Set '1' to "MonitorDataSetByCOV" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ [Edit] button ⇒ "Interaction".
(Event notification)
Set '1' to "MonitorDataSetByEvent" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ [Edit] button ⇒ "Interaction".

■ When monitoring a PresentValue property

When a PresentValue property is specified as a monitoring target, a StatusFlags property is automatically read at the same time. To check the reliability of the PresentValue property value, monitor the StatusFlags property with the BACnet monitoring function, and check if an error (InAlarm, Fault, or OutOfService) occurred in the StatusFlags property.

■ When monitoring a SystemStatus property

When a SystemStatus property is specified as a monitoring target, monitoring is started at any of the following timings.

- The cycle specified to "Interval (Sec)" when an access block for BACnet monitoring is assigned ( Page 140 How to use the BACnet monitoring function)
- The value of a SystemStatus property is changed*1

*1 The value of a SystemStatus property is changed at any of the following timing.

- When the notification of a BACnet status (join/leave) is received from a monitoring target BACnet device
- When I-Am services could not be received from a monitoring target BACnet device with the cycle set to "CheckAliveInterval" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Who-Is"

Execution example of the BACnet monitoring function

This section shows an execution example of the BACnet monitoring function which monitors the PresentValue property value of an AnalogInput object (instance number: 10) in another BACnet device (instance number of a device: 3) from a BACnet module.

Assignment of an access block for BACnet monitoring

Assign an access block for BACnet monitoring in [Settings] ⇒ [BACnetMonitor] as follows.

Adding access block for BACnet monitoring.
Leave ArrayIndex as empty if not in use.
Specify any available memory area after 256 (100h) for buffer memory address.
* Specify "0" to automatically allocate available (empty) memory area.
Add "h" to the number to represent hexadecimal number, e.g. 100h (to mean 256 in decimal).

DeviceInstanceNo	<input type="text" value="3"/>
ObjectID	<input type="text" value="AnalogInput"/> <input type="text" value="10"/>
PropertyID	<input type="text" value="PresentValue"/>
ArrayIndex	<input type="text"/>
Interval(Sec)	<input type="text" value="60"/>
BufferMemoryAddress	<input type="text" value="500"/>

Item	Description
DeviceInstanceNo	3
ObjectID	ObjectType: AnalogInput, Instance number: 10
PropertyID	PresentValue
ArrayIndex	— (No settings)
Interval (Sec)	60
BufferMemoryAddress	500

For the assignment method, refer to the operating procedure from 1 to 4 described in the following section.

☞ Page 140 How to use the BACnet monitoring function

Creation of a program

Create a program that reads data (monitored value) received from the access block for BACnet monitoring assigned to the buffer memory.

■ Values to be stored to an access block for BACnet monitoring

Offset (Decimal address)	Name	Value to be set
+0 (500)	CONTROL	— (No settings)
+1 (501)	STATUS	— (No settings)
+2 (502)	Data	4 (The data type of the PresentValue of an AnalogInput object is REAL.)
+3 (503)		— (No settings)
+4 to +5 (504 to 505)		— (No settings)

For details on the format of access blocks for BACnet monitoring, refer to the following section.

 Page 293 Format of access blocks for BACnet monitoring

■ Devices to be used

Device name	Device	Description
Data register	D300	A device for storing received data
	D302	A device for storing an error code
Buffer memory	U0\G500	Refer to the following section.  Page 145 Values to be stored to an access block for BACnet monitoring
	U0\G501	
	U0\G504	

■ Program example



- (0) When the value of the CONTROL is '1' (data reception), the received data is stored to D300.
'0' (idling) is stored to the Status to reset.
- (11) When the value of the CONTROL is '2' (data error), an error code is stored to D302.
'0' (idling) is stored to the CONTROL to reset.

1.7 COV Interaction Function

This function receives COV notifications from a BACnet module or another BACnet device.

After receiving a COV notification*1, the BACnet module outputs the COV notification data*2 to the buffer memory.

*1 ConfirmedCOVNotification service or UnconfirmedCOVNotification service

*2 PresentValue property value and StatusFlags property value

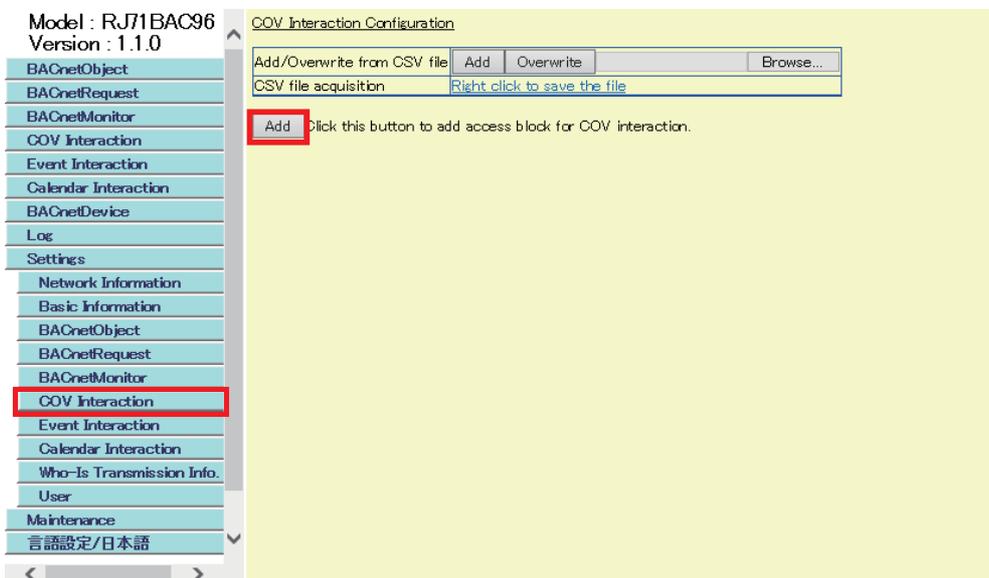
Point

By creating a program using received COV notification data, the control linked with the COV notification can be performed.

How to use the COV interaction function

Operating procedure

1. Select [Maintenance] ⇒ [Pause/Restart], and click the [Pause] button on the "Pause/Restart" screen.
2. Select [Settings] ⇒ [COV Interaction], and click the [Add] button.



3. Set the following items, and click the [Add] button.

Adding access block for COV interaction.
Specify any available memory area after 256 (100h) for buffer memory address.
* Specify "0" to automatically allocate available (empty) memory area.
Add "h" to the number to represent hexadecimal, e.g. 100h (to mean 256 in decimal).

DeviceInstanceNo

ObjectID

BufferMemoryAddress Disable

Periodic SubscribeCOV transmission

ProcessID ※0 Not allowed

Confirmed/Unconfirmed

LifeTime (min)※1~1440
Recommended value range is 1~480 minute (within 8 hours)

Item	Description
DeviceInstanceNo	Specify the instance number of the send source device of COV notifications.
ObjectID	Select the ObjectType of the send source object of COV notifications, and enter an instance number.
BufferMemoryAddress	Specify the start buffer memory address of an access block for COV interaction*1. Specify an even number within the range of 256 to 32767 (100h to 7FFFh). To specify a buffer memory address in hexadecimal, add 'h' at the end of it. When '0' is specified to the buffer memory address, the data blocks are automatically assigned to the free space in the buffer memory.
Disable	Select this to store COV notification data to an access block for COV interaction without assigning the access block for BACnet monitoring to the buffer memory. To store COV notification data to an access block for BACnet monitoring, set the following settings. <ul style="list-style-type: none"> Set an access block for BACnet monitoring to monitor the send source of the COV notification Set '1' to "MonitorDataSetByCOV" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interaction"
Periodic SubscribeCOV transmission	When this item is not selected, COVs are sent with an UnsolicitedCOV service. When this item is selected, COVs are sent with a COV send request (SubscribeCOV service). The following three items should be set.
ProcessID	Specify the ID of a target property. Range: 1 to 4294967295
Confirmed/Unconfirmed	When to confirm notifications, select "Confirmed COV Notification". When not to confirm notifications, select "Unconfirmed COV Notification".
LifeTime	Specify the cycle to read property values in seconds unit.

*1 For the method to assign multiple data blocks in a batch, refer to the following section.

☞ Page 212 Assigning data blocks using a CSV file

4. Click the [Detail] button.

COV Interaction Configuration

Add/Overwrite from CSV file

CSV file acquisition [Right click to save the file](#)

Click this button to add access block for COV interaction.

	DeviceInstanceNo	Number of the objects
<input type="button" value="Detail"/>	0	1

5. Check the buffer memory address.

COV Device-0

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ObjectID	BufferMemoryAddress	Send SubscribeCOV	ProcessID	Confirmed/Unconfirmed	LifeTime (min)
AI-0	258h	Once	-	-	-

Delete

Create a program to read COV notification data by referring to the format of access blocks for COV interaction. Replace the offset +0 in the format of access blocks for COV interaction with the buffer memory address displayed with a configuration function. (☞ Page 294 Format of access blocks for COV interaction)

6. When the CONTROL of an access block for COV interaction is '1', read COV notification data from the access block for COV interaction using a program.

For the operation of a BACnet module, refer to the following section.

☞ Page 149 Operation of a BACnet module

7. Select [COV Interaction], and click the [Detail] button of a send source DeviceInstanceNo of the COV notification to be checked.

Model : RJ71BAC96
Version : 1.1.0

- BACnetObject
- BACnetRequest
- BACnetMonitor
- COV Interaction**
- Event Interaction
- Calendar Interaction
- BACnetDevice
- Log
- Settings
- Maintenance
- 言語設定/日本語

COV Interaction

First page Previous page Next page Last page

DeviceInstanceNo	Number of the objects
Detail	3
	1

8. Check the COV notifications.

Device-0

Back Update

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ObjectID	BufferMemoryAddress	COV Last received	PresentValue	StatusFlags
AI-0	258h	2016/12/14 10:08:19.36	3.141500	

Operation of a BACnet module

Operation at startup

A BACnet module initializes an access block for COV interaction with '0' at the startup of the module.

Operation when a COV notification is received

■ Storage of a COV notification to an access block for COV interaction

- When a COV notification is received from the send source object set to an access block for COV interaction, a BACnet module stores the received COV notification to the access block for COV interaction while the CONTROL is '0' (idling). Then, '1' (COV notification reception complete) is stored to the CONTROL.
- If a new COV notification is received while the CONTROL is '1' (COV notification reception complete), the new COV notification will be discarded without storing to the access block for COV interaction.

Point

- With the following setting, the StatusFlags and PresentValue of an access block for COV interaction can be updated (overwritten) every time when a new COV notification is received. This makes it unnecessary to store '0' to the CONTROL after reading data.
Set '1' to "RecDataOverwriteCOVLink" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ [Edit] button ⇒ "Interaction".

■ Interaction with BACnet monitoring function

By setting the following item, when a COV notification is received from the property specified with the BACnet monitoring function, a BACnet module stores the property values to an access block for BACnet monitoring.

Set '1' to "MonitorDataSetByCOV" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ [Edit] button ⇒ "Interaction".

Precautions

- Be sure to store '0' (idling) to the CONTROL after reading the data of a COV notification.
The StatusFlags and PresentValue are not updated while the CONTROL is '1' (COV notification reception complete).
( Page 149 Storage of a COV notification to an access block for COV interaction)

Execution example of the COV interaction function

This section shows an execution example of the COV interaction function which receives COV notifications from an AnalogInput object (instance number: 10) in another BACnet device (device instance number of a device: 3).

Assignment of an access block for COV interaction

Assign an access block for COV interaction in [Settings] ⇨ [COV Interaction] as follows.

Adding access block for COV interaction.
Specify any available memory area after 256 (100h) for buffer memory address.
* Specify "0" to automatically allocate available (empty) memory area.
Add "h" to the number to represent hexadecimal number, e.g. 100h (to mean 256 in decimal).

DeviceInstanceNo: 3

ObjectID: AnalogInput (dropdown) 10

BufferMemoryAddress: 600 Disable

Periodic SubscribeCOV transmission:

ProcessID: 1 ※0 Not allowed

Confirmed/Unconfirmed: Confirmed COV Notification (dropdown)

LifeTime: 480 (min) ※1~1440
Recommended value range is 1~480 minute (within 8 hours)

Add Close

Item	Description
DeviceInstanceNo	3
ObjectID	ObjectType: AnalogInput, instance number: 10
BufferMemoryAddress	600
Disable	Do not select.
Periodic SubscribeCOV transmission	Select this item.
ProcessID	1
Confirmed/Unconfirmed	Confirmed COV Notification
LifeTime	480

For the assignment method, refer to the operating procedure from 1 to 4 described in the following section.

☞ Page 146 How to use the COV interaction function

1.8 Event Interaction Function

This function receives Event notifications from a BACnet module or another BACnet device. After receiving an Event notification*1, the BACnet module outputs the Event notification data*2 to the buffer memory. Read Event notification data from the access block for Event interaction assigned to the buffer memory using a program.

- *1 ConfirmedEventNotification service or UnconfirmedEventNotification service
- *2 The data of an Event notification is as follows:
 - EventState property value
 - StatusFlags property value (When the StatusFlags property is included in the packet by the Event notification send source BACnet device.)

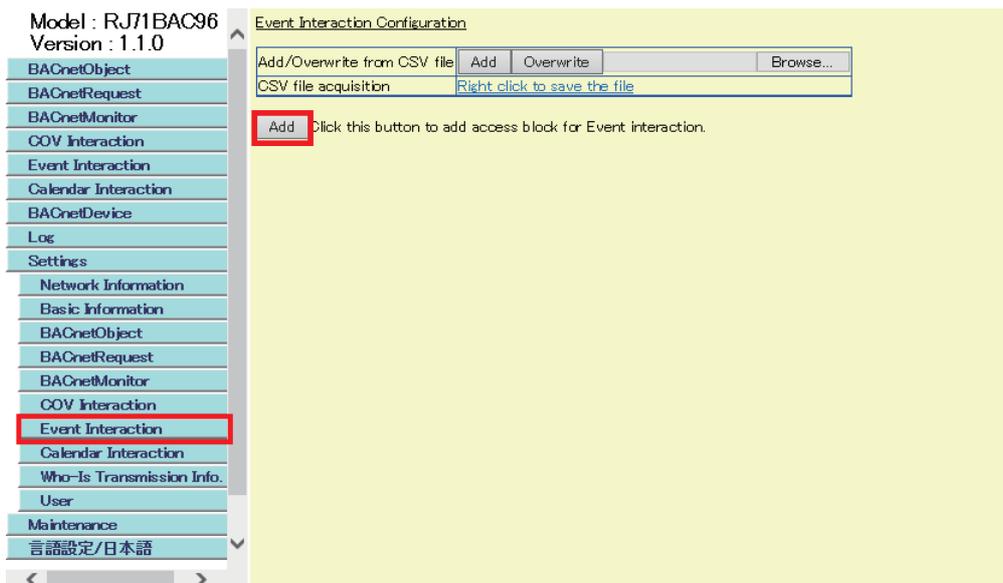
Point

- By creating a program using received Event notification data, the control linked with the Event notification can be performed.
- For the method to send an Event notification from a BACnet module, refer to the following manual.
☞ Page 180 Event notification send setting

How to use the Event interaction function

Operating procedure

1. Select [Maintenance] ⇒ [Pause/Restart], and click the [Pause] button on the "Pause/Restart" screen.
2. Select [Settings] ⇒ [Event Interaction], and click the [Add] button.



3. Set the following items, and click the [Add] button.

Adding access block for Event interaction.
Specify any available memory area after 256 (100h) for buffer memory address.
* Specify "0" to automatically allocate available (empty) memory area.
Add "h" to the number to represent hexadecimal number, e.g. 100h (to mean 256 in decimal).

DeviceInstanceNo

ObjectID

BufferMemoryAddress

Item	Description
DeviceInstanceNo	Specify the instance number of the send source device of Event notifications.
ObjectID	Select the ObjectType of the send source object of Event notifications, and enter an instance number.
BufferMemoryAddress	Specify the start buffer memory address of an access block for Event interaction*1. Specify an even number within the range of 256 to 32767 (100h to 7FFFh). To specify a buffer memory address in hexadecimal, add 'h' at the end of it. When '0' is specified to the buffer memory address, the data blocks are automatically assigned to the free space in the buffer memory.

*1 For the method to assign multiple data blocks in a batch, refer to the following section.

[Page 214 Assigning data blocks using a CSV file](#)

4. Click the [Detail] button.

Event Interaction Configuration

Add/Overwrite from CSV file

CSV file acquisition [Right click to save the file](#)

Click this button to add access block for Event interaction.

	DeviceInstanceNo	Number of the objects
<input type="button" value="Detail"/>	0	1

5. Check the buffer memory address.

Event Device-0

ObjectID	BufferMemoryAddress	
AI-0	2BCh	<input type="button" value="Delete"/>

Create a program to read Event notification data by referring to the format of access blocks for Event interaction. Replace the offset +0 in the format of access blocks for Event interaction with the buffer memory address displayed with a configuration function. ([Page 295 Format of access blocks for Event interaction](#))

6. When the CONTROL of an access block for Event interaction is '1', read Event notification data from the access block for Event interaction using a program.

For the operation of a BACnet module, refer to the following section.

[Page 155 Operation of a BACnet module](#)

- Select [Event Interaction], and click the [Detail] button of a send source DeviceInstanceNo of the Event notification to be checked.

Model : RJ71BAC96
Version : 1.0.0

- BACnetObject
- BACnetRequest
- BACnetMonitor
- COV Interaction
- Event Interaction**
- Calendar Interaction
- BACnetDevice
- Log
- Settings
- Maintenance
- 言語設定/日本語

Event Interaction

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	DeviceInstanceNo	Number of the object
Detail	3	1

- Check the Event notifications.

Device-0

Back Update

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ObjectID	BufferMemoryAddress	Event Last received	EventState
AI-0	2BCh	2016/12/14 10:06:40.81	Life Safety Alarm

Operation of a BACnet module

Operation at startup

A BACnet module initializes an access block for Event interaction with '0' at the startup of the module.

Operation when an Event notification is received

■ Storage of an Event notification to an access block for Event interaction

- When an Event notification is received from the send source object set to an access block for Event interaction, a BACnet module stores the received Event notification to the access block for Event interaction while the CONTROL is '0' (idling). Then, '1' (Event notification reception complete) is stored to the CONTROL.
- If a new Event notification is received while the CONTROL is '1' (Event notification reception complete), the new Event notification will be discarded without storing to the access block for Event interaction.

Point

- With the following setting, an access block for Event interaction can be updated (overwritten) every time when a new Event notification is received. This makes it unnecessary to store '0' to the CONTROL (b15) after reading data.
Set '1' to "RecDataOverwriteEventLink" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ [Edit] button ⇒ "Interaction".

■ Interaction with BACnet monitoring function

By setting the following item, when an Event notification is received from the property specified with the BACnet monitoring function, a BACnet module stores the property values to an access block for BACnet monitoring.

Set '1' to "MonitorDataSetByEvent" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ [Edit] button ⇒ "Interaction".

The data included in the received Event notification is written to the corresponding property of an access block for BACnet monitoring.

Data included in Event notification	Property of an access block for BACnet monitoring	Remarks
NotificationClass	NotificationClass	—
NotifyType	NotifyType	—
ToState	EventState	—
StatusFlags	StatusFlags	A StatusFlags is always included in an EventValues.

An EventValues parameter included in an Event notification corresponds to properties for each EventType.

The relations between the parameters and the properties of each EventType are as follows:

EventType	Main object that uses EventType	Information in EventValues parameter	Property of an access block for BACnet monitoring
EventType (change-of-state)	BI, BV, MI, MV	new-state	binary-value PresentValue of BI/BV
			unsigned-value PresentValue of MI/MV
EventType (command-failure)	BO, MO	CommandValue	PresentValue of BO/MO
		FeedbackValue	FeedbackValue of BO/MO
EventType (out-of-range)	AI, AO, AV	exceeding-value	PresentValue of AI/AO/AV
		deadband	Deadband of AI/AO/AV
		exceeded-limit	ToState is HighLimit: HighLimit of AI/AO/AV ToState is LowLimit: LowLimit of AI/AO/AV

Precautions

- Be sure to store '0' (idling) to the CONTROL (b15) after reading the data of an Event notification. The Status and Data are not updated while the CONTROL (b15) is '1' (Event notification reception complete). ( Page 155 Storage of an Event notification to an access block for Event interaction)

Execution example of the Event interaction function

This section shows an execution example of the Event notification interaction function which receives Event notifications from an AnalogOutput object (instance number: 10) in another BACnet device (instance number of a device: 3).

Assignment of an access block for Event interaction

Assign an access block for Event interaction in [Settings] ⇒ [Event Interaction] as follows.

Adding access block for Event interaction.
Specify any available memory area after 256 (100h) for buffer memory address.
* Specify "0" to automatically allocate available (empty) memory area.
Add "h" to the number to represent hexadecimal number, e.g. 100h (to mean 256 in decimal).

DeviceInstanceNo

ObjectID

BufferMemoryAddress

Item	Description
DeviceInstanceNo	3
ObjectID	ObjectType: AnalogOutput, instance number: 10
BufferMemoryAddress	700

For the assignment method, refer to the operating procedure from 1 to 4 described in the following section.

☞ Page 152 How to use the Event interaction function

Creation of a program

Create a program that reads Event notification data from the access block for Event interaction assigned to the buffer memory.

■ Values to be stored to an access block for Event interaction

Offset (Decimal address)	Name	Value to be set
+0 (700)	STATUS	— (No settings)
+1 (701)	EventType/Priority	— (No settings)
+2 to +5 (702 to 705)	ProcessID	— (No settings)

For details on the format of access blocks for Event interaction, refer to the following section.

☞ Page 295 Format of access blocks for Event interaction

■ Devices to be used

Device name	Device	Description
Data register	D500	A device for storing the Status of an access block for Event interaction
	D501	A device for storing the EventType/Priority of an access block for Event interaction
	D502 to D504	Devices for storing the Process ID of an access block for Event interaction
Buffer memory	U0\G700	For details, refer to the following section.
	U0\G700.F	☞ Page 157 Values to be stored to an access block for Event interaction
	U0\G701	
	U0\G702	

■ Program example



- (0) When the CONTROL (b15) of a Status is '1' (Event notification reception complete), the Status of an access block for Event interaction is stored to D500.
 The EventType/Priority of the access block for Event interaction is stored to D501.
 The ProcessID of the access block for Event interaction is stored to D502 to D505.
 '0' (idling) is stored to the CONTROL (b15) to reset.

1.9 Calendar Interaction Function

This function copies calendar information which is referred when performing scheduled operation from another BACnet device (central monitoring device).

A BACnet module performs scheduled operation based on the calendar information of another BACnet device (central monitoring device).

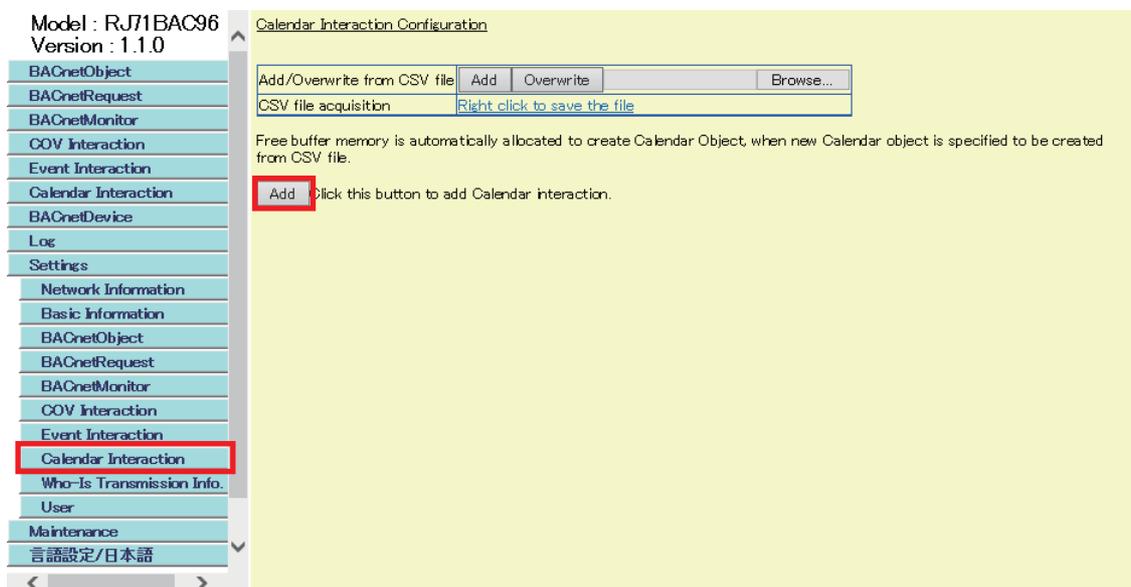
When joining BACnet, the Calendar information is automatically copied to a Calendar object in a BACnet module. *1

*1 The data is copied to the DateList property.

How to use the Calendar interaction function

Operating procedure

1. Select [Maintenance] ⇒ [Pause/Restart], and click the [Pause] button on the "Pause/Restart" screen.
2. Select [Settings] ⇒ [Calendar Interaction], and click the [Add] button on the "Calendar Interaction" screen.



3. There are three specification methods*¹ to specify a copy source BACnet device (central monitoring device). Set the items required for each method, and click the [Add] button.

- ① How to specify both Calendar InstanceNo of itself and Calendar InstanceNo*²
- ② How to specify an ObjectName*³
- ③ How to specify a Calendar InstanceNo*³

*1 For the method to specify multiple copy source BACnet devices in a batch, refer to the following section.

☞ Page 216 Specifying objects using a CSV file

*2 When joining BACnet, a ReadProperty(Multiple) service is automatically sent.

*3 When joining BACnet, a Who-Has service is sent and an I-Have service is received automatically. After the transmission is completed, a ReadProperty(Multiple) service is automatically sent. If the I-Have service is not received, calendar information will not be copied.

Adding Calendar interaction.
 * Specify Calendar InstanceNo, Device InstanceNo, And Calendar InstanceNo, if all are known, to statically set calendar interaction.
 * Specify Calendar InstanceNo (of itself) and Calendar InstanceNo to search for CalendarNo of the calendar to interact via Who-Has service request.
 * Specify Calendar InstanceNo (of itself) and ObjectName to search for ObjectName of the calendar to interact via Who-Has service request.
 * Leave parameters not in use as empty.
 InstanceNo that is already in use cannot be specified for Calendar InstanceNo (of itself)
 Add "h" to the number to represent hexadecimal number, e.g. 100h (to mean 256 in decima).

Calendar InstanceNo:
 Device InstanceNo:
 Calendar InstanceNo:
 Object Name: CharacterCode: CodePage: Data:

Item	Description	
Calendar InstanceNo	This item is required for ①, ②, and ③. Specify the instance number of the Calendar object in a copy destination BACnet module.	
Device InstanceNo	This item is required for ①. Specify the instance number of a device (central monitoring device) which includes a copy source Calendar object.	
Calendar InstanceNo	This item is required for ① and ③. Specify the instance number of a copy source Calendar object.	
Object Name	This item is required for ②.	
	CharacterCode	Specify the character code which is used for "Object Name" in a copy source.
	CodePage	Specify the code page which is used for "Object Name" in a copy source.
	Data	Specify the object name of a copy source Calendar object.

4. When using the specification method of ② or ③, the copy source BACnet device (central monitoring device) should be recognized as a communication target when joining BACnet.

Set the instance number of the copy source BACnet device (central monitoring device) to the Restart_Notification_Recipients property of a Device object.

For the setting method of the Restart_Notification_Recipients property of a Device object, refer to the following section.

☞ Page 179 At the joining/leaving of BACnet

5. After joining BACnet, select [Calendar Interaction] to check the copy result of the calendar information.

Model : RJ71 BAC96
Version : 1.0.0

- BACnetObject
- BACnetRequest
- BACnetMonitor
- COV Interaction
- Event Interaction
- Calendar Interaction**
- BACnetDevice

Calendar Interaction

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Calendar	Target device info.	Who-Has Result	Result
CAL-0	Device-254 CAL-0	N/A	Acquired

1.10 Joining/Leaving Function

This function joins/leaves the module to/from BACnet automatically by turning ON/OFF an input/output signal. For the input/output signals, refer to the following section.

☞ Page 248 I/O Signals

1.11 Time Synchronization Function

This function synchronizes the time of a BACnet module or BACnet device with that of a CPU module (for multiple system, CPU No.1).

The time synchronization is performed per one second.

To synchronize the time of another BACnet device

To synchronize the time of another BACnet device with a CPU module, send a TimeSynchronization service or UTCTimeSynchronization service.

Configure the setting for a send target BACnet device of a TimeSynchronization service or UTCTimeSynchronization service.

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

BACnet Objects

ObjectType	Qty.	Limit	Creatable
Browse Add AnalogInput	1		False
Browse Add AnalogOutput	1		False
Browse Add AnalogValue	0		False
Browse Add BinaryInput	0		False
Browse Add BinaryOutput	0		False
Browse Add BinaryValue	0		False
Browse Add MultiStateInput	0		False
Browse Add MultiStateOutput	0	4000	False
Browse Add MultiStateValue	0		False
Browse Add Accumulator	0		False
Browse Add Keiryo	0		False
Browse Add ElectricDemandMonitoring	0		False
Browse Add ElectricDemandControl	0		False
Browse Add GeneratorLoadControl	0		False
Browse Add Calendar	1	300	False
Browse Add NotificationClass	0	50	False
Browse Add Schedule	0	100	False
Browse Add TrendLog	0	200	False
Browse Device	1	1	False

2. Click the [Browse] button of "Device".
3. Click the [Details] button in the row where "ObjectName" is "RJ71BAC96".

BACnet Object: Device

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion	CSV Information
Detail 0V-254	RJ71BAC96	10h				Set

4. Click the [Add] button of "TimeSynchronizationRecipients".

112	SystemStatus	Edit	Non Operational	Edit
116	TimeSynchronizationRecipients	Add	Number of Sequence 0	Edit
119	UtcOffset	Edit	-5.0h	Edit

- 5.** Specify the send target of a TimeSynchronization service or UTCTimeSynchronization service with a DeviceID or a BACnetAddress.



DV-254 TimeSynchronizationRecipients

DeviceID Device 0

Update Close

- How to specify a DeviceID

Enter the instance number of a send target device in the rightmost textbox.

- How to specify a BACnetAddress

Select "BACnetAddress" from the leftmost pull-down list, and specify a BACnetAddress by referring to the following section.

 Page 104 How to specify a BACnetAddress

- 6.** Turn 'Time synchronization request' (Y5) ON. ( Page 250 Time synchronization send request (Y5))

Considerations for the time synchronization function

- Before the operation of a BACnet module, set the clock data of CPU No.1.
For the setting of the clock data, refer to the user's manual of the CPU module used.
- There is a deviation in the clock data of CPU No.1 used by a BACnet module.
For the accuracy of the data, refer to the user's manual of the CPU module used.
- When a BACnet module obtains the clock data on a CPU No.1, a maximum of 1 second of delay occurs as the transfer time.
- A time zone cannot be specified with the time synchronization function of a BACnet module because the clock data always follows the time zone on the CPU module. When the time zone needs to be specified, set it on the CPU module.

To change the time in a CPU module

The time on a CPU module can be synchronized with the time on a BACnet device by creating a program.

The following shows a procedure to change the time in a CPU module.

(Operation of a BACnet module)

Receive a TimeSynchronization service or UTCTimeSynchronization service from another BACnet device.

(Program to be created)

- ➊ Check that the "Time setting request flag" is '1' (setting request), then read the data of day-of-week, time, date, and year to the Device object (Un\G16 to Un\G31) in the buffer memory. (📖 Page 261 Device object (Un\G16 to Un\G31))
- ➋ After reading data, change "Time setting request flag" to '2' (set).
- ➌ Create a program to change the time on the CPU module using the data of day-of-week, time, date, and year. (📖 MELSEC iQ-R Programming Manual (Instructions, Standard Functions/Function Blocks))

Precautions

- "Time setting request flag" is '1' (setting request) for one or two seconds.
- If a new TimeSynchronization service or UTCTimeSynchronization service is received while "Time setting request flag" is '1' (setting request), the data will be discarded.

1.12 Configuration Function

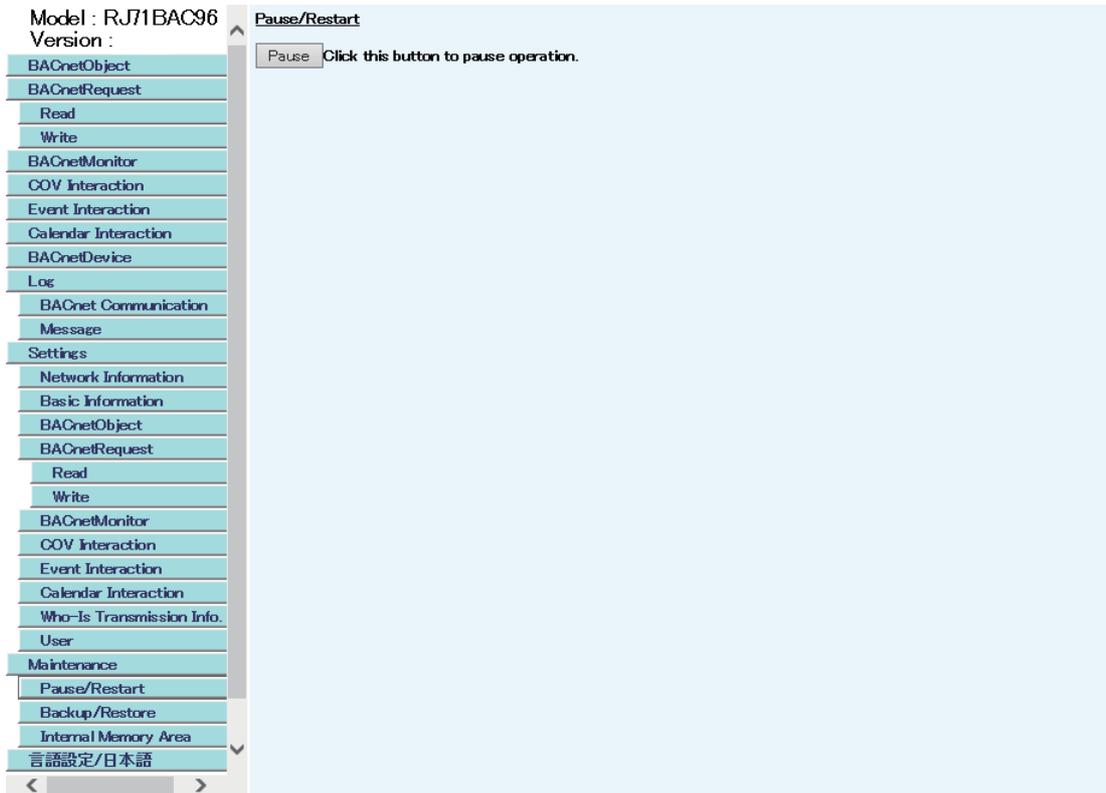
This function sets a BACnet module using a web browser.

For the method to log in to a BACnet module, refer to the following manual.

MELSEC iQ-R BACnet Module User's Manual (Startup)

When configuring settings, stop the operation of a BACnet module. (Page 224 Pause)

Screen configuration



Menu item		Operating method/Setting method
BACnetObject		Page 166 BACnetObject
BACnetRequest	Read	Page 190 Read
	Write	Page 191 Write
BACnetMonitor		Page 192 BACnetMonitor
COV Interaction		Page 193 COV Interaction
Event Interaction		Page 194 Event Interaction
Calendar Interaction		Page 194 Calendar Interaction
BACnetDevice		Page 195 BACnetDevice
Log	BACnet Communication	Page 196 Displaying communication logs of BACnet
	Message	Page 196 Displaying BACnet communication errors

Menu item		Operating method/Setting method	
Settings	Network Information	Page 197 Network information	
	Basic Information	Page 198 Basic information	
	BACnetObject	Page 201 BACnet object	
	BACnetRequest	Read	Page 207 BACnet request (read)
		Write	Page 209 BACnet request (write)
	BACnetMonitor	Page 210 BACnet monitoring	
	COV Interaction	Page 212 COV interaction	
	Event Interaction	Page 214 Event interaction	
	Calendar Interaction	Page 216 Calendar interaction	
	Who-Is Transmission Info.	Page 218 Who-Is Transmission Info.	
User	Page 221 User		
Maintenance	Pause/Restart	Page 224 Pause/Restart	
	Backup/Restore	Page 226 Backup/Restore	
	Internal Memory Area	Page 227 Internal Memory Area	
Language/English* ¹		Page 228 Language/English	

*1 When the language is switched, this menu is displayed as [Language setting/Japanese] in Japanese.

BACnetObject

The following settings can be configured.

The settings are automatically saved in the internal memory. Refer to the following section.

☞ Page 121 Backup Function

Settings	Reference
Registration of BACnet objects	Page 166 Registration of BACnet objects
Settings of properties	Page 168 Settings of properties
Data conversion	Page 170 Data conversion
Access restriction and disablement of properties	Page 174 Access restriction and disablement of properties
Additional information setting for CSV file	Page 176 Additional information setting for CSV file
COV notification send setting	Page 177 COV notification send setting
Event notification send setting	Page 180 Event notification send setting

Registration of BACnet objects

The following explains how to register an object.

For the method to register multiple objects in a batch, refer to the following section.

☞ Page 204 Registering data from a CSV file

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

		ObjectType	Qty.	Limit	Creatable
Browse	Add	AnalogInput	1		False
Browse	Add	AnalogOutput	1		False
Browse	Add	AnalogValue	0		False
Browse	Add	BinaryInput	0		False
Browse	Add	BinaryOutput	0		False
Browse	Add	BinaryValue	0		False
Browse	Add	MultistateInput	0		False
Browse	Add	MultistateOutput	0	4000	False
Browse	Add	MultistateValue	0		False
Browse	Add	Accumulator	0		False
Browse	Add	Keiryo	0		False
Browse	Add	ElectricDemandMonitoring	0		False
Browse	Add	ElectricDemandControl	0		False
Browse	Add	GeneratorLoadControl	0		False
Browse	Add	Calendar	1	300	False
Browse	Add	NotificationClass	0	50	False
Browse	Add	Schedule	0	100	False
Browse	Add	TrendLog	0	200	False
Browse		Device	1	1	False

Point

- To register or delete objects to/from another BACnet device

When the value in the column of "Creatable" on the "BACnet Objects" screen is 'False', objects cannot be registered to or deleted from a BACnet module with a CreateObject service or a DeleteObject service using another BACnet device.

