![KMC CONTROLS logo]

Installation & Operation Guide

KMD-7302/7302C Direct Digital Controller
(for Roof Top Applications)

Introduction

This section provides a brief overview of the KMD-7302 and the KMD-7302C Direct Digital Controllers. Review this material before you attempt to install the controller.

Illustration 1 shows the major controller components and their locations.
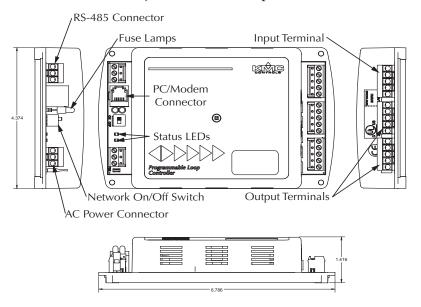

Illustration 1. Controller Components

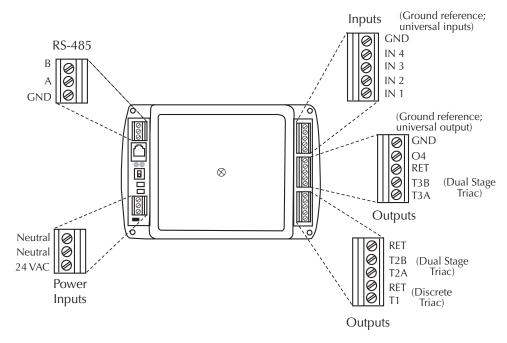Illustration 1 shows the connectors in greater detail.

Illustration 2. Connector Detail

Installation

This section provides important instructions and guidelines for installing the KMD-7302/7302C Controllers. Carefully review this information prior to attempting installation.

Mounting

Use the four mounting holes to securely mount the controller using #6 hardware inside a UL-approved Enclosed Energy Management Equipment Panel or other suitable protective enclosure. Refer to Illustration 3.
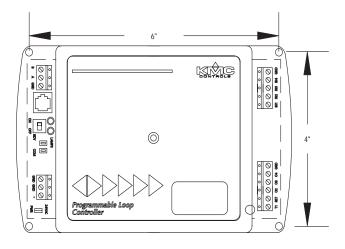

Illustration 3.   Mounting Hole Locations

Input Connections

Universal Inputs

Wiring connections are made depending on the intended application. Observe the following guidelines. (Refer to Illustration 2.)

◆ Connect device inputs to the input terminal connections for inputs 1–4.

◆ Connect all grounds to the common GND reference terminal.

◆ If input pull-ups are required, refer to "Configuration" later in this section.

RS-485 Inputs

Make connections to a network using the RS-485 connector. If the Controller is at the End-of-Line, refer to "Configuration" after connections are completed.

💡 Detail

The End-of-Line connection will have only one wire attached to the A and B terminals.

◆ For reliable operation, use Belden cable model #82760 or equivalent (18 gauge, twisted, shielded, 50 picofarads or less) for all network terminal block connections.

◆ Connect the nodes of the network in a daisy-chain arrangement. This means:

Connect the *A* terminal in parallel with all other *A* terminals.

Connect the *B* terminal in parallel with all other *B* terminals.

◆ Connect the shields of the cable together at each controller.

◆ Connect the shields to an earth ground only at one end of the segment; tape back the shield ground at the other end.

Connecting Outputs

One Discrete Triac, two Dual Stage Triacs and one Universal Output are available for output connections. The Discrete Triac output is labeled as T1; the Dual Stage Triacs are T2A/B and T3A/B and the Universal Output is labeled O4 on the output terminal block. Use the associated Return terminals for the Triacs and the GND for the Universal Output connection.

Configuration

Configuration settings may be required for the inputs or the RS-485 connection. If you must activate or de-activate pull-ups on the inputs or set the end-of-line termination for the RS-485 connection, refer to Illustration 4 to locate the switches for these settings.
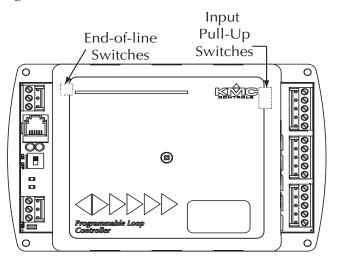

Illustration 4. Configuration Switch Locations

Proceed as follows:

1. Remove the screw at the center of the controller that secures the cover, then remove the cover.
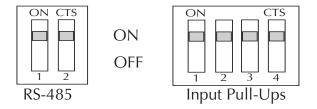2. Locate the appropriate switch (see Illustrations 4 and 5).

