KMC CONTROLS

Application Guide
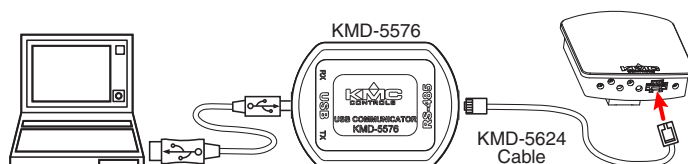
STE-6010/6011

STE-6013/6015

Contents

NOTE: For more product information, see the **STE-6000 Series Room Temperature Sensors/ Transmitters Data Sheet** on the KMC Controls web site.

NOTE: For mounting and wiring information, see the **STE-6010/6011/6013/6015 Installation Guide**.

Models

Model Number	Interface Features		Cable Connections		
	Override Button	LED Status Indicator	Screw Clamp Terminals	RJ-45 Connector	EIA-485 Data Port
STE-6010-10				X	X
STE-6011-10			X		
STE-6013-10	X	X	X		
STE-6015-10	X	X		X	X

PC Port Network Connection

KMD-5576

KMD-5624 Cable

At the bottom of the STE-6010/6015 case is an EIA-485 (formerly RS-485) computer port. This port provides a temporary connection to the digital network for network setup or troubleshooting.

To use the port to connect to a computer, a means of converting the EIA-485 signal to a USB or EIA-232 (formerly RS-232) signal will be needed. The exact connection depends on the computer and the operator workstation software. (See also the instructions included with those devices and software.)

- For **USB** (to WinControl or BACstage), use a KMD-5576 USB Communicator (see the illustration above).

- For **EIA-232 to BACstage**, use a third-party interface.

- For **EIA-232 to WinControl**, use a KMD-5559 CommTalk and KMD-5624 cable (or equivalent interface).

To access the network through the sensor's port:

1. Connect the keyed, flat end of the KMD-5624 interface cable (included with the KMD-5576 but not the KMD-5559) to the port on the sensor.

2. Connect the other end of the cable to the interface device that converts the EIA-485 signal into an EIA-232 or USB signal.

3. Connect the suitable cable from the interface device to the computer's serial or USB port. Install any required software and configure the port as necessary.

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.

BACstage Software

Thermistor Input (All)

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 II*.

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. If the (STE-6013/6015) override is being used, *Filter Weight* may need to be reduced down toward *1* to ensure reliable recognition of the button press, depending on the controller.

NOTE: The button needs to be pressed and held for at least a half a second to be reliably recognized for override mode.

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 II 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*.

Override (STE-6013/6015 Only)

1. In the BACstage software main menu, select *Objects > **Binary** Values*.

2. Click *Edit*.

3. Type in a name in the appropriate *Description* field and/or *Name* field.

4. Click in the *Units* column and select *Off/On* (or *No/Yes, Stop/Start, Disabled/Enabled, Inactive/Active* according to preference).

5. Click *End Edit*.

6. Click *Yes* for "Send Update Notification Now?"

7. Click *OK*.

8. In the BACstage software main menu, select *Objects > BASIC Programs*.

9. Click *Edit*.

10. Type in a name in the appropriate *Description* field and/or *Name* field.

11. Click *Autorun*.

12. Click *End Edit*.

13. Click *Yes* for "Send Update Notification Now?"

14. Click once in the # column.

15. Type in program lines (see the following example).

NOTE: This is only an example. Details need to fit the controller configuration.

```
10 REM ** AI3 IS STE-6013/6015
   TEMPERATURE SENSOR INPUT **

20 REM ** BV3 IS OCCUPIED/UNOCCUPIED
   (ON/OFF) MODE **

30 REM ** PUSH BUTTON ON SENSOR TO
   START OVERRIDE MODE (BV2) **

40 IF+ SENSORON( AI3 ) AND NOT BV3 THEN
   START BV2

50 REM ** CHANGE DEFAULT TIMEON TO
   DESIRED AMOUNT OF OVERRIDE TIME **

60 IF TIMEON( BV2 ) > 02:00:00 THEN
   STOP BV2

70 REM ** AO7 IS SUPPLY VOLTAGE FOR
   STE-6013/6015 LED **

80 IF BV2 THEN AO7 = 10 ELSE AO7 = 0

90 END
```

16. Click *Send*.

17. Click *OK*.

18. Click *Yes* for "Execute Program Now?"

19. Click *Close*.

20. Click *OK*.

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. **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 II Degree Fahrenheit or KMC Type II Degree Celsius.

2. Select the Lookup Table for the Type II Thermistor.

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*.

