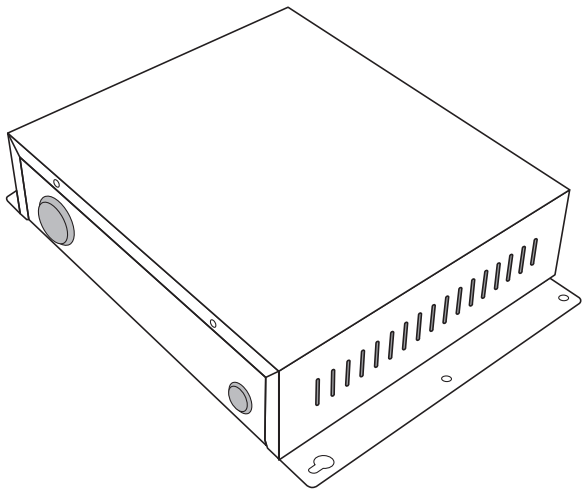
VRF SYSTEM
NETWORK CONVERTOR
UTY-VLGX

English

中文

INSTALLATION MANUAL

For authorized service personnel only.



Contents

PART NO. 9708436012-02

1. SAFETY PRECAUTIONS

- The “SAFETY PRECAUTIONS” indicated in the manual contain important information pertaining to your safety. Be sure to observe them.
- Request the user to keep the manual on hand for future use, such as for relocating or repairing the unit.

⚠WARNING	This mark indicates procedures which, if improperly performed, might lead to the death or serious injury of the user.

- Perform electrical work by an authorized service personnel in accordance with the installation manual and the electrical wiring regulations or implementation regulations of the country. Also do not install this unit by yourself. Improper electric work will cause electric shock or a fire.
- Perform installation work in accordance with the installation manual. Request an authorized service personnel to perform installation work. Do not install this unit by yourself. Improper installation will cause injury, electric shock, fire, etc.
- In the event of a malfunction (burning smell, etc.), immediately stop operation, turn off the electrical breaker, and consult authorized service personnel.
- Install a leakage circuit breaker to power supply cable in accordance with the related laws and regulations and electric company standards.
- Use a power source exclusively for this unit. Never share the power source with other electrical equipment. Doing so will cause fire and electric shock.

Do not install the unit in the following areas:

- Do not install the unit near a source of heat, steam, or flammable gas.
- Area filled with mineral oil or containing a large amount of splashed oil or steam, such as a kitchen. It will deteriorate plastic parts, causing the parts to fall or the unit to leak water.
- Area that generates substances that adversely affect the equipment, such as sulfuric gas, chlorine gas, acid, or alkali. It will cause the copper pipes and brazed joints to corrode, which can cause refrigerant leakage.
- Area containing equipment that generates electromagnetic interference. It will cause the control system to malfunction, preventing the unit from operating normally.
- Area that can cause combustible gas to leak, contains suspended carbon fibers or flammable dust, or volatile inflammables such as paint thinner or gasoline. If gas leaks and settles around the unit, it can cause a fire.
- Do not use the unit for special purposes, such as storing food, raising animals, growing plants, or preserving precision devices or art objects. It can degrade the quality of the preserved or stored objects.
- Install the unit in a well-ventilated place avoiding rains and direct sunlight.

- Do not operate this unit when your hands are wet. Touching the unit with wet hands will cause an electric shock.
- If children may approach the unit, take preventive measures so that they cannot reach the unit.

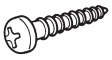
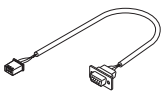
⚠CAUTION	This mark indicates procedures which, if improperly performed, might possibly result in personal harm to the user or damage to property.

- Pay abundant care when transporting this unit because it is a precision device. Improper transportation will cause trouble.
- Do not touch the switches with sharp objects. Doing so will cause injury, trouble, or electric shock.
- Do not expose this unit directly to water. Doing so will cause trouble, electric shock, or heating.
- Do not set vessels containing a liquid on this unit. Doing so will cause heating, fire, or electric shock.
- Dispose of the packing materials safely. Tear and dispose of the plastic packing bags so that children cannot play with them. There is the danger of suffocation if children play with the original plastic bags.
- Do not insert articles into the slit parts of this unit. Doing so will cause trouble, heating, or electric shock.

