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# Universal Field I/O

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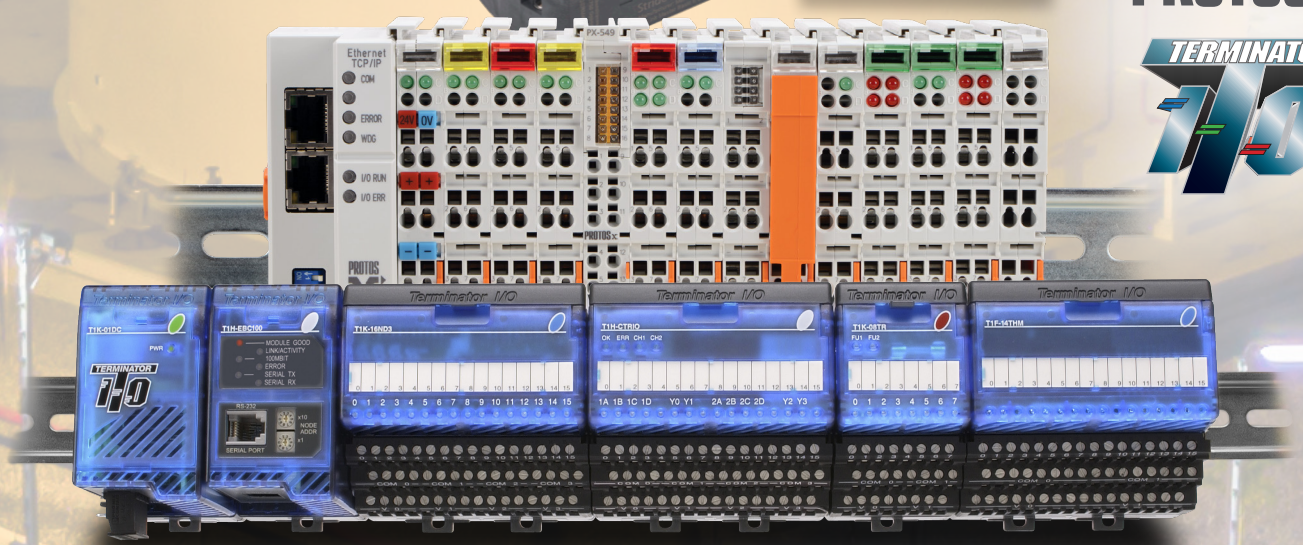
Stride®

MURR ELEKTRONIK

IO-Link

PROTOS X™

TERMINATOR I/O



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# STRIDE IO-Link is a smart choice for smart I/O

## STRIDE and Murrelektronik IO-Link Master Modules

Smart sensors provide a wealth of helpful data that can be used to keep systems up and running and/or make them more efficient. Rather than just the measurement data gathered by a basic sensor (position, pressure, temperature, etc.), intelligent sensors can also send information about the sensor's condition, its description, configured parameters, and performance. One powerful protocol used with smart sensor technology is IO-Link. The standard architecture of an IO-Link system consists of one IO-Link master (the interface between IO-Link and higher-level controllers/information systems that also controls data traffic between the connected IO-Link devices) and at least one IO-Link device.

**Add rich data to sensed values:**

- Flow meters include media temperature
- Proximity sensors include peak environmental variables
- Light sensors include signal degradation warnings

**IO-Link Master Modules**


IO-Link

## Multiple Connections for a Wide Variety of I/O

- 8 x IO-Link Class A/B master ports with true DIO functionality – one module for everything: 16 DI, 16 DIO, 16 DO, 8 IOL or any combination
- Easily connect several digital and analog signals to the IO-Link master using inexpensive M12 sensor cables
- Intelligent supply voltage switching at pin 2 and 4
- Up to 4A per port on Premium model and up to 2A per port on Basic model

## Rugged Housing

- Fully potted plastic housings protect sensitive electronics from industrial and outdoor environments
- IP65, IP67 rated
- Machine mountable - NO ENCLOSURE REQUIRED

**STRIDE BASIC IO-LINK MASTER MODULE**
***PRICED AT***
**$290.00**
(SIOL-EI8B)

**MURRELEKTRONIK PREMIUM IO-LINK MASTER MODULE**
***PRICED AT***
**$385.00**
(54631)

## Quick Installation

- Installing and powering multiple modules is simple with the L-coded M12 power connections specifically designed for daisy-chaining several modules together
- 4 & 5-pole cable options for any installation concept
- Up to 2 x 16A

## Network with Ease

- 2 x D-coded M12, 100 Mbps Ethernet connections for fast data transfer
- **STRIDE Basic IO-Link master module supports EtherNet/IP (explicit and implicit) messaging**
- **Murrelektronik Premium IO-Link master module supports EtherNet/IP (explicit and implicit) messaging, OPC UA, and MQTT for data transmission from the sensor direct to the cloud**

MQTT

EtherNet/IP™

## Why IO-Link?

Traditional sensors and actuators are great for controlling and monitoring many different processes. While IO-Link devices will perform the same general function as traditional devices, they go one step further by providing a window into the device itself for insight on potential problems or possible improvements.

**Extended Diagnostics.** Smart devices can perform self-checks to determine if problems exist internally. Diagnostic data including sensor/actuator errors and the health of each connected IO-Link capable device is provided along with the sensed data. This allows the operator to monitor not only what values the sensor is measuring but also how well it's performing.

**Reduced Downtime.** The information provided by an IO-Link device can help pinpoint potential issues before they occur. For example, an IO-Link sensor could send a notification to a PLC that it is out of alignment, allowing maintenance to quickly correct the issue before any possible damage or major downtime occurs.

If an IO-Link device must be replaced, the process is simple since all of the needed sensor parameters are stored in the master and are automatically copied to the new IO-Link device once installed.

**Remote Configuration.** Since identifying and configuration information is provided by each IO-Link capable sensor, operators can dynamically change a specific sensor's parameters from virtually anywhere. This is especially important for applications that require frequent system changeovers to accommodate a diverse product line. For example, in packaging applications where packaging needs vary extensively from product to product, this could allow a single sensor to be used for multiple applications with a simple configuration change.

