# Rosemount 5600 Series Radar Level Transmitter

- *Market leading sensitivity and unique signal processing features allow it to handle a wide range of process conditions*
- *High repeatability ensures an extremely reliable and accurate level transmitter, even in the toughest conditions*
- *Adjustable power supply, 24-240 V AC/DC, 0-60 Hz*
- *FOUNDATION™ fieldbus or analog 4-20 mA superimposed with HART®*
- *Interchangeable transmitter heads and antennas*
- *No moving parts*
- *Non-contacting radar eliminates interaction with the product*
- *Intelligent software support for easy configuration and setup*
- *Extensive selection of antennas and materials*

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# Legendary Rosemount Performance Customized For Your Level Process Applications

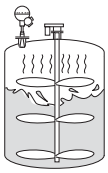
## Introduction

The Rosemount 5600 Series is an intelligent non-contacting radar level transmitter. Its high performance microprocessor allows for advanced signal processing and smart echo-tracking features. Together with its high sensitivity the radar transmitter can detect and evaluate all echoes within the tank or vessel. The 5600 Series support and assist the user to a successful configuration of the transmitter in process level applications, from easy to complex process situations.

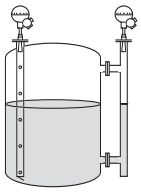
## Applications

The Rosemount 5600 uses state-of-the art microwave technology to get highest reliability and precision. It measures the level of liquids, slurries, and solids. The transmitter operates in a wide range of temperatures, pressures, vapor gas mixtures, and various process conditions.

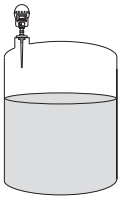
FIGURE 1. Rosemount 5600 Applications



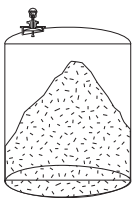
- Applications in process vessels with agitators require a radar transmitter with the 5600's high sensitivity and advanced signal processing to separate the measuring signal from noise created by disturbances.



- Still-pipe or bridle mounting is recommended for LPG applications, where the surface is sometimes boiling, and for some extremely turbulent conditions. The pipe reduces foam and turbulence and also increases surface reflection.



- The Rod antenna is suitable for small nozzle openings on tanks with short measuring range.



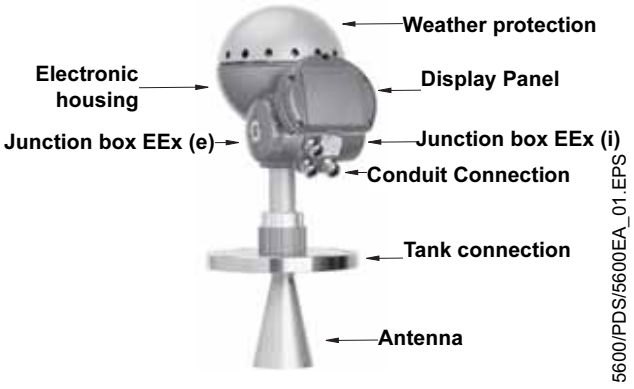
- With the parabolic antenna the 5600 Series is suitable for measurement of various types of solid materials (example: cement). Since solid materials quite often generate dusty environments inside their vessels and tanks, the parabolic antenna can be equipped with a protective PTFE cover which prevents dust from sticking to the transmitting portion of the antenna.

5600_PDS_BILD_11,_10,_09,_8

## Interchangeable Head

A 5600 Radar Level Transmitter consists of a Transmitter Head (TH) and a tank connection including antenna. The TH and the electronics inside are interchangeable without opening the tank.

FIGURE 2. Interchangeable Transmitter Head




## Antennas

**Rod Antenna**

- Suitable for tanks with small openings.
- Existing tank flange can be used as the tank connection.

**Cone Antenna**

- Suitable for free-propagation and pipe mounted installation.
- Cone extensions are available (see Figure 18 on page Level-16 and Table 13 on page Level-22).
- Optional Cone antennas with cleaning/flushing connection are available (see Figure 18 on page Level-16 and Table 14 on page Level-23).

**Process Seal Antenna**

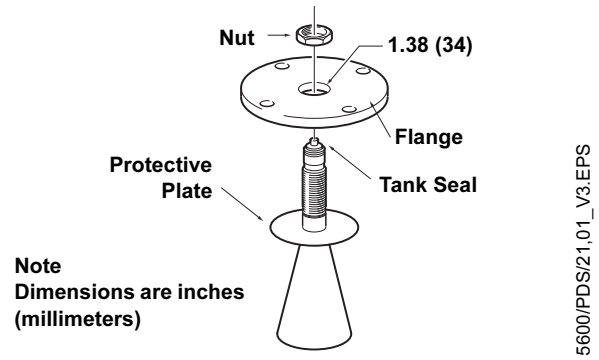
- The dish of the Process Seal is made of PTFE.
- Only exposes material suitable for hygienic or corrosive applications (see Figure 16 on page Level-15 and Table 11 on page Level-21).

**Parabolic Antenna**

- Suitable for solid materials (example: cement)
- Withstand heavy contamination
- Can be equipped with a PTFE protective cover to reduce the effects of dusty environments

## Plate Design

FIGURE 3. Plate Design




Cone and Rod antennas, except the Cone with Flushing Connection, are designed with a protective plate as shown in FIGURE 3.. The plate and antenna (stainless steel or optional material) together with the tank seal and o-rings (PTFE or Quartz) are the wetted parts exposed to the tank atmosphere. This allows the use of an existing flange, or a lower cost flange alternative. Loose flanges are available (Table 18 on page Level-25).

## Rosemount 2210 Display Unit

The Rosemount 2210 offers basic configuration using the 4 software keys on the display itself. Data presentation on the LCD can be customized and allows many viewing alternatives. The 2210 is also used if temperature sensors are to be connected to the 5600 Series. See Table 8 on page Level-18 for available versions.

## Electrical Connections

The transmitter has a power supply with an ultra-wide input range from 24 to 240 V AC or DC, 0-60 Hz.

The Transmitter Head has two separate junction boxes. One is for a non-intrinsically safe primary signal output and power supply cables. The other is normally used for intrinsically safe (IS) HART/analog outputs or optionally for a non-IS secondary analog output.

Primary Outputs can be HART or FOUNDATION fieldbus, either IS or Non-IS. The HART and secondary analog outputs can be either active or passive depending on required options.

## Mechanical Mounting

The 5600 radar transmitter is easily carried to the tank top and mounted on a suitable nozzle or pipe. The radar transmitter should be installed as follows:

- Antenna oriented perpendicular to a horizontal surface.
- The transmitter should be mounted with as few fittings as possible within the beam angle.
- Filling inlets creating turbulence should preferably be kept at a distance.
- Choose as large antenna diameter as possible. A larger diameter concentrates the radar beam and ensures maximum antenna gain. Increased antenna gain offers greater reflection of weak surface echoes.

FIGURE 4. Rosemount 5600 Beamwidth

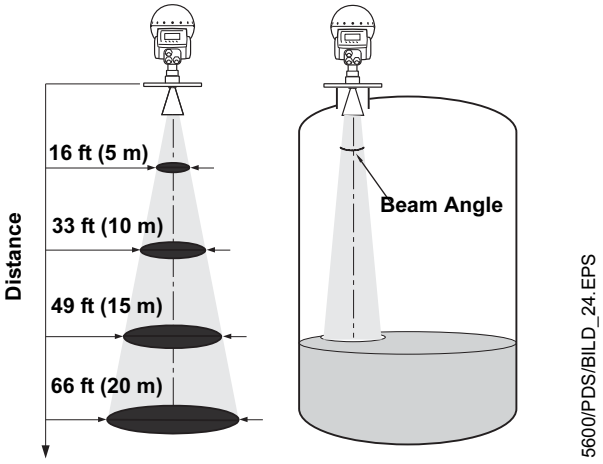
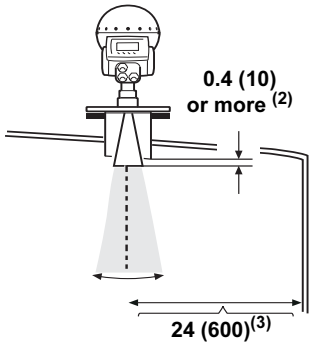



TABLE 1. Rosemount 5600 Beam Diameter and Angle

| Antenna Type & Beam Angle | Distance, ft (m) | | | |
|---|---|---|---|---|
| | 16 (5) | 33 (10) | 49 (15) | 66 (20) |
| | Beam Diameter, ft (m) | | | |
| Cone 3 in 25° | 7.2 (2.2) | 14 (4.4) | 22 (6.7) | 29 (8.9) |
| Rod/Cone 4 in/ Process Seal 4 inch 21° | 6.2 (1.9) | 12 (3.7) | 18 (5.6) | 24 (7.4) |
| Cone 6 in/ Process Seal 6 inch 18° | 5.2 (1.6) | 10 (3.1) | 15 (4.7) | 21 (6.3) |
| Cone 8 inch 15° | 4.3 (1.3) | 8.5 (2.6) | 13 (3.9) | 17 (5.3) |
| Parabolic 10° | 3.0 (0.9) | 5.6 (1.7) | 8.5 (2.6) | 11 (3.5) |

FIGURE 5. Preferred Mounting (1)




**(1) Dimensions are inches (millimeters).**

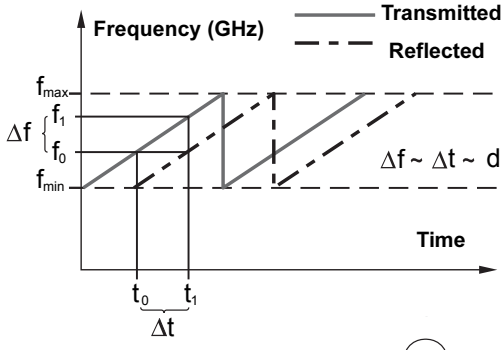
**(2) For best measurement performance the nozzle height should be shorter than the antenna or consider an extended cone (FIGURE 18.) for your current transmitter.**

**(3) Recommended minimum distance for all antennas. (Shorter distance may apply, consult factory).**

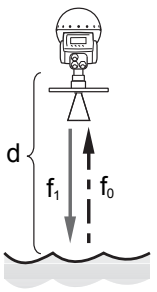
## Measurement Principle

The level of the product in the tank is measured by radar signals transmitted from the antenna at the tank top. After the radar signal is reflected by the product surface the echo is picked up by the antenna. As the signal is varying in frequency the echo has a slightly different frequency compared to the signal transmitted at that moment. The difference in frequency is proportional to the distance to the product surface, and can be accurately calculated. This method is called FMCW (Frequency Modulated Continuous Wave) and is used in all high performance radar transmitters.

