



Air-conditioner Control System

BM ADAPTER Model: BAC-HD150

Instruction Book

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Thoroughly read this instruction book before use to ensure safety. The users should keep this manual for future reference and refer to it as necessary.

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Safety precautions

Before using the BAC-HD150, read the Safety Precautions section carefully to ensure proper operation.

These safety precautions must be observed by anyone who operates the BAC-HD150.

Keep the Instruction Book and Installation Manual for future reference. Make sure both manuals are passed on to any future air condition system users.

 WARNING	<p>This symbol indicates that failure to follow the instructions exactly as stated poses the risk of serious injury or death.</p>
 CAUTION	<p>This symbol indicates that failure to follow the instructions exactly as stated poses the risk of injury or damage to the BAC-HD150.</p>



WARNING

<p>The unit must be installed by a dealer or technical representative. Improper installation by an unqualified person may result in electric shock and fire.</p>	<p>Ask your dealer or an authorized technician to move or reinstall the BAC-HD150. Improper installation may result in an electric shock or fire.</p>
<p>Install in a location that is strong enough to withstand the weight of the unit. A weak installation area may cause the unit to fall down, resulting in a personal injury.</p>	<p>BAC-HD150 must be disposed of properly. Contact your dealer for proper disposal procedures.</p>
<p>Only use specified cables. Securely connect each cable so that the weight of the cable is not applied to the connectors. Loose or improper connections may result in heat generation or fire.</p>	<p>Do not attempt to modify or repair the BAC-HD150. Modification or improper repair may result in electric shock or fire. Consult your dealer when repairs are necessary.</p>
<p>If any abnormality is noticed (e.g., burning smell), stop the operation, turn off the power supply, and contact your dealer or technical representative immediately. Continuing the operation may result in damage to the BAC-HD150, electric shock, or fire.</p>	<p>Stop the operation immediately and notify your dealer if the BAC-HD150 does not operate, or when any abnormality is noticed. Continuing the operation may result in damage to the BAC-HD150 or fire.</p>



CAUTION

<p>Do not install the BAC-HD150 where there is a risk of leaking flammable gas. If the leaked gas accumulates around the BAC-HD150, it may ignite and cause an explosion.</p>	<p>Do not use the BAC-HD150 in an environment high in oil, steam, or sulfuric gas. These substances may have adverse effects on the performance of the BAC-HD150 or damage its parts.</p>
<p>Do not wash the BAC-HD150 with water. Doing so may cause an electric shock or malfunction.</p>	<p>Operate the BAC-HD150 within the temperature range specification. The use of controller outside of its specification may result in serious damage to the BAC-HD150. Be sure to check the temperature range specification in the Installation Manual.</p>
<p>Do not use the BAC-HD150 for specialized applications. This product is designed exclusively for use with the MITSUBISHI ELECTRIC building air conditioning control system. The use of this product for other purposes may result in malfunctions.</p>	<p>Use a security device such as a VPN router when connecting the BAC-HD150 to the Internet to prevent unauthorized access. If no security devices are installed, the operation settings may be changed by an unauthorized person without the knowledge of the user.</p>
<p>Do not spray insect sprays or sprays with flammable propellants to the BAC-HD150. To avoid the risk of fire or explosion, do not place flammable sprays near the BAC-HD150 or spray them directly on the BAC-HD150.</p>	
<p>Do not apply mechanical shock to BAC-HD 150.</p>	

1 Introduction

1.1 Applicable Model

BAC-HD150 have functions to monitor and operate air conditioning units (excl. certain models).

Table: Models and available functions

Model	Function (Monitor/Operation)	
CITY MULTI	S series	○
	Y Series	○
	R2 series	○
	WY series	○
	WR2 series	○
LOSSNAY	○	
OA Processing unit	○	
A-control unit (Mr Slim)	○ (Requires an adapter)	
AK-control unit (Mr Slim)	x	
K-control unit	x	
Room air conditioner (RAC)	x	
Air To Water Booster unit/Air To Water HEX unit	x	

○ : Supported

X : Not supported

1.2 Restrictions/Cautions

Restrictions and Cautions for BAC-HD150 are as follows.

(1) Restrictions on the system configuration

	Number of connectable units	Notes
M-NET	One line only	
Indoor unit	50 units max./M-NET	Includes all IC, AIC, LC, FU.

Symbol IC: Indoor unit; AIC: A control indoor unit;
LC: LOSSNAY; FU: OA Processing unit

(2) Supports for errors

- It is recommended to recover the system immediately when errors related to air conditioning are displayed on the building management system.

(3) Operation during power failure

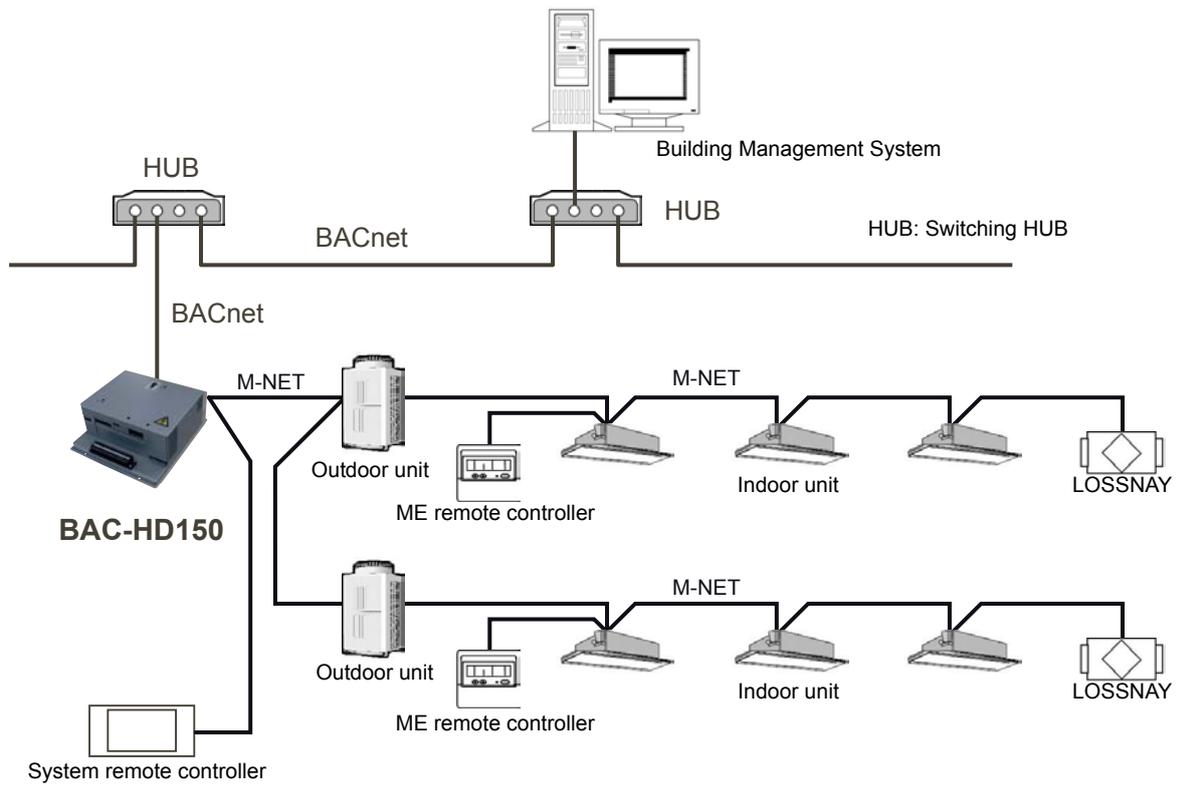
- When BAC-HD150 needs to be operated during power failure, a power backup device such as UPS (Uninterruptible Power Supply) is recommended to be installed.

