SPECIFICATIONS

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CHAPTER

Overview

CPU System

The Productivity3000 system is a modular system that requires a base to accommodate the various modules. Bases are available in sizes of 3, 5, 8 and 11 I/O module slots. It contains additional dedicated slots for the power supply and the CPU unit. You can place any I/O module into any slot without power budget or module type restrictions.

The backplane incorporates a discrete and analog I/O processor which unloads the I/O module communication task from the CPU. This distributed processing architecture results in outstanding performance at a very low cost. The backplane includes a USB 2.0 high-speed (480 Mbps) communication path directly from the CPU to specialty modules and to the discrete and analog module backplane processor.

Up to 4 local expansion bases can be "daisy chained" from the CPU base using a P3-EX expansion module and the (included) expansion cable. Expansion bases can be any size, and in any order, for a maximum number of 55 slots of local I/O when using 11 slot bases.

The base supports hot swapping and has electronic module keying for each slot.



P3-03B, P3-05B, P3-08B, P3-11B Bases

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





NOTE: See Chapter 5 for base dimensions.

Base Configuration





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

General Spec	ifications
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Heat Dissipation	2.5W
Weight	P3-03B: 1.365 lbs (21.8 oz.), 619g P3-05B: 1.658 lbs (26.5 oz.), 752g P3-08B: 2.158 lbs (34.5 oz.), 978g P3-011B: 2.682 lbs (42.9 oz.), 1216g
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

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

P3-01AC and P3-01DC Power Supplies

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

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

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

No Power Budgeting

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



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

P3-01AC Specifications



IMPORTANT!



Note: This device cannot be Hot Swapped.

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

P3-01AC User Specifications

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

P3-01AC Gene	eral Specifications		
Operating Temperature	0° to 60°C (32° to 140°F),		
Storage Temperature	-20° to 70°C (-4° to 158°F)		
Humidity	5 to 95% (non-condensing)		
Environmental Air	No corrosive gases permitted		
Vibration	IEC60068-2-6 (Test Fc)		
Shock	IEC60068-2-27 (Test Ea)		
Enclosure Type	Open Equipment		
Voltage Withstand (dielectric)	1900VDC applied for 2 seconds		
Insulation Resistance	>10MΩ @ 500VDC		
Module Location	Power supply slot in any local, expansion, or remote base in a Productivity3000 System.		
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com		
Weight	345g (12.1 oz)		
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.		

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

P3-01DC Specifications





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

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

P3-01DC General Specifications

Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Enclosure Type	Open Equipment
Voltage Withstand (dielectric)	750VDC applied for 2 seconds
Insulation Resistance	>10MΩ @ 500VDC
Module Location	Power supply slot in any local, expansion, or remote base in a Productivity3000 System.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	558g (19.7 oz)
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

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

Power Connections



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

Productivity3000 CPU Modules

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

<u>P3-550</u>





<u>P3-550E</u>





2

-9

Productivity3000 CPU Modules

<u>P3-530</u>





The Productivity3000 system can be expanded by using the P3-RS, P3-RX or P3-EX modules when using the P3-550(E) CPU or expanded with the P3-EX module when using the P3-530 CPU. The local, expansion, and remote I/O (P3-550(E) only) are assigned preconfigured or user-defined tag names which can be easily referenced in the ladder logic program.

P3-550 Specifications



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

PWR	
RUN	
CPU	
STOP	

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

CPU Speci	fications		
User Memory	50MB (Includes program, data and documentation)		
Memory Type	Flash and Battery Backer	d RAM	
Retentive Memory	Models C3 and earlier: 1	00K	
	Models D and later: 492k	(
Scan Time	600µs (3K Boolean, 1K I/O)		
Display	LCD, 4x10 characters, backlit, 8 control buttons;		
	LCD characters are 5x7 with a dot pitch of 0.45 mm; 2.25 mm x 3.15 mm		
Communications;	USB IN: Programming, Monitoring, Debug, Firmware		
7 milegraled Ports	 ETHERNET: (10/100 Mbps Ethernet) Programming, Monitoring, Debug, Firmware, Email SMTP Client, EtherNet/IP Scanner/Adapter (128 Scanner connections) and Modbus TCP Client (32 slaves) and Server (32 masters) REMOTE I/O: (10/100 Mbps Ethernet) 16 P3-RS/RX Remote Base Groups, and 32 GS Drives USB OUT: (2.0) Data Logging or Project Transfer using SDCZ4-2048-A10 Pen Drive EXP I/O OUT: (2.0 Proprietary) 4 P3-EX Local Expansion Bases RS-495: Removable Terminal Included. (1200-115 2k Baud) ASCII. Modbus 		
Hardware Limits of System	17 Base Groups 1 Local (P3-550(E)) + 16 Remote (P3-RS/RX) 5 Bases per Base Group 1 P3-550(E) or P3-RS/RX + 4 Expansion (P3-EX) 85 Bases Total 1 P3-550(E), 16 P3-RS/RX, & 68 P3-EX 59,840 Hardware I/O Points (All 64-point I/O Modules) 32 GS Series Drives as Remote I/O		
Instruction Types	Application Functions Array Functions Counters/Timers Communications	Data Handling Drum Sequencers Math Functions PID	Program Control String Functions System Functions High Speed I/O
Real Time Clock	±5s typical at 25°C		
Accuracy	±15s per day maximum at 60°C		





NOTE: To utilize the 492K of retentive memory in the P3-550(E) rev. D or later CPU, you must use Productivity3000 software version 1.0.7.XX and firmware version 1.1.13.XX or later.

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Operating Temperature	0° to 60°C (32° to 140°F)		
Storage Temperature	-20° to 70°C (-4° to 158°F)		
Humidity	5 to 95% (non-condensing)		
Environmental Air	No corrosive gases permitted		
Vibration	IEC60068-2-6 (Test Fc)		
Shock	IEC60068-2-27 (Test Ea)		
Heat Dissipation	7W		
Enclosure Type	Open Equipment		
Module Location	Controller slot in the local base in a Productivity3000 System		
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com		
Weight	260g (9oz)		
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.		



