

Rosemount™ 648 Wireless Temperature Transmitter



- Rosemount X-well Technology provides accurate process temperature without the requirement of a thermowell or process penetration.
- Industry-leading temperature transmitter delivers field reliability as a wireless measurement solution.
- Achieve optimal efficiency with best-in-class product specifications and capabilities.
- Wireless delivers innovative wireless solutions for temperature measurement and overall transmitter performance.

Ordering information



- The Rosemount 648 Wireless delivers industry-leading temperature field reliability as a wireless process measurement with best-in-class specifications and capabilities. Transmitter features include:
- Temperature Measurement Assembly with Rosemount X-well Technology (Measurement sonfiguration code 3)
 - IEC-approved *WirelessHART*® Protocol (option code WA3)
 - External antenna (option code WK1)
 - Extended range, external antenna (option code WM1)
 - Large LCD display (option code M5)
 - Transmitter-sensor matching (option code C2)
 - 3-point calibration certificate (option code Q4)
 - Assemble to sensor (option code XA)

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Contents

Ordering information.....	2
Ordering Rosemount X-well™ Technology.....	7
Specifications.....	11
Product certifications.....	17
Dimensional drawings.....	17

Model codes

Model codes contain the details related to each product. Exact model codes will vary. An example of a typical model code is shown in [Figure 1](#).

Figure 1: Model Code Example

3144P D1 A 1 NA	M5 DA1 Q4
1	2

1. Required model components ⁽¹⁾

2. Additional options ⁽²⁾

Specifications and options

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See the Material selection section for more information.

When ordering Rosemount X-well Technology, specific option codes are required. See [Ordering Rosemount X-well™ Technology](#) for more information.

Optimizing lead time

The starred offerings (★) represent the most common options and should be selected for the fastest delivery. The non-starred offerings are subject to additional delivery lead time.

Required model components

Model

Code	Description	
648	Temperature transmitter	★

Transmitter type

Code	Description	
D	Wireless field mount	★

Transmitter output

Code	Description	
X	Wireless	★

(1) Choices available on most.

(2) Variety of features and functions that may be added to products.

Measurement configuration

Code	Description	
1	Single-sensor input	★
3	Rosemount X-well™ Technology assembly for non-intrusive measurement (with sensor and mounting) ⁽¹⁾	
4	Single/dual input temperature with X-well Technology capability (transmitter only)	

(1) See [Ordering Rosemount X-well™ Technology](#).

Housing style

Code	Description	Material	
D	Dual-compartment housing	Aluminum	★
E	Dual-compartment housing	SST	★

Conduit entry size

Code	Description	
1	½-14 NPT	★

Product certifications

Code	Description	
NA	No approval	★
I5	USA Intrinsically Safe, Non-Incendive, and Dust Ignition-proof	★
N5	USA Non-Incendive and Dust Ignition-proof	★
I6	Canada Intrinsically Safe	★
I1	ATEX Intrinsic Safety	★
I7	IECEx Intrinsic Safety	★
I2	Brazil Intrinsic Safety	★
I4	Japan Intrinsic Safety	★
I3	China Intrinsic Safety	★
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	★
KQ	USA, Canada, ATEX Intrinsic Safety Combination (combination of I1, I5, and I6)	★
IP	Korea Intrinsic Safety	★
IW	India Intrinsic Safety	★

Wireless options

Assemble to options

Code	Description	
XA ⁽¹⁾	Sensor specified separately and assembled to transmitter	★
XC	Hand tight assembly of a transmitter and sensor	★

(1) When ordering the XA option, a mounting bracket is not included. If a bracket is required, please order option code B5.

Wireless update rate

Code	Description	
WA3	User configurable update rate, 2.4 GHz DSSS, IEC 62591 (WirelessHART)	★

Wireless antenna and SmartPower

Black power module must be shipped separately; order Model 701PBKKF or Part #00753-9220-0001.

