

Order Online at [AutomationDirect.com](http://AutomationDirect.com)  
**BUY  
ONLINE**

Fast Shipping of In-stock Products

45-day Money-Back Guarantee  
**45  
day**

FREE Technical Support  
Located in USA

FREE Downloadable Software  
for many products  
see website for details



Up-to-date price list:  
[www.automationdirect.com/pricelist](http://www.automationdirect.com/pricelist)

FREE Technical Support:  
[www.automationdirect.com/support](http://www.automationdirect.com/support)

FREE Videos:  
[www.automationdirect.com/videos](http://www.automationdirect.com/videos)

FREE Documentation:  
[www.automationdirect.com/documentation](http://www.automationdirect.com/documentation)

FREE CAD drawings:  
[www.automationdirect.com/cad](http://www.automationdirect.com/cad)



# Productivity<sup>®</sup>2000



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

## 12 reasons you ~~want~~ **NEED** Productivity<sup>2000</sup>.....

### 1 Our CPU is under \$300.00 . . . Theirs is over \$4,000.00!

The Productivity2000 PLC was designed to offer you the lowest cost of ownership in its class. Compare our P2000 PLC CPU (P2-622) to an Allen Bradley CompactLogix PLC CPU (1769-L33ER).

The \$4,332.85 (list price) Allen Bradley CPU offers 2MB of user memory, a 2GB SD card slot, three communications ports, and LED (on/off) CPU status indicators. Of course, you will also need to purchase programming software for the Allen Bradley CPU which can cost over \$1,000.00. The \$302.00 (everyday price) AutomationDirect P2-622 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, and a high-resolution display with LED status indicators also. Our programming software (developed inhouse) is FREE with no annual licensing fees. Download as many copies as you want. On top of that, you'll also get our FREE unlimited phone-in technical support which has received numerous service awards.

CPU and I/O Comparison	AutomationDirect Productivity2000	US.	Allen-Bradley CompactLogix
Base (if required)	\$107.00 P2-04B		N/A N/A
Power Supply	\$85.00 P2-02DC		\$708.36 1769-PB4
CPU	\$299.00 P2-622		\$4,332.85 1769-L33ER
16 AC Inputs	\$149.00 P2-16NA		\$436.19 1769-IA16
16 24VDC Inputs	\$98.00 P2-16NE3		\$367.52 1769-IQ16
8 Relay Outputs	\$71.00 P2-08TRS		\$450.18 1769-OW8I
8 Analog Input Channels (mA)	\$293.00 P2-08AD-1		\$1,199.20 1769-IF8
ASCII Comm Module	\$0.00 Built in to CPU		\$1,082.20 1769-ASCI
Modbus RTU Comm Module	\$0.00 Built in to CPU		\$1,164.75 1769-SM2
Total Hardware Cost w/USB, Ethernet and Serial	\$1,102.00		\$9,722.15
Programming Software	FREE PS-PGMSW		\$1,047.09 9324-RLD200ENE

All prices are U.S. published estimated retail prices. AutomationDirect prices as of 06/2023. Allen-Bradley hardware and software prices taken from [www.needco.com](http://www.needco.com) 04/2023.

\$302.00 CPU includes FREE Software and:

# 5 COMM PORTS

- Ethernet
- Remote I/O or 2nd Ethernet
- USB
- RS-232
- RS-485

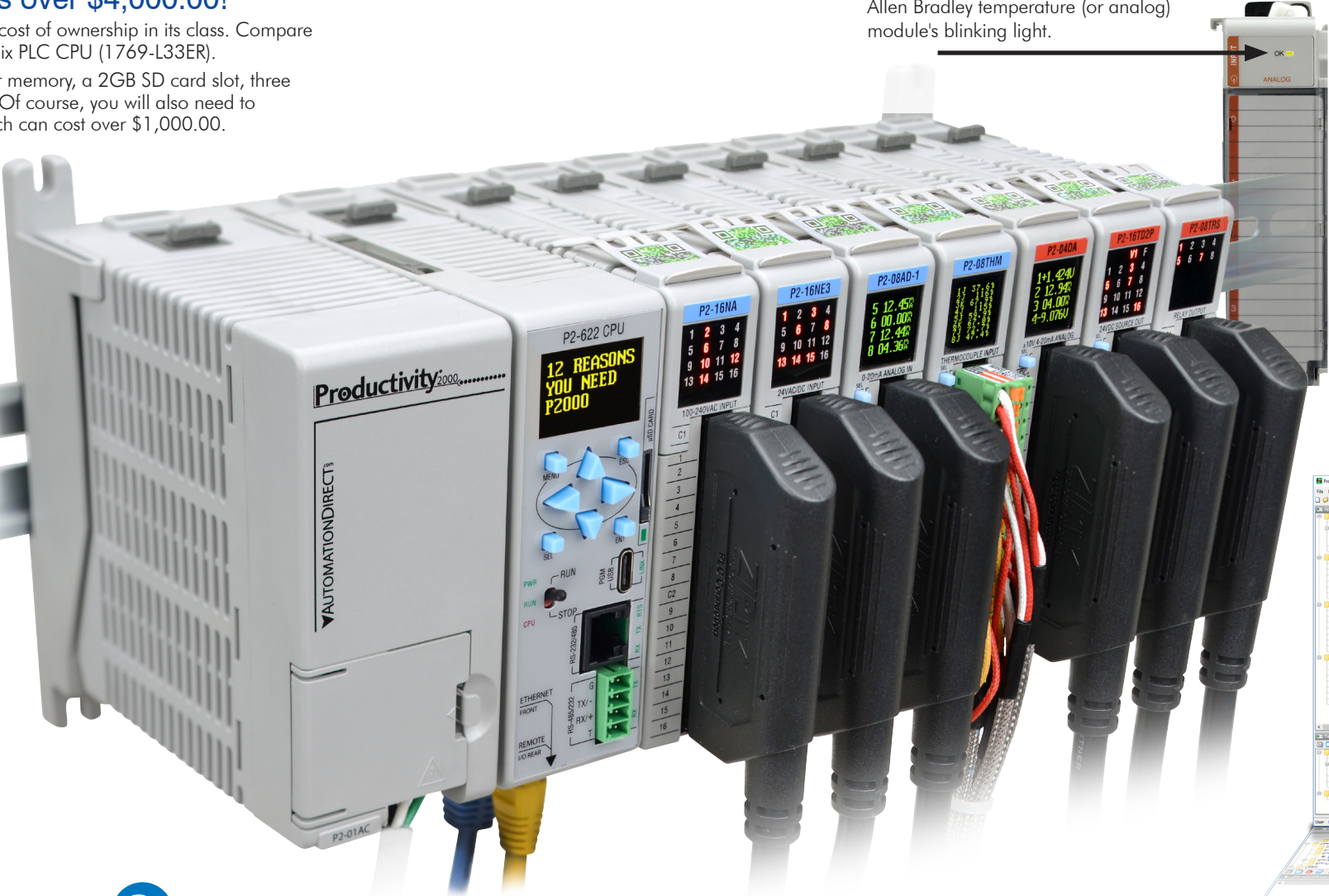
**PLUS** Built-in OLED Message Display

\*AB software price from [www.needco.com](http://www.needco.com) 04/23

Competitor's CPU \$4,332.85 with \$1,047.09 software package (retail price, one copy) and:

# 3 COMM PORTS

Ethernet (2)  
USB



### 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! That's much better than the significantly higher priced Allen Bradley temperature (or analog) module's blinking light.



### 2 5 built-in communication ports

Imagine the agony of shelling out \$4,000.00 or more 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 several different protocols standard on the **P2-622 CPU**.

- RS-232, RS-485, Ethernet, Remote I/O or 2nd Ethernet, and USB (programming) ports built in!
- Modbus RTU, Modbus TCP/IP, EtherNet/IP, MQTTS – included!
- Need more serial connections? No problem, an optional 4-port serial communications module is available if the need arises.

**Modbus® EtherNet/IP™ MQTT**

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

### 4 Easy PID

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. 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.

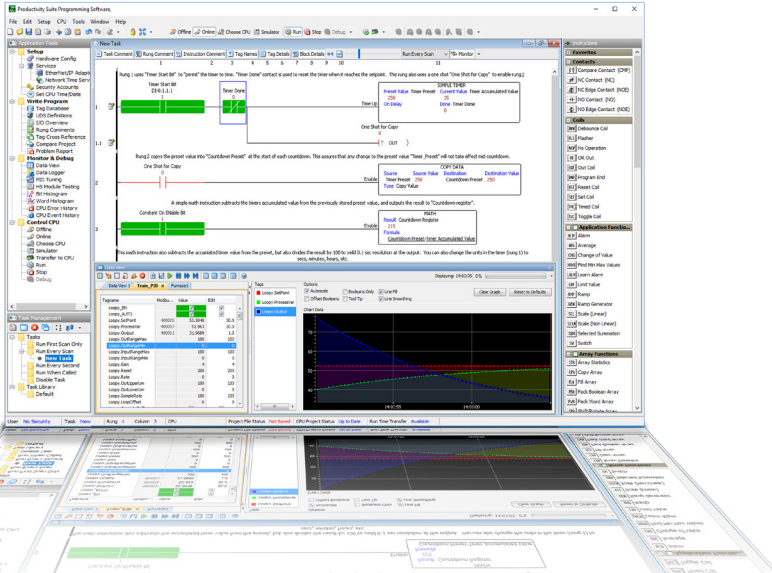
### 5 Flexible programming

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? Easily import your tag database into a SCADA system or C-more HMI for trouble-free development.

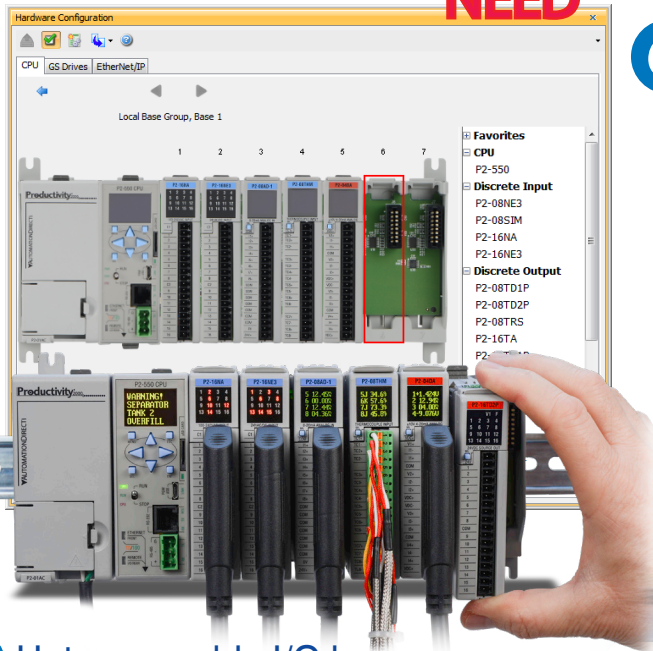




# We didn't invent the PLC, we made it affordable!

## 12 reasons you want Productivity<sup>2000</sup>.....

**NEED**



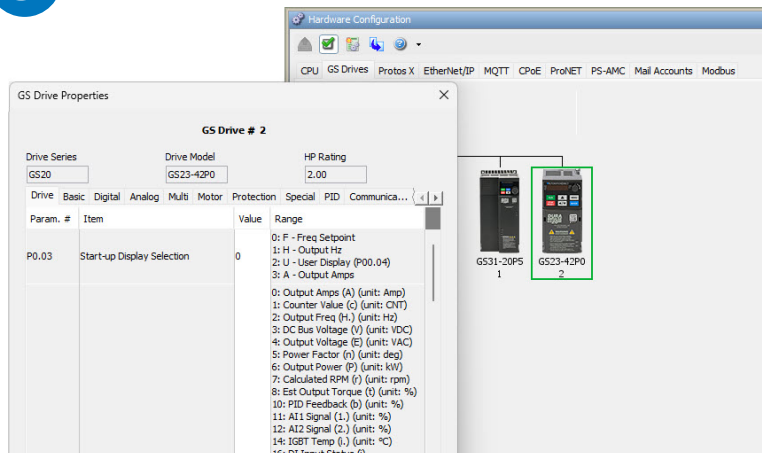
### 6 Get started in seconds with auto-discovered I/O modules

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 seconds

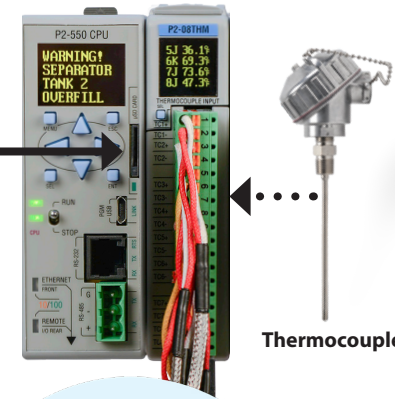


The Productivity2000 programming software is designed to recognize any AutomationDirect GS series drive. Simply connect the drive to the remote I/O port via its Ethernet connection and it is discovered in the Productivity Suite software. And no more searching through drive manuals to find the parameter 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.

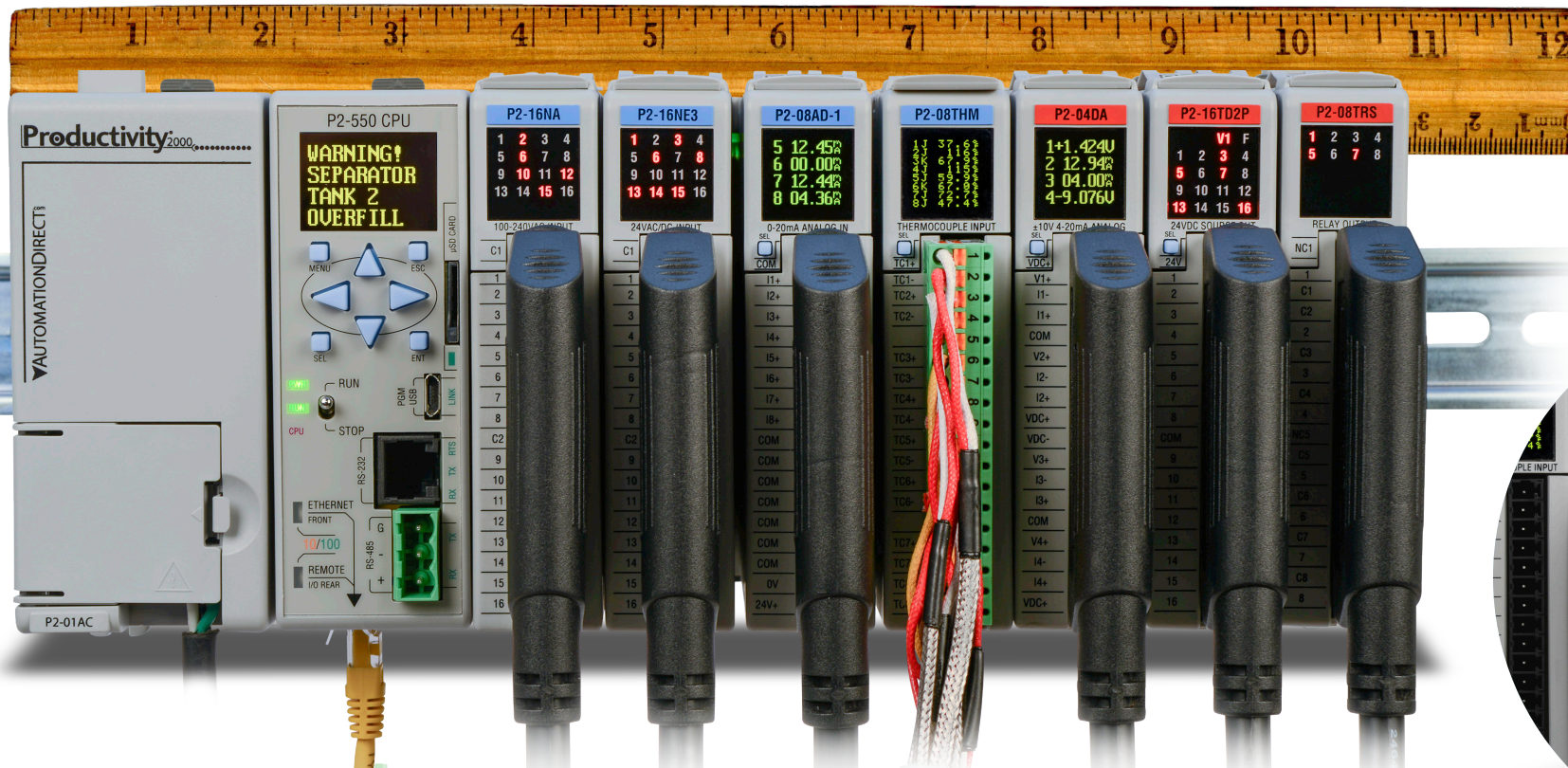
Date	Time	Tank1Temp
4/13/15	12:35:49.538	79.400002
4/13/15	12:35:50.467	79.400002
4/13/15	12:35:51.468	78.900002
4/13/15	12:35:52.468	78.900002
4/13/15	12:35:53.468	78.900002
4/13/15	12:35:54.468	78.900002
4/13/15	12:35:55.468	78.900002
4/13/15	12:35:56.468	78.900002
4/13/15	12:35:57.468	78.900002
4/13/15	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	79.5
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



### 10

**Slim form factor = DIN rail density**

Power supply, CPU, and seven modules in only 10-1/2 inches!



**CLAMP type**

**SCREW type**

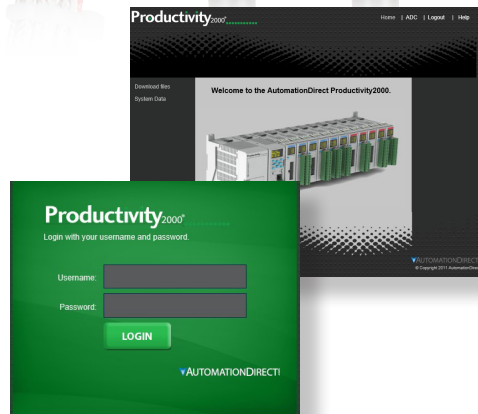
**ZIP LINK PRE-WIRED TYPE**

### 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 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.

**GS30 with optional Ethernet module**





# Low-cost hardware, small in size, rich on features

## Powerful High-performance CPUs

The 50MB of memory and fast scan times are just for starters - these CPUs do the work of at least four or five pieces of hardware. With five built-in communications ports, these processors do the usual CPU stuff like storing and running the program, plus they offer:

- Plug-and-play USB programming
- A high-speed Ethernet port for HMI and peer-to-peer or business system networking (no Ethernet communications module needed)
- Seamless integration with PS-AMC motion controllers, GS series drives, and Protos X field I/O using Remote I/O port
- P2-622 CPU allows Remote I/O port to also be used as a secondary multipurpose Ethernet port
- Support for EtherNet/IP devices
- IIoT-ready installations with MQTT protocol support for cloud based communication; P2-622 CPU also supports MQTTS (encrypted) protocol
- Two serial ports for peripheral device interfacing or controller networking; P2-622 serial ports are software selectable for RS-232 or RS-485
- micro SD data logging right from the CPU
- ABS certifications for marine applications (P2-550 only)

**50MB  
OF BUILT-IN  
MEMORY**

**MQTT**  
**Modbus®**  
**TCP/IP AND RTU**  
**EtherNet/IP™**

**LED STATUS  
INDICATORS**  
(P2-550 only)



**CPUS STARTING AT  
ONLY  
\$302.00**

**HIGH RESOLUTION  
4 LINE BY 10 CHARACTER  
OLED DIAGNOSTIC DISPLAY**

**REMOVABLE  
micro SD SLOT**  
(Up to 32GB of data  
storage per card)

**USB**

**SOFTWARE  
SELECTABLE  
RS-232/485**  
(RS-232 only on P2-550)

**SOFTWARE  
SELECTABLE  
RS-485/232**  
(RS-485 only on P2-550)

**10/100  
ETHERNET  
Multipurpose**

**10/100  
ETHERNET**

- Remote I/O
- GS Drives
- PS-AMC
- Protos X
- Or use as a secondary multipurpose Ethernet port (P2-622 CPU only)



Use the  
Productivity1000  
remote I/O module  
(P1-RX) with a  
P2000 CPU for a  
low-cost remote I/O  
alternative

## Remote I/O Modules

Control applications are often broken out into several different machines or sub-systems that all communicate back to a primary PLC CPU. To connect each I/O point from these remote devices to the main CPU would take numerous, extensive wire runs. The Productivity2000 remote I/O modules can be installed at a remote location and communicate all I/O signals back to the main PLC using a single Ethernet communication cable. Distributing I/O this way saves installation time, wiring costs, troubleshooting/wire tracing headaches, and makes it much easier if/when remote devices need wiring modifications or need to be relocated.

