

Installation

Variable Refrigerant Flow (VRF) System Simple Wired Remote Control

Model Number: TVCTRLWR001T

SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.

NOTICE: Indicates a situation that could result in equipment or property-damage only accidents.

May 2014

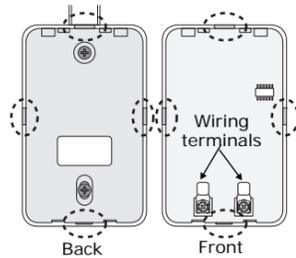
VRF-SVN068A-EN

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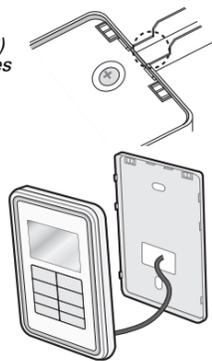
3. Determine the installation environment:

- If the remote control is to be mounted on the wall, decide which direction the power and communication cables will extend from the device. Remove the thin plastic pieces (circled in the illustration) from the front and back of the device on the side that will accommodate the cables.



Note: If the cable is to be drawn through the top of the remote control, use a cable molding. Cut away at least 0.4 in. (1 cm) inch of cable molding, as shown, so that it does not interfere with the opening/closing of the front cover.

- If the remote control is to be concealed in the wall, draw the cable through the hole in the middle of the back plate, as shown in the illustration.



Wiring

WARNING

Hazardous Voltage! Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

Observe the following requirements and precautions when making electrical connections.

- Make all electrical connections in accordance with electrical codes and ordinances.
- If you install the remote control with thermostat wire, remove 12 in. (30 cm) of the cable sheath and install only two of the conductors. The recommended wire size is AWG 18.
- Use either the provided U-terminals or U-terminals that match the specifications of those provided.
- Use an appropriate screwdriver for tightening the terminal screws. A screwdriver with a small head will strip the head and make proper tightening impossible.
- Over-tightening the terminal screws may break them.
- Tightening torque for M4 screws: 0.86–1.06 lbf-ft (12.0–14.7 kgf-cm).

Making Wiring Connections

- Connect communication wiring to the remote control at terminals at terminals F3, F4 and to the indoor unit at terminals F3, F4, as shown in Figure 2.

Best Practice: Maintain consistent polarity with wiring connections (F3 to F3, F4 to F4) to minimize troubleshooting time.

- After wiring connections are made, replace the remote control cover.

Important: Environmental Concerns! Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants including industry replacements for CFCs such as HCFCs and HFCs.

Important: Responsible Refrigerant Practices! Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified. The Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

WARNING

Personal Protective Equipment Required!

Installing/servicing this unit could result in exposure to electrical, mechanical and chemical hazards. Before installing/servicing this unit, technicians MUST put on all Personal Protective Equipment (PPE) recommended for the work being undertaken. ALWAYS refer to appropriate MSDS sheets and OSHA guidelines for proper PPE. When working with or around hazardous chemicals, ALWAYS refer to the appropriate MSDS sheets and OSHA guidelines for information on allowable personal exposure levels, proper respiratory protection and handling recommendations. If there is a risk of arc or flash, technicians MUST put on all necessary Personal Protective Equipment (PPE) in accordance with NFPA70E for arc/flash protection PRIOR to servicing the unit. Failure to follow recommendations could result in death or serious injury.

WARNING

Proper Field Wiring and Grounding Required!

All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state electrical codes. Failure to follow code could result in death or serious injury.

Pre-installation

Table 1. Components

Remote control (1)	Cable tie (2)	Cable clamp (2)	M4X16 screw (2)	User manual (1)	Installation manual (1)	U terminal (3)

