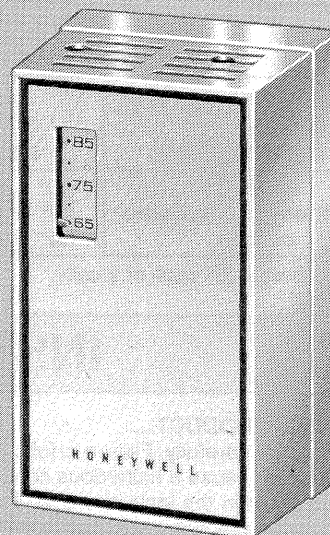


Honeywell

PROPORTIONAL CONTROL THERMOSTAT

T92E THERMOSTAT ARE 3-WIRE, LOW VOLTAGE PROPORTIONAL CONTROLLERS FOR VALVE MOTORS, DAMPER MOTORS, AND BALANCING RELAYS USED IN HEATING OR COOLING SYSTEM APPLICATIONS.

- ☐ Bellows element adjusts 2 potentiometers to proportion to temperature changes to control 2 motors in unison or in sequence.
- ☐ Locking type formed metal cover, cover guard available.
- ☐ Removable setting knob impedes unauthorized tampering with set point.
- ☐ Adjustable proportioning ranges.
- ☐ Interchangeable scaleplate included for conversion to Celsius range.



T92E

SPECIFICATIONS

MODEL:

T92E—Controls minimum room temperature; 2 potentiometers for controlling 2 modulating motors in unison or in sequence; adjustable proportioning range. Includes scaleplate for conversion to Celsius readings.

OPERATING BELLOWS: Vapor-filled.

ELECTRICAL RATING: 24 to 30 Vac.

CALIBRATION POINT: Approximately 3°F [2° C] below set point to offset internal heat from operation.

ADJUSTMENT MEANS: Removable knob.

POTENTIOMETER RESISTANCE: 135 ohms.

COVER: Locking type—formed metal case.

FINISH: Silver bronze.

MOUNTING MEANS: Furnished screws fasten through three mounting holes to wall or to adapter plate for outlet box mounting.

DIMENSIONS: See Fig. 1.

ACCESSORIES:

- 23394B Thermostat Guard
- 106033A Mounting Plate Assembly—for mounting the 23394B Guard on an outlet box.

REPLACEMENT PARTS:

- 130224 Set point knob.

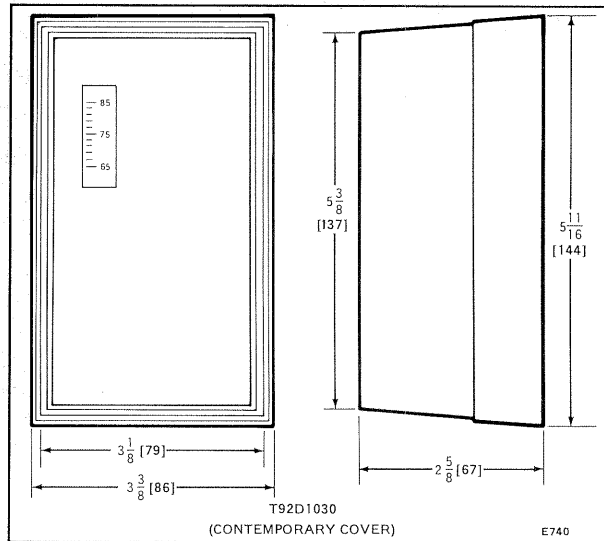


FIG. 1—APPROXIMATE DIMENSIONS IN in. [mm IN BRACKETS] OF T92E.

TABLE 1—T92 SPECIFICATIONS.

MODEL NUMBER	POTENTIOMETERS	SCALE RANGE	PROPORTIONING RANGE ^a (degrees F or C, depending on scale)			
			ADJUSTABLE	LOW	MIDSCALE	HIGH
T92E	2 (for unison or sequence control)	63° F to 87° F 17° C to 30° C (62° F to 86° F)	yes	1-1/2 to 6-1/2	—	—
			yes	1 to 3-1/2	—	—

^aProportioning range shown is for each of 2 coils.

INSTALLATION

WHEN INSTALLING THIS PRODUCT...

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

CAUTION

Disconnect power supply before beginning installation to avoid electrical shock or equipment damage.

LOCATION

Locate the thermostat about 5 ft. [1.5 m] above the floor in an area with good air circulation at average temperature.

