

Monitoring and Control Solutions

BusWorks® XT Series Brochure

DIN-Rail Mount

USB-Configured

Dual Ethernet



Ethernet Analog and Discrete I/O Modules

Answers @ Acromag

Process Instruments, Signal Conditioners, and Distributed I/O

*Experience counts:
especially when
selecting an I/O
partner. And with
50 years of I/O
experience, Acromag
can help you improve
reliability, increase
productivity and
reduce your costs.*



Acromag: The I/O Leader

Acromag is a customer-driven manufacturer focused on developing embedded I/O products that provide the best long term value in the industry. Compare and you'll find that Acromag products offer an unmatched balance of price, performance, and features.

50 Years of I/O Experience

Acromag has more than 50 years of measurement and control experience. Since 1957, we have delivered nearly a million units to thousands of customers around the globe for manufacturing, power, environmental, transportation, and military applications.

Quality with a 2-Year Warranty

We take every measure to guarantee you dependable operation and products that perform at or beyond the specifications. State-of-the-art manufacturing and military-grade components add an extra degree of ruggedness. Acromag is also certified for ISO9000/AS9100 quality control management procedures.

All trademarks are the property of their respective owners.

Online Ordering

For your convenience, Acromag provides full product documentation and pricing information on our website. You can obtain quotes or even place your order directly on our website.

Fast Delivery from Stock

Most products can be shipped within 24 hours of receiving your order.

Special Services

We are happy to accommodate your special requirements and offer the following services:

- Custom product development
- Custom calibration
- Source inspections, quality audits
- Special shipping, documentation
- Protective humiseal coating
- Plastic and stainless steel tagging

Certification and Approvals

Many Acromag products carry globally recognized agency approvals and safety certifications.

- CE
- Ethernet/IP conformance
- UL, cUL
- Modbus conformance
- Atex
- HART conformance
- CSA



ISO9001
AS9100



Ethernet I/O: BusWorks® XT Series



BusWorks XT Series Ethernet I/O Modules



Introduction

The BusWorks XT series is a rugged, flexible line of Ethernet I/O modules that features channel versatility with housing to reliably withstand harsh industrial environments.

Rugged construction, high density design, and convenient USB programming make these instruments ideal for many applications including: remote monitoring, distributed control, and SCADA.

Key Features and Benefits

- **Convenient Housing.**
22.5mm wide with pluggable, front-facing terminals
- **Simple USB Configuration:**
Free Windows software enables easy setup with a USB-to-PC connection
- **Dual Ethernet:**
Two 10/100Mbps Ethernet ports with auto-negotiation reduce switch port requirements
- **Peer-to-peer Ethernet Communication:**
i2o technology in Modbus units enable module-to-module communication without a controller
- **Fully Isolated:**
I/O, network, and power circuits isolated from each other at 1500V AC for safety and noise immunity
- **Redundant Power:**
Accepts power via terminal block or DIN rail bus connector for simple backup power supplies
- **Wide Ambient Temperature Range:**
Provides reliable operation from -40 to 70°C
- **Built Rugged:**
Shock and vibration resistant, with CE and UL/cUL Class 1 Div 2 Zone 2 approvals and ATEX certification.

Digital I/O

XT1110 16-ch, sinking



Input

- 0-32V DC

Output

- 0-32V DC
- Up to 250mA

[See data sheet](#)

XT1120 16-ch, sourcing



Input

- 0-32V DC

Output

- 0-32V DC
- Up to 300mA

[See data sheet](#)

Analog Input

XT1210 8-ch, current

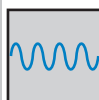


Input

- 0 to 11mA, 0 to 20mA, 4 to 20mA, ±20mA
- 0-20A AC

[See data sheet](#)

XT1230 16-ch, current



Input

- 0 to 11mA, 0 to 20mA, 4 to 20mA, ±20mA
- 0-20A AC

[See data sheet](#)

XT1220 8-ch, voltage

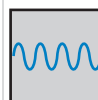


Input

- ±5V, ±10V, 0-5V, 0-10V

[See data sheet](#)

