

# tekmar® - Data Brochure

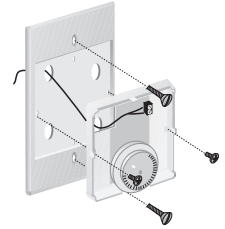
Room Temperature Unit (RTU) 054

**D 054**

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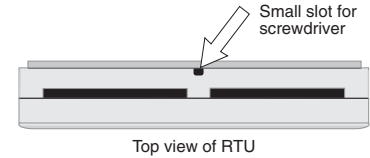
The tekmar Room Temperature Unit (RTU) 054 consists of a temperature sensor and an adjustable dial which is used to set the desired indoor temperature. The RTU 054 dial has a temperature range from 40 to 100°F (4 to 38°C). In cases where a restricted temperature range is required, the dial rotation can be limited using limit pins supplied with the RTU. A 10K temperature sensor (e.g. 071, 072 etc.) can be mounted remote from the RTU. This RTU does not work with older tekmar controls. If the RTU is to be mounted on a 2" x 4" electrical box, an Adaptor Plate 007 is available for use.



## Installation

### STEP ONE — REMOVING THE FRONT COVER

- Place a screwdriver or similar object into the small slot located in the top of the RTU.
- Push the screwdriver against the plastic flap and pull the top of the front cover so that it pivots around the bottom edge of the RTU.

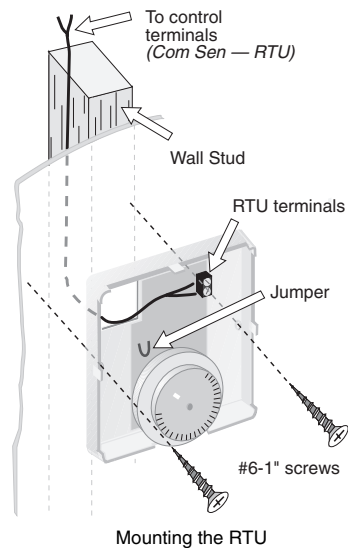


### STEP TWO — MOUNTING THE RTU

- The RTU should be installed on an interior wall of the desired zone to be controlled. Do not mount the RTU in a location that may be affected by localized heat sources or cold drafts. It may be necessary to install a draft barrier behind the enclosure in order to prevent air from blowing through the wiring hole and affecting the RTU reading.
- Mount the RTU directly to the wall using two #6-1" screws. The screws are inserted through the mounting holes and must be securely fastened to the wall. If possible one of the screws should enter a wall stud.

### STEP THREE — WIRING THE RTU

Run 18 AWG or similar wire between the RTU and the *Com Sen-RTU* terminals on the control. Insert the wires through the hole provided in the back of the RTU enclosure and connect them to the RTU terminal block. Do not run the wires parallel to telephone or power lines. If the RTU wires are located in an area with strong sources of electromagnetic noise, shielded cable or twisted pair should be used or the wires can be run in a grounded metal conduit. If installing a remote temperature sensor, connect its two wires also to the RTU terminal block and cut the jumper in the RTU enclosure. For best accuracy, the RTU and the remote sensor should be approximately at the same temperature.



### STEP FOUR — TESTING THE RTU

A good quality test meter capable of measuring up to 5000 kΩ ( 1 kΩ = 1000 Ω) is required to measure the sensor resistance. In addition to this, the actual temperature must be measured with either a good quality digital thermometer or if a thermometer is not available, a second sensor can be placed alongside the one to be tested and the readings compared.

First measure the room temperature using the thermometer. The RTU must be disconnected from the control before it is tested. Turn the RTU dial to 70°F (21°C). Measure the resistance of the RTU by touching the test leads on the wires running to the RTU. Reverse the leads and measure the RTU resistance again. The lower "Ohm" reading is the combined resistance of the dial and the sensor, and the higher "Ohm" reading is the resistance of the sensor alone.

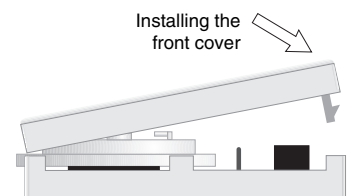
Using the chart below, estimate the room temperature based on the sensor only (highest) resistance measurement. Compare the sensor temperature measurement with the thermometer reading. If the sensor temperature is significantly above the thermometer reading, the wiring may be shorted, moisture may be in the sensor or the sensor may be defective. If the sensor temperature is significantly below the thermometer reading, there may be a broken wire, a loose connection or a defective sensor.

Temperature	°F	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84
	°C	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	26	27	28	29
Resistance (kΩ)		20.8	19.7	18.7	17.7	16.8	15.9	15.0	14.3	13.5	12.8	12.2	11.5	10.9	10.4	9.8	9.3	8.8	8.4	7.9

If a defective sensor is suspected, first check the wiring from the RTU to the control and then measure the sensor resistance directly at the RTU terminals using the above procedure.

### STEP FIVE — INSTALLING THE FRONT COVER

- Align the hinges on the bottom of the front cover with the bottom of the RTU mounting base.
- Pivot the front cover around the bottom hinges and push the top against the mounting base until it snaps firmly into place.



## Settings

To set a desired temperature, turn the RTU dial until the temperature is seen in the display window.

### Temperature scales

The RTU is supplied with two temperature scales. The RTU comes with the °F scale displayed in the window. The °C temperature scale is located on the back of the °F scale. In order to change the scale to °C, remove the front cover, lift and pull the scale off the dial, flip it over and replace it.

