

# Temperature Scanner/Pyrometer



## TDXM Model

- Scans Up To 24 Channels
- Three (3) Adjustable Trip Points Per Channel
- Accepts Any Combination of “J” or “K” Type Grounded or Ungrounded Thermocouples
- 2 Separate Groups with Deviation Trip Functions Selectable
- Powered By 10 to 32 VDC Systems
- RS485 Serial Communications Port
- Uses MConfig™ Configuration and Monitoring Software
- CSA Certified for Use in Class I, Division 2, Groups “C & D” Hazardous Locations

### Description

The innovative new TDXM now gives you a unique configurable temperature scanner/pyrometer with a built-in power supply. A new design features a 7-character, 7-segment Liquid Crystal Display window with 1/2 inch (13 mm), easy-to-read characters. Also located on the faceplate are membrane keys for easy configuring.

Highly reliable and versatile, the TDXM accepts up to 24 type “J” or “K” grounded or ungrounded\* thermocouples. Each channel has three (3) adjustable setpoints SP1, SP2 and SP3. The SP1, SP2 and SP3 Setpoints correspond to the SP1, SP2 and SP3 outputs. Additionally it has the selectable feature to monitor and alarm or shutdown on deviation from an average from up to two groups of temperatures (GRP/DEV; deviation from average). One group could be exhaust temperatures and another group could be bearing temperatures.

The TDXM is capable of communicating with controllers, PLC’s, computers or SCADA (Supervisory Control & Data Acquisition) systems by a built-in RS485 serial communications port.

The TDXM-DC is available for 10 - 32 VDC systems.

### User Interface (Faceplate)

The User Interface includes a numeric LCD display and a 5-button membrane keypad for readout and channel configuration. Thermocouple types can be selected and setpoints entered through a series of setup menus, see “Setup Menus” section.

### Thermocouple Types

Each of the 24 channels on the TDXM can be configured as either “J” or “K” type thermocouples

and temperature units can be selected as °F or °C readout for each channel. Unused channels can be set to “Ignore” and will not be seen in the display and will not cause fault trips.

### Control Options

Each TDXM model features three outputs: 2 Field Effect Transistor (FET) outputs and 1 Form-C Relay output. Each channel has 3 setpoints, one for each of the outputs. This allows for greater system flexibility by grouping sets of channels through one output.

### Setpoint History

The TDXM stores the last setpoint trip for each output in non-volatile memory. For instance, if SP1 of channel 1 was the last SP1 tripped, the LCD display will read: SP1 1 when the Setpoint History is accessed for SP1.

### Sensor Inputs and Terminals

The TDXM accepts up to 24, either “J” or “K” type grounded or ungrounded\* thermocouples using 24 pairs of screw type connections. Each pair has a jumper from the factory. Any tripped setpoint is detected within 2 seconds after the set point is exceeded.

### RS485 Serial Port

The RS485 serial port (MODBUS† RTU slave) on the back of the module is provided for communicating with micro-controllers, PC’s, PLC’s and SCADA systems (see “Typical Wiring Diagrams”). It is recommended that a termination resistor (customer supplied) be used when the TDXM is the last device connected in a daisy-chain configuration. The Baud rate, number

of stop bits, and slave node number can be set using the keypad. Communication is half-duplex. Modbus® RTU function codes 3 and 6 are supported.

### Specifications

**Power Input (Operating Voltages):** 10- 32VDC, 750 mW max.

**Sensor Inputs:** Up to 24 type “J” or “K” grounded or ungrounded\* thermocouples.

**Outputs:** Two (2) Outputs 0.5 A, 350 VDC, FET-sink to ground to trip.  
One (1) Form “C” Solid State Relay Output 0.125 A, 350 VDC/240 VAC.

**NOTE:** The form “C” relay output is de-energized for a trip condition. The NC terminal is closed and the NO terminal is open for trip.

**Communications:** RS485 Serial Port, MODBUS® RTU slave.

**Operating, Storage, and Display Temperature:** -40 to 85°C (-40 to 185F).

**Sensor Scan Rate:** Scans all channels in 2 seconds.

**Range:** Type K: 0 - 1999°F (0 - 1093°C); Type J: 0 - 1538°F (0 - 837°C).

**Display Type:** Custom 7-segment, 7-character, backlit type with temperature units indication and setpoint trip indication.

**Accuracy:** Cold junction: Better than ±0.5°C (1.0°F).  
Type “J” or “K”: ±1°C (2°F); 38 - 1093°C (100 - 1999°F).

Cold Junction Compensation: -40 to 85°C (-40 to 185F).

