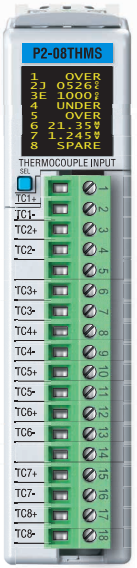
General Specifications

Operating Temperature	0º to 60ºC (32º to 140ºF)
Storage Temperature	-20º to 70ºC (-4º to 158ºF)
Humidity	5 to 95% (non-condensing)
Altitude	2,000 meters max
Pollution Degree	2
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Overvoltage Category	II
Field to Logic Side Isolation	1750VDC applied for 5s or 420VDC applied for 1 minute
Input to Input Isolation	1750VDC applied for 5s or 420VDC applied for 1 minute
Heat Dissipation	559mW
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 System
Field Wiring	Removable terminal block (included). The P2-08THMS module is not compatible with the ***ZIP***Link wiring system.
Connector Type (included)	18-position removable terminal block
Weight	108g (3.81 oz)
Agency Approvals	UL 61010-1 and UL 61010-2-201 File E139594, Canada and USA CE (EN 61131-2 EMC, EN 61010-1 and EN 61010-2-201 Safety)*

*See CE Declaration of Conformity for details.



P2-08THMS Analog Input

The P2-08THMS Isolated Thermocouple Input Module provides eight differential channels (four isolated pairs) for receiving thermocouple and voltage input signals for use with the Productivity2000 System.

Terminal Block Included. Not Compatible with *ZIP*Link.

T/C Input Specifications

Input Channels	8 differential channels (4 isolated pairs)
Data Format	Floating Point
Common Mode Range	±1.25 V
Common Mode Rejection	100dB @ DC and 130dB @ 60Hz
Input Impedance	>5MΩ
Maximum Ratings	Fault protected inputs to ±50V
Resolution	16-bit, ±0.1°C or °F
Thermocouple Input Ranges	Type J -190° to 760°C (-310° to 1400°F); Type E -210° to 1000°C (-346° to 1832°F); Type K -150° to 1372°C (-238° to 2502°F); Type R 65° to 1768°C (149° to 3214°F); Type S 65° to 1768°C (149° to 3214°F); Type T -230° to 400°C (-382° to 752°F); Type B 529° to 1820°C (984° to 3308°F); Type N -70° to 1300°C (-94° to 2372°F); Type C 65° to 2320°C (149° to 4208°F);
Cold Junction Compensation	Automatic
Thermocouple Linearization	Automatic
Accuracy vs. Temperature	±50ppm per °C (maximum)
Linearity Error	±1°C maximum (±0.5°C typical) Monotonic with no missing codes
Maximum Inaccuracy	±3°C maximum (excluding thermocouple error) (including temperature drift)
Warm-up Time	30 minutes for ±1% repeatability 2 minutes to reach voltage specifications
Sample Duration Time	380ms
All Channel Update Rate	3.04 s
Open Circuit Detection Time	Within 2s
Conversion Method	Sigma-Delta
External DC Power Required	None

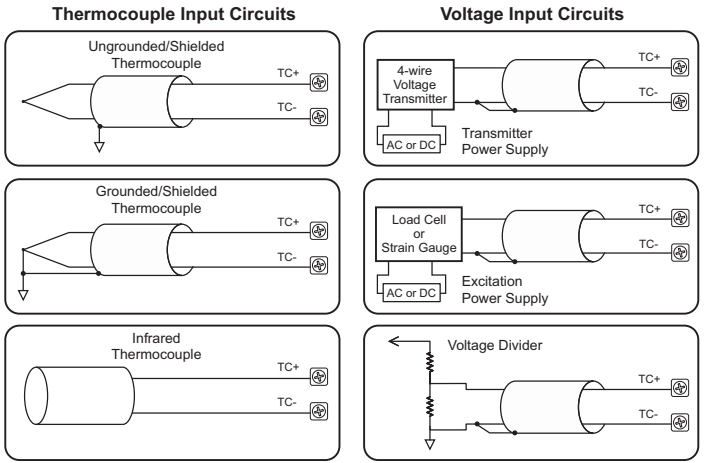
Voltage Input Specifications

Linear mV Device Input Ranges	0–39.0625 mVDC, +/-39.0625 mVDC, +/-78.125 mVDC, 0–156.25 mVDC, +/-156.25 mVDC, 0–1250 mVDC
Max Voltage Input Offset Error	0.05% @ 0°- 60°C, typical 0.04% @ 25°C
Max Voltage Input Gain Error	0.06% @ 25°C
Max Voltage Input Linearity Error	0.05% @ 0°- 60°C, typical 0.03% @ 25°C
Max Voltage Input Impedance	0.2% @ 0° - 60°C, typical 0.06% @ 25°C

