

Ethernet and Serial Data



Technical Data

Radio Transceiver	
Transmission	Direct Sequence Spread Spectrum (DSSS)
Frequency - USA/Canada	2.412–2.472 GHz
Transmit Power	15–400 mW (data rate and country-specific)
Modulation	Orthogonal frequency data modulation (OFDM)
Receiver Sensitivity	-100 dBm @ 250 kbps, -74 dBm @ 108 Mbps (8% FER)
Channel Spacing	5-MHz spacing (13 channels, 2.412–2.472 GHz)
RF Data Transmission Rate	1–108 Mbps "Auto Mode" selects fastest rate possible relative to RSSI
Expected line-of-sight range, depending on local conditions	6 miles (10 km) @ 400 mW Range may be extended using repeater features
Range may be extended by:	Ability to construct complex networks using multiple repeaters and roaming features
Ethernet/Serial Port	
Ethernet	10/100 BaseT RJ45, IEEE 802.3 compliant. Bridge/router functions work with all Ethernet protocols
Embedded Protocols:	TCP/IP, UDP, ARP, PPP, ICMP, HTTP, FTP, TFTP, TELNET, SNMP, RADIUS/802.1X, DHCP, OFDM
Serial	
RS232 V.24 DCE	DB9 Female DCE; RTS/CTS/DTR/DCD
RS485	2-Pin Terminal Block – Non-Isolated Serial server, PPP, Modbus to Modbus TCP conversion
Serial Settings	
Data Rate (Bps)	7/8 Data Bits; Stop/Start/Parity (Configurable) 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400
Protocols/Configuration	
System Address	ESSID; 1 – 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/Configurable Parameters	Access Point/Client/Bridge/Router/VLAN Point-to-Point, Point-to-Multi-point Wireless Distribution System (AP - AP Repeater) Modbus TCP/RTU Gateway Serial Client/Server/Multicast Simultaneous RS232/485 Connection Embedded Modbus Master/Slave for I/O Transfer
User Configuration	User Configurable Parameters via HTTPS Embedded Web Server Network Access - Ethernet
Security	Data Encryption – 802.11i with CCMP 128-bit AES Support for 802.1x Radius Server Secure HTTP Protocol
Bandwidth Protection	MAC Address – Whitelist/Blacklist IP Filtering – Whitelist/Blacklist ARP/GARP Filtering – Whitelist/Blacklist
General Data	
Antenna connection	2 x Female SMA Standard Polarity 50Ω Supports signal diversity or high-gain antenna
Operating Temperature	-40 to 60°C (-40 to 140°F)
Humidity	0 - 99% RH non-condensing
Power Supply	9 to 30 VDC; Under/Over Voltage Protection
Current consumption Idle:	270 mA @ 12V (idle); 140 mA @ 24V (idle)
Transmit:	470 mA @ 12V (400 mW), 250 mA @ 24V (400 mW)
EMC	FCC CFR47 Part 15; EN 301 489-3; EN 301 489-5
RF (Radio)	FCC 15.247, RS210
Approvals	CSA Class I, Division 2; ATEX; IECEx NA IIC; IEC 60950 (RoHS Compliant); cULus Listed
Mounting	DIN-rail mounting
Dimensions (LxWxH) mm	4.5" x 5.5" x 1.2" (114 x 140 x 30 mm)
Weight	1.0 lb (0.45 kg)
Housing	Powder-Coated Aluminium
Mounting	DIN-Rail
Terminal Blocks	Removable; Max conductor 12 AWG (2.5mm ²)
LED indication	Power/OK; RX; TX/Link; RS232; LAN; RS485; Digital I/O Serial Activity, Digital I/O, LAN 10/100Mbit Link
Reported Diagnostics	Diagnostics available through web pages
Input/Output Configurable DI/DO/AI	Input Voltage-Free Contact Output FET 30 VDC 500mA

Ordering Data

Type	Part No.
WI-MOD-E-G	6720005054

**WI-MOD-E-G
Serial and Ethernet 2.4GHz**



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RF (Radio)	FCC 15.247, RS210
Approvals	CSA Class I, Division 2; ATEX; IECEx NA IIC; IEC 60950 (RoHS Compliant); cULus Listed
Mounting	DIN-rail mounting
Dimensions (LxWxH) mm	4.5" x 5.5" x 1.2" (114 x 140 x 30 mm)
Weight	1.0 lb (0.45 kg)
Housing	Powder-Coated Aluminium
Mounting	DIN-Rail
Terminal Blocks	Removable; Max conductor 12 AWG (2.5mm ²)
LED indication	Power/OK; RX; TX/Link; RS232; LAN; RS485; Digital I/O Serial Activity, Digital I/O, LAN 10/100Mbit Link
Reported Diagnostics	Diagnostics available through web pages
Input/Output Configurable DI/DO/AI	Input Voltage-Free Contact Output FET 30 VDC 500mA

