Wireless I/O: BusWorks® NTW Series

NTW2220 Wi-Fi Ethernet Analog I/O Modules

CE 24 HOUR STOCK ITEM 2 YEAR WARRANTY RoHS Compliant

Shown with NTX Expansion I/O Module

16 single-ended current inputs ◆ Ethernet I/O plus Expansion I/O ◆ Multi-protocol support

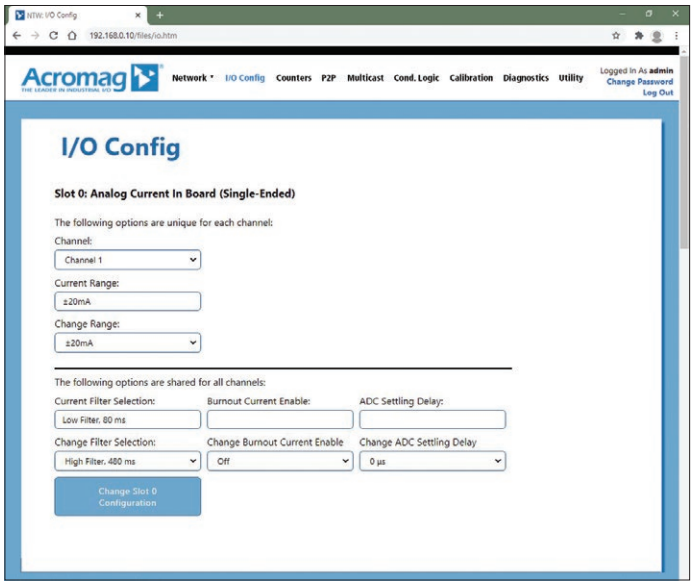
BusWorks® NTW2000 modules offer a cost-effective, wireless solution for Ethernet remote I/O systems. NTW Wi-Fi models provide the protocol interface plus I/O signal processing channels. Connecting NTX expansion modules can add extra I/O channels or a mix of signal types over a single Wi-Fi interface.

NTW2220 modules offer 16 current inputs. Each input supports bipolar and unipolar ranges with 16-bit A/D. Each module has an embedded wireless IoT gateway providing a Wi-Fi interface to monitor sensor levels or 4-20mA loops. An RJ45 port provides additional flexibility for a cabled network interface.

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 NTX expansion modules to the NTW Wi-Fi module with connectors that join units along the DIN rail. This internal NT bus distributes power and communication between the modules. Users can mix temperature, current, voltage, and discrete I/O modules across the NT bus.

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



Easily configure I/O modules using any web browser.

Key Features & Benefits

- Wireless 802.11 a/b/g/n dual-band 2.4 and 5 GHz Wi-Fi interface
- 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 or EtherNet/IP communication
- i2o peer-to-peer communication
- RJ45 port enables cable connections
- 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
- OPC-UA, MQTT and RESTful API IIoT support
- Conditional logic for rule-based I/O operation
- 1500V isolation between I/O, network, and power
- Thin 25mm housing with pluggable terminals
- Wide temperature operation (-40 to 70°C)
- LED status indicators for visual troubleshooting
- CE compliant. UL/cUL Class 1 Div 2 and ATEX/IECEx Zone 2 approvals (pending)

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NTW2220 Wi-Fi Ethernet Analog I/O Modules

Performance Specifications

Ethernet Interface

Communication
Configurable for Modbus TCP/IP and EtherNet/IP.

10/100Mbps data rate, auto-sensing.

IP Address
Default 192.168.0.10. Configurable from static IP or via WLAN using DHCP

Wi-Fi Interface

Wireless Communication
Dual Band 2/.4/5GHz Wi-Fi interface.
IEEE 802.11a/b/g up to 54Mbps.
IEEE 802.11n up to 150Mbps.
IEEE 802.11r fast roaming.

Data Rate
Fixed 100Mbps, full-duplex (not auto-negotiated).

Wi-Fi Security
WPA3 / TLS 1.2 with PKI and X.509 certificate management. AES 256-bit encryption.

Antenna
Single external UFL antenna wired to external whip/tilt type antenna using an RP-SMA connector. 2.15dBi.
Dimension (straight): 108.5 x 10 mm (4.27 x 0.39").
Dimension (bent): 31.5 x 87 mm (1.24 x 3.43").

Communication Distance
100 meters line-of-sight, typical.

RF Certification
USA (FCC Part 15), Canada (IC RSS), EU (RED), Japan (MIC), China (SRRC), AU/NZS.

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
10-32V DC SELV power wired to NTW model only.
Power to NTX models is via NT bus connection.

Power Consumption
NTW2221: <=1.5W (input).

Dimensions (width x height x depth - w/o antenna)
NTW: 25 x 116.9 x 139.2 mm (0.98 x 4.6 x 5.48 inches).

Weight
NTW: 0.5 lbs (0.23 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 >

NTW2221-1111
Wi-Fi Ethernet I/O module with one RJ45 port, 16 single-ended current inputs

Expansion I/O Modules

See Acromag.com/NT for a full list of NTX Expansion I/O Units.

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.

See www.acromag.com for other sizes.

ISO9001
AS9100
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