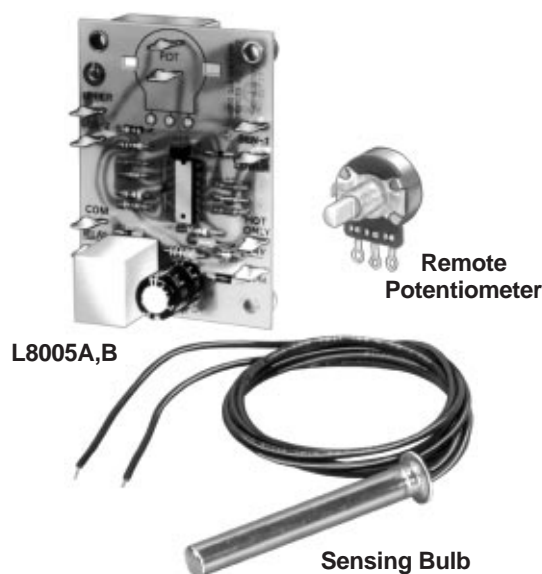


L8005A,B; LS8005A,C,D Electronic Pool and Spa Controllers

The L8005A,B and LS8005A,C,D Electronic Pool and Spa Controllers are used in pool, spa, and hot tub applications to control water temperature.



- Low-voltage control module requires 24 Vac power supply.
- Includes electronic control module, thermistor sensor, and setpoint potentiometer.
- Controls within 1.5°F (0.8°C) at setpoint of 106°F (41°C).
- Models available for single control or dual control of combination pool and spa.
- Isolated relay contacts in electronic control module operate gas control or ignition module.
- 1/4 inch male quick-connect wiring terminals provided on electronic control module.

- Protection for thermistor sensor assembly imbedding in copper bulb that can be immersion-well mounted or direct immersion mounted with suitable seal.
- 42 inch (107 cm) leadwires sensor with 1/4 inch female quick connects.
- Setpoint potentiometer can be remotely mounted.
- Monitoring light (LED) flashes each time temperature is sampled.

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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. Also, 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:

L8005A,B and LS8005A,C,D Electronic Pool, Spa and Hot Tub Controllers provide single or dual water temperature control in pool, spa, or hot tub application. Include electronic control module, remote thermistor sensor and one or two remote setpoint potentiometers.

L8005A; LS8005A,C,D: Single remote control setpoint potentiometer.

L8005B: Two remote setpoint potentiometers.

Potentiometers can be provided with clockwise or counterclockwise rotation (specify).

ELECTRICAL RATINGS:

Power Supply: 24 Vac, 50/60 Hz.

Relay Contacts:

Inductive: 2A full load, 10A locked rotor.

Resistive: 2A.

TEMPERATURE SETTING RANGE:

60° to 106°F (16° to 41°C).

SETPPOINT ADJUSTMENT:

10K ohm, one turn potentiometer.

SETPPOINT ACCURACY:

±1.5°F (0.8°C) at 106°F (41°C).

AMBIENT TEMPERATURE RANGE AT MODULE:

-40° to +150°F (-40° to +66°C).

DIFFERENTIAL: Not field adjustable.

0.5°F (0.3°C) maximum at 106°F (41°C), subtractive.

SENSOR:

Thermistor sensor is protected by imbedding it in a copper bulb. Includes 42 in. (107 cm) leadwires with 1/4 in. female quick connects.

MOUNTING:

Electronic Control Module: Mounts on panel with four no. 6 or no. 8 screws (obtained locally) through stand-offs attached to module. Can be mounted in locations that reach up to 95 percent relative humidity, but avoid locations where water may drip on module.

Sensing Bulb: Can be mounted in immersion well or directly immersed if properly sealed to prevent leakage. Well or seal is heater manufacturer supplied.

Setpoint Potentiometer: Mounts through panel with nut on threaded shaft.

APPROVALS:

Underwriters Laboratories Inc. Component Recognized: File No. E4436, Guide No. XAPX2.


American Gas Association Certified: Report No. 7022A.

Canadian Gas Association: Report No. 1029-CC/T-6849.

DIMENSIONS: See Fig. 1.

REPLACEMENT PARTS:

Part no. 198799A Sensor in copper bulb. Has 42 in. (107 cm) leads.

Part no. 198789 Setpoint Potentiometer (maximum temperature at fully clockwise  rotation).

