

The kanmor Outdoor Sensor 070e includes a 10 k $\Omega$  thermistor which provides an accurate measurement of the outdoor temperature. The 070e sensor is protected by a white U.V. resistant PVC plastic enclosure.

### Definitions

The following defined terms and symbols are used throughout this manual to bring attention to the presence of hazards of various risk levels, or to important information concerning the life of the product.



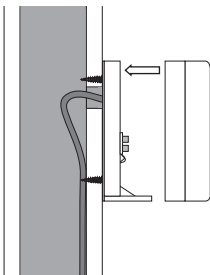
Warning symbol: Indicates presence of hazards which can cause severe personal injury, death or substantial property damage if ignored.

### Installation Outdoor Sensor 070e

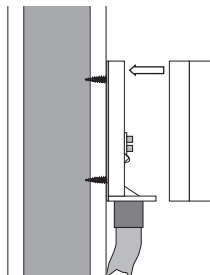
#### STEP ONE — MOUNTING THE SENSOR

**Note:** The temperature sensor (thermistor) is built into the 070e enclosure.

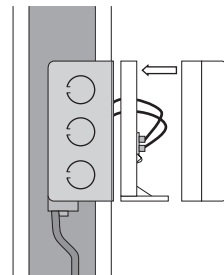
- Remove the screw and pull the front cover off the sensor enclosure.
- The 070e can either be mounted directly onto a wall or a 50 x 100 mm electrical box. When the 070e is wall mounted, the wiring should enter through the back or bottom of the enclosure. Do not mount the 070e with the conduit knockout facing upwards as rain could enter the enclosure and damage the sensor.
- In order to prevent heat transmitted through the wall from affecting the sensor reading, it may be necessary to install an insulating barrier behind the enclosure.
- The 070e should be mounted on a wall which best represents the heat load on the building (a northern wall for most buildings and a southern facing wall for buildings with large south facing glass areas). The 070e should not be exposed to heat sources such as ventilation or window openings.
- The 070e should be installed at an elevation above the ground that will prevent accidental damage or tampering.



Sensor with rear entry wiring



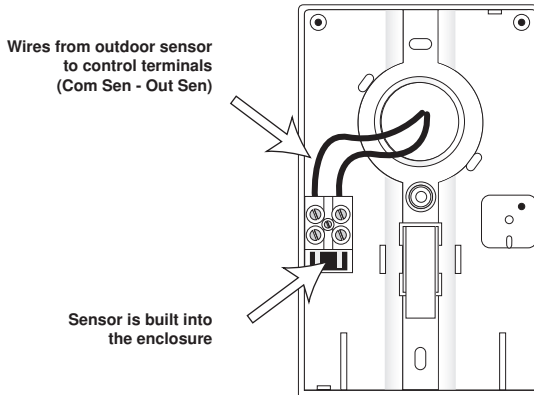
Sensor with bottom entry wiring



Sensor mounted onto electrical box

## STEP TWO ————— WIRING AND TESTING THE SENSOR —————

- Connect 1 mm<sup>2</sup> or similar wire to the two terminals provided in the enclosure and run the wires from the 070e to the control. Ensure that all wires are stripped to 10 mm. Do not run the wires parallel to telephone or power cables. If the sensor wires are located in an area with strong sources of electromagnetic interference (EMI), shielded cable or twisted pair should be used or the wires can be run in a grounded metal conduit. If using shielded cable, the shield wire should be connected to the Com terminal on the control and not to earth ground.
- Follow the sensor testing instruction in this brochure and connect the wires to the control.
- Replace the front cover of the sensor enclosure.



### Sensor Testing Instructions

A good quality test meter capable of measuring up to 5,000 k $\Omega$  (1 k $\Omega$  = 1000 $\Omega$ ) 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 temperature using the thermometer and then measure the resistance of the sensor at the control. The wires from the sensor must not be connected to the control while the test is performed. Using the chart on the following page, estimate the temperature measured by the sensor. The sensor and thermometer readings should be close. If the test meter reads a very high resistance, there may be a broken wire, a poor wiring connection or a defective sensor. If the resistance is very low, the wiring may be shorted, there may be moisture in the sensor or the sensor may be defective. To test for a defective sensor, measure the resistance directly at the sensor location.

Do not apply voltage to a sensor at any time as damage to the sensor may result.

