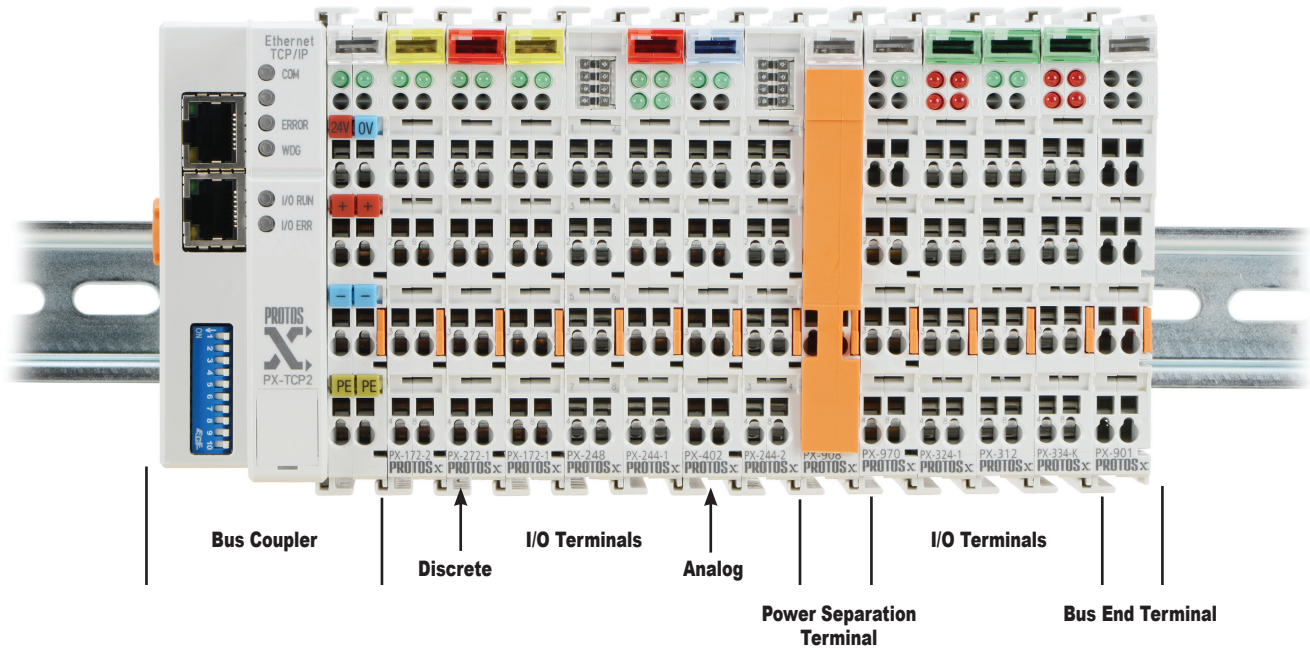


# Protos X I/O

The Protos XTM I/O system (seen below) is a modular, field I/O system consisting of a Bus Coupler and its associated input/output terminals. The Protos X field I/O series offers

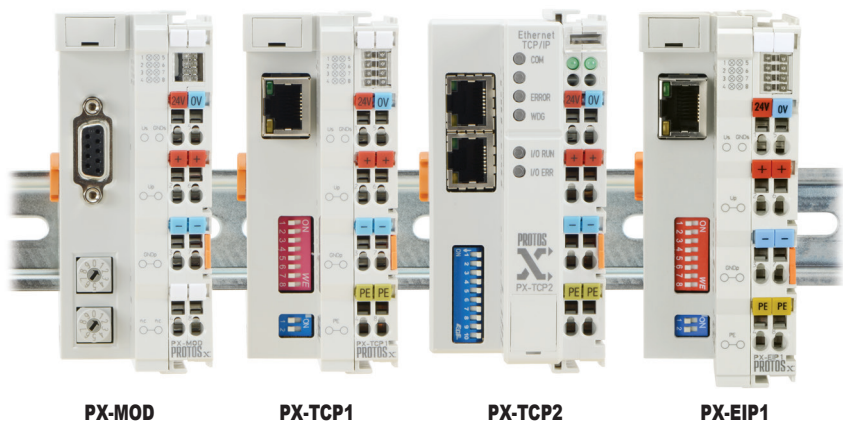
- 2, 4, 8, and 16-point discrete I/O terminals,
- 2, 4 and 8-channel analog I/O terminals,
- Three Bus Couplers that utilize the Modbus protocol with Modbus RTU/ASCII and Modbus TCP option,
- One Bus Coupler that utilizes EtherNet/IP and network addressing,
- Bus expansion terminals for expansion up to 255 I/O terminals per specific Bus Couplers,
- A variety of power supply options.



## Bus Couplers

Bus Couplers are available in four configurations. The PX-MOD provides Modbus RTU/ASCII over RS-485. The PX-EIP1 provides EtherNet/IP; PX-TCP1 and PX-TCP2 offer Modbus TCP over Ethernet. The PX-TCP2 provides an additional port which can act as a switch to other couplers of the same type.

Protos X Bus Couplers		
Part Number	Description	Price
<a href="#"><u>PX-MOD</u></a>	Modbus RTU/ASCII Bus Coupler	\$383.00
<a href="#"><u>PX-TCP1</u></a>	Modbus TCP Bus Coupler (1 port)	\$347.00
<a href="#"><u>PX-TCP2</u></a>	Modbus TCP Bus Coupler (2 ports)	\$547.00
<a href="#"><u>PX-EIP1</u></a>	EtherNet/IP Bus Co(1 port)	\$347.00



PX-MOD

PX-TCP1

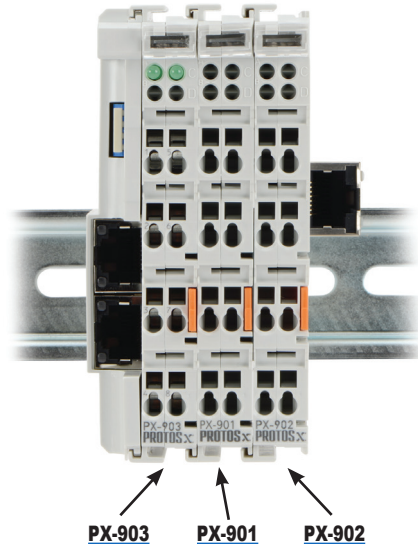
PX-TCP2

PX-EIP1

# Protos X I/O

## Bus End Terminal/ Bus Expansion Coupler Terminals

A Bus End Terminal, located at the end of a terminal assembly, is required for proper I/O bus communication. Bus expansion is available for the PX-MOD and PX-TCP1 Bus Couplers. Bus expansion requires that a Bus Expansion End Terminal be used in place of the Bus End Terminal and a Bus Expansion Coupler Terminal be used in place of the PX-MOD or PX-TCP1 at each expansion assembly.

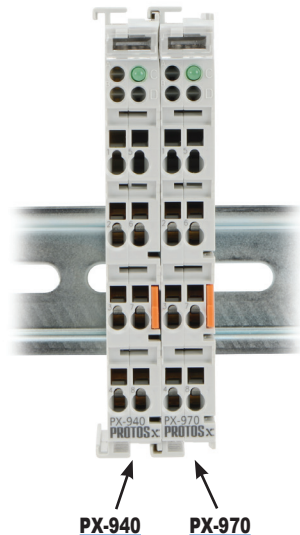


### Bus Expansion Terminals

Part Number	Description	Price
<b>PX-901</b>	Bus End Terminal	\$20.00
<b>PX-902</b>	Bus Expansion End Terminal	\$78.00
<b>PX-903</b>	Bus Expansion Coupler Terminal	\$123.00

## Power Feed Terminals

Two Power Feed Terminals, 24VDC or 120–230 VAC, are available to add or change supply power to the Terminal Power Bus.



### Power Feed Terminals

Part Number	Description	Price
<b>PX-940</b>	24VDC Power Feed Terminal	\$26.00
<b>PX-970</b>	120–230 VAC Power Feed Terminal	\$34.00

## Power Distribution Terminal

A Power Distribution Terminal provides access to the integrated 24VDC Terminal Power Bus. The terminal provides 8 connection points each of 24V and 0V.



### Power Distribution Terminal

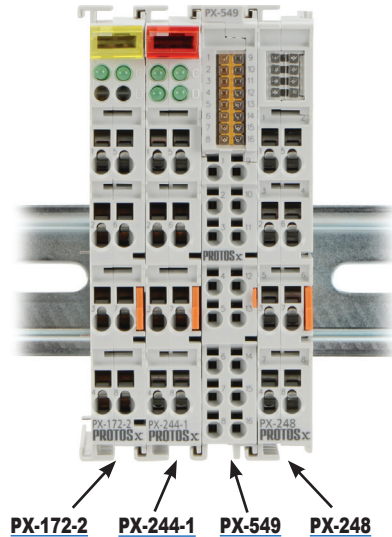
Part Number	Description	Price
<b>PX-949</b>	24VDC Power Distribution Terminal	\$37.00



# Protos X I/O

## Discrete I/O Terminals

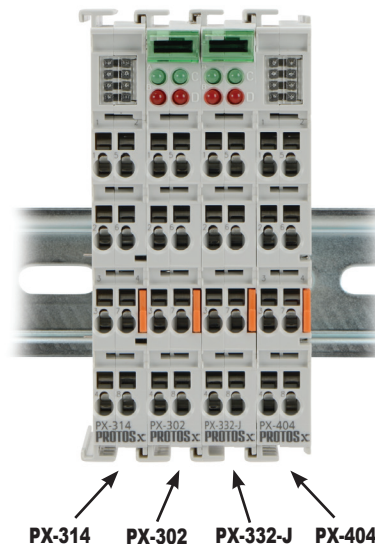
There are twelve discrete input and output terminals available offering 2 points, 4 points, 8 points or 16 points per terminal and include AC, DC and relay form factors.



Discrete Input/Output Terminals		
Part Number	Description	Price
PX-144	24VDC 4-point Input Terminal	\$48.00
PX-148	24VDC 8-point Input Terminal	\$78.00
PX-149	24VDC 16-point Input Terminal	\$135.00
PX-172-1	120–230 VAC 2-point Input Terminal	\$54.00
PX-172-2	120 VAC/VDC 2-point Input Terminal	\$54.00
PX-244-1	24VDC 4-point Output Terminal (0.5 A per point)	\$72.00
PX-244-2	24VDC 4-point Output Terminal (2A per point)	\$88.00
PX-248	24VDC 8-point Output Terminal	\$91.00
PX-249	24VDC 16-point Output Terminal	\$126.00
PX-272-1	230 VAC/VDC 2-point Output Terminal (0.3 A per point)	\$97.00
PX-272-2	230VAC/30VDC 2-point Output Terminal (2A per point)	\$76.00
PX-549	24VDC 8-point Input/ 24VDC 8-point Output Combination Terminal	\$138.00

## Analog I/O Terminals

There are eighteen analog input and output terminals available offering 2 channels, 4 channels or 8 channels per terminal and include 4–20 mA, PT100 RTD, Type J and K thermocouple and 0–10 or  $\pm 10$  VDC form factors.



Analog Input/Output Terminals		
Part Number	Description	Price
PX-302	4–20 mA 2-channel Current Input Terminal	\$306.00
PX-304	4–20 mA 4-channel Current Input Terminal	\$272.00
PX-308	4–20 mA 8-channel Current Input Terminal	\$347.00
PX-312	$\pm 10$ VDC 2-channel Voltage Input Terminal	\$306.00
PX-314	$\pm 10$ VDC 4-channel Voltage Input Terminal	\$272.00
PX-318	$\pm 10$ VDC 8-channel Voltage Input Terminal	\$347.00
PX-322-1	2 Channel RTD Terminal	\$335.00
PX-324-1	4 Channel RTD Terminal	\$383.00
PX-332-J	2 Channel Thermocouple Terminal (J type)	\$342.00
PX-332-K	2 Channel Thermocouple Terminal (K type)	\$342.00
PX-334-J	4 Channel Thermocouple Terminal (J type)	\$393.00
PX-334-K	4 Channel Thermocouple Terminal (K type)	\$393.00
PX-402	4–20 mA 2-channel Current Output Terminal	\$289.00
PX-404	4–20 mA 4-channel Current Output Terminal	\$272.00
PX-408	4–20 mA 8-channel Current Output Terminal	\$347.00
PX-412	0–10 VDC 2-channel Voltage Output Terminal	\$289.00
PX-414	0–10 VDC 4-channel Voltage Output Terminal	\$266.00
PX-418	$\pm 10$ VDC 8-channel Voltage Output Terminal	\$347.00

# Protos X I/O

## Power Separation Terminal

A Power Separation Terminal is available to provide interruption of power along the Terminal Power Bus.



### Power Separation Terminal

Part Number	Description	Price
<b>PX-908</b>	Power Separation Terminal	\$25.00

## Configuration Cable (USB v2.0)

A communications cable is available for configuration of the Bus Couplers. The cable has a USB type A connector for the PC and a 4-pin custom micro connector for the bus coupler.



### Configuration Cable (USB)

Part Number	Description	Price
<b>PX-USB-232</b>	Configuration Cable 3m (9.8 ft.)	\$90.00





# Bus Couplers PX-MOD

## Configuration Port

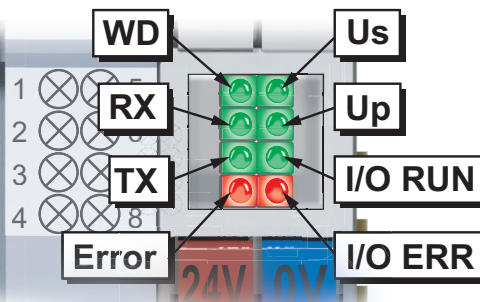


The Service Port connector is located under the flip-cover shown. This port is used for communication with the software configuration tool. The software configuration tool auto-configures the Modbus addresses of the I/O terminals and the interface allows the user to:

- Run the configurator
- View the configured Modbus addresses
- Modify the baud rate
- Change the Modbus offset
- Reboot the coupler
- Disable or modify Watchdog timer

Requires cable PX-USB-232, with a USB type A connector for the PC and a 4-pin custom micro connector for the Bus Coupler. Works with PX-CFGSW configuration software.

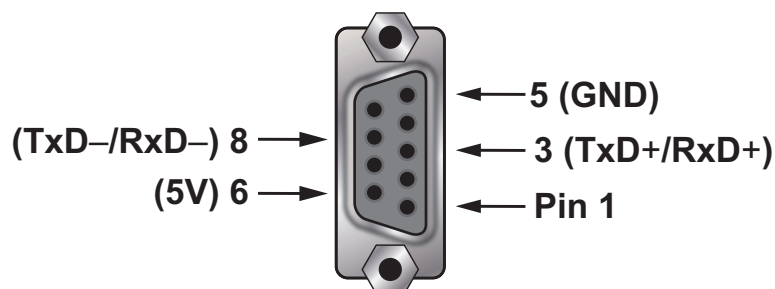
## Status LEDs



### LED Descriptions

LED	Status: ON	Status: OFF
<b>Green LED 1: WD</b>	Watchdog is active	Watchdog error
<b>Green LED 2: RX</b>	Data being received	No data being received
<b>Green LED 3: TX</b>	Data being transmitted	No data being transmitted
<b>Red LED 4: ERROR</b>	Data Error, communications with the master device has been lost	No data error or checksum error
<b>Green LED 5: Us</b>	Bus Coupler power on	Bus Coupler power off
<b>Green LED 6: Up</b>	Terminal power on	Terminal power off
<b>Green LED 7: I/O RUN</b>	I/O bus data active	Watchdog-timer overflow
<b>Red LED 8: I/O ERR</b>	I/O bus error, blinking code	No I/O bus error

## D-sub 9-pin, RS-485 Connector



## Address Selection - Rotary Switches

The Modbus node address for the PX-MOD is set using both rotary switches on the front of the Coupler. The address is configured within the 01 to 99 range. The configured value of 00 is reserved for programming and configuration.

The lower rotary switch is used to set the tens digit (x10) of the node address. The upper rotary switch is used to set the ones digit (x1) of the node address. The switch address is accepted only when power is cycled. The example shown is configured for a node address of 21.

# Bus Couplers PX-MOD

## System Considerations

The PX-MOD performs as a Modbus RTU/ASCII slave in a Modbus network. Communication to the master is via a 9-pin D-sub RS-485 port. The maximum distance from the master to the PX-MOD is 4000 feet (1200 meters) using 24 AWG shielded, twisted pair. Termination resistors are required at the beginning and end of the network. It is highly recommended that a dedicated network be used for the Protos X system.

The PX-MOD Bus Coupler supports up to 64 terminals per assembly, 255 with Bus Expansion Couplers. A minimal assembly consists of a PX-MOD Bus Coupler, I/O Terminals and a Bus End Terminal.

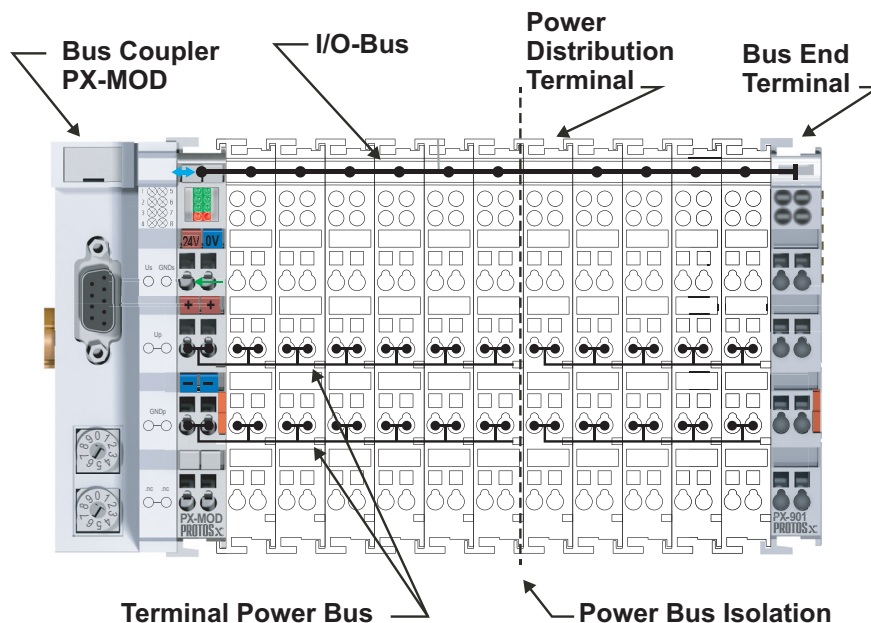
An I/O Bus, powered through the Bus Coupler, provides data communication across the terminal assembly via six contacts located on the side walls of the terminals. A Terminal Power Bus provides power for the I/O terminals via two power contacts. A power source of 24VAC or 24VDC must be connected to the Bus Coupler from an external supply.

If additional 24VDC supply is required for terminal wiring, eight points of 24VDC power can be distributed from the Terminal Power Bus using a Power Distribution Terminal (PX-949). This terminal must be mounted to the right of a terminal that passes 24VDC on the power bus. Both I/O Bus communication and terminal bus power are passed through to adjoining terminals.

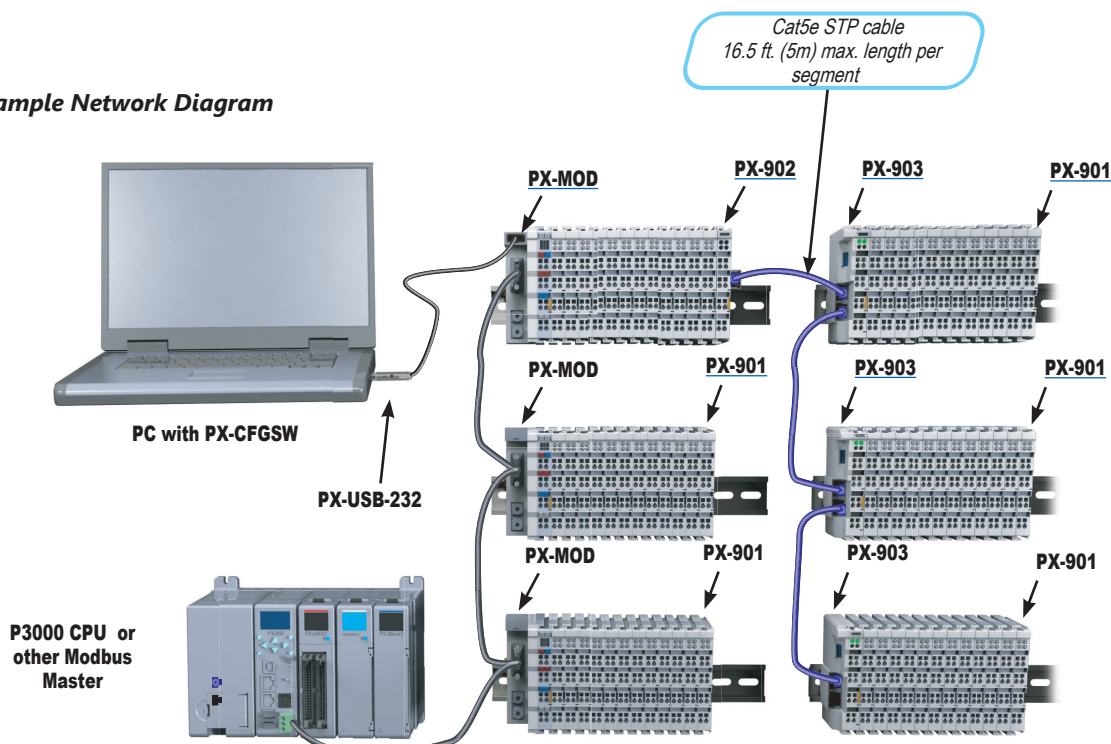
For expansion beyond a 64-terminal assembly, a Bus Expansion End Terminal (PX-902) is used in place of a standard Bus End Terminal (PX-901). A Bus Expansion Coupler Terminal (PX-903) is used at each expansion assembly in place of a PX-MOD Bus Coupler. Up to 31 Expansion couplers can be used in a group of assemblies. Connection is made between the Expansion Coupler Terminals via standard RJ45 Ethernet patch cable.

It is important to stay within the following three specifications:

1. Do not exceed the total number of 64 Terminals allowed per Assembly.
2. Do not exceed the total number of 512 Input Bytes and 512 Output Bytes.
3. Do not exceed the Coupler I/O Bus Power Budget of 1000mA as there is no internal current protection.