Figure 1. Dimensions

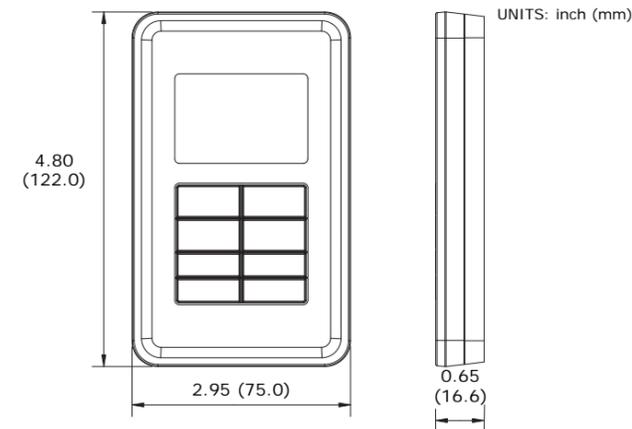
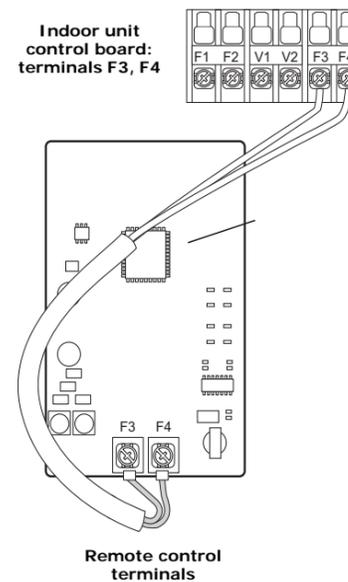


Figure 2. Connecting the simple wired remote control to the indoor unit control board



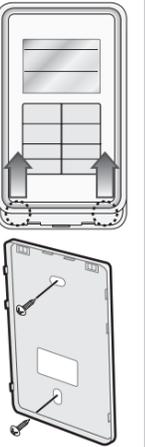
Product Specifications

Power supply	12 Vdc
Power consumption	1.5 W
Operating temperature range	32–102°F (0–39°C)
Operating humidity range	30–90% relative humidity
Communication	2-wire (F3, F4)
Maximum communication length	328 ft (100 m)
Maximum quantity of controllable devices	16 indoor unit

Installation

Mounting the Simple Wired Remote Control

- The remote control has a slide-open front cover. Remove it by sliding the front cover up from the bottom.



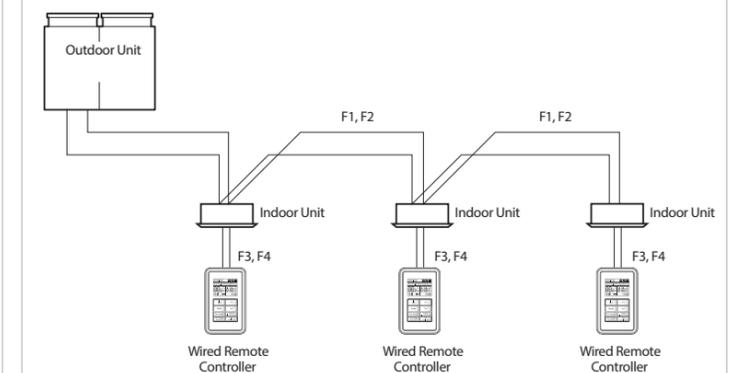
- Attach the remote control to the wall with two screws (provided).

Wiring for Individual Control

Individual control refers to the use of one remote control for controlling one indoor unit, as shown in Figure 3.

Note: Regardless of the indoor unit group address (RMC address), only the indoor unit that is connected to F3, F4 is individually controlled.

Figure 3. Wiring example: Individual control



Wiring for Group Control

Group control refers to controlling multiple indoor units with the use of one remote control. Figure 4 and Figure 5 provide examples of group control wiring.

Notes:

- Regardless of the indoor unit group address (RMC address), only the indoor units that are connected to F3, F4 are controlled as a group.
- A maximum of 16 indoor units can be controlled as a group.
- All indoor units in the group must be connected to a remote control.
- For group control with indoor units connected to different outdoor units, the address of each outdoor unit must be unique.

Figure 4. Wiring example: Group control with multiple indoor units connected to one outdoor unit

