

VAV Thermostat with BACnet® Communication Port

TROB24T4XYZ1



Features:

- Attractive modern look with large LCD and backlight
- Icons driven information and 1 line of text information
- Selectable analog and digital output
- Precise achieve temperature control with programmable PI function
- Selectable Fahrenheit or Celsius scale
- Manual night set back override
- Multi level lockable access menu
- Lockable set point
- Selectable internal or external temperature sensor (10 KΩ)
- Change over by contact or external temperature sensor
- Pressure sensor input / air flow program
- Selectable proportional control band and dead band
- Anti-freeze protection
- BACnet® MS/TP @ 9600, 19200, 38400, 76800bps
- Selectable device instance and MAC address

Technical Data

Technical Data		TROB24T4XYZ1
Inputs	3 Analog input universal (0-10 Vdc or thermistor or digital input dry contact)	
Outputs	2 Analog outputs 0-10 Vdc or 2-10 Vdc selectable (2mA max.) 4 Triac output (on/off, pulse 0 or 24 Vac, 250 mA max.), or 2 Floating output	
Power supply	22 to 26 Vac 50/60Hz	
Power consumption	1 VA	
Set point range	10°C to 40°C [50°F to 104°F]	
External sensor range	-40°C to 100°C [-40°F to 212°F]	
Control accuracy	Temperature: ±0.4°C [0.8°F]	
Proportional band	0.5°C to 5°C [1°F to 10°F] adjustable	
Electrical connection	0.8 mm ² [18 AWG] minimum	
Operating temperature	0°C to 50°C [32°F to 122°F]	
Storage & Transport Temperature	-30°C to 50°C [-22°F to 122°F]	
Relative Humidity	5 to 95 % non condensing	
Degree of protection of housing	IP 30 (EN 60529)	
Weight	160 g. [0.36 lb]	

Interface

Symbols on display

	Cooling ON 33,66,100% output A: Automatic		Menu set-up Lock		Energy saving mode
	Heating ON 33,66,100% output A: Automatic		Programming mode (Technician setting)	°C or °F	°C: Celsius scale °F: Fahrenheit scale
	Communication Status		Alarm status		

Dimensions

Dimension	Imperial (in)	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.

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

Terminal Description

Terminals	Description				
1	Common	If set in floating, terminals 6-8 (floating 1), terminals 9-11 (floating 2) are as follow:			
2	Common				
3	Common				
4	24 Vac	1			
5	24 Vac				
6	Triac output 1 (TO1)	TO1 close	F L O A T I N G		
7	Triac (24 Vac EXT.) (TO1 & TO2) see Settings section	TO2 open			
8	Triac output 2 (TO2)	TO2 open			
9	Triac output 3 (TO3)	TO3 close			
10	Triac (24 Vac EXT.) (TO3 & TO4) see Settings section	TO4 open	2		
11	Triac output 4 (TO4)	TO4 open			
12	Analog input 1 (AI1)				
13	Analog input 2 (AI2)				
14	Analog input 3 (AI3)				
15	Analog output 1 (AO1)				
16	Analog output 2 (AO2)				
17	A+			Communication port RS-485	
18	B-				

Settings on PC Board

Mode Selection Dip Switch (DS1)

OFF: operation mode, ON: programming mode

Not used

Not used

ON

End Of Line (JP6)

JP6 120 ohm end of line

Set jumper on pin 2-3 on the last TROB of the RS-485 communication bus as illustrated above.

Triac (digital) Output Signal Selection (JP1 for TO3 & TO4 - JP2 for TO1 & TO2)






Jumper on left: All triac output signal is linked to internal 24 Vac. (Same 24Vac than thermostat)


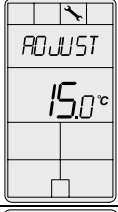
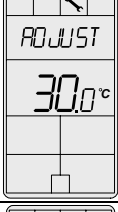

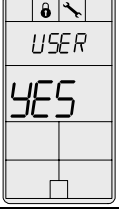


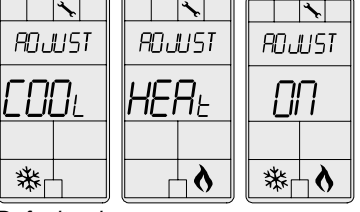

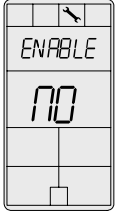
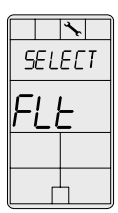
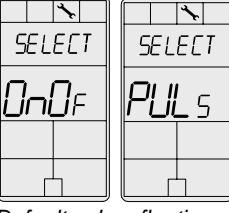
Jumper on right: All triac output signal is linked to external 24 Vac. (Different 24Vac than thermostat)


