



Loop-W8140 Outdoor 2.4G/5.8G Wireless Bridge

Features

General

- Weatherproof IP67 plastic casing
- Single/dual internal or external antenna options
- AP Mode: 2.4G or 5.8G
- Long range with high-gain external antenna
- Ideal for point-to-point and point-to-multi-point Line of Sight (LOS) applications
- IEEE802.11a/b/g/n compliant up to 150 Mbps
- Manufacture option:
 - a/b/g/n: 100 mW
 - a: 250 mW / b/g: 500 mW
- Mode selectable: Access Point (AP), Bridge, Client, Master, Remote
- Bandwidth control with QoS, and video, voice and data scheduling
- Wireless Distribution System (WDS)
- User-assigned VLAN tags for data and management
- Bandwidth control with QoS, video, voice and data scheduling
- Protocol filtering for Internet and Intranet networks
- Up to 250 associations and 50 concurrent users
- Wireless isolation between wireless clients
- Auto or manual channel setup with DFS function to avoid interference
- Web and SNMP management
- Standard
 - Wireless: IEEE802.11a/b/g/n
 - Ethernet: IEEE802.3, 802.3u (CSMA/CD)
- RoHS compliant

IEEE802.11a/b/g

- IEEE802.11a/b/g compliant up to 54 Mbps
- Channel bandwidth adjustable 5/10/20 MHz
- Up to 108 Mbps data rate in Turbo Mode
- Up to 25 kilometer range with single external antenna line of sight

IEEE802.11a/b/g/n MIMO (manufacture option)

- IEEE 802.11a/b/g/n 2Tx/2Rx compliant up to 300 Mbps, a/n 100 mW
- Up to 25 kilometer range with external antenna line of sight



Pictured: 2 External Antenna ports with USB port

Description

The Loop-W8140 is an outdoor wireless local area networking device for Wireless Local Loop (WLL), a cost-effective solution addressing triple play services - voice, video and data - for home and enterprise access point, router, and gateway applications. It is a perfect solution for point-to-point and point-to-multi-point applications, as well as for E1 solutions.

The W8140 comes in a weatherproof IP67 plastic casing and is designed for use in a number of settings. It is ideal for use in backhaul networks where reliable, long haul wireless communication is critical. Manufacture option includes single or double internal or external antennas. External antennas are sold separately.

W8140 a/b/g

Paired with an external antenna with line of sight, the 250 mW or 500 mW W8140 can be used to establish wireless links up to 25 kilometers apart.

Configurable as an Access Point, Bridge, Client, Master, or Remote device, the W8140 can support up to 250 Client associations and 50 concurrent users. As a repeater, it supports one wireless uplink and 20 concurrent wireless downlinks.

W8140 a/b/g/n MIMO

The Loop-W8140 a/b/g/n MIMO uses the 2Tx/2Rx MIMO OFDM radio design to offer an outstanding performance with high sensitivity and throughput of up to 300 Mbps. It promises fast and reliable transmission of signals.

Ordering Information

Note: RoHS compliant units are identified by the letter **G** appearing immediately at the end of the ordering code

External antenna models. Antennas must be purchased separately. Distances are estimated under optimal conditions. Actual distances may vary.

Model	Description	Notes
Loop-W8140-EANT-freq-abg-100-IP67P- G	802.11a/b/g (2.4G or 5.8G) 100 mW WLAN outdoor device. Up to 15 kilometer range with single external line of sight antenna, weatherproof plastic enclosure with IP67 protection rating. Standard package includes: mounting bracket, watertight RJ45 connector and USB connector (without cable).	Where encl is defined in the table below
Loop-W8140-MIMO-EANT-freq-abgn-2X2-100-encl- G	802.11a/b/g/n (2.4G or 5.8G) 100 mW WLAN outdoor device. 2Tx/2Rx, up to 15 kilometer range with two external line of sight antennas. Standard package includes: mounting bracket, watertight RJ45 connector and USB connector (without cable).	You must select a PoE adaptor, see table below. Please order separately for external antennas listed in the table below
Loop-W8140-EANT-freq-abg-500-encl- G	802.11a/b/g (2.4G or 5.8G) 2.4G supports 500 mW; 5.8G supports 250 mW. WLAN outdoor device. Up to 25 kilometer range with single external line of sight antenna. Standard package includes: mounting bracket, watertight RJ45 connector and USB connector (without cable).	You must select freq (frequency) as default, see table below.
Loop-W8140-MIMO-EANT-freq-an-2X2-500-encl- G (Future Option)	802.11a/n (2.4G or 5.8G) 250/500 mW WLAN outdoor device. 2Tx/2Rx, up to 25 kilometer range with two external line of sight antennas. Standard package includes: mounting bracket, watertight RJ45 connector and USB connector (without cable).	
Loop-W8140-MIMO-EANT-freq-bgn-2X2-500-encl- G (Future Option)	802.11b/g/n (2.4G or 5.8G) 500 mW WLAN outdoor device. 2Tx/2Rx, up to 25 kilometer range with two external line of sight antennas. Standard package includes: mounting bracket, watertight RJ45 connector and USB connector (without cable).	

