Product Data Sheet
00813-0100-5901, Rev BA
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Rosemount™ 5900C Radar Level Gauge

Reliable non-contact measurement for tank gauging systems

- Get the highest reliability for monitoring bulk liquids
- Certified IEC 61508 SIL 2 capable
- Measures level with ±2 mm (0.08 in.) instrument accuracy
- Bus powered for convenient and safe 2-wire installation
- Full functionality, wired or wireless
- No need to take non-pressurized tanks out of service during installation

ROSEMOUNT™

EMERSON™

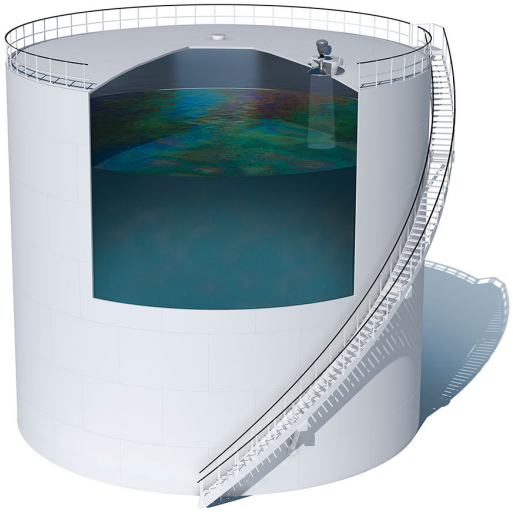
Improve plant efficiency and safety

The highest reliability for your bulk liquid storage tanks

The Rosemount 5900C level gauge with its non-contact radar measurement method ensures state-of-the-art reliability.

- No moving parts
- Less maintenance
- Reliable loss control data

The Rosemount 5900C is normally combined with multiple spot temperature sensors for API standard net volume calculations. It measures level in all bulk storage tank types and products, ranging from liquefied gases, light products, heavy fuel oil, and bitumen.



More efficient operations

- Fewer interruptions and slow-downs
- Most Rosemount 5900C antenna types are installed with the tanks in operation
- Emerson wireless solution can drastically reduce installation cost and give you access to remote tanks
- The Rosemount 5900C is an integrated part of complete tank gauging solutions from Emerson, who has supplied tank gauging for more than 100 000 bulk liquid storage tanks

Taking overfill safety to a higher level

- Certified SIL 2 capable safety according to IEC 61508
- Enables API 2350 compliant solutions

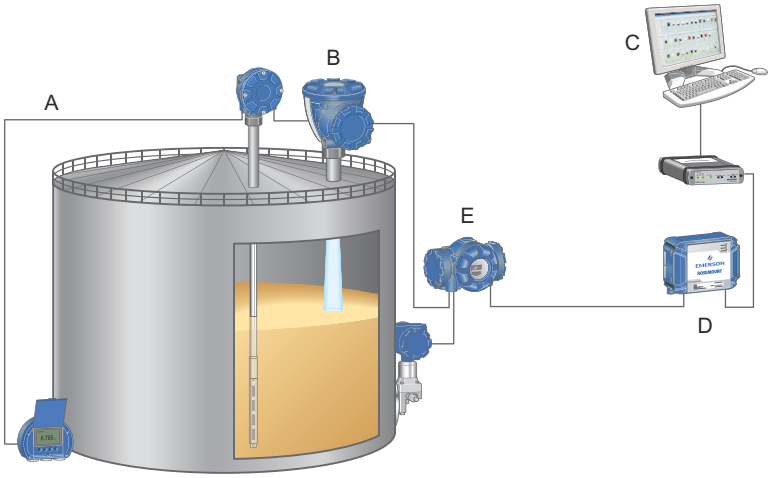
Contents

Get complete level and inventory information

The Rosemount 5900C Radar Level Gauge is normally integrated into a complete tank gauging system including average temperature measurement for net volume calculation. See also Rosemount Tank Gauging System Data Sheet (SDS).

Data can be displayed remotely, on a host computer or the TankMaster™ inventory software package. In most cases measurement data is transmitted to the control room via TRL2 Modbus® communication from the tank hub. As an alternative, data can be transmitted via FOUNDATION™ Fieldbus communication directly from the gauge to the control room, without using the tank hub.

Figure 1: System Overview



A. *Tankbus*
B. *Rosemount 5900C*
C. *TankMaster PC*
D. *Rosemount 2460 System Hub*
E. *Rosemount 2410 Tank Hub*

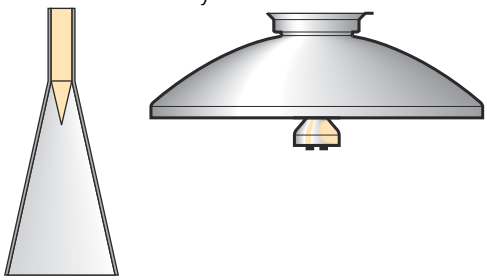
The Rosemount 5900C is optimized for medium accuracy applications. For highest precision, we recommend the Rosemount 5900S Radar Level Gauge.

With Rosemount's proprietary emulation technology, tank gauging devices can be cost-effectively added to an existing system using the previous vendor's communication protocol.

Using an Emerson wireless solution is an alternative that saves installation cost and enables full tank gauging functionality for remote tanks where long distance field wiring is obsolete.

Drip-off means no condensation

Since the antenna has an inclined polished PTFE surface where microwaves are emitted, it is less susceptible to condensed water or product. Condensation drops do not coat the active antenna part, so the radar signal remains strong, resulting in higher accuracy and better reliability.



Ordering information

Rosemount 5900C Radar Level Gauge with parabolic antenna

Rosemount 5900C with parabolic antenna is a non-contact radar level gauge. The parabolic antenna is the first choice for installation on tanks with fixed roofs without a still-pipe. It can be installed on existing manhole covers and close to the tank wall due to the narrow radar beam and high signal to noise ratio. In certain cases, it can be used on tanks with floating roofs to measure the distance down to a target plate on the floating roof.

- Measures all products ranging from light products to heavy fuel oil, bitumen and asphalt
- Antenna design gives extreme tolerance to product build-up and condensation
- Certified SIL 2 capable according to IEC 61508
- Communicates via a 2-wire, low voltage Tankbus for easy and safe installation
- Installation normally with tank in service

Table 1: Rosemount 5900C Radar Level Gauge with Parabolic Antenna Ordering Information

Model	Product Description
5900C	Radar Level Gauge
Performance class	
2	±2 mm (0.08 in.) instrument accuracy
Safety certification (SIS)	
S[1]	Certified IEC 61508 SIL 2 capable
F	None. Ready for upgrade to Safety certification (SIS)
0	None
Redundancy	
1	None. Single radar level gauge electronics
Tankbus: Power and communication	
F	Bus powered 2-wire FOUNDATION™ Fieldbus (IEC 61158)
Hazardous location certification	
I1	ATEX Intrinsic Safety
I7	IECEx Intrinsic Safety
I5	FM-US Intrinsic Safety
I6	FM-Canada Intrinsic Safety
I2	INMETRO Intrinsic Safety (Brazil)
IP	KC Intrinsic Safety (South Korea)
IW	CCOE/PESO Intrinsic Safety (India)
I4[2]	Japan Intrinsic Safety
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety
NA	None

Table 1: Rosemount 5900C Radar Level Gauge with Parabolic Antenna Ordering Information *(continued)*

Custody transfer type approval	
0	None
Level measurement method	
1	10 GHz FMCW radar technology
2	10 GHz FMCW radar technology for US installation
Housing	
A	Standard enclosure, polyurethane-covered aluminum. IP 66/67
Cable entry/Conduit connections	
1	½ - 14 NPT, female thread. (1 plug included)
2	M20 x 1.5 adapters, female thread. (2 adapters and 1 plug included)
G	Metal cable glands (½ - 14 NPT). Minimum temperature -20 °C (-4 °F). ATEX/IECEx Exe approved. (2 glands and 1 plug included)
E	eurofast® male connector (1 plug included)
M	minifast® male connector (1 plug included)
Antenna	
1P	Parabolic antenna
Antenna size	
F	20 in./DN 500, Ø=440 mm (17.3 in.)
Antenna material	
S	SST AISI 316L/EN 1.4436
Tank seal	
PF	PTFE with FEP fluoropolymer O-ring
PK	PTFE with Kalrez® perfluoroelastomer O-ring
Tank connection	
WE	Welded installation
CL	Clamped/threaded installation
Antenna options	
0	None
V(3)	Proof test verification reflector
Options (include with selected model number)	
Safety certificate	
QT(4)	IEC 61508 certificate and FMEDA-data (printed copy)
Calibration certificate	
Q4	Calibration certificate (printed copy)
Material traceability certificate	
Q8(5)	Antenna material traceability certification per EN 10204 3.1

Table 1: Rosemount 5900C Radar Level Gauge with Parabolic Antenna Ordering Information *(continued)*

Overfill protection approval	
U1[6]	TÜV/DIBt WHG approval for overfill protection
U2	SVTI approval for overfill protection (Switzerland)
Tag plate	
ST	Engraved SST tag plate
Extended warranty	
WR3	3-year limited warranty
WR5	5-year limited warranty
Typical Model Number: 5900C 3 2 1 F I5 0 2 A 1 1P F S PF WE 0 Q4	

(1) Requires Rosemount 2410 with either Analog output 4-20 mA or Relay output code 1 or 2.
(2) Not available with Cable entry/Conduit connections code E or M.
(3) Not available with Options code U1.
(4) Requires Safety certification (SIS) code S.
(5) Not available for transmitter head sparepart.
(6) Requires one or more relay outputs in the Rosemount 2410 Tank Hub.

Rosemount 5900C Radar Level Gauge with cone antenna

Rosemount 5900C with cone antenna is a non-contact radar level gauge. It is designed for easy installation on fixed roofs tanks, with smaller nozzles.