Type	Part No.
WI-MOD-E-G	6720005054

**WI-MOD-E-A
Serial and Ethernet 5.8GHz**



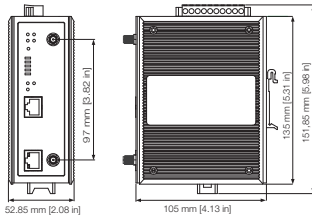
Radio Transceiver	
Transmission	Direct Sequence Spread Spectrum (DSSS)
Frequency - USA/Canada	5.150–5.825 GHz
Transmit Power	15–400 mW (data rate and country-specific)
Modulation	Orthogonal frequency data modulation (OFDM)
Receiver Sensitivity	-100 dBm @ 250 kbps, -74 dBm @ 108 Mbps (8% FER)
Channel Spacing	20-MHz spacing (27 channels, 5.150–5.8 GHz)
RF Data Transmission Rate	6–108 Mbps "Auto Mode" selects fastest rate possible relative to RSSI
Expected line-of-sight range, depending on local conditions	3 miles (5 km) @ 400 mW Range may be extended using repeater features
Range may be extended by:	Ability to construct complex networks using multiple repeaters and roaming features
Ethernet/Serial Port	
Ethernet	10/100 BaseT RJ45, IEEE 802.3 compliant. Bridge/router functions work with all Ethernet protocols
Embedded Protocols:	TCP/IP, UDP, ARP, PPP, ICMP, HTTP, FTP, TFTP, TELNET, SNMP, RADIUS/802.1X, DHCP, OFDM
Serial	
RS232 V.24 DCE	DB9 Female DCE; RTS/CTS/DTR/DCD
RS485	2-Pin Terminal Block – Non-Isolated Serial server, PPP, Modbus to Modbus TCP conversion
Serial Settings	
Data Rate (Bps)	7/8 Data Bits; Stop/Start/Parity (Configurable) 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400
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General Data	
Antenna connection	2 x Female SMA Standard Polarity 50Ω Supports signal diversity or high-gain antenna
Operating Temperature	-40 to +60°C; -40 to +140°F
Humidity	0 - 99% RH Non-condensing
Power Supply	9 to 30 VDC; Under/Over Voltage Protection
Current consumption Idle:	270mA @ 12 VDC; 140mA @ 24 VDC
Transmit:	470 mA @ 12V (400 mW), 250 mA @ 24V (400 mW)
EMC	FCC Part 15; EN 301 489 - 17; AS/NZS CISPR22
RF (Radio)	EN 300 328; FCC Part 15; RSS 210
Approvals	CSA Class I, Division 2; ATEX; IECEx NA IIC; IEC 60950 (RoHS Compliant); cULus Listed
Mounting	DIN-rail mounting
Dimensions (LxWxH) mm	4.5" x 5.5" x 1.2" (114 x 140 x 30 mm)
Weight	1.0 lb (0.45 kg)
Housing	Powder-Coated Aluminium
Mounting	DIN-Rail
Terminal Blocks	Removable; Max Conductor 12 AWG (2.5 mm ²)
LED indication	Power/OK; RX; TX/Link; RS232; LAN; RS485; Digital I/O Serial Activity, Digital I/O, LAN 10/100Mbit Link
Reported Diagnostics	RSSI Measurements (dBm) Connectivity Information/ Statistics System Log File
Input/Output Configurable DI/DO/AI	Input Voltage-Free Contact Output FET 30 VDC 500mA

Type	Part No.
WI-MOD-E-A	6720005057

Ethernet Only Data

Industrial Wireless - Access point/bridge/client

- IEEE 802.11a/b/g compatible single radio module (2.4 GHz or 5 GHz band)
- Power input by redundant 24 V DC power inputs or Power-over-Ethernet
- Multi-SSID and VLAN support
- Turbo Roaming for seamless wireless connections
- Integrated DI/DO for on-site monitoring and warning
- QoS (WMM) support