2. Click the [Add] button of an ObjectType to be registered.

For details on each object, refer to the description of objects in the following section.

☞ Page 18 BACnet Object Function

3. Set the following items.

Item	Description
InstanceNo	Specify the instance number of the object to be registered. When registering multiple objects, numbers are assigned in order of the object from the smallest start address.
Qty.	Specify the number of objects to be created.
BufferMemoryAddress	Specify the start address (word address) of the object in the buffer memory. Specify an even number within the range of 256 to 32767 (100h to 7FFFh). To specify a buffer memory address in hexadecimal, add 'h' at the end of it. When '0' is specified to the buffer memory address, free space is assigned.

The following screen is an example of an AnalogInput object.

Add BACnet object

Add instance to AnalogInput object.
Specify any available memory area after 256 (100h) for buffer memory address.
* Specify "0" to automatically allocate available (empty) memory area.
Add "h" to the number to represent hexadecimal number, e.g. 100h (to mean 256 in decimal).

InstanceNo	Qty	BufferMemoryAddress
0	1	0

Add Cancel

4. Click the [Add] button.

5. The object is added.

The start address of the object assigned to the buffer memory is displayed in "BufferMemoryAddress".

BACnet Object: AnalogInput

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion Information	CSV
Detail AI-0		25Eh	0.000000	(FFFF)	Set	Set Delete
Detail AI-1		262h	0.000000	(FFFF)	Set	Set Delete

Create a program to access the properties assigned to the buffer memory by referring to the buffer memory format of the object. Replace the offset +0 in the format of the object with the buffer memory address displayed with a configuration function.

For the buffer memory format of each object, refer to the description of objects in the following section.

☞ Page 18 BACnet Object Function

Settings of properties

The following explains how to set a property.

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

BACnet Objects

Object Type	Qty.	Limit	Creatable
Browse Add AnalogInput	1		False
Browse Add AnalogOutput	1		False
Browse Add AnalogValue	0		False
Browse Add BinaryInput	0		False
Browse Add BinaryOutput	0		False
Browse Add BinaryValue	0		False
Browse Add MultiStateInput	0		False
Browse Add MultiStateOutput	0	4000	False
Browse Add MultiStateValue	0		False
Browse Add Accumulator	0		False
Browse Add Keiryo	0		False
Browse Add ElectricDemandMonitoring	0		False
Browse Add ElectricDemandControl	0		False
Browse Add GeneratorLoadControl	0		False
Browse Add Calendar	1	300	False
Browse Add NotificationClass	0	50	False
Browse Add Schedule	0	100	False
Browse Add TrendLog	0	200	False
Browse Add Device	1	1	False

2. Click the [Browse] button of an ObjectType to set a property.
3. Click the [Detail] button of an ObjectID to set its property.

BACnet Object: AnalogInput

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion	CSV Information
Detail AI-0		100h	0.000000	(FFFF)	Set	Set Delete

4. Click the [Edit] button of the property to be set.

PropertyID	Name	Data	Access
0	AckedTransitions	(TTT)	
17	NotificationClass	0	
22	CovIncrement	0.000000	
25	Deadband	0.000000	
28	Description		
31	DeviceType		
35	EventEnable	(TTT)	
36	EventState	Normal	WriteDisable
45	HighLimit	10.000000	
52	LimitEnable	(TT)	
59	LowLimit	-1.000000	
65	MaxPresValue	0.000000	UnUse
69	MinPresValue	20.000000	UnUse
72	NotifyType	Event	
75	ObjectIdentifier	AI-0	WriteDisable
77	ObjectName		
79	ObjectType	AnalogInput	WriteDisable
81	OutOfService	False	
85	PresentValue	0.000000	
108	Reliability	No Fault Detected	
106	Resolution	0.000000	
111	StatusFlags	(FFFF)	WriteDisable
113	TimeDelay	0	
117	Units	square_meters	
118	UpdateInterval	0	
130	EventTimeStamps	Number of Array elements 3	
168	ProfileName		
9001	PowerFactor	False	
9002	IntrinsicEventDisable	False	
9003	UnsolicitedCOV	No COV	
9006	COVSendInterval	0	

5. Set the items of the property, and click the [Update] button.

The following screen is an example of the PresentValue of an AnalogInput object. The screen display differ depending on the type of property.

AI-0 PresentValue

Data conversion

The following shows how to perform data conversion for the PresentValue property value of an AnalogInput object, AnalogOutput object, and AnalogValue object.

AnalogInput object

The value of a PresentValue property in the buffer memory is read as 16-bit signed integer. After the value is converted to 32-bit floating point real number, the value is stored to a PresentValue property in the internal memory.

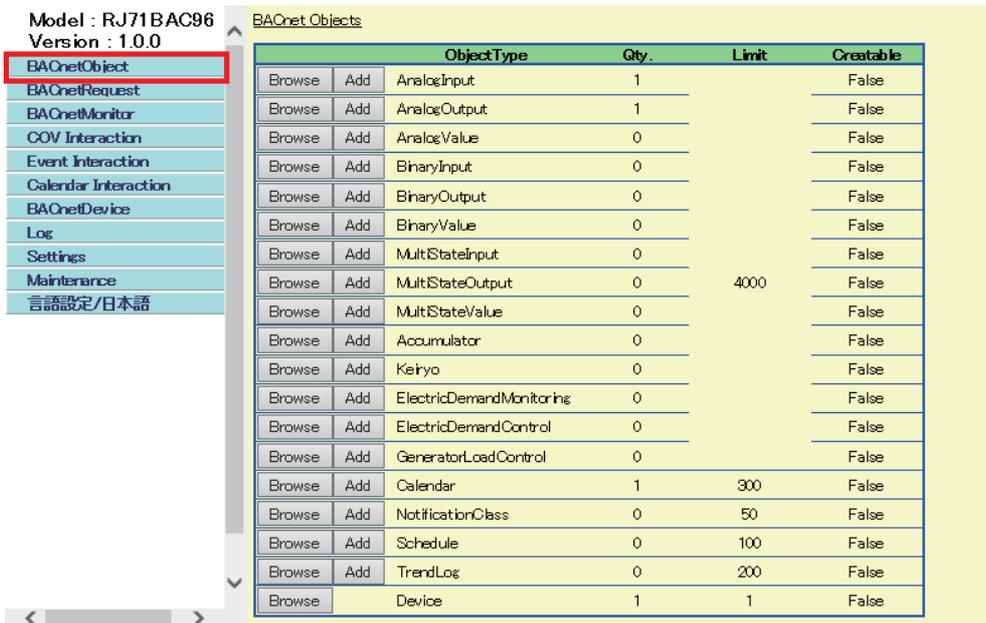
The calculation formula is as follows:

$$\text{PresentValue} = ((Ra - Rb) * D + Rb * Ia - Ra * Ib) / (Ia - Ib)$$

(16-bit signed integer read from buffer memory = D, Real number A = Ra, Real number B = Rb, Integer A = Ia, Integer B = Ib)

Operating procedure

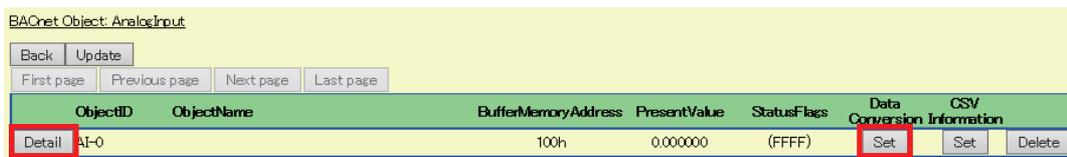
1. Select [BACnetObject] to open the "BACnet Objects" screen.



Model : RJ71BAC96
Version : 1.0.0

ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion	CSV Information
AI-0	AnalogInput	100h	0.000000	(FFFF)	Set	Set Delete
AO-0	AnalogOutput					
AV-0	AnalogValue					
BI-0	BinaryInput					
BO-0	BinaryOutput					
BV-0	BinaryValue					
MSI-0	MultiStateInput					
MSO-0	MultiStateOutput		4000			
MSV-0	MultiStateValue					
ACC-0	Accumulator					
KEI-0	Keiryo					
EDM-0	ElectricDemandMonitoring					
EDC-0	ElectricDemandControl					
GLC-0	GeneratorLoadControl					
CLD-0	Calendar		300			
NC-0	NotificationClass		50			
SCH-0	Schedule		100			
TL-0	TrendLog		200			
DEV-0	Device		1			

2. Click the [Browse] button of an ObjectType to perform data conversion.
3. Click the [Set] button of an object in "Data Conversion" to perform data conversion.



BACnet Object: AnalogInput

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion	CSV Information
AI-0		100h	0.000000	(FFFF)	Set	Set Delete

4. Select the "Enable Conversion" checkbox, and set the following items.

Data Conversion Settings for AI-0

Data conversion settings.

	<input checked="" type="checkbox"/> Enable Conversion
Integer A	0
Real A	0.000000
Integer B	1000
Real B	100.000000

Update Cancel

Item	Description
Integer A	Lower limit value of a PresentValue property before conversion (-32768 to 32767)
Real number A	Lower limit value of a PresentValue property after conversion (up to 7 digits)
Integer B	Upper limit value of a PresentValue property before conversion (-32768 to 32767)
Real number B	Upper limit value of a PresentValue property after conversion (up to 7 digits)

5. Click the [Update] button.

■ AnalogOutput object

32-bit floating point real number of a PresentValue property in the internal memory is converted to 16-bit signed integer, and the value is stored to the PresentValue in the buffer memory.

The calculation formula is as follows:

$$D = ((Ia - Ib) * PresentValue + Ib * Ra - Ia * Rb) / (Ra - Rb)$$

(Value to be stored to a PresentValue property in the buffer memory = D, Real A = Ra, Real B = Rb, Integer A = Ia, Integer B = Ib)

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

BACnet Objects

Object Type	Qty.	Limit	Creatable
Browse Add AnalogInput	1		False
Browse Add AnalogOutput	1		False
Browse Add AnalogValue	0		False
Browse Add BinaryInput	0		False
Browse Add BinaryOutput	0		False
Browse Add BinaryValue	0		False
Browse Add MultiStateInput	0		False
Browse Add MultiStateOutput	0	4000	False
Browse Add MultiStateValue	0		False
Browse Add Accumulator	0		False
Browse Add Keiryo	0		False
Browse Add ElectricDemandMonitoring	0		False
Browse Add ElectricDemandControl	0		False
Browse Add GeneratorLoadControl	0		False
Browse Add Calendar	1	300	False
Browse Add NotificationClass	0	50	False
Browse Add Schedule	0	100	False
Browse Add TrendLog	0	200	False
Browse Add Device	1	1	False

2. Click the [Browse] button of an ObjectType to perform data conversion.
3. Click the [Set] button of an object in "Data Conversion" to perform data conversion.

BACnet Object: AnalogOutput

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion	CSV Information
Detail AO-0		11Ah	0.000000	(FFFF)	Set	Set Delete

4. Select the "Enable Conversion" checkbox, and set the following items.

Data Conversion Settings for AO-0

Data conversion settings.

<input checked="" type="checkbox"/>	Enable Conversion
Integer A	0
Real A	0.000000
Integer B	1000
Real B	100.000000

Update Cancel

Item	Description
Integer A	Lower limit value of PresentValue after conversion (-32768 to 32767)
Real A	Lower limit value of PresentValue before conversion (up to 7 digits)
Integer B	Upper limit value of a PresentValue property after conversion (-32768 to 32767)
Real B	Upper limit value of a PresentValue property before conversion (up to 7 digits)

5. Click the [Update] button.

Access restriction and disablement of properties

The read/write of properties from/to a BACnet module can be restricted. Additionally, a property can be disabled.

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

BACnet Objects

Object Type	Qty.	Limit	Creatable
Browse Add AnalogueInput	1		False
Browse Add AnalogueOutput	1		False
Browse Add AnalogueValue	0		False
Browse Add BinaryInput	0		False
Browse Add BinaryOutput	0		False
Browse Add BinaryValue	0		False
Browse Add MultiStateInput	0		False
Browse Add MultiStateOutput	0	4000	False
Browse Add MultiStateValue	0		False
Browse Add Accumulator	0		False
Browse Add Keiryo	0		False
Browse Add ElectricDemandMonitoring	0		False
Browse Add ElectricDemandControl	0		False
Browse Add GeneratorLoadControl	0		False
Browse Add Calendar	1	300	False
Browse Add NotificationClass	0	50	False
Browse Add Schedule	0	100	False
Browse Add TrendLog	0	200	False
Browse Device	1	1	False

2. Click the [Browse] button of an ObjectType to restrict the access or disable the property.
3. Click the [Detail] button of an ObjectID to restrict the access or disable the property.

BACnet Object: AnalogueInput

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion	CSV Information
Detail AI-0		100h	0.000000	(FFFF)	Set	Set Delete

4. Click the [Edit] button of an Access to restrict the access or disable the property.

PropertyID	Name	Data	Access
0	AckedTransitions	(TTT)	
17	NotificationClass	0	
22	CovIncrement	0.000000	
25	Deadband	0.000000	
28	Description		
31	DeviceType		
35	EventEnable	(TTT)	
36	EventState	Normal	WriteDisable
45	HighLimit	10.000000	
52	LimitEnable	(TT)	
59	LowLimit	-1.000000	
65	MaxPresValue	0.000000	UnUse
69	MinPresValue	20.000000	UnUse
72	NotifyType	Event	
75	ObjectIdentifier	AI-0	WriteDisable
77	ObjectName		
79	ObjectType	AnalogInput	WriteDisable
81	OutOfService	False	
85	PresentValue	0.000000	
108	Reliability	No Fault Detected	
106	Resolution	0.000000	
111	StatusFlags	(FFFF)	WriteDisable
113	TimeDelay	0	
117	Units	square_meters	
118	UpdateInterval	0	
130	EventTimeStamps	Number of Array elements 3	
168	ProfileName		
9001	PowerFactor	False	
9002	IntrinsicEventDisable	False	
9003	UnsolicitedCOV	No COV	
9006	COVSendInterval	0	

5. Select "Read Disable", "Write Disable", or "Unused"*1, and click the [Update] button.

AI-0 HighLimit

Read Disable

Write Disable

Unused

Update Close

*1 If this item is selected, the property will be regarded as a non-existent property and as a result the property is disabled.

Additional information setting for CSV file

With the following setting, the objects related to an object and a memo can be added to a CSV file.

For the method to save object data to a CSV file, refer to the following section.

☞ Page 203 Saving data to a CSV file

For the format of CSV files, refer to the following section.

☞ Page 273 CSV File Format

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

BACnet Objects

Object Type	Qty.	Limit	Creatable
Browse Add AnalogueInput	1		False
Browse Add AnalogueOutput	1		False
Browse Add AnalogueValue	0		False
Browse Add BinaryInput	0		False
Browse Add BinaryOutput	0		False
Browse Add BinaryValue	0		False
Browse Add MultiStateInput	0		False
Browse Add MultiStateOutput	0	4000	False
Browse Add MultiStateValue	0		False
Browse Add Accumulator	0		False
Browse Add Keiryo	0		False
Browse Add ElectricDemandMonitoring	0		False
Browse Add ElectricDemandControl	0		False
Browse Add GeneratorLoadControl	0		False
Browse Add Calendar	1	300	False
Browse Add NotificationClass	0	50	False
Browse Add Schedule	0	100	False
Browse Add TrendLog	0	200	False
Browse Add Device	1	1	False

2. Click the [Browse] button of an ObjectType to set additional information for a CSV file.
3. Click the [Set] button of an object in "CSV Information" to set additional information for a CSV file.

BACnet Object: AnalogueInput

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion	CSV Information
Detail AI-0		100h	0.000000	(FFFF)	Set	Set Delete

4. Set the cell of "Referenced ObjectID1", "Referenced ObjectID2", and "Note", then click the [Update] button.

Additional CSV information for AI-0

Specifying additional information to add to 36th-38th column in the CSV file.

Referenced ObjectID 1:

Referenced ObjectID 2:

Note:

Update Cancel

COV notification send setting

Send a COV notification from a BACnet module to another BACnet device.

A COV notification is sent with any of the following timing.

- ☞ Page 177 At the change of value
- ☞ Page 178 At the reception of a SubscribeCOV service
- ☞ Page 179 At the joining/leaving of BACnet

■ At the change of value

A COV notification is sent when a PresentValue property value or a StatusFlags value is changed.

Set the UnsolicitedCOV property of each object.

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

ObjectID	ObjectType	Qty.	Limit	Creatable
Browse Add	AnalogueInput	1		False
Browse Add	AnalogueOutput	1		False
Browse Add	AnalogueValue	0		False
Browse Add	BinaryInput	0		False
Browse Add	BinaryOutput	0		False
Browse Add	BinaryValue	0		False
Browse Add	MultiStateInput	0		False
Browse Add	MultiStateOutput	0	4000	False
Browse Add	MultiStateValue	0		False
Browse Add	Accumulator	0		False
Browse Add	Keiryo	0		False
Browse Add	ElectricDemandMonitoring	0		False
Browse Add	ElectricDemandControl	0		False
Browse Add	GeneratorLoadControl	0		False
Browse Add	Calendar	1	300	False
Browse Add	NotificationClass	0	50	False
Browse Add	Schedule	0	100	False
Browse Add	TrendLog	0	200	False
Browse Add	Device	1	1	False

2. Click the [Browse] button of an ObjectType to set an UnsolicitedCOV property.
3. Click the [Details] button of an ObjectID to set an UnsolicitedCOV property.
4. Click the [Edit] button of "UnsolicitedCOV".
5. Select a timing to send a COV notification in the following table.

Item	Description
No COV	Do not send.
Upon Value change only	A COV notification is sent at the change of the property.
Upon Value change and periodic COV transmission	A COV notification is sent at the change of the property or with the cycle set to a COVSendInterval property.
Upon Value change and periodic COV transmission (When In_Alarm only)	During In_Alarm ^{*1} , a COV notification is sent at the change of the property or with the cycle set to a COVSendInterval property.

*1 In_Alarm means the status that the In_Alarm flag of a StatusFlags property is True.
During In_Alarm, the status of an EventState property will be other than Normal.

6. Click the [Update] button.

■ To set the change amount of a value to send COV notifications

With the following objects, the change amount of a PresentValue property which sends COV notifications can be set to a CovIncrement property.

- AnalogInput object
- AnalogOutput object
- AnalogValue object

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

		ObjectType	Qty.	Limit	Creatable
Browse	Add	AnalogInput	1		False
Browse	Add	AnalogOutput	1		False
Browse	Add	AnalogValue	0		False
Browse	Add	BinaryInput	0		False
Browse	Add	BinaryOutput	0		False
Browse	Add	BinaryValue	0		False
Browse	Add	MultiStateInput	0		False
Browse	Add	MultiStateOutput	0	4000	False
Browse	Add	MultiStateValue	0		False
Browse	Add	Accumulator	0		False
Browse	Add	Keiryo	0		False
Browse	Add	ElectricDemandMonitoring	0		False
Browse	Add	ElectricDemandControl	0		False
Browse	Add	GeneratorLoadControl	0		False
Browse	Add	Calendar	1	300	False
Browse	Add	NotificationClass	0	50	False
Browse	Add	Schedule	0	100	False
Browse	Add	TrendLog	0	200	False
Browse	Add	Device	1	1	False

2. Click the [Browse] button of an ObjectType to set a CovIncrement property.
3. Click the [Details] button of an ObjectID to set a CovIncrement property.
4. Click the [Edit] button of "CovIncrement".
5. Set the change amount of a PresentValue property, and click the [Update] button.

■ At the reception of a SubscribeCOV service

A COV notification is sent when a SubscribeCOV service is received from a BACnet device.

The setting is unnecessary because a BACnet module automatically sends COV notifications.

■ At the joining/leaving of BACnet

In the following BACnet standards, COV notifications can be sent when joining and leaving BACnet.

- ANSI/ASHRAE 2004
- IEIEJ-G-0006:2006 Addendum-a
- ANSI/ASHRAE 2010

Set the send target of COV notifications when joining/leaving BACnet to the Restart_Notification_Recipients property of a Device object.

The following shows how to set the Restart_Notification_Recipients property of a Device object.

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

		ObjectType	Qty.	Limit	Creatable
Browse	Add	AnalogInput	1		False
Browse	Add	AnalogOutput	1		False
Browse	Add	AnalogValue	0		False
Browse	Add	BinaryInput	0		False
Browse	Add	BinaryOutput	0		False
Browse	Add	BinaryValue	0		False
Browse	Add	MultiStateInput	0		False
Browse	Add	MultiStateOutput	0	4000	False
Browse	Add	MultiStateValue	0		False
Browse	Add	Accumulator	0		False
Browse	Add	Keiryo	0		False
Browse	Add	ElectricDemandMonitoring	0		False
Browse	Add	ElectricDemandControl	0		False
Browse	Add	GeneratorLoadControl	0		False
Browse	Add	Calendar	1	300	False
Browse	Add	NotificationClass	0	50	False
Browse	Add	Schedule	0	100	False
Browse	Add	TrendLog	0	200	False
Browse		Device	1	1	False

2. Click the [Browse] button of "Device".
3. Click the [Details] button in the row where "ObjectName" is "RJ71BAC96".

ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion	CSV Information
Detail	DV-254	RJ71BAC96				Set

4. Click the [Add] button of "Restart_Notification_Recipients".

196	Last_Restart_Reason	Edit	Coldstart	Edit
202	Restart_Notification_Recipients	Add	Number of Sequence 0	Edit
208	Time_of_Device_Restart	Edit	{{[2017/1/24 Tue][11:45:38.84]}}	Edit

5. Set the send target of COVs. A send target can be set by specifying either a DeviceID or a BACnetAddress.

DV-254 Restart_Notification_Recipients

DeviceID: Device 0

Update Close

- How to specify a DeviceID

Enter the instance number of a send target device in the rightmost textbox.

- How to specify a BACnetAddress

Select "BACnetAddress" from the leftmost pull-down list, and specify a BACnetAddress by referring to the following section.

☞ Page 104 How to specify a BACnetAddress

Event notification send setting

Send an Event notification from a BACnet module to another BACnet device.

An Event notification is sent when the vale of an EventState property (event status) is changed.

Set the conditions to make an event generate with the following objects.

☞ Page 180 AnalogInput object/AnalogOutput object/AnalogValue object

☞ Page 183 BinaryInput object/BinaryOutput object/BinaryValue object

☞ Page 183 MultiStateInput object/MultiStateOutput object/MultiStateValue object

☞ Page 184 Accumulator object

For the setting example to send Event notifications, refer to the following section.

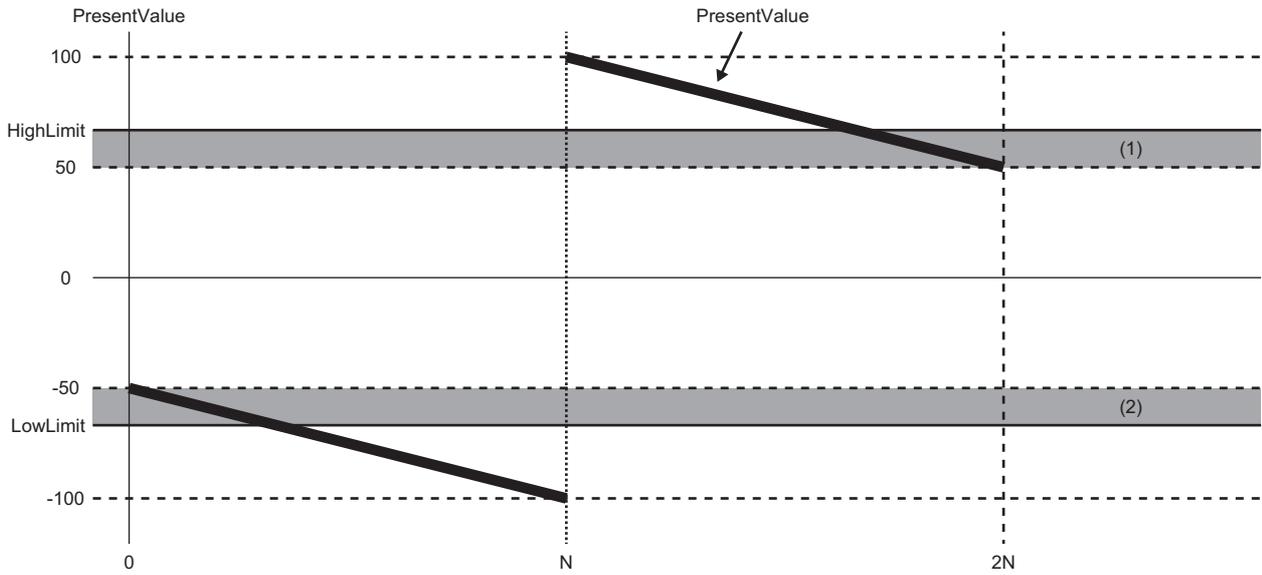
☞ Page 185 Example of an Event notification send setting

■ AnalogInput object/AnalogOutput object/AnalogValue object

Property	Description		Remarks
HighLimit	Specify an upper limit value for a PresentValue property. When a PresentValue property value becomes greater than the specified value, an EventState property value is changed to HighLimit.		—
LowLimit	Specify a lower limit value for a PresentValue property. When a PresentValue property value becomes less than the specified value, an EventState property value is changed to LowLimit.		—
Deadband	Specify the dead band of the HighLimit and the LowLimit.		—
TimeDelay	Specify the time interval from when a PresentValue property value is changed to when an EventState property value is changed. (Unit: seconds)		To send an Event notification immediately after the value is changed, specify '0'.
LimitEnable	LowLimitEnable	Select this to send an Event notification when a PresentValue property value becomes less than the value specified to the LowLimit property.	To send an Event notification, select the event to be notified.
	HighLimitEnable	Select this to send an Event notification when a PresentValue property value becomes greater than the value specified to the HighLimit property.	
EventEnable	ToOffnormal	Select this to send an Event notification when an EventState property is changed to Offnormal.	To send an Event notification, select the event to be notified.
	ToFault	Select this to send an Event notification when an EventState property value is changed to Fault.	
	ToNormal	Select this to send an Event notification when an EventState property is changed to Normal.	
NotificationClass	Specify the NotificationClass object which manages the send target of Event notifications.		For the NotificationClass object, refer to the following section. ☞ Page 102 NotificationClass (NC) object
IntrinsicEventDisable	Set whether to detect the satisfaction of a condition.		To send an Event notification, specify False.

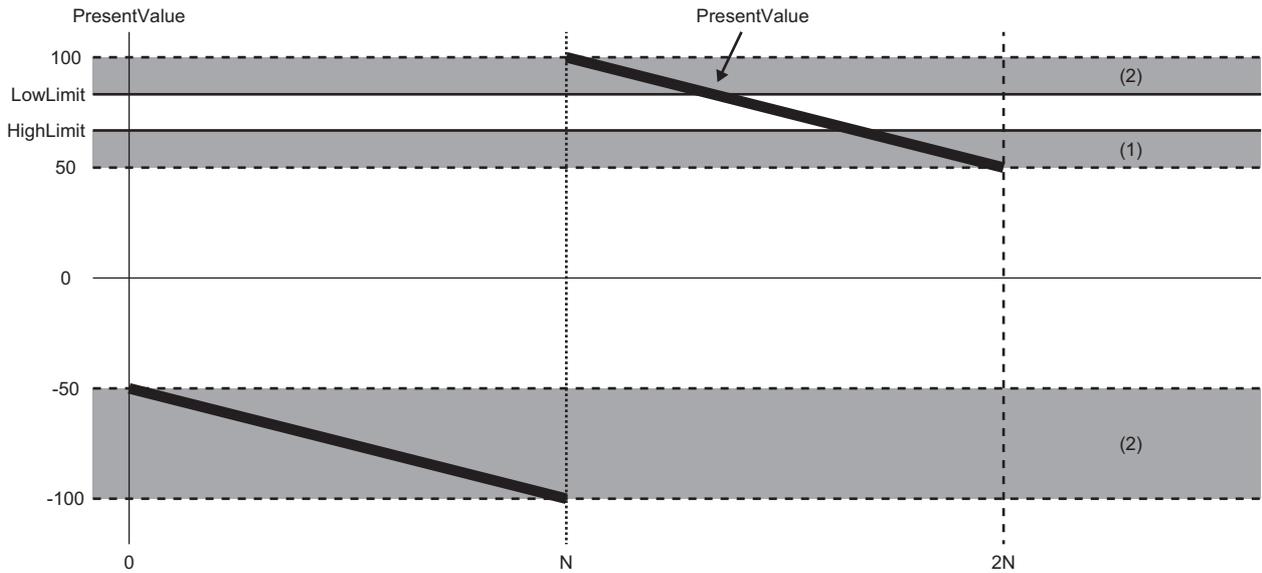
When a power factor property is changed to True, the upper/lower limit determination condition is changed for power factor. Note that, a PresentValue property value is not automatically changed to the power factor value. Set the value which is changed to the power factor value with the program to a PresentValue property.

- $-100 < LowLimit < -50, 50 < HighLimit < 100$



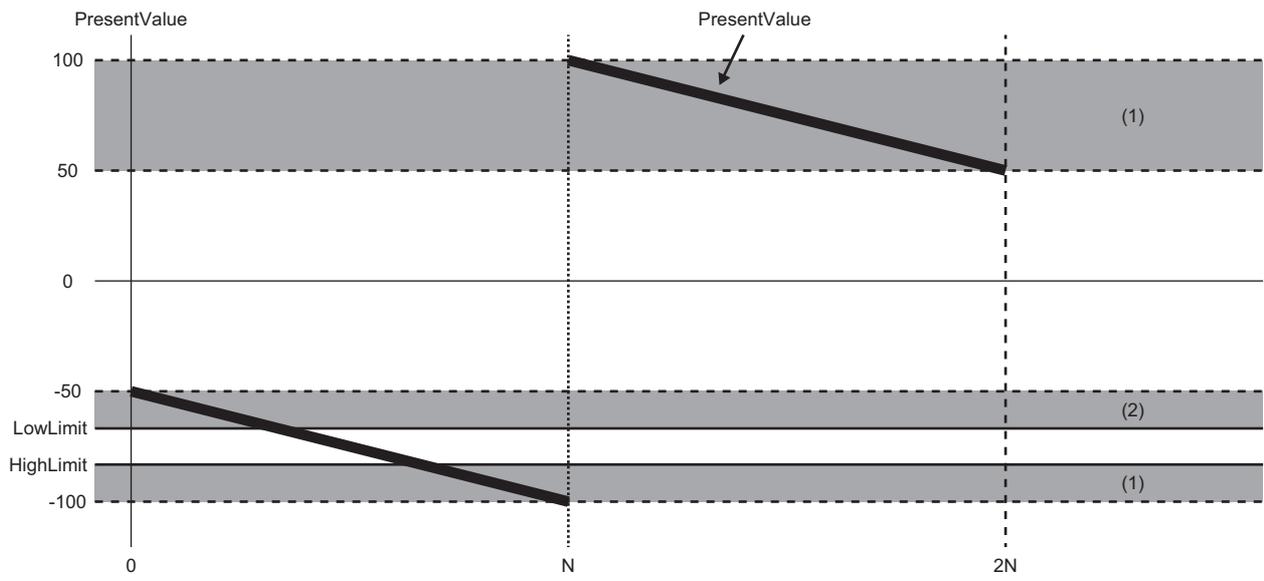
N: 100% value
 (1) Upper limit error
 (2) Lower limit error

- $50 < HighLimit < LowLimit < 100$



N: 100% value
 (1) Upper limit error
 (2) Lower limit error

- $-100 < \text{HighLimit} < \text{LowLimit} < -50$



N: 100% value
 (1) Upper limit error
 (2) Lower limit error

■ BinaryInput object/BinaryOutput object/BinaryValue object

Property	Description		Remarks
AlarmValue	When a PresentValue property value becomes the same as the specified value, an EventState property is changed to Offnormal.		—
TimeDelay	Specify the time interval from when a PresentValue property value is changed to when an EventState property value is changed. (Unit: seconds)		To send an Event notification immediately after the value is changed, specify '0'.
EventEnable	ToOffnormal	Select this to send an Event notification when an EventState property is changed to Offnormal.	To send an Event notification, select the event to be notified.
	ToFault	Select this to send an Event notification when an EventState property value is changed to Fault.	
	ToNormal	Select this to send an Event notification when an EventState property is changed to Normal.	
NotificationClass	Specify the NotificationClass object which manages the send target of Event notifications.		For the NotificationClass object, refer to the following section.  Page 102 NotificationClass (NC) object
IntrinsicEventDisable	Set whether to detect the satisfaction of a condition.		To send an Event notification, specify False.

■ MultiStateInput object/MultiStateOutput object/MultiStateValue object

Property	Description		Remarks
AlarmValues	When a PresentValue property value becomes the same as any of the specified values, an EventState property is changed to Offnormal.		—
FaultValues	When a PresentValue property value becomes the same as any of the specified values, an EventState property is changed to Fault.		—
TimeDelay	Specify the time interval from when a PresentValue property value is changed to when an EventState property value is changed. (Unit: seconds)		To send an Event notification immediately after the value is changed, specify '0'.
EventEnable	ToOffnormal	Select this to send an Event notification when an EventState property is changed to Offnormal.	To send an Event notification, select the event to be notified.
	ToFault	Select this to send an Event notification when an EventState property value is changed to Fault.	
	ToNormal	Select this to send an Event notification when an EventState property is changed to Normal.	
NotificationClass	Specify the NotificationClass object which manages the send target of Event notifications.		For the NotificationClass object, refer to the following section.  Page 102 NotificationClass (NC) object
IntrinsicEventDisable	Set whether to detect the satisfaction of a condition.		To send an Event notification, specify False.

■ Accumulator object

Property	Description		Remarks
HighLimit	Specify an upper limit value for a Pulse_Rate property. When a Pulse_Rate property value becomes greater than the specified value, an EventState property value is changed to HighLimit.		—
LowLimit	Specify a lower limit value for a Pulse_Rate property. When a Pulse_Rate property value becomes less than the specified value, an EventState property value is changed to LowLimit.		—
(Pulse_Rate)	(No setting is required.)		This property is enabled only when '0' is set to "PulseDirectInput" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface". ☞ Page 281 Interface
TimeDelay	Specify the time interval from when the Pulse_Rate property value is changed to when an EventState property value is changed. (Unit: seconds)		To send an Event notification immediately after the value is changed, specify '0'.
LimitEnable	LowLimitEnable	Select this to send an Event notification when the Pulse_Rate property value becomes less than the value specified to a LowLimit property.	To send an Event notification, select the event to be notified.
	HighLimitEnable	Select this to send an Event notification when the Pulse_Rate property value becomes greater than the value specified to a HighLimit property.	
EventEnable	ToOffnormal	Select this to send an Event notification when an EventState property is changed to Offnormal.	To send an Event notification, select the event to be notified.
	ToFault	Select this to send an Event notification when an EventState property value is changed to Fault.	
	ToNormal	Select this to send an Event notification when an EventState property is changed to Normal.	
Limit_Monitoring_Interval	When the Pulse_Rate property value exceeded the normal range within the time period specified to the Limit_Monitoring_Interval property, an EventState property value is changed.		—
NotificationClass	Specify the NotificationClass object which manages the send target of Event notifications.		For the NotificationClass object, refer to the following section. ☞ Page 102 NotificationClass (NC) object
IntrinsicEventDisable	Set whether to detect the satisfaction of a condition.		To send an Event notification, specify False.

Precautions

■ When sending an Event notification

When a Pulse_Rate property value becomes greater than the value specified to a HighLimit property, or becomes less than the value specified to a LowLimit property, the Event notification of an Accumulator object is sent as upper limit value error or lower limit value error.

If '1' is set to "PulseDirectInput" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface", an Event notification will not be sent as upper limit value error or lower limit value error^{*1}, since a Pulse_Rate property value is not changed.

To send an Event notification, set '0' to "PulseDirectInput".

*1 In the following cases, an Event notification is sent.

- A fault is occurred. (EventState property value is 'Fault')
- A value is written to a Pulse_Rate property forcibly from a configuration function or another BACnet device.

■ Example of an Event notification send setting

The following shows the setting example to send an Event notification to another BACnet device (instance number of the device: 3) when the value of the PresentValue property of an AnalogInput object (instance number: 10) in the BACnet module exceeded the upper limit value.

Operating procedure

1. Select [Maintenance] ⇒ [Pause/Restart], and click the [Pause] button on the "Pause/Restart" screen.
2. Set a send destination of an Event notification (instance number of the device: 3) to the RecipientList property of a NotificationClass object. (☞ Page 103 Setting RecipientList property)
3. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.1.0

BACnet Objects

Object Type	Qty.	Limit	Creatable
Browse Add AnalogInput	1		False
Browse Add AnalogOutput	0		False
Browse Add AnalogValue	0		False
Browse Add BinaryInput	0		False
Browse Add BinaryOutput	0		False
Browse Add BinaryValue	0		False
Browse Add MultiStateInput	0		False
Browse Add MultiStateOutput	0	4000	False
Browse Add MultiStateValue	0		False
Browse Add Accumulator	0		False
Browse Add Keiryo	0		False
Browse Add ElectricDemandMonitoring	0		False
Browse Add ElectricDemandControl	0		False
Browse Add GeneratorLoadControl	0		False
Browse Add Calendar	0	300	False
Browse Add NotificationClass	1	50	False
Browse Add Schedule	0	100	False
Browse Add TrendLog	0	200	False
Browse Device	1	1	False

4. Click the [Browse] button of "AnalogInput".

BACnet Objects

Object Type	Qty.	Limit	Creatable
Browse Add AnalogInput	1		False
Browse Add AnalogOutput	0		False
Browse Add AnalogValue	0		False
Browse Add BinaryInput	0		False
Browse Add BinaryOutput	0		False
Browse Add BinaryValue	0		False
Browse Add MultiStateInput	0		False
Browse Add MultiStateOutput	0	4000	False
Browse Add MultiStateValue	0		False
Browse Add Accumulator	0		False
Browse Add Keiryo	0		False
Browse Add ElectricDemandMonitoring	0		False
Browse Add ElectricDemandControl	0		False
Browse Add GeneratorLoadControl	0		False
Browse Add Calendar	0	300	False
Browse Add NotificationClass	1	50	False
Browse Add Schedule	0	100	False
Browse Add TrendLog	0	200	False
Browse Device	1	1	False

- Click the [Detail] button of the ObjectID of an AnalogInput object to configure the send setting of Event notifications.

