

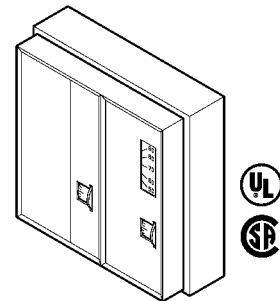
Two-Position Electric Duplex Room Thermostat General Instructions

Application

For on-off control applications requiring two individually adjustable thermostats under one cover, such as day/night control, night and warm-up control, summer/winter and other energy conserving systems.

Features

- Fixed switch differential.
- Dial stop pins to limit dial range
- Lock cover screw kits available.
- Agency approval.
- Unit marked in °F or °C.
- Switch bases AT-607 and AT-608 available for custom applications



Applicable Literature

- TAC Cross-Reference Guide, F-23638
- TAC Reference Manual, F-21683
- TAC Application Manual, F-21335
- TAC Electric/Electronic Products Catalog, F-27382

Specifications

Thermostat Inputs

Setpoint Dial Range: See Table-1.

Sensing Element: Bimetal.

Differential: 2°F (1.1°C)

Thermostat Outputs

Electrical:

Switch Action, See Table-1.

Amp Ratings, See Table-2.

Connections: Coded screws terminals.

Environment

Ambient Temperature Limits:

Shipping & Storage, -40 to 160°F (40° to 71°C).

Operating, 40 to 140°F (4° to 60°C).

Humidity: 5 to 95% R.H., non-condensing.

Mounting: Flush on single or 2-gang switch box or 4" x 4" (102 mm x 102 mm) surface box or directly to wall (24 Vac only).

Location: NEMA Type 1.

Agency Listings: See Table-4.

Table-1 Model Chart.

Standard Model	Dial Range		Thermometer	Switch Action
	Left Side	Right Side		
TC-1161	55° - 85°F	55° - 85°F	Yes	2 SPDT
TC-1161-116	13° - 29°C	13° - 29°C	Yes	2 SPDT
TC-1161-479	75° - 105°F	45° - 75°F	No	2 SPDT
TC-1161-530	75° - 105°F	45° - 75°F	No	2 SPDT
TC-1161-531	75° - 105°F	45° - 75°F	No	2 SPDT
TC-1161-602 ^a	55° - 85°F	55° - 85°F	Yes	2 SPDT
TC-1161-770 ^b	55° - 85°F	55° - 85°F	Yes	2 SPDT

^a 10°F Night depression application (24 Vac only).

^b Cover has manufacturer logo.

Table-2 Electrical Ratings.

Model No.	Full Load Amps		Locked Rotor Amps		Current Rating (amps)	Voltage	Pilot Duty VA
	24/120 Vac	240 Vac	24/120 Vac	240 Vac			
TC-1161	3	1.5	18	9	—	—	28 @ 24 Vac 140 @ 120/240 Vac
TC-1161-770					—	—	
TC-1161-479					—	—	
TC-1161-602					—	—	
TC-1161-530 ^a	—	—	—	—	0.41	24 Vac	—
TC-1161-531 ^a	—	—	—	—	0.082	120 Vac	—

^a 3°F cooling and heating application.

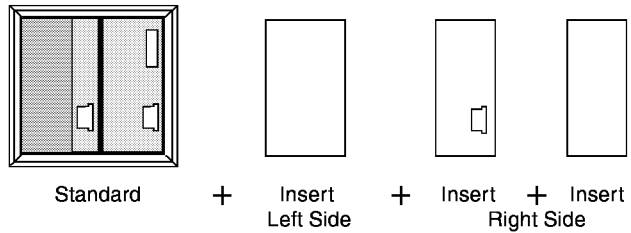
Table-3 TC-1161, TC-1161-116, TC-1161-602 & TC-1161-770 Contain the Following.

Quantity	Description
2	Blank cover inserts (left & right)
1	Cover insert with setpoint dial cutout (right)
2	5/64" Allen head screws for securing cover to thermostat base
1	5/64" Allen head wrench
4	Dial stop pins to limit setpoint range
1	Thermostat

Table-4 Agency Approvals.

