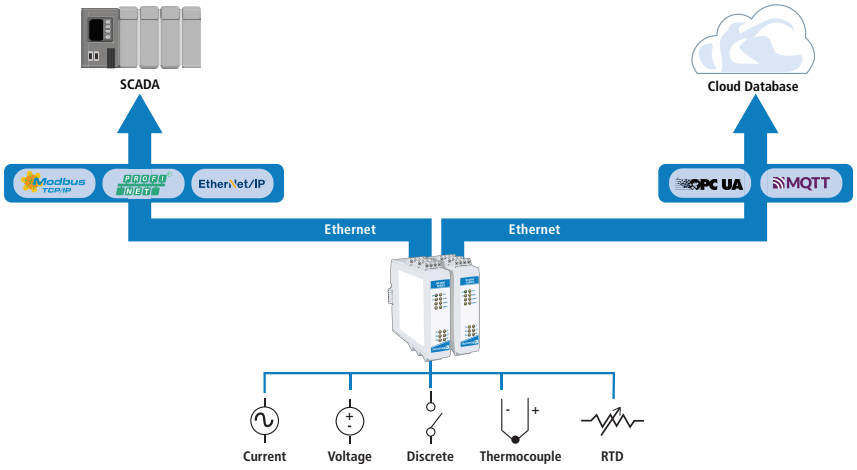
Ethernet I/O: BusWorks® NT Series

NT2000 Series: Ethernet I/O Modules with OPC UA and MQTT

CE 24 HOUR STOCK ITEM 2 YEAR WARRANTY RoHS Compliant

Modbus TCP/IP · EtherNet/IP · PROFINET · i2o Peer-to-Peer + Multicast



Simplifies Industrial IoT applications ◆ Easy data sharing ◆ Cloud connectivity ◆ Secure data connections

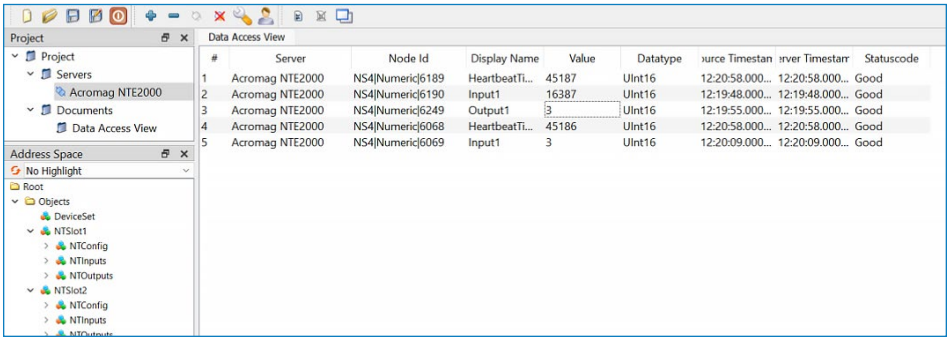
BusWorks® NT2000 Ethernet I/O modules with OPC UA and MQTT support offer a cost-effective solution for Internet of Things (IoT) applications. NTE models with dual RJ45 ports provide the protocol interface, IoT functionality, plus I/O signal processing channels. NTX expansion modules can plug in to add extra I/O channels or a mix of signal types over a single Ethernet interface.

The NT Ethernet I/O module provides an OPC UA server and MQTT client in addition to the fieldbus protocol stacks (Modbus TCP/IP, Ethernet/IP, and PROFINET). The integrated IoT functionality offers a standardized data exchange to simplify industrial communication in an increasingly complex environment.

Select from a variety of models providing analog or discrete I/O signal processing channels. Applications include monitoring temperature, level, flow, pressure, and other sensor types or controlling relays, motors, and other switching equipment.

OPC UA represents I/O data from field devices as objects in an address space for easy access from the cloud and other system clients without protocol gateways. The NTE module operates as an OPC UA server giving more users access to current data for decision making and process optimization.

