

Rosemount 3152K Nuclear Qualified Pressure Transmitter

INDUSTRY LEADING PERFORMANCE

- Qualified per KTA 3505
- Mild Environment Qualifications
- 50 kGy (5 Mrad) TID Gamma Radiation
- Vibration to 5g seismic and 8g APC
- LOCA/HELB 160°C (320°F) for 1 hour
- 0.2% Reference Accuracy
- For use in PWR outside containment, valve chambers, annulus and auxiliaries



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Results Driven by Proven Measurement

Introduction

Rosemount 3152K Nuclear Pressure Transmitters are designed for precision pressure measurements in nuclear applications which require reliable performance and safety over an extended service life. These transmitters were qualified per KTA 3505 at radiation levels of 50 kGy TID gamma radiation, vibration levels up to 5g seismic and 8g APC, and for steam pressure/temperature performance. Stringent quality control during the manufacturing process includes traceability of pressure-retaining parts, special nuclear cleaning, and hydrostatic testing.

Applications

Intended areas of installation in Pressurized Water Reactors (PWR) are outside containment, valve chambers, annulus and auxiliaries.

Transmitter Description

Rosemount 3152K Transmitters are similar in construction and performance to the proven Rosemount 3051 Transmitters. Units are available

in absolute (AP), gauge (GP), and differential (DP) configurations, with 6 pressure range options.

Direct electronic sensing with the completely sealed coplanar capacitance sensing element (see Figure 1) eliminates mechanical force transfer and problems associated with shock and vibration. Installation and commissioning are simplified by compact design, 2-wire system compatibility, and non-interacting external span and zero adjustments for standard calibrations. Wiring terminals and electronics are in separate compartments, so the electronics remain sealed during installation.

Operation

Process pressure is transmitted through an isolating diaphragm and silicone oil fill fluid to a sensing diaphragm in the center of the sensor. The reference pressure is transmitted in a like manner to the other side of the sensing diaphragm. The capacitance plates on both sides of the sensing diaphragm detect the position of the sensing diaphragm.

Figure 1 – The Sensor Cell

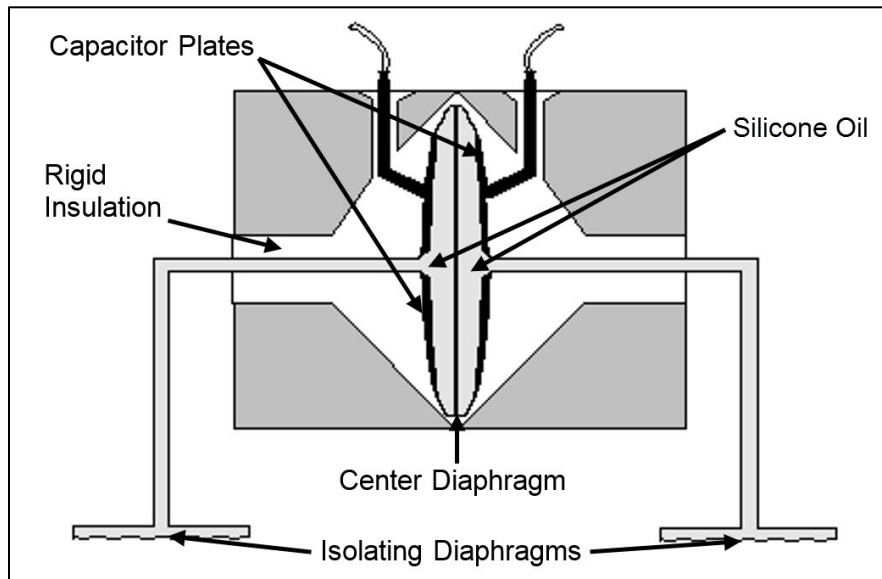
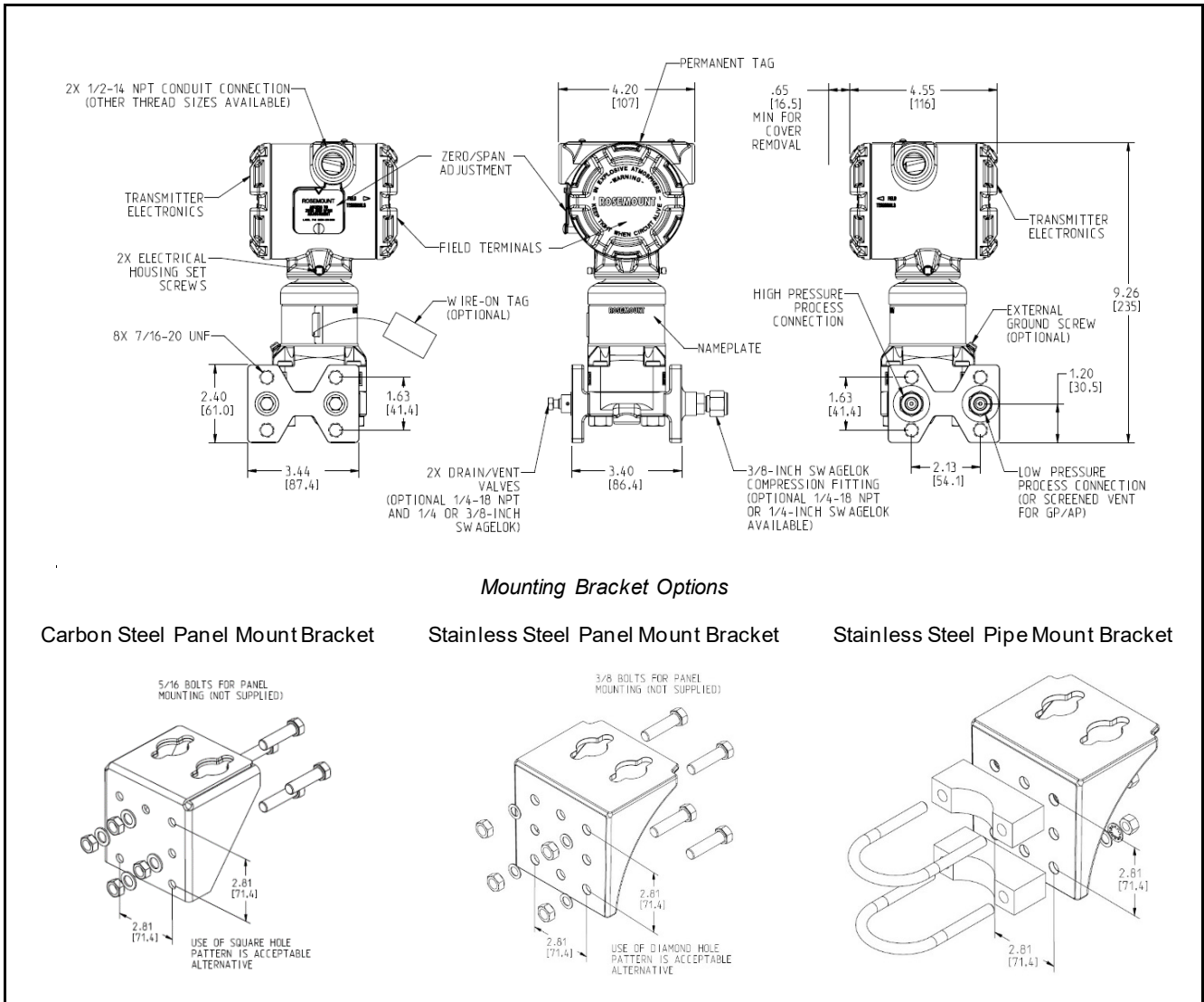