- 10/100 Mbps Ethernet connection for signal transmission
- Up to 8 remote I/O groups allowed with every CPU (using Remote I/O Ethernet Port)
- Up to 15 I/O modules per remote group (depending on power supply)
- Using P2-RS remote I/O modules, 3,840 additional I/O points are possible (8 remote groups, 15 slots each, 32-point I/O)
- Using the lower cost P1-RX remote I/O module, 1,024 additional I/O points are possible (8 remote groups, 8 slots each, 16-point I/O)





# Practical Ethernet communication

## 5 built-in communications ports and multiple protocols including MQTT(S) and EtherNet/IP

The Productivity2000 CPUs come standard with 5 built-in communication ports including Ethernet, USB, and serial, and support for several communication protocols (MQTT(S), EtherNet/IP, Modbus TCP, and Modbus RTU) all for less than \$300. That's 1/10<sup>th</sup> the cost of some competitors!

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

Productivity2000 CPUs come with two of the top industrial Ethernet protocols in our market. Modbus TCP and EtherNet/IP are a must for any up-to-date control system. MQTT is also supported which is fast becoming an industry requirement as the IIoT and machine-to-cloud connections become more and more prevalent. The P2-622 CPU also supports the secure MQTTS protocol for those applications requiring a TLS connection.

### 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)
- 4 cloud connections using MQTT(S)

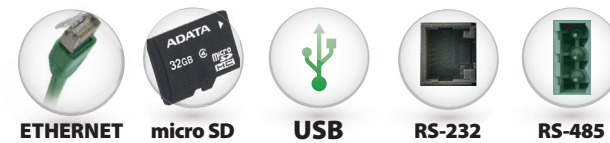
A total of 128 EtherNet/IP connections and over 5,000 EtherNet/IP messages per second! And unlike many controllers, the Productivity series CPUs support both Explicit and Implicit (I/O) messaging for greater functionality.

The Productivity2000 also provides a Custom Protocol over Ethernet (CPE) option which gives the user the ability to create their own communication protocol between the Productivity series CPU and a 3rd party Ethernet device via TCP or UDP.

The ProNET feature allows any P-series CPU to seamlessly share data by publishing 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, 4 PS-AMC motion controllers, 8 remote I/O bases (using P2-RS and/or P1-RX modules) and 4 Protos X field I/O racks. GS drive parameters, PS-AMC and Protos X field I/O configurations are easily modified within ProductivitySuite and saved with the PLC project. P2-622 CPU also allows this port to be configured as an additional multipurpose Ethernet port for applications with multiple networks.

## Productivity<sup>2000</sup>



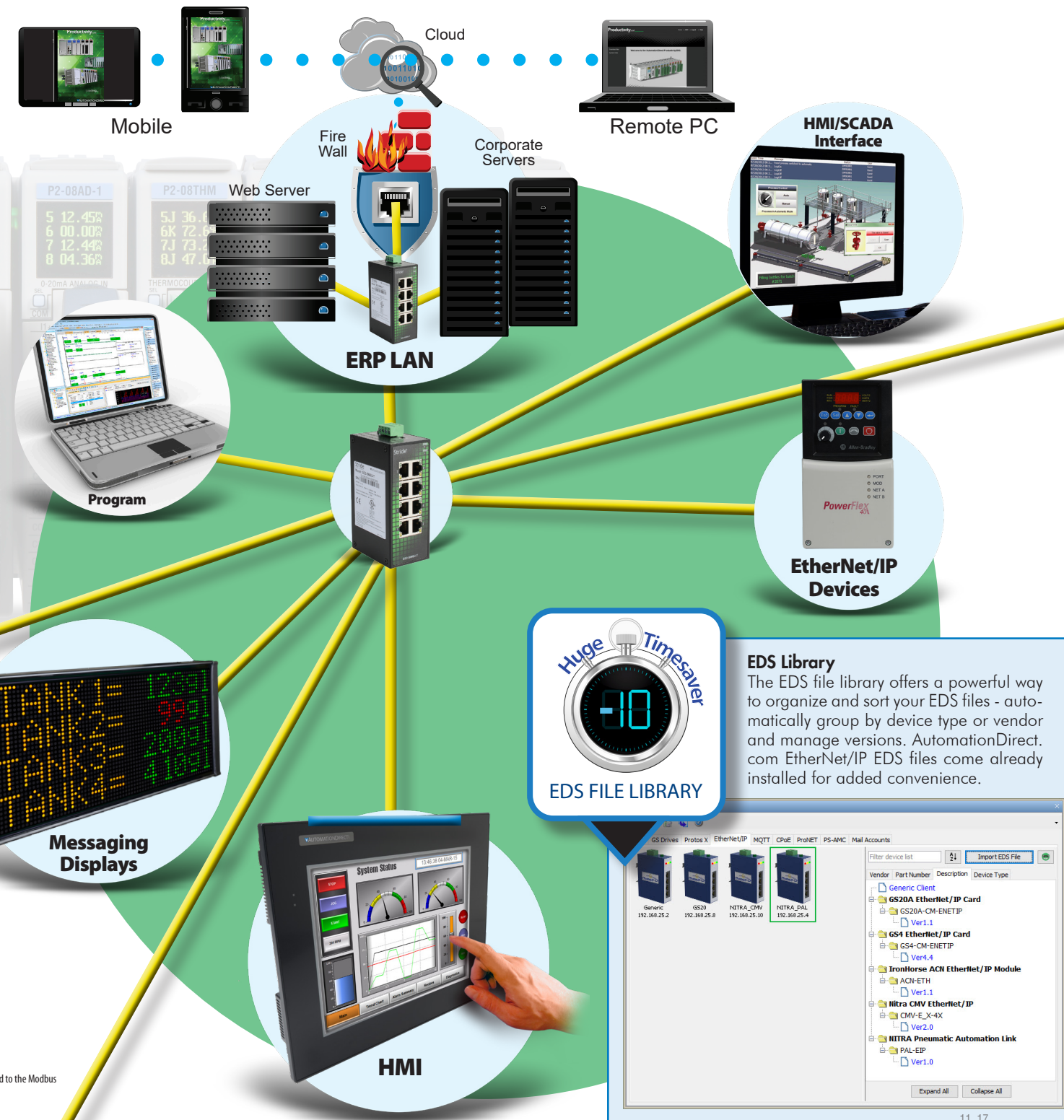
## EtherNet/IP™

Productivity Suite makes communicating with EtherNet/IP devices a snap.

- Scanner and adapter supported
- Implicit application types supported include input-only and listen-only
- EDS file configuration presented in an easy-to-use drop-down menu
- Ability to select multiple connection options from an EDS file which simplifies configuration
- The EDS file library offers an easy way to upload, store, and manage your EDS files
- AutomationDirect.com EtherNet/IP EDS files are preloaded in the library for convenience

## Productivity<sup>Series</sup> EtherNet/IP™ Overview and Intro

Click the link above for a collection of videos on using EtherNet/IP with Productivity PLCs



MQTT  
EtherNet/IP™  
Modbus®  
TCP/IP

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

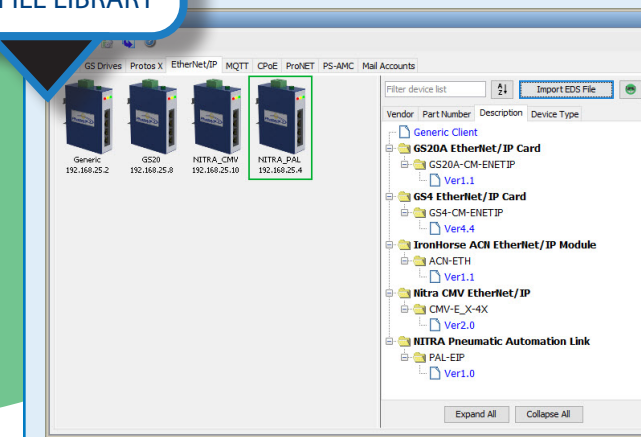
GS30 with optional Ethernet module



Huge Timesaver  
EDS FILE LIBRARY

### EDS Library

The EDS file library offers a powerful way to organize and sort your EDS files - automatically group by device type or vendor and manage versions. AutomationDirect.com EtherNet/IP EDS files come already installed for added convenience.





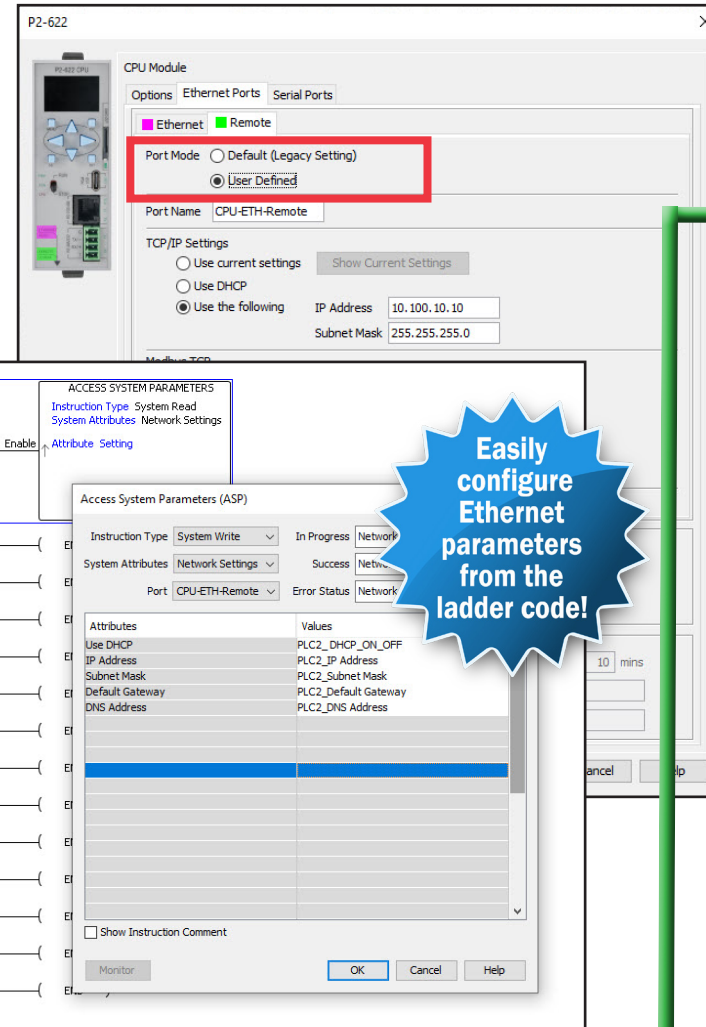
# Versatile Ethernet that adjusts to your needs!

The P2-622 CPU has several features that provide supreme versatility with Ethernet communication. This CPU can be configured to operate with two multipurpose Ethernet ports. Simply check the "User Defined" selection in the CPU Port 2 configuration to set up the Remote I/O port for multipurpose use. Then configure the remaining settings for the additional port or you can access the network settings anytime using the ASP instruction from the ladder code.

**PORT 1:** This multipurpose Ethernet port can be used with numerous networks, for example, use this port to connect to high-level production analysis systems, inventory management software, etc.

**PORT 2:** Configure this port (normally reserved for remote I/O) as an additional multipurpose Ethernet port and gather data from factory-floor process controllers, control-room HMLs, etc.

In this scenario, the P2-622 CPU, with its configurable Port 2, can act as an inexpensive data bridge, transferring vital process data from the factory floor to upper-level enterprise systems.



## ENTERPRISE NETWORK



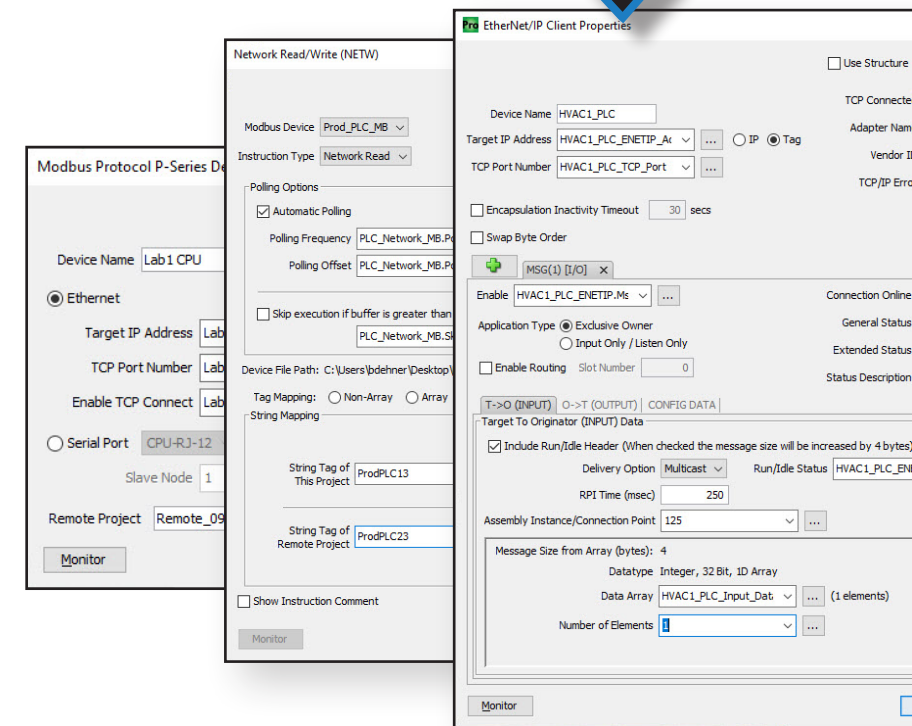
### Communicate on the fly

The Variable Communications Instructions (VCIs) in the Productivity Suite software allow tags to be used for almost every field so you can communicate with virtually unlimited devices using a single instruction. Simply alter tag values on the fly to switch from one MQTT broker the the next, or write new parameters to several VFDs without having to code one instruction for each. VCIs work with Modbus comms, serial comms, Productivity-to-Productivity network comms, and other communication configurations/instructions (Email, EtherNet/IP, and MQTT).

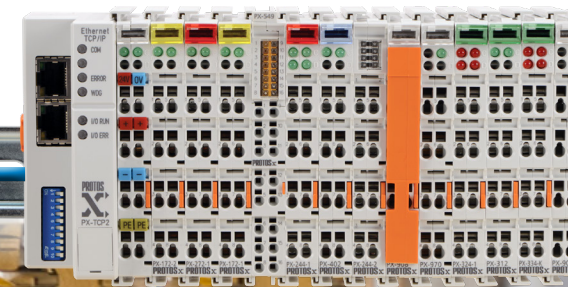
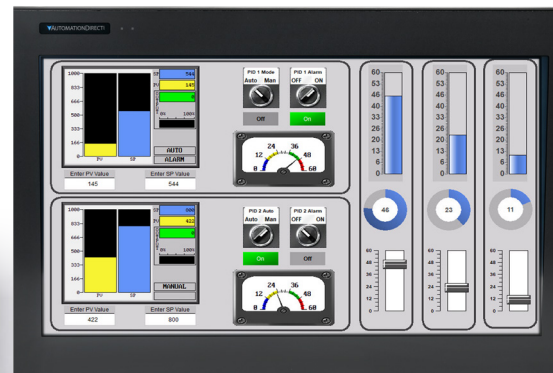
**Use case 1:** Dynamically modify the IP address (TCP) or slave node (RTU) to target multiple devices with the same configuration/instruction.

**Use case 2:** A single EtherNet/IP configuration can target multiple devices by dynamically modifying target IP address and message size in ladder.

**Use case 3:** A single MQTT client, with max. 30 topic fields, can send and/or receive data for thousands of different topics and even target different brokers (servers) by dynamically modifying topic string tags and broker connection parameters in ladder.



EtherNet/IP™ Modbus TCP/IP



## CONTROL NETWORK



# Easy cloud communication

Industrial machines/systems are more connected than ever before, whether internally with upstream IT management systems or externally with remote support personnel, modern-day plant-floor machines/systems need to communicate to a variety of networks. Cloud networking, with its computing and data storage platforms, has also become a viable solution for analyzing and accessing production data from anywhere at anytime. Using powerful cloud platforms such as IBM Watson® to analyze production-floor data can provide better process efficiency, improved plant-wide resource management, and less operational downtime.

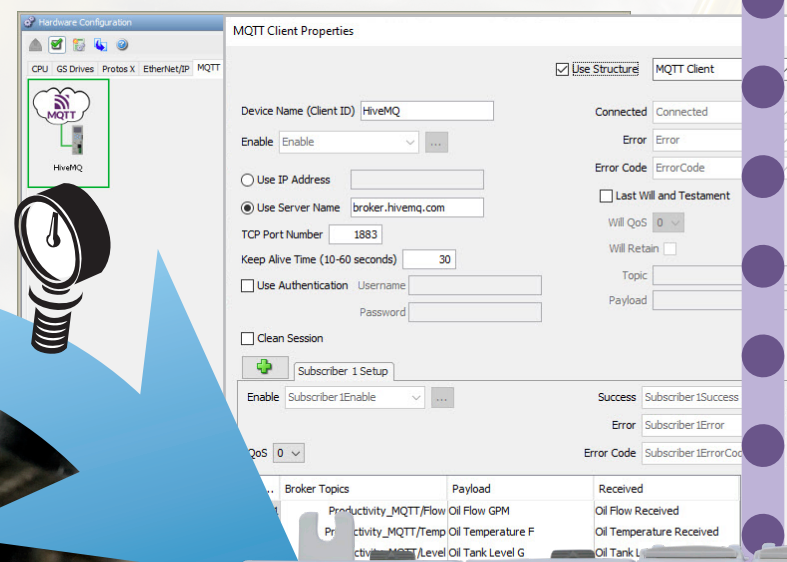
But how does data from a simple level switch on a tank get to the cloud? With Productivity PLCs, it's easy! Productivity PLCs have the communication capabilities and processing power needed to not only control plant-floor machines but gather valuable data from them, package it, and send it on to higher level analysis systems.

