40VM900010 DLS VRF Interface
VRF (Variable Refrigerant Flow) System
Indoor Unit Interface

Installation and Operating Instructions

Part Number 40VM900010

TABLE OF CONTENTS

SAFETY CONSIDERATIONS

Read and follow manufacturer instructions carefully. Follow all local electrical codes during installation. All wiring must conform to local and national electrical codes. Improper wiring or installation may damage thermostat.

Understand the signal words — DANGER, WARNING, and CAUTION. DANGER identifies the most serious hazards, which will result in severe personal injury or death. WARNING signifies hazards that could result in personal injury or death. CAUTION is used to identify unsafe practices, which would result in minor personal injury or product and property damage.

Recognize safety information. This is the safety-alert symbol (⚠). When this symbol is displayed on the unit and in instructions or manuals, be alert to the potential for personal injury. Installing, starting up, and servicing equipment can be hazardous due to system pressure, electrical components, and equipment location.

Note that changes or modifications of this product are not expressly approved by the party responsible for compliance and could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. these limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and the receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult dealer or an experienced radio/TV technician for help.

GENERAL

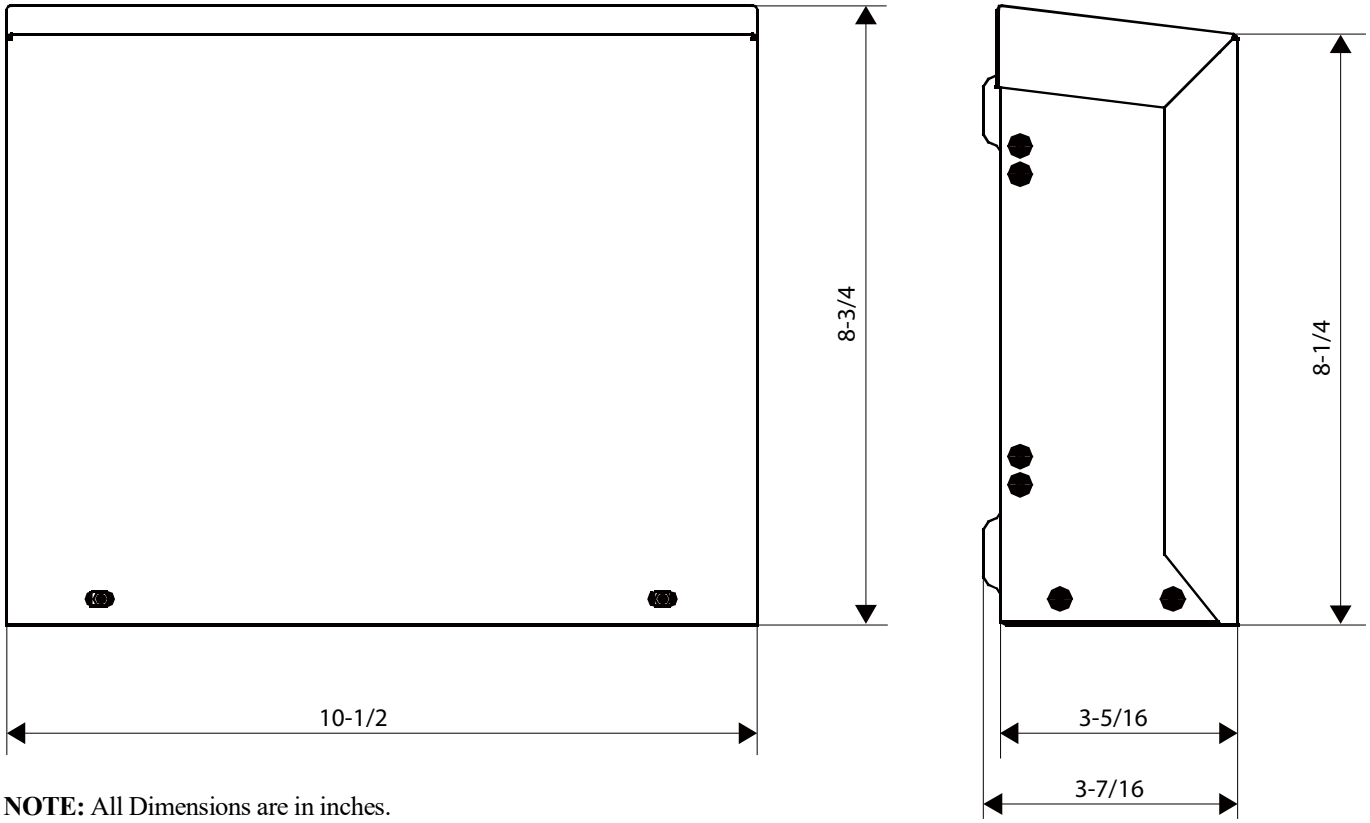
The DLS VRF Interface is a communication device that allows you to connect ductless indoor units into VRF touch screen central controller. Ductless indoor units, any style, will be shown as high wall unit icon on the touch screen central controller. Ductless indoor unit can be controlled using VRF wired controller.

