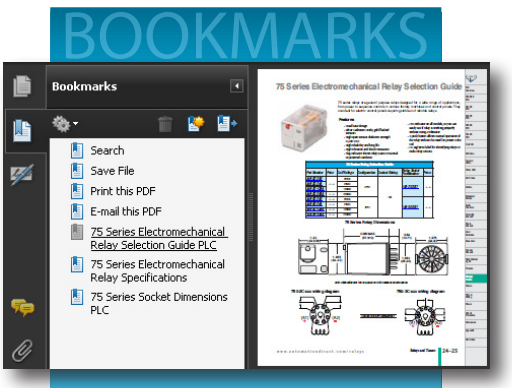
AUTOMATIONDIRECT.com

Productivity3000®

Programmable Controller



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Advanced control from AutomationDirect

The industry calls it a PLC-based PAC.

We call it ... Productivity3000®

What's a PAC?

A PLC-based programmable automation controller* (PAC) is a compact controller that combines the features and capabilities of a PC-based control system with that of a typical programmable logic controller (PLC).

PLC Feel

- Modular footprint
- Industrial reliability
- Wide array of I/O modules and system configurations

PC Power

- Large memory and high-speed processing
- High-level data handling and enterprise connectivity
- Extensive communications capability, multiple protocols and field networks

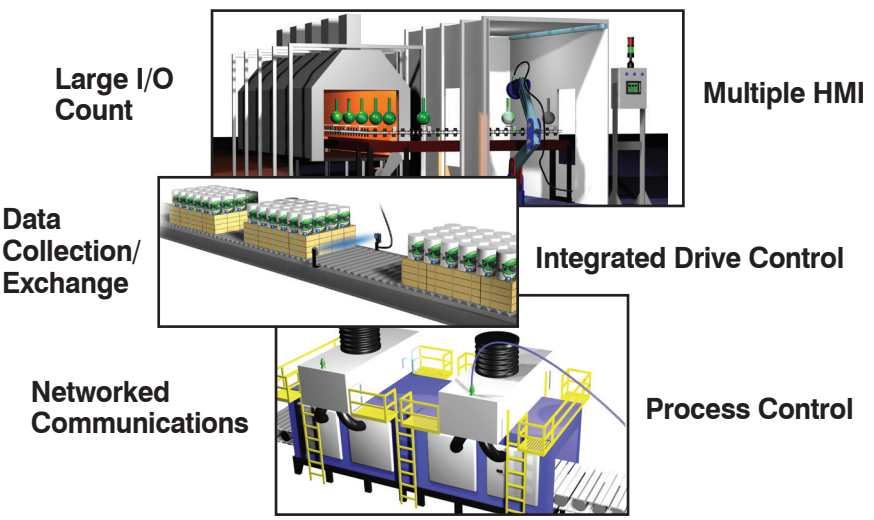
PACs are most often used for advanced machine control, process control, data acquisition and equipment monitoring.

Visit **www.productivity3000.com** for complete details and FREE software download

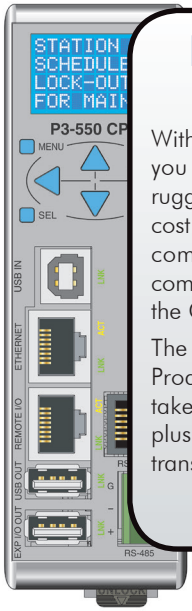
With Productivity3000, you can get all the power you need for advanced applications. The great thing is, even if you don't need every bell and whistle, you still get an easy-to-use, super-flexible machine that costs less than most traditional PLCs.

Who wouldn't want a controller with seven built-in communication ports, easy local and remote I/O connection, USB or Ethernet programming and an integrated LCD display - and that's just the CPU!

Do these with ease



It's our job to make you more productive

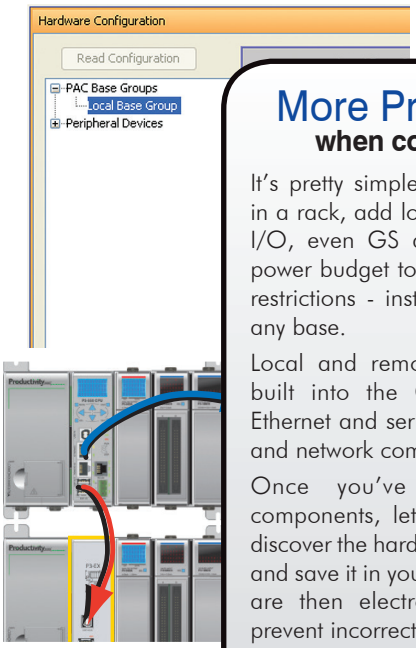


More Productive
when specifying

With Productivity3000, we're giving you advanced PAC features in a rugged PLC frame at a fraction of the cost compared to similarly equipped competitive products. Expansive communications capability built into the CPU is standard.

The FREE ($495 value) full-featured Productivity Suite software lets you take a test drive before you buy, plus no licenses to register, track or transfer.

Practical prices



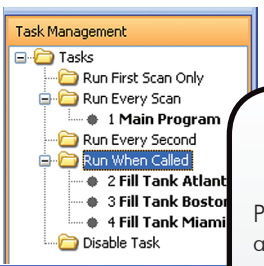
More Productive
when configuring

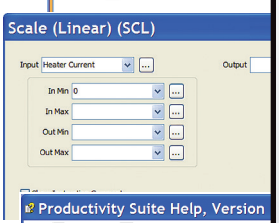
It's pretty simple - install the CPU in a rack, add local and/or remote I/O, even GS drives. There's no power budget to calculate or other restrictions - install any module in any base.

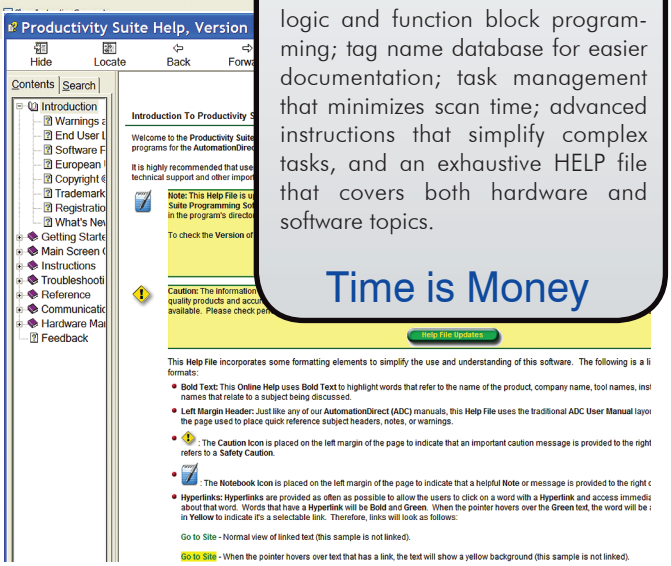
Local and remote I/O ports are built into the CPU, as well as Ethernet and serial ports for device and network communications.

Once you've connected the components, let the system auto-discover the hardware configuration and save it in your project. Modules are then electronically keyed to prevent incorrect replacement.

Simpler means fewer mistakes





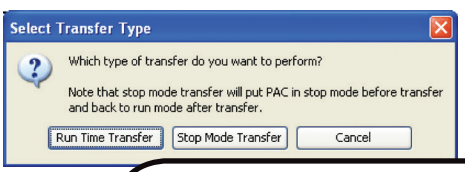


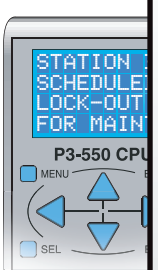
More Productive
when programming

Programming and commissioning a system with any type of automation controller is time consuming and can be a large part of your overhead. We've created powerful processes in the programming environment to reduce your development time.

Timesavers include combined ladder logic and function block programming; tag name database for easier documentation; task management that minimizes scan time; advanced instructions that simplify complex tasks, and an exhaustive HELP file that covers both hardware and software topics.

Time is Money





More Productive
when troubleshooting

Run-time editing, hot-swappable I/O modules and onboard program documentation are tools that help you commission and troubleshoot your system more quickly and conveniently.

Use the built-in LCD display on the CPU and Remote Slave modules for system diagnostics, configuration and troubleshooting.

The patent-pending LCD interface built into each analog module allows you to view field signal levels without the hassle of an external meter.

Advanced Diagnostics

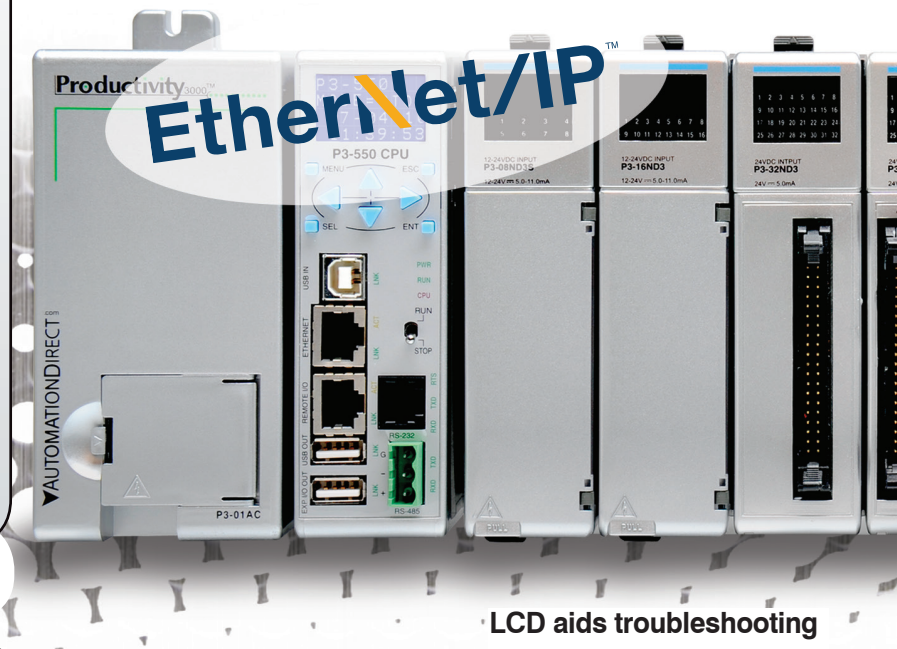
Company Information
Control Systems Overview
CLICK PLC
Do-More PLCs Overview
Do-More H2 PLC
Do-More T1H PLC
DirectLOGIC PLCs Overview
DirectLOGIC DL05/06
DirectLOGIC DL105
DirectLOGIC DL205
DirectLOGIC DL305
DirectLOGIC DL405
Productivity 2000
Productivity 3000
Universal Field I/O
Software
C-More HMI
C-More Micro HMI
ViewMarq Industrial Marquees
Other HMI
Communications
Appendix Book 1
Terms and Conditions

Advanced control and communications

TOP 10 Hardware Highlights

- High-performance CPU (P3-550) with **50Mb memory**, fast scan time
- **Modular** rack-based footprint with 36 discrete and analog I/O option modules, up to 59K+ I/O.
- Unmatched **built-in communications** capabilities, including local & remote I/O ports, EtherNet/IP and networking
- **NEW!** Built-in EtherNet/IP Scanner and Adapter functionality (P3-550(E) CPUs)
- **NEW!** Lower-cost P3-550E, same great features as the P3-550, minus the USB programming port, big savings!
- **LCD on CPU** and Remote Slave for diagnostics
- **LCD on ALL analog modules** - helpful in troubleshooting and reading process values
- **Hot-swappable** I/O
- No module placement restrictions - **any module in any slot**, any base
- **No power budget** limitations
- Optional I/O terminal blocks or easy ZIPLink **plug-and-play wiring**

and a two-year warranty to boot!



High-performance CPU $699.00, with 7 communication ports

The 50Mb of memory and fast scan time (266MHz processor) is just for starters - this CPU does the work of at least four or five pieces of hardware compared to other controllers. With its seven built-in communication ports, it does the usual CPU stuff like storing and running the program, plus -

- Plug-and-play USB programming (uses standard A-B cable)
- Tag database and program documentation storage in CPU (Program pre-loaded on PC not necessary)
- USB local I/O expansion (no local I/O expansion master module needed)
- Ethernet remote I/O expansion (no Ethernet remote master module needed)
- High-speed Ethernet port for HMI and peer-to-peer or business system networking (no Ethernet communications module needed)
- Support for EtherNet/IP devices
- Two serial ports for peripheral device interface or controller networking
- USB data logging right from the CPU

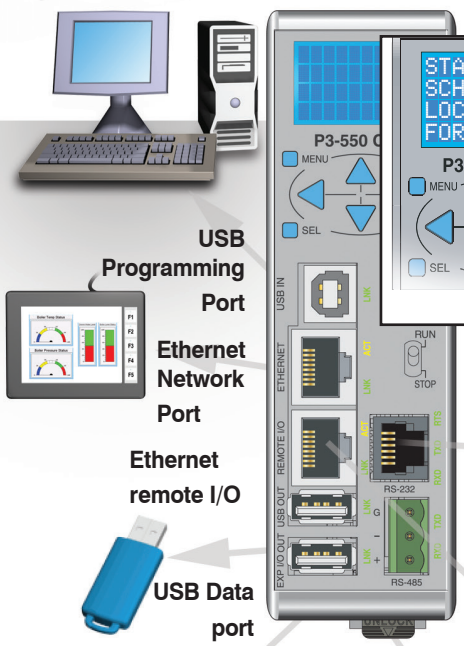
High-performance CPU at a lower cost, only $499.00

The P3-550E CPU provides all the performance of the P3-550 without the USB type B programming port.

Basic CPU only $419.00 with 5 communication ports

The P3-530 CPU has a few less features than the P3-550, but it's a top performer in its own class and a great value!

- 25 Mb memory, 266 MHz processor
  [see complete tech specs later in this chapter]



LCD aids troubleshooting

The built-in display (P3-550(E) only) can show system alarms and information, or it can be configured to display user-defined messages with instructions triggered by the program.

Serial ports for master/slave or custom device connections

One full/half duplex RS232 and one RS485 serial port both support Modbus or ASCII protocols to connect to other controllers or peripherals.

USB local I/O expansion

Connect up to four additional I/O bases from the USB local expansion port.

We used technology to simplify your job

Productivity3000®

Field access with display on analog modules

The patent-pending LCD on all analog modules gives you quick and easy access to field signal values - no need to drag out a multimeter or other measurement tool. Module and signal faults are also shown.

EtherNet/IP communication

Now with EtherNet/IP as a native protocol (P3-550 & P3-550E CPUs only), we make it easier to connect to your existing devices. Whether you are configuring a new application or looking to expand an existing one, we can get you connected for less.

Connect to existing EtherNet/IP enabled controllers, variable frequency drives and I/O.

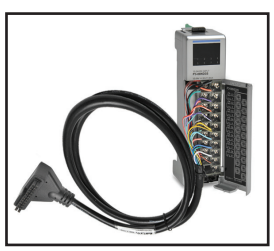
Plenty of discrete and analog I/O modules

Over 35 I/O modules capture and control a wide range of field signals.

- Up to 64-point DC I/O
- Up to 16-point AC I/O, isolated or non-isolated
- Up to 16-point analog I/O; voltage, current or temperature

I/O modules can be placed in any slot, in any base - no need to remember special restrictions or calculate power budgets. And for critical systems, the hot-swap feature can save you from a downtime or worse.

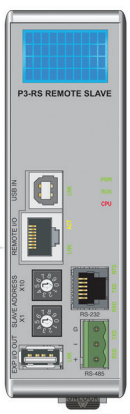
To make I/O wiring fast and easy, use our ZIPLink cables and connector modules.



Compatible with ZIPLINK Connection Systems

Ethernet remote I/O like you've never seen

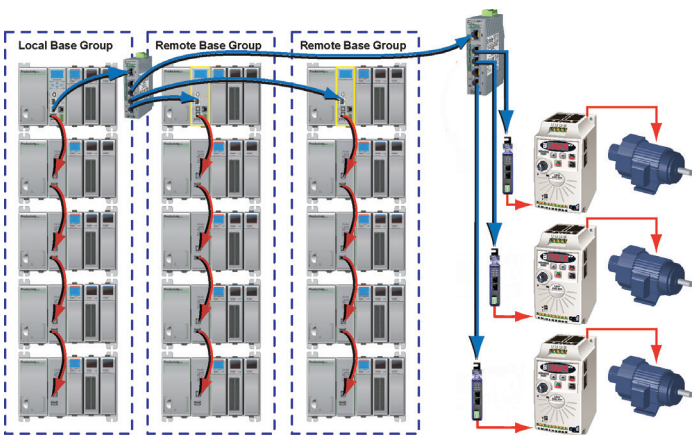
Connect up to 16 remote base groups from the P3-550(E)'s Ethernet remote expansion port. Each remote group supports up to four additional local bases. You could end up with over 59,000 I/O!



The convenient USB port on the Remote Slave module lets you program and monitor (P3-RS only) from any remote I/O location; plus two serial ports support Modbus or ASCII devices.

Easy drive integration

Drive-intensive applications are a snap with this remote I/O network. Connect up to 32 AutomationDirect GS series AC drives on the Ethernet remote I/O network (using GS-EDRV100 option cards). Units are auto-discovered when configuration update is requested - it's that easy.



Full-featured FREE Software

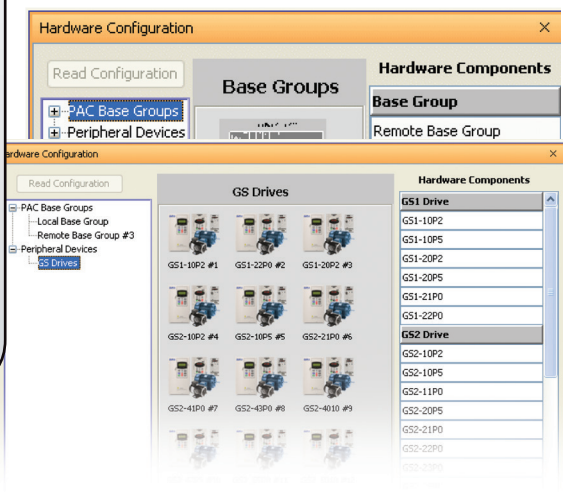
TOP 10 Software Highlights

- Auto set-up and discovery of hardware
- Tag name database programming
- Task management
- Advanced "fill-in-the-blank" instructions
- Pre-defined Structure data types
- Seamless corporate database connectivity
- Graphical HTML-based Help File
- Run-time editing
- Project file and user documentation stored in CPU
- USB data logging on the CPU
- Tag database export to C-more HMI
- Tag I/O reassignment

all in an intuitive Windows-based programming environment

Full-featured Productivity Suite software FREE ($495 value)

The Productivity3000 is a high-tech controller, and we want everyone to see just how feature-packed it is and how productive it can make you. That's why we offer the software for FREE (downloadable online) - check out the tools, instruction set and programming/debug environment that will let you configure and program a system in less time than you can imagine.



Hardware auto-discovery

One click is all it takes to detect and auto-configure the hardware connected to the system, including local and remote bases and I/O. GS drives on the internal Ethernet network are also discovered during any configuration update. This can save you literally hours and hours of setup time.

Or, configure the system offline by dragging and dropping bases and modules.

All project files in CPU means it's not all Greek to you

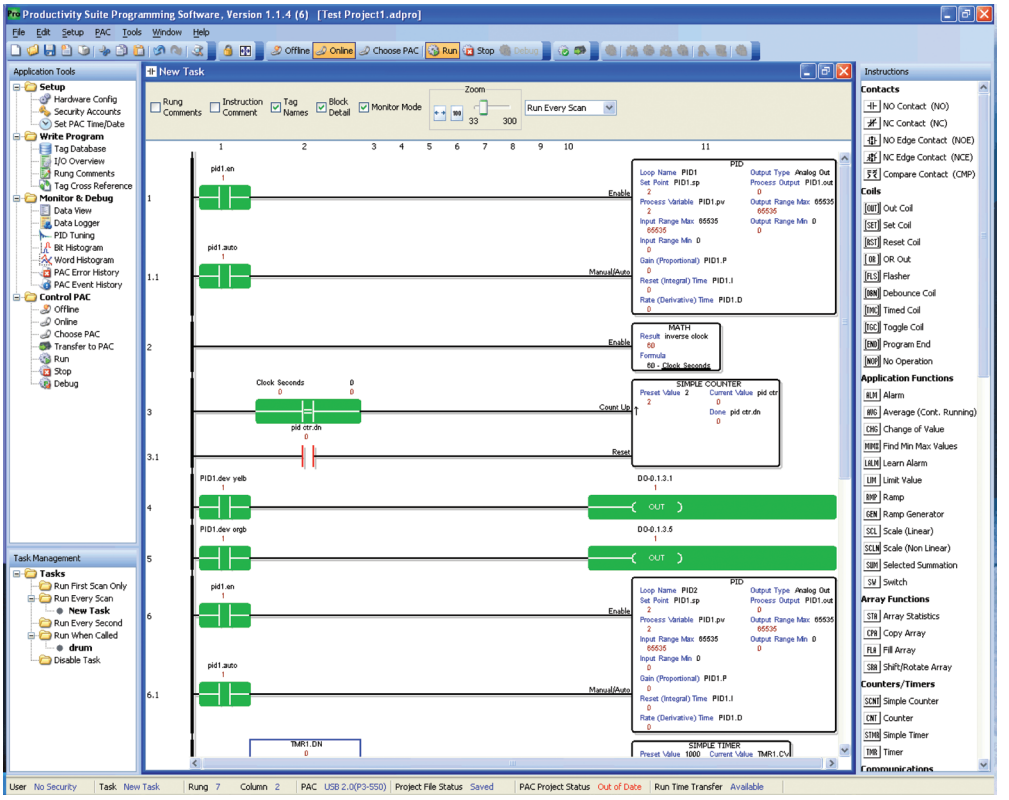
With the ample memory in the CPU, there's plenty of room for the program, tag name database and all the program documentation. This means the helpful descriptions and comments are available to anybody with a PC and Productivity Suite software. This can be pretty important when it's 1 a.m., the machine is down and you're the one that has to look at the program and figure out what's wrong.

Task management boosts program speed and efficiency

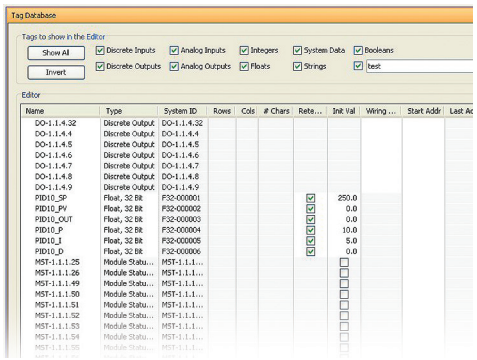
The Task Manager helps organize program code and execute it for maximum speed and efficiency. Create functional tasks, name them and schedule their execution frequency - every scan, every second, or when called. A "First Scan only" task lets you initialize values and conditions. Store specialized tasks that help debug and troubleshoot in the Disabled Tasks section.

Advanced instructions are timesavers

There are so many time-saving instructions, and they all have one thing in common - their "fill-in-the-blank" approach makes it easy to configure even the more complex tasks that previously required a whole bunch of program code. Scaling, calculator-style math, statistics, send email, it goes on and on ...



Saves you time from start to finish



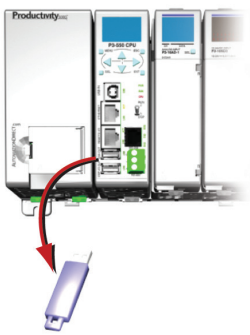
Tag name database is friendly and flexible

Data memory ranges in the Productivity3000 are not fixed by data type, which is more efficient because you have the freedom to define the data types you need instead of having wasted memory for ones you do not.

Also, a tag name database means no more confusing and ambiguous memory and I/O references - add descriptive names as you program or enter all the tags before you even write one line of code. The data is stored in true database format so you can search, filter and sort; import a .csv file or use the one created every time you save the project for importing into other databases.

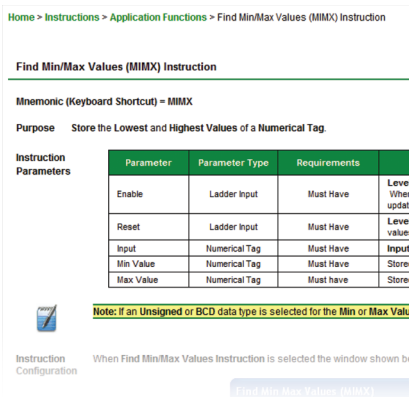
Easy data logging on CPU

Easily log data to a removable mass storage device (USB) on an event or time basis. Track up to 64 data values and system errors through the Data Logger tool. The CPU will hold the data internally until an external device is replaced.



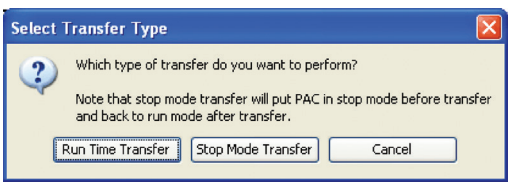
Help File really does help

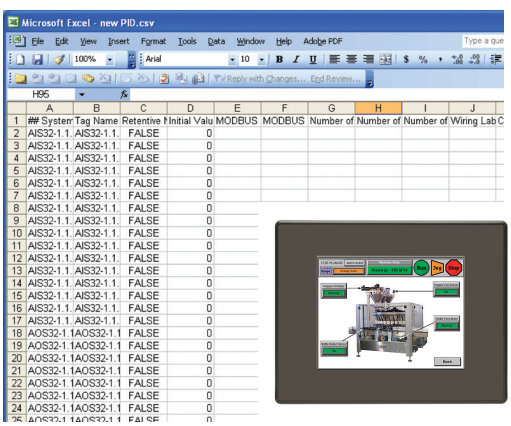
Detailed hardware and software information is at your fingertips with the exhaustive HTML-based Help file. From "Getting Started" to detailed program instruction descriptions, it's all there when you need it. Find the help you need on a specific topic quickly, and read only what's relevant to you at the time.



Run-time editing

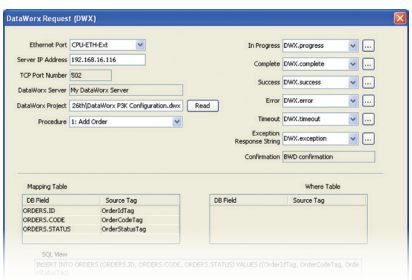
Commissioning or troubleshooting a system can be less time-consuming if you can make program edits on the fly. Download edits to the CPU without pausing I/O updates or stopping/restarting the program. From melting rubber to making paper, you can keep your process running, avoiding downtime and product waste.

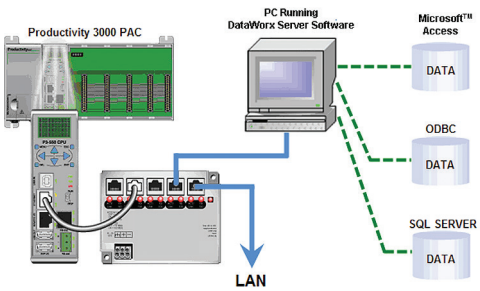




Seamless corporate database connectivity

With the integrated DataWorx instruction, connectivity to Microsoft Access, SQL or ODBC databases has never been easier (DataWorx P3K server for PC sold separately). The controller can retrieve, add, delete and update data records in the remote database.





Import tags into C-more database

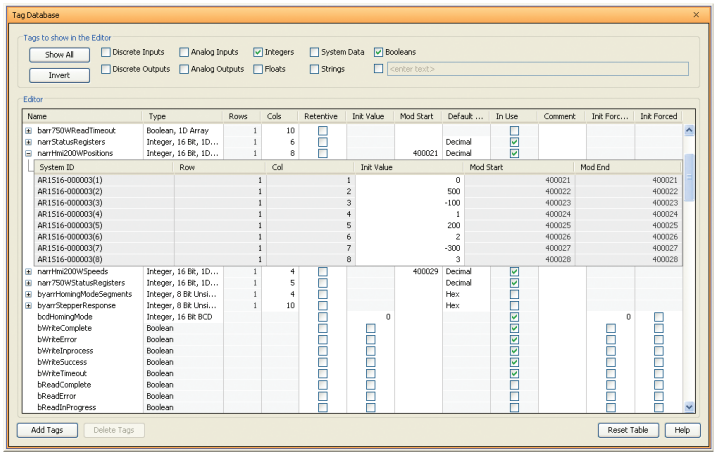
C-more HMI software has a direct import feature for the Productivity3000 tag database. No duplicating work - bring in all the tag names from the controller program right into C-more's database with just a few keystrokes.

Let's Start with the Basics ...

Tagname Based Programming

Now you have the freedom to define your application tags with no limits or fixed boundaries for timers, counters, integer words or any other data type. With Tag name based programming, there are no specific pre-defined memory ranges, only data types; you define the elements specifically for your project. This is much more efficient because you define the data types you need and have no wasted memory for unused, fixed ranges.

In addition, the Productivity3000 offers the ability to descriptively identify the tags in your program. Older, fixed memory controllers force the use of pre-defined nomenclature for the data types; for example, if you were creating a timer to be used as an oven purge cycle you had to use a timer such as T4:01, and use the corresponding words and bits for the timer preset and status bits. Now you can create a descriptive tag name: "Oven1 Purge Timer.Pre" and identify it as a numeric tag for your preset, and create a similar tag name: "Oven1 Purge Timer.Dn" and identify it as a boolean tag for your status bit. These are just examples; you can pick any naming scheme and tagnames that you wish.



True Database Format

Sort tag data by any column, ascending or descending. Filter by data types or by specific text. Many people create detailed process flow charts before they begin programming. This true database format allows you to create the tag database based on your process flow charts and then import it directly into your Productivity3000 project. For added convenience, a .csv file can be created every time you save your project. Use it for import into other tagname-based devices, like our C-more HMI.

Fully Customizable

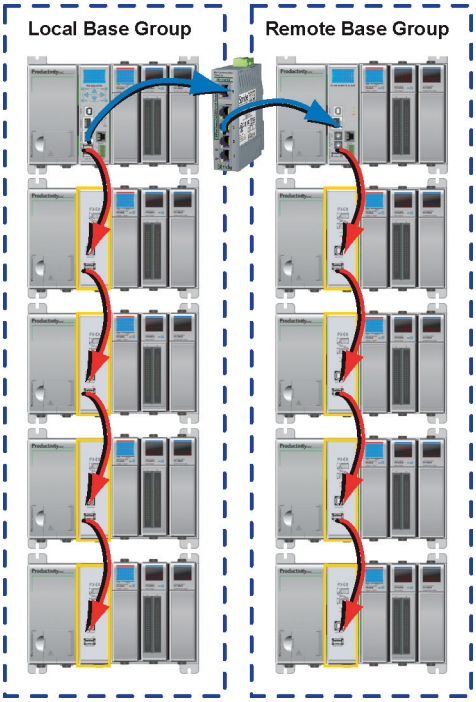
By default, the Tagname database populates all necessary tag options for each data type including retentive value requirements, forceable options and even accessibility for external Modbus devices. As you settle into your project creation, you will determine the fields that you use most often. You can easily re-arrange or hide columns to suit your needs or click the Reset Table button to return to the factory defaults.

Huge I/O Capacity

Start with high-density I/O modules - up to 64 inputs or outputs per module, install those in an 11- slot base, and you've got over 700 I/O in a single rack! Add up to 4 local racks to your local base group, and the possible I/O total grows to over 3,500 I/O points.

Still need more? Add up to 16 Remote Slave racks, each with its own set of four local expansion racks and the number is truly staggering - well over 59,000 I/O points.

Add up to 16 Remote Base Groups!



Plug-and-Play Programming

Have you ever felt unproductive configuring stop bits, parity, or baud rates in order to connect to a programmable controller? The Productivity3000 uses USB programming for true plug-and-play functionality. Plug in your USB cable and move on to more productive activities like configuration and programming. (not available on the P3-550E CPU)

... Power AND Grace!

Tremendous Processing Power

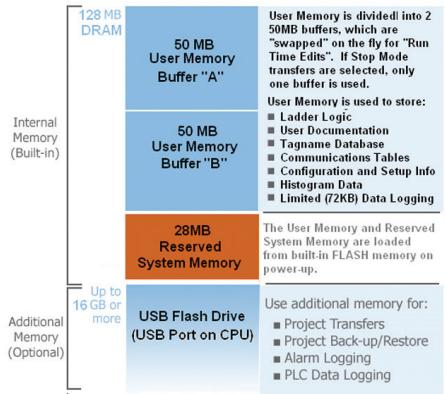
The P3-550(E) CPU's lightning fast processor executes your ladder code quickly and efficiently!

Sub-millisecond Scan Times

The performance benchmark used for testing the Productivity3000 includes 3 kbytes of Boolean logic, and 1k of I/O. The Productivity3000 CPUs consistently executes this test with a scan time of less than 650 microseconds.

Powerful and Efficient

This processing power also means that there are practically no limits on the number of timers, counters, and PID loops for your application. And the powerful task management tools built in to the software help you streamline your ladder code for maximum efficiency.

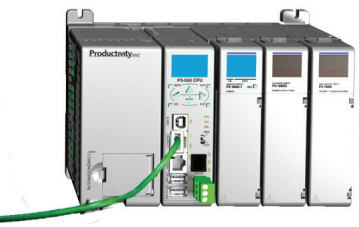


Generous 50 Mb of Memory

Plenty of storage for your program AND...

Documentation Stored On-board

Store your entire project with ALL documentation in the CPU, and never hunt for that old laptop again. You know, the only one that has the updated code from last year when you made all those changes. Sure, we recommend that you keep a backup of all your code and documentation, but who hasn't been burned by this classic PLC problem?



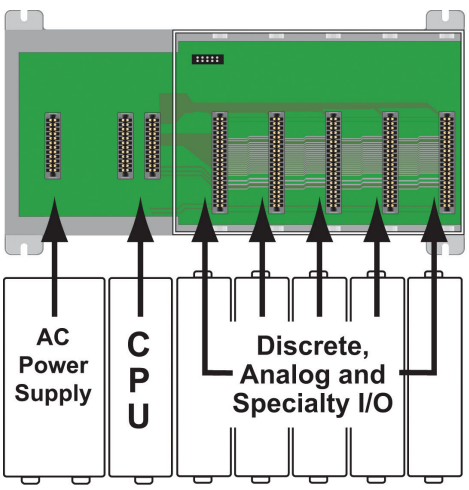
You can program across Ethernet as well, but we wanted Productivity3000 to have a fast reliable way to get started. When combined with auto-discovery of I/O modules, the USB plug-and-play capability helps you be productive right away.

Place Any Module in Any Slot

You can install any I/O module in any I/O slot of any base in a Productivity3000 system with no restrictions. The only fixed positions are shown in the figure below; a power supply must be in the power supply slot, and one of the three controllers must go in the CPU slot. Other than this, there are no special slots or rules governing placement of your discrete, analog, or specialty I/O modules.

No power budgeting required!

Both the AC and the DC power supply are powerful enough to power any combination of I/O modules in any size base.



Hot Swap I/O Modules

Save time and avoid long start-up operations or other down-time related inconveniences. All Productivity3000 I/O modules support hot-swap.

Electronic Keying

Once you have determined the desired placement of the I/O modules in your Productivity3000 system, you can enable electronic keying to prevent inadvertent rearrangement or improper replacement of any I/O module.

Company Information
Control Systems Overview
CLICK PLC
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Do-More H2 PLC
Do-More T1H PLC
DirectLOGIC PLCs Overview
DirectLOGIC DL05/06
DirectLOGIC DL105
DirectLOGIC DL205
DirectLOGIC DL305
DirectLOGIC DL405
Productivity 2000
Productivity 3000
Universal Field I/O
Software
C-More HMI
C-More Micro HMI
ViewMarq Industrial Marquees
Other HMI
Communications
Appendix Book 1
Terms and Conditions

Work Smarter ...

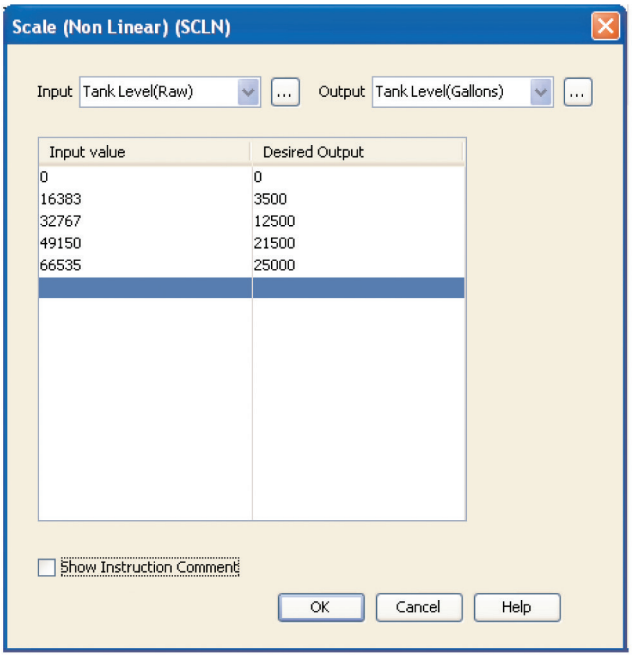
Application Specific Instructions

There are so many time-saving instructions, and they all have one thing in common - their "fill-in-the-blank" approach makes it easy to configure even the more complex tasks that used to require a whole bunch of program code. Scaling, calculator-style math, statistics, send email, it goes on and on.

Consider these two frequent ladder logic headaches - finding an average value from a dynamic tag value or its min./max. values. With Productivity3000, you just fill in the blanks. How productive is that!

In this non-linear scaling example, the volume of a cylindrical tank needs to be determined based on an ultrasonic sensor signal.

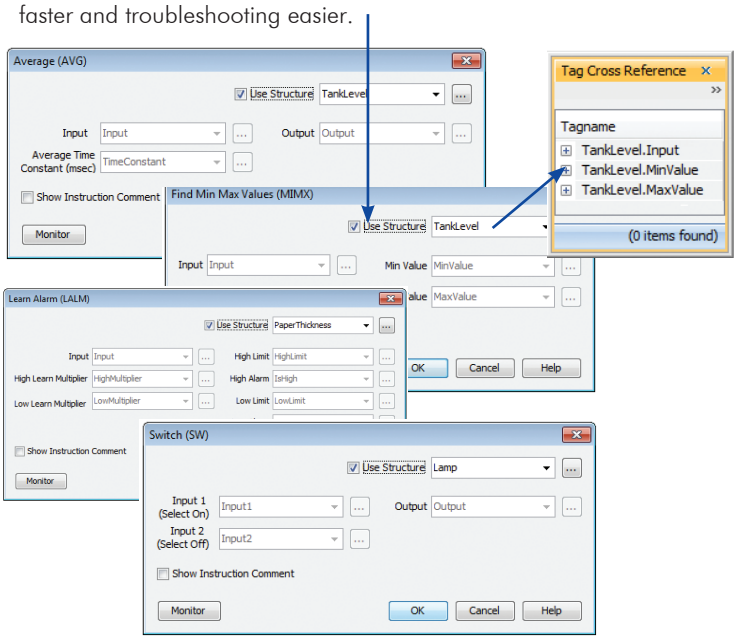
Tank Height		Raw Transmitter Input Signal		Scaled Value
0"	=	0	=	0 gallons
30"	=	16383	=	3500 gallons
60"	=	32767	=	12500 gallons
90"	=	49150	=	21500 gallons
120"	=	65536	=	25000 gallons



With the SCLN instruction it's a simple matter to enter a few pairs of values, and the Productivity3000 interpolates between the points!

Structure Data Types speed development

The new Structure Data Types speed the creation of tag data AND enforce tagname consistency throughout your project, making searches faster and troubleshooting easier.



Affordable ZIPLinks Save Hours of Wiring

We strongly recommend the use of ZIPLink cables and wiring modules, which eliminate the need for hand wiring of I/O modules to DIN rail terminals. In fact, many of the Productivity3000 I/O modules do not include the terminal block for direct connection of I/O. In particular, the high-density (32-point and 64-point) modules require the use of the ZIPLink cables (there simply isn't enough room on the front of these module to terminate that many I/O points).

Choose a *ZIP*Link module and cable...

...or a *ZIP*Link pigtail

... with these Intelligent Strategies

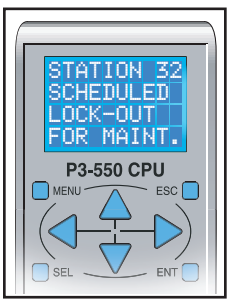
Advanced Diagnostics

Patent Pending LCD on all Analog Modules!

All Productivity3000 analog modules have a four-line LCD on the front panel which provides a quick and easy way to troubleshoot many problems without needing a meter or a programming PC. Just as you can quickly check the front panel of a discrete module to determine the state of an I/O point, now you can check the status of your analog signals just as easily.

Non-Invasive Measurements

The LCD allows non-invasive measurements; no need to connect a multi-meter in line with the analog signal (which might even affect the signal being measured). View the signal in volts or milliamps (depending on the module) or view the resulting tag value - i.e. 0-65535 (Decimal or Hex) that is being processed by the CPU.

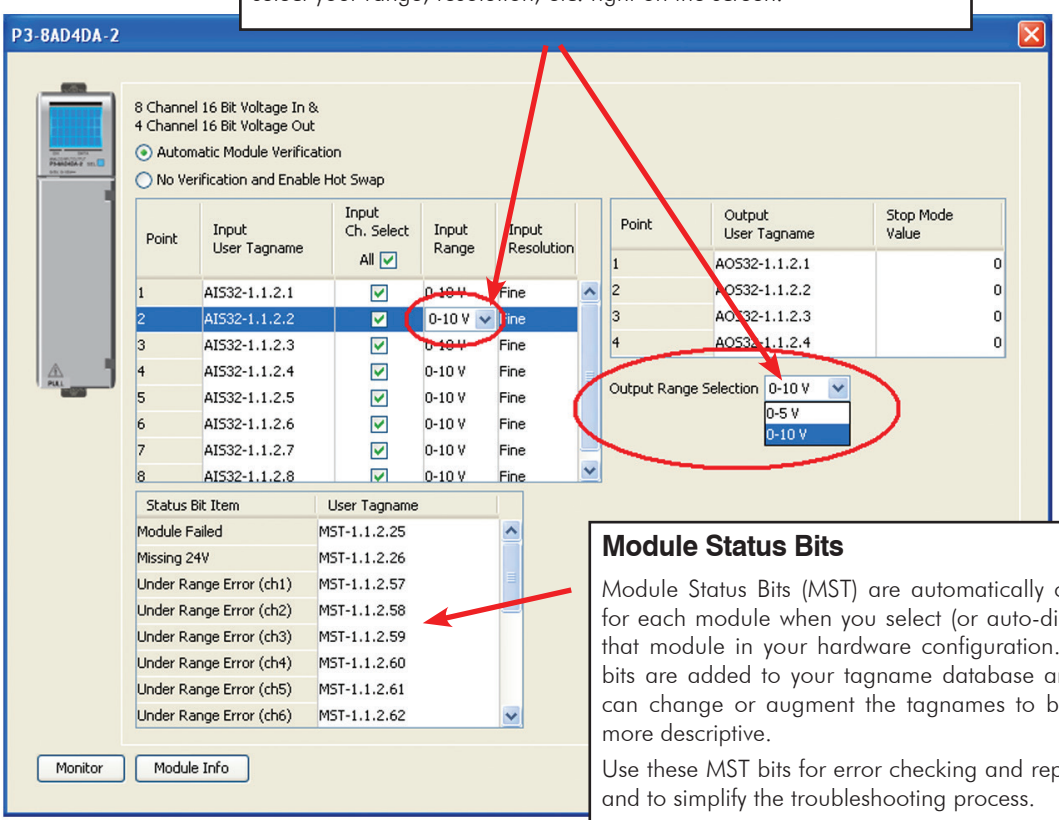


LCD on CPU aids troubleshooting

The built-in display on the CPU can show system alarms and information, or it can be configured to display user-defined messages with instructions triggered by the program.

Software Configurable I/O Modules

Most of the analog I/O modules allow software configuration - no dip switches to set! Just pull up the hardware configuration dialog box, and select your range, resolution, etc. right on the screen.



Module Status Bits

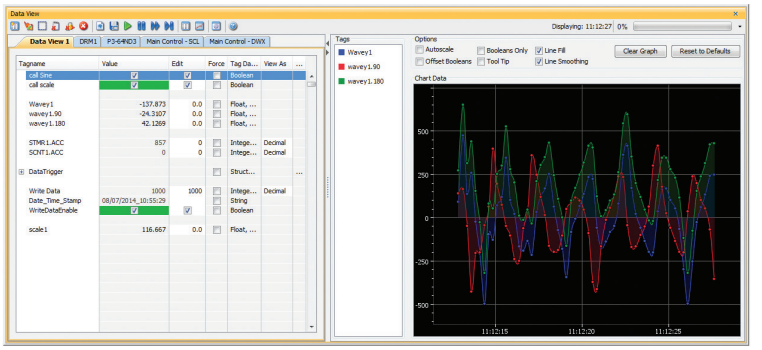
Module Status Bits (MST) are automatically created for each module when you select (or auto-discover) that module in your hardware configuration. These bits are added to your tagname database and you can change or augment the tagnames to be even more descriptive.