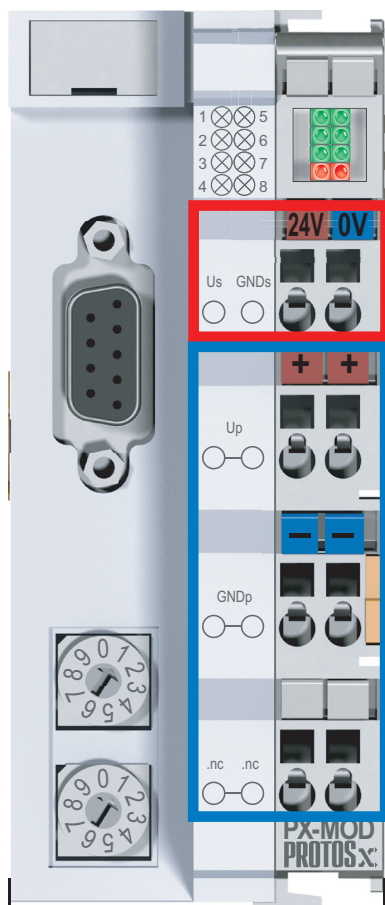


## PX-MOD Example Network Diagram



# Bus Couplers - PX-MOD

## PX-MOD Wiring Connections



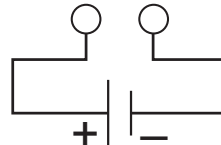
### Label

Us GNDs



### Bus Coupler Supply Power

24V 0V



24VDC Power

### Label

Up



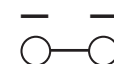
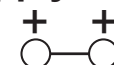
GNDp



.nc .nc



### Terminal Supply Power



24VDC  
Power

OR

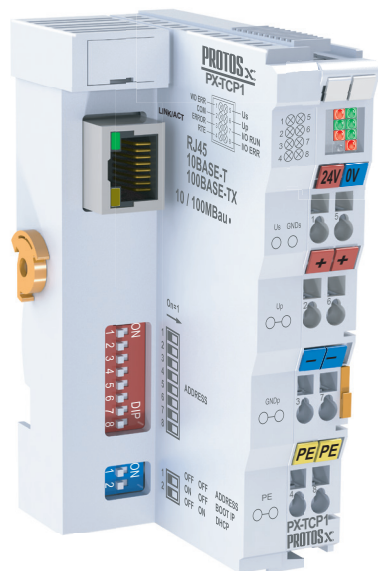


24VAC  
Power



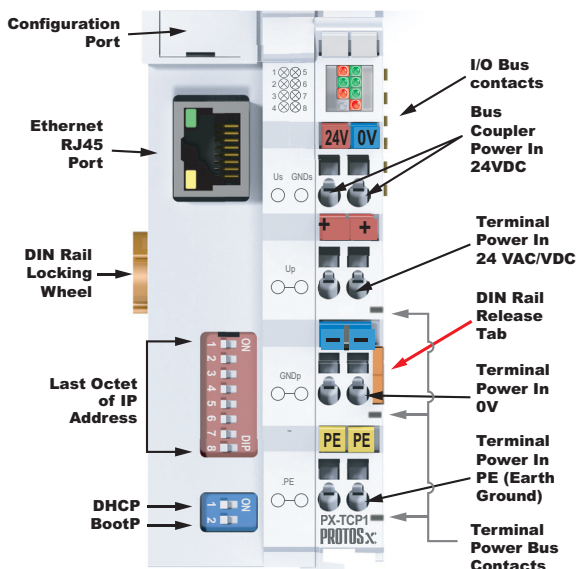
# Bus Couplers - PX-TCP1

PX-TCP1 \$347.00



The PX-TCP1 Modbus TCP Server Bus Coupler allows connection of up to 64 terminals per assembly, 255 terminals total, in a Modbus TCP network. The PX-TCP1 communicates using high-level Modbus commands and supports 512 bytes of input data and 512 bytes of output data.

The PX-TCP1 includes one RJ45 Ethernet 10/100 Base-T port for connection to a Modbus client.



## PX-TCP1 I/O Bus Specifications

Supply Power for I/O Bus	24VDC (-15%/+20%)
Input Current from Power Supply	70mA + (total I/O bus current) / 4
Recommended Fuse	10A Max
I/O Bus Current Supply	1000mA Max
Number of Bus Terminals Supported	64 per assembly, 255 w/ I/O Bus Expansion (based on power budget)
Number of Discrete Inputs/Outputs	1020 Inputs and 1020 Outputs with 255 terminals
Number of Analog Inputs/Outputs	128 total
Maximum Number of Data Bytes*	512 Input Bytes and 512 Output Bytes

\* Total number of terminals cannot exceed 512 input bytes and 512 output bytes.

## PX-TCP1 Terminal Power Bus Specifications

Supply Power for Terminal Bus	24 VAC/VDC
Maximum Current	10A
Number of Power Contacts	3 (+24 VAC/VDC, 0V, PE)

## PX-TCP1 Modbus Port Specifications

Configuration	DIP switches and PX-CFGSW software
Protocol	Modbus TCP
Data Transfer Rates	10/100 Mbaud
Maximum Cable Length	100m between Coupler and switch
Connector Type	Ethernet, RJ45
Recommended Cable	Shielded, Twisted Pair, Cat5e

## General Specifications

Operating Temperature	32° to 131°F (0° to 55 °C)
Storage Temperature	-13° to 185°F (-25° to 85 °C)
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27
Noise Immunity	Conforms to EN 61000-6-2
Protection Class	IP20
Weight	100g (3.5 oz)
Dimensions (WxHxD)	44mm x 100mm x 66.4 mm (1.73 in x 3.94 in x 2.61 in)
Agency Approvals*	UL/cUL File No. E157382, CE

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

**IMPORTANT!**



## Hot-Swapping Information

**Note: This device cannot be Hot Swapped.**

# Bus Couplers - PX-TCP1

## Configuration Port

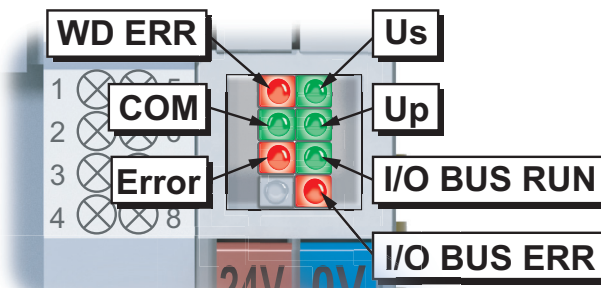


The Service Port connector is located under the flip-cover shown. This port is used for communication with the software configuration tool. The software configuration tool autoconfigures the Modbus addresses of the I/O terminals and the interface allows the user to:

- Run the configurator
- View the configured Modbus addresses
- Modify the baud rate
- Reboot the coupler
- Change the Modbus offset
- Configure first three octets of the IP address
- Disable or modify Watchdog timer

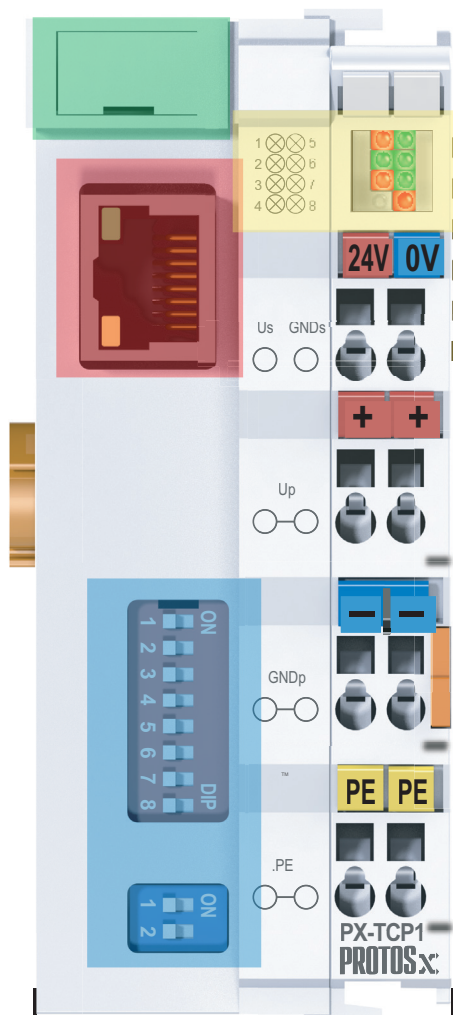
Requires cable PX-USB-232, with a USB type A connector for the PC and a 4-pin custom micro connector for the Bus Coupler. Works with PX-CFGSW configuration software.

## Status LEDs

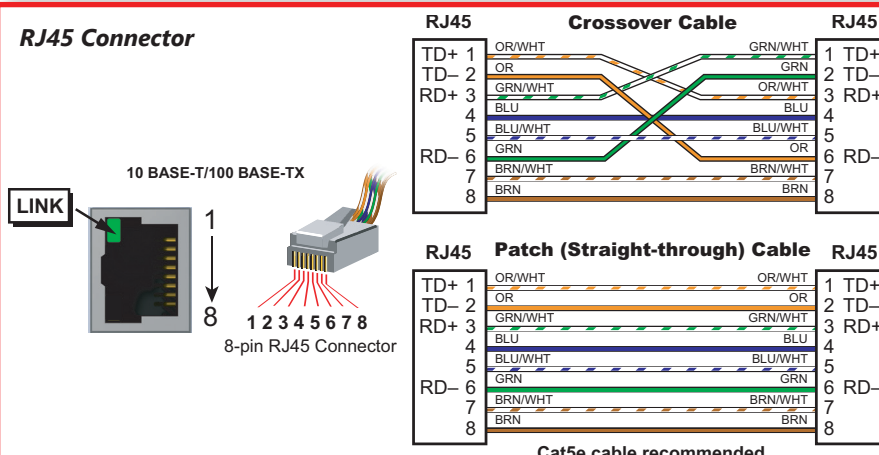


## LED Descriptions

LED	Status: ON	Status: OFF
<b>Red LED 1: WD ERR</b>	Watchdog error	Watchdog is active after first Modbus write
<b>Green LED 2: COM</b>	Ethernet data is active (On or Flashing)	No data being received
<b>Red LED 3: ERROR</b>	Flashing: waiting for IP address if set to DHCP or BootP	No error
<b>Green LED 4: RTE</b>	Not used	
<b>Green LED 5: Us</b>	Bus Coupler power on	Bus Coupler power off
<b>Green LED 6: Up</b>	Terminal power on	Terminal power off
<b>Green LED 7: I/O-Bus RUN</b>	I/O bus data active (On or Flashing)	No I/O bus activity
<b>Red LED 8: I/O-Bus ERR</b>	I/O bus error, blinking code	No I/O bus error



## RJ45 Connector



## Address Selection - DIP Switches

The last octet or byte of the IP Address for the PX-TCP1 is set using the large bank of DIP switches on the front of the coupler. The smaller bank of DIP switches is used to select the type of address assignment (DHCP, BootP, firm setting).

The IP Address DIP switches are arranged so that switch 1 corresponds to bit 0 (LSB) and switch 8 to bit 7 (MSB). The base address used is configured using the PX-CFGSW software tool. With the original factory settings, the IP Address is configured to the value 0.0.0.0 by default.

# Bus Couplers - PX-TCP1

## System Considerations

The PX-TCP1 performs as a Modbus TCP server in a Modbus network. Communication to the client is via an RJ45 Ethernet port. The maximum distance from the client to the PX-TCP1 is 330 feet (100 meters) using 24 AWG shielded, twisted pair Cat5e cable. It is highly recommended that a dedicated network be used for the Protos X system.

The PX-TCP1 Bus Coupler supports up to 64 terminals per assembly, 255 with Bus Expansion Couplers. A minimal assembly consists of a PX-TCP1 Bus Coupler, I/O Terminals and a Bus End Terminal.

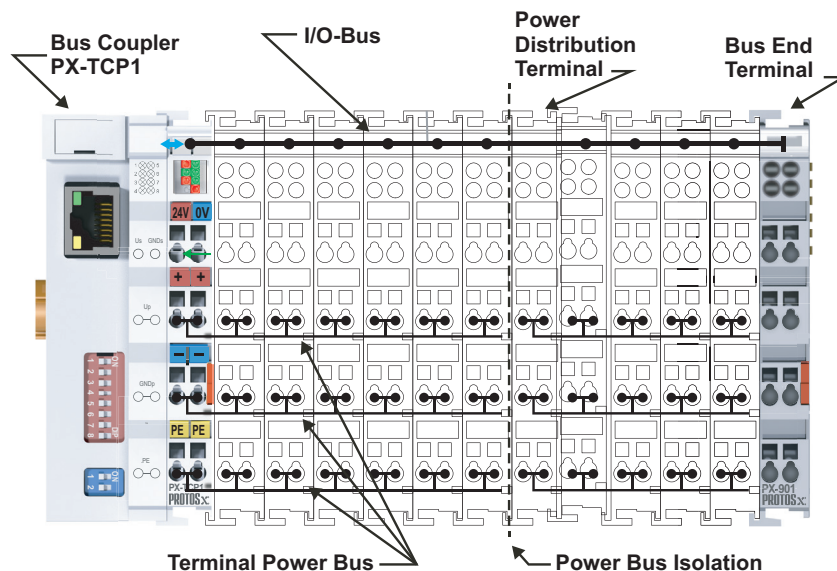
An I/O Bus, powered through the Bus Coupler, provides data communication across the terminal assembly via six contacts located on the side walls of the terminals. A Terminal Power Bus provides power for the I/O terminals via three contacts; 24V, 0V and PE. A power source of 24VAC or 24VDC must be connected to the Bus Coupler from an external supply. The PE Bus is available for terminals that support PE connectivity.

If additional 24VDC supply is required for terminal wiring, eight points of 24VDC power can be distributed from the Terminal Power Bus using a Power Distribution Terminal (PX-949). This terminal must be mounted to the right of a terminal that passes 24VDC on the power bus. Both I/O Bus communication and terminal bus power are passed through to adjoining terminals.

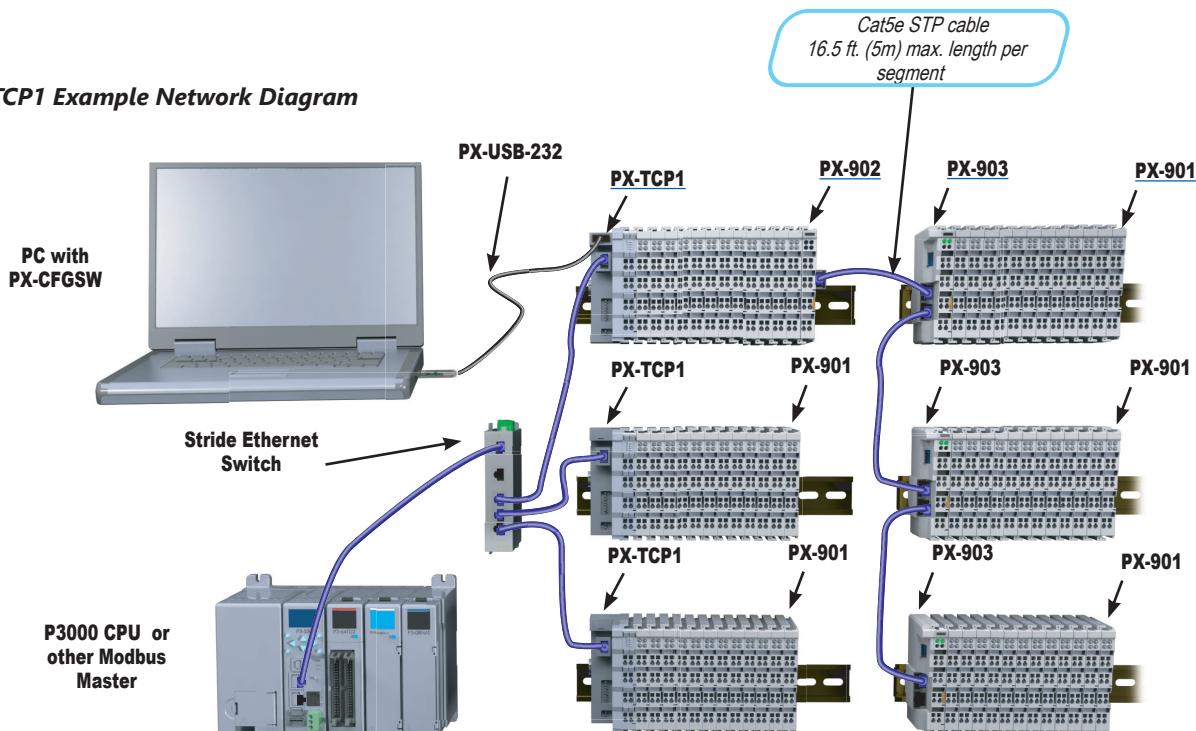
For expansion beyond a 64-terminal assembly, a Bus Expansion End Terminal (PX-902) is used in place of a standard Bus End Terminal (PX-901). A Bus Expansion Coupler Terminal (PX-903) is used at each expansion assembly in place of a PX-TCP1 Bus Coupler. Up to 31 Expansion couplers can be used in a group of assemblies. Connection is made between the Expansion Coupler Terminals via standard RJ45 Ethernet patch cable.

It is important to stay within the following three specifications:

1. Do not exceed the total number of 64 Terminals allowed per Assembly.
2. Do not exceed the total number of 512 Input Bytes and 512 Output Bytes.
3. Do not exceed the Coupler I/O Bus Power Budget of 1000mA as there is no internal current protection.



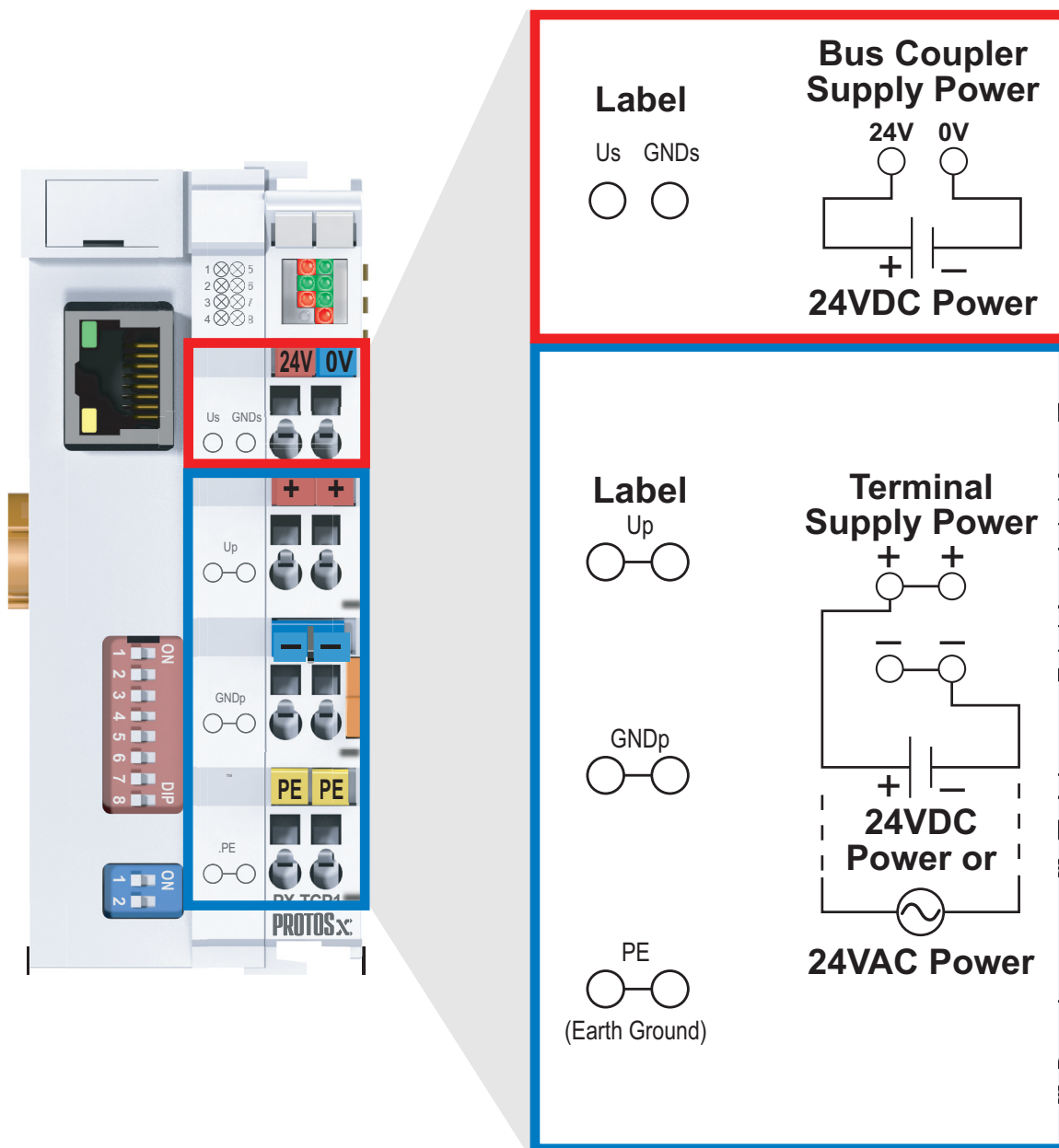
## PX-TCP1 Example Network Diagram





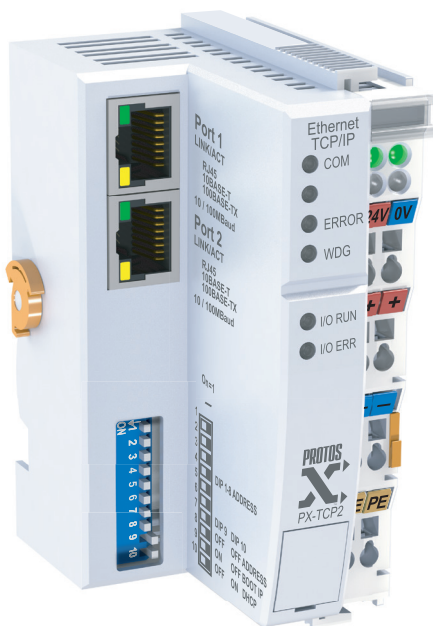
# Bus Couplers - PX-TCP1

## PX-TCP1 Wiring Connections



# Bus Couplers - PX-TCP2

PX-TCP2 \$547.00



The PX-TCP2 Modbus TCP Server Bus Coupler allows connection of up to 64 terminals in a Modbus TCP network. The PX-TCP2 communicates using high-level Modbus commands and supports 512 bytes of input data and 512 bytes of output data.

The PX-TCP2 includes two RJ45 Ethernet 10/100 Base-T ports for connection to a Modbus client.

