Heat Pump Thermostat

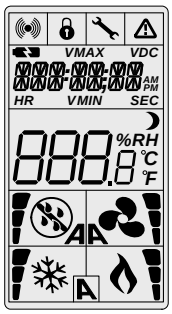
Feature:

TFP24C3Y1

- Attractive modern look with large LCD and backlight
- Stages 1 heat / 1 cool
- Fan on / auto
- Precise temperature control with programmable PI function
- Lockable Set point and adjustable range
- Selectable internal or external temperature sensor
- Celsius or Fahrenheit scale selectable

Technical Data	TFP24C3Y1
Inputs	1 input (external temperature sensor 10Kohms)
Outputs	1 Fan (G) dry contract 24Vac, 1Amax 3A in-rush
	1 Compressor (Y1) dry contract 24Vac, 1Amax 3A in-rush
	1 Reversing valve (O/B) dry contract 24Vac, 1Amax 3A in-rush
Power supply	22 to 26 VAC 50/60Hz
Power consumption	1 VA max
Set point range	10ºC to 40ºC [50ºF to 104ºF]
Control accuracy	Temperature: +/-0.4ºC [0.8ºF]
Proportional band	0.5ºC to 5ºC [1ºF to 10ºF] adjustable (heat/cool/reheat independent)
Dead band	0.3ºC to 5ºC [0.6ºF to 10ºF] adjustable (heat/cool/reheat independent)
Electrical connection	0.8 mm^2 [18 AWG] minimum
Operating temperature	0ºC to50ºC [32ºF to122ºF]
Storage temperature	-30ºC to +50ºC [-22ºF to +122ºF]
Relative Humidity	5 to 95 % non condensing
Degree of protection of housing	IP 30 to (EN 60529)
Weight	160 g. [0.36 lb]

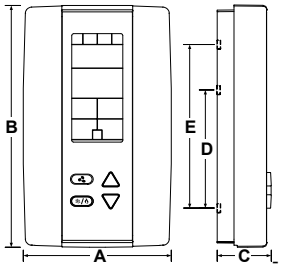
Presentation



Symbols on display

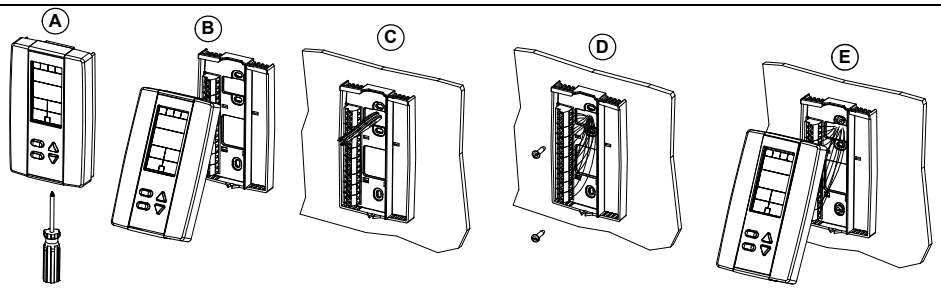
A	***Cooling ON activated output A: Automatic***		***Menu set-up Lock***		***Alarm status***
A	***Heating ON activated output A: Automatic***		***Programming mode (Technician setting)***	***°C or °F***	***ºC: Celsius scale ºF: Fahrenheit scale***
A	***Fan ON activated output A: Automatic***				

Dimensions



Dimension	Inches	Metric (mm)
A	2.85	73
B	4.85	123
C	1.00	24
D	2.36	60
E	3.27	83

Mounting Instructions



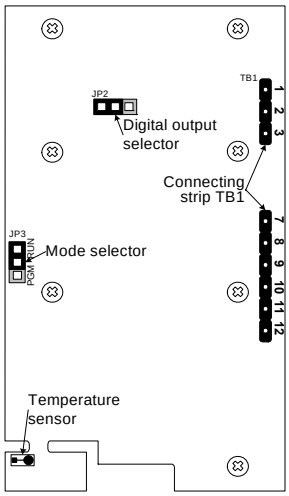
CAUTION: Risk of malfunction. Remove power prior to separate thermostat cover from its base.

