

SPECIFICATIONS



CHAPTER 2

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Overview

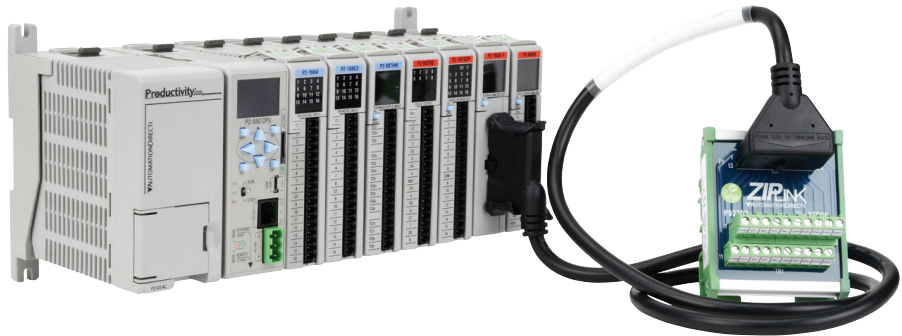
Base Hardware

The Productivity2000 system is a modular system that requires a base to accommodate the various modules. Bases are available in sizes of 4, 7, 11 and 15 I/O module slots. The base 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 high-speed communication pathway directly from the CPU to specialty modules and to the discrete and analog module backplane processor.

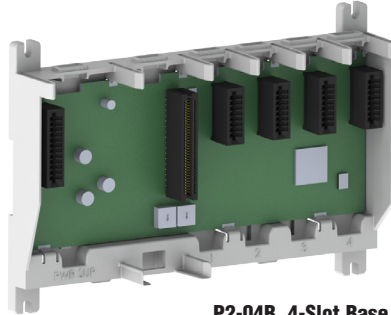
Up to 8 Remote Slaves can be connected to a single P2-550 for a remote I/O network.

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



P2-04B, P2-07B, P2-11B, P2-15B Bases

The P2-04B, P2-07B, P2-11B, and P2-15B are 4, 7, 11, and 15-slot, local, expansion, and remote I/O bases.

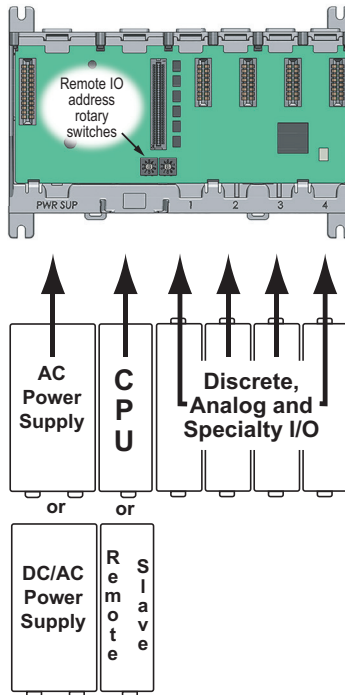


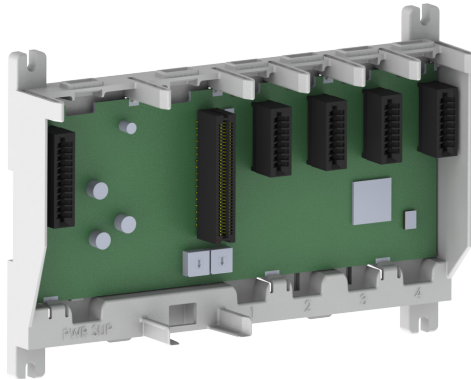
P2-04B 4-Slot Base



NOTE: See Chapter 5 for base dimensions.

Base Configuration





Base Specifications

Input or Output Modules per Base	4, 7, 11, or 15
Power Supply Slots	1 (P2-01AC or P2-01DCAC)
CPU Slots	1 (P2-550)
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, analog and specialty modules can be software enabled for Hot Swap operation)
Module Keying	Electronic to slot
Maximum Number of Local Bases	1

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	3W
Agency Approvals	UL508 file E139594, Canada & USA CE (EN61131-2*)
Weight	P2-04B: 204g (7.2 oz)
	P2-07B: 294g (10.4 oz)
	P2-11B: 430g (15.2 oz)
	P2-15B: 521g (18.4 oz)

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

P2-01AC and P2-01DCAC Power Supply

There are two power supplies available; both provide isolated 24VDC and 3.3 VDC to the Productivity2000 bases.

The P2-01AC input power supply requires power from an external 100–240 VAC source.

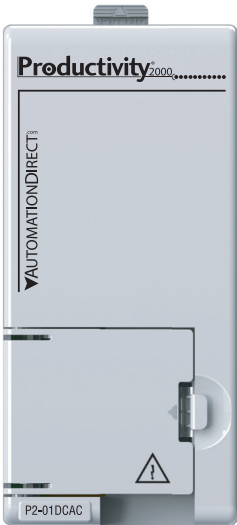
The P2-01DCAC input power supply requires power from an external 24VAC or 12–24 VDC source.

No Power Budgeting

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



P2-01AC



P2-01DCAC

Terminal Block Specifications (both models)	
Number of positions	4 screw terminals
Wire Range	22–12 AWG (0.324 to 3.31 mm²) Solid / Stranded conductor 3/64 in (1.2 mm) insulation maximum Use copper conductors, 75°C or equivalent
Screw Driver Width	1/4 in (6.5 mm) maximum
Screw Size	M3
Screw Torque	7–9 lb·in (0.882–1.02 N·m)

P2-01AC Power Supply

**IMPORTANT!****Hot-Swapping Information**

Note: This device cannot be Hot Swapped.

User Specifications

Input Voltage Range (Tolerance)	100 to 240 VAC (-15% / +10%)
Rated Operating Frequency	50 to 60Hz with $\pm 5\%$ tolerance
Maximum Input Power	37.4 W
Cold Start Inrush Current	23.6 A
Maximum Inrush Current (Hot Start)	25.6 A
Input Fuse Protection (Internal)	Micro fuse 250V, 2A Non-replaceable
Efficiency	75%
Output	UL Rated: 24VDC, 0.85 A 3.3 VDC, 3.81 A
Maximum Output Power	29W Combined
Heat Dissipation	8.4 W
Isolated User 24VDC Output	None
Output Protection for Over Current, Over Voltage, and Over Temperature	Self resetting for both voltage outputs to base
Under Input Voltage Lock-out	55–65 VAC
Over Input Voltage Lock-out	265–280 VAC
Input Transient Protection	Varistor, plus input choke and filter
Operating Design Life	10 years at full load at 40°C ambient and 5 years at 60°C ambient

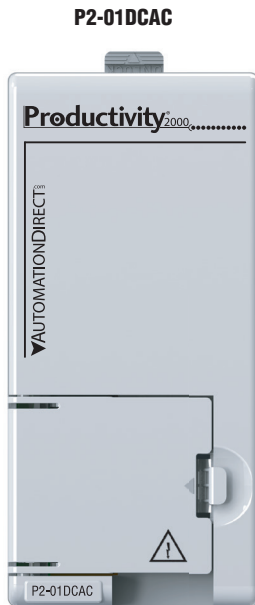
General Specifications

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)	2100VDC applied for 2 seconds
Insulation Resistance	>10M Ω @ 500VDC
Module Location	Power Supply slot in a Productivity2000 System.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Weight	294g (10.4 oz)
Agency Approvals	UL508 File E139594, Canada & USA CE (EN61131-2*)

*Meets EMC and Safety requirements. See the D.O.C. for details.

P2-01DCAC Power Supply

2



IMPORTANT!



Hot-Swapping Information

Note: This device cannot be Hot Swapped.

CPU	Firmware	Productivity Suite
P2-550	Version 1.2.1.16 or later	Version 2.1.x.x or later

P2-01DCAC User Specifications

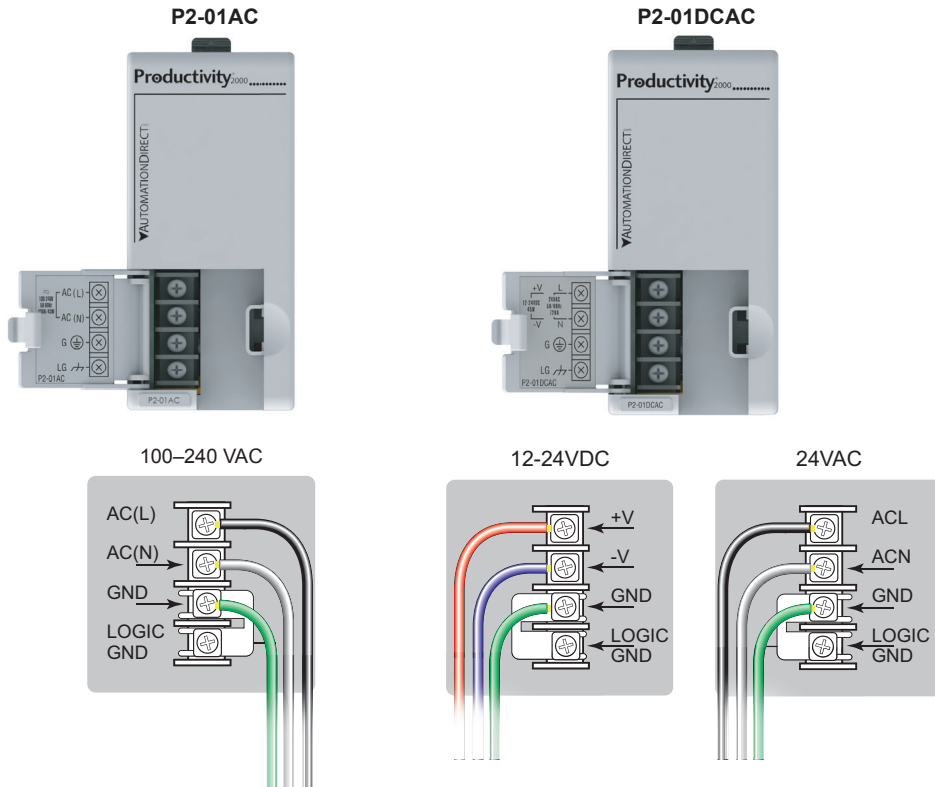
Input Voltage Range (Tolerance)	24VAC (-10% / +20%)	12–24 VDC (-10% / +20%)
Maximum Input Power	72VA	45W
Maximum Input Ripple	Less than $\pm 5\%$	
Cold Start Inrush Current	45A, 4 μ S @ 24VDC	
Maximum Inrush Current (Hot Start)	Same as Cold Start Inrush Current	
Rated Operating Frequency	50 to 60Hz with $\pm 5\%$ tolerance	
Input Fuse Protection (Internal)	Micro Fuse 250V, 6.3 A Slow Blow Non-replaceable	
Input Fuse Protection (External)	6A Slow Blow (Recommended)	
Input Reverse Polarity Protection	Yes	
Output Voltages	24VDC, 0.85 A 3.3 VDC, 3.81 A	
Maximum Output Power	32W Combined	
Isolated User 24VDC Output	None	
Output Protection for Over Current, Over Voltage, and Over Temperature	Self resetting for both voltage outputs to base	
Under Input Voltage Lock-out	Yes, <10VDC	
Over Input Voltage Lock-out	No	
Input Transient Protection	Transorb Plus Input Choke/Filter	
Operating Design Life	10 years at full load at 40°C ambient and 5 years at 60°C ambient	

P2-01DCAC 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	>10M Ω @ 500VDC
Module Location	Power Supply slot in a Productivity2000 System.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Weight	284g (10 oz)
Agency Approvals	UL508 File E139594, Canada & USA CE (EN61131-2*)

*Meets EMC and Safety requirements. See the D.O.C. for details.

Power Connections



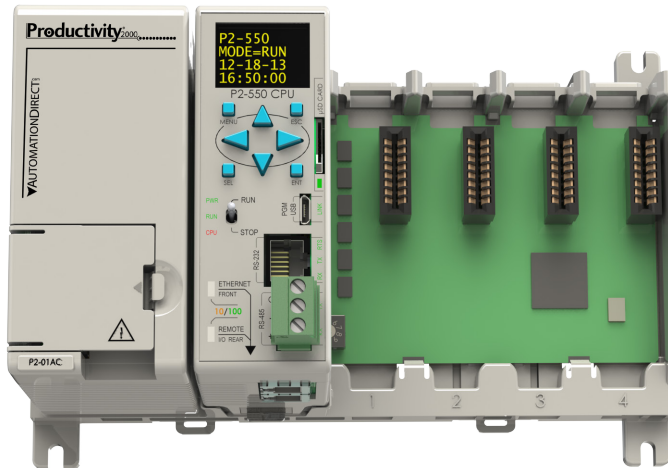
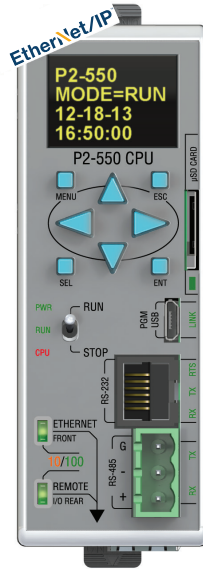
Grounding

A good common ground reference (earth ground) is essential for proper operation of the Productivity2000 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.

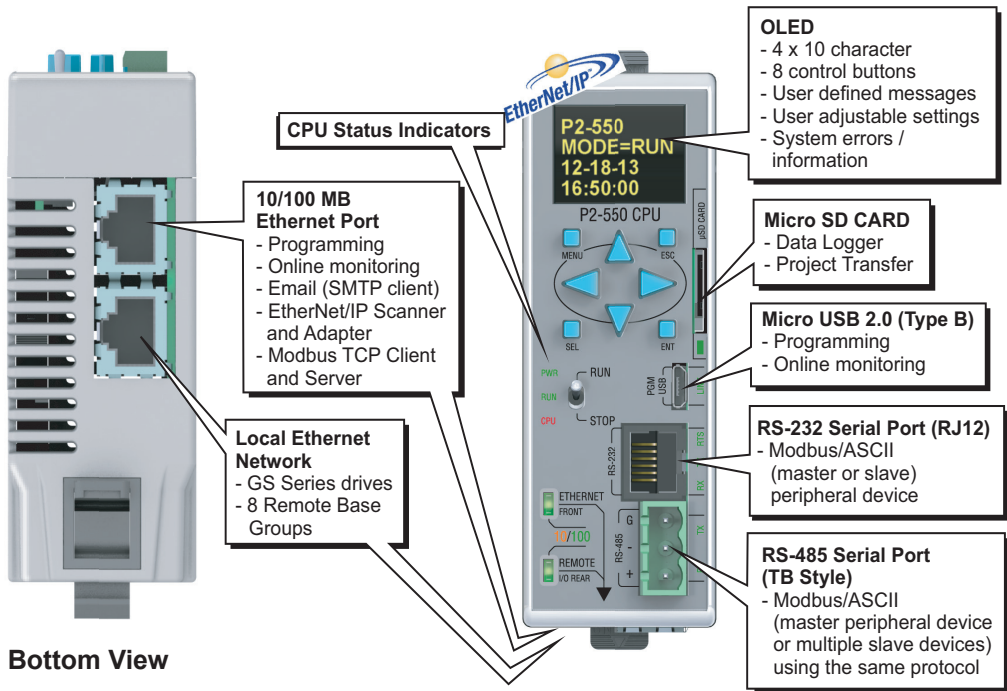
Productivity2000 CPU Module

Each Productivity2000 system base requires one CPU module be mounted in the controller slot of the unit. The CPU stores and executes the user's program.

P2-550



P2-550 Specifications

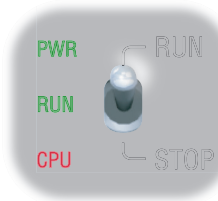


CPU Run/Stop Switch

RUN position	Executes user program, run-time edits possible
STOP position	Does not execute user program, normal program load position

CPU Status Indicators

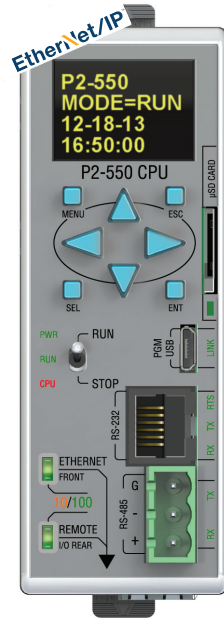
PWR	Green LED is illuminated when power is ON
RUN	Green LED is illuminated when CPU is in RUN mode
CPU	Red LED is illuminated during power ON reset, power down, or watch-dog time-out.



CPU Specifications*

User Memory	50MB (Includes program, data and documentation)	
Memory Type	Flash and Battery Backed RAM	
Retentive Memory	500kB	
Scan Time	500µs (3K Boolean, 240 I/O)	
Display	OLED, 4x10 characters, 8 control buttons; OLED characters are 7x12 with a dot pitch of 0.245 mm; 1.7 mm x 2.94 mm	
Communications; 5 Integrated Ports	USB IN: Programming, Monitoring, Debug, Firmware ETHERNET: (10/100 Mbps Ethernet) Programming, Monitoring, Debug, Firmware, Email SMTP Client, Modbus TCP Client (32 Servers) and Server (16 Clients), EtherNet/IP Scanner (32 Adapters) and Adapter (4 scanners) with 8 connections per device. REMOTE I/O: 16 GS-EDRV100 (GS Drives), 8 Remote Base Groups RS-232: (RJ12, 1200–115.2 kbaud) ASCII, Modbus RS-485: Removable Terminal Included, (1200–115.2 kbaud) ASCII, Modbus RTU	
Data Logging/Project Transfer	microSD card slot	
Hardware Limits of System	240 Hardware I/O Points: All 16-point I/O Modules 16 GS Series Drives as Local Network I/O 8 Remote Base Groups	
Instruction Types	Application Functions Array Functions Counters/Timers Communications Data Handling Drum Sequencers Math Functions	PID Program Control String Functions System Functions Contacts Coils
Real Time Clock Accuracy	±5s per day typical at 25°C ±15s per day maximum at 60°C	

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



IMPORTANT!



Hot-Swapping Information

Note: This device cannot be Hot Swapped.

OLED Message Display

The P2-550 CPU incorporates a 4 line by 10 character OLED for system alarms, information and for displaying user-defined messages. OLED characters are 7x12 (1.72 mm x 2.94 mm) with a dot pitch of 0.245 mm.

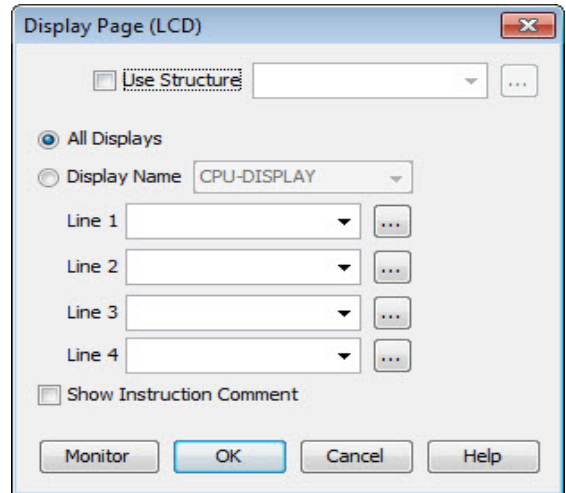
OLED control buttons located beneath the display allow the user to navigate through menu items. These buttons also permit local configuration of time and date settings.

