Wireless I/O Unidirectional Transmitter/Receiver Units – Introduction

Wireless Input/Output (I/O)

Wireless I/O connects directly to analog, discrete and pulse transducer signals. The signals are transmitted by radio and either re-created as output signals, or output via serial link or field-bus.

Weidmuller Wireless I/O units have the ability to form sophisticated peer-to-peer networks, with event-reporting messaging to optimize wireless density. Weidmuller products are designed for high reliability operation on open license-free radio bands.

WI-I/O 9-L Unidirectional Transmitter/Receiver Units

- Frequency hopping spread spectrum 902-928 MHz 1W license-free USA/Canada
- Configurable sub-bands license-free Mexico, South America, Australia/NZ, Hong Kong

The Unidirectional Wireless I/O range of products is suitable for connecting to a single sensor or group of sensors and provides an economical solution for remote monitoring systems. The Unidirectional L products can also be used in more complex networks as signal transmitters or receivers.

Features

Matched transmitter/receiver pair of modules, or individual transmitter and receiver units

- Peer-to-peer communications. Exception reporting. Reliable self-checking messages. Highly secure data encryption.
- Multi-hop repeater functions - up to 5 intermediate units can be configured in any input-output link
- Factory configured as a matched Transmitter/Receiver pair or user-configurable with E-Series Windows configuration program

Transmitter unit

- Input-only transmitter unit - two digital/pulse inputs, one analog input and one thermocouple mV input
- Transmits to Receiver unit as a matched pair where the input signals are re-created as output signals, or can transmit to a Multi-I/O or Gateway unit
- Class 1 Div 2 hazardous areas approval (USA/Canada)
- Up to 3000 wireless units per network
- External inputs plus internally calculated values - analog setpoint status, pulse count, power supply voltage
- Thermocouple input –100 to +100mV with cold-junction compensation and linearization for J, K or T-type
- Setpoints status generated by comparing analog input to high and low setpoints
- Digital inputs can also be used as pulse count inputs
- Power supply 9 – 30VDC, measured and available as a transmitted variable
- 24VDC analog loop supply internally provided
- RS232 Configuration and diagnostics port

Receiver unit

- Output-only receiver unit - three digital contact outputs and one analog output
- Receives radio commands from Transmitter unit as a matched pair where the input signals are re-created as output signals, or can receive commands from a Multi-I/O or Gateway unit
- Class 1 Div 2 hazardous areas approval (USA/Canada)
- Up to 3000 wireless units per network
- Power supply 9 – 30VDC; 24VDC analog loop supply internally provided
- Communications failure indication and configurable output
- Outputs can be configured as retained or reset (fail-safe) on communications failure
- LED indication of radio signal strength
- RS232 Configuration and diagnostics port
### Technical Data

**Transmitter Inputs:**

<table>
<thead>
<tr>
<th>Digital</th>
<th>Pulse</th>
<th>Analog</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>Accuracy</td>
<td>Thermocouple</td>
</tr>
<tr>
<td>Millivolt (-100mV to +100mV), J, K or T type linearization with on-board cold-junction compensation greater than 1°C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Receiver Outputs:**

<table>
<thead>
<tr>
<th>Digital</th>
<th>Analog</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>Accuracy</td>
</tr>
<tr>
<td>Comms-Fail</td>
<td></td>
</tr>
</tbody>
</table>

Fail-safe

**Power Supply**

- Power consumption @12VDC
  - Analog loop supply internally generated
  - Internal monitoring of supply low voltage status
  - Power consumption increases for pulse inputs > 10Hz.

**Serial Port**

- RS232 RJ45 female DCE, used for configuration and diagnostics

**General Data**

- Operating Temperature:
  - -40 to 60°C (-40 to 140°F)
- Humidity:
  - 0 - 99% RH
- Approvals:
  - FCC Part 15.247, RS210, CSA Class 1 Div 2
- Mounting:
  - DIN-rail mounting
- Power/OK, Radio RX, DO1, DO2, DO3, Communications Fail.
- Power/OK, Radio TX, DIN1, DIN2, Analog Setpoint status

**Antenna Connector**

- SMA connector for antenna or coaxial cable connection.

