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netwave®

Wireless Ethernet Transmission

Industrially Hardened Wireless Ethernet Transmission

Power, Point and Play.

Power up and point the units and start transmitting Ethernet.

The ComNet NetWave® line consists of an easy, pre-packaged Point-to-Point kit that contains everything you need to establish remote connectivity to Ethernet edge devices. Also available are Point-to-Multipoint models that allow multiple client/camera/networked edge device locations to connect to a single access point.

NetWave® supports total throughput of 100, 240, or 500 Mbps in a single radio version and up to 240 Mbps in the dual radio models. A wide range of Ethernet devices are supported. NetWave® is secure and uses encryption to prevent unauthorized access to the network. These industrially hardened units with Ethernet Interfaces offer the option to be powered by a PoE switch or a Midspan Power Injector.

Features

- Industrially hardened 5GHz solutions for outdoor applications
- Up to +30 dBm RF output power
- Distances up to 2 mi (FCC) or 2 km (ETSI)
- Distances up to 4 mi (FCC) with MAC lock enabled on Point-to-Point Kits
- Internal directional antenna:
  - 20 dBi 17° beamwidth for full size units
  - 16 dBi 30° beamwidth for mini units
- External antennas available for added configuration flexibility
- Secure transmission: WPA2 – AES or TKIP encryption
- Exclusive ComNet antenna alignment feature eases installation and setup
- Distance adjustments for long-range transmission
- IEEE 802.3at (PSE) compliant support (NW1/2, NW1DR, NW9[E] series)
- Ruggedized heavy duty enclosures meet class IP67 dust and water ingress protection standards
- Lifetime Warranty

NetWave® Kits: A Complete Hardened Point-to-Point Wireless Ethernet Solution

These preconfigured industrial kits include a factory-paired Access Point and Client, plus the power supplies and mounting equipment to install and connect them.

The NetWave® NWK series offers a complete package solution containing everything you need to transmit a single Ethernet data stream between a Client remote location and the Access Point or head end. A simple antenna alignment feature provides easy to read visual indicators that show when the antennas are correctly aligned and the link is established.

Kit Includes

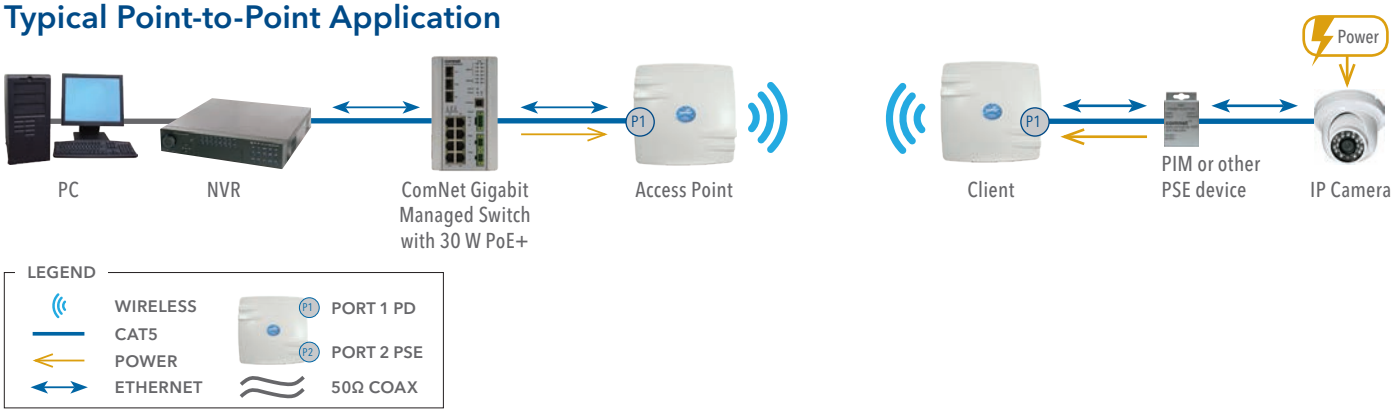
- Client (Remote) and Access Point (Head End)
- NWK9 features ruggedized IP67 rated heavy duty enclosures
- Internal Dual Polarized Directional Antenna
- Distances up to 2 mi (FCC) or 2 km (ETSI)
- Distances up to 4 mi (FCC) with MAC lock enabled on Point-to-Point Kits
- Two mounting hardware assemblies
- Units can optionally be powered by an IEEE 802.3at/IEEE 802.3af PoE switch
- Lifetime Warranty

