



Wireless Connectivity Solutions

Product Information

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Types of Wireless Products

Product Overview

Weidmuller industrial wireless products provide secure and reliable solutions for a wide range of industries and applications, as an alternative for signal and data wiring. These products fall into four groups:



Wireless I/O, also known as radio telemetry, connect directly to sensor and control signals, and transmit the signal values by radio. The signals are either re-created as similar signals, or output as a data connection — Ethernet, Profibus, Modbus etc. Wireless I/O networks can be as simple as two units transferring a small number of signals from one point to another, or they can be complex data-acquisition networks with multiple “master” interfaces to external systems.



Wireless I/O

Wireless Gateways provide wireless connectivity between data buses - connectivity between devices using the same data bus, or between different data buses (Ethernet to Profibus to DeviceNet to Modbus etc). Wireless gateways are similar in operation to wireless modems, however gateways only provide a register interface to the data bus, transferring I/O registers only.



Wireless Gateways

Wireless Modems transmit serial or Ethernet data, providing a wireless extension of the data link. Example applications are PLC to PLC connections (point-to-point), connecting SCADA to a group of PLCs (point-to-multipoint), or forming a wireless PLC LAN (multidrop). Wireless modems transmit the data with minimal transformation.



Wireless Modems

Wireless GPRS Alarm Modems use GPM mobile technology to provide alarm and status information directly to a mobile device, SMS, email, or via fax. The GPRS Alarm Modem can be located anywhere GSM reception is available. Site, remote location, or plant monitoring can be conducted remotely without the need for onsite employees.



Wireless GPRS Modem

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.

Weidmüller Wireless I/O units have the ability to form sophisticated peer-to-peer networks, with event-reporting messaging to optimize wireless density. Weidmüller 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

**WI-I/O 9-L-T
Transmitter**



**WI-I/O 9-L-R
Receiver**



Technical Data

Transmitter Inputs:

Digital:

Pulse:

Analog:

“floating” differential input:

resolution

accuracy

Thermocouple

Accuracy

Receiver Outputs

Digital

Analog

resolution

accuracy

Comms-Fail

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

General Data

Operating Temperature

Humidity

Approvals

Mounting

LED indication: Transmitter Unit

LED indication: Receiver Unit

frequency hopping spread spectrum

Transmit power

Maximum line of sight range

Antenna connector

Dimensions mm (in)

Configuration

Diagnostics

Ordering Data

two inputs, suitable for voltage free contacts / NPN, or voltage input 0-1 VDC on / >3 VDC off

max rate 10 Hz, 50 msec on time.

Pulse counted as 16 bit register.

0-20 mA (4-20mA, 0-10mA)

16 bit

< 0.1 %

Millivolt (-100mV to +100mV), J, K or T type linearization with on-board cold-junction compensation

greater than 1°C

9-30 VDC

Receiver 100mA, Transmitter 40mA quiescent, during radio transmission (50 msec) 300mA

24VDC 30mA

may be transmitted as an “input” (Transmitter unit only)

RS232 RJ45 female DCE, used for configuration and diagnostics

-40 to 60°C (-40 to 140°F)

0 - 99% RH

FCC Part 15.247, RS210

DIN-rail mounting

Power/OK, Radio TX , DIN1, DIN2, Analog Setpoint status

902-928MHz, sub-bands available

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.

Each transmission may be configured to be sent 1 to 5 times.

SMA connector for antenna or coaxial cable connection.

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.

Type	Part No.
WI-I/O 9-L-T	6720005005

three relay contact outputs, 260V 1A

0-20mA

12 bit

0.10%

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)

9-30 VDC

Receiver 100mA, Transmitter 40mA quiescent, during radio transmission (50 msec) 300mA

24VDC 30mA

RS232 RJ45 female DCE, used for configuration and diagnostics

-40 to 60°C (-40 to 140°F)

0 - 99% RH

FCC Part 15.247, RS210

DIN-rail mounting

Power/OK, Radio RX, DO1, DO2, DO3, Communications Fail.

902-928MHz, sub-bands available

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.

Each transmission may be configured to be sent 1 to 5 times.

SMA connector for antenna or coaxial cable connection.

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.

Type	Part No.
WI-I/O 9-L-R	6720005006

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



WI-I/O 9-L-P-890
Set with 2 WI-ANT-DPL-0-8



Technical Data	
Transmitter Inputs:	
Digital:	two inputs, suitable for voltage free contacts / NPN, or voltage input 0-1 VDC on / >3 VDC off
Pulse:	max rate 10 Hz, 50 msec on time. Pulse counted as 16 bit register.
Analog:	0-20 mA (4-20mA, 0-10mA)
"floating" differential input:	
resolution	16 bit
accuracy	< 0.1 %
Thermocouple	Millivolt (-100mV to +100mV), J, K or T type linearization with on-board cold-junction compensation greater than 1°C
Accuracy	
Receiver Outputs	
Digital	three relay contact outputs, 260V 1A
Analog	0-20mA
resolution	12 bit
accuracy	0.10%
Comms-Fail	Internal status based on configurable time-out value. Comms-fail status can be configured to a local output.
Fail-safe	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
Analog loop supply internally generated	24VDC 30mA
Internal monitoring of supply low voltage status	may be transmitted as an "input" (Transmitter unit only)
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
Mounting	DIN-rail mounting
LED indication: Transmitter Unit	Power/OK, Radio TX , DIN1, DIN2, Analog Setpoint status
LED indication: Receiver Unit	Power/OK, Radio RX, DO1, DO2, DO3, Communications Fail.
frequency hopping spread spectrum	902-928MHz, sub-bands available
Transmit power	1W
Maximum line of sight range	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. Each transmission may be configured to be sent 1 to 5 times. SMA connector for antenna or coaxial cable connection.
Antenna connector	
Dimensions mm (in)	
Configuration	
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	
Diagnostics features - read input values, write output values, radio signal strength, monitor communication messages.	
Ordering Data	
Type	Part No.
WI-I/O 9-L-P	6720005007

Technical Data	
Transmitter Inputs:	
Digital:	two inputs, suitable for voltage free contacts / NPN, or voltage input 0-1 VDC on / >3 VDC off
Pulse:	max rate 10 Hz, 50 msec on time. Pulse counted as 16 bit register.
Analog:	0-20 mA (4-20mA, 0-10mA)
"floating" differential input:	
resolution	16 bit
accuracy	< 0.1 %
Thermocouple	Millivolt (-100mV to +100mV), J, K or T type linearization with on-board cold-junction compensation greater than 1°C
Accuracy	
Receiver Outputs	
Digital	three relay contact outputs, 260V 1A
Analog	0-20mA
resolution	12 bit
accuracy	0.10%
Comms-Fail	Internal status based on configurable time-out value. Comms-fail status can be configured to a local output.
Fail-safe	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
Analog loop supply internally generated	24VDC 30mA
Internal monitoring of supply low voltage status	may be transmitted as an "input" (Transmitter unit only)
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
Mounting	DIN-rail mounting
LED indication: Transmitter Unit	Power/OK, Radio TX , DIN1, DIN2, Analog Setpoint status
LED indication: Receiver Unit	Power/OK, Radio RX, DO1, DO2, DO3, Communications Fail.
frequency hopping spread spectrum	902-928MHz, sub-bands available
Transmit power	1W
Maximum line of sight range	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. Each transmission may be configured to be sent 1 to 5 times. SMA connector for antenna or coaxial cable connection.
Antenna connector	
Dimensions mm (in)	
Configuration	
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	
Diagnostics features - read input values, write output values, radio signal strength, monitor communication messages.	
Ordering Data	
Type	Part No.
WI-I/O 9-L-P-890	6720005008