(4) Functions

- Due to continuing improvement, specifications are subject to change without notice.

2 System configurations

2.1 Sample system configuration



M-NET: Mitsubishi Electric air conditioning control line

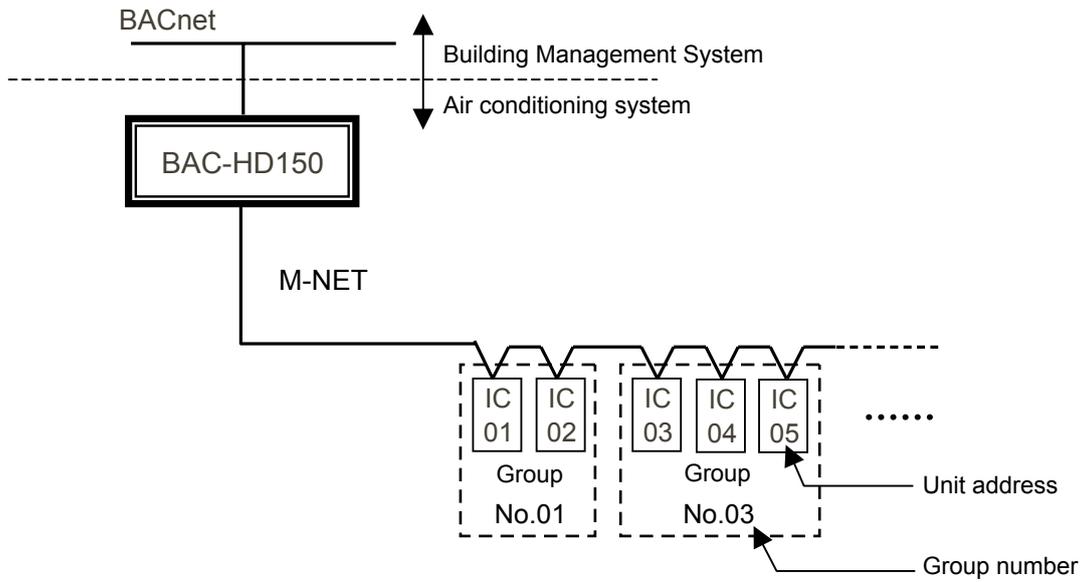
2.2 Group configurations

BACnet controls each group.

BACnet control hierarchy consists of M-NET number + Group number + Member number.

Refer to "3.4 Relations between objects and control items" for member number details.

- (1) M-NET number
Fixed to 01
- (2) Group number
Multiple indoor units (IC) can be controlled as a target group. Group number range: 1-50
- (3) Member number
Corresponds to Monitor/Operation items of air conditioners



Outdoor units, remote controllers, and etc. are omitted in this drawing.

3 Function specifications

3.1 Basic Functions

BAC-HD150 has functions that communication from an air conditioning system is protocol converted to BACnet communication, that command from a Building Management System is converted and transmitted to an air conditioning system, and that air conditioning system status data is collected and the status change is detected. BAC-HD150 also collects data on air conditioning units operation status and transmits the data upon request from the building management system. Refer to "3.4 Relations between objects and control items" for control item of BAC-HD150.

3.2 Communication protocol specifications

(1) General descriptions of protocol

BACnet/IP which applied to ANSI/ASHRAE 135-2004 correspondingly on UDP/IP of Ethernet is used.

Ethernet header	IP header	UDP header	BVLL header	NPCI	APDU
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Ethernet is a registered trademark of Fuji Xerox, Inc.

(2) Ethernet header

Physical layer: Ethernet

Transmission medium: 10BASE-T

(3) IP header

Class C private address is recommended. (*1) Subnet Mask: 255.255.255.0

*1: Recommended value (range): [192.168.1.1] - [192.168.254.254]

Do not use [192.168.0.0] and [192.168.255.255] as a device address.

(4) UDP header

The default UDP port of unicast and broadcasting is set to 47808 (0xBAC0).

(5) BVLL header (BVLL: BACnet Virtual Link Layer)

BVLC type (1 octet) Fixed to 0x81 (BVLL against BACnet/IP)

BVLC function (1 octet) Unicast 0x0A

Broadcast 0x0B

BVLC length (2 octets) Variable (BVLL header (4 octets) + NPCI data length + APDU data length)

(Typical examples are listed above. Refer to ANSI/ASHRAE 135-2004 for details.)

(6) NPCI (NPCI: Network Layer Protocol Control Information)

Version (1 octet) Fixed to 0x01

Control (1 octet) Response is received. 0x04

No response 0x00

(Typical examples are listed above. Refer to ANSI/ASHRAE 135-2004 for details.)

(7) APDU (APDU: Application Layer Protocol Data Unit)

Data: 1024 octets or less

(Refer to ANSI/ASHRAE 135-2004 for details.)

3.3 Objects

Supported object list is shown below.

Object type		Abbreviation	Support	Control item	Notes
Accumulator	23	–	–		
Analog Input	0	AI	○	Room Temp	
Analog Output	1	–	–		
Analog Value	2	AV	○	Set Temp	
Averaging	18	–	–		
Binary Input	3	BI	○	On Off State Alarm Signal Filter Sign Communication State	
Binary Output	4	BO	○	On Off Setup	
Binary Value	5	BV	○	Filter Sign Reset Prohibition On Off Prohibition Mode Prohibition Filter Sign Reset Prohibition Set Temperature System Forced Off	
Calendar	6	–	–		
Command	7	–	–		
Device	8	DEV	○	Device object of BAC-HD150	
Event Enrollment	9	–	–		
File	10	–	–		
Group	11	–	–		
Life Safety Point	21	–	–		
Life Safety Zone	22	–	–		
Loop	12	–	–		
Multi-state Input	13	MI	○	Error Code Operational Mode State Fan Speed State Air Direction State Ventilation Mode State	
Multi-state Output	14	MO	○	Operational Mode Setup Fan Speed Setup Air Direction Setup Ventilation Mode Setup	
Multi-state Value	19	–	–		
Notification Class	15	CLS	–		
Program	16	–	–		
Pulse Converter	24	–	–		
Schedule	17	–	–		
Trend Log	20	–	–		

- : Supported
- : Not supported

3.4 Relations between objects and control items

Object ID consists of object type + instance number.

Instance number consists of M-NET number, air conditioner group number, and member number.

31

22 21

0

BACnet object type	Instance number
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BACnet object type : Refer to the object type as shown in the table below.

Instance number (6 digits in decimal notation) : 01 xx xx

- Member number (01-99)
- Group number (01-50, 99)
- M-NET number (fixed to 01)

Control item	Object type	Instance number	Unit					Notes
			Inactive	Active				
			Text-1	Text-2	Text-3	Text-4	Text-5	
On Off Setup	BO	01xx01	Stop	Run				
On Off State	BI	01xx02	Stop	Run				
Alarm Signal	BI	01xx03	Normal	Error				
Error Code	MI	01xx04	Normal	01: Normal 02: Other errors 03: Refrigeration system fault 04: Water system error 05: Air system error		06: Electronic system error 07: Sensor fault 08: Communication error 09: System error		
Operational Mode Setup	MO	01xx05	Cooling	Heating	Fan	Auto	Dry	*1) *4)
Operational Mode State	MI	01xx06	Cooling	Heating	Fan	Auto	Dry	*1)
Fan Speed Setup	MO	01xx07	Low	High	Mid 2	Mid 1		*2) *4)
Fan Speed State	MI	01xx08	Low	High	Mid 2	Mid 1		*2)
Room Temp	AI	01xx09	°F/°C					*3)
Set Temp	AV	01xx10	°F/°C					*3) *5)
Filter Sign	BI	01xx11	OFF	ON				
Filter Sign Reset	BV	01xx12	Reset	Void				
Prohibition On Off	BV	01xx13	Permit	Prohibit				
Prohibition Mode	BV	01xx14	Permit	Prohibit				*3)
Prohibition Filter Sign Reset	BV	01xx15	Permit	Prohibit				
Prohibition Set Temperature	BV	01xx16	Permit	Prohibit				*3)
Communication State	BI	01xx20	Normal	Error				
System Forced Off	BV	01xx21 019921	Reset	Execute				
Air Direction Setup	MO	01xx22	Horizontal	Downblow 60%	Downblow 80%	Downblow 100%	Swing	*3) *4)
Air Direction State	MI	01xx23	Horizontal	Downblow 60%	Downblow 80%	Downblow 100%	Swing	*3)
Ventilation Mode State	MO	01xx35	Heat exchange	Bypass	Auto			
Ventilation Mode Setup	MI	01xx36	Heat exchange	Bypass	Auto			

*1 : "Dry" can be used only when "use" is selected for the "Dry" setting. ("Dry" is not used for a default.)