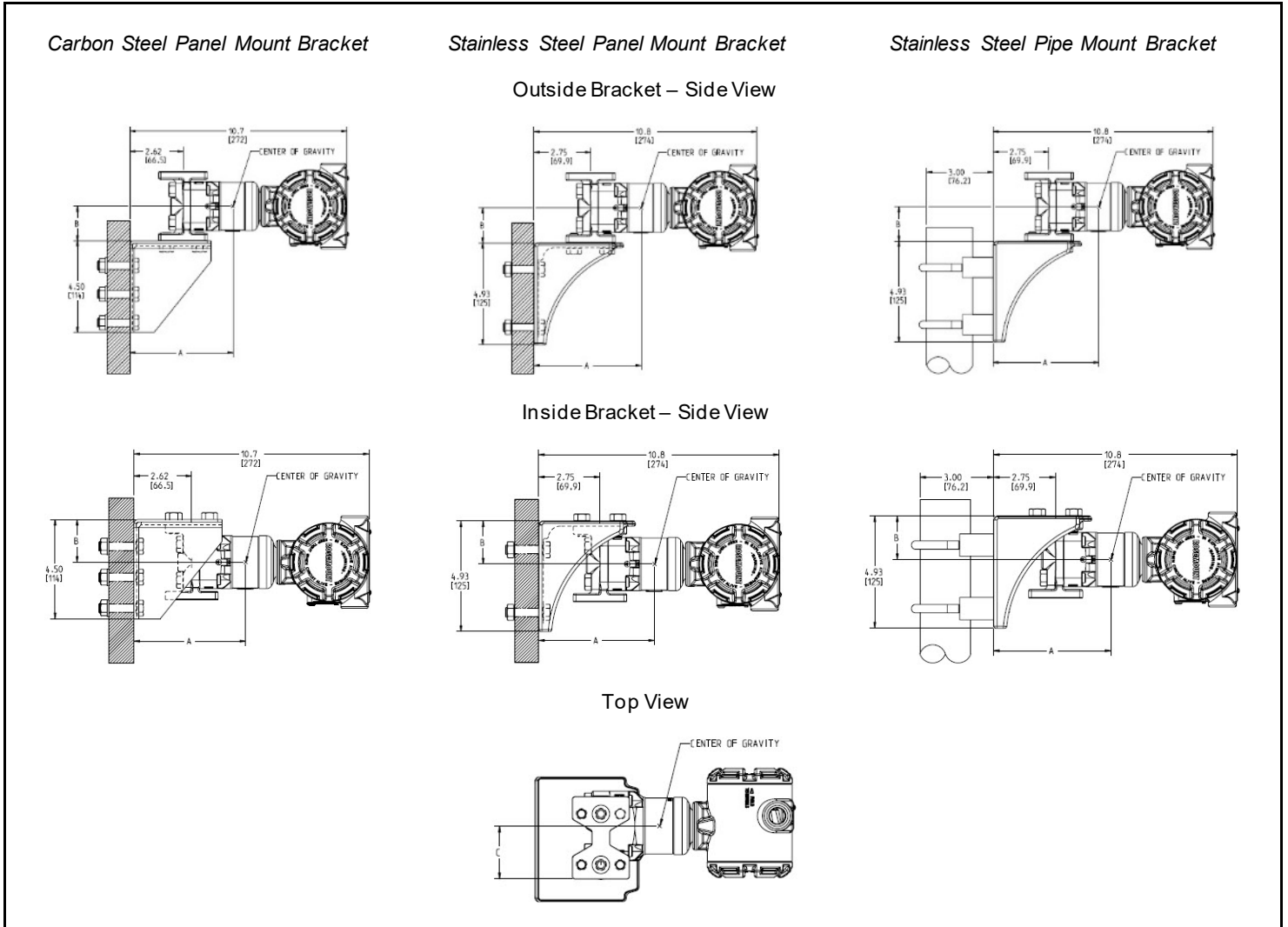
Figure 2a – Transmitter and Bracket Dimensional Drawings



Notes:

- (1) A pipe-mount kit with three (3) U-bolts (not shown) is also available. The use of a third U-bolt is necessary to meet KTA seismic requirements in installations where the KTA Airplane Crash (APC) value of 8g is applicable.
- (2) All dimensions are nominal in inches (millimeters).

Figure 2b – Typical Mounting Configurations and Dimensions



Notes:

- (1) Transmitter and bracket orientation with respect to gravity will not impact qualification.
- (2) Transmitter orientation with respect to bracket will affect center of gravity.
- (3) All dimensions are nominal in inches (millimeters).

CENTER OF GRAVITY DIMENSIONS	Aluminum Electronics Housing			Stainless Steel Electronics Housing			
	Carbon Steel Panel Mount Bracket	Stainless Steel Panel Mount Bracket	Stainless Steel Pipe Mount Bracket (2 U-bolts)	Carbon Steel Panel Mount Bracket	Stainless Steel Panel Mount Bracket	Stainless Steel Pipe Mount Bracket (2 U-bolts)	
Transmitter Mounted Outside of Bracket	A	4.40 (112)	3.60 (91.4)	2.80 (71.1)	N/A	4.80 (122)	4.00 (102)
	B	1.00 (25.4)	0.60 (15.2)	-0.10 (-2.50)	N/A	0.90 (22.9)	0.30 (7.60)
	C	2.30 (58.4)	2.00 (50.8)	1.90 (48.3)	N/A	2.00 (50.8)	2.00 (50.8)
Transmitter Mounted Inside of Bracket	A	4.40 (112)	3.60 (91.4)	2.80 (71.1)	N/A	4.80 (122)	4.00 (102)
	B	1.90 (48.3)	1.50 (38.1)	1.70 (43.2)	N/A	2.00 (50.8)	1.80 (45.7)
	C	2.30 (58.4)	2.00 (50.8)	1.90 (48.3)	N/A	2.00 (50.8)	2.00 (50.8)

SPECIFICATIONS

Nuclear Specifications

Qualified per KTA 3505 as documented in Rosemount report D2009011.

Seismic

KTA 3505 (See Figure 3)

When exposed to the sine sweep profiles shown in Figure 3 (in each axis), accuracies are as shown in the following table:

Range Code	5g Sine Sweeps Effect		8g Sine Sweeps Effect (APC)	
	During ⁽¹⁾	After ⁽²⁾	During ⁽¹⁾	After ⁽²⁾
1	±3.75% URL	Within reference accuracy	±5.0% URL	±0.5% span
2	±2.0% URL	Within reference accuracy	±2.5% URL	±0.5% span
3	±0.65% URL	Within reference accuracy	±1.0% URL	±0.5% span
4	±0.30% URL	Within reference accuracy	±1.0% URL	±0.5% span
5, 6	±0.20% URL	Within reference accuracy	±0.20% URL	Within reference accuracy

IEEE Std 344™-1987 (See Figure 4)

When exposed to a disturbance defined by a required response spectrum with a ZPA of 8.5g, accuracies are as shown in the following table:

Range Code	Triaxial Random Multifrequency 8.5g ZPA	
	During ⁽¹⁾	After ⁽²⁾
1	±1.25% URL	Within reference accuracy
2	±1.00% URL	Within reference accuracy
3	±0.75% URL	Within reference accuracy
4	±0.30% URL	Within reference accuracy
5, 6	±0.20% URL	Within reference accuracy

(1) This error indicates the "deviation" seen in transmitter performance during the seismic event.

(2) This error indicates the "shift" seen in transmitter performance after the seismic event.

Radiation

When exposed to a Total Integrated Dose (TID) of 50 kGy (5 Mrads) at a dose rate of 500 Gy/hr (50 krad/hr), accuracy during and after exposure is as shown in the following table:

Output Code	Range Code	Radiation Effect
ALL	ALL	±(0.5% URL + 1.0% span)

Steam Pressure/Temperature

During and after exposure to steam at the temperatures and pressures shown in Figure 5, accuracies are as shown in the following table:

Output Code	Range Code	Steam Pressure/Temperature Effect
A	1	±(1.5% URL + 4.5% span)
	2-6	±(1.0% URL + 3.5% span)
B	1-6	±(2.5% URL + 3.5% span)

Post DBE Operation

Performance for 1 year following a DBE will be within ±3.5% span (at reference conditions).

Impact Testing

18 impacts of 30g acceleration and 11 millisecond duration (3 impacts in each direction in each axis, for a total of 18 impacts).

Nuclear Cleaning

Process wetted surfaces cleaned to <1ppm chloride content.

Hydrostatic Testing

Hydrostatically tested to 150% of maximum working pressure for differential pressure transmitters.

Hydrostatically tested at the overpressure limit for gauge and absolute pressure transmitters.

All range code 1 transmitters tested to 2000 psi (13.79 MPa).

Traceability

Per 10CFR50 Appendix B, NQA-1, KTA 1401-3507, and ISO 9001; chemical and physical certification of pressure retaining parts.