Technical Data	
Transmitter Inputs:	
Digital:	two inputs, suitable for voltage free contacts / NPN, or voltage input 0-1 VDC on / >3 VDC off
Pulse:	max rate 10 Hz, 50 msec on time. Pulse counted as 16 bit register.
Analog:	0-20 mA (4-20mA, 0-10mA)
"floating" differential input:	
resolution	16 bit
accuracy	< 0.1 %
Thermocouple	Millivolt (-100mV to +100mV), J, K or T type linearization with on-board cold-junction compensation greater than 1°C
Accuracy	
Receiver Outputs	
Digital	three relay contact outputs, 260V 1A
Analog	0-20mA
resolution	12 bit
accuracy	0.10%
Comms-Fail	Internal status based on configurable time-out value. Comms-fail status can be configured to a local output.
Fail-safe	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
Analog loop supply internally generated	24VDC 30mA
Internal monitoring of supply low voltage status	may be transmitted as an "input" (Transmitter unit only)
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
Mounting	DIN-rail mounting
LED indication: Transmitter Unit	Power/OK, Radio TX , DIN1, DIN2, Analog Setpoint status
LED indication: Receiver Unit	Power/OK, Radio RX, DO1, DO2, DO3, Communications Fail.
frequency hopping spread spectrum	902-928MHz, sub-bands available
Transmit power	1W
Maximum line of sight range	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. Each transmission may be configured to be sent 1 to 5 times. SMA connector for antenna or coaxial cable connection.
Antenna connector	
Dimensions mm (in)	
Configuration	
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	
Diagnostics features - read input values, write output values, radio signal strength, monitor communication messages.	
Ordering Data	
Type	Part No.
WI-I/O 9-L-P-890	6720005008

WI-I/O 9 Multi I/O Units

- Large I/O capability with I/O expansion
- Two-way communications
- Use where communications is required in both directions or for large I/O requirements. Each network can handle multiple I/O applications.
- Frequency hopping spread spectrum
- 902-928 MHz 1W license-free USA/Canada
- Configurable sub-bands license-free Mexico
- Up to 95 wireless units per network
- Support up to 31 I/O expansion modules (WI-I/O-EX-I-S-XX) per wireless unit
- Multi-hop repeater functions – up to 5 intermediate units
- Four I/O versions available:

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

Note: Pulse and digital I/O are same connection.

- Pulse inputs generate separate pulse count and rate value; pulse rates treated as internal analog registers with configurable maximum value.
- Wide voltage power supply, with integral UPS battery charger and solar regulator
- Power supply generates transmittable internal I/O values
- Multiple communication-failure diagnostics with output status
- Class 1 Div 2 approval
- Radio receive 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

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
 RS485

General Data

Operating Temperature
 Humidity
 EMC Standards
 Approvals
 Mounting
 LED indication

Dimensions mm (in)

Ordering Data

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
 CSA Class 1 Div 2
 DIN rail mounting
 For power supply, WDT, digital I/O

130 x 185 x 60 (5.1 x 7.3 x 2.4)

Type **Part No.**
 WI-I/O 9-1 **6720005000**

four inputs

six 0-20mA 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)

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
 CSA Class 1 Div 2
 DIN rail mounting
 For power supply, WDT, digital I/O

130 x 185 x 60 (5.1 x 7.3 x 2.4)

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

WI-I/O-EX-1-S Expansion I/O Units (Serial I/O)

Typical Applications

Expansion I/O for WI-I/O 9 wireless units

- up to 31 x WI-I/O-EX-1-S 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-1-S 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 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-1-S 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-1-S 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

WI-I/O-EX-1-S	67200005035 -11	67200005036 -12	67200005037 -13
Digital inputs	up to 16	up to 8 Voltage-free contacts	up to 8
Digital outputs	up to 16	up to 8 FET	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 15Hz	8 15Hz	8 15Hz

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.

- 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.

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 15.625Hz, pulse width min 32ms

Power Supply

Serial Port

RS485

RS232

RS485

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 - 15.6VDC, 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
configurable as RS485 port
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

CSA Class 1 Div 2 hazardous areas (pending)

DIN rail mounting

power supply, processor OK, serial TX and RX, digital I/O

150 x 180 x 35 (5.91 x 7.09 x 1.38)

Type

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

Part No.

6720005035

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 - 15.6VDC, 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
configurable as RS485 port
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

CSA Class 1 Div 2 hazardous areas (pending)

DIN rail mounting

power supply, processor OK, serial TX and RX, digital I/O

150 x 180 x 35 (5.91 x 7.09 x 1.38)

Type

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

Part No.

6720005036

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 15.625Hz, pulse width min 32ms

up to 8 selectable I/O
8 channels

8 outputs (DIO1-8)

Power Supply

10.8 - 15.6VDC, 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

serial port configurable up to 115.2Kb/s, 7/8 data bits, n/e/o parity, 1 / 2 stop bits

RS232

configuration port 9pin DB9 female connector, 9.6Kb/s, 8/n/1

RS485

max cable distance 2000 m terminal connections

General Data

Operating Temperature

-40 to 60°C (-40 to 140°F)

Humidity

0-99% RH

EMC Standards

FCC Part 15, AS3548, 89/336/EEC

Approvals

CSA Class 1 Div 2 hazardous areas (pending)

Mounting

DIN rail mounting

LED indication

power supply, processor OK, serial TX and RX, digital I/O

Dimensions mm (in)

150 x 180 x 35 (5.91 x 7.09 x 1.38)

Ordering Data

Type	Part No.
WI-I/O-EX-1-S-13	6720005037

WI-I/O 9-K Transmitter (Single Sensor Units)

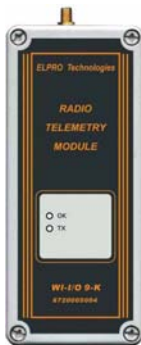
- Frequency hopping spread spectrum 902-928 MHz 1W, license-free USA/Canada
- Configurable sub-bands license-free Mexico, South America, Australia/NZ, Hong Kong

The Single Sensor 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. Capable of being powered by battery-only supplies, these products are particularly suitable where power is not available.

Features

- Input-only unit - two digital/pulse one analog
- Networks with Multi-I/O and Gateway units
- Analog Loop Supply for field devices
- Sensor signals (inputs) are transmitted to a Multi-I/O module where the signals are re-created as output signals, or passed via serial or Ethernet data bus to a host device such as a PLC or SCADA system.
- Extremely low power consumption by reverting to “sleep” mode
- Multiple power supply options including battery-only supply
- Weatherproof IP66 / NEMA 4 enclosures
- Class 1 Div 2 hazardous areas approval (USA/Canada)
- Up to 3000 wireless units per network
- Any input on any unit can be wirelessly linked to any output on any unit. Inputs can be linked to multiple outputs.
- 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
- External inputs plus internally calculated values - analog setpoint status, pulse rate and pulse total, power supply voltage, power supply alarm
- Setpoint status generated by comparing analog input to high and low setpoints.
- 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.
- Power supply generates internal I/O values that can be transmitted— low normal supply voltage status, low battery voltage status and battery voltage (analog)
- Can connect to up/down counter transducers such as shaft-encoders
- Easily configured to repeat the transmission several times to ensure that the transmission is received correctly
- Easy-to-use E-Series Windows configuration.