Fan is used for a group whose attribute is LC.

*2 : "Mid 1/Mid 2" can be used only when "use" is selected for the "Mid 1/Mid 2" setting.

("Mid 1/Mid 2" is not used for a default.)

Low < Mid 2 < Mid 1 < High

*3 : Initial value is returned for a group whose attribute is LC because the group is not a target item.

*4 : Different operation mode settings, fan speed settings, and airflow direction settings are available on different models.

*5 : Settable indoor preset temperature range varies in each operation mode.

- Cooling : 19-30 °C

- Heating : 17-28 °C

- Auto : 19-28 °C

- Dry : 19-30 °C

The settable range also varies with the models.

3.5 Services

The following table shows the supported services.

Service	Initiate request	Execute request
1. Alarm and Event Services		
(1) Acknowledge Alarm Service	-	-
(2) Confirmed COV Notification Service	-	-
(3) Confirmed Event Notification Service	-	-
(4) Get Alarm Summary Service	-	-
(5) Get Enrollment Summary service	-	-
(6) Get Event Information Service	-	-
(7) Life Safety Operation Service	-	-
(8) Subscribe COV Service	-	-
(9) Subscribe COV Property Service	-	-
2. File Access Services		
(1) Atomic Read File Service	-	-
(2) Atomic Write File Service	-	-
3. Object Access Services		
(1) Add List Element Service	-	-
(2) Remove List Element Service	-	-
(3) Create Object Service	-	-
(4) Delete Object Service	-	-
(5) Read Property Service	-	○
(6) Read Property Conditional Service	-	-
(7) Read Property Multiple Service	-	○
(8) Read Range Service	-	-
(9) Write Property Service	-	○
(10) Write Property Multiple Service	-	○
4. Remote Device Management Services		
(1) Device Communication Control Service	-	-
(2) Confirmed Private Transfer Service	-	-
(3) Confirmed Text Message Service	-	-
(4) Reinitialize Device Service	-	-
5. Virtual Terminal Services		
(1) VT-Open Service	-	-
(2) VT-Close Service	-	-
(3) VT-Data Service	-	-
6. Security Services		

○ : Supported

- : Not supported

Initiate request: Provides services

Execute request: Receives and uses services

Service	Initiate request	Execute request
6. Security Services		
(1) Authenticate Service	-	-
(2) Request Key Service	-	-
7. Unconfirmed Services		
(1) I-Am	○	-
(2) I-Have	○	-
(3) Unconfirmed COV Notification Service	-	-
(4) Unconfirmed Event Notification Service	-	-
(5) Unconfirmed Private Transfer Service	-	-
(6) Unconfirmed Text Message Service	-	-
(7) Time Synchronization Service	-	○
(8) UTC Time Synchronization Service	-	-
(9) Who-Has	-	○
(10) Who-Is	-	○

○ : Supported

- : Not supported

Initiate request: Provides services

Execute request: Receives and uses services

3.6 Services per object

The following table shows the supported service per object.

Service \ Object		Device	Analog Input	Analog Value	Binary Input	Binary Output	Binary Value	Multi-State Input	Multi-State Output	Notes
Read Property	INIT									
	EXEC	○	○	○	○	○	○	○	○	
Read Property Multiple	INIT									
	EXEC	○	○	○	○	○	○	○	○	
Write Property	INIT									
	EXEC	○	○	○	○	○	○	○	○	
Write Property Multiple	INIT									
	EXEC	○	○	○	○	○	○	○	○	
I-Am	INIT	○								
	EXEC									
I-Have	INIT	○								
	EXEC									
Time Synchronization	INIT									
	EXEC	○								
Who-Has	INIT									
	EXEC	○								
Who-Is	INIT									
	EXEC	○								

INIT: Provides services

EXEC: Receives and uses services

○: Supported

△: Changeable using setting data

4 Setting for power-on for the first time

4.1 Caution

BACnet LAN IP address for BAC-HD150 is set to "192.168.1.254" at factory setting.

The address may overlap one of the addresses that are assigned to other devices connected to BACnet. When turning on the power for the first time after installation, turn on the power with the BACnet LAN cable with BAC-HD150 disconnected.

If an address overlaps any of the addresses that are assigned to other devices, BACnet communication cannot be performed properly via BAC-HD150 or other devices.

Connect the LAN cable for BAC-HD150 to BACnet after IP address is set by using BAC-HD150 Setting Tool (abbreviated to Setting Tool below).

4.2 Setting up after turning on the power for the first time

Make initial setting using Setting Tool after the power to BAC-HD150 is turned on.

Refer to the Instruction Book that came with Setting Tool for details about Initial Setting.

5 Starting up the BAC-HD150

5.1 Starting up the BAC-HD150

BAC-HD150 starts up when the power is turned on.

BACnet communication and M-NET communication are performed after startup.

5.2 Restarting the BAC-HD150

BAC-HD150 restarts when SW403 is pressed.

5.3 Mode of BAC-HD150

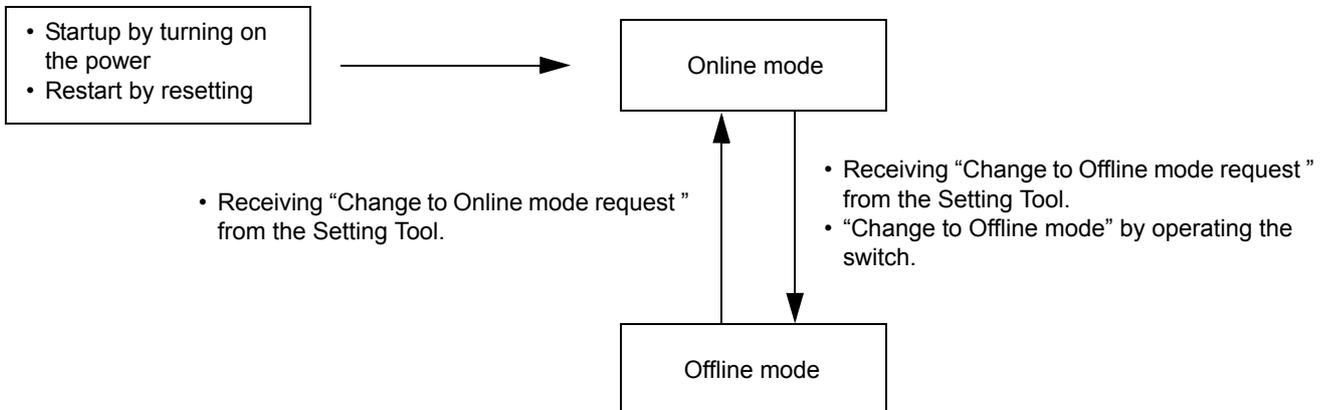
BAC-HD150 has "Online" mode and "Offline" mode.

"Online" mode is an operation mode to perform BACnet communication and M-NET communication.

