

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



The Rosemount 5900S with array antenna is a premium 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.
- Custody transfer accuracy according to OIML R85:2008
- Certified SIL 2 and SIL 3 capable according to IEC 61508
- 2-in-1 functionality available for redundant level measurement
- Tolerant against rust and product deposits inside the pipe, using Low Loss mode
- 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

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Required model components

Model

Code	Description
5900S	Radar Level Gauge

Performance class

Code	Description
P	Premium: ± 0.5 mm (0.020 in.) instrument accuracy

Safety certification (SIS)

Code	Description
3 ⁽¹⁾	Certified IEC 61508 SIL 3 capable
S ⁽²⁾	Certified IEC 61508 SIL 2 capable
F	None. Ready for upgrade to Safety certification (SIS)
0	None

(1) Requires Redundancy code 2 and Rosemount 2410 with Safety certification (SIS) code 3.

(2) Requires Rosemount 2410 with either Analog output 4-20 mA or Relay output code 1 or 2.

Redundancy

Code	Description
2	2-in-1: Dual independent radar level gauge electronics
F	None. Ready for upgrade to 2-in-1
1	None. Single radar level gauge electronics

Tankbus: Power and communication

Code	Description
F	Bus powered 2-wire FOUNDATION™ Fieldbus (IEC 61158)

Hazardous location certification

Code	Description
I1	ATEX Intrinsic Safety
I7	IECEx Intrinsic Safety
I5	FM-US Intrinsic Safety
I6	FM-Canada Intrinsic Safety
I2	INMETRO Intrinsic Safety (Brazil)
IP ⁽¹⁾	KC Intrinsic Safety (South Korea)
IW	CCOE/PESO Intrinsic Safety (India)
I3	NEPSI Intrinsic Safety (China)
I4 ⁽²⁾	Japan Intrinsic Safety
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety
NA	None

(1) Requires Custody transfer type approval code R or O.

(2) Not available with Cable entry/Conduit connections code E or M.

Custody transfer type approval

Requires the same Custody transfer type approval code for both the Rosemount 2410 and the Rosemount 5900S.

Code	Description
R ⁽¹⁾⁽²⁾	OIML R85 edition 2008
A ⁽¹⁾⁽³⁾	CMI (Czech Republic)
B ⁽¹⁾⁽³⁾	NMI (Australia)
C ⁽³⁾⁽⁴⁾	PTB Eich (Germany)
E ⁽¹⁾⁽³⁾	TJA (Estonia)
I ⁽¹⁾⁽⁵⁾	Ministero (Italy)
K ⁽¹⁾⁽³⁾⁽⁶⁾	GOST (Kazakhstan)
L ⁽⁵⁾⁽⁷⁾	LNE (France)
M ⁽¹⁾⁽⁹⁾	BMS (Belgium)
N ⁽⁸⁾⁽⁹⁾	NMi (The Netherlands)
O ⁽¹⁾⁽³⁾	ONML (Algeria)
Q ⁽¹⁾⁽³⁾	IPQ (Portugal)
T ⁽¹⁾⁽³⁾	ANM (Tunisia)
V ⁽¹⁾⁽²⁾	BEV (Austria)
W ⁽¹⁾⁽³⁾	METAS (Switzerland)
O	None

(1) Requires integral display in Rosemount 2410 or Rosemount 2230 or Rosemount TankMaster.

(2) Requires Calibration certificate options code Q4 or QL.

- (3) Requires Calibration certificate options code Q4.
- (4) Requires integral display in Rosemount 2410 or Rosemount 2230 with Custody transfer approval code C or Rosemount TankMaster.
- (5) Requires Calibration certificate options code S4.
- (6) Requires Hazardous location certification code I1.
- (7) Requires integral display in Rosemount 2410 or Rosemount 2230 with Custody transfer approval code L or Rosemount TankMaster.
- (8) Requires integral display in Rosemount 2410 or Rosemount 2230 with Custody transfer approval code N or Rosemount TankMaster.
- (9) Requires Calibration certificate options code S4 or SL.

Level measurement method

Code	Description
1	10 GHz FMCW radar technology
2	10 GHz FMCW radar technology for US installation

Housing

Code	Description
A	Standard enclosure, polyurethane-covered aluminum. IP 66/67

Cable entry/Conduit connections

Code	Description
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

Code	Description
1A	Still-pipe array antenna

Antenna size

Code	Description
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

Code	Description
S	SST (AISI 316L / EN 1.4404) and PPS (polyphenylene sulfide)

Tank seal

Code	Description
FF	Fixed flange installation with fluorosilicone O-ring
FK ⁽¹⁾	Fixed flange installation with Kalrez perfluoroelastomer O-ring
HH	Integrated hatch installation with fluorosilicone O-ring (direct access to pipe with hand gauge)

(1) Requires Antenna size code 6 or 8.

Tank connection

Code	Description
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

Antenna options

Code	Description
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 ⁽¹⁾⁽²⁾⁽³⁾	Proof test verification reflector (size equal to Tank connection)

(1) Requires Antenna size code 6, 8, A, or B.

(2) Not available with Options code U1.

(3) Requires Custody transfer type approval code 0 or R.

Additional options**Safety certificate**

Requires Safety certification (SIS) code 3 or S.

Code	Description
QT	IEC 61508 certificate and FMEDA-data (printed copy)

Calibration certificate

Code	Description
Q4	Calibration certificate (tank height up to 30 m (100 ft), printed copy)
QL	Calibration certificate 40 m (tank height up to 40 m (130 ft), printed copy)

Code	Description
S4	Witnessed calibration certificate (tank height up to 30 m (100 ft), witnessed by factory selected accredited third party)
SL	Witnessed calibration certificate 40 m (witnessed by factory selected accredited third party)

Material traceability certificate

Not available for transmitter head sparepart.

Code	Description
Q8	Antenna material traceability certification per EN 10204 3.1

Conformance certificate

Code	Description
Q1	Certificate of conformance

Overfill protection approval

Code	Description
U1 ⁽¹⁾	TÜV/DIBt WHG approval for overfill protection
U2	SVTI approval for overfill protection (Switzerland)

⁽¹⁾ Requires one or more relay outputs in the Rosemount 2410 Tank Hub.

Tag plate

Code	Description
ST	Engraved SST tag plate (tag shall be submitted with order)

Extended product warranty

Rosemount extended warranties have a limited warranty of three or five years from date of shipment.

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