

## TEI 54 Modulating 2-15 Vdc, Single Output LCD Electronic Room Thermostat 20 Vdc

### Description

Single output modulating proportional plus integral (P+I) 2-15Vdc electronic room thermostat with digital display and set point adjustment. The TEI54 digital display room thermostat is a direct replacement for the Barber Colman TP8101, TP8101-I16, TP8102 and TP8103.

It has the same features as the TP8101 series:-

- It is powered by a external device with 20Vdc
- It has an internal and optional external sensor selectable by switch no 3, use 10K type 3 NTC
- Selectable °C and °F with switch No1 (no need for two models TP8101 or TP8101-I16)
- Heat/Cooling changeover terminal 2 and 3
- Energy conservation mode terminal 4 and 5

### Specifications

- Operating voltage:** 20Vdc, 13mA  
**Power consumption:** Maximum 3Va  
**Control output:** 2-15VDC  
**Sensing Element:** 10K NTC Thermistor internal or external  
**Optional Remote Sensor:** Use 10KΩ Type 3 NTC thermistor in terminals 7 & 8. Contact Spartan for many other types of sensors.  
**Connection terminals:** Use solid wire 22 AWG to 14 AWG  
**Digital Display:** Temperature and set point in °C or °F; heating, cooling or economy mode symbols  
**Full Set point range:** 40-95°F in 1°F; 5-35°C in 0.5°C resolution  
**Limited Set point range:** 65-75°F in 1°F; 18-24°C in 0.5°C resolution  
**Operating temperature:** 32-122 °F or 0-50 °C, < 95% RH  
**Housing cover/base color:** Cover white, base grey  
**Wall mounting plate:** Color white, mounting holes for European and North American standards, fits 2 x 4 electric box  
**Shipping weight:** 0.5Lbs (0.225 Kg)  
**Agency approval:** Conforms to CE/ROHS requirements Class 2 as per UL/CSA

### Additional Features

- Direct or reverse mode to match the actuator action, use switch no. 2
- Full or limited set point adjustment use switch no 5
- P+I control loop
- Selectable proportional band - use switch no 6 and 7

Quality, affordable electronic room thermostat with digital display



### TEI 54 Dip switch Selections

Internal DIP switches selects the following features



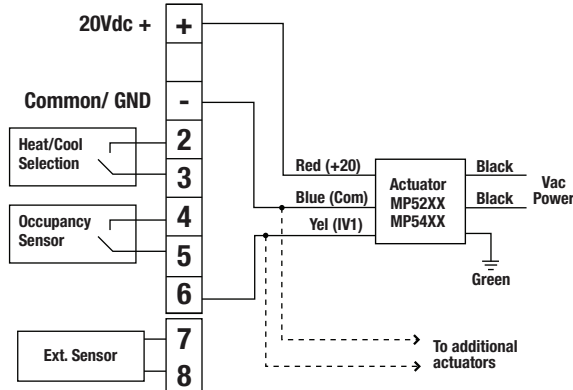
Pole	ON	OFF
1	° F Scale	° C Scale
2	US version for actuator	EU version for actuator
3	External sensor	Internal sensor
4	Fast response	Normal response
5	Normal temperature range	Limited temperature range
6	Proportional band selection 1	
7	Proportional band selection 2	

Fast response: update output every 10secs. Normal response: update output every 30secs.

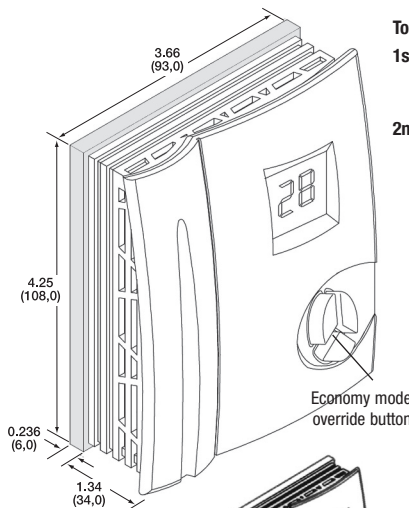
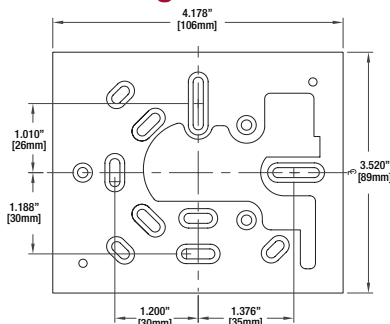
#### Proportional band selection:

Pole 6	Pole 7	Proportional band
OFF	OFF	2^ΔF
OFF	ON	3^ΔF
ON	OFF	6^ΔF
ON	ON	20^ΔF

### Wiring Diagram



### Mounting Dimensions



#### To Set Up D.A. /R.A. Action:

**1st Step** Set up Heating Mode (no jumper) or Cooling Mode (with jumper) on terminal 2-3

**2nd Step** When set in Heating Mode and the Switch #2 is in the ON Position, if the set point is higher than the room temperature (call for heat), the output is 2Vdc

When set in Cooling Mode (jumper on 2-3) and the Switch #2 is in the ON Position, if the set point is higher than room temperature (cooling not required), the output is 15Vdc.

#### Changing the Set Point

To change set point use the increase or decrease keys. LCD display will illuminate after pressing hand key.

When the thermostat is in heating mode a thermometer will appear in the display. It will flash when there is a demand for heat.

When the thermostat is in cooling mode a snow flake will appear in the display. It will flash when there is a demand for cooling. Selectable by jumper on terminal 2 and 3

#### On Power Failure

The set-point will remain in the memory.

#### TEI54 Cover Removal Instructions

To remove the cover simply remove the screws at the bottom of the unit with a screwdriver (1 and 2). The cover then is removed by pulling it out and then up.

**Installation:** Thermostats can be installed on a standard 20-20 2X4 electric box, or directly on the flat wall surface, and away from the heat source.

**Do not expose to water.**