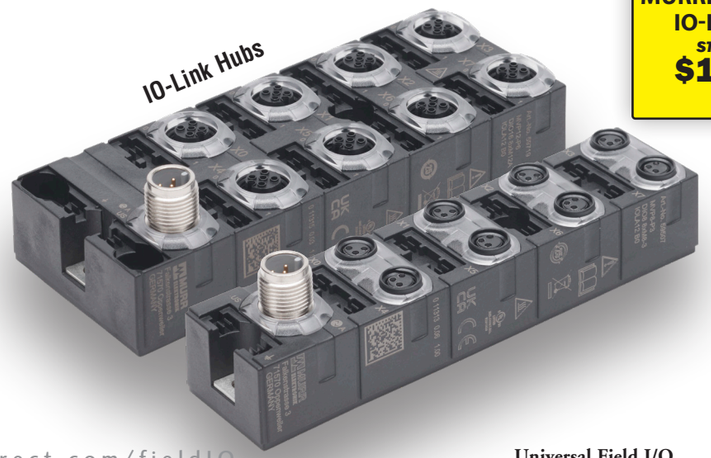
**IIoT Support.** The process (temp, pressure, flow, etc.), service (device parameters, serial, numbers, etc.), and event (errors and warnings) data supplied by IO-Link devices can be routed though the IO-Link master to an upstream controller, SCADA system, or even to a cloud computing network. Making this data available to high-level systems provides a big-picture view of production as a whole and helps to facilitate plant-wide improvements.

**Productivity Integration.** Download task libraries for Productivity Suite that unlock easy drag-and-drop configurations for STRIDE and Murrelektronik IO-Link masters and IO-Link capable devices sold by AutomationDirect. With the supreme integration offered by Productivity PLCs, IO-Link configuration and deployment time is significantly reduced and can be completed in just a few minutes.

## Simple Field I/O

Murrelektronik IO-Link hubs allow several digital sensors and actuators to be easily connected to an IO-Link master via a standard sensor cable. These hubs are for standard field I/O signals and do not transmit diagnostic information. However, the IO-Link master module does monitor each channel for current and voltage anomalies. IO-Link hubs are an economical solution for a high-quality decentralized installation.

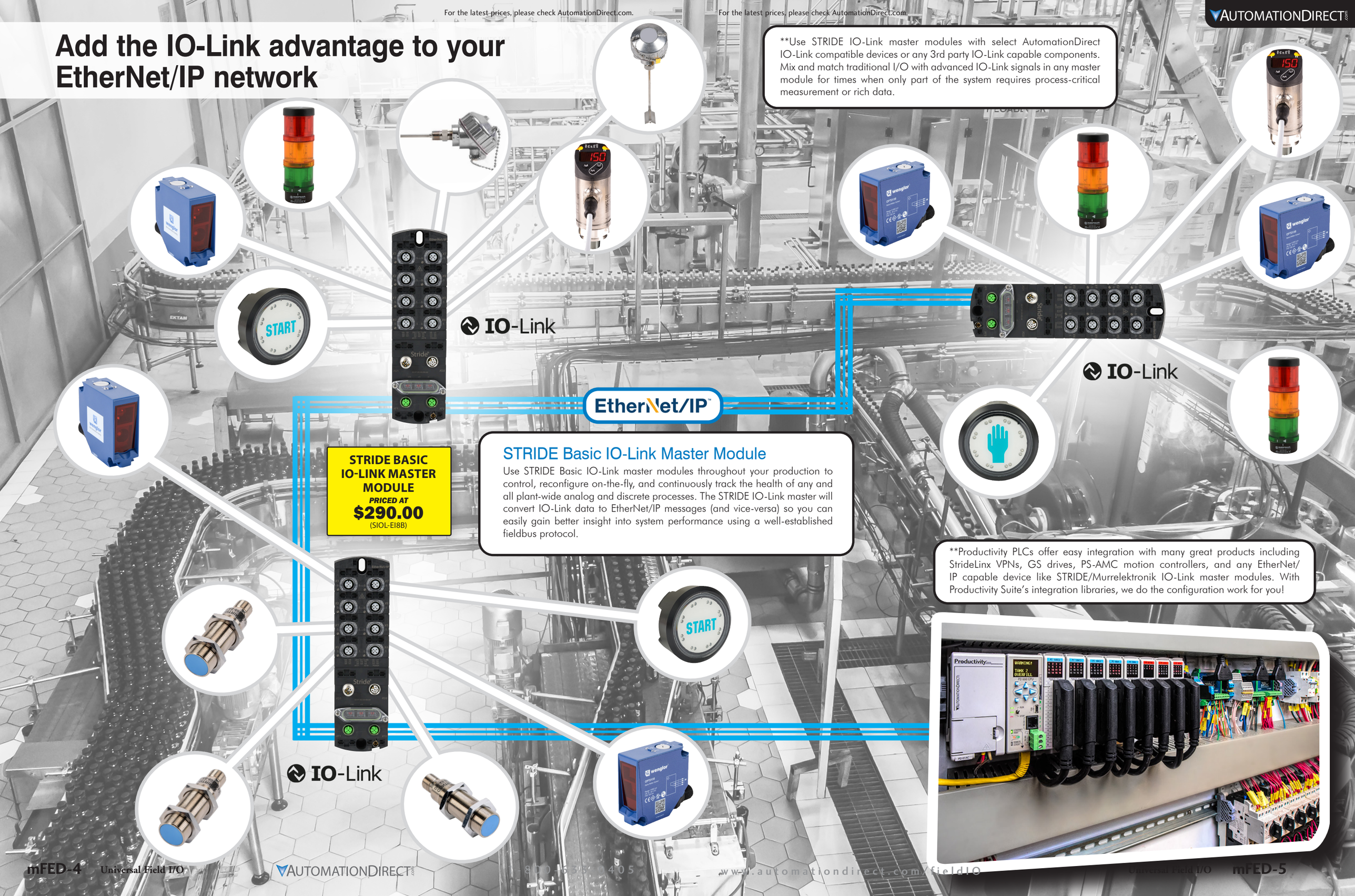
**MURRELEKTRONIK IO-LINK HUB**
***STARTING AT***
**$180.00**
(59710)



For the latest prices, please check AutomationDirect.com.

