

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.

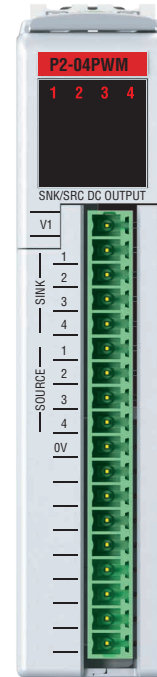
If you have any questions concerning the installation or operation of this equipment, or if you need additional information, please call Technical Support at 770-844-4200.

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Removable Terminal Block Specifications

Part Number	P2-RTB	P2-RTB-1
Number of positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid / Stranded Conductor	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor
	3/64 in. (1.2 mm) Insulation Maximum	3/64 in (1.2 mm) Insulation Maximum
	1/4 in (6–7 mm) Strip Length	19/64 in (7–8 mm) Strip Length
Conductors	*USE COPPER CONDUCTORS, 75°C* 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

*Recommend Screw Driver TW-SD-MSL-1



P2-04PWM Sinking/Sourcing DC Output

The P2-04PWM Pulse Width Modulation Module provides four channels of sinking or sourcing 0–20 kHz, 0–100% duty cycle outputs for use with the Productivity2000 system.

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Terminal Block sold separately, (see wiring options on page 5).
 Warranty: Thirty-day money-back guarantee. Two-year limited replacement. (See www.productivity2000.com for details).

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F)
I/O Points Used	None, mapped directly to tags in CPU
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	2200mW
Field Wiring	Use ZIP Link Wiring System or removable terminal block (not included). See "Wiring Options" on page 5.
Connector Type (not included)	18-position removable terminal block
Weight	95g (3.4 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.

Power Specifications

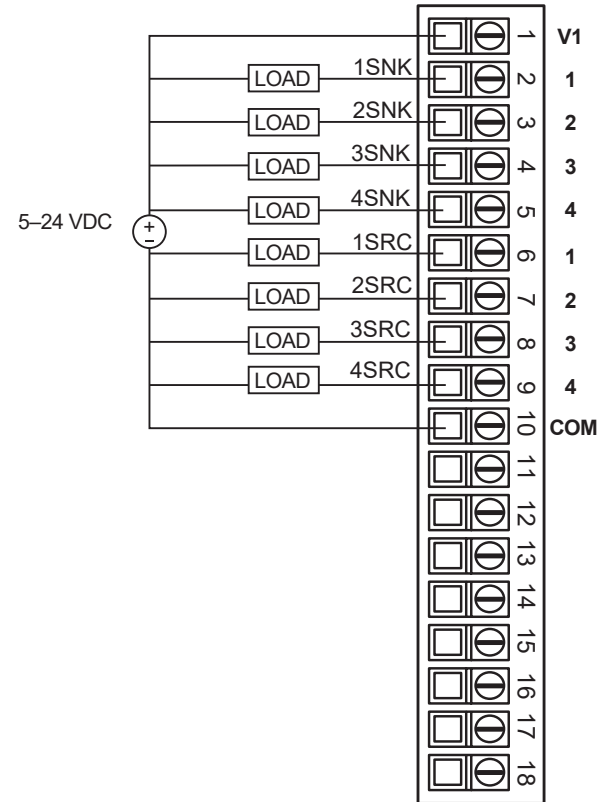
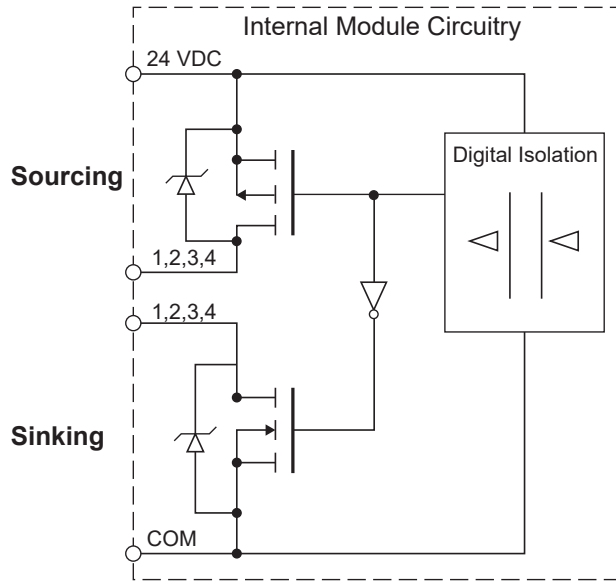
Maximum Voltage	28.8 V
Minimum Voltage	4.75 V
Current Consumption Excluding Outputs	40mA
Maximum Current Consumption total for 4 sink or 4 source outputs	800mA

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	
Maximum Output Current		
Only Sinking Load	200mA	0mA
Only Sourcing Load	0mA	200mA
Both Sinking and Sourcing Loads	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, 1V @ 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	1KΩ	
Accuracy vs. Temperature	±50PPM max	
Start/Stop PWM Response	2ms	
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	

