Ethernet Networking I/O and Gateway

Fully Featured Ethernet I/O Gateway for Industrial applications

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The Weidmuller WI-IO-EX-2-E-1 is a fully featured Industrial Ethernet I/O and Gateway device that extends both physical I/O for sensors and embedded industrial protocols for communications between PLC's and RTU's, which allows simple, flexible and secure connectivity across SCADA and IIoT networks.

The unit provides both polled and exception reported messaging using IP based communications. Typically used in industrial applications including water treatment plants, dams / reservoirs, pump stations, power distribution networks through to dewatering in mining applications and well head monitoring in the oil and gas industry.

Being IIoT ready, the WI-IO-EX-2-E-1 can connect to any IP based network including satellite and cellular backhauls, UHF / VHF communication networks and Industrial LAN.

The device can serve as an end node or network gateway and is scalable to thousands of nodes. Gather-scatter and block mapping technology offers the efficient use of network resources, allowing point-to-point transfer of process signal within complex monitoring and control systems. Integrated Modbus® server capability allows further I/O expansion through the use of expansion modules or u-remote IO.

The WI-IO-EX-2-E-1 feature key options provides functionality for DNP3 I/O Outstation allowing for connectivity to DNP3 SCADA applications. With the combination of DNP3 and Modbus the WI-IO-EX-2-E-1 also functions as a Modbus to DNP3 gateway converting legacy Modbus devices to DNP3 I/O tags.

Features

- Modbus RTU and TCP support
- Serial client/server/multicast Modbus TCP to RTU gateway
- Configurable digital, pulse, and analog I/O to 14-bit resolution
- Gather-scatter and block mapping
- 10/100BaseT IEEE 802.3 Ethernet
- Network diagnostics and configuration

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

Machine Building | Food & Beverage | Oil & Gas | Water Treatment | Energy | Cyber Security

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Technical data

Inputs	
Digital: opto-isolated (5kV) inputs suitable for voltage free contacts or NPN transistor	Up to 8 DI (Configurable), On-state Voltage <2.1V Wetting, Current 5mA
Analog: "floating" differential inputs, common mode voltage 27V, 24VDC for powering external loops provided, digital filtering 1 sec.	4 AI (2 differential: 2 single ended) resolution 14bits; accuracy 0.1% Current Range - 0-24mA Voltage Range: AI 1,2: 0-25V, AI 3,4: 0-5V 5V Voltage resolution 14bits; accuracy 0.1%
Pulse: (configurable Digital Inputs)	4 PI DI 1,2: Max. Pulse rate 50kHz, Pulse width min 10us DI 3,4: Max. Pulse rate 1kHz, Pulse width min 0.2ms
Outputs	
Digital	Up to 8 DO (Configurable) FET (30V DC @ 200mA max.) On-state Voltage - DO Max: 30 V DC Wetting Current - DO Max: 200mA
Analog: current sink to common, max loop voltage 27V, max loop resistance 1000 ohms	2 AO 0-24mA; resolution 13bits; accuracy 0.1%
Pulse: Configurable digital outputs	4 PO Max O/P pulse rate - 1KHz
Power Supply	
Battery supply	10.5-15V DC
Normal supply	15-30V DC, over-voltage and reverse power protected
Battery charging circuit	Included for 1.2-12 AHr sealed battery
Average current draw	220mA @ 12V DC (Idle), 110mA @ 24V DC (Idle)
Transmit current draw	500mA @ 12V DC (1W), 250mA @ 24V DC (1W)
Internal monitoring	Power fail and battery voltage
Notes	An internal DC/DC converter provides 24V DC 150mA for analog loop supply.
Connections	
RS232/RS485	Serial port 9600 baud, 8 bits, no parity, 1 stop bit
RS232 connection	EIA-562 (RJ45 connector)
RS485 connection	Max cable distance 2000 m terminal connections
Ethernet Port	10/100 BaseT; RJ45 - IEEE 802.3
USB Port	USB-B connector for configuration
General Data	
Operating Temperature	-40 to 60°C (-40 to 140°F)
Humidity	0-99%RH
EMC Standards	FCC Part 15, EN 55022, AS 3548, CE
Approvals	Class 1 Div 2, CE, IEC60950, IECex, ATEX, IEC90950 (RoHS compliant), UL Listed
Mounting	DIN-rail mounting
LED indication	Power, RS232, RS485, D I/O (P I/O), A I/O
Dimensions mm (in)	180 x 150 x 35 (5.91 x 7.09 x 1.38)
Protocols & Configuration	
System address	1 to 31-character text sting
Protocols supported	TCP/IP, UDP, HTTP, FTP, TFTP, TELNET, Modbus RTU/TCP, DNP3
User configuration	All user-configurable parameters via HTTPS
Configurable parameter	Unit details, I/O mappings and parameters (for more, refer to the user manual) Modbus TCP/ RTU gateway Embedded modbus master/slave for I/O transfer DNP3 I/O and gateway (level 2+)
Security	Secure HTTP protocol

Ordering data

	Type	Part No.
Ethernet I/O I/O 8 DI/O, 4AI, 2AO, 1-4 PI/O Modbus TCP/RTU Gateway	WI-I/O-EX-2-E-1	6720005041
TCP Adaptor (Type T Thermocouple Add-on) Notes	WI-I/O 9-U2 TC	6720005013
For detailed information on Expansion Modules, Antennas and Accessories, see LIT0705NA 10/2011		