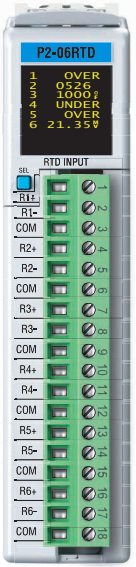
General Specifications

Operating Temperature	0º to 60ºC (32º to 140ºF)
Storage Temperature	-20º to 70ºC (-4º to 158ºF)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Heat Dissipation	300mW
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 P2-06RTD module is not compatible with the ***ZIP***Link wiring system.
EU Directive	See the "EU Directive" topic in the Productivity2000 Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (included)	18-position removable terminal block
Weight	90g (3.2 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)*

*Meets EMC and Safety requirements. See the D.O.C. for details.



P2-06RTD Analog Input

The P2-06RTD input module provides six differential channels for receiving RTD and resistance input signals for use with the Productivity2000 System.

Terminal Block Included. Not Compatible with ZIPLink.
Warranty: Thirty-day money-back guarantee. Two-year limited replacement. (See www.productivity2000.com for details).

RTD Input Specifications

Input Channels	6 Differential
Max. Common Mode Voltage	5VDC
Data Format	Floating Point
Common Mode Rejection	-90dB min. @ DC, -150dB min. @ 50/60 Hz
Absolute Maximum Ratings	Fault protected input, ±50V
Internal Resolution	16-bit, ±0.1°C or °F (up to 100Hz filter)
Input Ranges (RTD Types)	Pt100 -200°C/850°C (-328°F/1562°F) Pt1000 -200°C/595°C (-328°F/1103°F) JPt100 -100°C/450°C (-148°F/842°F) 10Ω Cu. -200°C/260°C (-328°F/500°F) 25Ω Cu. -200°C/260°C (-328°F/500°F) 120Ω Ni. -80°C/260°C (-112°F/500°F)
RTD Linearization	Automatic
Excitation Current (all ranges)	200µA
Accuracy vs. Temperature	±5ppm per °C (maximum)
Full Scale Calibration	±1°C
Offset Calibration Error	±1 count (negligible)
Linearity Error (end to end)	±0.5°C maximum, ±0.01°C typical, Monotonic with no missing codes
Maximum Inaccuracy	±1°C maximum (excluding RTD error) (including temperature drift)
Warm-up Time	2 minutes for ±0.2% repeatability
Sample Duration (Single channel update rate)	Dependent on digital Filter Settings – 488ms @ 10Hz, 88ms @ 50Hz, 75ms @ 60Hz, 56ms @ 100Hz, 48ms @ 250Hz
Filter Characteristics	Digital filter cutoff frequencies: 10Hz, 50Hz, 60Hz, 100Hz, or 250Hz
All Channel Update Rate	Single channel update rate times the number of enabled channels
Open Circuit Detection Time	Positive full scale reading within 2s
Conversion Method	Sigma-Delta
External DC Power Required	None