ACCESSORIES

Table 1 —40VMC Physical Data

NAME	OUTLINE	QUANTITY	FUNCTION
Installation and Owners Manual		1	As reference for installation and operation
Mounting Screw		3	For mounting the box

DIMENSIONS



NOTE: All Dimensions are in inches.

Fig. 1 —Dimensional Drawing

DLS UNIT COMPATIBILITY

Table 2 —Relevant DLS Units (Compatibility)

Model Number	Sizes	Voltage	XYE Bus	Requires Purchase of Adapter Board and Display Board	Compatible with DLS VRF Interface
40MHHC	12	115V	Yes	No	Yes
	12,18,24	230V	Yes	No	Yes
40MHHQ	12	115V	Yes	No	Yes
	12,18,24	230V	Yes	No	Yes
40MPHA	9,12,18,24	230V	Yes	No	Yes
40MBAA	24,36,49	230V	No	No	No
40MBCQ	9,12,18,24, 36,48	230V	Yes	No	Yes
40MBDQ	9,12,18,58,24,36,48	230V	Yes	No	Yes
40MBFQ	9,12	230V	No	No	No
	18,24, 36,48,58	230V	Yes	No	Yes
40MAQ	9,12	115V	No	Yes*	Yes
	9,12,18,24,30,36	230V	No	Yes*	Yes

* Part number for the adapter board is 17222000A50275. Part number for the display board is 17222000A50275. Available on EPIC.

SELECTING INSTALLATION POSITION

Read this manual carefully before installing the interface and keep the manual for future reference. The DLS VRF Interface should be installed as close as possible to the ductless indoor unit. Avoid installing DLS VRF Interface near high voltage components and heat generating devices. Follow the local code for wiring methods between DLS unit, VRF touch screen central controller, and DLS VRF Interface. Make sure the cover of DLS VRF Interface is installed after wiring to avoid any moisture or dust accumulation.

Do not install the controller in a place exposed to water or in a condensing environment.

Do not install the device in a location where there is direct sunlight or where the temperature may become greater than 118°F(48°C) or less than -4°F(-20°C).

This product is neither waterproof nor dust proof, so it can only be installed indoors.

NOTE: The communication wire should be 2-core stranded shielded 18 AWG cable.

RECOMMENDED CLEARANCES

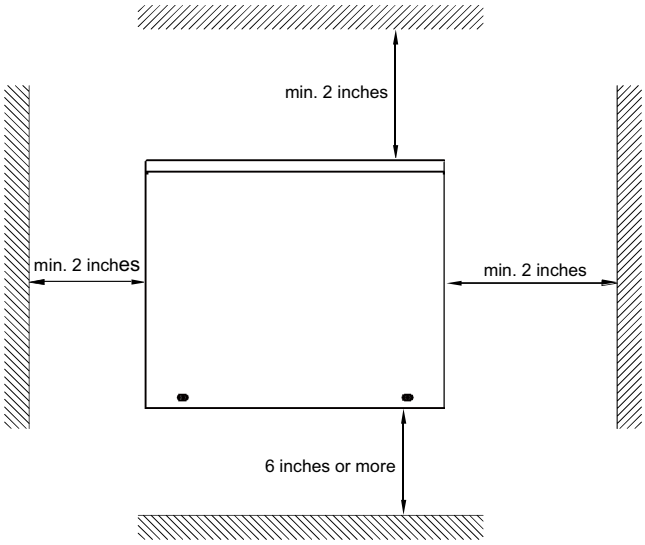
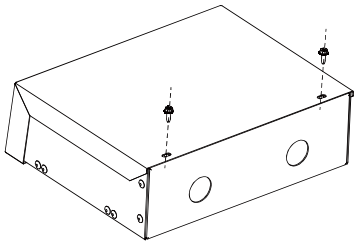