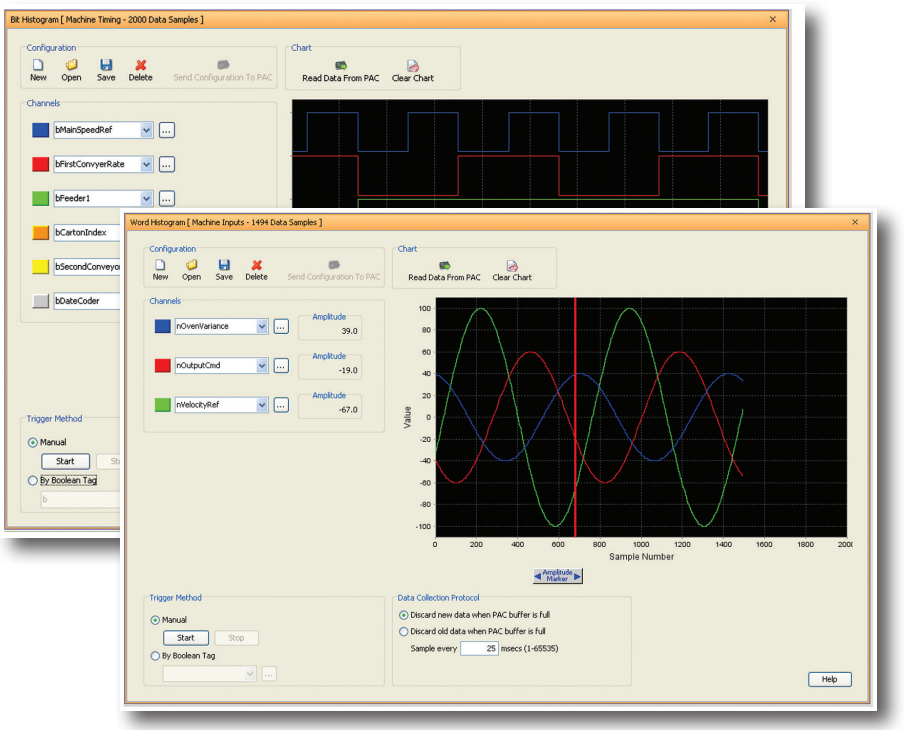
Use these MST bits for error checking and reporting, and to simplify the troubleshooting process.

Organize, Analyze and Log Data

Analysis Tools put you in Control

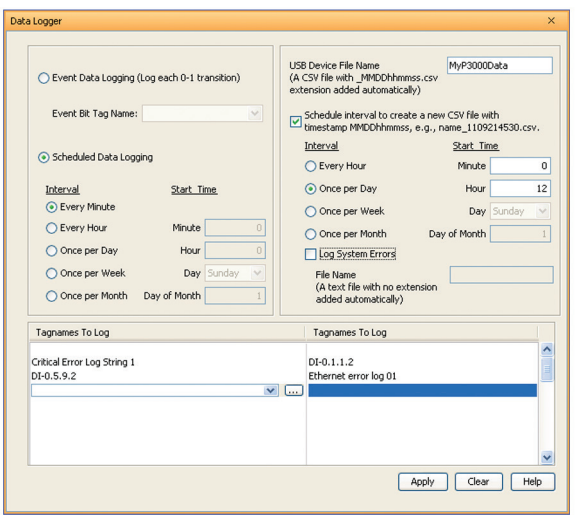
Create custom Data View windows to organize and access the exact tag values that matter for various troubleshooting and debugging tasks. Edit values, force bits, check Modbus addresses and even create real-time trend graphs of your PLC data. You can even choose to view the native tag values, or have the Data View window convert to more convenient formats: hex, binary, BCD, etc. Then give your Data View windows their own descriptive names and save them for future sessions.





Bit and Word Histograms

Create powerful graphs with the Bit Histogram and Word Histogram tools and see your data like never before. Isolate chase conditions, visualize intricate processes, or make sense of rapidly changing numbers. Select a specific sample rate, and trigger the plots manually or based on a specific "trigger tag".



Data Logging

The Productivity3000 accepts USB-Flash and offers this easy-to-configure Data Logger dialog box shown at left. USB drives can be used to log system errors or any type of controller data. Capture data periodically or when certain events occur.

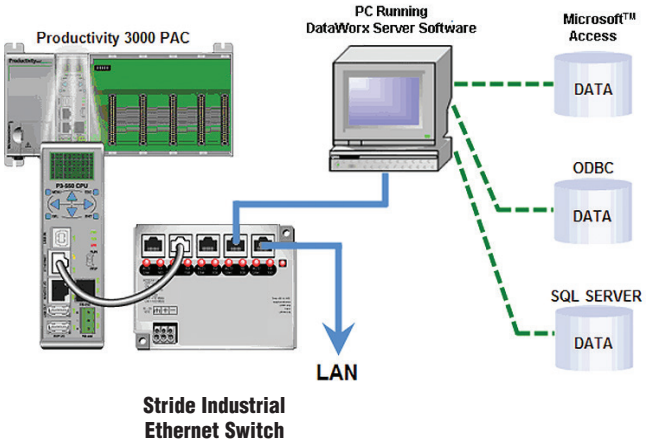
USB-FLASH

USB drives can also be used to upload or download a project to/from a Productivity3000 without having a PC present. This feature is great for updating remotely locatedCPUs - just send your project on a USB drive to any factory in the world, and the controller can be updated with the most current files.

Enterprise Connectivity

Built-in Database Connectivity

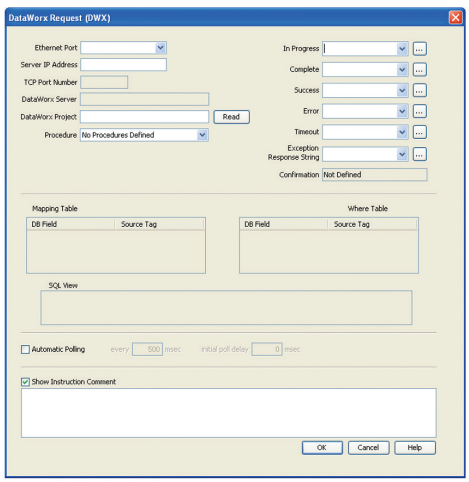
Connect and pass data to all the common database formats: MS Access, ODBC, and SQL Server. Productivity3000 was designed with database connectivity in mind. The DataWorx Request (DWX) instruction helps you define all aspects of the connection to a DataWorx server, and even allows tags to be assigned for In Progress, Complete, Success, Error, Timeout, and more. Define your own mapping table, 'where' table, and SQL View, and configure automatic polling with custom polling periods.



DataWorx Server

The integrated (DWX) DataWorx Request instruction allows you to interface to your database with ease. By using the existing Productivity Series tag database you can synchronize your control system with the enterprise database. (NOTE! Requires some knowledge of database configuration and procedures)

DataWorx P3K database server software is now available directly from the vendor. www.bizwaredirect.com



From: myPAC@myFactory.com
Sent: Thursday, January 21, 2010 4:30 PM
To: Maintenance Foreman
Subject: Oven 2 is over-temp

Setpoint is: 450 degrees

Actual temp is: 524 degrees

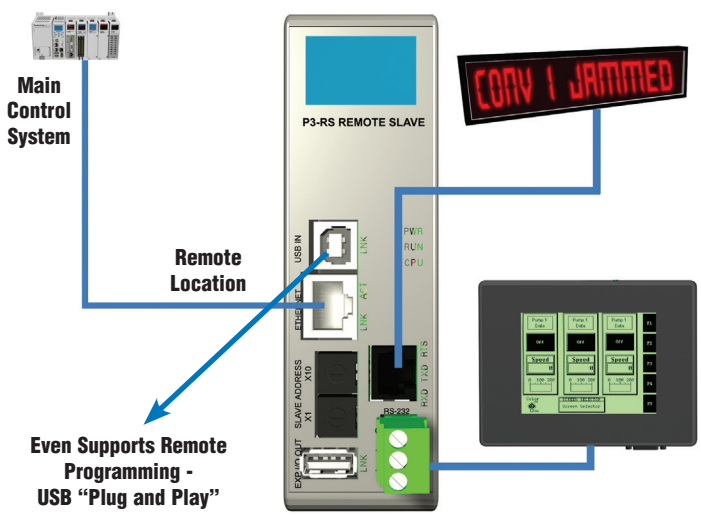
Date: 1/21/2010 Time: 16:29:03

Built-in E-mail Capability

If your Productivity3000 is on a network with an SMTP server, it can send e-mails right from your ladder logic. Embed tag data for even more informative messaging. A dedicated instruction makes it simple.

Remote Slave Connectivity Options

The Remote slave module installs in the CPU slot of the first base in each remote base group. It includes two serial communication ports (both supporting Modbus RTU Master/Slave and ASCII In/Out up to 115.2K baud rate): one (1) RS-232 port and one (1) RS-485 port. So each of your remote base groups can connect to additional serial devices. You can even program your P3-550(E) CPUs from the USB port on any remote slave; just plug in a USB cable and be productive - even in a remote location!



Company Information
Control Systems Overview
CLICK PLC
Do-More PLCs Overview
Do-More H2 PLC
Do-More T1H PLC
DirectLOGIC PLCs Overview
DirectLOGIC DL05/06
DirectLOGIC DL105
DirectLOGIC DL205
DirectLOGIC DL305
DirectLOGIC DL405
Productivity 2000
Productivity 3000
Universal Field I/O
Software
C-More HMI
C-More Micro HMI
ViewMarq Industrial Marquees
Other HMI
Communications
Appendix Book 1
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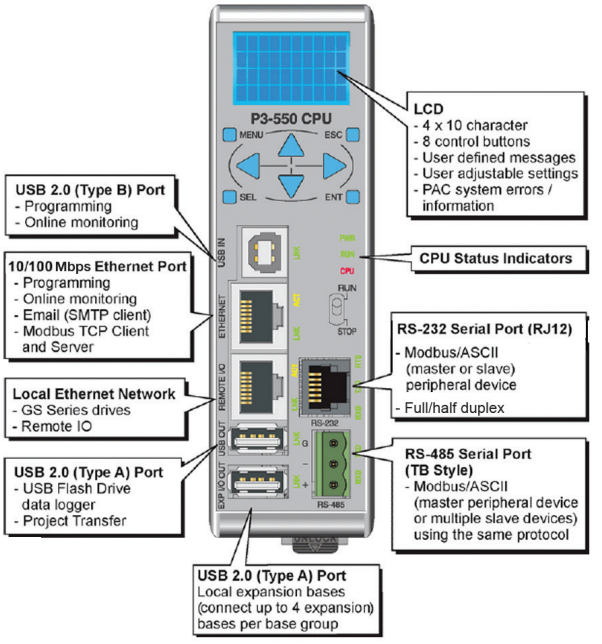
Incredible Communications Capabilities ...

Seven Ports on the P3-550 CPU

The P3-550 CPU has seven ports available to handle most of your communication needs. You shouldn't have to pay extra or take up valuable slots for each communication port required to solve your application. From plug-and-play programming to database connectivity, the Productivity3000 is designed to meet all your communication needs.



Two Ethernet Ports

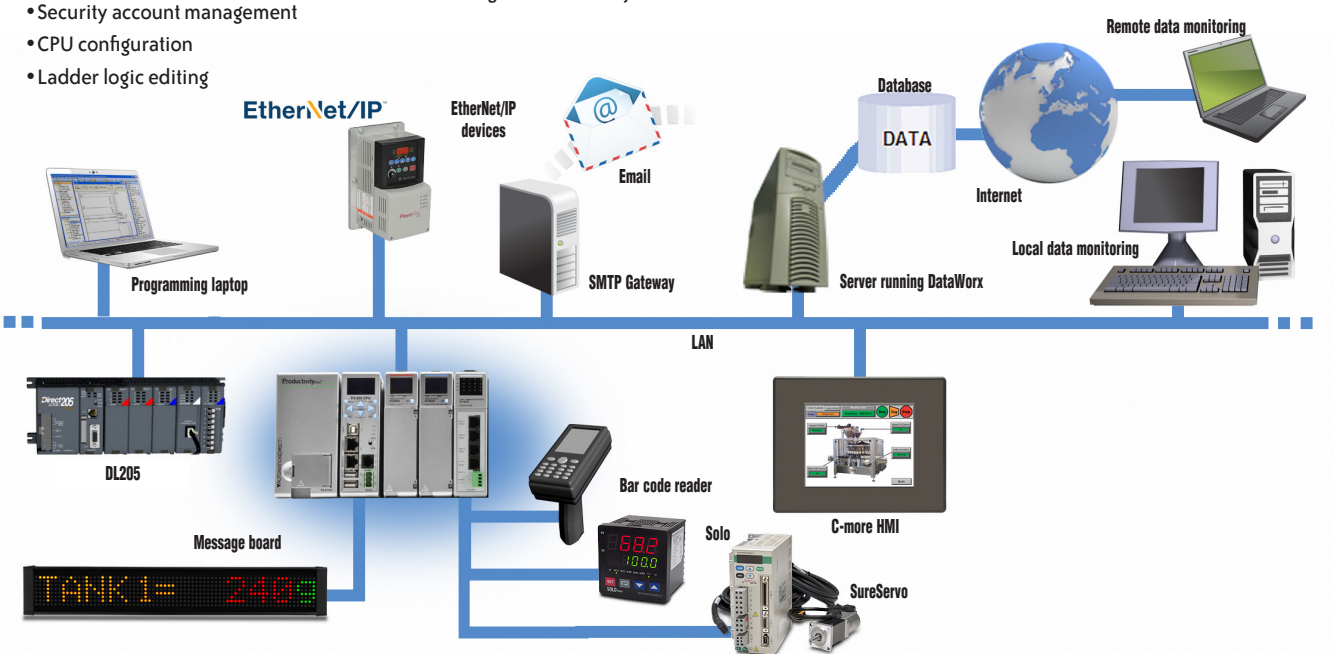
The P3-550(E) CPUs have two built-in Ethernet ports. One connects to Remote Slave I/O racks (up to 16) and up to 32 variable frequency drives. The other can connect the CPU to HMIs, other controllers, EtherNet/IP devices, and to your factory network.

CPU programming and monitoring including:

- Real-time data view
- Error history monitoring
- Task management
- Security account management
- CPU configuration
- Ladder logic editing

Ethernet capabilities include:

- Database/enterprise connectivity
- Connect to EtherNet/IP devices
- Sending e-mail
- Connecting to other factory devices



Two Serial Ports

The P3-550(E) CPU has two serial ports built-in:

- One (1) full/half duplex RS-232 (RJ12)
- One (1) RS-485 (3-wire terminal block)

Both ports support:

- Modbus RTU Master connections
- Modbus RTU Slave connections
- ASCII incoming and outgoing communications
- Custom Protocol incoming and outgoing communications

Add up to 44 additional serial ports with SCM modules

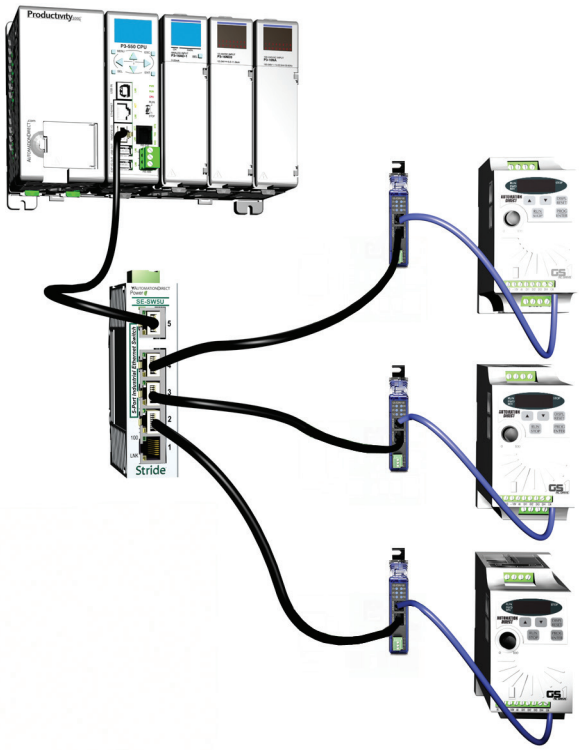
ASCII Communications

Use ASCII communications instructions to send and receive non-sequenced String data via a serial port. ASCII communications are typically used for receiving bar code strings from a scanner or sending statistical data to a terminal or serial printer.

Write your own protocol if needed

Send and receive non-sequenced byte arrays with the custom protocol capability. This function is typically used for communicating with devices that don't support the Modbus protocol but do support some other serial protocol.

... All Built in to the CPU!



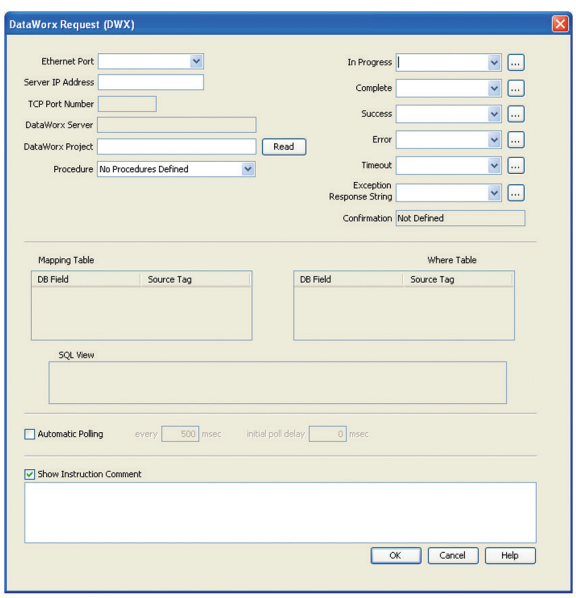
Connect up to 32 VFDs

Connecting your Productivity3000 to variable frequency drives couldn't be easier! Connect up to 32 of our GS1, GS2, or Durapulse (GS3) drives via Ethernet (using our GS-EDRV100 modules), and the Productivity3000 will automatically detect them. The auto-discovery process eliminates the configuration headaches - your drives are ready to program in just a few minutes.

After the auto-discovery process, the dedicated instructions "GS Drives Read" and "GS Drives Write" will prompt the programmer with all the available parameters (in both "run mode" and "stop mode") that can be configured for each model of drive - then it's a cinch to fill in the blanks and program your drives!

Perfect Match for Our C-more HMI

Export your tagname database from the Productivity3000 and import it into C-more software to jumpstart your HMI development. No more digging through your notes, or hunting through your ladder logic to find the right tagname.



Specific instruction designed for database communication

The DataWorx Request (DWX) instruction lets you define all aspects of the connection to a DataWorx server (software sold separately), and even allows tags to be assigned for In Progress, Complete, Success, Error, Timeout, and more. Define your own mapping table, 'where' table, and SQL View, and configure automatic polling with custom polling periods.

Easy data logging

The DataWorx™ P3K data logging software provides an easy and inexpensive way to collect data from the Productivity3000 controller by connecting it to enterprise database systems powered by Microsoft Access, SQL or ODBC compatible servers. Report-by-exception operation eases network traffic by sending information only when needed. The data logging software can be purchased directly from Inteworx.

Simple Motion Control by Design

P3-HSO

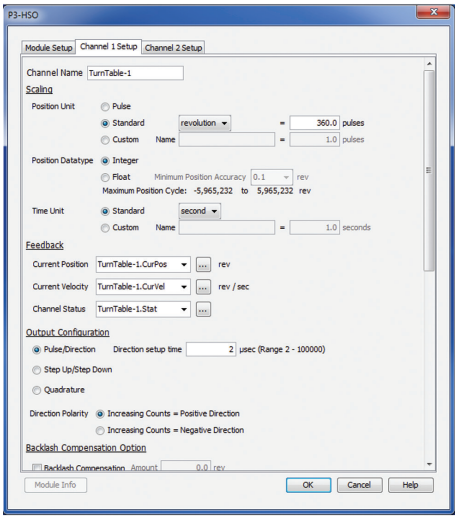
High-Speed Pulse Output Module 2 channels @ 1MHz/channel

P3-HSI

High-Speed Input / Counter 2 channels @ 1MHz/channel

ZL-CBL40-*S

3 new ZIPLink Cables for the High-Speed modules

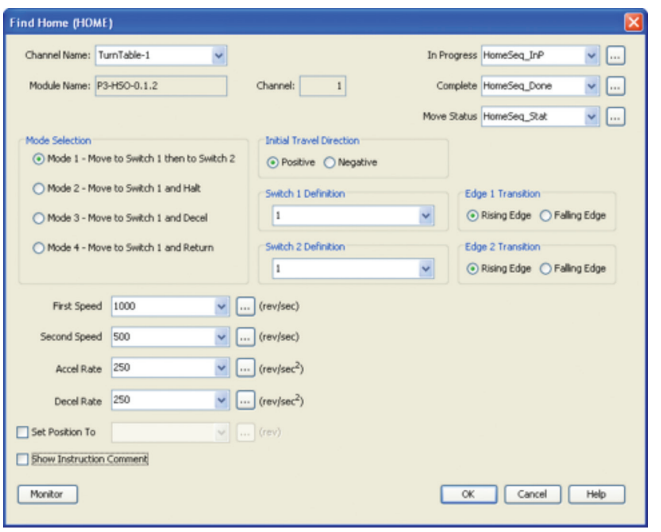


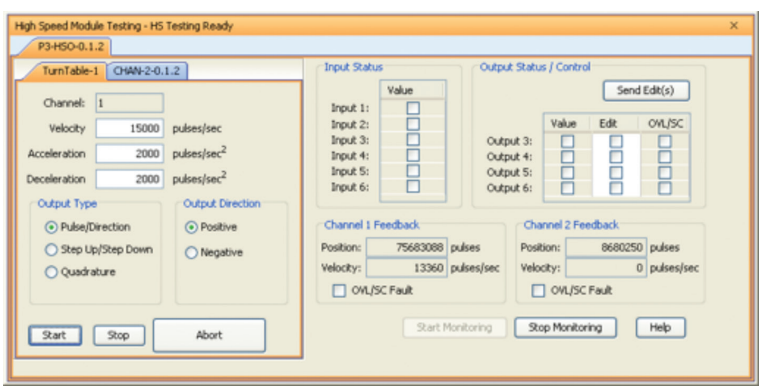
Drop-in Hardware Configuration

Module configuration is a snap with the Productivity3000 motion modules. Drop your P3-HSO (High-Speed Output module) or P3-HSI (High-Speed Input module) into the hardware configuration and define each channel's behavior, status bits, limits and scaling on-the-fly … All without the need for an external configuration utility or software.

Simple Instructions

With straightforward instructions such as "Find Home", "Set Position", "Simple Move", to name a few, it's never been easier to get your simple motion application up and running





Integrated High-Speed Module Testing

The integrated High-Speed module testing tool is a great way to test your hardware, including the module, module wiring, I/O operations and connected stepper or servo (if applicable). With this simple tool, no programming is necessary to see if you are getting pulse signals from your high-speed output module.

Module Specifications

Greater speed, higher precision than any motion module we've ever offered!

P3-HSO: Pulse Output Specifications		
Pulse Output	***2 Channels***	
Pulse Type (per channel)	Selectable: Pulse & Direction, Up/Down or Quadrature	
Signal Type (per channel)	RS-422 Line Driver Current Sinking & Sourcing	Open Drain FET Current Sinking
Output Volts	RS-422 levels	24 VDC
Output Volts Maximum	5 VDC	36 VDC
Overcurrent & Short Circuit Protection	Current limit and Thermal shutdown[2]	Current limit and Thermal shutdown[1]
Protection Short to Ground	Yes	Yes
Overcurrent Trip Level	Output current limit +/-200 mA max[2]	100 mA min
Max Continuous Output Current	+/-60 mA	40 mA
Max Switching Frequency (1M cable)	1 MHz	500 kHz[3]
Max Switching Frequency (10M cable)	1 MHz	200 kHz[3]
General Purpose Inputs	(6) 5-24 VDC inputs	

NOTES:

1.Any fault shuts off the output. Fault is indicated and output is kept off until a new move start is received.

2.RS-422 thermal faults auto reset after device cools down.

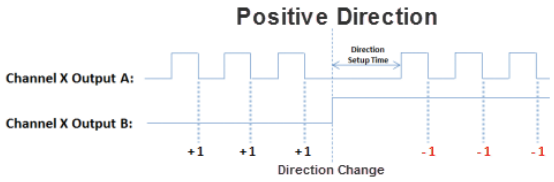
3.Outputs are not limited to these speeds but single ended signals produced by the FETs are not usually reliable above these speeds due to cabling capacitance.

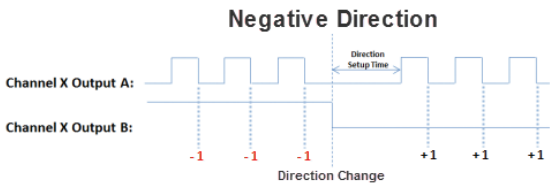
Channel Output Options

Each channel's output can be configured with one of three profiles. Pulse/Direction, Step Up/Step Down and Quadrature selections are provided to determine the output behavior.

Pulse/Direction:

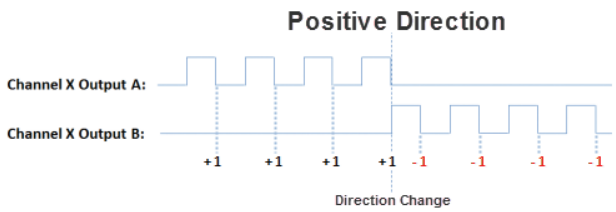
This selection configures the module to generate the Pulse Train on Output A of the channel and the Direction is established on Output B of the channel. When the logic tells the module to change direction, Output B will toggle from low to high and vice versa. The Direction Setup Time field specifies how long the direction signal should be established before the pulse train starts. The range is from 2 microseconds to 100 milliseconds. If the module is currently sending a pulse train and a direction change has been issued, the module will freeze the pulse outputs for the time period specified.

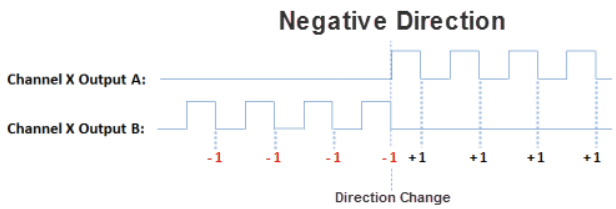




Step Up/Step Down:

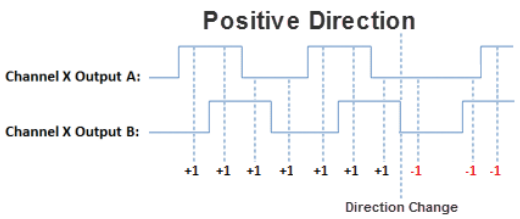
When this option is selected, the Pulse Train is generated on Output A when a Positive direction has been specified and on Output B when a Negative direction has been specified.

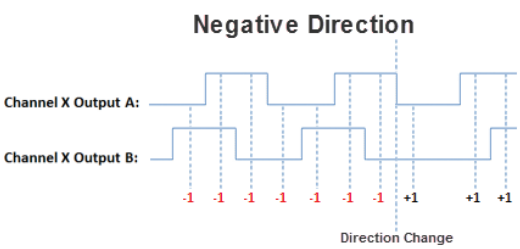




Quadrature:

When this option is selected, the Pulse Train output is generated on Output A and Output B, offset by a 1/2 cycle. Direction changes from the logic cause the offset to change from one output to the other. There are also Direction Polarity options that allow the polarity to be changed logically.





Module Specifications

P3-HSI: Single Ended (5-24V) Input Specs	
Status input	Single Ended inputs (8 pts: 1A, 1B, 1Z, 2A, 2B, 2Z, 3IN, 4IN)
Isolation	Each input is isolated from other circuits
Input Voltage Range	5-24 VDC
Input Volts Maximum	+/- 34 VDC, limited by protection
Input Impedance	1 kΩ min., 5 kΩ max.
Inputs Rated Current	5-24 VDC, 16 mA 5.2 mA typical @ 5 VDC 22 mA max. @ 34 VDC
OFF to ON Response Time	1A, 1B, 2A, 2B: 0.48 us 1Z, 2Z, 3IN, 4IN: 6 us
ON to OFF Response Time	1A, 1B, 2A, 2B: 0.48 us 1Z, 2Z, 3IN, 4IN: 6 us
Max. Input Frequency	1A, 1B, 2A, 2B: 200 kHz* 1Z, 2Z, 3IN, 4IN: 200 kHz

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

P3-HSI: Differential (5V) Input Specs	
Pulse input	Differential inputs (6 pts: 1A, 1B, 1Z, 2A, 2B, 2Z)
Isolation	Each input is isolated from other circuits
Input Voltage Range	5 VDC
Input Volts Maximum	+/- 5.6 VDC, limited by protection
Input Impedance	200 Ω min., 500 Ω max.
Inputs Rated Current	5 VDC, 15 mA 8 mA typical, 15 mA max.
OFF to ON Response Time	1A, 1B, 2A, 2B: 0.48 us 1Z, 2Z, 3IN, 4IN: 6 us
ON to OFF Response Time	1A, 1B, 2A, 2B: 0.48 us 1Z, 2Z, 3IN, 4IN: 6 us
Max. Input Frequency	1A, 1B, 2A, 2B: 1 MHz 1Z, 2Z, 3IN, 4IN: 300 kHz*

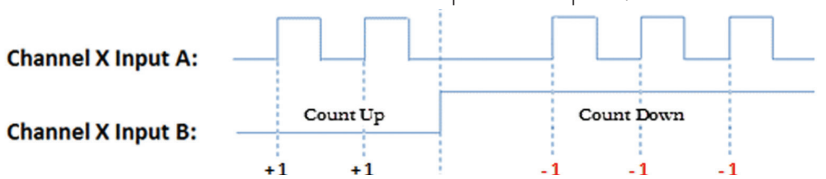
NOTE: The Z pulse input (1Z & 2Z) is capable of capturing a 1 MHz wide pulse for the purpose of resetting an encoder count but a 3 microsecond pause (300 kHz) is required between pulses.

Channel Input Mode Options

Each channel's input can be configured with one of three profiles. Pulse/Direction, Quadrature X1 and Quadrature X4 selections are provided to determine the input behavior.

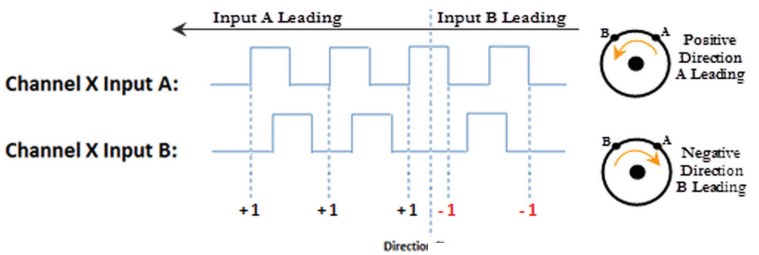
Pulse/Direction:

This selection configures the module to receive the Pulse Train on Input A of the channel and to read the Direction on Input B of the channel. When the signal on Input B is low, the module will count up when receiving pulses on Input A. Conversely, when the signal on Input B is high, the module will count down when receiving pulses on Input A.



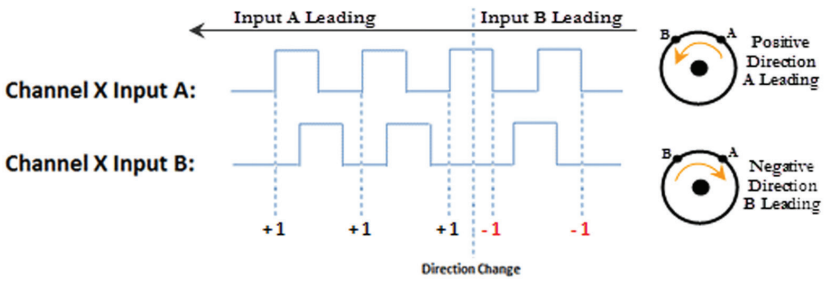
Quadrature X1:

With this selection, the channel count will depend on which input is leading and which is trailing. If the Direction Polarity is set to Increasing Counts = Positive Direction and Input A is leading Input B by a 1/2 pulse, then the count will increase by one with every rising edge of the pulse received on Input A.



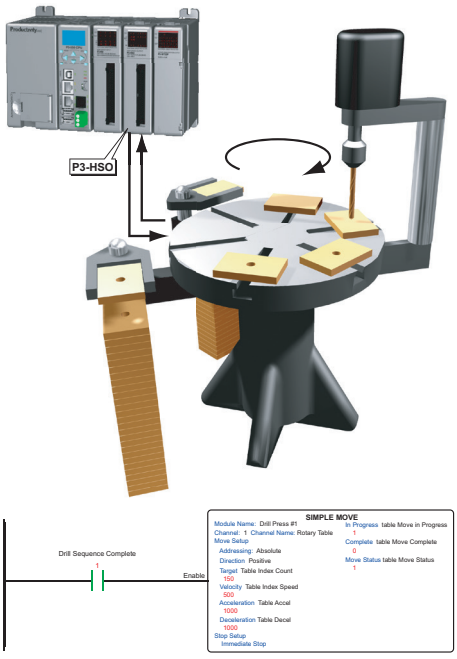
Quadrature X4:

As with the Quadrature X1 setting, the channel count is dependent upon which input is leading and which is trailing. With the Quadrature X4 selection, however, the counts will increment on each rising and falling edge of both input pulse trains.

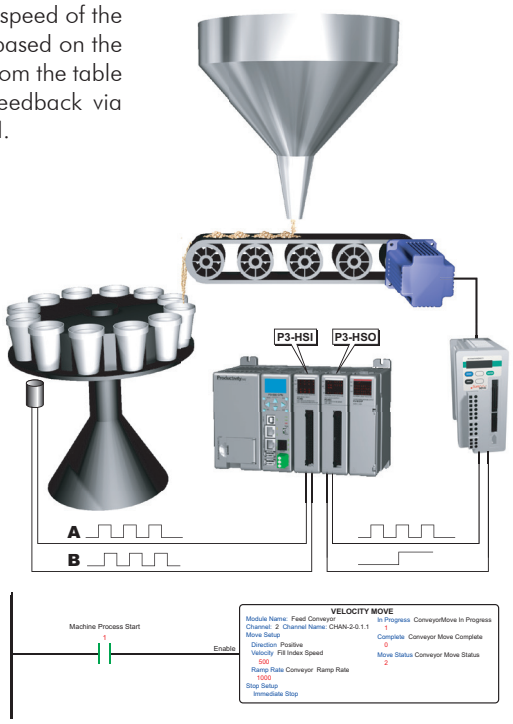


Application Examples

In this example the Simple Move is used to index the table into position after each cycle. Simply specify the number of pulses to move (or scale it to inches, millimeters, revolutions, etc).



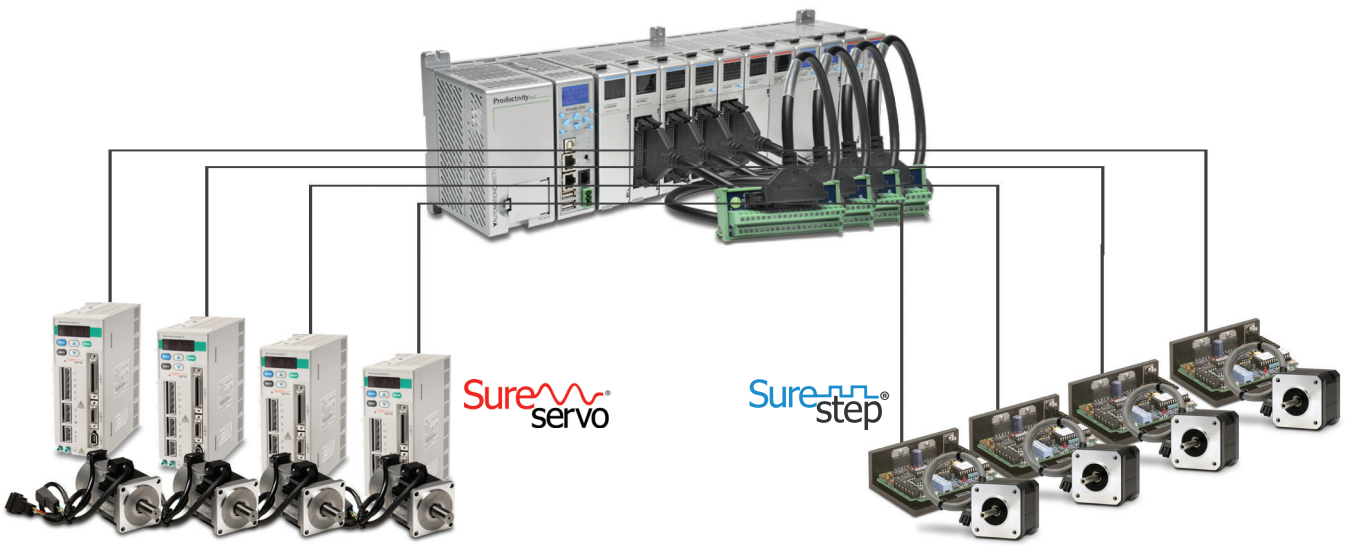
In this example the Velocity Move instruction is used with the P3-HSO module to synchronize the speed of the SureServo driving the fill conveyor. The conveyor is synchronized with the rotational speed of the turntable based on the signal(s) from the table encoder feedback via the P3-HSI.



Diverse Application? No Problem … We Can Handle It!

Add up to a maximum of eleven (11) P3-HSO or P3-HSI modules in any combination to any CPU and remote base group. That gives you up to 22 axes of motion or high speed counting capability in a single base group. These modules are supported and fully functional in the CPU base, local and remote expansion bases.

Our standard instructions were designed to make your everyday motion applications simpler; The Find Home, Set Position, Simple Move & Velocity Move instructions (to name a few) were created to get you up and running sooner. Features and capabilities such as Registration, Jerk Control, Channel Scaling were included to give you the flexibility to accomplish those jobs.



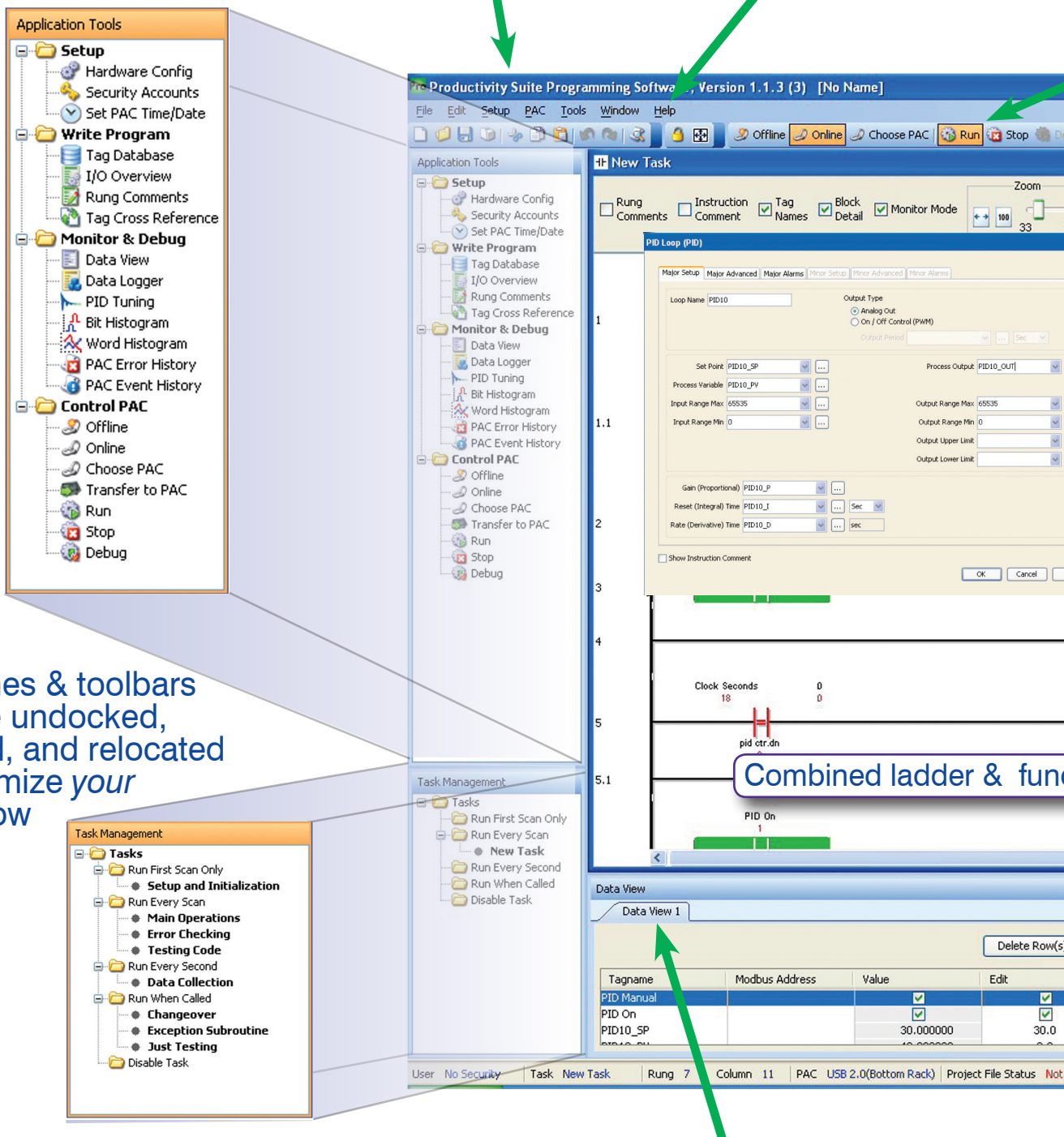
Productivity Suite Software...

Application Tools at your fingertips

From Configuration to Debug - access all your tools quickly and easily

Windows® look & feel

Comprehensive



All panes & toolbars can be undocked, tabbed, and relocated to optimize *your* workflow

Combined ladder & fun

Task Manager for organizing your code

The Task Management pane allows quick and easy prioritization of your Ladder Logic code. Break your code into logical tasks, and then use the task manager to easily change the priorities, or even disable parts of your code.

Create (and save) multiple data view windows for easy debugging

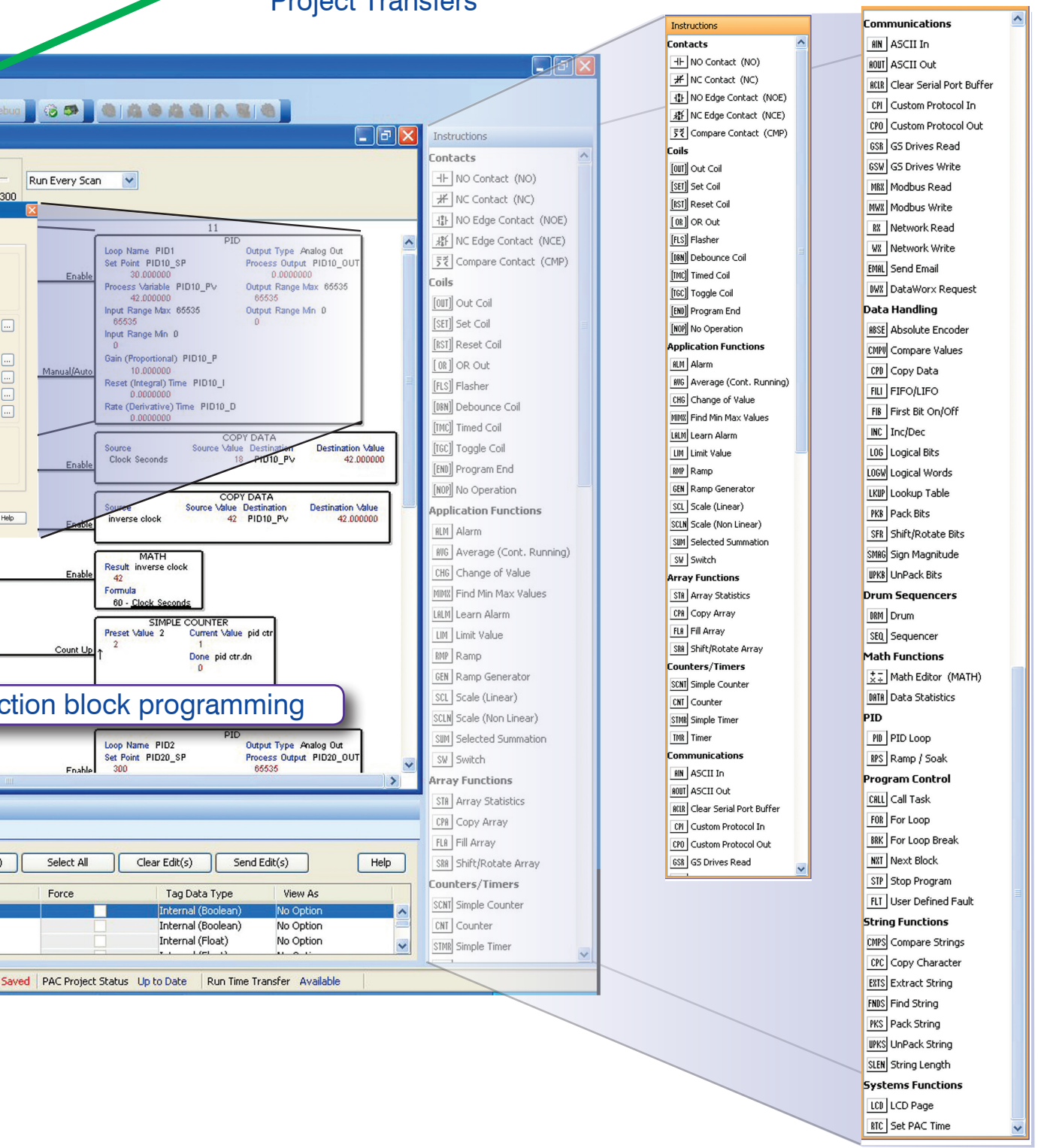
...enables fast and efficient development

Drag and Drop Instructions...

...then simply fill in the blanks, for super-productive development

Help Files

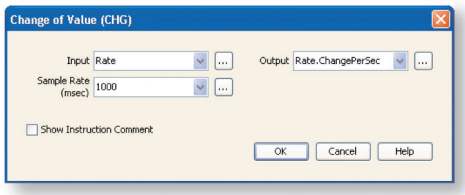
Run-time Edits & Project Transfers

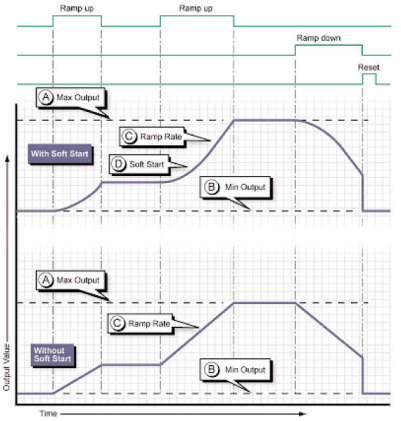


Productive Instructions ...

Change of Value (CHG) Instruction

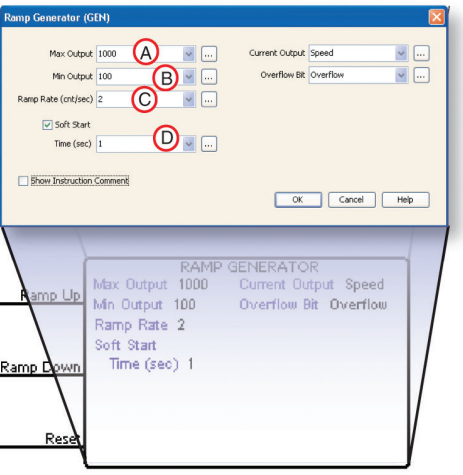
Read two consecutive Values from a Tag at a predetermined Sample Rate and Output the Amount of Change.





