



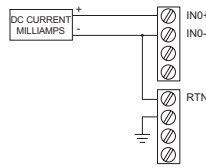
# Ethernet I/O: BusWorks® XT Series

## XT1210 Ethernet Analog Current Input Modules

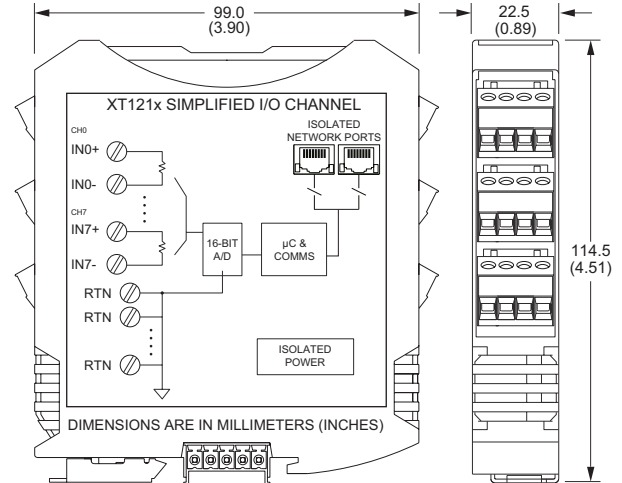
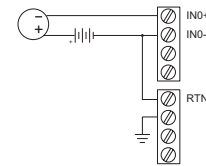


### EXAMPLE INPUT CONNECTIONS

#### SOURCED DC CURRENT



#### TWO-WIRE CONNECTION



8-channel differential analog current input ♦ Modbus TCP/IP, Ethernet/IP, Profinet, or i2o communication

### Description

The XT1210 offers an Ethernet network interface for up to eight differential current input channels. Differential inputs deliver better measurements and superior noise rejection.

Rugged construction, high density design, and easy USB-to-PC/Windows setup combine for a very effective and reliable module. These units are ideal for remote monitoring, distributed control, or SCADA applications.

### Input Ranges

0 to 11mA, 0 to 20mA, 4 to 20mA,  $\pm 20$ mA  
0 to 20 amps AC (with optional AC sensor)

### Ethernet Communication

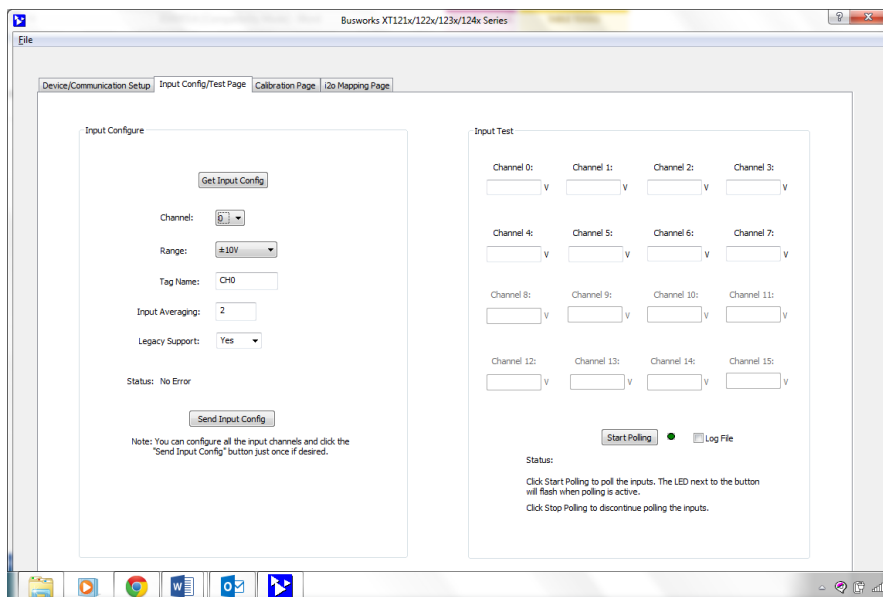
Modbus TCP/IP, Ethernet/IP, Profinet, i2o® peer-to-peer, 10/100Base-T(X) PriorityChannel™ device determinism

### Power Requirement

12 to 32V DC (2.8W)

### Key Features & Benefits

- Easy setup with Windows software via USB
- Low input impedance (27 ohms) reduces loading on current loops
- User-configurable sample averaging (1-200) on a per-channel basis
- 10ms network updates for all 8 input channels
- i2o peer-to-peer updates based on percent-of-change and/or timed updates
- High-resolution 16-bit  $\Sigma$ - $\Delta$  A/D converter ensures precise, high accuracy measurements
- High-Density 22.5mm wide package with pluggable, front-facing terminals
- Dual Ethernet 10/100 ports (auto-negotiation) reduce switch port requirements
- 1500V AC isolation (between I/O, power, and network ports) and surge/transient protection
- Supports bussed/rail and redundant power
- -40°C to +70°C wide temperature operation
- Withstands 25g shock and 4g vibration
- CE compliant. UL/cUL Class 1 Div 2 Zone 2 approval. ATEX Certified.



BusWorks XT software (download free from [www.acromag.com](http://www.acromag.com)) allows you to configure I/O modules offline with USB or save the configuration file and download settings into units later at your convenience.



