

TE-7000 Room Command Module

Introduction

The TE-7000 Room Command Module is designed for use with the VMA1400 series VAV Modular Assembly. The VMA1400 is a control device for a variable air volume (VAV) terminal unit that provides conditioned air to the room in which the TE-7000 is installed.

The module has an NTC temperature sensor, a dial for setpoint adjustment within the range of 12 to 28°C or -3 to +3K, and an occupancy button with an LED indicator. If the VAV controller is not already in occupied mode, as shown by the LED indicator, the occupant may press the occupancy button to obtain comfort control for a set period of time, normally defaulted to one hour.

The module also has a built-in connector for a PC with the software to test and commission the VMA1400 series VAV Modular Assembly and the air supply system.



Figure 1: TE-7000 Room Command Module

Features and Benefits

- | | |
|---|--|
| ☐ Modern attractive cover, in white or off-white, which snaps onto a plug-in mounting base. | Blends with room décor.
Easy to install and service. |
| ☐ Terminals located on mounting base. | Easy to wire and test. |
| ☐ Service tool connection. | Variable Air Volume system can be commissioned and balanced at the room module location. |
| ☐ Range of standard mounting kits. | Flexibility in mounting possibilities. |

Application Overview

The TE-7000 Room Command Module is used specifically with the VMA1400 series VAV Modular Assembly and includes:

- an NTC “K2” temperature sensor (see the NTC K2 Resistance Table on page 10)
- a setpoint dial and potentiometer for remote setpoint adjustment of 12 to 28°C or -3 to +3K
- an LED to indicate the occupancy mode as follows:
 - steady on: occupied (comfort) mode
 - blinking: standby mode
 - off: unoccupied (or off) mode
- an occupancy button (switch) in a series circuit with an LED to either:
 1. command the occupied mode from the standby or unoccupied mode for a set period of time, or
 2. change the occupancy mode to occupied, standby or unoccupied for a set period of time,
 as defined in the configuration data base of the VMA device.
- a socket for the connection of a PC with testing and commissioning software via an RS485/RS232 converter. A cable is available for use with the IU-9100 converter (see ordering codes).

The Room Command Module is connected by an 8-wire cable to the VMA and requires no other source of power.

Ordering Codes

European Models

(With System 91 Type Service Tool Connector)

Ordering Code	Color	Setpoint Dial Range
TE-7000-8002	Off-White/ Gray Base	12 to 28°C
TE-7000-8002-W	White/ White Base	12 to 28°C
TE-7000-8003	Off-White/ Gray Base	-3 to +3 K
TE-7000-8003-W	White/ White Base	-3 to +3 K

Note: Add “-K” to code for setpoint dial with serrated edge, e.g. TE-7000-8002-K, TE-7000-8002-WK

Accessories

Ordering Code	Description
TE-7000-8900	Service Tool Connector Cable (1.5m) (for use with IU-9100 converter)
TM-9100-8900	Special Tool (to open module)
TM-9100-8901	Dial-Stop Screws Kit (bag of 100 self-tapping screws)
TM-9100-8902	Serrated Knob Kit (bag of 10 knobs) - Off-white
TM-9100-8902-W	Serrated Knob Kit (bag of 10 knobs) - White
TM-9100-8930	Surface Mounting Kit - Gray
TM-9100-8931	Surface Mounting Kit - Off-white
TM-9100-8931-W	Surface Mounting Kit - White
TM-9100-8941-W	Wall Box Mounting Kit - White
TM-9100-8951-W	Panel Mounting Kit - White

For information purposes only:

North American Models from Customer Service in Milwaukee (all in off-white with gray USA wall plate accessory, serrated knob and telephone jack Service Tool connector)

Ordering Code	Setpoint Dial Range
TE-7000-0001	65 to 85°F
TE-7000-0002	12 to 28°C
TE-7000-0003	- to + (no units)

Mounting and Wiring Instructions

The TE-7000 module is designed for wall mounting in the room to be controlled, using at least two of the four screw holes on the base. The module may be mounted directly on the wall, or one of the three mounting kits may be used. The wiring enters from the back through the base.