Internal antenna model. Distances are estimated under optimal conditions. Actual distances may vary.

Loop-W8140-IANT18-freq-abg-100-IP67P-add- G	802.11a/b/g (2.4G or 5.8G) 100 mW WLAN outdoor device. Up to 8 kilometer range with internal 18 dBi line of sight antenna, weatherproof plastic enclosure with IP67 protection rating. Standard package includes: mounting bracket, watertight RJ45 connector (without cable). Note: add: option choice for USB connector for RSSI meter	Where add is defined in the table below You must select a PoE adaptor, see table below. You must select freq (frequency) as default, see table below.
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- Where **freq** is used to select a frequency

Frequency	Description
2.4	2.412 GHz to 2.462 GHz
5.8	5.18 GHz to 5.825 GHz

- Where **encl** is used to select the protection rating for enclosure.

Protection Rating =	Description
IP67P	Weatherproof plastic enclosure with IP67 protection rating

- Where **add** is used to select the USB connector for RSSI Meter

add =	Description
USB	USB connector for RSSI meter (without cable)

Accessories/Spare Parts Options

User's Manual


Loop-W8140-UM	User's Manual (optional, paper copy). A CD version of the manual is already included as standard equipment.
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Power over Ethernet

PoE Adapter

Loop- ACC-POE-COMB-AC-DC-RJ2- G	Input: 100-240 Vac Output: Combined 48Vdc power and data	You must select a PoE adaptor and the correct power cord below. <ul style="list-style-type: none"> CE mark 24W 0-40°C
Loop- ACC-POE-COMB-AC-DC-3AF- G	Input: 100-240 Vac Output: Combined 48Vdc power and data IEEE 802.3af compliant single port injector	

Power Cord for PoE Adapter

Loop-ACC-PC-USA	AC power cord for Taiwan/America	
Loop-ACC-PC-EU	AC power cord for the EU	
Loop-ACC-PC-UK	AC power cord for the UK	
Loop-ACC-PC-AUS	AC power cord for AUS	
Loop-ACC-PC-CH	AC power cord for China	

RF Cable

Loop- ACC-CAB-RFC4-NM-010-NM-01- G	50 Ohm Low Loss RF Cable (1m) N(Male) - N(Male)
Loop- ACC-CAB-RFC4-NM-030-NM-01- G	50 Ohm Low Loss RF Cable (3m) N(Male) - N(Male)

Water-tight RJ45 Connector

Loop-ACC-RJ45WTCON- G	Water-tight RJ45 connector (part of standard package)
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Mounting Kits

Hose Clamp

Loop-ACC-HC-6	Clamp with maximum diameter 6 cm (part of standard package)
Loop-ACC-HC-20	Clamp with maximum diameter 20 cm

Mounting Bracket

Loop-ACC-MB-L	L-Type mounting main holder and kit (part of standard package)
Loop-ACC-MB-U	U-Type screw and kit (part of standard package)

Lightning Arrestor

Loop- ACC-LA-0-3G-NM-NF-01-G	Lightning Arrestor for 1.0 to 3.0 GHz (for 2.4G model only)
Loop- ACC-LA-2-6G-NM-NF-01-G	Lightning Arrestor for 2.0 to 6.0 GHz (for 2.4G or 5.8G models)

Installation Tool

Loop- ACC-RSSI-METER-G	Received Signal Strength Indicator tool
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External Antennas**2.4GHz Series Antenna**

