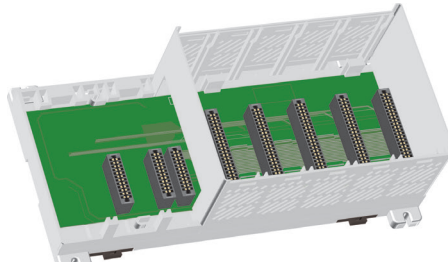


# Productivity3000® Overview

## Bases

Four bases are available, with 3, 5, 8, and 11 slots.



### Productivity3000 Bases

Part Number	Description	Price
<b>P3-03B</b>	3-slot base	\$220.00
<b>P3-05B</b>	5-slot base	\$254.00
<b>P3-08B</b>	8-slot base	\$317.00
<b>P3-11B</b>	11-slot base	\$378.00

## Power Supplies

Two power supplies are available; one accepts 100–240 VAC input and one accepts 24–48 VDC input.

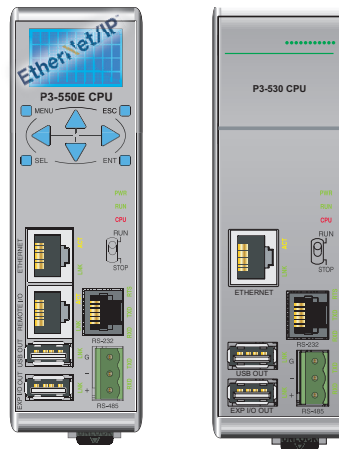


### Productivity3000 Power Supplies

Part Number	Description	Price
<b>P3-01AC</b>	Power supply (100–240 VAC)	\$250.00
<b>P3-01DC</b>	Power supply (24–48 VDC)	\$261.00

## CPU Modules

Three CPU modules are currently available.

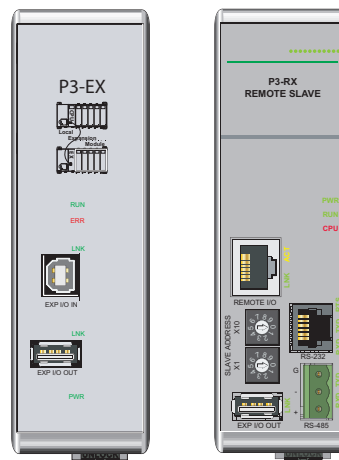


### Productivity3000 CPU Modules

Part Number	Description	Price
<b>P3-550E</b>	CPU module	\$750.00
<b>P3-530</b>	CPU module	\$735.00

## Expansion and Remote Slave Modules

One local expansion module and one remote slave module is available.



### Productivity3000 Expansion, Remote Slave Modules

Part Number	Description	Price
<b>P3-EX</b>	Expansion module	\$138.00
<b>P3-RX</b>	Remote slave module	\$499.00

# Productivity3000® Overview

## Discrete I/O Modules

Seven discrete input and fourteen discrete output modules are available.

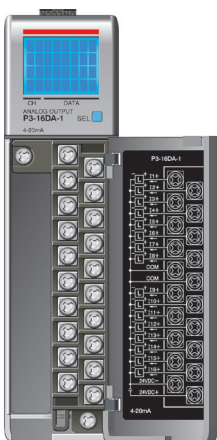


Discrete Input Modules		
Part Number	Description	Price
<b>P3-16SIM</b>	Input Simulator	\$214.00
<b>P3-08ND3S</b>	Isolated Sinking / Sourcing Input	\$109.00
<b>P3-16ND3</b>	Sinking/Sourcing Input	\$162.00
<b>P3-32ND3</b>	Sinking/Sourcing Input	\$218.00
<b>P3-64ND3</b>	Sinking/Sourcing Input	\$284.00
<b>P3-08NAS</b>	Isolated AC Input	\$136.00
<b>P3-16NA</b>	AC input	\$167.00

Discrete Output Modules		
Part Number	Description	Price
<b>P3-08TD1S</b>	Isolated Sinking Output	\$164.00
<b>P3-08TD2S</b>	Isolated Sourcing Output	\$169.00
<b>P3-16TD1</b>	Sinking Output	\$175.00
<b>P3-16TD2</b>	Sourcing Output	\$180.00
<b>P3-32TD1</b>	Sinking Output	\$228.00
<b>P3-32TD2</b>	Sourcing Output	\$218.00
<b>P3-64TD1</b>	Sinking Output	\$319.00
<b>P3-64TD2</b>	Sourcing Output	\$289.00
<b>P3-08TAS</b>	Isolated AC Out	\$212.00
<b>P3-16TA</b>	AC Output	\$225.00
<b>P3-08TRS</b>	Isolated Relay Output	\$187.00
<b>P3-08TRS-1</b>	Isolated Relay Output	\$213.00
<b>P3-16TR</b>	Relay Output	\$190.00

## Analog I/O Modules

Six analog input, seven analog output, and two analog input/output modules are available.



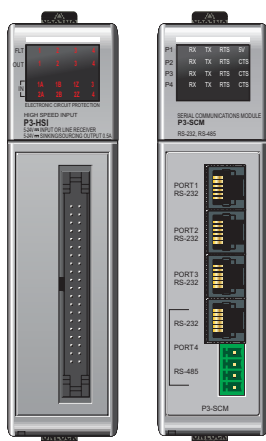
Analog Input Modules		
Part Number	Description	Price
<b>P3-04ADS</b>	Isolated Analog Input	\$796.00
<b>P3-08AD</b>	Analog Input	\$432.00
<b>P3-16AD-1</b>	Analog Current Input	\$589.00
<b>P3-16AD-2</b>	Analog Voltage Input	\$576.00
<b>P3-08RTD</b>	Analog RTD Input	\$639.00
<b>P3-08THM</b>	Analog Thermocouple	\$810.00

Analog Output Modules		
Part Number	Description	Price
<b>P3-04DA</b>	Analog Output	\$494.00
<b>P3-08DA-1</b>	Analog Current Output	\$857.00
<b>P3-08DA-2</b>	Analog Voltage Output	\$798.00
<b>P3-06DAS-2</b>	Isolated Analog Voltage Output	Retired
<b>P3-16DA-1</b>	Analog Current Output	\$1,022.00
<b>P3-16DA-2</b>	Analog Voltage Output	\$1,002.00

Analog Input/Output Modules		
Part Number	Description	Price
<b>P3-8AD4DA-1</b>	Analog Input/Output	\$658.00
<b>P3-8AD4DA-2</b>	Analog Input/Output	\$679.00

## Specialty Modules

The three specialty modules available provide high-speed capabilities and additional serial communication ports.



Specialty Modules		
Part Number	Description	Price
<b>P3-HSI</b>	High-Speed Pulse Input	\$619.00
<b>P3-HSO</b>	High-Speed Output	\$646.00
<b>P3-SCM</b>	Serial Communications Module	\$523.00

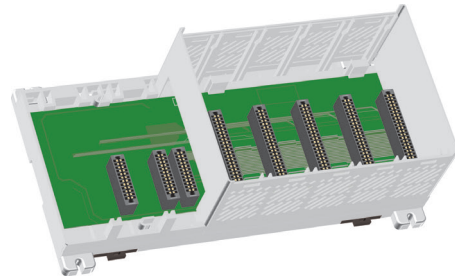


# Productivity3000® Overview

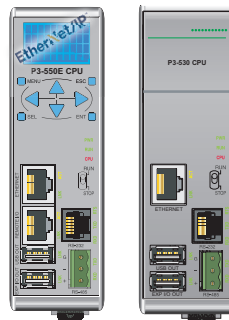
## What you'll need:

Of course, what you'll need for your system depends on your particular application, but this overview shows you what you'll need for a simple system.

### 1. Select your base.



### 2. Select a 24–48 VDC or 100–240 VAC power supply.



### 3. Order a CPU module.

### 4. Download (Free!) or order a USB thumb drive and install the Productivity Suite programming software in your PC.



### 5. Select and order your I/O modules.

At the same time, select and order your **ZIPLink** wiring system or removable terminal blocks.



### 6. Select your PC-to-CPU programming cable.

You will need a standard USB or Ethernet cable for programming, depending on the CPU selected and communications port (USB or Ethernet) chosen.



### 7. Select tools, wire, and provide power.

Screwdriver  
TW-SD-VSL-1



Wire Strippers  
DN-WS



Hookup Wire



# Programming Software

## PG-PGMSW \* FREE \* (\$495 value)

Free online download!

Productivity Suite is user-friendly programming software designed to allow quick and easy programming of ladder logic programs for the Productivity3000® CPU.

The online help file provides information that will help you get acquainted with the software quickly.

### PC Requirements

For Productivity Suite software and hardware system requirements please visit our web site for the minimum system requirements: <https://support.automationdirect.com/downloads.html>

## Programming Cable

You will need a standard Ethernet cable for programming P3-53Q and P3-550E using programming port. Use an Ethernet Cable:

- CAT5E STP (3ft to 50ft lengths available at [www.automationdirect.com](http://www.automationdirect.com))

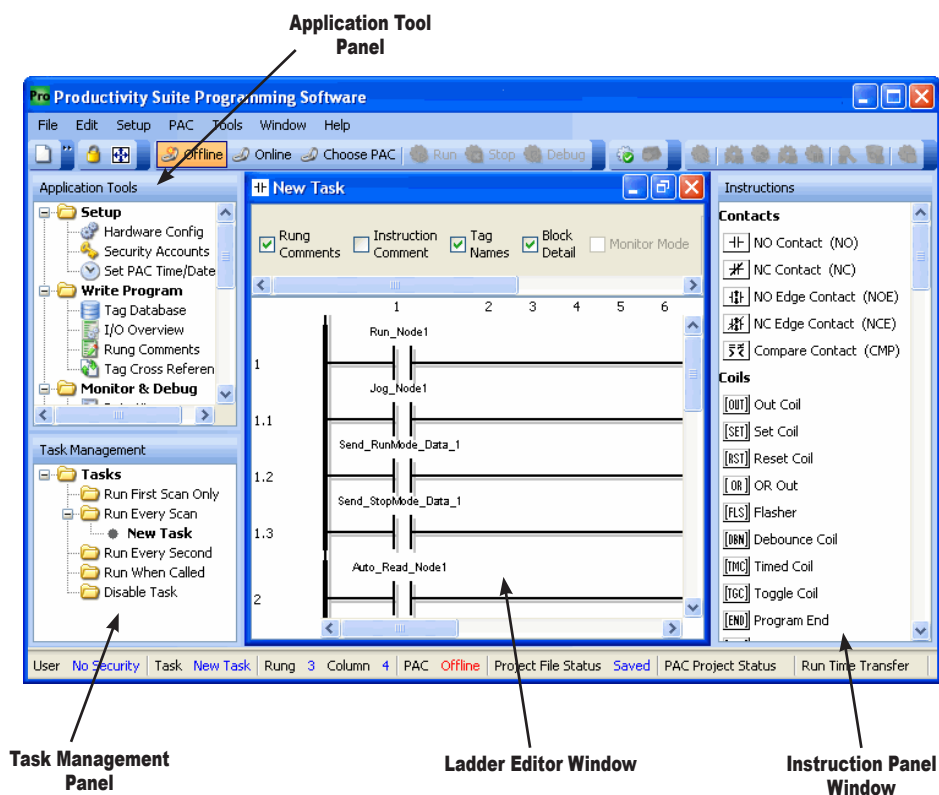
These USB programming cables are available if required. We sell A-to-B USB cables in various lengths:

- USB-CBL-AB3 (3ft)
- USB-CBL-AB6 (6ft)
- USB-CBL-AB10 (10ft)
- USB-CBL-AB15 (15ft)



### Main window

The Main Window is displayed when the program opens. It is divided into Menus, Toolbars, and Windows that work together to make project development as simple as possible.



# Bases

**P3-03B \$220.00**

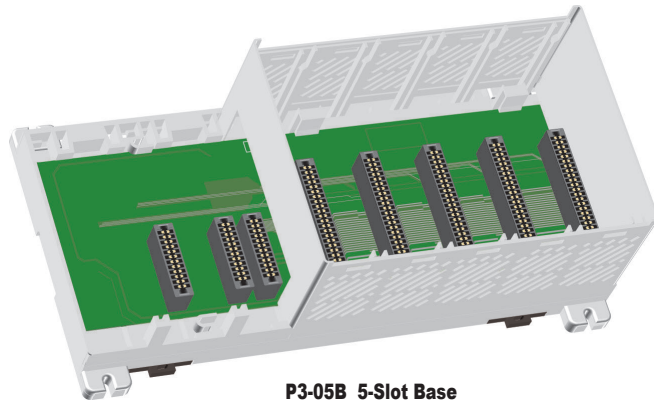
**P3-05B \$254.00**

**P3-08B \$317.00**

**P3-11B \$378.00**

The P3-03B, P3-05B, P3-08B, and P3-11B are 3, 5, 8, and 11-slot, local, expansion, and remote I/O bases.

See Dimensions and Installation for base dimensions.



**P3-05B 5-Slot Base**

## Base Specifications

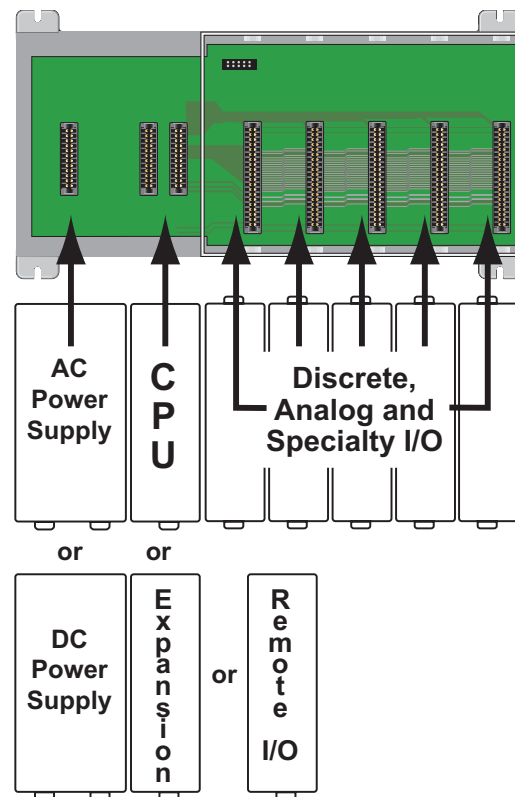
<b>Input or Output Modules per Base</b>	3, 5, 8, or 11
<b>Power Supply Slots</b>	1 (P3-01AC or P3-01DC)
<b>CPU Slots</b>	1 P3-550E/530, P3-RX and P3-EX compatible)
<b>Module Types Supported</b>	Discrete, analog and specialty
<b>Module Placement Restrictions</b>	None. Any I/O module may be installed in any I/O slot without power supply budget or module type restrictions.
<b>I/O Module Hot Swap Support</b>	Yes. (All discrete and analog modules can be software enabled for Hot Swap operation)
<b>Module Keying</b>	Electronic to slot
<b>Maximum Number of Local Bases</b>	5

## General Specifications

<b>Operating Temperature</b>	0°C–60°C (32°F–140°F)
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Heat Dissipation</b>	2.5 W
<b>Weight</b>	P3-03B: 1.365 lbs (21.8 oz.), 619g P3-05B: 1.658 lbs (26.5 oz.), 752g P3-08B: 2.158 lbs (34.5 oz.), 978g P3-11B: 2.682 lbs (42.9 oz.), 1216g
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

## Base Configuration



# Power Supplies

## P3-01AC \$250.00

There are two power supplies available; both provide isolated 24VDC, 5VDC, and 3.3 VDC to the Productivity3000 bases.

The P3-01AC input power supply requires power from an external 100–240 VAC source.

The P3-01DC input power supply requires power from an external 24–48 VDC source.

### No Power Budgeting

No power budgeting is required with either power supply. Any combination of I/O modules may be installed in any slots without power budget considerations.



AC Input Power Supply

**WARNING!:** EXPLOSION HAZARD –  
SUBSTITUTION OF COMPONENTS MAY IMPAIR  
SUITABILITY FOR CLASS I, DIVISION 2.

## IMPORTANT!



### Hot-Swapping Information

**Note:** This device cannot be Hot Swapped.

### P3-01AC User Specifications

<b>Input Voltage Range (Tolerance)</b>	100 to 240 VAC (-15% / +10%)
<b>Rated Operating Frequency</b>	50 to 60 Hz with $\pm 5\%$ tolerance
<b>Maximum Input Power</b>	72W
<b>Cold Start Inrush Current</b>	12A 3ms
<b>Maximum Inrush Current (Hot Start)</b>	12A 3ms
<b>Input Fuse Protection (Internal)</b>	Micro fuse 250V, 2A, slow blow Non-replaceable
<b>Efficiency</b>	83%
<b>Output</b>	24VDC @ 1.4 A ( $\pm 10\%$ ) 5VDC @ 2.1 A ( $\pm 5\%$ ) 3.3 VDC @ 6.1 A ( $\pm 5\%$ )
<b>Maximum Output Power</b>	57W Combined
<b>Heat Dissipation</b>	17W
<b>Isolated User 24VDC Output</b>	None
<b>Output Protection for Over Current, Over Voltage, and Over Temperature</b>	Self resetting for all three voltage outputs to base
<b>Under Input Voltage Lock-out</b>	55–65 VAC
<b>Over Input Voltage Lock-out</b>	265–280 VAC
<b>Input Transient Protection</b>	Varistor, plus input choke and filter
<b>Operating Design Life</b>	10 years at full load at 40°C ambient and 5 years at 60°C ambient

### P3-01AC General Specifications

<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Enclosure Type</b>	Open equipment
<b>Voltage Withstand (dielectric)</b>	1900 VDC applied for 2s
<b>Insulation Resistance</b>	>10M $\Omega$ @ 500VDC
<b>Module Location</b>	Power supply slot in any local, expansion, or remote base in a Productivity3000® System.
<b>Weight</b>	345g (12.1 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

### Terminal Block Specifications

<b>Number of Positions</b>	4 Screw Terminals
<b>Pitch</b>	0.3 inch (7.62 mm)
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid Conductor 22–14 AWG (0.324 to 2.08 sq. mm) Stranded Conductor 3/64 inch (1.2 mm) insulation maximum
<b>Screw Driver Width</b>	1/4 inch (6.5mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	7–9 inch-pounds (0.882 - 1.02 N·m)



# Power Supplies

## P3-01DC \$261.00

There are two power supplies available; both provide isolated 24VDC, 5VDC, and 3.3 VDC to the Productivity3000 bases.

The P3-01AC input power supply requires power from an external 100–240 VAC source.

The P3-01DC input power supply requires power from an external 24–48 VDC source.

### No Power Budgeting

No power budgeting is required with either power supply. Any combination of I/O modules may be installed in any slots without power budget considerations.



DC Input Power Supply

**WARNING!:** EXPLOSION HAZARD –  
SUBSTITUTION OF COMPONENTS MAY IMPAIR  
SUITABILITY FOR CLASS I, DIVISION 2.

## IMPORTANT!



### Hot-Swapping Information

**Note:** This device cannot be Hot Swapped.

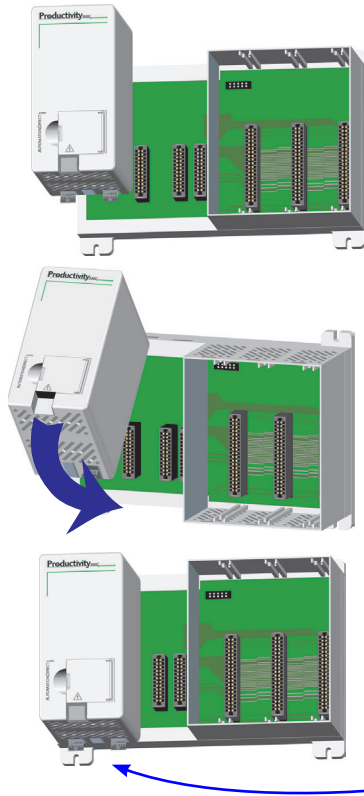
P3-01DC User Specifications		
<b>Input Voltage Range (Tolerance)</b>	24 to 48 VDC (-15% / +20% at 55°C) 24 to 48 VDC (-10% / +20% at 60°C)	
<b>Maximum Input Ripple</b>	< ±5%	
<b>Maximum Input Power</b>	67W	
<b>Cold Start Inrush Current</b>	10.5 A, 210µS @ 24VDC	
<b>Maximum Inrush Current (Hot Start)</b>	10.5A, 210µS @ 24VDC	
<b>Input Fuse Protection (Internal)</b>	Micro fuse 250V, 4A, Slow blow Non-replaceable	
<b>Input Reverse Polarity Protection</b>	Yes	
<b>Output</b>	F1 Rev. or lower: 24VDC @ 1.4A (±10%) 5VDC @ 2.1A (± 5%) 3.3 VDC @ 6.1A (± 5%)	F2 Rev. or higher: 24VDC @ 1A (±10%) 5VDC @ 2.0A (± 5%) 3.3 VDC @ 6.09A (± 5%)
<b>Maximum Output Power</b>	57W Combined	
<b>Heat Dissipation</b>	14W	
<b>Isolated User 24VDC Output</b>	None	
<b>Output Protection for Over Current, Over Voltage and Over Temperature</b>	Self resetting for all three voltage outputs to base	
<b>Under Input Voltage Lock-out</b>	< 19.8 VDC	
<b>Over Input Voltage Lock-out</b>	None	
<b>Input Transient Protection</b>	Varistor, plus input choke and filter	
<b>Operating Design Life</b>	10 years at full load at 40°C ambient and 5 years at 60°C ambient	

P3-01DC General Specifications	
<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F)
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Enclosure Type</b>	Open equipment
<b>Voltage Withstand (dielectric)</b>	750VDC applied for 2s
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Module Location</b>	Power supply slot in any local, expansion, or remote base in a Productivity3000® System.
<b>Weight</b>	558g (19.7 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

Terminal Block Specifications	
<b>Number of Positions</b>	4 Screw Terminals
<b>Pitch</b>	0.3 inch (7.62 mm)
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid Conductor 22–14 AWG (0.324 to 2.08 sq. mm) Stranded Conductor 3/64 inch (1.2 mm) insulation maximum
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	7–9 inch-pounds (0.882 - 1.02 N·m)

# Power Supplies

## Power Supply Installation



### Step One:

Locate the left most socket in the base.

### Step Two:

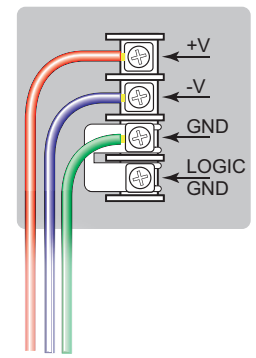
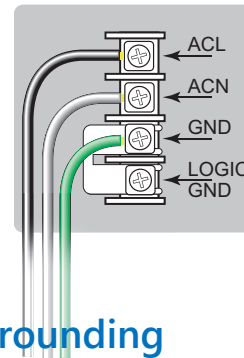
Insert the Power Supply at a 45° angle into the notch located at the top of the base and rotate down until seated in socket.

### Step Three:

Snap the two retaining tabs into the locked position.

**WARNING!:** EXPLOSION HAZARD – DO NOT CONNECT OR DISCONNECT CONNECTORS OR OPERATE SWITCHES WHILE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE NON-HAZARDOUS. DO NOT HOT SWAP.

## Power Connections



## Grounding

A good common ground reference (earth ground) is essential for proper operation of the Productivity3000® system. One side of all control circuits, power circuits and the ground lead must be properly connected to earth ground by either installing a ground rod in close proximity to the enclosure or by connecting to the incoming power system ground. There must be a single-point ground (i.e. copper bus bar) for all devices in the enclosure that require an earth ground.



# CPU Modules

## P3-550E \$750.00

The P3-550E is a high-performance CPU having multiple communication ports which support USB, Ethernet and serial devices. Designed with a 4-line x 10-character LCD and remote I/O capability.

Each Productivity3000® system requires one CPU module to be mounted in the controller slot in the initial base system of the local base group. The CPU stores and executes the user's program.

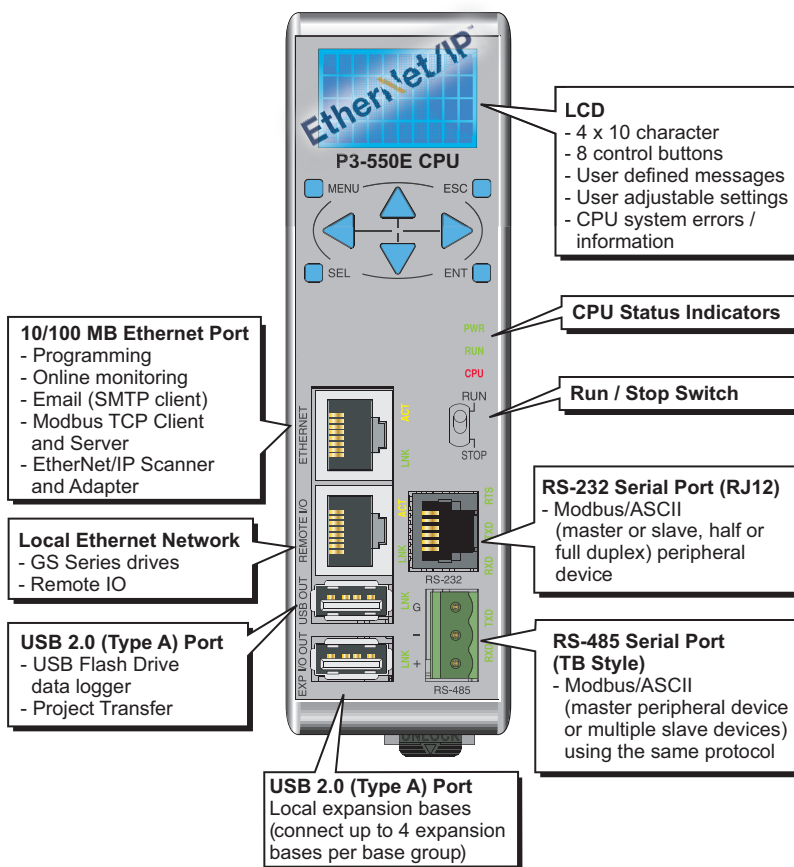
The system can be expanded with the P3-RX or P3-EX module when using the P3-550E CPU. The local, expansion, and remote I/O are assigned as preconfigured or user-defined tag names that can be easily referenced in the ladder logic program.



**NOTE:** A replacement LCD display is available for the P3-550E. Order Part number [P3-LCD](#).

## P3-LCD \$83.00

### P3-550E



CPU Status Indicators	
<b>PWR</b>	Green LED is illuminated when power is on
<b>RUN</b>	Green LED is illuminated when CPU is in RUN mode
<b>CPU</b>	Red LED is illuminated during power on reset, power down, or watch-dog time-out.



CPU Run/Stop Switch	
<b>RUN position</b>	Executes user program, run-time edits possible
<b>STOP position</b>	Does not execute user program, normal program load position

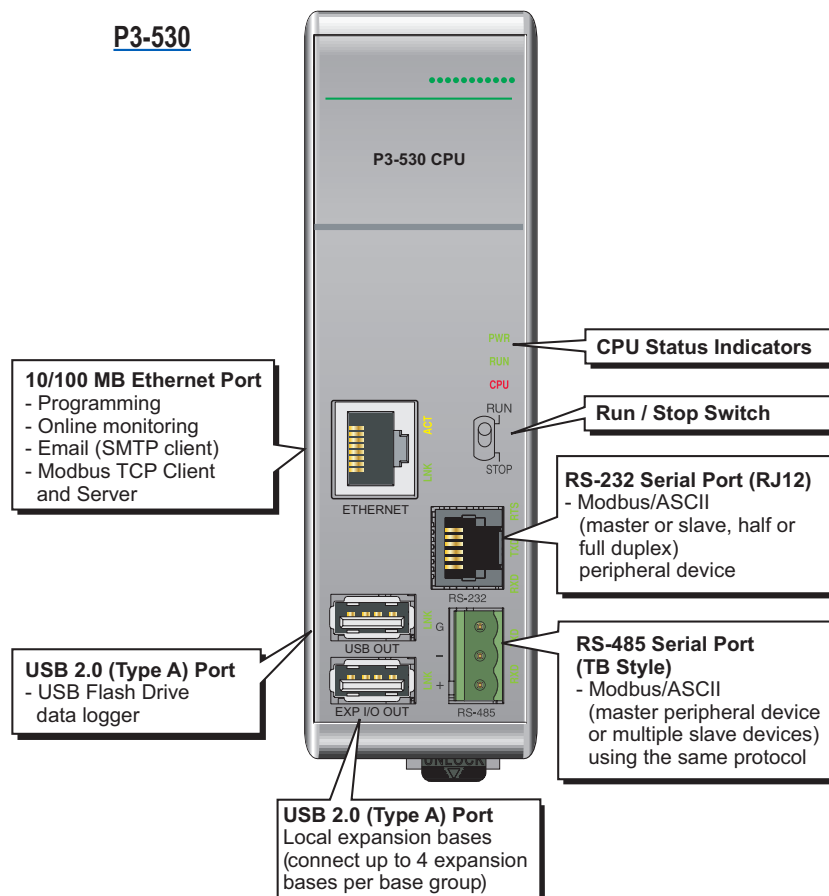
# CPU Modules

## P3-530 \$735.00

The P3-530 Basic is a high-performance CPU. Several communications ports support Ethernet and serial devices.

Each Productivity3000<sup>®</sup> system requires one CPU module mounted in the controller slot in the first base of the local base group. The CPU stores and executes the user's program.

The system can be expanded with the [P3-EX](#) module when using the [P3-530](#) CPU. The local I/O are assigned preconfigured or user-defined tag names which can be easily referenced in the ladder logic program.



CPU Status Indicators	
<b>PWR</b>	Green LED is illuminated when power is on
<b>RUN</b>	Green LED is illuminated when CPU is in RUN mode
<b>CPU</b>	Red LED is illuminated during power on reset, power down, or watch-dog time-out.



CPU Run/Stop Switch	
<b>RUN position</b>	Executes user program, run-time edits possible
<b>STOP position</b>	Does not execute user program, normal program load position

# CPU Modules

Specifications (see notes below)

CPU Specifications	P3-550E	P3-530
<b>User Memory</b>	50MB (Includes program, data and documentation)	25MB (Includes program, data and documentation)
<b>Memory Type</b>	Flash and Battery Backed RAM	
<b>Retentive Memory</b>	492K	
<b>Scan Time</b>	600µs (3K Boolean, 1K I/O)	
<b>Display</b>	LCD, 4x10 characters, backlit, 8 control buttons; LCD characters are 5x7 with a dot pitch of 0.45 mm; 2.25 mm x 3.15 mm	N/A
<b>Communications</b>	N/A	
	ETHERNET: (10/100 Mbps Ethernet) Programming, Monitoring, Debug, Firmware, Email SMTP Client, Modbus TCP Client (32 slaves) and Server (32 masters), EtherNet/IP Scanner (128 Scanner connections) and Adapter (16 connections)	ETHERNET: (10/100 Mbps Ethernet) Programming, Monitoring, Debug, Firmware, Email SMTP Client, Modbus TCP Client (32 slaves) and Server (32 masters)
	REMOTE I/O: (10/100 Mbps Ethernet) 16 RX Remote Base Groups, and 32 GS EDRV100 (GS Drives)	N/A
	USB OUT: (2.0) Data Logging and Project Transfer using pen drive (USB-FLASH recommended)	USB OUT: (2.0) Data Logging using pen drive (USB-FLASH recommended)
	EXP I/O OUT: (2.0 Proprietary) 4 P3-EX Local Expansion Bases	
	RS-232: (RJ12, 1200–115.2k baud) Modbus RTU, ASCII full or half duplex	
<b>Hardware Limits of System</b>	RS-485: Removable Terminal Included, (1200–115.2k baud) ASCII, Modbus	
	17 Base Groups 1 Local P3-550E + 16 Remote (P3-RX) 5 Bases per Base Group 1 P3-550E or P3-RX + 4 Expansion (P3-EX) 85 Bases Total 1 (CPU) + 16 (Remote) + 68 (Expansion) 59,840 Hardware I/O Points (All 64-point I/O Modules) 32 GS Series Drives as Remote I/O	5 Bases Total 1 P3-530 + 4 Expansion (P3-EX) 3,520 Hardware I/O Points (All 64-point I/O Modules)
	Application Functions Array Functions Counters/Timers Communications	Data Handling Drum Sequencers Math Functions PID
<b>Instruction Types</b>	Program Control String Functions System Functions Contacts	Coils High Speed I/O
<b>Real Time Clock Accuracy</b>	±5s per day typical at 25°C ambient: 1sec/day* ±15s per day maximum at 60°C ambient: 2sec/day*	±5s per day typical at 25°C ±15s per day maximum at 60°C

\*Revision B and higher.

**IMPORTANT!**



## Hot-Swapping Information

**Note:** This device cannot be Hot Swapped.

### NOTES:

1. To utilize the 492K of retentive memory in the P3-550E rev. D or later CPU, you must use Productivity3000® software version 1.0.7.XX and firmware version 1.1.13.XX or later.
2. When using the P3-530 CPU, you must use Productivity3000 software version 1.0.7.XX and firmware version 1.1.13.XX or later.
3. For EtherNet/IP support in the P3-550E CPU, you must use ProductivitySuite software version 2.2.0.XX or later.

# CPU Modules

General Specifications	
<b>Operating Temperature</b>	0°C–60°C (32°F–140°F)
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Heat Dissipation</b>	7W
<b>Enclosure Type</b>	Open equipment
<b>Module Location</b>	Controller slot in the local base in a Productivity3000 system
<b>Weight</b>	260g (9oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.



**NOTE:** When using the P3-550E CPU, you must use Productivity Suite software version 2.2.0.XX or later.

P3-550E/P3-530 Product Comparison		
CPU	P3-550E	P3-530
<b>LCD Display</b>		
<b>USB Prog/Mon Port</b>		
<b>Ethernet Port</b>		
<b>EtherNet/IP Protocol</b>		
<b>Remote Expansion Port</b>		
<b>USB Memory Stick Port</b>		
<b>USB Local Expansion Port</b>		
<b>RS-232 RJ12 Port</b>		
<b>RS-485 Port</b>		
<b>User Memory</b>	50 MB	25 MB

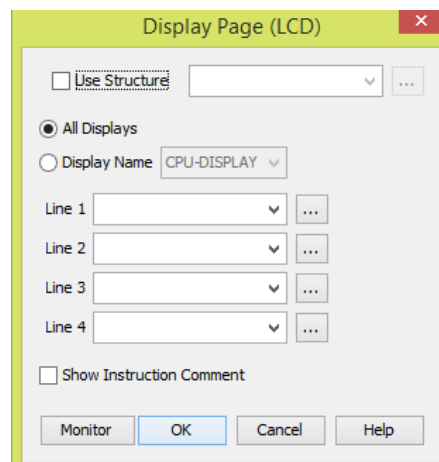
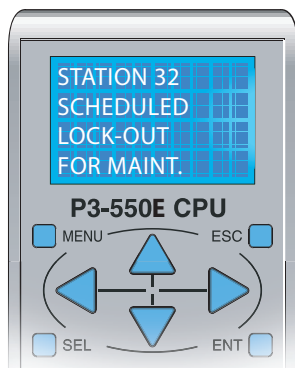
# CPU Modules

## LCD Message Display P3-550E

The P3-550E CPU incorporates a 4-line x 10-character LCD Display for system alarms and information or for displaying user-defined messages.

LCD control buttons located beneath the display allow the user to navigate through a menu, and arrow buttons allow for configuration of time and date settings.

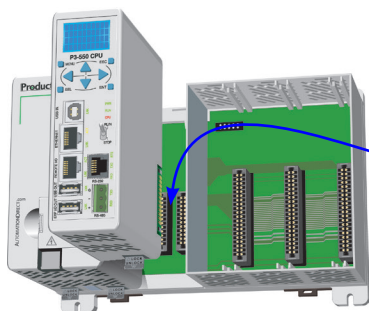
For user-defined messages, the display is configured using the Productivity Suite Programming Software. An LCD Page instruction allows the user to program text into user-defined tags and display the messages based on the ladder execution.



## CPU Installation

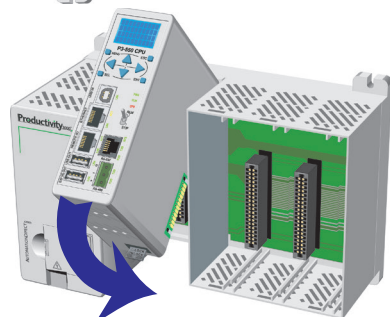
### Step One:

Locate the two sockets next to the power supply; the CPU will be inserted into this location.



### Step Two:

Insert the CPU at a 45° angle into the notch located at the top of the base and rotate down until seated.



### Step Three:

Snap retaining tab into the locked position.



**WARNING!:** EXPLOSION HAZARD – DO NOT CONNECT OR DISCONNECT CONNECTORS OR OPERATE SWITCHES WHILE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE NON-HAZARDOUS. DO NOT HOT SWAP.

## Battery (Optional)

A battery is included with some CPUs, but is not installed. The battery can be installed to retain the Time and Date along with any Tagname values that are set up as retentive.

The battery is not needed for program backup.

### Battery (Optional)

<b>D2-BAT-1</b>	Coin type, 3.0V Lithium battery, 560mA, battery number CR2354
-----------------	---

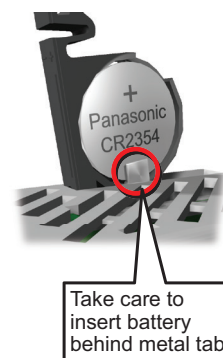
### Step One:

Press spring lock and swing battery compartment away from CPU.



### Step Two:

Insert battery and close compartment.



# CPU Modules - Communications

## Port Specifications

The P3-550E and P3-530 CPUs have several communications ports. The following pages list specifications and pin-out diagrams for these ports.

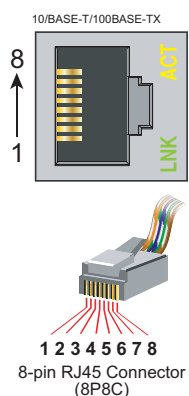
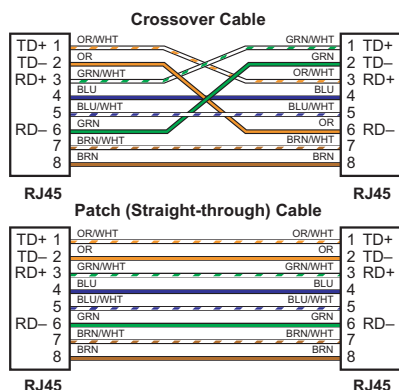
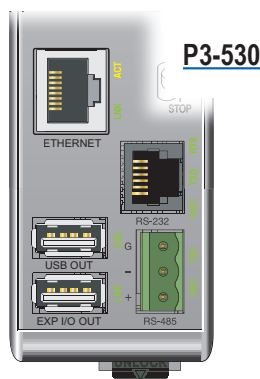
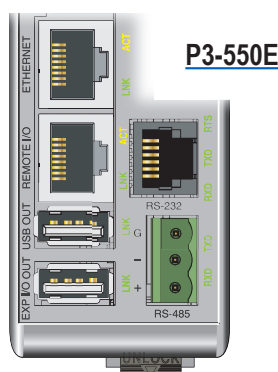
### Remote I/O Port (P3-550E)

RJ-45 style connector used for connecting to a Remote I/O network consisting of P3-RX Remote Slaves and/or GS-EDRV100 units with GS drives.

### Ethernet Port

RJ-45 style connector used for:

- Connection to a PC running the Productivity Suite programming software
- EtherNet/IP Scanner (CPU is the originator, up to 128 connections, max 32 devices) [P3-550E](#)
- EtherNet/IP Adapter (CPU is the target, up to 16 connections, max 4 devices) [P3-550E](#)
- Modbus TCP Client connections (Modbus requests sent from the CPU)
- Modbus TCP Server connections (Modbus requests received by the CPU)
- Outgoing E-mail

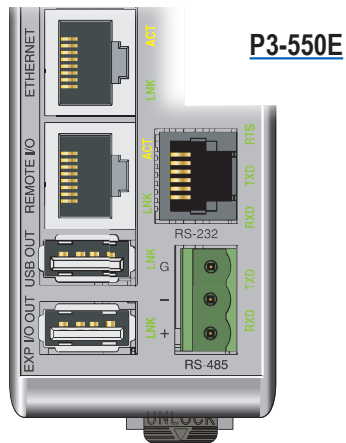


Ethernet Specifications		
Port Name	ETHERNET	REMOTE I/O P3-550E
Description	Standard transformer isolated Ethernet port with built-in surge protection for programming, online monitoring, Email (SMTP client), EtherNet/IP Scanner/Adapter and Modbus/TCP client/server connections (fixed IP or DHCP).	Standard transformer isolated Ethernet port with built-in surge protection for connection to the P3-RX remote I/O system. Supports 16 Remote I/O slaves and 32 GS Series drives.
Transfer Rate	10/100 Mbps	
Port Status LED	Green LED illuminated when network LINK is established. Yellow LED is illuminated when port is active (ACT).	
Cables	Use a Patch (straight through) cable when a switch or hub is used. Use a Crossover cable when a switch or hub is not used. (Cables available at <a href="http://automationdirect.com">automationdirect.com</a> )	



# CPU Modules - Communications

## Port Specifications



**P3-550E**

### USB OUT Port

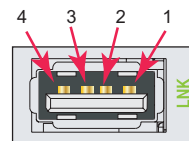
Used for data logging ([P3-530](#)) or data logging and project transfers ([P3-550E](#)) to and from a USB-FLASH Pen Drive.

### EXP I/O OUT Port

USB port used only for Expansion I/O connections to local [P3-RX](#) modules in a Productivity3000 base with I/O.

#### USB Type A Master Output Specifications

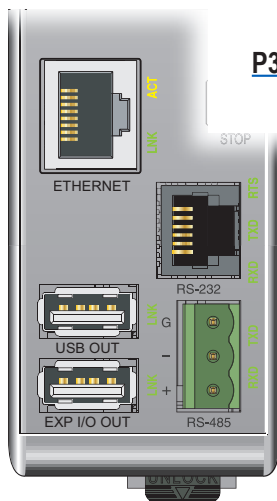
Port Name	USB OUT	EXP I/O OUT
Description	Standard USB 2.0 Master output for connection to high-speed Flash drive (Sandisk SDCZ4-2048-A10 recommended) for data logging ( <a href="#">P3-550E</a> / <a href="#">P3-530</a> ) or program transfer ( <a href="#">P3-550E</a> ), with built-in surge protection. Not compatible with older full speed USB devices. A 0.5 m male-to-female "port extender" cable is included to assist with Flash drive connection.	Proprietary USB 2.0 Master output for connection to up to four <a href="#">P3-EX</a> local expansion bases, with built-in surge protection.
Transfer Rate	480 Mbps	
Port Status LED	Green LED is illuminated when LINK is established to connected device	
Cables	None required	USB Type A to USB Type B: 6ft. cable part # <a href="#">P3-EX-CBL6</a> (included with <a href="#">P3-EX</a> module)



Mating face of USB type A female

#### USB OUT

Pin #	Signal
1	+5
2	- Data
3	+ Data
4	GND



**P3-530**

### RS-232 Port

RJ-12 style connector used for:

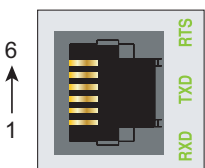
- Modbus RTU Master connections
- Modbus RTU Slave connections
- ASCII full or half duplex communications
- Custom Protocol Incoming and Outgoing communications

#### EXP I/O OUT

Pin #	Signal
1	Reset
2	- Data
3	+ Data
4	GND

#### RS-232 Specifications

Port Name	RS-232
Description	Non-isolated RS-232 DTE port connects the CPU as a Modbus/ASCII master or slave to a peripheral device. Includes ESD and built-in surge protection.
Data Rates	Selectable, 1200, 2400, 9600, 19200, 33600, 38400, 57600, and 115200 bps.
+5V Cable Power Source	210mA maximum at 5V, $\pm 5\%$ . Reverse polarity and overload protected.
TXD	RS-232 Transmit output
RXD	RS-232 Receive input
RTS	Handshaking output for modem control.
GND	Logic ground
Maximum Output Load (TXD/RTS)	3kV, 1,000pf
Minimum Output Voltage Swing	$\pm 5V$
Output Short Circuit Protection	$\pm 15mA$
Port Status LED	Green LED is illuminated when active for TXD, RXD and RTS
Cable Options	FA-ISOCON for converting RS-232 to isolated RS-485



6-pin RJ12 Female Modular Connector

Pin #	Signal
1	GND Logic Ground
2	+5V 210 mA Maximum
3	RXD RS-232 Input
4	TXD RS-232 Output
5	RTS Request to Send
6	GND Logic Ground

# CPU Modules - Communications

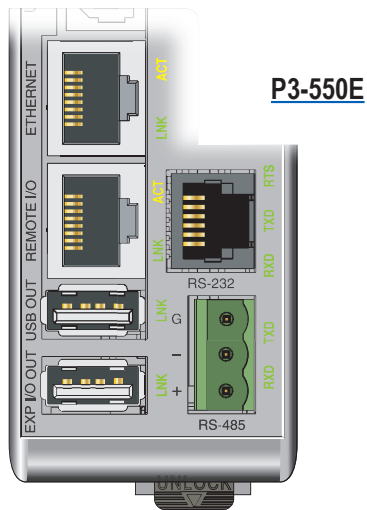
## Port Specifications

### RS-485 Port

A 3-pin removable terminal block used for:

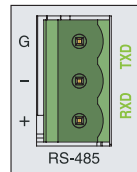
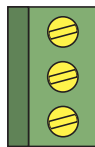
- Modbus RTU Master connections
- Modbus RTU Slave connections
- ASCII Incoming and Outgoing communications
- Custom Protocol Incoming and Outgoing communications

Removable connector included.