Code	Description	
WK1	External antenna, adapter for Black Power Module (I.S. Power Module sold separately)	★
WK2	External antenna, extra long life power module adapter, Intrinsically Safe	★
WM1	Extended range, external antenna, adapter for Black Power Module (I.S. Power Module sold separately)	
WM2	Extended range, external antenna, extra long life power module adapter, Intrinsically Safe	

Mounting bracket

Code	Description	
B5	"L" mounting bracket for 2-in. pipe and panel mounting - All SST	★

Display

Code	Description	
M5	LCD display	★

Software configuration

Code	Description	
C1	Custom configuration of date, descriptor, message, and wireless parameters (requires CDS with order)	★

Line filter

Code	Description	
F5	50 Hz line voltage filter	★
F6	60 Hz line voltage filter	★

Sensor trim

Code	Description	
C2	Transmitter-sensor matching - trim to specific Rosemount RTD calibration schedule (CVD Constants)	★

5-Point calibration

Code	Description	
C4	5-point calibration (requires Q4 option code to generate a Calibration Certificate)	★

Calibration certificate

Code	Description	
Q4	Calibration certificate (3-point calibration)	★

Cable gland option

Code	Description	
G2	Cable gland (0.30 in. (7.5 mm) – 0.47 in. (11.9 mm))	★
G4	Thin wire cable gland (0.12 in. (3 mm) – 0.31 in. (8 mm))	★

Extended product warranty

Code	Description	
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Cold temperature

Code	Description	
BR5	Cold temperature operation: -60 °F (-51 °C)	★

Ordering Rosemount X-well™ Technology

X-well Technology provides a Complete Point Solution™ for accurately measuring process temperature in monitoring applications without the requirement of a thermowell or process penetration.



- Simplify temperature measurement point specification, installation, and maintenance and eliminate possible leak points.
- Calculate a repeatable and accurate process temperature measurement with an in-transmitter thermal conductivity algorithm.
- Measure pipe surface and secondary temperatures while using the thermal conductivity properties of the installation and process piping to provide an accurate process measurement.

Required model components

Model

Code	Description	
648	Temperature transmitter	★

Transmitter type

Code	Description	
D	Wireless field mount	★

Transmitter output

Code	Description	
X	Wireless	★

Measurement configuration

Code	Description	
3	Rosemount X-well Technology assembly for non-intrusive measurement (with sensor and mounting)	★

Code	Description	
4	Single/dual input temperature with X-well Technology capability (transmitter only)	★

Housing style

Code	Description	Material	
D	Dual-compartment housing	Aluminum	★
E	Dual-compartment housing	SST	★

Conduit entry size

Code	Description	
1	¼–14 NPT	★

Product certifications

Code	Description	
NA	No Approval	★
I5	USA Intrinsically Safe, Non-Incendive	★
I6	Canada Intrinsically Safe	★
I1	ATEX Intrinsic Safety	★
I7	IECEx Intrinsic Safety	★

Wireless update rate

Code	Description	
WA3	User configurable update rate, 2.4 GHz DSSS, IEC 62591 (<i>WirelessHART</i>)	★

Wireless antenna and SmartPower

Code	Description	
WK1	External antenna, adapter for Black Pwer Module (I.S. power module sold separately)	★
WK2	External antenna, extra long life power module adapter, Intrinsically Safe	★
WM1	Extended range, external antenna, adapter for Black Power Module (I.S. power module sold separately)	
WM2	Extended range, eternal antenna, extra long life power module adapter, Intrinsically Safe	

Rosemount X-well™ process temperature range

Code	Sensor type	Process temperature range	Transmitter mounting style
TR1	Standard range	–58 to +572 °F (–50 to +300 °C)	Direct

Rosemount X-well pipe mount design

Code	Description	Pipe size range (nominal)	Pipe size range (DIN)	
PM1	Small Pipe Mount	½ to 1 ½ in.	DN15 to DN40	★
PM2	Universal Pipe Mount	2 to 60 in.	DN50 to DN1500	★
PM9	Universal Pipe Mount, no banding	2 to 60 in.	DN50 to DN1500	★

Rosemount X-well pipe mount material

Code	X-well pipe mount material	
MC1	316 Stainless steel (SST)	★

Rosemount X-well pipe size

Required with pipe mount design PM1 or PM2.