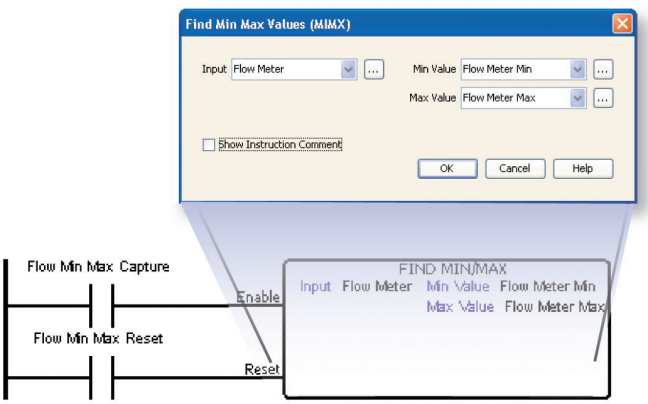
Ramp Generator (GEN) Instruction

Increase or Decrease the value of an Output at a defined rate.



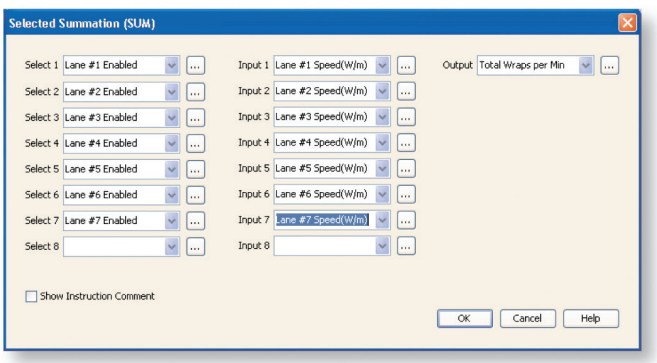
Find Min/Max Values (MIMX) Instruction

Store the Lowest and Highest Values of a Numerical Tag.



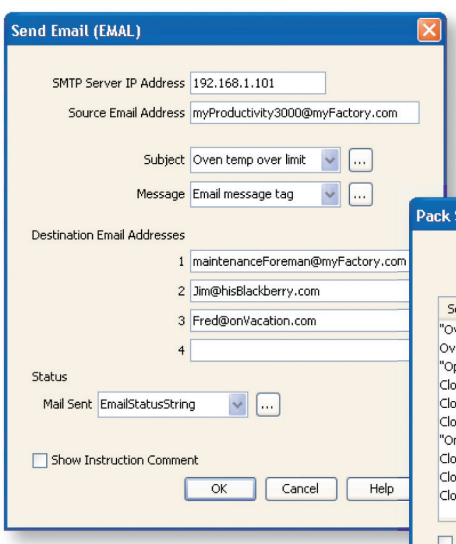
Selected Summation (SUM) Instruction

Sum the values for up to eight Selected Inputs.



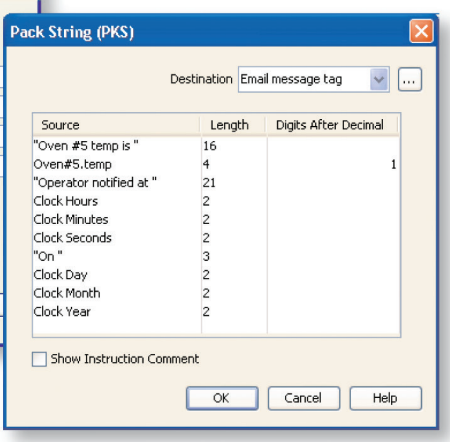
Send Email (EMAL) Instruction

Send an Email to up to four Email recipients via the CPU Ethernet port. *Note: requires an SMTP server on the local network. Use in conjunction with the Pack String Instruction to combine predefined text with tag data for informative messages.*



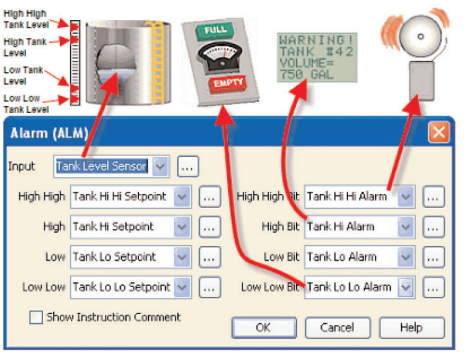
Pack String (PKS) Instruction

Combine data from two or more Numeric, Boolean, or String Tags into one common String Tag.

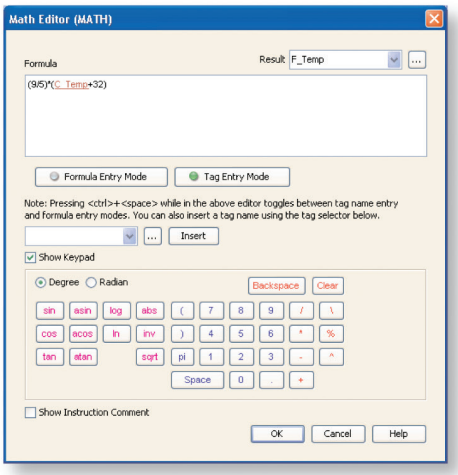


Alarm (ALM) Instruction

Monitor an Input Value and enable Alarm Bit Outputs based on predefined Setpoints.



... Here are Just a Few!

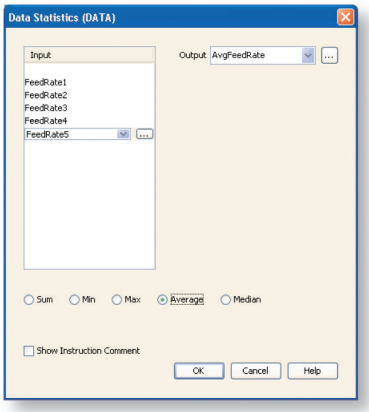


Nimble Math Editor (MATH) Instruction

The Productivity Suite makes mathematical operations a cinch. Simply type your formula into the formula box area, or use the calculator style keypad to enter equations. Insert tagnames wherever they are needed, and make sure to enter a tagname for the result. You can type the tagnames or use the tagname chooser to look up a specific tag and insert it. How much more productive could this make you?

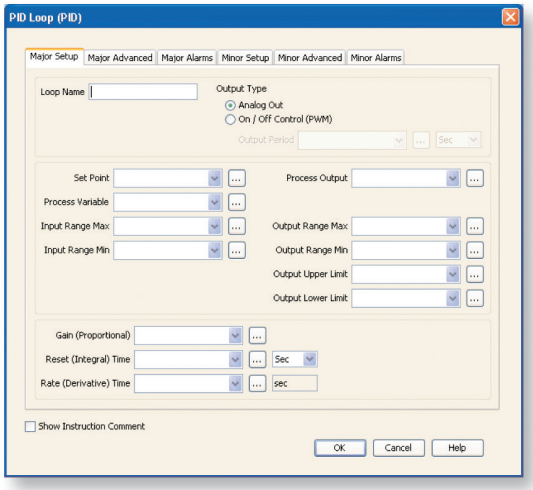
Data Statistics (DATA) Instruction

In addition to the Math Instruction, Productivity Suite offers the Data Statistics instruction for calculating sums, averages, or median values or for determining the Min. or Max. value from a group of tags.



Advanced PID Loop (PID) Instruction

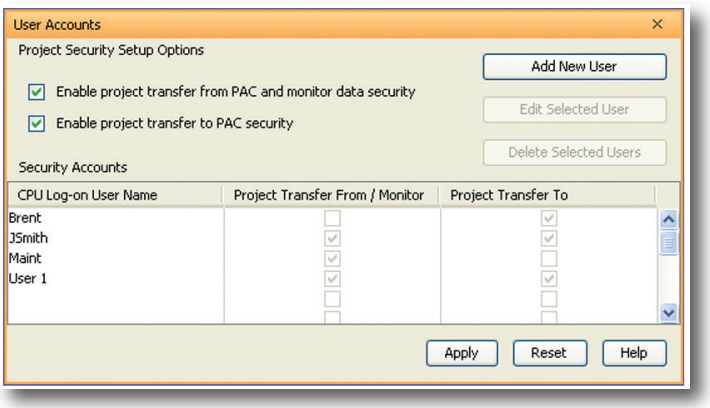
PID is used for precise control of a process or system by monitoring a process variable and dynamically varying an output to achieve a desired set point. The Productivity3000 offers advanced PID, a cascade mode for handling a second (minor) PID loop, and "fill-in-the-blank" simplicity for a wide range of parameters and alarm values.



Security features

Multi-Level Security Options

Need to secure your Productivity3000? Enable the two security options, and create the desired user accounts. You can allow users to read the project and monitor data only, and/or allow them to transfer projects into the CPU (make changes). Manage the user accounts independently, or quickly turn the security levels on and off globally for all users.



There's so much more...

We don't have room to show you all the time-saving instructions, so please download the software and see for yourself!

and it's a FREE Download!

That's right, the Productivity Suite software is a free download from our Web site. Give it a try and see all the great instructions, the intuitive user interface, and the extensive help files. Remember, just click the "Help" button on any instruction for a detailed description of that instruction.

Built-In Web Server and Remote App

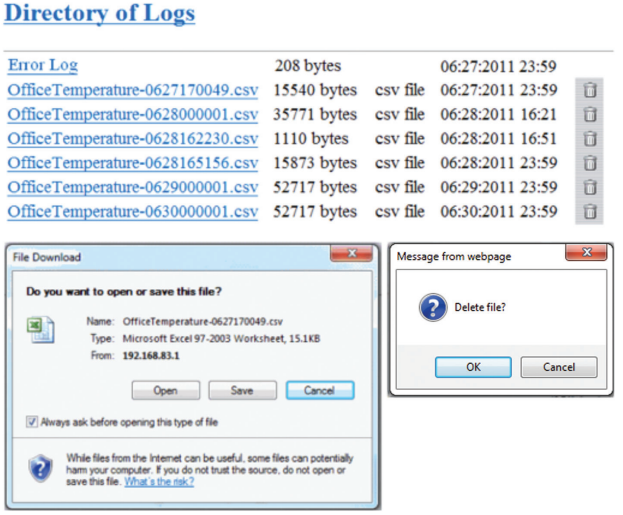
With the Productivity series CPU's integrated Web Server, you can access Data Logger files stored on the connected USB device as well as read-only System Tags to view system status.

Secure Login

Set your Username and Password to prevent unwanted access.

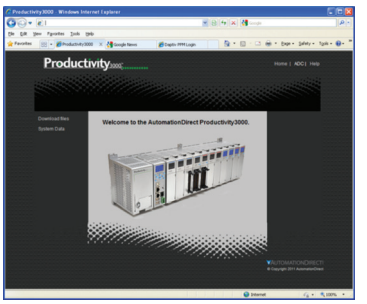
Accessing Data Files

With the Productivity3000's data logging capabilities built into the CPU, you can now access this data from anywhere (with the proper provisions and security consideration). Simply configure your CPU's data logger to store files to the removable USB device port and enable the Web server from your CPU's hardware configuration page.



The data log files are presented in a directory based on the file names and the frequency of archive you select when configuring the Data Logger. From the Web browser you can easily manage these files. You have the options of viewing, saving or deleting the files from the USB drive. Also, when you select the "Log System Errors" in the Data Logger, you gain access to the Error log file.

Once you have accessed the internal Web browser, select from the Downloaded data log files or the list of System data categories for viewing.

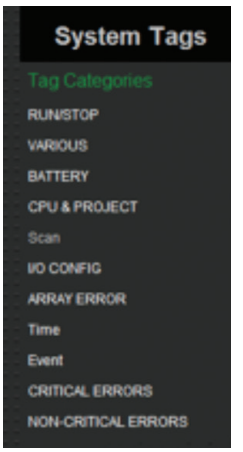


Accessing System Tags

When you select the System Data option from the Web server main screen, you have access to all read-only System tags in the CPU. These are divided into the categories shown on the right.

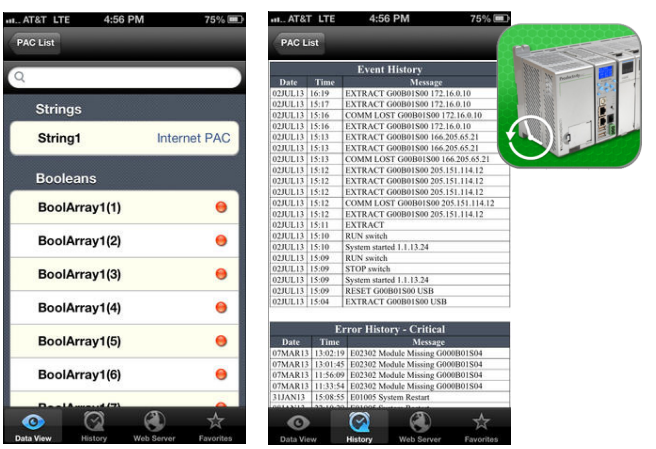
This example below shows the CPU Date and Time tags.

2012	Real time clock calendar Year.
5	Real time clock calendar Month.
15	Real time clock calendar Day.
13	Real time clock Hours.
59	Real time clock Minutes.
44	Real time clock Seconds.



Remote App for mobile devices

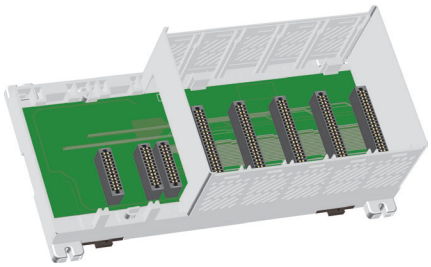
Check out the "PACData" app (free download on Apple App Store) that gives you the capability to remotely monitor specified program tags in the Productivity3000 from your phone or tablet (iOS only at this time).
You also gain access to error and event history as well as login capabilities to the CPU's built-in Web server where you can view any of your data log files. On any screen, zoom into specific values and save a screen capture if needed.



Productivity3000 Overview

Bases

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



Productivity3000 Bases		
Part Number	Description	Price
P3-03B	3-slot base	$104.50
P3-05B	5-slot base	$125.50
P3-08B	8-slot base	$160.50
P3-11B	11-slot base	$195.50

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
P3-01AC	Power supply (100–240 VAC)	$133.00
P3-01DC	Power supply (24–48 VDC)	$139.00

CPU Modules

Three CPU modules are currently available.

Productivity3000 CPU Modules		
Part Number	Description	Price
P3-550	CPU module	$699.00
P3-550E	CPU module	$499.00
P3-530	CPU module	$419.00

Expansion and Remote Slave Modules

One local expansion module and two remote slave modules are available.

Productivity3000 Expansion, Remote Slave Modules		
Part Number	Description	Price
P3-EX	Expansion module	$72.00
P3-RS	Remote slave module	$449.00
P3-RX	Remote slave module	$299.00

Productivity3000 Overview

Discrete I/O Modules

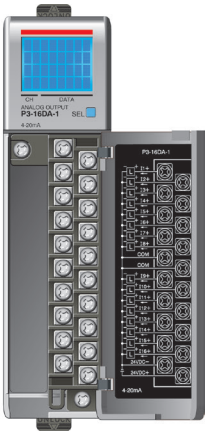
Seven discrete input and fourteen discrete output modules are available.

Discrete Input Modules		
Part Number	**Description**	**Price**
P3-16SIM	Input Simulator	$135.00
P3-08ND3S	Isolated Sinking / Sourcing Input	$71.00
P3-16ND3	Sinking/Sourcing Input	$116.00
P3-32ND3	Sinking/Sourcing Input	$158.00
P3-64ND3	Sinking/Sourcing Input	$198.00
P3-08NAS	Isolated AC Input	$96.00
P3-16NA	AC input	$121.00

Discrete Output Modules		
Part Number	**Description**	**Price**
P3-08TD1S	Isolated Sinking Output	$85.00
P3-08TD2S	Isolated Sourcing Output	$87.00
P3-16TD1	Sinking Output	$123.00
P3-16TD2	Sourcing Output	$123.00
P3-32TD1	Sinking Output	$158.00
P3-32TD2	Sourcing Output	$158.00
P3-64TD1	Sinking Output	$196.00
P3-64TD2	Sourcing Output	$196.00
P3-08TAS	Isolated AC Out	$135.00
P3-16TA	AC Output	$160.00
P3-08TRS	Isolated Relay Output	$96.00
P3-08TRS-1	Isolated Relay Output	$106.00
P3-16TR	Relay Output	$135.00
P3-16TD3P	Sinking/Sourcing Protected Output	$151.00

Analog I/O Modules

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



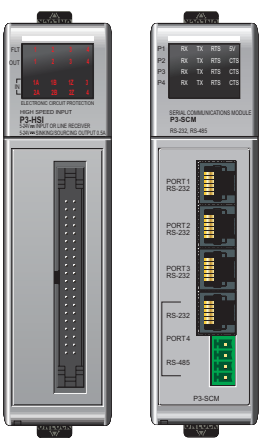
Analog Input Modules		
Part Number	**Description**	**Price**
P3-04ADS	Isolated Analog Input	$366.50
P3-08AD	Analog Input	$232.50
P3-16AD-1	Analog Current Input	$309.50
P3-16AD-2	Analog Voltage Input	$309.50
P3-08RTD	Analog RTD Input	$341.50
P3-08THM	Analog Thermocouple	$433.50

Analog Input/Output Modules		
Part Number	**Description**	**Price**
P3-8AD4DA-1	Analog Input/ Output	$332.00
P3-8AD4DA-2	Analog Input/ Output	$332.00

Analog Output Modules		
Part Number	**Description**	**Price**
P3-04DA	Analog Output	$249.00
P3-08DA-1	Analog Current Output	$433.50
P3-08DA-2	Analog Voltage Output	$433.50
P3-06DAS-1	Isolated Analog Current Output	$510.50
P3-06DAS-2	Isolated Analog Voltage Output	$630.50
P3-16DA-1	Analog Current Output	$543.00
P3-16DA-2	Analog Voltage Output	$543.00

Specialty Modules

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



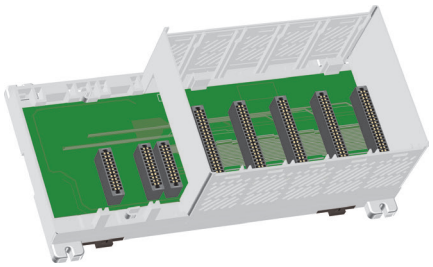
Specialty Modules		
Part Number	**Description**	**Price**
P3-HSI	High-Speed Input	$329.00
P3-HSO	High-Speed Output	$349.00
P3-SCM	Serial Communications Module	$285.00

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 CD 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 ***ZIP***Link 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

Productivity Suite programming software works with Vista (Home, Basic, Premium, 32 or 64-bit), Windows 7 (Home, Professional, Ultimate, 32 or 64-bit), Windows 8, 8.1 & Windows 10. These are the minimum system requirements:

- Vista or Windows 7 & higer Personal Computers with a Windows 8, 8.1 & Windows 10. Personal Computer with a (Windows Vista) 800 MHz or (Window 7 & higher) 1 GHz or higher processor (CPU) clock speed recommended; Intel Pentium/ Celeron family or AMD K6/Athlon/Duron family, or compatible processor recommended
- SVGA 1024x768 pixels resolution (1280x1024 pixels resolution recommended)
- 300MB free hard-disk space
- RAM: Vista or Windows 7 & higher with GUI version 2.0.0.x or higher RAM = 2GB memory (4GB recommended) **GUI Version 1.10 or lower RAM = 512MB free RAM (1GB recommended).
- CD-ROM or DVD drive for installing software from the CD
- USB or Ethernet port for project transfer to CPU

Programming Cable

You will need a standard USB or Ethernet cable for programming, depending on whether you use the USB (P3-550) or Ethernet (P3-530 and P3-550(E)) programming port.

We recommend using a USB programming cable (P3-550 only); just plug it in and it works. We sell A-to-B USB cables in various lengths:

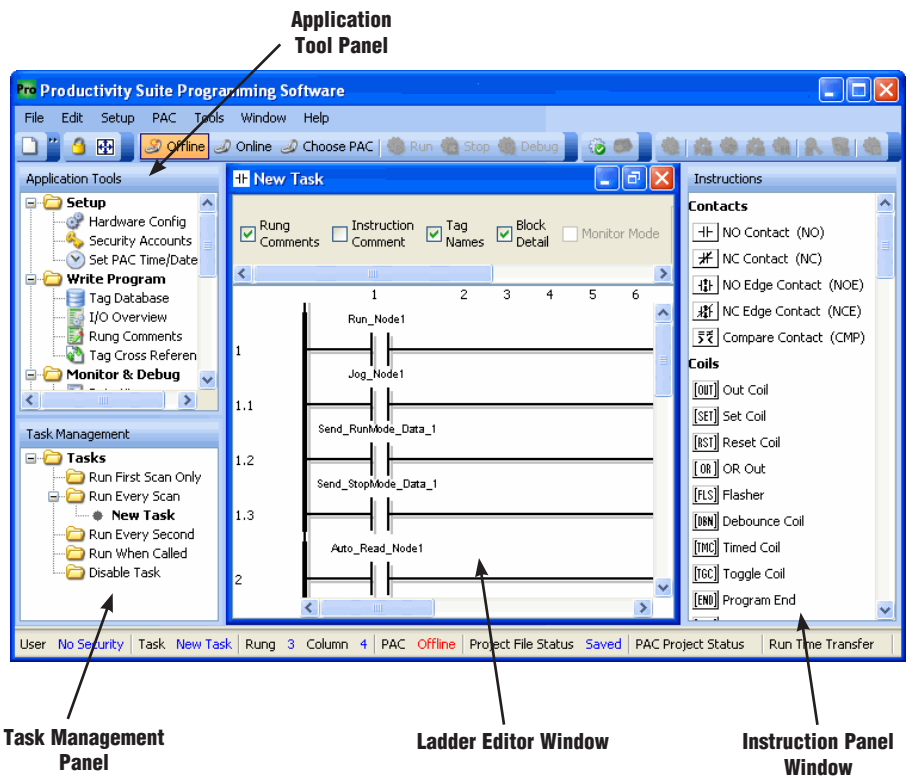
- USB-CBL-AB3 (3ft)
- USB-CBL-AB6 (6ft)
- USB-CBL-AB10 (10ft)
- USB-CBL-AB15 (15ft)

Or where possible use an Ethernet Cable:

- CAT5E STP (3ft to 50ft lengths available at www.automationdirect.com)

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.

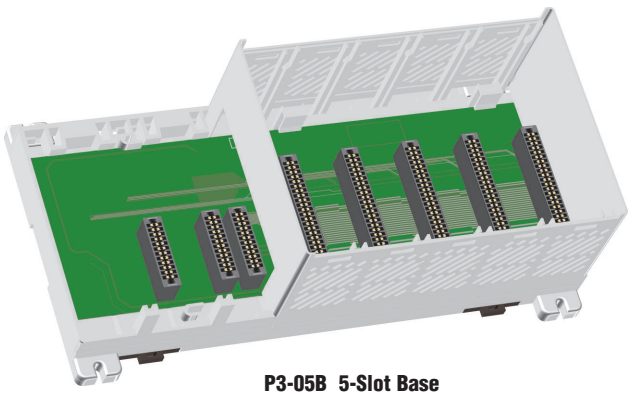


Bases

P3-03B	$104.50
P3-05B	$125.50
P3-08B	$160.50
P3-11B	$195.50

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

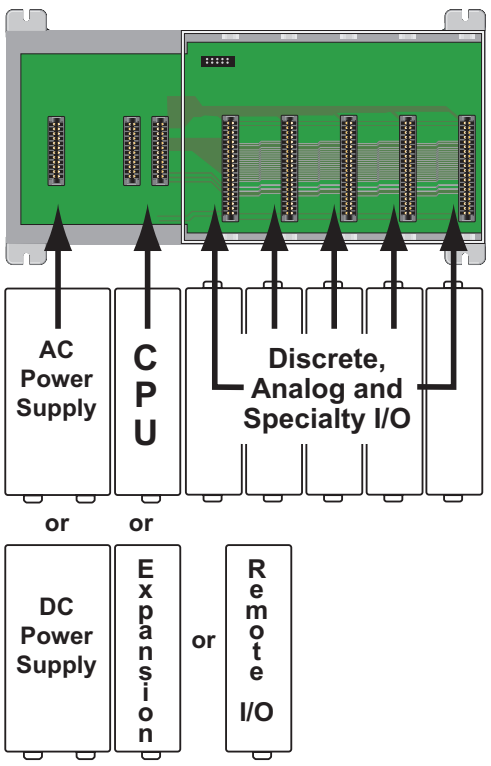
Input or Output Modules per Base	3, 5, 8, or 11
Power Supply Slots	1 (P3-01AC or P3-01DC)
CPU Slots	1 (P3-550(E)/530, P3-RS/RX and P3-EX compatible)
Module Types Supported	Discrete, analog and specialty
Module Placement Restrictions	None. Any I/O module may be installed in any I/O slot without power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

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Heat Dissipation	2.5 W
Weight	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
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.

Base Configuration



Power Supplies

P3-01AC $133.00

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 Specifications

P3-01AC User Specifications	
Input Voltage Range (Tolerance)	100 to 240 VAC (-15% / +10%)
Rated Operating Frequency	50 to 60 Hz with ± 5% tolerance
Maximum Input Power	72W
Cold Start Inrush Current	12A 3mS
Maximum Inrush Current (Hot Start)	12A 3mS
Input Fuse Protection (Internal)	Micro fuse 250V, 2A, slow blow Non-replaceable
Efficiency	83%
Output	24VDC @ 1.4 A (±10%) 5VDC @ 2.1 A (±5%) 3.3 VDC @ 6.1 A (±5%)
Maximum Output Power	57W Combined
Heat Dissipation	17W
Isolated User 24VDC Output	None
Output Protection for Over Current, Over Voltage, and Over Temperature	Self resetting for all three voltage outputs to base
Under Input Voltage Lock-out	55–65 VAC
Over Input Voltage Lock-out	265–280 VAC
Input Transient Protection	Varistor, plus input choke and filter
Operating Design Life	10 years at full load at 40°C ambient and 5 years at 60°C ambient

P3-01AC General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Enclosure Type	Open Equipment
Voltage Withstand (dielectric)	1900 VDC applied for 2 seconds
Insulation Resistance	>10MΩ @ 500VDC
Module Location	Power supply slot in any local, expansion, or remote base in a Productivity3000 System.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	345g (12.1 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.

Terminal Block Specifications	
Number of Positions	4 Screw Terminals
Pitch	0.3 inch (7.62 mm)
Wire Range	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
Screw Driver Width	1/4 inch (6.5mm) maximum
Screw Size	M3 size
Screw Torque	7–9 inch-pounds (0.882 - 1.02 N·m)

Power Supplies

P3-01DC $139.00

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 Specifications

P3-01DC User Specifications

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

P3-01DC General Specifications

Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Enclosure Type	Open Equipment
Voltage Withstand (dielectric)	750VDC applied for 2 seconds
Insulation Resistance	>10MΩ @ 500VDC
Module Location	Power supply slot in any local, expansion, or remote base in a Productivity3000 System.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	558g (19.7 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.

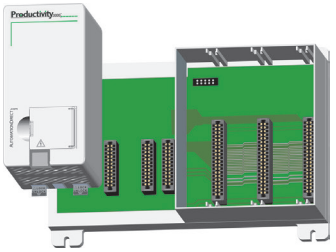
*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Terminal Block Specifications

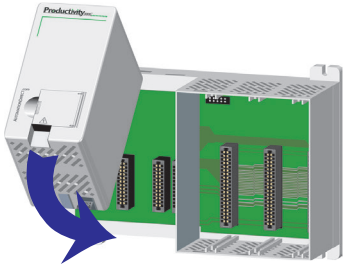
Number of Positions	4 Screw Terminals
Pitch	0.3 inch (7.62 mm)
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid Conductor 22–14 AWG (0.324 to 2.08 sq. mm) Stranded Conductor 3/64 inch (1.2 mm) insulation maximum
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	7–9 inch-pounds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

Power Supplies

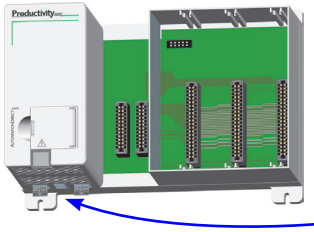
Power Supply Installation



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.

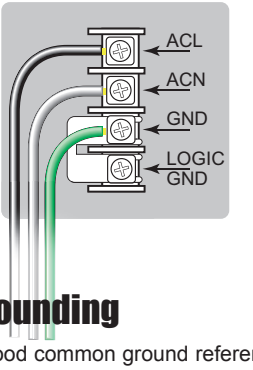


Step Three:
Snap the two retaining tabs into the locked position.

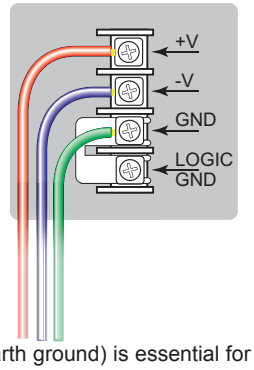
WARNING: Explosion hazard – Do not connect or disconnect connectors or operate switches while circuit is live unless the area is known to be non-hazardous. Do not hot swap.

Power Connections

P3-01AC



P3-01DC



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

P3-550 $699.00

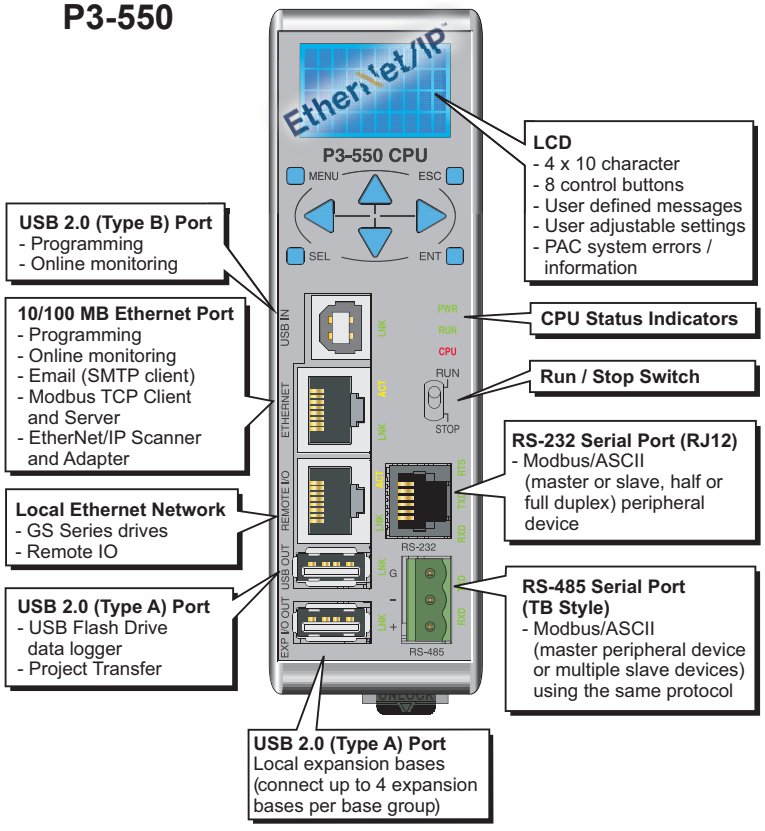
P3-550E $499.00

The P3-550 Standard and P3-550E are high-performance CPUs. Both have multiple communications ports which support USB, Ethernet and serial devices. Both provide a 4-line x 10-character LCD, remote I/O capability and the P3-550 has a USB programming port.

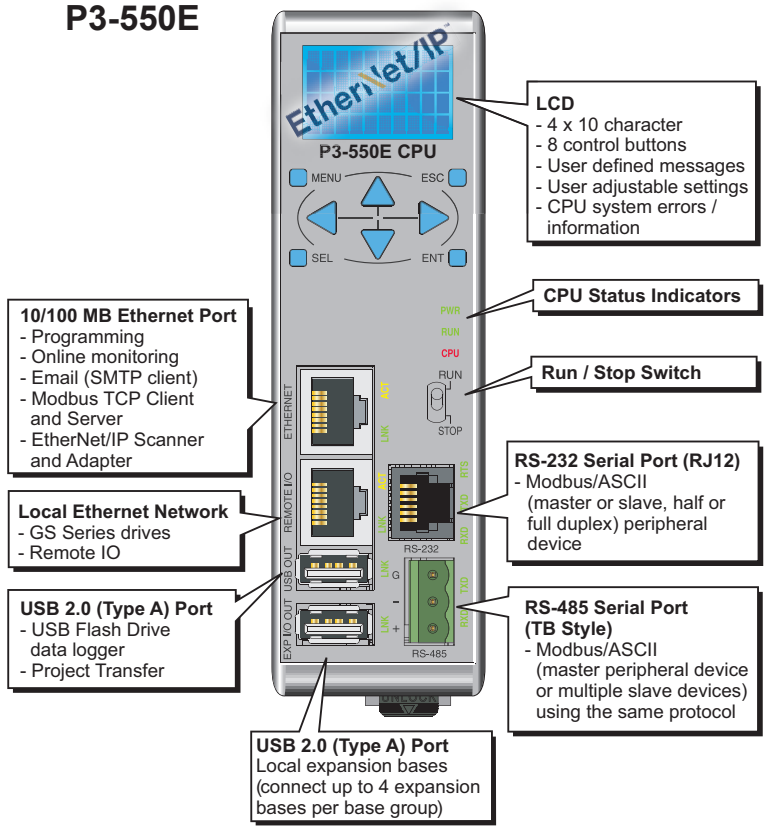
Each Productivity3000 system requires one CPU module be mounted in the controller slot on the first base of the local base group. The CPU stores and executes the user's program.

The system can be expanded with the P3-RS, P3-RX or P3-EX modules when using the P3-550(E) CPUs. The local, expansion, and remote I/O (P3-550(E) only) are assigned preconfigured or user-defined tag names which can be easily referenced in the ladder logic program.

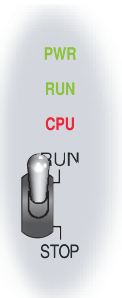
P3-550



P3-550E



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



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

CPU Modules

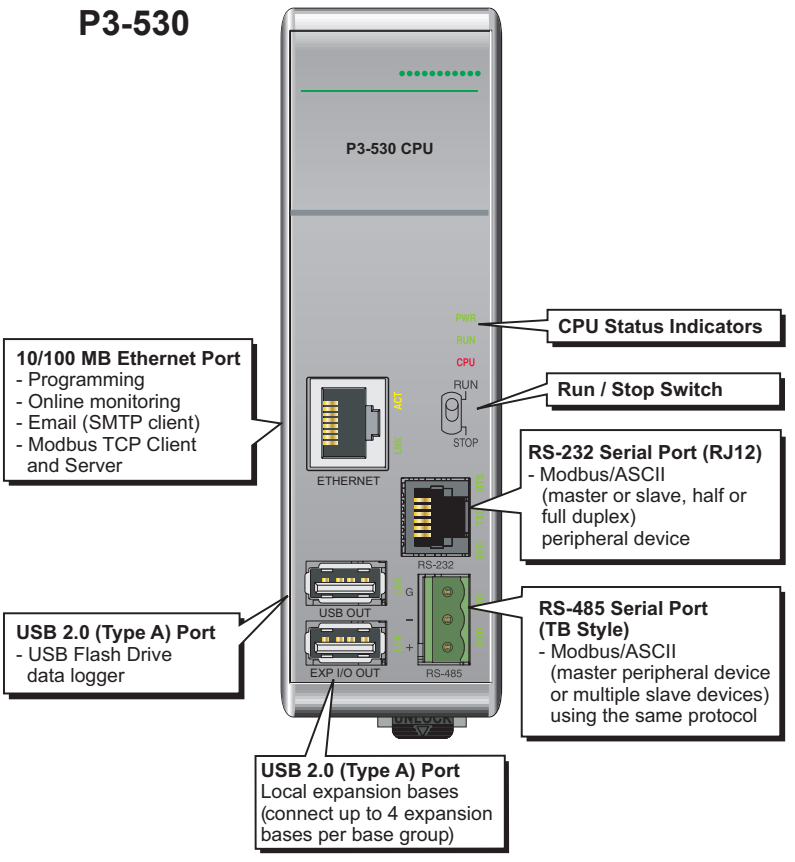
P3-530 $419.00

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

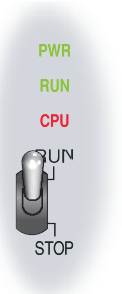
Each Productivity3000 system requires one CPU module mounted in the controller slot in the first base of the local base group. The CPU stores and executes the user's program.

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 tagnames which can be easily referenced in the ladder logic program.

P3-530



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



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

CPU Modules

Specifications (see notes below)

CPU Specifications	P3-550	P3-550E	P3-530
User Memory	50MB (Includes program, data and documentation)		25MB (Includes program, data and documentation)
Memory Type	Flash and Battery Backed RAM		
Retentive Memory	Models C3 and earlier: 100K Models D and later: 492K	492K	
Scan Time	600µs (3K Boolean, 1K I/O)		
Display	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
Communications	**USB IN:** Programming, Monitoring, Debug, Firmware	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 P3-RS or 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		
	RS-485: Removable Terminal Included, (1200–115.2k baud) ASCII, Modbus		
Hardware Limits of System	**17 Base Groups** 1 Local (P3-550) + 16 Remote (P3-RS/RX) **5 Bases per Base Group** 1 P3-550 or P3-RS/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)
Instruction Types	Application Functions Array Functions Counters/Timers Communications	Data Handling Drum Sequencers Math Functions PID	Program Control String Functions System Functions Contacts	Coils High Speed I/O
Real Time Clock Accuracy	±5s per day typical at 25°C ±15s per day maximum at 60°C			

IMPORTANT!

Hot-Swapping Information

Note: This device cannot be Hot Swapped.

NOTES:

1. *To utilize the 492K of retentive memory in the P3-550(E) 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 P3-550 CPU, you must use ProductivitySuite software version 1.10.0.11 or later and firmware version 1.1.15.97 or later*

4. *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	
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Heat Dissipation	7W
Enclosure Type	Open Equipment
Module Location	Controller slot in the local base in a Productivity3000 System
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	260g (9 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.

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

P3-550(E)/P3-530 Product Comparison			
Item	**P3-550**	**P3-550E**	**P3-530**
LCD Display	✓	✓	
USB Prog/Mon Port	✓		
Ethernet Port	✓	✓	✓
EtherNet/IP Protocol	✓	✓	
Remote Expansion Port	✓	✓	
USB Memory Stick Port	✓	✓	✓
USB Local Expansion Port	✓	✓	✓
RS-232 RJ12 Port	✓	✓	✓
RS-485 Port	✓	✓	✓
User Memory	50 MB	50 MB	25 MB

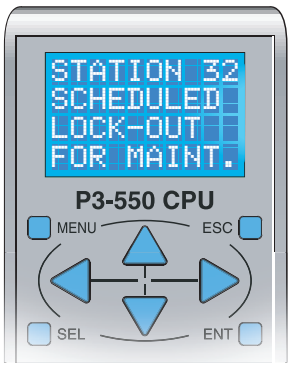
CPU Modules

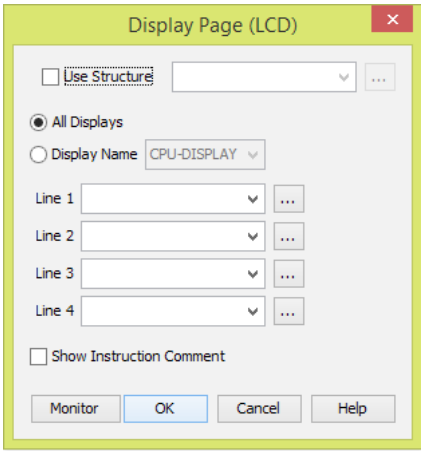
LCD Message Display P3-550(E)

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

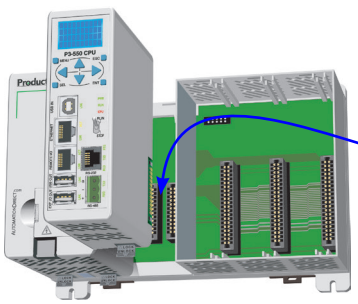
LCD control buttons located beneath the display allow the user to navigate through a menu, and arrow buttons allow for configuration of time and date settings.

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.

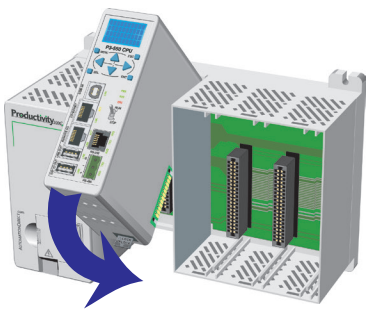




CPU Installation



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)

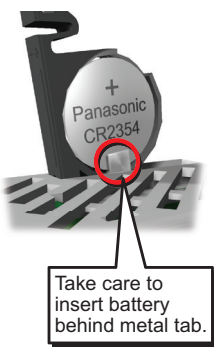
A battery is included with the P3-550(E) and P3-530 CPUs, but is not installed. The battery can be installed to retain the Time and Date along with any Tagname values that are set up as retentive.

The battery is not needed for program backup.

Battery (Optional)	
D2-BAT-1	Coin type, 3.0V Lithium battery, 560mA, battery number CR2354

Step One:
Press spring lock and swing battery compartment away from CPU.

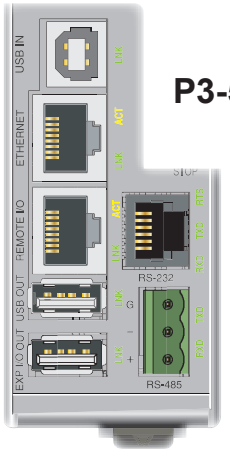
Step Two:
Insert battery and close compartment.

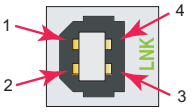


CPU Modules - Communications

Port Specifications

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





Mating face of USB type B female

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

USB IN Port (P3-550 only)

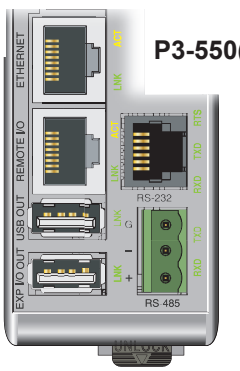
Used exclusively for connecting to a PC running the Productivity Suite programming software.

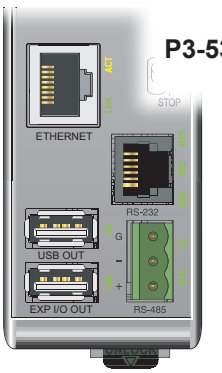
USB Type B Slave Input Specifications

Port Name	USB IN
Description	Standard USB 2.0 Slave input for programming and online monitoring, with built-in surge protection. Not compatible with older full speed USB devices.
Transfer Rate	480 Mbps
Port Status LED	Green LED is illuminated when LINK is established to programming software.
Cables	USB Type A to USB Type B: 3ft cable part # USB-CBL-AB3 6ft cable part # USB-CBL-AB6 10ft cable part # USB-CBL-AB10 15ft cable part # USB-CBL-AB15

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

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

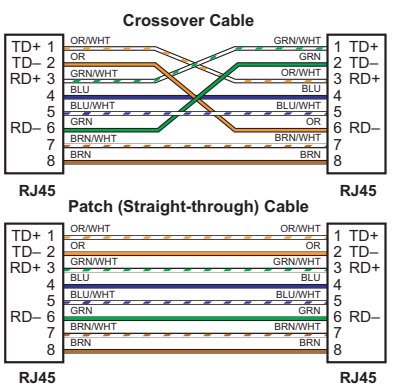


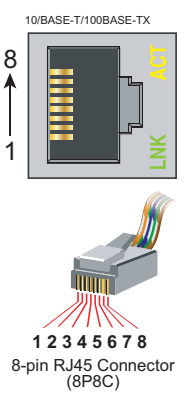


Ethernet Port

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) *P3-550(E)
- EtherNet/IP Adapter (CPU is the target, up to 16 connections, max 4 devices) *P3-550(E)
- 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 P3-550(E)
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-RS/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 automationdirect.com)	

CPU Modules - Communications

Port Specifications

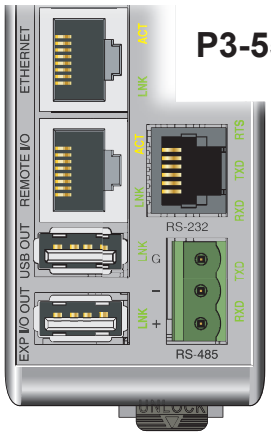
USB OUT Port

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

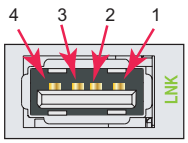
EXP I/O OUT Port

USB port used only for Expansion I/O connections to local P3-EX modules in a Productivity3000 base with I/O.

