# XYR 5000

# Wireless Base Radio

## Function

The Wireless Base Radio (WBR) is part of the XYR 5000 family of wireless products. It combines an RF transceiver and the interface to a SCADA, DCS, or data acquisition device. The WBR Radio Frequency (RF) transceiver communicates in 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. Each Wireless Base Radio can communicate with up to 50 field units. As part of its diagnostic capability, the Wireless Base Radio can identify and report field unit out of spec conditions, and low battery alarms. Multiple outputs are available. The Wireless Base Radio is easily configured using the local pushbuttons and display.

Enjoy the benefits of wireless technology today:

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



**Wireless Transmitters**

**Wireless Management Toolkit**

**Base Radio**

- **RS-485 Modbus**
- **4-20mA**
- **RS-232**
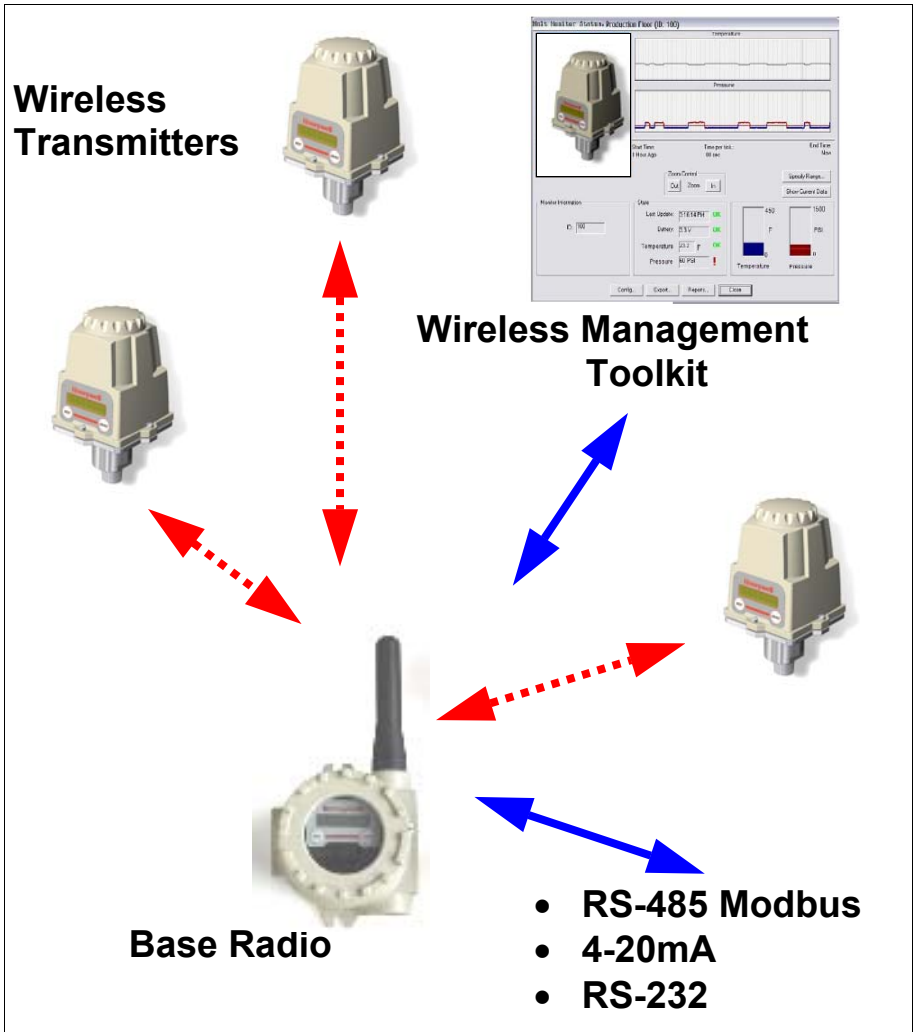
**MODEL**

**Base Radio**

| Model # | INPUTS | OUTPUT |
|---------|--------|--------|
| **WBR** | Up to 50 field units | • RS-485 Modbus<br>• 4-20 mA (via optional "Quad Analog Output" modules)<br>• RS-232 |

## 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. |
| **Scan Rate** | 20 seconds @ 4.8 Kbps, 5 seconds @ 19.2 Kbps, 1.4 seconds @ 76.8 Kbps. |
| **Antenna** | External 3" omni-directional, ½ wave, dipole. |
| **Signal Range** | Up to 2000 feet (600 meters) from Base Radio with clear line of sight.* |

*Actual range may vary depending on site topography.