Qualified Life per Arrhenius Equation (as endorsed by IEEE Std 323™)

20 years at 40°C (104°F) under typical operating conditions. Qualified Life is a function of Power Supply Voltage, Loop Load Resistance, and Operating Temperature. See Rosemount Qualification Report D2009011 for application specific formulas.

Figure 3 - Single-Axis Seismic Profiles

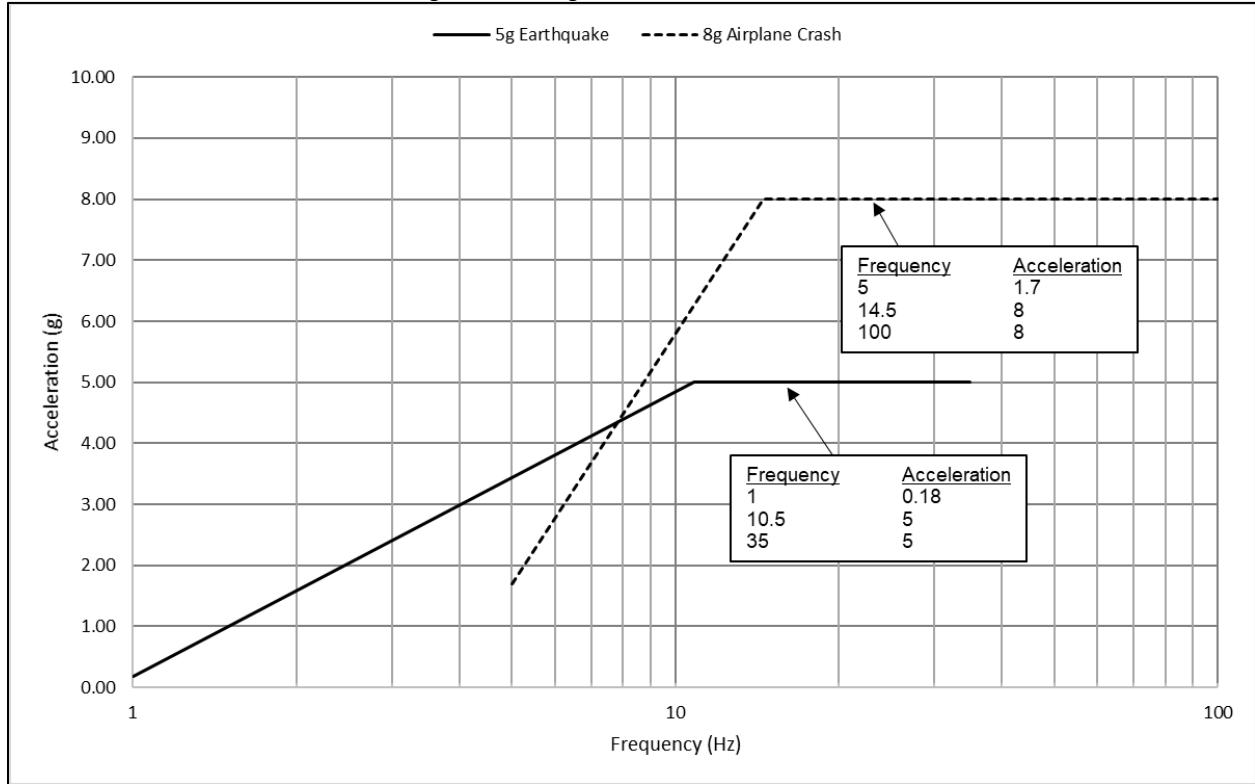


Figure 4 – Tri-axial Seismic Required Response Spectrum (RRS)

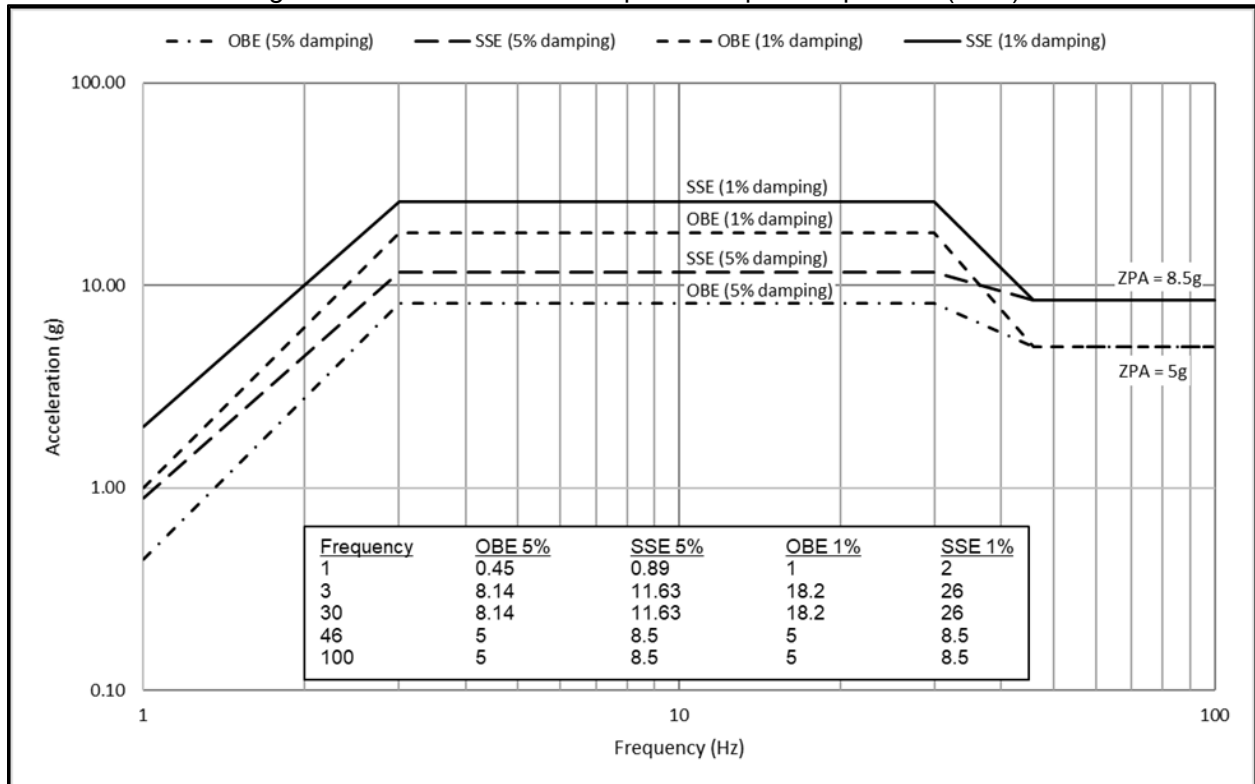
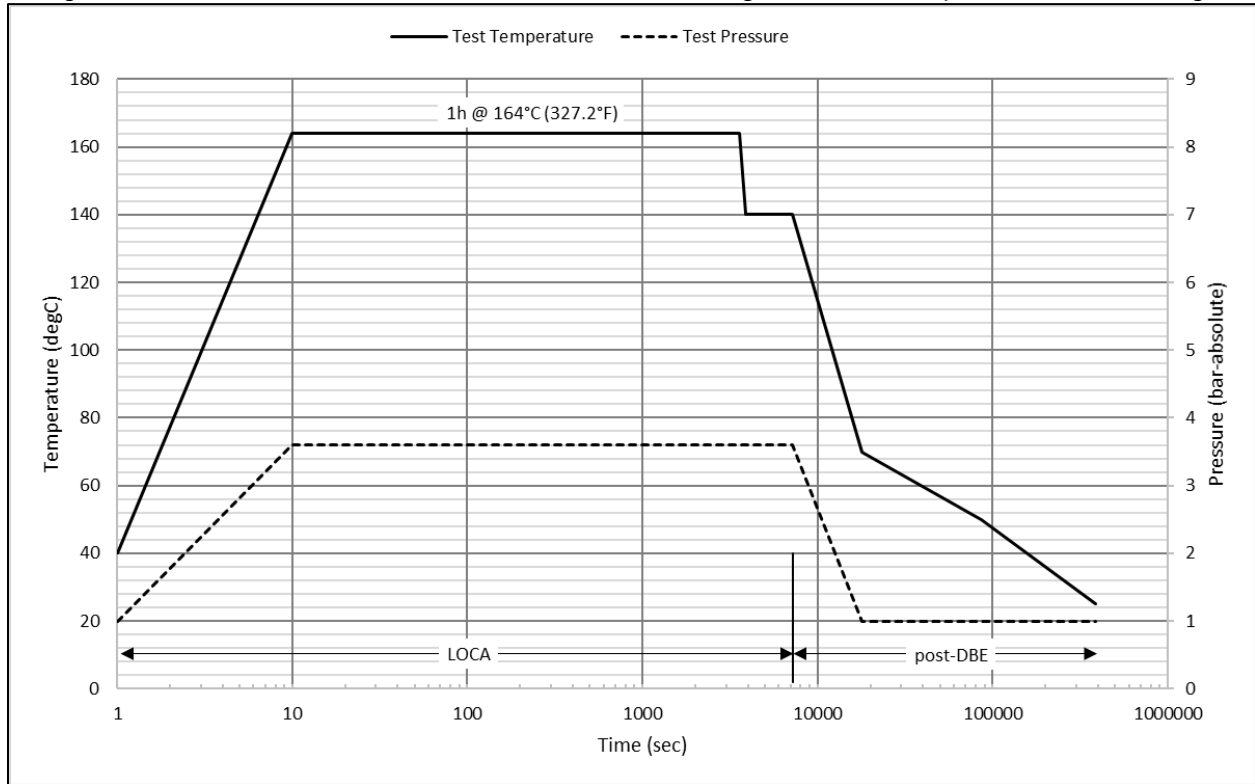