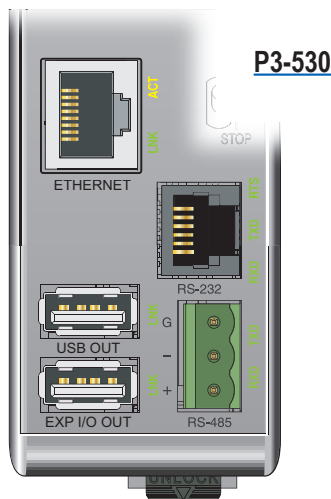
**P3-550E**

RS-485 Port Specifications	
Port Name	RS-485
Description	Non-isolated RS-485 port connects the CPU as a Modbus/ASCII master or slave to a peripheral device. Includes ESD/EFT protection and automatic echo cancellation when transmitter is active.
Data Rates	Selectable, 1200, 2400, 9600, 19200, 33600, 38400, 57600, and 115200 bps.
TXD+ /RXD+	RS-485 transceiver high
TXD-/RXD-	RS-485 transceiver low
GND	Logic ground
Input Impedance	19kV
Maximum load	50 transceivers, 19kV each, 60V termination
Output Short Circuit Protection	±250mA, thermal shut-down protection
Electrostatic Discharge Protection	±8kV per IEC1000-4-2
Electrical Fast Transient Protection	±2kV per IEC1000-4-4.
Minimum Differential Output Voltage	1.5 V with 60V load
Fail safe inputs	Logic high input state if inputs are unconnected
Maximum Common Mode Voltage	-7.5 V to 12.5 V.
Port Status LED	Green LED illuminated when active for TXD and RXD
Cable Options	Q8302-1 (cut to length) or Belden 9841 equivalent



Pin #	Signal
G	GND
-	TXD-/RXD-
+	TXD+/RXD+

\*Removable connector included.



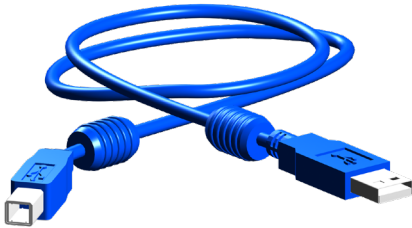
**P3-530**

Terminal Block Specifications	
Number of Positions	3
Pitch	5mm
Wire Range	28-12 AWG Solid Conductor 30-12 AWG Stranded Conductor
Screw Driver Width	1/8 inch (3.175mm) maximum
Screw Size	M2.5
Screw Torque	4.5 lb·in (0.51 N·m)

# P3-EX Expansion Module

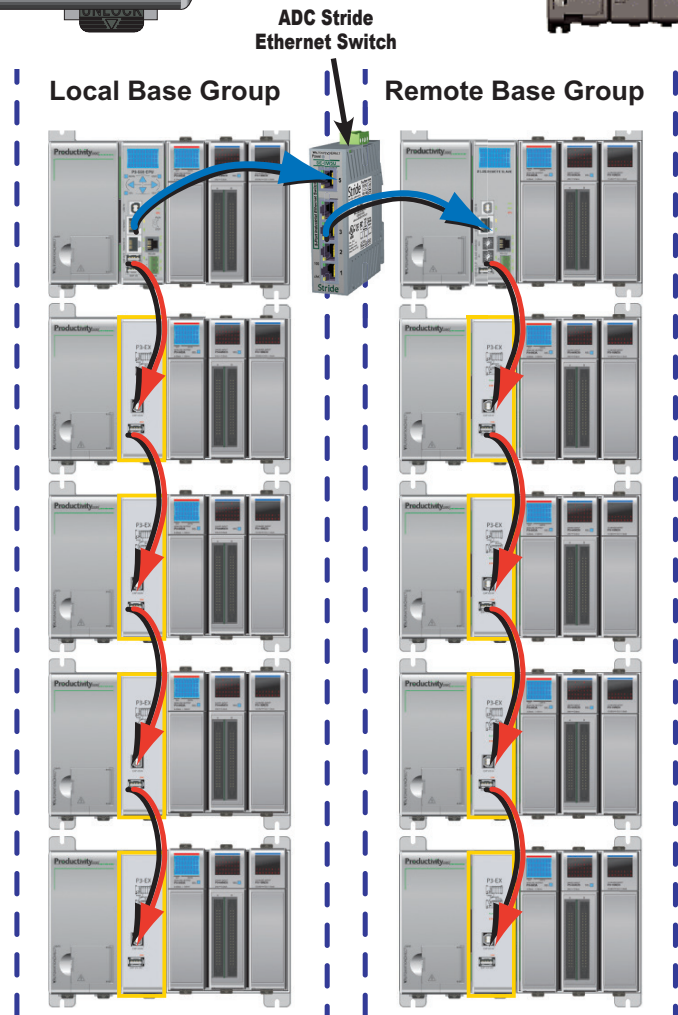
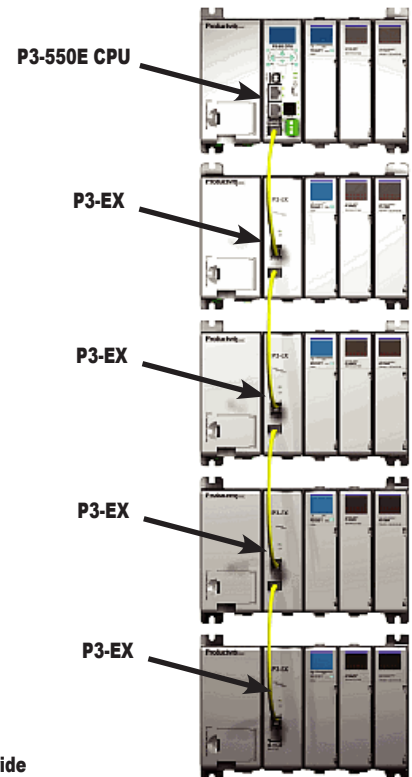
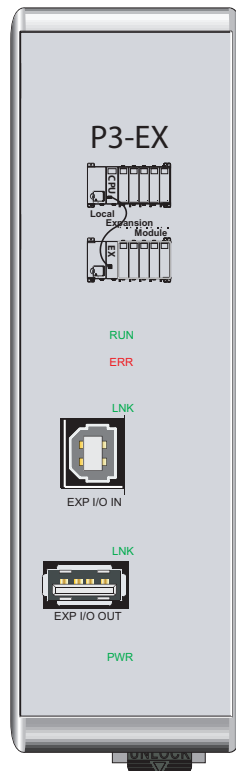
## P3-EX \$138.00

The P3-EX high-performance expansion module provides local I/O expansion to a CPU or Remote I/O. Includes 6-foot USB expansion cable.

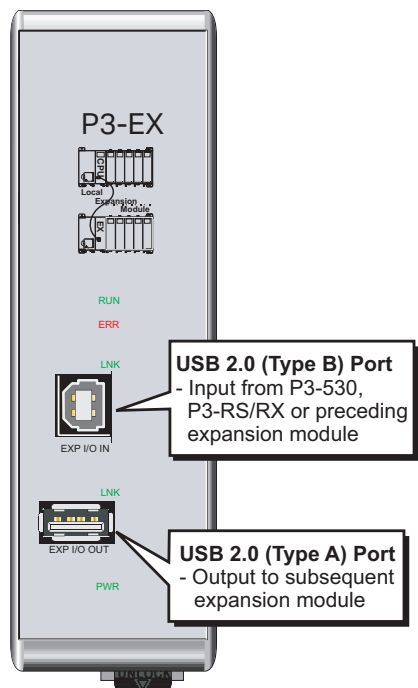


A 6-foot USB cable is included with the P3-EX module (Replacement cable: part number **P3-EX-CBL6**).

The system can have up to 68 expansion bases by adding four expansion bases at the CPU base and four expansion bases per Remote I/O Slave (up to 16 slaves). Each expansion base uses the P3-EX expansion module for USB-based I/O bus connectivity.



# P3-EX Expansion Module



## Hot-Swapping Information

**Note:** This device cannot be Hot Swapped.

**IMPORTANT!**



**WARNING!:** EXPLOSION HAZARD –  
SUBSTITUTION OF COMPONENTS MAY IMPAIR  
SUITABILITY FOR CLASS 1, DIVISION 2.

## Expansion Module Status Indicators

<b>PWR</b>	Green LED is illuminated when power is on.
<b>RUN</b>	Green LED is illuminated when not in reset. Reset occurs during power-up, a watchdog timeout, or an expansion cable is disconnected.
<b>ERR</b>	Red LED is illuminated when a USB fault is detected.
<b>LNK</b>	Green LED is illuminated when a USB link is established.

## Module Specifications

<b>Mounting Location</b>	Controller slot of expansion base
<b>Expansion Connectors</b>	1 USB 2.0 Type A, 1 USB 2.0 Type B
<b>Maximum Number of Expansion Modules per CPU or Remote Slave</b>	4
<b>Maximum Distance Between Modules</b>	15 feet
<b>Status Indicators</b>	PWR - Green LED is illuminated when power is on. RUN - Green LED is illuminated when not in reset. Reset occurs during power-up, a watchdog timeout, or if an expansion cable is disconnected. ERR - Red LED is illuminated when a USB fault is detected. LINK - Green LED is illuminated when a USB link is established.
<b>I/O Capabilities</b>	
<b>Max. Number of I/O per CPU System</b>	59,840 (CPU Base with 4 Expansion Bases plus 16 Remote Bases with 4 Expansion Bases per Remote, with 11 64-point I/O modules per base)
<b>Max. Number of Expansion I/O Bases</b>	68 (4 per CPU, 4 per Remote Base)
<b>Module Setup</b>	Automatic hardware verification
<b>Expansion I/O Addressing</b>	Automatic via Tag Names
<b>USB Cables</b>	6 foot: P3-EX-CBL6 (USB Type A to USB Type B)

## General Specifications

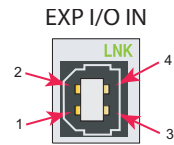
<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F)
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Heat Dissipation</b>	1W
<b>Enclosure Type</b>	Open equipment
<b>Module Location</b>	Controller slot in a local expansion base in a Productivity3000 system
<b>Weight</b>	194g (6.24 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

# P3-EX Expansion Module

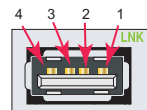
## Port Specifications

Exp I/O Port Specifications		
Port Name	EXP I/O IN	EXP I/O OUT
Description	Proprietary USB 2.0 Slave input for connection with a CPU, Remote Slave, or preceding P3-EX expansion base. The P3-EX Expansion Module includes the 6 foot USB cable P3-EX-CBL6.	Proprietary USB 2.0 Master output for connection with the next P3-EX expansion base. Includes built-in surge protection.
Transfer Rate	480 Mbps	
Port Status LED	Green LED is illuminated when LINK is established to connected device	
Cables	USB Type A to USB Type B: 6ft. cable part no. P3-EX-CBL6	



Mating face of USB type B female

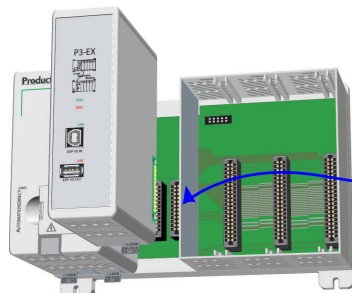
EXP I/O OUT



Mating face of USB type A female

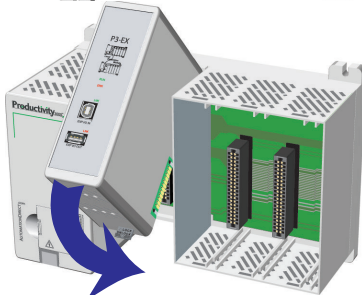
Pin #	Signal
1	Reset
2	- Data
3	+ Data
4	GND

## Installation Procedure



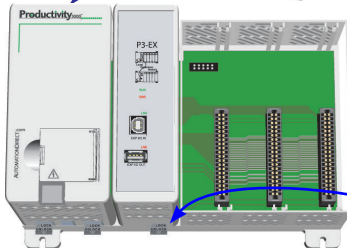
### Step One:

Locate the two sockets next to the Power Supply.



### Step Two

Insert P3-EX at a 45° angle into the notch located at the top of the base and rotate down until seated.



### Step Three

Snap retaining tab into the locked position.

**WARNING!:** EXPLOSION HAZARD – DO NOT CONNECT OR DISCONNECT CONNECTORS OR OPERATE SWITCHES WHILE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE NON-HAZARDOUS. DO NOT HOT SWAP.

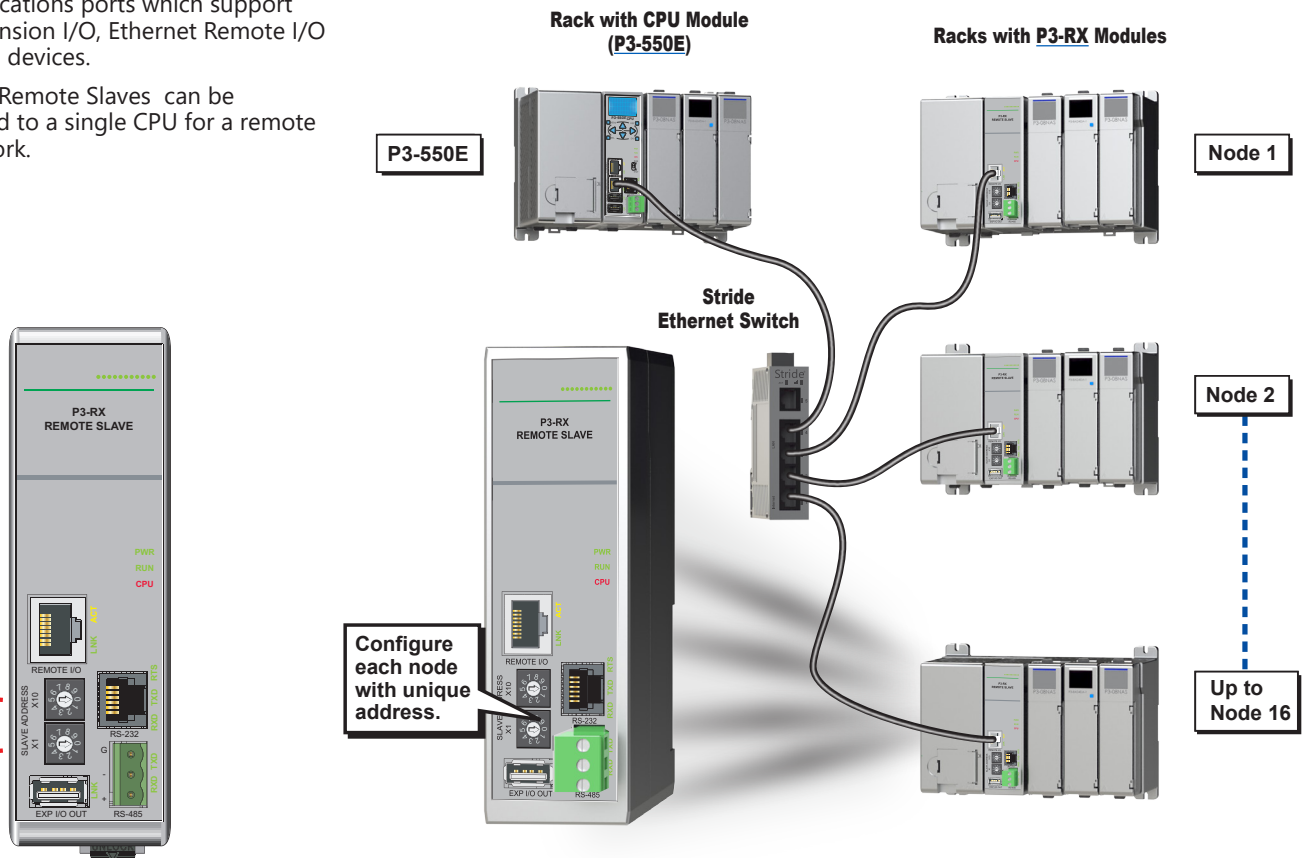


# Remote Slave Module

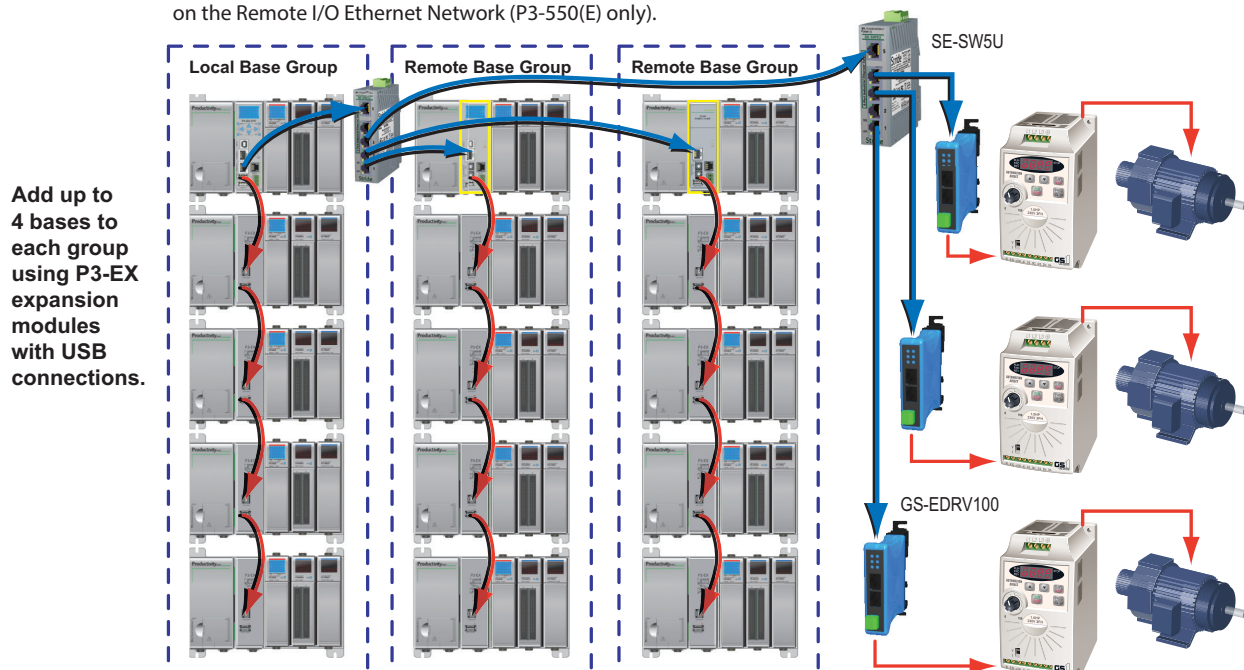
**P3-RX \$499.00**

The P3-RX is a high-performance Remote Slave module for use with P3-550E CPU-based systems. It has several communications ports which support USB Expansion I/O, Ethernet Remote I/O and serial devices.

Up to 16 Remote Slaves can be connected to a single CPU for a remote I/O network.







Add up to 16 Remote Base Groups using P3-RX Remote Slave modules and up to 32 GS Drives on the Remote I/O Ethernet Network (P3-550(E) only).





# Remote Slave Module

Remote Slave Specifications (for P3-550E)	
<b>Mounting Location</b>	Controller slot
<b>Display</b>	No LCD display
<b>Communications</b>	USB IN: N/A REMOTE I/O: (10/100 Mbps Ethernet) 1 EXP I/O OUT: (2.0, Type A, Proprietary) 4 <a href="#">P3-EX</a> Local Expansion Bases RS-232: (RJ12, 1200–115.2k bps) ASCII, Modbus RS-485: (Removable Terminal Included, 1200–115.2k baud) ASCII, Modbus
<b>Max. Number of Ethernet Remote I/O Bases</b>	16
<b>Max. Number of Expansion I/O Bases</b>	68 (4 per CPU, 4 per Remote Base)
<b>Max. Number of I/O per CPU System</b>	59,840 (CPU Base with 4 Expansion Bases plus 16 Remote Bases with 4 Expansion Bases per Remote, with 11 64-point I/O modules per base)

P3-RX Product	
Remote I/O Module	P3-RX
<b>LCD Display</b>	N/A
<b>USB Prog/Mon Port</b>	N/A
<b>Remote Port (in)</b>	
<b>USB Local Expansion Port</b>	
<b>RS-232 RJ12 Port</b>	
<b>RS-485 Port</b>	

General Specifications	
<b>Operating Temperature</b>	0°C–60°C (32°F–140°F)
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Heat Dissipation</b>	4W
<b>Enclosure Type</b>	Open equipment
<b>Module Location</b>	Controller slot in a remote base in a Productivity3000 system
<b>Weight</b>	260g (9 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

**WARNING!:** EXPLOSION HAZARD –  
 SUBSTITUTION OF COMPONENTS MAY IMPAIR  
 SUITABILITY FOR CLASS I, DIVISION 2.

**IMPORTANT!**



## Hot-Swapping Information

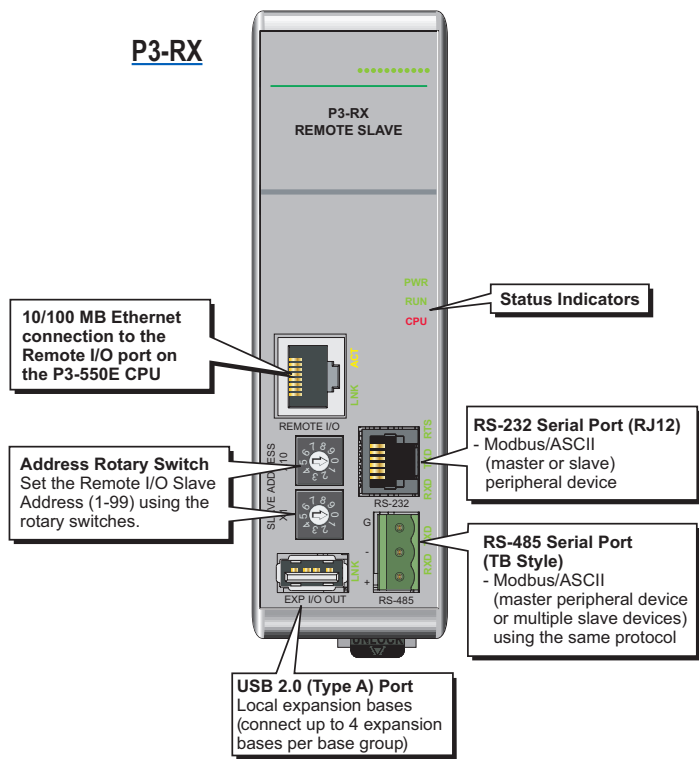
**Note:** This device cannot be Hot Swapped.



**NOTE:** When using the P3-RX, you must use Productivity3000® software version 1.0.7.XX and firmware version 1.1.13.XX or later.

# Remote Slave Module

## Front Panel



## Status Indicators

RX Status Indicators	
<b>PWR</b>	Green LED is backlit when power is on
<b>RUN</b>	Green LED is backlit when CPU has valid project file with RS configured.
<b>CPU</b>	Red LED is backlit during power on reset, power down, or watch-dog time-out.

PWR  
RUN  
CPU

# Remote Slave Module

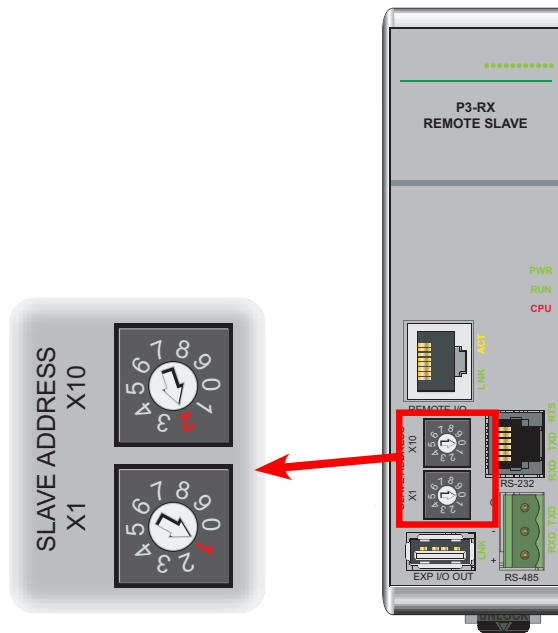
## Setting the Remote Slave Address

Each Remote Slave must have a unique address between 1 and 99. The address is set using the two rotary switches located on the face of the module, X10 for setting the tens units and X1 for setting the ones unit.

For example, to set a remote slave address to 21, turn the X10 arrow until it points at number 2 and the X1 arrow until it points at number 1.

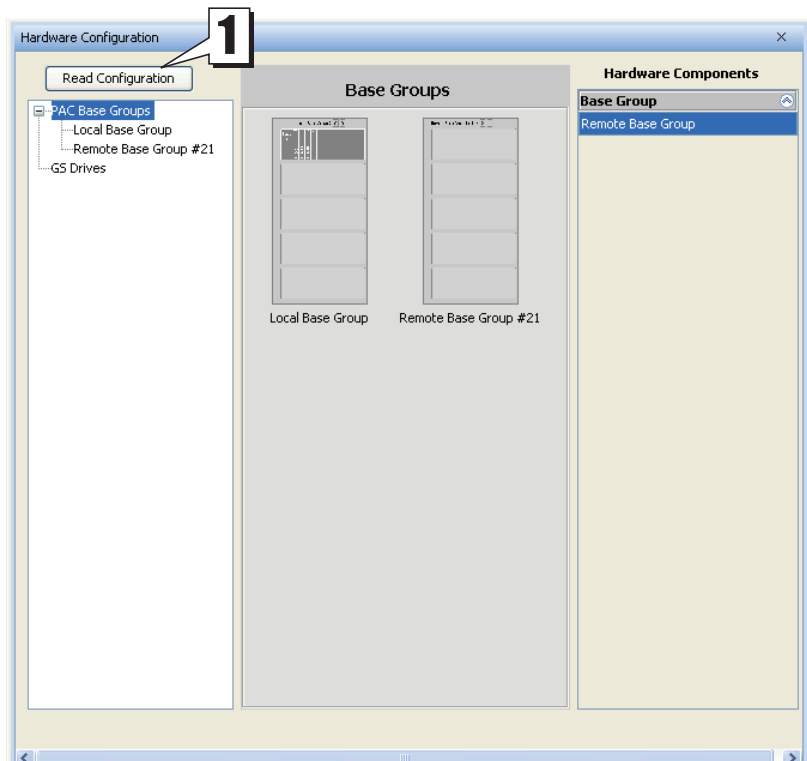
### IMPORTANT NOTES:

- The factory setting of 00 is not a valid address.
- Address selection must be set prior to power-up.
- Slave addresses are only read on power-up.
- If there are duplicate slave addresses on the same network, a critical error will occur.



It is also necessary to configure the remote addresses using the Productivity Suite Programming Software.

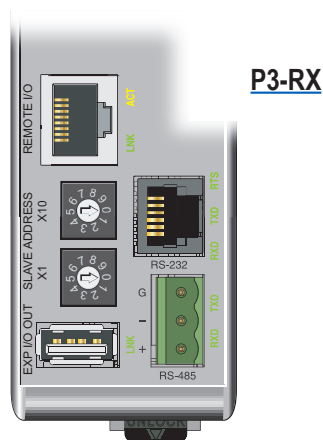
This can be done automatically by first going online with a Productivity3000 system that has slave modules installed, go to Hardware Configuration and select the Read Configuration (1) button. The CPU will automatically read the addresses of the remote slaves and add them to the configuration.



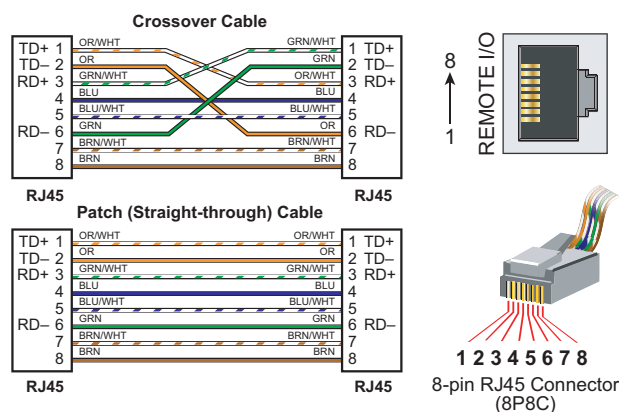
# Remote Slave Module

## Port Specifications

The P3-RX has several communications ports. The following pages have specifications and pin-out diagrams for these ports.



Remote I/O Port Specifications	
<b>Description</b>	Proprietary transformer isolated Ethernet Port with built-in surge protection for connection to CPU Remote I/O Master port.
<b>Transfer Rate</b>	10/100 Mbps
<b>Port Status LEDs</b>	Green LED is illuminated when network LINK is established. Yellow LED backlit when port is active (ACT).
<b>Cables</b>	Use a Patch (straight-through) cable when a switch or hub is used. Use a Crossover cable when a switch or hub is not used. (Cables available at automationdirect.com)

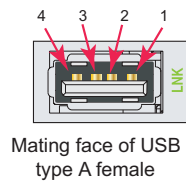
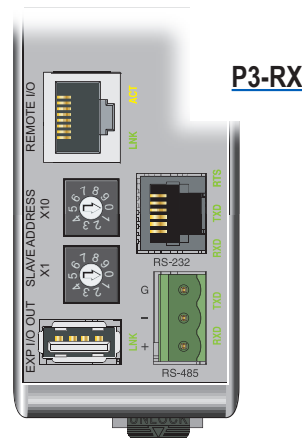


# Remote Slave Module

## EXP I/O OUT Port

USB 2.0 (Type A) Master output for connection to up to four [P3-EX](#) local expansion bases, with built-in surge protection.

EXP I/O OUT Specifications	
<b>Description</b>	Proprietary USB 2.0 (Type A) Master output for connection with up to four <a href="#">P3-RX</a> local expansion bases, with built-in surge protection.
<b>Transfer Rate</b>	480 Mbps
<b>Port Status LED</b>	Green LED is illuminated when LINK is established to connected device
<b>Cables</b>	USB Type A to USB Type B. The P3-EX Expansion Module includes a 6 foot USB cable, part number <a href="#">P3-EX-CBL6</a> .

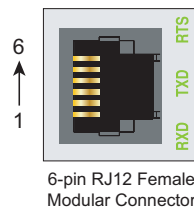


Pin #	Signal
1	Reset
2	- Data
3	+ Data
4	GND

## RS-232 Serial Port

Non-isolated RS-232 DTE port connects the [P3-RX](#) as a Modbus or ASCII master or slave to a peripheral device.

RS-232 Specifications	
<b>Description</b>	Non-isolated RS-232 DTE port connects the P3-RX as a Modbus or ASCII master or slave to a peripheral device. Includes ESD and built-in surge protection.
<b>Data Rates</b>	Selectable, 1200, 2400, 9600, 19200, 33600, 38400, 57600, and 115200 baud.
<b>+5V Cable Power Source</b>	210mA maximum at 5V, $\pm 5\%$ . Limited by self-resetting current limiting device. Reverse polarity protected.
<b>TXD</b>	RS-232 Transmit output
<b>RXD</b>	RS-232 Receive input
<b>RTS</b>	Handshaking output for modem control.
<b>GND</b>	Logic ground
<b>Maximum Output Load (TXD/RTS)</b>	3kV, 1,000pf
<b>Minimum Output Voltage Swing</b>	$\pm 5V$
<b>Output Short Circuit Protection</b>	$\pm 15mA$
<b>Port Status LED</b>	Green LED is illuminated when active for TXD, RXD and RTS
<b>Cable Options</b>	<a href="#">FA-ISOCAN</a> for converting RS-232 to isolated RS-485



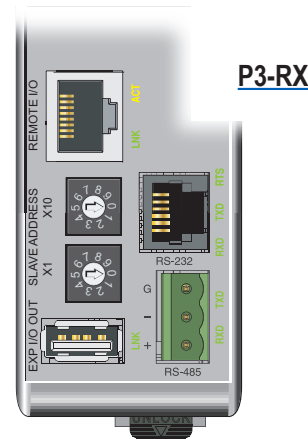
Pin #	Signal
1	GND Logic Ground
2	+5V 210 mA Maximum
3	RXD RS-232 Input
4	TXD RS-232 Output
5	RTS Request to Send
6	GND Logic Ground

# Remote Slave Modules

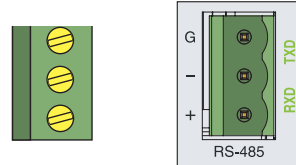
## RS-485 Serial Port

Non-isolated RS-485 port connects the **P3-RX** as a Modbus or ASCII master or slave to a peripheral device. (Removable connector included.)

RS-485 Specifications	
<b>Description</b>	Non-isolated RS-485 port connects the <b>P3-RX</b> as a Modbus or ASCII master or slave to a peripheral device. Includes ESD/EFT protection and automatic echo cancellation when transmitter is active.
<b>Data Rates</b>	Selectable, 1200, 2400, 9600, 19200, 33600, 38400, 57600, and 115200 bps.
<b>TXD+/RXD+</b>	RS-485 transceiver high
<b>TXD-/RXD-</b>	RS-485 transceiver low
<b>GND</b>	Logic ground
<b>Input Impedance</b>	19kΩ
<b>Maximum load</b>	50 transceivers, 19kΩ each, 60Ω termination
<b>Output Short Circuit Protection</b>	±250mA, thermal shut-down protection
<b>Electrostatic Discharge Protection</b>	±8kV per IEC1000-4-2
<b>Electrical Fast Transient Protection</b>	±2kV per IEC1000-4-4.
<b>Minimum Differential Output Voltage</b>	1.5 V with 60Ω load
<b>Fail safe inputs</b>	Logic high input state if inputs are unconnected
<b>Maximum Common Mode Voltage</b>	-7.5 V to 12.5 V.
<b>Port Status LED</b>	Green LED is illuminated when active for TXD and RXD
<b>Cable Options</b>	Q8302-1 (cut to length) or Belden 9841 equivalent



**P3-RX**



Pin #	Signal
G	GND
-	TXD-/RXD-
+	TXD+/RXD+

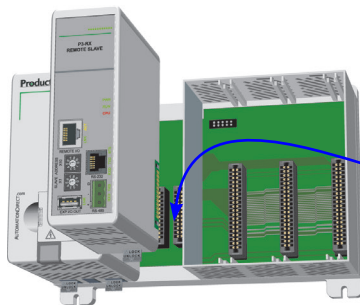
\*Removable connector included.

Terminal Block Specifications	
<b>Number of Positions</b>	3
<b>Pitch</b>	5mm
<b>Wire Range</b>	28–12 AWG Solid Conductor 30–12 AWG Stranded Conductor
<b>Screw Driver Width</b>	1/8 inch (3.175 mm) maximum
<b>Screw Size</b>	M2.5
<b>Screw Torque</b>	4.5 lb·in (0.51 N·m)

## Installation Procedure

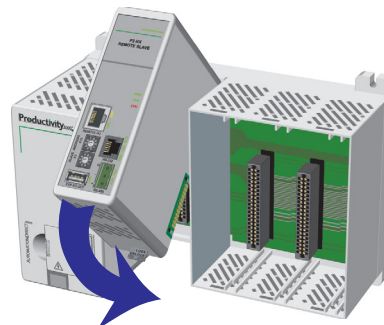
### Step One:

Locate the two sockets next to the power supply; the module will be inserted into this location.



### Step Two:

Insert **P3-RX** at a 45 angle into the notch located at the top of the base and rotate down until seated.



### Step Three:

Snap retaining tab into the locked position.



**WARNING:** EXPLOSION HAZARD – DO NOT CONNECT OR DISCONNECT CONNECTORS OR OPERATE SWITCHES WHILE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE NON-HAZARDOUS. DO NOT HOT SWAP.



# Dimensions and Installation

It is important to review and understand the installation requirements for your Productivity3000® system. Your knowledge of these requirements will help ensure that your system operates within its environmental and electrical limits.

## Plan for Safety

This catalog should never be used as a replacement for the product inserts and user manual. Each base, CPU, power supply, I/O module, remote slave, and expansion module comes with a product insert. You can purchase, download for free, or view online the Productivity3000 user manual (P3-USER-M). These documents, along with the software help files, contain important safety information that must be followed.

The system installation should comply with all appropriate electrical codes and standards.

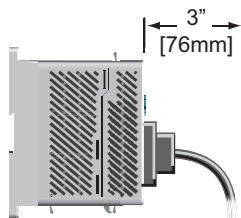
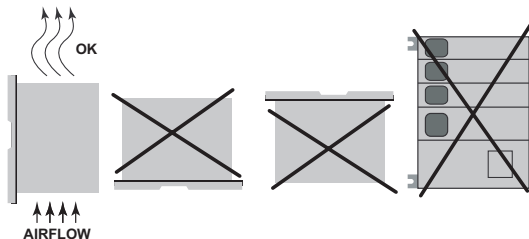
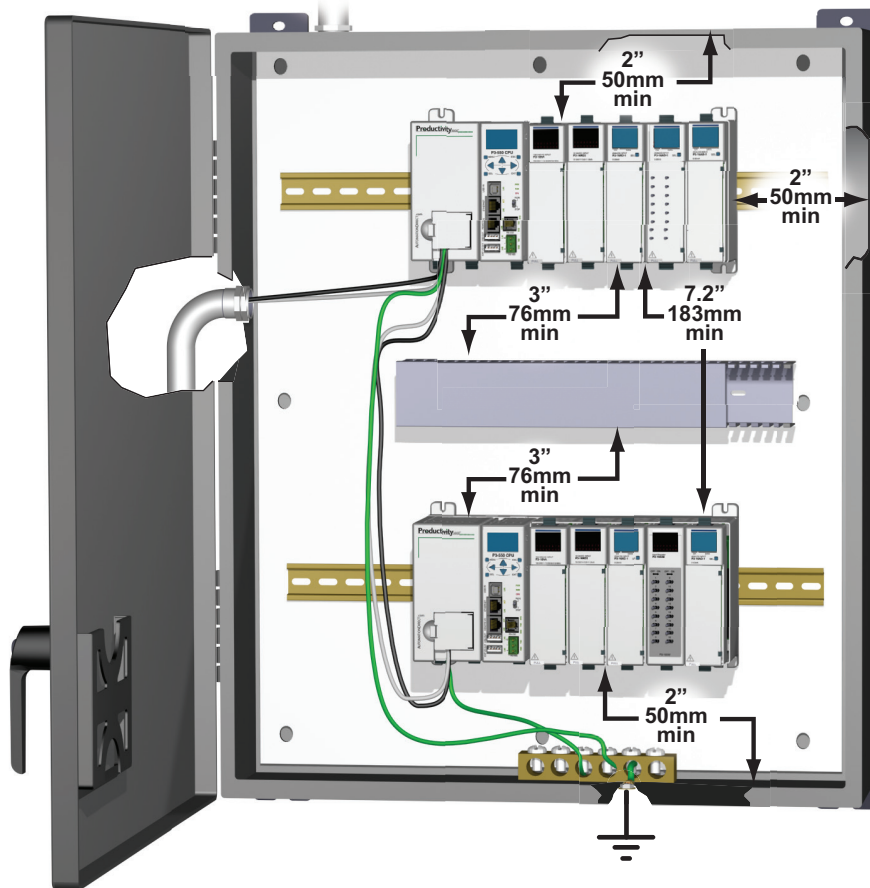
## Enclosures

Your selection of a proper enclosure is important to ensure safe and proper operation of your Productivity3000 system. Applications for the Productivity3000 system vary and may require additional hardware considerations. The minimum considerations for enclosures include:

- Conformance to electrical standards
- Protection from the elements in an industrial environment
- Common ground reference
- Maintenance of specified ambient temperature
- Access to the equipment
- Security or restricted access
- Sufficient space for proper installation and maintenance of the equipment

## Mounting Position

Mount the bases horizontally, as shown in the illustration, to provide proper ventilation. Do not mount the bases vertically, upside down, or on a flat horizontal surface.



**NOTE:** Add 3 inches (76 mm) to mounting depth when using ZIPLink cable ZL-CBL40.

# Dimensions and Installation

## Mounting Clearances

Provide a minimum clearance of 2 inches (50mm) between the bases and all sides of the enclosure. Allow extra door clearance for operator panels and other door mounted items. There should be a minimum of 3 inches (76mm) clearance between the base and any wire duct, and a minimum of 7.2 inches (183mm) from base to base in a multiple base installation.

## Grounding

A good common ground reference (earth ground) is essential for proper operation of the Productivity3000® system. One side of all control circuits, power circuits and the ground lead must be properly connected to earth ground by either installing a ground rod in close proximity to the enclosure or by connecting to the incoming power system ground. There must be a single-point ground (i.e. copper bus bar) for all devices in the enclosure that require an earth ground.

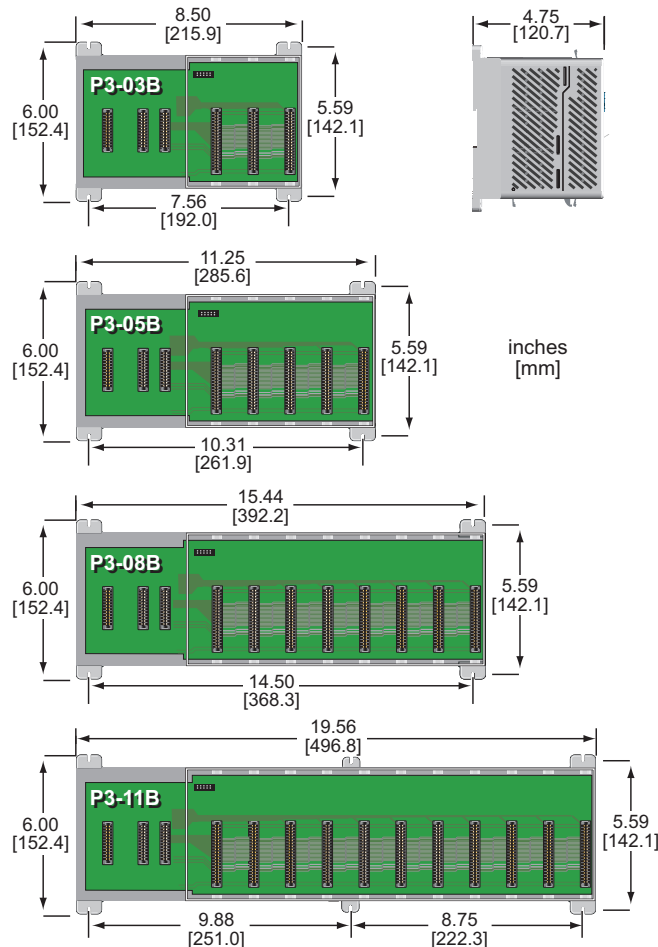
## Temperature Considerations

The Productivity3000 system should be installed within the operating temperature specifications as listed in this document. If the temperature deviates above or below the specification, measures such as cooling or heating the enclosure should be taken to maintain the specification.

## Power Considerations

The Productivity3000 system is designed to be powered by 110/220 VAC or 24/48 VDC via one of the Productivity3000 power supplies. The Productivity3000 has achieved CE certification without requiring EMF/RFI line noise filters on the AC power supply. Please review the "EU Directives" document, located in the User Manual or at [www.automationdirect.com/productivity/p3000](http://www.automationdirect.com/productivity/p3000), for applications which require CE Compliance.

## Base Dimensions



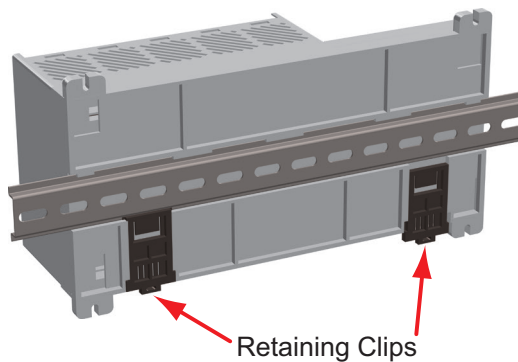
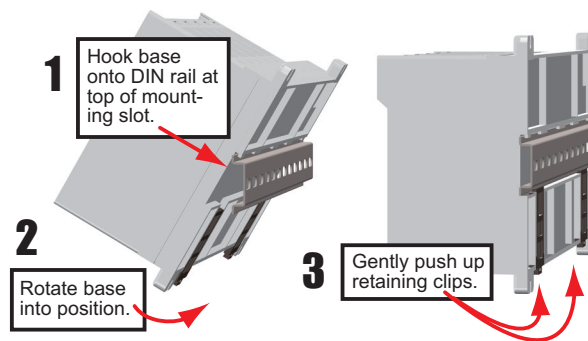
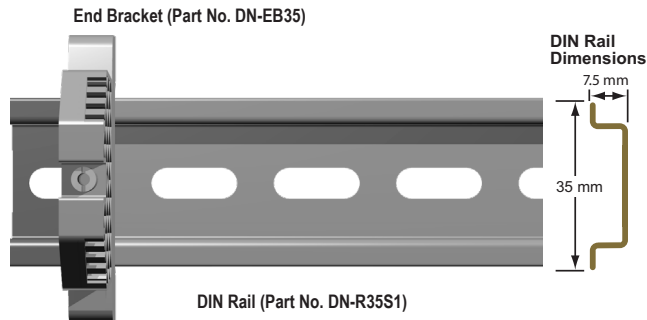
# Base Installation

## Using Mounting Rails

The Productivity3000® bases can be secured to the cabinet using mounting rails. You should use rails that conform to DIN EN standard 50 022. We offer a complete line of DIN rail, DINnectors and DIN rail mounted apparatus. These rails are approximately 35mm high, with a depth of 7.5 mm. If you mount the base on a rail, you should also consider using end brackets on each side of the base. The end brackets help keep the base from sliding horizontally along the rail. This helps minimize the possibility of accidentally pulling the wiring loose.

