Instruction Manual

Digital Temperature Scanning Indicator

PMD-MXT Series
Part Number Configurator:

<table>
<thead>
<tr>
<th>Model</th>
<th>Input Channels</th>
<th>Input Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMD-MXT-XX-XXX</td>
<td>8 channels</td>
<td>RTD RTD</td>
</tr>
<tr>
<td>08</td>
<td>16 channels</td>
<td>THC Thermocouple</td>
</tr>
<tr>
<td>16</td>
<td>24 channels</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>32 channels</td>
<td></td>
</tr>
</tbody>
</table>

Ordering Example

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

Rear Panel Wiring Schematic:
Power Supply Wiring:

Use: 24 VDC Power Supply

Signal Wiring:

Thermocouple

2-Wire RTD

3-Wire RTD

(In install jumper)

RS-485 Wiring:

<table>
<thead>
<tr>
<th>RS-485</th>
<th>PMD-MXT (Terminal #)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D +</td>
<td>A + (17)</td>
</tr>
<tr>
<td>D -</td>
<td>B - (18)</td>
</tr>
</tbody>
</table>

Indicator Dimensions (mm):

Cutout Dimensions (mm):
# Instruction Manual - PMD-MXT Scanning Indicator

## Faceplate:

![Faceplate Diagram]

## Push Button Functions:

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

---

www.HGSIND.com

02-2019

HAROLD G. SCHAEVITZ INDUSTRIES

The Sensor Connection
Choose Auto Scanning / Manual Scanning Mode Function:

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

Press \text{MOD} key x1 to enter Manual Scanning mode.

The Channel Selection Indication will begin flashing. Use the \text{A} or \text{B} keys to display desired channel.

To return to instrument Auto Scanning Mode press \text{MOD} key x1.

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

\textbf{NOTE:} The instrument has (4) user selectable alarm set-points $\text{RH} \& \text{RL} \& \text{bH} \& \text{bL}$

Press \text{MOD} key x1 to enter Manual Scanning mode.

The Channel Selection Indication will begin flashing. Use the \text{A} or \text{B} keys to display desired channel.

Press & hold the \text{C} key for 3 seconds

The Channel Selection Indication will display $\text{RH}$ & the channel number. Now press the \text{D} key x1

The Measured Value Indication will display the current alarm set-point value for $\text{RH}$ (alarm relay #1)

Pressing the \text{MOD} key x1 will sequence to the $\text{RL}$ alarm set-point value (alarm relay #2)

Pressing the \text{MOD} key x1 will sequence to the $\text{bH}$ alarm set-point value (alarm relay #3)

Pressing the \text{MOD} key x1 will sequence to the $\text{bL}$ alarm set-point value (alarm relay #4)

To change the channel’s alarm set-point value

Once the desired $\text{RH}$ or $\text{RL}$ or $\text{bH}$ or $\text{bL}$ parameter is selected press the \text{D} 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 \text{A} or \text{B} or \text{C} keys

Press the \text{MOD} x1 to store the new alarm set-point value

To return to Manual Scanning Mode press and hold the \text{C} key for 6 seconds

\textbf{HINT:} Time saving shortcut to copy a channel’s parameter settings to the next channel

\textbf{EXAMPLE:} Copy Channel 1 $\text{RH}$ setting of 900 from Channel 1 to Channel 2 and all the way up to Channel 16

Set $\text{RH}$ parameter to 900 then continually press the \text{MOD} key until $\text{RH}$ is displayed again. Then press the \text{D} key x1

When $\text{RH}$ is displayed press the \text{A} key x1, the display will now read $\text{RH02}$ and the setting of 900 will have been copied

Press the \text{A} key again and $\text{RH03}$ will be displayed. Keep pressing the \text{A} key until $\text{RH16}$ is displayed