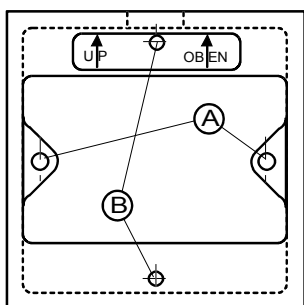
Choose an appropriate place where the temperature is representative of the general room conditions. Avoid cold or warm draughts from doors or windows, and exposure to radiant heat from lamps, radiators or direct sunlight. However, sufficient air circulation over the module is required for a satisfactory response to room temperature changes.

Place insulation material in the wiring conduit or any open space behind the wall to prevent air entering the module through the base.

Remove the base from the cover by inserting the point of the special tool (TM-9100-8900) into the small hole at the center top of the cover. While pressing down gently, prise the base away from the cover. As the two parts separate, remove the tool and continue to pull the cover away from the base until the cover is free. To reassemble the module, place the cover over the lower edge of the base and push the upper part of the cover until it "clicks" firmly in place.

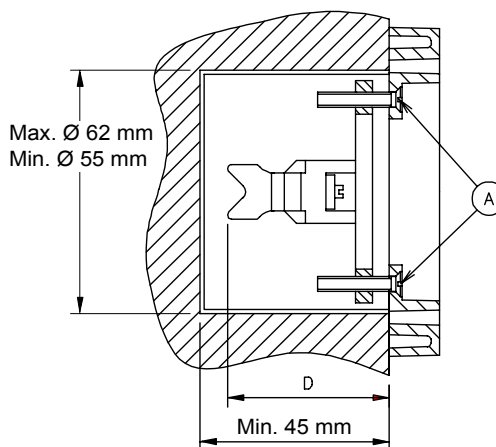
The TM-9100-893x(-W) Surface Mounting Kit

Screw the kit directly on the wall using holes "A" and mount the base of the module on the kit, using the two screws included and inserting them in the two opposite holes "B", as indicated below:

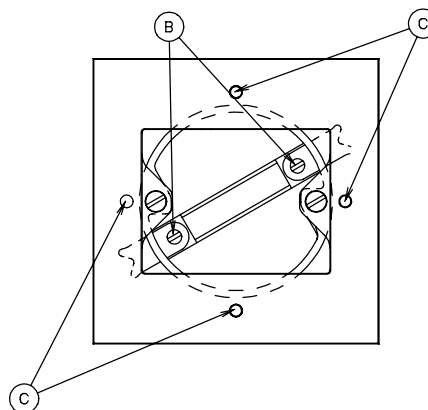


The TM-9100-8941-W Wall Box Mounting Kit

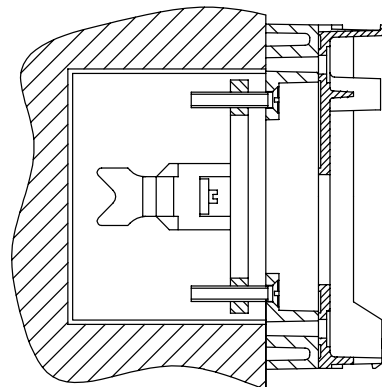
- Adjust height "D" turning screws "A" to match the depth of the wall box.



- Insert the kit into the wall box in the position shown below.

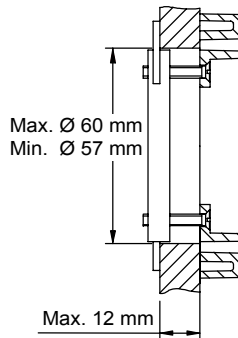


- Tighten screws "B" until the prongs clamp properly on the box.
- Mount the base of the module on the kit as shown below, using the two screws included and inserting them in two opposite holes of the four marked "C".

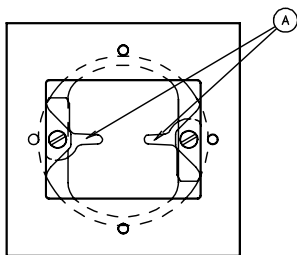


The TM-9100-8951-W Panel Mounting Kit

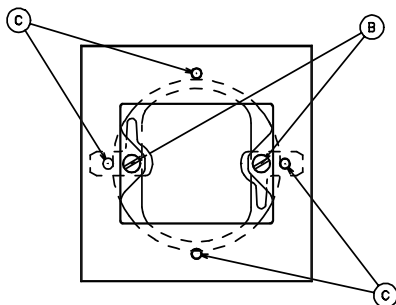
- Cut a circular hole in the panel with a diameter dimension as shown below:



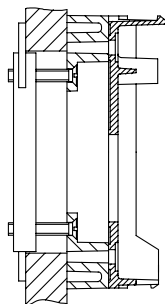
- Turn prongs "A" as shown below. Insert the kit into the panel in the position shown below.