If you examine the bottom of the base, you'll notice retaining clips. To secure the base to a DIN rail, place the base onto the rail and gently push up on the retaining clips. The clips lock the base onto the rail.

To remove the base, pull down on the retaining clips, slightly lift up the base, and pull it away from the rail.



# Wiring I/O Modules

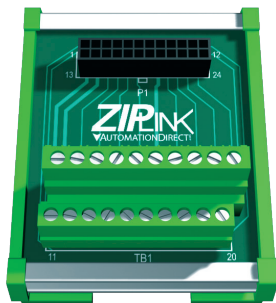
There are two available methods for wiring most I/O modules: The **ZIPLink** wiring system or hand wiring to the optional removable I/O module terminal blocks.

Note: The high-density 32-point and 64-point I/O module design requires the use of the **ZIPLink** wiring system. Thermocouple and RTD modules are not compatible with the **ZIPLink** system and are shipped with the optional terminal blocks included.

## ZIPLinks Wiring Systems

For wiring I/O modules, we strongly recommend using pre-wired **ZIPLink** wiring systems, which eliminate the need for hand wiring modules to terminal blocks.

See the selection matrix guide on the following pages.



**ZIPLink Module**



**ZIPLink Pre-Wired Terminal Block Cable**



**ZIPLink Pigtail Cable**

## Removable Terminal Blocks

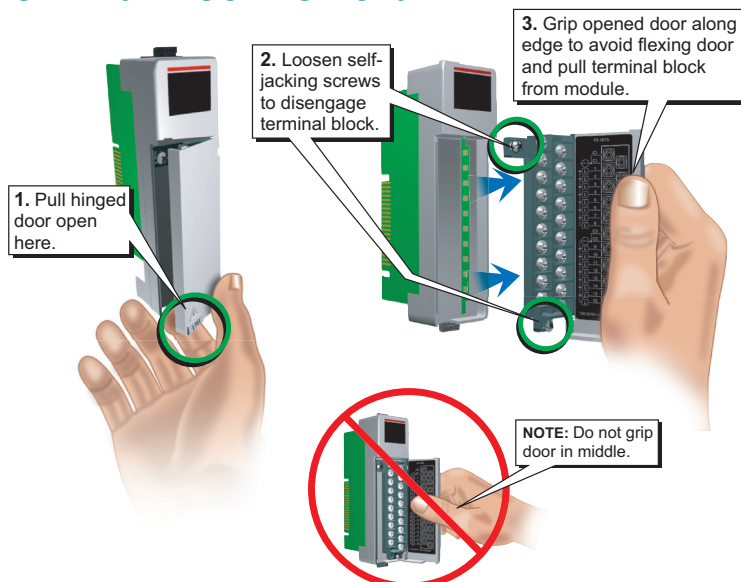
For most I/O modules you can also purchase a removable terminal block (part no. [P3-RTB](#)).

Note: P3-RTB supplied with thermocouple and RTD modules. [P3-RTB](#) not compatible with 32-point and 64-point I/O modules.



**Removable Terminal Block P3-RTB**

## Terminal Block Removal





# Wiring Solutions

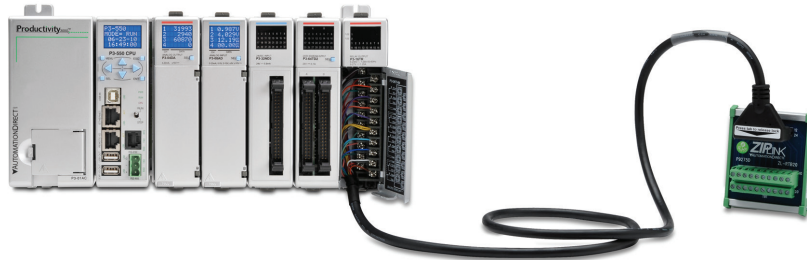
## Wiring Solutions using the ZIPLink wiring system

**ZIPLink**s eliminate the normally tedious process of wiring between devices by utilizing prewired cables and DIN rail mount connector modules. It's as simple as plugging in a cable connector at either end or terminating wires at only one end. Prewired cables keep installation clean and efficient, using half the space at a fraction of the cost of standard terminal blocks. There are several wiring solutions available when using the **ZIPLink** System ranging from

PLC I/O-to-**ZIPLink** Connector Modules that are ready for field termination, options for connecting to third party devices, GS, DuraPulse and SureServo Drives, and specialty relay, transorb and communications modules. Pre-printed I/O-specific adhesive label strips for quick marking of **ZIPLink** modules are provided with **ZIPLink** cables. See the following solutions to help determine the best **ZIPLink** system for your application.

### **Solution 1: Productivity Series I/O Modules to ZIPLink Connector Modules**

When looking for quick and easy I/O-to-field termination, a **ZIPLink** connector module used in conjunction with a prewired **ZIPLink** cable, consisting of an I/O terminal block at one end and a multi-pin connector at the other end, is the best solution.

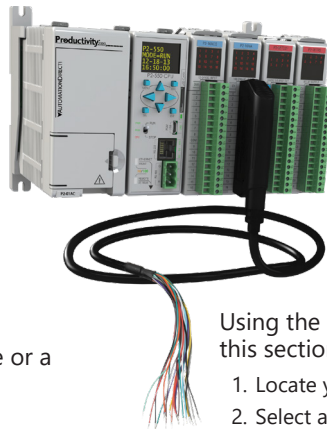


Using the PLC I/O Modules to **ZIPLink** Connector Modules selector tables located in this section,

1. Locate your I/O module/PLC.
2. Select a **ZIPLink** Module.
3. Select a corresponding **ZIPLink** Cable.

### **Solution 2: Productivity Series I/O Modules to ZIPLink Connector Modules**

When wanting to connect I/O to another device within close proximity of the I/O modules, no extra terminal blocks are necessary when using the **ZIPLink** Pigtail Cables. **ZIPLink** Pigtail Cables are prewired to an I/O terminal block with color-coded pigtail with soldered-tip wires on the other end.



Using the I/O Modules to 3rd Party Devices selector tables located in this section,

1. Locate your PLC I/O module.
2. Select a **ZIPLink** Pigtail Cable that is compatible with your 3rd party device.

### **Solution 3: GS Series and DuraPulse Drives Communication Cables**

Need to communicate via Modbus RTU to a drive or a network of drives?

**ZIPLink** cables are available in a wide range of configurations for connecting to PLCs and SureServo, SureStep, Stellar Soft Starter and AC drives. Add a **ZIPLink** communications module to quickly and easily set up a multi-device network.

Using the Drives Communication selector tables located in this section,

1. Locate your Drive and type of communications.
2. Select a **ZIPLink** cable and other associated hardware.







# Wiring Solutions

## Solution 4: Serial Communications Cables

**ZIPLink** offers communications cables for use with DirectLOGIC, CLICK, and Productivity3000 CPUs, that can also be used with other communications devices. Connections include a 6-pin RJ12 or 9-pin, 15-pin and 25-pin D-sub connectors which can be used in conjunction with the RJ12 or D-Sub Feedthrough modules.

Using the Serial Communications Cables selector table located in this section,

1. Locate your connector type
2. Select a cable.



## Solution 5: Specialty ZIPLink Modules

For additional application solutions, **ZIPLink** modules are available in a variety of configurations including stand-alone relays, 24VDC and 120VAC transorb modules, D-sub and RJ12 feedthrough modules, communication port adapter and distribution modules, and SureServo 50-pin I/O interface connection.

Using the **ZIPLink** Specialty Modules selector table located in this section,

1. Locate the type of application.
2. Select a **ZIPLink** module.



## Solution 6: ZIPLink Connector Modules to 3rd Party Devices

If you need a way to connect your device to terminal blocks without all that wiring time, then our pigtail cables with color-coded soldered-tip wires are a good solution. Used in conjunction with any compatible **ZIPLink** Connector Modules, a pigtail cable keeps wiring clean and easy and reduces troubleshooting time.

Using the Universal Connector Modules and Pigtail Cables table located in this section,

1. Select module type.
2. Select the number of pins.
3. Select cable.







# CPU I/O Modules to ZIPLink Connector Modules - Productivity3000®

Productivity3000 CPU Input Module ZIPLink Selector				
CPU		ZIPLink		
Input Module	# of Terms	Component	Module Part No.	Cable Part No.
P3-08NAS	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *
P3-08ND3S	20	Feedthrough		
P3-16NA	20	Feedthrough		
P3-16ND3	20	Feedthrough		ZL-P3-CBL20-1L ZL-P3-CBL20-2L
P3-32ND3	40	Feedthrough	ZL-LTB16-24-1	
		Sensor	ZL-LTB16-24-1	
P3-32ND3	40	Feedthrough	ZL-RTB40	
		Sensor	ZL-LTB32-24-1	ZL-CBL40 ZL-CBL40-1 ZL-CBL40-2
P3-64ND31	40	Feedthrough	ZL-RTB40	
		Sensor	ZL-LTB32-24-1	

Productivity3000 CPU Analog In Module ZIPLink Selector				
CPU		ZIPLink		
Analog Module	# of Terms	Component	Module	Cable
P3-04ADS	20	Feedthrough	ZL-RTB20	
P3-08AD	20	Feedthrough		ZL-P3-CBL20 ZL-P3-CBL20-1L
P3-16AD-1	20	Feedthrough		
P3-16AD-2	20	Feedthrough		
P3-08RTD <sup>2</sup>	Matched Only	See Note 2		
P3-08THM <sup>2</sup>	T/C Wire Only	See Note 2		
P3-04DA	20	Feedthrough	ZL-RTB20	
P3-08DA-1	20	Feedthrough		
P3-08DA-2	20	Feedthrough		
P3-06DAS-2	20	Feedthrough		ZL-P3-CBL20-1L ZL-P3-CBL20-2L
P3-16DA-1	20	Feedthrough		
P3-16DA-2	20	Feedthrough		
P3-8AD4DA-1	20	Feedthrough		
P3-8AD4DA-2	20	Feedthrough		

Productivity3000 CPU Specialty Module ZIPLink Selector				
CPU		ZIPLink		
Input Module	# of Terms	Component	Module Part No.	Cable Part No.
P3-HSI	40	Feedthrough	ZL-RTB40	ZL-CBL40-S
P3-HSO				ZL-CBL40-1S ZL-CBL40-2S



Note: ZIPLink Connector Modules specifications follow the Compatibility Matrix tables. ZIPLink Cables specifications are at the end of this ZIPLink section.

Productivity3000 CPU Output Module ZIPLink Selector				
CPU		ZIPLink		
Output Module	# of Terms	Component	Module Part No.	Cable Part No.
P3-08TAS	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *
P3-08TD1S	20	Feedthrough		ZL-P3-CBL20-1L ZL-P3-CBL20-2L
P3-08TD2S	20	Feedthrough		
P3-08TRS	20	Feedthrough		
P3-16TA	20	Feedthrough	ZL-RTB20	
		Fuse		
P3-16TD1	20	Feedthrough		
		Fuse		ZL-RFU20 <sup>4</sup>
P3-16TD2	20	Relay (sinking)		ZL-RRL16-24-1
		Feedthrough		ZL-RTB20
P3-16TR	20	Fuse		ZL-RFU20 <sup>4</sup>
		Relay (sourcing)		ZL-RRL16-24-2
P3-08TRS-1 <sup>3</sup>	20	Feedthrough	ZL-RTB20	
		Fuse		ZL-RFU20 <sup>4</sup>
P3-32TD1	40	Feedthrough		ZL-RTB40
		Fuse		ZL-RFU40 <sup>4</sup>
P3-32TD2	40	Feedthrough		ZL-RTB40
		Fuse		ZL-RFU40 <sup>4</sup>
P3-64TD1 <sup>1</sup>	40	Feedthrough		ZL-RTB40
		Fuse		ZL-RFU40 <sup>4</sup>
P3-64TD2 <sup>1</sup>	40	Feedthrough		ZL-RTB40
		Fuse		ZL-RFU40 <sup>4</sup>

\* Select the cable length by replacing the \* with: Blank = 0.5m, -1 = 1.0m, or -2 = 2.0m.

1 The P3-64ND3, P3-64TD1 and P3-64TD2 modules have two 32-point connectors and require two ZIPLink cables and two ZIPLink connector modules.

2 These modules are not supported by the ZIPLink wiring system.

3 The P3-08TRS-1 output module is derated not to exceed 2A per point maximum when used with the ZIPLink wiring system.

4 Note: Fuses (5 x 20 mm) are not included. See Edison Electronic Fuse section for (5 x 20 mm) fuse. S500 and GMA electronic circuit protection for fast-acting maximum protection. S506 and GMC electronic circuit protection for time-delay performance. Ideal for inductive circuits.

To ensure proper operation, do not exceed the voltage and current rating of ZIPLink module. ZL-RFU20 = 2A per circuit; ZL-RFU40 = 400 mA per circuit.



# I/O Modules

A variety of discrete, analog and specialty I/O modules are available for use in local, expansion, and remote I/O bases. Specifications for each module are on the following pages.

A filler module is available for unused I/O module slots (part number P3-FILL).

## Discrete Input Modules

Productivity3000 Discrete Input Modules			
Part Number	Number of Inputs	Description	Price
P3-16SIM	16	Input Simulator Module	\$214.00
P3-08ND3S	8	Isolated Sinking/Sourcing DC Input	\$109.00
P3-16ND3	16	Sinking/Sourcing DC Input	\$162.00
P3-32ND3	32	Sinking/Sourcing DC Input	\$218.00
P3-64ND3	64	Sinking/Sourcing DC Input	\$284.00
P3-08NAS	8	Isolated AC Input	\$136.00
P3-16NA	16	AC Input	\$167.00

\*ZIPLink required.

## Discrete Output Modules

Productivity3000 Discrete Output Modules			
Part Number	Number of Outputs	Description	Price
P3-08TD1S	8	Isolated Sinking Output	\$164.00
P3-08TD2S	8	Isolated Sourcing Output	\$169.00
P3-16TD1	16	Sinking Output	\$175.00
P3-16TD2	16	Sourcing Output	\$180.00
P3-32TD1*	32	Sinking Output	\$228.00
P3-32TD2*	32	Sourcing Output	\$218.00
P3-64TD1*	*64	Sinking Output	\$319.00
P3-64TD2*	*64	Sourcing Output	\$289.00
P3-08TAS	8	Isolated AC Output	\$212.00
P3-16TA	16	AC Output	\$225.00
P3-08TRS	8	Isolated Relay Output	\$187.00
P3-08TRS-1	8	Isolated Relay Output	\$213.00
P3-16TR	16	Relay Output	\$190.00

\*ZIPLink required.

## Analog I/O Modules

Productivity3000 Analog Input Modules			
Part Number	Number of Channels	Description	Price
P3-04ADS	4	Isolated Analog Input	\$796.00
P3-08AD	8	Analog Input	\$432.00
P3-16AD-1	16	Analog Input (Current)	\$589.00
P3-16AD-2	16	Analog Input (Voltage)	\$576.00
P3-08RTD	8	Analog RTD Input	\$639.00
P3-08THM	8	Analog Thermocouple Input	\$810.00

Productivity3000 Analog Output Modules			
Part Number	Number of Channels	Description	Price
P3-04DA	4	Analog Output	\$494.00
P3-08DA-1	8	Analog Output (Current)	\$857.00
P3-08DA-2	8	Analog Output (Voltage)	\$798.00
P3-06DAS-2	6	Isolated Analog Output (Voltage)	Retired
P3-16DA-1	16	Analog Output (Current)	\$1,022.00
P3-16DA-2	16	Analog Output (Voltage)	\$1,002.00

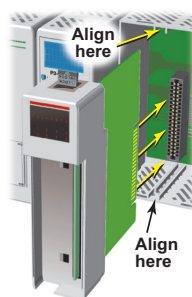
Productivity3000 Analog Input/Output Modules			
Part Number	Number of Channels	Description	Price
P3-8AD4DA-1	8/4	Analog Input/Output (Current)	\$658.00
P3-8AD4DA-2	8/4	Analog Input/Output (Voltage)	\$679.00

## Specialty Modules

Productivity3000 Specialty Modules			
Part Number	Number of Channels	Description	Price
P3-HSI	2	High-Speed Pulse Input	\$619.00
P3-HSO*	2	High-Speed Output	\$646.00
P3-SCM	4 ports	Serial Communications Module	\$523.00

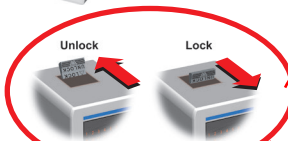
\*ZIPLink required.

## Module Installation Procedure



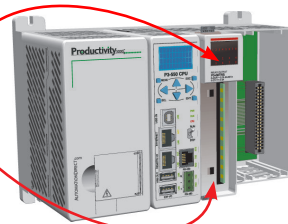
**WARNING:** DO NOT APPLY FIELD POWER UNTIL THE FOLLOWING STEPS ARE COMPLETED. SEE HOT-SWAPPING PROCEDURE FOR EXCEPTIONS.

**Step One:** Align circuit card with slot and press firmly to seat module into connector.

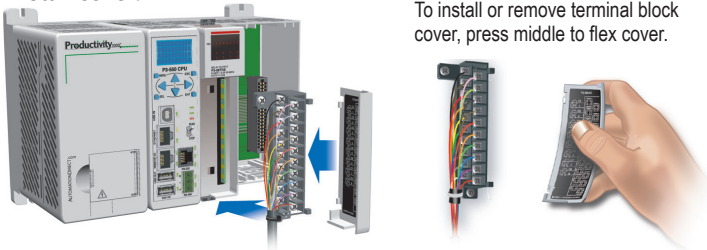


**Step Two:** Pull top and bottom locking tabs toward module face. Click indicates lock is engaged.

**Step Three:** Attach field wiring using optional terminal block or ZIPLink wiring system and install cover.



To install or remove terminal block cover, press middle to flex cover.



**WARNING:** EXPLOSION HAZARD – DO NOT CONNECT OR DISCONNECT CONNECTORS OR OPERATE SWITCHES WHILE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE NON-HAZARDOUS. DO NOT HOT-SWAP MODULES UNLESS THE AREA IS KNOWN TO BE NON-HAZARDOUS.

# Input Simulator / Filler Module

## P3-16SIM \$214.00

### Input Simulator Module

The P3-16SIM Input Simulator module provides 16 toggle switches to simulate input devices.



Input Specifications	
<b>Inputs per Module</b>	16 Internal switches
<b>OFF to ON Response</b>	Max. 20ms
<b>ON to OFF Response</b>	Max. 20ms
<b>Status Indicators</b>	Logic Side (16 points)

General Specifications	
<b>Operating Temperature</b>	0°C–60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Heat Dissipation</b>	0.25 W
<b>Enclosure Type</b>	Open equipment
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000® System.
<b>Weight</b>	120g (4.23 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

**WARNING:** EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

## P3-FILL \$33.50

### Filler Module

The P3-FILL filler module protects unused I/O module slots in the base.

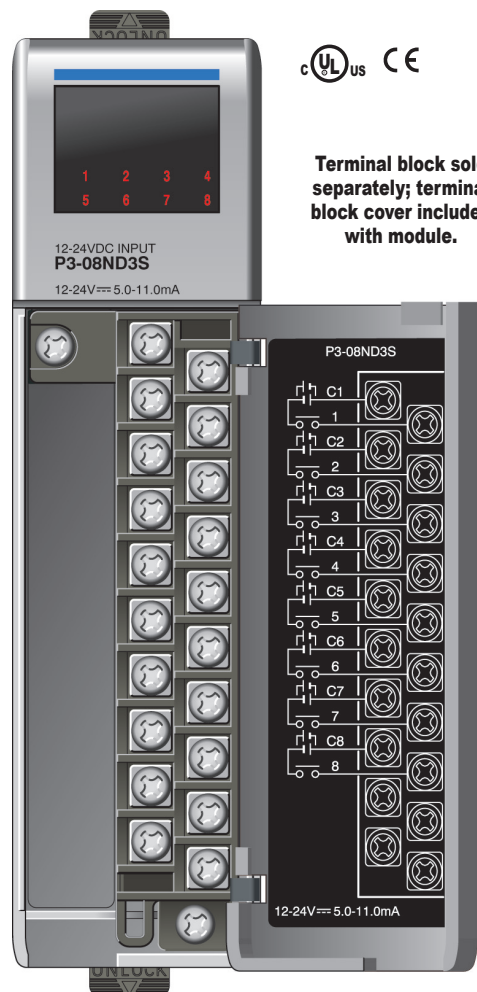


# DC Input Modules

## P3-08ND3S \$109.00

### Isolated Sinking/Sourcing Input

The P3-08ND3S DC Input Module provides eight 12-24 VDC sinking or sourcing isolated inputs.



Terminal block sold separately; terminal block cover included with module.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number **P3-RTB**.



**WARNING: EXPLOSION HAZARD –**  
SUBSTITUTION OF COMPONENTS MAY IMPAIR  
SUITABILITY FOR CLASS I, DIVISION 2.

Input Specifications		
Inputs per Module		8 (sinking / sourcing)
Operating Voltage Range (Tolerance)	CE	12–24 VDC ( $\pm 10\%$ )
	UL	12–24 VDC ( $\pm 10\%$ )
Peak Voltage		26.4 VDC
Input Current (Typical)		5mA @ 12VDC 11mA @ 24VDC
Maximum Input Current @ Temp		12.5 mA @ 60° C (26.4 VDC)
Input Impedance		2.2 k $\Omega$ @ 12–24 VDC
ON Voltage Level		> 10VDC
OFF Voltage Level		< 3VDC
Minimum ON Current		4mA
Maximum OFF Current		2mA
OFF to ON Response		2ms max.; typical 1ms
ON to OFF Response		2ms max.; typical 1ms
Status Indicators		Logic Side (8 points)
Terminal Type (not included)		20-position removable terminal block
Commons		8 Isolated (1 point / common)

General Specifications	
Operating Temperature	0°C– 60°C (32°F–140°F)
Storage Temperature	-20°C–70°C (-4°F–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	1500 VAC applied for 1 minute
Insulation Resistance	>10M $\Omega$ @ 500VDC
Heat Dissipation	2.81 W
Enclosure Type	Open equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
Field Wiring	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
Weight	80g (2.82 oz)
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

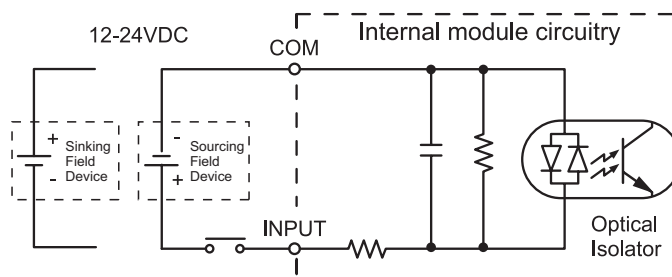
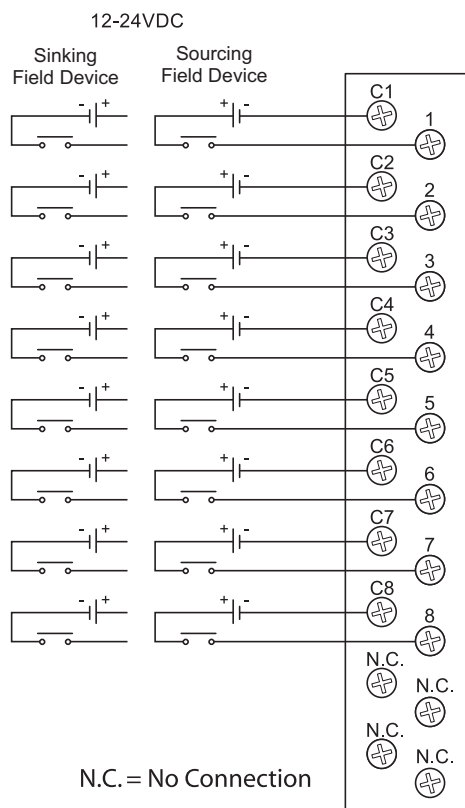
\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Removable Terminal Block Specifications	
Description	Part No. <b>P3-RTB</b> ; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS , 60°C or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

# DC Input Modules

## P3-08ND3S (cont'd)

### Wiring Diagrams





# DC Input Modules

## P3-16ND3 \$162.00

### Sinking/Sourcing Input

The P3-16ND3 DC Input Module provides sixteen 12-24 VDC sinking or sourcing inputs with four isolated commons.



Terminal block sold separately; terminal block cover included with module.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number [P3-RTB](#).



Input Specifications		
Inputs per Module		16 (sinking / sourcing)
Operating Voltage Range (Tolerance)	CE	12-24 VDC ( $\pm 10\%$ )
	UL	12-24 VDC ( $\pm 10\%$ )
Peak Voltage		26.4 VDC
Input Current (Typical)		5mA @ 12VDC 11mA @ 24VDC
Maximum Input Current @ Temp		12.5 mA @ 60° C (26.4 VDC)
Input Impedance		2.2 k $\Omega$ @ 12-24 VDC
ON Voltage Level		> 10VDC
OFF Voltage Level		< 3VDC
Minimum ON Current		4mA
Maximum OFF Current		2mA
OFF to ON Response		2ms max.; typical 1ms
ON to OFF Response		2ms max.; typical 1ms
Status Indicators		Logic Side (16 points)
Terminal Type (not included)		20-position removable terminal block
Commons		4 Isolated (4 points / common)

General Specifications	
Operating Temperature	0°C– 60°C (32°F–140°F),
Storage Temperature	-20°C–70°C (-4°F–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	1500VAC applied for 1 minute
Insulation Resistance	>10M $\Omega$ @ 500VDC
Heat Dissipation	5.61 W
Enclosure Type	Open equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
Field Wiring	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
Weight	80g (2.82 oz)
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Removable Terminal Block Specifications	
Description	Part No. <a href="#">P3-RTB</a> ; 20 screw terminals
Wire Range	22-14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS , 60°C or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7-9 in·lb (0.882-1.02 N·m) Self-jacking screws - 2.7-3.6 in·lb (0.3-0.4 N·m). Do not overtighten screws when installing terminal block.

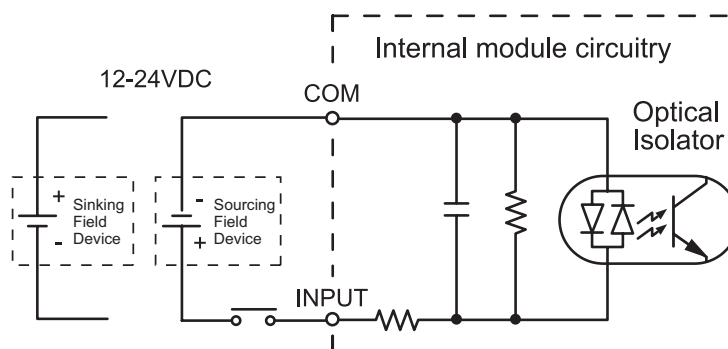
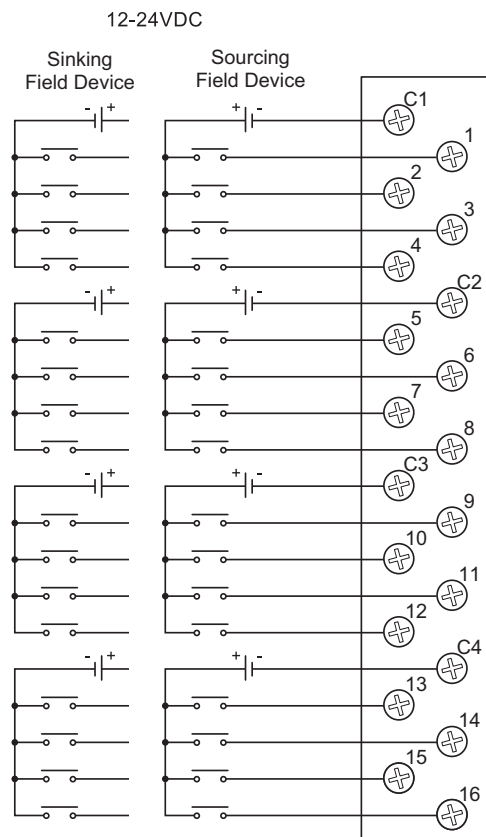
**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**



# DC Input Modules

## P3-16ND3 (cont'd)

### Wiring Diagrams



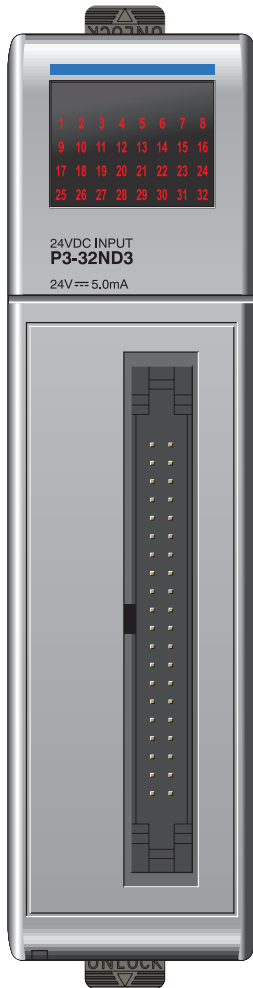
# DC Input Modules

## P3-32ND3

\$218.00

### Sinking/Sourcing Input

The P3-32ND3 DC Input Module provides thirty-two 24 VDC sinking or sourcing inputs with four isolated commons.



No terminal block sold  
for this module; ZIPLink  
required.

See Wiring Solutions for part numbers of **ZIPLink** cables and connection modules required with this I/O module.



**WARNING:** EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

### Input Specifications

<b>Inputs per Module</b>		32 (sinking / sourcing)
<b>Operating Voltage Range (Tolerance)</b>	CE	24VDC (±10%)
	UL	24VDC (±10%)
<b>Peak Voltage</b>		26.4 VDC
<b>Input Current (Typical)</b>		5mA @ 24VDC
<b>Maximum Input Current @ Temp</b>		6mA @ 60° C (26.4 VDC)
<b>Input Impedance</b>		4.7 kΩ @ 24VDC
<b>ON Voltage Level</b>		> 18VDC
<b>OFF Voltage Level</b>		< 8VDC
<b>Minimum ON Current</b>		3.5 mA
<b>Maximum OFF Current</b>		2mA
<b>OFF to ON Response</b>		2ms max.; typical 1ms
<b>ON to OFF Response</b>		2ms max.; typical 1ms
<b>Status Indicators</b>		Logic Side (32 points)
<b>Connector Type</b>		40-pin IDC
<b>Commons</b>		4 Isolated (8 points / common)

### General Specifications

<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1500VAC applied for 1 minute
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	5.96 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Use <b>ZIPLink</b> wiring system. See Wiring Solutions.
<b>Weight</b>	120g (4.23 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

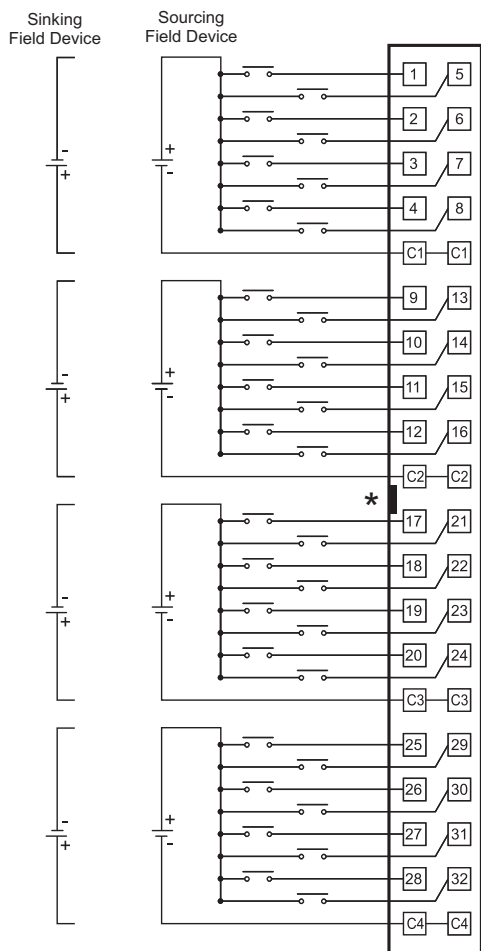
### Connector Specifications

<b>Connector Type</b>	IDC style header with latch, Omron XG4A-4034
<b>Number of Pins</b>	40 point
<b>Pitch</b>	0.1 in. (2.54 mm)

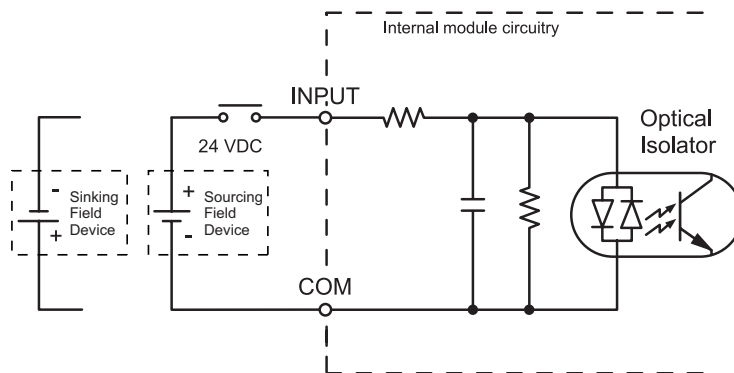
# DC Input Modules

## P3-32ND3 (cont'd)

### Wiring Diagrams



\*Denotes key location of all associated ZIPLink cables.

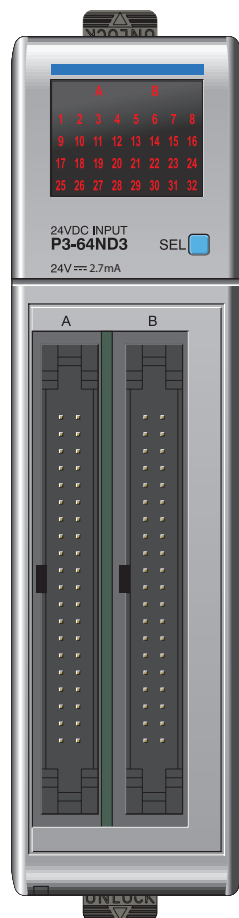


# DC Input Modules

## P3-64ND3 \$284.00

### Sinking/Sourcing Input

The P3-64ND3 DC Input Module provides sixty-four 24 VDC sinking or sourcing inputs with eight isolated commons.



No terminal block sold for this module; ZIPLink required.

See Wiring Solutions for part numbers of **ZIPLink** cables and connection modules required with this I/O module.



### Input Specifications

<b>Inputs per Module</b>	64 (sinking / sourcing)	
<b>Operating Voltage Range (Tolerance)</b>	CE	24VDC (± 10%)
	UL	24VDC (± 10%)
<b>Peak Voltage</b>	26.4 VDC	
<b>Input Current (Typical)</b>	2.7 mA @ 24VDC	
<b>Maximum Input Current @ Temp</b>	3.5 mA @ 60° C (26.4 VDC)	
<b>Input Impedance</b>	8.2 kΩ @ 24VDC	
<b>ON Voltage Level</b>	> 18VDC	
<b>OFF Voltage Level</b>	< 8VDC	
<b>Minimum ON Current</b>	2mA	
<b>Maximum OFF Current</b>	1.1 mA	
<b>OFF to ON Response</b>	2ms max.; typical 1ms	
<b>ON to OFF Response</b>	2ms max.; typical 1ms	
<b>Status Indicators</b>	Logic Side (32 points x 2)	
<b>Connector Type</b>	Two 40-pin IDC	
<b>Commons</b>	8 Isolated (8 points / common)	

### General Specifications

<b>Operating Temperature</b>	0°C–60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1500VAC applied for 1 minute
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	6.91W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Use <b>ZIPLink</b> wiring system. See Wiring Solutions.
<b>Weight</b>	170g (6.0 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

### Connector Specifications

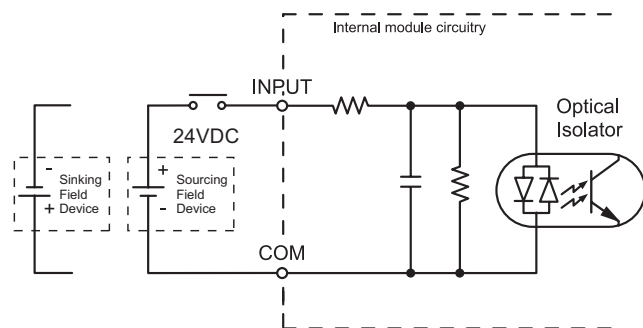
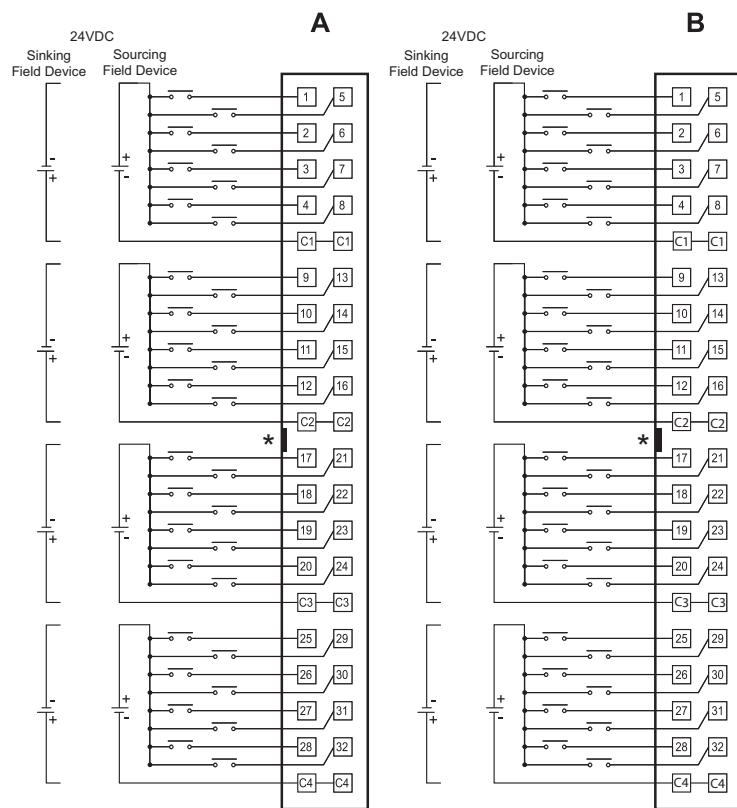
<b>Connector Type</b>	IDC style header with latch, Omron XG4A-4034
<b>Number of Pins</b>	40 point x 2
<b>Pitch</b>	0.1 in. (2.54 mm)

**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**

# DC Input Modules

## P3-64ND3(cont'd)

### Wiring Diagrams



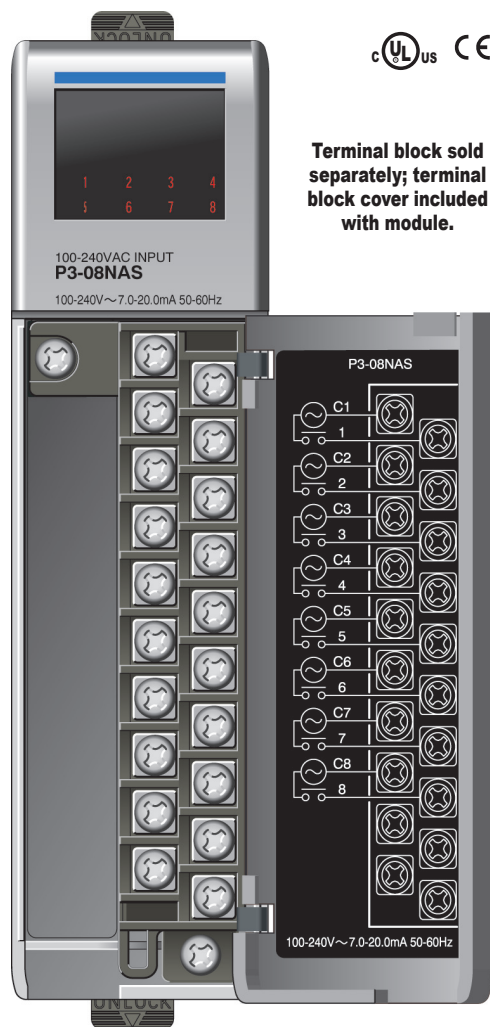
# AC Input Modules

## P3-08NAS

**\$136.00**

### AC Isolated Input

The P3-08NAS AC Isolated Input Module provides eight 100–240 VAC isolated inputs.



Terminal block sold separately; terminal block cover included with module.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number P3-RTB.



**WARNING: EXPLOSION HAZARD –**  
SUBSTITUTION OF COMPONENTS MAY IMPAIR  
SUITABILITY FOR CLASS I, DIVISION 2.

Input Specifications		
<b>Inputs per Module</b>		8
<b>Operating Voltage Range (Tolerance)</b>	CE	100–240 VAC ( $\pm 20\%$ )
	UL	100–240 VAC ( $\pm 20\%$ )
<b>AC Frequency</b>		47–63 Hz
<b>Input Current (Typical)</b>		8.5 mA @ 100VAC (50Hz)
		10mA @ 100VAC (60Hz)
		17mA @ 240VAC (50Hz)
		20mA @ 240VAC (60Hz)
<b>Maximum Input Current @ Temp</b>		26mA @ 60° C (288VAC)
<b>Input Impedance</b>		15k $\Omega$ (50Hz), 12k $\Omega$ (60Hz)
<b>ON Voltage Level</b>		> 70VAC
<b>OFF Voltage Level</b>		< 20VAC
<b>Minimum ON Current</b>		5mA
<b>Maximum OFF Current</b>		2mA
<b>OFF to ON Response</b>		< 10ms
<b>ON to OFF Response</b>		< 25ms
<b>Status Indicators</b>		Logic side (8 points)
<b>Terminal Type (not included)</b>		20-position removable terminal block
<b>Commons</b>		8 Isolated (1 point / common)

General Specifications	
<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1500VAC applied for 1 minute
<b>Insulation Resistance</b>	>10M $\Omega$ @ 500VDC
<b>Heat Dissipation</b>	4.38 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Weight</b>	95g (3.35 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Removable Terminal Block Specifications	
<b>Description</b>	Part No. P3-RTB; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm)
	Solid / stranded conductor
	3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in·lb (0.882–1.02 N·m)
	Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m).
	Do not overtighten screws when installing terminal block.





# AC Input Modules

## P3-16NA

**\$167.00**

### AC Input

The P3-16NA AC Input Module provides sixteen 100–240 VAC isolated inputs with four isolated commons.



Terminal block sold separately; terminal block cover included with module.

We recommend using prewired **ZIP**Link cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number [P3-RTB](#).

