# MEILHAUS ELECTRONIC

## Product Datasheet - Technical Specifications

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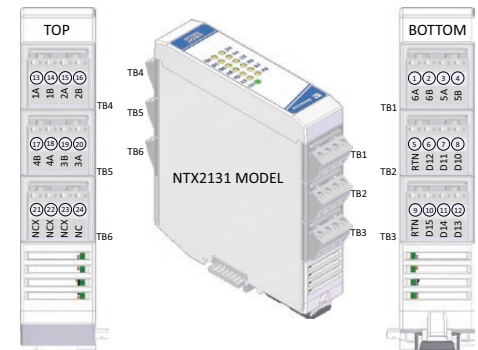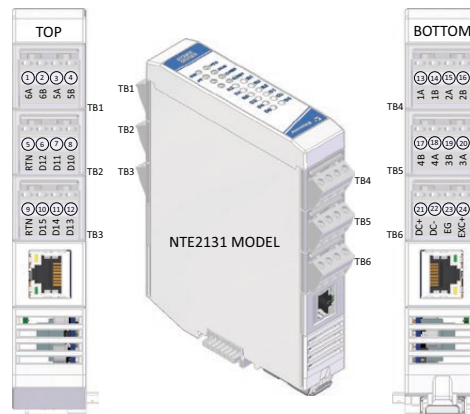FAX: **+49 - (0)81 41 - 52 71-129**

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**www.meilhaus.com**

# Ethernet I/O: BusWorks® NT Series

## NT2130 Ethernet Discrete I/O Modules

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

Modbus TCP/IP
EtherNet/IP
PROFINET
i2o

TOP — TB1 TB2 TB3
BOTTOM — TB4 TB5 TB6
NTE2131 MODEL

TOP — TB4 TB5 TB6
BOTTOM — TB1 TB2 TB3
NTX2131 MODEL

**6 mechanical relay outputs ◆ 6 discrete 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.

NT2130 modules offer six 5A mechanical relays and six discrete inputs. The NTE Ethernet I/O models provide a compact network interface to monitor and control discrete device levels. Appending NTX expansion models can interface up to 24 relays and 24 level sensing inputs on a single IP address.
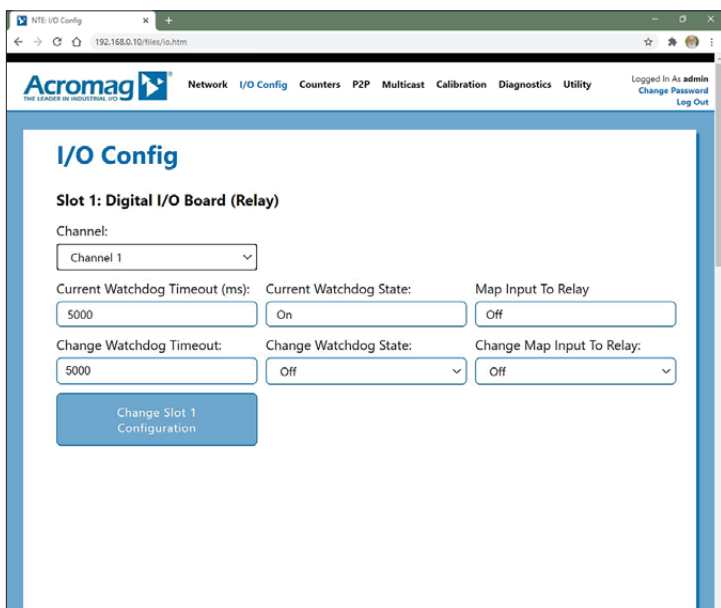
Applications include on/off monitoring and control of motors, pumps, lights, heaters, fans, etc. or the open/close status of valves, doors, and gates.

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
- High-power SPST Form A relays switch 30V DC or 240V AC at currents up to 5A
- Active-high Inputs support TTL thresholds and up to 32V DC
- Configurable counter/timers and totalization
- *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 1: Digital I/O Board (Relay)

Channel:
Channel 1

Current Watchdog Timeout (ms): 5000
Current Watchdog State: On
Map Input To Relay: Off

Change Watchdog Timeout: 5000
Change Watchdog State: Off
Change Map Input To Relay: Off

Change Slot 1 Configuration

Network | I/O Config | Counters | P2P | Multicast | Calibration | Diagnostics | Utility
Logged In As admin
Change Password
Log Out

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# Ethernet I/O: BusWorks® NT Series

## NT2130   Ethernet Discrete 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.

### ■ Discrete Inputs

**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.
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.

**Input Resistance**
10KΩ typical (each input has 10KΩ pull-down).

**Input Pull-Downs (Internal)**
Each input has 10KΩ pull-down to I/O return and will never float.

**Input Hysteresis**
100mV DC typical.

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

**Input Transient Voltage Suppressor**
Installed at every I/O point, up to 38V working, 47V breakdown, and 72V clamping.

### ■ Mechanical Relay Outputs

**Configuration**
Six isolated 1 FORM A SPST-NO sealed relays.

**Contact Rating**
5A, 250V AC or 30V DC.

**Maximum Switching Voltage**
277VAC/125V DC.

**Maximum Switching Power**
1250VA or 150W.

**Minimum Switching Load**
1mA, 5V DC.

**Resistance**
30 mΩ maximum at 6V DC and 1A.

**Electrical Life:**
Mechanical: $20x10^6$ operations minimum.
3A: $100x10^3$ operations minimum.
5A: $50x10^3$ operations minimum.
Switching frequency: 20 per minute.

**Contact Material**
Gold overlay silver alloy (Ag90 Ni10+Au).

**Initial Dielectric Strength**
Resistance 1000M ohms at 500V DC.
Between open contacts: 7509V AC 50/60Hz, 1 min.
Between contacts/coil: 3000V AC 50/60Hz, 1 min.

**Relay Response (No Relay Time Delay)**
Contacts energize bounce-free within 10ms and release bounce-free within 5ms (does not include network time).

### ■ Counter/Timers

**Input Counter**
Inputs (channels 1-6) may operate as up/down event counters for signals up to 85 Hz.

**Counter Preload Value**
Each channel can start from 0 to 4,294,967,295.

**Counter Debounce**
0 to 65,535ms to filter noise or relay chatter.

**Counter Alarms**
Alarms can toggle an output state upon reaching the termination value. Alarm state can auto-reset after the next count or hold/latch until reset.

**FRAM**
4Kb (4096 bits) non-volatile memory stores counter value plus scaling and totalization information.

### ■ 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 models only. Power to NTX models is via NT bus connection.

**Power Consumption**
NTE2131: <=2.6W (input).
NTX2131: <=1.0W 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

**NTE2131-1111**
Ethernet I/O module with dual RJ45 ports,
6 relays, 6 discrete inputs

**NTX2131-0011**
Expansion I/O module with 6 relays, 6 discrete inputs

### ■ 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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