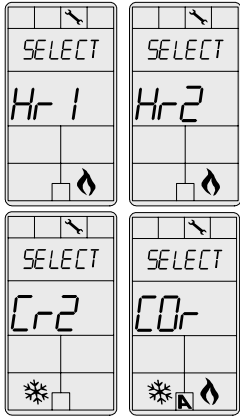






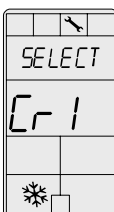
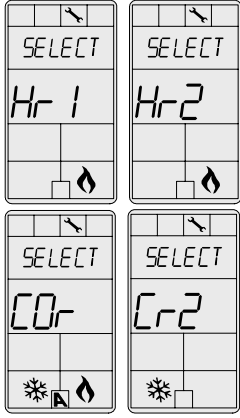
Analog Input Dip Switch (DS2)

		ON	OFF
AI1	Thermistor 10KΩ	DS2.1	DS2.2
	Dry contact	DS2.2	DS2.1
AI2	Thermistor 10KΩ	DS2.3	DS2.4
	Dry contact	DS2.4	DS2.3
AI3	Thermistor 10KΩ	DS2.5	DS2.6
	Dry contact	DS2.6	DS2.5


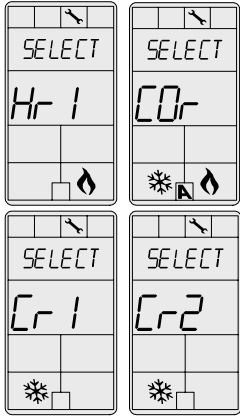


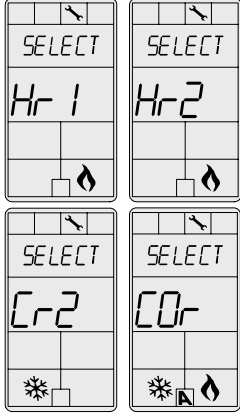

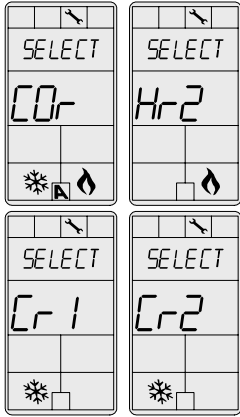

Programming Mode

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.






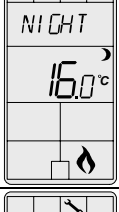


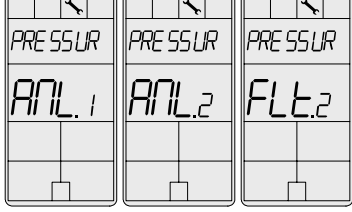
Step	Display	Description	Values
1		Internal temperature sensor Calibration: Display shows "INSIDE TEMPER SENSOR OFFSET" and temperature read by internal temperature sensor. You can adjust the calibration of the sensor by comparison with a known thermometer. For example if thermostat has been installed in an area where temperature is slightly different than the room typical temperature (thermostat place right under the air diffuser).	Range : 10 to 40°C [50 to 104°F] (max. offset ± 5 °C) Increment: 0.1°C [0.2°F]
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 40°C [50 to 104°F] Increment: 0.5°C [1°F] Default value: 15°C [59°F]
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 40°C [50 to 104°F] Increment: 0.5°C [1°F] Default value: 30°C [86°F]
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
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 40°C [50 to 104°F] Increment: 0.5°C [1°F] Default value: 22°C [72°F]
6		Adjust the control mode: Display shows "ADJUST TEMPER CONTROL MODE". Cooling and heating symbols are also displayed. Select which control mode you want to authorize: Automatic <i>cooling and heating</i> , cooling or heating, heating only or cooling only. If you want to authorize this entire mode, choose Automatic mode.	 Default value: Automatic cooling and heating
7		Set On/Off function enable or disable: Display shows "ENABLE ON OFF CONTROL MODE". You can enable or disable the On/Off function in control mode adjustment by end user.	 Default value: Enable (YES)
8		Set TO1 output signal: Display shows "SELECT TO1 OUTPUT SIGNAL". Select which signal output you want for TO1 output. You can choose on/off, pulse or floating signal output. If you select floating, TO1 will be set close and TO2 open.	 Default value: floating





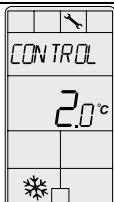
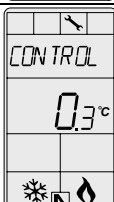