Fig. 2 —Mounting Clearances

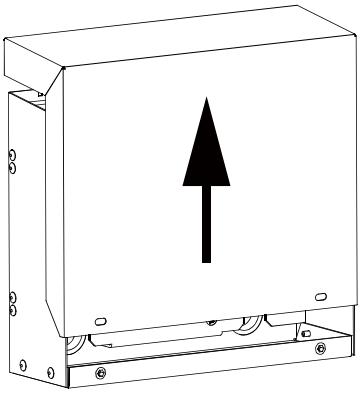
INSTALLATION

Installation Method

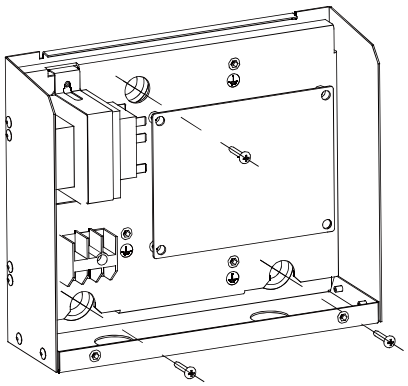
1. Use screwdriver to remove screw (2) of the box cover.



2. Slide and lift up the box cover as shown below.

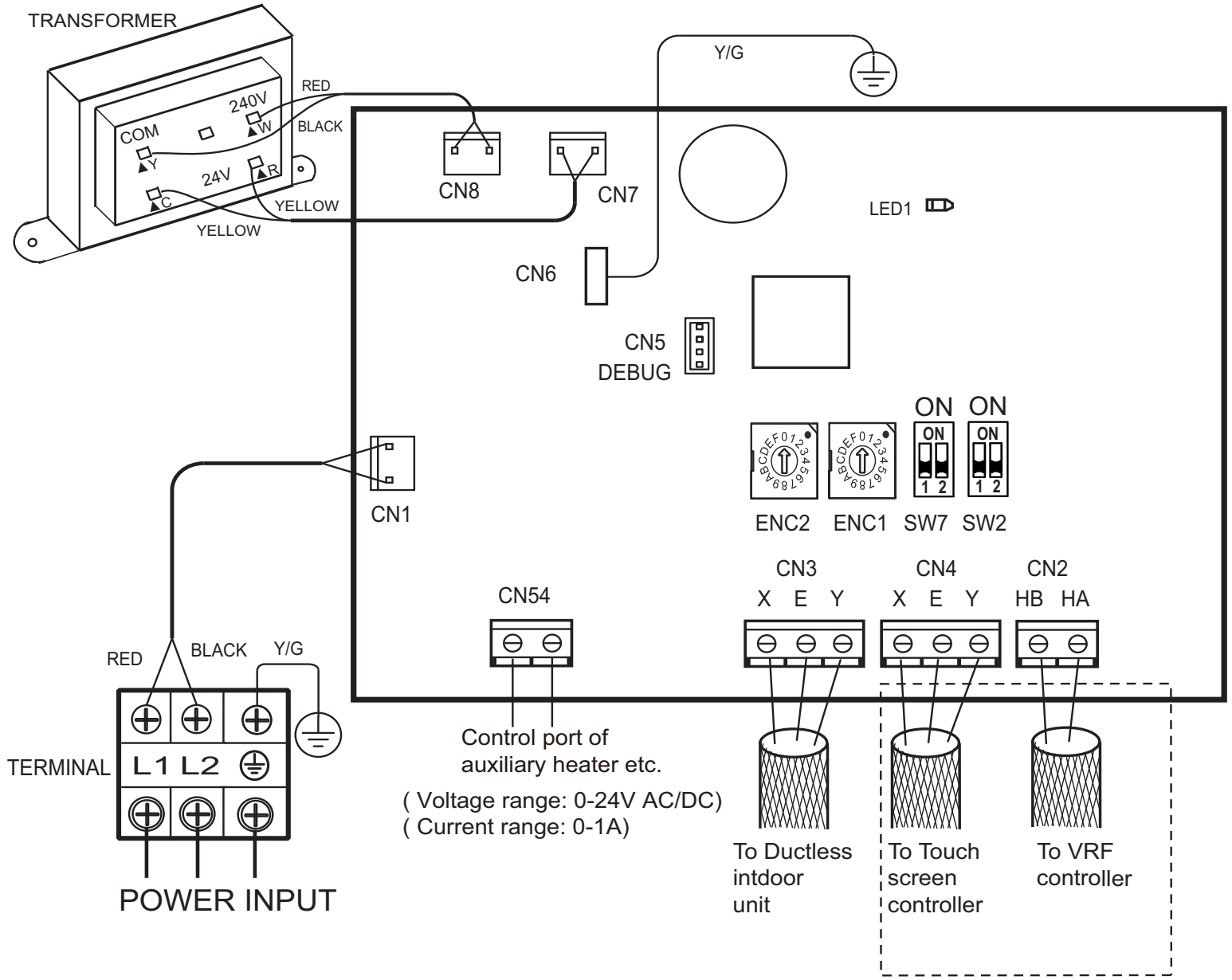


3. Use the mounting screws (3) in the accessory bag to mount the controller on the wall or solid surface as shown below.



4. Follow the wiring instruction for power and communication before installing cover back on the box.

WIRING DIAGRAM



NOTES:

1. The address set through ENC1 and SW7 must be consistent with the address of connect in indoor unit.
2. The set temperature unit through SW2_1 must be consistent with central controller, wired controller, and indoor units.

Fig. 3 —Wiring Diagram

POWER WIRING

Power	Phase	1-Phase
	Volt and Frequency	230V-60Hz
Fuse on board		5A/250VAC
Wire		2-core stranded shielded cable 18AWG

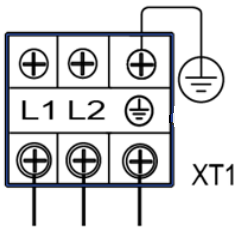


Fig. 4 —Power Input

COMMUNICATION WIRING