P3-550(E)



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 (P3-550(E)/P3-530) or program transfer (P3-550(E) only), with built-in surge protection. Not compatible with older full speed USB devices. A 0.5m 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 P3-EX 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 # P3-EX-CBL6 (included with P3-EX module)



Mating face of USB type A female

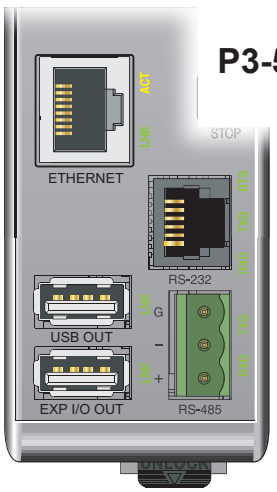
USB OUT

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

EXP I/O OUT

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

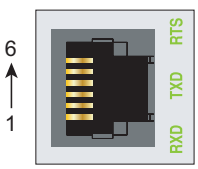
P3-530



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



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

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, ±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)	3kΩ, 1,000pf
Minimum Output Voltage Swing	±5V
Output Short Circuit Protection	±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

CPU Modules - Communications

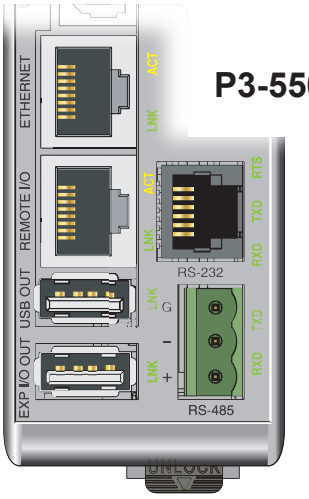
Port Specifications

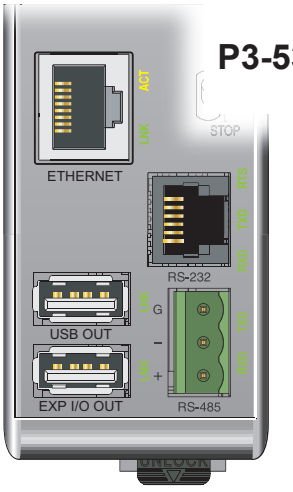
RS-485 Port

A 3-pin removable terminal block used for:

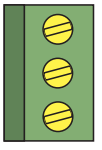
- Modbus RTU Master connections
- Modbus RTU Slave connections
- ASCII Incoming and Outgoing communications
- Custom Protocol Incoming and Outgoing communications

Removable connector included. Spare connectors available (part no. P3-RS485CON).

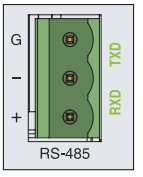




RS-485 Port Specifications	
Port Name	**RS-485**
Description	Non-isolated RS-485 port connects the CPU as a Modbus/ASCII master or slave to a peripheral device. Includes ESD/EFT protection and automatic echo cancellation when transmitter is active.
Data Rates	Selectable, 1200, 2400, 9600, 19200, 33600, 38400, 57600, and 115200 bps.
TXD+/RXD+	RS-485 transceiver high
TXD-/RXD-	RS-485 transceiver low
GND	Logic ground
Input Impedance	19kΩ
Maximum load	50 transceivers, 19kΩ each, 60Ω 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 60Ω 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	L19827-100 L19827-500 L19827-1000 Belden 9841 equivalent



Removable connector included. Spare connectors available (part no. P3-RS485CON).



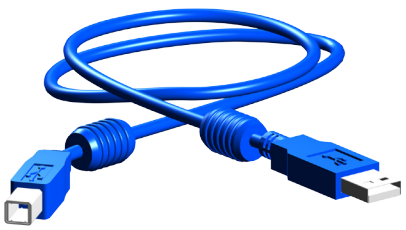
Pin #	Signal
G	GND
–	TXD-/RXD-
+	TXD+/RXD+

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

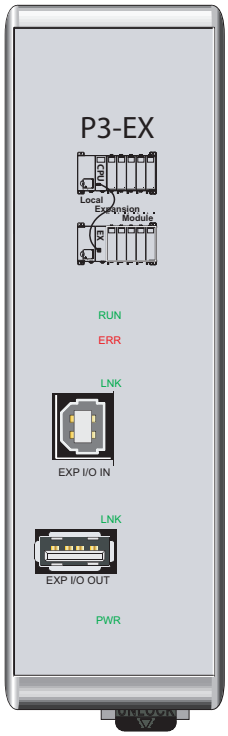
P3-EX $72.00

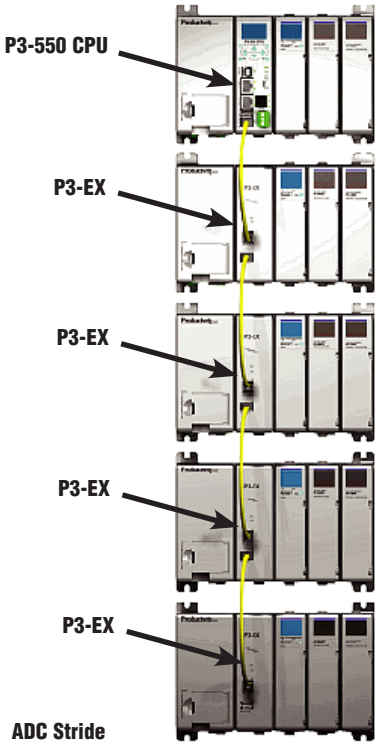
The P3-EX high-performance expansion module provides local I/O expansion to a CPU or Remote I/O. Includes 6-foot USB expansion cable.

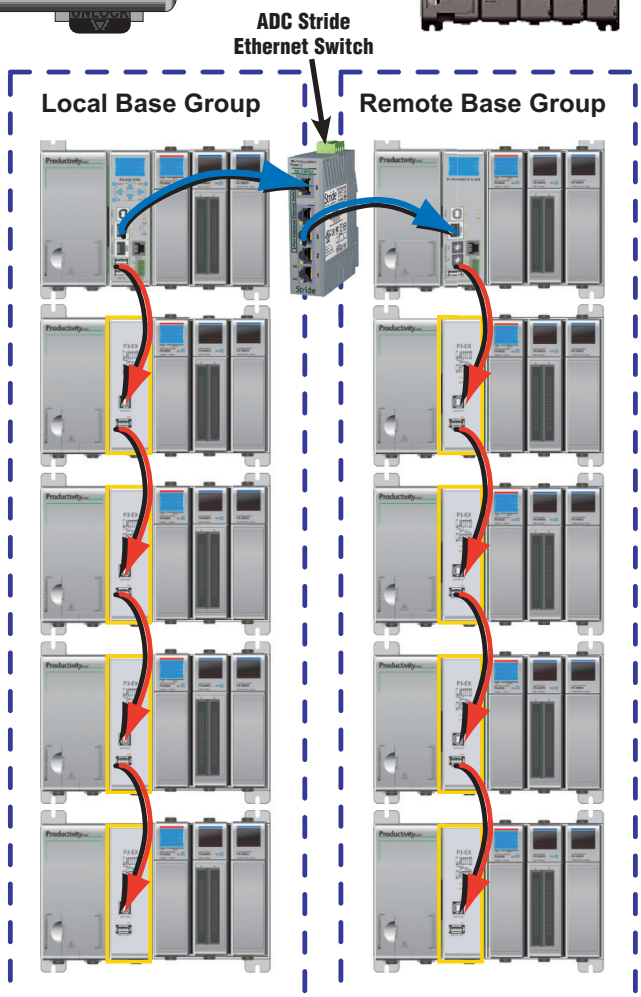


A 6-foot USB cable is included with the P3-EX module (Replacement cable: part number P3-EX-CBL6).

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

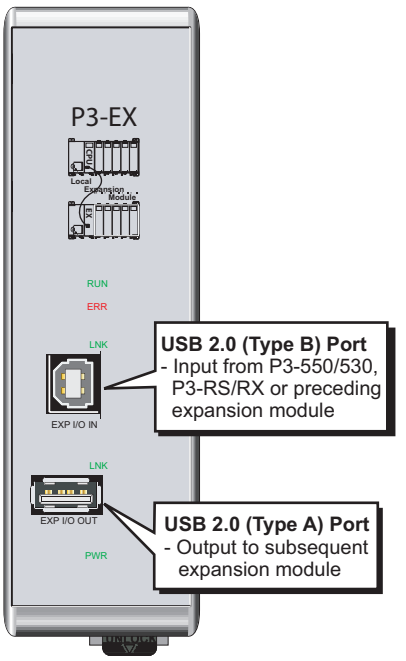
Module Specifications

Mounting Location	Controller slot of expansion base
Expansion Connectors	1 USB 2.0 Type A, 1 USB 2.0 Type B
Maximum Number of Expansion Modules per CPU or Remote Slave	4
Maximum Distance Between Modules	15 feet
Status Indicators	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.
I/O Capabilities Max. Number of I/O per CPU System Max. Number of Expansion I/O Bases	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) 68 (4 per CPU, 4 per Remote Base)
Module Setup	Automatic hardware verification
Expansion I/O Addressing	Automatic via Tag Names
USB Cables	6 foot: P3-EX-CBL6 (USB Type A to USB Type B)

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Heat Dissipation	1W
Enclosure Type	Open Equipment
Module Location	Controller slot in a local expansion base in a Productivity3000 System
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	194g (6.24 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.**

IMPORTANT!

Hot-Swapping Information

Note: This device cannot be Hot Swapped.

Expansion Module Status Indicators

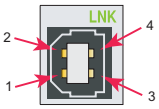
PWR	Green LED is illuminated when power is on.
RUN	Green LED is illuminated when not in reset. Reset occurs during power-up, a watchdog timeout, or an expansion cable is disconnected.
ERR	Red LED is illuminated when a USB fault is detected.
LNK	Green LED is illuminated when a USB link is established.

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	

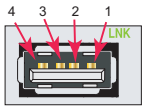
EXP I/O IN



Mating face of USB type B female

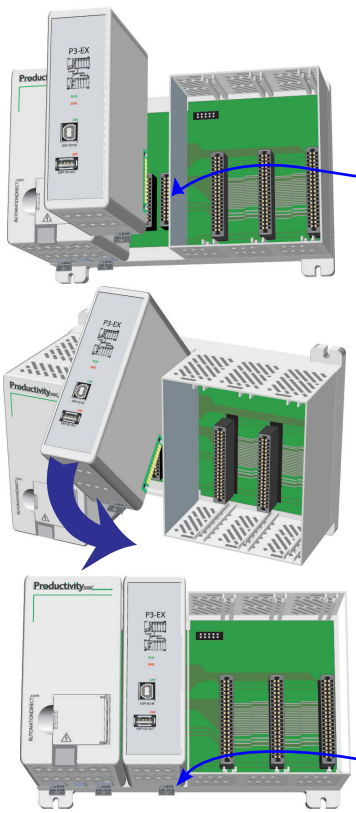
Pin #	Signal
1	Reset
2	– Data
3	+ Data
4	GND

EXP I/O OUT



Mating face of USB type A female

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.**

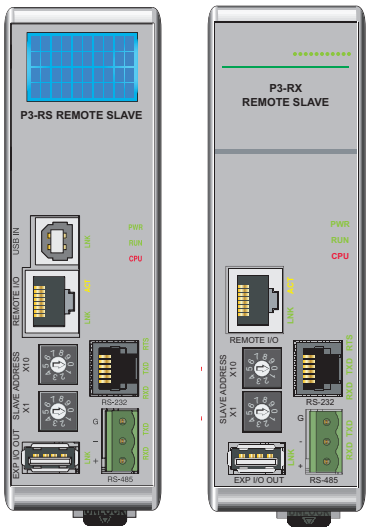
Remote Slave Modules

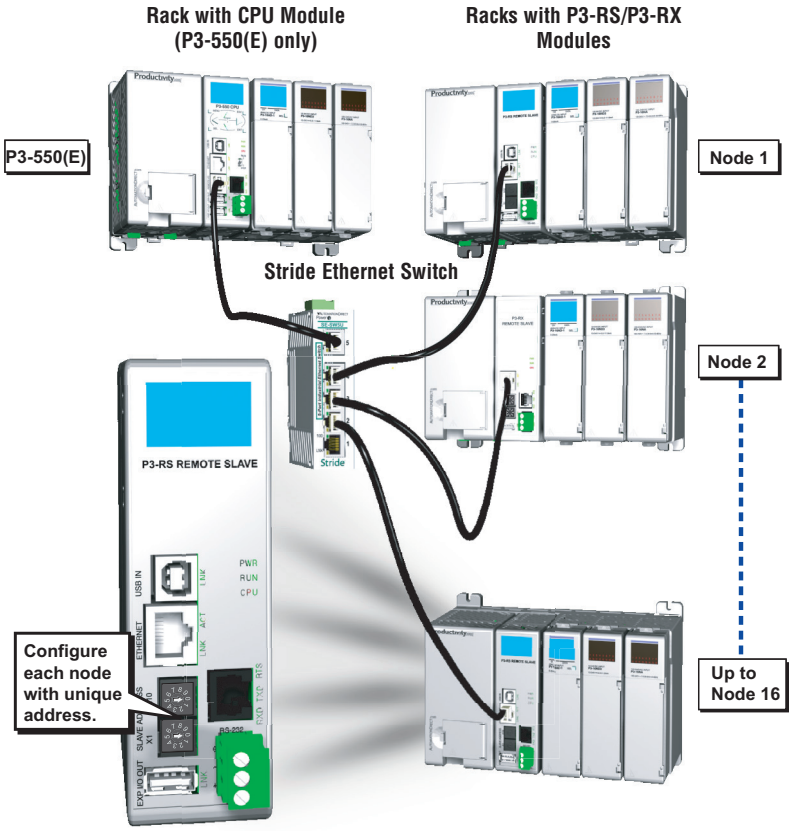
P3-RS $449.00

P3-RX $299.00

The P3-RS/P3-RX are high-performance Remote Slave modules (for use with P3-550 CPU-based systems only). Both modules have several communications ports which support USB Expansion I/O, Ethernet Remote I/O and serial devices. The P3-RS also includes a 4 line x 10 charactor LCD display and an additional USB IN (type B) port for remote CPU programming and monitoring.

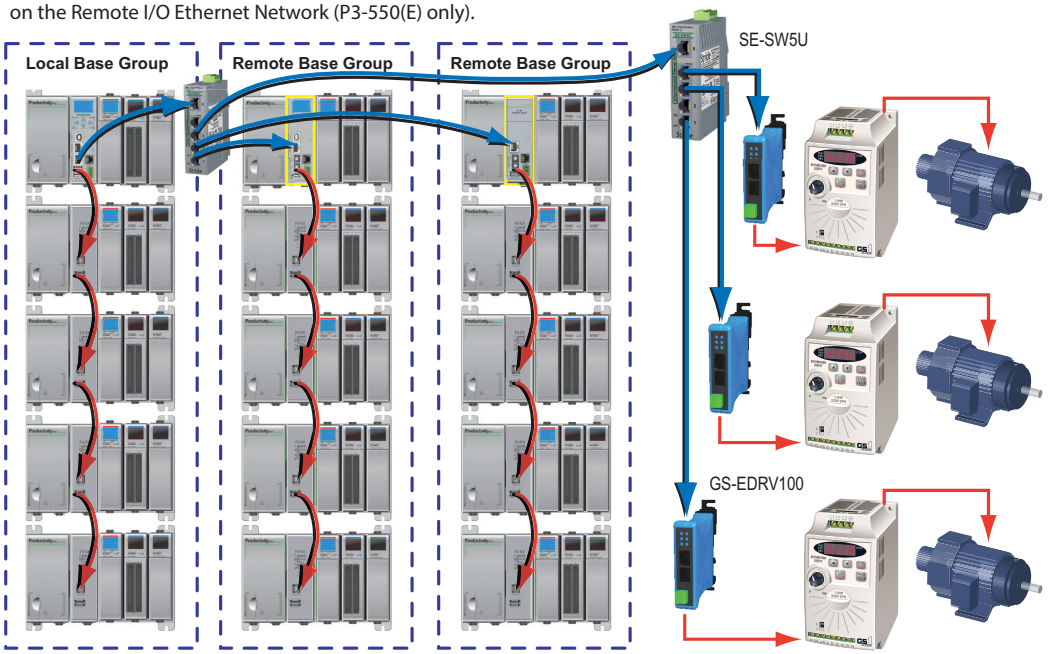
Up to 16 Remote Slaves can be connected to a single CPU for a remote I/O network.





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

Add up to 4 bases to each group using P3-EX expansion modules with USB connections.



Remote Slave Modules

Remote Slave Specifications (for P3-550(E))	
Mounting Location	Controller slot
Display (P3-RS only)	LCD, 4x10 characters, backlit, LCD characters are 5x7 with a dot pitch of 0.45 mm; 2.25 mm x 3.15 mm
Communications	**USB IN:** (2.0, Type B) Programming, Monitoring, Debug (P3-RS Only) **REMOTE I/O:** (10/100 Mbps Ethernet) 1 P3-550 **EXP I/O OUT:** (2.0, Type A, Proprietary) 4 P3-EX Local Expansion Bases **RS-232:** (RJ12, 1200–115.2k bps) ASCII, Modbus **RS-485:** (Removable Terminal Included, 1200–115.2k baud) ASCII, Modbus
Max. Number of Ethernet Remote I/O Bases	16
Max. Number of Expansion I/O Bases	68 (4 per CPU, 4 per Remote Base)
Max. Number of I/O per CPU System	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-RS/P3-RX Product Comparison		
Item	**P3-RS**	**P3-RX**
LCD Display	✓	
USB Prog/Mon Port	✓	
Remote Port (in)	✓	✓
USB Local Expansion Port	✓	✓
RS-232 RJ12 Port	✓	✓
RS-485 Port	✓	✓

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Heat Dissipation	4W
Enclosure Type	Open Equipment
Module Location	Controller slot in a remote base in a Productivity3000 System
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	260g (9 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.

IMPORTANT!

Hot-Swapping Information
Note: This device cannot be Hot Swapped.

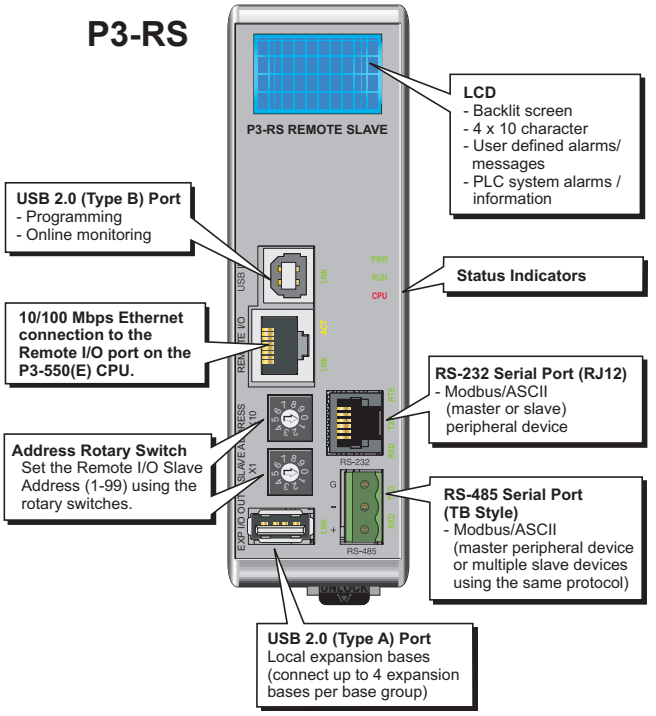
WARNING: Explosion hazard – Substitution of components may impair suitability for Class I, Division 2.

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.*

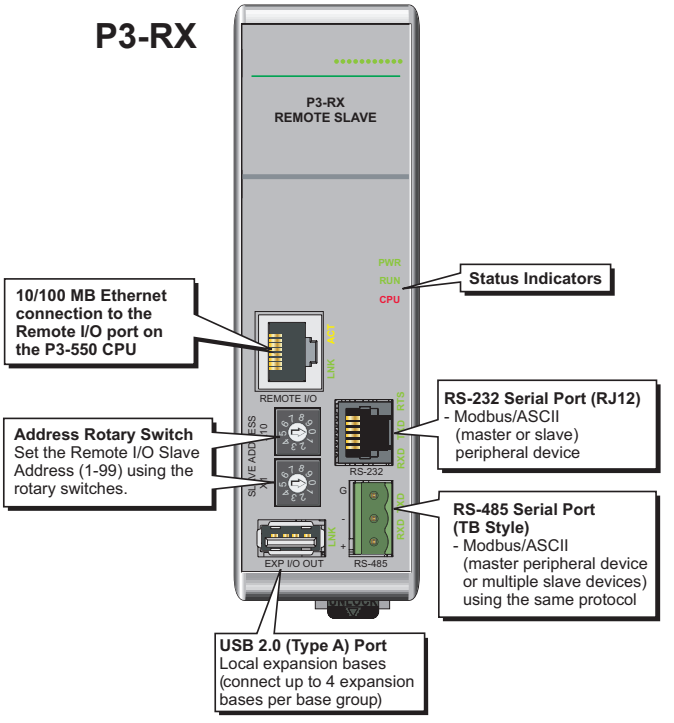
Remote Slave Modules

Front Panel

P3-RS



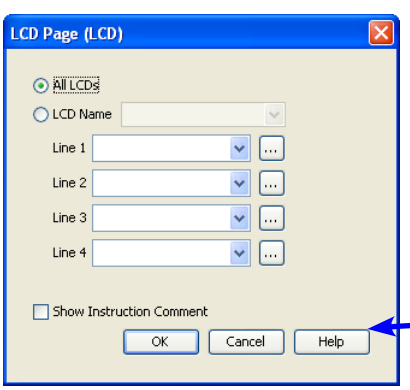
P3-RX

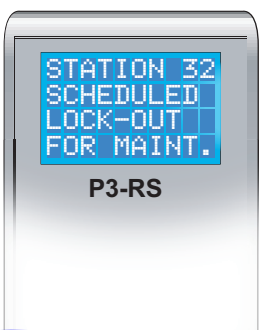


LCD (P3-RS only)

The P3-RS incorporates a 4 line x 10 character LCD for system errors and information or for displaying user-defined messages.

LCD characters are 5x7 with a dot pitch of 0.45 mm; 2.25 mm x 3.15 mm.



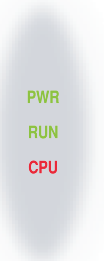


For user-defined messages, the display is configured using the Productivity Suite Programming Software. An LCD Page instruction allows the user to program text into user-defined tags and display the messages based on the ladder execution.

See the Productivity Suite Programming Software Help Files for complete details.

Status Indicators

RS Status Indicators	
PWR	Green LED is backlit when power is on
RUN	Green LED is backlit when CPU is in RUN mode
CPU	Red LED is backlit during power on reset, power down, or watch-dog time-out.

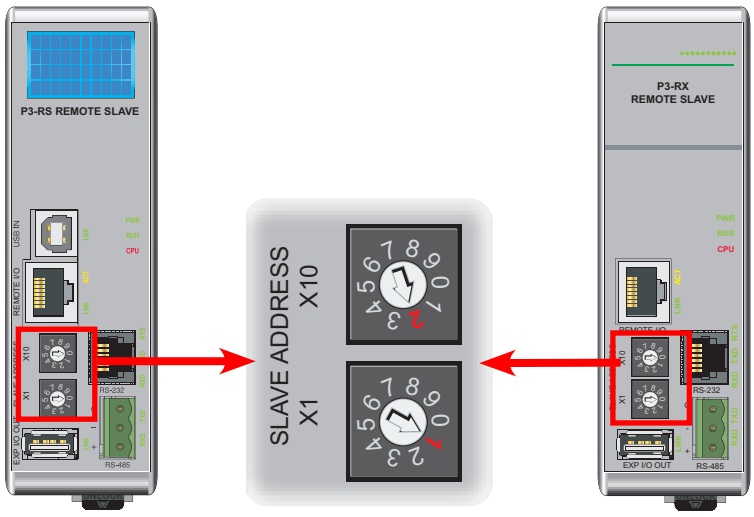


Remote Slave Modules

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.

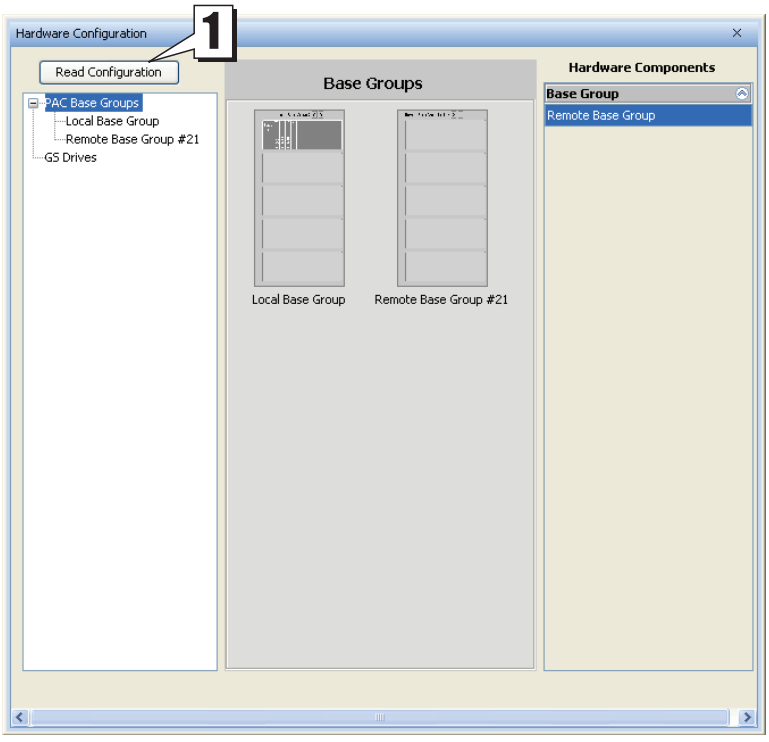


IMPORTANT NOTES:

- 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.

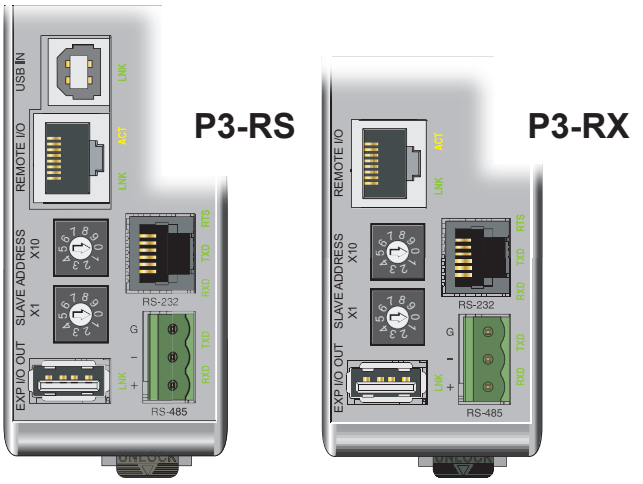
This can be done automatically by first going online with a Productivity3000 system that has slave modules installed, go to Hardware Configuration and select the Read Configuration (1) button. The CPU will automatically read the addresses of the remote slaves and add them to the configuration.



Remote Slave Modules

Port Specifications

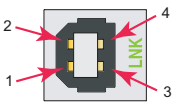
The P3-RS/P3-RX has several communications ports. The following pages have specifications and pin-out diagrams for these ports.



USB IN Port (P3-RS only)

Standard USB 2.0 (Type B) Slave input for remote CPU programming and online monitoring, with built-in surge protection.

USB IN Specifications	
Description	Standard USB 2.0 (Type B) Slave input for remote CPU programming and online monitoring, with built-in surge protection. Not compatible with older full speed USB devices.
Transfer Rate	480 Mbps
Port Status LED	Green LED is illuminated when LINK is established to programming software.
Cables	USB Type A to USB Type B: 3ft cable part # USB-CBL-AB3 6ft cable part # USB-CBL-AB6 10ft cable part # USB-CBL-AB10 15ft cable part # USB-CBL-AB15



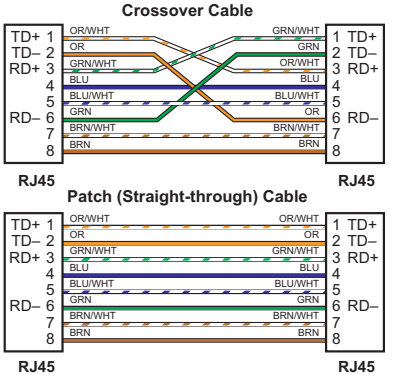
Mating face of USB type B female

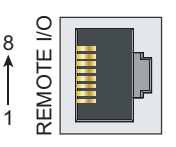
Pin #	Signal
1	+5
2	–Data
3	+Data
4	GND

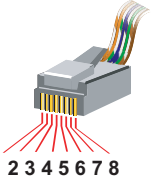
Remote I/O Port

Isolated Ethernet Port with built-in surge protection for connection to P3-550 CPU Remote I/O Master port.

Remote I/O Port Specifications	
Description	Proprietary transformer isolated Ethernet Port with built-in surge protection for connection to CPU Remote I/O Master port.
Transfer Rate	10/100 Mbps
Port Status LEDs	Green LED is illuminated when network LINK is established. Yellow LED backlit 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 automationdirect.com)





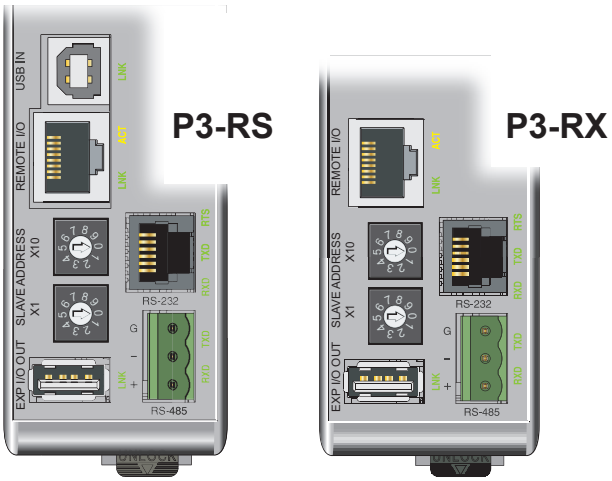


8-pin RJ45 Connector (8P8C)

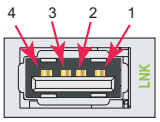
Remote Slave Modules

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	
Description	Proprietary USB 2.0 (Type A) Master output for connection with up to four P3-EX 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	USB Type A to USB Type B. The P3-EX Expansion Module includes a 6 foot USB cable, part number P3-EX-CBL6.



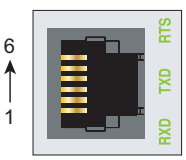
Mating face of USB type A female

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

RS-232 Serial Port

Non-isolated RS-232 DTE port connects the P3-RS/P3-RX as a Modbus or ASCII master or slave to a peripheral device.

RS-232 Specifications	
Description	Non-isolated RS-232 DTE port connects the P3-RS/P3-RX as a Modbus or 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 baud.
+5V Cable Power Source	210mA maximum at 5V, ±5%. Limited by self-resetting current limiting device. Reverse polarity 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)	3kΩ, 1,000pf
Minimum Output Voltage Swing	±5V
Output Short Circuit Protection	±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

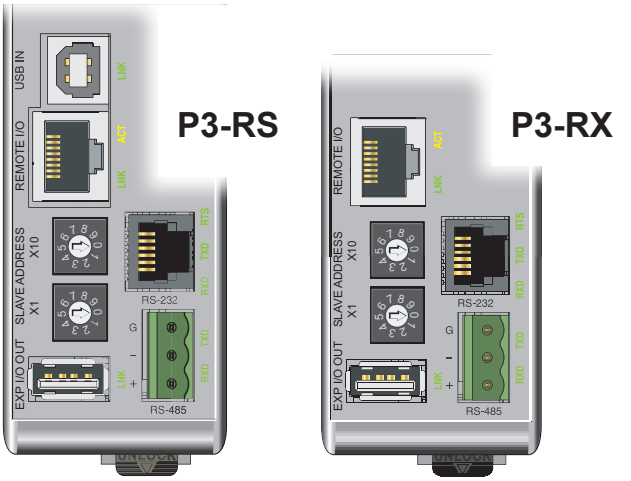
Pin #	Signal	
1	GND	Logic Ground
2	+5V	210 mA Maximum
3	RXD	RS-232 Input
4	TXD	RS-232 Output
5	RTS	Request to Send
6	GND	Logic Ground

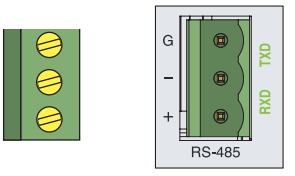
Remote Slave Modules

RS-485 Serial Port

Non-isolated RS-485 port connects the P3-RS/P3-RX as a Modbus or ASCII master or slave to a peripheral device.

Removable connector included. Spare connectors available (part no. P3-RS485CON).





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

Removable connector included.
Spare connectors available
(part no. P3-RS485CON).

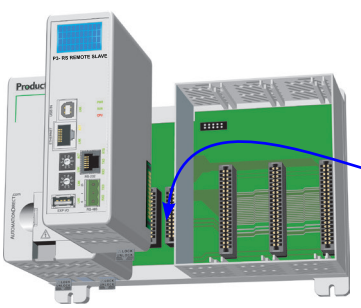
RS-485 Specifications

Description	Non-isolated RS-485 port connects the P3-RS/P3-RX as a Modbus or 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	19kΩ
Maximum load	50 transceivers, 19kΩ each, 60Ω 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 60Ω 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 is illuminated when active for TXD and RXD
Cable Options	L19827-100 L19827-500 L19827-1000 Belden 9841 equivalent

Terminal Block Specifications

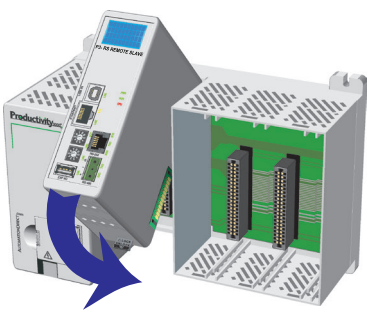
Number of Positions	3
Pitch	5mm
Wire Range	28–12 AWG Solid Conductor 30–12 AWG Stranded Conductor
Screw Driver Width	1/8 inch (3.175 mm) maximum
Screw Size	M2.5
Screw Torque	4.5 lb·in (0.51 N·m)

Installation Procedure



Step One:

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



Step Two:

Insert 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.

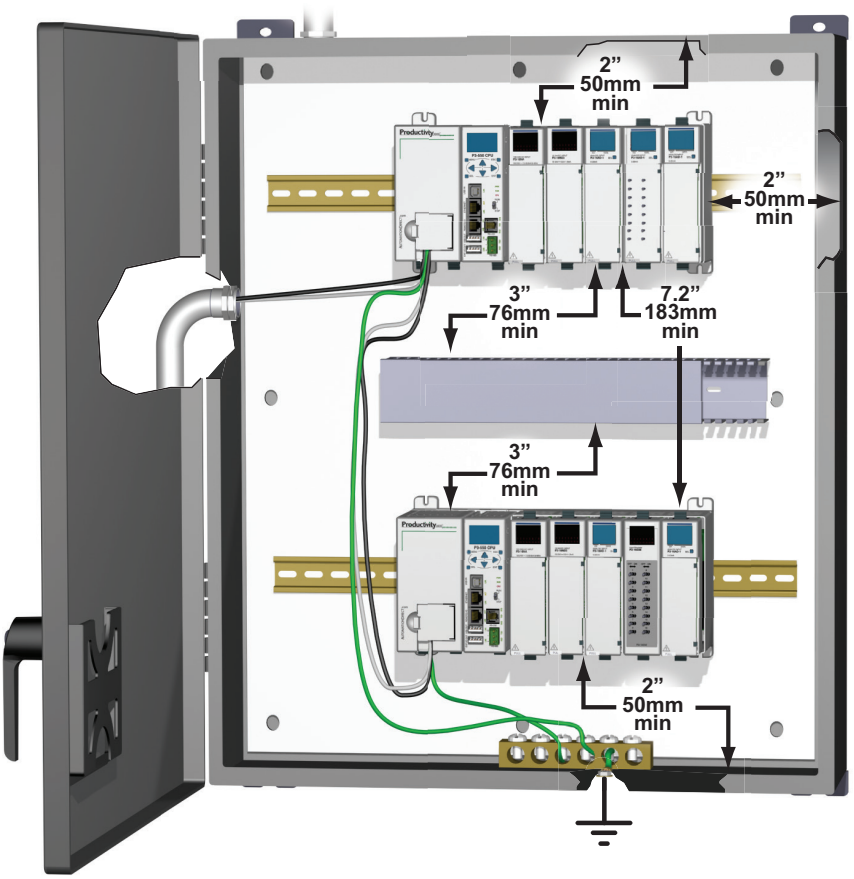
Enclosures

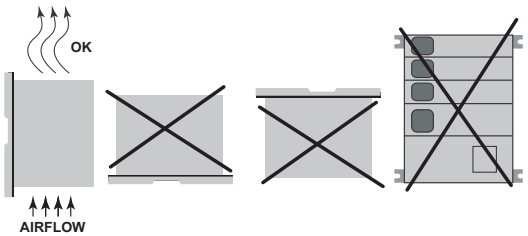
Your selection of a proper enclosure is important to ensure safe and proper operation of your Productivity3000 system. Applications for the Productivity3000 system vary and may require additional hardware considerations. The minimum considerations for enclosures include:

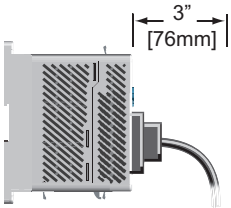
- Conformance to electrical standards
- Protection from the elements in an industrial environment
- Common ground reference
- Maintenance of specified ambient temperature
- Access to the equipment
- Security or restricted access
- Sufficient space for proper installation and maintenance of the equipment

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 *ZIP*Link 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.

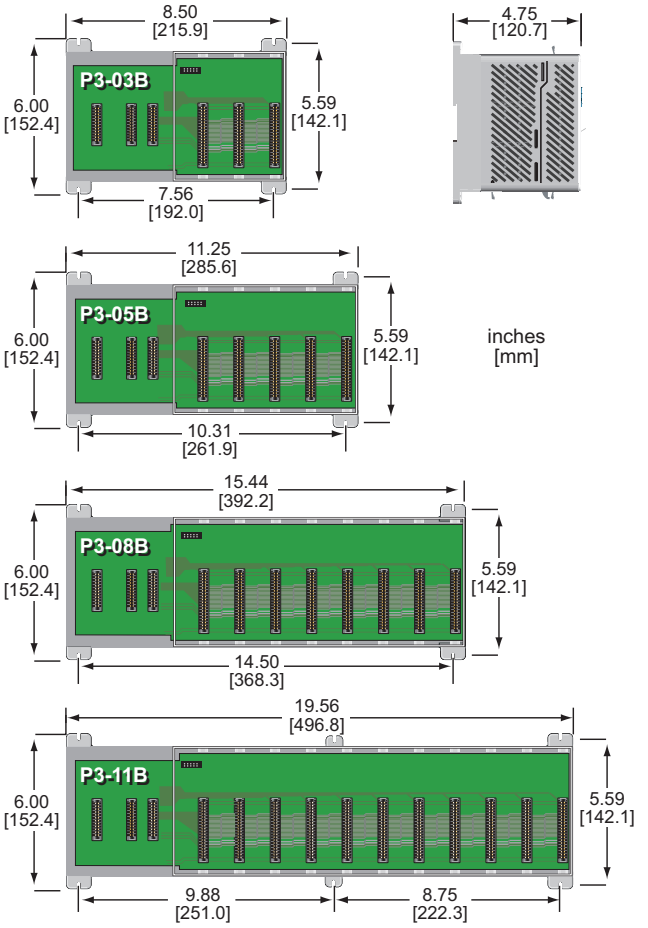
Temperature Considerations

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.productivitypac.com, for applications which require CE Compliance.

Base Dimensions



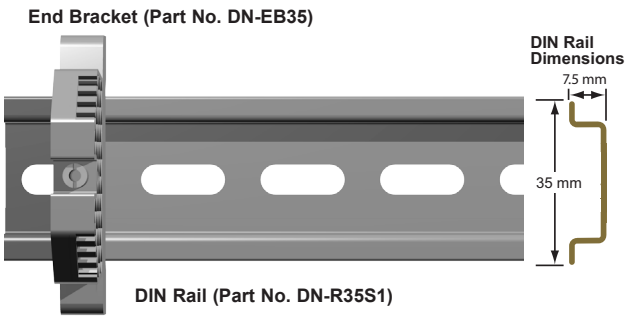
Base Installation

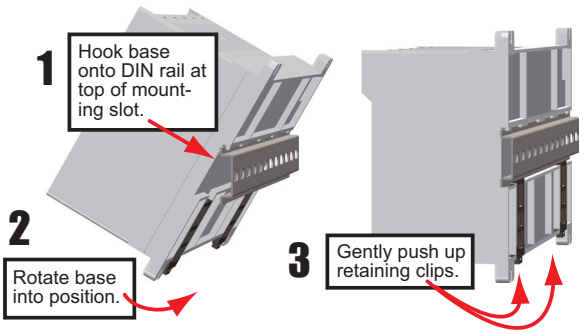
Using Mounting Rails

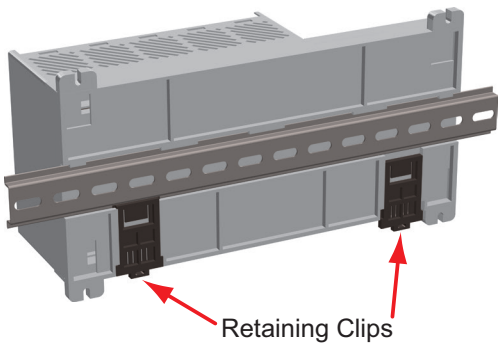
The Productivity3000 bases can be secured to the cabinet using mounting rails. You should use rails that conform to DIN EN standard 50 022. We offer a complete line of DIN rail, DINnectors and DIN rail mounted apparatus. These rails are approximately 35mm high, with a depth of 7.5mm. If you mount the 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 *ZIP*Link wiring system or hand wiring to the optional removable I/O module terminal blocks.

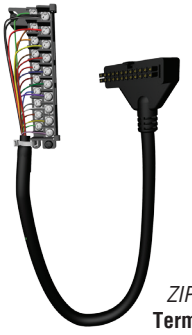
Note: The high-density 32-point and 64-point I/O module design requires the use of the *ZIP*Link wiring system. Thermocouple and RTD modules are not compatible with the *ZIP*Link system and are shipped with the optional terminal blocks included.

*ZIP*Links Wiring Systems

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

See the selection matrix guide on the following pages.

***ZIP*Link Module**



***ZIP*Link Pre-Wired Terminal Block Cable**

***ZIP*Link Pigtail Cable**

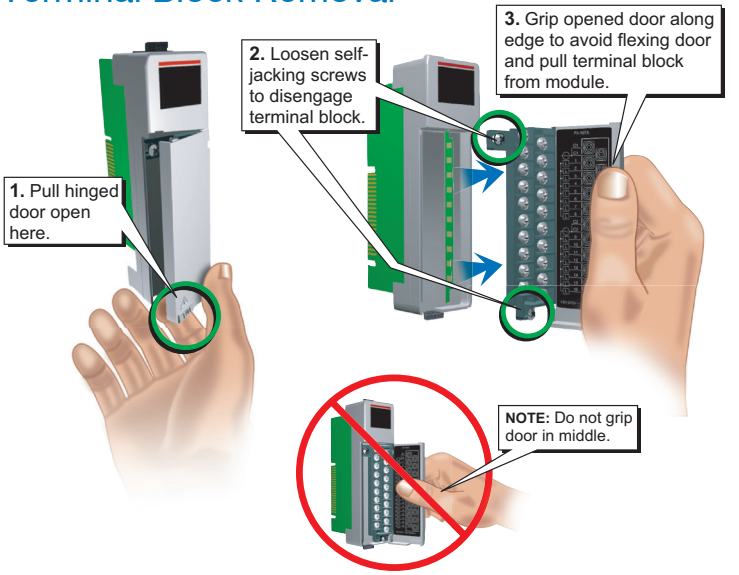
Removable Terminal Blocks

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 *ZIP*Link Wiring System

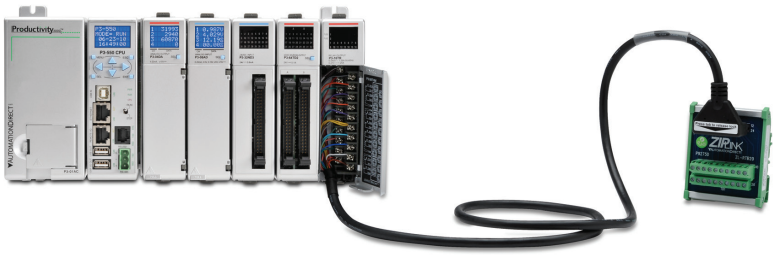
*ZIP*Links eliminate the normally tedious process of wiring between devices by utilizing prewired cables and DIN rail mount connector modules. It's as simple as plugging in a cable connector at either end or terminating wires at only one end. Prewired cables keep installation clean and efficient, using half the space at a fraction of the cost of standard terminal blocks. There are several wiring solutions available when using the *ZIP*Link System ranging from PLC I/O-to-*ZIP*Link 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 *ZIP*Link modules are provided with *ZIP*Link cables. See the following solutions to help determine the best *ZIP*Link system for your application.

Solution 1: Productivity Series I/O Modules to *ZIP*Link Connector Modules

When looking for quick and easy I/O-to-field termination, a *ZIP*Link connector module used in conjunction with a prewired *ZIP*Link 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 *ZIP*Link Connector Modules selector tables located in this section,

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

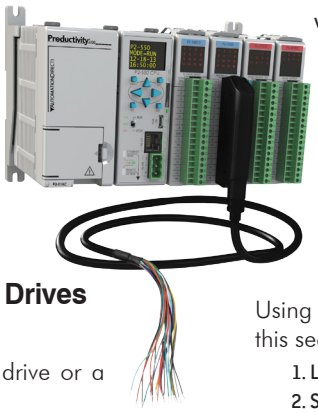


Solution 2: Productivity Series I/O Modules to *ZIP*Link Connector Modules

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 *ZIP*Link Pigtail Cables. *ZIP*Link 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 *ZIP*Link 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?

*ZIP*Link cables are available in a wide range of configurations for connecting to PLCs and *SureServo*, *Sure*Step, Stellar Soft Starter and AC drives. Add a *ZIP*Link 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 *ZIP*Link cable and other associated hardware.