Wiring Diagram

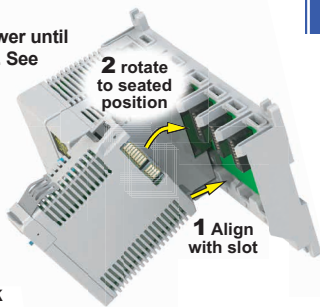
Schematic



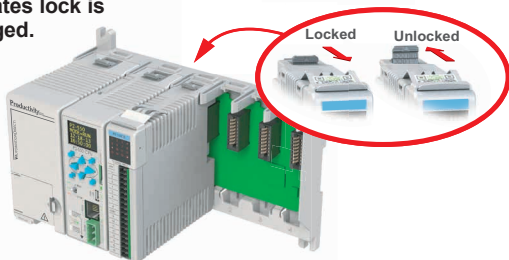
Module Installation

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

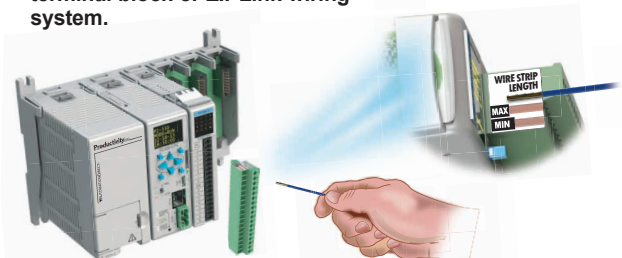
Step One: Align module catch with base slot and rotate module into connector.



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



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



QR Code



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

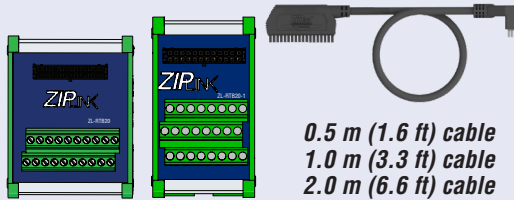
Caution: If possible, remove field power prior to proceeding. If not, then **EXTREME** care **MUST** be taken to prevent damage to the module, or even personal injury due to a short circuit from the live terminal block.

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 ZIPlink Feed Through Modules and Cables¹

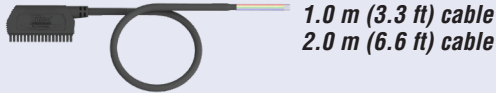


ZL-RTB20
ZL-RTB20-1

0.5 m (1.6 ft) cable
1.0 m (3.3 ft) cable
2.0 m (6.6 ft) cable

ZL-P2-CBL18
ZL-P2-CBL18-1
ZL-P2-CBL18-2

2 Terminal Block with pigtail cable



1.0 m (3.3 ft) cable
2.0 m (6.6 ft) cable

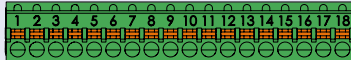
ZL-P2-CBL18-1P
ZL-P2-CBL18-2P

3 Screw Terminal Block only



P2-RTB
(Quantity 1)

4 Spring Clamp Terminal Block only



P2-RTB-1
(Quantity 1)

5 Accessories²



ZL-RTB-COM
TW-SD-SL-1
TW-SD-MSL-1

1. Cable + ZIPlink 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 P2-04PWM module into the base configuration.

Select *Automatic Module Verification* or *No Verification and Enable Hot Swap*. If desired, assign a *User Tagname* to each input point (channel) selected and to each *Status Bit Item*.

The screenshot shows the P2-04PWM configuration window. It has two radio buttons: Automatic Module Verification and No Verification and Enable Hot Swap. Below are buttons for 'Add Default Tags' and 'Remove Default Tags'. A table lists 4 channels with columns for Point, Duty Cycle(%), Carrier Freq. (Hz), Output Type, Duty Cycle Implied, and Stop Mode Value. A 'Status Bit' section is at the bottom with a 'Module Failed' field and a 'User Tagname' field containing 'MST-0.1.2.25'. Buttons for 'Module Info', 'Monitor', 'OK', 'Cancel', and 'Help' are at the bottom.

Point	Duty Cycle(%) Tagname	Carrier Freq. (Hz) Tagname	Output Type	Duty Cycle Implied Decimal	Duty Cycle(%) Stop Mode Value	Carrier Freq. (Hz) Stop Mode Value
1	AOS32-0.1.2.1	AOS32-0.1.2.2	PWM	x 1	0	0
2	AOS32-0.1.2.3	AOS32-0.1.2.4	PWM	x 1	0	0
3	AOS32-0.1.2.5	AOS32-0.1.2.6	PWM	x 1	0	0
4	AOS32-0.1.2.7	AOS32-0.1.2.8	PWM	x 1	0	0

Status Bit
Module Failed

User Tagname
MST-0.1.2.25

Module Info Monitor OK Cancel Help

Document Name	Edition/Revision	Date
P2-04PWM-DS	1st Edition	5/11/2020

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