- Communicates via a 2-wire, intrinsically safe Tankbus for easy and safe installation
- Installation normally with tank in service
- Measures on a variety of products except asphalt or similar for which the parabolic antenna is recommended

Table 2: Rosemount 5900C Radar Level Gauge with Cone Antenna Ordering Information

Model	Product Description
5900C	Radar Level Gauge
Performance class	
2	±2 mm (0.08 in.) instrument accuracy
Safety certification (SIS)	
S[(1)]	Certified IEC 61508 SIL 2 capable
F	None. Ready for upgrade to Safety certification (SIS)
0	None
Redundancy	
1	None. Single radar level gauge electronics
Tankbus: Power and communication	
F	Bus powered 2-wire FOUNDATION™ Fieldbus (IEC 61158)
Hazardous location certification	
I1	ATEX Intrinsic Safety
I7	IECEx Intrinsic Safety
I5	FM-US Intrinsic Safety
I6	FM-Canada Intrinsic Safety
I2	INMETRO Intrinsic Safety (Brazil)
IP	KC Intrinsic Safety (South Korea)

Table 2: Rosemount 5900C Radar Level Gauge with Cone Antenna Ordering Information *(continued)*

IW	CCOE/PESO Intrinsic Safety (India)
I4[2]	Japan Intrinsic Safety
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety
NA	None
Custody transfer type approval	
0	None
Level measurement method	
1	10 GHz FMCW radar technology
2	10 GHz FMCW radar technology for US installation
Housing	
A	Standard enclosure, polyurethane-covered aluminum. IP 66/67
Cable entry/Conduit connections	
1	½ - 14 NPT, female thread. (1 plug included)
2	M20 x 1.5 adapters, female thread. (2 adapters and 1 plug included)
G	Metal cable glands (½ - 14 NPT). Minimum temperature -20 °C (-4 °F). ATEX/IECEx Exe approved. (2 glands and 1 plug included)
E	eurofast® male connector (1 plug included)
M	minifast® male connector (1 plug included)
Antenna	
1C	Cone antenna
Antenna size	
4	4 in. / DN 100, Ø=93 mm (3.7 in.)
6[3]	6 in. / DN 150, Ø=141 mm (5.6 in.)
8[3]	8 in. / DN 200, Ø=189 mm (7.4 in.)
X	Customer-specific, consult factory
Antenna material	
S	SST AISI 316/316L and SST EN 1.4401/1.4404
X	Customer-specific, consult factory
Tank seal	
PV	PTFE with Viton® fluoroelastomer O-rings
PK	PTFE with Kalrez® perfluoroelastomer O-rings
QV	Quartz with Viton® fluoroelastomer O-rings
QK	Quartz with Kalrez® perfluoroelastomer O-rings
Tank connection	
ANSI Hole Pattern (SST AISI 316 L) – Flat Face[4]	
6T	6 in. Class 150

Table 2: Rosemount 5900C Radar Level Gauge with Cone Antenna Ordering Information *(continued)*

8T	8 in. Class 150
EN Hole Pattern (SST EN 1.4404) – Flat Face[4]	
KT	DN 150/PN 16
MT	DN 200/PN 10
ANSI flanges (SST AISI 316 L) – Raised Face	
4A	4 in. Class 150
4B	4 in. Class 300
6A	6 in. Class 150
6B	8 in. Class 150
EN flanges (SST EN 1.4404) – Flat Face	
JA	DN 100 PN 16
JB	DN 100 PN 40
KA	DN 150 PN 16
LA	DN 200 PN 16
Other	
00	None
XX	Customer-specific, consult factory.
Antenna options	
0	None
1[5]	Extended Cone Antenna, total length 20 in. (500 mm).
X	Customer-specific, consult factory.
Options (include with selected model number)	
Safety certificate	
QT[6]	IEC 61508 certificate and FMEDA-data (printed copy)
Calibration certificate	
Q4	Calibration certificate (printed copy)
Material traceability certificate	
Q8[7]	Antenna material traceability certification per EN 10204 3.1
Overfill protection approval	
U1[8]	TÜV/DIBt WHG approval for overfill protection
U2	SVTI approval for overfill protection (Switzerland)
Tag plate	
ST	Engraved SST tag plate
Extended warranty	
WR3	3-year limited warranty
WR5	5-year limited warranty

Table 2: Rosemount 5900C Radar Level Gauge with Cone Antenna Ordering Information *(continued)*

Typical Model Number: 5900C 3 0 1 F I5 0 2 A G 1C 8 S PV 8A 0 ST

(1) Requires Rosemount 2410 with either Analog output 4-20 mA or Relay output code 1 or 2.
(2) Not available with Cable entry/Conduit connections code E or M.
(3) Only for free propagation installations.
(4) Thin flange for non-pressurized applications, max pressure 0,2 bar (2.9 psi).
(5) Requires Antenna size code 4 or 6.
(6) Requires Safety certification (SIS) code S.
(7) Not available for transmitter head sparepart.
(8) Requires one or more relay outputs in the Rosemount 2410 Tank Hub.

Rosemount 5900C Radar Level Gauge with still-pipe array antenna

The Rosemount 5900C with array antenna is a non-contact radar level gauge for still-pipe measurement. It is available in two versions, fixed and hinged hatch. Typical applications are crude oil tanks with floating roofs and gasoline/product tanks with or without inner floating roofs.

- Suitable for crude oil, gasoline or similar products. For Methanol please consult factory.
- Certified SIL 2 capable according to IEC 61508
- Tolerant against rust and product deposits inside the pipe
- Communicates via a 2-wire, low voltage Tankbus for easy and safe installation
- Hinged hatch version enables easier product sampling and hand-dips
- Installation normally with tank in service

Table 3: Rosemount 5900C Radar Level Gauge with Still-Pipe Array Antenna Ordering Information

Model	Product Description
5900C	Radar Level Gauge
Performance class	
2	±2 mm (0.08 in.) instrument accuracy
Safety certification (SIS)	
S[1]	Certified IEC 61508 SIL 2 capable
F	None. Ready for upgrade to Safety certification (SIS)
0	None
Redundancy	
1	None. Single radar level gauge electronics
Tankbus: Power and communication	
F	Bus powered 2-wire FOUNDATION™ Fieldbus (IEC 61158)
Hazardous location certification	
I1	ATEX Intrinsic Safety
I7	IECEx Intrinsic Safety
I5	FM-US Intrinsic Safety
I6	FM-Canada Intrinsic Safety
I2	INMETRO Intrinsic Safety (Brazil)
IP	KC Intrinsic Safety (South Korea)
IW	CCOE/PESO Intrinsic Safety (India)
I4[2]	Japan Intrinsic Safety
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety
NA	None
Custody transfer type approval	
0	None

Table 3: Rosemount 5900C Radar Level Gauge with Still-Pipe Array Antenna Ordering Information *(continued)*

Level measurement method	
1	10 GHz FMCW radar technology
2	10 GHz FMCW radar technology for US installation
Housing	
A	Standard enclosure, polyurethane-covered aluminum. IP 66/67
Cable entry/Conduit connections	
1	½ - 14 NPT, female thread. (1 plug included)
2	M20 x 1.5 adapters, female thread. (2 adapters and 1 plug included)
G	Metal cable glands (½ - 14 NPT). Minimum temperature -20 °C (-4 °F). ATEX/IECEx Exe approved. (2 glands and 1 plug included)
E	eurofast® male connector (1 plug included)
M	minifast® male connector (1 plug included)
Antenna	
1A	Still-pipe array antenna
Antenna size	
5	5 in./DN 125, Ø=120 mm (4.7 in.)
6	6 in./DN 150, Ø=145 mm (5.7 in.)
8	8 in./DN 200, Ø=189 mm (7.4 in.)
A	10 in./DN 250, Ø=243 mm (9.8 in.)
B	12 in./DN 300, Ø=293 mm (11.8 in.)
Antenna material	
S	SST (AISI 316L / EN 1.4404) and PPS (polyphenylene sulfide)
Tank seal	
FF	Fixed flange installation with fluorosilicone O-ring
HH	Integrated hatch installation with fluorosilicone O-ring (direct access to pipe with hand gauge)
Tank connection	
ANSI Hole Pattern (SST AISI 316/316 L) – Flat Face	
5A	5 in. Class 150
6A	6 in. Class 150
8A	8 in. Class 150
AA	10 in. Class 150
BA	12 in. Class 150
EN Hole Pattern (SST EN 1.4404) – Flat Face	
KA	DN 150 PN 16
LA	DN 200 PN 10
MB	DN 250 PN 16

Table 3: Rosemount 5900C Radar Level Gauge with Still-Pipe Array Antenna Ordering Information *(continued)*

Antenna options	
0	None
C	Clamp flange in galvanized steel (for still-pipes without a flange). Available for 6, 8 , 10, and 12 in. tank connections.
V(3)(4)	Proof test verification reflector (size equal to Tank connection)
Options (include with selected model number)	
Safety certificate	
QT(5)	IEC 61508 certificate and FMEDA-data (printed copy)
Calibration certificate	
Q4	Calibration certificate (printed copy)
Material traceability certificate	
Q8(6)	Antenna material traceability certification per EN 10204 3.1
Overfill protection approval	
U1(7)	TÜV/DIBt WHG approval for overfill protection
U2	SVTI approval for overfill protection (Switzerland)
Tag plate	
ST	Engraved SST tag plate
Extended warranty	
WR3	3-year limited warranty
WR5	5-year limited warranty
Typical Model Number: 5900C 3 F 1 F I5 0 2 A 1 1A 5 S FF AA C Q4	

(1) Requires Rosemount 2410 with either Analog output 4-20 mA or Relay output code 1 or 2.
(2) Not available with Cable entry/Conduit connections code E or M.
(3) Requires Antenna size 6 or 8.
(4) Not available with Options code U1.
(5) Requires Safety certification (SIS) code S.
(6) Not available for transmitter head sparepart.
(7) Requires one or more relay outputs in the Rosemount 2410 Tank Hub.

Rosemount 5900C Radar Level Gauge with LPG/LNG antenna

The Rosemount 5900C with LPG/LNG antenna is a non-contact radar level gauge for measurement on pressurized or cryogenic liquefied gas. Radar signals are transmitted inside the still-pipe which enables the gauge to have a sufficiently strong echo even under turbulent conditions, such as a boiling surface.