Wiring Solutions

Solution 4: Serial Communications Cables

*ZIP*Link offers communications cables for use with *Direct*LOGIC, 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 *ZIP*Link Modules

For additional application solutions, *ZIP*Link 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 ***ZIP*Link Specialty Modules** selector table located in this section,

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

Solution 6: *ZIP*Link 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 *ZIP*Link 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 *ZIP*Link Connector Modules - Productivity3000

Productivity3000 CPU Input Module *ZIP*Link Selector

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

Productivity3000 CPU Analog In Module *ZIP*Link Selector

CPU		*ZIP*Link		
Analog Module	*# of Terms*	*Component*	*Module*	*Cable*
P3-04ADS	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *L
P3-08AD	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *L
P3-16AD-1	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *L
P3-16AD-2	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *L
P3-08RTD[2]	Matched Only	See Note 2		
P3-08THM[2]	T/C Wire Only	See Note 2		
P3-04DA	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *L
P3-08DA-1	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *L
P3-08DA-2	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *L
P3-06DAS-1	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *L
P3-06DAS-2	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *L
P3-16DA-1	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *L
P3-16DA-2	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *L
P3-8AD4DA-1	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *L
P3-8AD4DA-2	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *L

Productivity3000 CPU Specialty Module *ZIP*Link Selector

CPU		*ZIP*Link		
Input Module	*# of Terms*	*Component*	*Module Part No.*	*Cable Part No.*
P3-HSI	40	Feedthrough	ZL-RTB40	ZL-CBL40 *S
P3-HSO	40	Feedthrough	ZL-RTB40	ZL-CBL40 *S

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 *ZIP*Link Selector

CPU		*ZIP*Link		
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-RTB20	ZL-P3-CBL20 *L
P3-08TD2S	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *L
P3-08TRS	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *
P3-16TA	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *
		Fuse	ZL-RFU20	ZL-P3-CBL20 *
P3-16TD1	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *
		Fuse	ZL-RFU20 [4]	ZL-P3-CBL20 *
		Relay (sinking)	ZL-RRL16-24-1	ZL-P3-CBL20 *
P3-16TD2	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *
		Fuse	ZL-RFU20 [4]	ZL-P3-CBL20 *
		Relay (sourcing)	ZL-RRL16-24-2	ZL-P3-CBL20
P3-16TR	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *
		Fuse	ZL-RFU20 [4]	ZL-P3-CBL20 *
P3-08TRS-1[3]	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *
		Fuse	ZL-RFU20 [4]	ZL-P3-CBL20 *
P3-32TD1	40	Feedthrough	ZL-RTB40	ZL-CBL40 *
		Fuse	ZL-RFU40 [4]	ZL-CBL40 *
P3-32TD2	40	Feedthrough	ZL-RTB40	ZL-CBL40 *
		Fuse	ZL-RFU40 [4]	ZL-CBL40 *
P3-64TD1[1]	40	Feedthrough	ZL-RTB40	ZL-CBL40 *
		Fuse	ZL-RFU40 [4]	ZL-CBL40 *
P3-64TD2[1]	40	Feedthrough	ZL-RTB40	ZL-CBL40 *
		Fuse	ZL-RFU40 [4]	ZL-CBL40 *
P3-16TD3P	40	Feedthrough	ZL-RTB40	ZL-CBL40 *

** 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 maxiumum 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	$135.00
P3-08ND3S	8	Isolated Sinking/Sourcing DC Input	$71.00
P3-16ND3	16	Sinking/Sourcing DC Input	$116.00
P3-32ND3*	32	Sinking/Sourcing DC Input	$158.00
P3-64ND3*	64	Sinking/Sourcing DC Input	$198.00
P3-08NAS	8	Isolated AC Input	$96.00
P3-16NA	16	AC Input	$121.00

*ZIPLink required.

Analog I/O Modules

Productivity3000 Analog Input Modules			
Part Number	Number of Channels	Description	Price
P3-04ADS	4	Isolated Analog Input	$366.50
P3-08AD	8	Analog Input	$232.50
P3-16AD-1	16	Analog Input (Current)	$309.50
P3-16AD-2	16	Analog Input (Voltage)	$309.50
P3-08RTD	8	Analog RTD Input	$341.50
P3-08THM	8	Analog Thermocouple Input	$433.50

Productivity3000 Analog Output Modules			
Part Number	Number of Channels	Description	Price
P3-04DA	4	Analog Output	$249.00
P3-08DA-1	8	Analog Output (Current)	$433.50
P3-08DA-2	8	Analog Output (Voltage)	$433.50
P3-06DAS-1	6	Isolated Analog Output (Current)	$510.50
P3-06DAS-2	6	Isolated Analog Output (Voltage)	$630.50
P3-16DA-1	16	Analog Output (Current)	$543.00
P3-16DA-2	16	Analog Output (Voltage)	$543.00

Productivity3000 Analog Input/Output Modules			
Part Number	Number of Channels	Description	Price
P3-8AD4DA-1	8/4	Analog Input/Output (Current)	$332.00
P3-8AD4DA-2	8/4	Analog Input/Output (Voltage)	$332.00

Specialty Modules

Productivity3000 Specialty Modules			
Part Number	Number of Channels	Description	Price
P3-HSI*	2	High-Speed Input	$329.00
P3-HSO*	2	High-Speed Output	$349.00
P3-SCM	4 ports	Serial Communications Module	$285.00

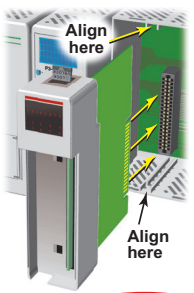
*ZIPLink required.

Discrete Output Modules

Productivity3000 Discrete Output Modules			
Part Number	Number of Outputs	Description	Price
P3-08TD1S	8	Isolated Sinking Output	$85.00
P3-08TD2S	8	Isolated Sourcing Output	$87.00
P3-16TD1	16	Sinking Output	$123.00
P3-16TD2	16	Sourcing Output	$123.00
P3-32TD1*	32	Sinking Output	$158.00
P3-32TD2*	32	Sourcing Output	$158.00
P3-64TD1*	64	Sinking Output	$196.00
P3-64TD2*	64	Sourcing Output	$196.00
P3-08TAS	8	Isolated AC Output	$135.00
P3-16TA	16	AC Output	$160.00
P3-08TRS	8	Isolated Relay Output	$96.00
P3-16TR	16	Relay Output	$135.00
P3-08TRS-1	8	Isolated Relay Output	$106.00
P3-16TD3P*	16	Sinking/Sourcing Protected Output	$151.00

*ZIPLink required.

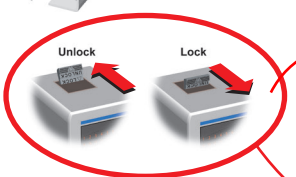
Module Installation Procedure

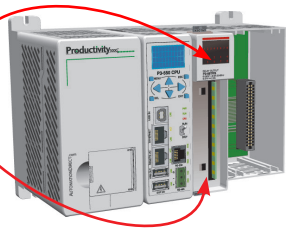


WARNING: Do not apply field power until the following steps are completed. See hot-swapping procedure for exceptions.

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 $135.00

Input Simulator Module

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

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

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Heat Dissipation	0.25 W
Enclosure Type	Open Equipment
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 System.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	120g (4.23 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.

P3-FILL $16.50

Filler Module

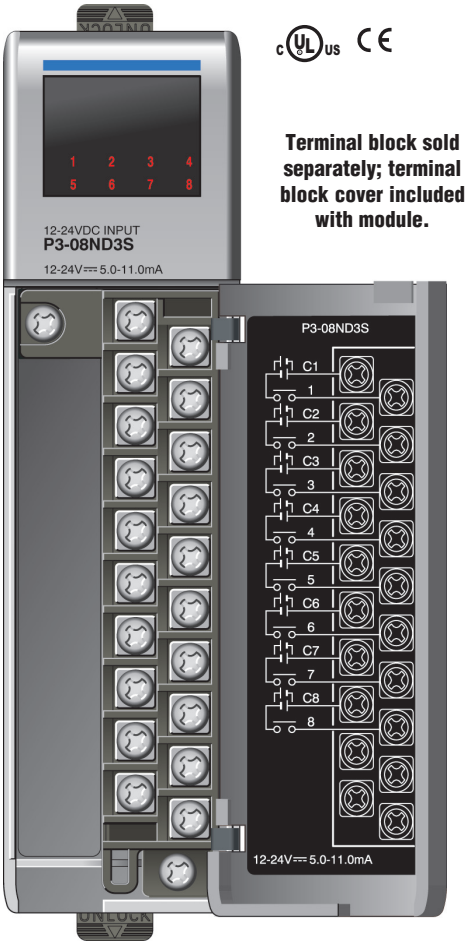
The P3-FILL filler module protects unused I/O module slots in the base.

DC Input Modules

P3-08ND3S $71.00

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 *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.

Input Specifications

Inputs per Module		8 (sinking / sourcing)
Operating Voltage Range (Tolerance)	CE	12–24 VDC (±10%)
	UL	12–24 VDC (±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 kΩ @ 12–24 VDC
ON Voltage Level		> 10VDC
OFF Voltage Level		< 3VDC
Minimum ON Current		4mA
Maximum OFF Current		2mA
OFF to ON Response		Max. 2ms Typical 1ms
ON to OFF Response		Max. 2ms 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° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500 VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
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

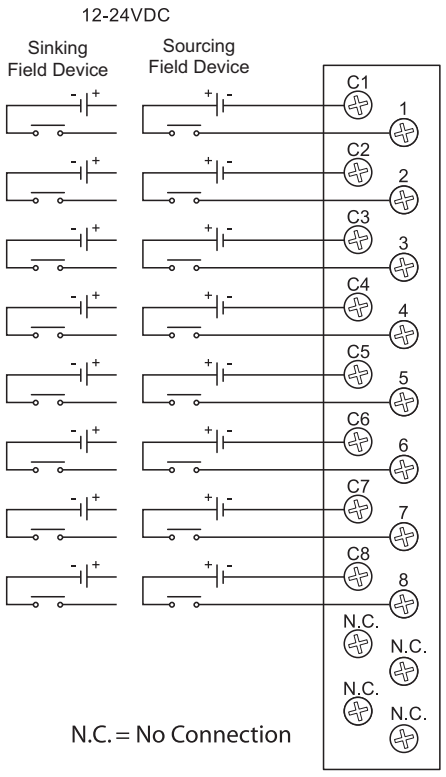
Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 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.

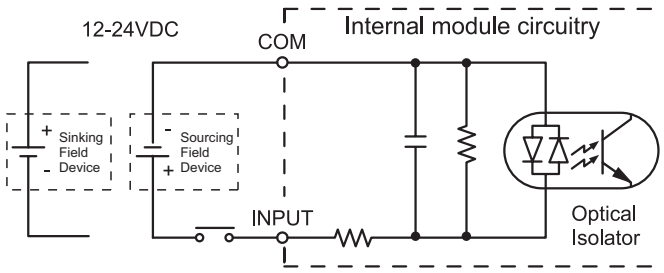
WARNING: Explosion hazard – Substitution of components may impair suitability for Class I, Division 2.

DC Input Modules

P3-08ND3S (cont'd)

Wiring Diagrams



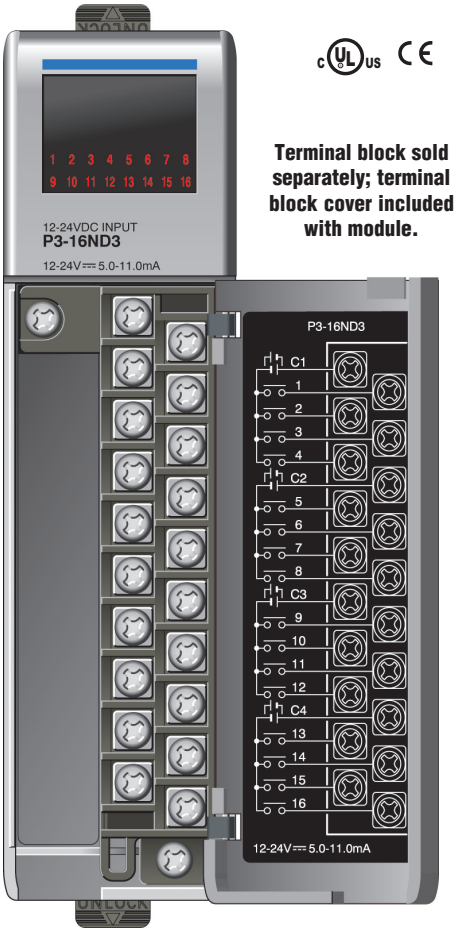


DC Input Modules

P3-16ND3 $116.00

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 *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.

Input Specifications

Inputs per Module		16 (sinking / sourcing)
Operating Voltage Range (Tolerance)	CE	12–24 VDC (±10%)
	UL	12–24 VDC (±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 kΩ @ 12–24 VDC
ON Voltage Level		> 10VDC
OFF Voltage Level		< 3VDC
Minimum ON Current		4mA
Maximum OFF Current		2mA
OFF to ON Response		Max. 2ms Typical 1ms
ON to OFF Response		Max. 2ms 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° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 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 ***ZIP*Link** wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
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

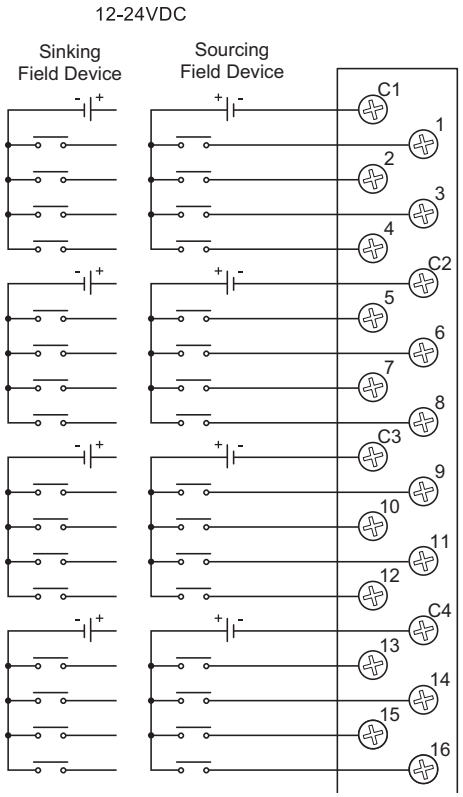
Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 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.

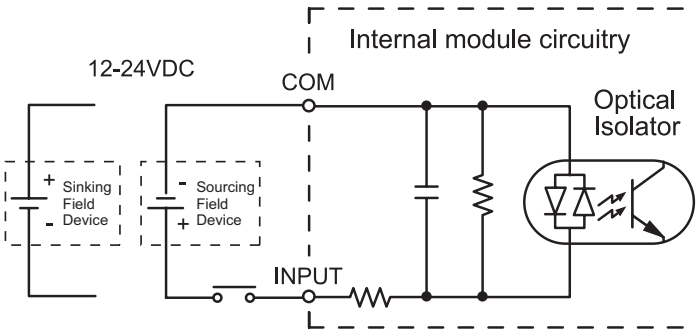
WARNING: Explosion hazard – Substitution of components may impair suitability for Class I, Division 2.

DC Input Modules

P3-16ND3 (cont'd)

Wiring Diagrams



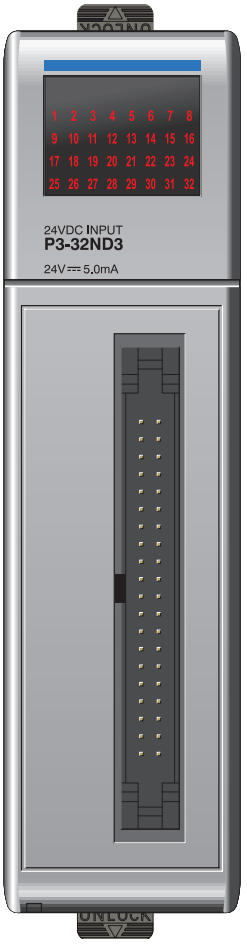


DC Input Modules

P3-32ND3 $158.00

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; *ZIP*Link required.

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

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	5.96 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 ***ZIP****Link wiring system*. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	120g (4.23 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
Pitch	0.1 in. (2.54 mm)

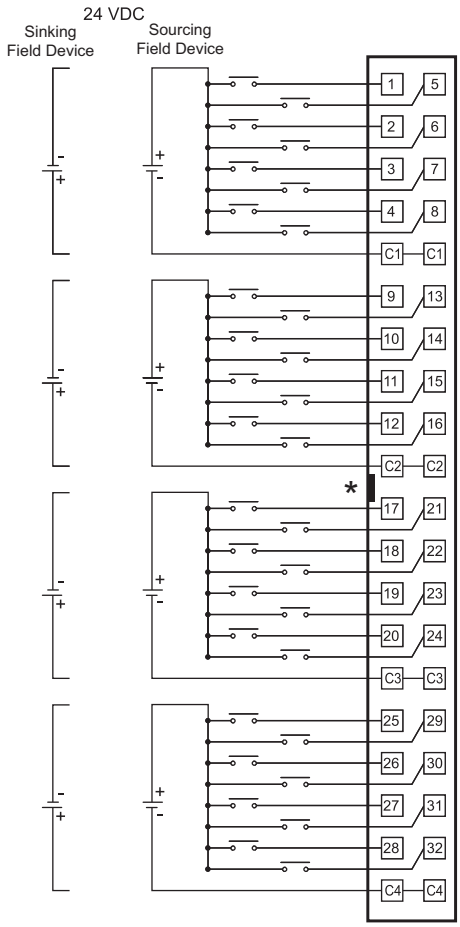
See Wiring Solutions for part numbers of *ZIP*Link cables and connection modules required with this I/O module.

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

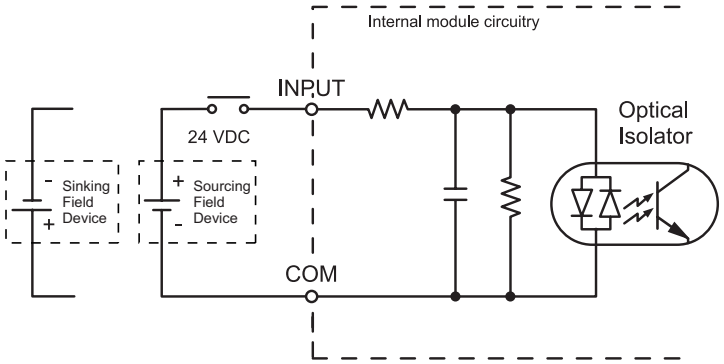
DC Input Modules

P3-32ND3 (cont'd)

Wiring Diagrams



*Denotes key location of all associated ZIPLink cables.

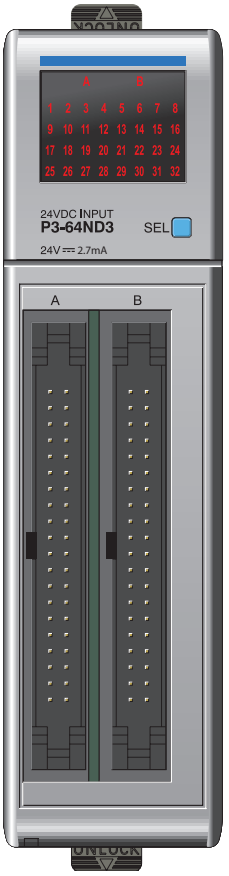


DC Input Modules

P3-64ND3 $198.00

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; *ZIP*Link required.

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

Input Specifications

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

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	6.91W
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 *ZIP*Link wiring system. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	170g (6.0 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

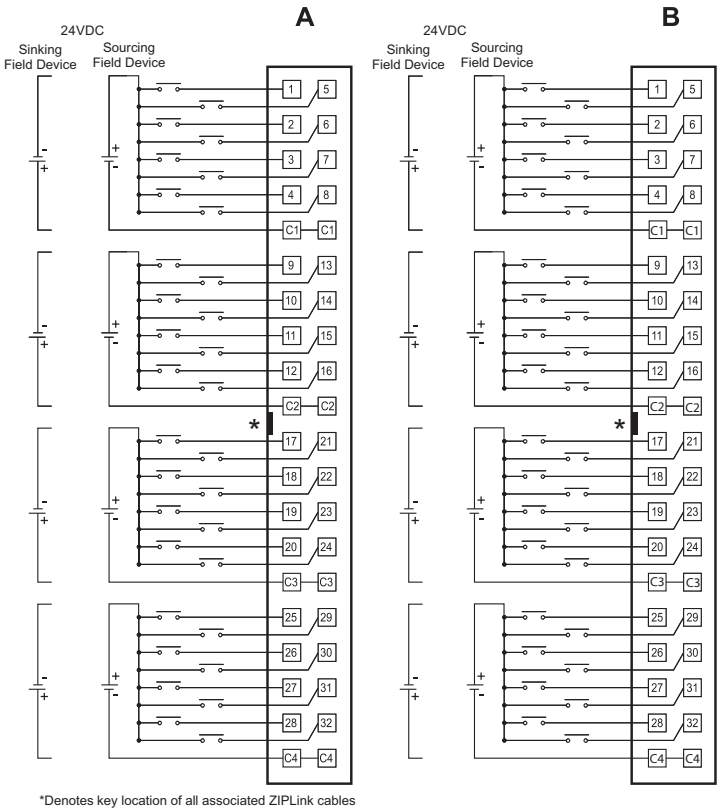
Connector Type	IDC style header with latch, Omron XG4A-4034
Number of Pins	40 point x 2
Pitch	0.1 in. (2.54 mm)

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

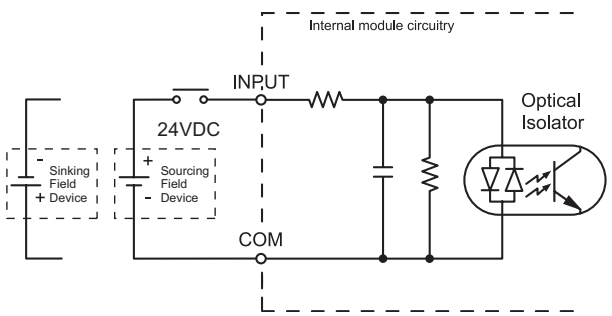
DC Input Modules

P3-64ND3 (cont'd)

Wiring Diagrams



*Denotes key location of all associated ZIPLink cables



AC Input Modules

P3-08NAS $96.00

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 *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.

Input Specifications

Inputs per Module		8
Operating Voltage Range (Tolerance)	CE	100–240 VAC (± 20%)
	UL	100–240 VAC (± 20%)
AC Frequency		47–63 Hz
Input Current (Typical)		8.5 mA @ 100VAC (50Hz) 10mA @ 100VAC (60Hz) 17mA @ 240VAC (50Hz) 20mA @ 240VAC (60Hz)
Maximum Input Current @ Temp		26mA @ 60° C (288VAC)
Input Impedance		15kΩ (50Hz), 12kΩ (60Hz)
ON Voltage Level		> 70VAC
OFF Voltage Level		< 20VAC
Minimum ON Current		5mA
Maximum OFF Current		2mA
OFF to ON Response		< 10ms
ON to OFF Response		< 25ms
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° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	4.38 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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	95g (3.35 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.

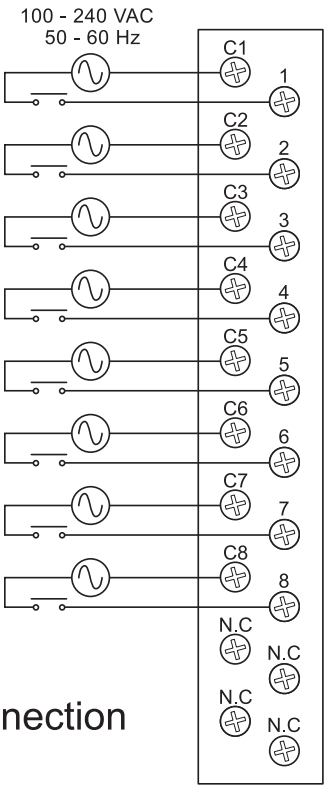
Removable Terminal Block Specifications

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.

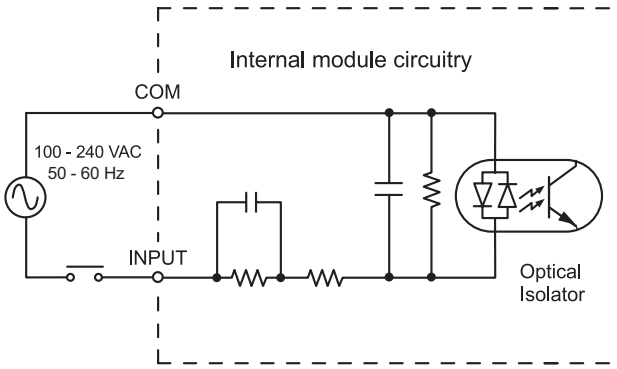
AC Input Modules

P3-08NAS (cont'd)

Wiring Diagrams



N.C. = No Connection



AC Input Modules

P3-16NA $121.00

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.

Input Specifications

Inputs per Module		16
Operating Voltage Range (Tolerance)	CE	100–240 VAC (± 20%)
	UL	100–240 VAC (± 20%)
AC Frequency		47–63 Hz
Input Current (Typical)		8.5 mA @ 100VAC (50Hz) 10mA @ 100VAC (60Hz) 17mA @ 240VAC (50Hz) 20mA @ 240VAC (60Hz)
Maximum Input Current @ Temp		26 mA @ 60° C (288VAC)
Input Impedance		15kΩ (50Hz), 12kΩ (60Hz)
ON Voltage Level		> 70VAC
OFF Voltage Level		< 20VAC
Minimum ON Current		5mA
Maximum OFF Current		2mA
OFF to ON Response		< 10ms
ON to OFF Response		< 25ms
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° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	8.76 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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	95g (3.35 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.

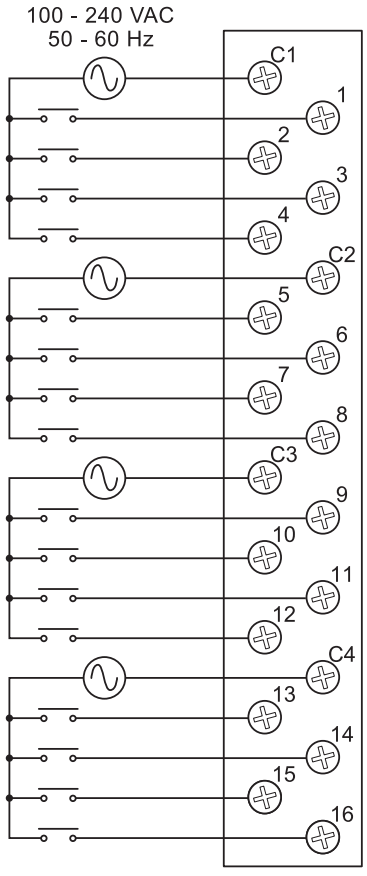
Removable Terminal Block Specifications

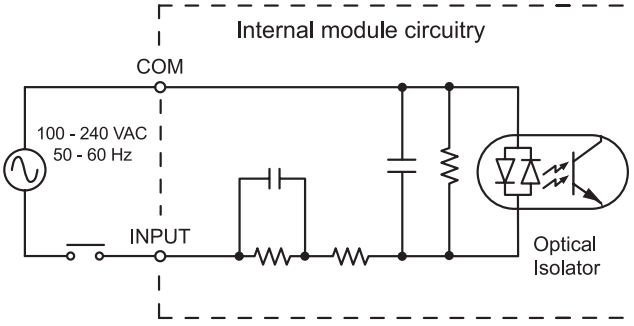
Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 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 Input Modules

P3-16NA (cont'd)

Wiring Diagrams



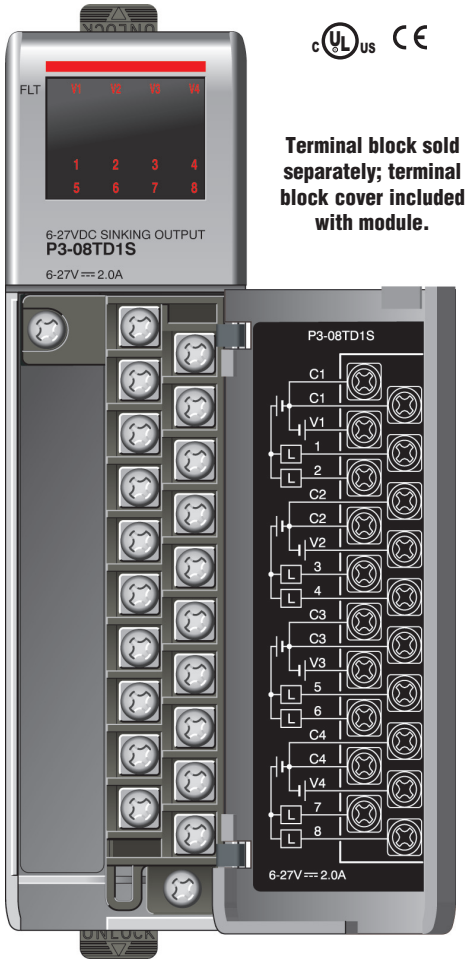


DC Output Modules

P3-08TD1S $85.00

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 *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

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

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

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	7.69 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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	110g (3.88 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.

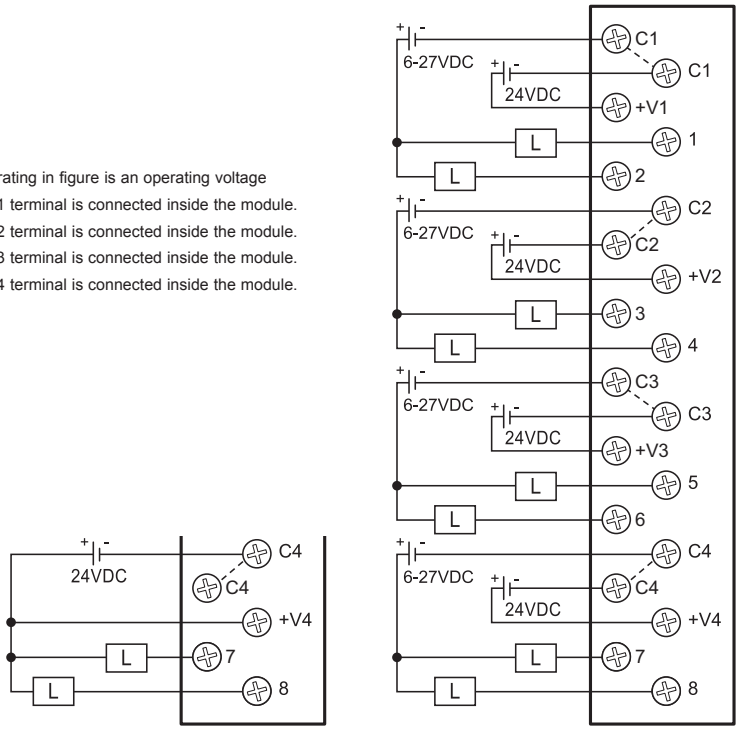
WARNING: **Explosion hazard – Substitution of components may impair suitability for Class I, Division 2.**

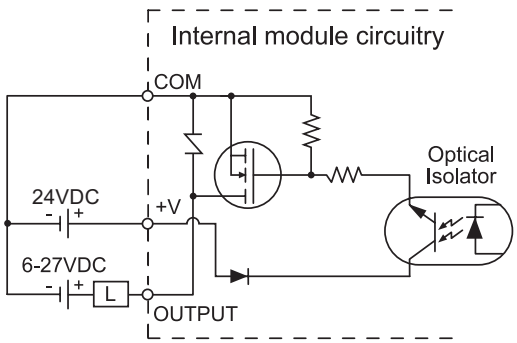
DC Output Modules

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.



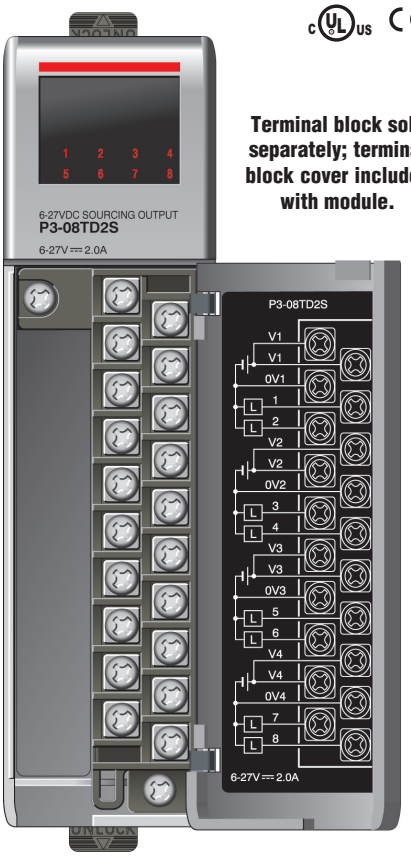


DC Output Modules

P3-08TD2S $87.00

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 *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

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

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	8.46 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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	110g (3.88 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

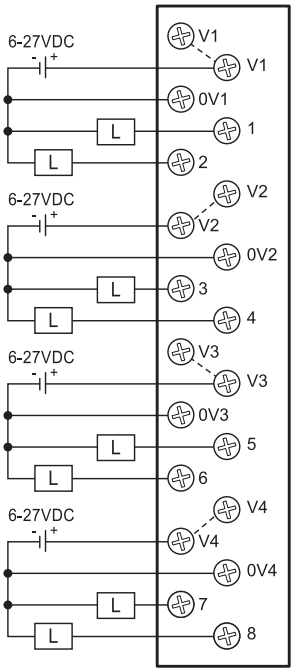
Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 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.

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

DC Output Modules

P3-08TD2S (cont'd)

Wiring Diagrams

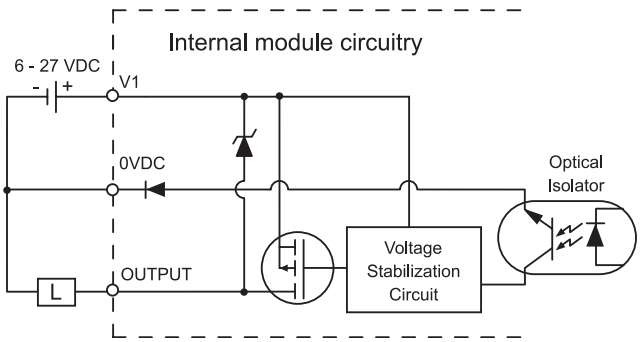


Each V1 is connected inside the module.

Each V2 is connected inside the module.

Each V3 is connected inside the module.

Each V4 is connected inside the module.

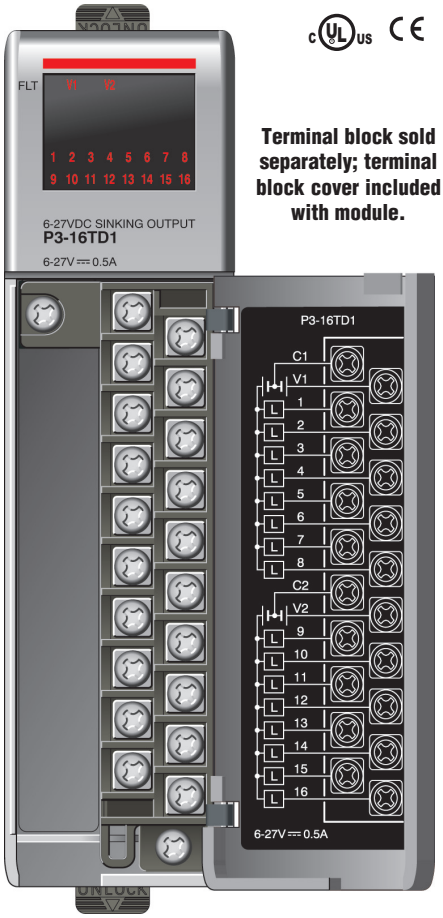


DC Output Modules

P3-16TD1 $123.00

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 *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

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

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

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	2.41 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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	125g (4.41 oz)
Agency Approvals	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

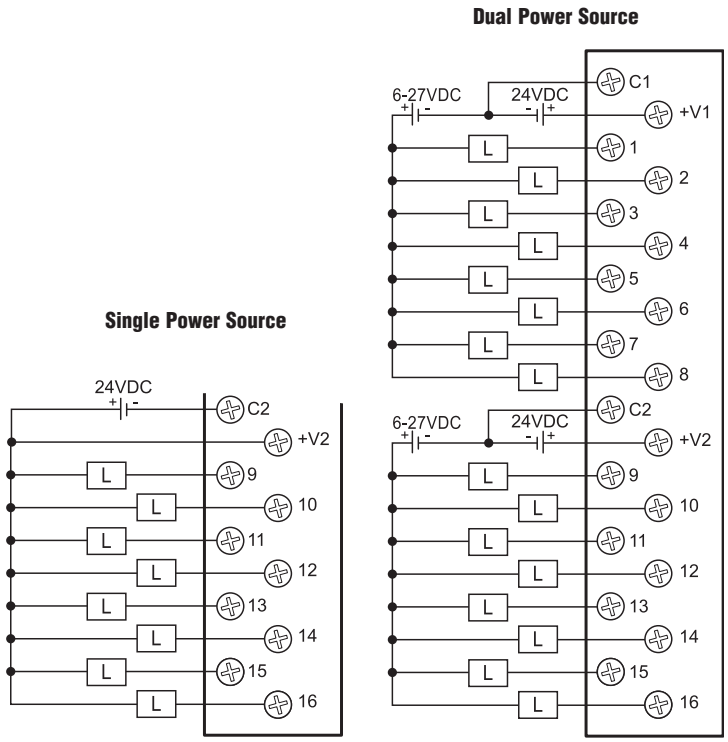
Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 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.

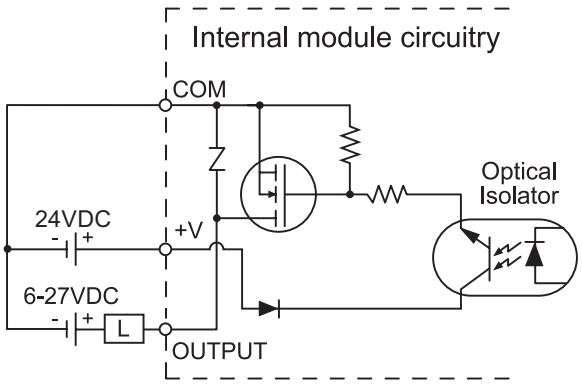
WARNING: Explosion hazard – Substitution of components may impair suitability for Class I, Division 2.

DC Output Modules

P3-16TD1 (cont'd)

Wiring Diagrams



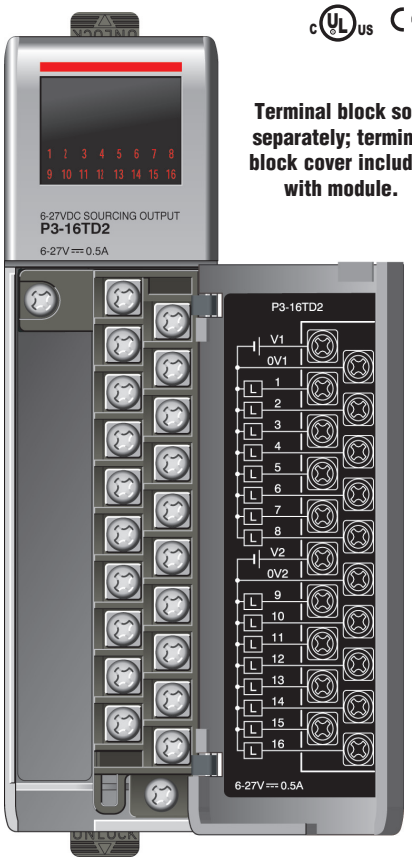


DC Output Modules

P3-16TD2 $123.00

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 *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

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

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	5.38 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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	120g (4.23 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

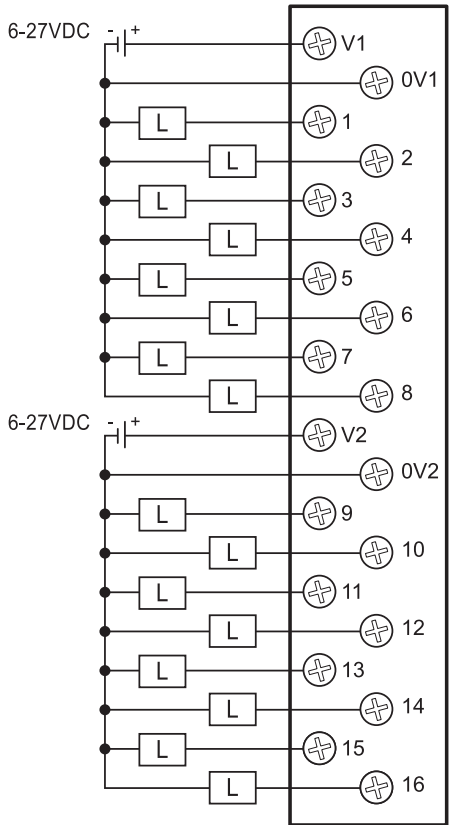
Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 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.

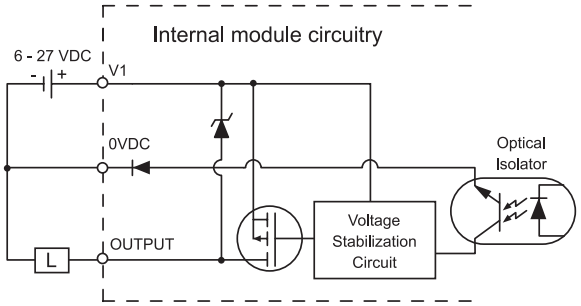
WARNING: Explosion hazard – Substitution of components may impair suitability for Class I, Division 2.

DC Output Modules

P3-16TD2 (cont'd)

Wiring Diagrams





DC Output Modules

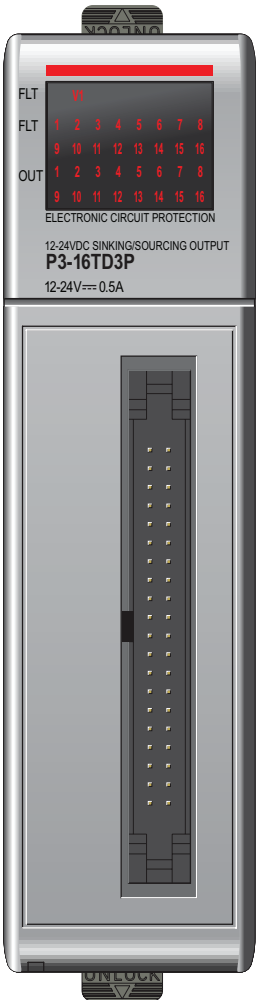
P3-16TD3P $151.00

Sinking/Sourcing Protected Output

The P3-16TD3P DC Output Module provides sixteen 12–24 VDC sinking or sourcing protected outputs with four internally connected commons.

Module also detects the following faults:

1. Missing External 24VDC
2. Open Load
3. Over Temperature
4. Over Load Current



No terminal block sold for this module; *ZIP*Link required.

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

Output Specifications

Outputs per Module	16 (sinking / sourcing)
Operating Voltage Range (Tolerance)	10.2–26.4 VDC
Maximum Output Current	0.5 A continuous
On Voltage Drop	0.5 VDC
Maximum Inrush Current	Self-limited
OFF to ON Response	0.5 ms
ON to OFF Response	0.5 ms
Overcurrent Trip	1.2 A min., 2.4 A max.
Minimum Load Current to Avoid Open Load Fault Detection	113μA
Overtemperature Shutdown	Independent each output
Minimum Load Resistance (for open load detection)	58kΩ
Status Indicators	Logic Side (16 points)
External 24V Error Indicator	Logic Side (1 points)
Fault Condition Indicator	Logic Side (16 points)
Connector Type	40-pin IDC
Commons per Module	4 (non-isolated)
Fuses	None
External DC Power Required	24VDC ±10% @ 85mA, Class 2 (must be >= Operating voltage)*

*Note: Load voltage for source configuration must be less or equal to the external power voltage wired to the module. This requirement can be met by using a single power supply to provide both module's power (24V external power) and sourcing power for loads.

General Specifications

Surrounding Air Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	5.96 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 *ZIP*Link wiring system. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	112.83 g (3.98 oz)
Agency Approvals	UL508 file E157382, Canada & USA CE (EN61131-2*)

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

Connector Specifications

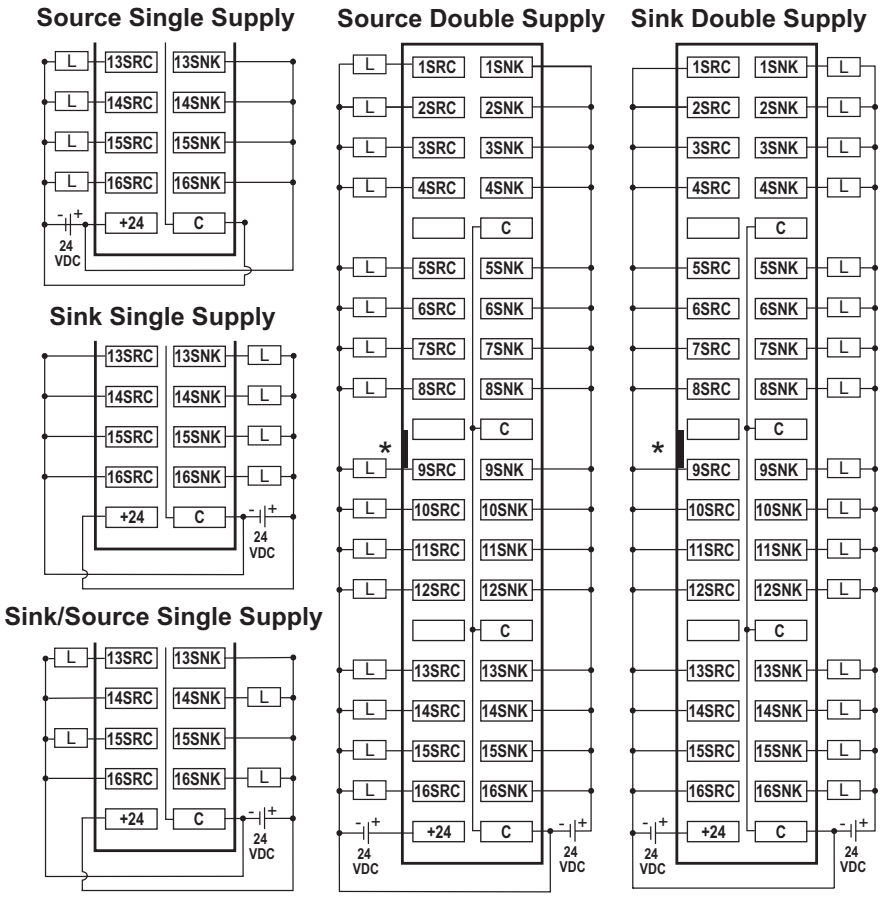
Connector Type	IDC style header with latch, Omron XG4A-4034
Number of Pins	40 point
Pitch	0.1 in. (2.54 mm)

CPU	Firmware Required	Productivity Suite Required
P3-550	Version 1.1.12.x or later	Version 1.6.x.x or later

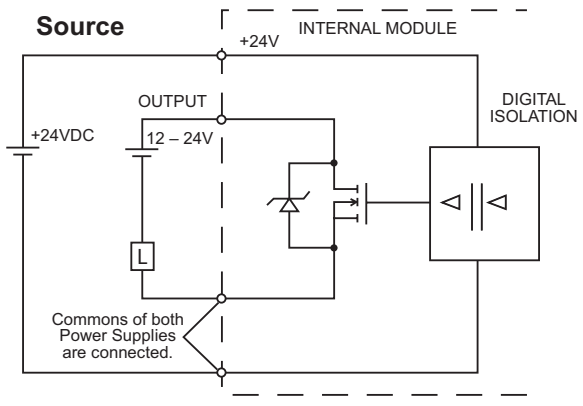
DC Output Modules

P3-16TD3P (cont'd)

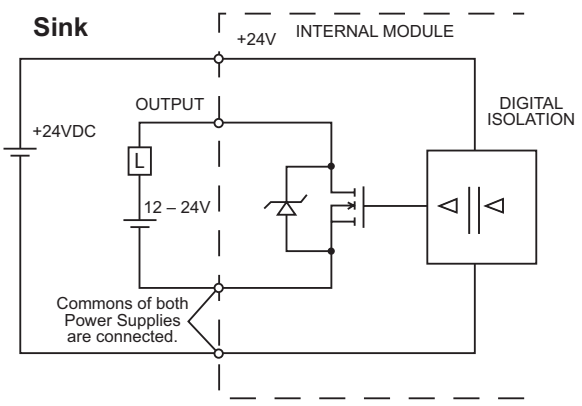
Wiring Diagrams



*Denotes key location of all associated ZIPLink cables.



