

## Models



Model #	Temp	RH	CO2	Color
TDU10-100	•			grey LCD white enclosure
TDU10-101	•	•		
TDU10-102	•	•	•	
TDU10-103	•		•	



TDU10 Series

Model #	Temp	RH	CO2	Color
TDU40-100	•			black LCD black enclosure
TDU40-101	•	•		
TDU40-102	•	•	•	
TDU40-103	•		•	



TDU40 Series

Model #	Temp	RH	CO2	Color
TDU70-100	•			black LCD white enclosure
TDU70-101	•	•		
TDU70-102	•	•	•	
TDU70-103	•		•	



TDU70 Series

## Features

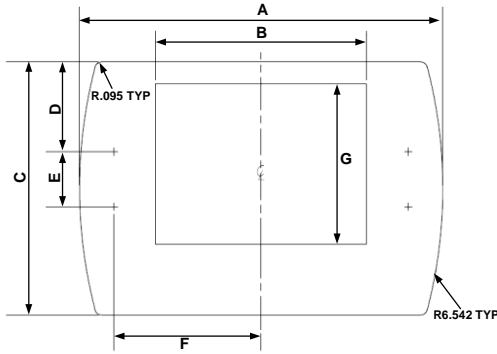
### Onboard Sensors

- Temperature sensor (°C/°F)
- Humidity sensor (%RH), select models
- Carbon dioxide sensor (CO<sub>2</sub>), select models

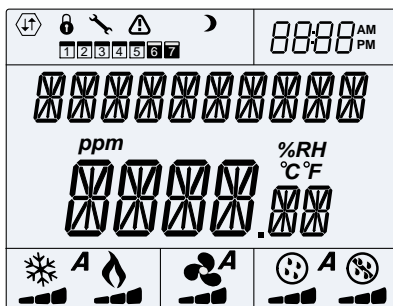
### Functions















- 3.5" LCD display
- Slim design
- Universal wall-mount design
- Used to configure and operate the EVCB VAV controllers and EFCB Fan Coil controllers
- Selectable internal or external temperature sensor (10 KΩ)
- Three wire connection between thermostat and controller
- Selectable Fahrenheit or Celsius scale
- Network service port via on-board mini USB connector
- Approximate size 120mm x 92mm x 15mm (4.7" x 3.6" x 0.6")

## Technical Specifications

Description	TDU10 / TDU40 / TDU70 Series
<b>Temperature Sensor</b>	
Setpoint Range	10°C to 40°C [50°F to 104°F]
Control Accuracy	Temperature: ±0.4°C [0.8°F]
Display resolution	±0.1°C [0.2°F]
<b>Humidity Sensor (select models)</b>	
Setpoint Range (EFCB only)	10 to 65%RH
Control Accuracy (EFCB only)	±3.5% RH
Display Resolution	0.1%
<b>CO2 Sensor (select models)</b>	
Operating Principle	Self-calibrating, Non-Dispersive Infrared (NDIR)
Sensor Range	400 to 2000 ppm
Accuracy	±30 ppm ±3% of reading (Accuracy is defined after minimum 3 weeks of continuous operation)
Response Time	2 minutes by 90%
<b>Other</b>	
Electrical connection	Three wires to EVCB/EFCB controller and two wires to BACnet/Modbus network 0.8 mm <sup>2</sup> [18 AWG] minimum
Network service port	Mini USB connector
Power supply	24Vac
Power consumption	1VA
Operating temperature	0°C to 50°C [32°F to 122°F]
Storage 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	120 g. [0.25 lb]
Dimensions: A = 4.94"   125mm B = 2.87"   72.8mm C = 3.44"   87mm D = 1.22"   31mm E = 0.75"   19mm F = 2.00"   51mm G = 2.18"   55mm	

