

Long Distance Wireless Ethernet Modems

802.11 Wireless Ethernet for Reliable Long-Distance Connectivity

Preliminary Datasheet



Features

- Standard-compliant options:
 - 2.412–2.472 GHz frequency (802.11b/g) (WI-MOD-E-G1-US)
 - 5.18 – 5.825 GHz frequency (802.11a) (WI-MOD-E-A1-US)
- 15–630 mW RF power
- Up to 108 Mbps data rate support
- 13-channel support (WI-MOD-E-G1-US) and 27 channel support (WI-MOD-E-A1-US)
- Single antenna connection for easy installation
- Access point/client and bridge/router configuration
- Serial client/server/multicast Modbus TCP to RTU gateway
- 10/100Base-T IEEE® 802.3 Ethernet
- Spanning tree (self-healing) support
- Deterministic AP-to-AP mesh network repeatability
- Fast roaming for AP-to-AP handover
- IEEE 802.11i secure 128-bit AES encryption (WPA2)
- MAC and IP address filtering
- Digital I/O channel transfer
- Configurable settings for high-noise environments
- Over-the-air network diagnostics and configuration
- VLAN tagging support for bridging and routing modes

The Weidmüller WI-MOD-E-G1-US and WI-MOD-E-A1-US are cost-effective and robust solutions to enable your devices for the Internet of Things (IoT) and Industry 4.0. With an easy access 802.11 wireless network, the wireless Ethernet data modems allow your devices to communicate through the industry-standard 2.4 GHz frequency band for WI-MOD-E-G1-US and 5.8GHz for WI-MOD-E-A1-US, used by most devices.

These wireless Ethernet modems are license-free wireless 802.11 standards-compliant transceivers capable of high-bandwidth communications. Operating at 2.4 GHz for WI-MOD-E-G1-US and 5.8 GHz for WI-MOD-E-A1-US and up to 630 mW, they are optimized for data rates of up to 108 Mbps, providing long-distance and secure two-way wireless communications in challenging environments typical of industrial monitoring and control applications.

Capable of operating in access point/client configuration, functioning as a network bridge/router, or serving as a serial server (RS-232/RS-485), the wireless Ethernet data modems offer node-to-node deterministic mesh network repeatability for greater range and multiple channel spacing options to increase network scalability. Integrated Modbus® server capability allows seamless I/O expansion as well.

Applications

- Video surveillance
- Automated vehicle control
- Tank farm monitoring
- Factory automation and safety interlocks
- Networking wind turbines and solar collectors

Ordering Information

Type	Description	Order Number
WI-MOD-E-G1-US	Ethernet 802.11b/g ; 2.4 GHz DSSS ; 630 mW Long Distance Wireless Ethernet Modem	2876610000
WI-MOD-E-A1-US	Ethernet 802.11a ; 5.8GHz DSSS ; 630 mW Long Distance Wireless Ethernet Modem	2876620000



Technical Data

Transmitter and Receiver					
Frequency	2.412-2.472 GHz (WI-MOD-E-G1-US) ; 5.150 - 5.825 GHz (WI-MOD-E-A1-US)				
Transmit power	15-630 mW				
Transmission modulation	Direct sequence spread spectrum (DSSS) ; Orthogonal frequency data modulation (OFDM)				
Receiver sensitivity	-100 dBm at 250 kbps; -74 dBm at 108 Mbps (8% FER) (WI-MOD-E-G1-US) ; -95 dBm at 6 Mbps; -74 dBm at 108 Mbps (8% FER) (WI-MOD-E-A1-US)				
Channel spacing	5 MHz spacing (13 channels, 2.412-2.472 GHz) (WI-MOD-E-G1-US) ; 20 MHz spacing (27 channels) (WI-MOD-E-A1-US)				
Data rate	250 kbps-108 Mbps (WI-MOD-E-G1-US) ; 6-108 Mbps (WI-MOD-E-A1-US) “Auto Mode” selects fastest rate possible relative to RSSI				
Range (LoS)	9 miles (15 km)				
Antenna connector	1 x female SMA, standard polarity				
Input and Output					
Discrete I/O	Input voltage-free contact ; Output FET 30 Vdc 500 mA				
Ethernet Port					
Ethernet port	100Base-T, RJ-45 connector-IEEE 802.3	Link activity	Link, 100Base-T via LED		
Serial Port					
RS-232	DB-9 female DCE, RTS/CTS/DTR/DCD				
RS-485	2-pin terminal block, non-isolated				
Data rate (bps)	1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200, 230400 bps				
Serial settings	7/8 data bits, stop/start/parity (configurable)				
Protocols and Configuration					
System address	ESSID; 1-31 character text string				
Protocols supported	TCP/IP, UDP, ARP, SNMP, RADIUS/802.1x, DHCP, DNS, PPP, ICMP, HTTP, FTP, TFTP, TELNET, Modbus and Modbus-TCP				
User configuration	User configurable parameters via HTTPS embedded Web server				
Configurable parameters	Access point/client/bridge/router/VLAN ; Point to point, point to multipoint ; Wireless distribution system (AP-AP repeater) ; Modbus TCP/RTU gateway ; Serial client/server/multicast ; Simultaneous RS-232/RS-485 connection ; Embedded Modbus master/slave for I/O transfer				
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				
LED Indication and Diagnostics					
LED indication	Power/OK, RX, TX/link, RS-232, LAN, RS-485, digital I/O status				
Reported diagnostics	RSSI measurements, connectivity information/statistics, log file				
Network management	Optional network management system				
Compliance					
EMC	FCC Part 15; EN 301 489-17; AS/NZS CISPR22	Hazardous area	CSA Class I, Division 2; ATEX; IECEx nA IIC	UL® approval	UL Listed
RF (radio)	EN 300 328 ; FCC Part 15; RSS 210	Safety	IEC 60950 (RoHS compliant)		
General Data					
Size	4.5 in x 5.5 in x 1.2 in (114 mm x 140 mm x 30 mm)	Temperature rating	-40 to +140 °F (-40 to +60 °C)	Terminal blocks	Removable, max. conductor 14 AWG 0.1 in² (2.5 mm²)
Housing	Powder-coated Aluminum	Humidity rating	0-99% RH noncondensing		
Mounting	DIN Rail	Weight	1.0 lb (0.45 kg)		
Power Supply					
Nominal supply	9 to 30 Vdc, under/overvoltage protection				
Average current draw	270 mA at 12 V (idle); 140 mA at 24 V (idle)				
Transmit current draw	470 mA at 12 V (400 mW), 250 mA at 24 V (600 mW)				

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