

DC Input Modules

P3-08ND3S \$99.00

Isolated Sinking/Sourcing Input

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



Terminal block sold separately; terminal block cover included with module.

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

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



WARNING: EXPLOSION HAZARD –
SUBSTITUTION OF COMPONENTS MAY IMPAIR
SUITABILITY FOR CLASS I, DIVISION 2.

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

General Specifications	
Operating Temperature	0°C– 60°C (32°F–140°F)
Storage Temperature	-20°C–70°C (-4°F–158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500 VAC applied for 1 minute
Insulation Resistance	>10M Ω @ 500VDC
Heat Dissipation	2.81 W
Enclosure Type	Open equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
Field Wiring	Removable terminal block (not included). Use ZIPLink wiring system or optional terminal block. See Wiring Solutions.
Weight	80g (2.82 oz)
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

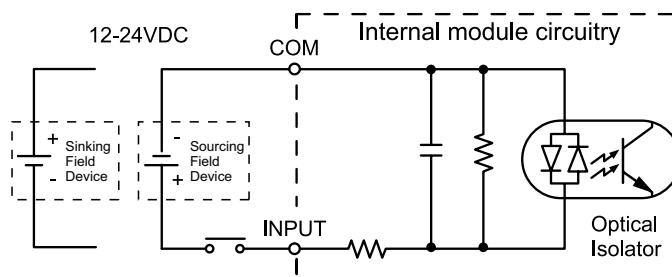
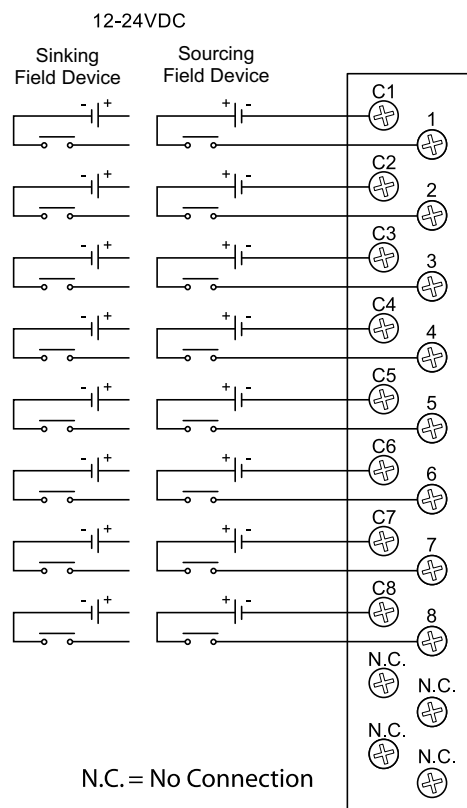
*Meets EMC and Safety requirements. See the Declaration of Conformity for details.

Removable Terminal Block Specifications	
Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS , 60°C or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

DC Input Modules

P3-08ND3S (cont'd)

Wiring Diagrams

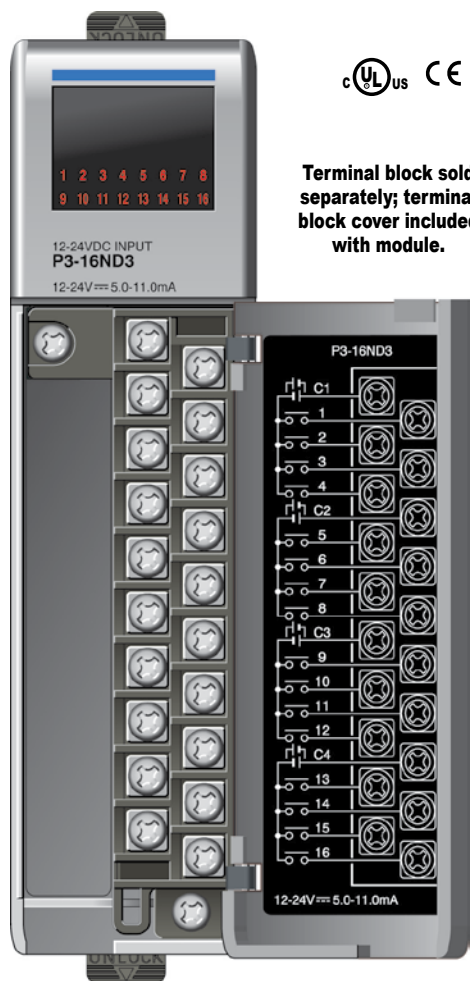


DC Input Modules

P3-16ND3 \$152.00

Sinking/Sourcing Input

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



Terminal block sold separately; terminal block cover included with module.

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

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



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

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

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

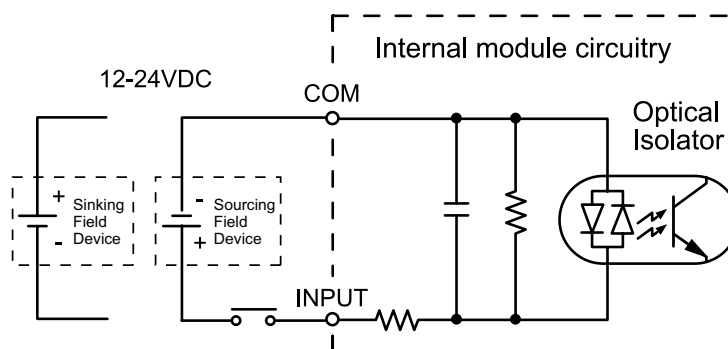
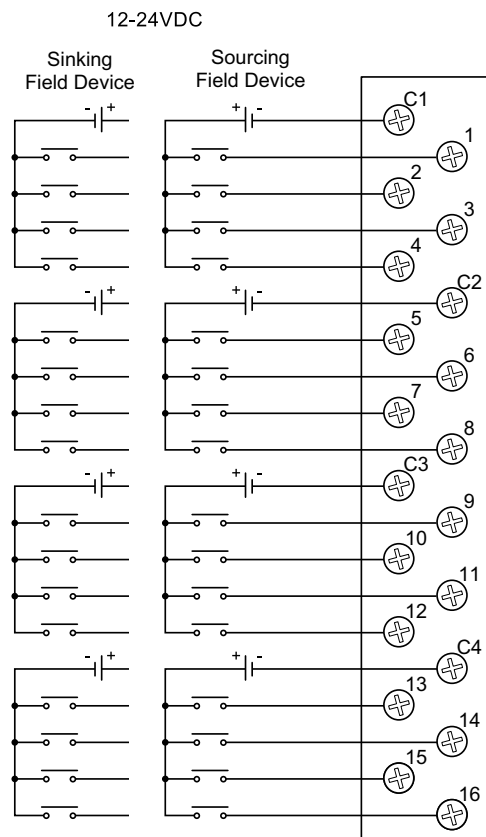
Removable Terminal Block Specifications	
Description	Part No. P3-RTB ; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS , 60°C or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

DC Input Modules

P3-16ND3 (cont'd)

Wiring Diagrams

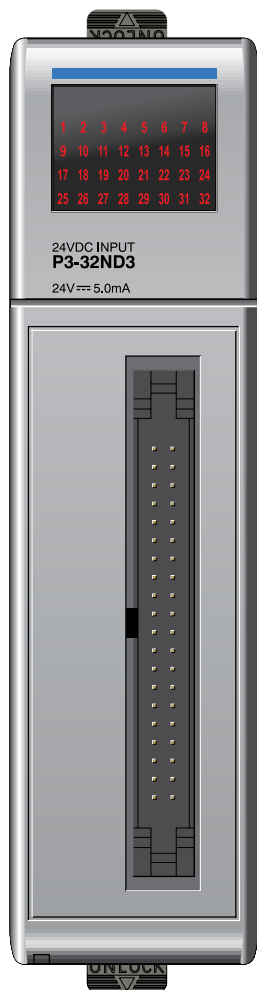


DC Input Modules

P3-32ND3 \$208.00

Sinking/Sourcing Input

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



No terminal block sold
for this module; ZIPLink
required.