- Certified SIL 2 capable according to IEC 61508
- Reference device function enables measurement verification with the tank in service
- Communicates via a 2-wire, low voltage Tankbus for easy and safe installation
- Built-in pressure sensor for vapor compensation gives best measurement performance
- Integrated ball valve

Table 4: Rosemount 5900C Radar Level Gauge with LPG/LNG Antenna Ordering Information

Model	Product Description
5900C	Radar Level Gauge
Performance class	
2	±2 mm (0.08 in.) instrument accuracy
Safety certification (SIS)	
S(1)	Certified IEC 61508 SIL 2 capable
F	None. Ready for upgrade to Safety certification (SIS)
0	None
Redundancy	
1	None. Single radar level gauge electronics
Tankbus: Power and communication	
F	Bus powered 2-wire FOUNDATION™ Fieldbus (IEC 61158)
Hazardous location certification	
I1	ATEX Intrinsic Safety

Table 4: Rosemount 5900C Radar Level Gauge with LPG/LNG Antenna Ordering Information *(continued)*

I7	IECEx Intrinsic Safety
I5	FM-US Intrinsic Safety
I6	FM-Canada Intrinsic Safety
I2	INMETRO Intrinsic Safety (Brazil)
IP	KC Intrinsic Safety (South Korea)
IW	CCOE/PESO Intrinsic Safety (India)
I4[(2)]	Japan Intrinsic Safety
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety
NA	None
Custody transfer type approval	
0	None
Level measurement method	
1	10 GHz FMCW radar technology
2	10 GHz FMCW radar technology for US installation
Housing	
A	Standard enclosure, polyurethane-covered aluminum. IP 66/67
Cable entry/Conduit connections	
1	½ - 14 NPT, female thread. (1 plug included)
2	M20 x 1.5 adapters, female thread. (2 adapters and 1 plug included)
G	Metal cable glands (½ - 14 NPT). Minimum temperature -20 °C (-4 °F). ATEX/IECEx Exe approved. (2 glands and 1 plug included)
E	eurofast® male connector (1 plug included)
M	minifast® male connector (1 plug included)
Antenna	
G1	LNG still-pipe antenna (with integrated ball-valve)
G2[(3)]	LPG/LNG still-pipe antenna (with integrated ball-valve and pressure transmitter)
Antenna size	
A	4 in. Schedule 10, Ø=107 mm (4.2 in.)
B	4 in. Schedule 40, Ø=101 mm (4.0 in.)
D	DN 100, Ø=99 mm (3.9 in.)
Antenna material	
S	SST AISI 316/316L and SST EN1.4401/1.4404
Tank seal	
PT	PTFE sealing
Tank connection	
ANSI Flanges (SST AISI 316/316 L) – Raised Face	

Table 4: Rosemount 5900C Radar Level Gauge with LPG/LNG Antenna Ordering Information *(continued)*

1B[4]	1.5 in. Class 300
2A[4]	2 in. Class 150
2B[4]	2 in. Class 300
3A[4]	3 in. Class 150
3B[4]	3 in. Class 300
4A	4 in. Class 150
4B	4 in. Class 300
6A	6 in. Class 150
6B	6 in. Class 300
8A	8 in. Class 150
8B	8 in. Class 300
Antenna options	
V	Measurement verification kit with 1 verification pin and 1 pipe end deflector kit
Options (include with selected model number)	
Safety certificate	
QT[5]	IEC 61508 certificate and FMEDA-data (printed copy)
Calibration certificate	
Q4	Calibration certificate (printed copy)
Material traceability certificate	
Q8[6]	Antenna material traceability certification per EN 10204 3.1
Overfill protection approval	
U1[7]	TÜV/DIBt WHG approval for overfill protection
U2	SVTI approval for overfill protection (Switzerland)
Tag plate	
ST	Engraved SST tag plate
Hydrostatic pressure test	
P1	Antenna hydrostatic pressure testing
Extended warranty	
WR3	3-year limited warranty
WR5	5-year limited warranty
Typical Model Number: 5900C 3 F 1 F I1 0 1 A 2 G1 B S QA 4A V Q4	

(1) Requires Rosemount 2410 with either Analog output 4-20 mA or Relay output code 1 or 2.
(2) Not available with Cable entry/Conduit connections code E or M.
(3) Requires Hazardous location certification code I1, I2, I5, I6, I7, IP, I4 or IM.
(4) Requires Antenna size code A.
(5) Requires Safety certification (SIS) code S.
(6) Not available for transmitter head sparepart.
(7) Requires one or more relay outputs in the Rosemount 2410 Tank Hub.

Rosemount 5900C Radar Level Gauge with 1- and 2-in. still-pipe antenna

The 1- and 2-in. still-pipe gauges are suitable for clean liquids only and can be delivered complete with still-pipe, deflection plate, and fittings without any need for welding.

Table 5: Rosemount 5900C Radar Level Gauge with 1- and 2-in. Still-Pipe Antennas Ordering Information

Model	Product Description
5900C	Radar Level Gauge
Performance class	
2	±2 mm (0.08 in.) instrument accuracy
Safety certification (SIS)	
S[1]	Certified IEC 61508 SIL 2 capable
F	None. Ready for upgrade to Safety certification (SIS)
0	None
Redundancy	
1	None. Single radar level gauge electronics
Tankbus: Power and communication	
F	Bus powered 2-wire FOUNDATION™ Fieldbus (IEC 61158)
Hazardous location certification	
I1	ATEX Intrinsic Safety
I7	IECEx Intrinsic Safety
I5	FM-US Intrinsic Safety
I6	FM-Canada Intrinsic Safety
I2	INMETRO Intrinsic Safety (Brazil)
IP	KC Intrinsic Safety (South Korea)
IW	CCOE/PESO Intrinsic Safety (India)
I4[2]	Japan Intrinsic Safety
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety
NA	None
Custody transfer type approval	
0	None
Level measurement method	
1	10 GHz FMCW radar technology
2	10 GHz FMCW radar technology for US installation
Housing	
A	Standard enclosure, polyurethane-covered aluminum. IP 66/67
Cable entry/Conduit connections	
1	½ - 14 NPT, female thread. (1 plug included)

Table 5: Rosemount 5900C Radar Level Gauge with 1- and 2-in. Still-Pipe Antennas Ordering Information *(continued)*

2	M20 x 1.5 adapters, female thread. (2 adapters and 1 plug included)	
G	Metal cable glands (½ - 14 NPT). Minimum temperature -20 °C (-4 °F). ATEX/IECEx Exe approved. (2 glands and 1 plug included)	
E	eurofast® male connector (1 plug included)	
M	minifast® male connector (1 plug included)	
Antenna		
11(3)	Still-pipe 1-in. antenna (deflector plate included)	
12	Still-pipe 2-in. antenna (deflector plate included)	
Antenna size		**Antenna**
2	2 in./DN 50 plate	1-in.
0	21/2-in./DN 65 plate	1-in.
3	3-in./DN 80 plate	1-in., 2-in.
4	4-in./DN 100 plate	1-in., 2-in.
6	6-in./DN 150 plate	2-in.
8	6-in./DN 200 plate	2-in.
Antenna material		**Antenna**
S	SST AISI 316L/EN 1.4436	1-in., 2-in.
X	Customer-specific, consult factory	1-in.
Tank seal		
PV	PTFE with Viton fluoroelastomer O-rings	
PK	PTFE with Kalrez perfluoroelastomer O-rings	
QV	Quartz with Viton fluoroelastomer O-rings	
QK	Quartz with Kalrez perfluoroelastomer O-rings	
Tank connection		
ANSI flanges (SST AISI 316/316 L) - flat face		Antenna
2A	2 in. Class 150	1-in.
2B	2 in. Class 300	1-in.
3A	3 in. Class 150	1-in., 2-in.
3B	3 in. Class 300	1-in., 2-in.
4A	4 in. Class 150	1-in., 2-in.
4B	4 in. Class 300	1-in., 2-in.
6A	6 in. Class 150	2-in.
8A	8 in. Class 150	2-in.
EN flanges (SST EN 1.4404) - flat face		Antenna
HB	DN 50 PN40	1-in.
IA	DN 80 PN16	1-in., 2-in.

Table 5: Rosemount 5900C Radar Level Gauge with 1- and 2-in. Still-Pipe Antennas Ordering Information *(continued)*

IB	DN 80 PN40	1-in., 2-in.
JA	DN 100 PN16	1-in., 2-in.
JB	DN 100 PN40	1-in., 2-in.
KA	DN 150 PN16	2-in.
LA	DN 200 PN16	2-in.
Other		Antenna
00	None	1-in., 2-in.
XX	Customer specific, consult factory	2-in.
Antenna options		**Antenna**
0	None (excluding still-pipe)	2-in.
1	Still-pipe, length 3.0 m (9.8 ft)	1-in., 2-in.
2	Still-pipe, length 6.0 m (19.7 ft)	2-in.
3	Still-pipe, length 9.0 m (29.5 ft)	2-in.
4	Still-pipe, length 12 m (39.4 ft)	2-in.
X	Customer specific, consult factory	1-in.
Options (include with selected model number)		
Safety certificate		
QT[4]	IEC 61508 certificate and FMEDA-data (printed copy)	
Calibration certificate		
Q4	Calibration certificate (printed copy)	
Material traceability certificate		
Q8[5]	Antenna material traceability certification per EN 10204 3.1	
Overfill protection approval		
U1[6]	TÜV/DIBt WHG approval for overfill protection	
U2	SVTI approval for overfill protection (Switzerland)	
Tag plate		
ST	Engraved SST tag plate	
Extended warranty		
WR3	3-year limited warranty	
WR5	5-year limited warranty	
Typical Model Number: 5900C 3 S 1 F I5 0 2 A G 11 2 S PK 2B 1 ST		

(1) Requires Rosemount 2410 with either Analog output 4-20 mA or Relay output code 1 or 2.
(2) Not available with Cable entry/Conduit connections code E or M.
(3) Antenna and still-pipe 3000 mm included.
(4) Requires Safety certification (SIS) code S.
(5) Not available for transmitter head sparepart.
(6) Requires one or more relay outputs in the Rosemount 2410 Tank Hub.

Specifications

General

Instrument accuracy

± 2.0 mm (0.08 in.)