XT1240 16-ch, voltage



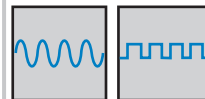
Input

- ±5V, ±10V, 0-5V, 0-10V

[See data sheet](#)

Multi-function

XT1530 4-ch, analog current out 4-ch, discrete I/O



Analog Output

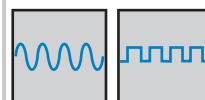
- 0-20mA, 4-20mA

Discrete Input/Output

- 0-32V DC

[See data sheet](#)

XT1540 8-ch, analog voltage out 4-ch, discrete I/O



Analog Output

- ±5V, ±10V

Discrete Input/Output

- 0-32V DC

[See data sheet](#)

Acromag 
THE LEADER IN INDUSTRIAL I/O



Ethernet I/O: BusWorks® XT Series

Key Features

Time-Critical

Each module utilizes Innovasic PriorityChannel™ for determinism at the device regardless of the network load.

Rail Power Bus

Accepts power through the DIN rail bus connector for easy installation of a redundant backup power supply or for multiple units to share a power source.

Daisy-Chaining

Dual Ethernet 10/100 ports allow for flexible device cabling to save space and reduce costs.

Space Saving

A 22.5mm wide, rugged enclosure easily achieves high-density DIN-rail mounting.

Simple Configuration

Digital setup and calibration with straightforward Windows (XP and newer) software via USB.



Rugged Design

Wide ambient temperature operation, shock and vibration-resistant, with CE and UL/cUL Class 1, Division 2, Zone 2 approvals and ATEX certification.



Ethernet I/O: BusWorks® XT Series



Easy Peer-to-Peer Modbus TCP/IP Communication with Acromag i2o®

i2o Input-to-output Communication

Acromag's i2o technology provides the easiest way to link your inputs to your outputs without a PLC, PC or master CPU.

With i2o, many BusWorks XT I/O modules have the ability to operate like a long-distance transmitter. You can convert your sensor inputs at Point A to process control signals at Point B. Or, monitor a discrete device at one site by reproducing the discrete level with a relay output at another location.

Use your existing Ethernet lines to save time and wiring expenses

You can connect the input modules to the output modules using your existing copper/fiber infrastructure or with a single new cable. Multiple I/O modules can be multiplexed through a switch or wireless radios.

No complicated controllers.

No software. No programming.

Acromag's Ethernet I/O modules have a built-in web page making it simple to configure using your standard web browser. Just click a few menu settings, enter the IP addresses, and you are done. Fast and easy.



BusWorks XT Series I/O Modules

XT Series Modules with i2o

Discrete I/O Modules

XT1111 16-channel, sinking outputs

XT1121 16-channel, sourcing outputs

Analog Input Modules

XT1211 8 differential current inputs

XT1221 8 differential voltage inputs

XT1231 16 single-ended current inputs

XT1241 16 single-ended voltage inputs

Multi-function Modules

XT1531 4 analog current outputs, 4-channel digital I/O

XT1541 8 analog voltage outputs, 4-channel digital I/O

Wire-saving Applications

Our i2o technology lets an input module speak directly to an output module. It is ideal for non-critical projects that don't need a PLC or PC master. Reproduce remote signals based on timed or event updates.

- Remote monitoring of process variables (temperature, pressure, level, flow) and discrete devices
- Remote data display, recording, alarms, or control
- Signal splitters
- Analyzer system monitoring
- Power and water utility monitoring
- Tank level, pump, and valve control
- Remote monitoring of motor loads and contactor status
- Remote control switching stations
- Environmental control systems
- Process shutdown, alarming, and annunciator systems
- RFID systems
- Modbus TCP/IP communication only