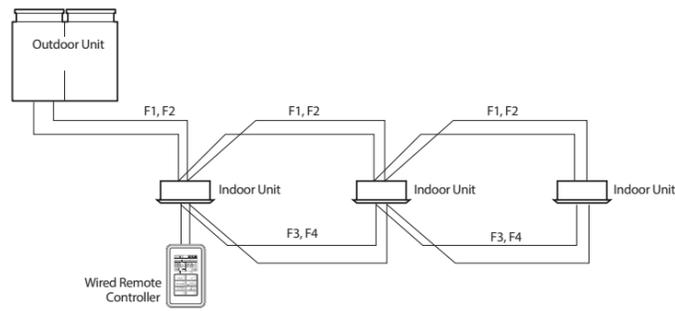
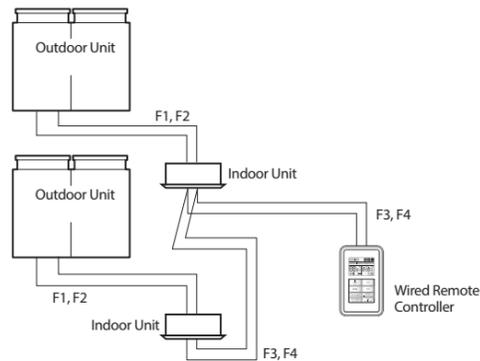


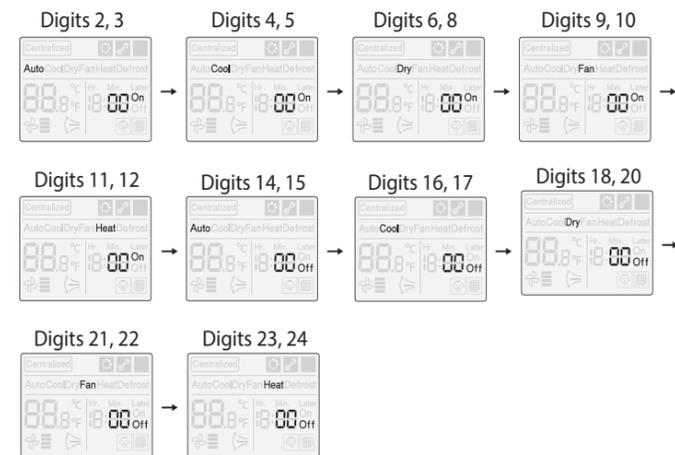
Figure 5. Wiring example: Group control with multiple indoor units connected to different outdoor units



In the example shown in Figure 9, the sub-menu code "1" was selected.
 5. Press the **Timer** button to display the first 2-digit segment of the 24-digit sequence on the LCD display, as shown in "Digits 2,3" of Figure 9.
 To advance to the next 2-digit segment, press the **Timer** button. Continue pressing the **Timer** button until the 2-digit segment appears that you want to view or change (refer to Table 2).

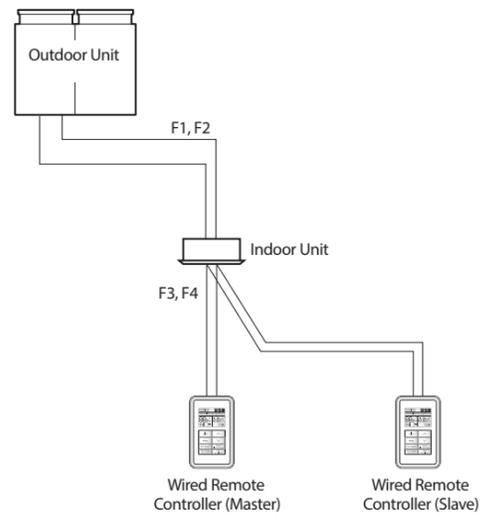
- Notes:**
- The 2-digit segments are differentiated from one another by a combination of operation mode (Auto/Cool/Dry...) and ON/OFF icons, as shown in the figure. The icons are unrelated to unit operation.
 - Digits 1, 7, 13, and 19 are not used for configuration.
 - Digit 2 cannot be set.

Figure 8. 24-digit configuration sequence



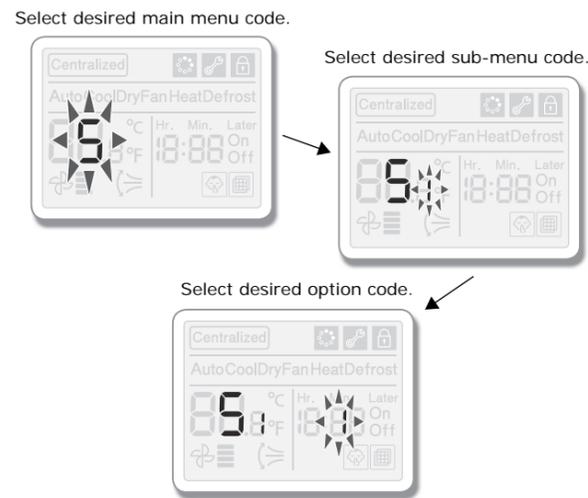
Using Two Simple Wired Remote Controls for Individual or Group Control

Two remote controls can control one indoor unit or a group of indoor units. In this application, one remote control must be configured as a master and one remote control must be configured as a slave. (Refer to the Configuration section in the indoor unit manual.)