# Add the IO-Link advantage to your EtherNet/IP network

**Use STRIDE IO-Link master modules with select AutomationDirect IO-Link compatible devices or any 3rd party IO-Link capable components. Mix and match traditional I/O with advanced IO-Link signals in any master module for times when only part of the system requires process-critical measurement or rich data.




**STRIDE BASIC IO-LINK MASTER MODULE**
***PRICED AT***
**$290.00**
(SIOL-EI8B)

## STRIDE Basic IO-Link Master Module

Use STRIDE Basic IO-Link master modules throughout your production to control, reconfigure on-the-fly, and continuously track the health of any and all plant-wide analog and discrete processes. The STRIDE IO-Link master will convert IO-Link data to EtherNet/IP messages (and vice-versa) so you can easily gain better insight into system performance using a well-established fieldbus protocol.

**Productivity PLCs offer easy integration with many great products including StrideLinx VPNs, GS drives, PS-AMC motion controllers, and any EtherNet/IP capable device like STRIDE/Murrelektronik IO-Link master modules. With Productivity Suite's integration libraries, we do the configuration work for you!

For the latest prices, please check AutomationDirect.com.

# Deliver data right to the cloud with IO-Link and MQTT

## Murrelektronik Premium IO-Link Master Module

The Murrelektronik Premium master module provides the same advantages as the lower-cost STRIDE version, but with the added capability of MQTT. This allows the wealth of data collected from IO-Link sensors on your machine(s) to be delivered directly to the cloud where it can be analyzed with data from other sites across the nation or the world. Many cloud services are available for data analysis and storage, including Microsoft Azure, which can all be fed data from Murrelektronik's premium master module resulting in better collaboration between sites, business-wide quality control, and loss prevention.


ARIZONA

MQTT

Edge Gateway


SOUTH CAROLINA

**MURRELEKTRONIK PREMIUM IO-LINK MASTER MODULE**
***PRICED AT***
**$385.00**
(54631)

MQTT

CLOUD computing


SAP HANA
Amazon AWS
Microsoft Azure
Siemens MindSphere
Google Cloud
IBM Bluemix
Murrelektronik-Cloud


LOUISIANA

MQTT


## Stay in-the-know

Cloud networking also allows you to stay connected to your machine(s) no matter how remote. Whether it's the new install in Arizona, the problem child in Louisiana, or the redesign in South Carolina, vital personnel can stay in-the-know including technical support headquartered in Texas, the customer on vacation in Hawaii, or field engineers on start-ups in Florida and Colorado.

INDUSTRY IIoT 4.0

For the latest prices, please check AutomationDirect.com.

AUTOMATIONDIRECT.COM

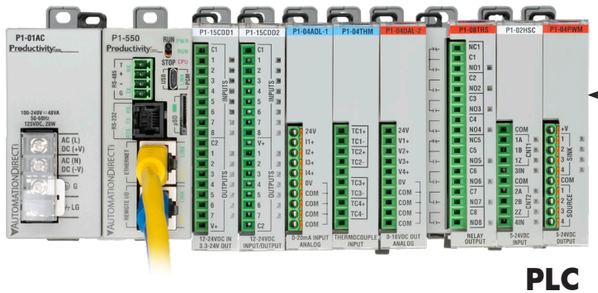
# Stride® Reliable field I/O from a leader in affordable industrial communication

## Field I/O Modules

STRIDE is well known in the industrial communications realm for providing dependable communications products at extremely affordable prices. The new STRIDE Field I/O modules live up to that standard and provide an affordable solution for Modbus TCP-capable systems that need simple I/O. Any Modbus TCP device, like a PLC or HMI, can communicate with these modules over a single Ethernet connection, alleviating the expense of long I/O wire runs. Add as many or as few of the STRIDE Field I/O modules you need for easy, reliable monitoring and control of your field devices.

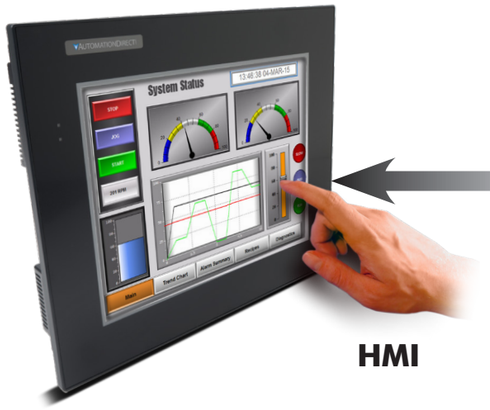
**Field I/O Module Lineup:**

- 16 channel discrete input (24VDC)
- 8 channel discrete input (24VDC) with 8 channel discrete output (24VDC PNP)
- 8 channel discrete input (24VDC) with 4 channel relay output (SPDT)
- 4 channel analog current/voltage input and output modules
- 8 channel analog current or voltage input modules
- RTD and thermocouple modules




