Product Datasheet - Technical Specifications

More information in our Web-Shop at ▶ **www.meilhaus.com**

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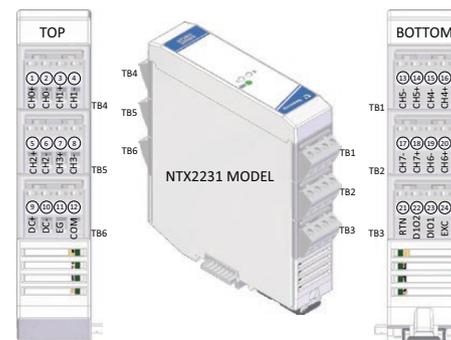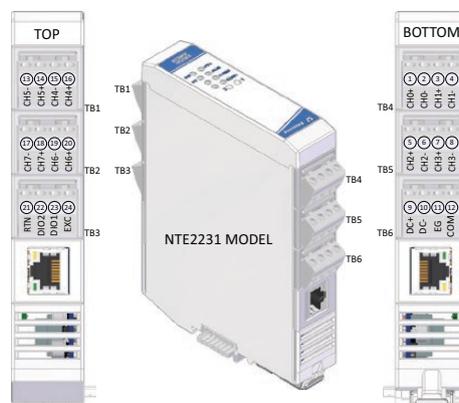
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Ethernet I/O: BusWorks® NT Series

NT2230 Ethernet Analog I/O Modules

CE | 24 HOUR STOCK ITEM | 2 YEAR WARRANTY | RoHS Compliant

Modbus TCP/IP
EtherNet/IP
PROFINET
i2o

TOP — NTE2231 MODEL — **BOTTOM**

TOP — NTX2231 MODEL — **BOTTOM**

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8 differential voltage inputs ◆ 2 discrete I/O ◆ Ethernet I/O plus Expansion I/O ◆ Multi-protocol support

The BusWorks® NT2000 series offers a cost-effective, modular solution for Ethernet remote I/O systems. Two module types are available. NTE Ethernet models provide the protocol interface plus I/O signal processing channels. NTX expansion modules add extra I/O channels when mated to any NTE Ethernet communication module.

NT2230 modules offer 8 voltage inputs and 2 bidirectional discrete digital I/O channels. Each input has true differential 16-bit A/D. NTE Ethernet models provide a compact network interface to monitor sensor levels or 0-10V devices. Appending NTX expansion models can interface up to 32 differential voltage inputs on a single IP address.
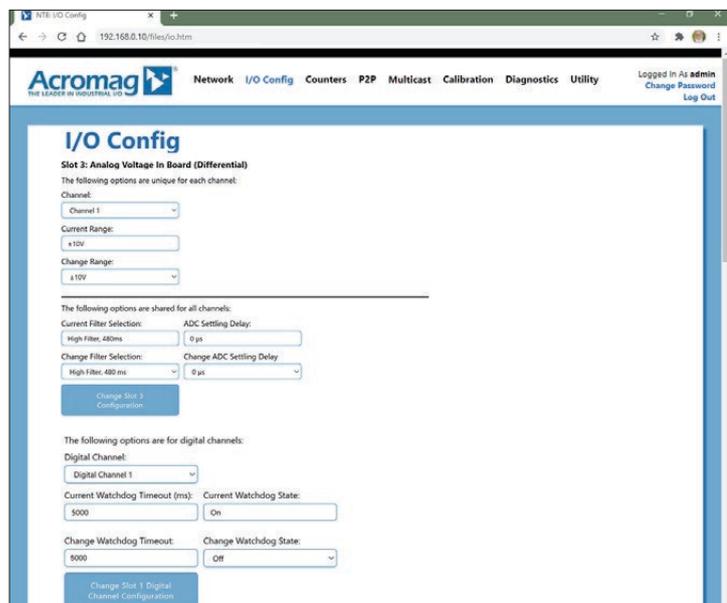
Applications include collecting pressure, HVAC levels, temperature, and other data at sensors, transducers, or transmitters. The 0-10V signal is very commonly used for automation and environmental controllers.

An isolated RS-485 bus links up to three expansion modules to the Ethernet module with connectors that join along the DIN rail. This internal NT bus distributes power and communication between the modules. Users can mix analog, temperature, and discrete I/O modules across the NT bus.

Acromag's i2o® messaging technology allows direct peer-to-peer or multicast communication between remote modules without a master controller.

Easily configure I/O modules using any web browser.

