

**Electronic Modulating Thermostats  
General Instructions**

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## Application

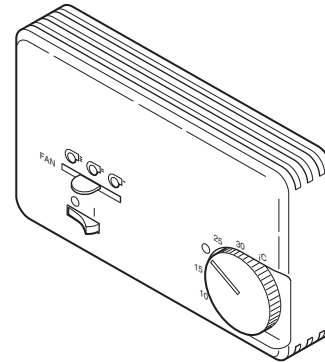
The TP-16XX series are electronic modulating room thermostats designed to be wall-mounted and used in fan coil applications. These thermostats incorporate an attractive case and are available in either Celsius or Fahrenheit versions.

## Features

- 24 Vac or Vdc operation
- Fixed throttling range (see Table-1 )
- 6 to 9 and 0 to 10 volt analog output
- Fast, easy installation
- Celsius and Fahrenheit versions available
- Low-profile styling
- International approvals: VDE (Germany); SEV (Switzerland), SEMKO (Sweden); NEMKO (Norway); and OVE (Austria)

## Applicable Literature

- Purchased Products Group Manual, F-18160
- TAC Cross-Reference Guide F-23638
- TAC Application Manual F-21335



TP-1601, TP-1611, TP-1616

# SPECIFICATIONS

**Setpoint Dial Range:** 55 to 85 °F or 5 to 30 °C. Refer to Table-1 for scale.

**Operating Voltage:** 24 Vac, 50/60 Hz.

**Power Consumption:** 0.35 Watts at 24V.

**Fan Power Supply:** 24 to 240 Vac, 50/60 Hz.

**Sensing Element:** Electronic sensor.

**Dead Band Tolerance:** Adjustable, 0.5 to 7.5 °C ( 0.9 to 13.5 °F)

**Load:** 3 mA (max.)

**Analog Output:** Refer to Table-1 .

**Amp Ratings,** Refer to Table-1 .

**Connections:** Coded screw terminals.

**Cover:** White plastic.

**Mounting:** Directly to wall surface or onto flush junction box. Mounting plate may be required.

**Dimensions:** Refer to Figure-5 .

**Locations:** NEMA Type 1 indoor only.

**Table-1 Model Chart for TP-16XX Series Thermostats.**

Model Number	Description	Thermostat Scale Range	Electrical Switches and Ratings			Analog Output	
			On-Off Switch	Fan Speed Switch	Switching Current at 250Vac Resistive (Inductive) Amps	Span	Throttling Range
TP-1601 <sup>a</sup>	Cooling Only Thermostat	5 to 30 °C	X	X	N/A	6 to 9 Vdc	1 °C (1.8 °F)
TP-1611 <sup>b</sup>	Heating & Cooling Thermostat	5 to 30 °C	X	X	6 (3)	0 to 10 Vdc	1.5 °C (2.7 °F)
TP-1616 <sup>b</sup>		55 to 85 °F	X	X			

<sup>a</sup> For use with MP-52XX actuators.

<sup>b</sup> For use with 0 to 10 Vdc input actuators.

## ACCESSORIES

AT-1005 Remote Sensor

## TOOLS

Digital Volt-ohm Meter (DVM)

Appropriate drill and drill bit for mounting screws

Appropriate screwdrivers for mounting screws and terminal connections

# TYPICAL APPLICATIONS (wiring and function diagrams)

Refer to Figure-2 through Figure-2 for wiring diagrams and function diagrams of the TP-16XX series thermostats.