Loop-ACC-ANT-OA-08DB-2400-2483-01-G	Omni Antenna for Base Station 8dBi (2.4 GHz - 2.483 GHz)
Loop-ACC-ANT-OA-12DB-2400-2483-01-G	Omni Antenna for Base Station 12dBi (2.4 GHz - 2.483 GHz)
Loop-ACC-ANT-OA-15DB-2400-2500-01-G	Omni Antenna for Base Station 15dBi (2.4 GHz - 2.5 GHz)
Loop-ACC-ANT-PA-18DB-2400-2483-01-G	Panel Antenna 18dBi (2.4 GHz - 2.483 GHz)
Loop-ACC-ANT-PA-20DB-2400-2483-01-G	Panel Antenna 20dBi (2.4 GHz - 2.483 GHz)
Loop-ACC-ANT-SGA-19DB-2400-2483-01-G	Square Grid Antenna 19dBi (2.4 GHz - 2.483 GHz)
Loop-ACC-ANT-SGA-24DB-2400-2483-01-G	Square Grid Antenna 24dBi (2.4 GHz - 2.483 GHz)

5.8GHz Series Antenna

Loop-ACC-ANT-DPA-23DB-5150-5875-02-G	Directional Patch Antenna 23dBi (5.150 GHz - 5.875 GHz)
Loop-ACC-ANT-DPA-19DB-5150-5850-02-G	Directional Patch Antenna 19dBi (5.15 GHz - 5.85 GHz)
Loop-ACC-ANT-OA-08DB-5400-5875-02-G	Omni Antenna 8dBi (5.4 GHz - 5.875 GHz)
Loop-ACC-ANT-OA-12DB-5725-5850-01-G	Omni Antenna 12dBi (5.725 GHz - 5.850 GHz)
Loop-ACC-ANT-PA-16DB-5725-5850-01-G	High Performance Panel Antenna 16dBi (5.725 GHz - 5.850 GHz)
Loop-ACC-ANT-PA-18DB-5100-5725-01-G	High Performance Panel Antenna 18dBi (5.1 GHz - 5.725 GHz)
Loop-ACC-ANT-SGA-24DB-5725-5850-01-G	Square Grid Antenna 24dBi (5.725 GHz - 5.850 GHz)
Loop-ACC-ANT-SGA-27DB-5725-5850-01-G	Square Grid Antenna 27dBi (5.725 GHz - 5.850 GHz)

Firmware Upgrade

Loop-W8150-FWUPGR	Firmware Upgrade. Customers who desire to have a firmware upgrade after their warranty has expired can purchase this option. This will upgrade the firmware to the most current version and provide an additional 12 months of software repair and patches on existing functionality as necessary.
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Loop-W8140 General Product Specifications**Transmitter Output Power and Receiver Sensitivity****2.4G (2412 – 2462 MHz)**

	100 mW		500 mW	
	1 Tx Power Max.	2 Rx Sensitivity	1 Tx Power Max.	2 Rx Sensitivity
b	20 dBm	-93 dBm	27 dBm	-96 dBm
g	20 dBm	-93 dBm	27 dBm	-90 dBm
n	18 dBm	-92 dBm		

5.8G (5180 – 5825 MHz)

	100 mW		250 mW	
	1 Tx Power Max.	2 Rx Sensitivity	1 Tx Power Max.	2 Rx Sensitivity
a	17 dBm	-91 dBm	24 dBm	-91 dBm
n	16 dBm	-91 dBm		

Ethernet Functions

Ethernet Port	10/100 Base-T (RJ-45 connector) with auto MDIX
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Management Functions

Web-based management	Yes
System Load Default	Yes
System status report	Yes
Association Client List	Yes
SNMP	V1 and V2c
Auto Associate to IP with same ESSID	Yes
DHCP Client, Auto Negotiate for IP	Yes
IP address discovery software (Viper Quick Start)	Future option
Firmware can be upgraded through web-server and Telnet	Yes
Number of client associations	AP mode: 250
Number of concurrent users	AP mode: 50 Repeater mode: 30
Number of Wireless uplinks	Repeater mode: 1
Password Access control to configuration	2 Levels
Ping from Device	Through Telnet