Type: 2-core stranded shielded cable

Diameter: AWG 18

Maximum wiring length:

- 3937 ft. between the ductless indoor unit and the DLS VRF Interface
- 3280 ft. between the touchscreen central controller and the DLS VRF Interface
- 820 ft. between the wire controller and DLS VRF Interface

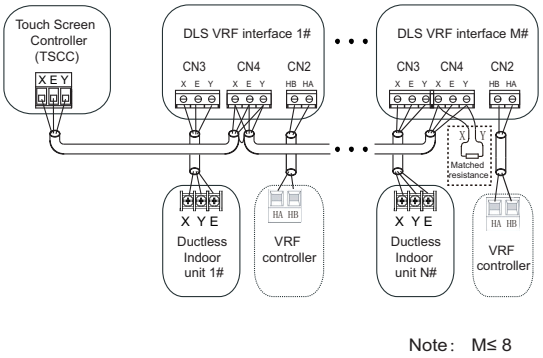
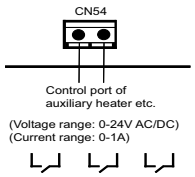


Fig. 5 —Communication Wiring

AUX HEAT SIGNAL INPUT

CN54 is the terminal for ON/OFF signal input for auxiliary heat on DLS VRF Interface. The signal type is dry contact.

NOTE: Some of the indoor units do not support AUX heat function.



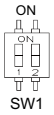
Voltage and current must meet the requirements of Tables 3.

Table 3 —Max. Current and Voltage

PORT	MAX. VOLTAGE (V AC/DC)	MAX. CURRENT (A)
CN54	24	1

DIP SWITCH SETTINGS

- ENC1/ENC2 are rotary dial whereas SW7 is ON/OFF.
- ENC2 is used to set the network address.
- Combination of ENC1 and SW7 allows you to set the indoor unit address. See Table 4.



