

Transmitter (Single Sensor Units) – Introduction

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

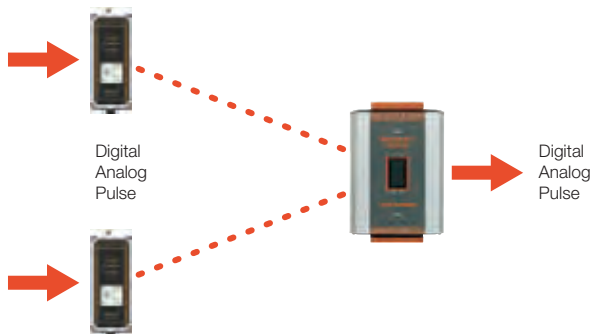
The Single Sensor Wireless I/O range of products is suitable for connecting to a single sensor or group of sensors and provides an economical solution for remote monitoring systems. Capable of being powered by battery-only supplies, these products are particularly suitable where power is not available.




- Frequency hopping spread spectrum 902-928 MHz 1W, license-free USA/ Canada/Mexico
- Configurable sub-bands license-free South America, Australia/NZ, Asia, Europe available on request

Applications

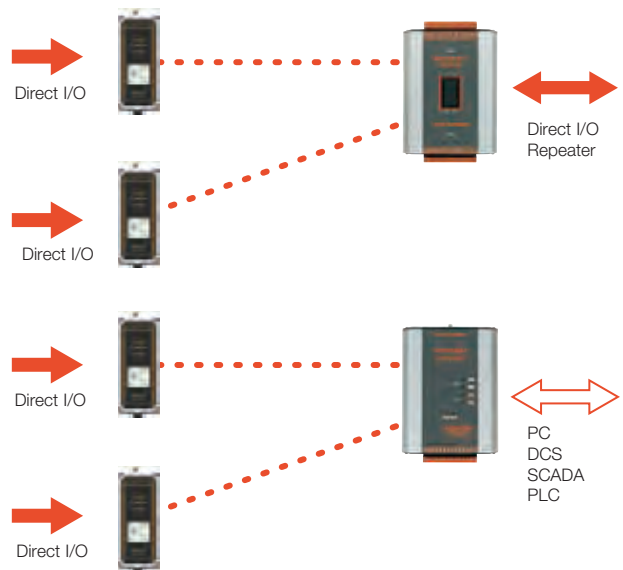
- Wireless connection of flowmeters or energy meters
- Monitoring of storage tanks
- Monitoring cathodic protection on pipelines
- Wireless alarms from power reticulation fault-relays



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 
- 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 available at www.weidmuller.ca or weidmuller.com



WI-I/O 9-K Transmitter Ordering Information

Unit	Description
WI-I/O-9-K	Wireless Transmitter (900 MHz)



Dimensions



General Specifications

- **Frequency:** frequency hopping spread spectrum 902-928MHz, sub-bands available
- **Power:** 1W
- **Max. Range (line-of-sight):** 20 miles (4 ERP), 15km(1 ERP); 3000 ft / 1000 m in obstructed industrial environments
- **Antenna Connector:** SMA connector
- **Temperature:** -40 to 60°C / -40 to 140 °F
- **Humidity:** 0-99% RH
- **Regulatory Approvals:** approved to FCC Part15.247, RS210; EMC compliant 89/336 EEC, EN 300 683, AS3548, FCC Part 15
- **Housing:** weatherproof (IP66) painted aluminum enclosure 170 x 64 x 36mm/ 6.7 x 2.5 x 1.4 inches; weatherproof connector for external connections
- **Each transmission may be configured** to be sent 1 to 5 times
- **LED indicators** - radio TX, operation OK
- **High and low set-points generate internal digital status.** Set-point status sets (on) when analog value <low set-point and resets (off) when analog value > highset-point status transmitted as per digital input.

