

ComfortVu™ Thermostat Plus TBPL/TMPL Series

Installation and Operation Guide





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Important changes are listed in **Document revision history** at the end of this document.

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Overview

Part Numbers

BACnet Thermostats

- TBPL-24-H
- TBPL-24-HM (Motion Sensing)
- TBPL-H
- TBPL-HM

Modbus Thermostats

- TMPL-24-H
- TMPL-HM (Motion Sensing)

Description

The Carrier Corporation ComfortVu™ Thermostat Model TBPL and TMPL Series can be used:

- As a stand-alone thermostat that can control equipment using built-in logic
- As part of an MS/TP network of Thermostats that can be managed from a BMS front-end system
- As part of a BACnet MS/TP (TBPL) or Modbus (TMPL) MS/TP network connected to the Carrier Corporation BACnet router in a i-Vu® system. The router's control programs provide trending and alarming of the BACnet Thermostat's data.

These thermostats have a glass framed enclosure with a backlit touch screen. They have on-board temperature, humidity, and motion sensing, and its on-board inputs and outputs are used to control equipment and optional external sensing devices. Inputs and outputs are configured using DIP switches and jumpers.

Voltage Requirements

Model	Voltage required
TBPL-24-H	24 Vac power
TBPL-24-HM	
TMPL-24-H	
TBPL-H	Line voltage
TBPL-HM	
TMPL-HM	

Specifications

Sensing element	Range	Accuracy
Temperature	41° F to 95° F (5° C to 35° C)	±1.0° F (0.5° C)
Humidity	10% to 90 %	±3.0% typical

Motion Sensing	Motion sensing models only (HM)
Sensor Type	PIR, quad, omnidirectional
Distance	16.4 feet (5m)
Detection range	(HxV) 90° x 30°
Movement speed	2.62 to 3.94 ft/s (0.8 to 1.2 m/s)
Detection object	15.75 x 9.84 in. (400 x 250 mm)
Power	24 Vac, ±10%, 50-60Hz, 4VA
TBPL-24-H	NOTE Devices connected to outputs, such as a fan, increase VA requirements.
TBPL-24-HM	
TMPL-24-H	
TBPL-H	85 to 240 Vac, 50-60Hz, 1.5 VA
TBPL-HM	NOTE Devices connected to outputs, such as a fan, increase VA requirements.
TMPL-HM	
Communication (TBPL series)	BACnet MS/TP with baud rates up to 76.8 kbps, detected and set automatically by the BACnet Thermostat. Max 127 devices.
Communication (TMPL series):	Modbus RTU over RS-485 with baud rates up to 76.8 kbps (default baud rate is 38.4 kbps). Supports up to 127 MAC Addresses, and up to 32 devices per RS-485 segment.
Inputs	T1, 0 – Normally open or normally closed dry contract, or 0-10 Vdc analog input, or 50 kOhm thermistor @ 25°C A, B - Communication +/- (RS485) IN1, 0 - Normally open or Normally closed dry contract, or 0-10 Vdc analog input, or 50 kOhm thermistor @ 25°C C, R - Power: 24 Vac
Outputs	11, 12, 13 – Digital outputs, 3A 14. 15. 16 – Digital outputs 0.3A AO1 and AO2 – 0-10 Vdc, 5 mA max., not isolated
Environmental operating range	50° to 122° F (10° to 50° C), 10 to 90% relative humidity, non-condensing
Mounting	Wall mount on a 4" x 2-1.2 x 2" electrical J-box using provided 6/32 x 1/2" mounting screws
Weight	9.7 oz (0.28 kg)

Compliance

United States of America:
FCC CFR47, Chapter 1, Subchapter A, Part 15, Class B

Canada:
Industry Canada Compliant, ICES-003, Class B

Europe:
 Mark, Low Voltage Directive: 2014/35/EU RoHS Compliant:
2011/65/EU

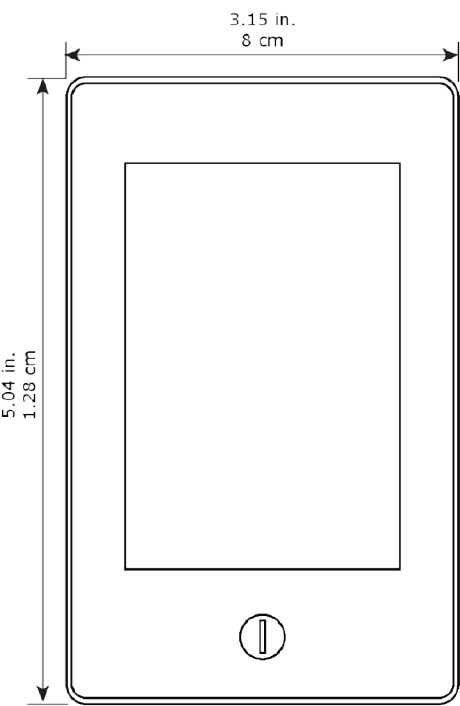
Australia and New Zealand:
 C-Tick Mark, AS/NZS 61000-6-3

Title 24 compliant if connected to a BMS with custom programming
for economizer fault detection.

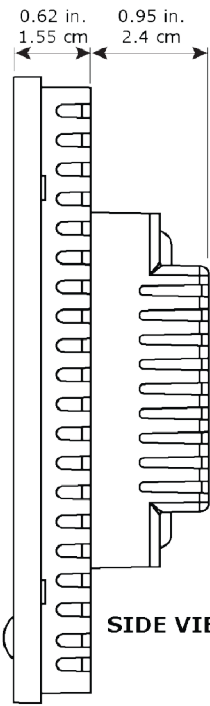
CA Prop 65 Warning: This product can expose you to chemicals
including Styrene and 1,3 - Propane sultone, which are known to the
State of California to cause cancer. For more information, go to
www.p65warnings.ca.gov.

Dimensions

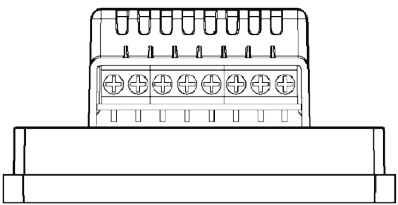
TBPL-24-H | TBPL-24-HM | TMPL-24-H



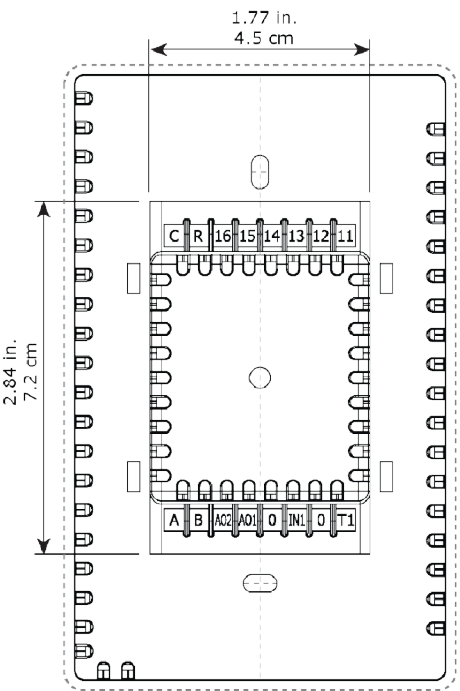
FRONT VIEW



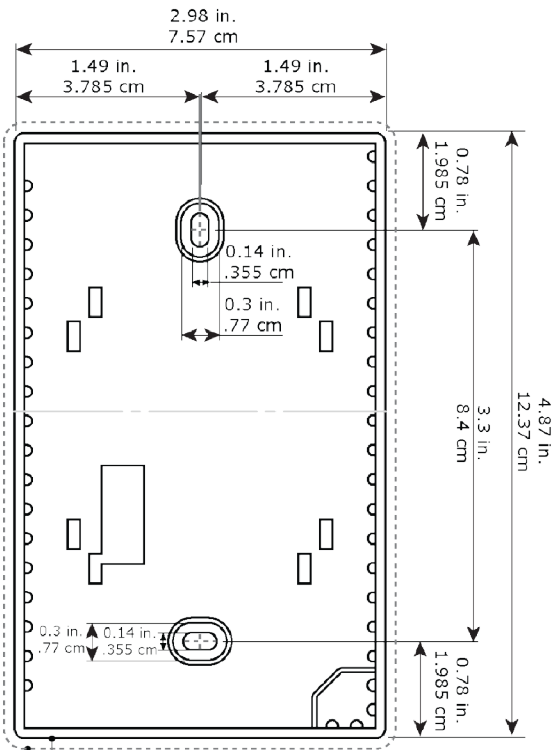
SIDE VIEW



TOP VIEW



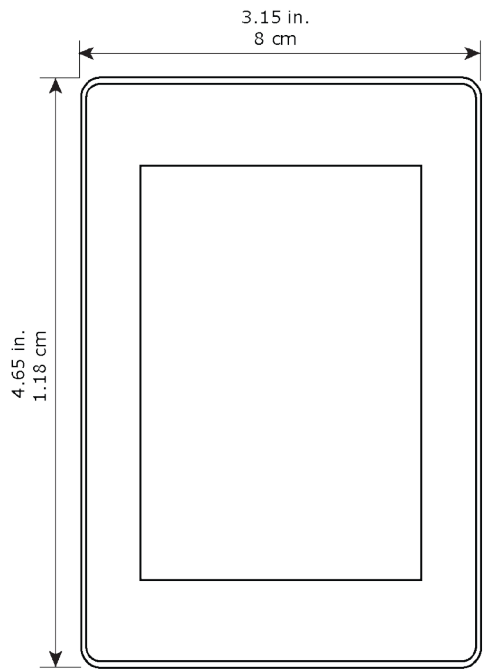
REAR VIEW



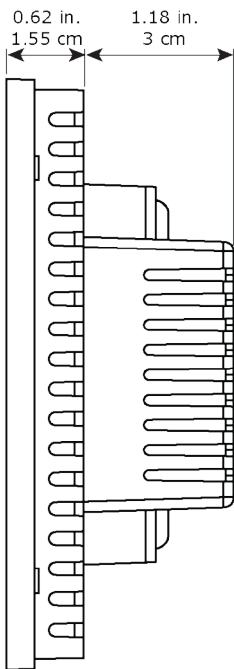
BACKPLATE CONTOUR
FACEPLATE CONTOUR

BACKPLATE FRONT VIEW

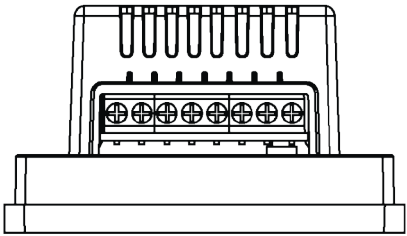
TBPL-H | TBPL-HM | TMPL-HM



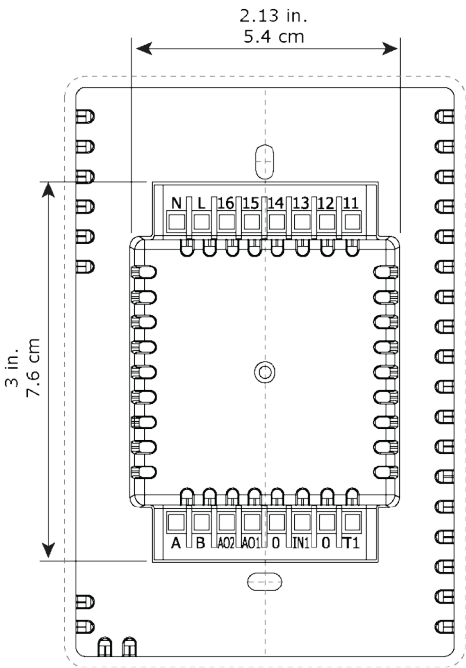
FRONT VIEW



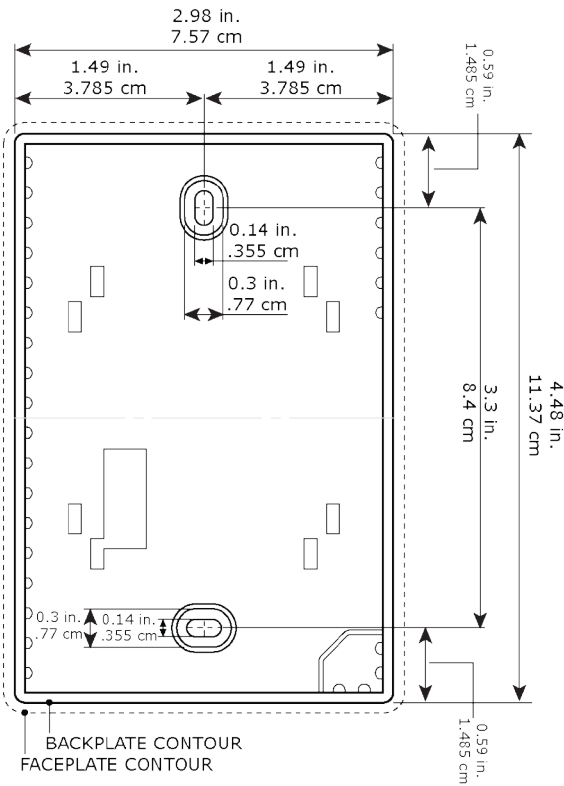
SIDE VIEW



TOP VIEW



REAR VIEW



BACKPLATE FRONT VIEW

Technician Settings Index

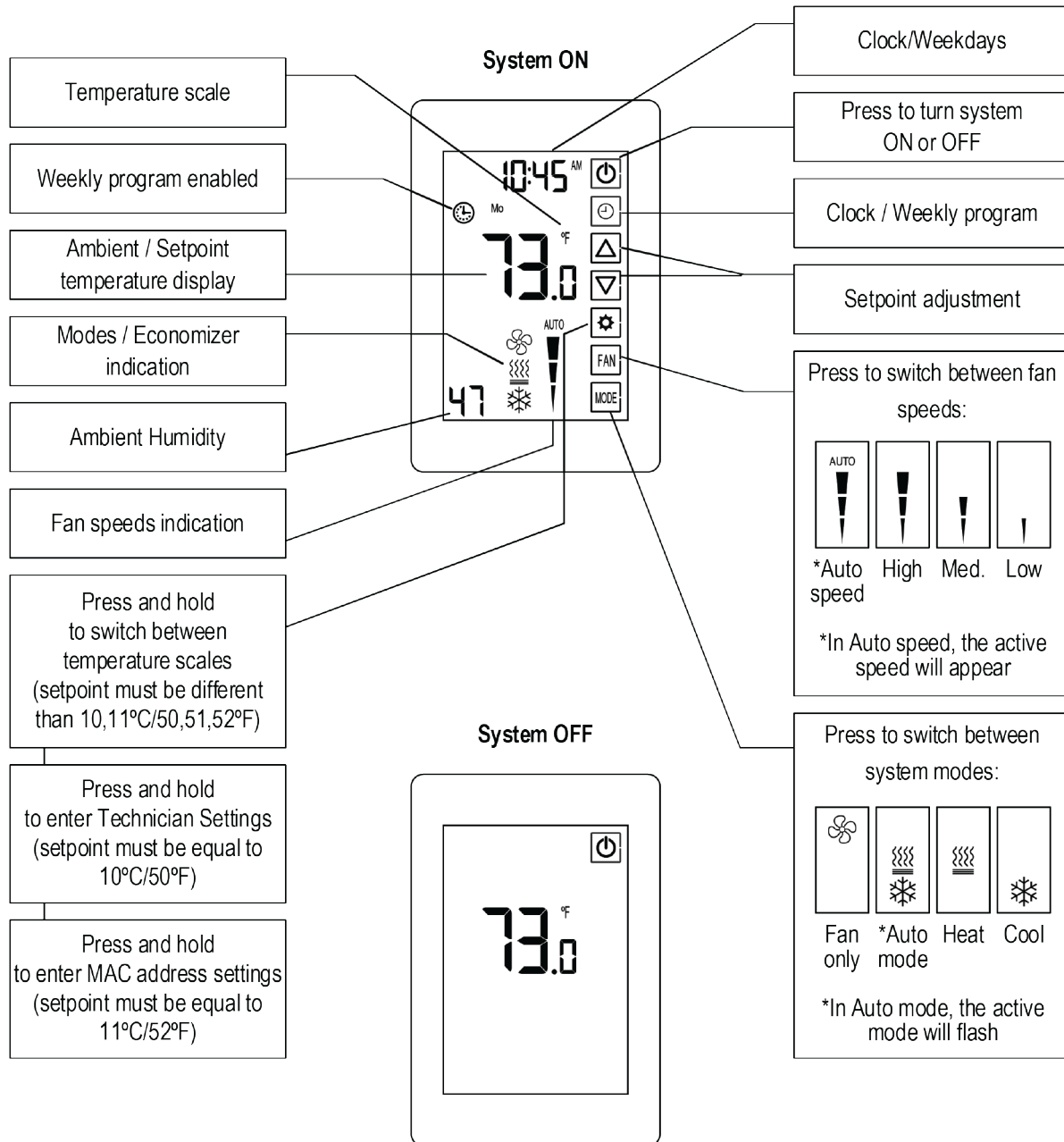
P01 – Offset for temperature readings calibration	P42 – Adjust filter alarm delay counter (hours)
P02 – Set point limit for cooling	P43 – Soft start in heat – cut-in temperature
P03 – Set point limit for heating	P44 – Soft start in heat – cut-out temperature
P04 – Lock the [Fan] button	P45 – Cool differential band
P05 – Lock the [Mode] button	P46 – Cool differential band offset
P06 – Lock the [On/Off] button	P47 – Heat differential band
P07 – Lock the [+] and [-] buttons (Set buttons)	P48 – Heat differential band offset
P08 – Functionality of T1 terminals	P49 – Shift between Cool and Heat in Auto mode
P09 – Functionality of IN1,0 terminals	P50 – Shift between Cooling stages
P10 – Window contact (terminals IN1,0) polarity	P51 – Shift between Heating stages
P11 – Window contact delay time	P52 – Cool valve proportional band
P12 – Door switch (terminals T1,0) polarity	P53 – Cool proportional low limit
P13 – Door switch delay time	P54 – Cool proportional high limit
P14 – Enable/Disable Auto change over mode	P55 – Heat valve proportional band
P15 – Occupancy sensor logic (PIR)	P56 – Heat proportional low limit
P16 – Enable/Disable Occupancy sensor	P57 – Heat proportional high limit
P17 – PIR (occupancy sensor) delay time	P60 – Proportional ON percent
P18 – Door switch or key tag configuration	P61 – Proportional OFF percent
P19 – PIR (Occupancy sensor) polarity	P63 – Time on-delay between cooling stages
P25 – Economy set point for cooling	P64 – Time off-delay between cooling stages
P26 – Economy set point for heating	P65 – Fan VFS proportional band in cooling
P27 – On-delay time on-delay between heating stages	P66 – Fan VFS proportional band in heating
P28 – Off-delay time between heating stages	P67 – Fan VFS Low speed percent in cooling
P30 – Beeper ON or OFF	P68 – Fan VFS Medium speed percent in cooling
P31 – Fan ON delay in cooling	P69 – Fan VFS High speed percent in cooling
P32 – Fan OFF delay in cooling	P70 – Fan VFS Low speed percent in heating
P33 – Fan ON delay in heating	P71 – Fan VFS Medium speed percent in heating
P34 – Fan OFF delay in heating	P72 – Fan VFS High speed percent in heating
P35 – Enable/Disable Freeze protection	P74 – VFS Medium speed differential
P36 – Freeze protection cut-in set point	P75 – VFS High speed differential
P37 – Freeze protection cut-out set point	P76 – Fan VFS Low limit in cooling
P40 – View filter counter (hours) – Read only	P77 – Fan VFS High limit in cooling
P41 – Reset filter time	P78 – Fan VFS Low limit in heating

P79 – Fan VFS High limit in heating
P83 – View T2 temperature sensor readings
P84 – View T3 temperature sensor readings
P85 – De-ice in cool – cut-in temperature
P86 – De-ice in cool – cut-out temperature
P87 – De-ice in heat time
P88 – De-ice in heat break time
P89 – De-ice in heat – cut-in temperature
P90 – De-ice in heat – cut-out temperature
P91 – Compressor delay
P98 – Display set point only (hide room temperature)
P99 – One or Two set points
P100 – Enable screen dimming
P101 – Screen dimming delay
P102 – Dimming brightness
P105 – Screen brightness when ON
P107 – Weekly program configuration
P108 – Weekly program - events per day
P109 – Weekly program event configuration
P114 – Cool PID Kp
P115 – Heat PID Kp

P116 – Cool PID Ki
P117 – Heat PID Ki
P118 – Cool PID Kd
P119 – Heat PID Kd
P122 – Cool Proportional output threshold time
P123 – Heat Proportional output threshold time
P160 – Minimum compressor ON time
P161 – Minimum compressor OFF time
P170 – Economizer low limit temperature
P187 – Display or hide humidity reading
P188 – Room temperature limit for disabling dehumidification in unoccupied mode
P189 – Dehumidification cycle in unoccupied mode
P190 – Dehumidification break time in unocc. mode
P192 – Temperature set-point for re-heat in unoccupied mode
P194 – Humidity differential band
P195 – Humidity sensor reading offset
P196 – Dead zone between humidification and dehumidification
P197 – Humidity set-point
P198 – Not in use
P200 – Restore defaults

Operating Instructions

Quick Guide

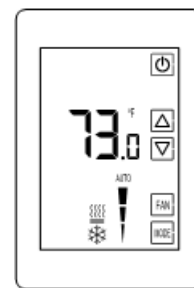


Turning the thermostat ON and OFF

- Press the  button to turn the unit ON. System mode and fan speed symbols appear.
- Press again to turn the unit OFF. The symbols disappear.



Unit OFF



Unit ON

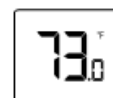
Selecting temperature scale

Press and hold the  button to switch between temperature scales.

The set-point must be different than 10, 11°C / 50, 51, 52°F.



Celsius



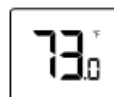
Fahrenheit

Adjusting the Setpoint temperature

Note: The setpoint must be different than 10, 11°C/50, 52°F.

In One setpoint configuration:

1. Press the ▲ or ▼ buttons once to view the setpoint temperature.
2. Press again to adjust the setpoint.



Setpoint

In Two setpoints configuration:

1. Press the ▲ or ▼ buttons once. “CL” and the setpoint temperature for cooling appears.
2. Use the ▲ or ▼ buttons to adjust the setpoint for cooling.
3. Press the [Mode] button or wait 3 seconds. “Ht” and the setpoint temperature for heating appears.
4. Use the ▲ or ▼ buttons to adjust the setpoint for heating.



Setpoint for cooling



Setpoint for heating

Notes:

- The setpoint for cooling must be higher than the setpoint for heating.
- For humidity setpoint, see Technician Settings P197.

Selecting system mode

Press the [Mode] button to switch between system modes.

NOTES

- During demand for cooling or heating, the active mode flashes.
- In Auto mode, the active mode icon (Cool or Heat) flashes.
- Auto mode is not available in 2-Pipe system configuration.



Cool mode



Heat mode



Auto mode



Fan only

Selecting fan speed (for 2 and 3 fan speeds configuration)

Press the [Fan] button to switch between fan speeds.

Notes:

- In Auto speed, the active fan speed appears.
- Medium speed available in 3 speeds configuration.



Low speed



Medium speed



High speed



Auto speed

Turning Auto fan ON or OFF (fan on demand)

In 1-speed configuration:

Press the [Fan] button to turn Auto fan ON or OFF.

In 2- and 3-speed configurations:

Press and hold the [Fan] button for 7 seconds to turn Auto fan ON or OFF.

- When ON, the fan runs on demand for cooling or heating.
- When OFF, the fan runs continuously.

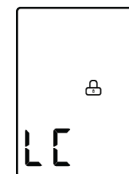
NOTE Auto fan cannot be selected in Fan only mode.



Auto fan ON

Locking the thermostat buttons

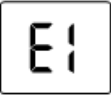
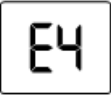
- Press and hold the [Mode] button for 7 seconds to lock or unlock the thermostat buttons.
- When locked, the lock (🔒) icon appears with any attempt to press the buttons.
- Enable or disable the option to lock different buttons using Technician Settings P4-P7.



Lock indications

Economy mode

Activate Economy mode by triggering a window contact - remote on/off switch, window contact - remote economy switch, door switch, key-tag, External motion sensor (PIR - passive infrared sensor) or through communication - binary value "UnoccupiedByNetwork".

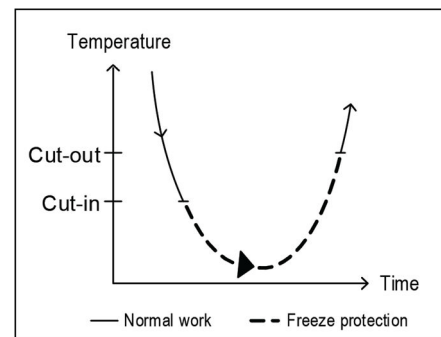
	• Economy by Window contact – Remote On/Off switch - Turning unit off • Economy by Window contact – Remote economy switch - Using economy set points Refer to technician parameters P25 and P26 for economy set points
	Economy by External motion sensor (PIR) or through Communication (binary value "UnoccupiedByNetwork") Refer to technician parameter P15 "Occupancy sensor logic (PIR)"
	Economy triggered by Door switch Refer to technician parameter P18 "Door switch or key tag configuration"
	Economy by Key-tag Refer to technician parameter P18 "Door switch or key tag configuration"

Freeze Protection

The Freeze protection feature does not allow the room temperature to drop below predefined cut-in temperature. Depending on which configuration the system is operating under (W/WO Heat pump), this feature forces the system to operate in heat mode and activate the fan.

This feature takes effect when the thermostat is either ON or OFF. When the room temperature rises above the predefined cut-out temperature, the thermostat returns to its previous state.

When freeze protection is activated, the display alternates between "AL" and room temperature.



Economizer

Economizer is used to reduce the energy consumed by the cooling systems, by using low external air temperatures to assist in the chilling process. When outdoor temperatures are lower relative to indoor (room) temperatures, the system utilizes the cool outdoor air as a free cooling source.

The outdoor temperature (Teconomizer) triggering the activation of the economizer, can be measured by the temperature sensor connected to T1,0 terminals (technician parameter P08="05") or by setting a temperature value manually through communication - AV#129 "TEconomizerEffective".

When getting the temperature through communication, terminals T1,0 can be used for any other functionality like External sensor/Soft start in heat sensor/De-icing in cool/Door switch/Key tag.

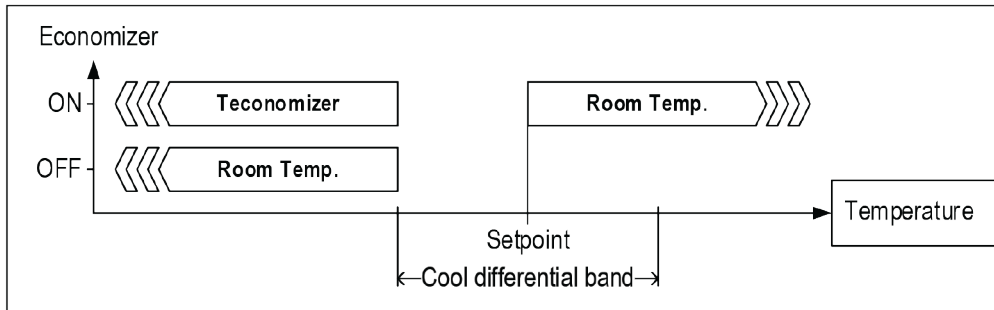
Whenever there is demand for cooling and the outdoor temperature conditions allow the operation of the economizer, it will operate together with the regular cooling system and will not replace it.

Economizer starts when, and run as long as, both of the following conditions are satisfied:

- Teconomizer temperature < Room temperature - (Cool differential band / 2)
- Room Temperature > Setpoint temperature

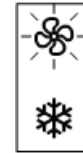
Economizer stops when the following condition is satisfied:

- Room Temperature < Setpoint temperature - (Cool differential band / 2)



Indication for the Economizer operation:

When Economizer is active, the Cool symbol appears and the Fan symbol flashes.



Economizer Active

Weekly program

General

Prior to programming, make sure that Technician Settings P107, P108, and P109 are configured correctly.

Program types

The thermostat can be configured to run four different types of weekly programs (set by Technician Setting P107):

- 7-day program with same parameters for all days.
- 7-day program with different parameters for each day of the week.
- One schedule for the weekdays (Monday to Friday), one schedule for Saturday and another one for Sunday.
- One schedule for the weekdays (Monday to Friday) and another one for Saturday and Sunday.

Daily events

Each daily program can use 2 or 4 schedule events per day (set by Technician Setting P108).

There are two options for settings the schedule events (set by Technician Setting P109):

- “EU Type” - Start time and Stop time.
- “US Type” - Start time, setpoint temperatures, system mode and fan speed.