Part no. 199053 Setpoint Potentiometer (maximum temperature at fully counterclockwise  rotation).

Part no. 220385A Electronic Control Module.

Ordering Information

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

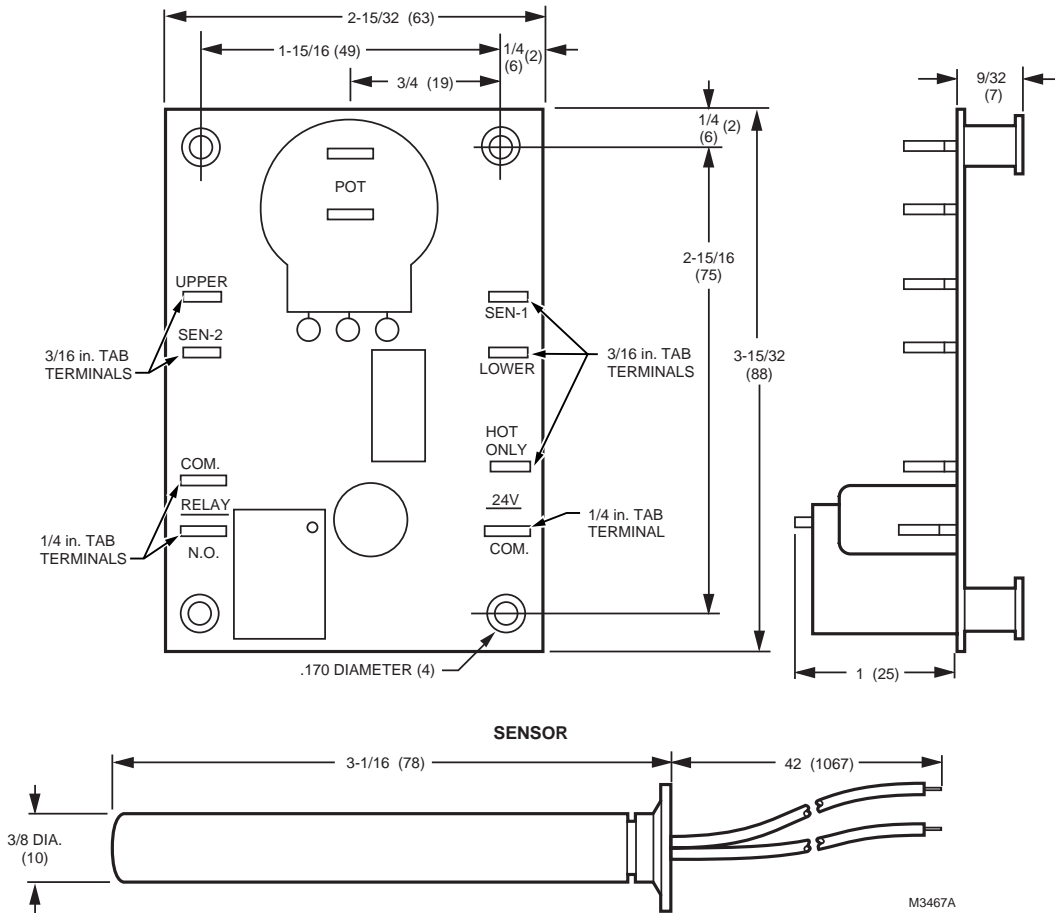
1. Order number.
2. Replacement parts, if required.

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 Honeywell Home and Building Control Sales Office (check white pages of phone directory).
2. Home and Building Control Customer Logistics
Honeywell Inc., 1885 Douglas Drive North
Minneapolis, Minnesota 55422-4386 (612) 951-1000

In Canada—Honeywell Limited/Honeywell Limitée, 740 Ellesmere Road, Scarborough, Ontario M1P 2V9. 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—Dimensions in in. (mm) with sensing bulb.



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 one 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.



WARNING

**EXPLOSION HAZARD.
CAN CAUSE PROPERTY DAMAGE,
SEVERE INJURY OR DEATH.**

This product is for use only in a system with a pressure relief valve.



CAUTION

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



CAUTION

BURN HAZARD

Can cause severe personal injury.

Always use a separate high limit temperature control to prevent possible overheating of pool or spa water.

IMPORTANT: Sensor leadwires can be damaged by bending or pulling when exposed to below-freezing temperatures. Install only when temperature is above 32°F (0°C).

