



CONDOR

ELPRO EL-415U-BSR BASE STATION REPEATER

Condor Series UHF Ethernet Repeater
for reliable secure connectivity

DESCRIPTION

The 415U-BSR provides a complete base/repeater station package for industrial applications incorporating security and reliability of the ELPRO wireless networking systems. The 415U-BSR is a UHF redundant basestation, repeater or remote which provides smart redundancy via the use of adaptive switching schemes, based on the proven 415U-E modems.

The 415U-BSR operates in redundant mode which can be configured to operate in auto or manual / maintenance modes allowing the switching between primary and secondary units whilst also providing remote monitoring of operation selections and diagnostics.

APPLICATIONS

- **Water and wastewater:** flows, levels, pumps
- **Renewables:** solar farms, wind turbines, hydro
- **Irrigation:** slew gate controls, levels
- **Oil and gas networks:** gas well production, lift pump
- **Environmental:** storm warning, smoke stacks, filters
- **Mining infrastructure:** conveyor, re-claimer, pumps

FEATURES

- Redundant Base Station, Repeater or Remote functionality
- Remote monitored Primary and Secondary redundant radios with automatic selection control.
- Over the air context-based data compression for maximum throughput exceeding 140kbps
- Advanced security encryption provided with WPA and AES256
- Frequency agility roaming, provides reliability and flexibility within the network architecture.
- Full duplex link capability option for maximum data capacity - Internal duplexer
- Expandable digital I/O for local alarms and inputs/outputs
- 148-174MHz, 340-520 MHz, 894-960MHz frequency licensed bands
- RF TX power 0.01 to 10W
- Radio data rates from 4800 bps to 96kbps
- 6.25 / 12.5 kHz and 25.0 kHz channel bandwidth options
- Full UPS and battery options available

Order Codes

EL-415U-BSR-C1	Redundant Base Station/Repeater	148-174Mhz
EL-415U-BSR-C3	Redundant Base Station/Repeater	340-400Mhz
EL-415U-BSR-C4	Redundant Base Station/Repeater	400-480Mhz
EL-415U-BSR-C5	Redundant Base Station/Repeater	470-520Mhz
EL-415U-BSR-C8	Redundant Base Station/Repeater	894-902Mhz
EL-415U-BSR-C9	Redundant Base Station/Repeater	828-960Mhz

SPECIFICATIONS



ELPRO EL-415U-BSR BASE STATION REPEATER

Transmitter and receiver

Frequency^a 148-174 MHz, 340-400 MHz, 400-480 MHz
470-520 MHz, 894-902 MHz, 928-960 MHz

Transmit power – peak^a 10 mW - 10 W (+40 dBm) configurable

Transmit power	Model -C1,3,4,5	Model C9
QPSK	4 W (+36 dBm)	2.5 W (+34 dBm)
16/64-QAM	2.5 W (+34 dBm)	1.6 W (+32 dBm)
2-FSK, 4-FSK	10 W (+40 dBm)	6.3 W (+38 dBm)

Modulation QPSK, 16-QAM, 64-QAM
2-FSK or 4-FSK (compatibility mode)

Receiver sensitivity	Model	C1,3,4,5	C9
6.25/12.5/25 kHz	QPSK-FEC	-116 dBm	-112 dBm
	QPSK	-113 dBm	-109 dBm
	16-QAM	-104 dBm	-100 dBm
	64-QAM	-97 dBm	-93 dBm
	2-FSK	-110 dBm	-106 dBm
	4-FSK	-102 dBm	-98 dBm

Channel spacing 6.25, 12.5, 25 kHz (software configurable)

Data rate raw no compression ^b	Encoding	Channel		
		6.25 kHz	12.5 kHz	25 kHz
	QPSK-FEC	4 kbps	8 kbps	16 kbps
	QPSK	8 kbps	16 kbps	32 kbps
	16-QAM	16 kbps	32 kbps	64 kbps
	64-QAM	24 kbps	48 kbps	96 kbps
	2-FSK		4.8 kbps	9.6 kbps
	4-FSK		9.6 kbps	19.2 kbps

Typical data throughput 64-QAM 45 kbps 80 kbps 140 kbps

Typical range (LoS QPSK-FEC) 62 miles (100 km) at 4 W
10 miles (16 km) at 0.5 W

Antenna connector Half Duplex - 2 x N-Type Female

Environmental

Ambient Temperature -30°C to +60°C

Elevation 500m (1640') BSL to 2000m (6561') ASL

Humidity 0% to 90% Non-Condensing

Protocols and configuration

System address ESSID; 1 to 31-character text string

Protocols protocols TCP/IP, UDP, ARP, Radius/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTP, TFTP, TELNET, Modbus RTU and Modbus TCP

Network parameters Base station, Repeater, Remote for large fixed and roaming station networks, redundant radio paths, automatic selection of radio paths, prioritization of traffic flows, bandwidth efficiency features, bandwidth utilization, routing, bridging, VLAN

User configuration Network access: USB or Ethernet
Remote access: over the air

Security WPA2-PSK, AES 256 bit, multilevel password protected configuration, Access Control List

Address filtering IP address, MAC address, ARP filtering whitelist/blacklist & serial number, Access Control List

LED Indications & Diagnostics

LED Indication Radio 1 - Power / OK, RX, TX / Link, Status, LAN
Radio 2 - Power / OK, RX, TX / Link, Status, LAN

Reported diagnostics

Network Management Modbus TCP Status registers access to full diagnostic data

Radio Diagnostics Link indication, RSSI, Utilization, Channel Survey, Radio Statistics

I/O & Alarms Alarms accessible via Modbus registers Additional I/O expansion available as option

Connections

LAN 2 x 10/100Base-T auto-MDIX RJ-45

Serial 1 x RS-232. 1 x RS485, 1200-230400 bps. Serial over IP modem support

USB 2 x USB-B RNDIS Maintenance port, 2 x USB-A for firmware update

Operation

Modes Redundant Base station, Repeater or Remote Selectable AUTO/Primary/Secondary

Compliance

EMC FCC CFR47 Part 15; EN 301 489-3; EN 301 489-5

RF (radio) FCC CFR47 Part 90; IC RSS 119; EN 300 113; EN 300 220; AS/NZS4295; AS/NZS4268

Safety EN/IEC 60950-1

Power supply

Nominal supply 12-24 Vdc, undervoltage/overvoltage protection

Battery charger Lead-acid or gel cell backup, 500 mA charge

Average current draw 880 mA at 13.8 Vdc (idle), 550 mA at 24 Vdc (idle)

Transmit Current draw 2.5 A at 13.8Vdc, 1.5 A at 24 Vdc

Optional Redundant AC supplies

General

Enclosure Half Duplex 19" 2U Enclosure 90 x 490 x 300mm (HxWxD)
Full Duplex 19" 4U Enclosure 180 x 490 x 300mm (HxWxD)

Housing Powder-coated aluminum and high-density thermoplastic, IP20 rated

Terminal blocks Removable, max. conductor 13 AWG (2.5mm²)

Mounting DIN rail

Temperature rating -22 to +140°F (-30 to +60°C)

Humidity rating 0-90% RH noncondensing

Weight 11.9 lb (5.4 kg)

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

Specifications subject to change

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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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