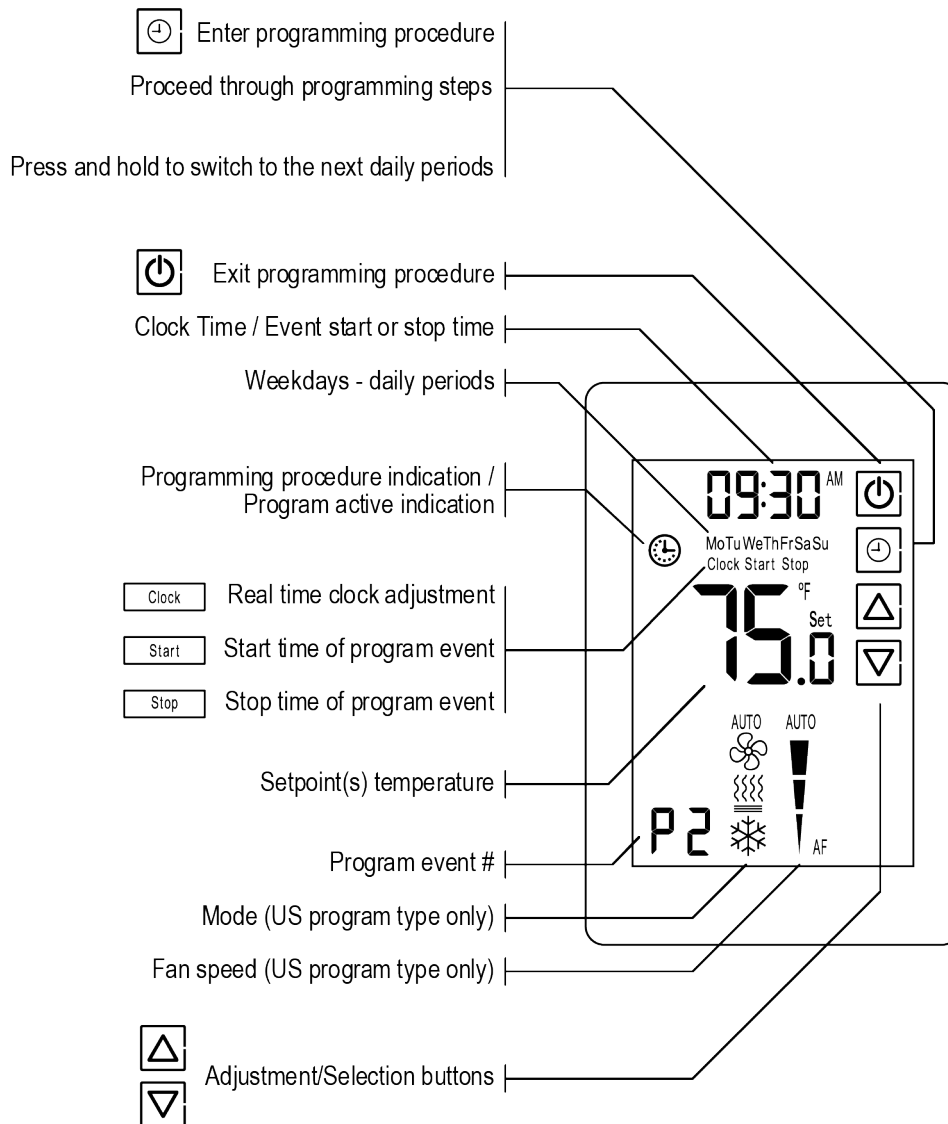
IMPORTANT

- Parameter P107 must not be equal to “0” in order to enable weekly program capabilities.
- Changing P107 to “0” disables all program capabilities and reset programmed information.

Enabling/Temporarily Disabling/Overriding the program

- **Activate the program**
 - When the program is activated, a clock icon appears. 
 - If a clock icon does not appear, ensure that the set-point temperature is not 10/11°C or 50/52°F, press and hold the  button to activate the program.
- **Temporarily disable the program** - without losing programmed information – for example, when out of the office or leaving for vacation:
 - Make sure that the set-point temperature is not 10/11°C or 50/52°F.
 - Press and hold the  button to temporarily disable the program.
 - Press and hold the  button again to reactivate to the program.
- **Override the program** - the occupant can temporarily change the set point temperature to be different than the set point temperature specified by the program. Changes remain in effect until the next program event begins.

Program Display



Programming procedure

- The detailed programming procedure is described in the next sections. Make sure to follow the right programming procedure, suitable for the program type and features selected by Technician Settings.
- Press the button to enter and proceed through the steps of the real time clock and programming procedure.
- Use the or buttons to select or change value of a flashing icon.
- It is recommended to select programming values prior to the actual programming.

Exit the programming procedure

At any time during the programming procedure, press the  button to exit and return to normal display. Any changed values will be saved.

Adjusting the time and day of the week

1. Press and hold the  button. The word “Clock” will appear on display, and the HOURS will flash.

Hours

2. Use the ▲ or ▼ buttons to adjust the hours.

Minutes

3. Press the  button again. The MINUTES flash.
4. Use the ▲ or ▼ buttons to adjust the hours.

Days

5. Press the  button again. The DAYS flash.
6. Use the ▲ or ▼ buttons to select the day.
7. If Technician Setting P107 is not set to “00” (program is enabled), press the  button to enter programming procedure. Otherwise, press the  button to return to normal display.



Adjusting “EU type” daily programs

Start time

1. Press the  button. The programmed weekday(s), “P1” indicating the first program event of the day and the word “Start” appears. The HOURS flash.
2. Use the ▲ or ▼ buttons to adjust the start time hours of the first event.
3. Press the  button again. The MINUTES will flash.
4. Use the ▲ or ▼ buttons to adjust the start time minutes of the first event.



Stop time

5. Press the  button again. The word “Stop” appears, and the HOURS flash.
6. Use the ▲ or ▼ buttons to adjust the stop time hours of the first event.
7. Press the  button again. The MINUTES flash.
8. Use the ▲ or ▼ buttons to adjust the stop time minutes of the first event.



- Follow the steps above for the other schedule events of the same daily period (P2 for two events per day, or P2, P3, and P4 for four events per day).

- Follow the steps above for all daily periods.

Adjusting “US type” daily programs

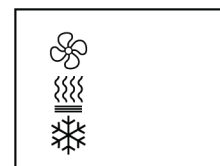
Start time

1. Press the  button. The programmed weekday(s), “P1” indicating the first program event of the day and the word “Start” appears. The HOURS flash.
2. Use the ▲ or ▼ buttons to adjust the start time hours of the first event.
3. Press the  button again. The MINUTES flash.
4. Use the ▲ or ▼ buttons to adjust the start time minutes of the first event.



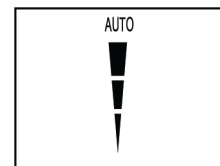
System mode

5. Press the  button again. The selected system mode for the current programmed event appears.
6. Use the ▲ or ▼ buttons to select the mode (default Auto mode).



Fan speed

7. Press the  button again. The selected fan speed for the current programmed event appears.
8. Use the ▲ or ▼ buttons to select the fan speed (default Auto speed).

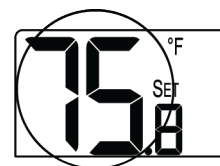


Setpoint

9. Press the  button again. The setpoint flashes.

NOTE If the thermostat is configured to have two setpoints, first adjust the setpoint for cooling and then the setpoint for heating.

10. Use the ▲ or ▼ buttons to adjust the setpoint of the first event.



- Follow the steps above for the other schedule events of the same daily period (P2 for two events per day, or P2, P3 and P4 for four events per day).
- Follow the steps above for all daily periods.

MAC Address and BACnet Device Instance Number

MAC Address

To set the communication MAC Address:

1. Adjust the setpoint temperature to 11°C/52°F. The  button will appear on display.
2. To enter MAC Address settings, press and hold the  button for 5 seconds.
3. Use the ▲ or ▼ buttons to change the MAC Address.
4. Switch power supply off and on again for the MAC address changes to take effect.

Note: Set to “0” for no communication.

Caution: Do not use the same MAC address for two devices on the same communication line!

BACnet Device Instance Number

By default, the BACnet Device Instance Number is generated automatically by the thermostat (Vendor ID + MAC address).

For example, Carrier Corporation vendor ID is 16, and if the MAC address is 075, the BACnet Device Instance Number is 16075.

NOTE If you change the MAC address, you must cycle the thermostat's power to reset the BACnet Device Instance Number.

You can override the automatically-generated BACnet Device Instance Number using the i-Vu® application, an Analog Network Output microblock in a control program, or some other BACnet utility. Write the new BACnet Device Instance Number to the present_value property of Analog Value 42 (BACnetDeviceInstanceNumber).

NOTE: BACnet Device ID Commissioning

When all BACnet networks are online the thermostat automatically assigns its BACnet ID. This can cause duplicate Device IDs because the update is broadcast across all networks. To prevent this:

1. Disconnect other networks and commission one network at a time.
2. Change each thermostat's Device Instance from the default (e.g., 24001) to a unique value.
3. Verify IDs before reconnecting other networks.

Examples

In the i-Vu® application

1. Use the BACnet Discovery feature to discover the BACnet Thermostat and its BACnet objects.
2. In the navigation tree, select the Analog Value called BacnetDeviceInstanceNumber.
3. Change the Present Value field (shown below) to the desired BACnet Device Instance Number.



Display Name:

Description:

Profile Name:

Present Value = Command priority for writing:

4. Click Accept.

In an Analog Network Output microblock

To change the BACnet Device Instance Number from 16075 to 16113, the microblock's address would be:

`bacnet://16075/AV:42/present_value, or`

`bacnet://16075/BACnetDeviceInstanceNumber`

Subsequent reads/writes of this value will need to be done with the new device instance:

`bacnet://16113/AV:42/present_value, or`

`bacnet://16113/BACnetDeviceInstanceNumber`

Installation

Mount the BACnet Thermostat on an interior wall in the room to be controlled. Locate it where the occupant can easily read the LCD display and use the controls. If the built-in temperature sensor is being used to measure room temperature, place the thermostat where the temperature is representative of the general room conditions. Avoid cold or warm air drafts, radiant heat, and direct sunlight.



WARNING: Risk of electric shock and property damage. Disconnect power supply before making electrical connections. The installation is to be performed by a qualified electrician.



WARNING: The integrated circuits in the controller are sensitive to static currents. Take suitable precautions.

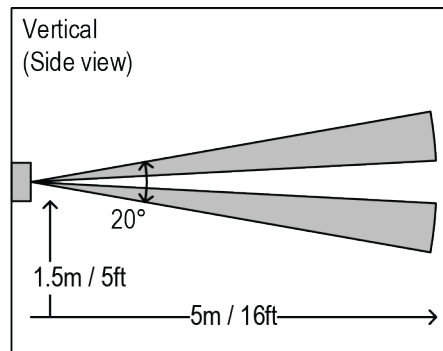
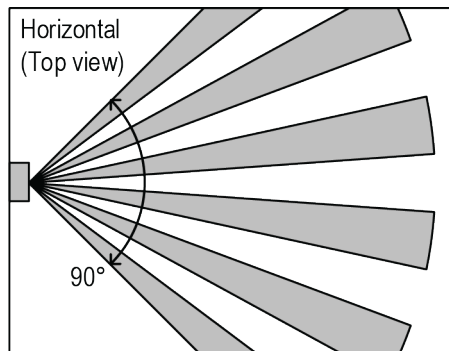
General

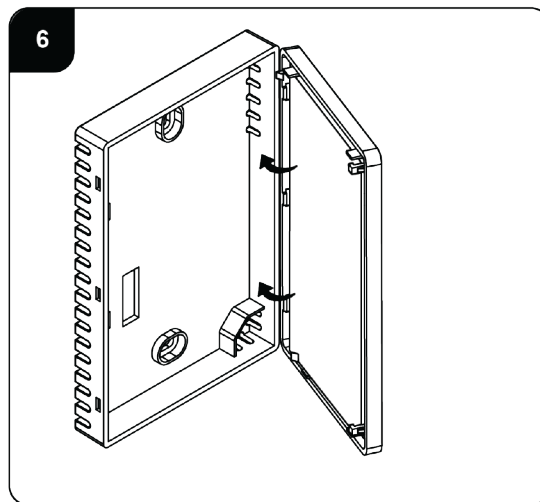
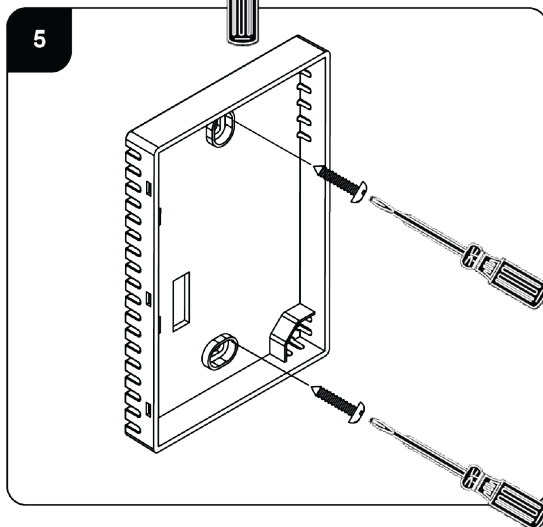
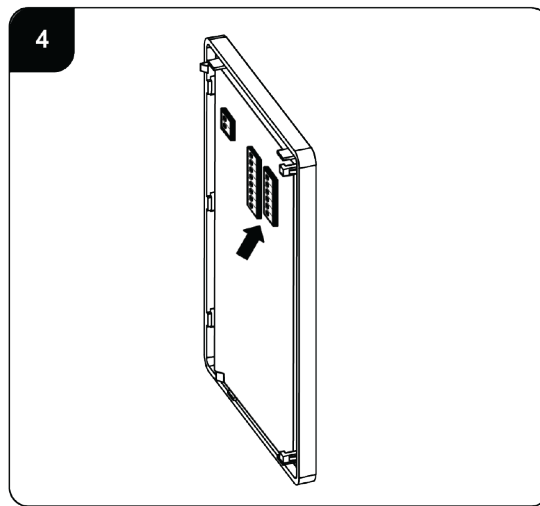
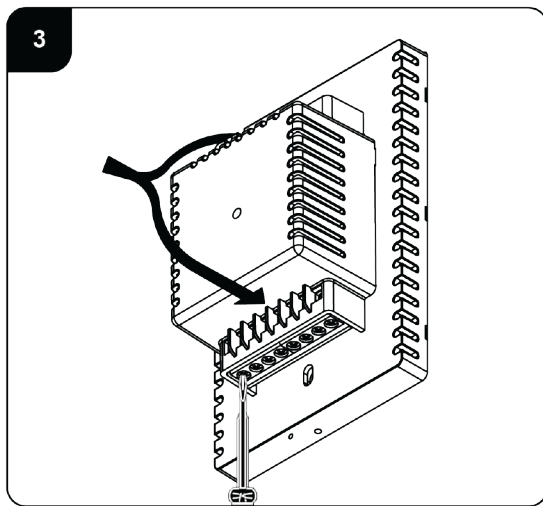
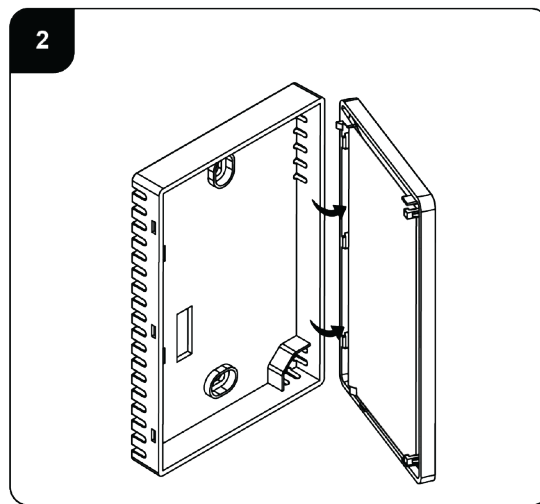
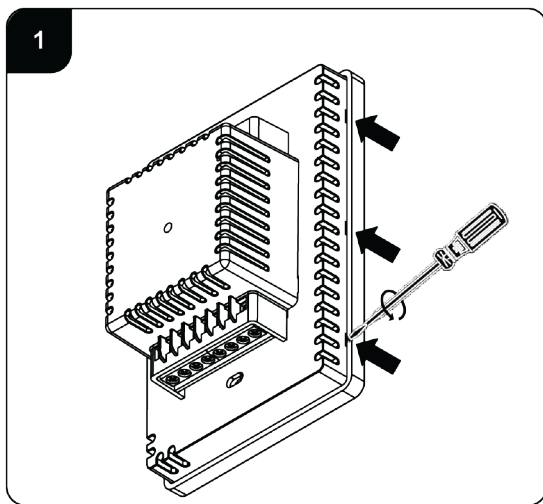
Installation procedure

Prerequisite: Disconnect power to the main board before installing the unit.

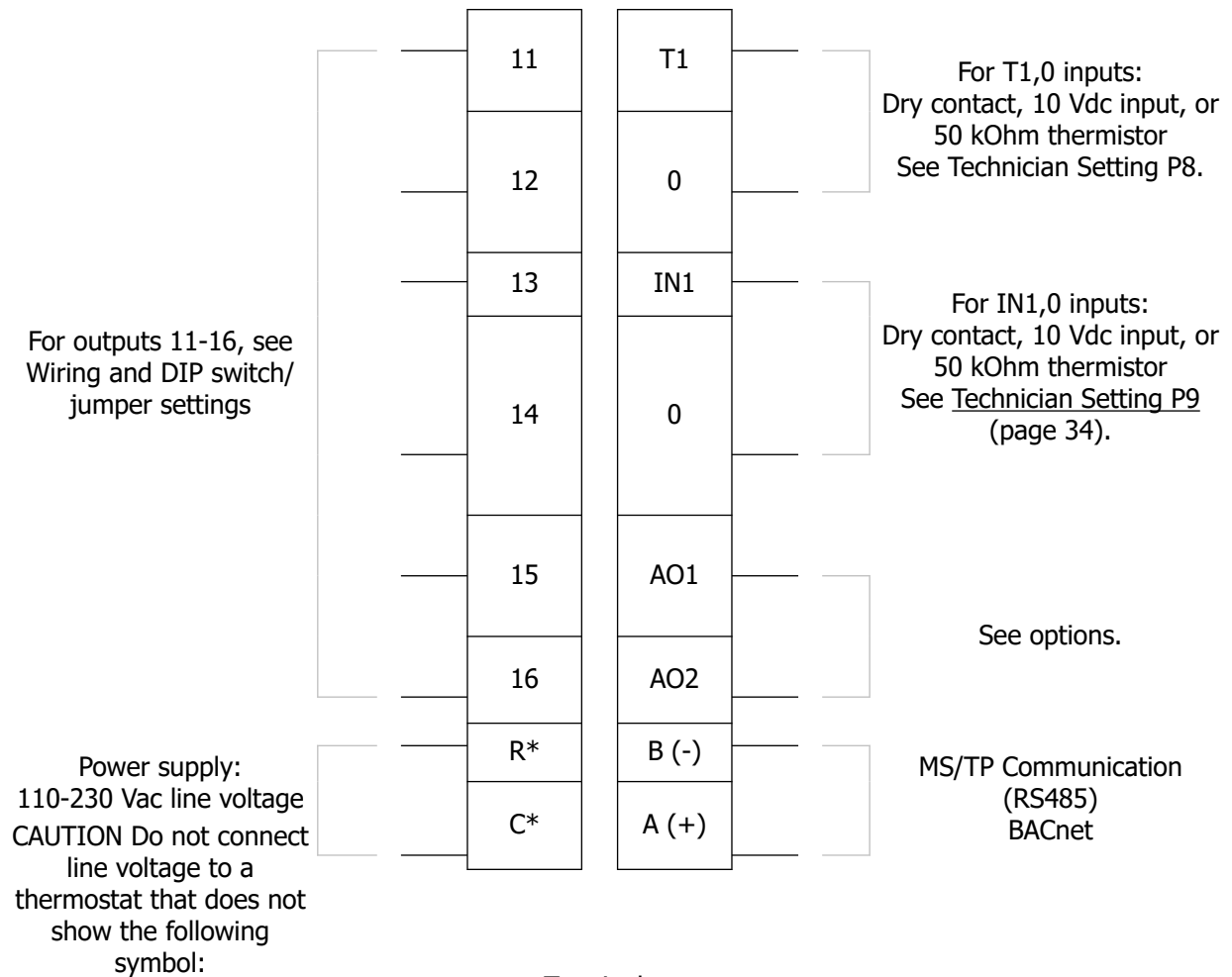
1. Separate the front display from the back plastic cover by inserting a small flat screwdriver into each of the three slots and rotating it gently. See picture below.
2. Remove the front display and keep it in a safe place.
3. Connect wires as shown on the wiring diagram. All terminals accept 1x0.5mm²/24 AWG.
4. Set DIP switch positions as explained in this manual.
5. Place the thermostat in the electrical box and tighten the 2 screws.
Europe - Gewiss Box - GW 24 203 or similar
US - Carlon - B114R or similar
6. Reattach the front display to the back cover by pushing it towards the wall.

PIR detection area - Motion Sensing Models only (HM) only





Wiring terminals and DIP switches

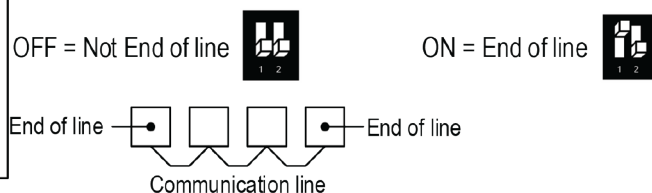


Terminals



DIP Switch SW4.1 - End of line resistor (120Ω)

First and last units in communication line must be configured with 120Ω End of line resistor.



TBPL-H | TBPL-HM | TMPL-HM models only

SW4.2 – Not used

Always OFF

SW1 and SW2See Wiring and DIP switch settings (page 28).

AC configurations

Find the configuration you want in the tables below, then find that configuration number (1 through 21) in Wiring and DIP switch/jumper settings (page 28).

AC Configurations without humidification/dehumidification

Outputs	Configuration	1	2	3	4	5	6	7	8	9	10
Heat elements (max.)		3	2		1	2	1		2	2	1
Compressors (max.)		2	2	2	1	1	1	2	1	2	2
Heat pump			•	•	•		•	•			•
Fan VFS							•	•	•		
Fan speeds		1	1	2 or 3	2 or 3	2 or 3				1	1
Economizer				○	○	○	○	○	○	•	•

AC Configurations with humidification/dehumidification

Outputs	Configuration	11	12	13	14	15	16	17	18	19	20	21
Heat elements (max.)		3	2	2	1	2	1		1		1	2
Compressors (max.)		2	2	1	1	2	2	2	1	2	1	1
Heat pump			•		•		•	•	•	•	•	
Fan VFS										•	•	•
Fan speeds		1	1	2 or 3	2 or 3	1	1	2 or 3	2 or 3			
Economizer				○	○	•	•	○	○	○	○	○
Humidifier		•	•	•	•	•	•	•	•	•	•	•
Dehumidifier -or-		•	•	•	•	•	•					
Reheat (Dehumidify)		•	•	•	•	•	•		•	•	•	•

• Yes ○ Option

FC configurations for 2-pipe systems

Find the configuration you want in the tables below, then find that configuration number (22 through 29) on the [Wiring and DIP switch/jumper settings](#) (page 48).

FC Configurations for 2-Pipe systems without humidification/dehumidification

Outputs	Configuration	22	23	24	25
Cool/Heat valve		•		•	
Cool/Heat valve PID			•		•
Heat element (2nd stage)		○	○	○	○
Fan VFS				•	•
Fan speeds		1 2 3	1 2 3		
Economizer		○ ○	○ ○	○	○

FC Configurations for 2-Pipe systems with humidification/dehumidification

Outputs	Configuration	26	27	28	29
Cool/Heat valve		•	•	•	
Cool/Heat valve PID					•
Heat element (2nd stage)		○	○	○	○
Fan VFS				•	
Fan speeds		1 2 3	1 2 3		1 2 3
Economizer		○ ○	○ ○	○	○ ○
Humidifier		•	•	•	•
Dehumidify	Dehumidifier or	•			
	Reheat	•	•	•	•

• Yes ○ Option

FC configurations for 4-pipe systems / Floor heating

Find the configuration you want in the tables below, then find that configuration number (30 through 44) in the [Wiring and DIP switch/jumper settings](#) (page 54).

FC Configurations for 4-Pipe systems without humidification/dehumidification

Outputs	Configuration	30	31	32	33	34	35	36	37	38	39
Cool valve		•	•				•	•	•		
Heat valve		•	•	•	•	•			•		•
Cool valve PID				•	•	•				•	•
Heat valve PID							•	•		•	
Heat element (2nd stage)		○		○		○	○	○	○	○	
Fan VFS						•		•	•		•
Fan speeds		1 2 3	1 2 3	1 2 3	1 2 3		1 2 3			1 2 3	
Economizer		○ ○	○ ○	○ ○	○ ○	○	○ ○	○	○	○ ○	○
Floor heating			•		•						•

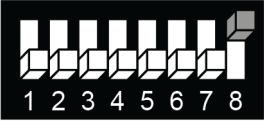
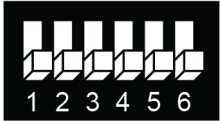
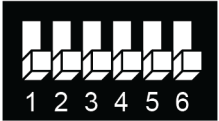
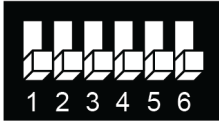
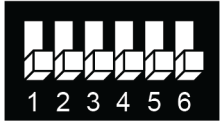
FC Configurations for 4-Pipe systems with humidification/dehumidification

Outputs	Configuration	40	41	42	43
Cool valve		•	•		•
Heat valve		•	•	•	
Cool valve PID				•	
Heat valve PID					•
Heat element (2nd stage)		○	○	○	○
Fan VFS			•		
Fan speeds		1 2 3		1 2 3	1 2 3
Economizer		○ ○	○ ○	○ ○	
Humidifier		•	•	•	•
Dehumidify	Dehumidifier or	•			
	Reheat	•	•	•	•

• Yes ○ Option

Wiring and DIP switch configurations 1 to 4 – AC systems

TBPL-24-H | TBPL-24-HM

Outputs	Config. 1: HC32 1 Speed fan	Config. 2: HP42 1 Speed fan	Config. 3: HP22 2/3 Speeds fan ⁽¹⁾	Config. 4: HP21 2/3 Speeds fan ⁽¹⁾
11	Heat element 3 (3rd stage heat)	Heat element 2 (4th stage heat)	Fan high	Fan high
12	Heat element 2 (2nd stage heat)	Heat element 1 (3rd stage heat)	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)
13	Fan (1 speed)	Fan (1 speed)	Fan low	Fan low
14	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾	Heat element (2nd stage heat)
15	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾	Compressor ⁽³⁾
16	Heat element 1 ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾	Heat pump ⁽²⁾	Heat pump ⁽²⁾
A01	X	X	X	X
A02	X	X	X	X
SW1				
SW2				

(1) SW1.1, SW1.2 – Fan speeds: 2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds (Low, Med., and High): SW1.1 = OFF, SW1.2 = OFF

(2) SW1.4 – HP (Heat pump): ON = Heat pump active in cool, OFF = Heat pump active in heat
HC (not heat pump): ON = Electrical heater, OFF = Oil/Gas heater (no fan)

(3) SW1.5 – Compressor delay: ON = Disable, OFF = Enable

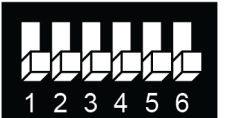
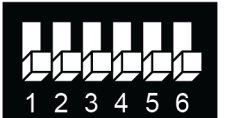
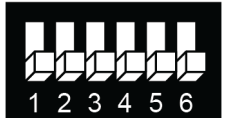
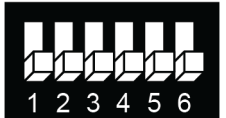
(4) SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification

(5) SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

TBPL-H and TBPL-HM

Outputs	Config. 1: HC32 1 Speed fan	Config. 2: HP42 1 Speed fan	Config. 3: HP22 2/3 Speeds fan ⁽¹⁾	Config. 4: HP21 2/3 Speeds fan ⁽¹⁾
11	Heat element 3 (3rd stage heat)	Heat element 2 (4th stage heat)	Fan high	Fan high
12	Heat element 2 (2nd stage heat)	Heat element 1 (3rd stage heat)	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)
13	Fan (1 speed)	Fan (1 speed)	Fan low	Fan low
14	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾	Heat element (2nd stage heat)
15	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾	Compressor ⁽³⁾
16	Heat element 1 ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾	Heat pump ⁽²⁾	Heat pump ⁽²⁾
A01	X	X	X	X
A02	X	X	X	X

SW1				
SW2				

⁽¹⁾ SW1.1, SW1.2 – Fan speeds:

2 speeds (Low and High):
3 speeds (Low, Med., and High):

SW1.1 = OFF, SW1.2 = ON
SW1.1 = OFF, SW1.2 = OFF

⁽²⁾ SW1.4 – HP (Heat pump):
HC (not heat pump):

ON = Heat pump active in cool, OFF = Heat pump active in heat
ON = Electrical heater, OFF = Oil/Gas heater (no fan)

⁽³⁾ SW1.5 – Compressor delay: ON = Disable, OFF = Enable

⁽⁴⁾ SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification

(5) SW2.6 – Terminal 12
operation:

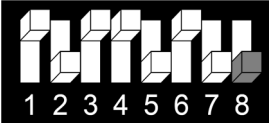
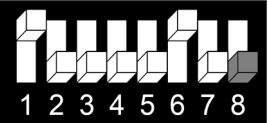
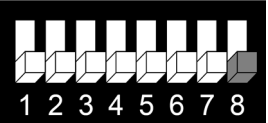
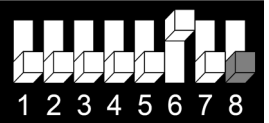
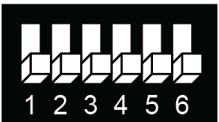
ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in Wiring terminals and DIP switches (page 24) for DIP switch locations.

Fan on/off: 110-230 Vac, 2.5A max.

Control – Heat elements, Heat pump, Compressors, Economizer: 110-230 Vac, 0.3A max.

TMPL-24-H | TMPL-24-HM

Outputs	Config. 1: HC32 1 Speed fan	Config. 2: HP42 1 Speed fan	Config. 3: HP22 2/3 Speeds fan ⁽¹⁾	Config. 4: HP21 2/3 Speeds fan ⁽¹⁾
11	Heat element 3 (3rd stage heat)	Heat element 2 (4th stage heat)	Fan high	Fan high
12	Heat element 2 (2nd stage heat)	Heat element 1 (3rd stage heat)	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)
13	Fan (1 speed)	Fan (1 speed)	Fan low	Fan low
14	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾	Heat element (2nd stage heat)
15	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾	Compressor ⁽³⁾
16	Heat element 1 ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾	Heat pump ⁽²⁾	Heat pump ⁽²⁾
A01	X	X	X	X
A02	X	X	X	X
SW1				
SW2				

(1) SW1.1, SW1.2 – Fan
speeds:

2 speeds (Low and High):
3 speeds (Low, Med., and High):

SW1.1 = OFF, SW1.2 = ON
SW1.1 = OFF, SW1.2 = OFF

- (2) SW1.4 – HP (Heat pump): ON = Heat pump active in cool, OFF = Heat pump active in heat
 HC (not heat pump): ON = Electrical heater, OFF = Oil/Gas heater (no fan)
- (3) SW1.5 – Compressor delay: ON = Disable, OFF = Enable
- (4) SW2.3 – Dehumidification: ON = Use dehumidifier
 OFF = Use reheat for dehumidification
- (5) SW2.6 – Terminal 12 operation: ON = Economizer
 OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
 Important: Economizer will not work in 3 fan speeds configuration.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

TMPL-24-H: Control –Fan on/off, Heat elements, Heat pump, Compressors, Economizer: 24VAC, 0.5A max.

