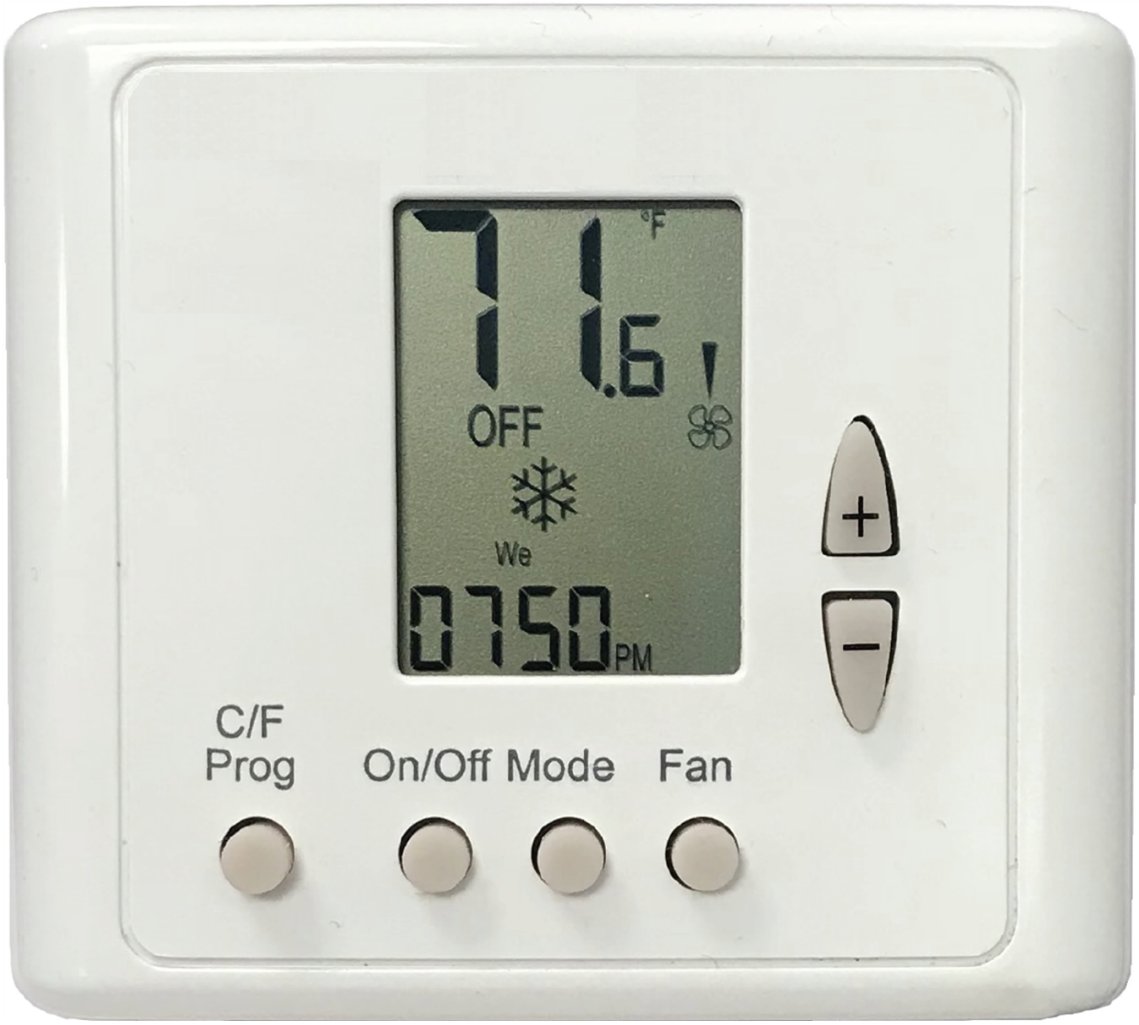
ComfortVu™ Thermostat Standard TB/TM Series

Installation and Operation Guide



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

Contents

Overview

Part Numbers

BACnet Thermostats

- TB
- TB-24
- TB-HM
- TB-24-HM

Modbus Thermostats

- TM
- TM-24

Description

The Carrier Corporation ComfortVu™ TB and TM Series Thermostats 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 (TB) or Modbus (TM) 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 Thermostat's data.

A TB or TM thermostat has a white plastic enclosure with an LCD display and buttons for user control. It has on-board temperature 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
TB | TB-HM| TM	Line voltage
TB-24 | TB-24-HM | TM-24	24 Vac

Specifications

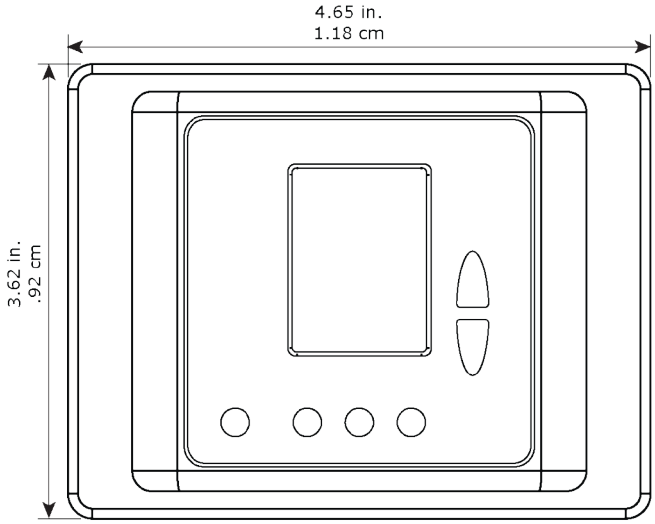
Sensing element (all):	Range	Accuracy
Temperature	41° F to 95° F (5° C to 35° C)	±1.0° F (0.5° C)
Humidity	10% to 90%	±3.0% typical
Motion Sensing:	TB-HM and TB-24-HM only	
Sensor Type	PIR, quad, omnidirectional	
Distance	16.4 feet (5m)	
Detection range	(HxV) 90° x 30°	
Movement speed	2.62 to 3.94 ft/s (0.8 to 1.2 m/s)	
Detection object	15.75 x 9.84 in. (400 x 250 mm)	

Power: TB | TB-HM | TM TB-24 | TB-24-HM | TM-24	85-240 Vac line voltage: 1.5 VA unit, 920 VA full load 24 Vac ±15%: 4VA unit, 76 VA full load **NOTE** Devices connected to outputs, such as a fan, will increase VA requirements.
Communication (TB-Series):	BACnet MS/TP with baud rates up to 76.8 kbps (default baud rate is 38.4 kbps), detected and set automatically by the BACnet Thermostat. Max 127 devices.
Communication (TM-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 (all):	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 (all):	11, 12, 13 – Digital outputs, 3A 14 – Digital outputs 0.3A max. 15 and 16 – Depends on application. Digital output 0.3A max., or Analog output 0-10 Vdc, 5 mA max., not isolated
Environmental operating range (all):	50° to 122° F (10° to 50° C), 10 to 90% relative humidity, non-condensing
Mounting: TB | TB-HM | TM TB-24 | TB-24-HM | TM	Wall mount on a 4" x 2-1.2 x 2" electrical box using provided 6/32 x 1/2” mounting screws • If using an electrical box, mount the included wallplate to a standard 4" x 2" electrical box using the two larger mounting screws, then mount the thermostat to the wallplate using the three smaller mounting screws. • If not using an electrical box, flush-mount thermostat to wall (no wallplate needed).
Weight (all):	4.8 oz (0.14 kg)

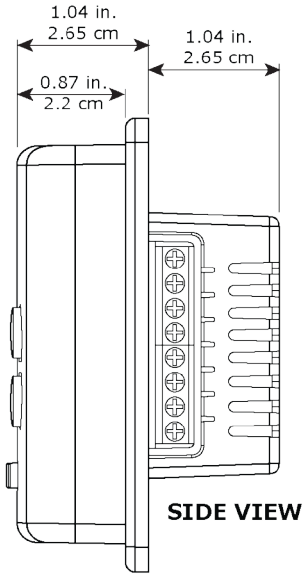
Compliance (all)	United States of America: FCC CFR47, Chapter 1, Subchapter A, Part 15, Class B Canada: Industry Canada Compliant, ICES-003, Class B Europe: CE Mark, Low Voltage Directive: 2014/35/EU RoHS Compliant: 2011/65/EU Australia and New Zealand: C-Tick Mark, AS/NZS 61000-6-3 Title 24 compliant 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

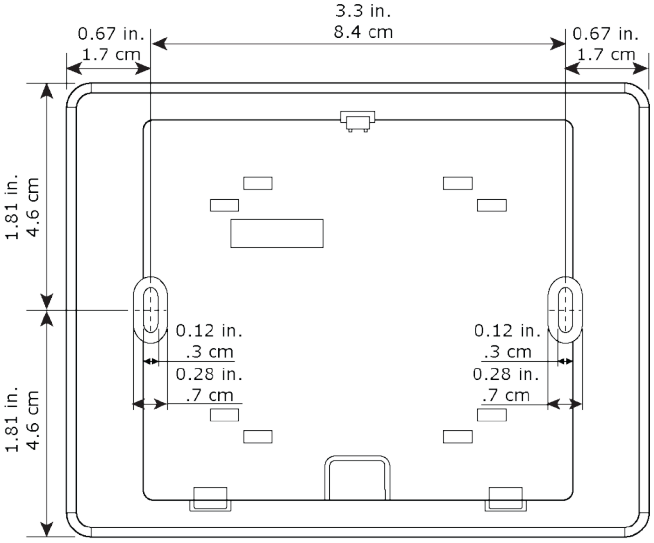
TB | TB-HM | TM



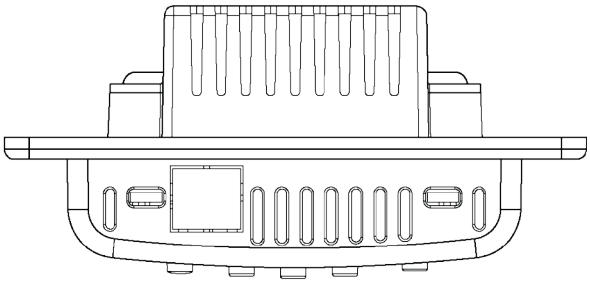
FRONT VIEW



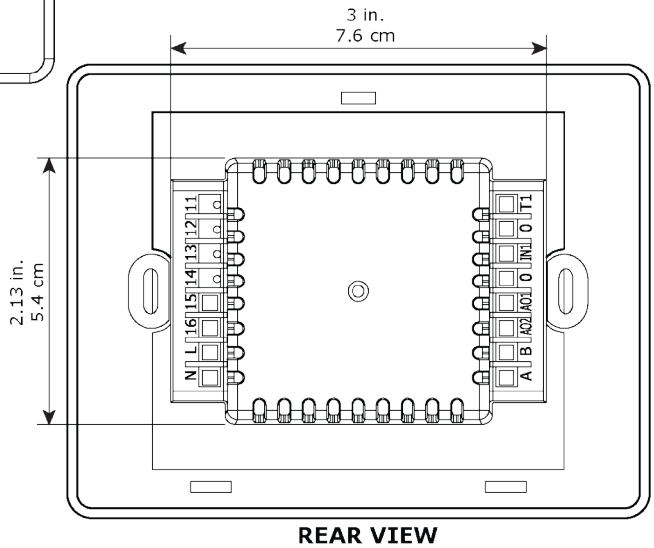
SIDE VIEW



BACKPLATE FRONT VIEW

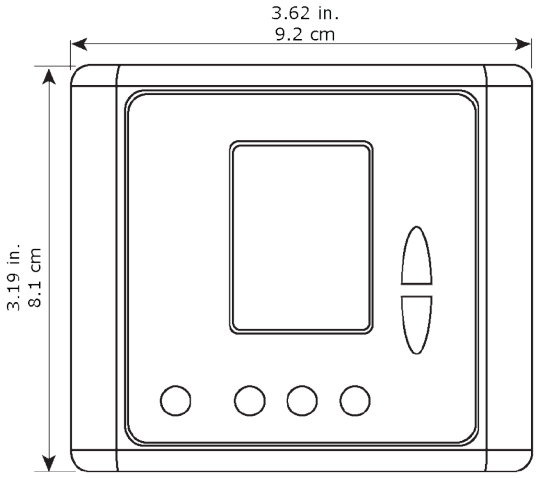


BOTTOM VIEW

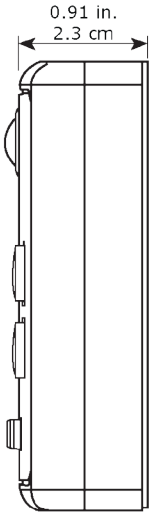


REAR VIEW

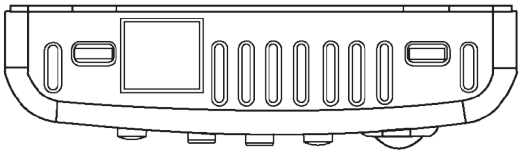
TB-24 | TB-24-HM | TM-24



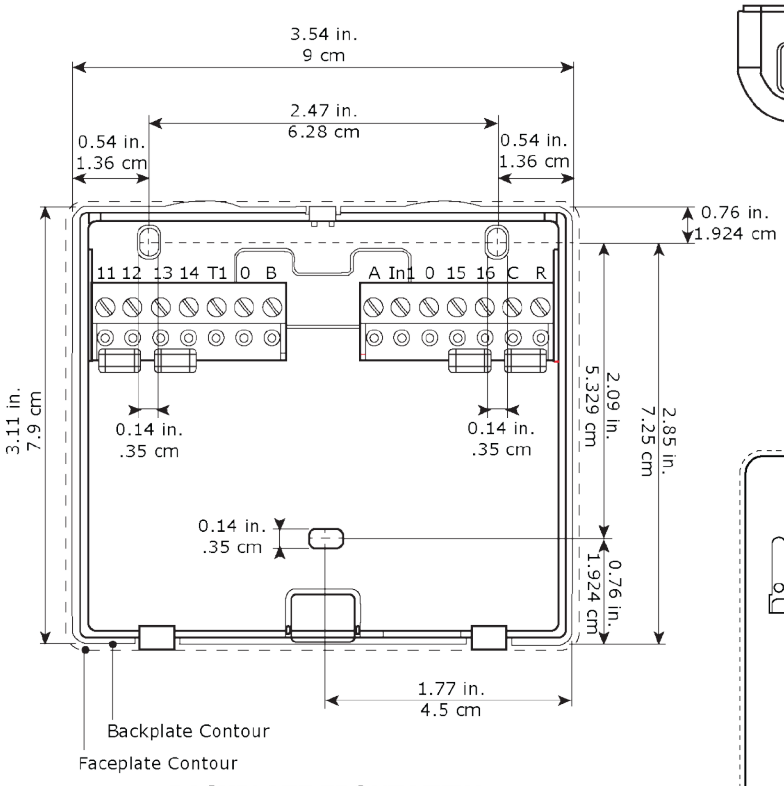
FRONT VIEW



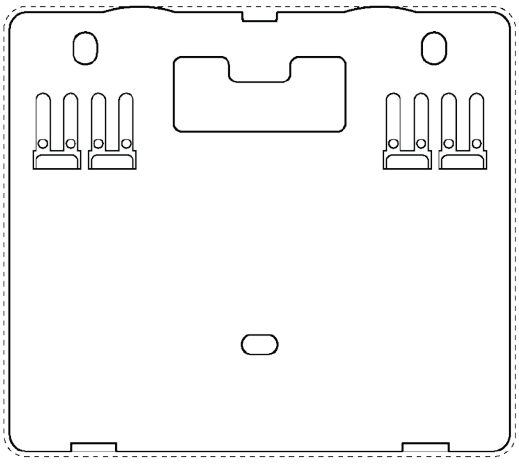
SIDE VIEW



BOTTOM VIEW



BACKPLATE FRONT VIEW



REAR VIEW

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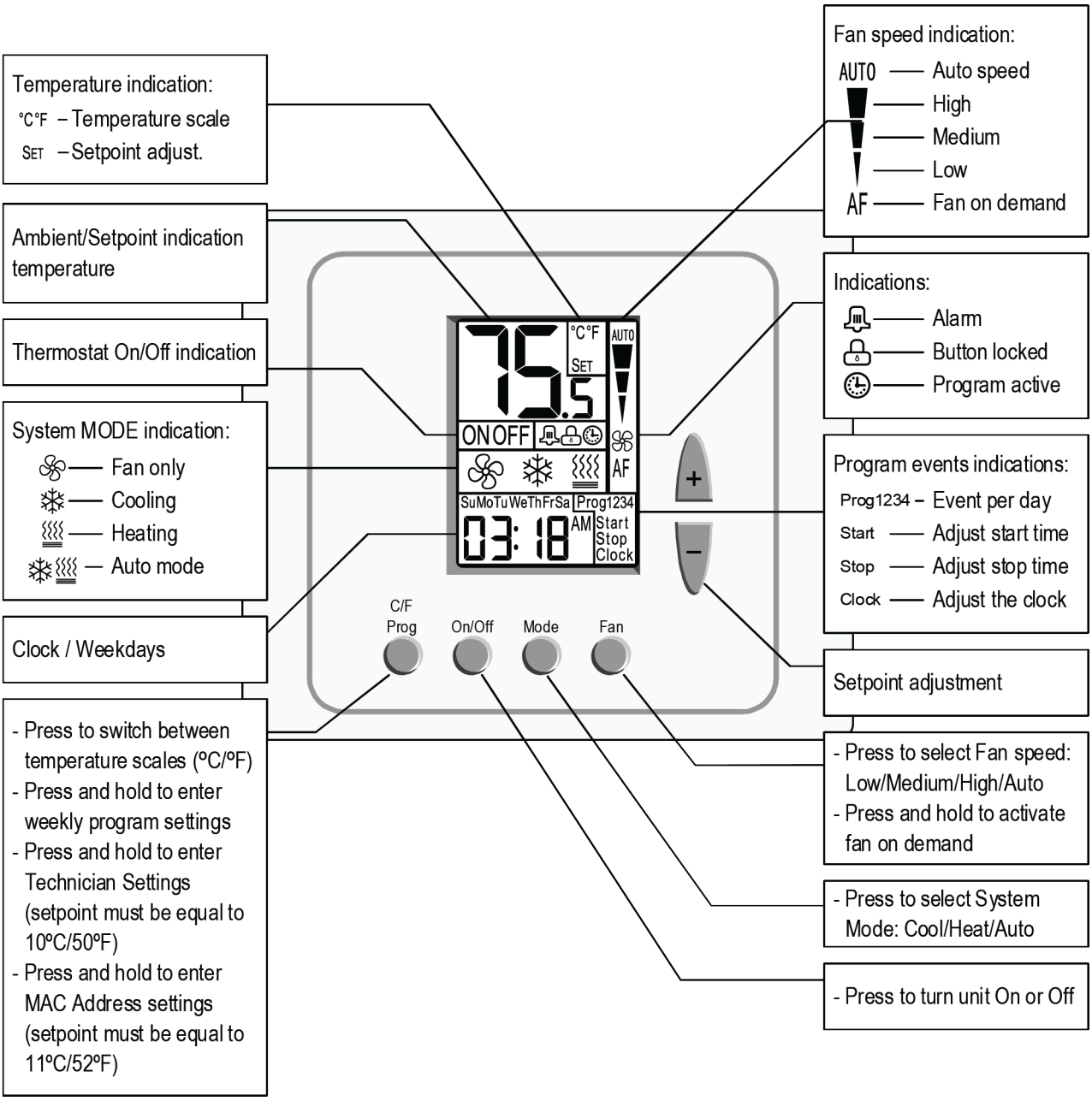
Press **[On/Off]** or wait 60 seconds to return to normal display.

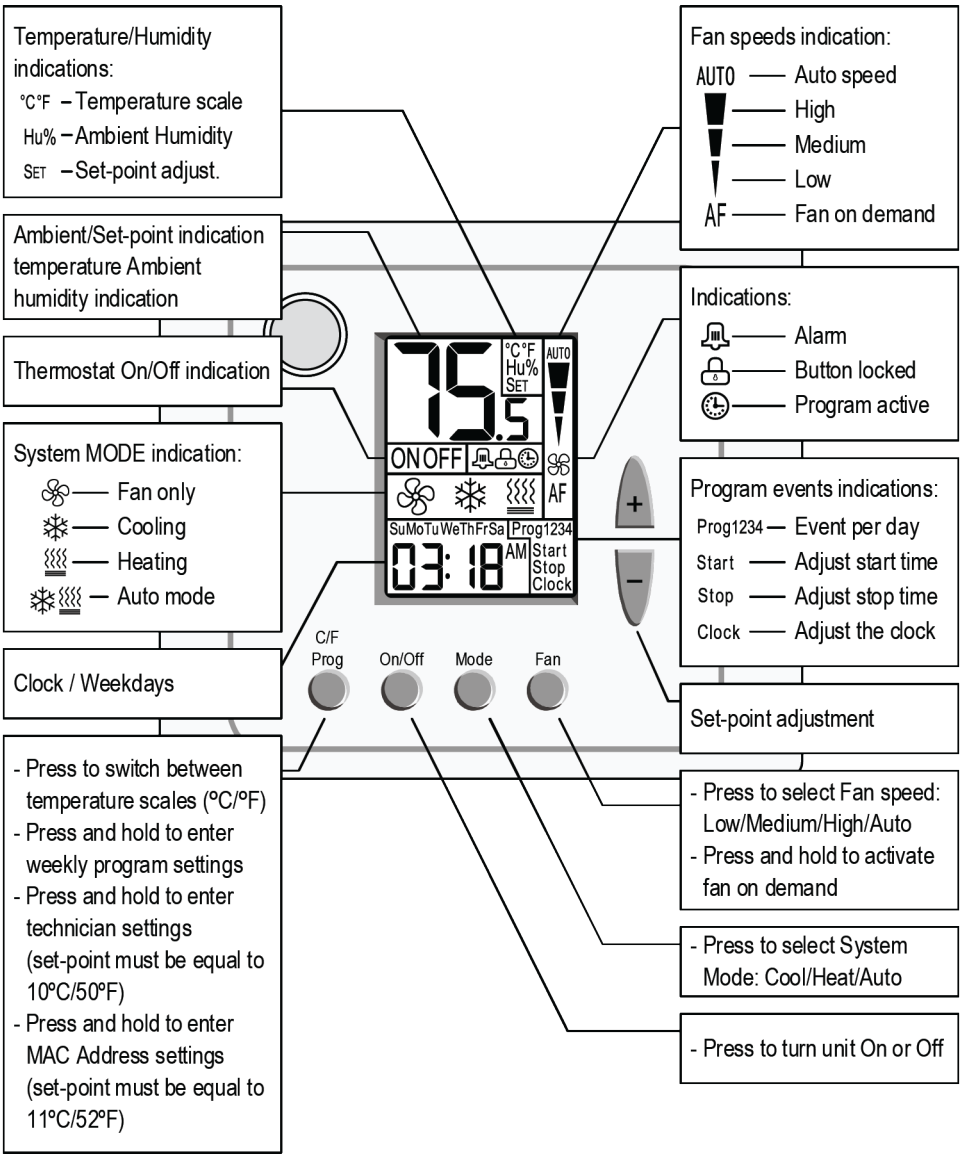
Operating Instructions

Quick Guide

TB | TB-24 | TM | TM-24

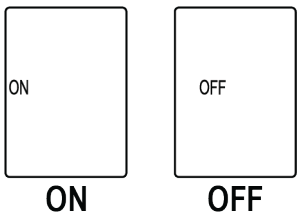


TB-HM | TB-24-HM



Turning the thermostat ON and OFF

Press the [On/Off] button to turn the thermostat ON or OFF.



Selecting temperature scale

Press the [C/F] button to switch between temperature scales.

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.

Set point

In Two setpoints configuration:

1. Press the [+] or [-] buttons once - "❄" and the setpoint temperature for cooling appears on display.
2. Use the [+] or [-] buttons to adjust the setpoint for cooling.
3. Press the [Mode] button or wait 3 seconds. "♨" and the setpoint temperature for heating appears on display.
4. Use the [+] or [-] buttons to adjust the setpoint for heating.

TB | TB-24 | TM | TM 24 NOTE The setpoint for cooling must be higher than the setpoint for heating.

TB-HM | TB-24-HM NOTES

- The setpoint for cooling must be higher than the setpoint for heating.
- For humidity setpoint, see Technician Settings (page 94).

Setpoint
For cooling

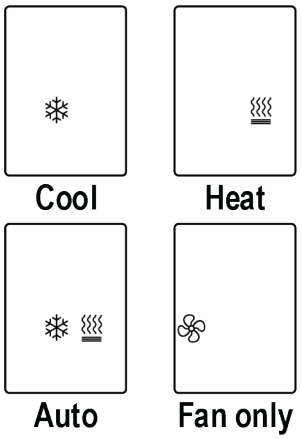
Setpoint
For heating

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.



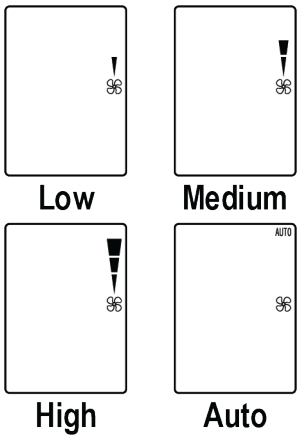
Selecting fan speed (for 2 and 3 fan speeds configuration)

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

NOTES

In Auto speed, the active fan speed icon appears.

- Medium speed available in 3 speeds configuration.
- Auto Speed in AC configurations: the differential parameter (speed change between stages) is determined by constant 0.7 °C (1.4 °F)
- Auto Speed in FC configurations: the differential parameter is determined by object AV#59 – DifferentialOnOffFanSpeed



Turning Auto fan ON or OFF (fan on demand)

In 1-speed configuration:

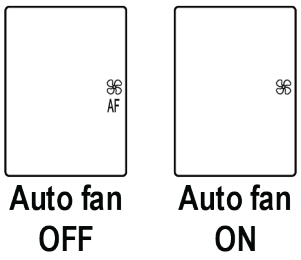
Press the [Fan] button to turn Auto fan ON or OFF.

In 2- and 3-speed configurations:

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

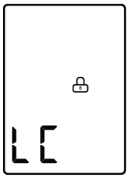
- When ON, the fan runs on demand for cooling or heating.
- When OFF, the fan runs continuously.

NOTE Auto fan cannot be selected in Fan only mode.



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 P04-P07.



Lock indications

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”.

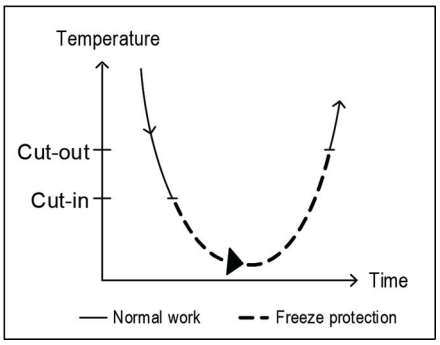
E1	• **Economy by Window contact – Remote On/Off switch** - Turning unit off • **Economy by Window contact – Remote economy switch** - Using economy set points Refer to technician parameters P25 and P26 for economy set points
E2	**Economy by External motion sensor (PIR**) or through **Communication** (binary value “UnoccupiedByNetwork”) Refer to technician parameter P15 “Occupancy sensor logic (PIR)”
E4	**Economy triggered by Door switch** Refer to technician parameter P18 “Door switch or key tag configuration”
E5	**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.

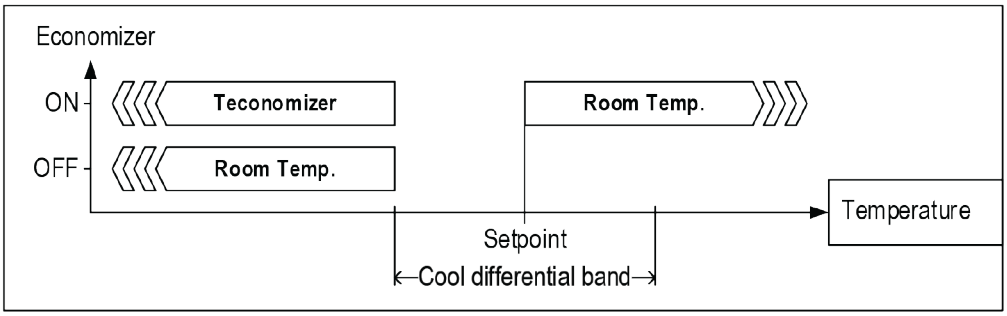
Whenever there is demand for cooling and the outdoor temperature conditions allow the operation of the economizer, it operates together with the regular cooling system and does not replace it.