- Turn prongs "A" as shown below. Turn screws "B" until the kit is fixed on the panel.



- Mount the base of the module on the kit as shown below, using the two screws included and inserting them in two opposite holes of the four marked "C".



Wiring Instructions

The installation of electrical wiring must conform to local codes and should be carried out by authorized personnel only. Users should ensure that all Johnson Controls products are used safely and without risk to health or property.

Before connecting or disconnecting any wires, ensure that all power supplies have been switched off and all wires are potential free to prevent equipment damage and electrical shock.

Terminations are made on the terminal blocks in the base of the module which accept 1.5 mm² (16 AWG) wires. All wiring to the module is at extra low (safe voltage) and must be separated from power line voltage wiring. Do not run wiring close to transformers or high frequency generating equipment. Complete and verify all wiring connections before applying power to the VMA1400 to which the module is connected.

Do not attempt field repairs. If the module does not operate properly when correctly wired, it should be replaced.

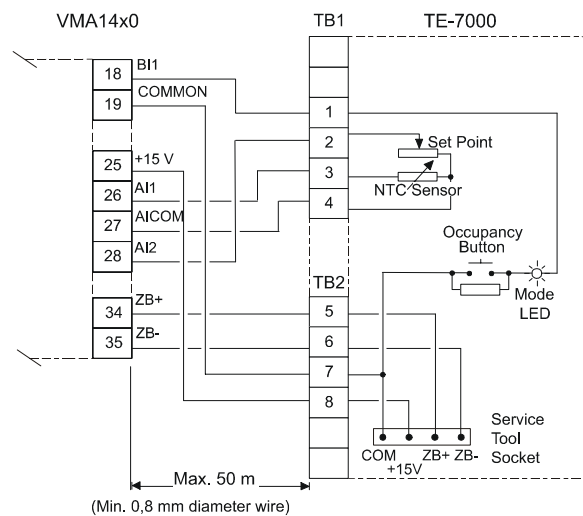


Figure 2: Wiring Diagram

Dial-Stop Screws

A pair of self-tapping screws can be installed to mechanically limit the range of the TM-9100 set point dial between ± 3 K and ± 0.3 K or between $12/28^{\circ}\text{C}$ and $19.3/20.7^{\circ}\text{C}$.

1. Remove the base of the module from the cover by inserting the point of the special tool (TM-9100-8900) into the small hole at the center top of the cover. While pressing down gently, prise the base away from the cover. As the two parts separate, remove the tool and continue to pull the cover away from the base until the cover is free.
2. Set the dial to the center top position, with the pointer (indentation) at the 0 K or 20°C mark.
3. Then insert the special TM tool (Ordering Code TM-9100-8900) through the hole in the back of the cover (1) and push gently until the dial knob becomes free (2).

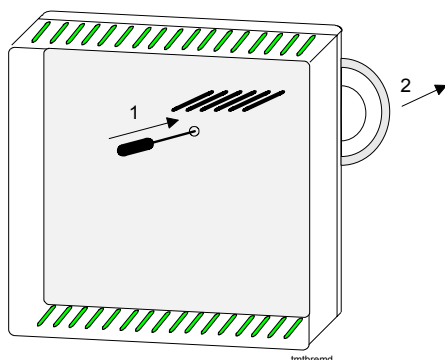


Figure 3: Removing the Dial Knob

3. On the front of the module cover you will see a series of seven holes on either side of the set point dial pivot, which had been hidden by the knob.

