

XYR 5000

WT530

Wireless Temperature Transmitters

34-XY-01-02 04/2004

PRODUCT SPECIFICATION AND MODEL SELECTION GUIDE

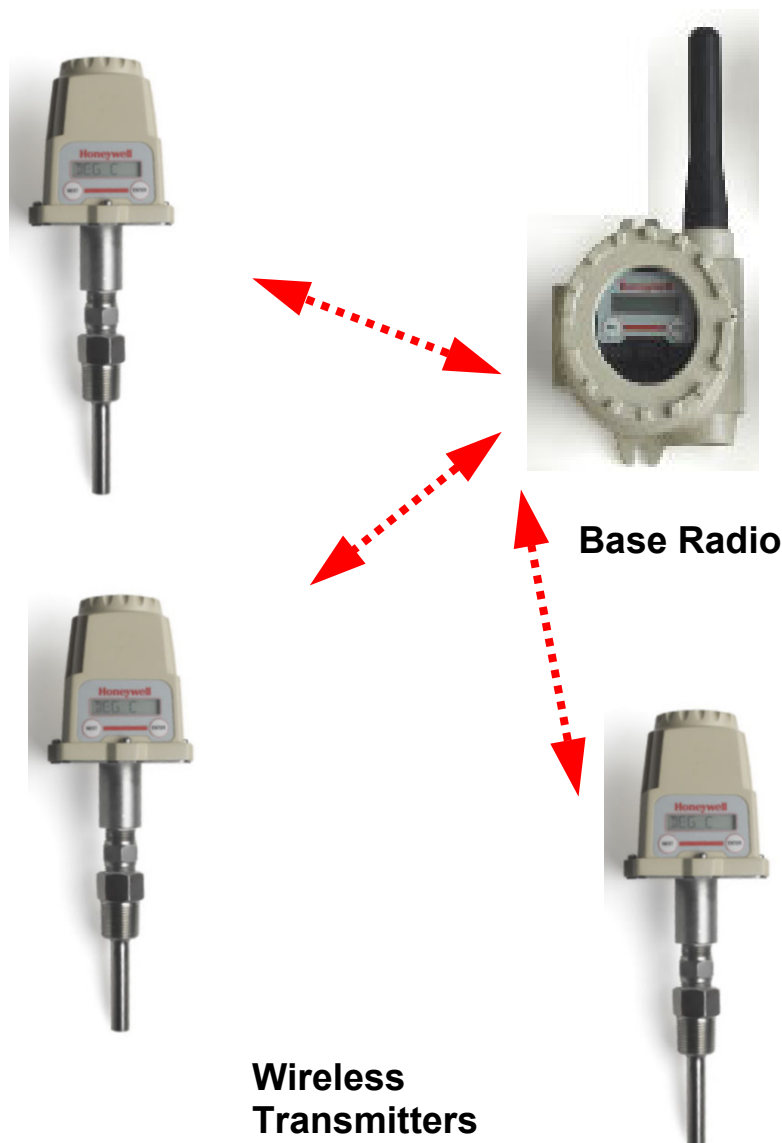
Function

The WT530 Temperature Transmitter is part of the XYR 5000 family of wireless products. These transmitters are wireless temperature transmitters that can be used to monitor a variety of processes in hazardous and remote areas. Since there are no wires to run, the transmitter can be installed and operational in minutes, quickly providing information about the variable being monitored. 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 increase sampling and data transmission rates.

The transmitter combines an integrated temperature sensor, with a Radio Frequency (RF) transceiver that 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. 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, and Enhance Flexibility.



PROBE OPTIONS

Probe Type	RANGE DEG. F	RANGE DEG. C
Pt100 RTD (DIN .00385)	-328 to +900	-200 to +482
Type B T/C	+212 to +3,272	+100 to +1,800
Type C T/C	+32 to +4,208	0 to +2,320
Type E T/C	-58 to +1,832	-50 to +1,000
Type J T/C	-292 to +1,382	-180 to +750
Type K T/C	-292 to +2,282	-180 to +1,250
Type L T/C	-328 to +1,652	-200 to +900
Type N T/C	+32 to +2,192	0 to +1,200
Type R T/C	+32 to +2,912	0 to +1,600
Type S T/C	+32 to +2,822	0 to +1,550
Type T T/C	-238 to +752	-150 to +400
Type U T/C	-148 to +1,112	-100 to +600

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	Internal 3" omni-directional, ¼ wave, monopole.
Signal Range	Up to 2000 feet (600 meters) from Base Radio with clear line of sight.*

*Actual range may vary depending on site topography.