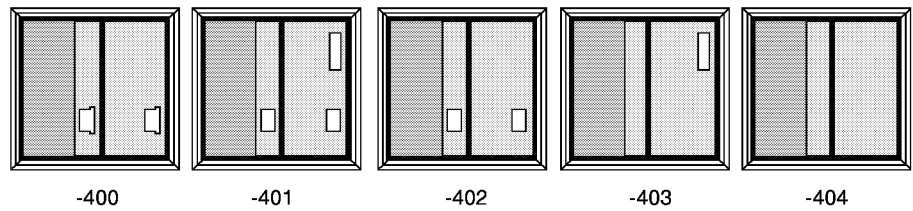
Configuration	Part Number	UL Listed	CSA Certified
Metal cover option	TC2-1161-XXX	Yes	Yes
Plastic cover	TC-1161 Series	Yes	No
Night depression option	TC-1161-602	Yes	No

Standard Cover



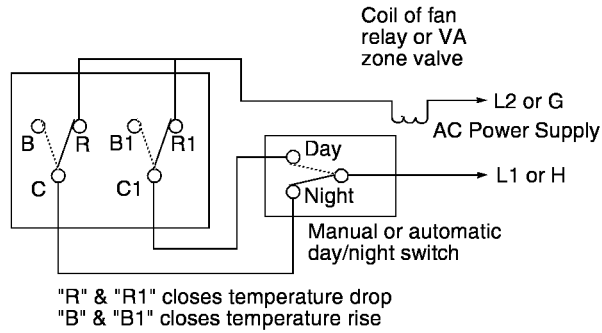
**Options for TAC Models Only
(for quantities of 24 or more each part number)**

Add "dash-number" (-XXX) suffix to base part number for desired option. For metal covers, specify TC2-1161-XXX.

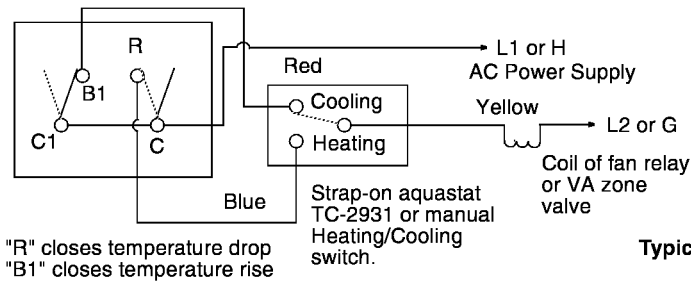


ACCESSORIES

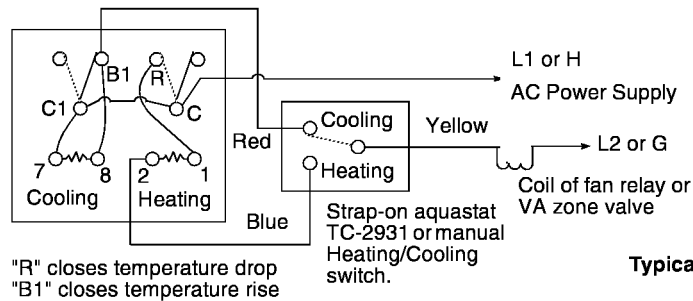
- AT-101 Lock cover kit (2 required per thermostat)
- AT-104 Dial stop pins (pins included with each unit)
- AT-546 Auxiliary mounting plate
- AT-607 Selector switch sub-base DP4T
- AT-608 Selector switch sub-base one DP4T, one DPDT
- AT-1155 Plastic guard
- AT-1165 Plastic guard
- TOOL-11 Calibration wrench
- TOOL-13 Contact burnishing tool



Typical Wiring for TC-1161, TC-1161-116 & TC-1161-770 (Day, Night Heating)



Typical Wiring for TC-1161-479 (Heating, Cooling)



Typical Wiring for TC-1161-530 & TC-1161-531 (Heating, Cooling)

Figure-1 Typical Wiring Diagrams.

Installation

Inspection

Inspect the carton for damage. If damaged, notify the appropriate carrier immediately. Inspect the device for obvious damage. Return damaged products.