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

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

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

LCD Message Display (P3-550)

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

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

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



Display Page (LCD)			
Us	e Structure	v	
) All Di	isplays		
	ay Name CPU-DISPLAY 🗸		
Line 1	· · · · · · · · · · · · · · · · · · ·		
Line 2	¥		
Line 3	¥		
Line 4	¥		
Show Instruction Comment			
Monitor OK Cancel Help			

LCD Control Buttons		
Menu Button	Access the CPU's LCD menu	
ESC Button	Returns to the previous screen	
SEL Button	Selects the desired menu option	
ENT Button	Starts the selected process	
Directional Arrows	Moves the cursor around the 4 Row x 10 Column LCD	

Chapter 2: Specifications

Front Panel LCD Monitoring and Configuration (P3-550) 18:USB DRV REMOVE PEN DRIVE 40W Selects the desired menu option 4 Returns to the previous screen AIS32 AOS32 AIF32 AOF32 Moves the cursor around the Access the CPU LCD menu Starts the selected process Row x 10 Column LCD STR SSTR LCD Control Buttons Data Type Monitor D16 SWRW STR S16 SWRW STR S16 BCD32 DI WR F32 DO ā 8 18: USB] OAD PAC OMPLETE BCD16 US16 S16 SWR Use down arrow key to scroll through options. Menu Button C SBR SBRW Directional Arrows Hold **MENU** button to display menu options. ENT Button ESC Button SEL Button 11: MAC AD

) LLI





Press SEL

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P3-550E Specifications



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

Productivity 3000 Hardware User Manual, 4th Edition, Rev. C 2–15

CPU Specif	ications			
User Memory	50MB (Includes program, data and documentation)			
Memory Type	Flash and Battery Backer	d RAM		
Retentive Memory**	492K			
Scan Time	600µs (3K Boolean, 1K I/	(0)		
Display	LCD, 4x10 characters, backlit, 8 control buttons; LCD characters are 5x7 with a dot pitch of 0.45 mm; 2.25 mm x 3.15 mm			
Communications; 6 Integrated Ports	ETHERNET: (10/100 Mbps Ethernet) Programming, Monitoring, Debug, Firmware, Email SMTP Client, Modbus TCP Client (32 slaves) and Server (32 masters), EtherNet/IP Scanner (128 Scanner connections) and Adapter (16 connections) REMOTE I/O: (10/100 Mbps Ethernet) 16 P3-RS or RX Remote Base Groups, and 32 GS EDRV100 (GS Drives) USB OUT: (2.0) Data Logging or Project Transfer using USB-FLASH Pen Drive EXP I/O OUT: (2.0 Proprietary) 4 P3-EX Local Expansion Bases RS-232: Modbus RTU, ASCII full or half duplex RS-485: Removable Terminal Included, (1200-115.2k Baud) ASCII, Modbus			
Hardware Limits of System	17 Base Groups 1 Local (P3-550E) + 16 Remote (P3-RS / P3-RX) 5 Bases per Base Group 1 P3-550E or P3-RS or P3-RX + 4 Expansion (P3-EX) 85 Bases Total 1 (CPU) + 16 (Remote) + 68 (Expansion) 59,840 Hardware I/O Points (All 64-point I/O Modules) 32 GS Series Drives as Remote I/O			
Instruction Types	Application Functions Array Functions Counters/Timers Communications Data Handling	Drum Sequencers Math Functions PID Program Control String Functions	System Functions Contacts Coils HSI/HSO	
Real Time Clock	±5s per day typical at 25°C			
Accuracy	±15s per day maximum at 60°C			



General Specifications

Operating Temperature	0° to 60°C (32° to 140°F)		
Storage Temperature	-20° to 70°C (-4° to 158°F)		
Humidity	5 to 95% (non-condensing)		
Environmental Air	No corrosive gases permitted		
Vibration	IEC60068-2-6 (Test Fc)		
Shock	IEC60068-2-27 (Test Ea)		
Heat Dissipation	7W		
Enclosure Type	Open Equipment		
Module Location	Controller slot in the local base in a Productivity3000 System		
EU Directive See the "EU Directive" topic in the Productivity3000 Help Information can also be obtained at: www.productivitypac.			
Weight	260g (9oz)		
	UL508 file E157382, Canada & USA		
	UL1604 file E200031, Canada & USA		
Agency Approvals	CE (EN61131-2*)		
	This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.		



Hot-Swapping Information Note: This device cannot be Hot

Note: This device cannot be Hot Swapped.

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

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



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

LCD Message Display (P3-550E)

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

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

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



Display Page (LCD)			
🗌 🗌	e Structurei 🗸 🗸		
 All D Displ 	isplays lay Name CPU-DISPLAY v		
Line 1	¥		
Line 2	¥		
Line 3	✓ …		
Line 4	¥		
Show Instruction Comment			
Monitor OK Cancel Help			

LCD Control Buttons		
Menu Button	Access the CPU's LCD menu	
ESC Button	Returns to the previous screen	
SEL Button	Selects the desired menu option	
ENT Button	Starts the selected process	
Directional Arrows	Moves the cursor around the 4 Row x 10 Column LCD	

Front Panel LCD Monitoring and Configuration (P3-550E)

Selects the desired menu option Returns to the previous screen AIS32 AOS32 AIF32 AOF32 Access the CPU LCD menu STR SSTR 0 DS ā 8 Data Type Monitor B SWRW S32 BCD32 F32 BCD16 US16 S16 SWR Use down arrow key to scroll through options. Menu Button 3 C SBR SBRW Hold MENU button to display menu options. ESC Button SEL Button 11:MAC ADR press ENT Select Data Type and Press ENT Press ENT to Edit System ID, or when Step 1.) Select User Data or I/O Data and Steps For Using Monitor Menu finished press ENT Press SEL to monitor the value ###. ###. ## #. ### 11:IP ADR αшш Step 2.) Step 3.) Step 4.) LCD will go directly to M3: MONITOR display With YES selected, 1:MEMORY USAGE 50% USED 88 ā : FIRMR



PWR

CPU RUN

STOP

P3-530 Specifications





NOTE: P3-530 CPU has no LCD display.

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

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

CPU Specifica	tions		
User Memory	25MB (Includes program, data and documentation)		
Memory Type	Flash and Battery Backed RAM		
Retentive Memory	492K		
Scan Time	600µs (3K Boolean, 1K	I/O)	
Communications; 5 Integrated Ports	ETHERNET: (10/100 Mbps Ethernet) Programming, Monitoring, Debug, Firmware, Email SMTP Client, Modbus TCP Master (64 Slaves) and Slave (8 Masters) USB OUT: (2.0) Data Logging using SDCZ4-2048-A10 Pen Drive		
	EXP I/O OUT: (2.0 Proprietary) 4 P3-EX Local Expansion Bases		
	RS-232: (RJ12, 1200-115.2k Baud) Modbus RTU, ASCII full or half duplex		
	RS-485: Removable Terminal Included, (1200-115.2k Baud) ASCII, Modbus		
Hardware Limits	5 Bases Total 1 P3-530 + 4 Expansion (P3-EX)		
of System	3520 Hardware I/O Points (All 64-point I/O Modules)		
Instruction Types	Application Functions	Math Functions	
	Array Functions	PID	
	Counters/Timers	Program Control	
	Communications	String Functions	
	Data Handling	System Functions	
	Drum Sequencers	High Speed I/O	
Real Time Clock	±5s typical at 25°C		
Accuracy	±15s per day maximum at 60°C		

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Heat Dissipation	7W
Enclosure Type	Open Equipment
Module Location	Controller slot in the local base in a Productivity3000 System
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	260g (9oz)
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.