LOCATION AND MOUNTING
Sensor

Locate the sensor in the return water header of the heater at a point where average pool, spa, or hot tub water temperature can be measured. Install the sensor in an immersion well or directly immersed.

If an immersion well is used, fit the bulb snugly touching the bottom of the well for best temperature response. Use heat-conductive compound (available from Honeywell in a four ounce can as part no. 107408). Make sure the bulb is held firmly in the well.

If the bulb is directly immersed, use a 3/8 x 1/2 inch compression to MIP coupling or O-ring and clamp to prevent leaks and keep the sensor leadwires dry.

Wells and fittings must be supplied by the heater manufacturer.

Electronic Control Module

Locate the electronic control module on a wall or panel in the heater wiring compartment. Be sure the module is within easy reach of the sensor leadwires. Choose a location where the module is not exposed to water. Although not required, an enclosure helps to protect the module. Mount the module with four no. 6 or 8 screws through the corner standoffs.

Setpoint Potentiometer

Mount the setpoint potentiometer in any convenient location for reading and changing the temperature setting. Mount from the back of a panel through a 3/8 inch hole and secure with a nut on the threaded shaft.

WIRING



CAUTION

BURN HAZARD

Can cause severe personal injury.

Always use with a separate high limit temperature control to prevent possible overheating of pool or spa water.

IMPORTANT: For maximum troublefree operation, run the sensor leadwires separately from any other current-carrying wires.

Be sure all wiring complies with local codes and ordinances. Disconnect power supply before beginning wiring. Wire according to instructions provided by heater manufacturer, or connect as shown in Fig. 2 through 5.

Fig. 2—Wired to gas control to control water temperature in a pool, spa, or hot tub.

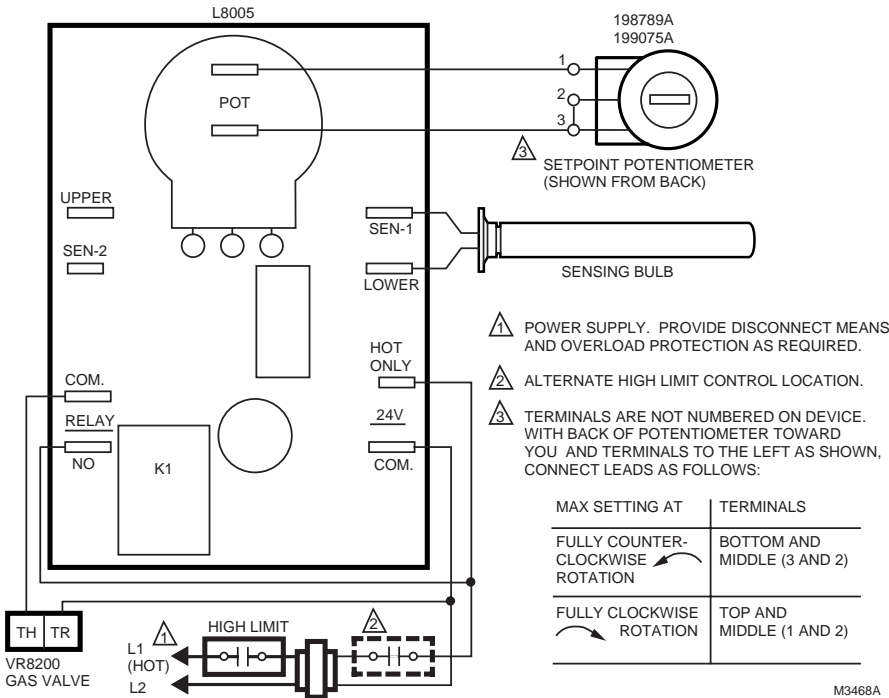


Fig. 3—Wired to ignition module to control water temperature in pool, spa, or hot tub.

