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Productivity[®]2000

We didn't invent the PLC, we made it affordable!

12 reasons you ~~want~~ **NEED** Productivity²⁰⁰⁰.....

1 Our CPU is priced at \$273.00 . . . Theirs is priced at \$3,178.00!

The Productivity2000 PLC was designed in the USA to offer you the lowest cost of ownership in its class. Here's some proof. Compare our P2000 PLC CPU (P2-550) to an Allen Bradley CompactLogix PLC CPU (1769-L33ER).

The \$3,178.00 (list price) Allen Bradley CPU offers 2MB of user memory, a 1GB SD card slot, three communications ports (serial communication is extra!) and LED on/off CPU status indicators. Of course, you will also need to purchase programming software for the Allen Bradley CPU for \$901.00 (list price for RSLogix 5000 Mini Edition).

The \$273.00 (everyday price) AutomationDirect P2-550 CPU offers 50MB of built-in memory, a removable micro SD card slot (up to 32GB of data storage and portable program downloads), 5 built-in communications ports, a high-resolution display, and LED status indicators also. Our USA designed programming software (developed inhouse) is FREE with no annual licensing fees. Download as many copies as you want! Give it to your friends! You'll also get our FREE unlimited phone-in technical support which has received top service awards for 15 years in a row.

CPU and I/O Comparison	AutomationDirect Productivity2000	vs.	Allen-Bradley CompactLogix
Base (if required)	\$81.00 P2-04B		N/A
Power Supply	\$79.00 P2-01AC		\$542.00 1769-PA4
CPU	\$273.00 P2-550		\$3,370.00 1769-L33ER
16 AC Inputs	\$113.00 P2-16NA		\$343.00 1769-IA16
16 24VDC Inputs	\$74.00 P2-16NE3		\$289.00 1769-ID16
8 Relay Outputs	\$54.00 P2-08TRS		\$354.00 1769-OW81
8 Analog Input Channels (mA)	\$222.00 P2-08AD-1		\$943.00 1769-IF8
ASCII Comm Module	\$0.00 Built in to CPU		\$851.00 1769-ASCI1
Modbus RTU Comm Module	\$0.00 Built in to CPU		\$940.00 1769-SM2
Total Hardware Cost w/USB, Ethernet and Serial	\$896.00		\$7,632.00
Programming Software	FREE PS-PGMSW		\$935.00 9324-RLD200ENE

All prices are U.S. published estimated retail prices. AutomationDirect prices as of 11/5/2020. Allen-Bradley hardware prices taken from www.westcoastelectric.com 11/5/2020. Allen-Bradley software price taken from www.westcoastelectric.com 11/5/2020.

\$273.00 CPU includes FREE Software Unlimited copies

5 COMM PORTS

Ethernet
Remote I/O
USB
RS-232
RS-485
PLUS Built-in OLED Message Display

Competitor's CPU \$3,178.00 Software \$901.00 (retail price, one copy)

3 COMM PORTS

Ethernet (2)
USB



AutomationDirect's Product Development team, in partnership with FACTS Engineering, one of our trusted PLC hardware suppliers for over 20 years, took advantage of years of combined experience in the North American controls market and engineered the Productivity2000's features to give you the best price/performance ratio we've offered to date.

2 5 built-in communication ports

Imagine the agony of shelling out \$3,178.00 for an Allen Bradley CompactLogix CPU and having to pay extra to communicate with your existing serial devices!

With Productivity2000 you get 5 communications ports with 3 different protocols standard on every CPU.

RS-232, RS-485, Ethernet, Remote I/O, USB (programming) – built in!

Modbus RTU, Modbus TCP/IP, Ethernet/IP – included!

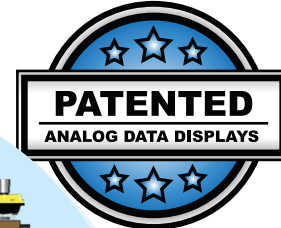
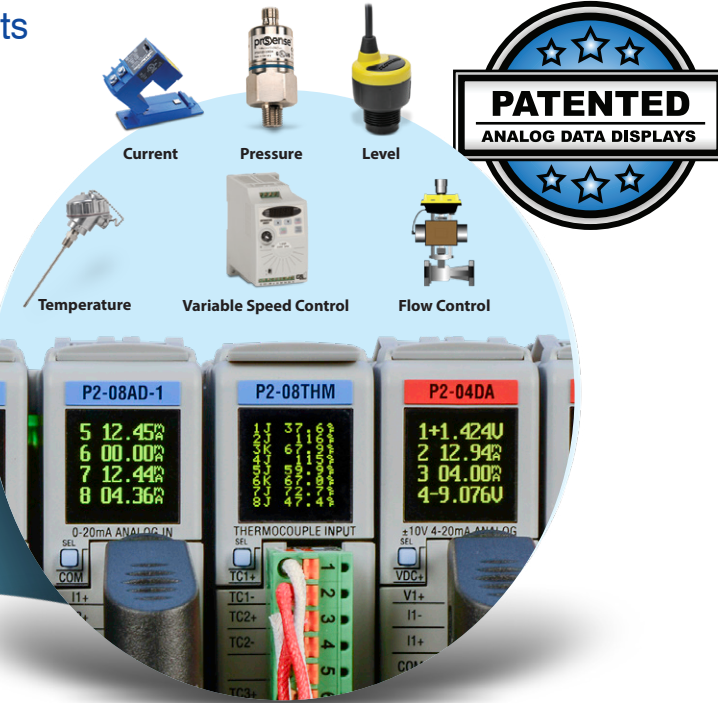
Need more serial connections? No problem, an optional 4-port serial communications module (\$177.00) is available if the need arises.

Modbus® EtherNet/IP™

Modbus® is a registered trademark of Schneider Electric, licensed to the Modbus Organization, Inc.

3 Messages displayed vs blinking lights

The analog and temperature modules for the P2000 have a patented built-in OLED display on the front of the module. Get accurate process variable data (current, voltage and temperature) as well as system diagnostics in real time, just by reading the display on the Productivity2000 hardware. No tools required! No other PLC in its class has this feature. Check out the significantly higher priced Allen Bradley temperature (or analog) module with just a blinking light.



OLED DISPLAYS



4 5 Minutes to set up a PID loop

Complex operations like PID loops are made effortless with Productivity Suite's easy-to-use instructions. Fill-in-the-blank, function block style configurations save you time and unnecessary headaches. With 50MB of user memory you can configure, tune and control as many processes as your application requires, without limits, and the integrated auto-tuning functionality will get you up and running in no time.

5 Flexible programming

The Productivity2000 is a tag name based controller which allows for more freedom and flexibility than fixed-memory controllers.

Does your application need 2000 timers but only 15 counters? No problem! Or maybe it needs 4000 real numbers and only 30 integers? No problem!

What about connectivity? No problem there either, with P2000 you can choose to program via the Ethernet port or use the plug-and-play USB Port.

Need to incorporate an HMI/SCADA interface? Problem solved! Easily import your tag database into HMI/SCADA, C-more HMI, or Dataworx software for trouble-free development.

Improved documentation, faster troubleshooting, reduced development time, easy setup and an overall better programming experience, all at an unbeatable price!



We didn't invent the PLC, we made it affordable! 12 reasons you want ~~NEED~~ Productivity²⁰⁰⁰.....

6 Get started in seconds with auto-discovered I/O modules

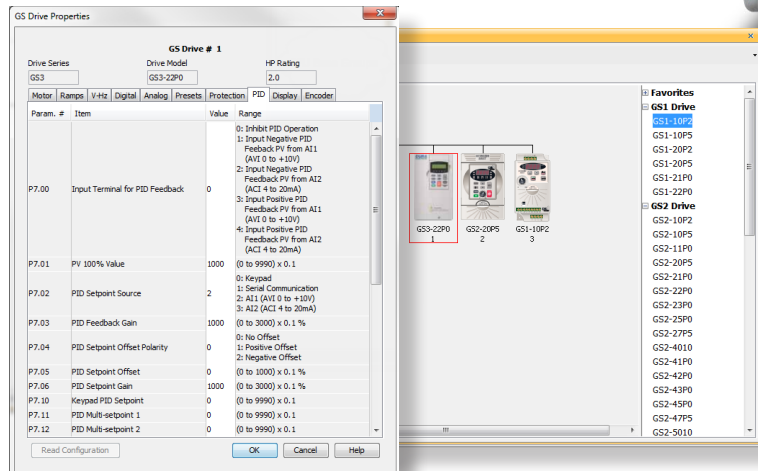
Simply clip each I/O module into the base and power up. The P2000 will automatically discover the modules and create a realistic picture of your configuration in the free Productivity Suite software. Physical I/O tags will be generated based on each module's position in the base and that's it! You are ready to program with the auto-configured settings just seconds after power-up, or you can reconfigure the setup and assign new tags manually.



7 Hot-swappable I/O keeps you up and running!

Avoid costly shutdowns, production losses and long start-up operations with Productivity2000 hot-swappable hardware.

8 VFDs can be set up in minutes with auto-discovery

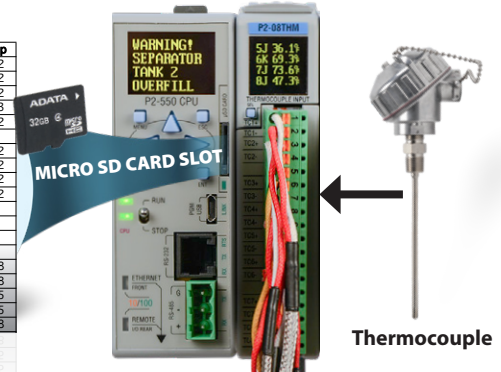


The Productivity2000 programming software is designed to recognize any AutomationDirect GS series drive. Simply connect the drive to the remote I/O port via its Ethernet connection and it is discovered in the Productivity Suite software. And no more searching through drive manuals to find the parameter you need. Each parameter, with description, range, and value, is available in the software. These parameters can be read from, edited or written to the drive right from the Productivity Suite Hardware Configuration, making initial setup almost too easy! Store all of your drive parameters in the CPU for safekeeping and communicate to your drives with simple read/write instructions in the software. This can save you hours of time!

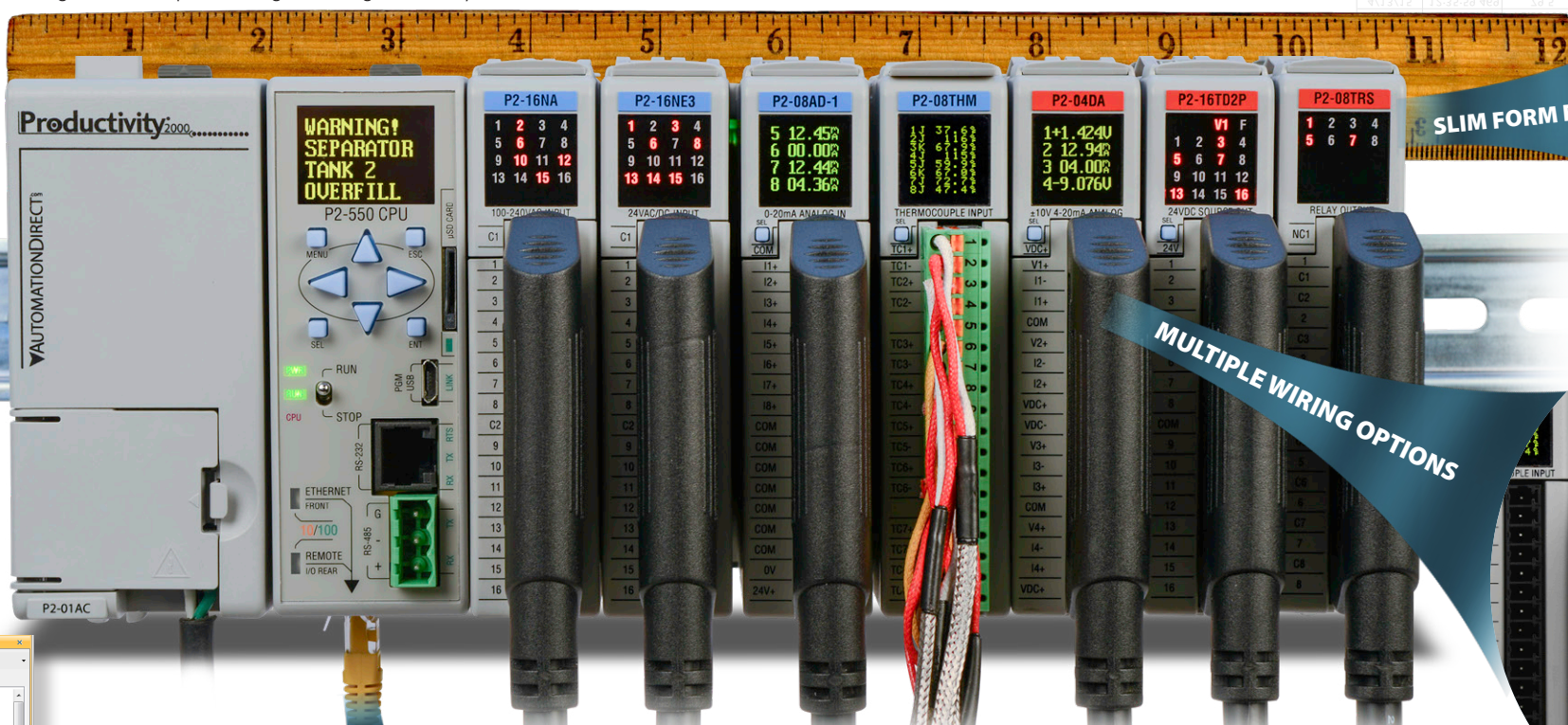
9 Built-in data logging

Track up to 64 tags at a time and save the data to the removable micro SD card stored in the CPU. Capture up to 32GB of data either periodically (minute, hour, day, week, etc.) or when certain events occur. Scheduling and setup is done with the easy-to-use Data Logger configuration tool in the software. Log tag data, system errors and system events which can be used to track efficiency and performance, troubleshoot recurring or intermittent faults, and predict future breakdowns.

Date	Time	Tank1 Temp
4/13/15	12:35:49.538	79.400002
4/13/15	12:35:50.467	79.400002
4/13/15	12:35:51.468	78.900002
4/13/15	12:35:52.468	78.900003
4/13/15	12:35:53.468	78.900002
4/13/15	12:35:54.468	79.5
4/13/15	12:35:55.468	79.400002
4/13/15	12:35:56.468	78.900002
4/13/15	12:35:57.468	78.900002
4/13/15	12:35:58.468	78.900002
4/13/15	12:35:59.469	79.5
4/13/15	12:36:00.469	79.5
4/13/15	12:36:01.469	79.5
4/13/15	12:36:02.469	79
4/13/15	12:36:03.469	79.099998
4/13/15	12:36:04.469	79.099998
4/13/15	12:36:05.469	79.700005
4/13/15	12:36:06.470	79.700005
4/13/15	12:36:07.470	79.099998

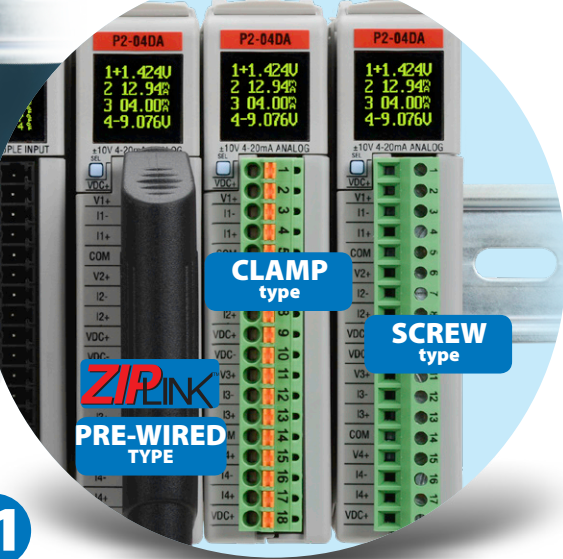


10 Slim form factor = DIN rail density
Power supply, CPU and seven modules in only 10-1/2 inches!



SLIM FORM FACTOR

MULTIPLE WIRING OPTIONS



CLAMP type

SCREW type

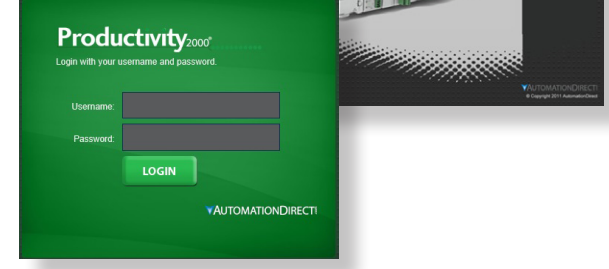
11 Choose the wiring option YOU prefer

Productivity2000 is all about productivity, even down to the wiring. Three wiring options are available to better serve the specific needs of your application.

Two terminal block styles, screw type and clamp type, are available, as well as our ZIPLink pre-wired wiring system. Why spend the time wiring each I/O point to a terminal when you can get them prewired? ZIPLink pre-wired cables and terminals not only save you valuable time but also keep your installation clean and efficient, which helps when troubleshooting, and ZIPLink uses half the space at a fraction of the cost of standard terminal blocks. Simply snap the ZIPLink connector to the I/O module, connect your field wiring to the ZIPLink terminal and your wiring job is done.

12 Built-in Web Server

Access data files and system tags remotely from any web browser, anywhere! The secure login prevents unwanted access and helps to keep data safe.



Affordable hardware, small in size, rich on features

Click here to see technical specification pages for more in-depth information on each I/O module

www.Productivity2000.com

Powerful CPU

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

- Plug-and-play USB programming (uses standard A-micro B cable)
- Tag database and program documentation storage in CPU (Program pre-loaded on PC not necessary)
- Supports five built-in communications ports simultaneously
- 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
- micro SD data logging right from the CPU
- ABS certified for marine applications

HIGH RESOLUTION 4 LINE BY 10 CHARACTER OLED DIAGNOSTIC DISPLAY

50MB OF BUILT-IN MEMORY

CPU ONLY
\$273.00

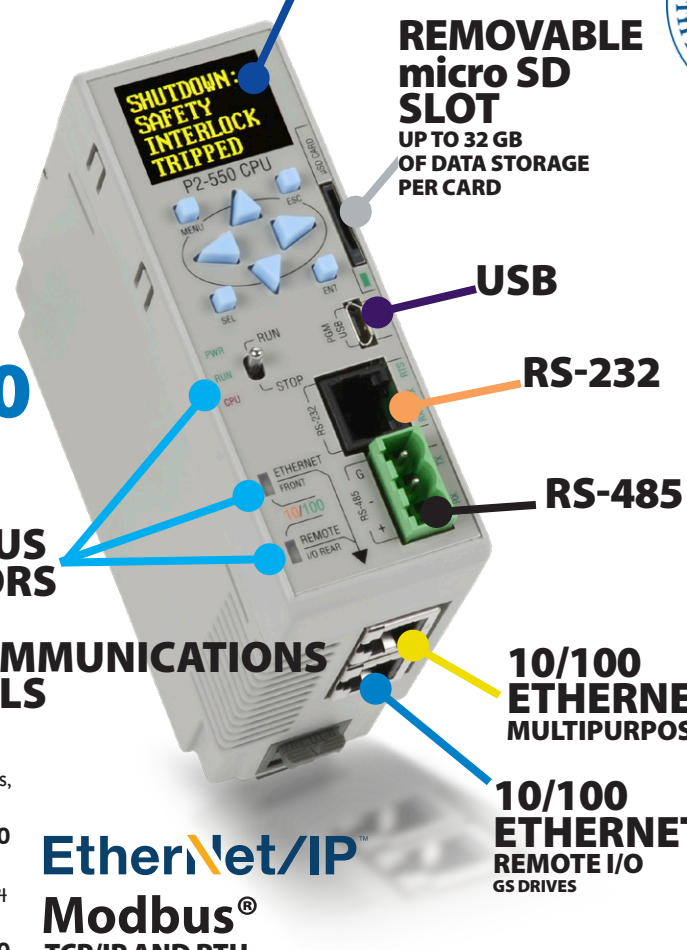
LED STATUS INDICATORS

THREE COMMUNICATIONS PROTOCOLS

PLC CPU with three built-in communications protocols

P2-550: CPU module – 50MB user memory, 5 communications ports including USB plug and play programming port, 3 communications protocols, 4 line by 10 character OLED diagnostic display, tag name based control with microSD data logging and project transfer. **\$273.00**

P2-RS: Remote I/O – Productivity2000 remote I/O expansion module, 4 x 10 character OLED display, (1) RS-232 (RJ12) port, (1) RS-485 (3-wire terminal block) port, (1) Ethernet (RJ45) port, (1) microB-USB port. **\$243.00**



REMOVABLE micro SD SLOT
UP TO 32 GB OF DATA STORAGE PER CARD



Productivity²⁰⁰⁰

Power Supply - Got to have it

- P2-01AC: 100-240 VAC base power supply**
No power budgeting required, use any combination of I/O modules **\$79.00**
- P2-01DC: 24-48 VDC base power supply**
No power budgeting required, use any combination of I/O modules **\$79.00**
- P2-01DCAC: 12-24 VDC, 24VAC base power supply**
No power budgeting required, use any combination of I/O modules. **\$90.00**

Discrete I/O: We've got you covered

- P2-08ND3-1: 8-point 12-24 VDC Sink/Source Input Module**... **\$53.00**
- P2-16ND3-1: 16-point 12-24 VDC Sink/Source Input Module** .. **\$74.00**
- P2-32ND3-1: 32-point 12-24 VDC Sink/Source Input Module** **\$106.00**
- P2-08NE3: 8-point 24V AC/DC Sink/Source Input Module** **\$43.50**
- P2-16NE3: 16-point 24V AC/DC Sink/Source Input Module** **\$74.00**
- P2-32NE3: 32-point 24V AC/DC Sink/Source Input Module** .. **\$106.00**
- P2-15TD1: 15-point 3.3-24 VDC Sinking Output Module** **\$71.00**
- P2-15TD2: 15-point 12-24 VDC Sourcing Output Module** **\$70.00**
- P2-08TD1S: 8-point 3.3-24 VDC Isolated Sinking Output** **\$51.00**
- P2-08TD2S: 8-point 12-24 VDC Isolated Sourcing Output** **\$51.00**
- P2-08TD1P: 8-point 12-24VDC Sinking Output Module**
(overload and short circuit protected) **\$44.00**
- P2-08TD2P: 8-point 12-24VDC Sourcing Output Module**
(overload and short circuit protected) **\$44.00**
- P2-16TD1P: 16-point 12-24VDC Sinking Output Module**
(overload and short circuit protected) **\$74.00**
- P2-16TD2P: 16-point 12-24VDC Sourcing Output Module**
(overload and short circuit protected) **\$74.00**

Serial Communication: Up to 44 additional ports per system!