PLC

**Modbus® TCP/IP**



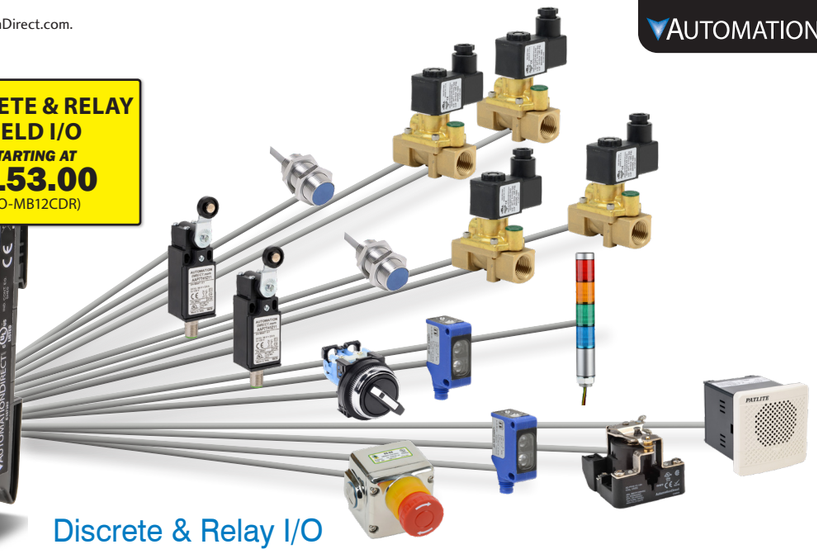

HMI

**Modbus® TCP/IP**


SCADA SYSTEM

**Modbus® TCP/IP**

**DISCRETE & RELAY FIELD I/O**
*STARTING AT*
**$153.00**
(SIO-MB12CDR)

## Discrete & Relay I/O

Discrete I/O modules allow monitoring and control of ON/OFF signals used with devices such as limit switches, sensors, pneumatic solenoid valves and indicating lights. Relay output modules allow higher AC or DC currents and are used with power relays, pumps, motor starters and contactors. STRIDE Field I/O modules provide up to 16 discrete inputs with options for discrete and relay outputs.

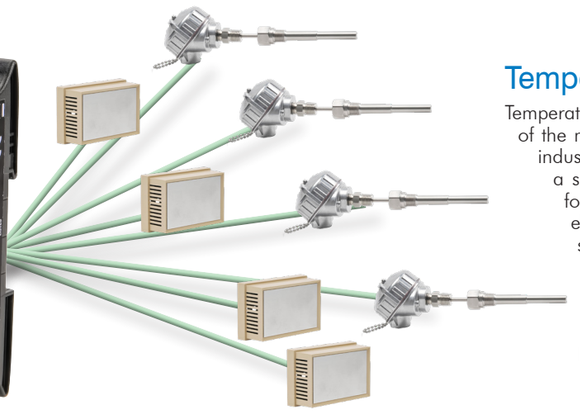
**ANALOG/PROCESS FIELD I/O**
*STARTING AT*
**$160.00**
(SIO-MB04DAS)


## Analog/Process I/O

Analog I/O modules supply the values needed for precision control of a process including level, flow, and pressure data.

STRIDE Field I/O analog input modules are available with up to 8 current (-20 to +20 mA) or voltage (-10 to +10 VDC) inputs. Analog output modules provide four 0-20mA/0-10VDC output channels.

**TEMPERATURE FIELD INPUTS**
*STARTING AT*
**$171.00**
(SIO-MB16ND3)

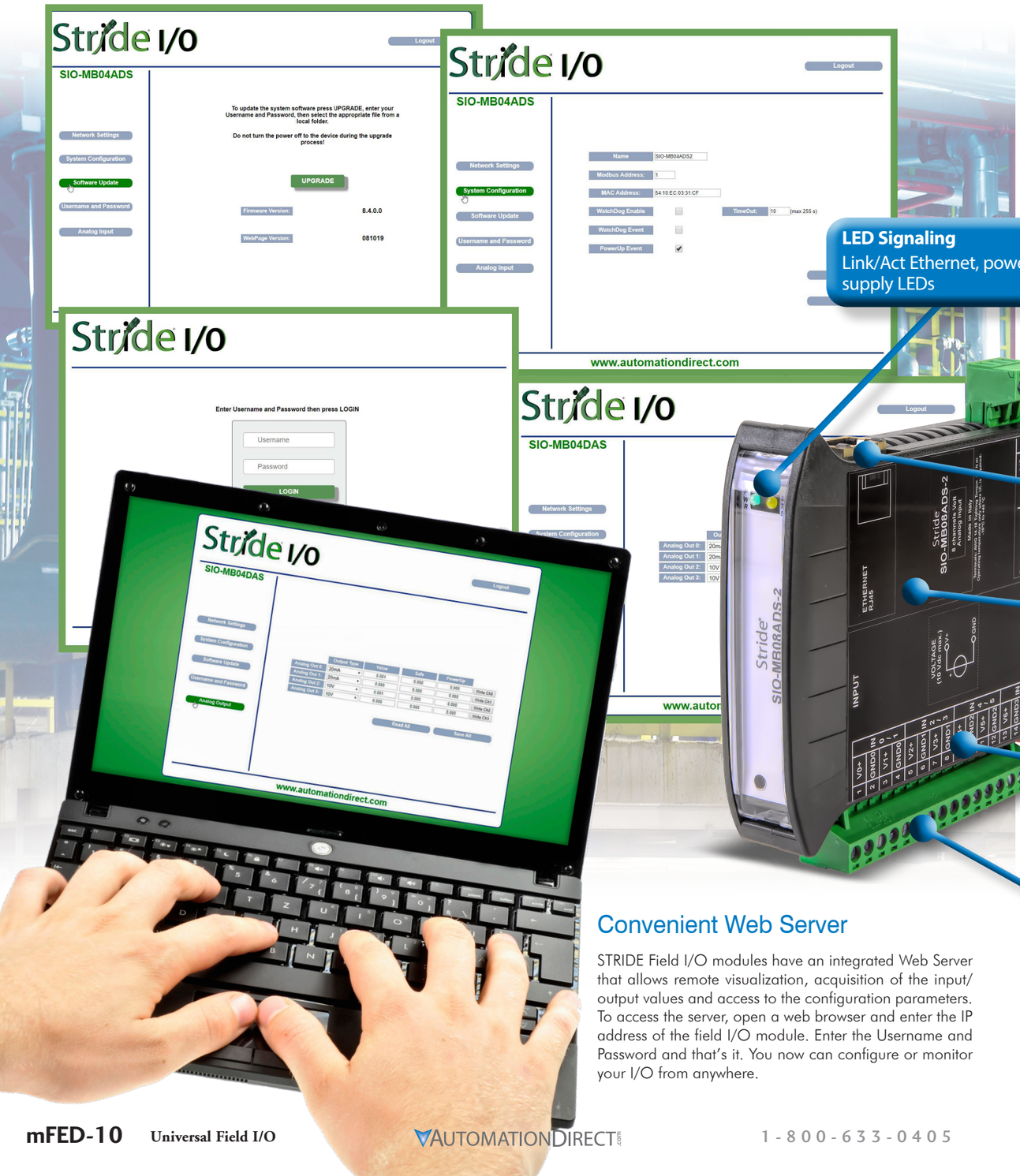
## Temperature Inputs

Temperature is considered to be one of the most measured parameters in industrial automation. Maintaining a specific temperature is crucial for equipment used to fabricate electronics, heat fluids, or sanitize other equipment.