Figure 5 – 3152K “As-Tested” LOCA Profile – Includes Margin on Peak Temp and 10% Time Margin



sec	Time		Temperature (°C)	Pressure (bar-a)
	hr			
1	–		40	1
10	–		164	3.6
3600	1		164	3.6
3900	1.08		140	3.6
7200	2		140	3.6
18000	5		70	1
86400	24		50	1
387360	107.6		25	1

Performance Specifications

Based on zero-based calibration spans under reference conditions.

Accuracy

Range Code	Accuracy
1-6	±0.2% of calibrated span

Includes the effects of linearity, hysteresis, and repeatability.

Drift

Range Code	Drift Effect per 30 months
1	±0.2% URL
2-6	±(0.1% URL + 0.1% span)

Temperature Effect

Range Code	Temperature Effect (per 55.6°C (100°F) Temperature Shift)
1	±(0.55% URL + 1.0% span)
2-6	±(0.15% URL + 0.6% span)
AP Range 3	±(0.6% URL + 0.5% span)
AP Range 4/5	±(0.25% URL + 0.5% span)

This specification may be linearly interpolated down to 27.8°C (50°F) temperature interval.

Overpressure Effect ⁽¹⁾

Based on full overpressure limits:

- Range 1: 13.79 MPa (2000 psig)
- Range 2-5: 25.00 MPa (3626 psig)
- Range 6: 41.37 MPa (6000 psig)

Rosemount 3152KD:

Range Code	Overpressure Effect	
	One-Sided	Two-Sided Sequential
1-3	±0.25% URL	±0.5% URL
4-5	±0.3% URL	±2.0% URL

Rosemount 3152KG and 3152KA:

Range Code	One-Sided Overpressure Effect
1-3	±0.25% URL
4-6	±0.3% URL

(1) Overpressure effects specifications do not apply to transmitters with P9 option – please contact Rosemount Nuclear for additional information.

High Static Line Pressure Zero Effect (3152KD only)

The High Static Pressure Zero Effect can be calibrated out by the customer at line pressure (see 3150 Reference Manual 00809-0100-4835 for additional information). If it is not calibrated out, the error associated with the High Static Line Pressure Zero Effect is as follows:

For high static pressure (Ps) less than 13.79 MPa (2000 psi):

Range Code	High Static Line Pressure Zero Effect Ps < 13.79 MPa (2000 psi)
1	±0.25 URL per 6.89 MPa (1000 psi)
2-5	±0.1% URL per 6.89 MPa (1000 psi)

This specification may be linearly interpolated in 6.89 MPa (1000 psi) increments.

For high static line pressure (Ps) greater than 13.79 MPa (2000 psi):

Range Code	High Static Line Pressure Zero Effect Ps > 13.79 MPa (2000 psi)
1	Not Applicable
2-5	±(0.2 + (0.2(Ps-13.79 MPa)/6.89 MPa))% URL

This specification may be linearly interpolated in 6.89 MPa (1000 psi) increments.

High Static Line Pressure Span Effect

3152KD Ranges 1, 2 and 3

Range Code	High Static Line Pressure Span Effect per 6.89 MPa (1000 psi)
1	±(0.4% URL + 0.4% span)
2, 3	±(0.1% URL + 0.1% span)

3152KD Ranges 4 and 5

Rosemount 3152K ranges 4 and 5 experience a span shift when operated at high static line pressure. It is linear and correctable during calibration.

If no correction for the systematic High Static Line Pressure Span Effect is performed, the error is as follows:

Range Code	High Static Line Pressure Span Effect Error per 6.89 MPa (1000 psi)
4	-1.0% ± 0.2% input reading
5	-1.25% ± 0.2% input reading

If the correction procedure as outlined in the 3150 Series Reference manual 00809-0100-4835 is applied, the remaining correction uncertainty for the High Static Line Pressure Span Effect for ranges 4 and 5 is as follows:

Range Code	High Static Line Pressure Span Correction Uncertainty Per 6.89 MPa (1000 psi)
4, 5	±0.2% input reading

It is possible to improve the accuracy of the 3152KD at high static line pressure for applications requiring enhanced performance. Please contact Rosemount Nuclear for additional information.

Power Supply Effect

Less than 0.005% of span / volt

Load Effect

No load effect other than the change in voltage supplied to the transmitter

Electromagnetic Compatibility

Meets the specifications defined in the following standards:

- EN 61000-6-2 and EN 61000-6-4
 (see Rosemount report D2010005)
- EN 61326-1 and EN 61326-2-3
 (see Rosemount report D2008005)

Transient Protection (Option T1)

Designed in accordance with IEEE C62.41.2-2002:

Location Category B

6kV crest (0.5 microseconds – 100 kHz)

3kA crest (8 x 20 microseconds)

6 kV crest (1.2 x 50 microseconds)

Mounting Position Effect

No span effect; zero shift of up to 0.37 kPa (1.5 inH₂O) which can be calibrated out.

Functional Specifications

Service

Liquid, gas, vapor

Output

4-20 mA

Power Supply

Maximum supply voltage

- 50 VDC

Maximum allowable supply voltage ripple

- less than 1 volt peak-to-peak ripple for ripple frequency less than or equal to 120 Hz

