



## CONNECTIVITY/CELL

# ELPRO EL-245U-E-A1 WIRELESS ETHERNET MODEM

802.11 5Ghz wireless Ethernet, for reliable long distance connectivity

## DESCRIPTION

The ELPRO 245U-E-A1 wireless Ethernet modem is a robust, inexpensive, licensefree wireless 802.11 standards-compliant transceiver capable of high-bandwidth communications. Operating at 5.8GHz and up to 630 mW, the ELPRO 245U-E-A1 is optimized for data rates of up to 108 Mbps, providing robust long-distance and secure two-way wireless communications in challenging 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 245U-E-A1 offers node-to-node deterministic mesh network repeatability for greater 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 or third-party modbus devices.

## APPLICATIONS

- Factory automation and safety interlocks
- Networking wind turbines and solar collectors
- Video surveillance
- Automated vehicle control
- Tank farm monitoring

## FEATURES

- 5.18–5.825 GHz frequency (802.11a) and 15–630 mW RF power
- Up to 108-Mbps data throughput
- 27-channel (802.11a) options
- Single antenna connection for easy installation
- Access point/client and bridge/router configuration
- Serial client/server/multicast Modbus® TCP to RTU gateway
- 10/100baseT IEEE 802.3 Ethernet
- Spanning tree (self-healing) support
- Deterministic AP-to-AP mesh network repeatability
- Fast roaming for AP-to-AP handover
- 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 support for bridging and routing modes

# SPECIFICATIONS

## CONNECTIVITY/CELL

## ELPRO EL-245U-E-A1 WIRELESS ETHERNET MODEM

### Transmitter and receiver

|                       |                                                                                       |
|-----------------------|---------------------------------------------------------------------------------------|
| Frequency             | 5.150–5.825 GHz <sup>a</sup>                                                          |
| Transmit power – peak | 15–400 mW (data rate and country-specific)                                            |
| Transmission          | Direct Sequence Spread Spectrum (DSSS) <sup>a</sup>                                   |
| Modulation            | Orthogonal frequency data modulation (OFDM) <sup>a</sup>                              |
| Receiver sensitivity  | –95 dBm @ 6Mbps, –74 dBm @ 108 Mbps (8% FER) <sup>a</sup>                             |
| Channel spacing       | 20-MHz spacing (27 channels, 5.150–5.8 GHz) <sup>a</sup>                              |
| Typical data rate     | 6–108 Mbps <sup>a</sup><br>"Auto Mode" selects fastest rate possible relative to RSSI |
| Typical range (LoS)   | 9 miles (15 km) <sup>a</sup>                                                          |
| Antenna connector     | 1 x female SMA, standard polarity                                                     |

### Input and Output

|              |                                                                                 |
|--------------|---------------------------------------------------------------------------------|
| Discrete I/O | Input voltage-free contact <sup>b</sup> , output FET 30 Vdc 500 mA <sup>b</sup> |
|--------------|---------------------------------------------------------------------------------|

### 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 <sup>d</sup>                                |
| 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<br>Point to point, point to multipoint<br>Wireless distribution system (AP–AP repeater)<br>Modbus TCP/RTU gateway<br>Serial client/server/multicast<br>Simultaneous RS-232/RS-485 connection<br>Embedded Modbus master/slave for I/O transfer |
| Security                | Data encryption, 802.11i with CCMP 128-bit AES<br>Support for 802.1x Radius server<br>Secure HTTP protocol                                                                                                                                                                           |
| Bandwidth Protection    | MAC address; whitelist/blacklist<br>IP filtering; whitelist/blacklist<br>ARP/GARP filtering; whitelist/blacklist                                                                                                                                                                     |

### LED Indication and Diagnostics

|                      |                                                                                                                 |
|----------------------|-----------------------------------------------------------------------------------------------------------------|
| LED indication       | Power/OK, RX, TX/link, RS-232, LAN, RS-485, digital/O status<br>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 301 893; FCC Part 15; RSS 210            |
| Hazardous area | CSA Class I, Division 2; ATEX; IECEx nA IIC |
| Safety         | IEC 60950 (RoHS compliant)                  |
| UL             | UL listed                                   |

### Power supply

|                       |                                               |
|-----------------------|-----------------------------------------------|
| Nominal supply        | 9-30 Vdc, undervoltage/overvoltage protection |
| Average current draw  | 270 mA @ 12V (idle); 140 mA @ 24V (idle)      |
| Transmit current draw | 470 mA @ 12V (400 mW), 250 mA @ 24V (400 mW)  |

### General

|                    |                                                |
|--------------------|------------------------------------------------|
| Size (H x W x D)   | 4.5" x 5.5" x 1.2" (114 x 140 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

<sup>a</sup> Frequency range dependent on country model.

<sup>b</sup> Typical maximum line of sight range

<sup>c</sup> Can be used to transfer I/O status or communications failure output

<sup>d</sup> Maximum distance: 3937' (1200m)

### Order Codes

|             |                                                       |
|-------------|-------------------------------------------------------|
| EL-245-E-A1 | Ethernet Modem: 5.8GHz, 802.11a, 630mW, DSSS, 108Mbps |
|-------------|-------------------------------------------------------|

## CONTACT

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## HOW TO ORDER

Simply send us an email at  
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