

# ***Installation & Maintenance Manual***

VRF MANAGEMENT SYSTEM  
VRF CENTRAL TOUCHSCREEN  
CONTROLLER ADAPTER

*Model: CCXLA01*

## **IMPORTANT:**

*READ AND UNDERSTAND  
THIS MANUAL BEFORE USING  
THIS CENTRAL CONTROLLER  
ADAPTER.  
KEEP THIS MANUAL FOR  
FUTURE REFERENCE.*

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## 1. Safety Summary



### Important Notice

- Johnson Controls Inc. pursues a policy of continuing improvement in design and performance in its products. As such, Johnson Controls Inc. reserves the right to make changes at any time without prior notice.
- Johnson Controls Inc. cannot anticipate every possible circumstance that might involve a potential hazard.
- This central controller is designed for standard air conditioning applications only. Do not use this unit for anything other than the purposes for which it was intended for.
- The installer and system specialist shall safeguard against leakage in accordance with local pipefitter and electrical codes. The following standards may be applicable, if local regulations are not available. International Organization for Standardization: (ISO 5149 or European Standard, EN 378). No part of this manual may be reproduced in any way without the expressed written consent of Johnson Controls Inc.
- If you have questions, please contact your distributor or dealer.
- This manual provides common descriptions, basic and advanced information to maintain and service this central controller which you operate as well for other models.
- This manual should be considered as a permanent part of the air conditioning equipment and should remain with the air conditioning equipment.


### Product Inspection upon Arrival

1. Upon receiving this product, inspect it for any damages incurred in transit. Claims for damage, either apparent or concealed, should be filed immediately with the shipping company.
2. Check the model number, electrical characteristics (power supply, voltage, and frequency rating), and any accessories to determine if they agree with the purchase order.
3. The standard utilization for this unit is explained in these instructions. Use of this equipment for purposes other than what it designed for is not recommended.
4. Please contact your local agent or contractor as any issues involving installation, performance, or maintenance arise. Liability does not cover defects originating from unauthorized modifications performed by a customer without the written consent of Johnson Controls, Inc. Performing any mechanical alterations on this product without the consent of the manufacturer will render your warranty null and void.

## Signal Words

 <b>WARNING</b>	Indicates a hazardous situation that, if not avoided, could result in death or serious injury.
 <b>CAUTION</b>	Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.
<b>NOTICE</b>	Indicates information considered important, but not hazard-related (for example, messages relating to property damage).

## General Precautions

 <b>WARNING</b>	To reduce the risk of serious injury or death, read these instructions thoroughly and follow all warnings or cautions included in all manuals that accompanied the product and are attached to the unit. <i>Refer back to these safety instructions as needed.</i>
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- This system should be installed by personnel certified by Johnson Controls, Inc. Personnel must be qualified according to local, state and national building and safety codes and regulations. Incorrect installation could cause leaks, electric shock, fire or explosion. In areas where 'Seismic Performance' requirements are specified, the appropriate measures should be taken during installation to guard against possible damage or injury that might occur in an earthquake if the unit is not installed correctly, injuries may occur due to a falling unit.
- Use appropriate Personal Protective Equipment (PPE), such as gloves and protective goggles and, where appropriate, have a gas mask nearby. Also use electrical protection equipment and tools suited for electrical operation purposes. Keep a quenching cloth and a fire extinguisher nearby during brazing. Use care in handling, rigging, and setting of bulky equipment.
- When transporting, be careful when picking up, moving and mounting these units. Although the unit may be packed using plastic straps, do not use them for transporting the unit from one location to another. Do not stand on or put any material on the unit. Get a partner to help, and bend with your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut fingers, so wear protective gloves.
- Do not touch or adjust any safety devices inside the indoor or outdoor units. All safety features, disengagement, and interlocks must be in place and functioning correctly before the equipment is put into operation. If these devices are improperly adjusted or tampered with in any way, a serious accident can occur. Never bypass or jump-out any safety device or switch.
- Johnson Controls will not assume any liability for injuries or damage caused by not following steps outlined or described in this manual. Unauthorized modifications to Johnson Controls products are prohibited as they...
  - May create hazards which could result in death, serious injury or equipment damage;
  - Will void product warranties;
  - May invalidate product regulatory certifications;
  - May violate OSHA standards;

<b>NOTICE</b>	Take the following precautions to reduce the risk of property damage.
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- Be careful that moisture, dust, or variant refrigerant compounds not enter the refrigerant cycle during installation work. Foreign matter could damage internal components or cause blockages.
- If air filters are required on this unit, do not operate the unit without the air filter set in place. If the air filter is not installed, dust may accumulate and breakdown may result.
- Do not install this unit in any place where silicon gases can coalesce. If the silicon gas molecules attach themselves to the surface of the heat exchanger, the finned surfaces will repel water. As a result, any amount of drainage moisture condensate can overflow from the drain condensate pan and could settle inside of the electrical box, possibly causing electrical failures.

- When installing the unit in a hospital or other facility where electromagnetic waves are generated from nearby medical and/or electronic devices, be prepared for noise and electronic interference Electromagnetic Interference (EMI). Do not install where the waves can directly radiate into the electrical box, controller cable, or controller. Inverters, appliances, high-frequency medical equipment, and radio communications equipment may cause the unit to malfunction. The operation of the unit may also adversely affect these same devices. Install the unit at least 10 ft. (approximately 3m) away from such devices.
- When a wireless controller is used, locate at a distance of at least 3.3 ft. (approximately 1 meter) between the indoor unit and electric lighting. If not, the receiver part of the unit may have difficulty receiving operation commands.
- Do not install the unit in any location where animals and plants can come into direct contact with the outlet air stream. Exposure could adversely affect the animals and plants.
- Do not install the unit with any downward slope to the side of the drain boss. If you do, you may have drain water flowing back which may cause leaks.
- Be sure the drain hose discharges water properly. If connected incorrectly, it may cause leaks.
- Do not install the unit in any place where oil can seep onto the units, such as table or seating areas in restaurants, and so forth. For these locations or social venues, use specialized units with oil-resistant features built into them. In addition, use a specialized ceiling fan designed for restaurant use. These specialized oil-resistant units can be ordered for such applications. However, in places where large quantities of oil can splash onto the unit, such as a factory, even the specialized units cannot be used. These products should not be installed in such locations.

## Installation Precautions



### WARNING

Take the following precautions to reduce the risk of electric shock, fire or explosion resulting in serious injury or death:

- When installing the unit into...
  - A wall: Make sure the wall is strong enough to hold the unit's weight. It may be necessary to construct a strong wood or metal frame to provide added support.
  - A room: Properly insulate any refrigerant tubing run inside a room to prevent "sweating" that can cause dripping and water damage to wall and floors.
  - Damp or uneven areas: Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the unit to prevent water damage and abnormal vibration.
  - An area with high winds: Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.
  - A snowy area (only for Heat Pump Model): Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.
- Do not install the unit in the following places. Doing so can result in an explosion, fire, deformation, corrosion, or product failure.
  - Explosive or flammable atmosphere
  - Where a fire, oil, steam or powder can directly enter the unit, such as nearby or above a kitchen stove.
  - Where oil (including machinery oil) may be present.
  - Where corrosive gases such as chlorine, bromine, or sulfide can accumulate, such as near a hot tub or hot spring.
  - Where dense, salt-laden airflow is heavy, such as in coastal regions.
  - Where the air quality is of high acidity.
  - Where harmful gases can be generated from decomposition.
- Do not position the drain pipe for the indoor unit near any sanitary sewers where corrosive gases may be present. If you do, toxic gases can seep into breathable air spaces and can cause respiratory injuries. If the drainpipe is installed incorrectly, water leakage and damage to the ceiling, floor, furniture, or other possessions may result. If the condensate piping becomes clogged, water may drip from the indoor unit. Do not install the indoor unit where such dripping can cause moisture damage or uneven locations: Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the unit to prevent water damage and abnormal vibration.
- Before performing any brazing work, be sure that there are no flammable materials or open flames nearby.

