



# INSTALLATION MANUAL

# Communication Box

**BRR9A1V1**

**Installation manual  
Communication Box**

English

**Installationsanleitung  
Kommunikationsbox**

Deutsch

**Manuel d'installation  
Boitier de Communication**

Français

**Installatiehandleiding  
Communicatie Box**

Nederlands

**Manual de instalación  
Caja de comunicación**

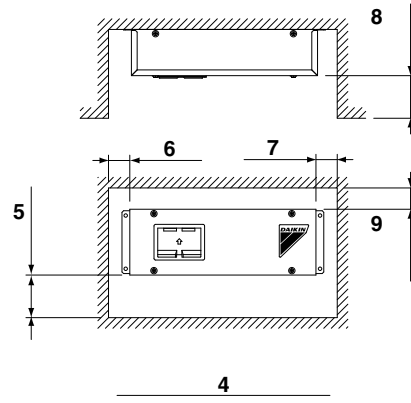
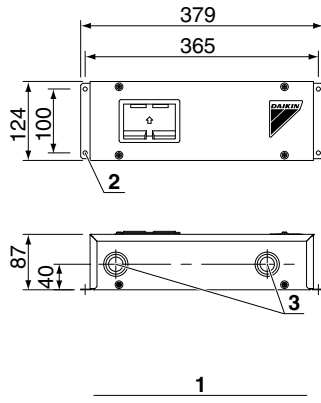
Español