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



WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

Input Specifications

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

General Specifications

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

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

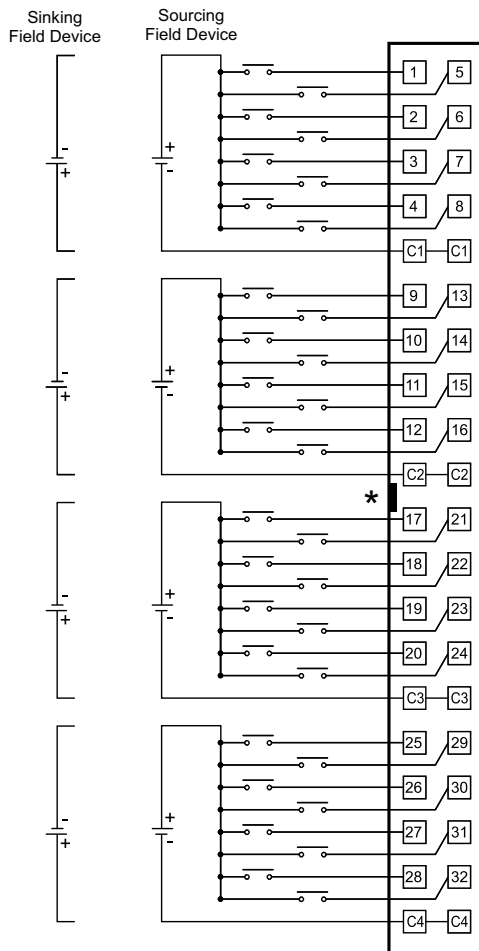
Connector Specifications

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

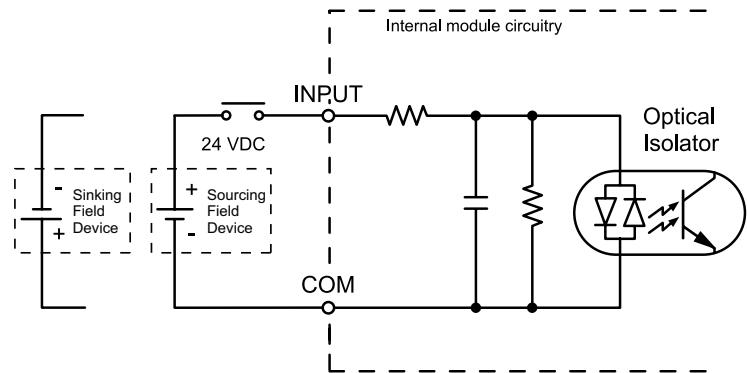
DC Input Modules

P3-32ND3 (cont'd)

Wiring Diagrams



*Denotes key location of all associated ZIPLink cables.

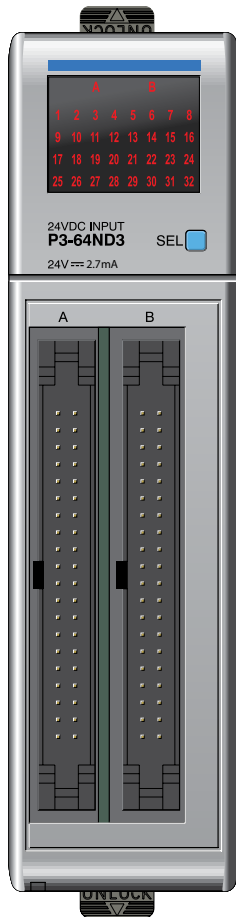


DC Input Modules

P3-64ND3 \$260.00

Sinking/Sourcing Input

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



No terminal block sold for this module; ZIPLink required.

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



Input Specifications

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

General Specifications

Operating Temperature	0°C–60°C (32°F–140°F),
Storage Temperature	-20°C–70°C (-4°F–158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10M Ω @ 500VDC
Heat Dissipation	6.91W
Enclosure Type	Open equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
Field Wiring	Use ZIPLink wiring system. See Wiring Solutions.
Weight	170g (6.0 oz)
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

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

Connector Specifications

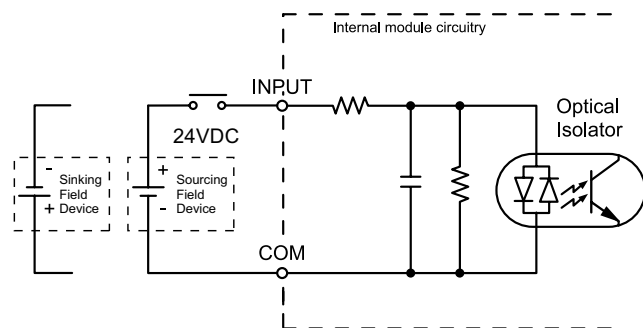
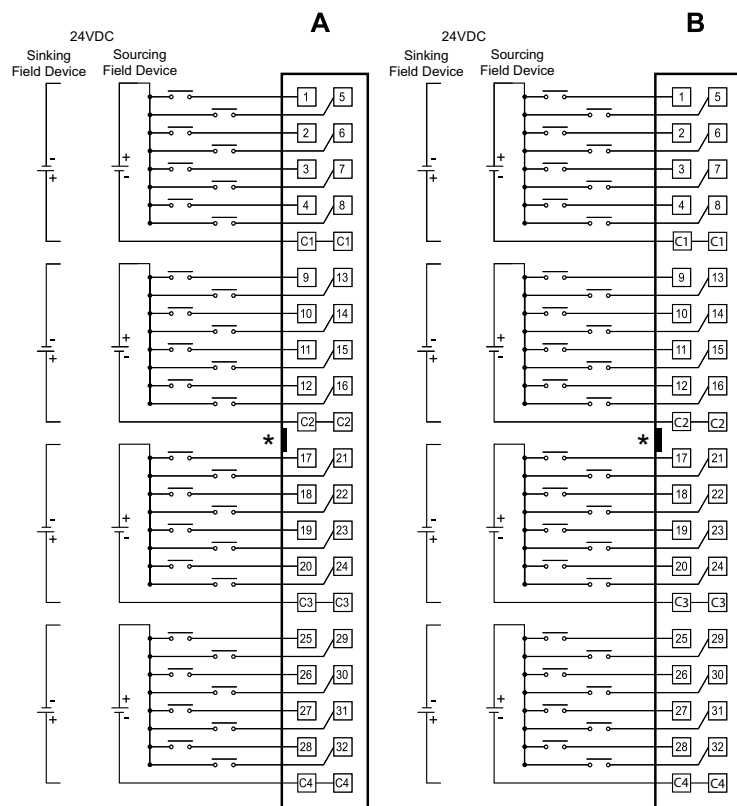
Connector Type	IDC style header with latch, Omron XG4A-4034
Number of Pins	40 point x 2
Pitch	0.1 in. (2.54 mm)

WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

DC Input Modules

P3-64ND3(cont'd)

Wiring Diagrams



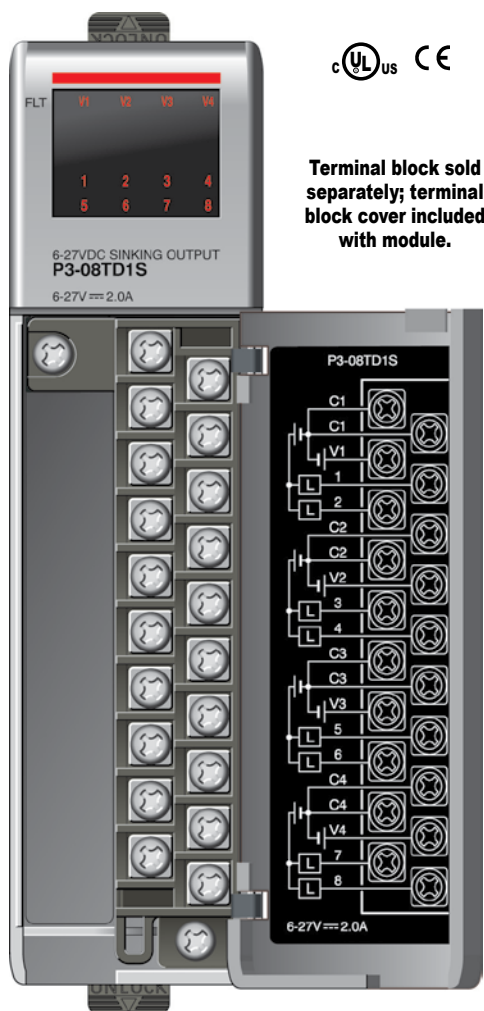
DC Output Modules

P3-08TD1S

\$135.00

Sinking Output

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



Terminal block sold separately; terminal block cover included with module.