- The current option code will appear. To change the left digit, press the up/down arrows. Press the **Timer** button to go to the right digit.
- To change the right digit, press the up/down arrows.
- In the example shown in Figure 9, the option code "1" was selected.
- To save settings and return to the sub-menu press the **Set** button.
- To exit to the normal display mode, press the **Air Swing** button.

Figure 9. Configuration example



Indoor Unit Tracking

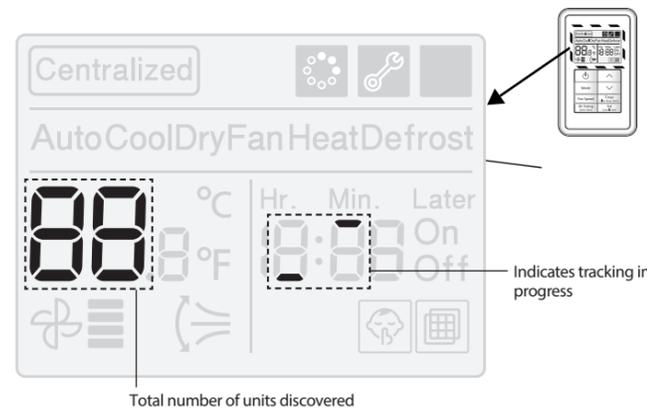
The VRF system uses the term "tracking" for the process of indoor unit discovery and addressing. The tracking process automatically begins after the wiring is completed and power is restored to the indoor unit.

During tracking, the remote control display flashes to indicate that tracking is in progress. As units are discovered, the display shows the quantity on the left side. See Figure 6.

Note: If a system has master and slave remote controls, only the master displays the total quantity of discovered units.

- When power is applied to a newly installed remote control, the device automatically begins tracking.
- To repeat tracking at any time, press **^** and **Set** buttons simultaneously for at least 5 seconds.
- If the number of connected indoor units is increased or decreased after installation, repeat the tracking process.

Figure 6. Indoor unit tracking in progress



Note: To exit to normal mode without saving settings, press the **Esc** button.

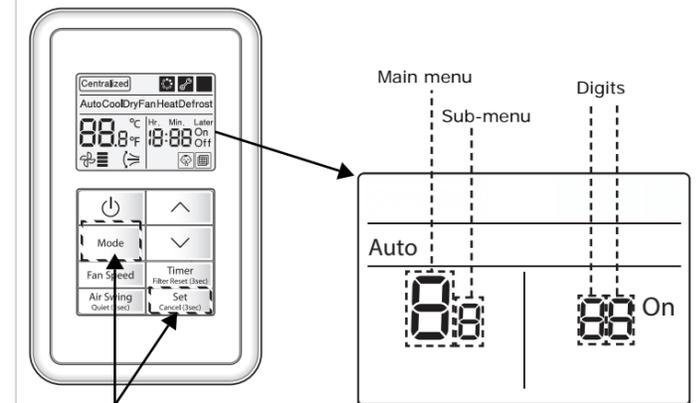
Table 2. Option codes/values

Main menu code	Sub-menu code	Option description	Digit	Option codes
0	1	Reset remote control option code to default value	2	0: Disable (default) 1: Reset
	2	Reset remote control to factory default	2	0: Disable (default) 1: Reset
	3	Power master reset <i>Note: Supplies optimized power to wired remote control when multiple connected indoor units are using group control.</i>	2	0: Disable (default) 1: Reset
	4	Addressing reset	2	0: Disable (default) 1: Reset
1	1	View the number of connected indoor units	2,3	—
	2	—	No function	
	3	View the circuit board version of the remote control	2,3,4,5,6,8	—
	4	View the software version of the remote control	2,3,4,5,6,8	—
2	1	Indoor unit setting (target): address of registered device	2,3,4,5,6,8	—
	2	Check/Set main address of indoor unit (hexadecimal)	2,3	—
	3	Check/Set RMC address of indoor unit (hexadecimal)	2,3(a)	—
	4	Check/Set indoor unit product option	Refer to the indoor unit installation manual.	
	5	Check/Set indoor unit installation option 1 (Mode 2)	Refer to the indoor unit installation manual.	
	6	Check/Set indoor unit installation option 2 (Mode 5)	Refer to the indoor unit installation manual.	