Peer-to-Peer Modbus TCP/IP Communication

Analog Inputs

±20mA,
4-20mA,
0-20A AC,
0-10V DC
±10V DC

Discrete Inputs

0-32V DC

Any Ethernet Media

Copper, fiber,
wireless, or Internet

Analog Outputs

0-20mA,
4-20mA,
±10V,
±5V

Discrete Outputs

0-32V DC,
up to 300mA





Ethernet I/O: BusWorks® XT Series

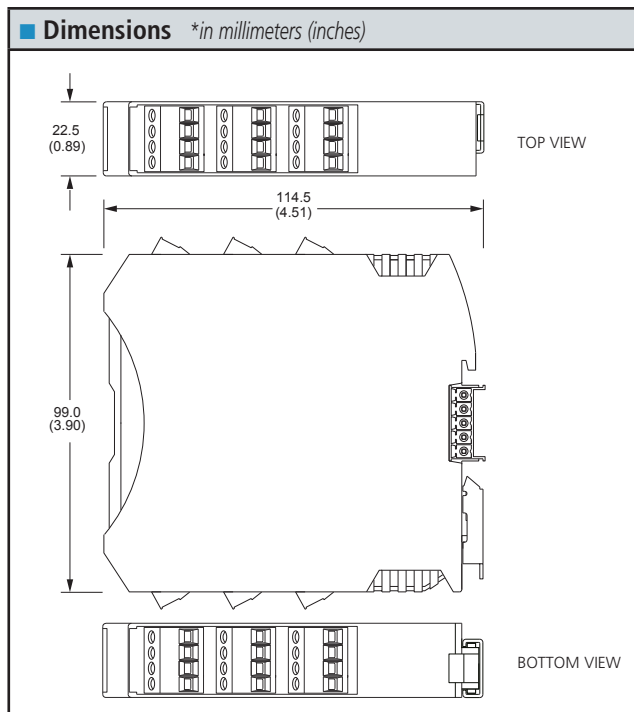
General Operation and Performance Specifications

The following specifications are common to all XT1000 Series transmitter modules.

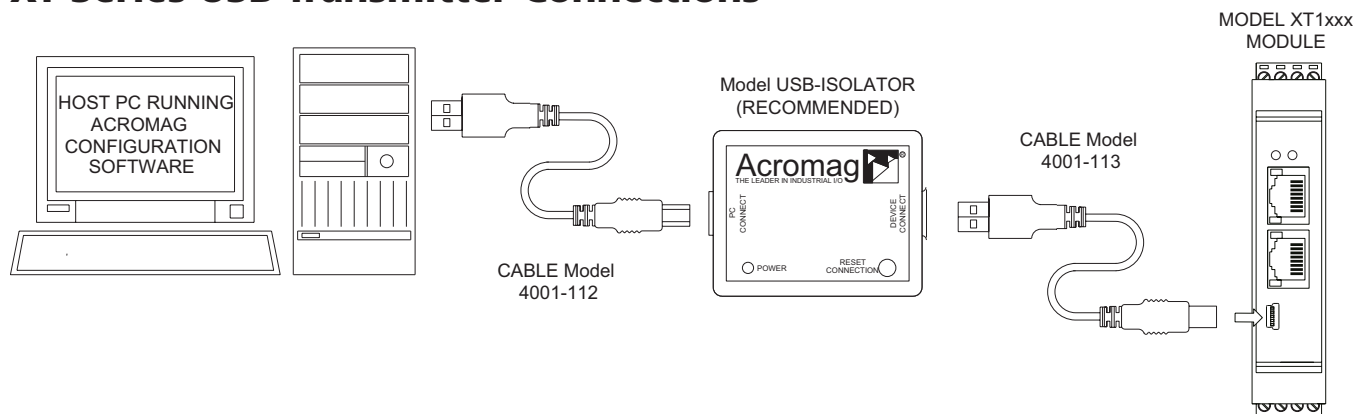
■ USB Interface	
USB Connector	USB Mini-B type socket, 5-pin
USB Data Rate	12Mbps. USB v1.1 and 2.0 compatible