BACnet Object: AnalogInput

Back Update

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ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion	CSV Information
Detail	AI-10	25Eh	0.000000	(FFFF)	Set	Set Delete

- Click the [Edit] button of "HighLimit".

AI-10

Back Update

PropertyID	Name	Data	Access
0	AckedTransitions	(TTT)	Edit
17	NotificationClass	0	Edit
22	CovIncrement	0.000000	Edit
25	Deadband	0.000000	Edit
28	Description		Edit
31	DeviceType		Edit
35	EventEnable	(FFF)	Edit
36	EventState	Normal	Edit WriteDisable
45	HighLimit	0.000000	Edit
52	LimitEnable	(FF)	Edit
59	LowLimit	0.000000	Edit
65	MaxPresValue	0.000000	Edit UnUse
69	MinPresValue	0.000000	Edit UnUse
72	NotifyType	Alarm	Edit
75	ObjectIdentifier	AI-10	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	AnalogInput	Edit WriteDisable
81	OutOfService	False	Edit
85	PresentValue	0.000000	Edit
103	Reliability	No Fault Detected	Edit
106	Resolution	0.000000	Edit
111	StatusFlags	(FFFF)	Edit WriteDisable
113	TimeDelay	0	Edit
117	Units	square_meters	Edit
118	UpdateInterval	0	Edit
130	EventTimeStamps	Number of Array elements 3	Detail Edit
188	ProfileName		Edit
9001	PowerFactor	False	Edit
9002	IntrinsicEventDisable	False	Edit
9003	UnsolicitedCOV	No COV	Edit
9006	COVSendInterval	0	Edit

- Set an upper limit value for the HighLimit property, and click the [Update] button.

AI-10 HighLimit

[Update](#) [Close](#)

8. Click the [Edit] button of "LimitEnable".

AI-10

Back Update

PropertyID	Name	Data	Access
0	AckedTransitions	(TTT)	Edit
17	NotificationClass	0	Edit
22	CovIncrement	0.000000	Edit
25	Deadband	0.000000	Edit
28	Description		Edit
31	DeviceType		Edit
35	EventEnable	(FFF)	Edit
36	EventState	Normal	Edit WriteDisable
45	HighLimit	0.000000	Edit
52	LimitEnable	(FF)	Edit
59	LowLimit	0.000000	Edit
65	MaxPresValue	0.000000	Edit UnUse
69	MinPresValue	0.000000	Edit UnUse
72	NotifyType	Alarm	Edit
75	ObjectIdentifier	AI-10	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	AnalogsInput	Edit WriteDisable
81	OutOfService	False	Edit
85	PresentValue	0.000000	Edit
103	Reliability	No Fault Detected	Edit
106	Resolution	0.000000	Edit
111	StatusFlags	(FFFF)	Edit WriteDisable
113	TimeDelay	0	Edit
117	Units	square_meters	Edit
118	UpdateInterval	0	Edit
130	EventTimeStamps	Detail Number of Array elements 3	Edit
168	ProfileName		Edit
9001	PowerFactor	False	Edit
9002	IntrinsicEventDisable	False	Edit
9003	UnsolicitedCOV	No COV	Edit
9006	COVSendInterval	0	Edit

9. Select the checkbox of "HighLimitEnable", and click the [Update] button.

AI-10 LimitEnable

LowLimitEnable

HighLimitEnable

Update Close

10. Click the [Edit] button of "EventEnable".

AI-10

Back Update

PropertyID	Name	Data	Access
0	AckedTransitions	(TTT)	Edit
17	NotificationClass	0	Edit
22	CovIncrement	0.000000	Edit
25	Deadband	0.000000	Edit
28	Description		Edit
31	DeviceType		Edit
35	EventEnable	(FFF)	Edit
36	EventState	Normal	Edit WriteDisable
45	HighLimit	0.000000	Edit
52	LimitEnable	(FF)	Edit
59	LowLimit	0.000000	Edit
65	MaxPresValue	0.000000	Edit UnUse
69	MinPresValue	0.000000	Edit UnUse
72	NotifyType	Alarm	Edit
75	ObjectIdentifier	AI-10	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	AnalogsInput	Edit WriteDisable
81	OutOfService	False	Edit
85	PresentValue	0.000000	Edit
103	Reliability	No Fault Detected	Edit
106	Resolution	0.000000	Edit
111	StatusFlags	(FFFF)	Edit WriteDisable
113	TimeDelay	0	Edit
117	Units	square_meters	Edit
118	UpdateInterval	0	Edit
130	EventTimeStamps	Detail Number of Array elements 3	Edit
169	ProfileName		Edit
9001	PowerFactor	False	Edit
9002	IntrinsicEventDisable	False	Edit
9003	UnsolicitedCOV	No COV	Edit
9006	COVSendInterval	0	Edit

11. Select the checkbox of any of "ToOffnormal", "ToFault", or "ToNormal", then click the [Update] button.

AI-10 EventEnable

ToOffnormal

ToFault

ToNormal

Update Close

12. Click the [Edit] button of "NotificationClass".

AI-10

Back Update

PropertyID	Name	Data	Access
0	AckedTransitions	(TTT)	Edit
17	NotificationClass	0	Edit
22	CovIncrement	0.000000	Edit
25	Deadband	0.000000	Edit
28	Description		Edit
31	DeviceType		Edit
35	EventEnable	(FFF)	Edit
36	EventState	Normal	Edit WriteDisable
45	HighLimit	0.000000	Edit
52	LimitEnable	(FF)	Edit
59	LowLimit	0.000000	Edit
65	MaxPresValue	0.000000	Edit UnUse
69	MinPresValue	0.000000	Edit UnUse
72	NotifyType	Alarm	Edit
75	ObjectIdentifier	AI-10	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	AnalogsInput	Edit WriteDisable
81	OutOfService	False	Edit
85	PresentValue	0.000000	Edit
103	Reliability	No Fault Detected	Edit
106	Resolution	0.000000	Edit
111	StatusFlags	(FFFF)	Edit WriteDisable
113	TimeDelay	0	Edit
117	Units	square_meters	Edit
118	UpdateInterval	0	Edit
130	EventTimeStamps	Detail Number of Array elements 3	Edit
168	ProfileName		Edit
9001	PowerFactor	False	Edit
9002	IntrinsicEventDisable	False	Edit
9003	UnsolicitedCOV	No COV	Edit
9006	COVSendInterval	0	Edit

13. Specify the instance number of the NotificationClass object set in the procedure 2.

AI-10 NotificationClass

Update Close

BACnetRequest

Read

The read target BACnet device set with the read function and the read property value are displayed.

For the settings for the read function, refer to the operating procedure from 1 to 5 described in the following section.

☞ Page 124 How to use the read function

Operating procedure

1. Select [BACnetRequest] ⇒ [Read], and click the [Detail] button of the data block to which the read function is executed.

Model : RJ71BAC96
Version : 1.1.0

BACnetObject
BACnetRequest
Read
Write
BACnetMonitor
COV Interaction
Event Interaction
Calendar Interaction
BACnetDevice
Log
Settings
Maintenance
言語設定/日本語

Access block for reading

First page Previous page Next page Last page

BufferMemoryAddress	
Detail	120h

2. Check the execution result.
If an error occurred, check the row of "Status" and take corrective actions.

Reserved access block for reading. Buffer Memory Address=120h

Item	Setting
Date and Time	2016/12/14 10:12:19.88
DeviceInstanceNo	0
ObjectID	AI-0
Status	OK

PropertyID	Data
PresentValue	2.718290

Update Close

Write

The write target BACnet device set with the write function and the written property value are displayed.

For the settings for the write function, refer to the operating procedure from 1 to 5 described in the following section.

☞ Page 132 How to use the write function

Operating procedure

1. Select [BACnetRequest] ⇒ [Write], and click the [Detail] button of the data block to which the write function is executed.

Model : RJ71BAC96
Version : 1.1.0

BACnetObject
BACnetRequest
Read
Write
BACnetMonitor
COV Interaction
Event Interaction
Calendar Interaction
BACnetDevice
Log
Settings
Maintenance
言語設定/日本語

Access block for writing

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BufferMemoryAddress

Detail 190h

2. Check the execution result.
If an error occurred, check the row of "Status" and take corrective actions.

Reserved access block for writing. Buffer Memory Address=190h

Item	Setting
Date and Time	2016/12/14 10:13:33.24
Device	0
ObjectID	AO-10
Status	OK

PropertyID	Data
PresentValue	1.000000

Update Close

BACnetMonitor

The property value of a monitoring target set with the BACnet monitoring function is displayed.

For the settings for the BACnet monitoring function, refer to the operating procedure from 1 to 6 described in the following section.

☞ Page 140 How to use the BACnet monitoring function

Operating procedure

1. Select [BACnetMonitor], and click the [Detail] button of "DeviceInstanceNo" to check the monitored value.

Model : RJ71BAC96
Version : 1.0.0

BACnetObject
BACnetRequest
BACnetMonitor
COV Interaction
Event Interaction
Calendar Interaction
BACnetDevice
Log
Settings
Maintenance
言語設定/日本語

BACnet Monitor

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	DeviceInstanceNo	Number of the objects	Number of the properties
Detail	3	1	1

2. Check the monitored value.
If an error occurred, check the row of "Status" and take corrective actions.

Device-3

Back Update

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ObjectID	PropertyName	Interval	BufferMemoryAddress	Last updated	Status	Property value
AI-10	PresentValue	60s	1F4h	2017/08/17 10:21:00.03	OK	0.000000

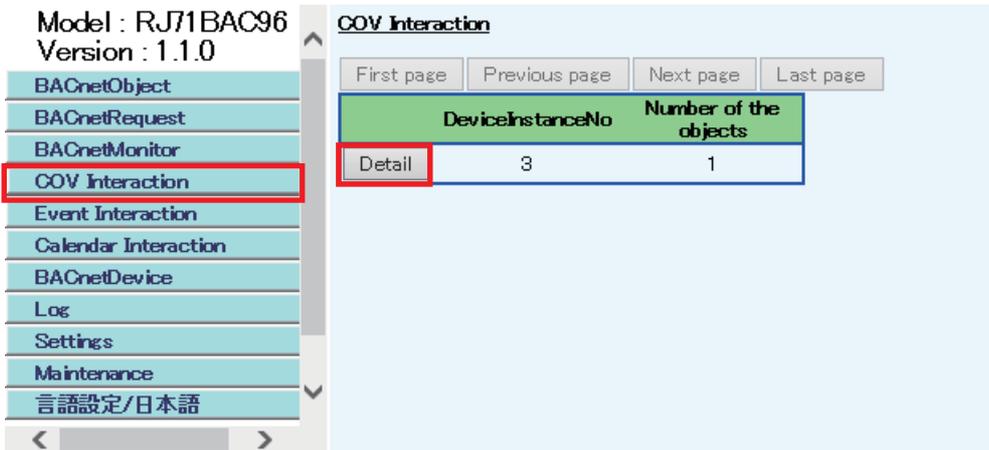
COV Interaction

The latest COV notification data which has been sent from the object set with the COV notification function is displayed. For the setting for the COV interaction function, refer to the operating procedure from 1 to 6 described in the following section.

☞ Page 146 How to use the COV interaction function

Operating procedure

1. Select [COV Interaction], and click the [Detail] button of a send source DeviceInstanceNo of the COV notification to be checked.



2. Check the COV notifications.

Device-0

Back Update

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ObjectID	BufferMemoryAddress	COV Last received	PresentValue	StatusFlags
AI-0	258h	2016/12/14 10:08:19.36	3.141500	

Event Interaction

The latest Event notification data, which has been sent from the object set with the Event notification function, is displayed. For the setting on the Event interaction function, refer to the operating procedure from 1 to 6 described in the following section.

☞ Page 152 How to use the Event interaction function

Operating procedure

1. Select [Event Interaction], and click the [Detail] button of a send source DeviceInstanceNo of the Event notification to be checked.

Model : RJ71BAC96
Version : 1.0.0

BAOnetObject
BAOnetRequest
BAOnetMonitor
COV Interaction
Event Interaction
Calendar Interaction
BAOnetDevice
Log
Settings
Maintenance
言語設定/日本語

Event Interaction

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	DeviceInstanceNo	Number of the object
Detail	3	1

2. Check the Event notifications.

Device-0

Back Update

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ObjectID	BufferMemoryAddress	Event Last received	EventState
AI-0	2BCh	2016/12/14 10:06:40.81	Life Safety Alarm

Calendar Interaction

The read result of a Calendar object in another BACnet device when joining BACnet is displayed. For the setting on a Calendar interaction, refer to the following section.

☞ Page 158 How to use the Calendar interaction function

Operating procedure

1. Select [Calendar Interaction] to check the result.

Calendar Interaction

First page Previous page Next page Last page

Calendar	Target device info.	Who-Has Result	Result
CAL-0	Device-254 CAL-0	N/A	Acquired

BACnetDevice

To perform BACnet communication with another BACnet device, the device should be recognized by the BACnet module as a communication target (recognized device).

Adding recognized devices

A recognized device can be added either automatically or by manually.
It is added to the DeviceAddressBinding property of a Device object.

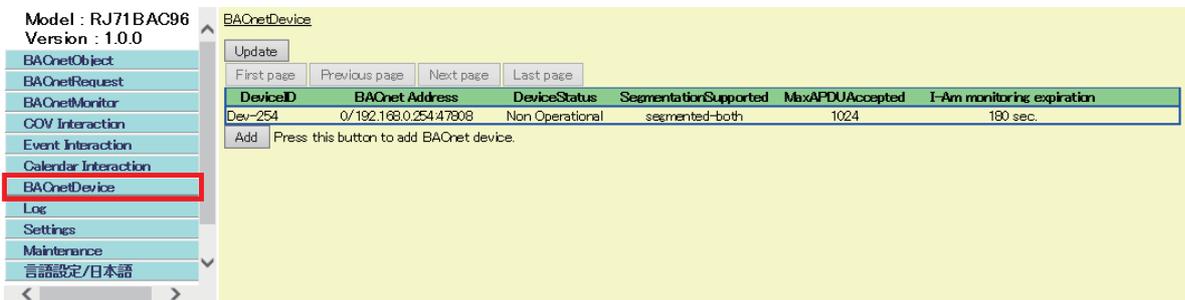
■ How to add the devices automatically

A BACnet module recognizes another BACnet device which sent an I-Am service as a target device.

■ How to add the devices manually

Operating procedure

1. Select [BACnetDevice].



2. Click the [Add] button, and set the following items.

BACnetDevice

Item	Value
DeviceInstanceNo	0
NetworkNo	0
IP Address	192.168.1.1
PortNo	47808
I-Am monitoring	Disable

Item	Description
DeviceInstanceNo	Specify the instance number of a device.
NetworkNo	Specify a network number.
IP Address	Set the IP address of a BACnet module.
PortNo	Set a port number for BACnet communication.
I-Am monitoring	Select whether to perform device existence monitoring by an I-Am or not.

3. Click the [Edit] button.
4. On the "BACnetDevice" screen, the recognized BACnet devices are displayed.

Log

Display communication logs and errors related to BACnet communication.

Displaying communication logs of BACnet

This function displays data that a BACnet module has been sent/received.

The maximum number of communication logs can be set in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "System" ⇒ "MaxComLogCount". (Page 281 System)

If the number of logs exceeds the maximum number of logs, the logs will be deleted in order from the oldest one, and a new log is saved.

Operating procedure

1. Select [Log] ⇒ [BACnet Communication] to display the list of logs.

Model : RJ71BAC96
Version : 1.1.0

BACnet Communication Log
Delete All Click this button to delete all log information

Update

First page Previous page Next page Last page

Index No	Date and Time	Direction	IP Address	PDU Type	Byte Size
Log-0	2000/01/06 00:30:28.44	Send	192.168.0.255:47808	UnconfirmedRequest UnconfirmedCOVNotification	52
Log-1	2000/01/06 00:30:28.47	Rec	192.168.0.254:47808	UnconfirmedRequest UnconfirmedCOVNotification	52
Log-2	2000/01/06 00:30:28.47	Send	192.168.0.255:47808	UnconfirmedRequest Who_Is	8
Log-3	2000/01/06 00:30:28.47	Rec	192.168.0.254:47808	UnconfirmedRequest Who_Is	8
Log-4	2000/01/06 00:30:29.47	Send	192.168.0.255:47808	UnconfirmedRequest UnconfirmedCOVNotification	52
Log-5	2000/01/06 00:30:29.47	Rec	192.168.0.254:47808	UnconfirmedRequest UnconfirmedCOVNotification	52
Log-6	2000/01/06 00:30:30.47	Send	192.168.0.255:47808	UnconfirmedRequest UnconfirmedCOVNotification	52
Log-7	2000/01/06 00:30:30.47	Send	192.168.0.255:47808	UnconfirmedRequest I_Am	21
Log-8	2000/01/06 00:30:30.48	Rec	192.168.0.254:47808	UnconfirmedRequest UnconfirmedCOVNotification	52
Log-9	2000/01/06 00:30:30.48	Rec	192.168.0.254:47808	UnconfirmedRequest I_Am	21
Log-10	2000/01/06 00:30:30.59	Send	192.168.0.254:47808	ConfirmedRequest ReadProperty	17
Log-11	2000/01/06 00:30:30.59	Rec	192.168.0.254:47808	ConfirmedRequest ReadProperty	17
Log-12	2000/01/06 00:30:30.59	Send	192.168.0.254:47808	ComplexACK ReadProperty	26
Log-13	2000/01/06 00:30:30.59	Rec	192.168.0.254:47808	ComplexACK ReadProperty	26
Log-14	2000/01/06 00:45:03.37	Send	192.168.0.255:47808	UnconfirmedRequest UnconfirmedCOVNotification	52
Log-15	2000/01/06 00:45:03.37	Rec	192.168.0.254:47808	UnconfirmedRequest UnconfirmedCOVNotification	52

2. Click a [Log-n] button to display the details of the log.

Displaying BACnet communication errors

This function displays errors related to BACnet communication.

Up to 100 errors can be displayed.

If the number of errors exceeds 100, the errors will be deleted in order from the oldest one, and a new error is saved.

Operating procedure

1. Select [Log] ⇒ [Message].

Model : RJ71BAC96
Version : 1.0.0

Message Log
Delete All Click this button to delete all log information

First page Previous page Next page Last page

Date and Time	Contents
2017/01/11 18:59:06.15	UDP Open Success IP=192.168.0.254.47808
2017/01/11 18:59:32.28	UDP Closed

Settings

The following menu items can be set.

The settings are automatically saved in the internal memory. Refer to the following section.

☞ Page 121 Backup Function

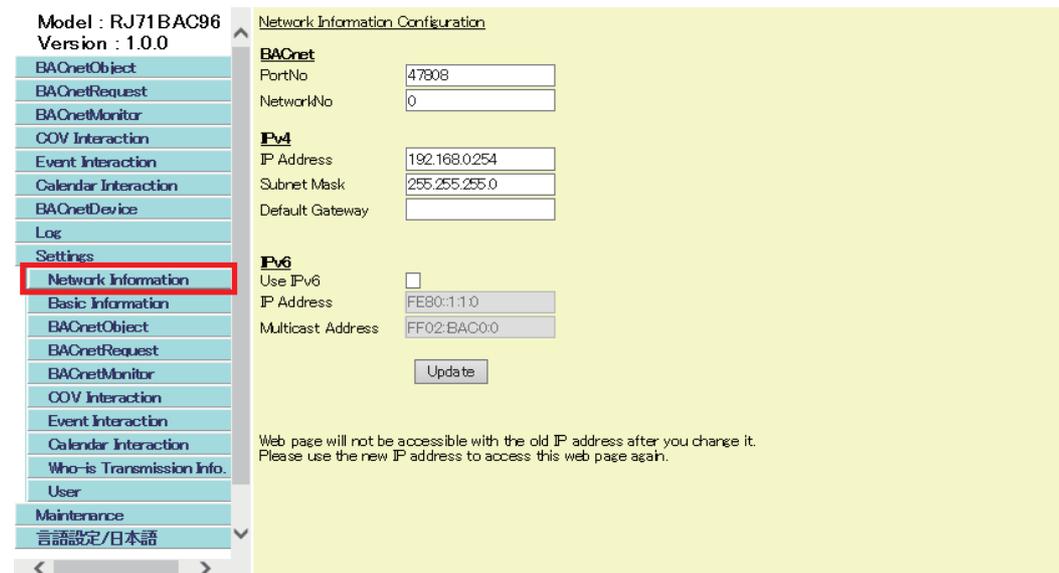
Menu item	Setting method	
Network Information	Page 197 Network information	
Basic Information	Page 198 Basic information	
BACnetObject	Page 201 BACnet object	
BACnetRequest	Read	Page 207 BACnet request (read)
	Write	Page 209 BACnet request (write)
BACnetMonitor	Page 210 BACnet monitoring	
COV Interaction	Page 212 COV interaction	
Event Interaction	Page 214 Event interaction	
Calendar Interaction	Page 216 Calendar interaction	
Who-Is Transmission Info.	Page 218 Who-Is Transmission Info.	
User	Page 221 User	

Network information

Set the network information of a BACnet module.

Operating procedure

1. Select [Settings] ⇒ [Network Information], and set the following items.



Item	Description	
BACnet	PortNo	Set a port number for BACnet communication.
	NetworkNo	Set a network number used for BACnet communication.
IPv4	IP Address	Set the IP address of a BACnet module.
	Subnet Mask	Set the subnet mask of a BACnet module.
	Default Gateway	Set the default gateway of a BACnet module.
IPv6	Use IPv6	Select this when using IPv6.
	IP Address	Set the IP address of a BACnet module for IPv6.
	Multicast Address	Set the multicast address of a BACnet module for IPv6.

2. Click the [Update] button.

Basic information

The instance number of a BACnet module, a BACnet standard with which the BACnet module complies, and BACnet detail setting can be set.

■ Setting an instance number and a BACnet standard

Set the instance number of a BACnet module and a BACnet standard with which the BACnet module complies.

Operating procedure

1. Select [Settings] ⇒ [Basic Information] and click the [Edit] button on the "BACnet Configuration" screen.

Model : RJ71BAC96
Version : 1.0.0

Item	Setting
DeviceInstanceNo	254
BACnet Standard Applied	IEEJ-P-0003:2000 Addendum-a

Edit Click this button to edit BACnet configuration. Note: Pause the operation to edit and apply new settings.

BACnet Detail Setting Click this button to browse detailed configuration.

2. Set the following items.

Item	Setting
DeviceInstanceNo	<input type="text" value="254"/>
BACnet Standard Applied	<input type="text" value="IEEJ-G-0006:2006 Addendum-a"/>

Item	Description
DeviceInstanceNo	Set the instance number of the BACnet module.
BACnet Standard Applied	Select any of the following BACnet standard. <ul style="list-style-type: none"> • ANSI/ASHRAE 2010 • IEEJ-G-0006:2006 Addendum-a • IEEJ-P-0003:2000 Addendum-a • ANSI/ASHRAE 2004

3. Click the [Update] button.

■ Configuring BACnet detail setting

Set the parameters related to the BACnet communication of the BACnet module.

Operating procedure

1. Select [Settings] ⇒ [Basic Information], and click the [BACnet Detail Setting] button.

Model : RJ71BAC96
Version : 1.0.0

BACnet Configuration

Item	Setting
DeviceInstanceNo	254
BACnet Standard Applied	IEIEJ-G-0006:2006 Addendum-a

Edit Click this button to edit BACnet configuration. Note: Pause the operation to edit and apply new settings.

BACnet Detail Setting Click this button to browse detailed configuration.

2. Click the [Edit] button on the "BACnet Detail Setting" screen.

Model : RJ71BAC96
Version : 1.1.0

BACnet Detail Setting

Back Edit

System

Item	Data	Note
Backup-Hour	3	Specifies the time, in hour, to make backup data.
Backup-Minute	15	Specifies the time, in minute, to make backup data.
MaxComLogCount	100	Indicates the maximum number of communication log records.
SleepTime	200	Specifies interval, in milliseconds, for reading buffer memory.

Interface

Item	Data	Note
CheckYDevice	0	Specifies whether (1) or not (0) to check Y signal to merge/abort into network.
InitialDataOutputDisable	0	If this value is set to 1, the Present_Value property values at the last shutdown are output to the buffer memory.
OutOfServiceControl	0	If this value is set to 1, the change in OutOfService is always output to Control in the buffer memory.
PulseDirectInput	0	If this value is set to 1, the value in buffer memory is considered datatype Unsigned32 and directly inserted to Present_Value (for AC and Keiryo object only).
RoundOffFlag	1	If this value is set to 1, the value is rounded and output to the buffer memory when Present_Value in AO or AV is written to. (Valid only when Data Conversion is enabled in AO/AV)

BACnet

Item	Data	Note
EventSendDisableOutOfService	0	If this value is set to 1, the Event notifications are not transmitted when OutOfService is TRUE.
DisableCOVDrivenByStatusFlags	0	While this value is set to 1, this a BACnet module not generate COV notification upon change of StatusFlags property value.
TimeChangeDisable	0	If this value is set to 1, the TimeChange of module will not be logged to a Trend Log

3. Set the items and click the [Update] button.

Model : RJ71BAC96
Version : 1.1.0

BACnet Detail Setting-Modify

Update Cancel

System

Item	Data	Note
Backup-Hour	3	Specifies the time, in hour, to make backup data.
Backup-Minute	15	Specifies the time, in minute, to make backup data.
MaxComLogCount	100	Indicates the maximum number of communication log records.
SleepTime	200	Specifies interval, in millsec, for reading buffer memory.

Interface

Item	Data	Note
CheckVDevice	0	Specifies whether (1) or not (0) to check V signal to merge/abort into network.
InitialDataOutputDisable	0	If this value is set to 1, the Present_Value property values at the last shutdown are output to the buffer memory.
OutOfServiceControl	0	If this value is set to 1, the change in OutOfService is always output to Control in the buffer memory.
PulseDirectInput	0	If this value is set to 1, the value in buffer memory is considered datatype Unsigned32 and directly inserted to PresentValue (for AO and Keiryo object only).
RoundOffFlag	1	If this value is set to 1, the value is rounded and output to the buffer memory when Present_Value in AO or AV is written to. (Valid only when Data Conversion is enabled in AO/AV)

BACnet

Item	Data	Note
EventSendDisableOutOfService	0	If this value is set to 1, the Event notifications are not transmitted when OutOfService is TRUE.
DisableCOVDrivenRvStatusFlags	0	While this value is set to 1, this unit will not generate COV notification upon change of

For details on each item, refer to the following section.

☞ Page 279 BACnet Detail Setting List

BACnet object

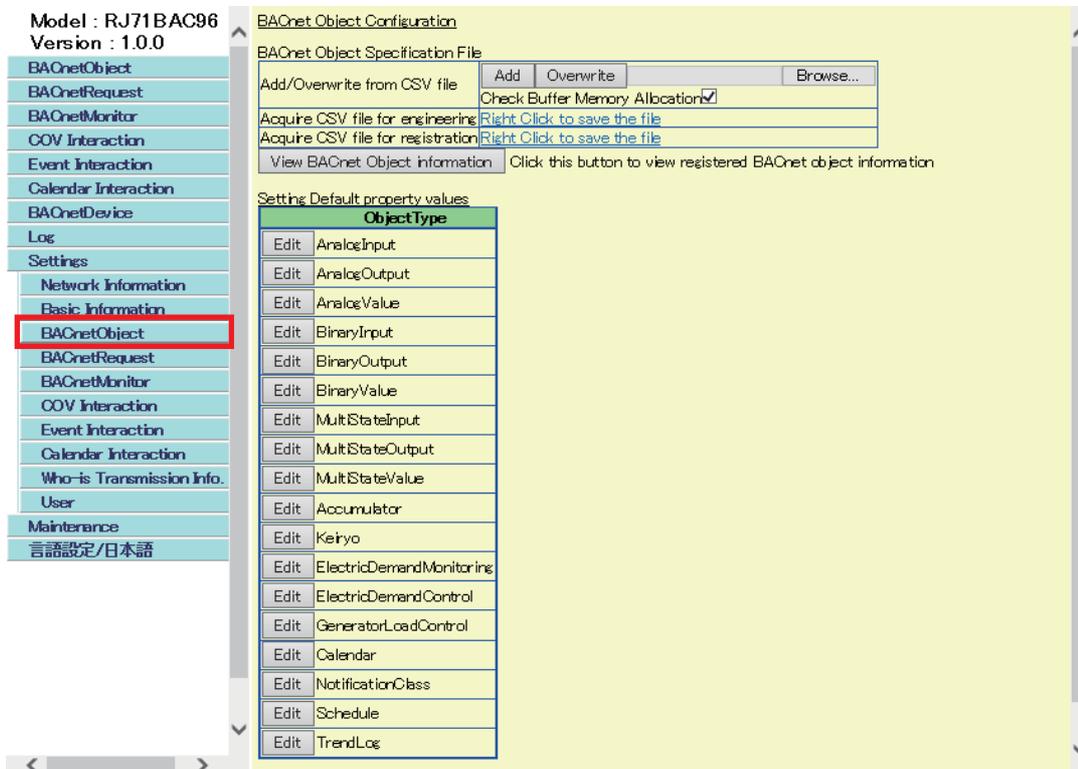
1

■ Setting Default Property

The following shows how to set the default property value of an object which is to be registered.

Operating procedure

1. Select [Settings] ⇒ [BACnetObject].



2. Click the [Edit] button of an object to set property value in "Setting Default property values".

- Click the [Edit] button on the property to set a value.
The following screen is an example of an AnalogInput object.

Default Property AnalogInput

Back Update

PropertyID	Name	Data	Access
0	AckedTransitions	(TTT)	Edit
17	NotificationClass	0	Edit
22	CovIncrement	0.000000	Edit
25	Deadband	0.000000	Edit
28	Description		Edit
31	DeviceType		Edit
35	EventEnable	(FFF)	Edit
36	EventState	Normal	Edit WriteDisable
45	HighLimit	0.000000	Edit
52	LimitEnable	(FF)	Edit
59	LowLimit	0.000000	Edit
65	MaxPresValue	0.000000	Edit UnUse
69	MinPresValue	0.000000	Edit UnUse
72	Notify Type	Alarm	Edit
75	ObjectIdentifier	AI-0	Edit WriteDisable
77	ObjectName		Edit
79	ObjectType	AnalogInput	Edit WriteDisable
81	OutOfService	False	Edit
85	PresentValue	0.000000	Edit
103	Reliability	No Fault Detected	Edit
106	Resolution	0.000000	Edit
111	StatusFlags	(FFFF)	Edit WriteDisable
113	TimeDelay	0	Edit
117	Units	square_meters	Edit
118	UpdateInterval	0	Edit
130	EventTimeStamps	Detail Number of Array elements 3	Edit
168	ProfileName		Edit
9001	PowerFactor	False	Edit
9002	IntrinsicEventDisable	False	Edit
9003	UnsolicitedCOV	No COV	Edit
9006	COVSendInterval	0	Edit

- Set a value and click the [Update] button.
The following figure shows an example when '10' is set to a NotificationClass.

Default Property AnalogInput NotificationClass

10

Update Close

■ Saving data to a CSV file

There are two types of CSV file formats for saving object data.

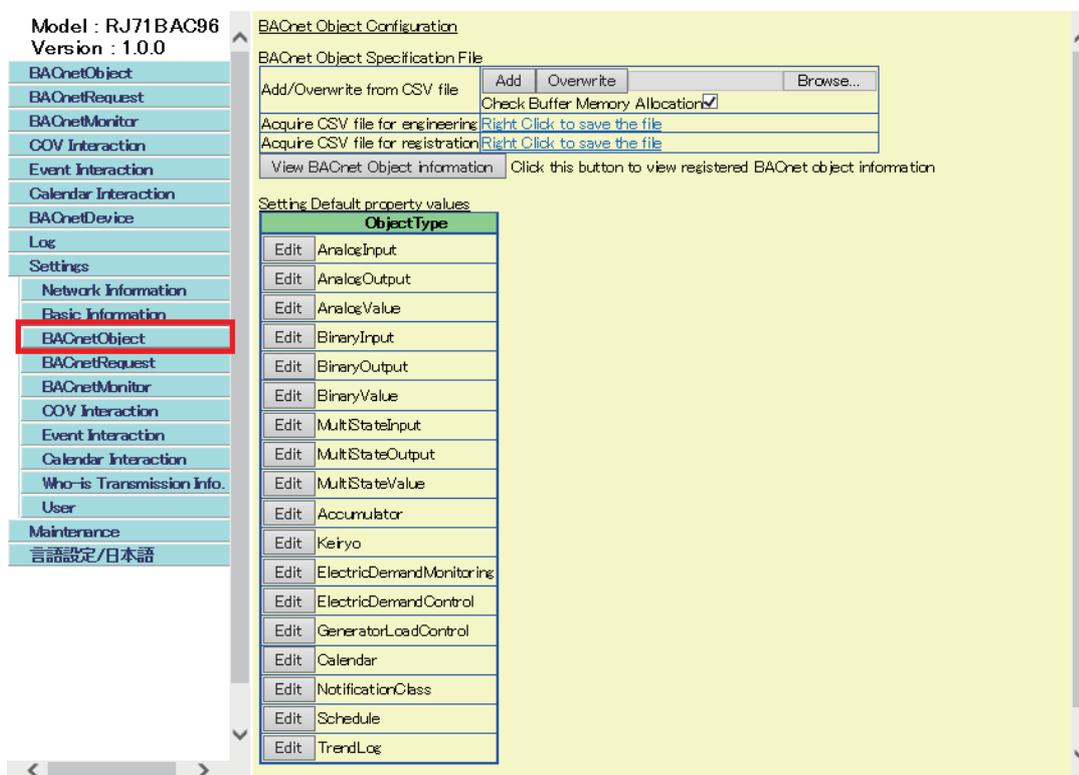
Name	Description
CSV file for engineering	The format is the same as that of a CSV file for object file which is regulated by the Institute of Electrical Installation Engineers of Japan.  Page 274 CSV file for engineering
CSV file for registration	A format to register objects to a BACnet module. The format of the column 1 to column 38 is the same as that of the CSV file for engineering. The column 39 to column 50 are for a BACnet module.  Page 275 CSV file for registration

Using a CSV file for registration is useful in the following situations.

- When editing the data of objects without connecting a BACnet module
- When replacing a BAQ08V to a MELSEC iQ-R series BACnet module (RJ71BAC96)

Operating procedure

1. Select [Settings] ⇒ [BACnetObject].



2. Right-click "Right Click to save the file" of "Acquire CSV file for engineering" or "Acquire CSV file for registration".
3. Click "Save target as" *1 in the shortcut menu.
4. Save the CSV file to an arbitrary location.

*1 For Internet Explorer® 11.0

■ Registering data from a CSV file

Register object data using a CSV file.

When setting an arbitrary value to the property of an object which is newly registered, set the items shown in the following section and register the object using a CSV file in advance.

☞ Page 201 Setting Default Property

Operating procedure

1. Select [Settings] ⇒ [BACnetObject].

Model : RJ71BAC96
Version : 1.0.0

BACnet Object Configuration

BACnet Object Specification File

Add/Overwrite from CSV file Add Overwrite Browse...

Check Buffer Memory Allocation

Acquire CSV file for engineering [Right Click to save the file](#)

Acquire CSV file for registration [Right Click to save the file](#)

View BACnet Object Information Click this button to view registered BACnet object information

Setting Default property values

	ObjectType
Edit	AnalogInput
Edit	AnalogOutput
Edit	AnalogValue
Edit	BinaryInput
Edit	BinaryOutput
Edit	BinaryValue
Edit	MultiStateInput
Edit	MultiStateOutput
Edit	MultiStateValue
Edit	Accumulator
Edit	Keiryo
Edit	ElectricDemandMonitoring
Edit	ElectricDemandControl
Edit	GeneratorLoadControl
Edit	Calendar
Edit	NotificationClass
Edit	Schedule
Edit	TrendLog

2. Click the [Browse] button and select a CSV file.

BACnet Object Configuration

BACnet Object Specification File

Add/Overwrite from CSV file

Check Buffer Memory Allocation

Acquire CSV file for engineering [Right Click to save the file](#)

Acquire CSV file for registration [Right Click to save the file](#)

Click this button to view registered BACnet object information

Setting Default property values

ObjectType	
Edit	AnalogInput
Edit	AnalogOutput
Edit	AnalogValue
Edit	BinaryInput
Edit	BinaryOutput
Edit	BinaryValue
Edit	MultiStateInput
Edit	MultiStateOutput
Edit	MultiStateValue
Edit	Accumulator
Edit	Keiryo
Edit	ElectricDemandMonitoring
Edit	ElectricDemandControl
Edit	GeneratorLoadControl
Edit	Calendar
Edit	NotificationClass
Edit	Schedule
Edit	TrendLog

3. When checking the duplication of the buffer memory address specified with a CSV file and the buffer memory address in a BACnet module, select the "Check Buffer Memory Allocation" *1 checkbox.

If the checkbox is selected, the duplicated buffer memory address will not be assigned.

4. Click the [Add]*1 button or the [Overwrite]*2 button in the row of "Add/Overwrite from CSV file".

*1 Click this button when registering only unassigned data to a BACnet module among the data in a CSV file.

*2 Click this button when deleting data in a BACnet module and overwrite the data with the data in a CSV file.

BACnet Object Configuration

BACnet Object Specification File

Add/Overwrite from CSV file

Check Buffer Memory Allocation

Acquire CSV file for engineering [Right Click to save the file](#)

Acquire CSV file for registration [Right Click to save the file](#)

Click this button to view registered BACnet object information

Setting Default property values

ObjectType	
Edit	AnalogInput
Edit	AnalogOutput
Edit	AnalogValue
Edit	BinaryInput
Edit	BinaryOutput
Edit	BinaryValue
Edit	MultiStateInput
Edit	MultiStateOutput
Edit	MultiStateValue
Edit	Accumulator
Edit	Keiryo
Edit	ElectricDemandMonitoring
Edit	ElectricDemandControl
Edit	GeneratorLoadControl
Edit	Calendar
Edit	NotificationClass
Edit	Schedule
Edit	TrendLog

5. The registration result of the object is displayed.
 The number of successfully registered objects is displayed in "Success Count".
 If failed, check the error factor displayed in "Description".

BACnet Object Configuration

Object Implementation Completed.