Example:
A system has 10 VRF indoor units and 2 DLS indoor units with DLS VRF Interfaces. There is no automatic addressing function for the DLS VRF Interface. If the VRF indoor units are addressed 0-9, the DLS indoor units will be 10 and 11 following the settings in Table 4.

Table 4 —DIP Switch Settings

ENC2	ENC2 [0~7]	Set network address (0~7)
ENC1 and SW7	ENC1 [0~F]	Set IDU address, valid range is 0~15
	SW7 [00]	
	ENC1 [0~F]	Set IDU address, valid range is 16~31
	SW7 [01]	
	ENC1 [0~F]	Set IDU address, valid range is 32~47
	SW7 [10]	
	ENC1 [0~F]	Set IDU address, valid range is 48~63
	SW7 [11]	

NOTE: The address assigned through ENC1 & SW7 must be same as indoor unit address on wall controller.

Table 5 —SW2_1 and SW2_2 Definition

SW2_1	0	Temperature: °F (default)
	1	Temperature: °C
SW2_2	Reserved	

Table 6 —0/1 Definition of Each Dial Code Switch

ON means 0	ON means 1

NOTE: Temperature unit (°F or °C) set through SW2_1 must be same as touch screen central controller and wall controller.

Table 7 —EF and E8 Error Codes

ERROR CODE	INSTRUCTIONS
EF	IF TSCC or wired controller displays EF error code, you need to check whether IDU appears fault or protection
E8	IF TSCC or wired controller displays E8 error code, you need to check whether the IDU has a communication problem with the interface

Table 8 —LED 1

Blink 1time/1Hz	Net address >7
Blink 2times/1Hz	interface and IDU communication error
Blink 3times/1Hz	interface and TSCC communication error
Blink 4times/1Hz	interface and wired controller communication error

OPERATING INSTRUCTIONS

Step -1 – Getting Started

1. Connect ductless indoor unit to touch screen central controller using DLS VRF Interface as instructed in the installation manual.
2. Turn on the power for ductless indoor unit.
3. Turn on the power for DLS VRF Interface.
4. Turn on the power for touch screen central controller.
5. Select you brand based as shown below in Fig. 6 and press “Always” or “Just Once.”

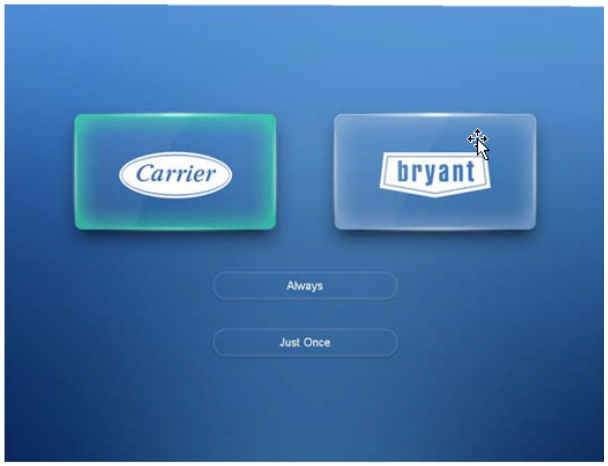


Fig. 6 —Brand Selection

6. Login screen will appear as shown below in Fig. 7.
   - Default login – superAdmin
   - Default password – 66668888
7. Press login.