A. Remove the screw (captive) holding the base and the front cover of the thermostat.
B. Lift the front cover of the thermostat to separate it from the base.
C. Pull wire through the base hole.
D. Secure the base to the wall using wall anchors and screws (supplied). Make the appropriate connections.
E. Mount the control module on the base and secure using the screw.

Terminal description

TB1	**1**	Common	**C**
	2	24 VAC	**24V**
	6	Not used	-
	7	Separate external 24 VAC	**R**
	8	Compressor output	**Y**
	9	Reversing valve output	**O/B**
	10	Fan output	**G**
	11	Not used	-
	12	External Temp. Sensor (optional)	-

Settings on PC Board

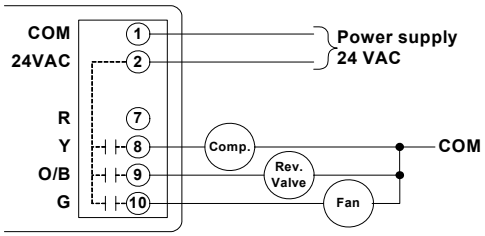


Digital output selection (JP2)

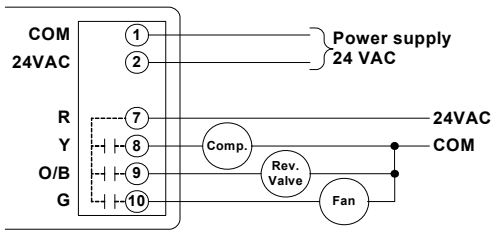
Jumper (JP2) on 24V:
All digital outputs are linked to (24V) terminal 2.

Jumper (JP2) on R:
All digital outputs are linked to (R) terminal 7.

TFP24C3Y1 Terminal



TFP24C3Y1 Terminal



Connect 24 VAC on pin 7 (R) only if a separate 24V transformer is used. Jumper JP2 on R.

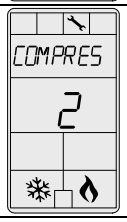
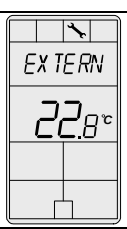
Mode Selection (JP3)

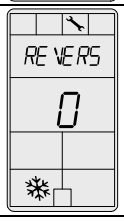
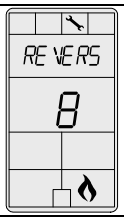
Jumper (JP3) on RUN:
Thermostat is in **operation mode**.
Thermostat must be set in this mode to operate properly.
If not locked, set point, control mode and speed fan (Heating & Cooling ON, Cooling only ON or Heating only ON) may be modified by end user.

Jumper (JP3) on PGM:
Thermostat is set in **Programming mode**.
Refer to following section about all settings description

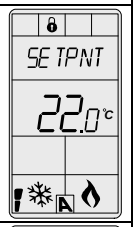
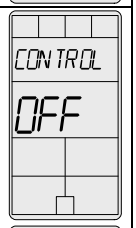
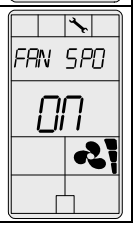
Programming mode

When in this mode this symbol is displayed. Please press on button to advance to the next program function, press on button to return to preceding stage and press on button △ or ▽ to change value. You can leave the programming mode at any time, changed values will be recorded.