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

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

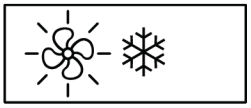
Economizer stops when the following condition is satisfied:

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



Indication for the Economizer operation:

When Economizer is active, the “Cool” symbol appears (or flashes when active) on the display 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" will disable 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 on the display.
  - 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.

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 [C/F-Prog] 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

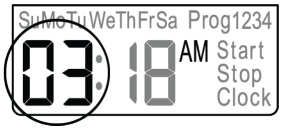
At any time during the programming procedure, press the [On/Off] button to exit and return to normal display. Any changed values are saved.

Adjusting the time and day of the week

1. Press and hold the [C/F-Prog] button. The word "Clock" appears, and the HOURS flash.

Hours

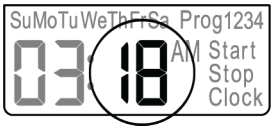
2. Use the [+] or [-] buttons to adjust the hours.



Minutes

3. Press the [C/F-Prog] button again. The MINUTES flash.

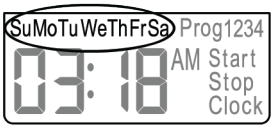
4. Use the [+] or [-] buttons to adjust the hours.



Days

5. Press the [C/F-Prog] 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 [C/F–Prog] button to enter programming procedure. Be sure to follow the right programming procedure, suitable for the program type and features selected by Technician Settings.

Section C – “EU Type”

Section D – “US Type”

Otherwise, press the [C/F-Prog] button to return to normal display.

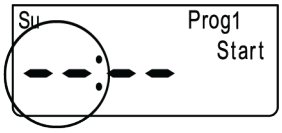
Adjusting “EU type” daily programs

Start time

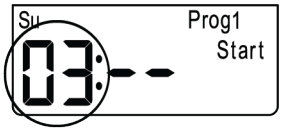
1. Press the [C/F–Prog] button. The programmed weekday(s), “Prog 1” indicating the first program event of the day and the word “Start” appears.

The HOURS flash.

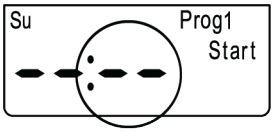
NOTE If this is the first time a program is being set, the symbols “–-“ flash.



2. Use the [+] and [-] buttons to adjust the start time hours of the first event.



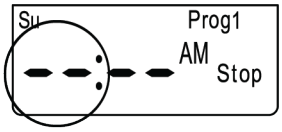
3. Press the [C/F–Prog] button again. The MINUTES flash.



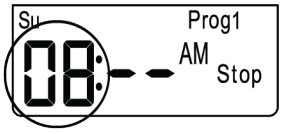
4. Use the [+] and [-] buttons to adjust the start time minutes of the first event.

Stop time

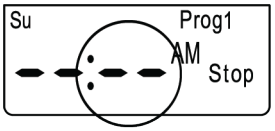
5. Press the [C/F – Prog] button again. T the word “Stop” appears, and the HOURS flash.



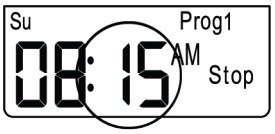
6. Use the [+] and [-] buttons to adjust the stop time hours of the first event



7. Press the [C/F–Prog] button again. The MINUTES flash



8. Use the [+] and [-] 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.**

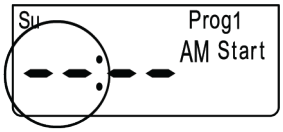
Adjusting “US type” daily programs

Start time

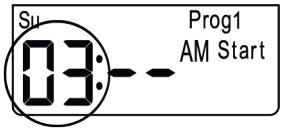
1. Press the [C/F–Prog] button. The programmed weekday(s), “Prog 1” indicating the first program event of the day and the word “Start” appears.

   The HOURS flash.

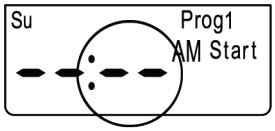
   NOTE If this is the first time a program is being set, the symbols “–-“ flashes.



2. Use the [+] and [-] buttons to adjust the start time hours of the first event.



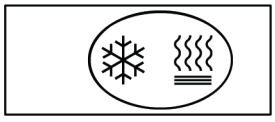
3. Press the [C/F–Prog] button again. The MINUTES flash.



4. Use the [+] and [-] buttons to adjust the start time minutes of the first event.

System mode and fan speed

5. Press the [C/F–Prog] button again. The system MODES flash.



6. Use the [+] and [-] buttons to select the system mode of the first event

7. Press the [C/F–Prog] button again. The FAN SPEEDS flash.

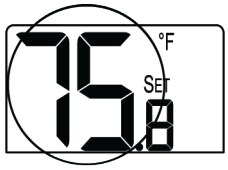
8. Use the [+] and [-] buttons to select the fan speed of the first event.

Setpoint

1. Press the [C/F – Prog] button again. The setpoint flashes.

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

2. Use the [+] and [-] 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.**

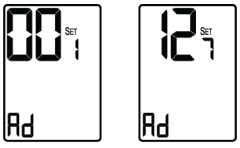
MAC Address and BACnet Device Instance Number

MAC Address

To set the communication MAC Address:

1. Adjust the setpoint temperature to 11°C or 52°F.
2. Press and hold the [C/F] button for 10 seconds to enter MAC Address configuration mode.
3. Use the [+] or [-] buttons to define the MAC Address (range 1...127).
4. When finished, press the [On/Off] button and readjust the setpoint.
5. Switch power supply off and on again for the MAC address changes to take effect.

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



MAC Address
1...127

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.

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.

TB-24 and TB-24-HM Installation

Installation procedure

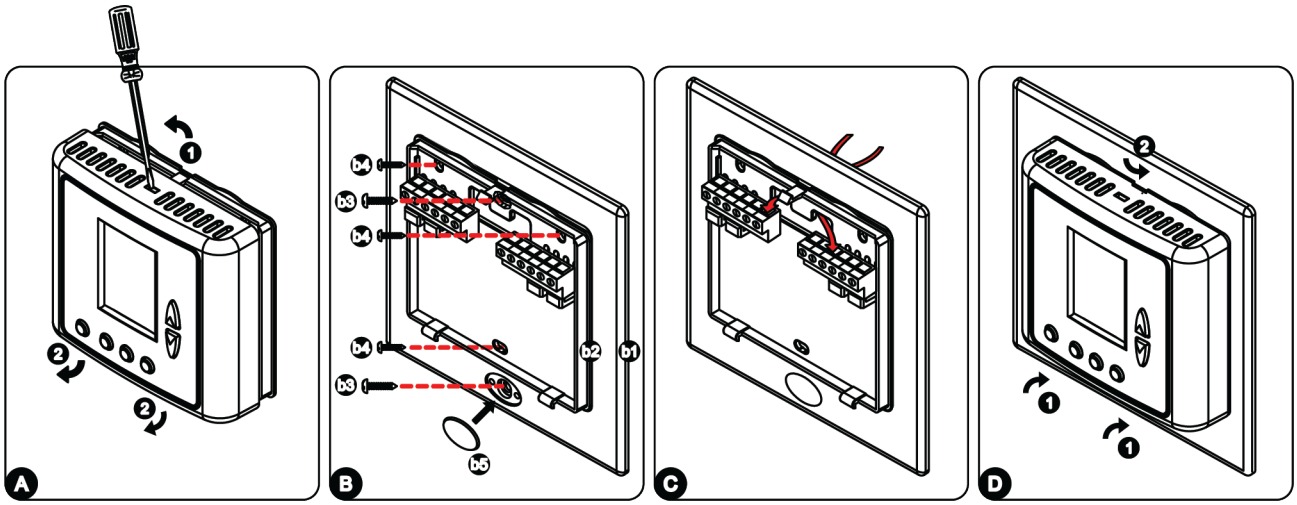
A. Separate the front panel from the back panel by pressing the tab located in the top of the unit and pulling the back panel off of the two bottom tabs.

B. Do one of the following:

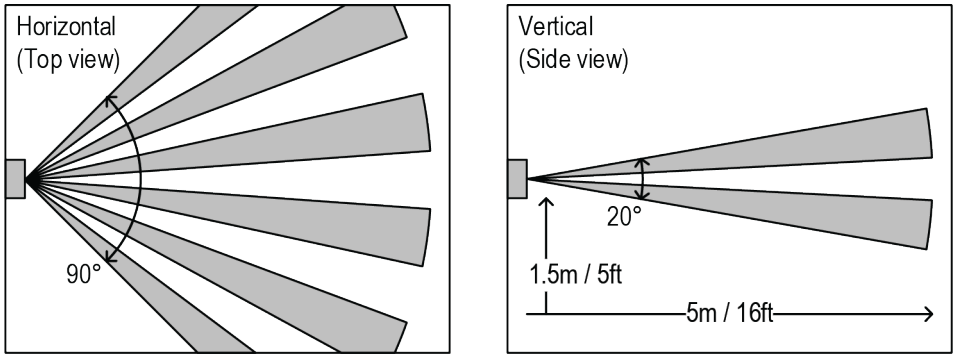
- If using an electrical box, mount the included wallplate to a standard 4" x 2" electrical box using the two larger mounting screws, then mount the thermostat to the wallplate using the three smaller mounting screws. Insert the screw cap into the wallplate's bottom screw hole.
- If not using an electrical box, flush-mount the thermostat to the wall (no wallplate needed).

C. Make electrical connections as shown in the picture below and the wiring diagram. Set DIP switch positions as explained in this manual.

D. Reattach the cover by placing it on the back panel's two bottom tabs and then pushing the cover until the top tab clicks into its slot on the cover.



PIR detection area



TB and TB-HM installation

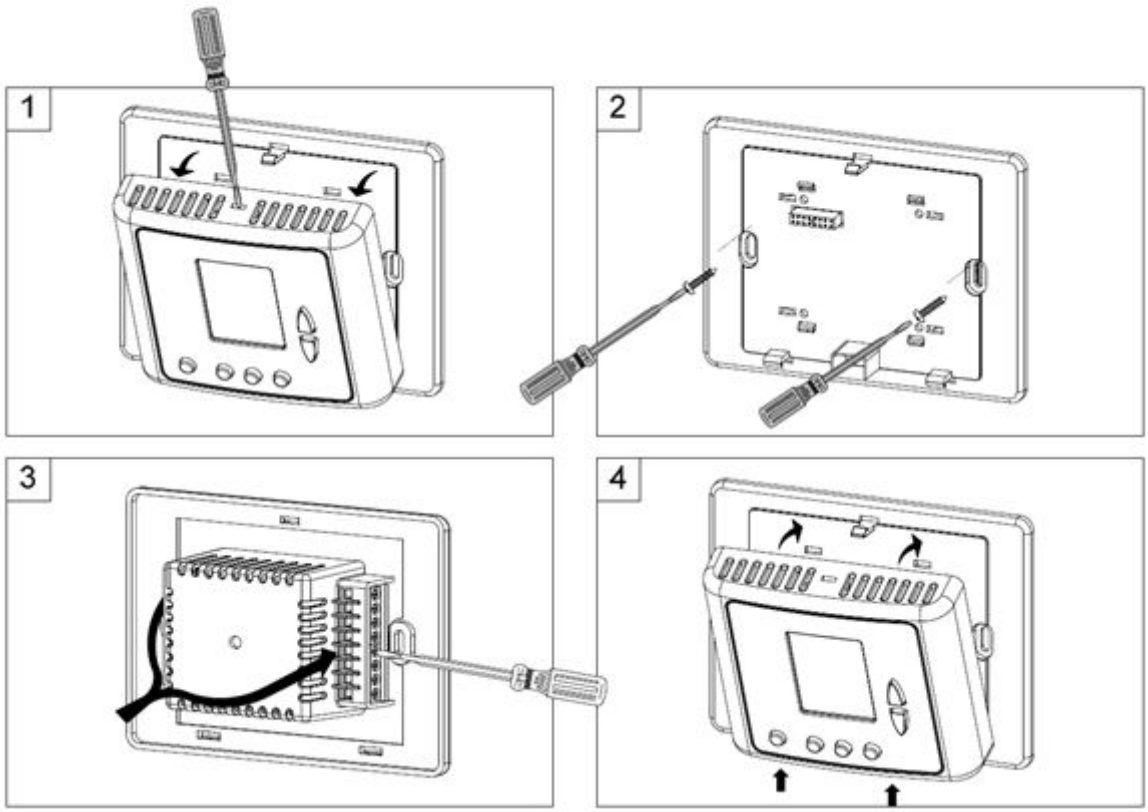
TB and TM thermostats are designed for wall mounting in the room to be controlled. They should be located where the occupant can easily read the LCD display and use the controls. If the built-in temperature sensor is being used to measure room temperature, the module should be placed where the temperature is representative of the general room conditions. Cold or warm air draughts; radiant heat and direct sunlight should be avoided.

General points to follow

- Disconnect power to the main board before installing the unit.
- Standard installation height is 1.5 meter (5 feet) from the floor.

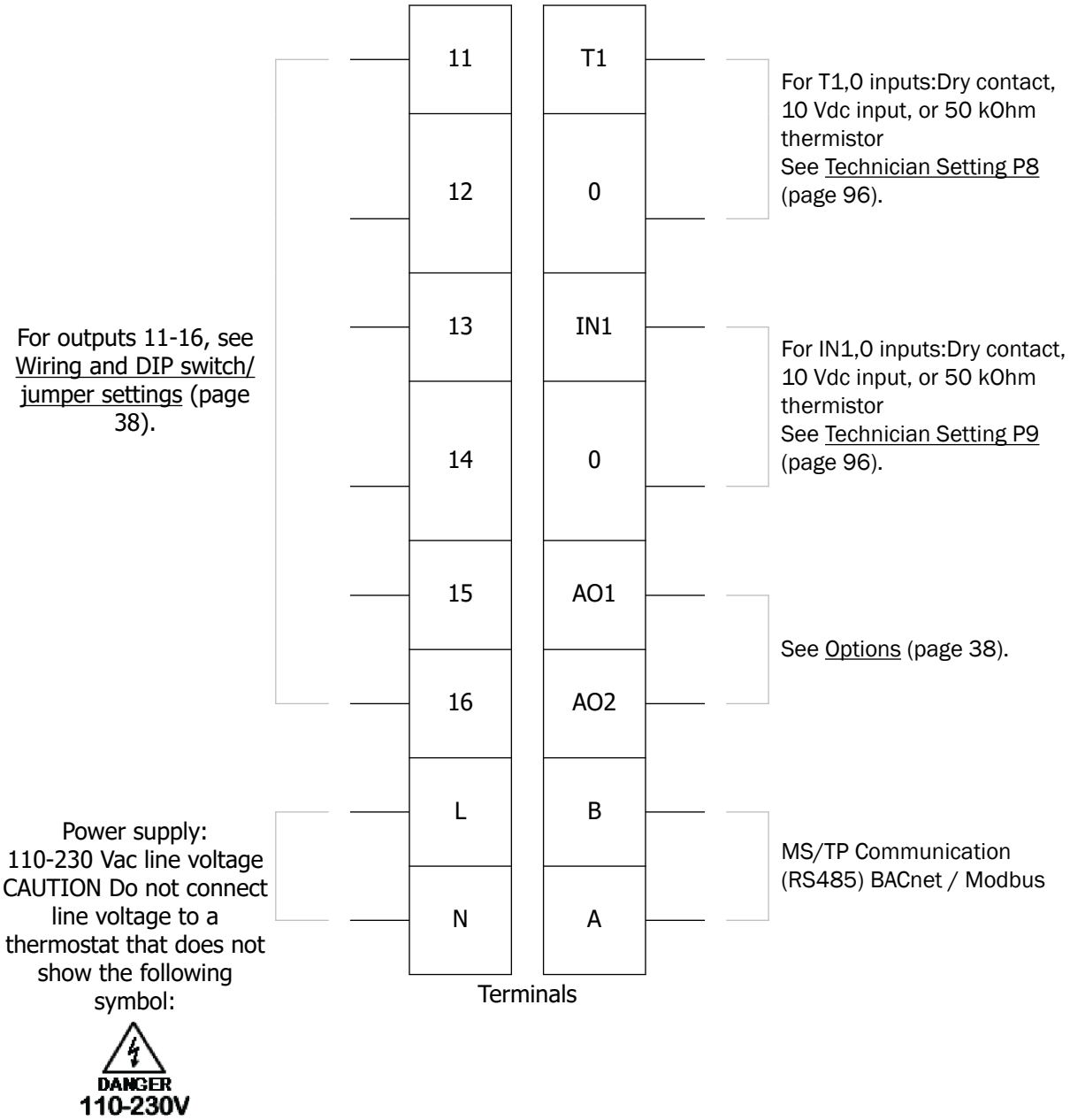
Installation procedure

1. Separate the front display from the back plastic cover by inserting a small flat screwdriver into each of the three slots as shown in the picture and rotating it gently. Keep the front display in a safe place.
2. Connect the wires as shown in the enclosed wiring diagram. All terminals accept Ix0.5mm2/24 AWG. If necessary, make changes to the DIP switches position as explained in this manual.
3. Place the thermostat in the electrical box and tighten up the 2 screws: Europe - Gewiss Box - GW 24 203 or similar / US - Carlon - BI 14R or similar.
4. Adapt the front frame-panel into its place, by pushing it towards the wall.

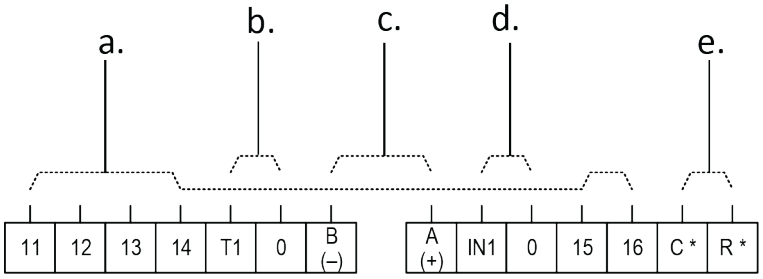


Wiring terminals

TB | TB-HM | TM



TB-24 | TB-24-HM | TM-24



Terminals

a. For outputs 11-16, see Wiring and DIP switch/jumper settings (page 38).

b. For T1,0 inputs: Dry contact, 10 Vdc input, or 50 kOhm thermistor
See Technician Setting P8.

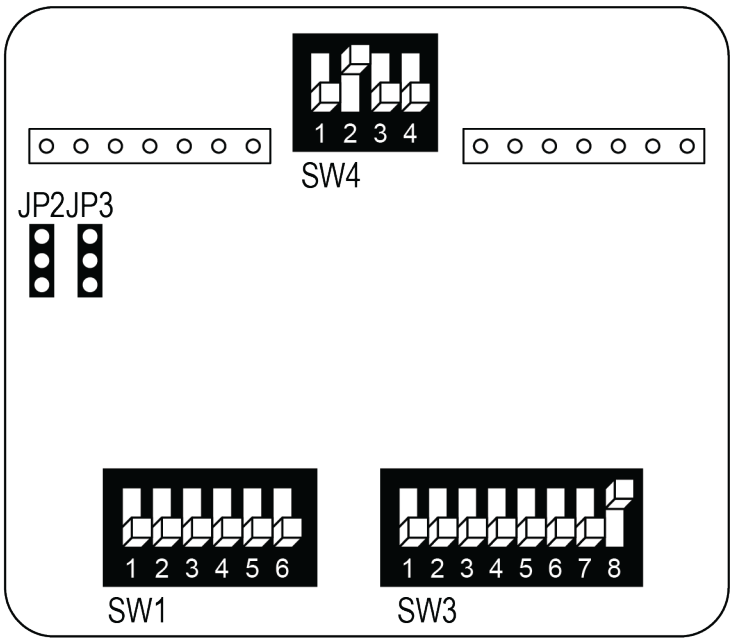
c. MS/TP Communication (RS485): BACnet

d. For IN1,0 functionality – please refer to parameter P9 in the technician settings section.
T2 change over sensor / Soft start in heat sensor / Window contact Remote On/Off switch / Window contact Remote economy switch / External PIR

e. Power supply: 24 Vac
CAUTION Do not connect line voltage to a thermostat that does not show the following symbol:

DIP switch and jumper configurations

TB



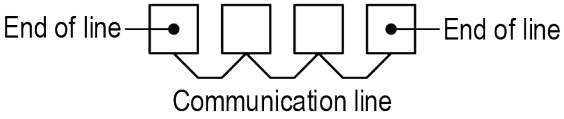
JP2, JP3 – Not in use

SW4.1 – Without valves control in FC config.
Enable = OFF (Open)
Disable = ON (Closed)

SW4.2 – Not used
Always ON

SW4.3 – Not used
Always OFF

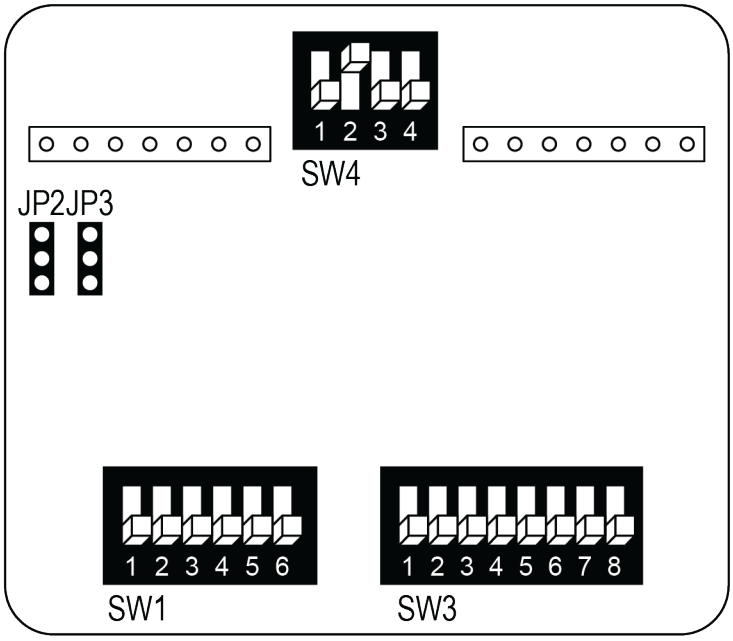
SW4.4 - End of line resistor (120Ω)
OFF = Not end of line
ON = End of line



SW1.1 through SW1.6, and SW3.1 through SW3.8

See Wiring and DIP switch/jumper settings (page 38).

TM



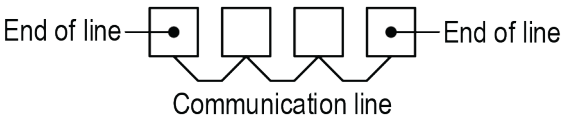
JP2, JP3 – Not in use

SW4.1 – Without valves control in FC config.
Enable = OFF (Open)
Disable = ON (Closed)

SW4.2 – Not used
Always ON

SW4.3 – Not used
Always OFF

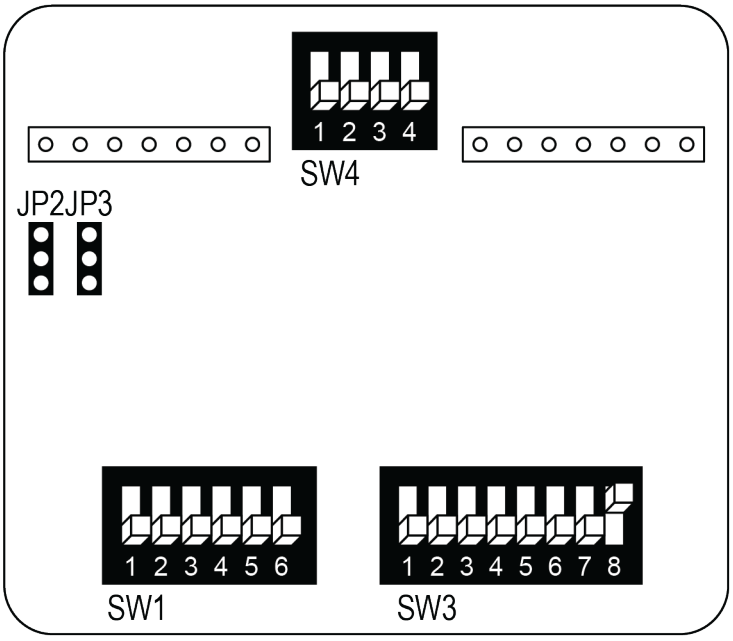
SW4.4 - End of line resistor (120Ω)
OFF = Not end of line
ON = End of line



SW1.1 through SW1.6, and SW3.1 through SW3.8

See Wiring and DIP switch/jumper settings (page 38).

TB-HM

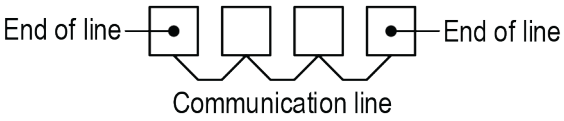


SW4.1 – Without valves control in FC config.
Enable = OFF (Open)
Disable = ON (Closed)

SW4.2 – Enable/Disable PIR detector
OFF - Enable PIR detector
ON - Disable PIR detector

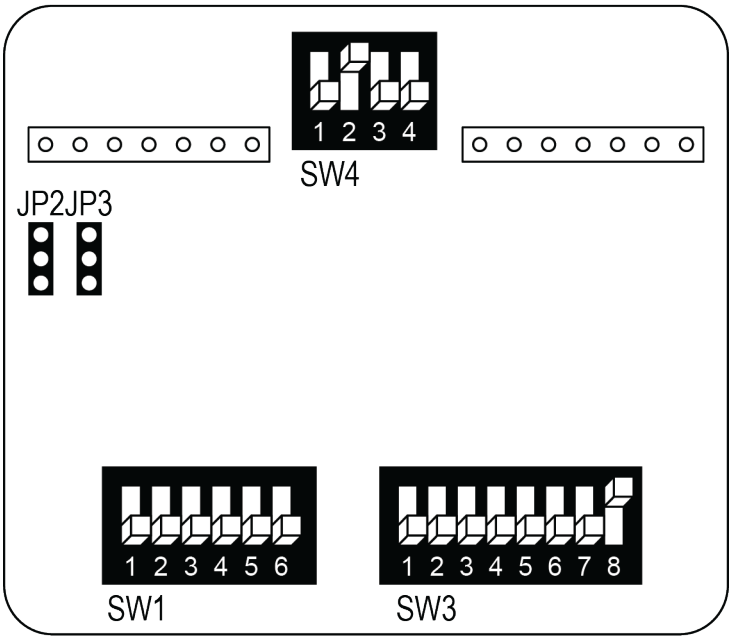
SW4.3 – Not used
Always OFF

SW4.4 - End of line resistor (120Ω)
OFF = Not end of line
ON = End of line



SW1.1 through SW1.6, and SW3.1 through SW3.8
See Wiring and DIP switch/jumper settings.

TB-24



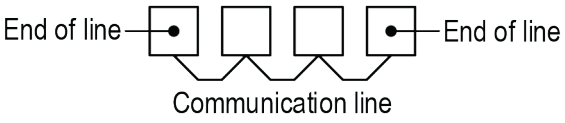
SW4.1 – Without valves control in FC config.
OFF - Enable valves control

ON - Disable valves control

SW4.2 – Not used
Always ON

SW4.3 – Not used
Always OFF

SW4.4 - End of line resistor (120Ω)
OFF = Not end of line
ON = End of line



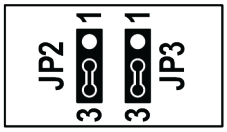
SW1.1 through SW1.6, and SW3.1 through SW3.8

See Wiring and DIP switch/jumper settings (page 38).

