

# WI-I/O-EX

## Expansion I/O Units (Serial I/O)

The WI-I/O-EX is a wired device capable of interfacing with other Weidmuller wireless radios to increase the number of signals radios can monitor/control. They can also be used as a slave to any Modbus control system.



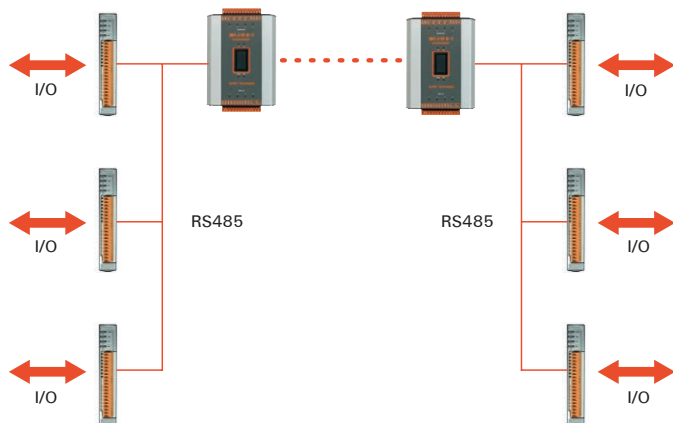
### Typical Applications

#### Expansion I/O for WI-I/O 9 wireless units and WI-MOD units

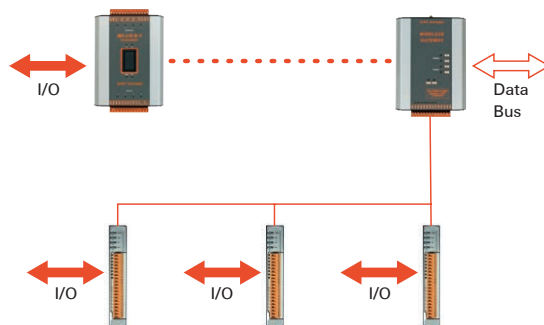
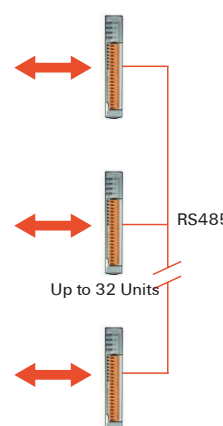
- up to 31 x WI-I/O-EX units can be connected to each wireless unit via RS485 (up to 2 km long). Serial I/O multiplexer
- transfer I/O via RS485— up to 32 units per multi-drop link.

#### Expansion I/O for Modbus devices

- up to 31 x WI-I/O-EX units can be connected to each Modbus master via RS485 (up to 2 km long).



- Connect up to 99 x WI-I/O-EX units as multi-drop Modbus I/O (RS485 extenders/isolators required for more than 31 units per single multi-drop length)
- RS485 multi-drop up to 2 km (1 mile) depending on installation environment
- Three I/O versions available
- Peer-to-peer communications; Exception reporting; Reliable self-checking messages; Any input on any unit can be linked to any output on any unit. Inputs can be linked to multiple outputs; Serial communications 9.6Kb/s
- Alternate Modbus RTU or Modbus ASCII slave protocol, serial communications configurable up to 115.2Kb/s, 7 or 8 data bit format
- External I/O plus internally calculated values - analog setpoint status, pulse rate and pulse total, power supply voltage, power supply alarm
- Setpoint status generated by comparing analog inputs to high and low setpoints




### Features

- Multi I/O channels— monitoring and control functions
- Connected via RS485 multi-drop
- Selectable communications via WIB-net or Modbus protocol (both RTU and ASCII formats)
- 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
- Connect to WI-I/O 9 wireless I/O units for up to 31 serial addresses per wireless unit
- Connect WI-I/O-EX units together to form a serial multi-drop I/O system - up to 32 serial addresses per multi-drop link— no Master device is required to control communications

- Analog inputs selectable as “floating” dual-terminal inputs or commoned single-terminal inputs; Configurable current (0-10/0-20/4-20mA) or voltage (0-5/0-10/1-5V).
- Analog outputs selectable as single-terminal source or sink outputs. Configurable current (0-10/0-20/4-20mA) or voltage (0-5/0-10/1-5V). Configurable scaling, zero and span parameters.
- Pulse inputs generate separate pulse count value and a pulse rate value. Pulse rates are treated as internal analog registers with a configurable maximum value.