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

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

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SUITABILITY FOR CLASS I, DIVISION 2.



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

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

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

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

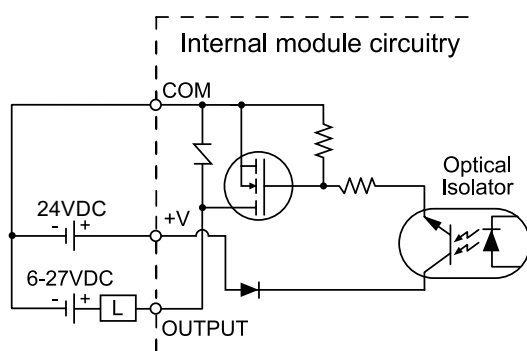
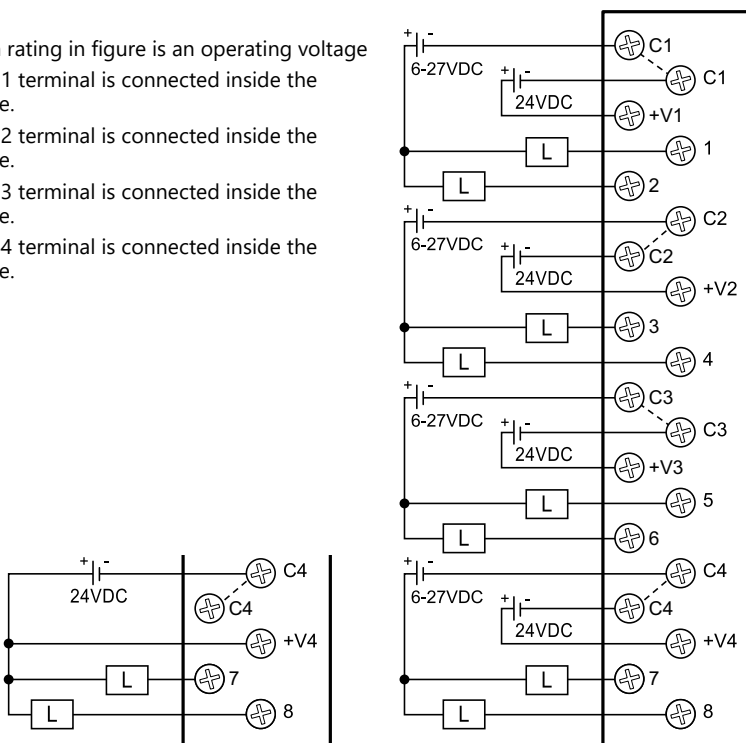
Removable Terminal Block Specifications	
Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS , 60°C or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

DC Output Modules

P3-08TD1S (cont'd)

Wiring Diagrams

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



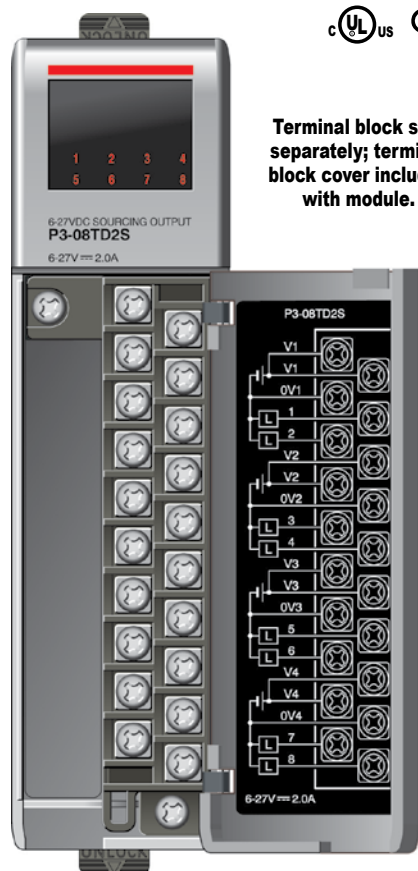
DC Output Modules

P3-08TD2S

\$141.00

Sourcing Output

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



Terminal block sold separately; terminal block cover included with module.



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

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



Output Specifications

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

General Specifications

Operating Temperature	0°C– 60°C (32°F–140°F),
Storage Temperature	-20°C–70°C (-4°F–158°F)
Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	IEC60068-2-6 (Test Fc)
Shock	IEC60068-2-27 (Test Ea)
Field to Logic Side Isolation	1500VAC applied for 1 minute
Insulation Resistance	>10MΩ @ 500VDC
Heat Dissipation	8.46 W
Enclosure Type	Open equipment
Module Keying to Backplane	Electronic
Module Location	Any I/O slot in any local, expansion, or remote base in a Productivity3000 system.
Field Wiring	Removable terminal block (not included). Use ZIPLink wiring system or optional terminal block. See Wiring Solutions.
Weight	110g (3.88 oz)
Agency Approvals	UL508 file E157382, Canada & USA UL1604 file E200031, Canada & USA CE (EN61131-2*) This equipment is suitable for use in Class 1, Division 2, Groups A, B, C and D or non-hazardous locations only.

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

Removable Terminal Block Specifications

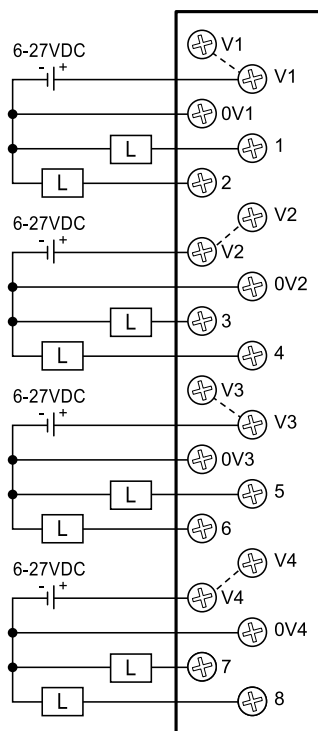
Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS , 60°C or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

WARNING: EXPLOSION HAZARD –
SUBSTITUTION OF COMPONENTS MAY IMPAIR
SUITABILITY FOR CLASS I, DIVISION 2.

DC Output Modules

P3-08TD2S (cont'd)

Wiring Diagrams

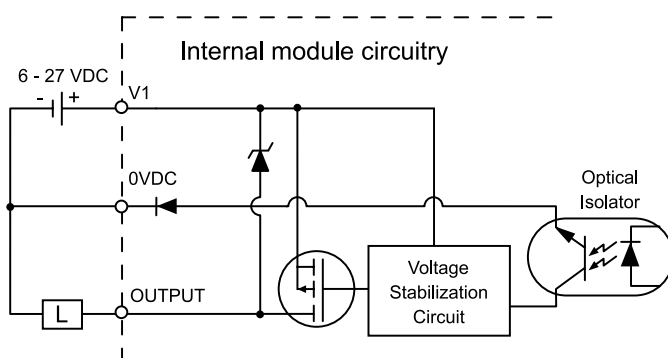


Each V1 is connected inside the module.

Each V2 is connected inside the module.

Each V3 is connected inside the module.

Each V4 is connected inside the module.



