ELPRO EL-105/905U-L-T/R
WIRELESS I/O TRANSMIT & RECEIVER PAIR

Powerfull, flexible, easy to use industrial wireless I/O.

DESCRIPTION

The ELPRO 105/905U-L products are a small I/O count transmitter and receiver pair delivered pre-configured for ease of installation. Just connect the antennas and apply power for them to be operational. The L series products may be reconfigured into a wider ELPRO I/O or gateway network as application needs grow. DIN rail mounted and DC (9-30V) powered, the units can also power a loop powered device to 24VDC, 30mA.

APPLICATIONS

- **Water and wastewater:** flows, levels, pumps
- **Renewables:** solar farms, wind turbines, hydro
- **Irrigation:** slew gate controls, levels
- **Oil and gas networks:** gas well production, lift pump
- **Environmental:** storm warning, smoke stacks, filters
- **Mining infrastructure:** conveyor, re-claimer, pumps

FEATURES

- Small I/O capability - use where a simple one-way link is required.
- Uni-directional, one way communications.
- Transmitter and receiver units factory-configured as a matching pair, or userconfigurable as part of a larger wireless I/O network.
- Secure data enryption.
- WIB-net intelligent wireless protocol, peer-to-peer communications, immediate exception reporting plus configurable high-scan updates, multi-hop mesh repeater.
- Up to 3000 wireless units per network
- Power supply 9 – 30VDC, 24VDC analog loop supply internally generated.
- RS232 Configuration and diagnostics port
- Compatible with the 105/905U Wireless I/O and Wireless Gateway family.
- Class 1 Div 2 hazardous areas approval

105/905U-L-T

- Powerful 869Mhz fixed frequency or 900MHz frequency hopping 1W transmitter depending on local licencing regulations.
- External inputs - two digital/pulse inputs, one analog input (0-20mA, 4-20mA), and one thermocouplemV input.
- Internally calculated values - analog and thermocouple setpoint status, pulse count, power supply voltages.
- Thermocouple input −20 to +100mV with cold-junction compensation and linearization for J, K , T or E-type.
- Local output for setpoint status: generated by comparin analog input to high and low setpoints.
- RS232 Configuration and diagnostics port.

105/905U-L-R

- Three digital contact outputs and one analog output (0-20mA, 4-20mA).
- Communications failure indication and configurable output.
- Outputs can be configured as retained or reset (fail-safe) on communications failure.
- LED indication of radio signal strength.

Order Codes

EL-105U-L-T-868-500	I/O Radio (Transmitter Only) - EU	Fixed 868Mhz
EL-105U-L-R-868-500	I/O Radio (Receiver Only) - EU	Fixed 868Mhz
EL-905U-L-T-AU	I/O Radio (Transmitter Only) - AU	FHSS 900Mhz
EL-905U-L-R-AU	I/O Radio (Receiver Only) - AU	FHSS 900Mhz
EL-905U-L-P2-AU	I/O Radio Kit: 905U-L-T, 905U-L-R, 2x CFD890EL + SER-RJ45 cable	FHSS 900Mhz
EL-905U-L-T-NZ	I/O Radio (Transmitter Only) - NZ	FHSS 900Mhz
EL-905U-L-R-NZ	I/O Radio (Receiver Only) - NZ	FHSS 900Mhz
EL-905U-L-T-US	I/O Radio (Transmitter Only) - US	FHSS 900Mhz
EL-905U-L-R-US	I/O Radio (Receiver Only) - US	FHSS 900Mhz

SPECIFICATIONS

LEGACY

Wireless Specifications

Frequency (105U-L-T/R)	869.525 MHz [c]
Frequency (905U-L-T/R)	902–928 MHz [abd]
Transmit power (105U-LT)	500 mW (+27 dBm) [c]
Transmit power (905U-LT)	1W (+30 dBm) [b d]
Transmission (105U-LT)	869Mhz Single frequency [c]
Transmission (905U-LT)	900Mhz Frequency Hopping Spread Spectrum (FHSS) [b d]
Modulation	Frequency shift keying (FSK)
Receiver sensitivity	–109 dBm @ 19.2 kbps (3% FER) [b d] –109 dBm @ 14.4 kbps (3% FER) [c]
Channel spacing	50 x 250 kHz [b d], single 250 kHz [c]
Typical data rate	19.2–115.2 kbps [b d], 14.4–76.8 kbps [c]
Typical range - 905 (LoS)	20 miles (32 km) @ 4W EIRP [b] 9.3 miles (15 km) @ 1W EIRP [d] 6 miles (10 km) @ 500 mW EIRP [c]
Typical range - 105 (LoS)	Non Obstructed - 500mW - 5km; Obstructed - 500mW - 1km;
Antenna connector	SMA female standard polarity

