

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.

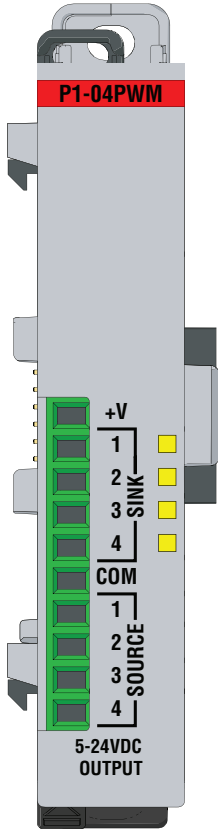
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Document Name	Edition/Revision	Date
P1-04PWM-DS	1st Edition, Rev B	5/20/2019

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Output Specifications		
Outputs per Module	4 PWM outputs	
Output Type	Open drain N-CH MOSFET (sinking)	Open drain P-CH MOSFET (sourcing)
Rated Voltage	5–24 V	5–24 V
Operating Voltage Range	4.75–28.8 V	4.75–28.8 V
Maximum Output Current <i>Only Sinking Load</i> <i>Only Sourcing Load</i> <i>Both Sinking and Sourcing Loads</i>	200mA	0mA
	0mA	200mA
	100mA	100mA
Minimum Load Current	5mA @ 5V	5mA @ 5V
Maximum Leakage Current	0.1 mA @ 28.8 V	0.1 mA @ 28.8 V
ON Voltage Drop	0.6 V @ 50mA, 1.0 V @ 200mA	0.8 V @ 50mA, 1.7 V @ 200mA
Maximum Inrush Current	500mA for 50ms	500mA for 50ms
Maximum Frequency Inaccuracy	0.5% of range	
Maximum Duty Cycle Inaccuracy	0.6% of range, below 10kHz	
	1.2% of range 10–20 kHz	
Maximum Load Resistance for Stated Accuracy	1K Ω	
Accuracy vs. Temperature	$\pm$ 50PPM max	
Start/Stop PWM Response	0.5 ms	
PWM Frequency	0–20 kHz	
PWM Duty Cycle	0–100% below 10kHz	
	5–95% 10–20kHz	
Status Indicators	Logic side 4 points	
Commons	1 non-isolated	
Maximum Applicable Fuse	1A	
External Power Supply Required	5–24 VDC @ 40mA, Class 2	

Power Specifications	
Maximum Voltage	28.8 V
Minimum Voltage	4.75 V
Current Consumption Excluding Outputs	60mA
Maximum Current Consumption total for 4 sink or 4 source outputs	800mA



P1-04PWM Sinking/Sourcing DC Output

The P1-04PWM Pulse Width Modulation Module provides four channels of sinking or sourcing 0–20 kHz, 0–100% duty cycle outputs for use with the Productivity1000 system.

Output Specifications	1
General Specifications	2
Terminal Block Specifications	2
Wiring Diagram and Schematic	3
Module Installation Procedure	4
QR Code	4
Wiring Options	5
Module Configuration	5
Linear Scaling	6
Non-Linear Scaling	6
Warning	8

Terminal Block sold separately, (see wiring options on page 5).

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

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
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
Insulation Resistance	> 10MΩ @ 500VDC
Heat Dissipation	1400mW
Enclosure Type	Open Equipment
Module Location	Any I/O position in a Productivity1000 System
Field Wiring	Removable terminal block (sold separately). Use ZIP Link Wiring System optional See "Wiring Options" on page 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity1000.com
Terminal Type (sold separately)	10-position Removable Terminal Block
Weight	56g (2oz)
Agency Approvals	UL 61010-1 and UL 61010-2-201 file E139594, Canada & USA CE (EN 61131-2 EMC, EN 61010-1 and EN 61010-2-201 Safety)*

