

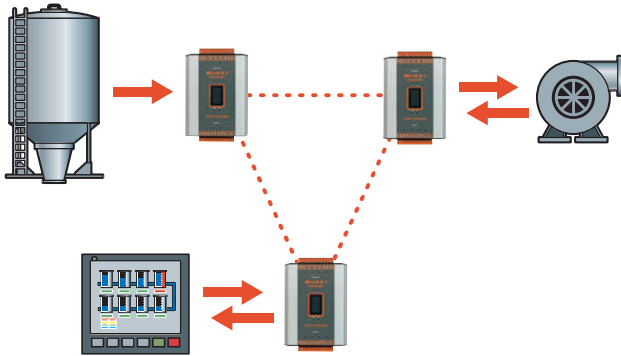
WI-I/O 9 Multi I/O Units

A transceiver is a wireless device made up of a transmitter and receiver. Since each module can manage both input and output signals, it can be used to monitor transducers and control industrial processes. This module can also be used as a repeater to relay another wireless device's transmission, thus increasing the overall range of the system.



Typical Applications

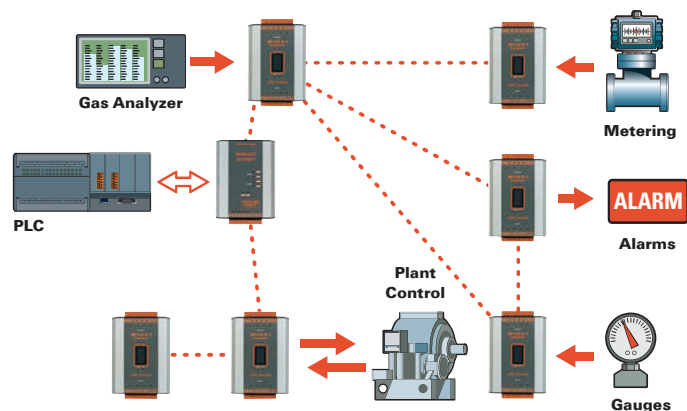
- Wireless junction box in a process plant to connect a large number of signals to other parts of the plant and to the plant control center
- Simple Remote Terminal Unit (RTU) in a SCADA system, connecting sensors/instrumentation/process signals in pump stations, sub-stations, pipeline regulator stations, etc.
- Machine-to-Machine wireless connectivity in factories



- Short distance and long distance applications with license-free and licensed products
- Multi-hop repeater functions – up to 5 intermediate units can be configured in any input/output link
- Four versions available
- Any input on any unit can be wirelessly linked to any output on another unit. Inputs can be linked to multiple outputs.
- Inputs and outputs can be added via additional serial units
- The units can be pre-programmed to consider analog set-points, pulse rate and pulse total, power supply voltage, power supply alarm
- Set-point status generated by comparing analog inputs to high and low set-points. Available on AI1 of -1 units, and AI1-4 of -2 units.
- Pulse inputs generate a separate pulse count value and a pulse rate value. Pulse rates are treated as internal analog registers with a configurable maximum value.
- Wide voltage power supply, with integral UPS battery charger and solar regulator
- Power supply generates internal signal values which can be transmitted, low normal supply voltage status, low battery voltage status and battery voltage (analog)
- Multiple communication failure diagnostics with output status. Fail-to-transmit alarm and fail-to-receive alarm status.
- Radio receives signal and background RF noise measurement / logging diagnostics
- Input measurement display and output "forcing" diagnostics
- Communication logging diagnostics
- Easy-to-use E-Series Windows configuration available at www.weidmuller.ca or www.weidmuller.com

Features

- Class I, Division 2 hazardous areas approved (USA/Canada); (CSA certified)
- Multiple inputs/output channels for monitoring and control functions
- Up to 95 wireless units per network
- Each wireless unit can connect to input/output expansion modules via RS485 multi-drop with up to 31 expansion modules per wireless unit
- Sensor signals connected at one module; input signals are transmitted to another module where the signals are re-created as output signals or passed via serial to a host device such as a PLC or SCADA system