**WARNING: EXPLOSION HAZARD –**  
SUBSTITUTION OF COMPONENTS MAY IMPAIR  
SUITABILITY FOR CLASS I, DIVISION 2.



Input Specifications		
<b>Inputs per Module</b>	16	
<b>Operating Voltage Range (Tolerance)</b>	CE	100–240 VAC ( $\pm 20\%$ )
	UL	100–240 VAC ( $\pm 20\%$ )
<b>AC Frequency</b>	47–63 Hz	
<b>Input Current (Typical)</b>	8.5 mA @ 100VAC (50Hz) 10mA @ 100VAC (60Hz) 17mA @ 240VAC (50Hz) 20mA @ 240VAC (60Hz)	
<b>Maximum Input Current @ Temp</b>	26 mA @ 60° C (288VAC)	
<b>Input Impedance</b>	15k $\Omega$ (50Hz), 12k $\Omega$ (60Hz)	
<b>ON Voltage Level</b>	> 70VAC	
<b>OFF Voltage Level</b>	< 20VAC	
<b>Minimum ON Current</b>	5mA	
<b>Maximum OFF Current</b>	2mA	
<b>OFF to ON Response</b>	< 10ms	
<b>ON to OFF Response</b>	< 25ms	
<b>Status Indicators</b>	Logic side (16 points)	
<b>Terminal Type (not included)</b>	20-position removable terminal block	
<b>Commons</b>	4 Isolated (4 points / common)	

General Specifications	
<b>Operating Temperature</b>	0°C–60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1500VAC applied for 1 minute
<b>Insulation Resistance</b>	>10M $\Omega$ @ 500VDC
<b>Heat Dissipation</b>	8.76 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIP</b> Link wiring system or optional terminal block. See Wiring Solutions.
<b>Weight</b>	95g (3.35 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

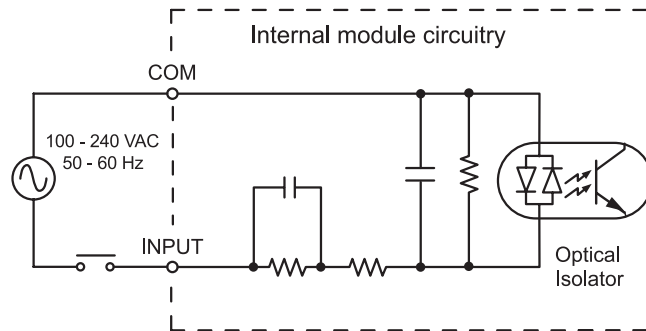
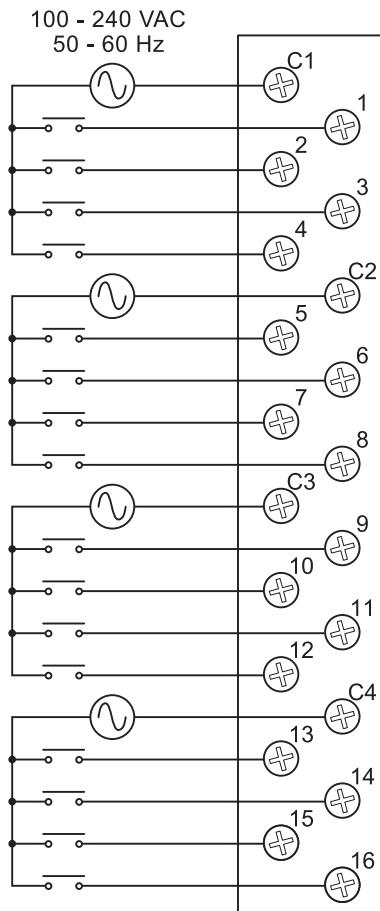
\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Removable Terminal Block Specifications	
<b>Description</b>	Part No. <a href="#">P3-RTB</a> ; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

# AC Input Modules

## P3-16NA (cont'd)

### Wiring Diagrams



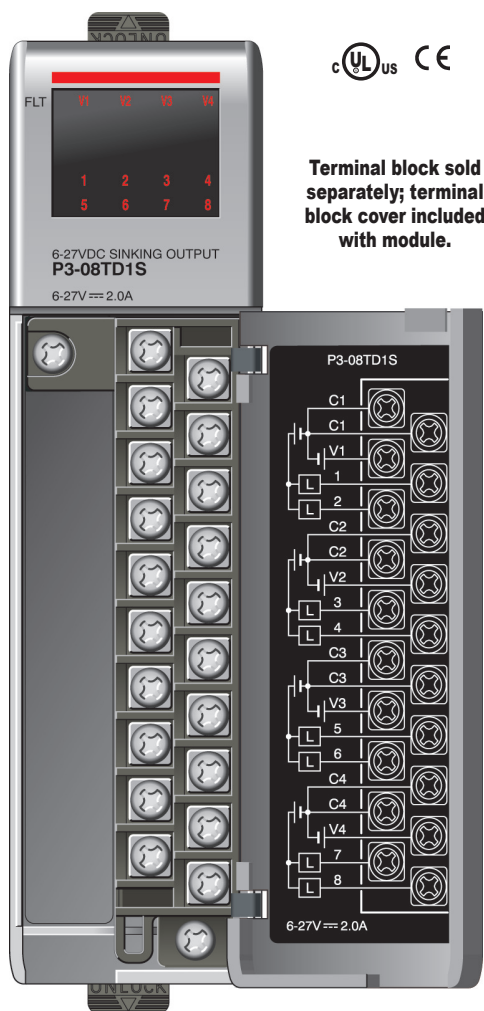
# DC Output Modules

## P3-08TD1S

**\$164.00**

### Sinking Output

The P3-08TD1S DC Output Module provides eight 6-27 VDC sinking outputs with four isolated commons.



Terminal block sold separately; terminal block cover included with module.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number P3-RTB.

**WARNING: EXPLOSION HAZARD –**  
SUBSTITUTION OF COMPONENTS MAY IMPAIR  
SUITABILITY FOR CLASS I, DIVISION 2.



Output Specifications		
<b>Outputs per Module</b>		8 (sinking)
<b>Operating Voltage Range (Tolerance)</b>	CE	6.25–24 VDC (-15% / + 20%)
	UL	6–27 VDC (-15% / + 10%)
<b>Maximum Output Current @ Temp</b>		2A / point, 4A / common @ 60°C
<b>Minimum Output Current</b>		0.4 mA
<b>Maximum Leakage Current</b>		0.3 mA @ 30VDC
<b>On Voltage Drop</b>		0.4 VDC @ 2A
<b>Maximum Inrush Current</b>		4A for 10ms, per point
<b>OFF to ON Response</b>		m 1ms
<b>ON to OFF Response</b>		m 1ms
<b>Terminal Type (not included)</b>		20-position removable terminal block
<b>Status Indicators</b>		Logic Side (8 points)
<b>External 24 V Error Indicator</b>		Logic Side (4 points)
<b>Commons</b>		4 Isolated (2 points / common)
<b>External DC Power required</b>		24 VDC ±10%, 30mA

**Note:** FLT (fault) indicates the absence of 24VDC at a V1, V2, V3, or V4 terminal.

General Specifications	
<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1500VAC applied for 1 minute
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	7.69 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Weight</b>	110g (3.88 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

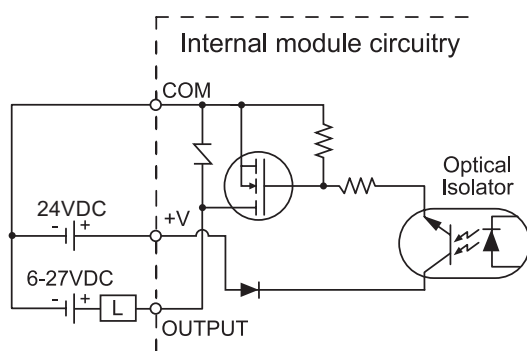
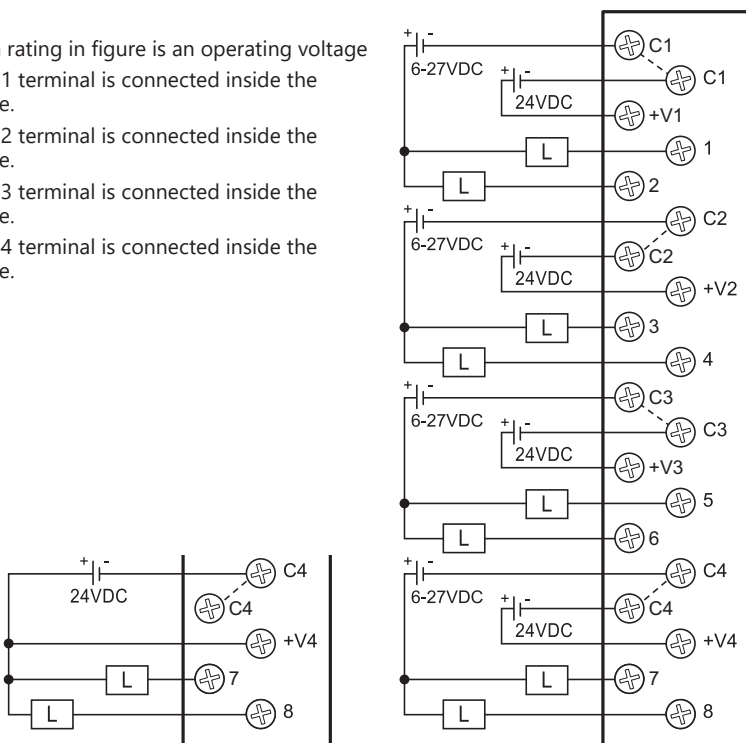
Removable Terminal Block Specifications	
<b>Description</b>	Part No. P3-RTB; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS , 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

# DC Output Modules

## P3-08TD1S (cont'd)

### Wiring Diagrams

- Shown rating in figure is an operating voltage
- Each C1 terminal is connected inside the module.
- Each C2 terminal is connected inside the module.
- Each C3 terminal is connected inside the module.
- Each C4 terminal is connected inside the module.



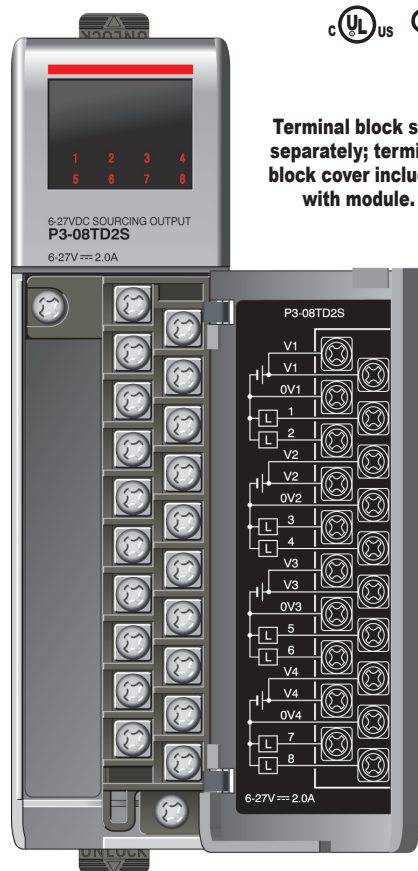
# DC Output Modules

## P3-08TD2S

\$169.00

### Sourcing Output

The P3-08TD2S DC Output Module provides eight 6–27 VDC sourcing outputs with four isolated commons.



Terminal block sold separately; terminal block cover included with module.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number P3-RTB.



### Output Specifications

<b>Outputs per Module</b>	8 ( sourcing)
<b>Operating Voltage Range (Tolerance)</b>	CE 6.25–24 VDC (-15% / + 20%)
	UL 6–27 VDC (-15% / + 10%)
<b>Maximum Output Current @ Temp</b>	2A / point, 4A / common @ 60°C
<b>Minimum Output Current</b>	0.4 mA
<b>Maximum Leakage Current</b>	0.3 mA @ 30VDC
<b>On Voltage Drop</b>	0.4 VDC @ 2A
<b>Maximum Inrush Current</b>	4A for 10ms
<b>OFF to ON Response</b>	m 1ms
<b>ON to OFF Response</b>	m 1.5 ms
<b>Terminal Type (not included)</b>	20-position removable terminal block
<b>Status Indicators</b>	Logic Side (8 points)
<b>Commons</b>	4 Isolated (2 points / common)

### General Specifications

<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1500VAC applied for 1 minute
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	8.46 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Weight</b>	110g (3.88 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

### Removable Terminal Block Specifications

<b>Description</b>	Part No. P3-RTB; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS , 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

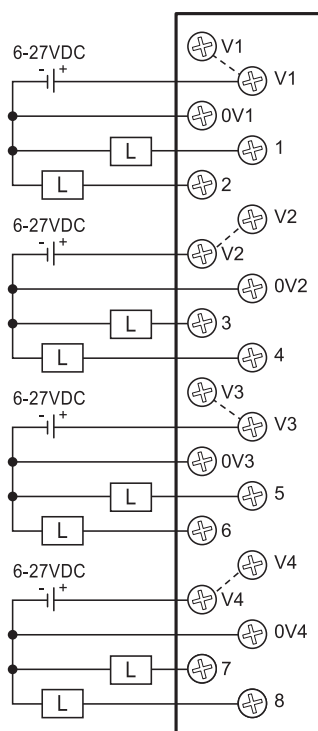
**WARNING: EXPLOSION HAZARD –**  
SUBSTITUTION OF COMPONENTS MAY IMPAIR  
SUITABILITY FOR CLASS I, DIVISION 2.



# DC Output Modules

## P3-08TD2S (cont'd)

### Wiring Diagrams

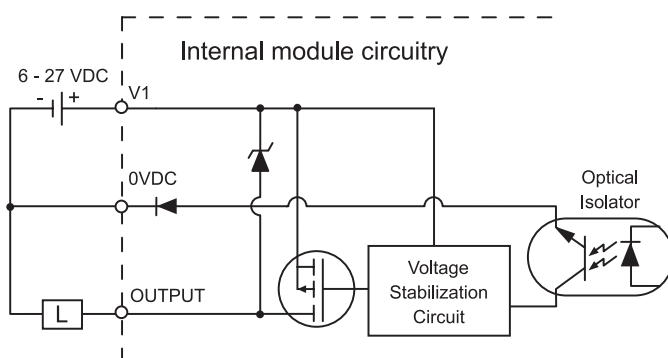


Each V1 is connected inside the module.

Each V2 is connected inside the module.

Each V3 is connected inside the module.

Each V4 is connected inside the module.



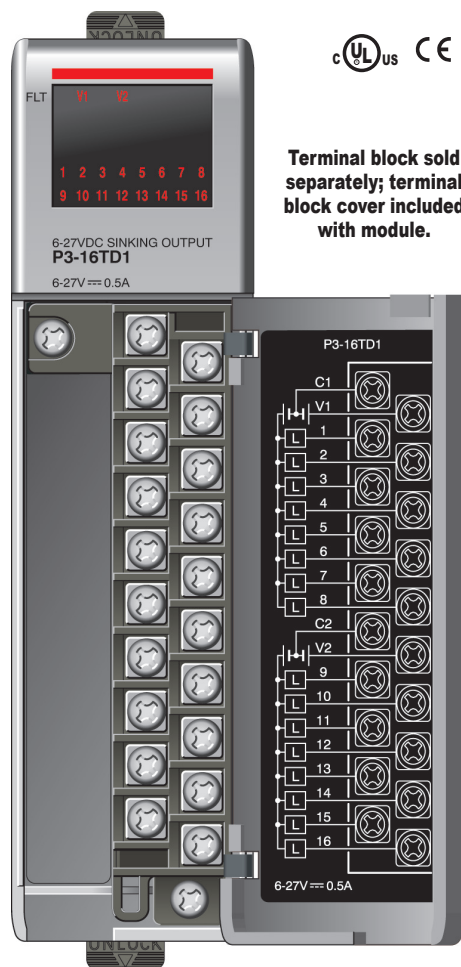
# DC Output Modules

## P3-16TD1

**\$175.00**

### Sinking Output

The P3-16TD1 DC Output Module provides sixteen 6-27 VDC sinking outputs with two isolated commons.



Terminal block sold separately; terminal block cover included with module.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number P3-RTB.



**WARNING: EXPLOSION HAZARD –**  
SUBSTITUTION OF COMPONENTS MAY IMPAIR  
SUITABILITY FOR CLASS I, DIVISION 2.

Output Specifications		
<b>Outputs per Module</b>		16 (sinking)
<b>Operating Voltage Range (Tolerance)</b>	CE	6.25–24 VDC (-15% / + 20%)
	UL	6–27 VDC (-15% / + 10%)
<b>Maximum Output Current @ Temp</b>		0.5 A / point, 4A / common @ 60°C
<b>Minimum Output Current</b>		0.4 mA
<b>Maximum Leakage Current</b>		0.3 mA @ 30 VDC
<b>On Voltage Drop</b>		0.12 VDC @ 0.5 A
<b>Maximum Inrush Current</b>		2A for 10ms
<b>OFF to ON Response</b>		m 1ms
<b>ON to OFF Response</b>		m 1ms
<b>Terminal Type (not included)</b>		20-position removable terminal block
<b>Status Indicators</b>		Logic Side (16 points)
<b>External 24 V Error Indicator</b>		Logic Side (2 points)
<b>Commons</b>		2 Isolated (8 points / common)
<b>External DC Power required</b>		24VDC ±10%, 30mA

**Note:** FLT (fault) indicates the absence of 24VDC at V1 or V2 terminal.

General Specifications	
<b>Operating Temperature</b>	0°C–60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1500VAC applied for 1 minute
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	2.41 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Weight</b>	125g (4.41 oz)
<b>Agency Approvals</b>	UL508 and UL 1604 (Certified for Canada and USA) CE (EN61131-2*) This equipment is suitable for use in Class I, Division 2/Zone 2, Groups A, B, C, and D or non-hazardous locations only.

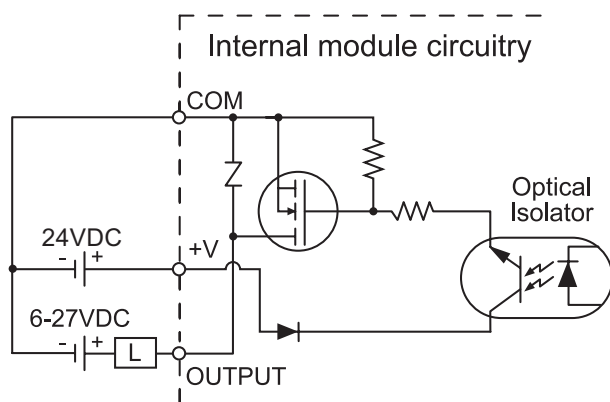
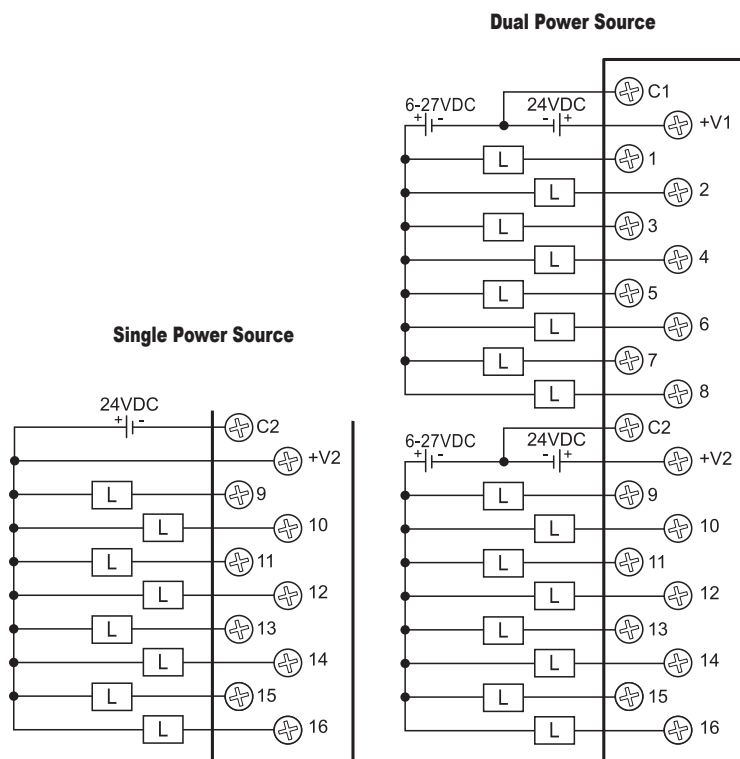
\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Removable Terminal Block Specifications	
<b>Description</b>	Part No. P3-RTB; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

# DC Output Modules

## P3-16TD1 (cont'd)

### Wiring Diagrams



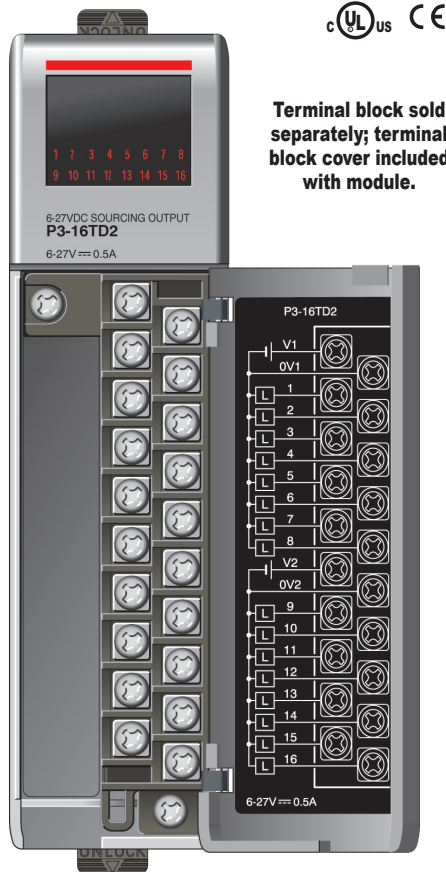
# DC Output Modules

## P3-16TD2

**\$180.00**

### Sourcing Output

The P3-16TD2 DC Output Module provides sixteen 6-27 VDC sourcing outputs with two isolated commons.



Terminal block sold separately; terminal block cover included with module.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number P3-RTB.



**WARNING: EXPLOSION HAZARD –**  
SUBSTITUTION OF COMPONENTS MAY IMPAIR  
SUITABILITY FOR CLASS I, DIVISION 2.

### Output Specifications

<b>Outputs per Module</b>	16 (sourcing)
<b>Operating Voltage Range (Tolerance)</b>	CE 6.25–24 VDC (-15% / + 20%)
	UL 6–27 VDC (-15% / + 10%)
<b>Maximum Output Current @ Temp</b>	0.5 A / point, 4A / common @ 60°C
<b>Minimum Output Current</b>	0.4 mA
<b>Maximum Leakage Current</b>	0.3 mA @ 30VDC
<b>On Voltage Drop</b>	0.2 VDC @ 0.5 A
<b>Maximum Inrush Current</b>	2A for 10ms
<b>OFF to ON Response</b>	m 1ms
<b>ON to OFF Response</b>	m 2ms
<b>Terminal Type (not included)</b>	20-position removable terminal block
<b>Status Indicators</b>	Logic Side (16 points)
<b>Commons</b>	2 Isolated (8 points / common)

### General Specifications

<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1500VAC applied for 1 minute
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	5.38 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Weight</b>	120g (4.23 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

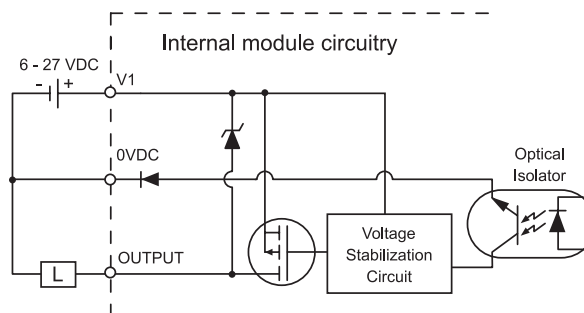
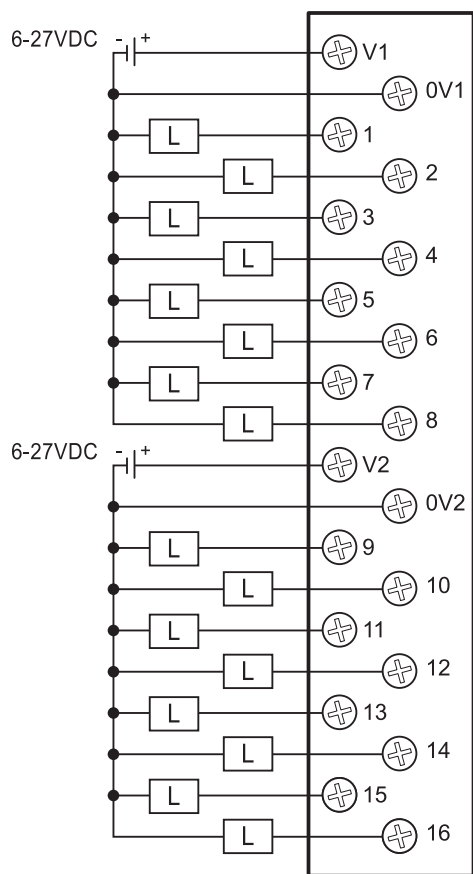
### Removable Terminal Block Specifications

<b>Description</b>	Part No. P3-RTB; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS , 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

# DC Output Modules

## P3-16TD2 (cont'd)

### Wiring Diagrams



# DC Output Modules

## P3-32TD1

\$228.00

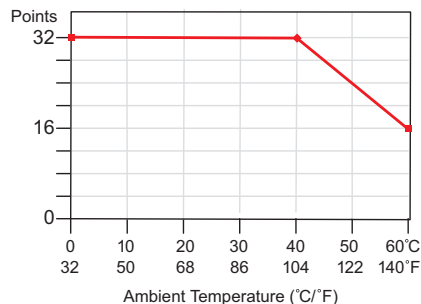
### Sinking Output

The P3-32TD1 DC Output Module provides thirty-two 6-27 VDC sinking outputs with four isolated commons.



No terminal block sold for this module; ZIPLink required.

Derating Chart



Output Specifications	
<b>Outputs per Module</b>	32 (sinking)
<b>Operating Voltage Range (Tolerance)</b>	CE 6.25–24 VDC (-15% / + 20%)
	UL 6–27 VDC (-15% / +10%)
<b>Maximum Output Current @ Temp</b>	0.3 A / point, 2.4 A / common @ 60°C
<b>Minimum Output Current</b>	0.4 mA
<b>Maximum Leakage Current</b>	0.3 mA @ 30VDC
<b>On Voltage Drop</b>	0.3 VDC @ 0.3 A
<b>Maximum Inrush Current</b>	0.5 A for 10 ms
<b>OFF to ON Response</b>	m 0.2 ms
<b>ON to OFF Response</b>	m 0.3 ms
<b>Connector Type</b>	40-pin IDC
<b>Status Indicators</b>	Logic Side (32 points)
<b>Commons</b>	4 Isolated (8 points / common)
<b>External DC Power Required</b>	24VDC ±10% @ 250mA

General Specifications	
<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1500VAC applied for 1 minute
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	10.74 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Use ZIPLink wiring system. See Wiring Solutions.
<b>Weight</b>	110g (3.88 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Connector Specifications	
<b>Connector Type</b>	IDC style header with latch, Omron XG4A-4034
<b>Number of Pins</b>	40 point
<b>Pitch</b>	0.1 in. (2.54 mm)

**WARNING:** EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

See Wiring Solutions for part numbers of ZIPLink cables and connection modules required with this I/O module.

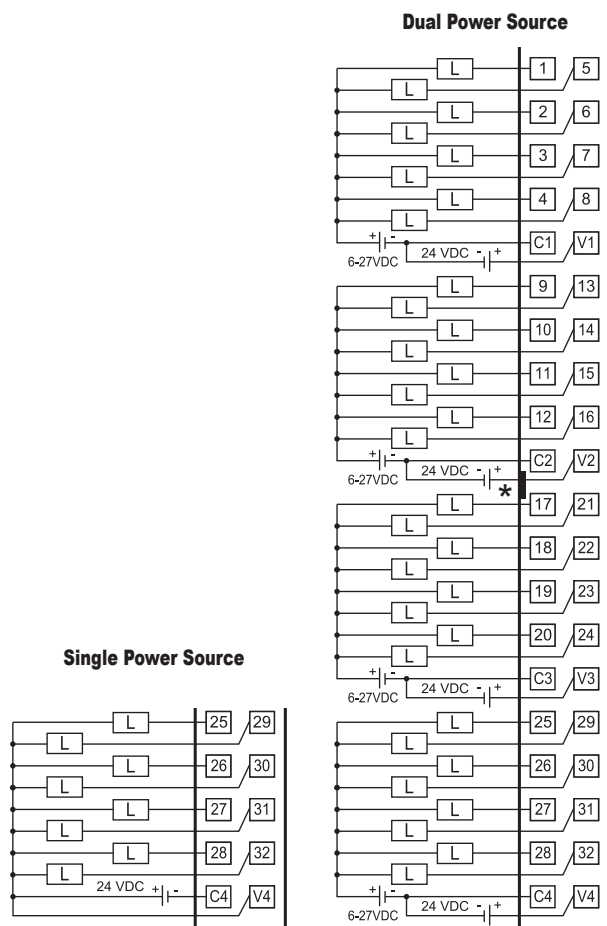




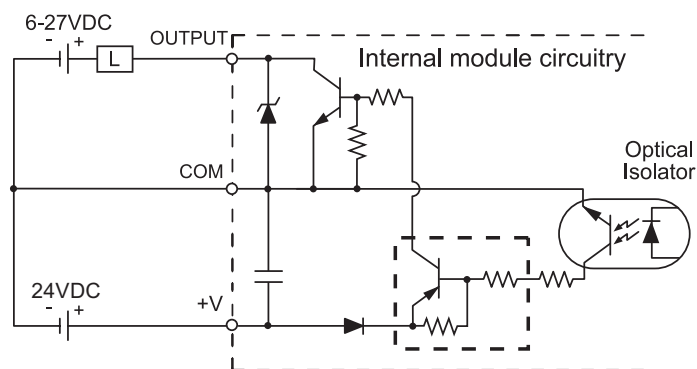
# DC Output Modules

## P3-32TD1 (cont'd)

### Wiring Diagrams



\*Denotes key location of all associated ZIPLink cables.



# DC Output Modules

## P3-32TD2

\$218.00

### Sourcing Output

The P3-32TD2 DC Output Module provides thirty-two 24 VDC sourcing outputs with four isolated commons.



No terminal block sold for this module; ZIPLink required.

### Output Specifications

<b>Outputs per Module</b>	32 (sourcing)
<b>Operating Voltage Range (Tolerance)</b>	CE 24VDC (-15% / + 20%)
	UL 24VDC (-20% / + 25%)
<b>Maximum Output Current @ Temp</b>	0.2 A / point, 1.6 A / common @ 60°C
<b>Minimum Output Current</b>	0.4 mA
<b>Maximum Leakage Current</b>	0.3 mA @ 30VDC
<b>On Voltage Drop</b>	0.3 VDC @ 0.2 A
<b>Maximum Inrush Current</b>	0.5 A for 10ms
<b>OFF to ON Response</b>	m 0.5 ms
<b>ON to OFF Response</b>	m 0.5 ms
<b>Connector Type</b>	40-pin IDC
<b>Status Indicators</b>	Logic Side (32 points)
<b>Commons</b>	4 Isolated (8 points / common)

### General Specifications

<b>Operating Temperature</b>	0°C–60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1500VAC applied for 1 minute
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	6.69 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Use ZIPLink wiring system. See Wiring Solutions.
<b>Weight</b>	110g (3.88 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

### Connector Specifications

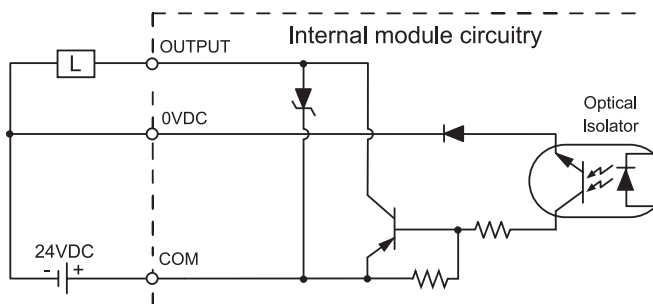
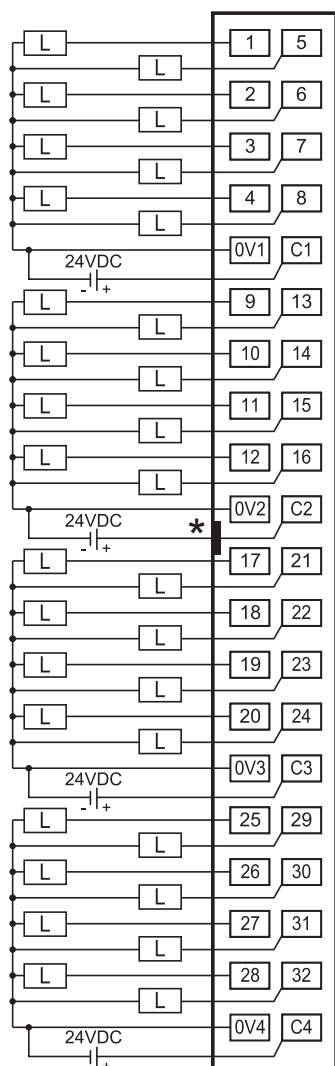
<b>Connector Type</b>	IDC style header with latch, Omron XG4A-4034
<b>Number of Pins</b>	40 point
<b>Pitch</b>	0.1 in. (2.54 mm)

**WARNING:** EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

See Wiring Solutions for part numbers of ZIPLink cables and connection modules required with this I/O module.



## Wiring Diagrams



tPR3-59

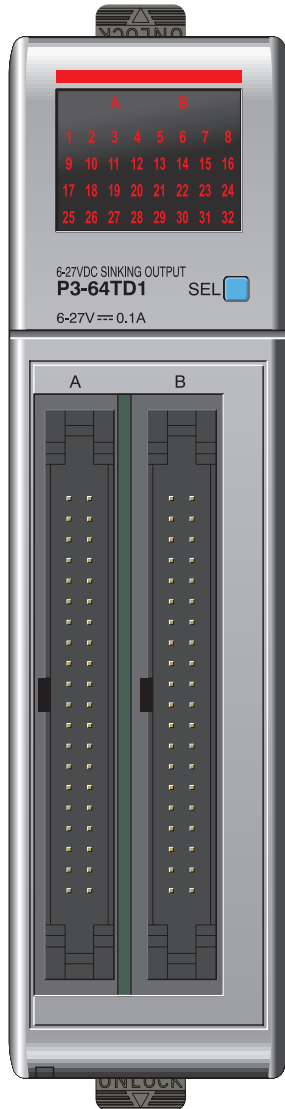
# DC Output Modules

## P3-64TD1

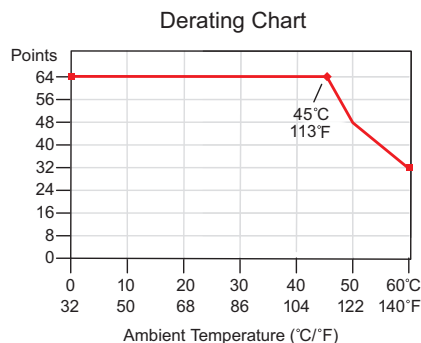
\$319.00

### Sinking Output

The P3-64TD1 DC Output Module provides sixty-four 6–27 VDC sinking outputs with eight isolated commons.



No terminal block sold  
for this module; ZIPLink  
required.



Output Specifications		
Outputs per Module		64 (sinking)
Operating Voltage Range (Tolerance)	CE	6.25–24 VDC (-15% / + 20%)
	UL	6–27 VDC (-15% / +10%)
Maximum Output Current @ Temp		0.1 A / point, 0.8 A / common @ 60°C
Minimum Output Current		0.4 mA
Maximum Leakage Current		0.3 mA @ 30VDC
On Voltage Drop		0.3 VDC @ 0.1 A
Maximum Inrush Current		0.5 A for 10ms
OFF to ON Response		m 0.2 ms
ON to OFF Response		m 0.3 ms
Connector Type		Two 40-pin IDC
Status Indicators		Logic Side (32 points x 2)
Commons		8 Isolated (8 points / common)
External DC Power Required		24VDC ±10% @ 210mA

General Specifications	
Operating Temperature	0°C– 60°C (32°F–140°F),
Storage Temperature	-20°C–70°C (-4°F–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	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	11.35 W
Enclosure Type	Open equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
Field Wiring	Use ZIPLink wiring system. See Wiring Solutions.
Weight	160g (5.64 oz)
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Connector Specifications	
Connector Type	IDC style header with latch, Omron XG4A-4034
Number of Pins	40 point x 2
Pitch	0.1 in. (2.54 mm)

**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**

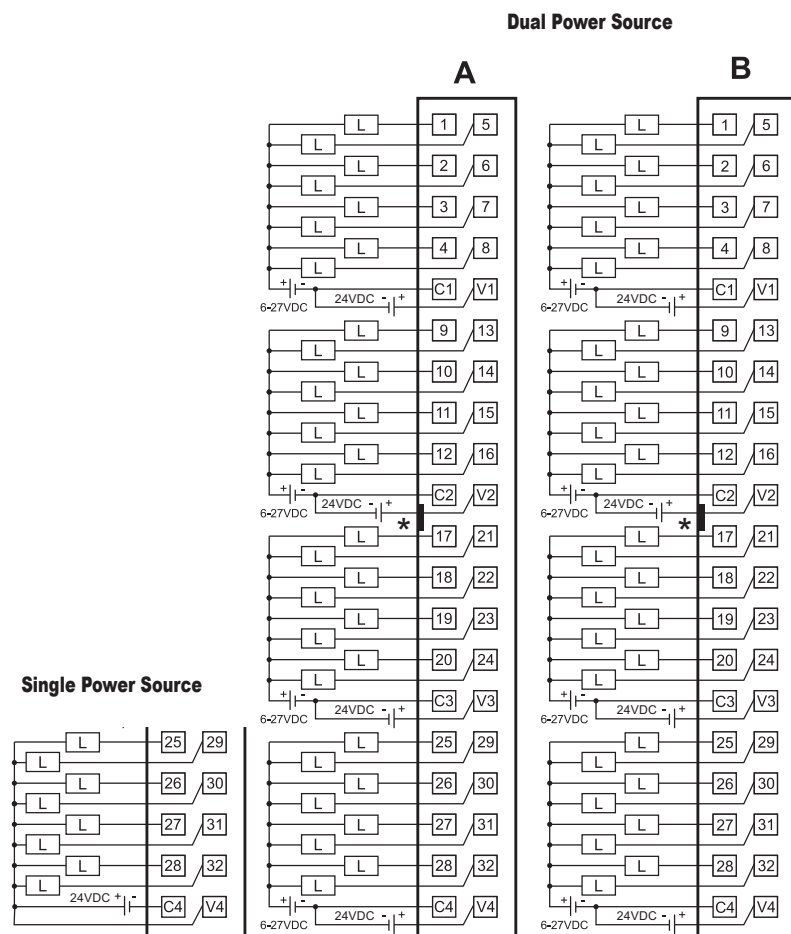
See Wiring Solutions for part numbers of ZIPLink cables and connection modules required with this I/O module.



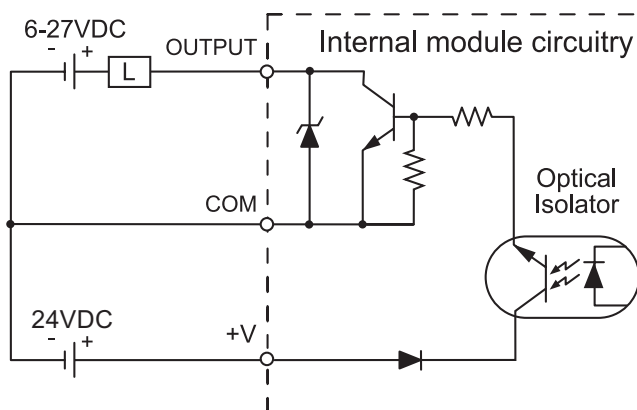
# DC Output Modules

## P3-64TD1 (cont'd)

### Wiring Diagrams



\*Denotes key location of all associated ZIPLink cables



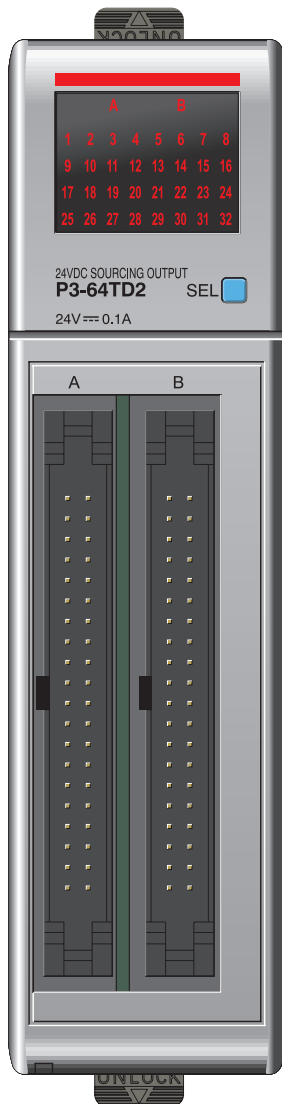
# DC Output Modules

## P3-64TD2

\$289.00

### Sourcing Output

The P3-64TD2 DC Output Module provides sixty-four 24 VDC sourcing outputs with eight isolated commons.



No terminal block sold for this module; ZIPLink required.

Output Specifications	
<b>Outputs per Module</b>	64 (sourcing)
<b>Operating Voltage Range (Tolerance)</b>	CE 24VDC (-15% / + 20%)
	UL 24VDC (-20% / + 25%)
<b>Maximum Output Current @ Temp</b>	0.1 A / point, 0.8 A / common @ 60° C
<b>Minimum Output Current</b>	0.4 mA
<b>Maximum Leakage Current</b>	0.3 mA @ 30VDC
<b>On Voltage Drop</b>	0.6 VDC @ 0.1 A
<b>Maximum Inrush Current</b>	0.5 A for 10ms
<b>OFF to ON Response</b>	m 0.5 ms
<b>ON to OFF Response</b>	m 0.5 ms
<b>Connector Type</b>	Two 40-pin IDC
<b>Status Indicators</b>	Logic Side (32 points x 2)
<b>Commons</b>	8 Isolated (8 points / common)

General Specifications	
<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1500VAC applied for 1 minute
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	11.57 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Use ZIPLink wiring system. See Wiring Solutions.
<b>Weight</b>	160g (5.64 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Connector Specifications	
<b>Connector Type</b>	IDC style header with latch, Omron XG4A-4034
<b>Number of Pins</b>	40 point x 2
<b>Pitch</b>	0.1 in. (2.54 mm)

**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**

See Wiring Solutions for part numbers of ZIPLink cables and connection modules required with this I/O module.

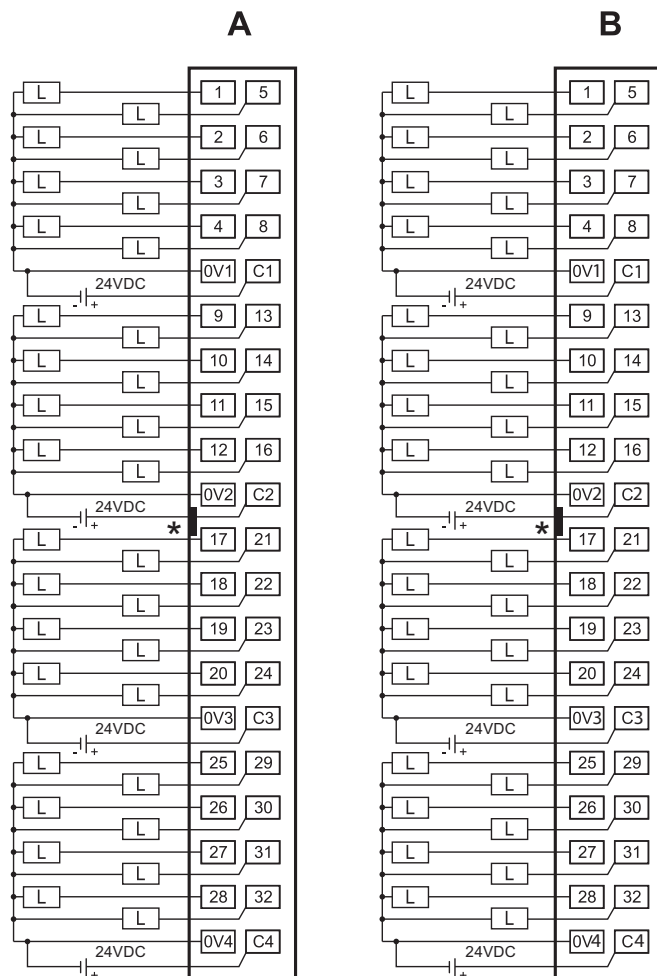




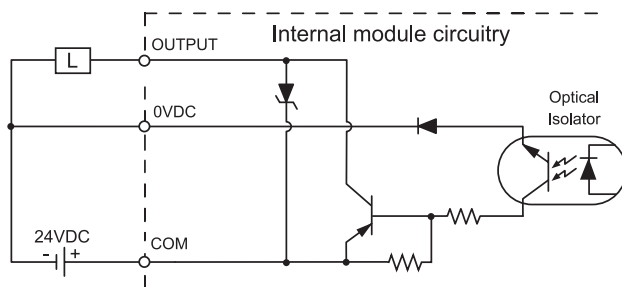
# DC Output Modules

## P3-64TD2 (cont'd)

### Wiring Diagrams



\*Denotes key location of all associated ZIPLink cables



# AC Output Modules

## P3-08TAS

**\$212.00**

### Isolated Output

The P3-08TAS AC Output Module provides eight 100-240 VAC isolated outputs with eight fused commons.



Terminal block sold separately; terminal block cover included with module.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number P3-RTB.

**WARNING: EXPLOSION HAZARD** –  
SUBSTITUTION OF COMPONENTS MAY IMPAIR  
SUITABILITY FOR CLASS I, DIVISION 2.



Output Specifications		
Outputs per Module		8
Operating Voltage Range (Tolerance)	(CE)	100–240 VAC (-15% / +10%)
	(UL)	100–240 VAC (-20% / +20%)
Maximum Output Current @ Temp		1A / point @ 40°C 0.7 A / point @ 60°C
AC Frequency		47–63 Hz
Minimum Load (TYPE 2)		10mA
Maximum Leakage Current (TYPE 2)		4mA @ 264VDC
On Voltage Drop		1.5 VAC @ > 50mA 4.0 VAC @ < 50mA
Maximum Inrush Current		10A for 10ms
OFF to ON Response		1ms + 1/2 cycle
ON to OFF Response		1ms + 1/2 cycle
Status Indicators		Logic Side (8 points)
Error Status Indicator		Blown Fuse (one for each point)
Terminal Type (not included)		20-position removable terminal block
Commons		8 Isolated (1 point / common)
Fuses		3.15 A user replaceable fuse per common For replacement, order <a href="#">P3-FUSE-1</a> . (Qty. 5/pkg.)

