TOSHIBA
Carrier

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Revision 1: Oct., 2023
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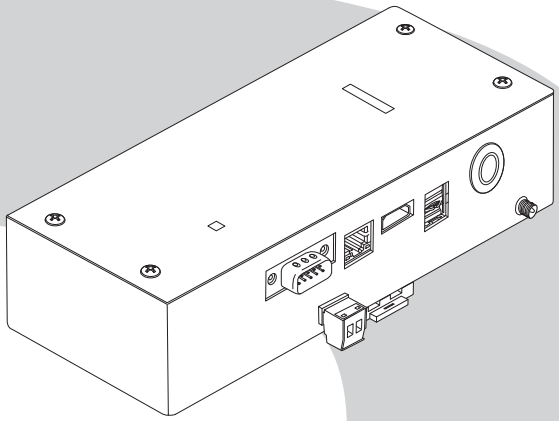
BN interface

SERVICE MANUAL

Model name:

BMS-IFBN1281U-UL



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Precautions for safety

The following instructions must be observed.

- Carefully read these "Precautions for Safety" before service, and perform service work safely.
- These precautions contain important information regarding safety.
- After service work, carry out an operation trial to confirm that there are no problems, and explain to the customer how to operate and maintain the system.

Expressions

⚠ **Warning**	Text set off in this manner indicates that failure to adhere to the directions in the warning could result in serious bodily harm (*1) or loss of life if the product is handled improperly.
⚠ **Caution**	Text set off in this manner indicates that failure to adhere to the directions in the caution could result in serious bodily injury (*2) or damage (*3) to property if the product is handled improperly.

*1: Serious bodily harm indicates loss of eyesight, injury, burns, electric shock, bone fracture, poisoning, and other injuries which leave aftereffect and require hospitalization or long-term treatment as an outpatient.
*2: Bodily injury indicates injury, burns, electric shock, and other injuries which do not require hospitalization or long-term treatment as an outpatient.
*3: Damage to property indicates damage extending to buildings, household effects, domestic livestock, and pets.

Graphic symbols

Prohibited	"⃠" indicates prohibited items. The actual contents of the prohibition are indicated by a picture or text placed inside or next to the graphic symbol.
Compulsory	"●" indicates compulsory (mandatory) items. The actual contents of the obligation are indicated by a picture or text placed inside or next to the graphic symbol.

⚠ Warning

- **Service should be performed by a qualified electrician**
  Attempting to carry out service work on your own, and doing so incorrectly, may result in electric shock or fire.
- **Electrical work must be performed by a qualified electrician in accordance with this Service Manual. The work must satisfy all local, national and international regulations**
  Inappropriate work may result in electric shock or fire.
- **Be sure to turn off the power before starting work**
  Failure to do so may result in electric shock.
- **Use only the power adapter supplied with this unit**
  A power adapter other than that supplied with this unit may provide a different voltage and have different polarity (+) (–), which could lead to fire, explosion or generation of heat.

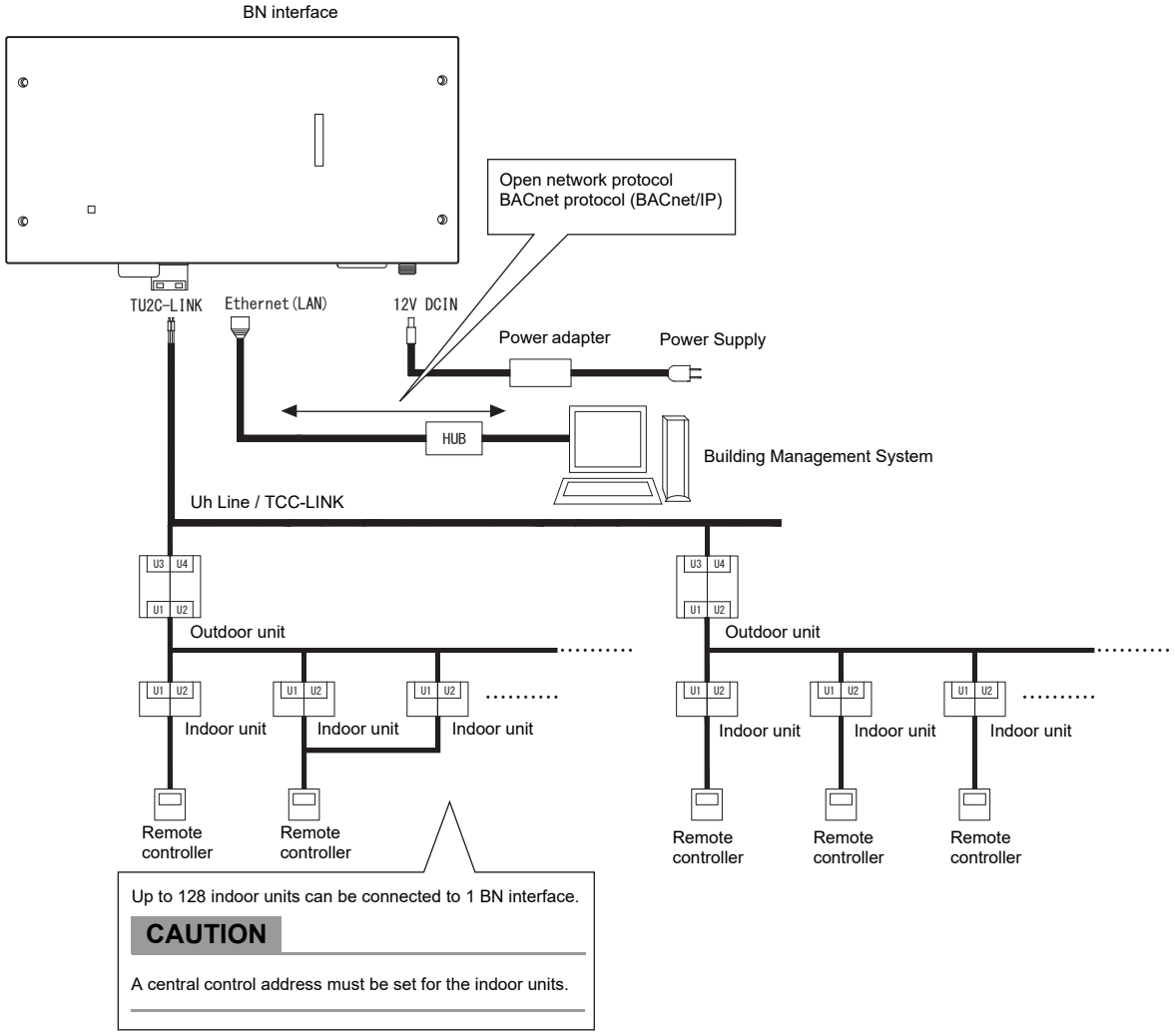
- **Do not modify the unit**
  Doing so may result in excessive heat or fire.

Trademarks

- BACnet® is a registered trademark of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).
- Ethernet® is a registered trademark of Xerox Co., Ltd.
- microSD™ is a registered trademark of SD Card Association.
- Windows® is a registered trademark of Microsoft corporation.
- All other company and product names are either registered trademarks or trademarks of the respective owners. In this manual such names are not indicated by ™, ® or © marks.

1 Product Overview

BN interface relays communications between Building Management Systems and VRF Systems in order to observe and control the VRF Systems from Building Management Systems. The communication protocol used between Building Management Systems and the BN interface is BACnet, an open network communication protocol for building automation.
BACnet Protocol Revision is ANSI/ASHRAE Standard 135-2012 (Revision15).
This product is for use when connected to TU2C-LINK Uh Line (hereinafter referred to as Uh Line).



2 Hardware Specifications

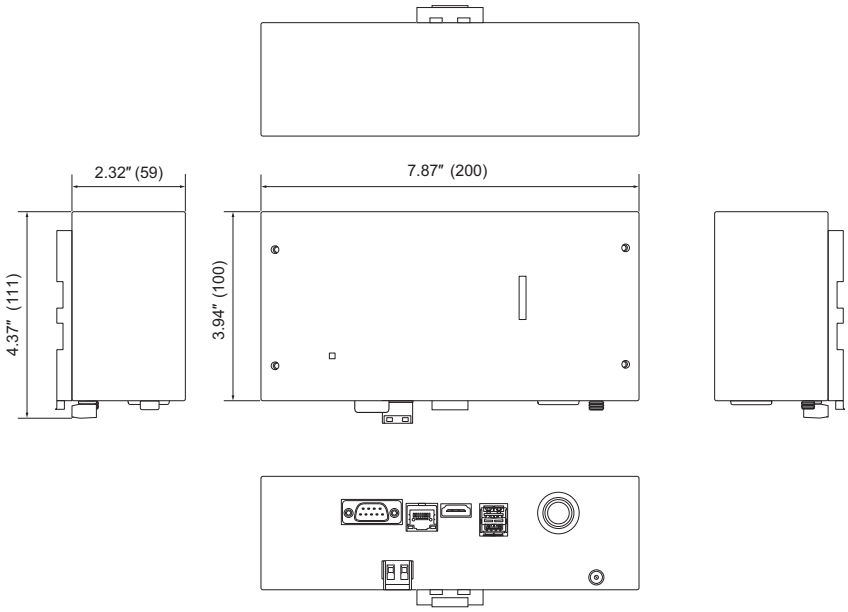
2-1. BMS-IFBN1281U-UL

■ Specifications

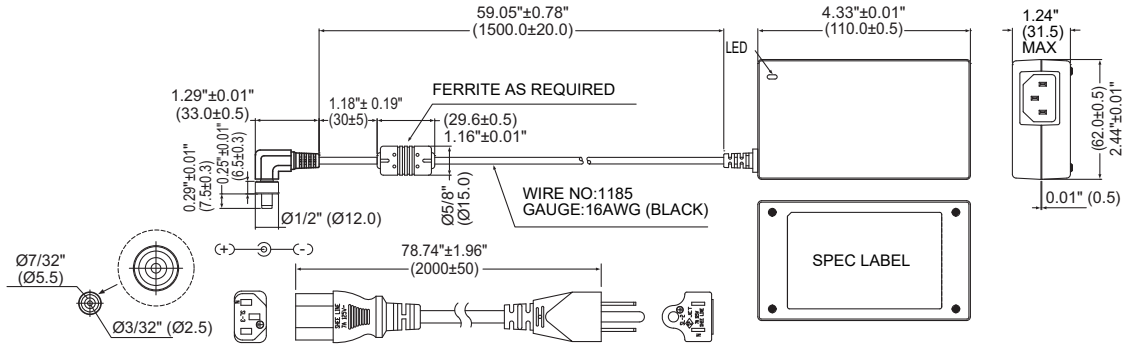
Power supply	Rated voltage	120 V AC 60 Hz
	Power consumption	10 W
Operating temperature range		32 to 104°F (0°C to 40°C), 10% to 80% RH (no condensation)
Storage temperature range		14 to 140°F (−10°C to +60°C), 10% to 90% RH (no condensation)
Dimensions		Width 7.87 inch x Height 3.94 inch x Depth 2.32 inch (Width 200 mm x Height 100 mm x Depth 59 mm)
Mass		BN interface 1.7 lb (765 g) Power adapter 1.0 lb (450 g)
Number of connected units	Indoor unit	Up to 128 units (TU2C-LINK) Up to 64 units (TCC-LINK)

■ External View (BN interface equipment)

Unit: inch (mm)

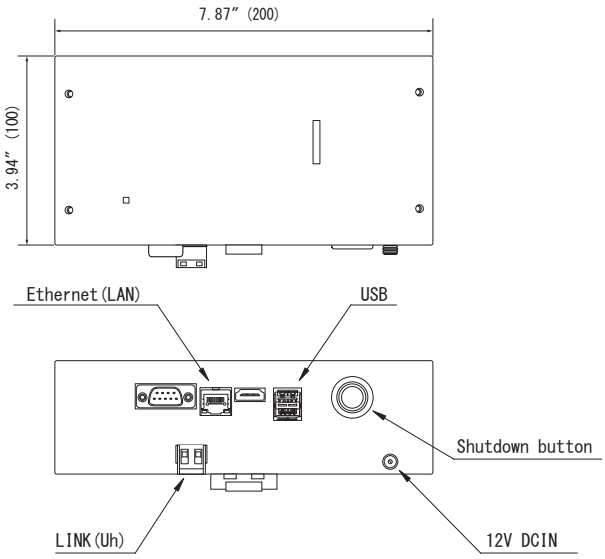


(Power adapter)



2-2. Component Names

■ External component names



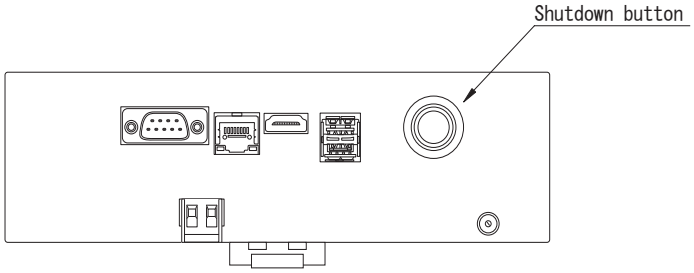
Name	Function
12V DCIN	Connect the power adapter
USB	(For service)
Ethernet (LAN)	Connect to the Building Management System
Shutdown button	Shutdown or switch to air conditioner search mode
LINK(Uh)	Connect the central control wiring

■ Internal component names

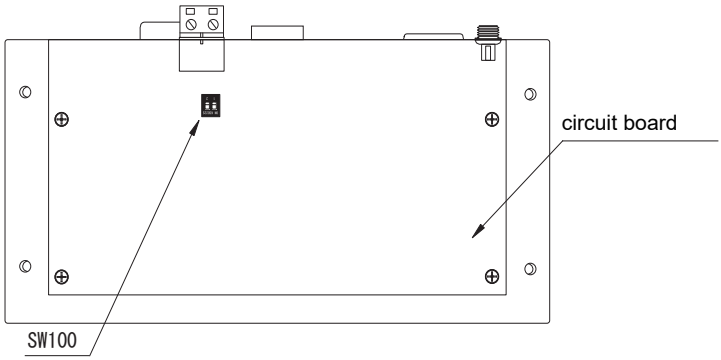
SW100 Uh Line termination resistance setting switch
bit1:use, bit2:not use
Refer to " Termination resistance setting" (P.80)

Shutdown button Shutdown function / air conditioner search mode function button
Use this button to stop BACnet process and network process of the BN interface or to start up in the air conditioner search mode. Note that button operation changes depending on how long it is depressed.

Time duration button is depressed	Operation
The Shutdown button 2 times	Stop BACnet process and network process of the BN interface.
4 seconds or more	Start up in the air conditioner search mode. Use the air conditioner search mode to set up equipment data in the indoor unit.



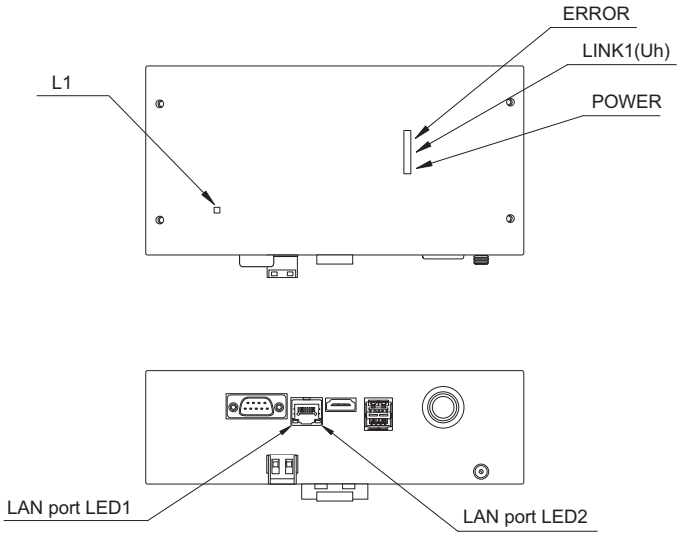
Unscrew and open the product



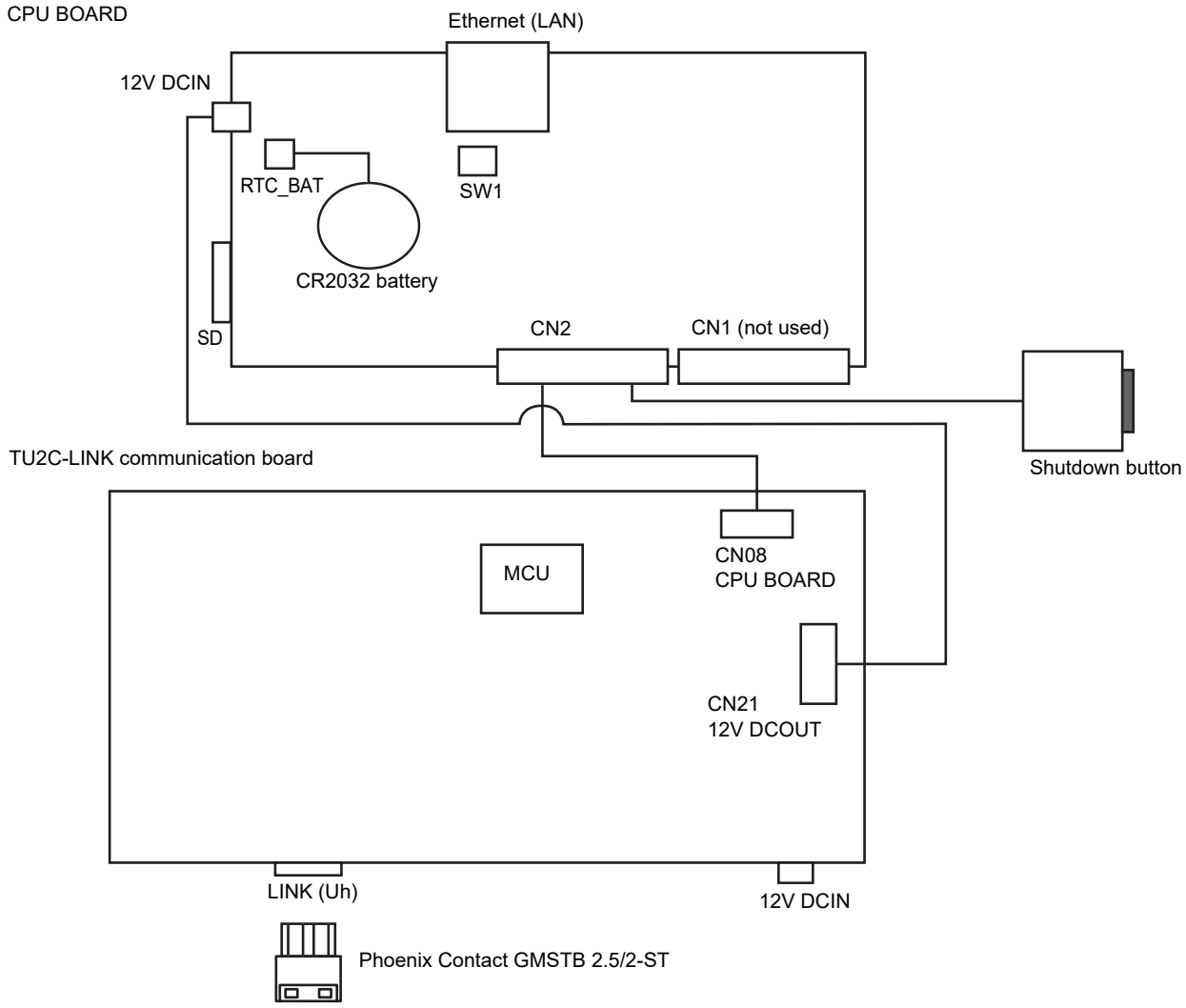
Connector	Description
COM port	For maintenance
USB port	Not used
HDMI	Not used

■ LED names

LED	LED color	Use
POWER	Red	Power indicator
RS485	Green	Not use
LINK1(Uh)	Orange	Uh Line communication status indicator
LINK2(Uh)	Orange	Not use
ERROR	Red	Uh Line communication error indicator
L1	Green	BACnet communication status indicator, setting error indicator
LAN port LED1	Green	Link LED Lights when a LAN cable is inserted and a link is established. Is unlit when no link is established.
LAN port LED2	Green	Communication speed LED Lights when the communication speed is 100 Mbps. Blinks during communication.



2-3. Internal board block diagram



CPU BOARD

CN2

1	3	5	7	9	11	13	15	17	19
×	×	×	×	×	×	A	C	D	×
B	×	×	×	×	×	×	×	×	E
2	4	6	8	10	12	14	16	18	20

SW1

◯		ON
	◯	OFF
1	2	

A	Black	Shutdown button
B	Red	Shutdown button
C	Blue	CPU board cable
D	White	CPU board cable
E	Black	CPU board cable

3 Software Specifications

For details, refer to the Specifications Manual below.
- "PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT (DEC0329501)"
- "Network Object and Variables Specifications (DEC0329401)"

3-1. BACnet Communication Specifications

ANNEX A - PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT (NORMATIVE)

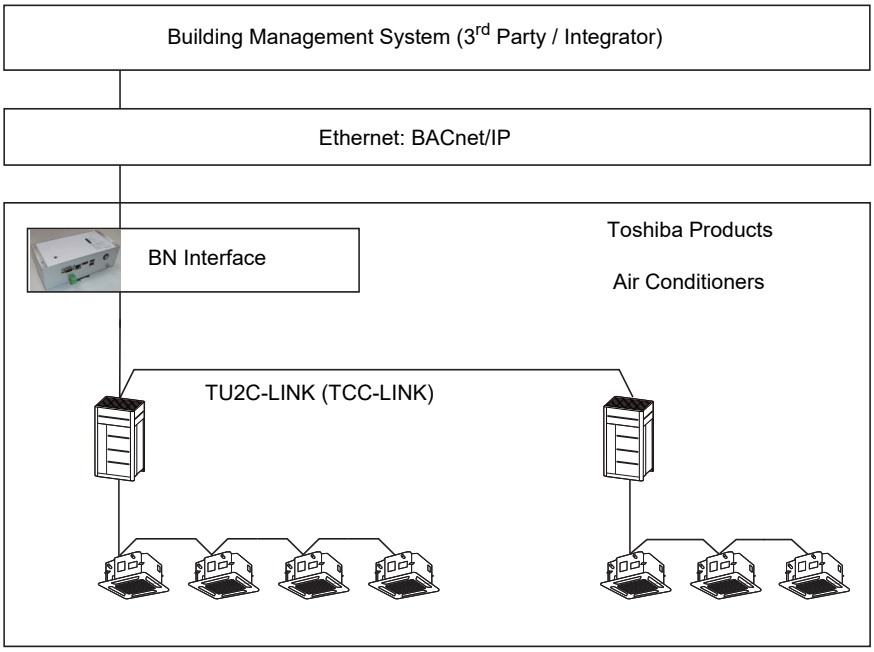
BACnet Protocol Implementation Conformance Statement

Vender Name	Carrier Japan Corporation (ID:129)
Product Name	BN Interface
Product Model Number	BMS-IFBN1281U-UL
BACnet Protocol Revision	ANSI/ASHRAE Standard 135-2012 (Revision 15)

Product Description:

System Configuration

Sample Control Wiring diagram



System Configuration and Limits

Item	Model Name	Specification	Connectable Q'ty
BN Interface	BMS-IFBN1281U-UL	Protocol transformation TCC-LINK to BACnet IP	-
Indoor unit	-	-	Up to 128 units (TU2C-LINK) Up to 64 units (TCC-LINK)

BACnet Standardized Device Profile (Annex L):

- ☐ BACnet Operator Workstation (B-OWS)
- ☐ BACnet Building Controller (B-BC)
- ☐ BACnet Advanced Application Controller (B-AAC)
- ☑ BACnet Application Specific Controller (B-ASC)
- ☐ BACnet Smart Sensor (B-SS)
- ☐ BACnet Smart Actuator (B-SA)

BACnet Interoperability Building Blocks Supported (Annex K):

	BIBB Name	Designation
Data Sharing	ReadProperty-B	DS-RP-B
	ReadPropertyMultiple-B	DS-RPM-B
	WriteProperty-B	DS-WP-B
	WritePropertyMultiple-B	DS-WPM-B
	COV-Unsolicited-B	DS-COVU-B
Alarm & Event Management	Notification Internal-B	AE-N-I-B
	Information-B	AE-INFO-B
Device & Network Management	Dynamic Device Binding-A	DM-DDB-A
	Dynamic Device Binding-B	DM-DDB-B
	Dynamic Object Binding-B	DM-DOB-B
	DeviceCommunicationControl-B	DM-DCC-B
	TimeSynchronization-B	DM-TS-B
	Restart-B	DM-R-B

Segmentation Capability:

- ☐ Segmented requests supported Window Size _____
- ☑ Segmented responses supported Window Size 4

Standard Object Types Supported:

Object-Type	Supported	Dynamically Creatable	Dynamically Deletable
Accumulator			
Analog Input	✓		
Analog Output	✓		
Analog Value			
Binary Input	✓		
Binary Output	✓		
Binary Value			
Calendar			
Command			
Device	Yes	N/A	N/A
Event Enrollment			
File			
Group			
Loop			
Multi-state Input	✓		
Multi-state Output	✓		
Notification Class	✓		
Program			
Schedule			

Data Link Layer Options:

- ☑ BACnet IP, (Annex J)
- ☑ BACnet IP, (Annex J), Foreign Device
- ☐ ISO 8802-3, Ethernet (Clause 7)
- ☐ ANSI/ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
- ☐ ANSI/ATA 878.1, RS-485 ARCNET (Clause 8), baud rate(s) _____
- ☐ MS/TP master (Clause 9), baud rate(s): _____
- ☐ MS/TP slave (Clause 9), baud rate(s): _____
- ☐ Point-To-Point, EIA 232 (Clause 10), baud rate(s): _____
- ☐ Point-To-Point, modem, (Clause 10), baud rate(s): _____
- ☐ LonTalk, (Clause 11), medium: _____
- ☐ Other: _____

Device Address Binding:

Is static device binding supported?
(This is currently necessary for two-way communication with MS/TP slaves and certain other devices.)

☐ Yes ☑ No

Networking Options:

- ☐ Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.
- ☐ Annex H, BACnet Tunneling Router over IP
- ☐ BACnet/IP Broadcast Management Device (BBMD)

  Does the BBMD support registrations by Foreign Devices? ☑ Yes ☐ No

Character Sets Supported:

Indicating support for multiple character sets does not imply that they can all be supported simultaneously.

☑ ISO 10646 (UTF-8)	☐ IBM™/Microsoft™ DBCS	☐ ISO 8859-1
☐ ISO 10646 (UCS-2)	☐ ISO 10646 (UCS-4)	☐ JIS X 0208

If this product is a communication gateway, describe the types of non-BACnet equipment/networks(s) that the gateway supports:

Not applicable

3-2. Connectable Air Conditioners

Item	Specification
Number of indoor units	128 units maximum In the following case, the number of indoor units is 64. - When used with controller for TCC-LINK old communication - When replacing a failed BMS-IFBN640TLUL **CAUTION** A central address must be set for the indoor units.
Type of air conditioner	1) VRF System - Super Modular Multi System-i, Super Heat Recovery Multi System-i - Super Modular Multi System-e, Super Heat Recovery Multi System-e - Super Modular Multi System-u - Mini-SMMS Series - Side Blow VRF - VRF Dx-coil controller (TCB-IFDMX01UP-E, TCB-IFDMR01UP-E) 2) Light Commercial model - Super Digital Inverter Series (*1) - Digital Inverter Series (*1) (*1) TCB-PCNT31TLUL is necessary except High wall Series.

3-3. BACnet Object List

A list of objects used when observing and controlling the air conditioner status via BACnet communication.

