

# 105U-L-T/R One-Way I/O Pair

## Wireless Input/Output Transmitter and Receiver



### Description

The ELPRO 105U-L-T (Transmitter) and 105U-L-R (Receiver) products feature a small I/O count, one-way and cost-effective communications between field devices.

The 105U-L series products are flexible by design (i.e., pre-configured pairs for ease of commissioning) and may be used in simple to complex, multi-hop repeating networks (in combination with other ELPRO I/O and gateway products).

### Features

- 869.525MHz/500mW or 869.875MHz/5mW frequency options.
- Flexible usage: pre-configured matched transmitter/receiver pair or complex networks via ELPRO I/O and/or Gateway products.
- Peer-to-peer communications with exception reporting, self-checking of messages via CRC, update time and secure data encryption.
- Multi-hop repeatability via ELPRO multi-I/O & Gateways products.

### Transmitter Features

- 2 DI/PI (digital inputs can be pulse inputs), 1 AI (4-20mA), 1 TC (thermocouple input -10 - 100mV).
- 1 AI 24Vdc, 30mA analog loop supply capable.
- Additional internal inputs: set point (analog), power supply voltage.

### Receiver Features

- 3 DO (relay outputs), 1 AO (0-20mA/4-20mA).
- Communications failure indication via configurable output.
- Receive radio signal strength indication using LEDs.

### Applications

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

Specifications	
Transmitter/Receiver	
Modulation	DFSK <sup>(1)</sup> , 869.525MHz; 869.875MHz
Transmit Power	869.525MHz: 500mW; 869.875MHz: 5mW
Receiver Sensitivity	-111dBm (RX only)
Data Rate	19.2kbps with forward-error correction
Line Of Sight Range <sup>(2)</sup>	500mW-5km out of plant: 1km in obstructed environments 5mW-1km out of plant: 300m in obstructed environments
Antenna Connector	SMA female coaxial
Transmitter Input	
Digital Input <sup>(3)</sup>	2 (Voltage free contacts/NPN or 0-1Vdc on/>3Vdc off)
Pulse Input <sup>(3)</sup>	2 (Max pulse rate 10Hz, pulse width 50ms: 16 bit resolution)
Analog Input	1 (0-20mA) floating differential input: 16 bit resolution, accuracy <0.1%
Thermocouple Input	1 (-10mV to +100mV, J, K or T type linearization; on-board cold-junction compensation: accuracy better than 1°C)
Receiver Output	
Digital Output	3 - DO relay outputs (250Vac/1A, 50Vdc/1A); (2500V RMS Isolated)
Analog Output	Sourcing current output 1 (0-20mA: 12 bit resolution, accuracy 0.1%)
Serial Port - Configuration Port Only	
RS232	9600 baud, 8 bit, no parity, 1 stop bit Note: RJ-45 connector is wired as per 9 pin female RS232 connector
<b>Note:</b> Specifications subject to change.	
1) DFSK - Digital Frequency Shift Keying.	
2) Actual radio distances dependent on terrain/obstacles.	
3) Pulse and digital I/O are the same connection.	
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## Wireless Input/Output Transmitter and Receiver

Specifications	
<b>LED Indication - Transmitter</b>	
OK	Green: DC power OK, micro processor/module OK Red: system failure (power/micro processor/module failure)
DIN1	Digital input active/in use
DIN2	Digital input active/in use
SP	Setpoint status/active
TX	Radio transmitting
AZ	Analog value zero
PG	Program mode (unit communicating with laptop/computer)
SET	Pre-define setpoint selection
<b>LED Indication - Receiver</b>	
OK	Green: DC power OK: micro processor/module OK Red: system failure (power/micro processor/module failure)
D01	Digital output active/in use
D02	Digital output active/in use
D03	Digital output active/in use
Radio RX	Radio receiving
CF	Communications failure
PG	Program mode (unit communicating with laptop/computer)
Sig	RSSI level display
<b>General</b>	
Size	3.9" x 0.9" x 4.7" (100 x 22 x 120mm)
Weight	0.6lbs (275g)
Temperature	-40 to +60°C (-40 to 140°F)
Humidity	0-99%RH Non-Condensing
Housing	PC/ABS Plastic
Mounting	DIN rail mounting
Terminal Strip	Removable: up to 2.5mm <sup>2</sup> (12AWG)
Approvals	EMC: EN 301 489 Radio: EN 300 220 Safety: EN 60950, ATEX Zone 2, IECEx nA IIC
<b>Power Supply</b>	
Nominal Supply	9 - 30Vdc
Quiescent Current	40mA Transmitter 40mA Receiver
Transmission Current	200mA Tx (500mW), 90mA Tx (5mW)
<b>Note:</b> Specifications subject to change.	

### Ordering

To order, select product code from the table and specify country of application.

Product Code	Description	Frequency	RF Power
EL-105U-L-R-868-500M	Receiver, 3 DO, 1 AO	869.525MHz	500mW
EL-105U-L-R-868-5M	Receiver, 3 DO, 1 AO	869.875MHz	5mW
EL-105U-L-T-868-500M	Transmitter, 2 DI/PI, 1 AI, 1TC	869.525MHz	500mW
EL-105U-L-T-868-5M	Transmitter, 2 DI/PI, 1 AI, 1TC	869.875MHz	5mW
EL-105U-L-P1	Kit 105U-L-T, 105U-L-R 2 x DG800-1 Whip Antenna Configuration Cable	869.525MHz	500mW
EL-105U-L-P2	Kit 105U-L-T, 105U-L-R 2 x CFD890EL Dipole Antenna Configuration Cable	869.525MHz	500mW

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

### Accessories

The following accessories can assist with compatibility when commissioning.

Product Code	Description	Data Sheet #
<b>Antennas - 868MHz</b>		
CFD890EL	Dipole Antenna - SMA Male, 0dBi gain, 5m Coaxial cable, mounting bracket	7942
SG900EL	Collinear Antenna - N-type Female, 5dBi gain	7942
SG900-6	Collinear Antenna - N-type Female, 8dBi gain	7942
WH900-SMA	Demo Whip Antenna - 100mm long, SMA Male, -2dBi	7942
DG800-1	Whip Antenna - SMA Male, -2dBi gain, 2m RG174, bracket	7942
DG800-5	Whip Antenna - SMA Male, -5dBi gain, 5m RG174, bracket	7942
YU6/16-870	Yagi Antenna - 6/16 element, N-type, 10/15dBi gain	7942
<b>Cables</b>		
CC3/10/20-SMA	Coaxial Cable Kit - 3m/10m/20m, N-type to SMA	7932
CCTAIL-SMA-F/M	Coaxial Cable Tail - 600mm, SMA to N-type Female or SMA to N-type Male	7932
SER-RJ45	Configuration Cable - RS232 Serial, DB9 Female to RJ45	7932
<b>Surge Diverters</b>		
CSD-SMA-2500	SMA Surge Diverter for use with CC10, CC20 - SMA	7936
CSD-N-6000	Coaxial Surge Divertor, Bulkhead N Female to N Female	7936
IOP32/IOP32D	Signal Surge Diverter, 2 wire/4 wire	7936
<b>Power Supplies</b>		
PS-DINAC-12DC	DIN Rail Power Supply, 100 - 250Vac, 12Vdc/2.5A	7935
PS-DINAC-24DC	DIN Rail Power Supply, 100 - 250Vac, 24Vdc/2A	7935

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