2. ACCESSORIES

Important: Please print manual other than the installation manual from attached CD-ROM before starting the installation work.

The following installation parts are supplied. Use them as required.

Name and Shape	Q’ty	Application
Installation manual 	1	This manual
Binder 	3	For mounting the power supply cable and transmission cable.
Screw (M4 x 20 mm) 	4	For mounting the Network Convertor.
CD-ROM 	1	For initial setting.
Connector cable 	1	For initial setting tool and manuals.

3. ELECTRICAL REQUIREMENT

Use	Size		Wire type	Remarks
Power supply cable	Maximum	1.25 mm^2	245 IEC 57 or equivalent	1Ø AC220 – 240 V 50/60Hz, 2 Cable + ground (Always ground the unit)
	Minimum	0.5 mm^2		
Transmission cable	0.33 mm^2		22AWG LEVEL4 (NEMA) nonpolar 2 core, twisted pair solid core Shielded	LONWORKS® compatible cable
Fuse capacity	3 A			

We recommend that you purchase our recommended parts for the cables. Contact service personnel to purchase this.

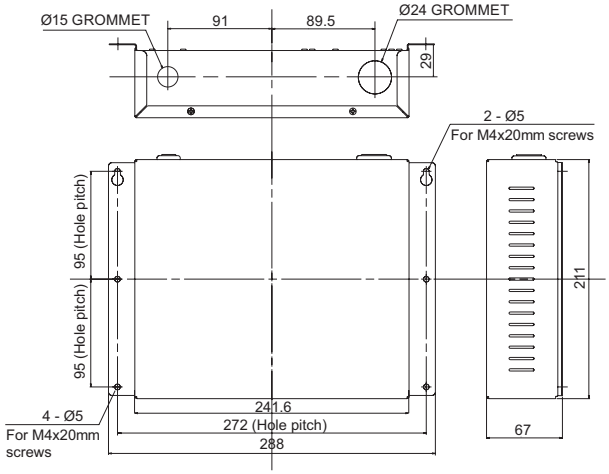
* LONWORKS® is registered trademark of Echelon Corporation in the United States and other countries.

4. SELECTING AN INSTALLATION LOCATION

4.1. Dimensions

The Network Convertor is comprised of a main body and cover.

(Unit: mm)



Power supply		1Ø AC220 – 240V 50/60 Hz
Power consumption (W)		4.5
Temperature (°C)	**Operating**	0 to 46
	Packaged	-10 to 60
Humidity (%)	**Packaged**	0 to 95 (RH); No condensation
Dimensions (H × W × D) (mm)		67 × 288 × 211
Weight (g)		1500