Tel 877-214-6267 ■ [sales@acromag.com](mailto:sales@acromag.com) ■ [www.acromag.com](http://www.acromag.com) ■ 30765 Wixom Rd, Wixom, MI 48393 USA



# Ethernet I/O: BusWorks® XT Series

## XT1210 Ethernet Analog Current Input Modules

### Performance Specifications

**IMPORTANT:** To prevent damage or errors from grounded PCs and surges, Acromag strongly recommends use of the USB-ISOLATOR when configuring an XT1000 I/O module.

#### ■ USB Interface

##### USB Connector

Type: USB Mini-B type socket, 5-pin.  
Data rate: 12Mbps. USB v1.1 and 2.0 compatible.  
Maximum cable length: 5.0 meters.

##### USB Transient Protection

Transient voltage suppression on power and data lines.

##### Driver

Not required. Uses Windows HID drivers.

#### ■ Input

##### Accuracy

±0.05% of span, typical for nominal input ranges.

##### Analog to Digital Converter (A/D)

16-bit  $\Sigma\Delta$  converter. 1.476uA/bit resolution.

##### Noise Rejection

Better than -110dB @ 60Hz.

##### Input Filter Bandwidth

-3dB at 25KHz, typical.

##### Input Conversion Rate

10ms for all 8 input channels.

##### Input Impedance

27.4 ohms.

#### ■ Ethernet Communication

##### Protocols

Modbus TCP/IP, i2o peer-to-peer, Ethernet/IP, or Profinet depending on model number.

##### Ethernet Communication Controller

Innovasic RapID™ Platform with PriorityChannel™ for determinism at the device regardless of network load.

##### Modbus TCP/IP (slave)

Port 502 reserved. Supports up to 10 sockets.

##### i2o Peer-to-Peer (master/slave)

Can map each of 8 analog input channels separately to output channels. Timed (1-65535 sec) or percent-of-change updates. Supports GPRS/GSM systems.

##### Ethernet/IP (adapter)

Supports 10 connections. EDS file on website.

##### Profinet (server)

Supports 1 connection. GSDML file on website.

##### Connectors

Two shielded 8-pin RJ-45 sockets, 10BaseT/100BaseTX

##### Wiring

Auto-crossover for MDI or MDI-X.

##### IP Address

User-configurable. 192.168.1.100 default IP address.

##### Data Rate

Auto-negotiated, 10Mbps or 100Mbps.

##### Compliance

IEEE 802.3, 802.3u, 802.3x.

#### ■ Environmental

##### Operating Temperature

-40 to 70°C (-40 to 158°F).

##### Storage Temperature

-40 to 85°C (-40 to 185°F).

##### Relative Humidity

5 to 95% non-condensing.

##### MTBF

478,854 hrs. at 25°C.

359,078 hrs. at 40°C.

##### Power Requirement

12 to 32V DC, 2.8W maximum

(116mA maximum @ 24V).

##### Isolation

4-way isolation between I/O channels, network (each port), and power.

Peak: 1500V AC, ANSI/ISA-82.01-1988.

Continuous: 250V AC, 354V DC.

##### 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 listed. ATEX Certified.

Designed for Class I; Division 2; Groups ABCD; Zone 2.

#### ■ Physical

##### General

General purpose plastic enclosure 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.

##### Circuit Board

Military grade fire-retardant epoxy glass (IPC-4101/98).

##### I/O Connectors

Removable plug-in type terminal blocks rated for 12A/250V; AWG #26-12, stranded/solid copper wire.

##### Dimensions

Width = 22.5mm (0.9 inches), Length = 114.5mm (4.51 inches), Depth = 99.0mm (3.90 inches).

##### Shipping Weight

0.5 pounds (0.22 Kg) packed.

### Ordering Information

#### ◆ Models

[Go to on-line ordering page >](#)

##### XT1211-000

8-channel differential current input module, Modbus/TCP and i2o protocol.

##### XT1212-000

8-channel differential current input module, Ethernet/IP protocol.

##### XT1213-000

8-channel differential current input module, Profinet protocol.

#### ◆ Software

XT-SIP ([recommend one kit per customer](#))

Software Interface Package. Includes software (XT-CONFIG), isolator (USB-ISOLATOR), two USB cables (4001-112, 4001-113), Ethernet cable (5035-360).

#### ◆ Accessories

##### XTBUS-KIT

DIN rail bus power/excitation connector kit. Includes one DIN rail bus connector (1005-070), one left-side female connector terminal block (1005-220) and one right side male connector terminal block (1005-221).

##### USB-ISOLATOR

USB-to-USB isolator, includes USB cable (4001-112).

##### 5020-350

AC current sensor (toroidal transformer).

Converts 0-20A AC to 0-11.17mA DC.

##### PS5R-VD24

Power supply (24V DC, 2.5A).

##### DIN RAIL 3.0

##### DIN RAIL 16.7

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

##### 20RM-16-DIN

19" rack-mount kit with DIN rail.

ISO9001  
AS9100   
MADE IN USA

**Acromag**   
THE LEADER IN INDUSTRIAL I/O

Tel 877-214-6267 ■ [sales@acromag.com](mailto:sales@acromag.com) ■ [www.acromag.com](http://www.acromag.com) ■ 30765 Wixom Rd, Wixom, MI 48393 USA