NOTE: If two separate power supplies are used to supply module control logic and output, commons from both power supplies must be connected.



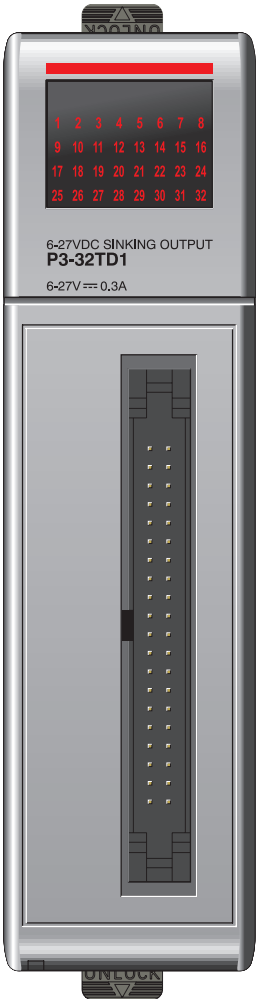
NOTE: If two separate power supplies are used to supply module control logic and output, commons from both power supplies must be connected.

DC Output Modules

P3-32TD1 $158.00

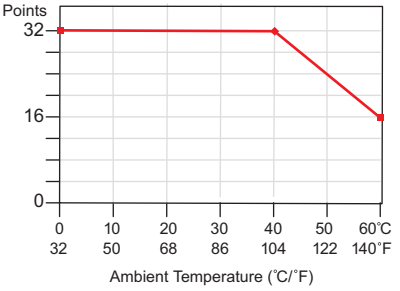
Sinking Output

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; *ZIP*Link required.

Derating Chart



Output Specifications

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

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	10.74 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 *ZIP*Link wiring system. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	110g (3.88 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
Pitch	0.1 in. (2.54 mm)

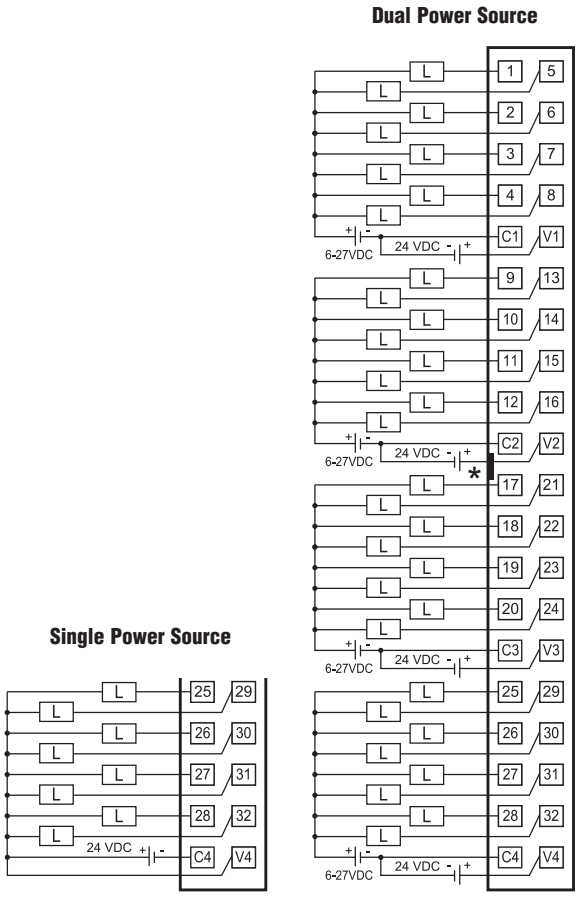
WARNING: Explosion hazard – Substitution of components may impair suitability for Class I, Division 2.

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

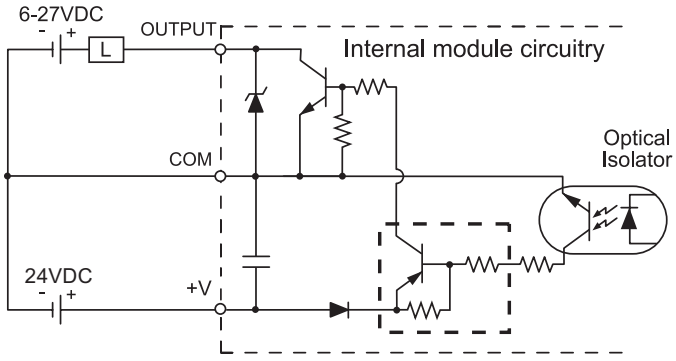
DC Output Modules

P3-32TD1 (cont'd)

Wiring Diagrams



*Denotes key location of all associated ZIPLink cables.

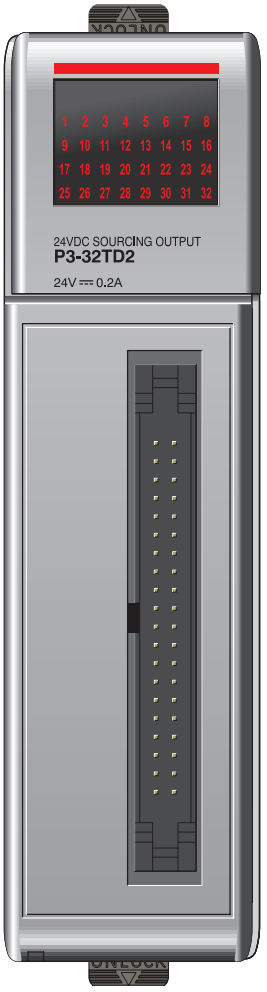


DC Output Modules

P3-32TD2 $158.00

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; *ZIP*Link required.

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

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	6.69 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 *ZIP*Link wiring system. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	110g (3.88 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
Pitch	0.1 in. (2.54 mm)

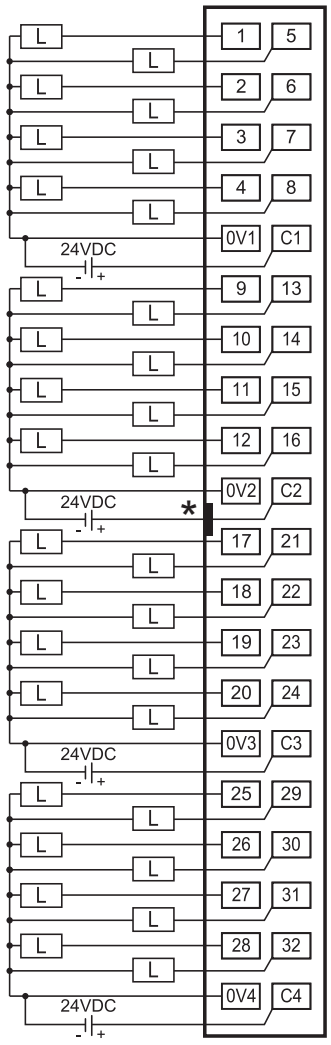
WARNING: Explosion hazard – Substitution of components may impair suitability for Class I, Division 2.

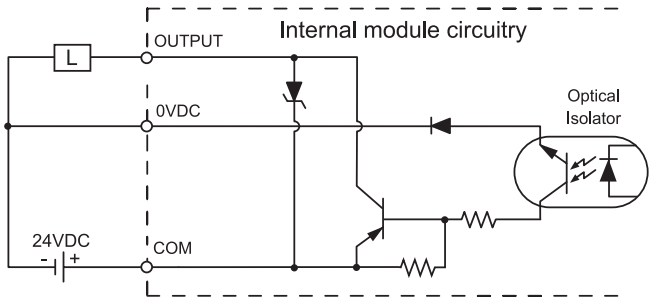
See Wiring Solutions for part numbers of *ZIP*Link cables and connection modules required with this I/O module.

DC Output Modules

P3-32TD2 (cont'd)

Wiring Diagrams





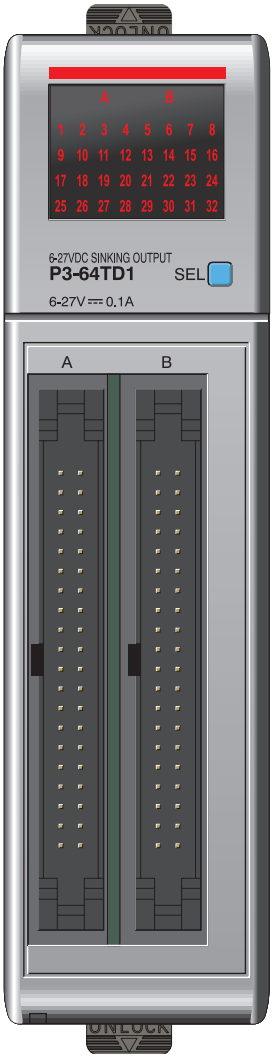
*Denotes key location of all associated ZIPLink cables.

DC Output Modules

P3-64TD1 $196.00

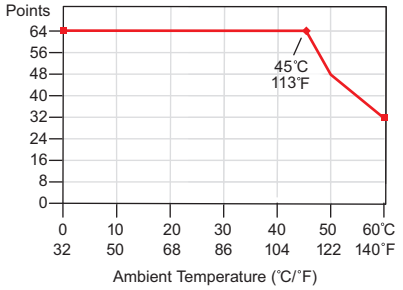
Sinking Output

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; *ZIP*Link required.

Derating Chart



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		≤ 0.2 ms
ON to OFF Response		≤ 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° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	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 *ZIP*Link wiring system. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
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)

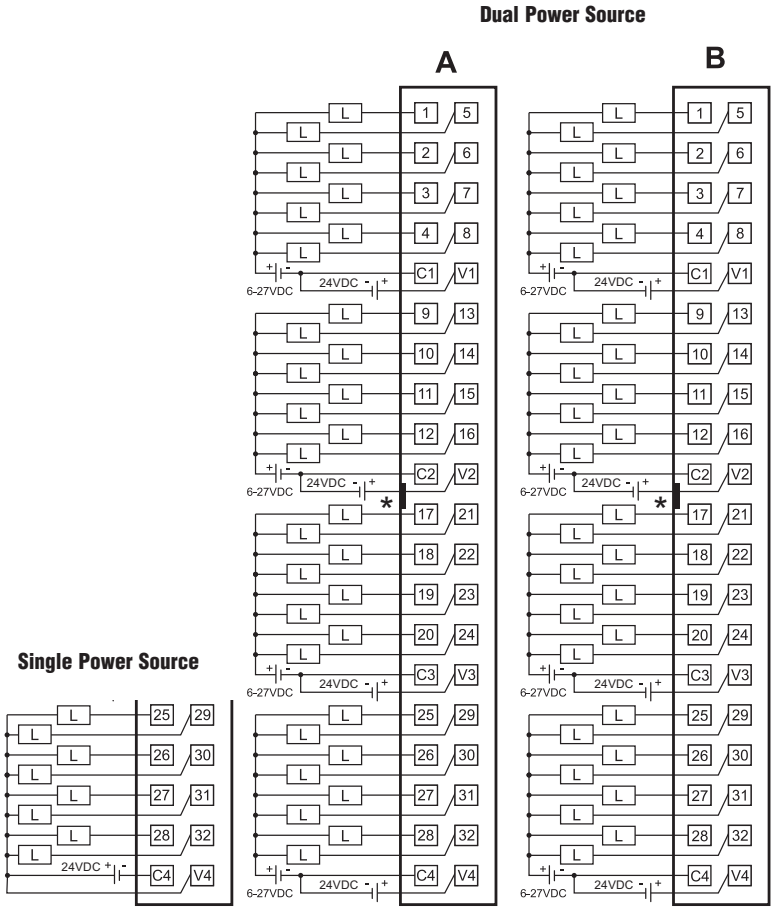
WARNING: Explosion hazard – Substitution of components may impair suitability for Class I, Division 2.

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

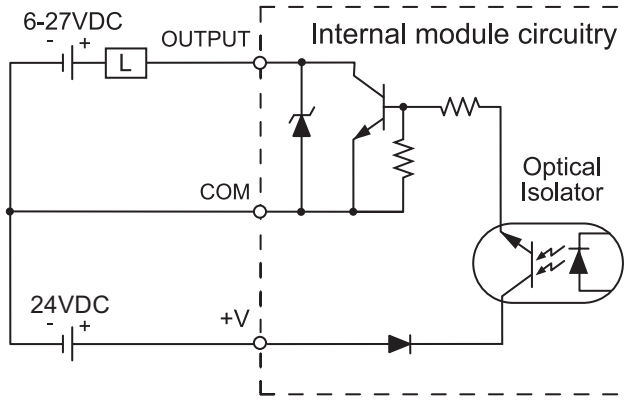
DC Output Modules

P3-64TD1 (cont'd)

Wiring Diagrams



*Denotes key location of all associated ZIPLink cables

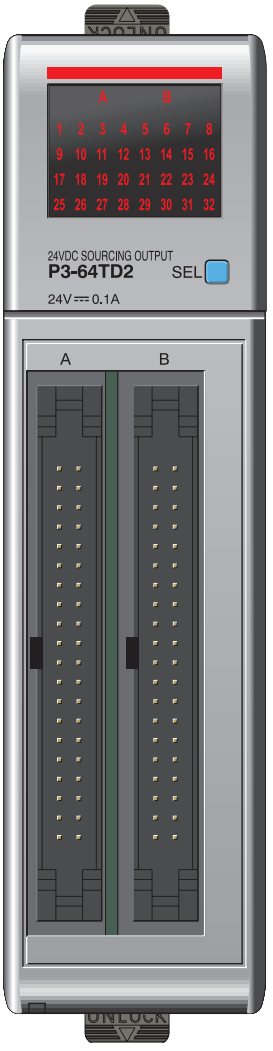


DC Output Modules

P3-64TD2 $196.00

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; *ZIP*Link required.

Output Specifications

Outputs per Module		64 (sourcing)
Operating Voltage Range (Tolerance)	CE	24VDC (-15% / + 20%)
	UL	24VDC (-20% / + 25%)
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		0.6 VDC @ 0.1 A
Maximum Inrush Current		0.5 A for 10ms
OFF to ON Response		≤ 0.5 ms
ON to OFF Response		≤ 0.5 ms
Connector Type		Two 40-pin IDC
Status Indicators		Logic Side (32 points x 2)
Commons		8 Isolated (8 points / common)

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	11.57 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 *ZIP*Link wiring system. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
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)

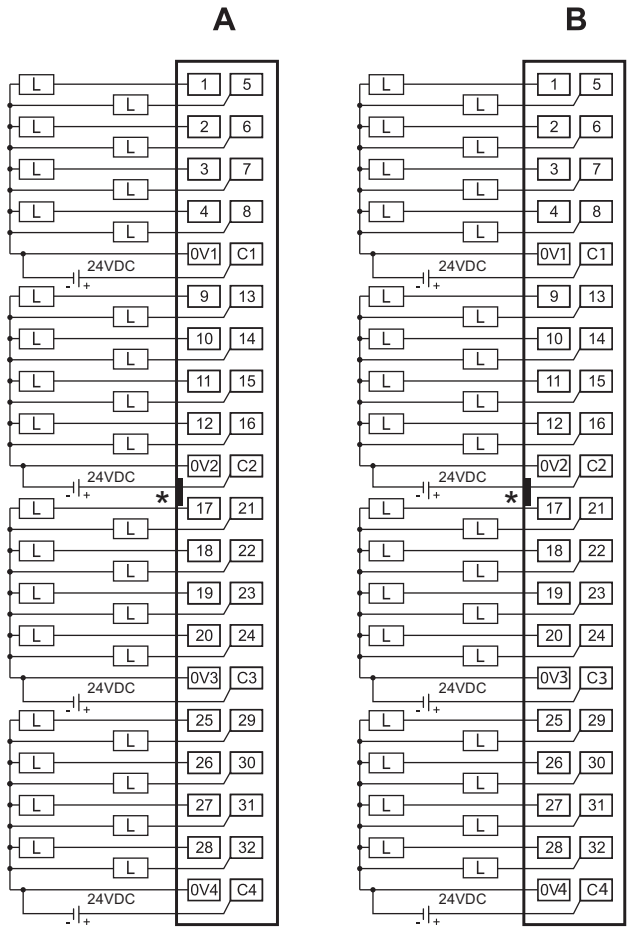
WARNING: Explosion hazard – Substitution of components may impair suitability for Class I, Division 2.

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

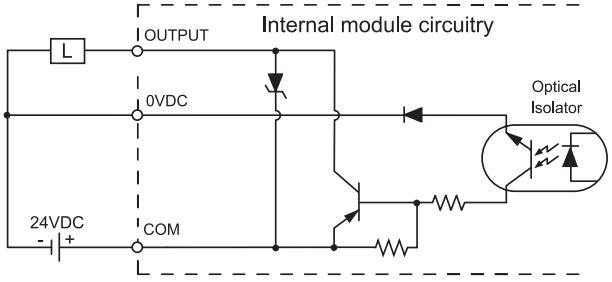
DC Output Modules

P3-64TD2 (cont'd)

Wiring Diagrams



*Denotes key location of all associated ZIPLink cables



AC Output Modules

P3-08TAS $135.00

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 *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

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 P3-FUSE-1. (Qty. 5/pkg.)

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
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

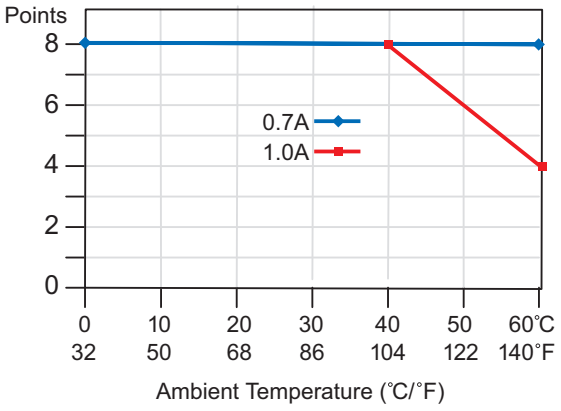
Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 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.

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

AC Output Modules

P3-08TAS (cont'd)

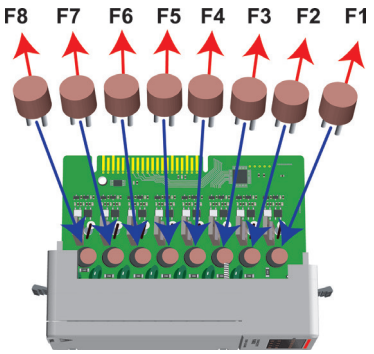
Derating Chart



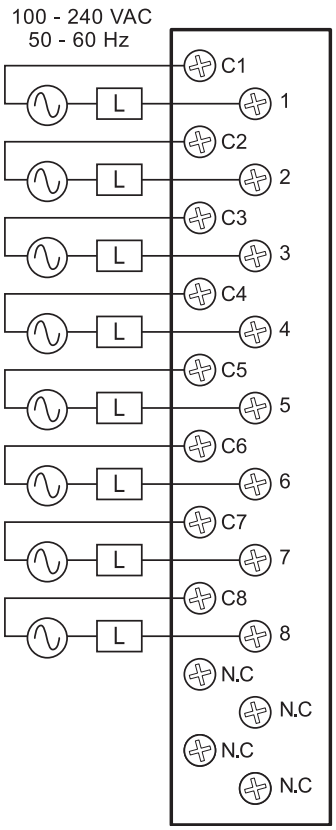
		Current	
		1.0A	0.7A
Temp	0	8	8
	40	8	8
	60	4	8

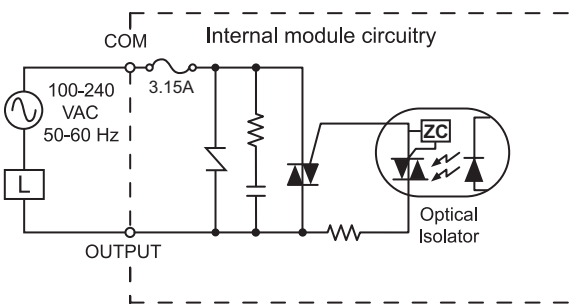
Replaceable Fuses

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



Wiring Diagrams



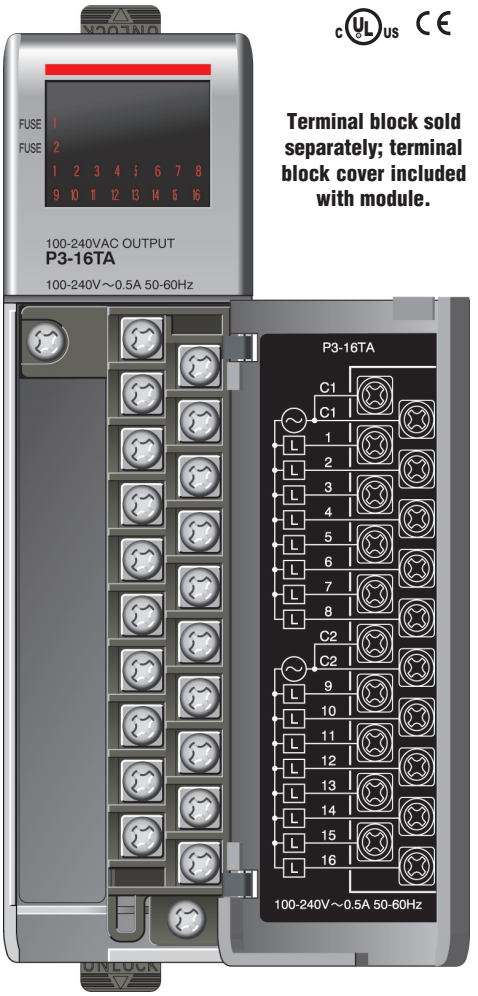


AC Output Modules

P3-16TA $160.00

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 *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

Outputs per Module		16
Operating Voltage Range (Tolerance)	(CE)	100–240 VAC (-15% / +10%)
	(UL)	100–240 VAC (-20% / +20%)
AC Frequency		47–63 Hz
Maximum Output Current @ Temp (Type 2)		0.5 A / point, 4A / common @ 60° C
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 (16 points)
Error Status Indicator		Blown Fuse (one for each common)
Terminal Type (not included)		20-position removable terminal block
Commons		2 Isolated (8 points / common)
Fuses		6.3 A user replaceable fuse per common For replacement, order P3-FUSE-2. (Qty. 5/pkg.)

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	12.69 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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
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

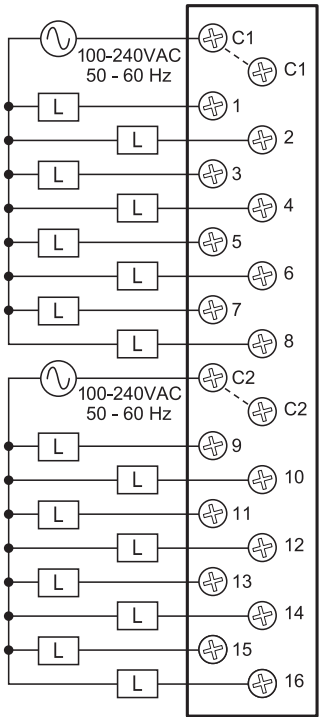
Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 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.

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

AC Output Modules

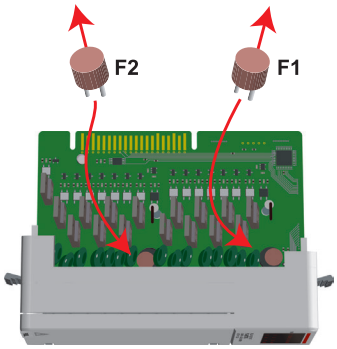
P3-16TA (cont'd)

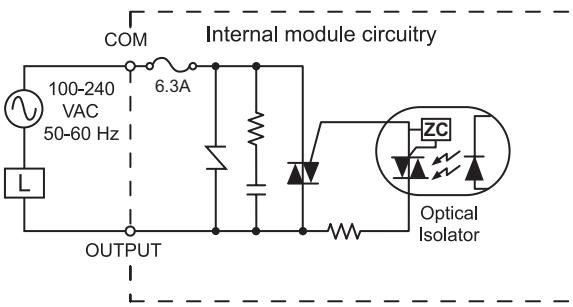
Wiring Diagrams



Replaceable Fuses

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





Relay Output Modules

P3-08TRS $96.00

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 *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

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		≤ 10ms
ON to OFF Response		≤ 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 P3-FUSE-1. (Qty. 5/pkg.)

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
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

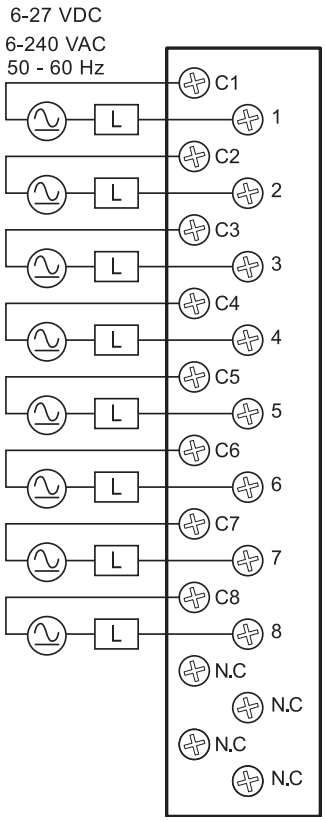
Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 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.

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

Relay Output Modules

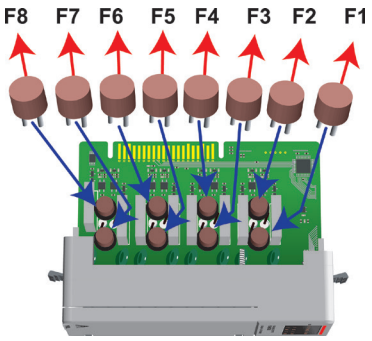
P3-08TRS (cont'd)

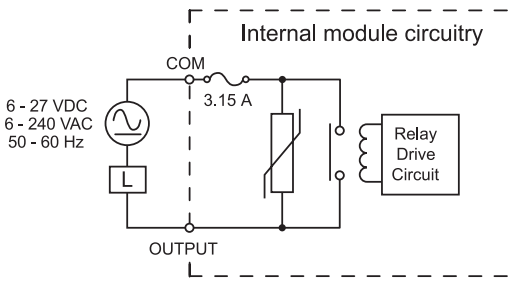
Wiring Diagrams



Replaceable Fuses

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



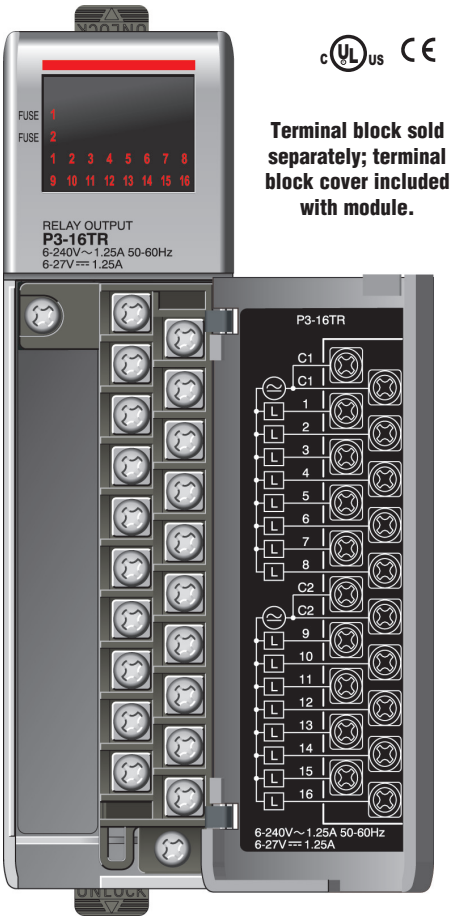


Relay Output Modules

P3-16TR $135.00

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

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

Outputs per Module		16
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		1.25 A / point, 6.3 A / common @ 60°C for both AC and DC
Minimum Load Current		5mA @ 5VDC
Maximum Inrush Current		4A for 10ms
OFF to ON Response		≤ 10ms
ON to OFF Response		≤ 10ms
Status Indicators		Logic Side (16 points)
Error Status Indicator		Blown Fuse (one for each common)
Terminal Type (not included)		20-position removable terminal block
Commons per module		2 Isolated (8 point / common)
Fuses		6.3 A user replaceable fuse per common For replacement, order P3-FUSE-2. (Qty. 5/pkg.)

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	3.93 W
Enclosure Type	Open Equipment
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.
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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	160g (5.64 oz)

*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.

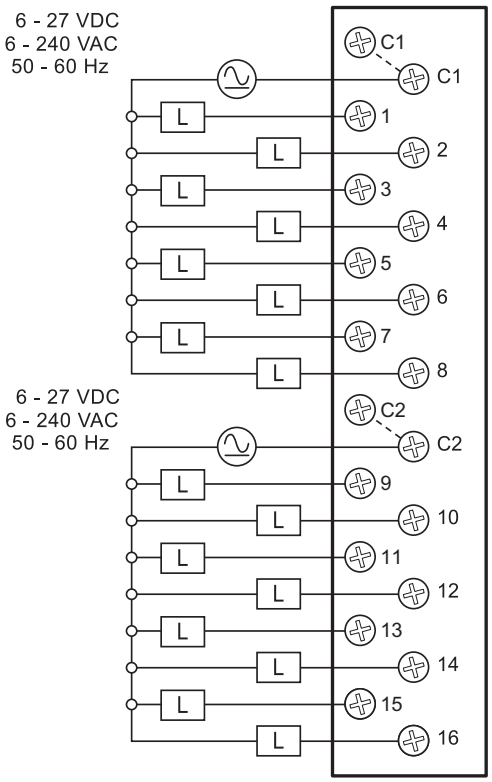
Removable Terminal Block Specifications

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.

Relay Output Modules

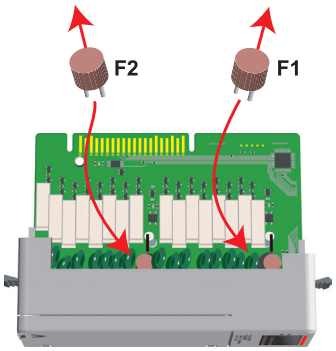
P3-16TR (cont'd)

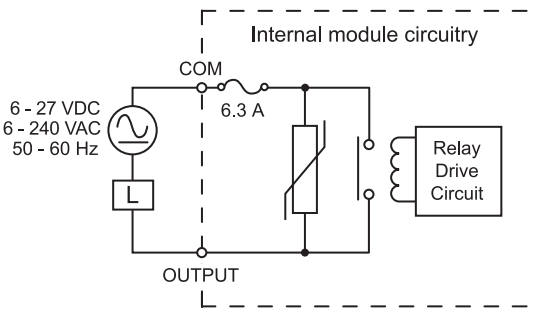
Wiring Diagrams



Replaceable Fuses

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



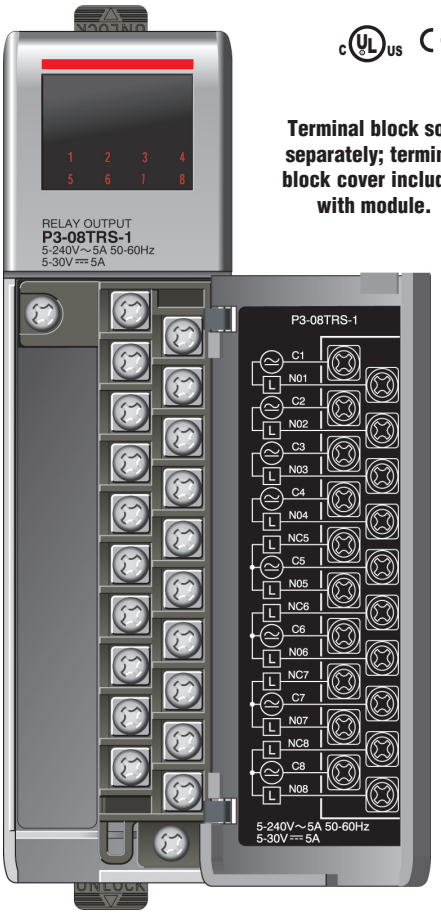


Relay Output Modules

P3-08TRS-1 $106.00

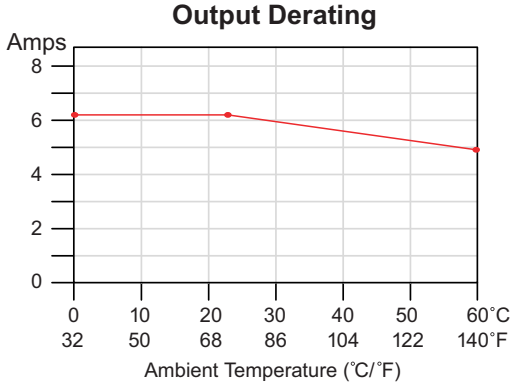
Isolated Relay Output

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 *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

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

*Rating is for a normally-open conact. Normally-closed contacts have 1/2 the current handling capability.

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 conacts. Normally-closed contacts have 1/2 the current handling capability.

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.

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

Relay Output Modules

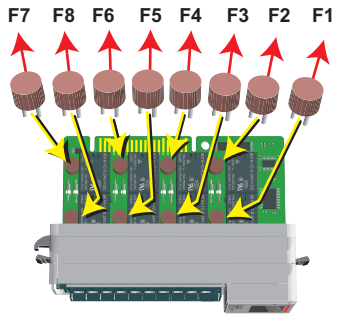
P3-08TRS-1 (cont'd)

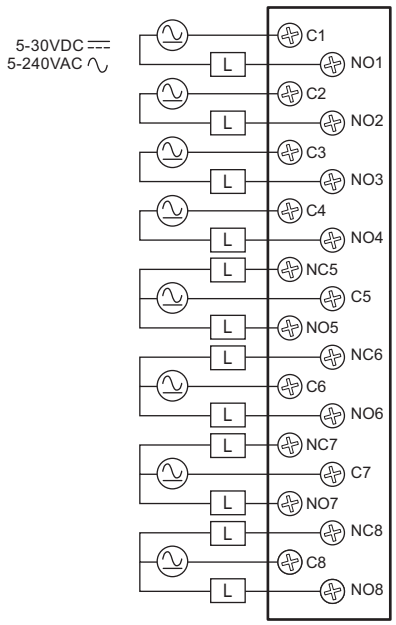
General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500 VDC
Heat Dissipation	3W
Enclosure Type	Open Equipment
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.
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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Terminal Type (not included)	20-position removable terminal block
Weight	286g (10.08 oz)

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

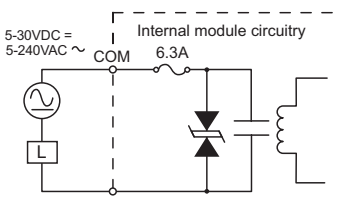
Replaceable Fuses

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

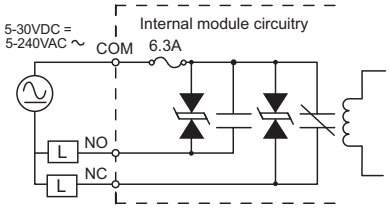




Outputs NO1 – NO4



Outputs NO5 / NC5 – NO8 / NC8

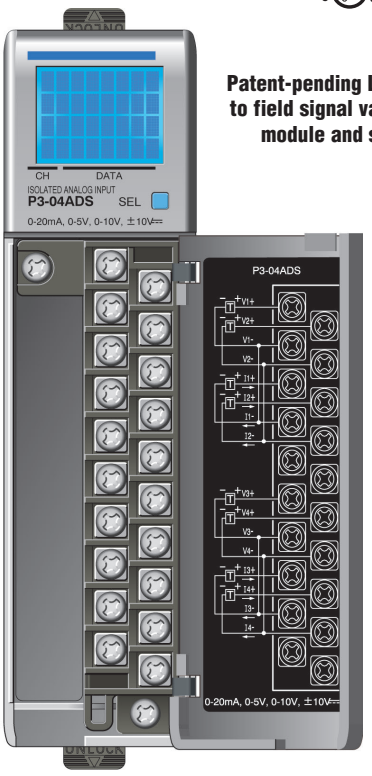


Analog Input Modules

P3-04ADS $366.50

Isolated Voltage/Current Analog Input

The P3-04ADS Isolated Voltage/Current Analog Input Module provides four isolated channels for receiving ± 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 *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.

Input Specifications

Input Channels	4 Channel-to-Channel Isolated
Module Signal Input Ranges*	±10VDC, 0–5 VDC, 0–10 VDC, 0–20 mA
Resolution	15 bit + sign
Value of LSB (least significant bit)	±10V = 305µV, 16 bit 0–5V = 152µV, 14 bit 0–10V = 305µV, 15 bit 0–20mA = 0.610 µA, 14 bit
Data Range	0 to 65535 counts unipolar -32768 to +32767 counts bipolar
Isolated Loop Pwr for Ext. Xmitters	20–30 VDC, current limited to < 30mA
Input Type	Differential
Common Mode Rejection Ratio	-75dB min. @ DC, -500kHz
Maximum Continuous Overload	±31mA. , current input ±100V, voltage input
Input Impedance	250kΩ ±5% voltage input 250Ω ±0.1% ¼W. current input
Filter Characteristics	Active low pass, -3dB @ 30Hz, -10dB @ 55Hz
Sample Duration Time	1.28 ms per channel (does not include ladder scan time)
All Channel Update Rate	5.2 ms
Open Circuit Detection Time	Zero reading within 1s
Conversion Method	Successive Approximation
Accuracy vs. Temperature	±25 PPM / °C max
Maximum Inaccuracy	0.1% of range voltage, 0.2% of range current (including temperature drift)
Linearity Error (End to End)	±0.025% of range maximum, Monotonic with no missing codes
Input Stability and Repeatability	±0.02% of range maximum after 10 min.
Full Scale Calibration Error (not including Offset)	±0.05% of range maximum
Offset Calibration Error	±0.05% of range maximum
Max Crosstalk	-96 dB 1 LSB
Channel to Channel Isolation	900VDC applied for 1 second
Recommended Fuse (external)	Edison S500-32-R, 0.032A fuse on current inputs only
External DC Power Required	NONE for the module

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

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	2.6 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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Terminal Type (not included)	20-position removable terminal block
Weight	61g (2.14 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

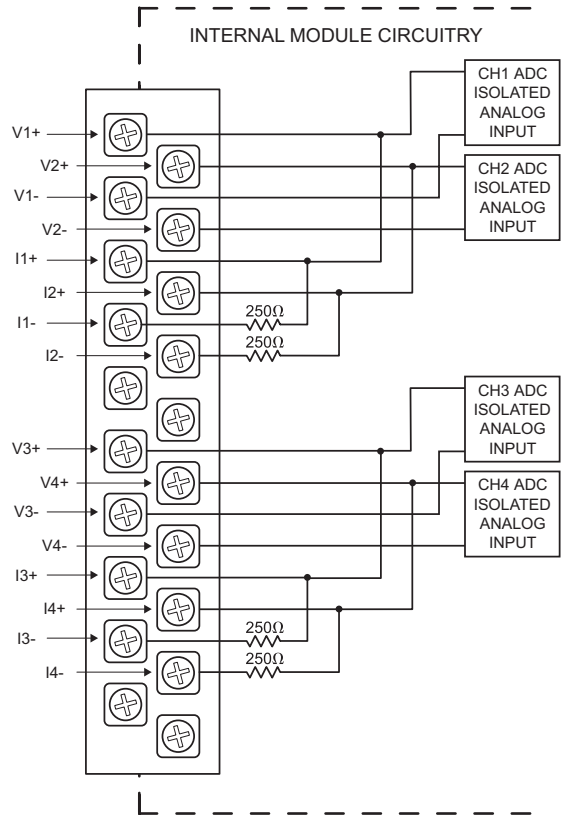
Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 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.

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

Analog Input Modules

P3-04ADS (cont'd)

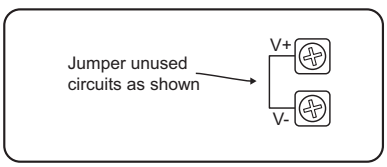
Wiring Diagrams

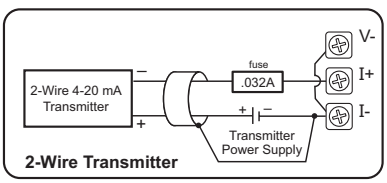


Current Input Circuits

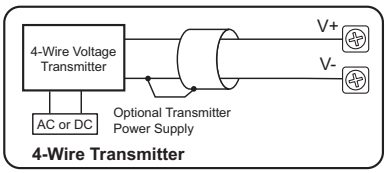
An Edison S500-32-R 0.032A fast-acting fuse is recommended for all 4-20mA current loops.

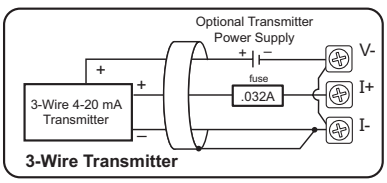
Unused Circuits

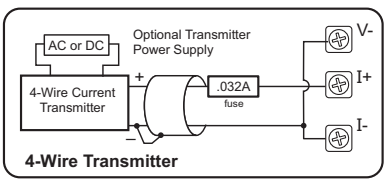




Voltage Input Circuits







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-.

Analog Input Modules

P3-08AD $232.50

Voltage/Current Input

The P3-08AD Voltage/Current Analog Input Module provides 8 channels for receiving ± 10 VDC, ± 5 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.

Input Specifications

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

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	1.1 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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
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.

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 *ZIP*Link cables and connection modules. See Wiring Solutions.

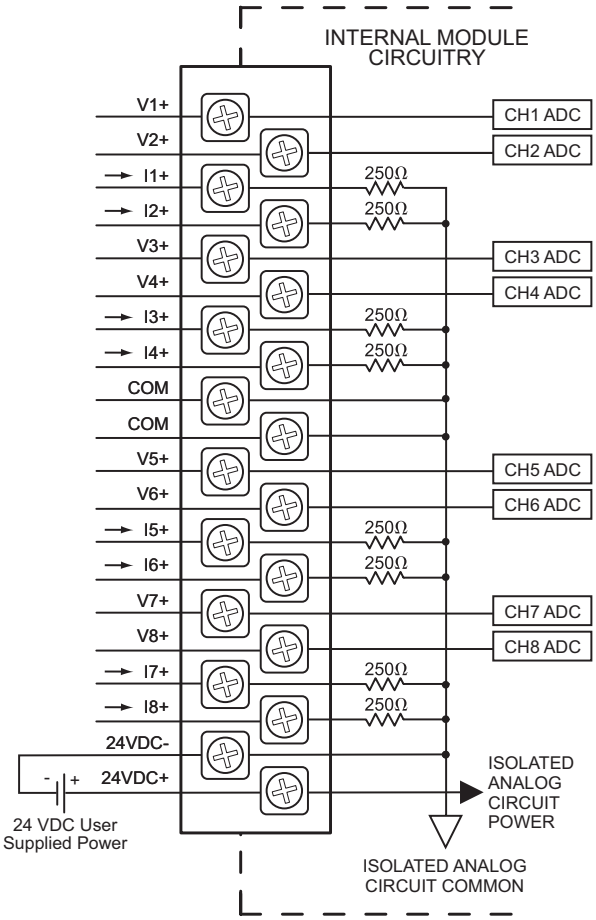
Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number P3-RTB.

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

Analog Input Modules

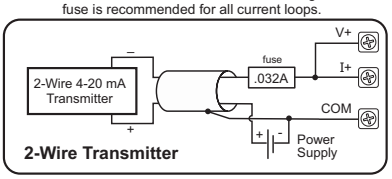
P3-08AD (cont'd)

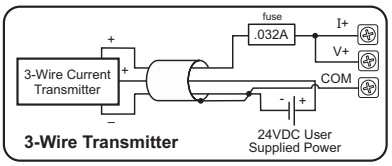
Wiring Diagrams

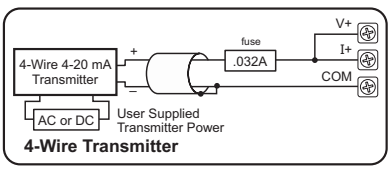


Current Sinking Input Circuits

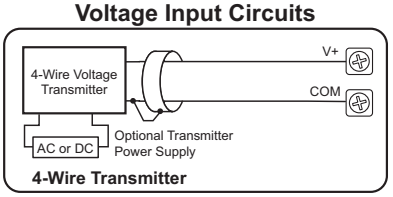
An Edison S500-32-R 0.032A fast-acting fuse is recommended for all current loops.

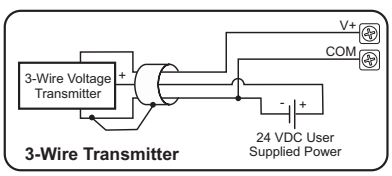






Voltage Input Circuits





Analog Input Modules

P3-16AD-1 $309.50

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.