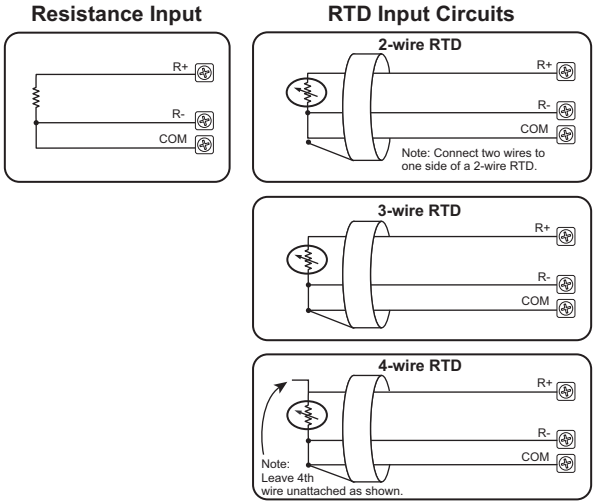
Resistance Input Specifications

Internal Resolution	16-bit, 0.0015% of full scale range in ohms (up to 100Hz filter)
Resistance Input Ranges and Resolution	0–10,000 Ω Resolution 1Ω 0–6,250 Ω Resolution 0.1 Ω 0–3,125 Ω Resolution 0.1 Ω 0–1,562.5 Ω Resolution 0.1 Ω 0–781.25 Ω Resolution 0.1 Ω 0–390.625 Ω Resolution 0.01 Ω 0–195.3125 Ω Resolution 0.01 Ω
Accuracy vs. Temperature	±25ppm per °C (maximum)
Full Scale Calibration	±0.02% of full scale range
Offset Calibration Error	±0.0015% of full scale range in ohms
Linearity Error (end to end)	±0.0015% of full scale range maximum at 25°C, Monotonic with no missing codes
Maximum Inaccuracy	±0.10% of full scale range

Diagnostics

Module Diagnostics Failure	1 bit per module
Module Not Ready	1 bit per module
Channel Burn-out (RTD only)	1 bit per channel
Under-range (RTD only)	1 bit per channel
Over-range	1 bit per channel

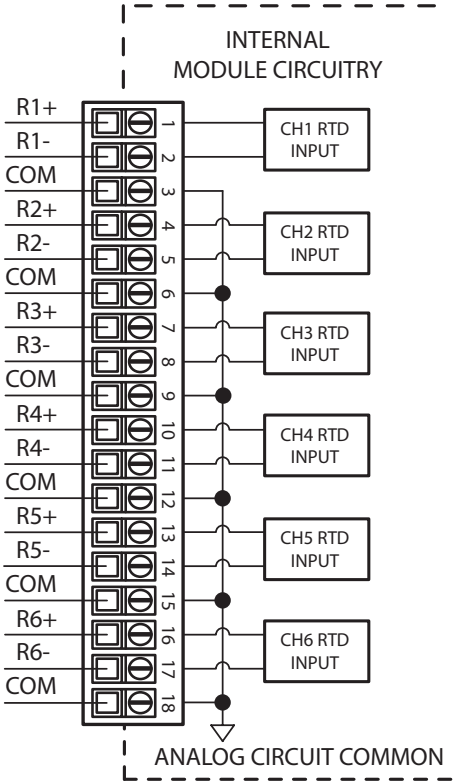
Wiring Diagram



Notes for maximum accuracy:

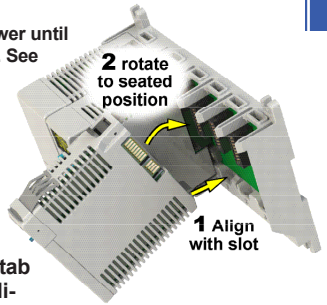
1. For 2-wire RTD, attach a third wire to module common.
2. R+, R-, and COM wires to an RTD must be equal length and type. Refer to RTD manufacturer's recommendations.
3. Do not use cable shield as sensing wire.
4. When applicable, connect shield to RTD common only, otherwise connect to module common only. Do not connect shield to both ends.
5. Jumper unused inputs to common.

Schematic



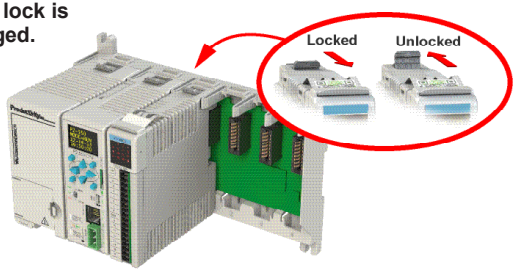
Module Installation

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

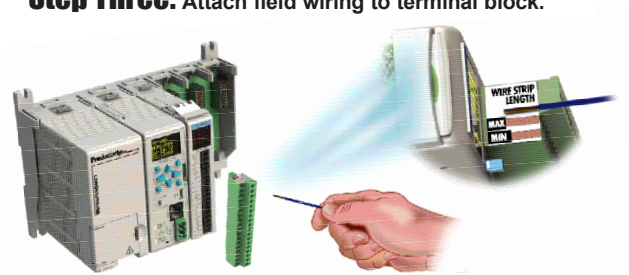


Step One: Align module catch with base slot and rotate module into connector.