Object List

Object Name		Object Type	Object Type (10bit)	Equipment category (5Bit)	Equipment Number (1Byte)	Instance Number (1Byte)	Object ID (4Byte)	Value
Gateway Device		Device Object(8)	8	00000	0	IP address	0x020****	
ON/OFF Status	Monitor	Binary Input Object(3)	3	00000	FCU(n) 1-128	0x02	0x00C0xx02	Start/Stop
	Control	Binary Output Object(4)	4	00000	FCU(n) 1-128	0x82	0x0100xx82	Start/Stop
Operation Mode	Monitor	Multi-state Input Object(13)	13	00000	FCU(n) 1-128	0x03	0x0340xx03	Heat/Cool/Fan/Dry/Auto
	Control	Multi-state Output Object(14)	14	00000	FCU(n) 1-128	0x83	0x0380xx83	Heat/Cool/Fan/Dry/Auto
Fan Speed	Monitor	Multi-state Input Object(13)	13	00000	FCU(n) 1-128	0x05	0x0340xx05	Auto / HH / H / L / LL / H+ / L+
	Control	Multi-state Output Object(14)	14	00000	FCU(n) 1-128	0x85	0x0380xx85	Auto / HH / H / L / LL / H+ / L+
Set Temperature *1	Monitor	Analog Input Object(0)	0	00000	FCU(n) 1-128	0x04	0x0000xx04	Standard FCU From 18.0 to 29.0 (℃) From 64.0 to 84.0 (°F) Fresh Air Intake Indoor From 16.0 to 27.0 (℃) From 60.0 to 80.0 (°F)
	Control	Analog Output Object(1)	1	00000	FCU(n) 1-128	0x84	0x0040xx84	Standard FCU From 18.0 to 29.0 (℃) From 64.0 to 84.0 (°F) Fresh Air Intake Indoor From 16.0 to 27.0 (℃) From 60.0 to 80.0 (°F)
Auto Cool Set Temperature *1,*3	Monitor	Analog Input Object(0)	0	00000	FCU(n) 1-128	0x6E	0x0000xx6E	Standard FCU From 18.0 to 29.0 (℃) From 64.0 to 84.0 (°F) Fresh Air Intake Indoor From 16.0 to 27.0 (℃) From 60.0 to 80.0 (°F)

Auto Cool Set Temperature *1,*3	Control	Analog Output Object(1)	1	00000	FCU(n) 1-128	0xEE	0x0040xxEE	Standard FCU From 18.0 to 29.0 (°C) From 64.0 to 84.0 (°F) Fresh Air Intake Indoor From 16.0 to 27.0 (°C) From 60.0 to 80.0 (°F)
Auto Heat Set Temperature *1,*3	Monitor	Analog Input Object(0)	0	00000	FCU(n) 1-128	0x6F	0x0000xx6F	Standard FCU From 18.0 to 29.0 (°C) From 64.0 to 84.0 (°F) Fresh Air Intake Indoor From 16.0 to 27.0 (°C) From 60.0 to 80.0 (°F)
	Control	Analog Output Object(1)	1	00000	FCU(n) 1-128	0xEF	0x0040xxEF	Standard FCU From 18.0 to 29.0 (°C) From 64.0 to 84.0 (°F) Fresh Air Intake Indoor From 16.0 to 27.0 (°C) From 60.0 to 80.0 (°F)
Room Temperature		Analog Input Object(0)	0	00000	FCU(n) 1-128	0x08	0x0000xx08	From -39.0 to 150.0 (°C) From -38.2 to 302.0 (°F)
Permit / Prohibit of Local	Monitor	Multi-state Input Object(13)	13	00000	FCU(n) 1-128	0x09	0x0340xx09	- Start/Stop - Operation Mode - Temperature Setting
	Control	Multi-state Output Object(14)	14	00000	FCU(n) 1-128	0x89	0x0100xx89	- Start/Stop - Operation Mode - Temperature Setting
Filter Sign	Monitor	Binary Input Object(3)	3	00000	FCU(n) 1-128	0x14	0x00C0xx14	Normal / Filter Sign
	Control	Binary Output Object(4)	4	00000	FCU(n) 1-128	0x95	0x0100xx95	- / Filter Sign Reset
Alarm status		Binary Input Object(3)	3	00000	FCU(n) 1-128	0x40	0x00C0xx40	Alarm / No Alarm
Check Code		Multi-state Input Object(13)	13	00000	FCU(n) 1-128	0x01	0x0340xx01	No Check Code / Check Code
Louver	Monitor	Multi-state Input Object(13)	13	00000	FCU(n) 1-128	0x07	0x0340xx07	Swing / F1 / F2 / F3 / F4 / F5 / Stop
	Control	Multi-state Output Object(14)	14	00000	FCU(n) 1-128	0x87	0x0380xx87	Swing / F1 / F2 / F3 / F4 / F5 / Stop
Ventilation ON/OFF Status (option)	Monitor	Binary Input Object(3)	3	00000	FCU(n) 1-128	0x28	0x00C0xx28	Start/Stop
	Control	Binary Output Object(4)	4	00000	FCU(n) 1-128	0xA8	0x0100xxA8	Start/Stop

Indoor thermo status	Monitor	Binary Input Object(3)	3	00000	FCU(n) 1-128	0x54	0x00C0xx54	Thermo ON / Thermo OFF
Save operation rate (option)	Monitor	Multi-state Input Object(13)	13	00000	FCU(n) 1-128	0x55	0x0340xx55	No Save (100% operation) / XX% Save (100-50%) / 50% Save (50%) / 100% Save (Forcibly Thermo OFF)
	Control	Multi-state Output Object(14)	14	00000	FCU(n) 1-128	0xD5	0x0380xxD5	No Save (100% operation) / XX% Save (100-50%) / 50% Save (50%) / 100% Save (Forcibly Thermo OFF)
Indoor Communication Failure		Binary Input Object(3)	3	00000	FCU(n) 1-128	0x41	0x00C0xx41	Normal / Alarm
Facility request		Multi-state Input Object(13)	13	00000	FCU(n) 1-128	0x0A	0x0340xx0A	1(Thermo off)～16
Notice Code 1 *2		Multi-state Input Object(13)	13	00000	FCU(n) 1-128	0x63	0x0340xx63	No Notice Code / Notice Code
Notice Code 2 *2		Multi-state Input Object(13)	13	00000	FCU(n) 1-128	0x63	0x0340xx64	No Notice Code / Notice Code
Notice Code 3 *2		Multi-state Input Object(13)	13	00000	FCU(n) 1-128	0x63	0x0340xx65	No Notice Code / Notice Code
Notice Code 4 *2		Multi-state Input Object(13)	13	00000	FCU(n) 1-128	0x63	0x0340xx66	No Notice Code / Notice Code
Notice Code 5 *2		Multi-state Input Object(13)	13	00000	FCU(n) 1-128	0x63	0x0340xx67	No Notice Code / Notice Code

NOTE

*1 The setting of each property changes with the model.
*2 This object can be used by the TU2C-LINK model.
In order to issue a notice code, the notice code must be registered on the air conditioner side.
For details of notice code, refer to the air conditioner service manual.
*3 In the case of Auto cool temperature setting ≥ Auto heat temperature setting, both setting values will be transmitted to the indoor unit.
In the case of Auto cool temperature setting < Auto heat temperature setting, the setting values will not be transmitted.
To change the value of "Auto cool temperature setting" or "Auto heat temperature setting", perform the change while operation mode is "Auto".
Precautions when changing the value of "Auto cool temperature setting" or "Auto heat temperature setting" on the same indoor unit.
- Before performing the change, wait at least 10 seconds after the last change.
- Do not change both the "Auto cool temperature setting" and "Auto heat temperature setting" values in one "WritePropertyMultiple" service operation.

NOTE

BN interface acquires indoor unit device information and creates an air conditioner settings file when Air-Conditioning Search Mode is executed during a test run.
As a result of this, some of the objects and settings listed are not output in the air conditioner settings file.

(1) Ventilation ON/OFF Status can be used in the following situations.
  • When the value of the indoor unit's function selecting CODE No. 31 (DN) is set to 0001: Available.
(2) Fan Speed cannot be used when the indoor unit Fan Speed options are fixed.
(3) Louver cannot be used when the indoor unit Louver options are fixed.
(4) The upper and lower set temperature value limits and other items change depending on the indoor unit setting information.

NOTE

Notes on controlling VRF Dx-coil controller (TCB-IFDMX01UP-E, TCB-IFDMR01UP-E).

(1) VRF Dx-coil controller is in the “TA mode” or the "TF mode" setting

Function	Monitoring	Controlling
ON / OFF	✓	✓
Operation mode	✓	✓
Setting temperature	✓	✓
Room temperature / TF sensor	✓	
Fan speed	✓ HH,H,L,AUTO	✓ HH,H,L,AUTO
Louver		
Permit / Prohibit of Local	✓	✓
Alarm status	✓	
Check code	✓	
Filter sign		
Ventilation On/Off		
Save operation rate	✓	✓
Indoor thermo status	✓	
Facility request	✓	
Indoor Communication Failure	✓	
Notice Code 1 - 5	✓	

(2) VRF Dx-coil controller is in the “DDC mode" setting

Function	Monitoring	Controlling
ON / OFF	✓	
Operation mode	✓	
Setting temperature		
Room temperature / TF sensor		
Fan speed	✓ HH,H,L,AUTO	
Louver		
Permit / Prohibit of Local	✓	
Alarm status	✓	
Check code	✓	
Filter sign		
Ventilation On/Off		
Save operation rate		
Indoor thermo status		
Facility request		
Indoor Communication Failure	✓	
Notice Code 1 - 5	✓	

Notes
- The VRF Dx-coil controller model name is TCB-IFDMX01UP-E, TCB-IFDMR01UP-E.
- The functions listed may vary according to the product.
- The DDC setting type of the Dx-coil controller cannot be controlled from the BN interface.
- If the Dx-coil controller TA/TF/DDC setting type is changed, execute the air-conditioner search mode again.

3-4. Object Information

Gateway device

Name	Data
Object Type	8
Equipment Category	0000
Equipment Number	0
Instance Number	IP Address
Object Type	Device Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value		Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R					Application Tag	object Identifier(0xc4)		'****' : Instance Number
							Device object	0x0200****		
Object Name(77)	Character string	R					Application Tag	character string(0x750C)		
							String	"AC_CONTROLER"		
Object Type(79)	BACnet Object Type	R					Application Tag	enumerated(0x91)		Device(8)
							Device object	0x08		
System Status(112)	BACnet Device Status	R	*				Application Tag	enumerated(0x91)		
							value	OPERATIONAL 0x00		
								NON_ OPERATIONAL 0x04		
Vender Name(121)	Character string	R					Application Tag	character string(0x746F)		
							value	"Toshiba Carrier Corporation"		
Vender Identifier(120)	Unsigned	R					Application Tag	Unsigned(0x21)		
							value	0x81		
Model Name(70)	Character string	R					Application Tag	character string(0x750D)		
							value	"BMS-IFBN1281U"		
Firmware Revision(44)	Character string	R					Application Tag	character string(0x74)		
							value	*.**.**		
Application Software Version(12)	Character string	R					Application Tag	character string(0x7508)		
							value	*.**.**		
Protocol Version(98)	Unsigned	R					Application Tag	Unsigned(0x21)		
							value	0x01		
Protocol Revision(139)	Unsigned	R					Application Tag	Unsigned(0x21)		
							value	0x0F (15)		

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Protocol Service Supported(97)	BACnet Service Supported	R					Application Tag	Bit string 6Byte(0x8506)			
							value	First Byte	0x00		
								After the second Byte	850403D000		
								Service Name			
								AcknowledgementAlarm	N/A		
								confirmedCOVNotification	N/A*		
								confirmedEventNotification	N/A*		
								getAlarmSummary	N/A		
								getEnrollmentSummary	N/A		
								subscriveCOV	N/A		
								atmicReadFile	N/A		
								atmicWriteFile	N/A		
								addListElement	N/A		
								removeLlistElement	N/A		
								createObject	N/A		
								deleteObject	N/A		
								readProperty	✓		
								readPropertyConditional	N/A		
								readPropertyMultiple	✓		
								writeProperty	✓		
								writePropertyMultiple	✓		
								deviceCommunucationControl	✓		
								confirmedPrivateTransfer	N/A		
								confirmedTextMessage	N/A		
								reinitializeDevice	N/A		
								vtOpen	N/A		
								vtClose	N/A		
								vtData	N/A		
								Aithrnticate	N/A		
								requestKey	N/A		
								i-Am	✓		
								i-Have	N/A*		
								unconfirmedCOVnotification	N/A*		
								unconfirmedEventNotification	N/A*		
								unconfirmedPrivateTransfer	N/A		
								unconfirmedTextMessage	N/A		
								timeSyncronization	N/A*		
								Who-Has	N/A		
								Who-Is	✓		
								ReadRange	N/A		
								utcTimeSyncronization	N/A		
								lifeSaftyOperation	N/A		
								subscribeCOVProperty	N/A		
								getEventInformation	✓		

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Protocol Object Types Supported(96)	Protocol Object Types Supported	R					Application Tag	Bit string 8Byte(0x8508)			
							value	First Byte	0x05		
								After the second Byte			
								Object Type			
								Analog-input	✓		
								Analog-output	✓		
								Analog-value	N/A		
								Binary-input	✓		
								Binary-output	✓		
								Binary-value	N/A		
								Calendar	N/A		
								Command	N/A		
								Device	✓		
								Event-enrollment	N/A		
								file	N/A		
								Group	N/A		
								Loop	N/A		
								Multi-state-input	✓		
								Multi-state-output	✓		
								Notification-class	✓		
								Program	N/A		
								Schedule	N/A		
								Average	N/A		
								Multi-state-value	N/A		
								Trend-log	N/A		
								Life-safety-point	N/A		
								Life-safety-zone	N/A		
								Accumulator	N/A		
								Pulse-converter	N/A		
								event-log	N/A		
								global-group	N/A		
								trend-log-multiple	N/A		
								load-control	N/A		
								structured-view	N/A		
								access-door	N/A		
								objtype-31	N/A		
								access-credential	N/A		
								access-point	N/A		
								access-rights	N/A		
								access-user	N/A		
								access-zone	N/A		
								credential-data-input	N/A		
								network-security	N/A		
								bitstring-value	N/A		
								characterstring-value	N/A		
								date-pattern-value	N/A		
								date-value	N/A		
								datetime-pattern-value	N/A		
								datetime-value	N/A		
								integer-value	N/A		
								large-analog-value	N/A		

								octetstring-value	N/A		
								positive-integer-value	N/A		
								time-pattern-value	N/A		
								time-value	N/A		
								notification-forwarder	N/A		
								alert-enrollment	N/A		
								channel	N/A		
								lighting-output	N/A		
Object List(76)	BACnetARRAY[N]of BACnetObjectIdentifier	R		*			Application Tag	[0]:Unsigned(0x4E) [1-N]: object Identifier（0xc4）			
							value	[0]:number of objects(N) [1-N]: object Identifier			
MAX_APDU length Supported(62)	Unsigned	R					Application Tag	Unsigned(0x22)			
							value	1024Byte(0x0400)			
Segmentation Supported(107)	BACnet Segmentation	R					Application Tag	Enumerated(0x91)			
							value	Segmentation-Both (0x00)			
Local Time(57)	Time	R	*				Application Tag	Time(0xB4)			
							value	Hour, Minute, Second, a hundredth of a second is "0"			
Local Date(56)	Date	R	*				Application Tag	Date(0xA4)			
							value	Year, Month, Day, a day of the week			
APDU_Segment_Timeout	Unsigned	R					Application Tag	Unsigned(0x22)			
							value	2000(0x07D0)			
APDU Timeout(11)	Unsigned	R					Application Tag	Unsigned1(0x21)			
							value	0msec(0x00)			
Number of APDU Retries(73)	Unsigned	R					Application Tag	Unsigned1(0x21)			
							value	0x00			
Device_Address_Binding(30)	ListofBACnetAddressBinding	R			*		Application Tag	BACnetObjectIdentifier(0xC4)			
							value	Network-number MAC-address			
Database Revision(155)	Unsigned	R					Application Tag	Unsigned(0x21)			
							value	0x01			
Active_Cov_Subscriptions(152)	ListOfBACnetCOVSubscription	R			*		Application Tag	-			
							value	-(empty)			
Last_Restart_Reason(196)	BACnetRestartReason	R					Application Tag	Enumerated(0x91)			
							value	detected-powered-off			
Restart Notification Recipients(202)	ListOfBACnetRecipient	R			*		Application Tag	-			
							value	-(empty)			
Time_Of_Device_Restart(203)	BACnetTimeStamp	R					Application Tag	-			
							value	date=255/255/255, time=255:255:255:255			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier（0xc4）			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Restart_Notification_Recipients(202)	ListOfBACnetRecipient	W			*		Application Tag	-			When notifying the change of the System_Status property by UnconfirmedCOVNotification service, set the destination address.
							value	IP			

ON / OFF status Monitor

Name	Data
Object Type	3
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x02
Object Type	Binary Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							binary input object	0x00C0**02			
Object Name(77)	character string	R				0x75	Application Tag	character string(0x750C)			'***' : air conditioning number 1 – 128
							String	"State/BI_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Binary Input(3)
							analog input object	0x03			
Present value(85)	BACnetBinaryPV	R	*			0x91	Application Tag	enumerated(0x91)		intrinsic reporting	This property is writable when Out_Of_Service is TRUE
							Value	INACTIVE	0x00		
								ACTIVE	0x01		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Inactive_Text(46)	character string	R					Application Tag	character string(0x74)			
							Value	"OFF"			
Active_Text(4)	character string	R					Application Tag	character string(0x73)			
							Value	"ON"			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**02			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

ON / OFF status Control

Name	Data
Object Type	4
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x82
Object Type	Binary Output Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							binary output object	0x0100**82			
Object Name(77)	character string	R					Application Tag	character string(0x750C)			'***' : air conditioning number 1 – 128
							String	"State/BO_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Binary Output(4)
							analog input object	0x04			
Present value(85)	BACnetBinaryPV	W	*			0x91	Application Tag	enumerated(0x91)			
							Value	INACTIVE	0x00		
								ACTIVE	0x01		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the output
							Value	true	0x11		
								false	0x10		
Inactive_Text(46)	character string	R					Application Tag	character string(0x74)			
							Value	"OFF"			
Active_Text(4)	character string	R					Application Tag	character string(0x73)			
							Value	"ON"			
Priority_Array(87)	BACnetPriorityArray	R	*	*		0x91	Application Tag	enumerated(0x91)			
							Value	array[1]-[16]			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**82			
Feedback_Value(40)	BACnetBinaryPV	R				0x91	Application Tag	enumerated(0x91)			
							Value	INACTIVE	0x00		
								ACTIVE	0x01		
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Operation mode Monitor

Name	Data
Object Type	13
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x03
Object Type	Multi-State Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							multi-state input object	0x0340**03			
Object Name(77)	character string	R					Application Tag	character string(0x750B)			'***' : air conditioning number 1 – 128
							String	"Mode/MI_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Multi-State Input(13)
							Multi-State Input object	0x0D			
Present value(85) *1	Unsigned	R	*				Application Tag	enumerated(0x21)		intrinsic reporting	This property is writable when Out_Of_Service is TRUE
							Value	Heating	0x01		
								Cooling	0x02		
								Fan	0x03		
								Dry	0x04		
								Auto	0x05		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Number_Of_States(74)	Unsigned	R				0x21	Application Tag	Unsigned(0x21)			
							Value	0x05			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**03			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Operation mode Control

Name	Data
Object Type	14
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x83
Object Type	Multi-State Output Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							multi-state output object	0x0380**83			
Object Name(77)	character string	R					Application Tag	character string(0x750B)			'***' : air conditioning number 1 –128
							String	"Mode/MO_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Multi-State Output(14)
							Multi-State Output object	0x0E			
Present value(85) *1	Unsigned	W	*			0x21	Application Tag	Unsigned(0x21)			
							Value	Heating	0x01		
								Cooling	0x02		
								Fan	0x03		
								Dry	0x04		
								Auto	0x05		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the output
							Value	true	0x11		
								false	0x10		
Number_Of_States(74)	Unsigned	R				0x21	Application Tag	Unsigned(0x21)			
							Value	0x05			
Priority_Array(87)	BACnetPriorityArray	R	*	*		0x91	Application Tag	enumerated(0x91)			
							Value	array[1]-[16]			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**83			
Feedback_Value(40) *1	Unsigned	R				0x21	Application Tag	Unsigned(0x21)			
							Value	Heating	0x01		
								Cooling	0x02		
								Fan	0x03		
								Dry	0x04		
								Auto	0x05		
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Fan speed Monitor

Name	Data
Object Type	13
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x05
Object Type	Multi-State Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							multi-state input object	0x0340**05			
Object Name(77)	character string	R					Application Tag	character string(0x750A)			'***' : air conditioning number 1 – 128
							String	"Fan/MI_*** "			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Multi-State Input(13)
							Multi-State Input object	0x0D			
Present value(85) *1	Unsigned	R	*			0x21	Application Tag	Unsigned(0x21)		intrinsic reporting	This property is writable when Out_Of_Service is TRUE
								Auto	0x02		
								HH	0x03		
								H	0x04		
								L	0x05		
								LL	0x06		
								H+	0x07		
								L+	0x08		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
							Value	NORMAL	0x00		
								FAULT	0x07		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Number_Of_States(74)	Unsigned	R				0x21	Application Tag	Unsigned(0x21)			
							Value	0x05			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**05			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Fan speed Control

Name	Data
Object Type	14
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x85
Object Type	Multi-State Output Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							multi-state output object	0x03C0**85			
Object Name(77)	character string	R					Application Tag	character string(0x750A)			'***' : air conditioning number 1 – 128
							String	"Fan/MO_*** "			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Multi-State Output(14)
							Multi-State Output object	0x0E			
Present value(85) *1	Unsigned	W	*			0x21	Application Tag	Unsigned(0x21)			
								Auto	0x02		
								HH	0x03		
								H	0x04		
								L	0x05		
								LL	0x06		
								H+	0x07		
								L+	0x08		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the output
							Value	true	0x11		
								false	0x10		
Number_Of_States(74)	Unsigned	R				0x21	Application Tag	Unsigned(0x21)			
							Value	0x05			
Priority_Array(87)	BACnetPriorityArray	R	*	*		0x21	Application Tag	Unsigned(0x21)			
							Value	Array[1]-[16]			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**85			
Feedback_Value(40) *1	Unsigned	R				0x21	Application Tag	Unsigned(0x21)			
							Value	Auto	0x02		
								HH	0x03		
								H	0x04		
								L	0x05		
								LL	0x06		

Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier（0xc4）		
							value	[0]:number of properties(N) [1-N]: Property Identifier		
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean（0x1x）		
							Value	“true”		

Set temperature Monitor

Name	Data
Object Type	0
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x04
Object Type	Analog Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value		Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)		'**' : air conditioning number 0x01 – 0x80
							Analog input object	0x0000**04		
Object Name(77)	character string	R					Application Tag	character string(0x750B)		'***' : air conditioning number 1 – 128
							String	"Temp/AI_***"		
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)		Analog Input(0)
							analog Input object	0x00		
Present value(85) *1	REAL	R	*			0x44	Application Tag	Real(0x44)	COV	This property is writable when Out_Of_Service is TRUE
							Value	Standard FCU From 18.0 to 29.0 (℃) From 64.0 to 84.0 (°F) Fresh Air Intake Indoor From 16.0 to 27.0 (℃) From 60.0 to 80.0 (°F)		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)		
							BitString	b7 IN_ALARM		
								b6 FAULT		
								b5 OVERRIDDEN		
								b4 OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)		When this property is TRUE, Present_Value are decoupled from the input
							Value	true 0x11		
								false 0x10		
Units(117)	BACnetEngeneering Units	R				0x91	Application Tag	enumerated(0x91)		
							Value	degree-Celsius(62) (℃) degree-Fahrenheit(64) (°F)		
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)		'**' : air conditioning number 0x01 – 0x80
							Value	0x**04		
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)		
							value	[0]:number of properties(N) [1-N]: Property Identifier		
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)		
							Value	"true"		

Set temperature Control

Name	Data
Object Type	1
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x84
Object Type	Analog Output Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value		Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)		'**' : air conditioning number 0x01 – 0x80
							Analog output object	0x0040**84		
Object Name(77)	character string	R					Application Tag	character string(0x750B)		'***' : air conditioning number 1 – 128
							String	"Temp/AO_***"		
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)		Analog Output(1)
							analog Input object	0x01		
Present value(85) *1	REAL	W	*			0x44	Application Tag	Real(0x44)		
							Value	Standard FCU From 18.0 to 29.0 (℃) From 64.0 to 84.0 (°F) Fresh Air Intake Indoor From 16.0 to 27.0 (℃) From 60.0 to 80.0 (°F)		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)		
							BitString	b7 IN_ALARM		
								b6 FAULT		
								b5 OVERRIDDEN		
								b4 OUT_OF_SERVICE		
								FAULT 0x07		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)		When this property is TRUE, Present_Value are decoupled from the output
							Value	true 0x11		
								false 0x10		
Units(117)	BACnetEngeneering Units	R				0x91	Application Tag	enumerated(0x91)		
							Value	degree-Celsius(62) (℃) degree-Fahrenheit(64) (°F)		
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)		'**' : air conditioning number 0x01 – 0x80
							Value	0x**84		
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)		
							value	[0]:number of properties(N) [1-N]: Property Identifier		
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)		
							Value	"true"		

Auto cool set temperature monitor

Name	Data
Object Type	0
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x6E
Object Type	Analog Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value		Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)		'**' : air conditioning number 0x01 – 0x80
							Analog input object	0x0000**6E		
Object Name(77)	character string	R					Application Tag	character string(0x750B)		'***' : air conditioning number 1 – 128
							String	"AutoCoolSetpoint/AI_***"		
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)		Analog Input(0)
							analog Input object	0x00		
Present value(85) *1	REAL	R	*			0x44	Application Tag	Real(0x44)	COV	This property is writable when Out_Of_Service is TRUE
							Value	Standard FCU From 18.0 to 29.0 (℃) From 64.0 to 84.0 (°F) Fresh Air Intake Indoor From 16.0 to 27.0 (℃) From 60.0 to 80.0 (°F)		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)		
							BitString	b7 IN_ALARM		
								b6 FAULT		
								b5 OVERRIDDEN		
								b4 OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)		When this property is TRUE, Present_Value are decoupled from the input
							Value	true 0x11		
								false 0x10		
Units(117)	BACnetEngeneering Units	R				0x91	Application Tag	enumerated(0x91)		
							Value	degree-Celsius(62) (℃) degree-Fahrenheit(64) (°F)		
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)		'**' : air conditioning number 0x01 – 0x80
							Value	0x**6E		
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)		
							value	[0]:number of properties(N) [1-N]: Property Identifier		
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)		
							Value	"true"		

Auto cool set temperature control

Name	Data
Object Type	1
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0xEE
Object Type	Analog Output Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value		Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)		'**' : air conditioning number 0x01 – 0x80
							Analog output object	0x0040**EE		
Object Name(77)	character string	R					Application Tag	character string(0x750B)		'***' : air conditioning number 1 – 128
							String	"AutoCoolSetpoint/AO_***"		
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)		Analog Output(1)
							analog Input object	0x01		
Present value(85) *1	REAL	W	*			0x44	Application Tag	Real(0x44)		In the case of Auto cool temperature setting ≥ Auto heat temperature setting, both setting values will be transmitted to the indoor unit. In the case of Auto cool temperature setting < Auto heat temperature setting, the setting values will not be transmitted.
							Value	Standard FCU From 18.0 to 29.0 (℃) From 64.0 to 84.0 (°F) Fresh Air Intake Indoor From 16.0 to 27.0 (℃) From 60.0 to 80.0 (°F)		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)		
							BitString	b7 IN_ALARM		
								b6 FAULT		
								b5 OVERRIDDEN		
								b4 OUT_OF_SERVICE		
								FAULT 0x07		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)		When this property is TRUE, Present_Value are decoupled from the output
							Value	true 0x11		
								false 0x10		
Units(117)	BACnetEngeneering Units	R				0x91	Application Tag	enumerated(0x91)		
							Value	degree-Celsius(62) (℃) degree-Fahrenheit(64) (°F)		
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)		'**' : air conditioning number 0x01 – 0x80
							Value	0x**EE		
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)		
							value	[0]:number of properties(N) [1-N]: Property Identifier		
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)		
							Value	"true"		

Auto heat set temperature monitor

Name	Data
Object Type	0
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x6F
Object Type	Analog Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value		Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)		'**' : air conditioning number 0x01 – 0x80
							Analog input object	0x0000**6F		
Object Name(77)	character string	R					Application Tag	character string(0x750B)		'***' : air conditioning number 1 – 128
							String	"AutoHeatSetpoint/AI_***"		
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)		Analog Input(0)
							analog Input object	0x00		
Present value(85) *1	REAL	R	*			0x44	Application Tag	Real(0x44)	COV	This property is writable when Out_Of_Service is TRUE
							Value	Standard FCU From 18.0 to 29.0 (℃) From 64.0 to 84.0 (°F) Fresh Air Intake Indoor From 16.0 to 27.0 (℃) From 60.0 to 80.0 (°F)		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)		
							BitString	b7 IN_ALARM		
								b6 FAULT		
								b5 OVERRIDDEN		
								b4 OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)		When this property is TRUE, Present_Value are decoupled from the input
							Value	true 0x11		
								false 0x10		
Units(117)	BACnetEngeneering Units	R				0x91	Application Tag	enumerated(0x91)		
							Value	degree-Celsius(62) (℃) degree-Fahrenheit(64) (°F)		
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)		'**' : air conditioning number 0x01 – 0x80
							Value	0x**6F		
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)		
							value	[0]:number of properties(N) [1-N]: Property Identifier		
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)		
							Value	"true"		

Auto heat set temperature control

Name	Data
Object Type	1
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0xEF
Object Type	Analog Output Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value		Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)		'**' : air conditioning number 0x01 – 0x80
							Analog output object	0x0040**EF		
Object Name(77)	character string	R					Application Tag	character string(0x750B)		'***' : air conditioning number 1 – 128
							String	"AutoHeatSetpoint/AO_***"		
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)		Analog Output(1)
							analog Input object	0x01		
Present value(85) *1	REAL	W	*			0x44	Application Tag	Real(0x44)		In the case of Auto cool temperature setting ≥ Auto heat temperature setting, both setting values will be transmitted to the indoor unit. In the case of Auto cool temperature setting < Auto heat temperature setting, the setting values will not be transmitted.
							Value	Standard FCU From 18.0 to 29.0 (℃) From 64.0 to 84.0 (°F) Fresh Air Intake Indoor From 16.0 to 27.0 (℃) From 60.0 to 80.0 (°F)		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)		
							BitString	b7 IN_ALARM		
								b6 FAULT		
								b5 OVERRIDDEN		
								b4 OUT_OF_SERVICE		
								FAULT 0x07		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)		When this property is TRUE, Present_Value are decoupled from the output
							Value	true 0x11		
								false 0x10		
Units(117)	BACnetEngeneering Units	R				0x91	Application Tag	enumerated(0x91)		
							Value	degree-Celsius(62) (℃) degree-Fahrenheit(64) (°F)		
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)		'**' : air conditioning number 0x01 – 0x80
							Value	0x**EF		
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)		
							value	[0]:number of properties(N) [1-N]: Property Identifier		
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)		
							Value	"true"		

Room temperature

Name	Data
Object Type	0
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x08
Object Type	Analog Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							Analog input object	0x0000**08			
Object Name(77)	character string	R					Application Tag	character string(0x7510)			'***' : air conditioning number 1 – 128
							String	"Room_Temp/AI_*** "			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Analog Input(0)
							analog Input object	0x00			
Present value(85)	REAL	R	*			0x44	Application Tag	Real(0x44)			This property is writable when Out_Of_Service is TRUE
							Value	From -35.0 to 92.5 (℃) From -31.0 to 198.5 (°F)			
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Units(117)	BACnetEngeneering Units	R				0x91	Application Tag	enumerated(0x91)			
							Value	degree-Celsius(62) (℃) degree-Fahrenheit(64) (°F)			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**08			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Permit / Prohibit of Local Operation Monitor

Name	Data
Object Type	13
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x09
Object Type	Multi-State Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value					Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)					'**' : air conditioning number 0x01 – 0x80
							multi-state input object	0x0340**09					
Object Name(77)	character string	R					Application Tag	character string(0x750E)					'***' : air conditioning number 1 – 128
							String	"Inhibit/MI_*** "					
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)					Multi-State Input(13)
							Multi-State Input object	0x0D					
Present value(85)	Unsigned	W	*			0x21	Application Tag	Unsigned(0x21)				intrinsic reporting	This property is writable when Out_Of_Service is TRUE
							Value	Prohibition					
								Mode	Temp	ON/OFF	Data		
								-	-	-	0x01		
								✓	-	-	0x02		
								-	✓	-	0x03		
								-	-	✓	0x04		
								✓	✓	-	0x05		
								✓	-	✓	0x06		
								-	✓	✓	0x07		
								✓	✓	✓	0x08		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)					
							BitString	b7	IN_ALARM				
								b6	FAULT				
								b5	OVERRIDDEN				
								b4	OUT_OF_SERVICE				
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)					When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11				
								false	0x10				
Number_Of_States(74)	Unsigned	R				0x21	Application Tag	Unsigned(0x21)					
							Value	0x08					
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)					'**' : air conditioning number 0x01 – 0x80
							Value	0x**09					
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)					
							value	[0]:number of properties(N) [1-N]: Property Identifier					

Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean（0x1x）		
							Value	“true”		

Permit / Prohibit of Local Operation Control

Name	Data
Object Type	14
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x89
Object Type	Multi-state Output Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value					Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)					'**' : air conditioning number 0x01 – 0x80
							multistate output object	0x0380**89					
Object Name(77)	character string	R					Application Tag	character string(0x750E)					'***' : air conditioning number 1 – 128
							String	"Inhibit/MO_*** "					
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)					Multi-State Output(14)
							Multi-state Output object	0x0E					
Present value(85)	BACnetBinaryPV	W	*			0x21	Application Tag	Unsigned(0x21)					
							Value	Prohibition					
								Mode	Temp	ON/OFF	Data		
								-	-	-	0x01		
								✓	-	-	0x02		
								-	✓	-	0x03		
								-	-	✓	0x04		
								✓	✓	-	0x05		
								✓	-	✓	0x06		
								-	✓	✓	0x07		
								✓	✓	✓	0x08		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)					
							BitString	b7	IN_ALARM				
								b6	FAULT				
								b5	OVERRIDDEN				
								b4	OUT_OF_SERVICE				
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)					When this property is TRUE, Present_Value are decoupled from the output
							Value	true	0x11				
								false	0x10				
Number_Of_States(74)	Unsigned	R				0x21	Application Tag	Unsigned(0x21)					
							Value	0x08					

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value					Notice of Status Change	Remarks
Priority_Array(87)	BACnetPriorityArray	R	*	*		0x21	Application Tag	Unsigned（0x21）					
							Value	NULL					
							Value	120s(0x78)					
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned（0x22）					'**' : air conditioning number 0x01 – 0x80
							Value	0x**89					
Feedback_Value(40)	Unsigned	R	*			0x21	Application Tag	Unsigned（0x21）					
							Value	Prohibition					
								Mode	Temp	ON/OFF	Data		
								-	-	-	0x01		
								✓	-	-	0x02		
								-	✓	-	0x03		
								-	-	✓	0x04		
								✓	✓	-	0x05		
								✓	-	✓	0x06		
								-	✓	✓	0x07		
								✓	✓	✓	0x08		
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier（0xc4）					
							value	[0]:number of properties(N) [1-N]: Property Identifier					
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean（0x1x）					
							Value	"true"					

Filter Sign status Monitor

Name	Data
Object Type	3
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x14
Object Type	Binary Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							binary input object	0x00C0**14			
Object Name(77)	character string	R				0x75	Application Tag	character string(0x750D)			'***' : air conditioning number 1 – 128
							String	"Filter/BI_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Binary Input(3)
							analog input object	0x03			
Present value(85)	BACnetBinaryPV	R	*			0x91	Application Tag	enumerated(0x91)		intrinsic reporting	This property is writable when Out_Of_Service is TRUE
							Value	INACTIVE	0x00		
								ACTIVE	0x01		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Inactive_Text(46)	character string	R					Application Tag	character string(0x75)			
							Value	"Normal"			
Active_Text(4)	character string	R					Application Tag	character string(0x75)			
							Value	"Filter"			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**14			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Filter Sign Reset Control

Name	Data
Object Type	4
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x95
Object Type	Binary Output Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							binary output object	0x0100**95			
Object Name(77)	character string	R					Application Tag	character string(0x750D)			'***' : air conditioning number 1 – 128
							String	"Filter/BO_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Binary Output(4)
							analog input object	0x04			
Present value(85)	BACnetBinaryPV	W	*			0x91	Application Tag	enumerated(0x91)			
							Value	INACTIVE	0x00		
								ACTIVE	0x01		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the output
							Value	true	0x11		
								false	0x10		
Inactive_Text(46)	character string	R					Application Tag	character string(0x72)			
							Value	"-"			
Active_Text(4)	character string	R					Application Tag	character string(0x75)			
							Value	"Reset"			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**95			
Feedback_Value(40)	BACnetBinaryPV	R				0x91	Application Tag	enumerated(0x91)			
							Value	INACTIVE	0x00		
								ACTIVE	0x01		
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Alarm status

Name	Data
Object Type	3
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x40
Object Type	Binary Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							binary input object	0x00C0**40			
Object Name(77)	character string	R					Application Tag	character string(0x750C)			'***' : air conditioning number 1 – 128
							String	"Alarm/BI_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Binary Input(3)
							analog input object	0x03			
Present value(85)	BACnetBinaryPV	W	*			0x91	Application Tag	enumerated(0x91)		intrinsic reporting	This property is writable when Out_Of_Service is TRUE Check Code : please refer to 'Indoor unit Check Code'.
							Value	No Alarm	0x00		
								Alarm	0x01		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Inactive_Text(46)	character string	R					Application Tag	character string(0x75)			
							Value	"Normal"			
Active_Text(4)	character string	R					Application Tag	character string(0x75)			
							Value	"Alarm"			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**40			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Check Code

Name	Data
Object Type	13
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x01
Object Type	Mult-State Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							multi-state input object	0x0340**01			
Object Name(77)	character string	R					Application Tag	character string(0x7511)			'***' : air conditioning number 1 – 128
							String	"Alarm_Code/MI_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Multi-State Input(13)
							Multi-State input object	0x0D			
Present value(85) *1	Unsigned	R	*			0x21	Application Tag	Unsigned(0x21)			This property is writable when Out_Of_Service is TRUE. When is No Alarm, the value is '1'.
							Value	From 1 to 65536			
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Number_Of_States(74)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			
							Value	0x0100			
Notify_Type(72)	BACnetNotifyType	R				0x91	Application Tag	enumerated(0x91)			
							Value	event(0x01)			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**01			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Check Code format is described in the table below

bit	Item	Value
15	Automatic backup	VRF function (automatic backup) status 0: OFF or not functional 1: Undergoing automatic backup
14	Model group ID	000:VRF; Light Commercial model 001-111: Reserved
13		
12		
11	Reserved	0
10	Reserved	0
9	Reserved	0
8	Code extension	0~3
7	Code classification	Described in "5. Check Code.
6		
5		
4	Code	
3		
2		
1		
0		

Louver Monitor

Name	Data
Object Type	13
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x07
Object Type	Multi-State Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							multi-state input object	0x0340**07			
Object Name(77)	character string	R					Application Tag	character string(0x750B)			'***' : air conditioning number 1 – 128
							String	"Flap/MI_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Multi-State Input(13)
							Multi-State Input object	0x0D			
Present value(85) *1	Unsigned	R	*			0x21	Application Tag	Unsigned(0x21)		intrinsic reporting	This property is writable when Out_Of_Service is TRUE
							Value	SWING	0x01		
								F1	0x02		
								F2	0x03		
								F3	0x04		
								F4	0x05		
								F5	0x06		
								Stop	0x07		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
							Value	NORMAL	0x00		
								FAULT	0x07		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Number_Of_States(74)	Unsigned	R				0x21	Application Tag	Unsigned(0x21)			
							Value	0x07			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**07			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Louver Control

Name	Data
Object Type	14
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x87
Object Type	Multi-State Output Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							multi-state output object	0x03C0**87			
Object Name(77)	character string	R					Application Tag	character string(0x750B)			'***' : air conditioning number 1 – 128
							String	"Flap/MO_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Multi-State Output(14)
							Multi-State Output object	0x0E			
Present value(85) *1	Unsigned	W	*			0x21	Application Tag	Unsigned(0x21)			
							Value	SWING	0x01		
								F1	0x02		
								F2	0x03		
								F3	0x04		
								F4	0x05		
								F5	0x06		
								Stop	0x07		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the output
							Value	True	0x11		
								False	0x10		
Number_Of_States(74)	Unsigned	R				0x21	Application Tag	Unsigned(0x21)			
							Value	0x07			
Priority_Array(87)	BACnetPriorityArray	R	*	*		0x21	Application Tag	Unsigned(0x21)			
							Value	Array[1]-[16]			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**87			

Feedback_Value(40) *1	Unsigned	R				0x21	Application Tag	Unsigned（0x21）			
							Value	SWING	0x01		
								F1	0x02		
								F2	0x03		
								F3	0x04		
								F4	0x05		
								F5	0x06		
								Stop	0x07		
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier（0xc4）			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean（0x1x）			
							Value	“true”			

Ventilation ON / OFF status Monitor

Name	Data
Object Type	3
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x28
Object Type	Binary Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							binary input object	0x00C0**28			
Object Name(77)	character string	R				0x75	Application Tag	character string(0x7517)			'***' : air conditioning number 1 – 128
							String	"VentilationState/BI_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Binary Input(3)
							analog input object	0x03			
Present value(85)	BACnetBinaryPV	R	*			0x91	Application Tag	enumerated(0x91)		intrinsic reporting	This property is writable when Out_Of_Service is TRUE
							Value	INACTIVE	0x00		
								ACTIVE	0x01		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Inactive_Text(46)	character string	R					Application Tag	character string(0x74)			
							Value	"OFF"			
Active_Text(4)	character string	R					Application Tag	character string(0x73)			
							Value	"ON"			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**28			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Ventilation ON / OFF status Control

Name	Data
Object Type	4
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0xA8
Object Type	Binary Output Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							binary output object	0x0100**A8			
Object Name(77)	character string	R					Application Tag	character string(0x7517)			'***' : air conditioning number 1 – 128
							String	"VentilationState/BO_*** "			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Binary Output(4)
							analog input object	0x04			
Present value(85)	BACnetBinaryPV	W	*			0x91	Application Tag	enumerated(0x91)			
							Value	INACTIVE	0x00		
								ACTIVE	0x01		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the output
							Value	true	0x11		
								false	0x10		
Inactive_Text(46)	character string	R					Application Tag	character string(0x74)			
							Value	"OFF"			
Active_Text(4)	character string	R					Application Tag	character string(0x73)			
							Value	"ON"			
Priority_Array(87)	BACnetPriorityArray	R	*	*		0x91	Application Tag	enumerated(0x91)			
							Value	array[1]-[16]			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**A8			
Feedback_Value(40)	BACnetBinaryPV	R				0x91	Application Tag	enumerated(0x91)			
							Value	INACTIVE	0x00		
								ACTIVE	0x01		
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Indoor thermo status

Name	Data
Object Type	3
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x54
Object Type	Binary Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							binary input object	0x00C0**54			
Object Name(77)	character string	R					Application Tag	character string(0x750C)			'***' : air conditioning number 1 – 128
							String	"IndoorThermoState/BI_*** "			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Binary Input(3)
							analog input object	0x03			
Present value(85)	BACnetBinaryPV	W	*			0x91	Application Tag	enumerated(0x91)		intrinsic reporting	This property is writable when Out_Of_Service is TRUE
							Value	Thermo OFF	0x00		
								Thermo ON	0x01		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Inactive_Text(46)	character string	R					Application Tag	character string(0x75)			
							Value	"OFF"			
Active_Text(4)	character string	R					Application Tag	character string(0x75)			
							Value	"ON"			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**54			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Save operation rate Monitor

Name	Data
Object Type	13
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x55
Object Type	Multi-State Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							multi-state input object	0x0340**55			
Object Name(77)	character string	R					Application Tag	character string(0x7515)			'***' : air conditioning number 1 – 128
							String	"IndoorSaveState/MI_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Multi-State Input(13)
							Multi-State Input object	0x0D			
Present value(85)	Unsigned	R	*				Application Tag	enumerated(0x21)		intrinsic reporting	This property is writable when Out_Of_Service is TRUE
							Value	No Save (100% operation)	0x01		
								XX% Save (100-50%)	0x02		
								50% Save (50%)	0x03		
								100% Save (Forcibly Thermo OFF)	0x04		
								-	-		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Number_Of_States(74)	Unsigned	R				0x21	Application Tag	Unsigned(0x21)			
							Value	0x05			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**55			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Save operation rate Control

Name	Data
Object Type	14
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0xD5
Object Type	Multi-State Output Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							multi-state output object	0x0380**D5			
Object Name(77)	character string	R					Application Tag	character string(0x7515)			'***' : air conditioning number 1 – 128
							String	"IndoorSaveState/MO_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Multi-State Output(14)
							Multi-State Output object	0x0E			
Present value(85)	Unsigned	W	*			0x21	Application Tag	Unsigned(0x21)			
							Value	No Save (100% operation)	0x01		
								XX% Save (100-50%)	0x02		
								50% Save (50%)	0x03		
								100% Save (Forcibly Thermo OFF)	0x04		
								-	-		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the output
							Value	true	0x11		
								false	0x10		
Number_Of_States(74)	Unsigned	R				0x21	Application Tag	Unsigned(0x21)			
							Value	0x05			
Priority_Array(87)	BACnetPriorityArray	R	*	*		0x91	Application Tag	enumerated(0x91)			
							Value	array[1]-[16]			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**D5			
Feedback_Value(40)	Unsigned	R				0x21	Application Tag	Unsigned(0x21)			
							Value	No Save (100% operation)	0x01		
								XX% Save (100-50%)	0x02		
								50% Save (50%)	0x03		
								100% Save (Forcibly Thermo OFF)	0x04		
								-	-		
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			

Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)		
							Value	"true"		

Indoor Communication Failure

Name	Data
Object Type	3
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x41
Object Type	Binary Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							binary input object	0x00C0**41			
Object Name(77)	character string	R					Application Tag	character string(0x750C)			'***' : air conditioning number 1 – 128
							String	"Indoor_Communication_Failure_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Binary Input(3)
							analog input object	0x03			
Present value(85)	BACnetBinaryPV	W	*			0x91	Application Tag	enumerated(0x91)		intrinsic reporting	This property is writable when Out_Of_Service is TRUE
							Value	Normal	0x00		
								Alarm	0x01		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Inactive_Text(46)	character string	R					Application Tag	character string(0x75)			
							Value	"Normal"			
Active_Text(4)	character string	R					Application Tag	character string(0x75)			
							Value	"Alarm"			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**41			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Facility request

Name	Data
Object Type	13
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x0A
Object Type	Mult-State Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value		Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)		'**' : air conditioning number 0x01 – 0x80
							multi-state input object	0x0340**0A		
Object Name(77)	character string	R					Application Tag	character string(0x7511)		'***' : air conditioning number 1 – 128
							String	"Facility_request /MI_***"		
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)		Multi-State Input(13)
							Multi-State input object	0x0D		
Present value(85)	Unsigned	R	*			0x21	Application Tag	Unsigned(0x21)		This property is writable when Out_Of_Service is TRUE. You can check how much capacity request the air conditioner is using for operation.
							Value	From 1 (Thermo off) to 16		
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)		
							BitString	b7 IN_ALARM		
								b6 FAULT		
								b5 OVERRIDDEN		
								b4 OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)		When this property is TRUE, Present_Value are decoupled from the input
							Value	true 0x11		
								false 0x10		
Number_Of_States(74)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)		
							Value	0x0100		
Notify_Type(72)	BACnetNotifyType	R				0x91	Application Tag	enumerated(0x91)		
							Value	event(0x01)		
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)		'**' : air conditioning number 0x01 – 0x80
							Value	0x**0A		
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)		
							value	[0]:number of properties(N) [1-N]: Property Identifier		
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)		
							Value	"true"		

Notice Code 1

Name	Data
Object Type	13
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x01
Object Type	Mult-State Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							multi-state input object	0x0340**63			
Object Name(77)	character string	R					Application Tag	character string(0x7511)			'***' : air conditioning number 1 – 128
							String	"Notice_Code1/MI_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Multi-State Input(13)
							Multi-State input object	0x0D			
Present value(85) *1	Unsigned	R	*			0x21	Application Tag	Unsigned(0x21)			This property is writable when Out_Of_Service is TRUE. When is No Notice Code, the value is '1'.
							Value	From 1 to 256			
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Number_Of_States(74)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			
							Value	0x0100			
Notify_Type(72)	BACnetNotifyType	R				0x91	Application Tag	enumerated(0x91)			
							Value	event(0x01)			
Notification_Class(17)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**63			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifier	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Enable (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Notice Code 1 to 4 format is described in the table below

bit	Item	Value
7	Unit	00:Outdoor unit 01:Reserved 10:Indoor unit 11:Indoor unit (Group terminal unit)
6		
5	Code	0～63 Described in “5.5 Notice Code (TU2C-LINK model)”.
4		
3		
2		
1		
0		

Notice Code 2

Name	Data
Object Type	13
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x01
Object Type	Mult-State Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							multi-state input object	0x0340**64			
Object Name(77)	character string	R					Application Tag	character string(0x7511)			'***' : air conditioning number 1 – 128
							String	"Notice_Code1/MI_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Multi-State Input(13)
							Multi-State input object	0x0D			
Present value(85) *1	Unsigned	R	*			0x21	Application Tag	Unsigned(0x21)			This property is writable when Out_Of_Service is TRUE. When is No Notice Code, the value is '1'.
							Value	From 1 to 256			
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Number_Of_States(74)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			
							Value	0x0100			
Notify_Type(72)	BACnetNotifyType	R				0x91	Application Tag	enumerated(0x91)			
							Value	event(0x01)			
Notification_Class(1 7)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**64			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifie r	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Ena ble (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Notice Code 3

Name	Data
Object Type	13
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x01
Object Type	Mult-State Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							multi-state input object	0x0340**65			
Object Name(77)	character string	R					Application Tag	character string(0x7511)			'***' : air conditioning number 1 – 128
							String	"Notice_Code1/MI_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Multi-State Input(13)
							Multi-State input object	0x0D			
Present value(85) *1	Unsigned	R	*			0x21	Application Tag	Unsigned(0x21)			This property is writable when Out_Of_Service is TRUE. When is No Notice Code, the value is '1'.
							Value	From 1 to 256			
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Number_Of_States(74)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			
							Value	0x0100			
Notify_Type(72)	BACnetNotifyType	R				0x91	Application Tag	enumerated(0x91)			
							Value	event(0x01)			
Notification_Class(1 7)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**65			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifie r	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Ena ble (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Notice Code 4

Name	Data
Object Type	13
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x01
Object Type	Mult-State Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							multi-state input object	0x0340**66			
Object Name(77)	character string	R					Application Tag	character string(0x7511)			'***' : air conditioning number 1 – 128
							String	"Notice_Code1/MI_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Multi-State Input(13)
							Multi-State input object	0x0D			
Present value(85) *1	Unsigned	R	*			0x21	Application Tag	Unsigned(0x21)			This property is writable when Out_Of_Service is TRUE. When is No Notice Code, the value is '1'.
							Value	From 1 to 256			
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Number_Of_States(74)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			
							Value	0x0100			
Notify_Type(72)	BACnetNotifyType	R				0x91	Application Tag	enumerated(0x91)			
							Value	event(0x01)			
Notification_Class(1 7)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**66			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifie r	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Ena ble (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Notice Code 5

Name	Data
Object Type	13
Equipment Category	0000
Equipment Number	From 1 to 128
Instance Number	0x01
Object Type	Mult-State Input Object

Property Identifier	Property Data Type	Read Write	Variable	Array	List	Tag	Value			Notice of Status Change	Remarks
Object Identifier(75)	BACnet Object ID	R				0xC4	Application Tag	object Identifier(0xC4)			'**' : air conditioning number 0x01 – 0x80
							multi-state input object	0x0340**67			
Object Name(77)	character string	R					Application Tag	character string(0x7511)			'***' : air conditioning number 1 – 128
							String	"Notice_Code1/MI_***"			
Object Type(79)	BACnetObjectType	R				0x91	Application Tag	enumerated(0x91)			Multi-State Input(13)
							Multi-State input object	0x0D			
Present value(85) *1	Unsigned	R	*			0x21	Application Tag	Unsigned(0x21)			This property is writable when Out_Of_Service is TRUE. When is No Notice Code, the value is '1'.
							Value	From 1 to 256			
Status_Flags(111)	BACnetStatusFlags	R	*			0x82	Application Tag	Bit String(0x82)			
							BitString	b7	IN_ALARM		
								b6	FAULT		
								b5	OVERRIDDEN		
								b4	OUT_OF_SERVICE		
Out_Of_Service(81)	BOOLEAN	W					Application Tag	Boolean(0x1x)			When this property is TRUE, Present_Value are decoupled from the input
							Value	true	0x11		
								false	0x10		
Number_Of_States(74)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			
							Value	0x0100			
Notify_Type(72)	BACnetNotifyType	R				0x91	Application Tag	enumerated(0x91)			
							Value	event(0x01)			
Notification_Class(1 7)	Unsigned	R				0x22	Application Tag	Unsigned(0x22)			'**' : air conditioning number 0x01 – 0x80
							Value	0x**67			
Property_List(371)	BACnetARRAY[N] of BACnetPropertyIdentifie r	R			*		Application Tag	[0]:Unsigned(0x4E) [1-N]: Property Identifier(0xc4)			
							value	[0]:number of properties(N) [1-N]: Property Identifier			
Event_Detection_Ena ble (353)	BACnetBoolean	W					Application Tag	Boolean(0x1x)			
							Value	"true"			

Check code format

Check Code is a decimal number.
Change from the decimal number into the hexadecimal number. Check Code format is described in the table below.

bit	Item	Value
15	Automatic backup	VRF function (automatic backup) status 0:OFF or not functional 1:Undergoing automatic backup
14	Model group ID	000:VRF, Light Commercial model 011:air to water heat pump (ATW) Other:Reserved
13		
12		
11	Reserved	0
10	Reserved	0
9	Code extension	0~3
8		
7	Code classification	Check Code
6		
5		
4	Code	
3		
2		
1		
0		

Check Code (VRF system, Light Commercial model)

Check Code		Description
Number	Wired remote controller Check code	
1		No active error
2		Reserved
3		Reserved
4		Reserved
5		Reserved
6		Reserved
7		Reserved
8		Reserved
9		Reserved
10		Reserved
11		Reserved
12		Reserved
13		Reserved
14		Reserved
15		Reserved
16		Reserved
17		Reserved
18		Reserved
19		Reserved
20		Reserved
21		Reserved
22		Reserved
23		Reserved
24		Reserved
25		Reserved
26		Reserved
27		Reserved
28		Reserved
29		Reserved
30		Reserved
31		Reserved
32		Reserved
33		Reserved
34		Reserved
35		Reserved
36		Reserved
37		Reserved
38	C05	Sending error in TCC-LINK central control device
39	C06	Receiving error in TCC-LINK central control device
40		Reserved
41		Reserved
42		Reserved
43		Reserved
44		Reserved
45	C12	Batch alarm of general-purpose equipment control interface
46		Reserved
47		Reserved
48		Reserved
49		Reserved
50		Reserved
51		Reserved
52		Reserved
53		Reserved
54		Reserved
55		Reserved
56		Reserved
57		Reserved
58		Reserved
59		Reserved
60		Reserved
61		Reserved
62		Reserved
63		Reserved
64		Reserved
65		Reserved
66	E01	Communication error between indoor and remote controller
67	E02	Sending error of remote controller
68	E03	Communication error between indoor and remote controller
69	E04	Communication circuit error between indoor and outdoor
70		Reserved
71	E06	Decrease of No. of indoor units
72	E07	Communication circuit error between indoor/outdoor
73	E08	Duplicated indoor addresses
74	E09	Duplicated master remote controllers
75	E10	Communication error between indoor P.C.board
76	E11	Communication error between indoor-sub-PCB, sub-PCB-option PCB
77	E12	Automatic address start error
78	E13	Periodic communication error (DX-kit - 0-10V_I/F) at indoor unit - 0-10V_interface

Check Code		Description
Number	Wired remote controller Check code	
79	E14	Periodic communication error between indoor unit and 0 to 10V interface
80	E15	No indoor automatic address
81	E16	Capacity over/No. of connected indoor units
82	E17	Bad reception from flow selector (FS) unit
83	E18	Communication error between indoor header and follower units
84	E19	Outdoor header units quantity error
85	E20	Other line connected during automatic address
86	E21	Header thermal storage units quantity error
87	E22	Decease of No. of thermal storage units
88	E23	Sending error in communication between outdoor units
89		Reserved
90	E25	Duplicated follower outdoor address
91	E26	Decrease of No. of connected outdoor units
92		Reserved
93	E28	Follower outdoor unit error
94		Reserved
95		Reserved
96	E31	IPDU communication error
97		Reserved
98	F01	Indoor TCJ sensor error
99	F02	Indoor TC2 sensor error
100	F03	Indoor TC1 sensor error
101	F04	TD1 sensor error
102	F05	TD2 sensor error
103	F06	TE1/TE2 sensor error
104	F07	TL sensor error
105	F08	TO sensor error
106	F09	TG sensor error
107	F10	Indoor TA/TSA sensor error
108	F11	Indoor TF/TFA sensor error
109	F12	TS1 sensor error
110	F13	TH sensor error
111	F14	TR sensor error
112	F15	Outdoor temp. sensor misconnection (TE1/TL)
113	F16	Outdoor pressure sensor misconnection (Pd/Ps)
114	F17	TOA sensor error
115	F18	TRA sensor error
116	F19	Indoor heat exchanger temperature sensor (TF) error
117	F20	PL (fluid piping pressure) sensor error
118		Reserved

Check Code		Description
Number	Wired remote controller Check code	
119	F22	TD3 sensor error
120	F23	Ps sensor error
121	F24	Pd sensor error
122	F25	Indoor heat exchanger temperature sensor (TA) error
123	F26	Indoor heat exchanger temperature sensor (TC2) error
124		Reserved
125		Reserved
126	F29	Indoor other error
127	F30	Occupancy sensor error or indoor air cleanliness error
128	F31	Outdoor EEPROM error
129		Reserved
130	H01	Compressor break down
131	H02	Magnet switch / Overcurrent operation / Compressor error
132	H03	Current detection circuit error
133	H04	Comp-1 case thermo operation
134	H05	Outdoor temp. sensor misconnection (TD1)
135	H06	Low pressure protective operation
136	H07	Low oil level protection
137	H08	Oil level temp. sensor error
138		Reserved
139		Reserved
140		Reserved
141		Reserved
142		Reserved
143	H14	Comp-2 case thermo operation
144	H15	Outdoor temp. sensor misconnection (TD2)
145	H16	Oil level circuit / Magnet switch / Overcurrent error
146		Reserved
147		Reserved
148		Reserved
149		Reserved
150		Reserved
151		Reserved
152		Reserved
153		Reserved
154	H25	Outdoor temp. sensor misconnection (TD3)
155		Reserved
156		Reserved
157	H28	Compressor winding error
158		Reserved
159		Reserved

Check Code		Description
Number	Wired remote controller Check code	
160		Reserved
161		Reserved
162	J01	Flow selector (FS) unit has bad reception from indoor unit (main unit)
163	J02	Communication error between flow selector (FS) unit boards and between MCUs
164	J03	Flow selector (FS) unit is duplicated
165		Reserved
166		Reserved
167		Reserved
168		Reserved
169		Reserved
170		Reserved
171	J10	Float SW operating at flow selector (FS) unit
172	J11	TCS sensor error in flow selector (FS) unit
173	J12	Sensor 2 error in flow selector (FS) unit
174		Reserved
175		Reserved
176		Reserved
177		Reserved
178		Reserved
179		Reserved
180		Reserved
181		Reserved
182		Reserved
183		Reserved
184		Reserved
185		Reserved
186		Reserved
187		Reserved
188		Reserved
189		Reserved
190	J29	Refrigerant leak sensor error
191	J30	Refrigerant leak detection
192	J31	Refrigerant leak sensor life
193		Reserved
194		Reserved
195	L02	Inconsistency error of outdoor units
196	L03	Duplicated indoor header units
197	L04	Duplicated outdoor line address
198	L05	Duplicated indoor units with priority
199	L06	Duplicated indoor units with priority

Check Code		Description
Number	Wired remote controller Check code	
200	L07	Group line in individual indoor unit
201	L08	Indoor group/Address unset
202	L09	Indoor capacity unset
203	L10	Outdoor capacity unset
204	L11	Absence of flow selector (FS) unit
205	L12	Flow selector system error
206	L13	Safety device mismatch
207	L14	No safety device connected
208	L15	Inconsistency error of indoor units
209		Reserved
210	L17	Inconsistency error of outdoor units
211	L18	FS unit error
212		Reserved
213	L20	Duplicated central control addresses
214	L21	200 V applied voltage error
215	L22	There are units in the group that do not support DX-KIT.
216	L23	Setting abnormality
217	L24	Flow selector unit is set incorrectly
218		Reserved
219	L26	Over No. of conneced thermal strage units
220	L27	Thermal storage units quantity error
221	L28	Maximum number of outdoor units exceeded
222	L29	No. of IPDU error
223	L30	Auxiliary interlock in indoor unit
224	L31	IC error
225		Reserved
226	P01	Indoor fan motor error
227	P02	Boost circuit error
228	P03	Discharge temp. TD1 error
229	P04	High-pressure switch detection error
230	P05	Phase-missing detection / Phase order error
231		Reserved
232	P07	Heat sink overheat error
233	P08	Intake air temperature error
234	P09	Thermal storage unit drought abnormality
235	P10	Indoor overflow error
236	P11	Outdoor heat exchanger freeze trouble
237	P12	Indoor fan motor error
238	P13	Outdoor liquid back detection error
239	P14	Other cycle protection
240	P15	Gas leak detection

Check Code		Description
Number	Wired remote controller Check code	
241	P16	Injection circuit trouble
242	P17	Discharge temp. TD2 error
243	P18	Discharge temp. TD3 error
244	P19	4-way valve inverse error
245	P20	High-pressure inverse error
246		Reserved
247	P22	Outdoor fan IPDU error
248		Reserved
249	P24	Abnormal Thermal storage unit
250	P25	Compressor inverter board error
251	P26	Compressor energization error
252	P27	Active filter error
253	P28	Active filter miswiring
254	P29	Comp position detection circuit error
255	P30	Group control follower unit error
256	P31	Follower indoor unit error (Group error)

In case you detect an error code not listed, contact your nearest Toshiba technical support service.