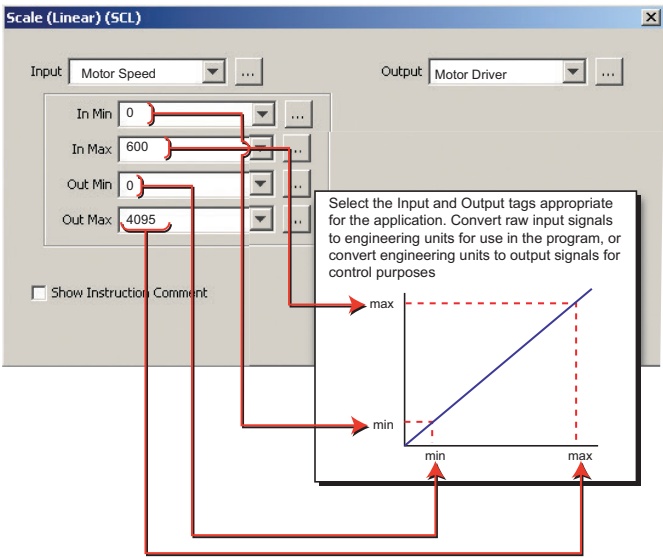
*See CE Declaration of Conformance for details.

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 mm ²) 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 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" 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

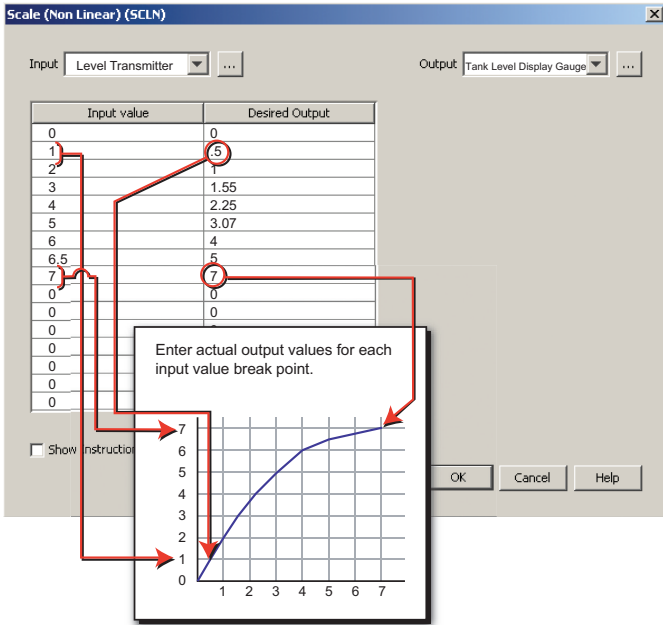
Linear Scaling

- The Scale (Linear) function can be used to:
- Convert an application specific range to range which is native to the analog output module.
 - Make other linear conversions in ranges appropriate to the application.

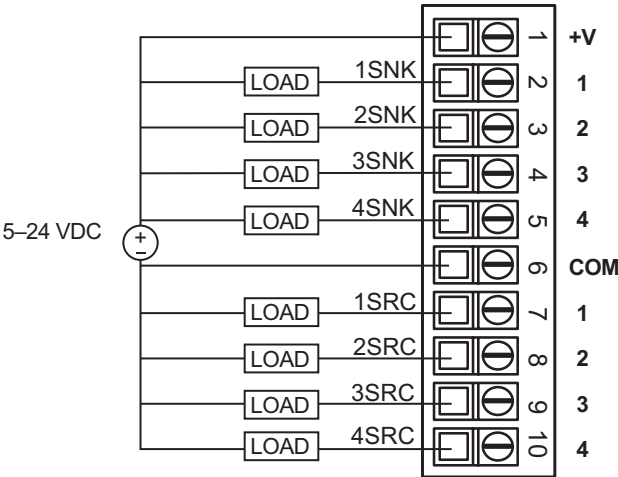


Non-Linear Scaling

The Scale (Non-Linear) function can be used for Non-Linear applications.

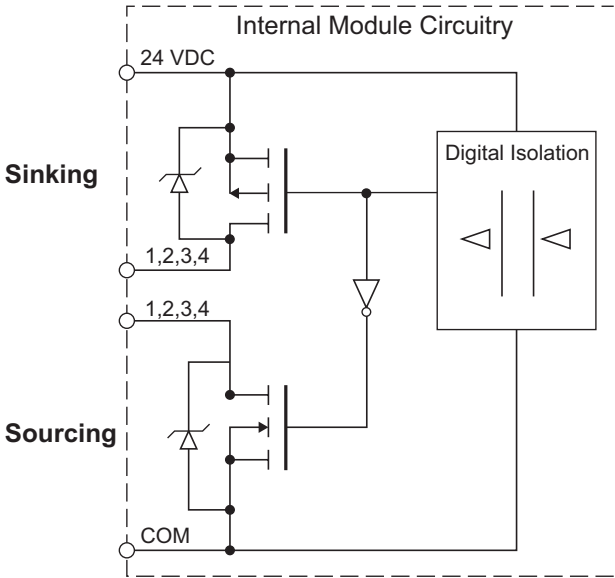


P1-04PWM Schematic



Note: Sinking and sourcing channels output the same frequency and duty cycle set in the hardware configuration.