Load Limits

See Figure 6

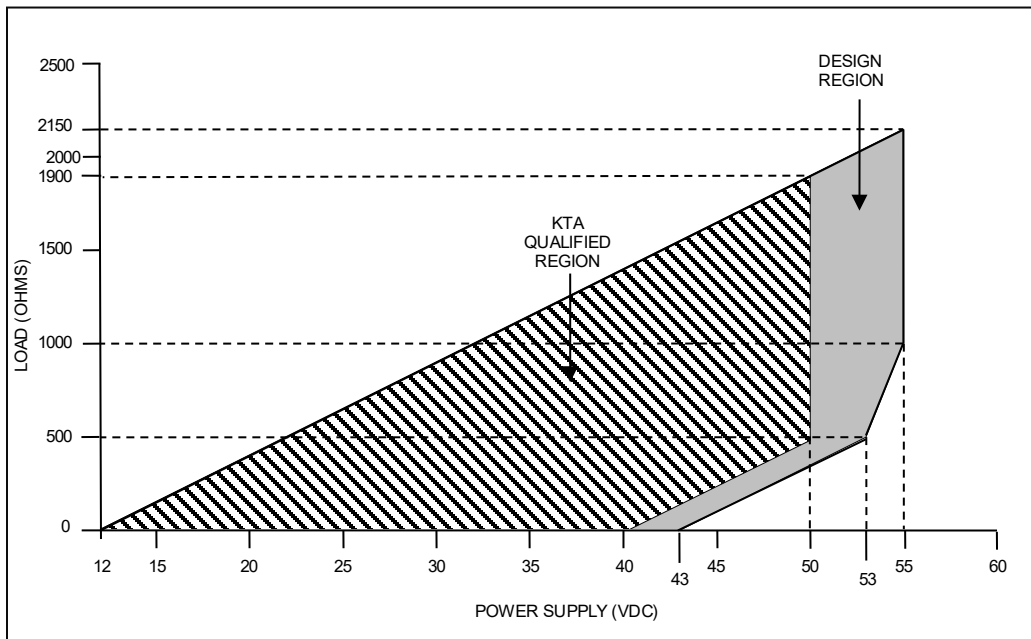
Dielectric Withstand Test

707 VDC, 60 seconds, leakage less than 1 mA

Insulation Resistance Test

500 VDC, 60 seconds, IR greater than 100 MOhm

Figure 6 – Transmitter Load Limits vs. Power Supply Voltage



Span and Zero Adjustments

External adjust; non-interacting for standard adjustments

Zero Elevation, Zero Suppression

Maximum Zero Elevation

Zero is adjustable to the Lower Range Limit (LRL)

Maximum Zero Suppression

Zero is adjustable to 90% of the Upper Range Limit (URL) (80% for Range 1)

Range Down

10:1 (5:1 for Range 1)

Response Time

Time constant (63.2%) at 37.8°C (100°F)

Output Code A

Range Code	Fixed Time Response (Max)	
	DP / GP	AP
1	0.40 sec	N/A
2	0.20 sec	N/A
3-6	0.20 sec	0.20 sec

Output Code B (Continuously Adjustable Damping)

Range Code	Minimum Time Response in the Max Damping Position
ALL	1.20 sec

Note: In the Minimum Damping Position, the values for Fixed Time Response apply.

Temperature Limits

Normal Operating Limits: 4.4°C to 93.3°C (40°F to 200°F)

Qualified Storage Limits: -40.0°C to 60°C (-40°F to 140°F)

Humidity Limits

0 to 100% relative humidity

Enclosure Rating

NEMA 4X (IP 66)

Volumetric Displacement

Less than 0.082 cm³ (less than 0.005 in³)

Turn-On Time

2 seconds maximum

Maximum Working Pressure

Larger of Static Pressure Limit or Upper Range Limit (URL)

Pressure Ranges

Adjustable within the range shown; upper range limit (URL) is the highest pressure shown

Rosemount 3152KD and 3152KG

Range Code	Pressure Range
1	0-1.25 kPa to 0-6.23 kPa (0-5 to 0-25 inH ₂ O)
2	0-6.23 kPa to 0-62.3 kPa (0-25 to 0-250 inH ₂ O)
3	0-24.9 kPa to 0-249 kPa (0-100 to 0-1000 inH ₂ O)
4	0-206.8 kPa to 0-2068 kPa (0-30 to 0-300 psig)
5	0-1379 kPa to 0-13.79 MPa (0-200 to 0-2000 psig)
6	0-2758 kPa to 0-27.58 MPa (0-400 to 0-4000 psig) <i>Range 6 not available on 3152KD</i>

Rosemount 3152KA⁽¹⁾

Range Code	Pressure Range
3	0-24.9 kPa to 0-249 kPa (0-100 to 0-1000 inH ₂ O abs)
4	0-206.8 kPa to 0-2068 kPa (0-30 to 0-300 psia)
5	0-1379 kPa to 0-13.79 MPa (0-200 to 0-2000 psia)
6	0-2758 kPa to 0-27.58 MPa (0-400 to 0-4000 psia)

⁽¹⁾ *Extended operation below 3.5 kPa absolute pressure (0.5 psia) is not recommended.*

Static Pressure Limits (3152KD only)

Range Code	Static Pressure Limit
1	3.45 kPa to 13.79 MPa (0.5 psia to 2000 psig)
2-5	3.45 kPa to 25.00 MPa (0.5 psia to 3626 psig)

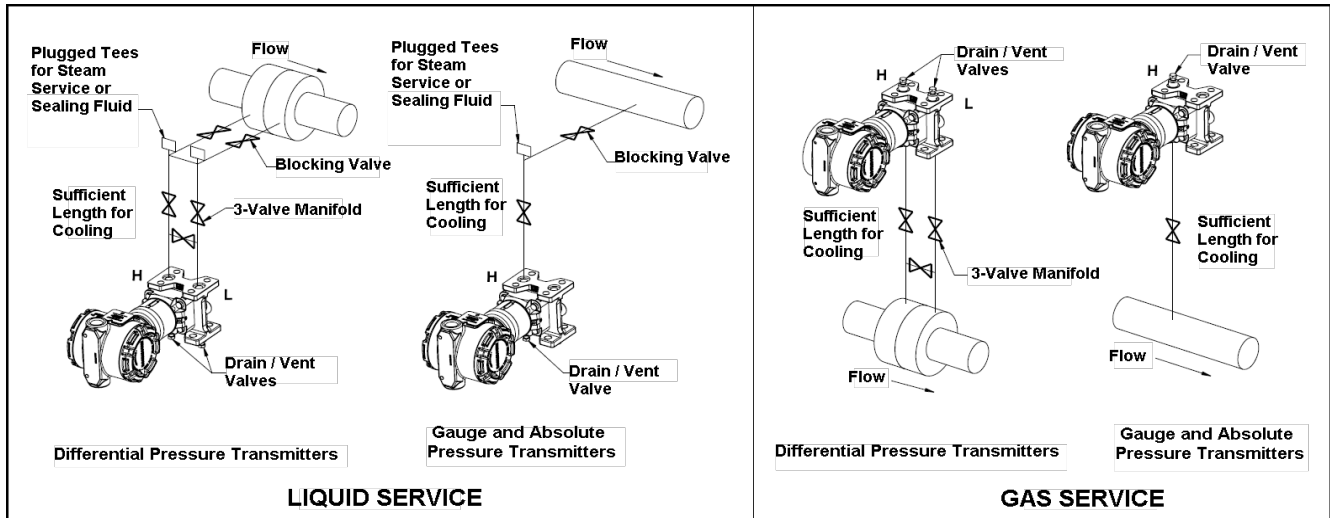
Overpressure Limits

Range Code	Overpressure Limit
1	13.79 MPa (2000 psig)
2-5	25.00 MPa (3626 psig) <i>[31.03 MPa (4500 psig) with P9 option]</i>
6	43.36 MPa (6000 psig)

Burst Pressure

Minimum burst pressure is 68.95 MPa (10000 psig)

Figure 7 – Transmitter Installation Examples (liquid, gas or steam)



Please note that transmitters depicted in Figure 7 are intended for reference only.

Physical Specifications

Materials of Construction

Numbers in parentheses indicate where part is located in Figure 8

Isolating Diaphragms (8)

316L SST or Alloy C-276

Drain/Vent Valves (10)

316L SST

Process Flanges (10)

CF3M (Cast version of 316L SST)

Process Seal (C-rings) (9)

Silver-plated Inconel™ X-750

Electronic Housing O-rings (2) (7)

Ethylene Propylene

Fill Fluid (8)

Silicone Oil

Sensor Module Housing (8)

CF3M (cast version of 316L SST)

Flange Bolts (11)

316 SST

Electronics Housing (5)

Low copper aluminum with polyurethane paint; or CF8M (cast version of 316 SST)

Mounting Bracket

AISI 1010 carbon steel with polyurethane paint; or CF8M (cast version of 316 SST)

Mounting Bolts (bracket to transmitter)

17-4 PH (SAE 630) SST

Process Connections

1/4-18 NPT (per EN 61518 / IEC 61518); or 3/8 Swagelok®

Electrical Connections

1/2-14 NPT conduit with screw terminals; M20-1.5, PG13.5, and G1/2 threads are optional