**Manuale di installazione  
Cassetta di comunicazione**

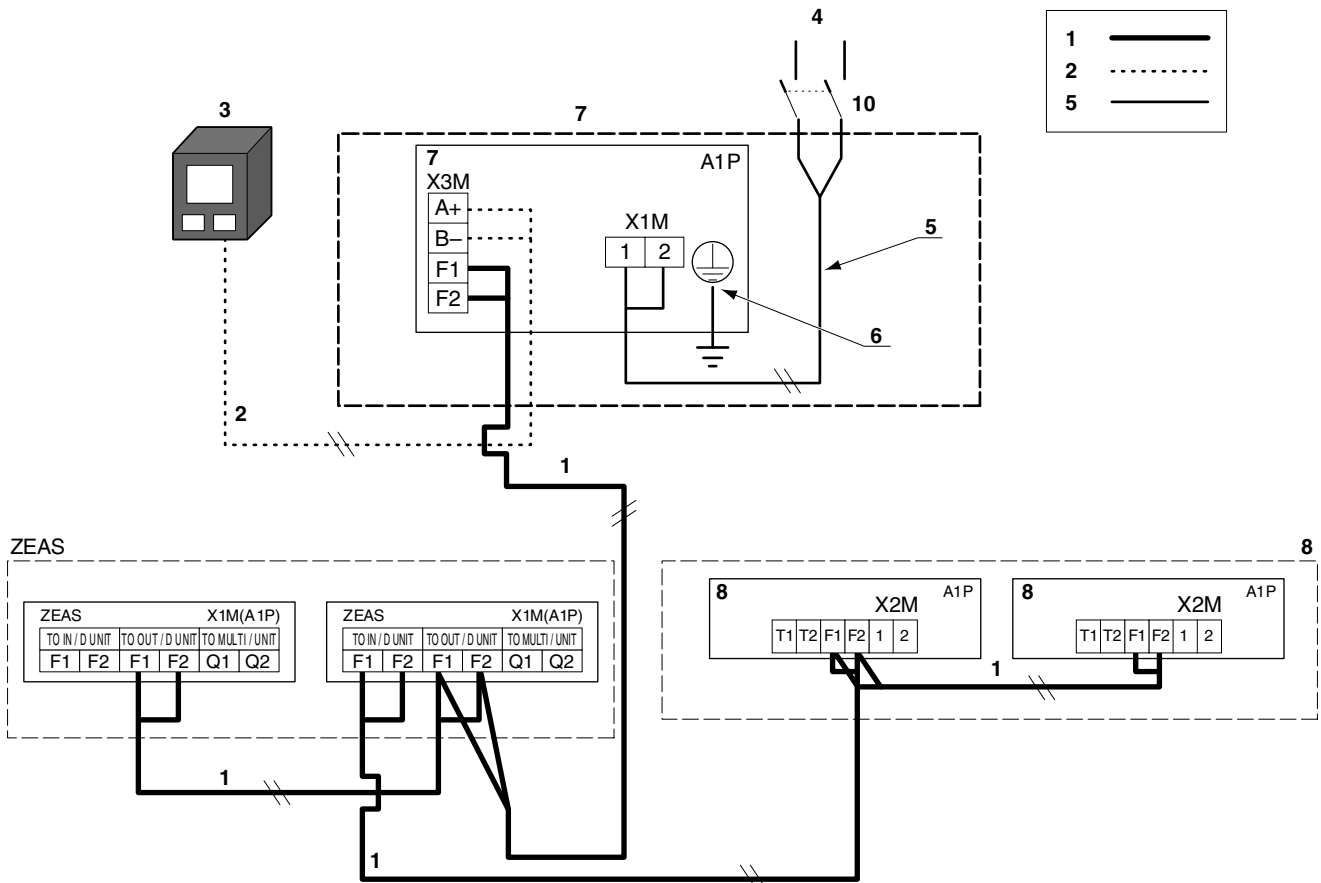
Italiano

**Manual de instalação  
Caixa de Comunicação**

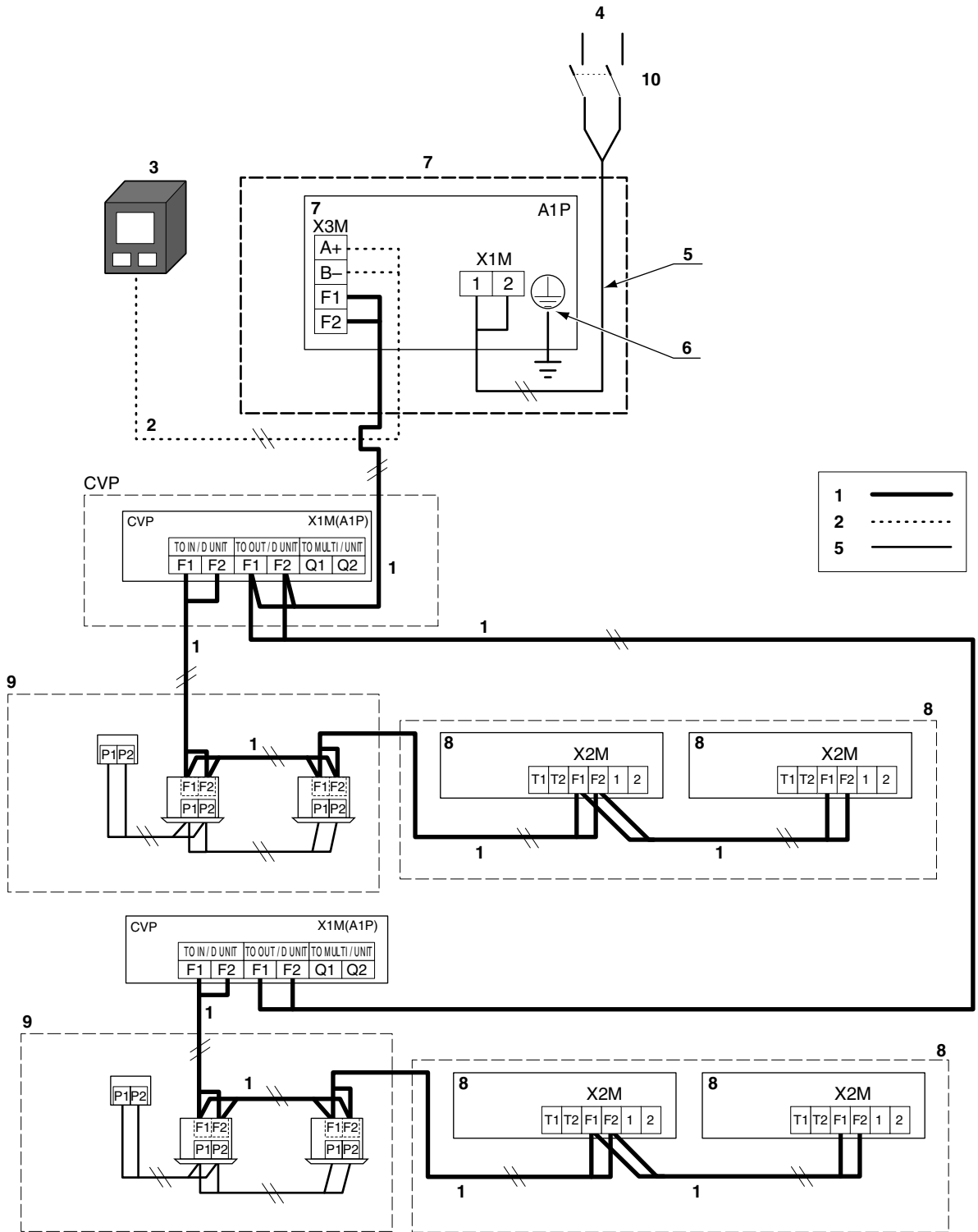
Portugues

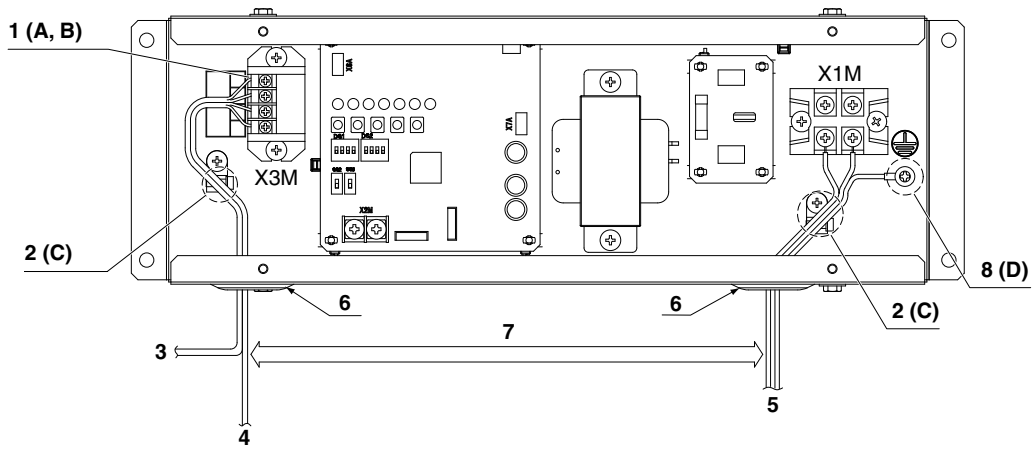


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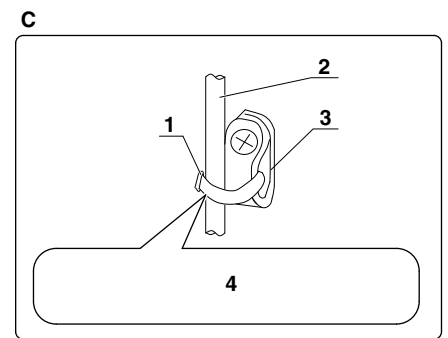
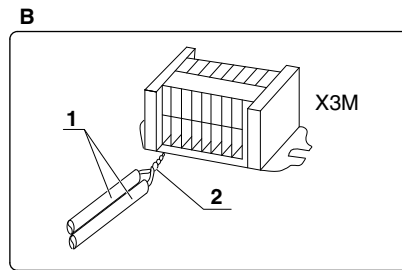
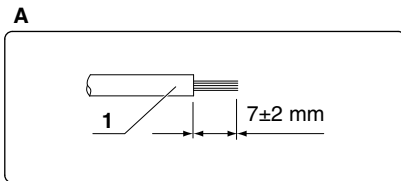


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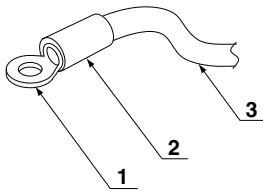




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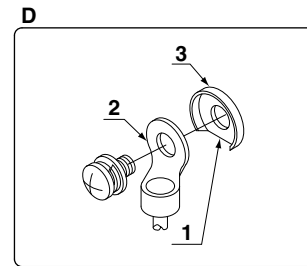


