Instruction Manual

Digital Temperature Scanning Indicator

PMD-MXT Series

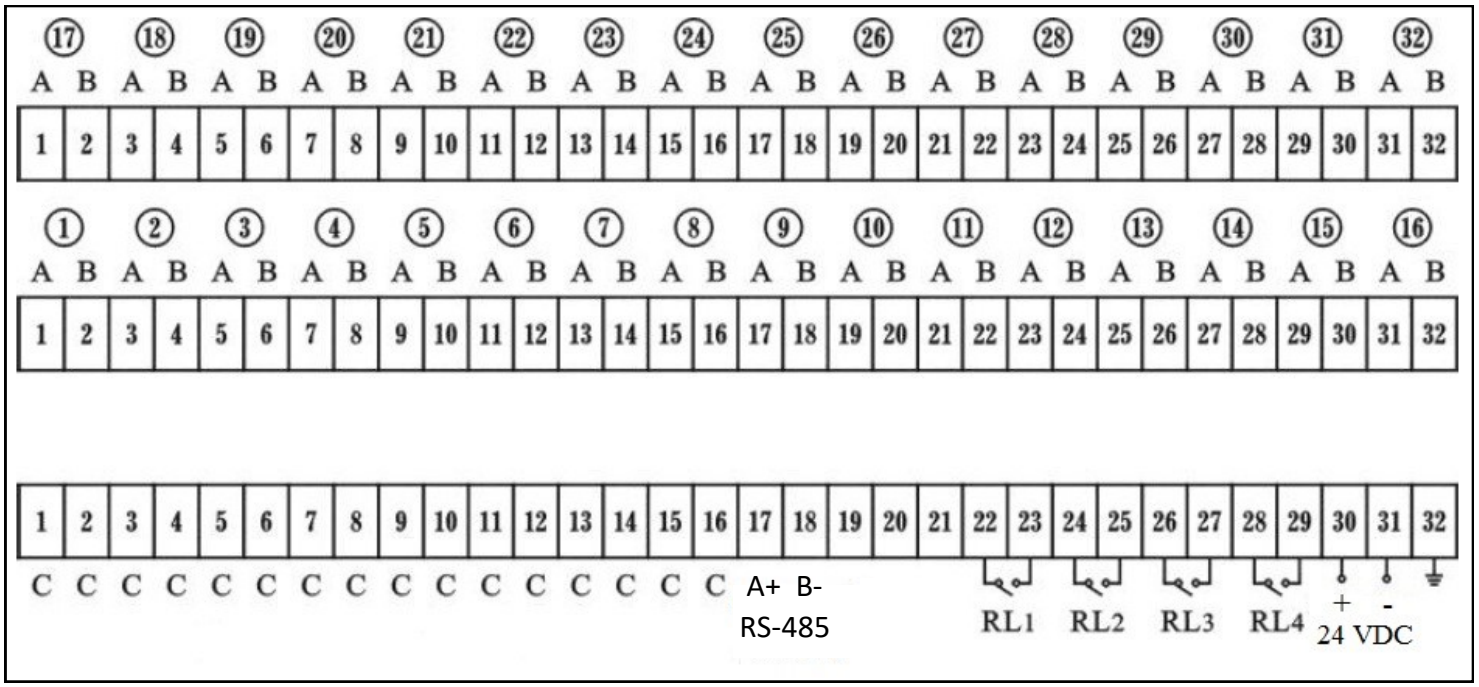
Part Number Configurator:

Model	Input Channels	Input Type
PMD-MXT	**-XX**	**-XXX**
	08 8 channels	**RTD** RTD
	16 16 channels	**THC** Thermocouple
	24 24 channels	
	32 32 channels	

Ordering Example

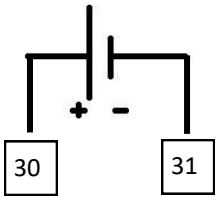
PMD-MXT-24-RTD: 24 input channels, RTD Input