Configuration/Diagnostics

Burn-out Detection: High Side/Disable	1 bit per module
°C/°F (T/C Only)	1 bit per module
Module Diagnostics Failure	1 bit per module
Burn-out (on if T/C input is open – no connection between TCn+ and TCn-)	1 bit per channel
Channel Under-range	1 bit per channel
Channel Over-range	1 bit per channel

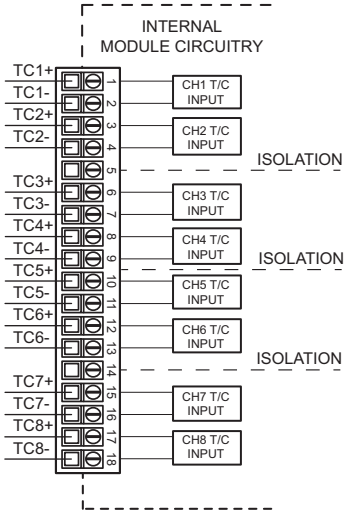
Wiring Diagram

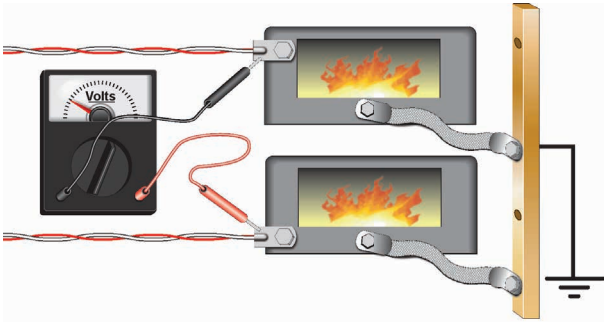


NOTES:

1. Connect shield to thermocouple signal/ground only. Do not connect to both ends.
2. Install jumper wire on each unused input, TC+ to TC-.
3. With grounded thermocouples, take precautions to prevent having a voltage potential between thermocouple tips. A voltage of 1.25V or greater between tips will skew measurements.
4. Use shielded, twisted thermocouple extension wire that matches the thermocouple type. Use thermocouple-compatible junction blocks.
5. Four separate isolations in the field side. Each isolation consists of a pair of channels.

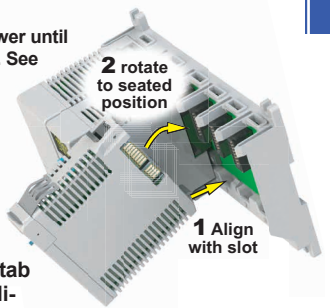
Schematic





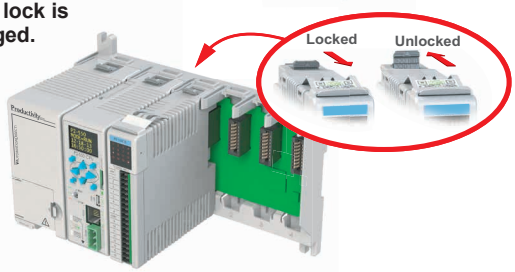
Module Installation

WARNING: Do not apply field power until the following steps are completed. See hot-swapping procedure for exceptions.

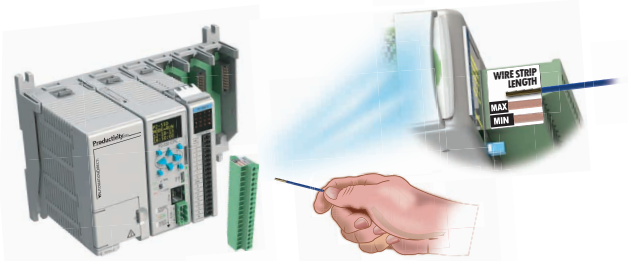


Step One: Align module catch with base slot and rotate module into connector.

Step Two: Pull top locking tab toward module face. Click indicates lock is engaged.



Step Three: Attach field wiring to terminal block.



QR Code

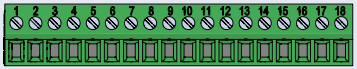
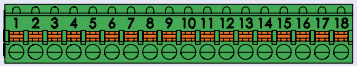
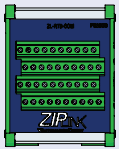
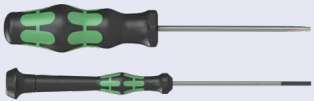
Use any QR Code reader application to display the module's product insert.

