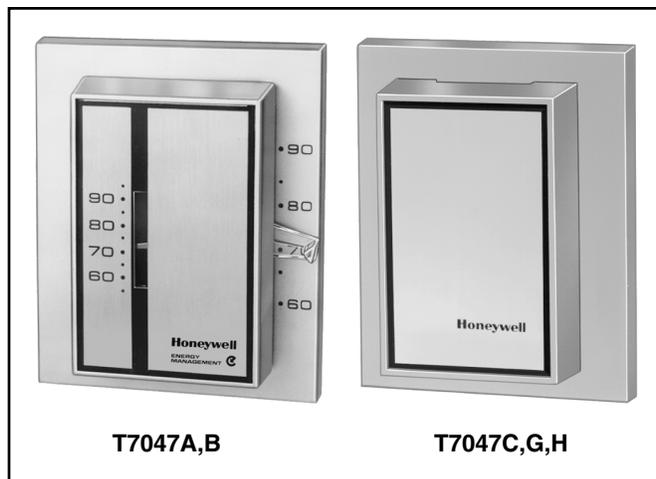


T7047A-C,G,H Electronic Thermostats, Remote Space Sensors

PRODUCT DATA



APPLICATION

The T7047 Electronic Thermostats, Remote Space Sensors are used in Series 70 Control Systems to provide modulating space temperature control.

FEATURES

- T7047A Thermostat is for use in 2-wire electronic systems.
- T7047B is a 3-wire thermostat for use with M7044, M7045 Motors.
- T7047C is a 2-wire remote space sensor for applications requiring remote setpoint adjustment.
- T7047G is a 2-wire remote space sensor used as one-half of an averaging sensor network.
- T7047A-C,G contain a carbon type negative temperature coefficient (NTC) thermistor sensing element.
- T7047H is a thin-film, platinum 1K (at 0°C), positive temperature coefficient (PTC) temperature sensor only and is for use with the Excel 80/100/500/600 Controllers.
- Locking cover.
- Cover thermostat available on most models.

T7047A ONLY

- Setpoint ranges of 60°F to 90°F (16°C to 32°C) and 30°F to 60°F (-1°C to +16°C) available.

T7047A,B ONLY

- Setpoint adjustable from 60°F to 90°F (16°C to 32°C).
- Setpoint adjusted by external lever or concealed setting knob.
- Range stops (on models with setpoint lever) limit adjustment range or lock at selected setpoint.

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SPECIFICATIONS

IMPORTANT

The specifications given in this publication do not include normal manufacturing tolerances. Therefore, this unit may not exactly match the listed specifications. This product is tested and calibrated under closely controlled conditions, and some minor differences in performance can be expected if those conditions are changed.

Models:

- T7047A: 2-wire thermostats for use in 2-wire systems.
- T7047B: 3-wire thermostats for use with M7044, M7045 Motors.
- T7047C: 2-wire remote sensor without internal adjustment means; requires remote setpoint device such as S963B, T7067B, and T7080B.
 - T7047C1009, T7047C1017 2-wire remote sensor for use with control systems such as M7044 and M7045 Motors.
 - T7047C1025 2-wire remote sensor for use with control systems such as the W927, W960, and W973.
 - T7047C1082 2-wire remote sensor for use with T7080B Transmitter in W7080 Multizone Control System.
- T7047G1000: 2-wire remote sensor without internal adjustment means, requires remote setpoint device such as S963B, 7067B or T7080B.
- T7047H: Thin-film, platinum 1K (at 0°C) temperature sensor only, for use with the Excel 80/100/500/600 Controllers.

Temperature Sensor:

Thermistor-resistor element.

Sensor Resistance:

For the following negative temperature coefficient (NTC) devices, resistance decreases as temperature increases (Fig. 16 through 19).

- T7047A: 1715 ohms nominal with control point set at ambient; resistance changes 15 ohms for each 1°F (0.6°C) temperature change.

T7047B: With control point set at ambient, resistance across R-B terminals subtracted from resistance across R-T terminals equals approximately 1700 ohms. Resistance changes 21 ohms for each 1°F (0.6°C) temperature change.

T7047C1009, T7047C1017: 1695 ohms nominal at 75°F (24°C); resistance changes 21 ohms for each 1°F (0.6°C) temperature change.

T7047C1025: 1420 ohms nominal at 75°F (24°C); resistance changes 15 ohms for each 1°F (0.6°C) temperature change.