Configuration

To change or verify option settings or values on the remote control, use the following procedure. Table 2 contains the configuration menu codes and their descriptions.

Figure 7. Simple wired remote control LCD configuration display



Press both buttons simultaneously for >3 seconds

- Press the **Mode** and **Set** buttons simultaneously for >3 seconds. The main menu will be displayed (identified in Figure 7).
- Use the up/down arrow buttons to select the main menu code for the desired option (see Table 2).
In the example shown in Figure 9, the main menu code "5" was selected.
- Press the **Timer** button to display the sub-menu (identified in Figure 7).
- Use the up/down arrow buttons to select the sub-menu code from the desired option (see Table 2).

Table 2. Option codes/values (continued)

Main menu code	Sub-menu code	Option description	Digit	Option codes	
3	1	Check/Set master	Check/Set indoor unit master	2,3,4,5,6,8	—
	2	No function			—
4	1	Check/Set master indoor unit	Check address of mode master indoor unit	2,3,4,5,6,8	—
	2	Set the mode master indoor unit <i>Note: Available when only 1 indoor unit is connected and the indoor unit is not operating.</i>	2,3	0: Disable 1: Enable 2: Cancel	—
5	1	Set cooling and heating/cooling-only indoor unit	2	0: Heat & Cool (default) 1: Cooling only	—
	2	Set wireless remote control usage	2	0: Disable 1: Enable (default)	—
	3	Set wired remote control as master/slave	2	0: Master (default) 1: Slave	—
	4	Auto mode usage	2	0: Disable 1: Enable (default)	—
	5	Temperature display (°C/°F)	2	0: Celsius (°C) (default) 1: Fahrenheit (°F)	—
	6	Temperature adjustment unit <i>Note: Available when temperature display is set to °C.</i>	2,3	0: 1°C (default) 1: 0.5°C 2: 0.1°C	—

(a) Addressing uses hexadecimal numbering:
 Number | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15
 Corresponding hexadecimal address | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F
 RMC(1) address: 0-F; RMC(2) address: 0-F
 However, when RMC(1) is addressed as F, RMC(2) can be addressed only up to E.

Error Codes

Error codes for the simple wired remote control and connected units are displayed on the simple wired remote control LCD display.

Indoor/Outdoor Unit Error

If an error occurs in an indoor or outdoor unit, the unit address is displayed followed by the error code.

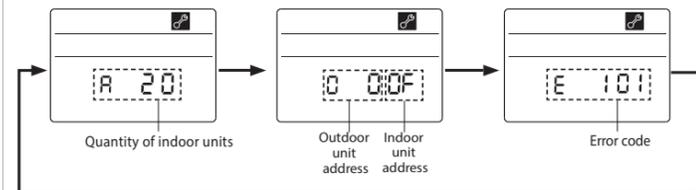
Addressing uses hexadecimal numbering:

Number	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
Corresponding hexadecimal address	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

In the example in [Figure 10](#), indoor unit #15, which is connected to outdoor unit #00, has error #101.

Note: To interpret error codes for indoor/outdoor units, refer to the unit installation manual.

Figure 10. Indoor unit error code example



Wired Remote Control Error

If the wired remote control has an error, the error code is displayed. See the example in [Figure 11](#). (Refer to the error code descriptions in [Table 3](#).)

Figure 11. Example of wired remote control error



Table 3. Error codes and descriptions

Display	Description
601	Communication error between wired remote control and indoor units after successful communication.
602	No communication between master and slave wired remote controls. Note: Error is detected only on slave wired remote control.
604	No communication between wired remote control and indoor units.
618	More than the maximum number (16) of indoor units installed.
627	More than one wired remote controls is configured as a slave.
654	Memory (external ROM) read/write error Note: Detected only during power reset. If error occurs after power is turned on, error code will not be displaced on wired remote control display.

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