P2-SCM: serial communications module. Provides three RS-232 ports and one RS-485 port utilizing Modbus RTU Master/Slave, ASCII IN/OUT and custom protocol(s) at up to 38.4 kbaud.



- P2-32TD1P: 32-point 12-24VDC Sinking Output Module**
(overload and short circuit protected) **\$106.00**
- P2-32TD2P: 32-point 24VDC Sourcing Output Module**
(overload and short circuit protected) **\$106.00**
- P2-08NAS: 8-point 100-120VAC Isolated Input Module** **\$83.00**
- P2-16NA: 16-point 100-240VAC Input Module**..... **\$113.00**
- P2-08TAS: 8-point 100-120VAC Output Module** **\$113.00**
- P2-16TA: 16-point 100-240VAC Output Module** **\$139.00**
- P2-08TRS: 8-point AC/DC Isolated Relay Output Module**
(6.25-24VDC/6-120VAC) **\$54.00**
- P2-16TR: 16-point AC/DC Relay Output Module**
(6.25-24VDC/6-240VAC) **\$102.00**



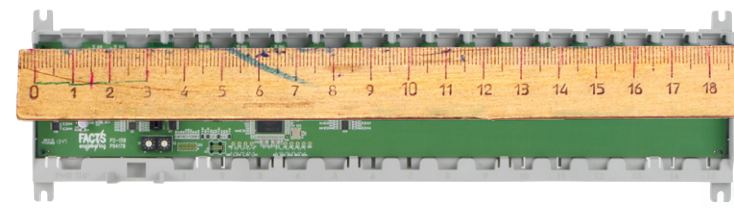
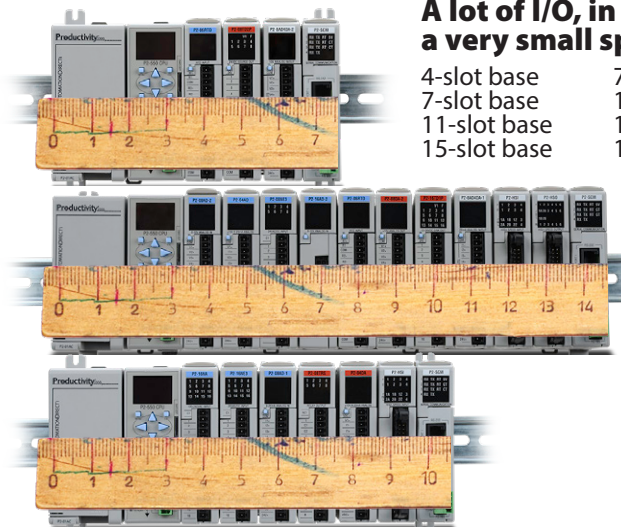
A lot of I/O, in a very small space

- 4-slot base 7-1/2"
- 7-slot base 10-1/2"
- 11-slot base 14-1/2"
- 15-slot base 18-1/2"

Bases: DIN rail or flush mounted

- P2-04B: 4-slot base** - Holds P2-01AC power supply, CPU and 4 I/O modules. **\$81.00**
- P2-07B: 7-slot base** - Holds P2-01AC power supply, CPU and 7 I/O modules. **\$108.00**
- P2-11B: 11-slot base** - Holds P2-01AC power supply, CPU and 11 I/O modules. **\$143.00**
- P2-15B: 15-slot base** - Holds P2-01AC power supply, CPU and 15 I/O modules. **\$167.00**

Slim form factor = DIN rail density! POWER SUPPLY, CPU AND SEVEN MODULES IN ONLY 10-1/2"



Incredible PLC Hardware at Unbelievable Prices!

Actual data is better than a blinking light

Spend less time troubleshooting. Get instant, accurate process variable data (current, voltage and temperature) as well as system diagnostics in real time right on the modules. No tools required! *NOTE: 12- and 13-bit analog modules do not have OLED displays.*



Analog I/O: Measure it, read it, monitor it!

- P2-04AD:** 4-channel, 16-bit, voltage/current Analog Input Module (+/- 5 VDC, +/- 10 VDC, 0-5 VDC, 0-10 VDC, 0-20 mA) **\$210.00**
- P2-04AD-1:** 4-channel, 16-bit, current Analog Input Module (0-20 mA) **\$210.00**
- P2-04AD-2:** 4-channel, 16-bit, voltage Analog Input Module (0-10 VDC) **\$210.00**
- P2-08AD-1:** 8-channel, 16-bit, current Analog Input Module (0-20 mA) **\$222.00**
- P2-08AD-2:** 8-channel, 16-bit, voltage Analog Input Module (0-10 VDC) **\$244.00**
- P2-08ADL-1:** 8-channel, 13-bit, current Analog Input Module (0-20 mA) **\$155.00**
- P2-08ADL-2:** 8-channel, 13-bit, voltage Analog Input Module (0-10 VDC) **\$168.00**
- P2-16AD-1:** 16-channel, 16-bit, current Analog Input Module (0-20 mA) **\$268.00**
- P2-16AD-2:** 16-channel, 16-bit, voltage Analog Input Module (0-10 VDC) **\$297.00**
- P2-16ADL-1:** 16-channel, 13-bit, low resolution Analog Input Module (0-20 mA) **\$191.00**
- P2-16ADL-2:** 16-channel, 13-bit, low resolution Analog Input Module (0-10 VDC) **\$211.00**
- P2-04DA:** 4-channel, 16-bit, voltage/current Analog Output Module (+/- 10 VDC, 4-20 mA) **\$209.00**
- P2-04DA-1:** 4-channel, 16-bit, current Analog Output Module (4-20 mA) **\$159.00**
- P2-04DA-2:** 4-channel, 16-bit, voltage Analog Output Module (+/- 10 VDC) **\$155.00**

- P2-04DAL-1:** 4-channel, 12-bit, low resolution Analog Output Module (4-20 mA) **\$119.00**
- P2-04DAL-2:** 4-channel, 12-bit, low resolution Analog Output Module (0-10 VDC) **\$110.00**
- P2-08DA-1:** 8-channel, 16-bit, current Analog Output Module (4-20 mA) **\$291.00**
- P2-08DA-2:** 8-channel, 16-bit, voltage Analog Output Module (+/- 10 VDC) **\$267.00**
- P2-08DAL-1:** 8-channel, 12-bit, low resolution Analog Output Module (4-20 mA) **\$217.00**
- P2-08DAL-2:** 8-channel, 12-bit, low resolution Analog Output Module (0-10 VDC) **\$210.00**
- P2-16DA-1:** 16-channel, 16-bit, current Analog Output Module (4-20 mA) **\$381.00**
- P2-16DA-2:** 16-channel, 16-bit, voltage Analog Output Module (+/- 10 VDC) **\$364.00**
- P2-16DAL-1:** 16-channel, 12-bit low resolution Analog Output Module (4-20 mA) **\$271.00**
- P2-16DAL-2:** 16-channel, 12-bit low resolution Analog Output Module (0-10 VDC) **\$261.00**
- P2-8AD4DA-1:** 8-channel IN, 4-channel OUT, 16-bit, current Analog Combination Module (0-20 mA, 4-20 mA) **\$334.00**
- P2-8AD4DA-2:** 8-channel IN, 4-channel OUT, 16-bit, voltage Analog Combination Module (0-5 VDC, 0-10 VDC, 0-5 VDC, 0-10 VDC) **\$334.00**
- P2-08THM:** 8-channel, 16-bit, Thermocouple Input Module (thermocouple and millivolt) **\$342.00**
- P2-06RTD:** 6-channel, 16-bit, RTD Input Module **\$349.00**
- P2-08NTC:** 8-channel, 16-bit, Thermistor Input Module **\$310.00**

Support information at your fingertips!

Pull down the QR coded tab from the top of I/O module, and scan with your smart phone or tablet QR app to get the latest specifications for that module.

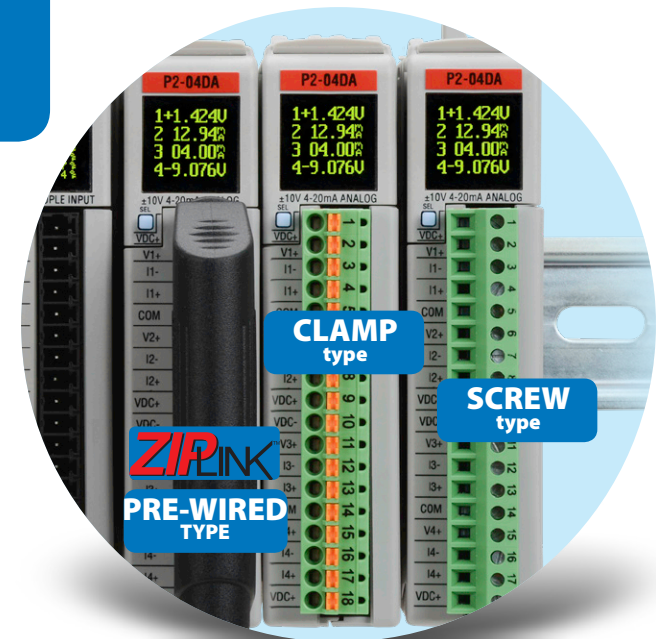


Click here to see technical specification pages for more in-depth information on each I/O module



Choose the wiring option YOU prefer!

Productivity2000 is all about productivity, even down to the wiring. Three wiring options are available to better serve the specific needs of your application. Two terminal block styles, screw type and clamp type, are available, as well as our ZIPLink wiring system.



ZIPLink Modules: Save time by using pre-wired cables

Why spend the time wiring each I/O point to a terminal when you can get them prewired? ZIPLink pre-wired cables and terminals not only save you valuable time but also keep your installation clean and efficient, which helps when troubleshooting, and ZIPLink uses half the space at a fraction of the cost of standard terminal blocks. Simply snap the ZIPLink connector to the I/O module connect your field wiring to the ZIPLink terminal and your wiring job is done.



For more information on ZIPLinks please see the Wiring Solutions section of our online catalog at www.AutomationDirect.com/PDFcatalog or use the convenient ZIPLink selector tool to help you find the right ZIPLink modules and cables for your I/O connections.



High Speed I/O: Motion for much less

- P2-02HSC:** 2-channel, 100 kHz High-Speed Counter Module with 5-24 VDC general purpose inputs/outputs **\$88.00**
- P2-04PWM:** 4-channel, Pulse Width Modulation Output Module (0-20 kHz, 0-100% duty cycle) **\$97.00**
- P2-HSI:** 2-channel, 1MHz High-Speed Input Module with 5-24 VDC general purpose inputs/outputs **\$210.00**
- P2-HSO:** 2-channel, 1MHz High-Speed Output Module with 5-24 VDC general purpose inputs/outputs **\$210.00**

Specialty I/O

- P2-08SIM:** 8-point Input Simulator Module with 8 hand-operated switches **\$50.00**
- P2-FILL:** Filler Module for unused slot connections in base **\$12.00**



We make PLC communication affordable!

5 built-in communications ports and 3 protocols including EtherNet/IP!

We offer the lowest cost of ownership when it comes to communication. The Productivity2000 P2-550 CPU comes standard with 5 built-in communications ports including Ethernet, USB and serial, and support for 3 communications protocols including EtherNet/IP, Modbus TCP and Modbus RTU, all for just \$273.00. Compare this to the \$3,178.00 list price of the Allen Bradley CompactLogix PLC CPU (1769-L33ER) which only offers three built-in communications ports, none of which support basic serial communication. Are you getting what you paid for?

www.Productivity2000.com

Productivity²⁰⁰⁰



Built-in Ethernet on the CPU has got you covered!

The Productivity2000 CPU comes standard with two of the top industrial Ethernet protocols in our market. Modbus TCP and EtherNet/IP are a must for any up-to-date networked control system.

Two Ethernet ports on bottom of CPU:

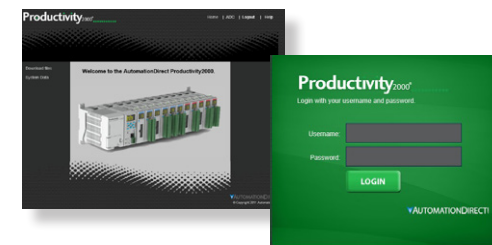
Front: 10/100Mbps multipurpose Ethernet port for programming, monitoring, firmware upgrades and the following client/server connections:

- 32 Modbus TCP Client connections (CPU Master)
- 16 Modbus TCP Server connections (CPU Slave)
- 32 EtherNet/IP Scanners (CPU Master)
- 4 EtherNet/IP Adapters (CPU Slave)

A total of 128 EtherNet/IP connections and over 5000 EtherNet/IP messages per second! And unlike many controllers, the Productivity series CPUs support both Explicit and Implicit (I/O) messaging for greater functionality.

The Productivity2000 also provides a Custom Protocol over Ethernet (CPE) option which gives the user the ability to create their own communications protocol between the Productivity series CPU and a 3rd party Ethernet device via TCP or UDP. The ProNET feature is also available and allows any P-series CPU to seamlessly share data by publishing to or subscribing to data from other CPUs. Up to 32 publishers and/or subscribers are allowed per CPU.

Rear: 10/100Mbps Ethernet port supports up to 16 GS series variable frequency drive connections, 8 remote I/O bases and 4 Protos X field I/O racks. GS Drive parameters and Protos X field I/O configurations are easily modified within ProductivitySuite and saved with the PLC project.

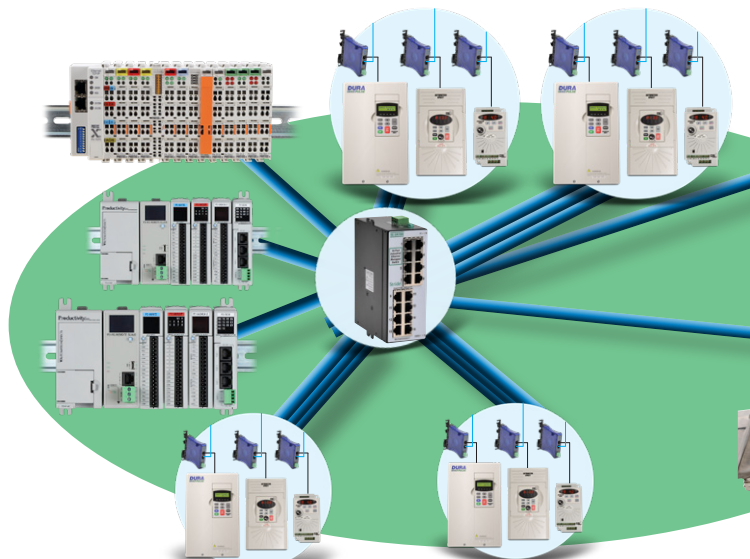
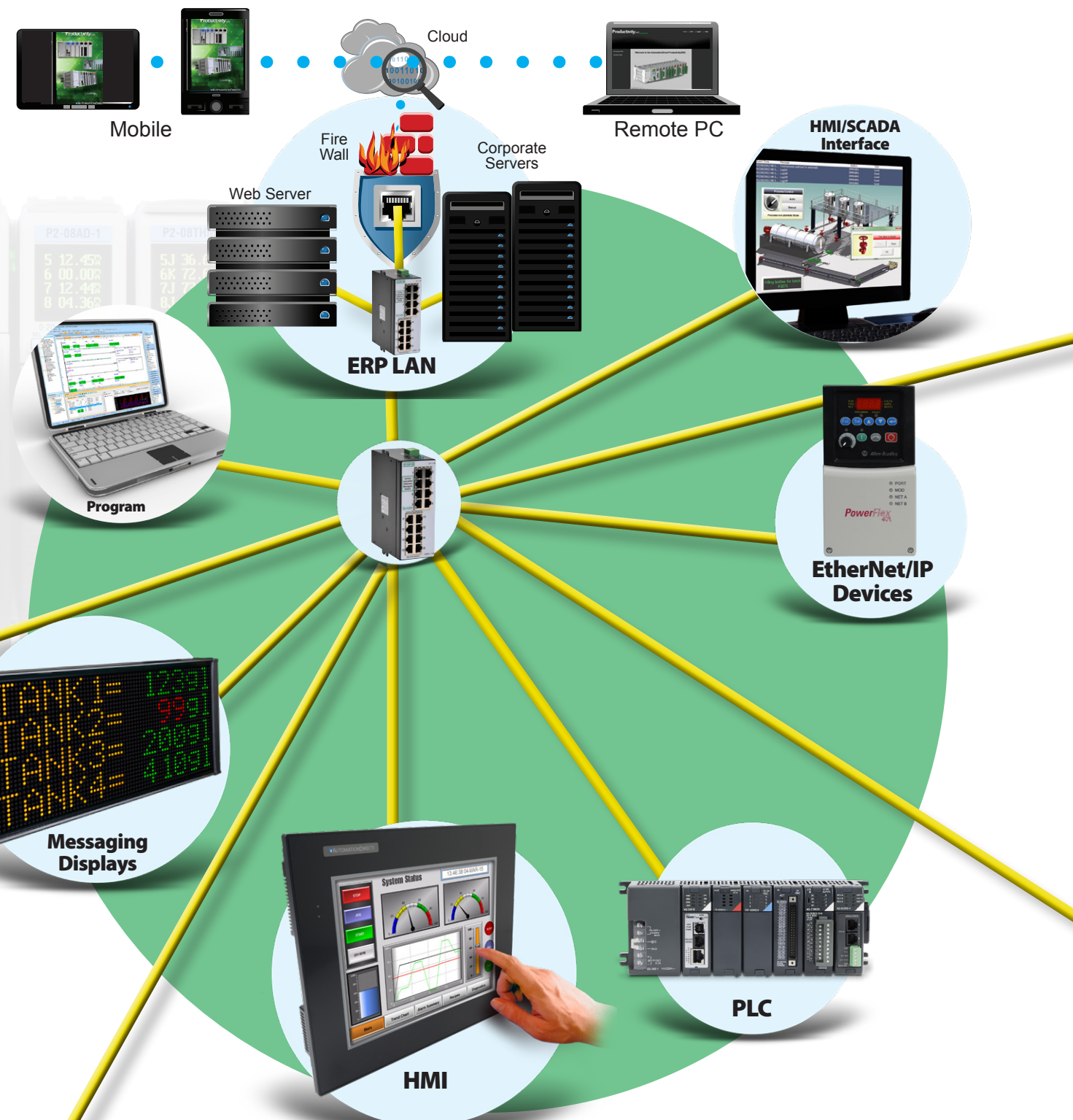


Direct access with the built-in Web Server

Get direct access to data files, system status and diagnostics with the integrated Web Server functionality of the Productivity2000.



