105U-L I/O Transmitter & Receiver pair

Powerful, flexible, easy to use industrial wireless I/O

Description

The ELPRO 105U-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.

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 user-configurable 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 105U Wireless I/O and Wireless Gateway family.

105U-L-T Tranmitter Unit

- Powerful 869MHz fixed frequency radio.
- 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.

105U-L-R Receiver Unit

- 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

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Specifications

SPECIFICATION	DESCRIPTION
Transmitter (105U-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 & thermo-couple 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 (105U-L-R) Outputs	
Digital Output	Three relay contact outputs, 260VAC, 1A rating
Analog Output	0-20mA, 4-20mA, configurable span and zero default (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).
Wireless	
Radio	Fixed Frequency Radio 869.525MHz @500mW or 869.875MH @ 5mW RF Power.
Range	Line of sight range Non obstructed- 500mW- 5km; 5mW- 1km Obstructed- 500mW- 1km; 5mW- 300m
Repeaters	Radio distances can be increased by up to 5 intermediate 105U Multi I/O repeater units.
Transmissions	Each transmission may be configured to be sent 1 to 5 times.
Communications	
Protocols	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).
Encryption	Wireless messages are data encrypted for security protection.
Power	
Power Supply	9-30VDC.
Power Consumption	@12VDC
Reciever	100mA
Tranmitter (Idle)	40mA
Tranmitter (TX)	300mA
Analog Loop Supply	Internally generated, 24VDC 30mA

SPECIFICATION	DESCRIPTION
Serial Port	
RS232	RJ45 female DCE, used for configuration and diagnostics.
Reported diagnostics	RSSI, comms logging, I/O status
LED Indication	
Transmitter unit.	Power/OK, Radio TX, DIN1, DIN2, Analog Setpoint status.
Receiver unit.	Power/OK, Radio RX, DO1, DO2, DO3, Communications fail LED's also used to provide radio signal strength indication
Configuration and Diagnostics	
	Factory configuration transmitter/receiver matched pair. User configuration via serial port. Unidirectional units can be configured to network with Mulit-I/O and Gateway units. Diagnostics features – read input values, write output values, radio signal strength, monitor communication messages.
Compliance	
EMC	EN 301 489
RF (radio)	EN 300 220
Electrical Safety	EN 60950
General	
Size	3.9" x 0.9" x 4.7" (100 mm x 22 mm x 120 mm)
Housing	Thermo-plastic enclosure.
Mounting	DIN rail mounting
Terminal blocks	Removable; max. conductor 14 AWG 0.1 $in.^2$ (2.5 mm^2)
Antenna connector	1 x SMA female standard polarity
Temperature rating	-40 to 60°C /-40 to 140°F
Humidity rating	0–99% RH noncondensing
Weight	0.6 lbs (0.3 kg)

Note: Specifications are subject to change.

Ordering

PRODUCT CODE	DESCRIPTION	FREQUENCY	RF POWER
EL-105U-L-T-868-500M or 5M	I/O Radio (Transmitter Only) I/O = (2)DI/PI + (1)AI + (1)TCI	869MHz	5/500mW
EL-105U-L-R-868-500M or 5M	I/O Radio (Receiver Only) I/O = (3)DO+ (1)AO	869MHz	5/500mW
EL-105U-L-P1-868-500M or 5M	I/O Radio Kit: (1)105U-L-T + (1)105U-L-R paired radios + (2)DG900-1 + (1)xSER-RJ45	869MHz	5/500mW
EL-105U-L-P2-868-500M or 5M	I/O Radio Kit: (1)105U-L-T + (1)105U-L-R paired radios + 2)CFD890EL + (1)xSER-RJ45	869MHz	5/500mW
EL-105U-L-P3-868-500M or 5M	I/O Radio Kit: (1)105U-L-T + (1)105U-L-R paired radio No Antennas + (1)xSER-RJ45s	869MHz	5/500mW

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

Accessories

PRODUCT CODE	DESCRIPTION
Antennas 900 MHz	
DG800-1/5	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
MA15/D/1/S1	Power supply surge diverter, 110 Vac/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	
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-YAGI-KIT	Mounting bracket kit for Yagi antenna
BR-COL-KIT	Mounting bracket kit for collinear antenna

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