Rear Panel Wiring Schematic:



Power Supply Wiring:

Use: 24 VDC Power Supply

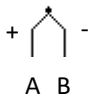


RS-485 Wiring:

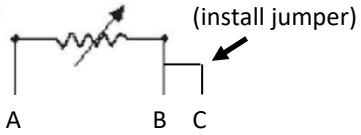
RS-485	PMD-MXT (Terminal #)
D +	A + (17)
D -	B - (18)

Signal Wiring:

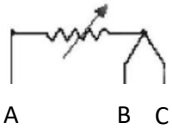
Thermocouple



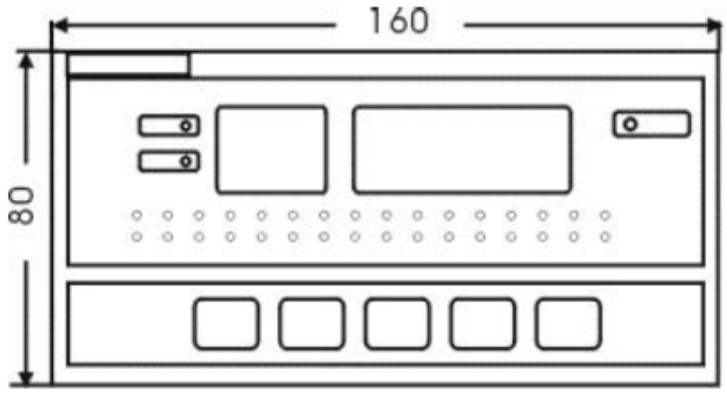
2-Wire RTD

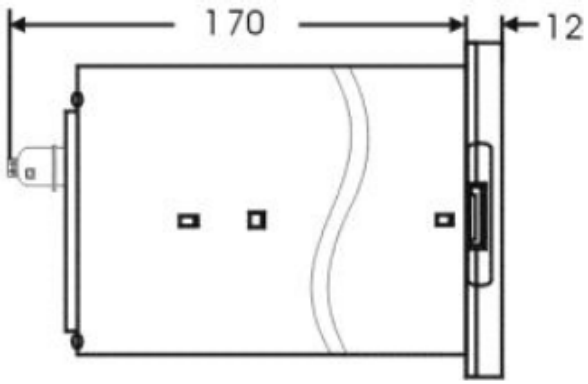


3-Wire RTD

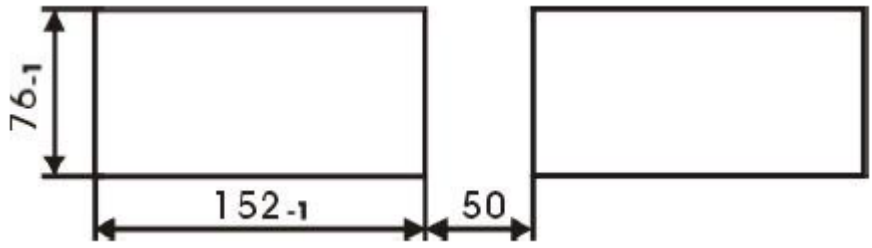


Indicator Dimensions (mm):