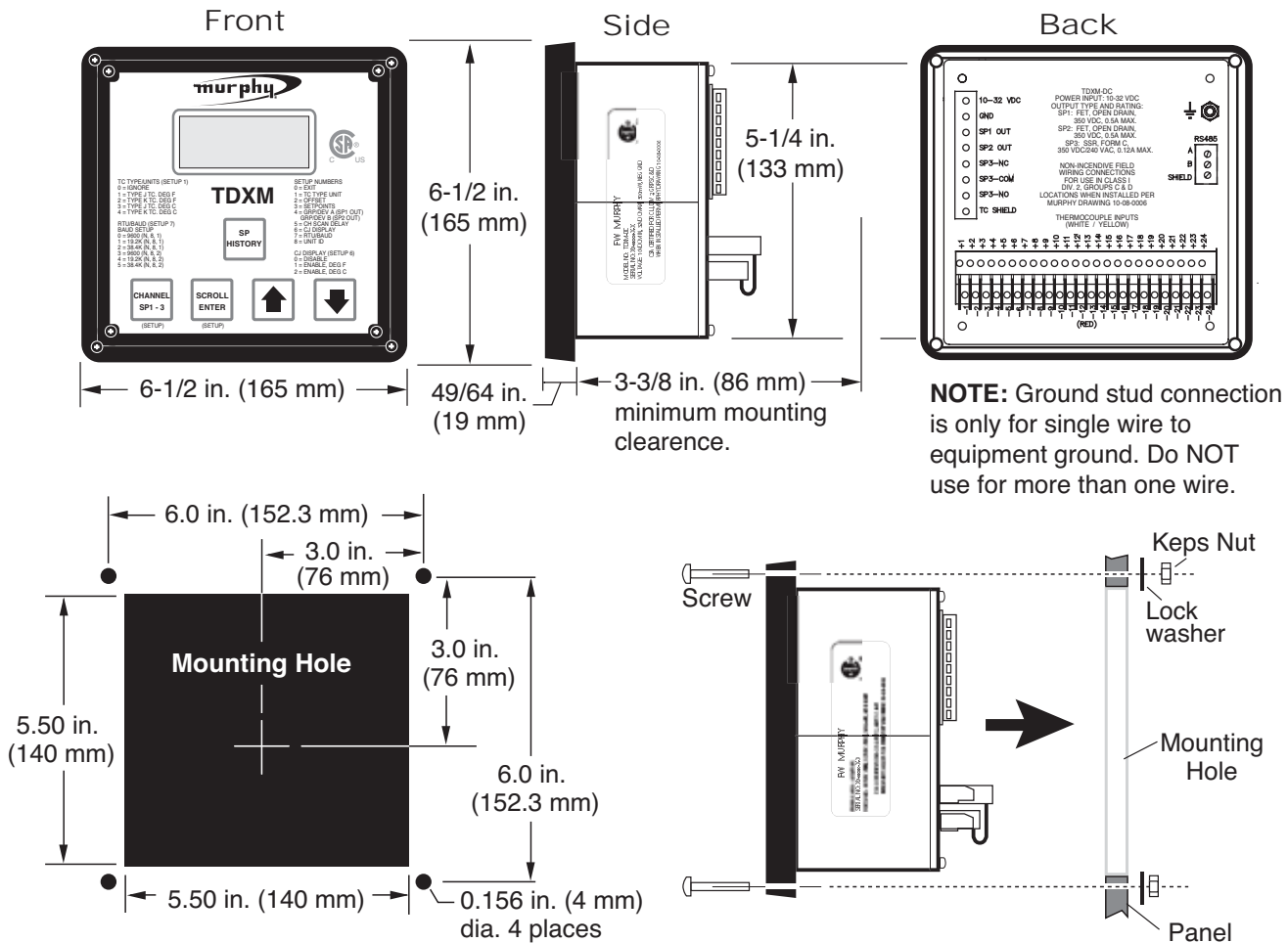
**Open Thermocouple Detection:** Drives channel reading high.

\*We recommend the use of ungrounded thermocouples. Errors in readings with grounded thermocouples can be the result of differences in grounding between different devices.

† MODBUS® is a registered trademark of AEG Schneider Automation Inc.



## TDXM Module Dimensions



**NOTE:** Ground stud connection is only for single wire to equipment ground. Do NOT use for more than one wire.

For Outdoor Use, the TDXM should be mounted in a weatherproof enclosure

### How to Order Your TDXM

Specify the following part number:

#### Head/Module

**TDXM-DC:** 24-channel model, 10-32 VDC powered.

**TDXM-DC W/SP3 Latch:** Same as TDXM-DC but with SP3 latch feature.

#### Configuration Software

**MConfig:** TDXM configuration software available.

#### Replacement Parts

**Plug, kit, TDXM:** Terminal Plug replacement kit-P/N 10-00-7848.

#### Shipping Weights and Dimensions

**Shipping Weight (all Models):** 3 lb. (1.36 kg) approximately.

**Shipping Dimensions (all Models):** 5-1/2 x 9 x 9-1/2 in. (140 x 229 x 241 mm) approximately.

#### Warranty

A limited warranty on materials and workmanship is given with this FW Murphy product. A copy of the warranty may be viewed or printed by going to [www.fwmurphy.com/support/warranty.htm](http://www.fwmurphy.com/support/warranty.htm)

**MURPHY**

[www.fwmurphy.com](http://www.fwmurphy.com)

918.317.4100 Email: [sales@fwmurphy.com](mailto:sales@fwmurphy.com)

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