PX-TCP2 I/O Bus Specifications	
Supply Power for I/O Bus	24VDC (-15%/+20%)
Input Current from Power Supply	70mA + (total I/O bus current) / 4
Recommended Fuse	10A Max
I/O Bus Current Supply	1750mA Max
Number of Bus Terminals Supported	64 per assembly (based on power budget)
Number of Discrete Inputs/Outputs	512 Inputs and 512 Outputs
Number of Analog Inputs/Outputs	128 total
Maximum Number of Data Bytes*	512 Input Bytes and 512 Output Bytes

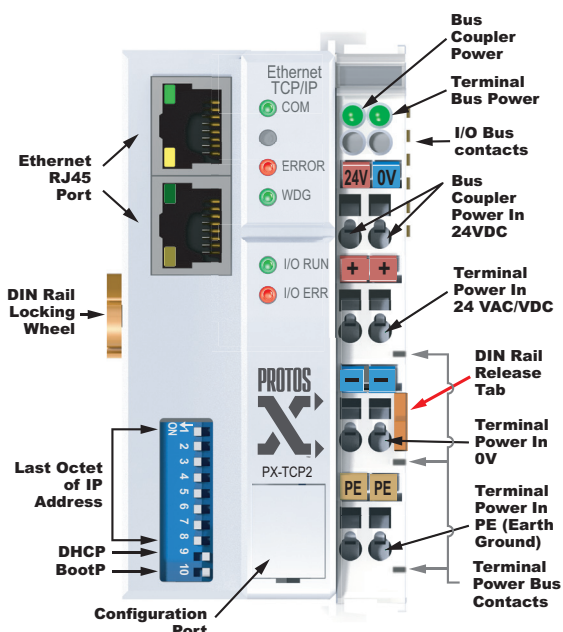
\* Total number of terminals cannot exceed 512 input bytes and 512 output bytes.

PX-TCP2 Terminal Power Bus Specifications	
Supply Power for Terminal Bus	24 VAC/VDC
Maximum Current	10A
Number of Power Contacts	3 (+24 VAC/VDC, 0V, PE)

PX-TCP2 Modbus Port Specifications	
Configuration	DIP switches and PX-CFGSW software
Protocol	Modbus TCP
Data Transfer Rates	10/100 Mbaud
Maximum Cable Length	100m between Client and Coupler to Coupler
Connector Type	Ethernet, 2 x RJ45 (2 Channel Switch)
Recommended Cable	Shielded, Twisted Pair, Cat5e

General Specifications	
Operating Temperature	32° to 131°F (0° to 55 °C)
Storage Temperature	-13° to 185°F (-25° to 85 °C)
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27
Noise Immunity	Conforms to EN 61000-6-2
Protection Class	IP20
Weight	170g (6.0 oz)
Dimensions (WxHxD)	51mm x 100mm x 66.4 mm (2.01 in x 3.94 in x 2.61 in)
Agency Approvals*	UL/cUL File No. E157382, CE

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



**IMPORTANT!**



## Hot-Swapping Information

**Note: This device cannot be Hot Swapped.**

# Bus Couplers - PX-TCP2

## Configuration Port

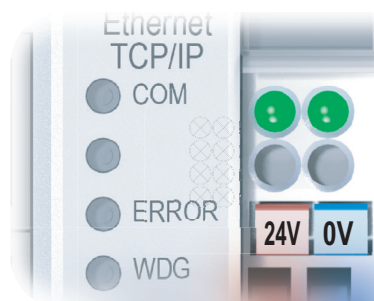


The Service Port connector is located under the flip-cover shown. This port is used for communication with the software configuration tool. The software configuration tool autoconfigures the Modbus addresses of the I/O terminals and the interface allows the user to:

- Run the configurator
- View the configured Modbus addresses
- Modify the baud rate
- Reboot the coupler
- Change the Modbus offset
- Configure first three octets of the IP address
- Disable or modify Watchdog timer

Requires cable PX-USB-232, with a USB type A connector for the PC and a 4-pin custom micro connector for the Bus Coupler. Works with PX-CFGSW configuration software.

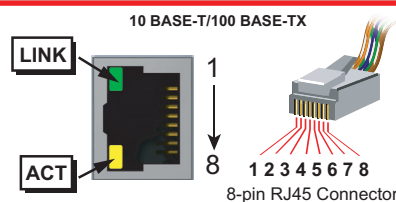
## Status LEDs



### LED Descriptions

LED	Status: ON	Status: OFF
<b>Green Power LED (left): Bus Coupler</b>	Bus Coupler power on	Bus Coupler power off
<b>Green Power LED (right): Terminal Bus</b>	Terminal Bus power on	Terminal Bus power off
<b>Green Ethernet LED: COM</b>	On/Flashing: Receiving Data	No data being received
<b>Red Ethernet LED: ERROR</b>	Flashing: waiting for IP address if set to DHCP or BootP	No Error
<b>Green Ethernet LED: WDG</b>	Watchdog is active	Watchdog error
<b>Green I/O Bus LED: I/O RUN</b>	I/O Bus Data Active (On or Flashing)	Terminal power off
<b>Red I/O Bus LED: I/O ERR</b>	I/O Bus error, blinking code	No I/O bus error

## RJ45 Connectors



RJ45	Patch (Straight-through) Cable	RJ45
TD+ 1	OR/WHT	OR/WHT
TD- 2	OR	OR
RD+ 3	GRN/WHT	GRN/WHT
4	BLU	BLU
5	BLU/WHT	BLU/WHT
RD- 6	GRN	GRN
7	BRN/WHT	BRN/WHT
8	BRN	BRN

Cat5e cable recommended.

## Address Selection - DIP Switches

The last octet or byte of the IP Address, as well as the type of address assignment (DHCP, BootP, firm setting), for the PX-TCP2 is set using the DIP switches on the front of the coupler.

The IP Address DIP switches are arranged so that switch 1 corresponds to bit 0 (LSB) and switch 8 to bit 7 (MSB). Switches 9 and 10 allow for the address assignment selection. The base address used is configured using the PX-CFGSW software tool. With the original factory settings, the IP Address is configured to the value 0.0.0.0 by default.



# Bus Couplers - PX-TCP2

## System Considerations

The PX-TCP2 performs as a Modbus TCP server in a Modbus network. Communication to the client is via an RJ45 Ethernet port. A second port allows expansion of up to 20 total PX-TCP2 Couplers in a network. The maximum distance from a client to a PX-TCP2, and between each additional PX-TCP2, is 330 feet (100 meters) for each segment, using 24 AWG shielded, twisted pair Cat5e cable. It is highly recommended that a dedicated network be used for the Protos X system.

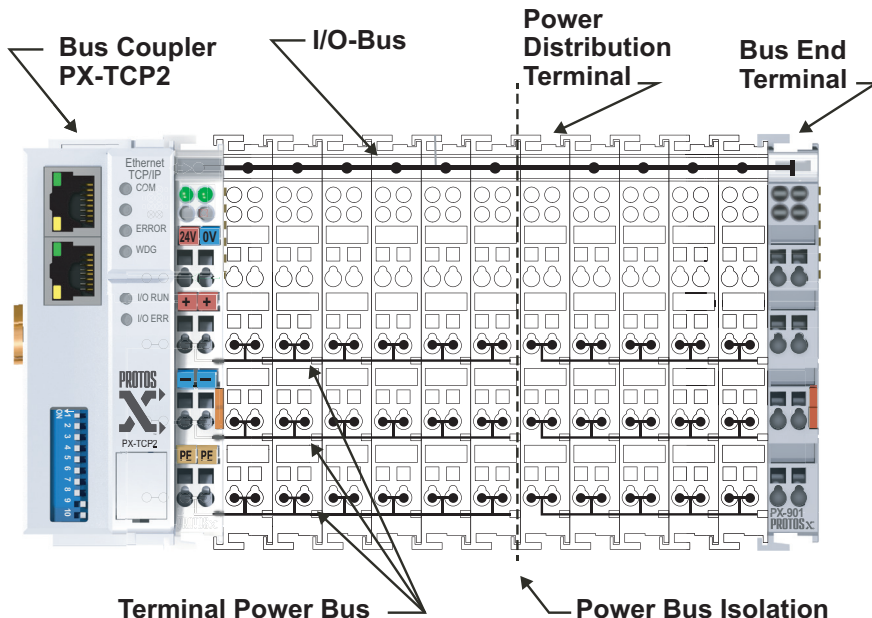
The PX-TCP2 Bus Coupler supports up to 64 terminals per assembly. It is not compatible with Bus Expansion Couplers. A minimal assembly consists of a PX-TCP2 Bus Coupler, I/O Terminals and a Bus End Terminal (PX-901).

An I/O Bus, powered through the Bus Coupler, provides data communication across the terminal assembly via six contacts located on the side walls of the terminals. A Terminal Power Bus provides power for the I/O terminals via three contacts; 24V, 0V and PE. A power source of 24VAC or 24VDC must be connected to the Bus Coupler from an external supply. The PE Bus is available for terminals that support PE connectivity.

If additional 24VDC supply is required for terminal wiring, eight points of 24VDC power can be distributed from the Terminal Power Bus using a Power Distribution Terminal (PX-949). This terminal must be mounted to the right of a terminal that passes 24VDC on the power bus. Both I/O Bus communication and terminal bus power are passed through to adjoining terminals.

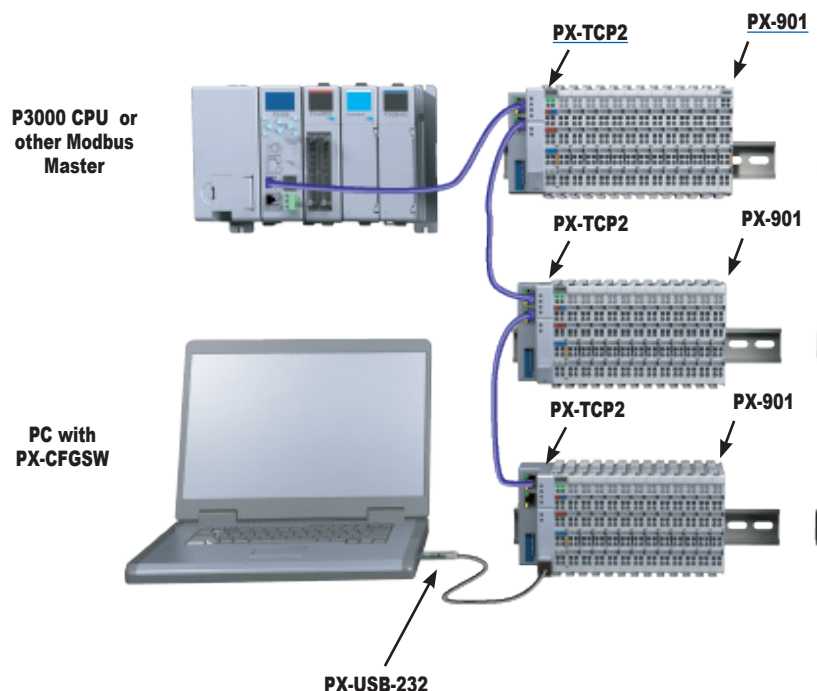
It is important to stay within the following three specifications.

1. Do not exceed the total number of 64 Terminals allowed per Assembly.
2. Do not exceed the total number of 512 Input Bytes and 512 Output Bytes.
3. Do not exceed the Coupler I/O Bus Power Budget of 1750mA as there is no internal current protection.



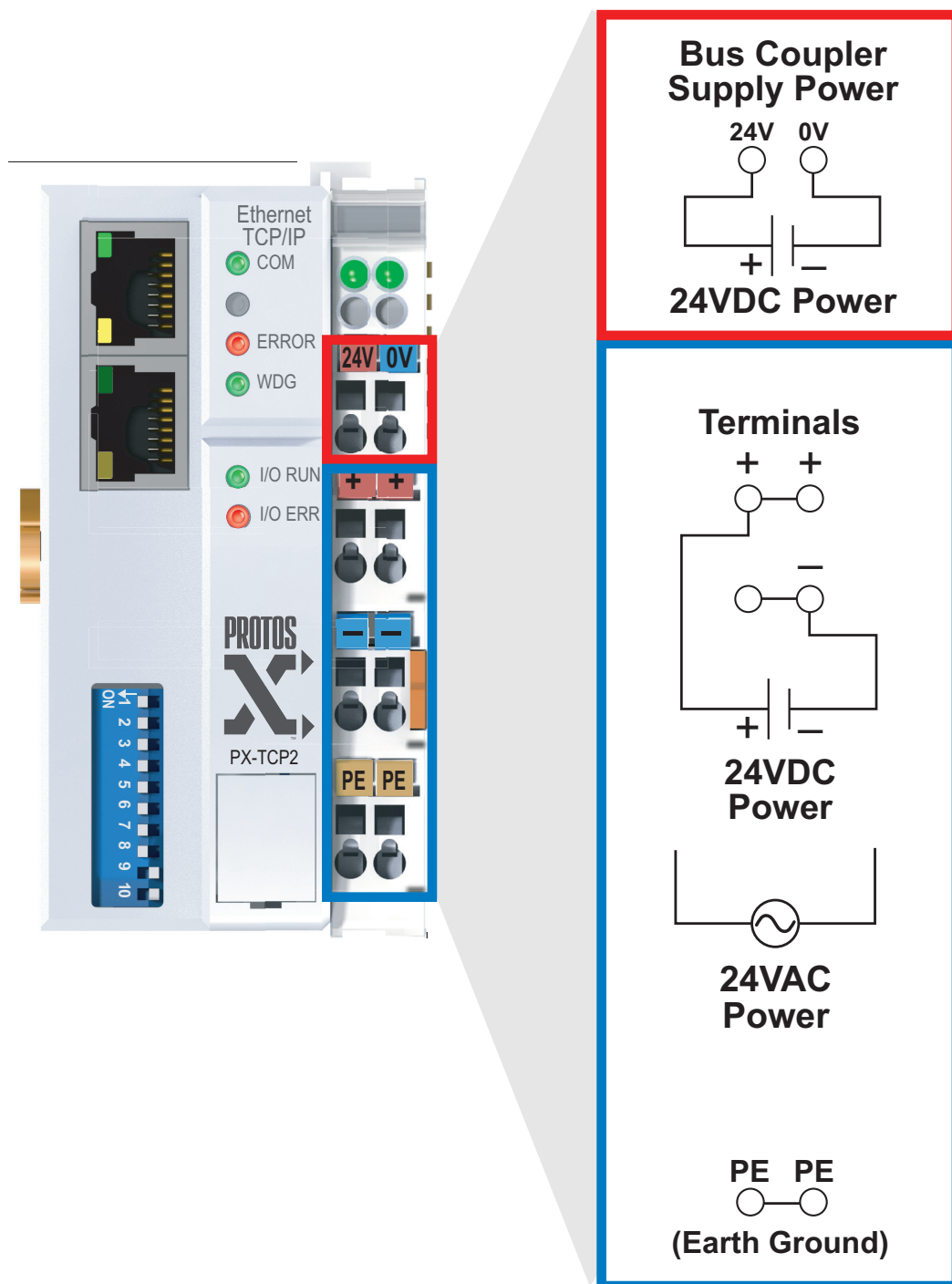
Cat5e STP cable  
16.5 ft. (5m) max. length per segment

**PX-TCP2 Example Network Diagram**



# Bus Couplers - PX-TCP2

## PX-TCP2 Wiring Connections

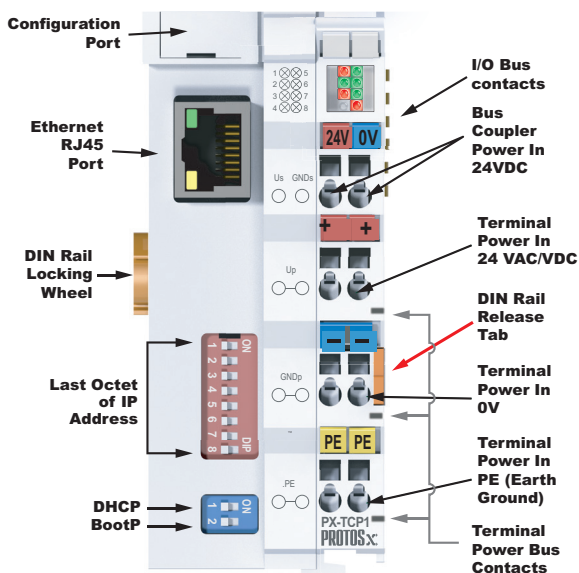


# Bus Couplers - PX-EIP1

PX-EIP1 \$347.00



The PX-EIP1 EtherNet/IP Bus Coupler server allows connection of up to 64 terminals per assembly, 255 terminals total with I/O bus expansion. The PX-EIP1 module has one RJ45 Ethernet 10/100 Base T port for connection to an Ethernet client. Use with the Protos X I/O System.



## PX-EIP1 I/O Bus Specifications

Supply Power for I/O Bus	24VDC (-15%/+20%)
Input Current from Power Supply	70mA + (total I/O bus current) / 4
Recommended Fuse	10A Max
I/O Bus Current Supply	1000mA Max
Number of Bus Terminals Supported	64 per assembly, 255 w/ I/O Bus Expansion (based on power budget)
Number of Discrete Inputs/Outputs	1020 Inputs and 1020 Outputs with 255 terminals
Number of Analog Inputs/Outputs	128 total
Maximum Number of Data Bytes*	512 Input Bytes and 512 Output Bytes

\* Total number of terminals cannot exceed 512 input bytes and 512 output bytes.

## PX-EIP1 Terminal Power Bus Specifications

Supply Power for Terminal Bus	24VDC
Maximum Current	10A
Number of Power Contacts	3 (+24 VAC/VDC, 0V, PE)

## PX-EIP1 Ethernet Port Specifications

Configuration	DIP switches and PX-CFGSW software
Protocol	EtherNet/IP (Supports Implicit Messaging only)
Scanner/Client Connections	1
Data Transfer Rates	10/100 Mbps (Auto-crossover)
Maximum Cable Length	100m between coupler and switch
Connector Type	Ethernet, RJ45
Recommended Cable	Shielded, Twisted Pair, Cat5e

## PX-EIP1 General Specifications

Operating Temperature	32° to 131°F (0° to 55 °C)
Storage Temperature	-13° to 185°F (-25° to 85 °C)
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting / Orientation Restrictions	35mm DIN rail / None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27
Noise Immunity	Conforms to EN 61000-6-2
Noise Emission	Conforms to EN 61000-6-4
Protection Class	IP20
Weight	100g (3.5 oz)
Dimensions (WxHxD)	44 x 100 x 66.4 mm (1.73 x 3.94 x 2.61 in)
Agency Approvals*	UL/cUL File No. E172151 (BK9055), CE

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

**IMPORTANT!**



## Hot-Swapping Information

**Note: This device cannot be Hot Swapped.**

# Bus Couplers - PX-EIP1

## Configuration Port

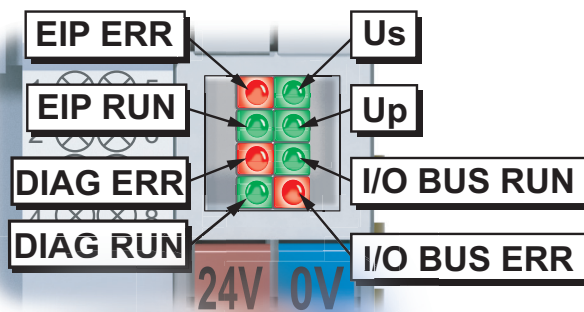


The Service Port connector is located under the flip-cover shown (previous page graphic). This port is used for communication with the software configuration tool. The software configuration tool auto-configures the EtherNet/IP addresses of the I/O terminals while the interface allows the user to:

- Run the configurator
- View the configured EtherNet/IP addresses
- Reboot the coupler
- Configure first three octets of the IP address

Requires cable PX-USB-232, with a USB 2.0 type A connector for the PC and a 4-pin custom micro connector for the Bus Coupler. Works with PX-CFGSW configuration software.

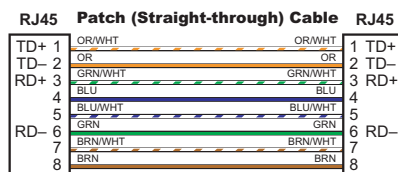
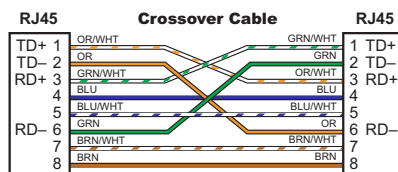
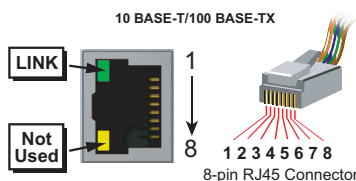
## Status LEDs



## LED Descriptions

LED	Status: ON	Status: OFF
<b>Red LED 1: EIP ERR</b>	See PX-CFGSW Help file or <a href="#">PX-USER-M</a> manual for codes.	No EIP Error
<b>Green LED 2: EIP Run</b>	EIP Communication with Scanner (Client) Flashing: No active communication.	N/A
<b>Red LED 3: DIAG Err</b>	See PX-CFGSW Help File or PX-USER-M manual for codes.	No DIAG Err
<b>Green LED 4: DIAG Run</b>	Diagnostics active w/o error Flashing: Used in conjunction with Diag Error to determine fault.	N/A
<b>Green LED 5: Us</b>	Bus coupler power On	Bus coupler power Off
<b>Green LED 6: Up</b>	Terminal power On	Terminal power Off
<b>Green LED 7: I/O Bus RUN</b>	I/O bus data active (On or Flashing)	No I/O bus activity
<b>Red LED 8: I/O Bus Err</b>	I/O bus error, blinking code	No I/O bus error

## RJ45 Connector



Cat5e cable recommended.  
See PX-USER-M manual for complete details.

## LED Status

Green LINK LED	ON = Connection Good	Flashing = Comm Active
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## Address Selection - DIP Switches

The last octet or byte of the IP Address for the PX-EIP1 is set using the large bank of DIP switches on the front of the coupler. The smaller bank of DIP switches is used to select the type of address assignment (DHCP, BootP, firm setting).

The IP Address DIP switches set the fourth octet of the address and are arranged so that switch 1 corresponds to bit 0 (LSB) and switch 8 to bit 7 (MSB). The base address used is configured using the PX-CFGSW software tool. With the original factory settings, the IP Address is configured to the value 0.0.0.0. by default.



# Bus Couplers - PX-EIP1

## System Considerations

The PX-EIP1 performs as an EtherNet/IP server in an EtherNet/IP network. Communication to the client is via an RJ45 Ethernet port. The maximum distance from the client to the PX-EIP1 is 330 feet (100 meters) using 24 AWG shielded, twisted pair Cat5e cable. It is highly recommended that a dedicated network be used for the Protos X system.