FIGURE 6. Frequency Modulated Continuous Wave




**The FMCW method is based on a radar sweep with continuous changes in frequency.**



## Measuring Range

The diagrams below show how the measuring range is influenced by the antenna type, dielectric constant of the liquid ($\varepsilon_r$) and the process conditions. For optimum performance the maximum measuring distance should be kept within the range indicated with darker color in the diagrams. Values are valid for free propagation measurement without still-pipes (bridles).

For liquids with $\varepsilon_r$ that are smaller than 1.8 such as liquefied gases, an 8 inch or bigger diameter antenna is recommended if measurement is done with free propagation. In this case the measuring range in calm surface tanks is 50 ft (15 m).

To increase the measuring range further in turbulent tanks, a still-pipe can be used. For still-pipe mounted 5600 transmitters the typical measuring range is 115-160 ft (35-50 m) in turbulent tanks with liquids having $\varepsilon_r$ less than 1.8.

The 5600 transmitter installed in a pipe can measure products with a dielectric ≥1.4.

| TABLE 2. Categories of liquids | |
|---|---|
| a | Oil, gasoline and other hydrocarbons, petrochemicals (dielectric constant, $\varepsilon_r$=1.9-4.0) |
| b | Alcohols, concentrated acids, organic solvents, oil/water mixtures and acetone ($\varepsilon_r$=4.0-10) |
| c | Conductive liquids, e.g. water based solutions, dilute acids and alkalis ($\varepsilon_r$ > 10) |

FIGURE 7. Applications with calm product surface(1)

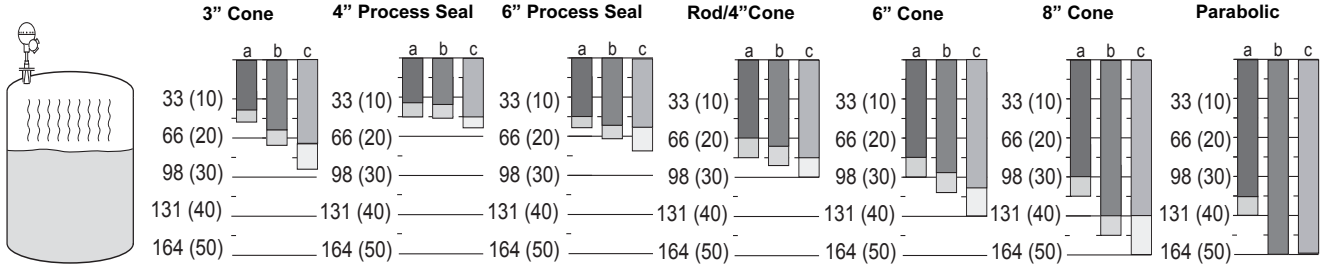



FIGURE 8. Applications where the product is gently stirred, causing minor turbulence(1)

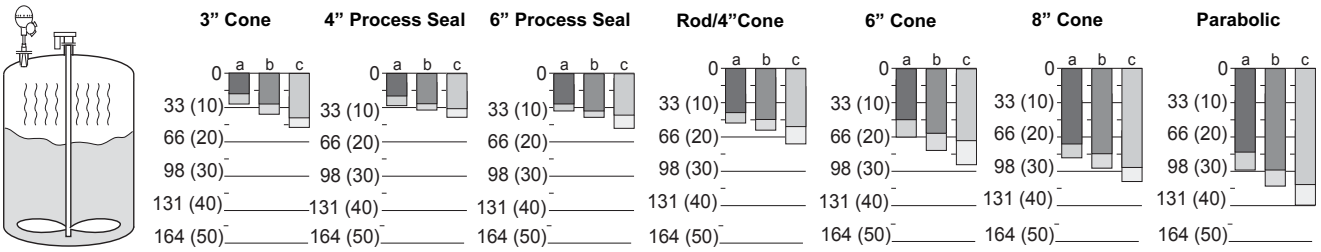
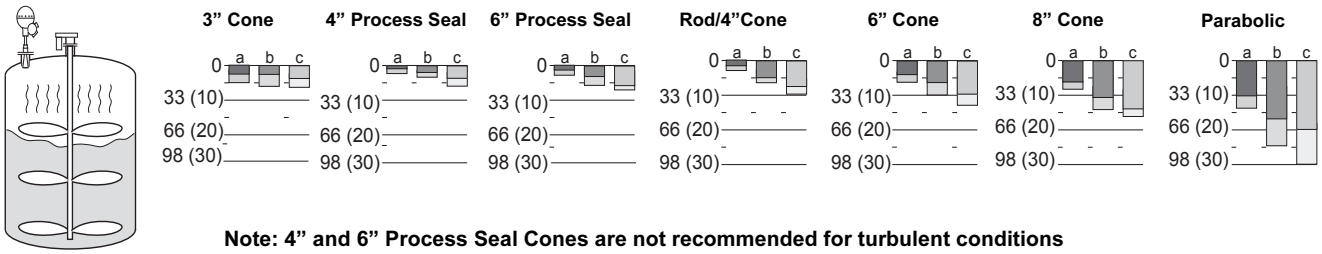



FIGURE 9. Applications with turbulent product surface conditions(1)




**Note: 4" and 6" Process Seal Cones are not recommended for turbulent conditions**

*(1) Measuring range in ft (m).*

# System Integration

Level values are transmitted from the transmitter as analog 4-20 mA signals superimposed with HART or FOUNDATION™ fieldbus. The analog outputs are either passive for connection to powered cables or active providing signal power for 4-20 mA. Analog outputs can also be specified as intrinsically safe or non-intrinsically safe.

Basic configuration and setup can be done on a HART communicator, via the 2210 Display Unit, AMS, DeltaV, or any other FOUNDATION fieldbus/HART host applications (control systems).

Rosemount Radar Master is a PC based software package which allows for full configuration, including advanced features such as Spectra plots, offline/online configuration capabilities, logging, extensive online help, etcetera. To communicate with the device using Radar Master either a HART or Modbus Modem (RS485 Sensor Bus Port) is required for the PC. For fieldbus devices Radar Master can only be connected to the Sensor Bus Port (see list of Modems on page Level-25).

The Rosemount 5600 is a core component of the PlantWeb digital plant architecture.

FIGURE 10. System Integration using the HART Communicator

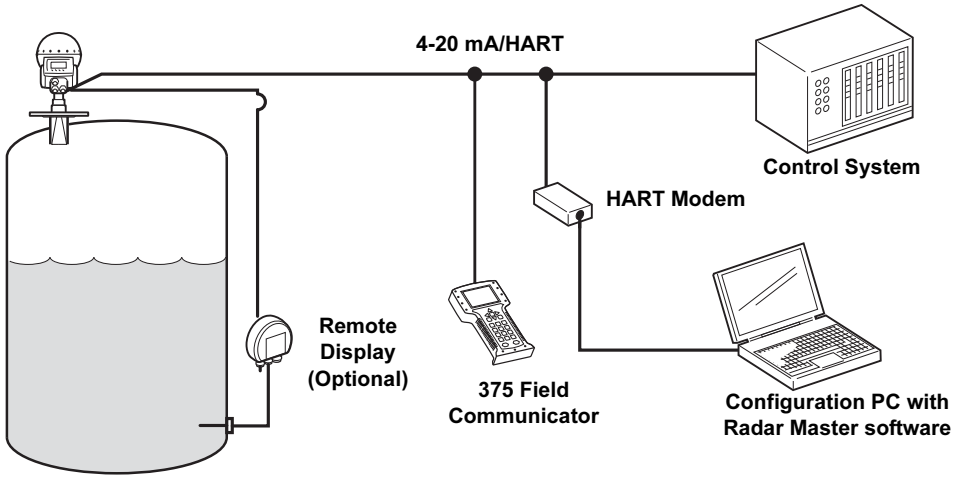
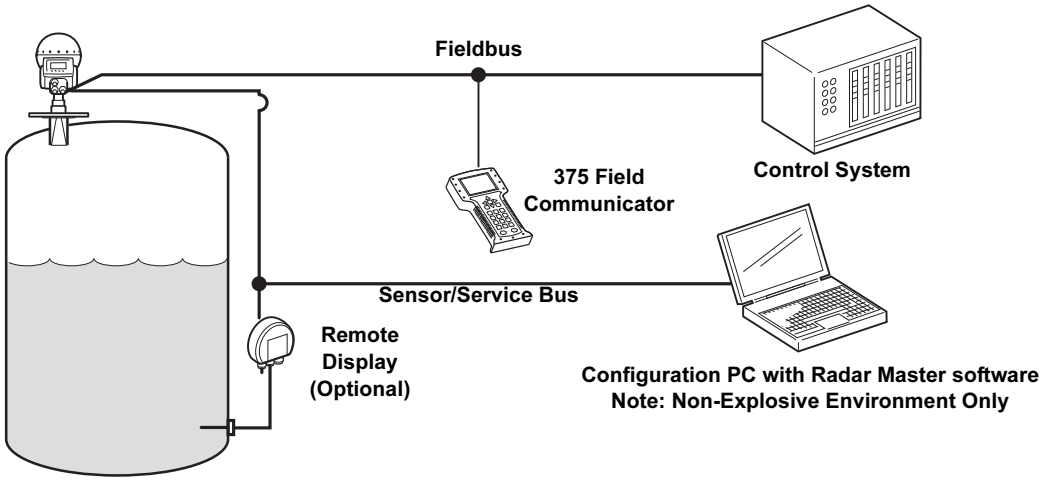