Code	Suitable pipe sizes (diameter)			
	Inches	DIN	Millimeters	
S005	½ in.	DN15	22 mm	★
S007	¾ in.	DN20	27 mm	★
S010	1 in.	DN25	34 mm	★
S012	1 ¼ in.	DN32	43 mm	★
S015	1 ½ in.	DN40	49 mm	★
S020	2 in.	DN50	61 mm	★
S025	2 ½ in.	DN65	77 mm	★
S030	3 in.	DN80	89 mm	★
S040	4 in.	DN100	115 mm	★
S050	5 in.	DN125	140 mm	★
S060	6 in.	DN150	169 mm	★
S080	8 in.	DN200	220 mm	★
S100	10 in.	DN250	273 mm	★
S120	12 in.	DN300	324 mm	★
S140	14 in.	DN350	356 mm	★
S160	16 in.	DN400	407 mm	★
S180	18 in.	DN450	458 mm	★
S200	20 in.	DN500	508 mm	★
S240	24 in.	DN600	610 mm	★
S260	26 in.	DN650	660 mm	★
S300	30 in.	DN750	462 mm	★
S320	32 in.	DN790	813 mm	★
S360	36 in.	DN900	915 mm	★
S400	40 in.	DN1000	1016 mm	★
S420	42 in.	DN1050	1070 mm	★

Code	Suitable pipe sizes (diameter)			
	Inches	DIN	Millimeters	
S480	48 in.	DN1200	1219 mm	★
S520	52 in.	DN1300	1321 mm	★
S560	56 in.	DN1400	1423 mm	★
S600	60 in.	DN1500	1524 mm	★

Additional options

Rosemount X-well corrosion protection inlay

Corrosion protection inlay placed between mount and pipe prevents galvanic corrosion between dissimilar metals.

Code	Description	
P1	Corrosion protection inlay – material NBR	

Retrofit kit

Code	Description	
R9	Universal Pipe Mount to Small Pipe Mount retrofit kit	★

Display

Code	Description	
M5	LCD display	★

Software configuration

NOTICE

Required for Rosemount X-well factory configuration of specific pipe characteristics.

Code	Description	
C1	Custom configuration of date, descriptor, message, and wireless parameters (requires CDS with order)	★

Line filter

Code	Description	
F5	50 Hz line voltage filter	★
F6	60 Hz line voltage filter	★

5-Point calibration

Code	Description	
C4	5-point calibration (requires Q4 option code to generate Calibration Certificate)	

Calibration certificate

Code	Description	
Q4	Calibration certificate (3-point calibration)	★

Cable gland option

Code	Description	
G2	Cable gland (0.30 in. to 0.47 in. (7.5 mm to 11.9 mm))	
G4	Thin wire cable gland (0.12 in. to 0.31 in. (3 mm to 8 mm))	

Extended product warranty

Code	Description	
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Specifications

Physical specifications

Material selection

Emerson provides a variety of Rosemount products with various options and configurations including materials of construction that can be expected to perform well in a wide range of applications. The Rosemount product information presented is intended as a guide for the purchaser to make an appropriate selection for the application. It is the purchaser's sole responsibility to make a careful analysis of all process parameters (such as all chemical components, temperature, pressure, flow rate, abrasives, contaminants, etc.), when specifying product, materials, options and components for the particular application. Emerson is not in a position to evaluate or guarantee the compatibility of the process fluid or other process parameters with the product, options, configuration or materials of construction selected.

Conformance to specifications ($\pm 3\sigma$ [Sigma])

Technology leadership, advanced manufacturing techniques, and statistical process control ensure specification conformance to at least $\pm 3\sigma$.

Electrical connections

Power module

The Emerson SmartPower™ Power Module is field replaceable, featuring keyed connections that eliminate the risk of incorrect installation.

The power module is an Intrinsically Safe solution, containing Lithium-thionyl chloride with a Polybutadine Terephthalate (PBT) enclosure.

The Rosemount 648 Wireless has power module life time rating of 10 years with a one-minute update rate at reference conditions.⁽³⁾

Sensor terminals

Sensor terminals permanently fixed to terminal block.

Field Communicator connections

Communication terminals

Clips permanently fixed to terminal block, designated by the text "COMM."

Materials of construction

Enclosure

Housing	Low-copper aluminum or stainless steel
Paint	Polyurethane
Cover O-ring	Buna-N

Terminal block and power module

Polybutadiene terephthalate (PBT)

Antenna

PBT/Polycarbonate (PC) integrated omnidirectional antenna

Mounting

Transmitters may be attached directly to the sensor. Mounting brackets also permit remote mounting. See [Dimensional drawings](#).