PLUS!
FREE PACData Mobile App for iOS Devices.
Monitor your process anytime, from anywhere.



EtherNet/IP[™]
Modbus[®]
TCP/IP AND RTU

Add up to 16 GS Series drives, 8 remote I/O bases and 4 Protos X field I/O racks

Modbus[®] is a registered trademark of Schneider Electric, licensed to the Modbus Organization, Inc.

We make PLC communication affordable!

Got serial? Get connected for less with the Productivity2000

Let's face it, serial communication has been around forever and to this day is still a viable communication method. Although Ethernet communication has made a strong push into the industrial automation market, serial communication is still very reliable and inexpensive to design into a device. For those serial connections, the P2-550 CPU provides two serial communications ports, and the P2-SCM module with 4 serial ports is available if you need more.



Two serial ports included in CPU

Two serial ports are included on the P2-550 CPU for communication to peripheral devices:

- RS-232** (1) RJ12 (6P6C) port for RS-232 devices
- RS-485** (1) 3-wire screw terminal for RS-485 multi-drop devices

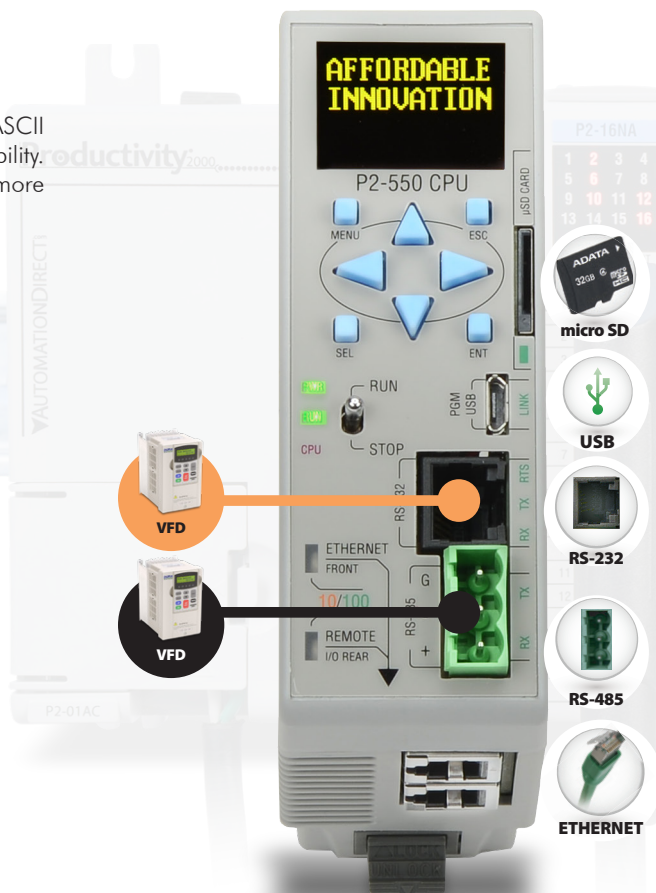
These ports provide Modbus RTU Master/Slave capability, ASCII In and Out capability and Custom Protocol over Serial capability. The RS-485 port can support up to 50 multi-drop devices (more if repeater is added to network).

Removable micro SD card slot for easy data logging and project transfers

Providing up to 32GB of data logging capacity, the micro SD card slot accepts a standard micro SD card. Logged data can be easily uploaded to your PC, the most current data log can be emailed using the Send Email instruction, or with the integrated Web server you can access the data files on the card via a standard Web browser.

The micro SD card can also be used as an alternate method of transferring projects to/from the P2-550 CPU. Once enabled in the software, project transfer can be completed with a few simple steps using the OLED display and keypad.

Date	Time	Tank1Temp
4/13/15	12:35:49.538	79.400002
4/13/15	12:35:50.467	79.400002
4/13/15	12:35:51.468	78.900002
4/13/15	12:35:52.468	78.800003
4/13/15	12:35:53.468	78.900002
4/13/15	12:35:54.468	79.5
4/13/15	12:35:55.468	79.400002
4/13/15	12:35:56.468	78.900002
4/13/15	12:35:57.468	78.900002
4/13/15	12:35:58.468	78.900002
4/13/15	12:35:59.469	79.5
4/13/15	12:36:00.469	79.5
4/13/15	12:36:01.469	79.5
4/13/15	12:36:02.469	79
4/13/15	12:36:03.469	79.099998
4/13/15	12:36:04.469	79.099998
4/13/15	12:36:05.469	79.700005
4/13/15	12:36:06.470	79.700005
4/13/15	12:36:07.470	79.099998



Need even more serial communications?

Up to 62 serial ports per system!

Serial communication has its limitations. RS-232 is a point-to-point protocol, meaning that you're typically talking to one device from that port. In applications with many serial devices talking to the control system through RS-232 communication, a lot of serial ports will be consumed and very quickly.

With the Productivity2000 you can have up to 15 of the 4-port P2-SCM serial communications modules per system. Each module (\$177.00) has 3 RS-232 ports and 1 multi-drop RS-485 port. This gives you an additional 60 serial ports, 62 total with the CPU, for any given system or application.

Serial protocols that every system should have...

The Productivity2000 supports Modbus RTU Master/Slave connections, full-duplex ASCII and even a full-duplex Custom protocol.

- Modbus RTU is by far the #1 serial protocol in our industry. Supporting both Master and Slave Modbus RTU connections allows the P2000 to communicate with numerous devices such as operator interface panels and message displays, drives, temperature and process controllers, steppers, servos, and many more.
- Full-duplex ASCII is very common and is used in devices that send and receive non-sequence string data. Bar code scanners, weight scales and printers are a few devices that regularly use ASCII communication.
- The full-duplex Custom protocol capability allows for instances where the end device communicates with a protocol that is uncommon. Using the CPI/CPO instruction in ladder, you can manually configure and send/receive protocol packets to/from the controller.



Up to 15 P2-SCM serial communication modules per system



Plug-n-Play USB programming

Don't waste any more time configuring baud rates, parities or pinging unrecognized controllers. Program, monitor or even upgrade your firmware through the plug-and-play micro USB port of the Productivity2000 CPU. This port requires no configuration, no expensive programming cable, no additional software, no frustration and is up and running in no time.

You're halfway done once you open the box!

FREE SOFTWARE



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Don't wait. Get started now for FREE!

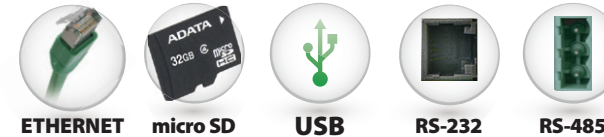
The Productivity Suite programming software is available for download free of charge at www.productivity2000.com. Take it for a test drive before you buy or get started on your project immediately. There are no licensing fees or maintenance charges to be concerned with and any subsequent upgrades are available for free download as well. If you need assistance, the embedded help file contains detailed information on over 260 topics; check out our instructional videos at <http://www.automationdirect.com/videos> or give us a call at 770-844-4200. We are here to help.

No restarting required

Don't get bogged down with countless software updates, time-consuming reboots, flashing hardware revisions, and making sure all versions are properly matched. Unlike the competition's out-of-the-box solution, the P2000 starter kit is compatible and ready to program as soon as it arrives.



Productivity²⁰⁰⁰



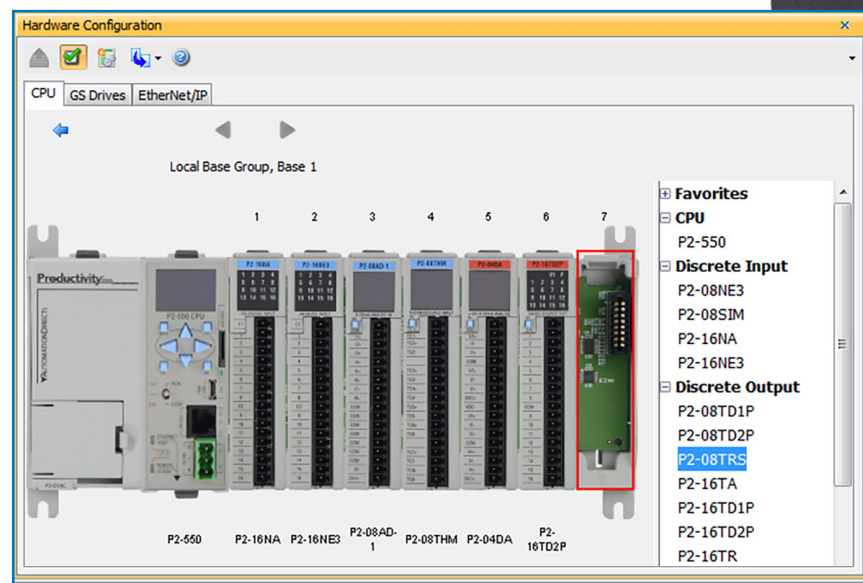
**Productivity2000
P2-START**
EVERYTHING YOU NEED
TO GET STARTED
ONLY \$577.00

Instantly connected

With the micro USB port of the P2-550 CPU, getting connected to your PC for programming is a snap. This default programming and monitoring port requires no configuration, just PLUG it in and you are ready to PLAY.

And because we use a standard non-proprietary micro USB connector, locating a programming cable is always easy. There are no custom cables required, all that is needed is a standard A USB connector (for the PC side) and a standard micro-B USB connector for the CPU. This type of cable is very common with today's mobile devices and can be found in a variety of retail locations. However, we do offer both a 6-ft and 15-ft programming cable (USB-CBL-AMICB6 and USB-CBL-AMICB15 respectively) that you can purchase from our website (www.automationdirect.com) if needed.

www.Productivity2000.com



Timesaving hardware configuration

Save precious time with the auto-discovered hardware configuration. Connect your programming software to the CPU and simply select "Read CPU Configuration" to view all the connected Productivity2000 hardware. I/O tags will be automatically generated for each module and both tags and hardware can be edited manually.



What's in the starter kit?

- (1) P2-550 CPU
- (1) P2-04B 4-slot base
- (1) P2-01AC power supply
- (1) P2-08SIM input simulator module
- (1) P2-08TRS relay output module
- (2) P2-FILL slot filler modules
- (1) P2-RTB screw type terminal block
- (1) P2-RTB-1 spring clamp terminal block
- (1) ZL-P2-CBL18 ZIPLink cable
- (1) ZL-RTB20 ZIPLink feedthrough connector module
- (1) USB-CBL-AMICB6 programming cable
- (1) P2-USER-M manual
- (1) PS-PGMSW software CD-ROM
- (1) MICSD-16G microSD memory card
- (1) mini torque screw driver
- (1) 3-wire power cable
- (1) Product inserts for Productivity2000 hardware items

Keep the UP in Startup...

Productivity²⁰⁰⁰



Save valuable time with built-in OLED message displays

The standard OLED message display on the P2-550 CPU gives you instant status on your controller and can be configured for system fault detection. CPU event and error messages are automatically displayed and you can use the LCD instruction to send custom messages from ladder code based on the conditions you specify. Use the keypad to navigate the display menu and view the controller's current firmware revision, Ethernet IP address, system configuration or error history. This valuable data is easily accessible in the field which can greatly reduce downtime or keep your startup on schedule.

Convenient QR codes

When your system is down and the pressure is on, don't waste precious time searching for needed documents. Get wiring diagrams, installation instructions and specifications simply by scanning the drop-down QR code tab on each Productivity2000 I/O module.



OLED displays



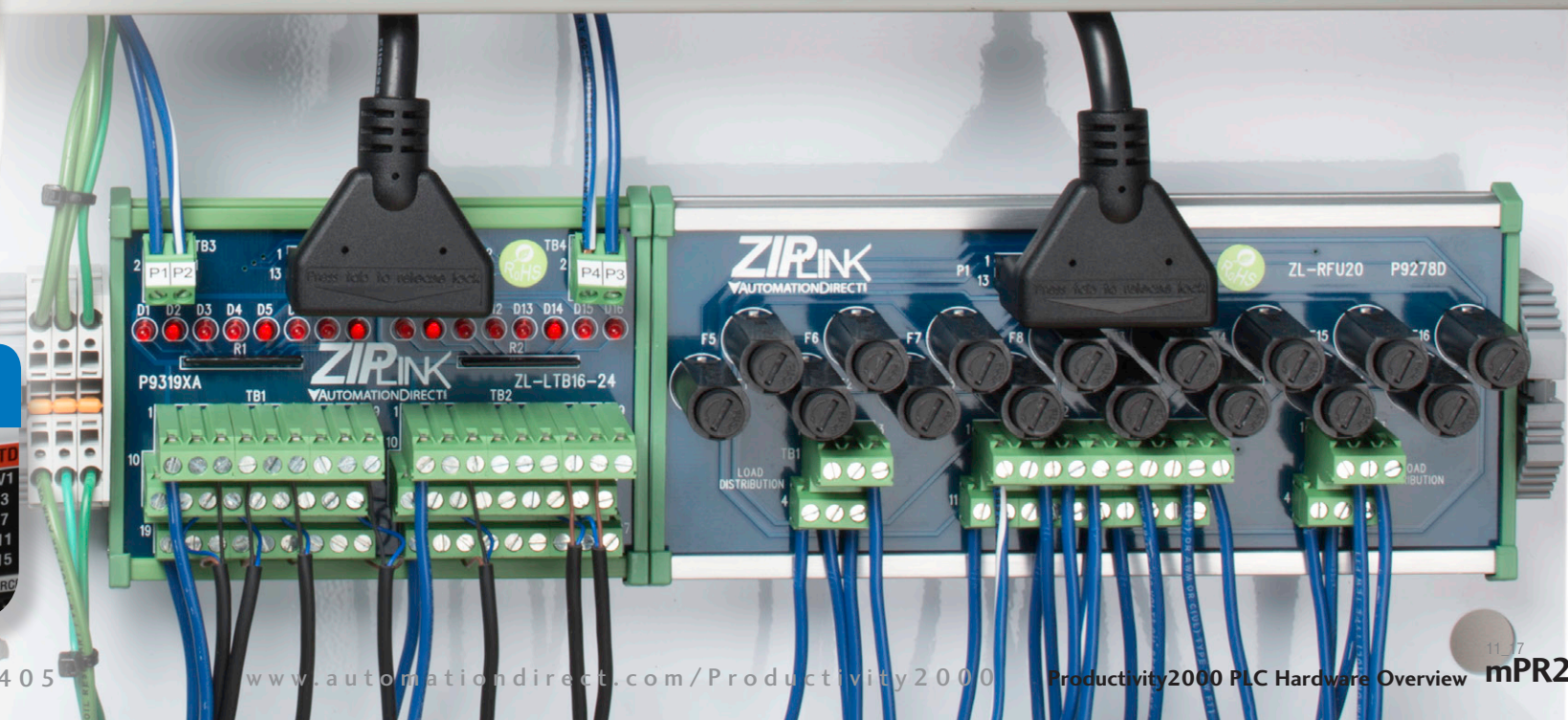
QR Codes on I/O modules - all specs are at your fingertips



See for yourself! Scan the QR code below.

Don't forget we offer **FREE 2-day shipping** and a **30-day money back guarantee** for any of those last-minute modifications.





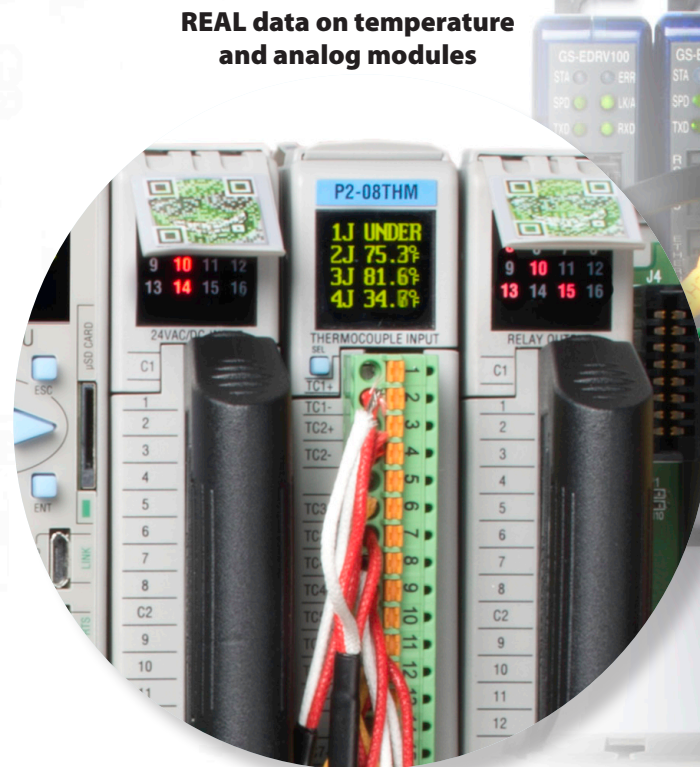
Field-friendly features . . . FOR LESS!

Productivity²⁰⁰⁰



Troubleshoot the easy way... no meter required!

The Productivity2000 analog modules include patented high-contrast OLEDs which make it simple to view analog values without extra equipment. These ultra-clear displays allow you to read up to 8 channels of analog values, making troubleshooting easier than ever before. Voltage, current, temperature and even fault conditions are displayed for your convenience and eliminate the need to disconnect signal wires in order to get a reading with a meter.



REAL data on temperature and analog modules

Don't forget we offer **FREE 2-day shipping** and a **30-day money back guarantee** for any of those last-minute modifications.



ZIPLink pre-wired solutions

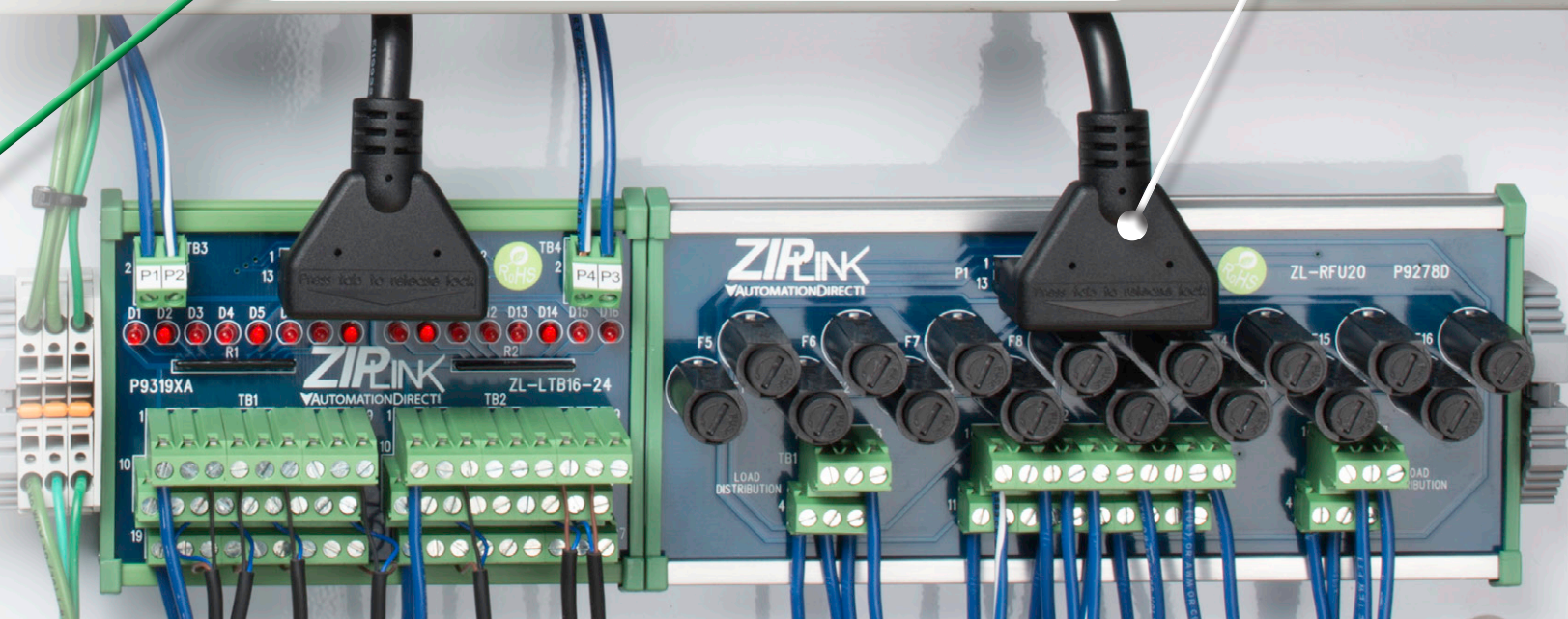
The Productivity2000 modules have multiple wiring options available. Standard terminal blocks are available in both screw and spring clamp styles. Our ZIPLink pre-wired cables and connector modules are available for all modules, excluding the Thermocouple and RTD temperature modules which require a specific type of wire. ZIPLinks not only provide tremendous time savings when panel building but can also provide fused isolation from field devices, clean wireways with easy, field-traceable connections, and confidence that your panel wiring is correct.