5. WIRING

⚠ WARNING

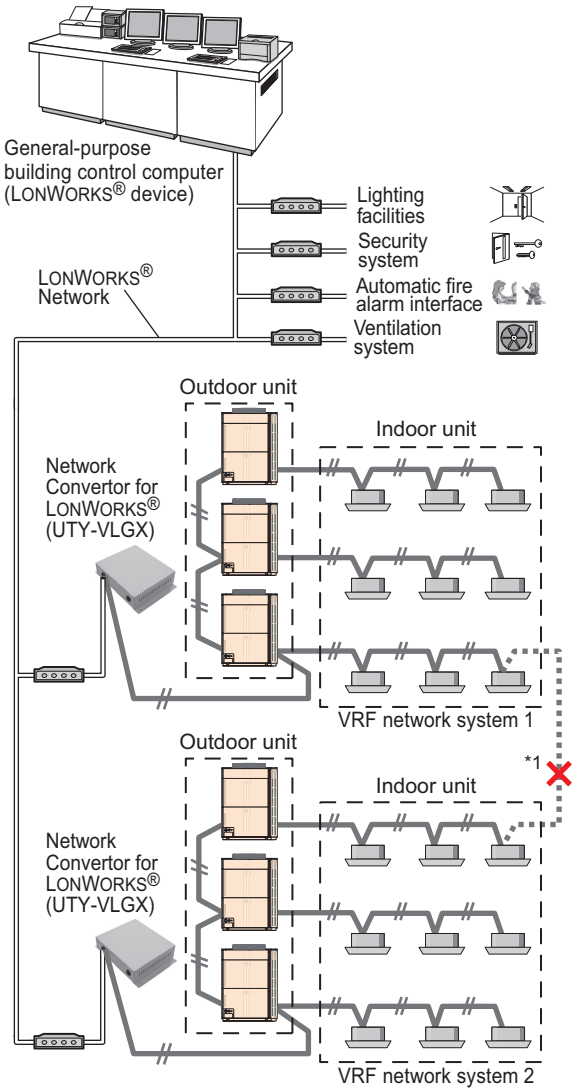
- Before starting installation work, turn off the power of this unit and the connection destination. Do not turn on the power again until installation is completed. Otherwise, it will cause electric shock or fire.
- Please use the accessories or the specified power supply cable and connection cables.Using cables other than the specified one is prohibited.Moreover, using accessories being processed is also prohibited.When this is done, it will become the causes of electric shock, and fire disaster.
- Install the connection cables securely to the terminal block. Confirm that external force is not applied to the cable. Use connection cables made of the specified cable. If intermediate connection or insertion fixing are imperfect, it will cause electric shock, fire, etc.
- When connecting the power cable and transmission cable, layout the wiring so that the cover of this unit is securely fixed. If the cover is imperfectly fixed, it may cause fire or overheating of the terminals.
- Perform ground work positively. Do not connect the ground cable to a telephone ground cable, water pipe, or conductor rod.
- Always fasten the outside covering of the connection cable with the cable clamp. (If the insulator is chafed, electric leakage may occur.)
- When performing cable wiring work, be sure that it does not touch the user. Doing so will cause injury or electric shock.
- If any cable is damaged, do not repair or modify it yourself. Improper work will cause electric shock or fire.

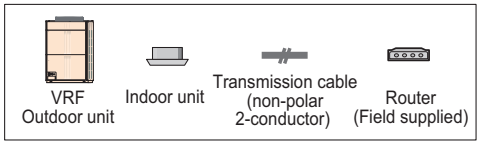
⚠ CAUTION

- Do not bind the remote controller cable and the transmission cable together with or parallel to the power supply cable of the indoor and outdoor units. It may cause erroneous operation.
- When performing wiring work, be careful not to damage the cable or injure yourself. Also, connect the connectors securely. Loose connectors will cause trouble, heating, fire, or electric shock.
- Install the indoor and outdoor units, power supply cable, transmission cable and remote control cable 1 m away from television and radio to avoid distorted images and noise.
- Perform wiring so that water does not enter this unit along the external wiring. Always install a trap to the wiring or take other countermeasures. Otherwise it will cause trouble or electric shock or fire.
- Confirm the name of each unit and name of each terminal block of the unit and connect the wiring in accordance with the directions given in the manual so that there is no incorrect wiring. Incorrect wiring will damage the electric parts and cause smoke and fire.
- When installing the connection cables near a source of electromagnetic waves, use shielded cable. Otherwise, a breakdown or malfunction could result.
- The terminal screws and ground screws have different shapes. Be sure to install the screws in the correct locations. If the screws are installed in the wrong locations, the screw holes for circuit board, terminal or ground will be damaged.