The MQTT client uses a publish/subscribe model to share data through a message broker which requires less overhead and less bandwidth to communicate.



Input, output and configuration data objects closely resemble fieldbus I/O tags to simplify data exchanges.

Key Features & Benefits

- Connect field devices to the cloud with expandable I/O capacity enabling up to 64 I/O channels of mixed signal types on one IP address
- OPC UA and MQTT protocol support make data available for sophisticated applications in the cloud or on edge gateways
- Combine Ethernet protocols with IoT protocols for real time and IoT data transfer over the same network cable
- Field-selectable Modbus/TCP, EtherNet/IP, or PROFINET protocols
- EtherNet/IP and PROFINET are operated in parallel to the IoT protocols with highest priority to assure short cycle times
- Enable asset management, condition monitoring, diagnostics, visualization, predictive maintenance, extended configuration, and parameterization
- Easy to use GUI for OPC UA information model design
- No hassle with protocol details. Abstract data object model lets the user application simply read and write data that is transparently fed into the IoT protocols and information models

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Bulletin #8401097

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NT2000 Series: Ethernet I/O Modules with OPC UA and MQTT

Performance Specifications

Ethernet Interface

Communication
Modbus TCP/IP, EtherNet/IP, or PROFINET.

10/100Mbps data rate, auto-sensing.

IP Address
Default 192.168.0.10. Configurable static IP or DHCP.

OPC UA Server

OPC UA Version and Profile
V1.04. Micro-Embedded Device Server Profile.

Maximum Sessions/Clients
5.

Maximum Subscriptions per Session
5.

Maximum Monitored Items per Subscription
100.

Minimum Sampling Interval
50ms.

Minimum Publishing Interval
100 ms.

Transport
Minimum publishing interval.

User Token Facet
Anonymous, username/password.

MQTT Client

MQTT Version
V3.1.1.

Payload Encoding
Binary, JSON.

Default Sampling interval
100ms.

Maximum Topics (Publications and Subscriptions)
32.

Maximum Topic Size
256 Bytes.

Maximum Sessions (Broker)
4.

Maximum Transactions per Session
8.

Authentication
Anonymous, username/password.

Will Message, Will Topic
Supported.

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.

Analog and Discrete I/O

See NTE/NTX models for I/O specifications.

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
1500VAC HIPOT for 60 seconds with 250VAC/354VDC continuous isolation between output channels/excitation (as a group), network (each port), and input power.

Power Supply
10-32V DC SELV power wired to NTW model only.

Power to NTX models is via NT bus connection.

Power Consumption
Depends on I/O configuration. Less than 1.36W.

Dimensions (width x height x depth)
25 x 116.9 x 139.2 mm (0.98 x 4.6 x 5.48 inches)

Weight

0.5 lbs (0.23 kg).

Standards and Certificates

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

NTE models: Ethernet module with dual RJ45 ports

NTE2111-1111
16 discrete I/O (active low input / sinking output)

NTE2121-1111
16 discrete I/O (active high input / sourcing output)

NTE2131-1111
6 relay outputs and 6 discrete inputs

NTE2211-1111
8 differential current inputs and 2 discrete I/O

NTE2221-1111
16 single-ended current inputs

NTE2231-1111
8 differential voltage inputs and 2 discrete I/O

NTE2241-1111
16 single-ended voltage inputs

NTE2311-1111
NTE2321-1111
8 current (2311) or 8 voltage (2321) outputs

NTE2511-1111
NTE2512-1111
4 current in, 2 current out (2511 only), 4 discrete I/O

NTE2531-1111
NTE2532-1111
4 voltage in, 2 current out (2531 only), 4 discrete I/O

NTE2611-1111
8 thermocouple/mV inputs and 2 discrete I/O

NTE2621-1111
6 RTD/resistance inputs and 2 discrete I/O

ISO9001
AS9100
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