General Specifications	
Operating Temperature	0°C–60°C (32°F–140°F),
Storage Temperature	-20°C–70°C (-4°F–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	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	12.46 W
Enclosure Type	Open equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
Field Wiring	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
Weight	125g (4.41 oz)
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

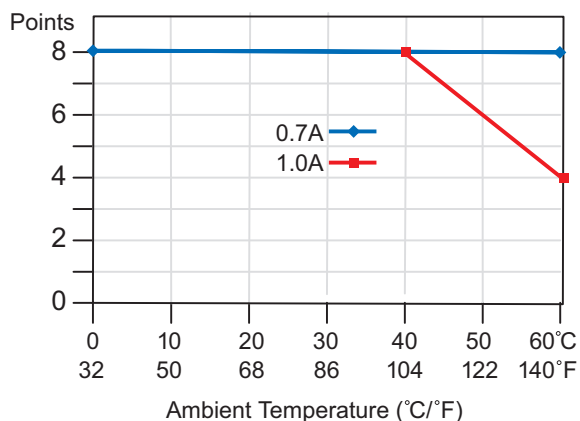
\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Removable Terminal Block Specifications	
Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 in-lb (0.882–1.02 N-m) Self-jacking screws - 2.7–3.6 in-lb (0.3–0.4 N-m). Do not overtighten screws when installing terminal block.

# AC Output Modules

## P3-08TAS (cont'd)

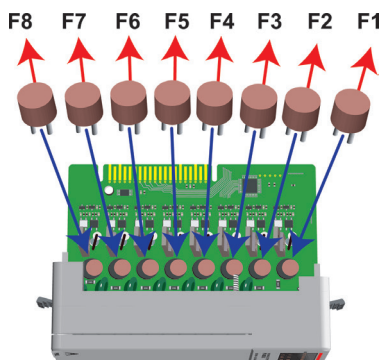
Derating Chart



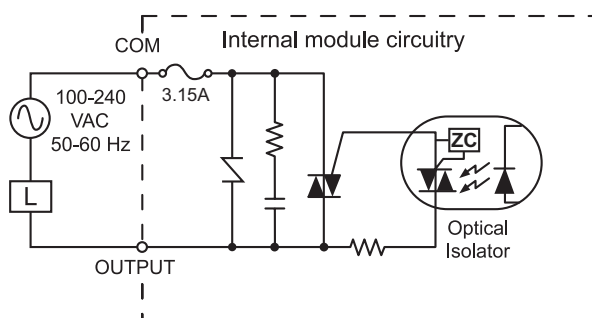
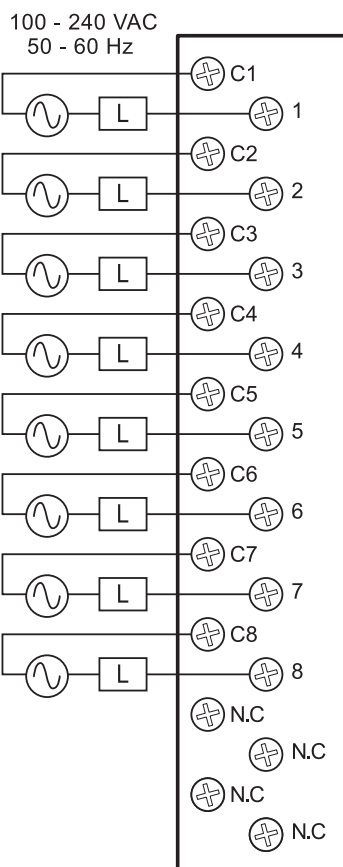
Temp	Current	
	1.0A	0.7A
0	8	8
40	8	8
60	4	8

## Replaceable Fuses

Order Part Number P3-FUSE-1  
(Qty. 5 per pkg.) One spare included with module.



## Wiring Diagrams



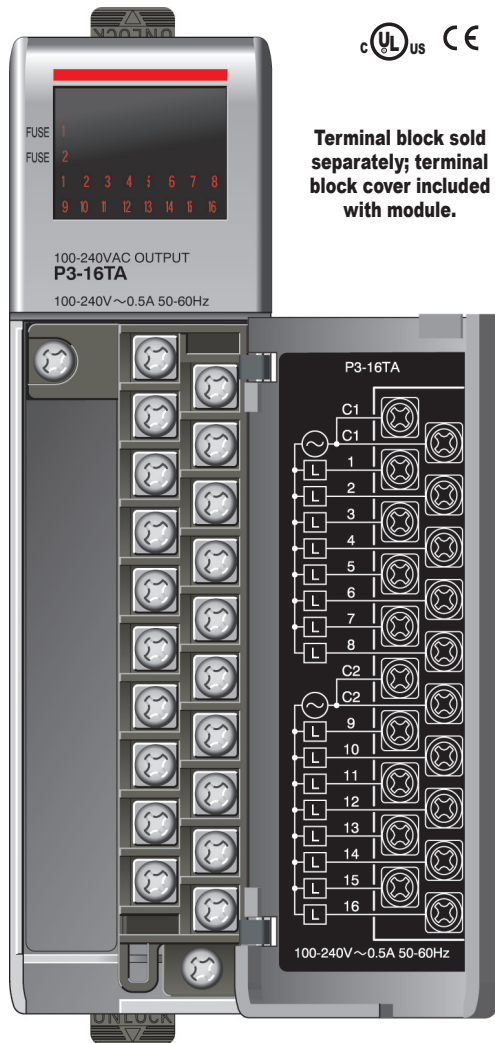
# AC Output Modules

P3-16TA

\$225.00

## AC Output

The P3-16TA AC Output Module provides sixteen 100–240 VAC outputs with two isolated fused commons.



Terminal block sold separately; terminal block cover included with module.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number [P3-RTB](#).



**WARNING: EXPLOSION HAZARD –**  
SUBSTITUTION OF COMPONENTS MAY IMPAIR  
SUITABILITY FOR CLASS I, DIVISION 2.

### Output Specifications

<b>Outputs per Module</b>	16
<b>Operating Voltage Range (Tolerance)</b>	(CE) 100–240 VAC (-15% / +10%) (UL) 100–240 VAC (-20% / +20%)
<b>AC Frequency</b>	47–63 Hz
<b>Maximum Output Current @ Temp (Type 2)</b>	0.5 A / point, 4A / common @ 60° C
<b>Minimum Load (TYPE 2)</b>	10mA
<b>Maximum Leakage Current (TYPE 2)</b>	4mA @ 264VDC
<b>On Voltage Drop</b>	1.5 VAC @ > 50mA 4.0 VAC @ < 50mA
<b>Maximum Inrush Current</b>	10A for 10ms
<b>OFF to ON Response</b>	1ms + 1/2 cycle
<b>ON to OFF Response</b>	1ms + 1/2 cycle
<b>Status Indicators</b>	Logic Side (16 points)
<b>Error Status Indicator</b>	Blown Fuse (one for each common)
<b>Terminal Type (not included)</b>	20-position removable terminal block
<b>Commons</b>	2 Isolated (8 points / common)
<b>Fuses</b>	6.3 A user replaceable fuse per common For replacement, order P3-FUSE-2. (Qty. 5/pkg.)

### General Specifications

<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1500VAC applied for 1 minute
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	12.69 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Weight</b>	125g (4.41 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

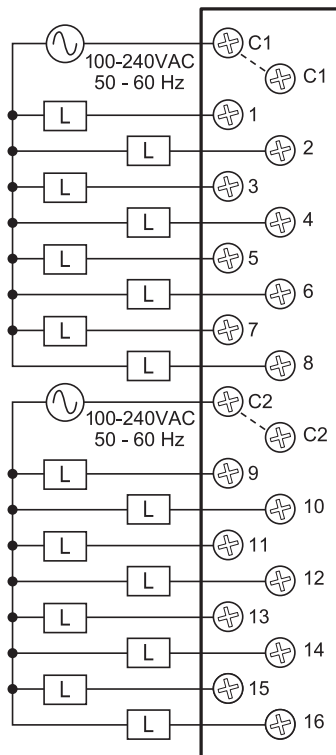
### Removable Terminal Block Specifications

<b>Description</b>	Part No. P3-RTB; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

# AC Output Modules

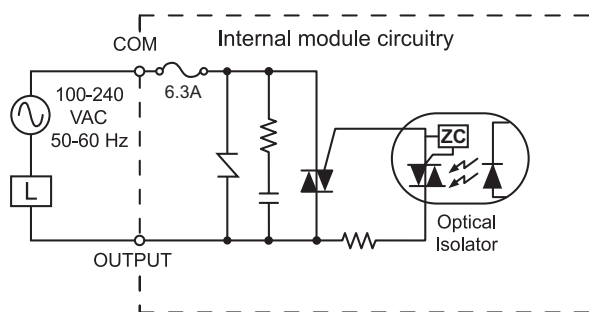
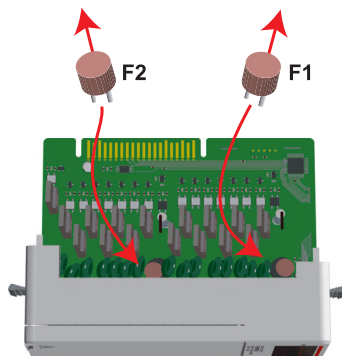
## P3-16TA (cont'd)

### Wiring Diagrams



### Replaceable Fuses

Order Part Number **P3-FUSE-2**  
(Qty. 5 per pkg.) One spare included with module.



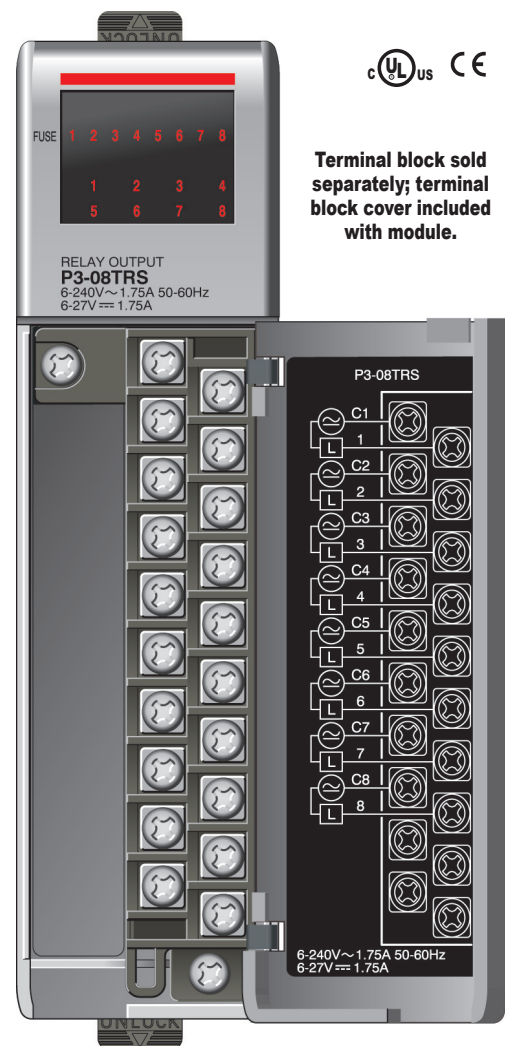
# Relay Output Modules

## P3-08TRS

\$187.00

### Isolated Relay Output

The P3-08TRS Isolated Relay Output Module provides eight 1.75 A relay outputs with eight fused commons and blown fuse indicators.



Terminal block sold separately; terminal block cover included with module.

### Typical Relay Life

Voltage & Type of Load	Load Current 2A
30VDC Resistive	150K
30VDC Solenoid	75K
120VAC Resistive	210K
120VAC Solenoid	140K
240VAC Resistive	150K
240VAC Solenoid	100K

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number P3-RTB.



### Output Specifications

Outputs per Module	8
Operating Voltage Range (Tolerance)	(CE) 6.25–24 VDC (-15% / + 20%) 6–240 VAC (-15% / + 10%)
	(UL) 6–27 VDC (-15% / + 10%) 6–240 VAC (-10% / + 10%)
Output type	Relay, form A (SPST)
AC Frequency	47–63 Hz
Maximum Output Current @ Temp	1.75 A per point @ 60°C for both AC and DC
Minimum Load Current	5mA @ 5VDC
Maximum Inrush Current	4A for 10ms
OFF to ON Response	m 10ms
ON to OFF Response	m 10ms
Status Indicators	Logic Side (8 points)
Error Status Indicator	Blown Fuse (one for each point)
Terminal Type (not included)	20-position removable terminal block
Commons	8 Isolated (1 point / common)
Fuses	3.15 A user replaceable fuse per common For replacement, order <a href="#">P3-FUSE-1</a> . (Qty. 5/pkg.)

### General Specifications

Operating Temperature	0°C– 60°C (32°F–140°F),
Storage Temperature	-20°C–70°C (-4°F–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	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	3.04 W
Enclosure Type	Open equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
Field Wiring	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
Weight	135g (4.76 oz)
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

### Removable Terminal Block Specifications

Description	Part No. <a href="#">P3-RTB</a> ; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS , 60°C or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 in-lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in-lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

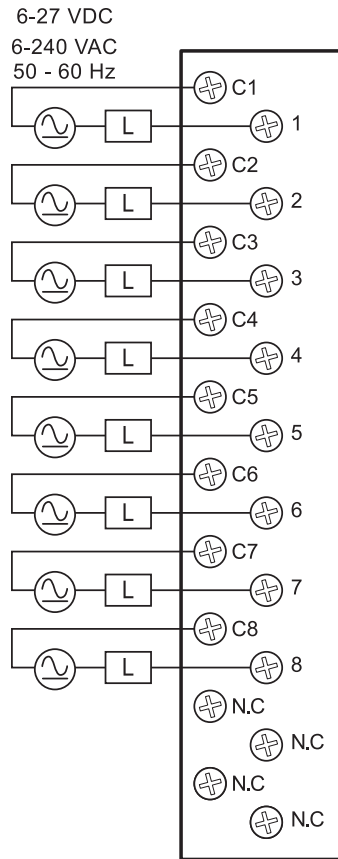
**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**



# Relay Output Modules

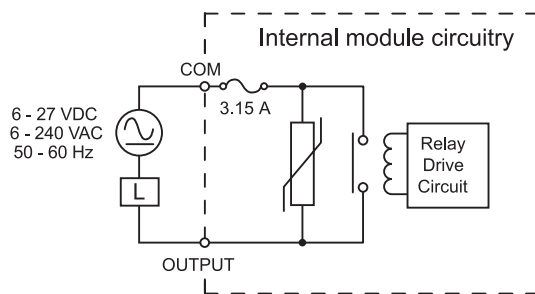
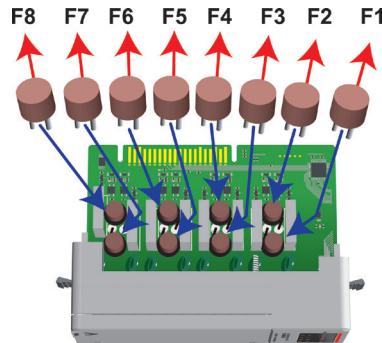
## P3-08TRS (cont'd)

### Wiring Diagrams



### Replaceable Fuses

Order Part Number **P3-FUSE-1**.  
(Qty. 5 per pkg.) One spare included with this module.



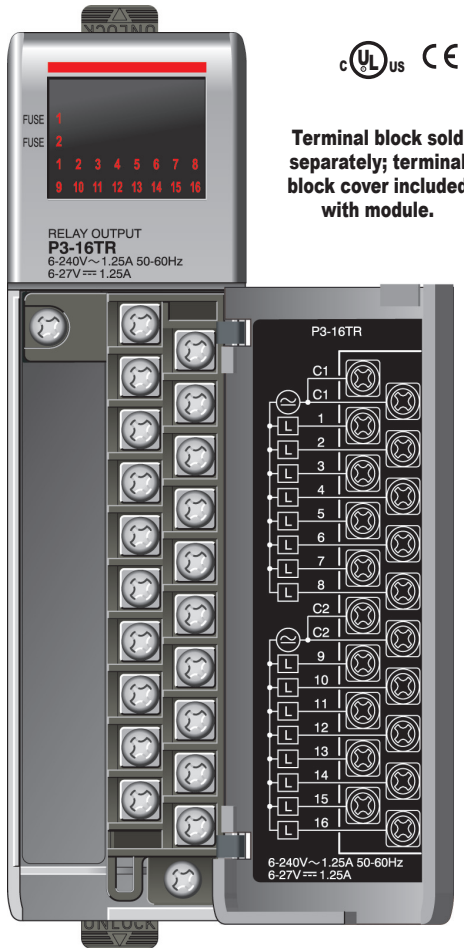
# Relay Output Modules

P3-16TR

\$190.00

## Relay Output

The P3-16TR Relay Output Module provides sixteen 1.25 A relay outputs with two isolated fused commons.



Terminal block sold separately; terminal block cover included with module.

### Typical Relay Life

Voltage & Type of Load	Load Current 1.25A
30VDC Resistive	240K
30VDC Solenoid	110K
120VAC Resistive	320K
120VAC Solenoid	210K
240VAC Resistive	240K
240VAC Solenoid	140K

**WARNING:** EXPLOSION HAZARD –  
SUBSTITUTION OF COMPONENTS MAY IMPAIR  
SUITABILITY FOR CLASS I, DIVISION 2.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number P3-RTB.



### Output Specifications

<b>Outputs per Module</b>		16
<b>Operating Voltage Range (Tolerance)</b>	(CE)	6.25–24 VDC (-15% / +20%) 6–240 VAC (-15% / +10%)
	(UL)	6–27 VDC (-15% / +10%) 6–240 VAC (-10% / +10%)
<b>Output type</b>		Relay, form A (SPST)
<b>AC Frequency</b>		47–63 Hz
<b>Maximum Output Current @ Temp</b>		1.25 A / point, 6.3 A / common @ 60°C for both AC and DC
<b>Minimum Load Current</b>		5mA @ 5VDC
<b>Maximum Inrush Current</b>		4A for 10ms
<b>OFF to ON Response</b>		m 10ms
<b>ON to OFF Response</b>		m 10ms
<b>Status Indicators</b>		Logic Side (16 points)
<b>Error Status Indicator</b>		Blown Fuse (one for each common)
<b>Terminal Type (not included)</b>		20-position removable terminal block
<b>Commons per module</b>		2 Isolated (8 point / common)
<b>Fuses</b>		6.3 A user replaceable fuse per common For replacement, order <a href="#">P3-FUSE-2</a> . (Qty. 5/pkg.)

### General Specifications

<b>Operating Temperature</b>	0°C–60°C (32°F–140°F)
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1500VAC applied for 1 minute
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	3.93 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Weight</b>	160g (5.64 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

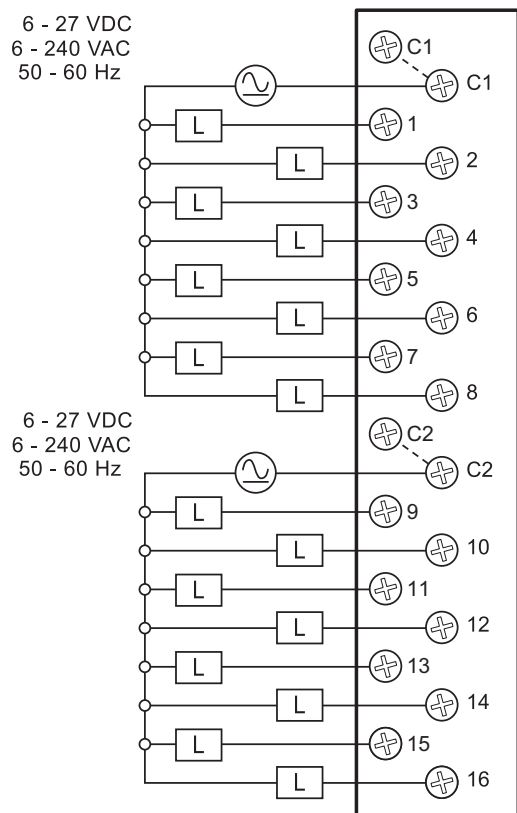
### Removable Terminal Block Specifications

<b>Description</b>	Part No. <a href="#">P3-RTB</a> ; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in-lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in-lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

# Relay Output Modules

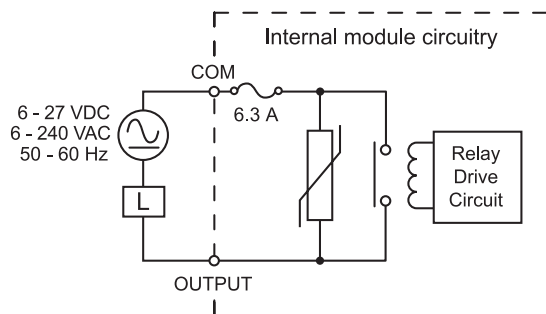
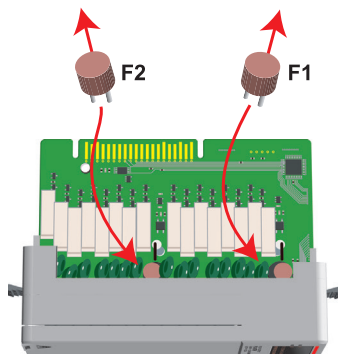
## P3-16TR (cont'd)

### Wiring Diagrams



## Replaceable Fuses

Order Part Number P3-FUSE-2.  
(Qty. 5 per pkg.) One spare included with this module.

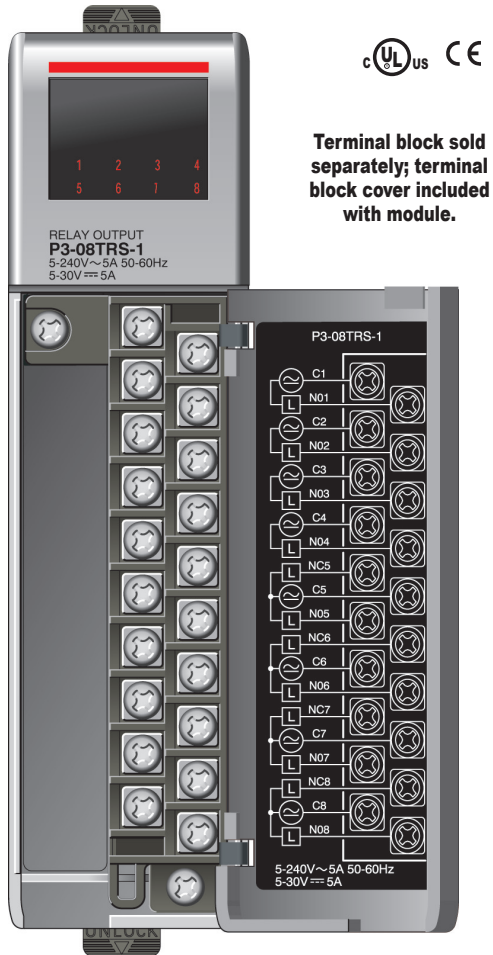


# Relay Output Modules

## P3-08TRS-1 \$213.00

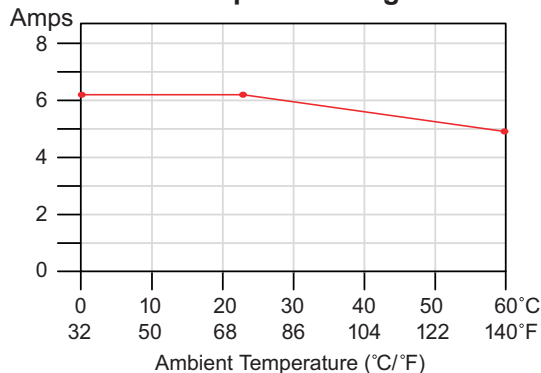
### Isolated Relay Output

The P3-08TRS-1 High-Current Isolated Relay Output Module provides eight 5A relay outputs with eight fused commons.



Terminal block sold separately; terminal block cover included with module.

### Output Derating



All 8 outputs on, 100% duty cycle allowed.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number P3-RTB.



Output Specifications		
Outputs per Module		8 relays (non-latching)
Commons per Module		8 (isolated)
Operating Voltage Range (Tolerance)	(CE)	6.25–24 VDC (-15% / +20%) 6–240 VAC (-15% / +10%)
	(UL)	5–30 VDC (-0% / +10%) 5–240 VAC (-0% / +10%)
Output Type		4 Form C (SPDT-NO/NC), 4 Form A (SPST-NO)
AC Frequency		47–63 Hz
On Voltage Drop		Minimal (90 mV max for fuse at 10A)
Max Output Current @ Temperature (Resistive)*		6.3 A at 23°C, 5.0 A at 60°C For both AC and DC
Maximum Leakage Current		Minimal (5µA for TVS diode)
Minimum Load		10mA @ 5VDC
Maximum Inrush Current		12A
External DC Required		None
OFF to ON Response		10ms
ON to OFF Response		5ms (Excluding NO bounce)
Terminal Type (not included)		20-position removable terminal block
Status Indicators		Logic side
Fuses		6.3 A user replaceable fuse per common For replacement, order P3-FUSE-2 (5/Pkg.)
Dielectric Strength (Between normally open and normally closed contacts on the same relay)		1500VAC @ 1 min, logic to output and isolated output to output, 750VAC @ 1 min, between contacts on same relay (Same as 1800VAC @ 1 sec and 900VAC @ 1 sec)
Transient Voltage Suppression (Bi-directional TVS diode)		482V clamp at 1.25 A peak pulse current
Mechanical Life Expectancy		>100,000 at 30 operations per minute

### Typical Relay Life\*

Voltage & Type of Load	Operating Current	Operations
24VDC Resistive	6.3 A	600,000
24VDC Solenoid	0.2 A	1,000,000
120VAC Resistive	6.3 A	600,000
120VAC Resistive	3 A	1,000,000
120VAC Solenoid	0.5 A	500,000
240VAC Resistive	6.3A	450,000
240VAC Resistive	3 A	600,000
1/4 HP Motor	1.5 x FLA (motor)	30,000

\*Ratings are for normally-open contacts. Normally-closed contacts have 1/2 the current handling capability.

### Removable Terminal Block Specifications

Description	Part No. <b>P3-RTB</b> ; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 in-lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in-lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

**WARNING:** EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

# Relay Output Modules

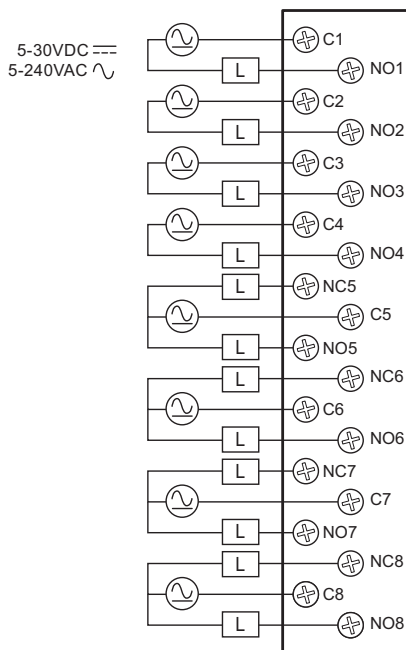
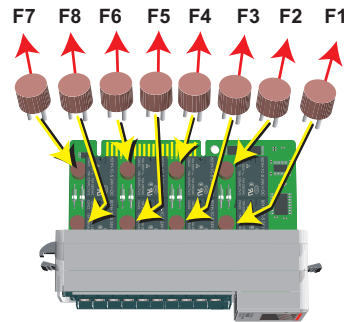
## P3-08TRS-1 (cont'd)

General Specifications	
<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1800VAC applied for 1s
<b>Insulation Resistance</b>	>10MΩ @ 500 VDC
<b>Heat Dissipation</b>	3W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Terminal Type (not included)</b>	20-position removable terminal block
<b>Weight</b>	286g (10.08 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

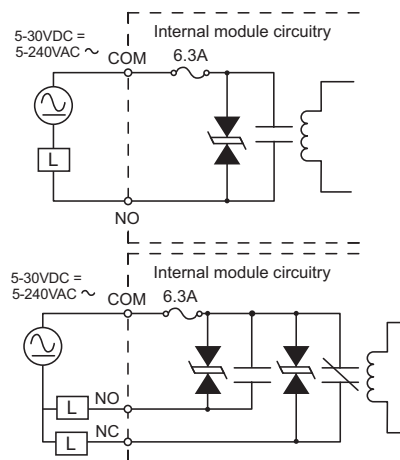
## Replaceable Fuses

Order Part Number **P3-FUSE-2**  
(Qty. 5/Pkg.) One spare included with this module.



Outputs  
NO1 – NO4

Outputs  
NO5 / NC5 –  
NO8 / NC8



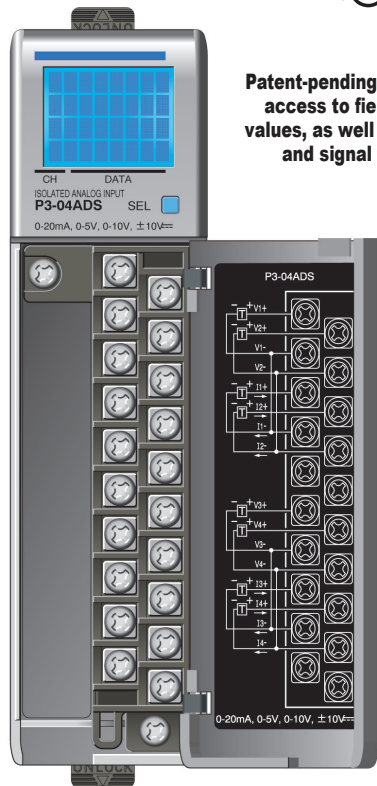


# Analog Input Modules

**P3-04ADS \$796.00**

## Isolated Voltage/Current Analog Input

The P3-04ADS Isolated Voltage/Current Analog Input Module provides four isolated channels for receiving  $\pm 10$  VDC, 0 to 5 VDC, 0 to 10 VDC and 0 to 20mA signals.



Patent-pending LCD gives access to field signal values, as well as module and signal faults.

Terminal block sold separately; terminal block cover included with module.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number P3-RTB.



### Removable Terminal Block Specifications

<b>Description</b>	Part No. P3-RTB; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in-lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in-lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**

### Input Specifications

<b>Input Channels</b>	4 Channel-to-Channel Isolated
<b>Module Signal Input Ranges*</b>	$\pm 10$ VDC, 0–5 VDC, 0–10 VDC, 0–20 mA
<b>Resolution</b>	15 bit + sign (0–10V), 16-bit (all others)
<b>Value of LSB (least significant bit)</b>	$\pm 10$ V = 305 $\mu$ V, 0–5 V = 152 $\mu$ V, 0–10 V = 305 $\mu$ V, 0–20 mA = 0.610 $\mu$ A
<b>Data Range</b>	0 to 65535 counts unipolar -32768 to +32767 counts bipolar
<b>Isolated Loop Pwr for Ext. Xmitters</b>	20–30 VDC, current limited to < 30mA
<b>Input Type</b>	Differential
<b>Common Mode Rejection Ratio</b>	-75dB min. @ DC, -500kHz
<b>Maximum Continuous Overload</b>	$\pm 31$ mA., current input $\pm 100$ V, voltage input
<b>Input Impedance</b>	250kV $\pm 5\%$ voltage input 250V $\pm 0.1\%$ 1/4W. current input
<b>Filter Characteristics</b>	Active low pass, -3dB @ 30Hz, -10dB @ 55Hz
<b>Sample Duration Time</b>	1.28 ms per channel (does not include ladder scan time)
<b>All Channel Update Rate</b>	5.2 ms
<b>Open Circuit Detection Time</b>	Zero reading within 1s
<b>Conversion Method</b>	Successive Approximation
<b>Accuracy vs. Temperature</b>	$\pm 25$ PPM / °C max
<b>Maximum Inaccuracy</b>	0.1% of range voltage, 0.2% of range current (including temperature drift)
<b>Linearity Error (End to End)</b>	$\pm 0.025\%$ of range maximum, Monotonic with no missing codes
<b>Input Stability and Repeatability</b>	$\pm 0.02\%$ of range maximum after 10 min.
<b>Full Scale Calibration Error (not including Offset)</b>	$\pm 0.05\%$ of range maximum
<b>Offset Calibration Error</b>	$\pm 0.05\%$ of range maximum
<b>Max Crosstalk</b>	-96 dB 1 LSB
<b>Channel to Channel Isolation</b>	900VDC applied for 1s
<b>Recommended Fuse (external)</b>	Edison S500-32-R, 0.032A fuse on current inputs only

\*Select any two ranges via hardware jumpers. Range setting is for channels 1 and 3; and channels 2 and 4.

### General Specifications

<b>Operating Temperature</b>	0°C–60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1800VAC applied for 1s
<b>Insulation Resistance</b>	>10M $\Omega$ @ 500VDC
<b>Heat Dissipation</b>	2.6 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use ZIPLink wiring system or optional terminal block. See Wiring Solutions.
<b>Terminal Type (not included)</b>	20-position removable terminal block
<b>Weight</b>	61g (2.14 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

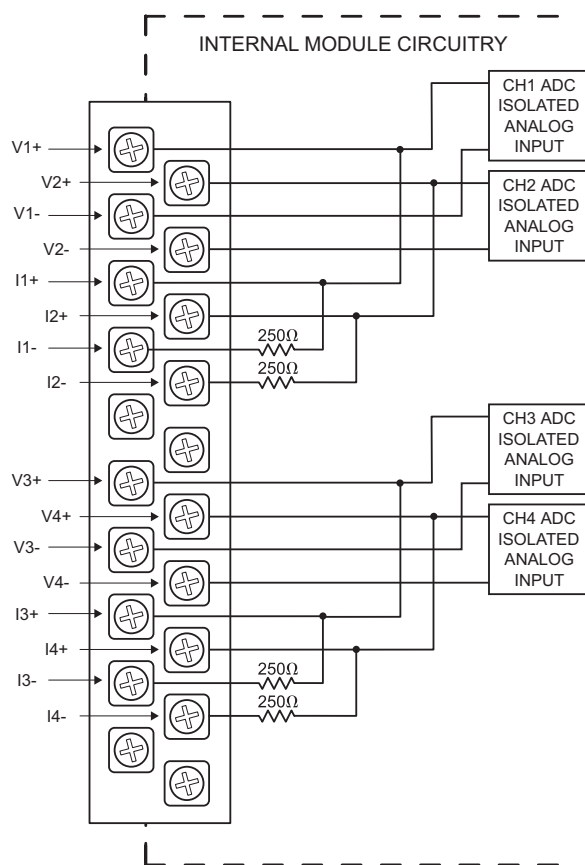
\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.



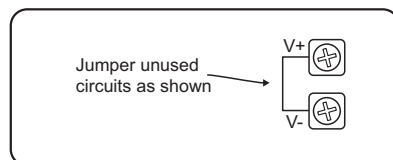
# Analog Input Modules

## P3-04ADS (cont'd)

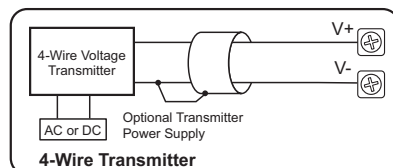
### Wiring Diagrams



#### Unused Circuits



#### Voltage Input Circuits

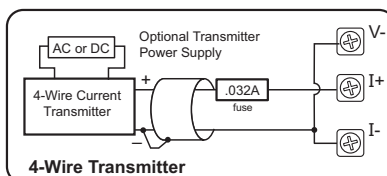
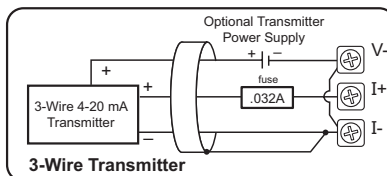
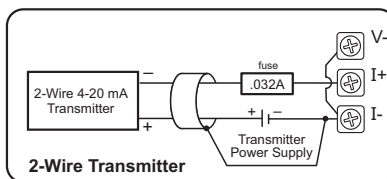


#### NOTES:

1. Shield connected to signal source common.
2. If current is chosen, I- **MUST** be jumpered to V-. For example, when using 4-20 mA source for Input 3, I3- must be connected to V3-.

#### Current Input Circuits

An Edison S500-32-R 0.032A fast-acting fuse is recommended for all 4-20mA current loops.



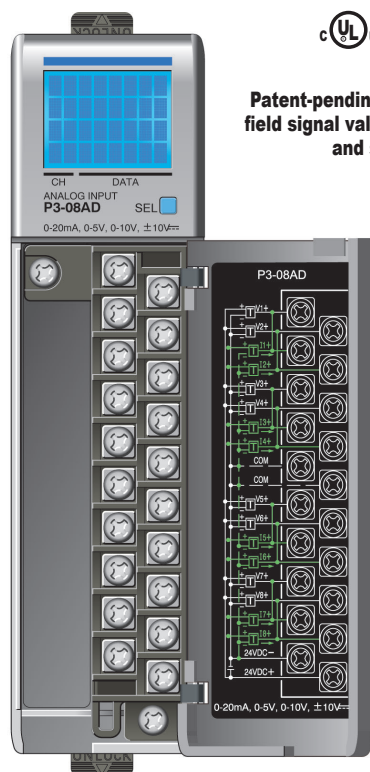
# Analog Input Modules

P3-08AD

\$432.00

## Voltage/Current Input

The P3-08AD Voltage/Current Analog Input Module provides 8 channels for receiving  $\pm 10\text{VDC}$ ,  $\pm 5\text{VDC}$ , 0 to 5 VDC, 0 to 10VDC, and 0 to 20mA signals.



Patent-pending LCD gives access to field signal values, as well as module and signal faults.

Terminal block sold separately; terminal block cover included with module.

## Removable Terminal Block Specifications

<b>Description</b>	Part No. P3-RTB; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in-lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in-lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number **P3-RTB**.



**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**

## Input Specifications

<b>Input Channels</b>	8
<b>Module Signal Input Ranges</b>	$\pm 10\text{VDC}$ , $\pm 5\text{VDC}$ , 0–5 VDC, 0–10 VDC, 0–20mA
<b>Signal Resolution</b>	16-bit
<b>Resolution Value of LSB (least significant bit)</b>	1 LSB = 1 count $\pm 10\text{V} = 305\mu\text{V}$ $\pm 5\text{V} = 152\mu\text{V}$ 0–5V = 76 $\mu\text{V}$ 0–10V = 152 $\mu\text{V}$ 0–20mA = 0.305 $\mu\text{A}$
<b>Data Range</b>	0 to 65535 counts unipolar -32768 to +32767 counts bipolar
<b>Maximum Continuous Overload</b>	$\pm 31\text{mA}$ , current input $\pm 100\text{V}$ , voltage input
<b>Input Impedance</b>	1M $\Omega$ $\pm 10\%$ voltage input 250 $\Omega$ $\pm 0.1\%$ 1/4 W. current input
<b>Hardware Filter Characteristics</b>	Low pass 1st order, -3dB@48Hz
<b>Sample Duration Time</b>	455 $\mu\text{s}$ per channel (does not include ladder scan time)
<b>All Channel Update Rate</b>	4ms
<b>Open Circuit Detection Time</b>	Zero reading within 1s (current input only)
<b>Conversion Method</b>	Successive approximation
<b>Accuracy vs. Temperature</b>	$\pm 10\text{PPM} / ^\circ\text{C}$ maximum
<b>Maximum Inaccuracy</b>	0.1% of range voltage, 0.2% of range current (including temperature drift)
<b>Linearity Error (end to end)</b>	$\pm 0.01\%$ of range max., $\pm 10\text{V}$ & $\pm 5\text{V}$ $\pm 0.015\%$ of range max., 0–10 V, 0–5 V & 0–20 mA Monotonic with no missing codes
<b>Input Stability and Repeatability</b>	$\pm 0.035\%$ of range (after 10 min. warmup)
<b>Full Scale Calibration Error (not including offset)</b>	$\pm 0.1\%$ of range maximum
<b>Offset Calibration Error</b>	$\pm 0.065\%$ of range maximum
<b>Max Crosstalk</b>	-96dB
<b>Recommended Fuse (external)</b>	Edison S500-32-R, .032A fuse on current inputs only
<b>External DC Power Required</b>	24VDC (-20% / + 25%) 33mA

## General Specifications

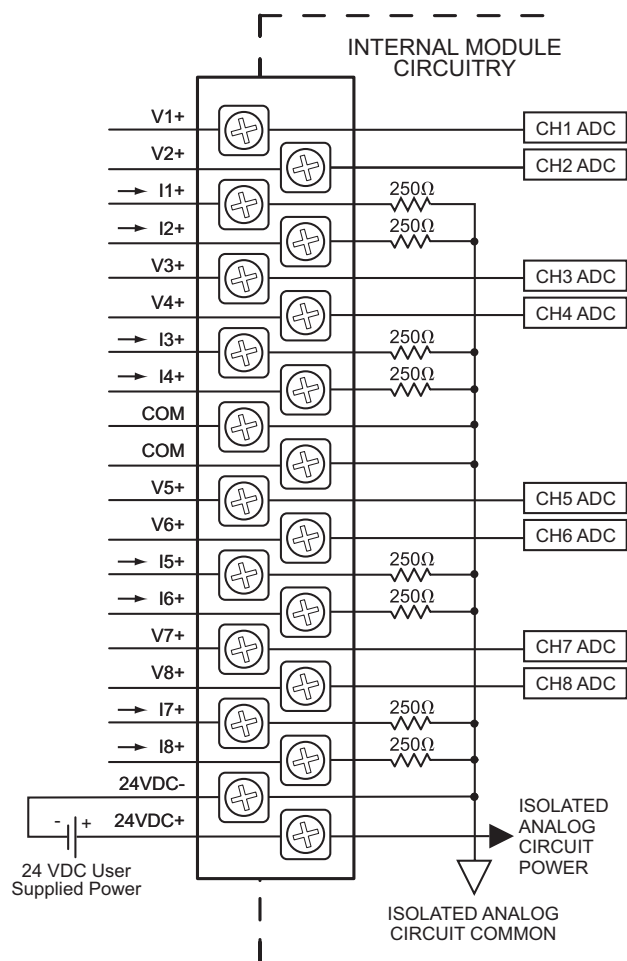
<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1800VAC applied for 1s
<b>Insulation Resistance</b>	>10M $\Omega$ @ 500VDC
<b>Heat Dissipation</b>	1.1 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Terminal Type (not included)</b>	20-position removable terminal block
<b>Weight</b>	105g (3.73 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

# Analog Input Modules

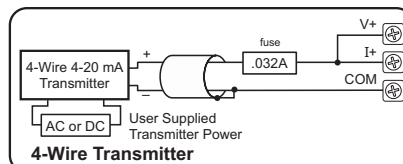
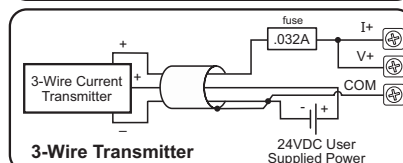
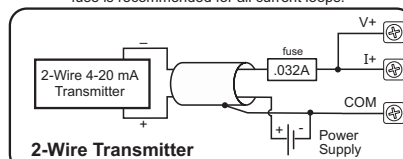
## P3-08AD (cont'd)

### Wiring Diagrams

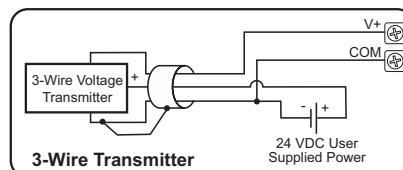
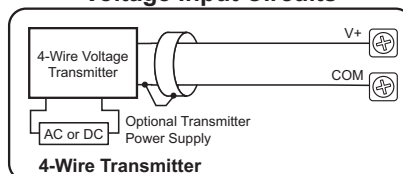


### Current Sinking Input Circuits

An Edison S500-32-R 0.032A fast-acting fuse is recommended for all current loops.



### Voltage Input Circuits

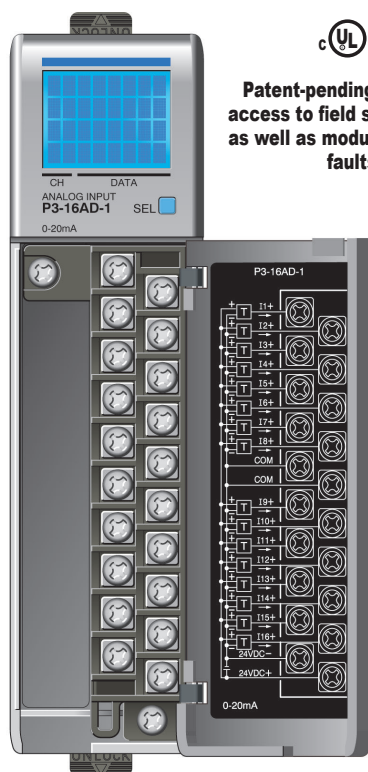


# Analog Input Modules

## P3-16AD-1 \$589.00

### Current Analog Input

The P3-16AD-1 Current Analog Input Module provides sixteen channels for receiving current sinking 0 to 20mA input signals.



Patent-pending LCD gives access to field signal values, as well as module and signal faults.

Terminal block sold separately; terminal block cover included with module.

WARNING: Explosion hazard – Substitution of components may impair suitability for Class I, Division 2.

### Removable Terminal Block Specifications

<b>Description</b>	Part No. P3-RTB; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number P3-RTB.