## Multiple data gathering options

Productivity PLCs offer many I/O options to choose from for your system data collection. I/O modules, available in analog, discrete, high-speed, relay, and temperature versions, allow you to create the custom I/O configurations your application needs. And with Modbus RTU, Modbus TCP and EtherNet/IP protocol support, Productivity2000 PLCs can easily gather raw data from a variety of VFDs, sensors, switches, encoders, pilot devices, or almost any other control component your system may have.



The MQTT protocol has become the frontrunner for many machine-to-machine (M2M) and IIoT/cloud networking applications, due to its lightweight overhead and reduced bandwidth consumption. Productivity PLCs support MQTT communication (P2-622 CPU also supports the MQTTS protocol) and with fill-in-the-blank MQTT messaging configurations, delivering vital data to advanced cloud computing platforms is easy.



## IIoT/Cloud platforms



3rd party cloud dashboards

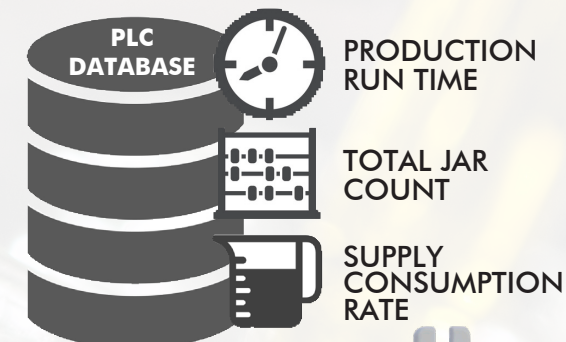
Compatible with MQTT brokers and cloud platforms/services including:

- IBM Watson®
- Mosquitto®
- HiveMQ®
- Thingsboard®



## Refining data into something meaningful

The Productivity Suite programming software makes refining raw data into a meaningful metric a cinch. With a multitude of simple-to-use instructions combined with the computing power of a Productivity CPU, Productivity Suite can easily transform a raw process signal, like 4-20mA, into a consumption rate, a production throughput, an energy efficiency score, a rejection percentage, or any other metric that's vital to you.



RAW SYSTEM DATA

INDUSTRY  
IIoT  
4.0





# Inexpensive serial communication

## Got serial? Get connected for less with the Productivity2000

Serial communication has been around for decades and to this day is still a viable communication method. Although Ethernet communication has become the top choice for industrial automation, serial communication is still very reliable and inexpensive to design into a device.

For serial connections, Productivity CPUs provide two serial communication ports:

- P2-550: (1) RJ12 (6P6C) port for RS-232 devices and (1) 3-wire screw terminal for RS-485 multi-drop devices
- P2-622: (1) RJ12 (6P6C) port that is software configurable for RS-232 or RS-485 devices and (1) software configurable 4-wire screw terminal for RS-485 or RS-232 multi-drop devices
- These ports provide Modbus RTU Master/Slave capability, ASCII In and Out capability and Custom Protocol over serial capability
- RS-485 ports can support up to 50 multi-drop devices (more if repeater is added to network)



**P2-550 CPU  
PRICED AT  
\$365.00**



**P2-622 CPU  
ONLY  
\$302.00**



**Software  
Selectable  
RS-232/RS-485  
Serial Ports**

RS-232

RS-485

RS-232/485

RS-485/232

## Up to 62 serial ports per system!

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 very quickly.

With the Productivity2000 you can have up to 15 of the 4-port P2-SCM serial communications modules per system. Each module 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.

## P2-SCM SERIAL COMMUNICATIONS MODULE \$242.00



## 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.



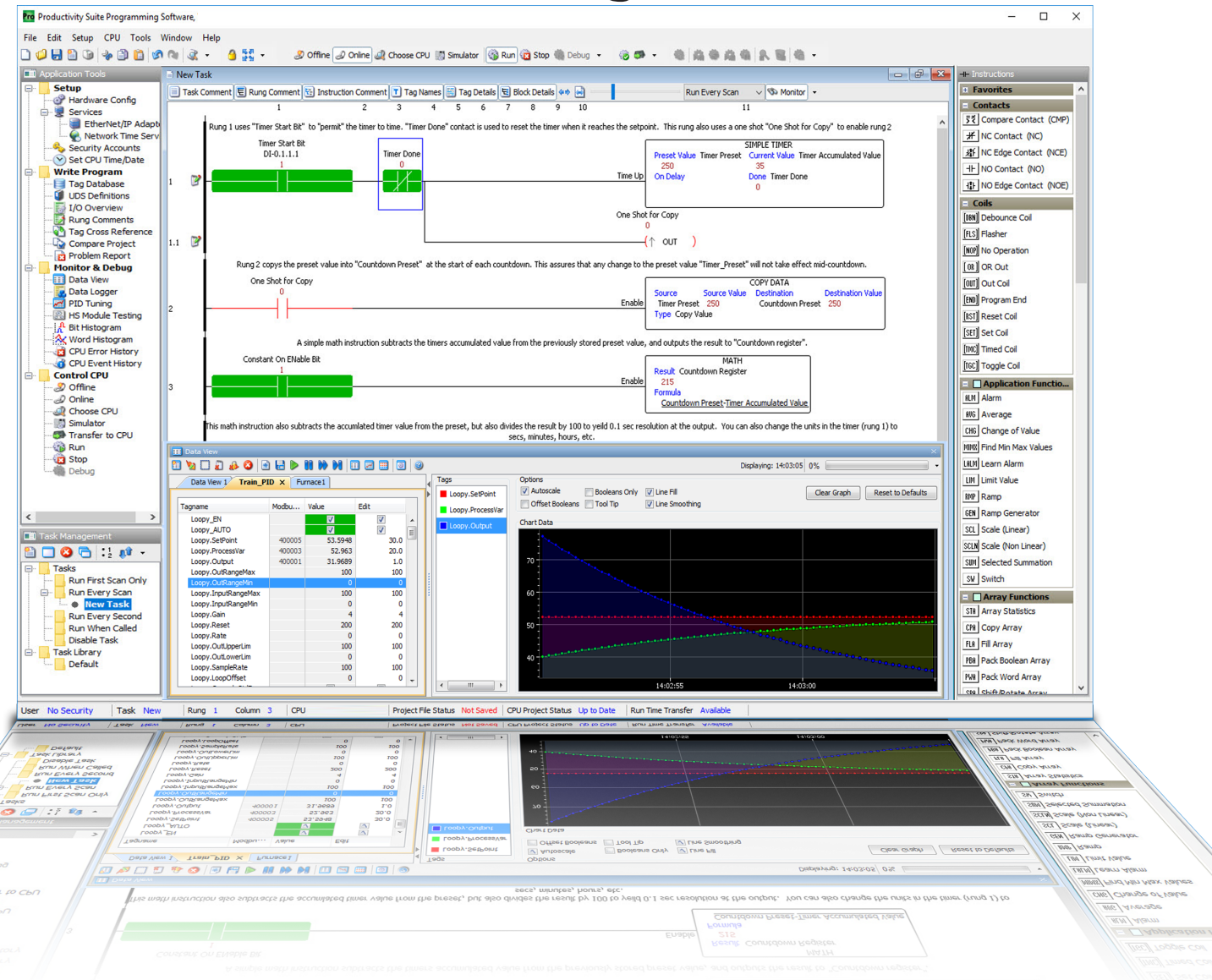
# You're halfway done once you open the box!

The Productivity2000 starter kit provides everything needed to try out the Productivity hardware or to get going on a small project, bundled in a convenient package. The starter kit includes all components required to install, power, and program the PLC. One of the most commonly used output modules, the relay output module, is also included as is an input simulator to manually control or test logic operations in the CPU.

# Productivity<sup>®</sup>Suite.....



**Productivity2000  
P2-START2**  
EVERYTHING YOU NEED  
TO GET STARTED  
**ONLY  
\$681.00**



## P2-START2

### What's in the starter kit?

- (1) P2-622 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-AC6 programming cable
- (1) MICSD-16G microSD memory card
- (1) 3-wire power cable
- (1) Product inserts for Productivity2000 hardware items

## Don't wait. Get started now for FREE!

Can't wait to get started, or want to try before you buy? The Productivity Suite programming software is available for download free of charge at [www.productivity2000.com](http://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.

**FREE  
SOFTWARE**



**FREE Software!**  
Download as often  
as you need.  
No license or key needed.  
[Click here to download.](http://www.automationdirect.com)





# Keep the UP in STARTUP...

The Productivity2000 system has many features built in to help with field installations and startups as well as on-the-job modifications.

## Save valuable time with CPU OLED message displays

The standard OLED message display on the 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.

### OLED displays



### QR Codes on I/O modules - the specs you need are at your fingertips



**See for yourself!**  
Scan the QR code below.



### 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.





# Field-friendly features . . . FOR LESS!

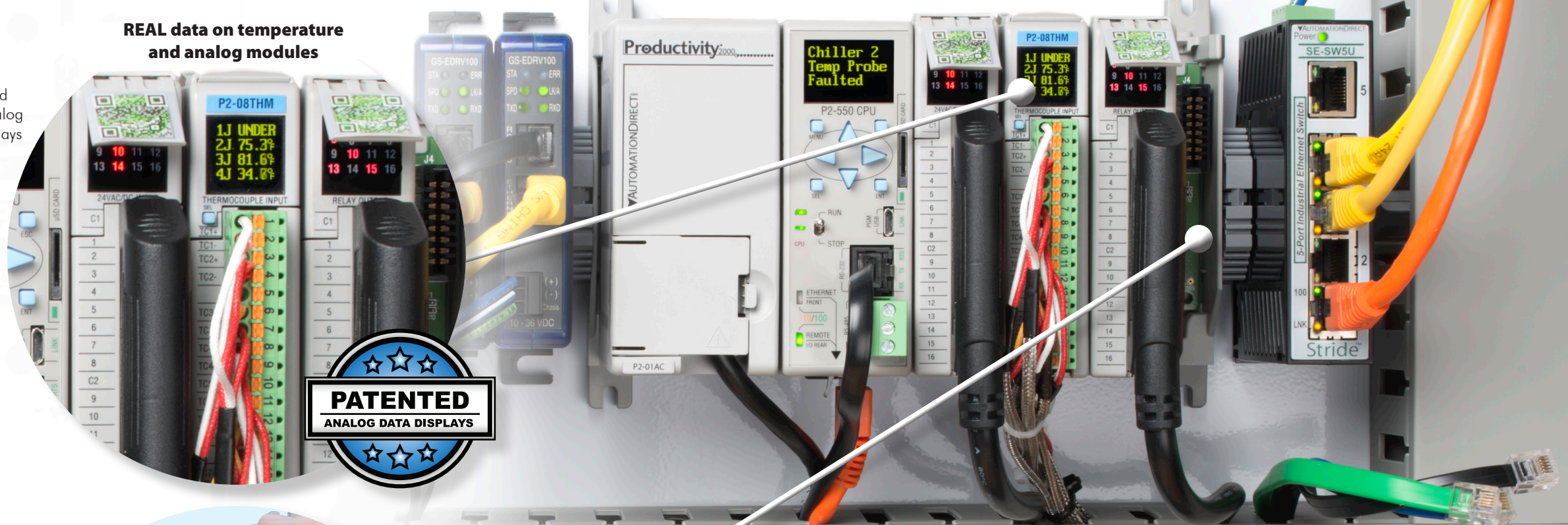
## Troubleshoot the easy way.

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.



**NO METER REQUIRED!**

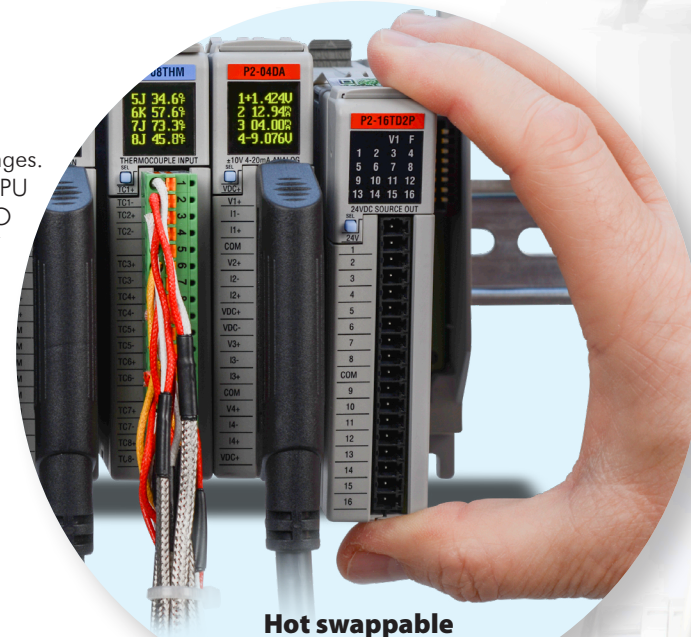
**REAL data on temperature  
and analog modules**



**PATENTED  
ANALOG DATA DISPLAYS**

## 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.

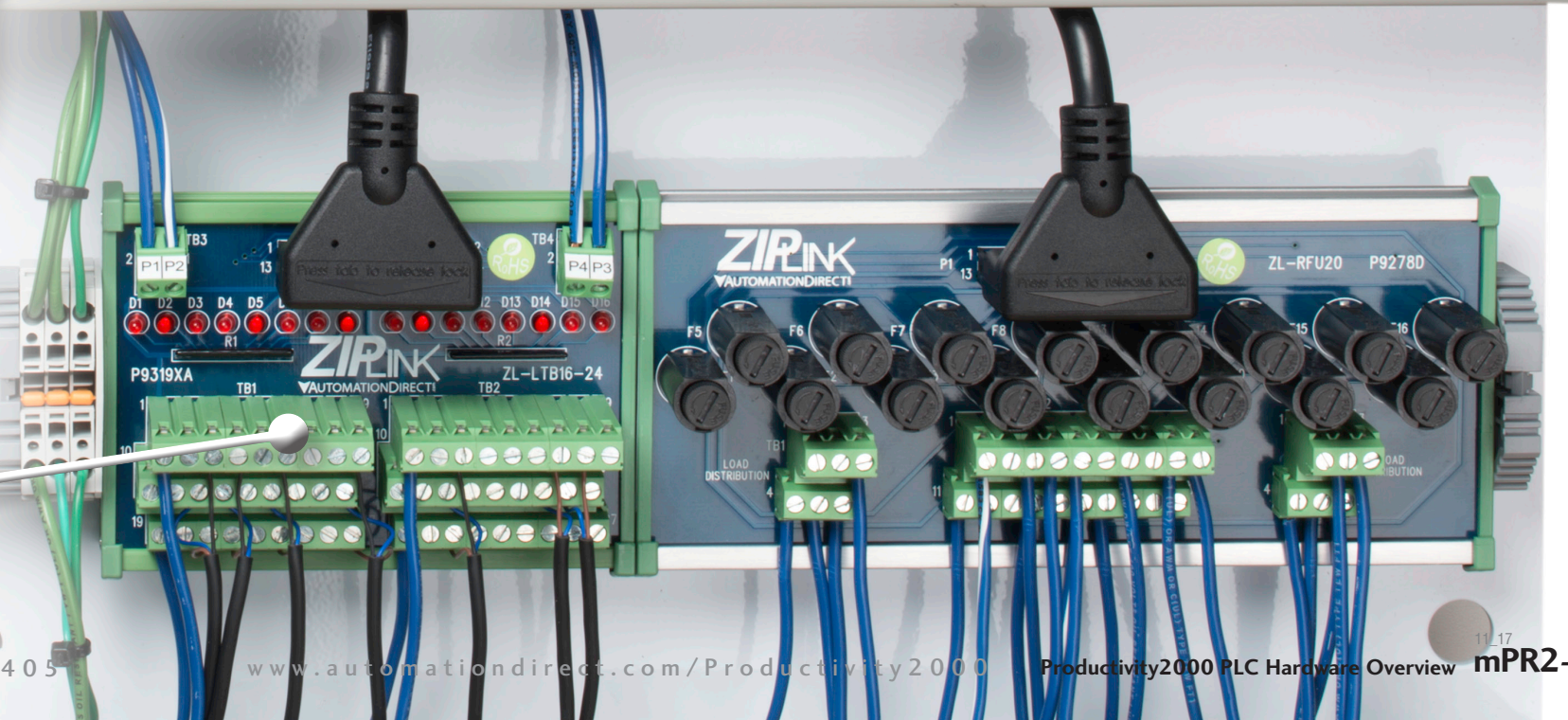


**Hot swappable  
I/O modules**

**ZIP LINK™**  
AUTOMATIONDIRECT

## ZIPLink pre-wired solutions

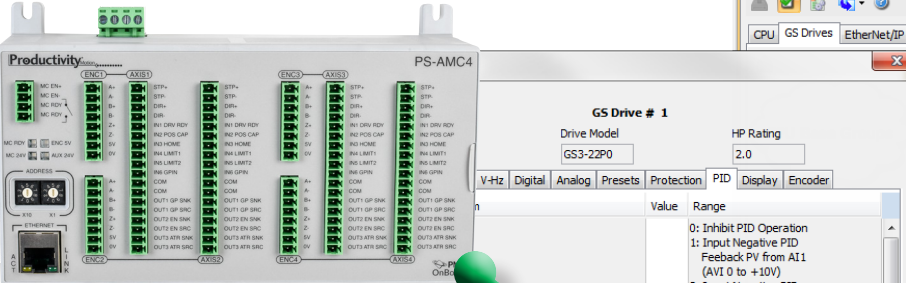
The Productivity2000 modules have multiple wiring options available. Standard terminal blocks are available in both screw and spring clamp styles. Our ZIPLink pre-wired cables and connector modules are available for all modules, excluding the Thermocouple and RTD temperature modules which require a specific 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.



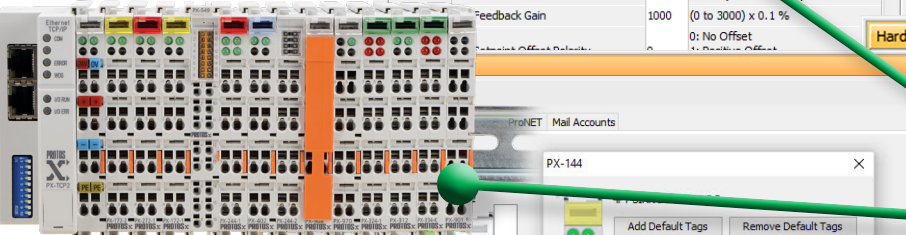


# Utmost integration for in-a-flash configuration

Productivity series controllers are designed for easy hardware configurations and provide automatic integration of many industrial automation devices. Any I/O module installed in the local or remote base will be automatically discovered by the software. Same goes for any Productivity motion controller, any AutomationDirect AC drive, or any Protos X field I/O system. This auto-discovery process eliminates configuration headaches and allows you to bypass the time needed to configure each hardware component.



