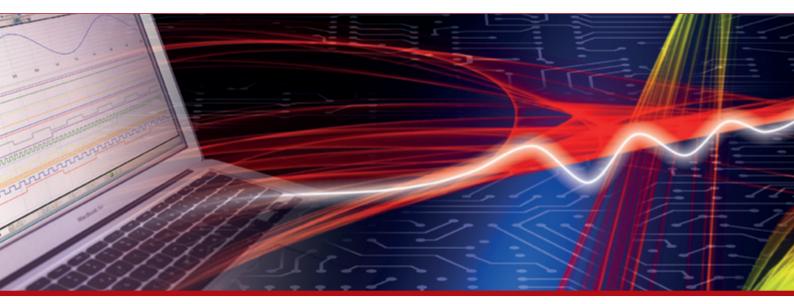# Product Datasheet - Technical Specifications

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

Your contact

Technical and commercial sales, price information, quotations, demo/test equipment, consulting:

Tel.:   **+49 - (0)81 41 - 52 71-0**

FAX: **+49 - (0)81 41 - 52 71-129**

E-Mail: **sales@meilhaus.com**

www.meilhaus.com

NT2220 Ethernet Analog I/O Modules

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

Modbus TCP/IP
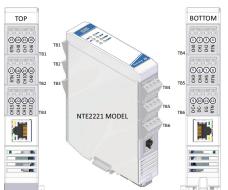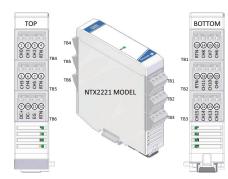EtherNet/IP
PROFINET
i2o

NTE2221 MODEL

NTX2221 MODEL

16 single-ended current inputs ◆ 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.

NT2240 modules offer 16 current inputs. Each input supports bipolar and unipolar ranges with 16-bit A/D. NTE Ethernet models provide a compact network interface to monitor sensor levels or 4-20mA loops. Appending NTX expansion models can interface up to 64 current inputs on a single IP address.
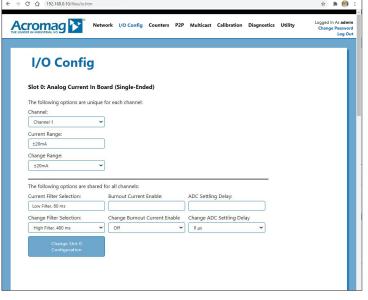
Applications include collecting pressure, level, flow, temperature, and other data at sensors, transducers, or transmitters. The 4-20mA current loop is the most common process control signal in many industries.

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.

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
- 16 single-ended current inputs that share common
- Accepts ±20mA, 0/4-20mA, and 0/10-50mA input
- Measures AC current input with optional sensor
- LED status indicators for visual troubleshooting
- *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.

Easily configure I/O modules using any web browser.

I/O Config

Slot 0: Analog Current In Board (Single-Ended)

The following options are unique for each channel:

Channel:
Channel 1

Current Range:
±20mA

Change Range:
±20mA

The following options are shared for all channels:

Current Filter Selection: Low Filter, 80 ms
Burnout Current Enable:
ADC Settling Delay:

Change Filter Selection: High Filter, 480 ms
Change Burnout Current Enable: Off
Change ADC Settling Delay: 0 µs

Change Slot 0 Configuration

Acromag
THE LEADER IN INDUSTRIAL I/O

Ethernet I/O: BusWorks® NT Series

NT2220 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
16 input channels multiplexed to a 24 bit sigma-delta ADC through precision resistors and unity-gain buffers using a 16-bit bipolar conversion scheme.

Input Current Ranges
±20mA, 0-20mA, 4-20mA, 0-50mA and 10-50mA.
0-11.17mA range for use with 0-20A AC current sensing toroidal instrument transformer (5020-350).
Input channels are single-ended inputs that share a common return connection.

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

Input Measurement Temperature Drift
Better than ±50ppm/°C (±0.0050%/°C).

Input Update/Conversion Rate
Response time will vary as filtering is increased. The fastest response time is less than 1ms typical.

Input Overvoltage Protection
Bipolar Transient Voltage Suppressers (TVS) with 5.5V clamp level. Inputs also include triple diode over-voltage clamps.

Input Impedance
49.9Ω shunt resistor.

Input Filter
Normal mode filtering fixed per input type.

■ 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.

■ 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
NTE2221: <=1.5W (input).
NTX2221: <=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

NTE2221-1111
Ethernet I/O module with dual RJ45 ports, 16 single-ended current inputs

NTX2221-0011
Expansion I/O module with 16 single-ended current inputs

■ Accessories

5020-350
Toroidal 0 to 20A AC current sensor.

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

Acromag
THE LEADER IN INDUSTRIAL I/O