# Wireless I/O: BusWorks® NTW Series

## NTW2320 Wi-Fi Ethernet Analog Output Modules

CE 24 HOUR STOCK ITEM 2 YEAR WARRANTY RoHS Compliant


EtherNet/IP
Modbus TCP/IP

*Shown with NTX Expansion I/O Module*


**8 process voltage outputs ◆ Ethernet I/O plus Expansion I/O ◆ Multi-protocol support**

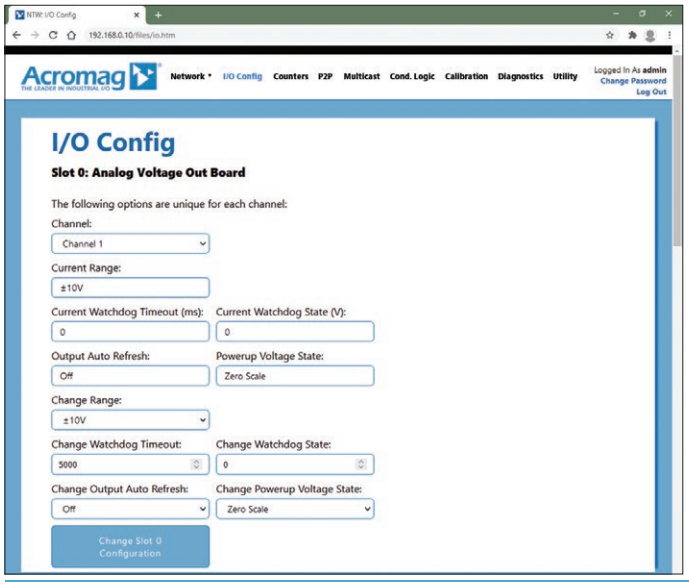
BusWorks® NTW2000 modules offer a cost-effective, wireless solution for Ethernet remote I/O systems. NTW Wi-Fi models provide the protocol interface plus I/O signal processing channels. Connecting NTX expansion modules can add extra I/O channels or a mix of signal types over a single Wi-Fi interface.

NTW2320 modules offer 8 voltage outputs. Each output is driven by a 16-bit DAC. Each module has an embedded wireless IoT gateway providing a Wi-Fi interface to control voltage signal levels. An RJ45 port provides additional flexibility for a cabled network interface.

Applications include controlling analog actuator levels and driving recorders, displays, or other process instruments. Voltage outputs can control generator power, drive speed, or valve positioning.

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
- Eight voltage outputs with 16-bit D/A resolution
- Selectable ±5V, ±10V, 0-5V, 0-10V output range
- LED status indicators for visual troubleshooting
- 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)

Acromag® THE LEADER IN INDUSTRIAL I/O

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## NTW2320 Wi-Fi Ethernet Analog Output 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 Outputs

**D/A Converter**
Eight DC voltage outputs driven by individual D/A converters. Outputs share a return.

**Output Voltage Ranges**
Select ±10V, ±5V, 0-10V, or 0-5V.

**Output Accuracy**
Factory calibrated to better than ±0.1% of span. Manual calibration of voltage outputs can improve accuracy to better than ±0.05%.

**Output Temperature Drift**
Better than ±50ppm/°C (±0.0050%/°C).

**Output Excitation**
Required for output operation 0.8W max.

**Output Update Rate**
Outputs update when written and are continuously refreshed every 5 seconds.

### 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.

**Power Supply**
10-32V DC SELV power wired to NTE model only.
Power to NTX models is via NT bus connection.
Excitation Voltage: +12V DC to +24V DC

**Power Consumption**
NTW2321: 1.23 W typical, 1.35 maximum.

**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 >

**NTW2321-1111**
Wi-Fi Ethernet I/O module with one RJ45 port, 8 voltage outputs.

### Expansion I/O Modules

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

### 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.

See www.acromag.com for other sizes.

ISO9001
AS9100
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