905U-E Wireless Ethernet Modem

Long range wireless Ethernet, for reliable industrial connectivity

Description

The ELPRO 905U-E Wireless Ethernet Modem is a robust, licensefree wireless transceiver capable of long-range communications to 20 miles (32 km). Operating at 900 MHz and up to 1W, the 802.11 standards-based ELPRO 905U-E provides reliable and secure two-way wireless communications in complex applications connecting PLCs, DCS and SCADA systems, data loggers, or field instruments in challenging outdoor environments typical of industrial monitoring and control applications.

Capable of operating in access point client configuration, functioning as a network bridge/router, or serving as a serial server (RS-232/ RS-485), the ELPRO 905U-E offers node-to-node, node–to–multi-node, and repeater functionality for scalability, with additional I/O expansion delivered through the use of ELPRO 115S expansion modules. Security measures using MAC address/IP filtering and encryption to 128-bit AES provide increased reliability.

Features

- 902–928 MHz frequency and up to 1W RF power (subbands configurable)
- FHSS to 200 kbps data throughput
- Bridge/router, access point client–configurable
- Serial client/server/multicast Modbus® TCP to RTU gateway/ Modbus
- Point-to-point or multipoint functionality, with simultaneous use of RJ-45, RS-232/ RS-485 ports
- 10/100Base-T IEEE 802.3 Ethernet, RJ-45 connector
- Spanning tree (self-healing) support
- Security to 128-bit AES encryption
- MAC address/IP filtering
- Over-the-air network diagnostics and configuration
- On-board discrete I/O channel for failure status

Applications

- PLC communications
- Data logger communications
- Serial and Ethernet communications
- SCADA networks
- Water/wastewater systems
- Gas wellhead RTU communications

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Specifications

SPECIFICATION	DESCRIPTION
Transmitter and Receiver	
Frequency	902–928 MHz [a] 915–928 MHz [b]
Transmit power	0.1–1W (configurable)
Transmission	Frequency hopping spread spectrum (FHSS)
Modulation	Frequency shift keying
Receiver sensitivity	106 dBm @19.2 kbps, 103 dBm @115.2 kbps (1% FER)
Channel spacing	50 x 250 kHz
Data rate	19.2–200 kbps Auto mode selects fastest rate possible relative to RSSI
Range (LoS)	20 miles (32km) @ 4W EIRP [c]
Antenna connector	Female SMA standard polarity
Input and Output	
Discrete input	Input voltage-free contact [d]
Discrete output	Output FET Vdc 500mA [d]
Ethernet Port	
Ethernet port	10/100Base-T, RJ-45 connector, IEEE 802.3
Serial Port	
RS-232	DB-9 female DCE, RTS/CTS/DTR/DCD
RS-485	2-pin terminal block, non-isolated [e]
Data rate (bps)	1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps
Serial settings	7/8 data bits, stop/start/parity (configurable)
Protocols and Configuration	
System address	ESSID; 1–31 character text string
Protocols supported	TCP/IP, UDP, ARP, PPP, ICMP, HTTP, FTP, TFTP, TELNET, Modbus TCP
User configuration	User-configurable parameters via HTTPS embedded Web server
Network parameters	Access point/client/bridge/router Broadcast/control point to point, point to multipoint Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection
Security	128-bit AES, 64-bit proprietary encryption 256 characters (alphanumeric)
Bandwidth Protection	IP address, whitelist/blacklist MAC address, whitelist/blacklist ARP/GARP filtering, whitelist/blacklist
LED Indication and Diagnostics	
LED indication	Power/OK, RX, TX/link, RS-232, LAN, RS-485, digital/O status Refer to product manual for further information
Reported diagnostics	RSSI measurements (dBm) Connectivity information/statistics System log file
Power Supply	
Nominal supply	10 to 30 Vdc, under/over voltage protection
Average current draw	220 mA @ 12V (idle), 120 mA @ 24V (idle)
Transmit current draw	550 mA @ 12V (1W), 290 mA @ 24V (1W)
Compliance	
EMC	FCC Part 15
RF (radio)	FCC Part 15.247; RSS 210
Hazardous area	CSA Class I, Division 2; AS/NZS 4268
Safety	IEC 60950 (RoHS compliant)

SPECIFICATION	DESCRIPTION
General	
Size	4.5” x 5.5” x 1.2” (114 mm x 140 mm x 30 mm)
Housing	Powder-coated aluminum
Mounting	DIN rail
Terminal blocks	Removable, max conductor 14 AWG 0.1 $in.^2$ (2.5 mm^2)
Temperature rating	–40 to +140°F (–40 to +60°C)
Humidity rating	0–99% RH noncondensing
Weight	0.8 lb (0.45 kg)

Note: Specifications subject to change.

a Configured for US

b Configured for Australia, Brazil

c Typical maximum line-of-sight range (country dependent)

d Can be used to transfer I/O status or communications failure output

e Maximum distance 4000’ (1.2 km)

Ordering

PRODUCT CODE	DESCRIPTION	FREQUENCY	RF POWER
905U-E-900-1W	905U-E wireless Ethernet	902–928 MHz	1W

Note: Available RF power and frequency may vary depending on country of application.

Accessories

PRODUCT CODE	DESCRIPTION
Antennas 900 MHz	
DG900-1/5	Whip antenna, SMA male, angle bracket, –2 dBi gain, 3’ (1m) coaxial cable
WH900-SMA	Whip antenna, SMA male, –2 dBi gain
CFD890EL	Dipole antenna, SMA male, mounting bracket, 2 dBi gain, 16’ (5m) coaxial cable
SG900EL	Collinear antenna, N-type female, 5 dBi gain
SG900-6	Collinear antenna, N-type female, 8 dBi gain
YU6-900	Yagi antenna, N-type female, 9 dBi gain
YU16-900	Yagi antenna, N-type female, 15 dBi gain
Cables	
CC3/10/20-SMA	Coaxial cable kit, 9.8' (3m)/32' (10m)/65' (20m), N-type to SMA
CCTAIL-SMA-F/M	Coaxial cable tail, 24" (600 mm), SMA to N-type female/male
ETH-C5X	Ethernet cable, 6' (1.8m), crossover, RJ-45 to RJ-45
ETH-C5A	Ethernet cable, 6' (1.8m), direct, RJ-45 to RJ-45
SER-DB9	Serial RS-232 cable, DB-9 male to DB-9 female, straight through
SER-RJ45	RS-232 serial cable, DB-9 female to RJ-45
Surge Diverters	
CSD-SMA-2500	SMA surge diverter for use with CC10/CC20-SMA
CSD-N-6000	Coaxial surge diverter, bulkhead N-female to N-female
MA15/D/1/S1	Power supply surge diverter, 110 Vac/15A
Power Supplies	
PS-DINAC-12DC-OK	DIN rail power supply, 100–250 Vac, 12 Vdc/5A
PS-DINAC-24DC-OK	DIN rail power supply, 85–264 Vac, 24 Vdc/2.5A
Mounting Brackets	
BR-COL-KIT	Mounting bracket kit for collinear antenna
BR-YAG-KIT	Mounting bracket kit for Yagi antenna

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