"Offline" mode is a maintenance mode in which BACnet communication and M-NET communication are not performed.

It is the mode in which the Setting Tool can configure data settings to the BAC-HD150.

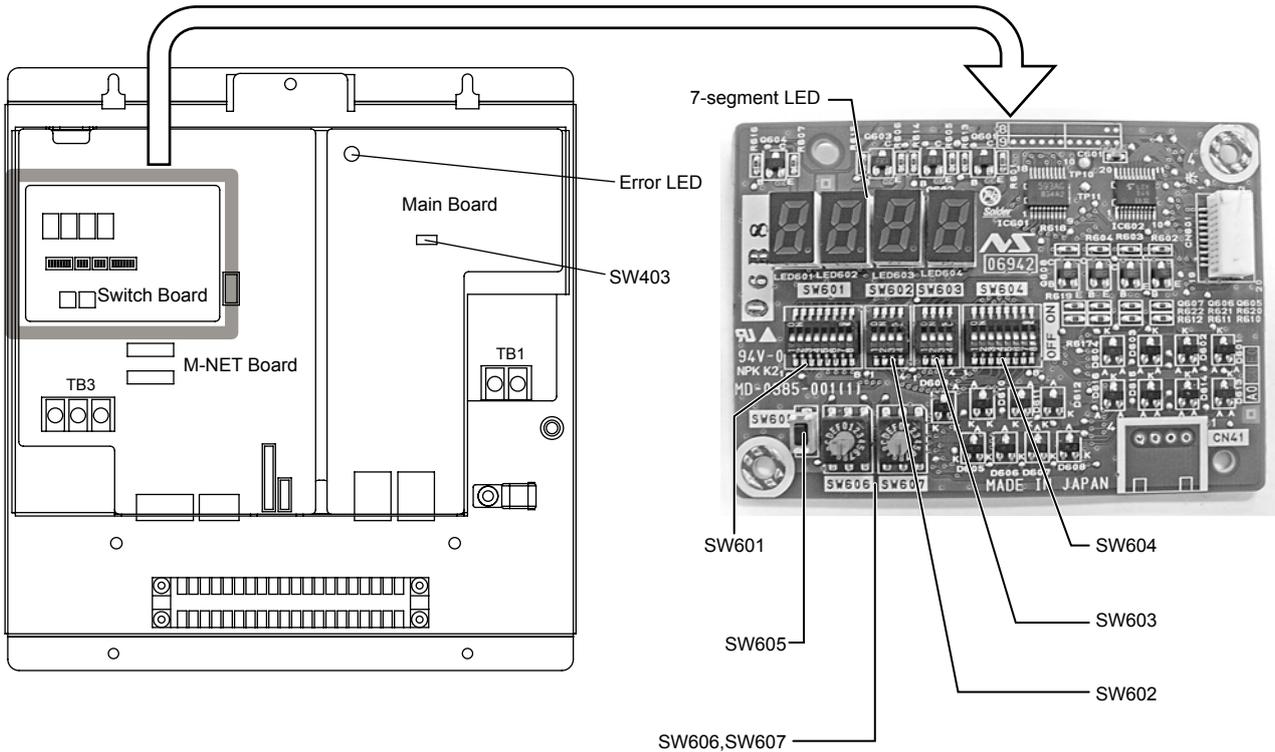
Mode change between "Online" and "Offline" are as follows.



6 Switches and 7-segment LEDs

6.1 Switch and LED layout

The layouts of the switches and LEDs on BAC-HD150 are shown below.



6.2 Switch types

(1) Dipswitches

SW601, SW602, SW603, and SW604 are available.
(The above switches are for future use.)

(2) Rotary switches

SW606 and SW607 are available.
(The above switches are for future use.)

(3) Push switches

SW403 and SW605 are available.
(SW403 is used to restart BAC-HD150, and SW605 is for future use.)

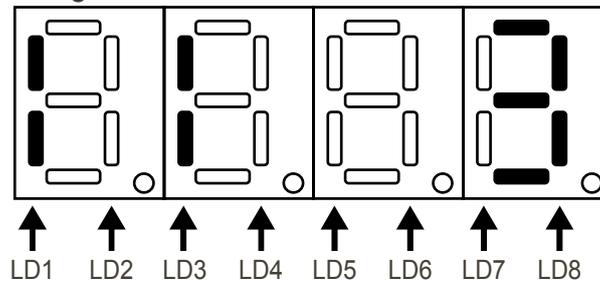
6.3 LED types

(1) 7-segment LEDs

Each set of two vertically aligned lines in the 7-segment LEDs display the information that is summarized in the table below.

LD1	CPU status	Lit : Normal
		Unlit : Error
LD2	(Undefined)	–
LD3	BACnet communication status	Lit : Error
		Unlit : Normal
LD4	Air conditioning unit errors	Lit : At least one indoor unit is in error.
		Unlit : All indoor units are normal.
LD5	M-NET startup status	Lit : Initial setting has not been completed.
		Unlit : Initial setting has been completed.
		Blink: Initial setting in progress
LD6	(Undefined)	–
LD7	BACnetIF mode	Lit : Offline mode
		Unlit : Online mode
LD8	BACnet communication service status	Lit : Communication lock (setting other than Enable)
		Unlit : Communication allowed (Enable)

7segment LED



(2) Error LED

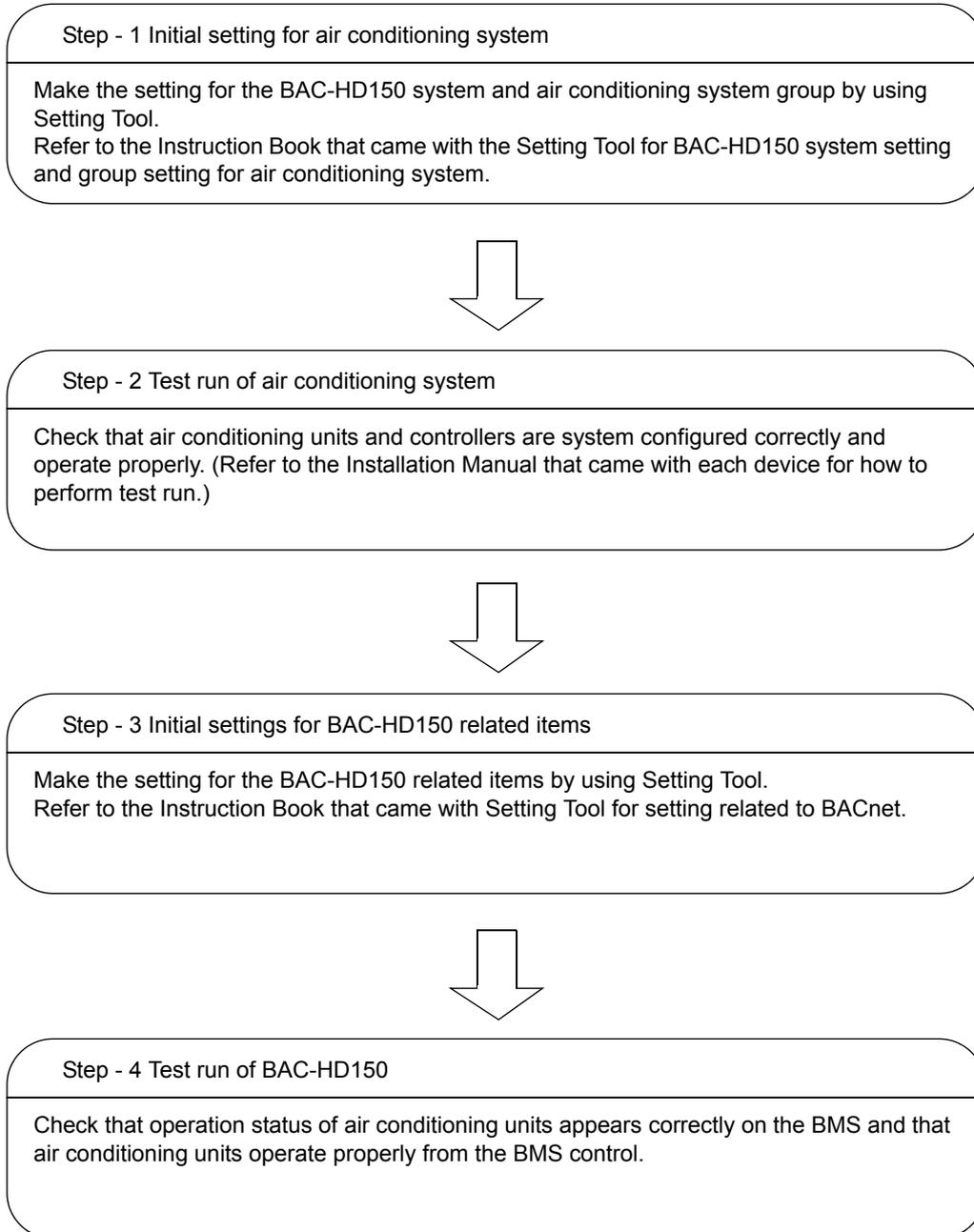
The Error LED lights up when there is a BACnet communication error. It remains turned off when no errors are occurring.