Notice Code (TU2C-LINK model)

Notice Code		Description
Notice Code Hexadecimal number	Wired remote controller display	
02	001	Compressor maintenance timer over
16	022	NFC tag wiring trouble
84	203	Battery life / deterioration / abnormality
85	204	Refrigerant sensor life pre-notification
87	206	General-purpose temperature sensor error
C2	301	Group terminal unit notice

4 Factory default settings

No.	Item	Factory default setting
1	IP address of BN interface	IP address 192.168.1.100 Subnet mask 255.255.255.0
2	UDP port	47808 (0xBAC0)
3	Device object instance number	100 Use 1Byte of Last byte of IP Address number.
4	Uh Line termination resistance select switch	OFF
5	Indoor unit configuration setting	10 VRF indoor units (details below)
6	Temperature unit (Celsius/Fahrenheit)	BMS-IFBN1281U-UL: Fahrenheit

■ Indoor unit configuration setting

Central Control address	Line address	Indoor Unit address	Indoor unit type
1	1	1	VRF indoor unit
2	1	2	VRF indoor unit
3	1	3	VRF indoor unit
4	1	4	VRF indoor unit
5	1	5	VRF indoor unit
6	1	6	VRF indoor unit
7	1	7	VRF indoor unit
8	1	8	VRF indoor unit
9	1	9	VRF indoor unit
10	1	10	VRF indoor unit
11	undefined	undefined	undefined
12	undefined	undefined	undefined
13	undefined	undefined	undefined
14	undefined	undefined	undefined
15	undefined	undefined	undefined
16	undefined	undefined	undefined
17	undefined	undefined	undefined
18	undefined	undefined	undefined
19	undefined	undefined	undefined
20	undefined	undefined	undefined
21	undefined	undefined	undefined
22	undefined	undefined	undefined
23	undefined	undefined	undefined
24	undefined	undefined	undefined
25	undefined	undefined	undefined
26	undefined	undefined	undefined
27	undefined	undefined	undefined
28	undefined	undefined	undefined
29	undefined	undefined	undefined
30	undefined	undefined	undefined
31	undefined	undefined	undefined
32	undefined	undefined	undefined
33	undefined	undefined	undefined
34	undefined	undefined	undefined
35	undefined	undefined	undefined
36	undefined	undefined	undefined

Central Control address	Line address	Indoor Unit address	Indoor unit type
37	undefined	undefined	undefined
38	undefined	undefined	undefined
39	undefined	undefined	undefined
40	undefined	undefined	undefined
41	undefined	undefined	undefined
42	undefined	undefined	undefined
43	undefined	undefined	undefined
44	undefined	undefined	undefined
45	undefined	undefined	undefined
46	undefined	undefined	undefined
47	undefined	undefined	undefined
48	undefined	undefined	undefined
49	undefined	undefined	undefined
50	undefined	undefined	undefined
51	undefined	undefined	undefined
52	undefined	undefined	undefined
53	undefined	undefined	undefined
54	undefined	undefined	undefined
55	undefined	undefined	undefined
56	undefined	undefined	undefined
57	undefined	undefined	undefined
58	undefined	undefined	undefined
59	undefined	undefined	undefined
60	undefined	undefined	undefined
61	undefined	undefined	undefined
62	undefined	undefined	undefined
63	undefined	undefined	undefined
64	undefined	undefined	undefined
65	undefined	undefined	undefined
66	undefined	undefined	undefined
67	undefined	undefined	undefined
68	undefined	undefined	undefined
69	undefined	undefined	undefined
70	undefined	undefined	undefined
71	undefined	undefined	undefined
72	undefined	undefined	undefined
73	undefined	undefined	undefined
74	undefined	undefined	undefined
75	undefined	undefined	undefined
76	undefined	undefined	undefined
77	undefined	undefined	undefined
78	undefined	undefined	undefined
79	undefined	undefined	undefined
80	undefined	undefined	undefined
81	undefined	undefined	undefined
82	undefined	undefined	undefined
83	undefined	undefined	undefined
84	undefined	undefined	undefined
85	undefined	undefined	undefined

Central Control address	Line address	Indoor Unit address	Indoor unit type
86	undefined	undefined	undefined
87	undefined	undefined	undefined
88	undefined	undefined	undefined
89	undefined	undefined	undefined
90	undefined	undefined	undefined
91	undefined	undefined	undefined
92	undefined	undefined	undefined
93	undefined	undefined	undefined
94	undefined	undefined	undefined
95	undefined	undefined	undefined
96	undefined	undefined	undefined
97	undefined	undefined	undefined
98	undefined	undefined	undefined
99	undefined	undefined	undefined
100	undefined	undefined	undefined
101	undefined	undefined	undefined
102	undefined	undefined	undefined
103	undefined	undefined	undefined
104	undefined	undefined	undefined
105	undefined	undefined	undefined
106	undefined	undefined	undefined
107	undefined	undefined	undefined
108	undefined	undefined	undefined
109	undefined	undefined	undefined
110	undefined	undefined	undefined
111	undefined	undefined	undefined
112	undefined	undefined	undefined
113	undefined	undefined	undefined
114	undefined	undefined	undefined
115	undefined	undefined	undefined
116	undefined	undefined	undefined
117	undefined	undefined	undefined
118	undefined	undefined	undefined
119	undefined	undefined	undefined
120	undefined	undefined	undefined
121	undefined	undefined	undefined
122	undefined	undefined	undefined
123	undefined	undefined	undefined
124	undefined	undefined	undefined
125	undefined	undefined	undefined
126	undefined	undefined	undefined
127	undefined	undefined	undefined
128	undefined	undefined	undefined

5 Items included with the product

BMS-IFBN1281U-UL

Component	Q'ty	Remarks
BN interface equipment	1	
Power adapter	1	BN interface power supply
Pin terminal	2	Uh Line caulked connectors
Mounting bracket (DIN rail)	1	Use screws to secure the unit in locations without DIN rails (walls, etc.)
Screws (M4 x 12)	2	For securing the DIN rails
Installation Manual	1	
License Agreement	1	
License Information	1	

6 Installation

REQUIREMENT

Do not install the unit in any of the following places.

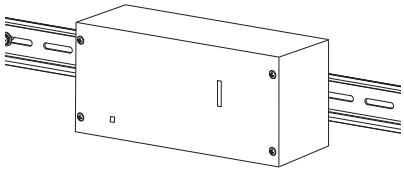
- Humid or wet place
- Dusty place
- Place exposed to direct sunlight
- Place where there is a TV set or radio within 3 ft
- Place exposed to rain (outdoors, under eaves, etc.)

■ BN Interface Installation and Orientation

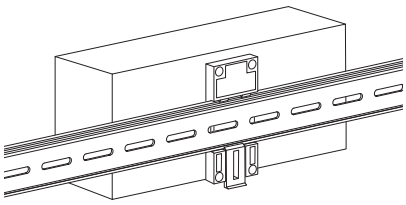
Install and orient the interface using the DIN rail to mount the unit or wall mount or surface mount it as shown below.
Use the supplied mounting bracket to wall mount or surface mount the interface.

(1) DIN rail mount
Install the interface on DIN rails mounted on a switchboard or elsewhere.

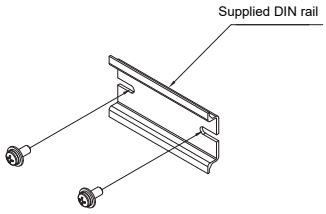
Front view

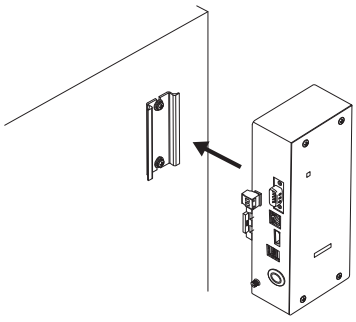


Back view

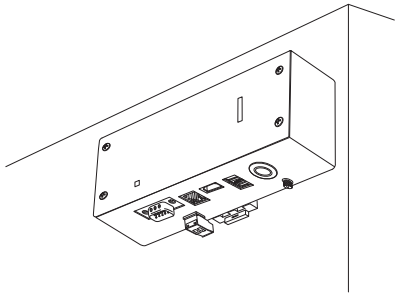


(2) Wall mount
Use screws to attach the supplied DIN rails to a wall and install the interface on the DIN rail.

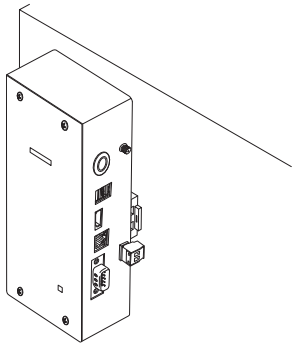




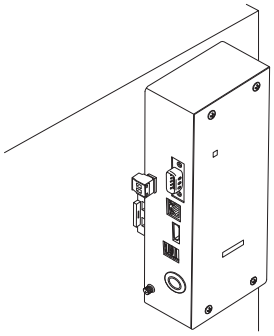
Wall mount A



Wall mount B

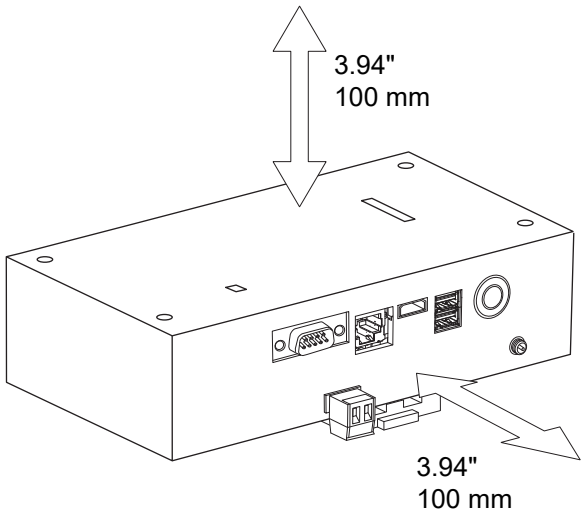


Wall mount C



■ Installation Space and Maintenance Space

A side space for connecting through cable inlets and an upper space for maintenance must be reserved before installation.
The other sides can be adjacent to surrounding objects.



7 Power and signal line connections

■ Cables

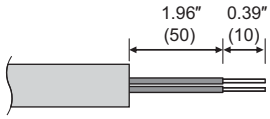
Use the following cable for signal line connections. (Procured locally)

No.	Line	Description	
1	For Uh Line	Type	2-core shielded wires
		Wire size	Refer to “Design of Control Wiring” (P.81 to P.84).
		Length	
2	For Ethernet	Type	LAN cable (higher than Category 5, UTP)
			The appropriate use of straight cable/cross cable should be done depending on your system used
		Length	328 ft (100 m) max.

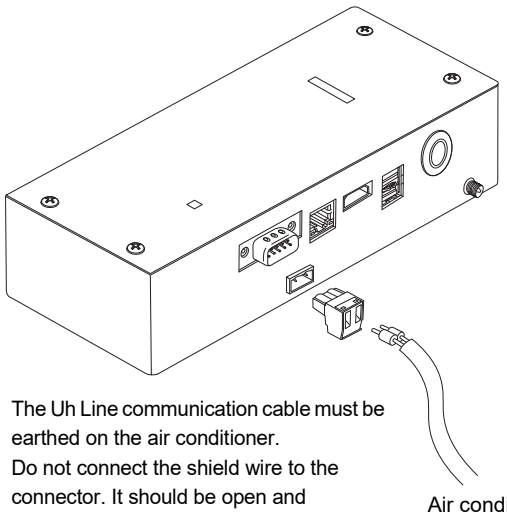
■ Cable Connections

Connect the cables to the specified connectors.

Length of stripped Uh Line communication cable

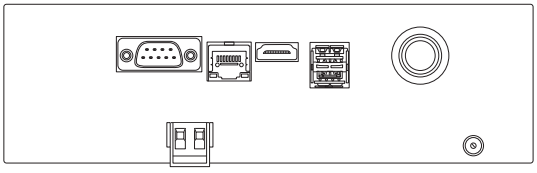


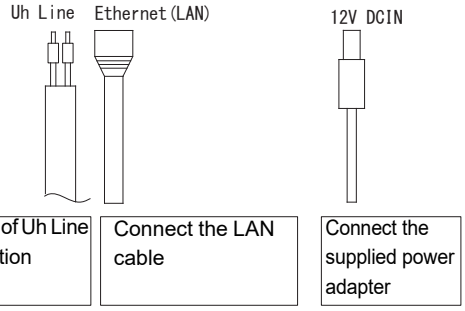
Connect the supplied pin terminal to the Uh Line communication cable as necessary.



The Uh Line communication cable must be earthed on the air conditioner.
Do not connect the shield wire to the connector. It should be open and insulated.

Air conditioner





CAUTION

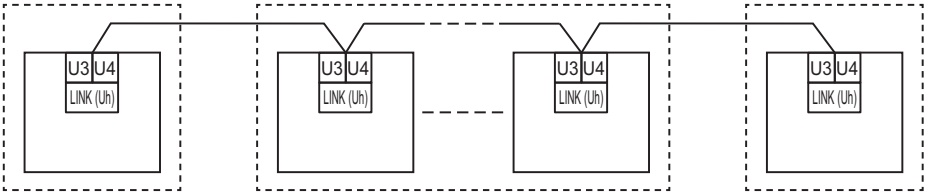
The Uh Line communication cable have no polarity.

* Secure the Uh Line communication cable and power cable to the switchboard etc. using the supplied cable tie to ensure that no excess load is placed on the power cable connection and Uh Line communication cable connection.

Termination resistance setting

- TU2C-LINK / TCC-LINK termination resistance setting .....<For TCC-LINK>
  Leave just 1 line of the termination resistance in the interface board of the outdoor unit (centre unit) ON, and turn all the others OFF. (Refer to the wiring diagram attached to the outdoor unit for the position of SW.)
  <For TU2C-LINK>
  For the central control wiring (Uh line), set the termination resistance that is farthest away on the wiring between this central controller and the other unit (VRF, light commercial, air to air heat exchanger, general purpose control interface, air to water heat pump) to ON.

Refer to the manual of each model for the termination resistance setting method.



Termination resistance ON **Termination resistance OFF** **Termination resistance ON**

Shield grounding process

- Central control wiring shielded wire .....When using the central remote controller with one unit, open the shielded wire of the central control wiring and perform insulation processing.
  When using the central remote controller with multiple units, connect the shield of the central control wiring to the closed end and open the shield at the final end of the central remote controller to perform insulation processing.
  Perform the central control wiring shield grounding on the air conditioner side.

REQUIREMENT

- Be sure to install a circuit breaker or all-pole isolating switch (with a contact breaking distance of at least 0.12" (3 mm)) on the primary side of the power supply.
- Fasten the screws to the terminal block with torque of 0.37 lbf • ft (0.5 N•m).

■ Design of Control Wiring

Communication method and model name

The TU2C-LINK model (U series) can be used together with previous models (other than U series).
For details of the model and communication method, see the following table.

Communication method	TU2C-LINK (U series)	TCC-LINK (other than U series)
Outdoor unit	MMY-M**U**P*** U series model	Other than on the left (MMY-MAP***, MCY-MAP***, etc.)
Indoor unit	MM*-**U**P*** U series model	Other than on the left (MM*-AP***, etc.)
Wired remote controller	RBC-AMS**U**** U series model	Other than on the left
Wireless remote controller receiver	RBC-AXR**U**** U series model TCB-AXR**U**** U series model	Other than on the left
Central control device	***-****U**** U series model	Other than on the left

NOTE

The equipment that can be displayed may vary depending on the country or region.
For details contact our sales personnel.

When the connected outdoor unit is Super Multi u series (U series)

Follow the wiring specifications in the table below even when there is a mix of U series and non-U series in the connected indoor units or remote controllers.

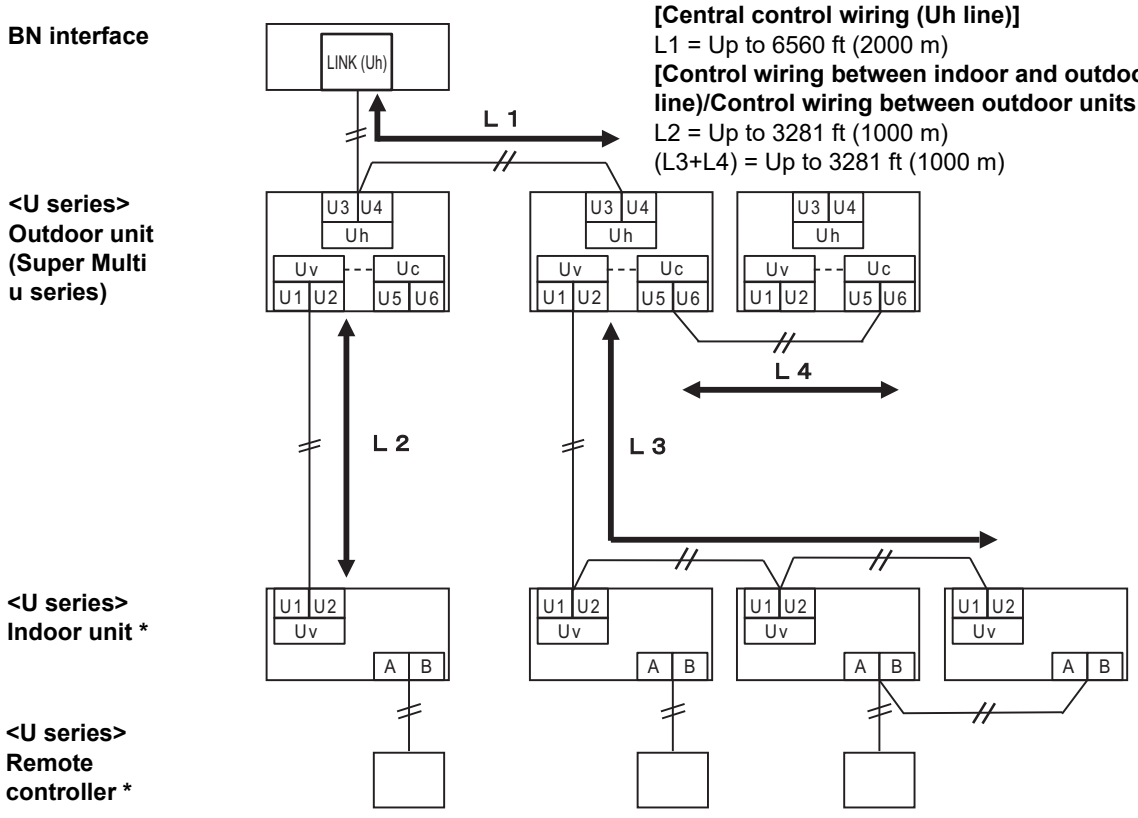
Wiring specifications

Item	Communication line
	Central control wiring (Uh line)
Wire diameter	AWG16: Up to 3281 ft (1000 m)
	AWG14: Up to 6560 ft (2000 m)
Wire type	2-core, non-polar
Wire types that can be used	Shielded wire

REQUIREMENT

When wiring the control wiring between indoor and outdoor units (Uv line)/control wiring between outdoor units (Uc line) and the central control wiring (Uh line), use the same wire type and diameter for each line.
Using a mixture of different wire types and diameters may cause a communication error.

System diagram



[Central control wiring (Uh line)]
L1 = Up to 6560 ft (2000 m)
[Control wiring between indoor and outdoor units (Uv line)/Control wiring between outdoor units (Uc line)]
L2 = Up to 3281 ft (1000 m)
(L3+L4) = Up to 3281 ft (1000 m)

* The wiring specifications in the system diagram above are the same even when the indoor unit or remote controller are other than the U series.

When the connected outdoor units are other than Super Multi u series (U series)

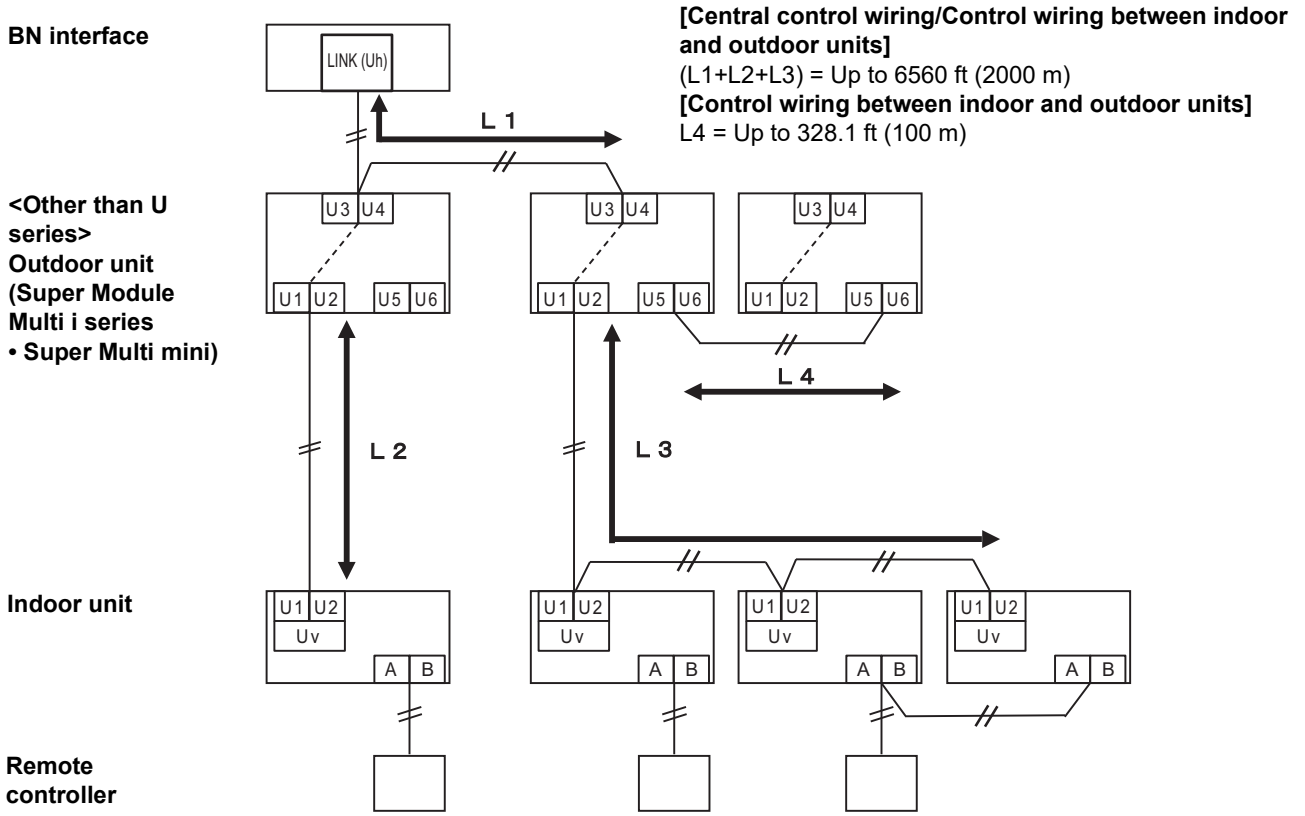
Wiring specifications

Item	Communication line
	Control wiring between indoor and outdoor units and central control wiring
Wire diameter	AWG16: Up to 3281 ft (1000 m)
	AWG14: Up to 6560 ft (2000 m)
Wire type	2-core, non-polar
Wire types that can be used	Shielded wire

REQUIREMENT

When wiring the control wiring between indoor and outdoor units/central control wiring and the control wiring between outdoor units, use the same wire type and diameter for each line.
Using a mixture of different wire types and diameters may cause a communication error.

System diagram



When connecting to a previous model light commercial, air to air heat exchanger, air to water heat pump, or general purpose equipment control interface

Follow the wiring specifications in the table below even when there is a mix of U series and non-U series in the connected indoor units or remote controllers.

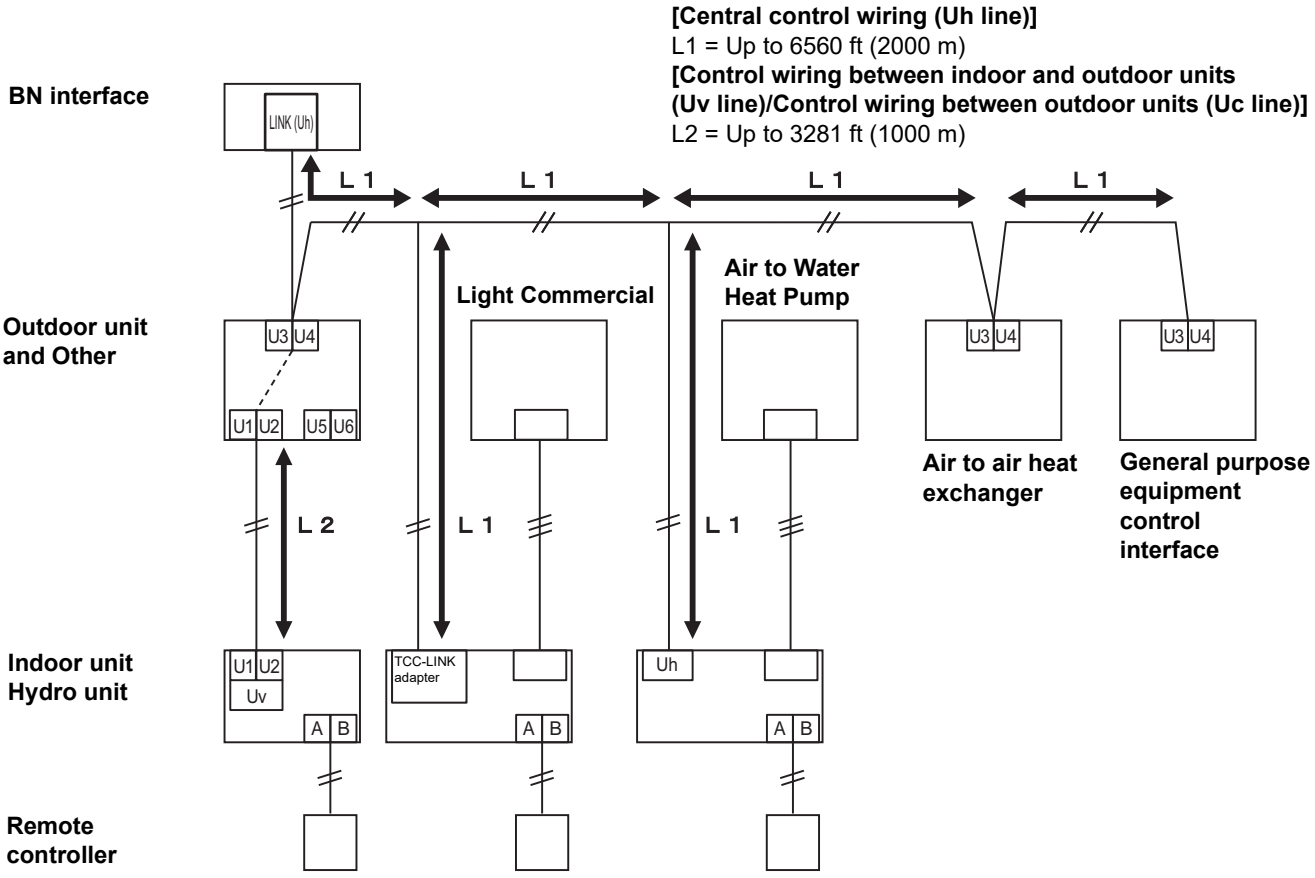
Wiring specifications

Item	Communication line
	Central control wiring (Uh line)
Wire diameter	AWG16: Up to 3281 ft (1000 m)
	AWG14: Up to 6560 ft (2000 m)
Wire type	2-core, non-polar
Wire types that can be used	Shielded wire

REQUIREMENT

When wiring the control wiring between indoor and outdoor units (Uv line)/control wiring between outdoor units (Uc line) and the central control wiring (Uh line), use the same wire type and diameter for each line.
Using a mixture of different wire types and diameters may cause a communication error.

System diagram



8 Startup and Shutdown

8-1. Startup

The BN interface has no power switch. Plug the cable into the socket and then turn the socket on.
The BN interface LED display changes as follows when it is powered.

LED display changes at startup

LED display changes at startup

■ ON
___ OFF
* Control interval (time length of 1 cell): 200 ms

Step	Startup process	LED-L1
1	Energization starts	
2	Preparing to start up	
3	Reading setting files and initializing	
4	Processing BACnet communication settings (time synchronization, etc.)	
5	Operating normally	

Step	Startup process	LED-L1
Step3 ERROR	Startup has stopped due to a settings file error. BN interface stop. (Setting file format error. Number of indoor unit: 0)	
	Startup has stopped due to a settings file error. BN interface stop. (Indoor unit address duplication)	

8-2. Shutdown

The LED display changes as follows when the shutdown button is pressed twice.
After step 2, wait for 1 minute before turning off the power.

Step	Startup process	LED-L1
1	Shutting down	
2	Shutdown is complete	

CAUTION

- Do not hold down the Shutdown button. The BN interface will enter Air-Conditioning Search Mode if the button is pressed for 4 seconds or longer.
- As files are updated while shutting down, wait for 1 minute before turning off the power after step 2.

9 Test run

To perform test run of the BN interface, BACnet communication settings and the equipment data of the connected indoor units are required.

■ Settings, descriptions and configuration method before test run

Device	Item		Factory default settings	Configuration method, device, software
Outdoor unit	Address	Line address	1	DIP switch of outdoor unit board
Indoor unit	Address	Central control address	99/Un	Wired remote controller (except simple wired remote controller)
		Line address	99/Un	Wired remote controller (except simple wired remote controller) Or automatic address setting from the outdoor unit
		Unit address	99/Un	
		Group address	99/Un	
BN interface	IP address	IP address	192.168.1.100	Setting File Creation Software (See “Section 9-1.”) Setting is necessary if there are any changes from the initial values
		Network mask	255.255.255.0	
	BACnet identification number	Instance number of BACnet Device object	100	
	Indoor unit device configuration	Model	Depends on the model	Automatic configuration in the air-conditioning search mode of the BN interface (See “Section 9-2.”)
		Model name	Depends on the model	
		horse power	Depends on the model	
		Serial number	Depends on the model	
		Line address	Depend on Unit(s)	
		Unit address	Depend on Unit(s)	
		Central control address	Depend on Unit(s)	
		Group address	Depend on Unit(s)	
		DN code setting	-	
		Range of operating modes	Depends on the model	
		Range of wind speeds	Depends on the model	
		Range of flaps	Depends on the model	
		Range of temperature settings	Depends on the model	
		Range of ventilation amount	Depends on the model	
		Range of ventilation modes	Depends on the model	
		Any ventilation operation	Depends on the model	
		Any save operation	Depends on the model	

9-1. BACnet Communication Settings

Set the IP address of the BN interface and the device object instance number of the BACnet communications. These setting can set from Engineering Tool. (page 91)

9-2. Indoor Unit Device Information Settings

Obtain the equipment data of the indoor unit that is controlled by the BN interface from the indoor unit via the Uh Line communication cable.

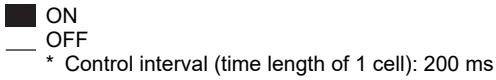
Preparing to set up equipment data in the indoor unit

- Central Control address must be set in the indoor unit you want to control.
  For information on how to set the address, refer to the installation manual of each indoor unit.
- Turn on all indoor and outdoor units. Set up as follows, waiting 10 minutes after turning on all the units.

