

## LED display:

The AW900x has a 16 LED display to display the status of the device.

LED	Name	Function	Color
1	<i>Power</i>	Unit has power and has successfully booted.	Red
2	<i>RF Link</i>	The radio has successfully linked with its partner.	Green
3	<i>RF TX</i>	Radio transmission is occurring.	Green
4	<i>RF RX</i>	Radio reception is occurring.	Green
5	<i>Eth Link</i>	The Ethernet Port has a valid Ethernet connection	Green
6	<i>Activity</i>	The AW900x is processing data	Green
7	<i>1 (channel)</i>	By adding the numbers that are lit the user can determine the current radio channel.	Green
8	<i>2 (channel)</i>		
9	<i>4 (channel)</i>		
10	<i>8 (channel)</i>		
		1 903 MHz 2 905 MHz 3 907 MHz 4 909 MHz 5 911 MHz 6 913 MHz 7 915 MHz 8 917 MHz 9 919 MHz 10 921 MHz 11 923 MHz 12 925 MHz	
11	<i>Link Quality</i>	Excellent link quality - No retransmissions	Green
12	<i>Link Quality</i>	Very good link quality - Few retransmissions	Green
13	<i>Link Quality</i>	Good link quality - Some retransmissions	Amber
14	<i>Link Quality</i>	Fair link quality - Many retransmissions	Amber
15	<i>Link Quality</i>	Weak link quality - Some packet failures	Red
16	<i>Link Quality</i>	Poor link quality Some packet successes	Red



This product should be installed **ONLY** by experienced, professional installers who are familiar with local building and safety codes, and wherever applicable, are licensed by the appropriate authorities. Failure to do so may void the warranty and may expose the user or the service provider to legal and financial liabilities.

## Advanced Settings:

The AW900x has three user selectable modes; *LED on/off*, *Site Survey* and *Manual Frequency Select*. These modes are enabled by the 8 position DIP switch on the master. These settings are automatically shared between the units and only need to be set on one unit for both to be activated in these user selected modes. To access the DIP switch and to view the LED displays the enclosure will need to be opened.

### LED Display on/off (default is OFF - DIP switch 1)

This DIP switch turns the LED display on or off. The LED's should be turned off when the enclosure is closed.

### Site survey mode (default is OFF - DIP switch position 4)

In this mode the AW900x can perform a site survey. When activated, the Link Quality LED's will be continuously updated to allow the installer to optimize antennas orientation and perform a channel quality assessment. In this mode the Radio link is flooded with simulated Ethernet traffic to stress the link and increase the accuracy of the Link Quality display. Regular Ethernet traffic does not get transported while the radios are in this mode.

### Manual frequency selection mode (default is OFF - DIP switches 2,3,5-8)

The AW900x was designed to automatically select the best frequency for radio transmission. There may be circumstances when the user wishes to restrict the operation of the AW900x to a subset of the 902-928 band. The user may activate a manual selection mode that will allow the radio to automatically choose the best channel within a grouped subset of the 12 available channels:

Bottom 4 channels	DIP switch [2 On / 3 Off]
Middle 4 channels	DIP switch [2 Off / 3 On]
Top 4 channels	DIP switch [2 On / 3 On]

Or - the user may wish to specify a **specific channel**. This can be done by setting DIP switches 5-8 as shown in the table below. [Turn DIP 2 Off / 3 Off]

DIP Setting	Channel	Frequency
5 On / 6 Off / 7 Off / 8 Off	1	903 MHz
5 Off / 6 On / 7 Off / 8 Off	2	905 MHz
5 On / 6 On / 7 Off / 8 Off	3	907 MHz
5 Off / 6 Off / 7 On / 8 Off	4	909 MHz
5 On / 6 Off / 7 On / 8 Off	5	911 MHz
5 Off / 6 On / 7 On / 8 Off	6	913 MHz
5 On / 6 On / 7 On / 8 Off	7	915 MHz
5 Off / 6 Off / 7 Off / 8 On	8	917 MHz
5 On / 6 Off / 7 Off / 8 On	9	919 MHz
5 Off / 6 On / 7 Off / 8 On	10	921 MHz
5 On / 6 On / 7 Off / 8 On	11	923 MHz
5 Off / 6 Off / 7 On / 8 On	12	925 MHz

## Technical Specifications: (typical)

Characteristic	Specification - description
RF transmission rate:	1.5 Mb/s
Throughput	935 Kb/s
Output power:	4 watts EIRP with 15dBi antenna - +21dBm at antenna port
Receive sensitivity:	-112 dBm at 10e-4 BER with 15dBi antenna
Latency:	< 2ms - assuming a dedicated wireless link to client device.
Jitter:	±0.5ms - depending upon packet size, interference and SNR.
Current consumption:	Transmitting - 230mA at 4.5V
Radio channels:	12 Non-overlapping
Automatic frequency select:	Yes - radio channel automatically selected and adaptively optimized
Manual frequency mode:	Yes
Status LEDs:	Power, RF Link, Ethernet Link, Traffic, RF RX, RF TX, 4/Channel and 6/Link Quality
MAC pass-through filter:	Yes - can be disabled
Error correction technique:	Sub-block error detection and retransmission
Adjacent-band rejection:	SAW receiver filter attenuates cellular and pager interference.
Enclosure Type:	NEMA 4X
Temperature range:	-30°C to 60°C
Power over Ethernet:	Proprietary 6/12 volt system - Includes injectors/power supplies Maximum of 300ft Ethernet cable or 4 Ohm CAT5 cable insertion loss.