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

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

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



NOTE: When using the P3-530 CPU, you must use Productivity Suite software version 1.0.7.XX and firmware version 1.1.13.XX or later.

2-20 Productivity 3000; Hardware User Manual, 4th Edition, Rev. C

Battery (Optional)

A battery is included with the P3000 CPU modules, but is not installed. The battery can be installed to retain the Time and Date along with any Tagname values that are set up as retentive. The battery is not needed for program backup.



Port Specifications

The P3 CPUs (P3-550(E) & P3-530) have multiple communications ports. The following pages contain the individual port specifications and pin-out diagrams.

<u>P3-550</u>



USB IN Port P3-550

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

USB Type B Slave Input Specifications		
Port Name	USB IN	
Description	Standard USB 2.0 Slave input for programming and online monitoring, with built-in surge protection. Not compatible with older 1.0/1.1 full speed USB devices.	
Transfer Rate	480 Mbps	
Port Status LED	Green LED is illuminated when LINK is established to programming software.	
Cables	USB Type A to USB Type B: 3ft cable part # USB-CBL-AB3 6ft cable part # USB-CBL-AB6 10ft cable part # USB-CBL-AB10 15ft cable part # USB-CBL-AB15	



Mating face of USB type B female

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

<u>P3-550(E)</u>



<u>P3-530</u>



Ethernet Port

RJ-45 style connector used for:

- Connection to a PC running the ProductivitySuite programming software
- Modbus TCP Client connections (Modbus requests sent from the CPU)
- Modbus TCP Server connections (Modbus requests received by the CPU)
- Outgoing E-mail

Remote I/O Port P3-550(E)

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

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



P3-550(E)



USB OUT Port

Used for data logging (P3-550(E)/P3-530) or project transfers (P3-550(E) only) to and from a USB-FLASH Pen Drive (may work with other pen drives).

EXP I/O OUT Port

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

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

P3-530





Mating face of USB

type A female

USB OUT

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

EXP I/O OUT

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

<u>P3-550(E)</u>



RS-232 Port

- RJ-12 style connector used for:
 - Modbus RTU Master connections
 - Modbus RTU Slave connections
 - ASCII full or half duplex communications
 - Custom Protocol Incoming and Outgoing communications

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

P3-530





⁶⁻pin RJ12 Female Modular Connector

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

P3-550(E)



<u>P3-530</u>



RS-485 Port

- A 3-pin removable terminal block used for:
 - Modbus RTU Master connections
 - Modbus RTU Slave connections
 - ASCII Incoming and Outgoing communications
 - Custom Protocol Incoming and Outgoing communications

RS-485 Port Specifications		
Port Name	RS-485	
Description	Non-isolated RS-485 port connects the CPU as a Modbus/ASCII master or slave to a peripheral device. Includes ESD/EFT protection and automatic echo cancel- lation when transmitter is active.	
Data Rates	Selectable, 1200, 2400, 9600, 19200, 33600, 38400, 57600, and 115200 bps	
TXD+/RXD+	RS-485 transceiver high	
TXD-/RXD-	RS-485 transceiver low	
GND	Logic ground	
Input Impedance	19kΩ	
Maximum load	50 transceivers, 19k Ω each, 60 Ω termination	
Output Short Circuit Protection	±250mA, thermal shut-down protection	
Electrostatic Discharge Protection	±8kV per IEC1000-4-2	
Electrical Fast Transient Protection	±2kV per IEC1000-4-4.	
Minimum Differential Output Voltage	1.5 V with 60Ω load	
Fail safe inputs	Logic high input state if inputs are unconnected	
Maximum Common Mode Voltage	-7.5 V to 12.5 V.	
Port Status LED	Green LED illuminated when active for TXD and RXD	
Cable Options *	L19827-100, L19827-500, L19827-1000 or Belden 9841 equivalent	



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



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

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

P3-EX Expansion Module

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

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



P3-EX Expansion Module Example



P3-EX Module Specifications

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

General Specifications		
Operating Temperature	0° to 60°C (32° to 140°F)	
Storage Temperature	-20° to 70°C (-4° to 158°F)	
Humidity	5 to 95% (non-condensing)	
Environmental Air	No corrosive gases permitted	
Vibration	IEC60068-2-6 (Test Fc)	
Shock	IEC60068-2-27 (Test Ea)	
Heat Dissipation	1W	
Enclosure Type	Open Equipment	
Module Location	Controller slot in a local expansion base in a Productivity3000 System	
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com	
Weight	194g (6.24 oz)	
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.	





Hot-Swapping Information

Note: This device cannot be Hot Swapped.

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

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

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

Port Specifications

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





Mating face of USB type B female



Mating face of USB type A female

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

Remote Slave Modules

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

Up to 16 Remote Slaves can be connected to a single P3-550(E) for a remote I/O network.



P3-RS/P3-RX Remote Slave Module Example (P3-550(E) only)

Add up to 4 bases to Add up to 16 Remote Base Groups each group using P3-EX using P3-RS/RX Remote Slave modules expansion modules with and up to 32 GS Drives on the **USB** connections. Remote I/O Ethernet Network. Local Base Group Remote Base Group Remote Base Group GS-EDRV100 1 SE-SW5U 10000 10000 R

P3-RS Remote Slave Module Specifications

Remote Slave	Specifications P3-550(E)
Mounting Location	Controller slot
Display	LCD, 4x10 characters, backlit, LCD characters are 5x7 with a dot pitch of 0.45 mm; 2.25 mm x 3.15 mm
Communications - 5 Integrated Ports	USB IN: (2.0, Type B) Programming, Monitoring, Debug REMOTE I/O: (10/100 Mbps Ethernet) 1 P3-550(E) EXP I/O OUT: (2.0, Type A, Proprietary) 4 P3-EX Local Expansion Bases RS-232: (RJ12, 1200-115.2k Baud) ASCII, Modbus RS-485: (Removable Terminal Included, 1200-115.2k Baud) ASCII, Modbus
Max. Number of Ethernet Remote I/O Bases	16
Max. Number of Expansion I/O Bases	68 (4 per CPU, 4 per Remote Base)
Max. Number of I/O per CPU System	59,840 (CPU Base with 4 Expansion Bases plus 16 Remote Bases with 4 Expansion Bases per Remote, with 11 64-point I/O modules per base)

General Specifications		
Operating Temperature	0° to 60°C (32° to 140°F)	
Storage Temperature	-20° to 70°C (-4° to 158°F)	
Humidity	5 to 95% (non-condensing)	
Environmental Air	No corrosive gases permitted	
Vibration	IEC60068-2-6 (Test Fc)	
Shock	IEC60068-2-27 (Test Ea)	
Heat Dissipation	4W	
Enclosure Type	Open Equipment	
Module Location	Controller slot in a remote base in a Productivity3000 System	
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com	
Weight	260g (9oz)	
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.	