WI-I/O-9-K



Technical Data

Inputs:	two digital/pulse inputs, suitable for voltage free contacts / NPN, or voltage input 0-1 VDC on / >3 VDC off
Digital:	status transmission on change of input signal and on time elapsed since last transmission - update time period 10 sec - 5days, a separate update time can be configured when the discrete input is "on"
Pulse:	Pulse rate up to 1000 Hz, 3 msec on time. Pulse counted as 16 bit register with a 16 bit overflow register (total count 32 bit). Transmissions occur when count change exceeds configured increase, or on time elapsed since last transmission; update time 10 sec - 5 days ; change transmissions may be suspended if increase exceeds a configured value to reduce radio traffic. the two pulse inputs may be configured to a single count, to suit quadrature or incremental shaft encoder transducers.
Up/Down Pulse Count	calculated from rate of pulse input and treated as an internal analog input. Configurable scaling. Transmitted as per analog input.
Pulse Rate	one analog input 0-25 mA (4-20mA, 0-10mA)
Analog:	0-10V also available "floating" differential input

resolution	12 bit
accuracy	< 0.1 % measurement continuous or sampled
sample time configurable	1 min - 5 days
transducer warm-up time configurable	0.5-127 sec
analog value transmitted on change of input signal or time elapsed since last transmission,	
change sensitivity configurable	0.7-75%
update time configurable	0.1min - 5 days

Setpoint Status	high and low setpoints generate internal digital status setpoint status sets (on) when analog value < low setpoint and resets (off) when analog value > high setpoint status transmitted as per digital input
------------------------	---

Power Supply	quiescent (sleep mode) 120µA, operating mode 10mA + analog loop
Power consumption @12VDC	300mA @ 1W, 220µA @ 500mW
Power consumption during radio transmission (50 - 100 msec)	100mA @ 100mW, 50mA @ 10mW
Analog loop supply internally generated	Yes
Internal monitoring of supply low voltage status	may be transmitted to remote modules as an "input"
Power consumption increases for pulse inputs > 10Hz.	

Serial Port	DB9 female DCE, used for configuration and diagnostics
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General Data	
Operating Temperature	-40 to 60°C (-40 to 140°F)
Humidity	0 - 99% RH
EMC Standards	compliant 89/336 EEC, EN 300 683, AS3548, FCC Part 15
Approvals	Housing - IP66 NEMA4; FCC Part 15.247, RS210, CSA Class 1, Div. 2
Mounting	
LED indication	Radio TX, Operation OK
frequency hopping spread spectrum	902-928MHz, sub-bands available
Transmit power	1 W
Maximum line of sight range	20miles (4W ERP), 15 km (1W ERP)
Receiver data sensitivity	108 dBm
Data rate	19.2 Kbs with forward error correction
Antenna connector	SMA coaxial

Dimensions mm (in)	170 x 64 x 36 (6.7 x 2.5 x 1.4)
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Ordering Data	Type	Part No.
Battery Pack (optional)	WI-I/O-9-K	672005004
Plug and Lead-1 meter	WI-BP-I/O-9-K	672005112
	WI-PLI-9-K	672005113

Wireless Gateways WI-GTWY-9

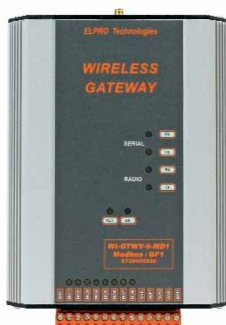
- Frequency hopping spread spectrum
- 902-928 MHz 1W license-free USA/Canada
- Configurable sub-bands license-free Mexico, South America, Australia/NZ, Hong Kong

Features

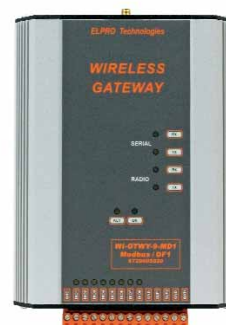
- Connects to data bus at full bus speed (e.g. 12Mb/s for Profibus, 100Mb/s for Ethernet)
- Provides Protocol Conversion (Profibus, Modbus, Ethernet, DeviceNet)
- Can interconnect master-slave, slave-slave and master-master
- Interconnects different data buses - wireless protocol conversion
- Provides a peer-to-peer wireless network using WIB-net
- High security data encryption
- Automatic acknowledgment and error-correction
- Multiple path routing
- Eight on-board discrete I/O, individually configurable as input or output
- Network configuration is performed with easy-to-use free software
- Wide range power supply with integral back-up battery-charging feature

Radio communications can be configured for combination of event reporting (change-of-value), update time, read/write blocks and poll response. Radio message includes system addressing, unit addressing, error checking and configurable security encryption. Communication control includes message acknowledgments and up to four re-transmissions. Peer to peer addressing. Messages may be routed through four intermediate repeater addresses. Fail-to-transmit and fail-to-receive alarms configurable

WI-GTWY-9-MD1
Modbus (Master & Slave), DF1



WI-GTWY-9-PR1
Profibus DP Slave



Technical Data

Power Supply

Current drain during radio transmission

I/O Capacity

Register Size

Number of remote WI-GTWY-9 addresses

General Data

Operating Temperature

Storage Temperature

Humidity

EMC Standards

Approvals

Mounting

LED indication

Dimensions mm (in)

Wireless Communications

On-board I/O

Configuration

Diagnostics

Radio Transceiver

Frequency hopping spread spectrum

Transmit power

Receiver data sensitivity

Maximum line-of-sight range

Data rate

Antenna connector

Ordering Data

9 - 30VDC / 12 - 24VAC

Battery charging circuit included for 12V back-up battery, max charge current regulated to 0.7A (>12V supply)

Normal current drain

MD1 version 12V 150mA; 24V 90mA

Other version 12V 270mA; 24V 170mA

Add 5mA per active I/O

Add 12V 350mA; 24V 200mA to above

4300 I/O points (analog plus discrete)

16 bit

500

-40 to 60°C (-40 to 140°F)

0 - 99 %RH

EN 301 489, FCC Part 15,

Approved to FCC Part 15.247, RS210

Class 1 Div 2 (USA, Canada).

DIN rail mounting,

for processor OK, radio TX and RX, serial TX and RX,

active status

130 x 185 x 60 (5.1 x 7.3 x 2.4)

Modbus RTU (binary), master / slave configurable. RS232 or RS485, 300 - 19200 bits/sec.

Allen-Bradley DF1 full-duplex. RS232 only, 300 - 19200 bits/sec.

Eight discrete I/O, individually configurable as input or output. Inputs suitable for voltage free contacts. Outputs are FET, 30VDC 500mA.

via free Windows software

on-line read/write of I/O registers, radio signal strength values from remote units, and off-line testing of data bus protocol.

902-908 MHz, sub-bands configurable

1W

108dBm

USA/Canada, 4W ERP; 20+ miles

19.2 Kb/s with forward-error correction

SMA coaxial

Type
WI-GTWY-9-MD1

Part No.
6720005020

9 - 30VDC / 12 - 24VAC

Battery charging circuit included for 12V back-up battery, max charge current regulated to 0.7A (>12V supply)

Normal current drain

MD1 version 12V 150mA; 24V 90mA

Other version 12V 270mA; 24V 170mA

Add 5mA per active I/O

Add 12V 350mA; 24V 200mA to above

416 I/O bytes up to 1952 DI/1952 DO, or up to 122 AI/122 AO

16 bit

500

0 to 60°C (30 to 140°F)

0 - 95 %RH

EN 301 489, FCC Part 15, Approved to FCC Part 15.247,

RS210

Class 1 Div 2 (USA, Canada).