FIGURE 11. System Integration FOUNDATION fieldbus



# Specifications

## GENERAL

### Product Designation

5600 Series Radar Level Transmitter

### Operating Principle

10GHz FMCW radar

### Beam Angle

See Figure 2-12. and Table 2-3 on page 2-9

### Microwave Output Power

Max 1.0 mW

### Internal Calibration

Internal digital reference for automatic compensation of radar sweep

### Signal Processing

Powerful and advanced digital signal processing using FFT and advanced echo handling software

## MEASURING PERFORMANCE

### Instrument Accuracy (Under reference conditions)

±0.2 in. (±5 mm)

**Reference Conditions**
Metal plate with no disturbing objects
Temperature: 68 °F (20 °C).
Pressure: 14 - 15 psi (960 - 1060 mbar).
Humidity: 25 - 75% RH.
Reference Measuring Range: 1.64 - 98 ft. (0.5 - 30 m)

### Resolution

0.04 in (1 mm)

### Temperature Stability

±500 ppm of measured distance within the ambient temperature range

### Repeatability

±0.04 in (±1 mm)

### Measuring Range

0-164 ft. (0-50 m) Standard

0 - 324 ft. (0 - 99 m) Optional, requires special configuration

### Update Time

100 ms

### Processors

32-bit Floating DSP

## CONFIGURATION

### HART Device

Configure the device using Rosemount Radar Master, a powerful and interactive Windows-based configuration tool, which is enclosed with each order. A HART Modem is required for the PC to communicate with the device.

Recommended PC Hardware Specification: ≥ 1 GHz processor, ≥ 128 MbRam, and Operating System of Windows 2000, XP, or NT.

Alternative Configuration Tools:
Emerson Process Management 375 Field Communicator, Emerson Process Management AMS software, or many of the other HART hosts that supports DD technology.

### FOUNDATION™ fieldbus Device

Configuration of a fieldbus device can be done via DeltaV, or the 375 Field Communicator, or by hosts that support FOUNDATION™ fieldbus and DD technology.

Radar Master may also be used for 5600 fieldbus devices, but only using the Sensor Bus Port connection.See below.

### Sensor Bus Port

Configuration is also available with Radar Master via the 5600 device Sensor Bus Port Connection. This port is available for both HART and Fieldbus devices. Connect the PC directly to the transmitter using a RS485 (Modbus) modem.

Note that this connection is only allowed in a Non-Explosive environment. See Figure 11 on page Level-6. A proven RS485 Modem and the part number is listed in Table 17 on page Level-25.

## DISPLAY

### Display (factory mounted on transmitter)

Protection class IP67
With weather/dirt protection cover; graphical LCD display 128 by 64 pixels with 4 control soft-keys and 7 text lines with 16 characters/line for display and configuration.

### Display (remote mounted)

Same as above, mounted in separate enclosure, protection class IP67; max cable length, display - radar transmitter: 330 ft. (100 m); cable type: 4 wire shielded instrument cable, min. 0.5 $mm^2$, (AWG 20).

### Display with Temperature Inputs (remote mounted)

Same as above, mounted in separate enclosure, protection class IP67; max cable length, display - radar transmitter: 330 ft (100 m); cable type: 4 wire shielded instrument cable, min. 0.5 $mm^2$, (AWG 20); temperature measurement 1-3 spot elements PT100 or CU100, or 6 spot elements with common return.

## ELECTRICAL

### Power Supply
Ultra wide power supply 24-240 V AC or DC 0-60 Hz

**NOTE**
Minimum power required at transmitter power terminals is 20 V

### Power Consumption
Maximum 10 W, Nominal 5 W

### Transmitter Cable Entries
3 × 1/2 inch NPT; for cable glands or conduit entries
Optional: 1/2 inch NPT Cable Gland Kit
Optional: 1/2 inch NPT/ M20 Adapters (Set of 3)

### Remote 2210 Display Unit Cable Entries
2x M20 Entries
1x M25 Entry

### Output Cabling
Twisted and shielded pair; min. 0.5 $mm^2$ (AWG 20)

### Outputs

**Primary Output:**
Alternative 1: HART® + 4-20 mA current loop (non-IS or IS option)
Alternative 2: FOUNDATION™ fieldbus (non-IS or IS option)

**Secondary Outputs:**
Analog 4-20 mA current loop (Optional)

### Analog Output Characteristics

**Type**
Analog 4-20 mA Current Loop, active (with power supplied by the 5600) or passive (for loop-supplied power)

**Galvanic Isolation**
> 1500 V RMS or DC

**Analog Output Characteristics**
See Product Certifications on page Level-11

**Alarm Level**
Standard: Low=3.8 mA, High=22 mA or freeze,
NAMUR NE43: High=22.50 mA,
Rosemount: Low=3.75 mA

Accuracy
±300 μA at 4 mA
±600 μA at 20mA

**Resolution**
0.5μA (0.003%)

**Linearity**
±0.01%

**Temperature Drift**
± 28 ppm/°F (±50 ppm/°C)

**Output Impedance**
>10 MΩ

**Voltage Compliance**
7-30 V (passive output)

**External Loop Resistance**
<700 Ω (passive output with 24 V external supply)
<300 Ω (active output)

### Fieldbus Output Characteristics
Fieldbus Voltage limits: 9 to 32 V
Current Draw: 12.5 mA
For I.S. Applications:
$U_i$ = 30 V
$I_i$ = 300 mA
$P_i$ = 1.3 W
$C_i$ = 0
$L_i$ = 0

### Lift-off Minimum Voltage
9.0 V

### Class
Link Master (LAS)

### Number of Available VCRs
20

### VCR Statistics
Yes

### Execution Time
60 ms for AI-block

### Instantiation
No (all blocks are instantiated per default)

### Available Menus and Methods

**Transducer Block**
Configure Gauge, Restart Device, Set to Factory Defaults, Sensor Bus

**Resource Function Block**
Master Reset

### Conforming FOUNDATION Fieldbus
ITK 4.6

### Advanced Diagnostics

**Failures**

Level, Temperature and Volume measurement failure

**Warnings**

Empty tank, full tank, Database, Hardware, Software, and Configuration warnings

**Errors**

Database, Hardware, Software, and Configuration warnings

### 2210 Display Unit Output Characteristics

**With Temperature Output**

See Product Certifications on page Level-11

**Without Temperature Output**

See Product Certifications on page Level-11

### Temperature Measurement

1-3 spot elements, PT100 or CU100, or 6 spot elements with common return. Input accuracy ±0.9°F (±0.5°C)

**Temperature Measurement Output**

Average temperature or individual spots (1)

*(1) Individual spots not available in Foundation fieldbus devices*

## MECHANICAL

### Housing/Enclosure

Permanent moulded cast aluminium, chromed and powder painted

### Flanges

ANSI, DIN standard,

Material: Stainless steel 316L and Stainless Steel EN 1.4404

### Approximate Weights

TABLE 3.

| Transmitter | Size in. (mm) | Weight lb. (kg) |
|---|---|---|
| 5600 Transmitter | N/A | 19.8 lbs. (9,0 kg) |
| **Antenna** | **Size in. (mm)** | **Add Max lb. (kg)** |
| Rod Antenna | | 4.41 lb. (2.,0 kg) |
| Cone Antenna | 3 in (76,2 mm) | 2.20 lb. (1,0 kg) |
| Cone Antenna | 4 in. (101,6 mm) | 3.31 lb (1,5 kg.) |
| Cone Antenna | 6 in. (152,4 mm) | 4.41 lb. (2,0 kg.) |
| Cone Antenna | 8 in. (203,2 mm) | 6.61 lb. (3,0 kg.) |
| Process Seal Antenna | PS 4 in. (101,6 mm) | 4.41 lb. (2,5 kg.) |
| Process Seal Antenna | PS 6 in. (152,4 mm) | 5.51 lb. (2,5 kg.) |
| Parabolic Antenna | | 17.6 lb. (8,0 kg.) |

### Height Above Flange

15 in (400 mm)

### Antenna Dimensions

Cone: See Figure 13 on page Level-14

Rod: See Figure 12 on page Level-13

Process Seal: See FIGURE 16. and Table 7 on page Level-15

Extended Cone: See page 16

Cone with Integrated Flushing Connection: See page 16

Parabolic: See Figure 19 on page Level-17

TABLE 4. Antenna material and o-ring selection ● Applicable - Not applicable

**The Rod antenna is a combination of 316L SST and PTFE.*

| | Rod Antenna | Cone Antenna | Process Seal Antenna | Extended Cone Antenna | Cone with Integrated Flushing Connection | Parabolic Antenna |
|---|---|---|---|---|---|---|
| **Material:** | | | | | | |
| Stainless Steel 316L | ●* | ● | - | ● | ● | ● |
| Hastelloy® C22 | - | ● | - | - | - | - |
| Titanium Gr1/Gr2 | - | ● | - | - | - | - |
| Tantalum | - | ● | - | - | - | - |
| Monel® 400 | - | ● | - | - | - | - |
| PTFE | ●* | - | ● | - | - | - |
| **Tank Seal:** | | | | | | |
| PTFE | - | ● | - | ● | ● | ● |
| Quartz | - | ● | - | ● | ● | - |
| **O-Rings:** | | | | | | |
| Viton® Fluoroelastomer | ● | ● | - | ● | ● | ● |
| Kalrez® 6375 | ● | ● | - | ● | ● | - |
| EPDM | ● | ● | - | ● | ● | - |
| Buna-N | ● | ● | - | ● | ● | - |