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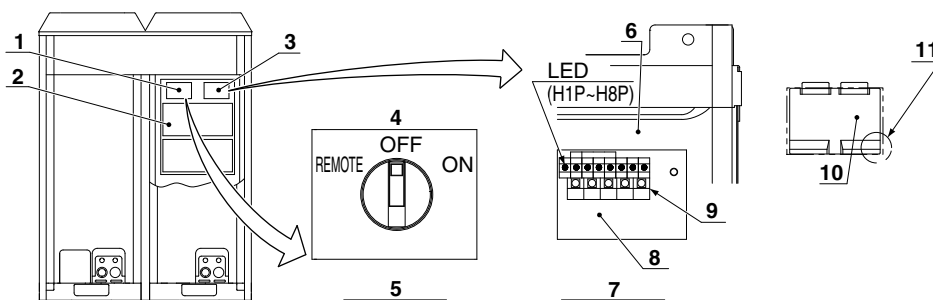
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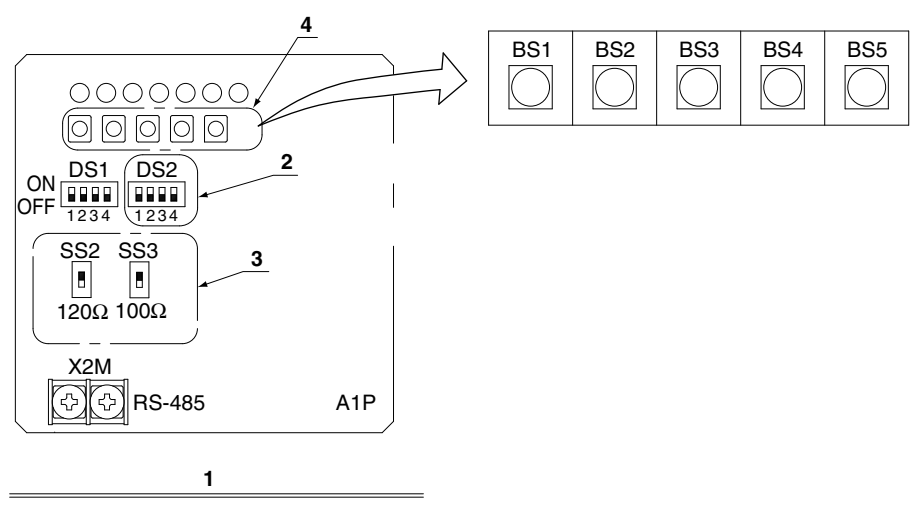
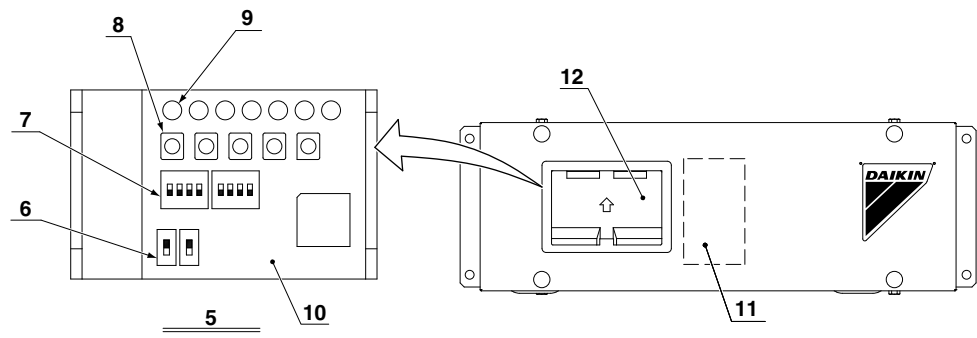
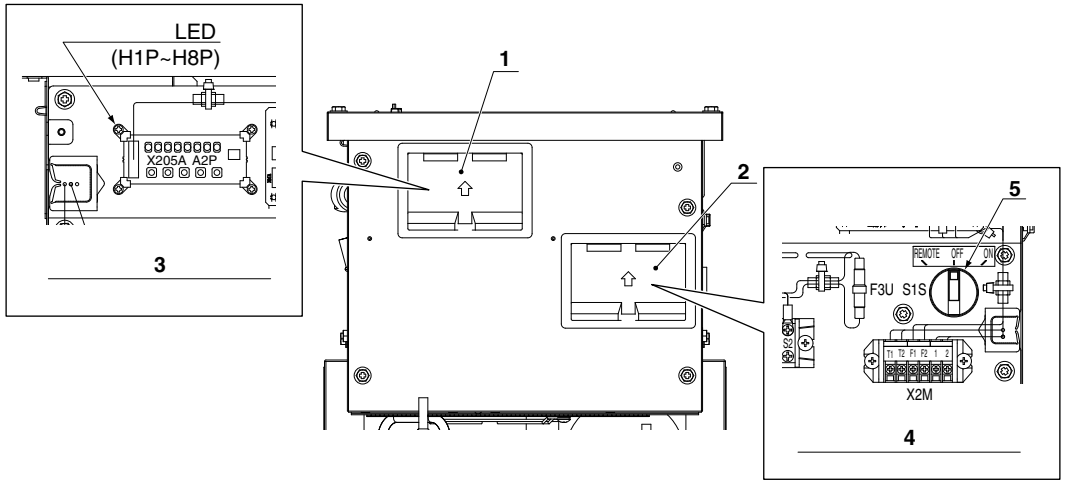


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The English text is the original instruction. Other languages are translations of the original instructions.

## 1. Safety precautions


Please read these "Safety precautions" carefully before installing the communication box and be sure to install it correctly. For information on the installation of ZEAS, CVP, booster units, and indoor units (air conditioner), refer to the installation manual included with the respective equipment.

Meaning of WARNING and CAUTION notices

 **WARNING**.... Failure to follow these instructions properly may result in personal injury or loss of life.

 **CAUTION**..... Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstances.

### WARNING

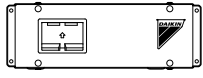

- Ask your dealer or qualified personnel to carry out installation work.  
Do not attempt to install the condensing unit yourself. Improper installation may result in water leakage, electric shocks or fire.
- Make sure that a separate power supply circuit is provided for this unit and that all electrical work is carried out by qualified personnel according to local laws and regulations and this installation manual.
- Be sure to earth the communication box.  
Do not earth the unit to a utility pipe, lightning conductor or telephone earth lead. Imperfect earthing may result in electric shocks or fire.   
A high surge current from lightning or other sources may cause damage to the communication box.
- Be sure to switch off the unit before touching any electrical parts.
- Make sure that all wiring is secured, the specified wires are used, and that there is no strain on the terminal connections or wires. Improper connections or securing of wires may result in abnormal heat build-up or fire.
- When wiring the power supply and connecting transmission wiring, position the wires so that the control box cover can be securely fastened.  
Improper positioning of the control box cover may result in electric shocks, fire or the terminals overheating.
- Do not touch the switch with wet fingers.  
Touching a switch with wet fingers can cause electric shock.

## 2. Components

The following table shows the components of the communication box.

The screws for securing the communication box must be arranged locally.

Do not dispose of the accessories; they will be required in the installation.

Name	Communication box	Clamping material	Manuals etc.
Quantity	1 unit	2 units	1 copy
Shape			• Installation manual (this document)

## 3. Main specifications

Ambient Temp. range	-20 - 60°C	
Power supply	1 phase 220-240V 50Hz	
Input	6.9W	
Dimensions	H	124
	W	379
	D	87
Casing	hot-dip zinc-coated S S	
Comm. protocol	Mod bus RS-485 two-wires system	
Mass	2.1kg	
Location	Indoor installed	

## 4. Installing the communication box

### WARNING

- For information on the installation of ZEAS, CVP, booster units, and indoor units (air conditioner), refer to the installation manual included with the respective equipment.
- Install the communication box in accordance with the instructions in this installation manual.  
Improper installation may result in water leakage, electric shocks or fire.
- Be sure to use only the specified accessories and parts for installation work.  
Failure to use the specified parts may result in the unit falling, water leakage, electric shocks or fire.
- Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes.  
Failure to do so during installation work may result in the unit falling and causing accidents.