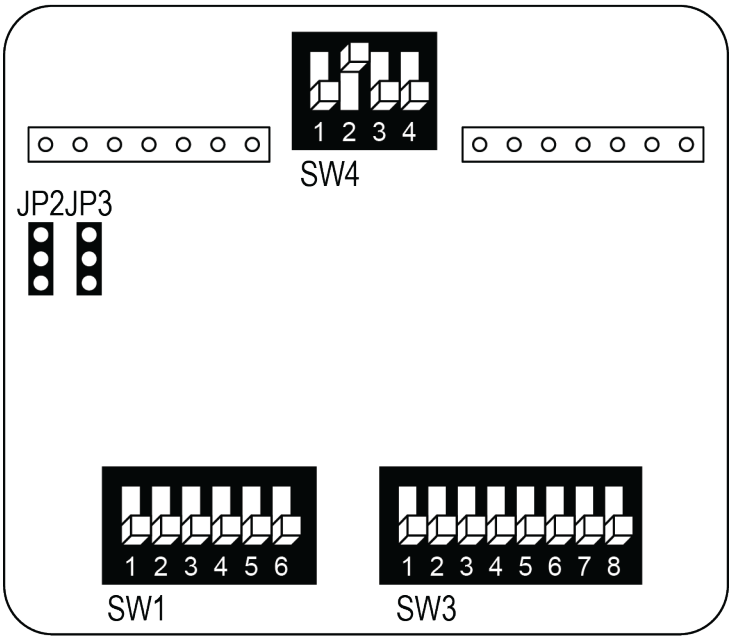
JP2, JP3 – Outputs 15,16 – Analog or Digital

JP2 – Output 16
Position 1- Analog output
Position 3- Digital output

JP3 – Output 15
Position 1- Analog output
Position 3- Digital output



TM-24

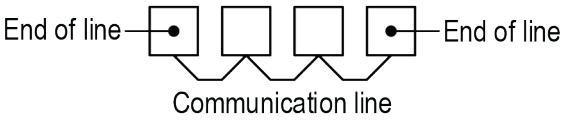


SW4.1 – Without valves control in FC config.
OFF - Enable valves control
ON - Disable valves control

SW4.2 – Not used
Always ON

SW4.3 – Not used
Always OFF

SW4.4 - End of line resistor (120Ω)
OFF = Not end of line
ON = End of line



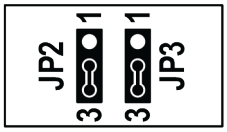
SW1.1 through SW1.6, and SW3.1 through SW3.8

See Wiring and DIP switch/jumper settings (page 38).

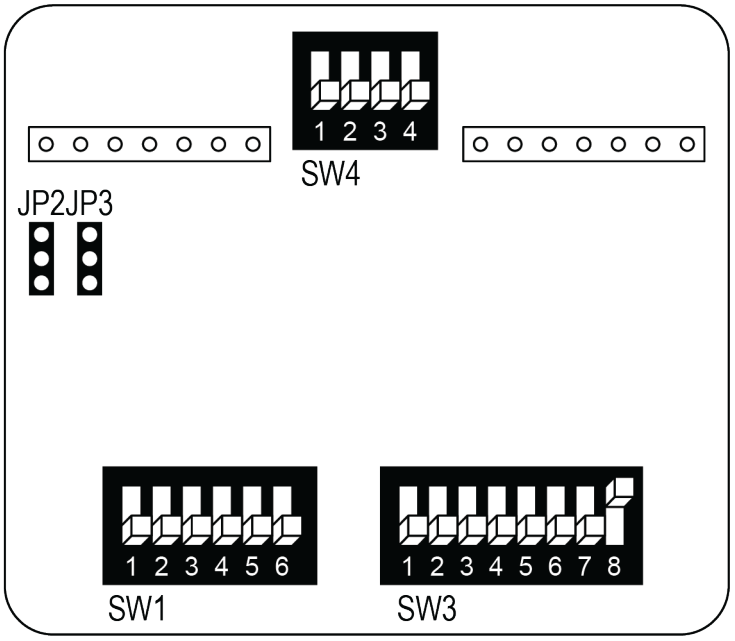
JP2, JP3 – Outputs 15,16 – Analog or Digital

JP2 – Output 16
Position 1- Analog output
Position 3- Digital output

JP3 – Output 15
Position 1- Analog output
Position 3- Digital output



TB-24-HM

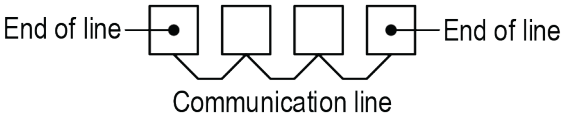


SW4.1 – Without valves control in FC config.
OFF - Enable valves control
ON - Disable valves control

SW4.2 – Enable/Disable PIR detector
OFF - Enable PIR detector
ON - Disable PIR detector

SW4.3 – Not used
Always OFF

SW4.4 - End of line resistor (120Ω)
OFF = Not end of line
ON = End of line



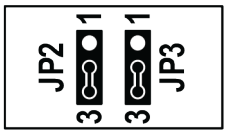
SW1.1 through SW1.6, and SW3.1 through SW3.8

See Wiring and DIP switch/jumper settings (page 38).

JP2, JP3 – Outputs 15,16 – Analog or Digital

JP2 – Output 16
Position 1- Analog output
Position 3- Digital output

JP3 – Output 15
Position 1- Analog output
Position 3- Digital output



AC configurations

Find the configuration you want in the tables below, then find that configuration number (1 through 9) on the Wiring and DIP switch/jumper settings (page 38).

TB | TB-24 | TM | TM-24

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

• Yes ○ Option

TB-HM | TB-24-HM

AC Configurations <u>without</u> humidification/dehumidification

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

AC Configurations <u>with</u> humidification/dehumidification

Outputs / Configuration	10	11	12	13	14	15	16	17	18	19
Heat elements	2	2	1	1	1	1	2	1		1
Compressors	2	1	1	1	2	1	1	1	1	1
Heat pump		•		•		•			•	•
Fan VFS										
Fan speeds	1	1	2 or 3	2 or 3	1	1	1	1	1	1
Economizer			○	○	○	○		○	○	

Humidifier	•	•	•		•	•	•	•	•	•
Dehumidifier							•	•	•	•
Reheat (Dehumidify)	•	•	•	•		•				

• Yes ○ Option

FC configurations for 2-pipe systems

Find the configuration you want in the tables below, then find that configuration number (10 through 13) on Wiring and DIP switch/jumper settings (page 56).

TB | TB-24 | TM | TM-24

Outputs	Configuration	10			11			12	13
Cl/Ht valve / Cl/Ht valve PID		•			PID			•	PID
Heat element (2nd stage)		•			•			•	•
Fan VFS								•	•
Fan speeds		1	2	3	1	2	3		
Economizer		○	○		○	○		○	○

• Yes ○ Option

TB-HM | TB-24-HM

Find the configuration you want in the tables below, then find that configuration number (20 through 23) on Wiring and DIP switch/jumper settings (page 74).

FC Configurations for 2-Pipe systems without humidification/dehumidification

Outputs	Configuration	20			21			22	23
Cl/Ht valve / Cl/Ht valve PID		•			PID			•	PID
Heat element (2nd stage)		•			•			•	•
Fan VFS								•	•
Fan speeds		1	2	3	1	2	3		

Economizer	○	○		○	○		○	○
Humidifier								
Dehumidifier								
Reheat (Dehumidify)								

FC Configurations for 2-Pipe systems <u>with</u> humidification/dehumidification

Outputs	Configuration	24			25			26	27	28			29			30		
Cl/Ht valve / Cl/Ht valve PID		•			PID			•	PID	•			PID			•		
Heat element (2nd stage)		•			•			•	•				•					
Fan VFS								•	•							•		
Fan Speeds		1	2	3	1	2	3			1	2	3	1	2	3			
Economizer		○	○		○	○		○	○	○	○		○	○		○	○	
Humidifier		•			•					•								
Dehumidifier										•			•			•		
Reheat (Dehumidify)		•			•			•	•									

• Yes ○ Option

FC configurations for 4-pipe systems / Floor heating

TB | TB-24 | TM | TM-24

Find the configuration you want in the tables below, then find that configuration number (14 through 22) on the Wiring and DIP switch/jumper settings (page 62).

Outputs	Configuration	14			15			16	17	18	19			20	21	22		
Cool valve / Cool valve PID		•			•			PID	PID	•	•			•	PID	PID		
Heat valve / Heat valve PID		•			•			•	•	•	PID			PID	•	PID		
Heat element (2nd stage)		•						•			•					•		
Fan VFS										•				•	•			
Fan speeds		1	2	3	1	2	3	1	2	3	1	2	3			1	2	3

Economizer	○ ○	○ ○	○ ○	○ ○	○	○ ○	○	○	○ ○
Floor heating		•		•					

• Yes ○ Option

TB-HM | TB-24-HM

Find the configuration you want in the tables below, then find that configuration number (31 through 39) on the Wiring and DIP switch/jumper settings (page 77).

FC Configurations for 4-Pipe systems **without** humidification/dehumidification

Outputs / Configuration	31	32	33	34	35	36	37	38	39
Cool valve / Cool valve PID	•	•	PID	PID	•	•	•	PID	PID
Heat valve / Heat valve PID	•	•	•	•	•	PID	PID	•	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	○ ○	○ ○	○ ○	○ ○	○	○ ○	○	○	○ ○
Humidifier									
Dehumidifier									
Reheat (Dehumidify)									
Floor heating		•		•					

FC Configurations for 4-Pipe systems **with** humidification/dehumidification

Outputs / Configuration	40	41	42	43	44	45	46	47
Cool valve / Cool valve PID	•	PID	•	PID	•	•	PID	•
Heat valve / Heat valve PID	•	•	•	•	PID	•	•	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	1 2 3	1 2 3
Economizer	○ ○	○ ○	○ ○	○ ○	○	○ ○	○	○

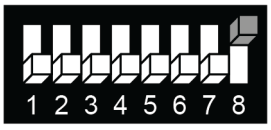
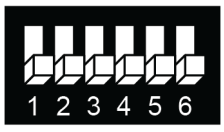
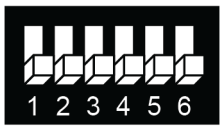
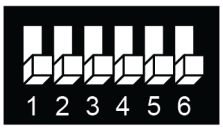
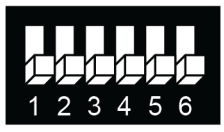
Humidifier			•	•	•			
Dehumidifier						•	•	•
Reheat (Dehumidify)	•	•						
Floor heating								

• Yes ○ Option

Wiring and DIP switch/jumper configurations

Wiring and DIP switch/jumper configurations 1 to 4 – AC systems

TB

Outputs	Config. 1: HC32 1 Speed fan	Config. 2: HP42 1 Speed fan	Config. 3: HP22 2/3 Speeds fan	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	Compressor 2	Compressor	Heat element(2)
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)
AO1	X	X	X	X
AO2	X	X	X	X
SW1				
SW2				

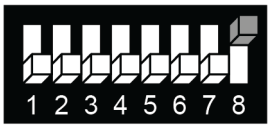
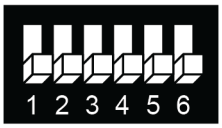
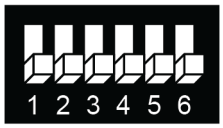
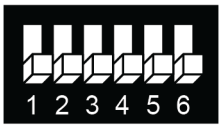
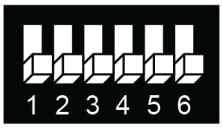
(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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) SW3.5 – Compressor delay:	ON = Disable, OFF = Enable
(4) SW1.3 – Dehumidification:	ON = Use dehumidifier, OFF = Use reheat for dehumidification
(5) SW1.6 – Terminal 12 operation:	ON = Economizer OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds) Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

Fan on/off: 110-230 Vac, 2.5A max
Control – Heat elements, Heat pump, Compressors, Economizer: 110-230 Vac, 0.3A max

TB-HM

Outputs	Config. 1: HC32 1 Speed fan	Config. 2: HP42 1 Speed fan	Config. 3: HP22 2/3 Speeds fan	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)
SW3				
SW1				
AO1	X	X	X	X

AO2	X	X	X	X

(1) SW3.1, SW3.2 – Fan speeds:
2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

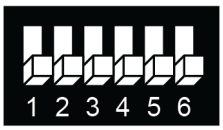
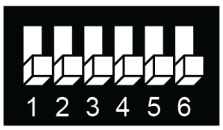
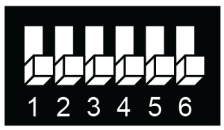
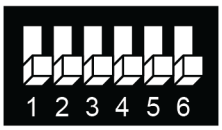
(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

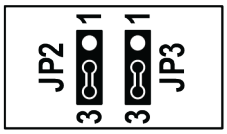
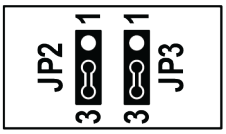
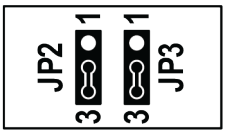
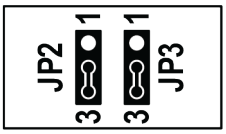
(5) SW1.6 – Terminal 12 operation:
ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

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

TB-24

Outputs	Config. 1: HC32 1 Speed fan	Config. 2: HP42 1 Speed fan	Config. 3: HP22 2/3 Speeds fan	Config. 4: HP21 2/3 Speeds fan
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	Compressor 2	Compressor 2	Heat element(2)
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)
SW3				
SW1				

Jumpers JP2, JP3 analog outputs				

(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

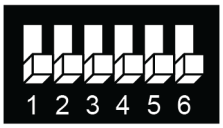
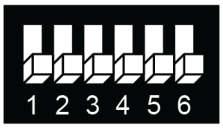
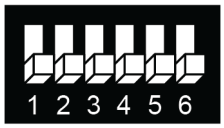
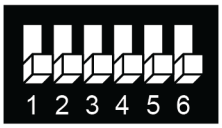
(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

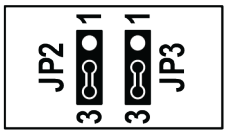
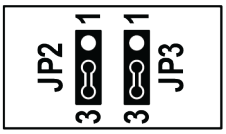
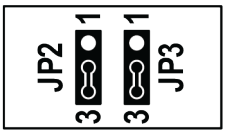
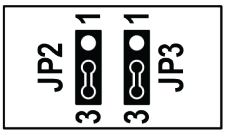
(5) SW1.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

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

TB-24-HM

Outputs	Config. 1: HC32 1 Speed fan	Config. 2: HP42 1 Speed fan	Config. 3: HP22 2/3 Speeds fan	Config. 4: HP21 2/3 Speeds fan
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	Compressor 2	Compressor 2	Heat element(2)
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)
SW3				
SW1				

Jumpers JP2, JP3 analog outputs				

(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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)

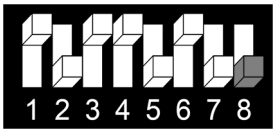
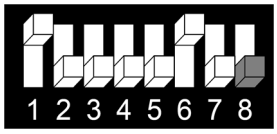
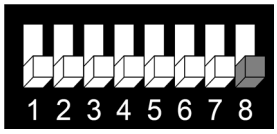
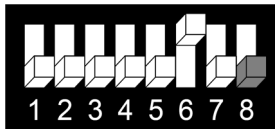
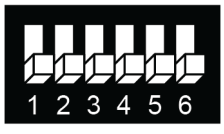
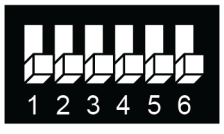
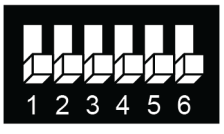
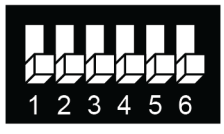
(3) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

(5) SW1.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

TM

Outputs	Config. 1: HC32 1 Speed fan	Config. 2: HP42 1 Speed fan	Config. 3: HP22 2/3 Speeds fan	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	Compressor 2	Compressor	Heat element(2)
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)
AO1	X	X	X	X
AO2	X	X	X	X
SW1				
SW2				

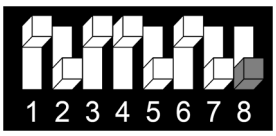
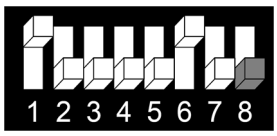
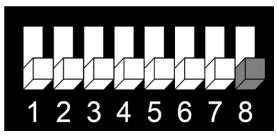
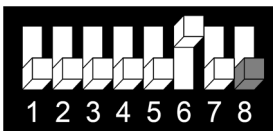
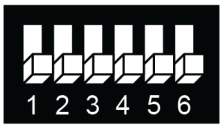
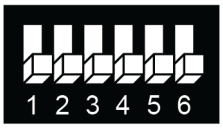
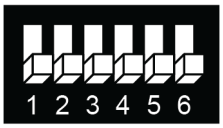
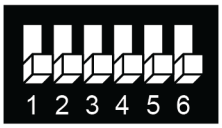
(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

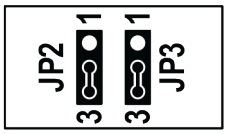
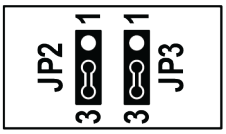
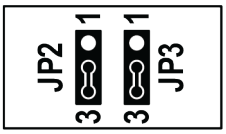
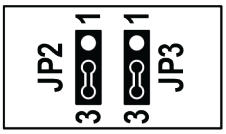
(2) SW3.4 – HP (Heat pump): HC (not heat pump):	ON = Heat pump active in cool, OFF = Heat pump active in heat ON = Electrical heater, OFF = Oil/Gas heater (no fan)
(3) SW3.5 – Compressor delay:	ON = Disable, OFF = Enable
(4) SW1.3 – Dehumidification:	ON = Use dehumidifier, OFF = Use reheat for dehumidification
(5) SW1.6 – Terminal 12 operation:	ON = Economizer OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds) Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

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

TM-24

Outputs	Config. 1: HC32 1 Speed fan	Config. 2: HP42 1 Speed fan	Config. 3: HP22 2/3 Speeds fan	Config. 4: HP21 2/3 Speeds fan
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	Compressor 2	Compressor 2	Heat element(2)
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)
SW3				
SW1				

Jumpers JP2, JP3 analog outputs				

(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

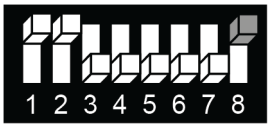
(5) SW1.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

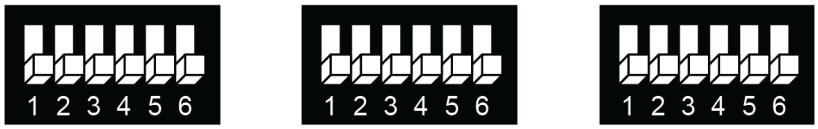
See drawing for DIP switch and jumper locations.

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

Wiring and DIP switch/jumper configurations 5 to 7 – AC systems

TB

Outputs	Config. 5: HC21 2/3 Speeds fan(	Config. 6: HP11 Fan VFS	Config. 7: HC11 Fan VFS
11	Fan high	X	X
12	Fan medium (or Economizer(5))	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	Fan low	X	X
14	Heat element 2 (2nd stage heat)	Heat pump(2)	Heat element(2)
15	Compressor (3)	Compressor(3)	Compressor(3)
16	Heat element 1(2) (1st stage heat)	Fan VFS	Fan VFS
AO1	X	X	X
AO2	X	Fan VFS	Fan VFS
SW3			

SW1	

(1) SW3.1, SW3.2 – Fan speeds:	2 speeds (Low and High): 3 speeds (Low, Med., and High):	SW3.1 = OFF, SW3.2 = ON SW3.1 = OFF, SW3.2 = OFF
(2) SW3.4 – 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) SW3.5 – Compressor delay:	ON = Disable, OFF = Enable	
(4) SW1.3 – Dehumidification:	ON = Use dehumidifier, OFF = Use reheat for dehumidification	
(5) SW1.6 – Terminal 12 operation:	ON = Economizer OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds) Important: Economizer will not work in 3 fan speeds configuration.	

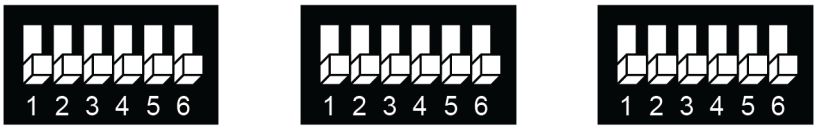
See drawing for DIP switch and jumper locations.

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

TB-HM

Outputs	Config. 5: HC21 2/3 Speeds fan	Config. 6: HP11 Fan VFS	Config. 7: HC11 Fan VFS
11	Fan high	X	X
12	Fan medium (or Economizer(5))	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	Fan low	X	X
14	Heat element 2 (2nd stage heat)	Heat pump(2)	Heat element(2)
15	Compressor (3)	Compressor(3)	Compressor 1(3)
16	Heat element 1(2) (1st stage heat)	X	X
AO1	X	X	X
AO2	X	Fan VFS	Fan VFS

SW3	

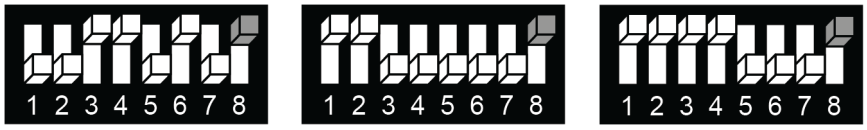
SW1	

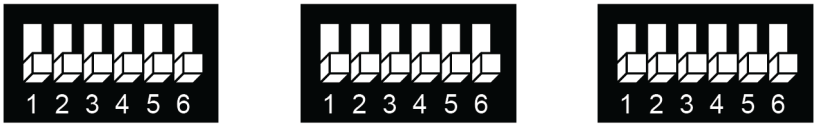
(1) SW3.1, SW3.2 – Fan speeds:	2 speeds (Low and High): 3 speeds (Low, Med., and High):	SW3.1 = OFF, SW3.2 = ON SW3.1 = OFF, SW3.2 = OFF
(2) SW3.4 – HP (Heat pump): HC (not heat pump):	ON = Heat pump active in cool, OFF = Heat pump active in heat ON = Electrical heater, OFF = Oil/Gas heater (no fan)	
(3) SW3.5 – Compressor delay:	ON = Disable, OFF = Enable	
(4) SW1.3 – Dehumidification:	ON = Use dehumidifier, OFF = Use reheat for dehumidification	
(5) SW1.6 – Terminal 12 operation:	ON = Economizer OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds) Important: Economizer will not work in 3 fan speeds configuration.	

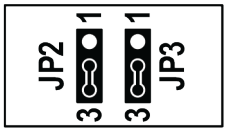
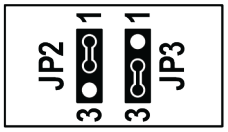
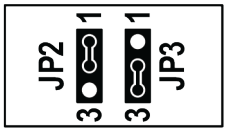
See drawing for DIP switch and jumper locations.

TB-24

Outputs	Config. 5: HC21 2/3 Speeds fan(1)	Config. 6: HP11 Fan VFS	Config. 7: HC11 Fan VFS
11	Fan high	X	X
12	Fan medium (or Economizer(5))	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	Fan low	X	X
14	Heat element 2 (2nd stage heat)	Heat pump(2)	Heat element(2)
15	Compressor(3)	Compressor(3)	Compressor(3)
16	Heat element 1(2) (1st stage heat)	Fan VFS	Fan VFS

SW3	

SW1	

Jumpers JP2, JP3 analog outputsW2			

(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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)

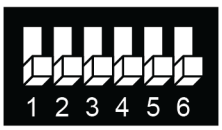
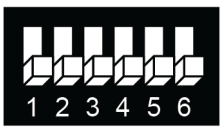
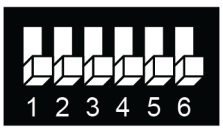
(3) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

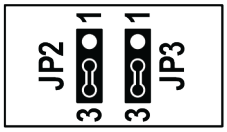
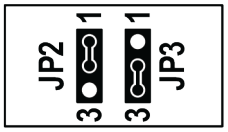
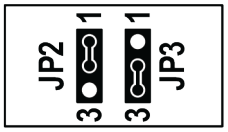
(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

(5) SW1.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

TB-24-HM

Outputs	Config. 5: HC21 2/3 Speeds fan(1)	Config. 6: HP11 Fan VFS	Config. 7: HC11 Fan VFS
11	Fan high	X	X
12	Fan medium (or Economizer(5))	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	Fan low	X	X
14	Heat element 2 (2nd stage heat)	Heat pump(2)	Heat element(2)
15	Compressor(3)	Compressor(3)	Compressor(3)
16	Heat element 1(2) (1st stage heat)	Fan VFS	Fan VFS
SW3			
SW1			

Jumpers JP2, JP3 analog outputsW2			

(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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)

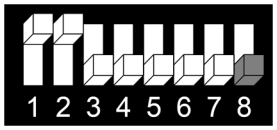
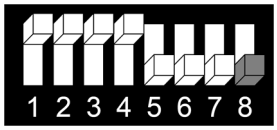
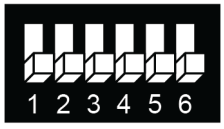
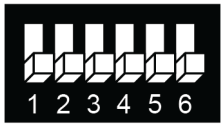
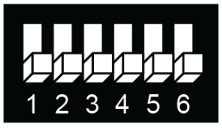
(3) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

(5) SW1.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

TM

Outputs	Config. 5: HC21 2/3 Speeds fan(	Config. 6: HP11 Fan VFS	Config. 7: HC11 Fan VFS
11	Fan high	X	X
12	Fan medium (or Economizer(5))	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	Fan low	X	X
14	Heat element 2 (2nd stage heat)	Heat pump(2)	Heat element(2)
15	Compressor (3)	Compressor(3)	Compressor(3)
16	Heat element 1(2) (1st stage heat)	Fan VFS	Fan VFS
AO1	X	X	X
AO2	X	Fan VFS	Fan VFS
SW3			
SW1			

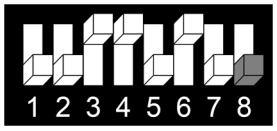
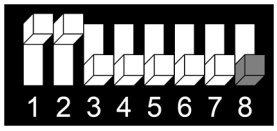
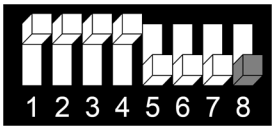
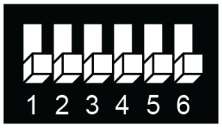
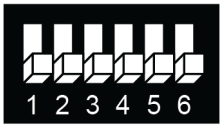
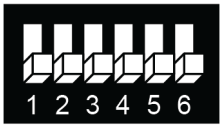
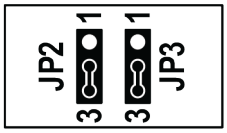
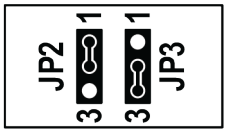
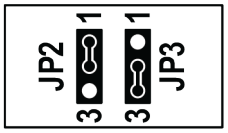
(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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) SW3.5 – Compressor delay:	ON = Disable, OFF = Enable
(4) SW1.3 – Dehumidification:	ON = Use dehumidifier, OFF = Use reheat for dehumidification
(5) SW1.6 – Terminal 12 operation:	ON = Economizer OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds) Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

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

TM-24

Outputs	Config. 5: HC21 2/3 Speeds fan(1)	Config. 6: HP11 Fan VFS	Config. 7: HC11 Fan VFS
11	Fan high	X	X
12	Fan medium (or Economizer(5))	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	Fan low	X	X
14	Heat element 2 (2nd stage heat)	Heat pump(2)	Heat element(2)
15	Compressor(3)	Compressor(3)	Compressor(3)
16	Heat element 1(2) (1st stage heat)	Fan VFS	Fan VFS
SW3			
SW1			
Jumpers JP2, JP3 analog outputsW2			

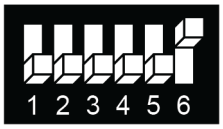
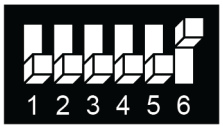
(1) SW3.1, SW3.2 – Fan speeds:	2 speeds (Low and High):	SW3.1 = OFF, SW3.2 = ON
	3 speeds (Low, Med., and High):	SW3.1 = OFF, SW3.2 = OFF
(2) SW3.4 – HP (Heat pump):	ON = Heat pump active in cool, OFF = Heat pump active in heat	
HC (not heat pump):	ON = Electrical heater, OFF = Oil/Gas heater (no fan)	

(3) SW3.5 – Compressor delay:	ON = Disable, OFF = Enable
(4) SW1.3 – Dehumidification:	ON = Use dehumidifier, OFF = Use reheat for dehumidification
(5) SW1.6 – Terminal 12 operation:	ON = Economizer OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds) Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

Wiring and DIP switch/jumper configurations 8 to 9 – AC systems

TB

Outputs	Config. 8: HC22 1 Speed fan, Economizer,	Config. 9: HP32 1 Speed fan, Economizer
11	Heat element 2 (2nd stage heat)	Heat element (3rd stage heat)
12	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	Fan (1 speed)	Fan (1 speed)
14	Compressor 2	Compressor 2
15	Compressor 1(3)	Compressor 1(3)
16	Heat element 1(2) (1st stage heat)	Heat pump(2)
AO1	X	X
AO2	X	X
SW3		
SW1		

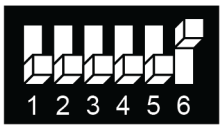
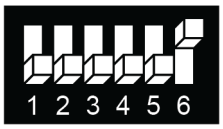
(1) SW3.1, SW3.2 – Fan speeds:	2 speeds (Low and High): 3 speeds (Low, Med., and High):	SW3.1 = OFF, SW3.2 = ON SW3.1 = OFF, SW3.2 = OFF
(2) SW3.4 – HP (Heat pump): HC (not heat pump):	ON = Heat pump active in cool, OFF = Heat pump active in heat ON = Electrical heater, OFF = Oil/Gas heater (no fan)	
(3) SW3.5 – Compressor delay:	ON = Disable, OFF = Enable	
(4) SW1.3 – Dehumidification:	ON = Use dehumidifier, OFF = Use reheat for dehumidification	

(5) SW1.6 – Terminal 12 operation:	ON = Economizer OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds) Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

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

TB-HM

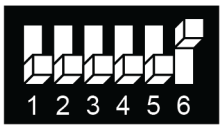
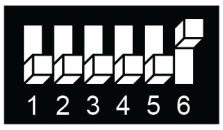
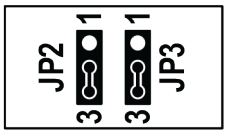
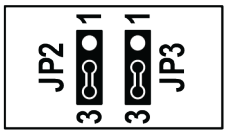
Outputs	Config. 8: HC22 1 Speed fan, Economizer,	Config. 9: HP32 1 Speed fan, Economizer
11	Heat element 2 (2nd stage heat)	Heat element (3rd stage heat)
12	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	Fan (1 speed)	Fan (1 speed)
14	Compressor 2	Compressor 2
15	Compressor 1(3)	Compressor 1(3)
16	Heat element 1(2) (1st stage heat)	Heat pump(2)
AO1	X	X
AO2	X	X
SW3		
SW1		

(1) SW3.1, SW3.2 – Fan speeds:	2 speeds (Low and High): 3 speeds (Low, Med., and High):	SW3.1 = OFF, SW3.2 = ON SW3.1 = OFF, SW3.2 = OFF
(2) SW3.4 – 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) SW3.5 – Compressor delay:	ON = Disable, OFF = Enable	
(4) SW1.3 – Dehumidification:	ON = Use dehumidifier, OFF = Use reheat for dehumidification	
(5) SW1.6 – Terminal 12 operation:	ON = Economizer OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds) Important: Economizer will not work in 3 fan speeds configuration.	