■ Configuring settings

(1) Turn on the BN interface, and wait until it reaches step 5 of the startup procedure. Refer to “Startup and Shutdown” for details.
(2) Hold down the BN interface Shutdown button for at least 4 seconds. [LED-L1 Step1]
(3) BN interface will start reading the equipment data of the indoor units. [LED-L1 Step2]
(4) When reading of equipment data in the indoor unit ends normally, the BN interface will automatically start. [LED-L1 Step3]
(5) When the preparations for BACnet communications end normally.[LED-L1 Step5]
(6) Check the search results file (SearchObjectLog.tsv) on the BN interface. The engineering tool is required for this “Section 10-3.”. The following are output into the search results file: Execution date/time, number of indoor units found, the BN interface IP address and the “series address_unit address,” model name, specific number, and whether an error occurred for the indoor units found for each central address (1 to 128). Check that the number of indoor units found matches the number of indoor units installed.

LED-L1 and LED-L2 display changes between (3) and (6) above



Step	Air-conditioning search mode process	LED-L1
1	Preparing to search for air conditioners	
2	Searching for air conditioners (After searching, an indoor unit configuration file is output)	
3	Reading setting files and initializing	
4	Processing BACnet communication settings (time synchronization, etc.)	
5	Operating normally	

If an error occurs during reading of equipment data from the indoor unit or when preparing for BACnet communications, LED-L1 will go on.

Step	Air-conditioning search mode process	LED-L1
Step2 ERROR	An error occurred while searching for indoor units and the search was stopped	
Step3 ERROR	Startup has stopped due to a settings file error	

9-3. Search Results File (SearchObjectLog.tsv)

Results of the air conditioner search are output in the search results file. These files are text files separated by tabs.

Indoor unit detection result
1.Execution day/time..... (1)The date and time the search was executed
2.IP address..... (2)The IP address of the BN interface
3.No. of indoor units..... (3)The number of indoor units found
4.Message ..... (4)Error messages
5.TCC-LINK board information ..... (5)Uh Line setting
6.Detection result details..... (6)The addresses and error messages for indoor units found

NetId	Central control address	Indoor unit address	Communication division	Model name	Serial no.	Error
1	1	1_1	OLD	MMU-AP805H	P20120430004	

(7)Line address - Indoor Unit address

Error messages in “4. Message”

No.	Message	Output conditions
1	No error	When normal
2	<Error> Unable to detect the indoor unit because no response has been received.	No indoor units can be found. Shown when 0 indoor units were found.
3	<Error> Too many indoor unit detected.	The maximum number of indoor units has been exceeded.
4	<Error> Cannot communicate with the indoor unit because the air conditioner is performing initialization.	The indoor unit information could not be acquired completely.

Error messages in “Error” in “6. Detection result details”

No.	Message	Content
1	1: Duplicate central control address	The central control address is duplicated.
2	2: Duplicate indoor unit address	The indoor unit address is duplicated.

Example 1: 5 indoor units, central control addresses 1 to 5, search completed normally

1.Execution day/time “2021/05/26 13:15:26.50”
2.IP address 192.168.1.100
3.No. of indoor units 5
No. of outdoor header units 0 , follower units 0
4.Message <Info> Outdoor unit search invalid.
5.TCC-LINK board information
BN-I/F address
0x0401
6.Detection result details

NetId	Central control address	Indoor unit address	Communication division	Model name	Serial no.	Error
1	1	1_1	OLD	MMC-AP0154H-E	P20120430004	
1	2	1_2	OLD	MMC-AP0154H-E	P20120430002	
1	3	1_3	OLD	MMC-AP0154H-E	P20120430001	
1	4	1_4	OLD	MMC-AP0154H-E	P20120430003	
1	5	2_1	OLD	RAV-SM564MUT-E	P20080730218	
1	6					
1	7					
1	127					
1	128					

Example 2: Duplicate central control addresses, indoor unit information Ri** could not be acquired

1.Execution day/time "2021/05/26 13:15:26.50"
2.IP address 192.168.1.100
3.No. of indoor units 4
No. of outdoor header units 0 , follower units 0
4.Message <Info> Outdoor unit search invalid.
5.TCC-LINK board information
BN-I/F address
0x0401
6.Detection result details

NetId	Central control address	Indoor unit address	Communication division	Model name	Serial no.	Error
1	1	1_1	OLD	MMC-AP0154H-E		"2: Data acquisition error(Ri4)"
1	2	1_2	OLD	MMC-AP0154H-E	P20120430002	
1	3	1_3 2_1	OLD	RAV-SM564MUT-E	P20080730218	1:Duplicate central control address"
1	4	1_4	OLD	MMC-AP0154H-E	P20120430003	
1	5					
1	6					

Abbreviated

1	127					
1	128					
NetId	Central control address	Indoor unit address	Communication division	Model name	Serial no.	Error

In the above example, indoor unit 1-3 and indoor unit 2-1 had the same central control address. As the central control address of one of the indoor units is wrong, change the central control address setting.

9-4. LED Display During Normal Operation

When operating normally the LED display is as follows.

LED display during normal operation ◯: Lighting, ◎: Blinking, ●: Lights out

LED	LED color	LED display
POWER	Red	◯
RS485	Green	●
LINK1(Uh)	Orange	◎
LINK2(Uh)	Orange	●
ERROR	Red	●
L1	Green	◎ "Operating normally" state in "Section 8-1.".

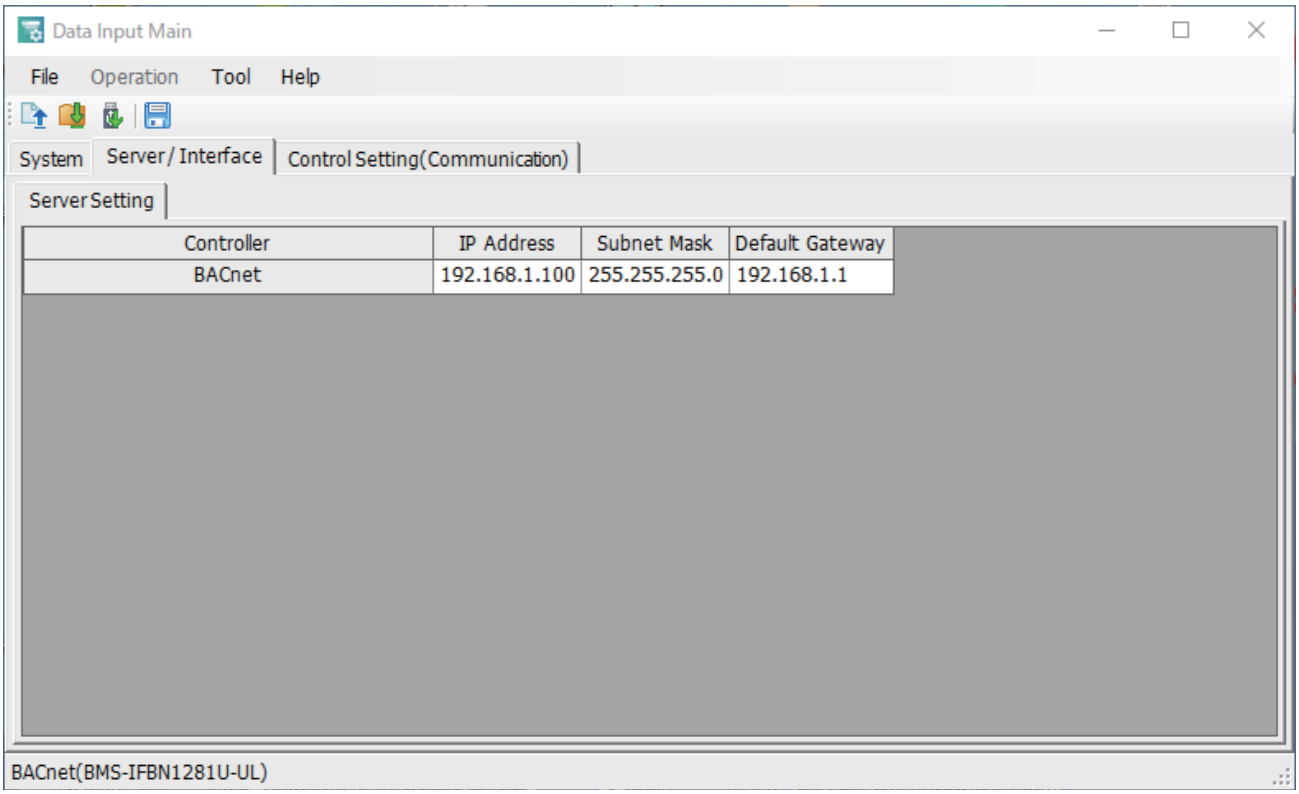
10 Engineering Tool

Refer to the engineering tool manual for details.
Obtaining the Engineering Tool "Setting File Creation Software2"
Engineering tool and manuals can be downloaded from the CARRIER JAPAN "THGP" website.
(https://global-portal.toshiba-carrier.co.jp/software/global/bms)

10-1. IP Address Setting

The default BN interface IP address is set when shipped. Change it using the engineering tool.
(1) Set the BN interface IP address and Subnet Mask in the "Server Setting" input screen on the "Server/Interface" tab.
(2) Use the following function to upload a setting file to the BN interface.
- Uploading a setting file (DEF File)
- Uploading a setting file (DEF File) by the USB Flash Drive

"Server Setting" input screen in the "Server / Interface" tab



CAUTION

- The instance number of the BACnet Device object is set when shipped according to the following rule.
  - Use 1Byte of Last byte of IP Address number

Therefore if the IP address is changed, the BACnet Device object instance number also changes.

10-2. BACnet Device Object Instance Number Setting

The instance number of the BACnet Device object is set when shipped according to the following rule. Change the instance number using the engineering tool.

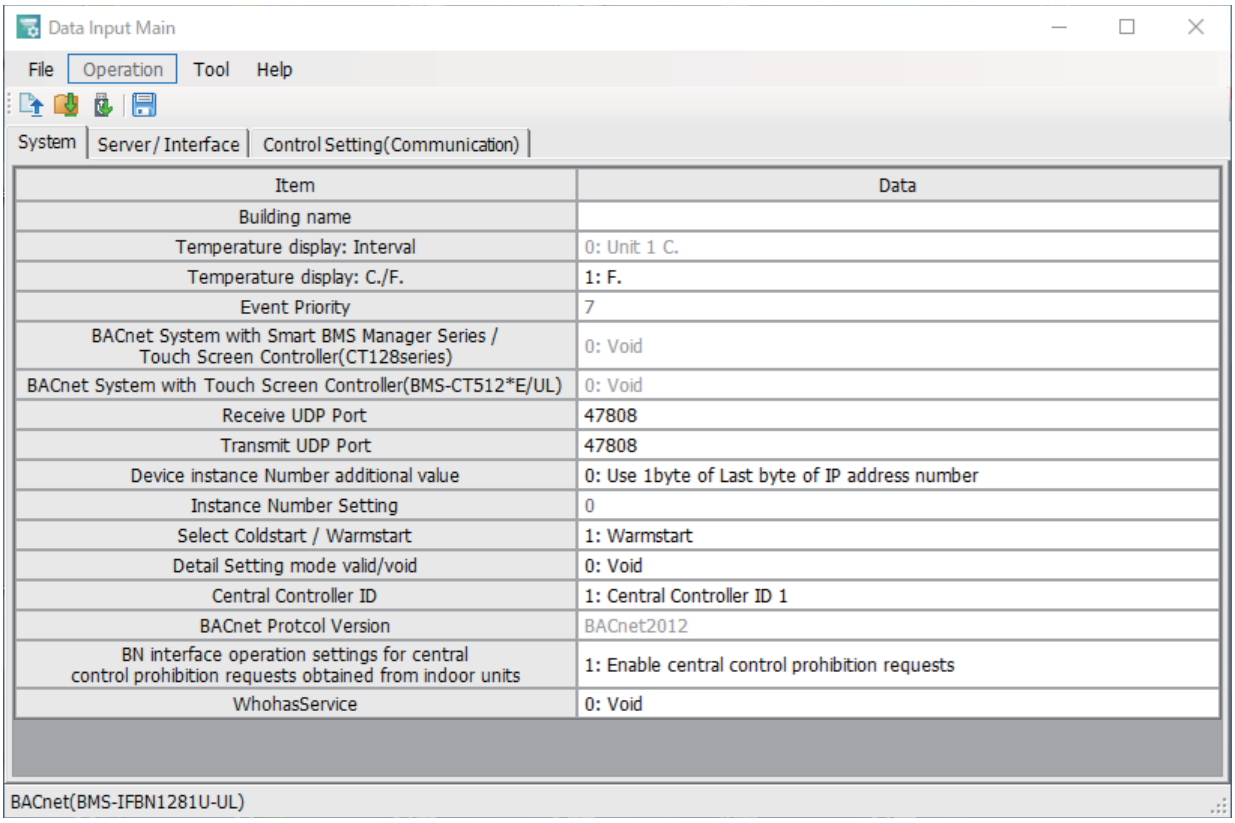
- Use 1Byte of Last byte of IP Address number

(1) Select “2: User Setting” from the “Device instance Number additional value” list in the input screen of the “System” tab. Enter the Device object instance number into “Instance Number Setting”.

(2) Use the following function to upload a setting file to the BN interface.

- Uploading a setting file (DEF File)
- Uploading a setting file (DEF File) by the USB Flash Drive

“System” tab input screen



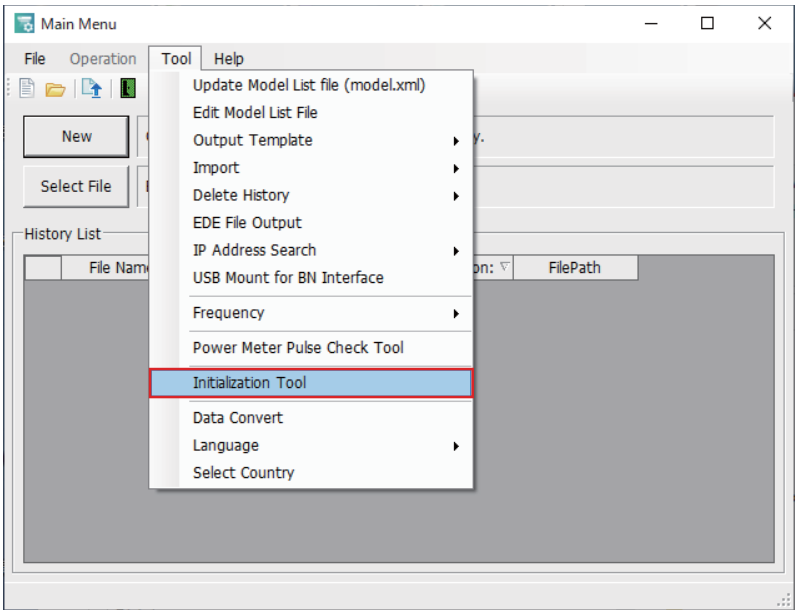
Item	Data
Building name	
Temperature display: Interval	0: Unit 1 C.
Temperature display: C./F.	1: F.
Event Priority	7
BACnet System with Smart BMS Manager Series / Touch Screen Controller(CT128series)	0: Void
BACnet System with Touch Screen Controller(BMS-CT512*E/UL)	0: Void
Receive UDP Port	47808
Transmit UDP Port	47808
Device instance Number additional value	0: Use 1byte of Last byte of IP address number
Instance Number Setting	0
Select Coldstart / Warmstart	1: Warmstart
Detail Setting mode valid/void	0: Void
Central Controller ID	1: Central Controller ID 1
BACnet Protcol Version	BACnet2012
BN interface operation settings for central control prohibition requests obtained from indoor units	1: Enable central control prohibition requests
WhohasService	0: Void

10-3. Acquiring the Search Results File (SearchObjectLog.tsv)

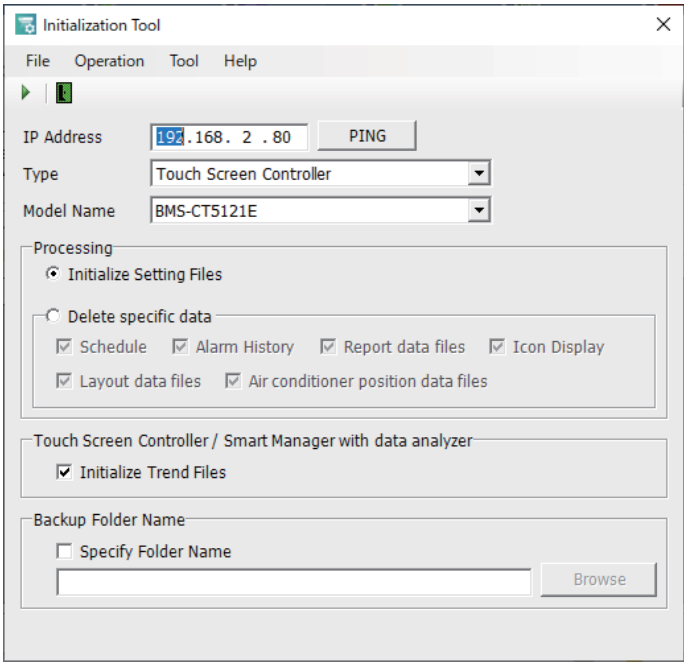
Follow the “SearchObjectLog Download” function procedure in the engineering tool to download the search results file (SearchObjectLog.tsv) to a PC from the BN interface.

“SearchObjectLog Download” function procedure

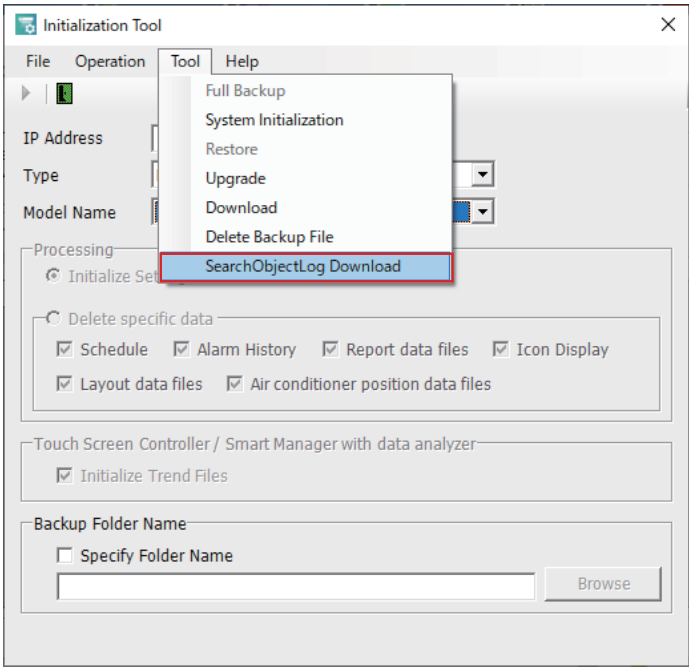
- Execute the “Initialization Tool” submenu in the Tool menu on the Main Menu screen of the engineering tool.



- In the Initialization Tool, change “Type” to “BACnet”.
  Change “Model Name” to “BMS-IFBN1281U-E/-TR” (Global) or “BMS-IFBN1281U-UL” (North America).
  Check the “Specify Folder Name” check box under “Backup Folder Name”, and then specify the download destination folder.



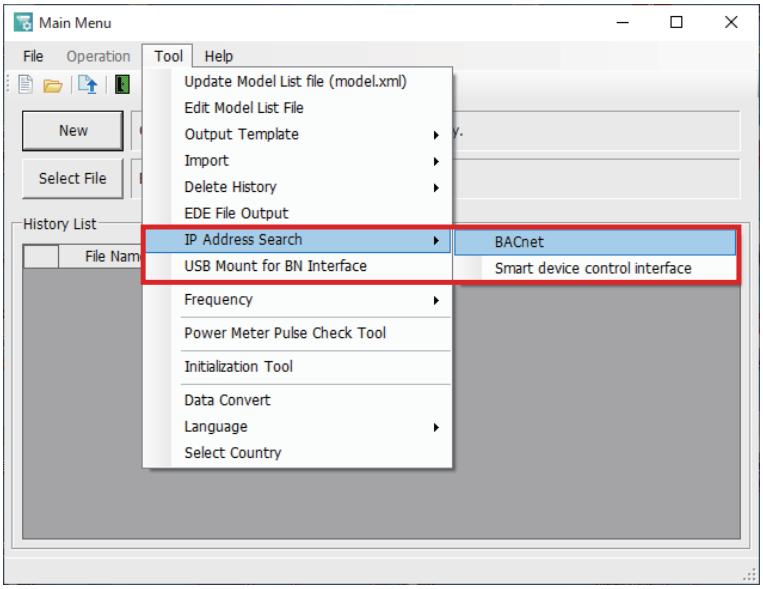
• Execute the “SearchObjectLog Download” submenu in the Tool menu of the Initialization Tool.



10-4. Searching for the BN interface IP Address

If you are unsure of the BN interface IP address, find it using the “IP Address Search” function.

[IP Address Search] in the [Tool] menu



11 Troubleshooting

11-1. During test runs

Problem	Cause	Action
No indoor units can be found (The number of indoor units in the search results file is 0)	The indoor units and outdoor units are turned off.	Check that the indoor units and outdoor units are turned on.
	The indoor units and outdoor units are performing initial communication so cannot be communicated with. (The LINK(Uh) LED is not blinking at all)	Check that the indoor units and outdoor units are turned on. Check that 10 minutes or more has passed since the units were turned on.
	The Uh Line communication cable is not wired correctly.	Check that the wiring is correct.
	No central control address is set to the indoor units.	Check that a central control address is set to the indoor units.
	When indoor units cannot be communicated with after using Setting File Creation Software2 to change "Central controller ID setting" to "Old controller" and upload it to the BN interface. TU2C-LINK compatible outdoor units have judged the communication protocol of the Uh line as TU2C-LINK.	Re-start the TU2C-LINK compatible outdoor units.
	When indoor units cannot be communicated with after using Setting File Creation Software2 to change "Central controller ID setting" to "Old controller" and upload it to the BN interface. The central control addresses of TU2C-LINK compatible indoor units are set as 65—128.	Change the central control addresses of TU2C-LINK compatible indoor units to 1-64.
The central control address of indoor units is duplicated. (Error message in search results file)	Multiple indoor units are set to the same central control address.	Check that the central control address for each indoor unit is set correctly.
Indoor unit information could not be acquired. (Error message in search results file)	Uh Line communication did not work	Check that the Uh Line communication termination resistance is set. Try searching for air conditioners again.
The central controller ID of the Uh Line compatible central control device and the central controller ID of the BN Interface are duplicated. (Error message in search results file)	The same central controller ID is set.	Change the central controller ID. Change the central controller ID of the BN interface with Setting File Creation Software2. The central controller ID at the time of factory shipping is central controller ID 20.
When operation of an indoor unit is performed from a central monitoring system, a different indoor unit goes into operation state.	The central control address, Line address, or unit address of indoor units has been changed after a test run of the BN interface.	Check the central control address, Line address, and unit address of indoor units If the central control address, Line address, or unit address of any indoor units has been changed, perform the procedure of “9 Test run”.

Problem	Cause	Action
A request frame was sent to the BN interface via BACnet communication but no response frame was returned.	• The IP Address or network mask setting is wrong • The LAN cable is not connected • The LAN port is malfunctioning	Check the following. • Whether a response is sent when a ping command is sent from a PC. • Whether the LAN cable is connected to the BN interface. • Whether LED1 in the LAN port of the BN interface is lit. • Whether LED2 in the LAN port of the BN interface is lit or blinking.
	• BN interface is not running	Check the following. • The LED-L1 is in the “Operating normally” state shown in “Section 8-1.”. • If BN interface is starting up, wait until it starts up normally.
A Notice Code has been issued on the air conditioner side, but the value of the "Notice Code" object has not changed.	• This object can be used by the TU2C-LINK model. • In order to issue a notice code, the notice code must be registered on the air conditioner side.	For details of notice code, refer to the air conditioner service manual.
A High_Limit error or Low_Limit error occurred when the temperature setting was changed with the "Auto Cool Set temperature Control" object or "Auto Heat Set temperature Control" object.	The temperature settings must meet the following requirement. "Auto cool temperature setting ≥ Auto heat temperature setting"	Set the temperature so that the requirement indicated in the left-hand column is met.

11-2. When starting up BN interface

Problem	Cause	Action
LED-L1 is lit	There is an error in the settings file.	• Execute Air-Conditioning Search Mode again. **CAUTION** The indoor units and outdoor units that are the target of the search must be turned on when Air-Conditioning Search Mode is executed.
	The unit addresses of the indoor units are overlapped.	Identify the overlaps in the addresses of the indoor units and change the addresses.
	• The BN interface has stopped communicating because the indoor units are conducting their initial sequence communication. • The BN interface has been set to operate in conjunction with another air conditioning controller.	• Check whether there is an air conditioning unit for which only the indoor units are powered on. • In the case of a system for combination use with another air conditioning controller, this is normal. In the case that it is not a system for combination use, check the settings of the Setting File Creation Software2.

11-3. When Using BN interface

Problem	Cause	Action
A request frame was sent to the BN interface via BACnet communication but no response frame was returned.	The BN interface internal software has stopped.	After shutting down BN interface, reset the power.
The time written in the BACnet communication response frame is slower than the current time	The BN interface internal clock is slow.	Send BACnet Time Synchronization Service from Building Management System to set the time.

Problem	Cause	Action
The status of an indoor unit acquired by BACnet communication differs from the remote control display.	When the BN interface and air conditioning management controller are not being used together, the "LINK(Uh)" LED of the BN interface is not blinking.	Confirm whether power is being supplied to the indoor and outdoor units. **NOTE** When only the VRF indoor unit or outdoor unit has power supplied to it, because the initialization of VRF has not been completed, the BN interface stops communication.
	The central control address, Line address, or unit address of indoor units has been changed after a test run of the BN interface.	Check the central control address, Line address, and unit address of indoor units If the central control address, Line address, or unit address of any indoor units has been changed, perform the procedure of “9 Test run”.
	When the BN interface and air conditioning management controller were being used together, the power for the air conditioning management controller was turned OFF. **NOTE** When used in combination with the air conditioning management controller, the "LINK(Uh)" LED of the BN interface does not blink.	Turn ON the power for the air conditioning management controller.
	A TU2C-LINK non-compatible Central Remote Controller and BN interface are being used together.	Because the Central Remote Controller Communicates with the indoor unit every 4 minutes, updating of the indoor unit status on BN interface is every 4 minutes.
When operation of an indoor unit is performed from a central monitoring system, a different indoor unit goes into operation state.	The central control address, Line address, or unit address of indoor units has been changed after a test run of the BN interface.	Check the central control address, Line address, and unit address of indoor units If the central control address, Line address, or unit address of any indoor units has been changed, perform the procedure of “9 Test run”.

LED Status	Cause	Action
LED-L1 is unlit	The BN interface internal software has stopped due to: • Shutdown • Disconnection • Other malfunction	Reset the BN interface power.
LED-L1 is lit	The BN interface internal software has stopped due to: • Other malfunction	After shutting down BN interface, reset the power.
LED-L1 is blinking (during normal operation), and LED-LINK(Uh) is unlit	The BN interface cannot send a Uh Line communication command to indoor units.	Check that the indoor units and outdoor units are turned on. Check if VRF System is initializing. Check that the communication wiring is not broken.
LED-L1 is blinking (during normal operation), LED-LINK(Uh) is blinking (during normal operation)	The BN interface internal software has stopped due to: • Other malfunction	After shutting down BN interface, reset the power.

11-4. Directly After Changing the microSD Card (Service Component)

Problem	Cause	Action
Startup step 1 The LED display does not LED-L1 is unlit.	The BN interface internal microSD card has malfunctioned.	Check that the microSD card is inserted correctly. Check that the microSD card is inserted in the correct slot.
Startup step 4 (LED-L1 is lit)	There is an error in the settings file.	Execute Air-Conditioning Search Mode again. **CAUTION** Check that the search target indoor units and outdoor units are turned on.
The indoor unit configuration acquired using BACnet communication is wrong	It has not been changed from the default setting.	Carry out a test run.
The IP address of the BN interface is wrong	It has not been changed from the default setting.	Use the engineering tool to change the IP address.
The instance number of the BACnet Device object is wrong	It has not been changed from the default setting.	Use the engineering tool to change the instance number.

11-5. When the Power Supply to the Indoor Units Is Interrupted

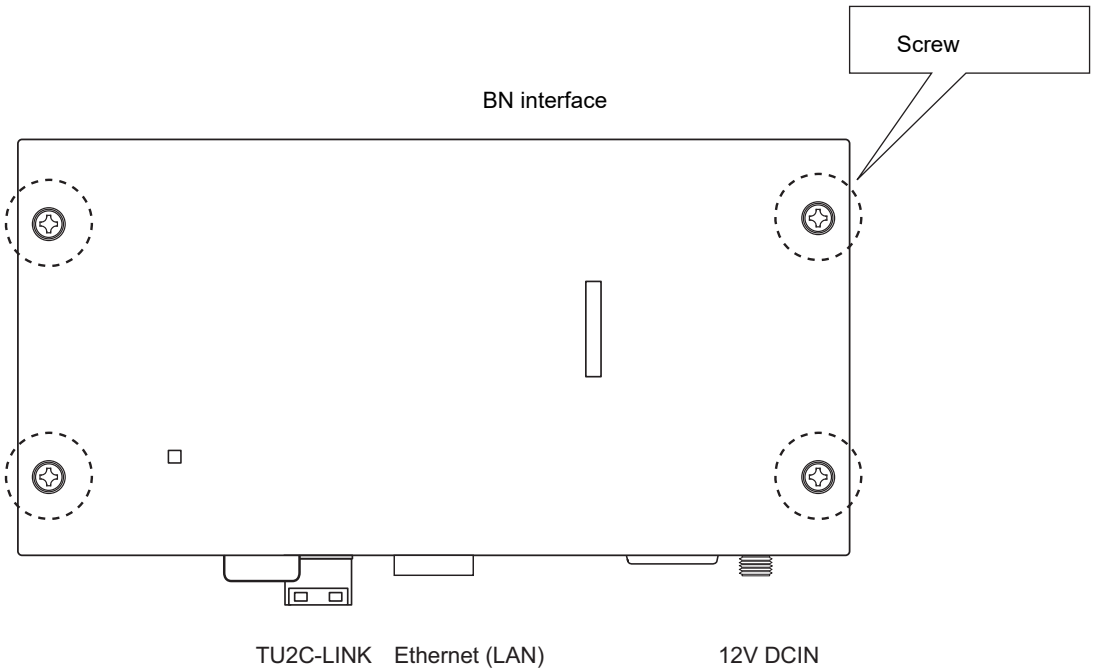
Problem	Cause	Action
The Present Value property of the Input Object (Section 3-3.) is 0, 1, or another initial value. <Initial values>	While the power supply to the indoor units has been interrupted, power is supplied to the BN interface.	Power on the indoor units.
The Present Value property of the Input Object (Section 3-3.) has not changed after a test run of the BN interface.	The power supply to the indoor units has been interrupted.	Power on the indoor units.
The FAULT bit and the IN_ALARM bit of the Status_Flags property of the Input Object (Section 3-3.) are TRUE.	The power supply to the indoor units has been interrupted.	Power on the indoor units.
The Reliability property of the Input Object, described in “Section 3-3.”, is unreliable-other (7).	The power supply to the indoor units has been interrupted.	Power on the indoor units.