For user defined messages, the display is configured using the Productivity Suite Programming Software. A “Display Page” instruction dialog box allows the user to program text into user-defined tags and display the messages based on the programmed ladder execution.



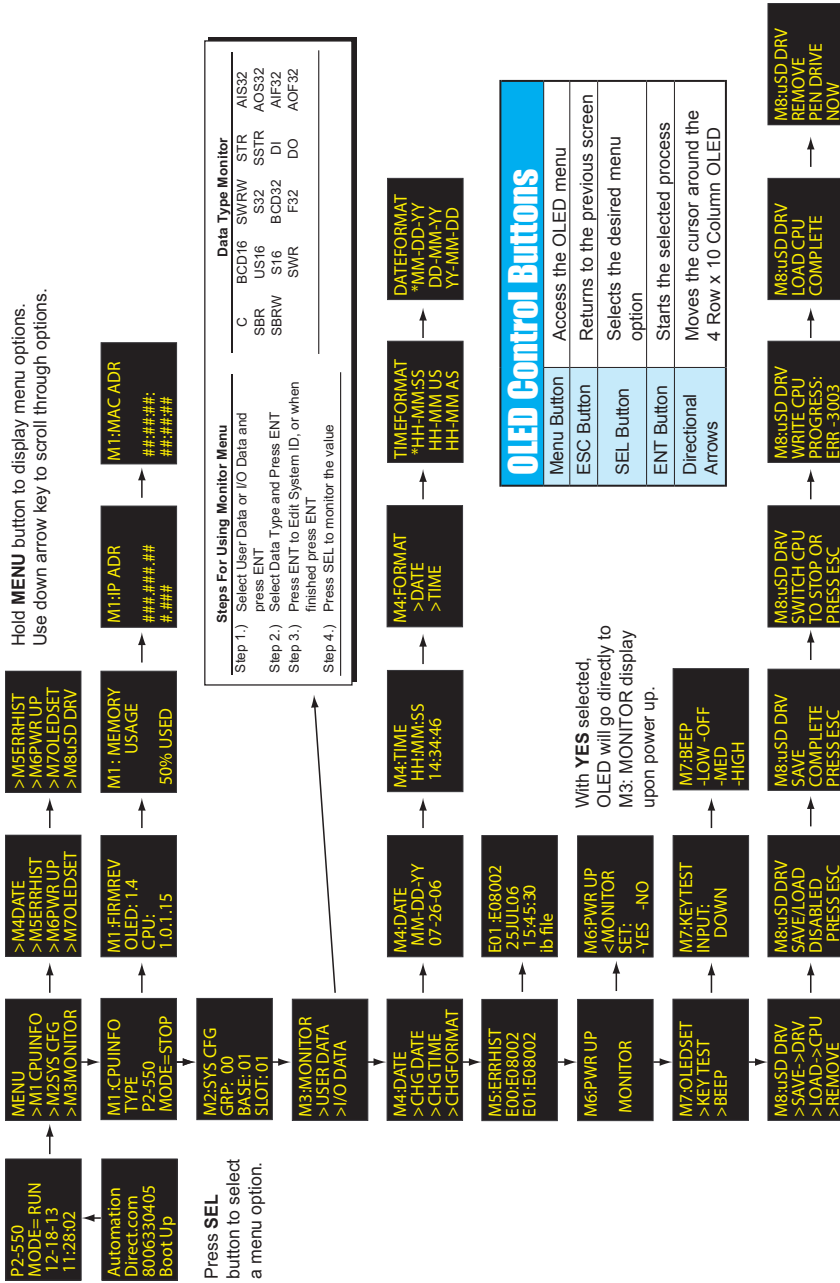
OLED Control Buttons

Menu Button	Access the OLED 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 OLED



Front Panel OLED Monitoring and Configuration

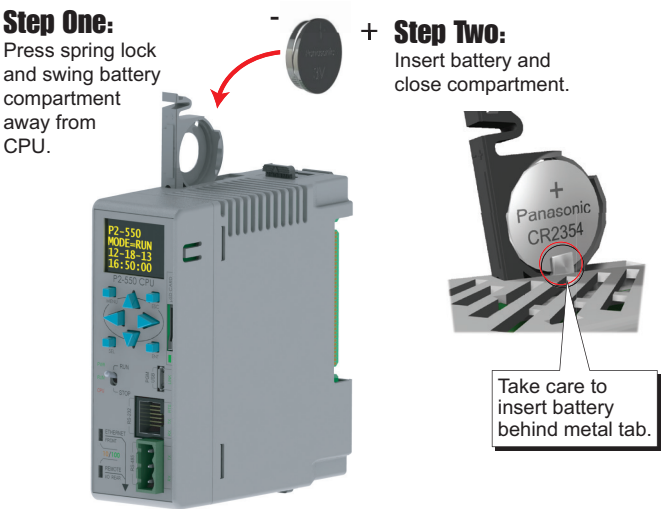
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Battery (Optional)

A battery is included with the P2-550 CPU module, but is not installed. The battery may be installed in order to retain the Time and Date along with any Tagname values that are set up as retentive.

The battery is not needed for program backup.

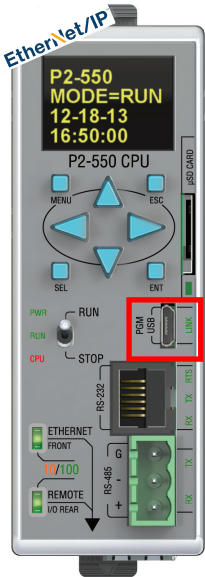


Battery (Optional)	
D2-BAT-1	Coin type, 3.0 V Lithium battery, 560mA, battery number CR2354
<p>Note: Although not needed for program backup, a battery is included with the P2-550. Install this battery if you want the CPU to retain the Time and Date along with any Tagname values that you have set up as retentive.</p>	

Port Specifications

The P2-550 CPU has several communications ports and the following pages contain their specifications and pin-out diagrams.

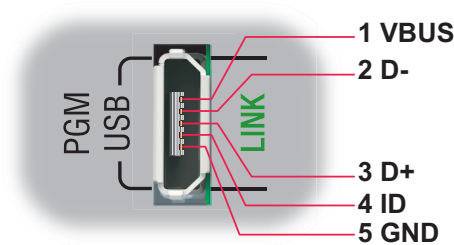
2 P2-550



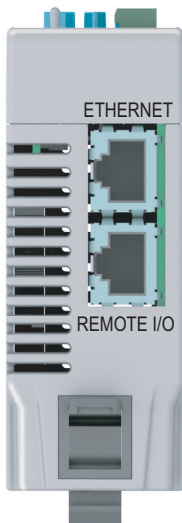
MICRO USB Programming Port

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

Micro USB Input Specifications	
Port Name	MICRO USB
Description	Standard Micro USB Slave input for programming and on-line monitoring, with built-in surge protection. Not compatible with older full speed USB devices.
Transfer Rate	480 Mbps
Port Status LED	Green LED is illuminated when LINK is established to programming software.
Cables	USB Type A to Micro USB Type B: 6ft cable part # USB-CBL-AMICB6 15ft cable part # USB-CBL-AMICB15



P2-550



P2-550 BOTTOM VIEW

Ethernet Port (On bottom of CPU)

RJ-45 style connector used for:

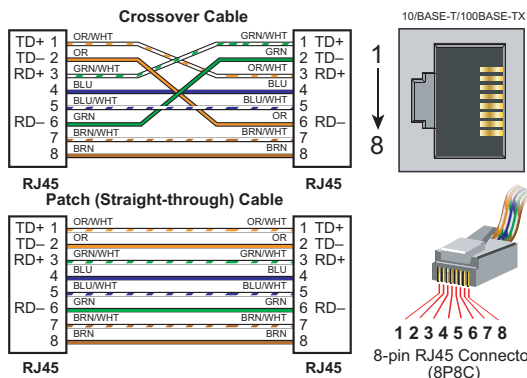
- Connection to a PC running the ProductivitySuite programming software
- Modbus TCP Client (32 Servers) connections (Modbus requests sent from the CPU)
- Modbus TCP Server (16 Clients) connections (Modbus requests received by the CPU)
- EtherNet/IP Scanner (32 Adaptors)
- EtherNet/IP Adapter (4 scanners) with 8 connections per device.
- Outgoing Email

Remote I/O Port (On bottom of CPU)

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

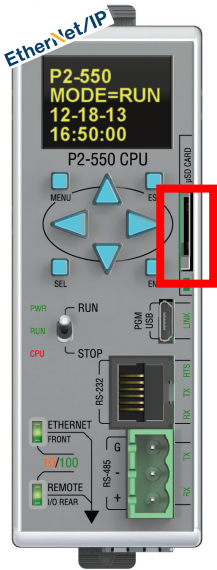
Ethernet Specifications

Port Name	ETHERNET	REMOTE I/O
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 connections.	Standard transformer isolated Ethernet port with built-in surge protection for connection to 16 GS Series Drives.
Transfer Rate	10 Mbps (Orange LED) and 100 Mbps (Green LED) [Auto-MDIX (cross-over)].	
Port Status LED	LED is solid when network LINK is established. LED flashes when port is active (ACT).	



P2-550

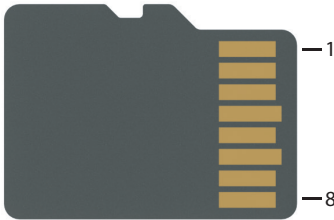
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MICRO SD SLOT

Used for data logging or project transfers.

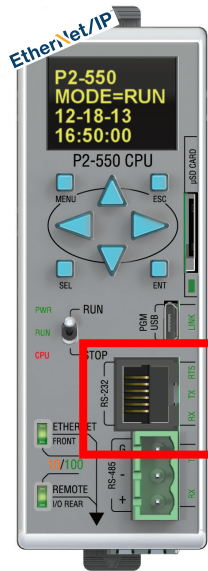
Micro SD Specifications				
Port Name	MICRO SD			
Description	Standard Micro SD socket for data logging or program transfer			
Maximum Card Capacity	32GB			
Transfer Rate (ADATA microSDHC Class 4 memory card)	Mbps	Minimum	Typical	Maximum
	Read	14.3	14.4	14.6
	Write	4.8	4.9	5.1
Port Status LED	Green LED is illuminated when card is inserted/ detected			



Pin	SD
1	DAT2
2	CD/DAT3
3	CMD
4	VDD
5	CLK
6	VSS
7	DAT0
8	DAT1

Note: Card not included with unit.

P2-550



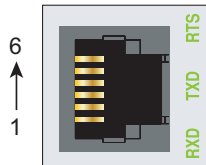
RS-232 Port

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

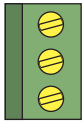
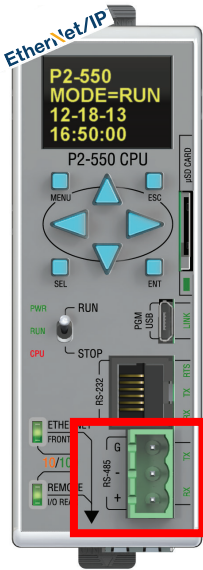
Port Name	RS-232
Description	Non-isolated RS-232 DTE port connects the CPU as a Modbus/ASCII master or slave to a peripheral device. Includes ESD and built-in surge protection
Data Rates	Selectable, 1200, 2400, 4800, 9600, 19200, 33600, 38400, 57600, and 115200 baud
+5V Cable Power Source	210mA maximum at 5V, +/- 5%. Reverse polarity and overload protected
TXD	RS-232 Transmit output
RXD	RS-232 Receive input
RTS	Handshaking output for modem control
GND	Logic ground
Maximum Output Load (TXD/RTS)	3kΩ, 1000pf
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	EA-MG-PGM-CBL D2-DSCBL USB-RS232 with D2-DSCBL FA-CABKIT FA-ISOCON for converting RS-232 to isolated RS-485



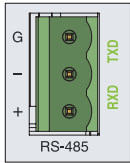
6-pin RJ12 Female Modular Connector

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

P2-550



Removable connector included.
Spare connectors available
(part no. P2-RS485CON).



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

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 cancellation when transmitter is active
Data Rates	Selectable, 1200, 2400, 4800, 9600, 19200, 33600, 38400, 57600, and 115200 baud
TXD+/RXD+	RS-485 transceiver high
TXD-/RXD-	RS-485 transceiver low
GND	Logic ground
Input Impedance	19kΩ
Maximum Load	50 transceivers, 19kΩ each, 60Ω termination
Output Short Circuit Protection	±250mA, thermal shut-down protection
Electrostatic Discharge Protection	±8kV per IEC1000-4-2
Electrical Fast Transient Protection	±2kV per IEC1000-4-4
Minimum Differential Output Voltage	1.5 V with 60Ω load
Fail Safe Inputs	Logic high input state if inputs are unconnected
Maximum Common Mode Voltage	-7.5 V to 12.5 V
Port Status LED	Green LED illuminated when active for TXD and RXD
Cable Options	L19827-100, L19827-500, L19827-1000 or Belden 9841 equivalent.

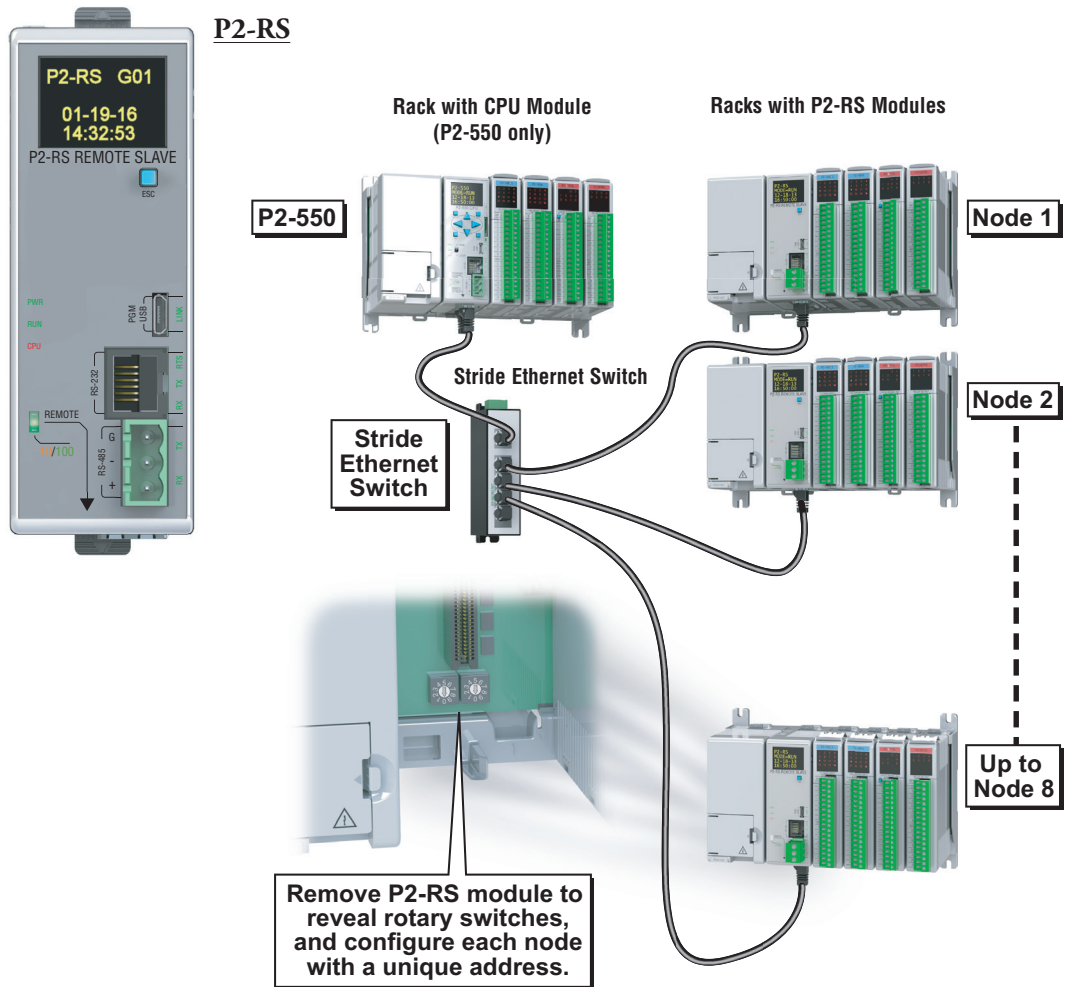
Removable Terminal Block Specifications

Part Number	P3-RS485CON
Number of Positions	3 Screw Terminals
Pitch	5mm
Wire Range	28–12 AWG Solid Conductor 30–12 AWG Stranded Conductor
Screw Driver Width	1/8 inch (3.175 mm) Maximum
Screw Size	M2.5
Screw Torque	4.5 lb-in (0.51 N·m)

Remote Slave Module

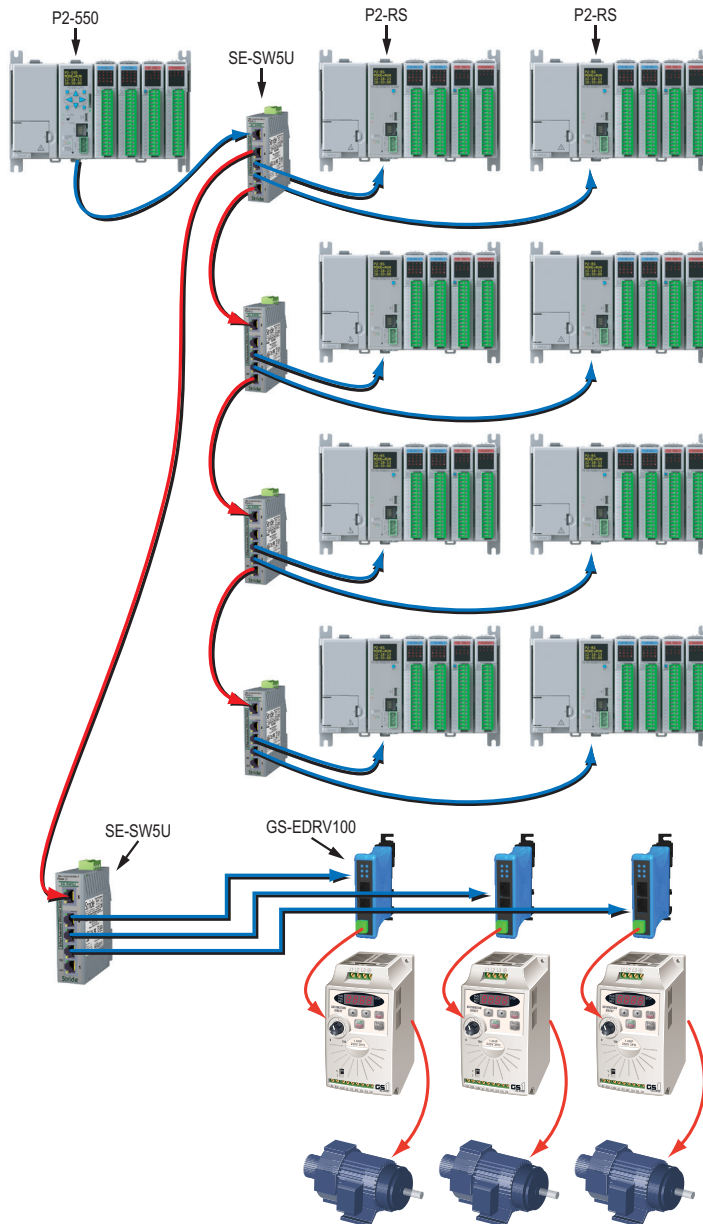
The P2-RS is high-performance Remote Slave module. The module features several communications ports which support Ethernet Remote I/O, and serial devices. The P2-RS also includes a 4 line x 10 character OLED display and an additional USB IN (Mini USB type A) port for remote CPU programming and monitoring.