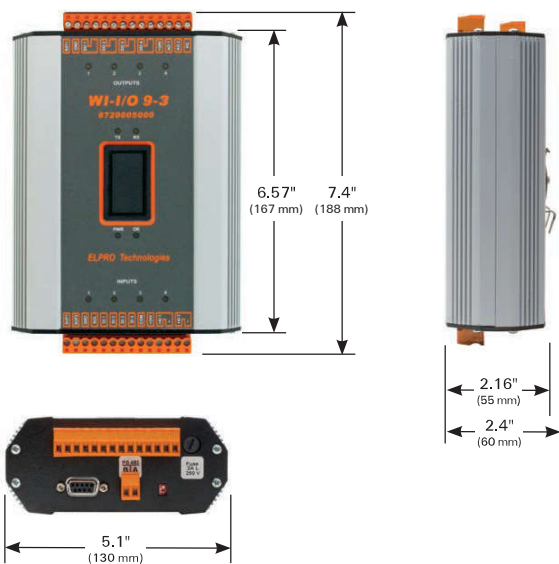
Multi-I/O Unit Ordering Information

WI-I/O 9	-1	-2	-3	-4
Digital inputs	4 Voltage-free contacts	4 Voltage-free contacts	0 Voltage-free contacts	4 - 16 Voltage-free contacts
Digital outputs	1 + 3 Relay + FET	1 FET	8 FET	4 - 16 FET
Analog inputs	2 4-20mA	6 0-20mA/0-10V	0	0
Analog outputs	2 4-20mA	0	8 0-20mA/0-10V	0
Pulse inputs	1 100Hz	4 1 x 1KHz, 3 x 100Hz	0	4 1 x 1KHz, 3 x 100Hz
Pulse outputs	1 100Hz	0	4 1 x 1KHz, 3 x 100Hz	4 1 x 1KHz, 3 x 100Hz

Note: Pulse and digital inputs are same connection point.

FET = Field Effect Transistor

Dimensions



- **Regulatory Approvals:** EMC FCC Part 15, AS3548, 89/336/EEC, EN 301 489
- **Certifications:** CSA Class I, Division 2 hazardous areas (USA/Canada)
- **Housing:** extruded aluminum case, 5.1" x 7.4" x 2.4" (130 x 188 x 60mm) with DIN-rail mounting
- **Removable terminals** up to 2.5 mm² (12 gauge) wires
- **LED indication** for power supply, module status, digital I/O

Inputs and Outputs*

Digital Inputs

- Opto-isolated (5000V) inputs suitable for voltage-free contacts or NPN transistor, contact wetting current 5mA
- **Type-1 & -2** - four inputs
- **Type-4** - up to 16 inputs (4 inputs + 12 selectable I/O). The 12 selectable inputs are surge protected, but not isolated.

Digital Outputs

- **Type-1** - four relay, contacts, Form A, AC 50V 5A / DC 30V 2A
- **Type-2** - 1 FET output 30VDC 500mA
- **Type-3** - 8 FET output 30VDC 500mA
- **Type-4** - up to 16 FET output (4 outputs + 12 selectable I/O)

Analog Inputs

- "Floating" differential inputs, common mode voltage 27V. 24VDC for powering external loops provided. Digital filtering 1 sec.
- **Type-1** - two 4-20mA resolution 15-bit, accuracy 0.1% (over range indication 2-25mA)
- **Type-2** - six 0-20mA resolution 12-bit, accuracy 0.1% (over range indication 0-25mA)

General

- **Frequency:** frequency hopping spread spectrum 902-908 MHz, sub-bands configurable
- **Power:** transmit power 1W, approved to FCC Part 15.247, RSS210
- **Sensitivity:** receiver data sensitivity -108dBm
- **Max. Range (line-of-sight):** USA/Canada - 4W ERP, 20+ miles. Other countries - 1W ERP, 15+ km depending on local conditions
- **Data Rate:** 19.2 Kb/s with forward-error correction
- **Antenna Connector:** SMA female coaxial
- **Temperature:** -40 to 60°C / -40 to 140°F
- **Humidity:** 0-99% RH

