

ELPRO Technologies

CONDOR

ELPRO EL-215U-2-BGN
WIRELESS ETHERNET I/O & GATEWAY

802.11b/g scalable, industrial wireless I/O module for reliable and secure connectivity

DESCRIPTION

The ELPRO 215U-2 wireless networking I/O and gateway is an integrated I/O node that extends communications in sprawling industrial applications to sensors and actuators in local, remote, or difficult to reach locations using standards based 802.11 b/g.

The 215U-2 provides robust/secure two-way wireless communications in extremely challenging indoor and outdoor industrial environments.

The internal radio transceiver is designed to operate reliably with the challenges of obstructed paths, typical of remote monitoring and control applications. Supporting base and ProMesh meshing functionality, the 215U-2 provides for reliable redundant networks in industrial applications.

The 215U-2 configuration is quick and easy using built-in Web based tool either directly at the unit or over the air, which also provides comprehensive diagnostic features.

The ELPRO IoT Connectivity, MQTT Sparkplug Gateway enables your devices to access the Internet of Things (IoT) and Industry 4.0, the 215U-2 provides a powerful and versatile low-cost I/O connectivity solution for today's equipment and machines with a simple and easy-to implement product to allow customers an easy way to get their devices on the Internet. The 215U-2 can also provide Ethernet and serial gateway support for industrial protocols including Modbus TCP/RTU.

APPLICATIONS

- **Water and wastewater: flows, levels, pumps**
- **Renewables:** solar farms, wind turbines, hydro
- **Irrigation:** slew gate controls, levels
- **Machinery OEM I/O connectivity in factories:** discrete sensors and digital I/O (e-Stops)
- **Oil and gas networks:** gas well production, lift pump
- **Environmental:** storm warning, smoke stacks, filters
- **Mining infrastructure:** conveyor, re-claimer, pumps
- **Electrical control panel:** hot-spot for remote monitoring of meters and control through PLC extension

FEATURES

- WPA2 secure 2.412–2.472 GHz frequency (802.11 b/g) 200 mW RF power
- Standard Ethernet bridge default to allow modem function for external Ethernet host devices (full L2/ L3 network support)
- ProMesh automatic path selection and network formation
- Provides Wi-Fi hot-spot access to I/O data and dashboard
- Internal user configurable Web dashboard to display I/O and Diagnostics
- IO Plus Logic engine for basic controlling of I/O points
- Wireless point-to-point or multipoint I/O and gateway functionality
- Modbus TCP and RTU I/O gateway
- DNP3 I/O gateway, including internal status registers
- Support for MTL HART MUX communications
- IoT connectivity with MQTT Sparkplug B Gateway
- ALERT1 and ALERT2 compatible Gateway
- Configurable digital, pulse, and analog I/O to 14-bit resolution
- Gather-scatter/block mapping and integrity checking transmissions for efficient event triggered peer-to-peer I/O
- Expandable I/O for local alarms and inputs/outputs
- Centralised Encryption Key Rotation for automated over the air
- management/rotation of system encryption keys
- System Firmware Upgrade: Centralise management of firmware patch updates and over the air deployment
- Port Forwarding: Advanced network Port Forward configuration for connected Ethernet devices.

SPECIFICATIONS

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Transmitter and receiver	
Frequency [a]	2.401–2.483 GHz 802.11 b/g
Transmit power [a]	200 mW (+23 dBm)
Modulation	Direct sequence spread spectrum (DSSS) Orthogonal frequency-division multiplexing (OFDM)
Receiver sensitivity	–94 dBm (11 Mbps) 802.11 b –75 dBm (54 Mbps) 802.11 g
Channel spacing [a]	13 channels, 20 MHz
Typical data rate	1–11 Mbps (selects fastest connection rate available)
Typical range (LoS)	400m (1300 ft)
Antenna connector	SMA female standard polarity

