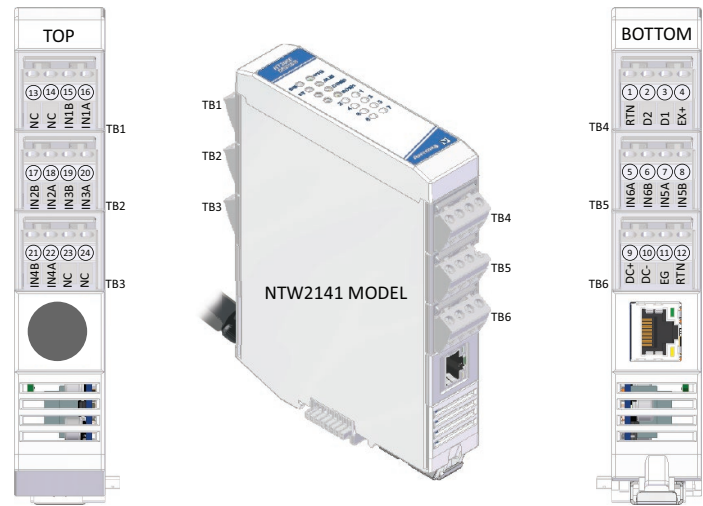


Wireless I/O: BusWorks® NTW Series

NTW2110 Wi-Fi Ethernet Discrete I/O Modules



16 discrete I/O ♦ Active low in / sinking out ♦ 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.

NTW2110 modules offer 16 bidirectional discrete I/O channels for low-side (sinking switch) applications. Each module has an embedded wireless IoT gateway providing a Wi-Fi interface to monitor or control discrete device levels. An RJ45 port provides additional flexibility for a cabled network interface.

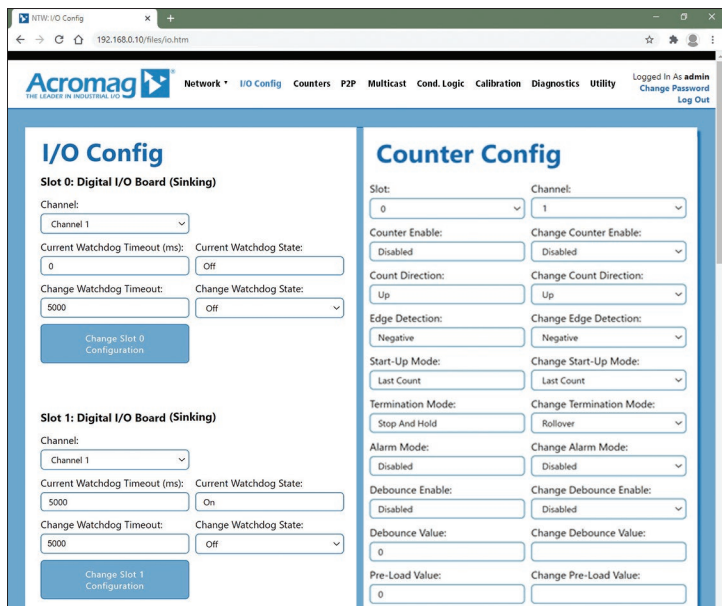
Applications include monitoring and control of relays, solenoids, contact closures, TTL logic, and discrete sensors on motors, lamps, valves, doors, etc.

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
- Inputs support TTL thresholds and up to 32V
- Open-drain outputs switch up to 32V and 250mA
- Tandem input/output channels allow loop-back monitoring of outputs
- Configurable counters and totalization
- 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



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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.

■ Discrete Inputs (Active-Low)

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

100K ohms typical (input only), 10K ohms w/ output pull-ups installed.

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 77V clamping.

■ Discrete Outputs (Sinking)

Output "OFF" Voltage Range

0 to 32V DC.

Output "ON" Current Range

0 to 250mA DC, continuous.

Output Rds ON Resistance

0.8 ohms typical, 1.6 ohms maximum.

Protections

Thermal overload shutdown.

Over-voltage shutdown.

Over-load shutdown.

Reverse polarity protection shunt.

Output "OFF" Leakage Current

0.1µA typical, 50µA max (mosfet only, 25°C, 32V).

Does not include input bias current.

Output Response Time

5ms typical. Does not include network time.

■ Counters

Input Counter

Inputs (channels 1-8) 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.

■ 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.

Excitation

External voltage of 4-32V required between I/O EXC and any RTN. Excitation must source 52mA minimum (at 32V). For 16 channels at 250mA max rated load, excitation must source 4A min.

I/O Pull-Ups (Internal)

Each I/O channel has 10KΩ pull-up to EXC to pull the tandem open drain output and input high/OFF.

■ 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

NTW2111: <=2.0W (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 >](#)

NTW2111-1111

Wi-Fi Ethernet I/O module with one RJ45 port, 16 discrete I/O channels.

■ 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

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