Input Specifications

Input Channels	16 sinking
Module Signal Input Range	0–20mA
Signal Resolution	16 bit
Resolution Value of LSB (least significant bit)	0–20mA = 305µA per count (1 LSB = 1 count)
Data Range	0–65535 counts
Input Type	Single-ended (1 common)
Maximum Continuous Overload	±31mA
Input Impedance	250Ω ±0.1% ¼W
Filter Characteristics	Low Pass, -3dB @ 100Hz
Sample Duration Time	7ms per channel (does not include ladder scan time)
All Channel Update Rate	112ms
Open Circuit Detection Time	Zero reading within 1s
Conversion Method	Successive approximation
Accuracy vs. Temperature	±25PPM / °C maximum
Maximum Inaccuracy	0.1% of range (including temperature drift)
Linearity Error (end to end)	±10 LSB maximum (±0.015% of range) Monotonic with no missing codes
Input Stability and Repeatability	±10 LSB
Full Scale Calibration Error (not including offset)	±10 LSB maximum (±0.015% of range)
Offset Calibration Error	±10 LSB maximum
Max Crosstalk	-76dB, ±10 LSB
Recommended Fuse (external)	Edison S500-32-R, 0.032 A fuse
External DC Power Required	24VDC (-20% / + 25%) 20mA

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	2.1 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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
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.

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.

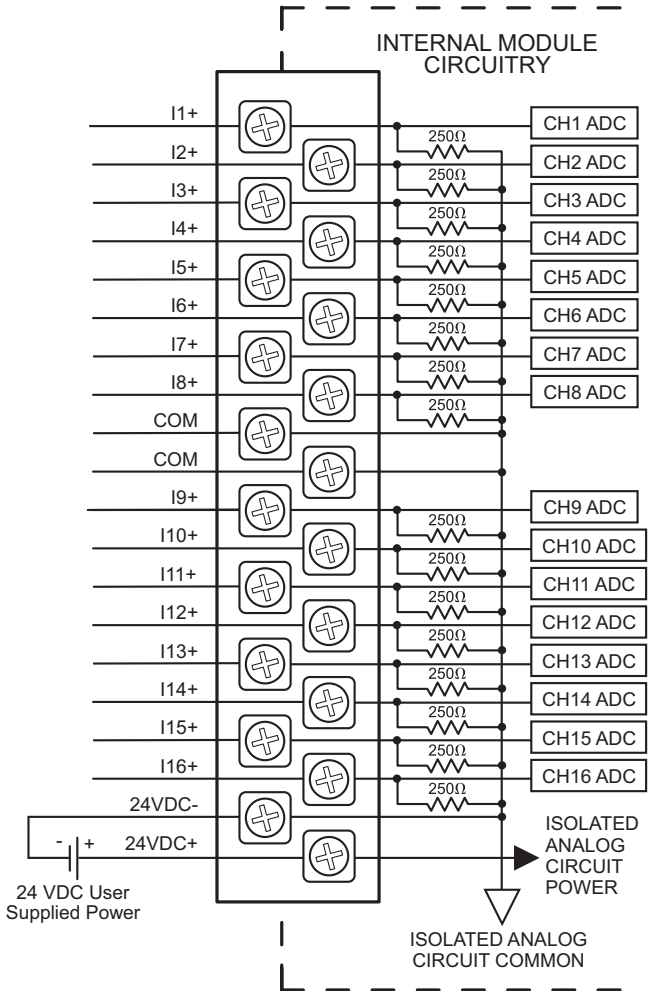
We recommend using prewired *ZIP*Link cables and connection modules. See Wiring Solutions.

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

Analog Input Modules

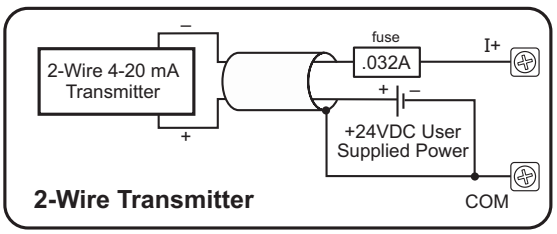
P3-16AD-1 (cont'd)

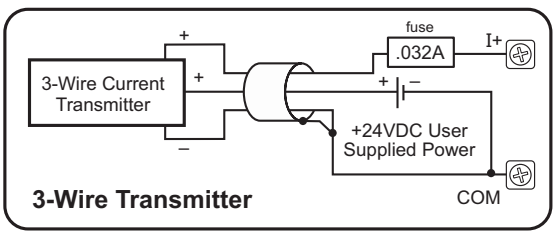
Wiring Diagrams

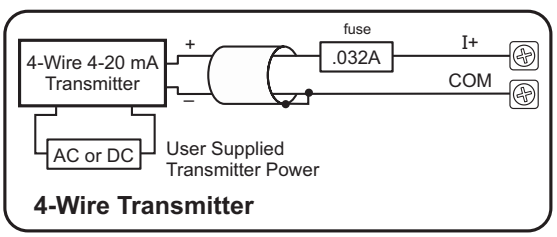


Current Input Circuits

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 $309.50

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.

Input Specifications

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

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	1.4 W
Enclosure Type	Open Equipment
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.
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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Terminal Type (not included)	20-position removable terminal block
Weight	105g (3.73 oz)

*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.

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

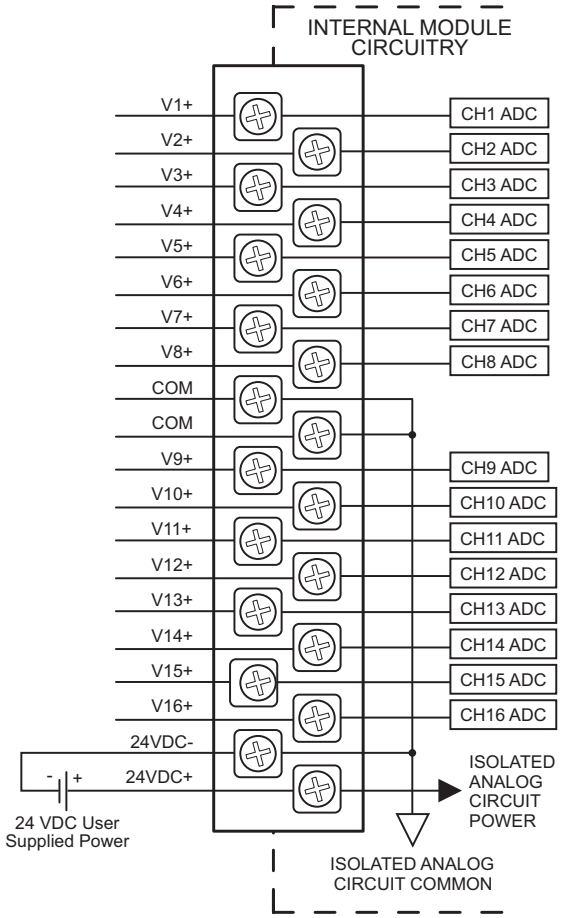
We recommend using prewired *ZIP*Link cables and connection modules. See Wiring Solutions.

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

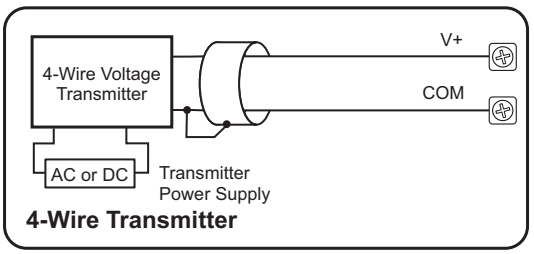
Analog Input Modules

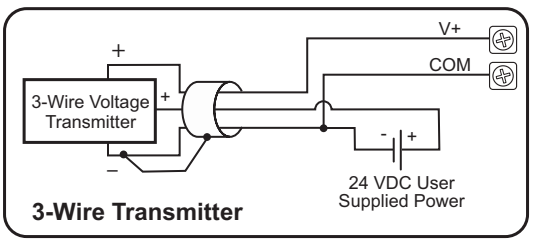
P3-16AD-2 (cont'd)

Wiring Diagrams



Voltage Input Circuits





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

Analog Input Modules

P3-08RTD $341.50

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 *ZIP*Link.

RTD Input Specifications

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

Resistance Input Specifications

Internal Resolution	16 bit, .0015% of full scale range in ohms (up to 100Hz filter)
Resistance Input Ranges and CPU Resolution	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 .01 Ω 0–195.3125 Ω, Resolution .01 Ω
Accuracy vs. Temperature	±25PPM per °C (maximum)
Full Scale Calibration	± 0.02% of full scale range
Offset Calibration Error	± 0.0015% of full scale range in ohms
Linearity Error (end to end)	± 0.0015% of full scale range maximum at 25°C, Monotonic with no missing codes
Maximum Inaccuracy	± 0.10% of full scale range

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.

Diagnostics

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

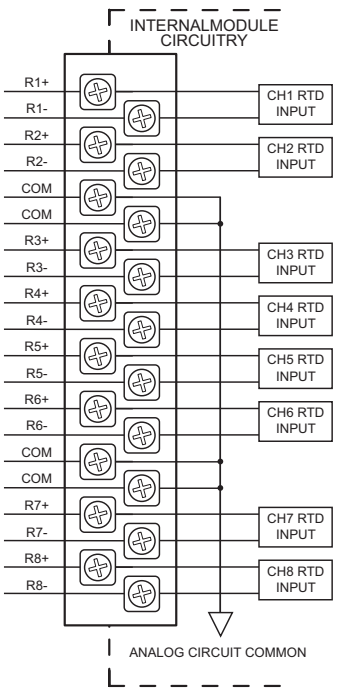
Analog Input Modules

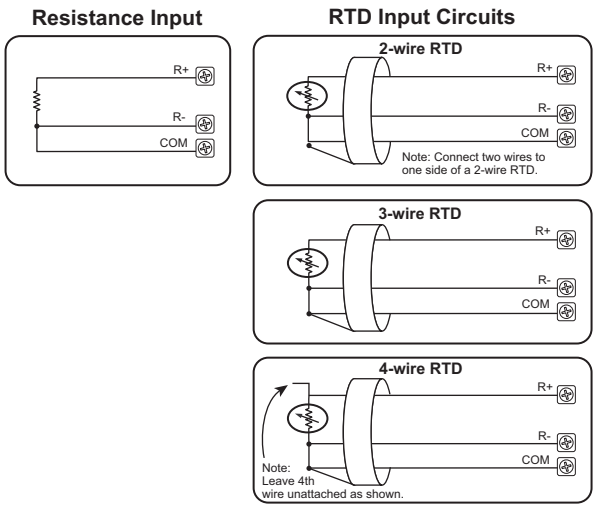
P3-08RTD (cont'd)

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Heat Dissipation	0.33 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 (included). The P3-08RTD module is not compatible with the *ZIP*Link wiring system.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Terminal Type	20-position removable terminal block (included)
Weight	107.8 g (3.79 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.





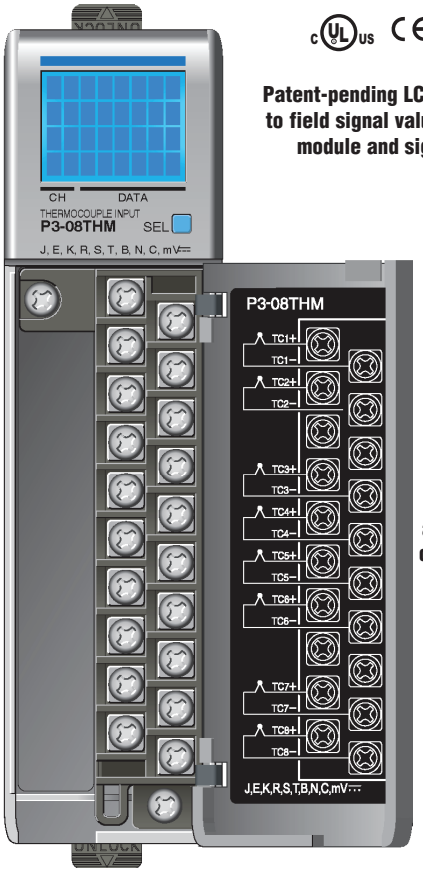
Notes for maximum accuracy:
1. For 2-wire RTD, attach third wire to module common.
2. R+, R-, and COM wires to an RTD must be equal length and type. Refer to RTD manufacturer's recommendations.
3. Do not use cable shield as sensing wire.
4. When applicable, connect shield to RTD common only, otherwise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

Analog Input Modules

P3-08THM $433.50

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 *ZIP*Link.

T/C Input Specifications

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

Voltage Input Specifications

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

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.

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

Configuration/Diagnostics

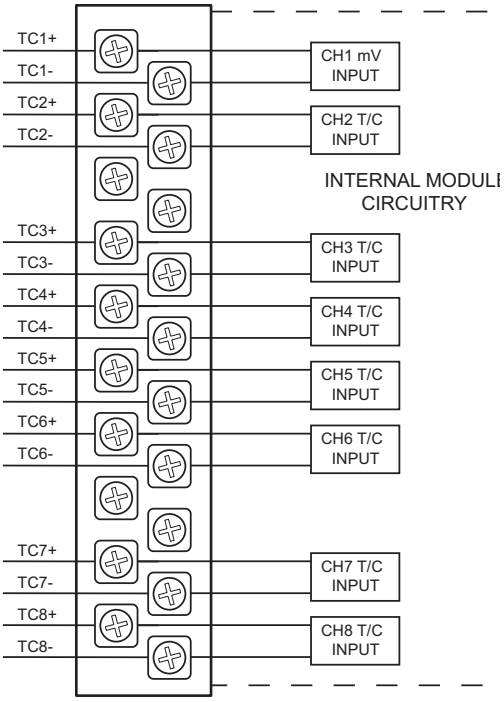
Burn-out Detection Enable/Disable	1-bit per module
°C/°F (T/C only)	1 bit per module
Module Diagnostics Failure	1 bit per module
Burn-out (on if T/C input is open – no connection between TCn+ and TCn-)	1 bit per channel
Channel Under-range (T/C only)	1 bit per channel
Channel Over-range (T/C only)	1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

Analog Input Modules

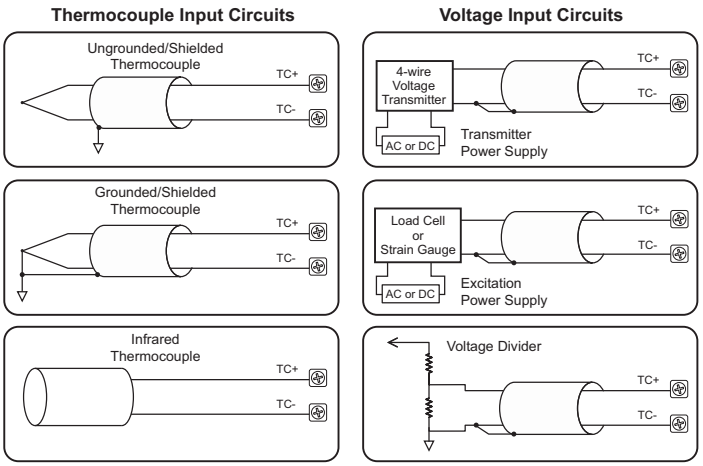
P3-08THM (cont'd)

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	0.36 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 (included). The P3-08THM module is not compatible with the *ZIP*Link wiring system.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Terminal Type	20-position removable terminal block (included)
Weight	150g (5.3 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.

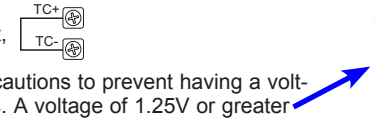


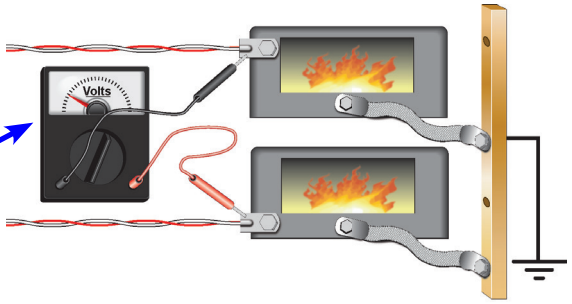
WARNING: Explosion hazard – Substitution of components may impair suitability for Class I, Division 2.



NOTES:

1. Connect shield to thermocouple signal/ground only. Do not connect to both ends.
2. Install jumper wire on each unused input, TC+ to TC-.
3. With grounded thermocouples, take precautions to prevent having a voltage potential between thermocouple tips. A voltage of 1.25V 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 $249.00

Voltage/Current Analog Output

The P3-04DA Voltage/Current Analog Output Module provides four channels of ±10VDC 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

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

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.

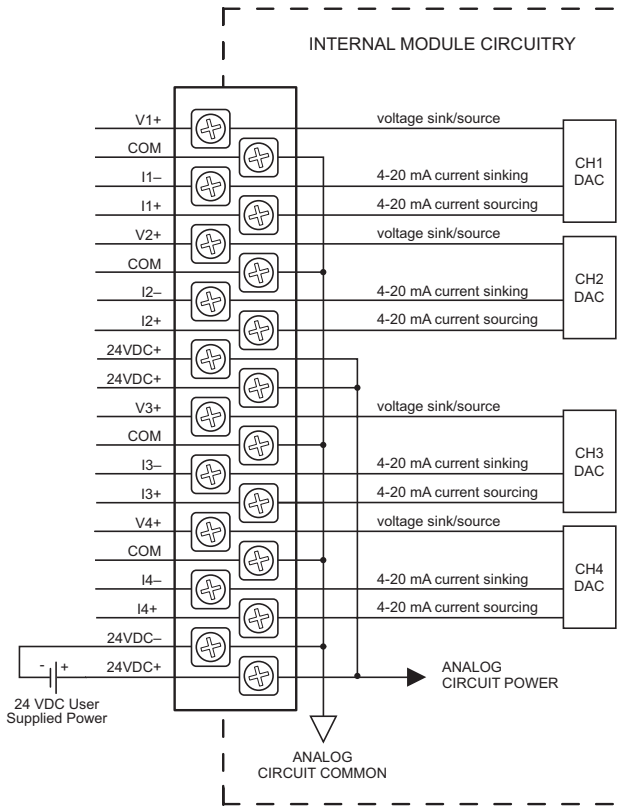
Analog Output Modules

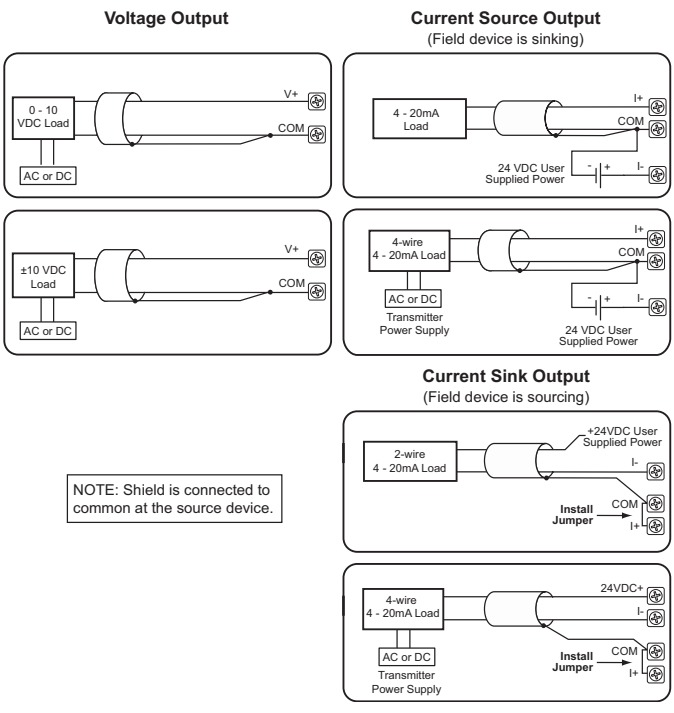
P3-04DA (cont'd)

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MV @ 500VDC
Heat Dissipation	2.6 W voltage outputs 3.4 W current outputs
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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
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.





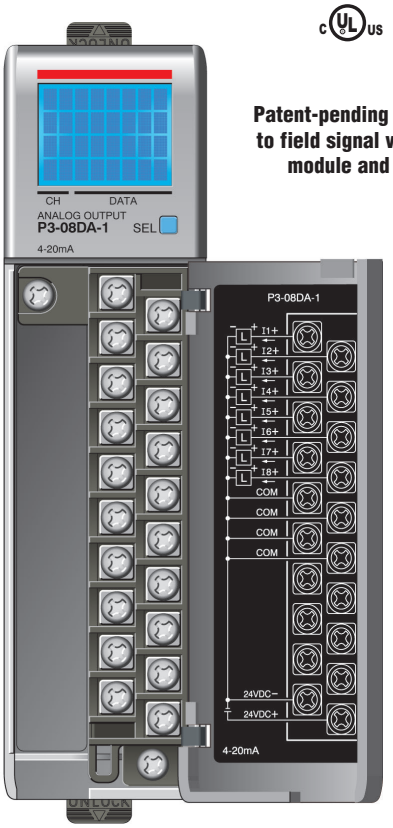
NOTE: Shield is connected to common at the source device.

Analog Output Modules

P3-08DA-1 $433.50

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.

Output Specifications

Output Channels (commons)	8
Module Signal Output Range	4–20mA
Output Signal Resolution	16-bit
Resolution Value of LSB (least significant bit)	4–20mA = 0.244 µA / count 1 LSB = 1 count
Data Range	0 to 65535 counts
Output Type (sourcing)	Current: 20mA max
Output Value in Fault Mode	Near 0mA
Load Impedence	0–570Ω (19.2 VDC) 0–690Ω (21.6 VDC) 0–810Ω (24.0 VDC) 0–930Ω (26.4 VDC) 0–1100Ω (30.0 VDC) Minimum Load 0Ω @ 0-45°C 125Ω @ 45-60°C
Maximum Inductive Load	1mH
Allowed Load Type	Grounded
Maximum Inaccuracy	0.1% of range (including temperature drift)
Maximum Full Scale Calibration Error (not including offset error)	±0.025% of range maximum
Maximum Offset Calibration Error	±0.025% of range maximum
Accuracy vs. Temperature	±25PPM/ °C maximum full-scale calibration change (± 0.0025% of range / °C)
Max Crosstalk	-96 dB, 1 LSB
Linearity Error (end to end)	±16 LSB maximum (±0.025% of full scale) monotonic with no missing codes
Output Stability and Repeatability	±10 count after 10 min. warm-up (typical)
Output Ripple	0.05% of full scale
Output Settling Time	0.3 ms max, 5µs 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%), 180mA

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 *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.

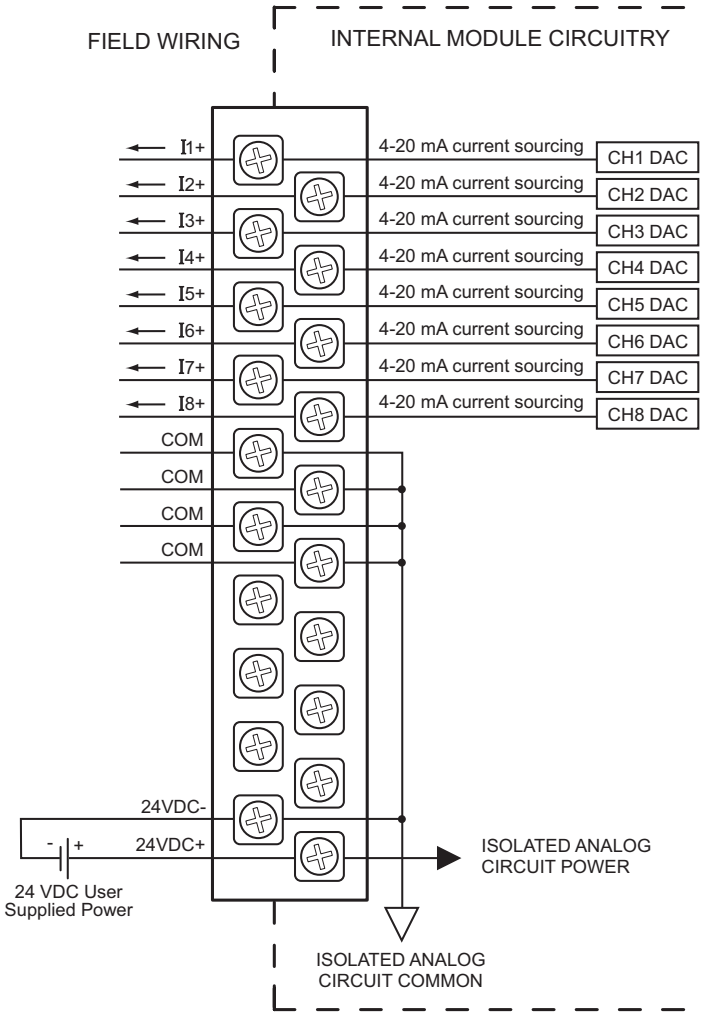
General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	4.7 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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
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.

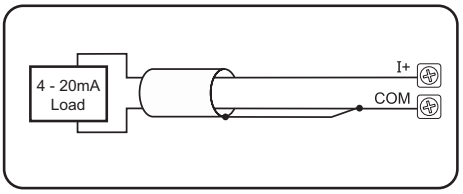
*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Analog Output Modules

P3-08DA-1 (cont'd)



Current Source Output Circuit



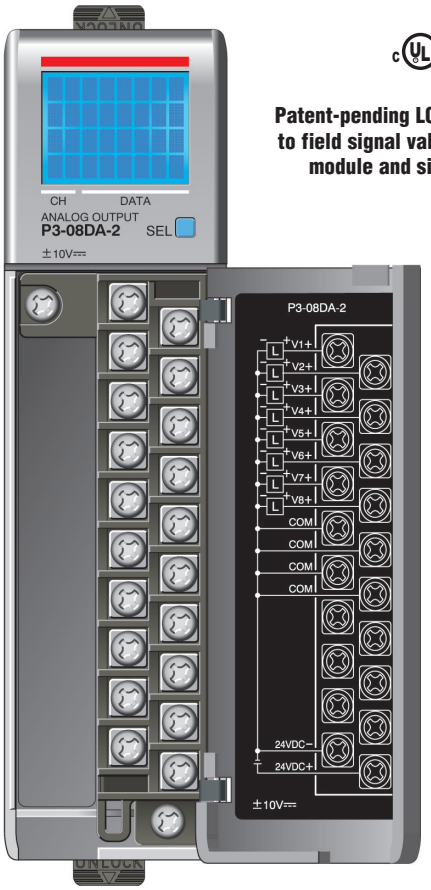
Note: Shield is connected to common at the source device.

Analog Output Modules

P3-08DA-2 $433.50

Voltage Analog Output

The P3-08DA-2 Voltage Analog Output Module provides eight channels of ±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.

Output Specifications

Output Channels	8
Module Signal Output Range	±10VDC
Output Signal Resolution	16-bit
Resolution Value of LSB (least significant bit)	±10V = 305µv/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	≥ 1000Ω
Maximum Capacitive Load	0.01 µF maximum
Allowed Load Type	Grounded
Maximum Inaccuracy	0.1% of range (including temperature drift)
Maximum Full Scale Calibration Error (not including offset error)	±0.025% of range maximum
Maximum Offset Calibration Error	±0.025% of range maximum
Accuracy vs. Temperature	±25PPM/ °C maximum full scale calibration change (± 0.0025% of range / °C)
Max Crosstalk	-96dB, 1 LSB
Linearity Error (End to End)	±16 LSB maximum (±0.025% of full scale) Monotonic with no missing codes
Output Stability and Repeatability	±10 LSB after 10 min. warm-up (typical)
Output Ripple	0.05% of full-scale
Output Settling Time	0.3 ms max, 5µs 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 µf Transient Suppressor
Output Signal (power-up, -down)	0V
External DC Power Required	24VDC (-20% / + 25%), 120mA

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
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.

Removable Terminal Block Specifications

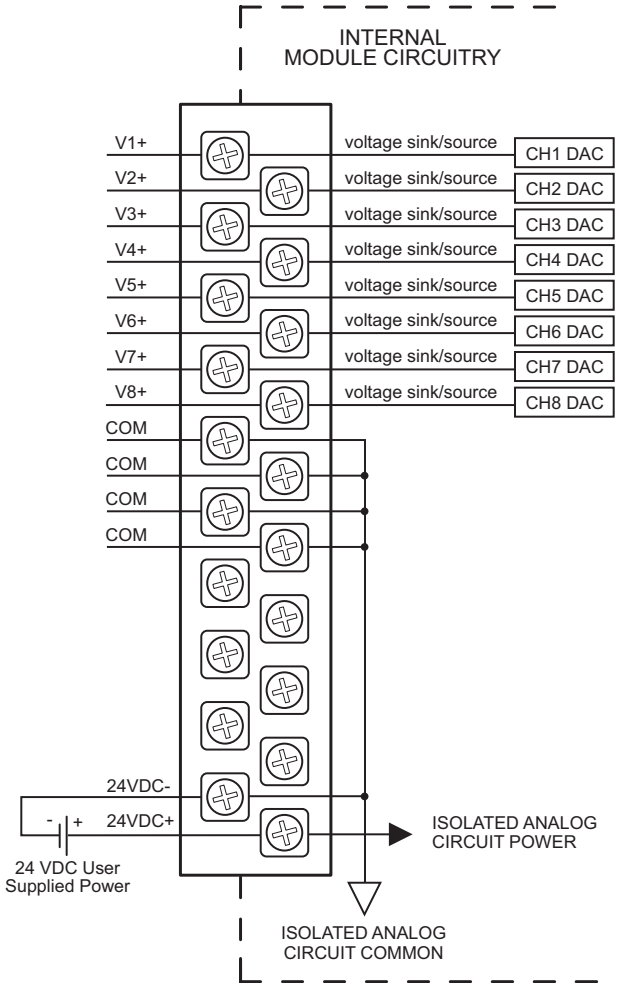
Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 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 *ZIP*Link cables and connection modules. See Wiring Solutions.

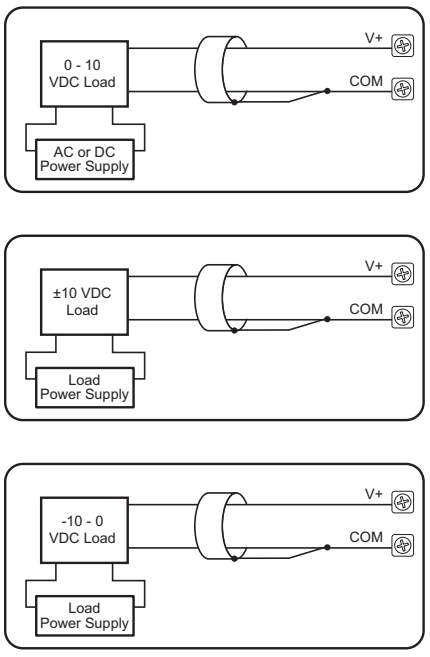
Terminal block cover included. If you wish to hand-wire your module, a removable terminal block is sold separately. Order part number P3-RTB.

Analog Output Modules

P3-08DA-2 (cont'd)



Voltage Output Circuits

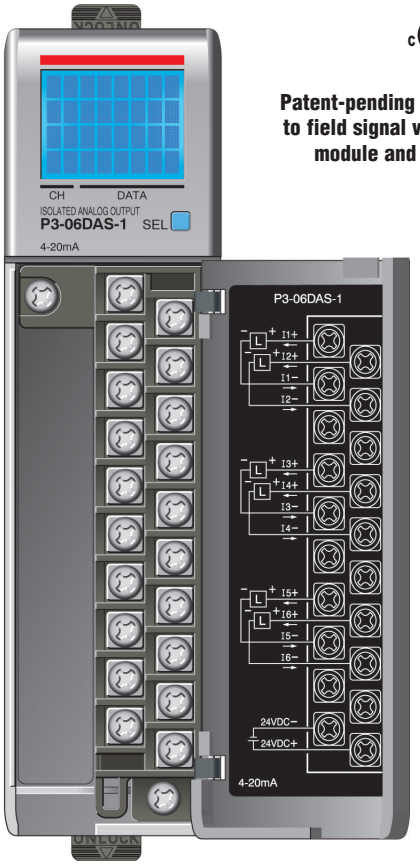


Analog Output Modules

P3-06DAS-1 $510.50

Isolated Current Analog Output

The P3-06DAS-1 Current Analog Output Module provides six channel-to-channel isolated 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.

Output Specifications

Output channels (commons)	6 (6 isolated)
Module Signal Output Range	4–20mA
Signal Resolution	16-bit
Resolution Value of LSB (least significant bit)	4–20mA = 0.244 µA/count 1 LSB = 1 count
Data Range	0 to 65535 counts
Output Type (sourcing)	Current: 20mA max (isolated)*
Channel to AUX Power Isolation	1800VDC applied for 1.8 second (100% tested)
Channel to Channel Isolation	900VDC applied for 1.8 second (100% tested)
Output Value in Fault Mode	Less than 4mA
Load Impedance	0–750Ω
Maximum Inductive Load	1mH
Allowed Load Type	Floating or 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 (DC, 50Hz, 60Hz)	-96dB, 1 LSB**
Linearity Error (end to end)	±16 LSB maximum (±0.025% of full scale) monotonic with no missing codes
Output Stability and Repeatability	±16 LSB after 10 min. warm-up (typical)
Output Settling Time	0.3 ms maximum, 5µs minimum (full scale change)
All Channel Update Rate	0.6 ms
Type of Output Protection	Electronically current limited to 20mA or less
Output Signal (power-up, -down)	Less than or equal to 4mA***
External DC Power Required	24VDC (-20% / + 25%), 250mA

*Module generates isolated loop power for each channel

**To achieve maximum crosstalk per spec, isolation must be maintained, all commons have to be separated

***Less than 4mA, if the module is not configured or in the RESET stage

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 *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.

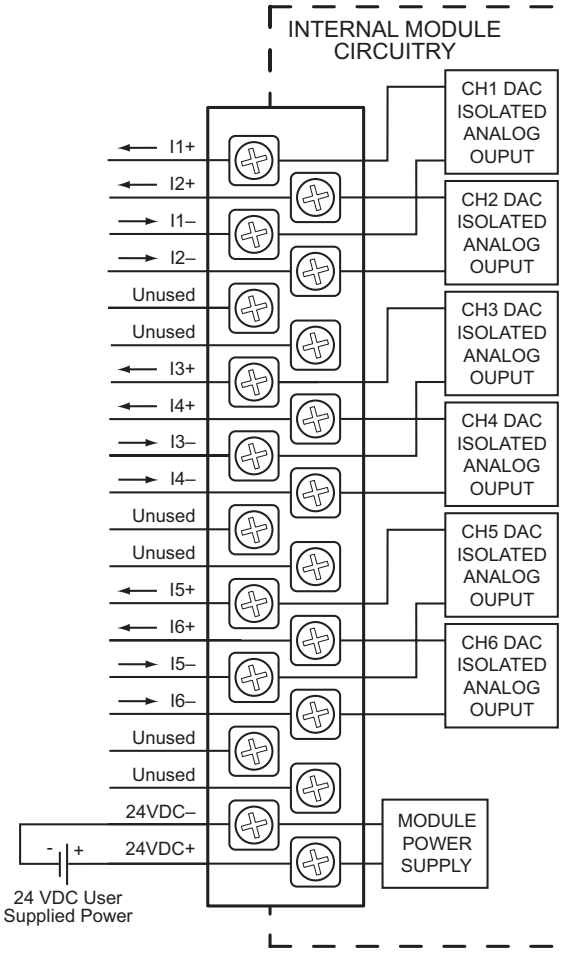
General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VDC applied for 1.8 seconds (100% tested)
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	3.38 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 *ZIP*Link wiring system or optional terminal block. See "Wiring I/O Modules".
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Terminal Type (not included)	20-position removable terminal block
Weight	108.8 g (3.82 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.

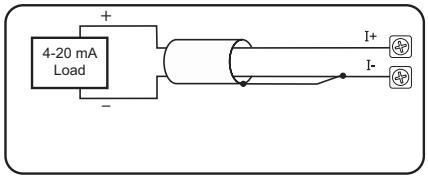
*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Analog Output Modules

P3-06DAS-1 (cont'd)



Current Output Circuits



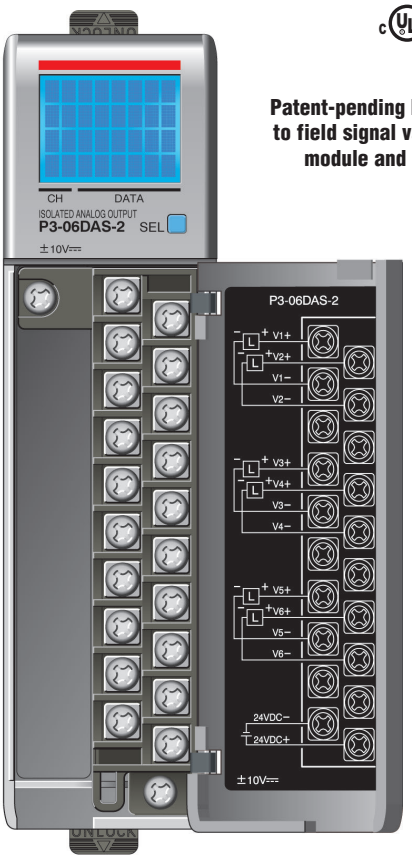
NOTES:
1. Shield connected to signal source common.
2. Isolated analog outputs can work with sinking and sourcing field devices.

Analog Output Modules

P3-06DAS-2 $630.50

Isolated Voltage Analog Output

The P3-06DAS-2 Voltage Analog Output Module provides six channel-to-channel isolated ±10VDC 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.

Output Specifications

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

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VDC applied for 1.8 seconds (100% tested)
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	5.8 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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Terminal Type (not included)	20-position removable terminal block
Weight	108.8 g (3.82 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. 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.

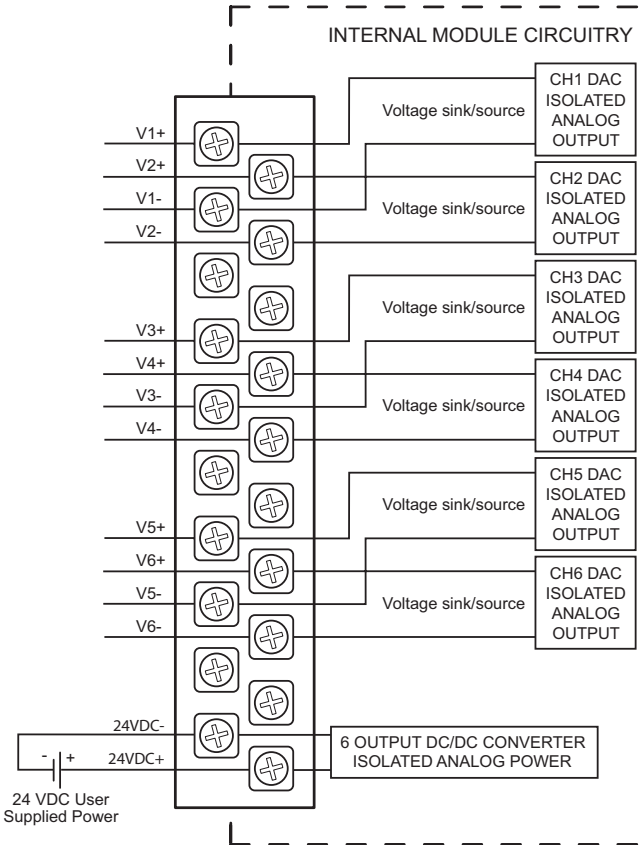
We recommend using prewired *ZIP*Link cables and connection modules. See Wiring Solutions.

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.

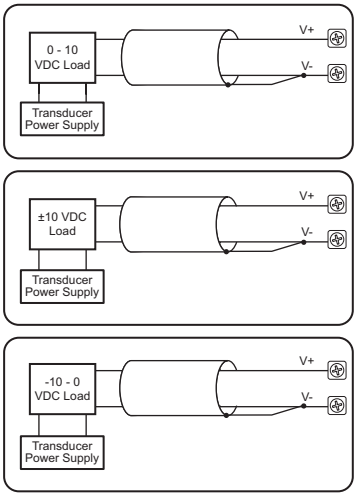
Analog Output Modules

P3-06DAS-2 (cont'd)



Voltage Output Circuits

V- can be either isolated or grounded.



NOTES: Shield connected to signal source common.

Analog Output Modules

P3-16DA-1 $543.00

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.

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 µA/count 1 LSB = 1 count
Data Range	0 to 65535 counts
Output Value in Fault Mode	Less than 4mA
Load Impedence (Minimum External Power Supply)	0–570Ω (19.2 VDC) 0–690Ω (21.6 VDC) 0–810Ω (24.0 VDC) 0–930Ω (26.4 VDC) 0–1100Ω (30.0 VDC) Minimum Load 0Ω 0–45°C, 125Ω 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)	±0.025% of range maximum
Maximum Offset Calibration Error	±0.025% of range maximum
Accuracy vs. Temperature	±25PPM/ °C maximum full scale calibration change (± 0.0025% of range / °C)
Max Crosstalk	-96dB, 1 LSB
Linearity Error (end to end)	±16 LSB maximum (±0.025% of full scale) monotonic with no missing codes
Output Stability and Repeatability	±10 LSB after 10 min. warm-up (typical)
Output Ripple	0.05% of full scale
Output Settling Time	0.3 ms max, 5µs 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

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 *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.

General Specifications

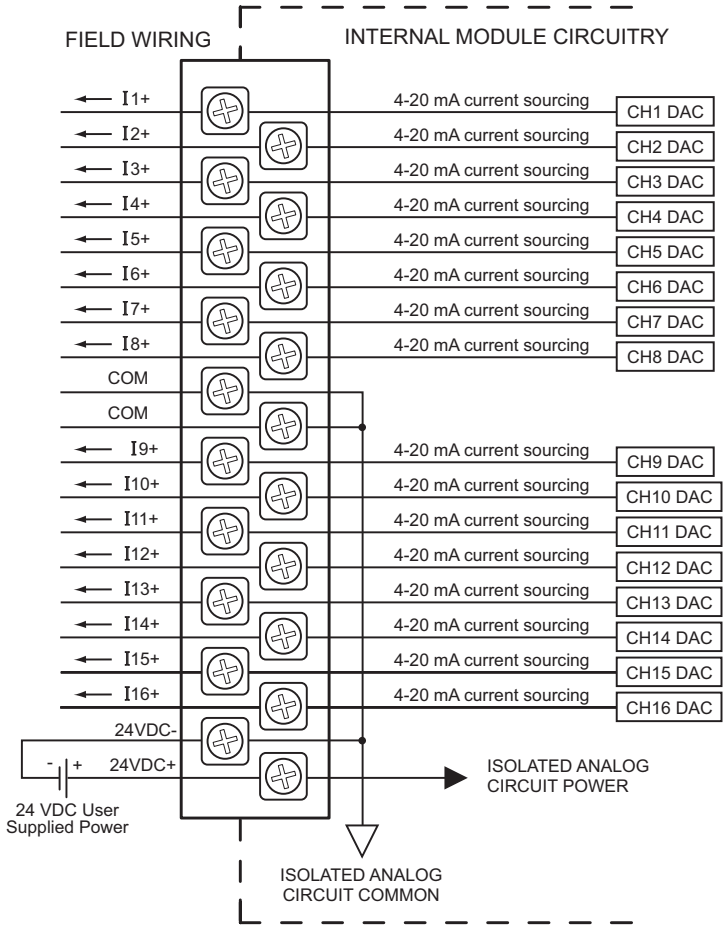
Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
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.

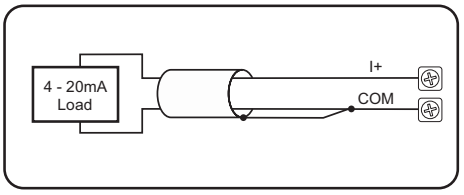
WARNING: Explosion hazard – Substitution of components may impair suitability for Class I, Division 2.

Analog Output Modules

P3-16DA-1 (cont'd)



Current Source Output Circuit



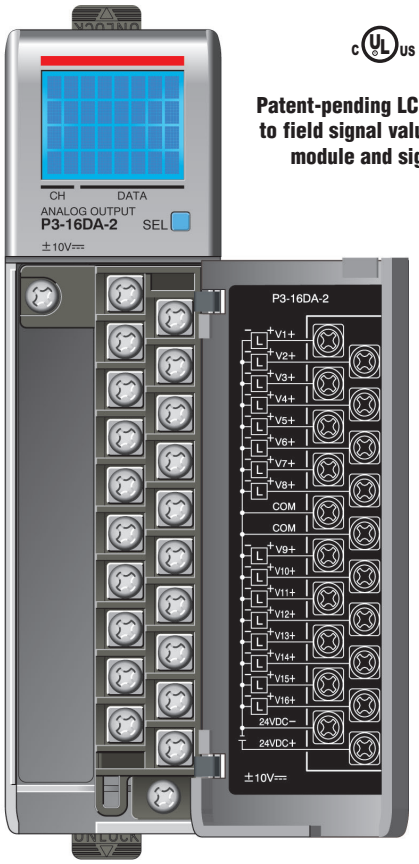
NOTE: Shield is connected to common at the source device.

Analog Output Modules

P3-16DA-2 $543.00

Voltage Analog Output

The P3-16DA-2 Voltage Analog Output Module provides sixteen channels of ±10VDC 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.

Output Specifications

Output Channels	16
Module Signal Output Range	±10VDC
Output Signal Resolution	16-bit
Resolution Value of LSB (least significant bit)	±10V = 305µV/count 1 LSB = 1 count
Data Range	-32768 to +32767
Output type (sourcing/sinking)	Voltage (10mA max current)
Output Value in Fault Mode	0V
Output Impedance	0.2 Ω typical
Load Impedance	≥ 1000Ω
Maximum Capacitive Load	0.01 µF maximum
Allowed Load Type	Grounded
Maximum Inaccuracy	0.1% of range (including temperature drift)
Maximum Full Scale Calibration Error (not including offset error)	±0.025% of range maximum
Maximum Offset Calibration Error	±0.025% of range maximum
Accuracy vs. Temperature	±25PPM/ °C maximum f.s. calibration change (± 0.0025% of range / °C)
Max Crosstalk	-96dB, 1 LSB
Linearity Error (end to end)	±16 LSB maximum (±0.025% of full scale) Monotonic with no missing codes
Output Stability and Repeatability	±10 LSB after 10 min. warm-up (typical)
Output Ripple	0.05% of full scale
Output Settling Time	0.3 ms max, 5µs min (full scale change)
All Channel Update Rate	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 µF Transient Suppressor
External DC Power Required	24VDC (-20% / + 25%), 252mA

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	6.4 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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
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*) 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

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.