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



Step Three: Attach field wiring to terminal block.



QR Code

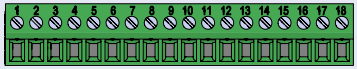
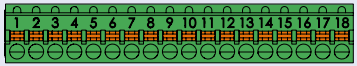
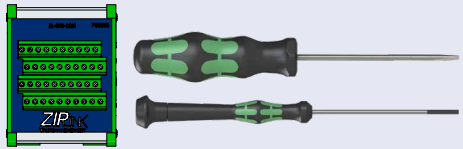
Use any QR Code reader application to display the module's product insert.

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

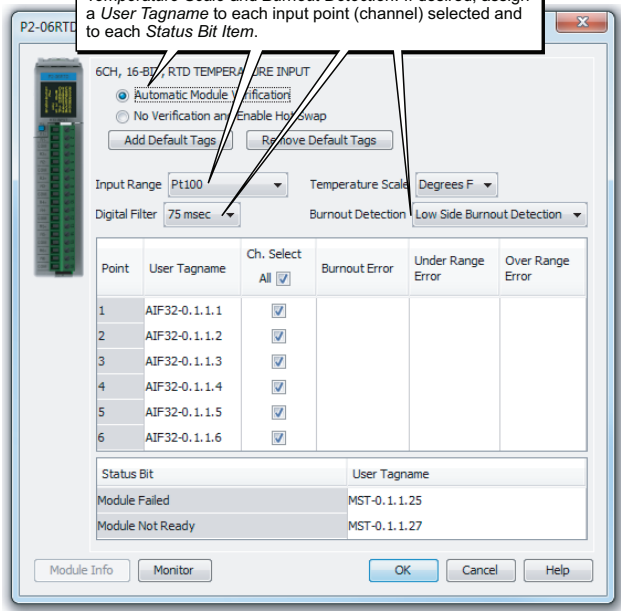
1 ***Screw Terminal Block only*** 	P2-RTB (Quantity 1)
2 ***Spring Clamp Terminal Block only*** 	P2-RTB-1 (Quantity 1)
3 ***Accessories[1]*** 	ZL-RTB-COM TW-SD-SL-1 TW-SD-MSL-1