### CAUTION

- Do not install the communication box in the following locations:
  1. Where there is a high concentration of mineral oil spray or vapour (e.g. a kitchen).  
Plastic parts will deteriorate, parts may fall off and water leakage could result.
  2. Near machinery emitting electromagnetic radiation.  
Electromagnetic radiation may disturb the operation of the control system and result in a malfunction of the unit.

3. Where flammable gas may leak, where there is carbon fiber or ignitable dust suspensions in the air, or where volatile flammables such as paint thinner or gasoline are handled. Operating the unit in such conditions may result in fire.
4. Places with excessive voltage fluctuations. Communication box may malfunction.
5. Places that become small animals' shelter. Small animals coming in contact with electrical parts can cause malfunctions, smoke, or ignition.

- (1) Drill pilot holes at the fixing points as shown in figure 1.
- (2) Secure the communication box on a sufficiently strong place such as a wall by using fixing screws (locally arranged). When you fix the communication box on a material other than iron plates, use screws suitable for the material to fix the communication box securely.
- (3) When you install the communication box, make the wire intakes face downward as shown in figure 1. When you install the communication box with the wiring intakes facing sideways, ensure that formed dew or rainwater will not drop on the field wires and provide traps in front of the intakes.

**(Refer to figure 1)**

1. External dimensions and fixing points
2. Pilot hole for a M5 self-tapping screw (4 points)
3. Wire intake
4. Service space
5. 300 mm or more
6. 50 mm or more
7. 50 mm or more
8. 100 mm or more
9. 50 mm or more

## 5. Electrical wiring work

### ⚠ CAUTION

- All field wiring and components must be installed by a licensed electrician and must comply with relevant local and national regulations.
- Be sure to use a dedicated power circuit. Never use a power supply shared by another appliance.
- Connect to the power wire a handy switch that can disconnect all poles securely.
- Do not connect the ground wire to gas pipes, sewage pipes, lightning rods, or telephone ground wires.  
**Gas pipes:** can explode or catch fire if there is a gas leak.  
**Sewage pipes:** no grounding effect is possible if hard plastic piping is used.  
**Telephone ground wires and lightning rods:** dangerous when struck by lightning due to abnormal rise in electrical potential in the grounding.
- Connect the wires in accordance with "Electric Wiring Diagram Nameplate" attached on the back side of the communication box cover.
- The transmission wiring (weak current; DIII) and the transmission wiring (weak current; RS-485) are transmission wiring for control line.  
Do not clamp the transmission wiring with heavy-current wires or earth wires. Communication malfunction may occur.
- Do not connect a heavy-current wire to the terminal block to which the transmission wiring (weak current; DIII) and the transmission wiring (weak current; RS-485) are to be connected. Such an incorrect connection is very dangerous, potentially causing damage to and/or burnout of the electrical components.
- Do not use stranded wires with a solder finish applied.  
A loose wire or other abnormalities may cause abnormal heating.
- Connect only the specified wires and connect them securely so that no external force will be applied on the terminals.

- Excessive tightening of a terminal screw may damage the screw.
- Use copper conductors only.
- Use insulated wire for the power cord.
- Select the power supply cable type and size in accordance with relevant local and national regulations.
- Specifications for local wiring are in compliance with IEC60245.
- Use wire type H05VV when protected pipes are used.
- Use wire type H07RN-F when protected pipes are not used.

## 5-1 Connecting the transmission wiring (weak current; DIII)

### ⚠ CAUTION

- Observe the specified length of the transmission wiring (weak current; DIII): non-observance may cause transmission errors.
- For the transmission wiring (weak current; DIII), use sheathed vinyl flexes or cables (two cores).
- For the transmission wiring (weak current; DIII), use two-core wires.  
Do not use a wire with three or more cores; otherwise, transmission errors may occur.

### Wiring specifications

- (1) For information on the specifications of the power and communication wires for ZEAS, CVP, and booster units, refer to the included installation manuals.
- (2) The following table shows the specifications of the transmission wiring (weak current; DIII).

Wire	Thickness (mm <sup>2</sup> )	Max. wire length
Transmission wiring (weak current; DIII)	0.75 - 1.25	1000 m (max. wire length) 2000 m (total wire length)

### Wiring procedure

Figures 2 and 3 show the wiring diagrams for connecting the communication box and each unit (ZEAS, CVP, booster units, indoor units (air conditioner)).

Connect wires as follows:

- (1) Wiring between the communication box and ZEAS/CVP  
Connect F1 and F2 of the terminal block (X3M) of the communication box to F1 and F2 (TO OUT/D UNIT) of the terminal block (X1M (A1P)) of ZEAS/CVP.
- (2) Wiring between ZEAS/CVP  
Connect F1 and F2 (TO OUT/D UNIT) of the terminal block (X1M (A1P)) of a ZEAS/CVP to F1 and F2, respectively, of the terminal block of another ZEAS/CVP.
- (3) Wiring of indoor units (air conditioner) and booster units  
The connecting method is the same as the previous one. Refer to the installation manual of the respective unit.

### (Refer to figure 2, 3)

1. Transmission wiring (weak current; DIII)

**How to connect the terminal block (X3M) of the communication box**

For information on how to wire the terminal block (X3M) of the communication box, refer to figures 4 to 6.

- (1) Tightening torque of the terminal screws of the terminal block (X3M)  
For the tightening torques of the terminal screws, refer to the following table and use an appropriate screwdriver for tightening.  
A screwdriver of an inadequate size can damage the screw head, preventing appropriate tightening.

Tightening torque (N·m)	
<Communication box> Terminal block (X3M)	0.79 - 0.97
<Outdoor unit (ZEAS/CVP)> Terminal block (X1M (A1P))	0.80 - 0.96

- (2) Preparation of wires  
As shown in figure 5, cut the end portion of the transmission wiring to be connected and unsheathe the wire before connecting it to the terminal block (X3M).
- (3) When connecting multiple wires from the terminal block (X3M)  
To connect two wires to the terminal block (X3M), use wires with the same diameter and twist the core wires together as shown in figure 6 before connecting the wires.

