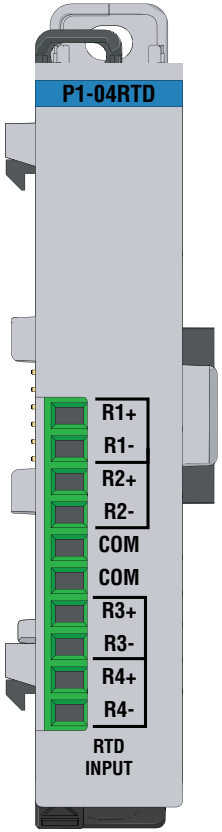
RTD Input Specifications	
Inputs Channels	4 Differential
Data Format	Floating Point
Max. Common Mode Voltage	5VDC
Common Mode Rejection	-100dB min. @ DC, -100db min. @ 50/60 Hz*
Absolute Maximum Ratings	Fault Protected Inputs to ±50V
Internal Resolution	16-bit, ±0.1°C or °F
RTD Input Ranges	Pt100 -200°C/850°C (-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)	210µA
Accuracy vs. Temperature	±10ppm per °C (maximum)
Warm-up Time	2 minutes for ±0.2% repeatability
Maximum Inaccuracy*	±1°C maximum @ 16.7 Hz ±3°C maximum @ 470Hz ±5°C maximum on Cu10 & Cu25
Sample Duration (Single channel update rate)	Dependent on digital filter settings- 200ms @ 16.7 Hz, 90ms @ 470Hz
Filter Characteristics	Digital Filter cutoff frequencies: 16.7 Hz, 470Hz
All Channel Update Rate	Single channel update rate times the number of enabled channels
Open Circuit Detection Time	Burnout detect within 2s
Conversion Method	Sigma-Delta
External DC Power Required	None

*NOTE: Excluding RTD error, including temperature drift



P1-04RTD Analog Input

The P1-04RTD Input Module provides four differential channels for receiving RTD and resistance input signals for use with the Productivity1000 system.

Warranty: Thirty-day money-back guarantee. Two-year limited replacement (See www.productivity1000.com for details).

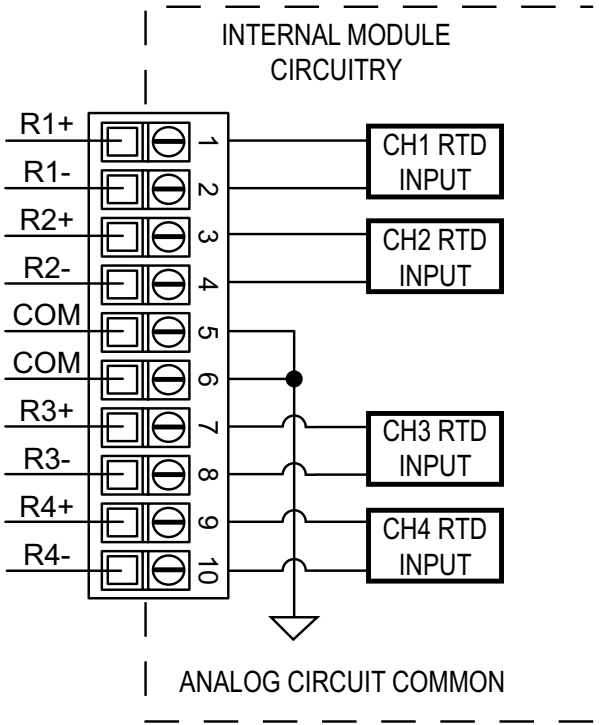
General Specifications	
Operating Temperature	0º to 60ºC (32º to 140ºF)
Storage Temperature	-20º to 70ºC (-4º to 158ºF)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Heat Dissipation	100mW
Enclosure Type	Open Equipment
Module Location	Any I/O position in a Productivity1000 System
Field Wiring	Removable terminal block (included). The P1-04RTD module is not compatible with the ***ZIP***Link wiring system.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity1000.com
Connector Type (included)	10-position Removable Terminal Block
Weight	60g (2.1 oz)
Agency Approvals	UL61010-2-201 file E139594, Canada & USA CE (EN61131-2 EMC and EN61010-2-201 Safety)*

*See CE Declaration of Conformance for details.

Terminal Block Specifications		
Part Number	***P1-10RTB***	***P1-10RTB-1***
Positions	10 Screw Terminals	10 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 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 Max. 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75ºC" or equivalent.	
Screw Driver	0.1 in (2.5 mm) Maximum*	
Screw Size	M2	N/A
Screw Torque	2.5 lb·in (0.28 N·m)	N/A

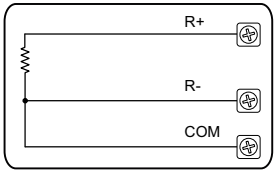
*Recommended Screw Driver TW-SD-MSL-1

P1-04RTD Schematic



P1-04RTD Wiring Diagram

Resistance Input

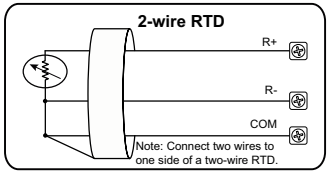


1. R+, R-, and COM wires to an RTD must be equal length and type. Refer to RTD manufacturers

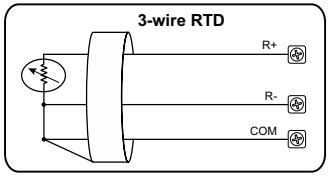
Notes for maximum accuracy:

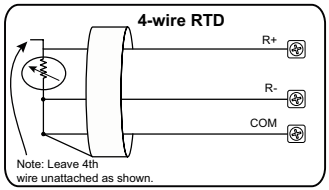
3. Do not use cable shield as a sensing wire.
4. When applicable, connect shield to RTD common only, otherwise connect to module common only. Do not connect shield to both ends.
5. Jumper unused inputs to common.

