

905U-D Wireless Serial Modem

RS-232/RS-485 serial data networking



Description

The ELPRO 905U-D Wireless Serial Modem is a robust, license-free serial transceiver capable of long-range communications to 20 miles (32 km). Operating at 900 MHz and up to 1W, the ELPRO 905U-D provides high-speed RS-232 and RS-485 connectivity up to 115 kbps, which provides 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 905U-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, and configurable DTR-controlled low-power mode on the RS-232 port aids reduction of overall power consumption. The modem is hazardous area approved, delivering strong resistance in harsh industrial environments.

Features

- 902–928 MHz frequency up to 1W RF power
- Frequency hopping spread spectrum to 115.2 kbps
- 50 x 250 kHz channel spacing
- High-speed RS-232 and RS-485 data rate to 115 kbps
- Transparent/simultaneous broadcast and addressable device messaging
- LoS distance to 20 miles (32 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®-based software
- Helpful diagnostics include radio signal strength and BER indication

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

Specifications

SPECIFICATION	DESCRIPTION
Transmitter and Receiver	
Frequency	902–928 MHz a, 915–928 MHz b
Transmit power	1W
Transmission	Frequency hopping spread spectrum (FHSS)
Modulation	Frequency shift keying
Receiver sensitivity	–106 dBm @ 19.2 kbps, –103 dBm @ 115.2 kbps (1% FER)
Channel spacing	50 x 250 kHz
Data rate	19.2–115.2 kbps a b
Range (LoS)	20 miles (32 kms) @ 4W c
Antenna connector	1 x female SMA standard polarity
Serial Port	
RS-232	DB-9 female DCE, RTS/CTS/DTR/DCD (hardware signals provided)
RS-485	2-pin terminal block (maximum distance 4000' (1.2 km), non-isolated)
Data rate (bps)	1.2–115.2 kbps, configurable
Serial settings	7 or 8 data bits, stop/start/parity bits configurable
Protocols and Configuration	
System address	Configurable 8-bit value (0–255)
Protocols supported	Operating mode, radio and serial settings
User configuration	Windows-based software or AT Hayes commands via serial port
LED Indication and Diagnostics	
LED indication	Power/OK, radio TX/RX, serial TX/RX, DCD
Reported diagnostics	RSSI measurement (dBm), bit error ratio (BER)
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)
Compliance	
EMC	FCC Part 15 Class A
RF (radio)	AS/NZS 4268, FCC 15.247
Hazardous area	CSA Class I Division 2
Safety	AS/NZS 60950, IEC 60950
General	
Size	4.5" x 6.7" x 1.2" (114 mm x 168 mm x 30 mm)
Housing	Powder-coated aluminum
Mounting	DIN rail
Terminal blocks	Removable, max conductor 14 AWG 0.1 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)
Humidity rating	0–99% RH noncondensing
Weight	1.1 lb (0.5 kg)

Note: Specifications subject to change.

a Configured for US

b Configured for Australia

c Typical maximum line-of-sight range

Ordering

PRODUCT CODE	DESCRIPTION	FREQUENCY	RF POWER
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905U-D-900-1W-US	UHF serial RS-232/RS-485, 115.2 kbps	902–928 MHz	1W
905U-D-900-1W-AU	UHF serial RS-232/RS-485, 115.2 kbps	902–928 MHz	1W

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

Accessories

PRODUCT CODE	DESCRIPTION
Antennas 900 MHz	
DG900-1/5	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	Serial cable, 6' (1.8m), crossover, RJ-45 to RJ-45
ETH-C5A	Serial 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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