

XYR 5000

WW590

Wireless Dual Discrete Input Transmitter

34-XY-03-12 09/2006

PRODUCT SPECIFICATION AND MODEL SELECTION GUIDE

Function

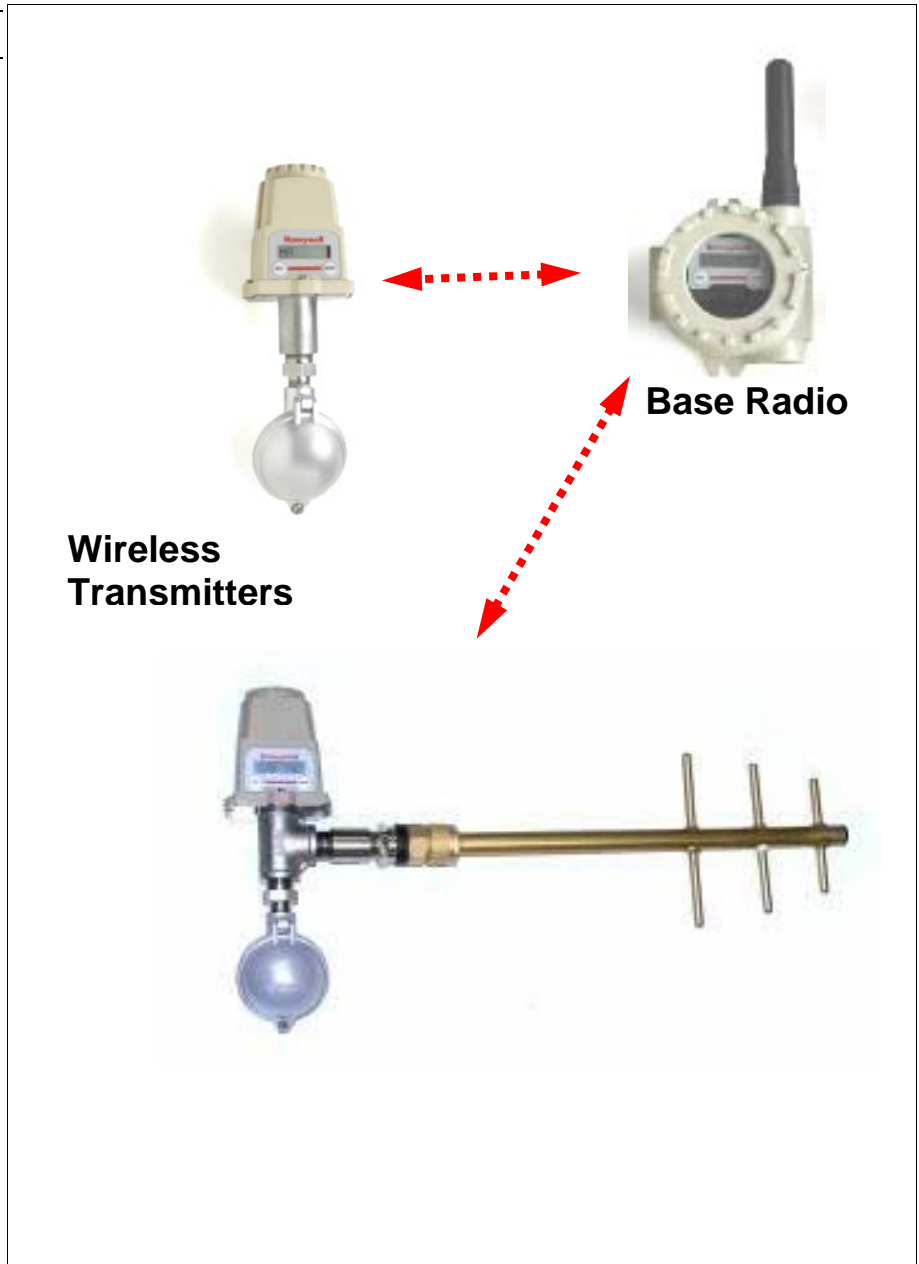
The WW590 Dual Discrete Input Field Transmitter is part of the XYR 5000 family of wireless products. It is used to transmit the status of contact switches.