T7047C1082: 22,800 ohms nominal at 77°F (25°C); resistance changes nominally 800 ohms for each 1°F (0.6°C) temperature change at typical ambient room temperature.

T7047G1000: 710 ohms nominal at 75°F (24°C); resistance changes 7.5 ohms for each 1°F (0.6°C) temperature change.

For the following positive temperature coefficient (PTC) device, resistance increases as temperature increases (Fig. 20).

T7047H1008: 1093 ohms nominal at 75°F (24°C); resistance changes 2 ohms for each 1°F (0.6°C) temperature change.

Setting Range:

T7047A: 60°F to 90°F (16°C to 32°C) or 30°F to 60°F (-1°C to +16°C).

T7047B: 60°F to 90°F (16°C to 32°C).

Setpoint Adjustment:

T7047A,B: Setting knob concealed under cover or external lever with range stops.

T7047C,G: Remote setpoint device such as S963B, T7067B, T7080B.

Cover Thermometer (available on most models):

Element: Bimetal.

Range: 55°F to 95°F (13°C to 35°C).

Mounting:

Mounts on wall or 2 x 4 in. vertical outlet box with screws provided.

ORDERING INFORMATION

When purchasing replacement and modernization products from your TRADELINE® wholesaler or distributor, refer to the TRADELINE® Catalog or price sheets for complete ordering number.

1. Order number.
2. Setting range (T7047A only).
3. Setpoint adjustment means.
4. Accessories, if required.
5. Cover thermometer, if desired.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:

1. Your local Home and Building Control Sales Office (check white pages of your phone directory).
2. Home and Building Control Customer Logistics
Honeywell Inc., 1885 Douglas Drive North
Minneapolis, Minnesota 55422-4386

In Canada—Honeywell Limited/Honeywell Limitée, 35 Dynamic Drive, Scarborough, Ontario M1V 4Z9.

International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.

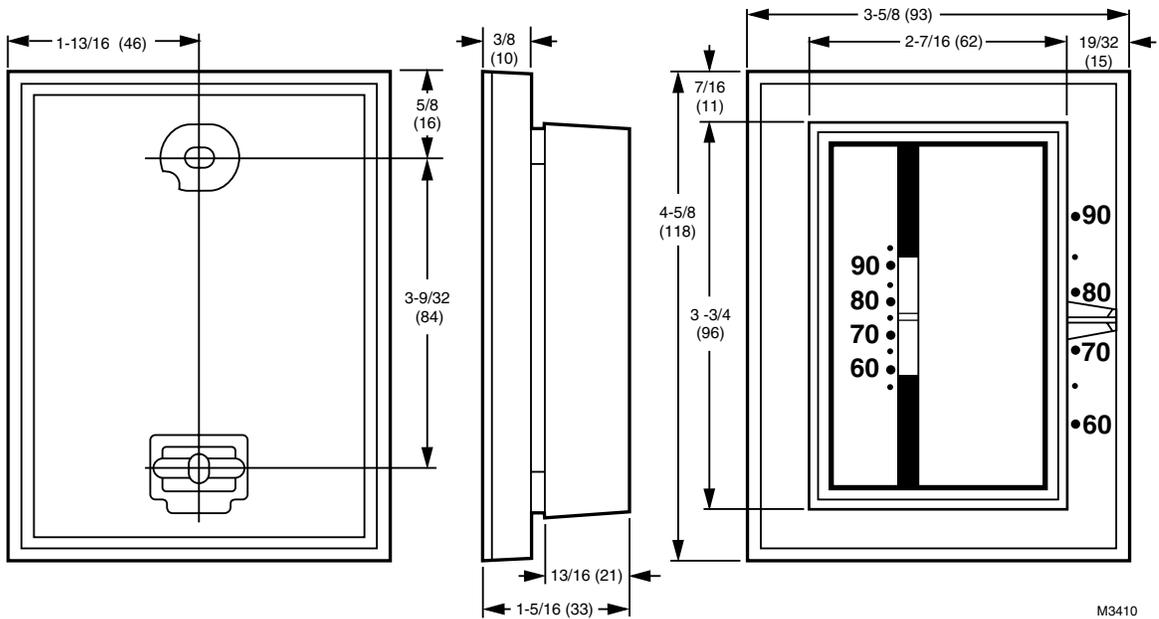


Fig. 1. T7047 dimensions in in. (mm). T7047C,G do not include thermometer and external setting lever.