**Expansion I/O Units – Introduction**

- Multiple communication-failure diagnostics with output status. Fail-to-transmit alarm and fail-to-receive alarm status.
- Class 1 Div 2 hazardous areas approval 
- 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 [weidmuller.com](http://weidmuller.com)

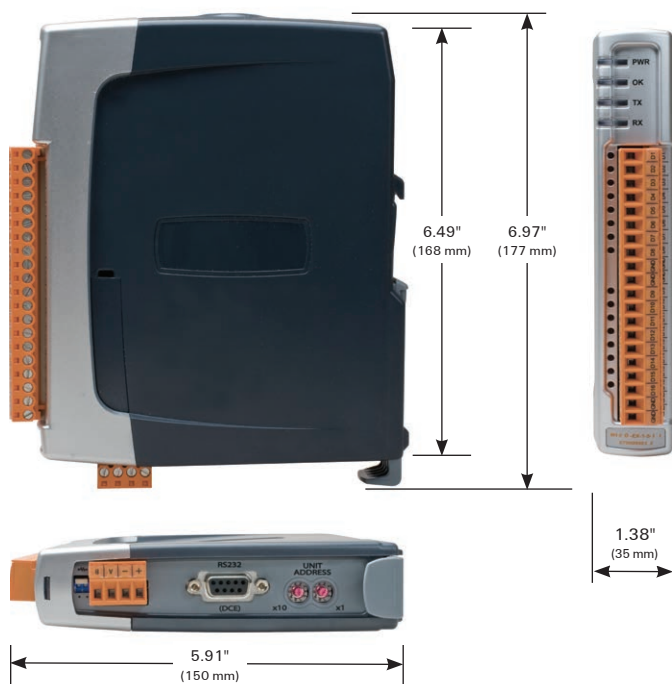


**Serial Unit Ordering Information**

WI-I/O-EX	67200005038 -11	67200005039 -12	67200005040 -13
Digital inputs	up to 16	up to 8 Voltage-free contacts	up to 8
Digital outputs	up to 16	up to 8	up to 8
Analog inputs	0	4 “floating” / 8 commoned 0-20mA / 0-10V	0
Analog outputs	0	0	8 sink / source 0-20mA / 0-10V
Pulse inputs	4 1KHz	0	0
Pulse outputs	8 100Hz	8 100Hz	8 100Hz

**Note:** Digital inputs and outputs are combined channels. When a channel is used as an output, it is not available as an input. Pulse and digital I/O are same connection.

**Dimensions**



**General Specifications**

- **Temperature:** -40 to 60°C / -40 to 140°F
- **Humidity:** 0-99% RH
- **Regulatory Approvals:** EMC FCC Part 15, AS3548, 89/336/EEC
- **Certifications:** CSA Class I, Division 2 hazardous areas (USA/Canada)
- **Housing:** high density thermo-plastic, 5.91" x 6.97" x 1.38" (150 X 177 x 35mm) with DIN-rail mounting
- **Removable terminals** up to 12 gauge (2.5 mm<sup>2</sup>) wires
- **LED indication** for power supply, processor OK, serial TX and RX, digital I/O

## Inputs and Outputs

### Digital Inputs

- Suitable for voltage-free contacts or NPN transistor, contact wetting current 5mA, inputs are surge protected
- **Type -11** - up to 16 selectable I/O
- **Type -12, -13**, - up to 8 selectable I/O

### Digital Outputs

- Field Effect Transistor (FET) outputs, 30VDC 200mA
- **Type -11** - up to 16 selectable I/O
- **Type -12, -13**, - up to 8 selectable I/O

### Analog Inputs

- "Floating" differential inputs, common mode voltage 27V, 24VDC for powering external loops provided, 0-20mA/0-10V, resolution 12-bit, accuracy 0.1%
- **Type-12** - 8 input channels, selectable as 4 dual-terminal floating inputs or 8 single-terminal commoned inputs

### Analog Outputs

- Selectable as current/voltage source or current sink to common, max. loop voltage 27V, max. loop resistance 1000 ohms, 0 – 20mA/0 – 10V, 12-bit, accuracy 0.1%
- **Type -13** - 8 channels

### Pulse Inputs

- Specifications as per digital inputs, max. pulse rate 1kHz, pulse width min. 0.5 ms
- **Type -11**- 4 inputs (DIO1-4)

### Pulse Outputs

- Specifications as per digital outputs, max. pulse rate 100Hz, pulse width min. 5ms
- **Type -11,-12,-13**, - 8 outputs (DIO1-8)

### Power Supply

- **Battery Supply:** 9 - 30VDC, over-voltage and reverse power protected
- Internal monitoring of supply voltage. These values may be transmitted to remote modules for monitoring.
- Internal DC/DC converter provides 24VDC 250mA for analog loop supply