- Perform a test run to ensure normal operation. Safety guards, shields, barriers, covers, and protective devices must be in place while the compressor/unit is operating. During the test run, keep fingers and clothing away from any moving parts.
- Clean up the site when finished, remembering to check that no metal scraps or bits of wiring have been left behind inside the unit being installed.

After installation work for the system has been completed, explain the “Safety Precautions”, the proper use and maintenance of the unit to the customer according to the information in all manuals that came with the system. All manuals and warranty information must be given to the user or left near the Indoor Unit.

## Electrical Precautions



Take the following precautions to reduce the risk of electric shock, fire or explosion resulting in serious injury or death.

- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause serious injury or death.
- Before servicing, open and tag all disconnect switches. Never assume that electrical power is disconnected. Check with meter and equipment.
- Only use electrical protection equipment and tools suited for this installation.
- Use specified cables between units.
- Communication cabling shall be a minimum of 18-Gauge, two-Conductor, Stranded Shielded Copper. Shielded cable must be used in all areas to reduce the potential for communication errors. When shielded cabling is applied, proper bonding and termination of the cable shield is required as per Johnson Controls guidelines. Plenum and riser ratings for communication cables must be considered per application and local code requirements.
- Use an exclusive power supply for the air conditioner at the unit’s rated voltage.
- Make sure to install circuit breakers (ground fault interrupter, isolating switch, molded case circuit breaker and so on), with the specified capacity. Ensure that the wiring terminals are tightened securely to recommended torque specifications.
- Clamp electrical wires securely with a cable clamp after all wiring is connected to the terminal block. In addition, run wires securely through the wiring access channel.
- When installing the power lines, do not apply tension to the cables. Secure the suspended cables at regular intervals, but not too tightly.
- Make sure that the terminals do not come into contact with the surface of the electrical box. If the terminals are too close to the surface, it may lead to failures at the terminal connection.
- Turn OFF and disconnect the unit from the power source when handling the service connector. Do not open the service cover or access panel to the indoor or outdoor units without turning OFF the main power supply.
- After operation shutdown, be sure to wait at least five minutes before turning OFF the main power switch. Otherwise, water leakage or electrical breakdown may result. Disconnect the power source completely before attempting any maintenance for electrical parts. Check to ensure that no residual voltage is present after disconnecting the power source.
- Do not clean with, or pour water into, the controller as it could cause electric shock and/or damage the unit. Do not use strong detergent such as a solvent. Clean with a soft cloth.
- Check that the ground cable is securely connected. Do not connect ground wiring to gas piping, water piping, lighting conductor, or telephone ground cables.
- If there are frequent occurrences with blown fuses or flipped circuit breakers, shut down the system immediately and contact your service contractor.

## 2. System Configuration

### 2.1 System Configuration

This installation and operation manual is exclusively for the VRF Central Touchscreen Controller Adapter (Extension Adapter: CCXLA01). Sample system configuration is illustrated in Figure 2.1. Also refer to installation manual and operation manual for each unit. Refer to the installation and maintenance manual for each of the air conditioners and devices connecting to the system.

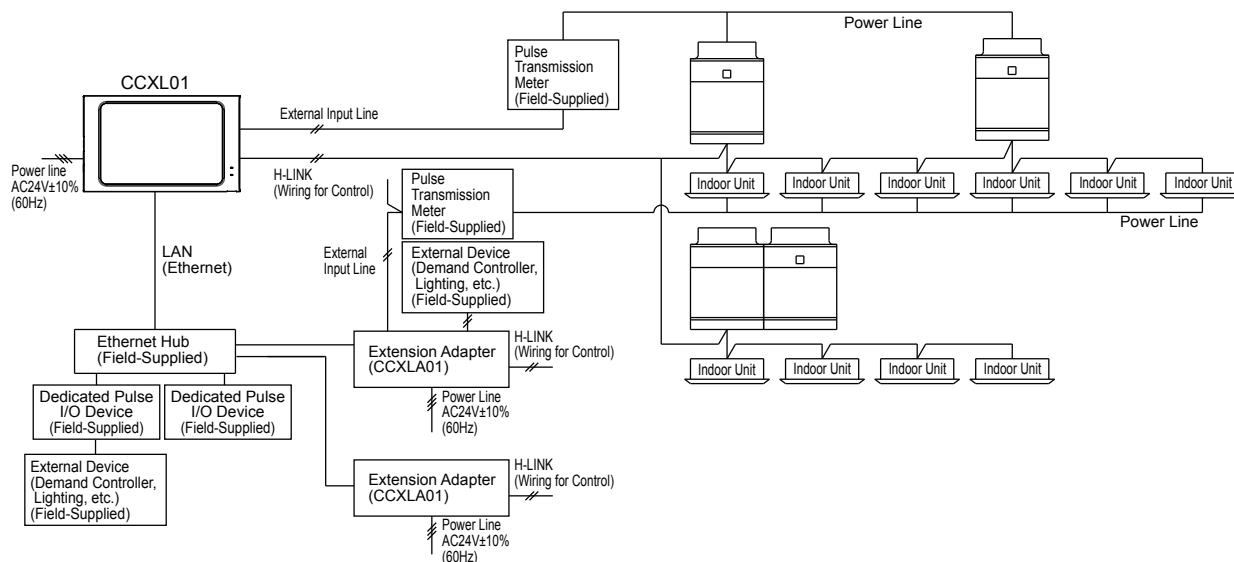


Figure 2.1: Sample of System Configuration

### 2.2 Names and Functions

Names are as described in the following figure 2.2.