Dimensions:
See Fig. 1.

Accessories:
 T7047C1009, T7047C1017: 360 ohm S963B1003 Remote Setpoint Potentiometer
 T7047C1025: 480 ohm S963B1037 Remote Setpoint Potentiometer, T7067B Single Zone System Transmitter.
 T7047C1082: T7080B Multizone System Transmitter.

INSTALLATION

When Installing this Product...

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.



CAUTION

Disconnect power supply before beginning installation to prevent electrical shock and equipment damage.

Location

Locate the thermostat or remote sensor about 5 ft (1.5m) above the floor on an inside wall where it will be affected by freely circulating air at average room temperatures.

Mounting

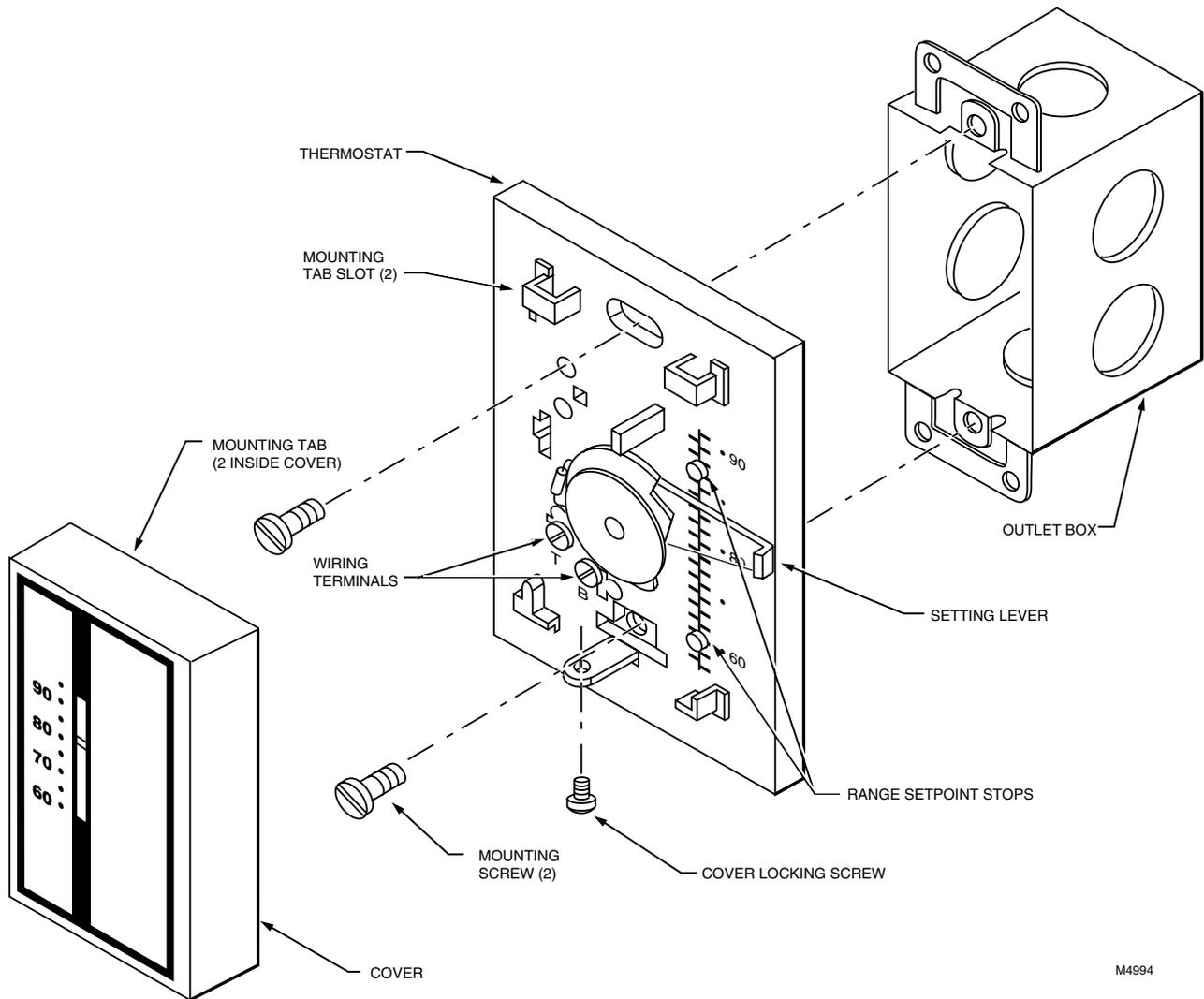
1. Loosen the cover locking screw with the Allen wrench provided and remove the thermostat cover.
2. Run wire to the selected location; thread wire through the semicircular hole in the thermostat; and make connections to the T7047 (see the Wiring section).
3. Four mounting screws are provided, two self-tapping type for wall mounting and two for outlet box mounting. Select the proper screws for the application.
4. If air drafts occur through the wall opening, *eliminate* with suitable material.
5. Fasten the T7047 on the wall or outlet box with screws through the mounting holes in the thermostat. See Fig. 2.
6. On T7047A and T7047B, select the desired setpoint by turning the setting knob or adjusting the setpoint lever.
7. Replace the cover and tighten the cover locking screw.