Up to 8 Remote Slaves can be connected to a single P2-550 for a remote I/O network.



P2-RS Remote Slave Module Example

Add up to 8 Remote Bases using P2-RS Slave modules
and up to 16 GS Drives on the Remote I/O Ethernet Network



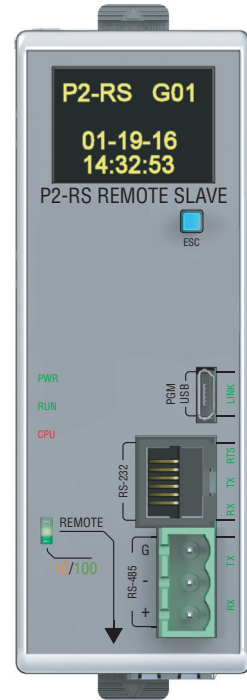
P2-RS Remote Slave Module Specifications

Remote Slave Specifications	
Mounting Location	Controller slot in remote base
Display	OLED, 4x10 characters, backlit, 1 OLED wake up button, OLED characters are 7x12 with a dot pitch of 0.245 mm; 1.72 mm x 2.94 mm
Communications	USB IN: (2.0, Type B) Programming, Monitoring, Debug REMOTE I/O: (10/100 Mbps Ethernet) 1 P2-550 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	8
Max. Number of I/O per CPU System	4,320 (CPU Base with 8 Remote I/O Bases with 15, 32 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	3.8 W
Enclosure Type	Open Equipment
Module Location	Controller slot in a remote base in a Productivity2000 System
EU Directive	See the "EU Directive" topic in the Productivity2000 Help File. Information can also be obtained at: www.productivity2000.com
Weight	158g (5.6 oz)
Agency Approvals	UL508 file E139594, Canada & USA CE (EN61131-2*)

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

NOTE: When using a P2-RS module, you must use software version 2.2.0.X and firmware CPU firmware version 1.2.2.X.



IMPORTANT!

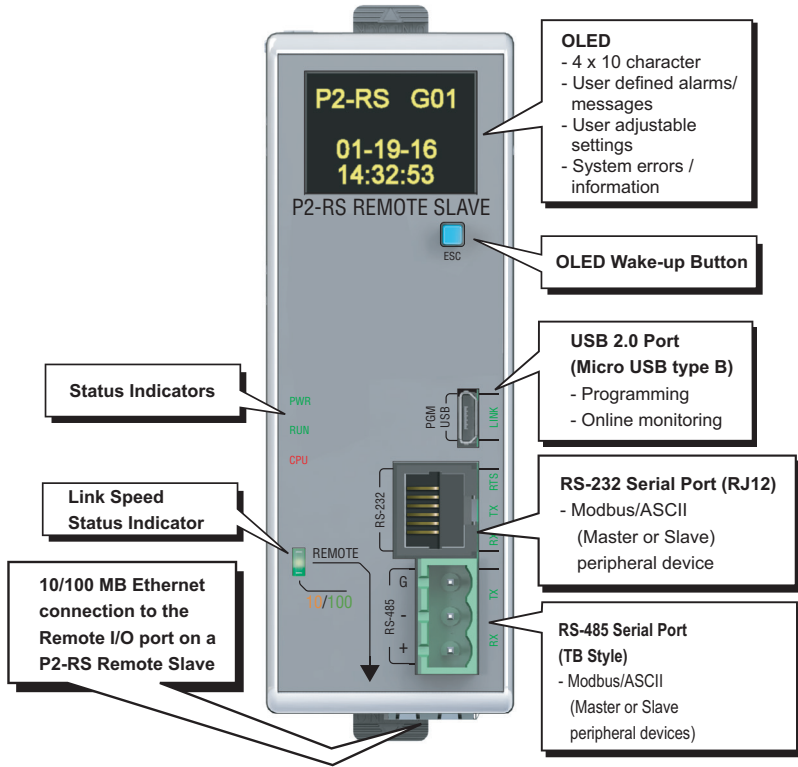


Hot-Swapping Information

Note: This device cannot be Hot Swapped.

P2-RS Remote Slave Module Front Panel

2



Status Indicators

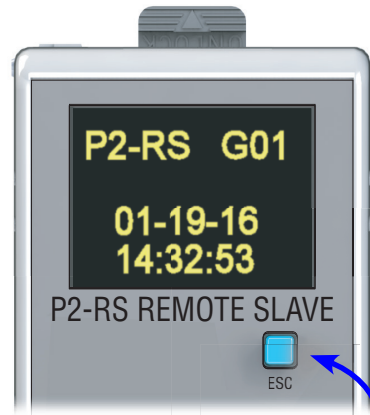
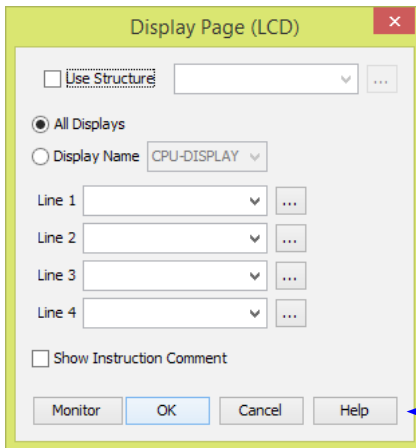
RS Status Indicators	
PWR	Green LED is backlit when power is on
RUN	Green LED is backlit when CPU is in RUN mode
CPU	Red LED is backlit during power on reset, power down, or watch-dog time-out.

PWR
RUN
CPU

OLED Message Display

The P2-RS incorporates a 4 line x 10 character OLED for system errors and information or for displaying user-defined messages.

OLED characters are 7x12 with a dot pitch of 0.245 mm; 1.72 mm x 2.94 mm.



Wake Up button refreshes timed out display.

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

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

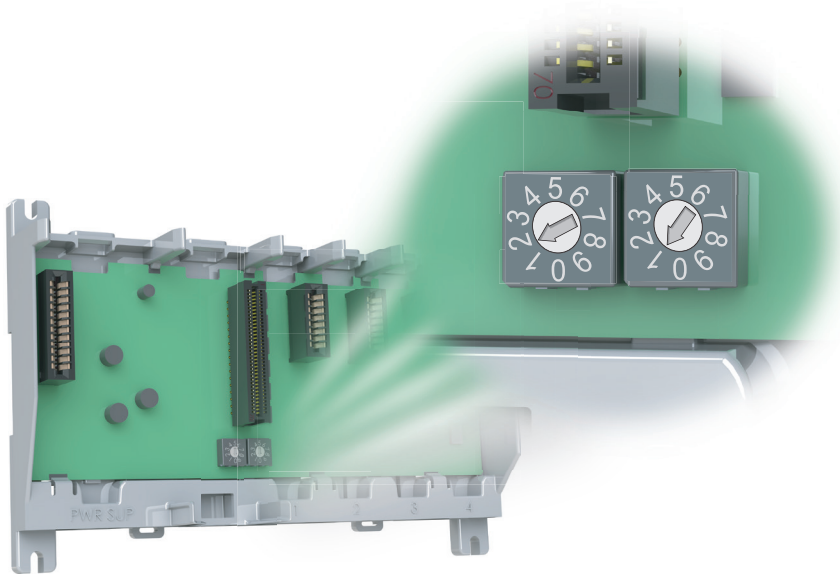
Setting Remote Slave Address

Each Remote Slave must have a unique address between 1 and 99. The address is set using the two rotary switches located in the base; 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 for the Remote Slave.
- Address selection must be set prior to power-up.
- Slave addresses are read only on power-up.
- If there are duplicate P2-RS slave addresses on the same network, a critical error will be displayed on the CPU.

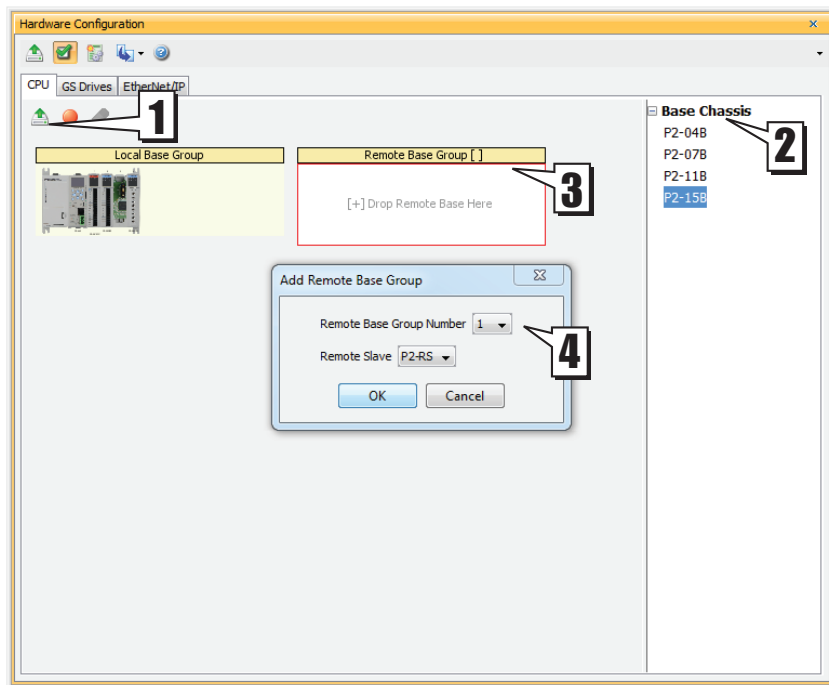


Setting the Remote Slave Address (continued)

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

For example, if connected online to a Productivity2000 system with slaves installed, go to *Hardware Configuration* and select the *Read Configuration* (1) icon. 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.

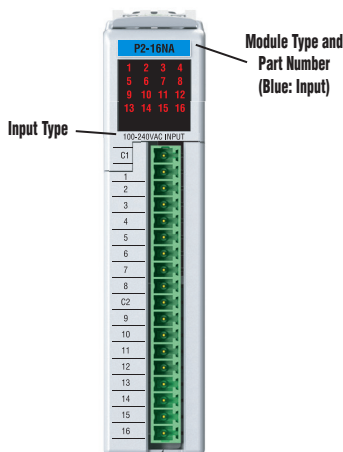


I/O Modules Overview

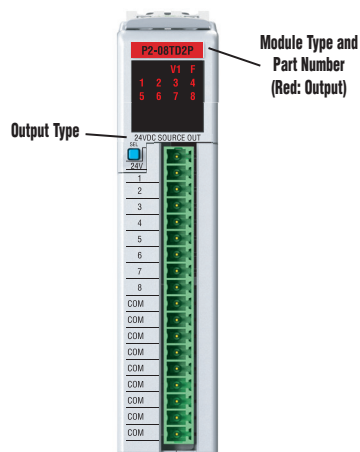
A variety of discrete and analog I/O modules are available for use in the P2000 System.

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.

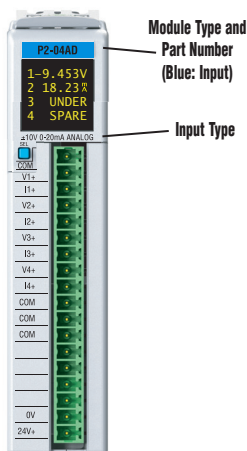
Discrete Input Modules



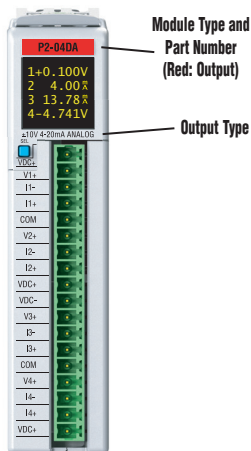
Discrete Output Modules



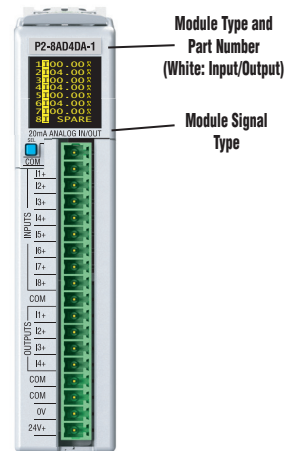
Analog Input Modules



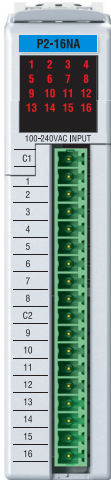
Analog Output Modules



Analog Input/Output Modules

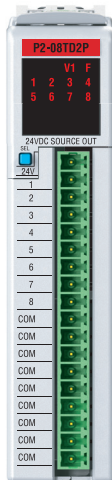


Discrete I/O Modules



Discrete Input Modules

Productivity2000 Discrete Input Modules			
Part Number	Number of Inputs	Description	See Page
P2-08SIM	8	Input Simulator Module	2-29
P2-08ND3-1	8	Sinking/Sourcing 12–24 VDC	2-30
P2-16ND3-1	16	Sinking/Sourcing 12–24 VDC	2-33
P2-08NE3	8	Sinking/Sourcing 24V AC/DC	2-39
P2-16NE3	16	Sinking/Sourcing AC/DC	2-42
P2-32ND3-1	32	Sinking/Sourcing 12–24 VDC	2-36
P2-32NE3	32	Sinking/Sourcing 24V AC/DC	2-45
P2-08NAS	8	AC Isolated 100–120 VAC	2-48
P2-16NA	16	AC Isolated 100–240 VAC	2-51



Discrete Output Modules

Productivity2000 Discrete Output Modules			
Part Number	Number of Outputs	Description	See Page
P2-08TD1S	8	Isolated Sinking	2-54
P2-08TD2S	8	Isolated Sourcing	2-57
P2-15TD1	15	Sinking	2-60
P2-15TD2	15	Sourcing	2-63
P2-08TD1P	8	Sinking, Protected	2-66
P2-08TD2P	8	Sourcing, Protected	2-69
P2-16TD1P	16	Sinking, Protected	2-72
P2-16TD2P	16	Sourcing, Protected	2-75
P2-32TD1P	32	Sinking, Protected	2-78
P2-32TD2P	32	Sourcing, Protected	2-81
P2-08TAS	8	Isolated AC	2-84
P2-16TA	16	AC Output	2-87
P2-08TRS	8	Isolated Relay	2-90
P2-16TR	16	Relay Output	2-93

P2-08SIM Input Simulator Module

The P2-08SIM Input Simulator Module provides 8 toggle switches to simulate input devices.

2



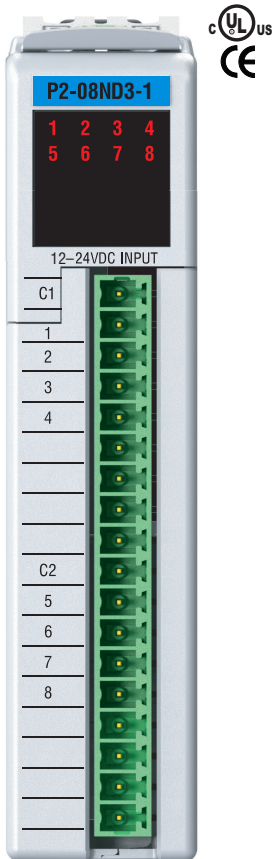
Input Specifications	
Inputs per Module	8 Internal switches
OFF to ON Response	Max. 20ms
ON to OFF Response	Max. 20ms
Status Indicators	Logic Side (8 points)

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Heat Dissipation	200mW
Enclosure Type	Open Equipment
Module Location	Any I/O slot in a Productivity2000 System.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Weight	90g (3.2 oz)
Agency Approvals	UL 508 file E139594, Canada & USA CE (EN61131-2*)

* Meets EMC and Safety requirements. See the D.O.C. for details.

P2-08ND3-1 Sinking/Sourcing DC Input

The P2-08ND3-1 Module provides eight 12–24 VDC sinking/sourcing inputs.



Input Specifications

Inputs per Module	8 (Sinking/Sourcing)
Voltage Rating	12–24 VDC
Input Voltage Range	10.2–26.4 VDC
Peak Voltage	30VDC
Input Current	3.5 mA @ 12VDC 7.5 mA @ 24VDC
Maximum Input Current @ Temp	10mA @ 26.4 VDC
ON Voltage Level*	> 9.5 VDC
OFF Voltage Level	< 7VDC
Maximum ON Current	2mA
Maximum OFF Current	1.6 mA
OFF to ON Response	2ms Maximum, 1ms Typical
ON to OFF Response	
Status Indicators	Logic Side (8 points)
Commons	2 (4 points/common) Isolated

Terminal blocks sold separately.

CPU	Productivity Suite
P2-550	Version 3.1.x.x or later

We recommend using pre-wired **ZIP**Link cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1



P2-08ND3-1 Sinking/Sourcing DC Input, (continued)

2

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	325mW
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 System.
Field Wiring	Use ZIPLink wiring system or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position removable terminal block
Weight	90g (3.2 oz)
Agency Approvals	UL61010-2-201 file E139594, Canada & USA CE (EN61131-2 EMC and EN61010-2-201 Safety*)

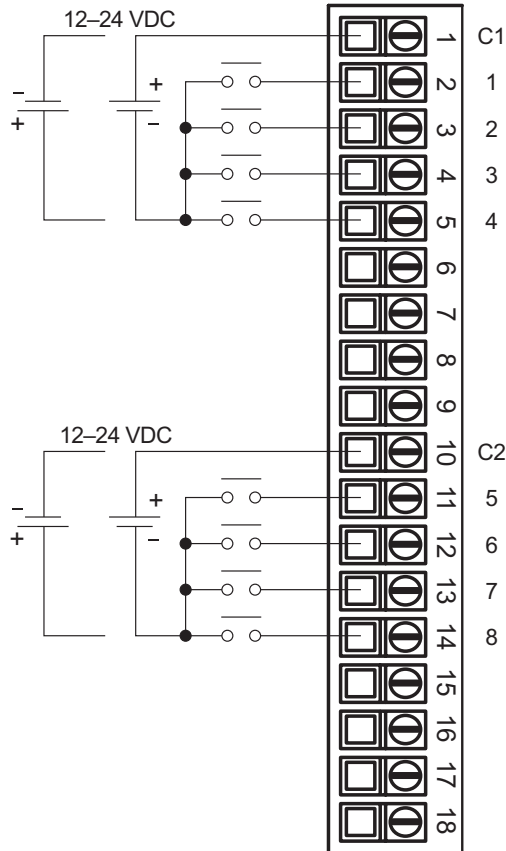
*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

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

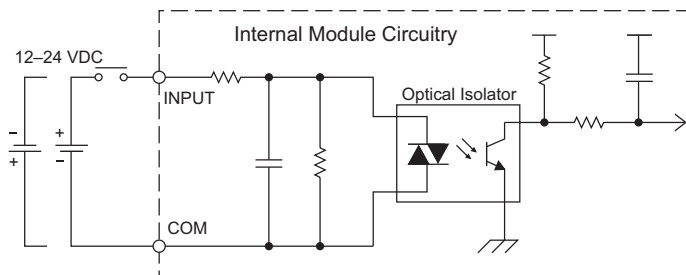
Removable Terminal Block Specifications*		
Part Number	P2-RTB	P2-RTB-1
Number of Positions	18 screw terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 19/64 in (7–8 mm) Strip Length
Conductors	USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N-m)	N/A

P2-08ND3-1 Sinking/Sourcing DC Input (continued)

Wiring Diagrams

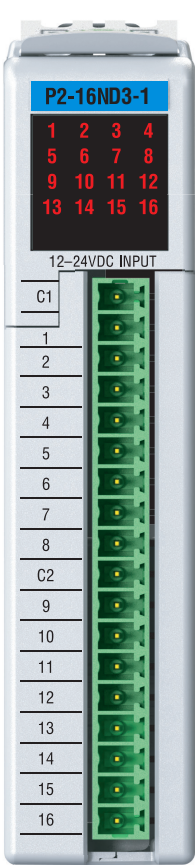


Equivalent Input Circuit



P2-16ND3-1 Sinking/Sourcing DC Input

The P2-16ND3-1 Input Module provides sixteen inputs for switches and other devices connected to ground or to supplies ranging from 12–24 VDC.