Input Object	Present Value
ON/OFF Status	0:inactive
Operation Mode	2:Cooling
Set Temperature	25°C, 77F
Room Temperature	18°C, 64F
Fan Speed	4:H
Louver	7:stop
Filter Sign	0:inactive
Permit / Prohibit of Local	1:Permit

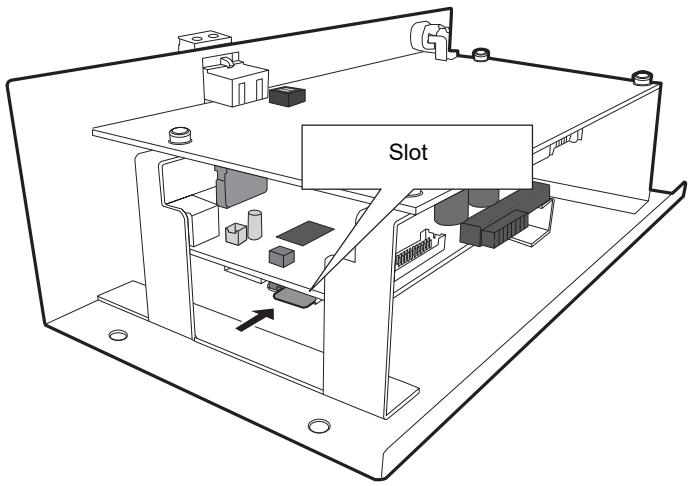
12 Replacing Service Parts

12-1. Replacing the microSD Card

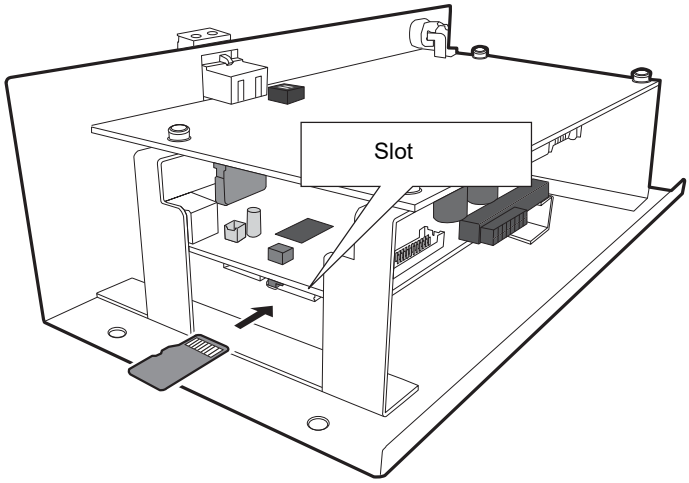
(1) Turn off the BN interface.
(2) Remove the 4 screws on the front panel of the BN interface.



(3) Push the microSD card into the slot until you hear a click and remove the card.



(4) Insert the microSD card into the slot and push it in until you hear a sound.



(5) Turn on the BN interface power, and operate as in a test run.

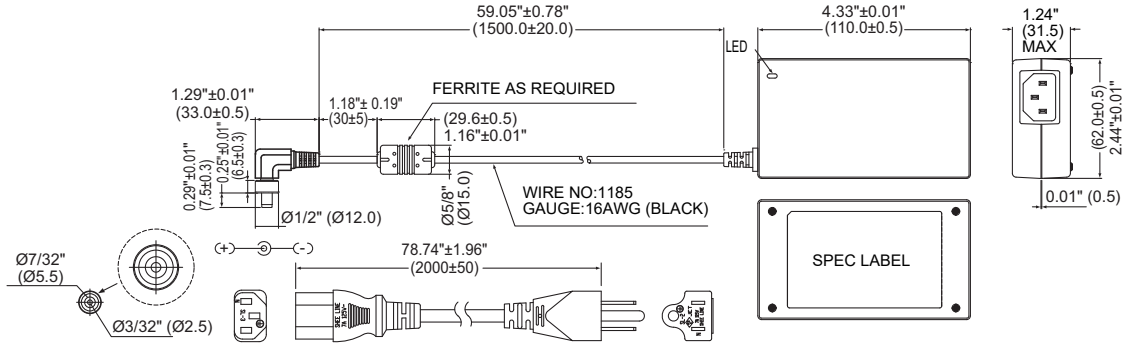
CAUTION

- Do not leave the card hanging out of the slot.

12-2. Replacing the Power Adaptor

(1) Turn off the BN interface, and replace the power adaptor.
(2) Remove the ferrite core from the power cord.
(3) Attach the ferrite core to the replacement power cord in the same way.

(Power adapter)



13 Service Component List

For BMS-IFBN1281U-UL

No.	Component name	Component code	Outline	Quantity used
1	microSD card	4316W077	Specialized microSD card containing BN interface software	1
2	Power adaptor	4316V581	Power adaptor for the BN interface	1

CAUTION

- The microSD card cannot be used with Windows. Do not insert it into a Windows PC. If the microSD card is inserted into a Windows PC, the contents may be corrupted.
- Do not remove the microSD card from the BN interface for any reason other than to replace it.

14 Systems in which the BN interface is used in conjunction with another air conditioning controller

This chapter explains about systems in which the BN interface is used in conjunction with another air conditioning controller.

NOTE

As for the version of the Setting File Creation Software2, use v1.6.0.0 (March, 2023) or later.

14-1. Compatible Air Conditioning Controllers

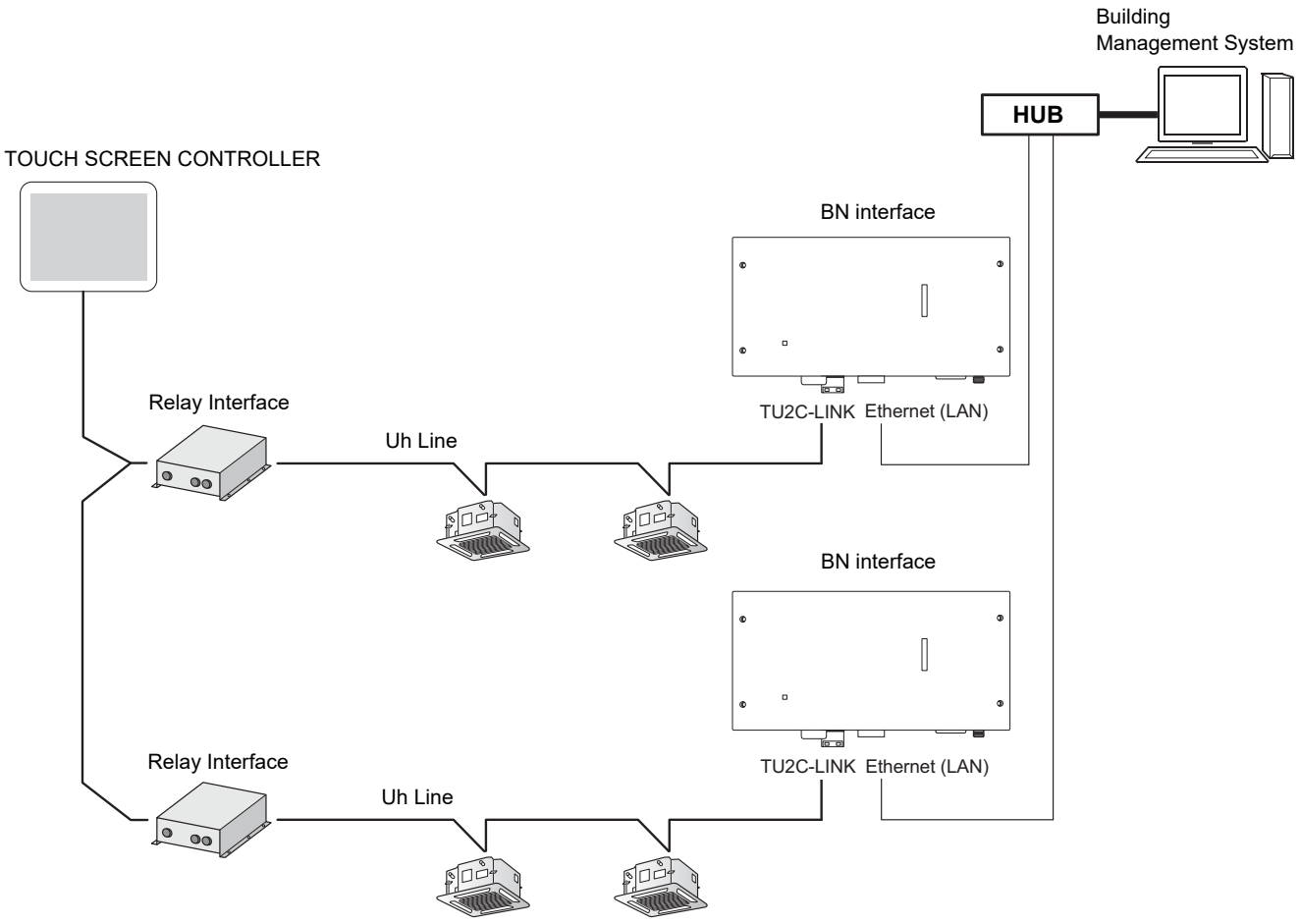
The BN interface can be used in conjunction with one of the following air conditioning controllers. Note that it cannot be used simultaneously with multiple air conditioning controllers.

Uh Line communication protocol	Air Conditioning Controller	Representative model name
TU2C-LINK non-compatible	Touch Screen Controller (BMS-TP1 series, BMS-CT series)	BMS-CT5120UL BMS-CT1280UL
	Smart BMS Manager or Smart BMS Manager with data analyzer	BMS-SM1280HTLUL
TU2C-LINK compatible	Touch Screen Controller	BMS-CT2560U-UL
	Central Remote Controller	TCB-SC640U-UL

14-2. System for Combination Use with the TOUCH SCREEN CONTROLLER (BMS-CT5120UL)

14-2-1. System configuration

Wire the devices as shown below:



14-2-2. Preparation for the test run

When using multiple BN interfaces, set different numbers for the IP addresses and the BACnet Device object instance numbers so that they do not overlap.

BN interface	IP address	Instance number for BACnet Device object
No. 1	192.168.1.100	100
No. 2	192.168.1.101	101

14-2-3. Test run procedure

(1) Set the line addresses, unit addresses, and central control address for the indoor units.
(2) Carry out a test run of the TOUCH SCREEN CONTROLLER.
(3) Turn off the power to the relay interfaces of the TOUCH SCREEN CONTROLLER.
(4) Power on the BN interface.

CAUTION

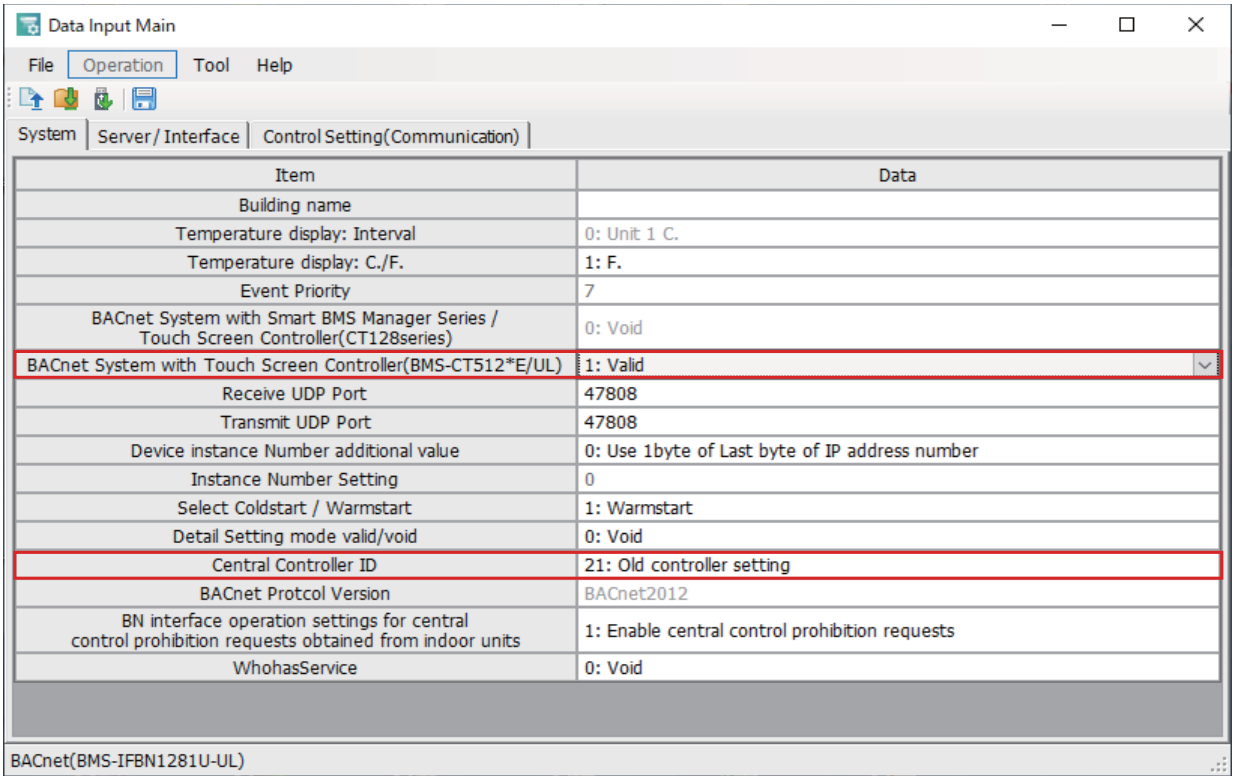
The IP addresses of BN interface units overlap at the time of shipment from the factory. Therefore, when using two or more in combination, do not power on both devices simultaneously.

After powering on the BN interface, wait for about 10 minutes until the status LEDs indicate that it is properly started (LED-L1 is blinking in the Operating normal state in “Section 8-1.”).

(5) BACnet Communication Settings (see “Section 9-1.”)
Set IP addresses, etc. by using the Setting File Creation Software.
Remember to change the IP address on your PC to 192.168.1.** in order to upload the settings file to the BN interface.
(** indicates any number from 2 to 250.)

NOTE

When using the BACnet System in conjunction with the TOUCH SCREEN CONTROLLER, navigate to the below-indicated page in the Setting File Creation Software2.
Among "System" settings, for "Central controller ID setting", select "Old controller".
Set the value for “BACnet System with Touch Screen Controller (BMS-CT512*E/UL)” to “1: Valid” and set the value for “BACnet System with Smart BMS Manager Series” to “0: Void”.



In the Setting File Creation Software2, enter the IP address for the BN interface and set the BACnet Device object numbers.
Once these have been entered, upload the settings file to the BN interface from the Setting File Creation Software2.
Once the settings file has been uploaded, the BN interface will automatically restart.
When the BN interface has properly started, LED-L1 is blinking in the Operating normal state in “Section 8-1.”.

(6) Indoor Unit Device Information Settings (see Sections 9-2. through to 9-4.)

NOTE

Before executing air-conditioning search mode, be sure to turn off the power to the relay interfaces of the TOUCH SCREEN CONTROLLER.
If a communication collision occurs between the relay interface and the BN interface at a Uh Line bus, proper communication with the indoor units will be interrupted, preventing creation of the settings file.

(7) Repeat the above procedures (4), (5), and (6) for the second BN interface.
(8) After completing all of the procedures to set up the BN interfaces, power on the relay interfaces of the TOUCH SCREEN CONTROLLER.

NOTE

As the master controller of the Uh Line main bus, the relay interfaces of the TOUCH SCREEN CONTROLLER routinely communicate with the indoor units in order to ascertain their status.
The “LINK(Uh)” LED (orange) does not blink because the BN interface has stopped communicating with the indoor unit as a result of being set for combination use.
When the power to the relay interfaces of the TOUCH SCREEN CONTROLLER is interrupted, the BACnet system is also affected. This will result in a communication error with the indoor units.

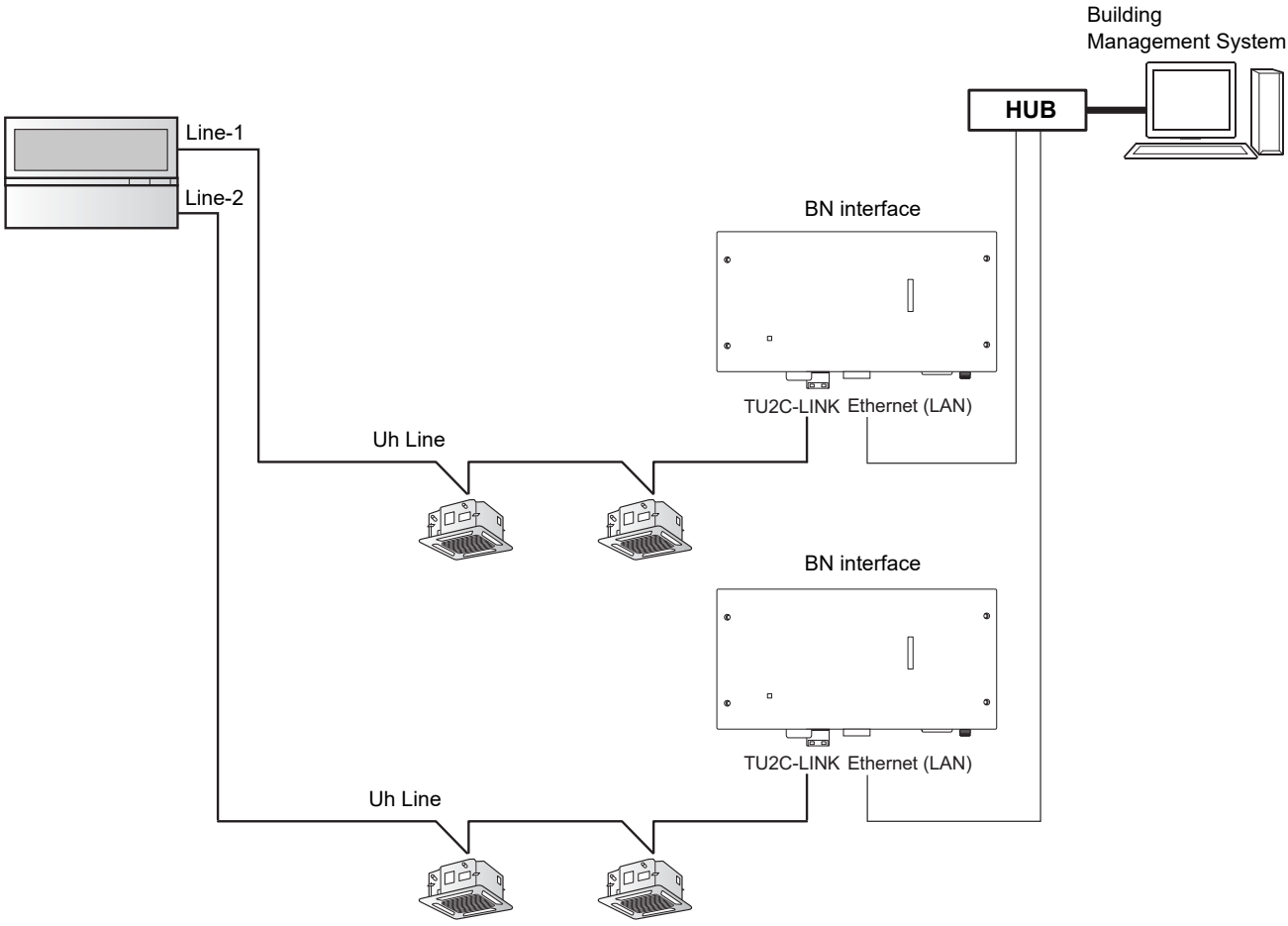
NOTE

Whenever the following changes are made, the process described at step (6) (above) needs to be repeated.
- The central control address, Line address, or unit address of the indoor units is changed;
- The address of an individual or the base unit of the indoor remote control group is changed (line address, unit address);
- An indoor remote control group is added or removed;
- The display setting for the remote control for the indoor units (individual units, base unit) is changed.
  - Operation mode
  - Upper/lower limit for the temperature setting
  - Availability of the ventilation function

14-3. System for Combination Use with Smart BMS Manager

14-3-1. System configuration

Wire the devices as shown below:



14-3-2. Preparation for test run

When using multiple BN interfaces, set different numbers for the IP addresses and the BACnet Device object instance numbers so that they do not overlap.

BN interface	IP address	Instance number for BACnet Device object
No. 1	192.168.1.100	100
No. 2	192.168.1.101	101

14-3-3. Procedure for test run

(1) Set the line addresses, unit addresses, and central control address for the indoor units.
(2) Conduct a test run of the Smart BMS Manager.
(3) Turn off the power to the Smart BMS Manager.
(4) Power on the BN interface.

CAUTION

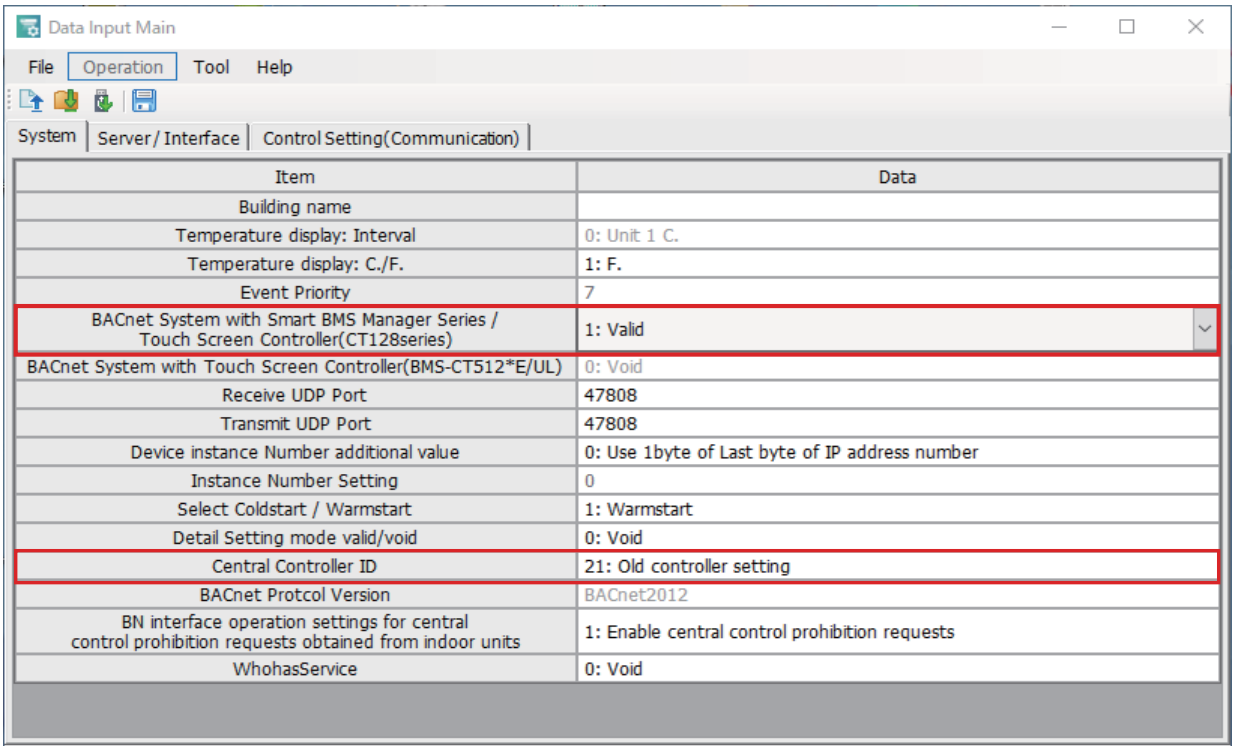
The IP addresses of BN interface units overlap at the time of shipment from the factory. Therefore, when using two or more in combination, do not power on both devices simultaneously.

After powering on the BN interface, wait for about 10 minutes until the status LEDs indicate that it is properly started (LED-L1 is blinking in the Operating normal state in “Section 8-1.”).

(5) BACnet Communication Settings (see “Section 9-1.”)
Set IP addresses, etc. by using the Setting File Creation Software.
Remember to change the IP address on your PC to 192.168.1.** in order to upload the settings file to the BN interface.
(** indicates any number from 2 to 250.)

NOTE

When using the BACnet System in conjunction with Smart BMS Manager, go to the below-indicated page in the Setting File Creation Software2.
Among "System" settings, for "Central controller ID setting", select "Old controller".
Set the value for “BACnet System with Smart BMS Manager Series” to “1: Valid” and set the value for “BACnet System with Touch Screen Controller (BMS-CT512*E/UL)” to “0: Void”.



In the Setting File Creation Software2, enter the IP address for the BN interface and set the BACnet Device object numbers.
Once these have been entered, upload the settings file to the BN interface from the Setting File Creation Software2.
Once the settings file has been uploaded, the BN interface will automatically restart.
When the BN interface has properly started, LED-L1 is blinking in the Operating normal state in “Section 8-1.”.

(6) Indoor Unit Device Information Settings (see Sections 9-2. through to 9-4.)

NOTE

Before executing air-conditioning search mode, be sure to turn off the power to Smart BMS Manager.
If a communication collision occurs between Smart BMS Manager and the BN interface at a Uh Line bus, proper communication with the indoor units will be interrupted, preventing creation of the settings file.

(7) Repeat the above procedures (4), (5), and (6) for the second BN interface.
(8) After completing all of the procedures to set up the BN interfaces, power on the Smart BMS Manager.

NOTE

As the master controller of the Uh Line main bus, Smart BMS Manager routinely communicates with the indoor units in order to ascertain their status.
The “LINK(Uh)” LED (orange) does not blink because the BN interface has stopped communicating with the indoor unit as a result of being set for combination use.
When the power to the Smart BMS Manager is interrupted, the BACnet system is also affected. This will result in a communication error with the indoor units.

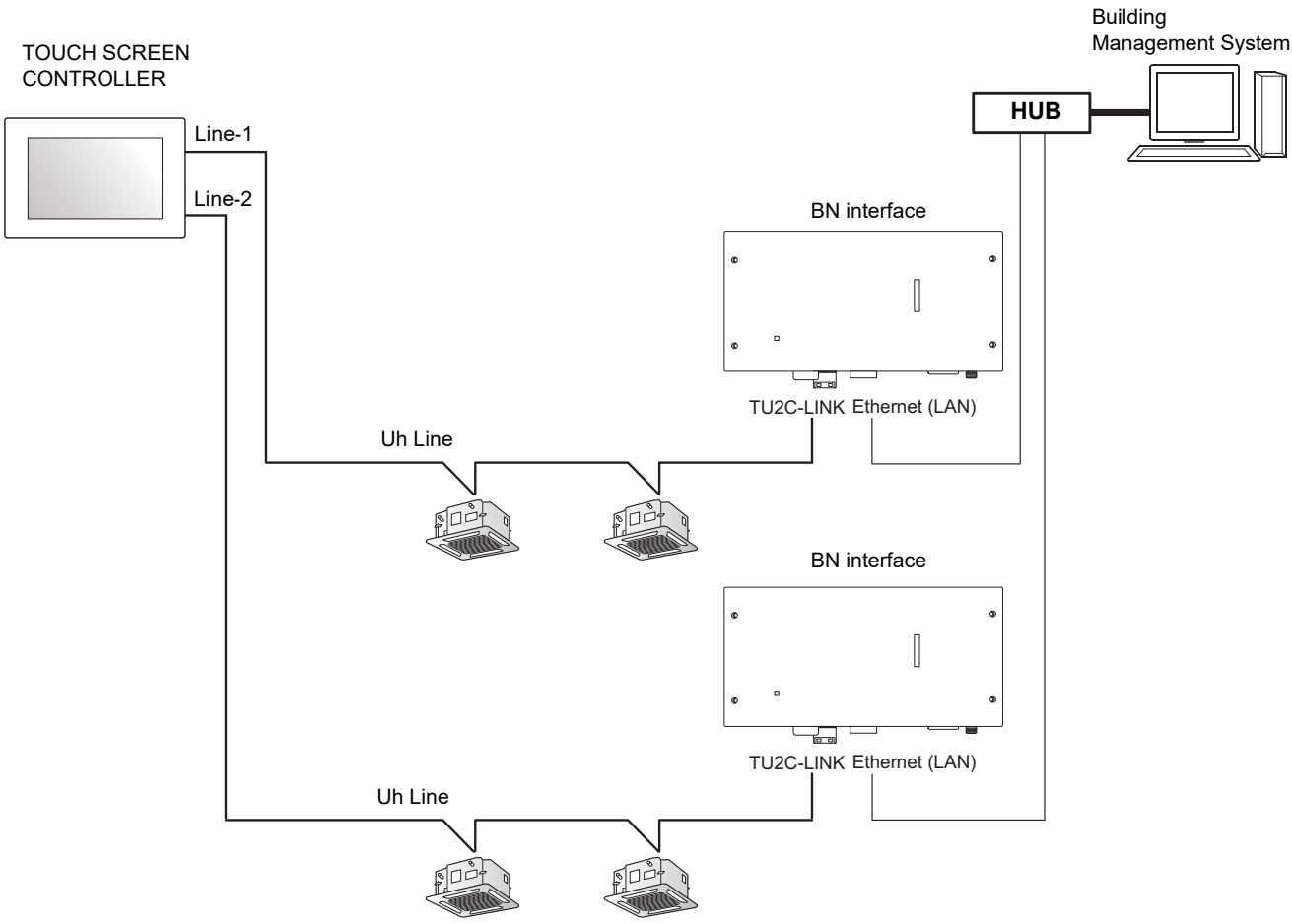
NOTE

Whenever the following changes are made, the process described at step (6) (above) needs to be repeated.
- The central control address, Line address, or unit address of the indoor units is changed;
- The address of an individual or the base unit of the indoor remote control group is changed (line address, unit address);
- An indoor remote control group is added or removed;
- The display setting for the remote control for the indoor units (individual units, base unit) is changed.
  - Operation mode
  - Upper/lower limit for the temperature setting
  - Availability of the ventilation function

14-4. System for Combination Use with Touch Screen Controller (BMS-CT2560U-UL)

14-4-1. System configuration

Wire the devices as shown below:



14-4-2. Preparation for test run

When using multiple BN interfaces, set different numbers for the IP addresses and the BACnet Device object instance numbers so that they do not overlap.

