



# Installation and Operation Guide



## NetSensor® KMD-1161 and KMD-1181 KMD-1164 and KMD-1184 Temperature and humidity sensors

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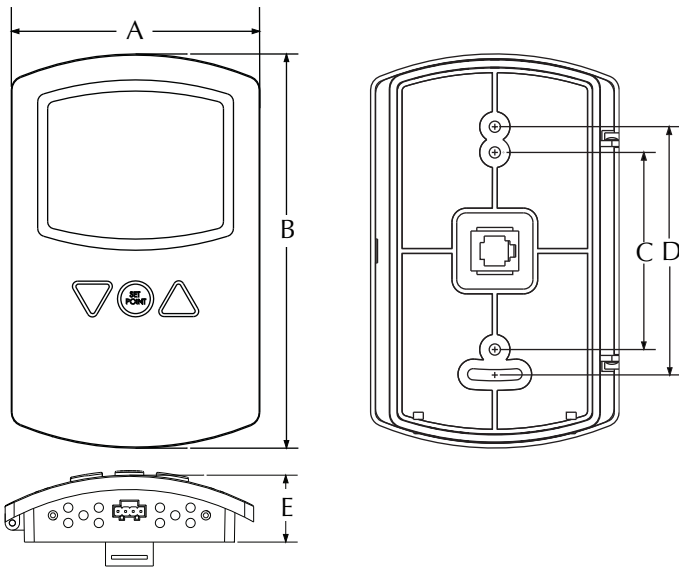
## Specifications

|   |  |
|---|--|
| <b>Display</b>                                | LCD, 4-character, 7-segment, 0.375 in. high. (temperature)   |
| <b>Compatibility</b>                          | KMD-5800 series controllers<br>KMD-7000 series controllers<br>BAC-5800 series BACnet controllers<br>BAC-7000 series BACnet controllers             |
| <b>Controller Connection</b>                  |  |
| Connector type                                | RJ-12 connects data and power to compatible controllers  |
| Cable length                                  | Maximum 75 feet (22.9 meters)  |
| PC port                                       | Four-pin connector for service connection to software tools  |
| <b>Power</b>                                  | 5 volts DC supplied by connected controller  |
| <b>Mounting</b>                               | Surface mount directly to any flat surface or to a 2 x 4 inch or 4 x 4 inch handy-box. Mounting on a 4 x 4 inch box requires a mounting backplate. |
| <b>Weight</b>                                 | 2.8 ounces (80 grams)  |
| <b>Material</b>                               | Light almond or white plastic  |
| <b>Sensor Accuracy, KMD-1161 and KMD-1164</b> |  |
| Type  | Thermistor   |
| Accuracy                                      | $\pm 0.36^{\circ}$ F ( $\pm 0.2^{\circ}$ C)  |
| Resistance                                    | 10,000 $\Omega$ at 77 $^{\circ}$ F (25 $^{\circ}$ C)   |
| Operating range                               | 48 $^{\circ}$ to 96 $^{\circ}$ F (8.8 $^{\circ}$ to 35.5 $^{\circ}$ C)   |

**Sensor Accuracy, KMD-1181 and KMD-1184**

|                         |   |
|-------------------------|---|
| <b>Type</b>             | CMOS  |
| <b>Humidity</b>         |   |
| <b>Range</b>            | 0 to 100% Relative humidity   |
| <b>Accuracy at 25°C</b> | ±2% from 10–90% relative humidity   |
| <b>Response time</b>    | Less than or equal to 4 seconds   |
| <b>Temperature</b>      |   |
| <b>Accuracy</b>         | ±0.9° F (±0.5° C) offset from 40 to 104° F (4.4 to 40.0° C) Offset is adjusted through WinControl software. |
| <b>Resolution</b>       | ±0.1°F (±0.1° C)  |
| <b>Operating range</b>  | 36 to 120° F (2.2 to 48.8° C)   |
| <b>Response time</b>    | 5 to 30 seconds   |

**Dimensions**



| <b>A</b> | <b>B</b> | <b>C</b> | <b>D</b> | <b>E</b> |
|----------|----------|----------|----------|----------|
| 3.25 in. | 5.16 in. | 2.58 in. | 3.25 in. | 0.87 in. |
| 83 mm    | 116 mm   | 66 mm    | 83 mm    | 22 mm    |

---

**Environmental Limits**

|                              |  |
|------------------------------|--|
| <b>Operating Temperature</b> | 34° to 125° F (1.1 to 51.6° C)               |
| <b>Shipping</b>              | -40° to 140° F (-40°C to 60° C)              |
| <b>Humidity</b>              | 0 to 95% relative humidity<br>non-condensing |

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**Models****Temperature only**

|        |           |
|--------|-----------|
| Almond | KMD-1161  |
| White  | KMD-1161W |
| Almond | KMD-1164  |
| White  | KMD-1164W |

**Temperature and humidity**

|        |           |
|--------|-----------|
| Almond | KMD-1181  |
| White  | KMD-1181W |
| Almond | KMD-1184  |
| White  | KMD-1184W |

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**Accessories****Mounting backplate**

|                   |           |
|-------------------|-----------|
| Almond 4 x 4 inch | HMO-1161  |
| White 4 x 4 inch  | HMO-1161W |