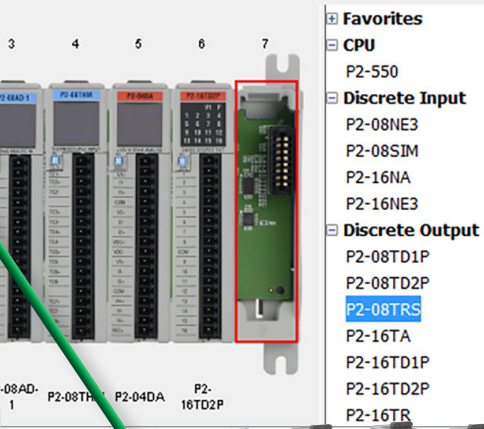
**PS-AMC  
Motion Controllers**



**ProtosX  
Field I/O**



**DURApulse  
AC Drives**



## Discrete I/O

Productivity2000 offers 8-, 16-, and 32-point DC input, 8-, 15-, 16-, and 32-point DC output (in sinking or sourcing), and 8- or 16-point AC I/O modules. 8-point relay and high current (7A/point) 6-point relay modules are also available.

Low voltage (3.3 to 5 volt) devices are also supported by the Productivity2000 CPU via 16-point TTL discrete input and/or 16-point TTL discrete output modules.



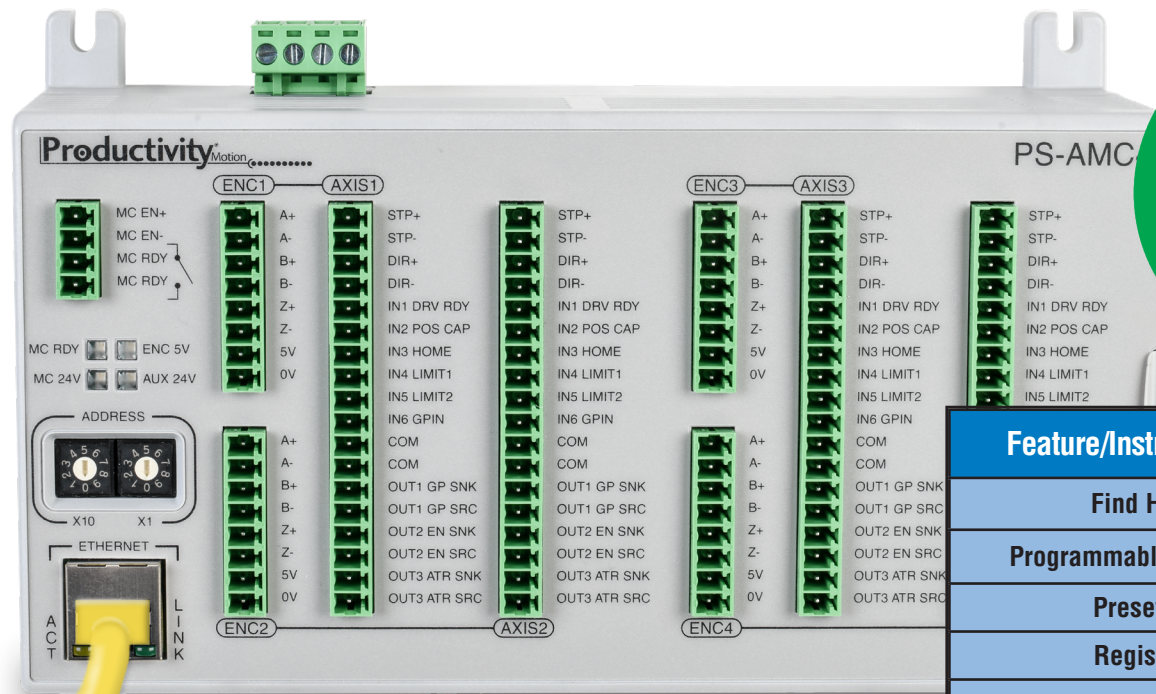
## Analog I/O

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.



From simple to sophisticated, we've got an affordable motion control solution for you.

Productivity<sup>®</sup>Motion



PS-AMC motion controller provides coordinated motion control with easy-to-use, built-in instructions



PS-AMC Enhanced Motion Controller

Starting at only \$331.00

The PS-AMC motion controller is an ideal choice for low-cost coordinated motion that's easy to use and reliable. Designed to work effortlessly with the Productivity family of CPUs, the AMC provides accurate, synchronized, motion control on up to four axes per module for a very attractive price.

Use the PS-AMC with select Productivity series CPUs for low cost, coordinated motion control in any application

- Flying cut-off systems
- Press feeds
- In-line bottle filling
- Auger fillers
- Label applicators
- Smart conveyor systems (random timing infeeds)
- Rotary tables
- Vertical-form-fill-seal
- Case erectors/packers

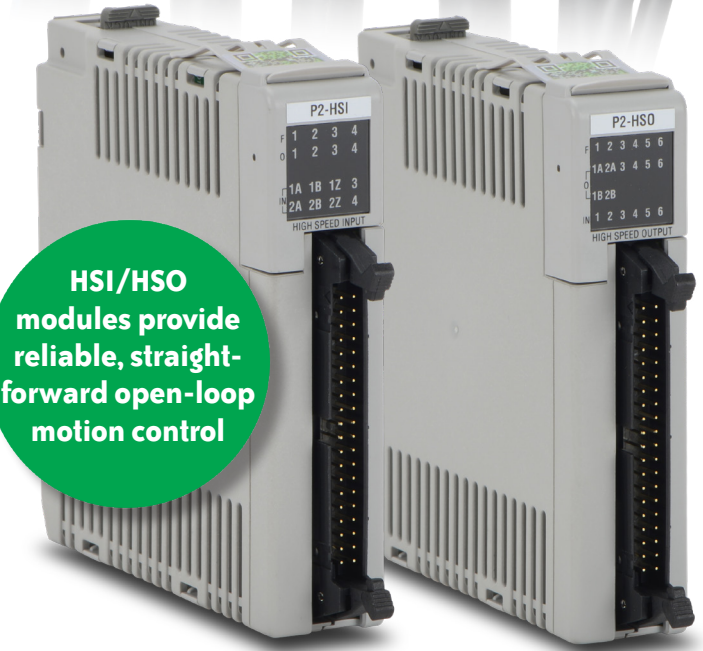
- Cut to length systems
- High-speed mail sorting
- Web/film handling
- Boring/drilling/tapping
- Coil winding
- Wrapping
- Thermo-formers
- Rotary knives
- And many more...

Feature/Instruction/Application	PS-AMC	P2-HSI	P2-HSO
Find Home (HOME)	✓	---	✓
Programmable Limit Switch (PLS)	---	✓	---
Preset Table (PST)	---	✓	---
Registration (REG)	---	✓	---
Manual Registration (MREG)	✓	---	---
Auto Registration Correction (AREG)*	✓	---	---
Backlash Compensation	✓	---	---
Simple Move (SMOV)	✓	---	✓
Multi-Axis Motion Sequencer (MMSEQ)**	✓	---	---
Set Position (SPOS)	✓	✓	✓
Velocity Move (VMOV)	✓	---	✓
Write HS Outputs (WHSO)	---	✓	✓
Write AMC Outputs (WAMO)	✓	---	---
Electronic Gearing (GEAR)*	✓	---	---
Rotary Table Application (RTA)*	✓	---	---
AMC Axis Enable (AEN)	✓	---	---
Flying Cutoff (FCO)*	✓	---	---
Motion Sequencer (MSEQ)*	✓	---	---
Coordinated Motion	✓	---	---
Max # Axes per Motion Controller or Motion Module***	4 (PS-AMC4)	2	2

\* Application-specific instructions

\*\* The MMSEQ instruction can perform coordinated XYZ moves with a defined motion profile for the vector path (linear interpolation), automatically calculating involved axis parameters

\*\*\* Up to four PS-AMC controllers can be connected to a Productivity2000 CPU for up to 16 axes total



HSI/HSO modules provide reliable, straight-forward open-loop motion control

P2-HSI / P2-HSO Modules

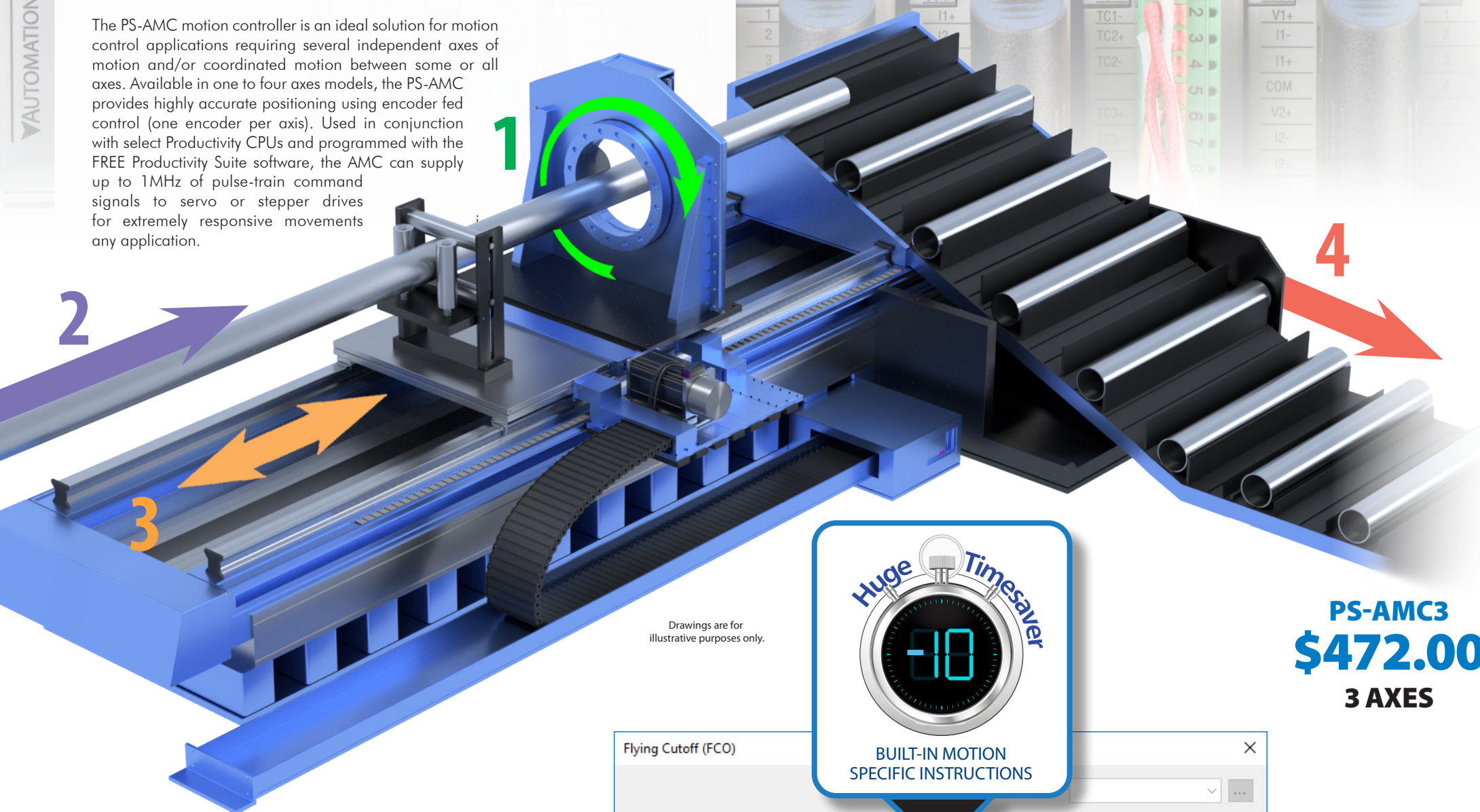
Priced at \$288.00 ea.

If you need to perform simple motion commands like homing routines, set position, preset tables, etc. on up to 2 axes per module, then the P2-HSI and P2-HSO modules may be all you need. These modules slide right into any open slot in any local or remote rack, easily adding low-cost basic motion control to your Productivity2000 system.



# Multi-axis motion control that's accurate and affordable

The PS-AMC motion controller is an ideal solution for motion control applications requiring several independent axes of motion and/or coordinated motion between some or all axes. Available in one to four axes models, the PS-AMC provides highly accurate positioning using encoder fed control (one encoder per axis). Used in conjunction with select Productivity CPUs and programmed with the FREE Productivity Suite software, the AMC can supply up to 1MHz of pulse-train command signals to servo or stepper drives for extremely responsive movements any application.



Drawings are for illustrative purposes only

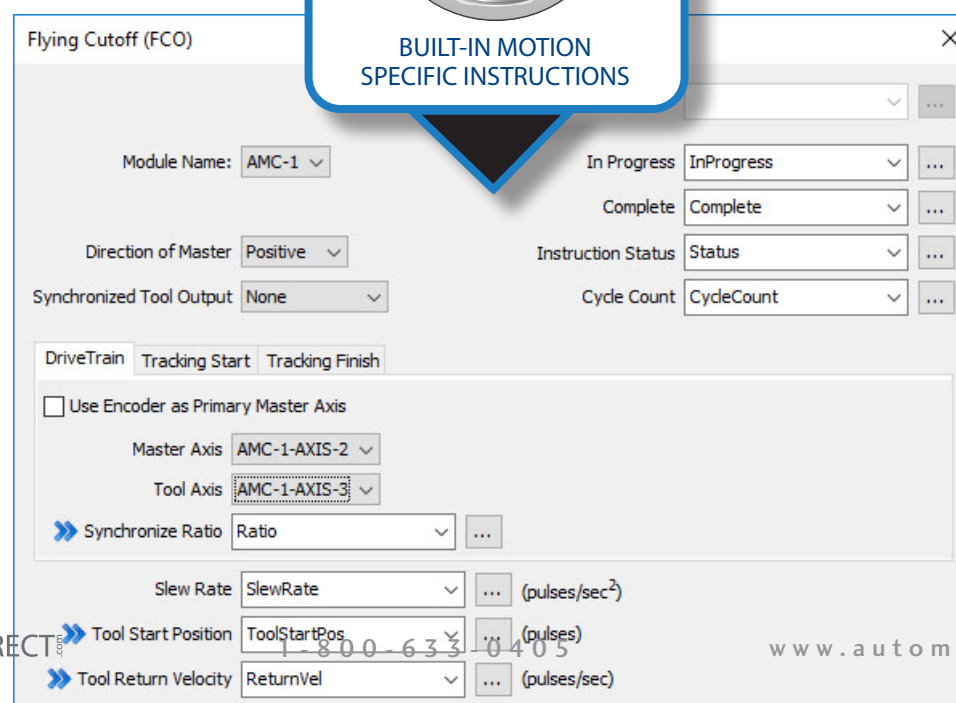


## BUILT-IN MOTION SPECIFIC INSTRUCTIONS

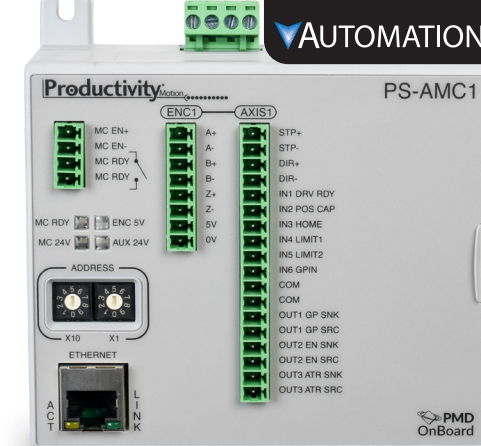
## Flying cut-off application

The primary function of a flying cut-off system is to synchronize the speed of a servo-driven carriage, on which a cutting mechanism is mounted, with the speed of a continuously fed material to make a perpendicular cut without stopping the feed. These applications are used where it isn't practical to stop and start a continuous production operation.

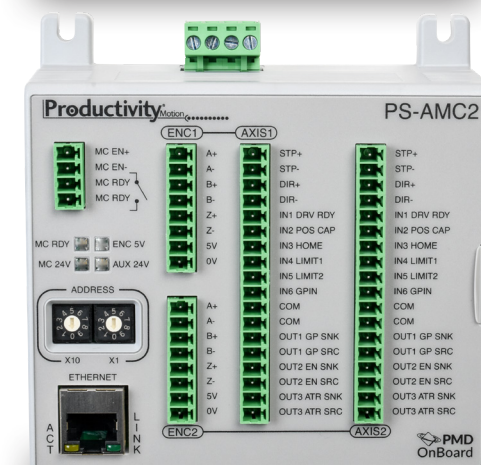
The flying cut-off shown above employs four axes of motion, **a rotating pipe cutter<sup>1</sup>**, **a continuous pipe infeed system<sup>2</sup>**, **carriage positioning drive<sup>3</sup>**, and **outbound conveyor<sup>4</sup>**. With the PS-AMC4, all four of these axes can be easily controlled and synchronized within the same controller, and it's only \$542.00!



