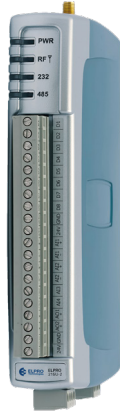


# 215U-2 wireless Ethernet gateway

802.11 b/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

- Machinery OEM I/O connectivity in factories—discrete sensors and digital I/O (e-Stops)
- Water and wastewater plant applications—flow and level sensors
- Oil and gas remote well sensor monitoring
- 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
- 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

SPECIFICATION	DESCRIPTION
<b>Transmitter and receiver</b>	
Frequency <sup>a</sup>	2.401–2.483 GHz 802.11 b/g
Transmit power <sup>a</sup>	200 mW (+23 dBm)
Modulation	Direct sequence spread spectrum (DSSS) Orthogonal frequency-division multiplexing (OFDM)
Receiver sensitivity 6.25/12.5/25 kHz	–94 dBm (11 Mbps) 802.11 b –75 dBm (54 Mbps) 802.11 g
Channel spacing <sup>a</sup>	13 channels, 20 MHz
Data rate	1–54 Mbps (selects fastest connection rate available)
Typical data throughput	64-QAM    45 kbps    80 kbps    140 kbps
Typical range (LoS)	1300 ft (400 m)
Antenna connector	SMA female
<b>Protocols and configuration</b>	
System address	ESSID; 1 to 31-character text string
Networking protocols	TCP/IP, UDP, ARP, DHCP, ICMP, HTTP, FTP, VLAN 802.1Q, Modbus RTU, Modbus TCP, DNP3, MQTT Client +SparkplugB
Configurable parameters	Unit details, I/O mappings and parameters, radio settings (refer to the user manual for details) Modbus TCP/RTU gateway, MQTT Client +SparkplugB. Embedded Modbus master/slave for I/O transfer Ethernet mode, bridge (default), or router Prioritization of traffic flows, bandwidth efficiency features, bandwidth utilization, bridging, VLAN
User configuration	Via HTTPS Web server Network access: USB or Ethernet Remote access: over the air
Security	Data encryption, 802.11i with CCMP 128-bit AES Support for 802.1x radius server Secure HTTP protocol Auto encryption key rotation
Address filtering	Easy mode automatic filtering or advanced IP address, whitelist/blacklist MAC address, whitelist/blacklist ARP filtering, whitelist/blacklist
<b>LED indications and diagnostics</b>	
LED indication	Power/OK, Radio TX/RX/Link, RS-232, RS-485, digital I/O, analog I/O status
<b>Reported diagnostics</b>	
Network diagnostics	Diagnostic capture to Wireshark™ format file
Radio diagnostics	RSSI measurements (dBm), connectivity information/statistics through Web page, dashboard, or local Modbus registers for SCADA
Logging	Optional internal data logging for I/O and events. Logging memory 1 MB
<b>Connections</b>	
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
<b>Operation</b>	
Modes	Base, mesh node, or manual setup for advanced configuration
Repeaters and Base	Maximum of 6 total remote/repeater/base/ hot spot connections
Remote	Mesh node or fixed

SPECIFICATION	DESCRIPTION
<b>Input and Output</b>	
Discrete input <sup>c</sup>	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—DI 1/2: 50 kHz, DI 3/4: 1 kHz Max. I/P pulse width—DI 1/2: 10 μs, PI 3/4: 0.2 ms
Discrete output <sup>c</sup>	8 digital I/O (1–4 configurable as PI or PO) Working voltage maximum: 30 Vdc Working current maximum: 200 mA Maximum O/P pulse rate—PO max. Rate: 1 kHz
Analog input	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 output	2 AO (sourcing) Current range: 0–24 mA Current resolution: 13 bits Accuracy (current): 0.1%
Analog loop supply	24 Vdc at 100 mA maximum (current limited)
<b>Compliance</b>	
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	EN/IEC 60950
Hazardous area	UL Class 1, Division 2; Pending IEC EX Zone 2; ATEX Zone 2
<b>Power supply</b>	
Nominal supply	10.8–30 Vdc, under voltage/overvoltage protection Sealed lead acid backup battery can be charged by main power supply input.
Average current draw	200 mA at 12 Vdc (idle), 100 mA at 24 Vdc (idle)
Transmit current draw	200 mA at 12 Vdc, 100 mA at 24 Vdc
<b>General</b>	
Size (H x W x D)	5.91 x 7.09 x 1.38 in (150 x 180 x 35 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)

<sup>a</sup>. Frequency range, number of channels, RF power specification may vary depending on the country of application.

<sup>b</sup>. 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.

Accessories

Ordering

DESCRIPTION	PRODUCT CODE
<b>Antennas</b>	
Dipole antenna, 15 ft (4.6 m) cellfoil/SMA, 0dBi gain, mounting bracket	ANTMD2400-EL
Collinear antenna, N-type, 5 dBi gain, mounting bracket	ANTSG2400-EL
Collinear antenna, N-type, 10 dBi gain, mounting bracket	ANTZ2400-EL
<b>Cables</b>	
Coaxial cable kit, 9.8 ft (3 m)/32 ft (10 m)/65 ft (20 m), N-type to SMA	CC3/10/20-SMA
Coaxial cable tail, 24 in (600 mm), SMA to N-type female or male	CCTAIL-SMA-F/M
Ethernet cable, 6 ft (1.8 m), straight through, RJ-45 to RJ-45	ETH-C5A
USB 2.0 configuration cable - Type A to Type B, 1 m long, included with 215U-2/415U-x-C units	CBLUSB-ATOB
<b>Surge diverters</b>	
Coaxial surge diverter, bulkhead N-type female to N-type female	CSD-SMA-2500
Coaxial surge diverter, bulkhead N-type female to N-type female	CSD-N-6000
Power supply surge diverter, 110 Vac/15 A	MA15/D/1/SI
Power supply surge diverter, 240 Vac/10 A	MA15/D/2/SI
<b>I/O interface</b>	
215/915/415U series single channel thermocouple adaptor, type j, k, t, cold junction comp	915U-TCADP
<b>Mounting brackets</b>	
Mounting bracket kit for collinear antenna UDP, BU3, BU6	BR-COL-KIT
<b>Power supplies</b>	
DIN rail power supply, 85–264 Vac, 12 Vdc/5 A	PS-DINAC-12DC-OK
DIN rail power supply, 85–264 Vac, 24 Vdc/2.5 A	PS-DINAC-24DC-OK

DESCRIPTION	BAND	RF POWER	PRODUCT CODE
Base/repeater/remote, 802.11 b/g I/O gateway	2.401– 2.483 GHz	200mW	EL-215U-2-BGN



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