Input Specifications	
Inputs per Module	16 (Sink/Source)
Voltage Rating	12–24 VDC
Input Voltage Range	10.2–26.4 VDC
Peak Voltage	30VDC
Input Current	3.5 mA @ 12VDC 7.5 mA @ 24VDC
Maximum Input Current @ Temp	10mA @ 26.4 VDC
ON Voltage Level*	> 9.5 VDC
OFF Voltage Level	< 7VDC
Maximum ON Current	2mA
Maximum OFF Current	1.6 mA
OFF to ON Response	2ms Maximum, 1ms Typical
ON to OFF Response	
Status Indicators	Logic Side (16 points)
Commons	2 (8 points/common) Isolated

Terminal blocks sold separately.

CPU	Productivity Suite
P2-550	Version 3.1.x.x or later

We recommend using pre-wired **ZIP**Link cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1



P2-16ND3-1 Sinking/Sourcing Input (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 @ 500 VDC
Heat Dissipation	400mW
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 System.
Field Wiring	Use ZIPLink wiring system or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position removable terminal block
Weight	90g (3.2 oz)
Agency Approvals	UL61010-2-201 file E139594, Canada & USA CE (EN61131-2 EMC and EN61010-2-201 Safety*)

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

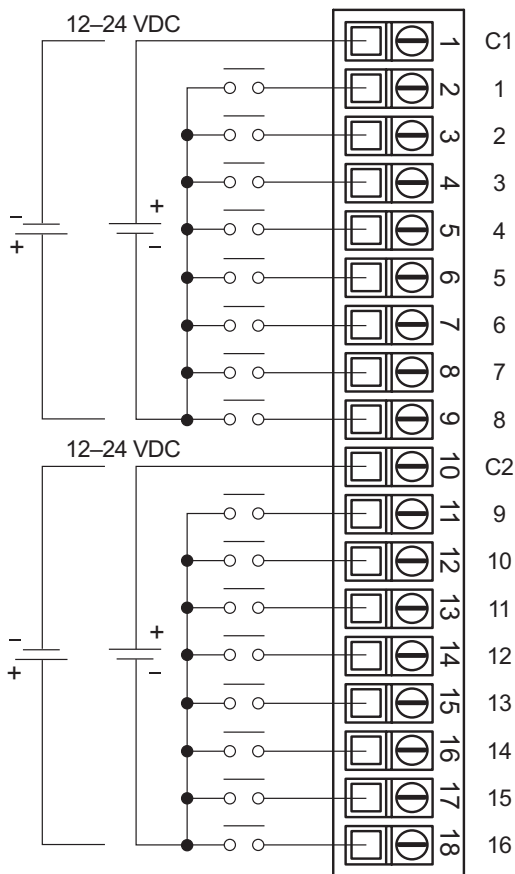
**To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific component part number web page.

Removable Terminal Block Specifications		
Part Number	P2-RTB*	P2-RTB-1*
Number of Positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N-m)	N/A

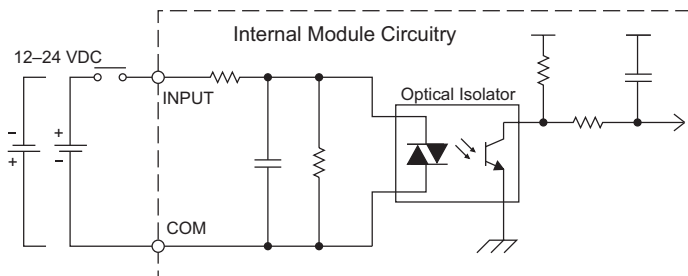
P2-16ND3-1 Sinking/Sourcing Input (continued)

Wiring Diagrams

2



Equivalent Input Circuit



P2-32ND3-1 24VDC Sinking/Sourcing Input

The P2-32ND3-1 DC Input Module provides thirty-two sinking/sourcing 12–24 VDC inputs for use with the Productivity2000 System.



Input Specifications

Inputs per Module	32 (Sink/Source)
Voltage Rating	12–24 VDC
Input Voltage Range	10.2–26.4 VDC
Peak Voltage	30VDC
Input Current	3.5 mA @ 12VDC 7.5 mA @ 24VDC
Maximum Input Current @ Temp	10mA @ 26.4 VDC
ON Voltage Level*	> 9.5 VDC
OFF Voltage Level	< 7VDC
Maximum ON Current	2mA
Maximum OFF Current	1.6 mA
OFF to ON Response	2ms Maximum, 1ms Typical
ON to OFF Response	
Status Indicators	Logic Side (32 points)
Commons	4 Isolated (8 points/common)

Connector Specifications

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

CPU	Productivity Suite
P2-550	Version 3.1.x.x or later

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



P2-32ND3-1 24VDC Sinking/Sourcing Input (continued)

2

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC 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 a Productivity2000 System.
Field Wiring	Use ZIPLink Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Weight	104g (3.7 oz)
Agency Approvals** (See note below)	UL 61010-2-201 file E139594, Canada & USA CE (EMC: EN61131-2 and, SAFETY: EN61010-2-201 *)

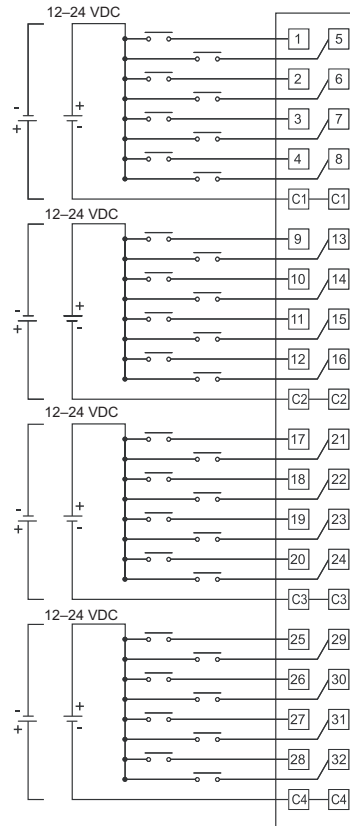
*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

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

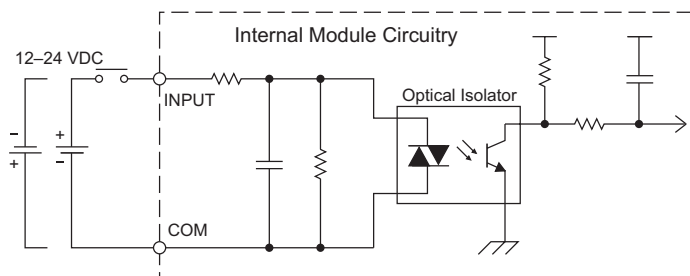
NOTE: P2-32ND3-1 is UL/CUL compliant only when used with **ZIPLink** module ZL-RTB40 or ZL-RTB40-1.

P2-32ND3-1 24VDC Sinking/Sourcing Input (continued)

Wiring Diagrams

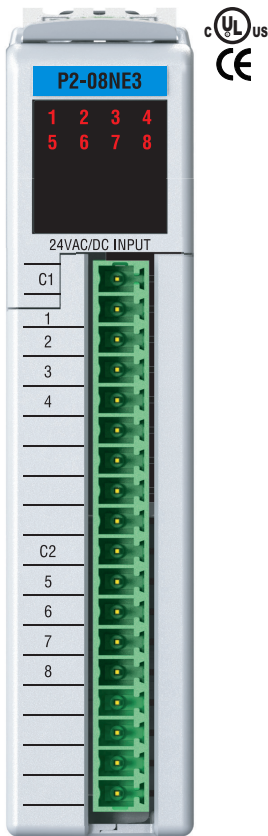


Equivalent Input Circuit



P2-08NE3 AC/DC Sinking/Sourcing Input

The P2-08NE3 AC/DC Input Module provides eight 24V AC or DC sinking/sourcing inputs.



Input Specifications	
Inputs per Module	8 (Sinking/Sourcing)
Voltage Range	24V AC/DC
Input Voltage Range	20.4–27.6 VAC/VDC
Peak Voltage	27.6 VAC/ 30VDC
AC Frequency	47–63 Hz
Input Current (Typical)	3.4 mA @ 24 VAC/VDC
Maximum Input Current @ Temp	5.0 mA @ 27.6 VAC/VDC
ON Voltage Level	>12VDC, >9VAC
OFF Voltage Level	<10.5 VDC, <9VAC
Minimum ON Current	2.5 mA
Maximum OFF Current	0.5 mA
OFF to ON Response	DC: 6ms > max AC: 10ms
ON to OFF Response	DC: 10ms > max AC: 20ms
Status Indicators	Logic Side (8 points)
Commons	2 Isolated (4 points/common)

Terminal blocks sold separately.

CPU	Firmware	Productivity Suite
P2-550	Version 1.2.1.16 or later	Version 2.1.x.x or later

We recommend using pre-wired **ZIPLink** cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1



P2-08NE3 AC/DC Sinking/Sourcing Input, (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	325mW
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 System.
Field Wiring	Removable terminal block (not included). Use ZIP Link wiring system or optional terminal block. See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position removable terminal block
Weight	90g (3.2 oz)
Agency Approvals	UL508 file E139594, Canada & USA CE (EN61131-2*)

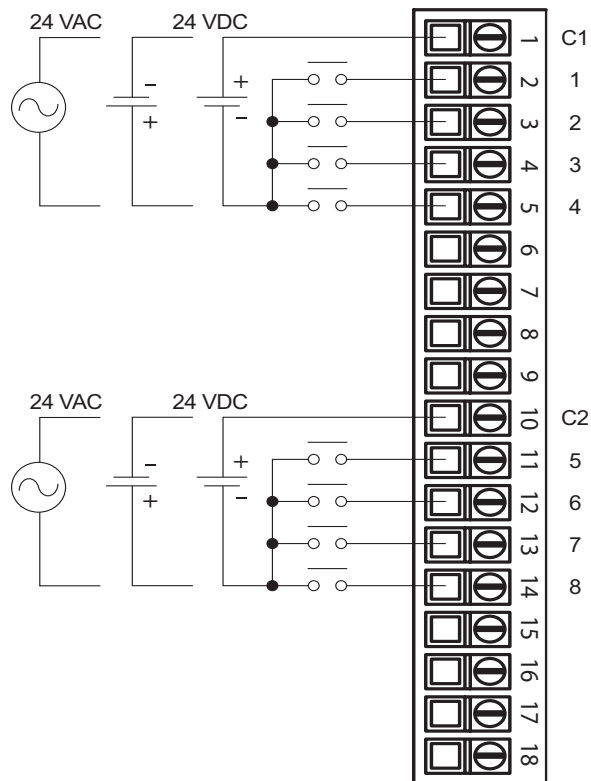
* Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Removable Terminal Block Specifications*

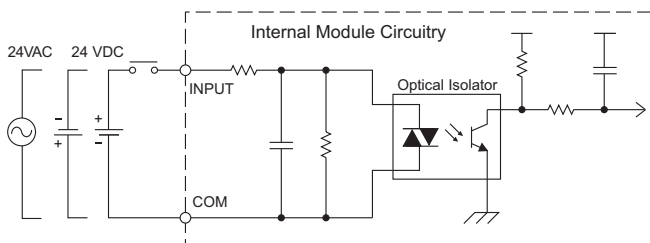
Part Number	P2-RTB	P2-RTB-1
Number of Positions	18 screw terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 19/64 in (7–8 mm) Strip Length
Conductors	USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N-m)	N/A

P2-08NE3 AC/DC Sinking/Sourcing Input (continued)

Wiring Diagrams

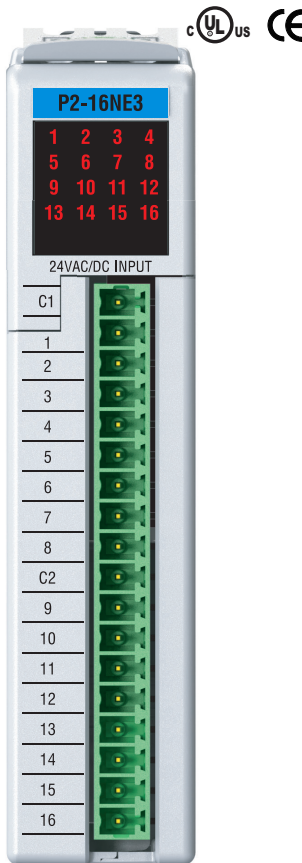


Equivalent Input Circuit



P2-16NE3 AC/DC Sinking/Sourcing Input

The P2-16NE3 AC/DC Input Module provides sixteen 24V AC/DC sinking or sourcing inputs with four isolated commons.



Terminal blocks sold separately.

Input Specifications

Inputs per Module	16 (Sinking/Sourcing)
Operating Voltage Range	24V AC/DC
Input Voltage Range	20.4–27.6 VAC/VDC
Peak Voltage Range	27.6 VAC/ 30VDC
AC Frequency	47– 63 Hz
Input Current (typical)	3.4 mA @ 24 VAC/VDC
Maximum Input Current	5.0 mA @ 27.6 VAC/VDC
ON Voltage Level	>12VDC, >9VAC
OFF Voltage Level	<10.5VDC, <9VAC
Minimum ON Current	2.5 mA
Maximum OFF Current	0.5 mA
OFF to ON Response	DC: 6ms >max; AC: 10ms
ON to OFF Response	DC:10ms >max; AC: 20ms
Status Indicators	Logic Side (16 Points)
Commons per Module	2 (8 points/common) Isolated

Removable Terminal Block Specifications

Part Number	P2-RTB*	P2-RTB-1*
Number of Positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N-m)	N/A

We recommend using pre-wired **ZIPLink** cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1



P2-16NE3 AC/DC Sinking/Sourcing Input (continued)

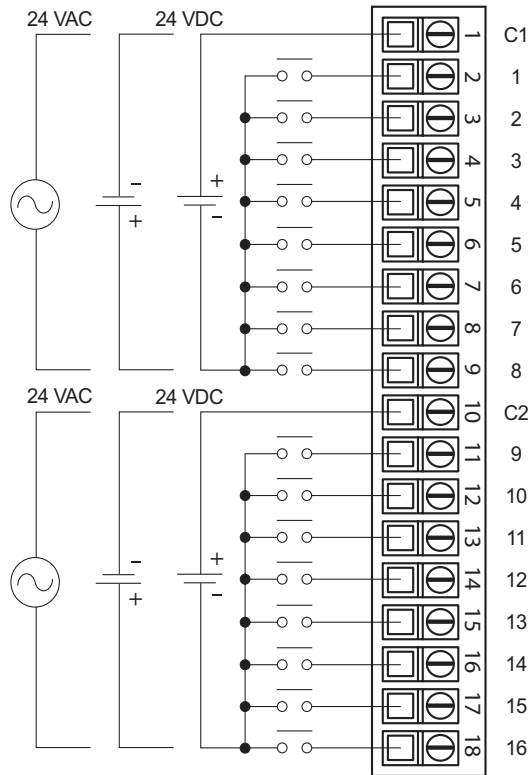
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General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	400mW
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 System.
Field Wiring	Use ZIPLink Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity 2000 Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position removable terminal block
Weight	90g (3.2 oz)
Agency Approvals	UL 508 file E139594, Canada & USA CE (EN61131-2*)

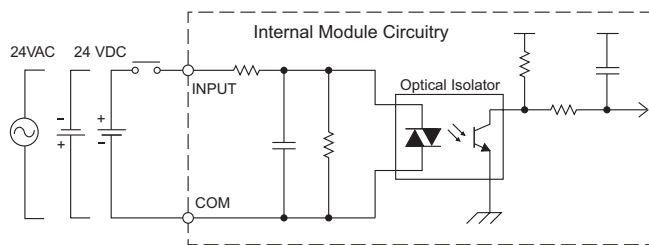
* Meets EMC and Safety requirements. See the Declaration of Conformity for details.

P2-16NE3 AC/DC Sinking/Sourcing Input (continued)

Wiring Diagrams

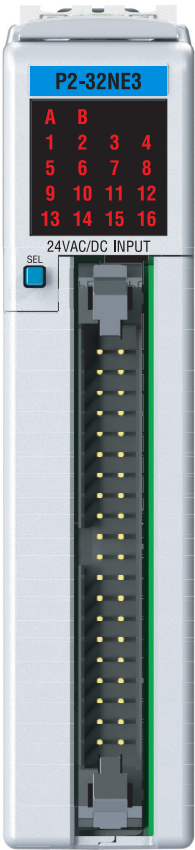


Equivalent Input Circuit



P2-32NE3 AC/DC Sinking/Sourcing Input

The P2-32NE3 AC/DC Input Module provides thirty-two 24V AC or DC sinking/sourcing inputs.



Input Specifications	
Inputs per Module	32 (Sinking/Sourcing)
Operating Voltage Range (Tolerance)	24 VAC/VDC
Input Voltage Range	20.4–27.6 VAC/VDC
Peak Voltage Range	27.6 VAC/VDC
AC Frequency	47–63 Hz
Input Current	Typ 3.4 mA @ 24 VAC/VDC
Maximum Input Current @ Temp	5.0mA @ 27.6 VAC/VDC
ON Voltage Level	>12 VDC, >9 VAC
OFF Voltage Level	<10.5 VDC, <9 VAC
Minimum ON Current	2.5 mA
Maximum OFF Current	0.5 mA
OFF to ON Response	DC: 10ms > max AC: 20ms
ON to OFF Response	DC: 20ms > max AC: 40ms
Status Indicators	Logic Side (32 Points)
Commons per Module	4 Isolated (8 points/common)

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

CPU	Firmware	Productivity Suite
P2-550	Version 1.2.1.16 or later	Version 2.1.x.x or later

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.



