

Applications Guide



Contents

- Introduction..... 1
- Mounting Considerations 1
- Troubleshooting 1
- Controller Configuration..... 2
 - Overview..... 2
 - BAC-A1616BC BACnet Building Controller 2
 - BACstage Software 2
 - TotalControl Software 3
 - WinControl Software..... 3
- Important Notices..... 3
- Maintenance 3

Introduction

This document gives configuration, troubleshooting, and other related information for **temperature sensors using Type III thermistors**. For mounting, wiring, and specifications, see the respective product installation guide and data sheet (**STE-1400 Series Data Sheet** for STE-14xx sensors).

For information about Type II thermistor sensors, see:

- **STE-6010/6011/6013/6015 Application Guide** for room temperature sensors with optional override button and LED indicator.
- **STE-6014/6017/6018/6019/6020 Application Guide** for room temperature sensors with rotary setpoint dials and optional override button and LED indicator.
- **STE-6012/6016 Application Guide** for room temperature transmitters with LCD displays.

The latest support files are always available on the KMC Controls web site (www.kmccontrols.com).

Mounting Considerations

Depending on the application, space temperature sensors generally should **NOT** be:

- Mounted on an exterior wall.
- Mounted on or near a large thermal mass (e.g., concrete block wall).
- Blocked from normal air circulation by obstructions.
- Exposed to heat sources (e.g., lights, computers, copiers, or coffee makers) or to sunlight (at **any** time of the day).
- Exposed to drafts from windows, diffusers, or returns.
- Exposed to air flow through the conduit (from leaks in plenum ducts)—put plumber’s putty, painter’s putty, caulk, or other sealant inside the conduit to block air flow.

Apply what is relevant to other applications (e.g., duct sensor).

Troubleshooting

- Be sure the 10,000 ohm pull-up resistors on the controller board are selected/turned **ON**.
- Check wiring. To prevent excessive voltage drop, use a conductor size that is adequate for the wiring length!
- Check sensor configuration and tables in the controller.
- Check voltage from the controller.
- Check that the sensor is mounted correctly. (See the Mounting Considerations section above.)

Controller Configuration

Overview

Ensure that the corresponding 10,000 ohm pull-up resistors on the controller are selected (switched On). Consult the controller's setup instructions for information on switching on the pull-up resistors.

See the relevant software section for controller configuration instructions.

BAC-A1616BC BACnet Building Controller

Select the 10K ohm pull-up resistor jumper position for the corresponding input. (See the Installation section of the BAC-A1616ABC Building Controller Installation and Operation Guide for the correct jumper position.)

Because the Building Controller has a 0–12 VDC total input range, different tables are required than in other (0–5 VDC) KMC controllers. **If needed, download the sensor tables (CSV) file from the KMC Controls Partners web site and import the needed tables as described in the Tables section of the BAC-A1616ABC Building Controller Installation and Operation Guide. (You must log into the Partners site to see the zipped tables file on the Building Controller product page downloads.)**

1. In the desired Analog Input setup screen of the web page interface, select *KMC Type III Degree Fahrenheit* or *KMC Type III Degree Celsius*.
2. Select the Lookup Table for the Type III Thermistor. (Having it in Table 3 is good practice.)
3. For the Fahrenheit scale, the multiplier is 1.8 and the offset is 32. For Celsius, the multiplier is 1 and the offset is 0.
4. Click *Save*.

Analog Input 16

Object Name: AI_16 Duct Sensor
Description: Duct Sensor

Device Type: KMC Type III Deg F

Present Value: 75.13
Units: degrees-F
Filter Weight: 6

COV Increment: 1.000000
multiplier: 1.800000
offset: 32.000000
Lookup Table: 3

Event State: normal
Status Flags: In Alarm, Fault, Overridden, Out of Service

NOTE: See also [TotalControl Software on page 3](#).