■ Environmental	
Operating Temperature	Varies by module, please see datasheet for details
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	5 to 95% non-condensing
Power Requirement	12-32V DC, see module datasheet for details
Isolation	1500V AC peak. 250V AC (354V DC) continuous isolation between I/O channels, network (each port), and power.
Shock and Vibration Immunity	Vibration: 4g, per IEC 60068-2-64 Shock: 25g, per IEC 60068-2-27
Electromagnetic Compatibility (EMC) Compliance	Radiated Emissions: BS EN 61000-6-4, CISPR 16 RFI: BS EN 61000-6-2, IEC 61000-4-3 Conducted RFI: BS EN 61000-6-2, IEC 61000-4-6 ESD: BS EN 61000-6-2, IEC 61000-4-2 EFT: BS EN 61000-6-2, IEC 61000-4-4 Surge Immunity: BS EN 61000-6-2, IEC 61000-4-5.
Approvals	CE compliant. UL/cUL listing. ATEX Certified. Designed for Class I; Division 2; Groups ABCD; Zone 2.

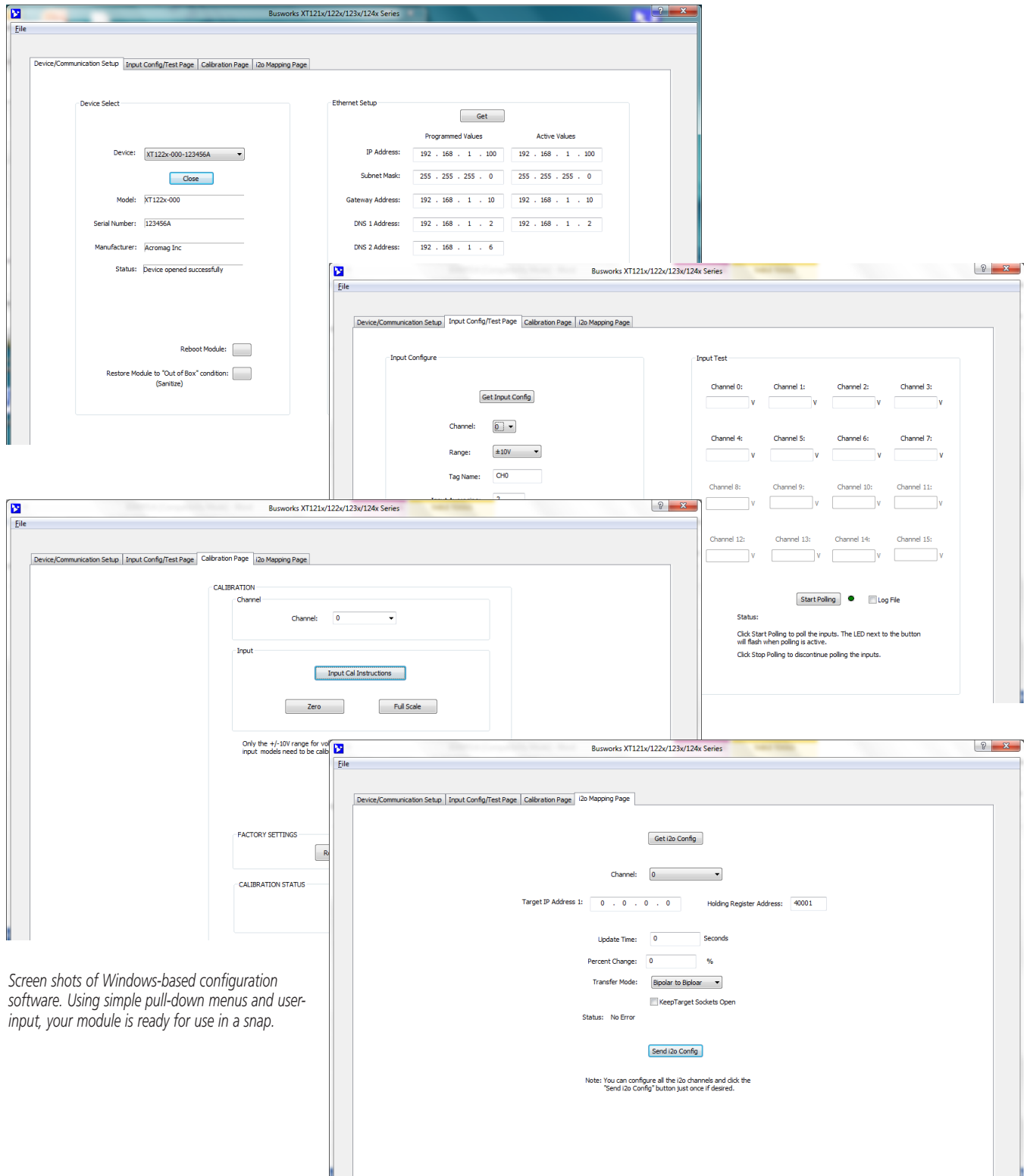
■ Physical	
General	General-purpose enclosure designed for mounting on 35mm "T-type" DIN rail.
Case Material	Self-extinguishing polyamide, UL94 V-0 rated, color light gray. General-purpose NEMA Type 1 enclosure.
I/O Connectors	Removable plug-in terminal blocks rated for 12A/250V; AWG #26-12, stranded or solid copper wire.
Shipping Weight	0.22 kg (0.5 pounds) packed