## Troubleshooting:

### No Power LED:

Check the power connections.

### No Radio Link LED:

The radio is looking for its matched partner. If both units are powered up and the Power LEDs are active they may be too far away to create the radio connection. Try other locations that may have a less obstructed path or try to reorient the antennas.

Yagi type antennas get their best range when they are both oriented to point directly at each other with the antenna elements oriented in the same plane (vertically or horizontally)

### Radio LINK LED on but Quality Indicator is low:

The units may be too far away to create a good radio connection. Try other locations that may have a less obstructed path or try to reorient the antennas.

### No Ethernet LINK LED:

Check your network connections.

### Still not working?

If practical, temporarily use an Ethernet cable to see if the network is working over a wired connection. If a wire does not work then the problem is with the network.

Support Email: [support@avalanwireless.com](mailto:support@avalanwireless.com)

### Product limited warranty:

This product is warranted to the original purchaser for normal use for a period of 30 days from the date of purchase. If a defect covered under this warranty occurs Avalan will repair or replace the defective part, at its option, at no cost. This warranty does not cover defects resulting from misuse or modification of the product.

### Compliance Statement ( Part 15.19 )

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

### Warning ( Part 15.21 )

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### RF Exposure ( OET Bulletin 65 )

To comply with FCC RF exposure requirements for mobile transmitting devices, this transmitter should only be used or installed at locations where there is at least 20cm separation distance between the antenna and all persons.

### Information to the User - Part 15.105 (b)

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

# AW900x User's Manual



Thank you for your purchase of the AW900x Outdoor Wireless Ethernet Bridge.

If you have any questions when configuring your AvaLAN Bridge, please send us an email: [support@avalanwireless.com](mailto:support@avalanwireless.com)

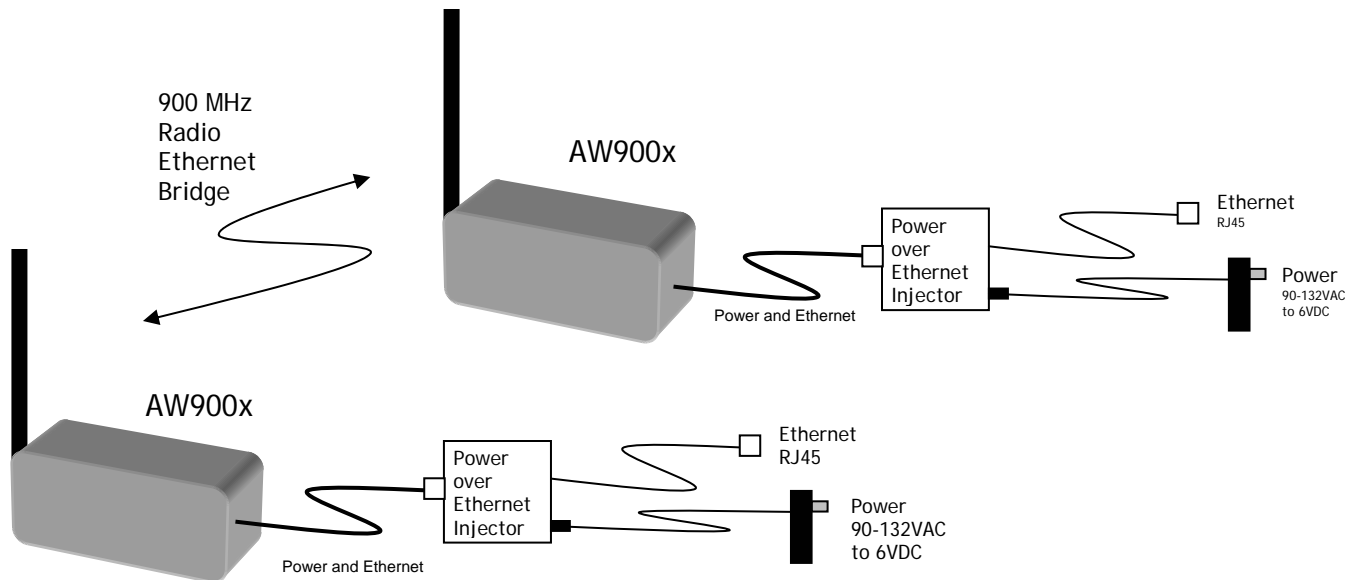
## Your Kit Should Contain:

- (2) AW900x Radio Units
- (2) 90-132VAC 6VDC Power Adapters
- (2) Power over Ethernet Injectors
- (2) 30 ft CAT5e Outdoor Cables

## Quick Setup:

1. Plug in the AC Power to the Power over Ethernet Injectors
2. Plug in the CAT5 cable from the AW900x into the injectors.
3. Connect the Ethernet cable from each injector into a client device.

Each AW900 pair automatically selects the best radio channel, encrypts the Ethernet traffic and transports the data wirelessly to the other AW900x.



Any Ethernet device can be connected to the AW900x. The AW900x functions in place of an Ethernet cable and provides a transparent wireless point to point Ethernet cable replacement. Cross-over cables are not necessary as the AW900x automatically senses the device (client or switch).