Hot swappable I/O

Configurable hot swappable I/O

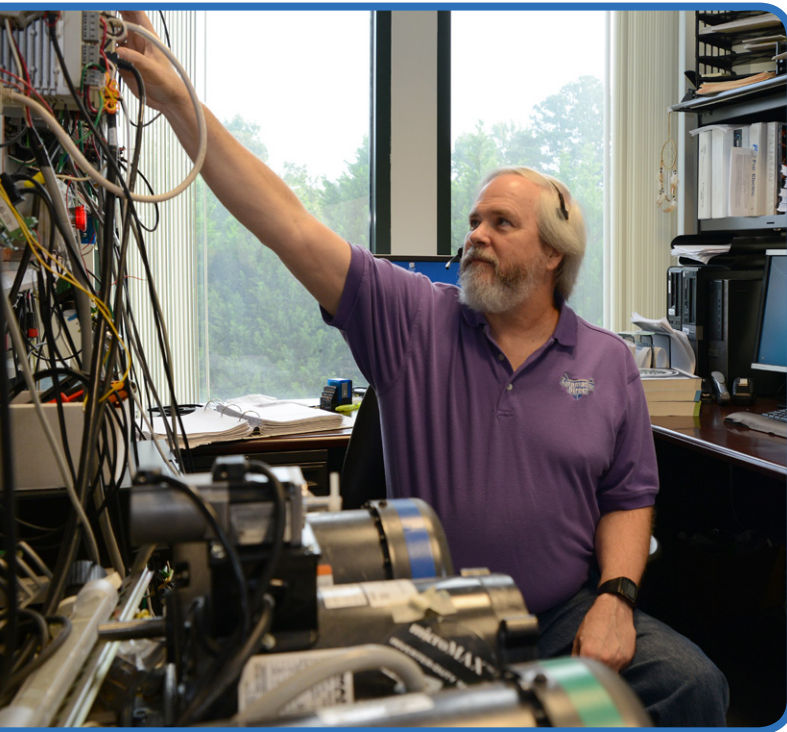
Don't lose production for simple I/O module changes. The P2000 system can be configured to allow the CPU to remain in the RUN mode without the selected I/O modules installed. Choose the "Enable all Hot Swap" option in the software to allow any module to be removed or configure each module separately.



#1 Voted Service www.automationdirect.com/service

Rated #1 in Technical Support for 15 Years Straight . . . and It's FREE!

You're never more than a quick phone call away from the best tech support in the business!

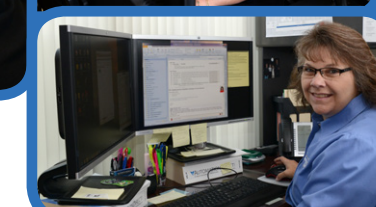
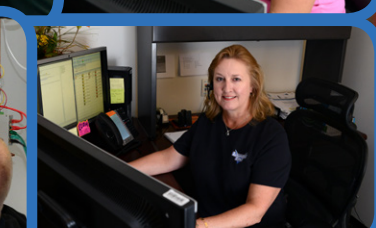
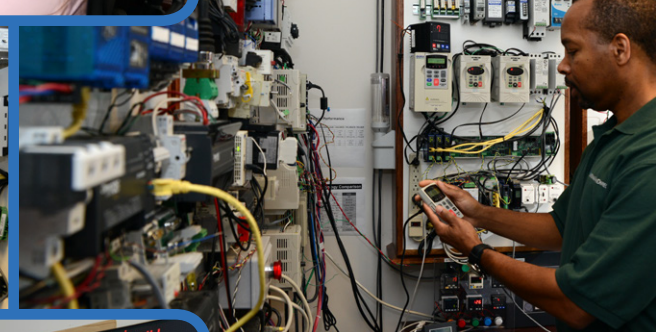
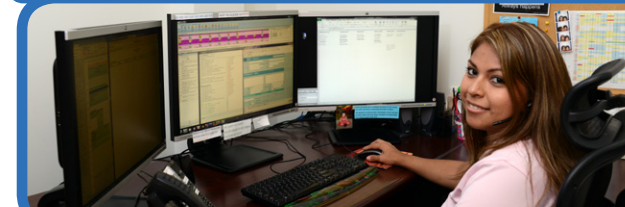
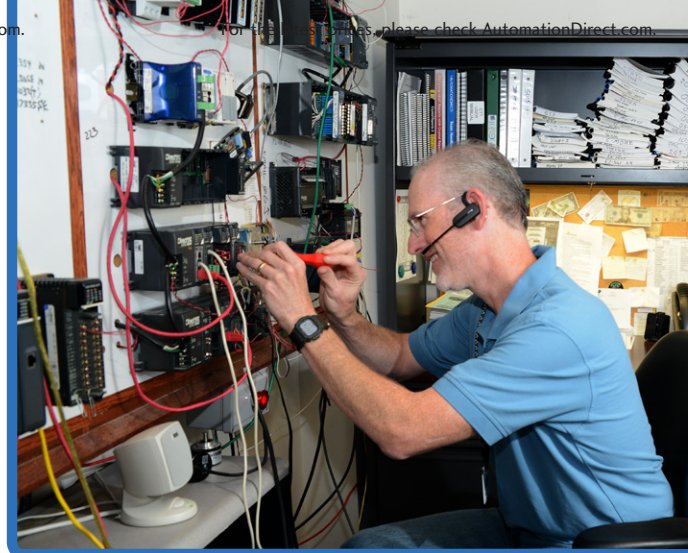


Are you tired of calling a local distributor to discover their "product expert" is not in? How about waiting hours for technical service to return a message? Or paying for phone support service and then having to be on hold waiting for it?

It's no accident that our Tech Team routinely demonstrates the best attitude and manners in the industry!

We send our customers surveys to score our attitude, accuracy and timeliness then take these scores and use them as part of the Tech team's report card. The bottom line is that you get great service by design.

Over 85% of customers who have used our service and responded to surveys say it's better than what they have been getting from other automation suppliers. 91% say we are above average to excellent in accuracy, 90% say we are above average to excellent in thoroughness, 91% say we are above average in response time, and 96% rate us above average in courtesy. Isn't it great to get better service AND a better price?



- "As always, your service is stellar and your staff is very friendly and great to work with. Wish the rest of my vendors were as good to work with as AutomationDirect."
- "Your tech support is really excellent - the folks there are very knowledgeable and very willing to help. Please tell them they are doing a way better than average job."
- "You all are the greatest! And that gets reinforced each time I have to call any other vendor for technical support."
- "Very good technical support; much, much better than the distributor with whom we have previously worked."
- "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."
- "Your presales (tech) folks helped me find the right parts the first time - terrific!"

YOU SAY -



OEMs voted our name 15 years in a row!

The Reader's Choice survey hosted by Control Design magazine aims to identify the best products and service in the industry. Results from 2001-2015 indicate we consistently provide top-notch support to our customers. This is in addition to several other industry awards from independent publications.

Thanks to all who voted, we'll continue to put customer satisfaction as our #1 priority.

The bottom line is - when you call, we can help

With top service scores in numerous product categories over the last 14 years (cumulative list below), we've proven that we have the knowledge to help you make your control system installation a success.

- PLCs
- PLC programming software
- Operator Interface Terminals
- PACs
- Stepper motors
- Relays
- HMI software
- Terminal Blocks
- I/O systems
- Encoders
- Servo motors
- Presence sensing
- Power supplies
- Electric motors
- Motor starters
- Stack light towers

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<http://forum.AutomationDirect.com>

Is our Customer Forum, where tens of thousands of active customers come to ask questions and share their knowledge with peers

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<http://www.AutomationDirect.com/videos>
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Is where we have hundreds of helpful videos posted, from new product overviews to detailed tutorials on topics such as PID and motion control

We do not charge for customer support . . . Period. That just doesn't make sense.

Don't forget our tech support site is loaded with tons of information that is readily available 24/7.

FAQs, software, manuals, technical and application notes, videos, wiring diagrams, example programs, CAD drawings, cross reference guides, compliance documents . . . and more

www.AutomationDirect.com/support

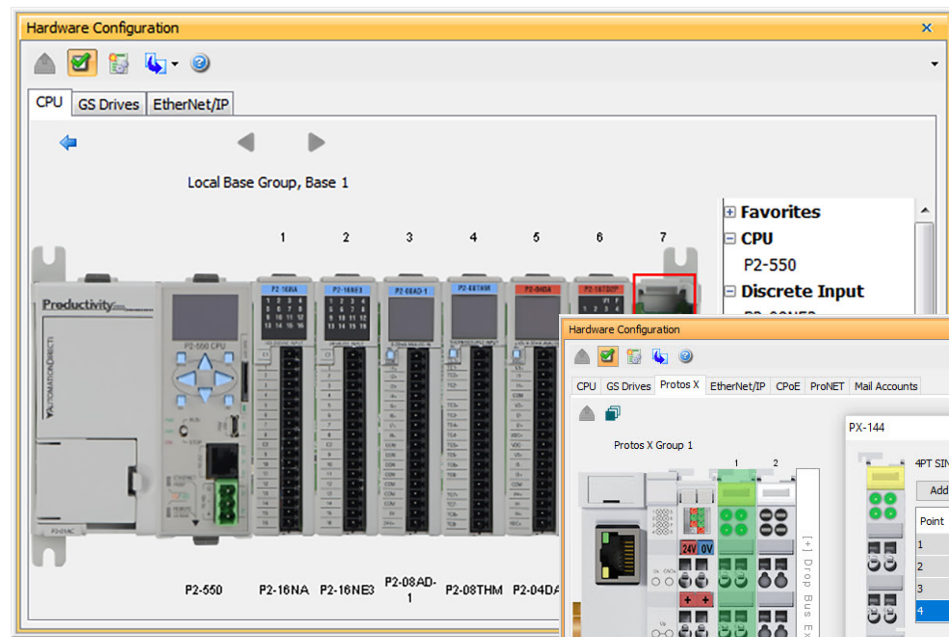
Discrete control has never been easier!

Auto-discovered I/O modules

The Productivity Suite software will automatically configure any of the discrete modules that are available. Simply install each I/O module in the base and it will be discovered by the software. Don't waste time laboriously entering I/O module part numbers into the system!

Easily connect all of your interface and control devices such as photo eyes, proximity sensors, limit switches, push buttons, light curtains, stack lights, motor controls, etc.

And all remote I/O bases and Protos X field I/O racks connected to the Ethernet remote I/O port of the P2-550 will be auto-discovered into the hardware configuration.

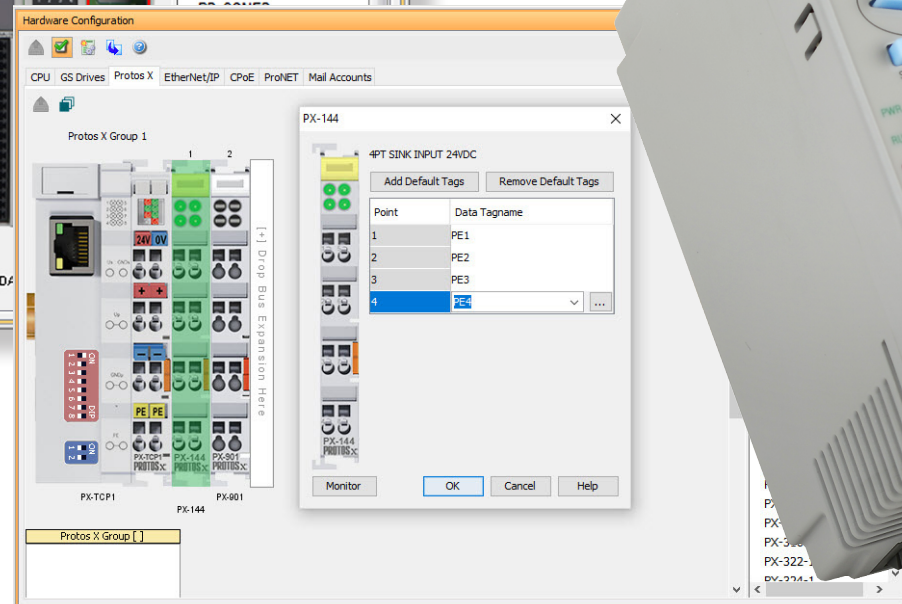
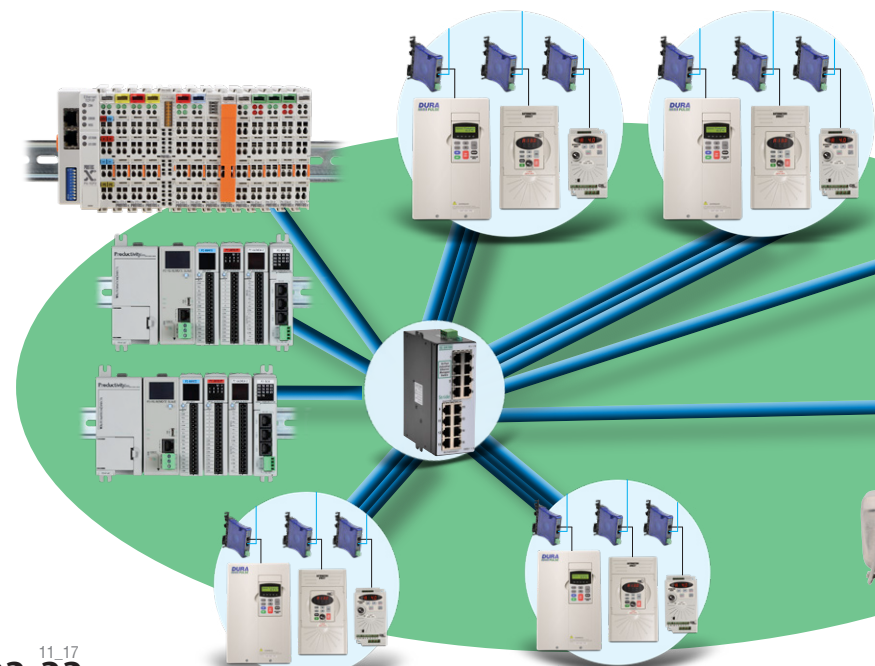


Local I/O Configuration

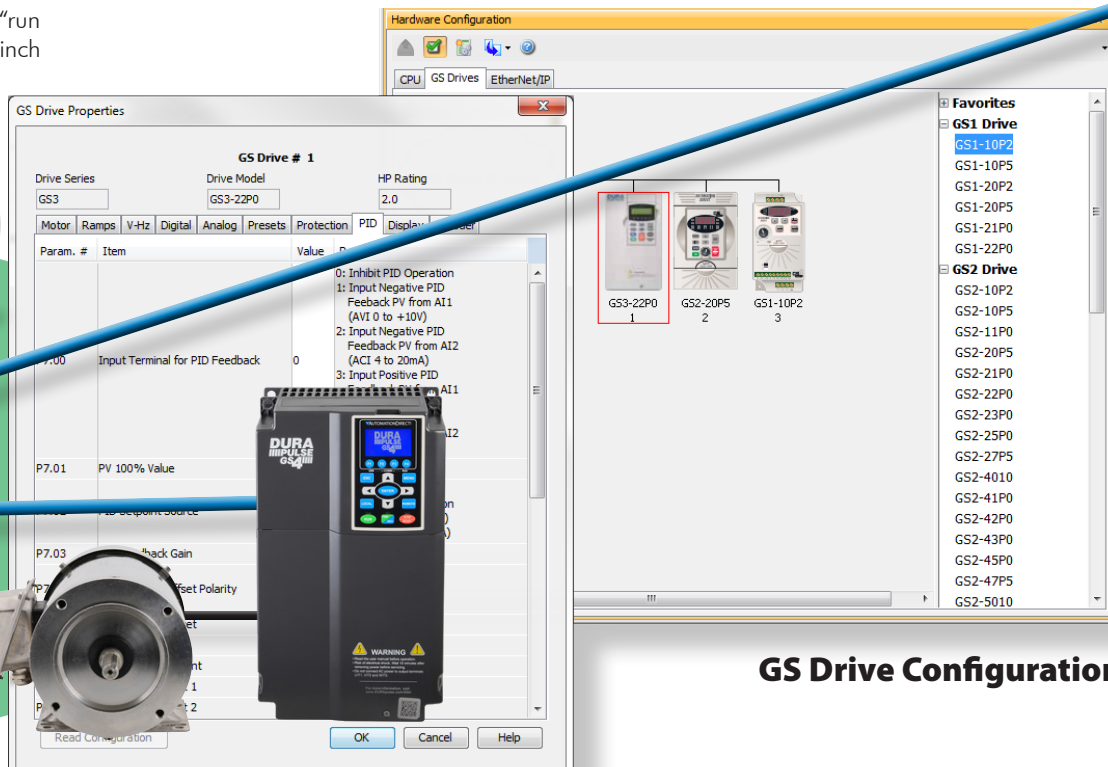
Auto-discovered VFDs - set up drives in no time!

Connecting your Productivity series PLC to variable frequency drives couldn't be easier! Connect up to 16 of our GS series drives via Ethernet, and the Productivity PLC can automatically detect the drives. 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 (both "run mode" and "stop mode") that can be configured for each model of drive - it's then a cinch to fill in the blanks and program your drives.



Protos X Field I/O Configuration



GS Drive Configuration



Robust CPU features for only \$273.00!

The list of standard features included in the P2-550 are nothing short of incredible! For the price, this is arguably the best control value in the industry. With 50 MB of user memory, you will never be concerned with running out of program space. This also gives you plenty of space to store all project documentation. The OLED display gives you system status and diagnostics; it also works as a simple message display, allowing you to configure messages and trigger them on conditions in the ladder.

You get all of this plus a powerhouse in communications:

(2) serial ports: RS-232 and RS485, both supporting Modbus RTU, ASCII and Custom Protocol (where you define the protocol in a custom function block).

(2) 10/100 Mbps Ethernet ports: A remote port which supports up to 16 GS Series drives and 8 remote I/O bases. An external port with ProNET capability, Custom Protocols over Ethernet and both EtherNet/IP and Modbus TCP protocols, is also included. Out of the box this gets you the top two Ethernet protocols in the industry. This gives machine builders the flexibility to connect to numerous peripheral devices without having to add option modules to your base.

Ethernet remote I/O, flexible system design

Connect up to 8 remote I/O bases from the P2-550's Ethernet Remote I/O port. Select any of the available base configurations for the CPU and remote I/O expansion. This gives you a total possible system capacity of 4,320 I/O.