Illustration 5. Configuration Switches

3.   Set the switches as follows:

If the RS-485 connection is the End-of-Line controller, verify that both switches on the RS-485 switch are in the ON position. Otherwise, the switches remain in the "OFF" position.

If one or more inputs require a pull-up, verify that the appropriate switch is set to the ON position. If no pull-up is required, move the switch to the "OFF" position (away from the ON side of the terminal block).

4.   After you set the switches, replace the controller cover and secure it with the screw you removed earlier.

Power Connection

Connect the 24 VAC supply voltage to the power terminal block on the lower left side of the controller. Two neutral and one "hot" connection are available. Power is applied to the controller when the power supply (or transformer) is plugged in, there is no Power On/Off switch. Illustration 6 shows a typical connection diagram for the controller.
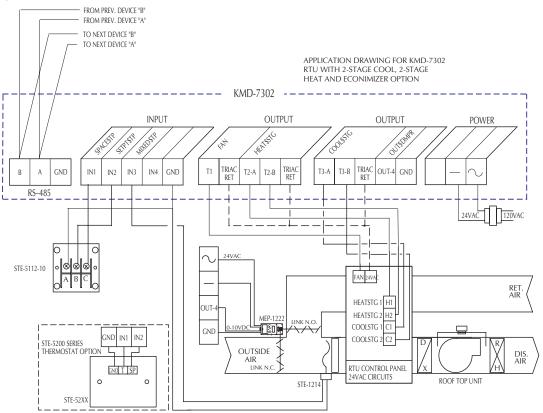

Illustration 6. Typical Controller Application Diagram

Configuration

Prior to operating the controller, it must be configured using the Hardware Configuration Manager (HCM) application supplied with WinControl. Refer to the WinControl XL User's Manual for additional information.

☞ **Note:**

All controllers on the same network must be configured for the same baud rate.

Programming

Refer to the KMC Digital Applications Manual for information on how to program the controller.

Operation

Once configured, programmed and powered up, the controller requires very little user intervention.

Controls and Indicators

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

Network ON/OFF

The network ON/OFF switch is located below the phone jack on the left side of the controller. Use this switch to enable or disable the RS-485 network connection.

Alternately, you may remove the RS-485 terminal block from the card to completely isolate the card from the network without disrupting network communications to other controllers.

Status LEDs

Two Status LEDs are located on the left side of the controller above the power connector terminal. They are used to indicate the following:

RDY – This LED flashes rapidly whenever the controller is operating normally. You can consider this the same as a power LED.

COM – This LED indicates when the controller is transmitting over the RS-485 network connection.

Isolation Lamps

Two Isolation Lamps are located near the Network ON/OFF switch. These lamps serve three functions:

◆ Removing the lamps will open the RS-485 circuit and isolate the controller from the network.

◆ If one, or both, lamps are lit, it indicates the network is improperly phased. This means that the ground potential of the controller is not the same as other controllers on the network

◆ If the voltage or current on the network exceeds safe levels, the lamps operate as fuses to protect the controller from damage.

Resetting the Controller

If the controller appears to be operating incorrectly, or is not responding to commands, you may need to reset the controller.

☞ Note

Resetting the controller will restore the factory default configuration.

It may be necessary to re-configure the controller with HCM to establish normal communications and operation. Re-programming may also be required.

To reset the controller, proceed as follows.

1. Remove the screw at the center of the controller that secures the cover, then remove the cover.
2. Locate the jumper block next to the input pull-up switches (see Illustration 7).

```
M A  [o|o]
RST  [o|o]
WD   [o|o]
FL   [o|o]
```

Illustration 7.   Reset Jumper Block

3. Power off the controller.
4. Place a short on the RST jumper.
5. Power up the controller. Wait until the RDY LED begins to flash normally.
6. Power off the controller.
7. Remove the short from the RST jumper.
8. Replace the controller cover.
9. Power up the controller and re-configure it if necessary.

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Technical Support

If you have any questions about this technical document or need additional details, please call KMC Controls technical services at 574-831-5250 or e-mail us at techs@kmccontrols.com.

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