DIN rail mounting,

for processor OK, radio TX and RX, serial TX and RX, active

status

130 x 185 x 60 (5.1 x 7.3 x 2.4)

Profibus-DP functionality according to EN 50170. Modbus RTU

RS-485 optically isolated with on-board DC/DC converter, automatic baudrate detection (9600 bit/s - 12 Mbit/s)

Eight discrete I/O, individually configurable as input or output. Inputs suitable for voltage free contacts. Outputs are FET, 30VDC 500mA.

via free Windows software

on-line read/write of I/O registers, radio signal strength values from remote units, and off-line testing of data bus protocol.

902-908 MHz, sub-bands configurable

1W

108dBm

USA/Canada, 4W ERP; 20+ miles

19.2 Kb/s with forward-error correction

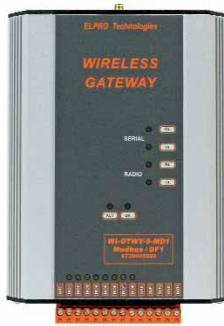
SMA coaxial

Type
WI-GTWY-9-PR1

Part No.
6720005021

Radio communications can be configured for combination of event reporting (change-of-value), update time, read/write blocks and poll response. Radio message includes system addressing, unit addressing, error checking and configurable security encryption. Communication control includes message acknowledgments and up to four re-transmissions. Peer to peer addressing. Messages may be routed through four intermediate repeater addresses. Fail-to-transmit and fail-to-receive alarms configurable

WI-GTWY-9-PR2
Profibus DP Master



WI-GTWY-9-ET1
Ethernet IP, Modbus TCP, TCP/IP functions



Technical Data

Power Supply

Current drain during radio transmission

I/O Capacity

Register Size

Number of remote WI-GTWY-9 addresses

General Data

Operating Temperature

Storage Temperature

Humidity

EMC Standards

Approvals

Mounting

LED indication

Dimensions mm (in)

Wireless Communications

On-board I/O

Configuration

Diagnostics

Radio Transceiver

Frequency hopping spread spectrum

Transmit power

Receiver data sensitivity

Maximum line-of-sight range

Data rate

Antenna connector

Ordering Data

9 - 30VDC / 12 - 24VAC

Battery charging circuit included for 12V back-up battery, max charge current regulated to 0.7A (>12V supply)

Normal current drain

MD1 version 12V 150mA; 24V 90mA

Other version 12V 270mA; 24V 170mA

Add 5mA per active I/O

Add 12V 350mA; 24V 200mA to above

2048 bytes input and 2048 bytes output up to 4300 discrete I/O points, or up to 1024 analog in / 1024 analog out

16 bit

500

0 to 60°C (30 to 140°F)

0 - 95 %RH

EN 301 489, FCC Part 15, Approved to FCC Part 15.247, RS210

Class 1 Div 2 (USA, Canada).

DIN rail mounting,

for processor OK, radio TX and RX, serial TX and RX, active status

130 x 185 x 60 (5.1 x 7.3 x 2.4)

Profibus-DP functionality according to EN 50170.

RS-485 optically isolated with on-board DC/DC converter, automatic baudrate detection (9600 bit/s - 12 Mbit/s)

Eight discrete I/O, individually configurable as input or output. Inputs suitable for voltage free contacts.

Outputs are FET, 30VDC 500mA.

via free Windows software

on-line read/write of I/O registers, radio signal strength values from remote units, and off-line testing of data bus protocol.

902-908 MHz, sub-bands configurable

1W

108dBm

USA/Canada, 4W ERP, 20+ miles

19.2 Kb/s with forward-error correction

SMA coaxial

Type

WI-GTWY-9-PR2

Part No.

6720005022

9 - 30VDC / 12 - 24VAC

Battery charging circuit included for 12V back-up battery, max charge current regulated to 0.7A (>12V supply)

Normal current drain

MD1 version 12V 150mA; 24V 90mA

Other version 12V 270mA; 24V 170mA

Add 5mA per active I/O

Add 12V 350mA; 24V 200mA to above

2048 bytes input and 2048 bytes output up to 4300 discrete I/O points, or up to 1024 analog in / 1024 analog out

16 bit

500

0 to 60°C (30 to 140°F)

0 - 95 %RH

EN 301 489, FCC Part 15, Approved to FCC Part 15.247, RS210

Class 1 Div 2 (USA, Canada).

DIN rail mounting,

for processor OK, radio TX and RX, serial TX and RX, active status

130 x 185 x 60 (5.1 x 7.3 x 2.4)

10/100 Mbit/s, RJ45 connector, Transformer isolated interface

Modbus/TCP class 0, class 1 and partially class 2 slave

EtherNet/IP level 2 I/O Server

Embedded Web system (Dynamic HTTP), on-board file system (1.4MB flash disc), user downloadable web pages through FTP server, Email functionality (SMTP)

Eight discrete I/O, individually configurable as input or output. Inputs suitable for voltage free contacts.

Outputs are FET, 30VDC 500mA.

via free Windows software

on-line read/write of I/O registers, radio signal strength values from remote units, and off-line testing of data bus protocol.

902-908 MHz, sub-bands configurable

1W

108dBm

USA/Canada, 4W ERP, 20+ miles

19.2 Kb/s with forward-error correction

SMA coaxial

Type

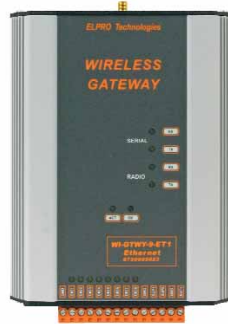
WI-GTWY-9-ET1

Part No.

6720005023

Radio communications can be configured for combination of event reporting (change-of-value), update time, read/write blocks and poll response. Radio message includes system addressing, unit addressing, error checking and configurable security encryption. Communication control includes message acknowledgments and up to four re-transmissions. Peer to peer addressing. Messages may be routed through four intermediate repeater addresses. Fail-to-transmit and fail-to-receive alarms configurable

WI-GTWY-9-DE1
DeviceNet Slave



WI-GTWY-9-M+1
Modbus Plus Slave



Technical Data

Power Supply

Current drain during radio transmission

I/O Capacity

Register Size

Number of remote WI-GTWY-9 addresses

General Data

Operating Temperature

Storage Temperature

Humidity

EMC Standards

Approvals

Mounting

LED indication

frequency hopping spread spectrum

Transmit power

Maximum line of sight range

Dimensions mm (in)

Wireless Communications

On-board I/O

Configuration

Diagnostics

Radio Transceiver

Frequency hopping spread spectrum

Transmit power

Receiver data sensitivity

Maximum line-of-sight range

Data rate

Antenna connector

Ordering Data

9 - 30VDC / 12 - 24VAC

Battery charging circuit included for 12V back-up battery, max charge current regulated to 0.7A (>12V supply)

Normal current drain

MD1 version 12V 150mA; 24V 90mA

Other version 12V 270mA; 24V 170mA

Add 5mA per active I/O

Add 12V 350mA; 24V 200mA to above

512 bytes input and 512 bytes output up to 4300 discrete I/O points, or up to 256 analog in / 256 analog out

16 bit

500

0 to 60°C (30 to 140°F)

0 - 95 %RH

EN 301 489, FCC Part 15, Approved to FCC Part 15.247, RS210

Class 1 Div 2 (USA, Canada).

