TDXM-DC
Temperature Scanner/Pyrometer

The TDXM-DC provides a unique configurable temperature scanner/pyrometer with a built-in power supply.

- Configurable temperature scanner/pyrometer with a built-in power supply
- Scans up to 24 channels
- Three (3) adjustable trip points per channel
- Accepts any combination of J or K type grounded or ungrounded thermocouples
- Two 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

Overview

The TDXM-DC's design features a 7-character, 7-segment Liquid Crystal Display window with 1/2 in. (13 mm), easy-to-read characters. Also located on the faceplate are membrane keys for easy configuring. Highly reliable and versatile, the TDXM-DC accepts up to 24 type J or K grounded or ungrounded thermocouples. Each channel has three adjustable set points SP1, SP2 and SP3. The SP1, SP2 and SP3 set points correspond to the SP1, SP2 and SP3 outputs. Additionally, it has the selectable feature to monitor and alarm or shut down on deviation from an average for 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-DC is capable of communicating with controllers, PLCs, 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 and a five-button membrane keypad for readout and channel configuration. Thermocouple types can be selected and set points entered through a series of setup menus.

Thermocouple Types
Each of the 24 channels on the TDXM-DC 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-DC features three outputs: two Field Effect Transistor (FET) outputs and one Form-C Relay output. Each channel has three set points; one for each output. This allows for greater system flexibility by grouping sets of channels through one output.

Set Point History
The TDXM-DC stores the last set point 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 set point history is accessed for SP1.

Sensor Inputs and Terminals
The TDXM-DC 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 set point is detected within two seconds after the set point is exceeded.

FW MURPHY®
PRODUCTION CONTROLS

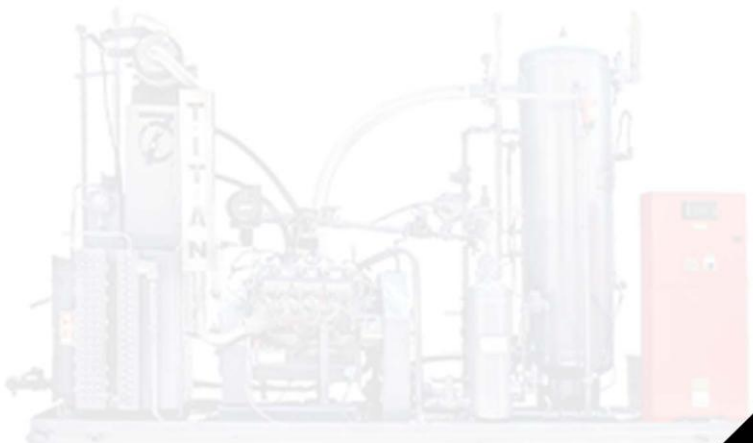Official FW Murphy Distributor
PT. ATAMORA TEHNIK MAKMUR

TDXM-DC
Temperature Scanner/Pyrometer

RS485 Serial Port

The RS485 serial port (Modbus RTU client) on the back of the module is provided for communicating with microcontrollers, PCs, PLCs and SCADA systems. It is recommended that a termination resistor (customer supplied) be used when the TDXM-DC is the last device connected in a daisy-chain configuration. The baud rate, number of stop bits and server 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) output .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 server
- Operating, Storage and Display Temperature: -40° F to 185° F (-40° C to 85° C)
- Sensor Scan Rate: Scans all channels in 2 seconds
- Range:
    - Type K: 0° F – 1999° F (0° C – 1093° C)
    - Type J: 0° F – 1538° F (0° C – 837° C)
- Display Type: Custom 7-segment, 7-character, backlit type with temperature units indication and set point trip indication
- Accuracy:
    - Cold junction: Better than ± 1.0° F (0.5° C)
    - Type J or K: ± 2° F (1° C); 100° F – 1999° F (38° C – 1093° C)
- Cold Junction Compensation: -40° F to 185° F (-40° C to 85° C)
- Open Thermocouple Detection: Drives channel reading high
- Shipping Weight (all Models): 2 lb. (.93 kg) approximately
- Shipping Dimensions (all Models): 5-1/2 x 9 x 9-1/2 in. (140 x 229 x 241 mm) approximately
- Third-Party Approvals: CSA Class I, Division 2, Groups C and D

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Temperature Scanner/Pyrometer
Model TDXM-DC

The TDXM-DC gives you a unique configurable temperature scanner/pyrometer with a built-in power supply. The 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-DC accepts up to 24 type J or K grounded or ungrounded thermocouples. Each channel has three adjustable set points SP1, SP2 and SP3. The SP1, SP2 and SP3 set points correspond to the SP1, SP2 and SP3 outputs. Additionally, it has the selectable feature to monitor and alarm or shut down on deviation from an average for 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-DC is capable of communicating with controllers, PLCs, 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.

Features

User Interface (Faceplate)
The User Interface includes a numeric LCD and a five-button membrane keypad for readout and channel configuration. Thermocouple types can be selected and set points entered through a series of set-up menus.

Thermocouple Types
Each of the 24 channels on the TDXM-DC 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-DC features three outputs: two Field Effect Transistor (FET) outputs and one Form-C Relay output. Each channel has three set points; one for each output. This allows for greater system flexibility by grouping sets of channels through one output.

