Secure 900 MHz Industrial Wireless Ethernet Radio

Many government agencies and certain other industries are required to encrypt sensitive data with a method that conforms to NIST Standard FIPS 140-2. AvaLAN has developed a hardware encryption module that has been validated to FIPS 140-2 Level 2. We have incorporated this module within our wireless radios to allow you to create a FIPS-validated secure private network.

Designed especially for Industrial Automation, data collection and SCADA applications, AvaLAN's AW900FS Secure Industrial Wireless Ethernet Radio uses the latest in FHSS (Frequency Hopping Spread Spectrum) technology to deliver long range, high speed wireless networking with government validated data security.

The radio operates in the unlicensed 900 MHz ISM band, with the transmitter and paired receivers switching rapidly among 50 different channels in a synchronized pseudo-random pattern. Data is communicated robustly and error free despite interference from noise or other signal sources. Both point-to-point bridge and point-to-multipoint star network connections are supported. Able to transmit legally up to one watt of RF power, line of sight distances up to 60 miles can be bridged using directional antennas. 900 MHz operation also allows the radio signals to penetrate through walls and foliage.

The radio features a built-in browser interface for link status monitoring and configuration. An operator at the main HMI (Human to Machine Interface) console can log in to each radio's fixed IP address to facilitate troubleshooting. A small LCD panel on the front of the unit can also verify proper operation at a glance. Encryption keys and passwords are entered through a separate USB interface port that requires physical access to the radio. The security information cannot be accessed through the normal wired or wireless data path.

The radio may be powered through the Ethernet jack from an 802.3af compatible POE (Power Over Ethenet) source or directly from a 5-30 VDC supply through a barrel or Phoenix connector. The antenna is connected via an RPTNC jack on the top of the case. An omnidirectional 2.5 dBi flexible antenna is included with other antenna choices available from AvaLAN. The radio's case is rugged extruded aluminum and is designed to meet C1D2 standards for hazardous environments (certification pending). A DIN Rail mounting clip is provided on the case back to facilitate installation in industrial equipment cabinets.
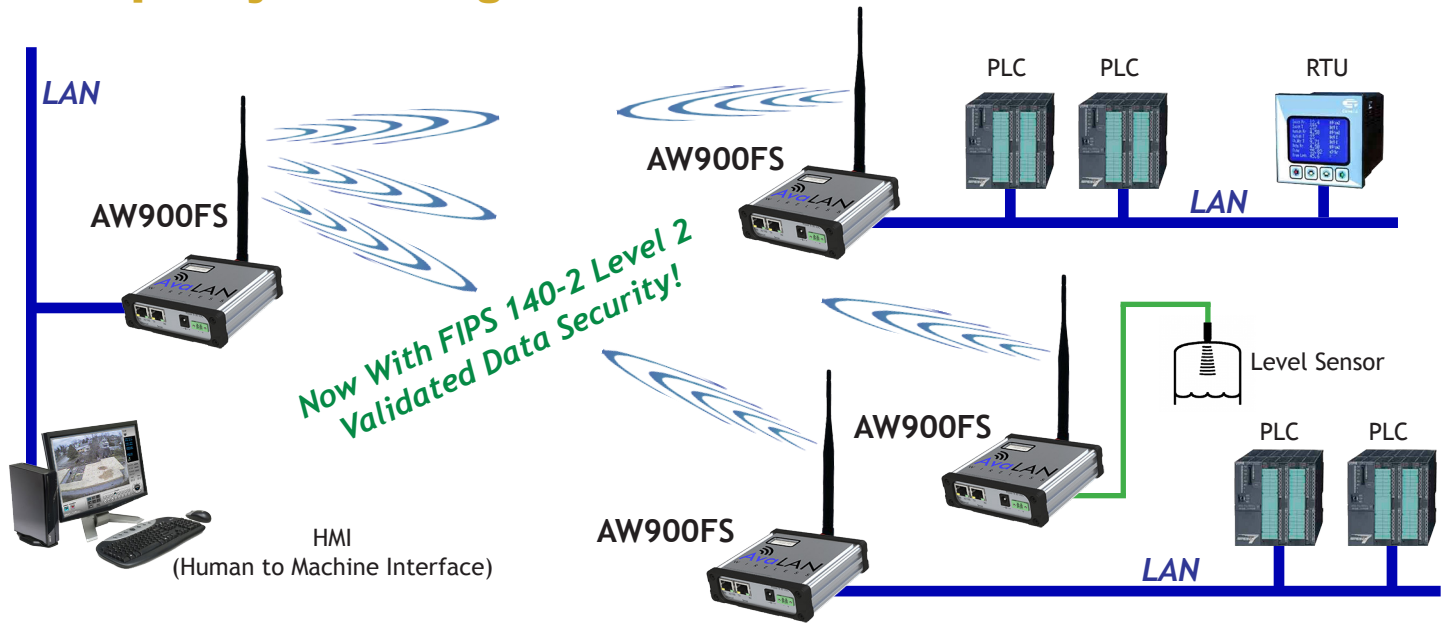
Features

FIPS VALIDATED 140-2 ™

Certificate No. **1452**

Top view showing antenna connector and USB Crypto Interface Port

- FIPS 140-2 Level 2 validated data security - NERC CIP

- 1 Watt RF transmit power for up to 60 mile range

- 200 Kbps FHSS RF data rate

- Built in browser interface for easy re-configuration and monitoring

- LCD display to quickly verify proper operation

- DIN rail mounting clip

- 802.3af Power Over Ethernet

- Muiltipoint network topologies supported

- C1D2 Certification (Pending)

- **FIPS 140-2 Level 3 and NSA Suite B COMING SOON!**

Example System diagram

Now With FIPS 140-2 Level 2 Validated Data Security!

LAN

AW900FS

AW900FS

AW900FS

AW900FS

PLC   PLC   RTU

LAN

Level Sensor

PLC   PLC

LAN

HMI
(Human to Machine Interface)

Technical specifications

PARAMETER	SPECIFICATION
RF Data Rate	200 kbps
Frequency Range	902.75 MHz to 927.25 MHz
Transmit Power	Selectable from 1 mW to 1 W
Receiver Sensitivity	-98 dBm at 10^{-5} BER
Access Scheme	TDMA
Modulation/Spreading	FSK - FHSS
Range	Line-of-sight range up to 60 miles with directional antennas, 5 miles with included omnidirectional antenna
Browser Management Tools	Data Communication Statistics, Network Settings, Transmit Power
Data Security	FIPS 140-2 Level 2 Validated (Certificate #1452)
Operating Environment	-40ºC to +70ºC
Mounting	DIN rail clip
Ethernet Data Interface	10/100baseT
Connectors	RJ-45 for Ethernet, Mini-USB for Encryption Settings
Power System	802.3af 48 VDC Power Over Ethernet or 5-30 VDC through power connectors
Power Consumption	When transmitting at +30 dBm: 6.7 Watts When receiving: 1.0 Watts
Package Size	110 mm wide, 120 mm high, 32 mm thick, weight 0.2 kg
Antenna	RPTNC Connector, 50 Ohm Impedance. 2.5 dBi flexible omnidirectional antenna included.
Warranty	1 Year Parts & Labor, XTRa-Care Extended Warranty 2 Year Extension available at nominal cost
Certification	FCC, IC certified, C1D2 certification pending

Ordering Information

AW900FS
Secure 900 MHz Industrial Wireless Ethernet Radio
Includes: (1) AW900FS Radio (1) AW2-900 2.5 dBi Omnidirectional Antenna (1) AW-12VPS 12 VDC Power Supply (USA plug only)