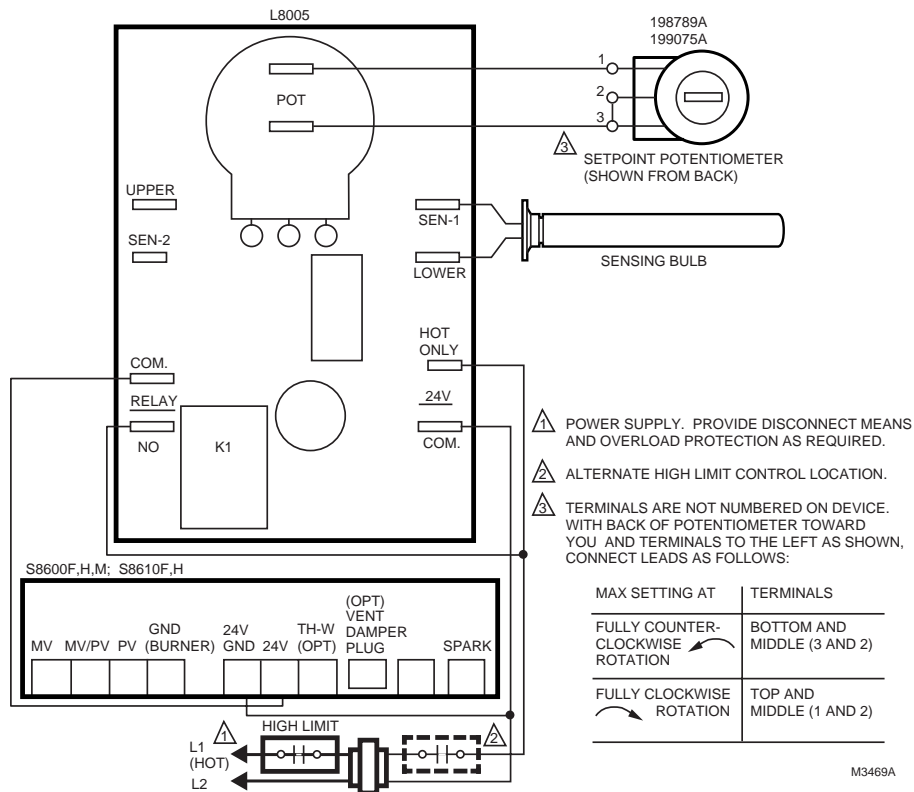


Fig. 4—Dual model wired to ignition module to control water temperature in both pool and spa.

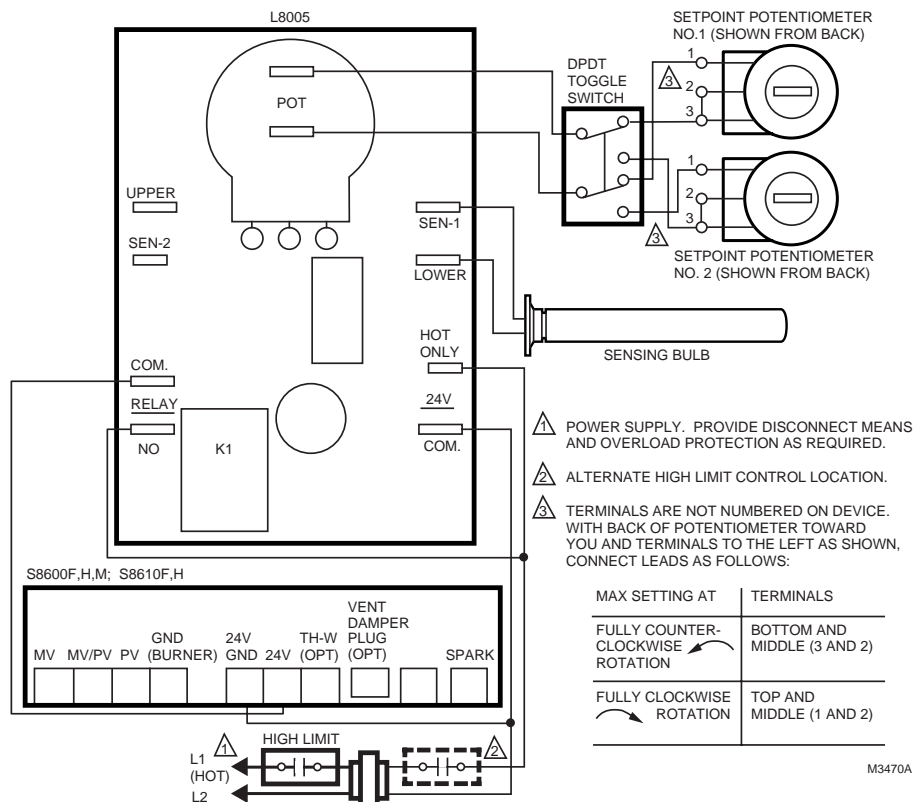
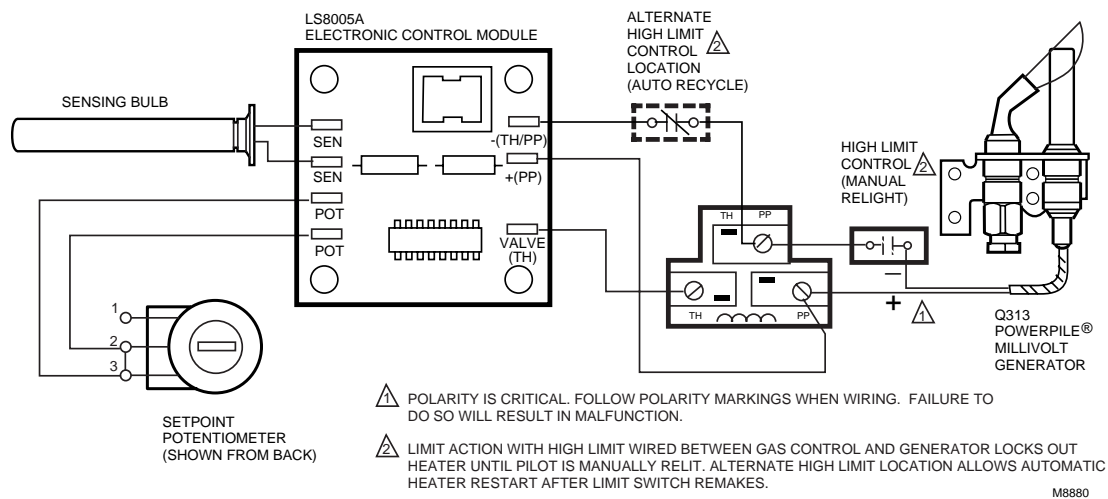


