

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 Weidmüller 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.



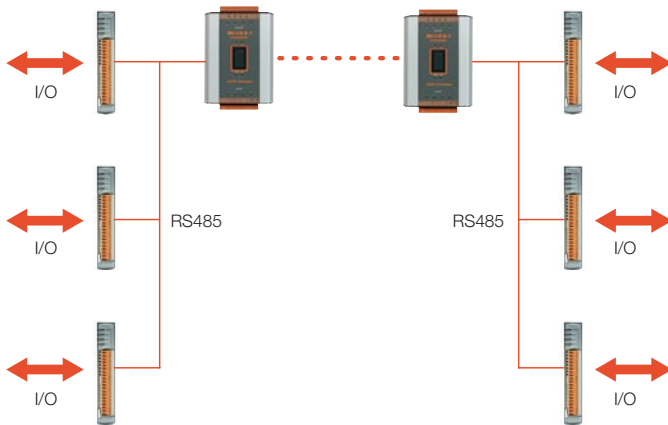
Typical Applications

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

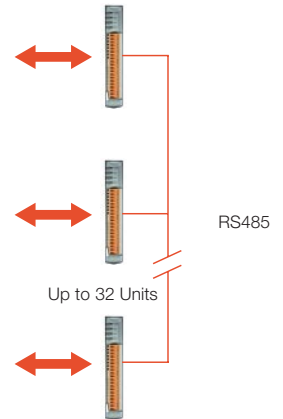
- up to 31 x WI-I/O-EX units can be connected to each Modbus master via RS485 (up to 2 km long).



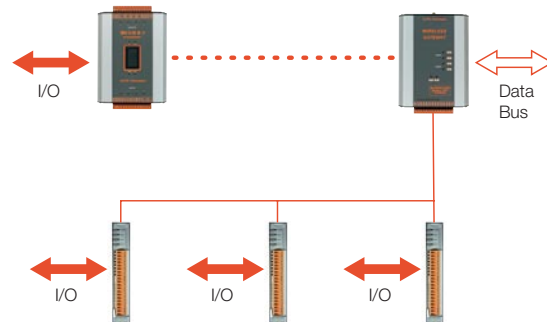
Features

- 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
- 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



- 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.

- 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 or weidmuller.com

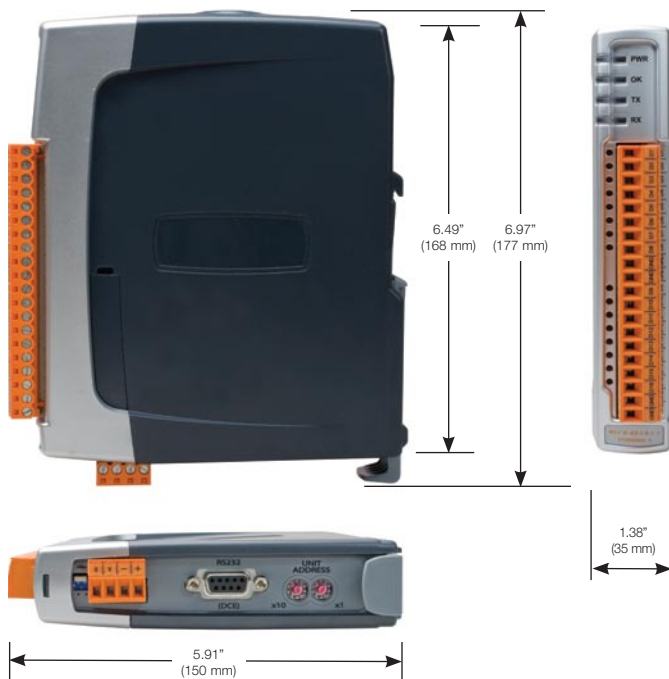


Serial Unit Ordering Information

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 mm²) 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 2000 m 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
 Analog: "floating" differential inputs, common mode voltage 27V, 24VDC for powering external loops provided, 0-20mA/ 0-10V resolution 12 bit, accuracy 0.1%
 Pulse: specifications as per digital inputs Max pulse rate 1kHz, pulse width min 0.5ms

Outputs

Digital: FET outputs, 30VDC 200mA
 Pulse: specifications as per digital outputs
 Max pulse rate 100Hz, pulse width min 5ms

Power Supply

Serial Port

RS485

RS232 connector
 RS485 connector

General Data

Operating Temperature
 Humidity
 EMC Standards
 Approvals
 Mounting
 LED indication

Dimensions mm (in)

Ordering Data

up to 16 selectable I/O

4 inputs (DIO1-4)

up to 16 selectable I/O
 8 outputs (DIO1-8)

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 150mA for analog loop supply.

serial port configurable up to 115.2Kb/s, 7/8 data bits, n/e/o parity, 1 / 2 stop bits
 configuration port 9pin DB9 female connector, 9.6Kb/s, 8/n/1 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
 Class 1 Div 2 hazardous areas
 DIN rail mounting
 power supply, processor OK, serial TX and RX, digital I/O

150 x 177 x 35 (5.91 x 6.97 x 1.38)

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

up to 8 selectable I/O

8 input channels, selectable as 4 dual-terminal floating inputs or 8 single-terminal commoned inputs.

up to 8 selectable I/O
 8 outputs (DIO1-8)

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 150mA for analog loop supply.

serial port configurable up to 115.2Kb/s, 7/8 data bits, n/e/o parity, 1 / 2 stop bits
 configuration port 9pin DB9 female connector, 9.6Kb/s, 8/n/1 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
 Class 1 Div 2 hazardous areas
 DIN rail mounting
 power supply, processor OK, serial TX and RX, digital I/O

150 x 177 x 35 (5.91 x 6.97 x 1.38)

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



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



Technical Data

Inputs:

Digital: suitable for voltage free contacts or NPN transistor, contact wetting current 5mA, inputs are surge protected

up to 8 selectable I/O

Outputs

Digital: FET outputs, 30VDC 200mA
 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%
 Pulse: specifications as per digital outputs
 Max pulse rate 100Hz, pulse width min 5ms

up to 8 selectable I/O
 8 channels

8 outputs (DIO1-8)

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 20VDC 150mA for analog loop supply.

Serial Port

RS485
 RS232 connector
 RS485 connector

serial port configurable up to 115.2Kb/s, 7/8 data bits, n/e/o parity, 1 / 2 stop bits
 configuration port 9pin DB9 female connector, 9.6Kb/s, 8/n/1
 max cable distance 2000 m terminal connections

General Data

Operating Temperature
 Humidity
 EMC Standards
 Approvals
 Mounting
 LED indication

-40 to 60°C (-40 to 140°F)
 0-99% RH
 FCC Part 15, AS3548, 89/336/EEC
 Class 1 Div 2 hazardous areas
 DIN rail mounting
 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)

Ordering Data

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