The PX-EIP1 Bus Coupler supports up to 64 terminals per assembly, 255 with Bus Expansion Couplers. A minimal assembly consists of a PX-EIP1 Bus Coupler, I/O Terminals and a Bus End Terminal.

The PX-EIP1 automatically assigns EtherNet/IP addresses for inputs and outputs to the image register. The maximum number of data is 512 bytes of input data and 512 bytes of output data, with up to 1020 inputs, 1020 outputs, and 128 analog inputs or outputs, when using bus expansion.

An I/O Bus, powered through the Bus Coupler, provides data communication across the terminal assembly via six contacts located on the side walls of the terminals. This bus also supplies low voltage power to the I/O terminals. The I/O Bus supply is rated at a maximum of 1000mA that must be taken into consideration when planning an assembly. Each terminal has an I/O bus current consumption listing that can be used to determine the total I/O bus current. The maximum I/O bus current of the coupler

must not be exceeded as there is no internal overcurrent protection.

A Terminal Power Bus provides power for the I/O terminals via three contacts; 24V, 0V and PE. A power source of 24VAC or 24VDC must be connected to the Bus Coupler from an external supply. The PE Bus is available for terminals that support PE connectivity.

A variety of Power Terminals are available for isolating, changing or supplying power to the I/O terminals.

For isolating voltages across the Terminal Power Bus, a Power Separation Terminal (PX-908) is used. This terminal separates the Terminal Power contacts but passes I/O Bus communication.

If additional 24VDC supply is required for terminal wiring, eight points of 24VDC power can be distributed from the Terminal Power Bus using a Power Distribution Terminal (PX-949). This terminal must be mounted to the right of a terminal that passes 24VDC on the power bus. Both I/O Bus communication and terminal bus power are passed through to adjoining terminals.

To connect field power to the Terminal Power Bus, or to change from one voltage to another, Power Feed Terminals (PX-940 & PX-970) are used. Power Feed Terminals are available in 24VDC or 120-230VAC, and provide power to I/O Terminals located to the right of the Power Feed Terminal. This

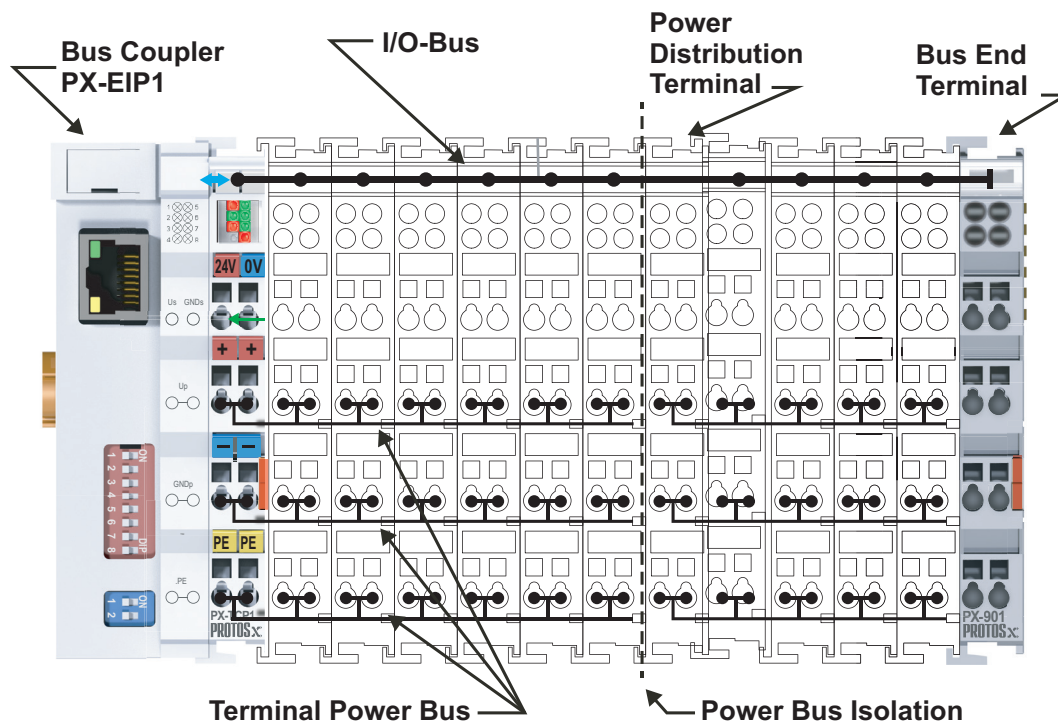
terminal passes I/O Bus communication. Power Terminals do not consume any addresses.

For expansion beyond a 64-terminal assembly, a Bus Expansion End Terminal (PX-902) is used in place of a standard Bus End Terminal (PX-901). A Bus Expansion Coupler Terminal (PX-903) is used at each expansion assembly in place of a PX-EIP1 Bus Coupler. Up to 31 Expansion couplers can be used in a group of assemblies. Connection is made between the Expansion Coupler Terminals via standard RJ45 Ethernet patch cable.

It is important to stay within the following three specifications:

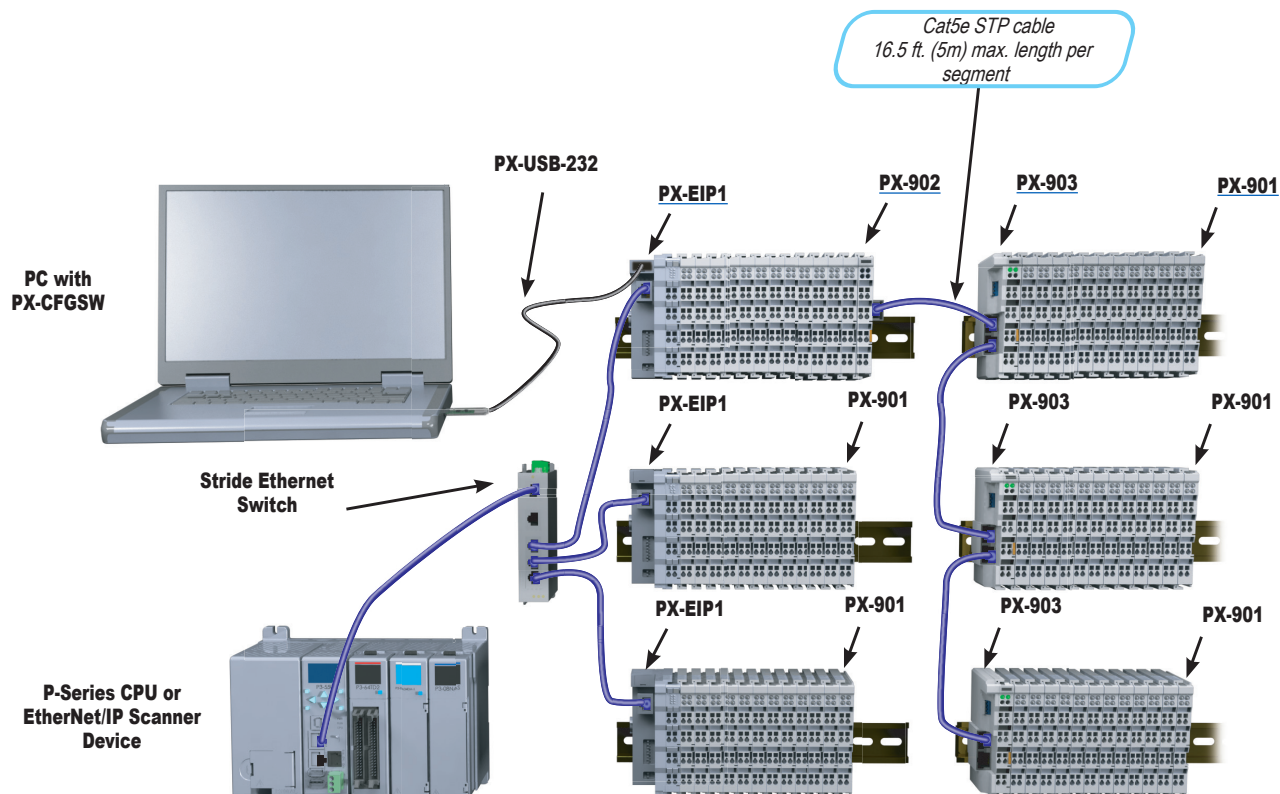
1. Do not exceed the total number of 64 Terminals allowed per Assembly.
2. Do not exceed the total number of 512 Input Bytes and 512 Output Bytes.
3. Do not exceed the Coupler I/O Bus Power Budget of 1000mA as there is no internal current protection.

For complete assembly instructions see the [PX-USER-M](#) manual.



# Bus Couplers - PX-EIP1

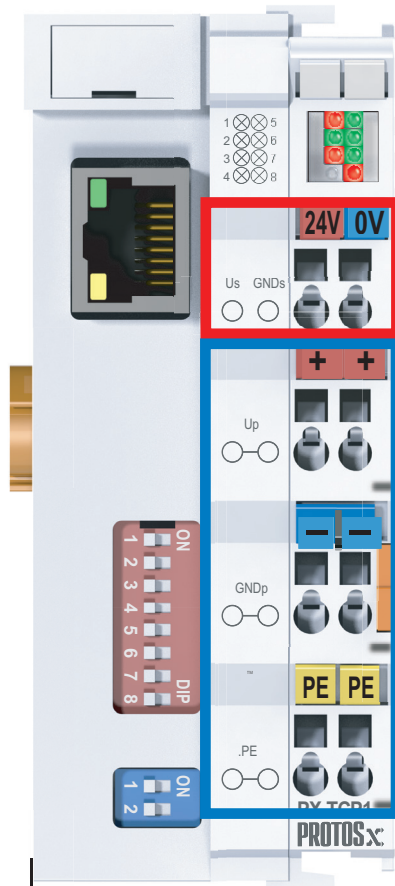
## PX-EIP1 Example Network Diagram



# Bus Couplers - PX-EIP1

## PX-EIP1 Wiring Connections

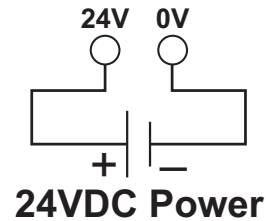
Wire connection is made through a spring clamp style terminal. This terminal is designed for a single-conductor solid or stranded wire. Wire connection is made by firmly pushing the screwdriver into the screwdriver slot, inserting the wire into the wire slot and removing the screwdriver, locking the wire into position.



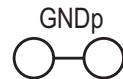
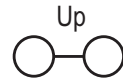
### Label



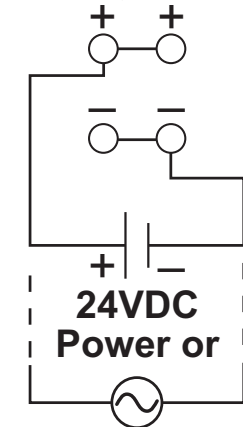
### Bus Coupler Supply Power



### Label



### Terminal Supply Power



### Wiring Specifications

<b>Connection Type</b>	Spring Clamp Terminals
<b>Wire Gauge /Wire Cross-Section</b>	28-14 AWG / 0.08-2.5 mm <sup>2</sup>
<b>Screwdriver Width</b>	Use screwdriver width 2.5 mm (0.10) such as our TW-SD-MSL-2
<b>Wire Stripping Length</b>	8mm (5/16 in)

# Power Budget Planning

## Managing Power Resources

When determining the types and quantity of terminals you will be using, it is important to remember there is a defined amount of I/O Bus Current supplied from the Bus Coupler. There are also defined limits for each external source.

The chart on the next page indicates the power supplied and used by each Protos X component. The chart below shows an example of how to calculate the power used by your particular system. These charts should make it easy for you to determine if the devices you have chosen will operate within the power budget of your system configuration.

If the I/O terminals you have chosen exceed the maximum power available from the Bus Coupler, you may be able to resolve the problem by using expansion terminals.

## Power Budget Example

The example below shows how to calculate the power budget for a typical ProtosX system. This example is constructed using a PX-MOD Bus Coupler and six I/O Terminals. It is recommended you construct a similar table for your system. Follow the steps below to determine your power budget.

A	Column 1	Column 2	Column 3
	<i>Terminal</i>	<i>Terminal Type</i>	<i>I/O Bus (from Coupler)</i>
<b>B</b>	<b>CURRENT SUPPLIED</b>		
	PX-MOD	Bus Coupler	1000mA
<b>C</b>	<b>CURRENT REQUIRED</b>		
	PX-144	4 pt DC Discrete Input	5mA
	PX-172-1	2 pt AC Discrete Input	3mA
	PX-322-1	2 ch RTD Input	60mA
	PX-312	2 ch DC Analog Input	65mA
	PX-244-1	4 pt DC Discrete Output	9mA
	PX-412	2 ch DC Analog Output	75mA
<b>D</b>	<b>Maximum Current Required</b>		217mA
<b>E</b>	<b>Remaining Current Available</b>		783mA

- Using a chart similar to this one, fill in columns 1 and 2.
- Using the tables on the next page enter the current supplied and current used by each device (column 3).
- Add together the current used by the system (row C) for column 3 and put the total in the row labeled "Maximum Current Required" (row D).
- Subtract the calculated "Maximum Current Required" (row D), from the "Current Supplied" and place the difference in the row labeled "Remaining Current Available" (row E).
- If "Maximum Current Required" is greater than "Current Supplied" in column 3, the power budget will be exceeded. It will be unsafe to use this configuration, and you will need to restructure your I/O configuration.



# Power Requirements

## Power Supplied and Consumed

These tables show the amount of power supplied by each of the Bus Couplers and the amount of power consumed by each I/O device. The Power Consumed chart lists how much power is drawn from the I/O Bus, Terminal Power Bus (externally supplied) and from the Load (when using output terminals). Use this information when calculating the power budget for your system.

Power Supplied	
Device	5V(mA) I/O Bus Supply
<b>Coupler</b>	
PX-MOD	1000 Max
PX-TCP1	1000 Max
PX-TCP2	1750 Max
PX-EIP1	1000 Max
<b>Bus Expansion Coupler</b>	
PX-903	400 Max

Power Consumed			
Device	5V(mA) from I/O Bus	(mA) from Terminal Power Bus	(mA) from Load
Discrete Input Terminals			
PX-144	5	5	N/A
PX-148	5	2 (plus load)	
PX-149	20	N/A	
PX-172-1	3	6	
PX-172-2	3	6	
Discrete Output Terminals			
PX-244-1	9	N/A	30
PX-244-2	9		30
PX-248	18		60 (plus load)
PX-249	45		35 (plus load)
Analog Input Terminals			
PX-302	60	N/A	N/A
PX-304	85	Load	
PX-308	105	Load	
PX-312	65	N/A	
PX-314	100	N/A	
PX-318	140	N/A	
RTD/Thermocouple Input Terminals			
PX-322-1	60	N/A	N/A
PX-324-1	60		
PX-332-J	65		
PX-334-J	75		
PX-332-K	65		
PX-334-K	75		
Analog Output Terminals			
PX-402	60	N/A	50 (plus load)
PX-404	20		60 (plus load)
PX-408	25		50 (plus load)
PX-412	75		50 (plus load)
PX-414	75		50 (plus load)
PX-418	20		20
Relay Output Terminals			
PX-272-1	10	ON resistance max 100mV (plus load)	N/A
PX-272-2	80		
Combination In/Out Terminals			
PX-549	25 (additional 3mA for inputs)	15 (plus load)	N/A

# System Installation and Removal

## Bus Coupler and Bus Terminal Installation

### Bus Coupler Installation:

1. Attach a Bus Coupler by snapping it onto 35mm DIN rail and securing it into position using the DIN rail locking wheel (where applicable) located on the left side of the coupler.

### Bus Terminal Installation:

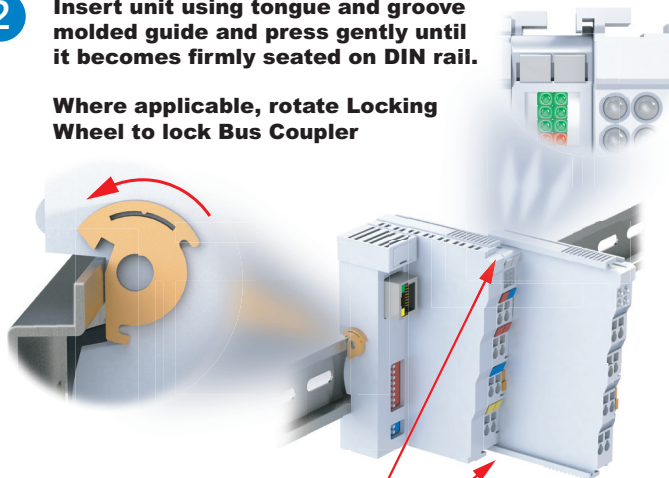
2. To add a bus terminal, insert unit onto right side of Bus Coupler using the tongue and groove at the top and bottom of the unit, pressing gently until it snaps onto the DIN rail.
- A proper connection cannot be made by sliding the units together on the DIN rail. When correctly installed, no significant gap can be seen between the attached units. Bus connection is made through the six slide contacts located on the upper right side of the units. Add up to 64 bus terminals per Bus Coupler, including a bus end terminal.

2

**Insert unit using tongue and groove molded guide and press gently until it becomes firmly seated on DIN rail.**

**Where applicable, rotate Locking Wheel to lock Bus Coupler**

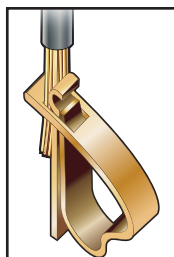
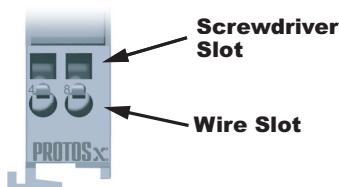
1



**Align tab with molded guide**

### Wiring Connections

- Wire connection is made through a spring clamp style terminal. This terminal is designed for a single-conductor solid or stranded wire. Wire connection is made by firmly pushing the screwdriver into the screwdriver slot, inserting the wire into the wire slot and removing the screwdriver, locking the wire into position.



### Wiring Specifications

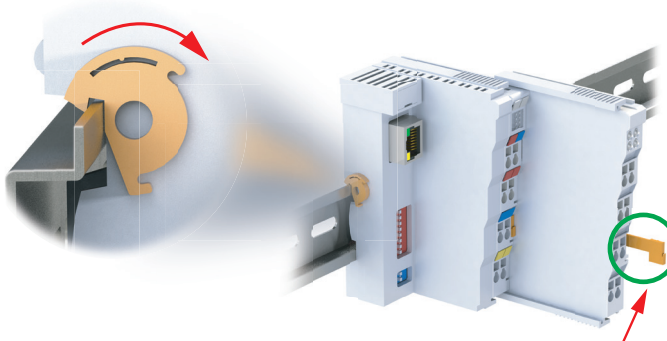
Connection Type	Spring Clamp Terminals
Wire Gauge	28–14 AWG (0.08–2.5 mm <sup>2</sup> )
Screwdriver Width	2.5 mm (0.10 in) such as P/N TW-SD-MSL-2
Wire Stripping Length	8mm

\* For Thermocouple terminals, thermocouple extension wire is recommended

## Removing Bus Coupler and Bus Terminals

- A locking mechanism prevents individual units from being pulled off. For bus terminal removal, pull the orange DIN rail release tab firmly to unlatch the unit from the rail. If attached to other terminal units, slide unit forward until released. For Bus Couplers with locking wheels, release the DIN rail locking wheel, then pull firmly on DIN rail release tab.

