905U-K Wireless I/O

One-way, low-power transmitter



Description

The ELPRO 905U-K Wireless I/O is a small I/O transmitter that extends long-range, license-free communications to sensors in local, remote, or difficult-to-reach locations. Designed for low power consumption and easy plug-in of ELPRO BU-5 battery packs, the ELPRO 905U-K provides reliable continuity in environments typical of industrial applications with power constraints.

Capable of transferring analog, pluse, or discrete inputs, and powering a loop-powered analog device (24 Vdc, 50 mA), the ELPRO 905U-K offers a simple-to-deploy and highly reliable solution.

Features

- 902–928 MHz frequency and up to 1W RF power
- Link process inputs to single or multiple outputs (peer to peer)
- Multiple power supply options, including battery-only supply with ultra-low power consumption (reverts to sleep mode)
- Input-only transmitter unit (2 or 4 DI/PI, 1 AI) that can be connected to multiple I/O and/or gateway units, with up to 3000 units in a system
- Peer-to-peer communications with exception reporting, reliable self-checking via update time. and secure data encryption
- External inputs plus internally calculated values, including analog set point status, pulse rate and pulse total, power/battery supply voltage, and power supply alarm
- Can connect to up/down counter transducers, such as shaft-encoders
- Configurable repeat transmissions to enhance message reliability
- Set point, pulse count, and rate available. Additional Internal I/O points provided for health monitoring
- Class I Div 2 hazardous areas approval (US/Canada)

Applications

- High-level alarms
- Security gate control
- Emergency shower notification
- Flow meter monitoring
- Storage tank monitoring
- Pipeline cathodic protection
- Pump stop-start
- Lighting bank control
- Power reticulation relay fault notifications
- Weather station reporting
- Bearing condition monitoring

Specifications

SPECIFICATION	DESCRIPTION
Transmitter and Receiver	
Frequency	902–928 MHz ① 915–928 MHz ②
Transmit power	1W
Transmission	Frequency hopping spread spectrum (FHSS)
Modulation	Frequency shift keying
Channel spacing	50 x 250 kHz
Data rate	19.2 kbps with forward error correction
Range (LoS)	20 miles (32 km) @ 4W ① ③ EIRP 9.3 miles (15+km) @ 1W EIRP (other countries)
Antenna connector	Female SMA standard polarity
Input and Output	
Digital inputs	TTL voltage 0–1.5 Vdc (on), 3.5–13 Vdc (off) Surge protected, not isolated Voltage-free/NPN contacts 2 DI (external, status)
Analog inputs	0–24 mA or 0–10V (selectable, over range indication 0–25 mA) Floating differential inputs, common mode voltage 27V, Resolution 12-bit, accuracy <0.1% 24 Vdc @ 50 mA for external loops provided
Pulse inputs	As per digital input specifications Above. Maximum pulse rate 10 kHz (50 kHz possible on PI1 using a configurable divider) Pulse width minimum 0.2 ms, volt-free contacts 300 Hz 2 PI (pulse total, count, rate)
Serial Port	
RS-232	9-pin DB-9 female connector (used for programming only)
Data rate (bps)	9600 bps
Serial settings	8 data bits, 1 stop, no parity
Protocols and Configuration	
System address	Configurable system address
Protocols supported	ELPRO WIBnet™ up to 4 retries, CRC error checking
User configuration	E-series configuration utility
Configurable parameters	Individual I/O mappings, analog and digital debounce, update time, analog set points and sensitivities
Security	64-bit encryption on radio
LED Indication and Diagnostics	
LED indication	OK/active, TX/link (refer to product manual for further information)
Reported diagnostics	I/O status
Power Supply	
Nominal supply	6–30 Vdc, under/over voltage protection 9 Vdc battery supply
Average current draw	10 mA @ 12 Vdc (idle) + analog loop 2 (internally generated, 24 Vdc/50 mA)
Transmit current draw	300 mA @ 12 Vdc
Battery (optional ELPRO BU5-2)	6 x AA alkaline batteries 9V, up to 1.4 year service life depending on input configuration Enclosure: specifications as per 905U-K enclosure Temperature: dependant on battery type used
General	
Size	6.7" x 2.5" x 1.4" (170 mm x 64 mm x 36mm)
Housing	Powder-coated aluminum
Mounting	Panel mount/connector and cable lead
Terminal blocks	Weatherproof connector with 3.2' (1m) lead
Temperature rating	–40 to +140°F (–40 to +60°C)
Humidity rating	0–99% RH noncondensing
Weight	1 lb (500g)

SPECIFICATION	DESCRIPTION
Compliance	
EMC	FCC Part 15; AS 3548
RF (radio)	FCC Part 15.247; RSS 210; AS 4268.2
Hazardous area	CSA Class I, Division 2
Safety	IEC 60950 (RoHS compliant)

Note: Specifications are subject to change.

① Configured for US
② Configured for Australia
③ Typical maximum line-of-sight range (check country regulations; single-hop, repeaters will extend)

Ordering

PRODUCT CODE	DESCRIPTION	FREQUENCY	RF POWER
EL-905U-K-900-1W	Transmit only, 2DI, 1 AI, 6–30 Vdc external	902–928 MHz	1W

Note: Specificaions are subject to change.

Accessories

PRODUCT CODE	DESCRIPTION
Antennas - 900 MHz	
DG900-1	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/BNC	Coaxial cable kit, 9.8' (3m)/32' (10m)/65' (20m), N-type to N-type/SMA male/BNC male
CCTAIL-SMA-F/M	Coaxial cable tail, 24" (600 mm), SMA to N-type female or male
CCTAIL-BNC-M	Coaxial cable tail, 24" (600 mm), BNC to N-type female or male
SER-DB9	Serial RS-232 cable, DB-9 male to DB-9 female, straight through
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/SI	Power supply surge diverter, 110 Vdc/15A
MA15/D/2/S1	Power supply surge diverter, 240 Vac/15A
IOP32D	Signal surge diverter, 2 x 2-wire/1 x 4-wire
Power Supplies	
BU5-2	IP66 battery pack
PS-DINAC-12DC-OK	DIN rail power supply, 100–250 Vac, 12 Vdc/2.5A
PSG60E	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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