7 On-site adjustment steps

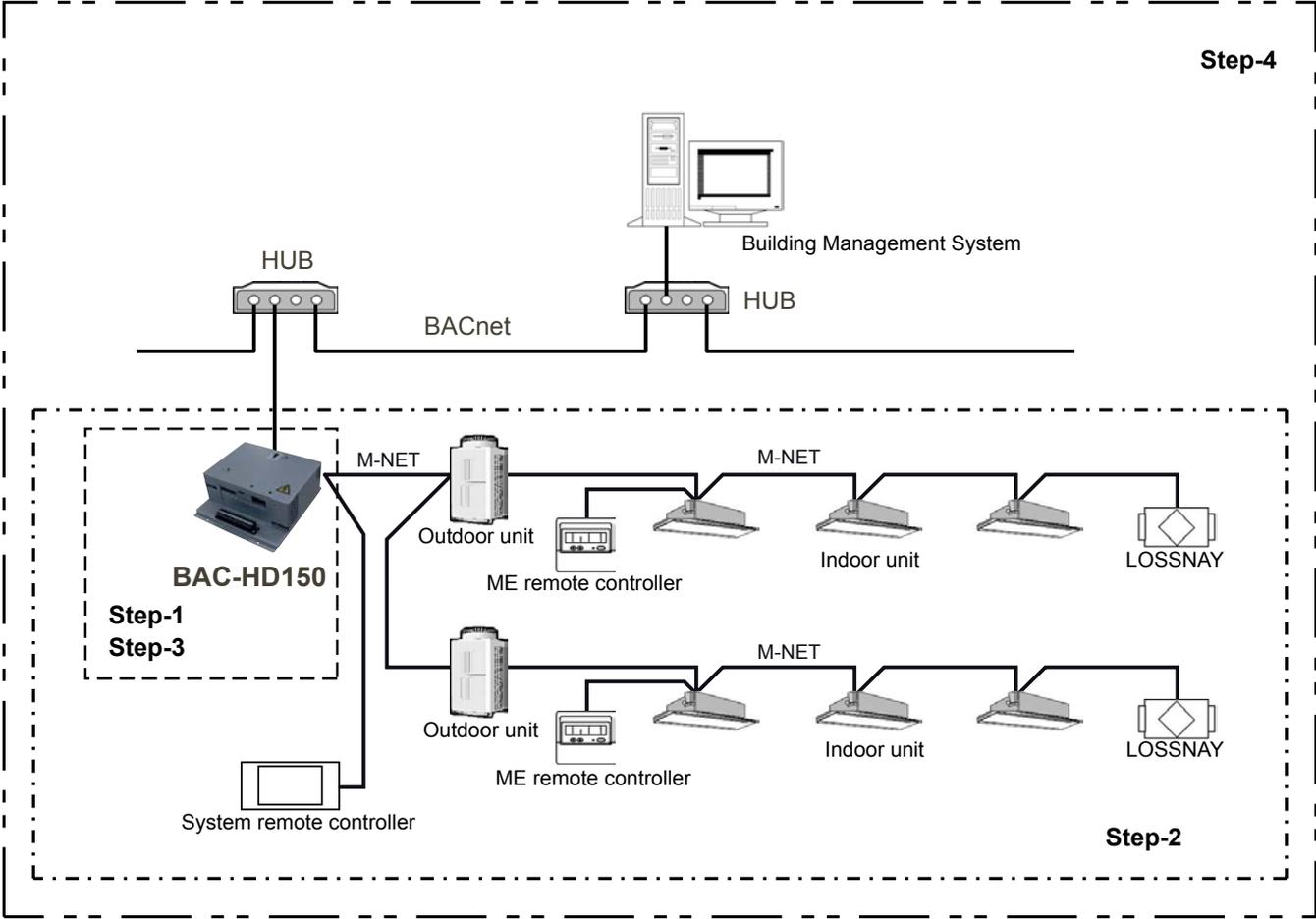
7.1 On-site adjustment flowchart

Generally, on-site adjustment is divided into four steps as follows. By following these steps, the cause of trouble can be solved clearly and on-site adjustment can be identified efficiently.

It is recommended to follow the steps below.