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



Hot-Swapping Information

Note: This device cannot be Hot Swapped.

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

P3-RS Remote Slave Module Front Panel



Status Indicators

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

LCD Message Display (P3-RS only)

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

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

P3-RS	GØ1
01-10-	-05
11:28:	:02

Use Structure	STATION 32 SCHEDULED LOCK-OUT FOR MAINT. P3-RS
Line 2 V Line 3 V Line 4 V	
Monitor OK Cancel Help	ured using

See the ProductivitySuite Programming Software Help Files for complete details.

instruction allows the user to program text into user-defined tags and display the messages based on the ladder execution.

P3-RX Remote Slave Module Specifications

Remote Slave Specifications P3-550(E)		
Mounting Location	Controller slot	
Communications - 4 Integrated Ports	 REMOTE I/O: (10/100 Mbps Ethernet) 1 P3-550(E) EXP I/O OUT: (2.0, Type A, Proprietary) 4 P3-EX Local Expansion Bases RS-232: (RJ12, 1200-115.2k Baud) ASCII, Modbus RS-485: (Removable Terminal Included, 1200-115.2k Baud) ASCII, Modbus 	
Max. Number of Ethernet Remote I/O Bases	16	
Max. Number of Expansion I/O Bases	68 (4 per CPU, 4 per Remote Base)	
Max. Number of I/O per CPU System	59,840 (CPU Base with 4 Expansion Bases plus 16 Remote Bases with 4 Expansion Bases per Remote, with 11 64-point I/O modules per base)	

General Spec	ifications
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Heat Dissipation	4W
Enclosure Type	Open Equipment
Module Location	Controller slot in a remote base in a Productivity3000 System
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	260g (9oz)
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1
	Division 2, Groups A, B, C and D or non-hazardous locations only.

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



Note: This device cannot be Hot Swapped.

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



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

2–36
P3-RX Remote Slave Module Front Panel



Status Indicators

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

Productivity 3000 Hardware User Manual, 4th Edition, Rev. C 2-37

Setting the Remote Slave Address

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

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

IMPORTANT NOTES:

- The factory setting of 00 is not a valid address.
- Address selection must be set prior to power-up.
- Slave addresses are only read on power-up.
- If there are duplicate slave addresses on the same network, a critical error (Error Code E2207) will occur.



Setting the Remote Slave Address (continued)

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

For example, if connected online to a P3000 system with slaves installed, go to Hardware Configuration and select the Read Configuration (1) button. The CPU will automatically read the addresses of the remote slaves and add them to the configuration.

If setting up offline, go to Hardware Configuration, select CPU Base Groups (2), and then select Remote Base Group (3). In the Add Remote Base Group (4) window, select the same Remote Base Number as set on the rotary switches.

11. I		
Hardware Configuration		×
Read Configuration	Pace Crouns	Hardware Components
-PAC Base Groups	base or oups	Base Group 🔗
-Local Base Group		Remote Base Group
GS Drives		JJ
		_
	Local Base Group Remote Base Group #21	
	Add Remote Base Group	
	Remote Base Group Number 21	
	OK Cancel	
<		>

Port Specifications

The P3-RS and P3-RX Remote Slave modules have several communications ports and the following pages contain their specifications and pin-out diagrams.

USB IN Port (P3-RS only)

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

<u>P3-RS</u>



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



Mating face of USB type B female

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

Remote I/O Port

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







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



EXP I/O OUT Port

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



EXP I/O OUT Specifications Description Proprietary USB 2.0 (Type A) Master output for connection with up to four P3-EX local expansion bases, with built-in surge protection.

	to four 1 5-EX focal expansion bases, with built in surge protection.
Transfer Rate	480 Mbps
Port Status	Green LED is illuminated when LINK is established to connected
LED	device
Cables	USB Type A to USB Type B. The P3-EX Expansion Module
	includes a 6 foot USB cable, part number P3-EX-CBL6.



Mating face of USB type A female

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

<u>P3-RX</u>



RS-232 Serial Port

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





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

<u>P3-RX</u>





6-pin RJ12 Female Modular Connector

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

RS-485 Serial Port

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



<u>P3-RX</u>



RS-485 Spec	ifications	
Description	Non-isolated RS-485 port connects the P3-RS/P3-RX as a Modbus or ASCII master or slave to a peripheral device. Includes ESD/EFT protection and automatic echo cancellation when transmitter is active.	
Data Rates	Selectable, 1200, 2400, 9600, 19200, 33600, 38400, 57600, and 115200.	
TXD+/RXD+	RS-485 transceiver high	
TXD-/RXD-	RS-485 transceiver low	
GND	Logic ground	
Input Impedance	19kΩ	
Maximum load	50 transceivers, 19k Ω each, 60 Ω termination	
Output Short Circuit Protection	±250mA, thermal shut-down protection	
Electrostatic Discharge Protection	±8KV per IEC1000-4-2	
Electrical Fast Transient Protection	±2KV per IEC1000-4-4	
Minimum Differential Output Voltage	1.5 V with 60Ω load	
Fail safe inputs	Logic high input state if inputs are unconnected	
Maximum Common Mode Voltage	-7.5 V to 12.5 V	
Port Status LED	Green LED is illuminated when active for TXD and RXD	
Cable Options	L19827-100, L19827-500, L19827-1000 or Belden 9841 equivalent	





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

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

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

2

I/O Modules Overview

A variety of discrete and analog I/O modules are available for use in local, expansion, and remote I/O bases.

Each I/O module is identified as an "Input", "Output", or "Input/Output" module on its front panel using the color coding scheme listed below. See the following pages for discrete I/O module specifications, Chapter 3 for analog I/O module specifications and Chapter 4 for specialty module specifications.

Discrete Input Modules



Analog Input Modules



Analog Output Modules



Discrete Output Modules



Analog Input/Output Modules



Discrete I/O Modules



Discrete Input Modules

Productivity3000 Discrete Input Modules					
Part Number	Number of Description		See Page		
P3-16SIM	16	Input Simulator Module	2-42		
P3-08ND3S	8	Isolated Sinking/Sourcing DC Input	2-43		
P3-16ND3	16	Sinking/Sourcing DC Input	2-46		
P3-32ND3*	32	Sinking/Sourcing DC Input	2-49		
P3-64ND3*	64	Sinking/Sourcing DC Input	2-51		
P3-08NAS	8	Isolated AC Input	2-53		
P3-16NA	16	Isolated AC Input	2-56		

*ZIPLink required.