P2-32NE3 AC/DC Sinking/Sourcing Input (continued)

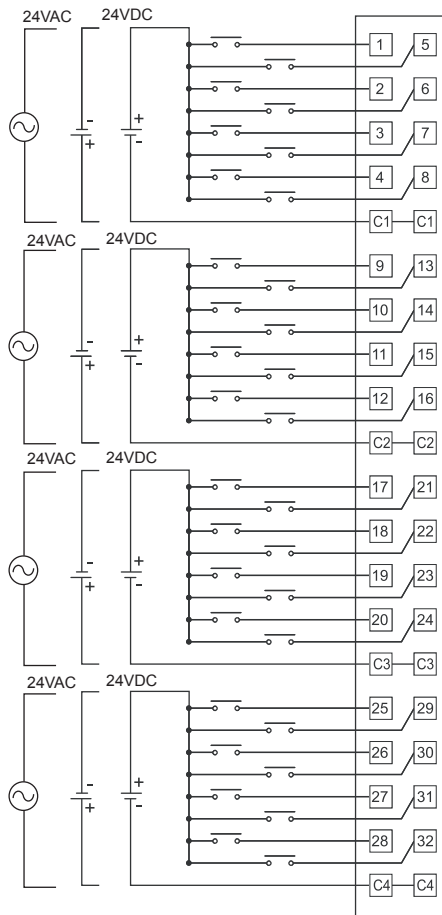
General Specifications	
Surrounding Air Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC 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 a Productivity2000 System.
Field Wiring	Use Z/PLink Wiring System. See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Weight	104g (3.7 oz)
Agency Approvals	UL 508 file E139594, Canada & USA CE (EN61131-2*)

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

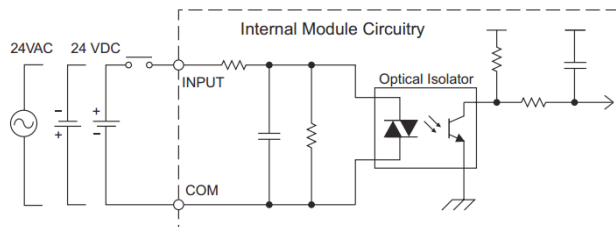
P2-32NE3 AC/DC Sinking/Sourcing Input (continued)

Wiring Diagrams

2

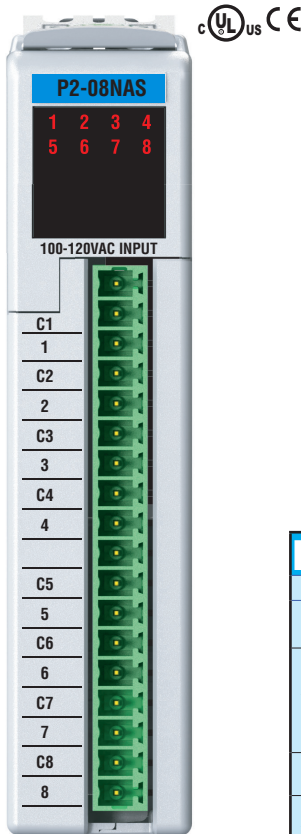


Equivalent Input Circuit



P2-08NAS Isolated AC Input

The P2-08NAS AC Isolated Input Module provides eight 100–120 VAC isolated inputs for use with the Productivity2000 system.



Terminal blocks sold separately.

Input Specifications

Inputs per Module	8
Rated Voltage	100–120 VAC
Operating Voltage Range	80–144 VAC
AC Frequency	47–63 Hz
Input Current	8.5 mA @ 100VAC (50Hz) 10mA @ 100VAC (60Hz)
Maximum Input Current	13mA @ 60°C (144VAC)
Input Impedance	12kΩ (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)
Commons	8 Isolated (1 point/common)

Removable Terminal Block Specifications

Part Number	P2-RTB	P2-RTB-1
Number of Positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N-m)	N/A

CPU	Firmware	Productivity Suite
P2-550	Version 1.2.2.x or later	Version 2.3.x.x or later

We recommend using pre-wired **ZIP**Link cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1



P2-08NAS Isolated AC Input, (continued)

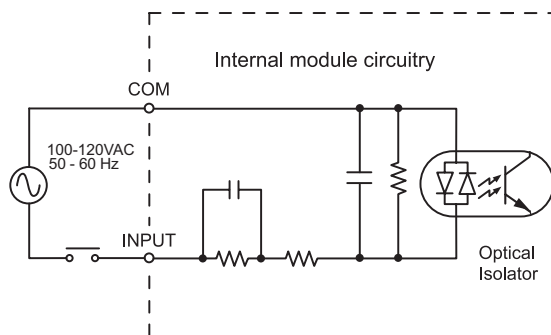
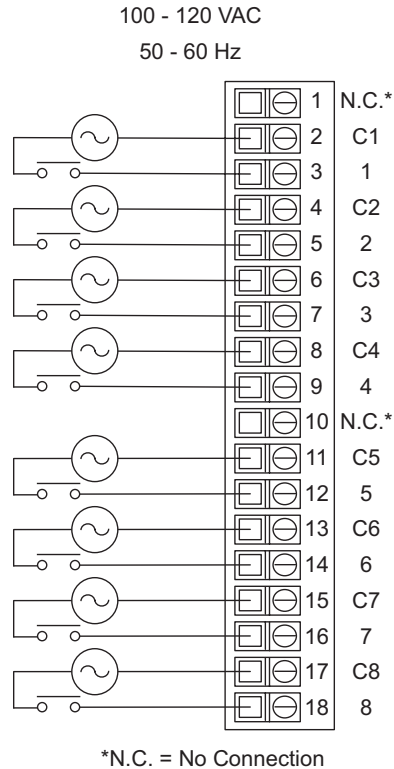
General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	600mW
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 System.
Field Wiring	Use ZIP Link Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position removable terminal block
Weight	85g (2.9 oz)
Agency Approvals**	UL 61010-2-201 file E139594, Canada & USA CE (EMC: EN61131-2*, SAFETY: EN61010-2-201)

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

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

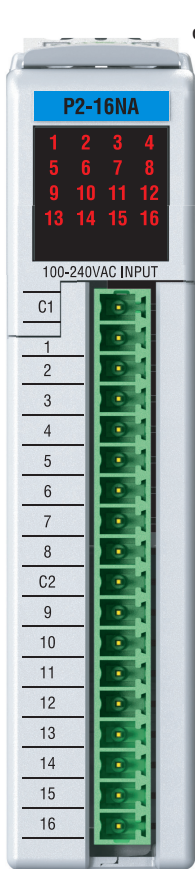
P2-08NAS Isolated AC Input, (continued)

Wiring Diagrams



P2-16NA AC Input

The P2-16NA AC Input Module provides eight 100–240 VAC isolated inputs.



Input Specifications

Inputs per Module	16	
Operating Voltage Range (Tolerance)	CE	100–240 VAC (±20%)
	UL	100–240 VAC (±20%)
AC Frequency	47–63 Hz	
Input Current (Typical)	8.5 mA @ 100VAC (50Hz) 10mA @ 100VAC (60Hz) 17mA @ 240VAC (50Hz) 20mA @ 240VAC (60Hz)	
Maximum Input Current @ Temp	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)	
Commons	2 Isolated for 120V 2 Non-Isolated for 240V (external jumper required)	

Terminal blocks sold separately.



We recommend using pre-wired ZIPLink cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1

Removable Terminal Block Specifications

Part Number	P2-RTB	P2-RTB-1
Number of Positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30-16 AWG (0.051 - 1.31 mm²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 1/4 in (6-7 mm) Strip Length	28-16 AWG (0.081 - 1.31 mm²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 19/64 in (7-8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N-m)	N/A

P2-16NA AC Input (continued)

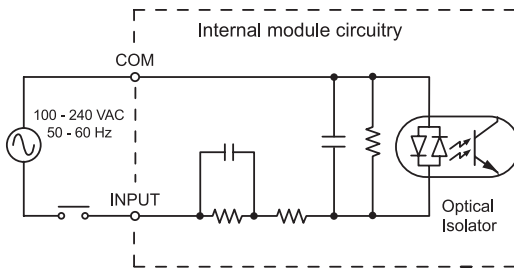
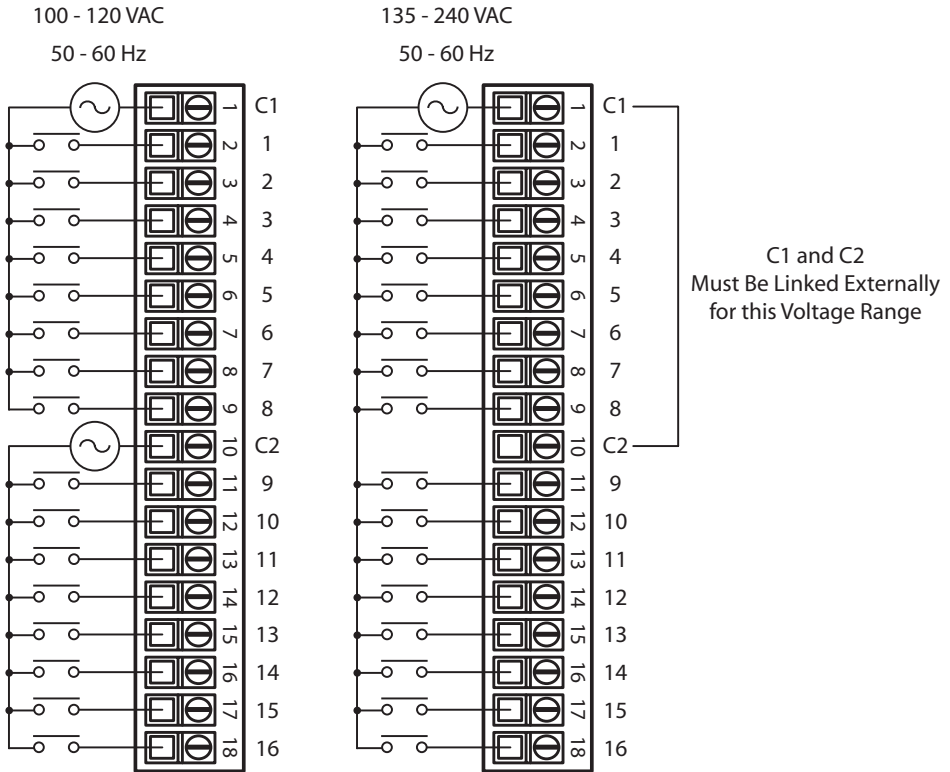
General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	600mW
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 System.
Field Wiring	Use ZIP Link Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position removable terminal block
Weight	90g (3.2 oz)
Agency Approvals	UL508 file E139594, Canada & USA CE (EN61131-2*)

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

P2-16NA AC Input (continued)

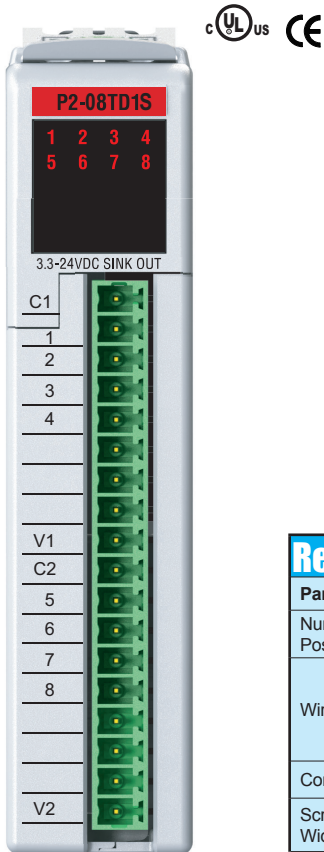
Wiring Diagrams

2



P2-08TD1S Isolated Sinking DC Output

The P2-08TD1S DC Output Module provides eight outputs, isolated four per common, that sink up to 2A per output from loads powered from 3.3–24 VDC supplies.



Output Specifications

Outputs per Module	8 sinking
Output Type	N-channel MOSFET, open drain
Rated Voltage	3.3–24 VDC
Operating Voltage Range	2.8–30 VDC
Maximum Output Current	2A per point
Minimum Load Current	0.4 mA
Maximum Leakage Current	0.3 mA @ 30VDC
On Voltage Drop	0.2 VDC @ 2A
Maximum Inrush Current	4A for 40ms, 6A for 10ms
OFF to ON Response	≤0.5 ms
ON to OFF Response	≤0.5 ms
Status Indicators	Logic Side (8 points)
Commons	2 Isolated (4 points / common)
Fuses	None
External Power Supply Required	12–24 VDC (-15% / +20%) @ 12mA

Removable Terminal Block Specifications

Part Number	P2-RTB	P2-RTB-1
Number of Positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N-m)	N/A

Terminal blocks sold separately.

CPU	Firmware	Productivity Suite
P2-550	Version 1.2.2.x or later	Version 2.3.x.x or later

We recommend using pre-wired **ZIPLink** cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1



P2-08TD1S Isolated Sinking DC Output (continued)

2

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	1800mW
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any Productivity2000 System.
Field Wiring	Use ZIPLink Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18 Position, removable terminal block
Weight	98g (3.5 oz)
Agency Approvals**	UL 61010-2-201 file E139594, Canada & USA CE (EMC: EN61131-2*, SAFETY: EN61010-2-201)

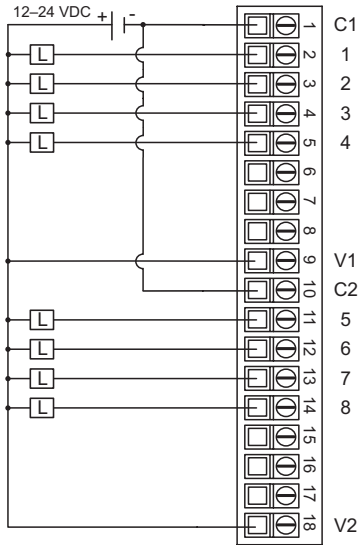
*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

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

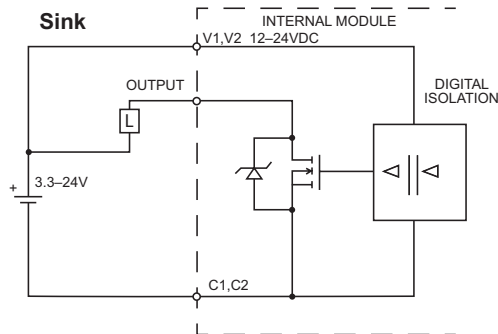
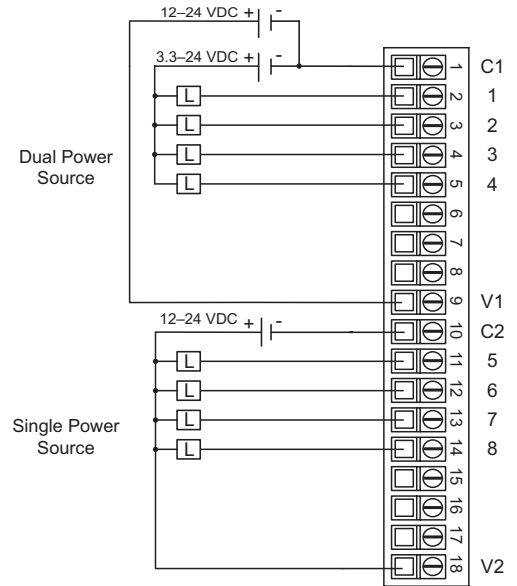
P2-08TD1S Isolated Sinking DC Output (continued)

Wiring Diagrams

Single Power Source

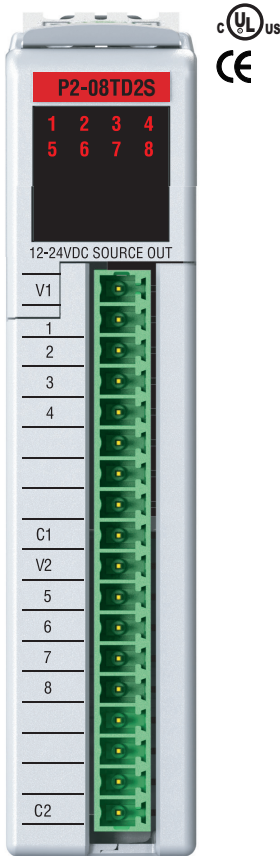


Single or Dual Power Source



P2-08TD2S Isolated Sourcing DC Output

The P2-08TD2S DC Output Module provides eight outputs, isolated four per common, that source up to 2A per output from 12–24 VDC supplies.



Output Specifications	
Outputs per Module	8 sourcing
Output Type	P-channel MOSFET, open source
Rated Voltage	12–24 VDC
Operating Voltage Range	10.2–30 VDC
Maximum Output Current	2A per point
Minimum Load Current	0.4 mA
Maximum Leakage Current	0.3 mA @ 30VDC
On Voltage Drop	0.2 VDC @ 2A
Maximum Inrush Current	4A for 40ms, 6A for 10ms
OFF to ON Response	≤0.5 ms
ON to OFF Response	≤0.5 ms
Status Indicators	Logic Side (8 points)
Commons	2 Isolated (4 points / common)
Fuses	None
External Power Supply Required	12–24 VDC (-15% / +20%) @ 12mA

Removable Terminal Block Specifications		
Part Number	P2-RTB	P2-RTB-1
Number of Positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N-m)	N/A

Terminal blocks sold separately.

CPU	Firmware	Productivity Suite
P2-550	Version 1.2.2.x or later	Version 2.3.x.x or later

We recommend using pre-wired **ZIP**Link cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1.



P2-08TD2S Isolated Sourcing DC 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	2600mW
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any Productivity2000 System.
Field Wiring	Use ZIPLink Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position removable terminal block
Weight	98g (3.5 oz)
Agency Approvals**	UL 61010-2-201 file E139594, Canada & USA CE (EMC: EN61131-2*, SAFETY: EN61010-2-201)

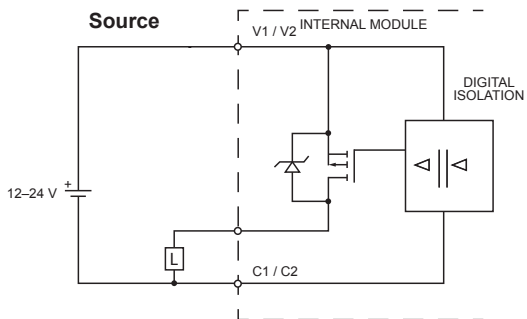
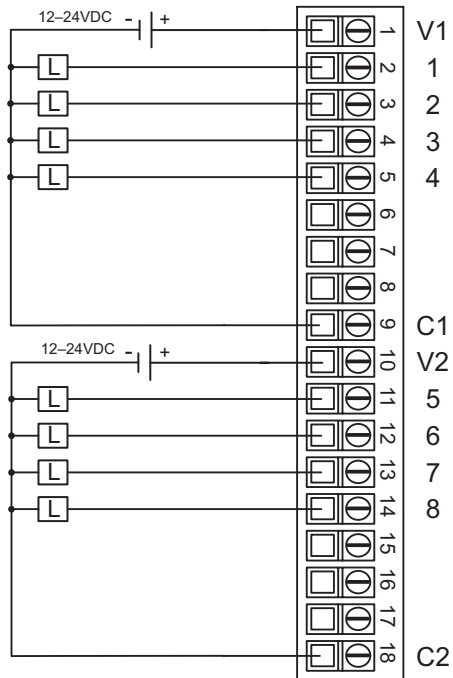
*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

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

P2-08TD2S Isolated Sourcing Output (continued)

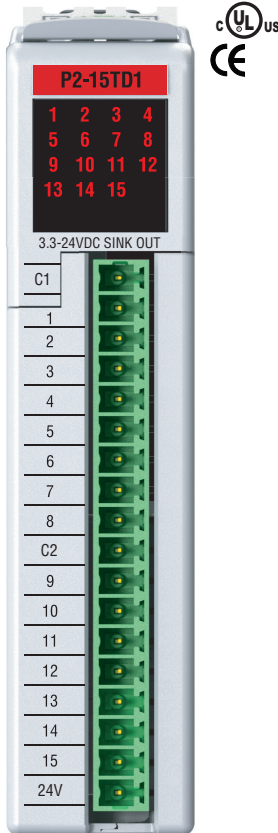
Wiring Diagrams

2



P2-15TD1 Sinking DC Output

The P2-15TD1 DC Output Module provides fifteen outputs that sink up to 1A per output from loads powered from 3.3–24 VDC supplies for use with the Productivity2000 System.