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

Dimensions
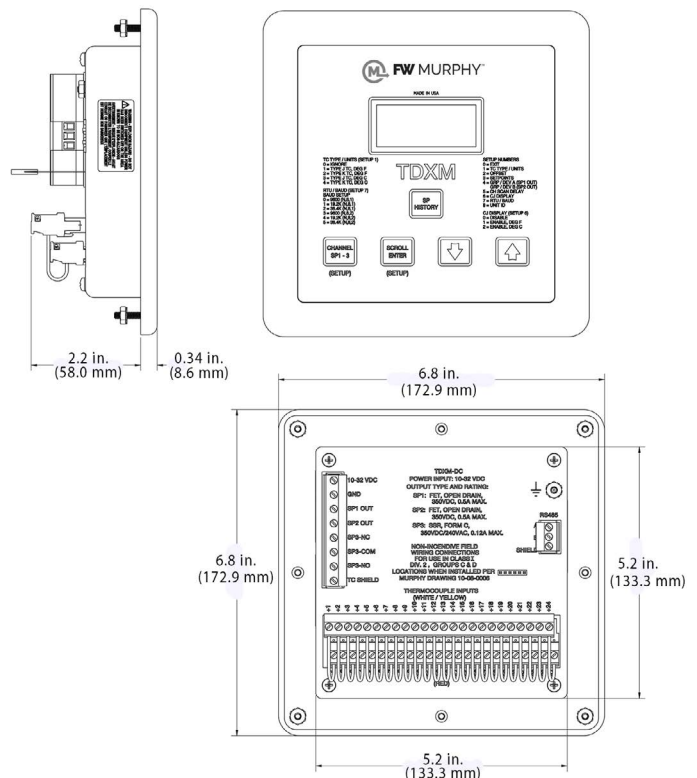
Sensor Inputs and Terminals

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RS485 Serial Port

The RS485 serial port (Modbus RTU server) on the back of the module is provided for communicating with microcontrollers, PCs, PLCs and SCADA systems. The baud rate, number of stop bits and RTU node number can be set using the keypad.

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

Important: For outdoor use, the TDXM-DC should be mounted in a weatherproof enclosure.

Specifications

Power Input (Operating Voltages): 10- 32VDC, 4.2 W max

Sensor Inputs:

Up to 24 type J or K grounded or ungrounded‡ thermocouples

Outputs:

Two (2) Output .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 server

Operating, Storage and Display Temperature:

-40° F to 185° F (-40° C to 85° C)

‡ We recommend the use of ungrounded thermocouples. Errors in readings with grounded thermocouples can be the result of differences in grounding between different devices.
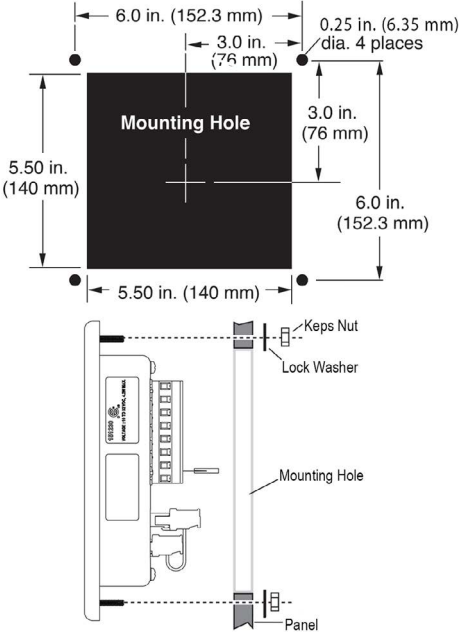
Sensor Scan Rate: Scans all channels in 2 seconds

Range:

Type K: 0° F - 1999° F (0° C - 1093° C)

Type J: 0° F - 1538° F (0° C - 837° C)

Display Type: Custom 7-segment, 7-character, backlit type with temperature units indication and set point trip indication

Accuracy:

Cold junction: Better than ± 1.0° F (0.5° C)

Type J or K: ± 2° F (1° C); 100° F - 1999° F (38° C - 1093° C)

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

Open Thermocouple Detection: Drives channel reading high

Shipping Weight (all Models): 2 lb. (.93 kg) approximately

Shipping Dimensions (all Models):

5-1/2 x 9 x 9-1/2 in. (140 x 229 x 241 mm) approximately

Third-Party Approvals: CSA Class I, Division 2, Groups C and D

How to Order

Part Number	Model and Description	Notes
10702748	TDXM-DC: 24-channel model, 10-32 VDC powered	Head/Module
10702996	TDXM-DC W/SP3 Latch: TDXM-DC with SP3 latch feature	
53702325	Kit, RS485 to USB user interface with 10 inch Cable	
*Download Available	MConfig™: TDXM-DC configuration software	Configuration Software
* Go to www.fwmurphy.com and select Resources and Support / Software Download. Select and download the MConfig™ Software.		

Approximate Shipping Weight and Dimensions		
Model	Weight	Dimension
TDXM-DC	2 lb. (.96 kg)	5-1/2 x 9 x 9-1/2 in. (140 x 229 x 241 mm)