TMPL-HM: Fan on/off: 110-230VAC, 2.5A max. Control -Heat elements, Heat pump, Compressors, Economizer: 110-230VAC, 0.3A max.

Wiring and DIP switch configurations 5 to 8 – AC systems

TBPL-24-H | TBPL-24-HM

Outputs	Config. 5: HC21 - 2/3 Speeds fan ⁽¹⁾	Config. 6: HP21 - Fan VFS	Config. 7: HP22 - Fan VFS	Config. 8: HC21 - Fan VFS
11	Fan high	X	X	X
12	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Economizer ⁽⁵⁾ (option – SW2.6 ON)
13	Fan low	X	X	X
14	Heat element 2 (2nd stage heat)	Heat element (2nd stage heat)	Compressor 2 ⁽³⁾	Heat element 2 (2nd stage heat)
15	Compressor ⁽³⁾	Compressor ⁽³⁾	Compressor 1 ⁽³⁾	Compressor ⁽³⁾
16	Heat element 1 ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾	Heat pump ⁽²⁾	Heat element 1 ⁽²⁾ (1st stage heat)
A01	X	X	X	X
A02	X	Fan VFS	Fan VFS	Fan VFS
SW1				



- (1) SW1.1, SW1.2 – Fan speeds: 2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds (Low, Med., and High): SW1.1 = OFF, SW1.2 = OFF
- (2) SW1.4 – HP (Heat pump): ON = Heat pump active in cool, OFF = Heat pump active in heat
HC (not heat pump): ON = Electrical heater, OFF = Oil/Gas heater (no fan)
- (3) SW1.5 – Compressor delay: ON = Disable, OFF = Enable
- (4) SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification
- (5) SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in Wiring terminals and DIP switches (page 24) for DIP switch locations.

Fan VFS: 0-10 Vdc, 0.5 mA Not isolated

Control – Fan on/off, Heat elements, Heat pump, Compressors, Economizer: 24 Vac, 0.5A max

TBPL-H | TBPL-HM

Outputs	Config. 5: HC21 - 2/3 Speeds fan ⁽¹⁾	Config. 6: HP21 - Fan VFS	Config. 7: HP22 - Fan VFS	Config. 8: HC21 - Fan VFS
11	Fan high	X	X	X
12	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Economizer ⁽⁵⁾ (option – SW2.6 ON)
13	Fan low	X	X	X
14	Heat element 2 (2nd stage heat)	Heat element (2nd stage heat)	Compressor 2 ⁽³⁾	Heat element 2 (2nd stage heat)
15	Compressor ⁽³⁾	Compressor ⁽³⁾	Compressor 1 ⁽³⁾	Compressor ⁽³⁾
16	Heat element 1 ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾	Heat pump ⁽²⁾	Heat element 1 ⁽²⁾ (1st stage heat)
A01	X	X	X	X
A02	X	Fan VFS	Fan VFS	Fan VFS

SW1				
-----	--	--	--	--

SW2				
(1) SW1.1, SW1.2 – Fan speeds: (2) SW1.4 – HP (Heat pump): HC (not heat pump): (3) SW1.5 – Compressor delay: (4) SW2.3 – Dehumidification: (5) SW2.6 – Terminal 12 operation:	2 speeds (Low and High): 3 speeds (Low, Med., and High): ON = Heat pump active in cool, OFF = Heat pump active in heat ON = Electrical heater, OFF = Oil/Gas heater (no fan) ON = Disable, OFF = Enable ON = Use dehumidifier OFF = Use reheat for dehumidification ON = Economizer OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS) Important: Economizer will not work in 3 fan speeds configuration.	SW1.1 = OFF, SW1.2 = ON SW1.1 = OFF, SW1.2 = OFF		

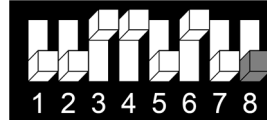
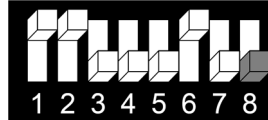
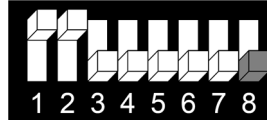
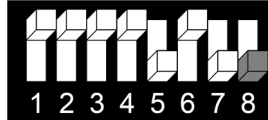
See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

Fan on/off: 110-230 Vac, 2.5A max.

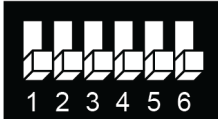
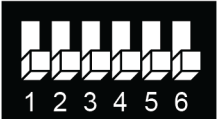
Fan VFS: 0-10 Vdc, 0.5 mA Not isolated

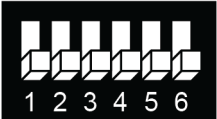
Control – Heat elements, Heat pump, Compressors, Economizer: 110-230 Vac, 0.3A max.

TMPL-24-H | TMPL-24-HM

Outputs	Config. 5: HC21 - 2/3 Speeds fan ⁽¹⁾	Config. 6: HP21 - Fan VFS	Config. 7: HP22 - Fan VFS	Config. 8: HC21 - Fan VFS
11	Fan high	X	X	X
12	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Economizer ⁽⁵⁾ (option – SW2.6 ON)
13	Fan low	X	X	X
14	Heat element 2 (2nd stage heat)	Heat element (2nd stage heat)	Compressor 2 ⁽³⁾	Heat element 2 (2nd stage heat)
15	Compressor ⁽³⁾	Compressor ⁽³⁾	Compressor 1 ⁽³⁾	Compressor ⁽³⁾
16	Heat element 1 ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾	Heat pump ⁽²⁾	Heat element 1 ⁽²⁾ (1st stage heat)
A01	X	X	X	X
A02	X	Fan VFS	Fan VFS	Fan VFS
SW1				

SW2



(1) SW1.1, SW1.2 – Fan speeds: 2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
 3 speeds (Low, Med., and High): SW1.1 = OFF, SW1.2 = OFF

(2) SW1.4 – HP (Heat pump): ON = Heat pump active in cool, OFF = Heat pump active in heat
 HC (not heat pump): ON = Electrical heater, OFF = Oil/Gas heater (no fan)

(3) SW1.5 – Compressor delay: ON = Disable, OFF = Enable

(4) SW2.3 – Dehumidification: ON = Use dehumidifier
 OFF = Use reheat for dehumidification

(5) SW2.6 – Terminal 12 operation: ON = Economizer
 OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
 Important: Economizer will not work in 3 fan speeds configuration.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

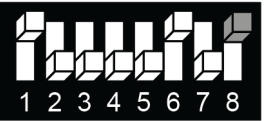
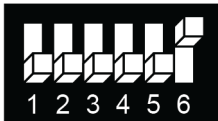
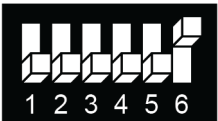
TMPL-24-H: Fan VFS: 0-10VDC. 0.5mA Not isolatedControl –Fan on/off, Heat elements, Heat pump, Compressors, Economizer: 24VAC, 0.5A max.

TMPL-HM: Fan on/off: 110-230VAC, 2.5A max., Fan VFS: 0-10VDC. 0.5mA Not isolatedControl -Heat elements, Heat pump, Compressors, Economizer: 110-230VAC, 0.3A max.

Wiring and DIP switch configurations 9 to 12 – AC systems

TBPL-24-H | TBPL-24-HM

Outputs	Config. 9: HC22 1 Speed fan, Economizer	Config. 10: HP32 1 Speed fan, Economizer	Config. 11: HC32 1 Speed fan, Humidifier, Dehum/ Reheat for Dehumidification	Config. 12: HP42 1 Speed fan, Humidifier, Dehum/ Reheat for Dehumidification
11	Heat element 2 (2nd stage heat)	Heat element (3rd stage heat)	Heat element 3 (3rd stage heat)	Heat element 2 (4th stage heat)
12	Economizer	Economizer	Heat element 2 (2nd stage heat)	Heat element 1 (3rd stage heat)
13	Fan (1 speed)	Fan (1 speed)	Fan (1 speed)	Fan (1 speed)
14	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾
15	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾
16	Heat element ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾	Heat element 1 (1st stage heat)	Heat pump ⁽²⁾
A01	X	X	Humidifier	Humidifier

A02	X	X	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	Dehumidifier ⁽⁴⁾ (option - See SW2.3)
SW1				
SW2				

⁽¹⁾ SW1.1, SW1.2 – Fan speeds:

2 speeds (Low and High):
3 speeds (Low, Med., and High):

SW1.1 = OFF, SW1.2 = ON

SW1.1 = OFF, SW1.2 = OFF

⁽²⁾ SW1.4 – HP (Heat pump):
HC (not heat pump):

ON = Heat pump active in cool, OFF = Heat pump active in heat
ON = Electrical heater, OFF = Oil/Gas heater (no fan)

⁽³⁾ SW1.5 – Compressor delay:

ON = Disable, OFF = Enable

⁽⁴⁾ SW2.3 – Dehumidification:

ON = Use dehumidifier, OFF = Use reheat for dehumidification

⁽⁵⁾ SW2.6 – Terminal 12 operation:

ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

Humidifier, Dehumidifier: 0-10VDC. 0.5mA Not isolated

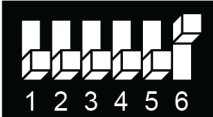
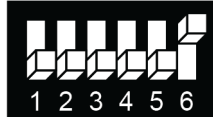
Control - Fan on/off, Heat elements, Heat pump, Compressors, Economizer: 24VAC, 0.5A max.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

TBPL-H

Outputs	Config. 9: HC22 1 Speed fan, Economizer	Config. 10: HP32 1 Speed fan, Economizer	Config. 11: HC32 1 Speed fan, Humidifier, Dehum/ Reheat for Dehumidification	Config. 12: HP42 1 Speed fan, Humidifier, Dehum/ Reheat for Dehumidification
11	Heat element 2 (2nd stage heat)	Heat element (3rd stage heat)	Heat element 3 (3rd stage heat)	Heat element 2 (4th stage heat)
12	Economizer	Economizer	Heat element 2 (2nd stage heat)	Heat element 1 (3rd stage heat)
13	Fan (1 speed)	Fan (1 speed)	Fan (1 speed)	Fan (1 speed)
14	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾
15	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾
16	Heat element 1 (1st stage heat)	Heat pump ⁽²⁾	Heat element 1 (1st stage heat)	Heat pump ⁽²⁾

A01	X	X	Humidifier	Humidifier
A02	X	X	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	Dehumidifier ⁽⁴⁾ (option - See SW2.3)

SW1				
SW2				

- (1) SW1.1, SW1.2 – Fan speeds: 2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds (Low, Med., and High): SW1.1 = OFF, SW1.2 = OFF
- (2) SW1.4 = HP (Heat pump): ON – Heat pump active in cool OFF – Heat pump active in heat
HC (Not Heat pump): ON – Electrical heater OFF – Oil/Gas heater (no fan)
- (3) SW1.5 = Compressor delay: ON – Disable compressor delay, OFF – Enable compressor delay
- (4) SW2.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification
- (5) SW2.6 = Terminal 12: ON – Economizer, OFF – Terminal not in use (1 Speed)
Important: Economizer will not work in 3 fan speeds configuration

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

Fan on/off: 110-230 Vac, 2.5A max.

Humidifier, Dehumidifier: 0-10 Vdc, 0.5 mA Not isolated

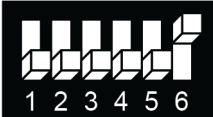
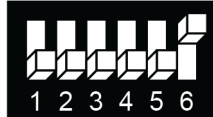
Control – Heat elements, Heat pump, Compressors, Economizer: 110-230 Vac, 0.3A max.

TBPL-HM

Outputs	Config. 9: HC22 1 Speed fan, Economizer	Config. 10: HP32 1 Speed fan, Economizer	Config. 11: HC32 1 Speed fan, Humidifier, Dehum/ Reheat for Dehumidification	Config. 12: HP42 1 Speed fan, Humidifier, Dehum/ Reheat for Dehumidification
11	Heat element 2 (2nd stage heat)	Heat element (3rd stage heat)	Heat element 3 (3rd stage heat)	Heat element 2 (4th stage heat)
12	Economizer	Economizer	Heat element 2 (2nd stage heat)	Heat element 1 (3rd stage heat)
13	Fan (1 speed)	Fan (1 speed)	Fan (1 speed)	Fan (1 speed)
14	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾
15	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾
16	Heat element 1 ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾	Heat element 1 ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾

A01	X	X	Humidifier	Humidifier
A02	X	X	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	Dehumidifier ⁽⁴⁾ (option - See SW2.3)

SW1				
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SW2				
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- (1) SW1.1, SW1.2 – Fan speeds: 2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds (Low, Med., and High): SW1.1 = OFF, SW1.2 = OFF
- (2) SW1.4 = HP (Heat pump): ON – Heat pump active in cool OFF – Heat pump active in heat
HC (Not Heat pump): ON – Electrical heater OFF – Oil/Gas heater (no fan)
- (3) SW1.5 = Compressor delay: ON – Disable compressor delay, OFF – Enable compressor delay
- (4) SW2.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification
- (5) SW2.6 = Terminal 12: ON – Economizer, OFF – Terminal not in use (1 Speed)
Important: Economizer will not work in 3 fan speeds configuration

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

Fan on/off: 110-230 Vac, 2.5A max.

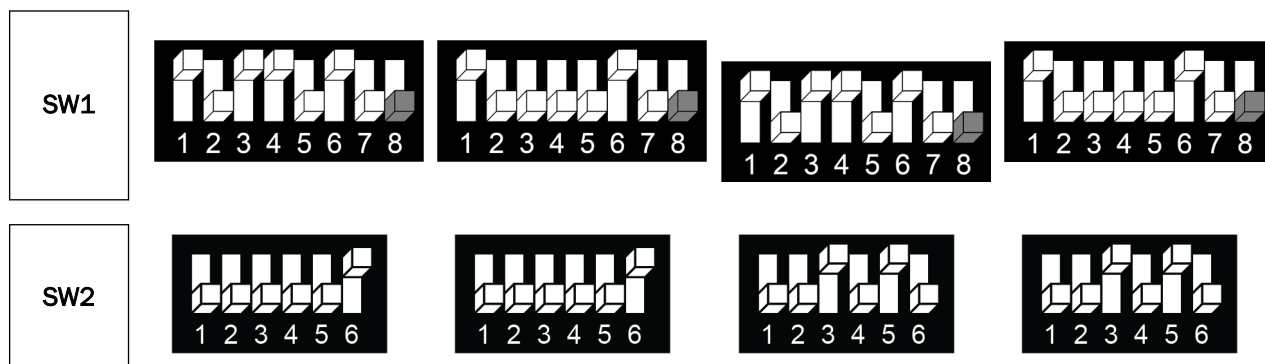
Humidifier, Dehumidifier: 0-10 Vdc, 0.5 mA Not isolated

Control – Heat elements, Heat pump, Compressors, Economizer: 110-230 Vac, 0.3A max.

TMPL-24-H

Outputs	Config. 9: HC22 1 Speed fan, Economizer	Config. 10: HP32 1 Speed fan, Economizer	Config. 11: HC32 1 Speed fan, Humidifier, Dehum/ Reheat for Dehumidification	Config. 12: HP42 1 Speed fan, Humidifier, Dehum/ Reheat for Dehumidification
11	Heat element 2 (2nd stage heat)	Heat element (3rd stage heat)	Heat element 3 (3rd stage heat)	Heat element 2 (4th stage heat)
12	Economizer	Economizer	Heat element 2 (2nd stage heat)	Heat element 1 (3rd stage heat)
13	Fan (1 speed)	Fan (1 speed)	Fan (1 speed)	Fan (1 speed)
14	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾
15	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾

16	Heat element ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾	Heat element 1 (1st stage heat)	Heat pump ⁽²⁾
A01	X	X	Humidifier	Humidifier
A02	X	X	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	Dehumidifier ⁽⁴⁾ (option - See SW2.3)



- (1) SW1.1, SW1.2 – Fan speeds: 2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds (Low, Med., and High): SW1.1 = OFF, SW1.2 = OFF
- (2) SW1.4 – HP (Heat pump): ON = Heat pump active in cool, OFF = Heat pump active in heat
HC (not heat pump): ON = Electrical heater, OFF = Oil/Gas heater (no fan)
- (3) SW1.5 – Compressor delay: ON = Disable, OFF = Enable
- (4) SW2.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification
- (5) SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

Humidifier, Dehumidifier: 0-10VDC. 0.5mA Not isolated

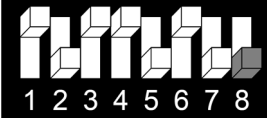
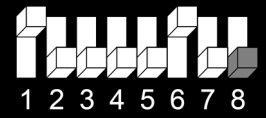
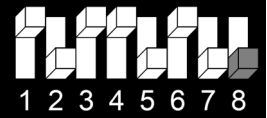
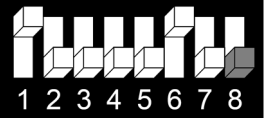
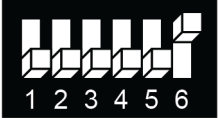
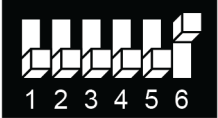
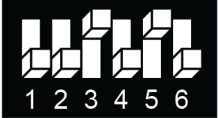
Control - Fan on/off, Heat elements, Heat pump, Compressors, Economizer: 24VAC, 0.5A max.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

TMPL-HM

Outputs	Config. 9: HC22 1 Speed fan, Economizer	Config. 10: HP32 1 Speed fan, Economizer	Config. 11: HC32 1 Speed fan, Humidifier, Dehum/ Reheat for Dehumidification	Config. 12: HP42 1 Speed fan, Humidifier, Dehum/ Reheat for Dehumidification
11	Heat element 2 (2nd stage heat)	Heat element (3rd stage heat)	Heat element 3 (3rd stage heat)	Heat element 2 (4th stage heat)
12	Economizer	Economizer	Heat element 2 (2nd stage heat)	Heat element 1 (3rd stage heat)
13	Fan (1 speed)	Fan (1 speed)	Fan (1 speed)	Fan (1 speed)
14	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾
15	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾

16	Heat element 1 ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾	Heat element 1 ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾
A01	X	X	Humidifier	Humidifier
A02	X	X	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	Dehumidifier ⁽⁴⁾ (option - See SW2.3)

SW1				
SW2				

(1) SW1.1, SW1.2 – Fan speeds:

2 speeds (Low and High):
3 speeds (Low, Med., and High):

SW1.1 = OFF, SW1.2 = ON
SW1.1 = OFF, SW1.2 = OFF

(2) SW1.4 = HP (Heat pump):
HC (Not Heat pump):

ON – Heat pump active in cool
ON – Electrical heater

OFF – Heat pump active in heat
OFF – Oil/Gas heater (no fan)

(3) SW1.5 = Compressor delay: ON – Disable compressor delay, OFF – Enable compressor delay

(4) SW2.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

(5) SW2.6 = Terminal 12: ON – Economizer, OFF – Terminal not in use (1 Speed)
Important: Economizer will not work in 3 fan speeds configuration

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

Fan on/off: 110-230 Vac, 2.5A max.

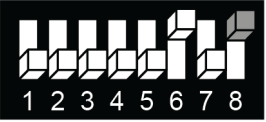
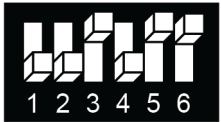
Humidifier, Dehumidifier: 0-10 Vdc, 0.5 mA Not isolated

Control – Heat elements, Heat pump, Compressors, Economizer: 110-230 Vac, 0.3A max.

Wiring and DIP switch configurations 13 to 16 – AC systems

TBPL-24-H | TBPL-24-HM

Outputs	Config. 13: HC21 2/3 Speeds fan ⁽¹⁾ Humidifier, Dehum/ Reheat for Dehumidification	Config. 14: HP21 2/3 Speeds fan ⁽¹⁾ , Humidifier, Dehum/ Reheat for Dehumidification	Config. 15: HC22 1 Speed fan, Economizer, Humidifier, Dehum/ Reheat for Dehumidification	Config. 16: HP32 1 Speed fan, Economizer, Humidifier, Dehum/ Reheat for Dehumidification
11	Fan high	Fan high	Heat element 2 (2nd stage heat)	Heat element (3rd stage heat)
12	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)	Economizer	Economizer

13	Fan low	Fan low	Fan (1 speed)	Fan (1 speed)
14	Heat element 2 (2nd stage heat)	Heat element (2nd stage heat)	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾
15	Compressor ⁽³⁾	Compressor ⁽³⁾	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾
16	Heat element 1 ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾	Heat element 1 ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾
A01	Humidifier	Humidifier	Humidifier	Humidifier
A02	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	Dehumidifier ⁽⁴⁾ (option - See SW2.3)
SW1				
SW2				

(1) SW1.1, SW1.2 – Fan speeds: 2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds (Low, Med., and High): SW1.1 = OFF, SW1.2 = OFF

(2) SW1.4 – HP (Heat pump): ON = Heat pump active in cool, OFF = Heat pump active in heat
HC (not heat pump): ON = Electrical heater, OFF = Oil/Gas heater (no fan)

(3) SW1.5 – Compressor delay: ON = Disable, OFF = Enable

(4) SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification

(5) SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in Wiring terminals and DIP switches (page 24) for DIP switch locations.

Fan VFS, Humidifier, Dehumidifier: 0-10VDC. 0.5mA Not isolated

Control - Fan on/off, Heat elements, Heat pump, Compressors, Economizer: 24VAC, 0.5A max.

TBPL-H | TBPL-HM

Outputs	Config. 13: HC21 2/3 Speeds fan ⁽¹⁾ Humidifier, Dehum/ Reheat for Dehumidification	Config. 14: HP21 2/3 Speeds fan ⁽¹⁾ , Humidifier, Dehum/ Reheat for Dehumidification	Config. 15: HC22 1 Speed fan, Economizer, Humidifier, Dehum/ Reheat for Dehumidification	Config. 16: HP32 1 Speed fan, Economizer, Humidifier, Dehum/ Reheat for Dehumidification
11	Fan high	Fan high	Heat element 2 (2nd stage heat)	Heat element (3rd stage heat)

12	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)	Economizer	Economizer
13	Fan low	Fan low	Fan (1 speed)	Fan (1 speed)
14	Heat element 2 (2nd stage heat)	Heat element (2nd stage heat)	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾
15	Compressor ⁽³⁾	Compressor ⁽³⁾	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾
16	Heat element 1 ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾	Heat element 1 ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾
A01	Humidifier	Humidifier	Humidifier	Humidifier
A02	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	Dehumidifier ⁽⁴⁾ (option - See SW2.3)
SW1				
SW2				

- (1) SW1.1, SW1.2 – Fan speeds: 2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds (Low, Med., and High): SW1.1 = OFF, SW1.2 = OFF
- (2) SW1.4 – HP (Heat pump): ON = Heat pump active in cool, OFF = Heat pump active in heat
HC (not heat pump): ON = Electrical heater, OFF = Oil/Gas heater (no fan)
- (3) SW1.5 – Compressor delay: ON = Disable, OFF = Enable
- (4) SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification
- (5) SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

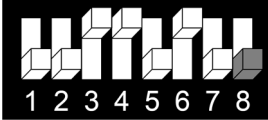
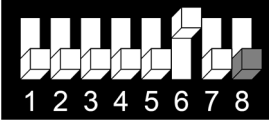
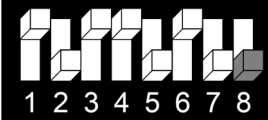
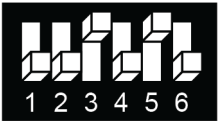
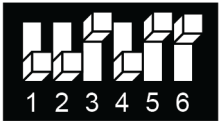
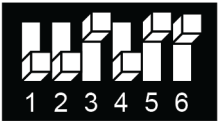
See drawing in Wiring terminals and DIP switches (page 24) for DIP switch locations.

Fan on/off: 110-230 Vac, 2.5A max.

Humidifier, Dehumidifier: 0-10 Vdc, 0.5 mA Not isolated

Control – Heat elements, Heat pump, Compressors, Economizer: 110-230 Vac, 0.3A max.

TMPL-24-H | TMPL-HM

	Config. 13: HC21 2/3 Speeds fan ⁽¹⁾ Humidifier, Dehum/ Reheat for Dehumidification	Config. 14: HP21 2/3 Speeds fan ⁽¹⁾ , Humidifier, Dehum/ Reheat for Dehumidification	Config. 15: HC22 1 Speed fan, Economizer, Humidifier, Dehum/ Reheat for Dehumidification	Config. 16: HP32 1 Speed fan, Economizer, Humidifier, Dehum/ Reheat for Dehumidification
Outputs				
11	Fan high	Fan high	Heat element 2 (2nd stage heat)	Heat element (3rd stage heat)
12	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)	Economizer	Economizer
13	Fan low	Fan low	Fan (1 speed)	Fan (1 speed)
14	Heat element 2 (2nd stage heat)	Heat element (2nd stage heat)	Compressor 2 ⁽³⁾	Compressor 2 ⁽³⁾
15	Compressor ⁽³⁾	Compressor ⁽³⁾	Compressor 1 ⁽³⁾	Compressor 1 ⁽³⁾
16	Heat element 1 ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾	Heat element 1 ⁽²⁾ (1st stage heat)	Heat pump ⁽²⁾
A01	Humidifier	Humidifier	Humidifier	Humidifier
A02	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	Dehumidifier ⁽⁴⁾ (option - See SW2.3)
SW1				
SW2				

(1) SW1.1, SW1.2 – Fan speeds:

2 speeds (Low and High):
3 speeds (Low, Med., and High):

SW1.1 = OFF, SW1.2 = ON
SW1.1 = OFF, SW1.2 = OFF

(2) SW1.4 – HP (Heat pump):
HC (not heat pump):

ON = Heat pump active in cool, OFF = Heat pump active in heat
ON = Electrical heater, OFF = Oil/Gas heater (no fan)

(3) SW1.5 – Compressor delay:

ON = Disable, OFF = Enable

(4) SW2.3 – Dehumidification:

ON = Use dehumidifier
OFF = Use reheat for dehumidification

(5) SW2.6 – Terminal 12 operation:

ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

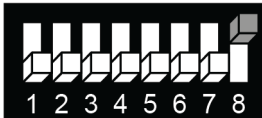
See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

TMPL-24-H: Humidifier, Dehumidifier: 0-10VDC. 0.5mA Not isolatedControl -Fan on/off, Heat elements, Heat pump, Compressors, Economizer: 24VAC, 0.5A max.

TMPL-HM: Fan on/off: 110-230VAC, 2.5A max., Humidifier, Dehumidifier: 0-10VDC. 0.5mA Not isolatedControl -Heat elements, Heat pump, Compressors, Economizer: 110-230VAC, 0.3A max.

Wiring and DIP switch configurations 17 to 20 – AC systems

TBPL-24-H | TBPL-24-HM

Outputs	Config. 17: HP22 2/3 Speed fan ⁽¹⁾ , Humidifier, Dehumidifier	Config. 18: HP21 2/3 Speed fan ⁽¹⁾ , Humidifier, Reheat for Dehumidification	Config. 19: HP22 Fan VFS, Humidifier	Config. 20: HP21 Fan VFS, Humidifier, Reheat for Dehumidification
11	Fan high	Fan high	X	X
12	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Economizer ⁽⁵⁾ (option – SW2.6 ON)
13	Fan low	Fan low	X	X
14	Compressor 2 ⁽³⁾	Heat element (2nd stage heat)	Compressor 2 ⁽³⁾	Heat element (2nd stage heat)
15	Compressor 1 ⁽³⁾	Compressor ⁽³⁾	Compressor 1 ⁽³⁾	Compressor ⁽³⁾
16	Heat pump ⁽²⁾	Heat pump ⁽²⁾	Heat pump ⁽²⁾	Heat pump ⁽²⁾
A01	Humidifier	Humidifier	Humidifier	Humidifier
A02	Dehumidifier	X	Fan VFS	Fan VFS
SW1				
SW2				

⁽¹⁾ SW1.1, SW1.2 – Fan speeds: 2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds (Low, Med., and High): SW1.1 = OFF, SW1.2 = OFF

⁽²⁾ SW1.4 – HP (Heat pump): ON = Heat pump active in cool, OFF = Heat pump active in heat
HC (not heat pump): ON = Electrical heater, OFF = Oil/Gas heater (no fan)

⁽³⁾ SW1.5 – Compressor delay: ON = Disable, OFF = Enable

⁽⁴⁾SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification

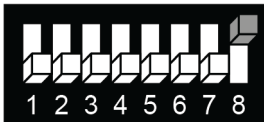
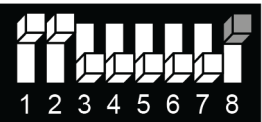
(5) SW2.6 – Terminal 12 operation:

ON = Economizer
 OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
 Important: Economizer will not work in 3 fan speeds configuration.

See drawing in Wiring terminals and DIP switches (page 24) for DIP switch locations.

Humidifier, Dehumidifier: 0-10 Vdc, 0.5 mA Not isolated
 Control – Fan on/off, Heat elements, Heat pump, Compressors, Economizer: 24 Vac, 0.5A max

TBPL-H | TBPL-HM

Outputs	Config. 17: HP22 2/3 Speed fan ⁽¹⁾ , Humidifier, Dehumidifier	Config. 18: HP21 2/3 Speed fan ⁽¹⁾ , Humidifier, Reheat for Dehumidification	Config. 19: HP22 Fan VFS, Humidifier	Config. 20: HP21 Fan VFS, Humidifier, Reheat for Dehumidification
11	Fan high	Fan high	X	X
12	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Economizer ⁽⁵⁾ (option – SW2.6 ON)
13	Fan low	Fan low	X	X
14	Compressor 2 ⁽³⁾	Heat element (2nd stage heat)	Compressor 2 ⁽³⁾	Heat element (2nd stage heat)
15	Compressor 1 ⁽³⁾	Compressor ⁽³⁾	Compressor 1 ⁽³⁾	Compressor ⁽³⁾
16	Heat pump ⁽²⁾	Heat pump ⁽²⁾	Heat pump ⁽²⁾	Heat pump ⁽²⁾
A01	Humidifier	Humidifier	Humidifier	Humidifier
A02	Dehumidifier	X	Fan VFS	Fan VFS
SW1				
SW2				

- (1) SW1.1, SW1.2 – Fan speeds: 2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
 3 speeds (Low, Med., and High): SW1.1 = OFF, SW1.2 = OFF
- (2) SW1.4 – HP (Heat pump): ON = Heat pump active in cool, OFF = Heat pump active in heat
 HC (not heat pump): ON = Electrical heater, OFF = Oil/Gas heater (no fan)
- (3) SW1.5 – Compressor delay: ON = Disable, OFF = Enable
- (4) SW2.3 – Dehumidification: ON = Use dehumidifier
 OFF = Use reheat for dehumidification

(5) SW2.6 – Terminal 12 operation:

ON = Economizer
 OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
 Important: Economizer will not work in 3 fan speeds configuration.