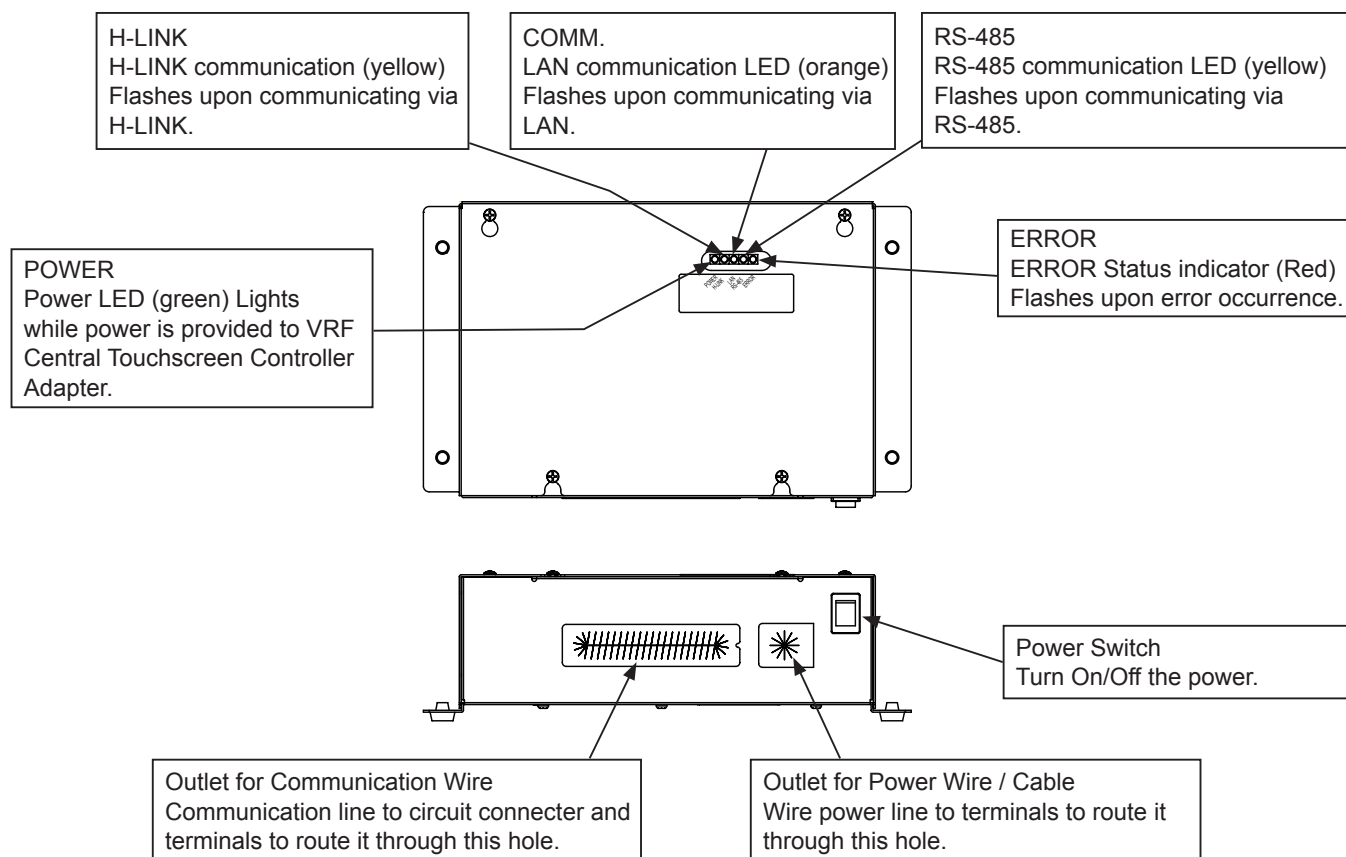


Figure 2.2: Parts Names

## 2.3 Internal Components

The following figure shows the VRF Central Touchscreen Controller Adapter with the cover removed. Each name and function are as follows.

Regarding how to connect each terminal, refer to “5.2 Wiring Work” on page 11. Regarding how to set each switch, refer to “5.3 Switch Setting Procedures” on page 13.

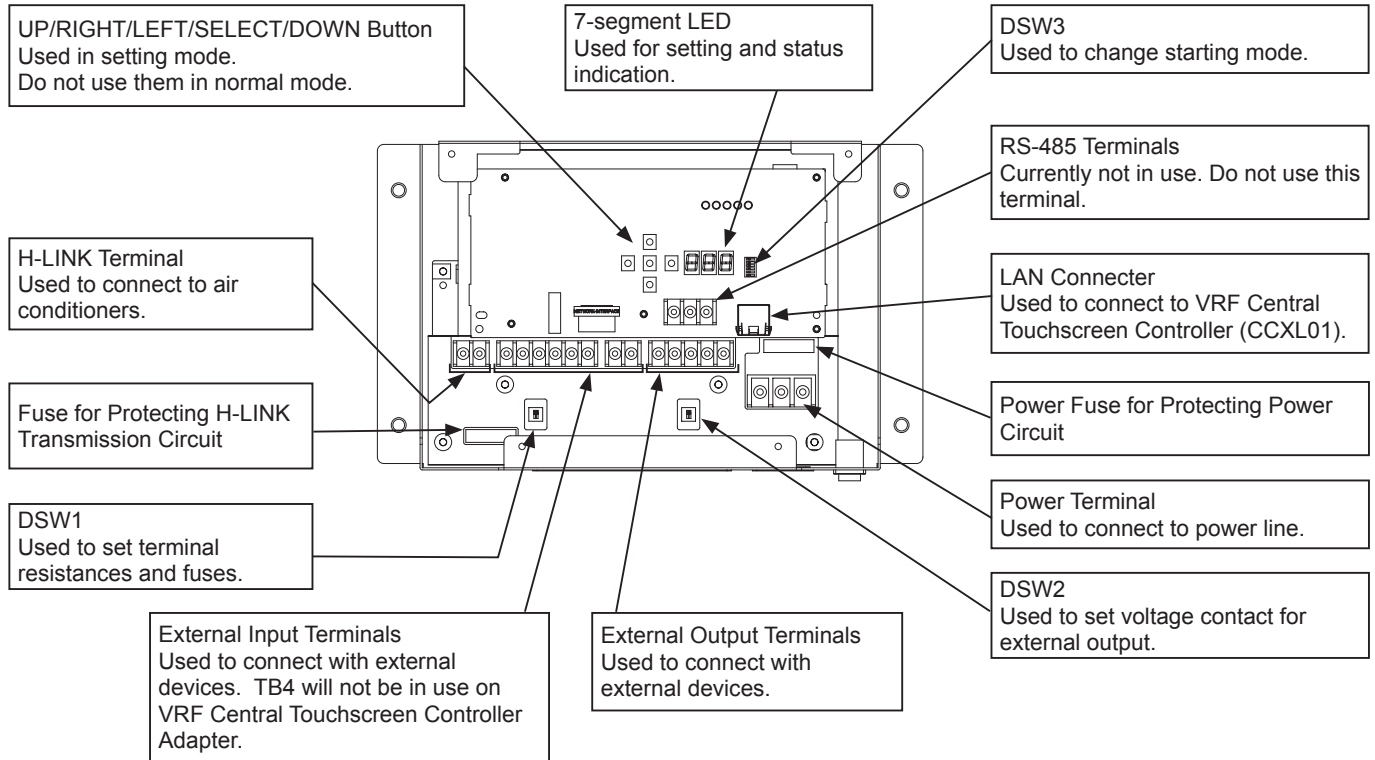


Figure 2.3: Names of Inner Parts



## 2.4 Specifications

Table 2.1: Hardware Specification

Item	Specification
Dimensions (inch)(mm)	W: 10-1/16 (255.6) x H: 6-1/8 (155) x D: 2-13/16 (72)
Net Weight	Approx. 3.3 lb (1.5kg)
Installation Place	For Indoor Installation Only For Wall Mount or Wall Built-in
Ambient Temperature	32-104°F (0-40°C)
Ambient Humidity	20-80%RH (No Condensation)
Rated Power Supply	24VAC $\pm$ 10%, 60Hz (Transformer 55VA (Min.))
Power Consumption	Maximum 10W (12VA)

Table 2.2: Communication Specification for H-LINK

Item	Specification
Communication Peer	Indoor Unit / Outdoor Unit
Communication Line	AWG, 2-wire, stranded, shielded copper
Communication Method	Half Duplex Communication
Synchronization Method	Asynchronous
Communication Speed	9,600 bps
Wire Length of Connecting Cable	Total 3,281 ft. (1,000m) or less
Units Connected (Qty.)	Up to 64 outdoor units and 160 indoor units Total 200 or less on one H-LINK
For Combined Use	CCL01, CCM01 NOTE 1: If 2 or more central controllers are used in combination only RC less* indoor unit that supports dual setpoints can be connected to the system. NOTE 2: If 2 or more central controllers are in combined use, system may need to have restrictions. NOTE 3: One H-LINK system can include up to 8 central controllers.