Instrument accuracy is under reference conditions. Reference conditions are: Measurement in test bench at Rosemount Tank Radar AB in Mölnlycke Sweden. Test bench is calibrated minimum yearly by an accredited laboratory (SP Technical Research Institute of Sweden. Measuring range is up to 30 m (98 ft). Ambient temperature and humidity is close to constant during tests. Total uncertainty in test bench is below 0.15 mm (0.006 in.).

Temperature stability

Typically < ± 0.5 mm (0.020 in.) in -40 to +70 °C (-40 to +158 °F)

Fieldbus (standard)

FOUNDATION™ Fieldbus FISCO (Tankbus)

Update time

New measurement every 0.3 s

Repeatability

0.2 mm (0.008 in.)

Maximum level rate

Up to 200 mm/s

Metrology sealing possibility

Yes

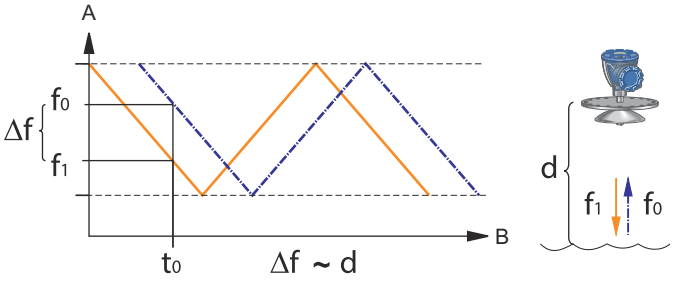
Installation considerations

See Rosemount 5900C Reference Manual

Measurement principle

The FMCW-method (Frequency Modulated Continuous Wave) means that the transmitted radar signal has a linear frequency variation around 10 GHz. The reflection from the liquid surface has a slightly different frequency compared with the signal transmitted from the antenna when the reflection is received. The difference in frequency is directly proportional to the distance between the antenna and the liquid surface, and thereby also the liquid level. This technology enables a very accurate and stable measured value.

Figure 2: Principle of FMCW Technology



A. Frequency, f (GHz)
B. Time, t (s)

Communication / Display / Configuration

Output variables and units

- Level, and ullage: meter, centimeter, millimeter, feet, or inch
- Level rate: meter/second, meter/hour, feet/second, feet/hour, inch/minute
- Signal strength: mV

Configuration tools

Rosemount TankMaster WinSetup, Field Communicator

FOUNDATION™ Fieldbus characteristics

Polarity sensitive

No

Quiescent current draw

51 mA

Lift-off minimum voltage

9.0 VDC

Device capacitance / inductance

See Product Certifications.

Class (Basic or Link Master)

Link Master (LAS)

Number of available VCRs

Maximum 20, including one fixed

Links

Maximum 40

Minimum slot time / maximum response delay/ minimum intermessage delay

8/5/8

Blocks and Execution time

Table 6: Execution Time

Block	Execution time
1 Resource block	N/A
5 Transducer blocks (Level, Register, Adv_Config, Volume, and LPG)	N/A
6 Analog Input (AI)	10 ms
2 Analog Output (AO)	10 ms
1 Proportional/Integral/Derivate (PID)	15 ms
1 Signal Characterizer (SGCR)	10 ms
1 Integrator (INT)	10 ms
1 Arithmetic (ARTH)	10 ms
1 Input Selector (ISEL)	10 ms
1 Control Selector (CS)	10 ms
1 Output Splitter (OS)	10 ms

For more information, see the FOUNDATION Fieldbus Blocks Manual.

Instantiation

Yes

Conforming FOUNDATION Fieldbus

ITK 6

Field Diagnostics support

Yes

Action support wizards

Restart measurement, write protect device, factory reset - measurement configuration, start/stop device simulation, set as surface, reset statistics, change all modes, register/remove false echo, refresh echo peaks, pin verification, change vapor pressure, change vapor temperature.

Advanced diagnostics

Software, memory/database, electronics, internal communication, simulation, level correction, level measurement, ambient temperature, vapor pressure/temperature correction, LPG verification pin, and manual measurement values.

Electric

Tankbus cabling

0.5-1.5 mm^2 (AWG 22-16), twisted shielded pairs

Power supply

FISCO: 9.0 - 17.5 VDC polarity insensitive (for example from Rosemount 2410 Tank Hub)

Entity: 9.0 - 30.0 VDC polarity insensitive

Bus current draw

50 mA

Microwave output power

< 1 mW

Build-in Tankbus terminator

Yes (to be connected if required)

Daisy chain possibility

Yes

Mechanical

Housing material & surface treatment

Polyurethane-coated die-cast aluminum

Cable entry (connection/glands)

Two ½ - 14 NPT entries for cable glands or conduits. One metal plug to seal any unused port is enclosed in the transmitter delivery.

Optional:

- M20 x 1.5 conduit / cable adapter
- Cable glands in metal (½ - 14 NPT)
- 4-pin male eurofast connector or A size Mini 4-pin male minifast connector

Total weight

Table 7: Weight of Transmitter Head

Transmitter head	Weight
Rosemount 5900C transmitter head	5.1 kg (11.2 lbs)

Table 8: Weight With Antenna

Transmitter head with antenna	Weight
Rosemount 5900C with cone antenna	Appr. 12 kg (26 lbs)
Rosemount 5900C with parabolic antenna	Appr. 17 kg (37 lbs)
Rosemount 5900C with still-pipe array antenna	Appr. 13.5-24 kg (30-53 lbs)
Rosemount 5900C with LPG/LNG antenna, 6-in. 150 psi	Appr. 30 kg (66 lbs)

Table 8: Weight With Antenna *(continued)*

Transmitter head with antenna	Weight
Rosemount 5900C with LPG/LNG antenna, 6-in. 300 psi	Appr. 40 kg (88 lbs)

Antennas

The Rosemount 5900C antennas have a drip-off design which for some versions also include inclined polished PTFE surfaces. Condensation on the antenna is minimized, and the radar signal remains strong. This results in maintenance free operation, high accuracy and reliability. There is always a suitable antenna for every tank type, tank opening and application:

- Parabolic
- Cone
- Still-pipe array
- LPG/LNG
- 1-in./2-in. still-pipe

Transmitter head

The same transmitter head is used for all Rosemount 5900C antenna types, minimizing spare part requirements:

- The dual compartment transmitter housing, with electronics and cabling separated, can be replaced without opening the tank
- It is protected against lightning, moisture/rain, and has a surface protection against sulphur and salt spray atmospheres
- Electronics consists of one encapsulated units.
- No need for re-calibration

Environment

Ambient operating temperature

-40 to +70 °C (-40 to +158 °F). Minimum start-up temperature is -50 °C (-58 °F)

Storage temperature

-50 to +85 °C (-58 to +185 °F)

Humidity

0-100% relative humidity

Ingress protection

IP 66/67 and NEMA® 4X

Vibration resistance

IEC 60770-1 level 1 and IACS UR E10 test 7

Telecommunication

Compliance with:

- FCC 15B Class A, and 15C
- RED (EU directive 2014/53/EU) ETSI EN 302372; EN 50371
- IC (RSS210-5)

Electromagnetic compatibility

- EMC (EU directive 2014/30/EU) EN 61326-1; EN 61326-3-1
- OIML R85:2008

Transient / built-in lightning protection

According to IEC 61000-4-5, level 2 kV line to ground. Complies with IEEE 587 Category B transient protection and IEEE 472 surge protection.

Low Voltage Directive (LVD)

LVD (EU directive 2014/35/EU) EN/IEC 61010-1

Rosemount 5900C with parabolic antenna

Operating temperature in tank

Max. +180 °C (+356 °F) with FEP O-ring, or +230 °C (+445 °F) with Kalrez® O-ring

Measuring range

0.8 to 30 m (2.6 to 100 ft) below flange.

Possibility to measure 0.5 to 50 m (1.6 to 164 ft). Accuracy may be reduced. For longer measuring range, consult your local representative.

Pressure range

Clamped/threaded: -0.2 to 0.2 bar (-2.9 to 2.9 psig)

Welded: -0.2 to 10 bar (-2.9 to 145 psig)

Material exposed to tank atmosphere

Antenna: Material corresponds to AISI 316/316L and EN 1.4401 /1.4404

Sealing: PTFE

O-ring: FEP, or Kalrez®

Antenna dimension

440 mm (17 in.)

Manway size and installation

500 mm (20-in.) opening.

The parabolic antenna is installed on the manway cover by using the flange ball. It is designed for easy adjustment of the antenna inclination and orientation within the specified limits.

The flexible flange ball can be installed on both horizontal or inclined manways without any special arrangements.

Tank connection

The gauge is clamped in a 96-mm (3.78-in.) diameter hole, or welded in a 117-mm (4.61-in.) diameter hole.

Rosemount 5900C with cone antenna

Operating temperature in tank

Max. +180 °C (+356 °F) with Viton® O-ring, or +230 °C (+445 °F) with Kalrez® O-ring

Measuring range, accuracy, and cone dimensions

When selecting cone antenna dimension, it is generally recommended to use as large antenna diameter as possible.

Standard cone antennas are available for 4-, 6- and 8-in. tank openings. The 4- and 6-in. cones can be extended to fit long tank nozzles.

Level accuracy is up to ±2 mm (0.08 in.) for 8-in. cone antennas. For 4- and 6-in. cone antennas accuracy depends on installation conditions.

Measuring range

8-in. Cone: 0,8 to 20 m (2.6 to 65 ft) below flange. (Possibility to measure 0,4 to 30 m (1.3 to 100 ft). Accuracy may be reduced.)

6-in. Cone: 0.8 to 20 m (2.6 to 65 ft) below flange. (Possibility to measure 0.3 to 25 m (1 to 80 ft). Accuracy may be reduced.)

4-in. Cone: 0.8 to 15 m (2.6 to 50 ft) below flange. (Possibility to measure 0.2 to 20 m (0.7 to 65 ft). Accuracy may be reduced.)