NetWave® Wireless Ethernet Point-to-Point Kits

Product Group	NWK1	NWK1/M	NWK2	NWK9	NWK11/M
Operating Temp Range	-40° to +75° C	-40° to +75° C	-40° to +75° C	-40° to +70° C	-40° to +75° C
Power	24-48 VDC IEEE 802.3af/at				Passive PoE
Internal Dual Polarized Directional Antenna / Beamwidth	20 dBi / 17°	16 dBi / 30°	20 dBi / 17°	20 dBi / 17°	16 dBi / 30°
Throughput Total (Under Ideal Conditions)	240 Mbps	240 Mbps	240 Mbps	500 Mbps	100 Mbps

This chart references FCC NetWave models. For ETSI models, please refer to the appropriate data sheets or contact ComNet's International Design Center.

Typical Point-to-Point Application



NW1/NW2 Point-to-Multipoint

The NetWave® NW1 and NW2 user-configurable units can be set up through the embedded User Interface as a Client or as an Access Point. Available as region-specific models for North America and Europe in both standard and small-size enclosures, these hardened point-to-multipoint models allow multiple Ethernet endpoints to be connected to a central Access Point. An easy to read LED array displays unit operational status along with received signal strength ensuring optimal installation and operation. These units may be powered from an IEEE 802.3af PoE source.

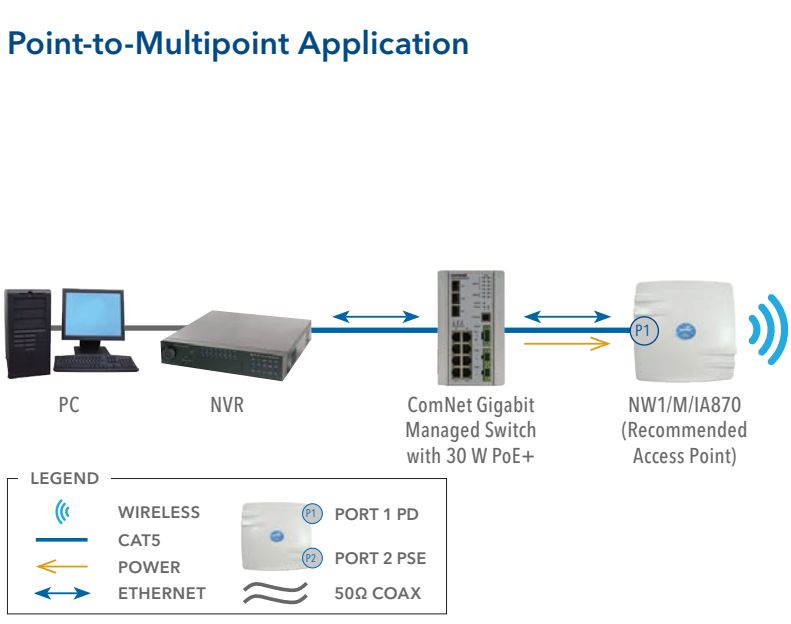
Features

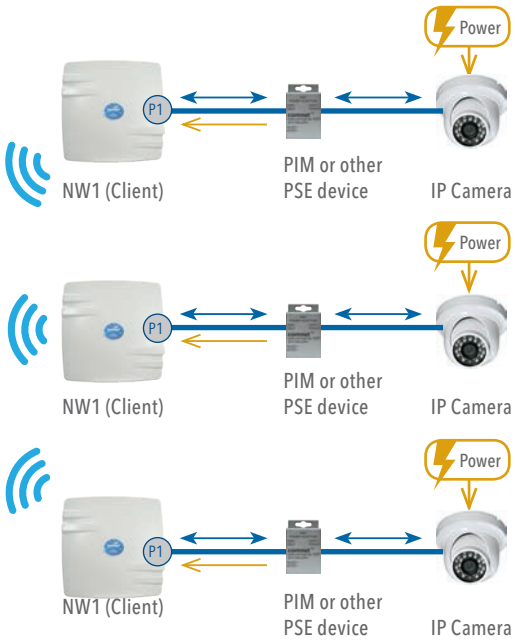
- IEEE802.3at PoE Compliant PD on port 1
- IEEE802.3af PSE available on port 2
- Narrow Channel Spectrum Bandwidths for large and noisy deployments
- Internal Dual Polarized Directional Antenna
- Up to 240 Mbps Throughput
- Transmit power: up to +30 dBm