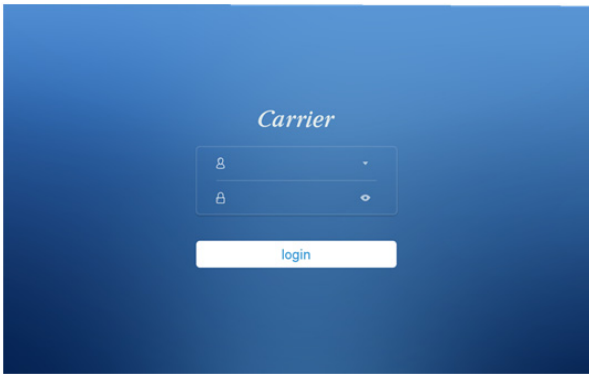


Fig. 7 —Login Screen

8. Home screen appears as shown below in Fig. 8.

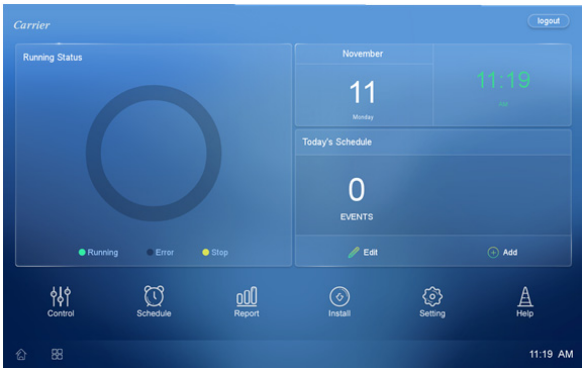


Fig. 8 —Home Screen

Step – 2 – Discovering Ductless Indoor Unit

1. Press the “Install” icon on the bottom of the screen as shown below in Fig. 9.

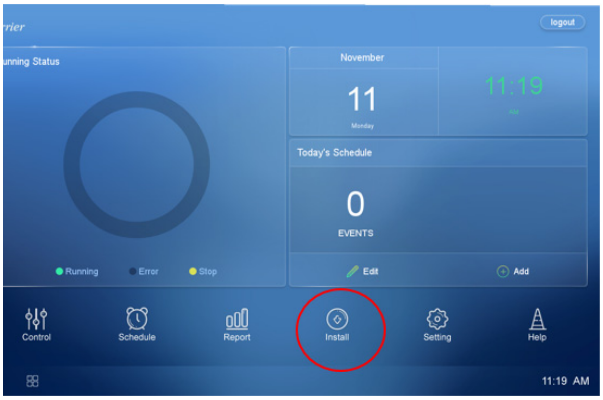


Fig. 9 —Install Icon

2. The Install screen will appear. Press “Auto Search” as show below in Fig. 10.

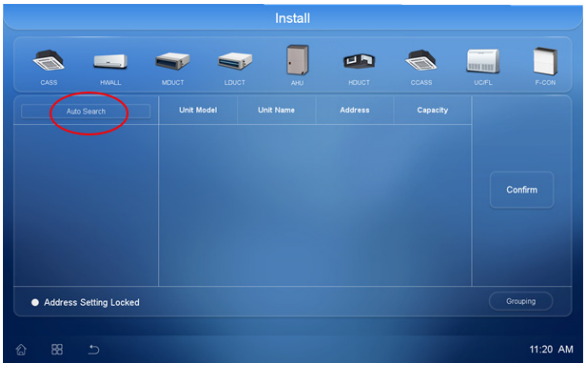


Fig. 10 —Auto Search Function

3. The Auto search screen will appear as show below in Fig. 11 looking for ductless indoor units and VRF system on XYE communication bus. This might take few seconds to discover all the units.

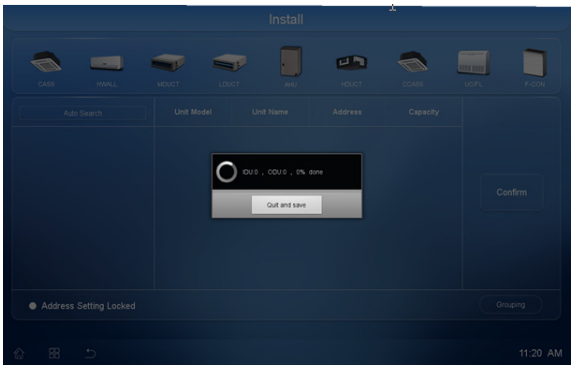


Fig. 11 —Auto Search Function in Process

4. Once the ductless indoor units and VRF systems are found, they will appear on the screen as shown in Fig. 12 (example).

Fig. 12 —Auto Discover of Indoor Unit

5. Press Confirm to accept the search (Fig. 13).

Fig. 13 —Confirm the Search

Step – 3 – Configuring Ductless Indoor Unit

1. The ductless indoor unit model will always default to "HWALL" as shown below in Fig. 14.
2. To change the name of the ductless indoor unit, press HWALL. A pop up screen will appear with a different style of indoor unit name. Select the appropriate name as shown below in Fig. 14.