Material exposed to tank atmosphere

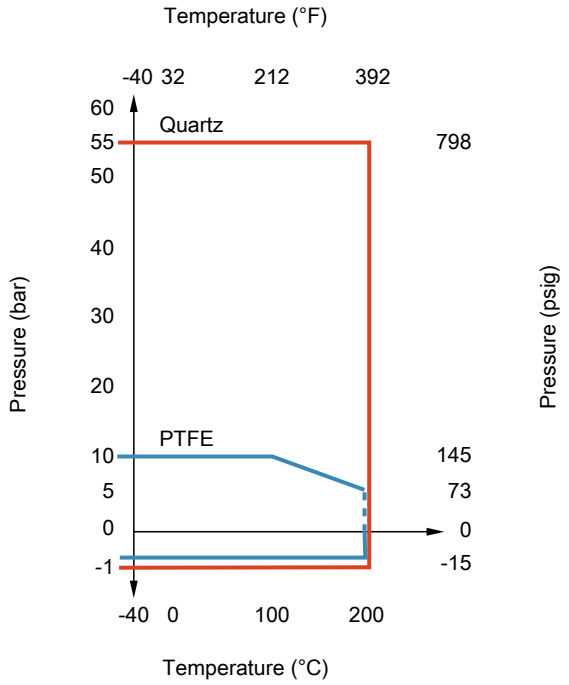
Antenna: SST AISI 316L/EN 1.4436

Sealing: PTFE, or Quartz

O-ring: Viton®, or Kalrez®

Pressure/temperature rating

Figure 3: Temperature and Maximum Pressure Relation



Rosemount 5900C with still-pipe array antenna

Operating temperature in tank

-40 to 120 °C (-40 to 248 °F)

Measuring range

0.8 to 30 m (2.6 to 100 ft) below flange.

Possibility to measure 0.5 to 40 m (1.6 to130 ft). Accuracy may be reduced. For longer measuring range, consult your local representative.

Pressure range

Fixed version: -0.2 to 2 bar (-2.9 to 29 psig) at 20 °C (68 °F).

Hinged hatch version: -0.2 to 0.5 bar (-2.9 to 7.2 psig) for 5 to 8-in. pipes.

-0.2 to 0.25 bar (-2.9 to 3.6 psig) for 10 and 12-in. pipes.

Material exposed to tank atmosphere

Antenna: Polyphenylenesulphide (PPS)

Sealing: PTFE

O-ring: FMVQ

Flange: Material corresponds to AISI 316/316L and EN 1.4401 /1.4404

Still-pipe dimensions

5-, 6-, 8-, 10- or 12 in.

Tank connection

5 in. hole pattern according to ANSI 5 in. Class 150

6 in. hole pattern according to ANSI 6 in. Class 150 / DN 150 PN 16

8 in. hole pattern according to ANSI 8 in. Class 150 / DN 200 PN 10

10 in. hole pattern according to ANSI 10 in. Class 150 / DN 250 PN 16

12 in. hole pattern according to ANSI 12 in. Class 150

Rosemount 5900C with LPG/LNG antenna

Operating temperature at ball valve

-55 to 90 °C (-67 to 194 °F)

Operating temperature in tank

-170 to 90 °C (-274 to 194 °F)

Measuring range

1.2 to 30 m (3.9 to 100 ft) below flange.

Possibility to measure 0.8 to 60 m (2.6 to 200 ft). Accuracy may be reduced. For longer measuring range, consult your local representative.

Pressure range

-1 to 25 bar (-14.5 to 365 psig).

Note! Flanges may have higher pressure rating than 25 bar, but maximum tank pressure is still 25 bar.

Pressure sensor (option)

Rosemount 2051. It is available with various hazardous location certifications, see Product Certifications.

For more information see the Rosemount 2051 Product Data Sheet.

Material exposed to tank atmosphere

Antenna and flange: Material corresponds to AISI 316/316L and EN 1.4401 /1.4404

Sealing: PTFE

Still-pipe dimension compatibility

Antenna choices for 4-in. sch. 10, 4-in. sch 40, or 100 mm (99 mm inner diameter) still-pipe dimensions

Flange size and rating

4 in. Class 150/300

6 in. Class 150/300

8 in. Class 150/300

Pressure seal

The pressure seal includes a double-block function, consisting of a PTFE seal and a fire-proof ball valve. A pressure sensor enables correction due to vapor for best measurement performance.

Verification possibility

A patented reference device function enables measurement verification with the tank in service. A verification pin mounted in a still-pipe hole, and a deflection plate with a verification ring at the lower still-pipe end provide reference echoes at fixed pre-defined distances.

Rosemount with 1- and 2-in. still-pipe antennas

Operating temperature in tank

Max. +180 °C (+356 °F) with Viton® O-ring, or +230 °C (+445 °F) with Kalrez® O-ring

Measuring range

1-in. still-pipe antenna: 0.2 to 3 m (0.7 to 9.8 ft.) below flange.

2-in. still-pipe antenna: 0.2 to 12 m (0.7 to 39 ft.) below flange.

(Possibility to measure longer ranges. For more information, contact your local Emerson representative.)

Material exposed to tank atmosphere

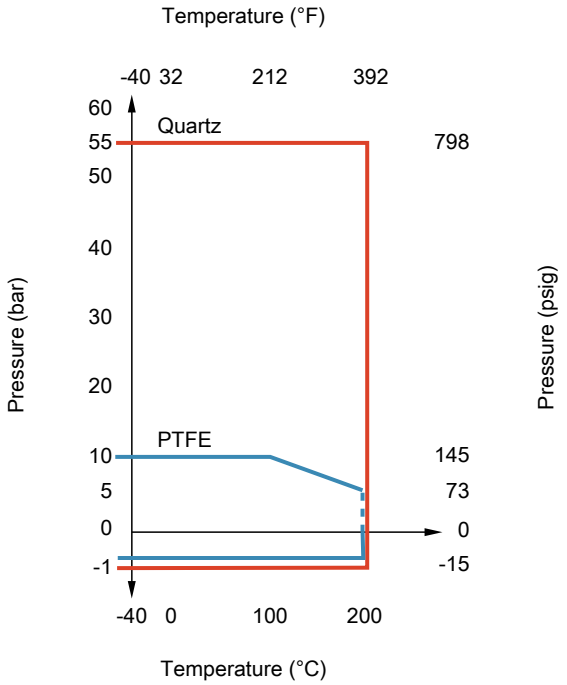
Antenna: SST 316L

Sealing: PTFE, or Quartz

O-ring: Viton®, or Kalrez®

Pressure/temperature rating

Figure 4: Temperature and Maximum Pressure Relation



Product Certifications

Rev 2.9

European directive information

The most recent revision of the EU Declaration of Conformity can be found at Emerson.com/Rosemount.

Ordinary Location Certification

As standard, the transmitter has been examined and tested to determine that the design meets the basic electrical, mechanical, and fire protection requirements by a nationally recognized test laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA). Complies with FM 3810:2005 and CSA: C22.2 No. 1010.1.

Telecommunication compliance

FCC

This device complies with Part 15C of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Certificate: K8C5900

IC

This device complies with RSS210-7.

Certificate: 2827A-5900

Radio Equipment Directive (RED)

This device complies with ETSI EN 302 372 and EN 62479. EU directive 2014/53/EU. The device shall be installed according to requirements ETSI EN 302372.

CE-mark

The product complies with applicable EU directives (EMC, ATEX, LVD, and RED). Based on the low emitted effects from the gauges (below 0.1 mW) compared to limits given by the Rec. 1999/519/EC, no additional measures are needed.

Installing Equipment in North America

The US National Electrical Code® (NEC) and the Canadian Electrical Code (CEC) permit the use of Division marked equipment in Zones and Zone marked equipment in Divisions.

The markings must be suitable for the area classification, gas, and temperature class. This information is clearly defined in the respective codes.

North America

I5 USA Intrinsic Safety

Certificate FM 17US0030X

Standards FM Class 3600:2018, FM Class 3610:2018, FM Class 3810:2005, ANSI/ISA 61010-1:2004, ANSI/NEMA 250:2003, ANSI/IEC 60529:2004, ANSI/UL 60079-0:2013 Ed 6, ANSI/UL 60079-11:2014 Ed 6.3, ANSI/UL 60079-26:2017 Ed 3

Markings IS/I,II,III/1/ABCDEFG/T4
DIP/II,III/1/EFG/T5
CL 1 ZN 0 AEx ia IIC T4 Ga
CL 1 ZN 0/1 AEx ib IIC T4 Ga/Gb
Ta = -50°C to 80°C - 9240040-917;
Type 4X; IP66; IP67

	Ui (Vmax)	Ii (Imax)	Pi	Ci	Li
Entity parameters	30 V	300 mA	1.3 W	1.1 nF	1.5 µH
FISCO parameters	17.5V	380 mA	5.32 W	1.1 nF	1.5 µH

Specific Conditions for Safe Use (X):

1. The enclosure contains aluminum and is considered to present a potential risk of ignition by impact or friction. When installed as EPL Ga, care must be taken during installation and use to prevent impact or friction.
2. Non-metallic surfaces and the surface of the painted housing may, under certain extreme conditions, generate an ignition-capable level of electrostatic. Appropriate measures must be taken to prevent electrostatic discharge.
3. Using the box provided on the nameplate, the User shall permanently mark the type of protection chosen for the specific installation. Once the type of protection has been marked it shall not be changed.
4. When installed as Ex ib Ga/Gb, the partition wall materials separating EPL Ga from EPL Gb are constructed of different materials depending on the antenna option. Please refer to Control Drawing D9240040-917 for the material type of each antenna. The material shall not be subject to environmental conditions which might adversely affect the partition wall.
5. Maximum Process Temperatures are as follows:

When option n=Tank Seal	O-ring Type	Min/Max Process Temperature Range
PV or QV	Viton	-15°C to +180°C
PK, FK, HK or QK	Kalrez	-20°C to +230°C
PE or QE	EPDM	-40°C to +110°C
PB or QB	BUNA-N	-35°C to +90°C
PM, FF, HH or QM	FVMQ	-60°C to +155°C
PF or QF	FEP	-60°C to +180°C

I6 Canada Intrinsic Safety

Certificate FM17CA0016X

Standards CSA-C22.2 No. 25-2017

CSA-C22.2 No. 94-M91:1991 (R2011)
CSA-C22.2 No. 1010-1:2004 (R2009)
CSA-C22.2 No. 60529:2016
CSA-C22.2 No. 60079-0:2015
CSA-C22.2 No. 60079-11:2014
CSA-C22.2 No. 60079-26:2016