BMS: Building Management System



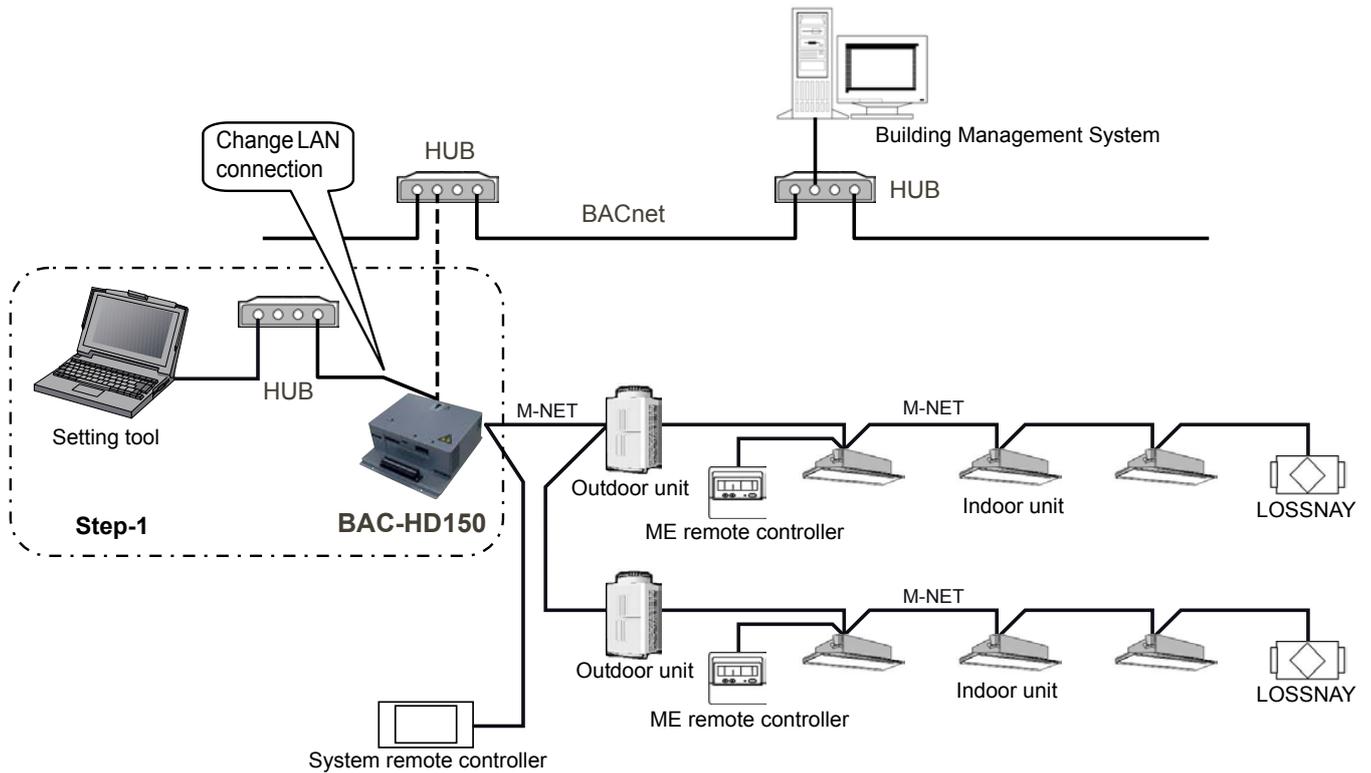
7.2 Preparation for on-site adjustment

Have the following tools and documents ready before performing on-site adjustment and a test run.

Item	Description	Notes
Reference	Air conditioning control system diagram	Group configuration, IP address, Control item, and etc.
	Instruction Book that came with BAC-HD150	(This document)
	Instruction Book that came with Setting Tool	
	BAC-HD150 Installation Manual	
	Relevant air-conditioner and controller's Instructions Books and Installation Manuals	
	Miscellaneous	BACnet device list
Tools and parts	Computer	For Setting Tool
	USB memory	For setting data backup
	Installation CD for the Setting Tool	Setup disk
	HUB	For connection to Setting Tool
	LAN cable (straight cable)	For connection to Setting Tool
	General tools such as a driver	
	Tester	Use to check wiring and voltage.
	Miscellaneous	

7.3 Step - 1 Initial setting for air conditioning system

Make the initial settings for air conditioning system using Setting Tool.



- (1) Installing the Setting Tool software
Install the Setting Tool program on a PC, and set the IP address. (Refer to the Instruction Book that came with Setting Tool for installation and setting method.)
- (2) Connecting the Setting Tool
To connect Setting Tool to BAC-HD150, disconnect LAN cable connecting to BACnet of BAC-HD150.
Use additional HUB to connect BAC-HD150 and Setting Tool.
To connect BAC-HD150 and the additional HUB, use LAN port (LAN1) connecting to BACnet.
- (3) Data setting
Make the settings for the air conditioning system related items and IP address of BAC-HD150 by using Setting Tool.
The following table shows setting items. (Refer to the Instruction Book that came with Setting Tool for setting method.)

No.	Main tab	Sub tab	Setting item
1	System Settings	Basic System	All setting items
2		M-NET	All setting items
3	Group Settings	Group	All setting items
4		LOSSNAY	All setting items

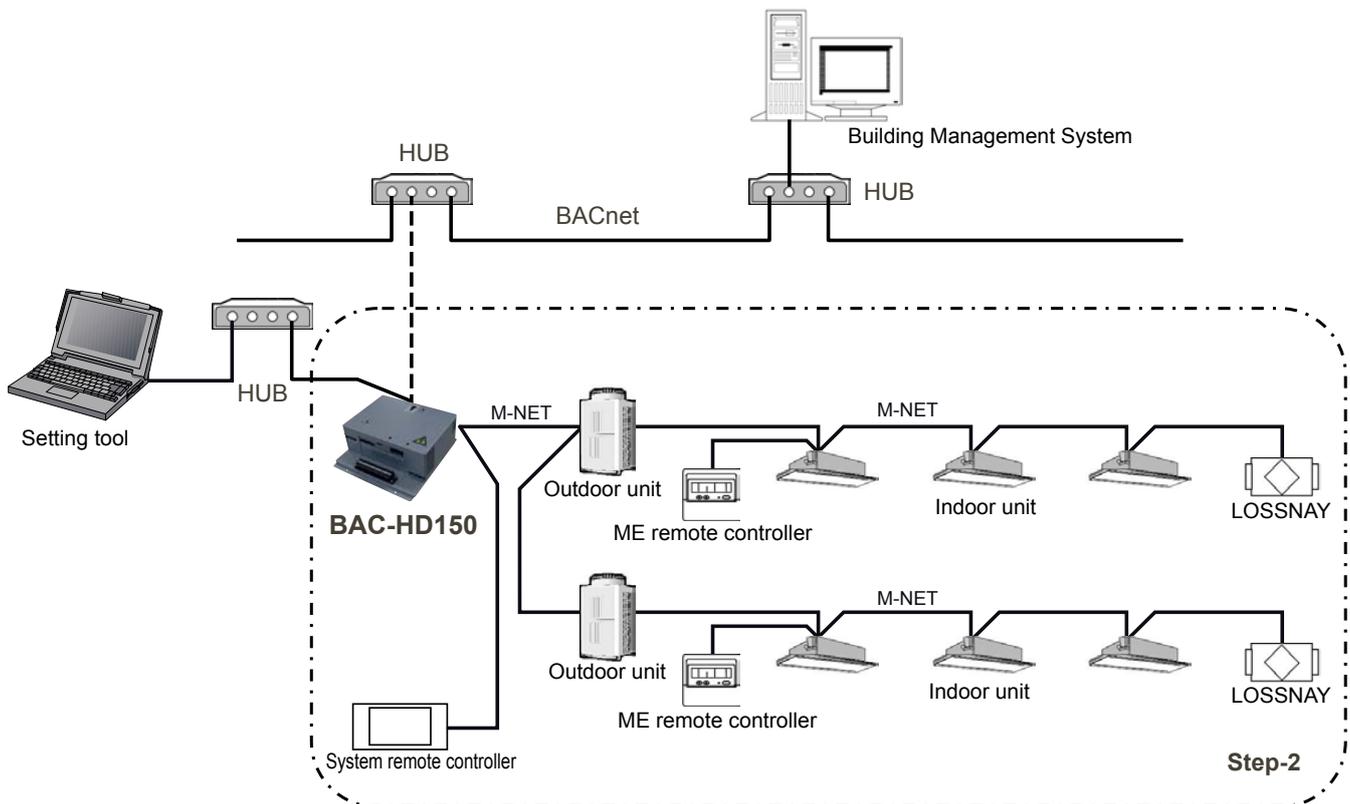
CAUTION

When IP address is duplicated, not only BAC-HD150 but also other equipments may malfunction in BACnet communication. Check IP address of BAC-HD150 before setting.

BAC-HD150 and BACnet do not get connected in Step - 1 to 3, so the setting related to IP address in Step - 1 is not necessary. IP address is set in Step - 1 just for the case they are connected accidentally.

7.4 Step - 2 Test run of air conditioning system

Perform test run only on air conditioning system.

