

The *N-TRON*® 702-W Industrial Wireless device offers outstanding performance and ease of use. It is ideally suited for connecting wireless devices to a wired network or for connecting two wired networks where it is impossible, impractical, or too expensive to install cable.

## Product Features

- Full IEEE 802.11a,b,g,n Compliance
- One 10/100BaseTX RJ45 Port
- Three Antennas for 3x3 MIMO Operations
- Four user definable LED's for display of signal quality
- Radio Enable, Link/Activity, and power LEDs
- 802.3af PoE Powered Device
- Extended Environmental Specifications
- Autosensing 10/100BaseTX, Duplex, and MDIX
- Rugged DIN Rail Enclosure
- Redundant Power Inputs (20-49 VDC)
- Web Browser Management

## Wireless Compliance:

- IEEE 802.11a Compliant
- IEEE 802.11b Compliant
- IEEE 802.11g Compliant
- IEEE 802.11n draft Compliant

## Security

- 802.11i with AEX-CCM & TKIP Encryption
- 802.1x, 64/128/152bit WEP

## Data Rates:

- Legacy 802.11a/b/g (1-54Mbps),
- 802.11n (up to 300Mbps)

## Range Performance:

- Indoor (Antenna Dependent) greater than 300m
- Outdoor (Antenna Dependent) greater than 60km

## Applications

With the proliferation of Ethernet in the Industrial environment, situations arise where the installation of fiber or Cat5e cables and associated power cables is inconvenient, difficult, cost prohibitive or a combination of the these factors. The *N-TRON* 702-W provides a wireless connection that can be quickly and easily deployed for these applications. With its wide operating temperature range, industrial metal housing, and a 2 million hour MTBF, the 702-W offers the same industrial ruggedness as *N-TRON's* family of Industrial Ethernet Switches. Three antennas enable the 702-W to utilize Multiple In, Multiple Out (MIMO) technology for increased throughput. Power over Ethernet (PoE) technology enables the 702-W to receive power through the Cat5e cable from a PoE sourcing device, such as the *N-TRON* 105TX-POE Switch or the 100-PoE4 Midspan. Temporary deployments of network nodes are much easier using wireless and PoE technology because only one Cat5e cable is required.



## Multiple Wireless Modes

The 702-W provides a number of options that enable it to be customized to fit specific application requirements.

**Station:** In "station" configuration the 702-W is used to connect a single device (MAC Address) to a wireless access point.

**Station, WDS (Wireless Distribution System):** In "station, WDS" the 702-W can be connected to a remote wired switch and will allow multiple devices (MAC Addresses forwarding) to be connected to the wireless access point with WDS activated.

**Access Point:** The "Access Point" mode allows the 702-W to serve as a wireless switch for the wireless stations attached to it. Wireless access points are commonly used to create one wireless local area network (WLAN) that spans an area around the Access Point. Each access point typically supports up to 253 stations.

**Access Point, WDS (Wireless Distribution System):** The 702-W in "Access Point, WDS" mode allows wireless connection of a number of access points to extend the coverage of the wireless network. The main base Access Point in WDS mode is extended using a series of relay Access points in WDS mode (Extended Service Set) and can in turn form a WLAN consisting of thousands of stations. All stations should be configured in "Station WDS" mode. Correctly configured switches using WDS will create a single network providing station mobility throughout the wireless network.

## Multiple Network Modes

**Bridge:** Bridge operating mode is selected by default as it is widely used when the 702-W is used as an Access Point or an Access Point with WDS. In this mode the 702-W will operate in Layer two with no network segmentation.

**Router:** Router operating mode offers Layer three routing to allow network segmentation.

## Industrial Packaging and Specifications

The 702-W is specifically designed to operate in industrial environments. The rugged enclosure combined with extended industrial specifications and features to meet or exceed the operating parameters of the connected equipment. These include extended temperature ratings, extended shock and vibrations specs, redundant power inputs, and high MTBF (greater than 2M hours).

## Specifications

### Switch Properties

#### Physical

Height: (w/o antennas)	5.15"	(13.08cm)
Width:	7.36"	(18.70cm)
Depth (incl. DIN-Rail mount):	1.49"	(3.78cm)
Weight (max):	1.90 lbs	(0.86kg)
DIN-Rail Mount:	35mm	

### Wireless Networking Standards

802.11 Protocol	Freq GHz	Throughput (Mbits/s)	Data (Mbits/s)	Signaling
a	5.0	23	54	OFDM
b	2.4	4.3	11	DSSS
g	2.4	19	54	OFDM
n	2.4, 5.0	74	248	MIMO SDM

Source: ISA, IEEE, Planet WiFi

### Environmental

Operating Temperature:	-40°C to 80°C
Storage Temperature:	-40°C to 85°C
Operating Humidity:	5% to 95% (Non Condensing)
Operating Altitude:	0 to 10,000 ft.
N-TRON Power Supply:	NTPS-24-1.3

### Electrical

Redundant Input Voltage:	20-49 VDC (Regulated)
Input Current (max):	200mA max @24 VDC
702-W Max Power:	4.8Watts max
Input Ripple:	Less than 100mV

### Reliability

MTBF:	>2 Million Hours
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### Network Media

10BaseT:	>Cat3 Cable
100BaseTX:	>Cat5 Cable
802.11abgn:	Air

### Connectors

10/100BaseTX:	One (1) RJ-45 Copper Port PoE Powered device support
802.11abgn	(3) RP-SMA connectors

### Recommended Wiring Clearance

Front:	4" (10.16cm)
Side:	4" (10.16cm)
Top:	6" (15.24cm)
	Dependent on antenna

### Radio

Output power: Up to 250mW without amplifier  
varies by country

### Channel Data Rates

802.11a:	54, 48, 36, 24, 18, 12, 9, 6 Mbps
802.11b:	11, 5.5, 2, 1 Mbps
802.11g:	54, 48, 36, 24, 18, 12, 9, 6 Mbps
802.11n:	MCS0 - MCS15

### Receiver Sensitivity, Tolerance ± 3dB

#### 2.4GHz

1-24MBps	-97dBm
36MBps	-90dBm
48MBps	-86dBm
54MBps	-84dBm
MCS0	-97dBm
MCS7	-75dBm
MCS8	-96dBm
MCS15	-76dBm

#### 5.745-5.825GHz

1-24MBps	-96dBm
36MBps	-95dBm
48MBps	-94dBm
54MBps	-91dBm
MCS0	-96dBm
MCS7	-74dBm
MCS8	-95dBm
MCS15	-75dBm

### Channel Selection

802.11b/g	1 to 11
802.11a	149-165

### Security

802.11i with AES-CCM & TKIP Encryption,  
802.1x, 64 / 128 / 152 bit WEP

### Regulatory Approvals

FCC/CE (CFR 47, Part 15, Subpart B - Class A),  
EN 301 489-3, IEC 6100-4-2, 6100-4-3,  
R&TTE Directive 99/5/EC, ANSI C63.4, and ICES-003 Issue 3  
GOST-R Certified, RoHS Compliant,

### Designed to comply with:

UL /cUL Class I, Div 2, Groups A, B, C, D, and T4A  
ANSI/ISA-12.12.01-2007 and UL 508 and 1604  
IEEE 1613 for Electric Utility Substations  
NEMA TS1/ TS2 for Traffic control

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## 702-W WIRELESS ETHERNET DEVICE

### Ordering Information

702-W	Industrial wireless radio
9000-PM	Universal Panel Mount
NTPS-24-1.3	DIN-Rail Power Supply 24V@1.3 Amp