Caution: *If possible, remove field power prior to proceeding. If not, then **EXTREME** care **MUST** be taken to prevent damage to the module, or even personal injury due to a short circuit from the live terminal block.*

Important Hot-Swap Information

The Productivity2000 System supports hot-swap! Individual modules can be taken offline, removed, and replaced while the rest of the system continues controlling your process. Before attempting to use the hot-swap feature, be sure to read the hot-swap topic in the programming software's help file or our online documentation at AutomationDirect.com for details on how to plan your installation for use of this powerful feature.

Wiring Options

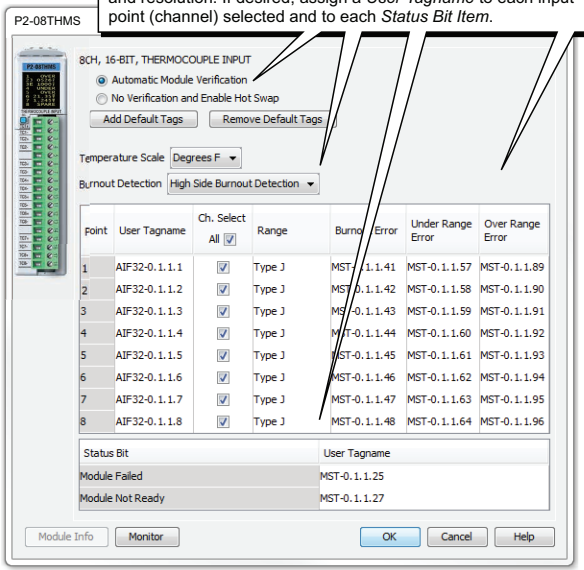
1 ***Screw Terminal Block only*** 	P2-RTB (Quantity 1)
2 ***Spring Clamp Terminal Block only*** 	P2-RTB-1 (Quantity 1)
3 ***Accessories[1]***  	ZL-RTB-COM TW-SD-SL-1 TW-SD-MSL-1

1. ZL-RTB-COM provides a common connection point for power or ground

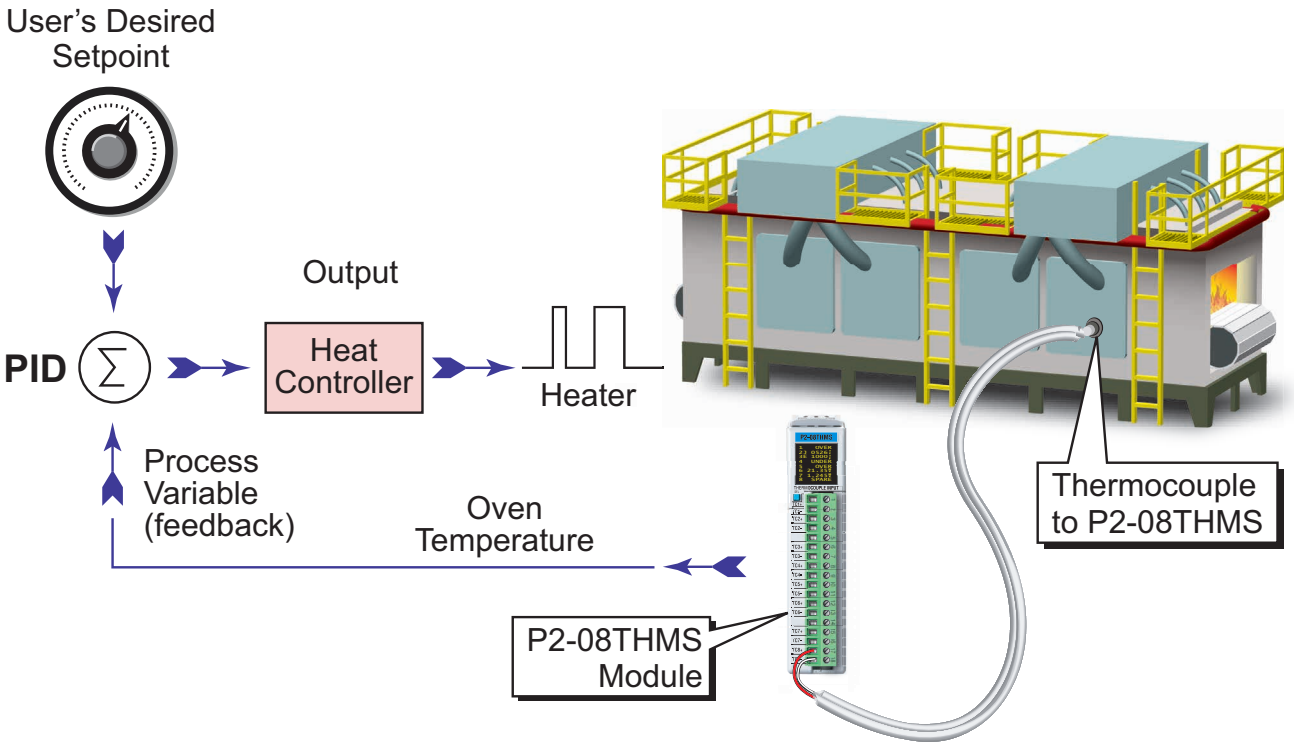
Module Configuration

Using the Hardware Configuration tool in the Productivity Suite programming software, drag and drop the P2-08THMS module into the base configuration.