STRIDE Field I/O temperature modules provide 4 or 8 thermocouple inputs or 4 RTD channels per module.

For the latest prices, please check AutomationDirect.com.


# Stride® Field I/O that's truly field friendly


## LED Signaling
Link/Act Ethernet, power supply LEDs

## Ethernet Interface
10/100 Base-T, Modbus TCP Server

## Rugged Housing
Housed in a tough self-extinguishing plastic enclosure with DIN rail mounting

## Galvanic isolation
The device has full electrical isolation between the lines, providing protection against the effects of ground loops existing in industrial applications

## Removable Screw Terminal Connections

## UL listed / CE mark / EN-50022

## Field Ready

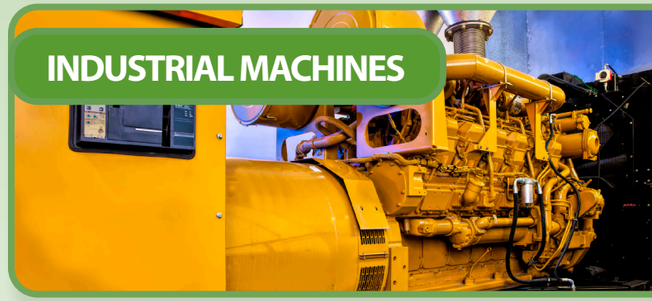
STRIDE Field I/O modules are designed to handle harsh field conditions and their slim footprint allows them to easily fit in areas where space is a concern.

Great for numerous applications especially for I/O on industrial machinery, isolated or segmented processes and when equipment expansion is needed.

## Convenient Web Server

STRIDE Field I/O modules have an integrated Web Server that allows remote visualization, acquisition of the input/output values and access to the configuration parameters. To access the server, open a web browser and enter the IP address of the field I/O module. Enter the Username and Password and that's it. You now can configure or monitor your I/O from anywhere.

## A great I/O solution for:






**and much more!**

# PROTOS X Xpansion I/O for your application and every application

## The Perfect Fit

Protos X I/O is a perfect fit for most applications, particularly where you need distributed or compact I/O. Regardless of the size, budget or demand, this product can accommodate your needs and deliver every time.

At just 12mm thick, the super thin and attractive form factor allows you to manage the overall size and cost of your mechanical design. Now you can fit more I/O into a smaller footprint (linear DIN rail space), saving you money when sourcing enclosures for new applications or making it a more attractive fit for existing ones. When compared to more traditional Field I/O, Protos X I/O saves you roughly 70% more linear DINRail space!

This practical product makes your everyday applications easier to accomplish and saves you time. The footprint allows you to install Protos X I/O on or near the equipment it is monitoring. This reduces field wiring and provides fast and reliable updates to your control system.

## Monitor just a couple points or a couple hundred points

The Protos X I/O offers a wide selection of I/O modules, also called terminals. With densities ranging from 2 points per I/O terminal up to 16 points per terminal, you have the ability to precisely configure your control system to the exact number of points you need, eliminating overpaying for unused I/O points. You designed your system for the number of points that you need, why pay for more?

## Communicate with the Top Industrial Protocols

With Serial Modbus RTU, Modbus TCP and EtherNet/IP bus couplers available, you have the freedom to connect to hundreds of control devices in our industry, including the most popular PLCs and SCADA/HMI packages. This flexibility allow each user to select the control platform that best fits the project and still save money by selecting a universal I/O product to complete the job.

## The Signals you Need

- 2, 4, 8 and 16-point discrete I/O terminals available in a variety of signals including 24VDC, 120VAC & 240VAC
- 2, 4 and 8-point analog terminals with signal ranges of 4-20mA, +/-10VDC, 0-5/0-10VDC
- 2 and 4-channel temperature modules in both thermocouple (J and K types) and RTD (Pt100).

## Bus Couplers

- PX-MOD with Serial Modbus RTU protocol
- PX-TCP1 with Ethernet Modbus TCP (single port)
- PX-TCP2 with Ethernet Modbus TCP (dual port)
- PX-EIP1 with EtherNet/IP (single port)