Wiring

Disconnect power supply before installation to prevent electrical shock and equipment damage. All wiring must comply with local codes and ordinances. Fig. 3 through 15 show schematics and typical connections. Also refer to instructions supplied with other system components.

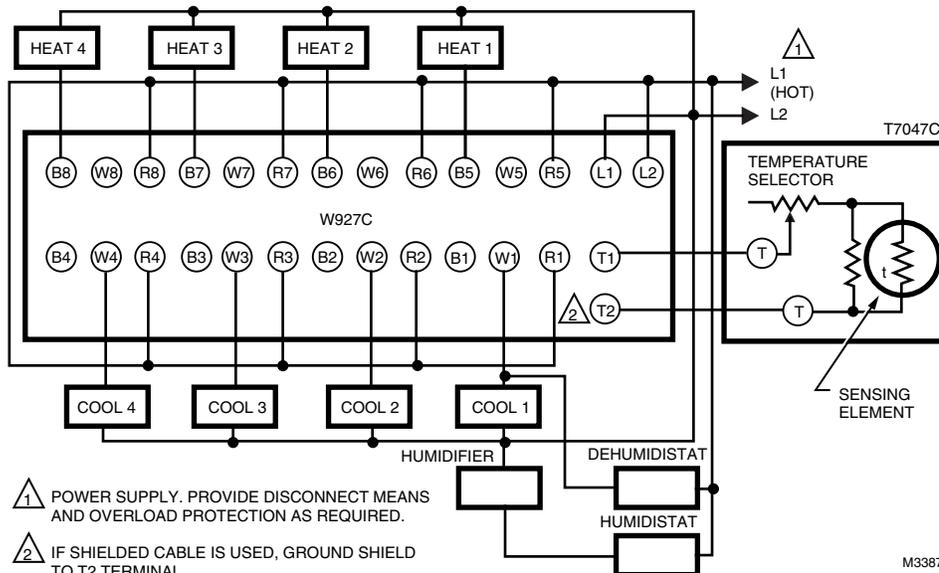
IMPORTANT

To avoid electrical interference, which can cause erratic performance, keep wiring runs as short as possible and do not run thermostat wires adjacent to the line voltage electrical distribution systems. Use shielded cable (Belden type 8762 or equivalent for 2-wire and Belden type 8772 or equivalent for 3-wire). The cable shield must be grounded only at the controlled equipment case.



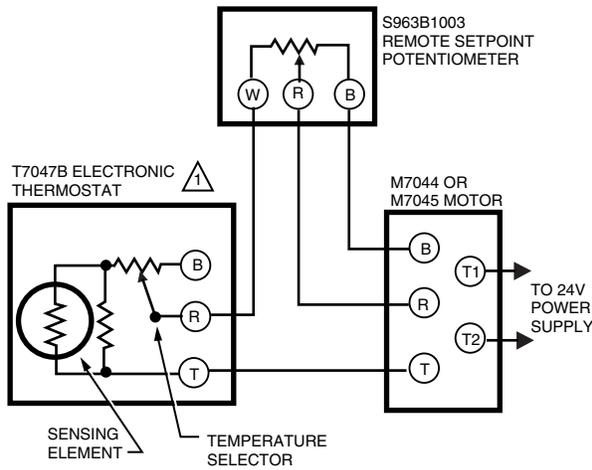
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Fig. 2. Mounting the T7047 (model with external setting lever shown).