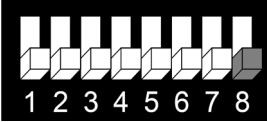
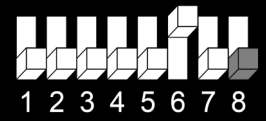
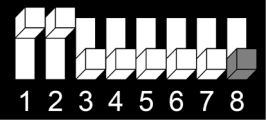
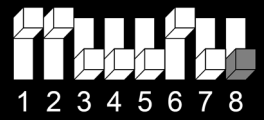
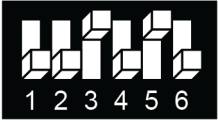
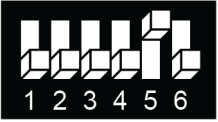
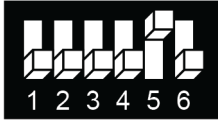
See drawing in Wiring terminals and DIP switches (page 24) for DIP switch locations.

Fan on/off: 110-230 Vac, 2.5A max.

Fan VFS, Humidifier, Dehumidifier: 0-10 Vdc, 0.5 mA Not isolated

Control – Heat elements, Heat pump, Compressors, Economizer: 110-230 Vac, 0.3A max.

TMPL-24-H | TMPL-HM

Outputs	Config. 17: HP22 2/3 Speed fan ⁽¹⁾ , Humidifier, Dehumidifier	Config. 18: HP21 2/3 Speed fan ⁽¹⁾ , Humidifier, Reheat for Dehumidification	Config. 19: HP22 Fan VFS, Humidifier	Config. 20: HP21 Fan VFS, Humidifier, Reheat for Dehumidification
11	Fan high	Fan high	X	X
12	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Economizer ⁽⁵⁾ (option – SW2.6 ON)
13	Fan low	Fan low	X	X
14	Compressor 2 ⁽³⁾	Heat element (2nd stage heat)	Compressor 2 ⁽³⁾	Heat element (2nd stage heat)
15	Compressor 1 ⁽³⁾	Compressor ⁽³⁾	Compressor 1 ⁽³⁾	Compressor ⁽³⁾
16	Heat pump ⁽²⁾	Heat pump ⁽²⁾	Heat pump ⁽²⁾	Heat pump ⁽²⁾
A01	Humidifier	Humidifier	Humidifier	Humidifier
A02	Dehumidifier	X	Fan VFS	Fan VFS
SW1				
SW2				

(1) SW1.1, SW1.2 – Fan speeds: 2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
 3 speeds (Low, Med., and High): SW1.1 = OFF, SW1.2 = OFF

(2) SW1.4 – HP (Heat pump): ON = Heat pump active in cool, OFF = Heat pump active in heat
 HC (not heat pump): ON = Electrical heater, OFF = Oil/Gas heater (no fan)

(3) SW1.5 – Compressor delay: ON = Disable, OFF = Enable

(4) SW2.3 – Dehumidification: ON = Use dehumidifier
 OFF = Use reheat for dehumidification

(5) SW2.6 – Terminal 12
operation:

ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in Wiring terminals and DIP switches (page 24) for DIP switch locations.

TMPL-24-H: Fan VFS, Humidifier, Dehumidifier: 0-10VDC. 0.5mA Not isolatedControl -Fan on/off, Heat elements, Heat pump, Compressors, Economizer: 24VAC, 0.5A max.

TMPL-HM: Fan on/off: 110-230VAC, 2.5A max., Fan VFS, Humidifier, Dehumidifier: 0-10VDC. 0.5mA Not isolatedControl -Heat elements, Heat pump, Compressors, Economizer: 110-230VAC, 0.3A max.

Wiring and DIP switch configuration 21 – AC systems

TBPL Series

Outputs	Config. 21: HC21 Fan VFS, Humidifier, Reheat for Dehumidification
11	X
12	Economizer ⁽⁵⁾ (option – SW2.6 ON)
13	X
14	Heat element 2 (2nd stage heat)
15	Compressor ⁽³⁾
16	Heat element 1 ⁽²⁾ (1st stage heat)
A01	Humidifier
A02	Fan VFS
SW1	
SW2	

(1) SW1.1, SW1.2 – Fan speeds: 2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds (Low, Med., and High): SW1.1 = OFF, SW1.2 = OFF

(2) SW1.4 – HP (Heat pump): ON = Heat pump active in cool, OFF = Heat pump active in heat
HC (not heat pump): ON = Electrical heater, OFF = Oil/Gas heater (no fan)

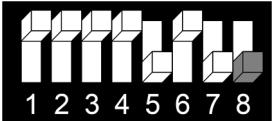
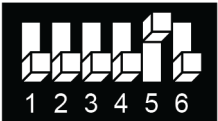
- (3) SW1.5 – Compressor delay: ON = Disable, OFF = Enable
- (4) SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification
- (5) SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

Fan VFS, Humidifier: 0-10VDC. 0.5mA Not isolated

Control - Heat elements, Heat pump, Compressors, Economizer: 24VAC, 0.5A max.

TMPL Series

Outputs	Config. 21: HC21 Fan VFS, Humidifier, Reheat for Dehumidification
11	X
12	Economizer ⁽⁵⁾ (option – SW2.6 ON)
13	X
14	Heat element 2 (2nd stage heat)
15	Compressor ⁽³⁾
16	Heat element 1 ⁽²⁾ (1st stage heat)
A01	Humidifier
A02	Fan VFS
SW1	
SW2	

- (1) SW1.1, SW1.2 – Fan speeds: 2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds (Low, Med., and High): SW1.1 = OFF, SW1.2 = OFF
- (2) SW1.4 – HP (Heat pump): ON = Heat pump active in cool, OFF = Heat pump active in heat
HC (not heat pump): ON = Electrical heater, OFF = Oil/Gas heater (no fan)
- (3) SW1.5 – Compressor delay: ON = Disable, OFF = Enable

(4)SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification

(5) SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

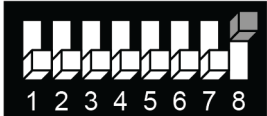
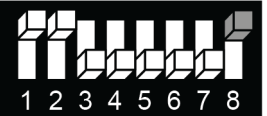
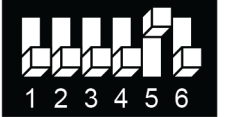
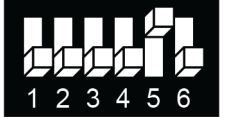
See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

TMPL-24-H: Fan VFS, Humidifier: 0-10VDC. 0.5mA Not isolatedControl -Heat elements, Heat pump, Compressors, Economizer: 24VAC, 0.5A max.

TMPL-HM: Fan on/off: 110-230VAC, 2.5A max., Fan VFS, Humidifier: 0-10VDC. 0.5mA Not isolatedControl -Heat elements, Heat pump, Compressors, Economizer: 110-230VAC, 0.3A max.

Wiring and DIP switch configurations 22 to 25 – FC systems - 2-pipe

TBPL-24-H | TBPL-24-HM

Outputs	Config. 17: HP22 2/3 Speed fan ⁽¹⁾ , Humidifier, Dehumidifier	Config. 18: HP21 2/3 Speed fan ⁽¹⁾ , Humidifier, Reheat for Dehumidification	Config. 19: HP22 Fan VFS, Humidifier	Config. 20: HP21 Fan VFS, Humidifier, Reheat for Dehumidification
11	Fan high	Fan high	X	X
12	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Economizer ⁽⁵⁾ (option – SW2.6 ON)
13	Fan low	Fan low	X	X
14	Compressor 2 ⁽³⁾	Heat element (2nd stage heat)	Compressor 2 ⁽³⁾	Heat element (2nd stage heat)
15	Compressor 1 ⁽³⁾	Compressor ⁽³⁾	Compressor 1 ⁽³⁾	Compressor ⁽³⁾
16	Heat pump ⁽²⁾	Heat pump ⁽²⁾	Heat pump ⁽²⁾	Heat pump ⁽²⁾
A01	Humidifier	Humidifier	Humidifier	Humidifier
A02	Dehumidifier	X	Fan VFS	Fan VFS
SW1				
SW2				

(1) SW1.1, SW1.2 – Fan speeds: 2 speeds (Low and High):
3 speeds (Low, Med., and High):

SW1.1 = OFF, SW1.2 = ON
SW1.1 = OFF, SW1.2 = OFF

- (2) SW1.4 – HP (Heat pump): ON = Heat pump active in cool, OFF = Heat pump active in heat
 HC (not heat pump): ON = Electrical heater, OFF = Oil/Gas heater (no fan)
- (3) SW1.5 – Compressor delay: ON = Disable, OFF = Enable
- (4) SW2.3 – Dehumidification: ON = Use dehumidifier
 OFF = Use reheat for dehumidification
- (5) SW2.6 – Terminal 12 operation: ON = Economizer
 OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
 Important: Economizer will not work in 3 fan speeds configuration.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

Humidifier, Dehumidifier: 0-10 Vdc, 0.5 mA Not isolated

Control – Fan on/off, Heat elements, Heat pump, Compressors, Economizer: 24 Vac, 0.5A max

TBPL-H | TBPL-HM

Outputs	Config. 22: 2-Pipe, 1/2/3 Speeds fan	Config. 23: 2-Pipe, 1/2/3 Speeds fan Cool/Heat PID	Config. 24: 2-Pipe, Fan VFS	Config. 25: 2-Pipe, Fan VFS, Cool/Heat PID
11	Fan high	Fan high	X	X
12	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Economizer ⁽⁵⁾ (option – SW2.6 ON)
13	Fan low	Fan low	X	X
14	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)
15	Cool/Heat valve ⁽³⁾ (1st stage heat)	X	Cool/Heat valve ⁽³⁾ (1st stage heat)	X
16	X	X	X	X
A01	X	Cool/Heat valve PID ⁽³⁾ (1st stage heat)	X	Cool/Heat valve PID ⁽³⁾ (1st stage heat)
A02	X	X	Fan VFS	Fan VFS
SW1				

Outputs	Config. 17: HP22 2/3 Speed fan ⁽¹⁾ , Humidifier, Dehumidifier	Config. 18: HP21 2/3 Speed fan ⁽¹⁾ , Humidifier, Reheat for Dehumidification	Config. 19: HP22 Fan VFS, Humidifier	Config. 20: HP21 Fan VFS, Humidifier, Reheat for Dehumidification
11	Fan high	Fan high	X	X
12	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Economizer ⁽⁵⁾ (option – SW2.6 ON)
13	Fan low	Fan low	X	X
14	Compressor 2 ⁽³⁾	Heat element (2nd stage heat)	Compressor 2 ⁽³⁾	Heat element (2nd stage heat)
15	Compressor 1 ⁽³⁾	Compressor ⁽³⁾	Compressor 1 ⁽³⁾	Compressor ⁽³⁾
16	Heat pump ⁽²⁾	Heat pump ⁽²⁾	Heat pump ⁽²⁾	Heat pump ⁽²⁾
AO1	Humidifier	Humidifier	Humidifier	Humidifier
AO2	Dehumidifier	X	Fan VFS	Fan VFS
SW1				

SW2






(1) SW1.1, SW1.2 – Fan speeds: 2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
 3 speeds (Low, Med., and High): SW1.1 = OFF, SW1.2 = OFF

(2) SW1.4 – HP (Heat pump): ON = Heat pump active in cool, OFF = Heat pump active in heat
 HC (not heat pump): ON = Electrical heater, OFF = Oil/Gas heater (no fan)

(3) SW1.5 – Compressor delay: ON = Disable, OFF = Enable

(4) SW2.3 – Dehumidification: ON = Use dehumidifier
 OFF = Use reheat for dehumidification

(5) SW2.6 – Terminal 12 operation: ON = Economizer
 OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds/VFS)
 Important: Economizer will not work in 3 fan speeds configuration.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

TMPL-24-H: Fan VFS, PID valves: 0-10VDC. 0.5mA Not isolatedControl -Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24VAC, 0.5A max.

TMPL-HM: Fan on/off: 110-230VAC, 2.5A max., Fan VFS, PID valves: 0-10VDC. 0.5mA Not isolatedControl -Heat elements, Cool/Heat valves, Economizer: 110-230VAC, 0.3A max.

Wiring and DIP switch configurations 26 to 29 – FC systems - 2-pipe

TBPL-24-H | TBPL-24-HM

Outputs	Config. 26: 2-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Cool/Heat valve, Humidifier, Dehum/Reheat for Dehumidification	Config. 27: 2-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Cool/Heat valve, Humidifier, Reheat for Dehumidification	Config. 28: 2-Pipe, Fan VFS, Humidifier Reheat for Dehumidification	Config. 29: 2-Pipe, 1/2/3 speeds fan ⁽¹⁾ , Cool/Heat PID, Humidifier, Reheat for Dehumidification
11	Fan high	Fan high	X	Fan high
12	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Fan medium (or Economizer ⁽⁵⁾)
13	Fan low	Fan low	X	Fan low
14	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)
15	Cool/Heat valve ⁽³⁾ (1st stage heat)	Cool/Heat valve ⁽³⁾ (1st stage heat)	Cool/Heat valve ⁽³⁾ (1st stage heat)	X
16	X	X	X	X

A01	Humidifier	Humidifier	Humidifier	Cool/Heat valve PID ⁽³⁾ (1st stage heat)
A02	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	X	Fan VFS	Humidifier
SW1				
SW2				

- (1)SW1.1, SW1.2 – Fan speeds: 1 speed (Low): SW1.1 = ON, SW1.2 = OFF
2 speeds(Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds(Low, Medium, and High): SW1.1 = OFF, SW1.2 = OFF
- (2)SW1.4 – 2nd heating stage: ON = Enable, OFF = Disable
- (3)SW1.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with 1st stage cooling)
- (4)SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification
- (5)SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

Fan VFS, PID valves, Hum., Dehum.: 0-10VDC. 0.5mA Not isolated

Control - Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24VAC, 0.5A max.

TBPL-H | TBPL-HM

Outputs	Config. 26: 2-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Cool/Heat valve, Humidifier, Dehum/Reheat for Dehumidification	Config. 27: 2-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Cool/Heat valve, Humidifier, Reheat for Dehumidification	Config. 28: 2-Pipe, Fan VFS, Humidifier Reheat for Dehumidification	Config. 29: 2-Pipe, 1/2/3 speeds fan ⁽¹⁾ , Cool/ Heat PID, Humidifier, Reheat for Dehumidification
11	Fan high	Fan high	X	Fan high
12	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Fan medium (or Economizer ⁽⁵⁾)
13	Fan low	Fan low	X	Fan low
14	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)
15	Cool/Heat valve ⁽³⁾ (1st stage heat)	Cool/Heat valve ⁽³⁾ (1st stage heat)	Cool/Heat valve ⁽³⁾ (1st stage heat)	X

16	X	X	X	X
A01	Humidifier	Humidifier	Humidifier	Cool/Heat valve PID ⁽³⁾ (1st stage heat)
A02	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	X	Fan VFS	Humidifier
SW1				
SW2				

⁽¹⁾SW1.1, SW1.2 – Fan speeds: 1 speed (Low): SW1.1 = ON, SW1.2 = OFF
2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds (Low, Medium, and High): SW1.1 = OFF, SW1.2 = OFF

⁽²⁾SW1.4 – 2nd heating stage: ON = Enable, OFF = Disable

⁽³⁾SW1.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with 1st stage cooling)

⁽⁴⁾SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification

⁽⁵⁾SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

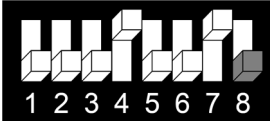
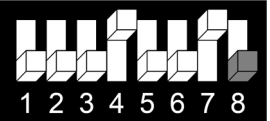
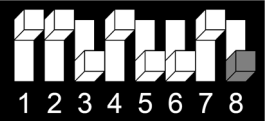
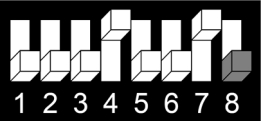
Fan on/off: 110-230 Vac, 2.5A max.

Fan VFS, PID valves, Hum., Dehum.: 0-10 Vdc, 0.5 mA Not isolated

Control – Heat elements, Cool/Heat valves, Economizer: 110-230 Vac, 0.3A max.

TMPL-24-H | TMPL-HM

Outputs	Config. 26: 2-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Cool/Heat valve, Humidifier, Dehum/Reheat for Dehumidification	Config. 27: 2-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Cool/Heat valve, Humidifier, Reheat for Dehumidification	Config. 28: 2-Pipe, Fan VFS, Humidifier Reheat for Dehumidification	Config. 29: 2-Pipe, 1/2/3 speeds fan ⁽¹⁾ , Cool/ Heat PID, Humidifier, Reheat for Dehumidification
11	Fan high	Fan high	X	Fan high
12	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Fan medium (or Economizer ⁽⁵⁾)
13	Fan low	Fan low	X	Fan low
14	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)

15	Cool/Heat valve ⁽³⁾ (1st stage heat)	Cool/Heat valve ⁽³⁾ (1st stage heat)	Cool/Heat valve ⁽³⁾ (1st stage heat)	X
16	X	X	X	X
A01	Humidifier	Humidifier	Humidifier	Cool/Heat valve PID ⁽³⁾ (1st stage heat)
A02	Dehumidifier ⁽⁴⁾ (option - See SW2.3)	X	Fan VFS	Humidifier
SW1				
SW2				

- (1)SW1.1, SW1.2 – Fan speeds: 1 speed (Low): SW1.1 = ON, SW1.2 = OFF
2 speeds(Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds(Low, Medium, and High): SW1.1 = OFF, SW1.2 = OFF
- (2)SW1.4 – 2nd heating stage: ON = Enable, OFF = Disable
- (3)SW1.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with 1st stage cooling)
- (4)SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification
- (5)SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in Wiring terminals and DIP switches (page 24) for DIP switch locations.

TMPL-24-H: Fan VFS, PID valves, Hum., Dehum.: 0-10VDC. 0.5mA Not isolatedControl -Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24VAC, 0.5A max.

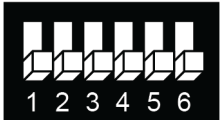
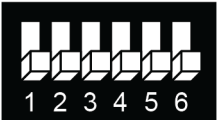
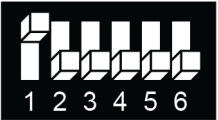
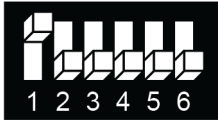
TMPL-HM: Fan on/off: 110-230VAC, 2.5A max., Fan VFS, PID valves, Hum., Dehum.: 0-10VDC. 0.5mA Not isolatedControl -Heat elements, Cool/Heat valves, Economizer: 110-230VAC, 0.3A max.

Wiring and DIP switch configurations 30 to 33 – FC systems - 4-pipe

TBPL Series

Outputs	Config. 30: 4-Pipe, 1/2/3 Speeds fan ⁽¹⁾	Config. 31: 4-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Floor heating	Config. 32: 4-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Cool valve PID	Config. 33: 4-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Cool valve PID, Floor heating
11	Fan high	Fan high	Fan high	Fan high

12	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)
13	Fan low	Fan low	Fan low	Fan low
14	Heat element ⁽²⁾ (2nd stage heat)	Floor heating (1st stage heat – no fan)	Heat element ⁽²⁾ (2nd stage heat)	Floor heating (1st stage heat – no fan)
15	Cool valve ⁽³⁾	Cool valve ⁽³⁾	X	X
16	Heat valve (1st stage heat)	Heat valve (2nd stage heat)	Heat valve (1st stage heat)	Heat valve (2nd stage heat)
A01	X	X	Cool valve PID ⁽³⁾	Cool valve PID ⁽³⁾
A02	X	X	X	X

SW1				
SW2				

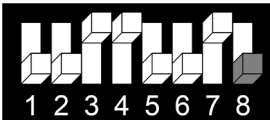
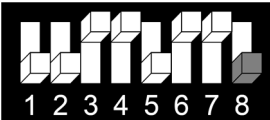
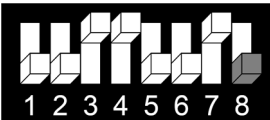
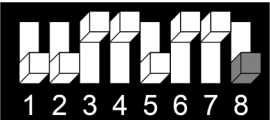
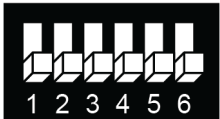
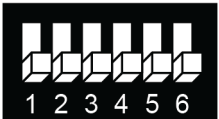
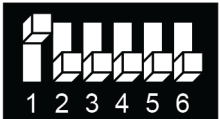
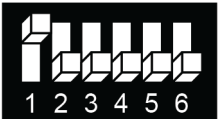
- (1)SW1.1, SW1.2 – Fan speeds: 1 speed (Low): SW1.1 = ON, SW1.2 = OFF
2 speeds(Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds(Low, Medium, and High): SW1.1 = OFF, SW1.2 = OFF
- (2)SW1.4 – 2nd heating stage: ON = Enable, OFF = Disable
- (3)SW1.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with 1st stage cooling)
- (4)SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification
- (5)SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in Wiring terminals and DIP switches (page 24) for DIP switch locations. Fan VFS, PID valves, Hum., Dehum.: 0-10VDC. 0.5mA Not isolated

Control - Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24VAC, 0.5A max.

TMPL Series

Outputs	Config. 30: 4-Pipe, 1/2/3 Speeds fan ⁽¹⁾	Config. 31: 4-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Floor heating	Config. 32: 4-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Cool valve PID	Config. 33: 4-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Cool valve PID, Floor heating
11	Fan high	Fan high	Fan high	Fan high
12	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)
13	Fan low	Fan low	Fan low	Fan low

14	Heat element ⁽²⁾ (2nd stage heat)	Floor heating (1st stage heat – no fan)	Heat element ⁽²⁾ (2nd stage heat)	Floor heating (1st stage heat – no fan)
15	Cool valve ⁽³⁾	Cool valve ⁽³⁾	X	X
16	Heat valve (1st stage heat)	Heat valve (2nd stage heat)	Heat valve (1st stage heat)	Heat valve (2nd stage heat)
A01	X	X	Cool valve PID ⁽³⁾	Cool valve PID ⁽³⁾
A02	X	X	X	X
SW1				
SW2				

⁽¹⁾SW1.1, SW1.2 – Fan speeds: 1 speed (Low): SW1.1 = ON, SW1.2 = OFF
2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds (Low, Medium, and High): SW1.1 = OFF, SW1.2 = OFF

⁽²⁾SW1.4 – 2nd heating stage: ON = Enable, OFF = Disable

⁽³⁾SW1.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with 1st stage cooling)

⁽⁴⁾SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification

⁽⁵⁾SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

TMPL-24-H: PID valves: 0-10VDC. 0.5mA Not isolated Control -Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24VAC, 0.5A max.

TMPL-HM: Fan on/off: 110-230VAC, 2.5A max., PID valves: 0-10VDC. 5mA Not isolated Control -Heat elements, Cool/Heat valves, Economizer: 110-230VAC, 0.3A max.

Wiring and DIP switch configurations 34 to 37 – FC systems - 4-pipe

TBPL-24-H | TBPL-24-HM

Outputs	Config: 34: 4-Pipe, Fan VFS, Cool valve PID	Config: 35: 4-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Heat valve PID	Config: 36: 4-Pipe, Fan VFS, Heat valve PID	Config: 37: 4-Pipe, Fan VFS
11	X	Fan high	X	X
12	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Economizer ⁽⁵⁾ (option – SW2.6 ON)

13	X	Fan low	X	X
14	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)
15	X	Cool valve ⁽³⁾	Cool valve ⁽³⁾	Cool valve ⁽³⁾
16	Heat valve (1st stage heat)	X	X	Heat valve (1st stage heat)
A01	Cool valve PID ⁽³⁾	Heat valve PID (1st stage heat)	Heat valve PID (1st stage heat)	X
A02	Fan VFS	X	Fan VFS	Fan VFS

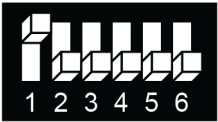
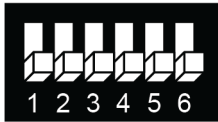
(1)SW1.1, SW1.2 – Fan speeds:

1 speed (Low):	SW1.1 = ON, SW1.2 = OFF
2 speeds(Low and High):	SW1.1 = OFF, SW1.2 = ON
3 speeds(Low, Medium, and High):	SW1.1 = OFF, SW1.2 = OFF

See drawing in Wiring terminals and DIP switches (page 24) for DIP switch locations.

Control - Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24VAC, 0.5A max.

TBPL-H | TBPL-HM

15	X	Cool valve ⁽³⁾	Cool valve ⁽³⁾	Cool valve ⁽³⁾
16	Heat valve (1st stage heat)	X	X	Heat valve (1st stage heat)
A01	Cool valve PID ⁽³⁾	Heat valve PID (1st stage heat)	Heat valve PID (1st stage heat)	X
A02	Fan VFS	X	Fan VFS	Fan VFS
SW1				
SW2				

- (1)SW1.1, SW1.2 – Fan speeds: 1 speed (Low): SW1.1 = ON, SW1.2 = OFF
2 speeds (Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds (Low, Medium, and High): SW1.1 = OFF, SW1.2 = OFF
- (2)SW1.4 – 2nd heating stage: ON = Enable, OFF = Disable
- (3)SW1.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with 1st stage cooling)
- (4)SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification
- (5)SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

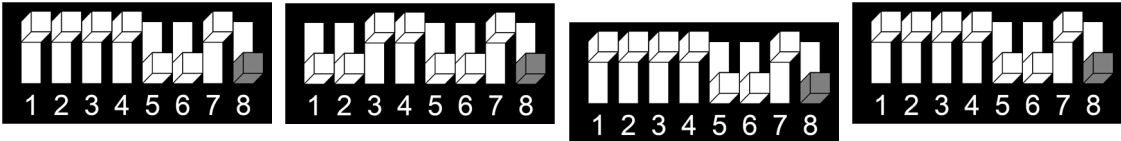
Fan on/off: 110-230 Vac, 2.5A max.

Fan VFS, PID valves: 0-10 Vdc, 0.5 mA Not isolated

Control – Heat elements, Cool/Heat valves, Economizer: 110-230 Vac, 0.3A max.

TMPL-24-H | TMPL-HM

Outputs	Config: 34: 4-Pipe, Fan VFS, Cool valve PID	Config: 35: 4-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Heat valve PID	Config: 36: 4-Pipe, Fan VFS, Heat valve PID	Config: 37: 4-Pipe, Fan VFS
11	X	Fan high	X	X
12	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Economizer ⁽⁵⁾ (option – SW2.6 ON)
13	X	Fan low	X	X
14	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)
15	X	Cool valve ⁽³⁾	Cool valve ⁽³⁾	Cool valve ⁽³⁾

16	Heat valve (1st stage heat)	X	X	Heat valve (1st stage heat)
A01	Cool valve PID ⁽³⁾	Heat valve PID (1st stage heat)	Heat valve PID (1st stage heat)	X
A02	Fan VFS	X	Fan VFS	Fan VFS
SW1				
SW2				

(1)SW1.1, SW1.2 – Fan speeds:

1 speed (Low):
2 speeds(Low and High):
3 speeds(Low, Medium, and High):

SW1.1 = ON, SW1.2 = OFF
SW1.1 = OFF, SW1.2 = ON
SW1.1 = OFF, SW1.2 = OFF

(2)SW1.4 – 2nd heating stage: ON = Enable, OFF = Disable

(3)SW1.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with 1st stage cooling)

(4)SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification

(5)SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

TMPL-24-H: Fan VFS, PID valves: 0-10VDC. 0.5mA Not isolatedControl -Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24VAC, 0.5A max.

TMPL-HM: Fan on/off: 110-230VAC, 2.5A max., Fan VFS, PID valves: 0-10VDC. 0.5mA Not isolatedControl -Heat elements, Cool/Heat valves, Economizer: 110-230VAC, 0.3A max.

Wiring and DIP switch configurations 38 to 40 – FC systems - 4-pipe

TBPL-24-H | TBPL-24-HM

Outputs	Config. 38: 4-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Heat valve PID, Cool valve PID	Config. 39: 4-Pipe, VFS Fan, Cool valve PID, Floor heating	Config. 40: 4-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Humidifier, Dehum/Reheat for Dehumidification
11	Fan high	X	Fan high

12	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Fan medium (or Economizer ⁽⁵⁾)
13	Fan low	X	Fan low
14	Heat element ⁽²⁾ (2nd stage heat)	Floor heating (1st stage heat – no fan)	Heat element ⁽²⁾ (2nd stage heat)
15	X	X	Cool valve ⁽³⁾
16	X	Heat valve (2nd stage heat)	Heat valve (1st stage heat)
A01	Cool valve PID ⁽³⁾	Cool valve PID ⁽³⁾	Humidifier
A02	Heat valve PID (1st stage heat)	Fan VFS	Dehumidifier ⁽⁴⁾ (option - See SW2.3)

SW1			
SW2			

- (1)SW1.1, SW1.2 – Fan speeds: 1 speed (Low): SW1.1 = ON, SW1.2 = OFF
2 speeds(Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds(Low, Medium, and High): SW1.1 = OFF, SW1.2 = OFF
- (2)SW1.4 – 2nd heating stage: ON = Enable, OFF = Disable
- (3)SW1.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with 1st stage cooling)
- (4)SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification
- (5)SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

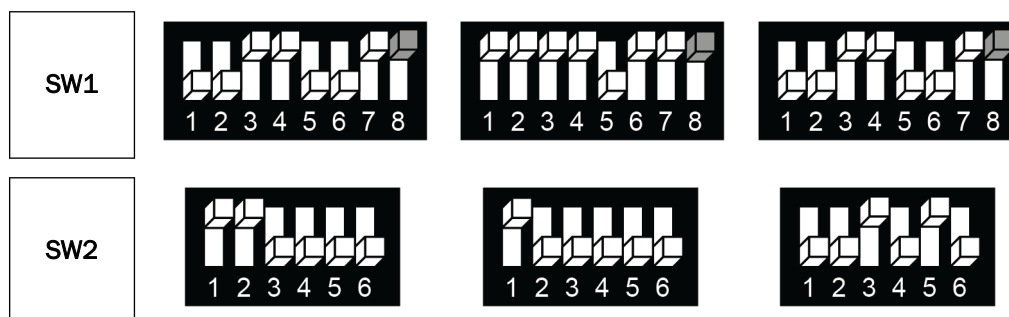
PID valves, Humidifier, Dehumidifier: 0-10VDC. 0.5mA Not isolated

Control - Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24VAC, 0.5A max.