\* RC less: Units without RC

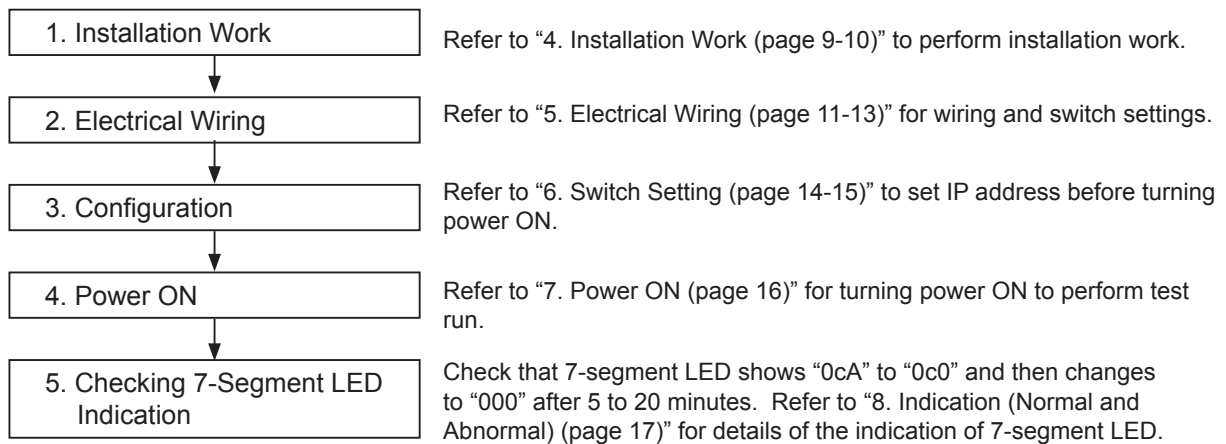
Table 2.3: LAN (Ethernet) Specification

Item	Specification
Communication Peer	VRF Central Touchscreen Controller (CCXL01), PIO*
Communication Line	LAN (Ethernet)
Communication Method	IEEE 802.3 Complied (10BASE-T/100BASE-TX)
Total Length of Connecting Cable	328.1 ft. (100m)

\* PIO: Dedicated pulse input/output device

### 3. Procedure Overview

This manual describes how to install and to power ON the VRF Central Touchscreen Controller Adapter. Follow instructions 1-5 to install the VRF Central Touchscreen Controller Adapter.



## 4. Installation Work

### 4.1 Place to Install

Select a place that applies to the following:

- ☐ (1) Refer to the clause “1. Safety Summary” of this installation manual.
- ☐ (2) Place where the VRF Central Touchscreen Controller Adapter can be firmly attached with wood screw for on wall mount.
- ☐ (3) Attach the adapter where it is not easily accessed (e.g., inside of control enclosure).

### 4.2 Installation Procedure

- ☐ (1) Select the accessory brand label according to the production order.  
Attach the accessory brand logo label to this area.

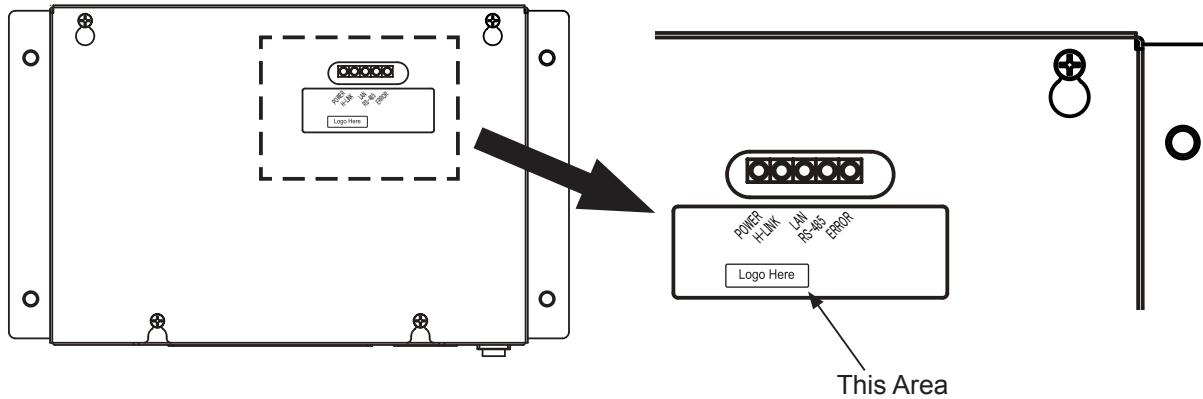


Figure 4.1: Brand Label Area

- ☐ (2) Secure free space as illustrated in Figure 4.2.

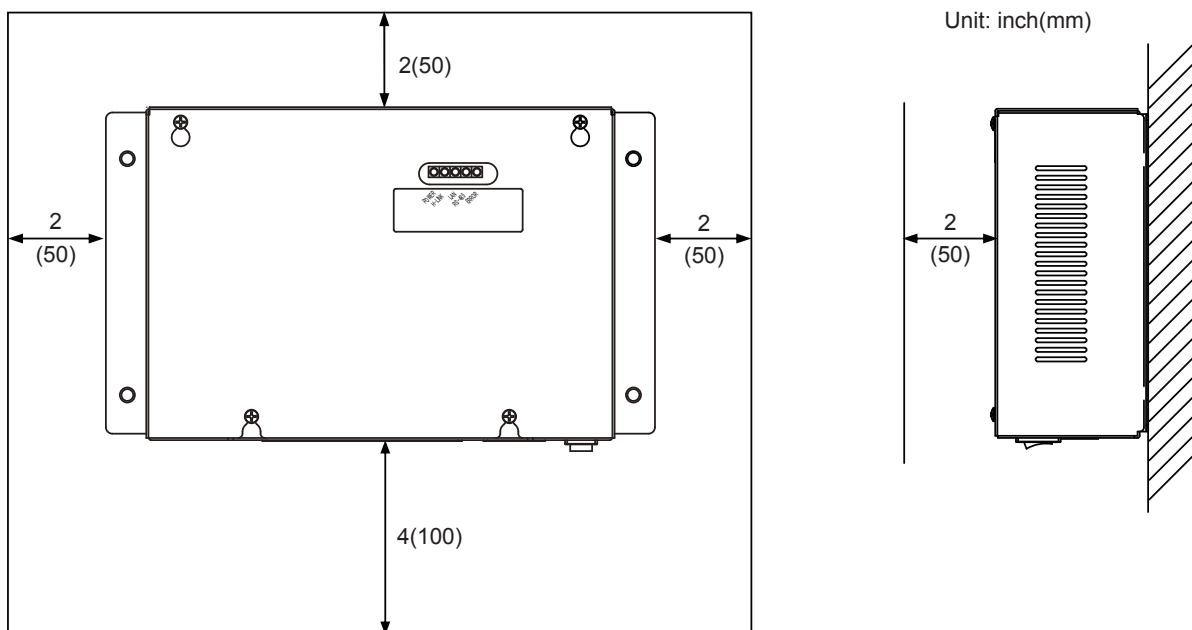


Figure 4.2: Installation Space

□ (3) For Wall Mount

- (a) Ensure that the wire outlet faces the floor, and keep the VRF Central Touchscreen Controller Adapter mounted horizontal not vertical. See example below.