DIN rail mounting,

for processor OK, radio TX and RX, serial TX and RX, active status

130 x 185 x 60 (5.1 x 7.3 x 2.4)

DeviceNet 2.0 Slave, optically isolated RS422 with selectable baudrate between 125, 250 and 500 Kbit/sec.

Eight discrete I/O, individually configurable as input or output. Inputs suitable for voltage free contacts. Outputs are FET, 30VDC 500mA.

via free Windows software

on-line read/write of I/O registers, radio signal strength values from remote units, and off-line testing of data bus protocol.

902-908 MHz, sub-bands configurable

1W

108dBm

USA/Canada, 4W ERP, 20+ miles

19.2 Kb/s with forward-error correction

SMA coaxial

Type

Part No.

WI-GTWY-9-DE1

6720005024

9 - 30VDC / 12 - 24VAC

Battery charging circuit included for 12V back-up battery, max charge current regulated to 0.7A (>12V supply)

Normal current drain

MD1 version 12V 150mA; 24V 90mA

Other version 12V 270mA; 24V 170mA

Add 5mA per active I/O

Add 12V 350mA; 24V 200mA to above

2048 bytes input and 2048 bytes output up to 4300 discrete I/O points, or up to 1024 analog in / 1024 analog out

16 bit

500

0 to 60°C (30 to 140°F)

0 - 95 %RH

EN 301 489, FCC Part 15, Approved to FCC Part 15.247, RS210

Class 1 Div 2 (USA, Canada).

DIN rail mounting,

for processor OK, radio TX and RX, serial TX and RX, active status

130 x 185 x 60 (5.1 x 7.3 x 2.4)

Modbus RTU (binary), master / slave configurable. RS232 or RS485, 300 - 19200 bits/sec.

Eight discrete I/O, individually configurable as input or output. Inputs suitable for voltage free contacts. Outputs are FET, 30VDC 500mA.

via free Windows software

on-line read/write of I/O registers, radio signal strength values from remote units, and off-line testing of data bus protocol.

902-908 MHz, sub-bands configurable

1W

108dBm

USA/Canada, 4W ERP, 20+ miles

19.2 Kb/s with forward-error correction

SMA coaxial

Type

Part No.

WI-GTWY-9-M+1

6720005025

Wireless Data Modems

Wireless data modems connect to serial or Ethernet links and transmit the data wirelessly. The modem controls the wireless messages and data ports to provide a “transparent” data transfer.

Wireless Serial Data (Radio Modems)

- RS 232 and RS485 connections
- Industrial power supplies, industrial temperature rating

WI-MOD-9-D RADIO MODEM (SERIAL DATA)

- License-free operation in North and South America
- Wireless data up to 115.2 Kb/s
- 902-928 MHz, 1W, frequency hopping spread spectrum
- Typical line-of-sight distance 20 miles North America (4W ERP)
- One serial data port—
RS232 and RS485 connections provided
- Serial data up to 115.2Kb/s
- Configuration by Hayes AT commands
or Windows Configuration software

Modes of Operation

Transparent mode broadcast, “multi-drop” operation configurable error-checking, unlimited repeaters (store & forward).

Controlled mode addressable point-to-point operation, authentication and automatic re-tries, addressed repeater routing.

WI-MOD-9-E WIRELESS ETHERNET MODEM

Features

The WI-MOD-9-E is an ideal solution for Ethernet connections in process control and automation applications - PLCs, DCS, SCADA, data acquisition ... it can handle multiple applications simultaneously.

- 10/100 BaseT Ethernet, wireless data up to 200 Kbits/sec.
- 902-928 MHz, 0.1 - 1W, frequency hopping spread spectrum
- Typical line-of-sight distance 20 miles (4W ERP), up to 60 miles using high gain antennas (4W ERP)
- Configurable as Access Point / Client; Bridge / Router
- Multiple layers of error-detection and correction
- Military-grade AES security encryption of wireless data
- Firewall protection and efficient wireless management ...
- Message filtering at MAC address level
- Two serial interfaces, RS232 and RS485
- Serial connectivity + Ethernet connectivity at the same time
- PPP and serial server functionality
- Serial Modbus to Modbus TCP conversion
- Discrete channel for status I/O, for failure status or external status transfer.
- Easy to use configuration and Powerful diagnostics
- Configuration and diagnostics via web-browser
- Remote configuration and diagnostics via the wireless link

WI-MOD-E WIRELESS ETHERNET MODEM

Features

- Uses Global 2.4GHz ISM band
- 10/100 BaseT Ethernet, wireless data up to 11 Mbits/sec.
- 802.11b compliant 2.4GHz DSSS, 100mW or 300mW
- Typical line-of-sight distance 5 miles North America (4W ERP)
- Configurable as Access Point / Client; Bridge / Router
- Security, reliability, redundancy ...
- High RF output and superior receiver sensitivity gives excellent penetration in congested industrial environments
- Multiple layers of error-detection and correction
- Automatic changeover to another Access Point if the wireless link fails
- Military-grade AES security encryption of wireless data
- Industrial ratings down to -35°C
- Firewall protection and efficient wireless management ...
- Message filtering at MAC address level
- Two serial interfaces, RS232 and RS485
- Serial connectivity + Ethernet connectivity at the same time
- PPP and serial server functionality
- Serial Modbus to Modbus TCP conversion
- Discrete channel for status I/O, for failure status or external status transfer.
- Easy to use configuration and Powerful diagnostics ...
- Configuration and diagnostics via web-browser
- Remote configuration and diagnostics via the wireless link

IE-GPRS-I/O-NA GPRS Alarm Modem

Features

- Signalling and telecontrol system designed for automatic operation if required
- Dual band GSM/GPRS modem (GSM 900/1800MHz, 950/1900MHz)
- Permanently online
- Low-cost M2M rates
- 8 digital and 4 analog input ports, 4 digital output ports
- Immediate alarm signalling via SMS, FAX, e-mail or voice message in the event of limiting values being exceeded at the input ports
- Alarm via RS232 also possible
- 8-level recipient list with very flexible configuration options
- Integration of port statuses in message
- Integral cost monitoring
- Data logger (LAN and Internet) available

WI-MOD-9-D
Radio 900MHz



Technical Data

Power Supply

Normal current drain	10 - 30 VDC or 10 - 24 VAC
Current when transmitting	70mA/12VDC or 50mA/24VDC
Low power mode current drain	350mA/12V or 250mA/ 24V
	20mA/12VDC or 15mA/24VDC

Serial Port

Standard data rates	1200 to 115200 baud.
RS232 and RS485	standard interface connections provided, each connected to the same serial port. Serial interfaces are asynchronous non-return-zero (NRZ) format
Characters supported	7 or 8 data bits, even/odd/no parity, 1 or 2 stop bits
RS232 Connection	provides full duplex operation as a DCE device with RTS/CTS hardware handshaking- standard D9 connector
RS485 connection	provides half duplex operation for twisted pair multi-drop networks
Input and output buffers	2Kbyte

General Data

Operating Temperature	-40 to 70°C (-40 to +140°F)
Humidity	
EMC Standards	FCC Part 15 Class A and FCC Part 15.247
Approvals	CSA Class 1, Div 2
Mounting	DIN rail mounting
LED indication	for unit OK, radio TX and RX, serial TX and RX, DCD (comms OK)

Dimensions mm (in)

115 x 165 x 32 (4.5 x 6.5 x 1.3)

Radio Transceiver

Frequency - USA/Canada	Frequency Hopping Spread Spectrum Transceiver
Hop Sequence	902 - 928 MHz
Transmit Power	16 x 50
Expected line-of-sight range, depending on local conditions	1W
RF Data Transmission Rate	USA/Canada 20+ miles
Range may be extended by:	19200 baud, 57600 baud, 115200 baud (selectable)
Antenna connection	up to five intermediate repeaters in controlled mode
	unlimited repeaters in transparent mode
	SMA coaxial

Data Transmission

Transparent mode:

Data is transmitted with a system and group address. Data transmission begins as serial data is received—maximum packet size is 530 bytes. All modules with the 0correct system address, which receive the data packets, outputs the data—error checking is optional.

