Datasheet • Electronic

WI-I/O-2-E-N-GBL Wireless I/O and Gateway

802.11b/g/n scalable industrial wireless I/O radio for reliable and secure connectivity

The Weidmuller WI-I/O-2-E-N wireless networking I/O and gateway is a multiple I/O node that extends communications to sensors and actuators in local, remote, or difficult to reach locations. Designed with a standards based 802.11b/g/n wireless transceiver, the WI-I/O-2-E-N can provide IP-based networking across sprawling industrial environments typical of industrial applications and includes built-in I/O capability for digital and analog inputs and outputs.

The W-I/O-2-E-N 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, repeater, and remote functionality, the WI-I/O-2-E-N provides for reliable redundant networks in industrial applications.

The WI-I/O-2-E-N can also provide Ethernet and serial gateway support for industrial protocols including Modbus® TCP/RTU and DNP3.

Features

- 2.412–2.472 GHz frequency (802.11b/g/n) 200mW RF power
- Transfer of I/O, Ethernet or RS232/485 serial data
- Multi-hop repeater and gateway functionality
- Gather-scatter and block mapping for I/O to I/O applications
- Modbus TCP and RTU I/O gateway and DNP3 Remote I/O
- Configurable digital, pulse, and analog I/O to 14-bit resolution
- Over-the-air network diagnostics and configuration
- Advanced security encryption provided with IEEE 802.11i (WPA2)
- Provides reliability and flexibility within the network architecture with base, repeater and remote modes
- Allows repeater to repeater communication for applications with challenging wireless conditions
- Expandable digital I/O for local alarms and inputs/outputs

Applications

- Water and Wastewater in-plant applications
- Oil & Gas remote sensor monitoring
- Discrete Factory automation
- Inventory management and warehousing

Note: Frequency range, number of channels, and/or RF power specification may vary depending on the country of application.

Weidmuller, Canada
10 Spy Court
Markham, Ontario L3R 5H6
Telephone: (800) 268-4080
Facsimile: (877) 300-5635
Email: info1@weidmuller.ca
Website: www.weidmuller.ca

Weidmuller, Mexico
Blvd. Hermanos Serdán 698,
Col. San Rafael Oriente
Puebla, Puebla, Mexico
C.P. 72029
Telephone: 01 222 2686267
Facsimile: 01 222 2686219
Email: clientes@weidmuller.com.mx
Website: www.weidmuller.com.mx

Weidmuller, United States
821 Southlake Blvd.
Richmond, Virginia 23236
Telephone: (800) 849-9343
Facsimile: (804) 379-2593
Email: info@weidmuller.com
Website: www.weidmuller.com

Technical Data

Operation Modes	Wireless base, repeater, remote or manual setup for advanced configuration
Repeater and Base	Max. of 8 total remote/repeater/base connections
Remote	Fixed or simple roaming
Input and Output	
Digital Input	8 digital inputs (shared with outputs), 1–4 configurable as PI or PO
	On-state voltage: <2.1VDC
	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 µsec, PI 3/4: 0.2 msec
Digital Output	8 digital outputs (shared with inputs), 1–4 configurable as PI or PO
	Load voltage, DO max. 30VDC
	Load current, DO max. 200 mA
	Max. O/P pulse rate, PO max. rate 1 kHz
Analog Input	4 AI (2 differential, 2 single ended)
	Current range: 0–24 mA
	Current resolution: 14 bits
	Accuracy (current): 0.1%
	Voltage input range: AI 1/2: 0–25V, AI 3/4: 0–5V
	Voltage resolution: 14 bits
	Accuracy (voltage): 0.1%
Analog Output	2 AO (sourcing)
	Current range: 0–24 mA
	Current resolution: 13 bits
	Accuracy (current): 0.1%
Analog Loop Supply	24VDC @ 100mA MAX (current limited)
RS485	1.2 to 230.4 Kb/s
	Serial server, PPP, Modbus to Modbus TCP conversion
Discrete I/O	One I/O channel
Input	Voltage-free contact
Output	FET 30VDC 500mA
Networking	Configurable as Access Point or Client, Bridge or Router
	Point-to-point, point-to-multipoint
	User configurable addressing
	Repeater functionality
	MAC Filtering - whitelist or blacklist
	IP Filtering - whitelist or blacklist
	ARP Filtering - whitelist or blacklist
Transmitter/Receiver	
Radio Transceiver/ Modulation	Direct sequence spread spectrum (DSSS)
	Orthogonal frequency-division multiplexing (OFDM)
Frequency - USA/Canada	2.401 – 2.483 GHz
	802.11 b/g/n
Channels	13 channels, 20MHz
Transmit Power	200mW (+23dBm)
Receiver Sensitivity	-94dBm (11Mbps) 802.11b
	-75dBm (54Mbps) 802.11g
Data Rates	1 – 54Mbps (selects fastest connection rate available)
System Address	ESSID; 1 to 31-character text string
Protocols Supported	TCP/IP, UDP, ARP, DHCP, ICMP, HTTP, FTP, VLAN 802.1Q, Modbus RTU, Modbus TCP, DNP3 available
Radio Range	400m (1300ft)
	Range may be extended using repeater features
Antenna Connection	Female SMA 50Ω
Security	Data encryption, 802.11i with CCMP 128-bit AES
	Support for 802.1x Radius server
	Secure HTTP protocol
Address Filtering	IP address, whitelist/blacklist MAC address, whitelist/ blacklist ARP filtering, whitelist/blacklist
Configurable Parameters	Unit details, I/O mappings and parameters, radio settings (refer to the user manual for detail)
	Modbus TCP/RTU gateway
	Embedded Modbus master/slave for I/O transfer
	Prioritization of traffic flows, bandwidth efficiency features, bandwidth utilization, bridging, VLAN
User Configuration	Via HTTPS web server
	Network access: Ethernet
	Remote access: Over the air
Diagnostics	RSSI measurements (dBm), connectivity information/statistics
LAN (Ethernet)	1 x 10/100 BaseT auto-MDIX RJ45
Serial	1 x RS232, 1 x RS485, 1200-230400bps
General Data	
Operating Temperature	-40°F to +140°F (-40°C to +60°C) Max. temperature +70°C for non-hazardous application with no battery charger feature used.
Humidity	99% non-condensing
Power Supply	10.8-30VDC, under/over voltage protection
	Sealed lead acid backup battery can be charged by main power supply input.
Current Consumption Idle:	12V - 270mA; 24V - 140mA
Transmit:	2.5A @ 9VDC; 0.75A @ 30VDC
Approvals	EMC: FCC Part 15; EN 301 489-17; AS/NZS CISPR22
	RF: FCC Part 15.247; IC RSS 210; EN 300 328; AS/NZS4268
	Safety: EN/IEC 60950
	Hazardous Area: UL Class I, Division 2; Pending IEC EX Zone 2; ATEX Zone 2
Mounting	DIN-rail mounting
LED Indication	Power/OK, Radio TX/RX/Link, RS-232, RS-485, digital I/O, analog I/O status
Dimensions (L x W x H) mm	186 x 115 x 36
Weight	<0.55 kg / 1.2 lb

Ordering Data

Type	Part No.
WI-IO-2-E-N-GBL	**6720005042**