



M900S Series™

900 MHz

NLOS Broadband Wireless System

The M900S Series point-to-multipoint broadband wireless platform utilizes the benefits of the 900 MHz license-exempt spectrum and delivers up to 3 Mbps to the subscriber. Ideal for NLOS deployment in areas with foliage, the M900S is a fully integrated outdoor unit that includes an internal dual-polarized antenna and also provides a connector for an optional external antenna.

Product Highlights

- **900 MHz NON-LINE-OF-SIGHT PERFORMANCE**

The M900S was designed for deployment in areas where foliage and other obstructions obscure line-of-sight between the access point (AP) and subscriber unit (SU). The system offers excellent receiver sensitivity and best-in-class overall system gain for outstanding non-line-of-sight (NLOS) range. Users can expect typical NLOS performance of up to 6 miles or beyond*. Use of external antennas increases range and fade margin even further. In addition, Spread Spectrum modulation promotes resistance to multipath fading.

- **ANTENNA FLEXIBILITY**

The M900S AP and SU both include an integrated 10 dBi dual polarized patch antenna as well as a connector for an optional external antenna. External antenna options include a 8.5 dBi omni antenna for the AP and a 15 dBi yagi for both the AP and SU. The M900S SU auto-sensing feature allows the firmware to choose the antenna with the strongest signal, or the user can manually select the internal or external antenna. An external-only antenna version of the M900S SU is also available.

- **CHANNEL FLEXIBILITY**

The M900S is configured with four channels, each 6 MHz apart. The user can redefine channels by selecting frequencies in single MHz increments. The SU scans all channels until it associates with a properly configured AP. This allows redundancy of APs as well as a simple and quick method to switch channels on an entire sector.

- **INTERFERENCE MITIGATION**

The M900S offers powerful resistance to interference with the Automatic Repeat Request (ARQ) feature which automatically re-transmits errored packets to mask RF errors to higher layer protocols. In addition, the M900S provides mitigation tools such as dual polarity antennas, automatic SU power leveling, and threshold control.

- **INTEGRATED DESIGN**

The M900S radios are fully weatherized outdoor units featuring Power-over-Ethernet (PoE) designed for quick deployment and easy installation.

- **MANAGEMENT FEATURES**

The M900S offers remote and local management via Telnet, SNMP and HTTP via browser. Powerful tools such as site survey and upstream/downstream CIR/MIR controls allow operators total control and flexibility in managing their network.

* Non-line-of-sight performance may vary due to leaf density, moisture content, and other environmental factors.

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M900S Specifications

COMPATIBILITY / RANGE CHART

Part Number	Model Type	Antenna	Range / Fade Margin
M900S-AP	Access Point w/ internal & external antennas	Internal, 10 dBi, External	6 miles NLOS* / 10 dB
M900S-SU	Subscriber Unit w/ internal & external antennas	Internal, 10 dBi, External	Up to 20 miles / 18 dB
M900S-SU-EXT	Subscriber Unit Connectorized	External only	Up to 20 miles / 18 dB

* Non-line-of-sight performance with internal antenna - may vary due to leaf density, moisture content, and other environmental factors.

RADIO PARAMETERS

Frequency of Operation	902 - 928 MHz
Channels	4 non-overlapping, user changeable
Channel Spacing	6 MHz, user changeable
RF Power Output	+26 dBm Max Setting -4 dBm Min Setting
Modulation Format	Direct Sequence Spread Spectrum (DSSS)
Certification / Compliance	FCC Part 15.247
Receiver Sensitivity (BER 10 ⁻⁶)	-90 dBm typical

DATA AND OPERATIONAL PARAMETERS

Access Method	TDD with SmartPolling™
User Data Throughput	3 Mbps
Upstream/Downstream Throughput	Dynamic, automatically adjusts to suit demand
Bandwidth Control	CIR and MIR upstream/downstream control by AP
Maximum Number SUs per AP	126
Auto Repeat Request	Continuous ARQ with Selective Repeat
Security	Trango proprietary authentication method, based on MAC address and alphanumeric base ID; over-the-air data scrambling.
Configuration & Management	Telnet, SNMP, TFTP, HTTP

ANTENNA PARAMETERS

Internal Antenna (AP and SU)	Integrated 10 dBi 60° X 60° patch dual polarized (HPOL/VPOL) (Not supplied in -EXT model)
Omni Antenna** (Optional)	8.5 dBi 360° X 10° (VPOL) - Comtelco Part # BS915XL7** (Requires N-SMA RP adapter)
Yagi Antenna*** (Optional)	15 dBi 30° X 30° (VPOL or HPOL) - Cushcraft part # PC9013N*** (Requires N-SMA RP adapter)

POWER PARAMETERS

Power Method	Power over Ethernet (PoE Injector JBox included)
Voltage Input	24 VDC
Standard Power Supply	120VAC to 24VDC
PoE Cat-5 Max Cable Length	300 feet on 24 AWG STP Cat-5 cable

PHYSICAL AND ENVIRONMENTAL

Ethernet Interface	RJ45, 10/100BaseT, auto sense, auto negotiate
Antenna Connector	SMA reverse polarity
Reset Button	Resets unit to factory default settings
Radio Enclosure	All-weather, powder coated, cast aluminum with polycarbonate radome
Temperature Range	-40° to 60° C (-40° to 140° F)
Radio Weight	4 lbs.
Radio Dimensions	12.5" x 8" x 2.75"
Standard Mounting Hardware	2 U-Brackets, all-thread, nuts and washers (for pole mount)
Shipping Weight	10 lbs. (without external antennas)
User Interfaces	RJ45 (shielded)

** Available from Comtelco (www.comtelcoantennas.com) and Comtelco distributors

*** Available from Cushcraft (www.cushcraft.com) and Cushcraft distributors

Features and specifications are typical and subject to change without notice.



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