## ENVIRONMENTAL

### Ambient Temperature

-40 to 70°C (-40 to 158°F)

LCD Readable between: -20 to 70 °C (-4 to 158 °F)

### Process Temperature Range (1)

-40 to 752°F (-40 to 400°C)

### Flange Temperature Range (1)

TABLE 5. Flange Temperature Range depending on O-ring selection

| O-ring Material | Minimum Temperature °F (°C) in air | Maximum Temperature F (°C) in air |
|---|---|---|
| Viton® Fluoroelastomer | 5 (-15) | 392 (200) |
| Ethylene Propylene (EPDM) | -40 (-40) | 266 (130) |
| Kalrez® 6375 | -4 (-20) | 527 (275) |
| Buna-N | -31 (-35) | 230 (110) |

### Pressure Range (1)

Full vacuum to +798 psig (+55 bar), depending on antenna style

### Emission Approvals

FCC: K8CPRO, K8CPROX

R&TTE: E813268O-CC

### Humidity

IEC 60068-2-3

### Climatic Class/Corrosion Class

IEC 68-2-1, IEC 60068-2-52 test KB severity 2

### Ingress Protection

IP66, IP 67, and NEMA 4

### Vibration

IEC 721-3-4 class 4M4

### UV Protection

ISO 4892-2

### Electromagnetic Compatibility

EN61326-1: 1997 incl A1:1998 and A2:2001, Immunity 50081-2, Emission 50081-1

### Lightning Protection

EN61326, EN61000-4-5, IEC801-5, level 2 kV

### Power Supply Fluctuation

IEC 92 Part 504 sec. 3.5

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*(1) See FIGURE 12., FIGURE 13., FIGURE 16., FIGURE 17., FIGURE 18., and FIGURE 19. for specification of each antenna.*

# Product Certifications

**SAFETY NOTE AND SPECIAL CONDITIONS FOR SAFE USE (X-MARKINGS IN ATEX, AND IECEX CERTIFICATES)**
As light alloys may be used as the enclosure (or other parts) they may be at the accessible surface of this equipment, in the event of rare incidents, ignitions sources due to impact and friction sparks could occur. This shall be considered when the equipment is being installed in locations that specifically require Group II, Category 1G equipment.
Under certain extreme circumstances, the non-metallic parts of the equipment may be capable of generating an ignition-capable level or electrostatic charge. Therefore, when used for applications that specifically require Group II, Category 1 equipment, the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. Additionally, the equipment non-metallic parts shall only be cleaned with a damp cloth

## Approved Manufacturing Locations

Rosemount Tank Radar AB – Gothenburg, Sweden

## European Union Directive Information

The EC declaration of conformity for all applicable European directives for this product can be found on the Rosemount website at www.rosemount.com. A hard copy may be obtained by contacting our local sales representative.

## ATEX Directive (94/9/EC)

Rosemount Inc. complies with the ATEX Directive.

## Ordinary Location Certification for Factory Mutual

As standard, the transmitter has been examined and tested to determine that the design meets basic electrical, mechanical, and fire protection requirements by FM, a nationally recognized testing laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

## 5600 Series Radar Level Transmitter European ATEX Directive Information

This document lists specific requirements which have to be fulfilled to secure a safe installation and use of 5600 Series Radar Level Transmitter in a hazardous area. Omission may jeopardize safety, and Rosemount will not take any responsibility if requirements as listed below are not fulfilled.

## Canadian Registration Number (CRN)

The product design of the Cone Antenna has been accepted and registered for use in Canada.
CRN: 0F1015.9C

## Hazardous Locations Certifications

### ATEX Approvals

#### 5600 Series Level Transmitter

**E1** Certificate Number: Sira 03ATEX1294X

**With Intrinsically Safe Outputs (only)**

ATEX Marking: ⟨Ex⟩ II (2) (1) 1/2 GD T85°C

Safety Coding: EEx de [ib] [ia] IIC T6 (-40°C ≤ $T_{amb}$ ≤+70°C)

**With Non-IS Primary Output and IS Display Output**

ATEX Marking: ⟨Ex⟩ II (1) 1/2 GD T85°C

Safety Coding: EEx de [ia] IIC T6 (-40°C ≤ $T_{amb}$ ≤+70°C)

**With Non-IS Primary and/or Non-IS Secondary Outputs**

ATEX Marking: ⟨Ex⟩ II 1/2 GD T85°C

Safety Coding: EEx de IIC T6 (-40°C ≤ $T_{amb}$ ≤+70°C))

Special Conditions for Safe Use: See first paragraph of the Produce Certifications Chapter

Passive analog output 4-20mA,

Label identification = HART passive.

Voltage compliance 7-30V:

$U_i$ = 30 V
$I_i$ = 200 mA
$C_i$ = 0
$L_i$ = 0
$U_o$ = 0
$I_o$ = 0
$U_m$ = 250 V

Active analog output 4-20mA,

Label identification = HART active.

Max load 300Ω:

$U_o$ = 23.1 V
$I_o$ = 125.7 mA
$P_o$ = 0.726 W
$C_{ext}$ =0.14 μF
$L_{ext}$ = 2.2 mH
$C_i$ = 0
$L_i$ = 0

FOUNDATION Fieldbus,

Label identification = FOUNDATION fieldbus.

$U_i$ = 30 V
$I_i$ = 300 mA
$P_i$ = 1.3 W
$C_i$ = 0
$L_i$ = 0

#### 2210 Display Unit

Certificate Number: Sira 00ATEX2062

**Without Temperature Inputs**

ATEX Marking: ⟨Ex⟩ II 2 G

Safety Coding: EEx ib IIC T4 (-40°C ≤ $T_{amb}$ ≤+70°C)

**With Temperature Inputs**

ATEX Marking: ⟨Ex⟩ II 2 (1) G

Safety Coding: EEx ib [ia] IIC T4 (-40°C ≤ $T_{amb}$ ≤+70°C)

## Factory Mutual (FM) Approvals

### 5600 Series Level Transmitter

**E5** Certificate Number: 4D5A9.AX

**With Intrinsically safe outputs**
(all versions except those listed below)

Explosion proof with IS outputs for HAZLOC

Class I, Division 1, Group A, B, C and D, T6

Max operating temperature +70°C

Dust ignition proof for use in Class II/III, Division 1, Groups E, F, and G, T5.

Use conductors rated at least 85°C

Shall be installed in accordance with System control drawing 9150074-994.

**With Non-IS Secondary Outputs (codes 1 and 3)**

Explosion proof

Class I, Division 1, Group A, B, C and D, T6

Max operating temperature +70°C

Dust ignition proof for use in Class II/III, Division 1, Groups E, F, and G, T5.

Use conductors rated at least 85°C

### 2210 Display Unit

Certificate Number: 3008356

**All Versions**

Intrinsic Safe for HAZLOC

Class I, Division 1, Group A, B, C and D T4

Max operating temperature +70°C

Shall be installed in accordance with System control drawing 9150074-997.

## Canadian Standards Association (CSA Approvals)

### 5600 Series Level Transmitter

**E6** Certificate Number: 2003.153280-1346169

**With Non-IS Primary and/or Secondary Outputs**

Explosion proof Ex de IIC T6

Shall be installed in accordance with System control drawing 9150074-937.

Factory seal, conduit seal not required.

**With IS Display Outputs, IS Primary and/or Secondary Outputs**

Explosion proof Ex de [ib/ia] IIC T6

Shall be installed in accordance with System control drawing 9150074-939.

Factory seal, conduit seal not required.

### 2210 Display Unit

Certificate Number: 2003.153280-1346165

**Without Temperature Inputs**

Intrinsically safe EEx ib IIC T4 ($-40°C \le T_{amb} \le +70°C$)With Temperature Inputs

Intrinsically safe EEx ib [ia] IIC T4 ($-40°C \le T_{amb} \le +70°C$)

Shall be installed in accordance with System control drawing 9150074-944.

## IECEx Approvals

### 5600 Series Level Transmitter

**E7** Certificate Number: IECEx SIR 05.0024X

**With Intrinsically Safe Outputs (only)**

Safety Coding: Ex de [ib] [ia] IIC T6 tD A20 IP65 T85 °C ($-40°C \le T_{amb} \le +70°C$)

**With Non-IS Primary Output and IS Display Output**

Safety Coding: Ex de [ia] IIC T6 tD A20 IP65 T85 °C ($-40°C \le T_{amb} \le +70°C$)

**With Non-IS Primary and/or Non-IS Secondary Outputs**

Safety Coding: Ex de IIC T6 tD A20 IP65 T85 °C ($-40°C \le T_{amb} \le +70°C$)

Passive analog output 4-20mA,

Label identification = HART® passive.

Voltage compliance 7-30V:

$U_i = 30$ V
$I_i = 200$ mA
$C_i = 0$
$L_i = 0$
$U_o = 0$
$I_o = 0$
$U_m = 250$ V rms

Active analog output 4-20mA,

Label identification = HART® active.

Max load 300Ω:

$U_o = 23.1$ V
$I_o = 125.7$ mA
$P_o = 0.726$ W
$C_o = 0.14$ μF
$L_o = 2.2$ mH
$C_i = 0$
$L_i = 0$

FOUNDATION™ Fieldbus,

Label identification = FOUNDATION™ fieldbus.