Ordering Information

Part No.	Description
NW1	Industrial Narrow Bandwidth Wireless Radio, distances up to 2 mi/3.2 km (FCC NA Region)
NW2	Industrial Narrow Bandwidth Wireless Radio, distances up to 2 km/1.25 mi (ETSI EU Region)
NW1IC	Industrial Narrow Bandwidth Wireless Radio, distances up to 2 mi/3.2 km (IC Canada Region)
NW1/M	Mini Industrial Point-to-Multipoint Unit, 16 dBi 30° beamwidth directional antenna (FCC NA Region)
NW2/M	Mini Industrial Point-to-Multipoint Unit, 16 dBi 30° beamwidth directional antenna (ETSI EU Region)
NW1IC/M	Mini Industrial Point-to-Multipoint Unit, 16 dBi 30° beamwidth directional antenna (IC Canada Region)

Point-to-Multipoint Application





NW9[E] Ultra-High Throughput, Impact-Resistant Wireless Ethernet

The NetWave® NW9[E] ultra-high throughput, impact-resistant hardened wireless Ethernet transmission devices that can be configured as a Client or as an Access Point. Simple to deploy and cost-effective alternative to physical connections to Ethernet edge equipment, this single radio model was designed for high throughput point-to-point or multi-point applications and comes standard with an integrated 19 dBi, 17° beam-width antenna. The NW9[E] supports up to 500 Mbps throughput using 802.11ac MIMO technology. The units can be powered by an 802.3af/at PoE compliant device or through a sold-separately PoE injector with the second Ethernet port serving as an IEEE802.3at power source.

Features

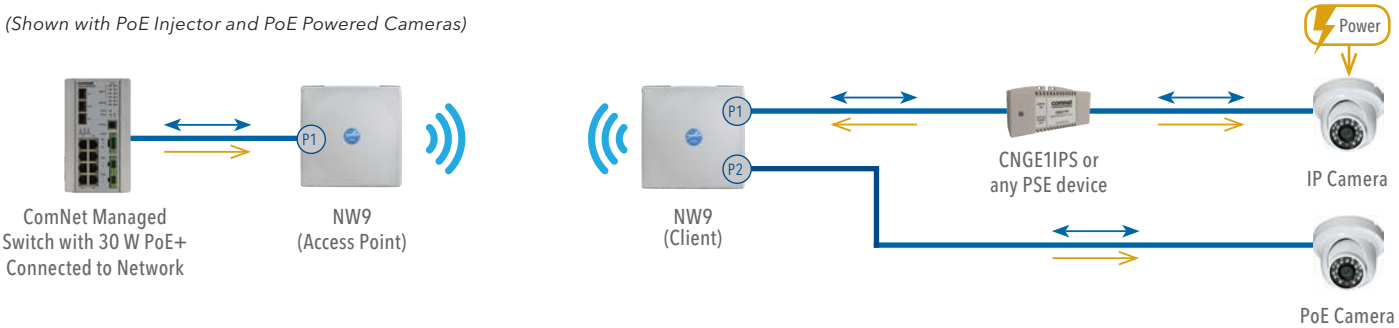
- Sturdy cast aluminum enclosure
- 5 GHz wireless radio
- Up to 500 Mbps throughput
- IEEE802.3at PoE Compliant PD and PSE
- Distances up to 4 mi (FCC) with MAC Lock enabled
- Ruggedized heavy duty IP67 rated enclosures

Ordering Information

Part No.	Description
NW9	Individual Hardened Single Radio, 10/100/1000TX PD + 10/100TX PSE Ethernet Ports (FCC NA Region)
NW9E	Individual Hardened Single Radio, 10/100/1000TX PD + 10/100TX PSE Ethernet Ports (ETSI EU Region)
NW9IC	Individual Hardened Single Radio, 10/100/1000TX PD + 10/100TX PSE Ethernet Ports (ETSI EU Region)