Success Count=0

Lines	ObjectID	Description	Result
1	???	Invalid InstanceNo specified.	FAILED
2	AI-0	Already exists.	FAILED
3	AI-1	Already exists.	FAILED
4	AI-2	Already exists.	FAILED
5	AO-0	Buffer memory allocation failed.	FAILED
6	AO-1	Already exists.	FAILED
7	AV-0	Buffer memory allocation failed.	FAILED
8	AV-1	Buffer memory allocation failed.	FAILED
9	BI-0	Buffer memory allocation failed.	FAILED
10	TL-0	Already exists.	FAILED
11	AI-3	Buffer memory allocation failed.	FAILED

Precautions

- If the buffer memory address specified in a CSV file is duplicated when the "Check Buffer Memory Allocation" checkbox is selected, the assignment of the duplicated buffer memory address will fail. The addresses which are not duplicated are all assigned.
- If the checkbox is not selected, a free space in the buffer memory is automatically assigned.

BACnet request (read)

For the assignment method of a data block (access block for reading) with a web browser, refer to the operating procedure from 1 to 3 described in the following section.

☞ Page 124 How to use the read function

For details on the format of access blocks for reading, refer to the following section.

☞ Page 291 Format of access blocks for reading

■ Assigning data blocks using a CSV file

By using a CSV file, multiple data blocks^{*1} can be assigned in a batch.

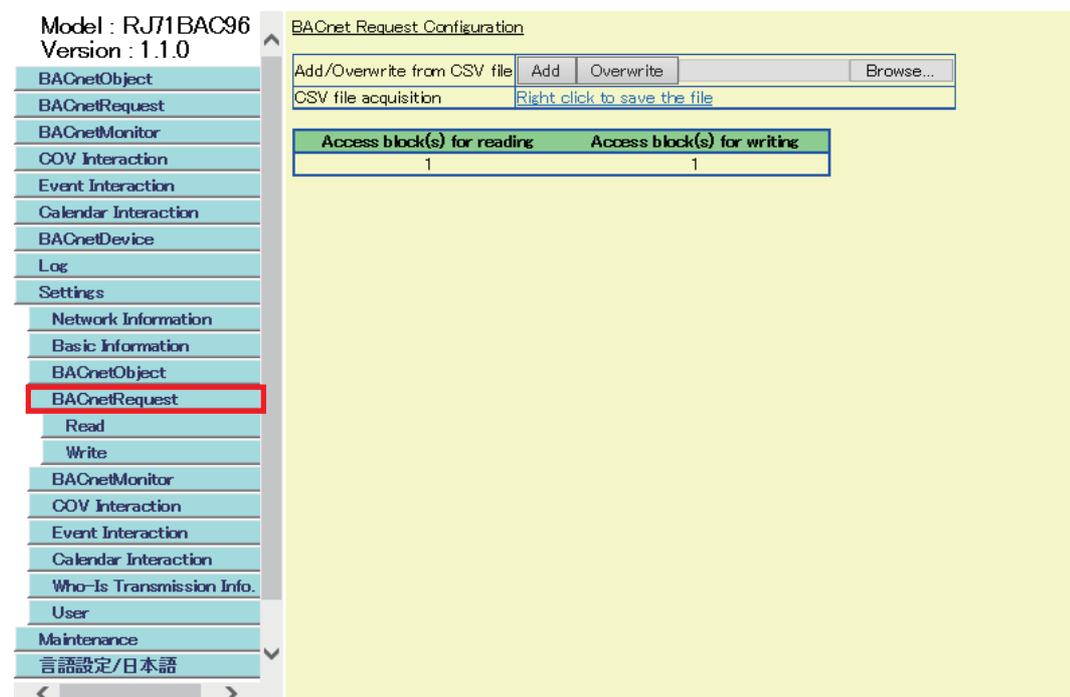
For the format of CSV files, refer to the following section.

☞ Page 276 CSV file for the BACnet request function

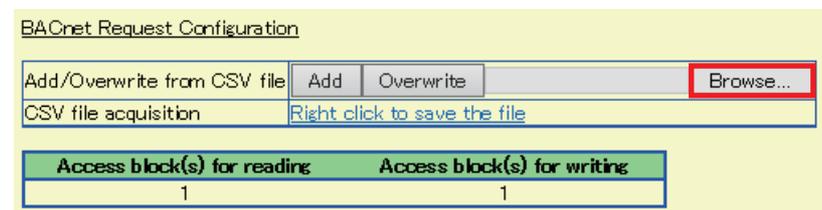
*1 When '0' is specified to the buffer memory address, the data blocks are automatically assigned to the free space in the buffer memory.

Operating procedure

1. Select [Settings] ⇒ [BACnetRequest].



2. Click the [Browse] button and select a CSV file.



3. Click the [Add]^{*1} button or the [Overwrite]^{*2} button in the row of "Add/Overwrite from CSV file".

*1 Click this button when assigning only unassigned data to a BACnet module among the data in a CSV file.

*2 Click this button when deleting data in a BACnet module and overwrite the data with the data in a CSV file.

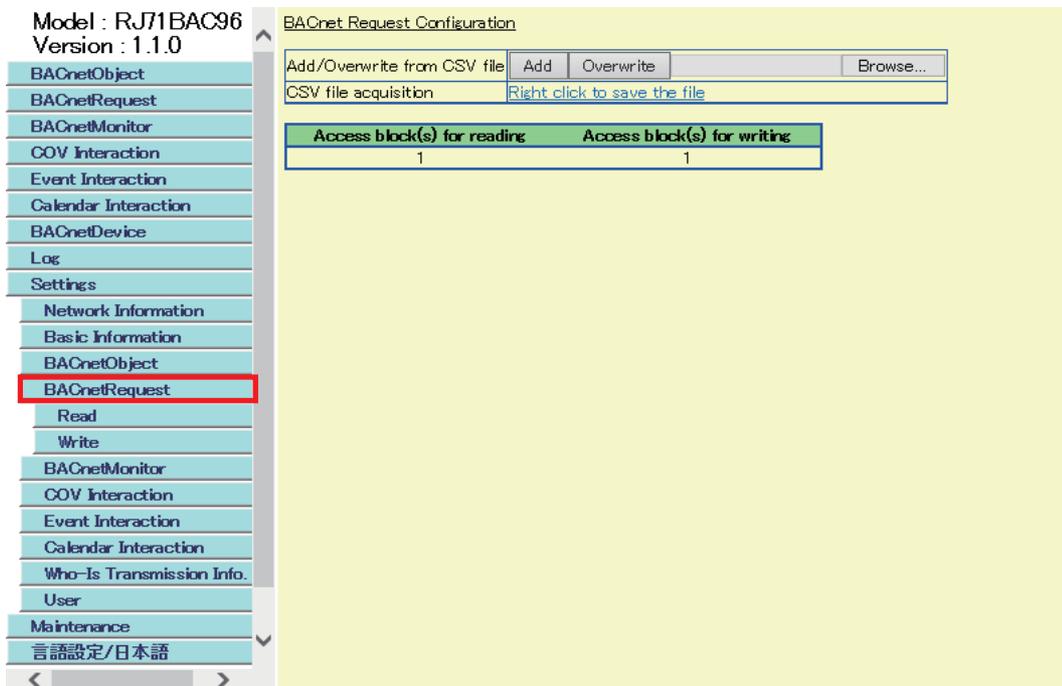


■ Saving data to a CSV file

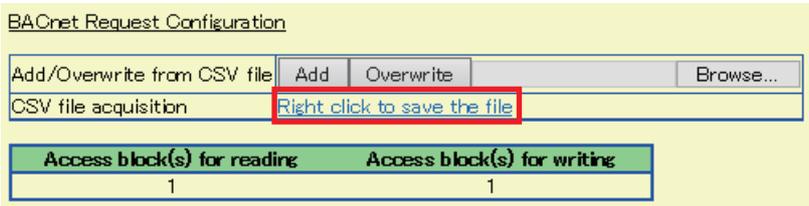
The following shows how to save an access block for reading to a CSV file.

Operating procedure

1. Select [Settings] ⇒ [BACnetRequest].



2. Right-click "Right Click to save the file" in the row of "CSV file acquisition".



3. Click "Save target as" *1 in the shortcut menu.
4. Save the CSV file to an arbitrary location.

*1 For Internet Explorer® 11.0

BACnet request (write)

For the assignment method of a data block (access block for writing) with a web browser, refer to the operating procedure from 1 to 3 described in the following section.

☞ Page 132 How to use the write function

For details on the format of access blocks for writing, refer to the following section.

☞ Page 292 Format of access blocks for writing

■ Assigning data blocks using a CSV file

By using a CSV file, multiple data blocks^{*1} can be assigned in a batch.

For the assignment method, refer to the following section.

☞ Page 207 Assigning data blocks using a CSV file

For the format of CSV files, refer to the following section.

☞ Page 276 CSV file for the BACnet request function

*1 When '0' is specified to the buffer memory address, the data blocks are automatically assigned to the free space in the buffer memory.

■ Saving data to a CSV file

For the method to save an access block for writing to a CSV file, refer to the following section.

☞ Page 208 Saving data to a CSV file

BACnet monitoring

For the assignment method of a data block (access block for BACnet monitoring) with a web browser, refer to the operating procedure from 1 to 3 described in the following section.

☞ Page 140 How to use the BACnet monitoring function

For details on the format of access blocks for BACnet monitoring, refer to the following section.

☞ Page 293 Format of access blocks for BACnet monitoring

■ Assigning data blocks using a CSV file

By using a CSV file, multiple data blocks^{*1} can be assigned in a batch.

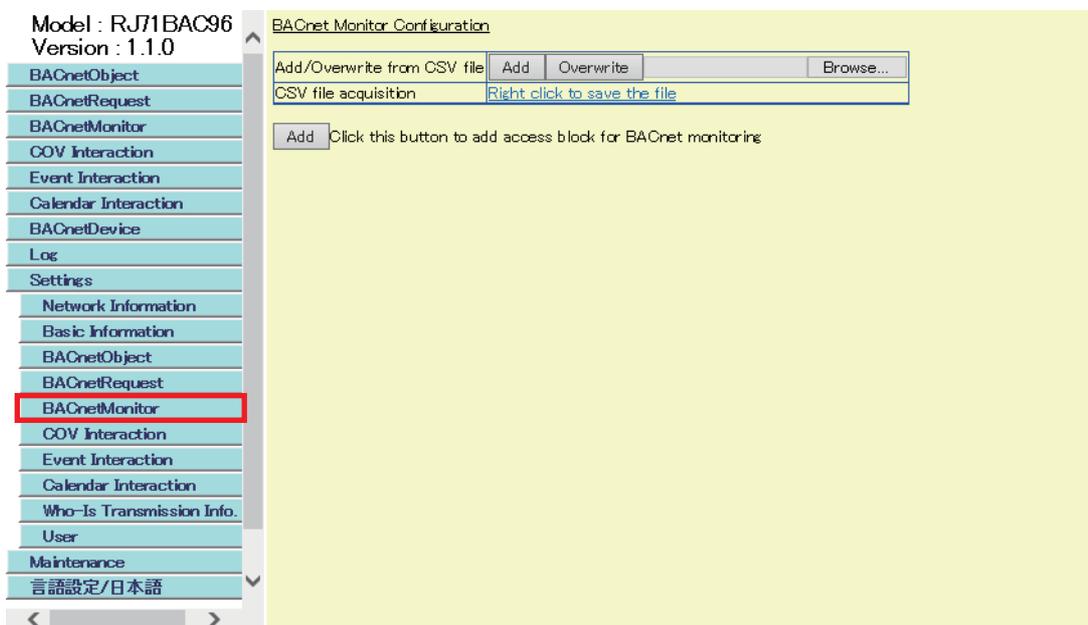
For the format of CSV files, refer to the following section.

☞ Page 276 CSV file for the BACnet monitoring function

*1 When '0' is specified to the buffer memory address, the data blocks are automatically assigned to the free space in the buffer memory.

Operating procedure

1. Select [Settings] ⇒ [BACnetMonitor].



2. Click the [Browse] button and select a CSV file.



3. Click the [Add]^{*1} button or the [Overwrite]^{*2} button in the row of "Add/Overwrite from CSV file".

*1 Click this button when assigning only unassigned data to a BACnet module among the data in a CSV file.

*2 Click this button when deleting data in a BACnet module and overwrite the data with the data in a CSV file.

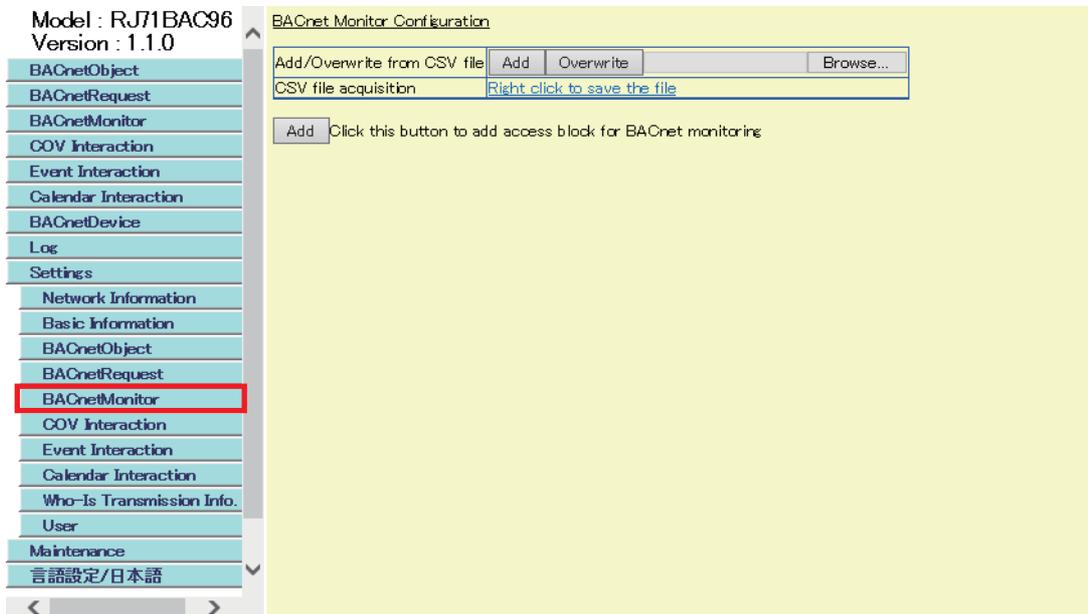


■ Saving data to a CSV file

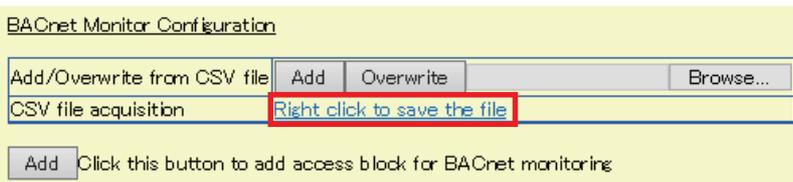
The following shows how to save an access block for BACnet monitoring to a CSV file.

Operating procedure

1. Select [Settings] ⇒ [BACnetMonitor].



2. Right-click "Right Click to save the file" in the row of "CSV file acquisition".



3. Click "Save target as" *1 in the shortcut menu.
4. Save the CSV file to an arbitrary location.

*1 For Internet Explorer® 11.0

COV interaction

For the assignment method of a data block (access block for COV interaction) with a web browser, refer to the operating procedure from 1 to 3 described in the following section.

☞ Page 146 How to use the COV interaction function

For details on the format of access blocks for COV interaction, refer to the following section.

☞ Page 294 Format of access blocks for COV interaction

■ Assigning data blocks using a CSV file

By using a CSV file, multiple data blocks^{*1} can be assigned in a batch.

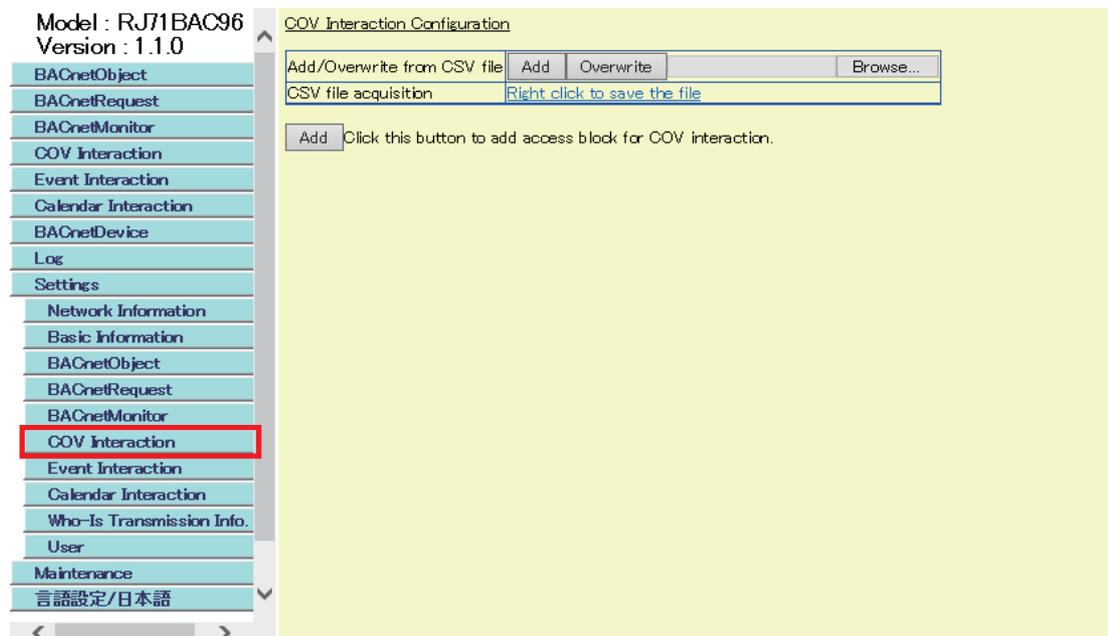
For the format of CSV files, refer to the following section.

☞ Page 277 CSV file for the COV interaction function

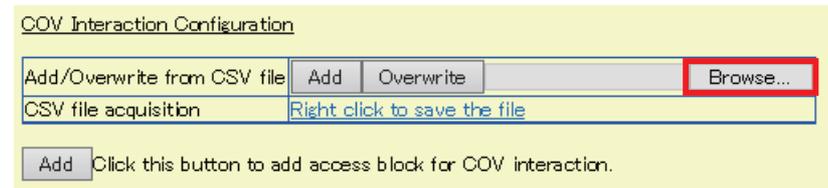
*1 When '0' is specified to the buffer memory address, the data blocks are automatically assigned to the free space in the buffer memory.

Operating procedure

1. Select [Settings] ⇒ [COV Interaction].



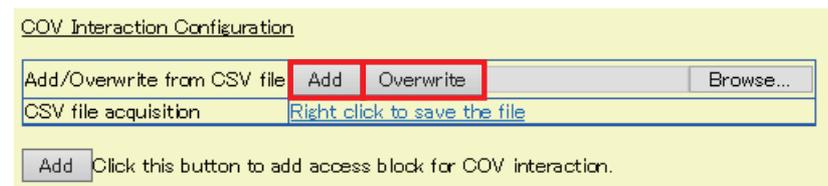
2. Click the [Browse] button and select a CSV file.



3. Click the [Add]^{*1} button or the [Overwrite]^{*2} button in the row of "Add/Overwrite from CSV file".

*1 Click this button when assigning only unassigned data to a BACnet module among the data in a CSV file.

*2 Click this button when deleting data in a BACnet module and overwrite the data with the data in a CSV file.

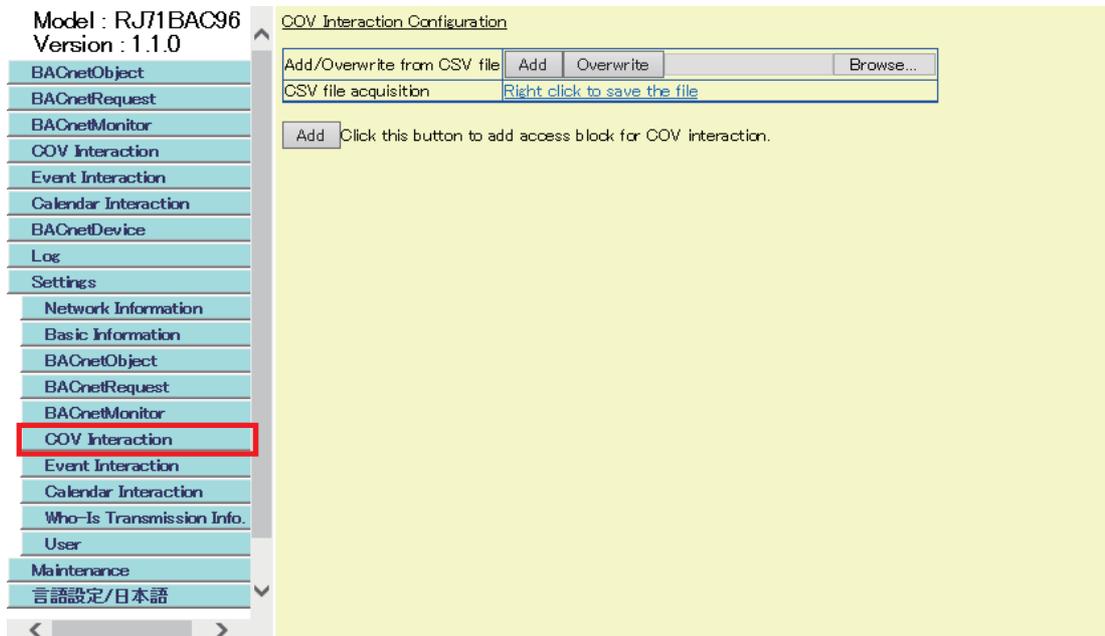


■ Saving data to a CSV file

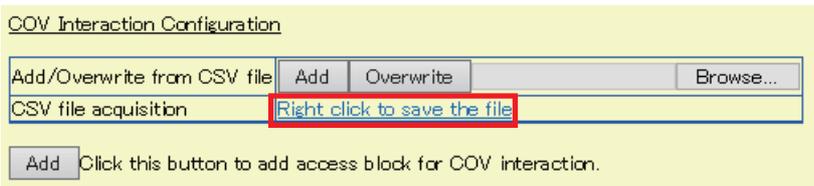
The following shows how to save an access block for COV interaction to a CSV file.

Operating procedure

1. Select [Settings] ⇒ [COV Interaction].



2. Right-click "Right Click to save the file" in the row of "CSV file acquisition".



3. Click "Save target as" *1 in the shortcut menu.

4. Save the CSV file to an arbitrary location.

*1 For Internet Explorer® 11.0

Event interaction

For the assignment method of a data block (access block for Event interaction) with a web browser, refer to the operating procedure from 1 to 3 described in the following section.

☞ Page 152 How to use the Event interaction function

For details on the format of access blocks for Event interaction, refer to the following section.

☞ Page 295 Format of access blocks for Event interaction

■ Assigning data blocks using a CSV file

By using a CSV file, multiple data blocks^{*1} can be assigned in a batch.

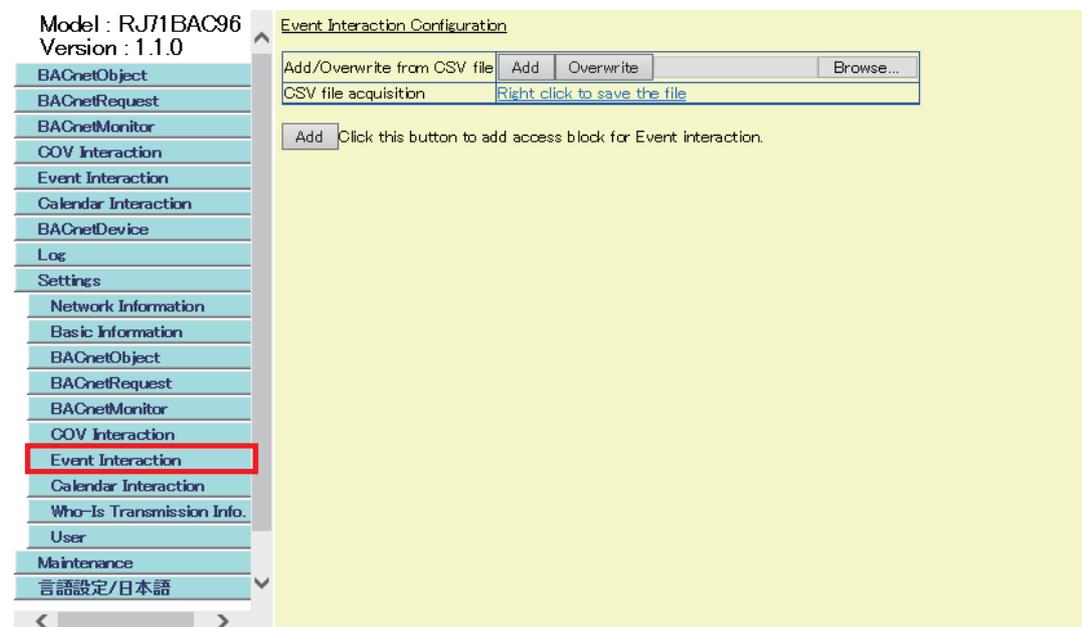
For the format of CSV files, refer to the following section.

☞ Page 277 CSV file for the Event interaction function

*1 When '0' is specified to the buffer memory address, the data blocks are automatically assigned to the free space in the buffer memory.

Operating procedure

1. Select [Settings] ⇒ [Event Interaction].



2. Click the [Browse] button and select a CSV file.



3. Click the [Add]^{*1} button or the [Overwrite]^{*2} button in the row of "Add/Overwrite from CSV file".

*1 Click this button when assigning only unassigned data to a BACnet module among the data in a CSV file.

*2 Click this button when deleting data in a BACnet module and overwrite the data with the data in a CSV file.

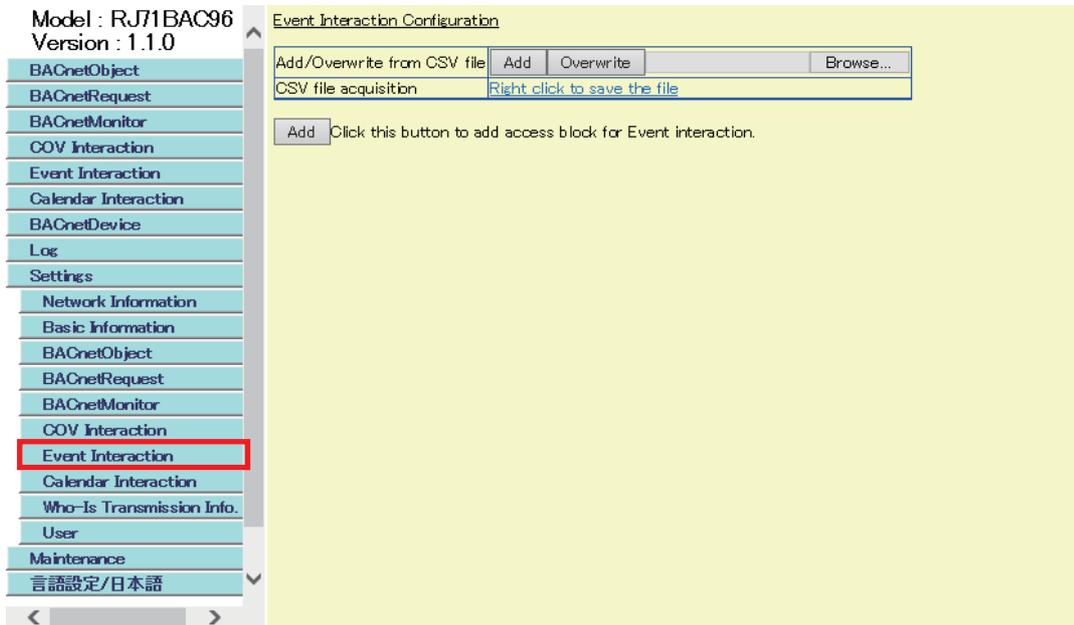


■ Saving data to a CSV file

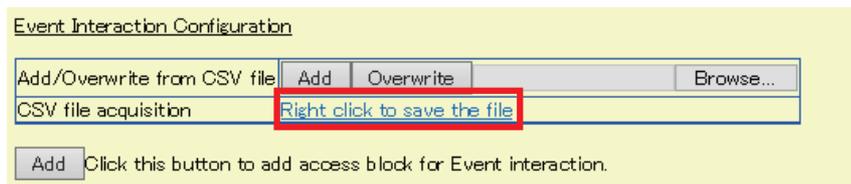
The following shows how to save an access block for Event interaction to a CSV file.

Operating procedure

1. Select [Settings] ⇒ [Event Interaction].



2. Right-click "Right Click to save the file" in the row of "CSV file acquisition".



3. Click "Save target as" *1 in the shortcut menu.
4. Save the CSV file to an arbitrary location.

*1 For Internet Explorer® 11.0

Calendar interaction

For the method to specify the copy source BACnet device of Calendar information which is to be referred when joining BACnet using a web browser, refer to the operating procedure from 1 to 4 described in the following section.

☞ Page 158 How to use the Calendar interaction function

■ Specifying objects using a CSV file

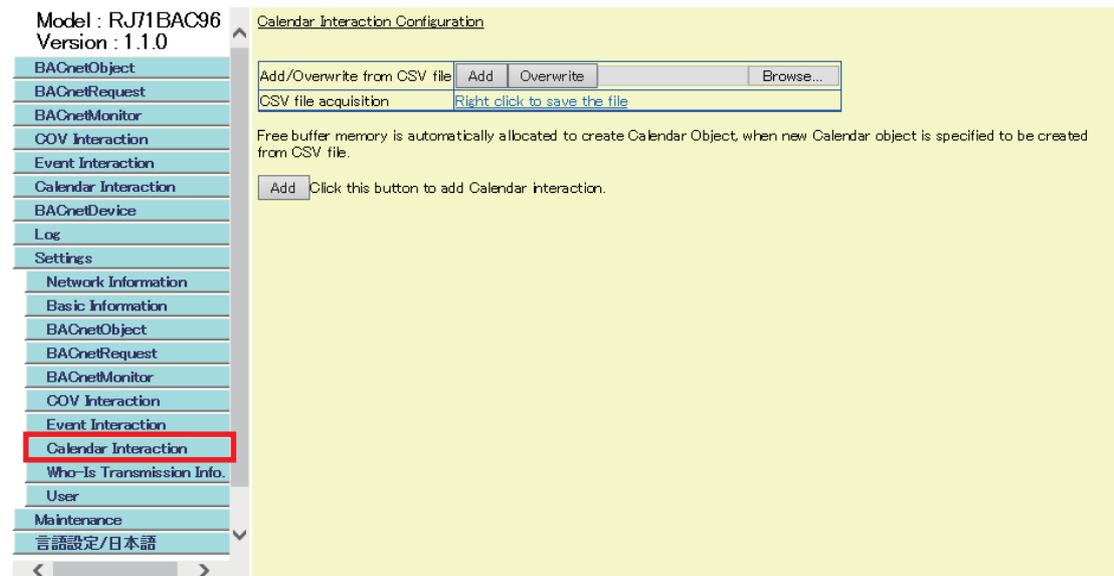
By using a CSV file, multiple Calendar objects can be specified in a batch.

For the format of CSV files, refer to the following section.

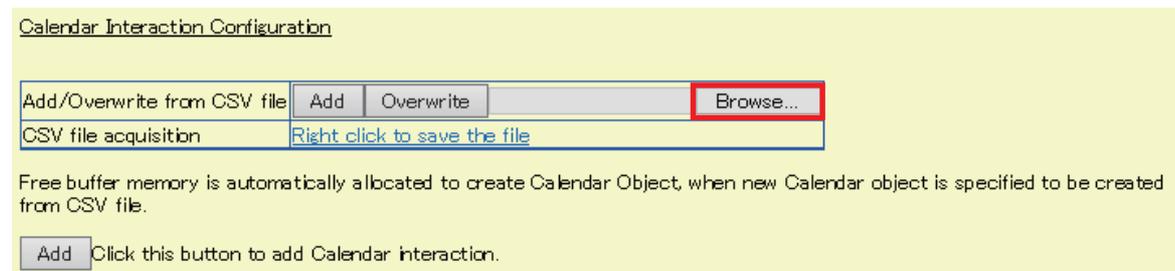
☞ Page 278 CSV file for the Calendar interaction function

Operating procedure

1. Select [Settings] ⇒ [Calendar Interaction].



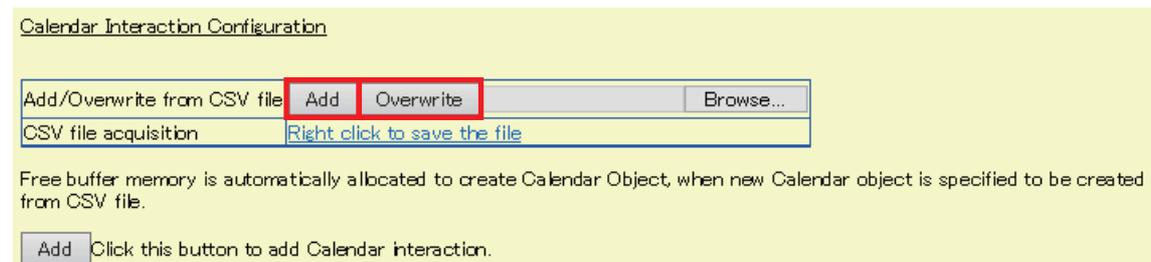
2. Click the [Browse] button and select a CSV file.



3. Click the [Add] *1 button or the [Overwrite]*2 button in the row of "Add/Overwrite from CSV file".

*1 Click this button when adding only unassigned data to a BACnet module among the data in a CSV file.

*2 Click this button when deleting data in a BACnet module and overwrite the data with the data in a CSV file.

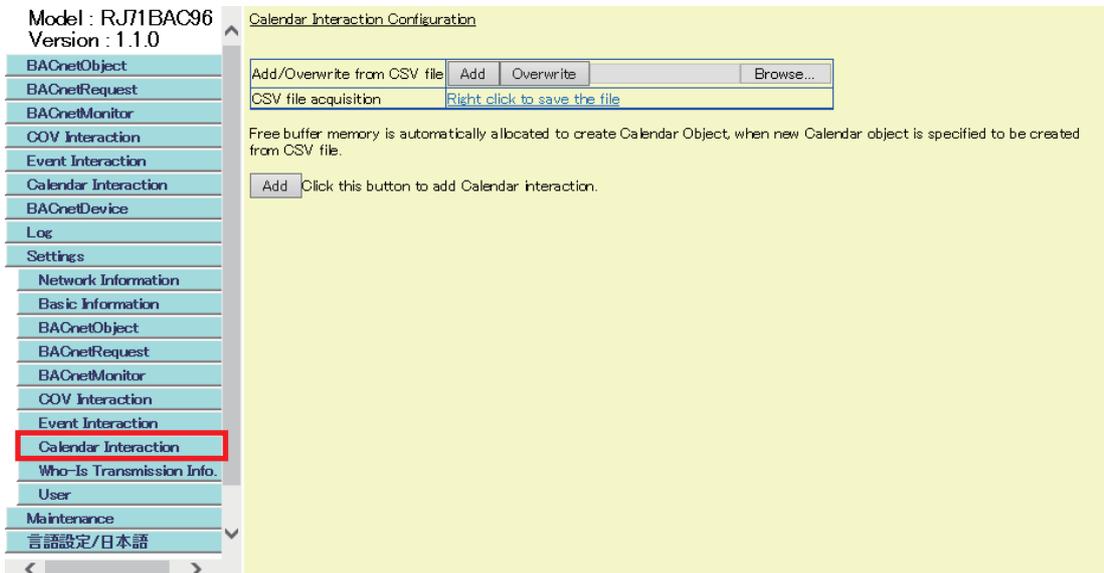


■ Saving data to a CSV file

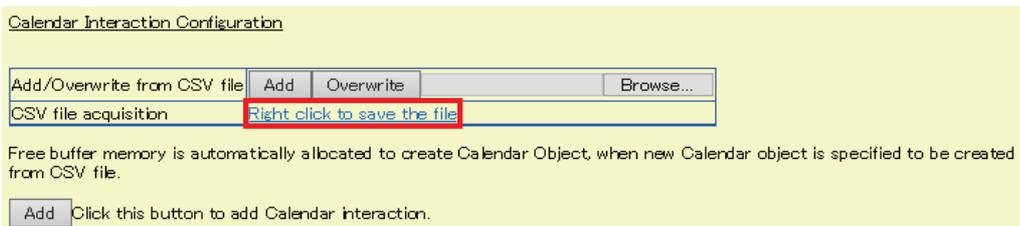
The following shows how to save a Calendar interaction setting to a CSV file.

Operating procedure

1. Select [Settings] ⇒ [Calendar Interaction].



2. Right-click "Right Click to save the file" in the row of "CSV file acquisition".



3. Click "Save target as" *1 in the shortcut menu.
4. Save the CSV file to an arbitrary location.

*1 For Internet Explorer® 11.0

Who-Is Transmission Info.

With the Who-Is send setting, set a send target BACnet device where Who-Is services are to be sent from a BACnet module periodically.

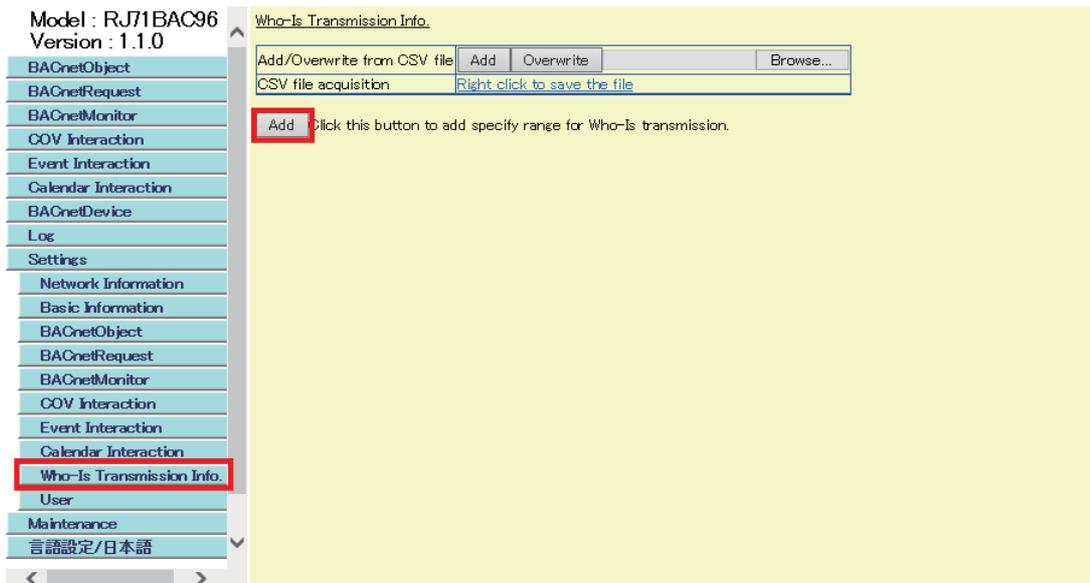
The send target BACnet device of Who-Is services can be specified with any of the following methods.