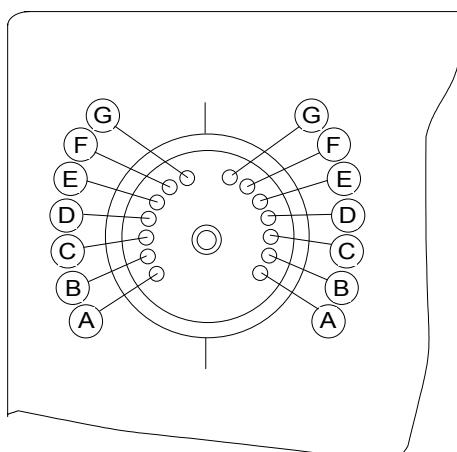
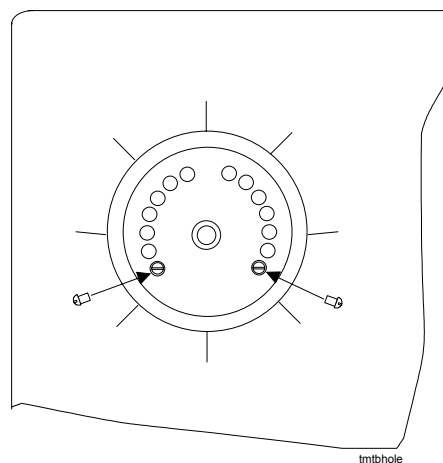


Figure 4: Dial-Stop Screws

4. To limit travel of the dial, choose the desired range, and insert screws in the corresponding holes. For example, for a limitation of ± 2.5 K, insert one screw each in the holes marked (A) in Figure 4.



Note: For an asymmetrical range, you may insert screws into differently lettered holes on each side.

	12-28°C	± 3 K
A	13.3 / 26.7	± 2.5
B	14.3 / 25.7	± 2.1
C	15.3 / 24.7	± 1.8
D	16.3 / 23.7	± 1.4
E	17.3 / 22.7	± 1
F	18.3 / 21.7	± 0.7
G	19.3 / 20.7	± 0.3

5. Press the dial knob back in place on the cover, making sure the pointer (indentation) is aligned with the 0 K or 20°C mark at the top of the circle. Then place the cover over the lower edge of the TM-9100 base and push the upper part of the cover until it "clicks" firmly into place.

Serrated Dial Knob

To replace a smooth dial knob with a serrated knob, follow steps 1, 2, 3 and 5 under *Dial-Stop Screws*, substituting a serrated knob for the smooth knob in Step 5.



Figure 5: Module with Serrated Dial Knob

Service Tool Socket

The service tool socket is accessed by sliding the panel upwards as shown in Figure 6 below.

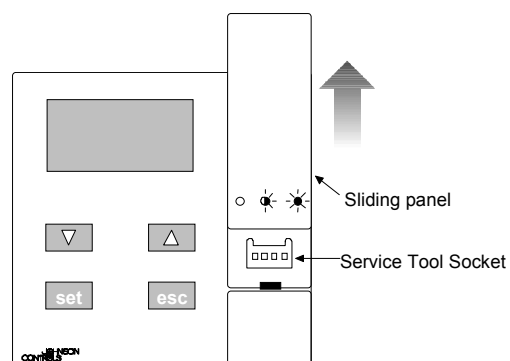


Figure 6: Service Tool Socket

Dimensions (in mm.)