Discrete Output Modules

Productivity3000 Discrete Output Modules				
Part Number	Number of Outputs	Description	See Page	
P3-08TD1S	8	Isolated Sinking Output	2-59	
P3-08TD2S	8	Isolated Sourcing Output	2-62	
P3-16TD1	16	Sinking Output	2-65	
P3-16TD2	16	Sourcing Output	2-68	
P3-32TD1*	32	Sinking Output	2-71	
P3-32TD2*	32	Sourcing Output	2-74	
P3-64TD1*	64	Sinking Output	2-77	
P3-64TD2*	64	Sourcing Output	2-80	
P3-08TAS	8	Isolated AC Output	2-83	
P3-16TA	16	AC Output	2-86	
P3-08TRS	8	Isolated Relay Output	2-89	
P3-16TR	16	Relay Output	2-92	
P3-08TRS-1	8	Isolated Relay Output	2-95	
P3-16TD3P*	16	Sinking/Sourcing Protected Output	2-98	

* ZIPLink required.

P3-16SIM Input Simulator

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

	Input Specificat	ion	S
	Inputs per Module		16 Internal switches
	OFF to ON Response		Max. 20 ms
	ON to OFF Response		Max. 20 ms
	Status Indicators		Logic Side (16 points)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Operated Operation		
Input Simulator	General Specific	Hall	ions
P3-16SIM	Operating Temperature	0° to	60°C (32° to 140°F),
	Storage Temperature	-20°	to 70°C (-4° to 158°F)
	Humidity	5 to	95% (non-condensing)
OFF ON OFF ON	Environmental Air	No c	orrosive gases permitted
\leftrightarrow	Vibration	IEC6	60068-2-6 (Test Fc)
1 9	Shock	IEC6	60068-2-27 (Test Ea)
	Heat Dissipation	0.25	W
2 10	Enclosure Type	Oper	n Equipment
	Module Location	Any base	I/O slot in any local, expansion, or remote a in a Productivity3000 System.
	EU Directive	See Prod be o	the "EU Directive" topic in the luctivity3000 Help File. Information can also btained at: www.productivitypac.com
	Weight	120g	g (4.23 oz)
5 13 6 14	Agency Approvals	UL50 UL16 CE (I	08 file E157382, Canada & USA 504 file E200031, Canada & USA EN61131-2*) equipment is suitable for use in Class 1
⁷ 15		Divis	ion 2, Groups A, B, C and D or non-hazardous ions only.
⁸ ¹⁶	*Meets EMC and Safety requir	emen	ts. See the Declaration of Conformity for detail
Do 400114	WARNING: Explosion haza	ard –	Substitution of components may

impair suitability for Class I, Division 2.

P3-08ND3S Isolated Sinking/Sourcing Input

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



Removable '	Terminal Block Specifications
Number of Positions	20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals: 7–9 in./lb (0.882–1.02 N·m) Self-jacking screws: 2.7–3.6 in./lb (0.3–0.4 N·m). Do not over-tighten screws when installing terminal block.

We recommend using prewired **ZIP**Link cables and connection modules. See Chapter 5.

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



P3-08ND3S Isolated Sinking/Sourcing Input (continued)

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

General Specifi	cations
Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500 VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	2.81 W
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 System.
Field Wiring	Removable terminal block (not included). Use <i>ZIP</i> Link wiring system or optional terminal block. See Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	80g (2.82 oz)
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

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

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

P3-08ND3S Isolated Sinking/Sourcing Input (continued)

Wiring Diagrams



P3-16ND3 Sinking/Sourcing Input

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



We recommend using prewired **ZIP**Link cables and connection modules. See Chapter 5.

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



P3-16ND3 Sinking/Sourcing Input (continued)

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

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	5.61 W
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 System.
Field Wiring	Removable terminal block (not included). Use <i>ZIP</i> Link wiring system or optional terminal block. See Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com
Weight	80g (2.82 oz)
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

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

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

P3-16ND3 Sinking/Sourcing Input (continued)



Wiring Diagrams

Productivity 3000; Hardware User Manual, 4th Edition, Rev. C 2–53

P3-32ND3 Sinking/Sourcing Input

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



No terminal block sold for this module; **ZIP**Link required. See Chapter 5 for part numbers of **ZIP**Link cables and connection modules required with this module.



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

General Specifications

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

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

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

P3-32ND3 Sinking/Sourcing Input (continued)



P3-64ND3 Sinking/Sourcing Input

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



No terminal block sold for this module; **ZIP**Link required. See Chapter 5 for part numbers of **ZIP**Link cables and connection modules required with this module.



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

General Specific	cations		
Operating Temperature	0° to 60°C (32° to 140°F),		
Storage Temperature	-20° to 70°C (-4° to 158°F)		
Humidity	5 to 95% (non-condensing)		
Environmental Air	No corrosive gases permitted		
Vibration	IEC60068-2-6 (Test Fc)		
Shock	IEC60068-2-27 (Test Ea)		
Field to Logic Side Isolation	1500VAC applied for 1 minute		
Insulation Resistance	>10MΩ @ 500VDC		
Heat Dissipation	6.91 W		
Enclosure Type	Open Equipment		
Module Keying to Backplane	Electronic		
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 System.		
Field Wiring	Use ZIP Link wiring system. See Chapter 5.		
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com		
Weight	170g (6.00 oz)		
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.		

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

P3-64ND3 Sinking/Sourcing Input (continued)

Connector Type	IDC style header with latch Omron XG4A-4034
	ibe etyle nedder with laten, ennion ste ist reet
Number of Pins	40 point x 2
Pitch	0.1 in. (2.54 mm)
A 24VDC	В
Sinking Sourcing	a
Field Device Field Device 1 5 2 6 3 7 4 8 -61 61 10 14 -11 15 -12 6 -13 -1 -1 -1	
	$ \begin{array}{c} \hline & \hline $
	A 24VDC Sinking Sourcing Field Device Field Device 1 5 2 6 3 7 4 8 6 5 6 7 4 8 6 6 7 7 1 5 2 6 3 7 4 8 6 7 7 4 4 8 6 7 7 4 4 8 6 7 7 7 4 8 6 7 7 7 4 8 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7



P3-08NAS AC Isolated Input

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

CUUs CE	ld			
1 2 3 4 5 6 7 8 block cover includ	block cover included			
100-240VAC INPUT				
100-240V~7.0-20.0mA 50-60Hz				
P3.08NAS	Removable '	Terminal Block Specifications		
	Number of Positions	20 screw terminals		
		22-14 AWG (0.324 to 2.08 sq. mm)		
	Wire Range	Solid / stranded conductor		
		"USE COPPER CONDUCTORS , 60°C" or equivalent.		
	Screw Driver Width	1/4 inch (6.5 mm) maximum		
	Screw Size	M3 size		
		Field terminals: $7-9$ in./lb (0.882–1.02 N·m)		
	Screw Torque	Do not over-tighten screws when installing terminal		
		block.		
		·		
UNEUGN				

We recommend using prewired **ZIP**Link cables and connection modules. See Chapter 5.