$U_i = 30$ V
$I_i = 300$ mA
$P_i = 1.3$ W
$C_i = 0$
$L_i = 0$

Conditions of Certification: See first paragraph of the Produce Certifications Chapter

### 2210 Display Unit

Certificate Number: IECEx SIR 05.0021

**Without Temperature Inputs**

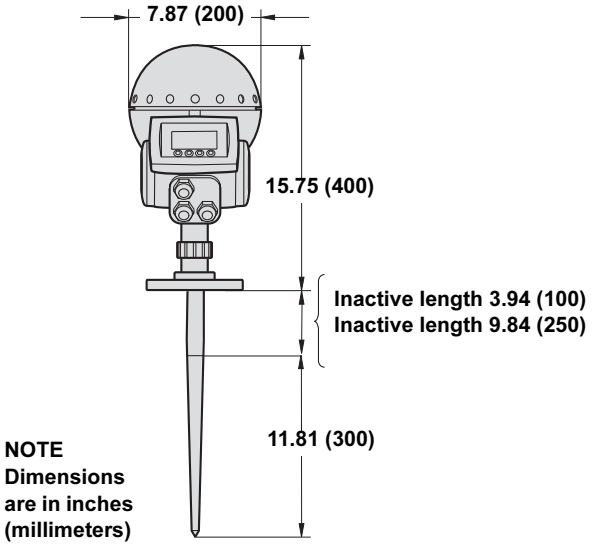
Safety Coding: Ex ib IIC T4 ($-40°C \le T_{amb} \le +70°C$)

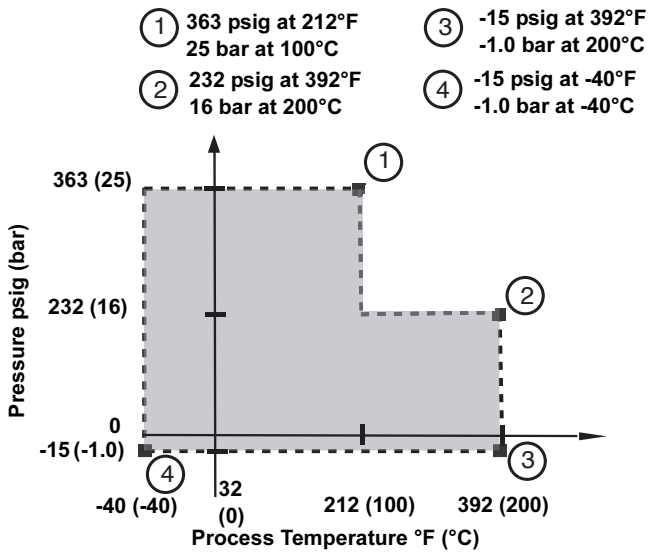
**With Temperature Inputs**

Safety Coding: Ex ib [ia] IIC T4 ($-40°C \le T_{amb} \le +70°C$)

# Dimensional Drawings

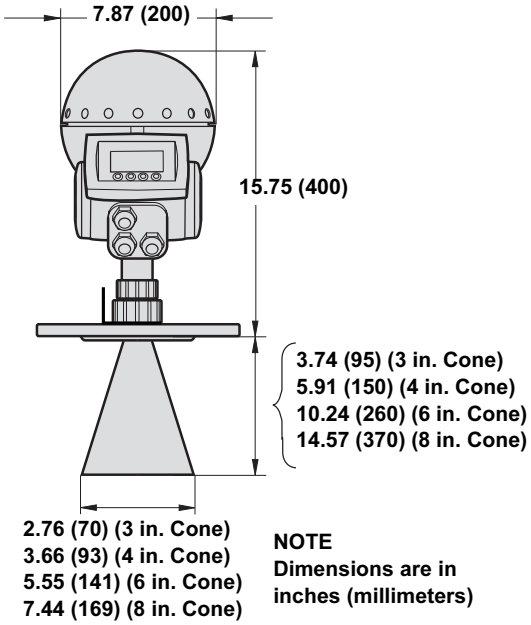
FIGURE 12. Rod Antenna Dimensions

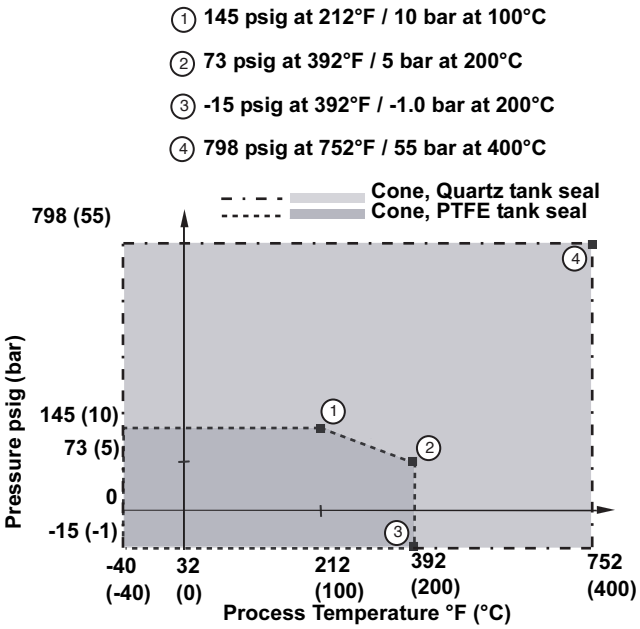



**Note: Pressure rating may be lower depending on flange selection.**
**Minimum / maximum flange temperature rating depends on O-ring selection (See Table 6 and page 14).**

FIGURE 13. Cone Dimensions



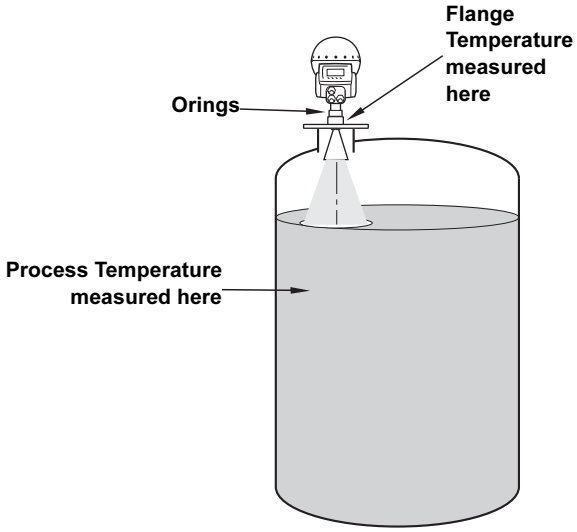




**Note: Pressure rating may be lower depending on flange selection.**
**Minimum / maximum flange temperature rating depends on O-ring selection (See Table 6 and FIGURE 14.).**

TABLE 6. Flange Temperature Range depending on O-ring selection

| O-ring Material | Minimum Temperature °F (°C) in air | Maximum Temperature F (°C) in air |
|---|---|---|
| Viton® Fluoroelastomer | 5 (-15) | 392 (200) |
| Ethylene Propylene (EPDM) | -40 (-40) | 266 (130) |
| Kalrez® 6375 | -4 (-20) | 527 (275) |
| Buna-N | -31 (-35) | 230 (110) |

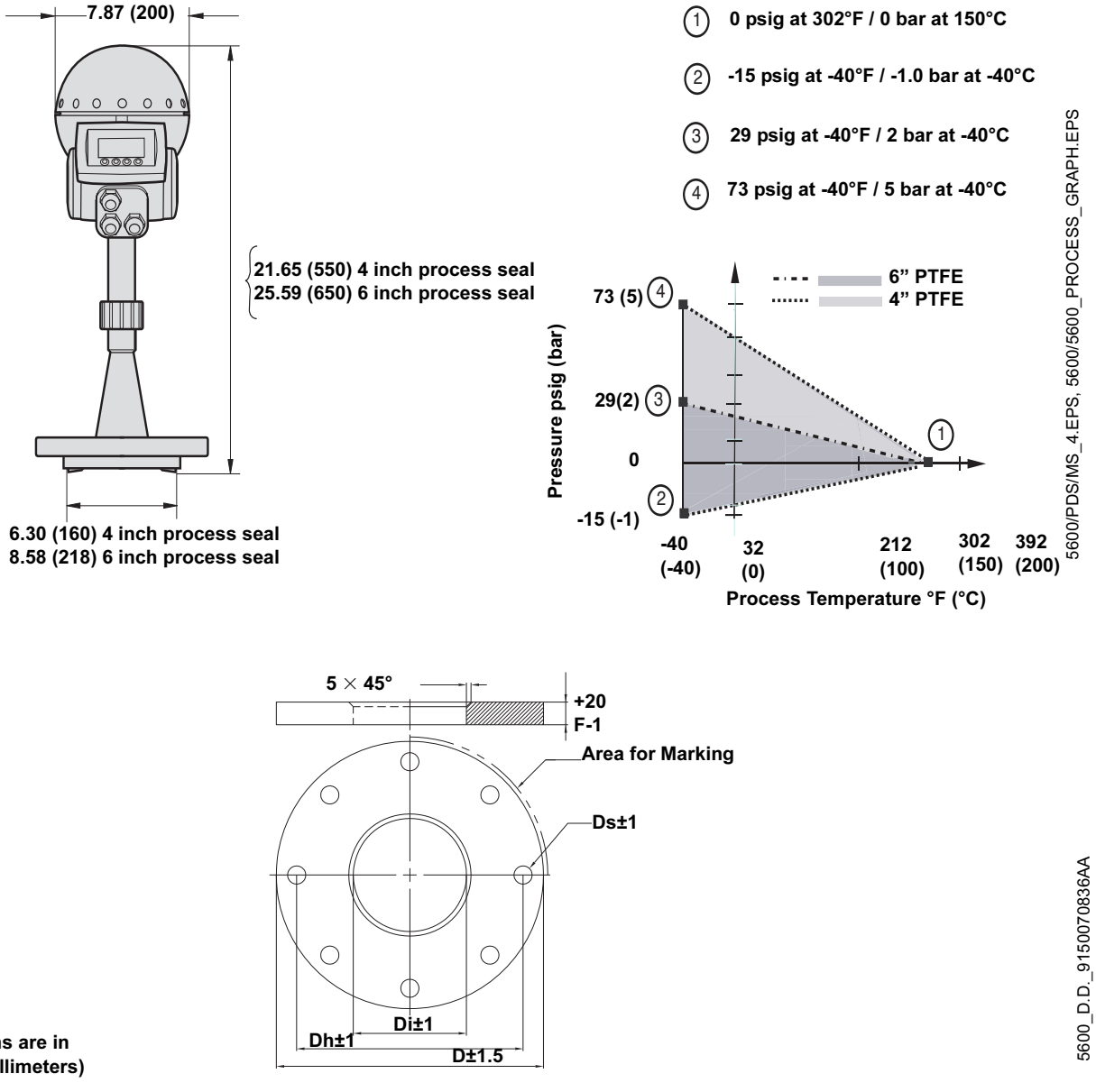
FIGURE 14. Temperature Rating Considerations




**Note**
**Flange temperature depends on mounting conditions, such as nozzle position, distance to max product level, nozzle height, presence of insulation, etc.**

FIGURE 15.

