

AP-TMZ1600 Room Sensor with LCD Display

The AP-TMZ1600 room sensor is compact, with a Liquid Crystal Display (LCD) and keypad control selection. You can use the AP-TMZ1600 with several controllers including the Variable Air Volume (VAV) controllers (Revision D or later), Unitary (UNT) controllers (Revision D or later), and VAV Modular Assembly (VMA) controllers (Revision C00 or later). This compact room sensor provides a visual display of room conditions, and allows adjustments at the touch of a button.

The AP-TMZ1600 room sensor is easy to use and understand. It displays information to help occupants control their environment and uses a password level to provide additional control selections.



Figure 1: AP-TMZ1600 Room Sensor

Features and Benefits	
☐ LCD Display	Uses icons that are easy to understand and provide the user with a quick indication of operation. Nonglare bezel for easy viewing.
☐ Keypad Control	Offers the user menu selections for optimal environmental control.
☐ Password Level	Prevents user access to make adjustments and provides additional control options.
☐ Temporary Occupancy or Mode Override	Provides a timed override command, which temporarily initiates an alternate mode. A Light-Emitting Diode (LED) indicates this alternate mode is active.
☐ Sleek Appearance	Offers a compact style and blends with the environment.
☐ Versatile Application	Works with the controllers used in most common Heating, Ventilating, and Air Conditioning (HVAC) applications. The AP-TMZ1600 sensor works with the UNT, VMA, and VAV controllers.

Product Overview

The AP-TMZ1600 room sensor is attractive and user-friendly, with an easy-to-read nonglare display and compact styling. This sensor features room comfort at the touch of a button and an LCD for convenient feedback on changing room conditions. The AP-TMZ1600 is designed to communicate data over a communication network from a remotely located controller.

The AP-TMZ1600 room sensor communicates on the Zone Bus and works with several controllers including the UNT (Revision D or later), VMA (Revision C00 or later), and VAV (Revision D or later). Configure all controllers used with the AP-TMZ1600 sensor with HVAC PRO Release 8.01 or later (part of M-Tool Release 1.0 [MW-MTOOL-0]).

Person-Machine Interface (PMI)

The LCD display (Figure 2) shows text and symbols to indicate the operational status of the connected controller.

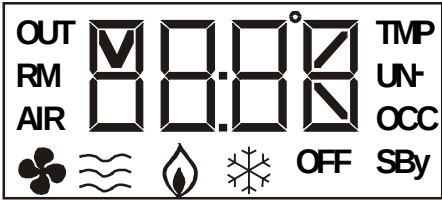


Figure 2: AP-TMZ1600 LCD Display Symbols

Use the four-button keypad to select several different functions (Table 1). An additional button offers timed override capability.

Remote Sensing

With HVAC PRO software, customers can use a remote sensor instead of the sensor on the AP-TMZ1600 room sensor to read zone temperature.

Table 1: AP-TMZ1600 Button Interface

Button	Operation
Menu	Cycles through the following display options: room air temperature, outdoor air temperature, comfort setpoint temperature, and fan operation. In Password mode, cycles through these additional display options: comfort setpoint temperature access status, fan access status, timed override duration, heating setpoint temperature, and cooling setpoint temperature.
Down Arrow	Displays the comfort setpoint temperature if pushed while the room air (RM AIR) temperature is displayed. Lowers the setpoint temperature if the setpoint is displayed and blinking. Toggles fan operation mode between On and Auto if the fan mode is displayed and blinking. In Password mode, sets user access to UnLK (unlock).
Up Arrow	Displays the comfort setpoint temperature if pushed while the room air (RM AIR) temperature is displayed. Raises the setpoint temperature if the setpoint is displayed and blinking. Toggles fan operation mode between On and Auto if the fan mode is displayed and blinking. In Password mode, sets user access to LOCK.
°F/°C	Toggles temperature display between degrees Fahrenheit (°F) and degrees Celsius (°C).
Temporary Occupancy	Toggles the VAV, VMA, or UNT controller between Standby or Unoccupied mode and Temporary Occupancy mode. The LED lights when Temporary Occupancy mode is active for the VAV and UNT.

Notes: Press the Menu and °F/°C buttons simultaneously for approximately 10 seconds to access Password mode. Setpoint adjustments only affect the setpoints for the Occupied mode of operation.

Table 2: AP-TMZ1600 Sensor Symbol Descriptions

Symbol	Description
RM AIR	Room Air Temperature – Not adjustable
OUT AIR	Outside Air Temperature – Not adjustable
 	Fan Symbol – Indicates fan operation. Not used with VAV or VMA.
 	Heating (flame) and Cooling (snowflake) – Comfort value adjustable when numbers blink. Static indicates operation. Appears when device is in Password mode.
TMP OCC, OCC, UN OCC, SBy, OFF	Mode of operation – TMP OCC appears on display when Timed Override Mode button is pressed and LED is lighted.

You can lock comfort setpoint and fan speed adjustments from user access if selected in the Password mode. You can lock adjustments of all functions from user access by relocating a jumper on the electronics board.