RTD Input Circuits



2. For 2-wire RTD, attach a third wire to module common.

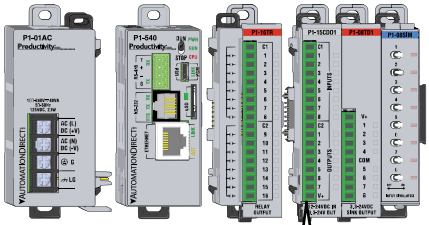




Module Installation

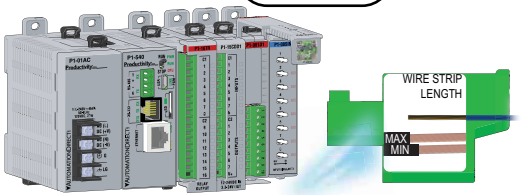
WARNING: Do not add or remove modules with field power applied.

Step One: With latch in "locked" position, align connectors on the side of each module and stack by pressing together. Click indicates lock is engaged.

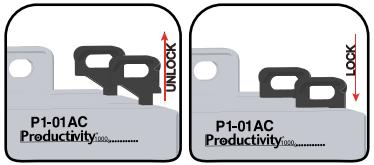


Check all latches are secure after modules are connected.

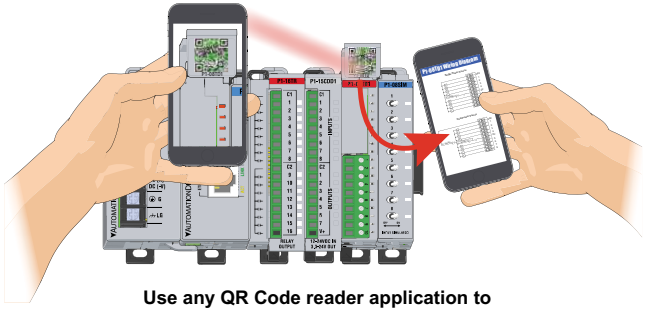
Step Two: Attach field wiring using the removable terminal block or ***ZIP***Link wiring system.



Step Three: To unstack modules, pull locking latch up into the unlocked position and then pull modules apart.

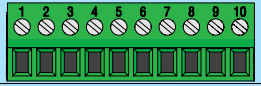
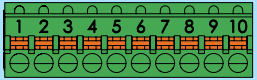


QR Code



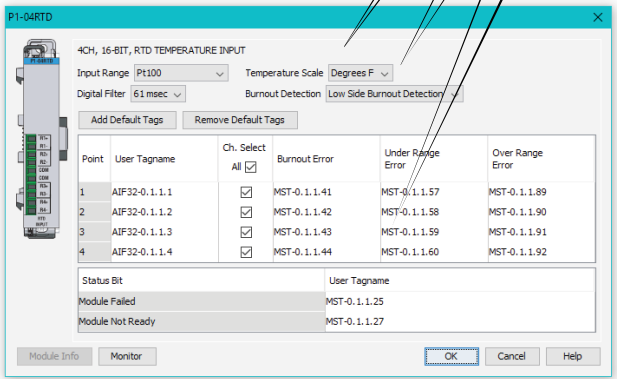
Use any QR Code reader application to display the module's product insert.

Module Configuration

Wiring Options	
1 ***Screw Terminal Block (included)*** 	P1-10RTB (Quantity 1)
2 ***Spring Clamp Terminal Block*** 	P1-10RTB-1 (Quantity 1)

Using the Hardware Configuration tool in the Productivity Suite programming software, drag and drop the P1-04RTD module into the base configuration.

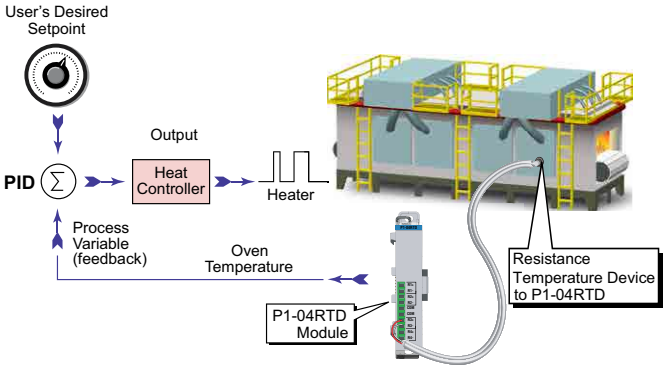
Specify *Temperature Scale* and *Burnout Detection*, and use the drop down menu to select module range and resolution. If desired, assign a *User Tagname* to each output point channel selected and to each *Status Bit Item*.



Resistance Input Specifications	
Internal Resolution	16-bit, 0.0015% of full scale range in ohms
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)
Linearity Error (end to end)	±0.03% 16.7 Hz, ±0.06% 470Hz 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

Typical Application Example



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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