Each contact is sampled 11 times a second, and the contact state and transition data are broadcast to the base radio at user defined intervals. The Smart Response Manager allows the transmitter to adapt to changing process conditions, allowing greater visibility to process variation. Smart Response Manager allows the user to set thresholds which, when exceeded, cause the transmitter to adjust sampling and data transmission rates. Optional discrete inputs are available for

The transmitter combines two discrete inputs with a Radio Frequency (RF) transceiver operating in the 900MHz ISM license free band. Communication is a digital protocol, using Frequency Hopping Spread Spectrum (FHSS). FHSS ensures data integrity by continually switching the carrier wave over a wide range of frequencies. Power is supplied by a C size 3.6 V lithium battery, with an expected lifetime of up to five years.

Enjoy the benefits of wireless technology today:

- Improve Product Quality
- Ensure High Uptime
- Reduce Maintenance and Operational Costs
- Meet Regulatory Requirements
- Enhance Flexibility



WIRELESS GENERAL SPECIFICATIONS

Wireless Communication	902 MHz – 928 MHz Frequency Hopping Spread Spectrum (FHSS) FCC certified ISM license-free band. Every data block transmitted is verified (CRC check) and acknowledged by the Base Radio.	
RF Transmit Power	31 mW, 17.8 mW typical.	
Data Rate	Configurable: 4.8 Kbps, 19.2 Kbps, or 76.8 Kbps.	
Antenna	Omnidirectional	Yagi Directional
	Internal 3" omni-directional, ¼ wave, monopole.	<ul style="list-style-type: none"> • Length: 18". • Gain: 6 dBd. • Weight: 1.5 lbs. • Polarization: Vertical.
Signal Range	Up to 2000 feet (600 meters) from Base Radio with clear line of sight.*	Up to 5000 feet (1500 meters) from Base Radio with clear line of sight.*

*Actual range may vary depending on site topography.

DISCRETE INPUTS

Discrete Input Switch (Dry Contact Only, no Voltage or Current Allowed)

Maximum Impedance at Input	1 K ohm.
Isolation	Input Isolation between Input 1 and Input 2 is 20 kOhm.
Wiring	Plug – Wire Size 28 to 16 gauge maximum.
Warning	No external voltage or current shall be applied to input terminals.

DEVICE CONFIGURATION

Parameter Configuration	<ul style="list-style-type: none"> • RF Channel Setup: 1 to 16. • Baud Rate: 4.8 Kbps, 19.2 Kbps, 76.8 Kbps. • RF ID: 1 to 100. • Password . • Tag Name (up to 21 characters). • Normal Transmit Rate: (1–5 sec, 10 sec, 15 sec, 20 sec, 40 sec, 1 min). • Normal Sampling Rate: Not configurable. Checks contact state 11 times per second. The majority state for those 11 samples is transmitted to the base radio, along with information if a rtransition has occurred. • Abnormal Transmit Rate: (1–5 sec, 10 sec, 15 sec, 20 sec, 40 sec, 1 min). • Abnormal Sampling Rate: Not configurable.
Configuration Panel	Integrated LCD display with membrane switch buttons for local configuration. LCD display is 7-digit (alternating) high contrast, anti-reflective monochrome. Display cycles between input 1, input 2, and RF status.

SITE SURVEY TOOLS

RSSI	Received Signal Strength Indicator displays the RF signal strength in one of seven ranges.
Link Test	Link Test measures the wireless link performance of a transmitter running in normal operating mode. This function looks at wireless performance in both directions, from the transmitter to base radio and vice versa and assigns a rating to that performance or quality of signal.

FEATURES

Automatic Re-transmit	The field unit checks with the base radio to insure successful receipt of data. If data was not received, the transmitter retries on the next RF cycle. Ensures communication confidence in the harshest of industrial environments. At the maximum transmit rate this feature is inactive.																				
Battery Life Saver	To save conserve battery power, all field units will attempt to synchronize with the network using the following technique: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th><u>Time</u></th> <th><u>Field Unit Synchronization Attempts and Attempt Delay</u></th> </tr> </thead> <tbody> <tr> <td>0 – 1 minute</td> <td>Continuous Synchronization attempts</td> </tr> <tr> <td>1 – 10 minutes</td> <td>One attempt with a 10 second delay between attempts</td> </tr> <tr> <td>10 – 30 minutes</td> <td>One attempt with a 30 second delay between attempts</td> </tr> <tr> <td>30 – 60 minutes</td> <td>One attempt with a 1-minute delay between attempts</td> </tr> <tr> <td>1 – 12 hours</td> <td>Three-attempt burst with a 5-minute delay between attempts</td> </tr> <tr> <td>12 – 24 hours</td> <td>Three-attempt burst with a 10-minute delay between attempts</td> </tr> <tr> <td>24 – 36 hours</td> <td>Three-attempt burst with a 30-minute delay between attempts</td> </tr> <tr> <td>36 – 48 hours</td> <td>Three-attempt burst with a 1-hour delay between attempts</td> </tr> <tr> <td>48 + hours</td> <td>Three-attempt burst with a 2-hour delay between attempts</td> </tr> </tbody> </table>	<u>Time</u>	<u>Field Unit Synchronization Attempts and Attempt Delay</u>	0 – 1 minute	Continuous Synchronization attempts	1 – 10 minutes	One attempt with a 10 second delay between attempts	10 – 30 minutes	One attempt with a 30 second delay between attempts	30 – 60 minutes	One attempt with a 1-minute delay between attempts	1 – 12 hours	Three-attempt burst with a 5-minute delay between attempts	12 – 24 hours	Three-attempt burst with a 10-minute delay between attempts	24 – 36 hours	Three-attempt burst with a 30-minute delay between attempts	36 – 48 hours	Three-attempt burst with a 1-hour delay between attempts	48 + hours	Three-attempt burst with a 2-hour delay between attempts
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SELF DIAGNOSTICS