Step	Display	Description	Values
9		<p>Set TO1 signal ramp: Display shows "SELECT TO1 SIGNAL RAMP". Select which ramp you want for TO1. You can choose: Changeover ramp, Heating ramp 1, Heating ramp 2, Cooling ramp 1 or Cooling ramp 2.</p> <p>Note: If "FLT" (floating) has been selected at step #8, the same ramp will be used for TO2. If "PULS" has been selected at step #8, you can only choose Heating ramp 1 or Heating ramp 2.</p> <p>If you have selected on/off signal, go directly to step #12. If you have selected pulse signal, go directly to step #13.</p>	 <p>Default value: Cr1 (Cooling ramp1)</p>
10		<p>Set floating time: (If "FLT" has been selected at step #8) Display shows "SET FLOATING TIME IN SECONDS" and the floating time value (in seconds). Please select desired value of the floating time signal.</p>	<p>Range: 15 to 250 sec. Increment: 5 sec. Default value: 100 sec.</p>
11		<p>Set motor direction: Display shows "SELECT MOTOR DIRECT REVERSE". Select which direction you want for the motor. You can choose: Direct "clockwise" (0 to 90°) or Reverse "counter clockwise" (90 to 0°)</p> <p>Go to step #16.</p>	 <p>Default value: direct (dir)</p>
12		<p>Set TO1 on-off close position: (If "OnOf" has been selected at step #8) Display shows "SELECT TO1 CLOSE PERCENT" and the value of the close position of the TO1 output. Please select at which percentage you want TO1 to close: at 20%, 40%, 60% or 80% of the demand of the ramp that you selected at step # 9. Contact will automatically open at 0% of the demand.</p>	<p>Range: 20, 40, 60, 80 Increment: 20 % Default value: 40 (40% of the demand)</p>
13		<p>Set TO2 output signal: Display shows "SELECT TO2 OUTPUT SIGNAL". Select which signal output you want for TO2 output. You can choose on/off or pulse signal output.</p>	 <p>Default value: on-off</p>
14		<p>Set TO2 signal ramp: Display shows "SELECT TO2 SIGNAL RAMP". Select which ramp you want for TO2. You can choose: Changeover ramp, Heating ramp 1, Heating ramp 2, Cooling ramp 1 or Cooling ramp 2.</p> <p>If "PULS" has been selected at step #13, you can only choose Heating ramp 1 or Heating ramp 2.</p> <p>If you have selected pulse signal, go directly to step #16.</p>	 <p>Default value: Cr1 (Cooling ramp1)</p>

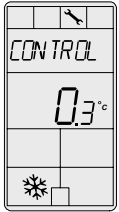
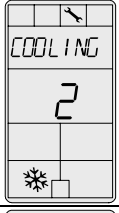
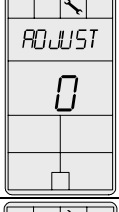

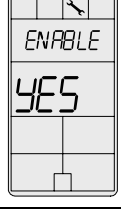




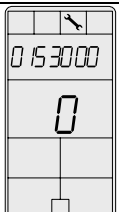
Step	Display	Description	Values
15		<p>Set TO2 on-off close position: (If "OnOf" has been selected at step #12) Display shows "SELECT TO2 CLOSE PERCENT" and the value of the close position of the TO2 output. Please select at which percentage you want TO2 to close: at 20%, 40%, 60% or 80% of the demand of the ramp that you selected at step # 14. Contact will automatically open at 0% of the demand.</p>	Range: 20, 40, 60, 80 Increment: 20 % Default value: 40 (40% of the demand)
16		<p>Set TO3 output signal: Display shows "SELECT TO3 OUTPUT SIGNAL". Select which signal output you want for TO3 output. You can choose on/off, pulse or floating signal output. If you select floating, TO3 will be set close and TO4 open.</p>	 Default value: on-off
17		<p>Set TO3 signal ramp: Display shows "SELECT TO3 SIGNAL RAMP". Select which ramp you want for TO3. You can choose: Changeover ramp, Heating ramp 1, Heating ramp 2, Cooling ramp 1 or Cooling ramp 2.</p> <p>Note: If "FLT" (floating) has been selected at step #16, the same ramp will be used for TO4. If "PULS" has been selected at step #16, you can only choose Heating ramp 1 or Heating ramp 2.</p> <p>If you have selected on/off signal, go directly to step #20. If you have selected pulse signal, go directly to step #21.</p>	 Default value: Hr1 (Heating ramp 1)
18		<p>Set floating time: (If "FLT" has been selected at step #16) Display shows "SET FLOATING TIME IN SECONDS" and the floating time value (in seconds). Please select desired value of the floating time signal.</p>	Range: 15 to 250 sec. Increment: 5 sec. Default value: 100 sec.
19		<p>Set motor direction: Display shows "SELECT MOTOR DIRECT REVERSE". Select which direction you want for the motor. You can choose: Direct "clockwise" (0 to 90°) or Reverse "counter clockwise" (90 to 0°)</p> <p>Go to step #24</p>	 Default value: direct (dir)
20		<p>Set TO3 on-off close position: (If "OnOf" has been selected at step #16) Display shows "SELECT TO3 CLOSE PERCENT" and the value of the close position of the TO3 output. Please select at which percentage you want TO3 to close: at 20%, 40%, 60% or 80% of the demand of the ramp that you selected at step # 17. Contact will automatically open at 0% of the demand.</p>	Range: 20, 40, 60, 80 Increment: 20 % Default value: 40 (40% of the demand)
21		<p>Set TO4 output signal: Display shows "SELECT TO4 OUTPUT SIGNAL". Select which signal output you want for TO4 output. You can choose on/off or pulse signal output.</p>	 Default value: on-off