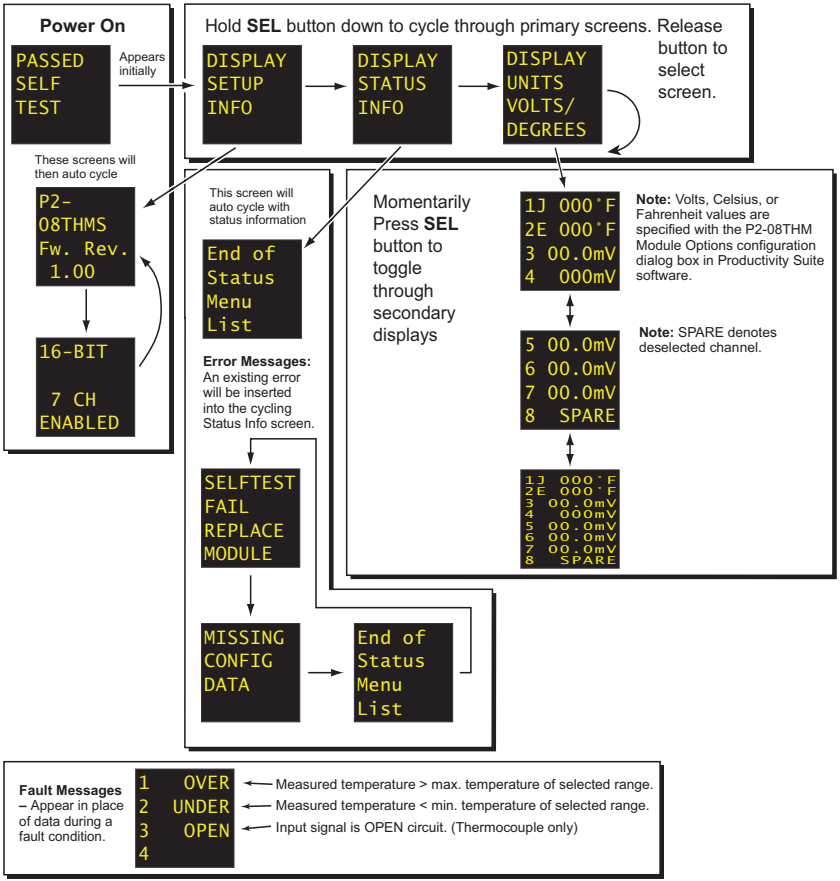
Select *Automatic Module Verification* or *No Verification and Enable Hot Swap*. Specify *Temperature Scale* and *Burnout Detection*, and use the drop down menu to select module range and resolution. If desired, assign a *User Tagname* to each input point (channel) selected and to each *Status Bit Item*.



Typical Application Example



OLED Panel Display



WARNING: To minimize the risk of potential safety problems, you should follow all applicable local and national codes that regulate the installation and operation of your equipment. These codes vary from area to area and it is your responsibility to determine which codes should be followed, and to verify that the equipment, installation, and operation are in compliance with the latest revision of these codes.

Equipment damage or serious injury to personnel can result from the failure to follow all applicable codes and standards. We do not guarantee the products described in this publication are suitable for your particular application, nor do we assume any responsibility for your product design, installation, or operation.

If you have any questions concerning the installation or operation of this equipment, or if you need additional information, please call Technical Support at 770-844-4200.

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Removable Terminal Block Specifications

Part Number	**P2-RTB (included)**	**P2-RTB-1**
Number of positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm²) Solid / Stranded Conductor 3/64 in. (1.2 mm) Insulation Maximum 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 19/64 in (7–8 mm) Strip Length
Conductors	Use Thermocouple Extension wire for thermocouples. Use copper conductors, 75°C or equivalent for millivolt inputs.	
Screw Driver Width	0.1 in (2.5 mm) Maximum*	
Screw Size	M2	N/A
Screw Torque	2.5 lb·in (0.28 N·m)	N/A

*Recommended Screwdriver TW-SD-MSL-1

Document Name	Edition/Revision	Date
P2-08THMS-DS	1st Edition	8/21/2025