Fig. 5—Typical wiring connections for a high limit control used with LS8005.



Setting and Checkout

SELECT CONTROL TEMPERATURE

The control temperature is set by turning the setpoint potentiometer. The limit of counterclockwise rotation with the shaft toward you can represent either the minimum (60°F [16°C]) or the maximum (106°F [41°C]) setting. Turning the potentiometer through its full rotation moves the setting to the other limit. See Fig. 6 for a setting guide.

To establish exact settings, disconnect the potentiometer from the module, then read the potentiometer resistance with an ohmmeter and check Table 2 to determine the matching temperature setting. Then reconnect the potentiometer leads.

CHECKOUT

Check out the system by observing it through at least one complete cycle, making sure it operates as desired.

Check the thermistor sensor by comparing its resistance to the temperature as measured by an accurate thermometer. The resistance of the thermistor sensor increases as its temperature drops. Table 3 shows the correct sensor resistance at various temperatures.

Fig. 6—Divide potentiometer rotation into segments to determine the setpoint. A line through the center of the shaft perpendicular to the flat is used as a reference.

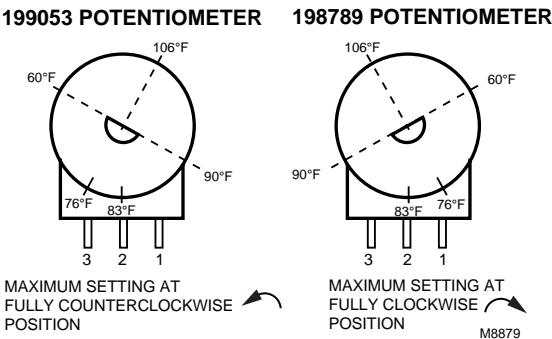


TABLE 2—RELATIONSHIP OF POTENTIOMETER RESISTANCE AND TEMPERATURE SETTING.

Potentiometer Resistance (in ohms)	10000	8400	6800	5400	4200	3100	2200	1400	720	0
Temperature Setting °F	60	65	70	75	80	85	90	95	100	106
Temperature Setting °C	16	18	21	24	27	29	32	35	38	41

TABLE 3—SENSOR RESISTANCE AT VARIOUS TEMPERATURES.

Temperature (°F)	61	68	70	77	86	88	95	104	106
Temperature (°C)	16	20	21	25	30	31	35	40	41
Resistance (K ohm)	14.92	12.49	11.88	10.00	8.06	7.69	6.53	5.33	5.10

Operation

The L8005 and LS8005 consist of a thermistor sensor assembly, a potentiometer, and an electronic control module.