See drawing for DIP switch and jumper locations.

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

TB-24

Outputs	Config. 8: HC22 1 Speed fan, Economizer,	Config. 9: HP32 1 Speed fan, Economizer
11	Heat element 2 (2nd stage heat)	Heat element (3rd stage heat)
12	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	Fan (1 speed)	Fan (1 speed)
14	Compressor 2	Compressor 2
15	Compressor 1(3)	Compressor 1(3)
16	Heat element 1(2) (1st stage heat)	Heat pump(2)
SW3		
SW1		
Jumpers JP2, JP3 analog outputsW2		

(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

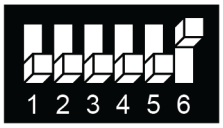
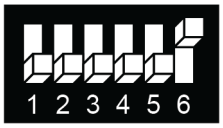
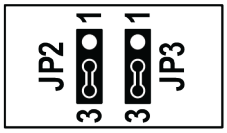
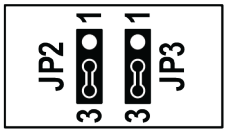
(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

(5) SW1.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

Fan on/off: 110-230 VAC, 2.5A Max
Control – Fan on/off, Heat elements, Heat pump, Compressors, Economizer: 24 Vac, 0.5A max

TB-24-HM

Outputs	Config. 8: HC22 1 Speed fan, Economizer,	Config. 9: HP32 1 Speed fan, Economizer
11	Heat element 2 (2nd stage heat)	Heat element (3rd stage heat)
12	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	Fan (1 speed)	Fan (1 speed)
14	Compressor 2	Compressor 2
15	Compressor 1(3)	Compressor 1(3)
16	Heat element 1(2) (1st stage heat)	Heat pump(2)
SW3		
SW1		
Jumpers JP2, JP3 analog outputsW2		

(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

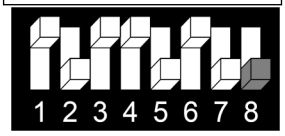
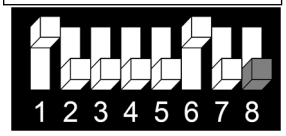
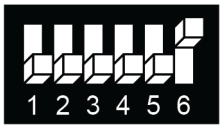
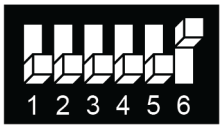
(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

(5) SW1.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

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

TM

Outputs	Config. 8: HC22 1 Speed fan, Economizer,	Config. 9: HP32 1 Speed fan, Economizer
11	Heat element 2 (2nd stage heat)	Heat element (3rd stage heat)
12	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	Fan (1 speed)	Fan (1 speed)
14	Compressor 2	Compressor 2
15	Compressor 1(3)	Compressor 1(3)
16	Heat element 1(2) (1st stage heat)	Heat pump(2)
AO1	X	X
AO2	X	X
SW3		
SW1		

(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

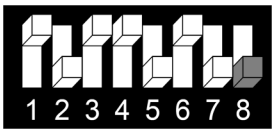
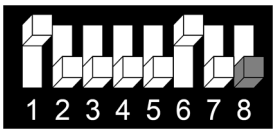
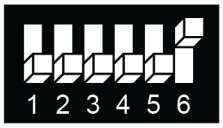
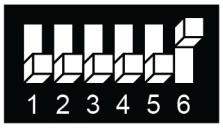
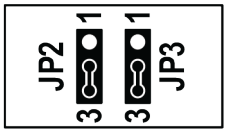
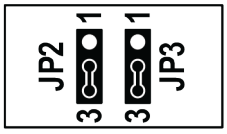
(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

(5) SW1.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

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

TM-24

Outputs	Config. 8: HC22 1 Speed fan, Economizer,	Config. 9: HP32 1 Speed fan, Economizer
11	Heat element 2 (2nd stage heat)	Heat element (3rd stage heat)
12	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	Fan (1 speed)	Fan (1 speed)
14	Compressor 2	Compressor 2
15	Compressor 1(3)	Compressor 1(3)
16	Heat element 1(2) (1st stage heat)	Heat pump(2)
SW3		
SW1		
Jumpers JP2, JP3 analog outputsW2		

(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

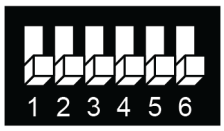
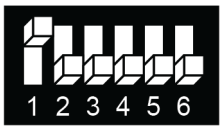
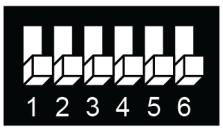
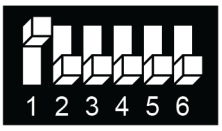
(5) SW1.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

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

Wiring and DIP switch/jumper configurations 10 to 13 – FC systems - 2-pipe

TB

Outputs	Config. 10: 2-Pipe, 1/2/3 Speeds fan(1)	Config. 11: 2-Pipe, 1/2/3 Speeds fan(1) Cool/Heat PID	Config. 12: 2-Pipe, Fan VFS	Config. 13: 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 – SW1.6 ON)	Economizer(5) (option – SW1.6 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)	X	Cool/Heat valve(3)	X
16	X	X	X	X
AO1	X	Cool/Heat valve PID(3)	X	Cool/Heat valve PID(3)
AO2	X	X	Fan VFS	Fan VFS
SW3				
SW2				

(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

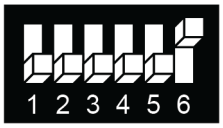
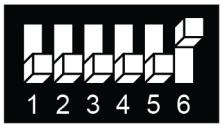
(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

(5) SW1.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

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

TB-HM

Outputs	Config. 8: HC22 1 Speed fan, Economizer,	Config. 9: HP32 1 Speed fan, Economizer
11	Heat element 2 (2nd stage heat)	Heat element (3rd stage heat)
12	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	Fan (1 speed)	Fan (1 speed)
14	Compressor 2	Compressor 2
15	Compressor 1(3)	Compressor 1(3)
16	Heat element 1(2) (1st stage heat)	Heat pump(2)
AO1	X	X
AO2	X	X
SW3		
SW1		

(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

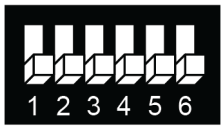
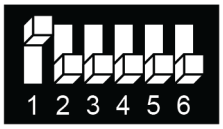
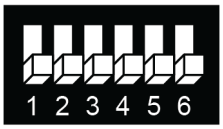
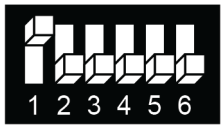
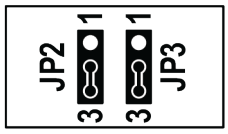
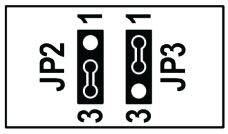
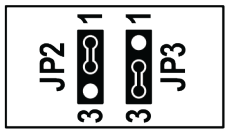
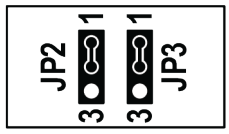
(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

(5) SW1.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

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

TB-24

Outputs	Config. 10: 2-Pipe, 1/2/3 Speeds fan(1)	Config. 11: 2-Pipe, 1/2/3 Speeds fan(1) Cool/Heat PID	Config. 12: 2-Pipe, Fan VFS	Config. 13: 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 – SW1.6 ON)	Economizer(5) (option – SW1.6 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)	Cool/Heat valve PID(3)	Cool/Heat valve(3)	Cool/Heat valve PID(3)
16	X	X	Fan VFS	Fan VFS
SW3				
SW2				
Jumpers JP2, JP3 analog outputs				

(1) SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

(3) SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

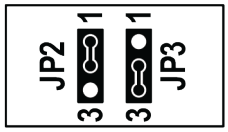
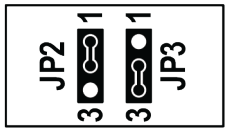
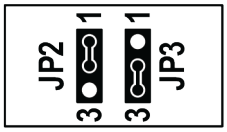
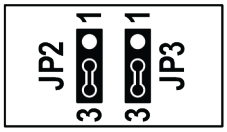
(5) SW1.6–Terminal 12 operation:
ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

Fan VFS, PID valves: 0-10 Vdc, 0.5 mA Not isolated
Control – Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24 Vac, 0.5A max

TB-24-HM

w/wo Humidifier for humidification, with Reheat for dehumidification

Outputs	Config. 10: HC22 1 Speed fan, Humidifier, Reheat for Dehumidification	Config. 11: HP31 1 Speed fan, Humidifier, Reheat for Dehumidification	Config. 12: HC11 2/3 Speeds fan, Humidifier, Reheat for Dehumidification	Config. 13: HP21 2/3 Speeds fan, Reheat for Dehumidification
11	Heat element 2 (2nd stage heat)	Heat element 2 (2nd stage heat)	Fan high	Fan high
12	Heat element 1(2) (1st stage heat)	Heat element 1(2) (2nd 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	Heat Pump(2)	Heat element(2)	Heat element(2) (2nd stage heat)
15	Compressor 1(3)	Compressor(3)	Compressor(3)	Compressor(3)
16	Humidifier	Humidifier	Humidifier	Heat pump(2)
SW3				
SW2				
Jumpers JP2, JP3 analog outputs				

(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

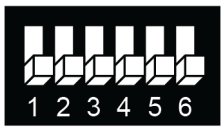
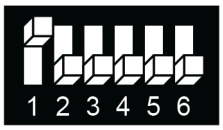
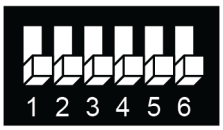
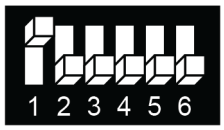
(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

(5) SW1.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

Humidifier: 0-10VDC, 0.5mA Not isolated
Control - Fan on/of, Heat elements, Heat pump, Compressors, Economizer: 24VAC, 0.5A max.

TM

Outputs	Config. 10: 2-Pipe, 1/2/3 Speeds fan(1)	Config. 11: 2-Pipe, 1/2/3 Speeds fan(1) Cool/Heat PID	Config. 12: 2-Pipe, Fan VFS	Config. 13: 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 – SW1.6 ON)	Economizer(5) (option – SW1.6 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)	X	Cool/Heat valve(3)	X
16	X	X	X	X
AO1	X	Cool/Heat valve PID(3)	X	Cool/Heat valve PID(3)
AO2	X	X	Fan VFS	Fan VFS
SW3				
SW2				

(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

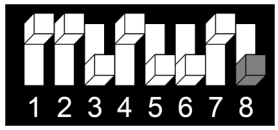
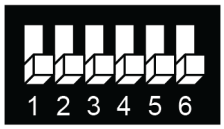
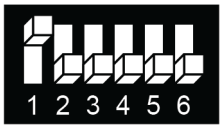
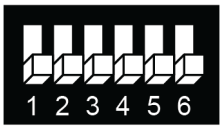
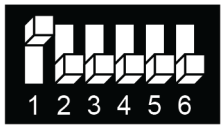
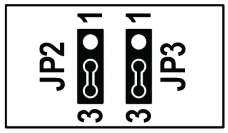
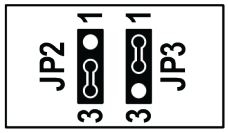
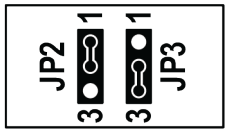
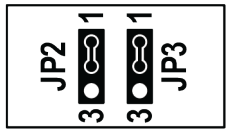
(5) SW1.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

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

TM-24

Outputs	Config. 10: 2-Pipe, 1/2/3 Speeds fan(1)	Config. 11: 2-Pipe, 1/2/3 Speeds fan(1) Cool/Heat PID	Config. 12: 2-Pipe, Fan VFS	Config. 13: 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 – SW1.6 ON)	Economizer[5] (option – SW1.6 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]	Cool/Heat valve PID[3]	Cool/Heat valve[3]	Cool/Heat valve PID[3]
16	X	X	Fan VFS	Fan VFS
SW3				
SW2				
Jumpers JP2, JP3 analog outputs				

[1] SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

[2] SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

[3] SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

[4] SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

[5] SW1.6–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 for DIP switch and jumper locations.

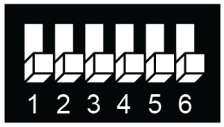
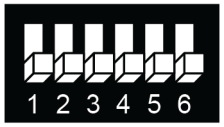
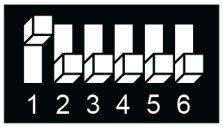
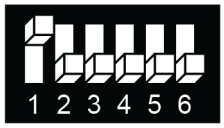
Fan VFS, PID valves: 0-10 Vdc, 0.5 mA Not isolated
Control – Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24 Vac, 0.5A max

Wiring and DIP switch/jumper configurations - TB | TB-24 | TM | TM-24

Wiring and DIP switch/jumper configurations – FC systems - 4-pipe - TB | TB-24 | TM | TM-24

TB

w/wo Floor heating

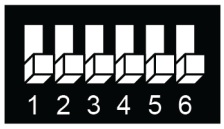
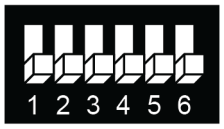
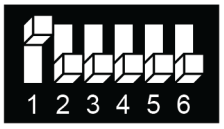
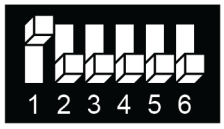
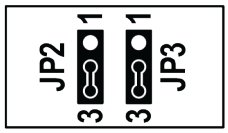
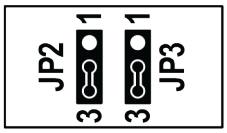
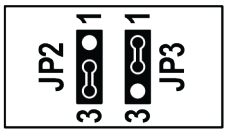
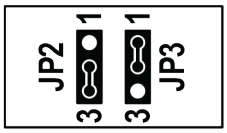
Outputs	Config. 14: 4-Pipe, 1/2/3 Speeds fan(1)	Config. 15: 4-Pipe, 1/2/3 Speeds fan(1), Floor heating	Config. 16: 4-Pipe, 1/2/3 Speeds fan(1), Cool valve PID	Config. 17: 4-Pipe, 1/2/3 speeds fan(1), Cool/ Heat PID, Floor heating
11	Fan high	Fan high	Fan high	Fan high
12	Fan medium (or Economizer(5))	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)
AO1	X	X	Cool valve PID(3)	Cool valve PID(3)
AO2	X	X	X	X
SW3				
SW1				

See drawing for DIP switch and jumper locations.

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

TB-24

Outputs	Config. 14: 4-Pipe, 1/2/3 Speeds fan(1)	Config. 15: 4-Pipe, 1/2/3 Speeds fan(1), Floor heating	Config. 16: 4-Pipe, 1/2/3 Speeds fan(1), Cool valve PID	Config. 17: 4-Pipe, 1/2/3 speeds fan(1), Cool/ Heat 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]	Cool valve PID[3]	Cool valve PID[3]
16	Heat valve (1st stage heat)	Heat valve (2nd stage heat)	Heat valve (1st stage heat)	Heat valve (2nd stage heat)
SW3				
SW1				
Jumpers JP2, JP3 analog outputs				

[1] SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

[2] SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

[3] SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

[4] SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

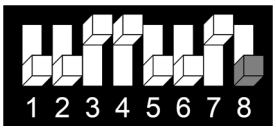
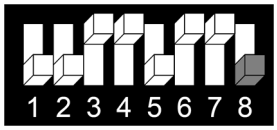
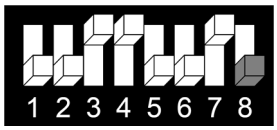
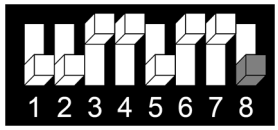
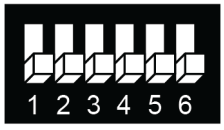
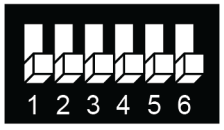
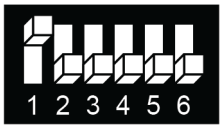
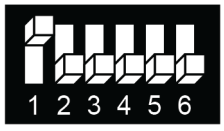
[5] SW1.6–Terminal 12 operation:
ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

Fan VFS, PID valves: 0-10 Vdc, 0.5 mA Not isolated
Control – Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24 Vac, 0.5A max

TM

w/wo Floor heating

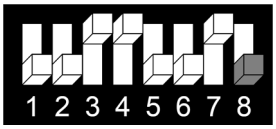
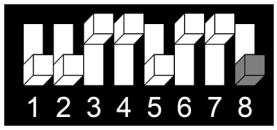
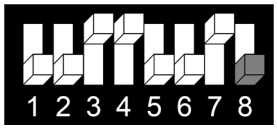
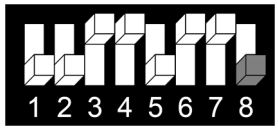
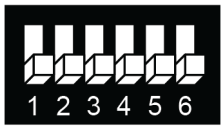
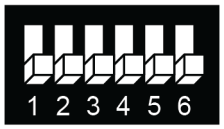
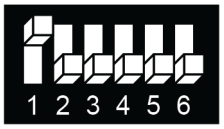
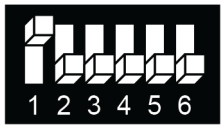
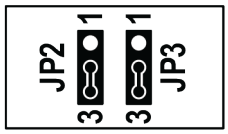
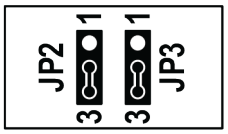
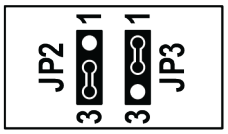
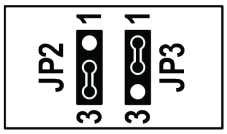
Outputs	Config. 14: 4-Pipe, 1/2/3 Speeds fan(1)	Config. 15: 4-Pipe, 1/2/3 Speeds fan(1), Floor heating	Config. 16: 4-Pipe, 1/2/3 Speeds fan(1), Cool valve PID	Config. 17: 4-Pipe, 1/2/3 speeds fan(1), Cool/ Heat PID, Floor heating
11	Fan high	Fan high	Fan high	Fan high
12	Fan medium (or Economizer(5))	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)
AO1	X	X	Cool valve PID(3)	Cool valve PID(3)
AO2	X	X	X	X
SW3				
SW1				

See drawing for DIP switch and jumper locations.

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

TM-24

Outputs	Config. 14: 4-Pipe, 1/2/3 Speeds fan(1)	Config. 15: 4-Pipe, 1/2/3 Speeds fan(1), Floor heating	Config. 16: 4-Pipe, 1/2/3 Speeds fan(1), Cool valve PID	Config. 17: 4-Pipe, 1/2/3 speeds fan(1), Cool/ Heat 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]	Cool valve PID[3]	Cool valve PID[3]
16	Heat valve (1st stage heat)	Heat valve (2nd stage heat)	Heat valve (1st stage heat)	Heat valve (2nd stage heat)
SW3				
SW1				
Jumpers JP2, JP3 analog outputs				

[1] SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

[2] SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

[3] SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

[4] SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

[5] SW1.6–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.

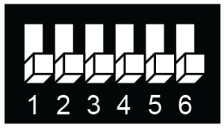
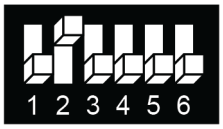
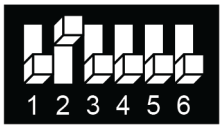
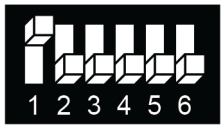
See drawing for DIP switch and jumper locations.

Fan VFS, PID valves: 0-10 Vdc, 0.5 mA Not isolated
Control – Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24 Vac, 0.5A max

Wiring and DIP switch/jumper configurations 18 to 21 – FC systems - 4-pipe

TB

Outputs	Config. 18: 4-Pipe, Fan VFS	Config. 19: 4-Pipe, 1/2/3 Speeds fan[1], Heat valve PID	Config. 20: 4-Pipe, Fan VFS, Heat valve PID	Config. 21: 4-Pipe, Fan VFS, Cool valve PID
11	X	Fan high	X	X
12	Economizer[5] (option – SW1.6 ON)	Fan medium (or Economizer[5])	Economizer[5] (option – SW1.6 ON)	Economizer[5] (option – SW1.6 ON)

13	X	Fan low	X	X
14	Heat valve	Heat element(2) (2nd stage heat)	Cool valve(3)	Heat valve
15	Cool valve(3)	Cool valve(3)	X	X
16	X	X	X	X
AO1	X	X	Heat valve PID	Cool valve PID(3)
AO2	Fan VFS	Heat valve PID (1st stage heat)	Fan VFS	Fan VFS
SW3				
SW1				

(1) SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

(3) SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

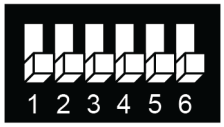
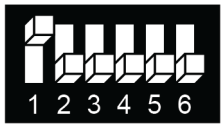
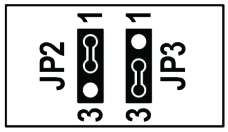
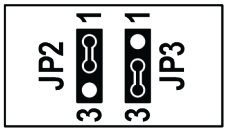
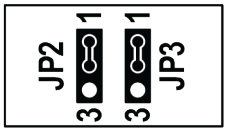
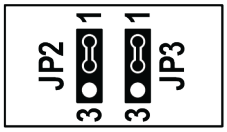
(5) SW1.6–Terminal 12 operation:
ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

Fan VFS, PID valves: 0-10 Vdc, 0.5 mA Not isolated
Control – Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24 Vac, 0.5A max

TB-24

Outputs	Config. 18: 4-Pipe, Fan VFS	Config. 19: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID	Config. 20: 4-Pipe, Fan VFS, Heat valve PID	Config. 21: 4-Pipe, Fan VFS, Cool valve PID
11	X	Fan high	X	X
12	Economizer(5) (option – SW1.6 ON)	Fan medium (or Economizer(5))	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	X	Fan low	X	X

14	Heat valve	Heat element(2) (2nd stage heat)	Cool valve(3)	Heat valve
15	Cool valve(3)	Cool valve(3)	Heat valve PID	Cool valve PID(3)
16	Fan VFS	Heat valve (1st stage heat)	Fan VFS	Fan VFS
SW3				
SW1				
Jumpers JP2, JP3 analog outputs				

(1) SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

(3) SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

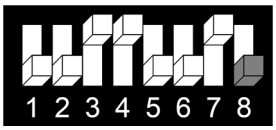
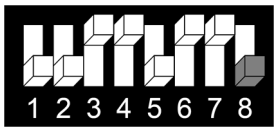
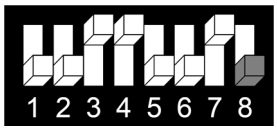
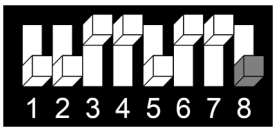
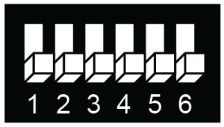
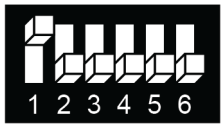
(5) SW1.6–Terminal 12 operation:
ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

Fan VFS, PID valves: 0-10 Vdc, 0.5 mA Not isolated
Control – Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24 Vac, 0.5A max

TM

Outputs	Config. 18: 4-Pipe, Fan VFS	Config. 19: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID	Config. 20: 4-Pipe, Fan VFS, Heat valve PID	Config. 21: 4-Pipe, Fan VFS, Cool valve PID
11	X	Fan high	X	X
12	Economizer(5) (option – SW1.6 ON)	Fan medium (or Economizer(5))	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	X	Fan low	X	X

14	Heat valve	Heat element(2) (2nd stage heat)	Cool valve(3)	Heat valve
15	Cool valve(3)	Cool valve(3)	X	X
16	X	X	X	X
AO1	X	X	Heat valve PID	Cool valve PID(3)
AO2	Fan VFS	Heat valve PID (1st stage heat)	Fan VFS	Fan VFS
SW3				
SW1				

(1) SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

(3) SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

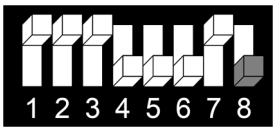
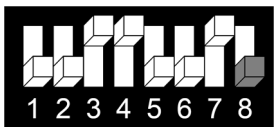
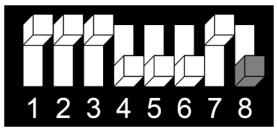
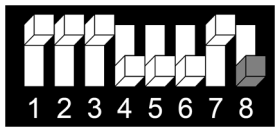
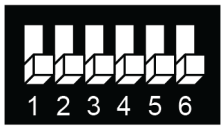
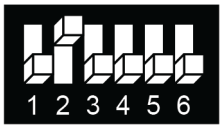
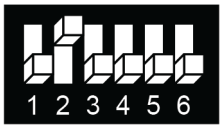
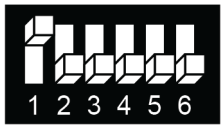
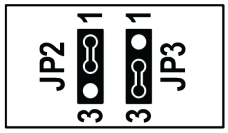
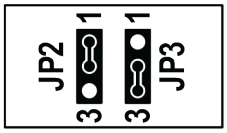
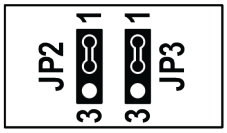
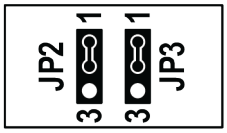
(5) SW1.6–Terminal 12 operation:
ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

Fan VFS, PID valves: 0-10 Vdc, 0.5 mA Not isolated
Control – Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24 Vac, 0.5A max

TM-24

Outputs	Config. 18: 4-Pipe, Fan VFS	Config. 19: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID	Config. 20: 4-Pipe, Fan VFS, Heat valve PID	Config. 21: 4-Pipe, Fan VFS, Cool valve PID
11	X	Fan high	X	X
12	Economizer(5) (option – SW1.6 ON)	Fan medium (or Economizer(5))	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	X	Fan low	X	X
14	Heat valve	Heat element(2) (2nd stage heat)	Cool valve(3)	Heat valve

15	Cool valve(3)	Cool valve(3)	Heat valve PID	Cool valve PID(3)
16	Fan VFS	Heat valve (1st stage heat)	Fan VFS	Fan VFS
SW3				
SW1				
Jumpers JP2, JP3 analog outputs				

(1) SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

(3) SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

(5) SW1.6–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.

