

# 805U-E Wireless Ethernet Modem

Long range wireless Ethernet, for reliable industrial connectivity



## Description

The ELPRO 805U-E Wireless Ethernet Modem is a robust, licensefree wireless transceiver capable of long-range communications to 3 miles (5 km). Operating at 869 MHz and up to 500mW, the 802.11 standards-based ELPRO 805U-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 805U-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

- 869 MHz fixed frequency for licence-free use in Europe and South Africa
- Single channel 869.525 MHz, 500 mW (10% duty-cycle factor) or 869.875 MHz, 5 mW (100% duty-cycle factor), up to 72 kbps (configurable) throughput to conform to European regulatory compliance
- Bridge/router, access point client-configurable
- Serial client/server/multicast functionality (point to point, point to multipoint) with simultaneous use of RJ-45, RS-232/RS-485 ports
- Modbus® TCP to Modbus RTU gateway/Modbus master for I/O transfer with additional slave I/O via ELPRO 115S expansion modules
- Spanning tree functionality (self-healing)
- Security to 128-bit AES military-grade encryption
- MAC address/IP filtering reducing network traffic
- Online network diagnostics and configuration
- Onboard discrete DI/O channel for failure status

## Applications

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

## Specifications

SPECIFICATION	DESCRIPTION
<b>Transmitter and Receiver</b>	
Frequency	869.525 MHz <sup>a</sup> 869.875 MHz <sup>b</sup>
Transmit power	500 mW <sup>a</sup> 5 mW <sup>b</sup>
Modulation	Direct frequency shift keying (DFSK)
Receiver sensitivity	106 dBm @19.2 kbps, 103 dBm @72 kbps (1% FER)
Channel spacing	250 kHz single Channel
Data rate	72 kbps @ 500 mW (10% duty cycle, Europe) <sup>a</sup> 72 kbps @ 5 mW (100% duty cycle, Europe) <sup>b</sup> Auto mode selects fastest rate possible relative to RSSI
Range (LoS)	3 miles (5 km) @ 500 mW <sup>a c</sup> 0.6 miles (1 km) @ 5 mW <sup>b c</sup>
Antenna connector	1 x Female SMA standard polarity
<b>Input and Output</b>	
Discrete input	Input voltage-free contact <sup>d</sup>
Discrete output	Output FET Vdc 500mA <sup>d</sup>
<b>Ethernet Port</b>	
Ethernet port	10/100Base-T, RJ-45 connector, IEEE 802.3
<b>Serial Port</b>	
RS-232	DB-9 female DCE, RTS/CTS/DTR/DCD
RS-485	2-pin terminal block, non-isolated <sup>e</sup>
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)
<b>Protocols and Configuration</b>	
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
<b>LED Indication and Diagnostics</b>	
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
<b>Power Supply</b>	
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 (500mW), 290 mA @ 24V (500mW)
<b>Compliance</b>	
EMC	CE, EN 301 489
RF (radio)	EN 300 220
Safety	IEC 60950 (RoHS compliant)

SPECIFICATION	DESCRIPTION
<b>General</b>	
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. <sup>2</sup> (2.5 mm <sup>2</sup> )
Temperature rating	–4 to +140°F (–20 to +60°C)
Humidity rating	0–99% RH noncondensing
Weight	0.8 lb (0.45 kg)

**Note:** Specifications subject to change.

<sup>a</sup> 869.525 MHz

<sup>b</sup> 869.875 MHz

<sup>c</sup> Typical maximum line-of-sight range

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

## Ordering

PRODUCT CODE	DESCRIPTION	FREQUENCY	RF POWER
805U-E-868-500W	805U-E wireless Ethernet	869.525MHz	500mW
805U-E-868-5MW	805U-E wireless Ethernet	869.875MHz	5mW

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

## Accessories

PRODUCT CODE	DESCRIPTION
<b>Antennas 900 MHz</b>	
DG800-1	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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