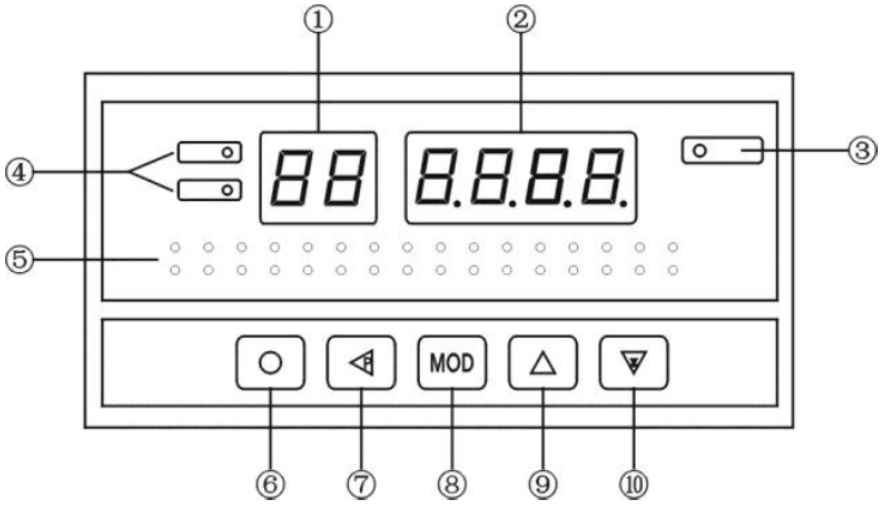




Cutout Dimensions (mm):



Faceplate:



Push Button Functions:

①	Channel Select Indication
②	Measured Value Indication
③	External Printer Communications Indicator (LED) (** If option is installed)*
④	Master Alarms Indicators (LED)
⑤	Individual Channel Alarm Indicators (LED) LED Status: Lit = Alarm Warning, Unlit = No Alarm, Flashing = Nearing Alarm Warning
⑥	Function Key
⑦	Program Key
⑧	Modify Key (Enter)
⑨	Increase Key
⑩	Decrease Key, Alarm Mute

Choose Auto Scanning / Manual Scanning Mode Function :

The instrument powers up in Auto Scanning mode. To change to Manual Scanning mode:

Press MOD key x1 to enter Manual Scanning mode.

The Channel Selection Indication will begin flashing. Use the ▲ or ▼ keys to display desired channel.

To return to instrument Auto Scanning Mode press MOD key x1.

Changing a Channel's Alarm Set-point Parameter Setting:

NOTE: The instrument has (4) user selectable alarm set-points AH & AL & bH & bL

Press MOD key x1 to enter Manual Scanning mode.

The Channel Selection Indication will begin flashing. Use the ▲ or ▼ keys to display desired channel.

Press & hold the ● key for 3 seconds

The Channel Selection Indication will display AH & the channel number. Now press the ◄1 key x1

The Measured Value Indication will display the current alarm set-point value for AH (alarm relay #1)

Pressing the MOD key x1 will sequence to the AL alarm set-point value (alarm relay #2)

Pressing the MOD key x1 will sequence to the bH alarm set-point value (alarm relay #3)

Pressing the MOD key x1 will sequence to the bL alarm set-point value (alarm relay #4)

To change the channel's alarm set-point value

Once the desired AH or AL or bH or bL parameter is selected press the ◄1 key x1

The current alarm set-point will flash in the Measured Value Indication window

Change the value to the desired alarm set-point using the ◄1 ▲ ▼ keys

Press the MOD x1 to store the new alarm set-point value

To return to Manual Scanning Mode press and hold the ● key for 6 seconds

HINT: Time saving shortcut to copy a channel's parameter settings to the next channel

EXAMPLE: Copy Channel 1 AH setting of 900 from Channel 1 to Channel 2 and all the way up to Channel 16

Set AH01 parameter to 900 then continually press the MOD key until AH is displayed again. Then press the ◄1 key x1

When AH01 is displayed press the ▲ key x1, the display will now read AH02 and the setting of 900 will have been copied

Press the ▲ key again and AH03 will be displayed . Keep pressing the ▲ key until AH 16 is displayed

All 16 channels AH settings are now 900

Changing a Channel's Input Type & Scale Factor:

To change a channel's Input Type & Scale Factor, a security access code must be entered.

Follow these instructions:

Press MOD key x1 to enter Manual Scanning mode.