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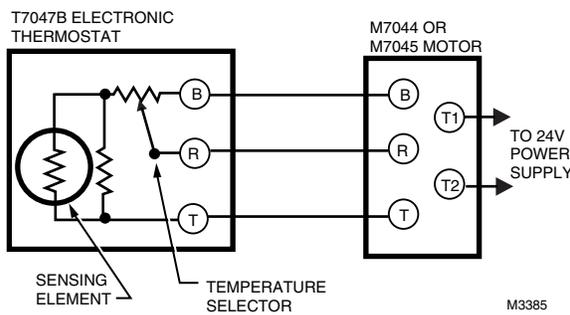
Fig. 3. T7047A internal schematic and connections to W927C Electronic Sequencer in a heating-cooling system.



⚠ SETPOINT ON THE T7047B MUST BE ADJUSTED TO THE LOWEST SETTING FOR PROPERLY CALIBRATED CONTROL FROM THE S963B1003.

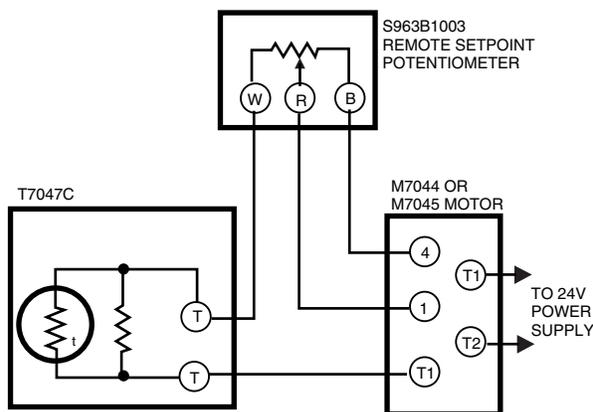
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Fig. 4. T7047B used with S963B Remote Setpoint Potentiometer and M7044 or M7045 Motor.



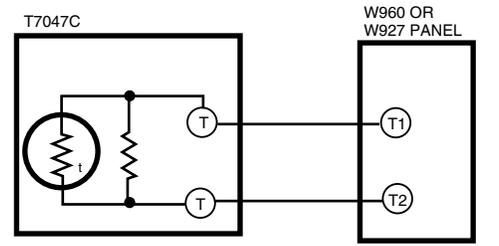
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Fig. 5. T7047B internal schematic and connections to M7044 or M7045 Motor.



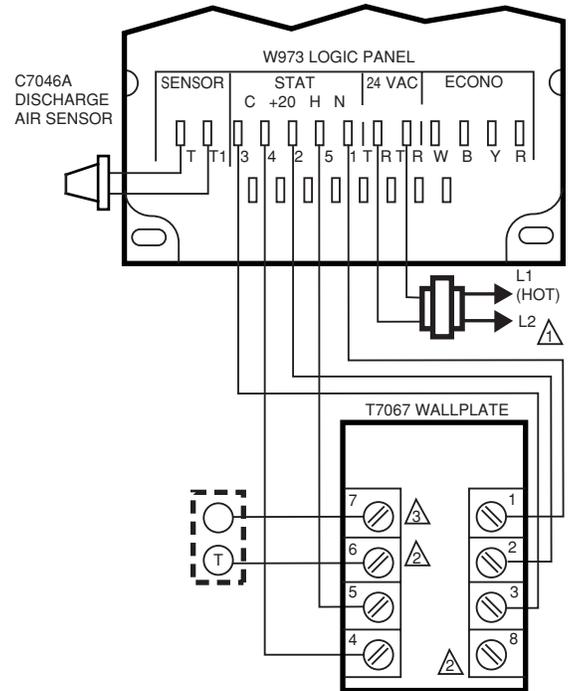
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Fig. 6. Internal schematic and typical connections for T7047C1009 and T7047C1017.



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Fig. 7. T7047C1025 connected to W960 or W927 panel with internal setpoint adjustment.