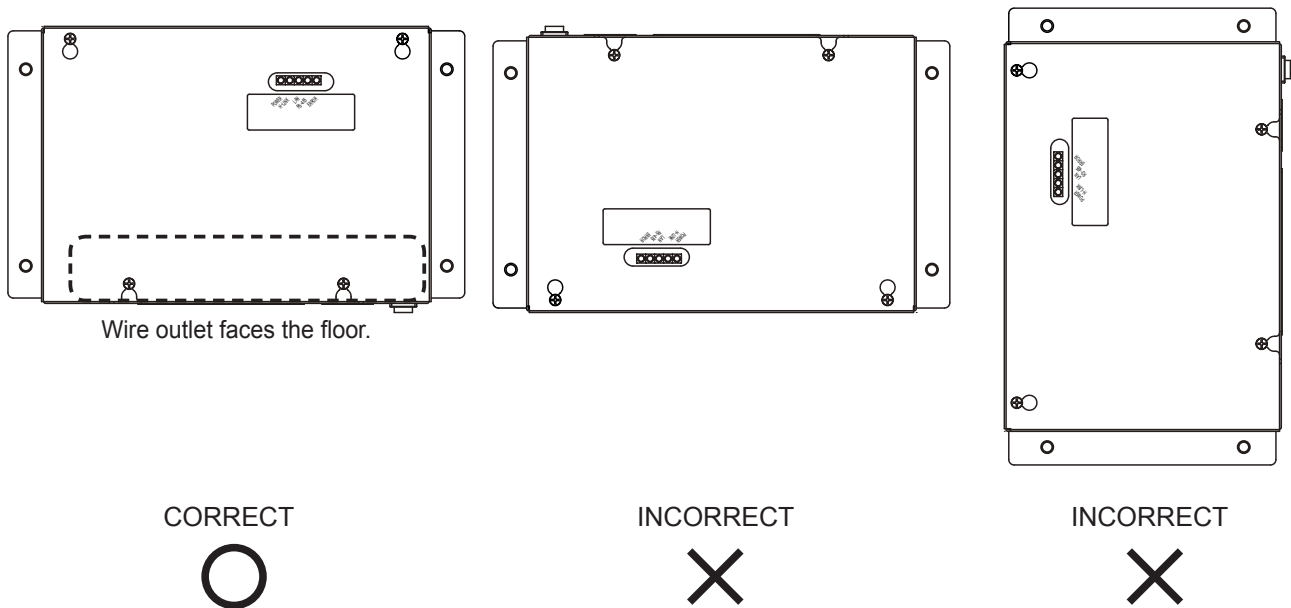


Figure 4.3: Direction for Installing Adapter

- (b) Remove rubber feet (4 pcs).
- (c) Firmly attach VRF Central Touchscreen Controller Adapter on wall through rubber foot hole with M5 screws ("M5 screws" are field-supplied).

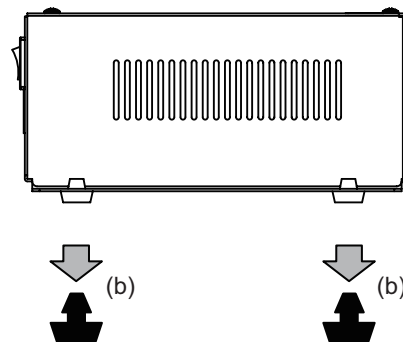


Figure 4.4: Removing Rubber Feet

## 5. Electrical Wiring

### 5.1 Wiring Procedures

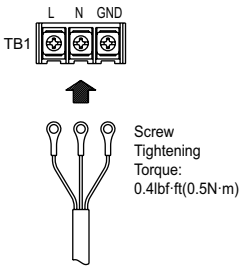
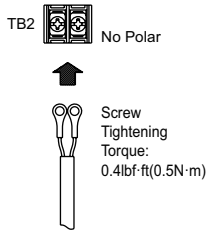
- (1) Read and understand “1. Safety Summary” in this manual well to perform wiring work. Wiring work for power line, line for communication with air conditioners (H-LINK) and control line (LAN) with VRF Central Touchscreen Controller (CCXL01) are required.

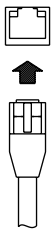
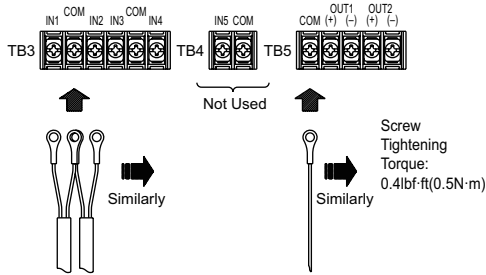
Note that wiring work for communication with external devices also is required for any external device connected to the system. Ensure the power line is turned off before performing any wiring work.

### 5.2 Wiring Work

- (1) Ensure that the power line and the power on connecting devices are all turned off before performing any wiring work.
- (2) Loosen 4 screws and slide top cover to remove it.
- (3) Follow the instruction below to perform wiring work.

Table 5.1 Connecting Wires

Type of Wiring	Power Line	H-LINK (Communication Line)
Specification	24VAC±10% 60Hz	5VDC
Wiring Length	—	3281ft.(1,000m) or less
Cable Specifcaiton	AWG16(1.25mm <sup>2</sup> ) to AWG14(2mm <sup>2</sup> ) Outer diameter finish is up to 10mm.	AWG18 (0.75mm <sup>2</sup> ) to AWG16 (1.25mm <sup>2</sup> )
Terminals/Connector	M3 Screw Terminal (with Terminal Cover)	M3 Screw Terminal
Connection Procedure	 <p>Screw Tightening Torque: 0.4lbf-ft(0.5N-m)</p> <ul style="list-style-type: none"> <li>Crimp a ring terminal on the wire.</li> <li>Route the power supply cable through the dedicated opening as shown in Figure 2.2.</li> <li>Install each ring terminal to correct location on the terminal block (TB1).</li> </ul> <p><b>NOTE:</b> To prevent electric shock, do NOT remove the terminal cover.</p>	 <p>No Polar</p> <p>Screw Tightening Torque: 0.4lbf-ft(0.5N-m)</p> <ul style="list-style-type: none"> <li>Crimp a ring terminal on the wire.</li> <li>Route the communication cable through the dedicated opening as shown in Figure 2.2.</li> <li>Install each ring terminal to correct location on the terminal block (TB2).</li> </ul>

Type of Wiring	LAN Cable	External Input/Output Cable
Specification	IEEE802.3 Compliant 100BASE-TX/10BASE-T	Input: a contact point setting DC24V 10mA Output: Dry/Wet Contact Setting DC24V 40mA or less
Wiring Length	328.1ft.(100m) or less	229.7ft.(70m) or less
Cable Specifcaiton	LAN Cable (Category 5 or more)	AWG20 (0.5mm <sup>2</sup> ) to AWG16 (1.25mm <sup>2</sup> )
Terminal/Connector	RJ45 Connector	M3 Screw Terminal
Connection Procedure	 <ul style="list-style-type: none"> <li>Route the LAN cable through the dedicated opening as shown in Figure 2.2.</li> <li>Insert connector until lock sound is heard.</li> </ul>	 <p>Similarly</p> <p>Similarly</p> <p>Screw Tightening Torque: 0.4lbf-ft(0.5N-m)</p> <ul style="list-style-type: none"> <li>Crimp ring terminals on the wiring as shown.</li> <li>Route the wiring through the dedicated opening as shown in Figure 2.2.</li> <li>Install each ring terminal to the correct location on the terminal blocks (TB3, TB4, TB5).</li> </ul> <p><b>NOTE:</b> If using external output with wet contact, DIP switch setting is required.</p>

#### NOTICE:

- Secure space longer than 5-7/8 inch (150mm) between communication lines (H-LINK, LAN, External Input/Output).