Requirements

- Job wiring diagrams
- Tool (not provided)
 - Volt-ohm meter
 - Appropriate screwdriver for mounting screws and terminal connections
- Appropriate accessories
- Mounting screws, four (4) provided for securing to a 4" x 4" (102mm x 102mm) conduit box
- Training: Installer must be a qualified, experienced technician



Warning:

- Disconnect power supply before installation to prevent electrical shock and equipment damage.
 - Make all connections in accordance with the wiring diagram and in accordance with national and local electrical codes. Class I wiring is required unless all circuits to contacts are powered from a Class II source. *Use copper conductors only.*
 - Do not locate the thermostat near sources of heat or cold such as lamps, motors, sunlight, or concealed ducts or pipes, or where there is a danger of electrocution (i.e., shower rooms).
-

Caution:

- Do not exceed ratings or the device(s).
 - The thermostat is not designed for service in any location where condensation may occur. Avoid locations where excessive moisture, corrosive fumes, or vibration is present. NEMA Type 1 covers are intended for indoor use primarily to provide a degree of protection against contact with the enclosed equipment.
 - Thermostats with guards that restrict air flow must have heating or cooling anticipation.
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Mounting and Wiring

Thermostat requires upright mounting on a flat vertical surface. Locate thermostat where it is exposed to unrestricted circulation of air which represents the average temperature of the controlled spaces. (See Figure-2 and Figure-7.)

1. Pull all wires.
2. Fasten mounting plate to box or wall.
3. Make electrical connection to thermostat screw type terminals. Green ground wire is located on mounting plate for use in all applications.
4. Hook thermostat on top of mounting plate and swing down into place.
5. Remove the two (2) thermostat cover screws and remove the thermostat cover.
6. Attach thermostat to mounting plate with mounting screw.
7. Attach thermostat cover and tighten the two (2) thermostat cover screws.

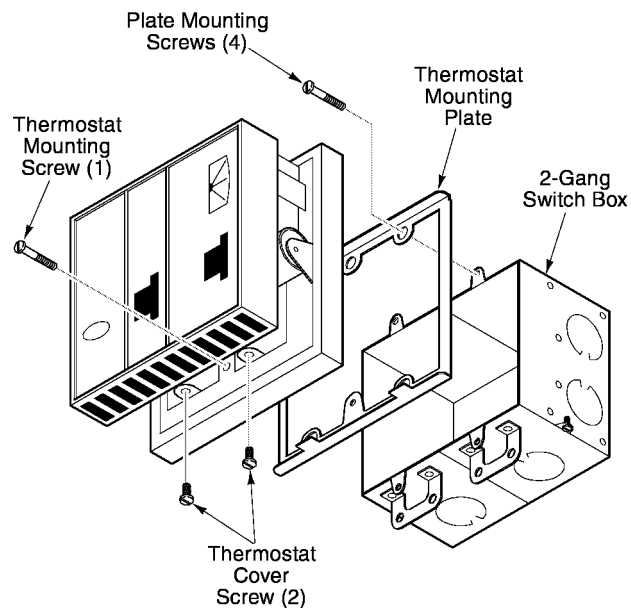


Figure-2 Thermostat Mounting.

Checkout

After installing a thermostat, make an initial check of the switch action. Remove the thermostat cover by removing the two (2) thermostat cover screws. Verify the switch action by listening to and watching the switch contacts, using a volt-ohm meter between the proper sides of the switch, or by observing the controlled device.

1. Turn each setpoint dial to a temperature above ambient.

Thermostat Part Number	Make Contact	Break Contact
TC-1161, TC-1161-770, TC-1161-116, TC-1161-602	R & R1	
TC-1161-479, TC-1161-530, TC-1161-531	R	B1

2. Turn the setpoint dial setting down gradually.

Thermostat Part Number	Make Contact	Break Contact
TC-1161, TC-1161-770, TC-1161-116, TC-1161-602	B & B1	
TC-1161-479, TC-1161-530, TC-1161-531	B1	R

Calibration

All thermostats are calibrated at the factory and normally do not require any such attention. However, if recalibration is necessary for any reason, proceed as follows:

1. Disconnect power to thermostat.
2. Set the adjusting dial to correspond to actual room temperature.
3. Remove thermostat cover, remove screw that secures right-hand side of insulator, fold back insulator, and remove contact cover. See Figure 3.