Weight

- **Low-copper aluminum**
 - Rosemount 648 without LCD display – 4.1 lb (1.9 kg)
 - Rosemount 648 with M5 LCD display – 4.2 lb (2.0 kg)
- **Stainless steel**
 - Rosemount 648 without LCD display – 8.0 lb (3.5 kg)
 - Rosemount 648 with M5 LCD display – 8.1 lb (3.6 kg)

Enclosure ratings

Housing style option codes D and E are type 4X and IP66/67 rated dual-compartment housings.

Functional specifications

Input

Supports thermocouple, RTD, millivolt, and ohm input types. See [Table 2](#) for sensor options.

(3) Reference conditions are 70 °F (21 °C) and routing data for three additional network devices.

NOTE: Continuous exposure to ambient temperature limits (–40 or 185 °F; –40 or 85 °C) may reduce specified life by less than 20 percent.

Output

IEC 62591 (*WirelessHART*), 2.4 GHz DSSS

Local display

The optional five-digit integral LCD display can display sensor temperature in engineering units (°F, °C, °R, K, Ω, and millivolts) and percent of range. The display updates based on the wireless update rate.

Humidity limits

0 to 99% non-condensing relative humidity

Update rate

WirelessHART, user-selectable one second to 60 minutes

Accuracy

(Pt 100 at reference condition: 20 °C) ±0.225 °C (±0.405 °F)

Radio frequency power output from antenna

External antenna (WK1 option): Maximum of 10 mW (10 dBm) EIRP

Performance specifications

Electromagnetic compatibility (EMC)

All models meet all relevant requirements of EN 61326-1; 2006; EN 61326-2-3; 2006

Transmitter stability

±0.15% of output reading or 0.15 °C (whichever is greater) for 24 months.

Self calibration

The analog-to-digital measurement circuitry automatically self-calibrates for each temperature update by comparing the dynamic measurement to extremely stable and accurate internal reference elements.

Vibration effect

Tested to the following with no effect on performance per IEC 60770-1, 1999:

High vibration level - field or pipeline (10–60 Hz 0.21 mm displacement peak amplitude/60–2000 Hz 3 g).

Frequency	Acceleration
10-60 Hz	0.21 mm peak displacement
60-2000 Hz	3 g

Figure 2: Sensor Connections

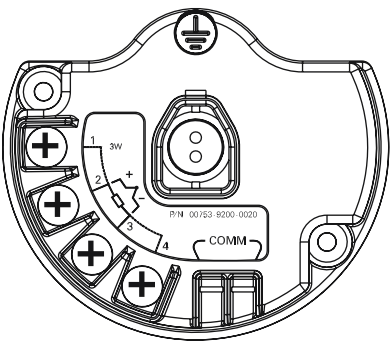
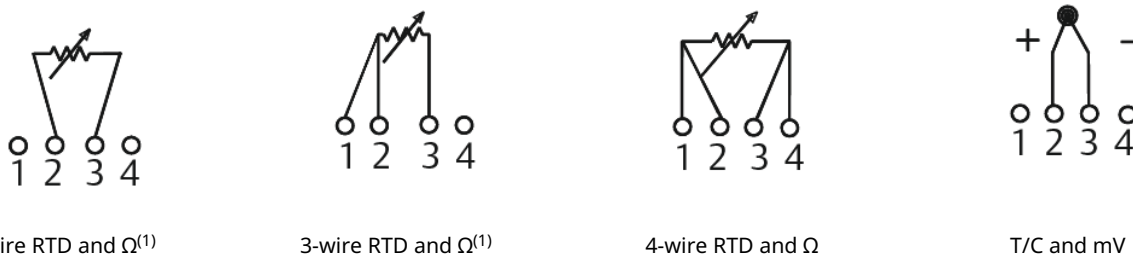


Figure 3: Rosemount 648 Wireless Sensor Connections

(1) Emerson provides 4-wire sensors for all single element RTDs. You can use these RTDs in 3- or 2-wire configurations by leaving the unused leads disconnected and insulated with electrical tape.

Table 1: Temperature Limits

Description	Operating limit	Storage limit
Without LCD display	-40 to 185 °F -40 to 85 °C	-40 to 185 °F -40 to 85 °C
With LCD display	-4 to 175 °F -20 to 80 °C	-40 to 185 °F -40 to 85 °C

NOTICE

For more information on Rosemount X-well™ Technology, refer to the [Rosemount X-well Technology Product Data Sheet](#).