### Input Specifications

<b>Input Channels</b>	16 sinking
<b>Module Signal Input Range</b>	0–20mA
<b>Signal Resolution</b>	16-bit
<b>Resolution Value of LSB (least significant bit)</b>	0–20mA = 0.305µA per count (1 LSB = 1 count)
<b>Data Range</b>	0–65535 counts
<b>Input Type</b>	Single-ended (1 common)
<b>Maximum Continuous Overload</b>	±31mA
<b>Input Impedance</b>	250Ω ±0.1% ¼W
<b>Filter Characteristics</b>	Low Pass, -3dB @ 100Hz
<b>Sample Duration Time</b>	7ms per channel (does not include ladder scan time)
<b>All Channel Update Rate</b>	112ms
<b>Open Circuit Detection Time</b>	Zero reading within 1s
<b>Conversion Method</b>	Successive approximation
<b>Accuracy vs. Temperature</b>	±25PPM / °C maximum
<b>Maximum Inaccuracy</b>	0.1% of range (including temperature drift)
<b>Linearity Error (end to end)</b>	±10 LSB maximum (±0.015% of range) Monotonic with no missing codes
<b>Input Stability and Repeatability</b>	±10 LSB
<b>Full Scale Calibration Error (not including offset)</b>	±10 LSB maximum (±0.015% of range)
<b>Offset Calibration Error</b>	±10 LSB maximum
<b>Max Crosstalk</b>	-76dB, ±10 LSB
<b>Recommended Fuse (external)</b>	Edison S500-32-R, 0.032 A fuse
<b>External DC Power Required</b>	24VDC (-20% / + 25%) 20mA

### General Specifications

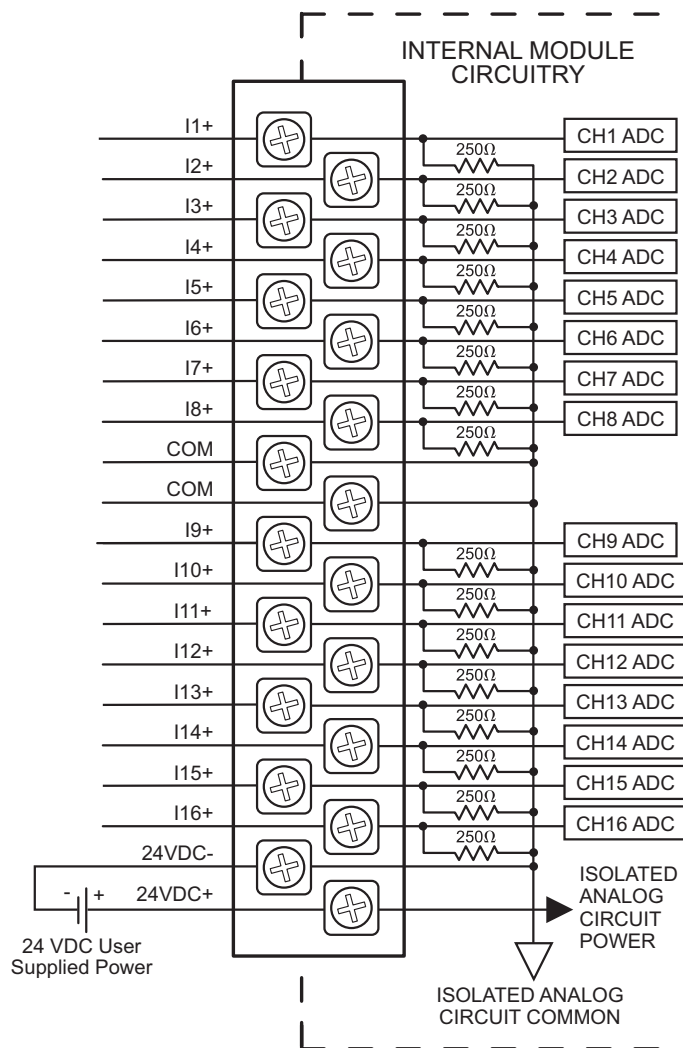
<b>Operating Temperature</b>	0°C–60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1800VAC applied for 1s
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	2.1 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Terminal Type (not included)</b>	20-position removable terminal block
<b>Weight</b>	105g (3.73 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

# Analog Input Modules

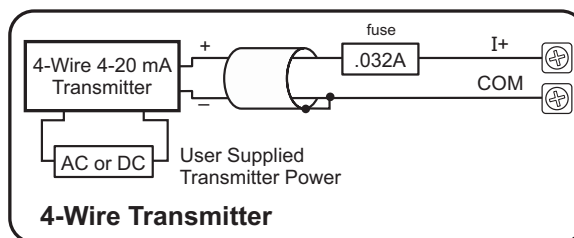
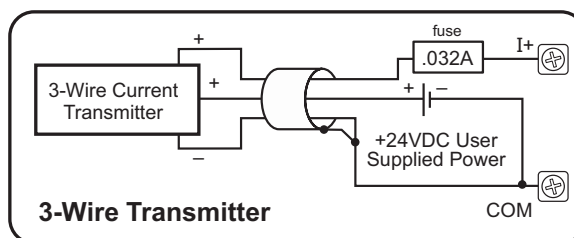
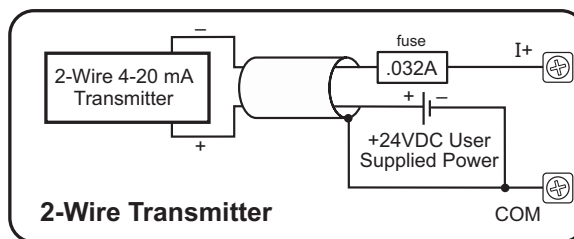
## P3-16AD-1 (cont'd)

### Wiring Diagrams



### Current Input Circuits

An Edison S500-32-R 0.032A fast-acting fuse is recommended for current loops.



Note: Do not connect both ends of shield.

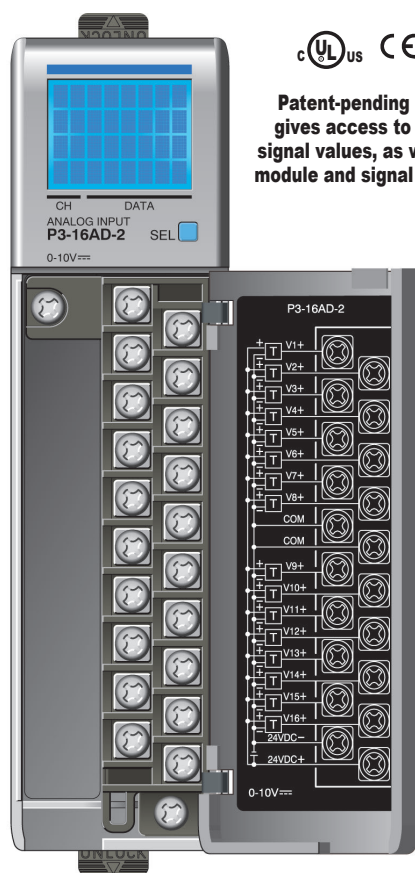



# Analog Input Modules

## P3-16AD-2 \$576.00

### Voltage Analog Input

The P3-16AD-2 Voltage Analog Input Module provides sixteen channels for receiving 0 to 10 VDC signals.



 Patent-pending LCD gives access to field signal values, as well as module and signal faults.

Terminal block sold separately; terminal block cover included with module.

### Removable Terminal Block Specifications

<b>Description</b>	Part No. P3-RTB; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number P3-RTB.



### Input Specifications

<b>Input Channels</b>	16
<b>Module Signal Input Range</b>	0–10 VDC
<b>Signal Resolution</b>	16-bit
<b>Resolution Value of LSB (least significant bit)</b>	0–10 VDC = 152µV per count (1 LSB = 1 count)
<b>Data Range</b>	0 to 65535 counts
<b>Input Type</b>	Single-ended (one common)
<b>Maximum Continuous Overload</b>	±100V
<b>Input Impedance</b>	250kΩ (typical)
<b>Filter Characteristics</b>	Low Pass, -3dB @ 100Hz
<b>Sample Duration Time</b>	7ms per channel (does not include ladder scan time)
<b>All Channel Update Rate</b>	112ms
<b>Open Circuit Detection Time</b>	Zero reading within 1s
<b>Conversion Method</b>	Successive approximation
<b>Accuracy vs. Temperature</b>	±25 PPM / °C maximum
<b>Maximum Inaccuracy</b>	0.1% of range (including temperature drift)
<b>Linearity Error (end to end)</b>	±10 LSB maximum (±0.015% of range) Monotonic with no missing codes
<b>Input Stability and Repeatability</b>	±10 LSB
<b>Full Scale Calibration Error (not including offset)</b>	±10 LSB maximum (±0.015% of range)
<b>Offset Calibration Error</b>	±10 LSB maximum
<b>Max Crosstalk</b>	-76dB, 10 LSB
<b>External DC Power Required</b>	24VDC (-20% / + 25%), 41mA maximum

### General Specifications

<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1800VAC applied for 1s
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	1.4 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Terminal Type (not included)</b>	20-position removable terminal block
<b>Weight</b>	105g (3.73 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

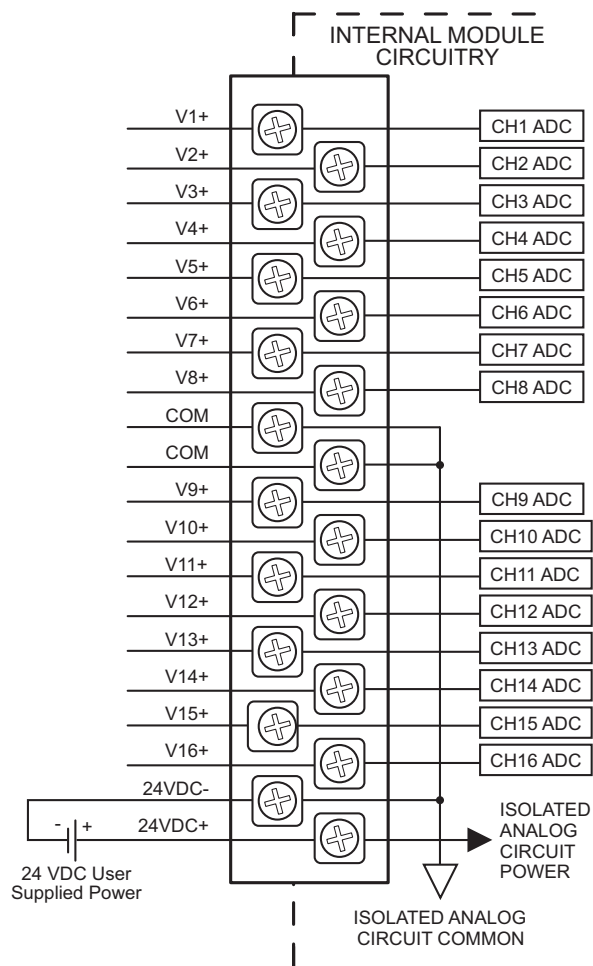
**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**



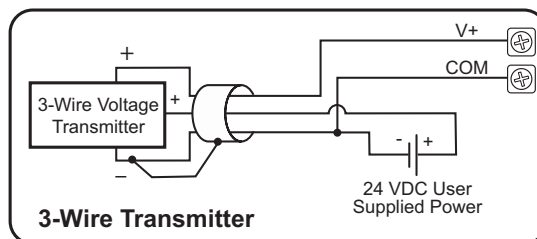
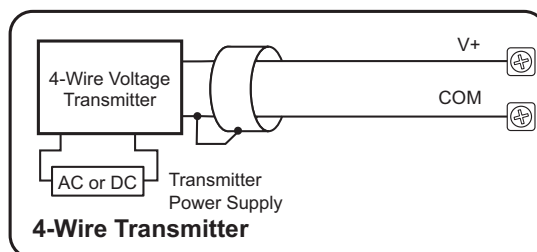
# Analog Input Modules

## P3-16AD-2 (cont'd)

### Wiring Diagrams



### Voltage Input Circuits



Notes for maximum accuracy:  
1. Jumper unused inputs to common.



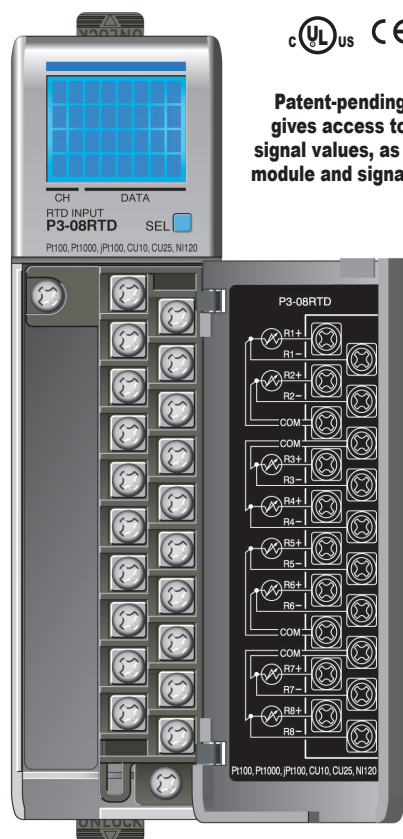
# Analog Input Modules

## P3-08RTD

\$639.00

### RTD Analog Input

The P3-08RTD input module provides eight differential channels for receiving RTD and resistance input signals.



Patent-pending LCD gives access to field signal values, as well as module and signal faults.

Terminal Block P3-RTB and Cover included. Not compatible with ZIPLink.

### Removable Terminal Block Specifications

<b>Description</b>	Part No. P3-RTB; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in-lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in-lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

### RTD Input Specifications

<b>Input Channels</b>	8 Differential
<b>Max. Common Mode Voltage</b>	5VDC
<b>Data Format</b>	Floating Point
<b>Common Mode Rejection</b>	-90dB min. @ DC, -150dB min. @ 50/60Hz
<b>Absolute Maximum Ratings</b>	Fault protected input, ±50V
<b>Internal Resolution</b>	16-bit, ±0.1°C or °F (up to 100Hz filter)
<b>Input Ranges (RTD Types)</b>	Pt100 -200°C/850°F (-328°F/1562°F) Pt1000 -200°C/595°F (-328°F/1103°F) JPt100 -100°C/450°F (-148°F/ 842°F) 10V Cu. -200°C/260°C (-328°F/ 500°F) 25V Cu. -200°C/260°C (-328°F/ 500°F) 120V Ni. -80°C/260°C (-112°F/ 500°F)
<b>RTD Linearization</b>	Automatic
<b>Excitation Current (all ranges)</b>	200µA
<b>Accuracy vs. Temperature</b>	±5PPM per °C (maximum)
<b>Full Scale Calibration</b>	±1°C
<b>Offset Calibration Error</b>	±1 count (negligible)
<b>Linearity Error (end to end)</b>	±0.5°C maximum, ±0.01°C typical, Monotonic with no missing codes
<b>Maximum Inaccuracy</b>	±1°C maximum (excluding RTD error) (including temperature drift)
<b>Warm-up Time</b>	2 minutes for ±0.2% repeatability
<b>Sample Duration (Single channel update rate)</b>	Dependent on Digital Filter Settings -- 488ms @ 10Hz, 88ms @ 50Hz, 75ms @ 60Hz, 56ms @ 100Hz, 48ms @ 250Hz
<b>Filter Characteristics</b>	Digital filter cutoff frequencies: 10Hz, 50Hz, 60Hz, 100Hz, or 250Hz
<b>All Channel Update Rate</b>	Single channel update rate times the number of enabled channels
<b>Open Circuit Detection Time</b>	Positive full scale reading within 2s
<b>Conversion Method</b>	Sigma-Delta
<b>External DC Power Required</b>	None

### Resistance Input Specifications

<b>Internal Resolution</b>	16-bit, .0015% of full scale range in ohms (up to 100Hz filter)
<b>Resistance Input Ranges and CPU Resolution</b>	0–10,000Ω, Resolution 1Ω 0–6,250Ω, Resolution 0.1 Ω 0–3,125Ω, 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
<b>Accuracy vs. Temperature</b>	±25PPM per °C (maximum)
<b>Full Scale Calibration</b>	±0.02% of full scale range
<b>Offset Calibration Error</b>	±0.0015% of full scale range in ohms
<b>Linearity Error (end to end)</b>	±0.0015% of full scale range maximum at 25°C, Monotonic with no missing codes
<b>Maximum Inaccuracy</b>	±0.10% of full scale range

### Diagnostics

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

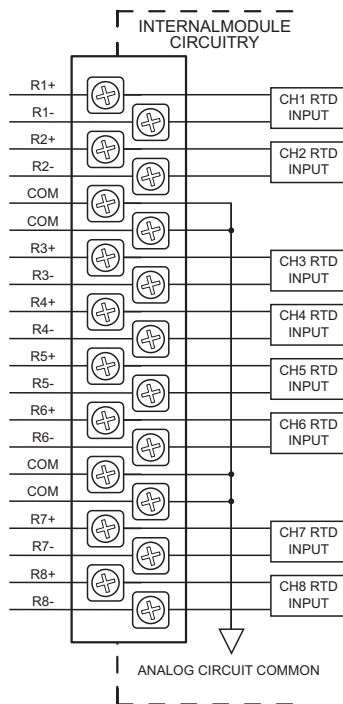
# Analog Input Modules

## P3-08RTD (cont'd)

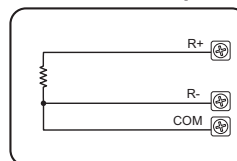
General Specifications	
<b>Operating Temperature</b>	0°C–60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Heat Dissipation</b>	0.33 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (included). The P3-08RTD module is not compatible with the <b>ZIPLink</b> wiring system.
<b>Terminal Type</b>	20-position removable terminal block (included)
<b>Weight</b>	107.8 g (3.79 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

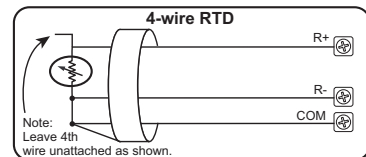
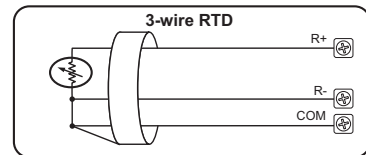
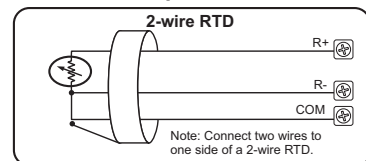
**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**



### Resistance Input



### RTD Input Circuits



### Notes for maximum accuracy:

1. For 2-wire RTD, attach 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.



# Analog Input Modules

## P3-08THM

\$448.00

### Thermocouple Analog Input

The P3-08THM Thermocouple Input Module provides eight differential channels for receiving thermocouple and voltage input signals.



Patent-pending LCD gives access to field signal values, as well as module and signal faults.

Terminal Block P3-RTB and Cover included. Not compatible with Z/PLink.

### Removable Terminal Block Specifications

<b>Description</b>	Part No. P3-RTB; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

\* Use shielded, twisted thermocouple wire that matches the thermocouple type.

### T/C Input Specifications

<b>Input channels</b>	8 differential
<b>Data Format</b>	Floating point
<b>Common Mode Range</b>	± 1.25 V
<b>Common Mode Rejection</b>	100dB @ DC and 130dB @ 60Hz
<b>Input Impedance</b>	>5M ohms
<b>Maximum Ratings</b>	Fault-protected inputs to ±50VDC
<b>Resolution</b>	16-bit, ± 0.1°C or °F
<b>Thermocouple Input Ranges</b>	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);
<b>Cold Junction Compensation</b>	Automatic
<b>Thermocouple Linearization</b>	Automatic
<b>Accuracy vs. Temperature</b>	±50PPM / °C maximum
<b>Linearity Error</b>	±1°C maximum (±0.5°C typical), Monotonic with no missing codes
<b>Maximum Inaccuracy</b>	±3°C Max (excluding thermocouple error) (including temperature drift)
<b>Warm-up Time</b>	30 Minutes for ±1°C Repeatability 2 minutes to reach voltage specifications
<b>Sample Duration Time</b>	270ms
<b>All Channel Update Rate</b>	2.16 s
<b>Open Circuit Detection Time</b>	10–15 secs, 20 secs max.
<b>Conversion Method</b>	Sigma-Delta
<b>External DC Power</b>	NONE

### Voltage Input Specifications

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

### Configuration/Diagnostics

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

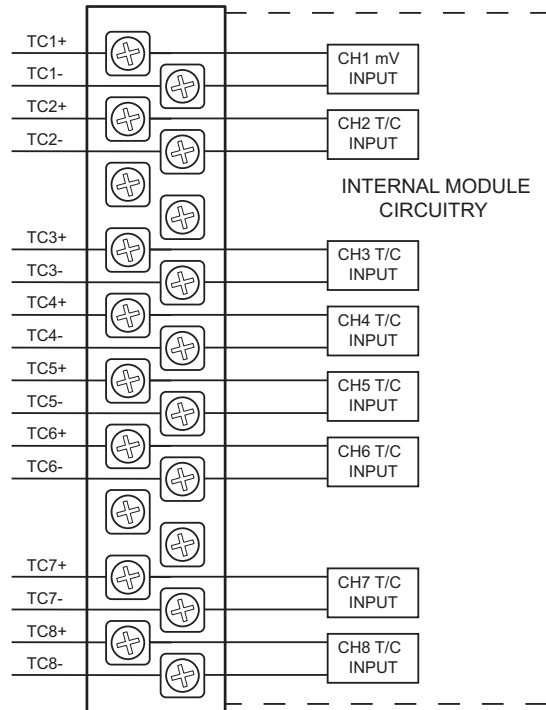
# Analog Input Modules

## P3-08THM (cont'd)

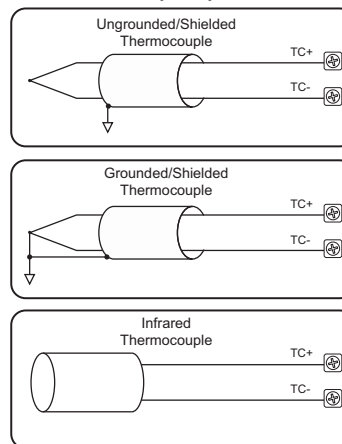
General Specifications	
<b>Operating Temperature</b>	0°C–60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1800VAC applied for 1s
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	0.36 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (included). The P3-08THM module is not compatible with the ZIPLink wiring system.
<b>Terminal Type</b>	20-position removable terminal block (included)
<b>Weight</b>	150g (5.3 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

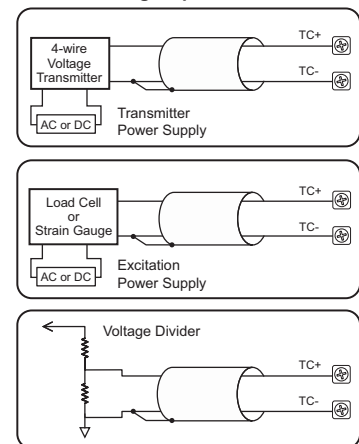
**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**




thermocouple Input Circuits

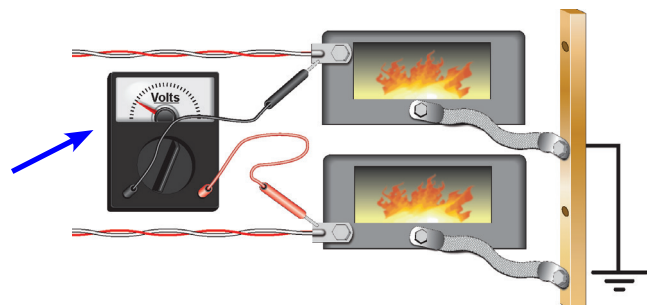


Voltage Input Circuits



### NOTES:

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





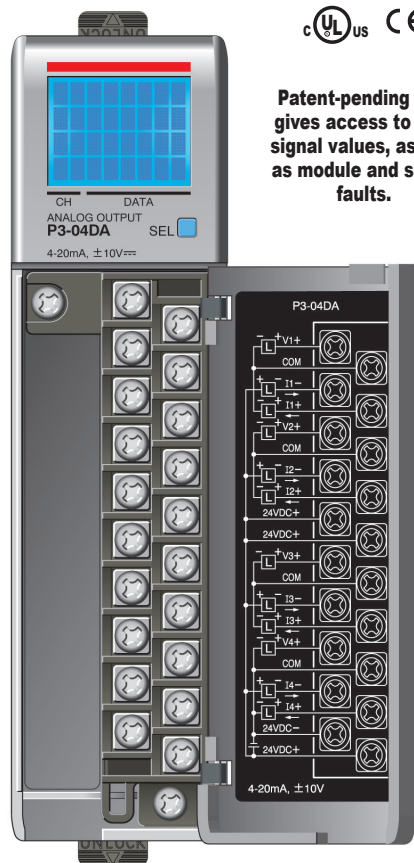
# Analog Output Modules

P3-04DA

\$494.00

## Voltage/Current Analog Output

The P3-04DA Voltage/Current Analog Output Module provides four channels of  $\pm 10\text{VDC}$  or 4–20 mA sink/source selectable outputs.



Patent-pending LCD gives access to field signal values, as well as module and signal faults.

Terminal block sold separately; terminal block cover included with module.

We recommend using prewired **ZIP**Link cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number [P3-RTB](#).



## Output Specifications

<b>Output Channels</b>	4
<b>Module signal output range</b>	$\pm 10\text{V}$ or 4–20 mA sink or source selectable each channel
<b>Signal Resolution</b>	16-bit
<b>Resolution Value of LSB (least significant bit)</b>	$\pm 10\text{V} = 305\mu\text{V}/\text{count}$ 4–20mA = 0.244 $\mu\text{A}/\text{count}$ 1 LSB = 1 count
<b>Data Range</b>	0–65535 counts uni-polar and -32768 to +32767 counts bi-polar
<b>Output Type</b>	Voltage outputs sourcing/sinking at 10mA max, or Current outputs sink or source at 20mA max.
<b>Output Value in Fault Mode</b>	Voltage outputs 0V or 0mA current outputs
<b>Load Impedance (Minimum External Power Supply)</b>	>1000 $\Omega$ (voltage outputs)(19.2–30 VDC) 0–755 $\Omega$ Sinking, 0–600 $\Omega$ Sourcing (19.2 VDC) 0–875 $\Omega$ Sinking, 0–700 $\Omega$ Sourcing (21.6 VDC) 0–1000 $\Omega$ Sinking, 0–855 $\Omega$ Sourcing (24.0 VDC) 0–1110 $\Omega$ Sinking, 0–970 $\Omega$ Sourcing (26.4 VDC) 0–1350 $\Omega$ Sinking, 0–1150V Sourcing (30VDC)
<b>Maximum Capacitive Load</b>	0.01 $\mu\text{F}$ maximum voltage outputs
<b>Maximum Inductive Load</b>	1mH maximum current outputs
<b>Allowed Load Type</b>	Grounded
<b>Maximum Inaccuracy (% of range)</b>	0.1% voltage, 0.1% current (including temperature drift)
<b>Maximum Full Scale Calibration Error (not including offset error)</b>	$\pm 0.025\%$ of range maximum voltage outputs $\pm 0.025\%$ of range maximum current outputs
<b>Accuracy vs. Temperature</b>	$\pm 25\text{PPM}/^\circ\text{C}$ max. f.s. calibration change ( $\pm 0.0025\%$ of range / $^\circ\text{C}$ )
<b>Max Crosstalk</b>	-80dB, 6 LSB
<b>Linearity Error (End to End)</b>	$\pm 16$ LSB maximum ( $\pm 0.025\%$ of full scale) Monotonic with no missing codes
<b>Output Stability and Repeatability</b>	$\pm 10$ LSB after 10 minute warm-up (typical)
<b>Output Ripple</b>	0.05% of Full Scale
<b>Output Settling Time</b>	0.3 ms max., 5 $\mu\text{s}$ min. (full scale change)
<b>All Channel Update Rate</b>	0.6 ms
<b>Maximum Continuous Overload</b>	Voltage Outputs current limited to 35mA typical. Current Outputs open circuit protected
<b>Type of Output Protection</b>	15VDC Peak Output Voltage Current outputs current limited to $\leq 20\text{mA}$
<b>Output Signal (power-up, -down)</b>	0V voltage outputs, 0mA current outputs
<b>External DC Power Required</b>	94mA voltage operation 4 channels 126mA current operation 4 channels 24VDC -20% / + 25%

## Removable Terminal Block Specifications

<b>Description</b>	Part No. P3-RTB; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60 $^\circ\text{C}$ or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in-lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in-lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.



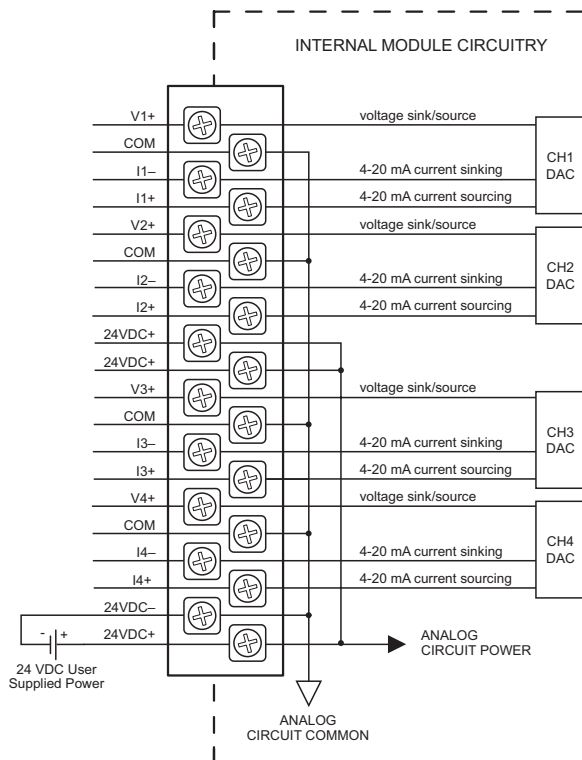
# Analog Output Modules

## P3-04DA (cont'd)

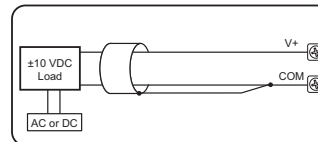
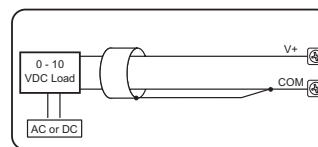
General Specifications	
<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1800VAC applied for 1s
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	2.6 W voltage outputs 3.4 W current outputs
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Terminal Type (not included)</b>	20-position removable terminal block
<b>Weight</b>	105g (3.73 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

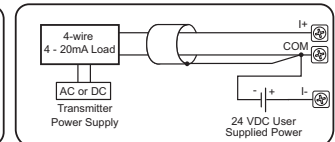
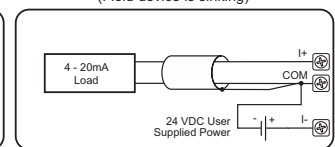
**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**



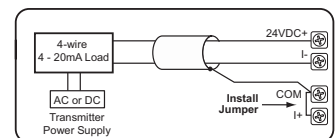
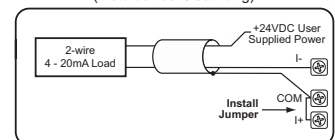
### Voltage Output



### Current Source Output (Field device is sinking)



### Current Sink Output (Field device is sourcing)



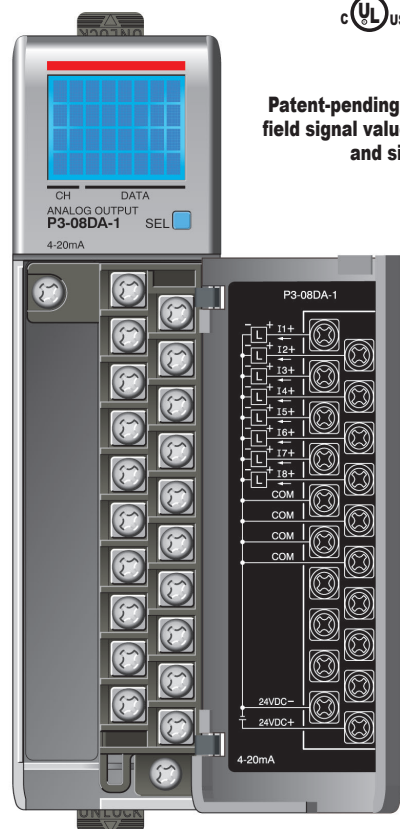
NOTE: Shield is connected to common at the source device.

# Analog Output Modules

## P3-08DA-1 \$857.00

### Current Analog Output

The P3-08DA-1 Current Analog Output Module provides eight channels of 4 to 20mA sourcing outputs.



Patent-pending LCD gives access to field signal values, as well as module and signal faults.

Terminal block sold separately; terminal block cover included with module.

### Removable Terminal Block Specifications

<b>Description</b>	Part No. P3-RTB; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in-lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in-lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number [P3-RTB](#).



**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**

### Output Specifications

<b>Output Channels (commons)</b>	8
<b>Module Signal Output Range</b>	4–20mA
<b>Output Signal Resolution</b>	16-bit
<b>Resolution Value of LSB (least significant bit)</b>	4–20mA = 0.244 $\mu$ A / count 1 LSB = 1 count
<b>Data Range</b>	0 to 65535 counts
<b>Output Type (sourcing)</b>	Current: 20mA max
<b>Output Value in Fault Mode</b>	Near 0mA
<b>Load Impedance</b>	0–570 $\Omega$ (19.2 VDC) 0–690 $\Omega$ (21.6 VDC) 0–810 $\Omega$ (24.0 VDC) 0–930 $\Omega$ (26.4 VDC) 0–1100 $\Omega$ (30.0 VDC) Minimum Load 0 $\Omega$ @ 0–45°C 125 $\Omega$ @ 45–60°C
<b>Maximum Inductive Load</b>	1mH
<b>Allowed Load Type</b>	Grounded
<b>Maximum Inaccuracy</b>	0.1% of range (including temperature drift)
<b>Maximum Full Scale Calibration Error (not including offset error)</b>	$\pm$ 0.025% of range maximum
<b>Maximum Offset Calibration Error</b>	$\pm$ 0.025% of range maximum
<b>Accuracy vs. Temperature</b>	$\pm$ 25PPM/°C maximum full-scale calibration change ( $\pm$ 0.0025% of range / °C)
<b>Max Crosstalk</b>	-96 dB, 1 LSB
<b>Linearity Error (end to end)</b>	$\pm$ 16 LSB maximum ( $\pm$ 0.025% of full scale) monotonic with no missing codes
<b>Output Stability and Repeatability</b>	$\pm$ 10 count after 10 min. warm-up (typical)
<b>Output Ripple</b>	0.05% of full scale
<b>Output Settling Time</b>	0.3 ms max., 5 $\mu$ s min. (full scale change)
<b>All channel Update Rate</b>	0.6 ms
<b>Maximum Continuous Overload</b>	Outputs open circuit protected
<b>Type of Output Protection</b>	Electronically current limited to 20mA or less
<b>Output Signal at Power-up and Power-down</b>	4mA
<b>External DC Power Required</b>	24VDC (-20% / + 25%), 180mA

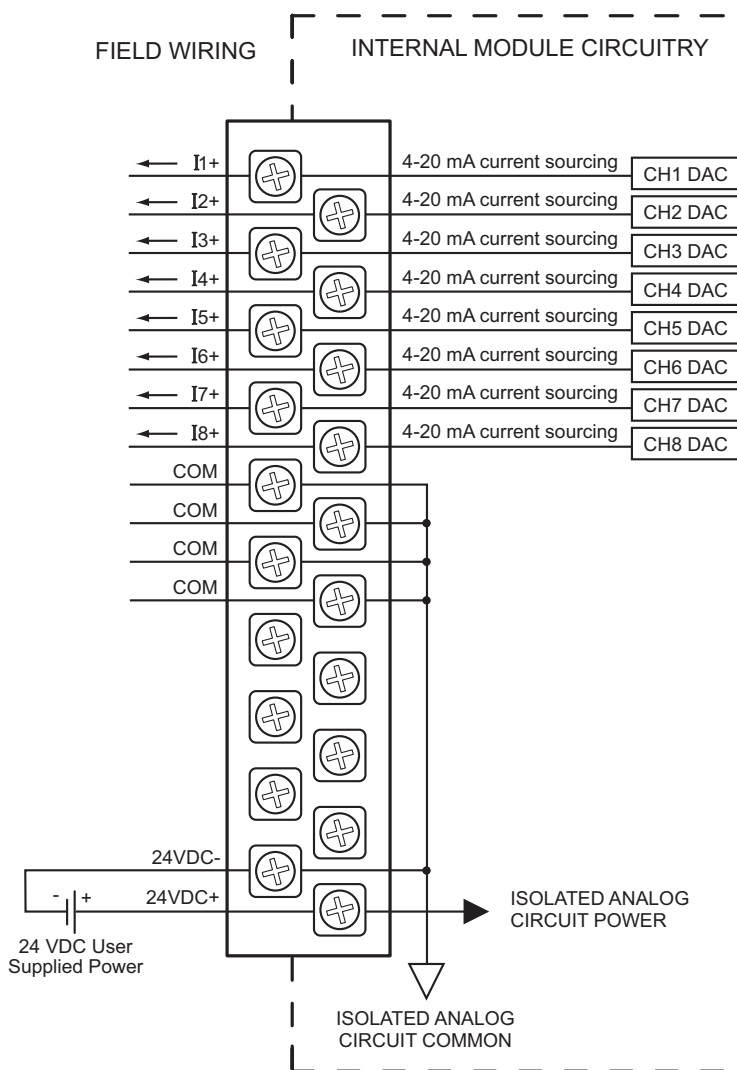
### General Specifications

<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1800VAC applied for 1s
<b>Insulation Resistance</b>	>10M $\Omega$ @ 500VDC
<b>Heat Dissipation</b>	4.7 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Terminal Type (not included)</b>	20-position removable terminal block
<b>Weight</b>	105g (3.73 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

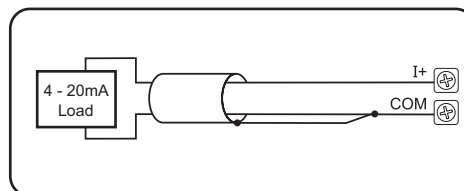
\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

# Analog Output Modules

## P3-08DA-1 (cont'd)



**Current Source Output Circuit**



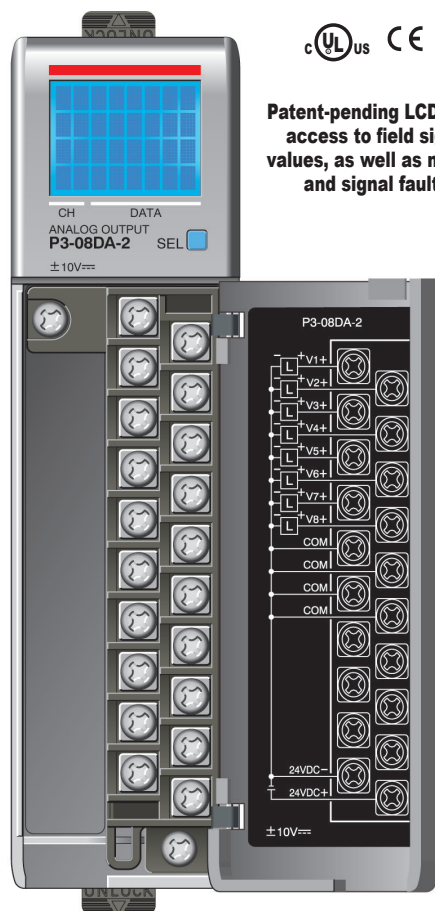
Note: Shield is connected to common at the source device.

# Analog Output Modules

## P3-08DA-2 \$798.00

### Voltage Analog Output

The P3-08DA-2 Voltage Analog Output Module provides eight channels of  $\pm 10$  VDC sinking/sourcing outputs.



Patent-pending LCD gives access to field signal values, as well as module and signal faults.

Terminal block sold separately; terminal block cover included with module.

### Removable Terminal Block Specifications

Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 in-lb (0.882–1.02 N-m) Self-jacking screws - 2.7–3.6 in-lb (0.3–0.4 N-m). Do not overtighten screws when installing terminal block.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number P3-RTB.



### Output Specifications

Output Channels	8
Module Signal Output Range	$\pm 10$ VDC
Output Signal Resolution	16-bit
Resolution Value of LSB (least significant bit)	$\pm 10$ V = 305 $\mu$ V/count 1 LSB = 1 count
Data range	-32768 to +32767
Output Type (sourcing/sinking)	Voltage (10mA max current)
Output Value in Fault Mode	0V
Load Impedance	$\leq 1000\Omega$
Maximum Capacitive Load	0.01 $\mu$ F maximum
Allowed Load Type	Grounded
Maximum Inaccuracy	0.1% of range (including temperature drift)
Maximum Full Scale Calibration Error (not including offset error)	$\pm 0.025\%$ of range maximum
Maximum Offset Calibration Error	$\pm 0.025\%$ of range maximum
Accuracy vs. Temperature	$\pm 25$ PPM/°C maximum full scale calibration change ( $\pm 0.0025\%$ of range / °C)
Max Crosstalk	-96dB, 1 LSB
Linearity Error (End to End)	$\pm 16$ LSB maximum ( $\pm 0.025\%$ of full scale) Monotonic with no missing codes
Output Stability and Repeatability	$\pm 10$ LSB after 10 min. warm-up (typical)
Output Ripple	0.05% of full-scale
Output Settling Time	0.3 ms max., 5 $\mu$ s min. (full scale change)
All Channel Update Rate (typical)	0.6 ms
Maximum Continuous Overload	Outputs current limited to 40mA typical Continuous overloads on multiple outputs can damage the module.
Type of Output Protection	0.1 $\mu$ F Transient Suppressor
Output Signal (power-up, -down)	0V
External DC Power Required	24VDC (-20% / + 25%), 120mA

### General Specifications

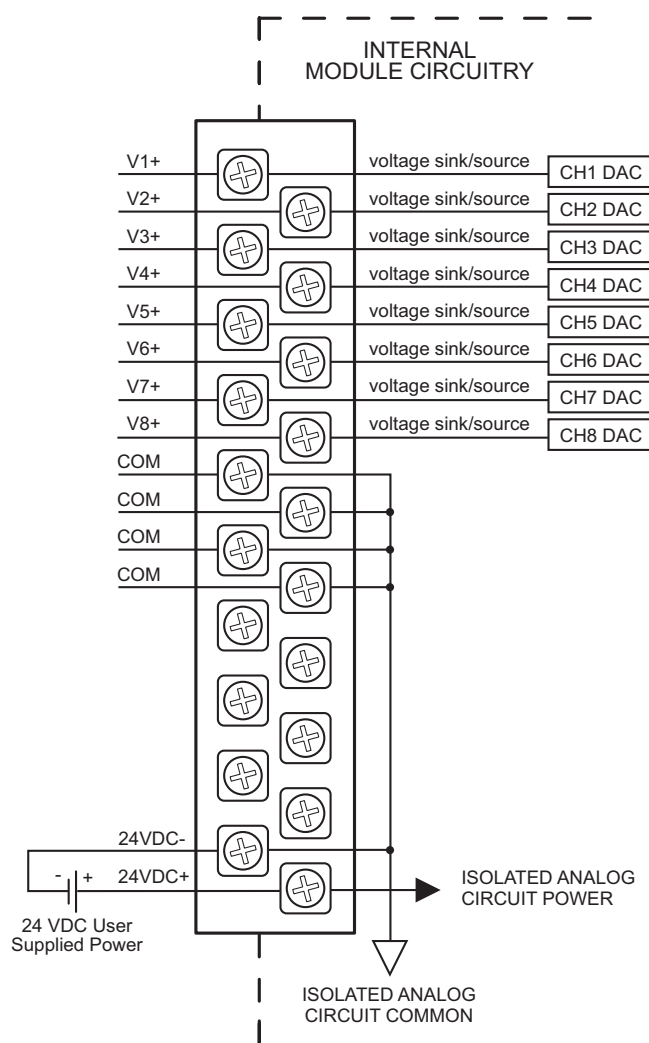
Operating Temperature	0°C– 60°C (32°F–140°F),
Storage Temperature	-20°C–70°C (-4°F–158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1s
Insulation Resistance	>10M $\Omega$ @ 500VDC
Heat Dissipation	3.3 W
Enclosure Type	Open equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
Field Wiring	Removable terminal block (not included). Use ZIPLink wiring system or optional terminal block. See Wiring Solutions.
Terminal Type (not included)	20-position removable terminal block
Weight	105g (3.73 oz)
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

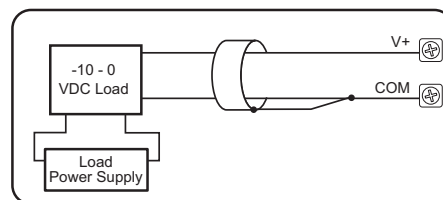
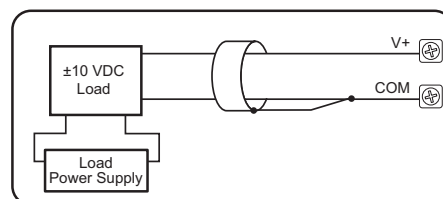
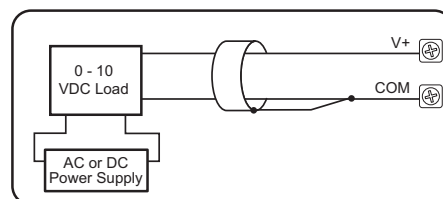
**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**

# Analog Output Modules

## P3-08DA-2 (cont'd)



### Voltage Output Circuits



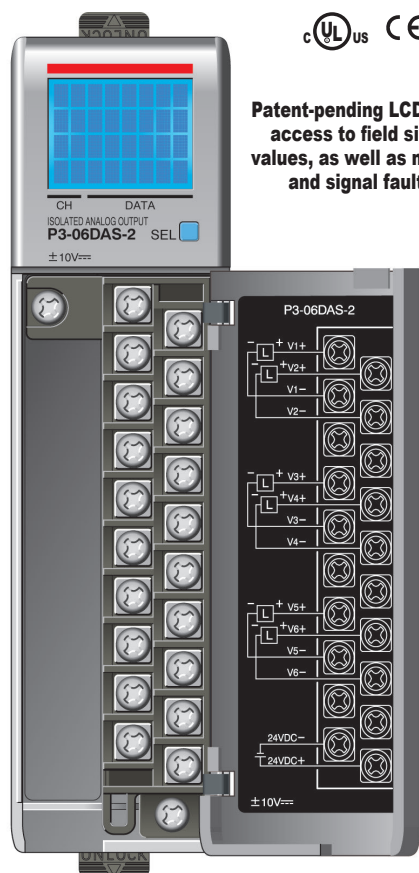


# Analog Output Modules

## P3-06DAS-2 Retired

### Isolated Voltage Analog Output

The P3-06DAS-2 Voltage Analog Output Module provides six channel-to-channel isolated  $\pm 10\text{VDC}$  outputs.