Security and Access Control

Static WEP	Maximum 128 bits
MAC Access Control List	Yes
Remote AP MAC Control	Yes
WPA, 802.1x Support	In AP mode only
WPA-PSK	PassPhase with TKIP and AES ciphers PEAP, EAP-TLS, EAP-TTLS, EAP-GTC
Configuration file download (Telnet)	Yes
Save last good setting	Yes
Software reset	Yes
Software factory reset	Yes
Multiple FTP Pass Through	Yes
User-assigned separate VLAN tags for data and management	Yes
Bandwidth Limiting with QoS (priority for UDP over TCP data)*	*Note: When this feature is enabled, the data bandwidth is set, and the balance of bandwidth will be used for live data such as video and VoIP packets.
802.11e QoS (priority for Voice and Multimedia)	For AP Mode
Wireless Client to Client Isolation	Yes
Suppress SSID	Enable, Disable, Disable with multiple clients behind CPE
Software-selectable Wireless Distribution System (WDS)	AP mode: point-to-point, WDS unavailable Master/remote mode: point-to-multi-point, WDS-enabled

Electrical

Power Input	18-48V DC through RJ45
Power Consumption	Typical 8.5 Watts (Maximum 9 Watts)

Physical and Environmental

Dimensions	121.3 mm x 214.2 mm x 46 mm (W x H x D)
Net Weight	1.0 Kg, internal antenna module only 0.8 Kg, external antenna module only
Antenna Connectors	Two (2) 50 ohm, N-type (female)

Power Over Ethernet (PoE)	Passive PoE, 3af compliant option
Operating Temperature	-20°C to +60°C
Relative Humidity when operational	15% to 90% (non-condensing)
Relative Humidity during storage	Maximum 95% (non-condensing)
Wind Speed Support	160 km/hr (100mph)

Standards and Compliances

IEEE Wireless Standard	802.11a/b/g & 802.11a/b/g/n
IEEE Ethernet Standard	802.3, 802.3u (CSMA/CD)
Waterproof Rating	IP67
Random Vibration	IEC-68-2-64
Shock	IEC-68-2-29
Drop	IEC-68-2-32
Salt Fog	IEC-68-2-11
Solar Radiation	IEC-68-2-5
Safety	EN 60950
EMC and RFI	FCC Part 15 C
ESD	IEC 61000-4-2
Lightning Protection at Ethernet Port	Yes
Certification	CE

a/b/g 100 mW / 250 mW / 500 mW Product Specifications

RF (Radio Frequency) Specifications

Frequency	2.4 GHz: 2412 to 2462 MHz or 5.8 GHz: 4900*/5180 to 5825 MHz (manufacture option) (*Future option)
Maximum Data Rate with Auto Fall Back	108 Mbps
Wireless Data Rate	54, 48, 36, 24, 12, 11, 9, 6, 5.5, 2, 1 Mbps, 108 Mbps for Turbo mode
Channels Country Code Setting	<ul style="list-style-type: none"> ▪ USA ▪ China ▪ India ▪ Other (on request)
Channel Frequency Step Size	5 MHz
Best Channel Scanning at Power up	AP Mode only
Radio Channel Select	Determined by AP
Radio Power Control (dB steps)	From 5 dBm to maximum
Transmitter Output Power	See table under General Product Specifications
Modes Supported	Access Point, Client, Bridge, Master, Remote
Nominal Antenna Port Impedance	50 ohms x 2 (for external antenna connector, if applicable)
Media Access Protocol	CSMA/CA with ACK (Carrier Sense Multi-point Access/Collision detection with Acknowledgement)
Modulation Technique	Automatically determined by internal chip: DSS, DBPSK, DQPSK, CCK, OFDMBPSK, QPSK, 16QAM, 64QAM
Maximum distance (with external antenna)	25 kilometers, point-to-point
Antenna Type	Single internal or single external antenna