(continued on page 3)

ORDERING INFORMATION

WHEN PURCHASING REPLACEMENT AND MODERNIZATION PRODUCTS FROM YOUR TRADELINE WHOLE-SALER OR YOUR DISTRIBUTOR, REFER TO THE TRADELINE CATALOG OR PRICE SHEETS FOR COMPLETE ORDERING NUMBER, OR SPECIFY—

- Order number (include suffix letter).
- Scale range.
- Accessories, if desired.

IF YOU HAVE ADDITIONAL QUESTIONS, NEED FURTHER INFORMATION, OR WOULD LIKE TO COMMENT ON OUR PRODUCTS OR SERVICES, PLEASE WRITE OR PHONE:

- YOUR LOCAL HONEYWELL RESIDENTIAL AND BUILDING CONTROLS SALES OFFICE (CHECK WHITE PAGES OF PHONE DIRECTORY).
- RESIDENTIAL AND BUILDING CONTROLS CUSTOMER SATISFACTION
HONEYWELL INC., 1885 DOUGLAS DRIVE NORTH
MINNEAPOLIS, MINNESOTA 55422-4386 (612) 542-7500
(IN CANADA—HONEYWELL LIMITED/HONEYWELL LIMITEE, 740 ELLESMERE ROAD, SCARBOROUGH, ONTARIO M1P 2V9) INTERNATIONAL SALES AND SERVICE OFFICES IN ALL PRINCIPAL CITIES OF THE WORLD.

- Do not mount the thermostat where it may be affected by—
- drafts, or dead spots behind doors and in corners.
 - hot or cold air from ducts.
 - radiant heat from the sun or appliances.
 - concealed pipes and chimneys.
 - unheated (uncooled) areas behind the thermostat

MOUNTING

Mount the thermostat as follows (refer to Fig. 2).

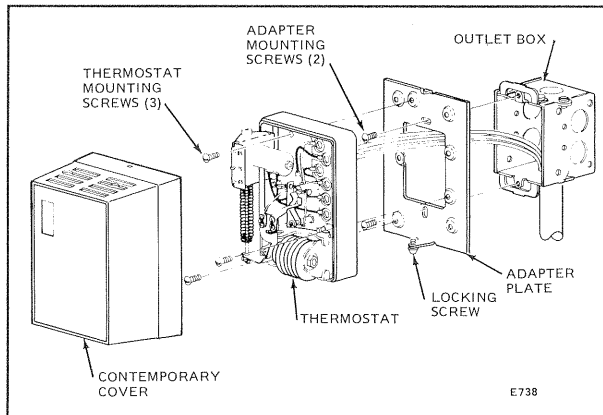


FIG. 2—MOUNTING T92 ON OUTLET BOX.

1. Remove the thermostat cover. Loosen the locking screw at the bottom of the case with the removable temperature setting adjustment knob (packed in envelope). Pull out on bottom of cover and lift off.
2. Remove the thermostat mounting screws (3) and remove the adapter plate.
3. Fasten the adapter plate to the outlet box. Use the 2 screws packed in the envelope.

NOTE: Level the adapter plate for accurate performance.

4. Connect the wiring. Make all electrical connections to the terminals on the back of the thermostat before mounting the instrument. Refer to the following Wiring section.
5. Mount the thermostat. Fasten the thermostat to the adapter plate with the 3 screws supplied.
6. After performing checkout tests, replace the cover. Tighten the locking screw.
7. Push the adjustment knob into place in its socket at the top of the thermostat (Fig. 5); it may be necessary to squeeze the knob shaft slightly with pliers.

WIRING

Disconnect power supply before making wiring connections to avoid possible electrical shock or equipment damage. All wiring must comply with local codes and ordinances.

Make all electrical connections to the proper terminals on the back of the thermostat before mounting the instrument. Internal schematic diagram is shown in Fig. 3; Fig. 4 shows a typical hookup.

If the motor or relay is to control system operation on a temperature drop (heating application), wire the thermostat color-to-color with the motor or relay. If the reverse action is desired (cooling application), reverse the wires at terminals B and W on motor or relay. Refer to the instructions supplied with the controlled device.