For an example of Override mode Control Basic, see the BACnet example in *Override (STE-6013/6015 Only) on page 2*.

TotalControl Software

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

WinControl Software

Thermistor Input (All)

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 II*.

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. If the STE-6013/6015 override is being used, *Average* may need to be reduced down toward *1* to ensure reliable recognition of the button press, depending on the controller.

NOTE: The button needs to be pressed and held for at least a half a second to be reliably recognized for override mode.

9. Click *OK*.

10. Click *End Edit*.

11. Click *OK*.

Override (STE-6013/6015 only)

1. In the WinControl software main menu, select *Control > Setpoint/Variables*.

2. Click *Edit*.

3. Type in a name in the appropriate *Description* field and/or *Label* field.

4. Click *Units* (which opens the Configure Variables screen).

5. Select *Type: Digital*.

6. Select *Off/On* (or *No/Yes*, *Stop/Start*, *Dis/Enabled* according to preference).

7. Click *OK*.

8. Click *End Edit*.

9. Click *OK*.

10. In the WinControl software main menu, select *Control > Control Basic*.

11. Click *Edit*.

12. Type in a name in the *Description* field and/or *Name* field.

13. Place an x in the *On* column.

14. Click *End Edit*.

15. Click once in the # column.

16. Type in program lines (see the following example).

NOTE: This is only an example. Details need to fit the controller configuration.

```
10 REM ** STE-6013/6015 OVERRIDE **

20 REM ** VAR5 IS OCCUPIED/UNOCCUPIED
   (ON/OFF) MODE **

30 IF NOT VAR5 THEN GOSUB 50

40 END

50 REM ** IN3 IS ROOM TEMP VOLTAGE FROM
   SENSOR (FROM INPUT SCREEN) **

60 REM ** VAR4 IS OVERRIDE (FROM
   SETPOINTS/VARIABLES SCREEN)**

70 REM ** USE BUTTON ON SENSOR TO START
   OVERRIDE (VAR4) **

80 IF+ SENSOR-ON( IN3 ) THEN START VAR4

90 REM ** OUT7 IS SUPPLY VOLTAGE FOR
   STE-6013/6015 LED **

100 IF VAR4 THEN OUT7 = 10 ELSE OUT7 =
    0

110 REM ** CHANGE DEFAULT TIME-ON TO
    DESIRED AMOUNT OF OVERRIDE TIME **

120 IF TIME-ON( VAR4 ) > 02:00:00 THEN
    STOP VAR4

130 RETURN
```

NOTE: For an additional sample application of programming override timers, adapt the information in the Application Note AN0504F Programming Override Timers section of the the Digital Designer's Guide (SP-022).

Mounting Considerations

Sensors must **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 or similar material inside the conduit to block air flow.

Troubleshooting

- Be sure the 10,000 ohm pull-up resistors on the controller board are 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 **NOT** mounted on an exterior wall, mounted on or near a large thermal mass, blocked from normal air circulation by obstructions, exposed to heat sources or to sunlight, exposed to drafts from windows or air vents, or exposed to air flow through the conduit from leaks in plenum ducts. (See the Mounting Considerations section above.)

Specifications

Connections	Clamp (screw-type) terminals or modular RJ-45 jack (see *Models on page 1*)
Material	Flame-retardant plastic, light almond or white
Weight	Approx. 1.25 oz. (35 grams)

Sensor

Type	Type II thermistor
Accuracy	± 0.36° F (± 0.20° C)
Resistance	10,000 ohms @ 77° F (25° C)
NTC	4.37%/° C @ 25° C
Dissipation Constant	2 mW/° C

STE-6013/6015 (Only)

Front Button	One momentary push button, shunts temperature sensor to signal override condition
LED Indicator	10 VDC (12 VDC max); 5 mA max. current draw at 12 VDC

Approvals	CE compliant

Environmental Limits

Operating	34 to 125° F (1.1 to 51.6° C)
Shipping	–40 to 140° F (–40 to 60° C)
Humidity	0 to 95% RH non-condensing

Accessories

HMO-6036	Universal Backplate, Almond
HMO-6036W	Universal Backplate, White
KMD-569**x**	STE-6010/6014/6015/6016/6017/6018 to Controller Cable with RJ-45 to RJ-11 Connectors (-569**3** = 25 ft.; -569**4** = 50 ft.; -569**5** = 75 ft.)
KMD-5624	PC Data Port (EIA-485) Cable
KMD-5576	EIA-485 to USB Communicator
SP-001	Flat Blade and Hex End Screw-driver

Important Notices

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