

# 915U-D Wireless Serial Modem

RS-232/RS-485 serial data networking



## Description

The ELPRO 915U-D Wireless Serial Modem is an RS-232 or RS-485 data modem that enables cost effective, two-way communications between serial devices such as PLCs, RTUs, and other industrial machinery to host monitoring and control systems. Designed with a long range, license-free 900-MHz or 2.4-GHz wireless transceiver, the ELPRO 915U-D delivers high performance in a compact DIN rail or panel mount form factor ideally suited for integrated industrial applications.

Offering scalability from simple to complex deployments, the 915U-D couples data rates up to 500 kbps, with low latency performance ideal for demanding Modbus® or PROFIBUS® applications. Reliability is maximized through interference-immune frequency hopping spread spectrum technology, while security is assured via data encryption to the AES 256-bit standard.

## Features

- 902–928 MHz frequency and 10 mW to 1W RF power
- 2.401–2.4835 GHz frequency and 1–100 mW RF power
- USB interface for ease of configuration
- Ability to construct complex networks using multiple repeaters and roaming features
- Adjustable over-the-air data rate for speed and range
- Reduced transmission latency for high speed control
- Superior receiver sensitivity and rejection to cut through interference
- Hardened encryption (AES 128, 192, and 256 bit) to ensure security of data
- Adjustable output RF power to keep signals within your plant
- Firmware upgradable locally and over the air
- Industrial temperature range ensures reliability in extreme environments
- Remote access and diagnostics eliminates time consuming site visits
- Voltage test point for RSSI measurement
- Sleep mode and frequency blocking

## Applications

- SCADA systems
- Pump control networks
- Water/wastewater
- PLC/RTU interfaces
- Serial output instruments
- Building automation/security
- Embedded machine control

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Effective January 2014

## Specifications

SPECIFICATION	DESCRIPTION
<b>Transmitter and Receiver</b>	
Frequency	902–928 MHz, 2.401–2.4835 GHz
Transmit power	10 mW to 1W ①, 1–100 mW ②
Transmission	Frequency hopping spread spectrum (FHSS)
Modulation	GFSK and MSK
Receiver sensitivity	–92 dBm @ 500 kbps, –98 dBm @ 250 kbps, –102 dBm @ 125 kbps ① ④ –96 dBm @ 250 kbps, –100 dBm @ 125 kbps, –105 dBm @ 19.2 kbps ② ④
Data rate	500 kbps, 250 kbps, 125 kbps ① 250 kbps, 125 kbps, 19.2 kbps ②
Range (LoS)	40 miles (64 km) ① ③ 7 miles (12 km) ② ③
Antenna connector	SMA female
<b>Input and Output</b>	
Discrete output	RF link status 0.5A @ 30 Vdc relay
<b>Serial Port</b>	
RS-232	EIA-232 via terminal block
RS-485	EIA-485 via terminal block with selectable termination resistor
Data rate (bps)	1200–230400 including PROFIBUS 31250, 45450, 93750
Serial settings	Baud rate, data bits, stop bits, parity, flow control
<b>Protocols and Configuration</b>	
System address	4.2 x 10 <sup>9</sup> possible addresses
Protocols supported	Modbus RTU, DF1, PROFIBUS
User configuration	USB interface
Configurable parameters	Master/slave, repeater, serial data items
Security	AES 128, 192 and 256 bit
<b>LED Indication and Diagnostics</b>	
LED indicators	RF link, RF TX and RX, RS-232 TX and RX, RS-485 TX and RX
Reported diagnostics	RF, serial
Network management	Via master radio to all remotes
<b>Power Supply</b>	
Nominal supply	9–30 Vdc, over voltage and reverse wiring protected
Average current draw	150 mA @ 24 Vdc ①, 100 mA @ 24 Vdc ②
Transmit current draw	200 mA @ 24 Vdc ①, 125 mA @ 24 Vdc ②
<b>Compliance</b>	
EMC	FCC Part 15; EN 301 489
RF (radio)	FCC Part 15.247; ETSI EN 300-328
Hazardous area	cUL, Class I Div 2, Groups A, B, C, D, Temp Code: T5 ATEX Zone 2, EEx nL IIC T5 II 3G, IECEx Ex nL IIC T5
Safety	EN/UL 60950-1
<b>General</b>	
Size	4.57" x 2.36" x 2.60" (116 mm x 60 mm x 66 mm)
Housing	Plastic with aluminum base, IP20 rated
Mounting	DIN rail or flat panel
Terminal blocks	16–22 AWG (16–20 AWG for power)
Temperature rating	–40 to 158°F (–40 to 70°C)
Humidity rating	10% to 90% noncondensing
Weight	0.55 lbs (240g)

**Note:** Specifications are subject to change.

- ① 900 MHz ISM band
- ② 2.4 GHz ISM band
- ③ Typical maximum line-of-sight range, 5 dBi antenna
- ④ Data sensitivity at 5% PER

## Accessories

PRODUCT CODE	DESCRIPTION	DATA SHEET
<b>Antennas - 900 MHz</b>		
DG900-1/5	Whip antenna, SMA male, angle bracket, –2 dBi gain, 3' (1m) or 16.4' (5m) coaxial cable	TD032047EN
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
YU6-900	Yagi antenna, N-type female, 9 dBi gain	TD032042EN
YU16-900	Yagi antenna, N-type female, 15 dBi gain	TD032051EN
<b>Antennas - 2.4 GHz</b>		
MD2400-EL	Dipole antenna, 15' (4.5m) cellfoil/SMA, mounting bracket, 0 dBi gain	TD032053EN
SG2400-EL	Collinear antenna, N-type, mounting bracket, 5-dBi gain	TD032054EN
Z2400-EL	Collinear antenna, N-type, mounting bracket, 10-dBi gain	TD032055EN
Y2400-18EL	Yagi antenna, N-type connector, 18 dBi gain	TD032056EN
WH2400-SMA	Whip antenna, 2.1" (54 mm), SMA male, 2 dBi gain	TD032052EN
<b>Cables</b>		
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
<b>Surge Diverters</b>		
CSD-SMA-2500	SMA surge diverter for use with CC10/CC20-SMA	TD032030EN
CSD-N-6000	Coaxial surge diverter, bulkhead N female to N female	TD032031EN
MA15D1SI/D2SI	Power supply surge diverter, 110 Vac/15A or 240 Vac/15A	TD032029EN
IOP32D	Signal surge diverter, 2 x 2-wire/1 x 4-wire	TD032032EN
<b>Power Supplies</b>		
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
<b>Mounting Brackets</b>		
BR-COL-KIT	Mounting bracket kit for collinear antenna	TD032071EN
BR-YAG-KIT	Mounting bracket kit for Yagi antenna	TD032072EN

## Ordering

PRODUCT CODE	DESCRIPTION	FREQUENCY	RF POWER
915U-D-2400	Wireless serial modem	2.40–2.48 GHz	1–100 mW
915U-D-900US	Wireless serial modem	902–928 MHz	10 mW to 1W
915U-D-900AU	Wireless serial modem	915–928 MHz	10 mW to 1W Australia/Brazil

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

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