**Where applicable, rotate Locking Wheel to unlock Bus Coupler**



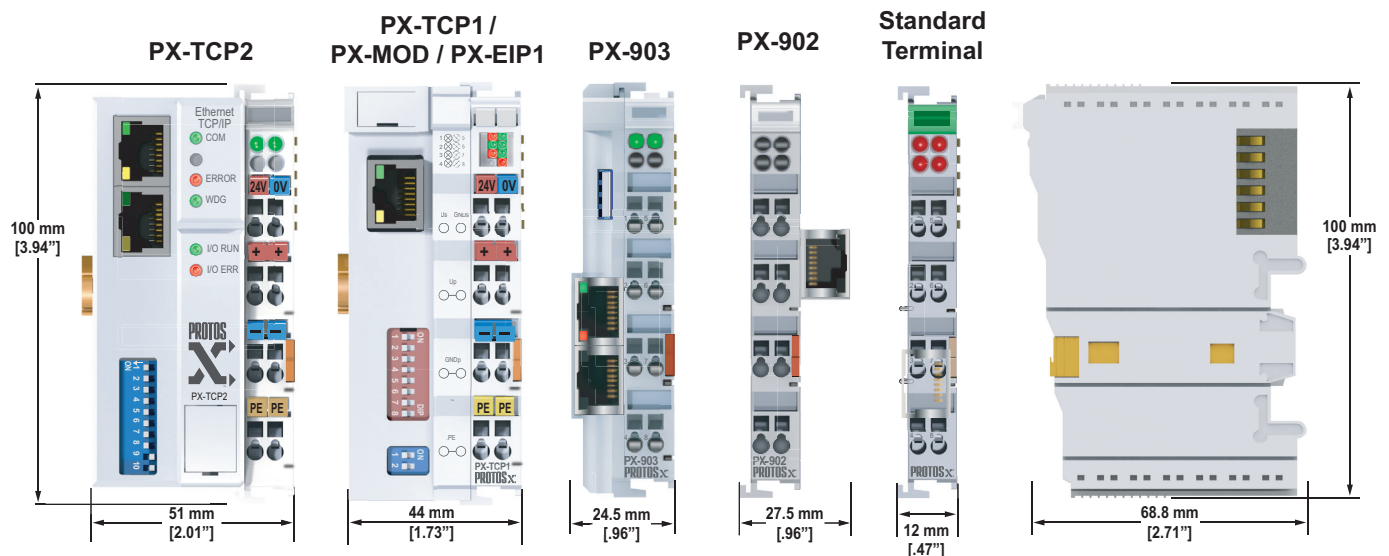
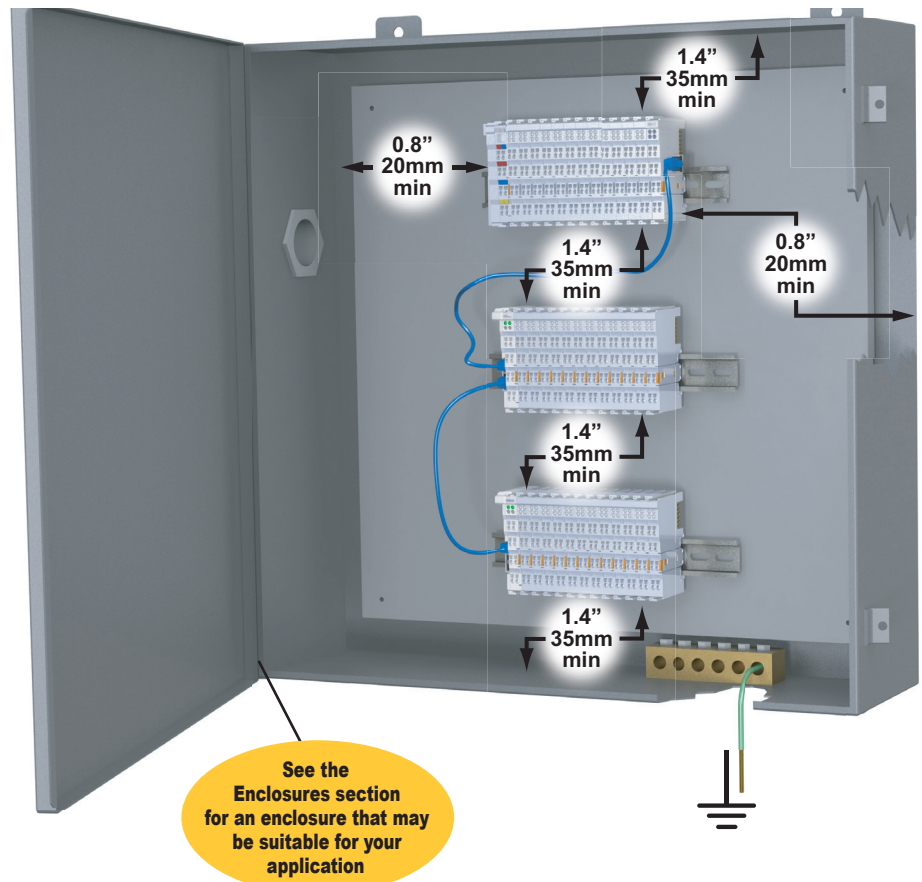
**Firmly pull DIN Rail Release Tab to unlatch unit from rail.**

# Installation Considerations

## Terminal Dimensions and Spacing Requirements

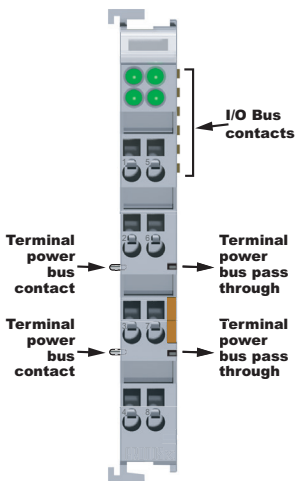
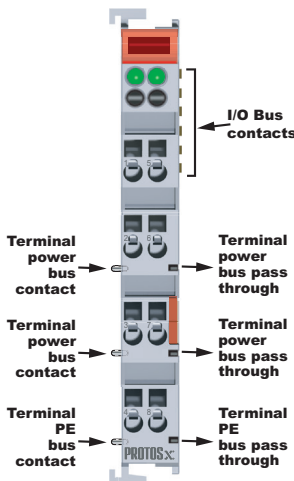
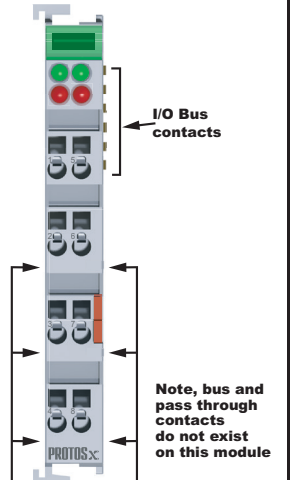
Use the following diagrams to make sure the Protos X system can be installed in your application. Protos X terminals require 35mm DIN rail for mounting; there are no orientation restrictions.

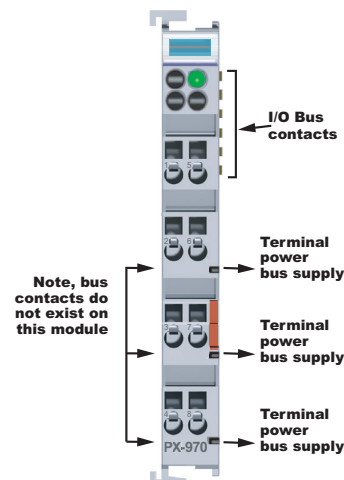
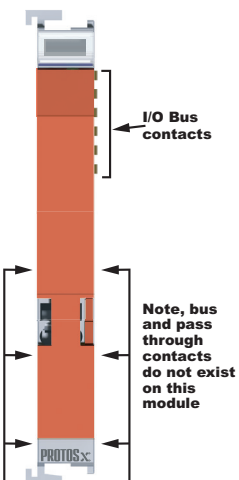
To ensure proper airflow for cooling purposes, units should be spaced, at a minimum, as shown. It is also important to check the Protos X dimensions against the conditions required for your application.



# Installation Considerations

## Terminal Types

TYPE 1	TYPE 2	TYPE 3
 <p>I/O Bus contacts</p> <p>Terminal power bus contact</p> <p>Terminal power bus pass through</p> <p>Terminal power bus contact</p> <p>Terminal power bus pass through</p>	 <p>I/O Bus contacts</p> <p>Terminal power bus contact</p> <p>Terminal power bus pass through</p> <p>Terminal power bus contact</p> <p>Terminal power bus pass through</p> <p>Terminal PE bus contact</p> <p>Terminal PE bus pass through</p>	 <p>I/O Bus contacts</p> <p>Note, bus and pass through contacts do not exist on this module</p>
<p>Type 1: This terminal passes the terminal power bus from the preceding terminal to the next terminal and therefore it must be mounted to a preceding terminal that passes bus power.</p>	<p>Type 2: This terminal passes the terminal power bus and PE from the preceding terminal to the next terminal and therefore it must be preceded by a terminal that passes both terminal power bus and PE.</p>	<p>Type 3: This terminal does not pass the terminal power bus or PE and can be preceded by any terminal, however it will interrupt the terminal power bus and PE.</p>

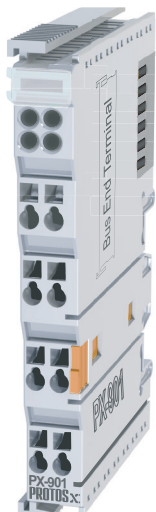
TYPE 4	TYPE 5
 <p>I/O Bus contacts</p> <p>Terminal power bus supply</p> <p>Terminal power bus supply</p> <p>Terminal power bus supply</p> <p>Note, bus contacts do not exist on this module</p>	 <p>I/O Bus contacts</p> <p>Note, bus and pass through contacts do not exist on this module</p>
<p>Type 4: This terminal requires external voltage connection and supplies the terminal power bus to terminals located to its right. The terminals to its right must support the same power bus of 120/230 VAC or 24VDC. This terminal will not pass terminal power or PE from any preceding terminals.</p>	<p>Type 5: This terminal is used to separate the terminal power bus and PE from other terminals and can be mounted next to any terminal.</p>



# Bus End/Expansion Terminals

## PX-901 \$20.00

### Bus End Terminal



The PX-901 (type 3) Bus End Terminal is installed at the end of a terminal assembly and is required for proper I/O Bus communication.

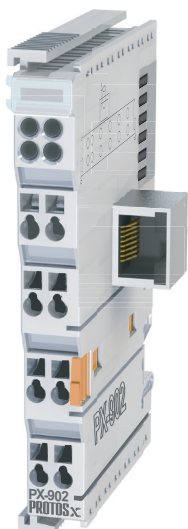
PX-901 Terminal Specifications	
<b>Current Consumption (from I/O Bus)</b>	None
<b>Electrical Isolation</b>	500Vms (I/O bus/signal voltage)

PX-901 General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	50g (1.7 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	Yes
<b>Passes Terminal Bus Power</b>	No
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

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

## PX-902 \$78.00

### Bus Expansion End Terminal



The PX-902 (type 3) Bus Expansion End Terminal enables expansion of terminal assemblies. The PX-902 is installed at the end of a coupler terminal block and connects the I/O Bus to a PX-903 Bus Expansion Coupler Terminal via the RJ45 port. No configuration is required.

PX-902 Terminal Specifications	
<b>Power Source</b>	I/O Bus power (approx. 6V)
<b>Current Consumption (from I/O Bus)</b>	70mA
<b>Electrical Isolation</b>	500Vms (I/O bus/field potential)
<b>Heat Dissipation</b>	1W max
<b>Status Indicators</b>	None
<b>Number of Expansion Coupler Terminals Supported</b>	31 max. (Using PX-903)
<b>Configuration</b>	Automatic
<b>Maximum Distance Between Each Expansion Coupler</b>	16.5 ft. (5m)
<b>Connection Type</b>	Ethernet, RJ45
<b>Recommended Cable</b>	Shielded, Twisted Pair, Cat5e
<b>Placement</b>	Used only with Bus Coupler, replaces a PX-901 End Terminal

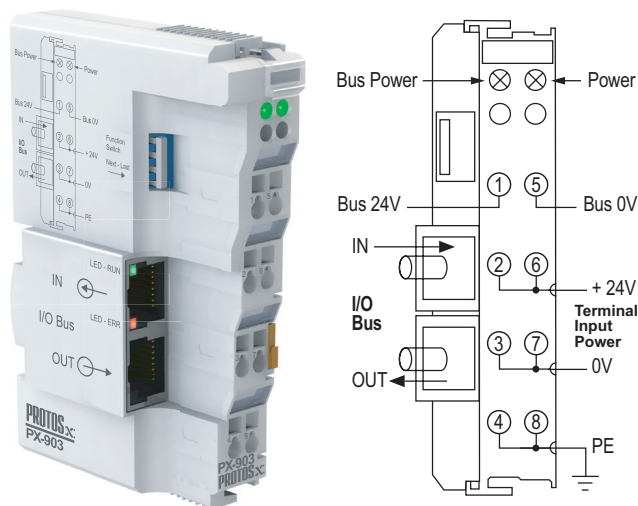
PX-902 General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27
<b>Noise Immunity</b>	Conforms to EN 61000-6-2
<b>Protection Class</b>	IP20
<b>Weight</b>	146g (5.1 oz)
<b>Dimensions (WxHxD)</b>	27.5 x 100 x 68.8 mm (1.08 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	Yes
<b>Passes Terminal Bus Power</b>	No
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

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

# Bus Expansion Terminals

**PX-903 \$123.00**

## Bus Expansion Coupler Terminal



The PX-903 (type 4) Bus Expansion Coupler Terminal enables expansion of terminal assemblies. The PX-903 is installed at the beginning of an expansion terminal assembly and connects to a PX-902 Bus Expansion End Terminal or other PX-903 terminals.

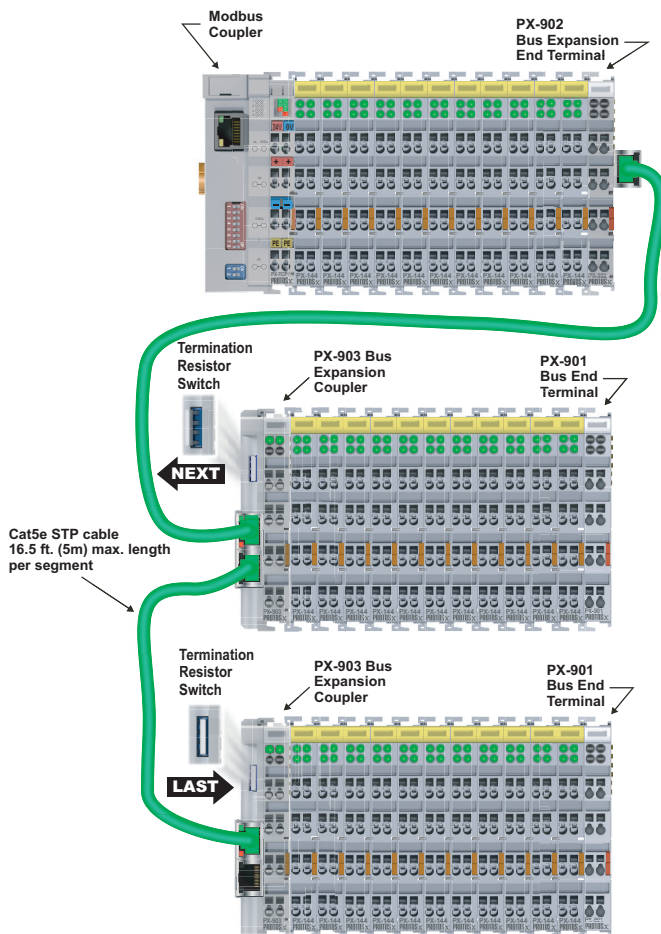
Use of the PX-902 and PX-903 allows expansion of up to 31 PX-903 couplers in a group. Communication is through the RJ45 ports. No configuration is required.

PX-903 Terminal Specifications	
Supply Power for I/O Bus	24VDC (-15%/+20%)
Current Consumption (from I/O Bus)	200mA Max, 70mA + (total I/O bus current) / 4
Recommended Fuse	10A max
I/O Bus Current Supply	400mA max
Starting Current	2.5 x continuous current
Number of Bus Terminals Supported	64
Supply for Terminal Power Bus	24 VAC/VDC
Maximum Terminal Power Bus Current	10A
Number of Terminal Power Bus Contacts	3 (+24 VAC/VDC, 0V, PE)
Electrical Isolation	500Vms (I/O bus/field potential)
Heat Dissipation	1W max
Status Indicators	2 Power LEDs
Number of Expansion Couplers in a Terminal Group	31 max
Configuration	Automatic
Maximum Distance Between Each Expansion Coupler	16.5 ft. (5m)
Connection Type	Ethernet, 2 x RJ45
Recommended Cable	Shielded, Twisted Pair, Cat5e
Termination Resistor Switch	Dip Switch, set to Last for last coupler in expansion group, otherwise set to Next

PX-903 General Specifications	
Operating Temp	32 to 131 °F (0 to 55 °C)
Storage Temp	-13 to 185 °F (-25 to 85 °C)
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27
Noise Immunity	Conforms to EN 61000-6-2
Protection Class	IP20
Weight	146g (5.1 oz)
Dimensions (WxHxD)	24.5 x 100 x 68.8 mm (0.96 x 3.94 x 2.71 in )
Adjacent Mounting on Bus Terminals with Power Contact	Yes (Supply)
Adjacent Mounting on Bus Terminals without Power Contact	Yes (Supply)
Passes Terminal Bus Power	Yes (Supply)
Passes PE Bus	Yes (Supply)
Agency Approvals*	CE

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

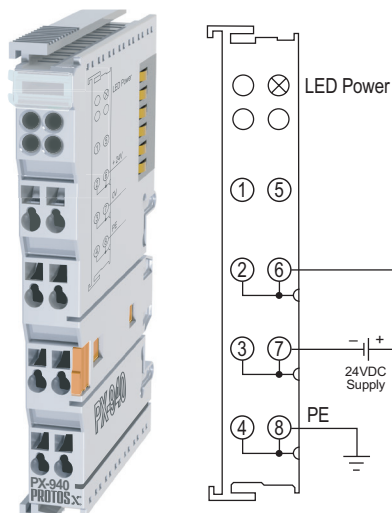
Bus Expansion Connection LED Status	
LED	LED ON
Green I/O Bus In	I/O Bus is transferring data
Red I/O Bus In	I/O Bus fault



# Power Feed Terminals

## PX-940 \$26.00

**Power Feed Terminal, 24VDC**



PX-940 Terminal Specifications	
Supply Power to Terminal	24VDC
Maximum Current	10A
Number of Power Contacts	3 (+24VDC, 0V, PE)
Current Consumption (from I/O Bus)	None
Electrical Isolation	500Vms (I/O bus/signal voltage)
Heat Dissipation	1W max
Status Indicators	1 Power LED

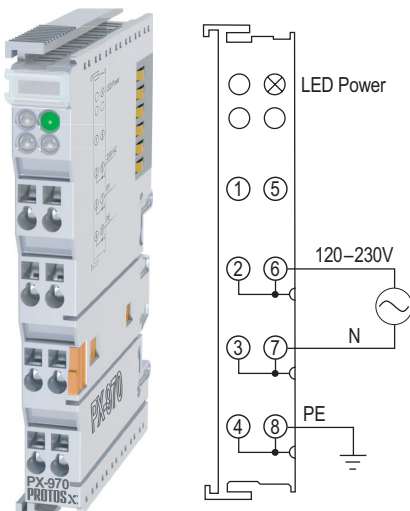
PX-940 General Specifications	
Operating Temp	32 to 131 °F (0 to 55 °C)
Storage Temp	-13 to 185 °F (-25 to 85 °C)
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27/ EN 60068-2-29
Noise Immunity	Conforms to EN 61000-6-2/ EN61000-6-4
Protection Class	IP20
Weight	50g (1.7 oz)
Dimensions (WxHxD)	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
Adjacent Mounting on Bus Terminals with Power Contact	Yes
Adjacent Mounting on Bus Terminals without Power Contact	Yes
Passes Terminal Bus Power	Yes (Supply)
Passes PE Bus	Yes (Supply)
Agency Approvals*	UL/cUL File No. E157382, CE

The PX-940 (type 4) Power Feed Terminal allows adding or changing power voltage sources within a terminal assembly. Terminals mounted to the right of the PX-940 receive 24VDC through the terminal input connections.

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

## PX-970 \$34.00

**Power Feed Terminal, 120–230 VAC**



PX-970 Terminal Specifications	
Supply Power to Terminal	120–230 VAC
Maximum Current	10A
Number of Power Contacts	3 (120–230 VAC, 0V, PE)
Current Consumption (from I/O Bus)	None
Electrical Isolation	500Vms (I/O bus/signal voltage)
Heat Dissipation	1W max
Status Indicators	1 Power LED

PX-970 General Specifications	
Operating Temp	32 to 131 °F (0 to 55 °C)
Storage Temp	-13 to 185 °F (-25 to 85 °C)
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27/ EN 60068-2-29
Noise Immunity	Conforms to EN 61000-6-2/ EN61000-6-4
Protection Class	IP20
Weight	50g (1.7 oz)
Dimensions (WxHxD)	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
Adjacent Mounting on Bus Terminals with Power Contact	Yes
Adjacent Mounting on Bus Terminals without Power Contact	Yes
Passes Terminal Bus Power	Yes (Supply)
Passes PE Bus	Yes (Supply)
Agency Approvals*	UL/cUL File No. E157382, CE

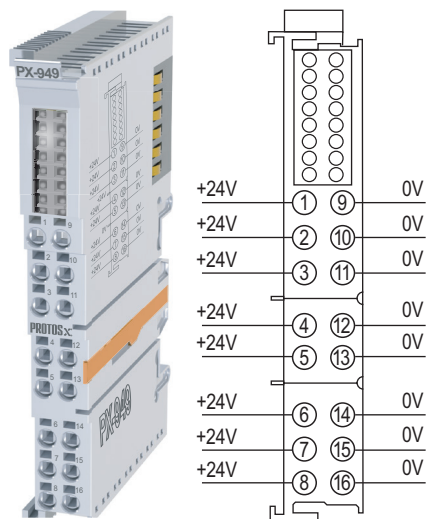
The PX-970 (type 4) Power Feed Terminal allows adding or changing power voltage sources within a terminal assembly. Terminals mounted to the right of the PX-970 receive 120–230 VAC through the terminal input connections.

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

# Power Distribution/Separation Terminals

## PX-949 \$37.00

### Power Distribution Terminal, 24VDC



The PX-949 (type 1) Power Distribution Terminal provides eight 24VDC and eight 0V connections powered by the terminal power bus.

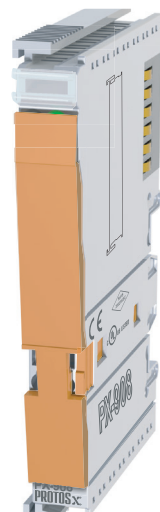
PX-949 Terminal Specifications	
<b>Nominal Voltage</b>	≤ 60VDC
<b>Maximum Current</b>	10A
<b>Number of Power Contacts</b>	(8) 24V and (8) 0V
<b>Connection Voltage</b>	24VDC
<b>Current Consumption (from I/O Bus)</b>	None
<b>Electrical Isolation</b>	500Vms (I/O bus/signal voltage)
<b>Heat Dissipation</b>	1W max

PX-949 General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	60g (2.1 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	No
<b>Passes Terminal Bus Power</b>	Yes
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

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

## PX-908 \$25.00

### Power Separation Terminal



The PX-908 (type 5) Power Separation Terminal provides interruption of power along the terminal power bus while passing I/O bus data. It is easily identified by the orange cover.

PX-908 General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	50g (1.7 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	Yes
<b>Passes Terminal Bus Power</b>	No
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

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

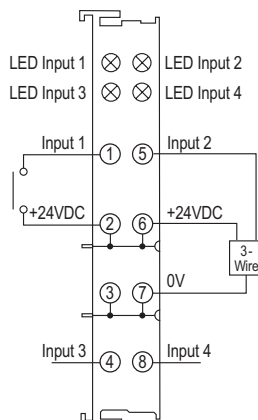
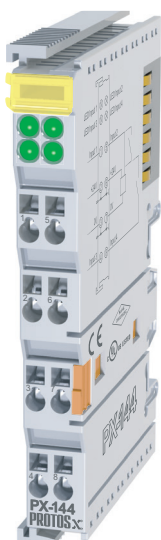


# Discrete Input Terminals

## PX-144 \$48.00

### Four-point, 24VDC Discrete Input Terminal

The PX-144 (type 1) DC Input Terminal provides four electrically isolated 24VDC sinking inputs with LED status. For use with 3-wire and 2-wire sensors.



General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	55g (1.9 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes, DC only
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	No
<b>Passes Terminal Bus Power</b>	Yes
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

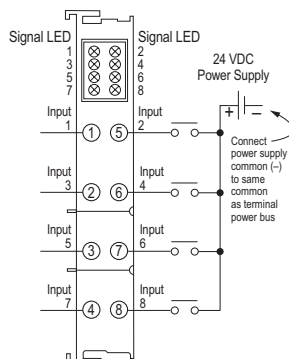
Terminal Specifications	
<b>Inputs Per Terminal</b>	4
<b>Input Type</b>	Sinking
<b>Input Data Bytes Used</b>	1/2 byte (4 bits)
<b>Input Power Source</b>	24VDC provided via terminal power bus
<b>Current Consumption (from Terminal Power Bus)</b>	5mA typical
<b>Operating Voltage Rating</b>	24VDC (-15%/+20%)
<b>Peak Voltage Rating</b>	30VDC
<b>ON Voltage Level</b>	15 to 30 VDC
<b>OFF Voltage Level</b>	-3 to +5 VDC
<b>Minimum ON Current</b>	50mA
<b>Maximum OFF Current</b>	100mA
<b>Current Consumption (from I/O Bus)</b>	5mA typical
<b>Electrical Isolation</b>	500Vms (I/O bus/field potential)
<b>Heat Dissipation</b>	1W max
<b>OFF to ON Response</b>	3ms
<b>ON to OFF Response</b>	3ms
<b>Status Indicators</b>	4, indicates input is ON

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

## PX-148 \$78.00

### Eight-point, 24VDC Discrete Input Terminal

The PX-148 (type 1) DC Input Terminal provides eight electrically isolated 24VDC sinking inputs with LED status.