## DEVICE CONFIGURATION

| | |
|---|---|
| **Parameter Configuration** | RF Channel Setup: 1 to 16. |
| | Field Device Baud Rate: 4.8 Kbps, 19.2 Kbps, 76.8 Kbps. |
| | Serial Output: 9.6 Kbps, 19.2 Kbps, 38.4 Kbps, 57.6 Kbps, 115 Kbps. |
| | Number of field units: 1 to 50. |
| | Output: • RS-485 (up to 3000 feet, maximum number of drops: 15, measured at 19.2 Kbps baud rate) |
| | • 4 – 20 mA (analog output via Quad output modules). |
| | • RS-232 (optional converter required). |
| **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 field unit status, and RF status. |

## SELF DIAGNOSTICS

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

## OPERATING CONDITIONS

| | | |
|---|---|---|
| **Humidity** | | 99% RH (non-condensing). |
| **Temperature** | Ambient Electronics: | -40 to +185°F (-40 to +85°C) |
| | Display (Full visibility): | -4 to +158°F (-20 to +70°C) |
| | Display (Reduced visibility): | -40 to +185°F (-40 to +85°C) |
| | Storage: | -58 to +185°F (-50 to +85°C). |

## ELECTRICAL SPECIFICATIONS

| | |
|---|---|
| **Power connection** | Two terminals, 22 AWG power supply wire (GND, 24V). |
| **Signal connection** | Two terminals, use 2 wire shielded and protected 16 AWG. Additional two terminals are supplied for linking base radios. |
| **Grounding** | Earth grounding required. |
| **Power Supply** | External Supply Voltage, 12 – 30 VDC @ 0.2A. |
| | DIN rail mounted 120/240 VAC adapter (optional). |

**PHYSICAL SPECIFICATIONS**

| Electronic Housing | Baked enamel aluminum housing. |
|---|---|
| Conduit Connection | ¾"-NPTF. |
| Net weight | 2.5 kgs (5 lbs). |
| Mounting | Wall mount standard, or 2" pipe mounting bracket optional. |