- Connecting External Devices

**NOTES:**

1. External input circuit voltage is pushed up to DC24V in the VRF Central Touchscreen Controller Adapter. On the wire between the VRF Central Touchscreen Controller Adapter and external device, maximum current from the VRF Central Touchscreen Controller Adapter is 10mA.  
Pulse width and pulse interval need to be 90 ms or longer for use with pulse input.
2. **When connecting to external output, apply relay with following specifications.**
  - **Rated voltage: 24VAC**
  - **Rated current: 40mA or less**
3. To set voltage contact for external output, set DSW2 for external output setting to ON.
4. 4 COM terminals can be used for both input and output. (They conduct with each other internally.)

How to wire

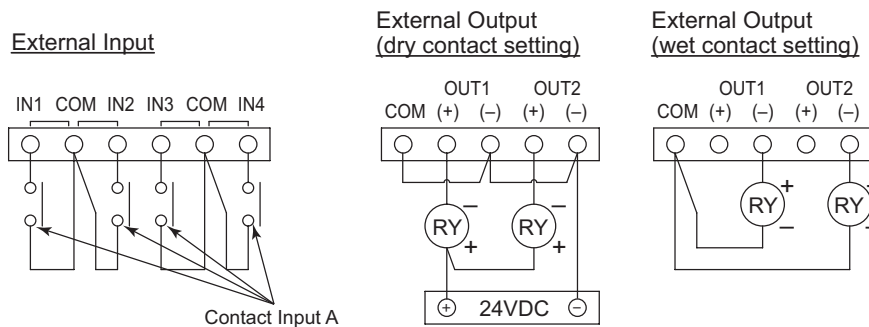


Figure 5.1: How to Wire External Devices

### 5.3 Switch Setting Procedures



Change switch setting before turning power on.

Switch setting is as follows. Factory default setting may need to be changed depending on use in the field.  
(voltage contact setting)

Table 5.2 Switch Setting

Switch		Usage (ON/OFF)	Factory Setting	Remarks
DSW1 (2-position DSW)	1	ON: H-LINK Terminal Resistance Active OFF: H-LINK Terminal Resistance Inactive	OFF	Ensure that no other terminal resistance exists on the same H-LINK when activating terminal resistance from the VRF Central Touchscreen Controller.
	2	ON: Protection Fuse for H-LINK ... Inactive (Short-circuited) OFF: Protection Fuse for H-LINK ... Active (Normal)	OFF	When the protection fuse for H-LINK is blown, set 2 pin on DSW1 to ON to make short-circuit between fuse terminals.
DSW2 (2-position DSW)	1	ON: External output 1 voltage contact (24V ON) setting OFF: External output 1 No-voltage contact (24V OFF) setting	OFF	Set this switch as ON to set external output 1 to wet contact.
	2	ON: External output 2 voltage contact (24V ON) setting OFF: External output 2 No-voltage contact (24V OFF) setting	OFF	Set this switch as ON to set external output 2 to wet contact.
DSW3 (6-position DSW)	1	[ON OFF]: Normal Mode ON [OFF ON]: Setting Mode (3 and 4 OFF)	ON	—
	2	(1 and 2 from the left)	OFF	—
	3	ON (Locked)	ON	Do NOT change it.
	4	OFF: H-LINK II Support Mode ON: H-LINK II Non-support Mode	OFF	Do NOT change it.
	5	ON (Locked)	ON	Do NOT change it.
	6	OFF (Locked)	OFF	Do NOT change it.

Table 5.3 Setting Startup option DSW3 setting

No.	DSW3 Setting	Setting Position	Setting State	Usage
1		1, 3 and 5 pin ON	Normal Mode	1, 3 and 5 pins are ON as factory default setting. Power on as they are. After power is turned ON, connection check starts. Upon completion of connection check, ERROR LED goes off. <b>NOTE:</b> Set 3 pins as ON to show temperature in 0.5°C resolution or/and Degrees Fahrenheit.
2		2 and 5 pin ON	Setting Mode	Power on with the setting illustrated on the left to utilize setting mode.

- (1) Reattach the top cover upon completing wiring work.  
See the Figure 5.2 for appropriate positioning of the top cover.

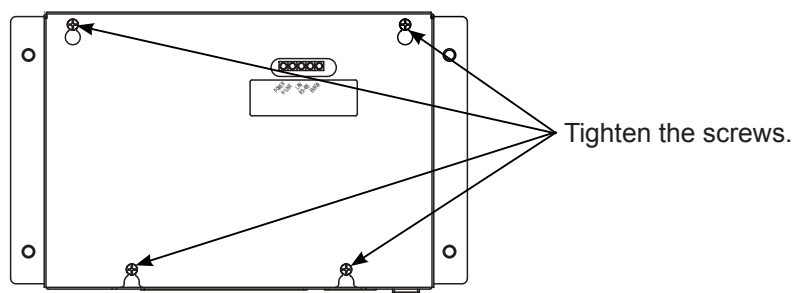


Figure 5.2: Attaching Top Cover

## 6. Switch Setting

To connect to HUB, set the IP address that has no duplication on the same network for VRF Central Touchscreen Controller Adapter. Factory-setting is as follows.

Table 6.1 Factory-Setting (Initial Setting)

Name	Initial Setting
IP Address	192.168.0.23
Subnet Mask	255.255.255.0
Default Gateway	192.168.0.1

Check/modify the detail setting by following instructions below.

### Checking IP Address

- (1) Connect HUB and PC before connecting VRF Central Touchscreen Controller Adapter to HUB.
- (2) Go to **Start - Control Panel - Network and Sharing Center - Local Area Connection - Properties - Internet protocol version 4 (TCP/IPv4)\*** to set the IP address of PC. Ensure that the last digit is different from VRF Central Touchscreen Controller Adapter.  
(Example: If IP address for VRF Central Touchscreen Controller Adapter is 192.168.0.23, then IP address for PC can be 192.168.0.30, and so on.)
- (3) Go to **Start - All Programs - Accessories - Command Prompt\***.
- (4) Enter "ping [IP address that is to be set for VRF Central Touchscreen Controller Adapter]" and press **Enter** key on keyboard. (Example: "ping [192.168.0.24 (any address that has no duplication on the system)]")
- (5) If the window shows "Request timed out", then the IP address is not being used on the network. In this case, this IP address can be used for VRF Central Touchscreen Controller Adapter. If the request does not time out, then the IP address is already being used and the IP address cannot be used for VRF Central Touchscreen Controller Adapter.

\* These steps apply to Windows 7 OS. These steps may or may not completely apply to other OS.

### Procedure

- (1) Remove the top cover and set 2 and 5 pins on DSW3 as ON. (To setting mode)
- (2) Turn the power ON.
- (3) Wait until 7-segment LED shows "1".
- (4) Press **UP** or **DOWN** button to check 7-segment LED shows as following. Set 7-segment LED as "4" to change IP address.