FREE SOFTWARE



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Wide Variety of Discrete I/O Modules starting at only \$40



- P2-08ND3-1:** 8-point 12-24 VDC Sink/Source Input Module... **\$53.00**
- P2-16ND3-1:** 16-point 12-24 VDC Sink/Source Input Module... **\$74.00**
- P2-32ND3-1:** 32-point 12-24 VDC Sink/Source Input Module... **\$106.00**
- P2-08NE3:** 8-point 24V AC/DC Sink/Source Input Module... **\$43.50**
- P2-16NE3:** 16-point 24V AC/DC Sink/Source Input Module... **\$74.00**
- P2-32NE3:** 32-point 24V AC/DC Sink/Source Input Module... **\$106.00**
- P2-15TD1:** 15-point 3.3-24 VDC Sinking Output Module... **\$71.00**
- P2-15TD2:** 15-point 12-24 VDC Sourcing Output Module... **\$70.00**
- P2-08TD1S:** 8-point 3.3-24 VDC Isolated Sinking Output... **\$51.00**
- P2-08TD2S:** 8-point 12-24 VDC Isolated Sourcing Output... **\$51.00**
- P2-08TD1P:** 8-point 12-24VDC Sinking Output Module (overload and short circuit protected)... **\$44.00**
- P2-08TD2P:** 8-point 12-24VDC Sourcing Output Module (overload and short circuit protected)... **\$44.00**
- P2-16TD1P:** 16-point 12-24VDC Sinking Output Module (overload and short circuit protected)... **\$74.00**
- P2-16TD2P:** 16-point 12-24VDC Sourcing Output Module (overload and short circuit protected)... **\$74.00**
- P2-32TD1P:** 32-point 12-24VDC Sinking Output Module (overload and short circuit protected)... **\$106.00**
- P2-32TD2P:** 32-point 24VDC Sourcing Output Module (overload and short circuit protected)... **\$106.00**
- P2-08NAS:** 8-point 100-120VAC Isolated Input Module... **\$83.00**
- P2-16NA:** 16-point 100-240VAC Input Module... **\$113.00**
- P2-08TAS:** 8-point 100-120VAC Output Module... **\$113.00**
- P2-16TA:** 16-point 100-240VAC Output Module... **\$139.00**
- P2-08TRS:** 8-point AC/DC Isolated Relay Output Module (6.25-24VDC/6-120VAC)... **\$54.00**
- P2-16TR:** 16-point AC/DC Relay Output Module (6.25-24VDC/6-240VAC)... **\$102.00**

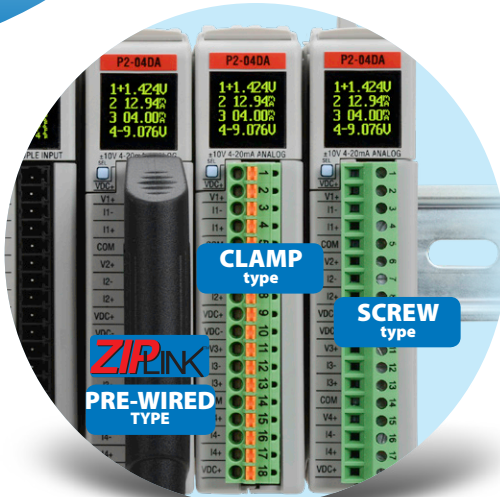
Productivity2000 offers 8, 16 and 32-point DC inputs and 8, 15, 16 and 32-point DC outputs (in sinking or sourcing), 8 or 16-point AC I/O and relay output modules.



Choose the wiring option YOU prefer!

Most all of our I/O modules have 3 options for wiring. There are two types of terminal blocks, screw type and spring clamp, as well as ZIPLink wiring solutions.

The ZIPLinks are pre-wired cables that connect to a variety of connector modules. This simplifies your system wiring, cleans up your panel appearance, makes troubleshooting much easier and saves you time and money when building your panel.



Productivity²⁰⁰⁰..... C-more[®]

Perfect match for our C-more HMI

Export your tag name database from the Productivity2000 and import it into C-more software to jump start your HMI development.

No more digging through your notes, or hunting through your ladder logic to find the right tag name.

Connect up to 16 C-more HMIs to the Productivity2000 via Ethernet for control and visibility of your process/machine from anywhere in your factory. Use the remote access feature of C-more to view (and possibly control) your system from anywhere via the Internet. C-more offers a wealth of productive features that make it a perfect match for the Productivity2000.



Tag Database

Tags to show in the Editor

Show All Discrete Inputs Analog Inputs Integers System Data
 Discrete Outputs Analog Outputs Floats Strings

Invert

Name	Type	Rows	Cols	Retentive	Init Value
barr750WReadTimeout	Boolean, 1D Array	1	10	<input type="checkbox"/>	
narrStatusRegisters	Integer, 16 Bit, ID...	1	6	<input type="checkbox"/>	
narrHmi200WPositions	Integer, 16 Bit, ID...	1	8	<input type="checkbox"/>	
System ID					
AR1516-000003(1)		1	1	<input type="checkbox"/>	40002
AR1516-000003(2)		1	1	<input type="checkbox"/>	40002
AR1516-000003(3)		1	1	<input type="checkbox"/>	-100
AR1516-000003(4)		1	1	<input type="checkbox"/>	40002
AR1516-000003(5)		1	1	<input type="checkbox"/>	200
AR1516-000003(6)		1	1	<input type="checkbox"/>	2
AR1516-000003(7)		1	1	<input type="checkbox"/>	-300
AR1516-000003(8)		1	1	<input type="checkbox"/>	40002
narrHmi200WSpeeds	Integer, 16 Bit, ID...	1	4	<input type="checkbox"/>	400029
narr750WStatusRegisters	Integer, 16 Bit, ID...	1	5	<input type="checkbox"/>	
byarrHomingModeSegments	Integer, 8 Bit Unsi...	1	4	<input type="checkbox"/>	Decimal
byarrStepperResponse	Integer, 8 Bit Unsi...	1	10	<input type="checkbox"/>	Hex
bcdHomingMode	Integer, 16 Bit BCD			<input type="checkbox"/>	
bWriteComplete	Boolean			<input type="checkbox"/>	
bWriteError	Boolean			<input type="checkbox"/>	
bWriteInProcess	Boolean			<input type="checkbox"/>	
bWriteSuccess	Boolean			<input type="checkbox"/>	
bWriteTimeout	Boolean			<input type="checkbox"/>	
bReadComplete	Boolean			<input type="checkbox"/>	
bReadErr	Boolean			<input type="checkbox"/>	
bReadInP	Boolean			<input type="checkbox"/>	

Add Tags



Control your process for less!



No-limit PID

With 50MB of user memory, you have practically limitless PID functionality. The integrated PID function blocks makes it easier to configure and control the process loops in your application.

The PID Monitor utility allows you to monitor your loops and tune them in real time. We also offer a built-in Auto-tuning algorithm (Ziegler-Nichols) to help give you a jump on fine tuning your loops.

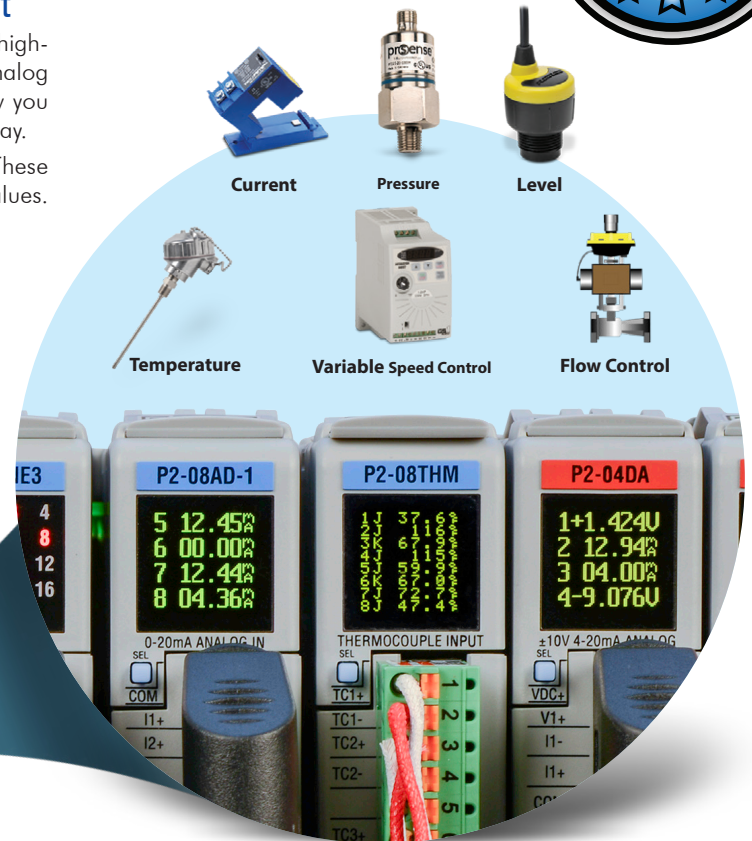
The PID instruction supports either individual or cascade mode operation. It also includes a tab for configuring all of your process alarms, including Low-Low, Low, High, High-High Limits and Deviation Alarms.

Analog values you have to SEE TO BELIEVE!

Actual values vs. just a blinking light

With the patented OLED displays included on all 16-bit high-resolution analog modules, we make it simple to view analog values and temperatures. These high-clarity displays allow you to view up to 8 channels of analog values on a small display.

This makes troubleshooting easier than ever before. These displays can show fault conditions as well as live analog values.



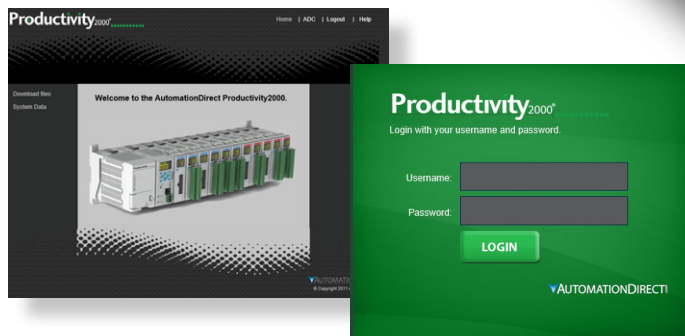
Direct access with the Built-In Web Server

Having an integrated microSD card slot in the CPU allows you to configure tags to be logged (up to 32GB). You can easily remove/replace the memory card, or you can access the data via a standard Web browser using the CPU's built-in Web server.



Once enabled, simply enter your P2-550's IP address into a browser's address bar, enter the appropriate security credentials and you have access to system data (error history, CPU status, scan time, etc.) or you can access the data log file directly on the microSD card.

This gives you a quick and convenient troubleshooting tool without having the programming software connected.



or
OLED DISPLAYS

The Productivity2000's complete lineup of temperature and analog modules eases the concern of process application design. With the Productivity2000 modules you can connect and control most any device in the market at a lower cost. Consider an 8-channel thermocouple input temperature sensing module for the P2000, with a list price of \$342.00. That is \$44.00 per channel and it includes an OLED display that can read out 4 channels or all 8 channels at once.

Non-invasive measurements

These OLED displays allow non-invasive measurements, so there is no need to connect a multi-meter in line with the analog signal (which might adversely affect the signal being measured). View the signal in volts, milliamps, or degrees (depending on the module) or view the resulting tag value (i.e. 0-65535) that is being processed by the PLC.





Industrial LED messaging for your process starting at \$519.00

ViewMarq is a series of LED message displays that uses the latest LED and communications technologies for industrial applications. These industrial text message displays support both serial and Ethernet communications. The display can be connected to a PLC (programmable logic controller), PC, or any device capable of serial ASCII, Modbus RTU, or Modbus TCP communications.



Analog I/O: Measure it, read it, monitor it!

Analog modules are available in 12, 13 and 16-bit resolution, giving you an option of lower price or higher precision for your application measurement requirements. 0-4095 counts on a

typical 12-bit 0-10V module gives you a graduation of 2.44mV per count, where a 16-bit module with 0-65535 counts has a graduation of 0.152mV per count.

- P2-04AD:** 4-channel, 16-bit, voltage/current Analog Input Module (+/- 5 VDC, +/- 10 VDC, 0-5 VDC, 0-10 VDC, 0-20 mA) **\$210.00**
- P2-04AD-1:** 4-channel, 16-bit, current Analog Input Module (0-20 mA) **\$210.00**
- P2-04AD-2:** 4-channel, 16-bit, voltage Analog Input Module (0-10 VDC) **\$210.00**
- P2-08AD-1:** 8-channel, 16-bit, current Analog Input Module (0-20 mA) **\$222.00**
- P2-08AD-2:** 8-channel, 16-bit, voltage Analog Input Module (0-10 VDC) **\$244.00**
- P2-08ADL-1:** 8-channel, 13-bit, current Analog Input Module (0-20 mA) **\$155.00**
- P2-08ADL-2:** 8-channel, 13-bit, voltage Analog Input Module (0-10 VDC) **\$168.00**
- P2-16AD-1:** 16-channel, 16-bit, current Analog Input Module (0-20 mA) **\$268.00**
- P2-16AD-2:** 16-channel, 16-bit, voltage Analog Input Module (0-10 VDC) **\$297.00**
- P2-16ADL-1:** 16-channel, 13-bit, low resolution Analog Input Module (0-20 mA) **\$191.00**
- P2-16ADL-2:** 16-channel, 13-bit, low resolution Analog Input Module (0-10 VDC) **\$211.00**
- P2-04DA:** 4-channel, 16-bit, voltage/current Analog Output Module (+/- 10 VDC, 4-20 mA) **\$209.00**
- P2-04DA-1:** 4-channel, 16-bit, current Analog Output Module (4-20 mA) **\$159.00**
- P2-04DA-2:** 4-channel, 16-bit, voltage Analog Output Module (+/- 10 VDC) **\$155.00**

- P2-04DAL-1:** 4-channel, 12-bit, low resolution Analog Output Module (4-20 mA) **\$119.00**
- P2-04DAL-2:** 4-channel, 12-bit, low resolution Analog Output Module (0-10 VDC) **\$110.00**
- P2-08DA-1:** 8-channel, 16-bit, current Analog Output Module (4-20 mA) **\$291.00**
- P2-08DA-2:** 8-channel, 16-bit, voltage Analog Output Module (+/- 10 VDC) **\$267.00**
- P2-08DAL-1:** 8-channel, 12-bit, low resolution Analog Output Module (4-20 mA) **\$217.00**
- P2-08DAL-2:** 8-channel, 12-bit, low resolution Analog Output Module (0-10 VDC) **\$210.00**
- P2-16DA-1:** 16-channel, 16-bit, current Analog Output Module (4-20 mA) **\$381.00**
- P2-16DA-2:** 16-channel, 16-bit, voltage Analog Output Module (+/- 10 VDC) **\$364.00**
- P2-16DAL-1:** 16-channel, 12-bit low resolution Analog Output Module (4-20 mA) **\$271.00**
- P2-16DAL-2:** 16-channel, 12-bit low resolution Analog Output Module (0-10 VDC) **\$261.00**
- P2-8AD4DA-1:** 8-channel IN, 4-channel OUT, 16-bit, current Analog Combination Module (0-20 mA, 4-20 mA) **\$334.00**
- P2-8AD4DA-2:** 8-channel IN, 4-channel OUT, 16-bit, voltage Analog Combination Module (0-5 VDC, 0-10 VDC, 0-5 VDC, 0-10 VDC) **\$334.00**
- P2-08THM:** 8-channel, 16-bit, Thermocouple Input Module (thermocouple and millivolt) **\$342.00**
- P2-06RTD:** 6-channel, 16-bit, RTD Input Module **\$349.00**
- P2-08NTC:** 8-channel, 16-bit, Thermistor Input Module **\$310.00**

Hot-swappable I/O keeps you up and running!

That's right, all the I/O modules for the Productivity2000 are hot-swappable! When used appropriately, this capability can save time and help avoid long start-up operations or costly down-time related inconveniences. Of course, it's up to the system designer to determine if hot-swapping is appropriate and safe for each application.



Support information at your fingertips!

Pull down the QR coded tab from the top of any I/O module, and scan with your smart phone or tablet QR app to get the latest specifications for that module.



Low cost meets high speed, just \$210.00 per module.

High-Speed I/O: Motion for much less

These high-speed I/O modules combined with the ground-breaking communication abilities built into the P2-550 CPU give you a powerful solution for a fraction of the cost typically associated with motion. But don't let the price fool you. These little guys can stand head-to-head with modules you've been paying much more for.

P2-HSI: 2-channel, 1MHz High-Speed Input Module with 5-24 VDC general purpose inputs/outputs **\$210.00**
P2-HSO: 2-channel, 1MHz High-Speed Output Module with 5-24 VDC general purpose inputs/outputs **\$210.00**

P2-HSO
\$210.00



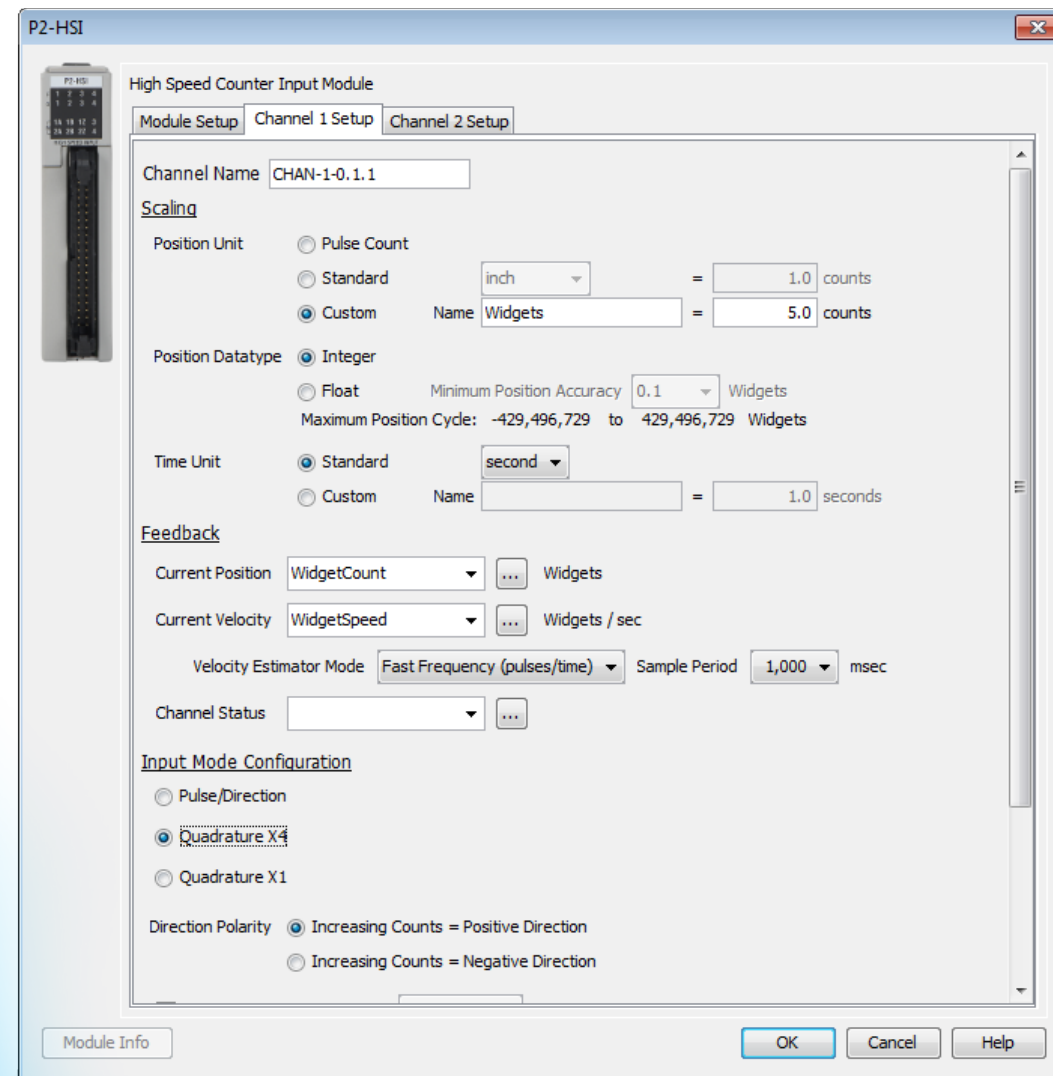
P2-HSI
\$210.00



Easy configuration for multiple applications

Both the High Speed Input (P2-HSI) and High Speed Output (P2-HSO) modules can be configured using Productivity Suite's intuitive function blocks like the one shown below. Simply define your tags for each input/output channel on the appropriate Channel (1 or 2) Setup Tab. You can even specify custom units, and with the P2-HSI take advantage of an estimated velocity function.