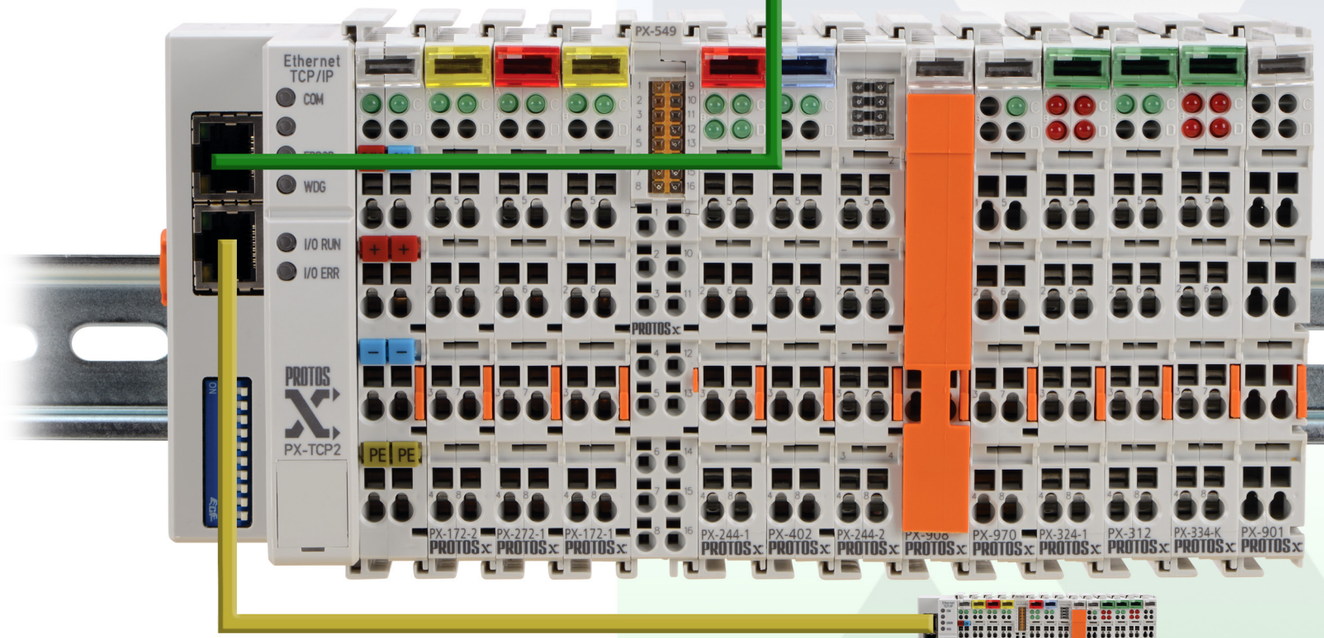
## Simple Wiring

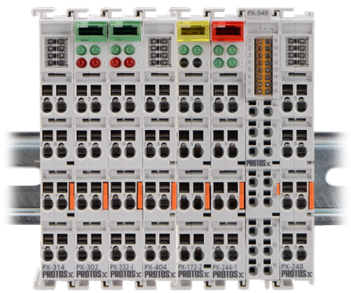
With the push-in, spring clamp wiring system on the Protos X I/O terminals, installation has never been easier. There is never a concern for over tightening or under tightening. No screw heads to fiddle with or making sure you have a screwdriver that fits. Simply strip your wire and push it in to the terminal point.

## Power and Expansion

- 24VDC or 120-230 VAC power feed terminals let you switch voltage on the power bus
- Bus Expansion End Terminals and Couplers let you expand the system easily

***Note: Either the PX-901 End terminal or PX-902 Expansion End terminal are required on every system.***



## I/O Terminal Selection

Offering a wide variety of signals, voltage ranges and number of points, the Protos X I/O terminals make it simple to configure your system. Whether you need a couple of points or a couple hundred points, you can easily build a comprehensive I/O platform with these terminals.



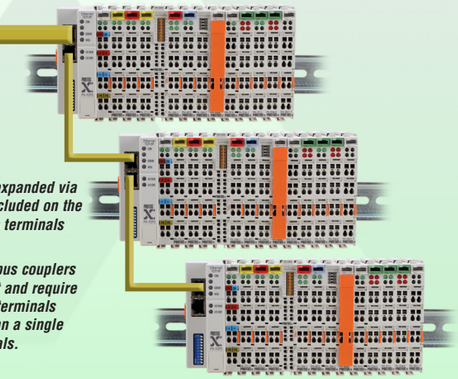




## Unique Design

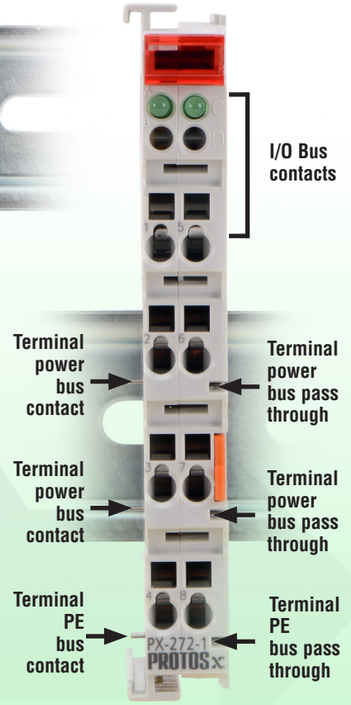
Because of the interlocking design of the terminals, the data and power buses are carried from module to module and picked up only when needed! This unique design allows the system to easily switch the module's required field power while continuing to keep the data bus intact.

This design also makes it simple to provide a specific voltage to a series of modules, like an internal jumper, supplying power from module to module.



***Note: PX-TCP2 (shown) is expanded via the second Ethernet port included on the bus coupler. The expansion terminals are not supported.***

***The PX-TCP1 and PX-EIP1 bus couplers only have one Ethernet port and require the PX-902/903 expansion terminals if you need to add more than a single group or for remote terminals.***



# The Xact I/O you need, where you need it

## Why Remote I/O?

With the infusion of lower-cost PC technology working its way into industrial controllers, PLCs and PLC-based PACs are becoming more and more powerful. Greater processing power and larger memory capacity in these controllers means that you can accomplish more with a single control system. However, the field wiring in these systems becomes increasingly expensive and difficult to manage. It's not practical to think you can control an entire logistical distribution system out of a single control cabinet … You must network.