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



P3-08NAS AC Isolated Input (continued)

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

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

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

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

P3-08NAS AC Isolated Input (continued)

Wiring Diagrams



P3-16NA AC Input

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



We recommend using prewired **ZIP**Link cables and connection modules. See Chapter 5.

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



P3-16NA AC Input (continued)

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

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),	
Storage Temperature	-20° to 70°C (-4° to 158°F)	
Humidity	5 to 95% (non-condensing)	
Environmental Air	No corrosive gases permitted	
Vibration	IEC60068-2-6 (Test Fc)	
Shock	IEC60068-2-27 (Test Ea)	
Field to Logic Side Isolation	1500VAC applied for 1 minute	
Insulation Resistance	>10MΩ @ 500VDC	
Heat Dissipation	8.76 W	
Enclosure Type	Open Equipment	
Module Keying to Backplane	Electronic	
Madula Logation	Any I/O slot in any local, expansion, or remote	
	base in a Productivity3000 System.	
	Removable terminal block (not included). Use	
Field Wiring	ZIP Link wiring system or optional terminal block.	
	See Chapter 5.	
	See the "EU Directive" topic in the	
EU Directive	be obtained at: www.productivity.nac.com	
Weight	95g (3 35 oz)	
Weight	UI E08 file E1E7282 Canada & USA	
	UL 1604 file E200021 Canada & USA	
Agency Approvals		
5 , 11 , 14	This equipment is suitable for use in Class 1,	
	Division 2, Groups A, B, C and D or non-hazardous	
	locations only.	

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

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

P3-16NA AC Input (continued)

Wiring Diagrams



P3-08TD1S Sinking Output

c侧us (E

Terminal block sold

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

1 2 3 4 5 6 7 8	separately; terminal block cover included with module.
6-27VDC SINKING OUTPUT P3-08TD1S 6-27V/	
	$\begin{array}{c} P3-08TD 1S \\ c1 \\ c1 \\ c1 \\ c2 \\ c2 \\ c2 \\ c2 \\ c2$

Removable '	Terminal Block Specifications
Number of Positions	20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals: 7–9 in./lb (0.882–1.02 N·m) Self-jacking screws: 2.7–3.6 in./lb (0.3–0.4 N·m). Do not over-tighten screws when installing terminal block.

We recommend using prewired **ZIP**Link cables and connection modules. See Chapter 5.





P3-08TD1S Sinking Output (continued)

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

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

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

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

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

P3-08TD1S Sinking Output (continued)

Wiring Diagrams

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







P3-08TD2S Sourcing Output

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



We recommend using prewired **ZIP**Link cables and connection modules. See Chapter 5.

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



P3-08TD2S Sourcing Output (continued)

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

General Specifications			
Operating Temperature	0° to 60°C (32° to 140°F),		
Storage Temperature	-20° to 70°C (-4° to 158°F)		
Humidity	5 to 95% (non-condensing)		
Environmental Air	No corrosive gases permitted		
Vibration	IEC60068-2-6 (Test Fc)		
Shock	IEC60068-2-27 (Test Ea)		
Field to Logic Side Isolation	1500VAC applied for 1 minute		
Insulation Resistance	>10MΩ @ 500VDC		
Heat Dissipation	8.46 W		
Enclosure Type	Open Equipment		
Module Keying to Backplane	Electronic		
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 System.		
Field Wiring	Removable terminal block (not included). Use <i>ZIP</i> Link wiring system. or optional terminal block. See Chapter 5.		
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com		
Weight	110g (3.88 oz)		
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA		
	CE (EN61131-2*)		
	Division 2, Groups A, B, C and D or non-hazardous locations only.		

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

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

P3-08TD2S Sourcing Output (continued)

Wiring Diagrams



Each V1 is connected inside the module. Each V2 is connected inside the module. Each V3 is connected inside the module. Each V4 is connected inside the module.



P3-16TD1 Sinking Output

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



Removable Terminal Block Specifications		
Number of Positions	20 screw terminals	
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.	
Screw Driver Width	1/4 inch (6.5 mm) maximum	
Screw Size	M3 size	
Screw Torque	Field terminals:7–9 in./lb (0.882–1.02 N·m) Self-jacking screws: 2.7–3.6 in./lb (0.3–0.4 N·m). Do not over-tighten screws when installing terminal block.	

We recommend using prewired **ZIP**Link cables and connection modules. See Chapter 5.

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





P3-16TD1 Sinking Output (continued)

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

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

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

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

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

P3-16TD1 Sinking Output (continued)

Wiring Diagrams






P3-16TD2 Sourcing Output

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



We recommend using prewired **ZIP**Link cables and connection modules. See Chapter 5.

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



P3-16TD2 Sourcing Output (continued)

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

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

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

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

P3-16TD2 Sourcing Output (continued)

Wiring Diagrams



P3-32TD1 Sinking Output

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



No terminal block sold for this module; **ZIP**Link required. See Chapter 5 for part numbers of **ZIP**Link cables and connection modules required with this module.



P3-32TD1 Sinking Output (continued)

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

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

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

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

Productivity³⁰⁰⁰, Hardware User Manual, 4th Edition, Rev. C **2–77**

P3-32TD1 Sinking Output (continued)

Wiring Diagrams

Dual Power Source



Single Power Source

	H25 29
	-26 30
	-27 31
	-28 32
24 VDC + -	-C4 /V4

*Denotes key location of all associated ZIPLink cables.



P3-32TD2 Sourcing Output

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

40 point

0.1 in. (2.54 mm)



No terminal block sold for this module; **ZIP**Link required. See Chapter 5 for part numbers of **ZIP**Link cables and connection modules required with this module.



IDC style header with latch, Omron XG4A-4034

P3-32TD2 Sourcing Output (continued)

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

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

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

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

P3-32TD2 Sourcing Output (continued)

Wiring Diagrams



*Denotes key location of all associated ZIPLink cables.

P3-64TD1 Sinking Output

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



No terminal block sold for this module; **ZIP**Link required. See Chapter 5 for part numbers of **ZIP**Link cables and connection modules required with this module.