Additional Features

Both models of room sensors share the following features:

- display of room and outdoor temperatures
- RM AIR that is used as a default screen when no selections are made for 30 seconds
- comfort setpoint temperature control with 45 to 90°F (7 to 32°C) maximum range. Comfort setpoint is the average of the heating and cooling setpoints selected in dual setpoint applications, or it is the actual occupied setpoint in single setpoint applications.
- maximum comfort setpoint range of 45 to 90°F (7 to 32°C). To adjust this range, use the HVAC PRO Parameters screen to limit the comfort setpoint range available at the thermostat. For example, you can set the low limit to 68°F (19°C) and the high limit to 72°F (22°C).
- fan speed selection based on fan operation allowed by the controller
- Mode Override button for selecting a timed Temporary Occupancy mode

- Password mode allowing user locks on comfort setpoint, fan speed adjustments, time selection for Temporary Occupied mode, and selection of heating and cooling setpoints for dual-setpoint applications (40-95°F [4.5-35°C] maximum range)
- single- or dual-setpoint adjustments that allow separate heating and cooling setpoints
- phone jack connection at the bottom of casing that connects to a laptop or Zone Terminal Unit (ZTU) to the Zone Bus (via the Cable PRO interface)

Refer to the *AP-TMZ1600 Room Sensor with LCD Display Installation Instructions (LIT-6363110)* for further product information.

IMPORTANT: AP-TMZ1600 Firmware Revision A07 and earlier supports a narrower setpoint range of 18.3 to 29.4°C (65 to 85°F). Use TMZ Firmware Revision A08 or later along with HVAC PRO Release 8.04 or later to take full advantage of the wider setpoint ranges described in this literature.

Installation

The AP-TMZ1600 room sensor is easy to install and comes with both surface and wallbox mounting plates. The AP-TMZ1600 sensor, used with the VAV, VMA, and UNT controllers, connects to the Zone Bus with an 8-pin phone jack connection.

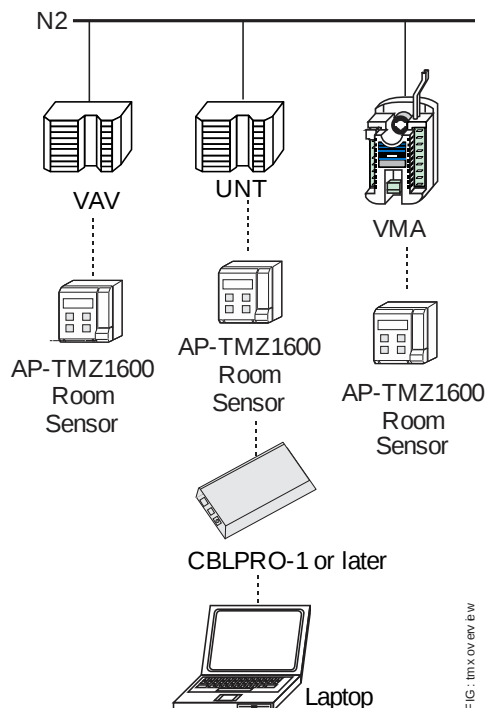


Figure 3: AP-TMZ1600 Sensor

Technical Specifications

Product Code Number	AP-TMZ1600-0 (for VAV, VMA, UNT)	
Operating Environment	32 to 122°F (0 to 50°C) 10 to 90% noncondensing humidity	
Storage Environment	-40 to 140°F (-40° to 60°C), 10 to 90% noncondensing humidity	
Input Supply Voltage	7.2 to 8.8 VDC (TMS1600) 12 to 30 VAC or 12 to 40 VDC	
Input Current Required	10 mA maximum	
Housing Material	ABS + polycarbonate, self-extinguishing UL 94-V0	
Housing Protection	IP 30 (IEC 529)	
Dimensions	3.15 x 3.15 x 1.26 in. (80 x 80 x 32 mm)	
Weight	5.3 oz (0.15 kg)	
Override Button	Momentary contact	
Mode Indicator	Red LED	
Temperature Sensor	Sensor Type:	Nickel PTC
	Range:	32 to 122°F (0 to 50°C)
	Reference Resistance:	1,000 ohm at 70°F (21.1°C)
	Accuracy:	+/-0.3°F (0.2°C) at 70°F (21.1°C) +/-1°F (0.6°C) at 32 to 122°F (0 to 50°C)
Software	HVAC PRO Release 8.01 or later (part of M-Tool Release 1.0 [MW-MTOOL-0])	
Interface	AS-CBLPRO-1 or later (use with Zone Terminal Unit)	
Agency Compliance	UL Listed, File E107041, CCN PAZX, UL916 cUL Listed, File E107041, CCN PAZX7, CSA C22.2 No. 205-M1983 CE Compliant to EMC Directive 89/336/EEC, EN50081-1 and EN50082-1 FCC Compliant to CFR47, Part 15, Class A FCC Compliant to CFR47, Part 15, Class B (not applied for) Canadian ICES-003 Compliant, C-Tick	

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.



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