Self-checking software and hardware that identifies and reports out of spec conditions, and field unit low battery voltage.

OPERATING/STORAGE CONDITIONS

Humidity	95% RH (non-condensing).
Temperature	<p>Ambient Electronics: -40 to +185°F (-40 to +85°C)</p> <p>Display (Full visibility): -4 to +158°F (-20 to +70°C)</p> <p>Display (Reduced visibility): -40 to +185°F (-40 to +85°C)</p> <p>Storage: -58 to +185°F (-50 to +85°C)</p>

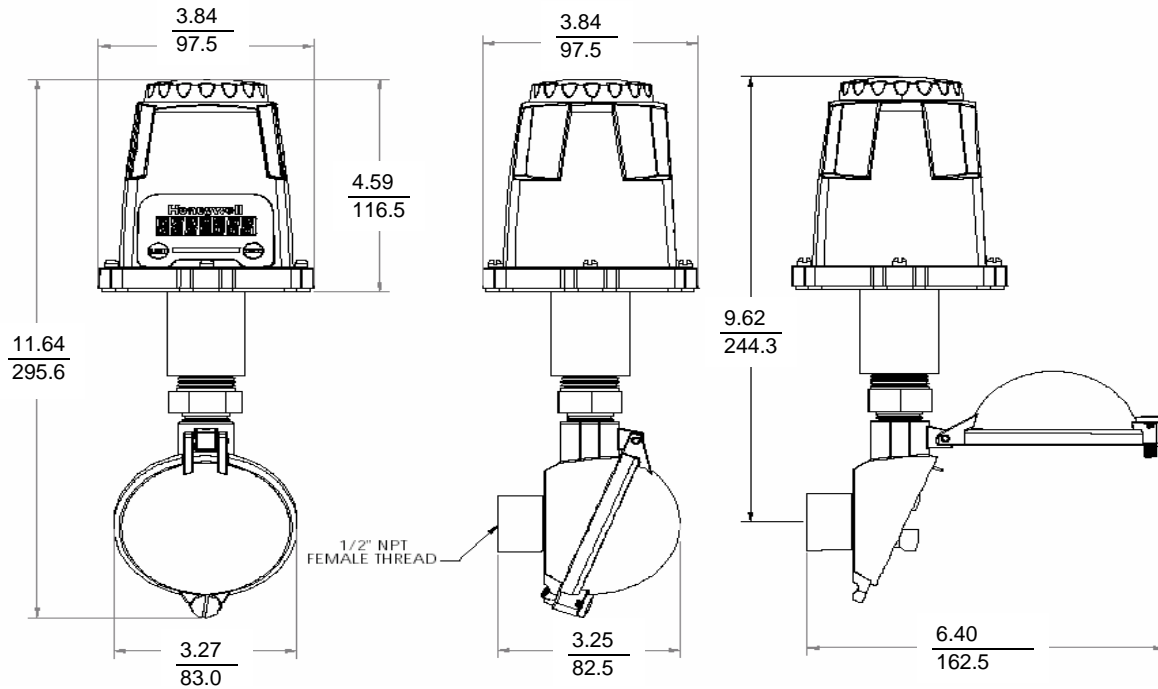
PHYSICAL SPECIFICATIONS

Base	Aluminum junction box.	
Electronic Housing	GE Lexan. V0 Rating and UV Stable.	
Vibration and Shock	Certified per IEC EN00068 2-6 (Vibration) and 2-27 (Shock)	
Random Vibration	Certified to withstand 6 g's, 15 minutes per axis from 9 – 500 Hz.	
Net weight	With Omnidirectional antenna	With Yagi directional antenna
	0.6 kg (1.2 lbs)	1.4 kg (2.7 lbs)
Electromagnetic Compatibility (CE Compliance)	Operates within Specifications 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.	

