

The tekmar Room Temperature Unit (RTU) 055 consists of a temperature sensor and an adjustable dial which is used to set the desired indoor temperature. The RTU 055 dial has a temperature range from 50 to 80°F (10 to 27°C). The RTU is designed to be mounted onto a standard 2" x 4" electrical box or to be surface mounted. A 10K temperature sensor (e.g. 071, 072, etc.) can be connected to the RTU 055 and mounted separately from the RTU in order to provide remote temperature sensing and control. This 10K RTU does not work with older tekmar controls that require a 2K RTU. If a greater temperature range is required, the RTU 054 can be used.

## Installation

### STEP ONE — REMOVING THE FRONT COVER

To remove the front cover, grasp the cover by the top and bottom and pull it away from 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 and / or insulation behind the enclosure in order to prevent air from blowing through the wiring hole and affecting the RTU reading.
- For surface mounting, 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, at least one of the screws should enter a wall stud.
- For mounting on an electrical box, ensure that the electrical box is properly insulated and protected from drafts. Mount the RTU on the electrical box using the appropriate screws.

### 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 *RT-Com* terminals on 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.

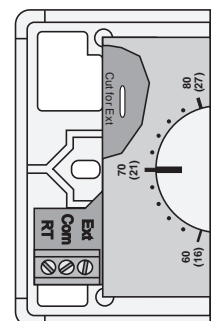
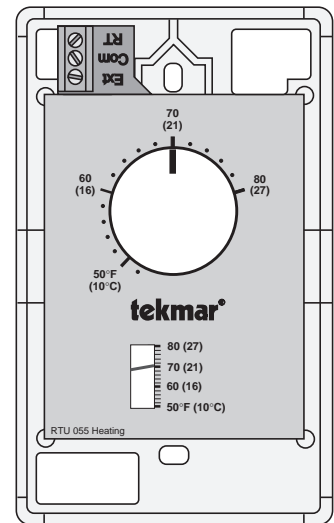
If installing a remote temperature sensor, run 18 AWG or similar wire between the remote sensor and the RTU. Insert the wires through the back of the RTU and connect them to the *Com-Ext* terminals on the RTU terminal block. Cut the jumper in the RTU in order to disable the RTU's internal sensor. Run 18 AWG or similar wire between the RTU and the *Com Sen-RTU* terminals on the control. Insert the wires through the back of the RTU and connect them to the *Com-RT* terminals on the RTU terminal block. 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. It is necessary to measure the resistance through the RTU in both directions because there will be two different "Ohm" values read by the meter. 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 on the following page, 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. If a defective sensor is suspected, first measure the sensor resistance directly at the RTU terminals using the above procedure. Ensure that the RTU is not connected to the control by removing the wires leading to the control from the RTU terminal block.



If the RTU is being used in a remote sensing application, first ensure that the jumper inside the RTU has been cut. Disconnect the RTU from the control at the RTU terminal block. Measure the resistance through the RTU in both directions in order to determine the sensor reading. Compare the sensor only (highest) reading with the chart below. If the RTU reads properly, the problem lies in the wiring between the RTU and the control. If the sensor reading still differs significantly from the thermometer reading, check the remote sensor directly. Disconnect the sensor from the RTU at the sensor. Measure the sensor's resistance and compare the value with the chart supplied with the sensor. If the sensor reads properly, the problem lies in the wiring between the sensor and the RTU. If the sensor reading differs significantly from the chart values, the sensor is defective.

**Do not apply voltage to a Room Temperature Unit (RTU) at any time as damage to the RTU may result.**

Temperature		Resistance	Temperature		Resistance	Temperature		Resistance	Temperature		Resistance
°F	°C	Ω	°F	°C	Ω	°F	°C	Ω	°F	°C	Ω
46	8	21,900	56	13	16,800	66	19	12,800	76	24	9,800
48	9	20,800	58	14	15,900	68	20	12,200	78	26	9,300
50	10	19,700	60	16	15,000	70	21	11,500	80	27	8,800
52	11	18,700	62	17	14,300	72	22	10,900	82	28	8,400
54	12	17,700	64	18	13,500	74	23	10,400	84	29	7,900

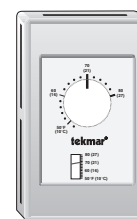
## STEP FIVE ————— INSTALLING THE FRONT COVER —————

To install the front cover, align the cover over the front of the RTU and press firmly until the cover snaps into place. Adjust the indicator dial to the desired temperature.

### Technical Data

#### Room Temperature Unit (RTU) 055

Literature	— D 055
Packaged weight	— 0.16 lb. (72 g), Enclosure B, white PVC plastic
Dimensions	— 4-1/2" H x 2-3/4" W x 7/8" D (115 x 70 x 22 mm)
Sensor	— NTC thermistor, 10 kΩ @ 77°F (25°C ±0.2°C), β=3892
Setpoint range	— 50 to 80°F (10 to 27°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. Please read and understand the conditions appearing herein.*

tekmar warrants each tekmar product against defects in workmanship and materials, when 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, but in any event the warranty period shall not extend beyond thirty-six (36) months from the production date. During the warranty period, tekmar will, at its discretion, either repair at no charge, exchange or give credit for the defective product, provided the product is returned to tekmar.

The liability of tekmar shall be limited to the cost of parts and labour provided by tekmar to correct defects in materials and / or work-manship 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 product, at tekmar's discretion, and such repair, exchange or credit shall be deemed to be the sole remedy available from tekmar. This warranty does not cover the cost of the parts or labour to remove or to 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 accident, abuse, misuse, negligence, fire, Act of God, 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 the local codes and ordinances, or if due to defective installation of the product.

The warranty applicable to a product is as set out in the statement of warranty policy (the "Warranty") above, receipt of which is hereby acknowledged. The liability of tekmar is limited to those obligations identified in the warranty as obligations of tekmar. The warranty is understood to be in substitution for any loss, costs or damages for which tekmar might otherwise be liable at law or in equity and in particular, in lieu of any liability for fundamental breach of contract.

tekmar disclaims any responsibility for losses, expenses, inconveniences, or any special, indirect, secondary, incidental or consequential damages arising from ownership or use of any items subject to any claim hereunder, regardless of whether such claim is stated in contract, tort or strict product liability.

This warranty is in lieu of all other warranties, express or implied, 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. No implied warranties shall extend beyond twenty-four (24) months from the production date.

Some states or provinces do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state or province to province.

**Product Return Procedures** 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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