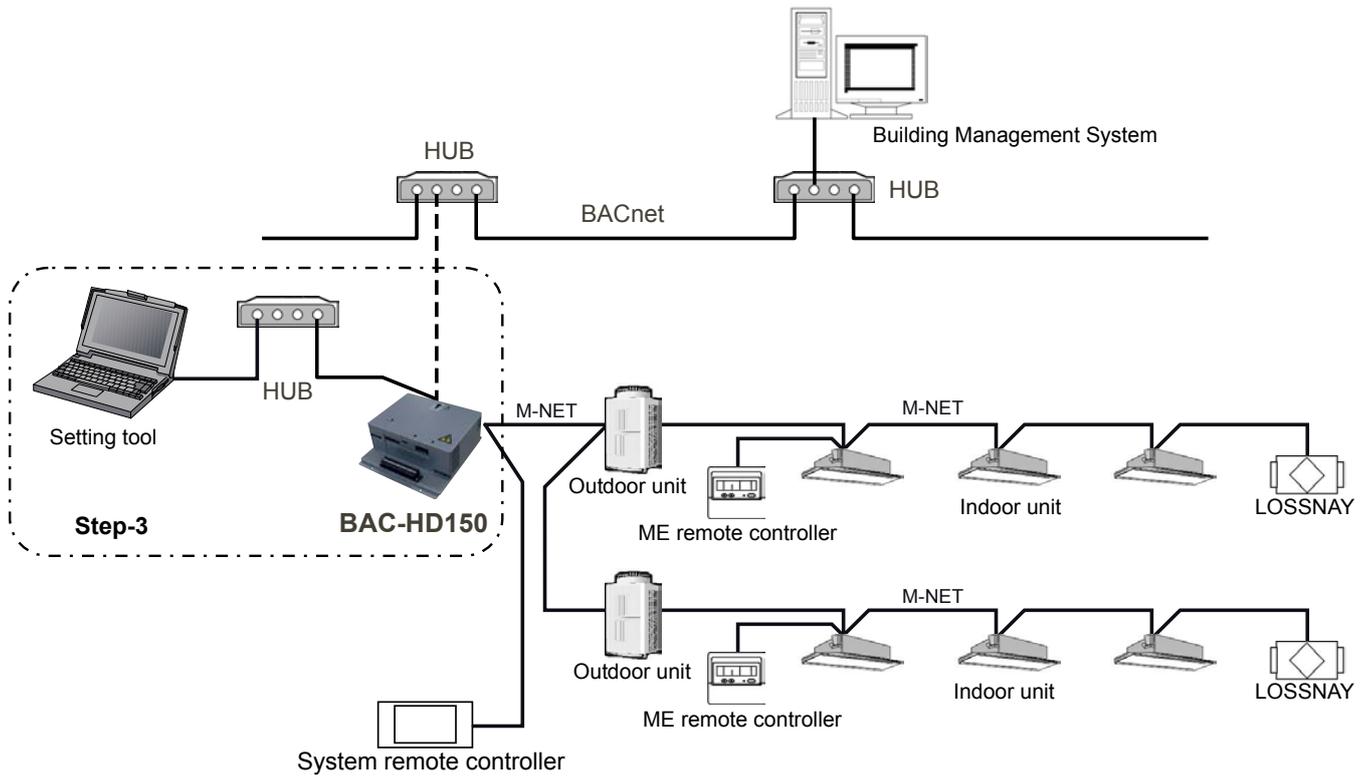


- (1) Checking items before test run
Check that test run of air conditioning units is completed.
- (2) Turning on the power of all the air conditioning units and system controllers
Turn on the power of all the air conditioning units and system controllers.
- (3) Restarting the BAC-HD150
Restarting the BAC-HD150, then it becomes [Online mode].
The setting data made in Step - 1 such as air conditioning system group is automatically sent from BAC-HD150 to air conditioning system.
(It may take about 5 minutes for the setting.)
- (4) Test run using system controller or remote controller
Perform test run using system controller or remote controller to check operation status of each unit.

* Refer to the Installation Manual that came with air conditioning unit and system controller for how to perform test run.

7.5 Step - 3 Initial settings for the BAC-HD150 related items

Make the initial settings for BACnet using Setting Tool.



(1) Data setting

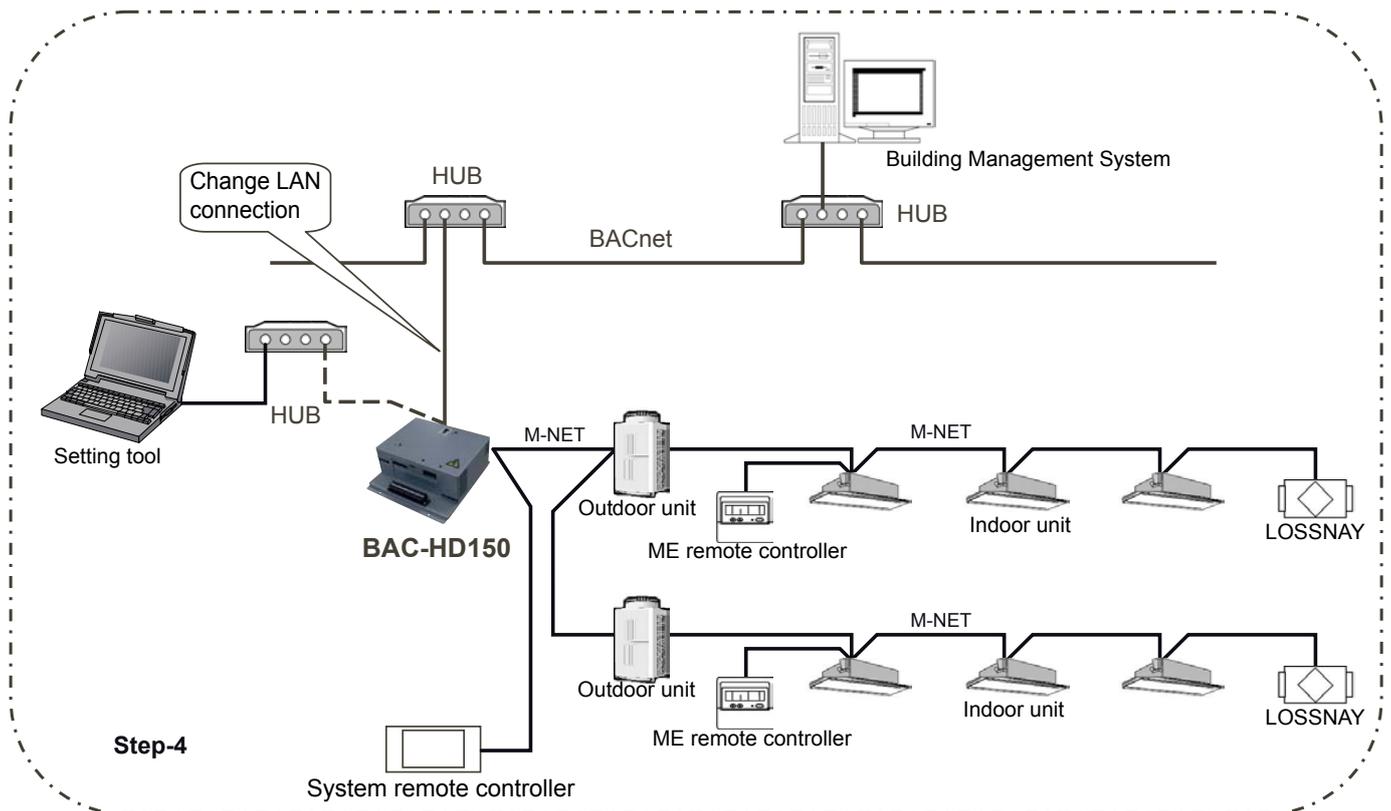
Make the settings for BACnet using Setting Tool.

The following table shows setting items. (Refer to the Instruction Book that came with Setting Tool for setting method.)

No.	Main tab	Sub tab	Setting item
1	BACnet Settings	BACnet	All setting items
2		Network and Device	All setting items
3		Object	All setting items
4		Other	All setting items

7.6 Step - 4 Test run of BAC-HD150

Connect BMS and perform test run of air conditioning system.



- (1) BACnet connection
Switch LAN connection of BAC-HD150 from Setting Tool to BACnet.
- (2) Restarting the BAC-HD150
Restart BAC-HD150, then it becomes [Online mode].
- (3) Test run items and method
Refer to the next page for test run items and method.

On-site adjustment sheet for BACnet interface (proposal)

Check these items to use the system.