MIMO a/b/g/n 100 mW Product Specifications

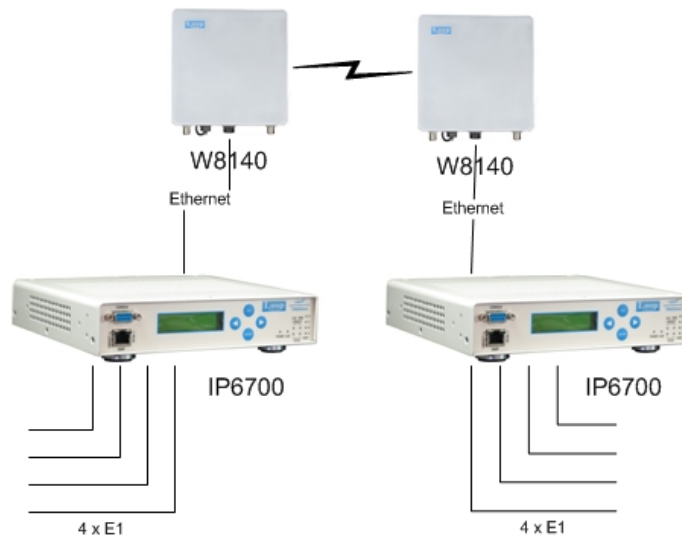
RF (Radio Frequency) Specifications

Frequency	2.4 GHz: 2412 to 2462 MHz or 5.8 GHz: 4900*/5180 to 5825 MHz (manufacture option) (*Future option)
Wireless Data Rate	Up to 300 Mbps
Channels Country Code Setting	<ul style="list-style-type: none"> ▪ USA ▪ China ▪ India ▪ Other (on request)
Best Channel Scanning at Power Up	AP Mode only
Radio Channel Select	Determined by AP
Radio Power Control (1 dB steps)	Minimum 5 dBm to maximum
Transmitter Output Power	See table under General Product Specifications
Modes Supported	Access Point, Client Bridge, Master, Remote
Nominal Antenna Port Impedance	50 ohms x 2 (for external antenna connector, if applicable)
Media Access Protocol	CSMA/CA with ACK (Carrier Sense Multi-point Access/Collision detection with Acknowledgement)
Modulation Technique	Automatically determined by internal chip: DSS, DBPSK, DQPSK, CCK, OFDMBPSK, QPSK, 16QAM, 64QAM
Maximum Distance (with external antenna)	25 kilometers, point-to-point
Antenna Type	Dual external antennas sold separately: 2 ports for Tx/Rx

Application Illustrations

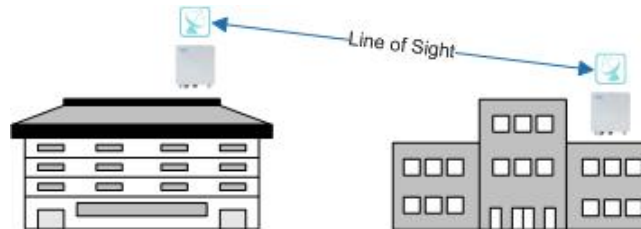
E1 Solution

Use the Loop-IP6700 TDMoEthernet to transform TDM signals into Ethernet signals and transport them over a Loop-W8140 Wireless Ethernet Facility.



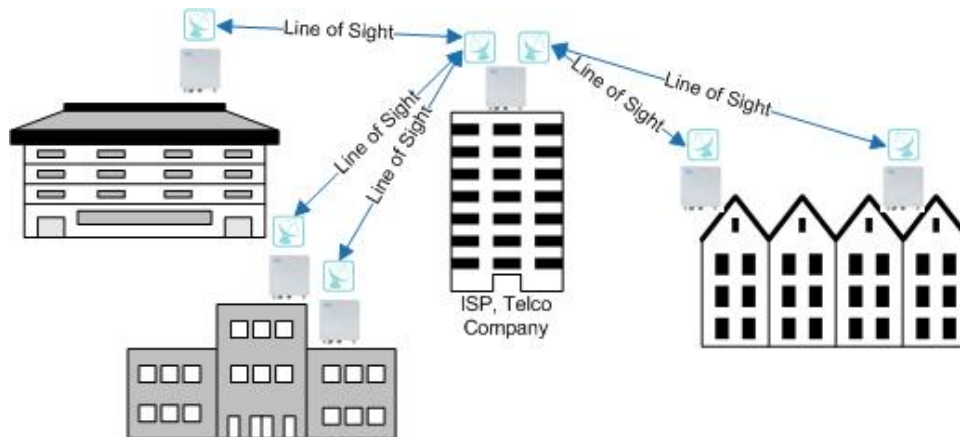
Point-to-Point Wireless Bridge

- ◆ Up to 25 kilometers for Access Point with high-gain antenna
- ◆ Up to 43 Mbps throughput for near distance
- ◆ Up to 26 Mbps throughput at 4 kilometers



Point-to-Multi-Point Wireless

- ◆ One master supports up to 50 concurrent remote units
- ◆ Distance and throughput are dependent on local environment



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