Point-to-Point Topology

(Shown with PoE Injector and PoE Powered Cameras)



NW1DR[IC] High Throughput and Scalable Dual Radio Wireless Bridge

The NetWave® industrially hardened narrow bandwidth dual wireless radio is used for redundant ring and drop & repeat topologies when used with an external antenna. Radio 1 is an internal antenna while radio 2 has dual connectors for an external antenna. The wide range of channel spectrum widths available on the NW1DR[IC] series of radios gives user options for either high throughput or more non-overlapping channel options commonly required for noisy or dense radio deployments. Using the NW1DR[IC] will increase the number of available non-overlapping channels while improving stability in crowded RF environments. The NW1DR is FCC certified for use in North America and the NW1DRIC is IC certified for Canada.

Features

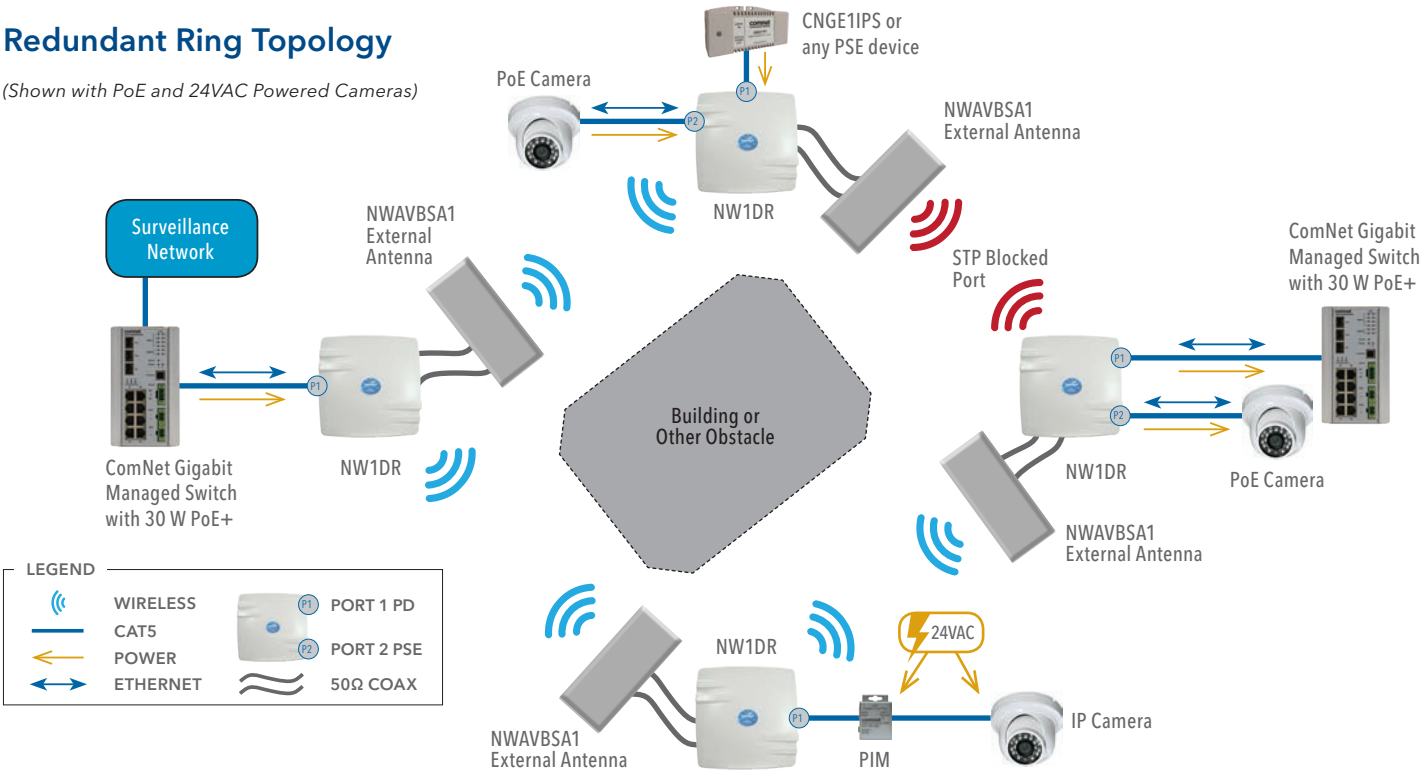
- Scalable - Narrow Channel 5 and 10 MHz Bandwidths
- Expand your WLAN without losing reliability
- Up to 240 Mbps Throughput
- IEEE802.3at PoE Compliant PD on port 1
- IEEE802.3af power source (PSE) available on port 2