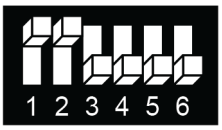
See drawing for DIP switch and jumper locations.

Fan VFS, PID valves: 0-10 Vdc, 0.5 mA Not isolated
Control – Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24 Vac, 0.5A max

Wiring and DIP switch/jumper configurations 22 – FC systems - 4-pipe

TB

Outputs	Config: 22 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID, Cool valve PID
11	Fan high
12	Fan medium (or Economizer(5))
13	Fan low

14	Heat element(2) (2nd stage heat)
15	X
16	X
AO1	Cool valve PID(3)
AO2	Heat valve PID (1st stage heat)
SW3	
SW1	

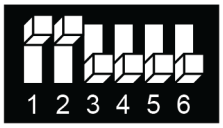
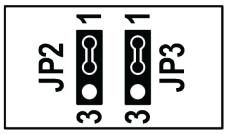
(1) SW3.1, SW3.2 – Fan speeds:	2 speeds (Low and High): 3 speeds (Low, Med., and High):	SW3.1 = OFF, SW3.2 = ON SW3.1 = OFF, SW3.2 = OFF
(2) SW3.4 – HP (Heat pump): HC (not heat pump):	ON = Heat pump active in cool, OFF = Heat pump active in heat ON = Electrical heater, OFF = Oil/Gas heater (no fan)	
(3) SW3.5 – Compressor delay:	ON = Disable, OFF = Enable	
(4) SW1.3 – Dehumidification:	ON = Use dehumidifier, OFF = Use reheat for dehumidification	
(5) SW1.6 – Terminal 12 operation:	ON = Economizer OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds) Important: Economizer will not work in 3 fan speeds configuration.	

See drawing for DIP switch and jumper locations.

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

TB-24

Outputs	Config: 22 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID, Cool valve PID
11	Fan high
12	Fan medium (or Economizer(5))
13	Fan low
14	Heat element(2) (2nd stage heat)
15	Cool valve PID(3)

16	Heat valve PID (1st stage heat)
SW3	
SW1	
Jumpers JP2, JP3 analog outputs	

(1) SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

(3) SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

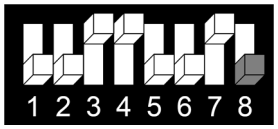
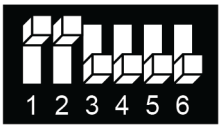
(5) SW1.6–Terminal 12 operation:
ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

PID valves: 0-10 Vdc, 0.5 mA Not isolated
Control – Fan on/off, Heat elements, Cool/Heat valves: 24 Vac, 0.5A max

TM

Outputs	Config: 22 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID, Cool valve PID
11	Fan high
12	Fan medium (or Economizer(5))
13	Fan low
14	Heat element(2) (2nd stage heat)
15	X
16	X

AO1	Cool valve PID(3)
AO2	Heat valve PID (1st stage heat)
SW3	
SW1	

(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

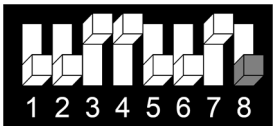
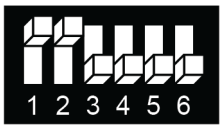
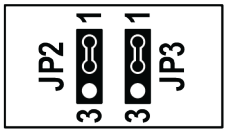
(5) SW1.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

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

TM-24

Outputs	Config: 22 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID, Cool valve PID
11	Fan high
12	Fan medium (or Economizer(5))
13	Fan low
14	Heat element(2) (2nd stage heat)
15	Cool valve PID(3)
16	Heat valve PID (1st stage heat)

SW3	
SW1	
Jumpers JP2, JP3 analog outputs	

(1) SW3.1, SW3.2 – Fan speeds:	1 speed (Low): 2 speeds(Low and High): 3 speeds(Low, Medium, and High):	SW3.1 = ON, SW3.2 = OFF SW3.1 = OFF, SW3.2 = ON SW3.1 = OFF, SW3.2 = OFF
(2) SW3.4 – 2nd heating stage:	ON = Enable, OFF = Disable	
(3) SW3.5 – Chilled beam option:	ON = Enable chilled beam (fan will not run with cooling)	
(4) SW1.3 = Dehumidification:	ON – Use dehumidifier, OFF – Use reheat for dehumidification	
(5) SW1.6–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 for DIP switch and jumper locations.

PID valves: 0-10 Vdc, 0.5 mA Not isolated
Control – Fan on/off, Heat elements, Cool/Heat valves: 24 Vac, 0.5A max

Wiring and DIP switch/jumper configurations - TB-HM

Wiring and DIP switch/jumper configurations 14 to 15 – AC systems

with Humidifier for humidification

Outputs	Config. 14: HC12 1 Speed fan, Humidifier	Config. 15: HP31 1 Speed fan, Humidifier, Reheat for Dehumidification
11	Heat element 2(2)	Heat element(2) (2nd stage heat)
12	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)

13	Fan (1 speed)	Fan (1 speed)
14	Compressor 2	Heat Pump(2)
15	Compressor 1(3)	Compressor(3)
16	X	X
AO1	X	X
AO2	Humidifier	Humidifier
SW3		
SW1		

(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

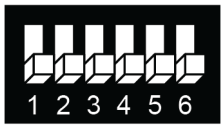
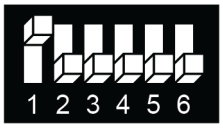
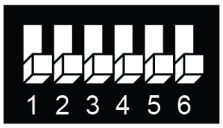
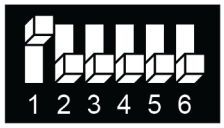
(5) SW1.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

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

Wiring and DIP Switches configurations 20 to 23 – FC systems - 2-pipe

Outputs	Config. 20: 2-Pipe, 1/2/3 Speeds fan(1)	Config. 21: 2-Pipe, 1/2/3 Speeds fan(1), Cool/Heat PID	Config. 22: 2-Pipe, Fan VFS	Config. 23: 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 – SW1.6 ON)	Economizer(5) (option – SW1.6 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)	X	Cool/heat valve(3)	X

16	X	X	X	X
AO1	X	Cool/Heat valve PID(3)	X	Cool/Heat valve PID(3)
AO2	X	X	Fan VFS	Fan VFS
SW3				
SW1				

(1) SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

(3) SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

(5) SW1.6–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 for DIP switch and jumper locations.

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

Wiring and DIP Switch configurations 24 to 27 – FC systems - 2-pipe

Outputs	Config. 24: 2-Pipe, 1/2/3 Speeds fan(1), Humidifier, Reheat for Dehumidification	Config. 25: 2-Pipe, 1/2/3 Speeds fan(1), Cool/Heat PID, Humidifier, Reheat for Dehumidification	Config. 26: 2-Pipe, Fan VFS, Reheat for Dehumidification	Config. 27 2-Pipe, Fan VFS, Cool/Heat PID, Reheat for Dehumidification
11	Fan high	Fan high	X	X
12	Fan medium (or Economizer(5))	Fan medium (or Economizer(5))	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	Fan low	Fan low	X	X
14	Heat element (2nd stage heat)	Heat element (2nd stage heat)	Heat element (2nd stage heat)	Heat element (2nd stage heat)

15	Cool/Heat valve(3)	X	Cool/Heat valve(3)	X
16	X	X	X	X
AO1	X	Cool/Heat valve PID(3)	X	Cool/Heat valve PID(3)
AO2	Humidifier	Humidifier	Fan VFS	Fan VFS
SW3				
SW1				

(1) SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

(3) SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

(5) SW1.6–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 for DIP switch and jumper locations.

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

Wiring and DIP Switch configurations 28 to 30 – FC systems - 2-pipe

with Dehumidifier, w/wo Humidifier

Outputs	Config. 28: 2-Pipe, 1/2/3 Speeds fan(1), Humidifier, Dehumidifier	Config. 29: 2-Pipe, 1/2/3 Speeds fan(1), Cool/Heat PID, Dehumidifier	Config. 30: 2-Pipe, Fan VFS, Dehumidifier
11	Fan high	Fan high	X
12	Fan medium (or Economizer(5))	Fan medium (or Economizer(5))	Economizer(5) (option – SW1.6 ON)
13	Fan low	Fan low	X
14	Cool/Heat valve(3)	Heat element(2) (2nd stage heat)	Cool/Heat valve(3)

15	X	X	X
16	X	X	X
AO1	Humidifier	Cooll/Heat valve PID(3)	Fan VFS
AO2	Dehumidifier	Dehumidifier(4) (option - See SW1.3)	Dehumidifier
SW3			
SW1			

(1) SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

(3) SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

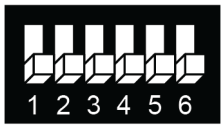
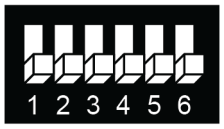
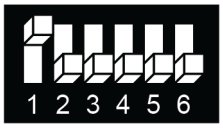
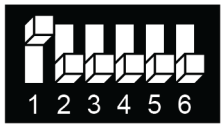
(5) SW1.6–Terminal 12 operation:
ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

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

Wiring and DIP Switch configurations 31 to 34 – FC systems - 4-pipe

Outputs	Config. 31: 4-Pipe, 1/2/3 Speeds fan(1)	Config. 32: 4-Pipe, 1/2/3 Speeds fan(1), Floor heating	Config. 33: 4-Pipe, 1/2/3 Speeds fan(1), Cool valve PID	Config. 34: 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)		
16	Heat valve (1st stage heat)	Heat valve (2nd stage heat)	Heat valve (1st stage heat)	Heat valve (2nd stage heat)
AO1	X	X	Cool valve PID(3)	Cool valve PID(3)
AO2	X	X	X	X
SW3				
SW1				

(1) SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

(3) SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

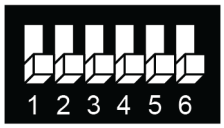
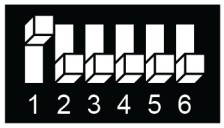
(5) SW1.6–Terminal 12 operation:
ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

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

Wiring and DIP Switch configurations 35 to 38 – FC systems - 4-pipe

Outputs	Config. 35: 4-Pipe, Fan VFS	Config. 36: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID	Config. 37: 4-Pipe, Fan VFS, Heat valve PID	Config. 38: 4-Pipe, Fan VFS, Cool valve PID
11	X	Fan high	X	X
12	Economizer(5) (option – SW1.6 ON)	Fan medium (or Economizer(5))	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	X	Fan low	X	X
14	Heat valve	Heat element(2) (2nd stage heat)	Cool valve(3)	Heat valve
15	Cool valve(3)	Cool valve(3)	X	X

16	X	X	X	X
AO1	X	X	Heat valve PID	Cool valve PID(3)
AO2	Fan VFS	Heat valve PID (1st stage heat)	Fan VFS	Fan VFS
SW3				
SW1				

(1) SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

(3) SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

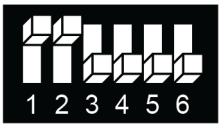
(5) SW1.6–Terminal 12 operation:
ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (1/2 speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

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

Wiring and DIP Switch configuration 39 – FC systems - 4-pipe

Outputs	Config. 39: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID, Cool valve PID
11	Fan high
12	Fan medium (or Economizer(5))
13	Fan low
14	Heat element(2) (2nd stage heat)
15	X

16	X
AO1	Cool valve PID(3)
AO2	Heat valve PID (1st stage heat)
SW3	
SW1	

(1) SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

(3) SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

(5) SW1.6–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 for DIP switch and jumper locations.

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

Wiring and DIP Switch configurations 40 to 41 – FC systems - 4-pipe

with Reheat for dehumidification, without Humidifier

Outputs	Config. 40: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID	Config. 41: 4-Pipe, 1/2/3 Speeds fan(1), Cool valve PID, Reheat for Dehumidification
11	Fan high	Fan high
12	Fan medium (or Economizer(5))	Fan medium (or Economizer(5))
13	Fan low	Fan low
14	Heat element(2) (2nd stage heat)	Heat element(2) (2nd stage heat)

15	Cool valve(3)	X
16	Heat valve	Heat valve
AO1	X	Cool valve PID(3)
AO2	X	X
SW3		
SW1		

(1) SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

(3) SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

(5) SW1.6–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 for DIP switch and jumper locations.

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

Wiring and DIP Switch configurations 42 to 44 – FC systems - 4-pipe

with Humidifier, without Reheat for dehumidification

Outputs	Config. 42: 4-Pipe, 1/2/3 Speeds fan(1), Humidifier	Config. 43: 4-Pipe, 1/2/3 Speeds fan(1), Cool valve PID, Humidifier	Config. 44: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID, Humidifier
11	Fan high	Fan high	Fan high
12	Fan medium (or Economizer(5))	Fan medium (or Economizer(5))	Fan medium (or Economizer(5))
13	Fan low	Fan low	Fan low
14	Heat valve	Heat valve	Cool valve(3)
15	Cool valve(3)	X	X

16	X	X	X
AO1	X	Cool valve PID(3)	Heat valve PID
AO2	Humidifier	Humidifier	Humidifier
SW3			
SW1			

(1) SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

(3) SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

(5) SW1.6–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 for DIP switch and jumper locations.

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

Wiring and DIP Switch configurations 45 to 47 – FC systems - 4-pipe

with Dehumidifier

Outputs	Config. 45: 4-Pipe, 1/2/3 Speeds fan(1), Dehumidifier	Config. 46: 4-Pipe, 1/2/3 Speeds fan(1), Cool valve PID, Dehumidifier	Config. 47: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID, Dehumidifier
11	Fan high	Fan high	Fan high
12	Fan medium (or Economizer(5))	Fan medium (or Economizer(5))	Fan medium (or Economizer(5))
13	Fan low	Fan low	Fan low
14	Heat valve	Heat valve	Cool valve(3)
15	Cool valve(3)	X	X
16	X	X	X

AO1	X	Cool valve PID(3)	Heat valve PID
AO2	Dehumidifier	Dehumidifier	Dehumidifier
SW3			
SW1			

(1) SW3.1, SW3.2 – Fan speeds:
1 speed (Low): SW3.1 = ON, SW3.2 = OFF
2 speeds(Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds(Low, Medium, and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 2nd heating stage: ON = Enable, OFF = Disable

(3) SW3.5 – Chilled beam option: ON = Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification: ON – Use dehumidifier, OFF – Use reheat for dehumidification

(5) SW1.6–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 for DIP switch and jumper locations.

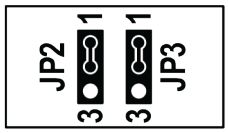
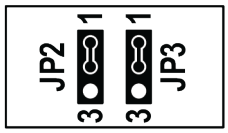
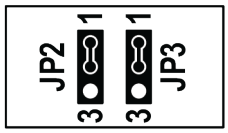
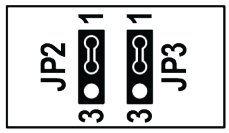
Fan on/off: 110-230VAC, 2.5A max., PID valves, Dehumidifier: 0-10VDC, 0.5mA Not isolated
Control - Heat elements, Cool/Heat valves, Economizer: 110-230VAC, 0.3A max.

Wiring and DIP switch/jumper configurations - TB-24-HM

Wiring and DIP switch configurations 16 to 19 – AC systems

with humidifier and Dehumidifier

Outputs	Config. 16: HC21 1 Speed fan, Humidifier, Dehumidifier	Config. 17: HC11 1 Speed fan, Humidifier, Dehumidifier	Config. 18: HP11 1 Speed fan, Humidifier, Dehumidifier	Config. 19: 1 Speed fan, Humidifier, Dehumidifier
11	Heat element (2nd stage heat)	Heat element(2)	Heat pump(2)	Heat pump(2)
12	Heat element 1(2) (1st stage heat)	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)	Heat element (2nd stage heat)
13	Fan (1 speed)	Fan (1 speed)	Fan (1 speed)	Fan (1 speed)

14	Compressor(3)	Compressor(3)	Compressor(3)	Compressor(3)
15	Humidifier	Humidifier	Humidifier	Humidifier
16	Dehumidifier(4)	Dehumidifier(4)	Dehumidifier(4)	Dehumidifier(4)
SW3				
SW1				
Jumpers JP2, JP3 analog outputs				

(1) SW3.1, SW3.2 – Fan speeds: 2 speeds (Low and High): SW3.1 = OFF, SW3.2 = ON
3 speeds (Low, Med., and High): SW3.1 = OFF, SW3.2 = OFF

(2) SW3.4 – 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) SW3.5 – Compressor delay: ON = Disable, OFF = Enable

(4) SW1.3 – Dehumidification: ON = Use dehumidifier, OFF = Use reheat for dehumidification

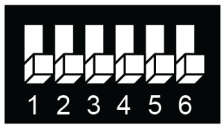
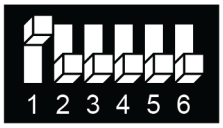
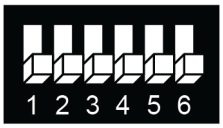
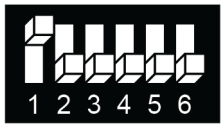
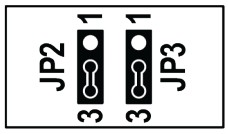
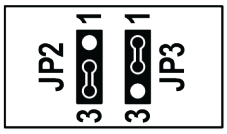
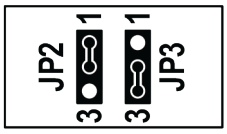
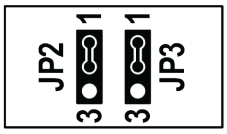
(5) SW1.6 – Terminal 12 operation: ON = Economizer
OFF = Fan Medium (3 speeds) / Terminal not in use (2 speeds)
Important: Economizer will not work in 3 fan speeds configuration.

See drawing for DIP switch and jumper locations.

Fan VFS, PID valves: 0-10 Vdc, 0.5 mA Not isolated
Control – Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24 Vac, 0.5A max

Wiring and DIP switch/jumper configurations 20 to 23 – FC systems - 2-pipe

Outputs	Config. 20: 2-Pipe, 1/2/3 Speeds fan(1)	Config. 21: 2-Pipe, 1/2/3 Speeds fan(1), Cool/Heat PID	Config. 22: 2-Pipe, Fan VFS	Config. 23: 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 – SW1.6 ON)	Economizer(5) (option – SW1.6 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)	Cool valve PID(3)	Cool/heat valve(3)	Cool valve PID(3)

16	X	X	Fan VFS	Fan VFS
SW3				
SW1				
Jumpers JP2, JP3 analog outputs				

(1) SW3.1, SW3.2 = Fan speeds:
1 Speed (Low): SW3.1 ON, SW3.2 OFF
2 Speeds (Low and High): SW3.1 OFF, SW3.2 ON
3 Speeds (Low, Medium and High): SW3.1 OFF, SW3.2 OFF

2) SW3.4 = 2nd heating stage:
ON – Enable
OFF – Disable

(3) SW3.5 = Chilled beam option:
ON – Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification:
ON – Use dehumidifier
OFF – Use reheat for dehumidification

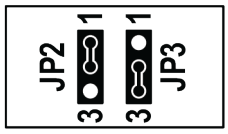
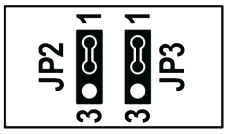
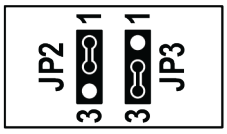
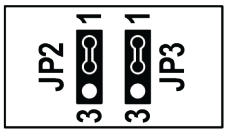
(5) SW1.6 = Terminal 12 operation:
ON – Economizer
OFF – Fan Med. (3 Speeds) / Terminal not in use (1/2 Speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration

See drawing for DIP switch and jumper locations.

Fan VFS, PID valves: 0-10 Vdc, 0.5 mA Not isolated
Control – Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24 Vac, 0.5A max

Wiring and DIP switch/jumper configurations 24 to 27 – FC systems - 4-pipe

Outputs	Config. 24: 4-Pipe, Fan VFS	Config. 25: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID	Config. 26: 4-Pipe, Fan VFS, Heat valve PID	Config. 27 4-Pipe, Fan VFS, Cool valve PID
11	Fan high	Fan high	X	X
12	Fan medium (or Economizer(5))	Fan medium (or Economizer(5))	Economizer(5) (option – SW1.6 ON)	Economizer(5) (option – SW1.6 ON)
13	Fan low	Fan low	X	X
14	Heat element (2nd stage heat)	Heat element (2nd stage heat)	Heat element (2nd stage heat)	Heat element (2nd stage heat)
15	Cool/Heat valve(3)	Cool/Heat valve PID(3)	Cool/Heat valve(3)	Cool/Heat valve PID(3)

16	Humidifier	Humidifier	Fan VFS	Fan VFS
SW3				
SW1				
Jumpers JP2, JP3 analog outputs				

(1) SW3.1, SW3.2 = Fan speeds:	1 Speed (Low): 2 Speeds (Low and High): 3 Speeds (Low, Medium and High):	SW3.1 ON, SW3.2 OFF SW3.1 OFF, SW3.2 ON SW3.1 OFF, SW3.2 OFF
2) SW3.4 = 2nd heating stage:	ON – Enable OFF – Disable	
(3) SW3.5 = Chilled beam option:	ON – Enable chilled beam (fan will not run with cooling)	
(4) SW1.3 = Dehumidification:	ON – Use dehumidifier OFF – Use reheat for dehumidification	
(5) SW1.6 = Terminal 12 operation:	ON – Economizer OFF – Fan Med. (3 Speeds) / Terminal not in use (1/2 Speeds/VFS) Important: Economizer will not work in 3 fan speeds configuration	

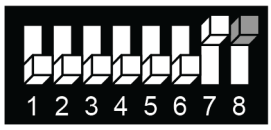
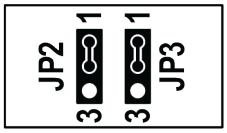
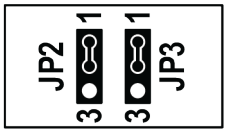
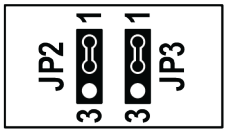
See drawing for DIP switch and jumper locations.

Fan VFS, PID valves: 0-10 Vdc, 0.5 mA Not isolated
Control – Fan on/off, Heat elements, Cool/Heat valves, Economizer: 24 Vac, 0.5A max

Wiring and DIP switch/jumper configurations 28 to 30 – FC systems - 4-pipe

with Dehumidifier, w/wo Humidifier

Outputs	Config. 28: 4-Pipe, Fan VFS	Config. 29: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID	Config. 30: 4-Pipe, Fan VFS, Heat valve PID
11	Fan high	Fan high	X
12	Fan medium (or Economizer(5))	Fan medium (or Economizer(5))	Economizer(5) (option – SW1.6 ON)
13	Fan low	Fan low	X
14	Cool/Heat valve(3)	Heat element(2) (2nd stage heat)	Cool/Heat valve(3)

15	Humidifier	Cool/Heat valve PID(3)	Fan VFS
16	Dehumidifier	Dehumidifier(4) (option - See SW1.3)	Dehumidifier
SW3			
SW1			
Jumpers JP2, JP3 analog outputs			

(1) SW3.1, SW3.2 = Fan speeds:
1 Speed (Low): SW3.1 ON, SW3.2 OFF
2 Speeds (Low and High): SW3.1 OFF, SW3.2 ON
3 Speeds (Low, Medium and High): SW3.1 OFF, SW3.2 OFF

2) SW3.4 = 2nd heating stage:
ON – Enable
OFF – Disable

(3) SW3.5 = Chilled beam option:
ON – Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification:
ON – Use dehumidifier
OFF – Use reheat for dehumidification

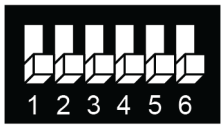
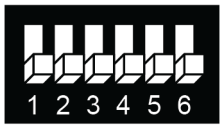
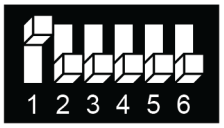
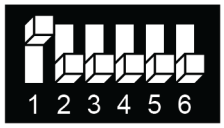
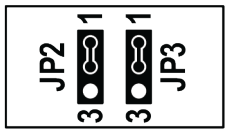
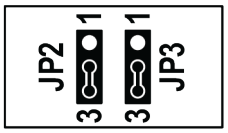
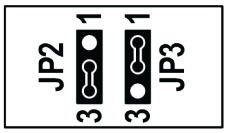
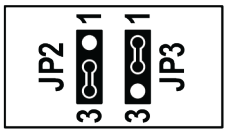
(5) SW1.6 = Terminal 12 operation:
ON – Economizer
OFF – Fan Med. (3 Speeds) / Terminal not in use (1/2 Speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration

See drawing for DIP switch and jumper locations.

Fan VFS, PID valves, Hum., Dehum.: 0-10VDC, 0.5mA Not isolated
Control - Fan on/of, Heat elements, Cool/Heat valves, Economizer: 24VAC, 0.5A max.

Wiring and DIP switch/jumper configurations 31 to 34 – FC systems - 4-pipe

Outputs	Config. 31: 4-Pipe, 1/2/3 Speeds fan(1)	Config. 32: 4-Pipe, 1/2/3 Speeds fan(1), Floor heating	Config. 33: 4-Pipe, 1/2/3 Speeds fan(1), Cool valve PID	Config. 34: 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]	Cool valve PID[3]	Cool valve PID[3]
16	Heat valve (1st stage heat)	Heat valve (2nd stage heat)	Heat valve (1st stage heat)	Heat valve (2nd stage heat)
SW3				
SW1				
Jumpers JP2, JP3 analog outputs				

[1] SW3.1, SW3.2 = Fan speeds:
1 Speed (Low): SW3.1 ON, SW3.2 OFF
2 Speeds (Low and High): SW3.1 OFF, SW3.2 ON
3 Speeds (Low, Medium and High): SW3.1 OFF, SW3.2 OFF

[2] SW3.4 = 2nd heating stage:
ON – Enable
OFF – Disable

[3] SW3.5 = Chilled beam option:
ON – Enable chilled beam (fan will not run with cooling)

[4] SW1.3 = Dehumidification:
ON – Use dehumidifier
OFF – Use reheat for dehumidification

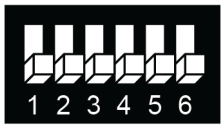
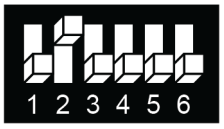
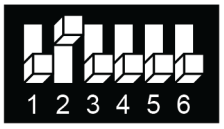
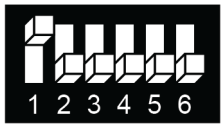
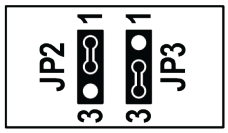
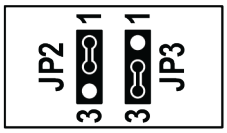
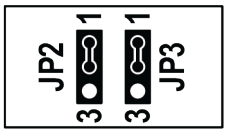
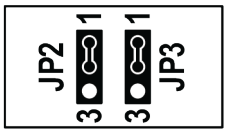
[5] SW1.6 = Terminal 12 operation:
ON – Economizer
OFF – Fan Med. (3 Speeds) / Terminal not in use (1/2 Speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration

See drawing for DIP switch and jumper locations.