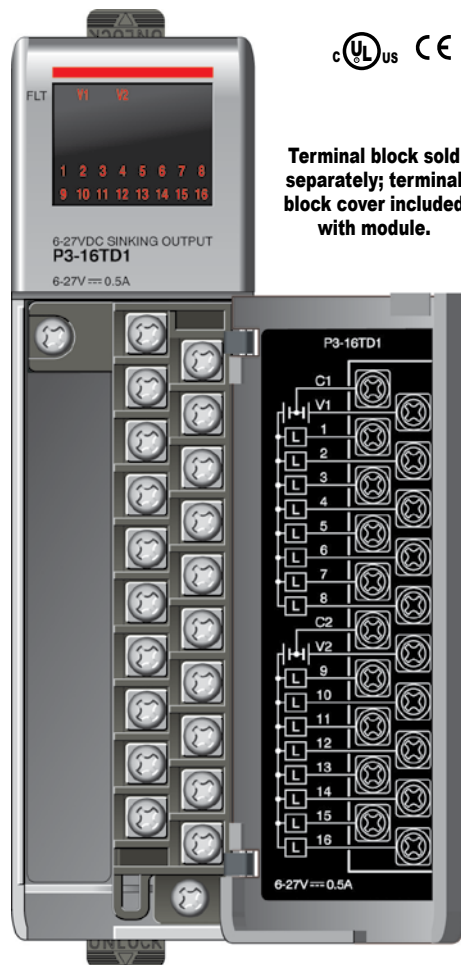
DC Output Modules

P3-16TD1

\$162.00

Sinking Output

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



Terminal block sold separately; terminal block cover included with module.



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

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



WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

Output Specifications

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

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

General Specifications

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

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

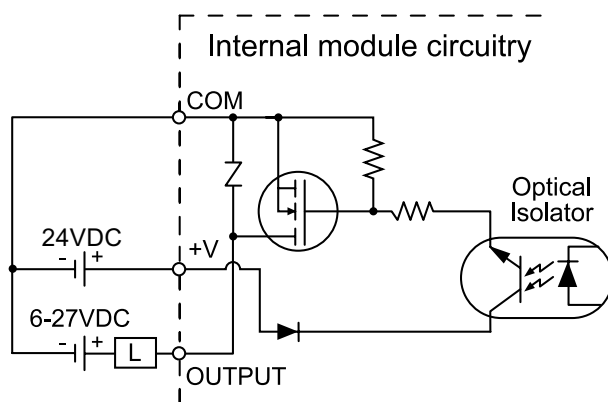
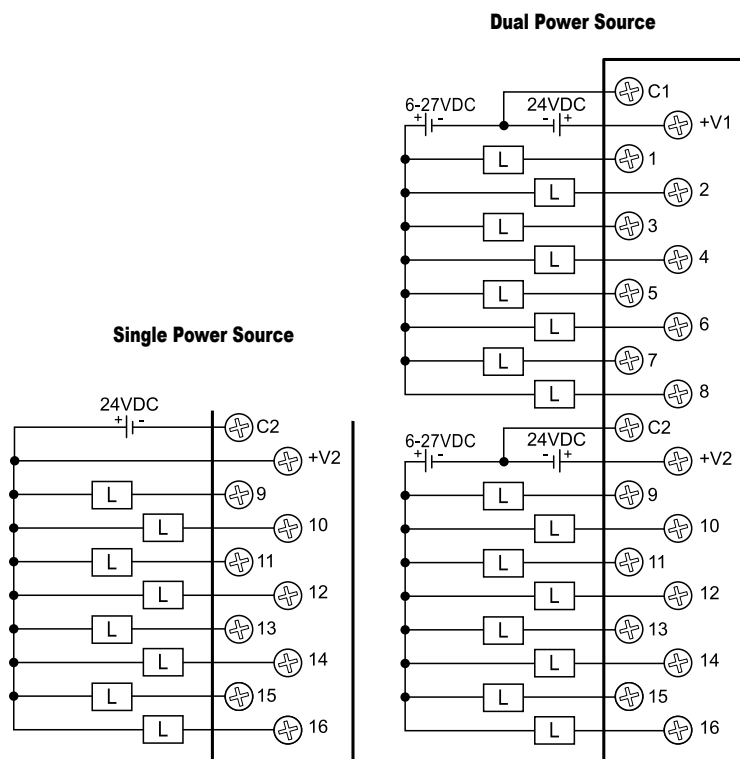
Removable Terminal Block Specifications

Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

DC Output Modules

P3-16TD1 (cont'd)

Wiring Diagrams



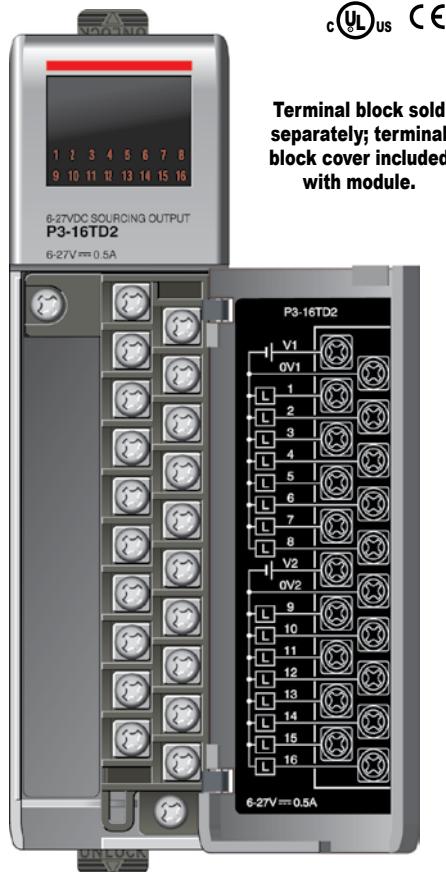
DC Output Modules

P3-16TD2

\$167.00

Sourcing Output

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



Terminal block sold separately; terminal block cover included with module.

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

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



WARNING: EXPLOSION HAZARD –
SUBSTITUTION OF COMPONENTS MAY IMPAIR
SUITABILITY FOR CLASS I, DIVISION 2.

Output Specifications

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

General Specifications

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

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

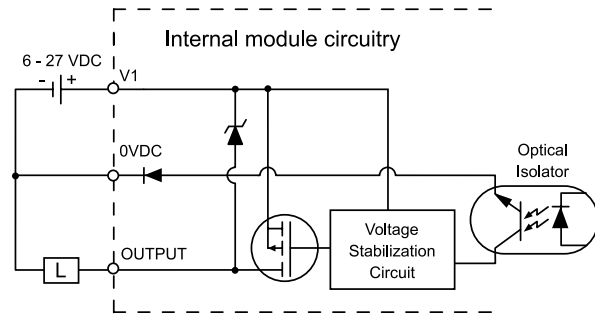
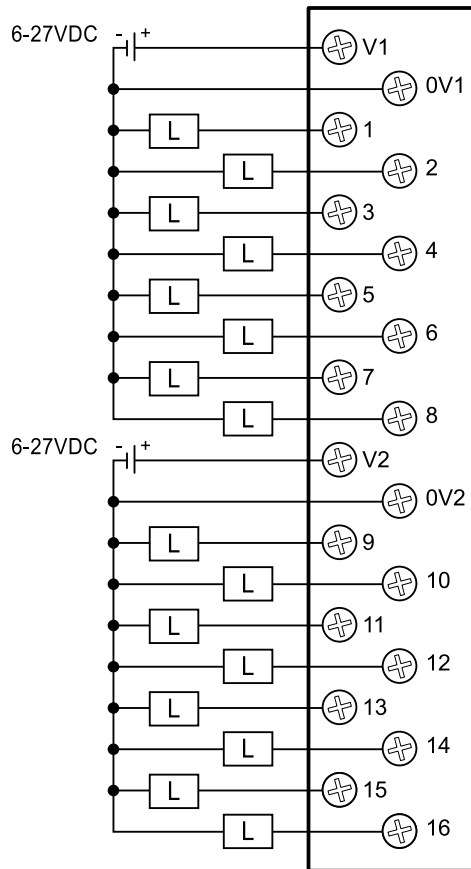
Removable Terminal Block Specifications

Description	Part No. P3-RTB; 20 screw terminals
Wire Range	22–14 AWG (0.324 to 2.08 sq. mm) Solid / stranded conductor 3/64 in. (1.2 mm) insulation maximum USE COPPER CONDUCTORS, 60°C or equivalent.
Screw Driver Width	1/4 inch (6.5 mm) maximum
Screw Size	M3 size
Screw Torque	Field terminals - 7–9 in·lb (0.882–1.02 N·m) Self-jacking screws - 2.7–3.6 in·lb (0.3–0.4 N·m). Do not overtighten screws when installing terminal block.