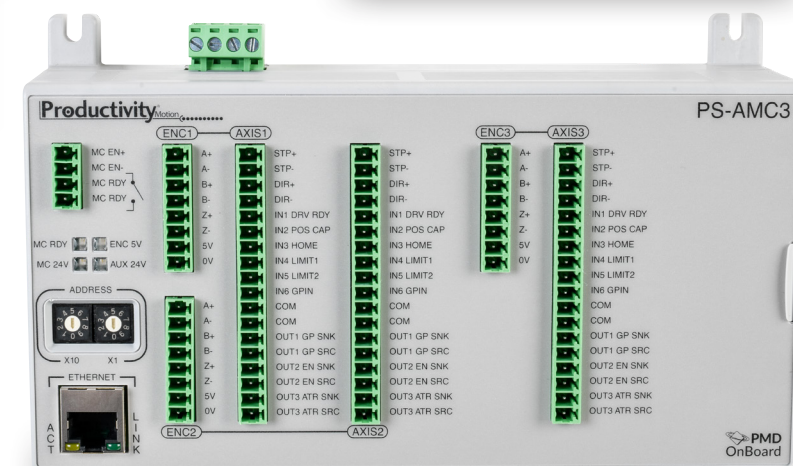
**PS-AMC1**  
**\$331.00**  
**1 AXIS**



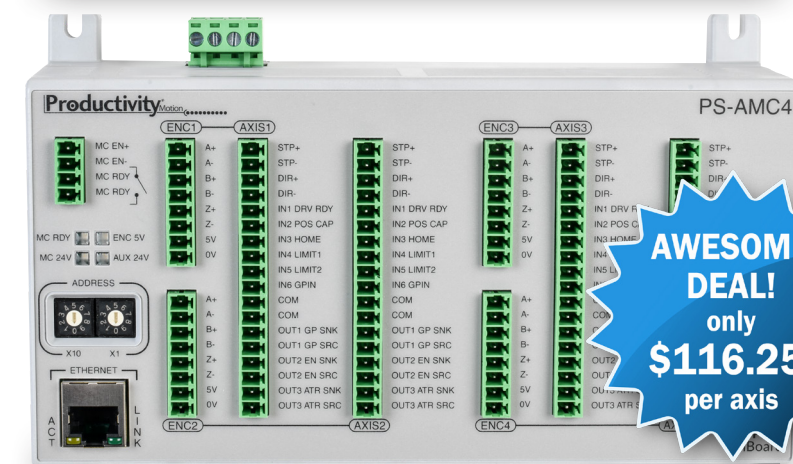
**PS-AMC2**  
**\$401.00**  
**2 AXES**



**PS-AMC3**  
**\$472.00**  
**3 AXES**



**PS-AMC4**  
**\$542.00**  
**4 AXES**



**AWESOME  
DEAL!**  
only  
**\$116.25**  
per axis

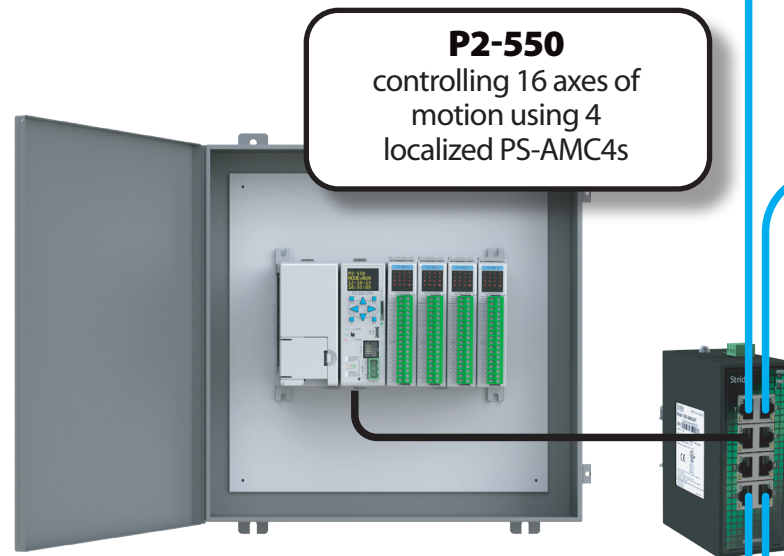


# Easily control up to 16 axes of motion across your facility

Each remote I/O capable Productivity2000/3000 CPU can control up to 16 axes using four PS-AMC4 controllers each coordinating up to four axes on their own (P1000 systems can control up to 4 axes using 1 PS-AMC controller). So whether you have a single system with 4 or more axes of motion, multiple coordinated systems across your facility, or if you're anticipating future expansion, the PS-AMC is a perfect solution for your motion application.

The Productivity Suite software provides the following for the PS-AMC:

- Motion profile set-up with easy-to-use built-in motion instructions
- Software test tool allows you to test the hardware without any ladder code – very useful for validating the physical wiring
- Real-time status and diagnostic information
- Plug-and-play hardware configuration using auto-discovery of the AMC units

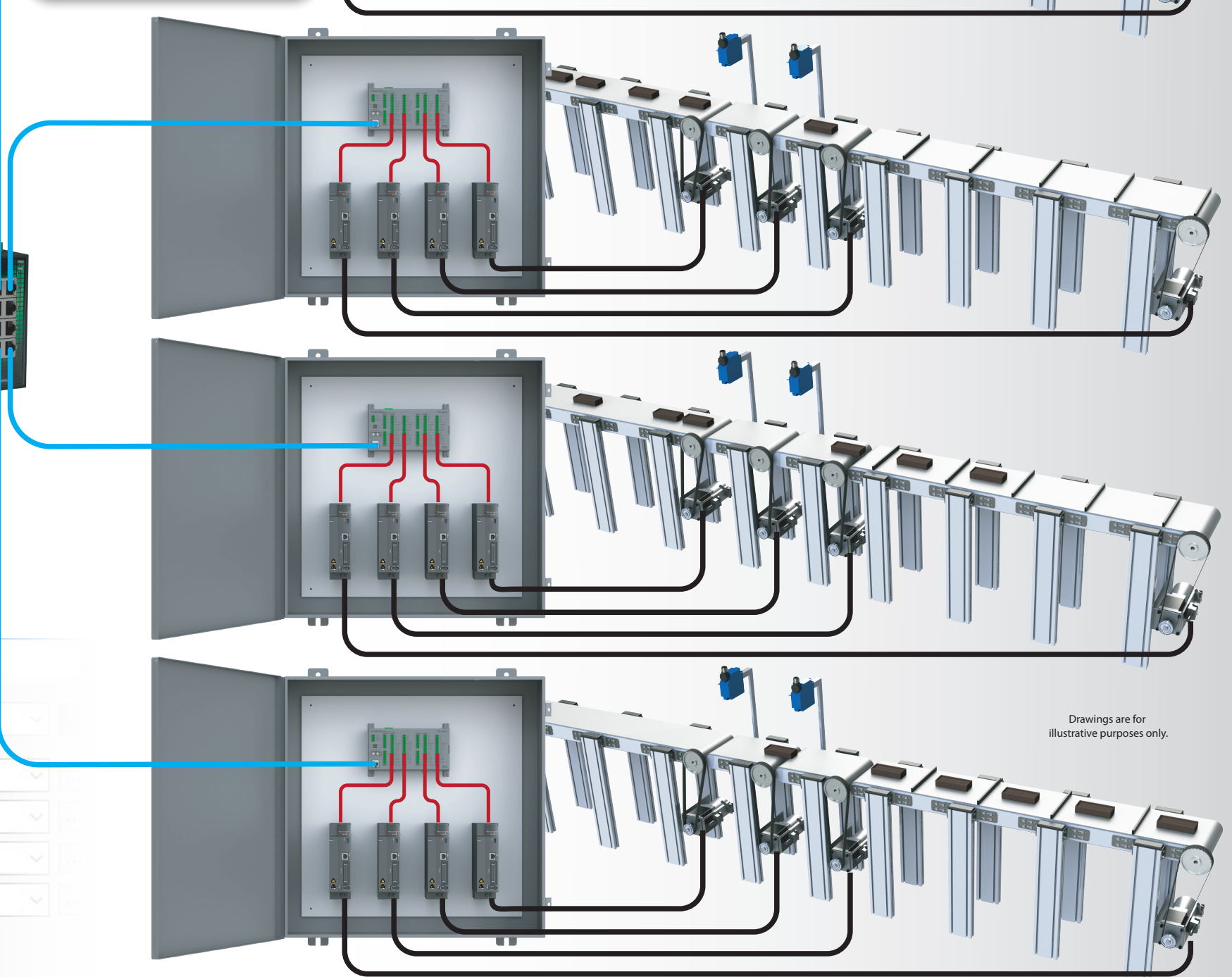


## Smart conveyor application

When it comes to package handling, pick-and-place or similar applications, product spacing is very important. One way to ensure proper spacing is to send the products through a smart conveyor system. With a smart conveyor, products arriving from an upstream process are brought to the right distance and phase position using several belts that are electronically coupled with each other through a PS-AMC controller. Each conveyor's servo motor will speed up or slow down to achieve the appropriate spacing between products. Four coordinated four-belt smart conveyor systems can be controlled with just one CPU.



**PS-AMC4**  
each coordinating motion between 4 SureServo2 drives



Drawings are for illustrative purposes only.

## Automatic Registration (AREG)

Module Name: AMC-1

☒ Use Encoder as Primary Master Axis  
Master Axis: AMC-1-AXIS-1  
Correction Axis: AMC-1-AXIS-2 Ratio: CorrectionRatio

☒ Use Accumulation Axis  
Accumulation Axis: AMC-1-AXIS-3 Ratio: AccumRatio

☐ Use Structure

In Progress: InProgress  
Complete: Complete  
Instruction Status: Status  
Last Correction: LastCorrection

Target Capture Input: None on Axis 'AMC-1-AXIS-1'



# Productivity from A to X-Y-Z

When it comes to X-Y-Z positioning, commonly achieved with gantry systems, the PS-AMC motion controller makes it easy. With the PS-AMC, Productivity CPU, and the Multi-Axis Motion Sequencer (MMSEQ) instruction, you can:

- Perform smooth movements between two or more points in up to 3 axes, plus an optional tool axis.
- Easily code For/Next or Do/While loops to repeat portions of the sequence, as desired.
- Iterate through up to 64 steps in a motion sequence, including adding timers and pauses between move actions.



Huge Timesaver

BUILT-IN MOTION SPECIFIC INSTRUCTIONS

One MMSEQ instruction does the work of several lines of code

Multi-Axis Motion Sequencer (MMSEQ)

Module Name: **AMC-1**

Sequence Input: **SEQ\_IN**

Vector Parameters (LIN Moves)

Velocity: **AMC-1.LINVelocity**

Ramps: **AMC-1.LINRamps**

Jerk: **AMC-1.LINJerk**

Axis Definitions

Multi-axis Selection: **X, Y, and Z Axes**

Note: Units listed are Position Units, Time Units

AxisName	Position	Velocity	Ramps	Jerk	Units
X-Axis	AMC-1.XPosition	AMC-1.XVelocity	AMC-1.XRamps	AMC-1.XJerk	pulses,sec
Y-Axis	AMC-1.YPosition	AMC-1.YVelocity	AMC-1.YRamps	AMC-1.YJerk	pulses,sec
Z-Axis	AMC-1.ZPosition	AMC-1.ZVelocity	AMC-1.ZRamps	AMC-1.ZJerk	pulses,sec
Tool Axis	AMC-1.ToolPosition	AMC-1.ToolVelocity	AMC-1.ToolRamps	AMC-1.ToolJerk	pulses,sec

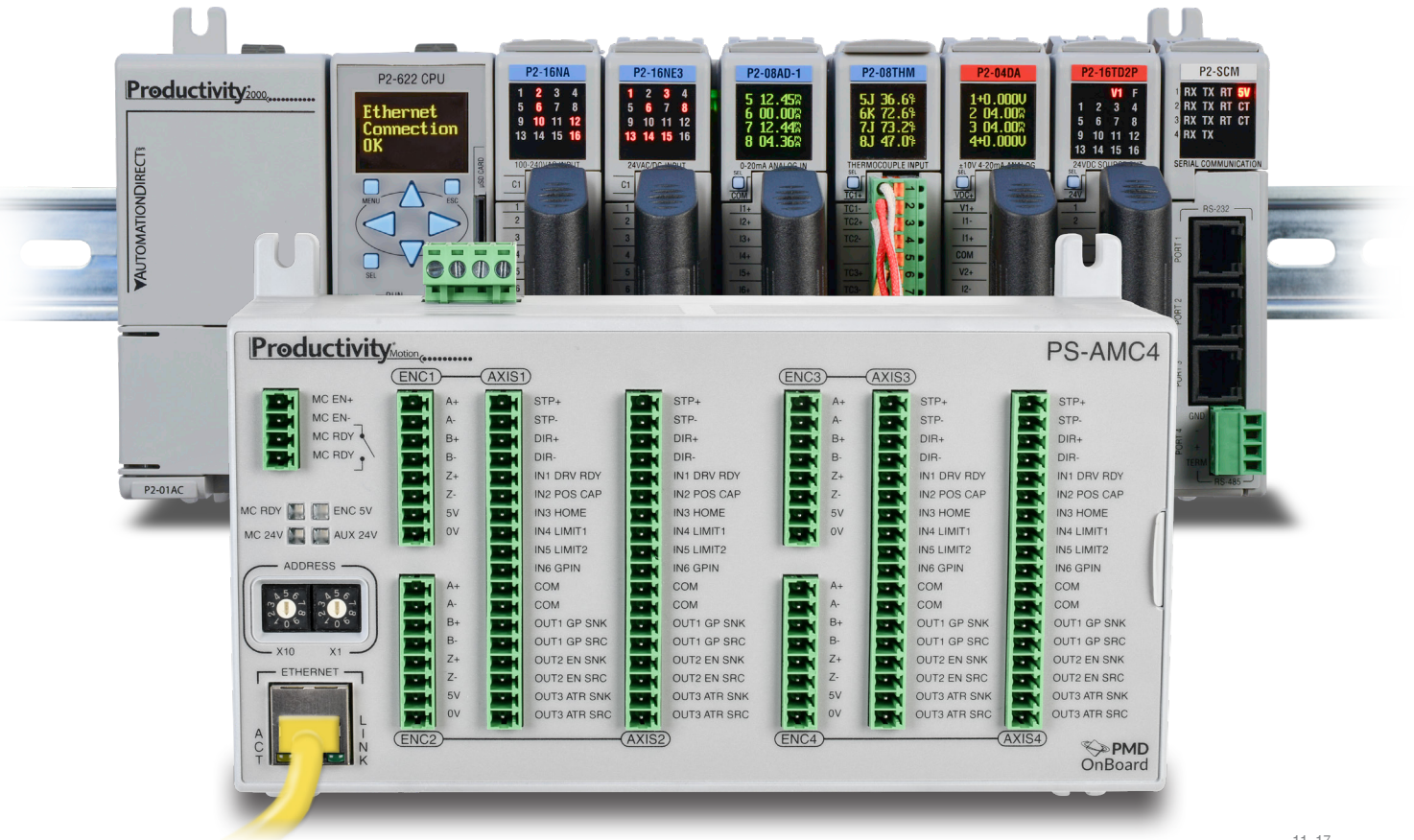
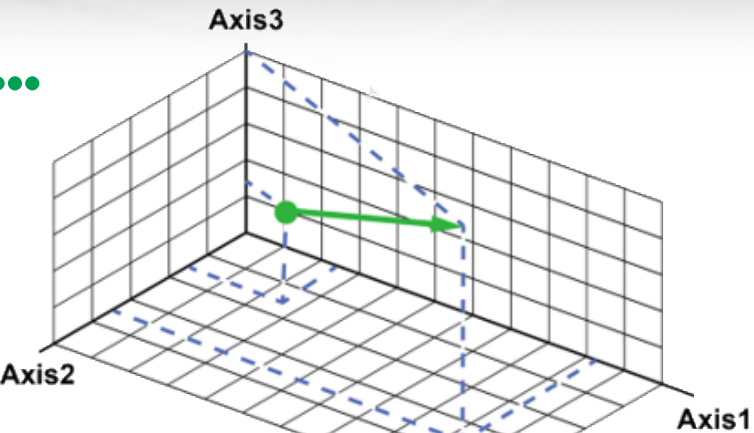
Milling/routing application

When milling or routing materials to match specifications, accuracy is key. Just the slightest misstep during a cut can cause a complete redo and wasted material. Most milling machines utilize three axes of motion (X , Y, and Z axes) and require accuracy that is repeatable time and time again, making these types of applications perfect for ProductivityMotion components.

# ProductivityMotion

## Precise linear interpolation

A common task in motion control applications is straight line motion. This can be accomplished using multiple axis of motion that work together to perform a linear move from one point to the next. This is also known as linear interpolation. The PS-AMC combined with a Productivity CPU allows you to precisely control each axis so that they all move in unison to reach the target position at the same time; resulting in a straight line from start to finish.





# Precise positioning for when close enough just won't cut it

With machinery that uses coordinated motion where one move is dependant on another, especially in situations where a secondary move can only happen once the first has cleared its path, positioning inaccuracies can cause major production loss or even substantial equipment damage. Even small fluctuations can compound and become big issues if not corrected in time. The Productivity AMC has features built-in to compensate for measurement drift and allows on-the-fly position corrections to maintain superior accuracy.

FREE  
SOFTWARE



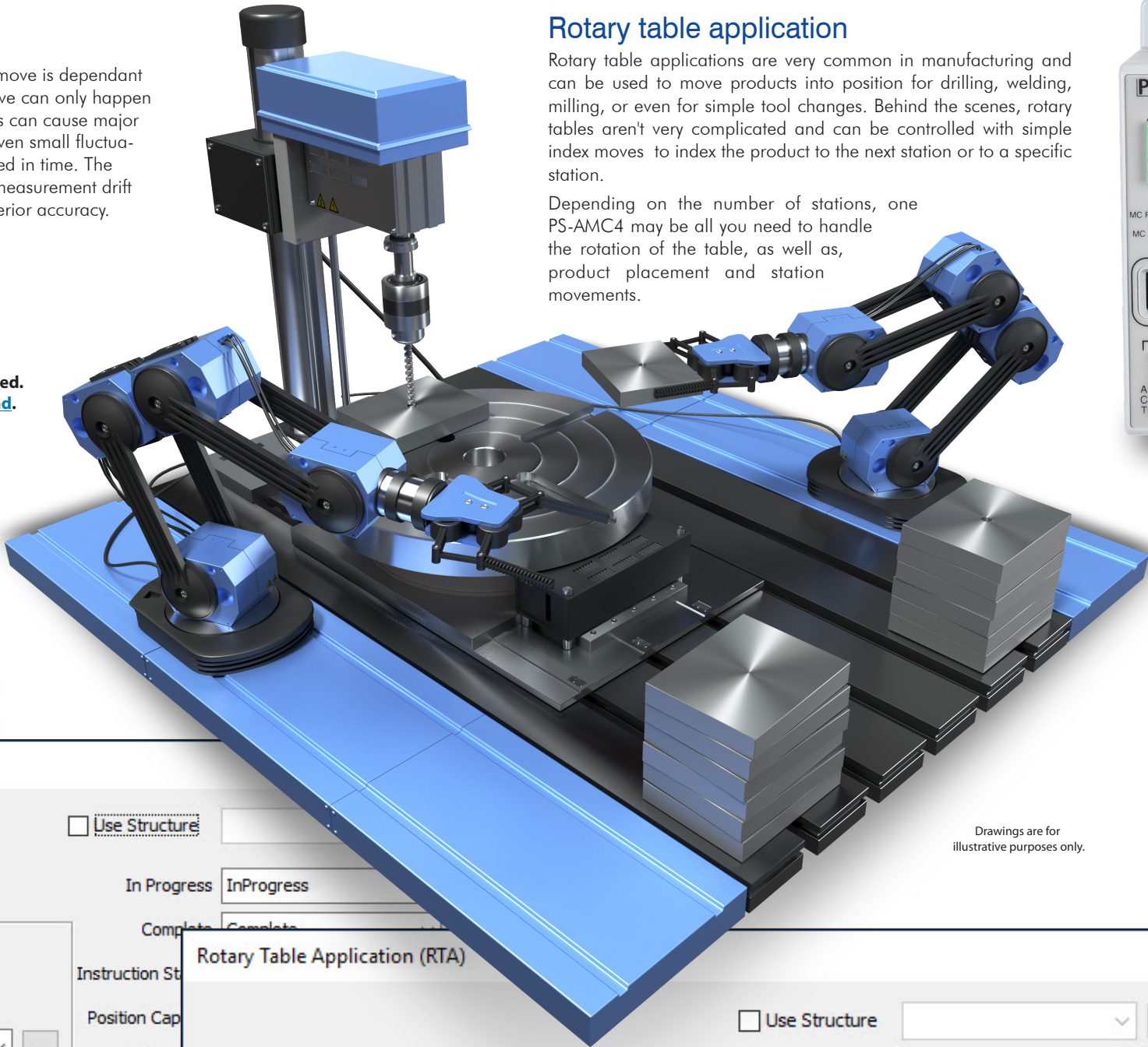
**FREE Software!**  
Download as often  
as you need.  
No license or key needed.  
[Click here to download.](#)

On-the-fly  
position  
corrections  
with a single  
instruction

## Rotary table application

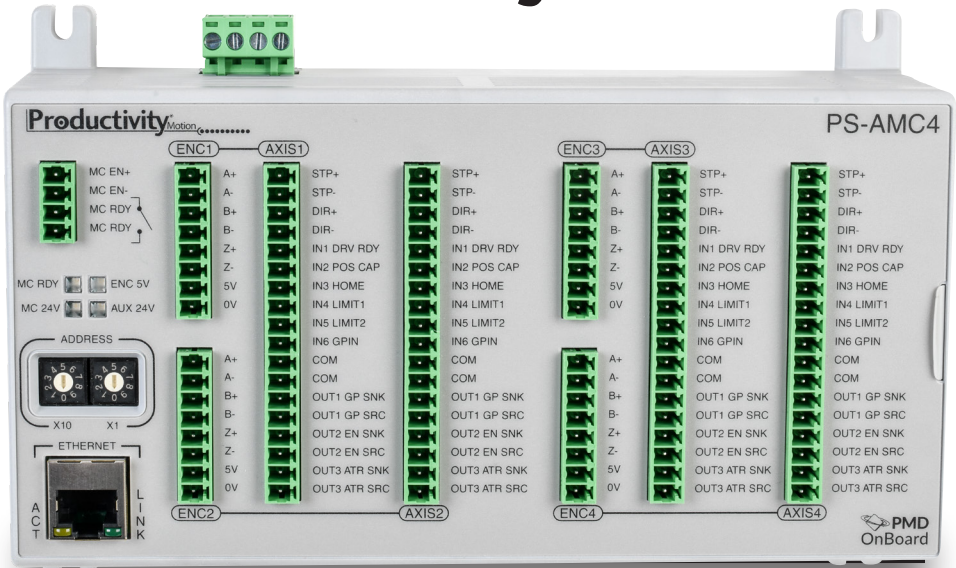
Rotary table applications are very common in manufacturing and can be used to move products into position for drilling, welding, milling, or even for simple tool changes. Behind the scenes, rotary tables aren't very complicated and can be controlled with simple index moves to index the product to the next station or to a specific station.