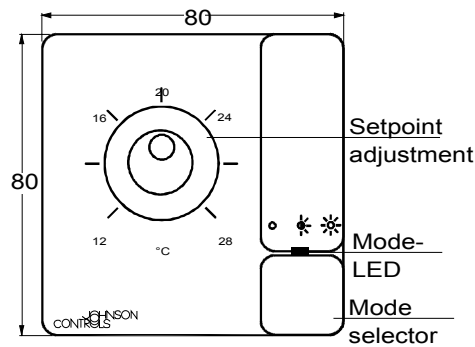


Figure 7: Basic Model TE-7000-800x

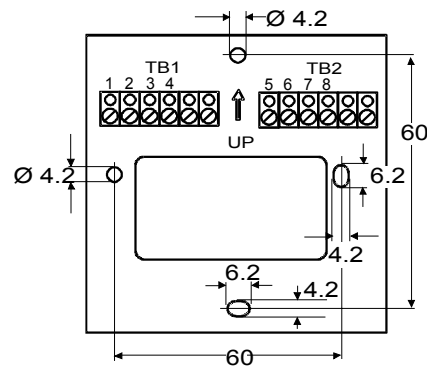


Figure 8: Plug-in Mounting Base

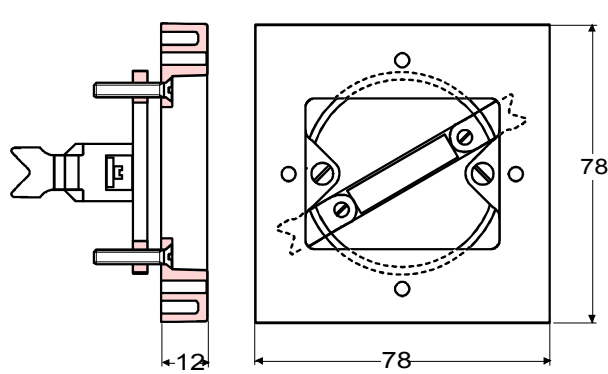
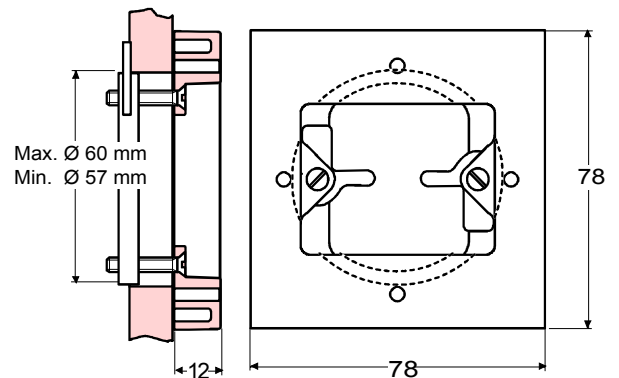
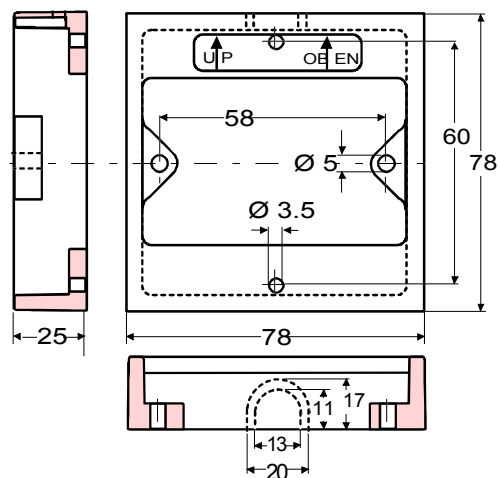
Figure 9: Wall Box Mounting Kit
TM-9100-8941-WFigure 10: Panel Mounting Kit
TM9100-8951-W

Figure 11: Surface Mounting Kit TM-9100-893x(-W)

NTC K2 Resistance Table

Temperature in °C	Resistance in Ω
0	7352,8
5	5717,8
10	4481,5
15	3537,9
20	2812,8
25	2252,0
30	1814,4
35	1470,6
40	1199,6

Specifications

Supply Voltage	Power from VMA1400 VAV Modular Assembly
Ambient Operating Conditions	0 to 50°C 10 to 90% RH noncondensing
Ambient Storage Conditions	-20 to 70°C 10 to 90% RH noncondensing
Terminations	Terminal block in base for 1 x 1.5mm ² (16 AWG) (maximum) cable
Temperature Sensor	NTC Thermistor 0 to 40°C, 2252 Ω at 25°C
Remote Set Point	2.0 K Ω potentiometer (with 4.99 K Ω parallel resistor) marked for 12 to 28°C or -3 to +3 K. Mechanical limitation of travel available with dial-stop screws. (See ordering codes.)
Occupancy Button and Mode Indicator	Momentary contact and LED in series circuit.
Mounting	Direct surface mount, plastic base for surface mount with wiring conduit, and recessed wall box and panel mounting kits. (See ordering codes.)
Housing	Material: ABS + polycarbonate, self extinguishing VO UL94 Protection: IP30 (IEC529)
Dimensions (HxWxD)	80 x 80 x 33 mm
Shipping Weight	0.15 kg
Agency Compliance	CE Directive 89 / 336 / EEC EN50081-1, EN 50082-1

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.