DC Output Modules

P3-16TD2 (cont'd)

Wiring Diagrams



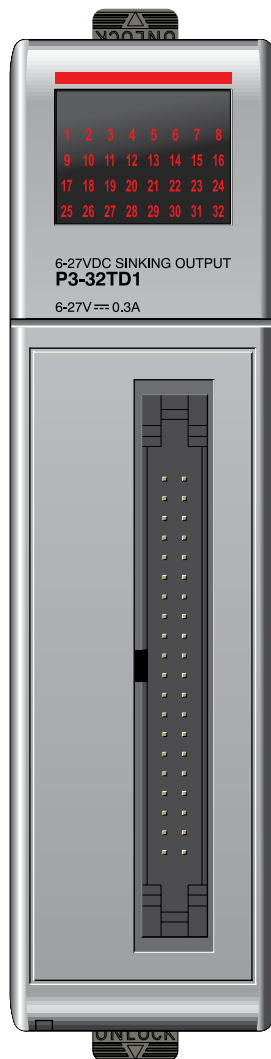
DC Output Modules

P3-32TD1

\$208.00

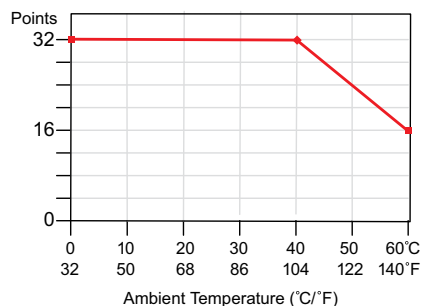
Sinking Output

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



No terminal block sold for this module; ZIPLink required.

Derating Chart



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

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

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

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

WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

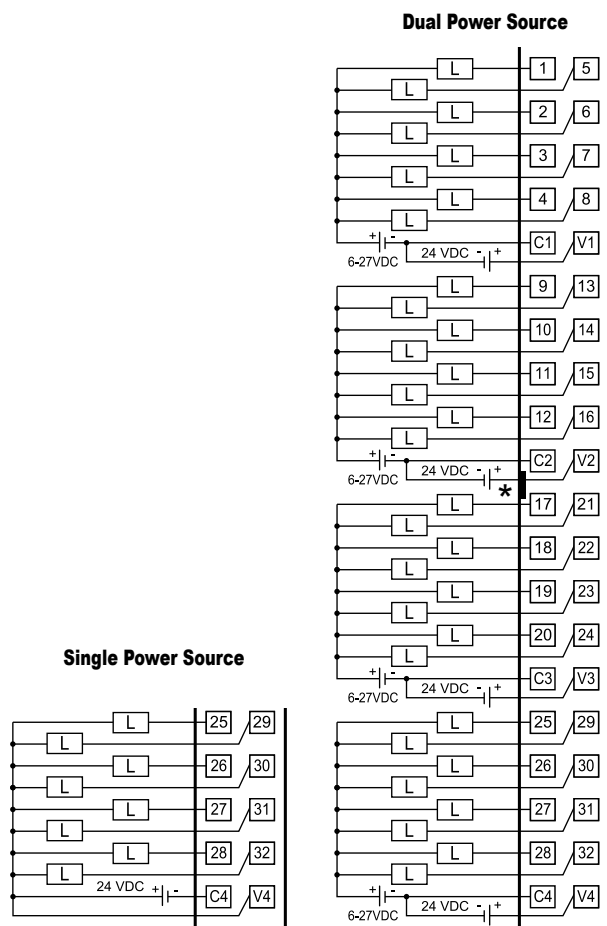
See Wiring Solutions for part numbers of ZIPLink cables and connection modules required with this I/O module.



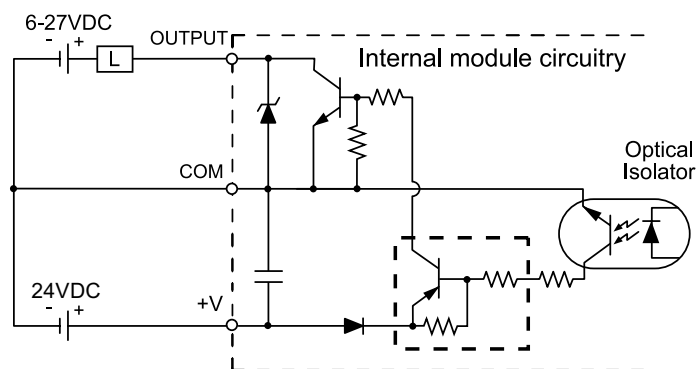
DC Output Modules

P3-32TD1 (cont'd)

Wiring Diagrams



*Denotes key location of all associated ZIPLink cables.



DC Output Modules

P3-32TD2

\$208.00

Sourcing Output

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



No terminal block sold for this module; ZIPLink required.

Output Specifications

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

General Specifications

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

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

Connector Specifications

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

WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

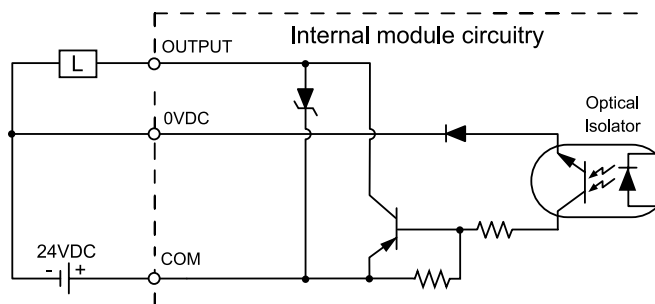
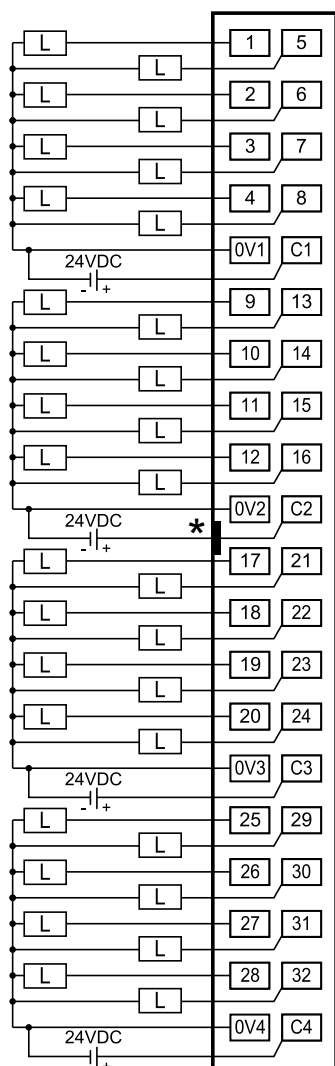
See Wiring Solutions for part numbers of ZIPLink cables and connection modules required with this I/O module.



DC Output Modules

P3-32TD2 (cont'd)

Wiring Diagrams



*Denotes key location of all associated ZIPLink cables.