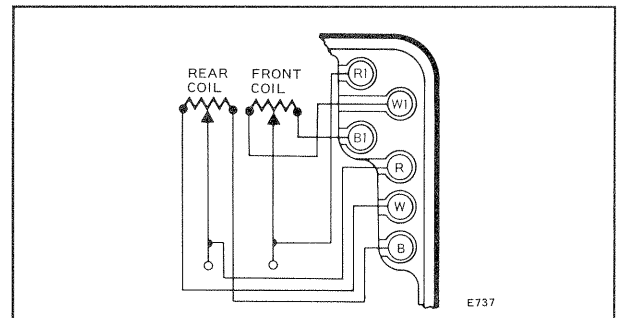


FIG. 3—T92E INTERNAL SCHEMATIC DIAGRAM.

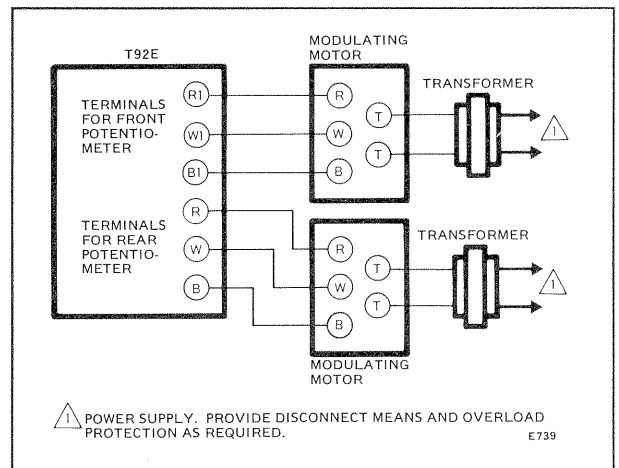


FIG. 4—TYPICAL T92E HOOKUP CONTROLLING 2 MODULATING MOTORS IN UNISON. WHEN THE THERMOSTAT IS ADJUSTED TO SEQUENCE THE MOTORS, THE MOTOR CONNECTED TO THE REAR POTENTIOMETER (terminals R,B,W) REACTS TO A TEMPERATURE RISE BEFORE THE MOTOR CONNECTED TO THE FRONT POTENTIOMETER (terminals R¹, B¹, W¹).

SETTINGS AND ADJUSTMENTS

TEMPERATURE SETTING

The thermostat is adjusted by turning the temperature setting adjustment knob at the top of the cover (Fig. 5).

The temperature setting indicator (see Fig. 5) is shipped at the low end of the proportioning range. Turn the setting knob so the indicator is at the desired minimum room temperature.

IMPORTANT

The T92 set point is always approximately 3° F [2° C] above calibration point in order to offset internal heat of T92 during operation. Therefore, wait at least 1 hour before checking thermostat operation.

PROPORTIONING RANGE SETTING—T92E

The proportioning range scaleplate is divided into 5 parts, labeled MIN, A, B, C, and D (Fig. 6). The minimum proportioning range applies when the indicator is at MIN; the maximum proportioning range applies with the indicator set at D.

The value of a single division on the proportioning range scaleplate varies according to the temperature setting. It is greatest when the temperature setting is at the low end of the set point scale and it is smallest when the set point is at the high end of the scale. Allow for this variation when making the trial setting of the proportioning range. See Table 2 for the approximate values per division.

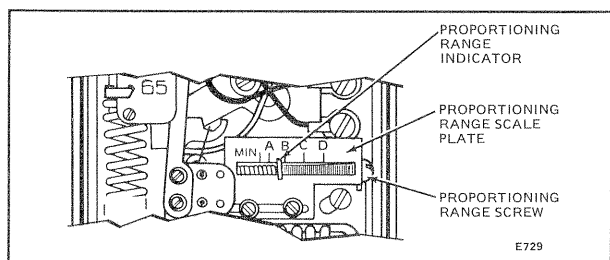


FIG. 6—T92E PROPORTIONING RANGE ADJUSTMENT.

TABLE 2—PROPORTIONING RANGE SCALES.

MODEL RANGE	VALUE IN DEGREES, EACH INTERVAL, PROPORTIONAL SCALE RANGE	TEMPERATURE SETTING
T92E 63° F - 87° F 17° C - 30° C	1.25° F 0.50° C	low
		low

IMPORTANT

Always make a test run after setting the proportional range. Readjust the setting if necessary. Too narrow a proportioning range may make the system unstable. A wide proportioning range will make the system more stable, but it also increases the offset (the control point rises at very light loads and drops at very heavy loads).