Terminal blocks sold separately.

Output Specifications

Outputs per Module	15 sinking
Output Type	N-channel MOSFET, open drain
Rated Voltage	3.3–24 VDC
Operating Voltage Range	2.8–30 VDC
Maximum Output Current	1A per point / 8A per common
Minimum Load Current	1mA
Maximum Leakage Current	0.3 mA @ 30VDC
On Voltage Drop	0.18 VDC @ 1A
Maximum Inrush Current	4A for 40ms, 6A for 10ms
OFF to ON Response	≤0.5 ms
ON to OFF Response	≤0.5 ms
Status Indicators	Logic Side (15 points)
Commons	2 (non-isolated)
Fuses	None
External Power Supply Required	12–24 VDC (-15% / +20%) @ 22mA

Removable Terminal Block Specifications

Part Number	P2-RTB	P2-RTB-1
Number of Positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N-m)	N/A

CPU	Firmware	Productivity Suite
P2-550	Version 1.2.2.x or later	Version 2.3.x.x or later

We recommend using pre-wired **ZIP**Link cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1.



P2-15TD1 Sinking DC Output (continued)

2

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	1800mW
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any Productivity2000 System.
Field Wiring	Use ZIP Link Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position removable terminal block
Weight	100g (3.5 oz)
Agency Approvals**	UL 61010-2-201 file E139594, Canada & USA CE (EMC: EN61131-2*, SAFETY: EN61010-2-201)

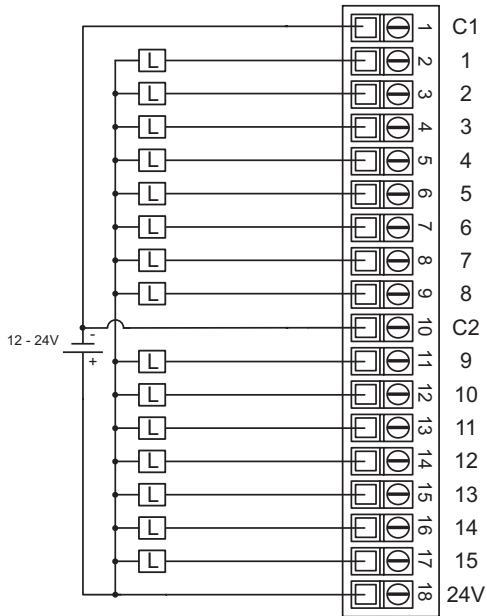
*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

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

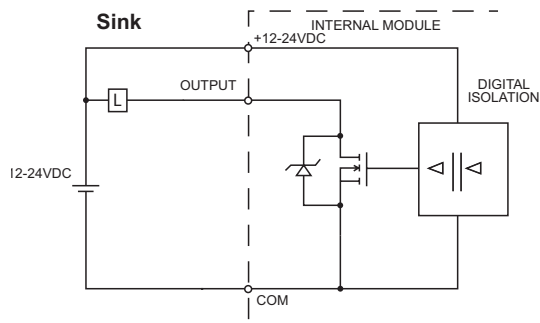
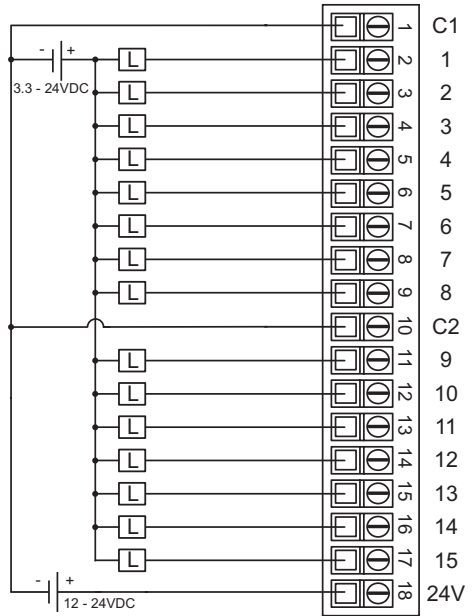
P2-15TD1 Sinking DC Output (continued)

Wiring Diagrams

Single Power Source

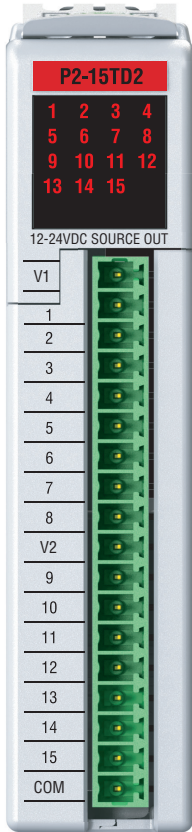


Dual Power Source



P2-15TD2 Sourcing DC Output

The P2-15TD2 DC Output Module provides fifteen 12–24 VDC outputs that source up to 1A per output from supplies for use with the Productivity2000 System.



Output Specifications

Outputs per Module	15 sourcing
Output Type	P-channel MOSFET, open source
Rated Voltage	12–24 VDC
Operating Voltage Range	10.2–28.8 VDC
Maximum Output Current	1A per point / 8A per common
Minimum Load Current	1mA
Maximum Leakage Current	0.3 mA @ 30VDC
On Voltage Drop	0.18 VDC @ 1A
Maximum Inrush Current	4A for 40ms, 6A for 10ms
OFF to ON Response	≤0.5 ms
ON to OFF Response	≤0.5 ms
Status Indicators	Logic Side (15 points)
Commons	1
Fuses	None
External Power Supply Required	12–24 VDC (-15% / +20%) @ 22mA

Removable Terminal Block Specifications

Part Number	P2-RTB	P2-RTB-1
Number of Positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N·m)	N/A

Terminal blocks sold separately.

CPU	Firmware	Productivity Suite
P2-550	Version 1.2.2.x or later	Version 2.3.x.x or later

We recommend using pre-wired **ZIP**Link cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1.



P2-15TD2 Sourcing DC 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	2600mW
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any Productivity2000 System.
Field Wiring	Use ZIPLink Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position, removable terminal block
Weight	100g (3.5 oz)
Agency Approvals**	UL 61010-2-201 file E139594, Canada & USA CE (EN61131-2*)

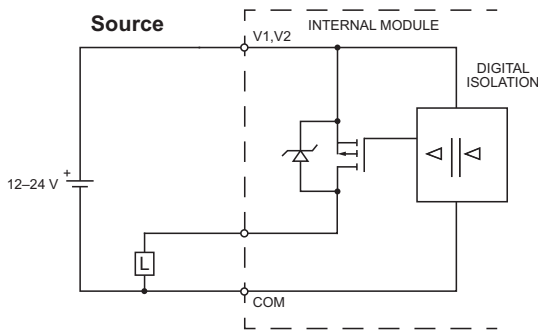
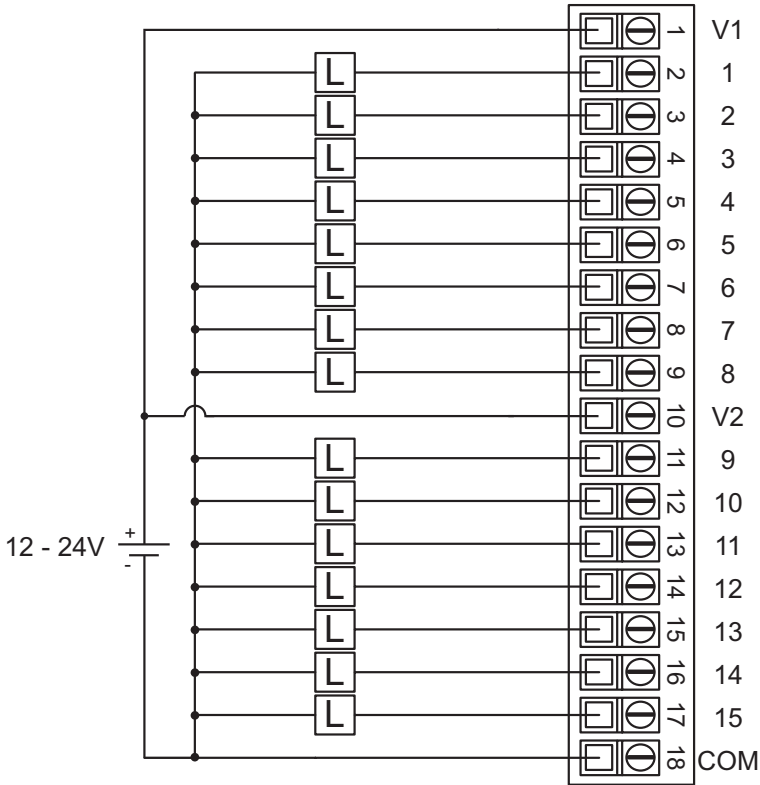
*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

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

P2-15TD2 Sourcing DC Output (continued)

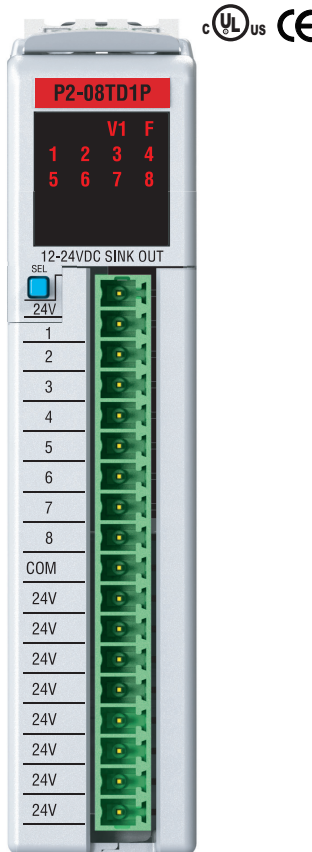
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Wiring Diagrams



P2-08TD1P Sinking Protected DC Output

The P2-08TD1P Output Module provides eight 12–24 VDC sinking outputs with short-circuit and overload protection.



Terminal blocks sold separately.

Output Specifications

Outputs per Module	8 sinking, protected
Rated Voltage	12–24 VDC
Operating Voltage Range (Tolerance)	10.2–26.4 VDC
Maximum Output Current	0.25 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	0.6 A min., 1.2 A max.
Minimum Load Current to Avoid Open Load Fault Detection	113µA
Over-temperature Shutdown	Independent to each output
Load Resistance to Avoid Open Load Fault Detection	<58kΩ
Status Indicators	Logic Side (8 points)
External 24V Error Indicator	Logic Side (1 points)
Fault Condition Indicator	Logic Side (8 points)
Commons	1
Fuses	None
External DC Power Required	24VDC @ 30mA

Removable Terminal Block Specifications

Part Number	P2-RTB	P2-RTB-1
Number of Positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N·m)	N/A

We recommend using pre-wired **ZIPLink** cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1



P2-08TD1P Sinking Protected DC Output (continued)

2

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	1.8 W
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any Productivity2000 System.
Field Wiring	Use ZIP Link Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position removable terminal block
Weight	97.6 g (3.4 oz)
Agency Approvals	UL508 file E139594, Canada & USA CE (EN61131-2*)

* Meets EMC and Safety requirements.

LED Status		
Fault Condition	Fault Status Indication	Operation to Reset Fault
Missing External 24VDC	"V1" LED is ON	Apply external 24VDC
Open Load (Note 1)	"F" LED is ON (Note 2)	Connect the load
Over Temperature or Over Load Current		Turn the output OFF or cycle power

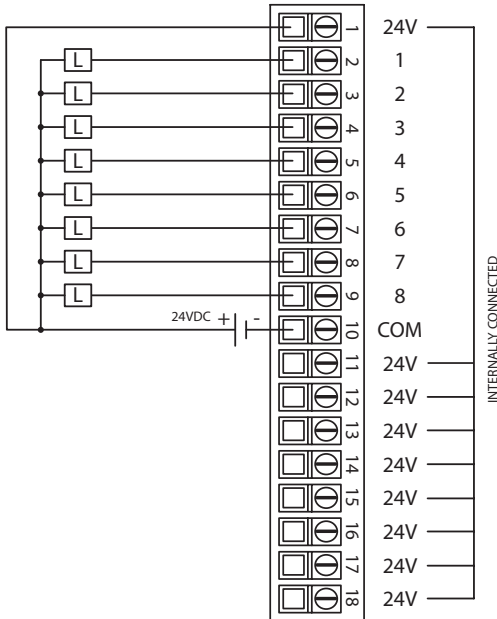
Note 1: Open Load Fault is always enabled, but is only valid when output is OFF. If Open Load Fault happens while output is ON, fault will not appear until you turn OFF output.

Note 2: The SEL button cycles between the output status and fault status. If the "F" LED is OFF the numbered LEDs are showing output status. If the "F" LED is ON the numbered LEDs are showing fault status of each output. The "V1" LED is independent of fault or output display.

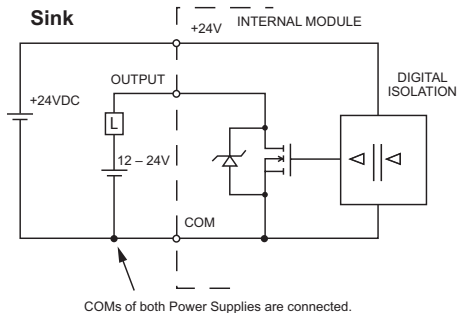
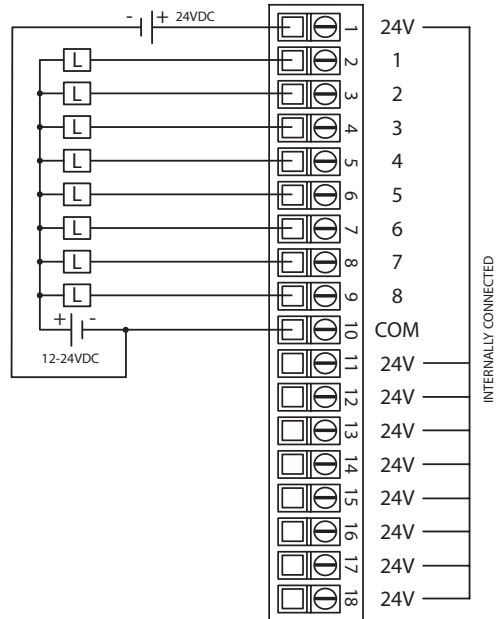
P2-08TD1P Sinking Protected DC Output (continued)

Wiring Diagrams

SINGLE POWER SOURCE



DUAL POWER SOURCE

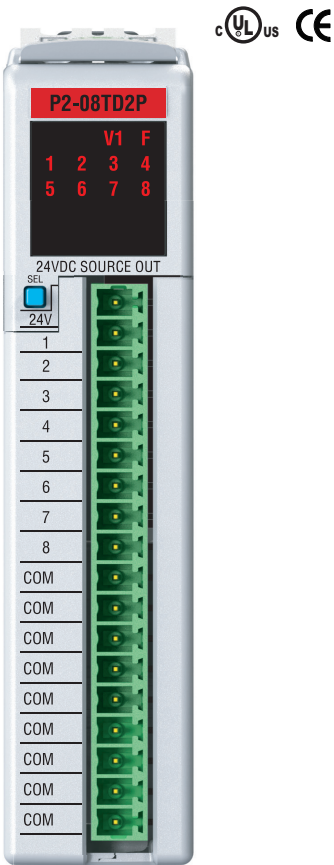


NOTE: If two separate power supplies are used to supply module control logic and output, grounds from both power supplies must be connected. For testing outputs, see note in P2-USER-M manual under P2-08TD1P wiring.

P2-08TD2P Sourcing Protected DC Output

The P2-08TD2P DC Output Module provides eight 24VDC sourcing outputs with short circuit and overload protection.

2



Output Specifications	
Outputs per Module	8 sourcing, protected
Voltage Rating	24VDC
Operating Voltage Range	24VDC±10%
Maximum Output Current	0.25 A
On Voltage Drop	0.7 VDC
Maximum Inrush Current	Self-limited
OFF to ON Response	0.5 ms
ON to OFF Response	0.5 ms
Overcurrent Trip	0.6 A min., 1.2 A max.
Minimum Load Current to Avoid Open Load Fault Detection	113µA
Over Temperature Shutdown	Independent to each output
Load Resistance to Avoid Open Load Fault Detection	<58kΩ
Status Indicators	Logic Side (8 points)
External 24V Error Indicator	Logic Side (1 points)
Fault Condition Indicator	Logic Side (8 points)
Commons	9 (non-isolated)
Fuses	None
External DC Power Required	24VDC @ 30mA

LED Status		
Fault Condition	Fault Status Indication	Operation to Reset Fault
Missing External 24VDC	V1 LED is ON	Apply external 24VDC
Open Load (Note 1)	F LED is ON (Note 2)	Connect the load
Over Temperature or Over Load Current		Turn the output OFF or cycle power

Terminal blocks sold separately.

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.

Note 2: The SEL button cycles between the output status and fault status. If the "F" LED is OFF the numbered LEDs are showing output status. If the "F" LED is ON the numbered LEDs are showing fault status of each output. The "V1" LED is independent of fault or output display.

We recommend using pre-wired **ZIP**Link cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1.



P2-08TD2P Sourcing Protected DC 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	1.8 W
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 System.
Field Wiring	Use ZIPLink Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position removable terminal block
Weight	90g (3.2 oz)
Agency Approvals	UL508 file E139594, Canada & USA CE (EN61131-2)*

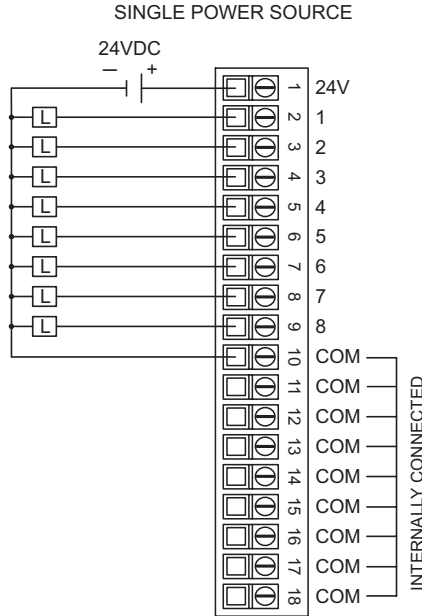
* Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Removable Terminal Block Specifications		
Part Number	P2-RTB	P2-RTB-1
Number of Positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N-m)	N/A

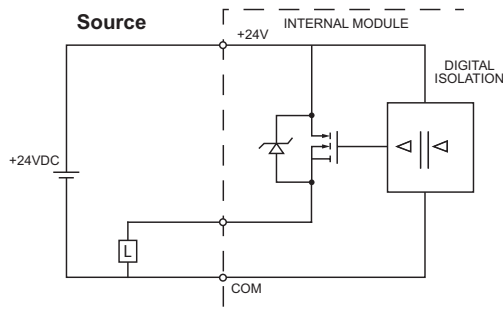
P2-08TD2P Sourcing Protected Output (continued)

Wiring Diagrams

2

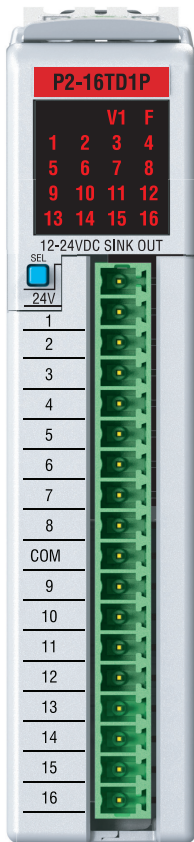


NOTE: For testing purposes, to check the output point without a load attached, use DMM in current mode with a 1K Ω resistor in series with DMM lead; or use DMM in voltage mode with 1K Ω in parallel with DMM lead.