FIGURE 16. Process Seal Antenna Dimensions

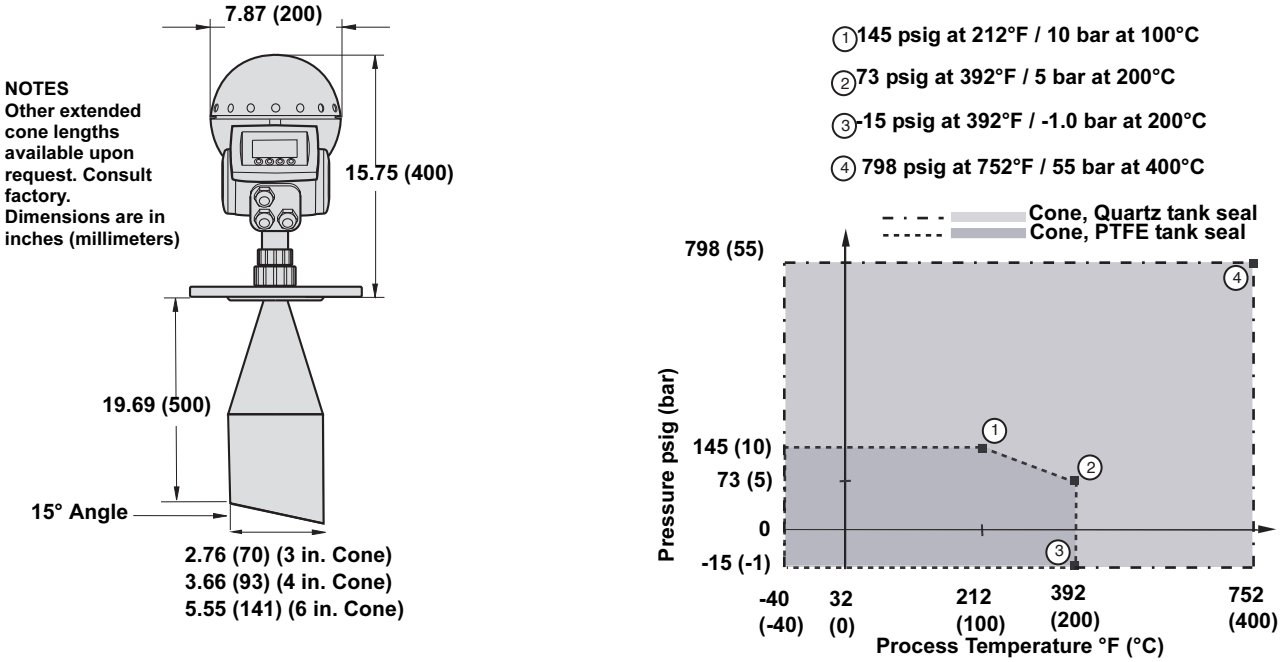



**Note**
**Dimensions are in inches (millimeters)**

TABLE 7. Dimensions for Stainless Steel Flange and Galvanized Carbon Steel Dimensions are in inches (millimeters)

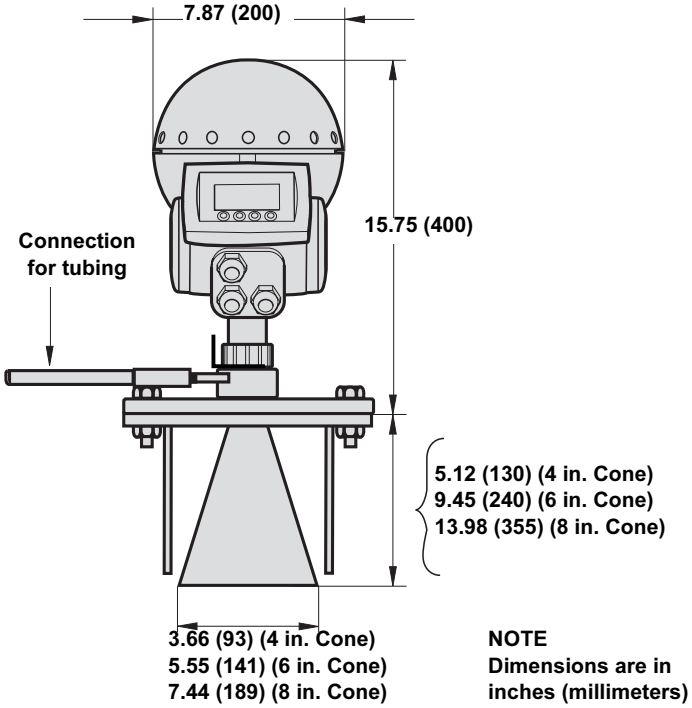
| Flange | Di | D | Dh | Ds | F |
|---|---|---|---|---|---|
| ANSI 4 inch Class 150 | 3.78 (96) | 9.02 (229) | 7.52 (191) | 0.87 (22) | 0.87 (22) |
| ANSI 6 inch Class 150 | 4.94 (125.5) | 10.98 (279) | 9.49 (241) | 0.87 (22) | 0.87 (22) |
| DN100 PN16 | 3.78 (96) | 8.66 (220) | 7.09 (180) | 0.71 (18) | 0.87 (22) |
| DN150 PN16 | 4.94 (125.5) | 11.22 (285) | 9.45 (240) | 0.87 (22) | 0.87 (22) |

FIGURE 17. Extended Cone Antenna Dimensions




**Note: Pressure rating may be lower depending on flange selection.**
**Minimum / maximum flange temperature rating depends on O-ring selection (See Table 6 and page 14).**

FIGURE 18. Cone Antenna with Integrated Flushing Connection Dimensions

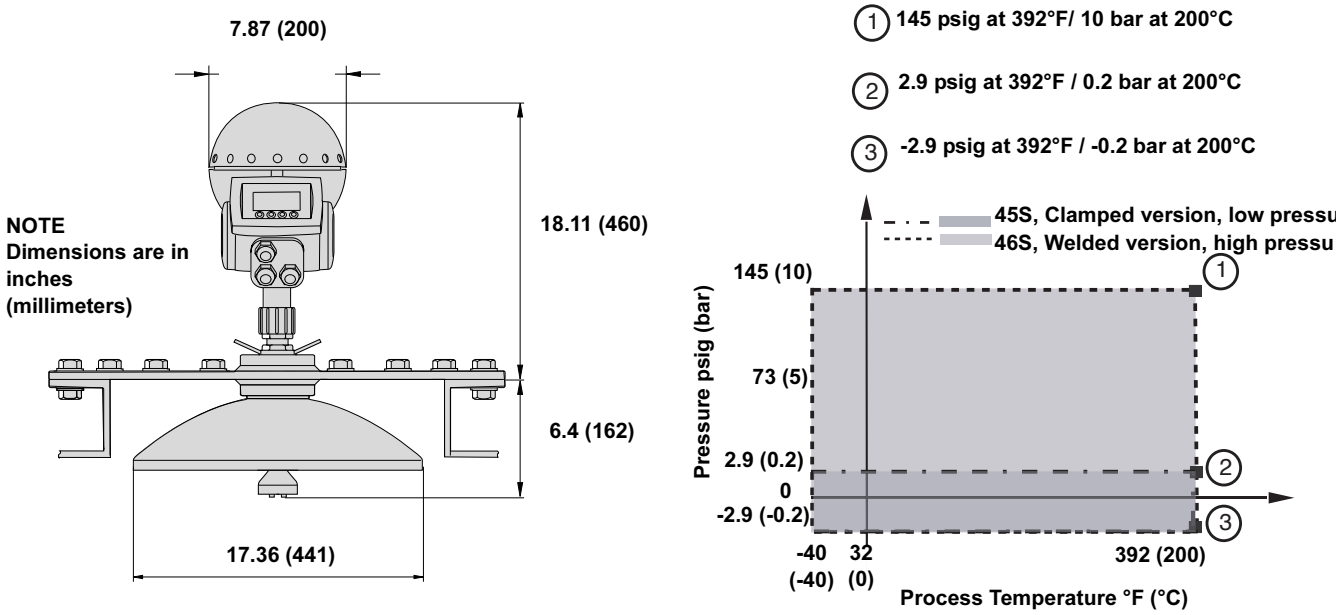



**Maximum:**
**145 psig at 392 °F (10 bar at 200 °C) or up to 145 psig at 752 °F (10 bar at 400 °C). See Table 14 on page Level-23 for more information.**

**Maximum pressure and temperature depends on flange and tank seal selection.**

**Note: Pressure rating may be lower depending on flange selection.**
**Minimum / maximum flange temperature rating depends on O-ring selection (See Table 6 and page 14).**