Table 2: Rosemount 648 Wireless Input Options and Accuracy

Sensor options	Sensor reference	Input ranges		Digital accuracy ⁽¹⁾	
2-, 3-, 4-wire RTDs		°C	°F	°C	°F
Pt 100 (α = 0.00385)	IEC 751	−200 to 850	−328 to 1562	±0.225	±0.405
Pt 200 (α = 0.00385)	IEC 751	−200 to 850	−328 to 1562	±0.405	±0.729
Pt 500 (α = 0.00385)	IEC 751	−200 to 850	−328 to 1562	±0.285	±0.513
Pt 1000 (α = 0.00385)	IEC 751	−200 to 300	−328 to 572	±0.285	±0.513
Pt 100 (α = 0.003916)	JIS 1604	−200 to 645	−328 to 1193	±0.225	±0.405
Pt 200 (α = 0.003916)	JIS 1604	−200 to 645	−328 to 1193	±0.405	±0.729
Ni 120	Edison Curve No. 7	−70 to 300	−94 to 572	±0.225	±0.405
Cu 10	Edison Copper Winding No. 15	−50 to 250	−58 to 482	±2.1	±3.78
Pt 50 (α = 0.00391)	GOST 6651-94	−200 to 550	−328 to 1022	±0.45	±0.81
Pt 100 (α = 0.00391)	GOST 6651-94	−200 to 550	−328 to 1022	±0.225	±0.405
Cu 50 (α = 0.00426)	GOST 6651-94	−50 to 200	−58 to 392	±0.72	±1.296
Cu 50 (α = 0.00428)	GOST 6651-94	−185 to 200	−301 to 392	±0.72	±1.296
Cu 100 (α = 0.00426)	GOST 6651-94	−50 to 200	−58 to 392	±0.36	±0.648
Cu 100 (α = 0.00428)	GOST 6651-94	−185 to 200	−301 to 392	±0.36	±0.648
Thermocouples ⁽²⁾					
Type B ⁽³⁾	NIST Monograph 175, IEC 584	100 to 1820	212 to 3308	±1.155	±2.079
Type E	NIST Monograph 175, IEC 584	−200 to 1000	−328 to 1832	±0.30	±0.54

Table 2: Rosemount 648 Wireless Input Options and Accuracy (continued)

Sensor options	Sensor reference	Input ranges		Digital accuracy ⁽¹⁾	
Type J	NIST Monograph 175, IEC 584	-180 to 760	-292 to 1400	±0.525	±0.945
Type K ⁽⁴⁾	NIST Monograph 175, IEC 584	-180 to 1372	-292 to 2501	±0.75	±1.35
Type N	NIST Monograph 175, IEC 584	-200 to 1300	-328 to 2372	±0.75	±1.35
Type R	NIST Monograph 175, IEC 584	0 to 1768	32 to 3214	±1.125	±2.025
Type S	NIST Monograph 175, IEC 584	0 to 1768	32 to 3214	±1.05	±1.89
Type T	NIST Monograph 175, IEC 584	-200 to 400	-328 to 752	±0.525	±0.945
DIN type L	DIN 43710	-200 to 900	-328 to 1652	±0.525	±0.945
DIN type U	DIN 43710	-200 to 600	-328 to 1112	±0.525	±0.945
Type W5Re/W26Re	ASTM E 988-96	0 to 2000	32 to 3632	±1.05	±1.89
GOST L	GOST R 8.585-2001	-200 to 800	-328 to 1472	±0.525	±0.945
Other input types					
Millivolt input		-10 to 100 mV		±0.0225 mV	
2-, 3-, 4-wire Ohm input		0 to 2000 ohms		±0.675 ohm	

(1) The published digital accuracy applies over the entire sensor input range. Digital output can be accessed by HART® Communications or WirelessHART.

(2) Total digital accuracy for thermocouple measurement: sum of digital accuracy +0.8 °C. (cold junction accuracy).

(3) Digital accuracy for NIST Type B T/C is ±4.5 °C (±8.1 °F) from 100 to 300 °C (212 to 572 °F).

(4) Digital accuracy for NIST Type K T/C is ±1.05 °C (±1.895 °F) from -180 to -90 °C (-292 to -130 °F).