**Gasket** HPO-116

**Replacement Allen screws** HPO-0044 (package of 10)

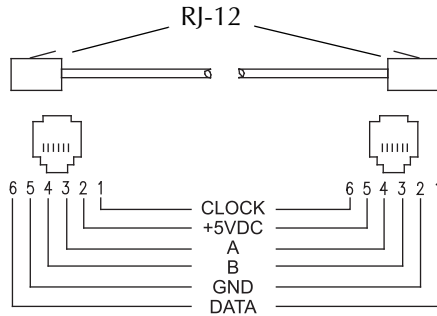
**Network plenum cables with connectors**

|                       |          |
|-----------------------|----------|
| 25 feet (7.6 meters)  | KMD-5690 |
| 50 feet (15.2 meters) | KMD-5691 |
| 75 feet (22.9 meters) | KMD-5692 |

## Network cable preparation

Connecting a NetSensor to a controller requires a six-wire cable with RJ-12 connectors on each end. KMC plenum-rated preassembled cables are recommended. Cables made to length must meet the following requirements:

- ◆ Cable length must be no longer than 75 feet (22.9 meters).
- ◆ Cable conductors must be no smaller than #24 AWG.
- ◆ Cable insulation must meet local building codes.
- ◆ Connectors must be appropriate for the cable in use and are installed following the connector manufacturers instructions.



***Cable details***

## Rough-in preparation

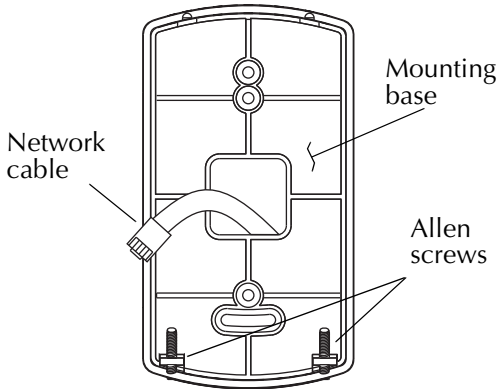


### **Caution**

To prevent mounting screw heads from touching the circuit board in the NetSensor, use only the mounting screws supplied by KMC Controls. Using screws other than the type supplied will damage the NetSensor.

Complete rough-in wiring at each sensor location prior to sensor installation. This includes the following.

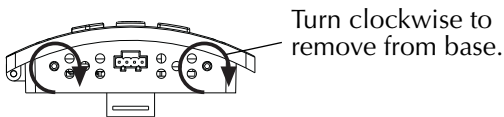
- ◆ Routing the network cable from the NetSensor to a controller.
- ◆ If required, install the appropriate backplate. See [Accessories on page 4](#) for model numbers.



### *NetSensor mounting details*

## Installing the NetSensor

1. Turn the Allen screws in the base of the NetSensor clockwise until they clear the cover. Swing the sensor away from the mounting base to remove it.



### *Mounting screws*

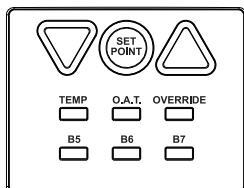
2. Route the RJ-12 cable through the mounting base.
3. Fasten the mounting base directly to a 2 x 4 inch outlet box or a backplate with the Allen screws toward the floor.
4. Insert the RJ-12 cable coming from the base into the NetSensor.
5. Place the top of the NetSensor over the top of the mounting base and swing it down over the Allen screw brackets. Be careful not to pinch any wiring.
6. Back the Allen screws out of the brackets until they engage the NetSensor cover and hold it in place.

## Operation

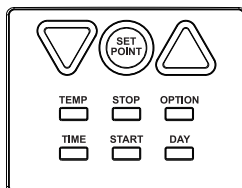
The following sections describe the controls and indicators found on the NetSensor.

**Display** The temperature display contains four 0.375-inch, 7-segment LCD digits that are visible across a normal size office. The display provides time, temperature and on models KMD-1181 and KMD-1184 humidity readouts.

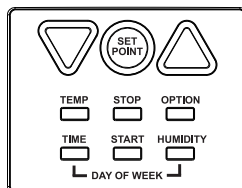
**Controls** NetSensors include nine push buttons; seven of which (buttons 1-7) are user programmable. Button labels depend on the model, but the actual operation of the programmable buttons depends upon the program in the controller to which the NetSensor is connected.



KMD-1161 and  
KMD-1181



KMD-1164



KMD-1184

### *NetSensor button labels*

The arrow buttons adjust the programmed values up or down. Values can be changed for all buttons (if programmed) except the #1 button as follows:

1. Press the button for the desired function.
2. Adjust the value up or down.

**Auxiliary wire replacement** These NetSensors do not have auxiliary wires found on earlier models. Press buttons 5 and 7 together and then press an up arrow or down arrow button to change the auxiliary function.

## Programming instructions

Programming instructions for NetSensors are included in Help supplied with WinControlXL, BACstage, and TotalControl.

## Maintenance

Remove dust as necessary from holes in top and bottom. Clean the display with soft, damp cloth and mild soap.

## **Important notices**

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