TBPL-H | TBPL-HM

Outputs	Config. 38: 4-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Heat valve PID, Cool valve PID	Config. 39: 4-Pipe, VFS Fan, Cool valve PID, Floor heating	Config. 40: 4-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Humidifier, Dehum/Reheat for Dehumidification
11	Fan high	X	Fan high

12	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Fan medium (or Economizer ⁽⁵⁾)
13	Fan low	X	Fan low
14	Heat element ⁽²⁾ (2nd stage heat)	Floor heating (1st stage heat – no fan)	Heat element ⁽²⁾ (2nd stage heat)
15	X	X	Cool valve ⁽³⁾
16	X	Heat valve (2nd stage heat)	Heat valve (1st stage heat)
A01	Cool valve PID ⁽³⁾	Cool valve PID ⁽³⁾	Humidifier
A02	Heat valve PID (1st stage heat)	Fan VFS	Dehumidifier ⁽⁴⁾ (option - See SW2.3)



- (1)SW1.1, SW1.2 – Fan speeds: 1 speed (Low): SW1.1 = ON, SW1.2 = OFF
2 speeds(Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds(Low, Medium, and High): SW1.1 = OFF, SW1.2 = OFF
- (2)SW1.4 – 2nd heating stage: ON = Enable, OFF = Disable
- (3)SW1.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with 1st stage cooling)
- (4)SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification
- (5)SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

Fan on/off: 110-230 Vac, 2.5A max.

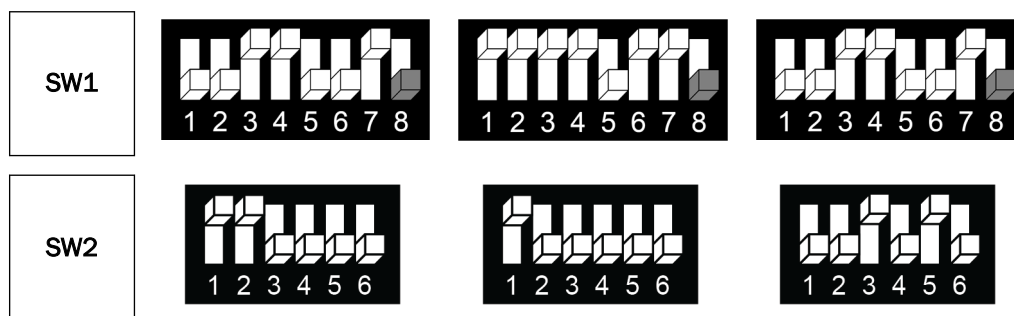
PID valves: 0-10 Vdc, 0.5 mA Not isolated

Control – Heat elements, Cool/Heat valves, Economizer: 110-230 Vac, 0.3A max.

TMPL-24-H | TMPL-HM

Outputs	Config. 38: 4-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Heat valve PID, Cool valve PID	Config. 39: 4-Pipe, VFS Fan, Cool valve PID, Floor heating	Config. 40: 4-Pipe, 1/2/3 Speeds fan ⁽¹⁾ , Humidifier, Dehum/Reheat for Dehumidification
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11	Fan high	X	Fan high
12	Fan medium (or Economizer ⁽⁵⁾)	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Fan medium (or Economizer ⁽⁵⁾)
13	Fan low	X	Fan low
14	Heat element ⁽²⁾ (2nd stage heat)	Floor heating (1st stage heat – no fan)	Heat element ⁽²⁾ (2nd stage heat)
15	X	X	Cool valve ⁽³⁾
16	X	Heat valve (2nd stage heat)	Heat valve (1st stage heat)
A01	Cool valve PID ⁽³⁾	Cool valve PID ⁽³⁾	Humidifier
A02	Heat valve PID (1st stage heat)	Fan VFS	Dehumidifier ⁽⁴⁾ (option - See SW2.3)



- (1)SW1.1, SW1.2 – Fan speeds: 1 speed (Low): SW1.1 = ON, SW1.2 = OFF
2 speeds(Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds(Low, Medium, and High): SW1.1 = OFF, SW1.2 = OFF
- (2)SW1.4 – 2nd heating stage: ON = Enable, OFF = Disable
- (3)SW1.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with 1st stage cooling)
- (4)SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification
- (5)SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in Wiring terminals and DIP switches (page 24) for DIP switch locations.

TMPL-24-H: PID valves, Humidifier, Dehumidifier: 0-10VDC. 0.5mA Not isolatedControl -Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24VAC, 0.5A max.

TMPL-HM: Fan on/off: 110-230VAC, 2.5A max., PID valves, Humidifier, Dehumidifier: 0-10VDC. 5mA Not isolatedControl -Heat elements, Cool/Heat valves, Economizer: 110-230VAC, 0.3A max.

Wiring and DIP switch configurations 41 to 43 – FC systems - 4-pipe

TBPL-24-H | TBPL-24-HM

Outputs	Config. 41: 4-Pipe, Fan VFS, Humidifier, Reheat for Dehumidification	Config. 42: 4-Pipe, 1/2/3 Speeds fan(1), Cool valve PID Humidifier, Reheat for Dehumidification	Config. 43: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID Humidifier, Reheat for Dehumidification
11	X	Fan high	Fan high
12	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)
13	X	Fan low	Fan low
14	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)
15	Cool valve ⁽³⁾	X	Cool valve ⁽³⁾
16	Heat valve (1st stage heat)	Heat valve (1st stage heat)	X
A01	Humidifier	Cool valve PID ⁽³⁾	Heat valve PID (1st stage heat)
A02	Fan VFS	Humidifier	Humidifier
SW1			
SW2			

- (1)SW1.1, SW1.2 – Fan speeds: 1 speed (Low): SW1.1 = ON, SW1.2 = OFF
2 speeds(Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds(Low, Medium, and High): SW1.1 = OFF, SW1.2 = OFF
- (2)SW1.4 – 2nd heating stage: ON = Enable, OFF = Disable
- (3)SW1.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with 1st stage cooling)
- (4)SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification
- (5)SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

PID valves, Humidifier, Dehumidifier: 0-10VDC. 0.5mA Not isolated
Control - Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24VAC, 0.5A max.

TBPL-H | TBPL-HM

Outputs	Config. 41: 4-Pipe, Fan VFS, Humidifier, Reheat for Dehumidification	Config. 42: 4-Pipe, 1/2/3 Speeds fan(1), Cool valve PID Humidifier, Reheat for Dehumidification	Config. 43: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID Humidifier, Reheat for Dehumidification
11	X	Fan high	Fan high
12	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)
13	X	Fan low	Fan low
14	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)
15	Cool valve ⁽³⁾	X	Cool valve ⁽³⁾
16	Heat valve (1st stage heat)	Heat valve (1st stage heat)	X
A01	Humidifier	Cool valve PID ⁽³⁾	Heat valve PID (1st stage heat)
A02	Fan VFS	Humidifier	Humidifier
SW1			
SW2			

- (1)SW1.1, SW1.2 – Fan speeds: 1 speed (Low): SW1.1 = ON, SW1.2 = OFF
2 speeds(Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds(Low, Medium, and High): SW1.1 = OFF, SW1.2 = OFF
- (2)SW1.4 – 2nd heating stage: ON = Enable, OFF = Disable
- (3)SW1.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with 1st stage cooling)
- (4)SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification
- (5)SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

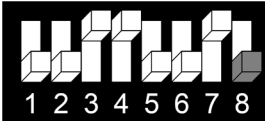
See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

Fan on/off: 110-230 Vac, 2.5A max.

Humidifier, PID valves: 0-10 Vdc, 0.5 mA Not isolated

Control – Fan on/off, Heat elements, Cool/Heat valves, Economizer: 110*230 Vac, 0.3A max

TMPL-24-H

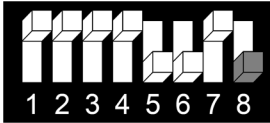
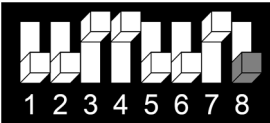
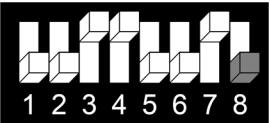
Outputs	Config. 41: 4-Pipe, Fan VFS, Humidifier, Reheat for Dehumidification	Config. 42: 4-Pipe, 1/2/3 Speeds fan(1), Cool valve PID Humidifier, Reheat for Dehumidification	Config. 43: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID Humidifier, Reheat for Dehumidification
11	X	Fan high	Fan high
12	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)
13	X	Fan low	Fan low
14	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)
15	Cool valve ⁽³⁾	X	Cool valve ⁽³⁾
16	Heat valve (1st stage heat)	Heat valve (1st stage heat)	X
A01	Humidifier	Cool valve PID ⁽³⁾	Heat valve PID (1st stage heat)
A02	Fan VFS	Humidifier	Humidifier
SW1			
SW2			

- (1)SW1.1, SW1.2 – Fan speeds: 1 speed (Low): SW1.1 = ON, SW1.2 = OFF
2 speeds(Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds(Low, Medium, and High): SW1.1 = OFF, SW1.2 = OFF
- (2)SW1.4 – 2nd heating stage: ON = Enable, OFF = Disable
- (3)SW1.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with 1st stage cooling)
- (4)SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification
- (5)SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

PID valves, Humidifier, Dehumidifier: 0-10VDC. 0.5mA Not isolated
Control - Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24VAC, 0.5A max.

TMPL-HM

Outputs	Config. 41: 4-Pipe, Fan VFS, Humidifier, Reheat for Dehumidification	Config. 42: 4-Pipe, 1/2/3 Speeds fan(1), Cool valve PID Humidifier, Reheat for Dehumidification	Config. 43: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID Humidifier, Reheat for Dehumidification
11	X	Fan high	Fan high
12	Economizer ⁽⁵⁾ (option – SW2.6 ON)	Fan medium (or Economizer ⁽⁵⁾)	Fan medium (or Economizer ⁽⁵⁾)
13	X	Fan low	Fan low
14	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)	Heat element ⁽²⁾ (2nd stage heat)
15	Cool valve ⁽³⁾	X	Cool valve ⁽³⁾
16	Heat valve (1st stage heat)	Heat valve (1st stage heat)	X
A01	Humidifier	Cool valve PID ⁽³⁾	Heat valve PID (1st stage heat)
A02	Fan VFS	Humidifier	Humidifier
SW1			
SW2			

- (1)SW1.1, SW1.2 – Fan speeds: 1 speed (Low): SW1.1 = ON, SW1.2 = OFF
2 speeds(Low and High): SW1.1 = OFF, SW1.2 = ON
3 speeds(Low, Medium, and High): SW1.1 = OFF, SW1.2 = OFF
- (2)SW1.4 – 2nd heating stage: ON = Enable, OFF = Disable
- (3)SW1.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with 1st stage cooling)
- (4)SW2.3 – Dehumidification: ON = Use dehumidifier
OFF = Use reheat for dehumidification
- (5)SW2.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing in [Wiring terminals and DIP switches](#) (page 24) for DIP switch locations.

Fan on/off: 110-230VAC, 2.5A max., Fan VFS, Humidifier, PID valves: 0-10VDC. 0.5mA Not isolatedControl -Heat elements, Cool/Heat valves, Economizer: 110-230VAC, 0.3A max.

Technician Settings

Enter Technician Settings mode:

1. Adjust the setpoint temperature to 10°C or 50°F.
2. Press and hold the  button for 10 seconds to enter Technician Settings mode. “P01” will appear on display.

View objects and make adjustments:

- Use the [Mode] button to step forward between different settings.
- Use the [Fan] button to step backward between different settings.
- Press the [On/Off] button to exit Technician Settings and return to normal display.
- If no button is pressed for 60 seconds, the thermostat will automatically exit Technician Settings and return to normal display.
- Use the ▲ or ▼ button to make adjustments when required.

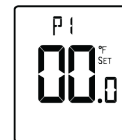
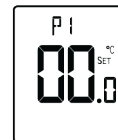
Technician Settings P1 to P3

P1 – Offset for temperature readings calibration

Range: -6...+6°C / -9...+9°F.

Default: 0°C / 0°F.

NOTE The offset influence both internal or external sensors.



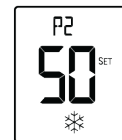
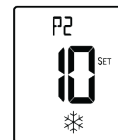
Offset for temperature calibration
(°C) (°F)

P2 – Setpoint limit for cooling

Range: 5...35°C / 41...95°F.

Default: 10°C / 50°F.

NOTE The thermostat stops cooling regardless of the user's setpoint



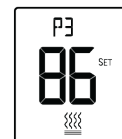
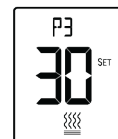
Setpoint limit for cooling
(°C) (°F)

P3 – Setpoint limit for heating

Range: 5...35°C / 41...95°F.

Default: 30°C / 86°F.

NOTE The thermostat stops heating regardless of the user's setpoint



Setpoint limit for heating
(°C) (°F)

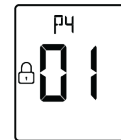
Technician Settings P4 to P7

P4 – Enable/Disable the option to lock the [Fan] button

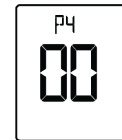
“01” [Fan] button can be locked

“00” [Fan] button cannot be locked

NOTE When enabled, press and hold the [Mode] buttons for 7 seconds to unlock or relock the buttons.



[Fan]
Can
be locked



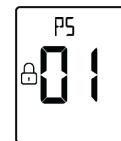
[Fan]
Cannot
be locked

P5 – Enable/Disable the option to lock the [Mode] button

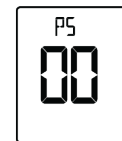
“01” [Mode] button can be locked

“00” [Mode] button cannot be locked

NOTE When enabled, press and hold the [Mode] for 7 seconds to unlock or relock the buttons.



[Mode]
Can
be locked



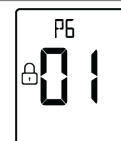
[Mode]
Cannot
be locked

P6 – Enable/Disable the option to lock the [On/Off] button

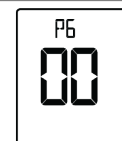
“01” [On/Off] button can be locked

“00” [On/Off] button cannot be locked

NOTE When enabled, press and hold the [Mode] for 7 seconds to unlock or relock the buttons.



[On/Off]
Can
be locked



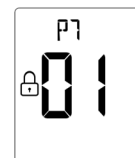
[On/Off]
Cannot
be locked

P7 – Enable/Disable the option to lock the ▲ or ▼ button (SET)

“01” ▲ or ▼ button can be locked

“00” ▲ or ▼ button cannot be locked

NOTE When enabled, press and hold the [Mode] for 7 seconds to unlock or relock the buttons.



▲ or ▼
Can
be locked



▲ or ▼
Cannot
be locked

P4-P7 NOTE

When the option to lock one or more buttons is enabled, these buttons are automatically locked when leaving technician settings and returning to normal display. In normal display, press and hold the [Mode] button for 7 seconds to unlock/relock these buttons.

Technician Settings P8 to P10

P8 – Functionality of T1 terminals

“00” - T1 terminals are not in use

“01” - External sensor

“02” - T3 Soft start in heat sensor (FC) * or
De-icing in cool (AC) **

“03” - Door switch

“04” - Key tag

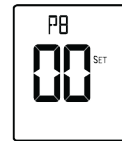
“05” - T Economizer

(DIP switch SW2.6 must be ON)

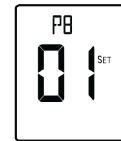
* In heating mode, the fan does not start before there is hot water in the coil.

NOTE To view T3 on the BACnet Thermostat, see [Technician Settings P84](#) (page 81).

** Allow de-icing operation of indoor coil in cooling.



T1 terminals
Not in use



T1 sensor
(External
sensor)



T3 Soft start in
heat sensor (FC)
or De-icing in
cool sensor (AC)



Door switch



Key tag



T Economizer

P09 – Functionality of IN1,0 terminals

“00” - IN1,0 terminals are not in use

“01” - T2 (Change over sensor) (FC) * or De-icing in heat (AC)

“02” - T3 (Soft start in heat sensor) (FC) ** or De-icing in cool (AC)

“03” - Window contact - Remote On/Off switch

“04” - Window contact - Remote Economy switch

“05” - External Passive Infrared detector

* In 2-Pipe system, T2 senses the water temperature in the pipe in order to select/allow effective system mode.

NOTE To view T2 on the BACnet Thermostat, see [Technician Settings P83](#) (page 81).

** Where T1 terminals are used for external sensor, the IN1,0 terminals can be used for T3 sensor.

NOTE To view T3 on the BACnet Thermostat, see [Technician Settings P84](#) (page 81).

*** External PIR – only if internal PIR is disabled (see [Technician Settings P186](#) (page 86)).



“IN1,0”
terminals
Not in use



*T2 change over
sensor (FC) /
De-icing in heat
(AC)



**T3 Soft start in
heat sensor (FC)
or De-icing in
cool sensor (AC)



Window contact
Remote
On/Off



Window contact
Remote
Economy

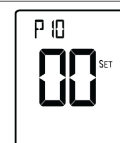


***External
PIR sensor

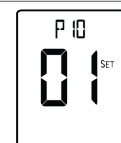
P10 – Window contact (terminals IN1,0) polarity

“01” - Normally open

“00” - Normally closed



Win. contact
Normally close



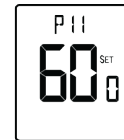
Win. contact
Normally open

Technician Settings P11 to P15

P11 – Window contact delay time

Range: 0...999 seconds.

Default: 600 seconds.

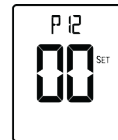


Window contact
delay time (sec.)

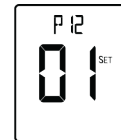
P12 – Door switch (terminals T1,0) polarity

“01” - Normally open

“00” - Normally closed



Door switch
Normally closed

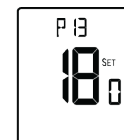


Door switch
Normally open

P13 – Door switch delay time

Range: 0...999 seconds.

Default: 180 seconds.

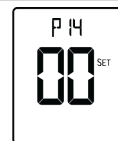


Door switch
delay time (sec.)

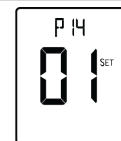
P14 – Enable/Disable Auto change over mode

“00” - Disable Auto change over mode

“01” - Enable Auto change over mode



Disable
Auto mode



Enable
Auto mode

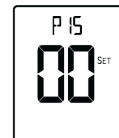
P15 – Motion sensor logic (PIR)

“00” - Thermostat turns off when unoccupied and back on when re-occupied.

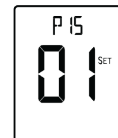
“01” - Thermostat turns off when unoccupied and remains off when re-occupied.

“02” - Thermostat uses economy setpoints when occupied.

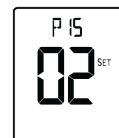
“03” - Unoccupancy – Dehumidification logic (only available with dehumidification configuration – see DIP switch settings)



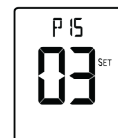
Unocc. – Off
Re-occ. - On



Unocc. – Off
Re-occ. - Off



Economy
setpoints



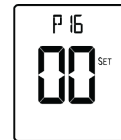
Dehumidification
logic

Technician Settings P16 to P25

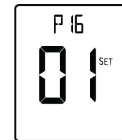
P16 – Enable/Disable Motion sensor

“00” - Disable

“01” - Enable



Disable
occ. sensor

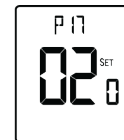


Enable
occ. sensor

P17 – PIR (Motion sensor) delay time before switching to unoccupied mode (ON delay)

Range: 0...900 minutes

Default: 20 minutes



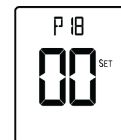
PIR ON delay
(minutes)

P18 – Door switch or key tag configuration

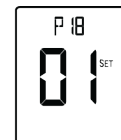
“00” - Switch On/Off by door switch or key tag

“01” - Changing the setpoint temperature

“02” - Switching fan speed to Low



Switch
On or Off



Change
setpoints

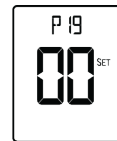


Switch to
fan low

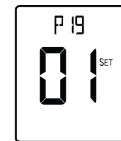
P19 – PIR (Motion sensor) polarity

“00” - Normally open

“01” - Normally closed



PIR
Normally open



PIR
Normally closed

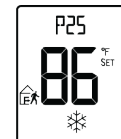
P25 – Economy setpoint for cooling

Range: 5...35 °C / 41...95 °F

Default: 30 °C / 86 °F



EC setpoint in cooling
(°C)



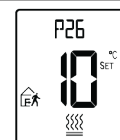
(°F)

Technician Settings P26 to P30

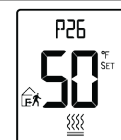
P26 – Economy setpoint for heating

Range: 5...35 °C / 41...95 °F

Default: 10 °C / 50 °F



EC setpoint in heating
(°C)

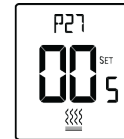


(°F)

P27 – On-delay time on-delay between heating stages

Range: 0....600 seconds

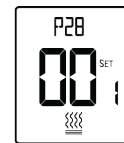
Default: 5 seconds

**On delay
heating stages**

P28 – Off-delay time between heating stages

Range: 0....600 seconds

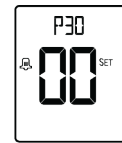
Default: 1 second

**Off delay
heating stages**

P30 – Beeper ON or OFF

“01” - Beeper ON

“00” - Beeper OFF

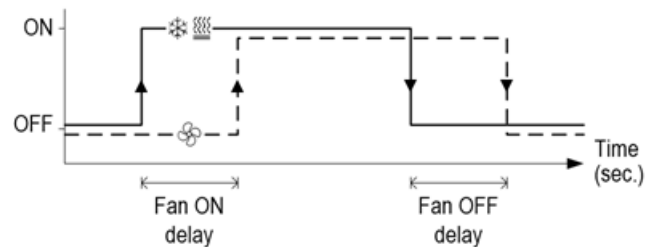
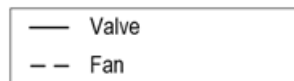
**Beeper
ON****Beeper
OFF**

Technician Settings P31 to P34

P31 – P34

Fan on/off delay

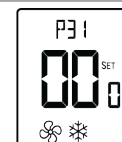
with fan on demand (auto fan) active.



P31 – Fan ON delay in cooling (FC only)

Range: 0...120 seconds

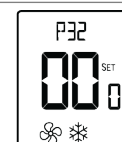
Default: 0 seconds (no delay)

**Fan ON delay
in cooling
(seconds)**

P32 – Fan OFF delay in cooling

Range: 0...120 seconds

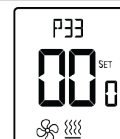
Default: 0 seconds (no delay)

**Fan OFF delay
in cooling
(seconds)**

P33 – Fan ON delay in heating (FC only)

Range: 0...120 seconds

Default: 0 seconds (no delay)



Fan ON delay
in heating
(seconds)

P34 – Fan OFF delay in heating

Range: 0...120 seconds

Default: 30 seconds



Fan OFF delay
in heating
(seconds)

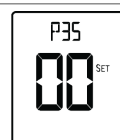
Technician Settings P35 to P42

P35 – Enable/Disable Freeze protection

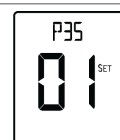
“00” - Disable Freeze protection

“01” - Enable Freeze protection

NOTE If enabled, freeze protection starts when the thermostat is either ON or OFF and regardless of the current system mode.



Disable freeze
protection



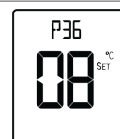
Enable freeze
protection

P36 – Freeze protection cut-in setpoint

Range: 8...15 °C / 46...59 °F

Default: 8 °C / 46 °F

The room ambient temperature that triggers Heating ON.



Freeze protection cut-in setpoint
(°C)



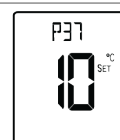
(°F)

P37 – Freeze protection cut-out setpoint

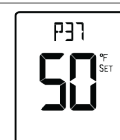
Range: 10...17 °C / 50...63 °F

Default: 10 °C / 50 °F

The room ambient temperature that switches the Heating back OFF.



Freeze protection cut-out setpoint
(°C)

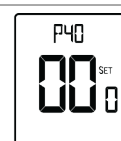


(°F)

P40 – View filter counter (hours) – Read only

Range: 0...999 hours

The filter counter is related to Fan running time.

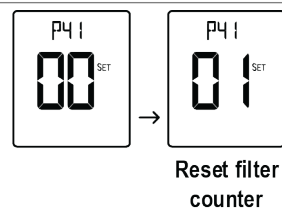


View filter
Counter (hours)

P41 – Reset filter time

Press the ▲ button to reset the filter counter.

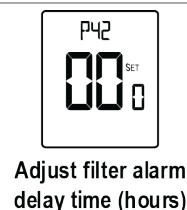
The display changes from “00” to “01” and back to “00”.



P42 – Adjust filter alarm delay time counter (hours)

Range: 0...999 hours

Default: 0 hours (0 = Disable)

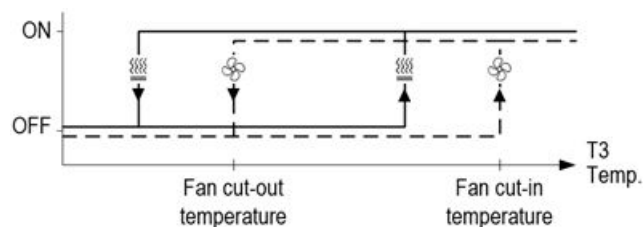
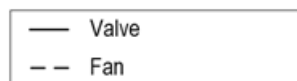


Technician Settings P43 to P44

P43 – P44

Soft start in heat

with fan on demand (auto fan) active.



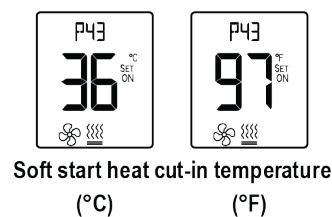
P43 – Soft start in heat – cut-in temperature (FC only)

The fan does not start before the temperature on T3 sensor reaches the cut-in temperature.

See [Technician Settings P08/P09](#) (page 69).

Range: 14...37 °C / 57...99 °F

Default: 36 °C / 97 °F



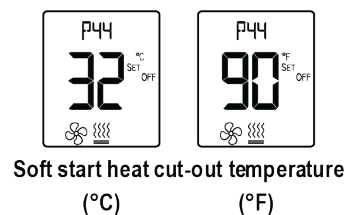
P44 – Soft start in heat – cut-out temperature (FC only)

The fan stops if the temperature on T3 sensor drops below the cut-out temperature.

See [Technician Settings P08/P09](#) (page 69).

Range: 12...35 °C / 54...95 °F

Default: 32 °C / 90 °F



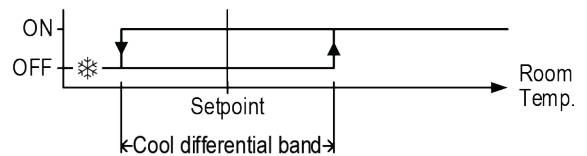
Technician Settings P45 to P46

P45 – P46

Cool differential band / offset

(with cool differential band offset = 0)

— Compressor / Valve

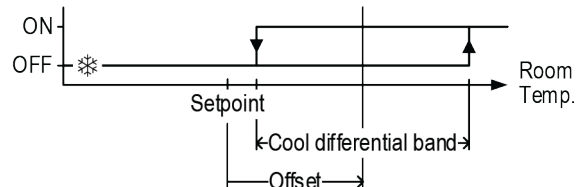


P45 – P46

Cool differential band / offset

(with cool differential band offset ≠ 0)

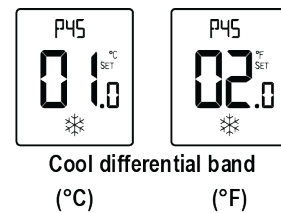
— Compressor / Valve



P45 – Cool differential band

Range: 0.5...5°C / 1...10°F

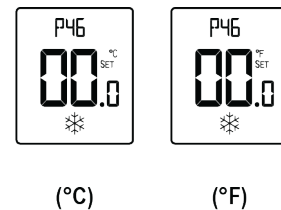
Default: 1°C / 2°F



P46 – Cool differential band offset

Range: -5...+5°C / -9...+9°F

Default: 0°C / 0°F



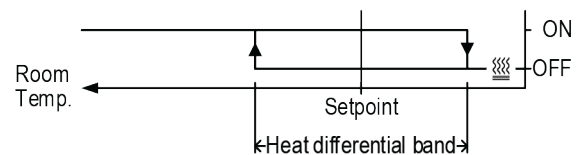
Technician Settings P47 to P48

P47-48

Heat differential band / offset

(with heat differential band offset = 0)

— Compressor / Valve

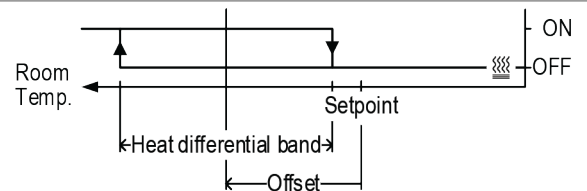


P47-48

Heat differential band / offset

(with heat differential band offset ≠ 0)

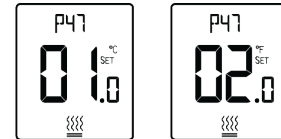
— Compressor / Valve



P47 – Heat differential band

Range: 0.5...5 °C / 1...10 °F

Default: 1 °C / 2 °F



Heat differential band

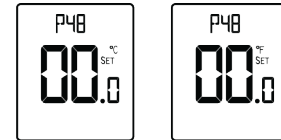
(°C)

(°F)

P48 – Heat differential band offset

Range: -5...+5 °C / -9...+9 °F

Default: 0 °C / 0 °F



Heat differential band offset

(°C)

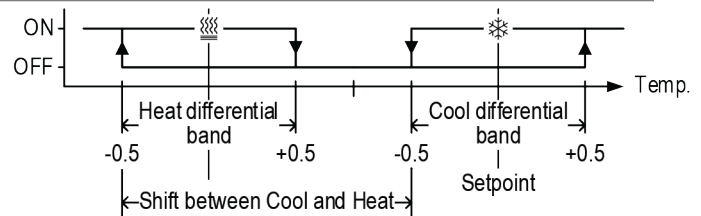
(°F)

Technician Settings P49 to P51

P49

Shift between Cool and Heat
in Auto change over mode
(from cooling to heating)

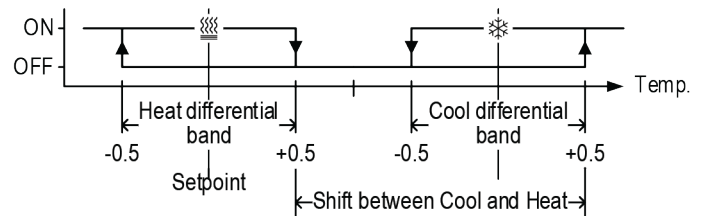
— Compressor / Valve



P49

Shift between Cool and Heat
in Auto change over mode
(from heating to cooling)

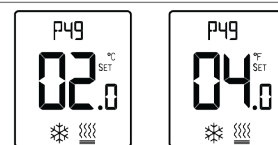
— Compressor / Valve



P49 – Shift between Cool and Heat in Auto change over mode

Range: 0...10 °C / 0...20 °F

Default: 2 °C / 4 °F



Shift between Cool & Heat in Auto mode

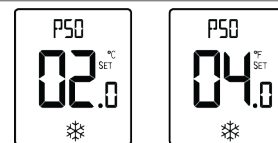
(°C)

(°F)

P50 – Shift between Cooling stages (AC only)

Range: 0...10 °C / 0...20 °F

Default: 2 °C / 4 °F



Shift between cooling stages

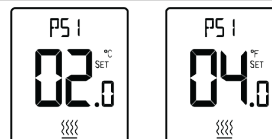
(°C)

(°F)

P51 – Shift between Heating stages

Range: 0...49 °C / 0...98 °F

Default: 2 °C / 4 °F

**Shift between heating stages**
(°C) (°F)

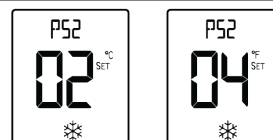
Technician Settings P52 to P57

P52 – Cool valve proportional band (FC only)

Range: 2...10 °C / 4...20 °F

Default: 2 °C / 4 °F

0-10V Valve opening from fully closed to fully open.