Table 3: Ambient Temperature Effect on Digital Accuracy

Sensor options	Sensor reference	Effects per 1.8 °F (1.0 °C) change in ambient temperature ⁽¹⁾⁽²⁾	Input temperature (T)
2-, 3-, 4-wire RTDs			
Pt 100 (α = 0.00385)	IEC 751	0.0081 °F (0.0045 °C)	Entire sensor input range
Pt 200 (α = 0.00385)	IEC 751	0.0108 °F (0.006 °C)	Entire sensor input range
Pt 500 (α = 0.00385)	IEC 751	0.0081 °F (0.0045 °C)	Entire sensor input range
Pt 1000 (α = 0.00385)	IEC 751	0.0081 °F (0.0045 °C)	Entire sensor input range
Pt 100 (α = 0.003916)	JIS 1604	0.0108 °F (0.006 °C)	Entire sensor input range
Pt 200 (α = 0.003916)	JIS 1604	0.0108 °F (0.006 °C)	Entire sensor input range
Ni 120	Edison Curve No. 7	0.0081 °F (0.0045 °C)	Entire sensor input range
Cu 10	Edison Copper Winding No. 15	0.081 °F (0.045 °C)	Entire sensor input range
Pt 50 (α = 0.003910)	GOST 6651-94	0.0162 °F (0.009 °C)	Entire sensor input range
Pt 100 (α = 0.003910)	GOST 6651-94	0.0081 °F (0.0045 °C)	Entire sensor input range
Cu 50 (α = 0.00426)	GOST 6651-94	0.0162 °F (0.009 °C)	Entire sensor input range
Cu 50 (α = 0.00428)	GOST 6651-94	0.0162 °F (0.009 °C)	Entire sensor input range
Cu 100 (α = 0.00426)	GOST 6651-94	0.0081 °F (0.0045 °C)	Entire sensor input range
Cu 100 (α = 0.00428)	GOST 6651-94	0.0081 °F (0.0045 °C)	Entire sensor input range
Thermocouples			
Type B	NIST Monograph 175, IEC 584	0.021 °C	T ≥ 1000 °C
		0.048 °C - [0.00375% of (T - 300)]	300 °C ≤ T < 1000 °C

Table 3: Ambient Temperature Effect on Digital Accuracy (continued)

Sensor options	Sensor reference	Effects per 1.8 °F (1.0 °C) change in ambient temperature ⁽¹⁾⁽²⁾	Input temperature (T)
		0.081 °C – [0.0165% of (T – 100)]	100 °C ≤ T << 300 °C
Type E	NIST Monograph 175, IEC 584	0.0075 °C +(0.000645% of T)	All
Type J	NIST Monograph 175, IEC 584	0.0081 °C +(0.000435% of T)	T ≥ 0 °C
		0.0081 °C + (0.00375% of absolute value T)	T < 0 °C
Type K	NIST Monograph 175, IEC 584	0.0092 °C +(0.00081% of T)	T ≥ 0 °C
		0.0092 °C + (0.00375% of absolute value T)	T < 0 °C
Type N	NIST Monograph 175, IEC 584	0.0102 °C +(0.00054% of T)	All
Type R	NIST Monograph 175, IEC 584	0.024 °C	T ≥ 200 °C
		0.0345 °C – (0.0108% of T)	T < 200 °C
Type S	NIST Monograph 175, IEC 584	0.024 °C	T ≥ 200 °C
		0.0345 °C – (0.0108% of T)	T < 200 °C
Type T	NIST Monograph 175, IEC 584	0.0096 °C	T ≥ 0 °C
		0.0096 °C +(0.00645% of absolute value T)	T < 0 °C
DIN type L	DIN 43710	0.0081 °C + (0.000435% of T)	T ≥ 0 °C
		0.0081 °C +(0.00375% of absolute value T)	T < 0 °C
DIN type U	DIN 43710	0.0096 °C	T ≥ 0 °C
		0.0096 °C +(0.00645% of absolute value T)	T < 0 °C
Type W5Re/W26Re	ASTM E 988-96	0.024 °C	T ≥ 200 °C
		0.0345 °C – (0.0108% of T)	T < 200 °C
GOST L	GOST R. 8.585-2001	0.0105 °C	T ≥ 0 °C
		0.0105 °C + (0.0045% of absolute value T)	T < 0 °C
Other input types			
Millivolt input		0.0008 mV	Entire sensor input range
2-, 3-, 4-wire Ohm input		0.0126 Ω	Entire sensor input range

(1) Ambient temperature effect specification valid over minimum temperature span of 50 °F (28 °C).

(2) Change in ambient is with reference to the calibration temperature of the transmitter 68 °F (20 °C) from factory.

