805U-D Wireless Serial Modem

RS-232/RS-485 serial data networking



Description

The ELPRO 805U-D Wireless Serial Modem is a robust, license-free serial transceiver capable of long-range communications to 10 km (6 miles). Operating at 869 MHz and up to 500 mW, the ELPRO 805U-D provides high-speed RS-232 and RS-485 connectivity up to 76.8 kbps, providing robust and secure two-way wireless serial communications in challenging environments typical of industrial monitoring and control applications.

Capable of high-speed communications with serial devices, the ELPRO 805U-D can communicate using either transparent broadcast mode or a controlled addressed mode. Both offer node-to-node, node-to-multi-node and repeatability for greater range. Integrated forward error correction maximizes bit error rate, providing greater transmission reliability. A configurable DTR-controlled low-power mode on the RS-232 port reduces overall power consumption. Approved for use in hazardous areas, the modem delivers strong resistance in harsh industrial environments.

Features

- 869.525 MHz frequency at 500 mW RF power
- 869.875 MHz frequency at 5 mW RF power
- Radio data rate up to 76.8 kbps
- High-speed RS-232 and RS-485 data rate to 115 kbps
- Transparent/simultaneous broadcast and addressable device messaging
- LOS distance to 6 miles (10 kms) in a single hop; unlimited repeatability
- Low-power consumption mode with DTR control
- Forward error correction communications (CRC error checking with ARQ)
- Simplistic configuration for AT Hayes commands or Windows software
- Helpful diagnostics include radio signal strength and BER indication applications

Applications

- Oil/gas field production/distribution
- Water/wastewater systems to SCADA
- Electrical metering/consumption
- Serial transducer devices to SCADA/HMI
- Serial datalogger connectivity
- PLC to PLC to SCADA/DCS connection
- Conveyor belt header drums
- Notification panels and siren

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Specifications

SPECIFICATION	DESCRIPTION
Transmitter and Receiver	
Frequency	869.525 MHz, 869.875 MHz
Transmit power	500 mW, 5 mW
Transmission	Direct frequency shift keying (DFSK)
Modulation	Frequency shift keying
Receiver sensitivity	–106 dBm @ 14.4 kbps, –105 dBm @ 38.4 kbps –103 dBm @ 76.8 kbps (1% FER)
Channel spacing	Single 250 kHz channel
Data rate	14.4–76.8 kbps
Range (LoS)	6 miles (10 kms) @ 500 mW ①
Antenna connector	1 x female SMA standard polarity
Serial Port	
RS-232	DB9 female DCE; RTS/CTS/DTR/DCD (hardware signals provided)
RS-485	2-pin terminal block (max. distance 4000' (1.2 km), non-isolated)
Data rate (bps)	1.2 kbps to 115.2 kbps, configurable
Serial settings	7/8 data bits, stop/start/parity, configurable
Protocols and Configuration	
System address	Configurable 8-bit value (0–255)
Protocols supported	Operating mode, radio, and serial settings
User configuration	Windows software or AT Hayes commands via serial port
LED Indicators and Diagnostics	
LED indicators	Power/OK, radio TX/RX, serial TX/RX, DCD
Reported diagnostics	RSSI measurements (dBm), bit error ratio (BER)
Compliance	
EMC	EN 301 489-3
RF (radio)	EN 300 220-2
Hazardous area	ATEX Zone 2
Safety	EN60950-1
General	
Size	4.5" x 6.7" 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, 0.09 $in.^2$ (2.5 mm^2)
Temperature rating	–40 to +140°F (–40 to +60°C)
Humidity rating	0–99% RH noncondensing
Weight	1.1 lbs (0.5 kg)
Power Supply	
Nominal supply	10–30 Vdc, under/over voltage protection
Average current draw	70 mA @ 12V (idle), 50 mA @ 24V (idle)
Transmit current draw	350 mA @ 12V (1W), 250 mA @ 24V (1W)

Note: Specifications are subject to change.

① Typical maximum line-of-sight range

Ordering

PRODUCT CODE	DESCRIPTION	FREQUENCY	RF POWER
805U-D-868-500M	Wireless serial modem	869.525 MHz	500 mW
805U-D-868-5mW	Wireless serial modem	869.875 MHz	5 mW

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

Accessories

PRODUCT CODE	DESCRIPTION	DATA SHEET
Antennas 900 MHz		
DG800-1	Whip antenna, SMA male, angle bracket, –2 dBi gain, 3' (1m) coaxial cable	TD032046EN
WH900-SMA	Whip antenna, SMA male, –2 dBi gain	TD032045EN
CFD890EL	Dipole antenna, SMA male, mounting bracket, 2 dBi gain, 16' (5m) coaxial cable	TD032048EN
SG900EL	Collinear antenna, N-type female, 5 dBi gain	TD032049EN
SG900-6	Collinear antenna, N-type female, 8- dBi gain	TD032050EN
YU6-870	Yagi antenna, N-type female, 9 dBi gain	TD032042EN
YU16-870	Yagi antenna, N-type female, 15 dBi gain	TD032051EN
Cables		
CC3/10/20-SMA	Coaxial cable kit, 9.8' (3m)/ 32' (10m)/65' (20m), N-type to SMA	TD032019EN TD032020EN TD032021EN
CCTAIL-SMA-F/M	Coaxial cable tail, 24" (600 mm), SMA to N-type, female/male	TD032023EN
SER-DB9	Serial RS-232 cable, DB-9 male to DB-9 female straight-through	TD032026EN
Surge Diverters		
CSD-SMA-2500	SMA surge diverter for use with CC10/CC20-SMA	TD032030EN
CSD-N-6000	Coaxial surge diverter, bulkhead N-type female to N-type female	TD032031EN
MA15/D/1/S1	Power supply surge diverter, 240 Vac/15A	TD032029EN
IOP32D	Signal surge diverter, 2 x 2-wire/1 x 4-wire	TD032032EN
Power Supplies		
PS-DINAC-12DC-OK	DIN rail power supply; 100–250 Vac, 12 Vdc/2.5A	TD032033EN
PSG60E	DIN rail power supply, 85–264 Vac, 24 Vdc/2.5A	TD032034EN
Mounting Brackets		
BR-COL-KIT	Mounting bracket kit for diplole and collinear antennas	TD032071EN
BR-YAG-KIT	Mounting bracket kit for Yagi antenna	TD032072EN

Eaton's wireless business
www.eaton.com/wireless

North America & Latin America
5735 W. Las Positas Suite 100
Pleasanton, CA 94588
United States
Telephone: +1 925 924 8500

Australia, New Zealand
9/12 Billabong Street
Stafford Queensland 4053
Australia
Telephone: +61 7 3352 8600

China
955 Shengli Road
East Area of Zhangjiang High-Tech Park
Shanghai, 201201
China
Telephone: +86 21 2899 3600

Southeast Asia
2 Serangoon North Avenue 5
06-01 Fu Yu Building, 554911
Singapore
Telephone: +65 6645 9888

Europe
Hein-Moeller-Straße 7-11
53115 Bonn, Germany
Telephone: +49 (0) 180 5223822

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

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