Step	Display	Description	Values
22		<p>Set TO4 signal ramp: Display shows "SELECT TO4 SIGNAL RAMP". Select which ramp you want for TO4. You can choose: Changeover ramp, Heating ramp 1, Heating ramp 2, Cooling ramp 1 or Cooling ramp 2.</p> <p>If "PULs" has been selected at step #21, you can only choose Heating ramp 1 or Heating ramp 2.</p> <p>If you have selected pulse signal, go directly to step #24.</p>	 <p>Default value: Hr2 (Heating ramp 2)</p>
23		<p>Set TO4 on-off close position: (If "OnOff" has been selected at step #21) Display shows "SELECT TO4 CLOSE PERCENT" and the value of the close position of the TO4 output. Please select at which percentage you want TO4 to close: at 20%, 40%, 60% or 80% of the demand of the ramp that you selected at step # 22.</p> <p>Contact will automatically open at 0% of the demand.</p>	<p>Range: 20, 40, 60, 80 Increment: 20 % Default value: 40 (40% of the demand)</p>
24		<p>Set AO1 analog signal ramp: Display shows "SELECT AO1 ANALOG RAMP". Select which ramp you want for analog signal on AO1.</p> <p>You can choose: Changeover ramp, Heating ramp 1, Heating ramp 2, Cooling ramp 1 or Cooling ramp 2.</p>	 <p>Default value: Cr1 (Cooling ramp1)</p>
25		<p>Set AO2 analog signal ramp: Display shows "SELECT AO2 ANALOG RAMP". Select which ramp you want for analog signal on AO2.</p> <p>You can choose: Changeover ramp, Heating ramp 1, Heating ramp 2, Cooling ramp 1 or Cooling ramp 2.</p>	 <p>Default value: Hr1 (Heating ramp 1)</p>
26		<p>Minimum voltage of AO1 output: Display shows "MIN VDC ANALOG AO1 OUTPUT" and the value of the minimum voltage of the AO1 output. Please select the desired value of the minimum voltage of AO1 output. (This is the "zero" value)</p> <p>The minimum value is restricted by the maximum value. (step #27)</p>	<p>Range: 0.0 to 10.0 Volt Increment: 0.1 Volt Default value: 0.0 Volt</p>



Step	Display	Description	Values
27		<p>Maximum voltage of AO1 output: Display shows "MAX VDC ANALOG AO1 OUTPUT" and the value of the maximum voltage of the AO1 output. Please select the desired value of the maximum voltage of AO1 output. (This is the "span" value)</p> <p>The maximum value is restricted by the minimum value. (step #26)</p>	<p>Range: 0.0 to 10.0 Volt Increment: 0.1 Volt Default value: 10.0 Volt</p>
28		<p>Minimum position of AO1 output: Display shows "MIN POS AO1 OUTPUT PERCENT" and the value of the minimum position of the AO1 output. Please select the desired value of the minimum position of AO1 output.</p>	<p>Range: 0 to 100% Increment: 5% Default value: 0%</p>
29		<p>Minimum voltage of AO2 output: Display shows "MIN VDC ANALOG AO2 OUTPUT" and the value of the minimum voltage of the AO2 output. Please select the desired value of the minimum voltage of AO2 output. (This is the "zero" value)</p> <p>The minimum value is restricted by the maximum value. (step #30)</p>	<p>Range: 0.0 to 10.0 Volt Increment: 0.1 Volt Default value: 0.0 Volt</p>
30		<p>Maximum voltage of AO2 output: Display shows "MAX VDC ANALOG AO2 OUTPUT" and the value of the maximum voltage of the AO2 output. Please select the desired value of the maximum voltage of AO2 output. (This is the "span" value)</p> <p>The maximum value is restricted by the minimum value. (step #29)</p>	<p>Range: 0.0 to 10.0 Volt Increment: 0.1 Volt Default value: 10.0 Volt</p>
31		<p>Minimum position of AO2 output: Display shows "MIN POS AO2 OUTPUT PERCENT" and the value of the minimum position of the AO2 output. Please select the desired value of the minimum position of AO2 output.</p>	<p>Range: 0 to 100% Increment: 5% Default value: 0%</p>
32		<p>Set AI1 input signal: Display shows "SELECT AI1 INPUT SIGNAL". Select which signal you want for AI1 input. You can choose:</p> <ul style="list-style-type: none"> • OFF (input not used), <p>External temperature function:</p> <ul style="list-style-type: none"> • EtS (external temperature sensor 10KΩ), <p>Changeover function:</p> <ul style="list-style-type: none"> • SENs (external change over sensor 10KΩ), • NoCl (change over contact normally cool), • NoHt (change over contact normally heat), <p>Night set back function:</p> <ul style="list-style-type: none"> • nSb (Night set back contact), <p>Pressure function:</p> <ul style="list-style-type: none"> • PrSd (Differential pressure sensor 0-10vdc, PrSd=10V if P=1), • PrSa (Velocity pressure sensor 0-10vdc, PrSa 10V=Vnom). <p>If changeover is selected: When normally cool "NoCl" is selected, if contact is closed heating mode will be activated, if contact is opened cooling mode will be activated. When normally heat "NoHt" is selected, if contact is closed cooling mode will be activated, if contact is opened heating mode will be activated.</p> <ul style="list-style-type: none"> • When change over external sensor "SENs" is selected, heating mode will be activated when temperature read by external sensor is above the Change Over Set Point temperature, and cooling mode will be activated when temperature read by external sensor is under, see step #36. <p>If pressure sensor is selected:</p> <ul style="list-style-type: none"> • For pressure independent vav system, you must do calibration by using "Air flow program mode". (page 11) 	<p>Default value: OFF</p>