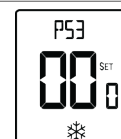
**Cool valve proportional band**
(°C) (°F)

P53 – Cool proportional low limit (FC only)

Range: 0...100%

Default: 0%

Minimum valve opening.

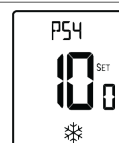
**Cool prop.
low limit (%)**

P54 – Cool proportional high limit (FC only)

Range: 0...100%

Default: 100%

Maximum valve opening.

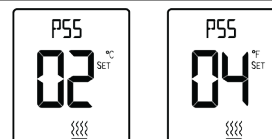
**Cool prop.
high limit (%)**

P55 – Heat valve proportional band (FC only)

Range: 2...10 °C / 4...20 °F

Default: 2 °C / 4 °F

0-10V Valve opening from fully closed to fully open.

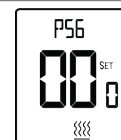
**Cool valve proportional band**
(°C) (°F)

P56 – Heat proportional low limit (FC only)

Range: 0...100%

Default: 0%

Minimum valve opening.

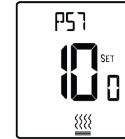
**Heat prop.
low limit (%)**

P57 – Heat proportional high limit (FC only)

Range: 0...100%

Default: 100%

Maximum valve opening.



Heat prop.
high limit (%)

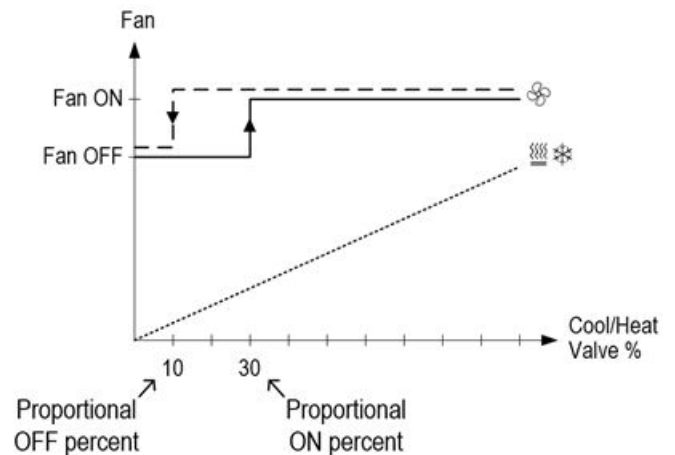
Technician Settings P60 to P64

P60

Fan turns ON when the Cool or Heat valve reaches the “Proportional ON percent”

P61

Fan turns OFF when the Cool or Heat valve drops below the “Proportional OFF percent”



P60 – Proportional ON percent (FC only)

Range: 0...30%

Default: 30%



Proportional
ON percent (%)

P61 – Proportional OFF percent (FC only)

Range: 0...100%

Default: 100%



Proportional
OFF percent (%)

P63 – Time on-delay between cooling stages (AC only)

Range: 0...600 seconds

Default: 5 seconds



On Delay
cooling stages

P64 – Time off-delay between cooling stages (AC only)

Range: 0...600 seconds

Default: 1 seconds



**Off Delay
cooling stages**

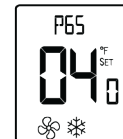
Technician Settings P65 to P70

P65 – Fan VFS proportional band in cooling

Range: 2...10 °C / 4...20 °F

Default: 2 °C / 4 °F

0-10V fan speed from off closed to fully running.



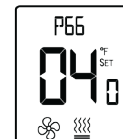
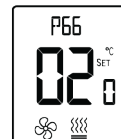
**VFS Proportional band in cooling
(°C) (°F)**

P66 – Fan VFS proportional band in heating

Range: 2...10 °C / 4...20 °F

Default: 2 °C / 4 °F

0-10V fan speed from off closed to fully running.



**VFS Proportional band in heating
(°C) (°F)**

P67 – Fan VFS Low speed percent in cooling

Range: 0...30%

Default: 20%



**VFS Low %
in cooling**

P68 – Fan VFS Medium speed percent in cooling

Range: 30...60%

Default: 50%

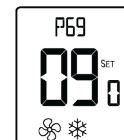


**VFS Med %
in cooling**

P69 – Fan VFS High speed percent in cooling

Range: 60...100%

Default: 90%

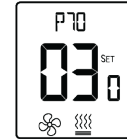


**VFS High %
in cooling**

P70 – Fan VFS Low speed percent in heating

Range: 0...30%

Default: 30%



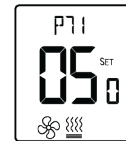
VFS Low %
in heating

Technician Settings P71 to P75

P71 – Fan VFS Medium speed percent in heating

Range: 30...60%

Default: 50%

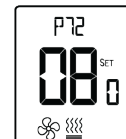


VFS Med %
in heating

P72 – Fan VFS High speed percent in heating

Range: 60...100%

Default: 80%



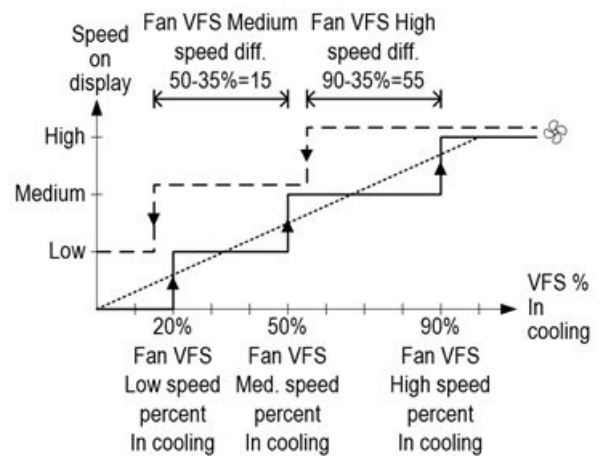
VFS High %
in heating

P74

VFS Medium speed differential (display from medium to low)

P75

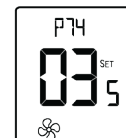
VFS High speed differential (display from high to medium)



P74 – VFS Medium speed differential

Range: 10...50%

Default: 35

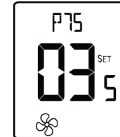


VFS Med speed
differential

P75 – VFS High speed differential

Range: 10...50%

Default: 35



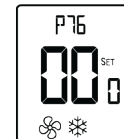
VFS High speed differential

Technician Settings P76 to P79

P76 – Fan VFS Low limit in cooling

Range: 0...100%

Default: 0%

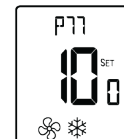


VFS low limit in cooling

P77 – Fan VFS High limit in cooling

Range: 0...100%

Default: 100%

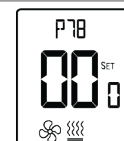


VFS high limit in cooling

P78 – Fan VFS Low limit in heating

Range: 0...100%

Default: 0%

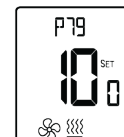


VFS low limit in heating

P79 – Fan VFS High limit in heating

Range: 0...100%

Default: 100%



VFS high limit in heating

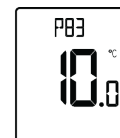
Technician Settings P83 to P88

P83 – View T2 temperature sensor readings

NOTE If T2 is not connected, 0.0 appears.



T2 Sensor
Not connected



T2 Sensor
readings (°C)

P84 – View T3 temperature sensor readings

NOTE If T3 is not connected, 0.0 appears.



T3 Sensor
Not connected



T3 Sensor
readings (°C/°F)

P85 – De-ice in cool – cut-in temperature (AC only)

Range: -9.5...+8°C / 15...46°F

Default: 0°C / 32°F

The indoor unit coil temperature in which de-icing starts.



De-ice in cool cut-in temperature
(°C)



(°F)

P86 – De-ice in cool – cut-out temperature (AC only)

Range: 2...20°C / 36...68°F

Default: 8°C / 46°F

The indoor unit coil temperature in which de-icing stops.



De-ice in cool cut-out temperature
(°C)



(°F)

P87 – De-ice in heat time (AC only)

Range: 2...7 Minutes

Default: 5 Minutes

The length of de-icing procedure.



De-ice in heat
time

P88 – De-ice in heat break time (AC only)

Range: 10... 30 Minutes

Default: 25 Minutes

The time interval between de-icing cycles.



De-ice in heat
break time

Technician Settings P89 to P100

P89 – De-ice in heat – cut-in temperature (AC only)

Range: -9.5...+8°C / 15...46°F

Default: 0°C / 32°F

The outdoor unit coil temperature at which de-icing starts.



De-ice in heat cut-in temperature
(°C)



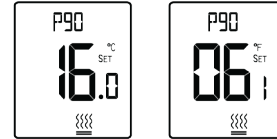
(°F)

P90 – De-ice in heat – cut-out temperature (AC only)

Range: 2...20 °C / 35...68 °F

Default: 16 °C / 61 °F

The outdoor unit coil temperature at which de-icing stops.



De-ice in heat cut-out temperature
(°C) (°F)

P91 – Compressor delay (AC only)

Range: 0...360 Seconds

Default: 240 Seconds

DIP Switch SW1.5 must be in “OFF” position – compressor delay enabled!

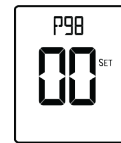


Compressor
delay

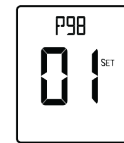
P98 – Display setpoint only (hide room temperature)

“00” - Display both setpoint and room temperatures

“01” - Display only the setpoint temperature



Show room
temperature

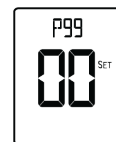


Hide room
temperature

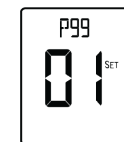
P99 – One or Two setpoints (for cool and for heat)

“00” - One setpoint for cooling and heating

“01” - Two setpoints, one for cool and one for heat



One
setpoint

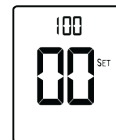


Two
setpoints

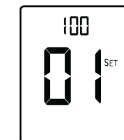
P100 – Enable screen dimming

“00” - Disable dimming

“01” - Enable dimming



Disable screen
dimming



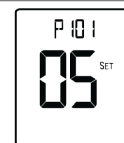
Enable screen
dimming

Technician Settings P101 to P109

P101 – Screen dimming delay

Range: 0...99 minutes

Default: 5 minutes

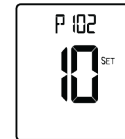


Screen dimming
delay

P102 – Dimming brightness

Range: 0, 1, 5, 10, 20, 30...90%

Default: 10%

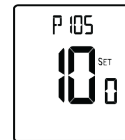


**Dimming
brightness (%)**

P105 – Screen brightness when ON

Range: 50...100%

Default: 100%



**Screen brightness
when ON (%)**

P107 – Weekly program configuration

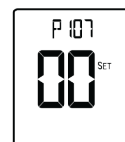
“00” - Disable weekly program (program parameters will be lost)

“01” - 7 days with the same program

“02” - One program for Monday to Friday and another program for Saturday and Sunday

“03” - One program for Monday to Friday, one for Saturday, and another for Sunday

“04” - 7 days with the different program for each day

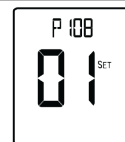


**Weekly program
configuration**

P108 – Weekly program - events per day

“00” - Two different events per day

“01” - Four different events per day

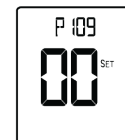


**Weekly program
events per day**

P109 – Weekly program event configuration

“00” - US Program: Event start time, Mode, Fan speed, Setpoints (one or two)

“01” - Eu program: Event start time, Stop time



**Weekly program
event configuration**

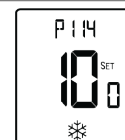
Technician Settings P114 to P119

TBPL-24-H and TBPL-H

P114 – Cool PID Kp (FC only)

Range: 0...100%

Default: 100%

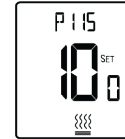


**Cool PID
Kp**

P115 – Heat PID Kp (FC only)

Range: 0...100%

Default: 100%

**Heat PID
Kp**

P116 – Cool PID Ki (FC only)

Range: 0...100%

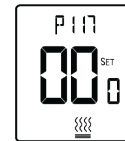
Default: 0%

**Cool PID
Ki**

P117 – Heat PID Ki (FC only)

Range: 0...100%

Default: 0%

**Heat PID
Ki**

P118 – Cool PID Kd (FC only)

Range: 0...100%

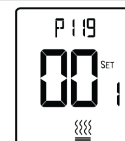
Default: 1%

**Cool PID
Kd**

P119 – Heat PID Kd (FC only)

Range: 0...100%

Default: 1%

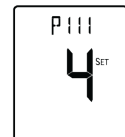
**Heat PID
Kd**

TBPL-24-HM and TBPL-HM

P111 – Motion sensor sensitivity (PIR)

Range: 1...5 (1 – Less sensitive, 5 – More sensitive)

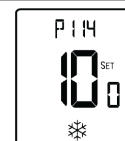
Default: 4

**Motion sensor
sensitivity**

P114 – Cool PID Kp (FC only)

Range: 0...100%

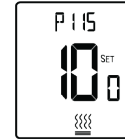
Default: 100%

**Cool PID
Kp**

P115 – Heat PID Kp (FC only)

Range: 0...100%

Default: 100%



Heat PID
Kp

P116 – Cool PID Ki (FC only)

Range: 0...100%

Default: 0%

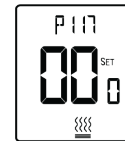


Cool PID
Ki

P117 – Heat PID Ki (FC only)

Range: 0...100%

Default: 0%



Heat PID
Ki

P118 – Cool PID Kd (FC only)

Range: 0...100%

Default: 1%

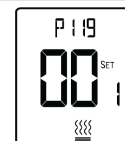


Cool PID
Kd

P119 – Heat PID Kd (FC only)

Range: 0...100%

Default: 1%



Heat PID
Kd

Technician Settings P122 to P188

P122 – Cool Proportional output threshold time (seconds) (FC only)

Range: 0...100 seconds

Default: 60 seconds

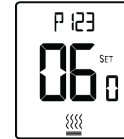


Cool proportional
threshold time

P123 – Heat Proportional output threshold time (seconds) (FC Only)

Range: 0...100 seconds

Default: 60 seconds

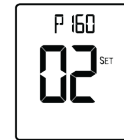


Heat proportional
threshold time

P160 – Minimum compressor ON time (AC only)

Range: 0...20 minutes

Default: 2 minutes



Minimum compressor
ON time

P161 – Minimum compressor OFF time (AC only)

Range: 0...20 minutes

Default: 13 minutes

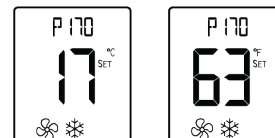


Minimum compressor
OFF time

P170 – Economizer low limit temperature

Range: 9...27°C / 48...80°F

Default: 17°C / 63°F

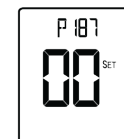


Economizer low
limit temperature
(°C) (°F)

P187 – Display or hide humidity reading

“00” - Do not display humidity reading

“01” - Display humidity reading

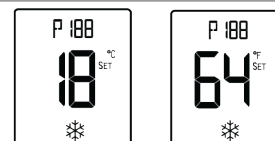


Display or hide
humidity readings

P188 – Room temperature limit for disabling dehumidification in unoccupied mode

Range: 10...30°C / 50...85°F

Default: 18°C / 64°F



Temp. for disabling dehum.
In unocc mode
(°C) (°F)

Technician Settings P189 to P195

P189 – Dehumidification cycle in unoccupied mode

Range: 0...600 minutes

Default: 20 minutes



Dehumidification
cycle in unocc. mode

P190 – Dehumidification break time in unoccupied mode

Range: 0...900 minutes

Default: 40 minutes

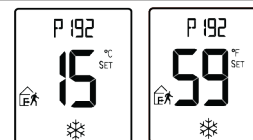


Dehumidification
break in unocc. mode

P192 – Temperature setpoint for reheat in unoccupied mode

Range: 10...30°C / 50...86°F

Default: 15°C / 59°F

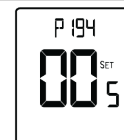


Setpoint for reheat
in unocc. mode
(°C) (°F)

P194 – Humidity differential band

Range: 0...10 %RH

Default: 5%RH



Humidity differential
band

P195 – Humidity sensor reading offset

Range: -9...+9 %RH

Default: 0 %RH



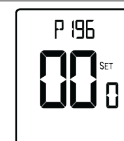
Humidity
offset

Technician Settings P196 to P200

P196 – Dead zone between humidification and dehumidification

Range: 0...100 %RH

Default: 0 %RH



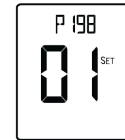
Dead zone
Hum./Dehum.

P197 – Humidity setpoint

Range: 20...100 %RH

Default: 45 %RH

**Humidity
setpoint**

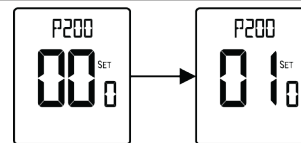
P198 – Not in use**Communication
protocol indication**

P200 – Restore defaults

Press the ▲ button. The display changes from “00” to “01”.

Press the [On/Off] button to restore default settings.

The thermostat turns Off.

**Restore defaults**

Press the [On/Off] button or wait 60 seconds to return to normal display.

Appendix

Alarms and indications



T1 Internal sensor or T1 External sensor fault



De-icer in cool indication



De-icer in heat indication



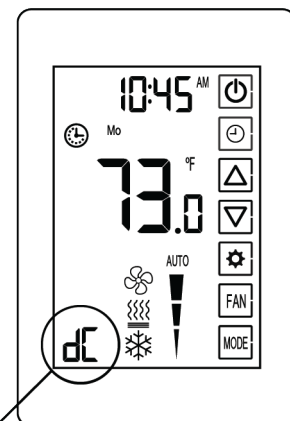
Overheat in heat

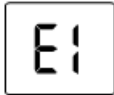


Overheat in cool



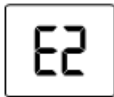
Teconomizer sensor fault

**Alarms and
Indications**



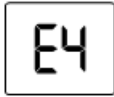
Economy by:

- Window contact - Remote on/off switch
- Window contact - Remote economy switch



Economy by:

- External PIR
- Communication



Economy by door switch



Economy by key-tag

Object List for Modbus Register: TMPL Series

TMPL-24-H AC

MODBUS RTU, Address Slave 1 - 247, Baud rate: 38400, n, 8, 1

All Registers are signed Integer 16 bit.

Supported Commands

0x03 = Read Holding Registers (for all).

0x06 = Preset Single Register (For RW registers only).

0x2B 0x0E 0x01 (read Basic Device Identification)

The MODBUS Register No. X is addressed in the MODBUS Register Address (PDU) X - 1.

ObjectId	Object Name / Description	Type	M/O	Category
0x00	VendorName	ASCII String	Mandatory	Basic
0x01	ProductCode	ASCII String	Mandatory	Basic
0x03	MajorMinorRevision	ASCII String	Mandatory	Basic

VendorName = Carrier®

ProductCode = 244302Vxx

MajorMinorRevision = 244302Vxx.xxxx

When the last column contains a marker *:

- If the register ViewFloatValue = 0, the marked Modbus register contains the integer part of the internal real value.
- If the register ViewFloatValue = 1, then the marked Modbus register contains the internal real value multiplied by 10 and rounded to integer Modbus register.
- Example: "256" is representation of "25.6" or "25.61" or "25.647" etc.

TMPL-24-H AC Object List

N°	Address	Value	Object Name	Default	Access	
1	0 [0x00]	-20...100 °C (-4...212 °F)	T1_Ext_TemperatureSensor	-	RW	*
2	1 [0x01]	-20...100 °C (-4...212 °F)	IN1_AIN	-	RW	*
3	2 [0x02]	0...100%	AO_Humidifier	-	RW	
4	3 [0x03]	0...100%	AO_DeHumidifier	-	RW	
5	4 [0x04]	0...100%	AO_Fan	-	RW	
6	5 [0x05]	5...35 °C (41...95 °F)	SetPoint_SetPointCool	23 °C (73 °F)	RW	*
7	6 [0x06]	5...35 °C (41...95 °F)	SetPointHeat	22 °C (72 °F)	RW	*
8	7 [0x07]	5...35 °C (41...95 °F)	SetPointEffective	-	R	*
9	8 [0x08]	0...100 °C (32...212 °F)	ReturnAirSensorEffective	-	R	*
10	9 [0x09]	0 - Fan Only 1 - Cool 2 - Heat 3 - Auto	Mode	1 - Cool	RW	
11	10 [0x0A]	0 - Fan Only 1 - Cool 2 - Heat 4 - Off	ModeEffective	-	R	
12	11 [0x0B]	0 - Auto 1 - Low 2 - Medium 3 - High	FanSpeed	0 - Auto	RW	
13	12 [0x0C]	1 - Low 2 - Medium 3 - High 4 - Off	FanEffective	-	R	
14	13 [0x0D]	-5...5 °C (-9...9 °F)	ReturnAirSensorCalibration	0 °C (0 °F)	RW	*
15	14 [0x0E]	5...35 °C (41...95 °F)	SetPointLimitCool	10 °C (50 °F)	RW	
16	15 [0x0F]	5...35 °C (41...95 °F)	SetPointLimitHeat	30 °C (86 °F)	RW	
17	16 [0x10]	5...35 °C (41...95 °F)	EconomySetPointInCool	30 °C (86 °F)	RW	
18	17 [0x11]	5...35 °C (41...95 °F)	EconomySetPointInHeat	10 °C (50 °F)	RW	
19	18 [0x12]	0 - Unoccupied, 1 - Occupied	OccupancyEffectiveHVAC	-	R	

N°	Address	Value	Object Name	Default	Access	
20	19 [0x13]	0 – Occ. sensor logic not used 1 – Occ. sensor logic controls HVAC	OccupancySensorAuthority	0 - Occ. sensor logic not used	RW	
21	20 [0x14]	0 - On/Off logic 1 - Start/Stop logic 2 - Change setpoint logic 3 – Unocc. Dehumidified logic	OccupancySensorFunction	2 - Change setpoint logic	RW	
22	21 [0x15]	0...900 minutes	OccupancySensorHVACDelayTime	20 minutes	RW	
23	22 [0x16]	0 - T - stat turns off when unocc. 1 - T - stat uses economy 2 - Fan Low keeps running	DoorSwitchOrKeyTag_Function	1 - T - stat uses economy	RW	
24	23 [0x17]	0...999 seconds	TimeSwitchingToOccupiedMode	1 seconds	RW	
25	24 [0x18]	0 - Not used 1 - External sensor (T1) 2 - Soft start sensor (T3) 3 - Door switch - Door switch (Hotel configuration of occupancy logic is active) 4 - Key tag 5 - T - Economizer	T1_Function	0 - Not used	RW	
26	25 [0x19]	0 - Not used 1 - Auto changeover sensor (T2) 2 - Soft start sensor (T3) 3 - window contact (remote switch On/Off) 4 - window contact (remote switch EC On/EC Off > change SetpointEffective in according to registers EconomySetPointInCool, EconomySetPointInHeat) 5 - Auxiliary Occupancy sensor.	IN1_Function	0 - Not used	RW	
27	26 [0x1A]	0...999 seconds	WindowContactDelayTime	600 seconds	RW	
28	27 [0x1B]	0...999 seconds	DoorSwitchDelayTime	180 seconds	RW	

N°	Address	Value	Object Name	Default	Access	
29	28 [0x1C]	-9.9...99 °C (-9.9...210 °F)	T2_Effective	-	R	*
30	29 [0x1D]	-9.9...99 °C (-9.9...210 °F)	T3_Effective	-	R	*
31	30 [0x1E]	0...99 °C (32...210 °F)	TEconomizerEffective	99 °C (210 °F)	RW	*
32	31 [0x1F]	0...120 seconds	CoolFanOffDelay	0 seconds	RW	
33	32 [0x20]	0...120 seconds	HeatFanOffDelay	30 seconds	RW	
34	33 [0x21]	8...15 °C (46...59 °F)	FreezeProtectionCutInSetpoint	8 °C (46 °F)	RW	
35	34 [0x22]	10...17 °C (50...63 °F)	FreezeProtectionCutOutSetpoint	10 °C (50 °F)	RW	
36	35 [0x23]	0...999 hour	FilterCounter	-	R	
37	36 [0x24]	0...999 hour	FilterAlarmTimeDelay	0 hour	RW	
38	37 [0x25]	0.5...5 °C (1...9 °F)	CoolDifferentialBand	1 °C (2 °F)	RW	*
39	38 [0x26]	- 5...5 °C (- 9...9 °F)	CoolDifferentialBandOffset	0 °C (0 °F)	RW	*
40	39 [0x27]	0.5...20 °C (1...36 °F)	HeatDifferentialBand	1 °C (2 °F)	RW	*
41	40 [0x28]	- 5...5 °C (- 9...9 °F)	HeatDifferentialBandOffset	0 °C (0 °F)	RW	*
42	41 [0x29]	0...10 °C (0...18 °F)	ShiftBetweenCoolAndHeat	2 °C (4 °F)	RW	*
43	42 [0x2A]	0...10 °C (0...18 °F)	ShiftBetweenCoolStages	2 °C (4 °F)	RW	*
44	43 [0x2B]	0...49 °C (0...88 °F)	ShiftBetweenHeatStages	2 °C (4 °F)	RW	*
45	44 [0x2C]	0...600 seconds	TimeDelayOnNextCoolStage	5 seconds	RW	
46	45 [0x2D]	0...600 seconds	TimeDelayOnNextHeatStage	5 seconds	RW	
47	46 [0x2E]	0...600 seconds	TimeDelayOffNextCoolStage	1 second	RW	

N°	Address	Value	Object Name	Default	Access	
48	47 [0x2F]	0...600 seconds	TimeDelayOffNextHeatStage	1 second	RW	
49	48 [0x30]	0...360 seconds	CompressorStandbyDelay	240 seconds	RW	
50	49 [0x31]	-9.5...8 °C (15...46 °F)	DeiceCoolCutInTemperature	0 °C (32 °F)	RW	*
51	50 [0x32]	2...20 °C (36...68 °F)	DeiceCoolCutOutTemperature	8 °C (46 °F)	RW	*
52	51 [0x33]	120...420 seconds	DeiceHeatTime	300 seconds	RW	
53	52 [0x34]	600...1800 seconds	DeiceHeatBreakTime	1500 seconds	RW	
54	53 [0x35]	- 9.5...8 °C (15...46 °F)	DeiceHeatCutInTemperature	0 °C (32 °F)	RW	*
55	54 [0x36]	2...20 °C (35...68 °F)	DeiceHeatCutOutTemperature	16 °C (61 °F)	RW	*
56	55 [0x37]	0...99 minutes	BackLightDimTime	5 minutes	RW	
57	56 [0x38]	0...90%	BackLightDimValue	10%	RW	
58	57 [0x39]	50...100%	BackLightBrightness	-	R	
59	58 [0x3A]	1...10 °C (2...18 °F)	CoolVFSProportionalBand	2 °C (4 °F)	RW	*
60	59 [0x3B]	1...10 °C (2...18 °F)	HeatVFSProportionalBand	2 °C (4 °F)	RW	*
61	60 [0x3C]	0...30%	CoolVFSLowSpeedPercent	20%	RW	
62	61 [0x3D]	30...60%	CoolVFSMediumSpeedPercent	50%	RW	
63	62 [0x3E]	60...100%	CoolVFShighSpeedPercent	90%	RW	
64	63 [0x3F]	0...30%	HeatVFSLowSpeedPercent	30%	RW	
65	64 [0x40]	30...60%	HeatVFSMediumSpeedPercent	50%	RW	
66	65 [0x41]	60...100%	HeatVFShighSpeedPercent	80%	RW	