* See table above for Input/Output summary

Analog Outputs

- Current sink to common, max. loop voltage 27V, max. loop resistance 1000 ohms
- **Type-1** - two 4-20 mA resolution 15-bit, accuracy 0.1% (over range indication 0.5-25mA)
- **Type-3** - eight 0-20 mA resolution 12-bit, accuracy 0.1% (over range indication 0-20.5mA)

Pulse Inputs

- Specifications as per digital inputs, max. pulse rate 100Hz, pulse width min. 5 ms
- **Type-1** - one input (DI1)
- **Type-2** - four inputs (DI1-4) - first pulse input (DI1) max. 1000Hz, pulse width min. 0.5 ms
- **Type-4** - four inputs (DI1-4) - first pulse input (DI1) max. 1000Hz, pulse width min. 0.5 ms

Pulse Outputs

- FET 30VDC 500mA max. 100Hz
- **Type-1** - one
- **Type-3 & -4** - four

Power Supply

- **Battery Supply:** 11.5-15.0 VDC
- **Normal Supply:** 12-24 VAC or 15-30 VDC, over-voltage and reverse power protected
- Internal monitoring of power fail, solar charge status and battery voltage. These values may be transmitted to remote modules for monitoring.
- Internal DC/DC converter provides 24VDC 150mA for analog loop supply
- Battery charging circuit included for 1.2-12 AHr sealed battery
- Solar regulator for direct connection of solar panel (up to 30W) and solar battery (100AHr)

Serial Port

- A serial port can be used to configure transceivers and to hard wire one transceiver to another when desired. This connection avoids the need to add wireless nodes to circumvent impenetrable obstructions and provides a redundant path for critical applications.
- RS232/RS485 serial port 9600 baud, 8 bits, no parity, 1 stop bit
- RS232 9 pin DB9 female connector
- RS485 terminal connections (max. cable distance 2000m)





WI-I/O 9-1



WI-I/O 9-2



Technical Data

Inputs		
Digital: opto-isolated (5000V) inputs suitable for voltage free contacts or NPN transistor, contact wetting current 5 mA	four inputs	four inputs
Analog: "floating" differential inputs, common mode voltage 27V, 24VDC for powering external loops provided, digital filtering 1 sec.	two 4-20mA resolution 15 bit, accuracy 0.1%	six 0-20mA/0-10V resolution 12 bit, accuracy 0.1%
Pulse: as per digital inputs, Max pulse rate 100Hz, pulse width min 5ms	one input (DI1)	four input(DI1-4) - first pulse input (DI1) max 1000Hz, pulse width min 0.5ms
Outputs		
Digital	4 (1 Relay Form A, AC, 50V 5A/ DC 30V 2A; 3 FET)	one FET output 30VDC 500mA
Analog: current sink to common, max loop voltage 27V, max loop resistance 1000 ohms	two 4-20 mA resolution 15 bit, accuracy 0.1%	
Pulse: FET 30VDC 500mA max 100Hz	one	
Power Supply		
Battery supply	11.5-15.0 VDC	11.5-15.0 VDC
Normal supply	12-24 VAC or 15-30 VDC, over-voltage and reverse power protected	12-24 VAC or 15-30 VDC, over-voltage and reverse power protected
Battery charging circuit	included for 1.2-12 Ahr sealed battery for direct connection of solar panel (up to 30W) and solar battery (100Ahr)	included for 1.2-12 Ahr sealed battery for direct connection of solar panel (up to 30W) and solar battery (100Ahr)
Internal monitoring	power fail, solar charge status, and battery voltage	power fail, solar charge status, and battery voltage
Notes	An internal DC/DC converter provides 24VDC 150mA for analog loop supply.	An internal DC/DC converter provides 24VDC 150mA for analog loop supply.
Serial Port		
RS232/RS485	serial port 9600 baud, 8 bits, no parity, 1 stop bit	serial port 9600 baud, 8 bits, no parity, 1 stop bit
RS232 connection	9pin DB9 female connector	9pin DB9 female connector
RS485 connection	max cable distance 2000 m terminal connections	max cable distance 2000 m terminal connections
General Data		
Operating Temperature	-40 to 60°C (-40 to 140°F)	-40 to 60°C (-40 to 140°F)
Humidity	0-99%RH	0-99%RH
EMC Standards	FCC Part 15, AS3548, 89/336/EEC, EN 301 489	FCC Part 15, AS3548, 89/336/EEC, EN 301 489
Approvals	Class 1 Div 2	Class 1 Div 2
Mounting	DIN-rail mounting	DIN-rail mounting
LED indication	For power supply, WDT, digital I/O	For power supply, WDT, digital I/O
Antenna connector	SMA female coaxial	SMA female coaxial
Dimensions mm (in)	130 x 188 x 60 (5.1 x 7.4 x 2.4)	130 x 188 x 60 (5.1 x 7.4 x 2.4)