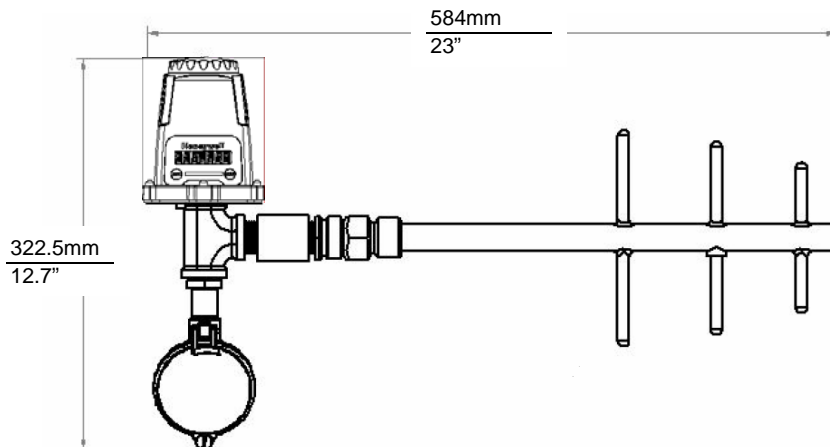
APPROVALS

Environmental protection	NEMA 4, IP 65.
Combined FM/CSA	FM – Explosion proof - Class I, Div. 1, Groups B,C,D, T5,T6, Enclosure 4 Dust-Ignition proof - Class II, III, Div. 1, Groups E,F,G, T5,T6, Enclosure 4 CSA - Explosion proof - Class I, Div. 1, Groups B,C,D, T5, Enclosure 4 Dust-Ignition proof - Class II, III, Div. 1, Groups E,F,G, T5, Enclosure 4
Combined CE/ATEX	CE EMC Conformity, ETSI EN 300 489-1 Intrinsically Safe, Zone 0/1: Ex II 1 G EEx ia IIC T4, T5, T6 Non-Sparking, Zone 2: Ex II 3 G EEx nA, IIC T6

DIMENSIONS (Omnidirectional antenna)



DIMENSIONS (Yagi directional antenna)



Model Selection Guide

Model Selection Guide
34-XY-16-12 Issue 2

Instructions

- Select the desired key number.

Key Number	-	II (Approvals)
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KEY NUMBER

Description	Selection	Availability
Wireless Dual Discrete Input Transmitter with Omni Directional Antenna	WW591	↓
Wireless Dual Discrete Input Transmitter with Integrated Yagi Antenna	WW592	↓

TABLE I - CERTIFICATION OPTIONS

Certificate	Approval Type	Location or Classification			
Combined FM & CSA	Intrinsically Safe	CL I, II, III, Div 1, Gp A,B,C,D,E,F,G T4; CL I, Zone 0, AEx ia IIC T4; Enclosure Type 4	AG	•	b
	Nonincendive	Class I, Div 2, Groups A,B,C,D; Suitable for CL II, III, Div 2, Gp F,G, T4; CL I, Zone 2, AEx nA IIC T4; Enclosure Type 4			
	Intrinsically Safe	CL I, II, III, Div 1, Gp A,B,C,D,E,F,G T4; CL I, Zone 0, Ex ia IIC T4; Enclosure Type 4			
	Nonincendive	Class I, Div 2, Groups A,B,C,D; Suitable for CL II, III, Div 2, Gp F,G, T4; CL I, Zone 2, Ex n IIC T4; Enclosure Type 4			
	ATEX*	Multiple Marking** Int. Safe, Zone 0/1, or Non-Sparking, Zone 2			

* See ATEX installation requirements in the Operator's Manual.

** The user must determine the type of protection required for installation of the equipment. The user shall then check the box [?] adjacent to the type of protection used on the equipment certification label. Once a type of protection has been checked on the label, the equipment shall not then be reinstalled using any of the other certification type.

RESTRICTIONS

Restriction Letter		Available Only With		Not Available With
	Table	Selection	Table	Selection
b		Mutually exclusive - select one		



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