Ordering Information

Part No.	Description
NW1DR	Industrially Hardened Dual Radio Narrow Bandwidth Wireless Bridge, (FCC NA Region)
NW1DRIC	Industrially Hardened Dual Radio Narrow Bandwidth Wireless Bridge, (Industry Canada NA Region)

Redundant Ring Topology

(Shown with PoE and 24VAC Powered Cameras)



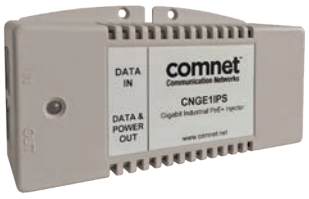
NWKSP(X) Solar Power for Wireless Ethernet

NetWave® Solar kits provide continuous 30 W remote power to networked edge equipment, and include a high quality photovoltaic solar panel, outdoor enclosure with gasketed hinged door and tamper proof locks, power controller and power injection module, all the mounting hardware and is available with or without sealed lead acid batteries. The equipment can be mounted to a four-to-six inch (ten-to-fifteen centimeter) pole or to a wall with the included mounting hardware. The included controller protects against overcharge and over discharge while optional 220 Ah high performance 24 V batteries give the best available deep discharge and temperature performance. Systems provide 48 V PoE output with a 40 hour reserve time (including 25% battery derating for moderately low temperatures).

Ordering Information

Part No.	Description	Solar Panels	Peak Sunlight	System Weight with Batteries*
NWKSP3	30 W Continuous Power Solution	2 × 120 W	6 hrs	299 lb / 135 kg
NWKSP4	30 W Continuous Power Solution	4 × 120 W	3 hrs	418 lb / 189 kg
Included	Enclosure, Controller, Solar Panel, Cables, Mounting hardware for the Solar Panel and Enclosure			
Options	Kits are optionally available without batteries included.			

Optional Accessories



CNGE1IPS

NWAVBSA1

NWADA1

NWBKT

Ordering Information and Compatibility

Part No.	Description	Compatibility (Includes any applicable ETSI models)				
		NW1	NW1/M	NW9	NWK11/M	NW1DR
/IA870	Internal 8 dBi, 70° beam width 5 GHz antenna	–	•	–	–	–
NWAVBSA1	External Dual Polarization 4.9-5.8 GHz 16 dBi Variable Beam Sector Antenna	†	–	–	–	•
NWADA1	External Dual Polarization 4.9-5.8 GHz 19 dBi 17° Beamwidth Directional Antenna	–	–	–	–	•
NWPM24PPI	48 VDC Hardened 100 Mbps TX Passive Power Injector	•	•	•	•	•
CNGE1IPS	35 W 56 VDC Gbps PoE Injector	–	–	•	–	•
NWBKT	Articulating Wall Mount Bracket	•	–	–	–	•

[†] Compatible, requires /EXA model option.

Technical Support

The ComNet Technical Support and Design Center provides pre-sale and post-sale support for Ethernet transmission network and fiber optic system design. The department is staffed by some of the most highly experienced, regarded and recognized experts in the industry. Our direct Design Center phone number is 1-888-678-9427 or you can call 1-203-796-5300 in the US or +44 (0)113 307 6409 throughout Europe and ask for the Design Center, or contact us by E-mail at designcenter@comnet.net

LIFETIME WARRANTY

We're so confident in the long-term reliability of our products, we back them with a no-questions-asked Lifetime Warranty.

Delighting the Customer

ComNet's Customer Care Center is here to provide solutions. Staffed by experienced, knowledgeable, and courteous representatives, the ComNet Customer Care team is there to help. Customer Care representatives are available to answer your questions concerning pricing, product availability, order status, shipping dates, returns, warranty claims, and much more.

Product Training and Education

ComNet offers a full curriculum of fiber optic and Ethernet product training designed to educate you to make the right choices when selecting transmission equipment for your projects. Available online or in person, ComNet training qualifies for CEU credit.

Travel light!

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