Weight

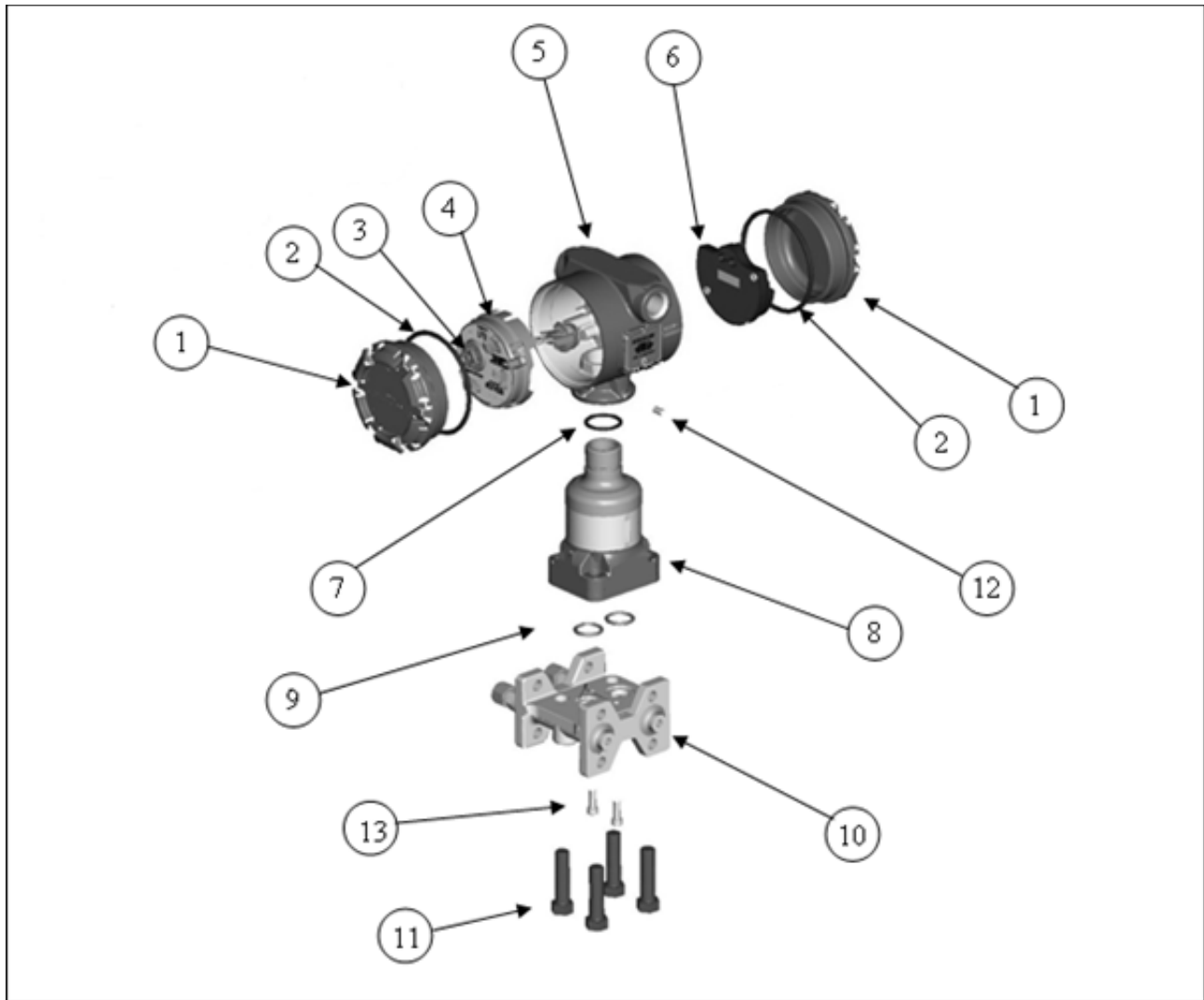
Aluminum Housing:

- 4.0 kg (8.8 lbs) (excluding bracket)
- 5.1 kg (11.2 lbs) (including CS panel mounting bracket)
- 7.9 kg (17.4 lbs) (including SST 2" pipe mounting bracket with 2 u-bolts)
- 8.0 kg (17.7 lbs) (including SST 2" pipe mounting bracket with 3 u-bolts)

SST Housing:

- 5.8 kg (12.8 lbs) (excluding bracket)
- 8.2 kg (18.1 lbs) (including SST panel mounting bracket)
- 9.7 kg (21.3 lbs) (including SST 2" pipe mounting bracket with 2 u-bolts)
- 9.8 kg (21.6 lbs) (including SST 2" pipe mounting bracket with 3 u-bolts)

Figure 8 – Parts Drawing and Table, Exploded View



ITEM #	DESCRIPTION	ITEM #	DESCRIPTION
1	Electronics Cover	8	Sensor Module
2	O-ring for Electronics Cover	9	C-rings for Process Flange
3	Coarse Zero Select Jumper	10	Process Flange
4	Electronics Assembly	11	Bolts for Process Flange
5	Electronics Housing Assembly (includes set screws)	12	Housing Set Screws
6	Terminal Block Assembly	13	Flange Cap Screws
7	O-ring for Header		

Figure 9 – Electrical Block Diagram

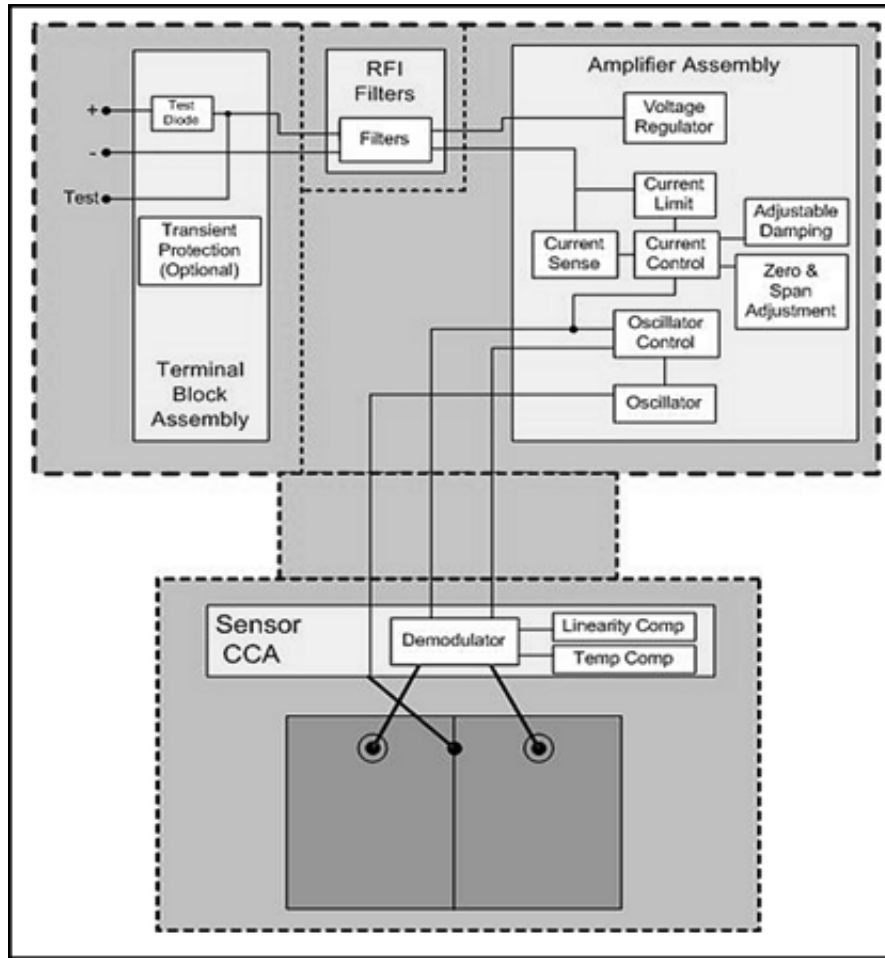
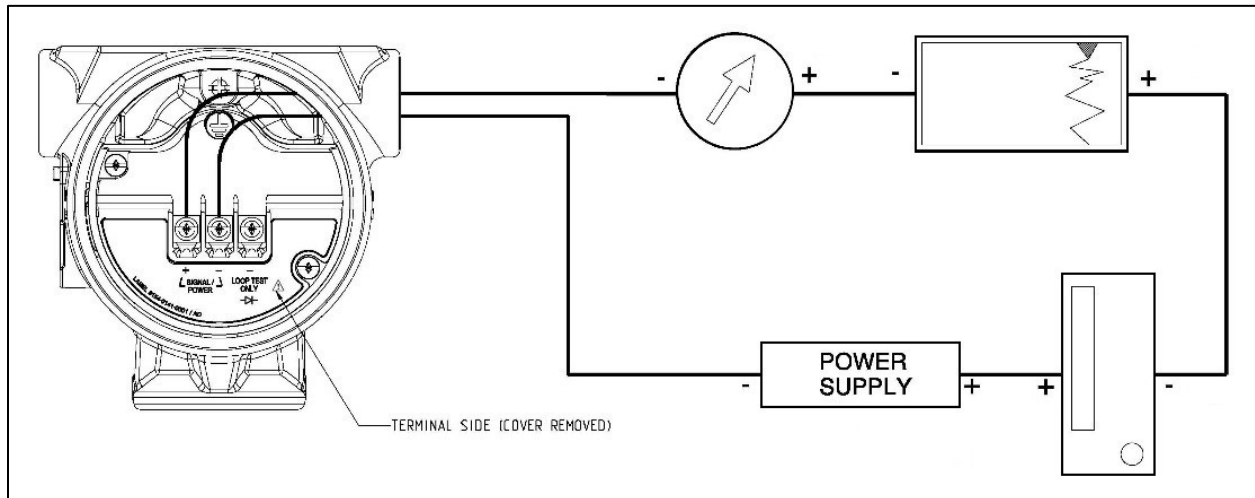