Markings IS/I,II,III/1/ABCDEFG/T4
Ex ia IIC T4 Ga
Ex ib IIC T4 Ga/Gb
DIP/II,III/1/EFG/T5
Ta = -50°C to 80°C
9240040-917
Type 4X; IP66; IP67

	Ui (Vmax)	Ii (Imax)	Pi	Ci	Li
Entity parameters	30 V	300 mA	1.3 W	1.1 nF	1.5 µH
FISCO parameters	17.5V	380 mA	5.32 W	1.1 nF	1.5 µH

Specific Conditions for Safe Use (X):

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2. Non-metallic surfaces and the surface of the painted housing may, under certain extreme conditions, generate an ignition-capable level of electrostatic. Appropriate measures must be taken to prevent electrostatic discharge.
3. Using the box provided on the nameplate, the User shall permanently mark the type of protection chosen for the specific installation. Once the type of protection has been marked it shall not be changed.
4. When installed as Ex ib Ga/Gb, the partition wall materials separating EPL Ga from EPL Gb are constructed of different materials depending on the antenna option. Please refer to Control Drawing D9240040-917 for the material type of each antenna. The material shall not be subject to environmental conditions which might adversely affect the partition wall.
5. Maximum Process Temperatures are as follows:

When option n=Tank Seal	O-ring Type	Min/Max Process Temperature Range
PV or QV	Viton	-15°C to +180°C
PK, FK, HK or QK	Kalrez	-20°C to +230°C
PE or QE	EPDM	-40°C to +110°C
PB or QB	BUNA-N	-35°C to +90°C
PM, FF, HH or QM	FVMQ	-60°C to +155°C
PF or QF	FEP	-60°C to +180°C

Europe

I1 ATEX Intrinsic Safety

Certificate FM09ATEX0057X

Standards EN IEC 60079-0:2018, EN 60079-11:2012, EN 60079-26:2015, EN 60529:1991+A1(2000)+A2(2013)

Markings 

II 1 G Ex ia IIC T4 Ga

II 1/2 G Ex ib IIC T4 Ga/Gb

Ta = -50°C to 80°C; IP66, IP67

	Ui (Vmax)	Ii (Imax)	Pi	Ci	Li
Entity parameters	30 V	300 mA	1.3 W	1.1 nF	1.5 µH
FISCO parameters	17.5V	380 mA	5.32 W	1.1 nF	1.5 µH

Specific Conditions for Safe Use (X):

1. The enclosure contains aluminum and is considered to present a potential risk of ignition by impact or friction. When installed as EPL Ga, care must be taken during installation and use to prevent impact or friction.
2. Non-metallic surfaces and the surface of the painted housing may, under certain extreme conditions, generate an ignition-capable level of electrostatic. Appropriate measures must be taken to prevent electrostatic discharge.
3. Using the box provided on the nameplate, the User shall permanently mark the type of protection chosen for the specific installation. Once the type of protection has been marked it shall not be changed.
4. When installed as Ex ib Ga/Gb, the partition wall materials separating EPL Ga from EPL Gb are constructed of different materials depending on the antenna option. Please refer to Control Drawing D9240040-917 for the material type of each antenna. The material shall not be subject to environmental conditions which might adversely affect the partition wall.
5. Maximum Process Temperatures are as follows:

When option n=Tank Seal	O-ring Type	Min/Max Process Temperature Range
PV or QV	Viton	-15°C to +180°C
PK, FK, HK or QK	Kalrez	-20°C to +230°C
PE or QE	EPDM	-40°C to +110°C
PB or QB	BUNA-N	-35°C to +90°C
PM, FF, HH or QM	FVMQ	-60°C to +155°C
PF or QF	FEP	-60°C to +180°C

International

I7 IECEx Intrinsic Safety

Certificate IECEx FMG 09.0009X

Standards IEC 60079-0:2017, IEC 60079-11:2011, IEC 60079-26:2014

Markings Ex ia IIC T4 Ga
Ex ib IIC T4 Ga/Gb
Ta = -50°C to +80°C; IP66, IP67

	Ui (Vmax)	Ii (Imax)	Pi	Ci	Li
Entity parameters	30 V	300 mA	1.3 W	1.1 nF	1.5 µH
FISCO parameters	17.5V	380 mA	5.32 W	1.1 nF	1.5 µH

Specific Conditions for Safe Use (X):

1. The enclosure contains aluminum and is considered to present a potential risk of ignition by impact or friction. When installed as EPL Ga, care must be taken during installation and use to prevent impact or friction.
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3. Using the box provided on the nameplate, the User shall permanently mark the type of protection chosen for the specific installation. Once the type of protection has been marked it shall not be changed.
4. When installed as Ex ib Ga/Gb, the partition wall materials separating EPL Ga from EPL Gb are constructed of different materials depending on the antenna option. Please refer to Control Drawing D9240040-917 for the material type of each antenna. The material shall not be subject to environmental conditions which might adversely affect the partition wall.
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When option n=Tank Seal	O-ring Type	Min/Max Process Temperature Range
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PK, FK, HK or QK	Kalrez	-20°C to +230°C
PE or QE	EPDM	-40°C to +110°C
PB or QB	BUNA-N	-35°C to +90°C
PM, FF, HH or QM	FVMQ	-60°C to +155°C
PF or QF	FEP	-60°C to +180°C

Brazil

I2 INMETRO Intrinsic Safety

Certificate UL-BR 17.0982X

Standards ABNT NBR IEC 60079-0:2013, 60079-11:2013, 60079-26:2016

Markings Ex ia IIC T4 Ga/Gb
Tamb: -50 °C to + 80 °C
IP66/IP67

	Ui (Vmax)	Ii (Imax)	Pi	Ci	Li
Entity parameters	30 V	300 mA	1.3 W	1.1 nF	1.5 µH
FISCO parameters	17.5V	380 mA	5.32 W	1.1 nF	1.5 µH

Special Conditions for Safe Use (X):

1. See certificate for special conditions.

China

I3 China Intrinsic Safety

Certificate GYJ16.1251X

Standards GB 3836.1 - 2010, GB 3836.4 - 2010, GB 3836.20 - 2010

Markings Ex ia IIC T4 Ga

	Ui (Vmax)	Ii (Imax)	Pi	Ci	Li
Entity parameters	30 V	300 mA	1.3 W	1.1 nF	1.5 µH
FISCO parameters	17.5V	380 mA	5.32 W	1.1 nF	1.5 µH

Special Conditions for Safe Use (X):

1. See certificate for special conditions.

Technical Regulations Customs Union (EAC)

IM EAC Intrinsic Safety

Certificate RU C-SE.AA87.B.00346

Markings Ga/Gb Ex ia IIC T4 X
Tamb: -50 °C to + 80 °C
IP66/IP67

	Ui (Vmax)	Ii (Imax)	Pi	Ci	Li
Entity parameters	30 V	300 mA	1.3 W	1.1 nF	1.5 µH
FISCO parameters	17.5V	380 mA	5.32 W	1.1 nF	1.5 µH

Special Conditions for Safe Use (X):

1. See certificate for special conditions.

Japan

I4 Japan Intrinsic Safety

Certificate CML 17JPN2301X

Markings Ex ia IIC T4 Ga/Gb
-50 °C ≤ Ta ≤ +80 °C

	Ui (Vmax)	Ii (Imax)	Pi	Ci	Li
Entity parameters	30 V	300 mA	1.3 W	1.1 nF	1.5 µH
FISCO parameters	17.5V	380 mA	5.32 W	1.1 nF	1.5 µH

Special Conditions for Safe Use (X):

1. See certificate for special conditions.

Republic of Korea

IP Korea Intrinsic Safety

Certificate 14-KB4BO-0573X

Markings Ex ia IIC T4 Ga/Gb
(-50 °C ≤ Ta ≤ +80 °C)

	Ui (Vmax)	Ii (Imax)	Pi	Ci	Li
Entity parameters	30 V	300 mA	1.3 W	1.1 nF	1.5 µH
FISCO parameters	17.5V	380 mA	5.32 W	1.1 nF	1.5 µH

Special Conditions for Safe Use (X):

1. See certificate for special conditions.

Additional Certifications

Functional Safety Certification (SIS)

S Functional Safety

Certificate ROS 1312032 C004
SIL 2 1-in-1 (1oo1) option, with 4-20mA or K1/K2 relay

Standards IEC 61508:2010 Parts 1-7

Germany WHG Certification (DIBt)

Certificate Z-65.16-500

Belgium Overfill Certification (Vlarem)

Certificate 99/H031/13072201

India Intrinsic Safety

Certificate P349859/1

Markings	Ex ia IIC Ga/Gb

Pattern approvals

China pattern approval

CPA Pattern Approval

Certificate	2015-L206 (5900C)

Kazakhstan pattern approval

GOST Pattern Approval

Certificate	KZ.02.02.06177-2018 No.14983 (5900) KZ.02.02.04018-2014 No.10790 (System)

Russia pattern approval

GOST Pattern Approval

Certificate	SE.C.29.639.A No. 66902 (5900)

Product Certifications Rosemount 2051

Extract from Rosemount 2051 Product Certifications Rev: 1.13

North America

IE USA FISCO

Certificate	FM16US0231X
Standards	FM Class 3600 – 2011, FM Class 3610 – 2010, FM Class 3611 – 2004, FM Class 3810 – 2005
Markings	IS CL I, DIV 1, GP A, B, C, D when connected per Rosemount drawing 02051-1009 (-50°C ≤ Ta ≤ +60°C); Type 4x

Special Conditions for Safe Use (X):

1. The Model 2051 transmitter housing contains aluminum and is considered a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact and friction.