Step	Display	Description	Values
33		Set AI2 input signal: Display shows "SELECT AI2 INPUT SIGNAL". Select which signal you want for AI2 input. You can choose: (Same as AI1 see step #32) Note: AI1 input signal has priority to AI2, if you have selected the same function AI2 will not be functional.	Default value: OFF
34		Set AI3 input signal: Display shows "SELECT AI3 INPUT SIGNAL". Select which signal you want for AI3 input. You can choose: (Same as AI1 see step #32) Note: AI1 & AI2 input signal have priority to AI3, if you have selected the same function AI3 will not be functional.	Default value: OFF
35		External temperature sensor Calibration: (If "EtS" has been selected at step #32, 33 or 34) Display shows "EXTERN TEMPER SENSOR OFFSET" and the temperature read by the external temperature sensor (if connected on the selected input). If the sensor is not connected or short circuited, the display shows "Error". You can adjust the calibration of the external sensor by comparison with a known thermometer.	Range: 0 to 50°C [41 to 122.0°F] (max. offset ± 5 °C) Increment: 0.1°C [0.2°F]
36		Change over set point temperature: (If "SENS" has been selected at step #32, 33 or 34) Display shows "CH OVER SETPNT TEMPER" and the change over set point temperature. Please select the change over set point temperature. Note: heating mode will be activated when temperature read by external sensor is above the change over set point temperature, and cooling mode will be activated when temperature read by external sensor is under.	Range: 10 to 40°C [50 to 104°F] Increment: 0.5°C [1°F] Default value: 24°C [82°F]
37		Night set back derogation time : (If "nSb" has been selected at step #32, 33 or 34) Display shows "NSB DELAY OVERRIDE MINUTES" and the derogation time in minute. NSB symbol is also displayed. Please select the desired derogation time, if no derogation time is desired select "0".	Range: 0 to 180min. Increment: 15min. Default value: 120 min.
38		Heating Set point during Night set back: (If "nSb" has been selected at step #32, 33 or 34) Display shows "NIGHT SETBACK HEATING SETPNT" and the value of the heating set point temperature during night set back. NSB symbol and heating symbols are also displayed. Please select the heating set point temperature during night set back. The maximum value is restricted by the no occupancy cooling set point. (step # 39)	Range: 10.0 to 40.0°C [50 to 104°F] Increment: 0.5°C [1°F] Default value: 16.0°C [61°F]
39		Cooling Set point during Night set back: (If "nSb" has been selected at step #32, 33 or 34) Display shows "NIGHT SETBACK COOLING SETPNT" and the value of the cooling set point temperature during night set back. NSB symbol and cooling symbols are also displayed. Please select the cooling set point temperature during night set back. The minimum value is restricted by the no occupancy heating set point. (step # 38)	Range: 10.0 to 40.0°C [50 to 104°F] Increment: 0.5°C [1°F] Default value: 28.0°C [82°F]
40		Set output signal used for pressure independent: (If "PrSd" or "PrSa" has been selected at step #32, 33 or 34) Display shows "PRESSUR INDEPEN OUTPUT". Select which signal output is affected by pressure (connected to actuator). You can choose Floating 1 (TO1 & TO2), Floating 2 (TO3 & TO4), Analog 1 (AO1) or Analog 2 (AO2). Note: These selections can vary according to the choice made on steps #8 & #16.	 Default value: floating 1