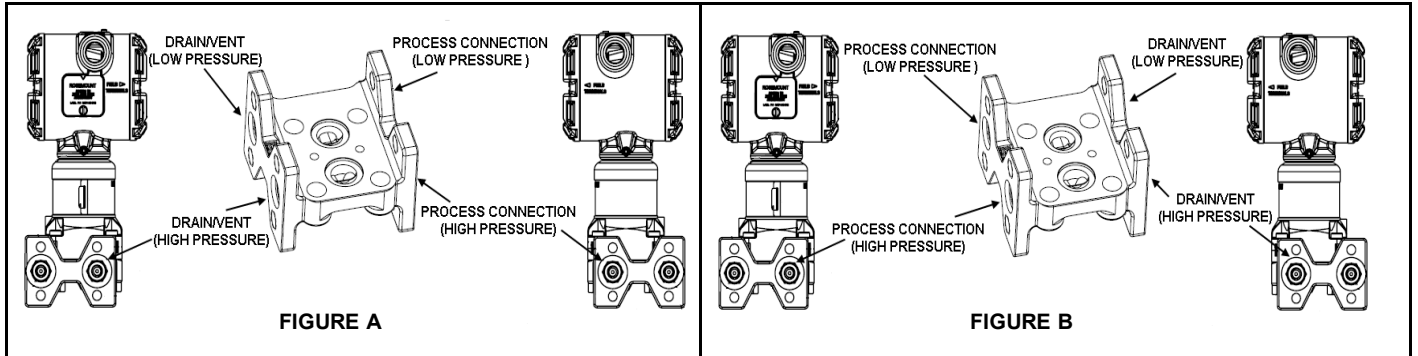
Figure 10 – Typical transmitter wiring connection



ORDERING INFORMATION

Model	Transmitter Type			
3152KD	Nuclear Differential Pressure Transmitter	Range Code 1 13.79 MPa (2000 psig) Static Pressure Limit Range Codes 2-5 25.00 MPa (3626 psig) Static Pressure Limit		
3152KG	Nuclear Gauge Pressure Transmitter			
3152KA	Nuclear Absolute Pressure Transmitter			
PRESSURE RANGES ⁽¹⁾				
Code	Differential	Gauge ⁽²⁾	Absolute ⁽³⁾	
<i>Lower Range Limit (LRL) to Upper Range Limit (URL) / Minimum Span ⁽⁴⁾</i>				
1 ⁽²³⁾	-6.23 to 6.23 kPa / 1.25 kPa (-25 to 25 inH ₂ O / 5 inH ₂ O)	-6.23 to 6.23 kPa / 1.25 kPa (-25 to 25 inH ₂ O / 5 inH ₂ O)	N/A	
2	-62.3 to 62.3 kPa / 6.23 kPa (-250 to 250 inH ₂ O / 25 inH ₂ O)	-62.3 to 62.3 kPa / 6.23 kPa (-250 to 250 inH ₂ O / 25 inH ₂ O)	N/A	
3	-249 to 249 kPa / 24.9 kPa (-1000 to 1000 inH ₂ O / 100 inH ₂ O)	-97.9 kPa to 249 kPa / 24.9 kPa (-393 to 1000 inH ₂ O / 100 inH ₂ O)	0 to 249 kPa abs / 24.9 kPa abs (0 to 1000 inH ₂ O abs / 100 inH ₂ O abs)	
4	-2068 to 2068 kPa / 206.8 kPa (-300 to 300 psi / 30 psi)	-97.9 kPa to 2068 kPa / 206.8 kPa (-14.2 to 300 psig / 30 psi)	0 to 2068 kPa abs / 206.8 kPa abs (0 to 300 psia / 30 psia)	
5	-13.79 to 13.79 MPa / 1379 kPa (-2000 to 2000 psi / 200 psi)	-97.9 kPa to 13.79 MPa / 1379 kPa (-14.2 to 2000 psig / 200 psig)	0 to 13.79 MPa abs / 1379 kPa abs (0 to 2000 psia / 200 psia)	
6	N/A	-97.9 kPa to 27.58 MPa / 2758 kPa (-14.2 to 4000 psig / 400 psig)	0 to 27.58 MPa abs / 2758 kPa abs (0 to 4000 psia / 400 psia)	
Code	Transmitter Output			
A	4-20mA Analog			
B	4-20mA Analog with Adjustable Damping			
Code	Isolating Diaphragm			
2	316L SST			
3	Alloy C-276			
Code	Process Flange Type / Material	Process Connection	Drain/Vent	Orientation
F0	Traditional / SST (meets EN 61518 / IEC 61518)	1/4 - 18 NPT ⁽⁵⁾	1/4 - 18 NPT Drain Hole ⁽⁵⁾	See Figure A
F1	Traditional / SST (meets EN 61518 / IEC 61518)	1/4 - 18 NPT ⁽⁵⁾	Welded V/D Valve	See Figure A
F2	Traditional / SST	Welded 3/8 inch Swagelok [™]	1/4 - 18 NPT Drain Hole ⁽⁷⁾	See Figure A
F3	Traditional / SST	Welded 3/8 inch Swagelok [®]	Welded V/D Valve	See Figure A
F4	Traditional / SST	Welded 3/8 inch Swagelok [®]	Welded 3/8 inch Swagelok [®]	See Figure A
F5	Traditional / SST (meets EN 61518 / IEC 61518)	1/4 - 18 NPT ⁽⁵⁾	Welded V/D Valve	See Figure B
S1	Remote Seal, One Sided	See applicable 3159 Product Data Sheet	See applicable 3159 Product Data Sheet	See applicable 3159 Product Data Sheet
S2	Remote Seal, Two Sided	See applicable 3159 Product Data Sheet	See applicable 3159 Product Data Sheet	N/A