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

Wiring and DIP switch/jumper configurations 35 to 38 – FC systems - 4-pipe

Outputs	Config. 35: 4-Pipe, Fan VFS	Config. 36: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID	Config. 37: 4-Pipe, Fan VFS, Heat valve PID	Config. 38: 4-Pipe, Fan VFS, Cool valve PID
11	X	Fan high	X	X
12	Economizer[5] (option – SW1.6 ON)	Fan medium (or Economizer[5])	Economizer[5] (option – SW1.6 ON)	Economizer[5] (option – SW1.6 ON)

13	X	Fan low	X	X
14	Heat valve	Heat element(2) (2nd stage heat)	Cool valve(3)	Heat valve
15	Cool valve(3)	Cool valve(3)	Heat valve PID	Cool valve PID(3)
16	Fan VFS	Heat valve PID (1st stage heat)	Fan VFS	Fan VFS
SW3				
SW1				
Jumpers JP2, JP3 analog outputs				

(1) SW3.1, SW3.2 = Fan speeds:
1 Speed (Low): SW3.1 ON, SW3.2 OFF
2 Speeds (Low and High): SW3.1 OFF, SW3.2 ON
3 Speeds (Low, Medium and High): SW3.1 OFF, SW3.2 OFF

2) SW3.4 = 2nd heating stage:
ON – Enable
OFF – Disable

(3) SW3.5 = Chilled beam option:
ON – Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification:
ON – Use dehumidifier
OFF – Use reheat for dehumidification

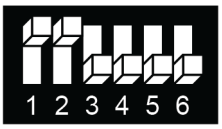
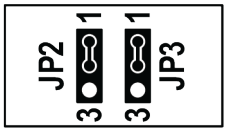
(5) SW1.6 = Terminal 12 operation:
ON – Economizer
OFF – Fan Med. (3 Speeds) / Terminal not in use (1/2 Speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration

See drawing for DIP switch and jumper locations.

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

Wiring and DIP switch/jumper configuration 39 – FC systems - 4-pipe

Outputs	Config. 39: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID, Cool valve PID
11	Fan high

12	Fan medium (or Economizer(5))
13	Fan low
14	Heat element(2) (2nd stage heat)
15	Cool valve PID(3)
16	Heat valve PID (1st stage heat)
SW3	
SW1	
Jumpers JP2, JP3 analog outputs	

(1) SW3.1, SW3.2 = Fan speeds:	1 Speed (Low): 2 Speeds (Low and High): 3 Speeds (Low, Medium and High):	SW3.1 ON, SW3.2 OFF SW3.1 OFF, SW3.2 ON SW3.1 OFF, SW3.2 OFF
2) SW3.4 = 2nd heating stage:	ON – Enable OFF – Disable	
(3) SW3.5 = Chilled beam option:	ON – Enable chilled beam (fan will not run with cooling)	
(4) SW1.3 = Dehumidification:	ON – Use dehumidifier OFF – Use reheat for dehumidification	
(5) SW1.6 = Terminal 12 operation:	ON – Economizer OFF – Fan Med. (3 Speeds) / Terminal not in use (1/2 Speeds/VFS) Important: Economizer will not work in 3 fan speeds configuration	

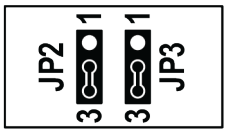
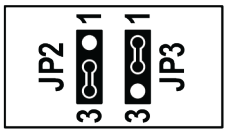
See drawing for DIP switch and jumper locations.

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

Wiring and DIP switch/jumper configurations 40 to 41 – FC systems - 4-pipe

with Reheat for dehumidification, without Humidifier

Outputs	Config. 40: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID	Config. 41: 4-Pipe, Fan VFS, Cool valve PID

11	Fan high	Fan high
12	Fan medium (or Economizer(5))	Fan medium (or Economizer(5))
13	Fan low	Fan low
14	Heat element(2) (2nd stage heat)	Heat element(2) (2nd stage heat)
15	Cool valve(3)	Cool valve PID(3)
16	Heat valve	Heat valve
SW3		
SW1		
Jumpers JP2, JP3 analog outputs		

(1) SW3.1, SW3.2 = Fan speeds:
1 Speed (Low): SW3.1 ON, SW3.2 OFF
2 Speeds (Low and High): SW3.1 OFF, SW3.2 ON
3 Speeds (Low, Medium and High): SW3.1 OFF, SW3.2 OFF

2) SW3.4 = 2nd heating stage:
ON – Enable
OFF – Disable

(3) SW3.5 = Chilled beam option:
ON – Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification:
ON – Use dehumidifier
OFF – Use reheat for dehumidification

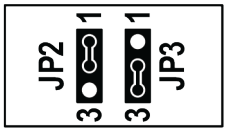
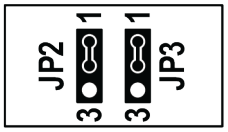
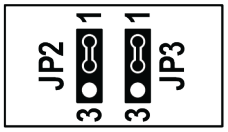
(5) SW1.6 = Terminal 12 operation:
ON – Economizer
OFF – Fan Med. (3 Speeds) / Terminal not in use (1/2 Speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration

See drawing for DIP switch and jumper locations.

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

Wiring and DIP switch/jumper configurations 42 to 44 – FC systems - 4-pipe

with Humidifier, without Reheat for dehumidification

Outputs	Config. 42: 4-Pipe, 1/2/3 Speeds fan(1), Humidifier	Config. 43: 4-Pipe, 1/2/3 Speeds fan(1), Cool valve PID, Humidifier	Config. 44: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID, Humidifier
11	Fan high	Fan high	Fan high
12	Fan medium (or Economizer(5))	Fan medium (or Economizer(5))	Fan medium (or Economizer(5))
13	Fan low	Fan low	Fan low
14	Heat valve	Heat valve	Cool valve(3)
15	Cool valve(3)	Cool valve PID(3)	Heat valve PID
16	Humidifier	Humidifier	Humidifier
SW3			
SW1			
Jumpers JP2, JP3 analog outputs			

(1) SW3.1, SW3.2 = Fan speeds:
1 Speed (Low): SW3.1 ON, SW3.2 OFF
2 Speeds (Low and High): SW3.1 OFF, SW3.2 ON
3 Speeds (Low, Medium and High): SW3.1 OFF, SW3.2 OFF

2) SW3.4 = 2nd heating stage:
ON – Enable
OFF – Disable

(3) SW3.5 = Chilled beam option:
ON – Enable chilled beam (fan will not run with cooling)

(4) SW1.3 = Dehumidification:
ON – Use dehumidifier
OFF – Use reheat for dehumidification

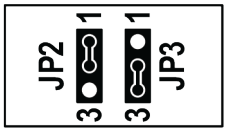
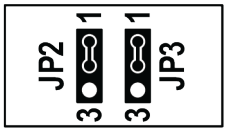
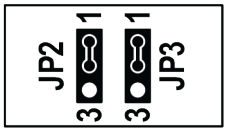
(5) SW1.6 = Terminal 12 operation:
ON – Economizer
OFF – Fan Med. (3 Speeds) / Terminal not in use (1/2 Speeds/VFS)
Important: Economizer will not work in 3 fan speeds configuration

See drawing for DIP switch and jumper locations.

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

Wiring and DIP switch/jumper configurations 45 to 47 – FC systems - 4-pipe

with Dehumidifier

Outputs	Config. 45: 4-Pipe, 1/2/3 Speeds fan(1), Dehumidifier	Config. 46: 4-Pipe, 1/2/3 Speeds fan(1), Cool valve PID, Dehumidifier	Config. 47: 4-Pipe, 1/2/3 Speeds fan(1), Heat valve PID, Dehumidifier
11	Fan high	Fan high	Fan high
12	Fan medium (or Economizer(5))	Fan medium (or Economizer(5))	Fan medium (or Economizer(5))
13	Fan low	Fan low	Fan low
14	Heat valve	Heat valve	Cool valve(3)
15	Cool valve(3)	Cool valve PID(3)	Heat valve PID
16	Dehumidifier	Dehumidifier	Dehumidifier
SW3			
SW1			
Jumpers JP2, JP3 analog outputs			

(1) SW3.1, SW3.2 = Fan speeds:	1 Speed (Low): SW3.1 ON, SW3.2 OFF 2 Speeds (Low and High): SW3.1 OFF, SW3.2 ON 3 Speeds (Low, Medium and High): SW3.1 OFF, SW3.2 OFF
2) SW3.4 = 2nd heating stage:	ON – Enable OFF – Disable
(3) SW3.5 = Chilled beam option:	ON – Enable chilled beam (fan will not run with cooling)
(4) SW1.3 = Dehumidification:	ON – Use dehumidifier OFF – Use reheat for dehumidification
(5) SW1.6 = Terminal 12 operation:	ON – Economizer OFF – Fan Med. (3 Speeds) / Terminal not in use (1/2 Speeds/VFS) Important: Economizer will not work in 3 fan speeds configuration

See drawing for DIP switch and jumper locations.

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

Technician Settings

Enter Technician Settings mode:

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

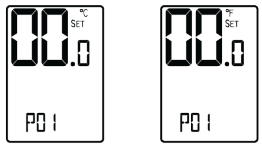
Technician Settings P01 to P03

P01 – Offset for temperature readings calibration

Range: -6...+6°C / -9...+9°F.

Default: 0°C / 0°F.

Note: The offset will influence both internal or external sensors.



Offset for temperature calibration

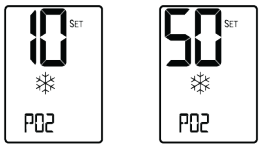
(°C) (°F)

P02 – Setpoint limit for cooling

Range: 5...35°C / 41...95°F.

Default: 10°C / 50°F.

Note: The thermostat will stop cooling regardless of the user’s setpoint



Set point limit for cooling

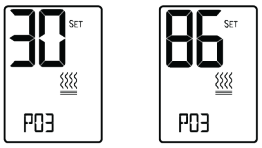
(°C) (°F)

P03 – Setpoint limit for heating

Range: 5...35°C / 41...95°F.

Default: 30°C / 86°F.

Note: The thermostat will stop heating regardless of the user’s setpoint



Setpoint limit for heating

(°C) (°F)

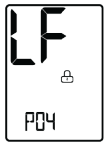
Technician Settings P04 to P07

P04 – Enable/Disable the option to lock the [Fan] button

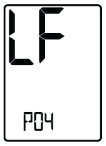
"LF" + "🔒" [Fan] button can be locked

"LF" only [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



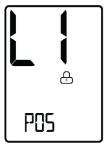
[Fan] Cannot be locked

P05 – Enable/Disable the option to lock the [Mode] button

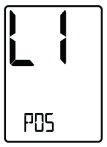
"L1" + "🔒" [Mode] button can be locked

"L1" only [Mode] button cannot be locked

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



[Mode] Can be locked



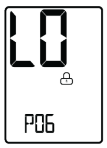
[Mode] Cannot be locked

P06 – Enable/Disable the option to lock the [On/Off] button

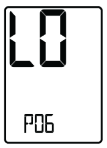
"L0" + "🔒" [On/Off] button can be locked

"00" only [On/Off] button cannot be locked

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



[On/Off] Can be locked



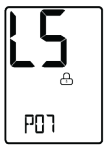
[On/Off] Cannot be locked

P07 – Enable/Disable the option to lock the ▲or ▼button (SET)

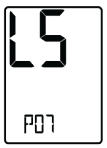
"LS" + "🔒" [+] or [-] button can be locked

"LS" only [+] or [-] button cannot be locked

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



[+] and [-] Can be locked



[+] and [-] Cannot be locked

P04-P07 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 P08 to P10

P08 – 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

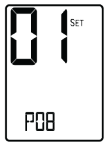
"05" - T Economizer
(DIP switch SW2.6 must be ON)

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

NOTE To view T3 on the BACnet Thermostat, see Technician Settings P84 (page 108).

** 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 will sense 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 108).

** 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 108).

"IN1,0" terminals Not in use

T2 change over sensor (FC) or Deicing in heat (AC)

**T3 Soft start in heat sensor (FC) or Deicing in cool sensor (AC)

Window contact Remote On/Off switch

Window contact Remote Economy switch

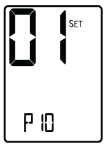
External PIR sensor

P10 – Window contact (terminals IN1,0) polarity

"01" - Normally open

"00" - Normally closed

Window contact Normally close



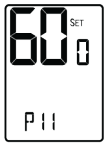
Window contact Normally open

Technician Settings P11 to P15

P11 – Window contact delay time

Range: 0...999 seconds.

Default: 600 seconds.

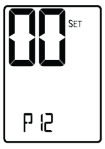


Window contact delay time (sec.)

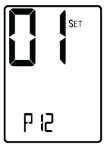
P12 – Door switch (terminals T1,0) polarity

“01” - Normally open

“00” - Normally closed



Door switch Normally close

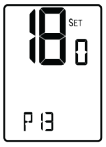


Door switch Normally open

P13 – Door switch delay time

Range: 0...999 seconds.

Default: 180 seconds.

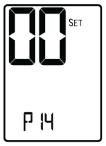


Door switch delay time (sec.)

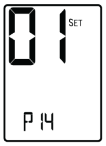
P14 – Enable/Disable Auto change over mode

“00” - Disable Auto change over mode

“01” - Enable Auto change over mode



Disable Auto mode



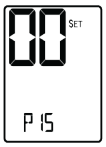
Enable Auto mode

P15 – Motion sensor logic (PIR)

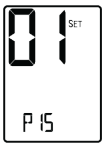
“00” - Thermostat turns off when unoccupied and back on when re-occupied.

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

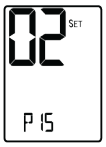
“02” - Thermostat uses economy setpoints when unoccupied.



Unocc. – Off Re-occ. - On



Unocc. – Off Re-occ. - Off



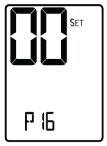
Economy set points

Technician Settings P16 to P25

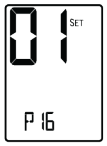
P16 – Enable/Disable Motion sensor

"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

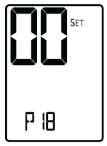
PIR ON delay (minutes)

P18 – Door switch or key tag configuration

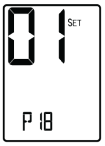
"00" - Switch On/Off by door switch or key tag

"01" - Changing the setpoint temperature

"02" - Switching fan speed to Low



Switch On or Off



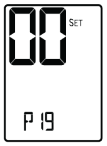
Change set-points

Switch to fan low

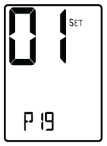
P19 – PIR (Motion sensor) polarity

"00" - Normally open

"01" - Normally closed



PIR Normally open



PIR Normally close

P25 – Economy setpoint for cooling

Range: 5...35°C / 41...95°F

Default: 30°C / 86°F

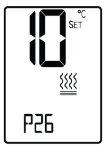
EC set point in cooling (°C) (°F)

Technician Settings P26 to P30

P26 – Economy setpoint for heating

Range: 5...35°C / 41...95°F

Default: 10°C / 50°F



EC set point in heating (°C) (°F)

P27 – On-delay time on-delay between heating stages
Range: 0....600 seconds
Default: 5 seconds

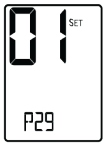
On delay
heating stages

P28 – Off-delay time between heating stages
Range: 0....600 seconds
Default: 1 second

Off delay
heating stages

P29 – LCD Backlight ON or OFF
"00" - LCD Backlight ON
"01" - LCD Backlight OFF

Backlight
ON



Backlight
OFF

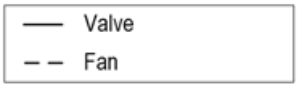
P30 – Beeper ON or OFF
"01" - Beeper ON
"00" - Beeper OFF

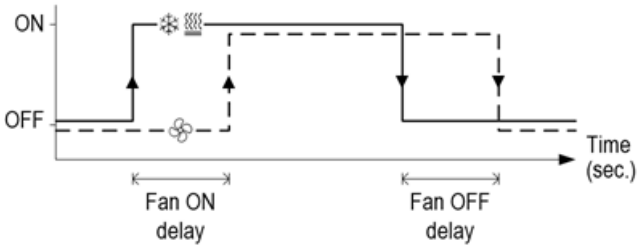
Beeper
ON

Beeper
OFF

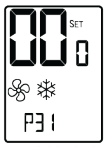
Technician Settings P31 to P34

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

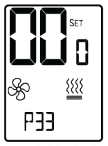
Default: 0 seconds (no delay)

Fan OFF delay in cooling (seconds)

P33 – Fan ON delay in heating (FC only)

Range: 0...120 seconds

Default: 0 seconds (no delay)

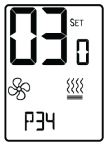


Fan ON delay in heating (seconds)

P34 – Fan OFF delay in heating

Range: 0...120 seconds

Default: 30 seconds



Fan OFF delay in heating (seconds)

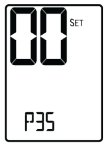
Technician Settings P35 to P42

P35 – Enable/Disable Freeze protection

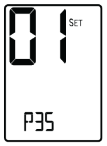
"00" - Disable Freeze protection

"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



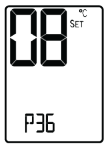
Enable freeze protection

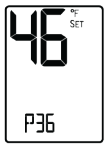
P36 – Freeze protection cut-in setpoint

Range: 8...15°C / 46...59°F

Default: 8°C / 46°F

The room ambient temperature that triggers Heating ON.





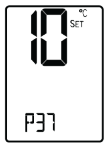
Freeze protection cut-in set point (°C) (°F)

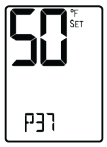
P37 – Freeze protection cut-out setpoint

Range: 10...17°C / 50...63°F

Default: 10°C / 50°F

The room ambient temperature that switches the Heating back OFF.



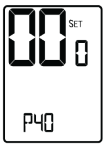


Freeze protection cut-out set point (°C) (°F)

P40 – View filter counter (hours) – Read only

Range: 0...999 hours

The filter counter is related to Fan running time.

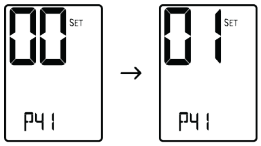


View filter
Counter (hours)

P41 – Reset filter time

Press the [+] button to reset the filter counter.

The display will change from “00” to “01” and back to “00”.

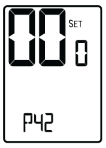


Reset filter
counter

P42 – Adjust filter alarm delay time counter (hours)

Range: 0...999 hours

Default: 0 hours (0 = Disable)



Adjust filter alarm
delay time (hours)

Technician Settings P43 to P44

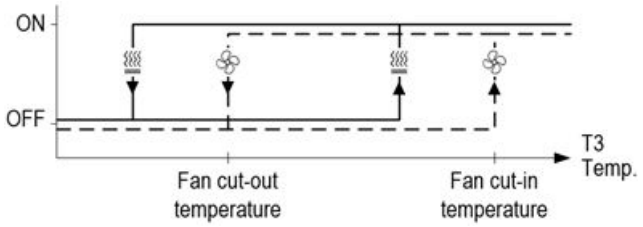
P43 – P44

Soft start in heat

with fan on demand (auto fan) active.

Valve

Fan



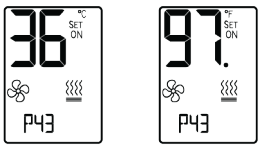
P43 – Soft start in heat – cut-in temperature (FC only)

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

See Technician Settings P08/P09 (page 96).

Range: 14...37°C / 57...99°F

Default: 36°C / 97°F



Soft start heat cut-in temperature
(°C) (°F)

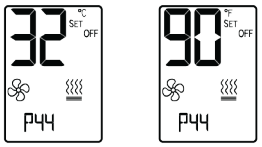
P44 – Soft start in heat – cut-out temperature (FC only)

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

See Technician Settings P08/P09 (page 96).

Range: 12...35°C / 54...95°F

Default: 32°C / 90°F

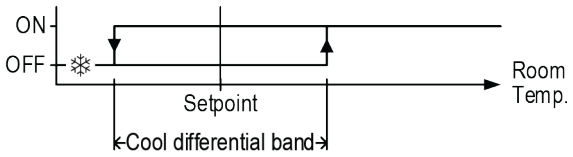


Soft start heat cut-out temperature
(°C) (°F)

Technician Settings P45 to P46

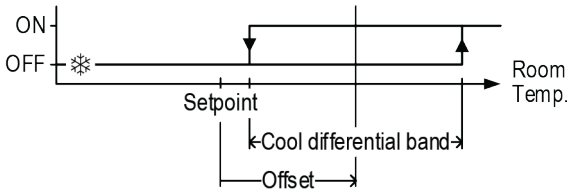
P45 – P46
Cool differential band / offset
(with cool differential band offset = 0)

Compressor / Valve

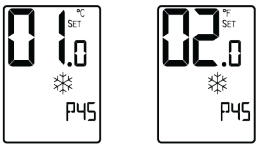


P45 – P46
Cool differential band / offset
(with cool differential band offset ≠ 0)

Compressor / Valve

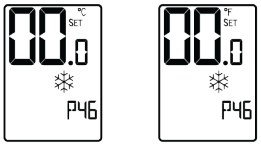


P45 – Cool differential band
Range: 0.5...5 °C / 1...10 °F
Default: 1 °C / 2 °F



Cool differential band
(°C) (°F)

P46 – Cool differential band offset
Range: -5...+5 °C / -9...+9 °F
Default: 0 °C / 0 °F

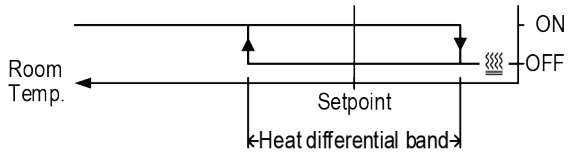


Cool differential band offset
(°C) (°F)

Technician Settings P47 to P48

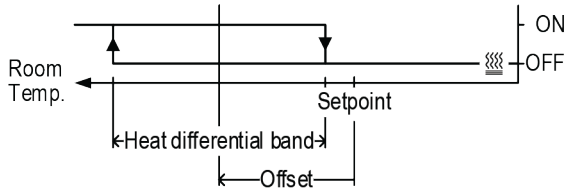
P47-48
Heat differential band / offset
(with heat differential band offset = 0)

Compressor / Valve



P47-48
Heat differential band / offset
(with heat differential band offset ≠ 0)

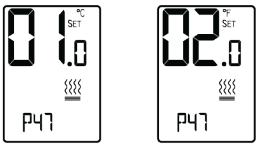
Compressor / Valve



P47 – Heat differential band

Range: 0.5...5°C / 1...10°F

Default: 1°C / 2°F



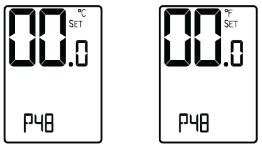
Heat differential band

(°C) (°F)

P48 – Heat differential band offset

Range: -5...+5°C / -9...+9°F

Default: 0°C / 0°F



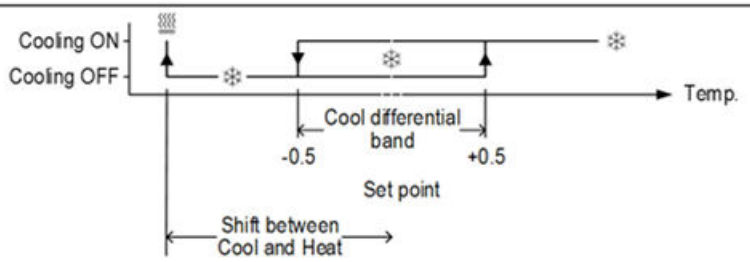
Heat differential band offset

(°C) (°F)

Technician Settings P49 to P51

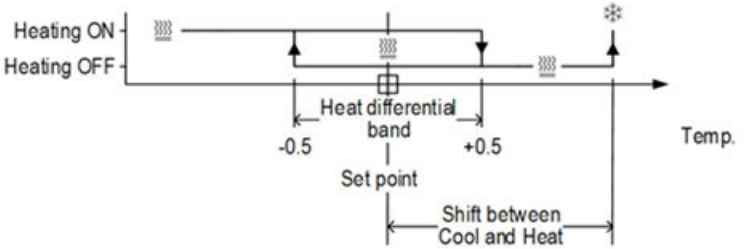
P49
Shift between
Cool and Heat
in Auto mode
(from cooling to heating)

Compressor / Valve



P49
Shift between
Cool and Heat
in Auto mode
(from heating to cooling)

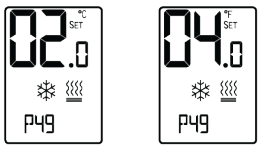
Compressor / Valve



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

Range: 0...10°C / 0...20°F

Default: 2°C / 4°F



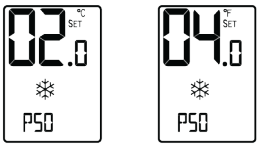
Shift between Cool & Heat in Auto mode

(°C) (°F)

P50 – Shift between Cooling stages (AC only)

Range: 0...10°C / 0...20°F

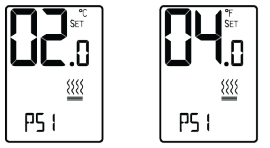
Default: 2°C / 4°F



Shift between cooling stages

(°C) (°F)

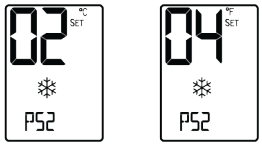
P51 – Shift between Heating stages
Range: 0...49°C / 0...98°F
Default: 2°C / 4°F



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)

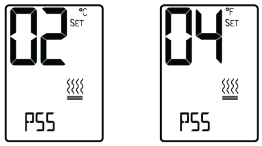
P53 – Cool proportional low limit (FC only)
Range: 0...100%
Default: 0%
Minimum valve opening.

Cool prop.
low limit (%)

P54 – Cool proportional high limit (FC only)
Range: 0...100%
Default: 100%
Maximum valve opening.

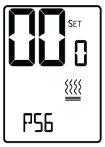
Cool prop.
high limit (%)

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.



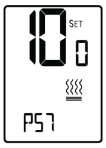
Heat prop.
low limit (%)

P57 – Heat proportional high limit (FC only)

Range: 0...100%

Default: 100%

Maximum valve opening.



Heat prop.
high limit (%)

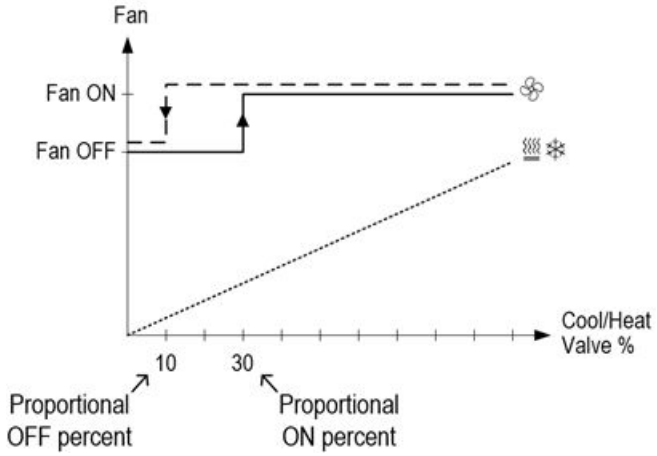
Technician Settings P60 to P64

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

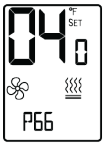
Off Delay
cooling stages

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%

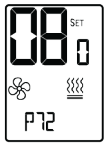
Default: 50%

VFS Med %
in heating

P72 – Fan VFS High speed percent in heating

Range: 60...100%

Default: 80%



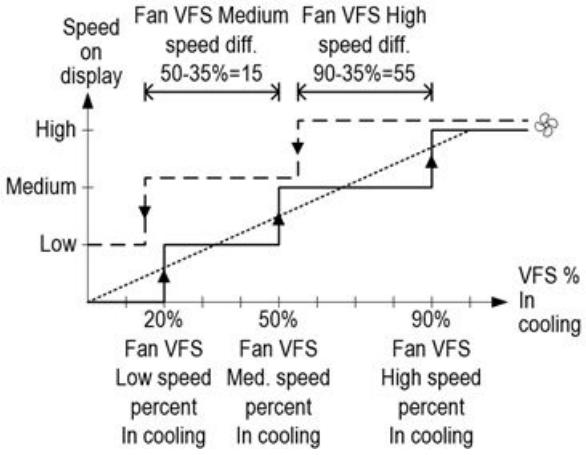
VFS High %
in heating

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%

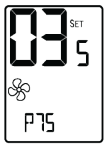
Default: 35

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%

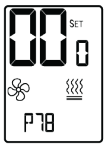
Default: 100%

VFS high limit in cooling

P78 – Fan VFS Low limit in heating

Range: 0...100%

Default: 0%

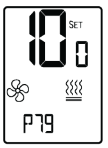


VFS low limit in heating

P79 – Fan VFS High limit in heating

Range: 0...100%

Default: 100%

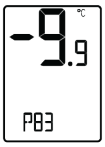


VFS high limit in heating

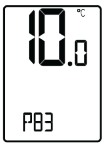
Technician Settings P83 to P88

P83 – View T2 temperature sensor readings

NOTE If T2 is not connected, -9.9 appears.