# Resistance Table

| Temperature |     | Resistance | Temperature |    | Resistance | Temperature |    | Resistance | Temperature |     | Resistance |
|-------------|-----|------------|-------------|----|------------|-------------|----|------------|-------------|-----|------------|
| °F          | °C  | Ω          | °F          | °C | Ω          | °F          | °C | Ω          | °F          | °C  | Ω          |
| -50         | -46 | 490,813    | 20          | -7 | 46,218     | 90          | 32 | 7,334      | 160         | 71  | 1,689      |
| -45         | -43 | 405,710    | 25          | -4 | 39,913     | 95          | 35 | 6,532      | 165         | 74  | 1,538      |
| -40         | -40 | 336,606    | 30          | -1 | 34,558     | 100         | 38 | 5,828      | 170         | 77  | 1,403      |
| -35         | -37 | 280,279    | 35          | 2  | 29,996     | 105         | 41 | 5,210      | 175         | 79  | 1,281      |
| -30         | -34 | 234,196    | 40          | 4  | 26,099     | 110         | 43 | 4,665      | 180         | 82  | 1,172      |
| -25         | -32 | 196,358    | 45          | 7  | 22,763     | 115         | 46 | 4,184      | 185         | 85  | 1,073      |
| -20         | -29 | 165,180    | 50          | 10 | 19,900     | 120         | 49 | 3,760      | 190         | 88  | 983        |
| -15         | -26 | 139,402    | 55          | 13 | 17,436     | 125         | 52 | 3,383      | 195         | 91  | 903        |
| -10         | -23 | 118,018    | 60          | 16 | 15,311     | 130         | 54 | 3,050      | 200         | 93  | 829        |
| -5          | -21 | 100,221    | 65          | 18 | 13,474     | 135         | 57 | 2,754      | 205         | 96  | 763        |
| 0           | -18 | 85,362     | 70          | 21 | 11,883     | 140         | 60 | 2,490      | 210         | 99  | 703        |
| 5           | -15 | 72,918     | 75          | 24 | 10,501     | 145         | 63 | 2,255      | 215         | 102 | 648        |
| 10          | -12 | 62,465     | 80          | 27 | 9,299      | 150         | 66 | 2,045      | 220         | 104 | 598        |
| 15          | -9  | 53,658     | 85          | 29 | 8,250      | 155         | 68 | 1,857      | 225         | 107 | 553        |

## Technical Data

### OUTDOOR SENSOR 070e

|                 |   |
|-----------------|---|
| Literature      | D 070e.   |
| Packaged weight | 160 g (0.35 lb.), Enclosure E, white PVC plastic.   |
| Dimensions      | 114 x 73 x 38 mm (4-1/2" H x 2-7/8" W x 1-1/2" D).  |
| Approvals       | CSA C US, CE approved.                              |
| Operating Range | -50 to 60°C (-60 to 140°F).                         |
| Sensor          | NTC thermistor, 10 kΩ @ 77°F (25°C ±0.2°C), β=3892. |

## Limited Warranty and Product Return Procedure

**Limited Warranty** *The liability of kanmor Control Systems Ltd. ("kanmor") under this warranty is limited. The Purchaser, by taking receipt of any kanmor product ("Product"), acknowledges the terms of the Limited Warranty in effect at the time of such Product sale and acknowledges that it has read and understands same.*

The kanmor Limited Warranty to the Purchaser on the Products sold hereunder is a manufacturer's pass-through warranty which the Purchaser is authorized to pass through to its customers. Under the Limited Warranty, each kanmor Product is warranted against defects in workmanship and materials if the Product is installed and used in compliance with kanmor's instructions, ordinary wear and tear excepted. The pass-through 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 kanmor under the Limited Warranty shall be limited to, at kanmor's sole discretion: the cost of parts and labor provided by kanmor to repair defects in materials and/or workmanship of the defective product; or to the exchange of the defective product for a warranty 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 kanmor, and, without limiting the foregoing in any way, kanmor 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.

The pass-through Limited Warranty applies only to those defective Products returned to kanmor during the warranty period. This Limited 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, all such costs and expenses being subject to Purchaser's agreement and warranty with its customers.

Any representations or warranties about the Products made by Purchaser to its customers which are different from or in excess of the kanmor Limited Warranty are the Purchaser's sole responsibility and obligation. Purchaser shall indemnify and hold kanmor harmless from and against any and all claims, liabilities and damages of any kind or nature which arise out of or are related to any such representations or warranties by Purchaser to its customers.

The pass-through Limited Warranty does not apply if the returned Product has been damaged by negligence by persons other than kanmor, 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 kanmor; or if the Product was not installed in compliance with kanmor's instructions and/or the local codes and ordinances; or if due to defective installation of the Product; or if the Product was not used in compliance with kanmor's instructions.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHICH THE GOVERNING LAW ALLOWS PARTIES TO CONTRACTUALLY EXCLUDE, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND 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 Warranty Return Procedure** All Products that are believed to have defects in workmanship or materials must be returned, together with a written description of the defect, to kanmor through its Representative. If kanmor receives an inquiry from someone other than a kanmor Representative, including an inquiry from Purchaser (if not a kanmor Representative) or Purchaser's customers, regarding a potential warranty claim, kanmor's sole obligation shall be to provide the address and other contact information regarding the appropriate Representative.



#### Symbol for Separate Collection in European Countries

This symbol indicates that this product is to be collected separately. This product is designated for separate collection at an appropriate collection point. Do not dispose of as household waste. For more information, contact the local authorities in charge of waste management.

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