IF Canada Intrinsic Safety

Certificate	2041384
Standards	CSA Std. C22.2 No. 142 - M1987, CSA Std. C22.2 No. 213 - M1987, CSA Std. C22.2 No. 157 - 92, ANSI/ISA 12.27.01 – 2003, CAN/CSA-E60079-0:07, CAN/CSA-E60079-11:02
Markings	Intrinsically safe for Class I, Division 1, Groups A, B, C, and D when connected in accordance with Rosemount drawing 02051-1008. Ex ia IIC T3C. Single Seal. Enclosure Type 4X

Europe

IA ATEX FISCO

Certificate Baseefa08ATEX0129X

Standards EN60079-0:2012+A11:2013, EN60079-11:2012

Markings ⟨Ex⟩ II 1 G Ex ia IIC T4 Ga (-60°C ≤ Ta ≤ +60°C)

	Ui	Ii	Pi	Ci	Li
FISCO parameters	17.5V	380 mA	5.32 W	0 µF	0 mH

Special Conditions for Safe Use (X):

1. If the equipment is fitted with an optional 90V transient suppressor, it is incapable of withstanding the 500V isolation from earth test and this must be taken into account during installation.
2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however care should be taken to protect it from impact and abrasion when located in Zone 0.

International

IG IECEx FISCO

Certificate IECExBAS08.0045X

Standards IEC60079-0:2011, IEC60079-11:2011

Markings Ex ia IIC T4 Ga (-60°C ≤ Ta ≤ +60°C)

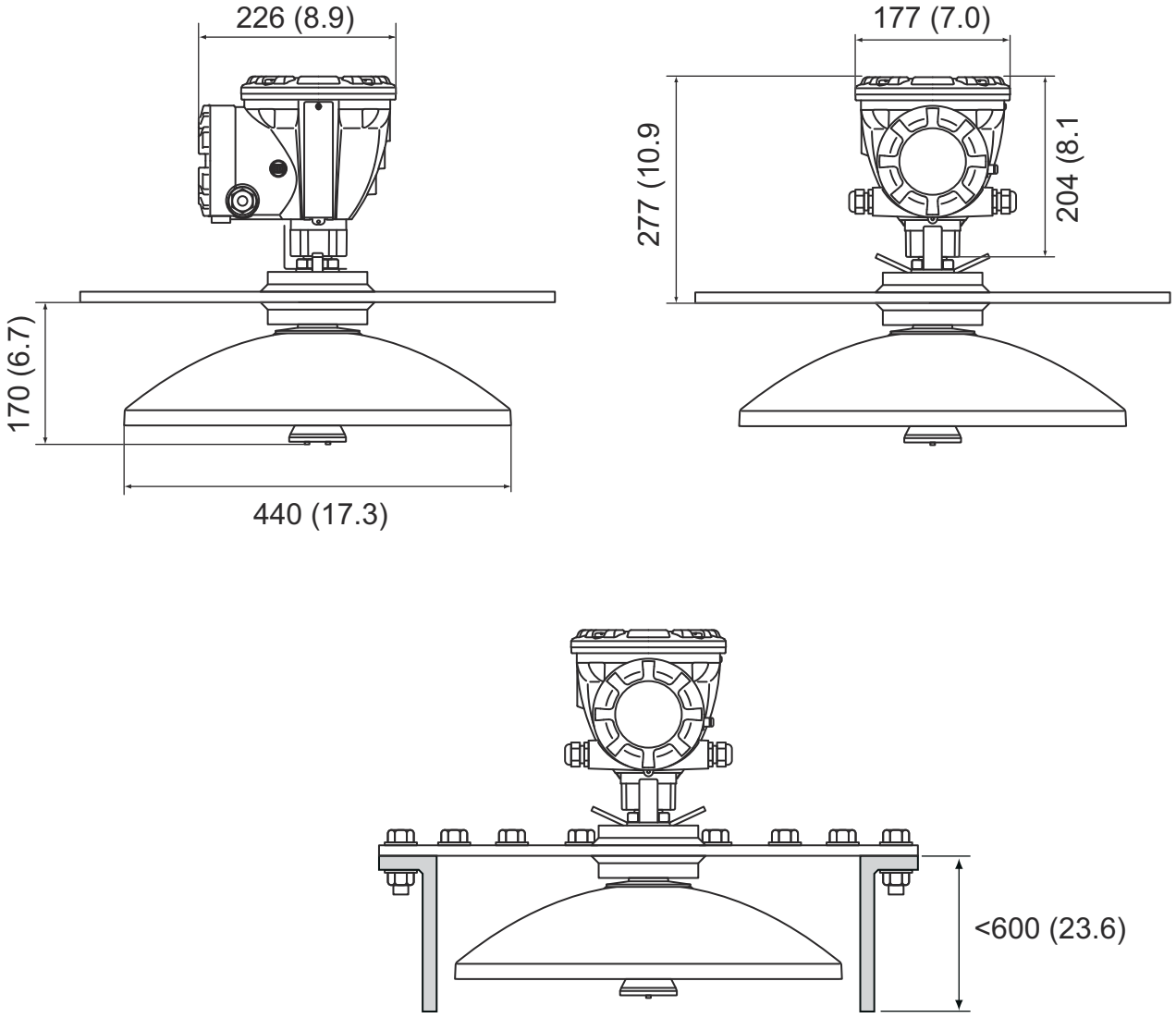
	Ui	Ii	Pi	Ci	Li
FISCO parameters	17.5V	380 mA	5.32 W	0 nF	0 µH

Special Conditions for Safe Use (X):

1. If the equipment is fitted with an optional 90V transient suppressor, it is incapable of withstanding the 500V isolation from earth test and this must be taken into account during installation.
2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however care should be taken to protect it from impact and abrasion when located in Zone 0.
3. The equipment contains thin wall diaphragms. The installation, maintenance and use shall take into account the environmental conditions to which the diaphragms will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.

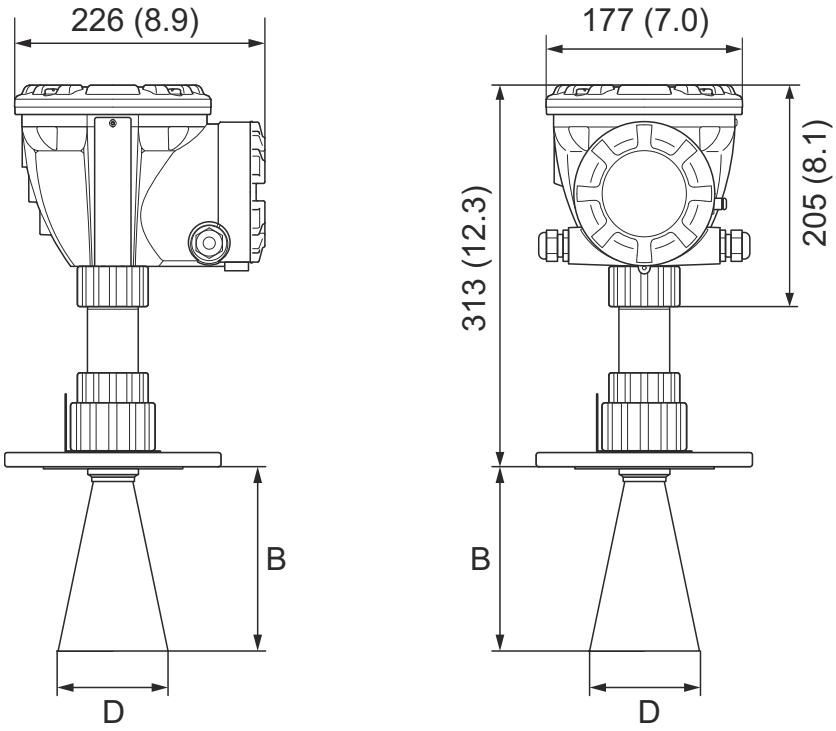
Dimensional drawings

Figure 5: Dimensions of Rosemount 5900C with Parabolic Antenna



Dimensions are in millimeters (inches).

Figure 6: Dimensions of Rosemount 5900C with Cone Antenna

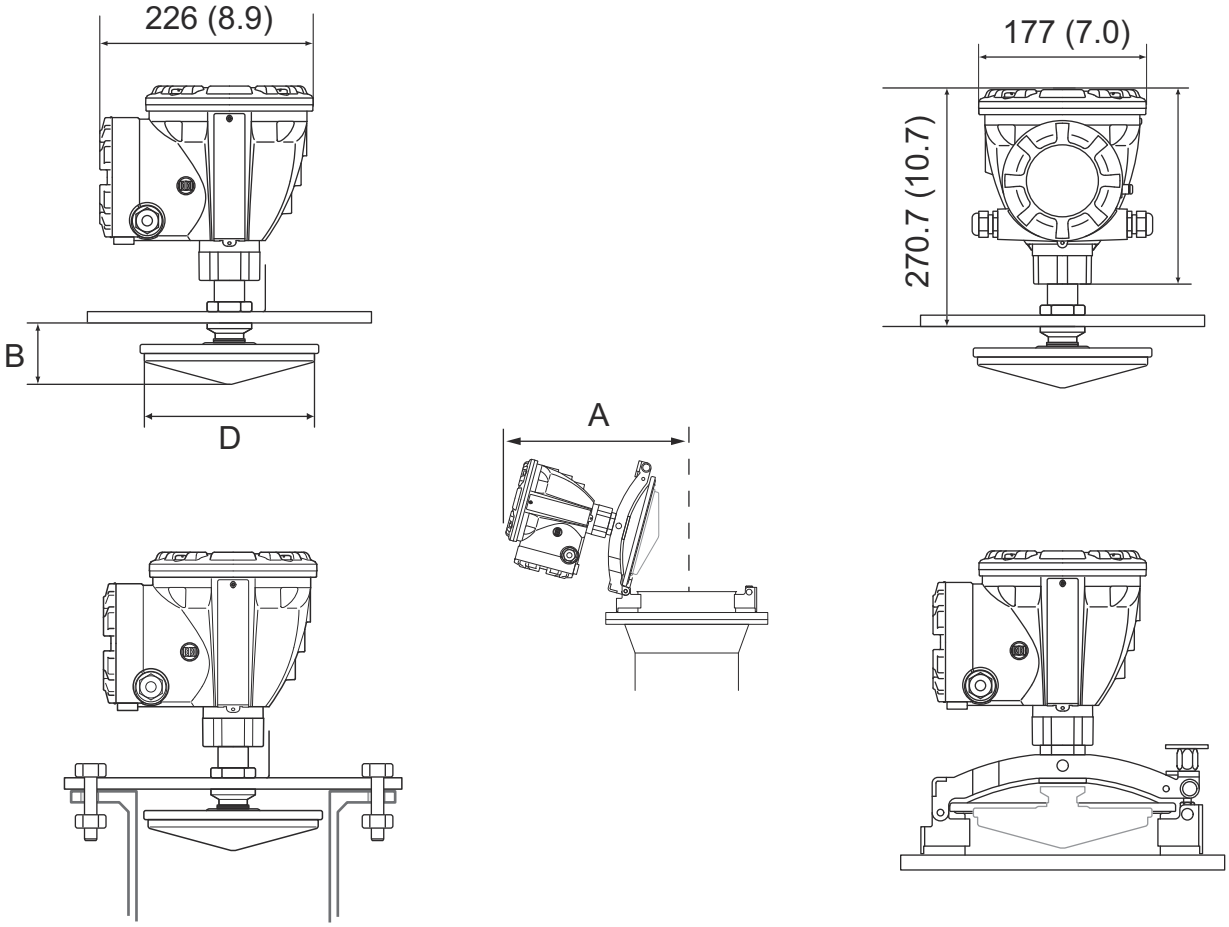


Dimensions are in millimeters (inches).