## Interface





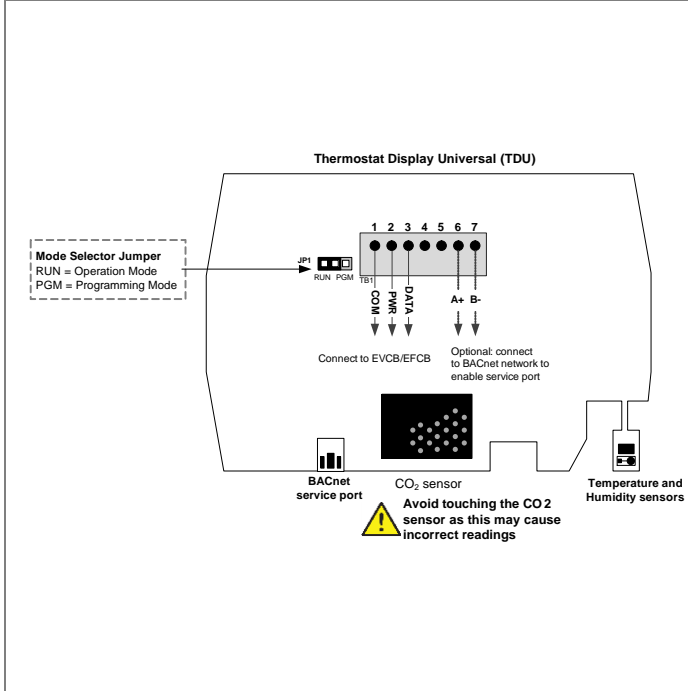
 Network Communication	 User Lock	 Programming Mode (Technician Setting)
 Alarm Status	 Energy Saving Mode (NSB/OCC)	 Schedule
 Time	 Parts Per Million	°C °C: Celsius Scale °F °F: Fahrenheit Scale %RH %RH :Humidity
 Automatic Mode	 Cooling	 Heating
 Fan	 Humidify (EFCB only)	 De-humidify (EFCB only)

## Wiring

We strongly recommend that all Neptronic products be wired to a separate grounded transformer and that transformer shall service only Neptronic products. This precaution will prevent interference with, and/or possible damage to incompatible equipment.

### Mode Selection (JP1)

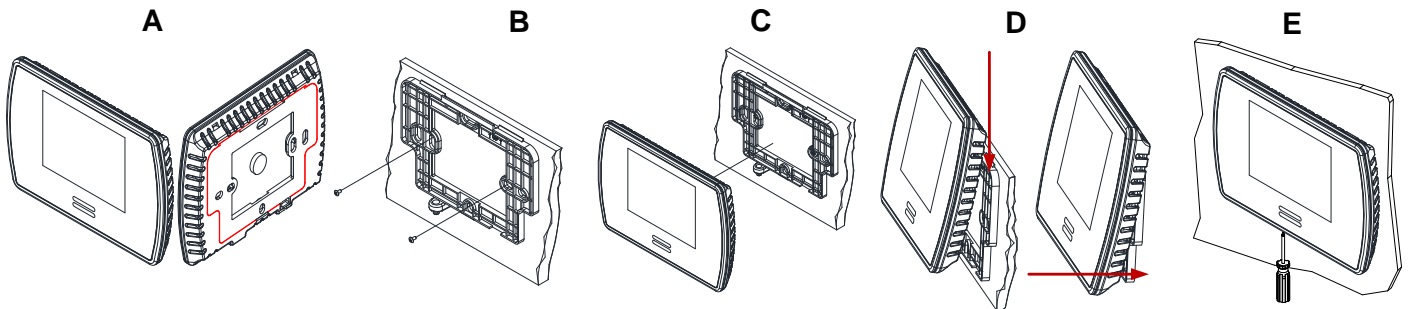
 <p>JP1 RUN PGM</p>	<p><b>RUN:</b> Thermostat is in <b>Operation Mode</b>. Thermostat must be set in this mode to operate properly. If not locked, following setpoint and control mode options can be modified by the end user:</p> <ul style="list-style-type: none"> <li>• Heating and Cooling ON</li> <li>• Cooling only ON</li> <li>• Heating only ON</li> <li>• OFF (EFCB only)</li> <li>• Fan ON</li> <li>• Humidify and De-humidify ON</li> <li>• Humidify only ON</li> <li>• Dehumidify only ON</li> </ul>
 <p>JP1 RUN PGM</p>	<p><b>PGM:</b> Thermostat is set in <b>Programming Mode</b>.</p>