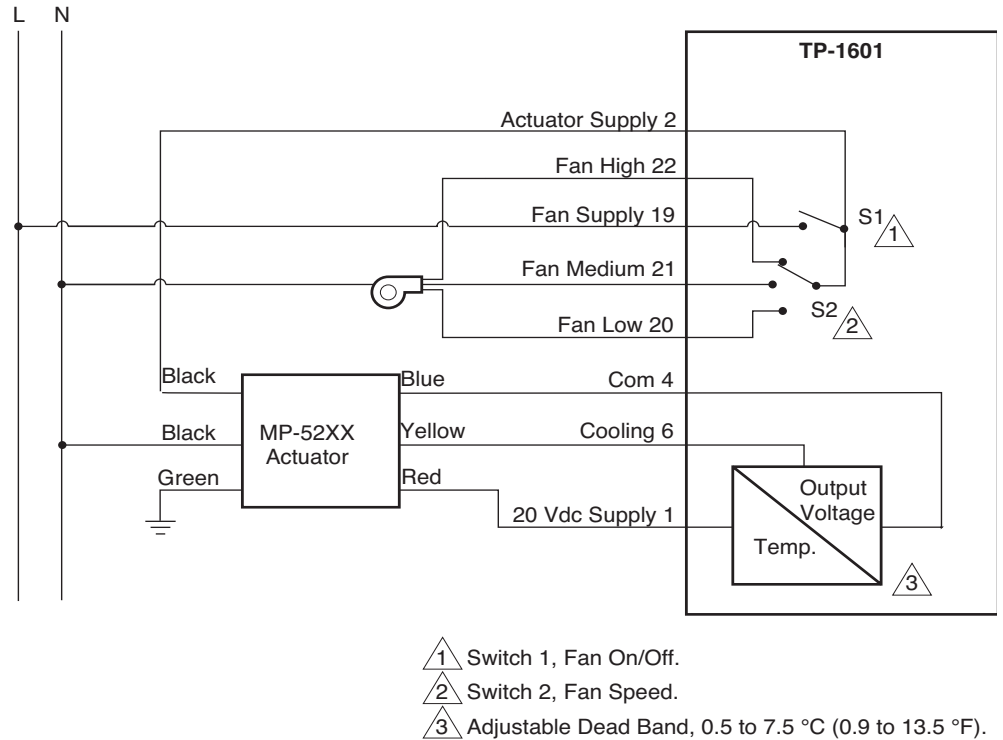


Figure-1 Wiring Diagram for TP-1601.

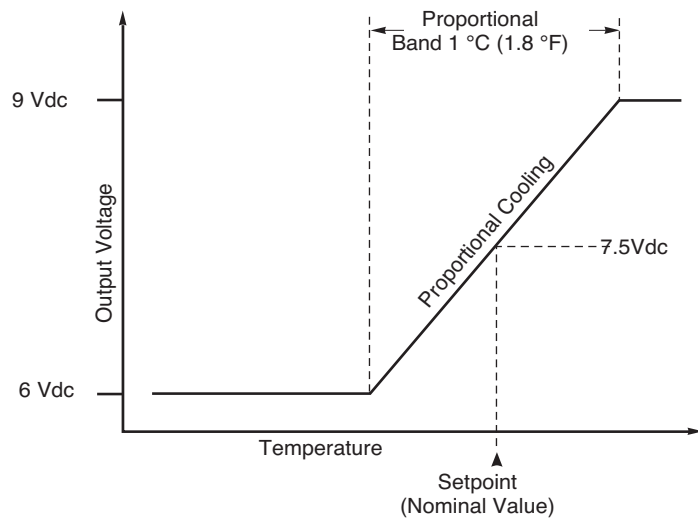
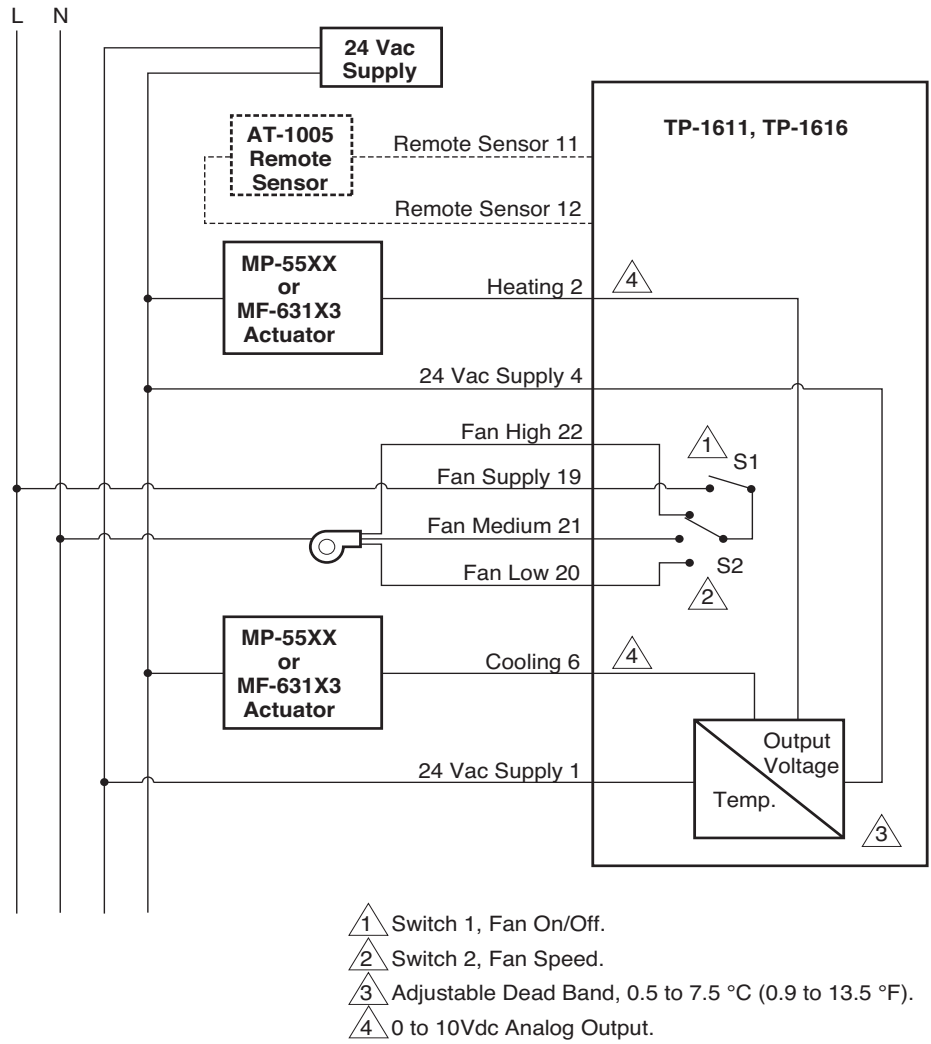
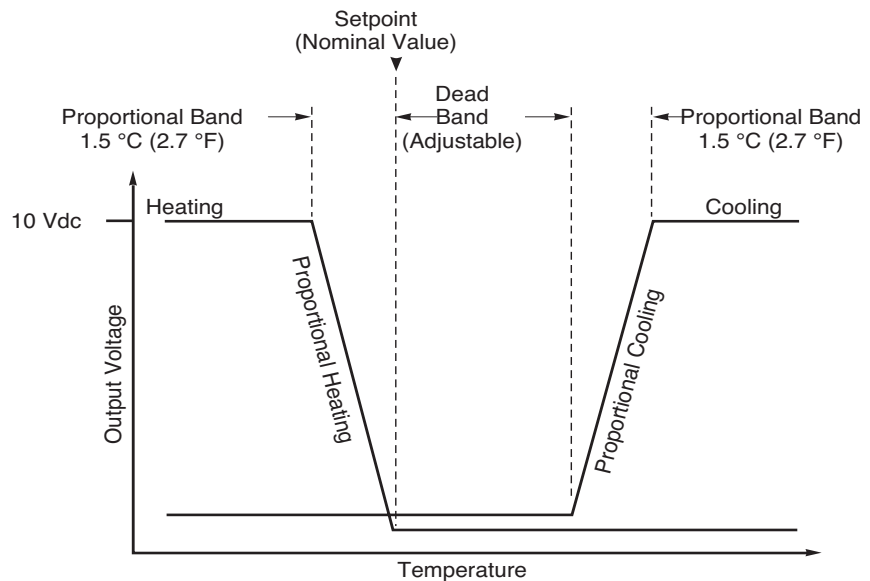