Table 6.2 Indications and Contents

Items	7-Segment LED Display		Main Function
	Before Pushing [SELECT]	After Pushing [SELECT]	
Reserved	1	—	Do NOT change it.
Reserved	2	—	Do NOT change it.
Connection info.	3	0 ~ 1	Indicates 1 when it has connection information and 0 when it does not. Set 0 to delete connection information
IP address	4	The first 3 digits of the IP address	Check and modify IP address for VRF Central Touchscreen Controller Adapter.
Subnet mask	5	The first 3 digits of the subnet mask	Check and modify subnet mask for VRF Central Touchscreen Controller Adapter.
Default gateway	6	The first 3 digits of the default gateway	Check and modify default gateway for VRF Central Touchscreen Controller Adapter.
Reserved	7 ~ 8	—	Do NOT change it.
Version + P number	9	Version + the first 3 digits of P number	Version + P number (YYYYMMDDhhmmPPPP) will be shown.
Reserved	a	—	Do NOT change it.
Address (H-LINK communication source)	b	1 ~ 32	Modify address for VRF Central Touchscreen Controller Adapter.
Factory resetting	c	0 ~ 1	To reset the setting to factory default, show 1, otherwise show 0. (Ensure that "0" is indicated when checking the setting.)



- (5) Press **SELECT** button to show the first 3 digits of current setting. Example of IP address is as follows.  
(Example: 192.168.0.23)  
(a) The contents in the square are shown on the 7-segment LED.

192 168 000 023

NOTE: The value “0” for IP address, subnet mask and default gateway are indicated with “000”.

- (b) Press **SELECT** button to move the display range to the farthest left.  
The first 3 digits from the left will flash. (Example: 192.168.0.23)

192 168 000 023

- (c) Press **LEFT, RIGHT, UP** or **DOWN** button to show network address and to change setting.  
Press **RIGHT** button to right scroll the indication by 1 digit. (Example: 192.168.0.23)

192 168 000 023

Press **LEFT** button to left scroll the indication by 1 digit. (Example: 192.168.0.23)

192 168 000 023

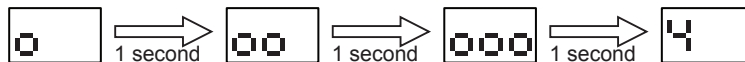
Press **UP** button to increment the right most number by 1.  
(Example: 192.168.0.23 → 193.168.0.23. Increments up to 9.)

193 168 000 023

Press **DOWN** button to decrease the right most number by 1.  
(Example: 193.168.0.23 → 192.168.0.23. decreases down to 0.)

192 168 000 023

- (d) Press **SELECT** and indication is as follows and then the display indicates the number for the setting item.



- (6) To change other setting items, repeat steps (4) to (5) as necessary.

NOTES:

1. Restart VRF Central Touchscreen Controller Adapter to activate the change. Shut the power off to confirm all LEDs go off, set DSW to normal mode (1, 3 and 5 pin ON) and then turn the power ON again. After start up, fit the top cover.
2. Upon resetting to factory default setting, VRF Central Touchscreen Controller Adapter will automatically restart.  
When restarting due to resetting to factory default setting, 7-segment LED indicates “1” once and then returns to the normal indication.

NOTICE:

- For detail about the IP address, subnet mask and default gateway, contact network administrator. Subnet mask and default gateway need not to be set if the network is exclusively for VRF Central Touchscreen Controller and its peripherals. Regarding network security, contact network administrator.

## 7. Power ON

After completing installation, wiring operation, switch setting and other settings, use the following procedure to turn ON the power for VRF Central Touchscreen Controller Adapter. After a minute, start up finishes and the connection check starts.

- (1) Turn ON the power for all air conditioners on the system.
  - Complete test run on all air conditioners first to confirm their health.
- (2) Ensure the 1, 3 and 5 pins of SW3 on VRF Central Touchscreen Controller Adapter are set as ON and then turn ON the power.
- (3) Turn ON the power for VRF Central Touchscreen Controller Adapter. POWER LED lights. After a minute, start up completes and the connection check starts. While VRF Central Touchscreen Controller Adapter is checking connection, the 7-segment LED indicates either "0cA" or "0c0" and the ERROR LED flashes every 5 seconds.

NOTE:

If 2 or more central controllers are on the same system, disconnect all the other central controllers than VRF Central Touchscreen Controller from H-LINK to turn ON the power for VRF Central Touchscreen Controller Adapter.

- (4) Ensure that the connection checking of the air conditioners is completed. Connection check completes in approximately 20 seconds. Upon completion, 7-segment LED shows "000" and the ERROR LED goes off.

Refer to Installation and Operation Manual for VRF Central Touchscreen Controller for details of further operation.

NOTE:

To restart VRF Central Touchscreen Controller Adapter, ensure that POWER LED and 7-segment LED are turned OFF and then turn the power ON again.

## 8. Indication (Normal and Abnormal)

LED indication for normal and abnormal conditions are as follows.

Table 8.1 Indication and Condition for ERROR LED and 7-segment LED

State	Lights/indicates when	Goes OFF/clears when	ERROR LED state	7-segment LED state	Indication priority
Software start up failure	Detected abnormality on the software	The software has no error/ abnormality.	ON	0E0	1
Memory check failure (FlashROM)	Detected abnormality while checking FlashROM	Checking FlashROM successfully completed.	ON	0E1	2
Checking memory (FlashROM)	Checking FlashROM	Checking FlashROM successfully completed.	OFF	0c1	3
Memory check failure (SDRAM)	Detected abnormality on checking SDRAM	Checking SDRAM successfully completed.	ON	0E2	4
Checking memory (SDRAM)	Checking SDRAM	Checking SDRAM successfully completed.	OFF	0c2	5
File system failure	Detected abnormality while checking file system	Checking file system successfully completed.	ON	0E6	6
Application start up	Immediately after power ON and application starts up on normal mode	1 second elapsed	ON for 1 second	088	7
H-LINK initialization failure	After turning ON the power on normal mode, application starts up and detected abnormality on initializing H-LINK communication port.	Initialization of H-LINK communication port successfully completed.	ON	0hE	8
Internal database failure	After turning ON the power on normal mode, application starts up and detected abnormality on checking internal database.	Checking internal database successfully completed.	ON for 1 sec. and OFF for 1 sec. (Repeated)	0tE	9
Initializing system	After turning ON the power on normal mode, application starts up and then processing system initialization.	System initialization successfully completed.	OFF	050	10
Preparing for air conditioners connection checking	After start up on normal mode, the VRF Central Touchscreen Controller Adapter is either checking connection with other central controllers or while in auto address detection.	Starting connection checking	Flashes once in 5 sec. (Repeated)	0cA	11
Checking connection with air conditioners	After turning ON the power on normal mode, application starts up and then checking connection with air conditioners.	Connection checking completed.	Flashes once in 5 sec. (Repeated)	0c0	12
Communication failure with air conditioners	After turning on the power on normal mode, completed connection checking with air conditioners and detected communication failure with 1 or more air conditioners.	Communication on all the detected air conditioners is successfully established.	Flashes once in 3 sec. (Repeated)	00E	13
Writing to MicroSD (for service maintenance)	Data being written to MicroSD card	Writing data completed.	OFF	5d0	14
Normal state (*)	After turning ON the power on normal mode, none of the above situations is observed.	One or more above criteria are met.	OFF	000	15

### NOTICE:

Upon occurrence of situation highlighted in gray, refer to page 18-19 "9. Maintenance and service".

\*: "0c0" indicating checking connection turns to "000" as it makes the transition to normal operation state.

If VRF Central Touchscreen Controller Adapter failed to detect all air conditioners that were detected on the initial connection check, after recovery from power failure, for example, 7-segment LED indicates "000" for 3 minutes and then shows "00E" to indicate a communication failure with air conditioners.

## 9. Maintenance and Service

The following table identifies possible troubleshooting solutions for abnormal conditions. Ensure the power line is turned off before performing any checking described in the table.