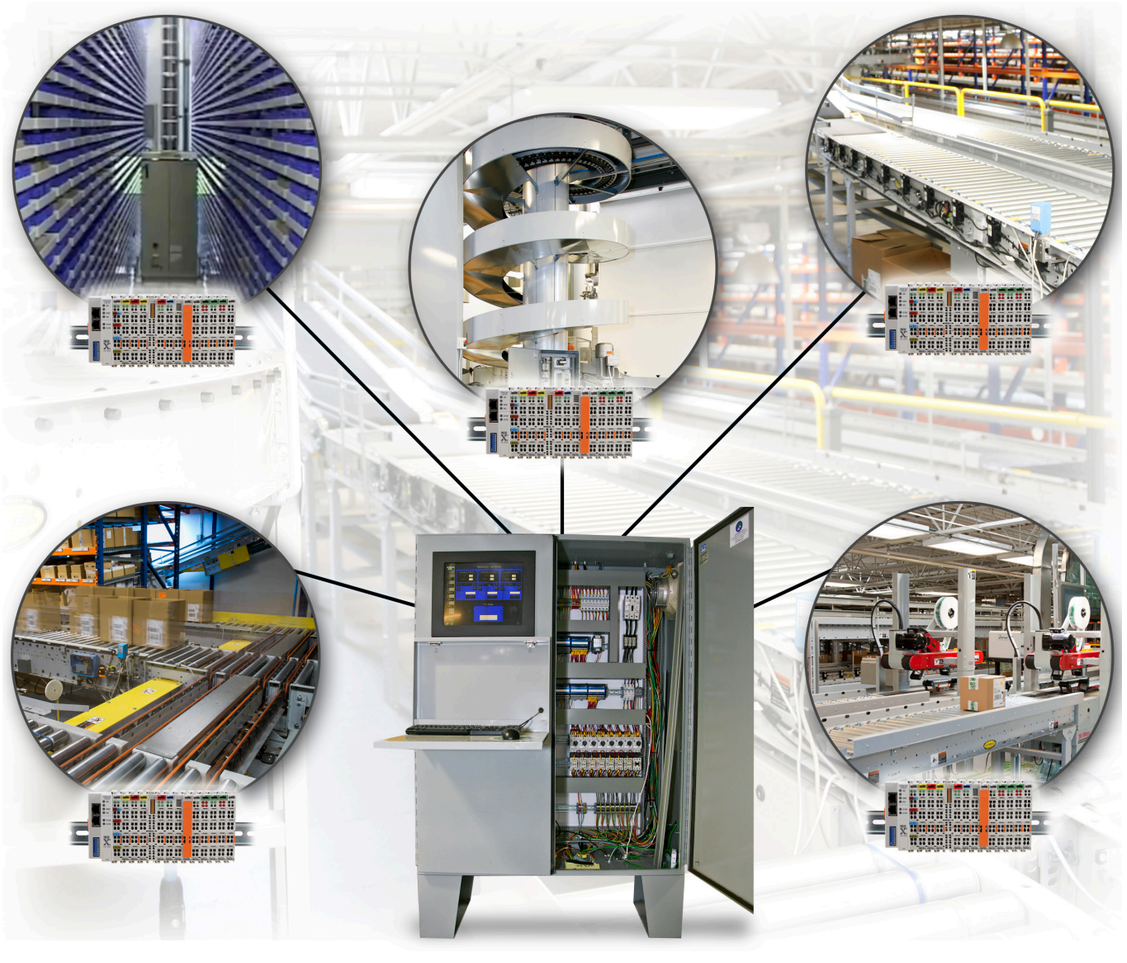
With distributed or remote I/O, you can localize a low-cost I/O solution on or near the equipment you're controlling and monitoring, drastically reducing your field wiring. You can keep the hundreds of control signal wires on the machine and transfer all data back to the main control panel with an off-the-shelf Ethernet or serial cable.

## I/O Where you Need it

The unique slim design and low cost of the Protos X I/O makes it the most practical distributed I/O available today. The ultra slender form factor makes it easy to install on or near your machine or application components. This saves you time and money by eliminating excess field wiring and speeds up troubleshooting.

The slim design also allows you to more precisely select the I/O count you need for your system. By building a system that contains the exact I/O count required and not a lot of extra, unused points, you're only paying for what you need.

This ultra-compact design makes it perfect for those applications where a typical PLC or I/O solution simply would not fit.





For the latest prices, please check AutomationDirect.com.



# With Xcellent options and easy configuration, the choice is clear

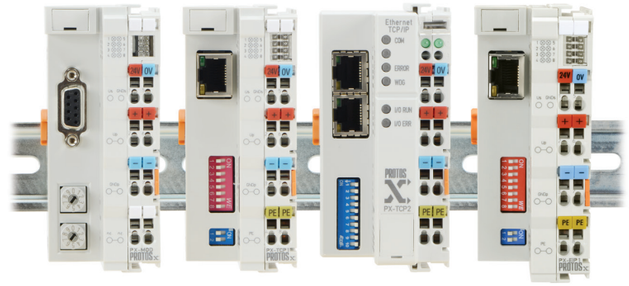
## Bus Couplers

Protos X gets you connected with the most common protocol interfaces. Choose from the Serial Modbus RTU module, EtherNet/IP and Modbus TCP (single port with support for expansion), or our dual-port Modbus TCP interface with a built-in Ethernet switch to easily daisy-chain multiple couplers.

These common bus couplers make it easy for you to expand any system. Select the one that best connects to your control system and use our free configuration utility to configure your system. Within minutes you're ready to control this low-cost I/O.

**Serial Modbus RTU**

PX-MOD



PX-TCP1 PX-TCP2 PX-EIP1

**Ethernet Modbus TCP** **EtherNet/IP**

## Easy Configuration

The PX-CFGSW software is designed to do exactly what you need and nothing more. This quick and easy-to-use configuration utility helps you set up the bus coupler to match the configuration of your network so you're talking in no time. The software also provides a very simple-to-read layout that identifies each terminal with:

- **A** Slot: the physical location of the terminal
- **B** Terminal Name: the part number of the terminal
- **C** Short Description: description of the terminal
- **D** Long Description: more details
- **E** Modbus Range: the Modbus Address for the terminal

## Software Requirements

Purchase on CD - $21.50

Also available for free download:

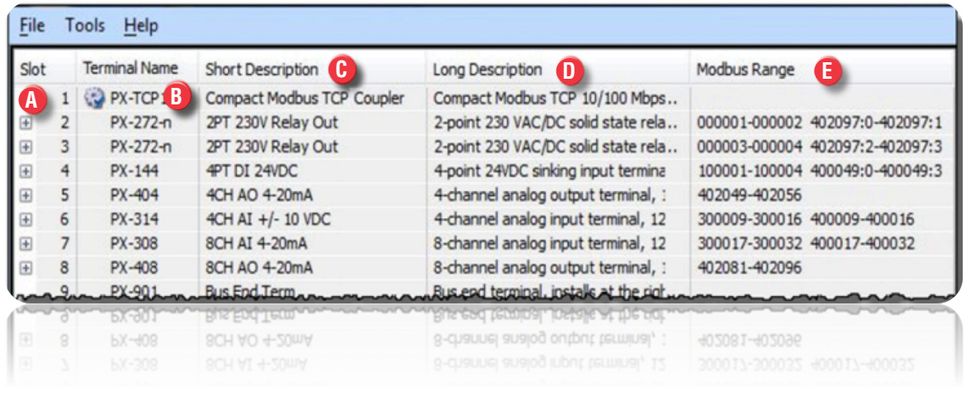
http://support.automationdirect.com/products/pxcfgsw.html

