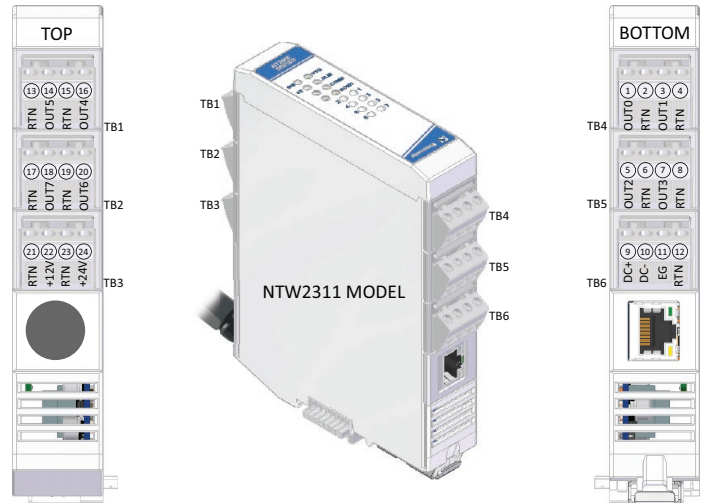


# Wireless I/O: BusWorks® NTW Series

## NTW2310 Wi-Fi Ethernet Analog Output Modules



8 process current 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.

NTW2310 modules offer 8 current 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 4-20mA loops. An RJ45 port provides additional flexibility for a cabled network interface.

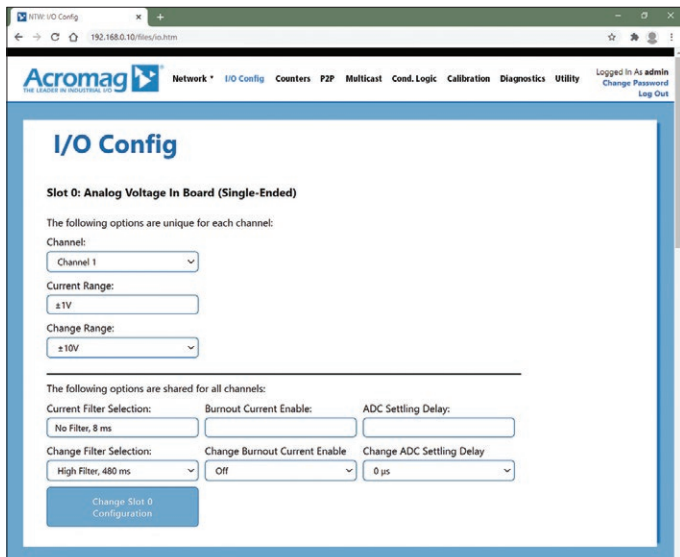
Applications include controlling analog actuator levels and driving recorders, displays, or other instruments. The outputs can control valves, pumps, and motors to regulate flow, level, or temperature.

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.

### 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 current outputs with 16-bit D/A resolution
- Selectable 0-20mA or 4-20mA output range
- 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)



Easily configure I/O modules using any web browser.



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

# Wireless I/O: BusWorks® NTW Series

## NTW2310 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

##### A/D Converter

Eight current output channels driven by an octal 16-bit voltage DAC. Outputs share a return.

##### Output Current Ranges

Select 0-20mA or 4-20mA DC.

Maximum current is 22.6mA.

##### Output Accuracy

Factory calibrated to better than  $\pm 0.1\%$  of span. Manual calibration of current outputs can improve accuracy to better than  $\pm 0.05\%$ .

##### Output Temperature Drift

Better than  $\pm 60\text{ppm}/^\circ\text{C}$  ( $\pm 0.0060\%/^\circ\text{C}$ ).

##### Output Load Resistance Range

0-600 ohms.

##### Output Excitation

Two separate excitation inputs, one for 12V power sources (10-15V) and one for 24V power (20-28V). Both excitation sources are diode-coupled allowing redundant excitation supplies.

##### Output Compliance

12.5V typical (with a 15V internal excitation rail). Output can typically drive 20mA full-scale into 625 ohms, or 22.6mA maximum into 550 ohms.

##### 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  $+70^\circ\text{C}$  ( $-40$  to  $+158^\circ\text{F}$ ).

Storage:  $-40$  to  $+85^\circ\text{C}$  ( $-40$  to  $+185^\circ\text{F}$ ).

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 NTE model only.

Power to NTX models is via NT bus connection.

##### Power Consumption

NTW2311: 1.091W typical, 1.20W 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 >](#)

##### NTW2311-1111

Wi-Fi Ethernet I/O module with one RJ45 port, 8 current 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).

##### P55R-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](mailto:sales@acromag.com) ■ [www.acromag.com](http://www.acromag.com) ■ 30765 Wixom Rd, Wixom, MI 48393 USA