The Channel Selection Indication will begin flashing. Use the or keys to display the desired channel

Press & hold the ● key for 3 seconds

The Channel Selection Indication will display AH

Press & hold the ● key for 3 seconds

The Measured Value indication will display oA

Press the ◂1 key x1 until 0000 is in the Measured Value Indication window

Change the value to 1111 using the ◂1 ▲ ▼ keys

Press MOD key x1 the Measured Value indication will display oA

Press & hold the ● key for 3 seconds

Use the ▲ or ▼ keys to choose the channel to be modified

Press & hold the ● key for 3 seconds

The Channel Selection Indication will display AH and in the Measured Value Indication window will be the channel number

The instrument is now in the programming mode

Press MOD key to increment through the Channel Input Type & Scale Factor settings

Reference: [Table 1] Channel Input Type & Scale Factor Settings

To Modify a Channel's Input Type or Scale Factor follow these instructions:

Once at the desired Channel's Input Type or Scale Factor parameter is in the display, Press the ◂1 key to access the parameter

Use the ◂1 ▲ ▼ arrow keys to modify the parameter value

Press the MOD key to save the new parameter value & move to the next Advanced Function parameter

To exit & return to Manual Scanning Mode press and hold the ● key for 6 seconds

Channel Input Type & Scale Factor Settings Table:

[Table 1] Channel Input Type & Scale Factor Settings

Displayed Value	Function	Comment	Note
AH	Alarm AH Set-point Value	Enter alarm #1 trip point value	
AL	Alarm AL Set-point Value	Enter alarm #2 trip point value	
bH	Alarm bH Set-point Value	Enter alarm #3 trip point value	
bL	Alarm bL Set-point Value	Enter alarm #4 trip point value	
cA	Zero Offset Correction Value	Default = 0000	1
FC	Full Scale Offset Correction Value	Default = 1.000	1
Ct	Input Signal Type	*See [Table 3] Input Type Options*	
Cd	Decimal Point Position	0.000, 00.00, 000.0, or 0000 (Default = 0000)	2
ur	Input Low Value	Default = 0	3
Fr	Input High Value	Default = 3000	3
dy	Engineering Unit Selection	*See [Table 2] Engineering Unit Selections*	
Lb	Digital Filtering Time Coefficient	Default = 0001	

Note 1: Corrected Measured Value = FC x (Measured Value + cA)

HINT: To display in °F FC = 1.8 and cA = 32

Note 2: RTD input: only 000.0 (0.1°C), Thermocouple input: only 0000 (1°C) or 000.0 (0.1°C)

Note 3: Does not apply to Thermocouple or RTD inputs, Voltage or Current inputs only

[Table 2] Engineering Unit Selections

0	1	2	3	4	5	6	7	8	9
	°C	%RH	%	Pa	kPa	MPa	t/h	m3/h	l/m
10	11	12	13	14	15	16	17	18	19
m	Mm	Kg	t	kN	V	A	PPm	Mbar	bar

[Table 3] Input Type Options

No.	Displayed Value	Input Signal
0	_oFF	Not in Use
1	P 100	RTD PT100
2	c 100	RTD Cu100
3	cu50	RTD Cu50
4	_bA1	RTD BA1
5	_bA2	RTD BA2
6	_G53	RTD G53
7	___K	Thermocouple Type K
8	___S	Thermocouple Type S
9	___r	Thermocouple Type R
10	___b	Thermocouple Type B
11	___n	Thermocouple Type N
12	___E	Thermocouple Type E
13	___J	Thermocouple Type J
14	___t	Thermocouple Type T
15	4-20	DC current; 4-20 mA
16	0- 10	DC current; 0-10 mA
17	0-20	DC current; 0-20 mA
18	1-5u	DC voltage; 1-5V
19	0-5u	DC voltage; 0-5V

Advanced Functions:

To access the Advanced Functions follow these instructions:

Press MOD key x1 to enter Manual Scanning mode.