General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	55g (1.9 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes, DC only
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	No
<b>Passes Terminal Bus Power</b>	Yes
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

Terminal Specifications	
<b>Inputs Per Terminal</b>	8
<b>Input Type</b>	Sinking
<b>Input Data Bytes Used</b>	1 byte
<b>Input Power Source</b>	Requires external 24VDC power source
<b>Current Consumption (from Terminal Power Bus)</b>	2mA + load, typical
<b>Operating Voltage Rating</b>	24VDC (-15%/+20%)
<b>Peak Voltage Rating</b>	30VDC
<b>ON Voltage Level</b>	15 to 30 VDC
<b>OFF Voltage Level</b>	-3 to +5 VDC
<b>Minimum ON Current</b>	2mA
<b>Maximum OFF Current</b>	1.5 mA
<b>Current Consumption (from I/O Bus)</b>	5mA typical
<b>Electrical Isolation</b>	500Vms (I/O bus/field potential)
<b>Heat Dissipation</b>	1W max
<b>OFF to ON Response</b>	3ms
<b>ON to OFF Response</b>	3ms
<b>Status Indicators</b>	8, indicates input is ON

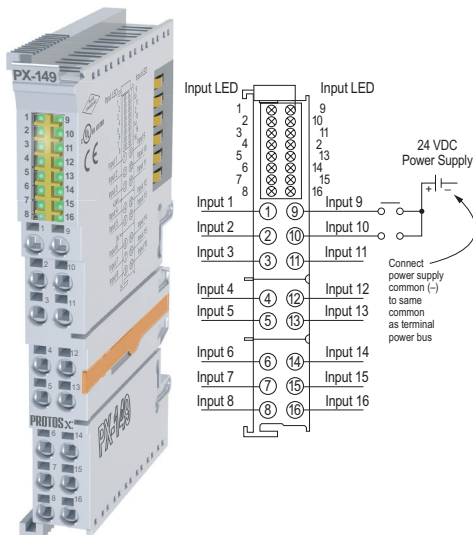
\*To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

# Discrete Input Terminals

## PX-149 \$135.00

### Sixteen-point, 24VDC Discrete Input Terminal

The PX-149 (type 1) DC Input Terminal provides sixteen electrically isolated 24VDC sinking inputs with LED status.



General Specifications	
Operating Temp	32 to 131 °F (0 to 55 °C)
Storage Temp	-13 to 185 °F (-25 to 85 °C)
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/ Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27/ EN 60068-2-29
Noise Immunity	Conforms to EN 61000-6-2/ EN61000-6-4
Protection Class	IP20
Weight	60g (2.1 oz)
Dimensions (WxHxD)	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
Adjacent Mounting on Bus Terminals with Power Contact	Yes, DC only
Adjacent Mounting on Bus Terminals without Power Contact	No
Passes Terminal Bus Power	Yes
Passes PE Bus	No
Agency Approvals*	UL/cUL File No. E157382, CE

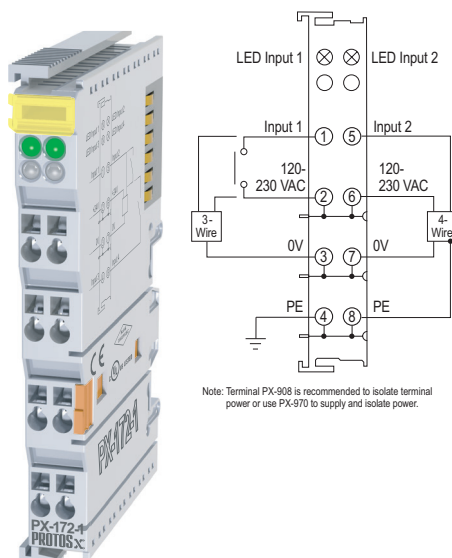
Terminal Specifications	
Inputs Per Terminal	16
Input Type	Sinking
Input Data Bytes Used	2 bytes
Input Power Source	Requires external 24VDC power source
Current Consumption (from Terminal Power Bus)	NA
Operating Voltage Rating	24VDC (-15%/+20%)
Peak Voltage Rating	30VDC
ON Voltage Level	11 to 30 VDC
OFF Voltage Level	-3 to +5 VDC
Minimum ON Current	2mA
Maximum OFF Current	40mA
Current Consumption (from I/O Bus)	20mA typical
Electrical Isolation	500Vms (I/O bus/field potential)
Heat Dissipation	1W max
OFF to ON Response	3ms
ON to OFF Response	3ms
Status Indicators	16, indicates input is ON

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

## PX-172-1 \$54.00

### Two-point, 120-230 VAC Discrete Input Terminal

The PX-172-1 (type 2) DC Input Terminal provides two electrically isolated 120-230 VAC inputs with LED status. For use with 4-wire, 3-wire and 2-wire devices.



Note: Terminal PX-908 is recommended to isolate terminal power or use PX-970 to supply and isolate power.

General Specifications	
Operating Temp	32 to 131 °F (0 to 55 °C)
Storage Temp	-13 to 185 °F (-25 to 85 °C)
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/ Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27/ EN 60068-2-29
Noise Immunity	Conforms to EN 61000-6-2/ EN61000-6-4
Protection Class	IP20
Weight	60g (2.1 oz)
Dimensions (WxHxD)	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
Adjacent Mounting on Bus Terminals with Power Contact	Yes, AC only
Adjacent Mounting on Bus Terminals without Power Contact	No
Passes Terminal Bus Power	Yes
Passes PE Bus	Yes
Agency Approvals*	UL/cUL File No. E157382, CE

Terminal Specifications	
Inputs Per Terminal	2
Input Type	NA
Input Data Bytes Used	1/4 byte (2 bits)
Input Power Source	Requires external 120-230 VAC power source. PX-908 terminal recommended to provide power to the terminal power bus.
Current Consumption (from Terminal Power Bus)	6mA typical
Operating Voltage Rating	120 to 230 VAC
Peak Voltage Rating	260VAC
ON Voltage Level	79 to 260 VAC
OFF Voltage Level	0 to 40 VAC
Minimum ON Current	250mA
Maximum OFF Current	500mA
Current Consumption (from I/O Bus)	3mA typical
Electrical Isolation	500Vms (I/O bus/field potential)
Heat Dissipation	1W max
OFF to ON Response	10ms
ON to OFF Response	10ms
Status Indicators	2, indicates input is ON

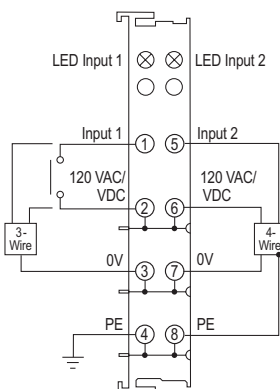
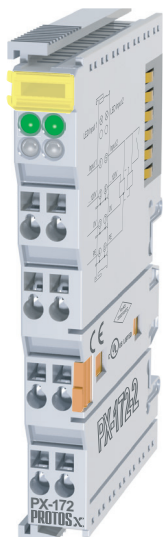
\*To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

# Discrete Input Terminals

## PX-172-2 \$54.00

### Two-point, 120 VAC/VDC Discrete Input Terminal

The PX-172-2 (type 2) DC Input Terminal provides two electrically isolated 120 VAC/VDC inputs with LED status. For use with 4-wire, 3-wire and 2-wire devices.



Note: Terminal PX-908 is recommended to isolate terminal power or use PX-970 to supply and isolate power.

General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	60g (2.1 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes, 120 VAC/VDC only
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	No
<b>Passes Terminal Bus Power</b>	Yes
<b>Passes PE Bus</b>	Yes
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

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

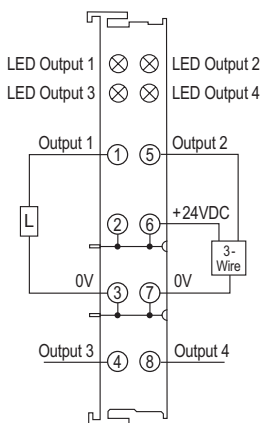
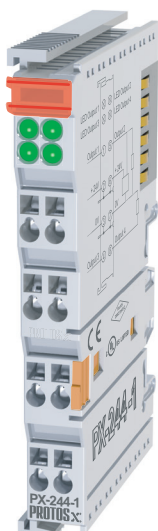
Terminal Specifications	
<b>Inputs Per Terminal</b>	2
<b>Input Type</b>	NA
<b>Input Data Bytes Used</b>	1/4 byte (2 bits)
<b>Input Power Source</b>	Requires external 120 VAC/VDC power source. PX-908 terminal recommended to provide power to the terminal power bus.
<b>Current Consumption (from Terminal Power Bus)</b>	6mA typical
<b>Operating Voltage Rating</b>	120 VAC/VDC
<b>Peak Voltage Rating</b>	140 VAC/VDC
<b>ON Voltage Level</b>	80 to 140 VAC/VDC
<b>OFF Voltage Level</b>	0 to 40 VAC/VDC
<b>Minimum ON Current</b>	250mA
<b>Maximum OFF Current</b>	500mA
<b>Current Consumption (from I/O Bus)</b>	3mA typical
<b>Electrical Isolation</b>	500Vms (I/O bus/field potential)
<b>Heat Dissipation</b>	1W max
<b>OFF to ON Response</b>	10ms
<b>ON to OFF Response</b>	10ms
<b>Status Indicators</b>	2, indicates input is ON

# Discrete Output Terminals

## PX-244-1 \$72.00

### Four-point, 0.5 A, 24VDC Discrete Output Terminal

The PX-244-1 (type 1) DC Output Terminal provides four 24VDC 0.5 A short-circuit protected sourcing outputs with LED status. For use with 3-wire and 2-wire devices.



General Specifications	
Operating Temp	32 to 131 °F (0 to 55 °C)
Storage Temp	-13 to 185 °F (-25 to 85 °C)
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/ Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27/ EN 60068-2-29
Noise Immunity	Conforms to EN 61000-6-2/ EN61000-6-4
Protection Class	IP20
Weight	60g (2.1 oz)
Dimensions (WxHxD)	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
Adjacent Mounting on Bus Terminals with Power Contact	Yes, DC only
Adjacent Mounting on Bus Terminals without Power Contact	No
Passes Terminal Bus Power	Yes
Passes PE Bus	No
Agency Approvals*	UL/cUL File No. E157382, CE

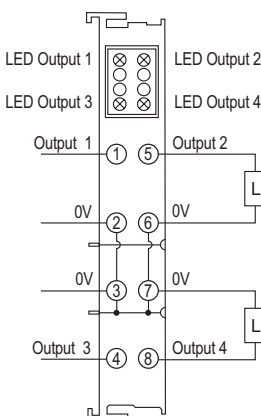
\*To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Terminal Specifications	
Outputs Per Terminal	4
Commons Per Terminal	2
Output Type	Sourcing
Output Data Bytes Used	1/2 byte (4 bits)
Output Power Source	24VDC provided via terminal power bus
Current Consumption (from Load Voltage)	30mA typical
Operating Voltage	24VDC ( -15%/+20%)
Maximum Load Current	0.5 A per channel (Short-Circuit Protected)
On Voltage Drop	0.4 VDC @ 0.5 A
Maximum Leakage Current	300mA
Maximum Inrush Current	1.5 A
Maximum Short-Circuit Voltage	35V
Load Type	Resistive, inductive, lamp
Current Consumption (from I/O Bus)	9mA typical
Reverse Voltage Protection	No
Electrical Isolation	500Vms (I/O bus/field potential)
Heat Dissipation	1W max
OFF to ON Response	100ms max
ON to OFF Response	20ms max
Status Indicators	4, indicates output is ON

## PX-244-2 \$88.00

### Four-point, 2A, 24VDC Discrete Output Terminal

The PX-244-2 (type 1) DC Output Terminal provides four 24VDC 2A short-circuit protected sourcing outputs with LED status.



General Specifications	
Operating Temp	32 to 131 °F (0 to 55 °C)
Storage Temp	-13 to 185 °F (-25 to 85 °C)
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/ Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27/ EN 60068-2-29
Noise Immunity	Conforms to EN 61000-6-2/ EN61000-6-4
Protection Class	IP20
Weight	60g (2.1 oz)
Dimensions (WxHxD)	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
Adjacent Mounting on Bus Terminals with Power Contact	Yes, DC only
Adjacent Mounting on Bus Terminals without Power Contact	No
Passes Terminal Bus Power	Yes
Passes PE Bus	No
Agency Approvals*	UL/cUL File No. E157382, CE

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

Terminal Specifications	
Outputs Per Terminal	4
Commons Per Terminal	4
Output Type	Sourcing
Output Data Bytes Used	1/2 byte (4 bits)
Output Power Source	24VDC provided via terminal power bus
Current Consumption (from Load Voltage)	30mA typical
Operating Voltage	24VDC ( -15%/+20%)
Maximum Load Current	2A per channel (Short-Circuit Protected)
On Voltage Drop	0.14 VDC @ 2A
Maximum Leakage Current	60mA
Maximum Inrush Current	35A
Maximum Short-Circuit Voltage	52V
Load Type	Resistive, inductive, lamp
Current Consumption (from I/O Bus)	9mA typical
Reverse Voltage Protection	Yes
Electrical Isolation	500Vms (I/O bus/field potential)
Heat Dissipation	1W max
OFF to ON Response	160ms typ, 300ms max
ON to OFF Response	10ms min, 80ms max
Status Indicators	4, indicates output is ON

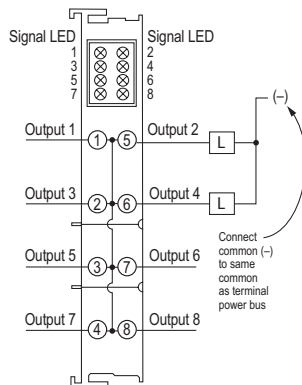


# Discrete Output Terminals

## PX-248 \$91.00

### Eight-point, 0.5 A, 24VDC Discrete Output Terminal

The PX-248 (type 1) DC Output Terminal provides eight 24VDC 0.5 A short-circuit protected sourcing outputs with LED status.



General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	70g (2.4 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes, DC only
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	No
<b>Passes Terminal Bus Power</b>	Yes
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

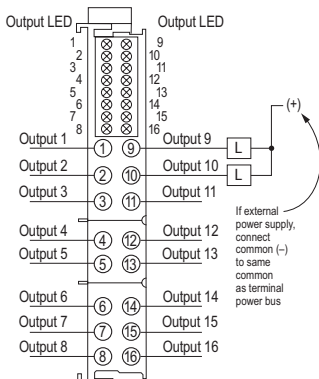
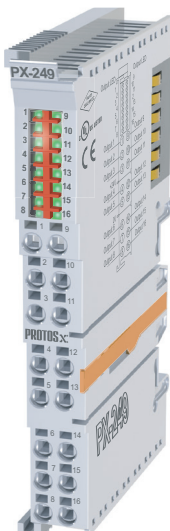
\*To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Terminal Specifications	
<b>Outputs Per Terminal</b>	8
<b>Commons Per Terminal</b>	Field wired
<b>Output Type</b>	Sourcing
<b>Output Data Bytes Used</b>	1 byte
<b>Output Power Source</b>	24VDC provided via terminal power bus
<b>Current Consumption (from Load Voltage)</b>	60mA + load typical
<b>Operating Voltage</b>	24VDC ( -15%/+20%)
<b>Maximum Load Current</b>	0.5 A per channel (Short-Circuit Protected)
<b>On Voltage Drop</b>	0.4 VDC @ 0.5 A
<b>Maximum Leakage Current</b>	300mA
<b>Maximum Inrush Current</b>	1.5 A
<b>Max. Short-Circuit Voltage</b>	35V
<b>Load Type</b>	Resistive, inductive, lamp
<b>Current Consumption (from I/O Bus)</b>	18mA typical
<b>Reverse Voltage Protection</b>	Yes
<b>Electrical Isolation</b>	500Vms (I/O bus/field potential)
<b>Heat Dissipation</b>	1W max
<b>OFF to ON Response</b>	100ms max
<b>ON to OFF Response</b>	20ms max
<b>Status Indicators</b>	8, indicates output is ON

## PX-249 \$126.00

### Sixteen-point, 0.5 A, 24VDC Discrete Output Terminal

The PX-249 (type 1) DC Output Terminal provides sixteen 24VDC 0.5 A short-circuit protected sinking outputs with LED status.



General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	70g (2.4 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes, DC only
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	No
<b>Passes Terminal Bus Power</b>	Yes
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

Terminal Specifications	
<b>Outputs Per Terminal</b>	16
<b>Commons Per Terminal</b>	Field wired
<b>Output Type</b>	Sinking
<b>Output Data Bytes Used</b>	2 bytes
<b>Output Power Source</b>	Requires external 24VDC power source
<b>Current Consumption (from Load Voltage)</b>	35mA + load typical
<b>Operating Voltage</b>	24VDC ( -15%/+20%)
<b>Maximum Load Current</b>	0.5 A per channel (Short-Circuit Protected)
<b>On Voltage Drop</b>	0.12 VDC @ 0.5 A
<b>Maximum Leakage Current</b>	75mA
<b>Maximum Inrush Current</b>	3.5 A
<b>Max. Short-Circuit Voltage</b>	36V
<b>Load Type</b>	Resistive, inductive, lamp
<b>Current Consumption (from I/O Bus)</b>	45mA typical
<b>Reverse Voltage Protection</b>	Yes
<b>Electrical Isolation</b>	500Vms (I/O bus/field potential)
<b>Heat Dissipation</b>	1W max
<b>OFF to ON Response</b>	0.45 ms
<b>ON to OFF Response</b>	3.3 ms
<b>Status Indicators</b>	16, indicates output is ON

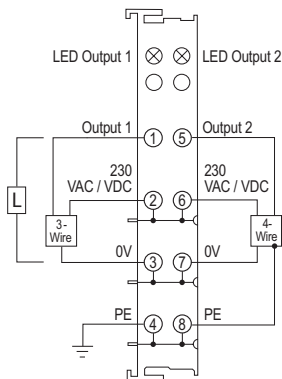
\*To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

# Discrete Relay Output Terminals

**PX-272-1 \$97.00**

**Two-point, 0-230 VAC/VDC  
Discrete Solid State Relay  
Output Terminal**

The PX-272-1 (type 2) Solid State Relay Output Terminal provides two 230 VAC/VDC 0.3 A outputs with LED status. For use with 4-wire, 3-wire and 2-wire devices.



Note: Terminal PX-908 is recommended to isolate terminal power or use PX-970 to supply and isolate power.

General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/ Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	55g (1.9 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes, 230 VAC/VDC only
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	No
<b>Passes Terminal Bus Power</b>	Yes
<b>Passes PE Bus</b>	Yes
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

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

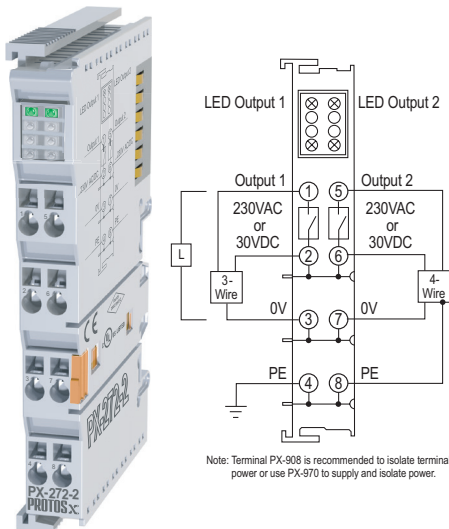
Terminal Specifications	
<b>Outputs Per Terminal</b>	2
<b>Commons Per Terminal</b>	2
<b>Output Type</b>	Solid State Relay (DC sourcing only)
<b>Output Data Bytes Used</b>	1/4 byte (2 bits)
<b>Output Power Source</b>	230 VAC/VDC provided via terminal power bus
<b>Current Consumption (from Terminal Power Bus)</b>	(ON resistance max 100mV) + load
<b>Operating Voltage</b>	0 to 230 VAC/VDC (DC 100Hz)
<b>Maximum Load Current</b>	0.3 A per point
<b>Maximum Leakage Current</b>	< 1mA (off state)
<b>Maximum Inrush Current</b>	0.5 A for 20s, 1.5 A for 100ms
<b>Contact Resistance</b>	2.1 V, typical 3.2 V, max.
<b>Surge Voltage Protection</b>	From 400VAC
<b>Load Type</b>	Resistive, inductive
<b>Current Consumption (from I/O Bus)</b>	10mA
<b>Electrical Isolation</b>	500Vms (I/O bus/field potential) 2500VDC (1 min.)
<b>Heat Dissipation</b>	1W max
<b>Switch-ON Time</b>	4 to 6 ms
<b>Switch-OFF Time</b>	0.05 to 0.1 ms
<b>Switch-ON Delay</b>	320ms
<b>Switch-OFF Delay</b>	6.2 ms
<b>Status Indicators</b>	2, indicates output is ON

# Discrete Relay Output Terminals

## PX-272-2 \$76.00

### Two-point, 230VAC / 30VDC Discrete Relay Output Terminal

The PX-272-2 (type 2) Relay Output Terminal provides two 230VAC / 30VDC 5A outputs with LED status. For use with 4-wire, 3-wire and 2-wire devices.