Step	Display	Description	Values
41		Proportional band of changeover ramp: Display shows "CONTROL RAMP CH OVER" and the value of the changeover ramp proportional band, cooling and heating symbols are also displayed. Please select the desired value of changeover ramp proportional band.	Proportional band range : 0.5 to 5.0°C [1 to 10°F] Increment: 0.5°C [1°F] Default value: 2.0°C [4°F]
42		Proportional band of heating ramp1: Display shows "CONTROL RAMP 1 HEATING" and the value of the heating ramp1 proportional band, heating symbol is also displayed. Please select the desired value of heating ramp1 proportional band.	Proportional band range : 0.5 to 5.0°C [1 to 10°F] Increment: 0.5°C [1°F] Default value: 2.0°C [4°F]
43		Proportional band of heating ramp2: Display shows "CONTROL RAMP 2 HEATING" and the value of the heating ramp2 proportional band, heating symbol is also displayed. Please select the desired value of heating ramp2 proportional band.	Proportional band range : 0.5 to 5.0°C [1 to 10°F] Increment: 0.5°C [1°F] Default value: 2.0°C [4°F]
44		Proportional band of cooling ramp1: Display shows "CONTROL RAMP 1 COOLING" and the value of the cooling ramp1 proportional band, cooling symbol is also displayed. Please select the desired value of cooling ramp1 proportional band.	Proportional band range : 0.5 to 5.0°C [1 to 10°F] Increment: 0.5°C [1°F] Default value: 2.0°C [4°F]
45		Proportional band of cooling ramp2: Display shows "CONTROL RAMP 2 COOLING" and the value of the cooling ramp2 proportional band, cooling symbol is also displayed. Please select the desired value of cooling ramp2 proportional band.	Proportional band range : 0.5 to 5.0°C [1 to 10°F] Increment: 0.5°C [1°F] Default value: 2.0°C [4°F]
46		Dead band of changeover ramp: Display shows "CONTROL DEAD BAND CH OVER" and the value of the changeover ramp dead band, cooling and heating symbols are also displayed. Please select the desired value of changeover ramp dead band.	Dead band range : 0.3 to 5.0°C [0.6 to 10.0°F] Increment: 0.1°C [0.2°F] Default value: 0.3°C [0.6°F]
47		Dead band of heating ramp1: Display shows "CONTROL DEAD BAND 1 HEATING" and the value of the heating ramp1 dead band, heating symbol is also displayed. Please select the desired value of heating ramp1 dead band.	Dead band range : 0.3 to 5.0°C [0.6 to 10.0°F] Increment: 0.1°C [0.2°F] Default value: 0.3°C [0.6°F]
48		Dead band of heating ramp2: Display shows "CONTROL DEAD BAND 2 HEATING" and the value of the heating ramp2 dead band, heating symbol is also displayed. Please select the desired value of heating ramp2 dead band.	Dead band range : 0.3 to 5.0°C [0.6 to 10.0°F] Increment: 0.1°C [0.2°F] Default value: 0.3°C [0.6°F]
49		Dead band in cooling ramp1: Display shows "CONTROL DEAD BAND 1 COOLING" and the value of the cooling ramp1 dead band, cooling symbol is also displayed. Please select the desired value of cooling ramp1 dead band.	Dead band range : 0.3 to 5.0°C [0.6 to 10.0°F] Increment: 0.1°C [0.2°F] Default value: 0.3°C [0.6°F]

Step	Display	Description	Values
50		Dead band in cooling ramp2: Display shows "CONTROL DEAD BAND 2 COOLING" and the value of the cooling ramp2 dead band, cooling symbol is also displayed. Please select the desired value of cooling ramp2 dead band.	Dead band range : 0.3 to 5.0°C [0.6 to 10.0°F] Increment: 0.1°C [0.2°F] Default value: 0.3°C [0.6°F]
51		Anti-cycling delay cooling contact (protection for compressor): Display shows "COOLING ANTI CYCLE MINUTES" and the value (in minutes) of the delay to activate / reactivate cooling contact. Please select the desired value of the delay cooling contact.	Range: 0 to 15 min. Increment: 1 min. Default value: 2 min.
52		Integration time factor setting: Display shows "ADJUST INTEGRAL TIME IN SECONDS" and the time in seconds for the integration factor compensation. Please select the desired value of the integration factor compensation.	Range: 0 to 250 seconds Increment: 5 seconds Default value: 0 seconds
53		Enable or disable anti-freeze protection: Display shows "ENABLE ANTI FREEZE PROTECT". You can enable or disable the Anti-freeze function. When enabled, if temperature drop to 4°C [39°F], heat will start even if thermostat is in OFF mode. Heat will stop when temperature reach 5°C [41°F].	 Default value: Disable (NO)
54		Communication bauds rate: Display shows "ADJUST COMMPORT BAUDS RATE" and the value of the baud rate in kBds. Select the desired bauds for communication.	Range: 9600, 19200, 38400, 76800 Default value: 9.6 kBds
55		Communication MSTP/Mac address: Display shows "ADJUST MSTP/MAC ADDRESS". Select the desired MSTP/Mac for communication.	Range: 0 to 254 Increment: 1 Default value: 1
56		Communication device instance: Display shows "ADJUST DEVICE INSTANC 0153000". If you want to change the device, select "YES" and go to next step. If you do not want to change the device, go directly to step #1.	 Default value: no
57		Communication device instance (cont'd): Display shows the device address value. You can modify the device address by incrementing or decrementing the blinking digit with "▲" or "▼" buttons. To modify following digit on right press (*/▲), to return to digit on the left press (◀/◻).	Range: 0 to 4194302 Increment: 1 by digit Default value: 0153000