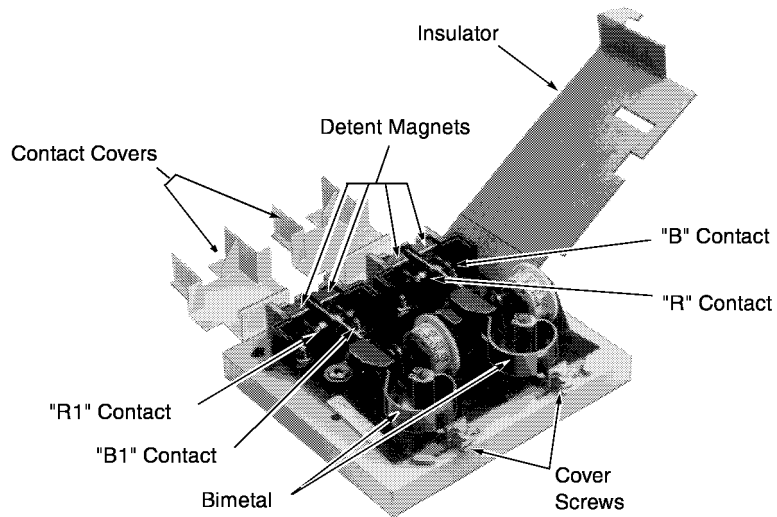


Figure-3 Part Identification.

Caution: Do not breathe on the thermostat or handle excessively as this affects the accuracy of the final calibration.

4. If the right contact blade is not made to the "R" contact, use a 3/16" open end wrench (TOOL-11) to turn calibration screw clockwise (looking at head of screw) until blade just makes "R" contact.

Note: Each complete revolution of the screw changes calibration approximately 6°F (3.3°C).

5. If the right contact blade is made to the "R" contact, turn the calibration screw slowly counterclockwise until the element makes the "B" contact.
6. Repeat steps 4 and 5 for the left contact blade. Thermostat is now properly calibrated.
7. Replace contact covers, insulator, and thermostat cover.

8. Restore power to thermostat.
9. Recheck calibration about 30 minutes later to be sure heat from handling did not result in erroneous setting.

Adjustments

Concealed Control Dial

Knurled Dial Removal

See Figure-4.

1. Remove the thermostat cover.
2. Secure the control dial with your hand so that the dial does not rotate.
3. Place needle nose pliers on the knurled ring of the control dial at the points where the knurled ring is attached to the control dial.
4. Twist the pliers at each knurled ring attachment point until the entire knurled ring of the control dial is removed.

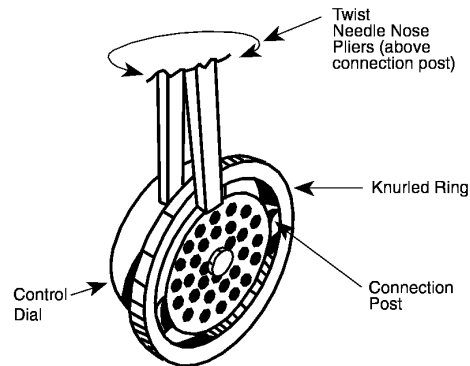


Figure-4 Knurled Dial Removal.

Cover Insert Installation

1. Select appropriate cover insert.

Note: If blank insert is used, the knurled ring must be removed from the setpoint dial. See Knurled Dial Removal section. Also, remove dial window by sliding and/or pressing window from front of cover.

2. Remove protective backing and protective skin on face of cover insert (see Figure-5).
3. Press insert uniformly on thermostat with logo in lower left hand corner.