Table 9: Available Sizes for Cone Antenna

Antenna size	D	B
4 in. / DN100	93 (3.7)	150 (5.9)
6 in. / DN150	141 (5.6)	250 (10.2)
8 in. / DN200	189 (7.4)	370 (14.6)

Figure 7: Dimensions of Rosemount 5900C with Still-Pipe Array Antenna

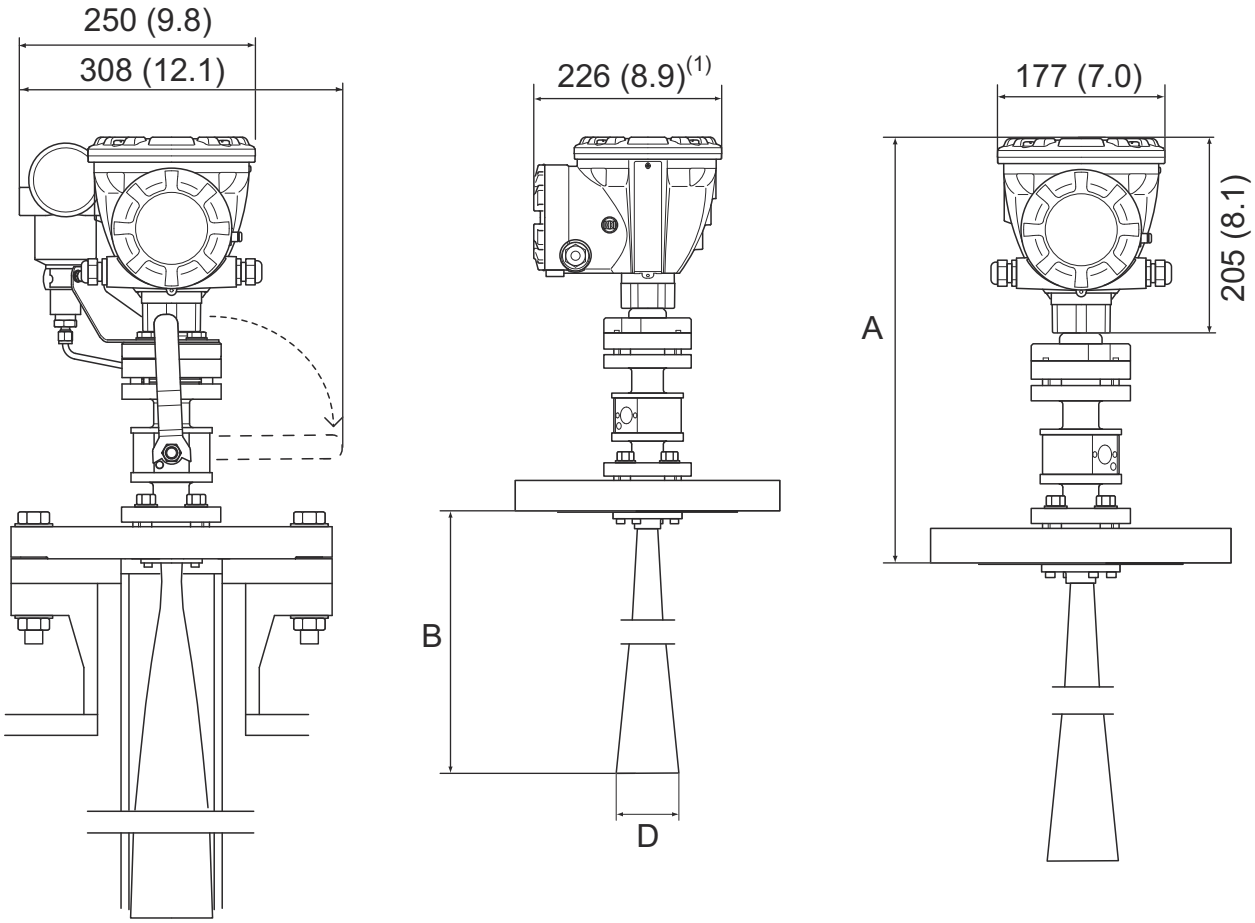


Dimensions are in millimeters (inches).

Table 10: Available sizes for Still-Pipe Array Antenna

Antenna size	D	B	A
5 in. / DN125	120 (4.7)	56 (2.2)	431 (17.0)
6 in. / DN150	145 (5.7)	59 (2.3)	431 (17.0)
8 in. / DN200	189 (7.4)	65 (2.6)	441 (17.4)
10 in. / DN250	243 (9.6)	73 (2.9)	450 (17.7)
12 in. / DN300	293 (11.5)	79 (3.1)	450 (17.7)

Figure 8: Dimensions of Rosemount 5900C with LPG/LNG Still-Pipe Antenna



A. Maximum 451 (17.7), depending on flange type

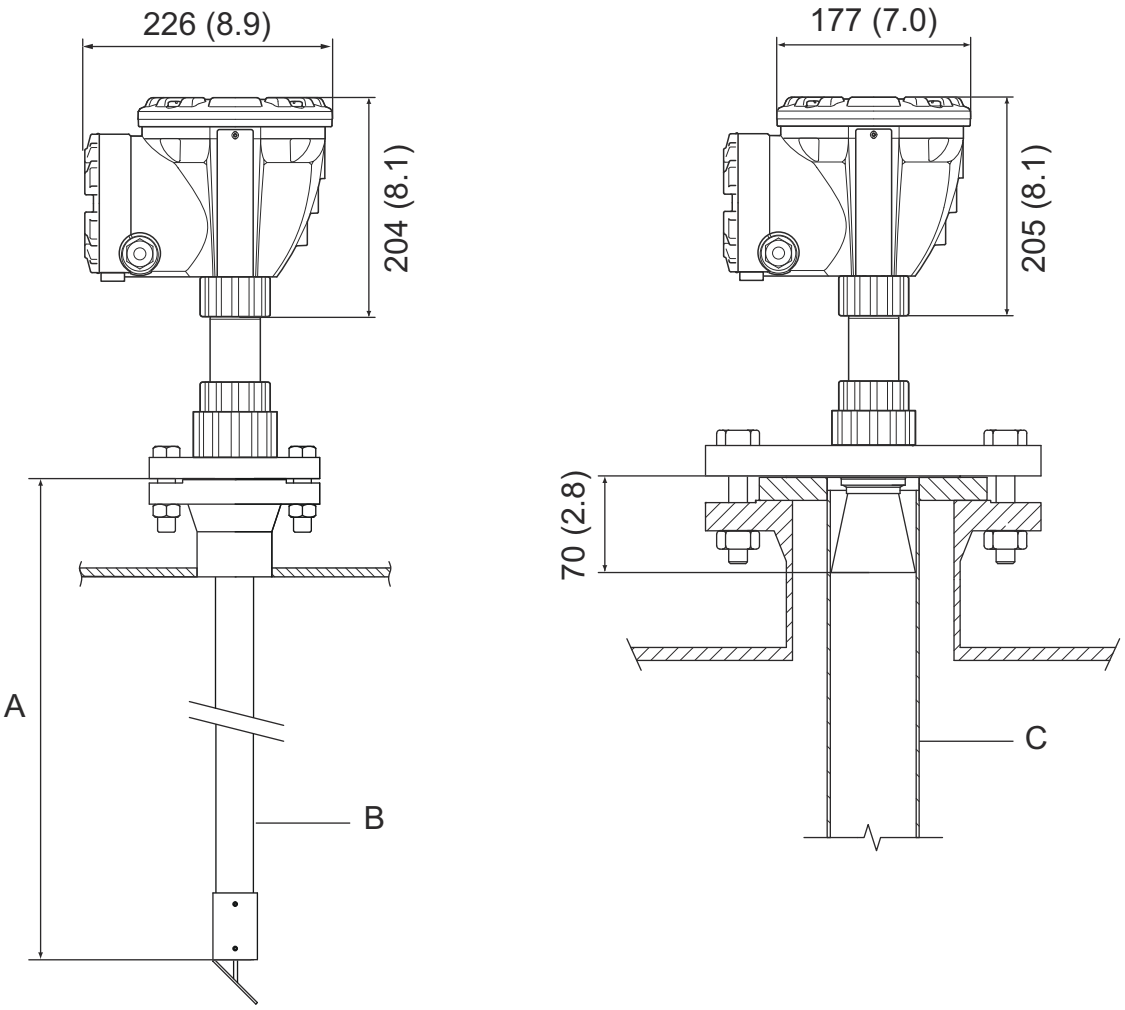
1. 302 (11.9) with pressure transmitter

Dimensions are in millimeters (inches).

Table 11: Available sizes for LPG/LNG Still-Pipe antenna

Antenna size	D	B (mm)
4 in. Sch10	107 (4.2)	752 (29.6)
4 in. Sch40	101 (4.0)	534 (21.0)
DN100	99 (3.9)	502 (19.8)

Figure 9: Dimensions of Rosemount 5900C with 1- and 2-in. Antenna



A. Standard length 3000 (118.1)
B. 1-in. still-pipe antenna
C. 2-in. still-pipe antenna

Dimensions are in millimeters (inches).

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