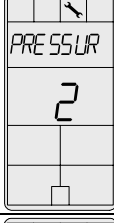
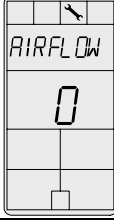

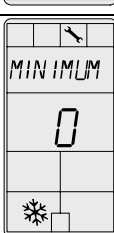
Air Flow Program Mode (Available when in Operation Mode; DS1-1 OFF position)






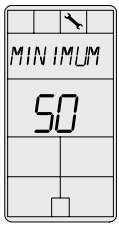

Push on both  and  buttons for 5 seconds to access the user air flow program mode. This menu is accessible only if "PrSd" or "PrSa" has been selected at step #32, 33 or 34.

Step	Display	Description	Values
F1		<p>Password: Display shows "ENTER PASSWORD" and 000. You have 1 minute to enter the password by incrementing or decrementing the blinking digit with Δ and ∇ buttons. To modify following digit on right press , to return to digit on the left press . When the password is entered press on . If you do a mistake, you will see "Error" and the thermostat will return in operation mode. You need to redo this step.</p>	Password: 637 (corresponding to NEP)



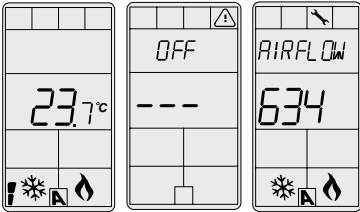

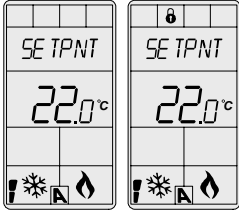


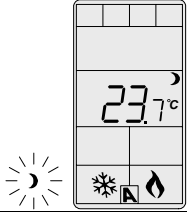

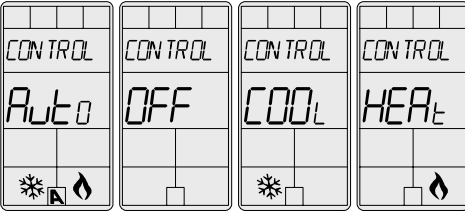
When the password is entered and you are in the balancing mode, this symbol  is displayed. Press on the  button to advance to the next program function, press on the  button to return to previous step and press on the Δ or ∇ button to change value.

The system will exit the menus and return to normal function if you navigate through the entire menu or if no button is pressed for 5 minutes, changed values will be saved.

Step	Display	Description	Values
F2		<p>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).</p>	Range : 10 to 40°C [50 to 104°F] (max. offset ± 5 °C) Increment: 0.1°C [0.2°F]
F3		<p>External temperature sensor calibration: (If "EtS" has been selected at step #32, 33 or 34 of programming mode) Display shows "EXTERN TEMPER SENSOR OFFSET" and the temperature read by the external temperature sensor (if connected on the selected input). If the sensor is not connected or short circuited, the display shows "Error". You can adjust the calibration of the external sensor by comparison with a known thermometer.</p>	Range: 0 to 50°C [41 to 122.0°F] (max. offset ± 5 °C) Increment: 0.1°C [0.2°F]
F4		<p>Pressure filter setting: Display shows "PRESSUR FILTER TIME IN SECONDS" and the time in seconds for the numeric filter applied to the pressure analog input. Please select the desired value of the numeric filter. This filter stabilize the reading and slowed down the answer of the system</p>	Range: 1 to 10 seconds Increment: 1 seconds <i>Default value: 2 seconds</i>
F5		<p>Integration time factor setting: Display shows "AIRFLOW INTEGRAL TIME IN SECONDS" and the time in minutes for the integration factor compensation. Please select the desired value of the integration factor compensation.</p>	Range: 0 to 60 min. Increment: 1 min. <i>Default value: 0 min.</i>
F6		<p>Air flow K factor: Display shows "ADJUST AIRFLOW KFACTOR VNMOM" and the value of the k factor or the V nominal according to your pressure sensor selection ("PrSd" or "PrSa" selected at step #32, 33 or 34) PrSd ... $V = k\sqrt{\Delta P}$ when $\Delta P=1$ (10.00V) PrSa ... $V_{nom} = 10.00V$ Please select the desired value of k factor or the V nominal.</p>	Range: 100 to 9995 Increment: 5 <i>Default value: 1200</i>
F7		<p>Minimum cooling airflow: Display shows "MINIMUM COOLING AIRFLOW" and the value of the minimum airflow in cooling. Please select the desired value of the minimum airflow in cooling. The minimum value is restricted by the maximum value. (step #F8)</p>	Range: 0 to maximum cooling airflow Increment: 5 <i>Default value: 0</i>