Patent-pending LCD gives access to field signal values, as well as module and signal faults.

Terminal block sold separately; terminal block cover included with module.

### Removable Terminal Block Specifications

<b>Description</b>	Part No. P3-RTB; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number P3-RTB.



### Output Specifications

<b>Output channels</b>	6 (6 isolated)
<b>Module Signal Output Range</b>	$\pm 10\text{V}$
<b>Signal Resolution</b>	16-bit
<b>Resolution Value of LSB (least significant bit)</b>	16-bit Resolution $\pm 10\text{V} = 305\mu\text{V}$
<b>Data Range</b>	-32768 to +32767 counts
<b>Output Type (sourcing/sinking)</b>	Voltage (10mA max current)
<b>Channel to AUX Power Isolation</b>	1800VDC applied for 1.8 second (100% tested)
<b>Channel to Channel Isolation</b>	900VDC applied for 1.8 second (100% tested)
<b>Output Value in Fault Mode</b>	0V
<b>Load Impedance</b>	$\leq 1000\Omega$
<b>Maximum Capacitive Load</b>	0.01 $\mu\text{F}$ maximum
<b>Allowed Load Type</b>	Floating or grounded
<b>Maximum Inaccuracy</b>	$\pm 0.1\%$ of range
<b>Maximum Full Scale Calibration Error (not including offset error)</b>	$\pm 0.065\%$ of range maximum voltage
<b>Maximum Offset Calibration Error</b>	$\pm 0.065\%$ of range maximum
<b>Accuracy vs. Temperature</b>	$\pm 25\text{PPM}/^\circ\text{C}$ maximum f.s. calibration change ( $\pm 0.0025\%$ of range / $^\circ\text{C}$ )
<b>Maximum Crosstalk</b>	-96dB, 1 LSB
<b>Linearity Error (End to End)</b>	$\pm 16$ LSB maximum ( $\pm 0.025\%$ of full scale) Monotonic with no missing codes
<b>Output Stability and Repeatability</b>	$\pm 10$ LSB after 10min warm-up (typical)
<b>Output Ripple</b>	0.01% of full scale
<b>Output Settling Time</b>	0.100 $\mu\text{s}$ max, 40 $\mu\text{s}$ min.(full scale change)
<b>All Channel Update Rate</b>	1.05 ms
<b>Maximum Continuous Overload</b>	Outputs current limited to 15mA typical
<b>Type of Output Protection</b>	15VDC Peak Output Voltage
<b>Output Signal (power-up, -down)</b>	0V
<b>External DC Power Required</b>	24VDC (-20% / + 25%), 287mA

### General Specifications

<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1800VDC applied for 1.8 seconds (100% tested)
<b>Insulation Resistance</b>	>10M $\Omega$ @ 500VDC
<b>Heat Dissipation</b>	5.8 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Terminal Type (not included)</b>	20-position removable terminal block
<b>Weight</b>	108.8 g (3.82 oz.)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

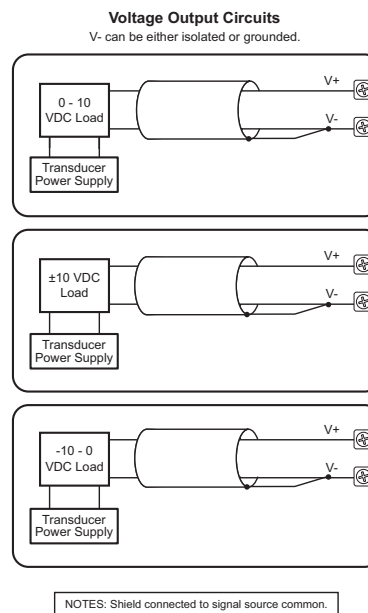
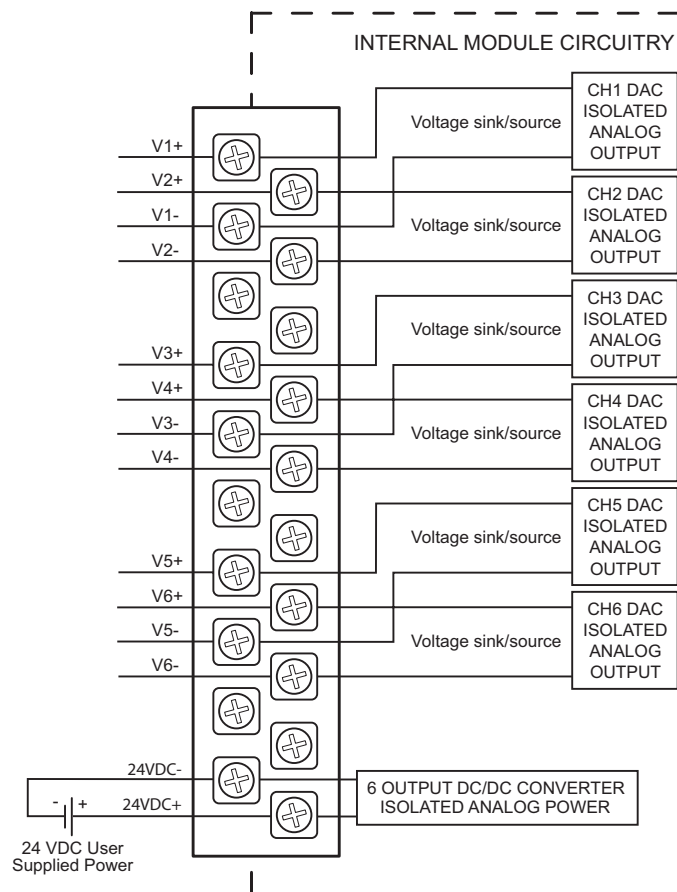
\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**



# Analog Output Modules

## P3-06DAS-2 (cont'd)

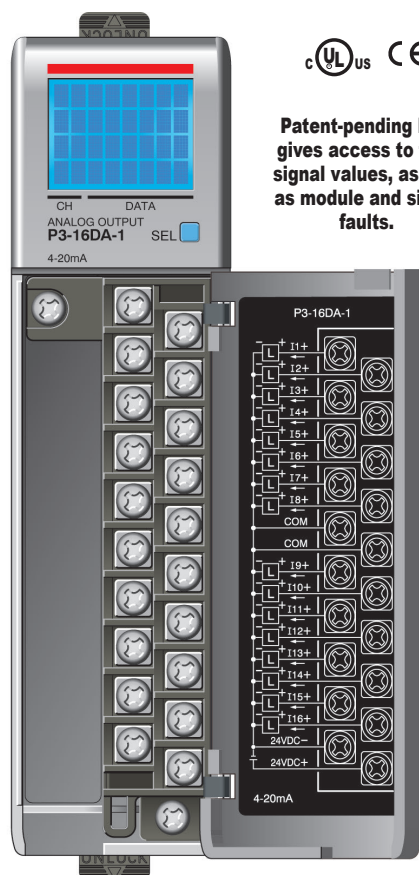


# Analog Output Modules

## P3-16DA-1 \$1,022.00

### Current Analog Output

The P3-16DA-1 Current Analog Output Module provides sixteen channels of 4–20 mA sourcing outputs.



Patent-pending LCD gives access to field signal values, as well as module and signal faults.

Terminal block sold separately; terminal block cover included with module.

### Removable Terminal Block Specifications

Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 in-lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in-lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number [P3-RTB](#).



**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**

### Output Specifications

Output Channels	16 (non-isolated)
Module Signal Output Range	4–20mA
Output Signal Resolution	16-bit
Resolution Value of LSB (least significant bit)	4–20mA = 0.244 $\mu$ A/count 1 LSB = 1 count
Data Range	0 to 65535 counts
Output Value in Fault Mode	Less than 4mA
Load Impedance (Minimum External Power Supply)	0–570 $\Omega$ (19.2 VDC) 0–690 $\Omega$ (21.6 VDC) 0–810 $\Omega$ (24.0 VDC) 0–930 $\Omega$ (26.4 VDC) 0–1100 $\Omega$ (30.0 VDC) Minimum Load 0 $\Omega$ 0–45°C, 125 $\Omega$ 45–60°C, ambient
Maximum Inductive Load	1 mH
Allowed Load Type	Grounded
Maximum Inaccuracy	0.1% of range (including temperature drift)
Maximum Full Scale Calibration Error (not including offset error)	$\pm$ 0.025% of range maximum
Maximum Offset Calibration Error	$\pm$ 0.025% of range maximum
Accuracy vs. Temperature	$\pm$ 25PPM/°C maximum full scale calibration change ( $\pm$ 0.0025% of range / °C)
Max Crosstalk	-96dB, 1 LSB
Linearity Error (end to end)	$\pm$ 16 LSB maximum ( $\pm$ 0.025% of full scale) monotonic with no missing codes
Output Stability and Repeatability	$\pm$ 10 LSB after 10 min. warm-up (typical)
Output Ripple	0.05% of full scale
Output Settling Time	0.3 ms max., 5 $\mu$ s min. (full scale change)
All Channel Update Rate	0.6 ms
Maximum Continuous Overload	Outputs open circuit protected
Type of Output Protection	Electronically current limited to 20mA or less
Output Signal at Power-up and Power-down	4mA
External DC Power Required	24VDC (-20% / + 25%), 356mA

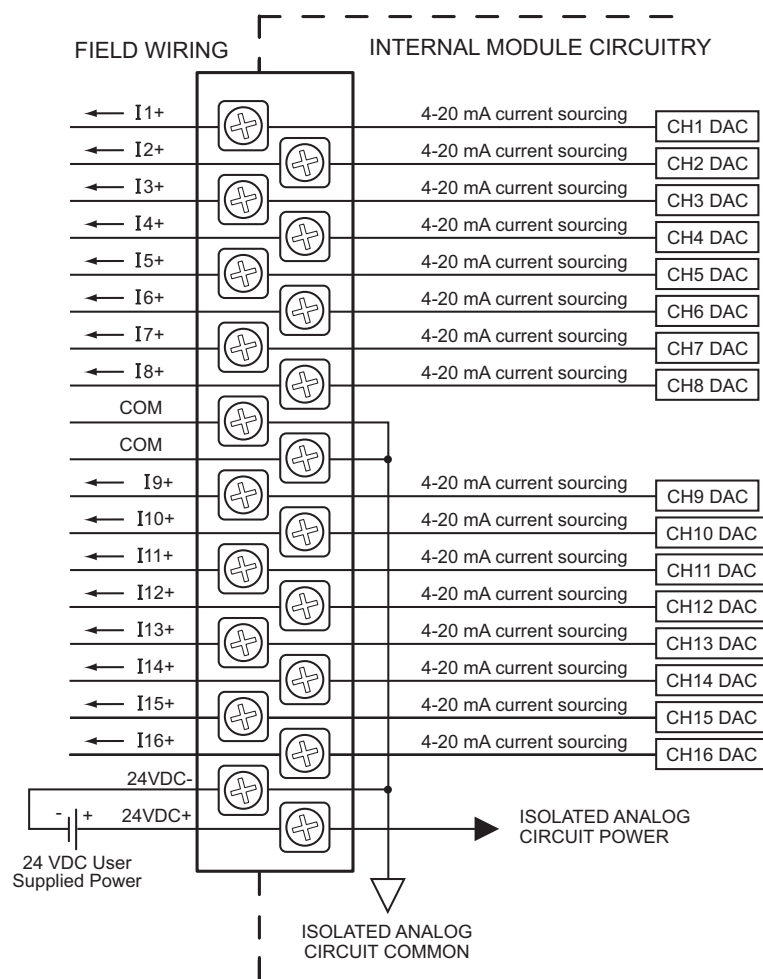
### General Specifications

Operating Temperature	0°C– 60°C (32°F–140°F),
Storage Temperature	-20°C–70°C (-4°F–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 1s
Insulation Resistance	>10M $\Omega$ @ 500VDC
Heat Dissipation	9.0 W
Enclosure Type	Open equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
Field Wiring	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
Terminal Type (not included)	20-position removable terminal block
Weight	105g (3.73 oz)
Agency Approvals	UL508 and UL1604 (Certified for Canada and USA) CE (EN61131-2:2003) This equipment is suitable for use in Class I, Division 2/Zone 2, Groups A, B, C, and D or non-hazardous locations only.

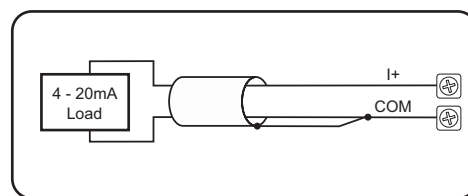
\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

# Analog Output Modules

## P3-16DA-1 (cont'd)



**Current Source Output Circuit**



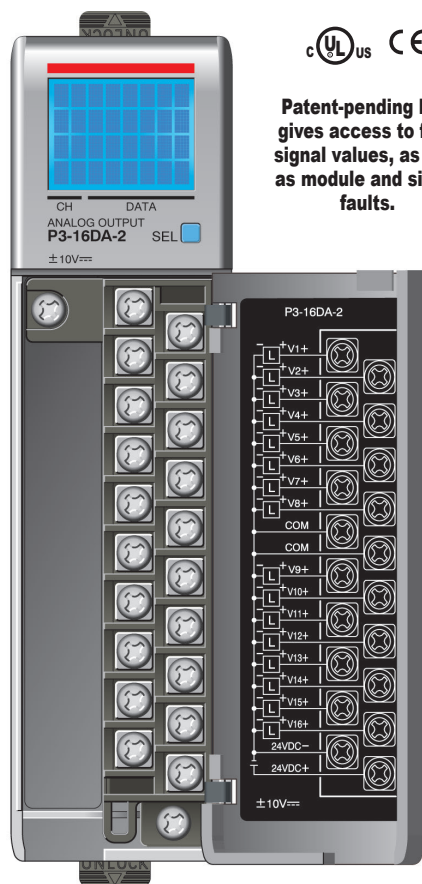
NOTE: Shield is connected to common at the source device.

# Analog Output Modules

## P3-16DA-2 \$1,002.00

### Voltage Analog Output

The P3-16DA-2 Voltage Analog Output Module provides sixteen channels of  $\pm 10$ VDC outputs.



Patent-pending LCD gives access to field signal values, as well as module and signal faults.

Terminal block sold separately; terminal block cover included with module.

### Removable Terminal Block Specifications

<b>Description</b>	Part No. P3-RTB; 20 screw terminals
<b>Wire Range</b>	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
<b>Screw Driver Width</b>	1/4 inch (6.5 mm) maximum
<b>Screw Size</b>	M3 size
<b>Screw Torque</b>	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number [P3-RTB](#).



### Output Specifications

<b>Output Channels</b>	16
<b>Module Signal Output Range</b>	$\pm 10$ VDC
<b>Output Signal Resolution</b>	16-bit
<b>Resolution Value of LSB (least significant bit)</b>	$\pm 10$ V = 305 $\mu$ V/count 1 LSB = 1 count
<b>Data Range</b>	-32768 to +32767
<b>Output type (sourcing/sinking)</b>	Voltage (10mA max current)
<b>Output Value in Fault Mode</b>	0V
<b>Output Impedance</b>	0.2 $\Omega$ typical
<b>Load Impedance</b>	$\leq 1000 \Omega$
<b>Maximum Capacitive Load</b>	0.01 $\mu$ F maximum
<b>Allowed Load Type</b>	Grounded
<b>Maximum Inaccuracy</b>	0.1% of range (including temperature drift)
<b>Maximum Full Scale Calibration Error (not including offset error)</b>	$\pm 0.025\%$ of range maximum
<b>Maximum Offset Calibration Error</b>	$\pm 0.025\%$ of range maximum
<b>Accuracy vs. Temperature</b>	$\pm 25$ PPM/°C maximum f.s. calibration change ( $\pm 0.0025\%$ of range / °C)
<b>Max Crosstalk</b>	-96dB, 1 LSB
<b>Linearity Error (end to end)</b>	$\pm 16$ LSB maximum ( $\pm 0.025\%$ of full scale) Monotonic with no missing codes
<b>Output Stability and Repeatability</b>	$\pm 10$ LSB after 10 min. warm-up (typical)
<b>Output Ripple</b>	0.05% of full scale
<b>Output Settling Time</b>	0.3 ms max, 5 $\mu$ s min. (full scale change)
<b>All Channel Update Rate</b>	0.6 ms
<b>Maximum Continuous Overload</b>	Outputs current limited to 40mA typical Continuous overloads on multiple outputs can damage the module.
<b>Type of Output Protection</b>	0.1 $\mu$ F Transient Suppressor
<b>External DC Power Required</b>	24VDC (-20% / + 25%), 252mA

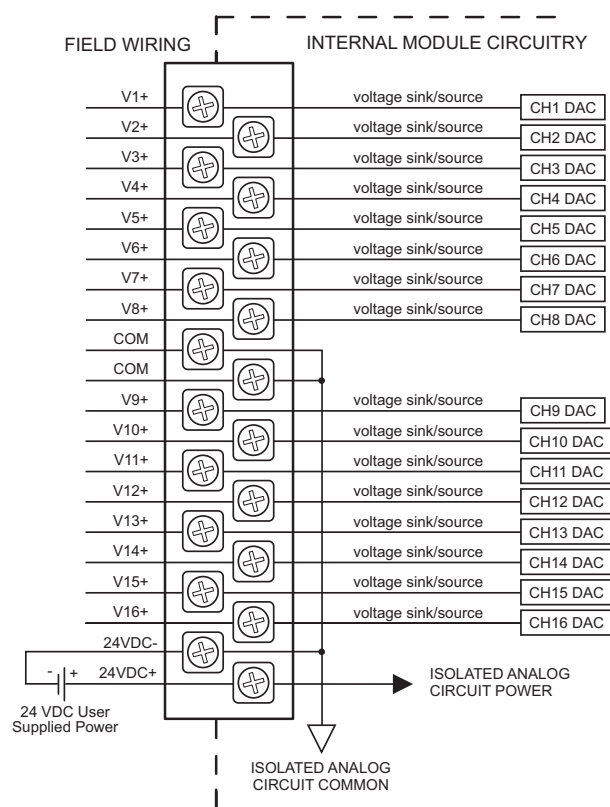
### General Specifications

<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1800VAC applied for 1s
<b>Insulation Resistance</b>	>10M $\Omega$ @ 500VDC
<b>Heat Dissipation</b>	6.4 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Terminal Type (not included)</b>	20-position removable terminal block
<b>Weight</b>	105g (3.73 oz)
<b>Agency Approvals</b>	UL508 and UL1604 (Certified for Canada and USA) CE (EN61131-2*) This equipment is suitable for use in Class I, Division 2/Zone 2, Groups A, B, C, and D or non-hazardous locations only.

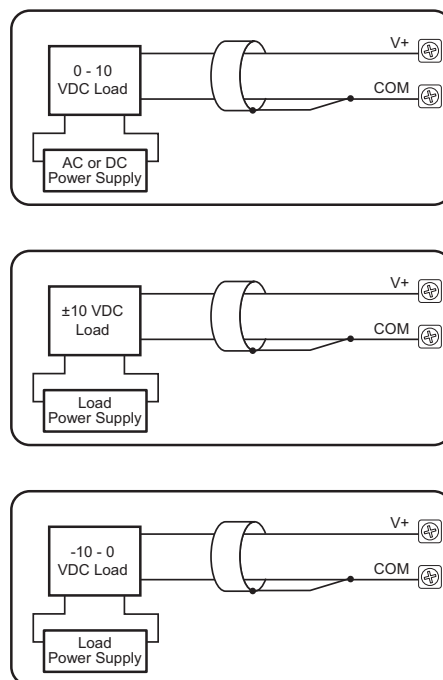
\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

# Analog Output Modules

## P3-16DA-2 (cont'd)



### Voltage Output Circuits



# Analog Input/Output Modules

## P3-8AD4DA-1 \$658.00

### Current Analog Input/Output

The P3-8AD4DA-1 Current Analog Input/Output Module provides eight channels of current sinking 0–20 mA inputs and four channels of current sourcing 4–20 mA outputs.



Patent-pending LCD gives access to field signal values, as well as module and signal faults.

Terminal block sold separately; terminal block cover included with module.

### Removable Terminal Block Specifications

Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number [P3-RTB](#).



### Input Specifications

Input channels	8 (1 common)
Module Signal Input Range	0–20mA
Signal Resolution	12–16-bit, depending on input resolution
Input Resolution & Update Rate See Note 1	Fine: 7.1 ms, 0.305 $\mu$ A, 16-bit Medium: 1.78 ms, 1.22 $\mu$ A, 14-bit Coarse: 444 $\mu$ s, 4.88 $\mu$ A, 12-bit
Data Range	0–65535 counts
Input Type	Single Ended (one common)
Maximum Continuous Overload	$\pm$ 31mA
Input Impedance	250 $\Omega$ $\pm$ 0.1% 1/4W
Hardware Filter Characteristics	Low pass 1st order, -3dB @ 48Hz
All Channel Update Rate See Note 2	Fine: 56.8 ms Medium: 14.24 ms Coarse: 3.55 ms
All Channel Update Rate	56.8 ms
Open Circuit Detection Time	Zero reading within 1s
Conversion Method	Successive approximation
Accuracy vs. Temperature	$\pm$ 15PPM / °C maximum
Maximum Inaccuracy	0.1% of range
Linearity Error (end to end)	0.015% of range maximum Monotonic with no missing codes
Input Stability and Repeatability	$\pm$ 0.015% of range (after 10 min. warm up)
Full Scale Calibration Error (not including offset)	$\pm$ 0.05% of range maximum
Offset Calibration Error	$\pm$ 0.05% of range maximum
Maximum Crosstalk	-96dB $\pm$ 1 - 0.015% of full scale maximum
Recommended Fuse (external)	Edison S500-32-R, 0.032 A fuse
External DC Power Required	24VDC (-20% / + 25%), 183mA maximum

Note 1: The Input Resolution of Fine returns 16-bit resolution. Medium and Coarse are 14 and 12-bit respectively. The 12 and 14-bit input values are scaled to 0-65535.

Note 2: Valid when all channels are set for the same Input Resolution.

### Output Specifications

Outputs per module	4 (1 common)
Module signal output range	4–20mA
Output Signal resolution	16-bit
Resolution Value of LSB (least significant bit)	0.244 $\mu$ A/count 1 LSB = 1 count
Data Range	0–65535 counts
Output Type	Current sourcing, 20mA max
Output Value in Fault Mode	$\leq$ 4mA
Load Impedance (Minimum Ext. Power Supply)	0–480 $\Omega$ (19.2 VDC)      0–840 $\Omega$ (26.4 VDC) 0–600 $\Omega$ (21.6 VDC)      0–1010 $\Omega$ (30.0 VDC) 0–715 $\Omega$ (24.0 VDC)
Maximum Inductive Load	1mH
Allowed Load Type	Grounded
Maximum Inaccuracy	$\pm$ 0.1% of range
Maximum Full Scale Calibration Error (not including offset error)	$\pm$ 0.065% of full scale
Maximum Offset Calibration Error	$\pm$ 0.065% of full scale
Accuracy vs. Temperature	$\pm$ 15PPM/ °C maximum full scale calibration change ( $\pm$ 0.025% of range / °C)
Maximum Crosstalk	-96dB
Linearity Error (end to end)	$\pm$ 0.015% of range maximum Monotonic with no missing codes
Output Stability and Repeatability	$\pm$ 0.015% after 10 min. warm-up typical
Output Ripple	0.01% of Full Scale at 50/60 Hz
Output Settling Time	Rising Time 200 $\mu$ s; Falling Time 135 $\mu$ s; (full scale change)
All Channel Update Rate	3.55 ms
Maximum Continuous Overload	Outputs open circuit protected
Type of Output Protection	Electronically current limited to 20mA or less
Output Signal (power-up, -down)	m 4mA

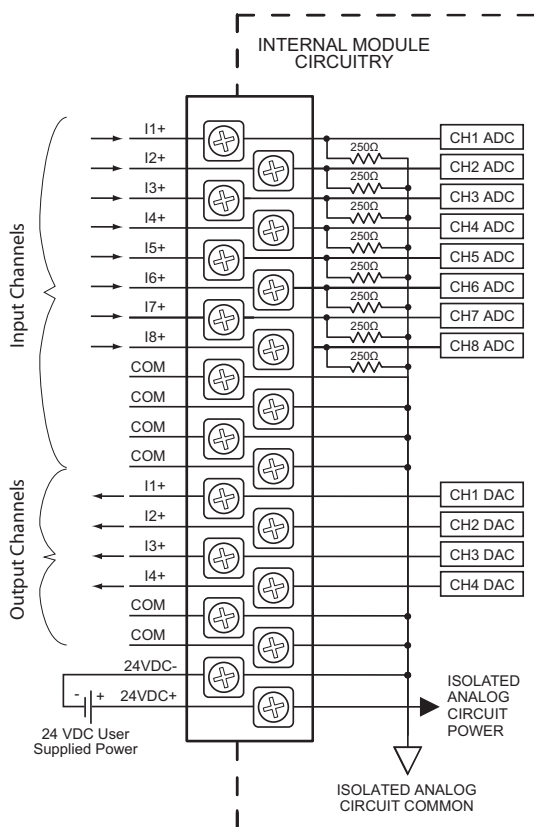


# Analog Input/Output Modules

## P3-8AD4DA-1 (cont'd)

General Specifications	
<b>Operating Temperature</b>	0°C–60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1800VAC applied for 1s
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	3.8 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Terminal Type (not included)</b>	20-position removable terminal block
<b>Weight</b>	106.9 g (3.76 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

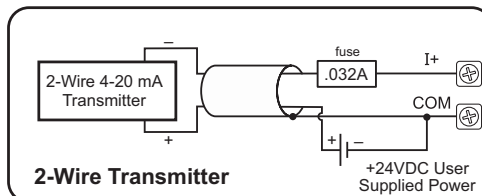
\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.



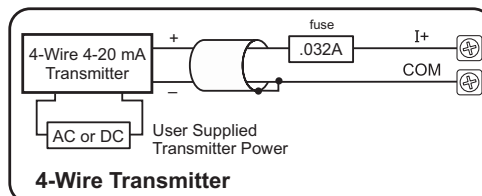
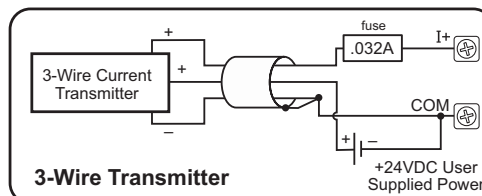
Note: This module includes input and output channels. Before connecting field wiring, verify that you are connecting to the appropriate terminals.

**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**

### Current Input Circuits

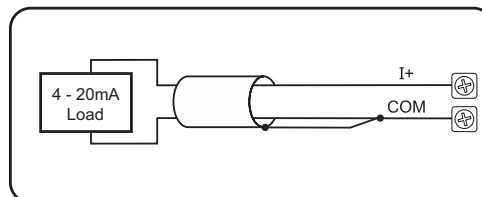


An Edison S500-32-R 0.032A fast-acting fuse is recommended for all current loops.



Note: Do not connect both ends of shield.

### Current Output Circuits



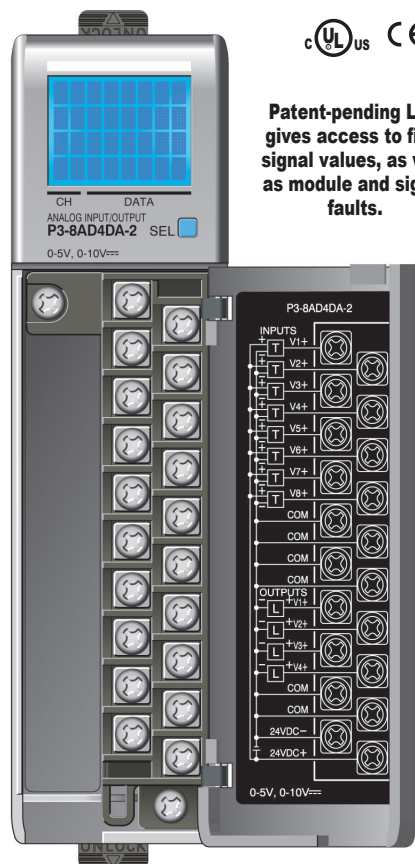
Note: Shield is connected to common at the source device.

# Analog Input/Output Modules

## P3-8AD4DA-2 \$679.00

### Voltage Analog Input/Output

The P3-8AD4DA-2 Voltage Analog Input/Output Module provides eight channels of 0-5 VDC and 0-10 VDC inputs and four channels of 0-5 VDC and 0-10 VDC outputs.



Patent-pending LCD gives access to field signal values, as well as module and signal faults.

Terminal block sold separately; terminal block cover included with module.

### Removable Terminal Block Specifications

Description	Part No. <a href="#">P3-RTB</a> ; 20 screw terminals
Wire Range	22-14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7-9 in-lb (0.882-1.02 N-m) Self-jacking screws - 2.7-3.6 in-lb (0.3-0.4 N-m). Do not overtighten screws when installing terminal block.

We recommend using prewired **ZIPLink** cables and connection modules. See Wiring Solutions.

Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number [P3-RTB](#).



### Input Specifications

Input channels	8 inputs (1 common)
Input ranges	0-5V, 0-10V
Signal resolution	12-16-bit, depending on input resolution
0-5 V Input Resolution & Update Rate See Note 1	Fine: 7.1 ms, 76µV, 16-bit Medium: 1.78 ms, 305µV, 14-bit Coarse: 444µs, 1.22 mV, 12-bit
0-10 V Input Resolution & Update Rate See Note 1	Fine: 7.1 ms, 152µV, 16-bit Medium: 1.78 ms, 610µV, 14-bit Coarse: 444µs, 2.44 mV, 12-bit
Data Range	0-65535 counts
Maximum continuous overload	±100V, voltage input
Input impedance	1MΩ (± 10%) voltage input
Hardware Filter Characteristics	Low pass 1st order, -3dB @ 80Hz
All Channel Update Rate See Note 2	Fine: 56.8 ms Medium: 14.24 ms Coarse: 3.55 ms
Conversion Method	Successive Approximation
Accuracy vs. Temperature	±15PPM / °C maximum
Maximum Inaccuracy	0.1% of range
Linearity Error (end to end)	±0.015% of range maximum Monotonic with no missing codes
Input Stability and Repeatability	± 0.025% of range (after 10 min. warm up)
Full Scale Calibr. Error (minus offset)	±0.05% of range maximum
Offset Calibration Error	±0.05% of range maximum
Max Crosstalk	-96dB
External DC Power Required	24VDC (-20% / + 25%), 90mA maximum

Note 1: The Input Resolution of Fine returns 16-bit resolution. Medium and Coarse are 14 and 12-bit respectively. The 12 and 14-bit input values are scaled to 0-65535.

Note 2: Valid when all channels are set for the same Input Resolution.

### Output Specifications

Output channels	4 (1 common)
Output ranges	0-10V, 0-5V
Output Signal resolution	16-bit
Resolution Value of LSB (least significant bit)	0-5V = 76µV/count 0-10V = 152µV/count 1 LSB = 1 count
Data Range	0-65535 counts
Output Type	Voltage sourcing/sinking at 10mA max.
Output Value in Fault Mode	0V
Load Impedance	≤1125Ω
Maximum capacitive load	0.01 µF maximum
Allowed Load Type	Grounded
Maximum Inaccuracy	0.1% of range
Maximum Full Scale Calibration Error (not including offset error)	±0.065% of range maximum
Maximum Offset Calibration Error	±0.065% of range maximum
Accuracy vs. Temperature	±25PPM/ °C maximum full scale calibration change (± 0.0025% of range / °C)
Max Crosstalk	-96dB
Linearity Error (end to end)	0.015% of full scale Monotonic with no missing codes
Output Stability and Repeatability	±0.015% after 10 min. warm-up typical
Output Ripple	0.01% of Full Scale at 50/60 Hz
Output Settling Time	0.5 ms max, 5µs min. (full scale change)
All Channel Update Rate	5ms
Maximum Continuous Overload	Outputs current limited to 15mA typical
Type of Output Protection	15VDC peak output voltage
Output Signal (power-up, -down)	0V

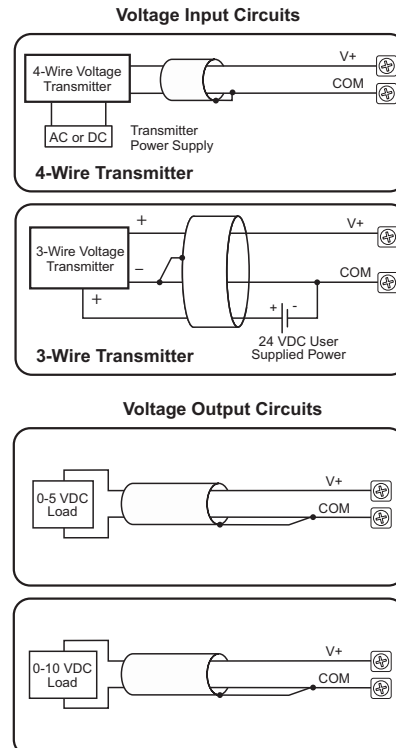
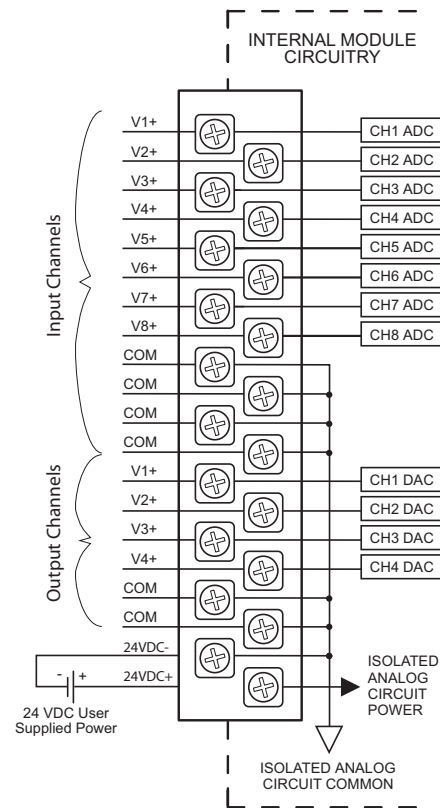
# Analog Input/Output Modules

## P3-8AD4DA-2 (cont'd)

General Specifications	
<b>Operating Temperature</b>	0°C–60°C (32°F–140°F),
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1800VAC applied for 1s
<b>Insulation Resistance</b>	>10MΩ @ 500 VDC
<b>Heat Dissipation</b>	2.5 W
<b>Enclosure Type</b>	Open equipment
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Removable terminal block (not included). Use <b>ZIPLink</b> wiring system or optional terminal block. See Wiring Solutions.
<b>Terminal Type (not included)</b>	20-position removable terminal block
<b>Weight</b>	105g (3.73 oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

**WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**

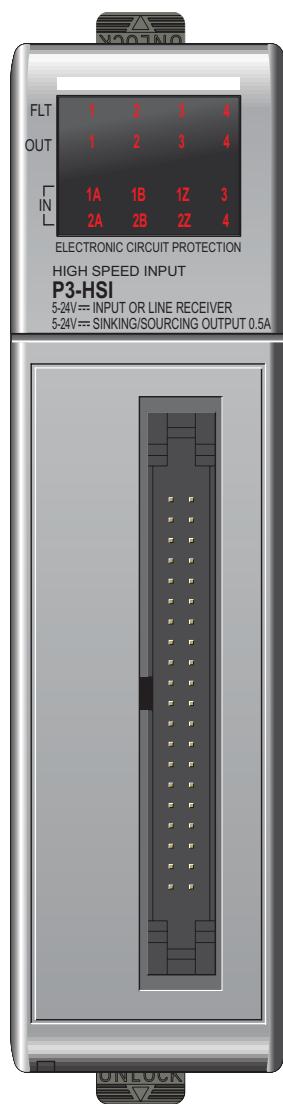


Note: This module includes input and output channels. Before connecting field wiring, verify that you are connecting to the appropriate terminals.

# Specialty Modules

## P3-HSI \$619.00

High-Speed Pulse Input The P3-HSI is a high-speed pulse (1MHz) input module that has both differential and single ended inputs. This module accepts Pulse/Direction and Quadrature signals on each of the two independent input channels. It also provides four general purpose high-speed inputs and four general purpose 5–24 VDC 0.5 amp, outputs.



No terminal block sold for this module; ZIPLink required.

General Specifications	
<b>Module Type</b>	Intelligent
<b>Modules per Base</b>	11 Max
<b>I/O Points Used</b>	None, mapped directly to tags in CPU
<b>Surrounding Air Temperature</b>	0°C– 60°C (32°F–140°F)
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1800VAC applied for 1s
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	5.76 W
<b>Enclosure Type</b>	Open equipment
<b>Emissions</b>	EN61000-6-4 (Conducted and radiated RF emissions)
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Use ZIPLink wiring system. See Wiring Solutions.
<b>Weight</b>	113.4 g (4oz)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA CE (EN61131-2*)

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Power Specifications	
<b>External Power</b>	24VDC +10%/-15%, Class 2
<b>Maximum Voltage</b>	26.4 VDC
<b>Minimum Voltage</b>	20.4 VDC
<b>Current Consumption Excluding Outputs</b>	47mA
<b>Maximum Current Consumption Total of the 4 Status Outputs</b>	2A

Connector Specifications	
<b>Connector Type</b>	IDC style header with latch, Omron XG4A-4034
<b>Number of Pins</b>	40 point
<b>Pitch</b>	0.1 in. (2.54 mm)

See Wiring Solutions for part numbers of ZIPLink cables and connection modules required with this I/O module.



**NOTE:** The most recent Productivity Suite software and firmware versions may be required to support new modules and new features.

# Specialty Modules

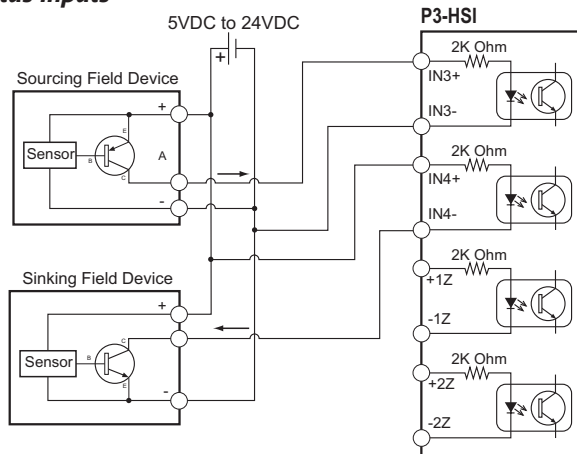
## P3-HSI (cont'd)

### Single Ended (5-24V) Input Specifications

<b>Status Input</b>	Single ended inputs (8 pts: 1A, 1B, 1Z, 2A, 2B, 2Z, 3IN, 4IN)
<b>Isolation</b>	Each input is isolated from other circuits
<b>Input Volts Range</b>	5–24 VDC
<b>Input Volts Maximum</b>	±34 VDC, limited by protection
<b>Input Impedance</b>	1k $\Omega$ min., 5k $\Omega$ max.
<b>Inputs Rated Current</b>	5–24 VDC, 16mA 5.2 mA typ. @ 5VDC 22mA max. @ 34VDC
<b>Input Minimum ON Voltage</b>	4.5 VDC
<b>Input Maximum OFF Voltage</b>	2.0 VDC
<b>Input Minimum ON Current</b>	5.0 mA
<b>Input Maximum OFF Current</b>	1.4 mA
<b>OFF to ON Response Time</b>	1A, 1B, 2A, 2B: 0.48 $\mu$ s 1Z, 2Z, 3IN, 4IN: 6 $\mu$ s
<b>ON to OFF Response Time</b>	1A, 1B, 2A, 2B: 0.48 $\mu$ s 1Z, 2Z, 3IN, 4IN: 6 $\mu$ s
<b>Max. Input Frequency</b>	1A, 1B, 2A, 2B: 200kHz* 1Z, 2Z, 3IN, 4IN: 200kHz*

\* Inputs are not limited to this speed but single ended signals are not usually reliable above 200kHz due to cabling capacitance.

### Status Inputs



### Differential (5V) Input Specifications

<b>Pulse Inputs</b>	Differential inputs (6 pts: 1A, 1B, 1Z, 2A, 2B, 2Z)
<b>Isolation</b>	Each input is isolated from other circuits
<b>Input Signal Type, per Channel Select</b>	Differential
<b>Input Volts</b>	5VDC
<b>Input Volts Maximum</b>	±5.6 VDC, limited by protection
<b>Input Impedance</b>	200 $\Omega$ min., 500 $\Omega$ max.
<b>Inputs Rated Current</b>	5VDC, 15mA (8mA typ., 15mA max.)
<b>Input Minimum ON Voltage</b>	3.0 VDC
<b>Input Maximum OFF Voltage</b>	1.0 VDC
<b>Input Minimum ON Current</b>	5.0 mA
<b>Input Maximum OFF Current</b>	2.0 mA
<b>OFF to ON Response Time</b>	1A, 1B, 2A, 2B: 0.48 $\mu$ s 1Z, 2Z, 3IN, 4IN: 6 $\mu$ s
<b>ON to OFF Response Time</b>	1A, 1B, 2A, 2B: 0.48 $\mu$ s 1Z, 2Z, 3IN, 4IN: 6 $\mu$ s
<b>Max. Input Frequency</b>	1A, 1B, 2A, 2B: 1MHz 1Z, 2Z, 3IN, 4IN: 300kHz*

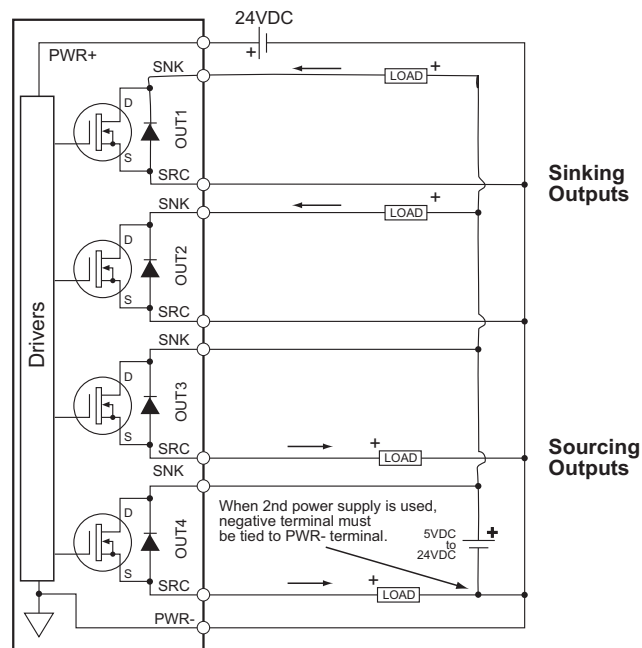
### Status Output Specifications

<b>Status Outputs</b>	4 Outputs	
<b>Output Signal Type, per Output</b>	Current Sinking	Current Sourcing
<b>Operating Voltage<sup>1</sup></b>	5–24 VDC	5–24 VDC <sup>1</sup>
<b>Output Volts Maximum</b>	36VDC	26.4 VDC <sup>1</sup>
<b>Output Current Maximum</b>	500mA	500mA
<b>Overcurrent Protection</b>	Short circuit detect and current limit with automatic retry for each output	
<b>Output Self Limiting Current</b>	1.2 to 2.4 amps	
<b>Max. Inrush Current</b>	Self limited	
<b>Output Voltage Drop</b>	0.7 VDC @ 0.5 A	0.7 VDC @ 0.5 A
<b>Thermal Protection</b>	Independent over-temperature protection each output	
<b>Output Voltage Clamp During Inductive Switching</b>	+45VDC	-20VDC
<b>Maximum OFF to ON Response</b>	25ms <sup>2</sup>	
<b>Maximum ON to OFF Response</b>	25ms <sup>2</sup>	

#### Notes:

1. Operating voltage of current sourcing outputs must be no greater than external power.
2. Measured at 5VDC operating voltage, 0.5 A load current.