- ☞ Page 218 Specifying a device using a web browser
- ☞ Page 219 Specifying devices from a CSV file in a batch

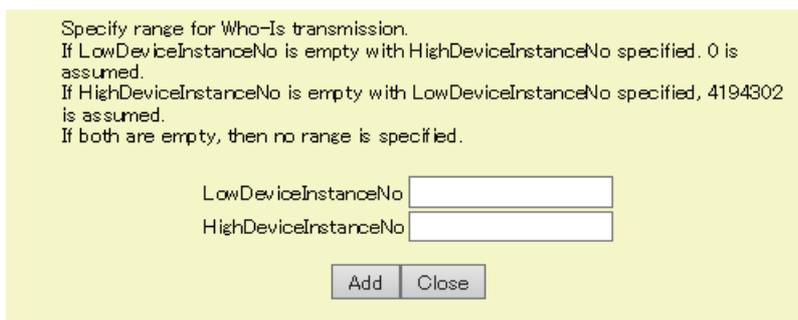
■ Specifying a device using a web browser

Operating procedure

1. Select [Settings] ⇒ [Who-Is Transmission Info.], and click the [Add] button on the "Who-Is address" screen.



2. Set the minimum instance number to "LowDeviceInstanceNo" and the maximum instance number to "HighDeviceInstanceNo" among the send target BACnet devices of Who-Is services.



■ Specifying devices from a CSV file in a batch

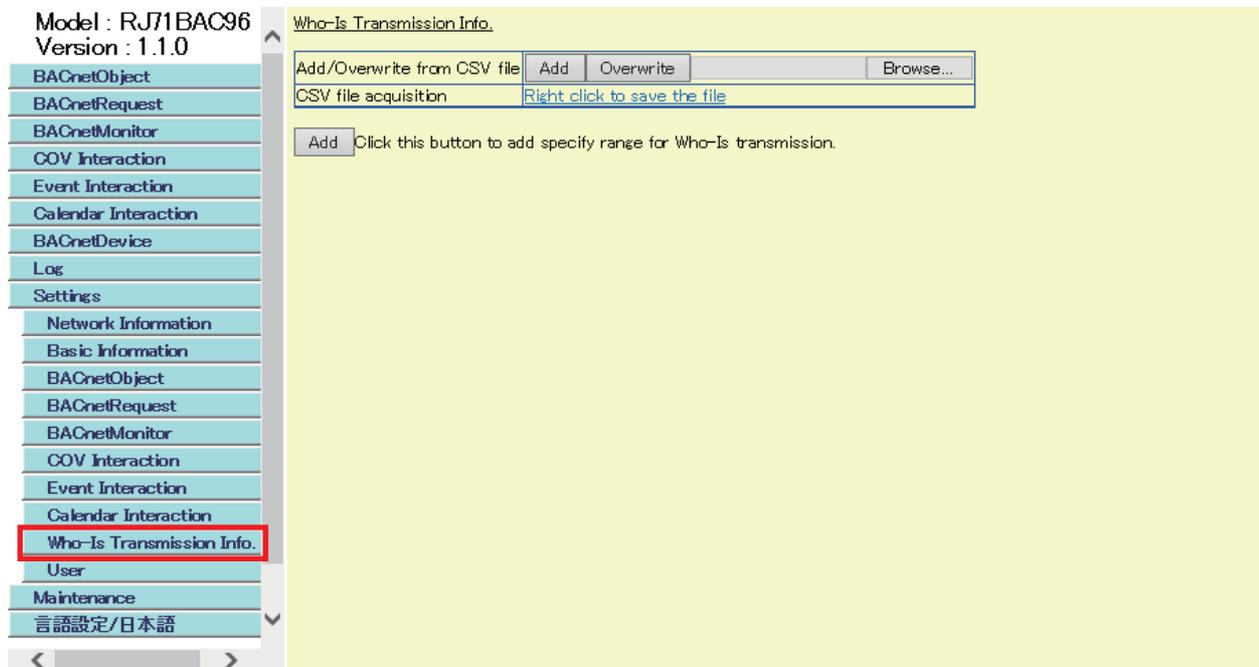
By using a CSV file, multiple BACnet devices can be specified in a batch.

For the format of CSV files, refer to the following section.

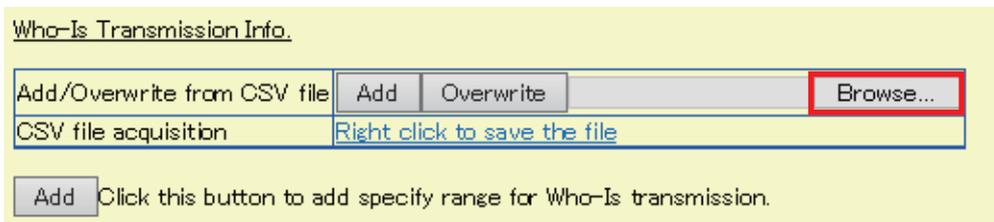
☞ Page 278 CSV file for Who-Is send setting

Operating procedure

1. Select [Settings] ⇒ [Who-Is Transmission Info.].



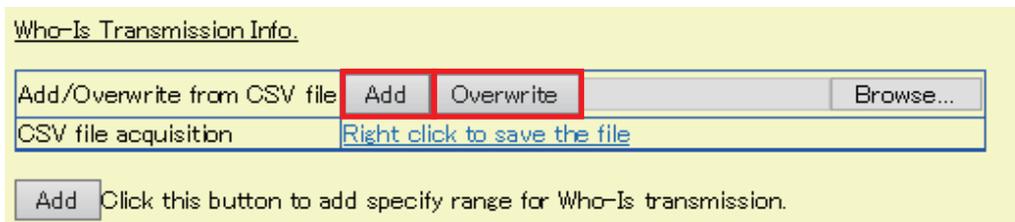
2. Click the [Browse] button and select a CSV file.



3. Click the [Add]^{*1} button or the [Overwrite]^{*2} button in the row of "Add/Overwrite from CSV file".

*1 Click this button when adding only unassigned data to a BACnet module among the data in a CSV file.

*2 Click this button when deleting data in a BACnet module and overwrite the data with the data in a CSV file.

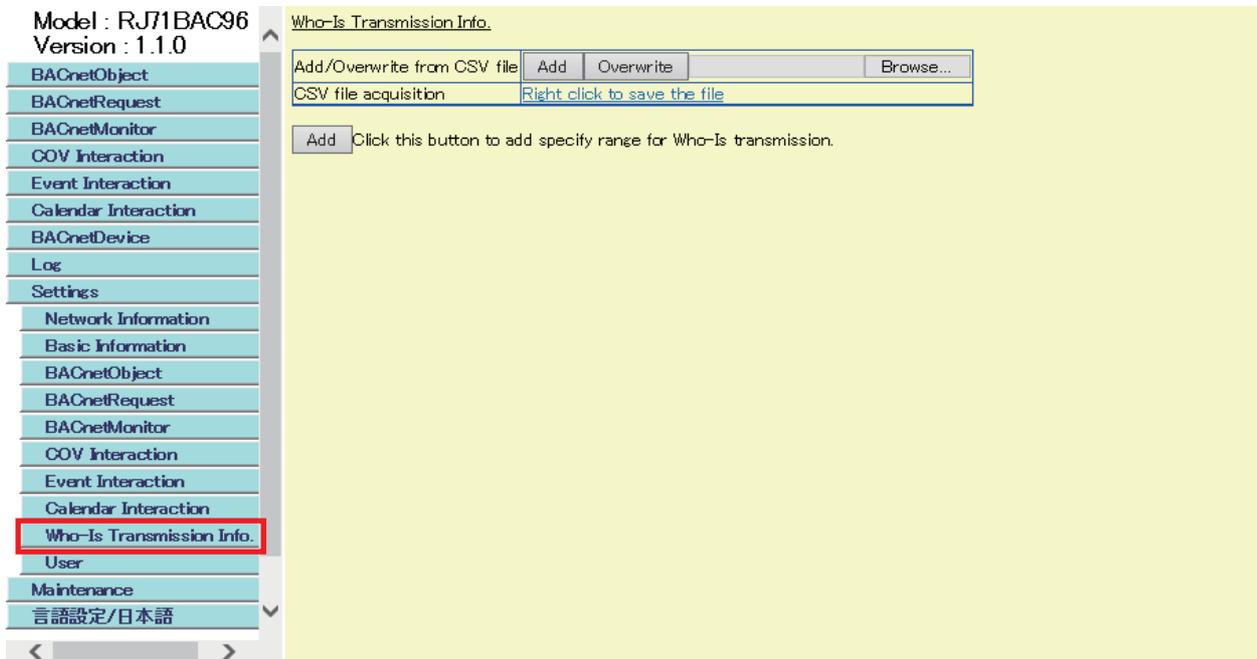


■ Saving data to a CSV file

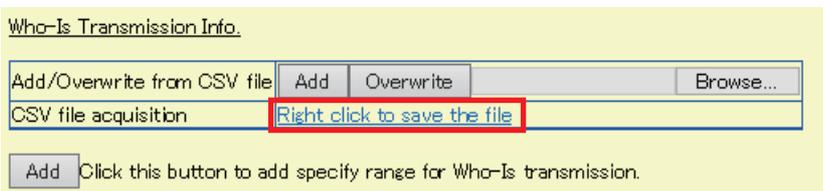
The following shows how to save a Who-Is send setting to a CSV file.

Operating procedure

1. Select [Settings] ⇒ [Who-Is Transmission Info.].



2. Right-click "Right Click to save the file" in the row of "CSV file acquisition".



3. Click "Save target as" *1 in the shortcut menu.
4. Save the CSV file to an arbitrary location.

*1 For Internet Explorer® 11.0

User

This function protects data on a BACnet module by setting authorities for each user.

The user setting can be edited only by the general administrator.

For the authority, refer to the following section.

☞ Page 223 Authority

Window

[Settings] ⇨ [User]

Model : RJ71BAC96
Version : 1.1.0

BACnetObject
BACnetRequest
BACnetMonitor
COV Interaction
Event Interaction
Calendar Interaction
BACnetDevice
Log
Settings
Network Information
Basic Information
BACnetObject
BACnetRequest
BACnetMonitor
COV Interaction
Event Interaction
Calendar Interaction
Who-Is Transmission Info.
User
Maintenance
言語設定/日本語

User Setting

User Name	Authority	
root	General Administrator	Edit

Add User... Click this button to add user.

■ Adding a user

Add a user.

Operating procedure

1. Click the [Add User] button on the "User Setting" screen.

User Setting

User Name	Authority	
root	General Administrator	Edit

Add User... Click this button to add user.

2. Enter the "User Name", "Password", and "Re-enter Password" fields, set the authority, then click the [Update] button.

Add User...

Adding user.

Item	Contents
User Name	user
Password	
Re-enter Password	
Authority	User

Update Close

■ Editing a user

Edit the password and authority.

Operating procedure

1. Click the [Edit] button of the user to edit on the "User Setting" screen.

User Setting

User Name	Authority	
root	General Administrator	Edit
user	User	Edit Delete

Add User... Click this button to add user.

2. Enter the "Password" field and the "Re-enter Password" field, select an authority from "Authority", then click the [Update] button.

Change User Password

Item	Contents
User Name	root
Password	<input type="text"/>
Re-enter Password	<input type="text"/>
Authority	General Administrator ▼

Update Close

■ Deleting a user

Delete a user.

Operating procedure

1. Click the [Delete] button of the user to delete on the "User Setting" screen.

User Setting

User Name	Authority	
root	General Administrator	Edit
user	User	Edit Delete

Add User... Click this button to add user.

Point

- To log in another user, close all open web browsers.

■ Authority

"General Administrator" can change and view data.

"User" can only view data.

The following shows the availability of displaying each menu of configuration functions.

○: Available, ×: Not available

Menu item		General Administrator	User
BACnetObject		○	○
BACnetRequest	Read	○	○
	Write	○	○
BACnetMonitor		○	○
COV Interaction		○	○
Event Interaction		○	○
Calendar Interaction		○	○
BACnetDevice		○	○
Log	BACnet Communication	○	○
	Message	○	○
Settings	Network Information	○	×
	Basic Information	○	×
	BACnetObject	○	×
	BACnetRequest	○	×
	BACnetMonitor	○	×
	COV Interaction	○	×
	Event Interaction	○	×
	Calendar Interaction	○	×
	Who-Is Transmission Info.	○	×
	User	○	×
Maintenance	Pause/Restart	○	×
	Backup/Restore	○	×
	Internal Memory Area	○	×
Language/English ^{*1}		○	×

*1 When the language is switched, this menu is displayed as [Language setting/Japanese] in Japanese.

Maintenance

The following menu items can be set.

Menu item	Reference
Pause/Restart	Page 224 Pause/Restart
Backup/Restore	Page 226 Backup/Restore
Internal Memory Area	Page 227 Internal Memory Area

Pause/Restart

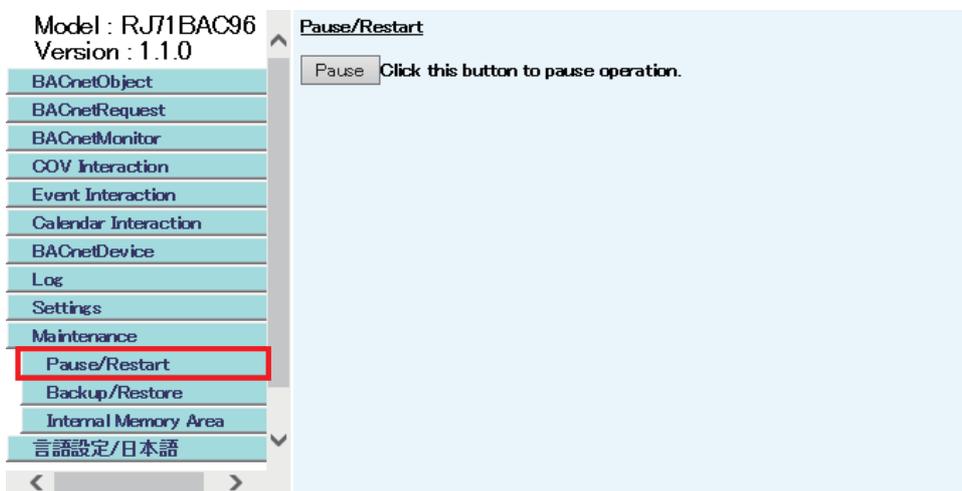
Pause or restart the operation of a BACnet module.

Stop the operation of the BACnet module before setting the BACnet module with a configuration function.

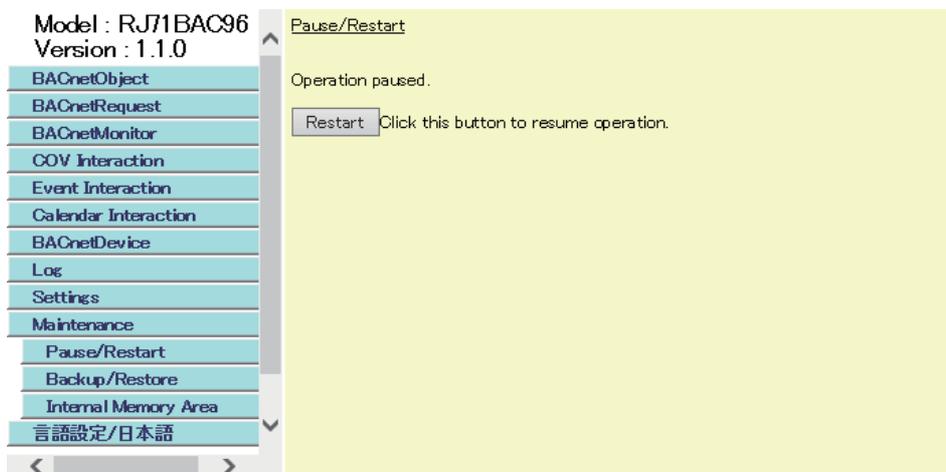
■ Pause

Operating procedure

1. Select [Maintenance] ⇒ [Pause/Restart].



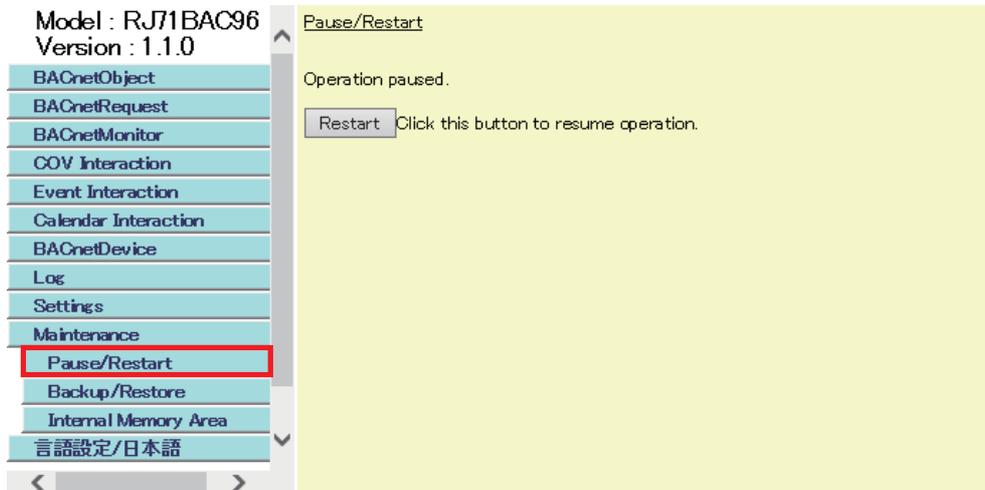
2. Click the [Pause] button on the "Pause/Restart" screen.
3. Read the displayed message and click the [OK] button.
The background of the screen is changed from blue (run) to yellow (stop).



Restart

Operating procedure

1. Select [Maintenance] ⇒ [Pause/Restart].



2. Click the [Restart] button on the "Pause/Restart" screen.
3. Read the displayed message and click the [OK] button.
The background of the screen is changed from yellow (stop) to blue (run).



Backup/Restore

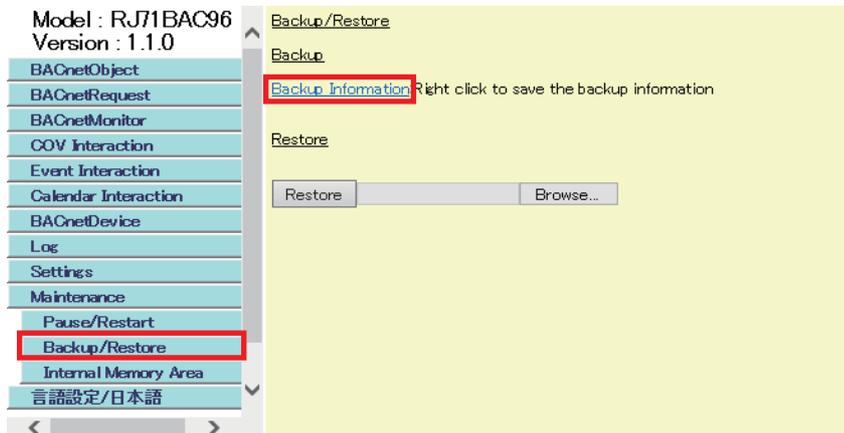
Configure the settings for backup or restoration of data, such as objects and properties.

■ Backup

The data of objects and properties are saved in a backup file (*.dat).

Operating procedure

1. Select [Maintenance] ⇒ [Backup/Restore], and right-click "Backup Information".



2. Click "Save target as" *1 in the shortcut menu.
3. Save the CSV file to an arbitrary location.

*1 For Internet Explorer® 11.0

Restriction

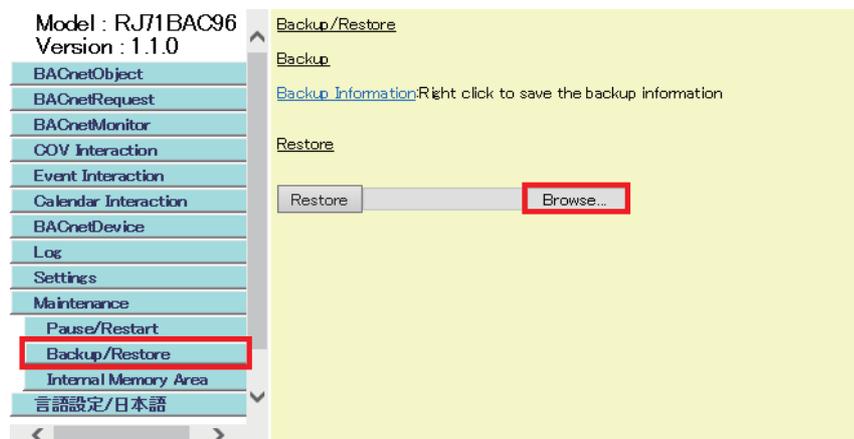
The log records sampled with a TrendLog object are not saved in a backup file (*.dat).

■ Restore

Restore the saved data in a backup file (*.dat) to a BACnet module.

Operating procedure

1. Select [Maintenance] ⇒ [Backup/Restore].
2. Click the [Browse] button and select a backup file (*.dat) to be restored.



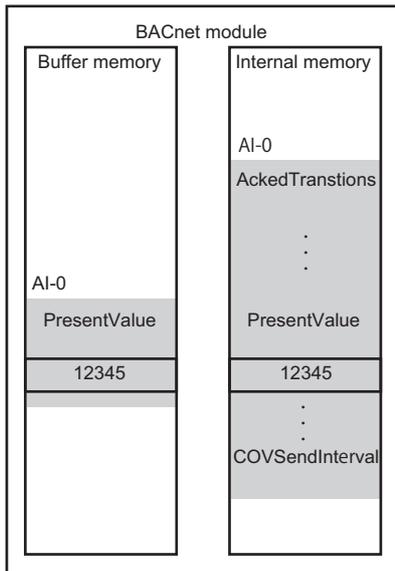
3. Click the [Restore] button.

Precautions

If the IP address of a BACnet module is changed after restoration, the BACnet module may not be logged in after restoration. Before performing restoration, be sure to check the IP address after the restoration.

Internal Memory Area

Internal memory is used by all registered BACnet objects.



■ Check for internal memory utilization

The utilization of an internal memory used for a BACnet module is displayed on the "Internal Memory Area" screen. Check the internal memory utilization when setting the BufferSize property of a TrendLog object.

Window

[Maintenance] ⇒ [Internal Memory Area]

The screenshot shows the "Internal Memory Area" screen. The left sidebar lists various menu items, with "Internal Memory Area" highlighted. The main content area displays the following information:

- Model : RJ71BAC96
- Version : 1.1.0
- Memory area used (Bytes): 2300
- Navigation buttons: First page, Previous page, Next page, Last page
- Table of available memory areas:

The first address in the available memory area	Available memory area (Bytes)
00000831h	3
000008CEh	6
000002B4h	564
00000AF9h	2249
00001406h	16772090

Displayed items

Item	Description
Memory area used	The area to which data is assigned is displayed in bytes.
The first address in the available memory area	The start addresses of data unassigned areas are displayed.
Available memory area	The data unassigned area counted from the start address are displayed in bytes.

Language/English

The language displayed in configuration functions can be switched.

Operating procedure

Select [Language/English].



2 SETTING PARAMETERS

Various operations can be set by setting parameters using an engineering tool.

2.1 Parameter Setting Procedure

2

1. Add a BACnet module to an engineering tool.

 Navigation window ⇒ [Parameter] ⇒ [Module Information] ⇒ right-click [Add New Module]

2. There are two types of parameter settings: Basic Configuration and Refresh Setting. Select either of the setting in the tree shown in the following screen.

 Navigation window ⇒ [Parameter] ⇒ [Module Information] ⇒ "RJ71BAC96" ⇒ [Module Parameter]

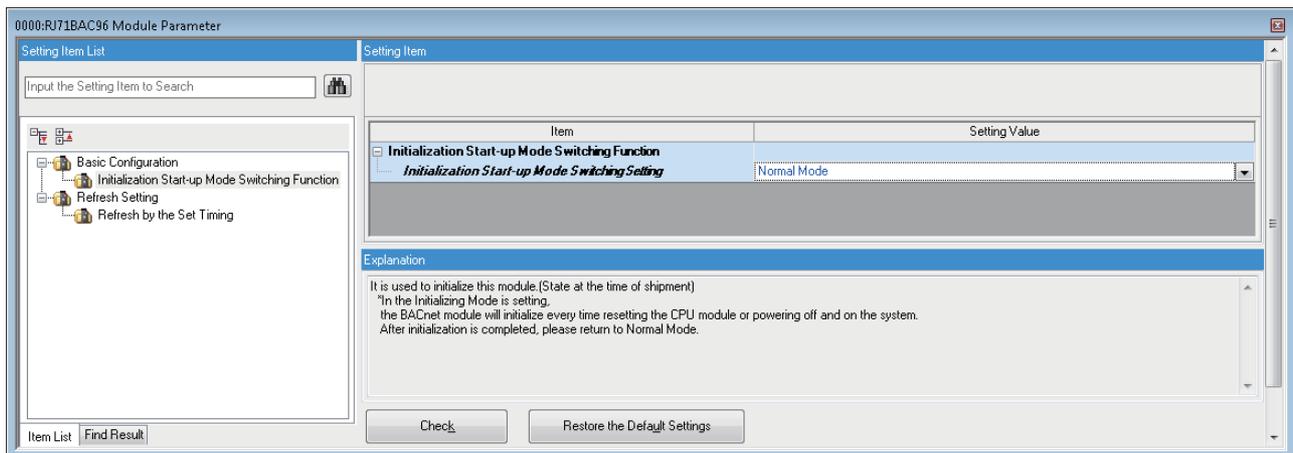
3. Write the setting to a CPU module using an engineering tool.

 [Online] ⇒ [Write to PLC]

4. The setting is applied by resetting the CPU module, or turning the power OFF and ON.

2.2 Basic Setting

Set the operation settings of a BACnet module.



Operation settings

Set the mode setting of a BACnet module.

Item	Description	Setting item
Initialization Start-up Mode Switching Function	Set a start-up mode of a BACnet module when resetting the CPU module, or turning the power OFF and ON. To initialize (restore to factory settings) a BACnet module, select "Initializing Mode".	<ul style="list-style-type: none"> • Normal Mode • Initializing Mode (Default: Normal Mode)

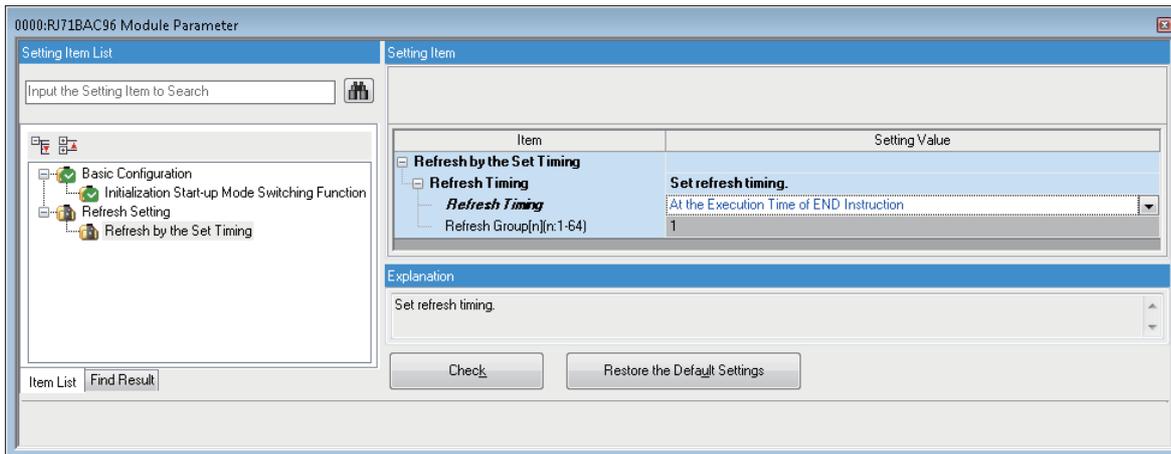
Precautions

For the Initialization Mode, a BACnet module is initialized every time when resetting the CPU module, or turning the power OFF and ON.

After the completion of the initialization, change the mode to Normal Mode.

2.3 Refresh Setting

Set the timing to refresh the buffer memory of a BACnet module.



Setting value	Description
At the Execution Time of END Instruction	The buffer memory is refreshed at END processing of a CPU module.
At the execution time of specified program	The buffer memory is refreshed at the execution of the program specified to "Refresh Group[n]".

3 TROUBLESHOOTING

This chapter explains the errors which may occur when using a BACnet module and the troubleshooting.

3.1 Checking Method of Error Descriptions

The following are the methods to check error descriptions.

Checking method	Description
LED on the module	The status of a BACnet module can be checked. ☞ Page 232 Checking LED status
Message logs of the configuration function	Errors related to BACnet communication can be checked by [Log] ⇄ [Message]. ☞ Page 238 Message Log List

Checking LED status

Check the following LED status, and take corrective actions.

Name	State	Corrective action
RUN	OFF	Reset the programmable controller CPU. If the LED does not turn ON, a hardware error may have occurred. Please consult your local Mitsubishi representative.
ERR	ON	A hardware error may have occurred. Please consult your local Mitsubishi representative.

For the descriptions on each LED indication, refer to the following manual.

📖 MELSEC iQ-R BACnet Module User's Manual (Startup)

3.2 Checking Module Status

The following function can be used on the "Module Diagnostics" screen of an engineering tool.

Function	Purpose
Module information list	The IP address of a BACnet module is displayed.

For a BACnet module, error descriptions are not displayed in the [Error Information] tab. For error descriptions, refer to the following section.

☞ Page 232 Checking Method of Error Descriptions

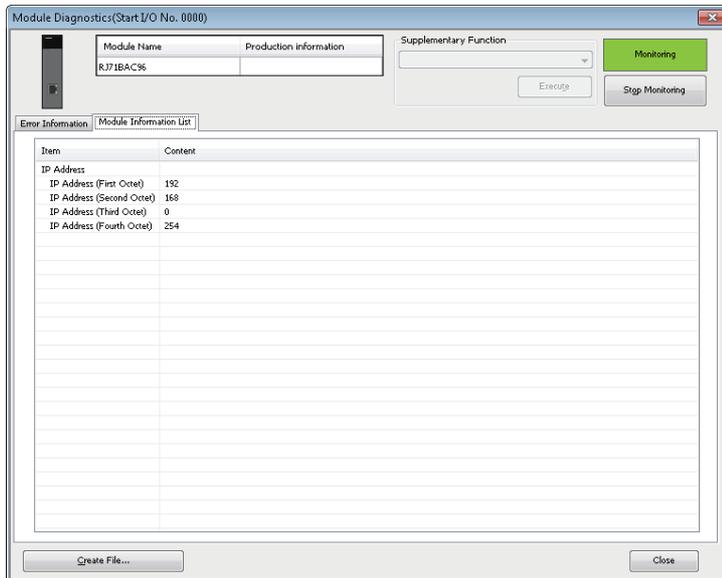
Additionally, an IP address is not displayed on the "System Monitor" screen of an engineering tool. Check the IP address in the [Module Information List] tab of the "Module Diagnostics" screen.

Module information list

Check the IP address of a BACnet module in the [Module Information List] tab.

Window

☞ [Diagnostics] ⇒ [System Monitor] ⇒ right-click an arbitrary module ⇒ "Module Diagnostics" ⇒ [Module Information List] tab



Displayed items

Item	Description
IP Address	The IP address set to a BACnet module is displayed.
IP Address (First Octet)	
IP Address (Second Octet)	
IP Address (Third Octet)	
IP Address (Fourth Octet)	

3.3 Troubleshooting by Symptom

Troubleshooting related to network and connection

Symptom	Check point	Corrective action
Login screen does not appear.	Is there any disconnection in the connection route?	<ul style="list-style-type: none"> • Connect the cables properly. • Replace the cables to new ones.
	Is the CPU module right after powering ON or resetting?	<ul style="list-style-type: none"> • The screen appears after 30 seconds after starting the CPU module.
	Is an IP address set to the personal computer?	<ul style="list-style-type: none"> • Set the IP address of the personal computer and the BACnet module to be on the same network. (☞ Page 197 Network information)
	Is the IP address duplicated?	<ul style="list-style-type: none"> • Review the setting of the IP address.
	Can the module communicate using Ping command?	<ul style="list-style-type: none"> • Check if the IP address and the host name are correct. • Check if the cable is disconnected.
	Is there a firewall on the communication route?	<ul style="list-style-type: none"> • Contact the network administrator to check the setting of the firewall.
	Is restoration performed?	<ul style="list-style-type: none"> • Check if the IP address is changed by restoration.
Unable to log in.	Are the user name and password correct?	<ul style="list-style-type: none"> • Check if the case (upper or lower) is correct.
		<ul style="list-style-type: none"> • When the user name or password is changed, log in with the new user name or new password.
		<ul style="list-style-type: none"> • Check if the login information is changed by restoration.
		<ul style="list-style-type: none"> • If the login information has been forgotten, initialize the BACnet module.
Unable to communicate with another BACnet device.	Is the IP address duplicated?	<ul style="list-style-type: none"> • Review the setting of the IP address.
	Is the instance number of devices duplicated?	<ul style="list-style-type: none"> • Review the instance number of the device.
	Is the communication to the target BACnet device established?	<ul style="list-style-type: none"> • Check the BACnet device of the communication target.
	Is the BACnet module in stop state (the background of the screen is yellow)?	<ul style="list-style-type: none"> • Restart the operation of the BACnet module. (☞ Page 225 Restart)
	Is the destination to send packet correct?	<ul style="list-style-type: none"> • Check the destination in the communication log. (☞ Page 196 Displaying communication logs of BACnet)

Troubleshooting related to settings and operations

Symptom	Check point	Corrective action
COV notifications are not sent.	Is the information to send COV notifications set correctly?	• Review the COV notification send setting. (☞ Page 177 COV notification send setting)
	Is a SubscribeCOV service sent to a BACnet module?	• To check the reception of the notification, send a SubscribeCOV service to the BACnet module.
COV notifications are not sent. (For AI/AO/AV object)	Is the value of the COVIncrement property correct?	• Review the setting of the COVIncrement property. (☞ Page 178 To set the change amount of a value to send COV notifications)
COV notifications are not sent. (When joining/leaving BACnet)	Is the BACnet standard with which the BACnet module complies correct?	• Check if the BACnet standard with which the BACnet module complies is IEC61850-3:2006 Addendum-a, ANSI/ASHRAE 2004, or ANSI/ASHRAE 2010. (☞ Page 198 Basic information)
	Is the send destination of COV notifications correct?	• Check the setting of the Restart_Notification_Recipients property of the Device object.
Event notifications are not sent.	Is the information to send Event notifications set correctly?	• Review the Event notification send setting. (☞ Page 180 Event notification send setting)
Event notifications are not sent. (When joining/leaving BACnet)	Is the BACnet standard with which the BACnet module complies correct?	• Check if the BACnet standard with which the BACnet module complies is IEC61850-3:2006 Addendum-a.
Unable to synchronize the time with another BACnet device.	Is a program to change the time on the CPU module with the received time created?	• Create a program.
	Is the BACnet module set as a destination on another BACnet device?	• Set a BACnet module as a destination on another BACnet device.
Another BACnet device does not synchronize time.	Is the destination set to the TimeSynchronizationRecipients property of a Device object?	• Set the destination on another BACnet device.
The schedule is not executed.	Is the BACnet standard with which the BACnet module complies correct?	• Check the processing method of the schedule with the BACnet standard with which the BACnet module complies.
	Is the information to execute the schedule set correctly?	• Review the settings of related objects.
	Is the time on the CPU module correct?	• Check the time of the CPU module.
Unintended schedule is executed at 0:00.	Is the Schedule_Default property value of the Schedule object output?	• Set the value of the ScheduleDefaultDisable property as "True" to enable the consecutive-day schedule.
Unable to perform logging.	Is the information for logging set properly?	• Review the settings of the TrendLog object. (☞ Page 114 Settings to start logging)
Unable to check the log record of the BACnet module from another BACnet device.	Is a ReadRange service in which the LogBuffer property of the TrendLog object specified sent? (Log records cannot be read by a ReadProperty service.)	• Send a ReadRange in which the LogBuffer property of the TrendLog object specified from another BACnet device.
The screen transition or the behavior when clicking a button is slow. A white screen is displayed.	Is the communication load to the BACnet module high?	• Wait until the white screen disappears and the setting screen appears. (The response may be slow when communication load is high or a mass of information is set to a BACnet module.)
There is a property, the button of which is disabled and cannot be set.	Is the BACnet module in communication (the background of the screen is blue)?	• Stop the operation of the BACnet module. (☞ Page 224 Pause)
	Is the property not editable?	• Check if the property is defined as "Not editable" or "Read-only" by BACnet standards.

3.4 Error Code List for BACnet Request Function/ BACnet Monitoring Function

An error code for the BACnet request function (read function and write function) and BACnet monitoring function is output to the STATUS of each data block.