Step	Display	Description	Values
1		**Internal temperature sensor Calibration:** Display shows *"INSIDE TEMPER SENSOR OFFSET"* and temperature read by internal temperature sensor. You can adjust the calibration of the sensor by comparison with a known thermometer. For example if thermostat has been installed in an area where temperature is slightly different than the room typical temperature (thermostat place right under the air diffuser).	Range : 10 to 40ºC [50 to 104ºF] (max. offset ± 5 ºC) Increment: 0.1ºC [0.2ºF]
2		**Minimum set point:** Display shows *"ADJUST MINIMUM USER SETPNT"* and the minimum set point temperature. Please select the desired minimum set point temperature. The minimum value is restricted by the maximum value. (step #3).	Minimum range: 10 to 40ºC [50 to 104ºF] Increment: 0.5ºC [1ºF] *Default value: 15ºC [59ºF]*
3		**Maximum set point:** Display shows *"ADJUST MAXIMUM USER SETPNT"* and the maximum set point temperature. Please select the desired maximum set point temperature. The maximum value is restricted by the minimum value. (step #2)	Maximum range: 10 to 40ºC [50 to 104ºF] Increment: 0.5ºC [1ºF] *Default value: 30ºC [86ºF]*
4		**Locking the set point:** Display shows *"USER SETPNT LOCKED"* and the status of the function. You can lock or unlock the set point adjustment by end user. If locked, *"YES"* and lock symbol will appear.	 *Default value: Unlocked (NO)*
5		**Adjust internal set point:** Display shows *"ADJUST INTERN SETPNT"* and the set point temperature. Select the desired set point temperature; this one should be within the temperature range. Lock symbol will appear if the set point was locked at the previous step. Set point value is restricted by the minimum and maximum value. (step #2 & 3)	Set point range: 10 to 40ºC [50 to 104ºF] Increment: 0.5ºC [1ºF] *Default value: 22ºC [72ºF]*
6		**Anti-cycling delay compressor contact (protection for compressor):** Display shows *"COMPRES ANTI CYCLE MINUTES"* and the value (in minutes) of the delay to activate / deactivate compressor contact. Please select the desired value of the delay compressor contact.	Range: 2, 4 or 6 min. Increment: 2 min. *Default value: 2 min.*
7		**External sensor selection:** Display shows *"EXTERN SENSOR TEMPER"*. Please select which sensor is rewired to the analog input: OFF (input none rewired), t10.0 (external temperature sensor 10.0 **KΩ**) When nothing "**OFF**" is selected, the thermostat is controlled by is internal temperature sensor. When external sensor "**t10.0**" is selected, the thermostat is controlled by an external temperature sensor. **If you have selected OFF, go directly to step #26.**	 *Default value: Off*
8		**External temperature sensor Calibration:** Display shows *"EXTERN TEMPER SENSOR OFFSET"* and temperature read by external temperature sensor. If the sensor is not connected or short circuited, the display shows *"Eror"*. You can adjust the calibration of the external sensor by comparison with a known thermometer.	Range: 0 to 50ºC [41 to 122.0ºF] (max. offset ± 5 ºC) Increment: 0.1ºC [0.2ºF]

Step	Display	Description	Values
9		**<u>Compressor contact operating differential:</u>** Display shows *"CONTACT DIFFER"*. Please select the desired value of compressor contact operating differential.	Differential range: 0.3 to 3.0ºC [0.6 to 6.0ºF] Increment: 0.1ºC [0.2ºF] *Default value: 0.5ºC [1.0ºF]*
10		**<u>Reversing valve energize:</u>** Display shows *"REVERS VALVE O/B"*. Cooling or heating symbols are also displayed. Please select if the reversing valve is energized in cooling mode (O) or in heating mode (B).	 *Default value: Energises in cooling (O)*

Operation mode

Step	Description	Display
A	At powering up, thermostat will light display and activate all LCD segments during 2 seconds. **Illuminating the LCD.** To illuminate the LCD, you just have to push onto any of the 4 buttons. LCD will light for 4 seconds. **Temperature display** In operation mode, thermostat will automatically display temperature read. If "**OFF**", "**- - -**" and alarm symbol are displayed, the temperature sensor is not connected or short circuited. To change the scale between ºC and ºF, press on both Δ and ∇ for 3 seconds.	 
B	**<u>Temperature set point display and adjustment</u>** To display the set point, press two times on Δ or ∇. Set point will be displayed during 3 seconds. To adjust set point, press on Δ or ∇ while the temperature set point is displayed. *Note: If set point adjustment has been locked, symbol will be displayed.*	 
C	**<u>Control mode selection :</u>** To change the control mode, press on . Control mode will be displayed during 5 seconds. You can choose one of the following: ✓ Automatic Cooling or Heating ✓ Cooling and Heating OFF ✓ Cooling only ✓ Heating only	   
D	**<u>Fan speed mode selection:</u>** To change the fan speed mode, press on . Fan speed mode will be displayed during 5 seconds. You can choose one of the following: ✓ Automatic speed ✓ On	 

Recycling at end of life

	At end of life, please return the thermostat to your Neptronic® local distributor for recycling. If you need to find the nearest Neptronic® authorized distributor, please consult **<u>www.neptronic.com</u>**.