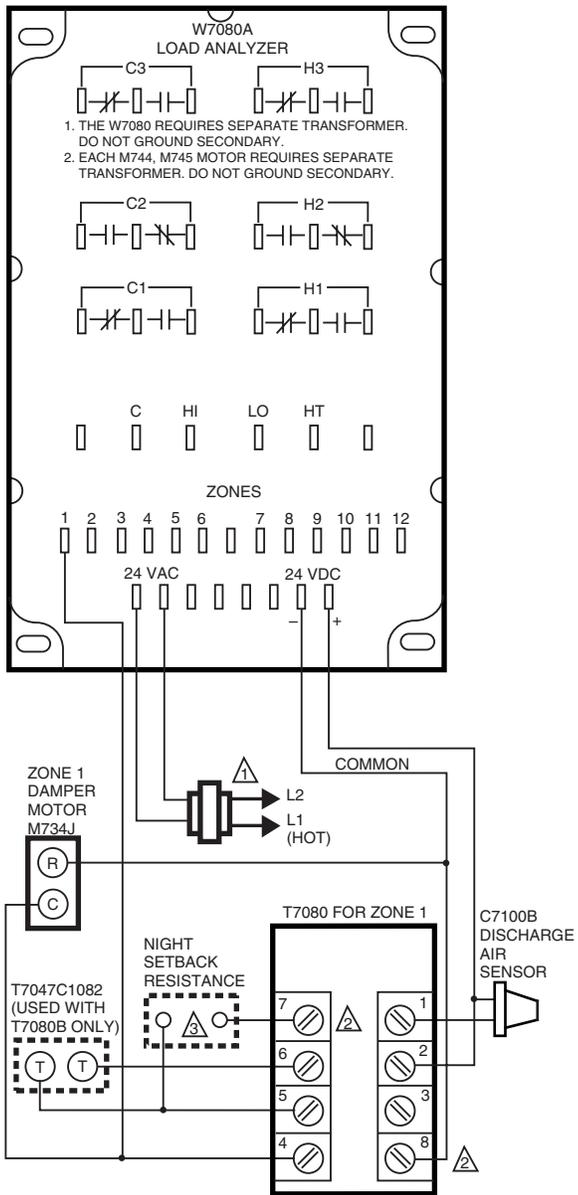
⚠ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

⚠ TERMINAL 8 IS USED WITH THE W974A, B ONLY. TERMINAL 6 IS USED WITH THE W974A, B AND/OR REMOTE SENSING ELEMENT (T7067B ONLY).

⚠ TERMINALS 6 AND 7 ARE USED TO CONNECT THE REMOTE SENSING ELEMENT TO THE T7067B ONLY. NO SCREW IS PROVIDED WITH THE T7067A FOR TERMINAL 7. DOTTED LINES SHOW REMOTE SENSING ELEMENT CONNECTIONS.

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Fig. 8. T7047C1025 used as a remote sensor with T7067B Thermostat.



- ⚠ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- ⚠ TERMINALS 3, 7 AND 8 ARE ALL EQUIVALENT COMMON TERMINALS.
- ⚠ RESISTOR AND TIME SWITCH IN SERIES BETWEEN TERMINALS 5-7. SEE FIG. 6, PAGE 5.

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Fig. 9. T7047C1082 used as a remote sensor with T7080B Thermostat.

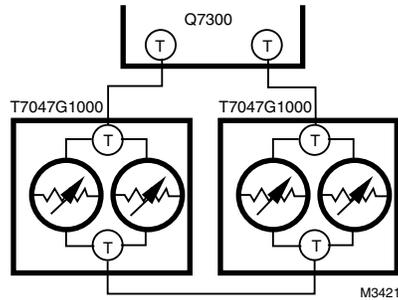


Fig. 10. Two T7047G1000 Sensors providing a temperature-averaging network for a T7300/Q7300 Thermostat/Subbase.

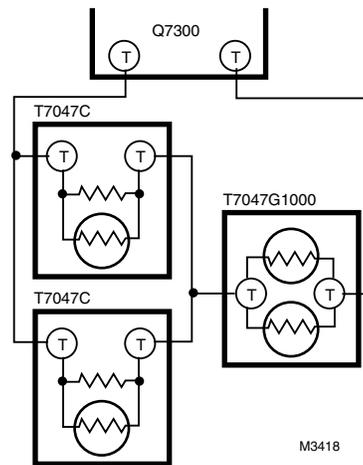


Fig. 11. Two T7047C1025 Sensors and one T7047G1000 Sensor providing a temperature-averaging network for a T7300/Q7300 Thermostat/Subbase.

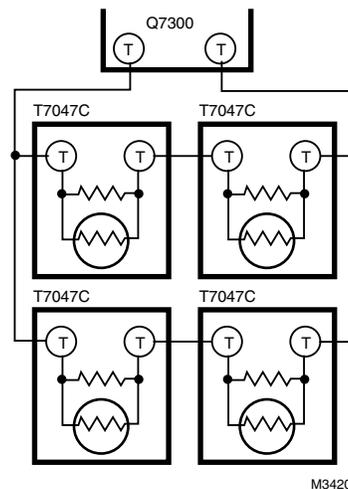


Fig. 12. Four T7047C1025 Sensors providing a temperature-averaging network for a T7300/Q7300 Thermostat/Subbase.