Relay contacts in the module close to turn on the gas control or ignition module when the temperature at the sensor drops 1°F (0.5°C) below the setpoint. When the

temperature rises to the setpoint, relay contacts open, turning off the gas control or ignition module.

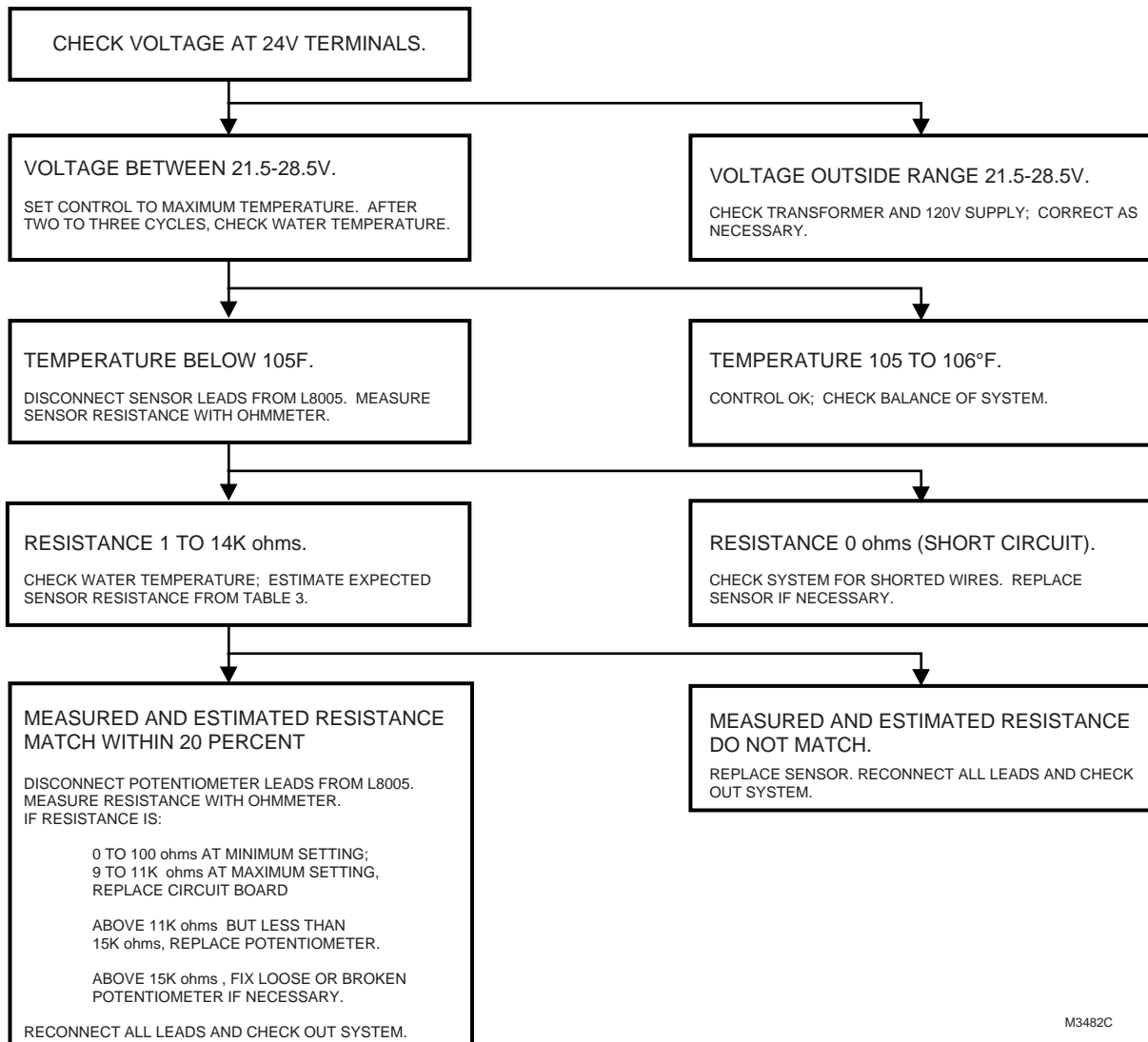
Control range is 60° to 106°F (16° to 41°C) with a fixed subtractive differential of 0.5°F (0.3°C) maximum at 106°F (41°C).