General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	85g (3.0 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes, 230VAC or 30VDC only
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	No
<b>Passes Terminal Bus Power</b>	Yes
<b>Passes PE Bus</b>	Yes
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

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

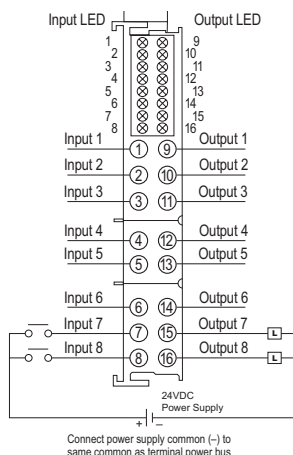
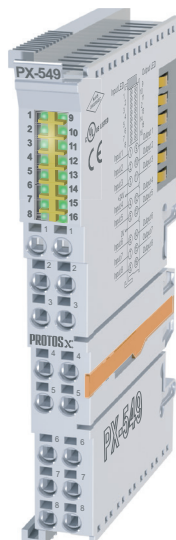
Terminal Specifications	
<b>Outputs Per Terminal</b>	2
<b>Commons Per Terminal</b>	2
<b>Output Type</b>	SPST Relay, normally open contact (DC sourcing only)
<b>Output Data Bytes Used</b>	1/4 byte (2 bits)
<b>Output Power Source</b>	230VAC/30VDC provided via terminal power bus
<b>Current Consumption (from Terminal Power Bus)</b>	(ON resistance typ 2.4 V, max 3.2 V) + load
<b>Operating Voltage</b>	230VAC/30VDC
<b>Maximum Load Current</b>	5A per point
<b>Maximum Load Current with Resistive Load</b>	AC: 5A @230VAC, 1250VA DC: 5A @ 30VDC, 150W
<b>Maximum Load Current with Inductive Load, cosφ = 0.4, L/R = 7ms</b>	AC: 2A @230VAC DC: 2A @ 30VDC
<b>Minimum Load (approximate)</b>	10mA @ 5VDC (as supplied) 100mA @ 20VDC (after approx. ≥ 100mA has been switched at least once)
<b>Load Type</b>	Resistive, inductive, lamp
<b>Switching Times</b>	Reaction Time: 10ms max. Release Time: 4ms max. Bounce Time: 5ms max.
<b>Contact Material</b>	Silver Cadmium Oxide
<b>Current Consumption (from I/O Bus)</b>	80mA
<b>Electrical Isolation</b>	500Vms (I/O bus/field potential) 2500VDC (1 min.)
<b>Heat Dissipation</b>	1W max
<b>Switching Frequency at Maximum Contact Load</b>	10/minute
<b>Maximum Contact Resistance</b>	< 30mV
<b>Minimum Insulation Resistance</b>	100MV @ 500VDC
<b>Mechanical Operating Life</b>	20,000,000 switching operations
<b>Electrical Operating Life</b>	Minimum 100,000 switching operations with resistive loads
<b>Test Voltage Between Open Contacts</b>	750V for 1 minute
<b>Status Indicators</b>	2, indicates output is ON

# Discrete Combination Terminal

**PX-549 \$138.00**

## Eight inputs/Eight outputs, 24VDC Discrete Input/Output Terminal

The PX-549 (type 1) DC Input/Output Terminal provides eight 24VDC inputs and eight 24VDC 0.5 A outputs with reverse polarity protection and LED status.



General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/ Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	60g (2.1 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes, DC only
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	No
<b>Passes Terminal Bus Power</b>	Yes
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

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

Terminal Specifications	
<b>Inputs/Outputs Per Terminal</b>	8 sinking inputs / 8 sourcing outputs
<b>Data Bytes Used</b>	1 byte (inputs) / 1 byte (outputs)
<b>Input/Output Power Source</b>	Requires external 24VDC power source
<b>Operating Voltage Rating</b>	24VDC (-15%/+20%)
<b>Current Consumption (from I/O Bus)</b>	25mA typical
<b>Current Consumption (from Terminal Power Bus)</b>	15mA + load typical
<b>Electrical Isolation</b>	500Vms (I/O bus/field potential)
<b>Heat Dissipation</b>	1W max
<b>Status Indicators</b>	8 input and 8 output, indicates ON
Input Specifications	
<b>Peak Voltage Rating</b>	30VDC
<b>ON Voltage Level</b>	15 to 30 VDC
<b>OFF Voltage Level</b>	-3 to +5 VDC
<b>Minimum ON Current</b>	2mA
<b>Minimum OFF Current</b>	40mA
<b>Current Consumption (from I/O Bus)</b>	3mA typical
<b>OFF to ON Response</b>	3ms
<b>ON to OFF Response</b>	3ms
Output Specifications	
<b>Max. Load Current per Output</b>	0.5 A (Short-Circuit Protected)
<b>On Voltage Drop</b>	0.14 VDC @ 2A
<b>Maximum Leakage Current</b>	5mA
<b>Maximum Inrush Current</b>	2A
<b>Maximum Short-Circuit Voltage</b>	45V
<b>Load Type</b>	Resistive, inductive, lamp
<b>Reverse Voltage Protection</b>	Yes
<b>OFF to ON Response</b>	50ms
<b>ON to OFF Response</b>	75ms

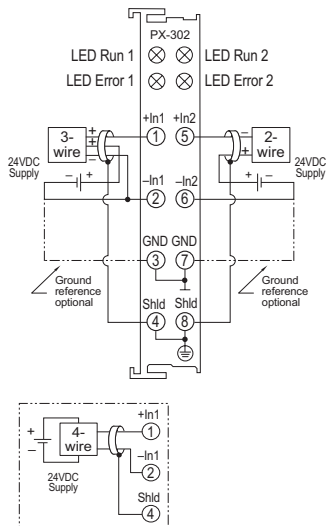
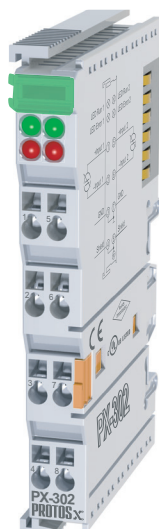


# Analog Current Input Terminals

## PX-302 \$306.00

### Two-channel, 4-20 mA Analog Input Terminal

The PX-302 (type 3) Analog Input Terminal provides two electrically isolated 4-20 mA inputs with 12-bit resolution and Run and Error LED status.



General Specifications	
Operating Temp	32 to 131 °F (0 to 55 °C)
Storage Temp	-13 to 185 °F (-25 to 85 °C)
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/ Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27/ EN 60068-2-29
Noise Immunity	Conforms to EN 61000-6-2/ EN61000-6-4
Protection Class	IP20
Weight	70g (2.4 oz)
Dimensions (WxHxD)	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
Adjacent Mounting on Bus Terminals with Power Contact	Yes
Adjacent Mounting on Bus Terminals without Power Contact	Yes
Passes Terminal Bus Power	No
Passes PE Bus	No
Agency Approvals*	UL/cUL File No. E157382, CE

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

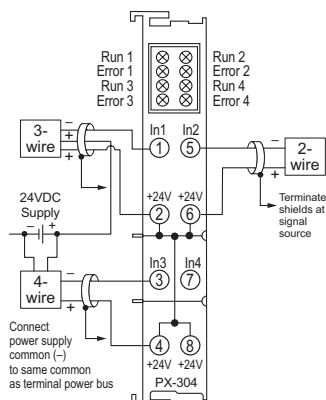
Terminal Specifications	
Number of Channels	2
Input Ranges	4 to 20 mA
Resolution	12 bits
Input Type	External ground reference
Data Format	Decimal: 0-32767
Data Bytes Consumed	PX-MOD: 4 bytes input
	PX-TCP1/TCP2: 8 bytes in/ 8 bytes out (not used)
Input Power Source	Loop power external
Current Consumption (from Terminal Power Bus)	NA
Input Impedance	50V internal resistor
Absolute Max Ratings	35VDC surge
Conversion Time	Approx. 2ms
Full Scale Calibration Error	± 0.3% of full scale
Current Consumption (from I/O Bus)	60mA
Electrical Isolation	500Vms (I/O bus/field potential)
Heat Dissipation	1W max
Status Indicators	4, see LED Status chart

LED Status		
LED	LED ON	LED OFF
Green LED: RUN	Normal Operation	Watchdog-timer overflow if no data transmitted within WD set time.
Red LED: ERROR	Broken wire or current is > 21.5 mA	Normal Operation

## PX-304 \$272.00

### Four-channel, 4-20 mA Analog Input Terminal

The PX-304 (type 1) Analog Input Terminal provides four electrically isolated 4-20 mA inputs with 12-bit resolution and Run and Error LED status.



General Specifications	
Operating Temp	32 to 131 °F (0 to 55 °C)
Storage Temp	-13 to 185 °F (-25 to 85 °C)
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/ Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27/ EN 60068-2-29
Noise Immunity	Conforms to EN 61000-6-2/ EN61000-6-4
Protection Class	IP20
Weight	75g (2.6 oz)
Dimensions (WxHxD)	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
Adjacent Mounting on Bus Terminals with Power Contact	Yes, DC only
Adjacent Mounting on Bus Terminals without Power Contact	No
Passes Terminal Bus Power	Yes
Passes PE Bus	No
Agency Approvals*	UL/cUL File No. E157382, CE

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

Terminal Specifications	
Number of Channels	4
Input Ranges	4 to 20 mA
Resolution	12 bits
Input Type	Single-ended
Data Format	Decimal: 0-32767
Data Bytes Consumed	PX-MOD: 8 bytes input
	PX-TCP1/TCP2: 16 bytes in/ 16 bytes out (not used)
Input Power Source	24VDC provided via terminal power bus
Current Consumption (from Terminal Power Bus)	Load
Input Impedance	< 85V
Absolute Max Ratings	30VDC surge
Conversion Time	Approx. 2ms
Full Scale Calibration Error	± 0.3% of full scale
Current Consumption (from I/O Bus)	85mA
Electrical Isolation	500Vms (I/O bus/field potential)
Heat Dissipation	1W max
Status Indicators	8, see LED Status chart

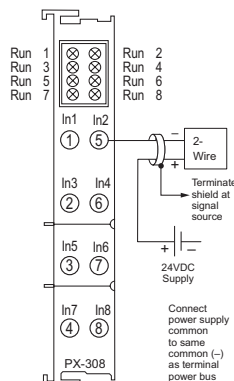
LED Status		
LED	LED ON	LED OFF
Green LED: RUN	Normal Operation	Watchdog-timer overflow if no data transmitted within WD set time.
Red LED: ERROR	Broken wire or current is > 20.8 mA	Normal Operation

# Analog Current Input Terminals

**PX-308 \$347.00**

## ***Eight-channel, 4-20 mA Analog Input Terminal***

The PX-308 (type 1) Analog Input Terminal provides eight electrically isolated 4-20 mA inputs with 12-bit resolution and Error LED status.



General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	75g (2.6 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes, DC only
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	No
<b>Passes Terminal Bus Power</b>	Yes
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

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

Terminal Specifications	
<b>Number of Channels</b>	8
<b>Input Ranges</b>	4 to 20 mA
<b>Resolution</b>	12 bits
<b>Input Type</b>	Single-ended
<b>Data Format</b>	Decimal: 0-32767
<b>Data Bytes Consumed</b>	PX-MOD: 16 bytes input
	PX-TCP1/TCP2: 32 bytes in/32 bytes out (not used)
<b>Input Power Source</b>	Requires external 24VDC power source
<b>Current Consumption (from Terminal Power Bus)</b>	Load
<b>Input Impedance</b>	< 85V
<b>Absolute Max Ratings</b>	30VDC surge
<b>Conversion Time</b>	Approx. 4ms
<b>Full Scale Calibration Error</b>	± 0.3% of full scale
<b>Current Consumption (from I/O Bus)</b>	105mA
<b>Electrical Isolation</b>	500Vms (I/O bus/field potential)
<b>Heat Dissipation</b>	1W max
<b>Status Indicators</b>	8, Red: Error, broken wire or current is > 20.8 mA

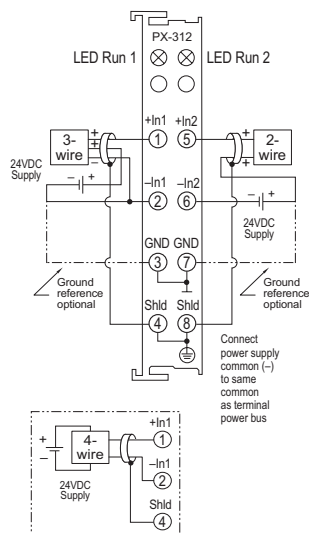
# Analog Voltage Input Terminals

## PX-312 \$306.00

### Two-channel, -10 to +10 VDC

#### Analog Input Terminal

The PX-312 (type 3) Analog Input Terminal provides two electrically isolated -10 to +10 VDC inputs with 12-bit resolution and LED status.



General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	70g (2.4 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	Yes
<b>Passes Terminal Bus Power</b>	No
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

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

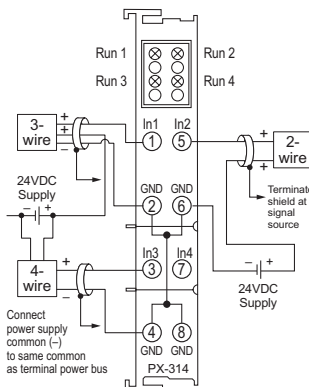
Terminal Specifications	
<b>Number of Channels</b>	2
<b>Input Ranges</b>	-10 to +10 VDC
<b>Resolution</b>	12 bits (11 bits between 0 to 10 VDC)
<b>Input Type</b>	External ground reference
<b>Data Format</b>	Decimal: -32767 to +32767
<b>Data Bytes Consumed</b>	PX-MOD: 4 bytes input PX-TCP1/TCP2: 8 bytes in/ 8 bytes out (not used)
<b>Input Power Source</b>	Voltage source external
<b>Current Consumption (from Terminal Power Bus)</b>	NA
<b>Input Impedance</b>	> 200kV
<b>Absolute Max Ratings</b>	35VDC surge
<b>Conversion Time</b>	Approx. 2ms
<b>Full Scale Calibration Error</b>	± 0.3% of full scale
<b>Current Consumption (from I/O Bus)</b>	65mA
<b>Electrical Isolation</b>	500Vms (I/O bus/field potential)
<b>Heat Dissipation</b>	1W max
<b>Status Indicators</b>	2, indicates I/O Bus activity

## PX-314 \$272.00

### Four-channel, -10 to +10 VDC

#### Analog Input Terminal

The PX-314 (type 1) Analog Input Terminal provides four electrically isolated -10 to +10 VDC inputs with 12-bit resolution and LED status.



General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	75g (2.6 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes, DC only
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	No
<b>Passes Terminal Bus Power</b>	Yes
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

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

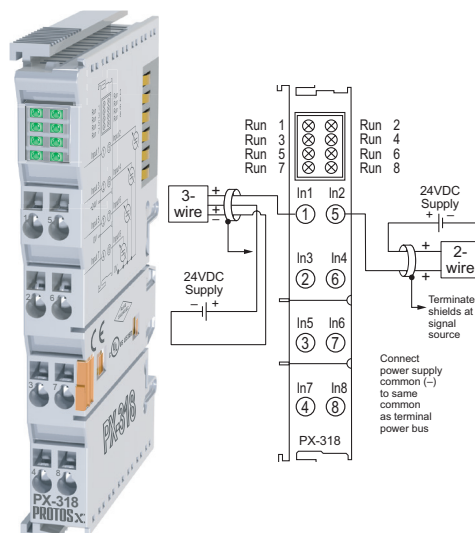
Terminal Specifications	
<b>Number of Channels</b>	4
<b>Input Ranges</b>	-10 to +10 VDC
<b>Resolution</b>	12 bits (11 bits between 0 to 10 VDC)
<b>Input Type</b>	Single-ended
<b>Data Format</b>	Decimal: -32767 to +32767
<b>Data Bytes Consumed</b>	PX-MOD: 8 bytes input PX-TCP1/TCP2: 16 bytes in/ 16 bytes out (not used)
<b>Input Power Source</b>	Voltage source external
<b>Current Consumption (from Terminal Power Bus)</b>	NA
<b>Input Impedance</b>	> 130kV
<b>Absolute Max Ratings</b>	30VDC surge
<b>Conversion Time</b>	Approx. 2ms
<b>Full Scale Calibration Error</b>	± 0.3% of full scale
<b>Current Consumption (from I/O Bus)</b>	100mA
<b>Electrical Isolation</b>	500Vms (I/O bus/field potential)
<b>Heat Dissipation</b>	1W max
<b>Status Indicators</b>	4, indicates I/O Bus activity

# Analog Voltage Input Terminals

## PX-318 \$347.00

### ***Eight-channel, -10 to +10 VDC Analog Input Terminal***

The PX-318 (type 1) Analog Input Terminal provides eight electrically isolated -10 to +10 VDC inputs with 12-bit resolution and LED status.



General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN 61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	75g (2.6 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes, DC only
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	No
<b>Passes Terminal Bus Power</b>	Yes
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

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

Terminal Specifications	
<b>Number of Channels</b>	8
<b>Input Ranges</b>	-10 to +10 VDC
<b>Resolution</b>	12 bits (11 bits between 0 to 10 VDC)
<b>Input Type</b>	Single-ended
<b>Data Format</b>	Decimal: -32767 to +32767
<b>Data Bytes Consumed</b>	PX-MOD: 16 bytes input PX-TCP1/TCP2: 32 bytes in/ 32 bytes out (not used)
<b>Input Power Source</b>	Voltage source external
<b>Current Consumption (from Terminal Pwr Bus)</b>	NA
<b>Input Impedance</b>	> 130kV
<b>Absolute Max Ratings</b>	30VDC surge
<b>Conversion Time</b>	Approx. 4ms
<b>Full Scale Calibration Error</b>	± 0.3% of full scale
<b>Current Consumption (from I/O Bus)</b>	140mA
<b>Electrical Isolation</b>	500Vms (I/O bus/field potential)
<b>Heat Dissipation</b>	1W max
<b>Status Indicators</b>	8, indicates I/O Bus activity

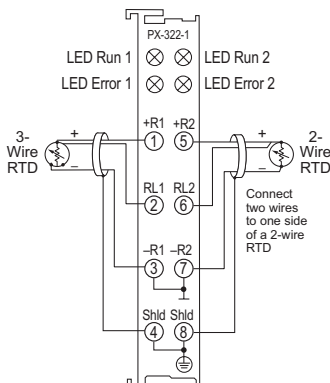
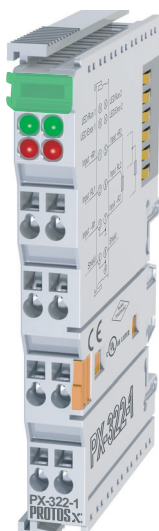


# RTD Input Terminals

## PX-322-1 \$335.00

### Two-channel RTD Input Terminal

The PX-322-1 (type 3) RTD Input Terminal provides two PT100 RTD inputs with full linearization and LED status.



General Specifications	
Operating Temp	0 to 55 °C
Storage Temp	-25 to 85 °C
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/ Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27/ EN 60068-2-29
Noise Immunity	Conforms to EN 61000-6-2/ EN61000-6-4
Protection Class	IP20
Weight	70g (2.4 oz)
Dimensions (WxHxD)	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
Adjacent Mounting on Bus Terminals with Power Contact	Yes
Adjacent Mounting on Bus Terminals without Power Contact	Yes
Passes Terminal Bus Power	No
Passes PE Bus	No
Agency Approvals*	UL/cUL File No. E157382, CE

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

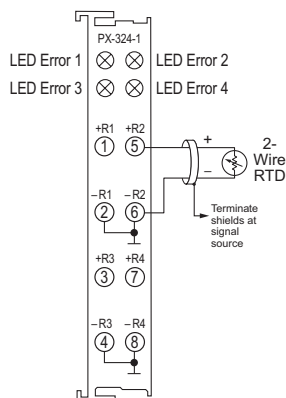
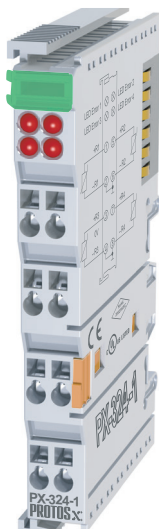
Terminal Specifications	
Number of Channels	2
Range	-200 to 850 °C
Resolution	0.1 °C per digit
Input Type	PT100
Data Bytes Consumed	PX-MOD: 4 bytes input PX-TCP1/TCP2: 8 bytes in/ 8 bytes out (not used)
Connection Method	2-wire or 3-wire (3-wire default)
Power Supply	Via I/O Bus
Conversion Time	Approx. 250ms
Measuring Current	5mA typical
Linearity Error	< ± 1°C
Current Consumption (from I/O Bus)	60mA
Electrical Isolation	500Vms (I/O bus/field potential)
Heat Dissipation	1W max
Status Indicators	4, see LED Status chart

LED Status		
LED	LED ON	LED OFF
Green LED: RUN	Normal Operation	Watchdog-timer overflow if no data transmitted within WD set time.
Red LED: ERROR	Sensor fault, e.g. broken wire	No Error

## PX-324-1 \$383.00

### Four-channel RTD Input Terminal

The PX-324-1 (type 3) RTD Input Terminal provides four PT100 RTD inputs with full linearization and LED status.



General Specifications	
Operating Temp	0 to 55 °C
Storage Temp	-25 to 85 °C
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/ Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27/ EN 60068-2-29
Noise Immunity	Conforms to EN 61000-6-2/ EN61000-6-4
Protection Class	IP20
Weight	70g (2.4 oz)
Dimensions (WxHxD)	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
Adjacent Mounting on Bus Terminals with Power Contact	Yes
Adjacent Mounting on Bus Terminals without Power Contact	Yes
Passes Terminal Bus Power	No
Passes PE Bus	No
Agency Approvals*	UL/cUL File No. E157382, CE

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

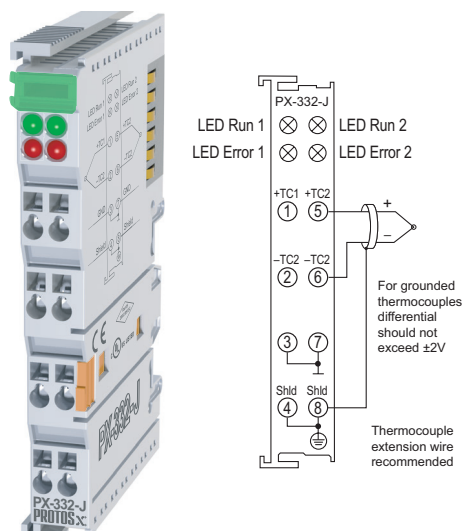
Terminal Specifications	
Number of Channels	4
Range	-200 to 850 °C
Resolution	0.1 °C per digit
Input Type	PT100
Data Bytes Consumed	PX-MOD: 8 bytes input PX-TCP1/TCP2: 16 bytes in/ 16 bytes out (not used)
Connection Method	2-wire
Power Supply	Via I/O Bus
Conversion Time	Approx. 250ms
Measuring Current	5mA typical
Linearity Error	< ± 1°C
Current Consumption (from I/O Bus)	60mA
Electrical Isolation	500Vms (I/O bus/field potential)
Heat Dissipation	1W max
Status Indicators	4, Red: sensor fault

# Thermocouple Input Terminals

## PX-332-J \$342.00

### Two-channel Type J Thermocouple Input Terminal

The PX-332-J (type 3) Thermocouple Input Terminal provides two Type J thermocouple inputs with full linearization, cold-junction compensation, and LED status.