Protocols and configuration	
System address	ESSID; 1 to 31-character text string
Networking protocols	TCP/IP, UDP, ARP, DHCP, DNS, ICMP, HTTP, VLAN 802.1Q, IPv6 pass through
Industrial protocols	Gateway: MQTT, SparkplugB, Modbus RTU, Modbus TCP, DNP3 I/O, HART to Modbus Pass through: EtherNet/IP, Profinet, DNP, IEC 61850, and others
Configurable parameters	Unit details, I/O mappings, I/O parameters, radio settings, Dashboard, IO Plus logic DNP3 I/O and gateway (level 2+) Modbus TCP/RTU gateway Embedded Modbus master/slave for I/O transfer PromeshTM for automatic selection of radio paths, prioritization of traffic flows, bandwidth efficiency features, bandwidth utilization, redundancy, routing, bridging, VLAN
User configuration	Network access: USB or Ethernet Remote access: over the air, Access Control List
Security	WPA2-PSK, AES 256 bit, multilevel password protected configuration, Auto Encryption Key rotation
IP filtering	IP address, MAC address, ARP filtering whitelist/ blacklist & serial number, Access Control List

LED Indications & Diagnostics	
LED Indication	Power/OK, Radio TX/RX/Link, RS-232, RS-485, digital I/O, analog I/O status
Reported diagnostics	RSSI Measurments (dBm), connectivity information / statistics, system log file.
Network diagnostics	Diagnostic capture to Wireshark™ format file
Radio diagnostics	Channel utilization, RSSI measurements (dBm), background noise, connectivity information/ statistics available Web/Modbus reg
Logging	Optional internal data logging for I/O and events. Logging memory 1 MB

Connections	
LAN	1 x 10/100Base-T auto-MDIX RJ-45
Serial	1 x RS-232, 1 x RS-485, 1200–230400 bps Serial over IP modem support

Operation	
Modes—topology	Point to multipoint Base, repeater, remote unit types ProMesh automatic path selection or fixed links Manual mode for advanced configuration

Input and output	
Discrete input[b]	8 digital I/O (1-4 configurable as PI or PO) On-state voltage: <2.1 Vdc Wetting current: 5 mA Max. I/P pulse rate: PI 1/2:50 kHz, PI 3/4: 1kHz Max. I/P pulse width: PI 1/2: 10 µs, PI 3/4: 0.2ms
Discrete output[b]	8 digital I/O (1-4 configurable as PI or PO) Working voltage maximum: 30 Vdc Working current maximum: 200 mA Max. O/P pulse rate: 1 kHz
Analog inputs	4 AI (2 differential, 2 single ended) Current range: 0-24 mA Voltage input range: AI 1/2: 0–25 V, AI 3/4: 0–5 V Accuracy: 0.1% Resolution: 14 bits
Analog outputs	2 AO 2 (sourcing) Current range: 0-24 mA Accuracy: 0.1% Resolution: 13 bits
Thermocouple input	Supported types J,K and T
Analog Loop Power	+24 Vdc output provided to power loop devices Max. Current 100mA - Current Limited
Expansion	115S series Modbus I/O modules

Compliance	
EMC	FCC Part 15; EN 301 489-17; AS/NZS CISPR22
RF (radio)	FCC Part 15.247; IC RSS 210; EN 300 328; AS/NZS4268
Safety	IEC 60950 (RoHS compliant)
Hazardous area	UL/CSA Class I, Division 2; Pending IEC EX Zone 2; ATEX Zone 2

Power supply	
Nominal supply	10.8-30 Vdc, undervoltage/overvoltage protection
Battery charger	Sealed lead-acid or gel cell backup, 500 mA charge
Average current draw	200 mA at 13.8 V (idle), 100 mA at 24 V (idle)
Transmit current draw	200 mA at 13.8 V (idle), 100 mA at 24 V (idle)

General	
Size (H x W x D)	7.09 x 1.38 x 5.91 inches (180 x 35 x 150 mm)
Housing	IP20 rated high-density thermoplastic
Terminal blocks	Removable, max. conductor 12 AWG
Mounting	DIN rail
Temperature rating	-40 to +158°F (-40 to +70°C)
Humidity rating	0-90% RH non condensing
Weight	1.1 lb (0.5 kg)

[a] Frequency range, number of channels, RF power specification may value depending on the country of application.
[b] Discrete input and output function shared for total of 8 discrete inputs and outputs
Note: Available RF power and frequency may vary depending on country of application. Please check user manual for your application.

Specifications subject to change

Order Codes	
EL-215U-2-BGN	I/O-Gateway Radio: Basic Unit 2.4GHz, 802.11b/g, 200mW

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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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