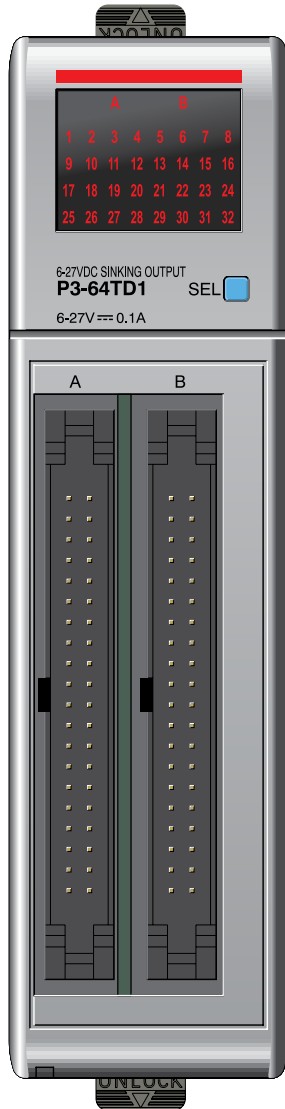
DC Output Modules

P3-64TD1

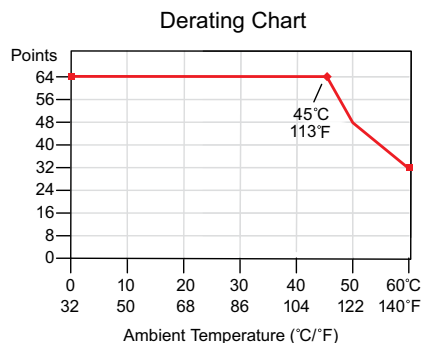
\$280.00

Sinking Output

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



No terminal block sold
for this module; ZIPLink
required.



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

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

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

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

WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

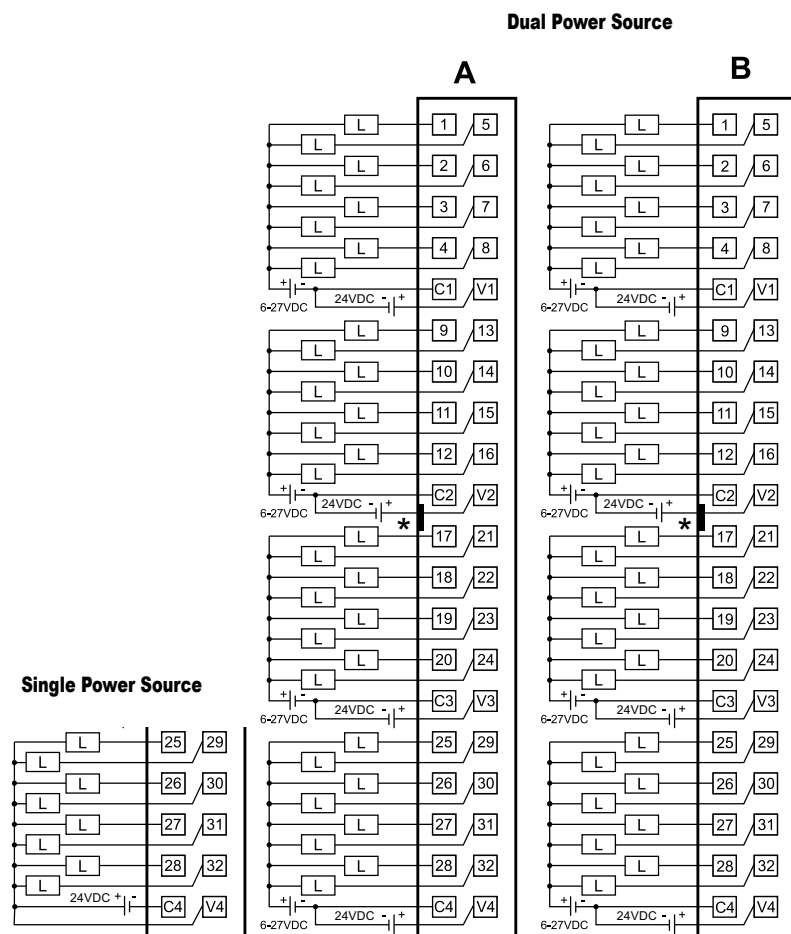
See Wiring Solutions for part numbers of ZIPLink cables and connection modules required with this I/O module.



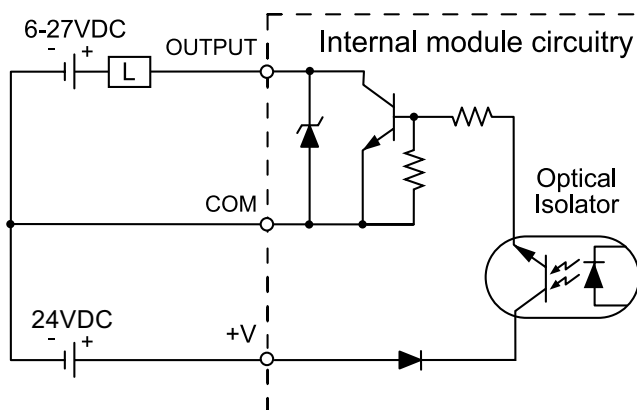
DC Output Modules

P3-64TD1 (cont'd)

Wiring Diagrams



*Denotes key location of all associated ZIPLink cables



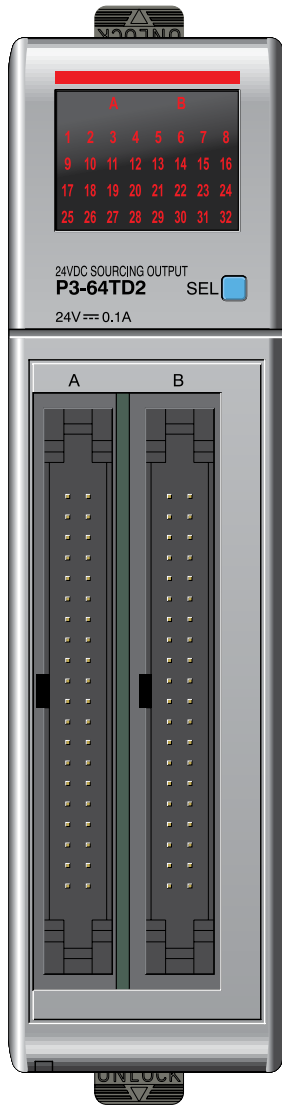
DC Output Modules

P3-64TD2

\$265.00

Sourcing Output

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



No terminal block sold for this module; ZIPLink required.

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

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

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

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

WARNING: EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

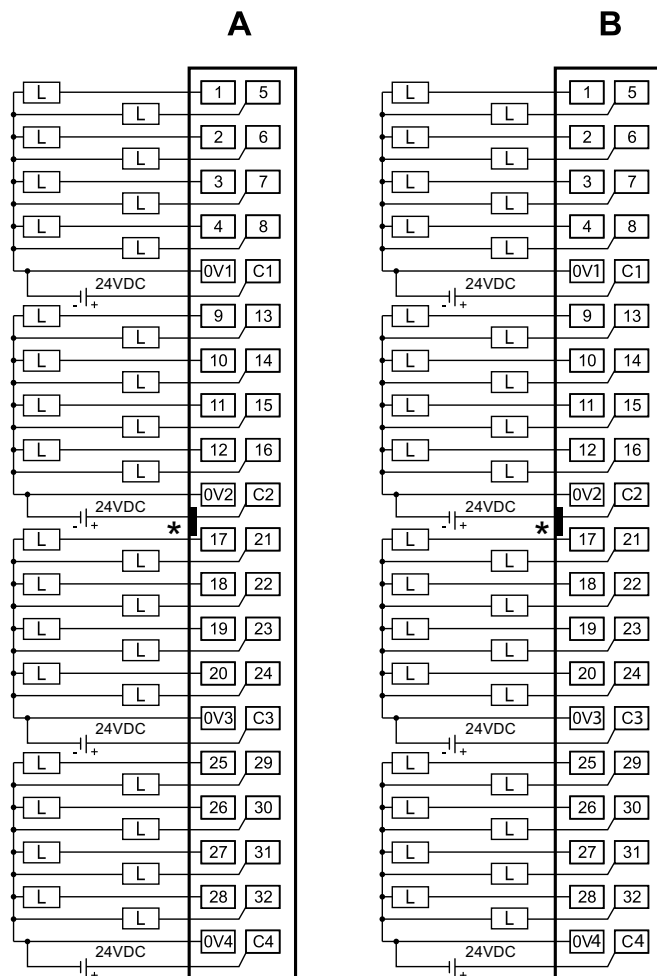
See Wiring Solutions for part numbers of ZIPLink cables and connection modules required with this I/O module.