The Channel Selection Indication will begin flashing. Use the ▲ or ▼ keys to display the desired channel

Press & hold the ● key for 3 seconds

The Channel Selection Indication will display AH

Press & hold the ● key for 3 seconds

The Measured Value indication will display oA

Press the ◂1 key x1 until 0000 is in the Measured Value Indication window

Change the value to 1111 using the ◂1 ▲ ▼ keys

Press MOD key x1 the Measured Value indication will display oA

Press MOD key x1 the Channel Selection indication will display ct

The instrument is now in the programming mode

Press MOD key to increment through the Advanced Functions settings

Reference: [Table 4] Advanced Functions

To Modify an Advanced Function follow these instructions:

Once at the desired Advanced Function parameter is in the display, Press the ◂1 key to access the parameter

Use the ◂1 ▲ ▼ arrow keys to modify the parameter value

Press the MOD key to save the new parameter value & move to the next Advanced Function parameter

To exit & return to Manual Scanning Mode press and hold the ● key for 6 seconds

Advanced Functions Table:

[Table 4] Advanced Functions

Displayed Value	Function	Comment
ct	Channel Indication Switching Time Setting	When in Auto Scanning Mode, Range 0.5~10.0 seconds
cH	Number of Active Input Channels	**For factory use only* *DO NOT CHANGE**
Ld	Cold Junction Compensation Mode Setting	**For factory use only* *DO NOT CHANGE** (Default = 61)
Lc	Cold Junction Compensation Coefficient	**For factory use only* *DO NOT CHANGE** (Default = 1.00)
F1	Alarm Type AH (alarm relay #1)	H = High Alarm, L = Low Alarm (Default = H)
F2	Alarm Type AL (alarm relay #2)	H = High Alarm, L = Low Alarm (Default = L)
F3	Alarm Type bH (alarm relay #3)	H = High Alarm, L = Low Alarm (Default = H)
F4	Alarm Type bL (alarm relay #4)	H = High Alarm, L = Low Alarm (Default = L)
H1	Alarm AH Hysteresis	Default = 0, Max Hysteresis = 500
H2	Alarm AL Hysteresis	Default = 0, Max Hysteresis = 500
At	Alarm Latching or Non-Latching	Non-Latching = 0 Timed-Latching = Set Range 1~50 seconds* * Alarm will remain on for this additional number of seconds Latching = 51 (user must press  to reset alarm) (Default = 0)
Ad	RS-485 Address *(* if option is installed)*	Default = 1
bd	RS-485 Baud Rate *(* if option is installed)*	Default = 9600 Range: 2400, 4800, 9600, 19.2k

Technical Specifications:

Input type:	Thermocouple:	J, K, T, B, E, N, R, S	
	RTD:	PT100, CU100, CU50	
Accuracy:	RTD**:**	+/- 1.0% of full scale	
	Thermocouple:	+/- 0.5% of full scale	
Resolution:	RTD (0.1° Res):	-167.9 to +999.9°F	(-189.9 to +596.9°C)
	TC (0.1° Res):	-167.9 to +999.9°F	(-199.9 to +999.9°C)
	TC (1° Res):	-412 to 3271°F	(-257 to 1800°C)
Measuring Range:	PT100:	-167.9 to +999.9°F	(-189.9 to +596.9°C)
	B:	+1050 to 3243°F	(+566 to +1784°C)
	E:	-317 to +1502°F	(-194 to +817°C)
	J:	-319 to 1988°F	(-195 to +1087°C)
	K:	-328 to 2498°F	(-200 to +1370°C)
	N:	-328 to 2370°F	(-200 to +1299°C)
	R:	-40 to +3169°F	(-40 to +1743°C)
	S:	-24 to 3153°F	(-31 to +1734°C)
	T:	-320 to 752°F	(-196 to +400°C)

Display: 4-digit LED, 0.56 inch (14 mm high)

Sample Rate: From 0.5 to 10 seconds per channel (User selectable)

Power: 20 to 28 VDC @ 400 mA (nominal)

Warmup Time: 20 minutes

Dimensions: 6.3 inch x 3 inch x 7 inch (160 mm x 80 mm x 182 mm)
(Cutout: 6 inch x 3 inch (152 mm x 76 mm))

Weight: 2 pounds (900 grams)

Relay contact: 250 VAC @ 2 amps (resistance load)

Environment: 0 to 50°C, 90% Max. RH (non-condensing**)**

⚠ Danger

• Ensure that the vehicle will remain stationary and turn off the engine before installing this product. Failure to do so could result in a fire, and could make the vehicle move during installation.