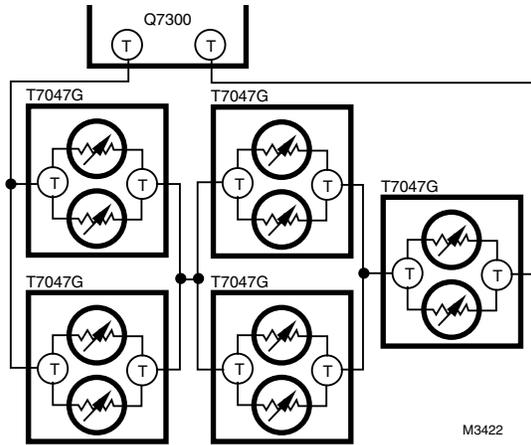


Fig. 13. Five T7047G1000 Sensors providing a temperature-averaging network for a T7300/Q7300 Thermostat/Subbase.

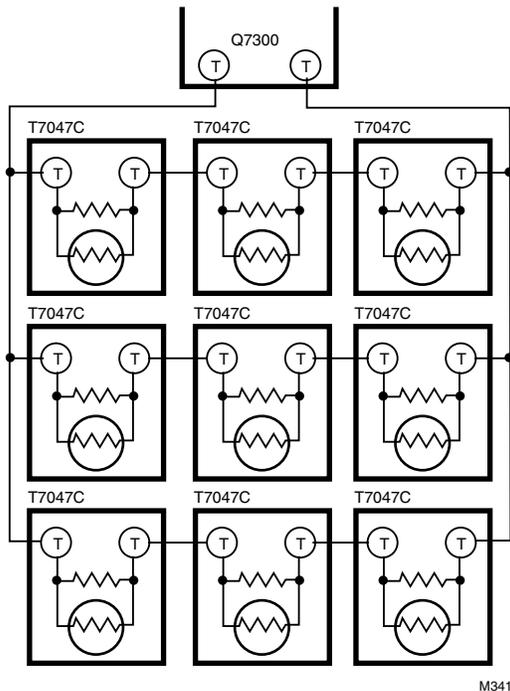


Fig. 14. Nine T7047C1025 Sensors providing a temperature-averaging network for a T7300/Q7300 Thermostat/Subbase.

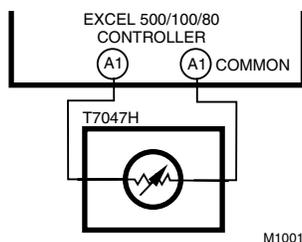


Fig. 15. Typical T7047H1008 to Excel 80/100/500/600 Controller wiring.

OPERATION AND CHECKOUT

Operation

The T7047A-C,G Thermostat or remote sensor control element is a negative temperature coefficient (NTC) thermistor. As the room temperature increases, the resistance of the thermistor decreases.

The T7047H Thermostat or remote sensor control element is a positive temperature coefficient (PTC) thermistor. As the room temperature increases, the resistance of the thermistor increases.

The change in the thermistor resistance causes the motor, system logic panel or system transmitter bridge circuit to become unbalanced. As the electronic motor, system logic panel or system transmitter circuits react to rebalance the circuit, damper or valve movement, or sequential staging of heating and/or cooling equipment occurs.

Low Range Thermostat

Use caution when setting temperatures below 40°F (5°C). Low temperature setpoints could result in temperatures below freezing in areas remote from the thermostat or remote sensor.

Calibration

The T7047 Electronic Thermostat or Remote Space Sensor is accurately calibrated at the factory. It cannot be field calibrated.

Range Stop Adjustment

On models with external setting lever, select the desired control point and then adjust the range stops by moving and inserting the stops at the desired temperature range setpoints (Fig. 2).

Checkout

Allow the T7047 Thermostat or Remote Space Sensor to stabilize to ambient conditions before taking a resistance measurement. Measure nominal resistance according to the values described in the Specifications section. Measure the T7047C Remote Space Sensor resistance in accordance with the temperature curves. See Fig. 16 through 20.

Check operation of the complete control systems as directed in the associated technical publications.