N°	Address	Value	Object Name	Default	Access	
67	66 [0x42]	10...50%	VFSMediumSpeedDiff	35%	RW	
68	67 [0x43]	10...50%	VFSHighSpeedDiff	35%	RW	
69	68 [0x44]	0...100%	CoolVFSLowLimit	0%	RW	
70	69 [0x45]	0...100%	CoolVFShighLimit	100%	RW	
71	70 [0x46]	0...100%	HeatVFSLowLimit	0%	RW	
72	71 [0x47]	0...100%	HeatVFShighLimit	100%	RW	
73	72 [0x48]	0...100%	Humidity_Value	-	R	*
74	73 [0x49]	- 9...9%	Humidity_Offset	0%	RW	
75	74 [0x4A]	20...100%	HumiditySetPoint	45%	RW	
76	75 [0x4B]	0...100%	HumidityDeadZone	0%	RW	
77	76 [0x4C]	2...20%	HumidityDifferentialBand	5%	RW	
78	77 [0x4D]	10...30 °C (50...86 °F)	RoomTemperatureDisableHumidity	18 °C (64 °F)	RW	
79	78 [0x4E]	0...600 minutes	DehumidityCycle	20 minutes	RW	
80	79 [0x4F]	0...900 minutes	DehumidityBreakTime	40 minutes	RW	
81	80 [0x50]	10...30 °C (50...86 °F)	DehumiditySetPointInCool	15 °C (59 °F)	RW	*
82	81 [0x51]	0...20 minutes	MinimumTimeCompressorOn	2 minutes	RW	
83	82 [0x52]	0...20 minutes	MinimumTimeCompressorOff	13 minutes	RW	
84	83 [0x53]	9...27 °C (48...81 °F)	EconomizerOA_LowLimitTemp	17 °C (63 °F)	RW	*
85	84 [0x54]	1 - On, 0 - Off	S1_1_FanSpeeds	-	R	
86	85 [0x55]	1 - On, 0 - Off	S1_2_FanSpeeds	-	R	

N°	Address	Value	Object Name	Default	Access	
87	86 [0x56]	1 - On, 0 - Off	S1_3_ConfigHCHP	-	R	
88	87 [0x57]	1 - On, 0 - Off	S1_4_AC	-	R	
89	88 [0x58]	1 - On, 0 - Off	S1_5_CompressorDelay	-	R	
90	89 [0x59]	1 - On, 0 - Off	S1_6_ElectricalHeater2Stage	-	R	
91	90 [0x5A]	1 - On, 0 - Off	S1_7_AC_FC_System	-	R	
92	91 [0x5B]	1 - On, 0 - Off	S2_3_Dehumidifier Or Reheat	-	R	
93	92 [0x5C]	1 - On, 0 - Off	S2_4_Cool Only	-	R	
94	93 [0x5D]	1 - On, 0 - Off	HeatElement1	-	RW	
95	94 [0x5E]	1 - On, 0 - Off	HeatElement2	-	RW	
96	95 [0x5F]	1 - On, 0 - Off	HeatElement3	-	RW	
97	96 [0x60]	1 - On, 0 - Off	Compressor1	-	RW	
98	97 [0x61]	1 - On, 0 - Off	Compressor2	-	RW	
99	98 [0x62]	1 - On, 0 - Off	FanOnOffLow	-	RW	
100	99 [0x63]	1 - On, 0 - Off	FanOnOffMedium	-	RW	
101	100 [0x64]	1 - On, 0 - Off	FanOnOffHigh	-	RW	
102	101 [0x65]	1 - On, 0 - Off	HPOnOff	-	RW	
103	102 [0x66]	1 - On, 0 - Off	EconomizerOA	-	RW	
104	103 [0x67]	1 - On, 0 - Off	OnOff	0 - Off	RW	
105	104 [0x68]	1 - On, 0 - Off	AutoFan	0 - Off	RW	

N°	Address	Value	Object Name	Default	Access	
106	105 [0x69]	1 - Celsius, 0 - Fahrenheit	C_F_Scale	0 - Fahrenheit	RW	
107	106 [0x6A]	1 - Locked, 0 - Unlocked	SetLock	0 - Unlocked	RW	
108	107 [0x6B]	0...15 0 - non - Lock 1 - Mode 2 - Fan 3 - Mode+Fan 4 - On/Off 5 - On/Off + Mode 6 - On/Off + Fan 7 - On/Off + Fan+Mode 8 - SP 9 - SP+Mode 10 - SP+Fan 11 - SP+Mode+Fan 12 - SP+On/Off 13 - SP+On/Off + Mode 14 - SP+On/Off + Fan 15 - SP+On/Off + Fan+Mode	LockConfiguration	0 - non - Lock	RW	
109	108 [0x6C]	1 - two set points, 0 - one set point	One_TwoSetpoints	0 - one set point	RW	
110	109 [0x6D]	1 - Alarm, 0 - NOP	FilterAlarm	0 - NOP	R	
111	110 [0x6E]	1 - Reset, 0 - NOP	FilterReset	0 - NOP	RW	
112	111 [0x6F]	1 - Enable, 0 - Disable	AutoModeEnable	1 - Enable	RW	
113	112 [0x70]	1 - Enable, 0 - Disable	BackLightDimEnable	1 - Enable	RW	
114	113 [0x71]	1 - Enable, 0 - Disable	BeeperEnable	1 - Enable	RW	
115	114 [0x72]	1 - Enable, 0 - Disable	FreezeProtectionEnable	1 - Enable	RW	
116	115 [0x73]	1 - Open, 0 - Close	WindowContact	0 - Close	R	
117	116 [0x74]	1 - Norm.open, 0 - Norm.close	WindowContactPolarity	0 - N.close	RW	
118	117 [0x75]	1 - Unoccupied, 0 - Occupied	UnoccupiedByNetwork	0 - Occupied	RW	

N°	Address	Value	Object Name	Default	Access	
119	118 [0x76]	1 - Unoccupied, 0 - Occupied	UnoccupancyByAuxOccSensor	0 - Occupied	R	
120	119 [0x77]	1 - Norm.close, 0 - Norm.open	AuxOccupancySensorPolarity	0 - N.open	RW	
121	120 [0x78]	1 - On, 0 - Off	DoorSwitchOpen	0 - Off	R	
122	121 [0x79]	1 - Norm.open, 0 - Norm.close	DoorSwitchPolarity	0 - N.close	RW	
123	122 [0x7A]	1 - Enable, 0 - Disable	EnableShowHumidity	0 - Disable	RW	
124	123 [0x7B]	1 - On, 0 - Off	EmergencyHeat	0 - Off	RW	
125	124 [0x7C]	0 - Disable Scheduler 1 - All days with same schedule 2 - One schedule for M - F and another for Sat & Sun 3 - One schedule for M - F and another for Sat, Sun schedule separately 4 - Schedule each day separately	DayProgScheduler	0 - Disable Scheduler	RW	
126	125 [0x7D]	0 - two periods, 1 - four periods	DayPeriods	1 - Four periods	RW	
127	126 [0x7E]	0 - USA, 1 - Europe	DayPeriodsType	0 - USA	RW	
128	127 [0x7F]	1 - Enable, 0 - Disable	DayProgramEnable	0 - Disable	RW	
129	128 [0x80]	1 - Indicate, 0 - NOP	Set Alarm	0 - NOP	RW	
130	129 [0x81]	1 - On, 0 - Off	TAmbWriteable	0 - Off	RW	
131	130 [0x82]	1 - On, 0 - Off	ViewFloatValue	0 - Off	RW	
132	131 [0x83]	0...3 (0 - 9600, 1 - 19200, 2 - 38400, 3 - 76800,)	Baud rate	2 - 38400	RW	
133	132 [0x84]	0..2 (0 - none, 1 - odd, 2 - even)	Parity	0 - none	RW	
134	133 [0x85]	1 - Restore, 0 - NOP	RestoreDefault	0 - NOP	RW	

TMPL-24-H FC

MODBUS RTU, Address Slave 1 - 247, Baud rate: 38400, n, 8, 1

All Registers are signed Integer 16 bit.

Supported Commands

0x03 = Read Holding Registers (for all).

0x06 = Preset Single Register (For RW registers only).

0x2B 0x0E 0x01 (read Basic Device Identification)

The MODBUS Register No. X is addressed in the MODBUS Register Address (PDU) X - 1.

ObjectId	Object Name / Description	Type	M/O	Category
0x00	VendorName	ASCII String	Mandatory	Basic
0x01	ProductCode	ASCII String	Mandatory	Basic
0x03	MajorMinorRevision	ASCII String	Mandatory	Basic

VendorName = Carrier®

ProductCode = 244302Vxx

MajorMinorRevision = 244302Vxx.xxxx

When the last column contains a marker *:

- If the register ViewFloatValue = 0, the marked Modbus register contains the integer part of the internal real value.
- If the register ViewFloatValue = 1, then the marked Modbus register contains the internal real value multiplied by 10 and rounded to integer Modbus register.
- Example: "256" is representation of "25.6" or "25.61" or "25.647" etc.

Address Dec[Hex]	Value	Object Name	Default	Access	
0 [0x00]	-20...100 °C (-4...212 °F)	T1_Ext_TemperatureSensor	-	R/W	*
1 [0x01]	-20...100 °C (-4...212 °F)	IN1_AIN	-	R/W	*
2 [0x02]	0...100%	AO_Cool(cool/heat valve)	-	R/W	
3 [0x03]	0...100%	AO_Heat	-	R/W	
4 [0x04]	0...100%	AO_Humidifier	-	R/W	
5 [0x05]	0...100%	AO_DeHumidifier	-	R/W	
6 [0x06]	0...100%	AO_Fan	-	R/W	
7 [0x07]	5...35 °C (41...95 °F)	SetPoint_SetPointCool	23 °C (73 °F)	R/W	*
8 [0x08]	5...35 °C (41...95 °F)	SetPointHeat	22 °C (72 °F)	R/W	*
9 [0x09]	5...35 °C (41...95 °F)	SetPointEffective	-	R	*
10 [0x0A]	0...100 °C (32...212 °F)	ReturnAirSensorEffective	-	R	*

Address Dec[Hex]	Value	Object Name	Default	Access	
11 [0x0B]	0 - Fan Only 1 - Cool 2 - Heat 3 - Auto	Mode	1 - Cool	R/W	
12 [0x0C]	0 - Fan Only 1 - Cool 2 - Heat 4 - Off	ModeEffective	-	R	
13 [0x0D]	0 - Auto 1 - Low 2 - Medium 3 - High	FanSpeed	0 - Auto	R/W	
14 [0x0E]	1 - Low 2 - Medium 3 - High 4 - Off	FanEffective	-	R	
15 [0x0F]	-5...5 °C (-9...9 °F)	ReturnAirSensorCalibration	0 °C (0 °F)	R/W	*
16 [0x10]	5...35 °C (41...95 °F)	SetPointLimitCool	10 °C (50 °F)	R/W	
17 [0x11]	5...35 °C (41...95 °F)	SetPointLimitHeat	30 °C (86 °F)	R/W	
18 [0x12]	5...35 °C (41...95 °F)	EconomySetPointInCool	30 °C (86 °F)	R/W	
19 [0x13]	5...35 °C (41...95 °F)	EconomySetPointInHeat	10 °C (50 °F)	R/W	
20 [0x14]	0 – Unoccupied, 1 - Occupied	OccupancyEffectiveHVAC	-	R	
21 [0x15]	0 – Occ.sensor logic not used 1 – Occ.sensor logic controls HVAC	OccupancySensorAuthority	0 - Occ.sensor logic not used	R/W	
22 [0x16]	0 - On/Off logic 1 - Start/Stop logic 2 - Change setpoint logic 3 - Unoccupancy Dehumidified logic	OccupancySensorFunction	2 - Change setpoint logic	R/W	
23 [0x17]	0...900 minutes	OccupancySensorHVACDelayTime	20 minutes	R/W	
24 [0x18]	0 - Thermostat turns off when unoccupied 1 - Thermostat uses economy 2 - Fan Low keeps running	DoorSwitchOrKeyTag_Function	1 - Thermostat uses economy	R/W	

Address Dec[Hex]	Value	Object Name	Default	Access	
25 [0x19]	0...999 seconds	TimeSwitchingToOccupiedMode	1 seconds	R/W	
26 [0x1A]	0 - Not used 1 - External sensor (T1) 2 - Soft start sensor (T3) 3 - Door switch - Door switch (Hotel configuration of occupancy logic is active) 4 - Key tag 5 - T - Economizer	T1_Function	0 - Not used	R/W	
27 [0x1B]	0 - Not used 1 - Auto changeover sensor (T2) 2 - Soft start sensor (T3) 3 - window contact (remote switch On/Off) 4 - window contact (remote switch EC On/EC Off > change SetpointEffective in according to registers EconomySetPointInCool, EconomySetPointInHeat) 5 - Auxiliary Occupancy sensor.	IN1_Function	0 - Not used	R/W	
28 [0x1C]	0...999 seconds	WindowContactDelayTime	600 seconds	R/W	
29 [0x1D]	0...999 seconds	DoorSwitchDelayTime	180 seconds	R/W	
30 [0x1E]	- 9.9...99 °C (- 9.9...210 °F)	T2_Effective	-	R	*
31 [0x1F]	- 9.9...99 °C (- 9.9...210 °F)	T3_Effective	-	R	*
32 [0x20]	0...99 °C (32...210 °F)	TEconomizerEffective	99 °C (210 °F)	R/W	*
33 [0x21]	0...120 seconds	CoolFanOnDelay	0 seconds	R/W	
34 [0x22]	0...120 seconds	CoolFanOffDelay	0 seconds	R/W	
35 [0x23]	0...120 seconds	HeatFanOnDelay	0 seconds	R/W	
36 [0x24]	0...120 seconds	HeatFanOffDelay	30 seconds	R/W	
37 [0x25]	8...15 °C (46...59 °F)	FreezeProtectionCutInSetpoint	8 °C (46 °F)	R/W	
38 [0x26]	10...17 °C (50...63 °F)	FreezeProtectionCutOutSetpoint	10 °C (50 °F)	R/W	
39 [0x27]	0...999 hour	FilterCounter	-	R	

Address Dec[Hex]	Value	Object Name	Default	Access	
40 [0x28]	0...999 hour	FilterAlarmTimeDelay	0 hour	R/W	
41 [0x29]	0.5...5 °C (1...9 °F)	CoolDifferentialBand	1 °C (2 °F)	R/W	*
42 [0x2A]	- 5...5 °C (- 9...9 °F)	CoolDifferentialBandOffset	0 °C (0 °F)	R/W	*
43 [0x2B]	0.5...20 °C (1...36 °F)	HeatDifferentialBand	1 °C (2 °F)	R/W	*
44 [0x2C]	- 5...5 °C (- 9...9 °F)	HeatDifferentialBandOffset	0 °C (0 °F)	R/W	*
45 [0x2D]	0...10 °C (0...18 °F)	ShiftBetweenCoolAndHeat	2 °C (4 °F)	R/W	*
46 [0x2E]	0...49 °C (0...88 °F)	ShiftBetweenHeatStages	2 °C (4 °F)	R/W	*
47 [0x2F]	0...600 seconds	TimeDelayOnNextHeatStage	5 seconds	R/W	
48 [0x30]	0...600 seconds	TimeDelayOffNextHeatStage	1 seconds	R/W	
49 [0x31]	14...37 °C (57...99 °F)	FanSoftStartInHeatCutInTemperature	36 °C (97 °F)	R/W	
50 [0x32]	12...35 °C (54...95 °F)	FanSoftStartInHeatCutOutTemperature	32 °C (90 °F)	R/W	
51 [0x33]	0.3...2 °C (0.6...4 °F)	DifferentialOnOffFanSpeeds	0.7 °C (1.4 °F)	R/W	*
52 [0x34]	0...100	Kp_PIDCool	100	R/W	
53 [0x35]	0...100	Kp_PIDHeat	100	R/W	
54 [0x36]	0...100	Ki_PIDCool	0	R/W	
55 [0x37]	0...100	Ki_PIDHeat	0	R/W	
56 [0x38]	0...100	Kd_PIDCool	1	R/W	
57 [0x39]	0...100	Kd_PIDHeat	1	R/W	
58 [0x3A]	0...100 seconds	OutputsThresholdTimeCool	60 seconds	R/W	
59 [0x3B]	0...100 seconds	OutputsThresholdTimeHeat	60 seconds	R/W	
60 [0x3C]	1...10 °C (2...18 °F)	CoolValveProportionalBand	2 °C (4 °F)	R/W	*
61 [0x3D]	0...100%	CoolProportionalLowLimit	0%	R/W	
62 [0x3E]	0...100%	CoolProportionalHighLimit	100%	R/W	
63 [0x3F]	1...10 °C (2...18 °F)	HeatValveProportionalBand	2 °C (4 °F)	R/W	*
64 [0x40]	0...100%	HeatProportionalLowLimit	0%	R/W	
65 [0x41]	0...100%	HeatProportionalHighLimit	100%	R/W	
66 [0x42]	0...30%	ProportionalOnPercent	30%	R/W	
67 [0x43]	0...20%	ProportionalOffPercent	10%	R/W	

Address Dec[Hex]	Value	Object Name	Default	Access	
68 [0x44]	0...100%	Humidity_Value	-	R	*
69 [0x45]	- 9...9%	Humidity_Offset	0%	R/W	
70 [0x46]	20...100%	HumiditySetPoint	45%	R/W	
71 [0x47]	0...100%	HumidityDeadZone	0%	R/W	
72 [0x48]	2...20%	HumidityDifferentialBand	5%	R/W	
73 [0x49]	10...30 °C (50...86 °F)	RoomTemperatureDisableHumidity	18 °C (64 °F)	R/W	
74 [0x4A]	0...600 minutes	DehumidityCycle	20 minutes	R/W	
75 [0x4B]	0...900 minutes	DehumidityBreakTime	40 minutes	R/W	
76 [0x4C]	10...30 °C (50...86 °F)	DehumiditySetPointInCool	15 °C (59 °F)	R/W	*
77 [0x4D]	0...99 minutes	BackLightDimTime	5 minutes	R/W	
78 [0x4E]	0...90%	BackLightDimValue	10%	R/W	
79 [0x4F]	50...100%	BackLightBrightness	-	R	
80 [0x50]	1...10 °C (2...18 °F)	CoolVFSProportionalBand	2 °C (4 °F)	R/W	*
81 [0x51]	1...10 °C (2...18 °F)	HeatVFSProportionalBand	2 °C (4 °F)	R/W	*
82 [0x52]	0...30%	CoolVFSLowSpeedPercent	20%	R/W	
83 [0x53]	30...60%	CoolVFSMediumSpeedPercent	50%	R/W	
84 [0x54]	60...100%	CoolVFSHighSpeedPercent	90%	R/W	
85 [0x55]	0...30%	HeatVFSLowSpeedPercent	30%	R/W	
86 [0x56]	30...60%	HeatVFSMediumSpeedPercent	50%	R/W	
87 [0x57]	60...100%	HeatVFSHighSpeedPercent	80%	R/W	
88 [0x58]	10...50%	VFSMediumSpeedDiff	35%	R/W	
89 [0x59]	10...50%	VFSHighSpeedDiff	35%	R/W	
90 [0x5A]	0...100%	CoolVFSLowLimit	0%	R/W	
91 [0x5B]	0...100%	CoolVFSHighLimit	100%	R/W	
92 [0x5C]	0...100%	HeatVFSLowLimit	0%	R/W	
93 [0x5D]	0...100%	HeatVFSHighLimit	100%	R/W	
94 [0x5E]	9...27 °C (48...81 °F)	EconomizerOA_LowLimitTemp	17 °C (63 °F)	R/W	*
95 [0x5F]	1 - On, 0 - Off	S1_1_FanSpeeds	-	R	

Address Dec[Hex]	Value	Object Name	Default	Access	
96 [0x60]	1 - On, 0 - Off	S1_2_FanSpeeds	-	R	
97 [0x61]	1 - On, 0 - Off	S1_3_Config4pipe	-	R	
98 [0x62]	1 - On, 0 - Off	S1_4_ElectricalHeater	-	R	
99 [0x63]	1 - On, 0 - Off	S1_5_ChilledBeamEnable	-	R	
100 [0x64]	1 - On, 0 - Off	S1_6_FloorHeater	-	R	
101 [0x65]	1 - On, 0 - Off	S1_7_AC_FC_System	-	R	
102 [0x66]	1 - NOP, 0 - Modbus	no name	-	R	
103 [0x67]	1 - Cool Proportional, 0 - relay	S2_1_CoolProportional	-	R	
104 [0x68]	1 - Heat Proportional, 0 - relay	S2_2_HeatProportional	-	R	
105 [0x69]	1 - On, 0 - Off	HeatOnOffValve	-	R/W	
106 [0x6A]	1 - On, 0 - Off	HeatElement	-	R/W	
107 [0x6B]	1 - On, 0 - Off	CoolOnOffValve	-	R/W	
108 [0x6C]	1 - On, 0 - Off	FanOnOffLow	-	R/W	
109 [0x6D]	1 - On, 0 - Off	FanOnOffMedium	-	R/W	
110 [0x6E]	1 - On, 0 - Off	FanOnOffHigh	-	R/W	
111 [0x6F]	1 - On, 0 - Off	EconomizerOA	-	R/W	
112 [0x70]	1 - On, 0 - Off	OnOff	0 - Off	R/W	
113 [0x71]	1 - On, 0 - Off	AutoFan	0 - Off	R/W	
114 [0x72]	1 - Celsius, 0 - Fahrenheit	C_F_Scale	0 - Fahrenheit	R/W	
115 [0x73]	1 - Locked, 0 - Unlocked	SetLock	0 - Unlocked	R/W	

Address Dec[Hex]	Value	Object Name	Default	Access	
116 [0x74]	0 - non - Lock 1 - Mode 2 - Fan 3 - Mode+Fan 4 - On/Off 5 - On/Off + Mode 6 - On/Off + Fan 7 - On/Off + Fan+Mode 8 - SP 9 - SP+Mode 10 - SP+Fan 11 - SP+Mode+Fan 12 - SP+On/Off 13 - SP+On/Off + Mode 14 - SP+On/Off + Fan 15 - SP+On/Off + Fan+Mode	LockConfiguration	0 - non - Lock	R/W	
117 [0x75]	1 - two set points, 0 - one set point	One_TwoSetpoints	0 - one set point	R/W	
118 [0x76]	1 - Alarm, 0 - NOP	FilterAlarm	0 - NOP	R	
119 [0x77]	1 - Reset, 0 - NOP	FilterReset	0 - NOP	R/W	
120 [0x78]	1 - Enable, 0 - Disable	AutoModeEnable	1 - Enable	R/W	
121 [0x79]	1 - Enable, 0 - Disable	BackLightDimEnable	1 - Enable	R/W	
122 [0x7A]	1 - Enable, 0 - Disable	BeeperEnable	1 - Enable	R/W	
123 [0x7B]	1 - Enable, 0 - Disable	FreezeProtectionEnable	1 - Enable	R/W	
124 [0x7C]	1 - Open, 0 - Close	WindowContact	0 - Close	R	
125 [0x7D]	1 - Norm. open, 0 - Norm. close	WindowContactPolarity	0 - Norm. close	R/W	
126 [0x7E]	1 - Unoccupied, 0 - Occupied	UnoccupiedByNetwork	0 - Occupied	R/W	
127 [0x7F]	1 - Unoccupied, 0 - Occupied	UnoccupancyByAuxOccSensor	0 - Occupied	R	
128 [0x80]	1 - Norm. close, 0 - Norm. open	AuxOccupancySensorPolarity	0 - Norm. open	R/W	
129 [0x81]	1 - On, 0 - Off	DoorSwitchOpen	0 - Off	R	
130 [0x82]	1 - Norm. open, 0 - Norm. close	DoorSwitchPolarity	0 - Norm. close	R/W	
131 [0x83]	1 - Enable, 0 - Disable	EnableShowHumidity	0 - Disable	R/W	

Address Dec[Hex]	Value	Object Name	Default	Access	
132 [0x84]	0 - Disable Scheduler 1 - All days with same schedule 2 - One schedule for M - F and another for Sat & Sun 3 - One schedule for M - F and another for Sat, Sun schedule separately 4 - Schedule each day separately	DayProgScheduler	0 - Disable Scheduler	R/W	
133 [0x85]	0 - two periods, 1 - four periods.	DayPeriods	1 - Four periods	R/W	
134 [0x86]	0 - USA, 1 - Europe	DayPeriodsType	0 - USA	R/W	
135 [0x87]	1 - Enable, 0 - Disable	DayProgramEnable	0 - Disable	R/W	
136 [0x88]	1 - Indicate, 0 - NOP	Set Alarm	0 - Hide	R/W	
137 [0x89]	1 - On, 0 - Off	TAmbWriteable	0 - Off	R/W	
138 [0x8A]	1 - On, 0 - Off	ViewFloatValue	0 - Off	R/W	
139 [0x7D]	0 - 9600 1 - 19200 2 - 38400 3 - 76800	Baud rate	2 - 38400	RW	
140 [0x7E]	0 - none, 1 - odd, 2 - even	Parity	0 - none	RW	
141 [0x8B]	1 - Restore, 0 - NOP	RestoreDefault	0 - NOP	R/W	

TMPL-24-HM and TMPL-HM AC

MODBUS RTU, Address Slave 1 - 247, Baud rate: 38400, n, 8, 1

All Registers are signed Integer 16 bit.

Supported Commands

0x03 = Read Holding Registers (for all).

0x06 = Preset Single Register (For RW registers only)

0x2B 0x0E 0x01 (read Basic Device Identification)

The MODBUS Register No. X is addressed in the MODBUS Register Address (PDU) X - 1.

ObjectId	Object Name / Description	Type	M/O	Category
0x00	VendorName	ASCII String	Mandatory	Basic
0x01	ProductCode	ASCII String	Mandatory	Basic

0x03	MajorMinorRevision	ASCII String	Mandatory	Basic
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VendorName = Carrier®

ProductCode = 244303Vxx

MajorMinorRevision = 244303Vxx.xxxx

When the last column contains a marker *:

- If the register ViewFloatValue = 0, the marked Modbus register contains the integer part of the internal real value.
- If the register ViewFloatValue = 1, then the marked Modbus register contains the internal real value multiplied by 10 and rounded to integer Modbus register.
- Example: "256" is representation of "25.6" or "25.61" or "25.647" etc.

