

ELPRO Technologies

CONDOR

ELPRO EL-945U-E1
WIRELESS ETHERNET MODEM

Long range wireless Ethernet for high speed & reliable connectivity

DESCRIPTION

The ELPRO 945U-E1 Wireless Ethernet Modem is a robust, license-free wireless transceiver capable of long-range and high-bandwidth communications.

Operating at 900 MHz and up to 1W, the 802.11 standards-based ELPRO 945U-E1 is optimized for throughputs of up to 54 Mbps, which provides robust and secure two-way wireless communications 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 945U-E1 offers node-to-node deterministic mesh network repeatability for further range, and multiple channel spacing options to increase network scalability. Integrated Modbus® server capability allows seamless I/O expansion through the use of ELPRO 115S expansion modules and is 100% compatable with the older 945U-E.

FEATURES

- 902–928 MHz frequency and 250–630 mW RF power
- 802.11 DSSS to 54 Mbps data throughput
- 1.25/2.5/5/10/20 MHz channel spacing options
- Single antenna connection for easy installation
- Access point/client and bridge/router configuration
- Serial client/server/multicast Modbus TCP-to-RTU gateway
- 10/100Base-T IEEE 802.3 Ethernet
- Spanning tree (self-healing) support
- Deterministic AP-to-AP mesh network repeatability
- AP-to-AP fast roaming for movable machinery
- IEEE 802.11i secure 128-bit AES encryption (WPA2)
- MAC and IP address filtering
- Digital I/O channel transfer
- Configurable settings for high noise environments
- Over-the-air network diagnostics and configuration
- VLAN tagging supported for bridging and routing modes.

APPLICATIONS

- Remote well head monitoring
- Pipeline leak detection
- Mining operations infrastructure
- Water treatment facilities
- Video surveillance and security
- Facilities management
- Automated vehicle control
- Tank farm monitoring
- Networking wind turbines
- Solar collectors

SPECIFICATIONS

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Transmitter and receiver	
Frequency	902–928 MHz [a] 915–928 MHz [b]
Transmit power	250 mW (+24 dBm) to 630mW (+28 dBm)
Transmission	900Mhz Direct Sequence Spread Spectrum (DSSS)
Modulation	802.11g orthogonal frequency data modulation (OFDM)
Receiver sensitivity	–95 dBm @ 0.25Mbps, -71 dBm @ 54 Mbps (8% FER)
Channel spacing	9 x 1.25 MHz, 9 x 2.5 MHz, 4 x 5 MHz, 4 x 10 MHz, 2 x 20 MHz
Typical data rate	1–54 Mbps [a] 0.25–27 Mbps [b] Auto mode selects fastest rate possible relative to RSSI
Typical range (LoS)	10 miles (16 km) @ 630mW [c]
Antenna connector	female SMA standard polarity [d] Use CSD-SMA-2500 surge diverter
Input and Output	
Discrete I/O	Input voltage-free contact [b], output FET 30 Vdc 500 mA [b]
Ethernet Port	
Ethernet port	100baseT, RJ-45 connector–IEEE 802.3
Link activity	Link, 100baseT via LED
Serial Port	
RS-232	DB-9 female DCE, RTS/CTS/DTR/DCD
RS-485	2-pin terminal block, non-isolated [d]
Data Rate (bps)	1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 baud
Serial Settings	7/8 data bits, stop/start/parity (configurable)
Protocols and configuration	
System address	ESSID; 1 to 31-character text string
Supported protocols	TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTP, TFTP, TELNET, MODBUS and MODBUS-TCP
User configuration	User configurable parameters via HTTPS embedded Web server
Configurable parameters	Access point/client/bridge/router/VLAN Point to point, point to multipoint Wireless distribution system (AP–AP repeater) Modbus TCP/RTU gateway Serial client/server/multicast Simultaneous RS-232/RS-485 connection Embedded Modbus master/slave for I/O transfer
Security	Data encryption, 802.11i with CCMP 128-bit AES Support for 802.1x Radius server Secure HTTP protocol
Bandwidth Protection	MAC address; whitelist/blacklist IP filtering; 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, connectivity information/ statistics, log file
Network management	Optional network management system
Compliance	
EMC	FCC Part 15; EN 301 489–17; AS/NZS CISPR22
RF (Radio)	EN 300 328; FCC Part 15; RSS 210
Hazardous area	CSA Class I, Division 2; ATEX; IECEx nA IIC
Safety	IEC 60950 (RoHS compliant)
Power supply	
Nominal supply	9-30 Vdc, undervoltage/overvoltage protection
Average current draw	300 mA @ 12V (idle); 160 mA @ 24V (idle)
Transmit current draw	500 mA @ 12V (28 dBm), 250 mA @ 24V (+28 dBm)
General	
Size (H x W x D)	4.5” x 6.7” x 1.2” (114 x 168 x 30 mm)
Housing	Powder-coated aluminum
Terminal blocks	Removable, max conductor 14 AWG 0.1”[2] (2.5mm²)
Mounting	DIN rail
Temperature rating	-40 to +140°F (-40 to +60°C)
Humidity rating	0-90% RH non condensing
Weight	1.0 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

d Supports signal diversity or high gain antenna

[e] Can be used to transfer I/O status or communications failure output

[f] Maximum distance 3937’ (1200m).

Order Codes	
EL-945U-E1	Ethernet Modem: 900MHz, 630mW, DSSS OFDM, 54Mbps

CONTACT

Australia
ELPRO Technologies
29 Lathe Street
Virginia QLD 4014
T +61 7 3352 8600
E sales@elprotech.com
W elprotech.com

USA
ELPRO Technologies Inc
2028 East Ben White Boulevard
#240-5656 Austin, TX 78741-6931
T +1 855 443 5776
E sales@elprotech.com
W elprotech.com

HOW TO ORDER

Simply send us an email at **sales@elprotech.com**, contact your local distributor, or phone **+61 7 3352 8600**

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