Troubleshooting

The following procedures describe methods for troubleshooting the control system when the pool/spa/hot tub is too hot or too cold.

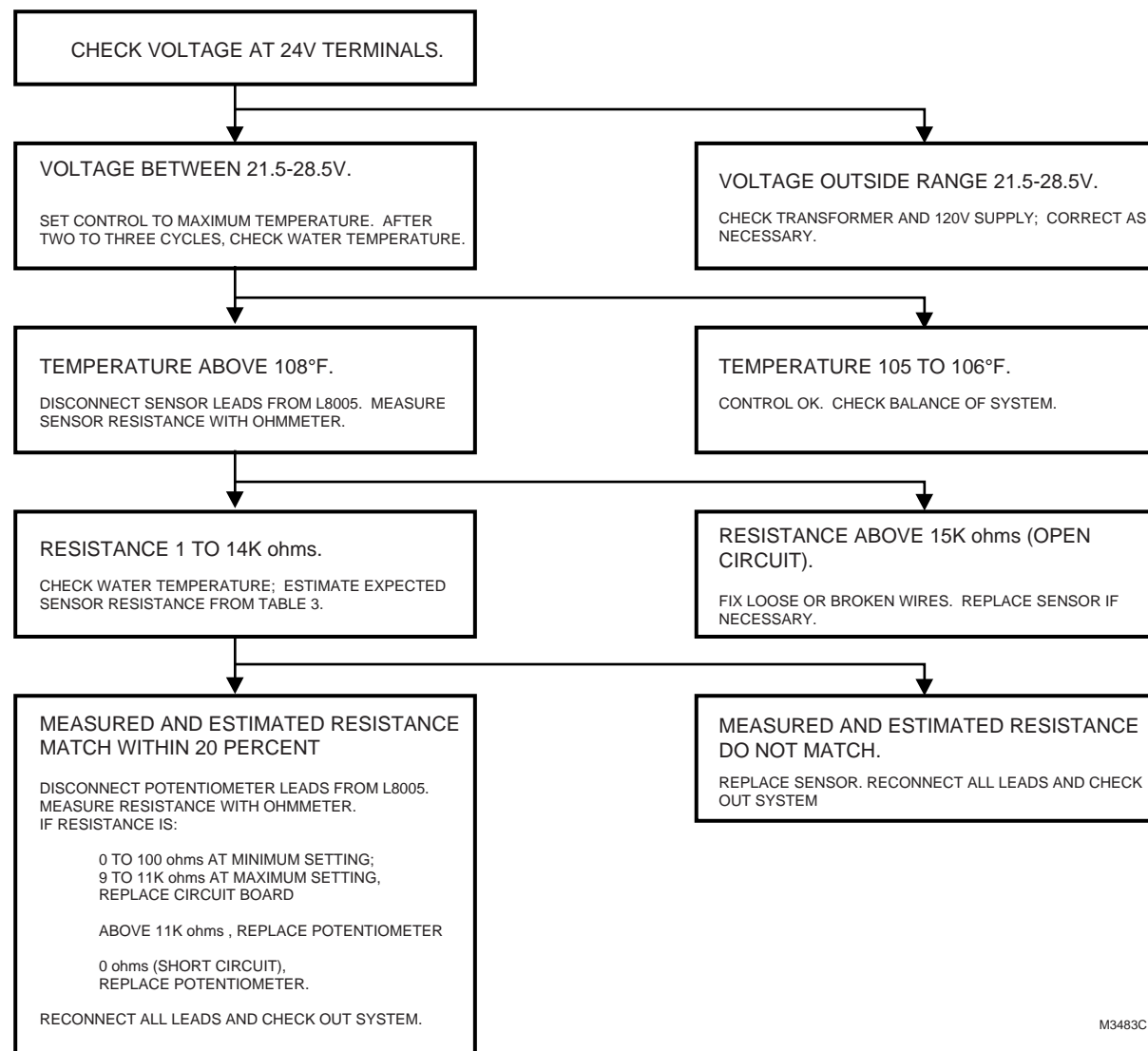
When the pool/spa/hot tub water is too cold, use Fig. 7 to troubleshoot the system.

Fig. 7— Troubleshooting procedure when the water is too cold.



When the pool/spa/hot tub water is too hot, use Fig. 8 to troubleshoot the system.

Fig. 8— Troubleshooting procedure when the water is too hot.



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