Error code	Name	Description	Corrective action
0	Normal	—	—
1	Write data is invalid.	The data type of the property set as a monitoring target with the BACnet monitoring function is not supported.	<ul style="list-style-type: none"> Review the settings of property. The supported data types are described in the following section.  Page 289 PrimitiveDataType
2	Error reception	An Error response is received from the request target BACnet device for the request from the BACnet module.	<ul style="list-style-type: none"> Contact the manufacturer of the request target device to ask for the settings of objects or properties.
3	Reject reception	A Reject response is received from the request target BACnet device for the request from the BACnet module.	<ul style="list-style-type: none"> Contact the manufacturer of the request target device to ask for the reason of the Reject response.
4	Abort reception	An Abort response is received from the request target BACnet device for the request from the BACnet module.	<ul style="list-style-type: none"> Contact the manufacturer of the target device to ask for the reason of the Abort response.
5	Retry limit exceeded	No response is returned from the request target BACnet device against the request from the BACnet module.	<ul style="list-style-type: none"> Check if there is any disconnection. Check if the instance number of the destination device set to a data block is correct. Check if the request source device runs normally.
6	Destination device status is abnormal	The request target BACnet device has left the BACnet system. (The SystemStatus property is not Operational, for example.)	<ul style="list-style-type: none"> Check if the instance number of the destination device set to a data block is correct. Check if the request target BACnet device has joined the BACnet system. Check if I-Am services are received from the request target device periodically.
7	The property information in the buffer memory is invalid.	The value set to a data block is invalid.	<ul style="list-style-type: none"> Check if an invalid value is stored.
8	Other errors	—	<ul style="list-style-type: none"> Please consult your local Mitsubishi representative.
13	Unable to reach the destination device.	Unable to recognize the specified request target device as a communication target.	<ul style="list-style-type: none"> Check if the instance number of the destination device set to a data block is correct. Check if the request target BACnet device has joined the BACnet system. Check if I-Am services are received from the request target device periodically.
15	Unable to reach the external network.	Failed to send to the external network.	<ul style="list-style-type: none"> Review the network configuration.
16	Packet size exceeds receivable APDU size.	The packet size sent from the BACnet module exceeds the allowable range of the send target BACnet device.	<ul style="list-style-type: none"> Change the value of MaxScanPropertyCount in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ [Edit] button ⇒ "Interaction" to adjust the number of properties.
17	The number of segments exceeds the receivable number of segments.	The number of segments sent from the BACnet module exceeds the allowable range of the send target BACnet device.	<ul style="list-style-type: none"> Change the value of a MaxScanPropertyCount in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ [Edit] button ⇒ "Interaction" to adjust the number of properties.

When an error code is output to a STATUS, the error description is displayed with a configuration function.

Error code	Appearance on the screen
0	OK
2	Error[Error factor]
3	Reject[Reject factor]
4	Abort[Abort factor]
5	RetryOver
6	NoOperational
8	ErrorOther
13	NoDevice
15	Unknown Network
16	APDUSizeOver
17	SegmentCountOver

For the display method of error descriptions for the read function, refer to the following section.

 Page 190 Read

For the display method of error descriptions for the write function, refer to the following section.

 Page 191 Write

For the display method of error descriptions for the BACnet monitoring function, refer to the following section.

 Page 192 BACnetMonitor

3.5 Message Log List

The following table shows the log levels, message details, and corrective actions on the message logs displayed by [Log] ⇒ [Message].

Message log	Log level	Message detail	Corrective action
UDP Open Success IP=XXXX	Information	The BACnet communication was normally started in IP address XXXX.	<ul style="list-style-type: none"> Log information. No corrective action is required.
UDP Closed	Information	The BACnet communication was stopped.	<ul style="list-style-type: none"> Log information. No corrective action is required.
ReinitializeDevice service request received. Reinitializing device...	Information	A ReinitializeDevice service was received.	<ul style="list-style-type: none"> Log information. No corrective action is required.
CClient_Base::SendRequest already sending	Minor error	An attempt was made to send a packet that has already being sent.	<ul style="list-style-type: none"> Change the value set for "SendInterval" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ [Edit] button ⇒ "Communication" to adjust the interval to send packets. Change the value set for "SendBroadcastNotificationInterval" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ [Edit] button ⇒ "Communication" to adjust the interval to send packets. Change the value set for "MaxOutstandingPDUCount" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ [Edit] button ⇒ "Communication" to adjust the number of packets to be sent. For an object that does not need to send a COV notification, change the setting of the UnsolicitedCOV property as "No COV". (☞ Page 177 COV notification send setting)
CClient_Base::SendRequest DeviceComDisable	Minor error	The BACnet module was changed to the 'DeviceCommunicationDisable' state, because a packet for which the value of "Disable" was specified by a DeviceCommunicationControl service was received.	<ul style="list-style-type: none"> Contact the manufacturer of the communication target device to check if the device sent a packet for which "Disable" was specified in a DeviceCommunicationControl service.
SimpleACKPDU Unknown IPAddress	Minor error	A SimpleAck was received from an IP address that the BACnet does not recognize.	<ul style="list-style-type: none"> Check the communication packet. Contact the manufacturer of the communication target device.
SimpleACKPDU NetworkAddress not found2	Minor error	A request corresponding to the received SimpleAck from the BACnet module was not found.	<ul style="list-style-type: none"> Check the communication packet. Contact the manufacturer of the communication target device.
RecSegmentedComplexAck not wait	Minor error	Divided ComplexAcks were received from an IP address that the BACnet does not recognize.	<ul style="list-style-type: none"> Check the communication packet. Contact the manufacturer of the communication target device.
RecSegmentedComplexAck InvokedID Not Found	Minor error	Divided ComplexAcks of an InvokeID that the BACnet does not recognize were received.	<ul style="list-style-type: none"> Check the communication packet. Contact the manufacturer of the communication target device.
RecComplexAck not wait	Minor error	A ComplexAck that the BACnet does not recognize was received from another BACnet device.	<ul style="list-style-type: none"> Check the communication packet. Contact the manufacturer of the communication target device.
SegmentACK NetworkAddress not found	Minor error	A SegmentAck was received from a communication target that the BACnet does not recognize.	<ul style="list-style-type: none"> Check the communication packet. Contact the manufacturer of the communication target device.
SegmentACK NetworkAddress not found1	Minor error	A ComplexAck that was sent from the BACnet module corresponding to the SegmentAck was not found.	<ul style="list-style-type: none"> Check the communication packet. Contact the manufacturer of the communication target device.
SegmentACK NetworkAddress not found2	Minor error	A request sent from the BACnet module corresponding to the received SegmentAck was not found.	<ul style="list-style-type: none"> Check the communication packet. Contact the manufacturer of the communication target device.
ErrorPDU Unknown IPAddress	Minor error	An error response was received from a communication target that the BACnet does not recognize.	<ul style="list-style-type: none"> Check the communication packet. Contact the manufacturer of the communication target device.

Message log	Log level	Message detail	Corrective action
ErrorPDU NetworkAddress not found2	Minor error	A request from the BACnet module corresponding to the received error response was not found.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
RejectPDU Unknown IPAddress	Minor error	A Reject response was received from a communication target that the BACnet does not recognize.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
RejectPDU NetworkAddress not found2	Minor error	A request from the BACnet module corresponding to the received Reject response was not found.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
AbortPDU Unknown IPAddress	Minor error	An Abort response was received from a communication target that the BACnet does not recognize.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Client Abort Received	Minor error	An Abort response was received from the client.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
AbortPDU NetworkAddress not found2	Minor error	A request from the BACnet module corresponding to the received Abort response was not found.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Device-XX Read ServiceSupported Error	Minor error	An error occurred when reading the ProtocolServicesSupported property of the Device object.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
UnicastSendSub MacAddress Error	Moderate error	The IP address of the send destination is invalid.	<ul style="list-style-type: none"> • Select [BACnetDevice] to open the "BACnetDevice" screen. Check the IP address displayed between a slash '/' and colon ':' in the "BACnet Address" column. • When sending an Event notification, check the destination set in the RecipientList property of the NotificationClass object. • Check the destination in the Restart_Notification_Recipients property of the Device object.
Dec_UnconfReq_Iam ObjectID Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_UnconfReq_Iam ObjectID is not Device Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_UnconfReq_Iam MaxAPDUAccepted Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_UnconfReq_Iam SegmentationSupported Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_UnconfReq_Iam VendorID Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_UnconfReq_Ihave DeviceObjectID Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_UnconfReq_Ihave ObjectID Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_UnconfReq_Ihave ObjectName Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_UnconfReq_Ihave GetLastCount() Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_UnconfReq_TimeSync Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_UnconfReq_WhoHas Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.

Message log	Log level	Message detail	Corrective action
Dec_UnconfReq_Whols Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_ComplexAck_ReadProperty ObjectID Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_ComplexAck_ReadProperty PropertyID Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_ComplexAck_ReadProperty Mismatch Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_ComplexAck_ReadProperty OpenTag(3) Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_ComplexAck_ReadProperty CloseTag(3) Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_ComplexAck_ReadProperty Decode Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_ComplexAck_ReadProperty LastCount(>)>0 Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_ComplexAck_ReadPropertyMultiple ObjectID Error1	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_ComplexAck_ReadPropertyMultiple ObjectID Error2	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_ComplexAck_ReadPropertyMultiple ObjectID Error3	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
ComplexAckReadPropertyMultiple OpenTag1	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
ComplexAckReadPropertyMultiple PropertyID Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
ComplexAckReadPropertyMultiple PropertyID Error1	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
ComplexAckReadPropertyMultiple ArrayIndex Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_ComplexAck_ReadProperty CloseTag(4) Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Dec_ComplexAck_ReadProperty Decode Error	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
DeviceObjectPropertyList DataType mismatch	Moderate error	The data types of properties set in the ListOfObjectPropertyReference property of the Schedule object are not consistent.	<ul style="list-style-type: none"> • Set the same data type for all the data types of the properties set in the ListOfObjectPropertyReference property of the Schedule object. (Page 106 Setting ListOfObjectPropertyReferences property)

Message log	Log level	Message detail	Corrective action
WeeklySchedule[n] is not Primitive	Moderate error	A data type other than the following data types is specified for "Data Type" of a schedule set for the WeeklySchedule property of the Schedule object. <ul style="list-style-type: none"> • Null • BOOLEAN • Unsigned • Signed • REAL • Bitstring • Enumerated • Date • Time • ObjectIdentifier 	<ul style="list-style-type: none"> • Check the setting in the WeeklySchedule property of the Schedule object.
WeeklySchedule[n] Type=X is different from Type Y	Moderate error	The same data type is not specified for all "Data Type" of WeeklySchedule[1] to WeeklySchedule[7] in the WeeklySchedule property of the Schedule object.	<ul style="list-style-type: none"> • Check the setting in the WeeklySchedule property of the Schedule object.
NotificationClass N not found	Moderate error	An attempt was made to send an Event notification, but the NotificationClass object to specify a send destination was not registered.	<ul style="list-style-type: none"> • Check the settings of both the RecipientList property of the NotificationClass object and the NotificationClass property of the object that sent an Event notification.
Event cannot send (Broadcast is used for Confirmed)	Moderate error	An attempt was made to send an Event notification, but the send destination, which was registered for the NotificationClass object, was set to send a packet with confirmation even though a broadcast address was set.	<ul style="list-style-type: none"> • Check the destination set in the RecipientList property of the NotificationClass object.
CClient_Base::SendRequest Device not operational	Moderate error	Sending failed because the value of the SystemStatus property of the Device object in a BACnet device, for which the specified destination address was set, was regarded as one other than Operational.	<ul style="list-style-type: none"> • Select [BACnetDevice], and check the value in the "DeviceStatus" column of the send destination device on the "BACnetDevice" screen.
CClient_Base::SendRequest Device not found Device-XX	Moderate error	The instance number of the BACnet device of the specified destination is one that the BACnet module does not recognize.	<ul style="list-style-type: none"> • Select [BACnetDevice] to open the "BACnetDevice" screen. Check the IP address displayed between a slash '/' and colon ':' in the "BACnet Address" column. • When sending an Event notification, check the destination set in the RecipientList property of the NotificationClass object.
CClient_Base::SendRequest Device not operational Device-XX	Moderate error	Sending failed because the value in the SystemStatus property of the Device object for the BACnet device of the destination specified with the device instance number was regarded as one other than Operational.	<ul style="list-style-type: none"> • Select [BACnetDevice], and check the value in the "DeviceStatus" column of the send destination device on the "BACnetDevice" screen.
CClient_Base::SendRequest Unknown RemoteServer Address Device-XX	Moderate error	Sending failed because the IP address of the BACnet device of the destination specified with the device instance number is unknown.	<ul style="list-style-type: none"> • Select [BACnetDevice] to open the "BACnetDevice" screen. Check the IP address displayed between a slash '/' and colon ':' in the "BACnet Address" column. • When sending an Event notification, check the destination set in the RecipientList property of the NotificationClass object.
CClient_Base::SendRequest Dev-XX networkno Y not found	Moderate error	Sending failed because the BACnet module does not recognize the network number of the destination.	<ul style="list-style-type: none"> • Select [BACnetDevice] to open the "BACnetDevice" screen. Check the IP address displayed between a slash '/' and colon ':' in the "BACnet Address" column. • When sending an Event notification, check the destination set in the RecipientList property of the NotificationClass object.
CClient_Base::SendRequest Dev-XX NonSegment RemoteServer SendByteCount>Y Device-ZZ	Moderate error	An attempt was made to send a packet by a segment send (divided send) because the send packet exceeded the number of packets that could be sent in one packet, but the BACnet device, communication target, did not support the segment reception.	<ul style="list-style-type: none"> • Check the setting of the BACnet device (communication target). • Check a cause to become the packet size large.

Message log	Log level	Message detail	Corrective action
Cannot Send SegmentCount Over[Dev-XX MaxSegmentAccepted=YYY XmitSegmentCount=ZZZ]	Moderate error	An attempt was made to send a packet by a segment send (divided send), but the packet size exceeded the acceptable size even though it was divided.	<ul style="list-style-type: none"> • Check a cause to become the packet size large.
CClient_Base::SendRequest Dev-XX WaitingPDUCount over current=YY limit=ZZ	Moderate error	The number of packets waiting to be sent exceeds the maximum value (65535).	<ul style="list-style-type: none"> • Check the communication traffic.
RecSegmentAck FillWindow Error1	Moderate error	An error occurred during a segment send.	<ul style="list-style-type: none"> • Check the communication packet.
Illegal ReadPropertyAutoSingleComplete	Moderate error	An invalid packet was received during a segment send (divided send) of a ReadProperty service.	<ul style="list-style-type: none"> • Check the communication packet.
Illegal WritePropertyAutoSingleComplete	Moderate error	An invalid packet was received during a segment send (divided send) of a WriteProperty service.	<ul style="list-style-type: none"> • Check the communication packet.
Illegal WritePropertyAutoMultiComplete	Moderate error	An invalid packet was received during a segment send (divided send) of a WritePropertyMultiple service.	<ul style="list-style-type: none"> • Check the communication packet.
CClientUnconf_Base::SendRequest Device not found Device-XX	Moderate error	The instance number of the BACnet device of the specified destination is one that the BACnet module does not recognize.	<ul style="list-style-type: none"> • Select [BACnetDevice] to open the "BACnetDevice" screen. Check the IP address displayed between a slash '/' and colon ':' in the "BACnet Address" column. • When sending an Event notification, check the destination set in the RecipientList property of the NotificationClass object.
CClientUnconf_Base::SendRequest RemoteServer not found Device-XX	Moderate error	The instance number of the BACnet device of the specified destination is one that the BACnet module does not recognize.	<ul style="list-style-type: none"> • Select [BACnetDevice] to open the "BACnetDevice" screen. Check the IP address displayed between a slash '/' and colon ':' in the "BACnet Address" column. • When sending an Event notification, check the destination set in the RecipientList property of the NotificationClass object.
CClientUnconf_Base::SendRequest RemoteDevice not operational Device-XX	Moderate error	Sending failed because the value in the SystemStatus property of the Device object for the BACnet device of the destination specified with the device instance number was regarded as one other than Operational.	<ul style="list-style-type: none"> • Select [BACnetDevice], and check the value in the "DeviceStatus" column of the send destination device on the "BACnetDevice" screen.
CClientUnconf_Base::SendRequest N_UnitData_Req Error Device-XX	Moderate error	A packet could not be sent to the BACnet device of the destination specified with the device instance number.	<ul style="list-style-type: none"> • Select [BACnetDevice] to open the "BACnetDevice" screen. Check the IP address displayed between a slash '/' and colon ':' in the "BACnet Address" column. • When communicating via a BACnet router, check the network number. • When sending an Event notification, check the destination set in the RecipientList property of the NotificationClass object.
ComplexAck Target does not support Segment	Moderate error	An attempt was made to send a packet by a segment send (divided send) because the send packet exceeded the number of packets that could be sent in one packet, but the BACnet device, communication target, did not support the segment reception.	<ul style="list-style-type: none"> • Check the setting of the BACnet device (communication target). • Check a cause to become the packet size large.
ComplexAck buffer_overflow	Moderate error	An attempt was made to send a packet by a segment send (divided send), but the packet size exceeded the acceptable size even though it was divided.	<ul style="list-style-type: none"> • Check a cause to become the packet size large.
NPDU Unsupport Protocol Version XX	Moderate error	The protocol version of NPDU is not set as '1'.	<ul style="list-style-type: none"> • Check the specification of the communication target device. • Check the communication packet.
NPDU DNET=0 Error	Moderate error	'0' is specified for DNET of the received packet.	<ul style="list-style-type: none"> • Check the specification of the communication target device. • Check the communication packet.
NPDU SNET Error SNET=XX	Moderate error	'0' or '65535' is specified for SNET of the received packet.	<ul style="list-style-type: none"> • Check the specification of the communication target device. • Check the communication packet.

Message log	Log level	Message detail	Corrective action
NPDU SLEN=0 Error	Moderate error	'0' is specified for SLENT of the received packet.	<ul style="list-style-type: none"> • Check the specification of the communication target device. • Check the communication packet.
Error NetMesg_WholsRouterToNetwork NetworkNo	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_WholsRouterToNetwork Length	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_IAmRouterToNetwork NetworkNo	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_ICouldBeRouterToNetwork NetworkNo	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_ICouldBeRouterToNetwork PerformanceIndex	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_ICouldBeRouterToNetwork Length	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_RejectMessageToNetwork NetworkNo	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_RouterAvailableToNetwork NetworkNo	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_InitializeRoutingTable NetworkNo	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_InitializeRoutingTable PortID	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_InitializeRoutingTable PortInfoLength	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_InitializeRoutingTable PortInfo	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_InitializeRoutingTableAck NetworkNo	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_InitializeRoutingTableAck PortID	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_InitializeRoutingTableAck PortInfoLength	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_InitializeRoutingTableAck PortInfo	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_EstablishConnectionToNetwork NetworkNo	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_EstablishConnectionToNetwork RejectReason	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_EstablishConnectionToNetwork Length	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_DisconnectConnectionToNetwork NetworkNo	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.

Message log	Log level	Message detail	Corrective action
Error NetMesg_DisconnectConnectionToNetwork Length	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Error NetMesg_NetworkNumberIs NetworkNo	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
APDU Length ErrorLength=XX	Moderate error	An error occurred during a packet decoding.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
APDU ConfReqHeader.MaxResp>5 MaxResp=XX	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
APDU IllegalType Type=XX	Moderate error	The received packet is invalid.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Confirmed_RequestPDU Server NotFound	Moderate error	The BACnet device, communication target, in the segment communication is not registered in the BACnet module.	<ul style="list-style-type: none"> • Select [BACnetDevice], and check the BACnet device on the "BACnetDevice" screen.
Confirmed_RequestPDU SequenceNo !=0	Moderate error	The Sequence number was not '0' even though the packet received in a segment communication was the first packet.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
FindClientAck Error Dev=XX InvokedID=YY	Moderate error	A packet of an InvokeID that the BACnet does not managed was received. Or, a packet which was already processed was received again.	<ul style="list-style-type: none"> • Check the communication packet. • Check the communication traffic.
AbortPDU AbortReason Decode Error	Moderate error	An invalid Abort packet was received.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
AbortPDU Rec Error	Moderate error	An invalid Abort packet was received.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
APDU IllegalType Type=XX	Moderate error	A PDU type unsupported by BACnet module was received.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
BVLL Type not Support Error Type=XX	Moderate error	BVLL (BVLC type) unsupported by BACnet modules was received.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Unsupported BVLL function XX	Moderate error	BVLL (BVLC function) unsupported by BACnet modules was received.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
Invalid TimeSynchronization request received. XXXXX	Moderate error	An invalid TimeSynchronization service was received.	<ul style="list-style-type: none"> • Check the communication packet. • Contact the manufacturer of the communication target device.
UDP Open Error IP=XXXX	Major error	A BACnet communication in IP address XXXX was not started.	<ul style="list-style-type: none"> • Review the setting of the IP address. • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
Unicast Sock Addr getaddrinfo Error	Major error	The specified unicast IP address was not set for the BACnet module.	<ul style="list-style-type: none"> • Review the setting of the IP address. • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
Unicast Socket Error	Major error	The specified unicast IP address was not set for the BACnet module.	<ul style="list-style-type: none"> • Review the setting of the IP address. • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.

Message log	Log level	Message detail	Corrective action
Unicast Sock setsockopt Error	Major error	The specified unicast IP address was not set for the BACnet module.	<ul style="list-style-type: none"> Review the setting of the IP address. Turn the power OFF and ON, or reset the CPU module. If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
Unicast Sock SO_REUSEADDR,SO_REUSEADDR Error	Major error	The specified unicast IP address was not set for the BACnet module.	<ul style="list-style-type: none"> Review the setting of the IP address. Turn the power OFF and ON, or reset the CPU module. If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
Unicast Sock Bind Error	Major error	The specified unicast IP address was not set for the BACnet module.	<ul style="list-style-type: none"> Review the setting of the IP address. Turn the power OFF and ON, or reset the CPU module. If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
Broadcast Sock getaddrinfo XXXXXX Error	Major error	The IP address of the specified broadcast was not set for the BACnet module.	<ul style="list-style-type: none"> Review the setting of the IP address. Turn the power OFF and ON, or reset the CPU module. If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
Unicast=IPv6 Broadcast != IPv6 Error	Major error	The unicast address was set in IPv6, but a broadcast address was not set in IPv6.	<ul style="list-style-type: none"> Review the setting of the IP address. Turn the power OFF and ON, or reset the CPU module. If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
Broadcast setsockopt IPPROTO_IPV6,IPV6_ADD_MEMBERSHIP XXXX InterfaceNo=YY Error	Major error	An option for the IPv6 broadcast socket was not set.	<ul style="list-style-type: none"> Review the setting of the IP address. Turn the power OFF and ON, or reset the CPU module. If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
Broadcast setsockopt IPPROTO_IPV6,IPV6_MULTICAST_HOPS XXXX hop=YY Error	Major error	An option for the IPv6 broadcast socket was not set.	<ul style="list-style-type: none"> Review the setting of the IP address. Turn the power OFF and ON, or reset the CPU module. If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
BroadCast Socket Error	Major error	The IP address of the specified broadcast was not set for the BACnet module.	<ul style="list-style-type: none"> Review the setting of the IP address. Turn the power OFF and ON, or reset the CPU module. If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
Broadcast Sock setsockopt SO_BROADCAST Error	Major error	The IP address of the specified broadcast was not set for the BACnet module.	<ul style="list-style-type: none"> Review the setting of the IP address. Turn the power OFF and ON, or reset the CPU module. If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
Broadcast Sock setsockopt SO_REUSEADDR Error	Major error	The IP address of the specified broadcast was not set for the BACnet module.	<ul style="list-style-type: none"> Review the setting of the IP address. Turn the power OFF and ON, or reset the CPU module. If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
Broadcast Sock Bind Error	Major error	The IP address of the specified broadcast was not set for the BACnet module.	<ul style="list-style-type: none"> Review the setting of the IP address. Turn the power OFF and ON, or reset the CPU module. If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.

Message log	Log level	Message detail	Corrective action
LimitedBroadcast Sock getaddrinfo 255.255.255.255 XX Error	Major error	The IP address of the specified limited broadcast was not set for the BACnet module.	<ul style="list-style-type: none"> • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective action, initialize or replace the BACnet module.
LimitedBroadcast Sock setsockopt SO_BROADCAST Error	Major error	The IP address of the specified limited broadcast was not set for the BACnet module.	<ul style="list-style-type: none"> • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective action, initialize or replace the BACnet module.
LimitedBroadcast Sock setsockopt SO_REUSEADDR Error	Major error	The IP address of the specified limited broadcast was not set for the BACnet module.	<ul style="list-style-type: none"> • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective action, initialize or replace the BACnet module.
LimitedBroadcast Sock Bind Error	Major error	The IP address of the specified limited broadcast was not set for the BACnet module.	<ul style="list-style-type: none"> • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective action, initialize or replace the BACnet module.
Unicast recvfrom Error	Major error	Packet receiving failed.	<ul style="list-style-type: none"> • Review the setting of the IP address. • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
SendUdp socket not opened	Major error	A packet could not be sent because the IP address setting failed.	<ul style="list-style-type: none"> • Review the setting of the IP address. • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
UnicastSendSub UniCastSocket is INVALID_SOCKET	Major error	A packet could not be sent because the IP address setting failed.	<ul style="list-style-type: none"> • Review the setting of the IP address. • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
UnicastSendSub sendto error destination=XXXX	Major error	An attempt was made to send a packet, but it failed.	<ul style="list-style-type: none"> • Review the setting of the IP address. • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective actions, replace the BACnet module.
CDataLink_IPV4::Unicast Buffer size over XXXX limit=YYYY	Major error	An attempt was made to send a packet, but the packet size exceeded the upper limit.	<ul style="list-style-type: none"> • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective action, replace the BACnet module.
UnconfirmedRequest IllegalHeader Header=XX	Major error	The sent packet is invalid.	<ul style="list-style-type: none"> • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective action, replace the BACnet module.
WebListenThread Socket Create Error	Major error	A socket for a configuration function (web browser) could not be created.	<ul style="list-style-type: none"> • Review the setting of the IP address. • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
WebListenThread bind Error	Major error	A socket for a configuration function (web browser) could not be registered.	<ul style="list-style-type: none"> • Review the setting of the IP address. • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.

Message log	Log level	Message detail	Corrective action
WebListenThread listen Error	Major error	A connection for a configuration function (web browser) could not be prepared.	<ul style="list-style-type: none"> • Review the setting of the IP address. • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
WebListenLinuxThread select error result=-1	Major error	Monitoring the reception of a socket for a configuration function (web browser) failed.	<ul style="list-style-type: none"> • Review the setting of the IP address. • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
WebThread select error	Major error	Monitoring the reception of a socket for a configuration function (web browser) failed.	<ul style="list-style-type: none"> • Review the setting of the IP address. • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective actions, initialize or replace the BACnet module.
HTML_Send Count MisMatch Length=XX SendLength=YY	Major error	The size of the created send packet differs from the one actually sent.	<ul style="list-style-type: none"> • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective action, replace the BACnet module.
ReadRequest-ReadHeader Error	Major error	The received HTML header is invalid.	<ul style="list-style-type: none"> • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective action, replace the BACnet module.
ReadRequest-FindHeader content-length Error	Major error	The received HTML header is invalid.	<ul style="list-style-type: none"> • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective action, replace the BACnet module.
ReadRequest-ReadFirstLine Error Split1	Major error	The received HTML header is invalid.	<ul style="list-style-type: none"> • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective action, replace the BACnet module.
ReadRequest-ReadFirstLine Error enumWebMethod_Error	Major error	The received HTML header is invalid.	<ul style="list-style-type: none"> • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective action, replace the BACnet module.
ReadRequest-ReadFirstLine Error Split2	Major error	The received HTML header is invalid.	<ul style="list-style-type: none"> • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective action, replace the BACnet module.
HTML_Send Count MisMatch Length=XX SendLength=YY	Major error	The size of the created send packet differs from the one actually sent.	<ul style="list-style-type: none"> • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective action, replace the BACnet module.
DeviceObject Change Error	Major error	The Device object could not be registered in the BACnet module.	<ul style="list-style-type: none"> • Turn the power OFF and ON, or reset the CPU module. • If the same message appears even after taking the above corrective action, replace the BACnet module.

APPENDIX

Appendix 1 I/O Signals

This section explains the input/output signals of the BACnet module.

The following shows the example of I/O signal assignment when the start I/O number of a BACnet module is '0'

Device X is the input signal from a BACnet module to a CPU module.

Device Y is the output signal from a CPU module to a BACnet module.

Precautions

Do not output (turn ON) the signal of "Use prohibit" among the input/output signals for a CPU module.

Doing so may cause the malfunction of a programmable controller system.

List of I/O signals

The following shows the list of the input/output signals of a BACnet module.

For details on the input/output signals, refer to the following sections.

☞ Page 249 Details of input signals

☞ Page 250 Details of output signals

Input signal

Device No.	Signal name
X0	Module READY
X1	Initialization complete/operation stop or restart
X2	BACnet status (join/leave)
X3	Buffer memory access
X4	Use prohibited
X5	Time synchronization send complete
X6	Who-Is send complete
X7 to XE	Use prohibited
XF	Error occurrence
X10 to X1F	Use prohibited

Output signal

Device No.	Signal name
Y0	Use prohibited
Y1	Joining of BACnet
Y2	COV/Event send prohibited
Y3	Schedule execution prohibited
Y4	Use prohibited
Y5	Time synchronization send request
Y6	Who-Is send request
Y07 to Y1F	Use prohibited

Details of input signals

The following shows the input signals of BACnet modules for a CPU module.

Module READY (X0)

This signal turns ON when turning the power OFF and ON, or resetting a CPU module, or a BACnet module is ready. It turns OFF when the module does not operate due to an error, such as a watchdog timer error.

Initialization complete/operation stop or restart (X1)

■ CheckYDevice in the BACnet detail setting is '0'

This signal turns ON when a BACnet module is started and initialization is complete. After the initialization is complete, the buffer memory can be accessed and the functions of BACnet modules are available.

It turns OFF when the BACnet module is started but initialization is yet to complete.

■ CheckYDevice in the BACnet detail setting is '1'

This signal turns ON when "Joining of BACnet" (Y1) is turned ON.

This signal turns OFF by clicking the [Pause] button on the "Pause/Restart" screen displayed by selecting [Maintenance] ⇒ [Pause/Restart] in a configuration function. In that case, turn "Joining of BACnet" (Y1) OFF.

- Set the CheckYDevice in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface". ( Page 281 Interface)

BACnet status (join/leave) (X2)

This signal turns ON when a BACnet module has joined BACnet. (The value of the SystemStatus property of a Device object in a BACnet module is Operational.)

It turns OFF when a BACnet module has left the BACnet. (The value of the SystemStatus property of a Device object in a BACnet module is other than Operational.)

For the value of the SystemStatus property, refer to the address (Un\G16) described in the following section.

 Page 261 Device object (Un\G16 to Un\G31)

Buffer memory access (X3)

This signal turns ON while a BACnet module performs cyclic reading of the buffer memory.

This signal turns OFF when the cycle reading is not performed.

For the cyclic reading, refer to the following section.

 Page 264 Loading buffer memory

Time synchronization send complete (X5)

This signal turns ON when 'Time synchronization send request' (Y5) is turned ON and the sending of a TimeSynchronization service or an UTC TimeSynchronization service is complete.

It turns OFF when a TimeSynchronization service or an UTC TimeSynchronization service is not sent or 'Time synchronization send request' (Y5) is turned ON and OFF.

Who-Is send complete (X6)

This signal turns ON when a 'Who-Is send request' (Y6) is turned ON and the sending of a Who-Is service is complete.

It turns OFF when a Who-Is service is not sent, or 'Who-Is send request' (Y6) is turned ON and OFF.

Error occurrence (XF)

This signal turns ON when an error occurred on a BACnet module or on the network controlled by a BACnet module.

When this signal turned ON, the ALM LED turns ON.

It turns OFF when no error occurred on a BACnet module or on the network controlled by a BACnet module.

Details of output signals

The following shows the output signals of BACnet modules for a CPU module.

Joining of BACnet (Y1)

■ CheckYDevice in the BACnet detail setting is '0'

'Joining of BACnet' (Y1) is not used.

Click the [Restart]/[Pause] button on the "Pause/Restart" screen displayed by selecting [Maintenance] ⇒ [Pause/Restart] in a configuration function to join/leave BACnet.

■ CheckYDevice in the BACnet detail setting is '1'

Turn Y1 ON to join a BACnet module to BACnet while 'Initialization complete/operation stop or restart' (X1) is ON.

Turn this signal OFF to leave the BACnet module from BACnet. Even when 'Initialization complete/operation stop or restart' (X1) is turned OFF, turn this signal OFF because the operation of the BACnet module is requested to be stopped by a configuration function.

- Set the CheckYDevice in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface". (📖 Page 281 Interface)

COV/Event send prohibit (Y2)

Turn Y2 OFF and ON to prohibit sending COV notifications and Event notifications if an emergency arises.

When sending COV notifications or Event notifications, leave Y2 OFF.

Schedule execution prohibited (Y3)

Turn Y3 OFF and ON to prohibit the execution of a schedule if an emergency arises.

When executing a schedule, leave Y3 OFF.

When this device is turned OFF and ON, the schedule is calculated again. Therefore, an appropriate value for the current time may be written to the property.

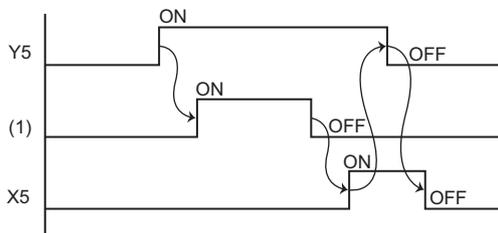
Precautions

- If the value of Y3 is changed, the value of the ScheduleOutputDisable property of all the Schedule objects registered in a BACnet module will be changed.
Do not modify the value of Y3 other than the case when setting a ScheduleOutputDisable property using a program.

Time synchronization send request (Y5)

Turn Y5 OFF and ON, and OFF again when sending a TimeSynchronization service or an UTC TimeSynchronization service. 'Time synchronization send complete' (X5) is the interlock condition of Y5. Y5 turns OFF by turning X5 OFF and ON, and OFF again.

The timing to change the device status is as follows.



(1) Sending status of a TimeSynchronization service or an UTC TimeSynchronization service

To send a TimeSynchronization service or an UTC TimeSynchronization service, set a send target BACnet device to the TimeSynchronizationRecipients property of a Device object in a BACnet module in advance. (📖 Page 161 To synchronize the time of another BACnet device)

Procedure from start to stop

This section shows the procedure to start and stop a BACnet module for each setting of CheckYDevice*1 (0 and 1) in the BACnet detail setting.

*1 Set the CheckYDevice in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "Interface".

For details, refer to the following section.

☞ Page 281 Interface

BACnet module is powered ON

After powering ON, a BACnet module starts operation with the following procedure.

■ CheckYDevice in the BACnet detail setting is '0'

Operation of a BACnet module	X0	X1	X2	Remarks
The value of X0 is changed to '1'.	0→1	0	0	Power ON the module.
The buffer memory is updated using backup information.	1	0	0	① A file and backup information are read.
After the buffer memory is updated, the value of X1 is changed to '1'.				② An object is registered to the BACnet module.
When the value of X1 is changed to '1', BACnet joining processing is started.		0→1		③ The initial value is written to the buffer memory.
After the module has joined to BACnet, the value of X2 is changed to '1'.		1		—
A BACnet communication is started.			0→1	—
			1	In operation

■ CheckYDevice in the BACnet detail setting is '1'

Operation of a BACnet module	X0	X1	X2	Operation in a program	Y1	Remarks
The value of X0 is changed to '1'.	0→1	0	0	—	0	Power ON the module.
The buffer memory is updated using backup information.	1	0	0	—	0	① A file and backup information are read.
After the buffer memory is updated, the value of X1 is changed to '1'.				0→1		—	② An object is registered to the BACnet module.
Wait until the value of Y1 is changed to '1'.		1		When the value of X1 is changed to '1', the initial value is written to the buffer memory.	0→1	③ The initial value is written to the buffer memory.
—				After the initial value is written, the value of Y1 is changed to '1'.		—
When the value of Y1 is changed to '1', BACnet joining processing is started.				—	1	—
After the module has joined to BACnet, the value of X2 is changed to '1'.			0→1	—	1	—
A BACnet communication is started.			1	—		In operation

Stop request from a program

A BACnet module can be stopped using a program with the following procedure.

■ CheckYDevice in the BACnet detail setting is '0'

A BACnet module cannot be stopped using a program.

■ CheckYDevice in the BACnet detail setting is '1'

Operation of a BACnet module	X0	X1	X2	Operation in a program	Y1	Remarks	
BACnet communication is in operation.	1	1	1	—	1	In operation	
—				The value of Y1 is changed to '0' to issue a stop request.		1→0	—
BACnet leaving processing is started.			—	0	—	0	—
After the module has left from BACnet, the value of X2 is changed to '0'.			1→0		—		—
The BACnet communication is stopped.			0		The value of X2 is changed to '0' and the BACnet communication is regarded as stopped.		—

Stop request from a configuration function

When the [Pause] button clicked in a configuration function, an operation stop processing is performed with the following procedure.

■ CheckYDevice in the BACnet detail setting is '0'

Operation of a BACnet module	X0	X1	X2	Remarks
BACnet communication is in operation.	1	1	1	—
—				The [Pause] button is clicked in a configuration function.
BACnet leaving processing is performed.				—
After leaving BACnet, the value of X2 is changed to '0'.		1→0	—	
Change the value of X1 to '0' to inform the program to stop the operation.		1→0	0	—
The BACnet communication is stopped.		0		—

■ CheckYDevice in the BACnet detail setting is '1'

Operation of a BACnet module	X0	X1	X2	Operation in a program	Y1	Remarks
BACnet communication is in operation.	1	1	1	—	1	—
—				—		The [Pause] button is clicked in a configuration function.
Change the value of X1 to '0' to inform the program to stop the operation.		1→0	—	—		
—		0		After the value of X1 is changed from '1' to '0', the value of Y1 should be changed to '0'.	1→0	—
When the value of Y1 is changed to '0', a BACnet leaving processing is started.				—	0	—
After leaving BACnet, the value of X2 is changed to '0'.				1→0	—	—
The BACnet communication is stopped.			0	—	—	

Restart request from a configuration function

When the [Restart] button is clicked in a configuration function, an operation restart processing is performed with the following procedure.