**(Refer to figure 4)**

- 1. Refer to figure 5 to make a connection.
- 3. Transmission wiring (weak current; DIII)  
To ZEAS or CVP (there is no polarity)

**(Refer to figure 5)**

- 1. Sheath

**(Refer to figure 6)**

- 1. Wires with the same diameter
- 2. Twist together before connecting

**5-2 Connecting the transmission wiring (weak current; RS-485)**

**⚠ CAUTION**

- The transmission wiring (weak current; RS-485) have polarity. Incorrect wiring disables communication.

**Wiring specifications**

- (1) The following table shows the specifications of the transmission wiring (weak current; RS-485).

Wire	Thickness (mm <sup>2</sup> )	Max. wire length
Transmission wiring (weak current; RS-485)	0.75 - 1.25	1200 m

**Wiring procedure**

- (1) Wiring between the communication box and the monitoring system  
Figures 2 and 3 show the wiring diagrams for connecting the communication box and the monitoring system.  
As shown in figures 2 and 3, connect wires from A+ and B- of the terminal block of the communication box to the monitoring system.
- (Refer to figure 2, 3)**
- 2. Transmission wiring (weak current; RS-485)
  - 3. Monitoring system
  - 7. Communication Box
  - 8. Booster unit

- 9. Indoor unit (Air conditioner)
- 10. Switch

**How to wire the terminal block (X3M) of the communication box**

- (1) Connect wires to the terminal block (X3M) in the same way as "5-1. Connecting the transmission wiring (weak current; DIII)".

**(Refer to figure 4)**

- 1. Refer to figure 5 to make a connection.
- 4. Transmission wiring (weak current; RS-485) (It has polarity)  
To the monitoring system

**(Refer to figure 5)**

- 1. Sheath

**(Refer to figure 6)**

- 1. Wires with the same diameter
- 2. Twist together before connecting

**5-3 Connecting the power wire**

**Wiring specifications**

- (1) The following table shows the specifications of the earth wire and the power wire of the communication box.

Power wire		Earth wire (copper)
Min. thickness (*1)	Max. line length (*2)	
2 mm <sup>2</sup> (φ1.6 mm) or more	250 m	2 mm <sup>2</sup> (φ1.6 mm) or more

- \*1. Selections are made based on the VV cable and the IV wire (electrical conduit work).
- \*2. The maximum line length is based on a voltage sag of 2%.

**Wiring procedure**

Figures 2 to 4 and 7 to 9 show the drawings of the power wire.

- (1) Connect a power wire (heavy current) to the terminal block (X1M) of the communication box.
  - Connect a power wire and an earth wire by using round crimp-on terminals.
  - As shown in figure 8, provide insulation to heavy-current wires such as by installing an insulation sleeve.
- (2) Connect an earth wire to the earth terminal of the communication box.
  - Connect the earth wire so that it comes out from the cutout section of the cup washer as shown in figure 9.
- (3) Tightening torque of the terminal screws of the terminal block (X1M), Earth terminal  
For the tightening torques of the terminal screws, refer to the following table and use an appropriate screwdriver for tightening.  
A screwdriver of an inadequate size can damage the screw head, preventing appropriate tightening.

Tightening torque (N·m)	
<Communication box> Terminal block (X1M)	1.18 - 1.44
<Communication box> Earth terminal	3.02 - 4.08

**(Refer to figure 2, 3)**

- 4. Power supply Single phase 220 to 240 V
- 5. Power supply line
- 6. Earth line (copper)



**(Refer to figure 4)**

5. Power wire, Earth wire (copper)
8. Earth terminal (M4)

**(Refer to figure 8)**

1. Round crimp-on terminal
2. Insulation sleeve
3. Wire

**(Refer to figure 9)**

1. Cutout section
2. Round crimp-on terminal
3. Cup washer

**5-4 Securing the field wires (transmission wiring and power wire)**

- (1) Securing the transmission wiring (weak current)  
Refer to figure 7 to secure the transmission wiring (weak current; DIII) and the transmission wiring (RS-485) by using the included clamping materials.
- (2) Securing the power wire and earth wire  
Refer to figure 7 to secure the power wire and the earth wire by using the included clamping materials.

**(Refer to figure 4)**

2. Refer to figure 7 to cut an excess end portion after tightening the clamping material on the fixture.

**(Refer to figure 7)**

1. Clamping material (accessory)
2. Wire
3. Fixture
4. After tightening the clamping material on the fixture, cut an excess end portion.

**5-5 Notes**

- (1) As shown in figure 4, position the heavy-current wires 50mm or more apart from the weak-current wires.
- (2) If a small animal may enter the intake, fill the gaps with putty or other closing material (locally procured).

**(Refer to figure 4)**

6. Intake
7. Position heavy current 50 mm or more apart from weak current

## 6. Field configuration

### 6-1 Setting the addresses of outdoor units (ZEAS, CVP), booster units, and indoor units (air conditioner)

#### CAUTION

- Whenever you open the front plate of an outdoor unit during operation, be careful of the rotation of the fan. The fan of the outdoor unit may continue rotating for a while even after the operation is stopped.
- Before power on, make sure that the operation switch of outdoor unit (ZEAS, CVP) is turned "OFF" from the inspection hole in the cover of the control box.
- After power on, operate the push button switches and check the LED indication from the inspection hole in the control box. Operating with the cover open may cause an electric shock.
- For information on the field configuration method of the monitoring system (product of other manufacturer), make an inquiry to the appropriate monitoring system manufacturer.

#### (1) Effective address range

Set an address in accordance with the model to be connected to the communication box. The following table shows the numbers to which an address can be set.

#### Note

The numbers in the following table show the effective range of address setting. For the number of outdoor units that can communicate with one communication box, refer to the specifications.

Pattern	Effective address range
ZEAS	1 - 32
CVP (+Booster unit)	1 - 10
ZEAS+Booster unit	1 - 10
Remarks	*1 · *2

\*1. For outdoor units to which a booster unit or an air conditioner indoor unit is connected (ZEAS/CVP), set the addresses to 1 to 10. For only ZEAS to which no booster unit will be connected, the address can be set to 11 or later.

\*2. Set the addresses for ZEAS, CVP, and ZEAS+Booster unit avoiding duplication.

\*3. For a booster unit and an air conditioner indoor unit, set the address within the range shown in the following table.

	Effective address range
Booster unit	1 - 3
Indoor unit (Air conditioner)	2 - 61

\*4. Setting an address outside the effective range disables proper communication.

\*5. After an address of ZEAS, CVP, a booster unit, or an indoor unit is set or changed, be sure to cycle the power to the communication box.

(2) How to set the addresses of ZEAS and CVP

1. As shown in figure 10, make sure that the operation switch is turned "OFF" from the inspection hole (left).
2. Turn the power on.
3. Set the address with the following steps. (The setting method is the same for ZEAS and CVP.)