Continued on Next Page



Code	Housing, Conduit Connection
A	Aluminum, 1/2-14 NPT
B	Aluminum, M20-1.5
C	Aluminum, PG13.5
D	Aluminum, G1/2
E	SST, 1/2-14 NPT
F	SST, M20-1.5
G	SST, PG13.5
H	SST, G1/2
Code	Mounting Bracket ⁽⁸⁾
0	No Bracket
5	Traditional Process Flange Bracket, CS Panel, SST Mounting Hardware ⁽⁷⁾
6	Traditional Process Flange Bracket, SST 2" Pipe (3 U-bolts), SST Mounting Hardware ⁽⁸⁾
7	Traditional Process Flange Bracket, SST Panel, SST Mounting Hardware
8	Traditional Process Flange Bracket, SST 2" Pipe (2 U-bolts), SST Mounting Hardware ⁽⁹⁾
Code	Standard Options
C2	Connector-Unassembled (provided separately in package), Connector Part Number Must be Specified ⁽¹⁰⁾
C3	Connector-Assembled to Transmitter on Zero/Span Adjustment Side of Housing, Connector Part Number Must be Specified ⁽¹¹⁾
C4	Connector-Assembled to Transmitter Opposite Zero/Span Adjustment Side of Housing, Connector Part Number Must be Specified ⁽¹¹⁾
C5	Connector-Assembled to Transmitter at Authorized Facility, Connector Part Number Must be Specified ⁽¹²⁾
E1	ATEX Flameproof Approval ⁽¹³⁾
P4	Calibration at Static Line Pressure ⁽¹⁴⁾
P5	Process Seal Helium Leak Test
P6	Extended Upper Range Limit ⁽¹⁰⁾
P8	Time Response Test ⁽¹⁴⁾
P9	Extended Overpressure up to 31.03 MPa (4,500 psi) ⁽¹⁶⁾
Q8	Material Certification for Process Wetted and Pressure Retaining Parts
Q9	Special Documentation / Certification – per Customer Request

Continued on Next Page

Code	Standard Options – Continued from Page 13
R1	Sensor Module Rotated 180° from Standard ⁽¹⁷⁾ ⁽¹⁸⁾
R4	Electronics Housing Rotated 180° from Standard ⁽¹⁷⁾ ⁽¹⁸⁾
T1	Transient Protection
V4	Threaded Drain / Vent Valve(s) (1/4-18 NPT)-Unassembled (provided separately in package) ^(b) ⁽²⁰⁾ ⁽²¹⁾
V5	External Ground Screw Kit
W1	Additional Customer Tagging Information-Permanent Tag attached to electronics housing (see Figure 2a)
W2	Additional Customer Tagging Information-Wire-on Tag attached to nameplate (see Figure 2a)
ERD	Range 1 Extended Range Down ⁽²²⁾ ⁽²³⁾

Typical Model Number: 3152K D 2 A 2 F0 A 0 C3 W1

Notes:

- (1) 3150 Series transmitter calibrations which include a Lower Range Value (LRV), Upper Range Value (URV), or span that are within ±5% of the published limits are acceptable.
- (2) 3152KG Lower Range Limit (LRL) varies with atmospheric pressure.
- (3) Extended operation below 3.5 kPa absolute pressure (0.5 psia) is not recommended.
- (4) Maximum span is equal to the Upper Range Limit (URL); i.e. the maximum span of a 3152 range code 2 transmitter is 62,3 kPa (250 inH₂O).
- (5) Customer assumes responsibility for qualifying interfaces on these options.
- (6) To comply with the REACH regulation, Rosemount Nuclear discontinued use of cadmium plated, carbon steel mounting hardware. As a result, mounting bracket codes 1, 2, 3, and 4 are no longer available and have been removed from the ordering information table. Mounting bracket codes 5, 6, 7, and 8 provide the same mounting bracket with stainless steel mounting hardware. These changes have no impact to form, fit or function; do not impact qualification, and have been approved by the appropriate third party reviewers.

CS Mounting Hardware Bracket Code	Equivalent SST Mounting Hardware Bracket Code
1	5
2	7
3	8
4	6

- (7) Mounting bracket code 5 is not available with process flange codes S1 and S2, or electronics housing codes E, F, G, and H.
- (8) The pipe mount kit provided with mounting bracket option code “6” contains three U-bolts and is qualified for Airplane Crash (APC) seismic events up to 8g per KTA 3505.
- (9) The pipe mount kit provided with mounting bracket option code “8” contains two U-bolts and is qualified for DBE seismic events up to 5g per KTA 3505.
- (10) Qualification of the connector installation and instrument/connector interface is the responsibility of the end user.
- (11) Installation will be performed at the Rosemount Nuclear factory. Certification of the connector installation and instrument/connector interface will be provided by Rosemount Nuclear.
- (12) Installation of the connector will be performed under the applicable Emerson QA program and performed per approved installation procedures. Certification of the connector installation and instrument/connector interface will be provided by the factory performing the installation.
- (13) Connector options C2, C3, C4, and C5 are not allowed with E1 unless specifically authorized by the end user.
- (14) Requires Configuration Data Sheet. Please contact Rosemount Nuclear for details.
- (15) Extended Upper Range Limit (URL) varies by pressure range code, please contact Rosemount Nuclear for details. All specifications including a %URL term will be based on the revised URL.
- (16) Please see Rosemount Specification Drawing 03150-1001 for applicable overpressure effect specifications.
- (17) Rotation options R1 and R4 cannot be combined with one another.
- (18) For rotation option R1, when used with gauge transmitter type, the calibration must be reverse acting (pressure will be applied to low pressure side of the sensor module).
- (19) The standard transmitter orientation is shown in Figure 2a. While rotation of the electronics housing in the field is possible with special instructions, it is not recommended by Rosemount Nuclear. If an alternative orientation is required for your application, please include the appropriate rotation option in the transmitter model number.
- (20) Quantity is two for DP type transmitters and one for GP/AP type transmitters.
- (21) V4 is not available with process flange codes S1 and S2. Vent/drain valve(s) option V4 may be selected in the 3159 Remote Seal model number.
- (22) ERD option is only available with model 3152KD, pressure range code 1, and allows calibration to a minimum span of 0.25 kPa (1 inH₂O) with a revised LRL of -1.2 kPa (-5 inH₂O) and URL of +1.2 kPa (+5 inH₂O). It is not available with transmitter output code B, process flange codes S1 and S2, or standard options P4, P6, and P9. Please see Rosemount Specification Drawing 03150-1009 for applicable specifications and Rosemount Report D2017021. Note the ERD option code must be at the end of the transmitter model number.
- (23) Additional special considerations are needed when calibrating draft range pressure transmitters. See Manual Supplement 00809-0800-4835.

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Standard Accessories

One reference manual per shipment; one conduit plug and two electronics cover o-rings per transmitter are included.

Calibration

Transmitters are factory calibrated to the customer's specified range. If calibration is not specified, transmitters are calibrated at maximum range (0 to URL). Calibration is performed at ambient temperature and atmospheric pressure.

Additional Customer Tagging Information

Additional tagging is optional and will be provided when either option W1 or W2 is included in the model number. All tags are SST. The transmitter will be tagged in accordance with customer requirements (within space limitations defined below).

	Permanent Tag (W1)	Wire-on Tag (W2)
Nominal Character Height	2.54 mm (0.10 in)	4.76 mm (0.188 in)
Maximum Number of Lines	4	4
Maximum Characters per Line	24	20

Special Options

Please Contact Rosemount Nuclear for special transmitter needs.

Spare Parts

A spare part list for the Rosemount 3152K pressure transmitter is located within the Rosemount 3150 Series Reference Manual 00809-0100-4835.

Transportation and Storage

During transportation and storage, transmitters shall be transported only in their original packaging supplied by Rosemount Nuclear.

Documentation

Certifications

Certification of compliance will be provided for each Rosemount 3152K Pressure Transmitter for nuclear qualification, accuracy, special cleaning, hydrostatic testing, and traceability. Chemical and physical reports and identification of pressure-retaining parts will be on file at Rosemount Nuclear.

Revision Control

As-built drawing and part number revisions of baseline qualification hardware are provided in Rosemount Nuclear Document EIF-3152-EPR-01.

The evolution of important drawings, part numbers, manufacturing tests and inspection procedures associated with Rosemount 3152K transmitter is documented in Reference File RF-3152-EPR-01. The reference file is maintained in accordance with Rosemount Nuclear's documented quality system and is intended to satisfy the requirements of "Reference File" as defined by RCC-E and "Document Catalogue" as defined by KTA.

REVISIONS

Changes from October 2020 (Rev AK) to July 2021 (Rev AL)

Page (Old)	Page (New)	Changes
Cover, Throughout	Cover, Throughout	Document revision changed from October 2020 to July 2021, Rev AK to Rev AL
5	5	Corrected typo on qualified life temperature parameter

NOTE

The above Revision Status list summarizes the changes made. Please refer to both data sheets for complete comparison details.

NOTE

Revision of the Product Data Sheet has no impact to form, fit, or function and does not impact transmitter qualification. Updates were made to provide clarity and improve customer experience/usage.

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