Depending on the number of stations, one PS-AMC4 may be all you need to handle the rotation of the table, as well as, product placement and station movements.



Drawings are for  
illustrative purposes only.

Productivity<sup>®</sup> Motion



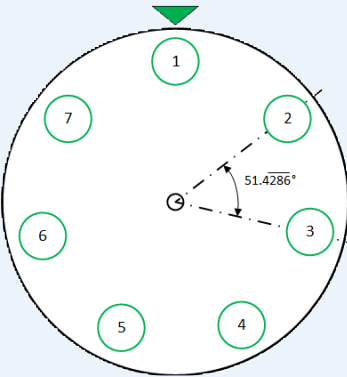
PS-AMC4  
**\$542.00**  
4 AXES



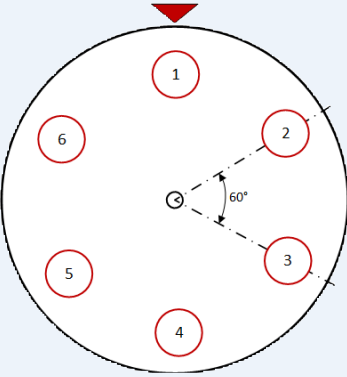
## Stay on target!

One inherent problem with this type of application (as well as other continuous, same direction motion applications), is when the difference between steps/stations is fractional. If the controller doesn't account for these fractions, the system will drift. The PS-AMC controller takes this into consideration and will accurately handle fractional steps to prevent drifting over time and always remain on target.

7-station rotary table  
with fractional  
measurements



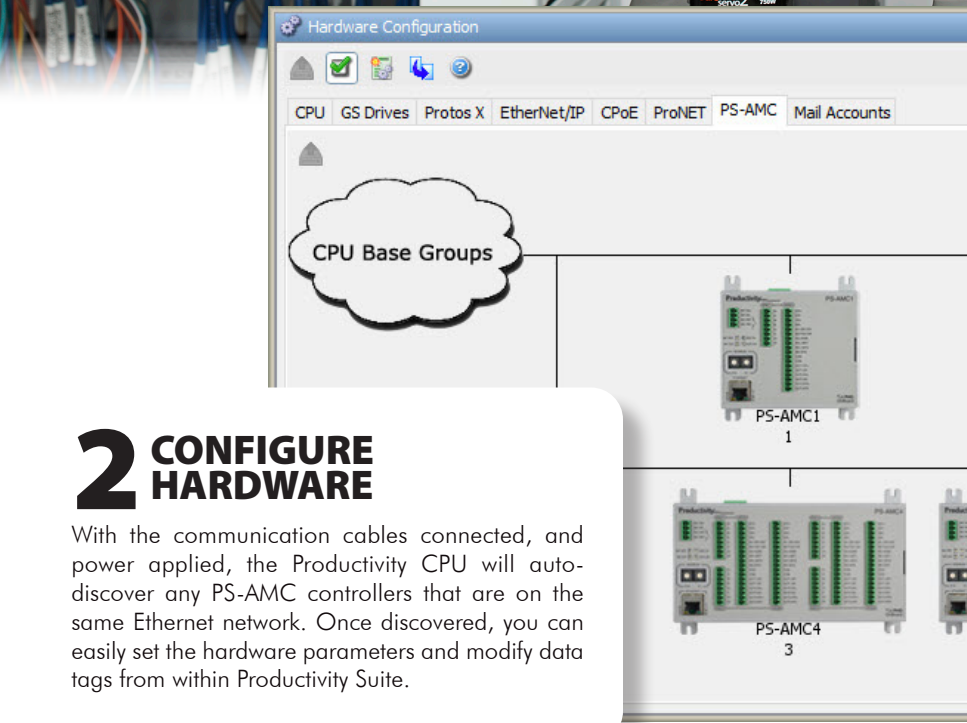
6-station rotary table  
with non-fractional  
measurements







## A-M-C, easy as 1-2-3!



## 2 CONFIGURE HARDWARE

With the communication cables connected, and power applied, the Productivity CPU will auto-discover any PS-AMC controllers that are on the same Ethernet network. Once discovered, you can easily set the hardware parameters and modify data tags from within Productivity Suite.

## 1 INSTALL HARDWARE

Once your PS-AMC arrives, install the controller either locally to or remotely from the CPU and connect the needed Ethernet cable(s). Wire up the system, power the controllers, and download the free Productivity Suite software to your PC if you haven't already. At this point, you could use the software test tool in Productivity Suite to test the hardware and verify the physical wiring, otherwise on to step 2.



## 3 SET UP MOTION PROFILE

Productivity Suite has numerous built-in motion instructions that allow you to quickly and easily configure standard motion profiles like flying cut off, rotary tables, and more using simple drop-down selections. If you need something different, you can also create your own custom move profiles using the Motion Sequencer (MSEQ) instruction. Create your profile, download the updated project file to the CPU, and you are done!

**BUILD YOUR OWN!**  
Create custom position & velocity move profiles

### Motion Instruction Set

[REN]	AMC Axis Enable
[AREG]	Automatic Registration
[FCO]	Flying Cutoff
[GEAR]	Gear Drivetrain
[HOME]	Find Home
[MREG]	Manual Registration
[MSEQ]	Motion Sequencer
[MSEQ]	Multi-Axis Motion Sequencer (MMSEQ)
[PLS]	Programmable Limit Switch
[PST]	Preset Table
[REG]	Registration
[RTR]	Rotary Table Application
[SMOV]	Simple Move
[SPOS]	Set Position
[VMOV]	Velocity Move
[WAMP]	Write AMC Outputs
[WHS]	Write HS Outputs

### Motion Sequencer (MSEQ)

Axis Name: **AMC-1-AXIS-1**

Module Name: **AMC-1** Axis: **1**

Sequence Input: **barrFlagsIn**

Ramp Rate: **Ramps** (pulses/sec<sup>2</sup>)

Jerk: **Jerk** (pulses/sec<sup>3</sup>)

Sequence Setup

Number of Segments: **7**

Position Units: pulses Velocity Units: pulses/sec

Seg	Command	Attr1	Attr2	Param
1	Write Seq Output	False		2
2	Wait For Input	In2 - Pos Cap	Off->On	
3	Relative Position Move	Linear Ramps	Positive	10000
4	Wait For Pos Move Complete			
5	Output Control	Out1-GPOut	Pulse On	2000
6	Wait For Input	In2 - Pos Cap	Off->On	
7	Dwell Timer			5000

Stop Setup

☒ Immediate Stop ☐ Stop at Maximum Decel Rate

☐ Show Instruction Comment

Monitor

### Use the PS-AMC with select Productivity series CPUs for low cost, coordinated motion control in any application

- Flying cut-off systems
- Press feeds
- In-line bottle filling
- Auger fillers
- Label applicators
- Smart conveyor systems (random timing infeeds)
- Rotary tables
- Vertical-form-fill-seal
- Case erectors/packers

- Cut to length systems
- High-speed mail sorting
- WebFilm handling
- Boring/drilling/tapping
- Coil winding
- Wrapping
- Thermo-formers
- Rotary knives
- And many more...



# Practical motion control for simple systems

The P2-HSI/HSO modules are a great option for basic motion control applications. Combined with the numerous communication abilities built into the P2000 CPU, these modules give you a very practical motion solution for a lot less than 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**  
**\$288.00**

Motion Module Comparison	AutomationDirect Productivity2000 P2-HSI	Allen-Bradley CompactLogix 1769-HSC
	<i>VS.</i>	
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	\$278.00	\$1,080.00

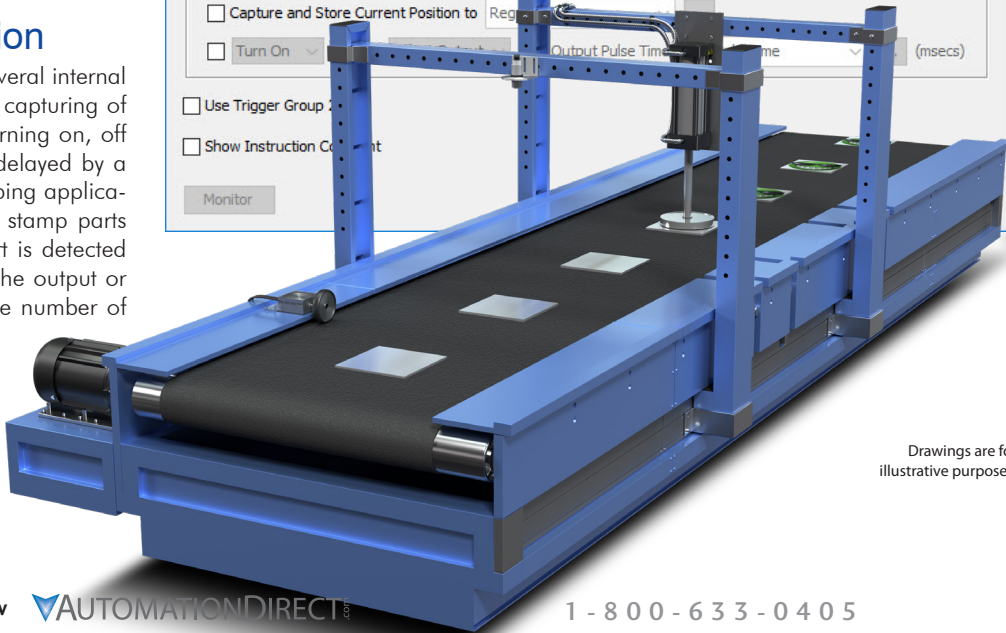
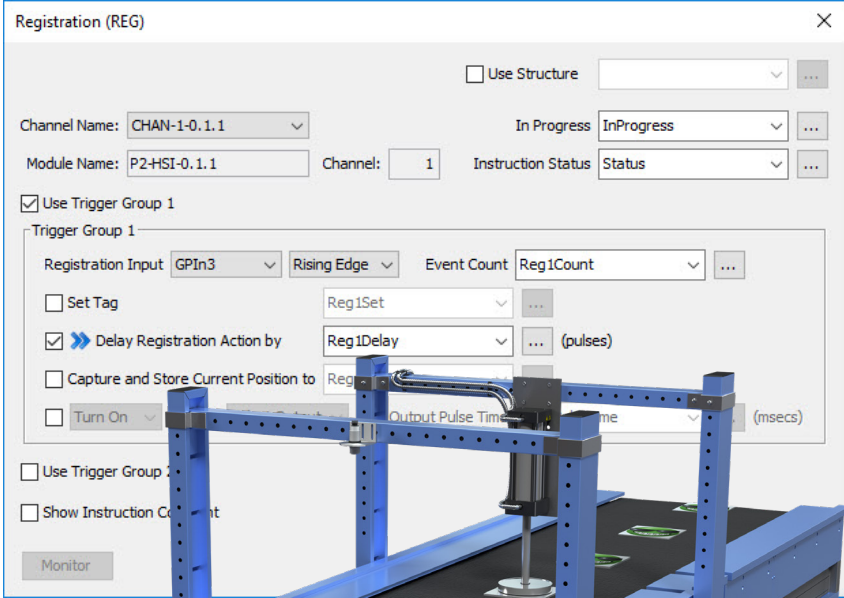
All prices are U.S. published prices. AutomationDirect prices as of 12/07/2022. Allen-Bradley retail prices taken from [www.radwell.com](http://www.radwell.com) 11/5/2020.

## 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 application

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.



Drawings are for illustrative purposes only.

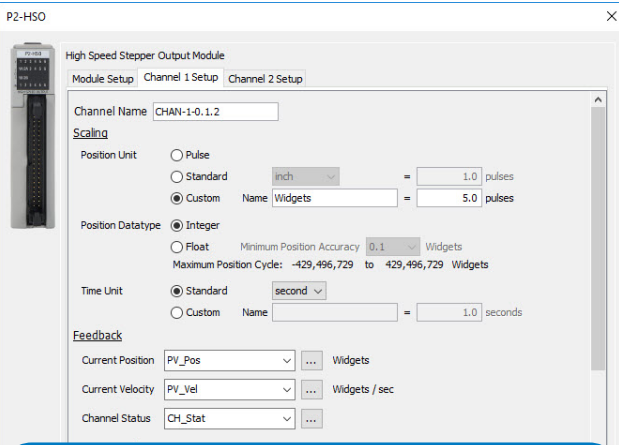


**P2-HSO**  
**\$288.00**

## Use the P2-HSO High-speed Output Module for simple moves, velocity moves, and flexible homing routines.

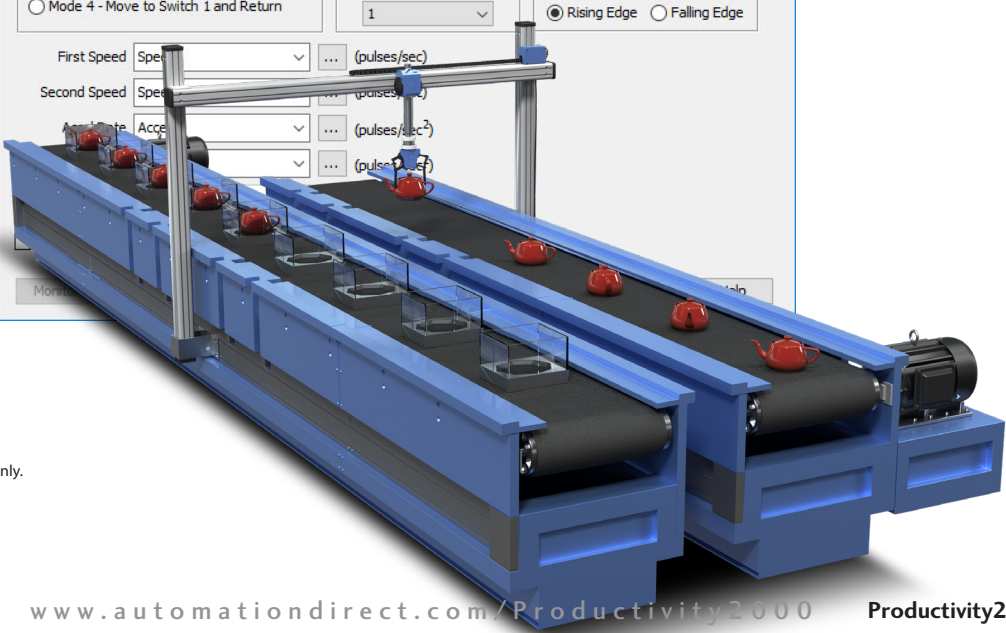
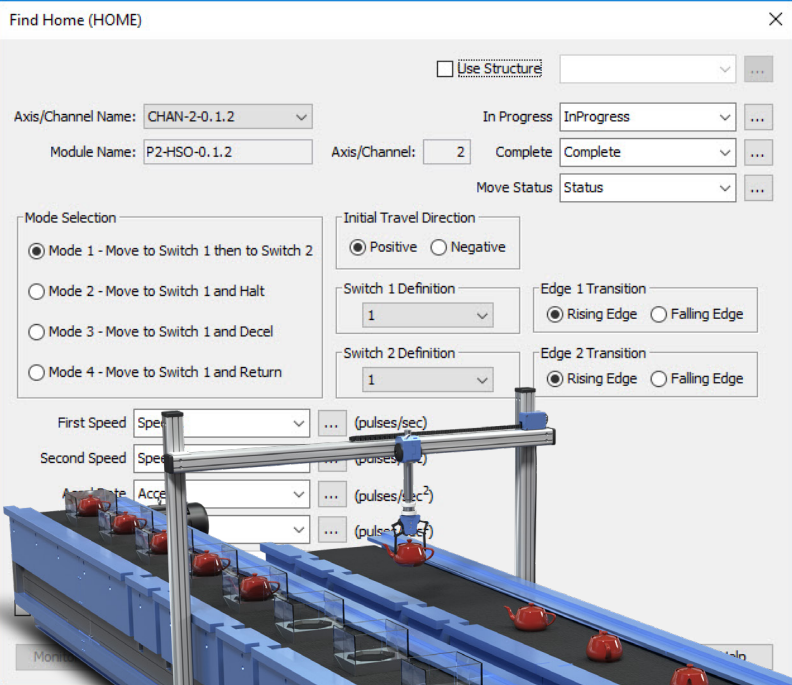
The P2-HSO is a high-speed (1MHz) output module that supports Pulse/Direction, Step Up/Step Down and Quadrature pulse outputs on each of two independent output channels. It has both line driver and open drain outputs. Additionally, it has six general purpose inputs and four general purpose outputs.

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, and more.



## Easy configuration

Both the High Speed Input (P2-HSI) and High Speed Output (P2-HSO) modules can be configured using Productivity Suite's intuitive function blocks. 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.



## Pick and place application

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 identify the desired speed, direction and acceleration.



# High-speed I/O that wont skip a beat!

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 beyond the realm of generic I/O.