### Status Outputs



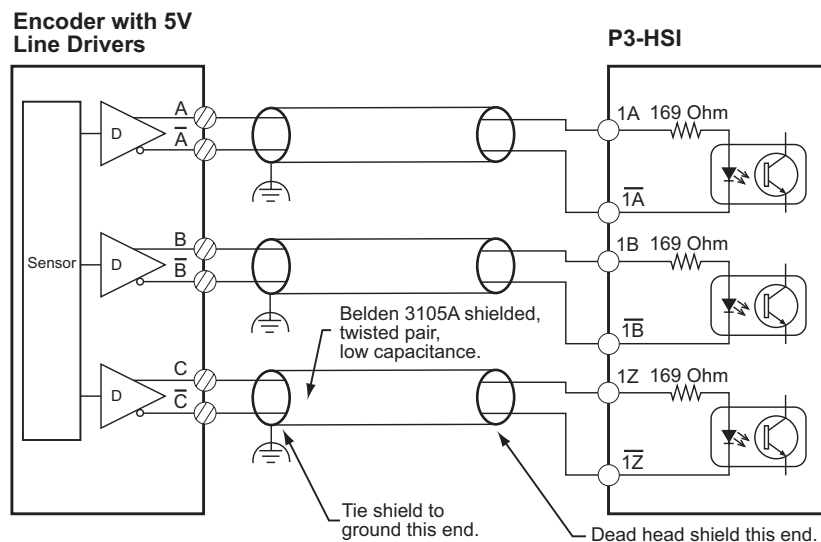
Note: The voltage difference between the input pairs must be between 3–5.6 volts.  
\* The Z pulse input (1Z & 2Z) is capable of capturing a 1 MHz wide pulse for the purpose of resetting an encoder count but a 3 microsecond pause (300kHz) is required between pulses.

# Specialty Modules

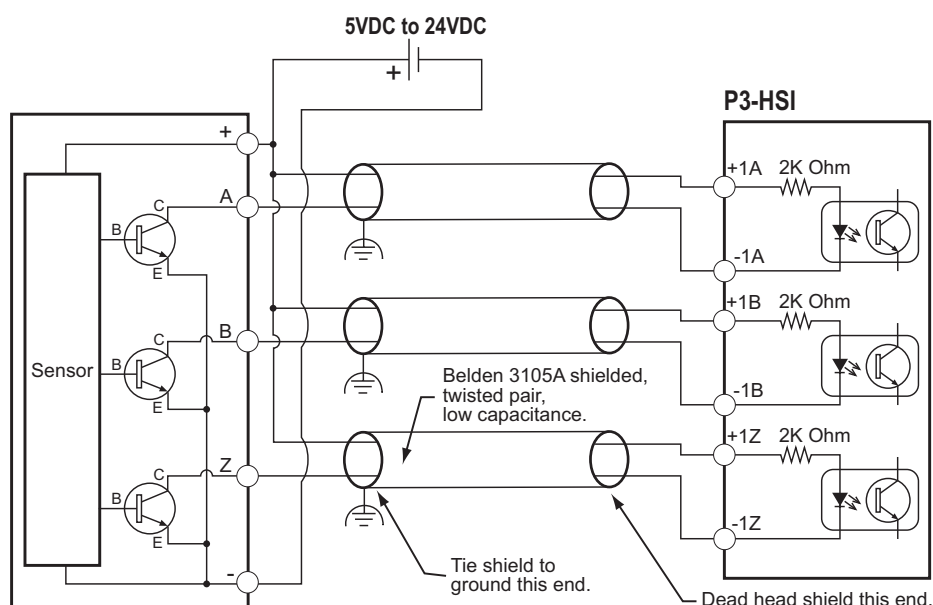
## P3-HSI (cont'd)

### 5V Encoder Inputs

To prevent damage to P3-HSI 5V inputs, do not exceed 6.8 V or 30mA on inputs 1A, 1 $\bar{A}$ , 1B, 1 $\bar{B}$ , 1Z, 1 $\bar{Z}$ , 2A, 2 $\bar{A}$ , 2B, 2 $\bar{B}$ , 2Z, & 2 $\bar{Z}$ .



### 24V Encoder Inputs



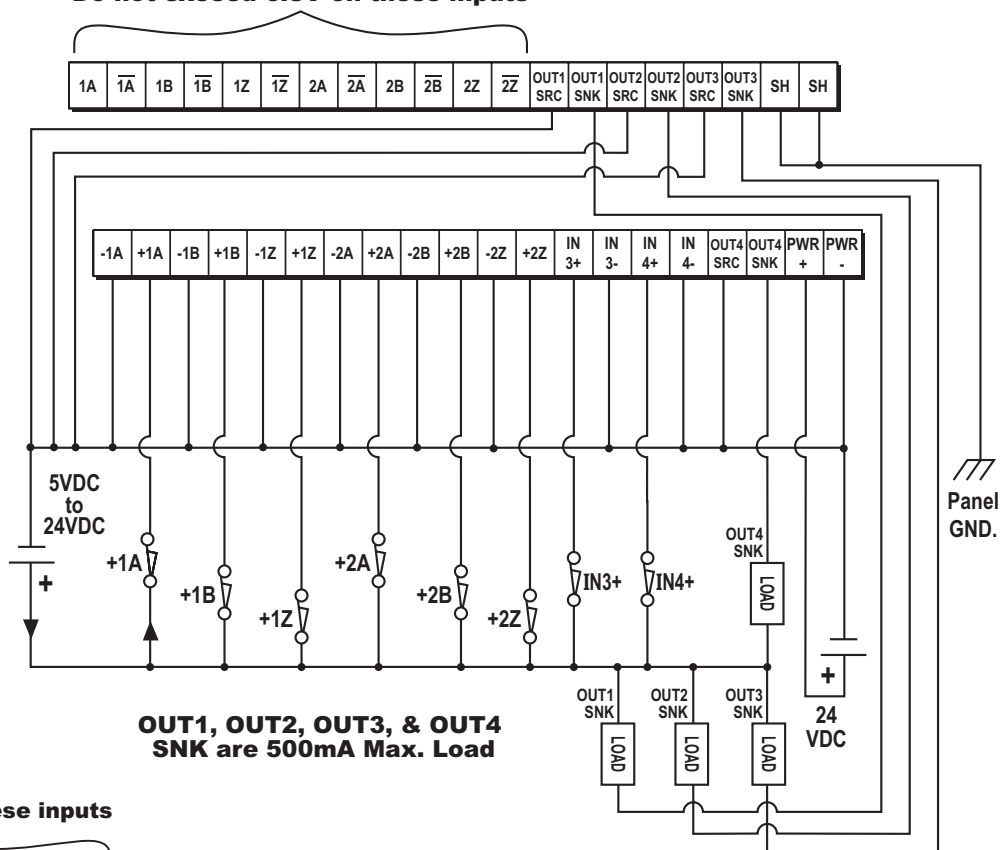


# Specialty Modules

## P3-HSI (cont'd)

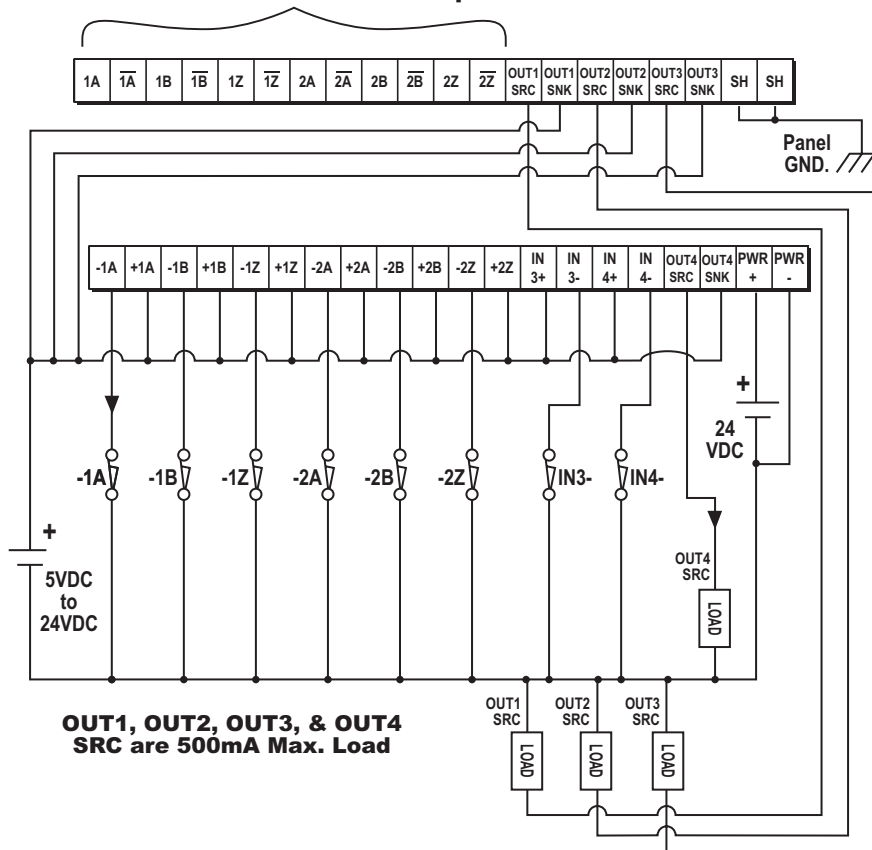
### Sinking I/O Wiring Diagram

Do not exceed 6.8V on these inputs



### Sourcing I/O Wiring Diagram

Do not exceed 6.8V on these inputs



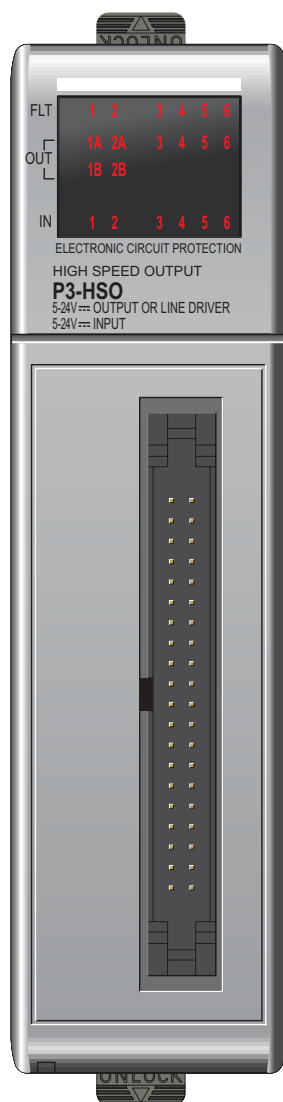
# Specialty Modules

## P3-HSO

\$646.00

### High-Speed Output

The P3-HSO is a high-speed pulse (1MHz) output module that supports Pulse/Direction, Up/Down and Quadrature pulse output on each of the two independent output channels. It has both line driver and open drain outputs. Additionally, it has six general purpose high-speed inputs and four general purpose outputs. Simple move, velocity move, and additional high level instructions make it easy to implement the application's motion profile.



No terminal block sold for this module; ZIPLink required.

General Specifications	
<b>Module Type</b>	Intelligent
<b>Modules per Base</b>	11 Max
<b>I/O Points Used</b>	None, mapped directly to tags in CPU
<b>Surrounding Air Temperature</b>	0°C–60°C (32°F–140°F)
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F)
<b>Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	1800VAC applied for 1s
<b>Insulation Resistance</b>	>10MΩ @ 500VDC
<b>Heat Dissipation</b>	6.26 W
<b>Enclosure Type</b>	Open equipment
<b>Emissions</b>	EN61000-6-4 (Conducted and radiated RF emissions)
<b>Module Keying to Backplane</b>	Electronic
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Field Wiring</b>	Use ZIPLink wiring system. See Wiring Solutions.
<b>Weight</b>	114g (4oz.)
<b>Agency Approvals</b>	UL508 file E157382, Canada & USA CE (EN61131-2*)

\*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Power Specifications	
<b>External Power</b>	24VDC +10%/-15%, Class 2
<b>Maximum Voltage</b>	26.4 VDC
<b>Minimum Voltage</b>	20.4 VDC
<b>Current Consumption Excluding Outputs</b>	130mA
<b>Maximum Current Consumption Total of the 4 Status Outputs</b>	2A

Connector Specifications	
<b>Connector Type</b>	IDC style header with latch, Omron XG4A-4034
<b>Number of Pins</b>	40 point
<b>Pitch</b>	0.1 in. (2.54 mm)

See Wiring Solutions for part numbers of ZIPLink cables and connection modules required with this I/O module.



**NOTE:** The most recent Productivity Suite software and firmware versions may be required to support new modules and new features.

# Specialty Modules

## P3-HSO (cont'd)

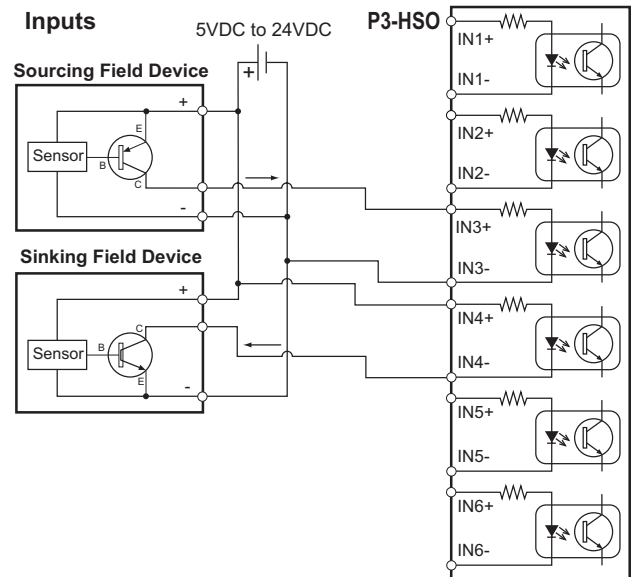
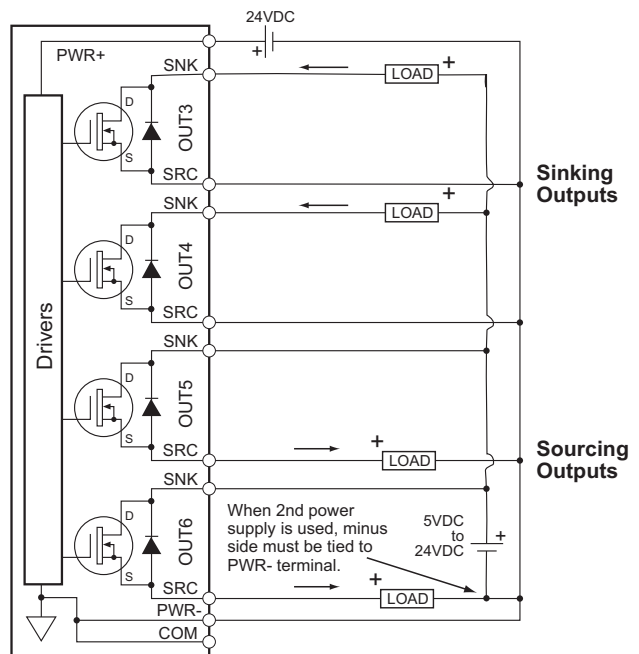
Status Input Specifications	
<b>Status Input</b>	6 inputs
<b>Isolation</b>	Each status input is individually isolated from all other circuits
<b>Input Volts Range</b>	5–24 VDC
<b>Input Volts Maximum</b>	± 34VDC, limited by protection
<b>Input Impedance</b>	1kΩ min., 5kΩ max.
<b>Inputs Rated Current</b>	5–24 VDC, 16mA 5.2 mA typ. @ 5VDC 22mA max. @ 34VDC
<b>Input Minimum ON Voltage</b>	4.5 VDC
<b>Input Maximum OFF Voltage</b>	2.0 VDC
<b>Input Minimum ON Current</b>	5.0 mA
<b>Input Maximum OFF Current</b>	1.4 mA
<b>OFF to ON Response Time</b>	4ms
<b>ON to OFF Response Time</b>	4ms

Status Output Specifications		
<b>Status Outputs</b>	4 Outputs	
<b>Output Signal Type, per Output</b>	Current Sinking	Current Sourcing
<b>Operating Voltage<sup>1</sup></b>	5–24 VDC	5–24 VDC <sup>1</sup>
<b>Output Volts Maximum</b>	36VDC	26.4 VDC <sup>1</sup>
<b>Output Current Maximum</b>	500mA	500mA
<b>Overcurrent Protection</b>	Short circuit detect, overcurrent shutdown <sup>1</sup>	
<b>Output Self Limiting Current</b>	1.2 to 2.4 amps	
<b>Max. Inrush Current</b>	Self limited	
<b>Output Voltage Drop</b>	0.7 VDC @ 0.5 A	0.7 VDC @ 0.5 A
<b>Thermal Protection</b>	Independent overtemperature protection each output	
<b>Overtemperature Shutdown</b>	155° to 185°C (311° to 365°F)	
<b>Temperature Shutdown Hysteresis</b>	5° to 15°C (41° to 59°F)	
<b>Output Voltage Clamp During Inductive Switching</b>	+45VDC	-20VDC
<b>Maximum OFF to ON Response</b>	25ms <sup>2</sup>	
<b>Maximum ON to OFF Response</b>	25ms <sup>2</sup>	

**Notes:**

- Any fault shuts off the output. Fault is indicated and output is kept off until a new move start is received.
- Operating voltage for current sourcing outputs must be less or equal to the external power.
- Measured at 5VDC operating voltage, 0.5 A load.

Pulse Outputs Specifications		
<b>Pulse Outputs</b>	2 Channels	
<b>Output Pulse Type, per Channel Select</b>	Selectable for pulse & direction, up/down or quadrature	
<b>Output Signal Type, per Channel Select</b>	RS-422 Line Driver Current Sinking and Sourcing	Open Drain FET Outputs Current Sinking
<b>Output Volts</b>	RS-422 levels	24VDC
<b>Output Volts Maximum</b>	5VDC	36VDC
<b>Protection for Overcurrent and Short Circuit to Power</b>	Current limit and Thermal shutdown <sup>2</sup>	Current limit and Thermal shutdown <sup>1</sup>
<b>Protection Short to Ground</b>	Yes	Yes
<b>Overcurrent Trip Level</b>	Output current limit ±200mA max.2	100mA minimum
<b>Maximum Continuous Output Current</b>	±60mA	40mA
<b>Max Switching Frequency, 1m Cable</b>	1MHz	500kHz*
<b>Max Switching Frequency, 10m Cable</b>	1MHz	200kHz*

**Status Inputs**

**Status Outputs**

**Notes:**

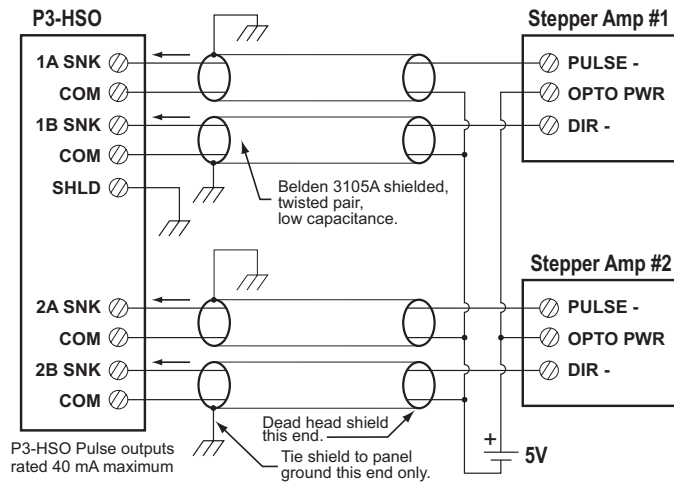
- Any fault shuts off the output. Fault is indicated and output is kept off until a new move start is received.
- RS-422 thermal faults auto reset after device cool down.

\* Outputs are not limited to these speeds but single ended signals produced by the FETs are not usually reliable above these speeds due to cabling capacitance.

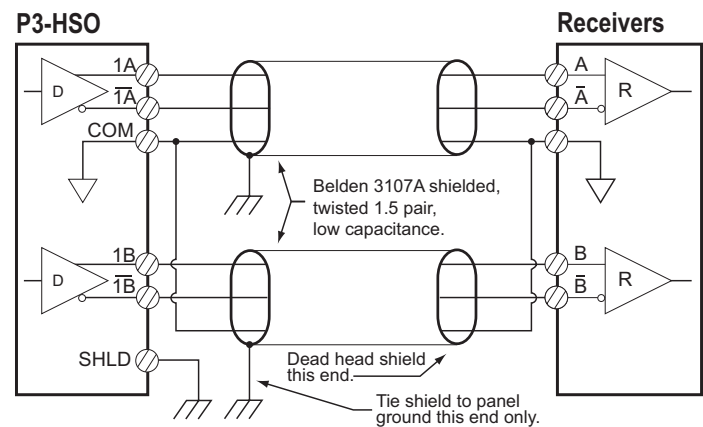
# Specialty Modules

## P3-HSO (cont'd)

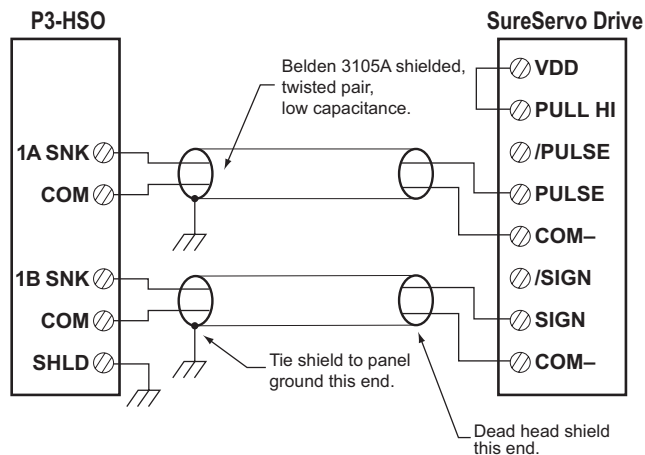
### Sinking Pulse Outputs



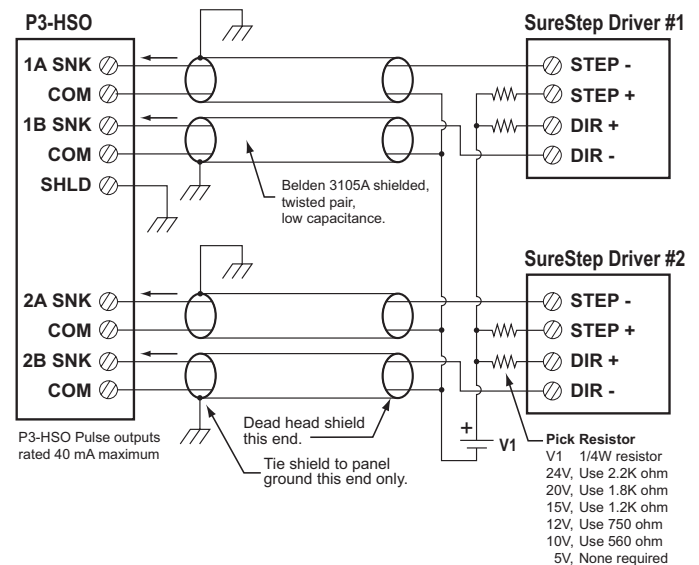
### Line Driver Pulse Outputs



### SureServo Wiring Diagram



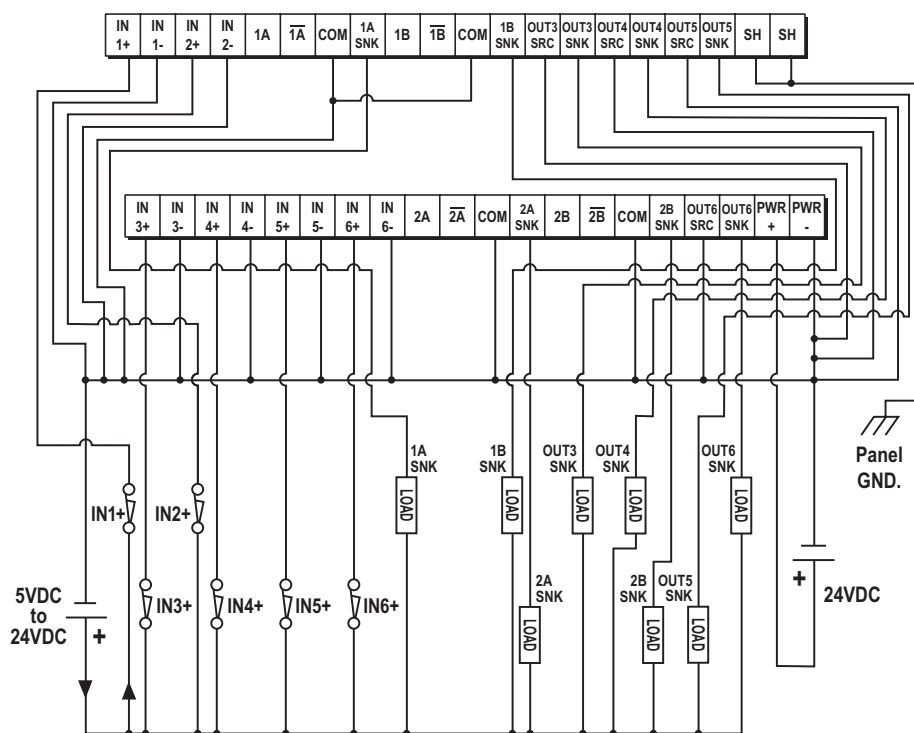
### SureStep Wiring Diagram



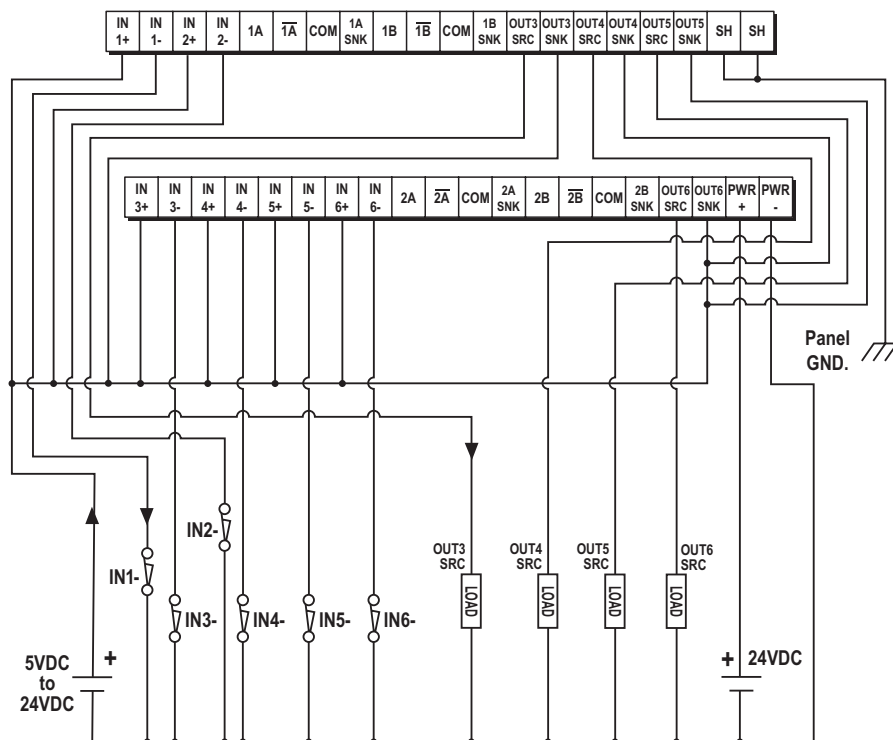
# Specialty Modules

## P3-HSO (cont'd)

### Sinking I/O Wiring Diagram



### Sourcing I/O Wiring Diagram



# Specialty Modules

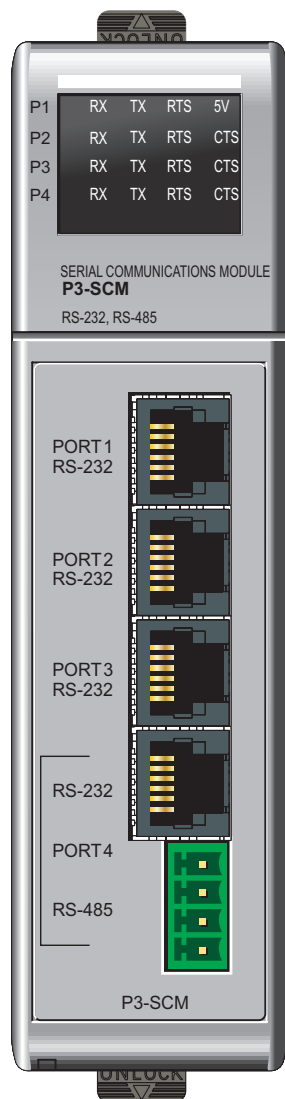
## P3-SCM

\$523.00

### Serial Communications Module

Productivity3000 4-port serial communications module capable of Modbus, ASCII and Custom Communications Protocols. The P3-SCM is also able to power the **C-more** Micro HMI through RS-232 (Port 1 only) for use with the Productivity3000.

P3-SCM contains (4) RS-232 (RJ12) ports half or full duplex, (1) RS-485 port (4-wire terminal block) half duplex, all supporting Modbus RTU Master/Slave, ASCII In/Out and Custom Protocol up to 38.4 K baud rate.

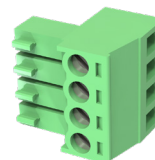


General Specifications	
<b>Module Type</b>	Intelligent
<b>Modules per Base</b>	Base size limited, 11 Max
<b>Modules per Group</b>	11 Max
<b>I/O Points Used</b>	None, mapped directly to tags in CPU
<b>Field Wiring Connector</b>	4 - RJ12, 1 - 4 Position Terminal Block
<b>Operating Temperature</b>	0°C– 60°C (32°F–140°F) IEC 60068-2-14 (Test Nb, Thermal Shock)
<b>Storage Temperature</b>	-20°C–70°C (-4°F–158°F) IEC 60068-2-1 (Test Ab, Cold) IEC 60068-2-2 (Test Bb, Dry Heat) IEC 60068-2-14 (Test Na, Thermal Shock)
<b>Humidity</b>	5 to 95% (non-condensing) IEC 60068-2-30 (Test Db, Damp Heat)
<b>Environmental Air</b>	No corrosive gases permitted (EN61131-2 pollution degree 1)
<b>Vibration</b>	IEC60068-2-6 (Test Fc)
<b>Shock</b>	IEC60068-2-27 (Test Ea)
<b>Field to Logic Side Isolation</b>	None
<b>Insulation Resistance</b>	No Isolation
<b>Noise Immunity</b>	NEMA ICS3-304 IEC 61000-4-2 (ESD) Impulse 1000V @ 1µS pulse IEC 61000-4-4 (FTB) RFI, (145MHz, 440MHz 5W @ 15cm) IEC 61000-4-3 (RFI)
<b>Emissions</b>	EN61000-6-4 (Conducted and radiated RF emissions)
<b>Module Location</b>	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
<b>Weight</b>	260g (9.17 oz)
<b>Agency Approvals<sup>1</sup></b>	UL508 file E157382, Canada & USA CE (EN61131-2:2007)

1. To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page

Removable Terminal Block Specifications	
<b>Number of Positions</b>	4 Screw Terminals, 3.5 mm Pitch
<b>Wire Range</b>	16–28 AWG Solid/Stranded Conductor *Use Copper Conductors, 75°C or Equivalent"
<b>Screwdriver Size</b>	TW-SD-VSL-1 (recommended)
<b>Screw Torque</b>	0.4 N·m

\*Removable Terminal Connector included.



### RS-485 Cable Options

<b>Recommended</b>	Recommend <a href="#">Q8302-1</a> (cut to length) or Belden #9841
--------------------	---



**NOTE:** The most recent Productivity Suite software and firmware versions may be required to support new modules and new features.



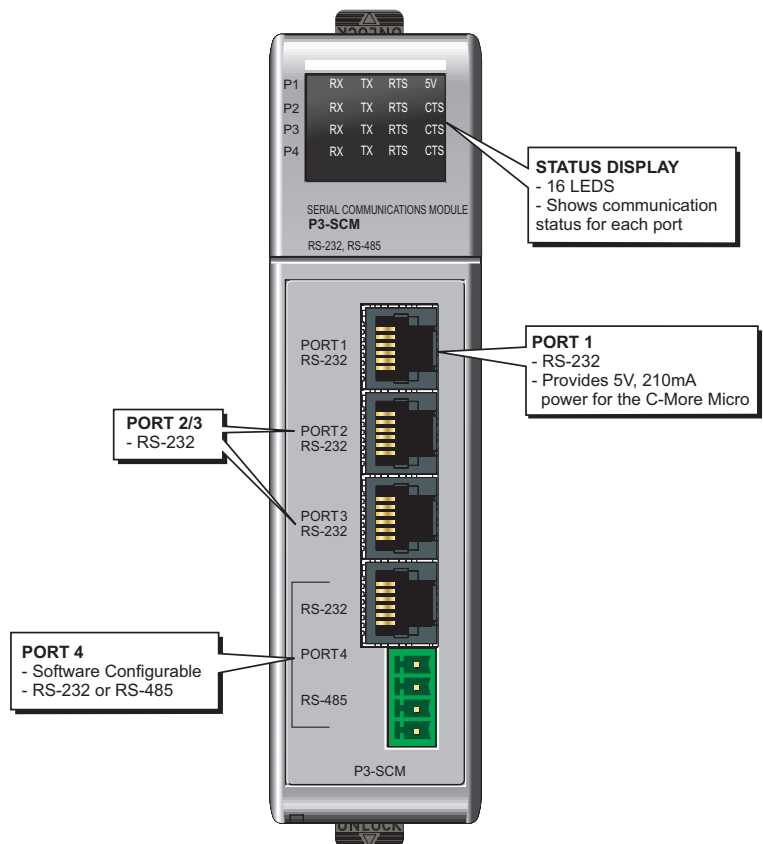
# Specialty Modules

## P3-SCM (cont'd)

Diagnostic LEDs				
LED	Port 1	Port 2	Port 3	Port 4
RXD	X	X	X	X
TXD	X	X	X	X
RTS	X	X	X	X
CTS		X	X	X
5V	X			

1. All RS232 & RS485 LEDs reflect the actual electrical level of the signal, there is no direct firmware control of LEDs
2. RS232 LEDs RXD, TXD, RTS & CTS are turned ON when their voltage on the RS232 wire is positive.
  - a - This occurs when the UART I/O signal is low (GND)
  - b - They are turned OFF when the voltage on the RS232 wire is negative
3. RS485 LEDs RXD, TXD, RTS & CTS are turned ON when the UART I/O signal is low (GND)
4. 5V LED is ON when 5V power is good, 5V LED is OFF when 5V is shorted to ground

Port 4 LED Behavior				
Port 4	RX	TX	RTS	CTS
RS232	Flickers on RXD activity, OFF when idle	Flickers on TXD activity, OFF when idle	ON when asserted, OFF otherwise	ON when asserted, OFF otherwise
RS485				Always OFF



P3-SCM Configuration Options			
Configuration Item	Port 1 (RS-232)	Ports 2, 3 & 4 (RS-232)	Port 4 (when RS-485)
Protocol Selections	Disabled, Modbus RTU, ASCII/Custom	Disabled, Modbus RTU, ASCII/Custom	Disabled, Modbus RTU, ASCII/Custom
Data Rate, baud	1200,2400,4800, 9600,19200, 33600, & 38400	1200,2400,4800,9600,19200, 33600, & 38400	1200,2400,4800,9600,19200, 33600, & 38400
Parity	None, Odd or Even	None, Odd or Even	None, Odd or Even
Data Bits <sup>4</sup>	7 or 8 Bit	7 or 8 Bit	7 or 8 Bit
RTS Off Delay Time <sup>1</sup>	None, or 0–5,000 msec	None, or 0–5,000 msec	N/A
RTS On Delay Time <sup>1</sup>	None, or 0–5,000 msec	None, or 0–5,000 msec	N/A
Modbus Character Timeout <sup>2</sup>	None, or 0–10,000 msec	None, or 0–10,000 msec	None, or 0–10,000 msec
Communication Timeout (Timeout between query and response)	100–30,000 msec	100–30,000 msec	100–30,000 msec
Response/Request Delay Time	N/A	N/A	None, or 1–5,000 msec
Comm Heartbeat Value <sup>2</sup>	2–1,000 sec	2–1,000 sec	2–1,000 sec
Node Address (Station)	1 to 247	1 to 247	1 to 247
CTS	N/A	Ignore, Wait, System Input <sup>3</sup>	N/A
Enable/Disable CTS Wait Timeout	N/A	Enable Timeout, Disable Timeout (Never Timeout)	N/A
CTS Wait Timeout	N/A	100–999,900 msec	N/A
RTS	On, Off, Assert During Transmit, System Output	On, Off, Assert During Transmit, System Output	N/A
Port 4 RS-485 2-Wire Mode	N/A	N/A	Disable, Enable
MODBUS Port Security	Read/Write, Read Only	Read/Write, Read Only	Read/Write, Read Only

1. For "None" selection with Modbus RTU protocol, Modbus.org minimums are used. This minimum is 3.5 character times up to 19, 200 baud rate and 1.75 ms over 19,200 baud rate
2. Only applies to MODBUS messages
3. CTS signal is only provided on Ports 2, 3 & 4
4. 7-bit data is only supported with Odd or Even parity

# Specialty Modules

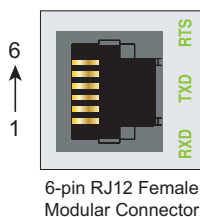
## P3-SCM (cont'd)

Port 1 RS-232 Specifications	
<b>Port Name</b>	<b>RS-232</b>
<b>Description</b>	Non-isolated RS-232 DTE port connects the CPU as a Modbus/ASCII master or slave to a peripheral device. Includes ESD and built-in surge protection.
<b>Data Rates</b>	Selectable, 1200, 2400, 4800, 9600, 19200, 33600 and 38400.
<b>+5V Cable Power Source</b>	210mA maximum at 5V, $\pm 5\%$ . Reverse polarity and overload protected.
<b>TXD</b>	RS-232 Transmit output
<b>RXD</b>	RS-232 Receive input
<b>RTS</b>	Handshaking output for flow control.
<b>GND</b>	Logic ground
<b>Maximum Output Load (TXD/RTS)</b>	3kV, 1,000pf
<b>Minimum Output Voltage Swing</b>	$\pm 5V$
<b>Output Short Circuit Protection</b>	$\pm 15mA$
<b>Port Status LED</b>	Red LED is illuminated when active for TXD, RXD, RTS

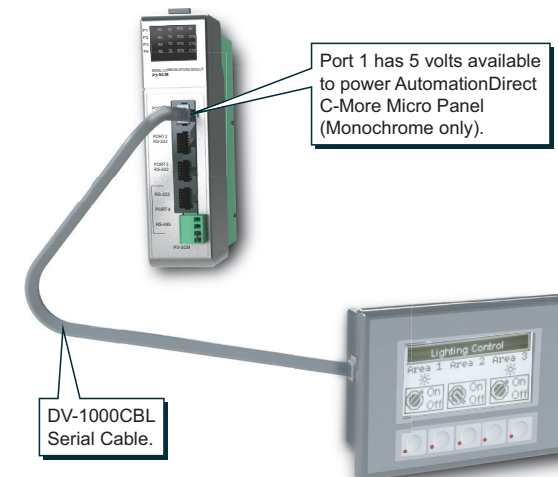
Ports 2, 3 and 4 RS-232 Specifications	
<b>Port Name</b>	<b>RS-232</b>
<b>Description</b>	Non-isolated RS-232 DTE port connects the CPU as a Modbus/ASCII master or slave to a peripheral device. Includes ESD and built-in surge protection.
<b>Data Rates</b>	Selectable, 1200, 2400, 4800, 9600, 19200, 33600 and 38400.
<b>TXD</b>	RS-232 Transmit output
<b>RXD</b>	RS-232 Receive input
<b>RTS</b>	Handshaking output for flow control.
<b>CTS</b>	Handshaking input for flow control.
<b>GND</b>	Logic ground
<b>Maximum Output Load (TXD/RTS)</b>	3kV, 1,000pf
<b>Minimum Output Voltage Swing</b>	$\pm 5V$
<b>Output Short Circuit Protection</b>	$\pm 15mA$
<b>Port Status LED</b>	Red LED is illuminated when active for TXD, RXD, RTS

RS-232 Ports 1, 2, 3 and 4				
Electrical Specifications	Min	Typ	Max	Units
Output ON (3k $\Omega$ , 1000pF Load)	5.0	5.2		Volts
Output OFF (3k $\Omega$ , 1000pF Load)		-5.2	-5.0	Volts
Output Short-Circuit Current		15		mA
Short-Circuit Duration			No Limit	Seconds
Output Resistance	300			Ohm
Input ON Threshold		1.6	2.4	Volts
Input OFF Threshold	0.6	1.2		Volts
Input Resistance	3k	5k	7k	Ohm

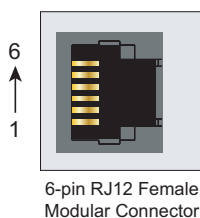
Port 1



Pin #	Signal	
1	GND	Logic Ground
2	+5V	210 mA Maximum
3	RXD	RS-232 Input
4	TXD	RS-232 Output
5	RTS	Request to Send
6	GND	Logic Ground



Ports 2, 3 and 4 (RS-232)



Pin #	Signal	
1	GND	Logic Ground
2	CTS	RS-232 Input
3	RXD	RS-232 Input
4	TXD	RS-232 Output
5	RTS	RS-232 Output
6	GND	Logic Ground

### Line Specifications for RS-232 Ports

RS-232 Line Specifications	Options	Units
<b>Data Rate Setting</b>	1200, 2400, 4800, 9600, 19200, 33600, & 38400	baud
<b>Data Rate Error</b>	$\pm 2$	%
<b>Data Bits Setting1</b>	7 or 8	Bits
<b>Stop Bits Setting</b>	1	Bits
<b>Parity Setting</b>	None1, Odd or Even	Parity
<b>Data Transmission</b>	Half duplex or Full duplex2	N/A
<b>Network</b>	Point-to-Point	N/A

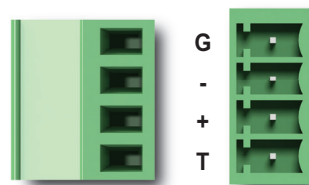
1. 7-bit data are only supported with odd or even parity  
 2. Full duplex is only supported for ASCII/Custom Protocol

# Specialty Modules

## P3-SCM (cont'd)

Port 4 (RS-485 Configuration)	
<b>Port Name</b>	RS-485
<b>Description</b>	Non-isolated RS-485 port connects the CPU as a Modbus/ASCII master or slave to a peripheral device. Includes ESD/EFT protection and automatic echo cancellation when transmitter is active
<b>Data Rates</b>	Selectable, 1200, 2400, 4800, 9600, 19200, 33600 and 38400
<b>TXD+/RXD+</b>	RS-485 transceiver high
<b>TXD-/RXD-</b>	RS-485 transceiver low
<b>GND</b>	Logic ground
<b>Input Impedance</b>	19k $\Omega$
<b>Maximum load</b>	50 transceivers, 19k $\Omega$ each, 60 $\Omega$ termination (two 120 $\Omega$ resistors at each end)
<b>Output Short-Circuit Protection</b>	$\pm 250$ mA, thermal shut-down protection
<b>Electrostatic Discharge Protection</b>	$\pm 8$ k $\Omega$ per IEC1000-4-2
<b>Electrical Fast Transient Protection</b>	$\pm 2$ k $\Omega$ per IEC1000-4-4
<b>Minimum Differential Output Voltage</b>	1.5 V with 60 $\Omega$ load
<b>Fail safe inputs</b>	Logic high input state if inputs are unconnected
<b>Maximum Common Mode Voltage</b>	-7.5 V to 12.5 V.
<b>Port Status LED</b>	Red LED illuminated when active for TXD and RXD
<b>Cable Options</b>	Recommend Q8302-1 (cut to length) or Belden #9841

### Port 4 (RS-485)

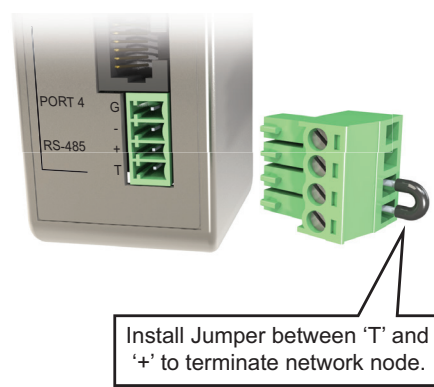


Pin #	Signal
G	GND
-	TXD-/RXD-
+	TXD+/RXD+
T	TERMINATION

RS-485 Port 4				
Electrical Specifications	Min	Typ	Max	Units
Driver Differential Output (60 $\Omega$ load)	1.5			Volts
Driver Common-Mode Output			3	Volts
Driver Short-Circuit Output Current			250	mA
Short-Circuit Duration (Thermal Shutdown)			No Limit	Seconds
Receiver Differential Input Threshold	200			mV
Receiver Common-Mode Input	-7.5		12.5	Volts
Input Resistance	12k			Ohm
Termination Resistance (TB jumper wire 'T' to '+')		120		Ohm
Cable Length (38400 baud max.)			1200	Meters

Line Specifications for RS-485 Port		
RS-485 Line Specifications	Options	Units
Data Rate Setting	1200, 2400, 4800, 9600, 19200, 33600, & 38400	Baud
Data Rate Error	$\pm 2$	%
Data Bits Setting <sup>1</sup>	7 or 8	Bits
Stop Bits Setting	1	Bits
Parity Setting	None <sup>1</sup> , Odd or Even	Parity
Data Transmission	Half duplex	N/A

1. 7-bit data is only supported with odd or even parity



\* Jumper not included