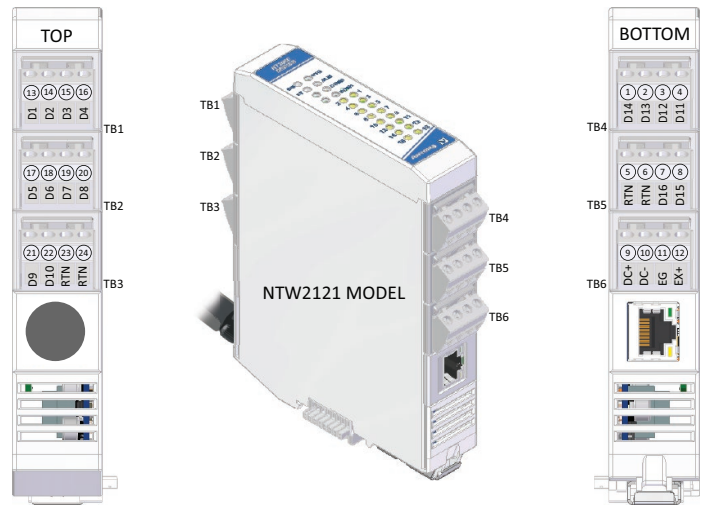


Wireless I/O: BusWorks® NTW Series

NTW2120 Wi-Fi Ethernet Discrete I/O Modules



16 discrete I/O ♦ Active high in / sourcing 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.

NTW2120 modules offer 16 bidirectional discrete I/O channels for high-side (sourcing 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.

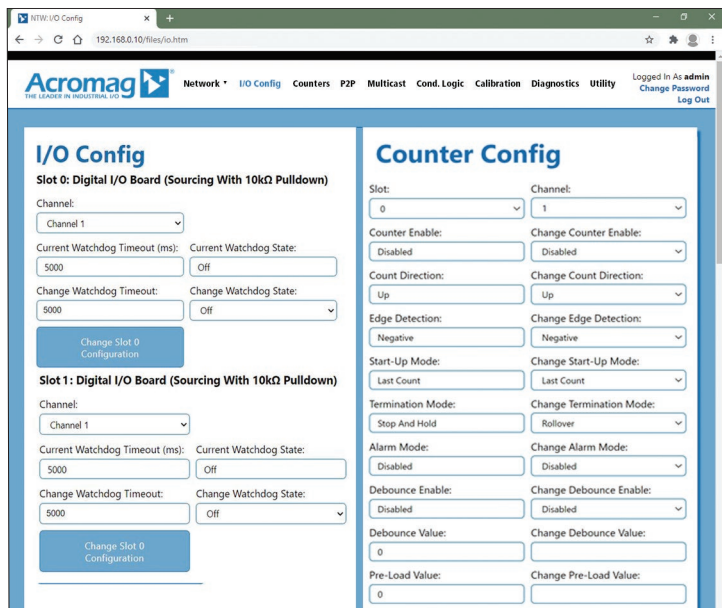
Applications include monitoring and control of relays, solenoids, contact closures, TTL logic, and discrete sensors on motors, lamps, valves, doors, etc.

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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NTW2120 Wi-Fi Ethernet Discrete 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.

■ Discrete Outputs

Output "ON" Voltage Range

6 to 32V DC.

Active Current Limitation

Output limits load current to a shorted load at 0.6A typical, 0.4A-0.9A range.

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

50µA maximum per channel (mosfet only).

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

Excitation voltage of 6-32V required between field EXC and RTN terminals. Excitation must source 52mA minimum (at 32V). For 16 channels at maximum rated load, excitation must source 4A.

I/O Pull-Ups (Internal)

Each I/O channel has 10KΩ pull-down to I/O return and will never float.

■ 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

NTW2121: <=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 >](#)

NTW2121-1111

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).

PS5R-VB24

Power supply, 24V DC, 15W output.

See [www.acromag.com](#) for other sizes.

ISO9001 
AS9100 

Acromag 
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