T2 Sensor Not connected



T2 Sensor readings (°C)

P84 – View T3 temperature sensor readings

NOTE If T3 is not connected, -9.9 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 at which de-icing starts.

Deice 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 at which de-icing stops.

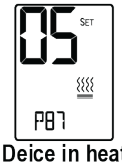
Deice in cool cut-out temperature (°C) (°F)

P87 – De-ice in heat time (AC only)

Range: 2...7 Minutes

Default: 5 Minutes

The length of de-icing procedure.



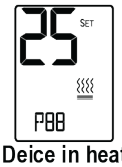
Deice in heat time

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

Range: 10... 30 Minutes

Default: 25 Minutes

The time interval between de-icing cycles.



Deice in heat break time

Technician Settings P89 to P99

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.

Deice 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.

Deice in heat cut-out temperature (°C)

(°F)

P91 – Compressor delay (AC only)

Range: 0…360 Seconds

Default: 240 Seconds

DIP Switch SW3.5 must be in “OFF” position – compressor delay enabled!

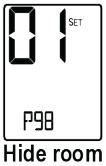
Compressor delay

P98 – Display setpoint only (hide room temperature)

“00” - Display both setpoint and room temperatures

“01” - Display only the setpoint temperature

Show room temperature



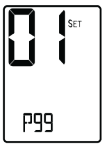
Hide room temperature

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 set point



Two set points

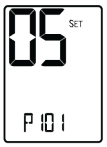
Technician Settings P101 to 200 - TB-24 | TB-24-HM | TM-24

Technician Settings P101 to P111

P101 – Screen dimming delay

Range: 0…99 minutes

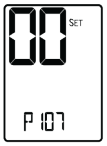
Default: 5 minutes



Screen dimming delay

P107 – Weekly program configuration

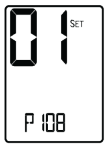
“00” - Disable weekly program (program parameters will be lost)
“01” - 7 days with the same program
“02” - One program for Monday to Friday and another program for Saturday and Sunday
“03” - One program for Monday to Friday, one for Saturday, and another for Sunday
“04” - 7 days with the different program for each day



Weekly program configuration

P108 – Weekly program - events per day

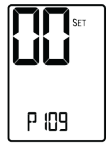
"00" - Two different events per day
"01" - Four different events per day



Weekly program events per day

P109 – Weekly program event configuration

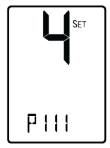
"00" - US Program: Event start time, Mode, Fan speed, Setpoints (one or two)
"01" - Eu program: Event start time, Stop time



Weekly program event configuration

P111 – PIR Sensitivity

Range: 1...5 (1 – Less sensitive, 5 – More sensitive)
Default: 4

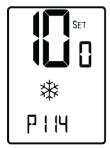


PIR Sensitivity

Technician Settings P114 to P119

P114 – Cool PID Kp (FC only)

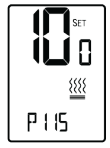
Range: 0...100%
Default: 100%



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

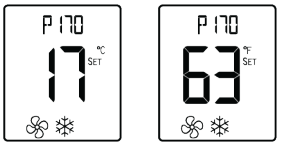
P160 – Minimum compressor ON time (AC only)
Range: 0...20 minutes
Default: 2 minutes

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

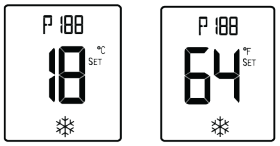
"01" - Display humidity reading

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

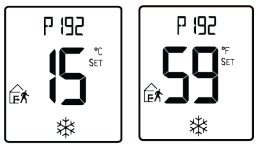
Default: 40 minutes

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)

P193 – Display switching time (between temperature and humidity)

Range: 0...11 seconds

Default: 5 seconds

Display switching time Hum./Temp.

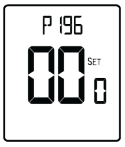
P194 – Humidity differential band
Range: 0...10 %RH
Default: 5%RH

Humidity differential band

P195 – Humidity sensor reading offset
Range: -9...+9 %RH
Default: 0 %RH

Technician Settings P196 to P200

P196 – Dead zone between humidification and dehumidification
Range: 0...100 %RH
Default: 0 %RH



Dead zone Hum./Dehum.

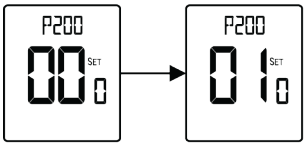
P197 – Humidity setpoint
Range: 20...100 %RH
Default: 45 %RH

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.

Technician Settings P101 to P109 - TB | TB-24 | TM | TM-24

P101 – Screen dimming delay

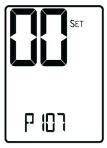
Range: 0...99 minutes

Default: 5 minutes

Screen dimming delay

P107 – Weekly program configuration

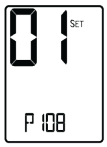
"00" - Disable weekly program (program parameters will be lost)
"01" - 7 days with the same program
"02" - One program for Monday to Friday and another program for Saturday and Sunday
"03" - One program for Monday to Friday, one for Saturday, and another for Sunday
"04" - 7 days with the different program for each day



Weekly program configuration

P108 – Weekly program - events per day

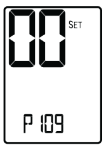
"00" - Two different events per day
"01" - Four different events per day



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

P114 – Cool PID Kp (FC only)

Range: 0...100%

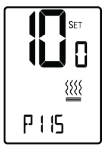
Default: 100%

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 P187 - TB | TB-24 | TM | TM-24

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

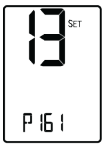
Heat proportional Threshold time

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)

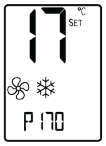
Range: 0…20 minutes
Default: 13 minutes



Minimum compressor OFF time

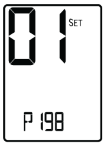
P170 – Economizer low limit temperature

Range: 9…27°C / 48…80°F
Default: 17°C / 63°F



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

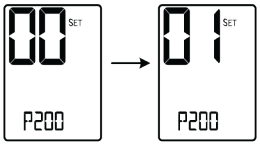
P198 – Not in use



Not in use

P200 – Restore defaults

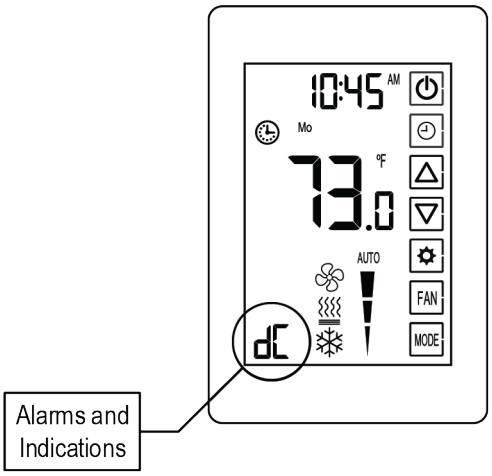
- Press the [+] button – the display will change from “00” to “01”.
- Press the [On/Off] button to restore default settings.
- The thermostat will turn Off.



Restore defaults

Appendix

Alarms and indications



F1	T1 Internal sensor or T1 External sensor fault
dC	De-icer in cool indication
dH	De-icer in heat indication
OH	Overheat in heat
OC	Overheat in cool
t2	Teconomizer sensor fault
E1	Economy by: • Window contact - Remote on/off switch • Window contact - Remote economy switch
E2	Economy by: • External PIR • Communication
E4	Economy by door switch
E5	Economy by key-tag

Object List for Modbus Register: TM Series

TM-24 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 = 244300**

MajorMinorRevision = 244300**.****

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	-	RW	*
1 [0x01]	- 20...100°C (- 4...212°F)	IN1_AIN	-	RW	*
2 [0x02]	0...100%	AO_Fan	-	RW	
3 [0x03]	5...35°C (41...95°F)	SetPoint_SetPointCool	23°C (73°F)	RW	*
4 [0x04]	5...35°C (41...95°F)	SetPointHeat	22°C (72°F)	RW	*
5 [0x05]	5...35°C (41...95°F)	SetPointEffective	-	R	*
6 [0x06]	0...100°C (32...212°F)	ReturnAirSensorEffective	-	R	*
7 [0x07]	0 - Fan Only 1 - Cool 2 - Heat 3 - Auto	Mode	1 - Cool	RW	
8 [0x08]	0 - Fan Only 1 - Cool 2 - Heat 4 - Off	ModeEffective	-	R	

Address Dec[Hex]	Value	Object Name	Default	Access	
9 [0x09]	0 - Auto 1 - Low 2 - Medium 3 - High	FanSpeed	0 - Auto	RW	
10 [0x0A]	1 - Low 2 - Medium 3 - High 4 - Off	FanEffective	-	R	
11 [0x0B]	-5...5°C (- 9...9°F)	ReturnAirSensorCalibration	0°C (0°F)	RW	*
12 [0x0C]	5...35°C (41...95°F)	SetPointLimitCool	10°C (50°F)	RW	
13 [0x0D]	5...35°C (41...95°F)	SetPointLimitHeat	30°C (86°F)	RW	
14 [0x0E]	5...35°C (41...95°F)	EconomySetPointInCool	30°C (86°F)	RW	
15 [0x0F]	5...35°C (41...95°F)	EconomySetPointInHeat	10°C (50°F)	RW	
16 [0x10]	0 - Unoccupied 1 - Occupied	OccupancyEffectiveHVAC	-	R	
17 [0x11]	0 - Occupancy sensor logic not used 1 - Occupancy sensor logic controls HVAC	OccupancySensorAuthority	1 - Occupancy sensor logic not used	RW	
18 [0x12]	0 - On/Off logic 1 - Start/Stop logic 2 - Change setpoint logic	OccupancySensorFunction	2 - Change setpoint logic	RW	
19 [0x13]	0...900 minutes	OccupancySensorHVACDelayTime	20 minutes	RW	
20 [0x14]	0 - T-stat turns off when unoccupied 1 - T-stat uses economy 2 - Fan Low keeps running	DoorSwitchOrKeyTag_Function	1 - T-stat uses economy	RW	
21 [0x15]	0...999 seconds	TimeSwitchingToOccupiedMode	1 second	RW	
22 [0x16]	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	

Address Dec[Hex]	Value	Object Name	Default	Access	
23 [0x17]	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	
24 [0x18]	0...999 seconds	WindowContactDelayTime	600 second	RW	
25 [0x19]	0...999 seconds	DoorSwitchDelayTime	180 second	RW	
26 [0x1A]	- 9.9...99°C (- 9.9...210°F)	T2_Effective	-	R	*
27 [0x1B]	- 9.9...99°C (- 9.9...210°F)	T3_Effective	-	R	*
28 [0x1C]	0...99°C (32...210°F)	TEconomizerEffective	99°C (210°F)	RW	*
29 [0x1D]	0...120 seconds	CoolFanOffDelay	0 second	RW	
30 [0x1E]	0...120 seconds	HeatFanOffDelay	30 seconds	RW	
31 [0x1F]	8...15°C (46...59°F)	FreezeProtectionCutInSetpoint	8°C (46°F)	RW	
32 [0x20]	10...17°C (50...63°F)	FreezeProtectionCutOutSetpoint	10°C (50°F)	RW	
33 [0x21]	0...999 hours	FilterCounter	-	R	
34 [0x22]	0...999 hours	FilterAlarmTimeDelay	0 hour	RW	
35 [0x23]	0.5...5°C (1...9°F)	CoolDifferentialBand	1°C (2°F)	RW	*
36 [0x24]	- 5...5°C (- 9...9°F)	CoolDifferentialBandOffset	0°C (0°F)	RW	*
37 [0x25]	0.5...20°C (1...36°F)	HeatDifferentialBand	1°C (2°F)	RW	*
38 [0x26]	- 5...5°C (- 9...9°F)	HeatDifferentialBandOffset	0°C (0°F)	RW	*
39 [0x27]	0...10°C (0...18°F)	ShiftBetweenCoolAndHeat	2°C (4°F)	RW	*
40 [0x28]	0...10°C (0...18°F)	ShiftBetweenCoolStages	2°C (4°F)	RW	*
41 [0x29]	0...49°C (0...88°F)	ShiftBetweenHeatStages	2°C (4°F)	RW	*
42 [0x2A]	0...600 seconds	TimeDelayOnNextCoolStage	5 seconds	RW	
43 [0x2B]	0...600 seconds	TimeDelayOnNextHeatStage	5 seconds	RW	

Address Dec[Hex]	Value	Object Name	Default	Access	
44 [0x2C]	0...600 seconds	TimeDelayOffNextCoolStage	1 seconds	RW	
45 [0x2D]	0...600 seconds	TimeDelayOffNextHeatStage	1 seconds	RW	
46 [0x2E]	0...360 seconds	CompressorStandbyDelay	240 seconds	RW	
47 [0x2F]	-9.5...8°C (15...46°F)	DeiceCoolCutInTemperature	0°C (32°F)	RW	*
48 [0x30]	2...20°C (36...68°F)	DeiceCoolCutOutTemperature	8°C (46°F)	RW	*
49 [0x31]	120...420 seconds	DeiceHeatTime	300 seconds	RW	
50 [0x32]	600...1800 seconds	DeiceHeatBreakTime	1500 seconds	RW	
51 [0x33]	-9.5...8°C (15...46°F)	DeiceHeatCutInTemperature	0°C (32°F)	RW	*
52 [0x34]	2...20°C (35...68°F)	DeiceHeatCutOutTemperature	16°C (61°F)	RW	*
53 [0x35]	0...99 seconds	BackLightTime	5 seconds	RW	
54 [0x36]	1...10°C (2...18°F)	CoolVFSProportionalBand	2°C (4°F)	RW	*
55 [0x37]	1...10°C (2...18°F)	HeatVFSProportionalBand	2°C (4°F)	RW	*
56 [0x38]	0...30%	CoolVFSLowSpeedPercent	20%	RW	
57 [0x39]	30...60%	CoolVFSMediumSpeedPercent	50%	RW	
58 [0x3A]	60...100%	CoolVFSHighSpeedPercent	90%	RW	
59 [0x3B]	0...30%	HeatVFSLowSpeedPercent	30%	RW	
60 [0x3C]	30...60%	HeatVFSMediumSpeedPercent	50%	RW	
61 [0x3D]	60...100%	HeatVFSHighSpeedPercent	80%	RW	
62 [0x3E]	10...50%	VFSMediumSpeedDiff	35%	RW	
63 [0x3F]	10...50%	VFSHighSpeedDiff	35%	RW	
64 [0x40]	0...100%	CoolVFSLowLimit	0%	RW	
65 [0x41]	0...100%	CoolVFSHighLimit	100%	RW	
66 [0x42]	0...100%	HeatVFSLowLimit	0%	RW	
67 [0x43]	0...100%	HeatVFSHighLimit	100%	RW	
68 [0x44]	0...20 minutes	MinimumTimeCompressorOn	2 minutes	RW	
69 [0x45]	0...20 minutes	MinimumTimeCompressorOff	13 minutes	RW	
70 [0x46]	9...27°C (48...81°F)	EconomizerOA_LowLimitTemp	17°C (63°F)	RW	*
71 [0x47]	1 - On, 0 - Off	S3_1_FanSpeeds	-	R	
72 [0x48]	1 - On, 0 - Off	S3_2_FanSpeeds	-	R	
73 [0x49]	1 - On, 0 - Off	S3_3_ConfigHCHP	-	R	

Address Dec[Hex]	Value	Object Name	Default	Access	
74 [0x4A]	1 - On, 0 - Off	S3_4_AC	-	R	
75 [0x4B]	1 - On, 0 - Off	S3_5_CompressorDelay	-	R	
76 [0x4C]	1 - On, 0 - Off	S3_6_ElectricalHeater2Stage	-	R	
77 [0x4D]	1 - On, 0 - Off	S3_7_AC_FC_System	-	R	
78 [0x4E]	1 - On, 0 - Off	HeatElement1	-	RW	
79 [0x4F]	1 - On, 0 - Off	HeatElement2	-	RW	
80 [0x50]	1 - On, 0 - Off	HeatElement3	-	RW	
81 [0x51]	1 - On, 0 - Off	Compressor1	-	RW	
82 [0x52]	1 - On, 0 - Off	Compressor2	-	RW	
83 [0x53]	1 - On, 0 - Off	FanOnOffLow	-	RW	
84 [0x54]	1 - On, 0 - Off	FanOnOffMedium	-	RW	
85 [0x55]	1 - On, 0 - Off	FanOnOffHigh	-	RW	
86 [0x56]	1 - On, 0 - Off	HPOnOff	-	RW	
87 [0x57]	1 - On, 0 - Off	EconomizerOA	-	RW	
88 [0x58]	1 - On, 0 - Off	OnOff	0 - Off	RW	
89 [0x59]	1 - On, 0 - Off	AutoFan	0 - Off	RW	
90 [0x5A]	1 - Celsius, 0 - Fahrenheit	C_F_Scale	0 - Fahrenheit	RW	
91 [0x5B]	1 - Locked, 0 - Unlocked	SetLock	0 - Unlocked	RW	
92 [0x5C]	0 - non - Lock 1 - Mode 2 - Fan - 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	
93 [0x5D]	1 - two set points, 0 - one set point	One_TwoSetpoints	0 - one set point	RW	

Address Dec[Hex]	Value	Object Name	Default	Access	
94 [0x5E]	1 - Alarm, 0 - NOP	FilterAlarm	0 - NOP	R	
95 [0x5F]	1 - Reset, 0 - NOP	FilterReset	0 - NOP	RW	
96 [0x60]	1 - Enable, 0 - Disable	AutoModeEnable	1 - Enable	RW	
97 [0x61]	1 - Enable, 0 - Disable	BackLightEnable	1 - Enable	RW	
98 [0x62]	1 - Enable, 0 - Disable	BeeperEnable	1 - Enable	RW	
99 [0x63]	1 - Enable, 0 - Disable	FreezeProtectionEnable	1 - Enable	RW	
100 [0x64]	1 - Open, 0 - Close	WindowContact	0 - Close	R	
101 [0x65]	1 - Norm. open, 0 - Norm. close	WindowContactPolarity	0 - Norm. close	RW	
102 [0x66]	1 - Unoccupied, 0 - Occupied	UnoccupiedByNetwork	0 - Occupied	RW	
103 [0x67]	1 - Unoccupied, 0 - Occupied	UnoccupancyByAuxOccSensor	0 - Occupied	R	
104 [0x68]	1 - Norm. close, 0 - Norm. open	AuxOccupancySensorPolarity	0 - Norm. open	RW	
105 [0x69]	1 - On, 0 - Off	DoorSwitchOpen	0 - Off	R	
106 [0x6A]	1 - Norm. open, 0 - Norm. close	DoorSwitchPolarity	0 - Norm. close	RW	
107 [0x6B]	1 - On, 0 - Off	EmergencyHeat	0 - Off	RW	
108 [0x6C]	0 - Disable Scheduler 1 - All days 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	RW	
109 [0x6D]	0 - two periods, 1 - four periods	DayPeriods	1 - four periods	RW	
110 [0x6E]	0 - USA 1 - Europe	DayPeriodsType	0 - USA	RW	
111 [0x6F]	1 - Enable, 0 - Disable	DayProgramEnable	0 - Disable	RW	

Address Dec[Hex]	Value	Object Name	Default	Access	
112 [0x70]	1 - Indicate, 0 - Hide (Icon Alarm on LCD only)	Set Alarm	0 - Hide	RW	
113 [0x71]	1 - On, 0 - Off	TAmbWriteable	0 - Off	RW	
114 [0x72]	1 - On, 0 - Off	ViewFloatValue	0 - Off	RW	
115 [0x73]	0 – 9600 1 - 19200 2 - 38400 3 - 76800	Baud rate	2 - 38400	RW	
116 [0x74]	0 - none, 1 - odd, 2 - even	Parity	0 - none	RW	
117 [0x75]	1 - Restore, 0 - NOP	RestoreDefault	0 - NOP	RW	

TM-24 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 = 244300**

MajorMinorRevision = 244300**.****

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

Address Dec[Hex]	Value	Object Name	Default	Access	
19 [0x13]	0 - Occupancy sensor logic not used 1 - Occupancy sensor logic controls HVAC	OccupancySensorAuthority	1 - Occupancy sensor logic not used	RW	
20 [0x14]	0 - On/Off logic 1 - Start/Stop logic 2 - Change setpoint logic	OccupancySensorFunction	2 - Change setpoint logic	RW	
21 [0x15]	0...900 minutes	OccupancySensorHVACDelayTime	20 minutes	RW	
22 [0x16]	0 - T-stat turns off when unoccupied 1 - T-stat uses economy 2 - Fan Low keeps running	DoorSwitchOrKeyTag_Function	1 - T-stat uses economy	RW	
23 [0x17]	0...999 seconds	TimeSwitchingToOccupiedMode	1 seconds	RW	
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	
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	
26 [0x1A]	0...999 seconds	WindowContactDelayTime	600 seconds	RW	
27 [0x1B]	0...999 seconds	DoorSwitchDelayTime	180 seconds	RW	
28 [0x1C]	-9.9...99°C (-9.9...210°F)	T2_Effective	-	R	
29 [0x1D]	-9.9...99°C (-9.9...210°F)	T3_Effective	-	R	*
30 [0x1E]	0...99°C (32...210°F)	TEconomizerEffective	99°C (210°F)	RW	*
31 [0x1F]	0...120 seconds	CoolFanOnDelay	0 seconds	RW	*

Address Dec[Hex]	Value	Object Name	Default	Access	
32 [0x20]	0...120 seconds	CoolFanOffDelay	0 seconds	RW	
33 [0x21]	0...120 seconds	HeatFanOnDelay	0 seconds	RW	
34 [0x22]	0...120 seconds	HeatFanOffDelay	30 seconds	RW	
35 [0x23]	8...15°C (46...59°F)	FreezeProtectionCutInSetpoint	8°C (46°F)	RW	
36 [0x24]	10...17°C (50...63°F)	FreezeProtectionCutOutSetpoint	10°C (50°F)	RW	
37 [0x25]	0...999 hours	FilterCounter	-	R	
38 [0x26]	0...999 hours	FilterAlarmTimeDelay	0 hours	RW	
39 [0x27]	0.5...5°C (1...9°F)	CoolDifferentialBand	1°C (2°F)	RW	
40 [0x28]	-5...5°C (- 9...9°F)	CoolDifferentialBandOffset	0°C (0°F)	RW	*
41 [0x29]	0.5...20°C (1...36°F)	HeatDifferentialBand	1°C (2°F)	RW	*
42 [0x2A]	-5...5°C (- 9...9°F)	HeatDifferentialBandOffset	0°C (0°F)	RW	*
43 [0x2B]	0...10°C (0...18°F)	ShiftBetweenCoolAndHeat	2°C (4°F)	RW	*
44 [0x2C]	0...49°C (0...88°F)	ShiftBetweenHeatStages	2°C (4°F)	RW	*
45 [0x2D]	0...600 seconds	TimeDelayOnNextHeatStage	5 seconds	RW	*
46 [0x2E]	0...600 seconds	TimeDelayOffNextHeatStage	1 seconds	RW	
47 [0x2F]	14...37°C (57...99°F)	FanSoftStartInHeatCutInTemperature	36°C (97°F)	RW	
48 [0x30]	12...35°C (54...95°F)	FanSoftStartInHeatCutOutTemperature	32°C (90°F)	RW	
49 [0x31]	0.3...2°C (0.6...4°F)	DifferentialOnOffFanSpeeds	0.7°C (1.4°F)	RW	
50 [0x32]	0...100	Kp_PIDCool	100	RW	*
51 [0x33]	0...100	Kp_PIDHeat	100	RW	
52 [0x34]	0...100	Ki_PIDCool	0	RW	
53 [0x35]	0...100	Ki_PIDHeat	0	RW	
54 [0x36]	0...100	Kd_PIDCool	1	RW	
55 [0x37]	0...100	Kd_PIDHeat	1	RW	
56 [0x38]	0...100 seconds	OutputsThresholdTimeCool	60 seconds	RW	
57 [0x39]	0...100 seconds	OutputsThresholdTimeHeat	60 seconds	RW	
58 [0x3A]	1...10°C (2...18°F)	CoolValveProportionalBand	2°C (4°F)	RW	
59 [0x3B]	0...100%	CoolProportionalLowLimit	0%	RW	*
60 [0x3C]	0...100%	CoolProportionalHighLimit	100%	RW	
61 [0x3D]	1...10°C (2...18°F)	HeatValveProportionalBand	2°C (4°F)	RW	

Address Dec[Hex]	Value	Object Name	Default	Access	
62 [0x3E]	0...100%	HeatProportionalLowLimit	0%	RW	*
63 [0x3F]	0...100%	HeatProportionalHighLimit	100%	RW	
64 [0x40]	0...30%	ProportionalOnPercent	30%	RW	
65 [0x41]	0...20%	ProportionalOffPercent	10%	RW	
66 [0x42]	0...99 seconds	BackLightTime	5 seconds	RW	
67 [0x43]	1...10°C (2...18°F)	CoolVFSProportionalBand	2°C (4°F)	RW	
68 [0x44]	1...10°C (2...18°F)	HeatVFSProportionalBand	2°C (4°F)	RW	*
69 [0x45]	0...30%	CoolVFSLowSpeedPercent	20%	RW	*
70 [0x46]	30...60%	CoolVFSMediumSpeedPercent	50%	RW	
71 [0x47]	60...100%	CoolVFSHighSpeedPercent	90%	RW	
72 [0x48]	0...30%	HeatVFSLowSpeedPercent	30%	RW	
73 [0x49]	30...60%	HeatVFSMediumSpeedPercent	50%	RW	
74 [0x4A]	60...100%	HeatVFSHighSpeedPercent	80%	RW	
75 [0x4B]	10...50%	VFSMediumSpeedDiff	35%	RW	
76 [0x4C]	10...50%	VFSHighSpeedDiff	35%	RW	
77 [0x4D]	0...100%	CoolVFSLowLimit	0%	RW	
78 [0x4E]	0...100%	CoolVFSHighLimit	100%	RW	
79 [0x4F]	0...100%	HeatVFSLowLimit	0%	RW	
80 [0x50]	0...100%	HeatVFSHighLimit	100%	RW	
81 [0x51]	9...27°C (48...81°F)	EconomizerOA_LowLimitTemp	17°C (63°F)	RW	
82 [0x52]	1 - On, 0 - Off	S3_1_FanSpeeds	-	R	*
83 [0x53]	1 - On, 0 - Off	S3_2_FanSpeeds	-	R	
84 [0x54]	1 - On, 0 - Off	S3_3_Config4pipe	-	R	
85 [0x55]	1 - On, 0 - Off	S3_4_ElectricalHeater	-	R	
86 [0x56]	1 - On, 0 - Off	S3_5_ChilledBeamEnable	-	R	
87 [0x57]	1 - On, 0 - Off	S3_6_FloorHeater	-	R	
88 [0x58]	1 - On, 0 - Off	S3_7_AC_FC_System	-	R	
89 [0x59]	1 - NOP, 0 - Modbus	No name	0 - Modbus	R	
90 [0x5A]	1 - Cool Proportional, 0 - relay	S1_1_CoolProportional	-	R	
91 [0x5B]	1 - Heat Proportional, 0 - relay	S1_2_HeatProportional	-	R	