Using a P2-HSI in the below example, a quadrature encoder is supplying a high-speed pulse train with 5 pulses for each "widget" as it moves through the machine (with custom scaling of 1 Widget = 5 encoder counts). Once this is configured, you can now accurately monitor the user defined tags for "WidgetCount", and "WidgetSpeed" (in widgets/sec) in the ladder logic program even though the encoder counts (and "WidgetCount") may be counting at a faster rate than the scan time of your program.



Motion Module Comparison	AutomationDirect Productivity2000 P2-HSI	Allen-Bradley CompactLogix 1769-HSC
Number of Input Channels	2 Channels (Quadrature)	2 Channels (Quadrature)
Maximum Frequency	1 MHz	1 MHz
Number of High-speed inputs	6	6
Number of General Purpose Inputs	4 <small>2 std + unused Z</small>	0
Number of General Purpose Outputs	4	4
LED Display	Yes	Yes
Price	\$210.00 😊	\$1,080.00 😞

All prices are U.S. published prices. AutomationDirect prices as of 11/5/2020. Allen-Bradley retail prices taken from www.radwell.com 11/5/2020.



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High-Speed I/O in motion....

Use the P2-HSO high-speed output module for various motion control operations including simple moves, velocity moves, and flexible homing routines.

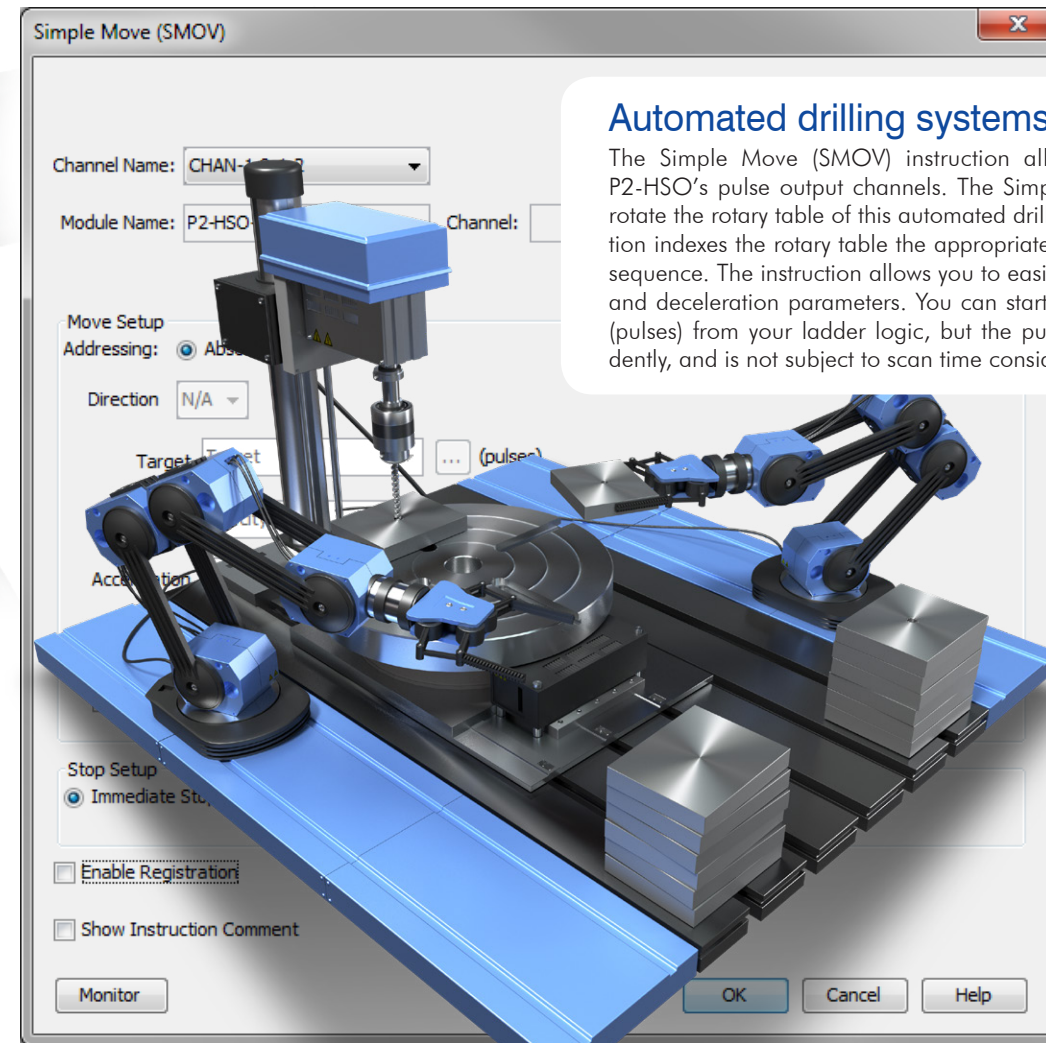
The P2-HSO is a high-speed (1MHz) output module that supports Pulse/Direction, Step Up/Step Down and Quadrature pulse outputs on each of two independent output channels. It has both line driver and open drain outputs. Additionally, it has six general purpose inputs and four general purpose outputs.

And with Productivity Suite's built-in instructions, like Find Home (HOME), Simple Move and Velocity Move (SMOV), it's easier than ever to program routines based on target position, target velocity, accel rate, decel rate, etc.

Pick and place applications

The Find Home (HOME) instruction initializes this pick and place application on power-up. Homing routines are used to align the P2-HSO channel position to a known real-world physical position. Choose from four preconfigured move routines and simply fill in the blanks for speed, direction and acceleration.

P2-HSO
\$210.00



Automated drilling systems

The Simple Move (SMOV) instruction allows precision control of the P2-HSO's pulse output channels. The Simple Move instruction is used to rotate the rotary table of this automated drilling system. The SMOV instruction indexes the rotary table the appropriate distance for each new drilling sequence. The instruction allows you to easily define distance, acceleration and deceleration parameters. You can start, stop and monitor the motion (pulses) from your ladder logic, but the pulse train is produced independently, and is not subject to scan time considerations.

Drawings are for illustrative purposes only.

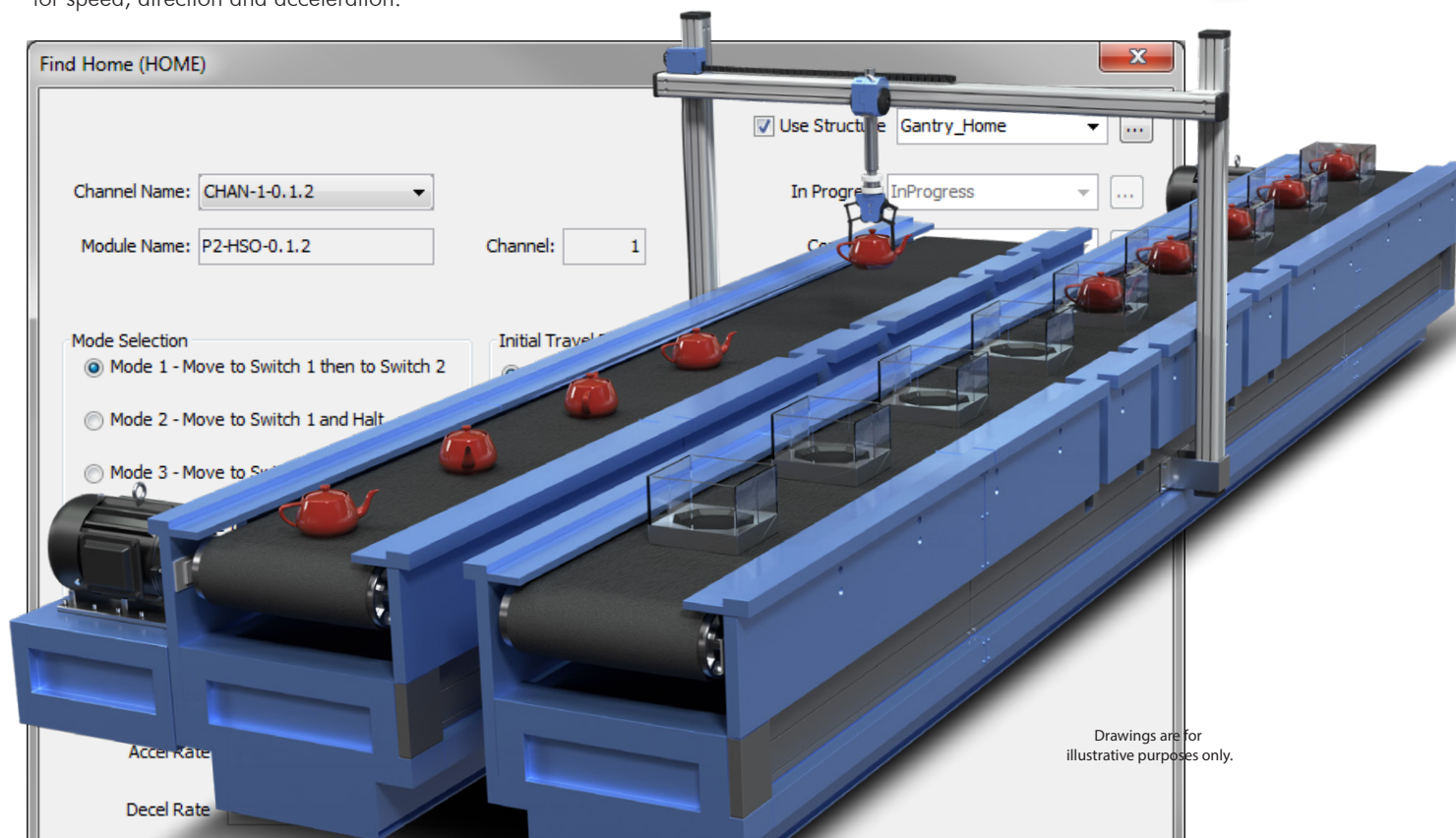
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Other Freebies

And don't forget we also provide absolutely free online PLC training through our training partner Interconnecting Automation at www.automationdirect.com/plc-training. This free training encompasses basic PLC fundamentals as well as Productivity Suite specific topics.



Drawings are for illustrative purposes only.



High-Speed I/O in motion....

Use the P2-HSI high-speed input module for high-speed counting and registration functions.

The P2-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 two independent input channels. It also provides four general purpose high-speed inputs and four general purpose 5-24VDC @ 0.5 Amp outputs.

Pneumatic stamping applications

The Registration (REG) instruction can trigger several internal and external position based events such as the capturing of positions, setting a tag, counting events and turning on, off or pulsing an output. The action can also be delayed by a set number of pulses as in this pneumatic stamping application. The P2-HSI module is used to accurately stamp parts as they move past on a conveyor. A blank part is detected by the sensor and the instruction is triggered. The output or stamping function is delayed by the appropriate number of encoder pulses. Once the part travels to the precise location under the stamp, the pneumatic stamp is activated and the image is stamped onto the part. The encoder pulse train can be up to 1Mhz, faster than the scan time of the Productivity2000. This is critical for accurate operation in this application.



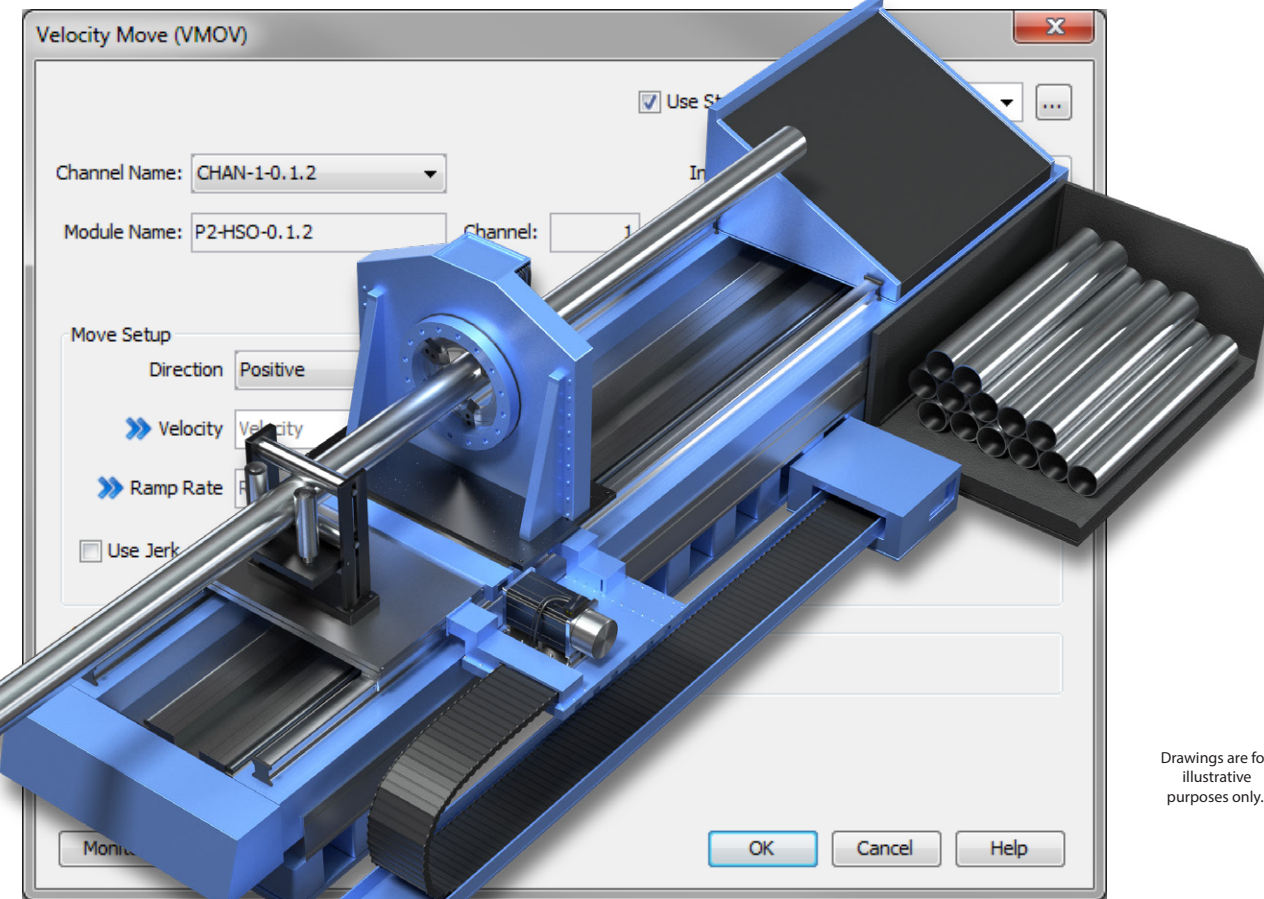
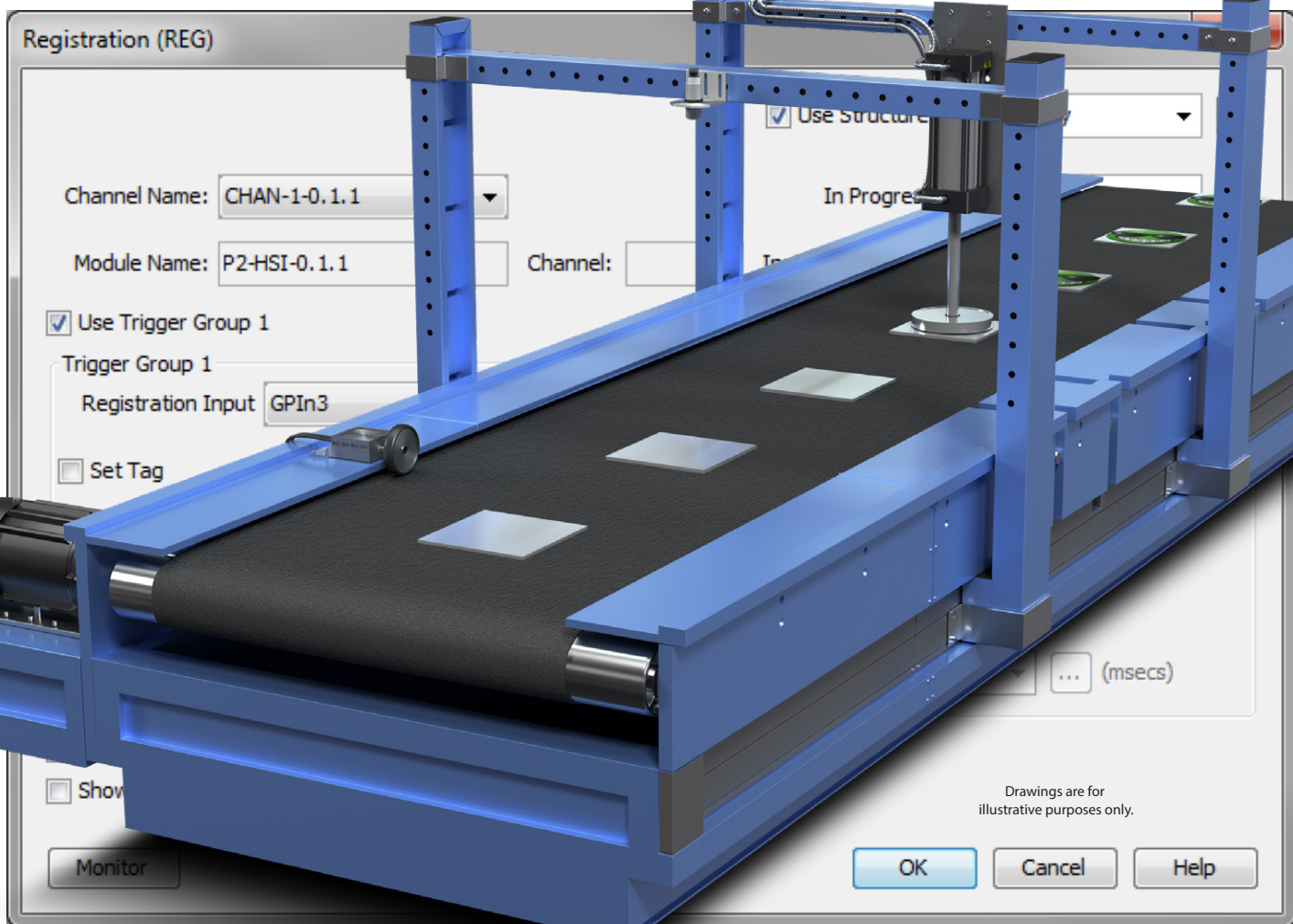
P2-HSI
\$210.00



ZIPLink pre-wired solutions
The Productivity2000 high-speed modules require the ZIPLink pre-wired cables and connector modules. Our ZIPLinks provide a tremendous time savings by eliminating the tedious process of wiring I/O points. Simply snap the ZIPLink connector to the I/O module, connect your field wiring to the ZIPLink terminal and your wiring job is done. See the Wiring Solutions section for more information.

Flying cut-off application

In this example, the Velocity Move instruction is used for the P2-HSO module to synchronize the speed of the servo driven carriage in this "flying cut-off" application. The SureServo motor must accelerate the carriage to match the speed of the moving pipe (pipe speed reference supplied via the P2-HSI module), in order to make a perpendicular cut-off. After the cut, the carriage speeds back to the starting position to make another pass. Flying cut-offs are used in many situations where it isn't practical to stop and start a continuous production operation.