Transmitters can be installed in locations where the ambient temperature is between –40 and 185 °F (–40 and 85 °C). In order to maintain excellent accuracy performance, each transmitter is individually characterized over this ambient temperature range at the factory.

Temperature effects example

When using a Pt 100 (α = 0.00385) sensor input at 30 °C ambient temperature:

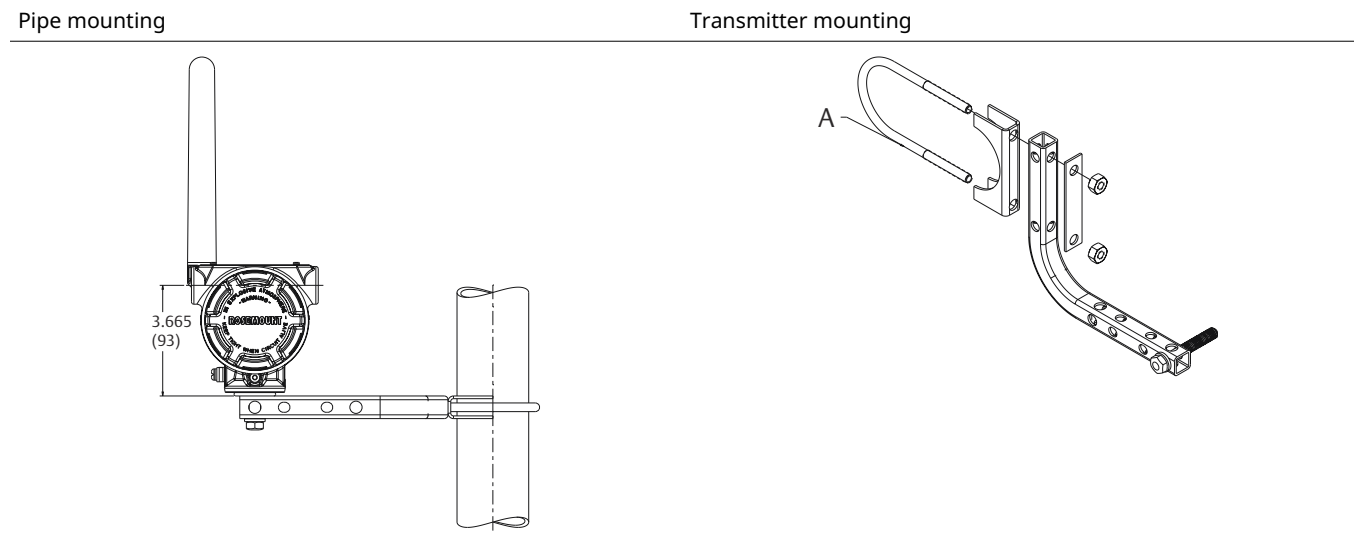
- Digital temperature effects: 0.0045 °C x (30 – 20) = 0.045 °C
- Worst case error: Digital + Digital temperature effects = 0.225 °C + 0.045 °C = 0.27 °C
- Total probable error: $\sqrt{0.225^2 + 0.045^2} = 0.23$ °C

Product certifications

For Rosemount 648 Wireless product certifications, see the [Rosemount 648 Wireless Temperature Transmitter Quick Start Guide](#).