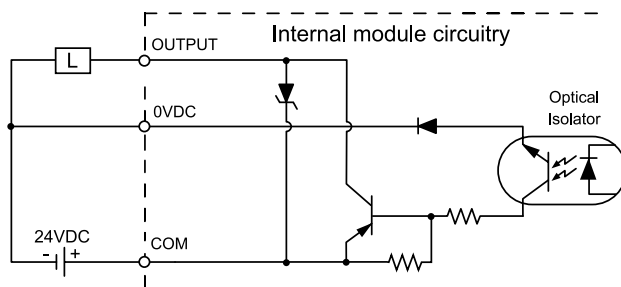
DC Output Modules

P3-64TD2 (cont'd)

Wiring Diagrams



*Denotes key location of all associated ZIPLink cables





Wiring Solutions

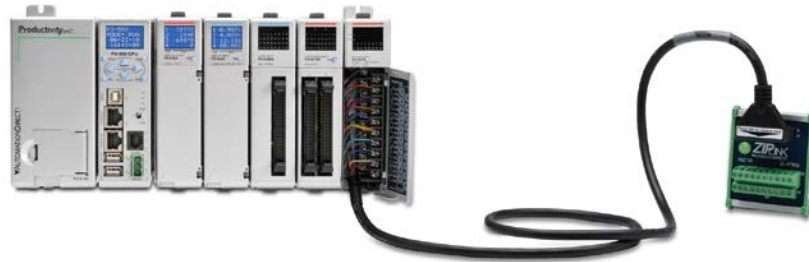
Wiring Solutions using the ZIPLink wiring system

ZIPLinks eliminate the normally tedious process of wiring between devices by utilizing prewired cables and DIN rail mount connector modules. It's as simple as plugging in a cable connector at either end or terminating wires at only one end. Prewired cables keep installation clean and efficient, using half the space at a fraction of the cost of standard terminal blocks. There are several wiring solutions available when using the **ZIPLink** System ranging from

PLC I/O-to-**ZIPLink** Connector Modules that are ready for field termination, options for connecting to third party devices, GS, DuraPulse and SureServo Drives, and specialty relay, transorb and communications modules. Pre-printed I/O-specific adhesive label strips for quick marking of **ZIPLink** modules are provided with **ZIPLink** cables. See the following solutions to help determine the best **ZIPLink** system for your application.

Solution 1: Productivity Series I/O Modules to ZIPLink Connector Modules

When looking for quick and easy I/O-to-field termination, a **ZIPLink** connector module used in conjunction with a prewired **ZIPLink** cable, consisting of an I/O terminal block at one end and a multi-pin connector at the other end, is the best solution.

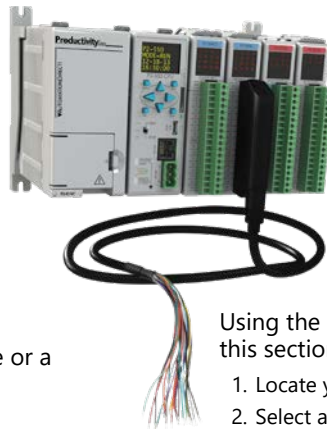


Using the PLC I/O Modules to **ZIPLink** Connector Modules selector tables located in this section,

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

Solution 2: Productivity Series I/O Modules to ZIPLink Connector Modules

When wanting to connect I/O to another device within close proximity of the I/O modules, no extra terminal blocks are necessary when using the **ZIPLink** Pigtail Cables. **ZIPLink** Pigtail Cables are prewired to an I/O terminal block with color-coded pigtail with soldered-tip wires on the other end.



Using the I/O Modules to 3rd Party Devices selector tables located in this section,

1. Locate your PLC I/O module.
2. Select a **ZIPLink** Pigtail Cable that is compatible with your 3rd party device.

Solution 3: GS Series and DuraPulse Drives Communication Cables

Need to communicate via Modbus RTU to a drive or a network of drives?

ZIPLink cables are available in a wide range of configurations for connecting to PLCs and SureServo, SureStep, Stellar Soft Starter and AC drives. Add a **ZIPLink** communications module to quickly and easily set up a multi-device network.

Using the Drives Communication selector tables located in this section,

1. Locate your Drive and type of communications.
2. Select a **ZIPLink** cable and other associated hardware.





Wiring Solutions

Solution 4: Serial Communications Cables

ZIPLink offers communications cables for use with DirectLOGIC, CLICK, and Productivity3000 CPUs, that can also be used with other communications devices. Connections include a 6-pin RJ12 or 9-pin, 15-pin and 25-pin D-sub connectors which can be used in conjunction with the RJ12 or D-Sub Feedthrough modules.

Using the Serial Communications Cables selector table located in this section,

1. Locate your connector type
2. Select a cable.



Solution 5: Specialty ZIPLink Modules

For additional application solutions, **ZIPLink** modules are available in a variety of configurations including stand-alone relays, 24VDC and 120VAC transorb modules, D-sub and RJ12 feedthrough modules, communication port adapter and distribution modules, and SureServo 50-pin I/O interface connection.

Using the **ZIPLink** Specialty Modules selector table located in this section,

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



Solution 6: ZIPLink Connector Modules to 3rd Party Devices

If you need a way to connect your device to terminal blocks without all that wiring time, then our pigtail cables with color-coded soldered-tip wires are a good solution. Used in conjunction with any compatible **ZIPLink** Connector Modules, a pigtail cable keeps wiring clean and easy and reduces troubleshooting time.

Using the Universal Connector Modules and Pigtail Cables table located in this section,

1. Select module type.
2. Select the number of pins.
3. Select cable.





CPU I/O Modules to ZIPLink Connector Modules - Productivity3000®

Productivity3000 CPU Input Module ZIPLink Selector				
CPU		ZIPLink		
Input Module	# of Terms	Component	Module Part No.	Cable Part No.
P3-08NAS	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *
P3-08ND3S	20	Feedthrough		
P3-16NA	20	Feedthrough		ZL-P3-CBL20-1L
P3-16ND3	20	Feedthrough		ZL-P3-CBL20-2L
		Sensor	ZL-LTB16-24-1	
P3-32ND3	40	Feedthrough	ZL-RTB40	
		Sensor	ZL-LTB32-24-1	ZL-CBL40
				ZL-CBL40-1
P3-64ND31	40	Feedthrough	ZL-RTB40	ZL-CBL40-2
		Sensor	ZL-LTB32-24-1	

Productivity3000 CPU Analog In Module ZIPLink Selector				
CPU		ZIPLink		
Analog Module	# of Terms	Component	Module	Cable
P3-04ADS	20	Feedthrough	ZL-RTB20	
P3-08AD	20	Feedthrough		ZL-P3-CBL20-1L
P3-16AD-1	20	Feedthrough		ZL-P3-CBL20-2L
P3-16AD-2	20	Feedthrough		
P3-08RTD ²	Matched Only	See Note 2		
P3-08THM ²	T/C Wire Only	See Note 2		
P3-04DA	20	Feedthrough	ZL-RTB20	
P3-08DA-1	20	Feedthrough		
P3-08DA-2	20	Feedthrough		
P3-16DA-1	20	Feedthrough		ZL-P3-CBL20-1L
P3-16DA-2	20	Feedthrough		ZL-P3-CBL20-2L
P3-8AD4DA-1	20	Feedthrough		
P3-8AD4DA-2	20	Feedthrough		

Productivity3000 CPU Specialty Module ZIPLink Selector				
CPU		ZIPLink		
Input Module	# of Terms	Component	Module Part No.	Cable Part No.
P3-HSI	40	Feedthrough	ZL-RTB40	ZL-CBL40-S
P3-HSO				ZL-CBL40-1S
				ZL-CBL40-2S



Note: ZIPLink Connector Modules specifications follow the Compatibility Matrix tables. ZIPLink Cables specifications are at the end of this ZIPLink section.