Input Type	Source	Function
Digital	external	status
Pulse Total	external	count
Pulse Rate	internal	analog
Analog	external	analog
Set-point	internal	status
Supply Voltage	internal	analog
Supply Low Voltage	internal	status

Digital Inputs

- Two inputs, suitable for voltage-free contacts / NPN, or voltage input 0-1 VDC on / >3 VDC off
- Status transmission on change of input signal and on time elapsed since last transmission - update time period 10 sec. - 5 days, a separate update time can be configured when the discrete input is "on"

Pulse Inputs

- Pulse input max. rate 100 Hz, 3 msec on time (1000Hz available using a 1/10 divider). 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-of-state transmissions may be suspended if increase exceeds a configured value to reduce radio traffic.
- **Up/Down Pulse Count:** the two pulse inputs may be configured to a single count to suit quadrature or incremental shaft encoder transducers.
- **Pulse Rate:** calculated from rate of pulse input and treated as an internal analog input. Configurable scaling. Transmitted as per analog input.

Analog Inputs

- 0-25 mA (4-20mA, 0-10mA) available all models, 0-10V also available "floating" differential input, resolution 12-bit, accuracy < 0.1 % measurement continuous or sampled, sample time configurable 0 -9.1 hours, 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 from 0.7-75%, update time configurable from 0.1 min. - 5 days

Power Supply

- **Battery Supply:** WI-BP-I/O-9-K Battery pack, 6 x AA batteries, 9 VDC
- **Normal Supply:** 6-30 VDC, power consumption@12VDC - quiescent (sleep mode) 120µA, operating mode 10mA + analog loop during radio transmission(50 - 100 msec.)
- 300mA @ 1W
- Analog loop supply internally generated (24VDC)
- Internal monitoring of supply low voltage status maybe transmitted to remote modules as an "input"
- Power consumption increases for pulse inputs > 10Hz

Set-point Status

- High and low set-points generate internal digital status. Set-point status sets (on) when analog value <low set-point and resets (off) when analog value > high set-point. Status transmitted as per digital input.

Serial Port

- RS232 DB9 female DCE used for configuration and diagnostics

Battery Pack

The WI-BP-I/O-9-K is a battery pack for the WI-I/O-9-K wireless device. The battery pack is used in applications where power lines are either not installed or not allowed.

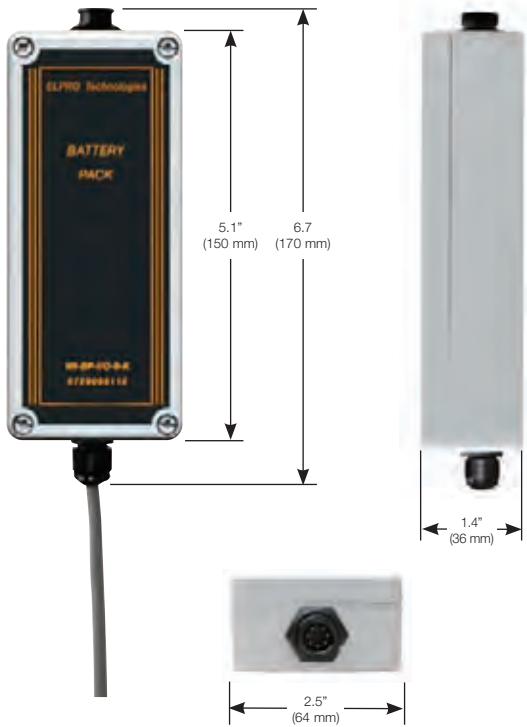
Applications

- Used to power WI-I/O-9-K units atop of water tanks for monitoring fluid level
- Used to power WI-I/O-9-K units to monitor pipeline cathodes