Dimensional drawings

Figure 4: Rosemount 648 Wireless Remote Mount



A. 2-in. U-bolt for pipe mounting

Note

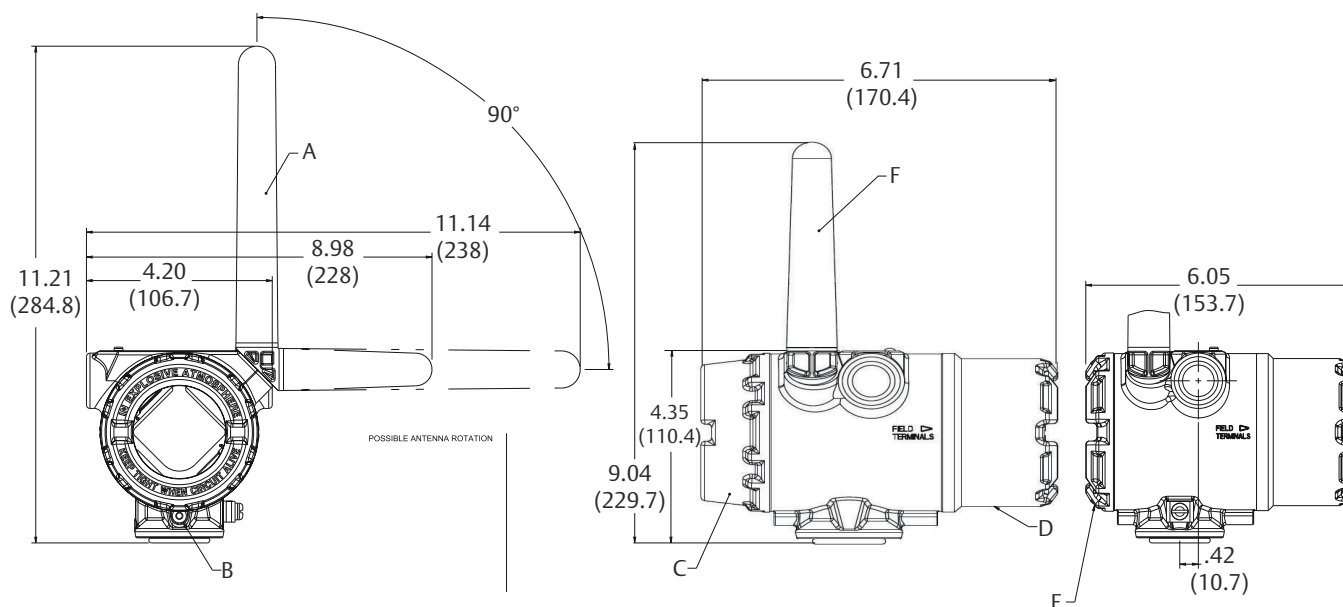
Dimensions are in inches (millimeters).

Figure 5: Rosemount 648 Wireless Direct Mount

Shown with 2.4 GHz extended range antenna

Shown with optional digital display and 2.4 GHz antenna

Shown without optional digital display



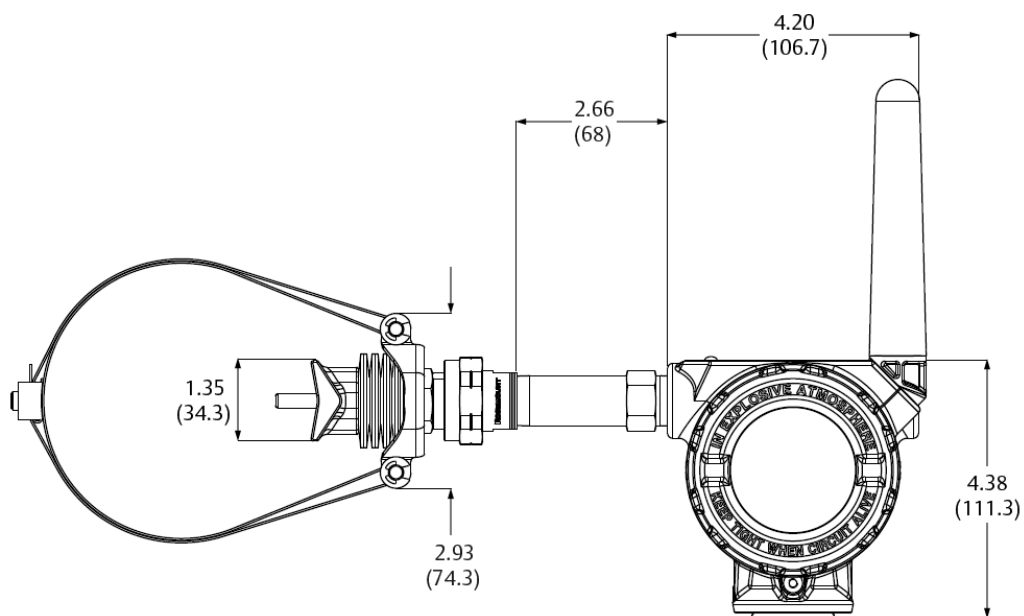
- A. 2.4 GHz extended range antenna
- B. Ground screw assembly
- C. Digital display cover

- D. Field terminal (this side)
- E. Transmitter electronics (this side)
- F. 2.4 GHz antenna

Note

Dimensions are in inches (millimeters).

Figure 6: Rosemount 648 with X-well Technology



Note

Dimensions are in inches (millimeters).

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