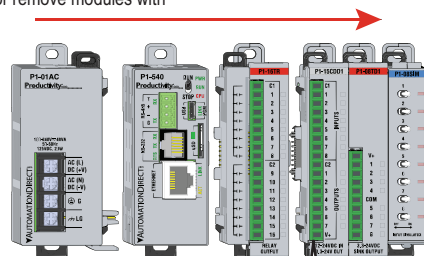
P1-04PWM Wiring Diagram



Module Installation

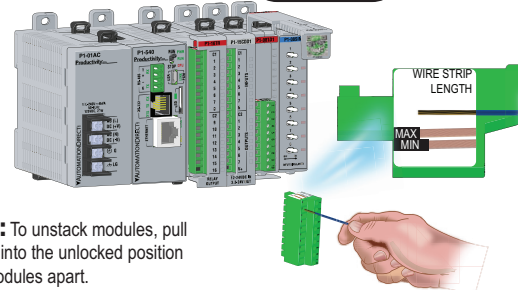
WARNING: Do not add or remove modules with field power applied.

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.

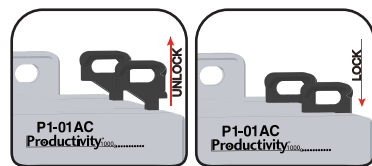


Check all latches are secure after modules are connected.

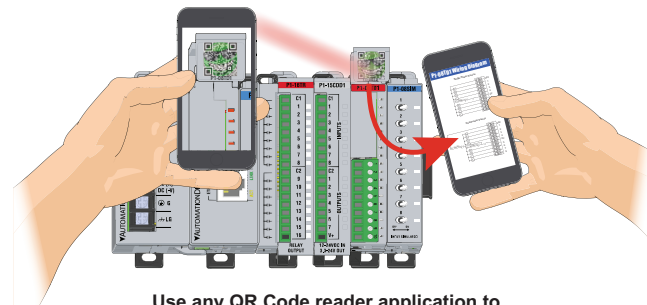
Step Two: Attach field wiring using the removable terminal block or **ZIPLink** wiring system.



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



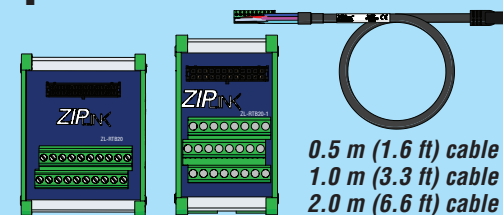
QR Code



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

Wiring Options

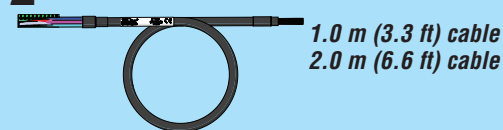
1 ZIPLink Feed Through *Modules and Cables*¹



ZL-RTB20
ZL-RTB20-1

ZL-P1-CBL10
ZL-P1-CBL10-1
ZL-P1-CBL10-2

2 Terminal Block with pigtail cable



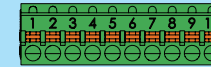
ZL-P1-CBL10-1P
ZL-P1-CBL10-2P

3 Screw Terminal Block only



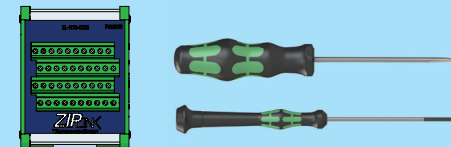
P1-10RTB
(Quantity 1)

4 Spring Clamp Terminal Block only



P1-10RTB-1
(Quantity 1)

5 Accessories²



ZL-RTB-COM

TW-SD-SL-1

TW-SD-MSL-1

1.Cable + **ZIP**Link Module = Complete System

2. 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 P1-04PWM module into the base configuration.

If desired, assign a *User Tagname* to each output point channel selected. A *Stop Mode Value* may also be assigned.