XT Series USB Transmitter Connections



Module Configuration



Screen shots of Windows-based configuration software. Using simple pull-down menus and user input, your module is ready for use in a snap.



Ethernet I/O: BusWorks® XT Series

XTA Relay I/O Modules



Mechanical Output and Solid-State Input Relay Modules

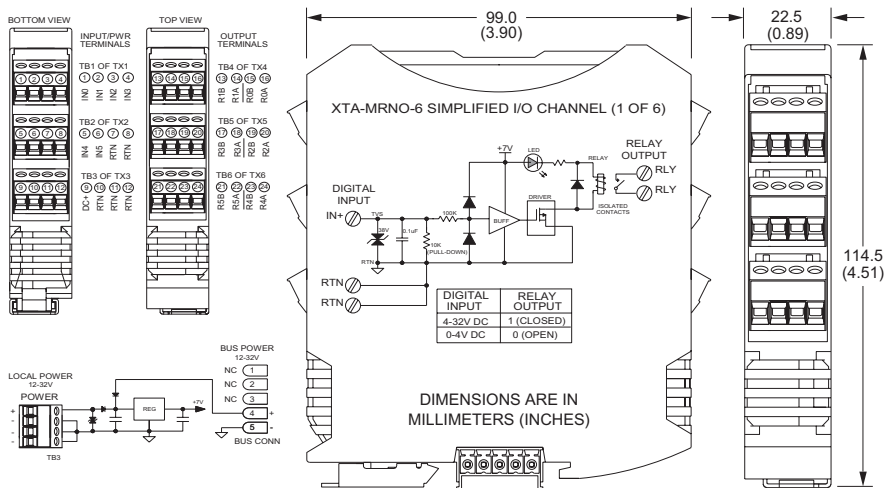
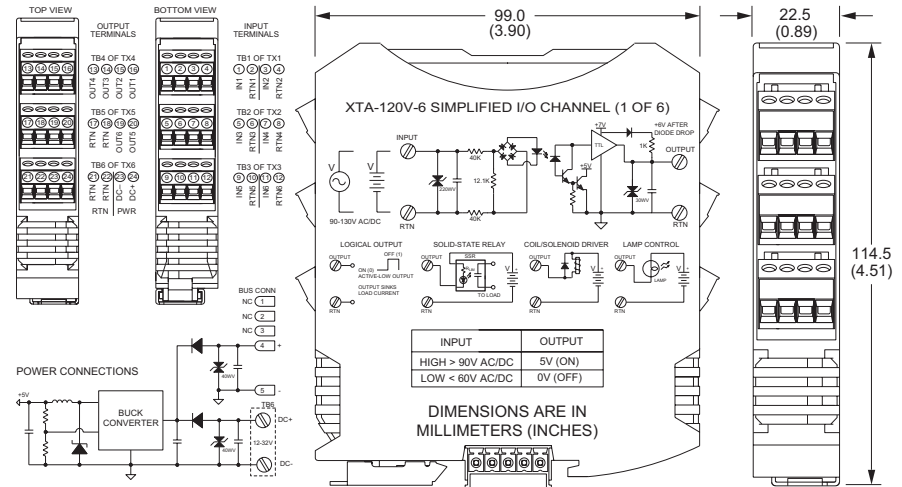
Acromag's discrete I/O mechanical relay and optocoupler modules pack in 6 isolated channels per unit for a high-density solution in a small, 12.5mm wide package.