Operation procedure		LED indication							Remarks
		H1P	H2P	H3P	H4P	H5P	H6P	H7P	
Initial indication		●	●	○	●	●	●	●	Shows the initial indication in a normal condition.
Press and hold the page break button (BS1) for 5 seconds.		○	●	●	●	●	●	●	Make sure that the LED (H1P) has turned ON.
Press the operation button (BS2) 6 times.		○	●	●	●	○	○	●	Check the pressing count against the LED indication.
Press the confirmation button (BS3) once.		○	●	●	●	●	●	●	Indicates the current address in binary numbers.
Press the operation button (BS2) to select the desired setting.	Address not set	○	●	●	●	●	●	●	All OFF by factory setting. If the setting has not been made, communication cannot be established.
	Address 1	○	●	●	●	●	●	○	Indicates the pressing count on the LEDs (H2P to H7P) in binary numbers.
	Address 2	○	●	●	●	●	●	●	
	Address 3	○	●	●	●	●	●	○	
	Address 4	○	●	●	●	○	●	●	
	Address 5	○	●	●	●	○	●	○	
	Address 6	○	●	●	●	○	○	●	
	⋮				⋮				
Address 63	○	○	○	○	○	○	○	An address can be set up to 63, and when BS2 is pressed after that, the setting will change to "Address not set" (all OFF).	
Press the confirmation button (BS3) once.		○	●	●	●	●	○	○	The LED indication of the set address will change from blinking to ON. (*1)
Press the confirmation button (BS3) once.		○	●	●	●	●	●	●	
Press the page break button (BS1) once.		●	●	○	●	●	●	●	Returns to the initial indication.

\*1. The LED indication in the above table shows the case of address setting to 3.

\*2. Although an address can be set up to 63, set the address within the effective range.

\*3. After an address of ZEAS, CVP, a booster unit, or an indoor unit is set or changed, be sure to cycle the power to the communication box.

<Meaning of indications>

OFF: ● ON: ○ Blinking: ○

(Refer to figure 10)

- |   |                            |  |
|---|----------------------------|--|
| 1. Inspection hole (left)                     | 5. Inspection hole (left)  | 9. Push button switches                        |
| 2. Control box                                | 6. Control box cover       | 10. Inspection hole cover                      |
| 3. Inspection hole (right)                    | 7. Inspection hole (right) | 11. Lift up this projection to open the cover. |
| 4. Operation switch (at the time of shipment) | 8. PC board (A1P)          |  |

(3) How to set the addresses of booster units

1. As shown in figure 11, make sure that the operation switch is turned "OFF" from the inspection hole (right).
2. Turn the power on.
3. Set an address with the following steps.

Operation procedure		LED indication							Remarks
		H1P	H2P	H3P	H4P	H5P	H6P	H7P	
Initial indication		●	●	○	●	●	●	●	Shows the initial indication in a normal condition.
Press and hold the page break button (BS1) for 5 seconds.		○	●	●	●	●	●	●	Make sure that the LED (H1P) has turned ON.
Press the operation button (BS2) 16 times.		○	●	○	●	●	●	●	Check the pressing count against the LED indication.
Press the confirmation button (BS3) once.		○	●	●	●	●	●	●	Indicates the current address in binary numbers.
Press the operation button (BS2) to select the desired setting.	Address not set	○	●	●	●	●	●	●	Indicates the pressing count on the LEDs (H2P to H7P) in binary numbers.
	Address 1	○	●	●	●	●	●	○	
	Address 2	○	●	●	●	●	●	●	
	Address 3	○	●	●	●	●	○	○	
	Address 4	○	●	●	●	○	●	●	
	Address 5	○	●	●	●	○	●	○	
	Address 6	○	●	●	●	○	○	●	
Address 7	○	●	●	●	○	○	○	An address can be set up to 7, and when BS2 is pressed after that, the setting will change to "Address not set" (all OFF).	
Press the confirmation button (BS3) once.		○	●	●	●	●	○	○	The LED indication of the set address will change from blinking to ON. (*1)
Press the confirmation button (BS3) once.		○	●	●	●	●	●	●	
Press the page break button (BS1) once.		●	●	○	●	●	●	●	Returns to the initial indication.

\*1. The LED indication in the above table shows the case of address setting to 3.

\*2. Although an address can be set up to 7, set the address within the effective range.

\*3. After an address of ZEAS, CVP, a booster unit, or an indoor unit is set or changed, be sure to cycle the power to the communication box.

<Meaning of indications>

OFF: ● ON: ○ Blinking: ○

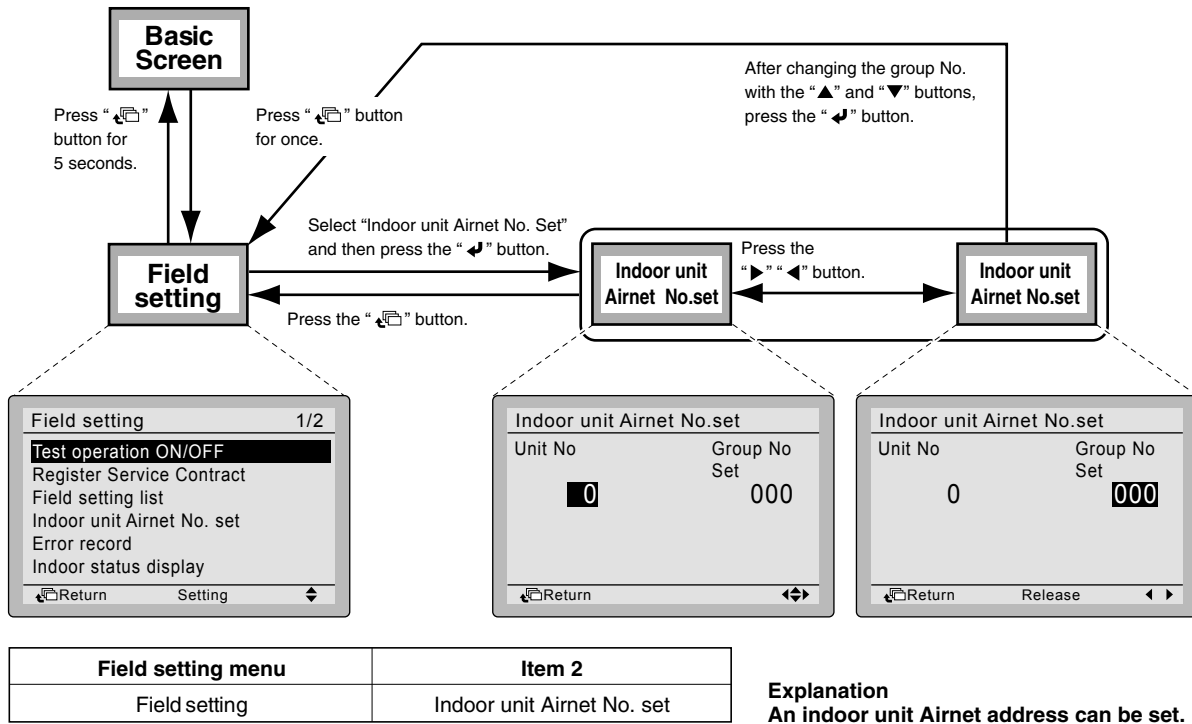
**Address setting number**

Address of ZEAS or CVP	Booster unit		
	Bu1	Bu2	Bu3
1	1	2	3
2	1	2	3
3	1	2	3
4	1	2	3
	⋮		
10	1	2	3