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	99% RH (non-condensing).
Temperature	Ambient Sensor: -40 to +230°F (-40 to +110°C) Ambient Electronics: -40 to +185°F (-40 to +85°C) Process fluid: -40 to +250°F (-40 to +121°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).

DEVICE CONFIGURATION

Parameter Configuration	<p>RF Channel Setup: 1 to 16.</p> <p>Baud Rate: 4.8 Kbps, 19.2 Kbps, 76.8 Kbps.</p> <p>RF ID: 1 to 50.</p> <p>Password.</p> <p>Tag Name (up to 21 characters).</p> <p>Normal Transmit Rate: (1–5 sec, 10 sec, 15 sec, 20 sec, 40 sec, 1 min).</p> <p>Normal Sampling Rate: (1–10 sec, 15 sec, 20 sec, 30 sec, 1 min).</p> <p>Abnormal Transmit Rate: (1–5 sec, 10 sec, 15 sec, 20 sec, 40 sec, 1 min).</p> <p>Abnormal Sampling Rate: (1–10 sec, 15 sec, 20 sec, 30 sec).</p> <p>Temperature Normal Upper Value: Disabled/Enabled. Enabled to change Sampling and Transmit rates during abnormal process conditions.</p> <p>Temperature Normal Lower Value: Disabled/Enabled. Enabled to change Sampling and Transmit rates during abnormal process conditions.</p> <p>Engineering Units: Deg C, Deg F, Kelvin, Rankin.</p> <p>Probe Type. (WT531R will accept one RTD probe; WT531T will accept one or two T/C probes).</p> <p>Offset: User defined offset will be transmitted instead of actual value.</p> <p>Trim: Applies a user-defined one- or two-point correction curve to the actual value.</p>
Configuration Panel	<p>Integrated LCD display with membrane switch buttons for local configuration.</p> <p>LCD display is 7-digit (alternating) high contrast, anti-reflective monochrome.</p> <p>Display cycles between temperature level and RF status.</p>

PERFORMANCE

Accuracy	<p>± 0.1% of full scale reading at operating conditions.</p> <p>For cold junction compensation (T/C only), add 1.8 °F (± 1 °C) at reference conditions.</p>
Linearization	<p>RTD and T/C linearization to ± 0.09°F (± 0.05 °C).</p> <p>Custom linearization with 22 point curve.</p>
Ambient Temperature Effect	<p>RTD - ± 0.002% of reading per °C</p> <p>T/C - ± 0.01% of reading per °C</p>
Long Term Stability	<p>Stability deviation per year is less than 0.025%.</p>

PHYSICAL SPECIFICATIONS

Thermowell Material	304 SS, 316 SS.
Electronic Housing	GE Lexan. V0 Rating and UV Stable.
Process connections	½" - NPTM for probe only. ¾" - NPTM for well.

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.