## Mounting Instructions

 **CAUTION:** Remove power to avoid a risk of malfunction.

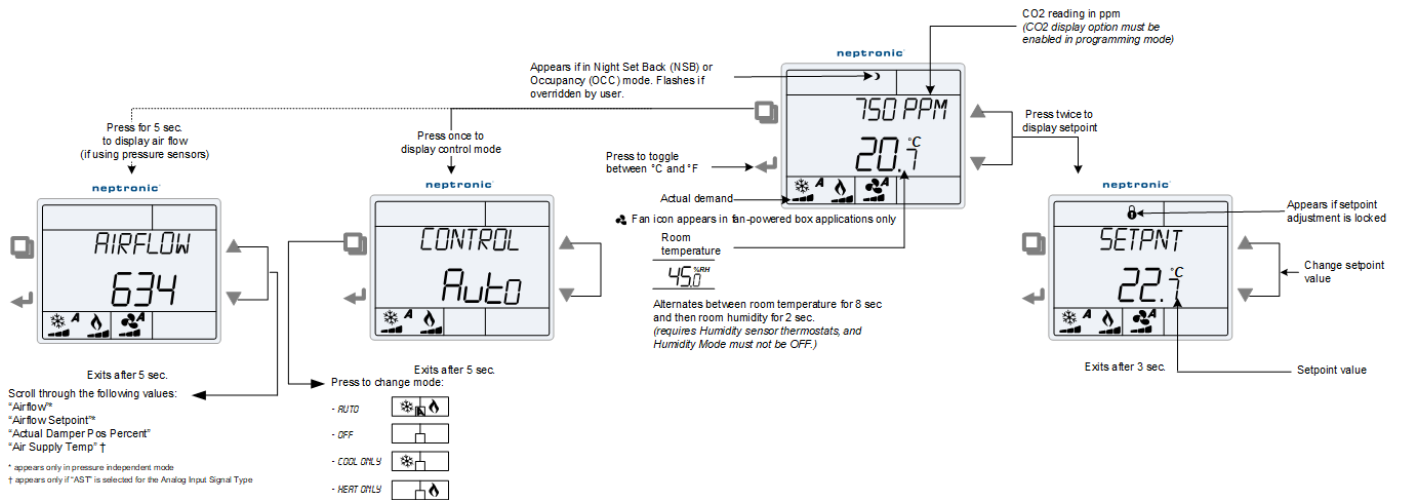
- Remove the wall mounting plate (highlighted) from the back of the thermostat.
- Install the mounting plate on the gang box.
- Pull the wires through the base hole and make the appropriate connections.
- Mount the thermostat onto the wall plate. To mount the thermostat correctly, place the top of the thermostat on the mounting plate first and push it into the grooves to snap it into place.
- Secure the thermostat using the screw (supplied).



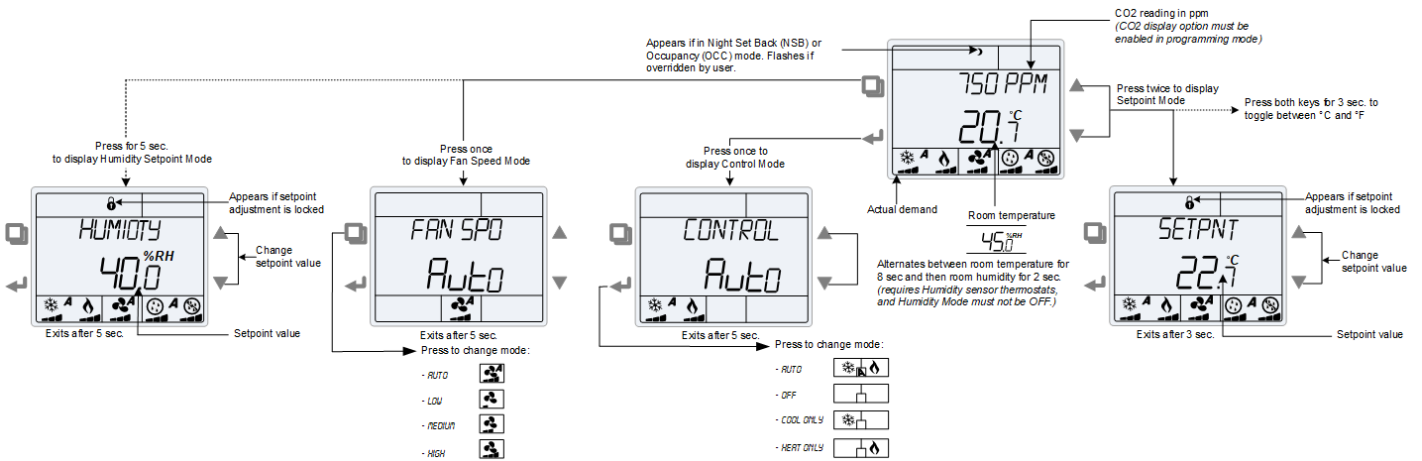
## Operation Mode

The Mode Selector Jumper JP1 must be set to the RUN position (Operation Mode). Refer to Wiring on page 3.

### EVCB



### EFCB



## Power Up

Upon power up, the LCD illuminates and all segments appear for 2 seconds. The thermostat then displays its current version of the thermostat for 2 seconds followed by the current version of the controller for 2 seconds. Pressing any key on the thermostat illuminates the LCD for 4 seconds.

## Temperature Display and Setpoint

The thermostat displays the temperature reading. If the sensor is disconnected or short circuited, the unit displays the sensor's limits. To toggle the temperature scale between °C and °F, press ◀ key for EVCB and both the ▲ and ▼ keys for 3 seconds for EFCB.




To display the setpoint, press the ▲ or ▼ key twice. The setpoint appears for 5 seconds. To adjust the setpoint, press the arrow keys while the temperature is displayed. If the setpoint adjustment has been locked, the lock 🔒 symbol appears.