■ CheckYDevice in the BACnet detail setting is '0'

Operation of a BACnet module	X0	X1	X2	Remarks
The BACnet communication is stopped.	1	0	0	—
—				The [Restart] button is clicked in a configuration function.
When the [Restart] button is clicked in a configuration function, the value of X1 is changed to '1'.		0→1	—	
BACnet joining processing is started.		1	—	
After the module has joined to BACnet, the value of X2 is changed to '1'.		0→1	—	
A BACnet communication is started.			1	—

■ CheckYDevice in the BACnet detail setting is '1'

Operation of a BACnet module	X0	X1	X2	Operation in a program	Y1	Remarks
The BACnet communication is stopped.	1	0	0	—	0	—
—				—		The [Restart] button is clicked in a configuration function.
When the [Restart] button is clicked in a configuration function, the value of X1 is changed to '1'.		0→1	—	—		
—		1	When the value of X1 is changed to '1', the initial value is written to the buffer memory.	—		
—		—	After the initial value is written, the value of Y1 is changed to '1'.	0→1	—	
When the value of Y1 is changed to '1', BACnet joining processing is started.				—	1	—
After the module has joined to BACnet, the value of X2 is changed to '1'.			0→1	—		—
A BACnet communication is started.			1	—		—

Reception processing of a ReinitializeDevice service

When the reinitializeDevice checkbox is selected*1 in the ProtocolServicesSupported property of the Device object of a BACnet module, a Reinitialize processing is performed with the following process after receiving a ReinitializeDevice service (ColdStart or WarmStart).

*1 The checkbox is selected by default.

For the setting method, refer to the following section.

 Page 257 Setting the ProtocolServicesSupported property of a Device object

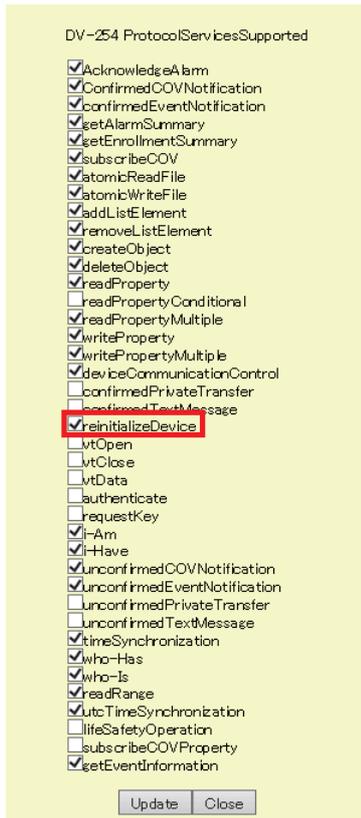
■ CheckYDevice in the BACnet detail setting is '0'

Operation of a BACnet module	X0	X1	X2	Remarks
BACnet communication is in operation.	1	1	1	In operation
—				A ReinitializeDevice service is received.
The BACnet module responds to the ReinitializeDevice service, and BACnet leaving processing is performed.				A SimpleAck is returned as a response.
After the module has left from BACnet, the value of X2 is changed to '0'.			1→0	—
The value of X1 is changed to '0'.		1→0	0	—
The operation of the module is stopped.		0		—
The value of X1 is changed to '1' to restart the module.		0→1		—
BACnet joining processing is started.		1	0→1	—
After the module has joined to BACnet, the value of X2 is changed to '1'.				—
A BACnet communication is started.			1	—

■ CheckYDevice in the BACnet detail setting is '1'

Operation of a BACnet module	X0	X1	X2	Operation in a program	Y1	Remarks
BACnet communication is in operation.	1	1	1	—	1	—
—				—		A ReinitializeDevice service is received.
The BACnet module responds to the ReinitializeDevice service, and BACnet leaving processing is performed.				—		A SimpleAck is returned as a response.
After the module has left from BACnet, the value of X2 is changed to '0'.			1→0	—		—
Change the value of X1 to '0' to inform the program to stop the operation.		1→0	0	—		—
—		0		After the value of X1 is changed from '1' to '0', the value of Y1 should be changed to '0'.	1→0	—
The BACnet communication is stopped.				—	0	—
The value of X1 is changed to '1'.		0→1		—		The change of the value of Y1 from 1 to 0 works as a trigger.
—		1		After the value of X1 is changed from '0' to '1', the initial value is written to the buffer memory.		—
—			After the initial value is written, the value of Y1 is changed to '1'.	0→1	—	
BACnet joining processing is started.				—	1	The change of the value of Y1 from 1 to 0 works as a trigger.
After the module has joined to BACnet, the value of X2 is changed to '1'.			0→1	—		—
A BACnet communication is started.			1	—		—

5. Select "reinitializeDevice".



When a BACnet module is powered OFF

When a BACnet module is powered OFF, the module stops operation.

Since the information, such as the properties of an object, is backed up every time when the information is modified, backup processing is not required when powering OFF. (➔ Page 121 Backup Function)

Appendix 2 Buffer Memory

This chapter explains the buffer memory of a BACnet module.

Buffer memory list

The following shows the list of the buffer memory of a BACnet module.

Address: Decimal (hexadecimal)	Name	Description	Initial value	Remarks
0 to 2 (0h to 2h)	Version information of a module	The version of a BACnet module is stored. (☞ Page 260 Version information of a module (Un\G0 to Un\G2))	The version of the BACnet module used.	—
3 to 15 (3h to Fh)	System area	Use prohibited	—	—
16 to 31 (10h to 1Fh)	Device object	The information of a Device object in a BACnet module is stored. (☞ Page 261 Device object (Un\G16 to Un\G31))	—	—
32 to 35 (20h to 23h)	IP address	The IP address of a BACnet module is stored. (☞ Page 261 IP address (Un\G32 to Un\G35))	192.168.0.254	IPv4 only
36 to 255 (24h to FFh)	System area	Use prohibited	—	—
256 to 65535 (100h to FFFFh)	Data assignment area	An area for reading/writing data between a CPU module and BACnet module is assigned. (☞ Page 262 Data assignment area (Un\G256 to Un\G65535))	0	—

Precautions

Do not write data to "System area" in buffer memory. Doing so may cause the malfunction of the programmable controller system.

Details of buffer memory

This section explains the details of the buffer memory in a BACnet module.

Version information of a module (Un\G0 to Un\G2)

The version of the BACnet module used is stored.

The following table shows the availability of reading from/writing to a CPU module.

R: Read-only, W: Write-only, R/W: Read/Write

Name	Address	Description	R/W	Initial value
Version information of a module	Un\G0	Version information of a module	R	The version of the BACnet module used.
	Un\G1			
	Un\G2			

The version information of a module is displayed on the screen displayed after logging in a BACnet module.



Device object (Un\G16 to Un\G31)

The data of the Device object in a BACnet module is stored.

Un\G17 to Un\G24 are used for receiving TimeSynchronization services or UTCTimeSynchronization services from another BACnet device. (🔍 Page 163 To change the time in a CPU module)

Additionally, the data to be stored to each address is shown in the following table.

Additionally, the availability of reading from/writing to a CPU module is shown in the following table.

R: Read-only, W: Write-only, R/W: Read/Write

Name	Address	Description	R/W	Initial value	Remarks
Device object	Un\G16	The value of a SystemStatus property is stored. 0: Operational 1: OperationalReadOnly 2: DownloadRequired 3: DownloadInProgress 4: NonOperational 5: BackupInProgress	R	0	—
	Un\G17	Four-digit year data is stored.	R	0	—
	Un\G18	Month data (01 to 12) is stored.	R	0	—
	Un\G19	Date data (01 to 31) is stored.	R	0	—
	Un\G20	Time data (00 to 23) is stored.	R	0	—
	Un\G21	Minute data (00 to 59) is stored.	R	0	—
	Un\G22	Second data (00 to 59) is stored.	R	0	—
	Un\G23	Day-of-week data is stored. 1: Monday, 2: Tuesday, 3: Wednesday, 4: Thursday, 5: Friday, 6: Saturday, 7: Sunday	R	0	—
	Un\G24	Time setting request flag 0: Idling, 1: Setting request, 2: Configured	R/W	0	—
	Un\G25	Reserved area	—	0	Fixed to 0
	Un\G26	The upper 16 bits of an instance number (32 bits) in a BACnet module is stored.	R	254	—
	Un\G27	The lower 16 bits of an instance number (32 bits) in a BACnet module is stored.	R	0	—
	Un\G28 to Un\G31	Reserved area	—	0	Fixed to 0

IP address (Un\G32 to Un\G35)

The IP address set in [Settings] ⇒ [Network Information] ⇒ "IPv4" ⇒ "IP Address" in a configuration function is displayed.

The following table shows the availability of reading from/writing to a CPU module.

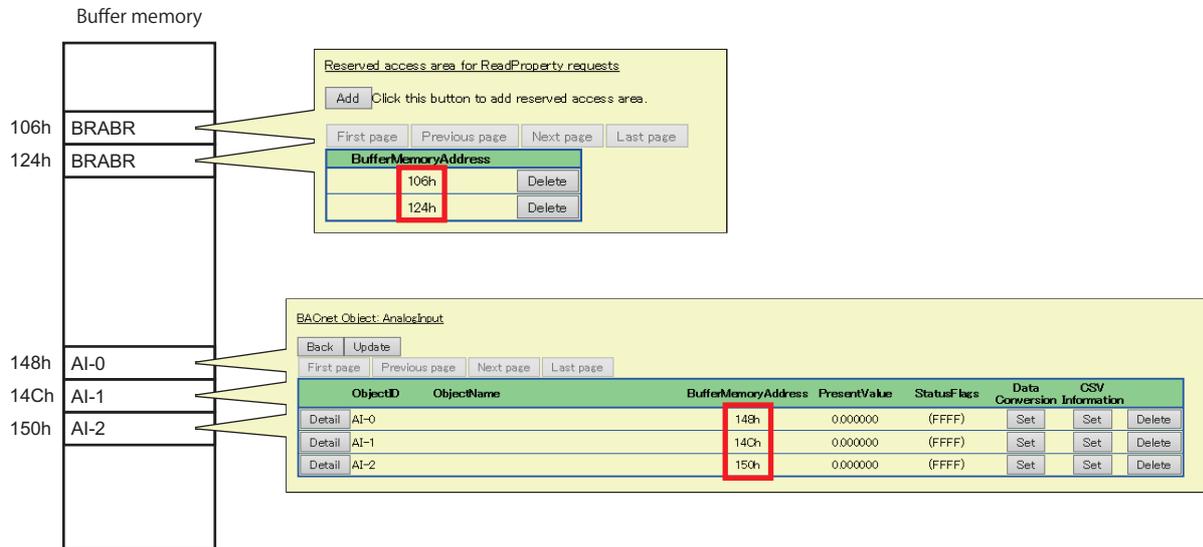
R: Read-only, W: Write-only, R/W: Read/Write

Name	Address	Description	R/W	Initial value
IP address	Un\G32	An IP address (first octet) is stored in decimal number in word (16 bits).	R	192
	Un\G33	An IP address (second octet) is stored in decimal number in word (16 bits).		168
	Un\G34	An IP address (third octet) is stored in decimal number in word (16 bits).		0
	Un\G35	An IP address (fourth octet) is stored in decimal number in word (16 bits).		254

Data assignment area (Un\G256 to Un\G65535)

With the BACnet object function or the data block function, the areas for reading and writing data between a CPU module and a BACnet module are assigned.

When '0' is specified to the buffer memory address for each function, the data block is automatically assigned to the free space in the buffer memory.



For the format of each object and data block, refer to the respective sections in the following table.

Name	Reference
AnalogInput object	Page 23 Buffer memory format of AnalogInput objects
AnalogOutput object	Page 29 Buffer memory format of AnalogOutput objects
AnalogValue object	Page 36 Buffer memory format of AnalogValue objects
BinaryInput object	Page 43 Buffer memory format of BinaryInput objects
BinaryOutput object	Page 47 Buffer memory format of BinaryOutput objects
BinaryValue object	Page 54 Buffer memory format of BinaryValue objects
MultiStateInput object	Page 60 Buffer memory format of MultiStateInput objects
MultiStateOutput object	Page 64 Buffer memory format of MultiStateOutput objects
MultiStateValue object	Page 71 Buffer memory format of MultiStateValue objects
Accumulator object	Page 78 Buffer memory format of Accumulator objects
Keiryo object	Page 83 Buffer memory format of Keiryo objects
ElectricDemandMonitoring object	Page 87 Buffer memory format of ElectricDemandMonitoring objects
ElectricDemandControl object	Page 93 Buffer memory format of ElectricDemandControl objects
GeneratorLoadControl object	Page 97 Buffer memory format of GeneratorLoadControl objects
Calendar object	Page 101 Buffer memory format of Calendar objects
RDTB	Page 289 Format of RDTB
Access block for reading	Page 291 Format of access blocks for reading
Access block for writing	Page 292 Format of access blocks for writing
Access block for BACnet monitoring	Page 293 Format of access blocks for BACnet monitoring
Access block for COV interaction	Page 294 Format of access blocks for COV interaction
Access block for Event interaction	Page 295 Format of access blocks for Event interaction

Buffer memory utilization

The following shows the buffer memory utilization (unit: byte) for each object.

ObjectType	Buffer memory utilization
AnalogInput	4
AnalogOutput	4
AnalogValue	4
BinaryInput	4
BinaryOutput	4
BinaryValue	4
MultistateInput	4
MultistateOutput	4
MultistateValue	4
Accumulator	4
Keiryo	4
Electric demand monitoring	196
Electric demand control	36
Generator load control	40
Calendar	2
NotificationClass	0
Schedule	0
TrendLog	0
Device	0
Data block	Buffer memory utilization
Access block for reading	30
Access block for writing	30
Access block for BACnet monitoring	6
Access block for COV interaction	6
Access block for Event interaction	4



Operation of a BACnet module

Initial processing

A BACnet module stores the last values before powering OFF (or reset) to the property assigned to the buffer memory. The data block assigned to the buffer memory is initialized with '0'.

Loading buffer memory

A BACnet module reads values in the buffer memory periodically. The loading cycle is the total time of the following times.

Item	Description
SleepTime in the BACnet detail setting	This indicates the time from the completion of the loading of the buffer memory to the next loading start time set to "SleepTime" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "System". For details, refer to the following section. ☞ Page 281 System
Buffer memory loading time	A time required for loading buffer memory. The buffer memory loading time is increased in accordance with the number of objects or number of data blocks assigned to the buffer memory.

During the SleepTime, the loading of buffer memory is not performed since BACnet processing is mainly performed. As for the period of loading buffer memory, only the reading of buffer memory is performed and BACnet processing^{*1} is not performed.

*1 BACnet processing means operations such as the sending/reception processing of BACnet packets, the update of property values which are changed dynamically, and the determination of the sending timing of COV notifications/Event notifications.

Writing values to buffer memory

A BACnet module writes values to the buffer memory with the following condition.

Condition	Description
The property value assigned to buffer memory is changed.	The CONTROL, STATUS, or Data of an object is written.
The response of the BACnet request function or BACnet monitoring function is received.	The CONTROL or STATUS of a data block (access block for reading, access block for writing, or access block for BACnet monitoring), or received data is written.
A COV notification is received with the COV interaction function. An Event notification is received with the Event interaction function.	The CONTROL or STATUS of a data block (access block for COV interaction or access block for Event interaction), or received data is written.

Appendix 3 Details of BACnet Properties

This section shows the details of BACnet properties mainly used for BACnet modules.

For data types which are not described in the following table, refer to the BACnet standard with which the BACnet module complies.

- IEIEJ-P-0003:2000 addendum-a (Institute of Electrical Installation Engineers of Japan)
- IEIEJ-G-0006:2006 addendum-a (Institute of Electrical Installation Engineers of Japan)
- ANSI/ASHRAE135-2004 (ISO16484-5-2003)
- ANSI/ASHRAE135-2010

Properties of an AnalogInput object and AnalogOutput object

Property name	Description
PresentValue	For an AnalogInput object, the value of an actual indoor temperature or preset temperature is represented. For an AnalogOutput object, the preset temperature can be changed by changing the property value of an AnalogOutput object from another BACnet device, such as a central monitoring device.
PriorityArray	Settable only for AnalogOutput objects. The value stored to a PriorityArray property whose index number is the smallest among 16 arrays is a PresentValue property value.
StatusFlags	The current status of an object is represented. (Alarm/failure/under maintenance) In a configuration function, InAlarm bit, Fault bit, Overridden bit, and OutOfService bit are displayed in order from left to right. <ul style="list-style-type: none"> • InAlarm bit: When an EventState property value is other than Normal, this bit is True. • Fault bit: When an EventState property value is Fault, this bit is True. • Overridden bit: Always False. • OutOfService bit: When an OutOfService property value is True, this bit is also True.
Reliability	Whether or not the value set to a PresentValue property is reliable is represented. When a Reliability property value is NoFaultDetected, it indicates that a proper value is stored in the PresentValue property.
EventState	The event status of an object (normal/upper limit value error/lower limit value error/failure) is represented.
EventEnable	Set whether to send an Event notification when an EventState property value is changed.
HighLimit	Specify an upper limit value for a PresentValue property. If the value of a PresentValue property becomes greater than the set value, upper limit value error will occur.
LowLimit	Specify a lower limit value for a PresentValue property. If the value of a PresentValue property becomes less than the set value, lower limit value error will occur.
LimitEnable	Set whether to monitor an upper limit value and lower limit value. When this property is set to False, the following statuses are not regarded as an alarm state. <ul style="list-style-type: none"> • When a PresentValue property value became greater than a HighLimit property value • When a PresentValue property value became less than a LowLimit property value
TimeDelay	Specify the time interval from when a PresentValue property value is changed to when an EventState property value is changed. (Unit: seconds) Even if a PresentValue property value exceeded the normal range once, when the value is returned within a normal range within the time specified to a TimeDelay, an object will not be in alarm state.
OutOfService	When this property is set to True, it means that the device is under maintenance. (The property assigned to an object or buffer memory is deallocated.)
COVIncrement	A COV notification is sent when the PresentValue property value of a recently sent COV notification exceeded the value specified to a COVIncrement property.



Properties of a BinaryInput object and BinaryOutput object

Property name	Description
PresentValue	For a BinaryInput object, a BACnet device operating status, such as ON/OFF or normal/error, is represented. For a BinaryOutput object, the operating status of a BACnet device can be changed by changing the property value of a BinaryOutput object from another BACnet device, such as a central monitoring device.
PriorityArray	Settable only for BinaryOutput objects. The value stored to a PriorityArray property whose index number is the smallest among 16 arrays is a PresentValue property value.
AlarmValue	Settable only for BinaryInput objects. When a PresentValue property value becomes the same as any of the values specified to an AlarmValues, an EventState property value is changed to Offnormal.
FeedbackValue	Settable only for BinaryOutput objects. The status of a BACnet device is stored. If the value set to a PresentValue property and a FeedbackValue property value are different, the status will be in alarm state (EventState property value will be Offnormal.).
TimeDelay	For a BinaryInput object, specify the time interval from when a PresentValue property value is matched to an AlarmValue property value to when an EventState property value is changed to alarm state (EventState property value is changed to Offnormal.). For a BinaryOutput object, specify the time interval from when a PresentValue property value is mismatched with a FeedbackValue property value to when an EventState property value is changed to alarm state (EventState property value is changed to Offnormal.).
StatusFlags	The current status of an object is represented. (Alarm/failure/under maintenance) In a configuration function, InAlarm bit, Fault bit, Overridden bit, and OutOfService bit are displayed in order from left to right. <ul style="list-style-type: none"> • InAlarm bit: When an EventState property value is other than Normal, this bit is True. • Fault bit: When an EventState property value is Fault, this bit is True. • Overridden bit: Always False. • OutOfService bit: When an OutOfService property value is True, this bit is also True.
Reliability	Whether or not the value set to a PresentValue property is reliable is represented. When a Reliability property value is NoFaultDetected, it indicates that a proper value is stored in the PresentValue property.
EventState	The event status of an object (normal/alarm (event active)/failure) is represented.
EventEnable	Set whether to send an Event notification when an EventState property value is changed.
OutOfService	When this property is set to True, it means that the device is under maintenance. (The property assigned to an object or buffer memory is deallocated.)
ElapsedActiveTime	The total time that the value of a PresentValue property has been 'Active' is stored. (Unit: seconds)
ChangeOfStateCount	The total number of times when a PresentValue property is changed is stored.

Properties of a MultistateInput object and MultistateOutput object

Property name	Description
PresentValue	The value for operating mode (cooling, heating, fanning, or dehumidifying mode) or wind speed (weak, medium, or strong) is stored.
PriorityArray	The value stored to a PriorityArray property whose index number is the smallest among 16 arrays is a PresentValue property value.
FeedbackValue	The status of a BACnet device is stored. If the value set to a PresentValue and a FeedbackValue are different, the status will be in alarm state.
NumberOfStates	Specify a maximum value for a PresentValue property. The value of a PresentValue property is changed from 1 to the value specified to a NumberOfStates.
AlarmValues	If a PresentValue value and a value specified to an AlarmValue property are the same, the status will be in alarm state (EventState property value is changed to Offnormal.). One or more values can be set.
FaultValues	If the value of a PresentValue and a value set to a FaultValues property are the same, the status will be failure (EventState property value will be Fault.). One or more values can be set.
StatusFlags	The current status of an object is represented. (Alarm/failure/under maintenance) In a configuration function, InAlarm bit, Fault bit, Overridden bit, and OutOfService bit are displayed in order from left to right. <ul style="list-style-type: none"> • InAlarm bit: When an EventState property value is other than Normal, this bit is True. • Fault bit: When an EventState property value is Fault, this bit is True. • Overridden bit: Always False. • OutOfService bit: When an OutOfService property value is True, this bit is also True.
Reliability	Whether or not the value set to a PresentValue property is reliable is represented. When a Reliability property value is NoFaultDetected, it indicates that a proper value is stored in the PresentValue property.
EventState	The event status of an object (normal/alarm (event active)/failure) is represented.
EventEnable	Set whether to send an Event notification when an EventState property value is changed.
OutOfService	When this property is set to True, it means that the device is under maintenance. (The property assigned to an object or buffer memory is deallocated.)

Properties of an Accumulator object

Property name	Description
PresentValue	The total amount of electrical energy is stored.
Pulse_Rate	The amount of pulses which is received within the time period specified to a Limit_Monitoring_Interval property is represented. When the time period specified to a Limit_Monitoring_Interval property is elapsed, the value is reset to '0' and is calculated again.
Limit_Monitoring_Interval	Specify a time period that a Pulse_Rate property can receive the number of pulses. (Unit: seconds) When the time period specified to a Limit_Monitoring_Interval property is elapsed, the value of a Pulse_Rate property is reset to '0'.
StatusFlags	The current status of an object is represented. (Alarm/failure/under maintenance) In a configuration function, InAlarm bit, Fault bit, Overridden bit, and OutOfService bit are displayed in order from left to right. <ul style="list-style-type: none"> • InAlarm bit: When an EventState property value is other than Normal, this bit is True. • Fault bit: When an EventState property value is Fault, this bit is True. • Overridden bit: Always False. • OutOfService bit: When an OutOfService property value is True, this bit is also True.
Reliability	Whether or not the value set to a PresentValue property is reliable is represented. When a Reliability property value is NoFaultDetected, it indicates that a proper value is stored in the PresentValue property.
EventState	The event status of an object (normal/upper limit value error/lower limit value error/failure) is represented.
HighLimit	Specify an upper limit value for a Pulse_Rate property. When a Pulse_Rate property value becomes greater than the specified value, an EventState property value is changed to HighLimit.
LowLimit	Specify a lower limit value for a Pulse_Rate property. When a Pulse_Rate property value becomes less than the specified value, an EventState property value is changed to LowLimit.
LimitEnable	Set whether to monitor an upper limit value and lower limit value. When this property is set to False, the following statuses are not regarded as an alarm state. <ul style="list-style-type: none"> • When a Pulse_Rate property value became greater than a HighLimit property value • When a Pulse_Rate property value became less than a LowLimit property value
OutOfService	When this property is set to True, it means that the device is under maintenance. (The property assigned to an object or buffer memory is deallocated.)

Properties of a Calendar object

Property name	Description
PresentValue	When the current date is listed in a calendar (DateList property), the value will be True.
DateList	A list of date is registered.

Properties of a Schedule object

Property name	Description
PresentValue	The control status of recently executed schedule is represented.
WeeklySchedule	Regular schedules for each day of week from Mondays to Sundays are stored.
ExceptionSchedule	Specify an exceptional schedule. On the date specified to an ExceptionSchedule property, the schedule is performed not with the scheduled operation specified to a WeeklySchedule property but with an ExceptionSchedule property.
Reliability	Whether or not an inconsistency exists in the set schedule is represented. When a Reliability property value is other than NoFaultDetected, it indicates that the set schedule contains an error.
Schedule_Default	If neither a WeeklySchedule property nor ExceptionSchedule property are set when the date is changed (0:00), the scheduled operation set to this property is executed at 0:00.
OutOfService	When an OutOfService property value is True, all the scheduled operations set to each object are disabled.

Properties of a TrendLog object

Property name	Description
LogDeviceObjectProperty	Specify a logging target object and its property.
LogInterval	Specify a logging cycle. (Unit: 10 milliseconds)
BufferSize	Specify the number of records to be sampled.
LogEnable(Enable)	To start logging, select True. To stop logging, select False.
LogBuffer	Logged data is stored. The data can be read using a ReadRange service.
StopWhenFull	Select whether to stop logging or continue logging by overwriting old records when the number of records specified to a BufferSize property is sampled by a LogBuffer property. When the value is True, logging is stopped. When the value is False, logging is continued by overwriting the oldest record.
RecordCount	The number of records stored to a LogBuffer property is stored.
TotalRecordCount	The total number of records stored to a LogBuffer property is stored.

Properties of a NotificationClass object

Property name	Description
RecipientList	Specify the send destination of an Event notification. Specify a destination to a BACnetAddress or DeviceID.

Properties of a Device object

Property name	Description
SystemStatus	The status of a BACnet module is represented. When joining a BACnet, the value is Operational. When leaving a BACnet, the value is NonOperational.
LocalDate	The current date of a BACnet module is stored.
LocalTime	The current time of a BACnet module is stored.
ObjectList	A list of all the objects registered in a BACnet module is stored.

Appendix 4 Details of BACnet Module Proprietary Properties

The following shows the details of BACnet module proprietary properties.

Property name	Reference
PowerFactor	Page 270 PowerFactor
IntrinsicEventDisable	Page 270 IntrinsicEventDisable
UnsolicitedCOV	Page 270 UnsolicitedCOV
ValuelsOutput	Page 270 ValuelsOutput
COVSendInterval	Page 271 COVSendInterval
ScheduleOutputDisable	Page 271 ScheduleOutputDisable
ScheduleExpand	Page 271 ScheduleExpand
ScheduleDefaultDisable	Page 272 ScheduleDefaultDisable

PowerFactor

Set an upper/lower limit determination condition.

Value	Description
False	Normal upper/lower limit determination condition.
True	Upper/lower limit determination condition for power factor.

For details, refer to the description when a PowerFactor property is changed to True in the following section.

☞ Page 180 AnalogInput object/AnalogOutput object/AnalogValue object

IntrinsicEventDisable

Fix the value of an EventState property.

Value	Description
False	The value of an EventState property changes normally.
True	An EventState property value is fixed and the sending of an Event notification is stopped.

If the value is changed from True to False, an EventState property value will be changed depending on the value of another property.

UnsolicitedCOV

For details, refer to the following section.

☞ Page 177 COV notification send setting

ValuelsOutput

Set the operations of an AnalogValue object, a BinaryValue object, and a MultistateValue object.

Value	Description
False	AnalogValue objects, BinaryValue objects, and MultistateValue objects operate as their corresponding input objects.
True	AnalogValue objects, BinaryValue objects, and MultistateValue objects operate as their corresponding output objects.

COVSendInterval

Set the send cycle of UnsolicitedCOV properties in seconds.

This property is enabled when "Upon Value change and periodic COV transmission" or "Upon Value change and periodic COV transmission (When In Alarm only)" is selected in an UnsolicitedCOV property.

ScheduleOutputDisable

Set the availability of schedule calculation.

Value	Description
False	Normal schedule calculation is performed.
True	All the schedule calculations are disabled.

When the value is True, even if the time which is set to an ExceptionSchedule property or a WeeklySchedule property has come, the value of a PresentValue property is not changed. Additionally, the property value which is represented by a ListOfObjectPropertyReferences property is not changed.

A schedule is calculated with the time when the value is changed from True to False, and the value is stored to a PresentValue property.

ScheduleExpand

Set the availability of the automatic creation processing of an ExceptionSchedule property.

Value	Description
False	The automatic creation processing is not executed.
True	The automatic creation processing is executed.

When the value is True, the ExceptionSchedule property of the Schedule object to which a ScheduleExpand property belongs is created automatically at 0:00. Writing data to the array[7] which is automatically created is not allowed.

The following table shows the behavior of the ScheduleExpand property at 0:00.

Behavior	Description
1	Fix the date in the array ([1] to [7]) of the ExceptionSchedule property. The array [1] is fixed as a current day, and the array [2] to array [7] are fixed as 6 days after the current day.
2	Move the schedule arrays. When the date changes to the next day, the values of the array [2] to [7] are moved to the array [1] to [6]. The array [1] to array [6] are the schedule after 5 days from the current day.
3	Create a schedule after 6 days automatically. After the operations above are complete, a schedule after 6 days is automatically created and saved to the array [7]. When the date after 6 days is included in a Calendar object set to the array[8] and later, the schedule is set to the array[7]. Other than the above case, the schedule in the WeeklySchedule property, which indicates the day of week after 6 days, will be set to the array[7].

A

ScheduleDefaultDisable

Set whether to enable a Schedule_Default property when the date is changed (0:00).

Value	Description
False	The operation of a Schedule_Default property is enabled.
True	The operation of a Schedule_Default property is disabled.

When the value is True, the value of the Schedule_Default property is not output as a result of schedule calculation.

To enable a consecutive day schedule, set the value of a ScheduleDefaultDisable property to 'True'.

When the first schedule of the current day set to a WeeklySchedule property or ExceptionSchedule property is 'Null' , even if the value is True, the value of a Schedule_Default property is output as a calculation result.

In the following case, 'Active' is output to WeeklySchedule[4] at 9:00 on Thursday.

- Schedule_Default property: Active^{*1}
- WeeklySchedule[4] of a WeeklySchedule property: 9:00 - Null
- WeeklySchedule[4] of a WeeklySchedule property: 18:00 - Inactive^{*2}

*1 'Enumerated' is set to "Type", and '1' is set to "Data".

*2 'Enumerated' is set to "Data Type", and '0' is set to "Value".

Appendix 5 CSV File Format

This section shows the CSV file format used for each function and setting.

Common format

The following information is included in the two header rows of a CSV file exported from a BACnet module.

Number of rows	Description	Remarks
1	Version of a configuration function	Data can be added or overwritten to a CSV file even if this row is not included in a CSV file.
2	Column comment row	Data can be added or overwritten to a CSV file even if this row is not included in a CSV file. To include the column comment row, enter '#' or ';' to the head of the data. *1 In that case, the specification method of buffer memory address should be noted. (Page 273 Buffer memory address)

*1 If '#' or ';' is entered for a column, the characters after '#' or ';' will be regarded as a comment. Do not use '#' and ';' other than for the purpose of comments.

The example of the format of a CSV file for engineering is as follows:

Version	#1.0.0					
Column comment line	#75	77	79	-1	.....	-2
Data line	0		0	0	.....
	8388608		2	0	.....
	12582912		3	0	.....
	
	553648128	.....	132	0	.....
Column No.	1	2	3	4	.....	38

Buffer memory address

- For a MELSEC iQ-R series BACnet module (RJ71BAC96), a buffer memory address is specified in word address unit. When adding or overwriting data from a CSV file, enter "RWordAddress" to the column comment row in the column No. where a buffer memory address is to be specified, and specify an address in units of word addresses.
- If a character string other than "RWordAddress" is entered to the column comment row of a column No. where a buffer memory address is to be specified, or data is added or overwritten to a CSV file without including a comment row, the buffer memory address will be specified in units of byte addresses*1.

*1 For a BAQ08V, the address of the buffer memory is specified in units of byte addresses. When utilizing data from a BAQ08V, specify the address of the buffer memory in units of byte addresses.



CSV file for engineering

The format of a CSV file for engineering is the same as that of a CSV file for object list which is regulated by the Institute of Electrical Installation Engineers of Japan.

If a value outside the range is set, the data in the corresponding row will not be added and overwritten to a BACnet module.

Column No.	Column comment row	Description of data row	Remarks
1	75	Object identifier	ObjectIdentifier
2	77	Object name	ObjectName
3	79	Object type	ObjectType
4	-1	Instance number	—
5	117	Unit	Units
6	65-1	Maximum current value	MaxPresValue
7	69	Minimum current value	MinPresValue
8	72	Notification type	NotifyType
9	45	Upper limit	HighLimit
10	59	Lower limit	LowLimit
11	46	Inactive text	InactiveText
12	4	Active text	ActiveText
13	84	Polarity	Polarity
14	43	File type	FileType
15	42	File size	FileSize
16	74	Number of state	NumberOfState
17	110-1	State text 1	StateText[1]
18	110-2	State text 2	StateText[2]
19	110-3	State text 3	StateText[3]
20	110-4	State text 4	StateText[4]
21	110-5	State text 5	StateText[5]
22	110-6	State text 6	StateText[6]
23	110-7	State text 7	StateText[7]
24	110-8	State text 8	StateText[8]
25	110-9	State text 9	StateText[9]
26	110-10	State text 10	StateText[10]
27	17	Notification class	NotificationClass
28	132-1	Log device object property 1	LogDeviceObjectProperty[ObjectID]
29	132-2	Log device object property 2	LogDeviceObjectProperty[PropertyID]
30	132-3	Log device object property 3	LogDeviceObjectProperty[ArrayIndex]
31	132-4	Log device object property 4	LogDeviceObjectProperty[DeviceID]
32	134	Log interval	LogInterval
33	126	Buffer size	BufferSize
34	65-2	Maximum current value of an Accumulator object or maximum count value of a Keiryō object	MaxPresValue/Maximum count value
35	187	Scale property of an Accumulator object* ¹ or weight of a Keiryō object	—
36	75-1	Referenced object 1	—
37	75-2	Referenced object 2	—
38	-2	Memo	—

*1 REAL type and INTEGER type are available for the Scale property of Accumulator objects. When registering object data using a CSV file, set a value to the column No.35 as follows.
 REAL type: Set a value as it is. (Example: 0.1, 100.0)
 INTEGER type: Set a value in the format of '1.0e+N' or '1.0e-N' (N indicates an arbitrary integer value.).
 '1.0e+2' indicates the square of 10 (100), and '1.0e-3' indicates the minus cube of 10 (-0.001).

CSV file for registration

If a value outside the range is set, the data in the corresponding row will not be added and overwritten to a BACnet module.

Column No.	Column comment	Description of data row	Value to be set
1 to 38	—	—	The format is the same as the CSV file for engineering.  Page 274 CSV file for engineering
39	RAddress	Start buffer memory address of an object	Specify the value whose buffer memory address (word address) is doubled (byte address) in decimal. If "RWordAddress" is entered to the first column comment, the buffer memory address will be handled as a word. If the value is '0', a free space will be assigned automatically.
40	COVProcessID	[9003]UnsolicitedCOV	The sending of an UnsolicitedCOV is enabled. 0: No COV 1: Upon Value change only 2: Upon Value change and periodic COV transmission 3: Upon Value change and periodic COV transmission (When In Alarm only)
41	COVInterval	[9006]COVSendInterval	This column is enabled only when '2' or '3' is set to the column No.40 (COVProcessID). Set the send interval of a cyclic sending in seconds.
42	EventEnable	[35]EventEnable	3-bit unsigned integer. The bit corresponding to the event to be notified is '1'. Set a value in decimal. b2: Offnormal b1: Fault b0: Normal
43	LimitEnable	[52]LimitEnable	3-bit unsigned integer. The bit corresponding to the event to be notified is '1'. Set a value in decimal. b2: Change the upper/lower limit determination condition for power factor (only for AnalogInput objects) b1: HighLimit b0: LowLimit
44	IntegerA	16-bit integer A	Set values when converting the PresentValue property value of an AnalogInput object, AnalogOutput object, or AnalogValue object. 16-bit integer A corresponds to "Real number A", and 16-bit integer B corresponds to "Real number B". If nothing is set, a real number will be assigned in 2 words.
45	RealA	Real number A	
46	IntegerB	16-bit integer B	
47	RealB	Real number B	
48	Output	[9004]ValueOutput	1: AnalogValue objects, BinaryValue objects, and MultistateValue objects operate as their corresponding output objects. Other than 1: AnalogValue objects, BinaryValue objects, and MultistateValue objects operate as their corresponding input objects.
49	COVIncrement	[22]COVIncrement	Set the value of COVIncrement property.
50	TimeDelay	[113]TimeDelay	Set the value of TimeDelay property.

CSV file for the BACnet request function

If a value outside the range is set, the data in the corresponding row will not be added and overwritten to a BACnet module.

Column No.	Column comment	Description of data row	Value to be set
1	Read/Write	Type of a data block	0: Access block for reading 1: Access block for writing
2	RWordAddress* ¹	Buffer memory address of an access block for reading or access block for writing	0: A free space is assigned. If there is no free space, a data block is not assigned. Other than 0: Specify a buffer memory address in decimal. If a part of the set buffer memory address has already been used, a data block will not be assigned.

*1 The RWordAddress is handled as a word address by default.

If other than "RWordAddress" is entered to the column comment, the buffer memory address will be handled as a byte address.

CSV file for the BACnet monitoring function

If a value outside the range is set, the data in the corresponding row will not be added and overwritten to a BACnet module.

Column No.	Column comment	Description of data row	Value to be set
1	DeviceInstanceNo	Instance number of a device to be monitored	Range: 0 to 4194303 When monitoring a BACnet module, set the instance number of a BACnet module or '4194303'. When the instance number of a BACnet module is set, '4194303' is displayed on a web browser.
2	ObjectType	Object type number of the object to be monitored	Range: 0 to 1023
3	ObjectInstanceNo	Instance number of an object to be monitored	Range: 0 to 4194303
4	PropertyID	PropertyIdentifier of a property to be monitored	Range: 0 to 65535
5	ArrayIndex	The index number of a property to be monitored	Range: 0 to 65534 If do not set, leave the column blank.
6	Interval	Cycle to read values (seconds)	Range: 0 to 4294967295 When '0' is set, monitoring is not performed.
7	RWordAddress* ¹	Buffer memory address of an access block for BACnet monitoring	0: A free space is assigned. If there is no free space, a data block is not assigned. Other than 0: Specify a buffer memory address in decimal. If a part of the set buffer memory address has already been used, a data block will not be assigned.

*1 The RWordAddress is handled as a word address by default.

If other than "RWordAddress" is entered to the column comment, the buffer memory address will be handled as a byte address.