Controlled mode:

Data is transmitted in packets with a system address, source address, destination address, up to five intermediate repeater addresses, and a 16 bit CRC error-check. If the packet is received with a correct error check, only the destination module will output the data and will also return an ACK transmission. If the source module does not receive the ACK, it will retry a further four times. DCD provides communications status. Auto-connect and dial-up-control modes are available. CTS/RTS flow control provided based on input buffer availability.

Configuration

freeware software package or by Hayes AT commands

Diagnostics

Radio noise, signal strength and bit error rate (BER) diagnostics included. Radio signal strength value available on-line to host device.

Ordering Data

Type	Part No.
WI-MOD-9-D	6720005050

WI-MOD-9-E
Ethernet 900MHz

Technical Data
Description: Ethernet

10/100 BaseT RJ45, IEEE 802.3 compliant.
 Bridge/router functions work with all Ethernet protocols

Embedded Protocols:

TCP/IP, UDP, ARP, PPP, ICMP, HTTP, FTP, TFTP, TELNET

Serial

RS232 V.24 DCE
 RS485

1.2 to 115.2 Kb/s
 1.2 to 115.2 Kb/s
 Serial server, PPP, Modbus to Modbus TCP conversion

Discrete I/O

Input
 Output

One I/O channel
 Voltage-free contact
 FET 30VDC 500mA

Networking

Configurable as Access Point or Client, Bridge or Router
 Point-to-point, Point-to-multipoint,
 user configurable addressing
 Repeater functionality
 MAC Filtering - whitelist or blacklist

General Data

Operating Temperature
 Humidity
 Power Supply
 Current Normal
 Transmit
 Approvals

-40 to 60°C (-40 to 140°F)
 99% non-condensing
 10 – 30VDC
 280mA (12V), 150mA (24V)
 (1W) 500mA (12V), 300mA (24V)
 FCC 15.247, RS210,
 Hazardous area CSA Class 1 Div 2

Mounting
 LED indication

DIN rail mounting
 Power/OK, Radio Rx and Tx, Radio Link, LAN Link/Activity,
 Serial Activity, Digital I/O, LAN 10/100Mbit Link

Dimensions mm (in)

Weight

115 x 141 x 32 (4.5 x 5.55 x 1.4)
 < 0.4 kg / 0.8 lb

Radio Transceiver
 Frequency - USA/Canada
 Hop Sequence
 Transmit Power
 Receiver sensitivity
 Data rates
 Protocol
 Radio range

Frequency Hopping Spread Spectrum
 902 - 928 MHz
 16 x 50
 0.1 – 1W (20 – 30 dBm) configurable
 108 dBm @ 10-6 BER
 19.2, 57.6, 115.2, 230 Kb/s or auto rate selection
 CSMA/CA with 32 bit CRC and auto-correction
 up to 60 miles / 100 km line-of-sight using high gain antennas
 (*up to 4W ERP permitted in USA/Canada)
 Range may be extended using repeater features

Antenna connection

SMA coaxial

Security

128 bit AES encryption or
 64 bit proprietary encryption (configurable)
 MAC filtering
 Password protected configuration

Configuration

HTTP with remote configuration via wireless link

Diagnostics

RSSI, channel noise, BER, connection monitoring and statistics

Ordering Data

Type	Part No.
WI-MOD-9-E	6720005051

WI-MOD-E-100
Ethernet 2.4GHz 100mW



WI-MOD-E-300
Ethernet 2.4GHz 300mW



Technical Data	
Description: Ethernet	10/100 BaseT RJ45, IEEE 802.3 Bridge/router functions work with all Ethernet protocols
Embedded Protocols:	TCP/IP, UDP, ARP, PPP, ICMP, HTTP, FTP, TFTP, TELNET
Serial	1.2 to 115.2 Kb/s 1.2 to 115.2 Kb/s Serial server, PPP, Modbus to Modbus TCP conversion
Discrete I/O	One I/O channel Input: voltage-free contact Output: FET 30VDC 500mA
Networking	Configurable as Access Point or Client, Bridge or Router Point-to-Point, Point-to-Multipoint, user configurable addressing Repeater functionality MAC Filtering – whitelist or blacklist. Serial gateway TELNET
General Data	Operating Temperature: -35 to 65°C (-30 to 150°F) Humidity: 99% non-condensing Power Supply: 9 – 30VDC, Current 240mA (12VDC), 150mA (24VDC)
Dimensions mm (in)	115 x 141 x 32 (4.5 x 5.6 x 1.4) Weight: < 0.4 kg / 0.8 lb
Wireless	2.400 – 2.484GHz Direct Sequence Spread Spectrum (DSSS), 13 selectable zones 802.11b compliant, auto rate selection 1 Mb, 2Mb, 5.5Mb, 11Mb
Radio Transceiver	Transmit Power: 100mW (20dBm), dependent on local regulations Receiver sensitivity: 96dBm @ 1MB/s, -91dBm @ 11Mb/s < 8% FER Radio range: 1km @ 100mW Range may be extended using repeater features
Security	128 bit AES encryption (WPA2), TKIP (WPA1) or +04 bit / 40 bit WEP MAC Address filtering Password protected configuration
Configuration	HTTP with remote configuration via wireless link Web based system management - RF signal strength, Bit Error Rate, connection monitoring and statistics
Diagnostics	PPP Protocol Access to diagnostics Firmware upgradeable via serial port
Ordering Data	Type WI-MOD-E-100 Part No. 6720005052
Ordering Data	Type WI-MOD-E-300 Part No. 6720005053

GPRS Alarm Modem

The GPRS Alarm Modem is designed to collect messages that are detected as activated switching contacts and analog limit values. Communication with the server is performed over a virtual dedicated line via GPRS as a point-to-point, multipoint or multi-drop connection. An Internet exchange server may log the states of the inputs and outputs permanently on the basis of event or time control. The server constitutes a relational database, i.e. external access is possible via SQL queries.

The exchange server is a service provided by Weidmuller.

The configurable alarms are issued via SMS, e-mail, voice messaging and/or fax. The IE-GPRS-I/O implements telecontrol by remote-switching of the outputs via telephone/mobile telephone.

The IE-GPRS-I/O can be teleserviced and remote-configured.

