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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Specifications

SPECIFICATION	DESCRIPTION
Transmitter and Receiver	
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
Input and Output	
Discrete output	RF link status 0.5A @ 30 Vdc relay
Serial Port	
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
Protocols and Configuration	
System address	4.2 x 10^9 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
LED Indication and Diagnostics	
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
Power Supply	
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
Compliance	
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
General	
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 158ºF (–40 to 70ºC)
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
Antennas - 900 MHz		
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
Antennas - 2.4 GHz		
MD2400-EL	Dipole antenna, 15' (4.5m) cellfoil/SMA, mounting bracket, 0 dBi gain	TD032053EN
SG2400-EL	Colinear antenna, N-type, mounting bracket, 5-dBi gain	TD032054EN
Z2400-EL	Colinear 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
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
Surge Diverters		
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
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 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 Australia/Brazil	915–928 MHz	10 mW to 1W

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

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Printed in USA
Publication No. TD032012EN
January 2014

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