### Operating System Compatibility

- Windows 8.1 - (32 & 64 bit)
- Windows 8 - (32 & 64 bit)
- Windows 7 - (32 & 64 bit)
- Windows Vista - (32 & 64 bit)
- Windows XP

### Hardware Requirements

- Processor: 333 Mhz (XP) 1 Ghz (Win 7 & Win 8)
- Memory: 512 Mb (XP) 1 GB RAM (32-bit) or 2 GB RAM (64-bit)(Win 7 & Win 8)
- HD Space: 300 Mb free space
- Video: None specified



# The Terminator Field I/O System: Great Features at an AutomationDirect Price

## Terminator I/O

### What is it?

Terminator I/O is one of the most practical distributed Field I/O systems you can buy. It combines the I/O points with their field terminations into a modular package to save panel space and money. With Terminator I/O, you can distribute I/O nodes close to field devices for faster and more efficient wiring and trouble-shooting.

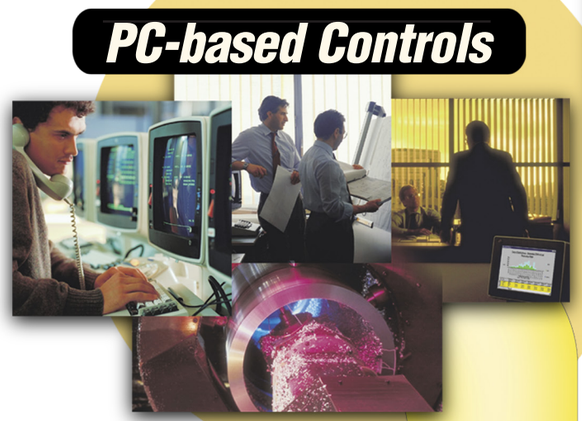
Terminator I/O was custom-designed for us by JTEKT (the same people who designed the original GE Series One PLC), a trusted name in control technology since 1983.

### What's it got?

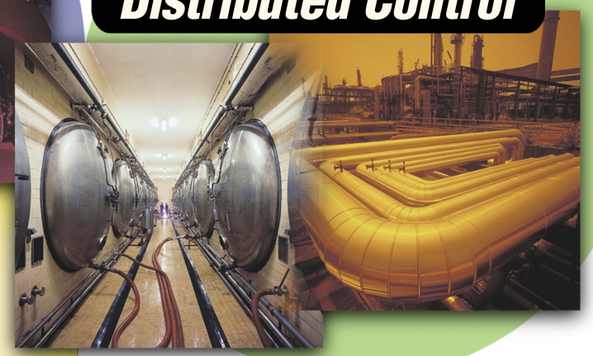
- Network interface modules supporting Ethernet, DeviceNet™, and Modbus; some adapters include an on-board RS-232 serial port.
- Discrete and analog I/O modules with modular terminal bases.
- Configuration flexibility by plugging together a network interface module with up to 16 I/O modules. Use local expansion for large I/O drops. No more confining I/O bases.
- AC or DC power supplies. For high power systems, combine multiple supplies on a single I/O set.
- Horizontal or vertical DIN-rail mounting

### What can I do with it?

- Use Terminator I/O as robust PLC remote I/O with triple stack terminal bases and hot-swap I/O modules.
- Add Terminator I/O to Allen-Bradley, Siemens, Modicon or GE systems for 1/2 to 1/3 the price of their comparable field I/O products.
- Use Terminator I/O as low-cost field I/O for your SCADA, PC-based control system or WinPLC™ system.







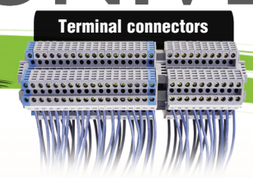

Terminator I/O


Fieldbus network interface modules support:

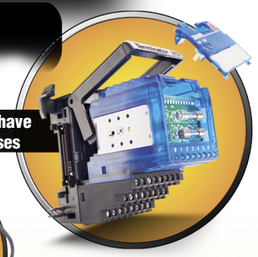
**Ethernet**
**DeviceNet™**
**Modbus®**

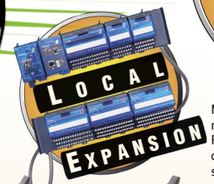
**Starting at $269.00**

**UNIVERSAL I/O**





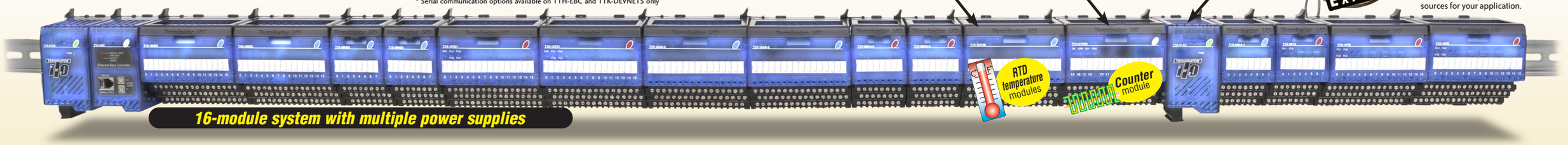

Modules slide into the modular terminal bases. Plug together any combination of modules and power sources for your application.

**Terminator I/O allows you to connect serial devices, like an operator interface panel, along with your I/O, so there's no need to purchase adapters or run additional wiring*.**

* Serial communication options available on T1H-EBC and T1K-DEVNETS only

**Terminator I/O includes specialty modules like our 16-channel RTD temperature module (T1F-16RTD) and the counter module (T1H-CTRIO)**

**Add additional power module where needed**




**16-module system with multiple power supplies**