Item	Phenomenon	Check	Action			
1	VRF Central Touchscreen Controller Adapter does not seem to be working even after power is applied.	Is power line correctly connected to VRF Central Touchscreen Controller Adapter?	Ensure the power line is correctly connected to VRF Central Touchscreen Controller Adapter. Ensure the power line is turned off to perform wiring work.			
		Is the power source turned ON?	Turn ON the power source.			
		Is the power button on the VRF Central Touchscreen Controller Adapter turned ON?	Turn ON the power button for VRF Central Touchscreen Controller Adapter.			
		Is power voltage within the applicable range?	Check the voltage on the power supply. Check and reconnect the wire if the voltage is out of “normal range” (24VAC±10%).			
		Is the power fuse blown? Both must be good for operation.	If VRF Central Touchscreen Controller Adapter has blown fuse, replace with new one(s).			
		Does the POWER LED light up?	If none of the above applies to the circumstances and POWER LED still does not light up, VRF Central Touchscreen Controller Adapter may have an internal defect. Contact your dealer or distributor.			
		Is ERROR LED or/and 7-segment LED indication as follows?	VRF Central Touchscreen Controller Adapter may have an internal defect. Contact your dealer or distributor.			
		<table><tr><td>ERROR LED State</td><td>7-segment LED Indication</td></tr><tr><td>ON</td><td>0E0/0E1/0E2/0E6/0hE</td></tr><tr><td>ON for 1 second and OFF for 1 second (repeated)</td><td>0tE</td></tr></table>		ERROR LED State	7-segment LED Indication	ON
ERROR LED State	7-segment LED Indication					
ON	0E0/0E1/0E2/0E6/0hE					
ON for 1 second and OFF for 1 second (repeated)	0tE					
2	Checking connection never completes.	Is H-LINK line correctly connected to VRF Central Touchscreen Controller Adapter?	Correctly connect H-LINK to VRF Central Touchscreen Controller Adapter.			
		Is the terminal resistance on H-LINK wiring correctly set?	Set only 1 terminal resistance on one H-LINK circuit.			
		Are all addresses for the equipment configured correctly?	Set the addresses for all equipment as outlined in the manuals.			
		Is the H-LINK wiring disconnected?	Check the wiring connection.			
		Is all the equipment powered ON?	Power ON all equipment.			
		Does H-LINK wiring meet specification requirement?	Use AWG18~16(0.75 - 1.25mm <sup>2</sup> ) standard and shielded cable with a length of 3,281ft.(1,000m) or shorter.			
		Doesn't either ERROR LED or 7-segment LED indicate as following?	VRF Central Touchscreen Controller Adapter is checking connection. Please wait. VRF Central Touchscreen Controller Adapter has defects if “0cA” ↔ “0c0” are repeatedly shown. Check wiring and address setting on air conditioners and perform connection check again.			
		<table><tr><td>ERROR LED State</td><td>7-segment LED Indication</td></tr><tr><td>Flashes once in 5 seconds (repeated)</td><td>0c0</td></tr></table>		ERROR LED State	7-segment LED Indication	Flashes once in 5 seconds (repeated)
		ERROR LED State	7-segment LED Indication			
		Flashes once in 5 seconds (repeated)	0c0			
Does the H-LINK LED stay ON/OFF?	<ul style="list-style-type: none"><li>- Ensure that the H-LINK line is correctly wired.</li><li>- If the protecting fuse for H-LINK circuit is blown, remove the cause to replace the fuse and then set 2 pin on DSW1 ON.</li><li>- If the none of the above applies, VRF Central Touchscreen Controller Adapter may have an internal defect. Contact your distributor or dealer.</li></ul>					

Item	Phenomenon	Check	Action				
3	The connection with VRF Central Touchscreen Controller cannot be established.	Is LAN cable correctly connected to VRF Central Touchscreen Controller Adapter?	Correctly connect LAN cable to VRF Central Touchscreen Controller Adapter. Also check the fitting for connectors.				
		Is the IP address of VRF Central Touchscreen Controller Adapter have duplication on the same network?	Refer to “6. Switch Setting (page 14)” to check IP address.				
		Is DSW setting on VRF Central Touchscreen Controller Adapter correct?	When changing DSW setting, refer to “5.3 Switch Setting Procedure (page 13)” to check the procedure.				
		Is the power on HUB turned ON?	Turn the power on HUB ON.				
		Does LAN cable meet specification requirement?	Use LAN cable of category 5 or higher with length of 328.1ft. (100m) or shorter.				
		Is LAN cable (and HUB) free from loose connections shorted wires or other issues?	Replace with new ones.				
		Is the H-LINK within 5-7/8 inches of any high voltage?	Provide spacing of 5-7/8 inches (150mm) or more between H-LINK and high voltage.				
		Does the LAN LED stay OFF?	If none of the above applies to the circumstances and phenomenon described on the left remains, VRF Central Touchscreen Controller Adapter may have an internal defect. Contact your dealer or distributor.				
4	Air conditioning cannot be controlled by VRF Central Touchscreen Controller.	Is either ERROR LED or 7-segment LED indicating the following? <table><tr><td>ERROR LED State</td><td>7-segment LED Indication</td></tr><tr><td>Flashing every 3 seconds</td><td>00E</td></tr></table>	ERROR LED State	7-segment LED Indication	Flashing every 3 seconds	00E	Communication is not properly established. Check the wiring connection for air conditioning units and H-LINK.
		ERROR LED State	7-segment LED Indication				
		Flashing every 3 seconds	00E				
		Is all equipment powered ON?	Power ON all equipment.				
		Is the terminal resistance on H-LINK wiring correctly set?	Set only 1 terminal resistance on one H-LINK circuit.				
		Is all equipment addressed correctly?	Set the address for all equipment as outlined in the manuals.				
		Is H-LINK wiring connected (NOT disconnected)?	Check the wiring connections for H-LINK.				
		Is H-LINK wiring within 5-7/8 inches of any high voltage?	Provide free space of 5-7/8 inches (150mm) or longer for each wiring.				
		Does H-LINK wiring meet specification requirements?	Use the following cable: - Recommended Size: AWG18~16 (0.75~1.25mm <sup>2</sup> ) standard - Total Length: Max. 3,281ft.(1,000m))				
		Doesn't H-LINK LED stay OFF?	Check the wiring connection for H-LINK.				
Does the H-LINK LED stay lit?	VRF Central Touchscreen Controller Adapter may have an internal defect. Contact your dealer or distributor.						
5	Extension Adapter does not establish connection with dedicated pulse I/O (PIO) device.	Is LAN wire correctly connected to PIO device?	Connect LAN cable to PIO device to ensure H-LINK LED on PIO device turns ON.				
		Does PIO device meet required specification?	Use Hitachi Industrial Equipment Systems Co.,Ltd. EH-150EHV series (third party) configured by qualified personel from Service Engineering center.				
		Is the power on PIO device turned ON?	Check that POWER LED on PIO device is turned ON. If none of the above applies to the circumstances and phenomenon described above remains, PIO device may have an internal defect. Contact your dealer or distributor.				
		Does 7-segment LED on PIO device indicate anything other than “00”?	PIO device has an internal defect. Contact your dealer or distributor.				
		Is the ERR LED on PIO device turned ON or flashing?	PIO device has an internal defect. Contact your dealer or distributor.				

## 10. Memory Cards

VRF Central Touchscreen Controller provides slots for microSD/microSDHC memory cards that applies to SD Standard.

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