Address Dec[Hex]	Value	Object Name	Default	Access	
92 [0x5C]	1 - On, 0 - Off	HeatOnOffValve	-	RW	
93 [0x5D]	1 - On, 0 - Off	HeatElement	-	RW	
94 [0x5E]	1 - On, 0 - Off	CoolOnOffValve	-	RW	
95 [0x5F]	1 - On, 0 - Off	FanOnOffLow	-	RW	
96 [0x60]	1 - On, 0 - Off	FanOnOffMedium	-	RW	
97 [0x61]	1 - On, 0 - Off	FanOnOffHigh	-	RW	
98 [0x62]	1 - On, 0 - Off	EconomizerOA	-	RW	
99 [0x63]	1 - On, 0 - Off	OnOff	0 - Off	RW	
100 [0x64]	1 - On, 0 - Off	AutoFan	0 - Off	RW	
101 [0x65]	1 - Celsius, 0 - Fahrenheit	C_F_Scale	0 - Fahrenheit	RW	
102 [0x66]	1 - Locked, 0 - Unlocked	SetLock	0 - Unlocked	RW	
103 [0x67]	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+Fan1 1 - 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	
104 [0x68]	1 - two set points, 0 - one set point	One_TwoSetpoints	0 - one set point	RW	
105 [0x69]	1 - Alarm, 0 - NOP	FilterAlarm	0 - NOP	R	
106 [0x6A]	1 - Reset, 0 - NOP	FilterReset	0 - NOP	RW	
107 [0x6B]	1 - Enable, 0 - Disable	AutoModeEnable	1 - Enable	RW	
108 [0x6C]	1 - Enable, 0 - Disable	BackLightEnable	1 - Enable	RW	
109 [0x6D]	1 - Enable, 0 - Disable	BeeperEnable	1 - Enable	RW	
110 [0x6E]	1 - Enable, 0 - Disable	FreezeProtectionEnable	1 - Enable	RW	
111 [0x6F]	1 - Open, 0 - Close	WindowContact	0 - Close	R	

Address Dec[Hex]	Value	Object Name	Default	Access	
112 [0x70]	1 - Norm.open, 0 - Norm.close	WindowContactPolarity	0 - Norm.close	RW	
113 [0x71]	1 - Unoccupied, 0 - Occupied	UnoccupiedByNetwork	0 - Occupied	RW	
114 [0x72]	1 - Unoccupied, 0 - Occupied	UnoccupancyByAuxOccSensor	0 - Occupied	R	
115 [0x73]	1 - Norm.close, 0 - Norm.open	AuxOccupancySensorPolarity	0 - Norm.open	RW	
116 [0x74]	1 - On, 0 - Off	DoorSwitchOpen	0 - Off	R	
117 [0x75]	1 - Norm.open, 0 - Norm.close	DoorSwitchPolarity	0 - Norm.close	RW	
118 [0x76]	0 - Disable Scheduler 1 - All days 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	RW	
119 [0x77]	0 - two periods, 1 - four periods	DayPeriods	1 - four periods	RW	
120 [0x78]	0 - USA, 1 - Europe	DayPeriodsType	0 - USA	RW	
121 [0x79]	1 - Enable, 0 - Disable	DayProgramEnable	0 - Disable	RW	
122 [0x7A]	1 - Indicate, 0 - Hide (Symbol Alarm on LCD only)	Set Alarm	0 - Hide	RW	
123 [0x7B]	1 - On, 0 - Off	TAmbWriteable	0 - Off	RW	
124 [0x7C]	1 - On, 0 - Off	ViewFloatValue	0 - Off	RW	
125 [0x7D]	0 - 9600 1 - 19200 2 - 38400 3 – 76800	Baud rate	2 - 38400	RW	
126 [0x7E]	0 - none, 1 – odd, 2 - even	Parity	0 - none	RW	
127 [0x7F]	1 - Restore, 0 - NOP	RestoreDefault	0 - NOP	RW	

TM 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 = 244301xx

MajorMinorRevision = 244301xx.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	-	RW	®
2	1 [0x01]	- 20...100°C (- 4...212°F)	IN1_AIN	-	RW	*
3	2 [0x02]	0...100%	AO_Fan	-	RW	
4	3 [0x03]	5...35°C (41...95°F)	SetPoint_SetPointCool	23°C (73°F)	RW	*
5	4 [0x04]	5...35°C (41...95°F)	SetPointHeat	22°C (72°F)	RW	*
6	5 [0x05]	5...35°C (41...95°F)	SetPointEffective	-	R	*
7	6 [0x06]	0...100°C (32...212°F)	ReturnAirSensorEffective	-	R	*
8	7 [0x07]	0 - Fan Only 1 - Cool 2 - Heat 3 - Auto	Mode	1 - Cool	RW	
9	8 [0x08]	0 - Fan Only 1 - Cool 2 - Heat 4 - Off	ModeEffective	-	R	
10	9 [0x09]	0 – Auto 1 - Low 2 - Medium 3 - High	FanSpeed	0 - Auto	RW	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
11	10 [0x0A]	1 – Low 2 - Medium 3 - High 4 - Off	FanEffective	-	R	
12	11 [0x0B]	-5...5°C (- 9...9°F)	ReturnAirSensorCalibration	0°C (0°F)	RW	*
13	12 [0x0C]	5...35°C (41...95°F)	SetPointLimitCool	10°C (50°F)	RW	
14	13 [0x0D]	5...35°C (41...95°F)	SetPointLimitHeat	30°C (86°F)	RW	
15	14 [0x0E]	5...35°C (41...95°F)	EconomySetPointInCool	30°C (86°F)	RW	
16	15 [0x0F]	5...35°C (41...95°F)	EconomySetPointInHeat	10°C (50°F)	RW	
17	16 [0x10]	0 – Unoccupied, 1 - Occupied	OccupancyEffectiveHVAC	-	R	
18	17 [0x11]	0 – Occ. sensor logic not used 1 – Occ. sensor logic controls HVAC	OccupancySensorAuthority	1 - Occ. sensor logic not used	RW	
19	18 [0x12]	0 - On/Off logic 1 - Start/Stop logic 2 - Change setpoint logic	OccupancySensorFunction	2 - Change setpoint logic	RW	
20	19 [0x13]	0...900 minutes	OccupancySensorHVACDelayTime	20 minutes	RW	
21	20 [0x14]	0 - T-stat turns off when unoccupied 1 - T-stat uses economy 2 - Fan Low keeps running	DoorSwitchOrKeyTag_Function	1 - T-stat uses economy	RW	
22	21 [0x15]	0...999 seconds	TimeSwitchingToOccupiedMode	1 seconds	RW	
23	22 [0x16]	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	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
24	23 [0x17]	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	
25	24 [0x18]	0...999 seconds	WindowContactDelayTime	600 seconds	RW	
26	25 [0x19]	0...999 seconds	DoorSwitchDelayTime	180 seconds	RW	
27	26 [0x1A]	-9.9...99°C (-9.9...210°F)	T2_Effective	-	R	*
28	27 [0x1B]	-9.9...99°C (-9.9...210°F)	T3_Effective	-	R	*
29	28 [0x1C]	0...99°C (32...210°F)	TEconomizerEffective	99°C (210°F)	RW	*
30	29 [0x1D]	0...120 seconds	CoolFanOffDelay	0 seconds	RW	
31	30 [0x1E]	0...120 seconds	HeatFanOffDelay	30 seconds	RW	
32	31 [0x1F]	8...15°C (46...59°F)	FreezeProtectionCutInSetpoint	8°C (46°F)	RW	
33	32 [0x20]	10...17°C (50...63°F)	FreezeProtectionCutOutSetpoint	10°C (50°F)	RW	
34	33 [0x21]	0...999 hour	FilterCounter	-	R	
35	34 [0x22]	0...999 hour	FilterAlarmTimeDelay	0 hour	RW	
36	35 [0x23]	0.5...5°C (1...9°F)	CoolDifferentialBand	1°C (2°F)	RW	*
37	36 [0x24]	-5...5°C (-9...9°F)	CoolDifferentialBandOffset	0°C (0°F)	RW	*
38	37 [0x25]	0.5...20°C (1...36°F)	HeatDifferentialBand	1°C (2°F)	RW	*
39	38 [0x26]	-5...5°C (-9...9°F)	HeatDifferentialBandOffset	0°C (0°F)	RW	*
40	39 [0x27]	0...10°C (0...18°F)	ShiftBetweenCoolAndHeat	2°C (4°F)	RW	*
41	40 [0x28]	0...10°C (0...18°F)	ShiftBetweenCoolStages	2°C (4°F)	RW	*
42	41 [0x29]	0...49°C (0...88°F)	ShiftBetweenHeatStages	2°C (4°F)	RW	*
43	42 [0x2A]	0...600 seconds	TimeDelayOnNextCoolStage	5 seconds	RW	
44	43 [0x2B]	0...600 seconds	TimeDelayOnNextHeatStage	5 seconds	RW	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
45	44 [0x2C]	0...600 seconds	TimeDelayOffNextCoolStage	1 seconds	RW	
46	45 [0x2D]	0...600 seconds	TimeDelayOffNextHeatStage	1 seconds	RW	
47	46 [0x2E]	0...360 seconds	CompressorStandbyDelay	240 seconds	RW	
48	47 [0x2F]	-9.5...8°C (15...46°F)	DeiceCoolCutInTemperature	0°C (32°F)	RW	*
49	48 [0x30]	2...20°C (36...68°F)	DeiceCoolCutOutTemperature	8°C (46°F)	RW	*
50	49 [0x31]	120...420 seconds	DeiceHeatTime	300 seconds	RW	
51	50 [0x32]	600...1800 seconds	DeiceHeatBreakTime	1500 seconds	RW	
52	51 [0x33]	-9.5...8°C (15...46°F)	DeiceHeatCutInTemperature	0°C (32°F)	RW	*
53	52 [0x34]	2...20°C (35...68°F)	DeiceHeatCutOutTemperature	16°C (61°F)	RW	*
54	53 [0x35]	0...99 seconds	BackLightTime	5 seconds	RW	
55	54 [0x36]	1...10°C (2...18°F)	CoolVFSProportionalBand	2°C (4°F)	RW	*
56	55 [0x37]	1...10°C (2...18°F)	HeatVFSProportionalBand	2°C (4°F)	RW	*
57	56 [0x38]	0...30%	CoolVFSLowSpeedPercent	20%	RW	
58	57 [0x39]	30...60%	CoolVFSMediumSpeedPercent	50%	RW	
59	58 [0x3A]	60...100%	CoolVFSHighSpeedPercent	90%	RW	
60	59 [0x3B]	0...30%	HeatVFSLowSpeedPercent	30%	RW	
61	60 [0x3C]	30...60%	HeatVFSMediumSpeedPercent	50%	RW	
62	61 [0x3D]	60...100%	HeatVFSHighSpeedPercent	80%	RW	
63	62 [0x3E]	10...50%	VFSMediumSpeedDiff	35%	RW	
64	63 [0x3F]	10...50%	VFSHighSpeedDiff	35%	RW	
65	64 [0x40]	0...100%	CoolVFSLowLimit	0%	RW	
66	65 [0x41]	0...100%	CoolVFSHighLimit	100%	RW	
67	66 [0x42]	0...100%	HeatVFSLowLimit	0%	RW	
68	67 [0x43]	0...100%	HeatVFSHighLimit	100%	RW	
69	68 [0x44]	0...20 minutes	MinimumTimeCompressorOn	2 minutes	RW	
70	69 [0x45]	0...20 minutes	MinimumTimeCompressorOff	13 minutes	RW	
71	70 [0x46]	9...27°C (48...81°F)	EconomizerOA_LowLimitTemp	17°C (63°F)	RW	*
72	71 [0x47]	1 - On, 0 - Off	S3_1_FanSpeeds	-	R	
73	72 [0x48]	1 - On, 0 - Off	S3_2_FanSpeeds	-	R	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
74	73 [0x49]	1 - On, 0 - Off	S3_3_ConfigHCHP	-	R	
75	74 [0x4A]	1 - On, 0 - Off	S3_4_AC	-	R	
76	75 [0x4B]	1 - On, 0 - Off	S3_5_CompressorDelay	-	R	
77	76 [0x4C]	1 - On, 0 - Off	S3_6_ElectricalHeater2Stage	-	R	
78	77 [0x4D]	1 - On, 0 - Off	S3_7_AC_FC_System	-	R	
79	78 [0x4E]	1 - On, 0 - Off	HeatElement1	-	RW	
80	79 [0x4F]	1 - On, 0 - Off	HeatElement2	-	RW	
81	80 [0x50]	1 - On, 0 - Off	HeatElement3	-	RW	
82	81 [0x51]	1 - On, 0 - Off	Compressor1	-	RW	
83	82 [0x52]	1 - On, 0 - Off	Compressor2	-	RW	
84	83 [0x53]	1 - On, 0 - Off	FanOnOffLow	-	RW	
85	84 [0x54]	1 - On, 0 - Off	FanOnOffMedium	-	RW	
86	85 [0x55]	1 - On, 0 - Off	FanOnOffHigh	-	RW	
87	86 [0x56]	1 - On, 0 - Off	HPOnOff	-	RW	
88	87 [0x57]	1 - On, 0 - Off	EconomizerOA	-	RW	
89	88 [0x58]	1 - On, 0 - Off	OnOff	0 - Off	RW	
90	89 [0x59]	1 - On, 0 - Off	AutoFan	0 - Off	RW	
91	90 [0x5A]	1 - Celsius, 0 - Fahrenheit	C_F_Scale	0 - Fahrenheit	RW	
92	91 [0x5B]	1 - Locked, 0 - Unlocked	SetLock	0 - Unlocked	RW	
93	92 [0x5C]	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	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
94	93 [0x5D]	1 - two set points, 0 - one set point	One_TwoSetpoints	0 - one set point	RW	
95	94 [0x5E]	1 - Alarm, 0 - NOP	FilterAlarm	0 - NOP	R	
96	95 [0x5F]	1 - Reset, 0 - NOP	FilterReset	0 - NOP	RW	
97	96 [0x60]	1 - Enable, 0 - Disable	AutoModeEnable	1 - Enable	RW	
98	97 [0x61]	1 - Enable, 0 - Disable	BackLightEnable	1 - Enable	RW	
99	98 [0x62]	1 - Enable, 0 - Disable	BeeperEnable	1 - Enable	RW	
100	99 [0x63]	1 - Enable, 0 - Disable	FreezeProtectionEnable	1 - Enable	RW	
101	100 [0x64]	1 - Open, 0 - Close	WindowContact	0 - Close	R	
102	101 [0x65]	1 - Norm. open, 0 - Norm. close	WindowContactPolarity	0 - Norm. close	RW	
103	102 [0x66]	1 - Unoccupied, 0 - Occupied	UnoccupancyByPIR	0 - Occupied	R	
104	103 [0x67]	1 - Unoccupied, 0 - Occupied	UnoccupiedByNetwork	0 - Occupied	RW	
105	104 [0x68]	1 - Unoccupied, 0 - Occupied	UnoccupancyByAuxOccSensor	0 - Occupied	R	
106	105 [0x69]	1 - Norm. close, 0 - Norm. open	AuxOccupancySensorPolarity	0 - Norm. open	RW	
107	106 [0x6A]	1 - On, 0 - Off	DoorSwitchOpen	0 - Off	R	
108	107 [0x6B]	1 - Norm. open, 0 - Norm. close	DoorSwitchPolarity	0 - Norm. close	RW	
109	108 [0x6C]	1 - On, 0 - Off	EmergencyHeat	0 - Off	RW	
110	109 [0x6D]	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	RW	
111	110 [0x6E]	0 - two periods, 1 - four periods	DayPeriods	1 - Four periods	RW	
112	111 [0x6F]	0 - USA, 1 - Europe	DayPeriodsType	0 - USA	RW	
113	112 [0x70]	1 - Enable, 0 - Disable	DayProgramEnable	0 - Disable	RW	
114	113 [0x71]	1 - Indicate, 0 - Hide	Set Alarm	0 - Hide	RW	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
115	114 [0x72]	1 - On, 0 - Off	TAmbWriteable	0 - Off	RW	
116	115 [0x73]	1 - On, 0 - Off	ViewFloatValue	0 - Off	RW	
117	116 [0x74]	0 - 9600, 1 - 19200, 2 - 38400, 3 - 76800	Baud rate	2 - 38400	RW	
118	117 [0x75]	0 - none, 1 - odd, 2 - even	Parity	0 - none	RW	
119	118 [0x76]	1 - Restore, 0 - NOP	RestoreDefault	0 - NOP	RW	

TM 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

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	-	RW	*
2	1 [0x01]	-20...100°C (-4...212°F)	IN1_AIN	-	RW	*
3	2 [0x02]	0...100%	AO_Cool(cool/heat valve)	-	RW	
4	3 [0x03]	0...100%	AO_Heat	-	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	*

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
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	
20	19 [0x13]	0 – Occ. sensor logic not used 1 – Occ. sensor logic controls HVAC	OccupancySensorAuthority	1 - Occ. sensor logic not used	RW	
21	20 [0x14]	0 - On/Off logic 1 - Start/Stop logic 2 - Change setpoint 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 unoccupied 1 - T-stat uses economy 2 - Fan Low keeps running	DoorSwitchOrKeyTag_Function	1 - T-stat uses economy	RW	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
24	23 [0x17]	0...999 sec	TimeSwitchingToOccupiedMode	1 sec	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	
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	CoolFanOnDelay	0 seconds	RW	
33	32 [0x20]	0...120 seconds	CoolFanOffDelay	0 seconds	RW	
34	33 [0x21]	0...120 seconds	HeatFanOnDelay	0 seconds	RW	
35	34 [0x22]	0...120 seconds	HeatFanOffDelay	30 seconds	RW	
36	35 [0x23]	8...15°C (46...59°F)	FreezeProtectionCutInSetpoint	8°C (46°F)	RW	
37	36 [0x24]	10...17°C (50...63°F)	FreezeProtectionCutOutSetpoint	10°C (50°F)	RW	
38	37 [0x25]	0...999 hours	FilterCounter	-	R	
39	38 [0x26]	0...999 hours	FilterAlarmTimeDelay	0 hour	RW	
40	39 [0x27]	0.5...5°C (1...9°F)	CoolDifferentialBand	1°C (2°F)	RW	*
41	40 [0x28]	- 5...5°C (- 9...9°F)	CoolDifferentialBandOffset	0°C (0°F)	RW	*

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
42	41 [0x29]	0.5...20°C (1...36°F)	HeatDifferentialBand	1°C (2°F)	RW	*
43	42 [0x2A]	- 5...5°C (- 9...9°F)	HeatDifferentialBandOffset	0°C (0°F)	RW	*
44	43 [0x2B]	0...10°C (0...18°F)	ShiftBetweenCoolAndHeat	2°C (4°F)	RW	*
45	44 [0x2C]	0...49°C (0...88°F)	ShiftBetweenHeatStages	2°C (4°F)	RW	*
46	45 [0x2D]	0...600 seconds	TimeDelayOnNextHeatStage	5 seconds	RW	
47	46 [0x2E]	0...600 seconds	TimeDelayOffNextHeatStage	1 seconds	RW	
48	47 [0x2F]	14...37°C (57...99°F)	FanSoftStartInHeatCutInTemperature	36°C (97°F)	RW	
49	48 [0x30]	12...35°C (54...95°F)	FanSoftStartInHeatCutOutTemperature	32°C (90°F)	RW	
50	49 [0x31]	0.3...2°C (0.6...4°F)	DifferentialOnOffFanSpeeds	0.7°C (1.4°F)	RW	*
51	50 [0x32]	0...100	Kp_PIDCool	100	RW	
52	51 [0x33]	0...100	Kp_PIDHeat	100	RW	
53	52 [0x34]	0...100	Ki_PIDCool	0	RW	
54	53 [0x35]	0...100	Ki_PIDHeat	0	RW	
55	54 [0x36]	0...100	Kd_PIDCool	1	RW	
56	55 [0x37]	0...100	Kd_PIDHeat	1	RW	
57	56 [0x38]	0...100 seconds	OutputsThresholdTimeCool	60 seconds	RW	
58	57 [0x39]	0...100 seconds	OutputsThresholdTimeHeat	60 seconds	RW	
59	58 [0x3A]	1...10°C (2...18°F)	CoolValveProportionalBand	2°C (4°F)	RW	*
60	59 [0x3B]	0...100%	CoolProportionalLowLimit	0%	RW	
61	60 [0x3C]	0...100%	CoolProportionalHighLimit	100%	RW	
62	61 [0x3D]	1...10°C (2...18°F)	HeatValveProportionalBand	2°C (4°F)	RW	*
63	62 [0x3E]	0...100%	HeatProportionalLowLimit	0%	RW	
64	63 [0x3F]	0...100%	HeatProportionalHighLimit	100%	RW	
65	64 [0x40]	0...30%	ProportionalOnPercent	30%	RW	
66	65 [0x41]	0...20%	ProportionalOffPercent	10%	RW	
67	66 [0x42]	0...99 seconds	BackLightTime	5 seconds	RW	
68	67 [0x43]	1...10°C (2...18°F)	CoolVFSProportionalBand	2°C (4°F)	RW	*
69	68 [0x44]	1...10°C (2...18°F)	HeatVFSProportionalBand	2°C (4°F)	RW	*
70	69 [0x45]	0...30%	CoolVFSLowSpeedPercent	20%	RW	
71	70 [0x46]	30...60%	CoolVFSMediumSpeedPercent	50%	RW	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
72	71 [0x47]	60...100%	CoolVFSHighSpeedPercent	90%	RW	
73	72 [0x48]	0...30%	HeatVFSLowSpeedPercent	30%	RW	
74	73 [0x49]	30...60%	HeatVFSMediumSpeedPercent	50%	RW	
75	74 [0x4A]	60...100%	HeatVFSHighSpeedPercent	80%	RW	
76	75 [0x4B]	10...50%	VFSMediumSpeedDiff	35%	RW	
77	76 [0x4C]	10...50%	VFSHighSpeedDiff	35%	RW	
78	77 [0x4D]	0...100%	CoolVFSLowLimit	0%	RW	
79	78 [0x4E]	0...100%	CoolVFSHighLimit	100%	RW	
80	79 [0x4F]	0...100%	HeatVFSLowLimit	0%	RW	
81	80 [0x50]	0...100%	HeatVFSHighLimit	100%	RW	
82	81 [0x51]	9...27 °C (48...81 °F)	EconomizerOA_LowLimitTemp	17 °C (63 °F)	RW	*
83	82 [0x52]	1 - On, 0 - Off	S3_1_FanSpeeds	-	R	
84	83 [0x53]	1 - On, 0 - Off	S3_2_FanSpeeds	-	R	
85	84 [0x54]	1 - On, 0 - Off	S3_3_Config4pipe	-	R	
86	85 [0x55]	1 - On, 0 - Off	S3_4_ElectricalHeater	-	R	
87	86 [0x56]	1 - On, 0 - Off	S3_5_ChilledBeamEnable	-	R	
88	87 [0x57]	1 - On, 0 - Off	S3_6_FloorHeater	-	R	
89	88 [0x58]	1 - On, 0 - Off	S3_7_AC_FC_System	-	R	
90	89 [0x59]	1 - NOP, 0 - Modbus	no name	-	R	
91	90 [0x5A]	1 - Cool Proportional, 0 - relay	S1_1_CoolProportional	-	R	
92	91 [0x5B]	1 - Heat Proportional, 0 - relay	S1_2_HeatProportional	-	R	
93	92 [0x5C]	1 - On, 0 - Off	HeatOnOffValve	-	RW	
94	93 [0x5D]	1 - On, 0 - Off	HeatElement	-	RW	
95	94 [0x5E]	1 - On, 0 - Off	CoolOnOffValve	-	RW	
96	95 [0x5F]	1 - On, 0 - Off	FanOnOffLow	-	RW	
97	96 [0x60]	1 - On, 0 - Off	FanOnOffMedium	-	RW	
98	97 [0x61]	1 - On, 0 - Off	FanOnOffHigh	-	RW	
99	98 [0x62]	1 - On, 0 - Off	EconomizerOA	-	RW	
100	99 [0x63]	1 - On, 0 - Off	OnOff	0 - Off	RW	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
101	100 [0x64]	1 - On, 0 - Off	AutoFan	0 - Off	RW	
102	101 [0x65]	1 - On, 0 - Off	C_F_Scale	0 - Off	RW	
103	102 [0x66]	1 - Locked, 0 - Unlocked	SetLock	0 - Unlocked	RW	
104	103 [0x67]	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	
105	104 [0x68]	1 - two set points 0 - one set point	One_TwoSetpoints	0 - one set point	RW	
106	105 [0x69]	1 - Alarm, 0 - NOP	FilterAlarm	0 - NOP	R	
107	106 [0x6A]	1 - Reset, 0 - NOP	FilterReset	0 - NOP	RW	
108	107 [0x6B]	1 - Enable, 0 - Disable	AutoModeEnable	1 - Enable	RW	
109	108 [0x6C]	1 - Enable, 0 - Disable	BackLightEnable	1 - Enable	RW	
110	109 [0x6D]	1 - Enable, 0 - Disable	BeeperEnable	1 - Enable	RW	
111	110 [0x6E]	1 - Enable, 0 - Disable	FreezeProtectionEnable	1 - Enable	RW	
112	111 [0x6F]	1 - Open, 0 - Close	WindowContact	0 - Close	R	
113	112 [0x70]	1 - Norm.open, 0 - Norm. close	WindowContactPolarity	0 - Norm. close	RW	
114	113 [0x71]	1 - Unoccupied, 0 - Occupied	UnoccupancyByPIR	0 - Occupied	R	

N°	Address Dec[Hex]	Value	Object Name	Default	Access	
115	114 [0x72]	1 - Unoccupied, 0 - Occupied	UnoccupiedByNetwork	0 - Occupied	RW	
116	115 [0x73]	1 - Unoccupied, 0 - Occupied	UnoccupancyByAuxOccSensor	0 - Occupied	R	
117	116 [0x74]	1 - Norm. close, 0 - Norm.open	AuxOccupancySensorPolarity	0 - Norm. open	RW	
118	117 [0x75]	1 - On, 0 - Off	DoorSwitchOpen	0 - Off	R	
119	118 [0x76]	1 - Norm. open, 0 - Norm.close	DoorSwitchPolarity	0 - Norm. close	RW	
120	119 [0x77]	0 - Disable Scheduler 1 - All days 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	RW	
121	120 [0x78]	0 - two periods, 1 - four periods	DayPeriods	1 - Four periods	RW	
122	121 [0x79]	0 - USA, 1 - Europe	DayPeriodsType	0 - USA	RW	
123	122 [0x7A]	1 - Enable, 0 - Disable	DayProgramEnable	0 - Disable	RW	
124	123 [0x7B]	1 - Indicate, 0 - Hide	Set Alarm	0 - Hide	RW	
125	124 [0x7C]	1 - On, 0 - Off	TambWriteable	0 - Off	RW	
126	125 [0x7D]	1 - On, 0 - Off	ViewFloatValue	0 - Off	RW	
127	126 [0x7E]	0 - 9600 1 - 19200 2 - 38400 3 – 76800	Baud rate	2 - 38400	RW	
128	127 [0x7F]	0 - none, 1 – odd, 2 - even	Parity	0 - none	RW	
129	128 [0x80]	1 - Restore, 0 - NOP	RestoreDefault	0 - NOP	RW	

Document revision history

Date	Topic	Change description
11/5/25	Object List for Modbus Register	New topic
	Wiring and DIP switch/jumper configurations	Multiple updates
	MAC Address and BACnet Device Instance Number	Added NOTE
4/15/25	All	All TB Series TIs combined into single document
1/25/24	Specifications	Updated Power specs
4/7/20	Installation	Updated installation height
	Alarms and indicators	Updated Teconomizer sensor fault image
2/26/20	MAC address and BACnet Device instance number - In an Analog Network Output microblock	Added subsequent values
2/18/20	Operating instructions	Multiple revisions
	Weekly program	Multiple revisions
	Wiring and DIP switch configurations – AC systems – Output 14	Added (3) to each Config
	Technician Settings	Multiple revisions
	Alarms and indications	Added E1, E2, E4, and E5
9/9/19	Operating Instructions, P10	Added AC and FC configurations
	Operating Instructions, P11	Changed Remote economy switch settings
	Technician Settings, P34	Changed P11 default from 60 to 600 seconds
	Technician Settings, P35	Changed P17 range from 250 to 900 minutes
5/22/19	Technician Settings, P03	Changed 86c to 30c, changed 30f to 86f
	FC configurations for 4-pipe systems	Changed configurations numbers from 31 through 39 to 14 through 22
2/18/19	Specifications	Changed Mounting specification description

		Added CE and C-Tick icons to Compliance specification
	Installation	Changed step B and illustrations
	Technician Settings, P122 and P123	Changed from percent to time (seconds)