Key Features & Benefits

- Configured over Ethernet with web browser
- Expandable I/O capacity, up to 64 I/O channels of mixed signal types on one IP address
- Field-selectable Modbus TCP/IP, *Ethernet/IP, or *Profinet communication
- i2o peer-to-peer or multicast communication
- Dual RJ45 ports enable daisy chain topology
- Eight voltage inputs with true differential node pairs referenced to input common
- Accepts ±1/5/10V and 0 to 1/5/10V inputs
- Discrete I/O can provide limit alarms for current inputs or monitor TTL or 32V logic levels
- *OPC-UA, *MQTT and *RESTful API IIoT support
- *Conditional logic for rule-based I/O operation
- Advanced *alarm and *data logging functions
- 1500V isolation between I/O, network, and power
- Thin 25mm housing with pluggable terminals
- Wide temperature operation (-40 to 70°C)
- CE compliant. UL/cUL Class 1 Div 2 and ATEX/IECEx Zone 2 approvals (pending)

* Coming soon. Consult factory for availability.

Acromag ®
THE LEADER IN INDUSTRIAL I/O

Ethernet I/O: BusWorks® NT Series

NT2230 Ethernet Analog I/O Modules

Performance Specifications

■ Ethernet Interface (NTE models only)

Communication
Configurable for Modbus TCP/IP, Ethernet/IP, or Profinet. Ethernet/IP, Profinet support coming soon.

10/100Mbps data rate, auto-sensing.

IP Address
Default 192.168.0.10. Configurable static IP or DHCP.

■ Analog Inputs

A/D Converter
Eight input channels differentially multiplexed to a 24 bit sigma-delta ADC through unity gain differential buffers (only 16-bits are used).

Input Current Ranges
±1V, ±5V, ±10V, 0-1V, 0-5V, 0-10V. Inputs are referenced to input common (COM) using resistive dividers at each input node and do not float.

Input Accuracy
Better than ±0.05% of span typical, ±0.1% maximum.

■ Discrete Inputs (Active-Low)

Input Signal Voltage Range
0 to +32V DC.

Input Current
280µA, typical at 32V DC.

Input Signal Threshold
TTL compatible w/100mV of hysteresis, typical.
1.7V DC Low-to-High, 1.6V DC High-to-Low.
0.8V DC TTL LOW limit, 2.0V DC TTL HIGH limit.

Input Resistance
100K ohms typical (input only), ~10K ohms with internal pull-ups.

Input Response Time
5ms typical, not including network time.

■ Discrete Outputs (Sinking)

Output "OFF" Voltage Range
0 to 32V DC.

Output "ON" Current Range
0 to 250mA DC, continuous.

Output Rds ON Resistance
0.8 ohms typical, 1.6 ohms maximum.

Output Response Time
5ms typical. Does not include network time.

■ General I/O

Input Update/Conversion Rate
Fresh data available to the network every 10ms.

Response Time from an Ethernet command
Less than 5ms, typical.

Excitation
External voltage of 4-32V required between I/O EXC and any RTN for DI/O. Excitation must source 52mA minimum (at 32V). For 2 channels at 250mA max rated load, excitation must source 0.5A min.

I/O Pull-Ups (Internal)
Each discrete I/O channel has a 10KΩ pull-up to EXC to pull the tandem open drain output and input high/OFF.

■ Environmental and Physical

Temperature and Humidity
Operating: -40 to +70°C (-40 to +158°F).
Storage: -40 to +85°C (-40 to +185°F).
Relative Humidity: 5 to 95%, non-condensing.

Isolation
1500V AC for 60 seconds and 250V AC or 354V DC continuous between I/O channels (group), each network port and power circuits.

Power Supply
9-32V DC SELV power wired to NTE model only.
Power to NTX models is via NT bus connection.

Power Consumption
NTE2231: <=1.5W (input).
NTX2231: <=0.5W max. (each).

Dimensions (width x height x depth)
NTE: 25 x 116.9 x 139.2 mm (0.98 x 4.6 x 5.48 inches).
NTX: 25 x 116.9 x 116.65 mm (0.98 x 4.6 x 4.59 inches).

Weight
NTE: 0.5 lbs (0.23 kg).
NTX: 0.3 lbs (0.14 kg).

■ Standards and Certifications

Electromagnetic Compatibility (EMC)
CE marked, per EMC Directive 2004/108/EC.

Safety Approvals
UL/cUL: Class I; Div 2; Groups A, B, C, D (pending).
ATEX/IECEx: Zone 2 (pending).

Ordering Information

■ Models

NTE2231-1111
Ethernet I/O module with dual RJ45 ports, 8 differential voltage inputs and 2 discrete I/O

NTX2231-0011
Expansion I/O module with 8 differential voltage inputs and 2 discrete I/O

■ Accessories

5035-369
5035-370
Ethernet patch cable, low EMI, double-shielded. 3 feet (5035-369) or 15 feet (5035-370).

PS5R-VB24
Power supply, 24V DC, 15W output.

ISO9001
AS9100

MADE IN USA

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