



## Wireless Instrumentation Multiple Input Field Unit



### Multiple Input Field Unit Description

The Multi-Input Field Unit is ideal for adding wireless capabilities to existing or new wired measurement sensors such as radar tank gauges, flow meters, chemical analyzers, or any other device that has voltage or current outputs. The Multi-Input Field Unit is available in current (4-20 mA), voltage (0-10 V), or millivolt (0-1000mV) versions, each accepting up to two analog inputs. Each model also includes two discrete contact closure inputs (for simple apparatus). A variety of packages are also available to fit the field environment ranging from NEMA 4 or 4X to NEMA 7 Explosion Proof for integration to field instruments not rated intrinsically safe. The XP housing can also be used to provide field 24 VDC power (if available) in lieu of standard battery power.

The Field Unit is an integrated input module, signal conditioner and RF transceiver with self-contained power operating in the 902 MHz to 928 MHz ISM license-free band. Rated intrinsically safe, it is approved for use in all hazardous areas. Optional output switches can also be provided to perform on/off control in the field based on programmable input set point. Output switch option for ordinary area classification only.

The versatile Multi-Input Field Unit can accept conditioned signals or raw sensor inputs. Using the 22 point offset curve, transducer outputs can be converted into meaningful engineering units with non-linear curves that are user programmable.

### Technical Specifications

#### Inputs

- Two 4-20 mA inputs sharing a common ground and two discrete contact closure inputs (Model WI AI)
- Two 0-10 V inputs sharing a common ground and two discrete contact closure inputs (Model WI-AV)

#### Input Characteristics

- 10 Ohm impedance, analog (WI-AI)
- 100 kOhm impedance, analog (WI-AV)

#### Output Characteristics

- See the Base Radio description for analog and digital output options

#### Accuracy

- $\pm 0.1\%$  of Full-scale reading at reference conditions
- Ambient Temperature Effect =  $\pm 0.01\%$  of reading per  $^{\circ}\text{C}$

#### Sampling and Transmission Characteristics

The Multi-Input Field Unit samples analog signals (4-20 mA or 0-10 V) at regular intervals. The data may then be transmitted to the Base Radio for centralized monitoring and data acquisition.

The user specifies how frequently the process is monitored and how often data is transmitted.

- Input 1 and Input 2– user designates low rate and high rate conditions
- Sampling rate– user selectable from 1 to 60 seconds (low rate) and from 1 to 30 seconds (high rate)
- Transmission rate– user selectable from 1 second to 60 seconds (low and high rate)

The Wireless Instrumentation Manager can be used for real-time monitoring of the process information. The user can set thresholds to represent “alarm” or abnormal conditions.

#### Operating Ambient Environment

- $-40^{\circ}\text{F}$  to  $+220^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$  to  $+104^{\circ}\text{C}$ ) process connection temperature, steady state
- $-40^{\circ}\text{F}$  to  $+185^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ ) electronics

## Technical Specifications—Continued

- -4° F to +158° F (-20° C to +70° C) display (full visibility)
- -40° F to +185° F (-40° C to +85° C) display (with reduced visibility)
- Humidity Limits: 0 to 95 %, non condensing

### Power Characteristics

- Self-contained power
- 'C' Size 3.6 V lithium battery
- Up to twenty (20) year battery life (depends on sample rate and RF update rate), field replaceable

### RF Characteristics

902 MHz – 928 MHz Frequency Hopping Spread Spectrum (FHSS), FCC certified ISM license-free band  
Up to 3000' range from Base Radio with clear line of sight; 500' to 1000' typical range with obstructions  
The RF module in each Field Unit is individually tested and calibrated over the full temperature range to ensure reliable wireless operation

### Self-Diagnostics

Low battery alarm – indicates the need to replace the battery (approximately one month warning)  
Contains extensive self-checking software and hardware that continuously monitors the operation. Any sensor or device parameter out of spec is identified and reported

### Local Configuration

Integrated LCD display with membrane switch buttons  
Display provides pressure reading and error messages, if applicable  
Configure sampling and RF parameters locally using membrane switch buttons

### Materials of Construction

Type 316 stainless steel base and diaphragm  
Standard 1/2" MNPT (other options available)  
GE Lexan® cover. V-0 rating and UV stable

### Operating Shock and Vibration

Certified per IEC EN00068 2-6 (vibration) and 2-27 (shock)

### Random Vibration Characteristics

Certified to withstand 6 g's, 15 minutes per axis from 9 – 500Hz

### Electromagnetic Compatibility (CE Compliance)

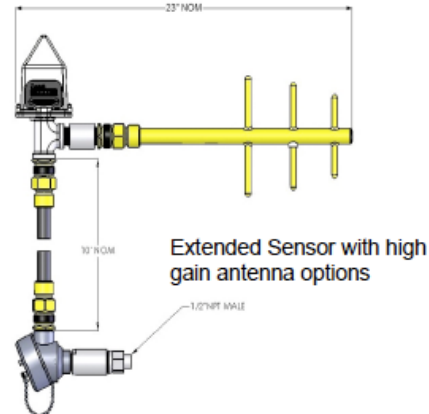
Operates within specification in fields from 80 to 1,000 MHz with field strengths to 30 V/m. Meets EN 50082-1 general immunity standard and EN 55011 compatibility emissions standard

### Industrial Certification

Rated for industrial use -40° F to 185° (-40° C to 85° C)  
FM NEMA 4 or 4X weather-proof enclosure FM rated intrinsically safe for Class I, II, III; Div 1, Groups A, B, C, D, E, F & G; Class I, II, III, Div 2, Groups A, B, C, D, F & G. CSA Type 4 or 4X weather-proof enclosure CSA rated intrinsically safe for Class I, Div 1, Groups A, B, C & D. Class II, Div 1, Groups E, F & G; Class III, Div 1 ATEX II1G, EEx1a IIC T4

### Intrinsic Safety Parameters

FM Class T4 for max operating temp ≤ +85° C  
CSA Temp Code T3, operating temp ≤ +85° C  
CSA Class I, Div 2 Temp Code T4, operating temp ≤ +85°



Model	Gauge Pressure Field Unit		
AI	DUAL 4-20 mA	INPUT WITH DUAL SECONDARY CONTACT CLOSURE SWITCH INPUTS	
AV	DUAL 0-10 VDC INPUT WITH DUAL SECONDARY CONTACT CLOSURE SWITCH INPUTS		
	Code	Sensor Mounting	
	S	DEFAULT = NEMA 4 ALUMINUM REAR ENTRY	
	B	BOTTOM ENTRY NEMA 4X EPOXY COATED CAST ALUMINUM	
	M	STAINLESS STEEL NEMA 4X	
	Y	EXPLOSION PROOF	
	Code	Yagi Antenna Option	
	Y6	HIGH GAIN YAGI ANTENNA (only available with remote sensor mounting)*	
	Code	24VDC POWERED OPTION	
	L	AVAILABLE ONLY WITH EXPLOSION PROOF OPTION	
AI	S	Y6	TYPICAL MODEL NUMBER