CSV file for the COV interaction function

If a value outside the range is set, the data in the corresponding row will not be added and overwritten to a BACnet module.

Column No.	Column comment	Description of data row	Value to be set
1	DeviceInstanceNo	Instance number of a COV notification send source device	Range: 0 to 4194303 To receive COV notifications which are sent from a BACnet module, set the instance number of the BACnet module. For the instance number of a BACnet module, refer to the following section.  Page 198 Setting an instance number and a BACnet standard
2	ObjectType	Object type number of a COV notification send source object	Range: 0 to 1023
3	ObjectInstanceNo	Instance number of a COV notification send source object	Range: 0 to 4194303
4	RWordAddress* ¹	Buffer memory address of an access block for COV interaction	0: A free space is assigned. If there is no free space, a data block is not assigned. Other than 0: Specify a buffer memory address in decimal. If a part of the set buffer memory address has already been used, a data block will not be assigned.
5	SubscribeCOVenable	Enable SubscribeCOV.	0: Disable 1: Enable
6	ProcessID	ProcessID	Range: 1 to 4294967295
7	Confirm	Confirmed/Unconfirmed	0: Unconfirmed 1: Confirmed
8	LifeTime	Cycle to read values (minutes)	Range: 1 to 1440

*1 The RWordAddress is handled as a word address by default.

If other than "RWordAddress" is entered to the column comment, the buffer memory address will be handled as a byte address.

CSV file for the Event interaction function

If a value outside the range is set, the data in the corresponding row will not be added and overwritten to a BACnet module.

Column No.	Column comment	Description of data row	Value to be set
1	DeviceInstanceNo	Instance number of an Event notification send source device	Range: 0 to 4194303 To receive Event notifications which are sent from a BACnet module, set the instance number of the BACnet module. For the instance number of a BACnet module, refer to the following section.  Page 198 Setting an instance number and a BACnet standard)
2	ObjectType	Object type number of an Event notification send source object	Range: 0 to 1023
3	ObjectInstanceNo	Instance number of an Event notification send source object	Range: 0 to 4194303
4	RWordAddress* ¹	Buffer memory address of an access block for Event interaction	0: A free space is assigned. If there is no free space, a data block is not assigned. Other than 0: Specify a buffer memory address in decimal. If a part of the set buffer memory address has already been used, a data block will not be assigned.

*1 The RWordAddress is handled as a word address by default.

If other than "RWordAddress" is entered to the column comment, the buffer memory address will be handled as a byte address.

CSV file for the Calendar interaction function

Depending on the specification method of a copy source BACnet device, the items to be set differ.

- ❶ How to specify own Calendar InstanceNo and Calendar InstanceNo.
- ❷ How to specify an ObjectName.
- ❸ How to specify a Calendar InstanceNo.

For details, refer to the following section.

📖 Page 158 How to use the Calendar interaction function

If a value outside the range is set, the data in the corresponding row will not be added and overwritten to a BACnet module.

Column No.	Column comment	Description of data row	Value to be set
1	DstCLInsNo	Instance number of the Calendar object of a copy target BACnet module	Range: 0 to 4194303
2	SrcDVInsNo|SrcCLObjName|SrcCLObjID	For the specification method ❶ Instance number of the device which includes copy source Calendar object	Range: 0 to 4194302
		For the specification method ❷	OBJECTID
		For the specification method ❸	OBJECTNAME
3	SrcCLInsNo	For the specification method ❶ Instance number of a copy source Calendar object	Range: 0 to 4194303
		For the specification method ❷	— (No settings)
		For the specification method ❸ Instance number of a copy source Calendar object	Range: 0 to 4194303
4	ONSrcCLObjName	The ObjectName of a Calendar object	The format is as follows: CharacterCode/CodePage:Name (Example) For ShiftJis 1/932: Holidays For the CharacterCode, refer to the following section. 📖 Page 278 CharacterCode

CharacterCode

CharacterCode	Character code	Appearance on the screen
00	ISO 10646 (UTF-8)	ANSIX34
01	IBM/Microsoft DBCS	DBCS
02	JIS C 0208	JISC6226
03	ISO 10646 (UCS-4)	ISO10646UCS4
04	ISO 10646 (UCS-2)	ISO10646UCS2
05	ISO 8859-1	ISO 8859_1

CSV file for Who-Is send setting

If a value outside the range is set, the data in the corresponding row will not be added and overwritten to a BACnet module.

Column No.	Column comment	Description of data row	Value to be set
1	WholsLW	Minimum instance number of a device among the BACnet devices where Who-Is services are to be sent	Range: 0 to 4194302 If the value is greater than the value of WholsHI, an error occurs.
2	WholsHI	Maximum instance number of a device among the BACnet devices where Who-Is services are to be sent	Range: 0 to 4194302 If the value is smaller than the value of WholsLW, an error occurs.

Appendix 6 BACnet Detail Setting List

In the BACnet detail setting, the parameters related to the system and the interaction functions of a BACnet module can be set.

Changing parameters can affect whole BACnet system. Take extra caution when changing parameters by referring to any of the following BACnet standard with which the BACnet module used complies.

- IEIEJ-P-0003:2000 addendum-a
- IEIEJ-G-0006:2006 addendum-a
- ANSI/ASHRAE135-2004 (ISO16484-5-2003)
- ANSI/ASHRAE135-2010

Setting method

Operating procedure

1. Select [Settings] ⇒ [Basic Information], and click the [BACnet Detail Setting] button.

Model : RJ71BAC96
Version : 1.0.0

BACnet Configuration

Item	Setting
DeviceInstanceNo	254
BACnet Standard Applied	IEIEJ-G-0006:2006 Addendum-a

Edit Click this button to edit BACnet configuration. Note: Pause the operation to edit and apply new settings.

BACnet Detail Setting Click this button to browse detailed configuration.

2. Click the [Edit] button on the "BACnet Detail Setting" screen.

Model : RJ71BAC96
Version : 1.1.0

BACnet Detail Setting

Back Edit

System

Item	Data	Note
Backup-Hour	3	Specifies the time, in hour, to make backup data.
Backup-Minute	15	Specifies the time, in minute, to make backup data.
MaxComLogCount	100	Indicates the maximum number of communication log records.
SleepTime	200	Specifies interval, in milliseconds, for reading buffer memory.

Interface

Item	Data	Note
CheckYDevice	0	Specifies whether (1) or not (0) to check Y signal to merge/abort into network.
InitiaDataOutputDisable	0	If this value is set to 1, the Present_Value property values at the last shutdown are output to the buffer memory.
OutOfServiceControl	0	If this value is set to 1, the change in OutOfService is always output to Control in the buffer memory.
PulseDirectInput	0	If this value is set to 1, the value in buffer memory is considered datatype Unsigned32 and directly inserted to PresentValue (for AC and Keiryo object only).
RoundOffFlag	1	If this value is set to 1, the value is rounded and output to the buffer memory when Present_Value in AO or AV is written to. (Valid only when Data Conversion is enabled in AO/AV)

BACnet

Item	Data	Note
EventSendDisableOutOfService	0	If this value is set to 1, the Event notifications are not transmitted when OutOfService is TRUE.
DisableCOVDriivenByStatusFlags	0	While this value is set to 1, this a BACnet module not generate COV notification upon change of StatusFlags property value.
TimeChangeDisable	0	If this value is set to 1, the TimeChange of module will not be logged to a Trend Log

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3. Set the items and click the [Update] button.

Model : RJ71BAC96
Version : 1.1.0

BACnet Detail Setting-Modify

Update Cancel

System

Item	Data	Note
Backup-Hour	3	Specifies the time, in hour, to make backup data.
Backup-Minute	15	Specifies the time, in minute, to make backup data.
MaxComLogCount	100	Indicates the maximum number of communication log records.
SleepTime	200	Specifies interval, in millsec, for reading buffer memory.

Interface

Item	Data	Note
CheckVDevice	0	Specifies whether (1) or not (0) to check V signal to merge/abort into network.
InitialDataOutputDisable	0	If this value is set to 1, the Present_Value property values at the last shutdown are output to the buffer memory.
OutOfServiceControl	0	If this value is set to 1, the change in OutOfService is always output to Control in the buffer memory.
PulseDirectInput	0	If this value is set to 1, the value in buffer memory is considered datatype Unsigned32 and directly inserted to PresentValue (for AO and Keiryo object only).
RoundOffFlag	1	If this value is set to 1, the value is rounded and output to the buffer memory when Present_Value in AO or AV is written to. (Valid only when Data Conversion is enabled in AO/AV)

BACnet

Item	Data	Note
EventSendDisableOutOfService	0	If this value is set to 1, the Event notifications are not transmitted when OutOfService is TRUE.
DisableCOVDrivenRvStatusFlags	0	While this value is set to 1, this unit will not generate COV notification upon change of

Navigation: < >

System

Parameters for backup, logging, and reading cycle can be set in "System".

For the setting method, refer to the following section.

 Page 279 Setting method

Item	Description	Initial value	Data range
Backup-Hour	— (unavailable)	—	—
Backup-Minute	— (unavailable)	—	—
MaxComLogCount	Set the maximum number of logs which can be checked with BACnet Communication within the range of 100 to 10000.	100	100 to 10000
SleepTime	Specify an idling time (unit: milliseconds) from when all the values in the buffer memory are read to when a value is read next time. By lengthen the idling time, the load of the BACnet module is reduced. However, the application of values takes time. Taking the load of a BACnet module in consideration, 120 (milliseconds) is recommended.	200	100 to 1000

Interface

Parameters for sequence programs and buffer memory can be set in "Interface".

For the setting method, refer to the following section.

 Page 279 Setting method

Item	Description	Initial value	Data range
CheckYDevice	Set whether to join/leave BACnet automatically. 1: A BACnet module joins/leaves BACnet automatically. 0: A BACnet module joins/leaves BACnet by a sequence program. ( Page 250 Joining of BACnet (Y1))	0	0 to 1
InitialDataOutputDisable	Set whether to output the backed up PresentValue property value before powering OFF (or reset) to the buffer memory or not at the start of the module. 0: The value is output. 1: The value is not output.	0	0 to 1
OutOfServiceControl	Set whether to output the change of an OutOfService property value ^{*1} to the buffer memory. 0: The value is not output. 1: The value is output.	0	0 to 1
PulseDirectInput	A parameter for an Accumulator object and a Keiryō object. Set whether to store a calculated pulse counter value to a PresentValue property. 0: The value is stored after calculation ( Page 282 When a PulseDirectInput is 0) 1: The value is stored without any calculation (32-bit unsigned integer). ^{*2}	0	0 to 1
RoundOffFlag	Set whether to round off the value written to the PresentValue of an AnalogOutput object or AnalogValue object when outputting the value to the buffer memory. To round off the value, set the target AnalogOutput object or AnalogValue object to perform data conversion in advance. 0: The value is not rounded off. 1: The value is rounded off.	1	0 to 1

*1 For the change of the OutOfService property, refer to the following section.

 Page 120 OutOfService property

*2 For an Accumulator object, when '1' is set to "PulseDirectInput", an Event notification cannot be sent. To send an Event notification, set '0'. ( Page 184 Accumulator object)

When a PulseDirectInput is 0

Set '0' to a PulseDirectInput when adding the amount of electric energy.

In a PresentValue property, the value calculated with the following formula is stored.

- PresentValue property = Previous PresentValue property value + Calculation result of Prescale*¹

*1 Calculation result of Prescale = Differential value of pulse counter/ModuloDivide*Multiplier

☞ Page 282 Differential value of a pulse counter

☞ Page 283 Setting method of the values of a Multiplier and ModuloDivide

Ex.

When '1' is set to "ModuloDivide" and '10' is set to "Multiplier", 10 is added to the PresentValue property value every time the number of pulses increases.

■ Differential value of a pulse counter

The differential value of a pulse counter*¹ can be calculated from the value of a pulse input in the buffer memory*² (b15: reset flag, b14 to b0: CTA).

*1 For an Accumulator object, the differential value of a pulse counter is stored to a Pulse_Rate property within the time period specified to a Limit_Monitoring_Interval property. (☞ Page 268 Properties of an Accumulator object)

*2 For pulse input in the buffer memory, refer to the following sections.

Accumulator object ☞ Page 79 Pulse input

Keiry object ☞ Page 83 Pulse input

Present reset flag	Previous reset flag	Description	Differential value of a pulse counter
1	0	Since the counter value was initialized, the differential value is a present CTA.	Present CTA
	1	• Previous CTA > Present CTA Since the CTA was reset again before it became '7FFFh' after the CTA was reset, the differential value is a present CTA.	Present CTA
		• Previous CTA ≤ Present CTA	Present CTA - Previous CTA
0	0	• Previous CTA > Present CTA Since the CTA reached '7FFFh' and was counted from '0' again, the value of a present CTA is smaller than that of a previous CTA.	8000h - Previous CTA + Present CTA
		• Previous CTA ≤ Present CTA	Present CTA - Previous CTA
	1	Since the CTA reached '7FFFh', reset to 0, and counted up, the reset flag became '0'.	8000h - Previous CTA + Present CTA

When resetting a pulse counter using a program, write '8000h' (reset flag: 1, CTA: 0) to the pulse input in the buffer memory. After the value is written, do not change the value of the reset flag (1) until the CTA reaches '7FFFh'. When the CTA reached '7FFFh', the reset flag should be changed to '0' to initialize the CTA.

Precautions

- The previous CTA value is preset to '0' at the startup of a BACnet module.
This should be taken into consideration when creating a program.

■ Setting method of the values of a Multiplier and ModuloDivide

Set the value of a Multiplier or ModuloDivide with a Prescale property.

Operating procedure

1. Select [BACnetObject] to open the "BACnet Objects" screen.

Model : RJ71BAC96
Version : 1.0.0

BACnet Objects

ObjectType	Qty.	Limit	Creatable
Browse Add AnalogInput	1		False
Browse Add AnalogOutput	1		False
Browse Add AnalogValue	0		False
Browse Add BinaryInput	0		False
Browse Add BinaryOutput	0		False
Browse Add BinaryValue	0		False
Browse Add MultiStateInput	0		False
Browse Add MultiStateOutput	0	4000	False
Browse Add MultiStateValue	0		False
Browse Add Accumulator	0		False
Browse Add Keiryo	0		False
Browse Add ElectricDemandMonitoring	0		False
Browse Add ElectricDemandControl	0		False
Browse Add GeneratorLoadControl	0		False
Browse Add Calendar	1	300	False
Browse Add NotificationClass	0	50	False
Browse Add Schedule	0	100	False
Browse Add TrendLog	0	200	False
Browse Device	1	1	False

2. When setting the Accumulator object, click the [Browse] button of "Accumulator".
To set the Keiryo object, click the [Browse] button of "Keiryo".
3. Click the [Detail] button of an instance number to set the Prescale property.
The following screen is an example of an Accumulator object.

BACnet Object: Accumulator

Back Update

First page Previous page Next page Last page

ObjectID	ObjectName	BufferMemoryAddress	PresentValue	StatusFlags	Data Conversion	CSV Information
Detail AC-0		18Ah	0	(FFFF)		Set Delete

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BACnet

Parameters for operations which are defined in BACnet standards can be set.

For the setting method, refer to the following section.

☞ Page 279 Setting method

Item	Description	Initial value	Data range
EventSendDisableOutOfService	In the BACnet standard, an Event notification is sent even when the value of an OutOfService property is 'True'. Set whether to stop sending Event notification when an OutOfService property value is 'True'. 0: An Event notification is sent. 1: An Event notification is not sent. To stop sending Event notification for maintenance or test, set '1'.	0	0 to 1
DisableCOVDriivenByStatusFlags	In the BACnet standard, a COV notification is sent at the change of a StatusFlags property. Set whether to send COV notifications at the change of a StatusFlags property. 0: A COV notification is sent. 1: A COV notification is not sent.	0	0 to 1
TimeChangeDisable	In the BACnet standard, the TimeChange is logged to a TrendLog object when a time change occurred. Set whether to log TimeChange at a time change. 0: Logging is preformed. 1: Logging is not preformed.	0	0 to 1
ScheduleStart	Set which schedules to perform when the module is started or when a Schedule object is set again. 0: The last schedule before the current time is performed. 1: The schedule which is set to perform after the current time is performed.	0	0 to 1
ScheduleExecutionAfterTimeChange	Set whether to calculate the time of a schedule again using the time after the time on a BACnet module is changed. 0: Time is not calculated again. The schedule is performed along with the time on the BACnet module before the change. 1: The time is calculated again.	1	0 to 1
TimeValueWildCardSpecificProcess	Set the operation when a wildcard is used for the set schedule time (seconds or milliseconds). 0: The wildcard is not regarded as 0. When the time is set as '19:54:*', the schedule starts operation after 19:54:59 (= 19:55:00). 1: The wildcard is regarded as 0.	0	0 to 1
TimeSyncWildCardEnable	In ANSI/ASHRAE 2010, IEIEJ-G-0006:2006 Addendum-a, IEIEJ-P-0003:2000 Addendum-a, and ANSI/ASHRAE 2004, a wild card cannot be used for the time of TimeSynchronization services and UTC TimeSynchronization services. However, depending on the setting, an error response is not returned even when using a wildcard for the time of TimeSynchronization services and UTC TimeSynchronization services for a test run. 0: If a wild card is used for the time, an error response is returned. 1: The time for which a wild card is used is output to the buffer memory.	1	0 to 1
TimeSyncUponDownloadInProgress	Set whether to send a TimeSynchronization automatically to a recognized device with the timing when a joining packed* ¹ of a DownloadInProgress is received from the recognized device. 0: A service is not sent automatically. 1: A service is sent automatically.	0	0 to 1

*1 When any of the following BACnet standards is set in [Settings] ⇒ [Basic Information] ⇒ "BACnet Standard Applied", the joining packet which includes a DownloadInProgress is received.

IEIEJ-G-0006:2006 Addendum-a
IEIEJ-P-0003:2000 Addendum-a



Interaction

Parameters for the BACnet monitoring function, COV interaction function, and Event interaction function can be set in "Interaction".

For the setting method, refer to the following section.

 Page 279 Setting method

Item	Description	Initial value	Data range
RecDataOverwriteMonitor	Set whether to overwrite the Data of an access block for BACnet monitoring every time when receiving data with the BACnet monitoring function. 0: Data is not overwritten. Data is output only when '0' is stored to the CONTROL. When '1' is stored, received data is discarded. 1: Data is overwritten regardless of the value of a CONTROL.	0	0 to 1
RecDataOverwriteCOVLink	When '1' is set to a MonitorDataSetByCOV, set whether to overwrite the Data of an access block for BACnet monitoring every time when receiving a COV notification. 0: Data is not overwritten. Data is output only when '0' is stored to the CONTROL. When '1' is stored, received data is discarded. 1: Data is overwritten regardless of the value of a CONTROL.	0	0 to 1
RecDataOverwriteEventLink	When '1' is set to a MonitorDataSetByEvent, set whether to overwrite the Data of an access block for BACnet monitoring every time when receiving an Event notification. 0: Data is not overwritten. Data is output only when '0' is stored to the CONTROL. When '1' is stored, received data is discarded. 1: Data is overwritten regardless of the value of a CONTROL.	0	0 to 1
MonitorDataSetByCOV	Set whether to write the COV notification data ^{*1} received from the monitoring target set to [Setting] ⇒ [BACnetMonitor] to an access block for BACnet monitoring. 0: Information is not written. 1: Information is written.	1	0 to 1
MonitorDataSetByEvent	Set whether to write the Event notification data ^{*2} received from the monitoring target set to [Setting] ⇒ [BACnetMonitor] to an access block for BACnet monitoring. 0: Information is not written. 1: Information is written.	1	0 to 1
MaxScanPropertyCount	Set the maximum number of properties which can be read in a batch to a ReadProperty(Multiple) service that is sent when using the BACnet monitoring function.	80	0 to 2147483647

*1 The data of a COV notification is as follows:

- Value of PresentValue property
- Value of StatusFlags property

*2 The data of an Event notification is as follows:

- EventState
- PresentValue (When a PresentValue is included in a packed by the send source BACnet device of an Event notification.)
- StatusFlags (When a StatusFlags is included in a packed by the send source BACnet device of an Event notification.)

Who-Is

Parameters for recognizing another BACnet device as a communication target can be set in "Who-Is".

For the setting method, refer to the following section.

 Page 279 Setting method

Item	Description	Initial value	Data range
WhoisInitiatorMode	Set whether to send Who-Is services with the interval set to the WhoisSendInterval parameter. 0: A request is sent with the set interval. 1: A request is not sent periodically. Turn Y6 ON with an arbitrary timing to send Who-Is services.	1	0 to 1
WhoisSendInterval	Set a send interval to send Who-Is services. (Unit: seconds)	60	0 to 600
CheckAliveInterval	When monitoring I-Am services from another BACnet device, set the cycle. (Unit: seconds) When do not monitor, set '0'.	180	0 to 600
SystemStatusReadInterval	When reading a SystemStatus property value of another BACnet device periodically, set the cycle. (Unit: seconds) When do not monitor, set '0'.	0	0 to 600
AutoAddressBindingSetDisable	Set whether to automatically recognize a device as a communication target when an I-Am service is received from another BACnet device. 0: An I-Am service is received to automatically recognize the device. 1: A device is not automatically recognized as a communication target even when an I-Am service is received. To recognize the device, set with a BACnet device.	0	0 to 1

I-Am

Parameters for an I-Am service and I-Have service to be sent from a BACnet module can be set in "I-Am".

For the setting method, refer to the following section.

 Page 279 Setting method

Item	Description	Initial value	Data range
SendIamIntervalSecond	When sending I-Am services periodically, set the cycle within 0 to 600. (Unit: seconds) When do not to send requests periodically, set '0'.	0	0 to 600
IamIhaveMode	Set how to send an I-Am service or I-Have service against the Who-Is service and Who-Has service received from another BACnet device. 0: RemoteBroadcast 1: GlobalBroadcast 2: LocalBroadcast 3: Unicast	2	0 to 3
IamReturnOnlyOperational	Set a condition to send an I-Am service against the Who-Is service received from another BACnet device. 0: An I-Am service is sent when a SystemStatus property is other than NonOperational. 1: An I-Am service is sent only when a SystemStatus property is Operational.	1	0 to 1

Time

Parameters for time synchronization with another BACnet device can be set in "Time".

For the setting method, refer to the following section.

 Page 279 Setting method

Item	Description	Initial value	Data range
TimeSyncMaster	Set whether to synchronize time (send a TimeSynchronization service) with another BACnet device at the specified time every day. 0: Time synchronization is not performed with the specified time every day. 1: Time synchronization is performed with the specified time every day.	0	0 to 1
TimeSyncHour	When '1' is set to a TimeSyncMaster parameter, specify an hour to synchronize. (Example) Set '2' to perform time synchronization at 2:10.	0	0 to 23
TimeSyncMinute	When '1' is set to a TimeSyncMaster parameter, specify a minute to synchronize. (Example) Set '10' to perform time synchronization at 2:10.	15	0 to 59

Communication

Parameters for communication with another BACnet device can be set in "Communication".

For the setting method, refer to the following section.

 Page 279 Setting method

Item	Description	Initial value	Data range
SendInterval ^{*1}	Set a send interval when sending unicast packets. (Unit: milliseconds)	0	0 to 1000
SendBroadcastNotificationInterval ^{*1}	Set a send interval when sending broadcast packets. (Unit: milliseconds)	0	0 to 1000
MaxOutstandingPDUCount	Set the maximum number of Confirmed requests (number of packets that can wait a response) that can be sent continuously without any response (Ack) to one BACnet device.	5	0 to 2147483647
FixedResponsePort	Set a port to be used to response the received request. 0: Specify the send source PortNo of a request to the destination PortNo. 1: Specify the receive PortNo of a BACnet module to the destination PortNo.	0	0 to 1
ProposedWindowSize	When responding to a request with a segmented message, set the maximum number of messages that can be sent continuously until an acknowledgement (SegmentAck) from a target device is received. When do not to send segmented messages, set '0'.	7	0 to 64
SupportServiceCheckEnable	Set whether to read services supported by the communication target device when a communication target device is detected. 0: A service is not read. 1: A service is read.	1	0 to 1

*1 A parameter to adjust the processing speed of a receiver.
Take caution not to cause delay or congestion in a packet to be sent.

External Device

Parameters for communication with a BACnet device on an external network via a BACnet router can be set in "External Device".

For the setting method, refer to the following section.

 Page 279 Setting method

Item	Description	Initial value	Data range
AutoRoutingTableAddEnable	Set whether to automatically recognize the packet send source as a BACnet router or not when a packet including SNET information is received. 0: The send source is not recognized as a BACnet router automatically. 1: The send source is recognized as a BACnet router automatically.	0	0 to 1
WholsRouterSendInterval	To send a Who-Is-Router-To-Network message for router detection when '1' is set to an AutoRoutingTableAddEnable and the NetworkNo of a BACnet module is other than '0', set a send interval. (Unit: seconds) When do not send a Who-Is-Router-To-Network message, set '0'.	0	0 to 600
RegisterForeignDevice:IPAddress ^{*1}	Set the IP address of a BBMD when joining another network as an external device. A RegisterForeignDevice message is sent to the set IP address.	—	—
RegisterForeignDevice:PortNo ^{*1}	Set the PortNo of a BBMD when joining another network as an external device. A RegisterForeignDevice message is sent to the set PortNo.	47808	0 to 65535
RegisterForeignDevice:TimeToLive ^{*1}	When joining another network as an external device, set the period to be registered to BBMD as an external device within 1 to 65535. (Unit: seconds) To keep joining BACnet, a RegisterForeignDevice message is sent every time the set time elapses. When 0 is set, the sending of RegisterForeignDevice messages is stopped.	0	0 to 65535
GlobalBroadcastEnable	Set whether to send a Who-Is, an I-Am, or a TimeSynchronization with GlobalBroadcast or LocalBroadcast. 0: Send services with LocalBroadcast. 1: A service is sent with GlobalBroadcast. *2	0	0 to 1

*1 This setting is enabled only when the values are set to the following all three parameters.

RegisterForeignDevice: IPAddress
RegisterForeignDevice: PortNo
RegisterForeignDevice: TimeToLive

*2 An I-Am for the response of a Who-Is is sent in accordance with the setting of "IamIhaveMode" in [Settings] ⇒ [Basic Information] ⇒ [BACnet Detail Setting] button ⇒ "I-Am".

Appendix 7 Data Block Formats

Format of RDTB

The following shows the buffer memory format and the data range of RDTB.

Offset	Description	Remarks	Data range
+0	PrimitiveDataType	Set the data type of a property value. ☞ Page 289 PrimitiveDataType	0h to Ch
+1	PriorityArrayIndex	Store the priority to write the PresentValue property value of the following objects within the range from 1 to 16.*1 <ul style="list-style-type: none"> • AnalogOutput object • BinaryOutput object • MultistateOutput object 	0h to FFFFh*2
+2 to +3	Data	Store property values in accordance with the format for each PrimitiveDataType. ☞ Page 290 Format for each PrimitiveDataType	—

*1 When a value is written to the PresentValue property of an AnalogOutput object, BinaryOutput object, or MultistateOutput object, the value is temporarily stored to the PriorityArray property whose index number is indicated by the Priority. The value stored to the PriorityArray property, whose index number is the smallest, is used for the PresentValue property. Until the value of the PriorityArray property whose index number is used as a PresentValue property is returned to Null, the value of the PriorityArray property is used as the value of the PresentValue property.

*2 When any of the values from 1 to 16 is stored, a Priority is specified. When do not specify a Priority, store the value other than 1 to 16 ('0' for example).

PrimitiveDataType

The properties of the following data types can be read/written.

Value	Data type	Data range
0	Null	None
1	BOOLEAN	0: False, 1: True
2	Unsigned	Range: 0 to 4294967295 (32-bit unsigned integer)
3	Signed	Range: -2147483648 to 2147483647 (32-bit signed integer)
4	REAL	Within the range of 32-bit floating point real number Minimum change value: 0.000001
8	Bitstring	Up to 24 bits
9	Enumerated	Range: 0 to 4294967295 (32-bit unsigned integer)
10	Date	—
11	Time	—
12	ObjectIdentifier	b31 to b22: Object type number (range: 0 to 1023) b21 to b0: Instance number (range: 0 to 4194303)

Format for each PrimitiveDataType

PrimitiveDataType	Offset	Upper byte	Lower byte	Remarks
Null	+2 to +3	Not used		—
BOOLEAN	+2	Only b0 is used.		b1 to b15 should be 0.
	+3	Not used		—
Unsigned	+2	b15 to b8	b7 to b0	—
	+3	b31 to b24	b23 to b16	
Signed	+2	b15 to b8	b7 to b0	—
	+3	b31 to b24	b23 to b16	
REAL	+2	b15 to b8	b7 to b0	—
	+3	b31 to b24	b23 to b16	
Bitstring	+2	b8 to b15	b0 to b7	The bit order is little endian.
	+3	Number of significant bits	b16 to b23	
Enumerated	+2	b15 to b8	b7 to b0	—
	+3	b31 to b24	b23 to b16	
Date	+2	Day	Week	<ul style="list-style-type: none"> • Day 1 to 31 (day) • Week 1: Monday, 2: Tuesday, 3: Wednesday, 4: Thursday, 5: Friday, 6: Saturday, 7: Sunday • (Year-1900) Year (4 digits) -1900 (year) • Month 1 to 12 (month)
	+3	(Year-1900)	Month	
Time	+2	Second	Hundredth	<ul style="list-style-type: none"> • Second 0 to 59 (s) • Hundredth 0 to 99 (1/100 s) • Hour 0 to 23 (h) • Minute 0 to 59 (min)
	+3	Hour	Minute	
ObjectIdentifier	+2	b15 to b8	b7 to b0	—
	+3	b31 to b24	b23 to b16	

Format of access blocks for reading

The following shows the buffer memory format of access blocks for reading, including data ranges and availability of reading/writing data from a CPU module.

When creating a program, read the offset value in the following table with the start buffer memory address displayed with a configuration function.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name	Description	R/W	Initial value	Data range
+0	CONTROL	Indicates the processing status of a ReadPropertyMultiple(ReadProperty) service. 0: Idling 1: Send request 2: Sending 3; Normal completion 4: Error end	R/W	0	0h to 4h
+1	STATUS	An error code is stored. ☞ Page 236 Error Code List for BACnet Request Function/BACnet Monitoring Function	R	0	0h to 11h
+2 to +3	Instance number of a destination device	Store the instance number of a read target BACnet device. 32-bit unsigned integer	R/W	0	0h to 3FFFFFFh
+4 to +5	ObjectIdentifier	b31 to b22: Object type number	R/W	0	0h to 3FFh
		b21 to b0: Instance number			0h to 3FFFFFFh
+6	Property-1	PropertyIdentifier	R/W	0	0h to FFFFh
+7		ArrayIndex	R/W	0	0h to FFFFh
+8 to +11		Read data	R	—	—
+12	Property-2	PropertyIdentifier	R/W	0	0h to FFFFh
+13		ArrayIndex	R/W	0	0h to FFFFh
+14 to +17		Read data	R	—	—
+18	Property-3	PropertyIdentifier	R/W	0	0h to FFFFh
+19		ArrayIndex	R/W	0	0h to FFFFh
+20 to +23		Read data	R	—	—
+24	Property-4	PropertyIdentifier	R/W	0	0h to FFFFh
+25		ArrayIndex	R/W	0	0h to FFFFh
+26 to +29		Read data	R	—	—

- Up to 4 read target properties can be set.
- When setting multiple properties, always use the properties in order from Property-1.
- When an unused Property exists, store 'FFFFh' to a PropertyIdentifier. The ArrayIndex and the read data of the Property are not read.

Format of access blocks for writing

The following shows the buffer memory format of access blocks for writing, including data ranges and availability of reading/writing data from a CPU module.

When creating a program, read the offset value in the following table with the start buffer memory address displayed with a configuration function.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name	Description	R/W	Initial value	Data range
+0	CONTROL	Indicates the processing status of a WritePropertyMultiple(WriteProperty) service. 0: Idling 1: Send request 2: Sending 3; Normal completion 4: Error end	R/W	0	0h to 4h
+1	STATUS	An error code is stored. ☞ Page 236 Error Code List for BACnet Request Function/BACnet Monitoring Function	R	0	0h to 11h
+2 to +3	Instance number of a destination device	Store the instance number of a write target BACnet device. 32-bit unsigned integer	R/W	0	0h to 3FFFFFFh
+4 to +5	ObjectIdentifier	b31 to b22: Object type number	R/W	0	0h to 3FFh
		b21 to b0: Instance number			0h to 3FFFFFFh
+6	Property-1	PropertyIdentifier	R/W	0	0h to FFFFh
+7		ArrayIndex	R/W	0	0h to FFFFh
+8 to +11		Write data	R/W	—	—
+12	Property-2	PropertyIdentifier	R/W	0	0h to FFFFh
+13		ArrayIndex	R/W	0	0h to FFFFh
+14 to +17		Write data	R/W	—	—
+18	Property-3	PropertyIdentifier	R/W	0	0h to FFFFh
+19		ArrayIndex	R/W	0	0h to FFFFh
+20 to +23		Write data	R/W	—	—
+24	Property-4	PropertyIdentifier	R/W	0	0h to FFFFh
+25		ArrayIndex	R/W	0	0h to FFFFh
+26 to +29		Write data	R/W	—	—

- Up to 4 write target properties can be set.
- When setting multiple properties, always use the properties in order from Property-1.
- When a Property which is not used exists, store 'FFFFh' to a PropertyIdentifier. The ArrayIndex of the Property and its data are not written.

Format of access blocks for BACnet monitoring

The following shows the buffer memory format of access blocks for BACnet monitoring, including data ranges and the availability of reading/writing data from a CPU module.

When creating a program, read the offset value in the following table with the start buffer memory address displayed with a configuration function.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name	Description	R/W	Initial value	Data range
+0	CONTROL	The processing status of the BACnet monitoring function is stored. 0: Idling 1: Data reception 2: Data error	R/W	0	0h to 2h
+1	STATUS	An error code is stored.  Page 236 Error Code List for BACnet Request Function/BACnet Monitoring Function	R	0	0h to 11h
+2 to +5	Data	Monitored values are stored. A format is RDTB.  Page 289 Format of RDTB	R	—	—

Format of access blocks for COV interaction

The following shows the buffer memory format of access blocks for COV interaction, including data ranges and availability of reading/writing data from a CPU module.

When creating a program, read the offset value in the following table with the start buffer memory address displayed with a configuration function.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name		Description	R/W	Initial value	Data range		
+0	CONTROL		The reception status of a COV notification is stored. 0: Idling 1: COV notification reception complete	R/W	0	0h to 1h		
+1	StatusFlags	b15	Existence of the StatusFlags in COV notification	The information whether a StatusFlags is included or not in a COV notification is stored. 0: None 1: Exist	R	0	—	
		b14 to b8	—	Not used				
		b7	StatusFlags	InAlarm				0: False, 1: True
		b6		Fault				0: False, 1: True
		b5		Overridden				Always 0
		b4		OutOfService				0: False, 1: True
		b3 to b0	—	Not used				
+2 to +5	PresentValue		The value of a PresentValue property for a COV notification is stored. A format is RDTB.  Page 289 Format of RDTB	R	—	—		

Format of access blocks for Event interaction

The following shows the buffer memory format of access blocks for Event interaction, including data ranges and availability of reading/writing data from a CPU module.

When creating a program, read the offset value in the following table with the start buffer memory address displayed with a configuration function.

R: Read-only, W: Write-only, R/W: Read/Write

Offset	Name			Description* ¹	R/W	Initial value	Data range	
+0	STATUS	b15	CONTROL	The reception status of an Event notification is stored. 0: Idling 1: Event notification reception complete	R/W	0	—	
		b14 to b13	NotifyType	The type of received Event notification is stored. 0: Alarm 1: Event 2: AckNotification				
		b12 to b10	FromState	The status before an Event occurrence is stored. 0: Normal 1: Fault 2: Offnormal 3: HighLimit 4: LowLimit 5: LifeSafetyAlarm 7: No data				
		b9 to b7	ToState	The status after an Event occurrence is stored. 0: Normal 1: Fault 2: Offnormal 3: HighLimit 4: LowLimit 5: LifeSafetyAlarm 7: No data				
		b6	AckRequired	The AckRequired property value of a NotificationClass object is stored. 0: False 1: True				
		b5	—	Not used				
		b4	Existence of the StatusFlags in Event notification	The information on whether a StatusFlags is included or not in an Event notification is stored. 0: None 1: Exist				
		b3	StatusFlags of Event notification	InAlarm				0: False, 1: True
		b2		Fault				0: False, 1: True
		b1		Overridden				Always 0
b0	OutOfService	0: False, 1: True						
+1	Event Type/Priority	b15	EventType	CHANGE_OF_LIFE_SAFE TY	R	0	—	
		b14		BUFFER_READY				
		b13		OUT_OF_RANGE				
		b12		FLOATING_LIMIT				
		b11		COMMAND_FAILURE				
		b10		CHANGE_OF_VALUE				
		b9		CHANGE_OF_STATE				
		b8		CHANGE_OF_BITSTRING				
		b7 to b0	Priority	The priority of an Event is stored.				

Offset	Name	Description ^{*1}	R/W	Initial value	Data range
+2 to +3	ProcessID	The ProcessID set to an Event is stored.	R	—	1h to FFFFFFFFh

*1 For details on values to be stored to an access block for Event interaction, refer to the BACnet standard with which the BACnet module complies.

IEIEJ-P-0003:2000 addendum-a

IEIEJ-G-0006:2006 addendum-a

ANSI/ASHRAE135-2004 (ISO16484-5-2003)

ANSI/ASHRAE135-2010

Appendix 8 Added and Changed Functions

This section shows the functions added or changed for BACnet modules.

Added/changed contents	Version	Reference
Addition of a monitoring target in the BACnet monitoring function. <ul style="list-style-type: none">• Change of a SystemStatus property value	"1.1.0" or later	Page 143 When monitoring a SystemStatus property
Reception of BACnet packets which are sent using a limited broadcast (to 255.255.255.255) from another BACnet device is supported.		—



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MEMO

REVISIONS

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

Revision date	*Manual number	Description
February 2017	SH(NA)-081700ENG-A	First edition
June 2017	SH(NA)-081700ENG-B	■Added or modified parts Section 1.1, Section 1.6, Section 1.11, Section 1.12, Section 3.1, Section 3.5, Appendix 3, Appendix 6, Appendix 8

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