Communications

Prorocols	ELPRO WIB-net wireless protocol, enabling peer-to-peer communications. Input values are transmitted on immediate change plus timed updates (maximum rate 5 times per second).
Envryption	Wireless messages are data encrypted for security protection.
Transmissions	Each Transmission can be configured to send between 1 - 5 times

Power

Power Supply	9-30VDC
Power Consumption	@ 12VDC
Receiver	100mA
Transmitter (idle)	40mA
Transmitter (TX)	300mA
Analog Loop supply	Internally generated , 24VDC 30mA

Serial Port

RS232	RJ45 female DCE, used for configuration and diagnostics
Reported diagnostics	I/O status, RSSI, Comms Fail

LED indication

Transmitter (L-T)	Power/OK, Radio TX, DIN1, DIN2, Analog Setpoint
Transmitter (L-R)	Power/OK, Radio RX, DO1, DO2, DO3, Communications fail LED's also used to provide radio signal strength indication

Transmitter (905U-L-T) Inputs

Digital/Pulse Input	Two inputs, suitable for voltage free contacts / NPN, or voltage input 0-1 VDC on / >3 VDC off. Pulse input max rate 10 Hz, 50 msec on time, pulse input counted as 2 x 16 bit register.
Analog input,	0-20 mA, 4-20mA, span and zero configurable (default 4-20mA), "floating" differential input, resolution 16 bit, accuracy < 0.1 %.
Thermocouple input,	-20mV to +100mV, J, K or T type linearization with on-board cold-junction compensation, accuracy better than 1degC.
Analog & thermocouple setpoint status	Setpoint status sets (on) when input value < low setpoint and resets (off) when input value > high setpoint, status transmitted as per digital input, setpoint values are settable via front-panel rotary switch or configuration software

Receiver (905U-L-R) Inputs

Digital Output	Three relay contact outputs, 260VAC, 1A rating
Analog Output	0-20mA, 4-20mA, configurable span and zero (4-20mA), source output, 12-bit resolution, 0.1% accuracy.
Comms-Fail,	Internal status based on configurable time-out value. Comms-fail output. ok output, FET, 30VDC, 500mA
Fail-safe	On "comms-fail", outputs user-configurable as retained (last correct value) or reset (fail-safe).

Configuration and Diagnostics

	Factory configuration transmitter/receiver matched pair. User configuration via serial port. Diagnostics features – read input values, write output values, radio signal strength, monitor communication messages.

Compliance

EMC (105U)	EN 301 489
RF - radio (105U)	EN 300 220
EMC (905U)	89/336 EEC, AS3548, FCC Part 15, EN301489
RF - radio (905U)	EN 300 220, Part 15.247, RSS-210, AS4295, AS4768.1
Safety	IEC 60950 (RoHS compliant)
Hazardous area	UL/CSA Class I, Division 2; ATEX; IECEx Na IIC

General

Size (H x W x D)	100 mm x 22 mm x 120 mm (3.9" x 0.9" x 4.7")
Housing	Thermo-plastic enclosure.
Terminal blocks	Removable; max. conductor 14 AWG 0.1 in² (2.5 mm²)
Mounting	DIN rail mounting
Temperature rating	-40 to 60ºC / -40 to 140ºF
Humidity rating	0–99% RH noncondensing
Weight	0.3 kg (0.6 lbs)

Note: Specifications subject to change

[a] Specific parameters set with Country / Region selection in configuration

[b] 902-928 MHz FCC 15.247 band (USA)

[c] 869 MHz ISM band (Europe)

[d] 915-928 MHz LIPD Class licence (Australia)

CONTACT

HOW TO ORDER

Simply send us an email at **sales@elprotech.com**, contact your local distributor, or phone **+61 7 3352 8600**

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