FIGURE 19. Parabolic Antenna Dimensions



# Ordering Information

TABLE 8. Rosemount 5600 Radar Transmitter Selection

| Model | Product Description |
|---|---|
| 5601 | Radar Level Transmitter for Process Applications |
| **Code** | **Frequency Band** |
| U | US Market Only (10 GHz) |
| S | Switzerland Market Only (10 GHz) |
| A | All Other Markets (10 GHz) |
| **Code** | **Product Certification** |
| NA | None |
| E1 | CENELEC/ATEX Flameproof |
| E5 | FM Explosion-proof |
| E6 | CSA Explosion-proof |
| E7 | IECEx Flameproof |
| **Code** | **Power Supply** |
| P | 24-240 V DC/AC 0-60 Hz |
| **Code** | **Primary Output** |
| 5A | 4-20 mA with HART communication, Passive Output |
| 5B | 4-20 mA with HART communication, Passive Output, Intrinsically Safe Circuit (1) |
| 5C | 4-20 mA with HART communication, Active Output |
| 5D | 4-20 mA with HART communication, Active Output, Intrinsically Safe Circuit (1) |
| 7A | FOUNDATION Fieldbus |
| 7B | FOUNDATION Fieldbus, Intrinsically Safe Circuit (1) |
| 8A | RS 485 Protocol - Modbus |
| **Code** | **Secondary Output(2)(3)** |
| 0 | None |
| 1(4) | 4-20 mA, Passive Output (5) |
| 2(4) | 4-20 mA, Passive Output, Intrinsically Safe Circuit (1) |
| 3 | 4-20 mA, Active Output (5) |
| 4 | 4-20 mA, Active Output, Intrinsically Safe Circuit (1) |
| **Code** | **Display Unit** |
| N | None |
| P | LOI, Factory mounted on transmitter |
| R | LOI, Remote mounted |
| T | LOI, Remote mounted with temp inputs (1-6 spot elements with common returns) |
| **Code** | **Volume Calculation** |
| E | Basic Volume Equations (Standard) |
| V | Strapping Table, up to 100 points |
| **Typical Model Number: 5601 S E1 P 5A 0 P E Antenna Selection (6)** | |

*(1) Intrinsically safe circuit only applicable if product certificate codes E1, E5, E6, or E7 is selected.*

*(2) Secondary output codes are not available in a combination of E6 CSA* and *Primary Output codes 5A, 5B, 5C, or 5D.*

*(3) Secondary output codes 1, 2, 3, and 4 require an isolator when used in combination with 7A, 7B, or 8A.*

*(4) Not available in combination with Primary Output codes 5A, 5B, 5C, or 5D.*

*(5) Not allowed in combination with Display Unit codes P, R, or T.*

*(6) Select the antenna type and options using Table 9, Table 10, Table 11, Table 13, and Table 14.*

TABLE 9. Rod Antenna

| Code | Antenna Type | Antenna Size | Antenna Material | Note |
|---|---|---|---|---|
| | **Rod** | | | |
| 11S | | 1.5 in. threaded version | SST 316L and PTFE | Inactive Length 4 inch (100 mm) |
| 12S | | 2 in. (DN50) nozzles | SST 316L and PTFE | Inactive Length 4 inch (100 mm) |
| 13S | | 3 in. (DN80) nozzles | SST 316L and PTFE | Inactive Length 4 inch (100 mm) |
| 14S | | 4 in. (DN100) nozzles | SST 316L and PTFE | Inactive Length 4 inch (100 mm) |
| 11L | | 1.5 in. threaded version | SST 316L and PTFE | Inactive Length 10 inch (250 mm) |
| 12L | | 2 in. (DN50) nozzles | SST 316L and PTFE | Inactive Length 10 inch (250 mm) |
| 13L | | 3 in. (DN80) nozzles | SST 316L and PTFE | Inactive Length 10 inch (250 mm) |
| 14L | | 4 in. (DN100) nozzles | SST 316L and PTFE | Inactive Length 10 inch (250 mm) |
| 1XX | | Customer specific rod or material | | Consult Factory |
| **Code** | | **Tank Seal** | | |
| N | | Not Applicable | | |
| **Code** | | **O-ring Material** | | |
| V | | Viton® Fluoroelastomer | | |
| K | | Kalrez® 6375 | | |
| E | | EPDM | | |
| B | | Buna-N | | |
| **Code** | | **Process Connection** | | |
| NR | | Antenna with Plate Design<br>*NOTE: Customer supplied flange or see Table 18 on page Level-25 for flange options* | | |
| XX | | Special Process Connection | | Consult Factory |
| | | **Threaded Version** | | |
| TN | | Threaded 1.5 in. NPT | | |
| TB | | Threaded 1.5 in. G | | |
| **Code** | | **Options** | | |
| Q8 | | Material Traceability Certification per EN 10204 3.1.B | | |
| **Typical Model Number: Selected code from Table 8 on page Level-18 11S N F TN** | | | | |

TABLE 10. Cone Antenna

| Code | Antenna Type | Antenna Size | Antenna Material | Note |
|---|---|---|---|---|
| | **Cone** | | | |
| 23S | | 3 in. (DN80) nozzles | SST 316L | Pipe Installation Only |
| 24S | | 4 in. (DN100) nozzles | SST 316L | Free propagation or 4” pipe |
| 26S | | 6 in. (DN150) nozzles | SST 316L | Free propagation or 6” pipe |
| 28S | | 8 in. (DN200) nozzles | SST 316L | Free propagation only |
| 2AS | | 10 in. (DN250) nozzles | SST 316L | Free propagation only |
| 23H | | 3 in. (DN80) nozzles | Hastelloy C22 | Longer Lead-time, Consult Factory |
| 24H | | 4 in. (DN100) nozzles | Hastelloy C22 | Longer Lead-time, Consult Factory |
| 26H | | 6 in. (DN150) nozzles | Hastelloy C22 | Longer Lead-time, Consult Factory |
| 28H | | 8 in. (DN200) nozzles | Hastelloy C22 | Longer Lead-time, Consult Factory |
| 23T | | 3 in. (DN80) nozzles | Titanium Gr 1/2 | Longer Lead-time, Consult Factory |
| 24T | | 4 in. (DN100) nozzles | Titanium Gr 1/2 | Longer Lead-time, Consult Factory |
| 26T | | 6 in. (DN150) nozzles | Titanium Gr 1/2 | Longer Lead-time, Consult Factory |
| 28T | | 8 in. (DN200) nozzles | Titanium Gr 1/2 | Longer Lead-time, Consult Factory |
| 23M | | 3 in. (DN80) nozzles | Monel 400 | Longer Lead-time, Consult Factory |
| 24M | | 4 in. (DN100) nozzles | Monel 400 | Longer Lead-time, Consult Factory |
| 26M | | 6 in. (DN150) nozzles | Monel 400 | Longer Lead-time, Consult Factory |
| 28M | | 8 in. (DN200) nozzles | Monel 400 | Longer Lead-time, Consult Factory |
| 23Z | | 3 in. (DN80) nozzles | Tantalum | Longer Lead-time, Consult Factory |
| 24Z | | 4 in. (DN100) nozzles | Tantalum | Longer Lead-time, Consult Factory |
| 26Z | | 6 in. (DN150) nozzles | Tantalum | Longer Lead-time, Consult Factory |
| 28Z | | 8 in. (DN200) nozzles | Tantalum | Longer Lead-time, Consult Factory |
| 2XX | | Customer specific cone or material | | Consult Factory |
| **Code** | | **Tank Seal** | | |
| P | | PTFE | | |
| Q | | Quartz | | |
| **Code** | | **O-ring Material** | | |
| V | | Viton® Fluoroelastomer | | |
| K | | Kalrez® 6375 | | |
| E | | EPDM | | |
| B | | Buna-N | | |
| **Code** | | **Process Connection** | | |
| NR | | Antenna with Plate Design<br>*NOTE: Customer supplied flange or see Table 18 on page Level-25 for flange options* | | |
| XX | | Special Process Connection | | Consult Factory |
| | | **Tri-clamp connection** | **Flange Material** | **Note** |
| BT | | 3 in. Tri-Clamp Flange | SST 316L | Longer Lead-time, Consult Factory |
| CT | | 4 in. Tri-Clamp Flange | SST 316L | Longer Lead-time, Consult Factory |
| DT | | 6 in. Tri-Clamp Flange | SST 316L | Longer Lead-time, Consult Factory |
| ET | | 8 in. Tri-Clamp Flange | SST 316L | Longer Lead-time, Consult Factory |
| **Code** | | **Options** | | |
| Q8 | | Material Traceability Certification per EN 10204 3.1.B | | |
| **Typical Model Number: Selected code from Table 8 on page Level-18 24S P V NR** | | | | |

TABLE 11. Process Seal Antenna

| Code | Antenna Type | Antenna Size | Antenna Material | Note |
|---|---|---|---|---|
| | **Process Seal** | | | |
| 34S | | 4 in. (DN100) nozzles | PTFE | |
| 36S | | 6 in. (DN150) nozzles | PTFE | |
| **Code** | | **Tank Seal** | | |
| P | | PTFE | | |
| **Code** | | **O-ring Material** | | |
| N | | Not Applicable | | |
| **Code** | | **Process Connection** | | |
| NF | | None, Customer to supply flange per dimensions on FIGURE 16. | | |
| XX | | Special Process Connection | | Consult Factory |
| | | **Stainless Steel Flange** | **Flange Material** | |
| CA | | 4 in. ANSI Class 150 | SST 316L | |
| DA | | 6 in. ANSI Class 150 | SST 316L | |
| JA | | DN100 PN16 | SST 316L | |
| KA | | DN150 PN16 | SST 316L | |
| **Code** | | **Options** | | |
| Q8 | | Material Traceability Certification per EN 10204 3.1.B | | |
| **Typical Model Number: Selected code from Table 8 on page Level-18 34S P N JA** | | | | |