Group No. []

Control item	Object	Status	Steps	Result
On Off Setup	BO_01xx01	INACTIVE: Stop ACTIVE: Run	<ul style="list-style-type: none"> Turn ON/OFF the specific group from BMS(*1). After doing so, check that the operation status of the group renews the condition using system controller or remote controller.	
On Off State	BI_01xx02	INACTIVE: Stop ACTIVE: Run	<ul style="list-style-type: none"> Turn ON/OFF the specific group using system controller or remote controller. After doing so, check that the operation status of the group renews the condition on BMS .	
Alarm Signal	BI_01xx03	INACTIVE: Normal ACTIVE: Error	<ul style="list-style-type: none"> Make an error on an air conditioning units of the specific group. After doing so, check that the warning signal of the group turns to (ACTIVE) on BMS. (*2) <ul style="list-style-type: none"> Recover the error of the air conditioning units of the specific group. After doing so, check that the warning signal of the group turns to (INACTIVE) on BMS.	
Error Code	MI_01xx04	01 : Normal 02 : Other errors 03 : Refrigeration fault 04 : Water error 05 : Air error 06 : Electronic error 07 : Sensor fault 08 : Communication error 09 : System error	<ul style="list-style-type: none"> Disconnect M-NET transmission line that is connected to BAC-HD150. After doing so, check that the error code of all groups turns to Communication error (08) on BMS. (*3) <ul style="list-style-type: none"> Connect M-NET transmission line to BAC-HD150. After doing so, check that the error code of all groups turns to Normal (01) on BMS. (Do not perform this check when other errors occur.)	
Operational Mode Setup	MO_01xx05	01 : Cooling 02 : Heating 03 : Fan 04 : Auto 05 : Dry (*4)	<ul style="list-style-type: none"> Change operation mode of the specific group from BMS. After doing so, check that the operation mode of the group renews the mode using system controller or remote controller.	
Operational Mode State	MI_01xx06	01 : Cooling 02 : Heating 03 : Fan 05 : Dry (*4)	<ul style="list-style-type: none"> Change operation mode of the specific group using system controller or remote controller. After doing so, check that the operation mode of the group renews the mode on BMS.	
Fan Speed Setup	MO_01xx07	01 : Low 02 : High 03 : Mid 2 (*5) 05 : Mid 1 (*5)	<ul style="list-style-type: none"> Change fan speed of the specific group from BMS. After doing so, check that the fan speed of the group renews the speed using system controller or remote controller.	
Fan Speed State	MI_01xx08	01 : Low 02 : High 03 : Mid 2 (*5) 04 : Mid 1 (*5)	<ul style="list-style-type: none"> Change fan speed of the specific group using system controller or remote controller. After doing so, check that the fan speed of the group renews the speed on BMS.	
Room temp	AI_01xx09	°C	<ul style="list-style-type: none"> Change intake air temperature and check if the display of BMS and system controller/remote controller are the same. 	
Set Temp	AV_01xx10	°C	<ul style="list-style-type: none"> Make a setting of set room temperature of the specific group from BMS. After doing so, check that the set room temperature of the group renews the temperature using system controller or remote controller. <ul style="list-style-type: none"> Change the set room temperature of the specific group using system controller or remote controller. After doing so, check that the set room temperature of the group renews the temperature on BMS.	
Filter Sign	BI_01xx11	INACTIVE : OFF ACTIVE : ON	<ul style="list-style-type: none"> Perform something to turn on the filter sign. (*2) After doing so, check that the filter sign of the group turns to ON(ACTIVE) on BMS.	
Filter Sign Reset	BV_01xx12	INACTIVE : RESET ACTIVE : Void	<ul style="list-style-type: none"> Reset the filter sign of the group that detects filter sign [ON(ACTIVE)] from BMS. (*2) After doing so, check that the filter sign of the group turns to OFF(INACTIVE) on BMS.	

Control item	Object	Status	Steps	Result
Prohibition On Off	BV_01xx13	INACTIVE : Permit ACTIVE : Prohibit	<ul style="list-style-type: none"> Prohibit the remote controller (ON/OFF) of the specific group from BMS. After doing so, check that the remote controller (ON/OFF) of the group turns to (ACTIVE) via the remote controller. <ul style="list-style-type: none"> Permit the remote controller (ON/OFF) of the specific group from BMS. After doing so, check that the remote controller (ON/OFF) of the group turns to (INACTIVE) via the remote controller.	
Prohibition Mode	BV_01xx14	INACTIVE : Permit ACTIVE : Prohibit	<ul style="list-style-type: none"> Operation/checking object is the same as the steps of remote controller (operation mode), but the checking method is the same as the steps of remote controller (ON/OFF). 	
Prohibition Filter Sign Reset	BV_01xx15	INACTIVE : Permit ACTIVE : Prohibit	<ul style="list-style-type: none"> Operation/checking object is the same as the steps of remote controller (filter sign reset), but the checking method is the same as the steps of remote controller (ON/OFF). 	
Prohibition Set Temperature	BV_01xx16	INACTIVE : Permit ACTIVE : Prohibit	<ul style="list-style-type: none"> Operation/checking object is the same as the steps of remote controller (set temperature), but the checking method is the same as the steps of remote controller (ON/OFF). 	
Communication State	BI_01xx20	INACTIVE: Normal ACTIVE: Error	<ul style="list-style-type: none"> Disconnect M-NET transmission line which is connected to BAC-HD150. After doing so, check that the communication condition of all groups turns to error (ACTIVE) on BMS. (*3) <ul style="list-style-type: none"> Connect M-NET transmission line to BAC-HD150. After doing so, check that the error code of all groups turns to Normal (INACTIVE) on BMS.	
System Forced Off	BV_01xx21 BV_019921	INACTIVE: Reset ACTIVE: Execute	<ul style="list-style-type: none"> Perform a forced stop of the system of the specific group from BMS. After doing so, check that the air conditioner stops on BMS.	
Air Direction Setup	MO_01xx22	01 : Horizontal 02 : Downblow 60% 03 : Downblow 80% 04 : Downblow 100% 05 : Swing	<ul style="list-style-type: none"> Change the air direction of the specific group from BMS. After doing so, check that the air direction of the group renews the direction using system controller or remote controller.	
Air Direction State	MI_01xx23	01 : Horizontal 02 : Downblow 60% 03 : Downblow 80% 04 : Downblow 100% 05 : Swing	<ul style="list-style-type: none"> Change the air direction of the specific group using system controller or remote controller. After doing so, check that the air direction of the group renews the direction on BMS.	
Ventilation Mode Setup	MO_01xx35	01 : Heat exchange 02 : Bypass 03 : Auto	<ul style="list-style-type: none"> Change the LOSSNAY ventilation mode of the specific group from BMS. After doing so, check that the LOSSNAY ventilation mode of the group renews the mode using system controller or remote controller.	
Ventilation Mode State	MI_01xx36	01 : Heat exchange 02 : Bypass 03 : Auto	<ul style="list-style-type: none"> Change the LOSSNAY ventilation mode of the specific group using system controller or remote controller. After doing so, check that the LOSSNAY ventilation mode of the group renews the mode on BMS.	

*1: BMS = Building Management System

*2: Consult a Mitsubishi personnel for the confirmation method.

*3: It can take up to five minutes for an error to be detected.

*4: "Dry" can be used only when "use" is selected for the "Dry" setting ("Dry" is not used for a default.)

*5: "Mid 1/Mid 2" can be used only when "use" is selected for the "Mid 1/Mid 2" setting. ("Mid 1/Mid 2" is not used for a default.)

This product is designed and intended for use in the residential,
commercial and light-industrial environment.

The product at hand is
based on the following
EU regulations:

- Low Voltage Directive 2006/95/EC
- Electromagnetic Compatibility Directive,
2004/108/EC

Please be sure to put the contact address/telephone number on
this manual before handing it to the customer.

 **mitsubishi electric corporation**

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