5.1. Wiring method

PROPER SYSTEM DIAGRAM

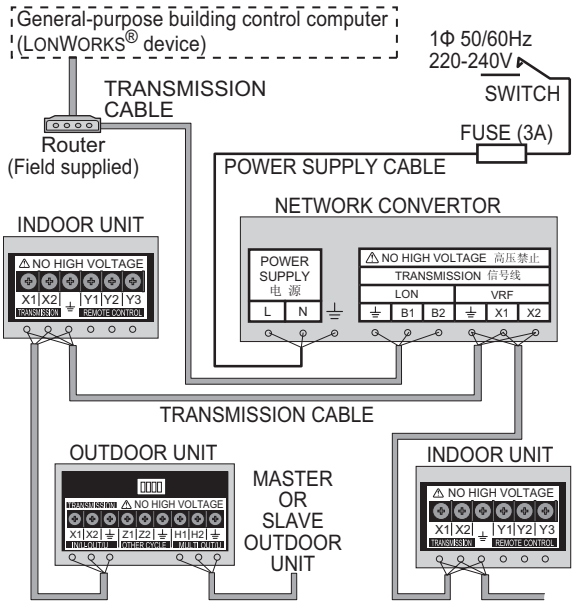


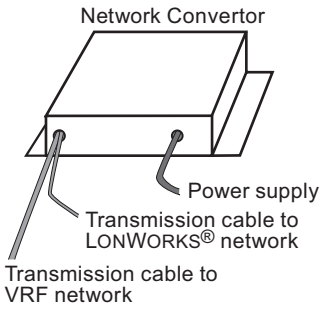


Note: Router should be needed by the number of controlling items in the BMS.
*1. Please do not make the connection like this between VRF systems.

Maximum connectable indoor unit number per 1 Network Convertor	**128**
Maximum connectable outdoor unit number per 1 Network Convertor	**100**
Maximum connectable Network Convertor number per 1 BMS	**4**
Maximum connectable Network Convertor number per 1 VRF System	**1**

ELECTRICAL WIRING





Note :
- Do not bind the power cable and transmission cable to avoid an erroneous operation.
- Use shield cable for transmission cable. The shield metal should be grounded.
- Do not forget to ground the Network Convertor.

6. INSTALLING THE NETWORK CONVERTOR

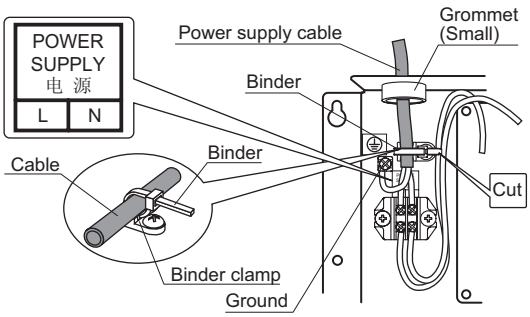
⚠ WARNING
• Always use the accessories and specified installation work parts. Check the state of the installation parts. Not using the specified parts will cause units to fall off, water leakage, electric shock, fire, etc.
• Install at a place that can withstand the weight of the unit and install positively so that the unit will not topple or fall.
• When installing this unit, make sure that there are no children nearby. Otherwise, injury or electric shock could result.
• Install a circuit breaker. Otherwise, electric shock or fire could result.

⚠ CAUTION
• Before opening the case of this unit, completely discharge static electricity charged on your body. Otherwise, parts break-down could result.
• Do not touch the circuit board and circuit board parts directly with your hands. Otherwise, injury or electric shock could result.
• Tightening the mounting screws too tight will damage the case of this unit.
• Be careful so that the cover does not fall after the cover screws are removed. Otherwise, injury could result.

6.1. Connecting the power supply cable

(1) Use the 4 screws (M4 × 4 mm) provided to mount the Network Convertor to the behind ceiling, wall, floor or other suitable location.
(2) Remove the 4 screws (M4 × 4 mm), and then remove the cover.
(3) In order to pass the power supply cable through the Network Convertor, please open a hole on the grommet (small) with a knife etc..
  • Please be careful not to hurt hands or damage the equipment.
  • Please make the hole suitable for the wiring diameter. Please pay attention that there is a possibility of insects invade when the hole is too large.
(4) Please lead in the power supply cable in the Network Convertor through the grommet (small).
(5) Please connect the power supply cable with each terminal block. Please connect the earth.
  • Please tighten the screw by the tightening torque in the following table.
(6) Please firmly tighten the power supply cable and the binder clamp on the binder (accessory).

