



## CONDOR

# ELPRO EL-415U-1-CX BATTERY POWERED WIRELESS I/O

Condor series long-range industrial wireless I/O

## DESCRIPTION

With over 35 years of Industrial Wireless expertise, the 415U-1-Cx provides asset owners with new opportunities via the smart battery and I/O monitoring technology. Designed with the Condor series long-range, high data speed radio, the 415U-1-Cx has the power and flexibility to perform reliably in sprawling harsh industrial environments.

The 415U-1-Cx easily integrates into existing 415U-2-Cx and 415U-ECx Condor Series systems feeding into IIoT networks or into Greenfield applications where critical monitoring of I/O Data is required which has not been possible before due to no power being available or too costly to integrate solar solutions.

## APPLICATIONS

- **Tailings leakage** and movement detection
- **Pipeline monitoring** for Environmental protection
- **Wellhead monitoring**
- **Remote I/O** connectivity with no fixed power available
- **Sewage outfall monitoring**
- **Flood Warning**
- **Groundwater monitoring**
- **Metering** usage
- **Automatic Weather Station**
- **Flooded Roads** detection and Indication
- **Water Quality** and Environmental
- **Rainfall monitoring**

## FEATURES

- Extremely low power remote I/O monitoring
- Integrated Wireless, I/O, Charger, Regulator and battery in the one water proof unit
- Supports Lithium, Lead Acid or fixed power sources
- Licenced/licence-free VHF/UHF radio transceiver
- Flexible weatherproof enclosure design allows for simple installation for cabinet or outdoor situations
- Enhanced security for both cyber and data transmission
- Two Analog inputs (4-20mA) with separate internally generated configurable 24V loop supply
- 4 Discrete inputs or Pulsed Inputs
- Flexible configuration of I/O
- Monitoring and reporting of Radio status
- SDI-12 Interface for Smart Sensors such as ice, wind, level, ground moisture and weather station applications
- Innovative power management system including integrated smart solar regulator, internal or external battery, external power options
- Direct wiring to internal junction box through M20 entry
- Tough Aluminum enclosure
- Compatible with the ELPRO Condor Series product range

### Order Codes

EL-415U-1-C1	Wireless I/O Gateway	148-174Mhz
EL-415U-1-C3	Wireless I/O Gateway	340-400Mhz
EL-415U-1-C4	Wireless I/O Gateway	400-480Mhz
EL-415U-1-C5	Wireless I/O Gateway	470-520Mhz
EL-415U-1-C9	Wireless I/O Gateway	828-960Mhz

# SPECIFICATIONS

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## ELPRO EL-415U-1-CX BATTERY POWERED WIRELESS I/O

### Transmitter and receiver

Frequency <sup>a</sup>	C1 - 148-174 MHz C3 - 340-400 MHz C4 - 400-480 MHz C5 - 470-520 MHz C9 - 928-960 MHz		
Transmit Power	C1	C3,4,5	C9
	10mW-5W (10-37dBm)	10mW-10W (10-40dBm)	1mW-1W (0-30dBm)
Receiver sensitivity	Model	C1,3,4,5	C9
	QPSK-FEC	-116 dBm	-112 dBm
	QPSK	-113 dBm	-109 dBm
	16-QAM	-104 dBm	-100 dBm
	64-QAM	-97 dBm	-93 dBm
Channel spacing	6.25, 12.5, 25.0 kHz (software configurable)		
Typical range	50 km (62miles)		
Antenna connector	N Type female		

### Protocols and configuration

Industrial protocols	Modbus RTU, SDI-12
User configuration	USB Type -B or RS232 Serial (9600, 8, 1, N)
Configurable parameters	Unit details, I/O mappings, I/O parameters, radio settings, Analog sample time, SDI-12 sensor sample time, SDI-12 polled sensor variables, Modbus RTU Master gateway, configurable baud, data bits, parity, stop bits.
Security	AES 256 bit

### LED Indications & Diagnostics

LED Indication	Front Panel: Power/OK, Radio TX/RX, Sensor, Test mode Internal: I/O Status, Service Status, Battery Charger status
Push Buttons	Front Panel: Test Transmission Internal Boot: Test, Reset, Firmware update