## 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)

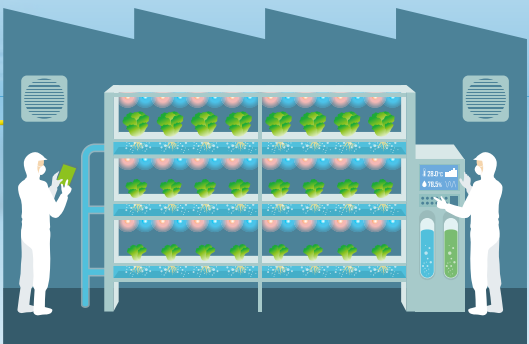
The P2-02HSC is capable of handling input pulse frequencies up to 100kHz. Easily count and/or calculate pulse rates from dedicated inputs or encoder signals that are used in many applications including package tracking and picking systems. Additionally, there are two general purpose inputs for use as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

HSC Module  
priced at  
**\$120.00**  
(P2-02HSC)

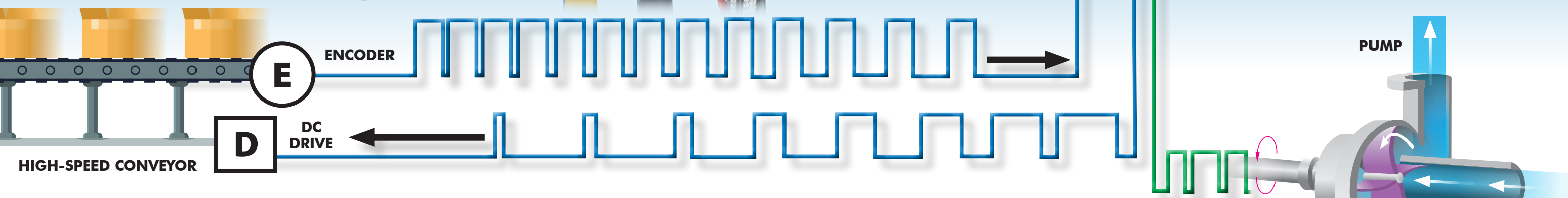
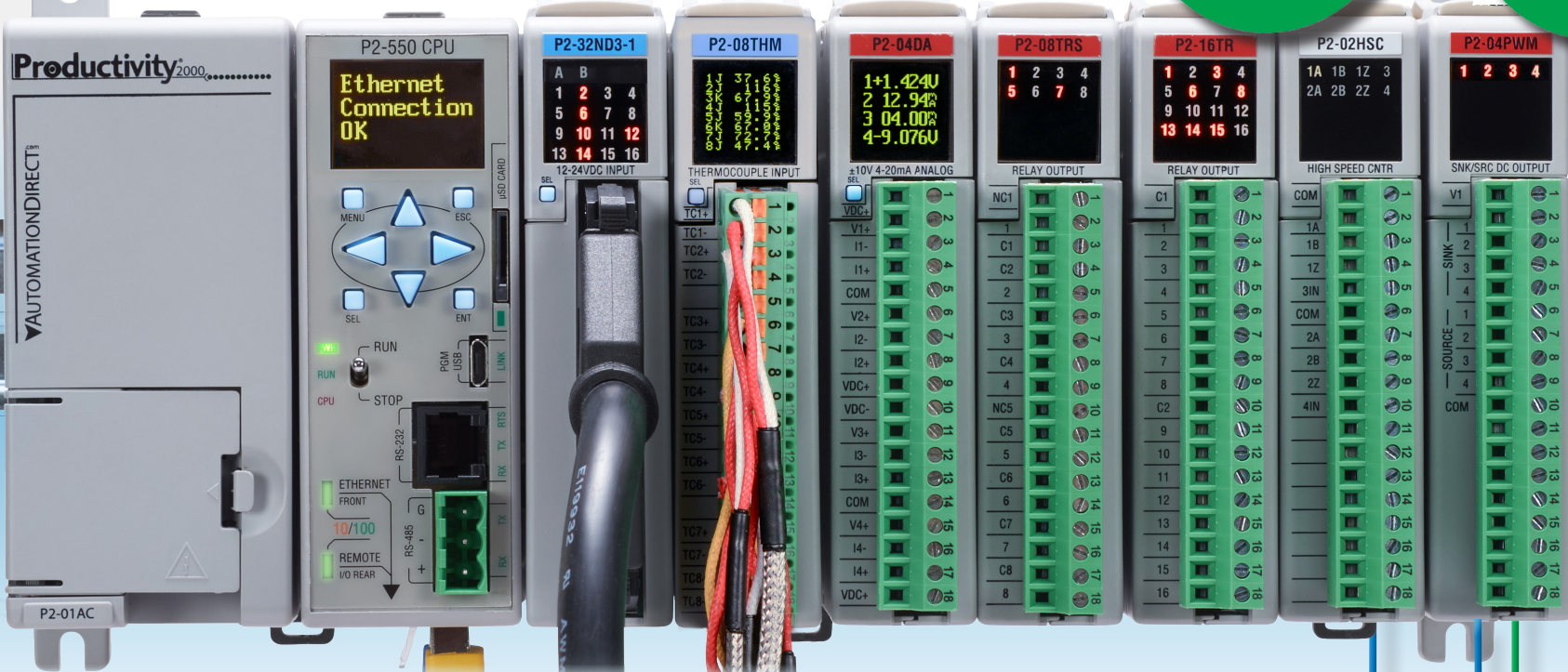
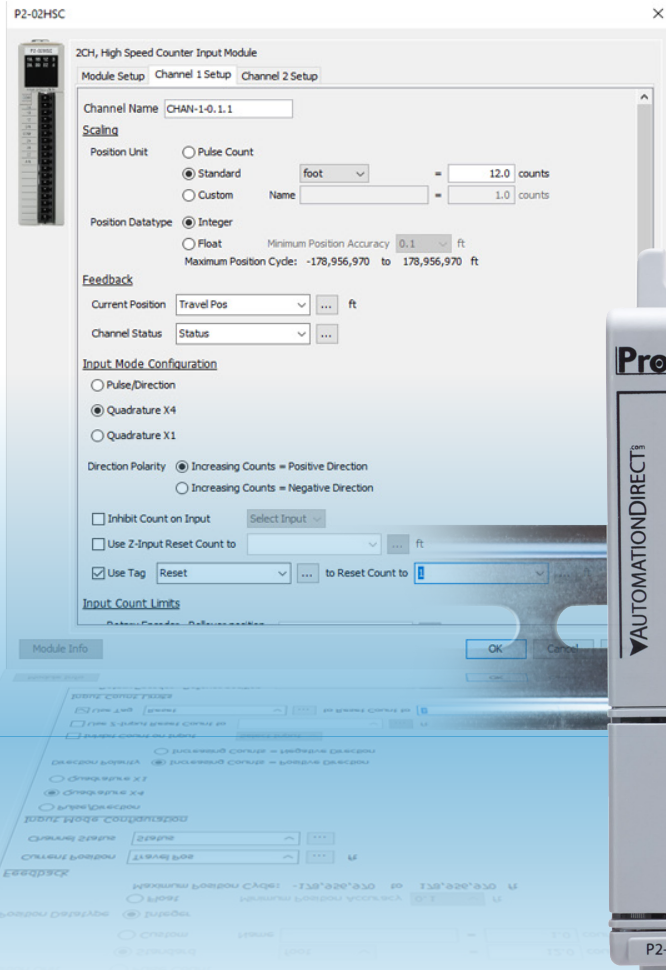
PWM Module  
priced at  
**\$132.00**  
(P2-04PWM)



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



## 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.

Date	Time	Tank1Temp
4/13/15	12:35:49.538	79.400002
4/13/15	12:35:50.467	79.400002
4/13/15	12:35:51.467	79.400002
4/13/15	12:35:52.467	79.400002
4/13/15	12:35:53.467	79.400002
4/13/15	12:35:54.467	79.400002
4/13/15	12:35:55.467	79.400002
4/13/15	12:35:56.467	79.400002
4/13/15	12:35:57.467	79.400002
4/13/15	12:35:58.467	79.400002
4/13/15	12:35:59.467	79.400002
4/13/15	12:36:00.467	79.400002
4/13/15	12:36:01.467	79.400002
4/13/15	12:36:02.467	79.400002
4/13/15	12:36:03.467	79.400002
4/13/15	12:36:04.467	79.400002
4/13/15	12:36:05.467	79.400002
4/13/15	12:36:06.467	79.400002
4/13/15	12:36:07.467	79.400002
4/13/15	12:36:08.467	79.400002
4/13/15	12:36:09.467	79.400002
4/13/15	12:36:10.467	79.400002
4/13/15	12:36:11.467	79.400002
4/13/15	12:36:12.467	79.400002
4/13/15	12:36:13.467	79.400002
4/13/15	12:36:14.467	79.400002
4/13/15	12:36:15.467	79.400002
4/13/15	12:36:16.467	79.400002
4/13/15	12:36:17.467	79.400002
4/13/15	12:36:18.467	79.400002
4/13/15	12:36:19.467	79.400002
4/13/15	12:36:20.467	79.400002
4/13/15	12:36:21.467	79.400002
4/13/15	12:36:22.467	79.400002
4/13/15	12:36:23.467	79.400002
4/13/15	12:36:24.467	79.400002
4/13/15	12:36:25.467	79.400002
4/13/15	12:36:26.467	79.400002
4/13/15	12:36:27.467	79.400002
4/13/15	12:36:28.467	79.400002
4/13/15	12:36:29.467	79.400002
4/13/15	12:36:30.467	79.400002
4/13/15	12:36:31.467	79.400002
4/13/15	12:36:32.467	79.400002
4/13/15	12:36:33.467	79.400002
4/13/15	12:36:34.467	79.400002
4/13/15	12:36:35.467	79.400002
4/13/15	12:36:36.467	79.400002
4/13/15	12:36:37.467	79.400002
4/13/15	12:36:38.467	79.400002
4/13/15	12:36:39.467	79.400002
4/13/15	12:36:40.467	79.400002
4/13/15	12:36:41.467	79.400002
4/13/15	12:36:42.467	79.400002
4/13/15	12:36:43.467	79.400002
4/13/15	12:36:44.467	79.400002
4/13/15	12:36:45.467	79.400002
4/13/15	12:36:46.467	79.400002
4/13/15	12:36:47.467	79.400002
4/13/15	12:36:48.467	79.400002
4/13/15	12:36:49.467	79.400002
4/13/15	12:36:50.467	79.400002
4/13/15	12:36:51.467	79.400002
4/13/15	12:36:52.467	79.400002
4/13/15	12:36:53.467	79.400002
4/13/15	12:36:54.467	79.400002
4/13/15	12:36:55.467	79.400002
4/13/15	12:36:56.467	79.400002
4/13/15	12:36:57.467	79.400002
4/13/15	12:36:58.467	79.400002
4/13/15	12:36:59.467	79.400002
4/13/15	12:37:00.467	79.400002
4/13/15	12:37:01.467	79.400002
4/13/15	12:37:02.467	79.400002
4/13/15	12:37:03.467	79.400002
4/13/15	12:37:04.467	79.400002
4/13/15	12:37:05.467	79.400002
4/13/15	12:37:06.467	79.400002
4/13/15	12:37:07.467	79.400002
4/13/15	12:37:08.467	79.400002
4/13/15	12:37:09.467	79.400002
4/13/15	12:37:10.467	79.400002
4/13/15	12:37:11.467	79.400002
4/13/15	12:37:12.467	79.400002
4/13/15	12:37:13.467	79.400002
4/13/15	12:37:14.467	79.400002
4/13/15	12:37:15.467	79.400002
4/13/15	12:37:16.467	79.400002
4/13/15	12:37:17.467	79.400002
4/13/15	12:37:18.467	79.400002
4/13/15	12:37:19.467	79.400002
4/13/15	12:37:20.467	79.400002
4/13/15	12:37:21.467	79.400002
4/13/15	12:37:22.467	79.400002
4/13/15	12:37:23.467	79.400002
4/13/15	12:37:24.467	79.400002
4/13/15	12:37:25.467	79.400002
4/13/15	12:37:26.467	79.400002
4/13/15	12:37:27.467	79.400002
4/13/15	12:37:28.467	79.400002
4/13/15	12:37:29.467	79.400002
4/13/15	12:37:30.467	79.400002
4/13/15	12:37:31.467	79.400002
4/13/15	12:37:32.467	79.400002
4/13/15	12:37:33.467	79.400002
4/13/15	12:37:34.467	79.400002
4/13/15	12:37:35.467	79.400002
4/13/15	12:37:36.467	79.400002
4/13/15	12:37:37.467	79.400002
4/13/15	12:37:38.467	79.400002
4/13/15	12:37:39.467	79.400002
4/13/15	12:37:40.467	79.400002
4/13/15	12:37:41.467	79.400002
4/13/15	12:37:42.467	79.400002
4/13/15	12:37:43.467	79.400002
4/13/15	12:37:44.467	79.400002
4/13/15	12:37:45.467	79.400002
4/13/15	12:37:46.467	79.400002
4/13/15	12:37:47.467	79.400002
4/13/15	12:37:48.467	79.400002
4/13/15	12:37:49.467	79.400002
4/13/15	12:37:50.467	79.400002
4/13/15	12:37:51.467	79.400002
4/13/15	12:37:52.467	79.400002
4/13/15	12:37:53.467	79.400002
4/13/15	12:37:54.467	79.400002
4/13/15	12:37:55.467	79.400002
4/13/15	12:37:56.467	79.400002
4/13/15	12:37:57.467	79.400002
4/13/15	12:37:58.467	79.400002
4/13/15	12:37:59.467	79.400002
4/13/15	12:38:00.467	79.400002
4/13/15	12:38:01.467	79.400002
4/13/15	12:38:02.467	79.400002
4/13/15	12:38:03.467	79.400002
4/13/15	12:38:04.467	79.400002
4/13/15	12:38:05.467	79.400002
4/13/15	12:38:06.467	79.400002
4/13/15	12:38:07.467	79.400002
4/13/15	12:38:08.467	79.400002
4/13/15	12:38:09.467	79.400002
4/13/15	12:38:10.467	79.400002
4/13/15	12:38:11.467	79.400002
4/13/15	12:38:12.467	79.400002
4/13/15	12:38:13.467	79.400002
4/13/15	12:38:14.467	79.400002
4/13/15	12:38:15.467	79.400002
4/13/15	12:38:16.467	79.400002
4/13/15	12:38:17.467	79.400002
4/13/15	12:38:18.467	79.400002
4/13/15	12:38:19.467	79.400002
4/13/15	12:38:20.467	79.400002
4/13/15	12:38:21.467	79.400002
4/13/15	12:38:22.467	79.400002
4/13/15	12:38:23.467	79.400002
4/13/15	12:38:24.467	79.400002
4/13/15	12:38:25.467	79.400002
4/13/15	12:38:26.467	79.400002
4/13/15	12:38:27.467	79.400002
4/13/15	12:38:28.467	79.400002
4/13/15	12:38:29.467	79.400002
4/13/15	12:38:30.467	79.400002
4/13/15	12:38:31.467	79.400002
4/13/15	12:38:32.467	79.400002
4/13/15	12:38:33.467	79.400002
4/13/15	12:38:34.467	79.400002
4/13/15	12:38:35.467	79.400002
4/13/15	12:38:36.467	79.400002
4/13/15	12:38:37.467	79.400002
4/13/15	12:38:38.467	79.400002
4/13/15	12:38:39.467	79.400002
4/13/15	12:38:40.467	79.400002
4/13/15	12:38:41.467	79.400002
4/13/15	12:38:42.467	79.400002
4/13/15	12:38:43.467	79.400002
4/13/15	12:38:44.467	79.400002
4/13/15	12:38:45.467	79.400002
4/13/15	12:38:46.467	79.400002
4/13/15	12:38:47.467	79.400002
4/13/15	12:38:48.467	79.400002
4/13/15	12:38:49.467	79.400002
4/13/15	12:38:50.467	79.400002
4/13/15	12:38:51.467	79.400002
4/13/15	12:38:52.467	79.400002
4/13/15	12:38:53.467	79.400002
4/13/15	12:38:54.467	79.400002
4/13/15	12:38:55.467	79.400002
4/13/15	12:38:56.467	79.400002
4/13/15	12:38:57.467	79.400002
4/13/15	12:38:58.467	79.400002
4/13/15	12:38:59.467	79.400002
4/13/15	12:39:00.467	79.400002
4/13/15	12:39:01.467	79.400002
4/13/15	12:39:02.467	79.400002
4/13/15	12:39:03.467	79.400002
4/13/15	12:39:04.467	79.400002
4/13/15	12:39:05.467	79.400002
4/13/15	12:39:06.467	79.400002
4/13/15	12:39:07.467	79.400002
4/13/15	12:39:08.467	79.400002
4/13/15	12:39:09.467	79.400002
4/13/15	12:39:10.467	79.400002
4/13/15	12:39:11.467	79.400002
4/13/15	12:39:12.467	79.400002
4/13/15	12:39:13.467	79.400002
4/13/15	12:39:14.467	79.400002
4/13/15	12:39:15.467	79.400002
4/13/15	12:39:16.467	79.400002
4/13/15	12:39:17.467	79.400002
4/13/15	12:39:18.467	79.400002
4/13/15	12:39:19.467	79.400002
4/13/15	12:39:20.467	79.400002
4/13/15	12:39:21.467	79.400002
4/13/15	12:39:22.467	79.400002
4/13/15	12:39:23.467	79.400002
4/13/15	12:39:24.467	79.400002
4/13/15	12:39:25.467	79.400002
4/13/15	12:39:26.467	79.400002
4/13/15	12:39:27.467	79.400002
4/13/15	12:39:28.467	79.400002
4/13/15	12:39:29.467	79.400002
4/13/15	12:39:30.467	79.400002
4/13/15	12:39:31.467	79.400002
4/13/15	12:39:32.467	79.400002
4/13/15	12:39:33.467	79.400002
4/13/15	12:39:34.467	79.400002
4/13/15	12:39:35.467	79.400002
4/13/15	12:39:36.467	79.400002
4/13/15	12:39:37.467	79.400002
4/13/15	12:39:38.467	79.400002
4/13/15	12:39:39.467	79.400002
4/13/15	12:39:40.467	79.400002
4/13/15	12:39:41.467	79.400002
4/13/15	12:39:42.467	79.400002
4/13/15	12:39:43.467	79.400002
4/13/15	12:39:44.467	79.400002
4/13/15	12:39:45.467	79.400002
4/13/15	12:39:46.467	79.400002
4/13/15	12:39:47.467	79.400002
4/13/15	12:39:48.467	79.400002
4/13/15	12:39:49.467	79.400002
4/13/15	12:39:50.467	79.400002
4/13/15	12:39:51.467	79.400002
4/13/15	12:39:52.467	79.400002
4/13/15	12:39:53.467	79.400002
4/13/15	12:39:54.467	79.400002
4/13/15	12:39:55.467	79.400002
4/13/15	12:39:56.467	79.400002
4/13/15	12:39:57.467	79.400002
4/13/15	12:39:58.467	79.400002
4/13/15	12:39:59.467	79.400002



# 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.

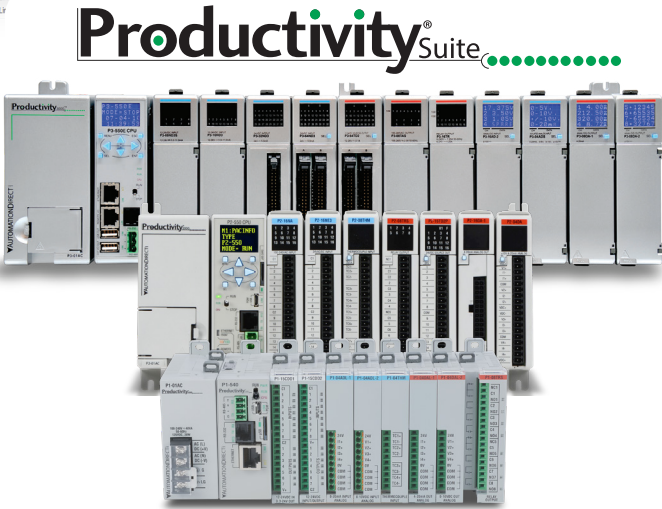
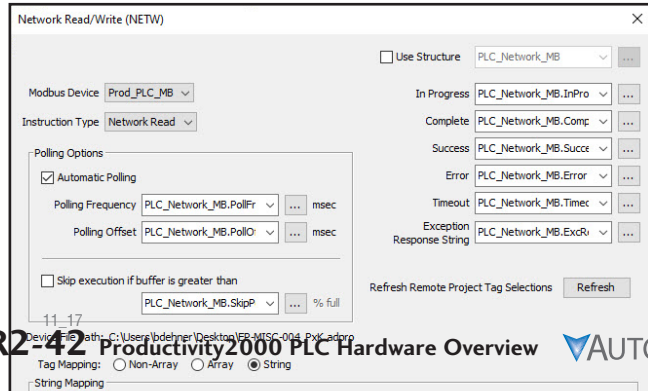
## Program your way! Tag name based control that's powerful and easy to use

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.