BACstage Software

1. In the BACstage software main menu, select *Objects > Inputs*.
2. Click *Edit*.
3. Type in a name in the appropriate *Description* field (up to 32 characters) and/or *Name* field (up to 16 characters).

NOTE: No two labels or descriptions in a controller can be identical.

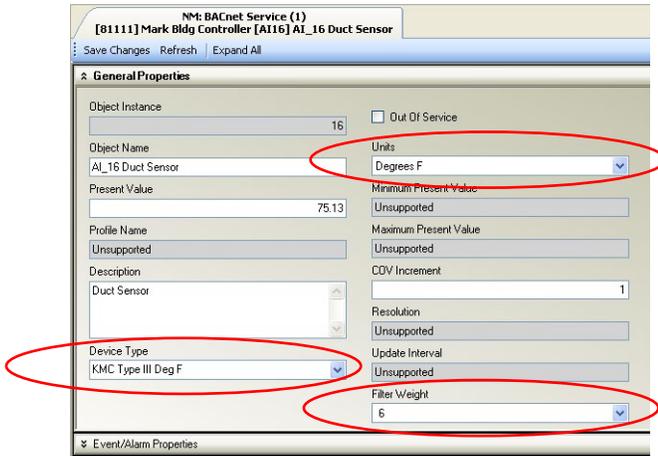
4. Select *Object Type: Analog* if it is not the default.
5. Select *Device Type: KMC10K Type III*.
6. Select *Units: °F* or *°C*.
7. Optionally, change the *Filter Weight* (under *More*) to the desired number of thermistor readings averaged before displaying the result.
8. Click *End Edit*.
9. Click *Yes* for “Send Update Notification Now?”
10. In the BACstage software main menu, select *Device > Device Tables > KMC10K Type III Table*.
11. Click *Edit*.
12. Click *Defaults* (values will fill in).
13. Click *End Edit*.
14. Click *Yes* for “Send Update Notification Now?”
15. Click *OK*.

#	Description	Name	Present Value	Units	Device Type	Out Of Service	Object Type	More
5		BI_5	On	Off/On		<input type="checkbox"/>	Binary	...
6		BI_6	On	Off/On		<input type="checkbox"/>	Binary	...
7		BI_7	On	Off/On		<input type="checkbox"/>	Binary	...
8	Duct Sensor	AI_8	74.66495	°F	KMC10K Type III	<input type="checkbox"/>	Analog	...

TotalControl Software

NOTE: Follow the relevant hardware instructions in the BACstage Software section or WinControl Software section. Then see the TotalControl Help information for the equivalent software configuration in TotalControl.

NOTE: TotalControl assumes the Type III thermistor table is in Table 3 of the Building Controller.

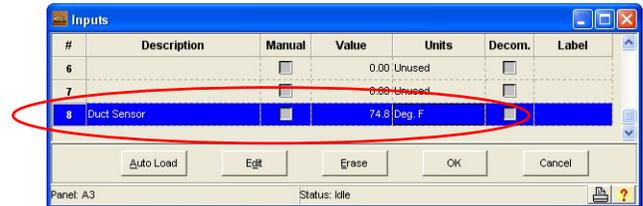


WinControl Software

1. In the WinControl software main menu, select *Control > Inputs*.
2. Click *Edit*.
3. Type in a name in the appropriate *Description* field (up to 20 characters) and/or *Label* field (up to 8 characters).

NOTE: No two labels or descriptions in a controller can be identical.

4. Click *Units* (which opens the Configure Inputs screen).
5. Select *Type: Analog* if it is not the default.
6. Select *Deg F* (or *C*) *KMC10K Type III*.
7. Optionally, change *Format* from 0 to the desired number of temperature decimal places.
8. Optionally, change the *Average* to the desired number of thermistor readings averaged before displaying the result.
9. Click *OK*.
10. Click *End Edit*.
11. Click *OK*.



Important Notices

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Maintenance

No routine maintenance is required. Each component is designed for dependable, long-term reliability and performance. Careful installation will also ensure long-term reliability and performance.

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