P2-16TD1P Sinking Protected DC Output

The P2-16TD1P DC Output Module provides sixteen 12–24 VDC sinking outputs with short-circuit and overload protection.



Output Specifications

Outputs per Module	16 sinking, protected
Voltage Rating	12–24 VDC
Operating Voltage Range	10.2–26.4 VDC
Maximum Output Current	0.25 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	0.6 A min., 1.2 A max.
Minimum Load Current to Avoid Open Load Fault Detection	113µA
Over Temperature Shutdown	Independent to each output
Load Resistance to Avoid Open Load Fault Detection	<58kΩ
Status Indicators	Logic Side (16 points)
External 24V Error Indicator	Logic Side (1 points)
Fault Condition Indicator	Logic Side (16 points)
Commons	1
Fuses	None
External DC Power Required	24VDC @ 55mA

Removable Terminal Block Specifications

Part Number	P2-RTB	P2-RTB-1
Number of Positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N·m)	N/A

Terminal blocks sold separately.

We recommend using pre-wired **ZIPLink** cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1.



P2-16TD1P Sinking Protected DC Output (continued)

2

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	1.8 W
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 System.
Field Wiring	Use ZIPLink Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position removable terminal block
Weight	90g (3.2 oz)
Agency Approvals	UL508 file E139594, Canada & USA CE (EN61131-2*)

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

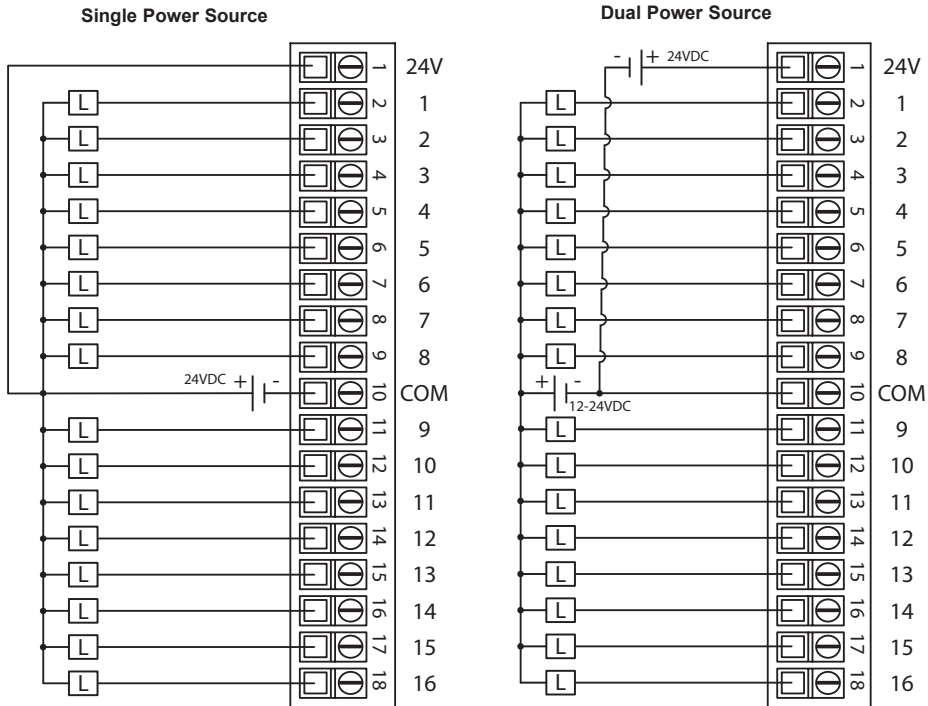
LED Status		
Fault Condition	Fault Status Indication	Operation to Reset Fault
Missing External 24VDC	"V1" LED is ON	Apply external 24VDC
Open Load (Note 1)	"F" LED is ON (Note 2)	Connect the load
Over Temperature or Over Load Current		Turn the output OFF or cycle power

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.

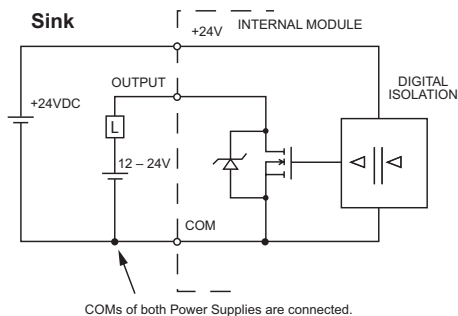
Note 2: The SEL button cycles between the output status and fault status. If the "F" LED is OFF the numbered LEDs are showing output status. If the "F" LED is ON the numbered LEDs are showing fault status of each output. The "V1" LED is independent of fault or output display.

P2-16TD1P Sinking Protected DC Output (continued)

Wiring Diagrams



NOTE: For testing purposes, to check the output point without a load attached, use DMM in current mode with a $1K\Omega$ resistor in series with DMM lead; or use DMM in voltage mode with $1K\Omega$ in parallel with DMM lead.

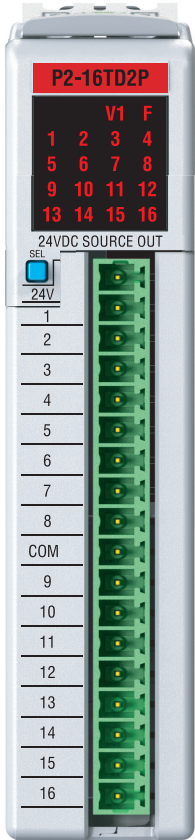


COMs of both Power Supplies are connected.

NOTE: If two separate power supplies are used to supply module control logic and output, common from both power supplies must be connected. For testing outputs, see in P2-USER-M manual under P2-16TD1P wiring.

P2-16TD2P Sourcing Protected DC Output

The P2-16TD2P DC Output Module provides sixteen 24VDC sourcing outputs with short-circuit and overload protection.



Output Specifications	
Outputs per Module	16 sourcing, protected
Voltage Rating	24VDC
Operating Voltage Range	21.6–26.4 VDC
Maximum Output Current	0.25 A continuous
On Voltage Drop	0.7 VDC
Maximum Inrush Current	Self-limited
OFF to ON Response	0.5 ms
ON to OFF Response	0.5 ms
Overcurrent Trip	0.6 A min., 1.2 A max.
Minimum Load Current to Avoid Open Load Fault Detection	113µA
Overtemperature Shutdown	Independent to each output
Load Resistance to Avoid Open Load Fault Detection	<58kΩ
Status Indicators	Logic Side (16 points)
External 24V Error Indicator	Logic Side (1 point)
Fault Condition Indicator	Logic Side (16 points)
Commons	1
Fuses	None
External DC Power Required	24VDC @ 55mA (not including 0.25 A per point)

LED Status

Fault Condition	Fault Status Indication	Operation to Reset Fault
Missing External 24VDC	V1 LED is ON	Apply external 24VDC
Open Load (Note 1)	F LED is ON (Note 2)	Connect the load
Over Temperature or Over Load Current		Turn the output OFF or cycle power

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.

Note 2: The SEL button cycles between the output status and fault status. If the “F” LED is OFF the numbered LEDs are showing output status. If the “F” LED is ON the numbered LEDs are showing fault status of each output. The “V1” LED is independent of fault or output display.

Terminal blocks sold separately.

We recommend using pre-wired **ZIP**Link cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1.



P2-16TD2P Sourcing Protected DC 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	2.6 W
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 System.
Field Wiring	Use ZIPLink Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position removable terminal block
Weight	90g (3.2 oz)
Agency Approvals	UL508 file E139594, Canada & USA CE (EN61131-2*)

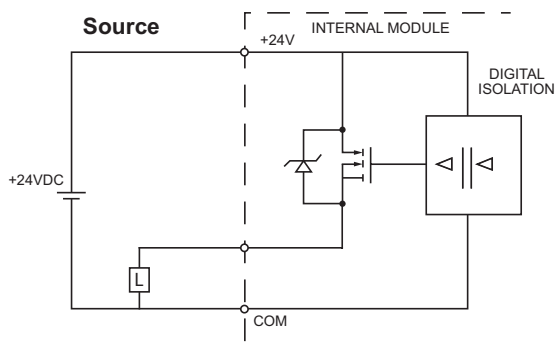
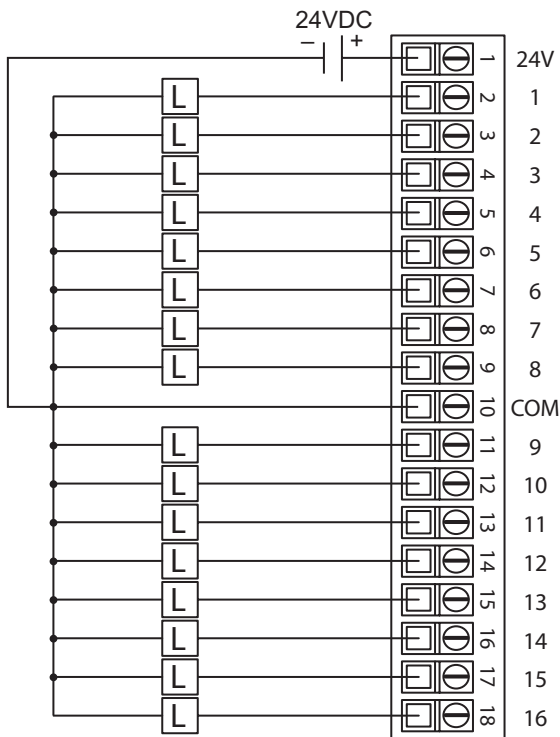
* Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Removable Terminal Block Specifications		
Part Number	P2-RTB	P2-RTB-1
Number of Positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N-m)	N/A

P2-16TD2P Sourcing Protected DC Output (continued)

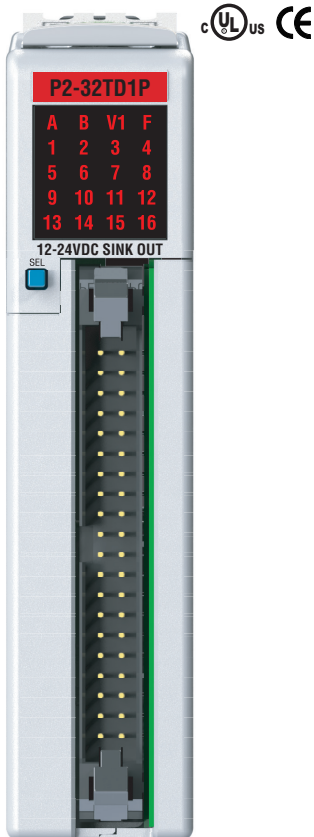
Wiring Diagrams

2



P2-32TD1P Sinking Protected DC Output

The P2-32TD1P DC Output Module provides thirty-two 12–24 VDC sinking outputs with short circuit and overload protection for use with Productivity2000 System.



Output Specifications

Outputs per Module	32 sinking, protected
Voltage Rating	12–24 VDC
Operating Voltage Range	10.2–28.8 VDC
Maximum Output Current	0.1 A per point
Maximum Inrush Current	Self-limited
On Voltage Drop	0.5 VDC @ 0.1 A
OFF to ON Response	≤0.5 ms
ON to OFF Response	≤0.5 ms
Overcurrent Trip	0.6 A min., 1.2 A max., >50ms duration
Minimum Load Current to Avoid Open Load Fault Detection	113μA
Over Temperature Shutdown	Independent to each output
Load Resistance to Avoid Open Load Fault Detection	<58kΩ
Status Indicators	Logic Side (16 points x 2)
External 24V Error Indicator	Logic Side (1 point)
Fault Condition Indicator	Logic Side (16 points x 2)
Commons	4 (non-isolated)
Fuses	None
External DC Power Required	24VDC (-15% / +20%) @ 80mA

Connector Specifications

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

CPU	Firmware	Productivity Suite
P2-550	Version 1.2.2.x or later	Version 2.3.x.x or later

We recommend using pre-wired **ZIPLink** cables and connection modules. See Chapter 5.



P2-32TD1P Sinking Protected DC Output (continued)

2

General Specifications

Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	4000mW
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 System.
Field Wiring	Use ZIPLink Wiring System or removable terminal block (Sold separately). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Weight	105g (3.7 oz)
Agency Approvals**	UL 61010-2-201 file E139594, Canada & USA CE (EN61131-2*, Safety EN61010-2-201)

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

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

LED Status

Fault Condition	Fault Status Indication	Operation to Reset Fault
Missing External 24VDC	V1 LED is ON	Apply external 24 VDC
Open Load (Note 1)	“F” LED is ON (Note 2)	Connect the load
Over Temperature or Over Load Current		Turn the output OFF or cycle power
LED Page Shifting		
The “A” LED is ON when the LED states correspond to outputs/faults 1–16. The “B” LED is ON for outputs / faults 17–32.		

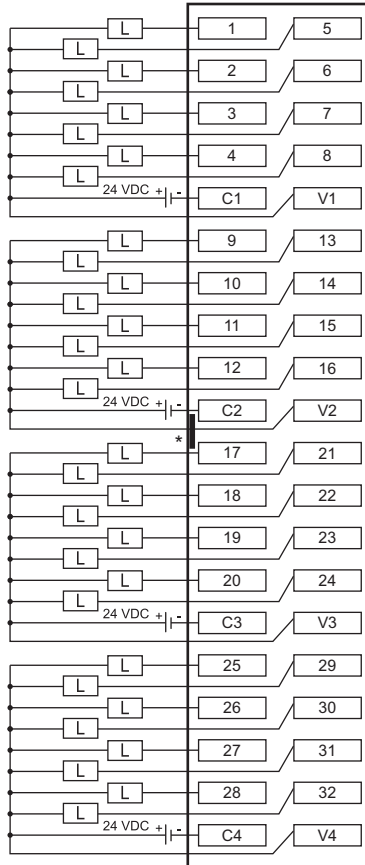
Note 1: Open Load Fault is always enabled, but is only valid when output is OFF. If Open Load Fault happens while output is ON, fault will not appear until you turn OFF output.

Note 2: The SEL button cycles between the output status and fault status. If the "F" LED is OFF the numbered LEDs are showing output status. If the "F" LED is ON the numbered LEDs are showing fault status of each output. The "V1" LED is independent of fault or output display.

P2-32TD1P Sinking Protected DC Output (continued)

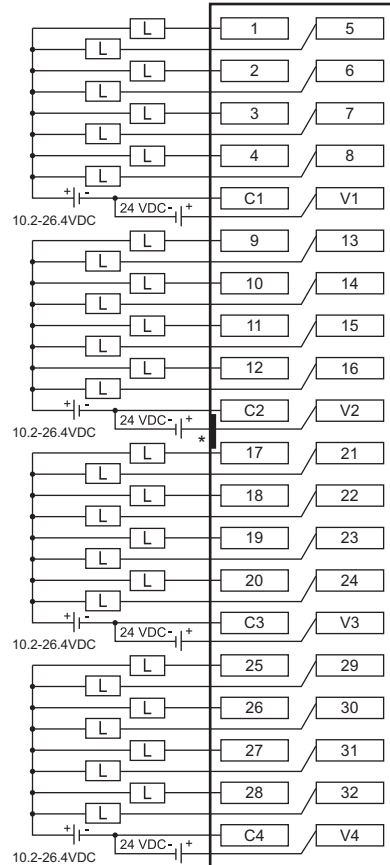
Wiring Diagrams

Single Power Source



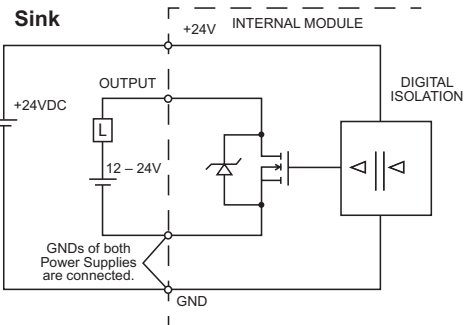
* Denotes key location of all associated **ZIPLink** cables.

Dual Power Source



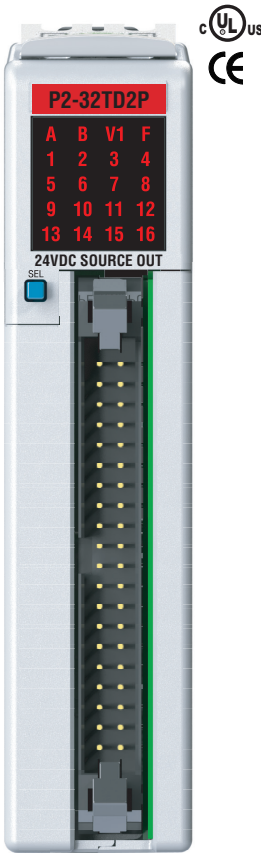
NOTE 1: If two separate power supplies are used to supply module control logic and output, grounds from both power supplies must be connected.

NOTE 2: For testing purposes, to check the output point without a load attached, use DMM in current mode with a $1k\Omega$ resistor in series with DMM lead; or use DMM in voltage mode with $1k\Omega$ in parallel with DMM lead.



P2-32TD2P Sourcing Protected DC Output

The P2-32TD2P DC Output Module provides thirty-two 24VDC sourcing outputs with short circuit and overload protection for use with the Productivity2000 System.



Output Specifications	
Outputs per Module	32 sourcing, protected
Voltage Rating	24VDC
Operating Voltage Range	20.4–28.8 VDC
Maximum Output Current	0.1 A per point
Maximum Inrush Current	Self-limited
On Voltage Drop	0.5 VDC @ 0.1 A
OFF to ON Response	≤0.5 ms
ON to OFF Response	≤0.5 ms
Overcurrent Trip	0.6 A min., 1.2 A max., >50ms duration
Minimum Load Current to Avoid Open Load Fault Detection	113µA
Over-temperature Shutdown	Independent to each output
Load Resistance to Avoid Open Load Fault Detection	<58kΩ
Status Indicators	Logic Side (16 points x 2)
External 24V Error Indicator	Logic Side (1 point)
Fault Condition Indicator	Logic Side (16 points x 2)
Commons	4 (non-isolated)
Fuses	None
External DC Power Required	24VDC (-15%/+20%) @ 80mA

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

CPU	Firmware	Productivity Suite
P2-550	Version 1.2.2.x or later	Version 2.3.x.x or later

We recommend using pre-wired ZIPLink cables and connection modules. See Chapter 5.