Productivity3000 CPU Output Module ZIPLink Selector				
CPU		ZIPLink		
Output Module	# of Terms	Component	Module Part No.	Cable Part No.
P3-08TAS	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20 *
P3-08TD1S	20	Feedthrough		ZL-P3-CBL20-1L
P3-08TD2S	20	Feedthrough		ZL-P3-CBL20-2L
P3-08TRS	20	Feedthrough		
P3-16TA	20	Feedthrough	ZL-RTB20	
		Fuse		
P3-16TD1	20	Feedthrough		
		Fuse		ZL-RFU20 ⁴
		Relay (sinking)	ZL-RRL16-24-1	ZL-P3-CBL20
P3-16TD2	20	Feedthrough	ZL-RTB20	ZL-P3-CBL20-1
		Fuse	ZL-RFU20 ⁴	ZL-P3-CBL20-2
		Relay (sourcing)	ZL-RRL16-24-2	
P3-16TR	20	Feedthrough	ZL-RTB20	
		Fuse	ZL-RFU20 ⁴	
P3-08TRS-1 ³	20	Feedthrough	ZL-RTB20	
		Fuse	ZL-RFU20 ⁴	
P3-32TD1	40	Feedthrough	ZL-RTB40	
		Fuse	ZL-RFU40 ⁴	
P3-32TD2	40	Feedthrough	ZL-RTB40	
		Fuse	ZL-RFU40 ⁴	ZL-CBL40
P3-64TD1 ¹	40	Feedthrough	ZL-RTB40	ZL-CBL40-1
		Fuse	ZL-RFU40 ⁴	ZL-CBL40-2
P3-64TD2 ¹	40	Feedthrough	ZL-RTB40	
		Fuse	ZL-RFU40 ⁴	

* Select the cable length by replacing the * with: Blank = 0.5m, -1 = 1.0m, or -2 = 2.0m.

1 The P3-64ND3, P3-64TD1 and P3-64TD2 modules have two 32-point connectors and require two ZIPLink cables and two ZIPLink connector modules.

2 These modules are not supported by the ZIPLink wiring system.

3 The P3-08TRS-1 output module is derated not to exceed 2A per point maximum when used with the ZIPLink wiring system.

4 Note: Fuses (5 x 20 mm) are not included. See Edison Electronic Fuse section for (5 x 20 mm) fuse. S500 and GMA electronic circuit protection for fast-acting maximum protection. S506 and GMC electronic circuit protection for time-delay performance. Ideal for inductive circuits.

To ensure proper operation, do not exceed the voltage and current rating of ZIPLink module. ZL-RFU20 = 2A per circuit; ZL-RFU40 = 400 mA per circuit.



I/O Modules

A variety of discrete, analog and specialty I/O modules are available for use in local, expansion, and remote I/O bases. Specifications for each module are on the following pages.

A filler module is available for unused I/O module slots (part number P3-FILL).

Discrete Input Modules

Productivity3000 Discrete Input Modules			
Part Number	Number of Inputs	Description	Price
P3-16SIM	16	Input Simulator Module	\$197.00
P3-08ND3S	8	Isolated Sinking/Sourcing DC Input	\$99.00
P3-16ND3	16	Sinking/Sourcing DC Input	\$152.00
P3-32ND3	32	Sinking/Sourcing DC Input	\$208.00
P3-64ND3	64	Sinking/Sourcing DC Input	\$260.00
P3-08NAS	8	Isolated AC Input	\$126.00
P3-16NA	16	AC Input	\$159.00

*ZIPLink required.

Discrete Output Modules

Productivity3000 Discrete Output Modules			
Part Number	Number of Outputs	Description	Price
P3-08TD1S	8	Isolated Sinking Output	\$135.00
P3-08TD2S	8	Isolated Sourcing Output	\$141.00
P3-16TD1	16	Sinking Output	\$162.00
P3-16TD2	16	Sourcing Output	\$167.00
P3-32TD1*	32	Sinking Output	\$208.00
P3-32TD2*	32	Sourcing Output	\$208.00
P3-64TD1*	*64	Sinking Output	\$280.00
P3-64TD2*	*64	Sourcing Output	\$265.00
P3-08TAS	8	Isolated AC Output	\$177.00
P3-16TA	16	AC Output	\$210.00
P3-08TRS	8	Isolated Relay Output	\$159.00
P3-08TRS-1	8	Isolated Relay Output	\$194.00
P3-16TR	16	Relay Output	\$177.00

*ZIPLink required.

Analog I/O Modules

Productivity3000 Analog Input Modules			
Part Number	Number of Channels	Description	Price
P3-04ADS	4	Isolated Analog Input	\$724.00
P3-08AD	8	Analog Input	\$393.00
P3-16AD-1	16	Analog Input (Current)	\$535.00
P3-16AD-2	16	Analog Input (Voltage)	\$524.00
P3-08RTD	8	Analog RTD Input	\$581.00
P3-08THM	8	Analog Thermocouple Input	\$736.00

Productivity3000 Analog Output Modules			
Part Number	Number of Channels	Description	Price
P3-04DA	4	Analog Output	\$449.00
P3-08DA-1	8	Analog Output (Current)	\$779.00
P3-08DA-2	8	Analog Output (Voltage)	\$725.00
P3-16DA-1	16	Analog Output (Current)	\$929.00
P3-16DA-2	16	Analog Output (Voltage)	\$911.00

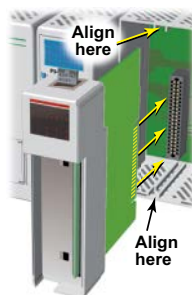
Productivity3000 Analog Input/Output Modules			
Part Number	Number of Channels	Description	Price
P3-8AD4DA-1	8/4	Analog Input/Output (Current)	\$598.00
P3-8AD4DA-2	8/4	Analog Input/Output (Voltage)	\$617.00

Specialty Modules

Productivity3000 Specialty Modules			
Part Number	Number of Channels	Description	Price
P3-HSI	2	High-Speed Pulse Input	\$563.00
P3-HSO*	2	High-Speed Output	\$587.00
P3-SCM	4 ports	Serial Communications Module	\$475.00

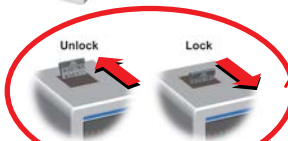
*ZIPLink required.

Module Installation Procedure



WARNING: DO NOT APPLY FIELD POWER UNTIL THE FOLLOWING STEPS ARE COMPLETED. SEE HOT-SWAPPING PROCEDURE FOR EXCEPTIONS.

Step One: Align circuit card with slot and press firmly to seat module into connector.

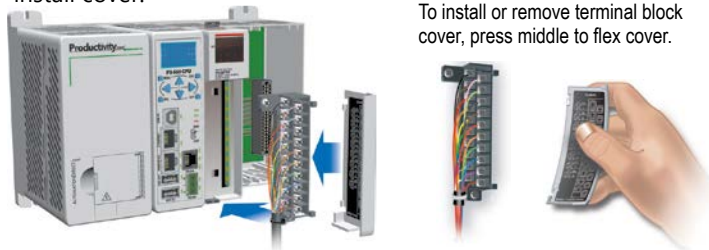


Step Two: Pull top and bottom locking tabs toward module face. Click indicates lock is engaged.

Step Three: Attach field wiring using optional terminal block or ZIPLink wiring system and install cover.



To install or remove terminal block cover, press middle to flex cover.



WARNING: EXPLOSION HAZARD – DO NOT CONNECT OR DISCONNECT CONNECTORS OR OPERATE SWITCHES WHILE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE NON-HAZARDOUS. DO NOT HOT-SWAP MODULES UNLESS THE AREA IS KNOWN TO BE NON-HAZARDOUS.