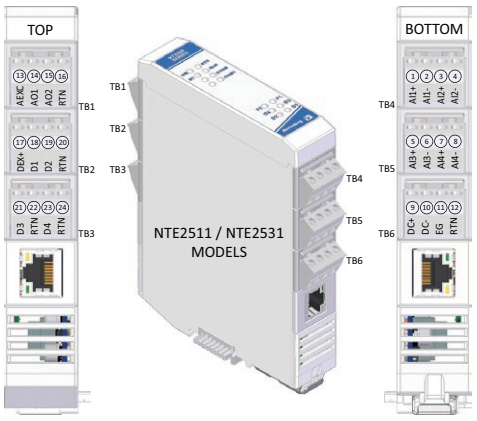
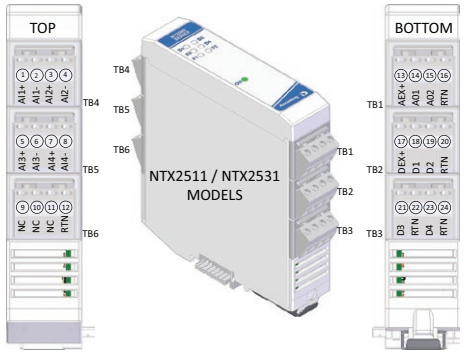
# Ethernet I/O: BusWorks® NT Series

## NT2510/2530 Ethernet Multi-Function I/O Modules

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

Modbus TCP/IP | EtherNet/IP | PROFINET




**4 analog inputs ◆ 2 analog outputs ◆ 4 discrete I/O ◆ Ethernet I/O plus Expansion I/O ◆ Multi-protocol support**

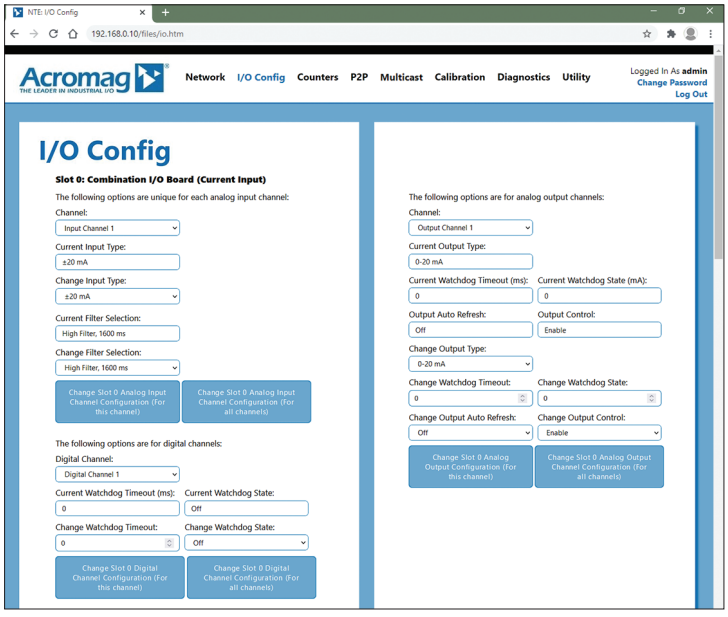
The BusWorks® NT2000 series offers a cost-effective, modular solution for Ethernet remote I/O systems. Two module types are available. NTE Ethernet models provide the protocol interface plus I/O signal processing channels. NTX expansion modules can add extra I/O channels when mated to any NTE Ethernet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

NT2510 modules offer 4 current inputs, 2 current outputs, and 4 discrete I/O channels. NT2530 models have voltage input. NTE Ethernet models provide a network interface to monitor and control I/O signals. Appending NTX expansion models can interface up to 24 analog and 16 discrete I/O on a single IP address

Applications include monitoring and controlling analog signals representing temperature, pressure, level, and flow. Discrete I/O sense and control levels on motors, lamps, valves, and other equipment.

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 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 58 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
- Four differential analog inputs
  current ranges: 0/4-20mA, ±20mA, 0/10-50mA
  voltage ranges: 0-1/5/10V, ±1/5/10V
- Two process current 0/4-20mA outputs (optional)
- Four tandem discrete I/O for TTL or 32V input
- *OPC-UA, *MQTT and *RESTful API IIoT support
- Conditional logic for rule-based I/O operation
- Advanced *alarm and *data logging functions
- 1500V isolation from I/O to network and power
- Thin 25mm housing with pluggable terminals
- Wide temperature operation (-40 to 70°C)
- CE compliant. Hazardous approval pending.