### Limiting the temperature range

The temperature range on the RTU can be limited in order to avoid extreme temperature settings or any tampering with the setting.

- Turn the dial until the desired temperature is at the bottom of the RTU.
- Remove the front cover by following Step One of the Installation procedure.
- Lift and pull the scale off the dial. Be careful not to turn the dial while removing the scale. With the scale off, a series of small holes will be visible around the dial. Behind the dial there is a post which can be used to limit the rotation of the dial. Two aluminium limit pins are provided in the dial.

#### Setting a low temperature limit

Remove one of the limit pins and re-insert it into the hole that is slightly to the left of the post at the bottom of the dial. With the pin in place the dial should only rotate clockwise from its current position as the counter-clockwise rotation is now restricted by the pin.

#### Setting a high temperature limit

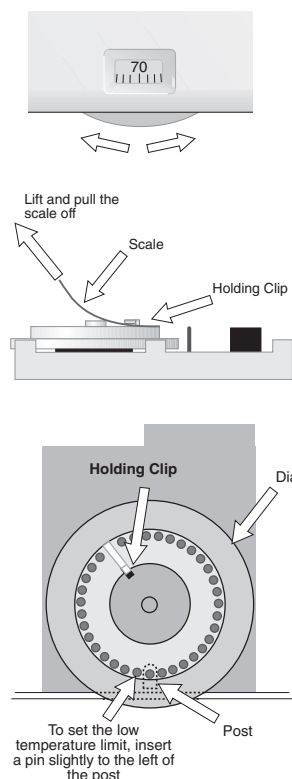
Insert one of the pins into the hole that is slightly to the right of the post.

#### Setting a fixed temperature

Insert one of the pins into the hole in the bottom of the dial such that the pin enters the post behind the dial. With the pin in place the dial should be fixed in position.

Replace the scale by sliding it onto the dial until the rectangular hole slips into the holding clip.

Replace the front cover by following Step Five of the Installation procedure.



## Technical Data

### Room Temperature Unit (RTU) 054

Literature	— D 054
Packaged weight	— 0.16 lb. (72 g), Enclosure G, white PVC plastic
Dimensions	— 2-7/8" H x 2-7/8" W x 13/16" D (73 x 73 x 21 mm)
Approvals	— CSA C US
Ambient conditions	— Indoor use only, 15 to 120°F (-10 to 50°C), non-condensing.
Sensor	— NTC thermistor, 10 kΩ @ 77°F (25°C ±0.2°C) β=3892
Optional devices	— tekmar type #: 071, 072, 073, 076, 077.
Setpoint range	— 40 to 100°F (4 to 38°C)



## Limited Warranty and Product Return Procedure

**Limited Warranty** The liability of tekmar Control Systems Ltd. and tekmar Control Systems, Inc. ("tekmar") under this warranty is limited. The purchaser, by taking receipt of the tekmar product ("product"), acknowledges receipt of the terms of the warranty and acknowledges that it has read and understands same.

tekmar warrants each tekmar product against defects in workmanship and materials, if the product is installed and used in compliance with tekmar's instructions. The warranty period is for a period of twenty-four (24) months from the production date if the product is not installed during that period, or twelve (12) months from the documented date of installation if installed within twenty-four (24) months from the production date.

The liability of tekmar under this warranty shall be limited to, at tekmar's sole discretion: the cost of parts and labor provided by tekmar to repair defects in materials and/or workmanship of the defective product; or to the exchange of the defective product for a replacement product; or to the granting of credit limited to the original cost of the defective product, and such repair, exchange or credit shall be the sole remedy available from tekmar, and, without limiting the foregoing in any way, tekmar is not responsible, in contract, tort or strict product liability, for any other losses, costs, expenses, inconveniences, or damages, whether direct, indirect, special, secondary, incidental or consequential, arising from ownership or use of the product, or from defects in workmanship or materials, including any liability for fundamental breach of contract.

**This warranty applies only to those products returned to tekmar during the warranty period. This warranty does not cover the cost of the parts or labor to remove or transport the defective product, or to reinstall the repaired or**

**replacement product. Returned products that are not defective are not covered by this warranty.**

**This warranty does not apply if the product has been damaged by negligence by persons other than tekmar, accident, fire, Act of God, abuse or misuse; or has been damaged by modifications, alterations or attachments made subsequent to purchase which have not been authorized by tekmar; or if the product was not installed in compliance with tekmar's instructions and the local codes and ordinances; or if due to defective installation of the product; or if the product was not used in compliance with tekmar's instructions.**

**This warranty is in lieu of all other warranties, express or implied, which the Governing Law (being the law of British Columbia) allows parties to contractually exclude, including, without limitation, warranties of merchantability, fitness for a particular purpose, durability or description of the product, its non-infringement of any relevant patents or trademarks, and its compliance with or non-violation of any applicable environmental, health or safety legislation; the term of any other warranty not hereby contractually excluded is limited such that it shall not extend beyond twenty-four (24) months from the production date, to the extent that such limitation is allowed by the Governing Law.**

**Product Return Procedure** Products that are believed to have defects in workmanship or materials must be returned, together with a written description of the defect, to the tekmar representative for that territory. If the address of the representative is not known, please request it from tekmar at the telephone number listed below.



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