Features

- 9V, 6 AA alkaline batteries
- Housed in a weatherproof (IP66) enclosure

Dimensions



WI-BP-I/O-9-K

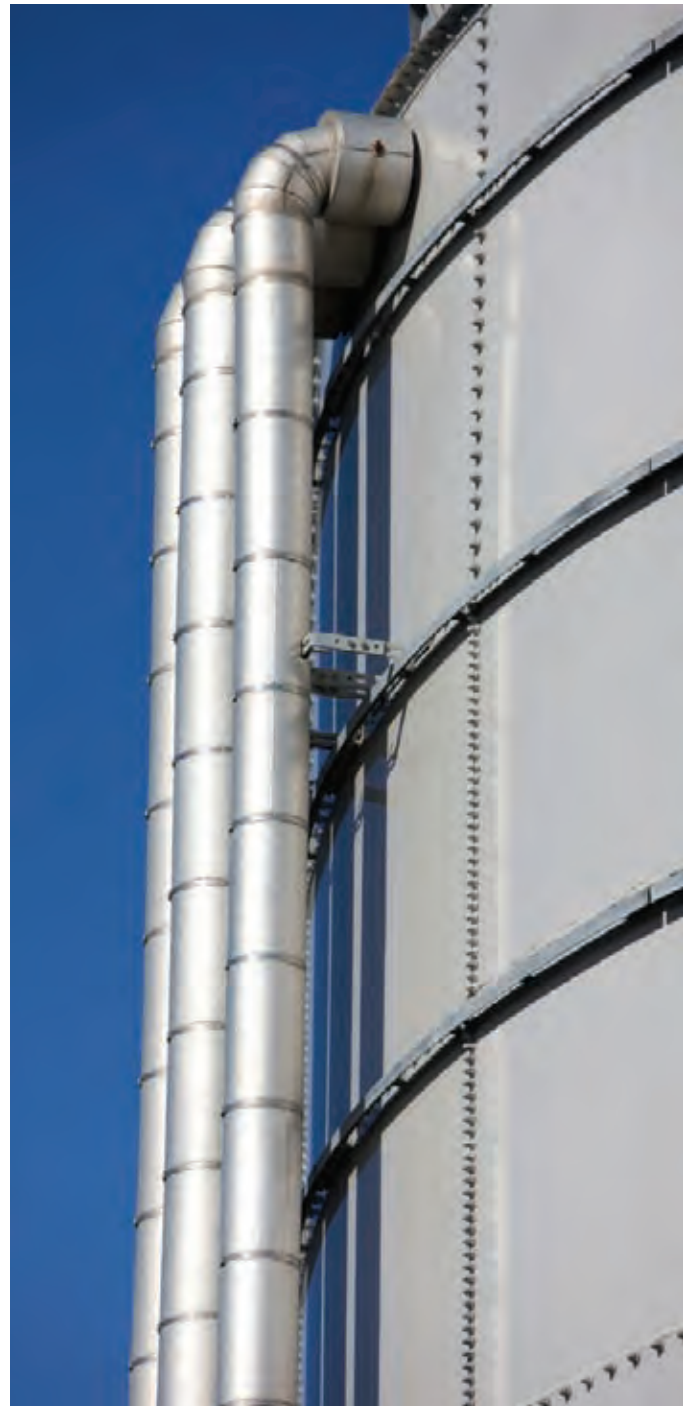


Specifications

- Class I, Division 2
- **Expected Life:** 1 month to 1 year, depending on usage and power settings (WI-BP-I/O-9-K will indicate low battery status)

WI-BP-I/O 9-K Battery Pack Ordering Information

Unit	Description
WI-BP-I/O-9-K	Battery Pack for WI-I/O-9-K





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.
Up/Down Pulse Count	the two pulse inputs may be configured to a single count, to suit quadrature or incremental shaft encoder transducers.
Pulse Rate	calculated from rate of pulse input and treated as an internal analog input. Configurable scaling. Transmitted as per analog input.
Analog:	one analog input 0-25 mA (4-20mA, 0-10mA)
	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

Power consumption @12VDC	6 - 30VDC
Power consumption during radio transmission (50 - 100 msec)	quiescent (sleep mode) 120µA, operating mode 10mA + analog loop
	300mA @ 1W, 220µA @ 500mW
Analog loop supply internally generated	100mA @ 100mW, 50mA @ 10mW
Internal monitoring of supply low voltage status	Yes
Power consumption increases for pulse inputs > 10Hz.	may be transmitted to remote modules as an "input"

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, 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 female coaxial

Dimensions mm (in)

170 x 64 x 36 (6.7 x 2.5 x 1.4)

Ordering Data

	Type	Part No.
	WI-I/O-9-K	6720005004
Battery Pack (optional)	WI-BP-I/O-9-K	6720005112
Plug and Lead-1 meter (included w/ radio)	WI-PLI-9-K	6720005113