BN interface	IP address	Instance number for BACnet Device object
No. 1	192.168.1.100	100
No. 2	192.168.1.101	101

14-4-3. Procedure for test run

(1) Set the line addresses, unit addresses, and central control address for the indoor units.
(2) Conduct a test run of the Touch Screen Controller.
(3) Turn off the power to the Touch Screen Controller.
(4) Power on the BN interface.

CAUTION

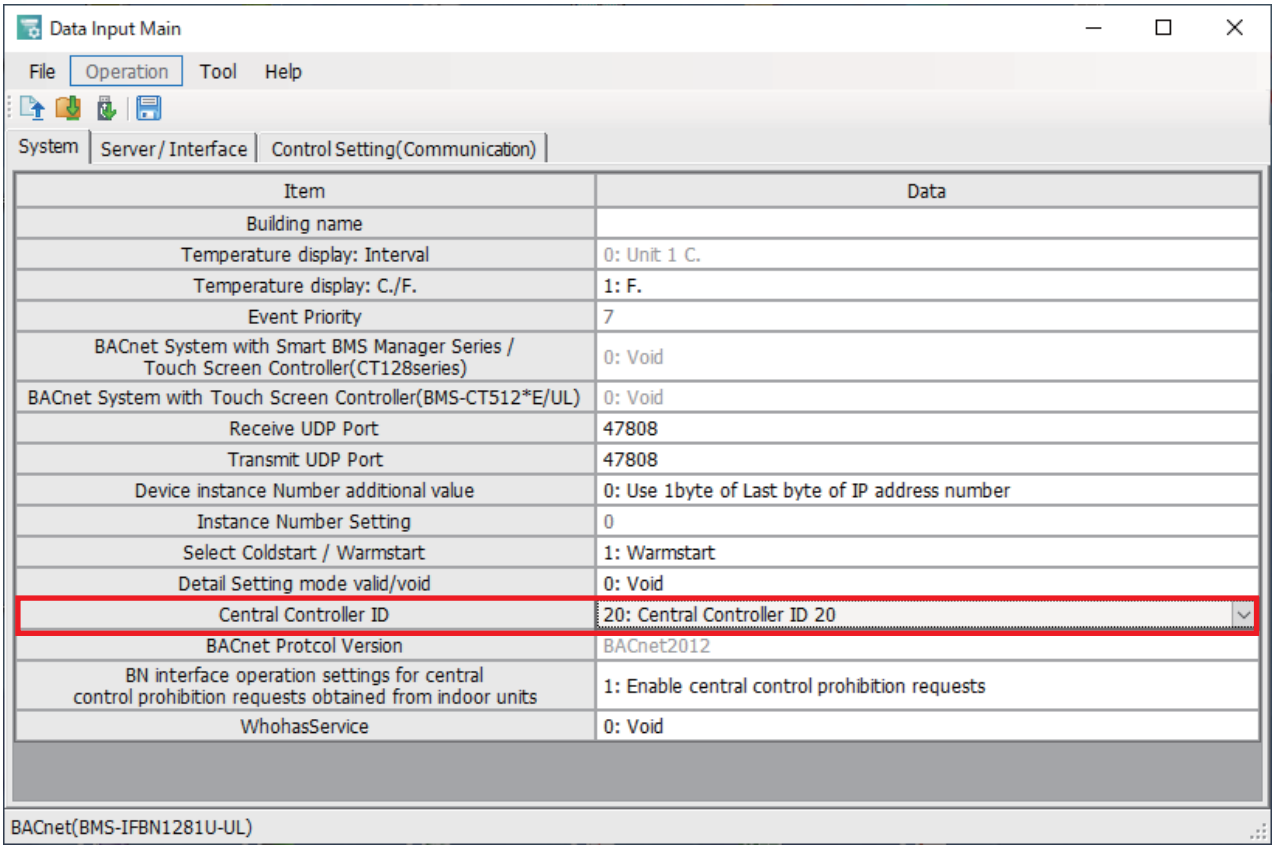
The IP addresses of BN interface units overlap at the time of shipment from the factory. Therefore, when using two or more in combination, do not power on both devices simultaneously.

After powering on the BN interface, wait for about 10 minutes until the status LEDs indicate that it is properly started (LED-L1 is blinking in the Operating normal state in “Section 8-1.”).

(5) BACnet Communication Settings (see “Section 9-1.”)
Set IP addresses, etc. by using the Setting File Creation Software.
Remember to change the IP address on your PC to 192.168.1.** in order to upload the settings file to the BN interface.
(** indicates any number from 2 to 250.)

NOTE

For combination use with Touch Screen Controller (BMS-CT2560U-E), with the Setting File Creation Software2, select central controller ID 20 (default) for "Central controller ID setting" on the following screen.



In the Setting File Creation Software2, enter the IP address for the BN interface and set the BACnet Device object numbers.
Once these have been entered, upload the settings file to the BN interface from the Setting File Creation Software2.
Once the settings file has been uploaded, the BN interface will automatically restart.
When the BN interface has properly started, LED-L1 is blinking in the Operating normal state in “Section 8-1.”.

(6) Indoor Unit Device Information Settings (see Sections 9-2. through to 9-4.)

NOTE

Before executing air-conditioning search mode, be sure to turn off the power to Touch Screen Controller.
If there is a communication collision on Uh Line between the Touch Screen Controller and BN interface, the indoor units cannot be properly communicated with, and a setting file cannot be created.

(7) Repeat the above procedures (4), (5), and (6) for the second BN interface.
(8) After completing all of the procedures to set up the BN interfaces, power on the Touch Screen Controller.

NOTE

As the Uh line main bus master controller, the Touch Screen Controller performs regular communication with the indoor units to acquire their operation status.
The “LINK(Uh)” LED (orange) does not blink because the BN interface has stopped communicating with the indoor unit as a result of being set for combination use.
When the power to the Touch Screen Controller is interrupted, the BACnet system is also affected. This will result in a communication error with the indoor units.

NOTE

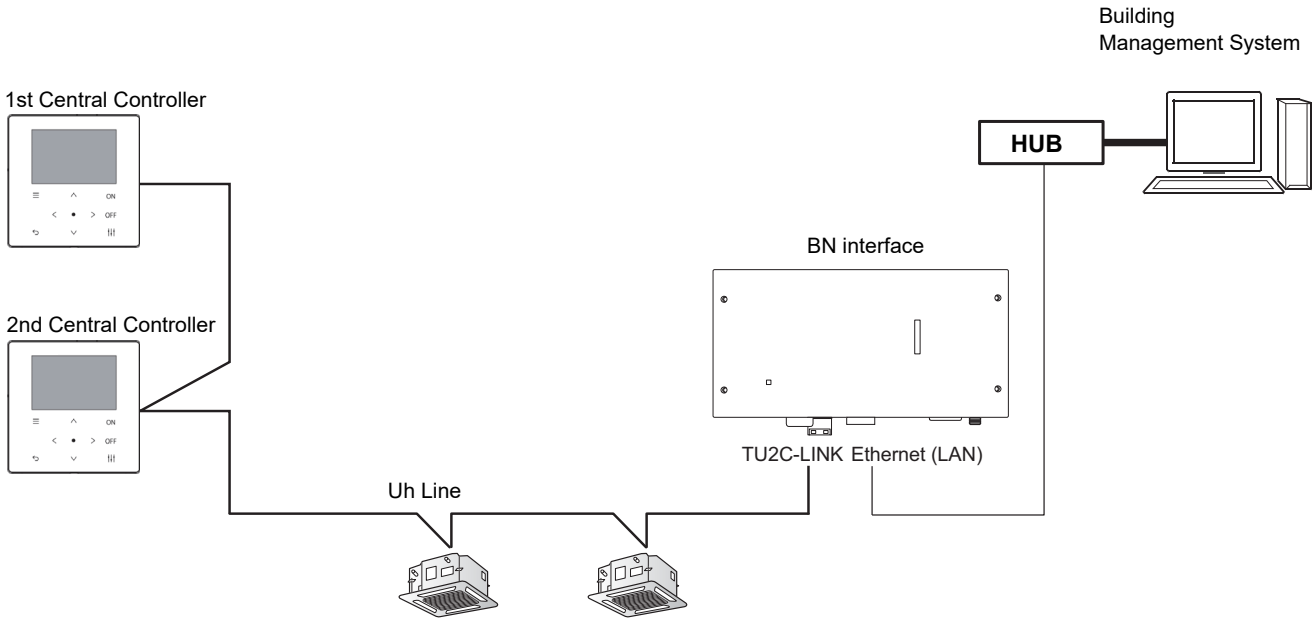
Whenever the following changes are made, the process described at step (6) (above) needs to be repeated.
- The central control address, Line address, or unit address of the indoor units is changed;
- The address of an individual or the base unit of the indoor remote control group is changed (line address, unit address);
- An indoor remote control group is added or removed;
- The display setting for the remote control for the indoor units (individual units, base unit) is changed.
  - Operation mode
  - Upper/lower limit for the temperature setting
  - Availability of the ventilation function

14-5. System for Combination Use with Central Remote Controller (TCB-SC640U-UL)

If using 65 or more indoor units, use 2 central remote controllers.

14-5-1. System configuration

Wire the devices as shown below:

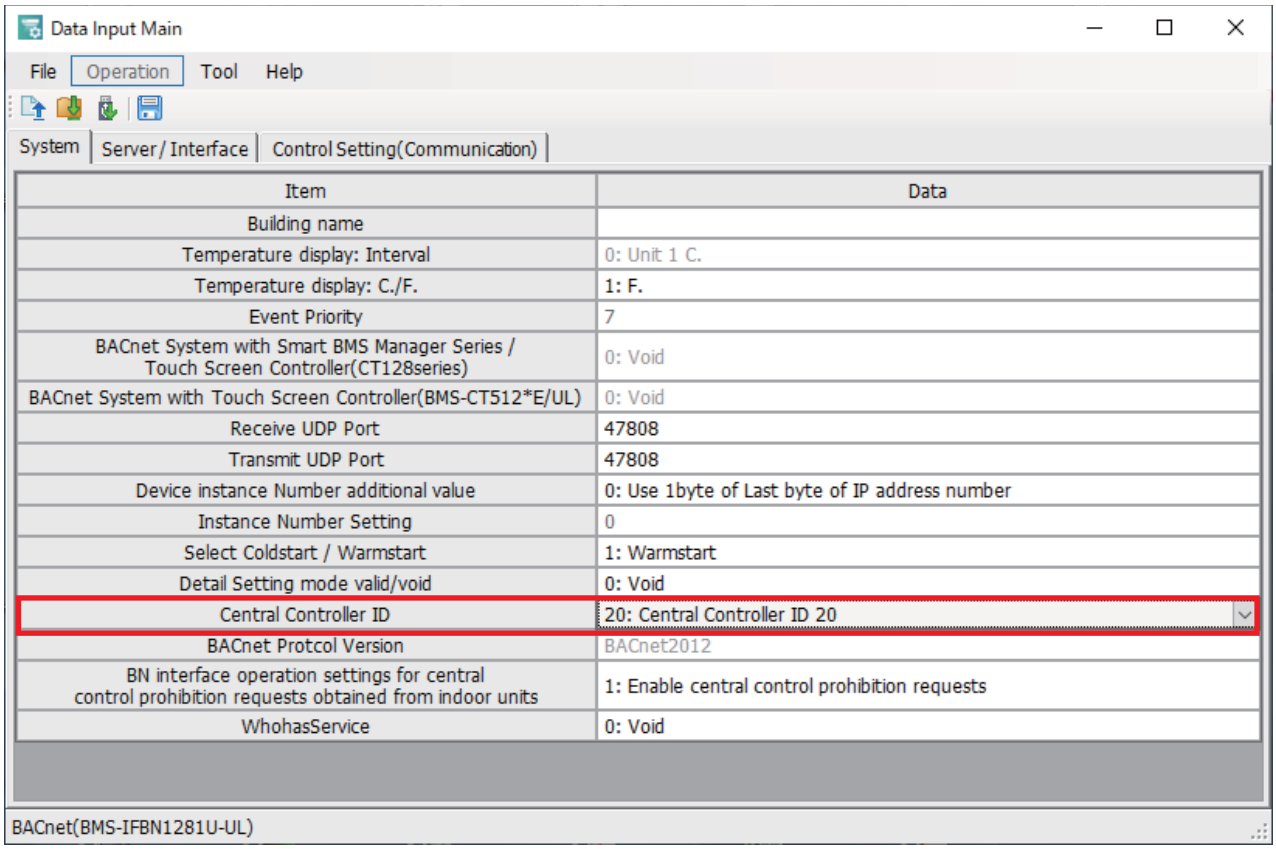


14-5-2. Procedure for test run

(1) Set the line addresses, unit addresses, and central control address for the indoor units.
(2) Conduct a test run of the Central Remote Controller.
(3) Turn off the power to the Central Remote Controller.
(4) Power on the BN interface.
After powering on the BN interface, wait for about 10 minutes until the status LEDs indicate that it is properly started (LED-L1 is blinking in the Operating normal state in “Section 8-1.”).
(5) BACnet Communication Settings (see “Section 9-1.”)
Set IP addresses, etc. by using the Setting File Creation Software2.
Remember to change the IP address on your PC to 192.168.1.** in order to upload the settings file to the BN interface.
(** indicates any number from 2 to 250.)

NOTE

For combination use with Central Remote Controller (TCB-SC640U-E), with the Setting File Creation Software2, select central controller ID 20 (default) for "Central controller ID setting" on the following screen.



In the Setting File Creation Software2, enter the IP address for the BN interface and set the BACnet Device object numbers.
Once these have been entered, upload the settings file to the BN interface from the Setting File Creation Software2.
Once the settings file has been uploaded, the BN interface will automatically restart.
When the BN interface has properly started, LED-L1 is blinking in the Operating normal state in “Section 8-1.”.

(6) Indoor Unit Device Information Settings (see Sections 9-2. through to 9-4.)

NOTE

Before executing air-conditioning search mode, be sure to turn off the power to Central Remote Controller.
If there is a communication collision on Uh Line between the Central Remote Controller and BN interface, the indoor units cannot be properly communicated with, and a setting file cannot be created.

(7) After completing all of the procedures to set up the BN interfaces, power on the Central Remote Controller.

NOTE

As the Uh line main bus master controller, the Central Remote Controller performs regular communication with the indoor units to acquire their operation status.
The “LINK(Uh)” LED (orange) does not blink because the BN interface has stopped communicating with the indoor unit as a result of being set for combination use.
When the power to the Central Remote Controller is interrupted, the BACnet system is also affected. This will result in a communication error with the indoor units.

NOTE

Whenever the following changes are made, the process described at step (6) (above) needs to be repeated.

- The central control address, Line address, or unit address of the indoor units is changed;
- The address of an individual or the base unit of the indoor remote control group is changed (line address, unit address);
- An indoor remote control group is added or removed;
- The display setting for the remote control for the indoor units (individual units, base unit) is changed.
  - Operation mode
  - Upper/lower limit for the temperature setting
  - Availability of the ventilation function

15 Old BN interface product replacement

15-1. BMS-IFBN640TLUL

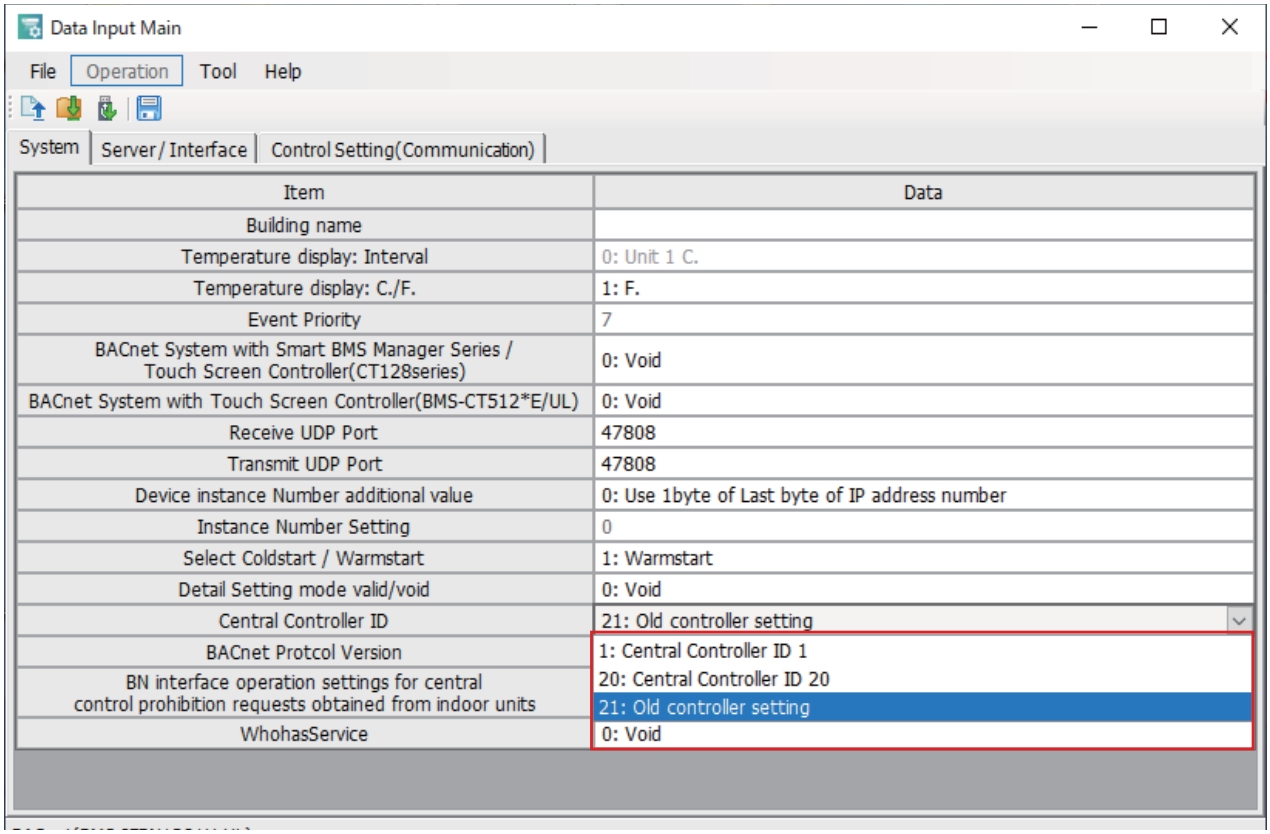
The following explains the setting procedure for using BMS-IFBN1281U-UL as BMS-IFBN640TLUL in the case of BMS-IFBN640TLUL failure.

Product before replacement	Product after replacement
BMS-IFBN640TLUL	BMS-IFBN1281U-UL

NOTE

As for the version of the Setting File Creation Software2, use v1.6.0.0 (March, 2023) or later.

(1) Following the procedure described in “10 Engineering Tool”, create a setting file for BMS-IFBN1281U-UL with Setting File Creation Software2.
In the case of product replacement, among “System” settings, for “Central controller ID setting”, select “Old controller”.



Specifications when set to “Old controller”

Central control address setting range	1-64
Uh Line communication protocol	Old protocol

(2) Using Setting File Creation Software2, upload the setting file to BMS-IFBN1281U-UL.
(3) Perform “9 Test run”.

Installation Manual (BMS-IFBN1281U-UL)

TOSHIBA
Carrier

Installation Manual

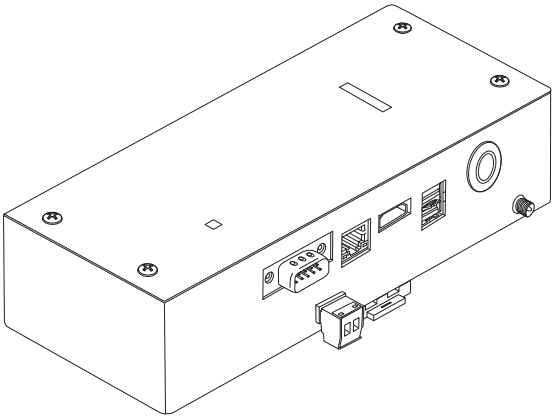
Central Control Device

For commercial use

BN interface

Model name:

BMS-IFBN1281U-UL



Multilingual installation manual, license agreement and license information

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https://www.toshiba-carrier.co.jp/global/manual/bms-ifbn1281u.htm

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5-3. Cause of problem occurring during setup 18
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Precautions for safety

The following instructions must be observed.

- Carefully read these "Precautions for Safety" before installation, and perform installation work safely.
- These precautions contain important information regarding safety.
- After installation work, carry out an operation trial to confirm that there are no problems, and explain to the customer how to operate and maintain the system. Ask the customer to keep this Installation Manual.

Expressions

⚠ **Warning**	Text set off in this manner indicates that failure to adhere to the directions in the warning could result in serious bodily harm (*1) or loss of life if the product is handled improperly.
⚠ **Caution**	Text set off in this manner indicates that failure to adhere to the directions in the caution could result in serious bodily injury (*2) or damage (*3) to property if the product is handled improperly.

*1: Serious bodily harm indicates loss of eyesight, injury, burns, electric shock, bone fracture, poisoning, and other injuries which leave aftereffect and require hospitalization or long-term treatment as an outpatient.
*2: Bodily injury indicates injury, burns, electric shock, and other injuries which do not require hospitalization or long-term treatment as an outpatient.
*3: Damage to property indicates damage extending to buildings, household effects, domestic livestock, and pets.

Graphic symbols

Prohibited	"⃠" indicates prohibited items. The actual contents of the prohibition are indicated by a picture or text placed inside or next to the graphic symbol.
Compulsory	"❗" indicates compulsory (mandatory) items. The actual contents of the obligation are indicated by a picture or text placed inside or next to the graphic symbol.

⚠ Warning

- **Installation and reinstallation should be performed by your dealer or a qualified electrician**
  Attempting to carry out installation work on your own, and doing so incorrectly, may result in electric shock or fire.
- **Electrical work must be performed by a qualified electrician in accordance with this Installation Manual. The work must satisfy all local, national and international regulations**
  Inappropriate work may result in electric shock or fire.
- **Be sure to turn off the power before starting work**
  Failure to do so may result in electric shock.
- **Use only the power adapter supplied with this unit**
  A power adapter other than that supplied with this unit may provide a different voltage and have different polarity (+) (–), which could lead to fire, explosion or generation of heat.

- **Do not modify the unit**
  Doing so may result in excessive heat or fire.

Warning
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Introduction

■ Overview

The BN interface refers to equipment used for controlling Building Management Systems (Procured locally) and air conditioners “TU2C-LINK Uh Line (hereinafter, referred to as Uh Line) compatible models” through communications via a network to enable central control.

■ Included Items

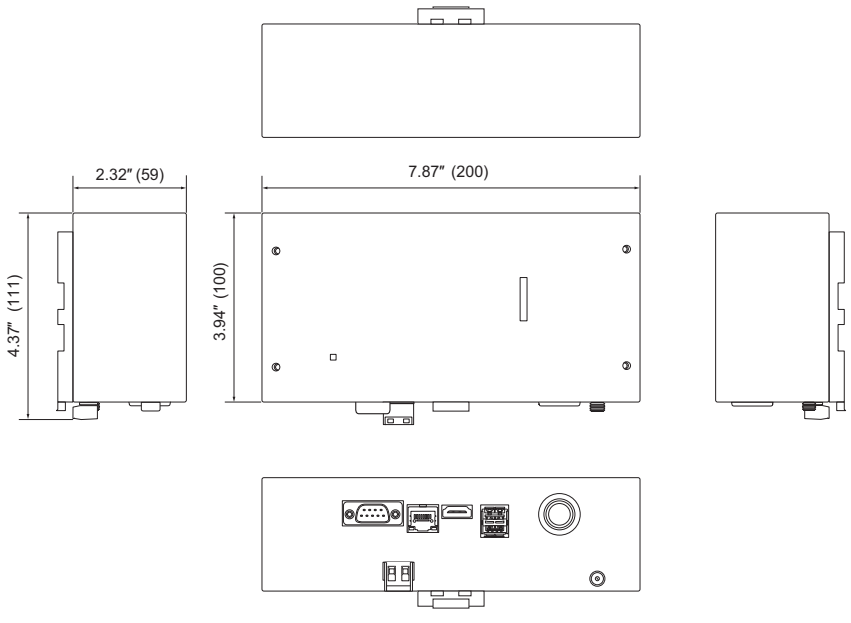
Component	Q'ty	Remarks
BN interface equipment	1	
Power adapter	1	BN interface power supply
Pin terminal	2	Uh Line caulked connectors
Mounting bracket (DIN rail)	1	Use screws to secure the unit in locations without DIN rails (walls, etc.)
Screws (M4 x 12)	2	For securing the DIN rails
Installation Manual	1	This manual
License Agreement	1	
License Information	1	

■ Specifications

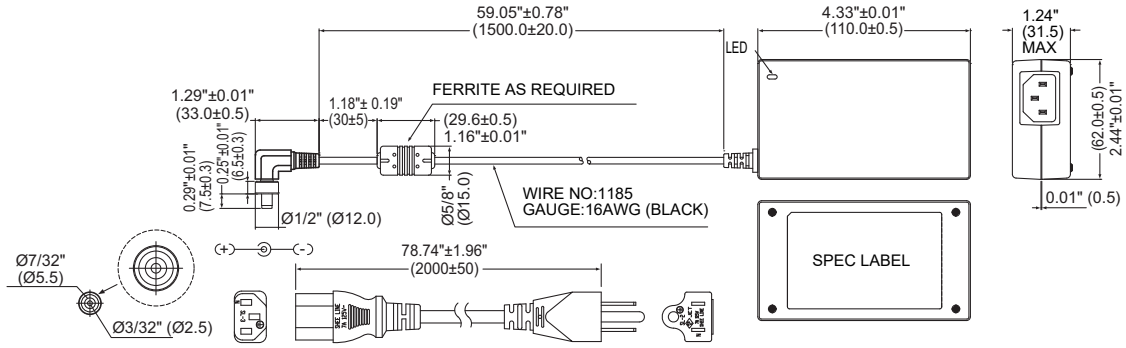
Power supply	Rated voltage	120 V AC 60 Hz
	Power consumption	10 W
Operating temperature range		32 to 104°F (0°C to 40°C), 10% to 80% RH (no condensation)
Storage temperature range		14 to 140°F (−10°C to +60°C), 10% to 90% RH (no condensation)
Dimensions		Width 7.87 inch x Height 3.94 inch x Depth 2.32 inch (Width 200 mm x Height 100 mm x Depth 59 mm)
Mass		BN interface 1.7 lb (765 g) Power adapter 1.0 lb (450 g)
Number of connected units	Indoor unit	Up to 128 units (TU2C-LINK) Up to 64 units (TCC-LINK)

■ External View (BN interface equipment)

Unit: inch (mm)

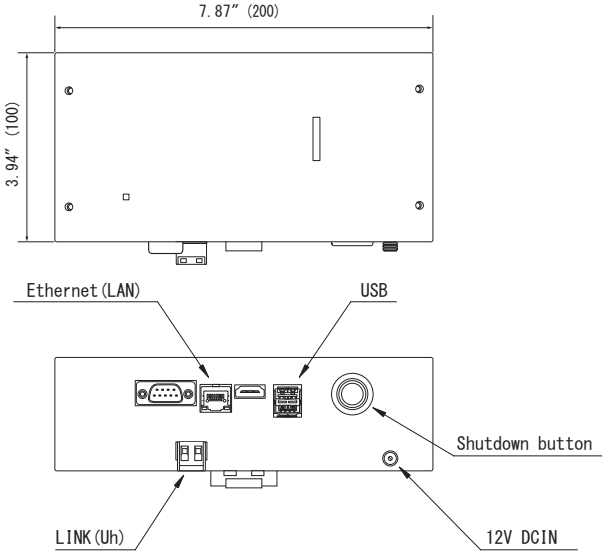


(Power adapter)



■ Component Names

Unit: inch (mm)



Name	Function
12V DCIN	Connect the power adapter
USB	(For service)
Ethernet (LAN)	Connect to the Building Management System
Shutdown button	Shutdown or switch to air conditioner search mode
LINK (Uh)	Connect the central control wiring

1 Installation

REQUIREMENT

Do not install the unit in any of the following places.

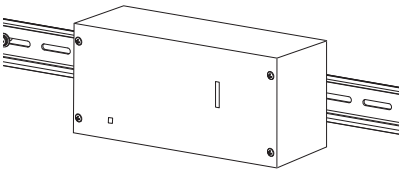
- Humid or wet place
- Dusty place
- Place exposed to direct sunlight
- Place where there is a TV set or radio within 3 ft
- Place exposed to rain (outdoors, under eaves, etc.)

■ BN Interface Installation and Orientation

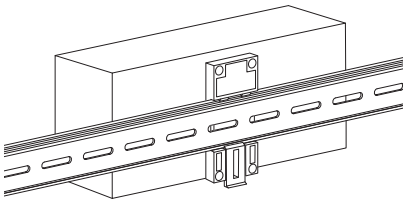
Install and orient the interface using the DIN rail to mount the unit or wall mount or surface mount it as shown below.
Use the supplied mounting bracket to wall mount or surface mount the interface.

(1) DIN rail mount
Install the interface on DIN rails mounted on a switchboard or elsewhere.

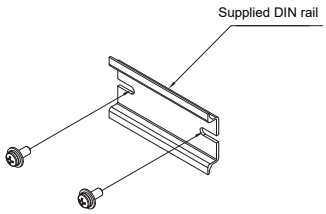
Front view

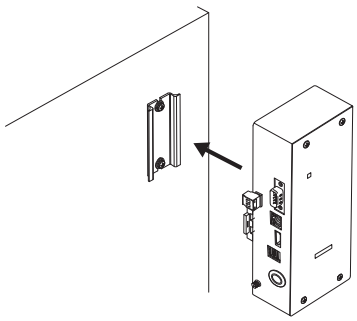


Back view

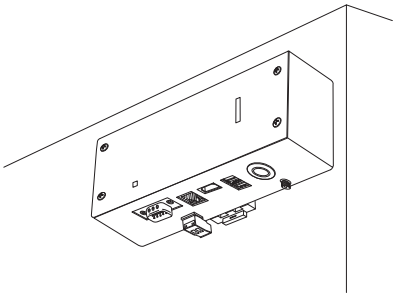


(2) Wall mount
Use screws to attach the supplied DIN rails to a wall and install the interface on the DIN rail.