Get the control you need for less with Productivity

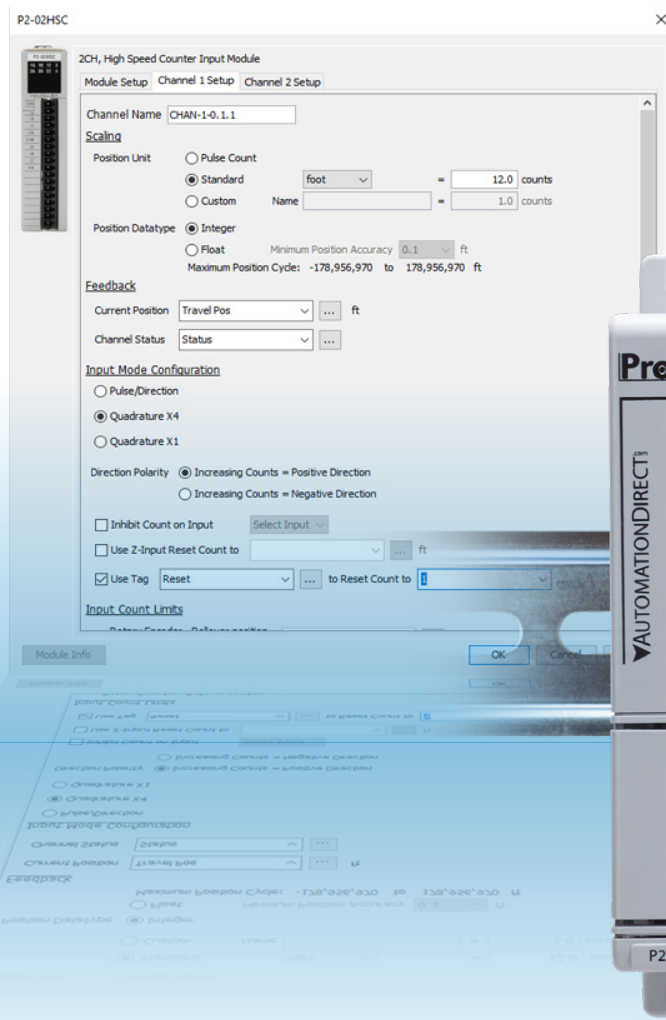
Besides the advanced P2-HSI and P2-HSO modules, Productivity2000 PLCs also offer lower-cost high-speed counter and pulse-width modulation modules. These modules are tailored for specific high-speed functions that are out of the realm of generic I/O.



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Setup is a cinch!

ProductivitySuite makes it easy to configure your I/O modules. Simply use the convenient fill-in-the-blank GUI to pick the functions you desire, set the scaling (standard or custom), assign the appropriate tags or create them on the fly, it couldn't be any easier.



High-speed Counter (HSC)

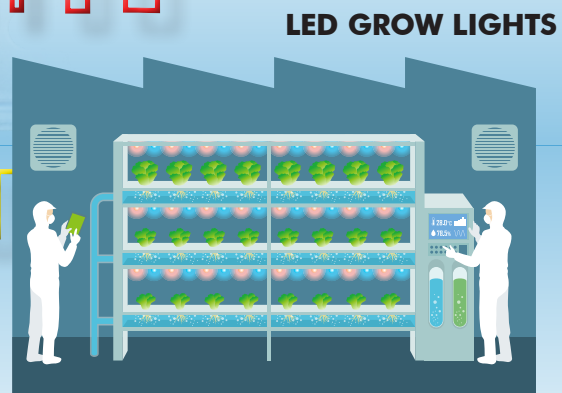
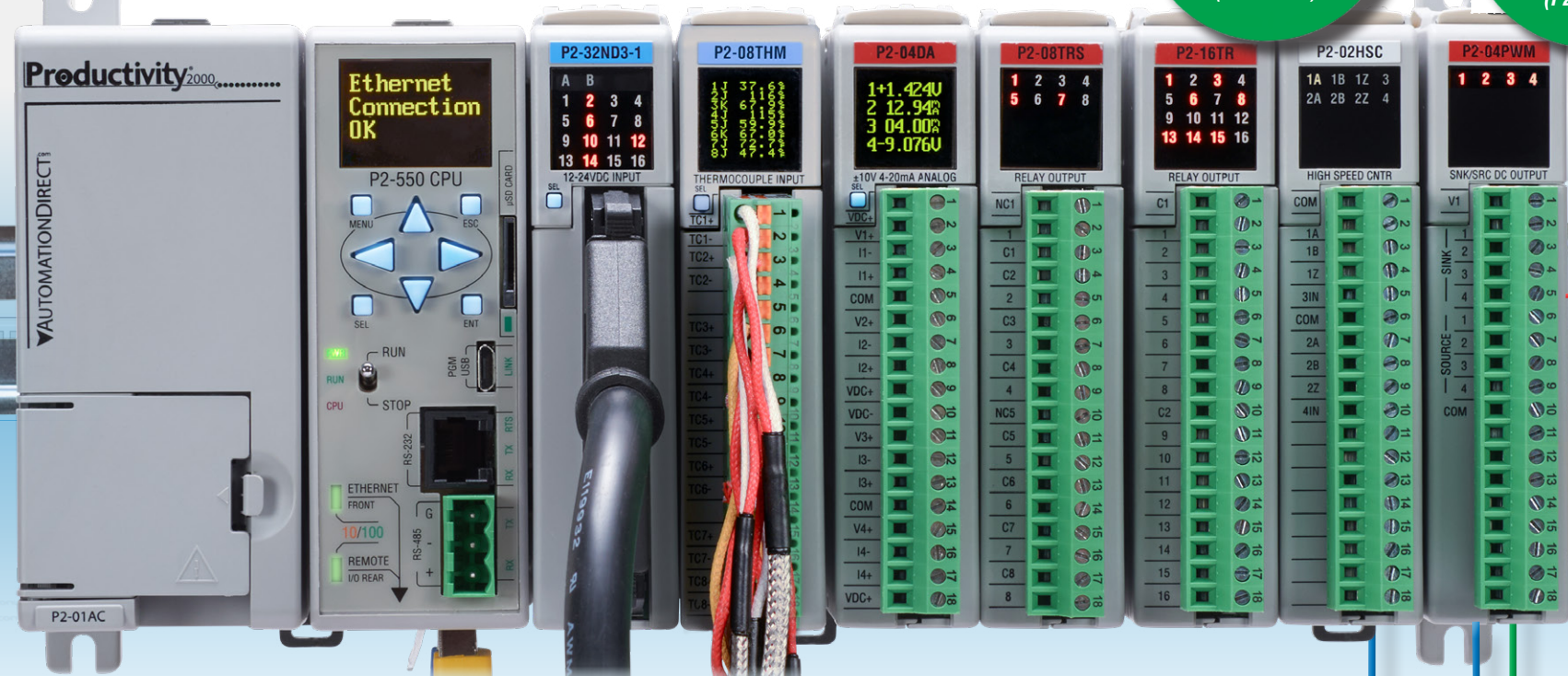
The P2-02HSC is capable of handling input pulse frequencies up to 100kHz. Easily count and/or calculate pulse rates from dedicated inputs or encoder signals that are used in many applications including package tracking and picking systems. Additionally, there are two general purpose inputs for use as 5-24 VDC inputs.

HSC Module priced at \$65.00 (P2-02HSC)

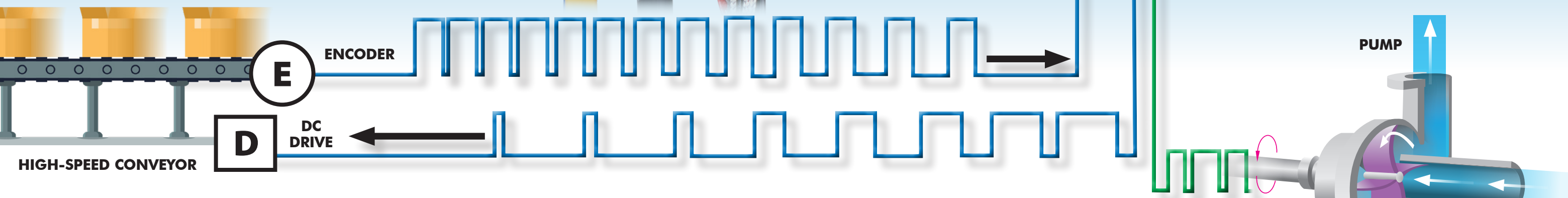
PWM Module priced at \$72.00 (P2-04PWM)



INDUSTRIAL OVEN



LED GROW LIGHTS



Pulse Width Modulation (PWM)

The P2-04PWM pulse width modulation module provides up to four channels of sinking or sourcing 0–20 kHz, 0–100% duty cycle outputs. The varying pulse widths produced by the PWM module are seen as varying power levels to the end device and are ideally suited for running motors/pumps, controlling LED lighting, opening/closing solenoid valves and more.



Real Time Data, Big Time Savings



Data on display

OLED displays provide non-invasive measurements of process control I/O and system diagnostics in real time. View analog input/output signal in volts, milliamps, or degrees (depending on the analog module) or view the resulting tag value (i.e. 0-65535) that is being processed by the PLC. System diagnostics and user defined messages displayed by the CPU can also provide instant notification of error conditions and aid in a quick recovery.



micro SD

Built-in data logging

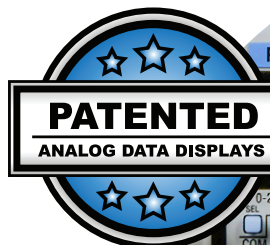
Track up to 64 tags at a time and save the data to the removable micro-SD card housed in the CPU. Capture up to 32GB of data either periodically (minute, hour, day, week, etc.) or when certain events occur. Scheduling and setup is done with the easy-to-use Data Logger configuration tool in the software. Log tag data, system errors and system events which can be used to track efficiency and performance, troubleshoot reoccurring or intermittent faults, and predict future breakdowns.

The micro-SD card can also be used to upload or download a project to/from a Productivity2000 without having a PC present. This feature is great for updating remotely located PLCs - just send your project on the micro-SD card to any factory in the world, and the controller can be updated with the most current project.

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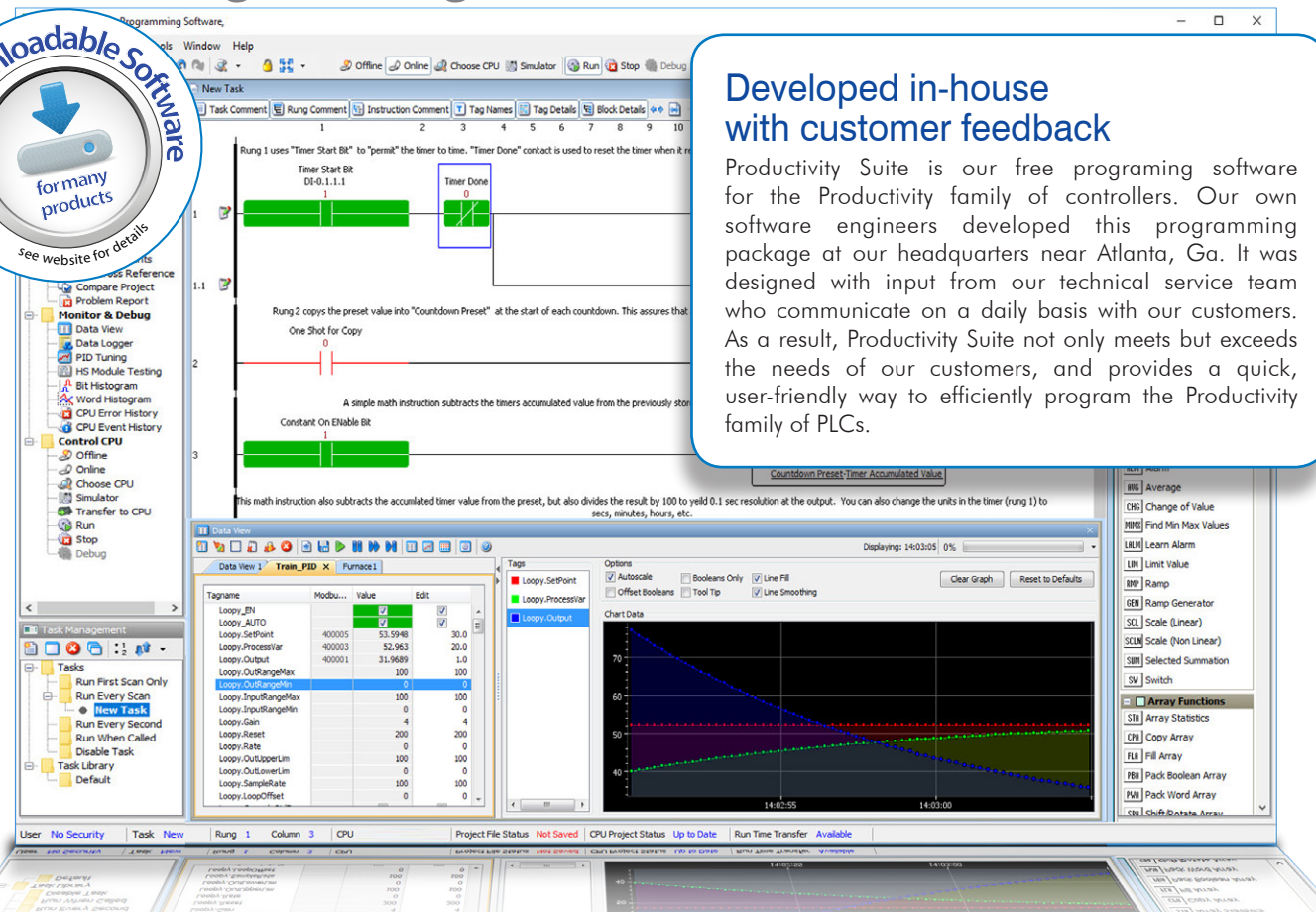
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4/13/15	12:35:53.254	79.400002
4/13/15	12:35:54.183	79.400002
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4/13/15	12:38:08.531	79.400002
4/13/15	12:38:09.464	79.400002
4/13/15	12:38:10.397	79.400002
4/13/15	12:38:11.330	79.400002
4/13/15	12:38:12.263	79.400002
4/13/15	12:38:13.196	79.400002
4/13/15	12:38:14.129	79.400002
4/13/15	12:38:15.062	79.400002
4/13/15	12:38:16.000	79.400002
4/13/15	12:38:16.933	79.400002
4/13/15	12:38:17.866	79.400002
4/13/15	12:38:18.799	79.400002
4/13/15	12:38:19.732	79.400002
4/13/15	12:38:20.665	79.400002
4/13/15	12:38:21.598	79.400002
4/13/15	12:38:22.531	79.400002
4/13/15	12:38:23.464	79.400002
4/13/15	12:38:24.397	79.400002
4/13/15	12:38:25.330	79.400002
4/13/15	12:38:26.263	79.400002
4/13/15	12:38:27.196	79.400002
4/13/15	12:38:28.129	79.400002
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4/13/15	12:38:30.000	79.400002
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4/13/15	12:38:38.397	79.400002
4/13/15	12:38:39.330	79.400002
4/13/15	12:38:40.263	79.400002
4/13/15	12:38:41.196	79.400002
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4/13/15	12:38:44.933	79.400002
4/13/15	12:38:45.866	79.400002
4/13/15	12:38:46.799	79.400002
4/13/15	12:38:47.732	79.400002
4/13/15	12:38:48.665	79.400002
4/13/15	12:38:49.598	79.400002
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4/13/15	12:39:01.732	79.400002
4/13/15	12:39:02.665	79.400002
4/13/15	12:39:03.598	79.400002
4/13/15	12:39:04.531	79.400002
4/13/15	12:39:05.464	79.400002
4/13/15	12:39:06.397	79.400002
4		

Fast Programming with FREE downloadable software



Developed in-house with customer feedback

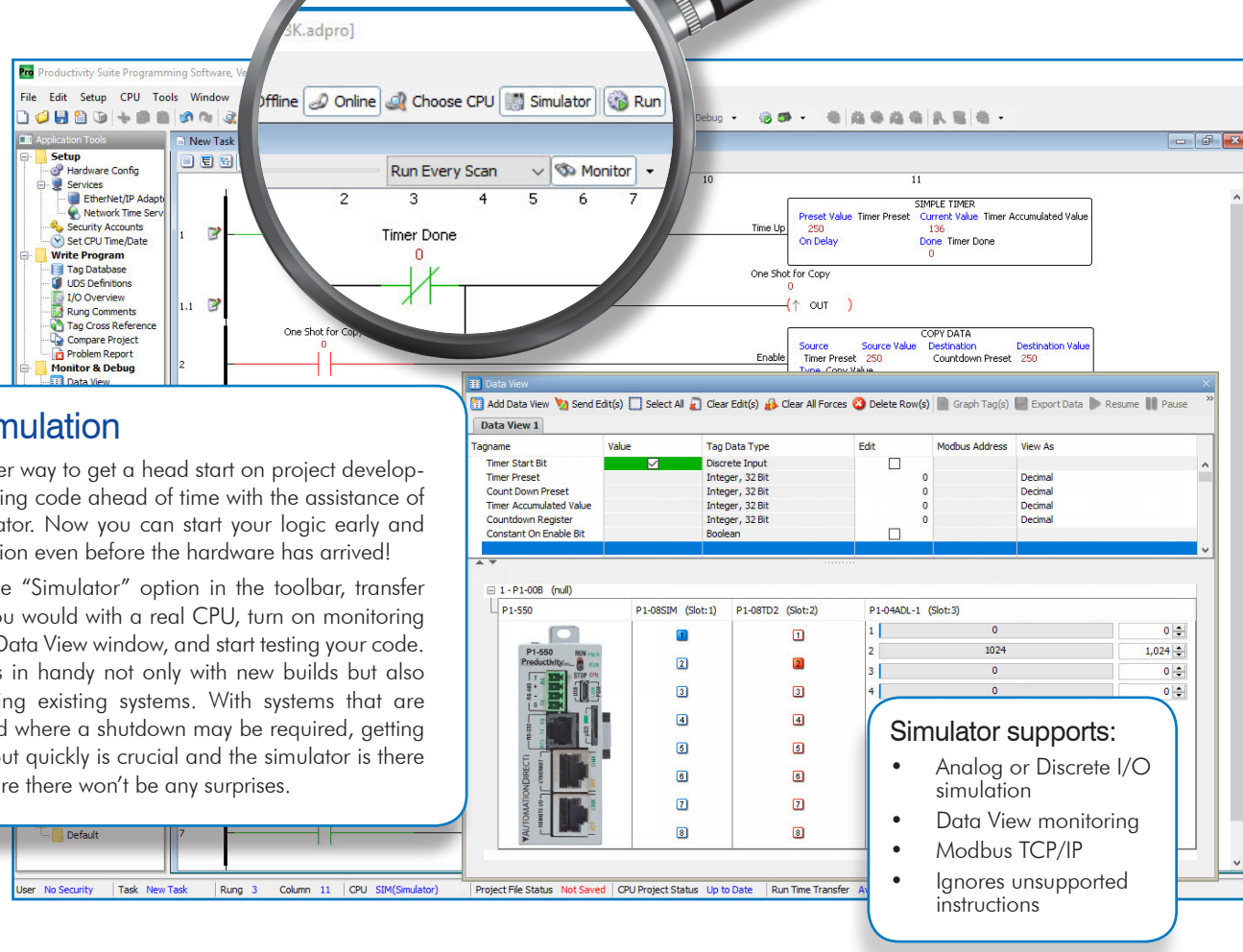
Productivity Suite is our free programming software for the Productivity family of controllers. Our own software engineers developed this programming package at our headquarters near Atlanta, Ga. It was designed with input from our technical service team who communicate on a daily basis with our customers. As a result, Productivity Suite not only meets but exceeds the needs of our customers, and provides a quick, user-friendly way to efficiently program the Productivity family of PLCs.



Simple simulation

There is no better way to get a head start on project development than building code ahead of time with the assistance of a project simulator. Now you can start your logic early and verify it's operation even before the hardware has arrived!

Simply select the "Simulator" option in the toolbar, transfer your code as you would with a real CPU, turn on monitoring and/or open a Data View window, and start testing your code. This tool comes in handy not only with new builds but also when maintaining existing systems. With systems that are already live, and where a shutdown may be required, getting in and getting out quickly is crucial and the simulator is there to help make sure there won't be any surprises.



- Simulator supports:**
- Analog or Discrete I/O simulation
 - Data View monitoring
 - Modbus TCP/IP
 - Ignores unsupported instructions

Program your way! Tag name based control that's powerful and easy to use

With Productivity Suite you have the freedom to define user tags with no limits or fixed boundaries. Configure timers, counters, integer words or any other data types you need. With tag name based programming, there are no pre-defined, fixed memory maps and no wasted, unused memory allocations.

Tag name based control also offers the ability to descriptively identify the control elements in your program. Older, fixed memory controllers force the use of pre-defined nomenclature for the data types. Which would you rather see when troubleshooting: T4:01 or Oven1 Purge Timer.Pre? The tag name helps identify the element as a numeric value for the oven purge timer's preset, making its purpose immediately clear.