The Weidmuller GPRS I/O has an aluminum housing just 45 mm wide and the following configurable features:

- Signaling and telecontrol system designed for automatic operation if required
- Dual band GSM/GPRS modem (GSM 900/1800MHz, 950/1900MHz)
- Permanently online
- Low-cost M2M rates
- 8 digital and 4 analog input ports, 4 digital output ports
- Immediate alarm signaling via SMS, FAX, e-mail or voice message in the event of limiting values being exceeded at the input ports
- Alarm via RS232 also possible
- 8-level recipient list with very flexible configuration options
- Integration of port statuses in message
- Integral cost monitoring
- Data logger (LAN and Internet) available

GPRS Alarm Modem



Technical Data

Housing	Aluminum
Ports	8 digital inputs; 4 digital outputs; 4 analog inputs; 1xRS232 interface
AC input voltage, min.-max.	8-24VAC
DC input voltage, min.-max.	10-36VDC
Input power AC/DC	max. 5 VA AC / max. 5 W DC
Input frequency	47-63 Hz
Operating temperature	-10 to 55°C (14 to 131°F)
Storage temperature	-10 to 70°C (14 to 158°F)
Installation	TS35 DIN-Rail or Wall Mounted
Ingress protection class	IP 20
Data rate	max. 53.6 kbps
Functionality	SMTP; POP3; FTP; DNS; IPTCP; UDP sockets
Status indication	Power
Approvals	cULus, CE
Transmission rate	GPRS dependent

Dimensions mm (in)

137 x 45 x 155 (5.4 x 1.8 x 6.1)

Ordering Data

950/1900 MHz

Type	Part No.
IE-GPRS-I/O-NA	8903980000

Accessories

869/900 MHz ANTENNAS

Dipole Antenna WI-ANT-DPL-0-16

The WI-ANT-DPL-0-16 is a ground independent half wave dipole suitable for the 900MHz products. It is a slimline, lightweight antenna that is easily mounted - this antenna is the most common antenna used in applications within industrial plants or factories.

The antenna has 15 feet / 5 meters of RG58 Cellfoal coaxial cable already terminated with a crimped SMA male connector. This antenna should not be used with additional lengths of coaxial cable - where longer lengths are required, use the WI-ANT-CLR-900-5-32 antenna or higher gain antenna. This compact antenna is made for vertical mounting. Correctly installed, this antenna will provide a net unity gain after allowing for the loss of the attached coaxial cable. The pack includes a standard pole bracket and clamps made from grade 304 stainless steel.

Type	Part No.
WI-ANT-DPL-0-16	6720005080



WI-ANT-DPL-0-16
Dipole Antenna

Whip Antenna WI-ANT-DPL-2-6-54

The WI-ANT-DPL-2-6-54 whip antennas are suitable for the 900MHz products. These antennas have less gain than the WI-ANT-DPL-0-16 however are smaller and are preferred where space is tight.

The WI-ANT-DPL-2-6-54 is fitted with approx 16 feet / 5 meters RG8 coaxial cable and SMA male connector. Further coaxial extensions are not recommended with this antenna.

The WI-ANT-DPL-2-6-54 is mounted from the base through a 3/8" (10mm) hole. This compact antenna is designed for short range use only.

The antenna is suitable for internal or external mounting. This antenna may be used on vehicles with a suitable bracket not supplied or when mounted in the panel work.

Type	Part No.
WI-ANT-DPL-2-6-54	6720005083



WI-ANT-DPL-2-6-54
Whip Antenna

8dB Collinear Antenna WI-ANT-CLR-900-8-54

The WI-ANT-CLR-900-8-54 collinear antenna is a slimline, lightweight antenna which is easily mounted, with a N-Type female connector. The WI-ANT-CLR-900-8-54 antenna is mounted at the base tube by U bracket (WI-BR-CLR-KIT). This antenna is used when maximum range is required or as a base station antenna.

Type	Part No.
WI-ANT-CLR-900-8-54	6720005082



WI-ANT-CLR-900-8-54
8dBi Collinear Antenna

5dBi Collinear Antenna WI-ANT-CLR-900-5-32

The WI-ANT-CLR-900-5-32 collinear antenna may be used for external or internal mounting. The WI-ANT-CLR-900-5-32 is a slimline, lightweight antenna that is easily mounted. A short RG58 coaxial tail is terminated with a crimped N-Type female connector. This compact antenna is made for vertical mounting clear from obstructions.

The pack includes a standard pole bracket made from grade 304 stainless steel (included with the antenna).

Type	Part No.
WI-ANT-CLR-900-5-32	6720005081



WI-ANT-CLR-900-5-32
5dBi Collinear Antenna

869/900 MHz ANTENNAS (continued)

Whip Antenna WI-ANT-DEMO-900

The WI-ANT-DEMO-900 is a quarter-wave whip antenna. The WI-ANT-DEMO-900 is used for demonstration testing. It can also be used short distance applications, where the wireless unit and antenna are mounted inside a non-metallic enclosure - the antenna should be mounted vertically.

As the whip antenna is “ground-dependent”, the gain and distance depends on the installation environment.

Type	Part No.
WI-ANT-DEMO-900	6720005089



WI-ANT-DEMO-900
Whip Antenna

6 element Yagi Antenna WI-ANT-YGI-10-6

The WI-ANT-YGI-10-6 6 element Yagi antenna is made for use with the WI-I/O-9 series telemetry products.

The WI-ANT-YGI-10-6 is designed for pole mount and to be clear from obstructions. The narrow beamwidth and high front to back ratio is effective in reducing the affects of interference and extending radio range. Mounting brackets are supplied separately with this antenna.

A standard female N-Type connection from a 6"/150 mm tail provides a simple connection method when using the WI-BR-YAGI-KIT.

Type	Part No.
WI-ANT-YGI-10-6	6720005084

WI-ANT-YGI-10-6
Yagi 6 Element Antenna

2.4 GHz ANTENNAS

3dB Collinear Antenna WI-ANT-DPL-0-9

The WI-ANT-DPL-0-9 is a ground independent collinear antenna that may be used for external or internal mounting.

The WI-ANT-DPL-0-9 is a slimline, lightweight antenna that is easily mounted. Approximately 15 feet (5m) of low loss RG58 coaxial cable is terminated with a male SMA connector. This compact antenna is made for vertical mounting clear from obstructions.

Correctly installed this antenna will provide unity gain with the attached coaxial cable. The pack includes a standard pole bracket and clamps made from grade 304 stainless steel.

Type	Part No.
WI-ANT-DPL-0-9	6720005090



WI-ANT-DPL-0-9
3dB Collinear Antenna

5dB Collinear Antenna WI-ANT-CLR-5-20

The WI-ANT-CLR-5-20 collinear antenna may be used for external or internal mounting.

The WI-ANT-CLR-5-20 is a slimline, lightweight antenna that is easily mounted. A short RG58 coaxial tail is terminated with a crimped N-Type female connector. This compact antenna is made for vertical mounting clear from obstructions.

The pack includes a standard pole bracket made from grade 304 stainless steel. At data link 2.4 GHz frequencies, it is important to keep cable runs to the shortest length possible.

Type	Part No.
WI-ANT-CLR-5-20	6720005091



WI-ANT-CLR-5-20
5dB Collinear Antenna

10dB Collinear Antenna WI-ANT-CLR-8-34

The WI-ANT-CLR-8-34 is a vertically polarized collinear gain antenna designed for communications in the base and mobile ISM 2.4 GHz data link band.

Construction consists of copper internals and a black fiberglass radome. An N-Type Female connector is built into the high quality stainless steel mount tube.

Black Radome is provided to improve the antennas resistance to ice build up. This sturdy and compact design allows the antenna to be conveniently mounted on a mast, building or vehicle. The pack includes a standard 304 stainless steel pole clamp.