P3-64TD1 Sinking Output (continued)

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

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),	
Storage Temperature	-20° to 70°C (-4° to 158°F)	
Humidity	5 to 95% (non-condensing)	
Environmental Air	No corrosive gases permitted	
Vibration	IEC60068-2-6 (Test Fc)	
Shock	IEC60068-2-27 (Test Ea)	
Field to Logic Side Isolation	1500VAC applied for 1 minute	
Insulation Resistance	>10MΩ @ 500VDC	
Heat Dissipation	11.35 W	
Enclosure Type	Open Equipment	
Module Keying to Backplane	Electronic	
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 System.	
Field Wiring	Use ZIP Link wiring system. See Chapter 5.	
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com	
Weight	160g (5.64 oz)	
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1,	
	Division 2, Groups A, B, C and D or non-hazardous locations only.	

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

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

P3-64TD1 Sinking Output (continued)



*Denotes key location of all associated ZIPLink cables



P3-64TD2 Sourcing Output

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



cULus	Œ	

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

No terminal block sold for this module; **ZIP**Link required. See Chapter 5 for part numbers of **ZIP**Link cables and connection modules required with this module.



P3-64TD2 Sourcing Output (continued)

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

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

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

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

P3-64TD2 Sourcing Output (continued)

Wiring Diagrams

Α



*Denotes key location of all associated ZIPLink cables



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P3-08TAS Isolated AC Output

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



Removable '	Terminal Block Specifications
Number of Positions	20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals: 7–9 in./lb (0.882–1.02 N·m) Self-jacking screws: 2.7–3.6 in./lb (0.3–0.4 N·m). Do not over-tighten screws when installing terminal block.



		Cur	rent
		1.0A	0.7A
d	0	8	8
em	40	8	8
Ŧ	60	4	8

Derating Chart

We recommend using prewired **ZIP**Link cables and connection modules. See Chapter 5.

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



P3-08TAS Isolated AC Output (continued)

Output Specifications			
Outputs per Module		8	
Operating Voltage Range	(CE)	100–240 VAC (-15% / +10%)	
(Tolerance)	(UL)	100–240 VAC (-20% / +20%)	
Maximum Output Current @	Temp	1A / point @ 40°C	
- 0		0.7 A / point @ 60°C	
AC Frequency		47–63 Hz	
Minimum Load (TYPE 2)		10mA	
Maximum Leakage Current (7	TYPE 2)	4mA @ 264VDC	
On Voltage Drop		1.5 VAC @ > 50mA 4.0 VAC @ < 50mA	
Maximum Inrush Current		10A for 10ms	
OFF to ON Response		1ms + 1/2 cycle	
ON to OFF Response		1ms + 1/2 cvcle	
Status Indicators		Logic Side (8 points)	
Error Status Indicator		Blown Fuse (one for each point)	
Terminal Type (not included)		20-position removable terminal block	
Commons		8 Isolated (1 point / common)	
Commone		3 15 A user replaceable fuse per common	
Fuege		For replacement, order P3-FUSE-1.	
ruses		(Qty. 5/pkg.)	
Storage Temperature	-20° to 70°C (-4° to 158°F)		
Storage Temperature	-20° to 70°C (-4° to 158°F)		
Humidity	5 to 95% (non-condensing)		
Environmental Air	No corre	osive gases permitted	
Vibration	IEC60068-2-6 (Test Fc)		
Shock	IEC600	68-2-27 (Test Ea)	
Field to Logic Side Isolation	1500VA	C applied for 1 minute	
Insulation Resistance	$>10M\Omega$	@ 500VDC	
Final Dissipation	12.40 W	/	
Modulo Koving to Bookplano	Electron	vie	
		slot in any local expansion or remote	
Module Location	base in a Productivity3000 System.		
Field Wiring	Removable terminal block (not included). Use ZIP Link wiring system or optional terminal block. See Chapter 5.		
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also		
Woight	be obtained at: www.productivitypac.com		
vveigni	1209 (4	14 1 UZJ	
	UL508 f	Ile E15/382, Canada & USA	
	UL1604	UL1604 file E200031, Canada & USA	
Agency Approvals	CE (EN61131-2*)		
- gener reproteit	This equipment is suitable for use in Class 1,		

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

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

P3-08TAS Isolated AC Output (continued)

Wiring Diagrams



2

P3-16TA AC Output

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



Removable '	Ferminal Block Specifications
Number of Positions	20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals: 7–9 in./lb (0.882–1.02 N·m) Self-jacking screws: 2.7–3.6 in./lb (0.3–0.4 N·m). Do not over-tighten screws when installing terminal block.

We recommend using prewired **ZIP**Link cables and connection modules. See Chapter 5.

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



P3-16TA AC Output (continued)

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

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),	
Storage Temperature	-20° to 70°C (-4° to 158°F)	
Humidity	5 to 95% (non-condensing)	
Environmental Air	No corrosive gases permitted	
Vibration	IEC60068-2-6 (Test Fc)	
Shock	IEC60068-2-27 (Test Ea)	
Field to Logic Side Isolation	1500VAC applied for 1 minute	
Insulation Resistance	>10MΩ @ 500VDC	
Heat Dissipation	12.69 W	
Enclosure Type	Open Equipment	
Module Keying to Backplane	Electronic	
Madula Leastian	Any I/O slot in any local, expansion, or remote	
Module Location	base in a Productivity3000 System.	
	Removable terminal block (not included). Use	
Field Wiring	ZIP Link wiring system or optional terminal block.	
	See Chapter 5.	
	See the "EU Directive" topic in the	
EU Directive	Productivity3000 Help File. Information can also	
Maiaht		
weight	1259 (4.41 02)	
	UL508 file E157382, Canada & USA	
	UL1604 file E200031, Canada & USA	
	CE (EN61131-2*)	
Agency Approvals	This equipment is suitable for use in Class 1,	
	Division 2, Groups A, B, C and D or non-hazardous	
	locations only.	

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

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

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P3-16TA AC Output (continued)

Wiring Diagrams







P3-08TRS Isolated Relay Output

The P3-08TRS Isolated Relay Output Module provides eight 1.75 amp relay outputs with eight fused commons.



Removable '	Terminal Block Specifications	
Number of Positions	20 screw terminals	
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.	
Screw Driver Width	1/4 inch (6.5 mm) maximum	
Screw Size	M3 size	
Screw Torque	Field terminals: 7–9 in./lb (0.882–1.02 N·m) Self-jacking screws: 2.7–3.6 in./lb (0.3–0.4 N·m). Do not over-tighten screws when installing terminal block.	

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

We recommend using prewired **ZIP**Link cables and connection modules. See Chapter 5.