## Variable communication

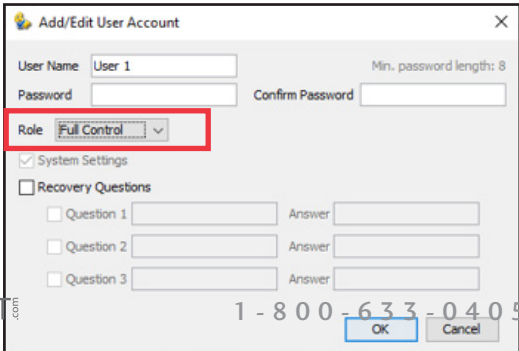
Productivity Suite provides utmost flexibility when it comes to PLC communication and with the Variable Communications Instructions (VCIs), you can reconfigure your communication links with simple tag value changes. By using tags in the parameter fields of Modbus, serial, EtherNet/IP, MQTT(S), etc. configurations, you can dynamically modify the messages, target IP addresses, and other connection parameters from the ladder code or directly from a connected HMI.



## ONE SOFTWARE PACKAGE PROGRAMS ALL PRODUCTIVITY PLCS!

## Easy access control

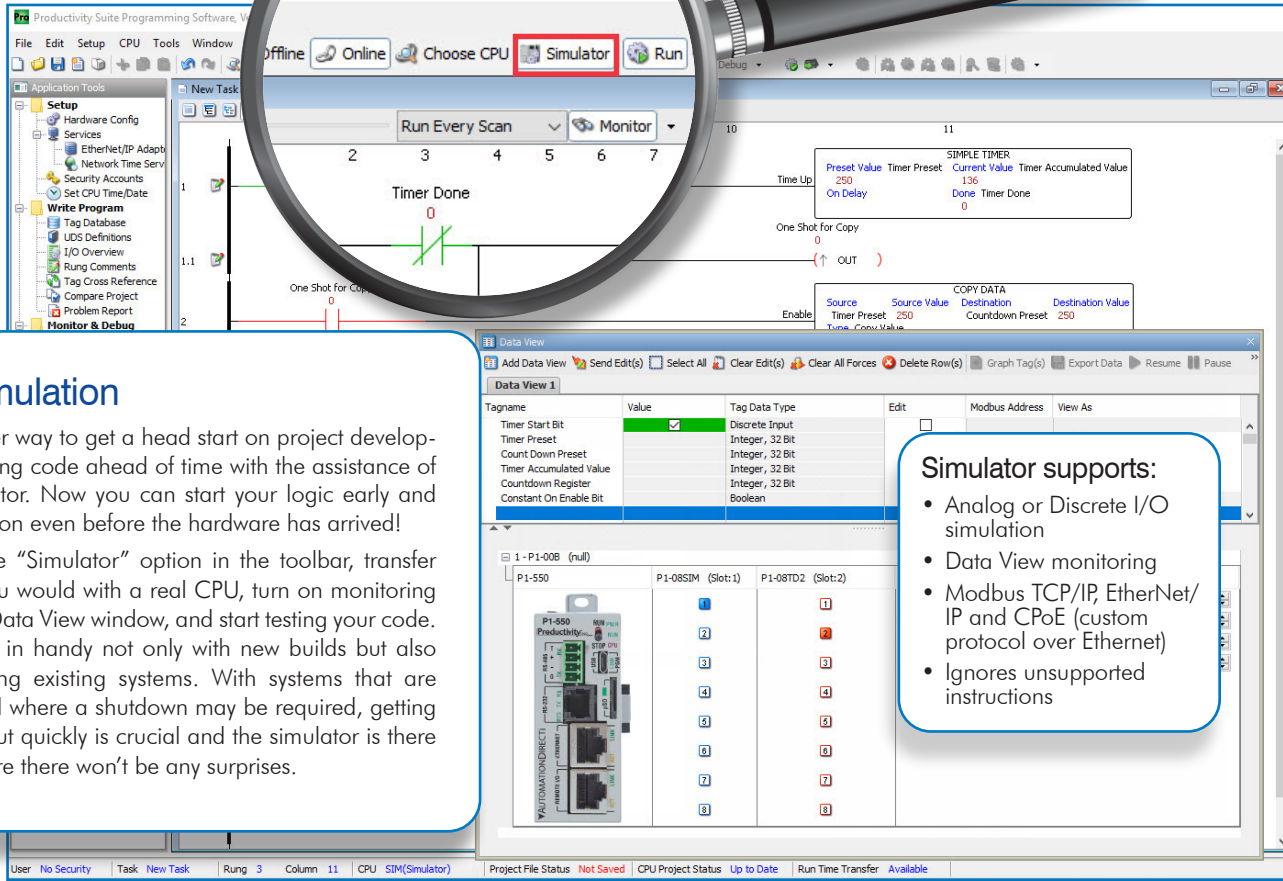
The Productivity Suite software has several remote access security features built in including project file encryption and user roles. User roles allow you to control who has access to the project file and what they can do with it. Full control, full monitor, limited monitor, and read only are some of the roles available and they can be easily set from the User Account dialog.



## 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:

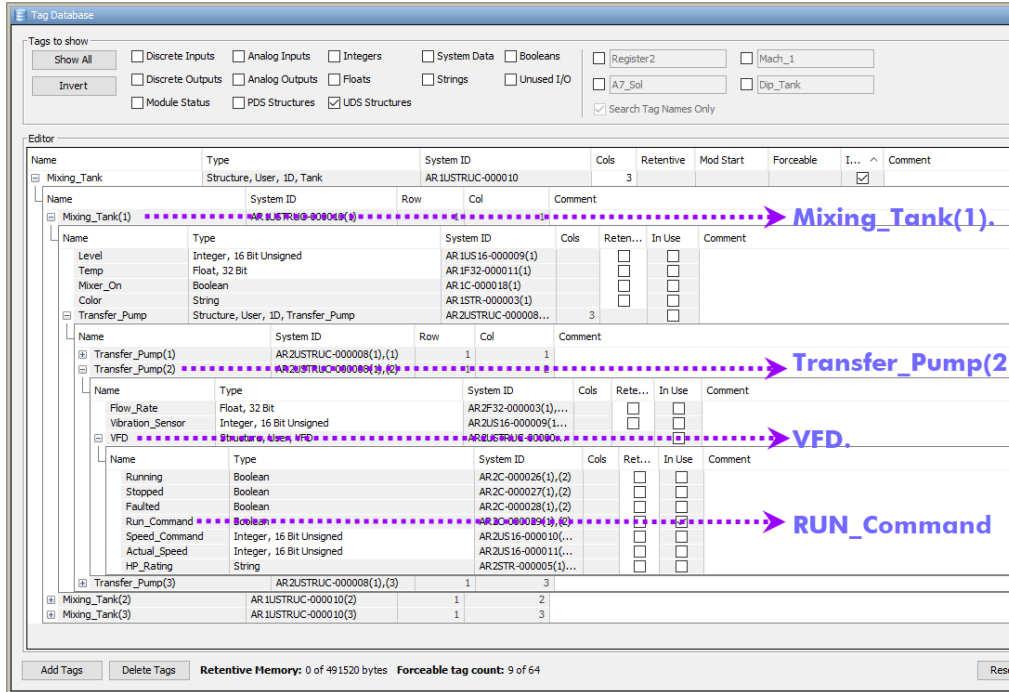
- Analog or Discrete I/O simulation
- Data View monitoring
- Modbus TCP/IP, EtherNet/IP and CPoE (custom protocol over Ethernet)
- Ignores unsupported instructions

## 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.

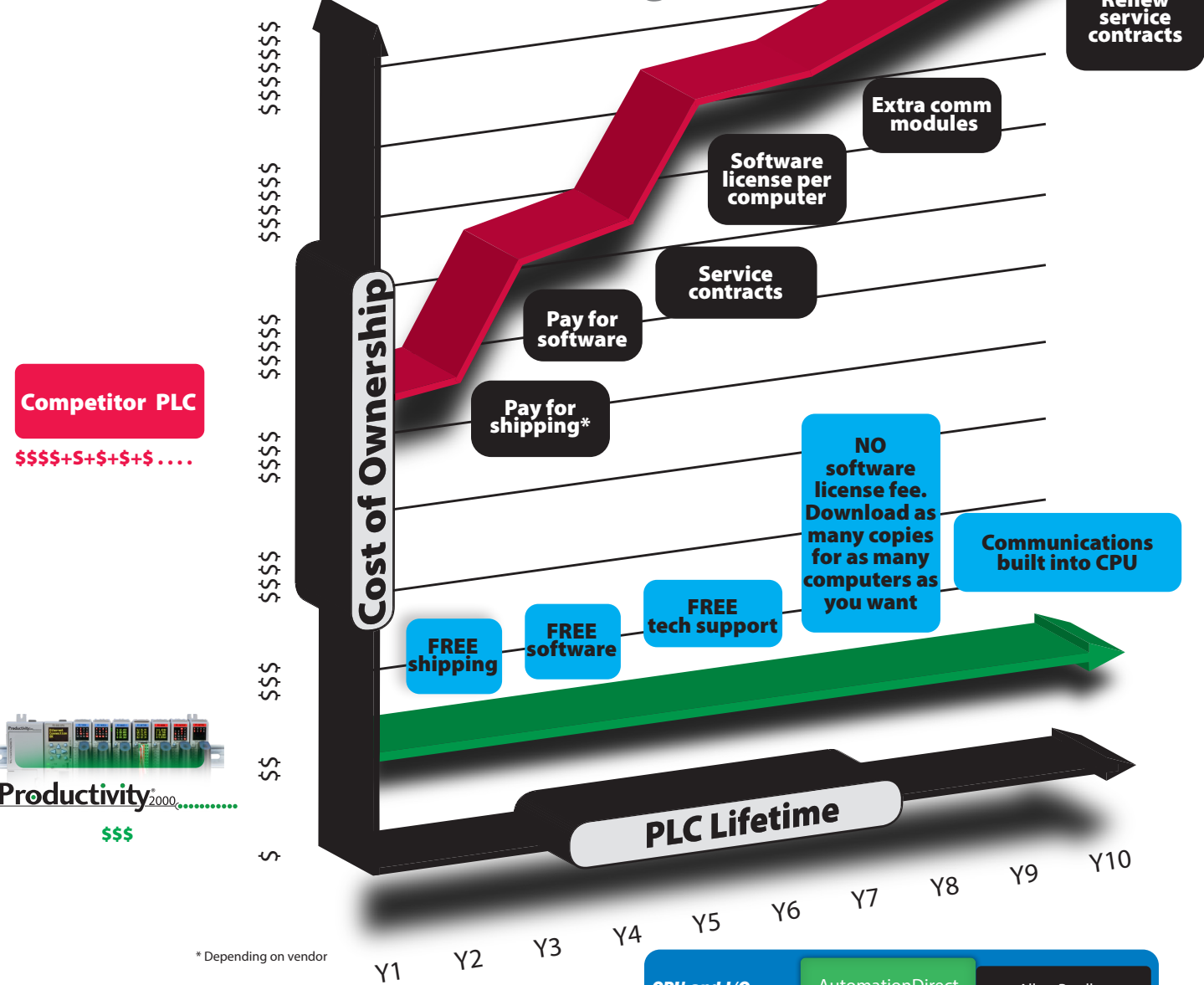
For example, `Mixing_Tank(1).Transfer_Pump(2).VFD.RUN_Command` which contains two nested UDS arrays (Transfer\_Pump and VFD) inside the Mixing\_Tank UDS definition.



There's so much more! See all that Productivity Suite has to offer at:  
[www.ProductivityPLC.com](http://www.ProductivityPLC.com)



Just pay once...  
because once is enough!



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 P2-622 CPU is priced at \$302.00 and I/O modules start at just \$59.00 (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)	\$107.00 P2-04B	N/A N/A
Power Supply	\$85.00 P2-02DC	\$708.36 1769-PB4
CPU	\$299.00 P2-622	\$4,332.85 1769-L33ER
16 AC Inputs	\$149.00 P2-16NA	\$436.19 1769-IA16
16 24VDC Inputs	\$98.00 P2-16NE3	\$367.52 1769-IQ16
8 Relay Outputs	\$71.00 P2-08TRS	\$450.18 1769-OW8I
8 Analog Input Channels (mA)	\$293.00 P2-08AD-1	\$1,199.20 1769-IF8
ASCII Comm Module	\$0.00 Built in to CPU	\$1,082.20 1769-ASCII
Modbus RTU Comm Module	\$0.00 Built in to CPU	\$1,164.75 1769-SM2
Total Hardware Cost w/USB, Ethernet and Serial	\$1,102.00	\$9,722.15
Programming Software	FREE PS-PGMSW	\$1,047.09 9324-RLD200ENE



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

You can read all our product reviews online at [www.automationdirect.com](http://www.automationdirect.com) (click on each individual part's star rating, if available, from the shopping page).



FREE Software!  
Download as often  
as you need.  
No license or key needed.  
[Click here to download.](#)

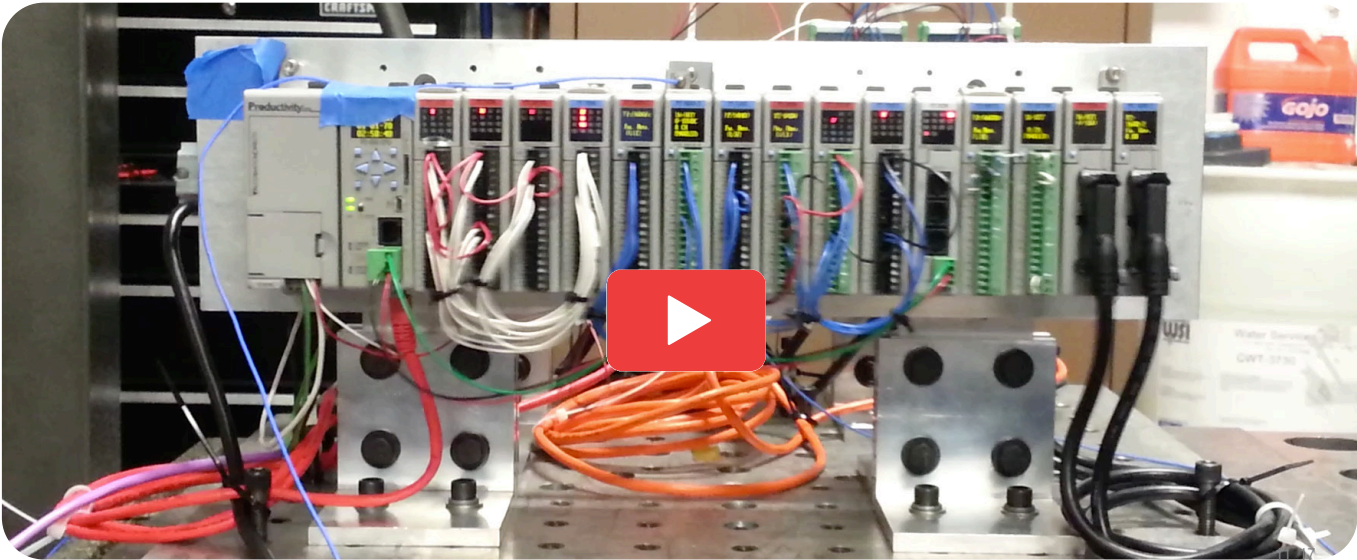
Free software, the way it should be!

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](http://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.

Affordable hardware that is built to last

Our PLC products are built to withstand the harshest field conditions. The Productivity2000's rugged design was thoroughly tested for field duty and we stand behind its performance with a 2 year warranty. Check out the video below to see the Productivity2000 get put to the test. 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.

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





# 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.



## Productivity<sup>®</sup>Series.....

**FREE  
SOFTWARE**



**FREE Software!**  
**Download as often**  
**as you need.**  
**No license or key needed.**  
[Click here to download.](#)

**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	
	P3-622 CPU	P2-550 CPU	P2-622 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 (each configurable for RS-232 or RS-485)	2	2 (each configurable for RS-232 or RS-485)	2	2
Built-in Multipurpose Ethernet Ports (RJ45)	Up to 2*	1	Up to 2*	1	1
EtherNet/IP Protocol	✓	✓	✓	✓	✓
MQTT Protocol	✓ (also supports MQTTS)	✓	✓ (also supports MQTTS)	✓	✓
Modbus RTU (serial) & Modbus TCP (Ethernet)	✓	✓	✓	✓	✓
Remote I/O Expansion Rack Support	✓*	✓	✓*	✓	---
Local I/O Expansion Rack Support	✓	---	---	---	---
Max Productivity I/O Capacity	59,840 (using P3-RX and P3-EX modules)	4,320 (using P2-RS modules)	4,320 (using P2-RS modules)	752 (using P1-RX modules)	240 (local modules only)
Hot Swappable I/O	✓	✓	✓	---	---
Integrated GSDrive Support	✓* 32 max.	✓ 16 max.	✓* 16 max.	✓ 16 max.	---
PS-AMC Support	✓*	✓	✓*	✓	---
Data Port (data logging & project transfer)	✓ USB	✓ microSD	✓ microSD	✓ microSD**	✓ microSD**
Total Memory	50 MB	50 MB	50 MB	50 MB	50 MB
American Bureau of Shipping (ABS) Certification	---	✓	---	---	---
Price	\$550.00	\$361.00	\$299.00	\$268.00	\$237.00

\* For 2 multipurpose Ethernet ports, Remote I/O port must be configured for multipurpose use. Remote I/O port cannot be used for native remote I/O connections if configured for multipurpose Ethernet.  
\*\* Project transfer from the microSD card is not supported in the Productivity1000 CPUs.