TABLE 12. Parabolic Antenna

| Code | Antenna Type | Antenna Size | Antenna Material | Note |
|---|---|---|---|---|
| | **Parabolic** | | | |
| 45S | | ø18 in. (440mm) | SST | Clamped with Integrated Inclination, Low pressure version |
| 46S | | ø18 in. (440mm) | SST | Welded with Integrated Inclination, High pressure version |
| 4XX | | Customer Specific | Customer Specific | Consult Factory |
| **Code** | | **Tank Seal** | | |
| P | | PTFE | | |
| **Code** | | **O-ring Material** | | |
| V | | Viton® Fluoroelastomer | | |
| **Code** | | **Process Connections** | | |
| NF | | None, Flange Ready | | |
| XX | | Special Process Connection | | Consult Factory |
| **Code** | | **Options** | | |
| Q8 | | Material Traceability Certification per EN 10204 3.1.B | | |
| PB | | PTFE Protective Cover (PTFE Bag) Not suitable for hazardous applications. | | |
| **Typical Model Number: Selected code from Table 8 on page Level-18 45S P V NR** | | | | |

TABLE 13. Extended Cone Antenna

| Code | Antenna Type | Antenna Size | Antenna Material | Note |
|---|---|---|---|---|
| | **Extended** | | | |
| 73S | | 3 in. (DN80) nozzles | SST 316L | Standard length 20 inch (500 mm) |
| 74S | | 4 in. (DN100) nozzles | SST 316L | Standard length 20 inch (500 mm) |
| 76S | | 6 in. (DN150) nozzles | SST 316L | Standard length 20 inch (500 mm) |
| 7XX | | Customer specific extended cone or material | | Consult Factory |
| **Code** | | **Tank Seal** | | |
| P | | PTFE | | |
| Q | | Quartz | | |
| **Code** | | **O-ring Material** | | |
| V | | Viton® Fluoroelastomer | | |
| K | | Kalrez® 6375 | | |
| E | | EPDM | | |
| B | | Buna-N | | |
| **Code** | | **Process Connections** | | |
| NR | | Antenna with Plate Design<br>*NOTE: Customer supplied flange or see Table 18 on page Level-25 for flange options* | | |
| XX | | Special Process Connection | | Consult Factory |
| **Code** | | **Options** | | |
| Q8 | | Material Traceability Certification per EN 10204 3.1.B | | |
| **Typical Model Number: Selected code from Table 8 on page Level-18 76S P V NR** | | | | |

TABLE 14. Cone Antenna with Integrated Flushing Connection

| Code | Antenna Type | Antenna Size | Antenna Material | Note |
|---|---|---|---|---|
| | **Cone with Integrated Flushing Connection** | | | |
| 94S | | 4 in. (DN100) nozzles | SST 316L | Consult Factory |
| 96S | | 6 in. (DN150) nozzles | SST 316L | Consult Factory |
| 98S | | 8 in. (DN200) nozzles | SST 316L | Consult Factory |
| **Code** | | **Tank Seal** | | |
| P | | PTFE | | |
| Q | | Quartz | | |
| **Code** | | **O-ring Material** | | |
| V | | Viton® Fluoroelastomer | | |
| K | | Kalrez® 6375 | | |
| E | | EPDM | | |
| B | | Buna-N | | |
| **Code** | | **Process Connection** | | |
| XX | | Special Process Connection | | Consult Factory |
| | | **Stainless Steel Flange Welded to Antenna** | | **Note(1)** |
| CL | | 4 in. ANSI Class 150 | | Max 101 psig at 392 °F (7 bar at 200 °C) |
| DL | | 6 in. ANSI Class 150 | | Max 145 psig at 392 °F (10 bar at 200 °C) |
| FL | | 8 in. ANSI Class 150 | | Max 145 psig at 392 °F (10 bar at 200 °C) |
| JL | | DN100 PN16 | | Max 72 psig at 392 °F (5 bar at 200 °C) |
| KL | | DN150 PN16 | | Max 87 psig at 392 °F (6 bar at 200 °C) |
| LL | | DN200 PN16 | | Max 87 psig at 392 °F (6 bar at 200 °C) |
| CH | | 4 IN. ANSI Class 150, SST, Higher Pressure | | Max 145 psig at 752 °F (10 bar at 400 °C) |
| DH | | 6 IN. ANSI Class 150, SST, Higher Pressure | | Max 145 psig at 752 °F (10 bar at 400 °C) |
| FH | | 8 IN. ANSI Class 150, SST, Higher Pressure | | Max 145 psig at 752 °F (10 bar at 400 °C) |
| JH | | DN100 PN 16, SST< Higher Pressure | | Max 145 psig at 752 °F (10 bar at 400 °C) |
| KH | | DN150 PN 16, SST< Higher Pressure | | Max 145 psig at 752 °F (10 bar at 400 °C) |
| LH | | DN200 PN 16, SST< Higher Pressure | | Max 145 psig at 752 °F (10 bar at 400 °C) |
| **Code** | | **Options** | | |
| Q8 | | Material Traceability Certification per EN 10204 3.1.B | | |
| **Typical Model Number: Selected code from Table 8 on page Level-18 94S P K KL** | | | | |

*(1) Pressure and Temperature rating may be lower depending on Tank Seal selection*

TABLE 15. Transmitter Options (multiple selections allowed)

| Code | Options |
|---|---|
| | **Material Trraceability Certification** |
| Q8 | Material Traceability Certification per EN 10204 3.1B |
| | **Calibration Data Certification** |
| Q4 | Calibration Data Certificate |
| | **Software Configuration** |
| C1 | Custom Software Configuration (CDS required with order) |
| | **Alarm Limits** |
| C4 | NAMUR Alarm Level, High Alarm |
| C8 | Low Alarm (Standard Rosemount Alarm) |
| | **Conduit Adapters** |
| G1 | 1/2 inch NPT Cable Gland Kit |
| G2 | 1/2 inch NPT/ M20 Adapters (Set of 3) |
| | **Conduit Electrical Connector(1)** |
| GE | M12, 4-pin, Male Connector (eurofast®) |
| GM | A size Mini, 4-pin, Male Connector (minifast®) |
| | **Protective Cover** |
| PB(2) | PTFE Protective Cover (PTFE Bag) |
| | **Special Procedures** |
| P1(3) | Hydrostatic Testing |
| U1(4) | TÜV Overfill Protection |

*(1) Not available with certain hazardous location certifications. Contact an Emerson Process Management Representative for details.*

*(2) For Parabolic Antenna only. Not suitable for hazardous applications.*

*(3) Not available in combination with Parabolic Antenna option codes.*

*(4) Requires Secondary Output Code 3 or 4 (Active Output).*

TABLE 16. Typical Model Code Examples

| **5601 A E1 P 5A 0 P E 24S P V NR** |
|---|
| ATEX approval, passive HART primary output and display mounted on transmitter. Basic Volume calculation. Antenna is a 4 inch Cone, SST with PTFE Seal and Viton® Fluoroelastomer O-rings. No options. |
| **5601 U E5 P 7A 2 T V 94S P K CL C1** |
| FM approval, FOUNDATION™ fieldbus output and remote mounted display with temp inputs and a secondary 4-20mA passive IS output. Volume table with up to 100 points. 4 inch Cone Antenna with integrated cleaning, PTFE seal and kalrez® o-rings for high temperature and pressure. Flange is ANSI 4 inch Class 150 stainless steel. Custom configuration selected. |

## Accessories

TABLE 17. Accessories Part Numbers

| Part Number | Description | Note |
|---|---|---|
| **Modems** | | |
| 03300-7004-0001 | HART Modem and cables | Viator by MACTek® |
| 03300-7004-0002 | HART USB Modem and cables | Viator by MACTek® |
| 05600-5004-0001 | K2 RS485 Modbus Modem | For Sensor Bus Port connection (requires PC with 9-pin Serial port |
| **Antenna Accessories** | | |
| 05600-5001-0001 | PTFE Protective Cover (PTFE Bag) | For Parabolic Antenna only. Not suitable for hazardous applications. |

### Rod and Cone Antenna Flanges

TABLE 18. Non-welded Flange Part Numbers

| **Stainless Steel Flanges** | | | |
|---|---|---|---|
| **Part Number** | **Flange Size** | **Dimensions** | **Material** |
| 05600-1811-0211 | ANSI 2 inch Class 150 | Acc. To ANSI B16.5 | SST 316L (1) |
| 05600-1811-0231 | ANSI 2 inch Class 300 | Acc. To ANSI B16.5 | SST 316L (1) |
| 05600-1811-0311 | ANSI 3 inch Class 150 | Acc. To ANSI B16.5 | SST 316L |
| 05600-1811-0331 | ANSI 3 inch Class 300 | Acc. To ANSI B16.5 | SST 316L |
| 05600-1811-0411 | ANSI 4inch Class 150 | Acc. To ANSI B16.5 | SST 316L |
| 05600-1811-0431 | ANSI 4 inch Class 300 | Acc. To ANSI B16.5 | SST 316L |
| 05600-1811-0611 | ANSI 6 inch Class 150 | Acc. To ANSI B16.5 | SST 316L |
| 05600-1811-0811 | ANSI 8 inch Class 150 | Acc. To ANSI B16.5 | SST 316L |
| 05600-1810-0231 | DN50 PN40 | Acc. To EN 1092-1 | EN 1.4404 (2) |
| 05600-1810-0311 | DN80 PN16 | Acc. To EN 1092-1 | EN 1.4404 (2) |
| 05600-1810-0331 | DN80 PN40 | Acc. To EN 1092-1 | EN 1.4404 (2) |
| 05600-1810-0411 | DN100 PN16 | Acc. To EN 1092-1 | EN 1.4404 (2) |
| 05600-1810-0431 | DN100 PN40 | Acc. To EN 1092-1 | EN 1.4404 (2) |
| 05600-1810-0611 | DN150 PN16 | Acc. To EN 1092-1 | EN 1.4404 (2) |
| 05600-1810-0811 | DN200 PN16 | Acc. To EN 1092-1 | EN 1.4404 (2) |

*(1) Use gasket type Ia.*

*(2) Gasket type according to EN 1514-1 and bolting according to EN1515-2.*

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