All 16 channels $\text{RH}$ 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 the 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 RH
Press & hold the key for 3 seconds
The Measured Value indication will display 0000
Press the key x1 until 0000 is in the Measured Value Indication window
Change the value to 1111 using the keys
Press the key x1 the Measured Value indication will display 0000
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 RH and in the Measured Value Indication window will be the channel number
The instrument is now in the programming mode
Press the 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 key to access the parameter
Use the arrow keys to modify the parameter value
Press the 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>
<thead>
<tr>
<th>Displayed Value</th>
<th>Function</th>
<th>Comment</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm</td>
<td>Set-point Value</td>
<td>Enter alarm #1 trip point value</td>
<td></td>
</tr>
<tr>
<td>Alarm</td>
<td>Set-point Value</td>
<td>Enter alarm #2 trip point value</td>
<td></td>
</tr>
<tr>
<td>Alarm</td>
<td>Set-point Value</td>
<td>Enter alarm #3 trip point value</td>
<td></td>
</tr>
<tr>
<td>Alarm</td>
<td>Set-point Value</td>
<td>Enter alarm #4 trip point value</td>
<td></td>
</tr>
<tr>
<td>( \text{Zero Offset Correction Value} )</td>
<td>Default = 0000</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>( \text{Full Scale Offset Correction Value} )</td>
<td>Default = 1.000</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>( \text{Input Signal Type} )</td>
<td>See [Table 3] Input Type Options</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( \text{Decimal Point Position} )</td>
<td>0.000, 00.00, 000.0, or 0000 (Default = 0000)</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>( \text{Input Low Value} )</td>
<td>Default = 0</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>( \text{Input High Value} )</td>
<td>Default = 3000</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>( \text{Engineering Unit Selection} )</td>
<td>See [Table 2] Engineering Unit Selections</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( \text{Digital Filtering Time Coefficient} )</td>
<td>Default = 0001</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note 1: Corrected Measured Value = \( \text{FC} \times (\text{Measured Value} + \text{CR}) \)

HINT: To display in °F \( \text{FC} = 1.8 \) and \( \text{CR} = 32 \)

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

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>*C</td>
<td>%RH</td>
<td>%</td>
<td>Pa</td>
<td>kPa</td>
<td>MPa</td>
<td>t/h</td>
<td>m3/h</td>
<td>l/m</td>
<td></td>
</tr>
<tr>
<td>m</td>
<td>Mm</td>
<td>Kg</td>
<td>t</td>
<td>kN</td>
<td>V</td>
<td>A</td>
<td>PPM</td>
<td>Mbar</td>
<td>bar</td>
</tr>
</tbody>
</table>
### Table 3  Input Type Options

<table>
<thead>
<tr>
<th>No.</th>
<th>Displayed Value</th>
<th>Input Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>.off</td>
<td>Not in Use</td>
</tr>
<tr>
<td>1</td>
<td>P100</td>
<td>RTD PT100</td>
</tr>
<tr>
<td>2</td>
<td>c100</td>
<td>RTD Cu100</td>
</tr>
<tr>
<td>3</td>
<td>cu50</td>
<td>RTD Cu50</td>
</tr>
<tr>
<td>4</td>
<td>bA1</td>
<td>RTD BA1</td>
</tr>
<tr>
<td>5</td>
<td>bA2</td>
<td>RTD BA2</td>
</tr>
<tr>
<td>6</td>
<td>G53</td>
<td>RTD G53</td>
</tr>
<tr>
<td>7</td>
<td>___K</td>
<td>Thermocouple Type K</td>
</tr>
<tr>
<td>8</td>
<td>___S</td>
<td>Thermocouple Type S</td>
</tr>
<tr>
<td>9</td>
<td>___R</td>
<td>Thermocouple Type R</td>
</tr>
<tr>
<td>10</td>
<td>___B</td>
<td>Thermocouple Type B</td>
</tr>
<tr>
<td>11</td>
<td>___N</td>
<td>Thermocouple Type N</td>
</tr>
<tr>
<td>12</td>
<td>___E</td>
<td>Thermocouple Type E</td>
</tr>
<tr>
<td>13</td>
<td>___J</td>
<td>Thermocouple Type J</td>
</tr>
<tr>
<td>14</td>
<td>___T</td>
<td>Thermocouple Type T</td>
</tr>
<tr>
<td>15</td>
<td>4-20</td>
<td>DC current; 4-20 mA</td>
</tr>
<tr>
<td>16</td>
<td>0-10</td>
<td>DC current; 0-10 mA</td>
</tr>
<tr>
<td>17</td>
<td>0-20</td>
<td>DC current; 0-20 mA</td>
</tr>
<tr>
<td>18</td>
<td>1-Su</td>
<td>DC voltage; 1-5V</td>
</tr>
<tr>
<td>19</td>
<td>0-Su</td>
<td>DC voltage; 0-5V</td>
</tr>
</tbody>
</table>
Advanced Functions:

To access the Advanced Functions follow these instructions:

Press \[\text{MOD}\] key x1 to enter Manual Scanning mode.