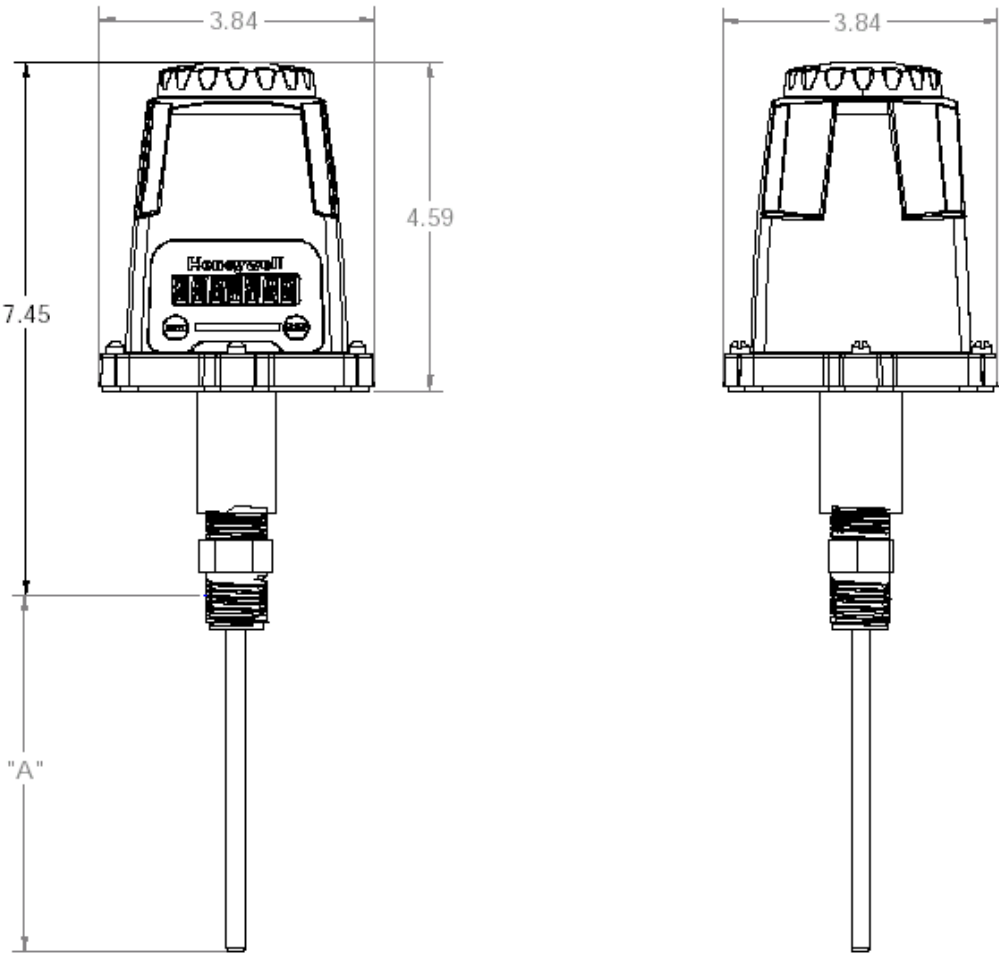
PHYSICAL SPECIFICATIONS (CONT.)

Net weight	1 kg (2 lbs) (no probe and well).
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 (pending).
Electrical classification	CSA and FM 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 (pending).

DIMENSIONS



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Instructions

- Select the desired key number.

Key Number

KEY NUMBER

Selection

Description	
Wireless Temperature Transmitter - Split Architecture (RTD supplied by customer)	WT531R
Wireless Temperature Transmitter - Split Architecture (T/C supplied by customer)	WT531T
- Please note that WT531T only will accept one or two T/C inputs. -	

Instructions

- Select the desired key number. The arrow to the right marks the selection available.
- Make six selections from Table I.

Key Number

I

KEY NUMBER

Selection

Availability

Description	
Wireless Temperature Transmitter - Integrated Complete	WT532

TABLE I - PROBE

Probe Type	RTD	R _____	a
	Thermocouple	T _____	b
Process connection	Spring Loaded Fitting	_ S _____	•
	Direct Insertion Weld	_ D _____	•
Probe Lag Hardware	Nipple	_ _ N _ _ _	•
	Nipple/Union/Nipple	_ _ U _ _ _	•
Length (Select From Sizing Table I)	Enter Length (y) From Sizing Table 1	_ _ _ y _ _	•
Probe Type (Select From Probe Table 2)	Enter Probe Type (z) Length From Probe Table 2	_ _ _ _ z _	•
Thermowell (3/4" NPT) (Insertion Length = Probe Length minus 1.5")	304 SS	_ _ _ _ A	•
	316 SS	_ _ _ _ B	•
	No well	_ _ _ _ C	•

Example: WT532-RSNJPA

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Sizing Table 1

Select option based on required probe length and enter option in Table 1c

			Twell List Price	
Probe length		Option	304 SS	316 SS
2.5	y =	A		
3.0	y =	B		
3.5	y =	C		
4.0	y =	E		
4.5	y =	F		
5.0	y =	G		
5.5	y =	H		
6.0	y =	J		
6.5	y =	K		
7.0	y =	L		
7.5	y =	M		
8.0	y =	N		
8.5	y =	P		
9.0	y =	R		
9.5	y =	S		
10.0	y =	T		
10.5	y =	U		
11.0	y =	V		
11.5	y =	W		
12.0	y =	Y		

Probe Table 2

Select option based on required probe type and enter option in Table 1d

Probe type		Option
RTD	z =	P
T/C		
B	z =	B
C	z =	C
E	z =	E
J	z =	J
K	z =	K
L	z =	L
N	z =	N
R	z =	R
S	z =	S
T	z =	T
U	z =	U

RESTRICTIONS

Restriction Letter		Available Only With		Not Available With	
a	b	Table	Selection	Table	Selection
■		1 e	P		
	■			1 e	P

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