Figure-2 Function Diagram for TP-1601.



**Figure-3 Wiring Diagram for TP-1611 and TP-1616.**



**Figure-4 Function Diagram for TP-1611 and TP-1616.**

# INSTALLATION

## Inspection

Inspect the package for damage. If damaged, notify the appropriate carrier immediately. If undamaged, open the package and inspect the device for obvious damage. Return damaged products.

## Requirements

- Job wiring diagrams
- Tools (not provided):
  - Digital volt-ohm meter (DVM)
  - Appropriate drill and drill bit for mounting screws
  - Appropriate screwdrivers for mounting screws and terminal connections
- Training: Installer must be a qualified, experienced technician
- Appropriate accessories
- For use of this product with TAC System 8000, refer to the **TAC Application Manual, F-21335**



### ▼ **WARNING**

- Disconnect the power supply before installation to prevent injury and equipment damage.
- Make all connections in accordance with the wiring diagram and in accordance with national and local electrical codes. Class 1 wiring is required. *Use copper conductors only.*

## Mounting and Wiring

To ensure correct operation, observe the following requirements when choosing a location for the thermostat:

- Locate the thermostat where it will be exposed to the unrestricted circulation of air which represents the average temperature of the controlled space.
- Mount the thermostat approximately 5 ft. (1.5 m) above floor level on a flat, vertical surface.
- When installing a 2x4 junction box for a thermostat, orient the junction box horizontally if possible.

### ▼ **CAUTION**

- Do not exceed the ratings of the thermostat. Doing so may result in damage to the thermostat.
- Do not locate the thermostat near sources of heat or cold such as lamps, motors, sunlight, or concealed ducts or pipes. Doing so may result in inaccurate temperature control due to erroneous temperature sensing.
- The thermostat is designed for service in any normally encountered human environment. Avoid locations where excessive vibration, moisture, corrosive fumes or vapors are present. Such locations may damage the thermostat or shorten its service life. NEMA Type 1 covers are intended for indoor use, primarily to provide a degree of protection against contact with the enclosed equipment.

