

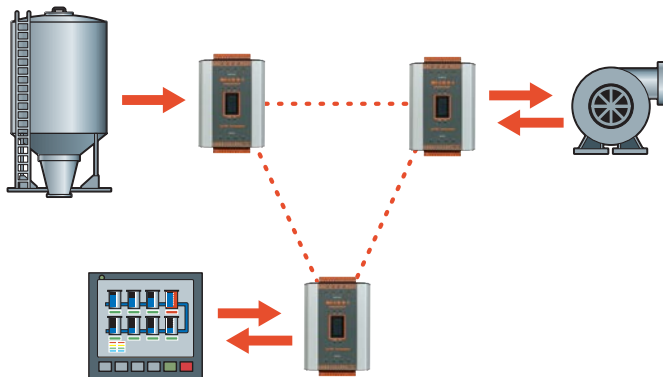
### WI-I/O 9 Multi I/O Units

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

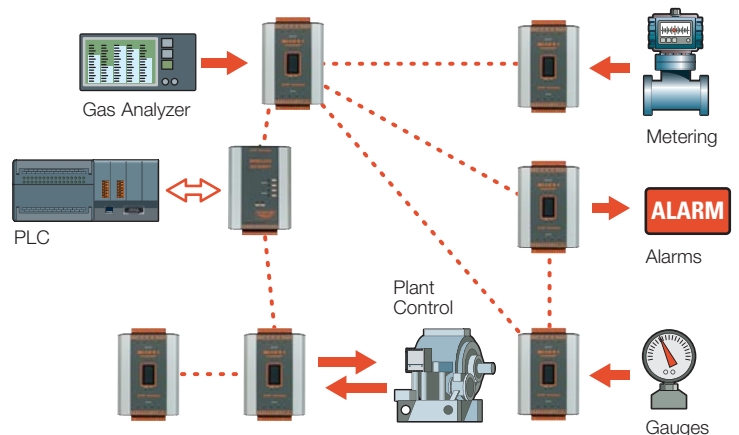
- Wireless junction box in a process plant to connect a large number of signals to other parts of the plant and to the plant control center
- Simple Remote Terminal Unit (RTU) in a SCADA system, connecting sensors/instrumentation/process signals in pump stations, sub-stations, pipeline regulator stations,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



### 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

- 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](http://www.weidmuller.ca) or [www.weidmuller.com](http://www.weidmuller.com)



**Multi-I/O Unit Ordering Information**

WI-I/O 9	-1	-2	-3	-4
Digital inputs	4	4	0	4 – 16
	Voltage-free contacts	Voltage-free contacts	Voltage-free contacts	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 mm<sup>2</sup> (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)

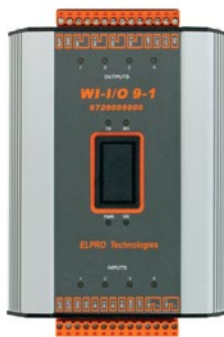
**Serial Port**

- 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  
 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

**Outputs**

Digital  
 Analog: current sink to common,  
 max loop voltage 27V, max loop resistance 1000 ohms  
 Pulse: FET 30VDC 500mA max 100Hz

**Power Supply**

Battery supply  
 Normal supply

Battery charging circuit  
 Solar regulator

Internal monitoring  
 Notes

**Serial Port**

RS232/RS485  
 RS232 connection  
 RS485 connection

**General Data**

Operating Temperature  
 Humidity  
 EMC Standards  
 Approvals  
 Mounting  
 LED indication  
 Antenna connector  
**Dimensions mm (in)**

four inputs

two 4-20mA resolution 15 bit, accuracy 0.1%

one input (DI1)

four relay contacts, Form A, AC, 50V 5A/ DC 30V 2A  
 two 4-20 mA resolution 15 bit, accuracy 0.1%

one

11.5-15.0 VDC  
 12-24 VAC or 15-30 VDC, over-voltage and reverse power protected

included for 1.2-12 AHr sealed battery for direct connection of solar panel (up to 30W) and solar battery (100AHr)

power fail, solar charge status, and battery voltage  
 An internal DC/DC converter provides 24VDC 150mA for analog loop supply.

serial port 9600 baud, 8 bits, no parity, 1 stop bit  
 9pin DB9 female connector  
 max cable distance 2000 m terminal connections