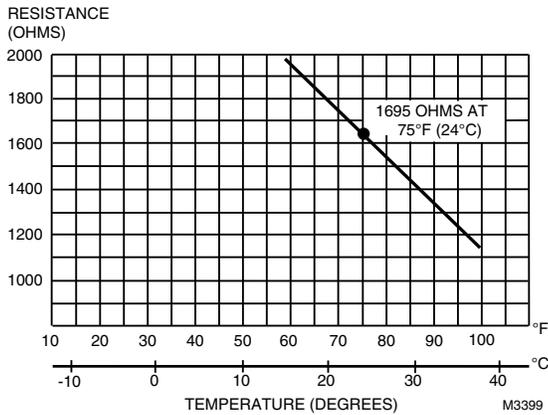


Fig. 16. T7047C1009/T7047C1017 Remote Sensor resistance change with change in temperature.

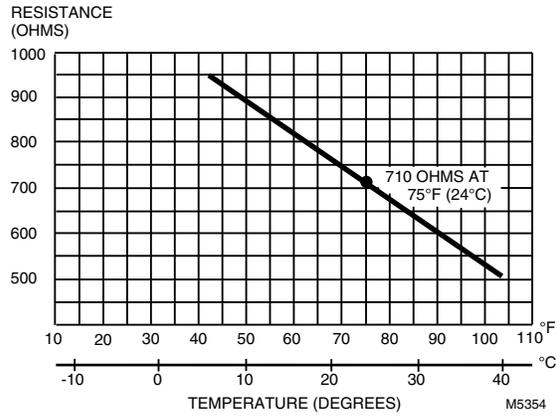


Fig. 19. T7047G1000 Remote Sensor resistance change with change in temperature.

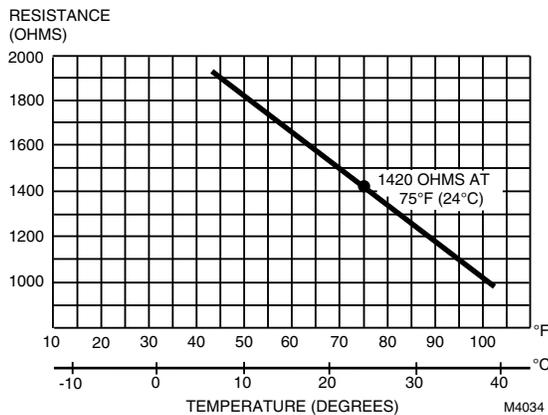


Fig. 17. T7047C1025 Remote Sensor resistance change with change in temperature.

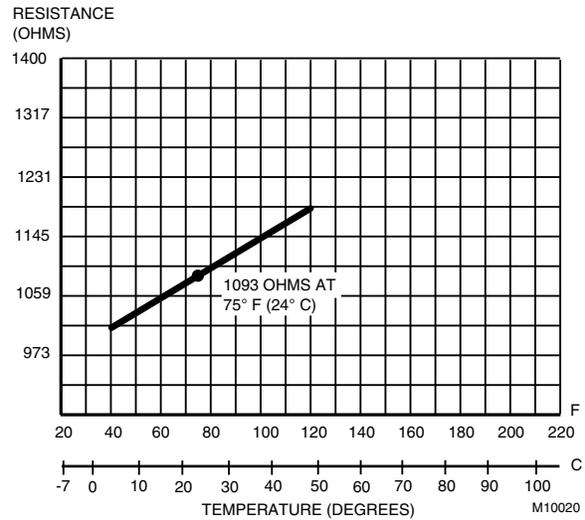


Fig. 20. T7047H1008 Remote Sensor resistance change with change in temperature

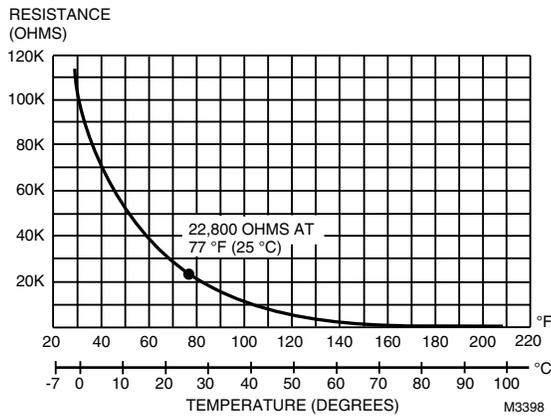


Fig. 18. T7047C1082 Remote Sensor resistance change with change in temperature.

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