Ordering Data

	Type	Part No.	Type	Part No.
	WI-I/O 9-1	6720005000	WI-I/O 9-2	6720005001
Accessories: DB9 Male - DB9 Female Serial config. cable	WI-CSER-905-9	6720005105	WI-CSER-905-9	6720005105



WI-I/O 9-3



WI-I/O 9-4



Technical Data

Inputs		
Digital: opto-isolated (5000V) inputs suitable for voltage free contacts or NPN transistor, contact wetting current 5 mA		up to 16 inputs (4 inputs + 12 selectable I/O) the 12 selectable inputs are surge protected but not isolated
Analog: "floating" differential inputs, common mode voltage 27V, 24VDC for powering external loops provided, digital filtering 1 sec.		
Pulse: as per digital inputs, Max pulse rate 100Hz, pulse width min 5ms		four input(DI1-4) - first pulse input (DI 1) max 1000Hz, pulse width min 0.5ms
Outputs		
Digital	eight FET output 30VDC 500mA	up to 16 FET output (4 outputs + 12 selectable I/O)
Analog: current sink to common, max loop voltage 27V, max loop resistance 1000 ohms	eight 0-20 mA resolution 12 bit, accuracy 0.1%	
Pulse: FET 30VDC 500mA max 100Hz	four (DO 1-4)	four (DO 1-4)
Power Supply		
Battery supply	11.5-15.0 VDC	11.5-15.0 VDC
Normal supply	12-24 VAC or 15-30 VDC, over-voltage and reverse power protected	12-24 VAC or 15-30 VDC, over-voltage and reverse power protected
Battery charging circuit	included for 1.2-12 Ahr sealed battery	included for 1.2-12 Ahr sealed battery
Solar regulator	for direct connection of solar panel (up to 30W) and solar battery (100Ahr)	for direct connection of solar panel (up to 30W) and solar battery (100Ahr)
Internal monitoring	power fail, solar charge status, and battery voltage	power fail, solar charge status, and battery voltage
Notes	An internal DC/DC converter provides 24VDC 150mA for analog loop supply.	An internal DC/DC converter provides 24VDC 150mA for analog loop supply.
Serial Port		
RS232/RS485	serial port 9600 baud, 8 bits, no parity, 1 stop bit	serial port 9600 baud, 8 bits, no parity, 1 stop bit
RS232 connector	9pin DB9 female connector	9pin DB9 female connector
RS485 connector	max cable distance 2000 m terminal connections	max cable distance 2000 m terminal connections
General Data		
Operating Temperature	-40 to 60°C (-40 to 140°F)	-40 to 60°C (-40 to 140°F)
Humidity	0-99%RH	0-99%RH
EMC Standards	FCC Part 15, AS3548, 89/336/EEC, EN 301 489	FCC Part 15, AS3548, 89/336/EEC, EN 301 489
Approvals	Class 1 Div 2	Class 1 Div 2
Mounting	DIN-rail mounting	DIN-rail mounting
LED indication	For power supply, WDT, digital I/O	For power supply, WDT, digital I/O
Antenna Connector	SMA female coaxial	SMA female coaxial
Dimensions mm (in)	130 x 188 x 60 (5.1 x 7.4 x 2.4)	130 x 188 x 60 (5.1 x 7.4 x 2.4)

Ordering Data

	Type	Part No.	Type	Part No.
	WH/O 9-3	6720005002	WI-I/O 9-4	6720005003
Accessories: DB9 Male - DB9 Female Serial config. cable	WH-CSER-905-9	6720005105	WI-CSER-905-9	6720005105