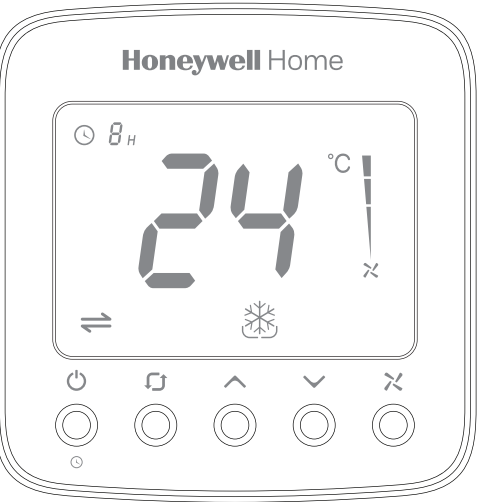




Thermostat Appearance



Operating Your Thermostat

..... **Power On/Off**

..... **Time Off**

• Press to switch on/off thermostat. When in off mode, OFF icon will display.

• Press could set the automatical turn off time when the thermostat is working.

Press and hold for more than 3s. After timer icon flashes, press or to set turn off time, then press button to save and exit.

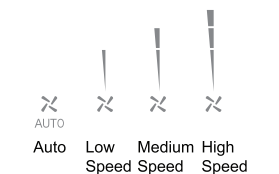
..... **Temperature Setting**

In or mode, press or to set the target room temperature.

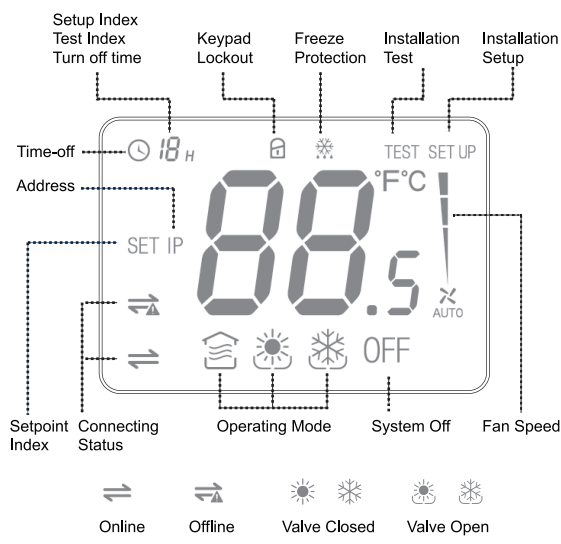
..... **Operating Mode**



..... **Fan Speed**



LCD Display



Trouble Shooting Tips

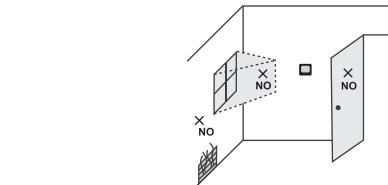
If....	Then....
Doesn't work	• Set the mode to (heating mode) by press . • Make sure the temperature is set above the room temperature. • Make sure shows on the display. • Wait 5 minutes for the system to respond.
Doesn't work	• Set the mode to (cooling mode) by press . • Make sure the temperature is set below the room temperature. • Make sure shows on the display. • Wait 5 minutes for the system to respond.
Doesn't work	• Make sure keypad is unlocked. • Check the thermostat is on.
Doesn't work	• Make sure keypad is unlocked. • Make sure the system isn't in mode. • Check the thermostat is on.
The system turns off automatically	• Make sure the memorized turn off time value isn't set to "0".
Display	• Check the Modbus address and Baud rate, use master to read registers. • Check the wiring.

Installation Guide

Must be installed by a trained and experienced installer
Read instruction carefully. Failure to follow instruction will damage the product or cause a hazardous condition.
Caution: ELECTRICAL HAZARD can cause electrical shock or equipment damage. Disconnect power before installation, reparation and detachment.

Installation Tips

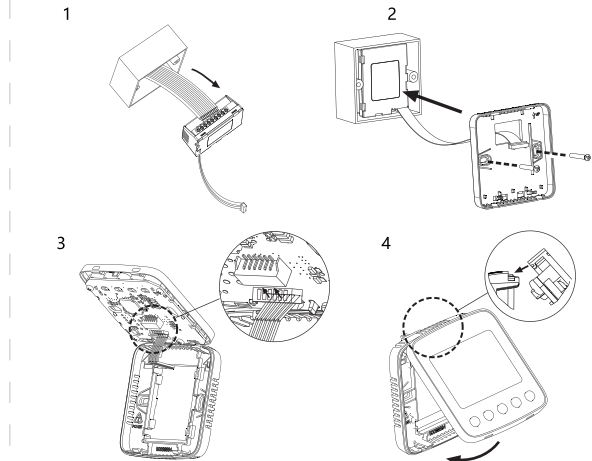
TF228WNM/U is designed for standard 75x75x50mm wall mounting box .
Install the thermostat about 5 feet (1.5m) above the floor in an area with good air circulation at average temperature.



- Do not install in locations where the thermostat can be affected by:**
- Dead spots behind doors and in corners
 - Hot or cold air from ducts
 - Sunlight or radiant heat from appliances
 - Concealed pipes or chimneys

Wiring and Installation

The screw must be locked tightly to avoid wire break off from the terminal.