-40 to 60°C (-40 to 140°F)  
 0-99%RH  
 FCC Part 15, AS3548, 89/336/EEC, EN 301 489  
 Class 1 Div 2   
 DIN rail mounting  
 For power supply, WDT, digital I/O  
 SMA female coaxial  
 130 x 188 x 60 (5.1 x 7.4 x 2.4)

four inputs

six 0-20mA/0-10V resolution 12 bit, accuracy 0.1%

four input(DI1-4) - first pulse input (DI1) max 1000Hz, pulse width min 0.5ms

one FET output 30VDC 500mA

11.5-15.0 VDC  
 12-24 VAC or 15-30 VDC, over-voltage and reverse power protected

included for 1.2-12 AHr sealed battery for direct connection of solar panel (up to 30W) and solar battery (100AHr)

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 For power supply, WDT, digital I/O  
 SMA female coaxial  
 130 x 188 x 60 (5.1 x 7.4 x 2.4)

**Ordering Data**

**Accessories:** DB9 Male - DB9 Female Serial config. cable

Type	Part No.
WI-I/O 9-1	6720005000
WI-CSER-905-9	6720005105

Type	Part No.
WI-I/O 9-2	6720005001
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  
 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

**Outputs**

Digital  
 Analog: current sink to common,  
 max loop voltage 27V, max loop resistance 1000 ohms  
 Pulse: FET 30VDC 500mA max 100Hz

**Power Supply**

Battery supply  
 Normal supply  
 Battery charging circuit  
 Solar regulator

Internal monitoring  
 Notes

**Serial Port**

RS232/RS485  
 RS232 connector  
 RS485 connector

**General Data**

Operating Temperature  
 Humidity  
 EMC Standards  
 Approvals  
 Mounting  
 LED indication  
 Antenna Connector

**Dimensions mm (in)**

**Ordering Data**

**Accessories:** DB9 Male - DB9 Female Serial config. cable

eight FET output 30VDC 500mA  
 eight 0-20 mA resolution 12 bit, accuracy 0.1%  
 four (DO1-4)  
 11.5-15.0 VDC  
 12-24 VAC or 15-30 VDC, over-voltage and reverse power protected  
 included for 1.2-12 A-Hr sealed battery for direct connection of solar panel (up to 30W) and solar battery (100A-Hr)  
 power fail, solar charge status, and battery voltage  
 An internal DC/DC converter provides 24VDC 150mA for analog loop supply.  
 serial port 9600 baud, 8 bits, no parity, 1 stop bit  
 9pin DB9 female connector  
 max cable distance 2000 m terminal connections

-40 to 60°C (-40 to 140°F)  
 0-99%RH  
 FCC Part 15, AS3548, 89/336/EEC, EN 301 489  
 Class 1 Div 2   
 DIN rail mounting  
 For power supply, WDT, digital I/O  
 SMA female coaxial  
 130 x 188 x 60 (5.1 x 7.4 x 2.4)

Type	Part No.
WI-I/O 9-3	6720005002
WI-CSER-905-9	6720005105

up to 16 inputs (4 inputs + 12 selectable I/O) the 12 selectable inputs are surge protected but not isolated

four input(DI1-4) - first pulse input (DI1) max 1000Hz, pulse width min 0.5ms

up to 16 FET output (4 outputs + 12 selectable I/O)

four (DO1-4)

11.5-15.0 VDC  
 12-24 VAC or 15-30 VDC, over-voltage and reverse power protected  
 included for 1.2-12 A-Hr sealed battery for direct connection of solar panel (up to 30W) and solar battery (100A-Hr)  
 power fail, solar charge status, and battery voltage  
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serial port 9600 baud, 8 bits, no parity, 1 stop bit  
 9pin DB9 female connector  
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-40 to 60°C (-40 to 140°F)  
 0-99%RH  
 FCC Part 15, AS3548, 89/336/EEC, EN 301 489  
 Class 1 Div 2   
 DIN rail mounting  
 For power supply, WDT, digital I/O  
 SMA female coaxial  
 130 x 188 x 60 (5.1 x 7.4 x 2.4)

Type	Part No.
WI-I/O 9-4	6720005003
WI-CSER-905-9	6720005105