SEQUENCE ADJUSTMENT—T92E

The T92E is factory set for unison operation. The slider contact-finger of the front potentiometer can be adjusted to lag behind the slider contact-finger of the rear potentiometer as the temperature rises. If one motor is to lag behind the other, set the sequence adjustment screw as described below (see Fig. 5). The right wiper (slider contact-finger) of the front potentiometer (top coil) can be adjusted to lag behind the left wiper (slider contact-finger) of the rear potentiometer (bottom coil) as the temperature rises. To sequence motors, turn the sequence adjustment screw (refer to Fig. 5) 90 to 180 degrees counterclockwise depending on the amount of lag desired between motors.

The proportioning range affects the slider's rate of travel. With the proportioning range scale set at MIN, the deadband is approximately 1° F [0.5° C]; with the proportioning range set at D, the deadband is about 4° F [3° C].

NOTE: When the thermostat is adjusted for sequential control, the motor controlled by the rear potentiometer (terminals R,B,W) reacts to a temperature rise before the motor controlled by the front potentiometer (terminals R', B',

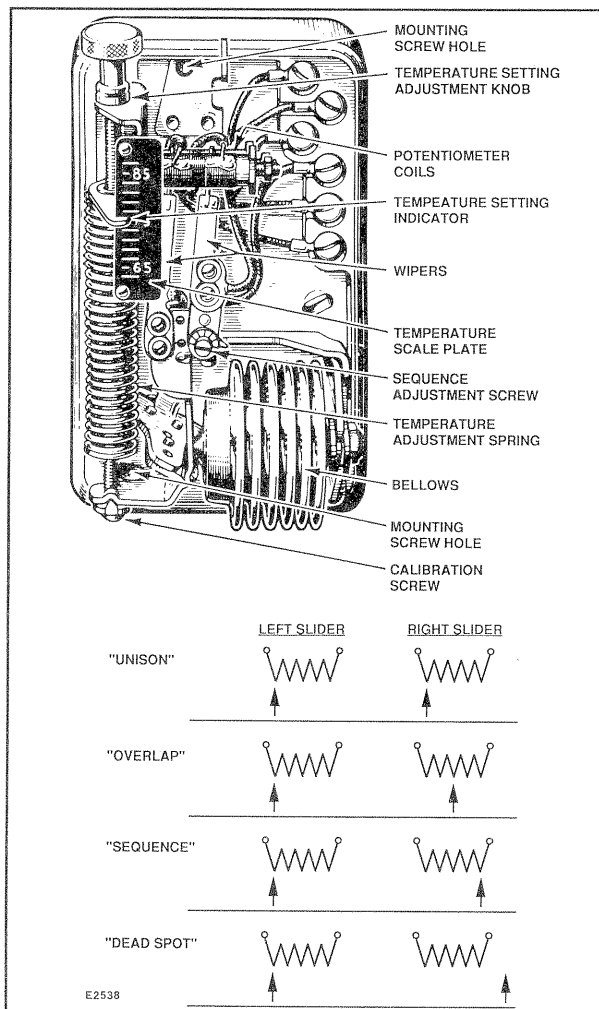


FIG. 5—INTERNAL VIEW OF T92E (with potentiometer cover removed).

OPERATION AND CHECKOUT

OPERATION

In the T82, a vapor-filled bellows expands or contracts in proportion to temperature changes (within the proportioning range listed in Table 1 under SPECIFICATIONS), moving the potentiometer wiper in a corresponding direction. Proportioning range of the T92E are adjustable. As the wiper moves, the appropriate motor winding is energized, opening or closing the valve or damper to compensate for the temperature change in the controlled area. The T92E can be used to control 2 modulating motors in unison or in sequence.

CHECKOUT

IMPORTANT

Internal heat from operation offsets the thermostat calibration and the reading of the cover thermostat by approximately 3° F [2° C]. Therefore, allow at least 1 hour of operation with the cover on before checking the T92.

After the thermostat has been wired and mounted, check to be sure the thermostat and controlled equipment are functioning properly.

1. Move the temperature setting indicator a few degrees *below* room temperature by turning the temperature setting adjustment knob (Fig. 5). In a heating application, the valve or damper should be driven closed to cut off heating; for cooling, it should be driven open. If the valve or damper is driven in the opposite direction, interchange the wires at the B and W terminals on the motor.

2. Move the set point a few degrees *above* room temperature. In a heating application, the valve or damper should be driven open to allow heating; for cooling, it should be driven closed.

3. If the valve or damper responds properly to the thermostat, move the set point to the desired temperature. The setting knob may be removed from the thermostat to impede unauthorized change in setting.

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