**(Refer to figure 11)**

1. Inspection hole (left)
2. Inspection hole (right)
3. Opened detail (left)
4. Opened detail (right)
5. Operation switch (at the time of shipment)

- (4) How to set the addresses of indoor units (air conditioner)  
 Make sure that the operation switch of the remote controller is turned "OFF".  
 For information on how to assign an address, refer to the following figure.



- \*1. Although an address can be set up to 128, set the address within the effective range.  
 \*2. After an address of ZEAS, CVP, a booster unit, or an indoor unit is set or changed, be sure to cycle the power to the communication box.

**Example of address setting numbers**

Air conditioner indoor unit	Air conditioner indoor unit 1	Air conditioner indoor unit 2	...	Air conditioner indoor unit 6
Address of CVP	2	3	...	7
1	8	9	...	13
2	14	15	...	19
3	20	21	...	25
4	...	...	...	...
10	56	57	...	61

1. Even when remote group control is performed, the address in each indoor unit needs to be set.

**6-2 Configuring the communication box**

**CAUTION**

- Do not turn the power on with the product cover open. An electric shock may occur.
- Before power on, make sure that the covers of the communication box and of the inspection hole are closed.
- After power on, if the push-button switches need to be operated or the LED indication checked, open the cover of the inspection hole for the operation/check.
- When you open the inspection hole cover for operation, exercise caution so as not to touch the transformer. A burn may result.

(1) Setting a slave address

Set a slave address as follows by using the DIP switches (DS1, DS2) on the PC board (A1P) of the communication box shown in figure 12.

**CAUTION**

- Be sure to set a slave address before power on. A setting which is made after power on is invalid.

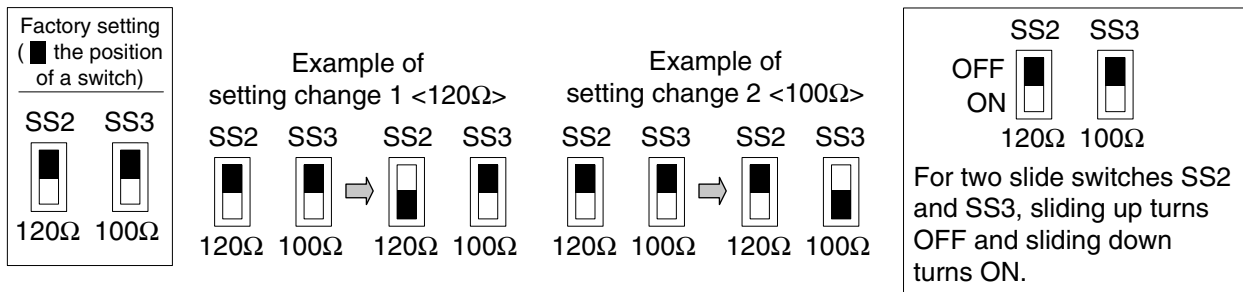
Factory setting

Slave address setting DPS

Slave address	DS1				DS2				Remarks
	1	2	3	4	1	2	3	4	
1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	Factory setting value
2	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	
3	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	
~									
26	OFF	OFF	OFF	ON	ON	OFF	ON	OFF	
~									
245	ON	ON	ON	ON	OFF	ON	OFF	ON	Maximum effective address

(2) Set a terminating resistance as necessary.

The setting can be made with two slide switches (SS2, SS3) shown in figure 12. If both slide switches SS2 and SS3 are "OFF", the terminating resistance is 0 Ω.



(3) Check all transmission wiring (weak current; DIII) shown in figures 2 and 3.

(4) Check the transmission wiring (weak current; RS-485) from the monitoring system to the communication box shown in figures 2 and 3.

(5) Close the cover of the communication box before you turn the power on.

(6) Setting parity

Set parity by using the push button switches (BS1 to 5) on the PC board (A1P) of the communication box shown in figure 12. The following table shows the setting method. Set parity as specified on the monitoring system.

Operation procedure	LED indication							Remarks
	H1P	H2P	H3P	H4P	H5P	H6P	H7P	
Initial screen	●	●	●	●	●	○	○	Shows the initial screen in a normal condition.
Press and hold the push button (BS1) for 5 seconds.	○	●	●	●	●	●	●	Make sure that the LED (H1P) ON.
Press the push button (BS2) twice.	○	●	●	●	●	○	●	Check the pressing count against the LED indication.
Press the push button (BS3) once.	○	●	●	●	●	●	●	Indicates the last setting status.
Press the push button (BS2) to select the desired setting.	Non	○	●	●	●	●	●	Factory setting
	Odd	○	●	●	●	●	●	
	Even	○	●	●	●	●	●	
Press the push button (BS3) once.	○	●	●	●	●	●	○	The set LED indication will change from blinking to ON.
Press the push button (BS3) once.	○	●	●	●	●	●	●	
Press the push button (BS1) once.	●	●	●	●	●	○	○	Returns to the initial indication.

<Meaning of indications>  
OFF: ● ON: ○ Blinking: ●

**(Refer to figure 12)**

- |   |   |                       |
|---|---|-----------------------|
| 1. Push button switches (communication box PC board; A1P) | 5. Inspection hole                                      | 9. LED (H1P to H7P)   |
| 2. DIP switch   | 6. Terminating resistance setting switches (SS1 to SS3) | 10. PC board (A1P)    |
| 3. Terminating resistance setting                         | 7. DIP switches (DS1, DS2)                              | 11. Transformer (T1R) |
| 4. Communication status check                             | 8. Push button switches (BS1 to BS5)                    | 12. Inspection hole   |

(7) Baud rate setting

Set a baud rate by using the push button switches (BS1 to 5) on the PC board (A1P) of the communication box shown in figure 12. The following table shows the setting method. Set a baud rate as specified on the monitoring system.

