945U-E Wireless Ethernet Modem
Long-range wireless Ethernet for high-speed and reliable connectivity

Features
- 902–928 MHz frequency and 250–630 mW (up to 1W for –H) RF power
- 802.11 DSSS to 54 Mbps data throughput
- 1.25/2.5/5/10/20 MHz channel spacing options
- Transmit and receive antenna diversity
- 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

<table>
<thead>
<tr>
<th>SPECIFICATION</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td><strong>Transmitter and Receiver</strong></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>902–928 MHz ①</td>
</tr>
<tr>
<td></td>
<td>915–928 MHz ②</td>
</tr>
<tr>
<td>Transmit power</td>
<td>250 mW (+24 dBm) to 1W (+30 dBm)</td>
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<tr>
<td>Transmission</td>
<td>Direct sequence spread spectrum (DSSS)</td>
</tr>
<tr>
<td>Modulation</td>
<td>802.11g orthogonal frequency data modulation (OFDM)</td>
</tr>
<tr>
<td>Receiver sensitivity</td>
<td>−95 dBm @ 0.25 Mbps, −71 dBm @ 54 Mbps (8% BER)</td>
</tr>
<tr>
<td>Channel spacing</td>
<td>9 x 1.25 MHz, 9 x 2.5 MHz, 4 x 5 MHz, 4 x 10 MHz, 2 x 20 MHz</td>
</tr>
<tr>
<td>Data rate</td>
<td>1–54 Mbps ①</td>
</tr>
<tr>
<td></td>
<td>0.25–27 Mbps ②</td>
</tr>
<tr>
<td></td>
<td>Auto mode selects fastest rate possible relative to RSSI</td>
</tr>
<tr>
<td>Range (LoS)</td>
<td>18 miles (30 km) @ 1W ①</td>
</tr>
<tr>
<td>Antenna connector</td>
<td>2 x female SMA standard polarity ①</td>
</tr>
<tr>
<td></td>
<td>Use CSD-SMA-2500 surge diverter</td>
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</table>

Description
The ELPRO 945U-E 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-E 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-E 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.
Specifications (continued)

Input and Output
- Discrete I/O: Input voltage-free contact
  Output FET 30 Vdc 500 mA
- Available

Ethernet Port
- Ethernet port: 10/100Base-T, RJ-45 connector, IEEE 802.3
- Link activity: Link, 100BaseT via LED

Serial Port
- RS-232: D-B9 female DCE, RTS/CTS/DTDR/DCC
- RS-485: 2-pin terminal block, non-isolated

Data rate (Bps)
- 1200, 2400, 4800, 9600, 14400, 38400, 57600, 76800, 115200, 230400

Serial settings: 7/8 data bits, stop/start/parity (configurable)

LED Indication and Diagnostics
- Power/OK, RX, TX/link, link/100bT, RS-232, LAN, RS-485
- MAC address, whitelist/blacklist
- ARP/GARP filtering, whitelist/blacklist
- Power supply surge diverter, 902–928 MHz, 630 mW
- Coaxial surge diverter, bulkhead N female to N female
- SMA male, 9 dBi gain
- SMA male, 5 dBi gain
- SMA male, 8 dBi gain
- SMA male, 15 dBi gain
- SMA male, 32’ (10m) coaxial cable
- SMA male, 16’ (5m) coaxial cable
- SMA male, –2 dBi gain, 3’ (1m) or 16.4’ (5m) coaxial cable
- SMA male, 2 dBi gain, 16’ (5m) coaxial cable
- SMA male, –2 dBi gain, 16’ (5m) coaxial cable
- SMA male, 2 dBi gain, 32’ (10m) coaxial cable
- SMA male, 5 dBi gain, 32’ (10m) coaxial cable
- SMA male, 8 dBi gain, 32’ (10m) coaxial cable
- SMA male, 15 dBi gain, 32’ (10m) coaxial cable

Power Supply
- Nominal supply: 9–30 Vdc, under/over voltage protection
- Average current draw: 300 mA @ 12V (idle), 160 mA @ 24V (idle)
- Transmit current draw: 500 mA @ 12V (+30 dBm), 250 mA @ 24V (+30 dBm)

Note: Specifications are subject to change.

- Configured for US
- Configured for Brazil
- Typical maximum line-of-sight range
- Supports signal diversity or high gain antenna
- Can be used to transfer I/O status or communications failure output
- Maximum distance 3957 (1200m)
- Certifications pending for 945U-E-H (1W)

Network management: Optional network management system

Ordering
- 945U-E: Ethernet 802.11g, 900 MHz, high speed
- 945U-E-H: Ethernet 802.11g, 900 MHz, high speed

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