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
1	0 [0x00]	-20...100 °C (-4...212 °F)	T1_Ext_TemperatureSensor	-	R/W	*
2	1 [0x01]	-20...100 °C (-4...212 °F)	IN1_AIN	-	R/W	*
3	2 [0x02]	0...100%	AO_Humidifier	-	R/W	
4	3 [0x03]	0...100%	AO_DeHumidifier	-	R/W	
5	4 [0x04]	0...100%	AO_Fan	-	R/W	
6	5 [0x05]	5...35 °C (41...95 °F)	SetPoint_SetPointCool	23 °C (73 °F)	R/W	*
7	6 [0x06]	5...35 °C (41...95 °F)	SetPointHeat	22 °C (72 °F)	R/W	*
8	7 [0x07]	5...35 °C (41...95 °F)	SetPointEffective	-	R	*
9	8 [0x08]	0...100 °C (32...212 °F)	ReturnAirSensorEffective	-	R	*
10	9 [0x09]	0 - Fan Only 1 - Cool 2 - Heat 3 - Auto	Mode	1-Cool	R/W	
11	10 [0x0A]	0 - Fan Only 1 - Cool 2 - Heat 4 - Off	ModeEffective	-	R	
12	11 [0x0B]	0 - Auto 1 - Low 2 - Medium 3 - High	FanSpeed	0-Auto	R/W	
13	12 [0x0C]	1 - Low 2 - Medium 3 - High 4 - Off	FanEffective	-	R	
14	13 [0x0D]	-5...5 °C (-9...9 °F)	ReturnAirSensorCalibration	0 °C (0 °F)	R/W	*

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
15	14 [0x0E]	5...35 °C (41...95 °F)	SetPointLimitCool	10 °C (50 °F)	R/W	
16	15 [0x0F]	5...35 °C (41...95 °F)	SetPointLimitHeat	30 °C (86 °F)	R/W	
17	16 [0x10]	5...35 °C (41...95 °F)	EconomySetPointInCool	30 °C (86 °F)	R/W	
18	17 [0x11]	5...35 °C (41...95 °F)	EconomySetPointInHeat	10 °C (50 °F)	R/W	
19	18 [0x12]	0 - Unoccupied 1 - Occupied	OccupancyEffectiveHVAC	-	R	
20	19 [0x13]	0 - Occupancy sensor logic not used 1 - Occupancy sensor logic controls HVAC	OccupancySensorAuthority	1-Occupancy sensor logic not used	R/W	
21	20 [0x14]	0 - On/Off logic 1 - Start/Stop logic 2 - Change setpoint logic 3 - Unoccupancy Dehumidified logic	OccupancySensorFunction	2-Change setpoint logic	R/W	
22	21 [0x15]	0...900 minutes	OccupancySensorHVACDelayTime	20 minutes	R/W	
23	22 [0x16]	0 - Thermostat turns off when unoccupied 1 - Thermostat uses economy 2 - Fan Low keeps running	DoorSwitchOrKeyTag_Function	1- Thermostat uses economy	R/W	
24	23 [0x17]	0...999 seconds	TimeSwitchingToOccupiedMode	1 seconds	R/W	
25	24 [0x18]	0 - Not used 1 - External sensor (T1) 2 - Soft start sensor (T3) 3 - Door switch - Door switch (Hotel configuration of occupancy logic is active) 4 - Key tag 5 - T-Economizer	T1_Function	0-Not used	R/W	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
26	25 [0x19]	0 - Not used 1- Auto changeover sensor (T2) 2 - Soft start sensor (T3) 3 - window contact (remote switch On/Off) 4 - window contact (remote switch EC On/EC Off > change SetpointEffective in according to registers EconomySetPointInCool, EconomySetPointInHeat) 5 - Auxiliary Occupancy sensor	IN1_Function	0-Not used	R/W	
27	26 [0x1A]	0...999 seconds	WindowContactDelayTime	600 seconds	R/W	
28	27 [0x1B]	0...999 seconds	DoorSwitchDelayTime	180 seconds	R/W	
29	28 [0x1C]	-9.9...99 °C (-9.9...210 °F)	T2_Effective	-	R	*
30	29 [0x1D]	-9.9...99 °C (-9.9...210 °F)	T3_Effective	-	R	*
31	30 [0x1E]	0...99 °C (32...210 °F)	TEconomizerEffective	99 °C (210 °F)	R/W	*
32	31 [0x1F]	0...120 seconds	CoolFanOffDelay	0 seconds	R/W	
33	32 [0x20]	0...120 seconds	HeatFanOffDelay	30 seconds	R/W	
34	33 [0x21]	8...15 °C (46...59 °F)	FreezeProtectionCutInSetpoint	8 °C (46 °F)	R/W	
35	34 [0x22]	10...17 °C (50...63 °F)	FreezeProtectionCutOutSetpoint	10 °C (50 °F)	R/W	
36	35 [0x23]	0...999 hour	FilterCounter	-	R	
37	36 [0x24]	0...999 hour	FilterAlarmTimeDelay	0 hour	R/W	
38	37 [0x25]	0.5...5 °C (1...9 °F)	CoolDifferentialBand	1 °C (2 °F)	R/W	*
39	38 [0x26]	-5...5 °C (-9...9 °F)	CoolDifferentialBandOffset	0 °C (0 °F)	R/W	*
40	39 [0x27]	0.5...20 °C (1...36 °F)	HeatDifferentialBand	1 °C (2 °F)	R/W	*

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
41	40 [0x28]	-5...5 °C (-9...9 °F)	HeatDifferentialBandOffset	0 °C (0 °F)	R/W	*
42	41 [0x29]	0...10 °C (0...18 °F)	ShiftBetweenCoolAndHeat	2 °C (4 °F)	R/W	*
43	42 [0x2A]	0...10 °C (0...18 °F)	ShiftBetweenCoolStages	2 °C (4 °F)	R/W	*
44	43 [0x2B]	0...49 °C (0...88 °F)	ShiftBetweenHeatStages	2 °C (4 °F)	R/W	*
45	44 [0x2C]	0...600 seconds	TimeDelayOnNextCoolStage	5 seconds	R/W	
46	45 [0x2D]	0...600 seconds	TimeDelayOnNextHeatStage	5 seconds	R/W	
47	46 [0x2E]	0...600 seconds	TimeDelayOffNextCoolStage	1 seconds	R/W	
48	47 [0x2F]	0...600 seconds	TimeDelayOffNextHeatStage	1 seconds	R/W	
49	48 [0x30]	0...360 seconds	CompressorStandbyDelay	240 seconds	R/W	
50	49 [0x31]	-9.5...8 °C (15...46 °F)	DeiceCoolCutInTemperature	0 °C (32 °F)	R/W	*
51	50 [0x32]	2...20 °C (36...68 °F)	DeiceCoolCutOutTemperature	8 °C (46 °F)	R/W	*
52	51 [0x33]	120...420 seconds	DeiceHeatTime	300 seconds	R/W	
53	52 [0x34]	600...1800 seconds	DeiceHeatBreakTime	1500 seconds	R/W	
54	53 [0x35]	-9.5...8 °C (15...46 °F)	DeiceHeatCutInTemperature	0 °C (32 °F)	R/W	*
55	54 [0x36]	2...20 °C (35...68 °F)	DeiceHeatCutOutTemperature	16 °C (61 °F)	R/W	*
56	55 [0x37]	0...99 minutes	BackLightDimTime	5 minutes	R/W	
57	56 [0x38]	0...90%	BackLightDimValue	10%	R/W	
58	57 [0x39]	50...100%	BackLightBrightness	-	R	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
59	58 [0x3A]	1...10 °C (2...18 °F)	CoolVFSProportionalBand	2 °C (4 °F)	R/W	*
60	59 [0x3B]	1...10 °C (2...18 °F)	HeatVFSProportionalBand	2 °C (4 °F)	R/W	*
61	60 [0x3C]	0...30%	CoolVFSLowSpeedPercent	20%	R/W	
62	61 [0x3D]	30...60%	CoolVFSMediumSpeedPercent	50%	R/W	
63	62 [0x3E]	60...100%	CoolVFSHighSpeedPercent	90%	R/W	
64	63 [0x3F]	0...30%	HeatVFSLowSpeedPercent	30%	R/W	
65	64 [0x40]	30...60%	HeatVFSMediumSpeedPercent	50%	R/W	
66	65 [0x41]	60...100%	HeatVFSHighSpeedPercent	80%	R/W	
67	66 [0x42]	10...50%	VFSMediumSpeedDiff	35%	R/W	
68	67 [0x43]	10...50%	VFSHighSpeedDiff	35%	R/W	
69	68 [0x44]	0...100%	CoolVFSLowLimit	0%	R/W	
70	69 [0x45]	0...100%	CoolVFSHighLimit	100%	R/W	
71	70 [0x46]	0...100%	HeatVFSLowLimit	0%	R/W	
72	71 [0x47]	0...100%	HeatVFSHighLimit	100%	R/W	
73	72 [0x48]	0...100%	Humidity_Value	-	R	*
74	73 [0x49]	-9...9%	Humidity_Offset	0%	R/W	
75	74 [0x4A]	20...100%	HumiditySetPoint	45%	R/W	
76	75 [0x4B]	0...100%	HumidityDeadZone	0%	R/W	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
77	76 [0x4C]	2...20%	HumidityDifferentialBand	5%	R/W	
78	77 [0x4D]	10...30 °C (50...86 °F)	RoomTemperatureDisableHumidity	18 °C (64 °F)	R/W	
79	78 [0x4E]	0...600 minutes	DehumidityCycle	20 minutes	R/W	
80	79 [0x4F]	0...900 minutes	DehumidityBreakTime	40 minutes	R/W	
81	80 [0x50]	10...30 °C (50...86 °F)	DehumiditySetPointInCool	15 °C (59 °F)	R/W	*
82	81 [0x51]	0...20 minutes	MinimumTimeCompressorOn	2 minutes	R/W	
83	82 [0x52]	0...20 minutes	MinimumTimeCompressorOff	13 minutes	R/W	
84	83 [0x53]	9...27 °C (48...81 °F)	EconomizerOA_LowLimitTemp	17 °C (63 °F)	R/W	*
85	84 [0x54]	1-On, 0-Off	S1_1_FanSpeeds	-	R	
86	85 [0x55]	1-On, 0-Off	S1_2_FanSpeeds	-	R	
87	86 [0x56]	1-On, 0-Off	S1_3_ConfigHCHP	-	R	
88	87 [0x57]	1-On, 0-Off	S1_4_AC	-	R	
89	88 [0x58]	1-On, 0-Off	S1_5_CompressorDelay	-	R	
90	89 [0x59]	1-On, 0-Off	S1_6_ElectricalHeater2Stage	-	R	
91	90 [0x5A]	1-On, 0-Off	S1_7_AC_FC_System	-	R	
92	91 [0x5B]	1-On, 0-Off	S2_3_Dehumidifier Or Reheat	-	R	
93	92 [0x5C]	1-On, 0-Off	S2_4_Cool Only	-	R	
94	93 [0x5D]	1-On, 0-Off	HeatElement1	-	R/W	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
95	94 [0x5E]	1-On, 0-Off	HeatElement2	-	R/W	
96	95 [0x5F]	1-On, 0-Off	HeatElement3	-	R/W	
97	96 [0x60]	1-On, 0-Off	Compressor1	-	R/W	
98	97 [0x61]	1-On, 0-Off	Compressor2	-	R/W	
99	98 [0x62]	1-On, 0-Off	FanOnOffLow	-	R/W	
100	99 [0x63]	1-On, 0-Off	FanOnOffMedium	-	R/W	
101	100 [0x64]	1-On, 0-Off	FanOnOffHigh	-	R/W	
102	101 [0x65]	1-On, 0-Off	HPOnOff	-	R/W	
103	102 [0x66]	1-On, 0-Off	EconomizerOA	-	R/W	
104	103 [0x67]	1-On, 0-Off	OnOff	0-Off	R/W	
105	104 [0x68]	1-On, 0-Off	AutoFan	0-Off	R/W	
106	105 [0x69]	1-Celsius, 0-Fahrenheit	C_F_Scale	0-Fahrenheit	R/W	
107	106 [0x6A]	1-Locked, 0-Unlocked	SetLock	0-Unlocked	R/W	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
108	107 [0x6B]	0 - non-Lock 1 - Mode 2 - Fan 3 - Mode+Fan 4 - On/Off 5 - On/Off + Mode 6 - On/Off + Fan 7 - On/Off + Fan+Mode 8 - SP 9 - SP+Mode 10 - SP+Fan 11 - SP+Mode+Fan 12 - SP+On/Off 13 - SP+On/Off + Mode 14 - SP+On/Off + Fan 15 - SP+On/Off + Fan+Mode	LockConfiguration	0-non-Lock	R/W	
109	108 [0x6C]	1-two set points, 0-one set point	One_TwoSetpoints	0-one set point	R/W	
110	109 [0x6D]	1-Alarm, 0-Nop	FilterAlarm	0-Nop	R	
111	110 [0x6E]	1-Reset, 0-Nop	FilterReset	0-Nop	R/W	
112	111 [0x6F]	1-Enable, 0-Disable	AutoModeEnable	1-Enable	R/W	
113	112 [0x70]	1-Enable, 0-Disable	BackLightDimEnable	1-Enable	R/W	
114	113 [0x71]	1-Enable, 0-Disable	BeeperEnable	1-Enable	R/W	
115	114 [0x72]	1-Enable, 0-Disable	FreezeProtectionEnable	1-Enable	R/W	
116	115 [0x73]	1-Open, 0-Close	WindowContact	0-Close	R	
117	116 [0x74]	1-Norm.open, 0-Norm.close	WindowContactPolarity	0-Norm.close	R/W	
118	117 [0x75]	1-Unoccupied, 0-Occupied	UnoccupancyByPIR	0-Occupied	R	
119	118 [0x76]	1-Unoccupied, 0-Occupied	UnoccupiedByNetwork	0-Occupied	R/W	
120	119 [0x77]	1-Unoccupied, 0-Occupied	UnoccupancyByAuxOccSensor	0-Occupied	R	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
121	120 [0x78]	1-Norm.close, 0-Norm.open	AuxOccupancySensorPolarity	0- Norm.open	R/W	
122	121 [0x79]	1-On, 0-Off	DoorSwitchOpen	0-Off	R	
123	122 [0x7A]	1-Norm.open, 0-Norm.close	DoorSwitchPolarity	0- Norm.close	R/W	
124	123 [0x7B]	1-Enable, 0-Disable	EnableShowHumidity	0-Disable	R/W	
125	124 [0x7C]	1-On, 0-Off	EmergencyHeat	0-Off	R/W	
126	125 [0x7D]	0 - Disable Scheduler 1 - All days with the same schedule 2 - One schedule for M- F and another for Sat & Sun 3 - One schedule for M- F and another for Sat, Sun schedule individually 4 - Schedule each day individually.	DayProgScheduler	0-Disable Scheduler	R/W	
127	126 [0x7E]	0 - two periods, 1 - four periods.	DayPeriods	1-Four periods	R/W	
128	127 [0x7F]	0 - USA, 1 - Europe	DayPeriodsType	0-USA	R/W	
129	128 [0x80]	1-Enable, 0-Disable	DayProgramEnable	0-Disable	R/W	
130	129 [0x81]	1-Show, 0-Hide	Set Alarm	0-Hide	R/W	
131	130 [0x82]	1-On, 0-Off	TAmbWriteable	0-Off	R/W	
132	131 [0x83]	1-On, 0-Off	ViewFloatValue	0-Off	R/W	
133	132 [0x84]	0...3 (0-9600,1-19200,2-38400,3-76800)	Baud rate	2-38400	RW	126
134	133 [0x85]	0..2 (0 - none, 1 – odd, 2-even)	Parity	0 - none	RW	127
135	134 [0x86]	1-Restore, 0-Nop	RestoreDefault	0-Nop	R/W	

TMPL-24-HM and TMPL-HM FC

MODBUS RTU, Address Slave 1 - 247, Baud rate: 38400, n, 8, 1

All Registers are signed Integer 16 bit.

Supported Commands

0x03 = Read Holding Registers (for all).

0x06 = Preset Single Register (For RW registers only)

0x2B 0x0E 0x01 (read Basic Device Identification)

The MODBUS Register No. X is addressed in the MODBUS Register Address (PDU) X - 1.

ObjectId	Object Name / Description	Type	M/O	Category
0x00	VendorName	ASCII String	Mandatory	Basic
0x01	ProductCode	ASCII String	Mandatory	Basic
0x03	MajorMinorRevision	ASCII String	Mandatory	Basic

VendorName = Carrier®

ProductCod = 244303Vxx

MajorMinorRevision = 244303Vxx.xxxx

When the last column contains a marker *:

- If the register ViewFloatValue = 0, the marked Modbus register contains the integer part of the internal real value.
- If the register ViewFloatValue = 1, then the marked Modbus register contains the internal real value multiplied by 10 and rounded to integer Modbus register.
- Example: "256" is representation of "25.6" or "25.61" or "25.647" etc.

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
1	0 [0x00]	-20...100 °C (-4...212 °F)	T1_Ext_TemperatureSensor	-	R/W	*
2	1 [0x01]	-20...100 °C (-4...212 °F)	IN1_AIN	-	R/W	*
3	2 [0x02]	0...100%	AO_Cool (cool/heat valve)	-	R/W	
4	3 [0x03]	0...100%	AO_Heat	-	R/W	
5	4 [0x04]	0...100%	AO_Humidifier	-	R/W	
6	5 [0x05]	0...100%	AO_DeHumidifier	-	R/W	
7	6 [0x06]	0...100%	AO_Fan	-	R/W	
8	7 [0x07]	5...35 °C (41...95 °F)	SetPoint_SetPointCool	23 °C (73 °F)	R/W	*
9	8 [0x08]	5...35 °C (41...95 °F)	SetPointHeat	22 °C (72 °F)	R/W	*
10	9 [0x09]	5...35 °C (41...95 °F)	SetPointEffective	-	R	*

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
11	10 [0x0A]	0...100 °C (32...212 °F)	ReturnAirSensorEffective	-	R	*
12	11 [0x0B]	0 - Fan Only 1 - Cool 2 - Heat 3 - Auto	Mode	1 - Cool	R/W	
13	12 [0x0C]	0 - Fan Only 1 - Cool 2 - Heat 4 - Off	ModeEffective	-	R	
14	13 [0x0D]	0 - Auto 1 - Low 2 - Medium 3 - High	FanSpeed	0 - Auto	R/W	
15	14 [0x0E]	1 - Low 2 - Medium 3 - High 4 - Off	FanEffective	-	R	
16	15 [0x0F]	-5...5 °C (-9...9 °F)	ReturnAirSensorCalibration	0 °C (0 °F)	R/W	*
17	16 [0x10]	5...35 °C (41...95 °F)	SetPointLimitCool	10 °C (50 °F)	R/W	
18	17 [0x11]	5...35 °C (41...95 °F)	SetPointLimitHeat	30 °C (86 °F)	R/W	
19	18 [0x12]	5...35 °C (41...95 °F)	EconomySetPointInCool	30 °C (86 °F)	R/W	
20	19 [0x13]	5...35 °C (41...95 °F)	EconomySetPointInHeat	10 °C (50 °F)	R/W	
21	20 [0x14]	0 - Unoccupied, 1 - Occupied	OccupancyEffectiveHVAC	-	R	
22	21 [0x15]	0 - Occupancy sensor logic not used 1 - Occupancy sensor logic controls HVAC	OccupancySensorAuthority	1 - Occupancy sensor logic not used	R/W	
23	22 [0x16]	0 - On/Off logic 1 - Start/Stop logic 2 - Change setpoint logic 3 - Unoccupancy Dehumidified logic	OccupancySensorFunction	2 - Change setpoint logic	R/W	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
24	23 [0x17]	0...900 minutes	OccupancySensorHVACDelayTime	20 minutes	R/W	
25	24 [0x18]	0 - T-stat turns off when unoccupied 1 - T-stat uses economy 2 - Fan Low keeps running	DoorSwitchOrKeyTag_Function	1 - T-stat uses economy	R/W	
26	25 [0x19]	0...999 seconds	TimeSwitchingToOccupiedMode	1 seconds	R/W	
27	26 [0x1A]	0 - Not used 1 - External sensor (T1) 2 - Soft start sensor (T3) 3 - Door switch - Door switch (Hotel configuration of occupancy logic is active) 4 - Key tag 5 - T - Economizer	T1_Function	0 - Not used	R/W	
28	27 [0x1B]	0 - Not used 1 - Auto changeover sensor (T2) 2 - Soft start sensor (T3) 3 - window contact (remote switch On/Off) 4 - window contact (remote switch EC On/EC Off > change SetpointEffective in according to registers EconomySetPointInCool, EconomySetPointInHeat) 5 - Auxiliary Occupancy sensor	IN1_Function	0 - Not used	R/W	
29	28 [0x1C]	0...999 seconds	WindowContactDelayTime	600 seconds	R/W	
30	29 [0x1D]	0...999 seconds	DoorSwitchDelayTime	180 seconds	R/W	
31	30 [0x1E]	-9.9...99 °C (-9.9...210 °F)	T2_Effective	-	R	*
32	31 [0x1F]	-9.9...99 °C (-9.9...210 °F)	T3_Effective	-	R	*

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
33	32 [0x20]	0...99 °C (32...210 °F)	TEconomizerEffective	99 °C (210 °F)	R/W	*
34	33 [0x21]	0...120 seconds	CoolFanOnDelay	0 seconds	R/W	
35	34 [0x22]	0...120 seconds	CoolFanOffDelay	0 seconds	R/W	
36	35 [0x23]	0...120 seconds	HeatFanOnDelay	0 seconds	R/W	
37	36 [0x24]	0...120 seconds	HeatFanOffDelay	30 seconds	R/W	
38	37 [0x25]	8...15 °C (46...59 °F)	FreezeProtectionCutInSetpoint	8 °C (46 °F)	R/W	
39	38 [0x26]	10...17 °C (50...63 °F)	FreezeProtectionCutOutSetpoint	10 °C (50 °F)	R/W	
40	39 [0x27]	0...999 hour	FilterCounter	-	R	
41	40 [0x28]	0...999 hour	FilterAlarmTimeDelay	0 hour	R/W	
42	41 [0x29]	0.5...5 °C (1...9 °F)	CoolDifferentialBand	1 °C (2 °F)	R/W	*
43	42 [0x2A]	-5...5 °C (-9...9 °F)	CoolDifferentialBandOffset	0 °C (0 °F)	R/W	*
44	43 [0x2B]	0.5...20 °C (1...36 °F)	HeatDifferentialBand	1 °C (2 °F)	R/W	*
45	44 [0x2C]	-5...5 °C (-9...9 °F)	HeatDifferentialBandOffset	0 °C (0 °F)	R/W	*
46	45 [0x2D]	0...10 °C (0...18 °F)	ShiftBetweenCoolAndHeat	2 °C (4 °F)	R/W	*
47	46 [0x2E]	0...49 °C (0...88 °F)	ShiftBetweenHeatStages	2 °C (4 °F)	R/W	*
48	47 [0x2F]	0...600 seconds	TimeDelayOnNextHeatStage	5 seconds	R/W	
49	48 [0x30]	0...600 seconds	TimeDelayOffNextHeatStage	1 seconds	R/W	
50	49 [0x31]	14...37 °C (57...99 °F)	FanSoftStartInHeatCutInTemperature	36 °C (97 °F)	R/W	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
51	50 [0x32]	12...35 °C (54...95 °F)	FanSoftStartInHeatCutOutTemperature	32 °C (90 °F)	R/W	
52	51 [0x33]	0.3...2 °C (0.6...4 °F)	DifferentialOnOffFanSpeeds	0.7 °C (1.4 °F)	R/W	*
53	52 [0x34]	0...100	Kp_PIDCool	100	R/W	
54	53 [0x35]	0...100	Kp_PIDHeat	100	R/W	
55	54 [0x36]	0...100	Ki_PIDCool	0	R/W	
56	55 [0x37]	0...100	Ki_PIDHeat	0	R/W	
57	56 [0x38]	0...100	Kd_PIDCool	1	R/W	
58	57 [0x39]	0...100	Kd_PIDHeat	1	R/W	
59	58 [0x3A]	0...100 seconds	OutputsThresholdTimeCool	60 seconds	R/W	
60	59 [0x3B]	0...100 seconds	OutputsThresholdTimeHeat	60 seconds	R/W	
61	60 [0x3C]	1...10 °C (2...18 °F)	CoolValveProportionalBand	2 °C (4 °F)	R/W	*
62	61 [0x3D]	0...100%	CoolProportionalLowLimit	0%	R/W	
63	62 [0x3E]	0...100%	CoolProportionalHighLimit	100%	R/W	
64	63 [0x3F]	1...10 °C (2...18 °F)	HeatValveProportionalBand	2 °C (4 °F)	R/W	*
65	64 [0x40]	0...100%	HeatProportionalLowLimit	0%	R/W	
66	65 [0x41]	0...100%	HeatProportionalHighLimit	100%	R/W	
67	66 [0x42]	0...30%	ProportionalOnPercent	30%	R/W	
68	67 [0x43]	0...20%	ProportionalOffPercent	10%	R/W	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
69	68 [0x44]	0...100%	Humidity_Value	-	R	*
70	69 [0x45]	-9...9%	Humidity_Offset	0%	R/W	
71	70 [0x46]	20...100%	HumiditySetPoint	45%	R/W	
72	71 [0x47]	0...100%	HumidityDeadZone	0%	R/W	
73	72 [0x48]	2...20%	HumidityDifferentialBand	5%	R/W	
74	73 [0x49]	10...30 °C (50...86 °F)	RoomTemperatureDisableHumidity	18 °C (64 °F)	R/W	
75	74 [0x4A]	0...600 minutes	DehumidityCycle	20 minutes	R/W	
76	75 [0x4B]	0...900 minutes	DehumidityBreakTime	40 minutes	R/W	
77	76 [0x4C]	10...30 °C (50...86 °F)	DehumiditySetPointInCool	15 °C (59 °F)	R/W	*
78	77 [0x4D]	0...99 minutes	BackLightDimTime	5 minutes	R/W	
79	78 [0x4E]	0...90%	BackLightDimValue	10%	R/W	
80	79 [0x4F]	50...100%	BackLightBrightness	-	R	
81	80 [0x50]	1...10 °C (2...18 °F)	CoolVFSProportionalBand	2 °C (4 °F)	R/W	*
82	81 [0x51]	1...10 °C (2...18 °F)	HeatVFSProportionalBand	2 °C (4 °F)	R/W	*
83	82 [0x52]	0...30%	CoolVFSLowSpeedPercent	20%	R/W	
84	83 [0x53]	30...60%	CoolVFSMediumSpeedPercent	50%	R/W	
85	84 [0x54]	60...100%	CoolVFShighSpeedPercent	90%	R/W	
86	85 [0x55]	0...30%	HeatVFSLowSpeedPercent	30%	R/W	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
87	86 [0x56]	30...60%	HeatVFSSpeedMediumPercent	50%	R/W	
88	87 [0x57]	60...100%	HeatVFSSpeedHighPercent	80%	R/W	
89	88 [0x58]	10...50%	VFSMediumSpeedDiff	35%	R/W	
90	89 [0x59]	10...50%	VFSHighSpeedDiff	35%	R/W	
91	90 [0x5A]	0...100%	CoolVFSLowLimit	0%	R/W	
92	91 [0x5B]	0...100%	CoolVFSSpeedHighLimit	100%	R/W	
93	92 [0x5C]	0...100%	HeatVFSLowLimit	0%	R/W	
94	93 [0x5D]	0...100%	HeatVFSSpeedHighLimit	100%	R/W	
95	94 [0x5E]	9...27 °C (48...81 °F)	EconomizerOA_LowLimitTemp	17 °C (63 °F)	R/W	*
96	95 [0x5F]	1 - On, 0 - Off	S1_1_FanSpeeds	-	R	
97	96 [0x60]	1 - On, 0 - Off	S1_2_FanSpeeds	-	R	
98	97 [0x61]	1 - On, 0 - Off	S1_3_Config4pipe	-	R	
99	98 [0x62]	1 - On, 0 - Off	S1_4_ElectricalHeater	-	R	
100	99 [0x63]	1 - On, 0 - Off	S1_5_ChilledBeamEnable	-	R	
101	100 [0x64]	1 - On, 0 - Off	S1_6_FloorHeater	-	R	
102	101 [0x65]	1 - On, 0 - Off	S1_7_AC_FC_System	-	R	
103	102 [0x66]	1 - Nop, 0 - Modbus	no name	-	R	
104	103 [0x67]	1 - Cool Proportional 0 - relay	S2_1_CoolProportional	-	R	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
105	104 [0x68]	1 - Heat Proportional 0 - relay	S2_2_HeatProportional	-	R	
106	105 [0x69]	1 - On, 0 - Off	HeatOnOffValve	-	R/W	
107	106 [0x6A]	1 - On, 0 - Off	HeatElement	-	R/W	
108	107 [0x6B]	1 - On, 0 - Off	CoolOnOffValve	-	R/W	
109	108 [0x6C]	1 - On, 0 - Off	FanOnOffLow	-	R/W	
110	109 [0x6D]	1 - On, 0 - Off	FanOnOffMedium	-	R/W	
111	110 [0x6E]	1 - On, 0 - Off	FanOnOffHigh	-	R/W	
112	111 [0x6F]	1 - On, 0 - Off	EconomizerOA	-	R/W	
113	112 [0x70]	1 - On, 0 - Off	OnOff	0 - Off	R/W	
114	113 [0x71]	1 - On, 0 - Off	AutoFan	0 - Off	R/W	
115	114 [0x72]	1 - On, 0 - Off	C_F_Scale	0 - Off	R/W	
116	115 [0x73]	1 - Locked, 0 - Unlocked	SetLock	0 - Unlocked	R/W	
117	116 [0x74]	0 - non - Lock 1 - Mode2 - Fan 3 - Mode+Fan - On/Off 5 - On/Off + Mode 6 - On/Off + Fan 7 - On/Off + Fan+Mode 8 - SP 9 - SP+Mode 10 - SP+Fan 11 - SP+Mode+Fan 12 - SP+On/Off 13 - SP+On/Off + Mode 14 - SP+On/Off + Fan 15 - SP+On/Off + Fan+Mode	LockConfiguration	0 - non- Lock	R/W	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
118	117 [0x75]	1 - two set points, 0 - one set point	One_TwoSetpoints	0 - one set point	R/W	
119	118 [0x76]	1 - Alarm, 0 - Nop	FilterAlarm	0 - Nop	R	
120	119 [0x77]	1 - Reset, 0 - Nop	FilterReset	0 - Nop	R/W	
121	120 [0x78]	1 - Enable, 0 - Disable	AutoModeEnable	1 - Enable	R/W	
122	121 [0x79]	1 - Enable, 0 - Disable	BackLightDimEnable	1 - Enable	R/W	
123	122 [0x7A]	1 - Enable, 0 - Disable	BeeperEnable	1 - Enable	R/W	
124	123 [0x7B]	1 - Enable, 0 - Disable	FreezeProtectionEnable	1 - Enable	R/W	
125	124 [0x7C]	1 - Open, 0 - Close	WindowContact	0 - Close	R	
126	125 [0x7D]	1 - Norm. open, 0 - Norm. close	WindowContactPolarity	0 - Norm. close	R/W	
127	126 [0x7E]	1 - Unoccupied, 0 - Occupied	UnoccupancyByPIR	0 - Occupied	R	
128	127 [0x7F]	1 - Unoccupied, 0 - Occupied	UnoccupiedByNetwork	0 - Occupied	R/W	
129	128 [0x80]	1 - Unoccupied, 0 - Occupied	UnoccupancyByAuxOccSensor	0 - Occupied	R	
130	129 [0x81]	1 - Norm. close, 0 - Norm. open	AuxOccupancySensorPolarity	0 - Norm. open	R/W	
131	130 [0x82]	1 - On, 0 - Off	DoorSwitchOpen	0 - Off	R	
132	131 [0x83]	1 - Norm. open, 0 - Norm.close	DoorSwitchPolarity	0 - Norm. close	R/W	
133	132 [0x84]	1 - Enable, 0 - Disable	EnableShowHumidity	0 - Disable	R/W	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
134	133 [0x85]	0 - Disable Scheduler 1 - All days with the same schedule 2 - One schedule for M - F and another for Sat & Sun 3 - One schedule for M - F and another for Sat, Sun schedule individually 4 - Schedule each day individually.	DayProgScheduler	0 - Disable Scheduler	R/W	
135	134 [0x86]	0 - two periods, 1 - four periods	DayPeriods	1 - Four periods	R/W	
136	135 [0x87]	0 - USA, 1 - Europe	DayPeriodsType	0 - USA	R/W	
137	136 [0x88]	1 - Enable, 0 - Disable	DayProgramEnable	0 - Disable	R/W	
138	137 [0x89]	1 - Indicate, 0 - Hide	Set Alarm	0 - Hide	R/W	
139	138 [0x8A]	1 - On, 0 - Off	TAmbWriteable	0 - Off	R/W	
140	139 [0x8B]	1 - On, 0 - Off	ViewFloatValue	0 - Off	R/W	
141	140 [0x8C]	0 - 9600, 1 - 19200, 2 - 38400, 3 - 76800	Baud rate	2 - 38400	RW	126
142	141 [0x8D]	0 - none, 1 - odd, 2 - even	Parity	0 - none	RW	127
143	144 [0x8E]	1 - Restore, 0 - Nop	RestoreDefault	0 - Nop	R/W	

Document revision history

Date	Topic	Change Description
11/5/25	Object List for Modbus Register	New topic
	Wiring and DIP switch configurations	Updated all topics
	MAC Address and BACnet Device Instance Number	Added NOTE
4/15/25	New book	Combined all TBPL documents into one
4/6/20	Alarms and indications	Updated Teconomizer sensor fault graphic
	MAC address and BACnet Device instance number - In an Analog Network Output microblock	Added subsequent values
2/17/20	Operating instructions	Multiple updates
	Weekly program	Multiple updates
	AC configurations - AC Configurations with humidification/dehumidification – Configuration 12	Changed from 1 to 2
	Wiring and DIP switch configurations – AC systems	Multiple updates
	Wiring and DIP switch configurations – FC systems	Multiple updates
	Technician Settings	Multiple updates
	Alarms and indications	Added E1, E2, E4, and E5
5/22/19	Technician Settings	Changed P03 86c to 30c, changed 30f to 86f, changed P102 Screen Brightness when ON to P105 Screen Brightness when ON
4/24/19	TBPL-24-H Dimensions	Changed Front View dimensions from 1.18cm to 11.81cm
2/18/19	Specifications	Added CE and C-Tick icons to Compliance specification
	Technician Settings, P122 and P123	Changed from percent to time (seconds)



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