

WI-BSR-415: Base Station Repeater

Enabling secure and reliable wireless networking systems



Introduction

The WI-BSR-415 is a comprehensive base station repeater solution designed to meet the rigorous demands of industrial wireless networking applications. Its advanced design offers unparalleled versatility as an Ultra High Frequency (UHF) redundant base station, repeater or remote device, delivering dependable communication for critical operations.

Engineered for reliability and security, the WI-BSR-415 can be seamlessly integrated into new or existing Weidmüller licensed wireless systems, ensuring robust performance across a wide range of environments.

The WI-BSR-415 utilizes smart redundancy with adaptive switching schemes to maintain seamless connectivity. Operating in redundant mode, it dynamically transitions between primary and secondary units to ensure uninterrupted communication, even in challenging conditions. Its configurable redundancy supports both automatic and manual/maintenance modes, offering flexibility while enabling remote monitoring of operational status and diagnostics for proactive system management.

Industries & Applications

- Water & Wastewater: Pump station monitoring, Supervisory Control and Data Acquisition (SCADA) system redundancy
- Oil & Gas: Pipeline monitoring and redundancy for SCADA networks
- Utilities: Substation automation, power distribution and backup communications
- Mining: Monitoring and redundancy for conveyor and pump systems
- Renewables: Reliable, redundant communication for solar farms, wind turbines and hydro

Ordering data

Type	Frequency	Qty	Order no.
WI-BSR-415-C4	400-480 MHz	1	3093530000
WI-BSR-415-C9	928-950MHz	1	3104840000

Note: Contact Weidmüller for other frequency ranges

Regulatory compliance

- Safety EN/IEC 60950-1
- 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

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Technical data

Rating data						
Transmitter and receiver frequency	400 - 480 MHz	928 - 950 MHz				
Transmit power–peak	10 mW-10 W (+40 dBm) configurable					
Transmit power	Modulation	Model -C4	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 or 4-FSK (compatibility mode)	10 W (+40 dBm)	6.3 W (+38 dBm)			
Receiver sensitivity (dBm) -C4 / -C9	QPSK-FEC: -116 /-112	QPSK: -113 /-109	16-QAM: -104 /-100	64-QAM: -97 /-93	2-FSK: -110 /-106	4-FSK: -102 /-98
Channel spacing	6.25, 12.5, 25.0 kHz (software configurable)					
	Encoding channel	6.25 kHz	12.5 kHz	25.0 kHz		
Data rate frequency (raw – no compression)	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					
Protocols & configuration						
System address	ESSID; 1 to 31-character text string					
Protocols supported	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: Ethernet			Remote access: Over the air		
Security	WPA-PSK, WPA-Enterprise, password protected AES 256 Bit					
Address filtering	IP address, whitelist/blacklist MAC address, whitelist/blacklist ARP filtering, whitelist/blacklist					
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 an option.					
Connections						
LAN	2 x 10/100 BaseT auto-MDIX RJ45					
USB	2 x USB-B RNDIS maintenance port			2 x USB-B RNDIS maintenance port		
Operation						
Modes	Redundant Base Station, Repeater or Remote Selectable AUTO/Primary/Secondary					
Power supply	Under voltage protection	Over voltage protection				
Nominal supply	12Vdc	24Vdc				
Average current draw	880mA	550mA				
Transmit current draw	2.3A	1.7A				
Supply protection	Over voltage & current protection					
Optional	Redundant AC supplies					
Environmental & general data						
Ambient temperature	-30°C to +60°C			Weight: 5.4kg		
Elevation	500m BSL to 2000m ASL					
Humidity	0% to 90% non-condensing					
Housing	Powder coated high grade steel			Aluminum front and rear panels		
Terminal connections	Pluggable PCB, max. conductor 13 AWG (2.5 mm ²)					
Mounting options	19" rack mountable					
Enclosure size (HxWxD mm)	Half duplex: 19" 2U enclosure 90x490x300			Full duplex: 19" 4U enclosure 180x490x300 (HxWxD mm)		

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