Type	Part No.
WI-ANT-CLR-8-34	6720005092



WI-ANT-CLR-8-34
10dB Collinear Antenna

Accessories

2.4 GHz ANTENNAS (continued)

18 Element Yagi Antenna WI-ANT-YGI-18

The 18 element Yagi antenna is designed for pole mount and to be clear from obstructions.

Black Radome is provided to improve the antennas resistance to ice build up. The narrow beam width and high front to back ratio is and extending radio range. A standard female N-Type connection from a 150mm tail provides a simple connection method when using the WI-CCSMA-N-33. Mounting brackets are supplied with this antenna.



WI-ANT-YGI-18
18 Element Yagi Antenna

Type	Part No.
WI-ANT-YGI-18	6720005093

COAXIAL CABLE KITS AND ACCESSORIES

Coaxial Cable Kits WI-CCSMA-N-33, WI-CCSMA-N-66

The WI-CCSMA-N-33 and WI-CCSMA-N-66 coaxial cable kits are designed for use between wireless units and external mounted antennas. The coaxial cable is terminated and tested alleviating time-consuming field termination work.

The WI-CCSMA-N-33 is 10 meters (33 feet) long and the WI-CCSMA-N-66 is 20 meters (66 feet) long.

The kits are terminated with a N-type male connector at the antenna end of the cable. For the wireless end, kits are available with either SMA or BNC connectors to suit different products.



WI-CCSMA-N-33, WI-CCSMA-N-66
Coaxial Cable Kits

Type	Part No.
WI-CCSMA-N-33	6720005101
WI-CCSMA-N-66	6720005102

Coaxial Lead WI-CCTAIL-SMA-24

The WI-CCTAIL-SMA-24 is a 600mm (24 inch) RG58 coaxial lead. This flexible coaxial "tail" is used inside enclosures to link large diameter coaxial cables (such as RG213 or LDF4) to the wireless units.

The WI-CCTAIL-SMA-24 is terminated with a flanged N-Type (female) bulkhead connector at one end and an SMA connector at the other end.



WI-CCTAIL-SMA-24
Coaxial Lead

Type	Part No.
WI-CCTAIL-SMA-24	6720005103

Low Loss Coaxial Cables

For cables longer than a WI-CCSMA-N-66 kit (or WI-CCSMA-N-33 for 2.4GHz), low loss coaxial cables such as LDF4 should be used. Low loss cables have large diameters with large bending radii and are not suitable for direct connection to wireless modules.

Experience is required to terminate this type of cable and the coaxial manufacturer is able to assist. Consider using Andrew LDF4-250 1/2 inch - www.andrew.com

COAXIAL CABLE KITS AND ACCESSORIES (continued)

Coaxial Surge Diverter WI-DIV-CCMA

The WI-DIV-CCMA coaxial surge diverter is installed between the antenna and the wireless unit to reduce lightning surges entering the module.

The WI-DIV-CCMA has an SMA connector and can be mounted directly to the module - it is suitable for the 450 MHz, 968/900 MHz and 2.4 GHz products. It can be used for 400MHz products with an SMA connector for added protection, however these already have an internal surge diverter.

A surge diverter is normally not required where an antenna is surrounded by a lot of steelwork, as in an industrial plant. The WI-DIV-CCMA is recommended where the antenna installation is NOT surrounded by steelwork, or in areas of high electrical storm activity where additional protection is desired.

The WI-DIV-CCMA requires additional weatherproofing if used externally.

If the module is mounted in a high vibration area or if large diameter coaxial cable (low loss) is being used, then the WI-DIV-CCMA should not be mounted directly onto the module. In these circumstances a short coaxial "tail" should be inserted between the module and the WI-DIV-CCMA.

The WI-DIV-CCMA will only work effectively with a good ground connection. The ground connection on the CSD, and the ground connection on the wireless module must be connected together. The common ground should be connected to the same ground point as the antenna mounting.

Warning: Do not stay near operating equipment during an electrical storm. The surge diverter will not provide protection to personnel.



WI-DIV-CCMA
Coaxial Surge Diverter

Type	Part No.
WI-DIV-CCMA	6720005111

ANTENNA MOUNTING ACCESSORIES

Collinear Mounting Brackets WI-BR-CLR-KIT

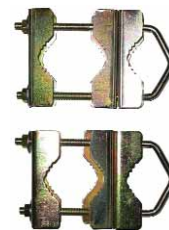
The Collinear antenna requires two mounting brackets to hold the antenna in position. The bracket assemblies consist of 1xU-Bolt 3xD-plates with nuts and washers in each set. The brackets are zinc plated mild steel.

This simple method of mounting provides a solid support that will support the antenna for many years.

This mounting provides an excellent earth to the main pole. This pole should preferably have a low resistance to ground.

Mounting brackets may be replaced if the antenna is dismantled for maintenance.

The brackets are suitable for pole sizes up to a maximum 2" (50mm) in diameter.



WI-BR-CLR-KIT
Collinear Mounting Brackets

Type	Part No.
WI-BR-CLR-KIT	6720005110

Yagi Mounting Bracket WI-BR-YAGI-KIT

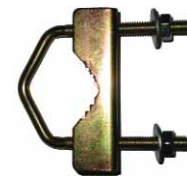
The Yagi antenna requires a single mounting bracket. The bracket assembly consists of 1xU-Bolt 1xD-plate with nuts and washers. The brackets are zinc plated mild steel.

This simple method of mounting provides a solid support that will permanently support the antenna.

This mounting also provides an excellent earth to the main pole. This pole should preferably have a low resistance to ground.

Mounting brackets may be replaced if the antenna is dismantled for maintenance.

The brackets are suitable for pole sizes up to a maximum 2" (50mm) in diameter.



WI-BR-YAGI-KIT
Yagi Mounting Bracket

Type	Part No.
WI-BR-YAGI-KIT	6720005109

WI-PS110/20

For wireless products that will accept 20 VDC. The plug pin arrangement is suitable for 110V power sockets



WI-PS110/20

Type	Part No.
WI-PS110/20	6720005104

Argentina
Australia
Austria
Azerbaijan
Bahrain
Belarus
Belgium
Bosnia-
Herzegovina
Brazil
Bulgaria
Canada
Chile
China
Colombia
Costa Rica
Croatia
Czech Republic
Denmark
Ecuador
Egypt
Estonia
Finland
France
Germany
Greece
Hong Kong
Hungary
Iceland
India
Indonesia

Iran
Ireland
Israel
Italy
Japan
Jordan
Kazakhstan
Kuwait
Latvia
Lebanon
Lithuania
Luxembourg
Macedonia
Malaysia
Malta
Mexico
Montenegro
Netherlands
New Zealand
Norway
Oman
Paraguay
Peru
Philippines
Poland
Portugal
Qatar
Romania
Russia
Saudi Arabia
Serbia

Singapore
Slovakia
Slovenia
South Africa
South Korea
Spain
Sweden
Switzerland
Syria
Taiwan
Thailand
Turkey
UAE
Ukraine
United Kingdom
Uruguay
USA
Venezuela
Vietnam
Yemen

Weidmuller is the leading manufacturer of components for electrical connection technology to transmit energy, signals and data. The Weidmuller product portfolio ranges from terminal blocks, PCB connectors and terminals, protected components, Industrial Ethernet components, I/O components and relay sockets to power supplies and overvoltage protection modules suitable for all applications. Assemble Services, marking solutions with a variety of tools and software systems, round off the range. As an OEM supplier, the company sets global standards in the field of electrical connection technology.

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