The Channel Selection Indication will begin flashing. Use the \[\uparrow\] or \[\downarrow\] keys to display the desired channel

Press & hold the \[\text{MOD}\] key for 3 seconds

The Channel Selection Indication will display \[\text{AH}\]

Press & hold the \[\text{MOD}\] key for 3 seconds

The Measured Value indication will display \[\text{AR}\]

Press the \[\text{MOD}\] key x1 until \text{0000} is in the Measured Value Indication window

Change the value to \text{1111} using the \[\downarrow\] \[\uparrow\] \[\rightarrow\] keys

Press \[\text{MOD}\] key x1 the Measured Value indication will display \[\text{AR}\]

Press \[\text{MOD}\] key x1 the Channel Selection indication will display \[\text{Ct}\]

The instrument is now in the programming mode

Press \[\text{MOD}\] 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 \[\downarrow\] key to access the parameter

Use the \[\downarrow\] \[\uparrow\] \[\rightarrow\] \[\leftarrow\] arrow keys to modify the parameter value

Press the \[\text{MOD}\] 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 \[\text{MOD}\] key for 6 seconds
### Advanced Functions Table:

#### [Table 4] Advanced Functions

<table>
<thead>
<tr>
<th>Displayed Value</th>
<th>Function</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ct</strong></td>
<td>Channel Indication Switching Time Setting</td>
<td>When in Auto Scanning Mode, Range 0.5~10.0 seconds</td>
</tr>
<tr>
<td><strong>cH</strong></td>
<td>Number of Active Input Channels</td>
<td><em>For factory use only</em> <em>DO NOT CHANGE</em></td>
</tr>
<tr>
<td><strong>cL</strong></td>
<td>Cold Junction Compensation Mode Setting</td>
<td><em>For factory use only</em> <em>DO NOT CHANGE</em> (Default = 61)</td>
</tr>
<tr>
<td><strong>cC</strong></td>
<td>Cold Junction Compensation Coefficient</td>
<td><em>For factory use only</em> <em>DO NOT CHANGE</em> (Default = 1.00)</td>
</tr>
<tr>
<td><strong>F1</strong></td>
<td>Alarm Type (alarm relay #1)</td>
<td>H = High Alarm, L = Low Alarm (Default = H)</td>
</tr>
<tr>
<td><strong>F2</strong></td>
<td>Alarm Type (alarm relay #2)</td>
<td>H = High Alarm, L = Low Alarm (Default = L)</td>
</tr>
<tr>
<td><strong>F3</strong></td>
<td>Alarm Type (alarm relay #3)</td>
<td>H = High Alarm, L = Low Alarm (Default = H)</td>
</tr>
<tr>
<td><strong>F4</strong></td>
<td>Alarm Type (alarm relay #4)</td>
<td>H = High Alarm, L = Low Alarm (Default = L)</td>
</tr>
<tr>
<td><strong>H1</strong></td>
<td>Alarm Hysteresis</td>
<td>Default = 0, Max Hysteresis = 500</td>
</tr>
<tr>
<td><strong>H2</strong></td>
<td>Alarm Hysteresis</td>
<td>Default = 0, Max Hysteresis = 500</td>
</tr>
</tbody>
</table>
| **Al**          | 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 |
Instruction Manual - PMD-MXT Scanning Indicator

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 devices 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.

FOR SERVICE SEND TO:
Harold G. Schaevitz Industries LLC
The Sensor Connection
42690 Woodward Avenue, Suite 200, Bloomfield Hills, MI 48304 USA

(248) 636-1515
email us at: sales@hgsind.com
www.hgsind.com