General Specifications	
<b>Operating Temp</b>	0 to 55 °C
<b>Storage Temp</b>	-25 to 85 °C
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/ Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	70g (2.4 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	Yes
<b>Passes Terminal Bus Power</b>	No
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

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

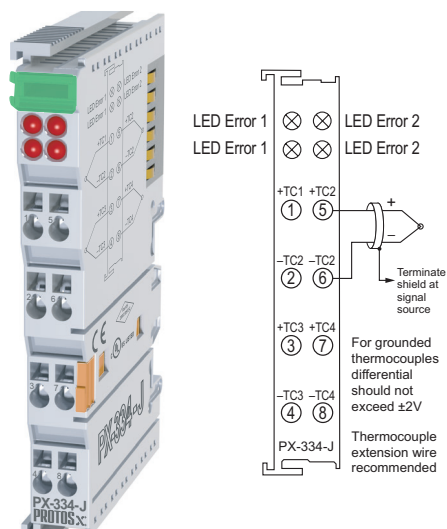
Terminal Specifications	
<b>Number of Channels</b>	2
<b>Range</b>	-100 to 1200 °C
<b>Resolution</b>	0.1 °C per digit
<b>Input Type</b>	Type J thermocouple
<b>Data Bytes Consumed</b>	PX-MOD: 4 bytes input PX-TCP1/TCP2: 8 bytes in/ 8 bytes out (not used)
<b>Connection Method</b>	2-wire (Thermocouple extension wire recommended)
<b>Power Supply</b>	Via I/O Bus
<b>Conversion Time</b>	Approx. 250ms
<b>Measuring Current</b>	5mA typical
<b>Linearity Error</b>	± 0.5% (relative to full scale value)
<b>Current Consumption (from I/O Bus)</b>	65mA
<b>Electrical Isolation</b>	500Vms (I/O bus/field potential)
<b>Heat Dissipation</b>	1W max
<b>Status Indicators</b>	4, see LED Status chart

LED Status		
LED	LED ON	LED OFF
<b>Green LED: RUN</b>	Normal Operation	Watchdog-timer overflow if no data transmitted within WD set time.
<b>Red LED: ERROR</b>	Sensor fault, e.g. broken wire	No Error

## PX-334-J \$393.00

### Four-channel Type J Thermocouple Input Terminal

The PX-334-J (type 3) Thermocouple Input Terminal provides four Type J thermocouple inputs with full linearization, cold-junction compensation, and LED status.



General Specifications	
<b>Operating Temp</b>	0 to 55 °C
<b>Storage Temp</b>	-25 to 85 °C
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/ Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	70g (2.4 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	Yes
<b>Passes Terminal Bus Power</b>	No
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

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

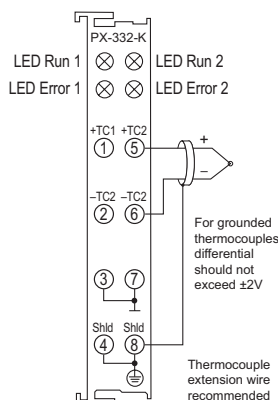
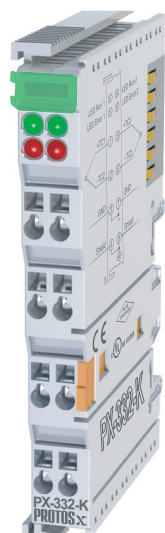
Terminal Specifications	
<b>Number of Channels</b>	4
<b>Range</b>	-100 to 1200 °C
<b>Resolution</b>	0.1 °C per digit
<b>Input Type</b>	Type J thermocouple
<b>Data Bytes Consumed</b>	PX-MOD: 8 bytes input PX-TCP1/TCP2: 16 bytes in/ 16 bytes out (not used)
<b>Connection Method</b>	2-wire (Thermocouple extension wire recommended)
<b>Power Supply</b>	Via I/O Bus
<b>Conversion Time</b>	Approx. 250ms
<b>Measuring Current</b>	5mA typical
<b>Linearity Error</b>	± 0.5% (relative to full scale value)
<b>Current Consumption (from I/O Bus)</b>	75mA
<b>Electrical Isolation</b>	500Vms (I/O bus/field potential)
<b>Heat Dissipation</b>	1W max
<b>Status Indicators</b>	4, Red: sensor fault/broken wire

# Thermocouple Input Terminals

## PX-332-K \$342.00

### Two-channel Type K Thermocouple Input Terminal

The PX-332-K (type 3) Thermocouple Input Terminal provides two Type K thermocouple inputs with full linearization, cold-junction compensation, and LED status.



General Specifications	
Operating Temp	0 to 55 °C
Storage Temp	-25 to 85 °C
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27/ EN 60068-2-29
Noise Immunity	Conforms to EN 61000-6-2/ EN61000-6-4
Protection Class	IP20
Weight	70g (2.4 oz)
Dimensions (WxHxD)	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
Adjacent Mounting on Bus Terminals with Power Contact	Yes
Adjacent Mounting on Bus Terminals without Power Contact	Yes
Passes Terminal Bus Power	No
Passes PE Bus	No
Agency Approvals*	UL/cUL File No. E157382, CE

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

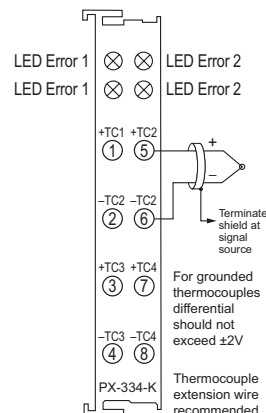
Terminal Specifications	
Number of Channels	2
Range	-100 to 1370 °C
Resolution	0.1 °C per digit
Input Type	Type K thermocouple
Data Bytes Consumed	PX-MOD: 4 bytes input PX-TCP1/TCP2: 8 bytes in/ 8 bytes out (not used)
Connection Method	2-wire (Thermocouple extension wire recommended)
Power Supply	Via I/O Bus
Conversion Time	Approx. 250ms
Measuring Current	5mA typical
Linearity Error	± 0.5% (relative to full scale value)
Current Consumption (from I/O Bus)	65mA
Electrical Isolation	500Vms (I/O bus/field potential)
Heat Dissipation	1W max
Status Indicators	4, see LED Status chart

LED Status		
LED	LED ON	LED OFF
Green LED: RUN	Normal Operation	Watchdog-timer overflow if no data transmitted within WD set time.
Red LED: ERROR	Sensor fault, e.g. broken wire	No Error

## PX-334-K \$393.00

### Four-channel Type K Thermocouple Input Terminal

The PX-334-K (type 3) Thermocouple Input Terminal provides four Type K thermocouple inputs with full linearization, cold-junction compensation, and LED status.



General Specifications	
Operating Temp	0 to 55 °C
Storage Temp	-25 to 85 °C
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27/ EN 60068-2-29
Noise Immunity	Conforms to EN 61000-6-2/ EN61000-6-4
Protection Class	IP20
Weight	70g (2.4 oz)
Dimensions (WxHxD)	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
Adjacent Mounting on Bus Terminals with Power Contact	Yes
Adjacent Mounting on Bus Terminals without Power Contact	Yes
Passes Terminal Bus Power	No
Passes PE Bus	No
Agency Approvals*	UL/cUL File No. E157382, CE

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

Terminal Specifications	
Number of Channels	4
Range	-100 to 1370 °C
Resolution	0.1 °C per digit
Input Type	Type K thermocouple
Data Bytes Consumed	PX-MOD: 8 bytes input PX-TCP1/TCP2: 16 bytes in/ 16 bytes out (not used)
Connection Method	2-wire (Thermocouple extension wire recommended)
Power Supply	Via I/O Bus
Conversion Time	Approx. 250ms
Measuring Current	5mA typical
Linearity Error	± 0.5% (relative to full scale value)
Current Consumption (from I/O Bus)	75mA
Electrical Isolation	500Vms (I/O bus/field potential)
Heat Dissipation	1W max
Status Indicators	4, Red: sensor fault/broken wire

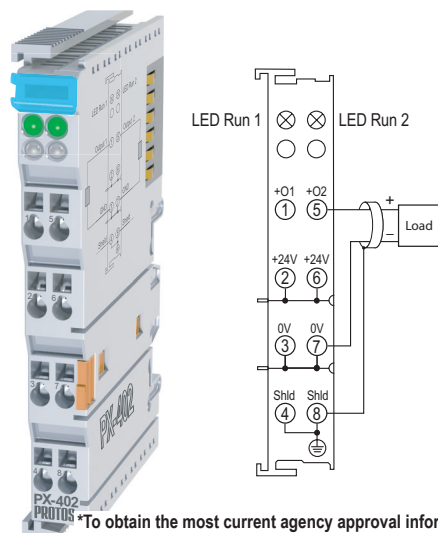


# Analog Current Output Terminals

## PX-402 \$289.00

### Two-channel, 4-20 mA Analog Output Terminal

The PX-402 (type 1) Analog Output Terminal provides two electrically isolated, 4-20 mA outputs with 12-bit resolution and Run LED status.



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

General Specifications	
Operating Temp	32 to 131 °F (0 to 55 °C)
Storage Temp	-13 to 185 °F (-25 to 85 °C)
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27/ EN 60068-2-29
Noise Immunity	Conforms to EN 61000-6-2/ EN61000-6-4
Protection Class	IP20
Weight	80g (2.8 oz)
Dimensions (WxHxD)	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
Adjacent Mounting on Bus Terminals with Power Contact	Yes, DC only
Adjacent Mounting on Bus Terminals without Power Contact	No
Passes Terminal Bus Power	Yes
Passes PE Bus	No
Agency Approvals*	UL/cUL File No. E157382, CE

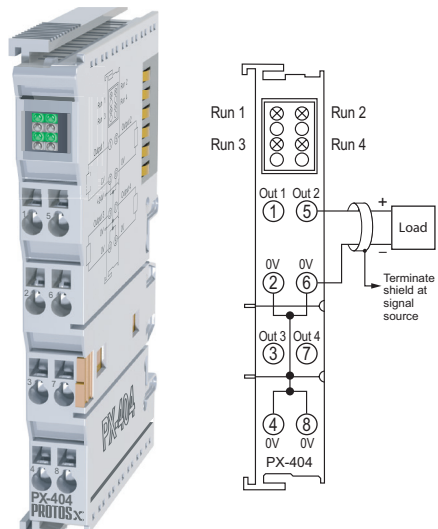
Terminal Specifications	
Number of Channels	2
Output Ranges	4 to 20 mA
Resolution	12 bit
Output Type	Single-ended
Data Format	Decimal: 0-32767
Data Bytes Consumed	PX-MOD: 4 bytes output PX-TCP1/TCP2: 8 bytes out/ 8 bytes in (not used)
Output Power Source	24VDC via terminal power bus
Current Consumption (from Load Voltage)	50mA + load
Source Load	< 500Ω (short-circuit protected)
Conversion Time	Approx. 1.5 ms
Accuracy	± 0.5 LSB linearity error, ± 0.5 LSB offset error ± 0.1% of the full scale value
I/O Bus current Consumption (5V)	60mA
Electrical Isolation	500Vrms (I/O Bus/signal voltage)
Heat Dissipation	1W max
Status Indicators	2, see LED Status chart

LED Status		
LED	LED ON	LED OFF
Green LED: RUN	Normal Operation	Watchdog-timer overflow if no data transmitted within WD set time.

## PX-404 \$272.00

### Four-channel, 4-20 mA Analog Output Terminal

The PX-404 (type 1) Analog Output Terminal provides four electrically isolated, 4-20 mA outputs with 12-bit resolution and Run LED status.



General Specifications	
Operating Temp	32 to 131 °F (0 to 55 °C)
Storage Temp	-13 to 185 °F (-25 to 85 °C)
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27/ EN 60068-2-29
Noise Immunity	Conforms to EN 61000-6-2/ EN61000-6-4
Protection Class	IP20
Weight	80g (2.8 oz)
Dimensions (WxHxD)	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
Adjacent Mounting on Bus Terminals with Power Contact	Yes, DC only
Adjacent Mounting on Bus Terminals without Power Contact	No
Passes Terminal Bus Power	Yes
Passes PE Bus	No
Agency Approvals*	UL/cUL File No. E157382, CE

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

Terminal Specifications	
Number of Channels	4
Output Ranges	4 to 20 mA
Resolution	12 bit
Output Type	Single-ended
Data Format	Decimal: 0-32767
Data Bytes Consumed	PX-MOD: 8 bytes output PX-TCP1/TCP2: 16 bytes out/ 16 bytes in (not used)
Output Power Source	24VDC via terminal power bus
Current Consumption (from Load Voltage)	60mA + load
Source Load	< 350Ω (short-circuit protected)
Conversion Time	Approx. 4ms
Accuracy	± 0.5 LSB linearity error, ± 0.5 LSB offset error ± 0.1% of the full scale value
I/O Bus current Consumption (5V)	20mA
Electrical Isolation	500Vrms (I/O Bus/signal voltage)
Heat Dissipation	1W max
Status Indicators	4, see LED Status chart

LED Status		
LED	LED ON	LED OFF
Green LED: RUN	Normal Operation	Watchdog-timer overflow if no data transmitted within WD set time.

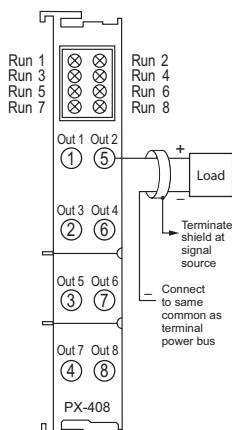


# Analog Current Output Terminals

**PX-408 \$347.00**

## ***Eight-channel, 4-20 mA Analog Output Terminal***

The PX-408 (type 1) Analog Output Terminal provides eight electrically isolated, 4-20 mA outputs with 12-bit resolution and Run LED status.



General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/ Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	80g (2.8 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes, DC only
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	No
<b>Passes Terminal Bus Power</b>	Yes
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

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

Terminal Specifications	
<b>Number of Channels</b>	8
<b>Output Ranges</b>	4 to 20 mA
<b>Resolution</b>	12 bit
<b>Output Type</b>	Single-ended
<b>Data Format</b>	Decimal: 0-32767
<b>Data Bytes Consumed</b>	PX-MOD: 16 bytes output PX-TCP1/TCP2: 32 bytes out/ 32 bytes in (not used)
<b>Output Power Source</b>	24VDC via terminal power bus
<b>Current Consumption (from Load Voltage)</b>	50mA + load
<b>Source Load</b>	< 150Ω (short-circuit protected)
<b>Conversion Time</b>	Approx. 8ms
<b>Accuracy</b>	± 0.5 LSB linearity error, ± 0.5 LSB offset error ± 0.1% of the full scale value
<b>I/O Bus current Consumption (5V)</b>	25mA
<b>Electrical Isolation</b>	500Vrms (I/O Bus/signal voltage)
<b>Heat Dissipation</b>	1W max
<b>Status Indicators</b>	8, see LED Status chart

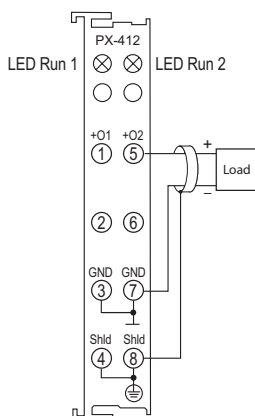
LED Status		
LED	LED ON	LED OFF
<b>Green LED: RUN</b>	Normal Operation	Watchdog error if no data transmitted within WD set time.

# Analog Voltage Output Terminals

## PX-412 \$289.00

### Two-channel, 0 to 10 VDC Analog Output Terminal

The PX-412 (type 3) Analog Output Terminal provides two electrically isolated, 0 to 10 VDC outputs with 12-bit resolution, common ground potential, and Run LED status.



General Specifications	
Operating Temp	32 to 131 °F (0 to 55 °C)
Storage Temp	-13 to 185 °F (-25 to 85 °C)
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27/ EN 60068-2-29
Noise Immunity	Conforms to EN 61000-6-2/ EN61000-6-4
Protection Class	IP20
Weight	85g (3.0 oz)
Dimensions (WxHxD)	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
Adjacent Mounting on Bus Terminals with Power Contact	Yes
Adjacent Mounting on Bus Terminals without Power Contact	Yes
Passes Terminal Bus Power	No
Passes PE Bus	No
Agency Approvals*	UL/cUL File No. E157382, CE

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

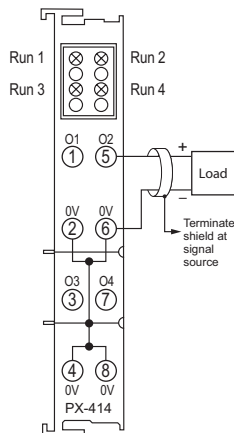
Terminal Specifications	
Number of Channels	2
Output Ranges	0 to 10 VDC
Resolution	12 bit
Output Type	Single-ended
Data Format	Decimal: 0-32767
Data Bytes Consumed	PX-MOD: 4 bytes output
	PX-TCP1/TCP2: 8 bytes out/ 8 bytes in (not used)
Output Power Source	24VDC via terminal power bus
Current Consumption (from Load Voltage)	50mA + load
Source Load	> 5kV (short-circuit protected)
Conversion Time	Approx. 1.5 ms
Accuracy	± 0.5 LSB linearity error, ± 0.5 LSB offset error ± 0.1% of the full scale value
I/O Bus current Consumption (5V)	75mA
Electrical Isolation	500Vms (I/O Bus/signal voltage)
Heat Dissipation	1W max
Status Indicators	2, see LED Status chart

LED Status		
LED	LED ON	LED OFF
Green LED: RUN	Normal Operation	Watchdog error if no data transmitted within WD set time.

## PX-414 \$266.00

### Four-channel, 0 to 10 VDC Analog Output Terminal

The PX-414 (type 1) Analog Output Terminal provides four electrically isolated, 0 to 10 VDC outputs with 12-bit resolution, common ground potential, and Run LED status.w



General Specifications	
Operating Temp	32 to 131 °F (0 to 55 °C)
Storage Temp	-13 to 185 °F (-25 to 85 °C)
Relative Humidity	5% to 95%, non-condensing
Environment Air	No corrosive gases permitted
Mounting/Orientation Restrictions	35mm DIN rail/None
Vibration	Conforms to EN 60068-2-6
Shock	Conforms to EN 60068-2-27/ EN 60068-2-29
Noise Immunity	Conforms to EN 61000-6-2/ EN61000-6-4
Protection Class	IP20
Weight	85g (3.0 oz)
Dimensions (WxHxD)	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
Adjacent Mounting on Bus Terminals with Power Contact	Yes, DC only
Adjacent Mounting on Bus Terminals without Power Contact	Yes
Passes Terminal Bus Power	No
Passes PE Bus	No
Agency Approvals*	UL/cUL File No. E157382, CE

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

Terminal Specifications	
Number of Channels	4
Output Ranges	0 to 10 VDC
Resolution	12 bit
Output Type	Single-ended
Data Format	Decimal: 0-32767
Data Bytes Consumed	PX-MOD: 8 bytes output
	PX-TCP1/TCP2: 16 bytes out/ 16 bytes in (not used)
Output Power Source	24VDC via terminal power bus
Current Consumption (from Load Voltage)	50mA + load
Source Load	> 5kV (short-circuit protected)
Conversion Time	Approx. 1.5 ms
Accuracy	± 0.5 LSB linearity error, ± 0.5 LSB offset error ± 0.1% of the full scale value
I/O Bus current Consumption (5V)	75mA
Electrical Isolation	500Vms (I/O Bus/signal voltage)
Heat Dissipation	1W max
Status Indicators	2, see LED Status chart

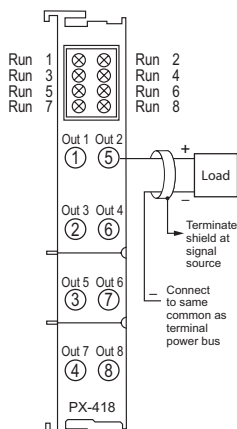
LED Status		
LED	LED ON	LED OFF
Green LED: RUN	Normal Operation	Watchdog error if no data transmitted within WD set time.

# Analog Voltage Output Terminals

## PX-418 \$347.00

### **Eight-channel, -10 to +10 VDC Analog Output Terminal**

The PX-418 (type 1) Analog Output Terminal provides eight electrically isolated, -10 to +10 VDC outputs with 12-bit resolution, common ground potential, and Run LED status.



General Specifications	
<b>Operating Temp</b>	32 to 131 °F (0 to 55 °C)
<b>Storage Temp</b>	-13 to 185 °F (-25 to 85 °C)
<b>Relative Humidity</b>	5% to 95%, non-condensing
<b>Environment Air</b>	No corrosive gases permitted
<b>Mounting/Orientation Restrictions</b>	35mm DIN rail/None
<b>Vibration</b>	Conforms to EN 60068-2-6
<b>Shock</b>	Conforms to EN 60068-2-27/ EN 60068-2-29
<b>Noise Immunity</b>	Conforms to EN 61000-6-2/ EN61000-6-4
<b>Protection Class</b>	IP20
<b>Weight</b>	85g (3.0 oz)
<b>Dimensions (WxHxD)</b>	12 x 100 x 68.8 mm (0.47 x 3.94 x 2.71 in)
<b>Adjacent Mounting on Bus Terminals with Power Contact</b>	Yes, DC only
<b>Adjacent Mounting on Bus Terminals without Power Contact</b>	No
<b>Passes Terminal Bus Power</b>	Yes
<b>Passes PE Bus</b>	No
<b>Agency Approvals*</b>	UL/cUL File No. E157382, CE

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

Terminal Specifications	
<b>Number of Channels</b>	8
<b>Output Ranges</b>	-10 to +10 VDC
<b>Resolution</b>	12 bit
<b>Output Type</b>	Single-ended
<b>Data Format</b>	Decimal: 0-32767
<b>Data Bytes Consumed</b>	PX-MOD: 16 bytes output PX-TCP1/TCP2: 32 bytes out/ 32 bytes in (not used)
<b>Output Power Source</b>	24VDC via terminal power bus
<b>Current Consumption (from Load Voltage)</b>	20mA
<b>Source Load</b>	> 5kV (short-circuit protected)
<b>Conversion Time</b>	Approx. 8ms
<b>Accuracy</b>	± 0.5 LSB linearity error, ± 0.5 LSB offset error ± 0.1% of the full scale value
<b>I/O Bus current Consumption (5V)</b>	20mA
<b>Electrical Isolation</b>	500Vms (I/O Bus/signal voltage)
<b>Heat Dissipation</b>	1W max
<b>Status Indicators</b>	8, see LED Status chart

LED Status		
LED	LED ON	LED OFF
<b>Green LED: RUN</b>	Normal Operation	Watchdog error if no data transmitted within WD set time.