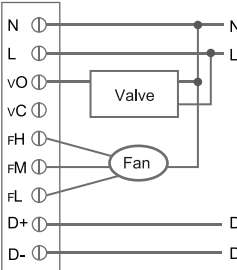


Terminal Designations

Terminal	Description
N	Power Neutral
L	Power Line
vO	Heating / Cooling valve open
vC	Heating / Cooling valve close
FH	High speed fan
FM	Medium speed fan
FL	Low speed fan
D+	RS 485+
D-	RS 485-

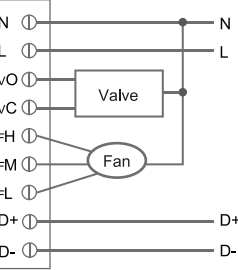
* The temperature of mounting box and wall should be in the operating temperature range.

Wiring Diagram 1



VC4013/VN4013/VS4016 Wiring

Wiring Diagram 2



VC6013/VN6013 Wiring

Modbus Requirements

Physical layer	EIA485
Protocol	Master-Slave
Baudrate	9600 (Default) /4800/19200
Parity	None
Signal Transmission	RTU
Error Checking Mechanism	CRC

ISU (Installation Setup)

+ $\xrightarrow{3s}$ Enter or Exit Installation Setup Mode

ISU Code	Description	Options
0	Address	1~64 1(Default)
1	System Type	0-Heat only 1-Cool only 2-Two pipes heating/cooling manual(Default)
2	Temperature Scale	0-°F 1-°C (Default)
3	Fan Control Type	0-Auto only 1-Manual only (3 speed:Low→Med→High→Low) 2-Users can choose auto or manual (Default)
4	CPH Value (Heat)	1-12 4(Default)
5	CPH Value (Cool)	1-6 3(Default)
6	Display Temperature Adjustment	-2~-2°C, Step 0.5°C 0°C (Default) (-4~-4°F, Step 1°F 0°F (Default))

7	Temperature Display	0-Room temperature (Default) 1-Setpoint
8	Heating Range Stops	10-32 °C 32 °C (Default) (50-90 °F 90 °F (Default))
9	Cooling Range Stops	10-32°C 10 °C (Default) (50-90°F 50 °F (Default))
10	Keypad Lockout	0 -All keys are available (Default) 1-System button is locked 2-Fan and System button are locked 3-All buttons are locked except power button 4-All buttons are locked
11	Freeze Protection	0-Disabled 1-Enable (Default)
12	Power Recovery status	0-OFF 1-Previous status (Default)

NOTE: When the thermostats are intergrated into building automation sysytem, user is able to change the setting value above in “Communicating Parameter Setting” list as well.

Communicating Parameter Setting

When the thermostat is integrated into building automation system, you can make configutation refer below list.

Addr	Configuration Parameters	Significance and adjustment	Properties
1	Power	0-OFF; 1-ON	R/W
2	Room Temp	Room temperature	R
3	Temperature Scale	0-°F; 1-°C	R/W
4	Setpoint	Setpoint	R/W
5	Fan Status	0-Low speed; 1-Med speed; 2-High speed; 3-Auto	R/W
6	System Mode	0-Ventilation; 1-Heat; 2-Cool	R/W
7	Valve status	0-Closed; 1-Open	R
8	Error Code	0-None; 1-Sensor; 2-EEprom; 3-Sensor+EEprom	R
9	Baudrate	0-9600 (Default) ; 1-4800; 2-19200	R/W
29	Turn off time	0~12; Unit: hour	R/W
30	Remain time to turn off	0~12; Unit: hour	R
Internal settings (User is able to change the setting value of below parameters on site, see details in “ISU” part)			
11	Address	1~64 1 (Default)	R/W

12	System Type	0-Heat only; 1-Cool only; 2-Two pipes heating/cooling manual(Default)	R/W
13	Fan Control Type	0-Auto; 1-Manual; 2-Auto+Manual (Default)	R/W
14	CPH(Heat)	1-12 4 (Default)	R/W
15	CPH(Cool)	1-6 3 (Default)	R/W
16	Display Temp. adjustment	0~8 (-2~2°C) Step 1 (0.5°C) 4 (Default) 0~8 (-4~4°F) Step 1 (1°F) 4 (Default)	R/W
17	Temp. Display	0-Room Temp.(Default) ; 1-Setpoint	R/W
18	Heating Range Stops	100~320 (10~32°C) Step 5 (0.5°C) 320 (Default) 500~900 (50~90°F) Step 10 (1°F) 900 (Default)	R/W
19	Cooling Range Stops	100~320 (10~32°C) Step 5 (0.5°C) 100 (Default) 500~900 (50~90°F) Step 10 (1°F) 500 (Default)	R/W
20	Keypad lockout	0-All Keys are available (Default) 1-System button locked 2-Fan and system button locked 3-All button locked except power button 4-All button are locked	R/W
21	Freeze Protection	0-Disabled; 1-Enable (Default)	R/W
22	Power Recovery status	0-OFF; 1-Previous status (Default)	R/W