Connecting the power supply cable



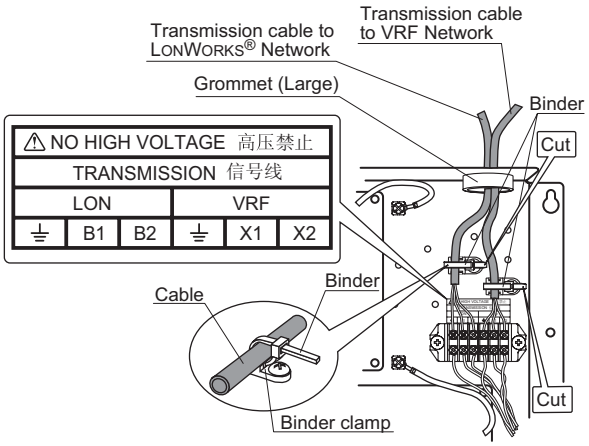
Tightening torque for installing cables to terminal block
0.8 to 1.2 N • m (8 to 12 kgf • cm)

6.2. Connecting the transmission cables

(1) Turn the power off.
(2) In order to pass the transmission cable through the Network Convertor, please open a hole on the grommet (large) with a knife etc
  • Please be careful not to hurt hands or damage the equipment.
  • Please make the hole suitable for the wiring diameter. Please pay attention that there is a possibility of insects invade when the hole is too large.
(3) Please lead in the transmission cable in the Network Convertor through the grommet (large).
(4) Please connect the transmission cable with each terminal block.
  • Please tighten the screw by the tightening torque in the following table.
(5) Please firmly tighten the transmission cable and the binder clamp on the binder (accessory).
(6) Check if the wirings are connected together completely.
(7) Once the wiring of the cables has been completed, mount the cover to the Network Convertor. Use the screws (M4 × 4 mm) to mount the cover.
(8) The procedure for shutting the cover of Network Convertor should be performed after all setting works are complete.

When continue with setting works, please do not close the cover.

Connecting the transmission cables



Tightening torque for installing cables to terminal block
0.8 to 1.2 N • m (8 to 12 kgf • cm)

7. TURNING ON THE POWER

⚠ CAUTION

- Check that the power supply voltage is within the specified range. If a power supply voltage outside the specification is input, it will cause trouble.
- Recheck the wiring. Incorrect wiring will cause trouble.

(1) Check the Network Convertor wiring.

(2) Check the wiring and switch settings for the VRF system and turn on the power for the VRF system. For the wiring and switch setting method, refer to the installation manual of each unit.

(3) Set the Jumper switch 1 (JP1) in order to set “Back up battery ON”. (Fig.)
(This is necessary in order to save the initial setting data and commissioning data to SRAM.)

Fig. BATTERY ON BATTERY OFF

(4) Turn on the power for the Network Convertor.

Note: In procedure (3), the purpose of setting Jumper switch (JP1) is to make the backup battery effective. The backup battery can save the Tool for Network Convertor and Network Integration Tool setting information. Therefore, it is not necessary to keep effective before those setting works are done.

- The Network Convertor is initialized for a period of approximately a few seconds after the power is turned on. 88 is displayed on D19 during this period.
- After initial setting completely, the operation mode will be started.
- Anyone of the following indication will displayed:
  - 88 : VRF Network address allocation is not registered by using Tool for Network Convertor
  - D14 D14 : Binding and Commissioning is not executed
  - 88 : Normal Mode (Ready for operation)
  - : Others (Refer to “11. LED DISPLAY (D19)” for more detail.)

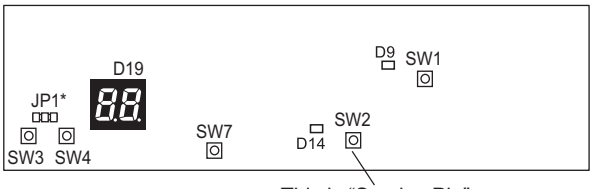
* Network Convertor does not operate during initialization.