* Coming soon. Consult factory for availability.

Acromag® THE LEADER IN INDUSTRIAL I/O

Tel 877-214-6267 ■ sales@acromag.com ■ www.acromag.com ■ 30765 Wixom Rd, Wixom, MI 48393 USA

# Ethernet I/O: BusWorks® NT Series

## NT2510/2530 Ethernet Multi-Function I/O Modules

## Performance Specifications

### Ethernet Interface (NTE models only)

**Communication**
Configurable for Modbus TCP/IP and EtherNet/IP, and Profinet.

10/100Mbps data rate, auto-sensing.

**IP Address**
Default 192.168.0.10. Configurable static IP or DHCP.

### Analog Inputs

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

**Input Current Ranges (NT2510 models)**
±20mA, 0-20mA, 4-20mA, 0-50mA, or 10-50mA.

**Input Voltage Ranges (NT2530 models)**
±1V, ±5V, ±10V, 0-1V, 0-5V, 0-10V.

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

### Analog Outputs

**NT2511, 2531 models only**
**D/A Converter**
Two current output channels driven by a 16-bit DAC.

**Output Current Ranges**
0-20mA, 4-20mA.

**Output Accuracy**
Factory calibrated to better than ±0.1% of span. Manual calibration can be better than ±0.05%.

**Output Excitation**
Two excitation inputs for 12V and 24V sources.

### Discrete Inputs (Active-high)

**Input Signal Voltage Range**
0 to 32VDC.

**Input Signal Threshold**
TTL compatible w/100mV of hysteresis, typical.
Low-to-High threshold: 1.7VDC, typical.
High-to-Low threshold: 1.6VDC, typical.
TTL logic limit - LOW: 0.8V DC max.
TTL logic limit – HIGH: 2.0VDC min.

**Tandem I/O Channels**
Inputs support loop-back monitoring of output state.

### Discrete Outputs (Sourcing)

**Output "ON" Voltage Range**
TTC (6V) to 32V DC.

**Output "ON" Current Range**
0 to 300mA DC, continuous.

### General I/O

**Input Update/Conversion Rate**
Fresh data available to the network every 10mS.
Dependent on number of samples with averaging.

**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. Note, network isolation is <1500V.

**Power Supply**
10-32V DC SELV power wired to NTE models only. Power to NTX models is via NT bus connection.

**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

Go to on-line ordering page >

**NTE2511-1111**
Ethernet I/O module with dual RJ45 ports, 4 current inputs, 2 current outputs, 4 discrete I/O

**NTX2511-0011**
Expansion I/O module with 4 current inputs, 2 current outputs, 4 discrete I/O

**NTE2512-1111**
Ethernet I/O module with dual RJ45 ports, 4 current inputs, 4 discrete I/O

**NTX2512-0011**
Expansion I/O module with 4 current inputs, 4 discrete I/O

**NTE2531-1111**
Ethernet I/O module with dual RJ45 ports, 4 voltage inputs, 2 current outputs, 4 discrete I/O

**NTX2531-0011**
Expansion I/O module with 4 voltage inputs, 2 current outputs, 4 discrete I/O

**NTE2532-1111**
Ethernet I/O module with dual RJ45 ports, 4 voltage inputs, 4 discrete I/O

**NTX2532-0011**
Expansion I/O module with 4 voltage inputs, 4 discrete I/O

### Accessories

**5020-350**
Toroidal 0 to 20A AC current sensor. 0-11, 17mA output.

**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.

See www.acromag.com for other sizes.

ISO9001
AS9100
MADE IN USA

Acromag®
THE LEADER IN INDUSTRIAL I/O

Tel 877-214-6267 ■ sales@acromag.com ■ www.acromag.com ■ 30765 Wixom Rd, Wixom, MI 48393 USA

*All trademarks are property of their respective owners. Copyright © Acromag, Inc. 2023. Data subject to change without notice. Printed in USA 06/03/2024*