Step	Display	Description	Values
F8		Maximum cooling airflow: Display shows "MAXIMUM COOLING AIRFLOW" and the value of the maximum airflow in cooling. Please select the desired value of the maximum airflow in cooling. The maximum value is restricted by the minimum value. (step #F7)	Range: minimum cooling airflow to k factor or V nominal Increment: 5 Default value: 100
F9		Minimum heating airflow: Display shows "MINIMUM HEATING AIRFLOW" and the value of the minimum airflow in heating. Please select the desired value of the minimum airflow in heating. The minimum value is restricted by the maximum value. (step #F10)	Range: 0 to maximum heating airflow Increment: 5 Default value: 0
F10		Maximum heating airflow: Display shows "MAXIMUM HEATING AIRFLOW" and the value of the maximum airflow in heating. Please select the desired value of the maximum airflow in heating. The maximum value is restricted by the minimum value. (step #F9)	Range: minimum heating airflow to k factor or V nominal Increment: 5 Default value: 100
F11		Enable or disable airflow balancing: Display shows "ENABLE AIRFLOW BALANCE". You can enable or disable the balancing airflow function. If you do not need to balance system, select No . You will leave the balancing menu and return to operation mode. If you want to balance system, select YES . In this case, you will leave the balancing menu and return to operation mode if no button is pressed for 30 minutes, changed values will be saved.	 Default value: Disable (No)
F12		Minimum airflow calibration: Display shows "MINIMUM AIRFLOW" and the value of the minimum airflow detected by the pressure sensor. The thermostat will send a signal to the actuator close the VAV boxe at minimum airflow. When the value on thermostat is stable, you can adjust the calibration of the sensor by comparison with the reading on a manometer or a balometer. If you can't stabilize the system, you will need to increase the filter value. (step #F4)	Range: 0 to k factor or V nominal (max. offset $\pm \frac{1}{2}$ value) Increment: 1
F13		Maximum airflow calibration: Display shows "MAXIMUM AIRFLOW" and the value of the maximum airflow detected by the pressure sensor. The thermostat will send a signal to the actuator open the VAV boxe at maximum airflow. When the value on thermostat is stable, you can adjust the calibration of the sensor by comparison with the reading on a manometer or a balometer. If you can't stabilize the system, you will need to increase the filter value. (step #F4) Come back to step #F11	Range: 0 to k factor or V nominal (max. offset $\pm \frac{1}{2}$ value) Increment: 1

Operation mode

Step	Description	Display
A	<p>At powering up, thermostat will light display and activate all LCD segments during 2 seconds.</p> <p>Illuminating the LCD. To illuminate the LCD, you just have to push onto any of the 4 buttons. LCD will light for 4 seconds.</p> <p>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 °C and °F, press on  button.</p> <p>Air flow display To display the air flow, press on  button for 5 seconds. When in this mode "AIRFLOW" is displayed. Air flow value will be displayed during 5 seconds.</p>	
B	<p>Set point display and adjustment To display the set point, press two times on Δ or ∇. Set point will be displayed during 3 seconds.</p> <p>To adjust set point, press on Δ or ∇ while the temperature set point is displayed.</p> <p><i>Note: If set point adjustment has been locked,  symbol will be displayed.</i></p>	
C	<p>Night set back (NSB) : When thermostat is in night set back mode, NSB symbol  is displayed, so set point for cooling and/or heating are increased as per the setting made in programming mode.</p> <p>If not locked, night set back can be derogated for a predetermined period by pressing onto any of the 3 buttons. During period of NSB derogation the  symbol will flash. If NSB does not flash, the derogation period is finished or the Night set back derogation has been locked in programming mode.</p>	
D	<p>Control mode selection : To verify which control mode is set, press on  button. Control mode will be displayed during 5 seconds.</p> <p>To change of control mode, press on Δ or ∇ while control mode is displayed. You can choose one of the following:</p> <ul style="list-style-type: none"> ✓ Automatic Cooling or Heating ✓ Cooling and Heating OFF ✓ Cooling only ✓ Heating only <p><i>Note: These selections can vary according to the choice made on steps #6 & #7.</i></p>	

Notes:

Notes:

Recycling at end of life



At end of life, please return the thermostat to your Nepronic® local distributor for recycling. If you need to find the nearest Nepronic® authorized distributor, please consult www.nepronic.com.