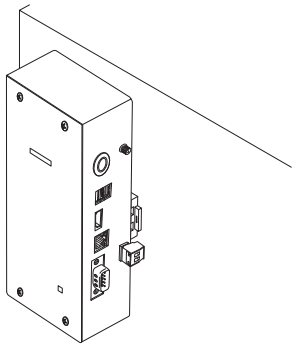




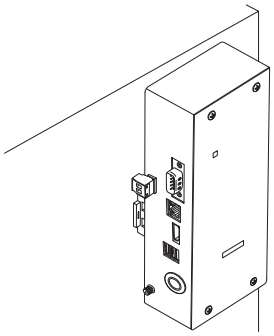
Wall mount A



Wall mount B

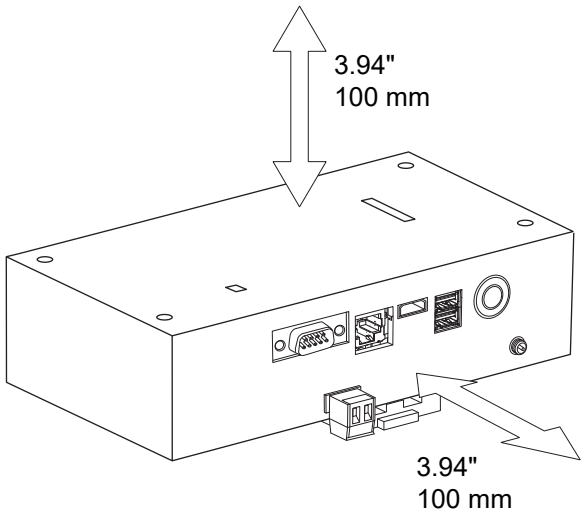


Wall mount C



■ Installation Space and Maintenance Space

A side space for connecting through cable inlets and an upper space for maintenance must be reserved before installation.
The other sides can be adjacent to surrounding objects.



2 Power and signal line connections

■ Cables

Use the following cable for signal line connections. (Procured locally)

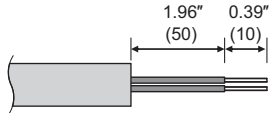
No.	Line	Description	
1	For Uh Line	Type	2-core shielded wires
		Wire size	Refer to "Design of Control Wiring" (P.10 to P.13)
		Length	
2	For Ethernet®	Type	LAN cable (higher than Category 5, UTP)
			The appropriate use of straight cable/cross cable should be done depending on your system used
		Length	328 ft (100 m) max.

Ethernet® is a registered trademark of Xerox Co., Ltd.

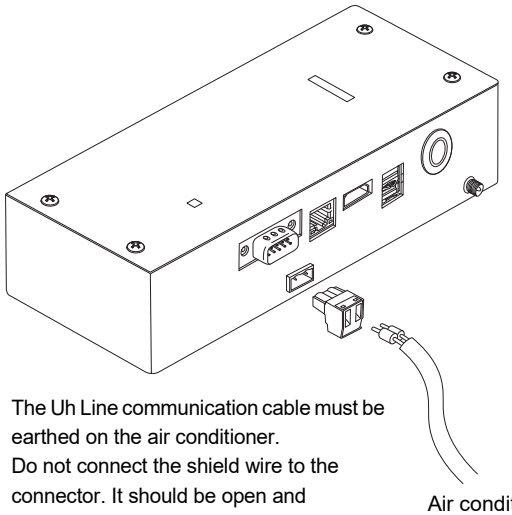
■ Cable Connections

Connect the cables to the specified connectors.

Length of stripped Uh Line communication cable

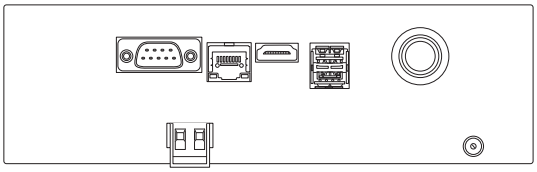


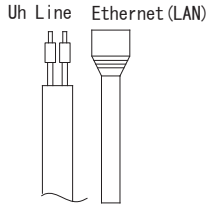
Connect the supplied pin terminal to the Uh Line communication cable as necessary.

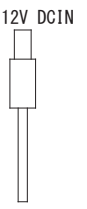


The Uh Line communication cable must be earthed on the air conditioner.
Do not connect the shield wire to the connector. It should be open and insulated.

Air conditioner







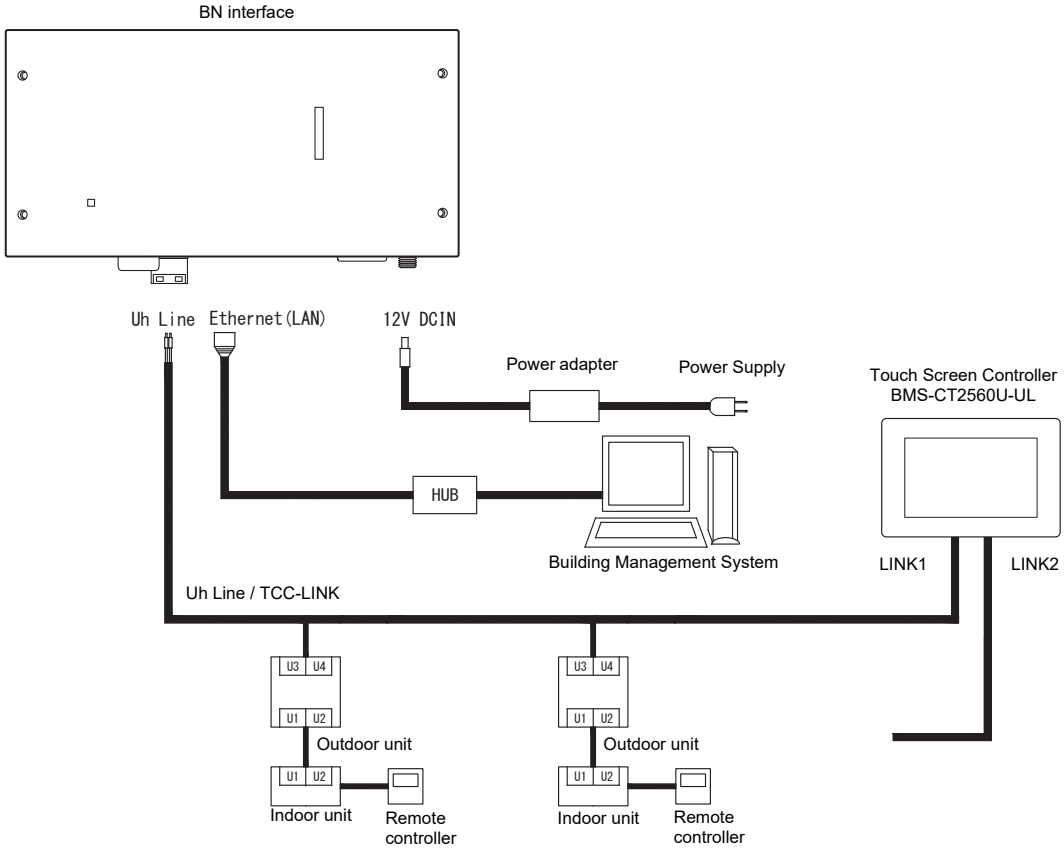
Connection of Uh Line communication cables	Connect the LAN cable	Connect the supplied power adapter

CAUTION

The Uh Line communication cable have no polarity.

* Secure the Uh Line communication cable and power cable to the switchboard etc. using the supplied cable tie to ensure that no excess load is placed on the power cable connection and Uh Line communication cable connection.

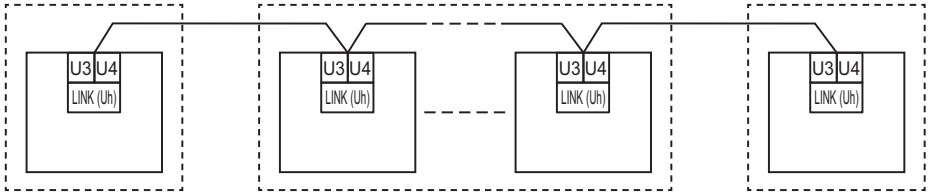
■ Example of System Wiring Connections



Termination resistance setting

- TU2C-LINK / TCC-LINK termination resistance setting .....<For TCC-LINK>
  Leave just 1 line of the termination resistance in the interface board of the outdoor unit (centre unit) ON, and turn all the others OFF. (Refer to the wiring diagram attached to the outdoor unit for the position of SW.)
  <For TU2C-LINK>
  For the central control wiring (Uh line), set the termination resistance that is farthest away on the wiring between this central controller and the other unit (VRF, light commercial, air to air heat exchanger, general purpose control interface, air to water heat pump) to ON.

Refer to the manual of each model for the termination resistance setting method.



Termination resistance ON **Termination resistance OFF** **Termination resistance ON**

Shield grounding process

- Central control wiring shielded wire .....When using the central remote controller with one unit, open the shielded wire of the central control wiring and perform insulation processing.
  When using the central remote controller with multiple units, connect the shield of the central control wiring to the closed end and open the shield at the final end of the central remote controller to perform insulation processing.
  Perform the central control wiring shield grounding on the air conditioner side.

REQUIREMENT

- Be sure to install a circuit breaker or all-pole isolating switch (with a contact breaking distance of at least 0.12" (3 mm)) on the primary side of the power supply.
- Fasten the screws to the terminal block with torque of 0.37 lbf • ft (0.5 N•m).

■ Design of Control Wiring

Communication method and model name

The TU2C-LINK model (U series) can be used together with previous models (other than U series).
For details of the model and communication method, see the following table.

Communication method	TU2C-LINK (U series)	TCC-LINK (other than U series)
Outdoor unit	MMY-M**U**P*** U series model	Other than on the left (MMY-MAP***, MCY-MAP***, etc.)
Indoor unit	MM*-**U**P*** U series model	Other than on the left (MM*-AP***, etc.)
Wired remote controller	RBC-AMS**U**** U series model	Other than on the left
Wireless remote controller receiver	RBC-AXR**U**** U series model TCB-AXR**U**** U series model	Other than on the left
Central control device	***-****U**** U series model	Other than on the left

NOTE

The equipment that can be displayed may vary depending on the country or region.
For details contact our sales personnel.

When the connected outdoor unit is Super Multi u series (U series)

Follow the wiring specifications in the table below even when there is a mix of U series and non-U series in the connected indoor units or remote controllers.

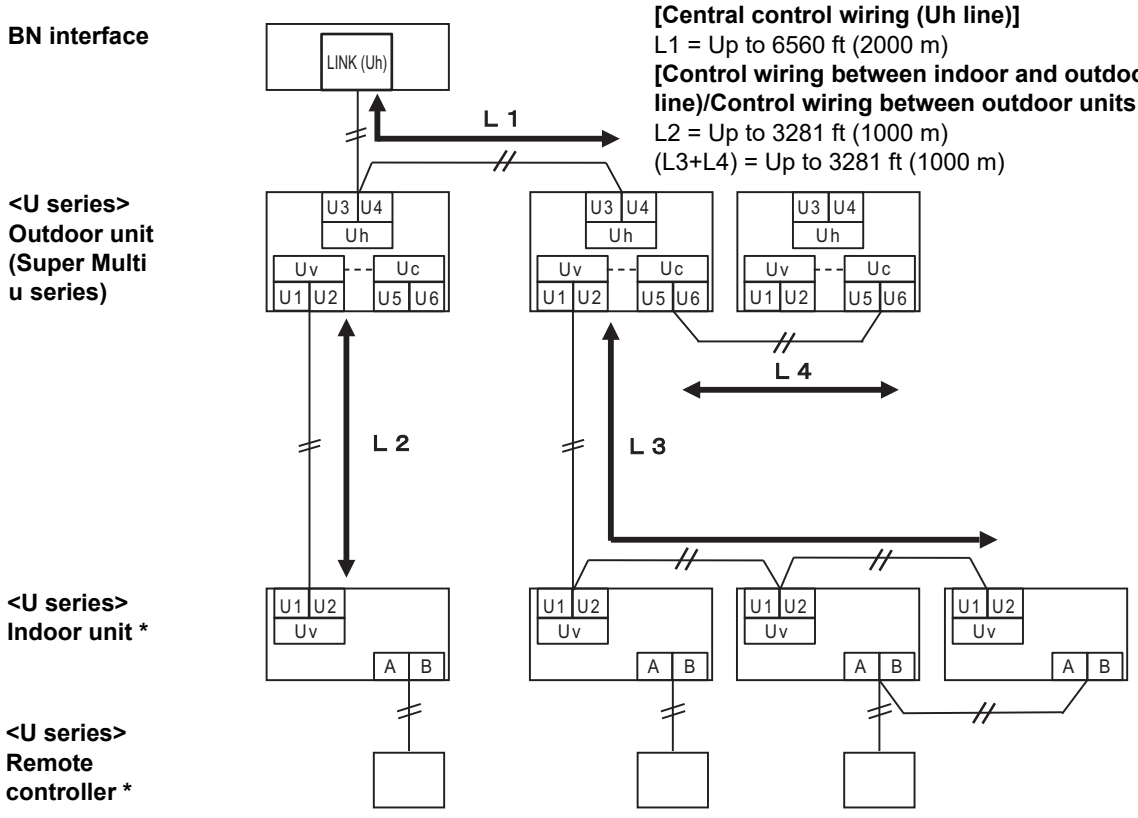
Wiring specifications

Item	Communication line
	Central control wiring (Uh line)
Wire diameter	AWG16: Up to 3281 ft (1000 m)
	AWG14: Up to 6560 ft (2000 m)
Wire type	2-core, non-polar
Wire types that can be used	Shielded wire

REQUIREMENT

When wiring the control wiring between indoor and outdoor units (Uv line)/control wiring between outdoor units (Uc line) and the central control wiring (Uh line), use the same wire type and diameter for each line.
Using a mixture of different wire types and diameters may cause a communication error.

System diagram



* The wiring specifications in the system diagram above are the same even when the indoor unit or remote controller are other than the U series.

When the connected outdoor units are other than Super Multi u series (U series)

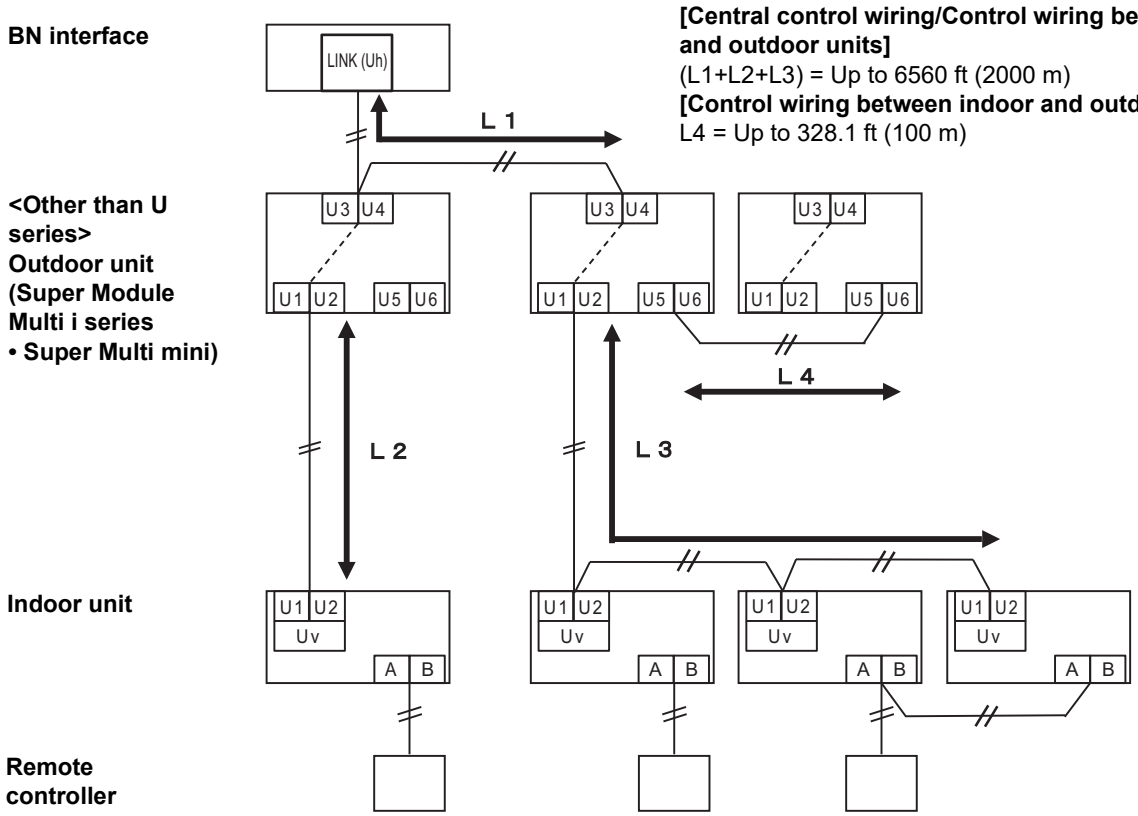
Wiring specifications

Item	Communication line
	Control wiring between indoor and outdoor units and central control wiring
Wire diameter	AWG16: Up to 3281 ft (1000 m)
	AWG14: Up to 6560 ft (2000 m)
Wire type	2-core, non-polar
Wire types that can be used	Shielded wire

REQUIREMENT

When wiring the control wiring between indoor and outdoor units/central control wiring and the control wiring between outdoor units, use the same wire type and diameter for each line.
Using a mixture of different wire types and diameters may cause a communication error.

System diagram



When connecting to a previous model light commercial, air to air heat exchanger, air to water heat pump, or general purpose equipment control interface

Follow the wiring specifications in the table below even when there is a mix of U series and non-U series in the connected indoor units or remote controllers.

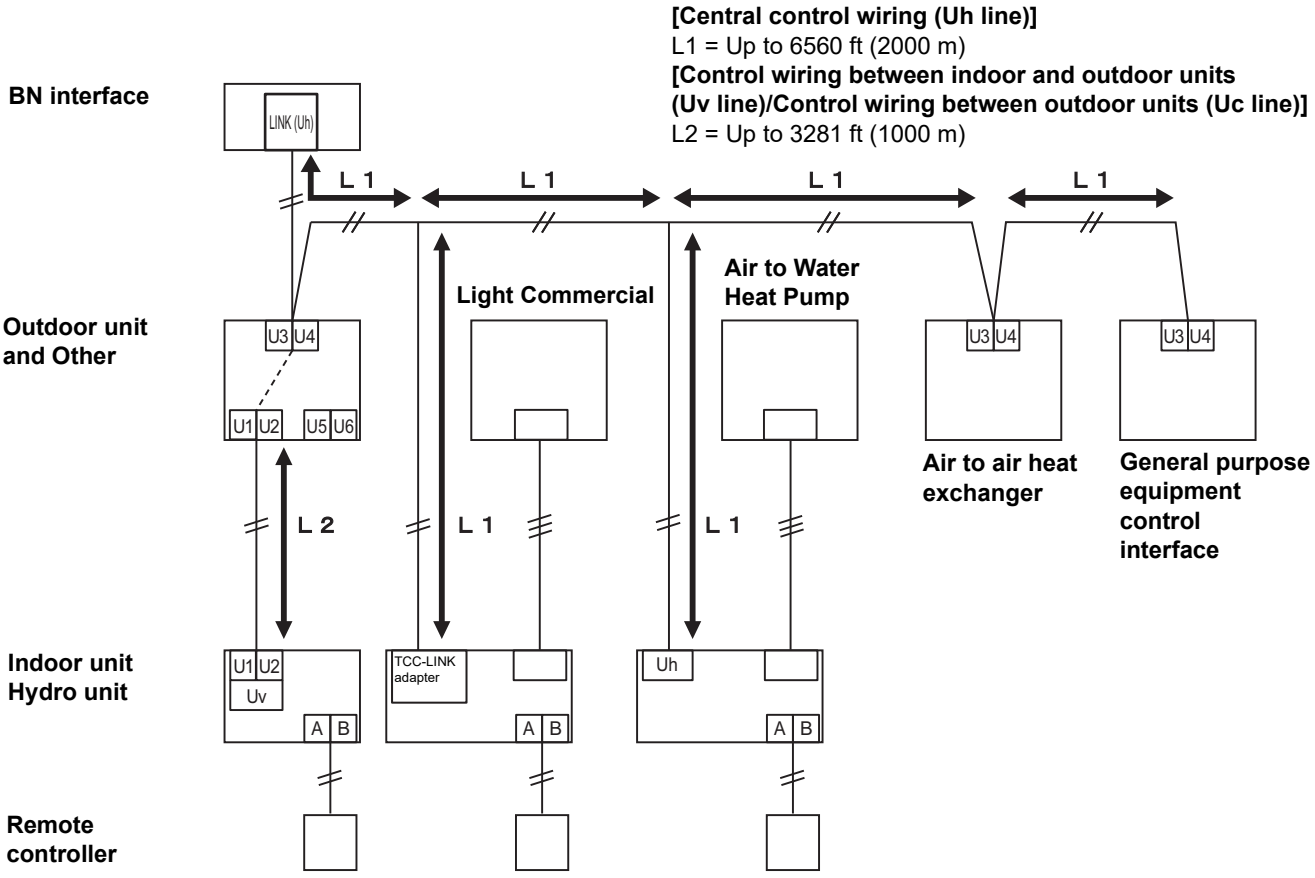
Wiring specifications

Item	Communication line
	Central control wiring (Uh line)
Wire diameter	AWG16: Up to 3281 ft (1000 m)
	AWG14: Up to 6560 ft (2000 m)
Wire type	2-core, non-polar
Wire types that can be used	Shielded wire

REQUIREMENT

When wiring the control wiring between indoor and outdoor units (Uv line)/control wiring between outdoor units (Uc line) and the central control wiring (Uh line), use the same wire type and diameter for each line.
Using a mixture of different wire types and diameters may cause a communication error.

System diagram



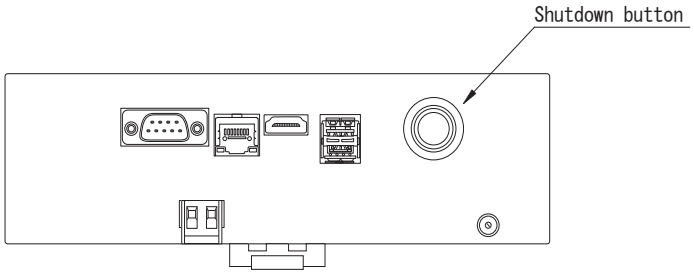
3 Settings

3-1. Switch setting

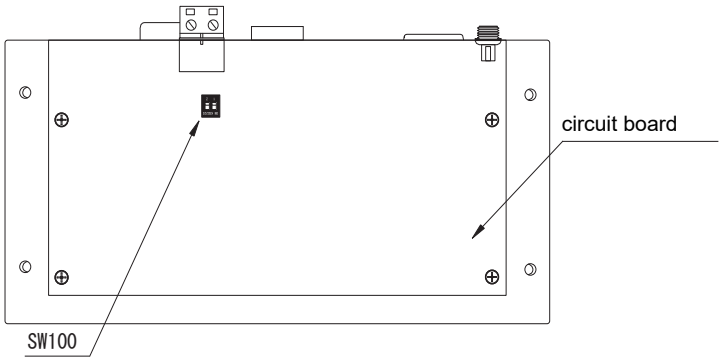
SW100 Uh Line termination resistance setting switch
bit1:use, bit2:not use
Refer to "Termination resistance setting" (P.9)

Shutdown button Shutdown function / air conditioner search mode function button
Use this button to stop BACnet process and network process of the BN interface or to start up in the air conditioner search mode. Note that button operation changes depending on how long it is depressed.

Time duration button is depressed	Operation
The Shutdown button 2 times	Stop BACnet process and network process of the BN interface.
4 seconds or more	Start up in the air conditioner search mode. Use the air conditioner search mode to set up equipment data in the indoor unit.

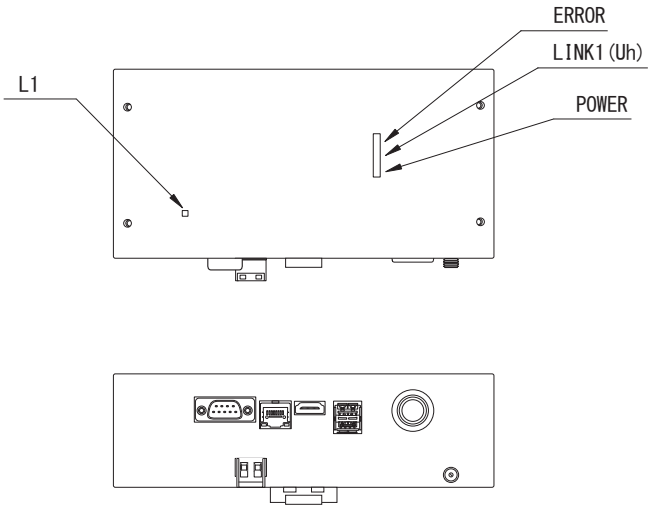


Unscrew and open the product



3-2. LED

LED	LED color	Use
POWER	Red	Power indicator
RS485	Green	Not use
LINK1(Uh)	Orange	Uh Line communication status indicator
LINK2(Uh)	Orange	Not use
ERROR	Red	Uh Line communication error indicator
L1	Green	BACnet communication status indicator, setting error indicator



4 Factory default settings

No.	Item	Factory default setting
1	IP address of BN interface	IP address 192.168.1.100 Subnet mask 255.255.255.0
2	UDP port	47808 (0xBAC0)
3	Device object instance number	100
4	Uh Line termination resistance select switch	OFF

5 Test run

To perform test run of the BN interface, BACnet communication settings and the equipment data of the connected indoor units are required.

Items to be set during trial run

Equipment	Item		Setting method
Outdoor unit	Uh Line address	Line address	Use the DIP switch on the outdoor unit circuit board.
Indoor unit	Uh Line address	Line address	Use the address setting function of wired remote controller. (Except for simple wired remote controller)
		Unit address	
		Central control address	
		Group address	
BN interface	IP address	IP address	Use Setting File Creation Software 2. (See Section 5-1.)
		Network mask	
	BACnet communication device identification number	BACnet device object instance number	
	When using together with a central control device not compatible with Uh Line	Setting of old BN interface	
		Setting for combined use with old controller	
	When using together with a central device compatible with Uh Line	Change the "Central Controller ID" from ID1 to ID20	
	When replacing with a BN interface that does not support Uh Line	Setting of old BN interface	
	Indoor unit information (DN code setting values)	Line address	When setup work (see Section 5-2) is performed, the BN interface reads out the set values from the indoor unit and records them on the SD card of the BN interface. Perform setup work after changing the device information of the indoor unit.
		Unit address	
		Central control address	
		Group address	
		Operation mode setting range	
		Temperature setting range	
		Fan speed setting range	
		Flap type	
		Ventilation amount setting range	
		Ventilation mode setting range	
		Availability of ventilation operation	
		Availability of save function	

5-1. BACnet communication settings

Set the IP address of the BN interface and the device object instance number of the BACnet communications. These setting can set from Setting File Creation Software 2. For details, contact your dealer.

5-2. Setting up equipment data in the indoor unit

Obtain the equipment data of the indoor unit that is controlled by the BN interface from the indoor unit via the Uh Line communication cable.

Preparing to set up equipment data in the indoor unit

- Central Control address must be set in the indoor unit you want to control.
  For information on how to set the address, refer to the installation manual of each indoor unit.
- Turn on all indoor and outdoor units. Set up as follows, waiting 10 minutes after turning on all the units.

Setup work

Step 1. Start the BN interface.

- Turn on the BN interface.
- The status of the LED L1 changes to LEDstatus-1, LEDstatus-2, and then to LEDstatus-4. It takes about 10 minutes for the LED L1 status to change to LEDstatus-4.

Step 2. Start up in the air conditioner search mode.

- Hold down the Shutdown button for 4 seconds or more.
- The status of the LED L1 changes to LEDstatus-7 and then to LEDstatus-8.
- When reading equipment information from the indoor units is successfully completed, the BN interface automatically prepares for BACnet communication.
- The status of the LED L1 changes to LEDstatus-1, LEDstatus-2, and then to LEDstatus-4. It takes about 10 minutes for the LED L1 status to change to LEDstatus-4.
- If an error occurs, then the status of the LED L1 will be LEDstatus-3.
  Refer to Section 5-3 to check for the cause of error generation.

When the BN interface is operating normally

- The status of the LED L1 is LEDstatus-4.

LED L1 blinking

Operation	LED status	Situation/processing	LED blinking pattern
Starting up	LEDstatus-1	During initialization	
	LEDstatus-2	During BACnet connecting operation	
	LEDstatus-3	File error during startup Other error during startup	
While in operation	LEDstatus-4	During BACnet communication	
Pressing the Shutdown button	LEDstatus-5	During processing for BACnet software shutdown	
	LEDstatus-6	Shut down	
Start up in the air conditioner search mode	LEDstatus-7	During preparation for air conditioner search mode	
	LEDstatus-8	During air conditioner search	

ON
OFF
* Control interval (time length of 1 cell): 200 ms

5-3. Cause of problem occurring during setup

Cause of problem	Cause	Action
The indoor unit cannot be found.	The indoor and outdoor units have not been turned on.	Make sure that indoor and outdoor units are turned on.
	The indoor and outdoor units are being initialized and it is not possible to communicate with them. LINK1(Uh) does not blink at all	Make sure that indoor and outdoor units are turned on. Make sure they have been on for at least 10 minutes.
	The Uh Line cables have been incorrectly connected.	Connect the cables correctly.
	The central control address has not been set in the indoor units.	Make sure that the central control address has been set in the indoor units.
The central control address set in the indoor units are not unique.	The same central control address has been set in a number of indoor units.	Make sure that the central control address has been correctly set in the indoor units.

6 Turning off the BN interface

Press the shutdown button, then wait 5 minutes before turning it off.
When turning off the BN interface

- Press the Shutdown button 2 times.
- The status of the LED L1 changes to LEDstatus-5 and then to LEDstatus-6.
- Disconnect the power adapter from the BN interface.

CAUTION

As the air conditioner search mode will be engaged if the shutdown button is pressed for 4 seconds or longer, do not hold down the button.

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Revision record

Number	The contents of modification	Page	Date
First issue	-	-	Feb., 2023
Revision 1	Added Dual Set Point	13, 18-20, 23, 36-39, 96	Oct., 2023
Revision 2	Corporation name change	-	May, 2024