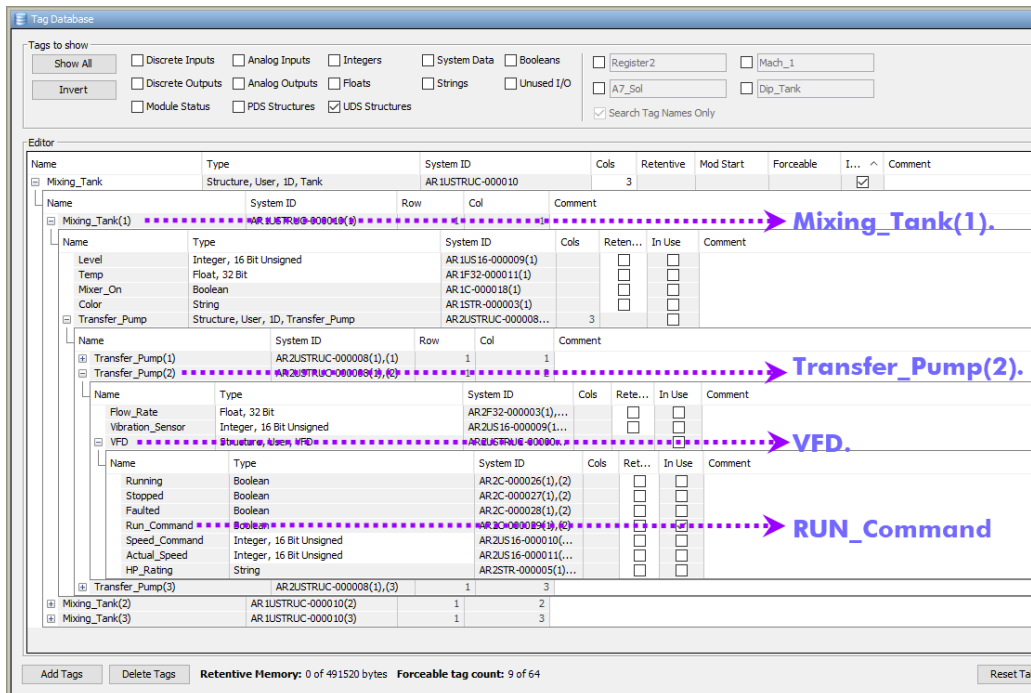


Advanced user defined structures

User defined structures (UDS) are a powerful tool that helps speed up program development and improve uniformity of your logic. A UDS is a group of data types (BOOL, FLOAT, INT, pre-defined structures, etc.) which are defined by the user and re-used at will.

Productivity Suite allows you to embed arrays within the UDS definition, as well as, create arrays of structured tags so that you can programmatically index through your tag variables.

For example, `Mixing_Tank(1).Transfer_Pump(2).VFD.RUN_Command` which contains two nested UDS arrays (Transfer_Pump and VFD) inside the Mixing_Tank UDS definition.



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Productivity Suite

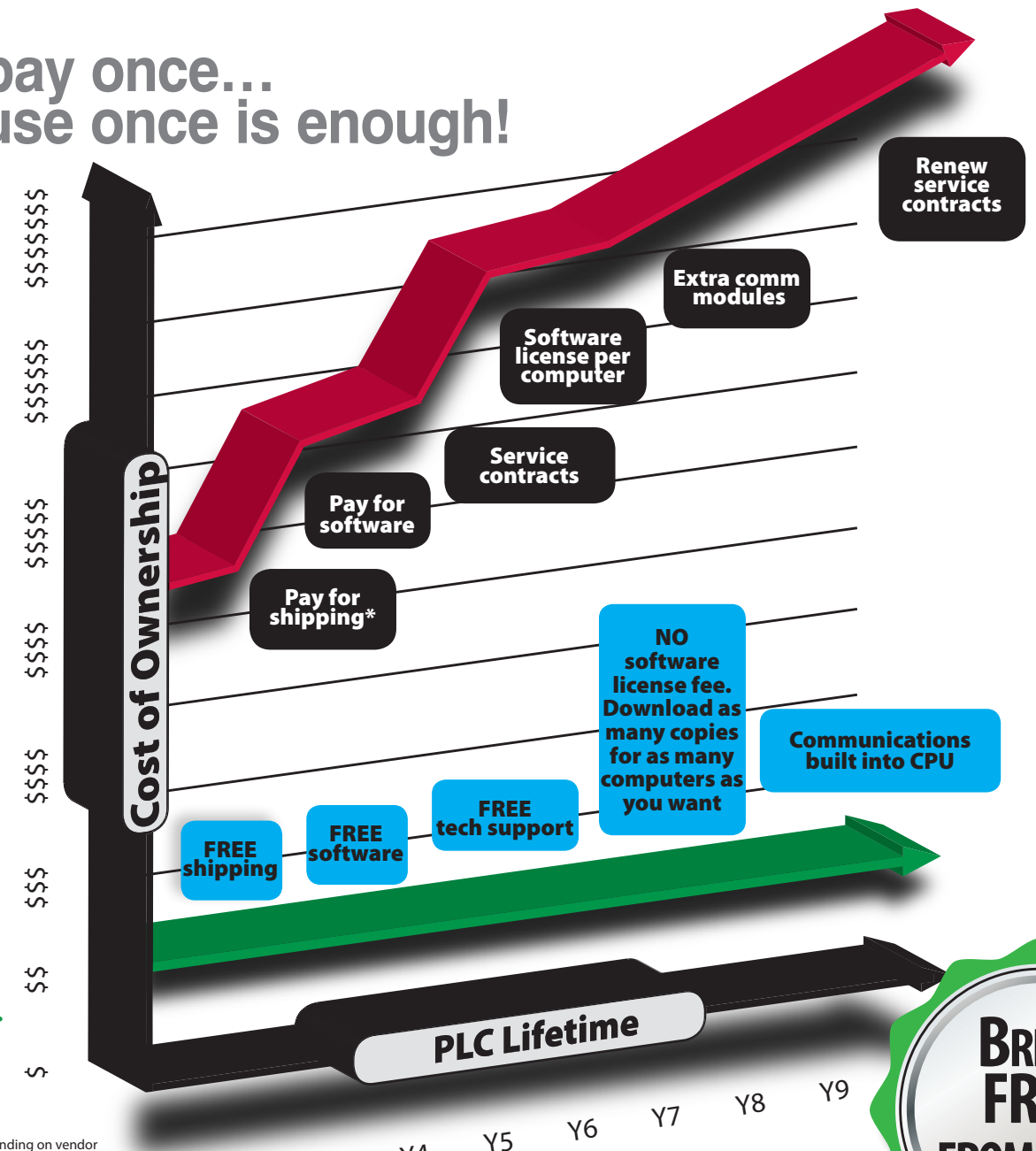
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Productivity2000
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See what others are saying:

"We are an OEM, and in the past used the Allen-Bradley CompactLogix platform for our higher end equipment. We think we have found its replacement. We have been testing this [controller] via the starter kit, and so far have been very impressed. The idea of a low cost controller, with all the available communication ports is a big plus for us. We really like, and prefer, the tag based programming utilized by this unit. We typically use drives to control conveyors running to our machinery, and the fact that the drive communication, and variables are on-board is fantastic. There is a window in the hardware configuration for adding your drives to the project (GS1, GS2, GS3). We like the idea that all the drive parameters are stored on the CPU, and can be downloaded to a drive when needed is great for the maintenance staff (no more having to scroll through menus to configure the drive!) And just like the other Automation Direct offering, all documentation and tags are stored on the CPU. So, if [your] programmer person leaves the company, no worries, just upload the code and documentation . . ."

RIDGELINE MACHINE DESIGN LLC

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Free software, the way it should be!

You bought the controller, why pay more to control it? The Productivity Suite software is available for download free of charge at www.Productivity2000.com. Take it for a test drive before you buy or get started on your project immediately. There are no licensing fees or maintenance charges to be concerned with and any subsequent upgrades are available for free as well.

Own it, don't owe on it!

So, how much should a PLC cost? Does a higher cost indicate greater functionality, better quality, or does it indicate more overhead, more expenses being off-loaded to you? Buying direct with us saves you money and cuts out the unnecessary costs that are incorporated into each more traditional PLC sale. If you need a PLC, then buy a PLC, not the overhead! With Productivity2000, you get many standard features that you would pay thousands for elsewhere. Our feature-packed P2-550 CPU is priced at \$273.00 and I/O modules start at just \$43.50 (P2-08NE3). So, ask yourself, what exactly are you paying for?

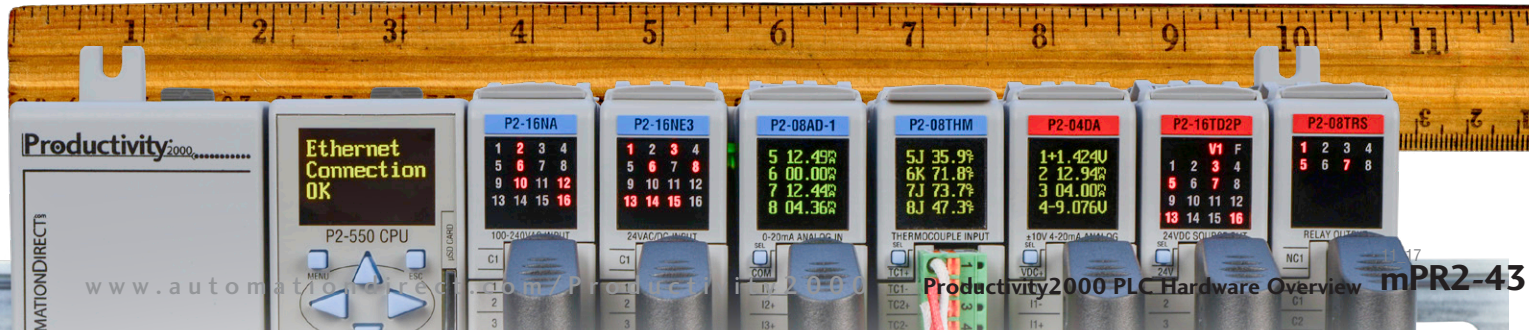
CPU and I/O Comparison	AutomationDirect Productivity2000 US	Allen-Bradley CompactLogix
Base (if required) P2-04B	\$81.00	N/A
Power Supply P2-01AC	\$79.00	\$542.00
CPU P2-550	\$273.00	\$3,370.00
16 AC Inputs P2-16NA	\$113.00	\$343.00
16 24VDC Inputs P2-16NE3	\$74.00	\$289.00
8 Relay Outputs P2-08TRS	\$54.00	\$354.00
8 Analog Input Channels (mA) P2-08AD-1	\$222.00	\$943.00
ASCII Comm Module Built in to CPU	\$0.00	\$851.00
Modbus RTU Comm Module Built in to CPU	\$0.00	\$940.00
Total Hardware Cost w/USB, Ethernet and Serial	\$896.00	\$7,632.00
Programming Software PS-PGMSW	FREE	\$935.00



More standard communication options

The Productivity2000 comes standard with more communication options than anyone else. Not only does the CPU have 5 communications ports, it also includes three of the most widely used protocols in our industry (Modbus RTU, Modbus TCP/IP, Ethernet/IP). Also included is full-duplex ASCII and the option to create your own custom Serial and Ethernet protocols. Not having to purchase separate communication modules or additional communication software with licensing, now or in the future, will save you money again and again!

POWER SUPPLY, CPU AND SEVEN MODULES IN ONLY 10-1/2"



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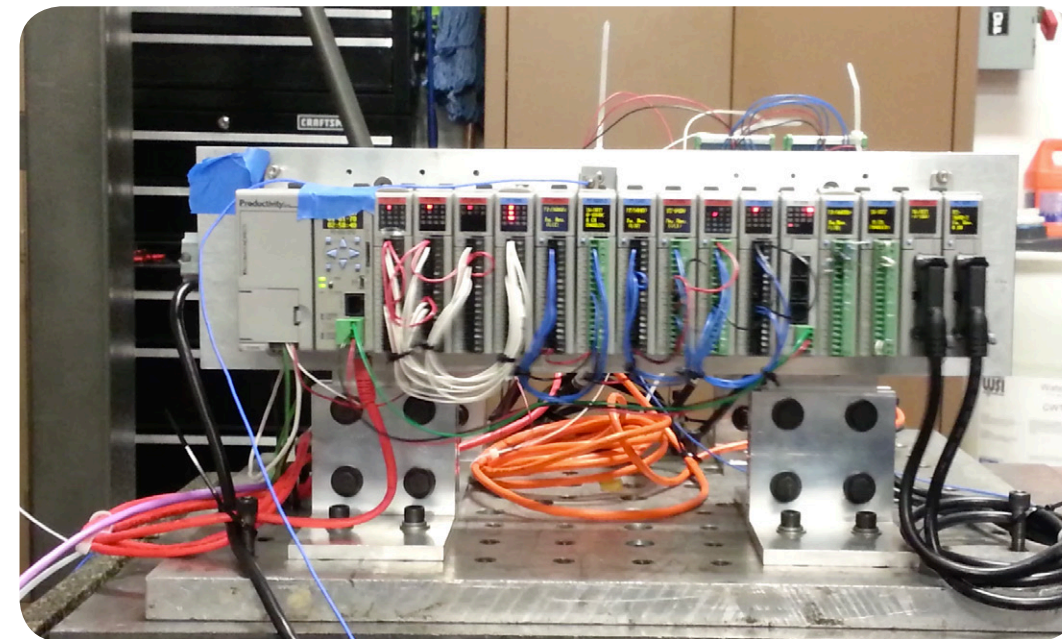
As a direct seller of industrial automation products we strive to provide you with everything you'll need to get the job done. Manuals, help files, inserts, drawings are all available for free from our website, but for those times when you need more we do offer free technical support. Our technical support staff is field experienced, highly qualified and ready to assist you, and our service and support has won numerous awards over 14 years and counting. So before you sign an expensive service contract, check us out and see how we make it possible to get more than you paid for.



Located in USA



for many products
see website for details



Online video of Productivity2000 QC vibration testing: <http://go2adc.com/QCshake>

Affordable hardware that is built to last

Despite what you may have heard from the competition, our products are built to withstand the harshest field conditions. Check out the video above to see the Productivity2000 get put to the test. As you can see, the Productivity2000's rugged design was thoroughly tested for field duty and we stand behind its performance with a 2 year warranty. Not only can Productivity Series controllers handle adverse conditions, but the 50MB of user memory also ensures that they have enough processing power to accommodate any future expansions you may need.



See what others are saying:

"Tech support is fantastic. They always get me pointed in the right direction. It's nice to call a company where the people on the phone don't just read pages from the manual, they can actively help solve your issue because they know how the systems work."

Adam in LAWRENCEVILLE, GA

OEMs voted our name 15 years in a row!

The Reader's Choice survey hosted by Control Design magazine aims to identify the best products and service in the industry. Results indicate we consistently provide top-notch support to our customers. This is in addition to several other industry awards from independent publications.

Multiple Years, multiple products

Plus many more since our beginning in 1994



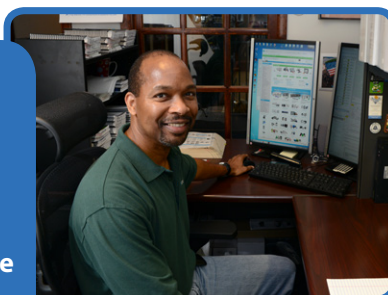
Voted #1 in service since 2001:
www.automationdirect.com/awards



Voted #1 mid-size company to work for in Atlanta:
www.automationdirect.com/workplace



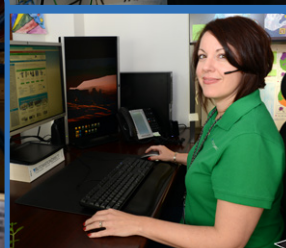
What our current customers think:
www.automationdirect.com/reviews



AutomationDirect.com Headquarters

We're all here - our sales and technical support teams, purchasing, accounting, and of course our huge warehouses and logistics team - ready to serve you.

Our campus is located about 45 minutes north of Atlanta, GA, USA.



Other Freebies

And don't forget we also provide absolutely free online PLC training through our training partner Interconnecting Automation at www.automationdirect.com/plc-training. This free training encompasses basic PLC fundamentals as well as Productivity Suite specific topics.

Increase your productivity in more ways than one!

The Productivity Series offers a scalable controls solution with three low-cost hardware platforms and one FREE, powerful programming package. No matter the application, big or small, Productivity has the I/O, communications and affordability you need.



Click on part number (in second row) to be taken directly to AutomationDirect.com to check current pricing, stock status, tech specs, industry approvals, videos, photos and more...



Feature	Productivity3000			Productivity2000	Productivity1000	
	P3-550 CPU	P3-550E CPU	P3-530 CPU	P2-550 CPU	P1-550 CPU	P1-540 CPU
User Display on CPU	✓	✓	---	✓	---	---
Built-in USB Programming Port	✓	---	---	✓	✓	✓
Built-in Serial Ports (RS-232 & RS-485)	2	2	2	2	2	2
Built-in Ethernet Ports (RJ45)	2	2	1	2	2	1
EtherNet/IP Protocol	✓	✓	---	✓	✓	✓
Modbus RTU (serial) & Modbus TCP (Ethernet)	✓	✓	✓	✓	✓	✓
Remote Expansion Support	✓	✓	---	✓	✓	---
Local Expansion Support	✓	✓	✓	---	---	---
Total Productivity I/O Capacity	59,840 (using P3-RX and P3-EX modules)	59,840 (using P3-RX and P3-EX modules)	3,520 (using P3-EX modules)	4,320 (using P2-RS modules)	240	240
Hot Swappable I/O Modules	✓	✓	✓	✓	---	---
Integrated GSDrive Support	✓ 32 max.	✓ 32 max.	---	✓ 16 max.	✓ 16 max.	---
Data Port (data logging & project transfer)	✓ USB	✓ USB	✓ USB	✓ microSD	✓ microSD*	✓ microSD*
Total Memory	50 MB	50 MB	25 MB	50 MB	50 MB	50 MB
Average Scantime (µsec) (1K boolean, 128 I/O)	380	380	380	200	1500	1300
American Bureau of Shipping (ABS) Certification	✓	---	---	✓	---	---
Price	\$978.00	\$497.00	\$487.00	\$273.00	\$203.00	\$180.00

Productivity[®]Series

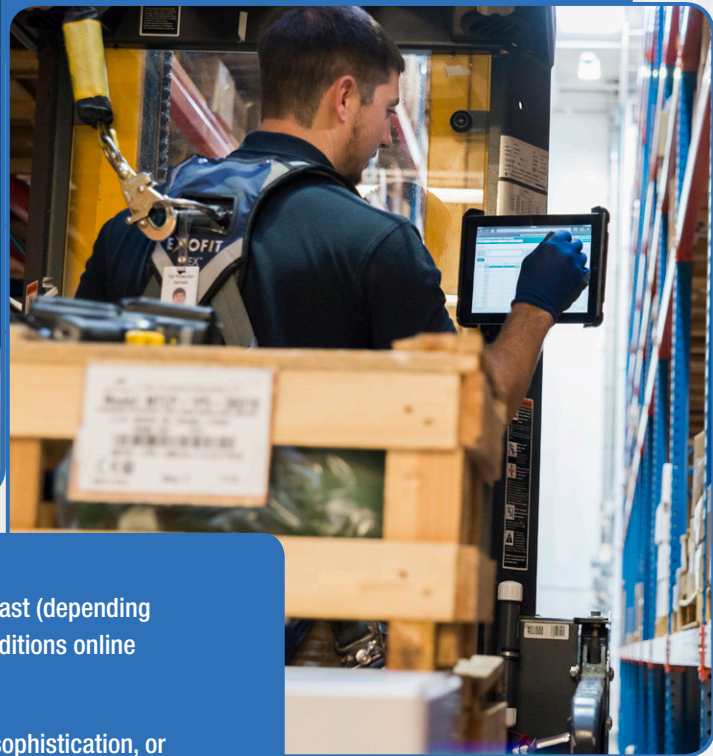
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* Project transfer from the microSD card is not supported in the Productivity1000 CPUs.

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