* If an error occurs, the D9 or D14 LED lights or flashes, or the error code is displayed on the right side of the D19 LED display.

8. ADDRESS SETTING

- Setting up more than 1 Network Convertor in 1 VRF network system is prohibited.
- When setting address, please be sure that the address of Network Convertor is not overlap the address of other controller like, Touch Panel Controller & Network Convertor for Group Remote Controller.

SWITCH POSITION

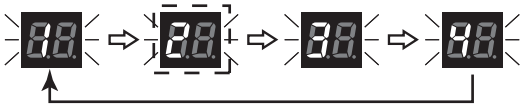


This is “Service Pin”.
Neuron ID is sent upon pushing BMS service switch (SW2)

Following steps are necessary for setting address of Network Convertor.

1. Turn on the power of Network Convertor.

2. Select the special mode by pressing and releasing SW7 (reset button) while holding down SW4 (set button) until special mode “1” (Blinking) is displayed. Please keep holding down SW4 (set button) a few seconds after releasing the SW7 (reset button).



When SW3 (mode button) is pressed, special mode changes from ‘1’ to ‘4’ (Blinking) as the as shown in the above mentioned way.

3. Press SW3 (mode button) to set special mode “2”. Special mode “2” is the address setting mode.

4. Press SW4 (set button). Present address is displayed.

Ex.) Address No.15

5. Press SW3 (mode button) to select the address. The displayed address changes as follows each time the mode button is pressed.

A00 → A01 → A02 - - - - - → A15

Ex.) Address No.3 is selected.

6. Press SW4 (set button) to set the selected address.

Ex.) Address No.3 is set.

7. Turn the power off and on or press SW7 (reset button) to exit from address setting mode.

This time, please refer to the “7. TURNING ON THE POWER” for the content displayed in D19 LED.

9. INITIAL SETTING (SOFTWARE)

The initial settings for the Network Convertor must be performed before the commissioning. Please see the attached “Application Manual - Tool for Network Convertor” and complete the settings.

10. BINDING & COMMISSIONING (NOTICE)

(1) It is necessary to make an XIF (External Interface File) for binding.

(2) The commissioning doesn’t end if the number of Indoor/Outdoor Unit of the XIF file made with Tool of Network Convertor is not in consistency with the number after Indoor/Outdoor Unit Address is registered.
In addition, the Network Convertor can not operate normally if the number of Indoor/Outdoor Unit of the XIF file is not in consistency with the number after Indoor/Outdoor Unit Address is registered.

(3) Binding and commissioning must be performed again if the number of connecting units (indoor/outdoor units) has changed after system operation. Please always register the allocation information that is in consistency with the VRF system, Functional Block in the Network Convertor and the Network Convertor, if register the changed XIF file in according to the “Tool for Network Convertor”.

Important:
Network Convertor will not operate if,

- VRF network system address (Indoor & Outdoor units address) allocation information are not registered to Network Convertor.
- XIF data information and VRF network system address allocation information must not be same.
- Binding & Commissioning is not executed.
- The ID number registered on Network Convertor is different from the ID number when XIF file is created.
- Two or more Network Convertors are connected to BMS, and these are set the same ID number.

11. LED DISPLAY (D19)

(1) Normal code

Normal code	Contents
	Normal mode
	Set state of “Tool for Network Convertor”
	Address setting mode
	Under maintenance
	FB and unit address allocation information is registered with “Tool for Network Convertor”

FB* : Functional Blocks

(2) Error code

Error code	Contents
	FB and unit address allocation information is not registered
	Main PCB error
	VRF Network error
D9 LED lit or blinking D9 D9	Communication error (Error of the Network Interface Device on VRF System)
D14 LED lit or blinking D14 D14	Communication error (Error of the Network Interface Device on BMS)*1
	When V series or S series is connected

*1. D14 is ON for 1 second, OFF for 1 second, and repeats. When D19 is in Normal mode, Commissioning is unset.