### Reported diagnostics

Radio diagnostics	Monitoring communications, RSSI measurements, Antenna fail, Background noise
External / Internal Inputs	Digital/pulsed/analog, solar panel/external supply voltage, battery voltage, SDI-12 data

### Connections

USB Type-B	Local unit Configuration
USB Type-A	Firmware Updates, Retrieval of logged data to memory stick.
Serial	1 x RS-232 ,Configuration 1 x RS-485 Modbus RTU Master
Cable Entry	Standard M20 cable gland 5-13mm cable diameter UL/VDE, Accessory option M20 to 1/2" NPT Conduit Adapter
Terminal blocks	Internal wiring terminals (push connect), 0.2 - 1.5 mm <sup>2</sup> (24 - 16 AWG), Wire Strip length 8mm (0.3")
Antenna connector	N Type female

### Operation

Modes—topology	Remote Unit Type.
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### Input and output

Discrete input/output	4 Digital Inputs configurable as on/off or DI1-3 pulse inputs
Analog inputs	2 differential analog inputs configurable 0-20mA (under/over range), 16 bits resolution
Analog loop power	Analog: 24Vdc, max 50mA SDI-12: 12Vdc, max 500mA
SDI-12 (V1.4)	Maximum of 5 configured variables total M or R command / CRC configurable
Heater Output	Open Collector output (active close to ground) ON @ -0°C OFF @ 2°C, 30Vdc/2A max

### Compliance

RF (radio)	Australia: RCM, Europe: CE/RED, USA: FCC, Canada: IC RF, FCC CFR47 Part 90; IC RSS 119; EN 300 113; EN 300 220; AS/ NZS4295; AS/NZS4268
EMC	FCC CFR47 Part 15; EN 301 489-3; EN 301 489-5
Safety	EN/IEC/UL 62368
Hazardous area	Class I, Division 2

### Power supply

Nominal supply	17-30 Vdc, undervoltage/overvoltage protection External Battery 11-15Vdc, under/ over voltage protection
Battery charger	Lithium Iron Phosphate (LFP): Internal rechargeable Lead Acid (Pb): 12V Battery Externally connected
Battery Charger or Solar Regulator	External power supply/MPPT solar panel charges internal lithium (LFP) or external battery Up to 2A charge optimized for 5-30W panel Automatic temperature compensation/protection
Idle current draw	Field Station 100µA
Transmit current draw	2.5A @ 13.8Vdc (10W RF) 1.2A @ 24Vdc (10W RF)
Battery Life without charge.	Internal Lithium (LFP): 5W RF Power, 2 x Digital Inputs 60min Updates = 4 Months
Battery Life without charge.	External 12Ah Lead Acid (Pb) : 5W RF Power, 2 x Digital Inputs, 1 Analog, 15min sample, Updates 60 min = 10 Months

### General

Size (H x W x D)	190 x 197x 98 mm (7.5"x 7.8"x 3.8")
Housing	Aluminum cast enclosure with removable door. IP66 rated
Mounting	Panel mount standard (DINA rail, pole or solar mount options)
Temperature rating	External supply -40 to 70°C (-40 to 158°F) LFP rechargeable battery -20 to 60°C (-4 to 140°F)
Humidity rating	0-99% RH non condensing
Weight	1.8 kg (4.0 lb) - not including internal battery
Altitude	0-3000m (0-10000ft)
Polution Degree	4

<sup>a</sup> Available RF power and frequency may vary depending on country and model selected. Please confirm with local regulatory body.

**Specifications subject to change**

## CONTACT

### Australia

ELPRO Technologies  
29 Lathe Street  
Virginia QLD 4014  
**T** +61 7 3352 8600  
**E** sales@elprotech.com  
**W** elprotech.com

### USA

ELPRO Technologies Inc  
2028 East Ben White Boulevard  
#240-5656 Austin, TX 78741-6931  
**T** +1 855 443 5776  
**E** sales@elprotech.com  
**W** elprotech.com

## HOW TO ORDER

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

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