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



P3-08TRS Isolated Relay Output (continued)

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

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F),	
Storage Temperature	-20° to 70°C (-4° to 158°F)	
Humidity	5 to 95% (non-condensing)	
Environmental Air	No corrosive gases permitted	
Vibration	IEC60068-2-6 (Test Fc)	
Shock	IEC60068-2-27 (Test Ea)	
Field to Logic Side Isolation	1500VAC applied for 1 minute	
Insulation Resistance	>10MΩ @ 500VDC	
Heat Dissipation	3.04 W	
Enclosure Type	Open Equipment	
Module Keying to Backplane	Electronic	
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 System.	
Field Wiring	Removable terminal block (not included). Use <i>ZIP</i> Link wiring system. or optional termina I block. See Chapter 5.	
EU Directive	See the "EU Directive" topic in the Productivity3000 Help File. Information can also be obtained at: www.productivitypac.com	
Weight	135g (4.76 oz)	
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.	

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

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

P3-08TRS Isolated Relay Output (continued)

F2 F1

Wiring Diagrams



P3-16TR Relay Output

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



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

Removable	Terminal Block Specifications
Number of Positions	20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals: 7–9 in./lb (0.882–1.02 N·m) Self-jacking screws: 2.7–3.6 in./lb (0.3–0.4 N·m). Do not over-tighten screws when installing terminal block.

We recommend using prewired **ZIP**Link cables and connection modules. See Chapter 5.

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



P3-16TR Relay Output (continued)

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

General Specifications

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

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

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

P3-16TR Relay Output (continued)

Wiring Diagrams









2

P3-08TRS-1 Isolated Relay Output

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

		Output Specifi	icat	tions
74%		Outputs per Module		8 relays (non-latching)
OMEDOCK		Commons per Module		8 (isolated)
			(CE)	6.25-24 VDC (-15% / +20%)
	Terminal block	Operating Voltage Range		6-240 VAC (-15% / +10%)
	Terminal block	(Tolerance)	(UL)	5-30 VDC (-0% / +10%)
	sold separately;			5–240 VAC (-0% / +10%)
1 2 3 4	terminal block	Output Turne		4 Form C (SPDT-NO/NC),
5 6 1 8	cover included			4 Form A (SPST-NO)
	with module.	AC Frequency		47–63 Hz
RELAY OUTPUT P3-08TRS-1		On Voltage Drop		Minimal (90mV max for fuse at 10A)
5-240V~5A 50-60Hz 5-30V==5A		Max Output Current		6.3 A at 23°C, 5.0 A at 60°C
		@ Temperature (Resistive)*		For both AC and DC
	P3-08TB5-1	Maximum Leakage Current		Minimal (5µA for TVS diode)
<u> </u>		Minimum Load		10mA @ 5VDC
		Maximum Inrush Current		12A
		External DC Required		None
		OFF to ON Response		10ms
		ON to OFF Response		5ms (Excluding NO bounce)
		Terminal Type (not included)	20-position removable terminal block
		Status Indicators		Logic side
		Fuses		6.3 A user replaceable fuse per common For replacement, order P3-FUSE-2 (5/Pkg.)
		Dielectric Strength (Between	n	1500VAC @ 1 min logic to output and
		normally open and normally		isolated output to output, 750VAC @ 1 min
		closed contacts on the same relay)	e	between contacts on same relay (Same as 1800VAC @ 1 sec and 900VAC @ 1 sec)
B		Transient Voltage Suppress	ion	482V clamp at 1.25 A peak pulse current
		Mechanical Life Expectancy	,	>100 000 at 30 operations per minute
		moonamoar Ene Expediancy	_	
		*Rating is for a normally-ope the current handling capabi	en cont lity.	act. Normally-closed contacts have 1/2

	Kemovable	ierminal block Specifications	
	Number of Positions	20 screw terminals	
	Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum "USE COPPER CONDUCTORS , 60°C" or equivalent.	
	Screw Driver Width	1/4 inch (6.5 mm) maximum	
	Screw Size	M3 size	
Screw Torque Field terminals: 7–9 in./lb (0.882–1.02 Self-jacking screws: 2.7–3.6 in./lb (0.3- Do not over-tighten screws when instational block		Field terminals: 7–9 in./lb (0.882–1.02 N·m) Self-jacking screws: 2.7–3.6 in./lb (0.3–0.4 N·m). Do not over-tighten screws when installing terminal block	

We recommend using prewired **ZIP**Link cables and connection modules. See Chapter 5.

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



P3-08TRS-1 Isolated Relay Output (continued)

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

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

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

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

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

P3-08TRS-1 Isolated Relay Output (continued)



Replaceable Fuses

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



Wiring Diagrams



P3-16TD3P Sinking/Sourcing Protected Output

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



Module also detects the following faults:

- Missing External 24 VDC
- Open Load
- Over Temperature
- Over Load Current

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

No terminal block sold for this module; **ZIP**Link required. See Chapter 5 for part numbers of **ZIP**Link cables and connection modules required with this module.



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

P3-16TD3P Sinking/Sourcing Protected Output (continued)

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

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

General Specifications			
Surrounding Air Temperature	0° to 60°C (32° to 140°F),		
Storage Temperature	-20° to 70°C (-4° to 158°F)		
Humidity	5 to 95% (non-condensing)		
Environmental Air	No corrosive gases permitted		
Vibration	IEC60068-2-6 (Test Fc)		
Shock	IEC60068-2-27 (Test Ea)		
Field to Logic Side Isolation	1800 VAC applied for 1 second		
Insulation Resistance	>10MΩ @ 500VDC		
Heat Dissipation	5.96 W		
Enclosure Type	Open Equipment		
Module Keying to Backplane	Electronic		
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 System.		
Field Wiring	Use <i>ZIP</i> Link wiring system, see Chapter 5. Must use copper con- ductors rated 75 degrees C or equivalent.		
EU Directive See the "EU Directive" topic in the Productivity3000 He Information can also be obtained at: www.productivitypa			
Weight	112.83 g (3.98 oz)		
Agency Approvals	UL508 file E157382, Canada & USA CE (EN61131-2*)		

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

P3-16TD3P Sinking/Sourcing Protected Output (continued)

LED Status		
Fault Condition	Fault Status Indication	Operation to Reset Fault
Missing External 24VDC	Second LED in row 1 is ON	Apply external 24VDC
Open Load (Note 1)	Corresponding LEDs (row 2	Connect the load
Over Temperature or	and 3) are ON	Turn the output OFF or
Over Load Current		power cycle

Note 1: Open Load Fault is always enabled, but is only valid when output is OFF. If Open Load Fault happens while output is ON, fault will not appear until you turn OFF output.

Wiring Diagrams



*Denotes key location of all associated ZIPLink cables.

P3-16TD3P Sinking/Sourcing Protected Output (continued)



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