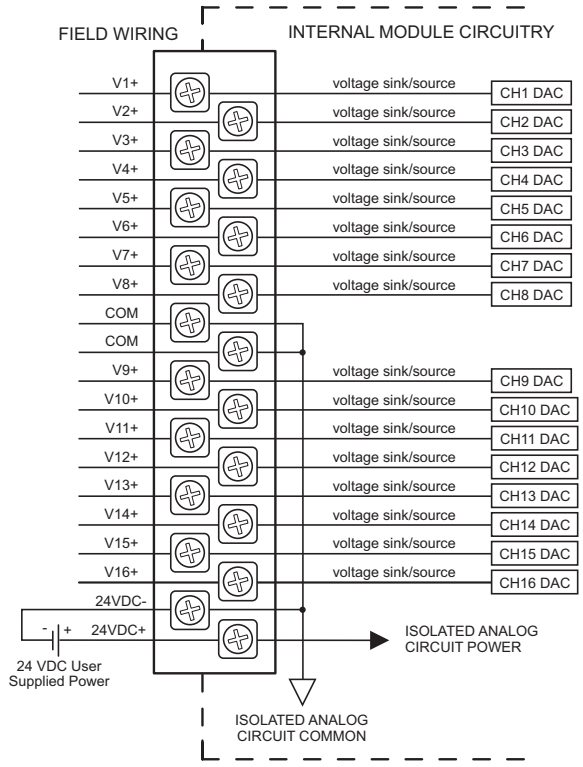
We recommend using prewired *ZIP*Link cables and connection modules. See Wiring Solutions.

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

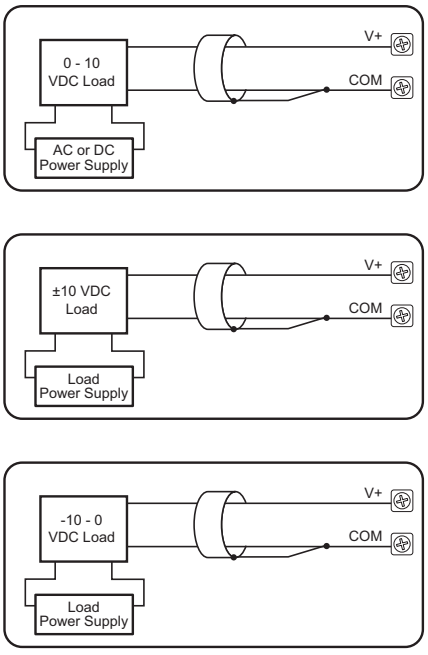
WARNING: Explosion hazard – Substitution of components may impair suitability for Class I, Division 2.

Analog Output Modules

P3-16DA-2 (cont'd)



Voltage Output Circuits

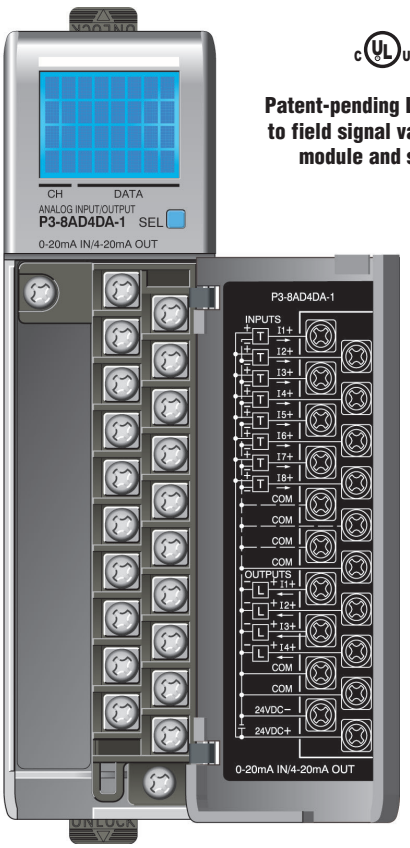


Analog Input/Output Modules

P3-8AD4DA-1 $332.00

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.

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 µA, 16 bit Medium: 1.78ms, 1.22 µA, 14 bit Coarse: 444µs, 4.88 µA, 12 bit
Data Range	0–65535 counts
Input Type	Single Ended (one common)
Maximum Continuous Overload	±31mA
Input Impedance	250Ω ±0.1% ¼W
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	±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	±0.015% of range (after 10 min. warm up)
Full Scale Calibration Error (not including offset)	±0.05% of range maximum
Offset Calibration Error	±.0.05% of range maximum
Maximum Crosstalk	-96dB ±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 µA/count 1 LSB = 1 count
Data Range	0–65535 counts
Output Type	Current sourcing, 20mA max
Output Value in Fault Mode	≤ 4mA
Load Impedance (Minimum Ext. Power Supply)	0–480Ω (19.2 VDC) 0–600Ω (21.6 VDC) 0–715Ω (24.0 VDC) 0–840Ω (26.4 VDC) 0–1010Ω (30.0 VDC)
Maximum Inductive Load	1mH
Allowed Load Type	Grounded
Maximum Inaccuracy	±0.1% of range
Maximum Full Scale Calibration Error (not including offset error)	±0.065% of full scale
Maximum Offset Calibration Error	±0.065% of full scale
Accuracy vs. Temperature	±15PPM/ °C maximum full scale calibration change (± 0.025% of range / °C)
Maximum Crosstalk	-96dB
Linearity Error (end to end)	±0.015% of range maximum 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	Rising Time 200µs Falling Time 135µs (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)	≤ 4mA

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 *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.

Analog Input/Output Modules

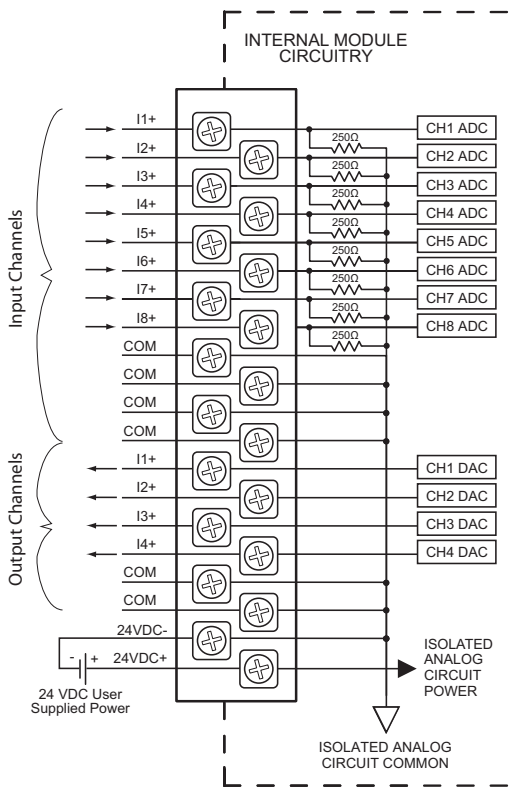
P3-8AD4DA-1 (cont'd)

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	3.8 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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Terminal Type (not included)	20-position removable terminal block
Weight	106.9 g (3.76 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.

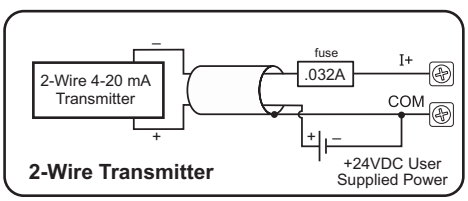
*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

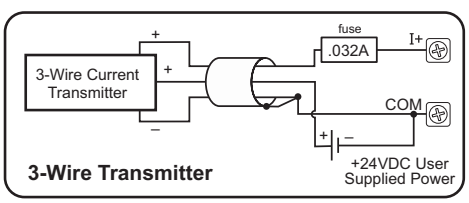
WARNING: Explosion hazard – Substitution of components may impair suitability for Class I, Division 2.

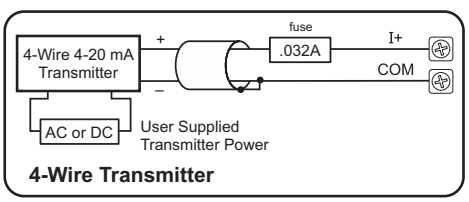


Note: This module includes input and output channels. Before connecting field wiring, verify that you are connecting to the appropriate terminals.

Current Input Circuits



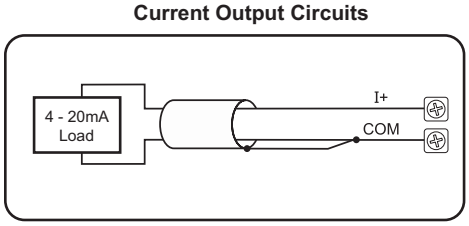




An Edison S500-32-R 0.032A fast-acting fuse is recommended for all current loops.

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 $332.00

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.

Input Specifications

Input channels	8 inputs (1 common)
Input ranges	0–5V, 0–10V
Signal resolution	12–16 bit, depending on input resolution
0-5V 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
0-10V 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

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 *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.

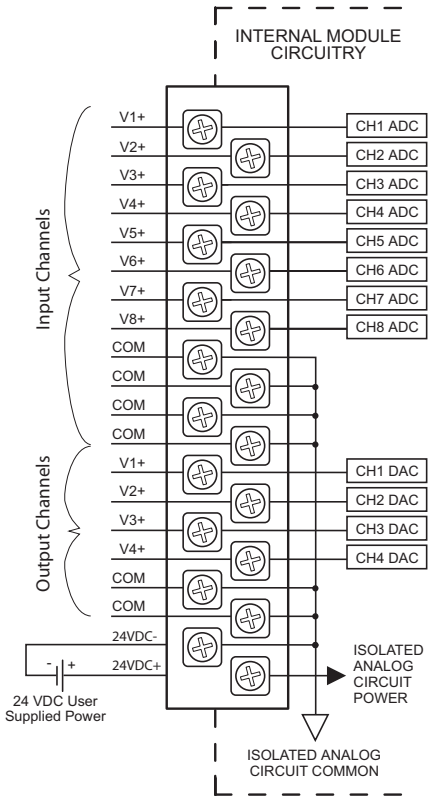
Analog Input/Output Modules

P3-8AD4DA-2 (cont'd)

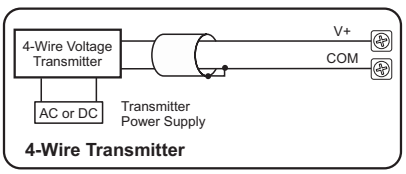
General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500 VDC
Heat Dissipation	2.5 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 *ZIP*Link wiring system or optional terminal block. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
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.

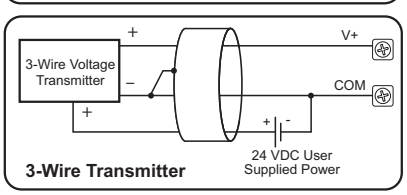
*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

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

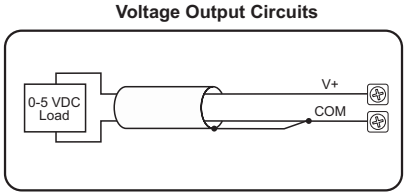


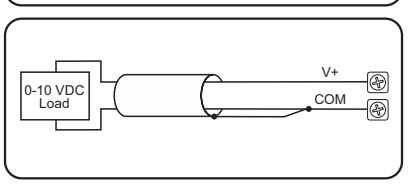
Voltage Input Circuits





Voltage Output Circuits





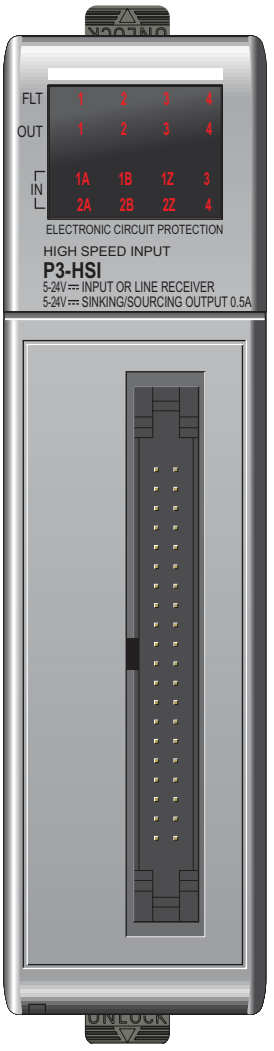
Note: This module includes input and output channels. Before connecting field wiring, verify that you are connecting to the appropriate terminals.

Specialty Modules

P3-HSI $329.00

High-Speed Input

The P3-HSI is a high-speed (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; *ZIP*Link required.

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

General Specifications

Module Type	Intelligent
Modules per Base	11 Max
I/O Points Used	None, mapped directly to tags in CPU
Surrounding Air Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	5.76 W
Enclosure Type	Open Equipment
Emissions	EN61000-6-4 (Conducted and radiated RF emissions)
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 *ZIP*Link wiring system. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	113.4 g (4 oz)
Agency Approvals	UL508 file E157382, Canada & USA CE (EN61131-2*)

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

Power Specifications

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

Connector Specifications

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

CPU	Firmware Required	Productivity Suite Required
P3-550	Version 1.1.12.x or later	Version 1.6.x.x or later

Specialty Modules

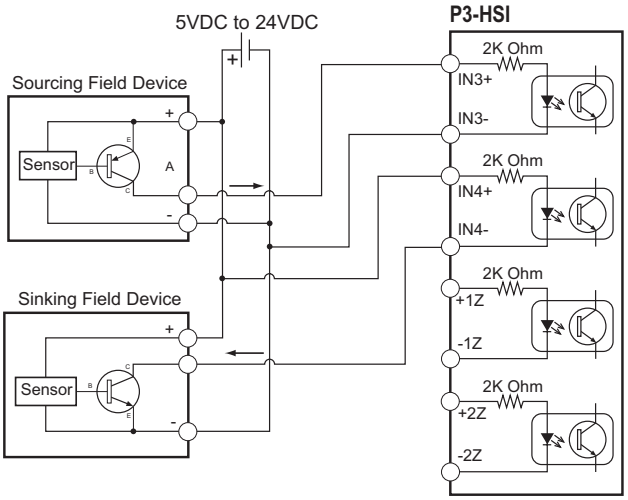
P3-HSI (cont'd)

Single Ended (5-24V) Input Specifications

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

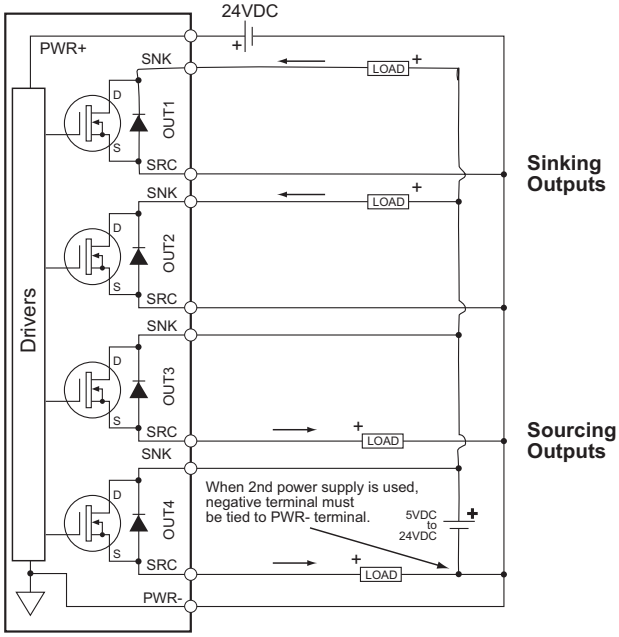


Status Output Specifications

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

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 curent.

Status Outputs



Differential (5V) Input Specifications

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

Note: The voltage difference between the input pairs must be between 3–5.6 volts.

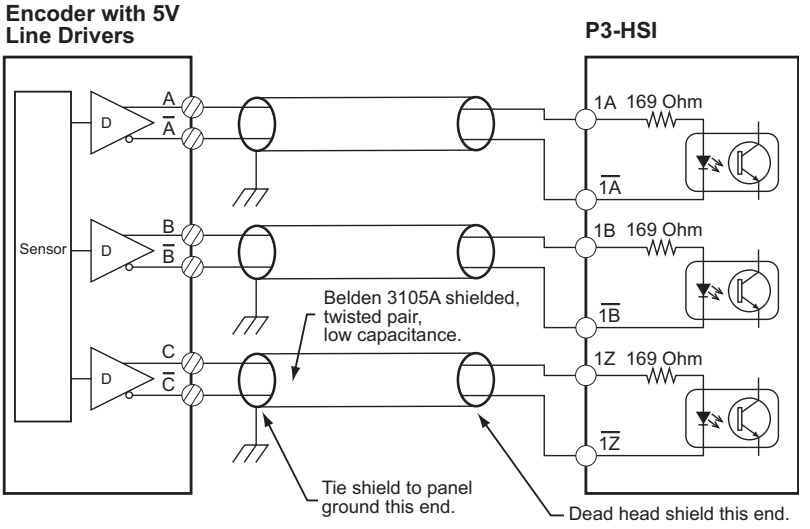
* The Z pulse input (1Z & 2Z) is capable of capturing a 1 MHz wide pulse for the purpose of resetting an encoder count but a 3 microsecond pause (300kHz) is required between pulses.

Specialty Modules

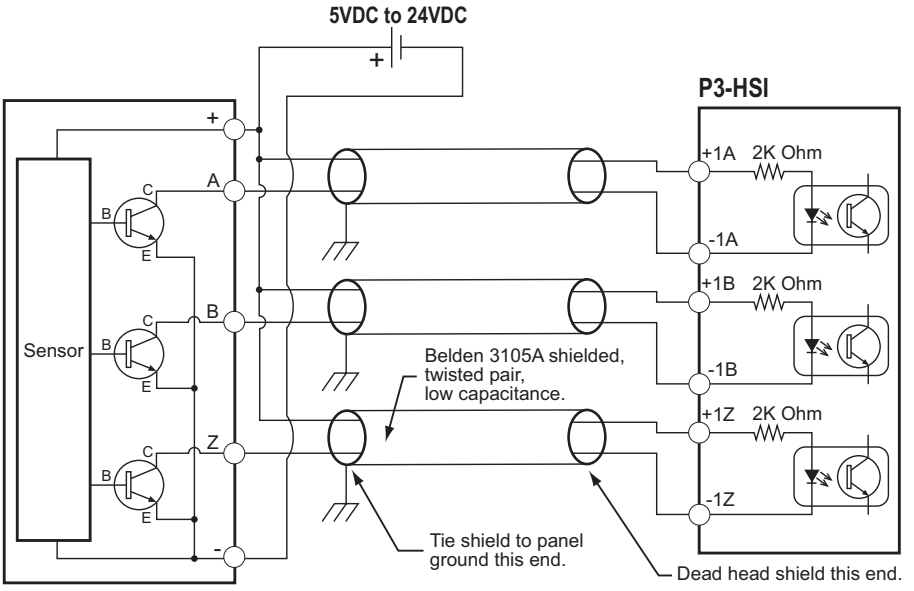
P3-HSI (cont'd)

5V Encoder Inputs

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



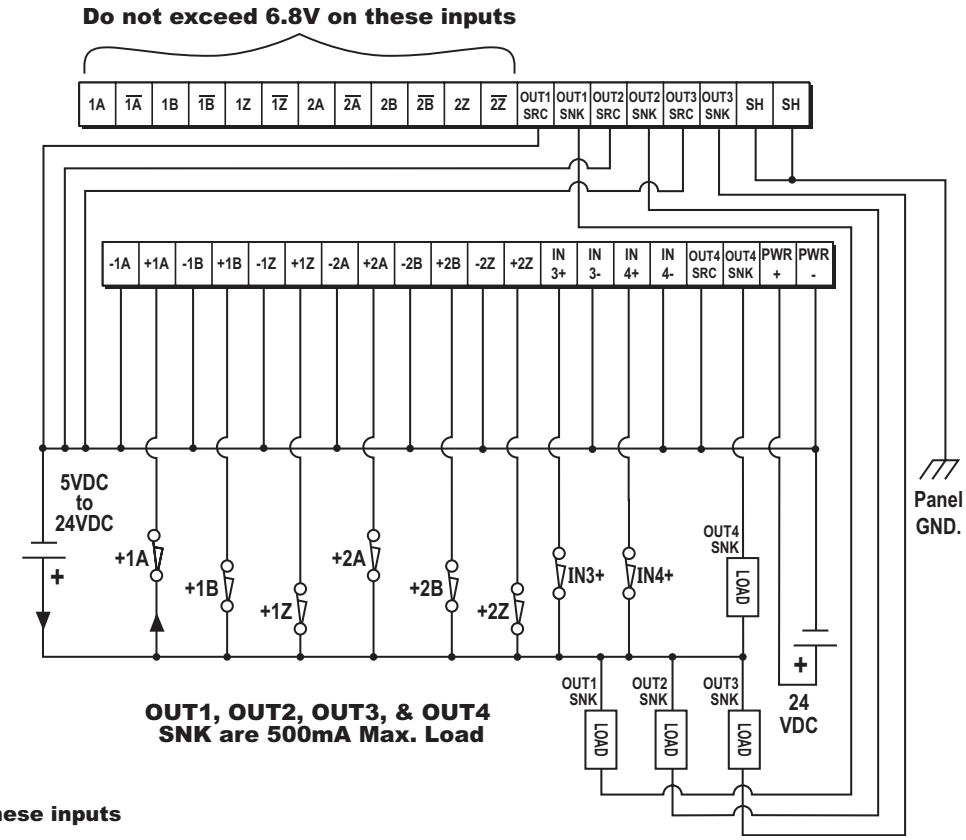
24V Encoder Inputs



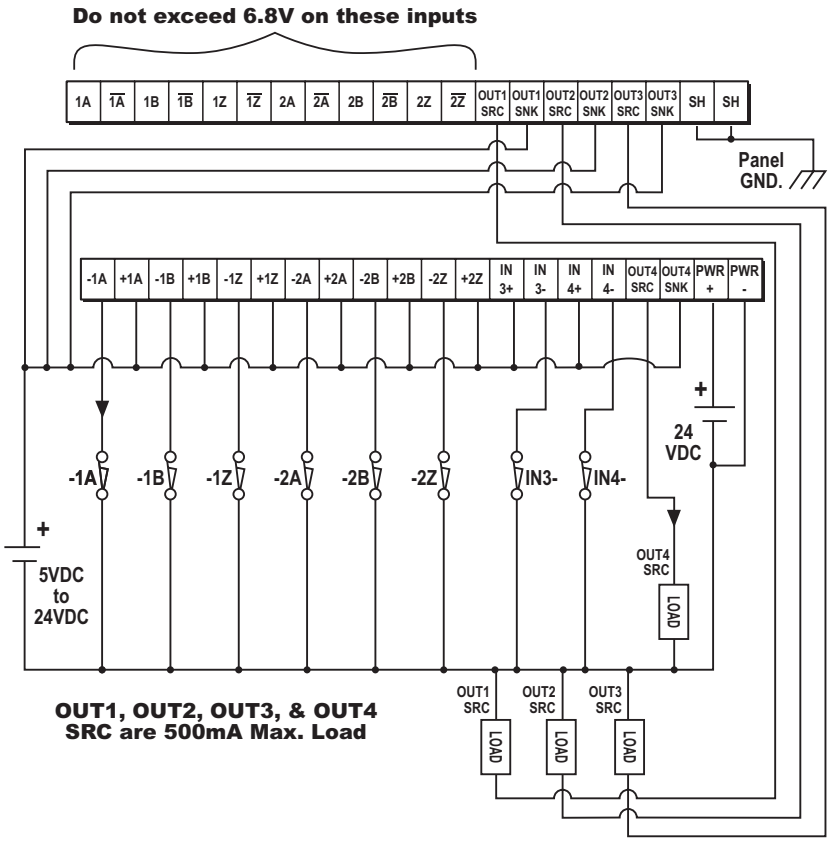
Specialty Modules

P3-HSI (cont'd)

Sinking I/O Wiring Diagram



Sourcing I/O Wiring Diagram

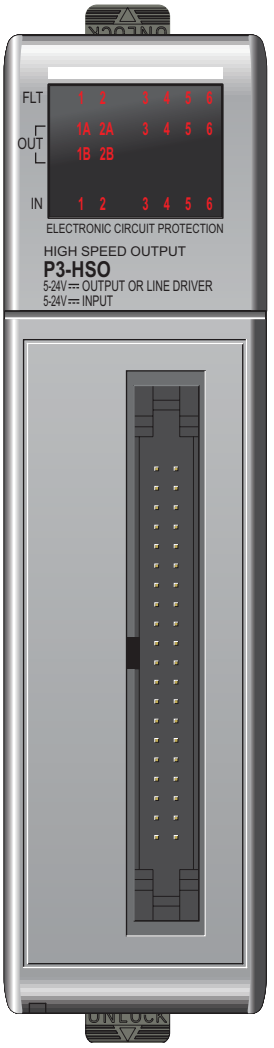


Specialty Modules

P3-HSO $349.00

High-Speed Output

The P3-HSO is a high-speed (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; *ZIP*Link required.

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

General Specifications	
Module Type	Intelligent
Modules per Base	11 Max
I/O Points Used	None, mapped directly to tags in CPU
Surrounding Air Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	6.26 W
Enclosure Type	Open Equipment
Emissions	EN61000-6-4 (Conducted and radiated RF emissions)
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 *ZIP*Link wiring system. See Wiring Solutions.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	114g (4 oz)
Agency Approvals	UL508 file E157382, Canada & USA CE (EN61131-2*)

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

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

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

CPU	Firmware Required	Productivity Suite Required
P3-550	Version 1.1.12.x or later	Version 1.6.x.x or later

Specialty Modules

P3-HSO (cont'd)

Status Input Specifications

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

Status Output Specifications

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

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

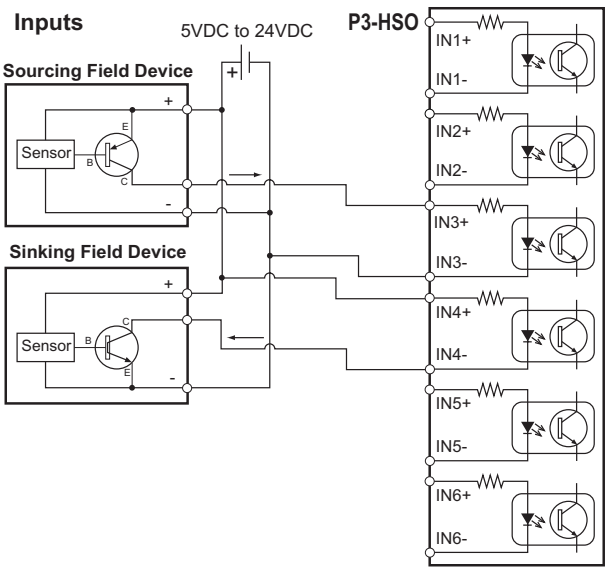
Pulse Outputs Specifications

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

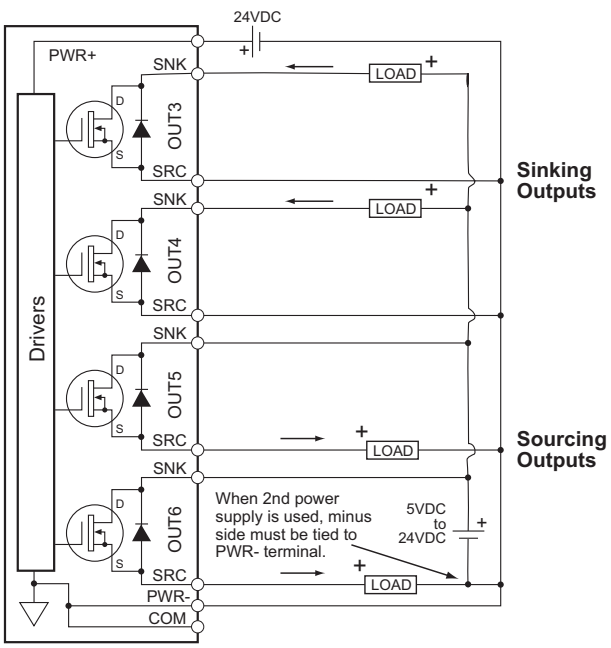
Notes:
1. Any fault shuts off the output. Fault is indicated and output is kept off until a new move start is received.
2. RS-422 thermal faults auto reset after device cool down.

* 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.

Status Inputs



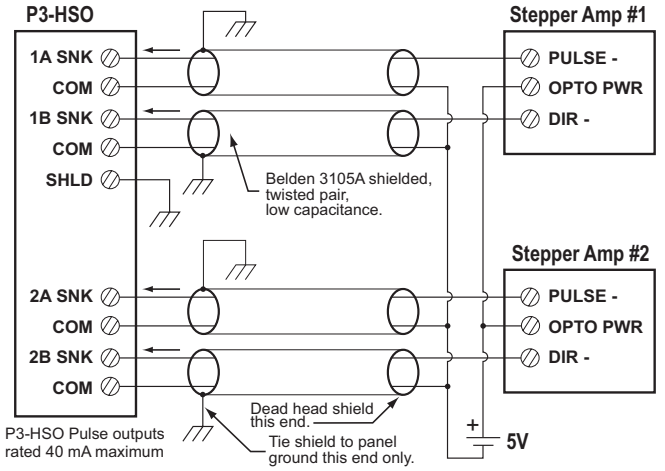
Status Outputs



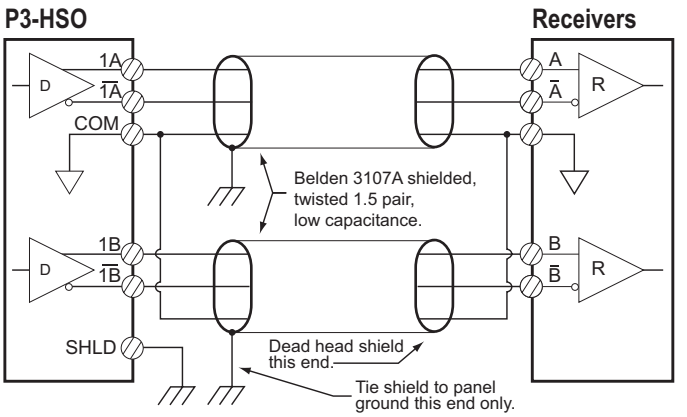
Specialty Modules

P3-HSO (cont'd)

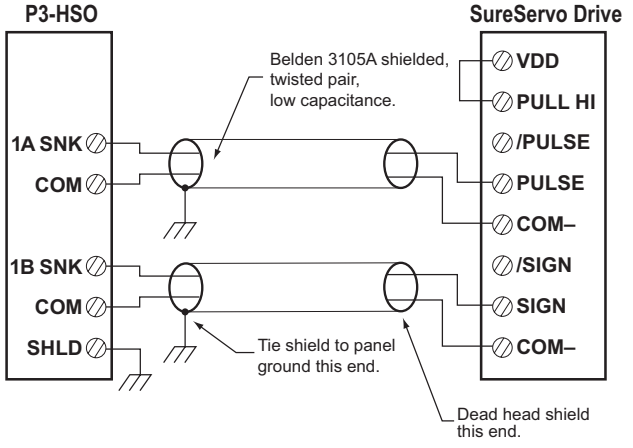
Sinking Pulse Outputs



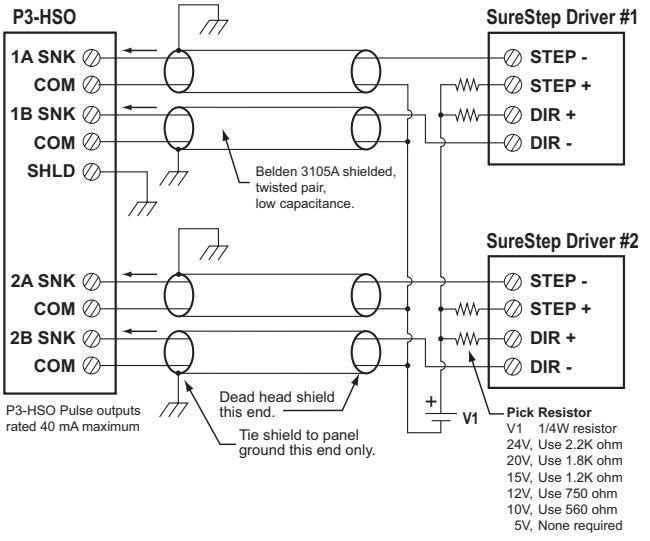
Line Driver Pulse Outputs



SureServo Wiring Diagram



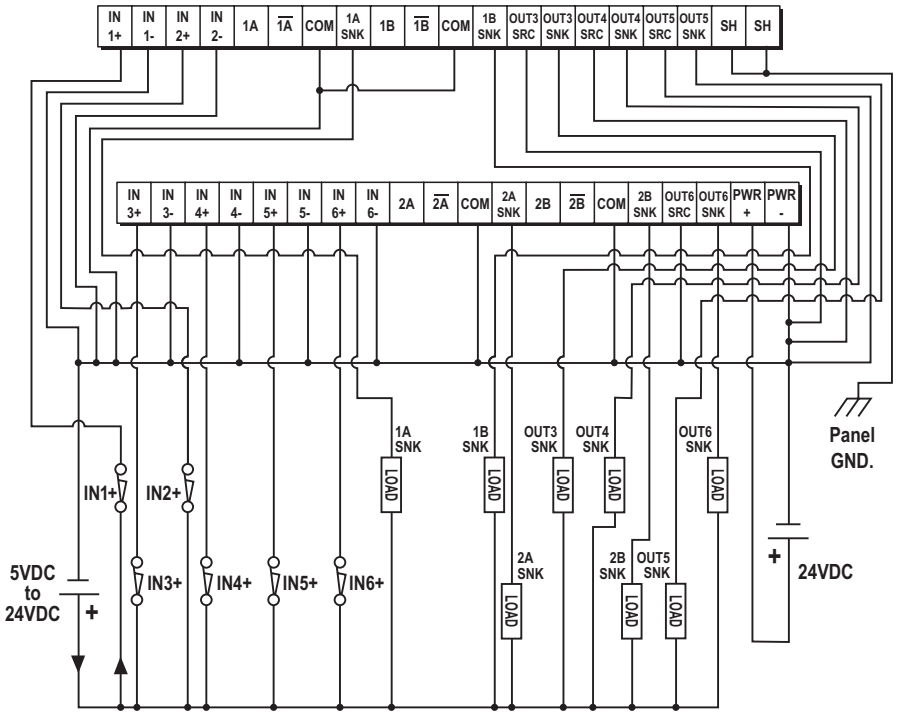
SureStep Wiring Diagram



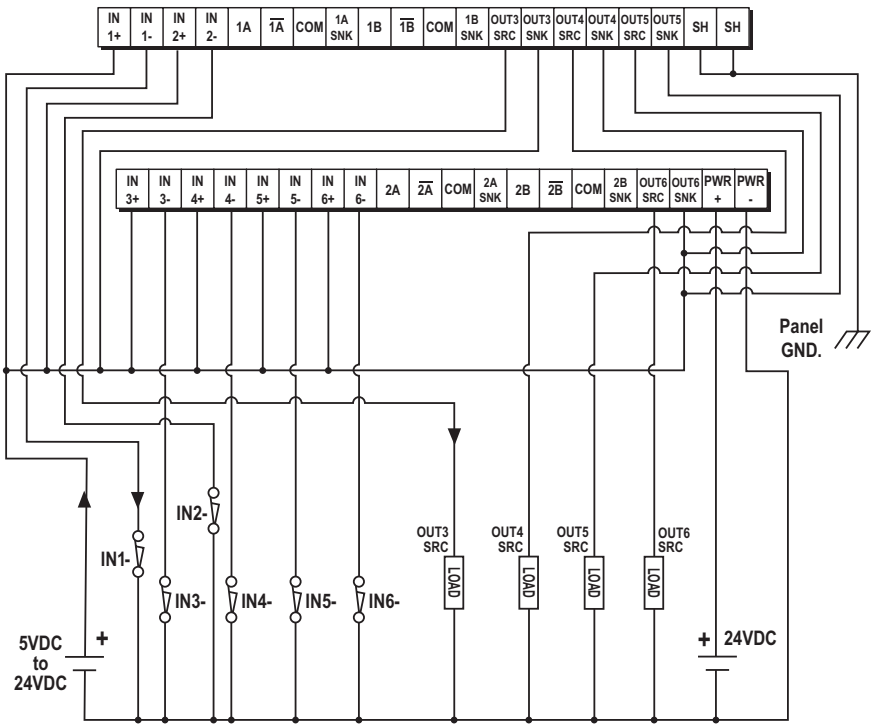
Specialty Modules

P3-HSO (cont'd)

Sinking I/O Wiring Diagram



Sourcing I/O Wiring Diagram



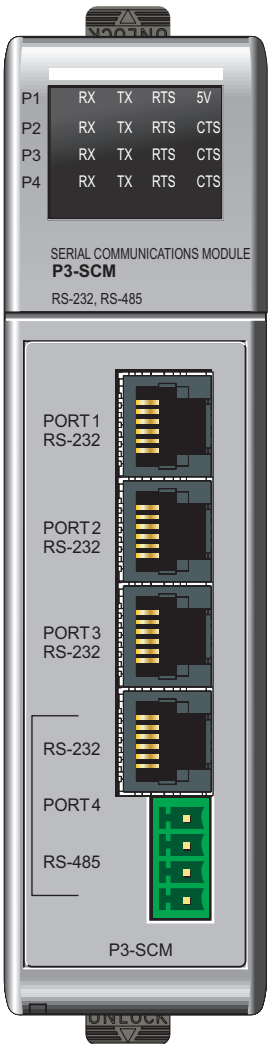
Specialty Modules

P3-SCM $285.00

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

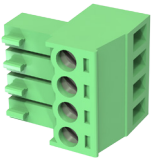
Module Type	Intelligent
Modules per Base	Base size limited, 11 Max
Modules per Group	11 Max
I/O Points Used	None, mapped directly to tags in CPU
Field Wiring Connector	4 - RJ12, 1 - 4 Position Terminal Block
Operating Temperature	0° to 60°C (32° to 140°F) IEC 60068-2-14 (Test Nb, Thermal Shock)
Storage Temperature	-20° to 70°C (-4° to 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)
Humidity	5 to 95% (non-condensing) IEC 60068-2-30 (Test Db, Damp Heat)
Environmental Air	No corrosive gases permitted (EN61131-2 pollution degree 1)
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	None
Insulation Resistance	No Isolation
Noise Immunity	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)
Emissions	EN61000-6-4 (Conducted and radiated RF emissions)
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 System.
Weight	260g (9.17 oz)
Agency Approvals[1]	UL508 file E157382, Canada & USA CE (EN61131-2007)

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

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

Removable Terminal Connector included.
Spare connectors available
(part no. P3-RS485CON-1).



RS-485 Cable Options

Recommended	Recommend L19827-100, L19827-500, L19827-1000 or Belden #9841

CPU	Firmware Required	Productivity Suite Required
P3-530	Version 1.1.15.x or later	Version 1.10.x.x or later
P3-550		

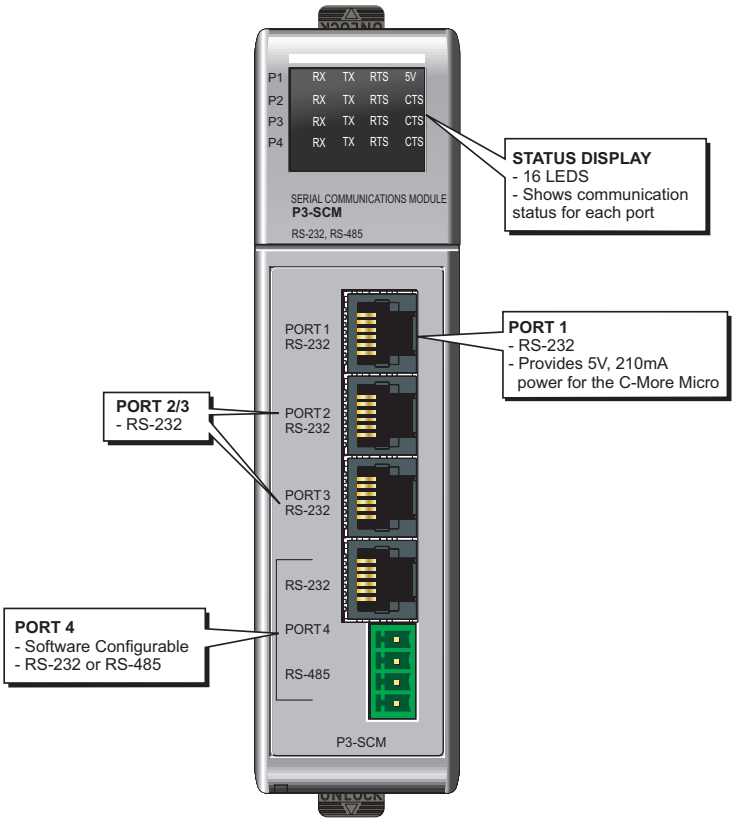
Specialty Modules

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 postive
   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[4]	7 or 8 Bit	7 or 8 Bit	7 or 8 Bit
RTS Off Delay Time[1]	None, or 0–5,000 msec	None, or 0–5,000 msec	N/A
RTS On Delay Time[1]	None, or 0–5,000 msec	None, or 0–5,000 msec	N/A
Modbus Character Timeout[2]	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[2]	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[3]	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)

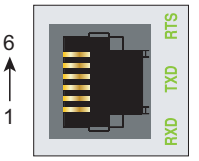
Port 1 RS-232 Specifications

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, 4800, 9600, 19200, 33600 and 38400.
+5V Cable Power Source	210mA maximum at 5V, ±5%. Reverse polarity and overload protected.
TXD	RS-232 Transmit output
RXD	RS-232 Receive input
RTS	Handshaking output for flow control.
GND	Logic ground
Maximum Output Load (TXD/RTS)	3kΩ, 1,000pf
Minimum Output Voltage Swing	±5V
Output Short Circuit Protection	±15mA
Port Status LED	Red LED is illuminated when active for TXD, RXD,RTS

Ports 2, 3 and 4 RS-232 Specifications

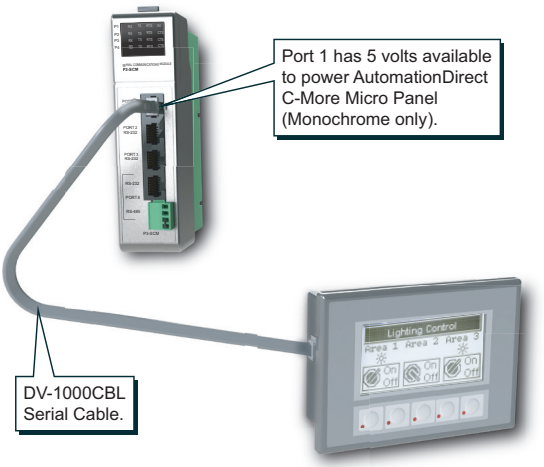
Port Name	RS-232
Description	Non-isolated RS-232 DTE port connects the CPU as a Modbus/ASCII master or slave to a peripheral device. Includes ESD and built-in surge protection.
Data Rates	Selectable, 1200, 2400, 4800, 9600, 19200, 33600 and 38400.
TXD	RS-232 Transmit output
RXD	RS-232 Receive input
RTS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

Port 1

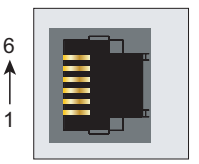


6-pin RJ12 Female Modular Connector

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



Ports 2, 3 and 4 (RS-232)



6-pin RJ12 Female Modular Connector

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

RS-232 Ports 1, 2, 3 and 4

Electrical Specifications	Min	Typ	Max	Units
Output ON (3kΩ, 1000pF Load)	5.0	5.2		Volts
Output OFF (3kΩ, 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

Line Specifications for RS-232 Ports

RS-232 Line Specifications	Options	Units
Data Rate Setting	1200,2400,4800,9600,19200, 33600, & 38400	baud
Data Rate Error	±2	%
Data Bits Setting[1]	7 or 8	Bits
Stop Bits Setting	1	Bits
Parity Setting	None[1], Odd or Even	Parity
Data Transmission	Half duplex or Full duplex[2]	N/A
Network	Point-to-Point	N/A

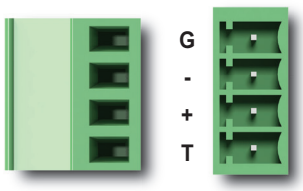
1. 7-bit data are only supported with odd or even parity
2. Full duplex is only supported for ASCII/Custom Protocol

Specialty Modules

P3-SCM (cont'd)

Port 4 (RS-485 Configuration)	
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, 4800, 9600, 19200, 33600 and 38400
TXD+/RXD+	RS-485 transceiver high
TXD-/RXD-	RS-485 transceiver low
GND	Logic ground
Input Impedance	19kΩ
Maximum load	50 transceivers, 19kΩ each, 60Ω termination (two 120Ω resistors at each end)
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 60Ω 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	Red LED illuminated when active for TXD and RXD
Cable Options	Recommend L19827-100, L19827-500, L19827-1000 or Belden #9841

Port 4 (RS-485)

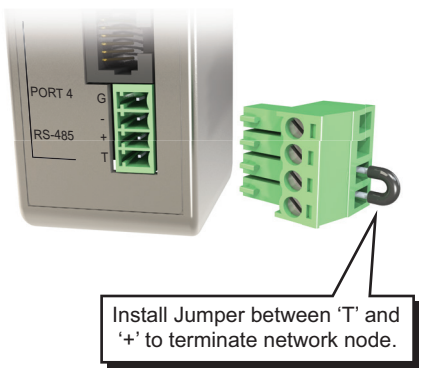


Pin #	Signal
G	GND
–	TXD-/RXD-
+	TXD+/RXD+
T	TERMINATION

RS-485 Port 4				
Electrical Specifications	**Min**	**Typ**	**Max**	**Units**
Driver Differential Output (60Ω 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	+/-2	%
Data Bits Setting[1]	7 or 8	Bits
Stop Bits Setting	1	Bits
Parity Setting	None[1], 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

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- "Tech was outstanding, great advice on drives and also helped lower the cost of the system. You are my first choice for Automation and Power Transmission products. Keep up the great work."
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