**Dimensions mm (in)**

- Configuration
  - 100 x 22 x 120 (3.9 x 0.9 x 4.7)

**Diagnostics**

- User configuration via serial port. Unidirectional units can be configured to network with Multi-I/O and Gateway units.
- Diagnostics features - read input values, write output values, radio signal strength, monitor communication messages.

**Ordering Data**

<table>
<thead>
<tr>
<th>Type</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>WI-I/O 9-L-T</td>
<td>6720005005</td>
</tr>
<tr>
<td>WI-I/O 9-L-R</td>
<td>6720005006</td>
</tr>
</tbody>
</table>
Unidirectional Transmitter/Receiver Units—Product Data 900 MHz

WI-I/O 9-L-P1
Set - 1 Transmitter, 1 Receiver

WI-I/O 9-L-P2
Set with 2 WI-ANT-DPL-0-8

Technical Data
Transmitter Inputs:
Digital:
- Pulse: max rate 10 Hz, 50 msec on time, Pulse counted as 16 bit
- Analog: max rate 10 Hz, 50 msec on time, Pulse counted as 16 bit
  
Analog resolution accuracy: 0.1 %

Thermocouple accuracy: greater than 1°C

Receiver Outputs
Digital
- 0-20mA: 0.10%

Analog resolution accuracy: 0.10%

Fail-safe
- Internal status based on configurable time-out value. Comms-fail status can be configured to a local output.
- On “comms-fail”, outputs user-configurable as retained (last correct value) or reset (fail-safe)

Power Supply
- Power consumption @ 12VDC: 9-30 VDC
- Receiver 100mA, Transmitter 40mA quiescent, during radio transmission (50 msec) 300mA
- 24VDC 30mA

Internal monitoring of supply low voltage status: may be transmitted as an “input” (Transmitter unit only)

RS232/RJ45 female DCE, used for configuration and diagnostics

Serial Port
- RS232 RJ45 female DCE, used for configuration and diagnostics

General Data
- Operating Temperature: -40 to 60°C (-40 to 140°F)
- Humidity: 0 - 99% RH
- FCC Part 15.247, RS210, CSA Class 1 Div 2
- DIN-rail mounting

Mounting
- Power/OK, Radio TX, DIN1, DIN2, Analog Setpoint status
- Power/OK, Radio RX, DO1, DO2, DO3, Communications Fail.

Frequency hopping spread spectrum
- 902-928MHz, sub-bands available

Transmit power
- 1W
- 20 miles (4W ERP), 15km (1W ERP); 3000 ft / 1000 m in obstructed industrial environments. Radio distances can be increased by up to 5 intermediate repeater units.

SMA connector for antenna or coaxial cable connection.

Configuration
- SMA connector for antenna or coaxial cable connection.

Dimensions mm (in)
- 100 x 22 x 120 (3.9 x 0.9 x 4.7)

Factory configuration transmitter/receiver matched pair, AI to AO, 2DI to 2DO, SP status to DO3. User configuration via serial port. Unidirectional units can be configured to network with Multi-I/O and Gateway units.

Diagnostics features - read input values, write output values, radio signal strength, monitor communication messages.

Ordering Data
Kit Contents
WI-I/O 9-L-P1
- 2 Whip antennas (6720005086), WI-ANT-DPL-2-6-54
- 2 3ft. antenna connecting cables/brackets
- 1 configuration cable

Type Part No.
WI-I/O 9-L-P1 6720005007

WI-I/O 9-L-P2
- 2 Dipole antennas (6720005086), WI-ANT-DPL-0-16
- 2 15ft. antenna connecting cables/brackets
- 1 configuration cable

Type Part No.
WI-I/O 9-L-P2 6720005008