### Mounting Directly onto Wall

1. Gently pry the temperature setpoint dial from the thermostat, using a screwdriver, to expose the screw which secures the housing to the thermostat mechanism.
2. Remove the attaching screw and separate the housing from the thermostat mechanism.
3. Position the thermostat mechanism upright, in the desired location on the wall.

### ▼ **CAUTION**

Mount the thermostat upright so that the ventilation slots in its housing are at the top and bottom. This is necessary to ensure a free flow of air over the sensing mechanism.

4. Using the base of the thermostat as a template, mark the locations of the mounting holes on the wall. Refer to dimensions in Figure-5 .
5. Drill the mounting holes in the wall, using an appropriately sized drill.

6. Extend, from the wall, the wires that will be connected to the thermostat.
7. Connect the wires to the screw terminals on the thermostat. Refer to the applicable wiring diagram in Figure-2 or Figure-2 .

▼ **CAUTION**

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- Always connect the neutral lead to the appropriate terminal. Omitting this connection can result in sluggish action and long cycling times.
  - Ensure correct polarity of line and load connections. Reversal of these connections will result in sluggish action and a depressed switch point. A depressed switch point will cause the thermostat to under-heat by several degrees.
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8. Secure the thermostat mechanism to the wall, using the appropriate mounting screws.
9. Hook the housing on the left side of the thermostat mechanism and pivot it into place. Secure the housing to the mechanism, using the previously removed attaching screw.
10. Reinstall the temperature setpoint dial onto the thermostat.

**Mounting onto Flush Junction Box**

1. Gently pry the temperature setpoint dial from the thermostat, using a screwdriver, to expose the screw which secures the housing to the thermostat mechanism.
2. Remove the attaching screw and separate the housing from the thermostat mechanism.
3. Extend, from the wall, the wires that will be connected to the thermostat.
4. Secure the thermostat mechanism to the junction box, using the appropriate mounting screws.

▼ **CAUTION**

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Mount the thermostat upright so that the ventilation slots in its housing are at the top and bottom. This is necessary to ensure a free flow of air over the sensing mechanism.

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5. Connect the wires to the screw terminals on the thermostat. Refer to the applicable wiring diagram in Figure-2 or Figure-2 .

▼ **CAUTION**

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- Always connect the neutral lead to the appropriate terminal. Omitting this connection can result in sluggish action and long cycling times.
  - Ensure correct polarity of line and load connections. Reversal of these connections will result in sluggish action and a depressed switch point. A depressed switch point will cause the thermostat to under-heat by several degrees.
- 

6. Hook the housing on the left side of the thermostat mechanism and pivot it into place. Secure the housing to the mechanism, using the previously removed attaching screw.
7. Reinstall the temperature setpoint dial onto the thermostat.

## CHECKOUT

Following installation, allow a thermostat to acclimatize to the environment for at least 2 hours before attempting to test its accuracy.

After the newly-installed thermostat has acclimatized, perform an initial check of the switching action as follows:

1. Gradually turn the temperature setpoint dial higher, to a temperature that is above ambient. Verify that the heating circuit is activated, if applicable.
2. Gradually turn the temperature setpoint dial lower, to a temperature that is below ambient. Verify that the cooling circuit is activated.

## ADJUSTMENTS

No field adjustments.

## MAINTENANCE

The thermostat requires no maintenance.

Regular maintenance of the total system is recommended to assure sustained, optimum performance.

## FIELD REPAIR

None. Replace an inoperative thermostat with a functional unit.

## DIMENSIONAL DATA

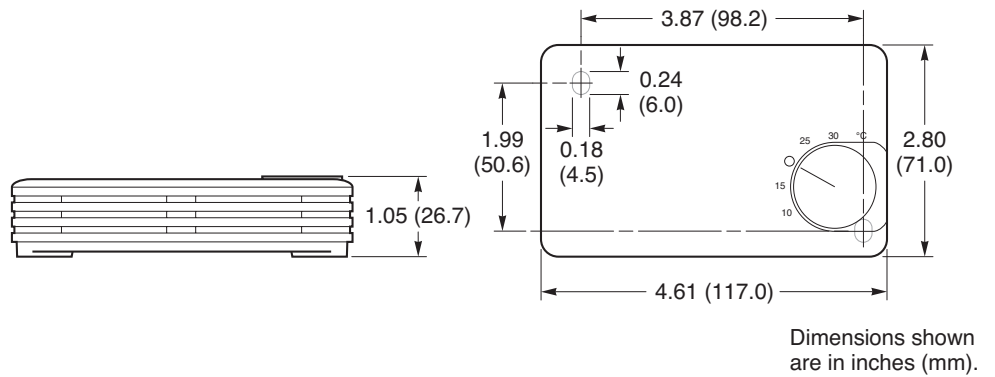


Figure-5 Dimensions of TP-1601, TP-1611, and TP-1616.

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