Operation procedure	LED indication							Remarks
	H1P	H2P	H3P	H4P	H5P	H6P	H7P	
Initial screen	●	●	●	●	●	○	○	Shows the initial screen in a normal condition.
Press and hold the push button (BS1) for 5 seconds.	○	●	●	●	●	●	●	Make sure that the LED (H1P) ON.
Press the push button (BS2) once.	○	●	●	●	●	●	○	Check the pressing count against the LED indication.
Press the push button (BS3) once.	○	●	●	●	●	●	◐	Indicates the last setting status.
Press the push button (BS2) to select the desired setting.	9600bps	○	●	●	●	●	◐	Factory setting
	19200bps	○	●	●	●	●	◑	
	4800bps	○	●	●	●	◑	●	
Press the push button (BS3) once.	○	●	●	●	●	●	○	The set LED indication will change from blinking to ON.
Press the push button (BS3) once.	○	●	●	●	●	●	●	
Press the push button (BS1) once.	●	●	●	●	●	○	○	Returns to the initial indication.

<Meaning of indications>  
 OFF: ● ON: ○ Blinking: ◐

(8) Power reset

After the setting of parity, a baud rate and slave address, reset the power supply of the communication box.

**CAUTION**

- The power supply must be reset for the setting of parity and a baud rate to be effective.

## 7. Test-running the communication system

**Note**

For information on how to make a test run of each unit (ZEAS, CVP, booster unit, and indoor unit (air conditioner)), refer to the installation manual included with the respective unit.

Check the following two items on the monitoring system.

(1) Make sure that the LEDs (H6P, H7P) on the PC board A1P of the communication box are ON.

(If they are still blinking, communication is not established at all.)

H6P ON: RS-485 communication is established.

H7P ON: DIII communication of one or more units is established.

(2) Running data of each unit

Check whether the operation data of each address can be monitored on the monitoring system.

Check the address set with each unit against the address displayed on the monitoring system.

Make sure that power is supplied to each unit. (The operation switch can be "OFF" without problems.)

(3) Remote setting

If the monitoring system can perform remote setting of outdoor units, give remote setting instructions to make sure that the setting of each outdoor unit changes.

If the operation data and remote setting have no problems, the LED (H2P) is confirmed to be OFF, and the LEDs (H6P, H7P) to be ON, then the test run is complete.

**Note**

- Confirmation of an error takes about 12 minutes.
  - If there is no communication from the monitoring system (e.g., the monitoring system powered off, or there is a wiring error such as incorrect polarity or disconnection), a communication error is occurring on the RS-485 side.
- (4) Action in the event of a communication error
- If the operation data cannot be checked on the monitoring system, an abnormality may be occurring. Check all diagnosis items on the next and correct any problems. The operation step 1 on the next allows you to check some error details.

Check item	Check method	What to do in the event of a problem
Check of the address setting of each unit	Check whether the data of each address can be checked on the monitoring system.	Set the addresses of the outdoor units, air conditioner indoor units, and booster units again. Refer to "6. Field configuration".
Check of the slave address setting	Check the DIP switches (DS1, DS2) of the communication box PC board (A1P).	Set the slave address properly. Refer to (1) on the "6-2 Configuring the communication box".
Check of the parity setting	Check the parity setting on the monitoring system against the parity setting on the communication box.	Set the parity properly. Refer to (6) on the "6-2 Configuring the communication box".
Check of the baud rate setting	Check the baud rate setting on the monitoring system against the baud rate setting on the communication box.	Set the baud rate properly. Refer to (7) on the "6-2 Configuring the communication box".
Check of the transmission wiring (weak current; DIII)	Check whether the data of each address can be checked on the monitoring system.	Check the wiring of the unit having the address whose data cannot be checked, and then correct it.
	If the LED (H2P) is ON and the LED (H7P) is blinking on the communication box, follow the operation procedure in the following table to perform failure diagnosis for the communication box.	Communication cannot be established with any of the outdoor units. Check the transmission wiring (weak current; DIII) and address settings.
Check of the transmission wiring (weak current; RS-485)	After making sure that the field settings are made properly, check whether the data can be checked on the monitoring system.	Check for any problem with the wiring of the transmission wiring (weak current; RS-485), and then correct it.(e.g., disconnection, incorrect polarity)
Check for a PC board error	If the LED (H2P) is ON on the communication box, follow the operation procedure in the following table to perform failure diagnosis for the communication box.	Replace the PC board (A1P).
	If no LED is ON on the PC board (A1P) of the communication box.	
	Check for a normal condition of the PC boards of ZEAS, CVP, the booster units, and the air conditioner indoor units.	Replace the PC board (A1P) in question.

### Operation step 1

Operation procedure	LED indication							Remarks
	H1P	H2P	H3P	H4P	H5P	H6P	H7P	
Initial indication *1	●	○	●	●	●	●	●	H6P blinking: RS-485-side communication error H7P blinking: DIII-side communication error (If communication is not established with any of the indoor units)
Press the push button (BS1) once.	●	●	●	●	●	●	●	
Press the push button (BS2) twice.	●	●	●	●	●	○	●	
Press the push button (BS3) once (error check) *2	DIII-side communication error	●	●	●	●	●	●	Communication error of all ZEASs, CVPs. *3
	RS-485-side communication error	●	●	●	●	●	●	Communication error on the RS-485 side. An error is detected even when the polarity is incorrect. Check the address setting and the RS-485 wiring. *3
	Board error	●	●	●	●	●	●	Error of the PC board (A1P) of the communication box. The board needs to be replaced.
	Duplicate outdoor unit addresses	●	●	●	●	●	●	Duplicate outdoor unit addresses. Check the address settings and DIII wiring.
	Outdoor unit (ZEAS/CVP) address not set	●	●	●	●	●	●	The address of an outdoor unit (ZEAS/CVP) is not set. Check the address settings and DIII wiring.
	Slave address setting error	●	●	●	●	●	●	Slave address setting error. Check the slave address setting and wiring.
Press the push button (BS1) once (returns to the initial indication).	●	○	●	●	●	●	●	In a normal condition, H2P turns OFF, and H6P and H7P turn ON.

\*1. The initial indication in the above table shows the indication in the event of error detection.

If no communication error is occurring, the LED (H2P) turns OFF and the LEDs (H6P and H7P) turn ON.

Even after a corrective action is taken against an error, the LED (H2P) turns ON when other errors are detected.

\*2. When multiple errors are detected, multiple LEDs (H2P to H7P) blink.

\*3. On either the DIII side or the RS-485 side, if a communication error occurs after the communication is confirmed, an error is issued. If the communication has not been confirmed, no error can be detected.

<Meaning of indications>

OFF: ● ON: ○ Blinking: ●



## **8. Delivering the product**

- After the test run and before delivery to the customer, make sure that the communication box cover and the covers of the inspection holes and of the control box of each unit are attached.
- For the notes on delivery, refer to the installation manual included with each unit as well.