Wireless Data Modems—WLAN



Technical Data

WLAN Interface	
Standards	IEEE 802.11a/b/g/h for Wireless LAN IEEE 802.11i for Wireless Security IEEE 802.3u for 10/100BaseT(X) IEEE 802.3af for Power-over-Ethernet IEEE 802.1D for Spanning Tree Protocol IEEE 802.1w for Rapid STP IEEE 802.1Q VLAN
Spread Spectrum and Modulation (typical)	<ul style="list-style-type: none"> • DSSS with DBPSK, DQPSK, CCK • OFDM with BPSK, QPSK, 16QAM, 64QAM • 802.11b: CCK @ 11/5.5 Mbps, DQPSK @ 2 Mbps, DBPSK @ 1 Mbps • 802.11a/g: 64QAM @ 54/48 Mbps, 16QAM @ 36/24 Mbps, QPSK @ 18/12 Mbps, BPSK @ 9/6 Mbps
Operating Channels (central frequency)	US: 2.412 to 2.462 GHz (11 channels) 5.18 to 5.24 GHz (4 channels) EU: 2.412 to 2.472 GHz (13 channels) 5.18 to 5.24 GHz (4 channels)
Security	<ul style="list-style-type: none"> • SSID broadcast enable/disable • Firewall for MAC/IP/Protocol/Port-based filtering • 64-bit and 128-bit WEP encryption, WPA /WPA2-Personal and Enterprise (IEEE 802.1X/RADIUS, TKIP and AES)
Transmission Rates	802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
TX Transmit Power	802.11b: Typ. 23±1.5 dBm @ 1 to 11 Mbps 802.11g: Typ. 20±1.5 dBm @ 6 to 24 Mbps, Typ. 19±1.5 dBm @ 36 Mbps, Typ. 18±1.5 dBm @ 48 Mbps, Typ. 17±1.5 dBm @ 54 Mbps 802.11a: Typ. 18±1.5 dBm @ 6 to 24 Mbps, Typ. 16±1.5 dBm @ 36 to 48 Mbps, Typ. 15±1.5 dBm @ 54 Mbps
RX Sensitivity	802.11b: -97 dBm @ 1 Mbps, -94 dBm @ 2 Mbps, -92 dBm @ 5.5 Mbps, -90 dBm @ 11 Mbps 802.11g: -93 dBm @ 6 Mbps, -91 dBm @ 9 Mbps, -90 dBm @ 12 Mbps, -88 dBm @ 18 Mbps, -84 dBm @ 24 Mbps, -80 dBm @ 36 Mbps, -76 dBm @ 48 Mbps, -74 dBm @ 54 Mbps 802.11a: -90 dBm @ 6 Mbps, -89 dBm @ 9 Mbps, -89 dBm @ 12 Mbps, -85 dBm @ 18 Mbps, -83 dBm @ 24 Mbps, -79 dBm @ 36 Mbps, -75 dBm @ 48 Mbps, -74 dBm @ 54 Mbps
Protocol Support	
General Protocols:	Proxy ARP, DNS, HTTP, HTTPS, IP, ICMP, SNMP, TCP, UDP, RADIUS, SNMP, PPPoE, DHCP
AP-only Protocols:	ARP, BOOTP, DHCP, dynamic VLAN-Tags for 802.1X-Clients, STP/RSTP (IEEE 802.1D/w)
Interface	
Default Antenna	2 dBi dual-band omni-directional antenna, RP-SMA (male)
Connector for External Antennas	RP-SMA (female)
LAN Port	10/100BaseT(X), auto negotiation speed (RJ45-type)

Interface (continued)			
Console Port	RS-232 (RJ45-type)		
LED Indicators	PWR1, PWR2, PoE, FAULT, STATE, signal strength, CLIENT MODE, BRIDGE MODE, WLAN, 10M, 100M		
Alarm Contact	1 relay output with current carrying capacity of 1 A @ 24 VDC		
Digital Inputs	2 electrically isolated inputs <ul style="list-style-type: none"> • +13 to +30 V for state "1" • +3 to -30 V for state "0" • Max. input current: 8 mA 		
Physical Characteristics			
Housing	Metal, IP30 protection		
Weight	850 g		
Dimensions	53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)		
Installation	DIN-Rail mounting		
Environmental Limits			
Operating Temperature	0 to 60° C (32 to 140° F)		
Storage Temperature	-40 to 85° C (-40 to 185° F)		
Ambient Relative Humidity	5% to 95% (non-condensing)		
Power Requirements			
Input Voltage	12 to 48 V DC, redundant dual DC power inputs or 48 V DC Power-over-Ethernet (IEEE 802.3af compliant)		
Connector	10-pin Pluggable Terminal (0.2–1.5mm ²) 28–14 AWG		
Power Consumption	<ul style="list-style-type: none"> • 0.121 to 0.494 A @ 12 to 48 VDC • 0.3 A @ 24 VDC 		
Reverse Polarity Protection	Present		
Regulatory Approvals			
Safety	EN60950-1, UL60950-1		
Radio	EN300 328, EN301 893,		
EMC	EN301 489-1/-17, FCC Part 15 Subpart B Class B, EN55022/55024		
Hazardous Location	UL/cUL Class I, Div. 2; ATEX Class I, Zone 2		
MTBF	392.209 hrs		
Warranty			
Warranty Period	5 years		
Ordering Data			
Models	Model Type	Operating Temperature	Part No.
IEEE 802.11a/b/g wireless AP/ Bridge/Client (European version)	IE-WL-AP-BR-CL-ABG-EU	0 to +60° C	1242100000
	IE-WLT-AP-BR-CL-ABG-EU	-40 to +75° C	1286480000
IEEE 802.11a/b/g wireless AP/ Bridge/Client for American market	IE-WL-AP-BR-CL-ABG-US	0 to +60° C	1242110000
	IE-WLT-AP-BR-CL-ABG-US	-40 to +75° C	1286490000
Accessories	Model Type	Part No.	
External Backup and Restore Module	EBR-Module RS232	1241430000	
19" Rack Mounting Kit	RM-KIT	1241440000	