P2-32TD2P Sourcing Protected DC 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	4000mW
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any local or remote base in a Productivity2000 System.
Field Wiring	Use ZIPLink Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Weight	105g (3.7 oz)
Agency Approvals**	UL 61010-2-201 file E139594, Canada & USA CE (EN61131-2*, Safety EN61010-2-201)

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

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

LED Status		
Fault Condition	Fault Status Indication	Operation to Reset Fault
Missing External 24VDC	V1 LED is ON	Apply external 24 VDC
Open Load (Note 1)	"F" LED is ON (Note 2)	Connect the load
Over Temperature or Over Load Current		Turn the output OFF or cycle power
LED Page Shifting		
The "A" LED is ON when the LED states correspond to outputs/faults 1–16. The "B" LED is ON for outputs / faults 17–32.		

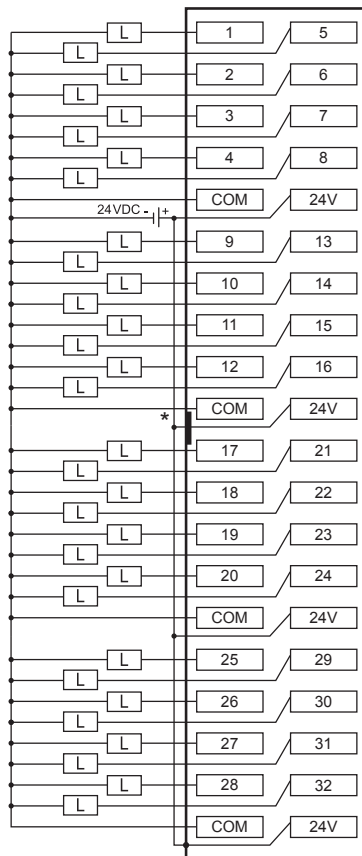
Note 1: Open Load Fault is always enabled, but is only valid when output is OFF. If Open Load Fault happens while output is ON, fault will not appear until you turn OFF output.

Note 2: The SEL button cycles between the output status and fault status. If the "F" LED is OFF the numbered LEDs are showing output status. If the "F" LED is ON the numbered LEDs are showing fault status of each output. The "V1" LED is independent of fault or output display.

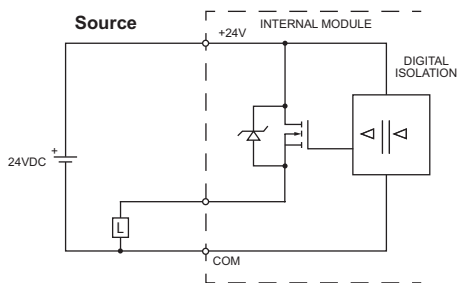
P2-32TD2P Sourcing Protected DC Output (continued)

Wiring Diagrams

2

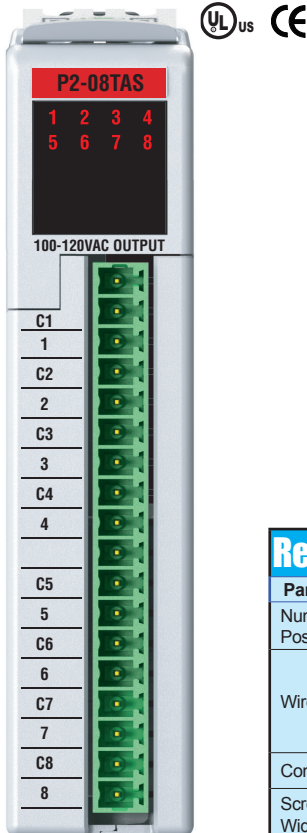


* Denotes key location of all associated **ZIPLink** cables.



P2-08TAS Isolated AC Output

The P2-08TAS AC Output Module provides eight 100–120 VAC isolated outputs for use with the Productivity2000 System.



Terminal blocks sold separately.

Output Specifications

Outputs per Module	8
Input Voltage Rating	100–120 VAC
Operating Voltage Range	85–132 VAC
AC Frequency	47–63 Hz
Maximum Output Current	1A / point @ 40°C 0.7 A / point @ 60°C
Minimum Load	10mA
Maximum Leakage Current	4mA @ 144VDC
On Voltage Drop	1.5 VAC @ > 50mA 4.0 VAC @ < 50mA
Maximum Inrush Current	3A for 10ms
OFF to ON Response	1ms + 1/2 cycle
ON to OFF Response	1ms + 1/2 cycle
Status Indicators	Logic Side (8 points)
Commons	8 Isolated (1 point / common)
Recommended External Fuse	1.6 A Max. (AutomationDirect P/N S5001-6-R)

Removable Terminal Block Specifications

Part Number	P2-RTB	P2-RTB-1
Number of Positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Max. 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N-m)	N/A

CPU	Firmware	Productivity Suite
P2-550	Version 1.2.2.x or later	Version 2.3.x.x or later

We recommend using pre-wired **ZIPLink** cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1.



P2-08TAS Isolated AC Output (continued)

2

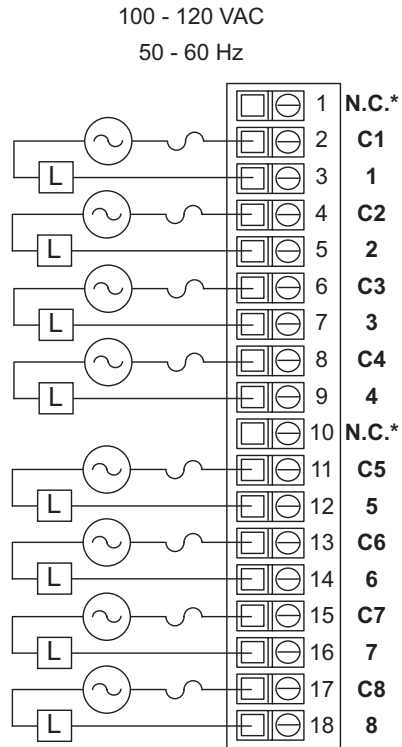
General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	1500mW
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 System.
Field Wiring	Use ZIP Link Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5..
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position removable terminal block
Weight	85g (2.9 oz)
Agency Approvals**	UL 61010-2-201 file E139594, Canada & USA CE (EN61131-2*, Safety EN61010-2-201)

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

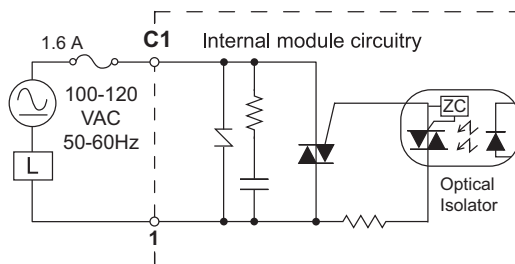
**To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific component part number web page.

P2-08TAS AC Output (continued)

Wiring Diagrams

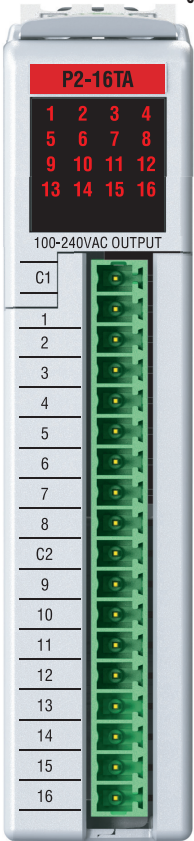


*N.C. = No Connection



P2-16TA AC Output

The P2-16TA AC Output Module provides sixteen 100-240 VAC outputs.



Output Specifications		
Outputs per Module		16
Voltage Rating		100–240 VAC
Operating Voltage Range (Tolerance)	(CE)	100–240 VAC (-15% / +10%)
	(UL)	100–240 VAC (-20% / +20%)
AC Frequency		47–63 Hz
Maximum Output Current @ Temp		0.5 A / point , 4A / common @ 55°C 0.3 A / point , 2.4 A / common @ 60°C
Minimum Load		10mA
Maximum Leakage Current		4mA @ 264VAC
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)
Commons		2 Isolated Commons for 120V 2 Non-Isolated Commons for 240V (external jumper required)
Recommended External Fuse		6.3 A Max (Automation Direct P/N S5006-3-R)

Removable Terminal Block Specifications		
Part Number	P2-RTB	P2-RTB-1
Number of Positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N·m)	N/A

Terminal blocks sold separately.

We recommend using pre-wired **ZIPLink** cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1.



P2-16TA AC Output (continued)

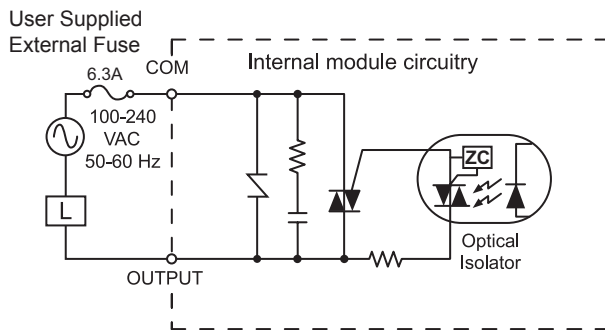
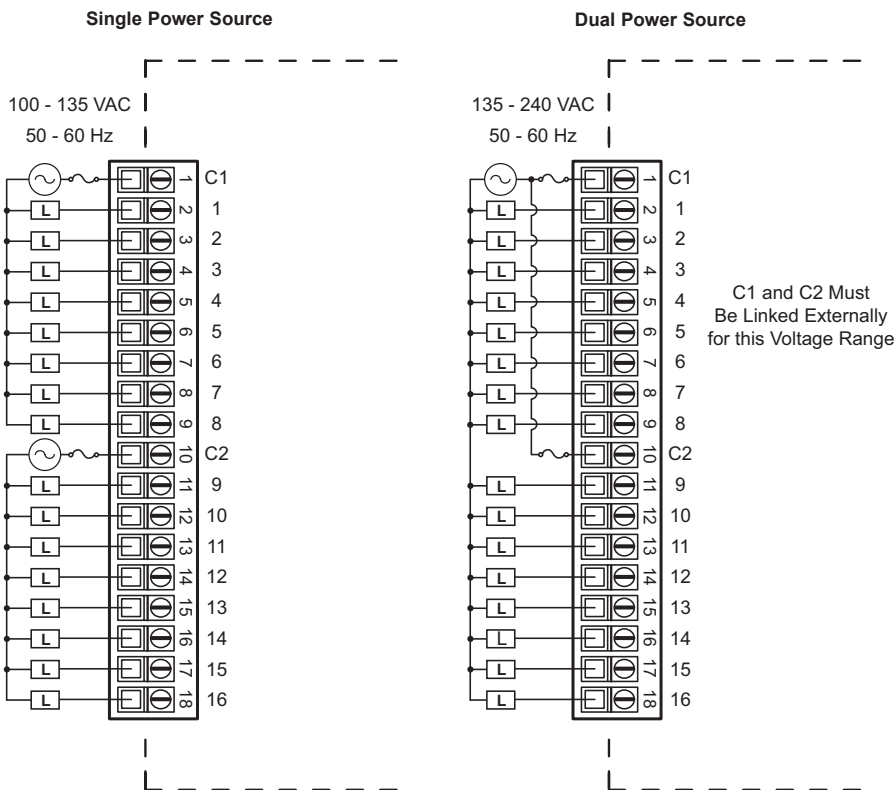
General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	1.9 W
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any local base in a Productivity2000 System.
Field Wiring	Use ZIPLink Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position removable terminal block
Weight	90g (3.2 oz)
Agency Approvals	UL508 file E139594, Canada & USA CE (EN61131-2*)

* Meets EMC and Safety requirements. See the D.O.C. for details.

P2-16TA AC Output (continued)

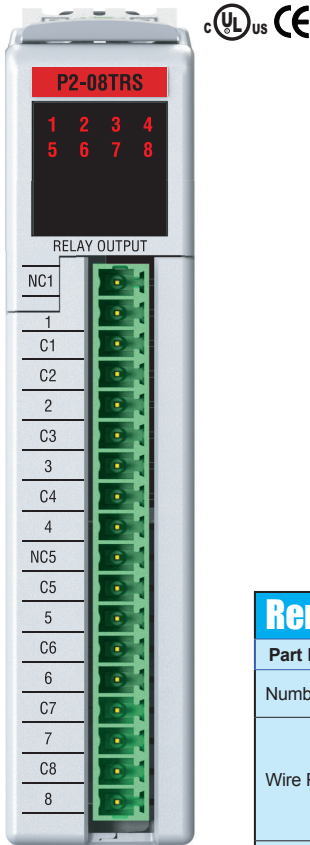
Wiring Diagrams

2



P2-08TRS Isolated Relay Output

The P2-08TRS Isolated Relay Output Module provides eight, 4A surge protected outputs for extended relay life. Module offers both normally open and normally closed relay contacts.



Output Specifications

Outputs per Module		8
Operating Voltage Range (Tolerance)	(CE)	6.25–24 VDC (-15% / + 20%) 6–120 VAC (-15% / + 10%)
	(UL)	120VAC / 30VDC, 4A / point
Output type		6 Relays, FORM A (SPST) 2 Relays, FORM C (SPDT)
AC Frequency		47–63 Hz
Maximum Output Current @ Temp		4A / point @ 60°C for both AC and DC 2A / point if used with ZIPLink Cable
Minimum Load Current		5mA @ 5VDC
Maximum Inrush Current		4A for 10ms
OFF to ON Response		≤10ms
ON to OFF Response		≤10ms
Status Indicators		Logic Side (8 points)
Commons		8 Isolated (1 point / common)
External Fuses (user supplied)		6.3 A Max

Removable Terminal Block Specifications

Part Number	P2-RTB	P2-RTB-1
Number of Positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051– 1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N-m)	N/A

Terminal blocks sold separately.

We recommend using pre-wired **ZIPLink** cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1.



P2-08TRS Isolated Relay Output (continued)

2

General Specifications	
Operating Temperature	0° to 60°C (32° to 140°F),
Storage Temperature	-20° to 70°C (-4° to 158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1800VAC applied for 1 second
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	3W
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 System.
Field Wiring	Use ZIPLink Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position removable terminal block
Weight	157g (5.54 oz)
Agency Approvals	UL508 file E139594, Canada & USA CE (EN61131-2*)

* Meets EMC and Safety requirements. See the D.O.C. for details.

Typical Relay Life	
Voltage & Type of Load	Operations at 4A Load Current
30VDC Resistive	100,000
30VDC Solenoid	100,000
120VAC Resistive	100,000
120VAC Solenoid	100,000

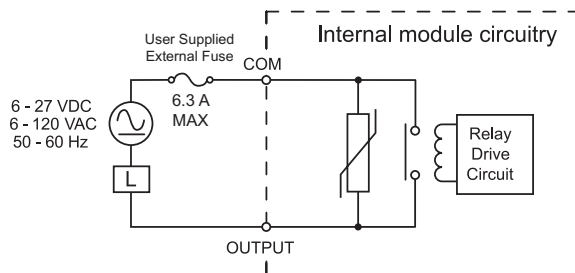
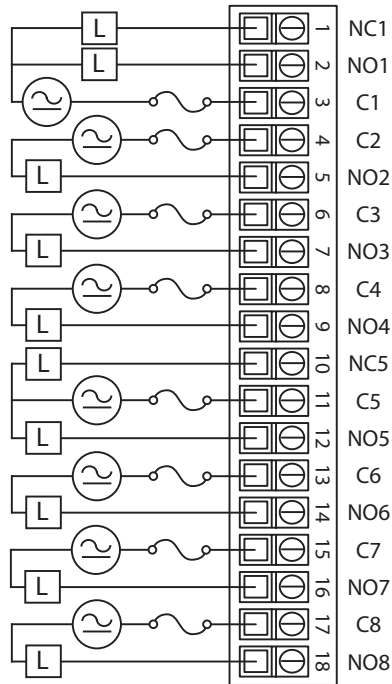
P2-08TRS Isolated Relay Output (continued)

Wiring Diagrams

6 - 27 VDC

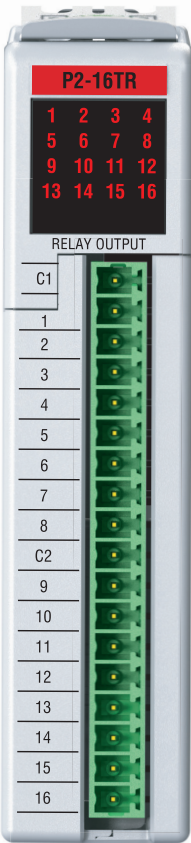
6 - 120 VAC

50 - 60 Hz



P2-16TR Relay Output

The P2-16TR Relay Output Module provides sixteen 1.0 amp surge protected outputs with two isolated commons.



Output Specifications

Outputs per Module		16
Operating Voltage Range	(CE)	6.25–24 VDC (-15%/+20%) 6–240 VAC (-15%/+10%)
	(UL)	6–27 VDC (-15%/+10%) 6–240 VAC (-10%/+10%)
Output Type		Relay, form A (SPST)
AC Frequency		47–63 Hz
Maximum Output Current @ Temp		1A / point, 8A / common @ 60°C for both AC and DC
Minimum Load Current		5mA @ 5VDC
Maximum Inrush Current		4A for 10ms
OFF to ON Response		≤10ms
ON to OFF Response		≤10ms
Status Indicators		Logic Side (16 points)
Commons		2 Isolated (8 point / common)
External Fuses (user supplied)		8A Max

Removable Terminal Block Specifications

Part Number	P2-RTB	P2-RTB-1
Number of Positions	18 Screw Terminals	18 Spring Clamp Terminals
Wire Range	30–16 AWG (0.051–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 1/4 in (6–7 mm) Strip Length	28–16 AWG (0.081–1.31 mm ²) Solid / Stranded Conductor 3/64 in (1.2 mm) Insulation Maximum 19/64 in (7–8 mm) Strip Length
Conductors	"USE COPPER CONDUCTORS, 75°C" or Equivalent.	
Screw Driver Width	1/8 inch (3.8 mm) Maximum	
Screw Size	M2	N/A
Screw Torque	2.5 lb-in (0.28 N·m)	N/A

Terminal blocks sold separately.

We recommend using pre-wired **ZIP**Link cables and connection modules. See Chapter 5.

If you wish to hand-wire your module, removable terminal blocks are sold separately. Order part number P2-RTB or P2-RTB-1.



P2-16TR 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	2.73 W
Enclosure Type	Open Equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in a Productivity2000 System.
Field Wiring	Use ZIPLink Wiring System or removable terminal block (not included). See "Wiring Options" in Chapter 5.
EU Directive	See the "EU Directive" topic in the Productivity Suite Help File. Information can also be obtained at: www.productivity2000.com
Connector Type (Sold separately)	18-position removable terminal block
Weight	188g (6.64 oz)
Agency Approvals	UL508 file E139594, Canada & USA CE (EN61131-2*)

* Meets EMC and Safety requirements. See the D.O.C. for details.

Typical Relay Life	
Voltage & Type of Load	Operations at 1A load current
30VDC Resistive	100,000
30VDC Solenoid	100,000
120VAC Resistive	100,000
120VAC Solenoid	100,000
240VAC Resistive	100,000
240VAC Solenoid	100,000

P2-16TR Relay Output (continued)

Wiring Diagrams