● Remove the key from the ignition and disconnect the negative (-) battery terminal prior to installation of this product. Failure to do so could result in a fire caused by an electrical short circuit.

● Take care not to install this product in a way that interferes with safety equipment such as seat belts and air bag systems or vehicle operation equipment such as engine controls, steering wheel or brake systems. Interference with normal operation of the vehicle can result in an accident or fire.

● Solder or use a solderless connector for wiring connections and make sure connections are insulated. In areas where there could be tension or sudden impacts on the wiring, safeguard the wiring with corrugated tubing or other shock absorbent material. Accidental shorts can cause fires.

⚠ Warning

● Carefully consider the installation location and driver's operation of the product before installation. Do not install the product where it interrupts driving and the safety deices of vehicle such as the air bag system. Be sure not to install the unit where it could fall. Improper installation or operation could cause the product to fall and damage the vehicle or cause serious danger by impeding driving.

● Do not disassemble or modify this product. Such actions can not only damage or destroy the product but will also void the warranty.

● Do not perform installation of this product immediately after the engine has been switched off. The engine and exhaust system are extremely hot at this time and can cause burns if touched.

● Ensure that the wiring of this product does not have an adverse impact on the other wiring of the vehicle. Any controlling devices or other electronic components of the vehicle could be damaged.

● Please keep children and infants away from the installation area. Children may swallow small parts or be injured in other ways.

⚠ Caution

● Insulate any unused wires. If any wires or connectors loosen during installation, please make sure they are correctly reattached.

● Dropping any of the components of this product will result in damage to the product.

● Excessive force on switches/terminals may result in damage to the product.

● Use only the wires provided. If additional wires are required, use the same of quality and gauge wire as is provided with the kit.

● Do not attach wires on the body of the vehicle or engine parts as this may result in damage to the product.

● Install wires away from ignition and also radio signal frequency interference as this could cause the gauges to malfunction.

● Do not place wires near the engine, exhaust pipe or turbine. It may result in damage or fusion of wires.

● Make sure the waterproof processing is done when routing wires in the engine compartment.

● When installing the sensor, do not bend the wire near the sensor body.

● Wear gloves to avoid burns when soldering and cuts when working with wiring.

● Do not share a single fuse with multiple gauges. Every gauge requires an independent fuse.

● Install gauge away from hot or wet places.

● Do not pull the wires out of connectors forcefully. The connectors may be broken and the wires may be cut. When pulling out the wires, press the lock firmly and unclip the locks of connectors.

12 MONTH LIMITED WARRANTY

Harold G. Schaevitz Industries LLC, The Sensor Connection (HGSI) warrants to the consumer that all HGSI products will be free from defects in material and workmanship for a period of twelve (12) months from date of the original purchase. Products that fail within this 12 month warranty period will be repaired or replaced at HGSI's option to the consumer, when it is determined by HGSI that the product failed due to defects in material or workmanship. This warranty is limited to the repair or replacement of parts in the HGSI instruments. In no event shall this warranty exceed the original purchase price of the HGSI instruments nor shall HGSI be responsible for special, incidental or consequential damages or costs incurred due to the failure of this product. Warranty claims to HGSI must be transportation prepaid and accompanied with dated proof of purchase. This warranty applies only to the original purchaser of product and is non-transferable. All implied warranties shall be limited in duration to the said 12 month warranty period. Breaking the instrument seal, improper use or installation, accident, water damage, abuse, unauthorized repairs or alterations voids this warranty. HGSI disclaims any liability for consequential damages due to breach of any written or implied warranty on all products manufactured or supplied by HGSI.

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