## CO<sub>2</sub> (thermostat with CO<sub>2</sub> sensors)





If enabled via the configuration menu, the thermostat displays the CO<sub>2</sub> reading on the first line above the temperature reading. If CO<sub>2</sub> display is enabled, the time will not be displayed.

## Humidity Setpoint Display and Adjustment (thermostat with humidity sensors)

If enabled via the configuration menu for EVCB and in a humidity mode other than OFF for EFCB, the thermostat displays the temperature reading for 8 seconds and then displays the humidity reading for 2 seconds. If the sensor is disconnected or short circuited, then the unit displays the sensor's limit.



To access the Humidity setpoint (EFCB only), press the  key for 5 seconds. The humidity setpoint will be displayed for 5 seconds. To adjust the setpoint press the  and  keys while the setpoint is displayed. The unit will return to normal mode if you do not press any key for 3 seconds. The changed values will be saved automatically.

## Control Mode

To access the Control Mode, press the  key for EVCB and  for EFCB. The Control Mode appears for 5 seconds. Press the  (EVCB) and  (EFCB) key to scroll through the following control modes. These options can vary depending on the options configured by the installer.



- Auto (Automatic Cooling or Heating)
- Cooling only (on, with cooling symbol)
- Heating only (on, with heating symbol)
- OFF (if it is not disabled in Programming Mode)

## Fan Speed Selection Mode (EFCB only)






To access the Fan Speed selection mode, press the  key. The mode appears for 5 seconds. These options can vary depending on the fan speed signal and auto mode settings. If in No Occupancy mode, the  button now serves as the override button.

- Automatic speed. Available only if enabled by the installer.
- Low speed
- Medium speed
- High speed

## Night Set Back (NSB)

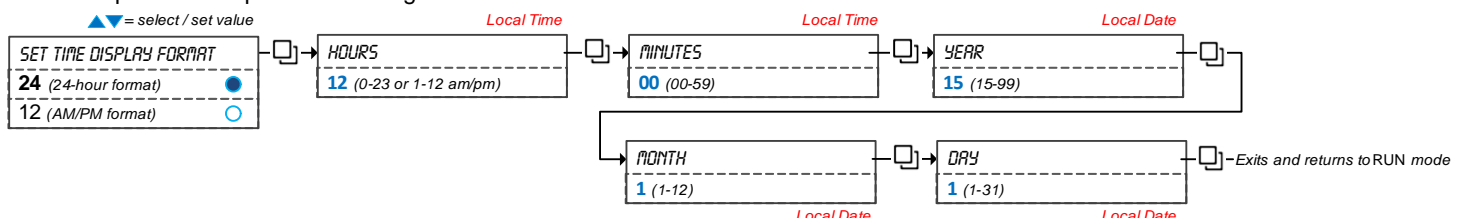
This function is only available if enabled by your installer. If the appropriate digital input contact is triggered, the thermostat enters NSB Mode (the  symbol appears) and uses the NSB setpoints defined in program mode. Press any key to override NSB for the delay defined in program mode (default: 120 minutes). The  symbol flashes to indicate that the NSB mode is overridden (during this time the standard setpoints are used). If the NSB Mode was set to OFF, all outputs will be off for the duration of the period and cannot be overridden.

## Occupancy Mode


This function is only available if enabled by your installer. If the appropriate digital input contact is triggered, the thermostat enters Occupancy Mode (the  symbol appears) and uses the NoOcc setpoints defined in program mode. If not locked, no occupancy mode can be overridden for a period by pressing the  button. Each time you press the  button, 15 minutes are added to the override (up to a maximum defined in program mode). Press the fan  button until "0" is displayed to disable the override. The  icon will flash and the remaining override time will be displayed in minutes.

## Set Time and Date

1. Press and hold the  button for 5 seconds
2. Use the arrow keys to set the desired value. Press the  button to save and got to the next step. Press the  button to go to the previous step without saving.



## Airflow and Air Supply Temperature


Press and hold the  button for 5 seconds and use the arrow keys to view the "AIRFLOW", "AIRFLOW SETPNT", "ACTUAL DAMPER POS PERCENT" and "AIR SUPPLY TEMP". After 5 seconds without any action, the thermostat returns to operation mode. The air supply temperature appears only if analog input AI1 or AI2 are configured with the AST option.



## Programming Mode

To access programming mode, the Mode Selector Jumper (JP1) must be set to the PGM (Programming Mode) position and terminal 3 (Data) must be disconnected from the thermostat. Refer to the Wiring section on page 3 for more details.

## Backlight and Contrast Level Adjustment

In programming mode, for models with the grey LCD screen, the backlight level can be adjusted. For models with the black LCD screen, the contrast level can be adjusted. Use the ▲ and ▼ keys to adjust the backlight or contrast level. Press the  key to save any changes.





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