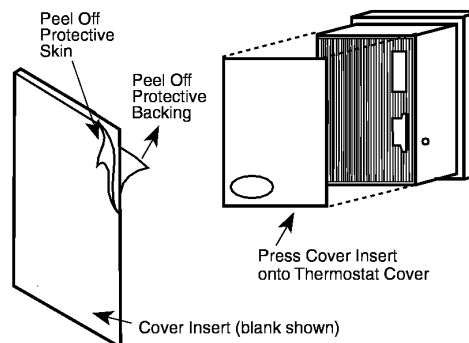


Figure-5 Cover Insert Installation.

Limit Control Dial Range

Dial Stop Pin Insertion

See Figure-6.

1. Remove thermostat cover.
2. Secure the control dial with your hand so that the dial does not rotate.
3. Place a dial stop pin in the jaws of a needle nose pliers.

4. Insert the dial stop pin in the appropriate hole on either (or both) side(s) of the control dial to restrict dial rotation.

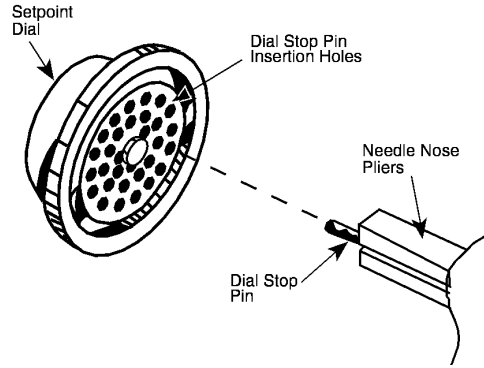


Figure-6 Dial Stop Pin Insertion.

Maintenance

Open areas at bottom and around base of thermostat should be kept clean and free from obstructions to allow proper flow of air. If switch contacts need cleaning, this may be done with a contact burnishing tool (TOOL-13).

Field Repair

These thermostats are not field repairable. Replace the entire device.

Dimensional Data

All dimensions are in inches (millimeters in brackets). See Figure-7.

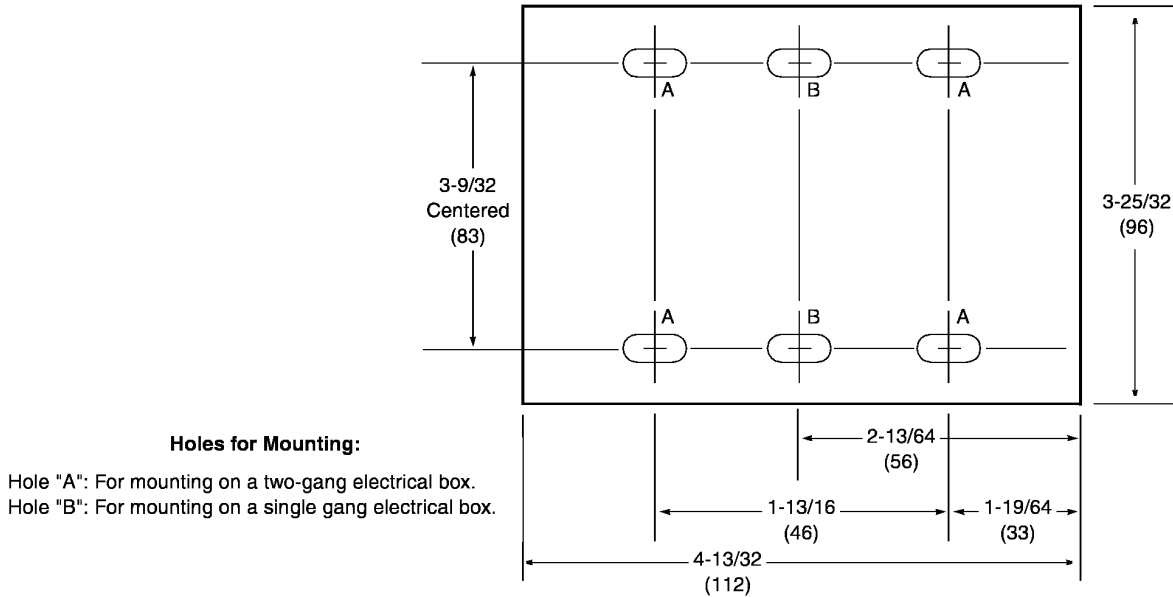


Figure-7 Mounting Ring Dimensions.