Made to work cohesively with Acromag's BusWorkst XT Ethernet I/O line, they also integrate easily with any discrete I/O products. Each module is designed for ATEX and CE and UL/cUL Class 1 Div 2 standards and built rugged for more demanding conditions.

XTA-120V Solid-State Relay

The optocoupler module XTA-120V monitors on-off and power supply voltage levels to drive open-drain outputs. Each channel senses the status from proximity/limit/toggle switches, push buttons, contacts, and other solid-state logic devices.

- **Six High-Level Voltage Inputs:**
0-130Vrms or $\pm 130V$ DC
- **Six Logic-Level Outputs:**
Open-drain: 1Kohms pull-up to +5.3V DC
0-32V DC max, 150mA sink
- **Built-In Hysteresis:**
Optimized for mains power at 120Vrms



XTA-MRNO Mechanical Relay

Helping to drive high energy loads, the XTA-MRNO mechanical relay output module serves as an interim digital interface to switch high voltage devices at high currents based on digital logic inputs.

- **Six Buffered Digital Logic Inputs:**
4-32V digital logic
- **Six Mechanical Relay Outputs:**
Relays drive up to 250V AC/30V DC at 5A
- **Mechanical Relay Contacts:**
Normally open, sealed, Form A mechanical relay contacts (SPST-NO)

Ethernet I/O: BusWorks® XT Series



Accessories

◆ Configuration Software



XT Series Configuration

Simple to use, whether you need the full software interface package (includes USB isolator and cables) or just the configuration software itself. Acromag makes it easy to get started.

Ordering Information

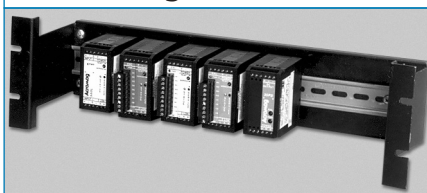
XT-SIP

Software Interface Package, includes: configuration software CD-ROM, USB-Isolator, two USB cables (4001-112, 4001-113), and Ethernet cable (5035-360).

XT-CONFIG

Free download of XT Transmitter Configuration Software.

◆ Mounting Hardware



Din-Rail Mounting

For your convenience, Acromag offers several mounting accessories to simplify your system installation. Our 19" rack-mount kit provides a clean solution for mounting your I/O modules and a power supply. Or you can buy precut DIN rail strips for mounting on any flat surface.

Ordering Information

20RM-16-DIN

19" rack-mount kit with DIN rail.

DIN RAIL 3.0

DIN RAIL 16.7

DIN rail strip, Type T, 3 inches (75mm) or 16.7 inches (425mm)

◆ Power Supplies



Universal Slimline Power Supplies

Input Power Requirement
85 to 264V AC or 105 to 370V DC

Output
5V DC, 12V DC, or 24V DC
10W to 240W

Ordering Information

PSSR-SD24

Power supply, 60W, 2.5A at 24V DC

Visit www.acromag.com for additional models and more information.

◆ USB Isolator and Cables



USB-to-USB Isolator

This compact, industrial-grade isolator provides a high-voltage isolation barrier between a computer and a connected USB device; protecting equipment from electrical surges, transient voltage spikes, and ground loop currents.

Ordering Information

USB-Isolator

USB isolator, includes USB cable (Part # 4001-112) for isolator-to-PC connection

◆ USB Cables



Cables for both PC-to-USB isolator and USB isolator-to-transmitter connections.

Ordering Information

4001-112

USB Cable, Type A to Type B, 1 meter

4001-113

USB Cable, Type A to Mini-B, 1 meter