### Serial Port

- RS485 serial port configurable up to 115.2Kb/s, 7 or 8 data bits, none/even/odd parity, 1 or 2 stop bits
- RS232 configuration port 9 pin DB9 female connector, 9.6Kb/s, 8/n/1
- RS485 max cable distance 2000m terminal connections





## WI-I/O-EX-1-S-11



## WI-I/O-EX-1-S-12



## Technical Data

Inputs		
Digital: suitable for voltage free contacts or NPN transistor, contact wetting current 5mA, inputs are surge protected	up to 16 selectable I/O	up to 8 selectable I/O
Analog: "floating" differential inputs, common mode voltage 27V, 24VDC for powering external loops provided, 0-20mA/0-10V resolution 12 bit, accuracy 0.1%		8 input channels, selectable as 4 dual-terminal floating inputs or 8 single-terminal commoned inputs.
Pulse: specifications as per digital inputs Max pulse rate 1kHz, pulse width min 0.5ms	4 inputs (DIO1-4)	
Outputs		
Digital: FET outputs, 30VDC 200mA	up to 16 selectable I/O	up to 8 selectable I/O
Pulse: specifications as per digital outputs Max pulse rate 100Hz, pulse width min 5ms	8 outputs (DIO1-8)	8 outputs (DIO 1-8)
Power Supply		
	10.8 - 30VDC, over-voltage and reverse power protected Internal monitoring of supply voltage. These values may be transmitted to remote modules for monitoring. An internal DC/DC converter provides 24VDC 250mA for analog loop supply.	10.8 - 30VDC, over-voltage and reverse power protected Internal monitoring of supply voltage. These values may be transmitted to remote modules for monitoring. An internal DC/DC converter provides 24VDC 250mA for analog loop supply.
Serial Port		
RS485	serial port configurable up to 115.2Kb/s, 7/8 data bits, n/e/o parity, 1 / 2 stop bits	serial port configurable up to 115.2Kb/s, 7/8 data bits, n/e/o parity, 1 / 2 stop bits
RS232 connector	configuration port 9pin DB9 female connector, 9.6Kb/s, 8/n/1	configuration port 9pin DB9 female connector, 9.6Kb/s, 8/n/1
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	FCC Part 15, AS3548, 89/336/EEC
Approvals	Class 1 Div 2 hazardous areas	Class 1 Div 2 hazardous areas
Mounting	DIN-rail mounting	DIN-rail mounting
LED indication	power supply, processor OK, serial TX and RX, digital I/O	power supply, processor OK, serial TX and RX, digital I/O
Dimensions mm (in)		
	150 x 177 x 35 (5.91 x 6.97 x 1.38)	150 x 177 x 35 (5.91 x 6.97 x 1.38)

## Ordering Data

Type	Part No.	Type	Part No.
WI-I/O-EX-1-S-11	6720005038	WI-I/O-EX-1-S-12	6720005039



**WI-I/O-EX-1-S-13**



**Technical Data**

<b>Inputs:</b>	
Digital: suitable for voltage free contacts or NPN transistor, contact wetting current 5mA, inputs are surge protected	up to 8 selectable I/O
<b>Outputs</b>	
Digital: FET outputs, 30VDC 200mA	up to 8 selectable I/O
Analog: selectable as current/voltage source or current sink to common, max loop voltage 27V, max loop resistance 1000 ohms, 0 – 20mA/0 – 10V, 12 bit, accuracy 0.1%	8 channels
Pulse: specifications as per digital outputs Max pulse rate 100Hz, pulse width min 5ms	8 outputs (DIO 1-8)
<b>Power Supply</b>	10.8 - 30VDC, over-voltage and reverse power protected. Internal monitoring of supply voltage. These values may be transmitted to remote modules for monitoring. An internal DC/DC converter provides 20VDC 250mA for analog loop supply.
<b>Serial Port</b>	
RS485	serial port configurable up to 115.2Kb/s, 7/8 data bits, n/e/o parity, 1 / 2 stop bits
RS232 connector	configuration port 9pin DB9 female connector, 9.6Kb/s, 8/n/1
RS485 connector	max cable distance 2000 m terminal connections
<b>General Data</b>	
Operating Temperature	-40 to 60°C (-40 to 140°F)
Humidity	0-99% RH
EMC Standards	FCC Part 15, AS3548, 89/336/EEC
Approvals	Class 1 Div 2 hazardous areas
Mounting	DIN-rail mounting
LED indication	power supply, processor OK, serial TX and RX, digital I/O
<b>Dimensions mm (in)</b>	150 x 177 x 35 (5.91 x 6.97 x 1.38)

**Ordering Data**

Type	Part No.
WI-I/O-EX-1-S-13	6720005040