**APPROVALS**

| Environmental protection | NEMA 4X (pending), NEMA 7 (pending). |
|---|---|

## DIMENSIONS
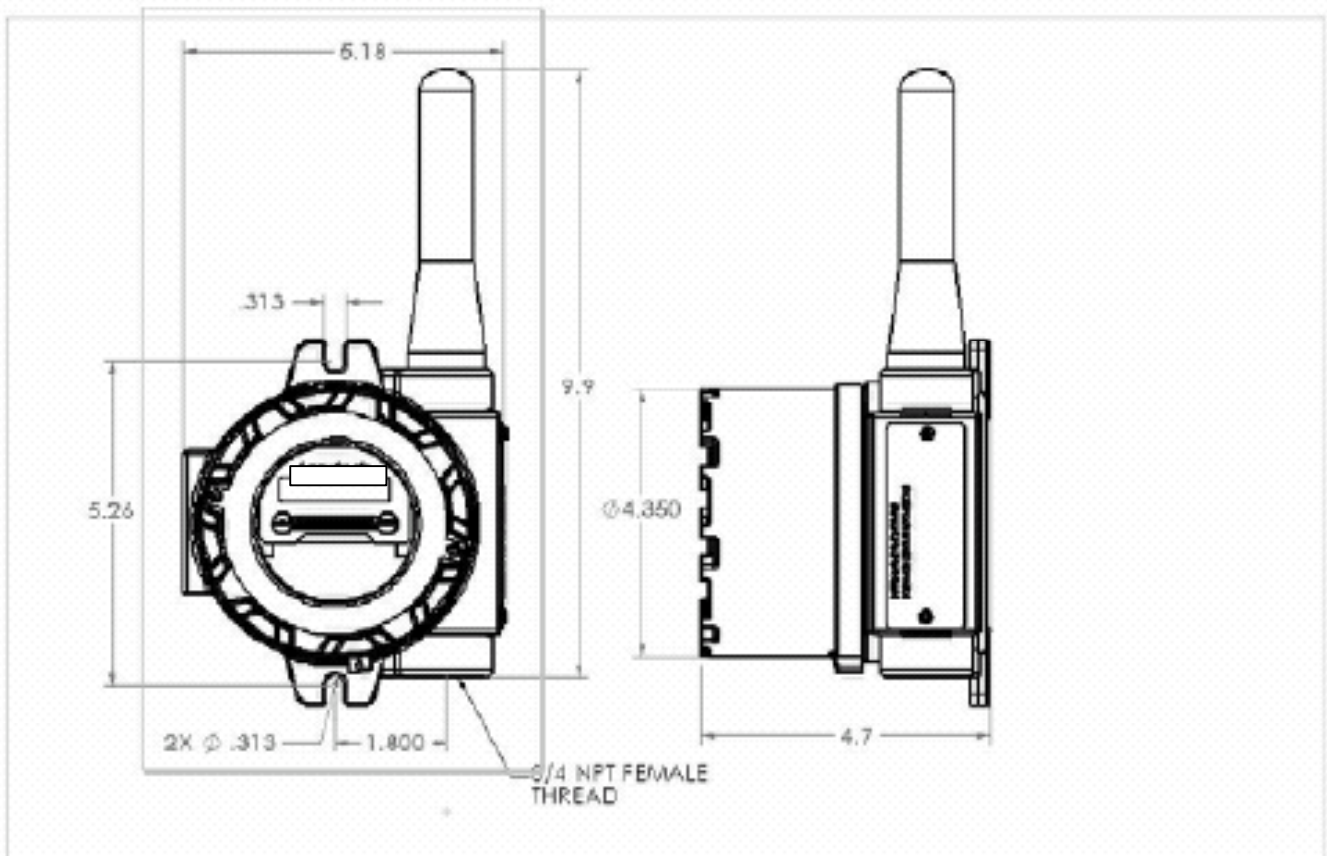
# Model Selection Guide

## XYR 5000 Wireless Base Radio

Model Selection Guide
34-XY-16-05 Issue 0

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### Instructions

- Select the desired key number. The arrow to the right marks the selection available.
- Make one selection from Table I. Select Table II options as desired.

**Key Number**       **I (Optional)**

_ _ _  -  _ _ , _ _

| KEY NUMBER | Selection | Availability |
|---|---|---|
| **Description** | | |
| Wireless Base Radio | WBR | ▼ |

**TABLE I - OPTIONS**

| | | |
|---|---|---|
| 2" Pipe Mounting Bracket | MB | • |
| 120/240 VAC to 24 VDC 15 W DIN Rail Mounted Power Supply | PW | • |
| RS-485 to RS-232 External Converter | RS | • |
| DIN Rail mounted Quad 4-20 mA Output Module | Pricing Table 1 | • |

Example: WBR-RS,A1

### Pricing Table 1

Select option based on number of required outputs and enter option in Table I - Options

| Number of analog outputs | Option | Price (US$) |
|---|---|---|
| 4 | A1 | |
| 8 | A2 | |
| 12 | A3 | |
| 16 | A4 | |
| 20 | A5 | |
| 24 | A6 | |
| 28 | A7 | |
| 32 | A8 | |
| 36 | A9 | |
| 40 | AA | |
| 44 | AB | |
| 48 | AC | |

**Honeywell**

**Industrial Measurement and Control**

Honeywell International Inc.
2500 West Union Hills Drive
**Phoenix, Arizona 85027**

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