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

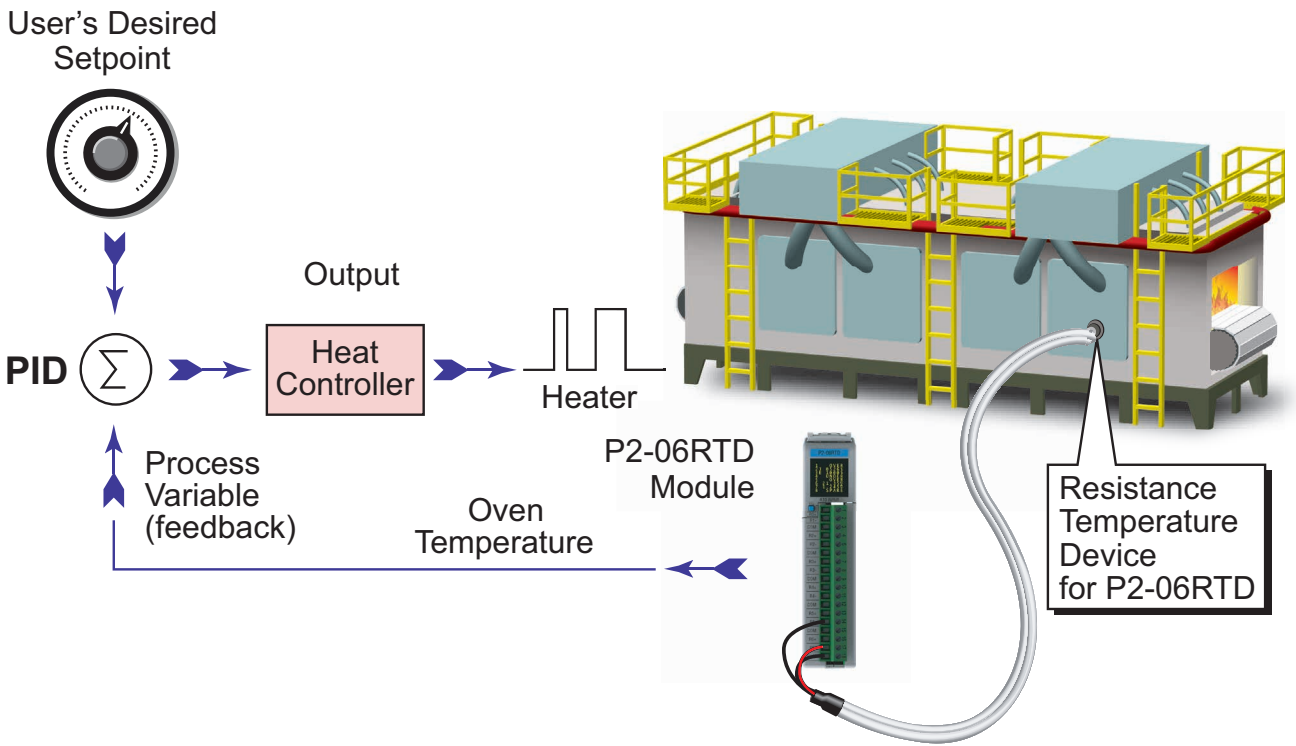
Module Configuration

Using the Hardware Configuration tool in the Productivity Suite programming software, drag and drop the P2-06RTD module into the base configuration.

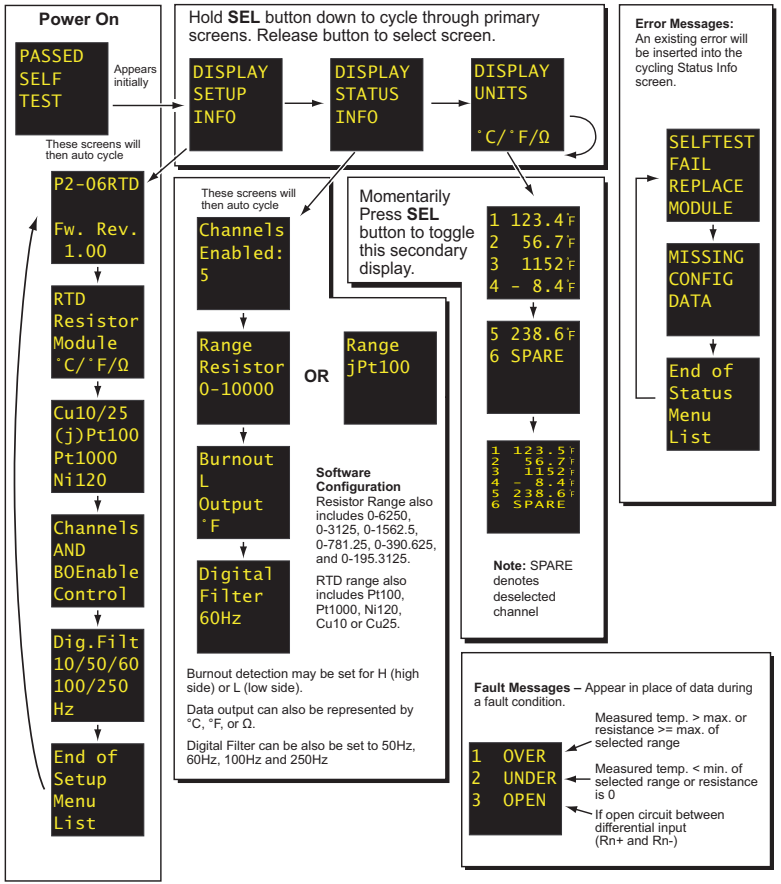
Select *Automatic Module Verification* or *No Verification and Enable Hot Swap*. Then select *Input Range, Digital Filter*, *Temperature Scale* and *Burnout Detection*. If desired, assign a *User Tagname* to each input point (channel) selected and to each *Status Bit Item*.



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 COPPER CONDUCTORS, 75ºC" or equivalent.	
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
P2-06RTD-DS	2nd Ed.	9/10/2019