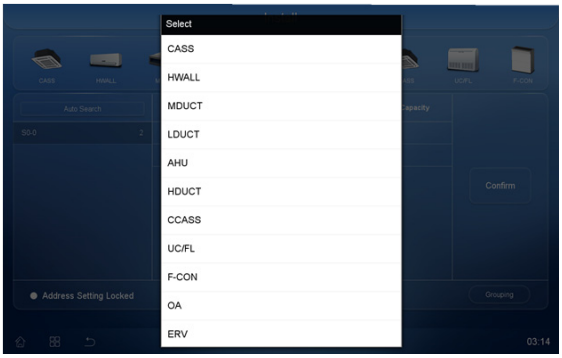


Fig. 14 —Indoor Unit Style Selection

3. Press on the unit name to change the name of indoor unit. Edit screen will appear with a keyboard as shown below in Fig. 15.

Fig. 15 —Renaming the Unit

4. To include indoor unit capacity, press on capacity box. Edit screen will appear with a keyboard as shown below in Fig. 16.

Fig. 16 —Editing Capacity

5. To go back to the Home screen by pressing the return arrow at the bottom on the screen as shown below in Fig. 17.

Fig. 17 —Return to Home Screen

6. The screen below (Fig. 18) shows the number of units connected to the controller.

Fig. 18 —Home Screen Showing Number of Units

For other features and function on the Touch Screen Central Controller, refer to the Touch Screen Central Controller Installation Manual.

COMMON QUESTIONS

Q. How is the ductless indoor unit displayed on the touch screen central controller?

A. The ductless unit will always appear as a high wall. The icon cannot be changed to match the indoor unit style (for example – cassette will appear as high wall). However, you can change the name (for example HWALL to CCAS).

Q. Is the DLS indoor unit controlled by the VRF or DLS wall controller?

A. DLS indoor unit is controlled by the VRF wall controller connected to HA/HB of the interface.

Q. What are the functions you can control through the touch screen central controller for the DLS indoor unit?

A. The functions controlled through touch screen central controller for the DLS indoor unit are:

- *Set mode*
- *Set temperature*
- *Set airflow*
- *ON/OFF*
- *Set indoor unit address*
- *Set auxiliary heater*
- *Error codes*

Q. What are the functions you can control through the VRF wall controller for the DLS indoor unit?

A. The functions you can control through the VRF wall controller for the DLS indoor unit are:

- *Set mode*
- *Set temperature*
- *Set airflow*
- *ON/OFF*
- *Set indoor unit address*
- *Set auxiliary heater*
- *Error codes*

Q. If there is a multi-zone system with (3) indoor units serving (3) different zones / rooms, do I need (3) separate DLS VRF Interface?

A. Yes, you need (3) separate DLS VRF Interfaces for each DLS indoor unit.

Q. If there is a multi-zone system with (3) indoor units serving the same zones / rooms, can I implement group control option?

A. No, group control is NOT an option. All the DLS indoor units will need separate DLS VRF Interfaces.

Q. Instead of the touch screen central controller, can I tie the DLS VRF Interface to the BACnet Interface?

A. No, the DLS VRF Interface will not work with the BACnet Interface.

Q. How many DLS VRF Interfaces I can connect to the touch screen central controller?

A. You can connect up to a total of (48) DLS VRF Interfaces to touch screen central controller, (8) DLS VRF Interface per communication channel.

Q. Does the DLS VRF Interface need network address?

A. Yes, each DLS VRF Interface would need network address. The address should be between 0 to 7 and unique. Similar to addressing ODU / system on the VRF side.

Q. Does the DLS indoor unit need a unique ID?

A. Yes, each DLS indoor unit will need a unique ID. The address on the wall controller as well as the touch screen controller should match; otherwise an error will be displayed on the controller.

Q. Is a network resistor needed when the DLS VRF Interface is used?

A. Yes, the 120 Ohm network resistor should be connected to the XYE bus of the last DLS VRF Interface in the system. If there are VRF heat pump units in the system, connect one network resistor to the PQE bus of the last indoor unit as normal and another resistor to the XYE bus of the last DLS VRF interface.