

A.1.2 Functional specifications

Range and sensor limits

3051SMV Differential pressure range and sensor limits				
Range	Minimum span		Range limits	
	Ultra and Ultra for Flow	Classic and Classic MV	Upper (URL)	Lower (LRL) ⁽¹⁾
0	0.1 inH ₂ O (0,25 mbar)	0.1 inH ₂ O (0,25 mbar)	3.0 inH ₂ O (7,5 mbar)	-3.0 inH ₂ O (-7,5 mbar)
1	0.5 inH ₂ O (1,24 mbar)	0.5 inH ₂ O (1,24 mbar)	25.0 inH ₂ O (62,3 mbar)	-25.0 inH ₂ O (-62,3 mbar)
2	1.3 inH ₂ O (3,11 mbar)	2.5 inH ₂ O (6,23 mbar)	250.0 inH ₂ O (0,62 bar)	-250.0 inH ₂ O (-0,62 bar)
3	5.0 inH ₂ O (12,4 mbar)	10.0 inH ₂ O (24,9 mbar)	1000.0 inH ₂ O (2,49 bar)	-1000.0 inH ₂ O (-2,49 bar)
4	1.5 psi (103,4 mbar)	3.0 psi (206,8 mbar)	300.0 psi (20,7 bar)	-300.0 psi (-20,7 bar)
5	10.0 psi (689,5 mbar)	20.0 psi (1,38 bar)	2000.0 psi (137,9 bar)	-2000.0 psi (-137,9 bar)

1. Lower (LRL) is 0 inH₂O (0 mbar) for Ultra for Flow.

3051SMV Static pressure range and sensor limits					
Range	Minimum span		Range limits		
	Ultra for Flow	Classic MV	Upper (URL)	Lower (LRL) (Absolute)	Lower (LRL) (Gage) ⁽¹⁾⁽²⁾
3	4.0 psi (276 mbar)	8.0 psi (552 mbar)	800 psi (55,16 bar)	0.5 psia (34,5 mbar)	-14.2 psig (-0,98 bar)
4	18.13 psi (1,25 bar)	36.26 psi (2,50 bar)	3626 psi (250.0 bar) ⁽³⁾	0.5 psia (34,5 mbar)	-14.2 psig (-0,98 bar)

- Assumes atmospheric pressure of 14.7 psig (1 bar).
- Inert Fill: Minimum pressure = 1.5 psia (0,10 bar) or -13.2 psig (-0,91 bar).
- For SP Range 4 and DP Range 1, the URL is 2000 psi (137,9 bar).

Process temperature RTD interface range limits ⁽¹⁾		
Minimum Span	Upper (URL)	Lower (LRL)
50 °F (28 °C)	1562 °F (850 °C)	-328 °F (-200 °C)

1. Designed to accommodate a Pt 100 RTD sensor. Examples of compatible RTDs include Rosemount Series 68 and 78 RTD Temperature Sensors.

Service

3051SMV_P (direct process variable output)

Liquid, gas, and vapor applications

3051SMV_M (mass and energy flow output)

Some fluid types are only supported by certain measurement types

Fluid compatibility with pressure and temperature compensation

• Available — Not available

Ordering code	Measurement type	Fluid types			
		Liquids	Saturated steam	Superheated steam	Gas and natural gas
1	DP/P/T (full compensation)	•	•	•	•
2	DP/P	•	•	•	•
3	DP/T	•	•	—	—
4	DP only	•	•	—	—

4–20 mA/HART

Zero and span adjustment

Zero and span values can be set anywhere within the range.

Span must be greater than or equal to the minimum span.

Output

Two-wire 4–20 mA is user-selectable for linear or square root output. Digital process variable superimposed on 4–20 mA signal, available to any host that conforms to the HART protocol.

Power supply

External power supply required.

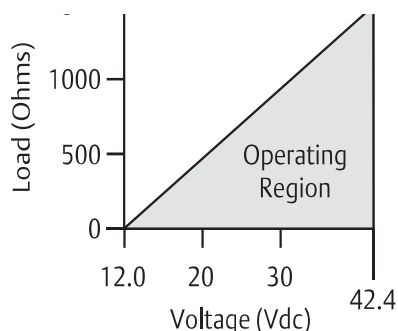
3051SMV transmitter: 12 to 42.4 Vdc with no load

Load limitations

Maximum loop resistance is determined by the voltage level of the external power supply, as described by:

3051SMV Transmitter

Maximum Loop Resistance = $43.5 \times (\text{Power Supply Voltage} - 12.0)$



The Field Communicator requires a minimum loop resistance of 250Ω for communication.

Overpressure limits

Transmitters withstand the following limits without damage:

3051SMV__1: Differential and static pressure, temperature

3051SMV__2: Differential pressure and static pressure

Static pressure	Differential pressure		
	Range 1	Range 2	Range 3
Range 3 GP/AP	1600 psi (110,3 bar)	1600 psi (110,3 bar)	1600 psi (110,3 bar)
Range 4 GP/AP	2000 psi (137,9 bar)	3626 psi (250 bar)	3626 psi (250 bar)

3051SMV__3: Differential pressure and temperature
3051SMV__4: Differential pressure

Range 0	750 psi (51,7 bar)
Range 1	2000 psig (137,9 bar)
Ranges 2–5	3626 psig (250,0 bar)
Option code P9	4500 psig (310,3 bar)
Option code P0 (classic only)	6092 psig (420 bar)

Static Pressure limit

3051SMV__1: Differential and static pressure, temperature

3051SMV__2: Differential pressure and static pressure
Operates within 0.5 psia (0,03 bar) and the values in the table below:

Static Pressure	Differential pressure		
	Range 1	Range 2	Range 3
Range 3 GP/AP	800 psi (57,91 bar)	800 psi (57,91 bar)	800 psi (57,91 bar)
Range 4 GP/AP	2000 psi (137,9 bar)	3626 psi (250 bar)	3626 psi (250 bar)

3051SMV__3: Differential pressure and temperature

3051SMV__4: Differential pressure

Operates within specifications between static line pressures of 0.5 psia and 3626 psig;

Option code P9	4500 psig (310,3 bar)
Option code P0 (Classic only)	6092 psig (420 bar)
Range 0	0.5 psia to 750 psig (0,03 to 51,71 bar)
Range 1	0.5 psia to 2000 psig (0,03 to 137,9 bar)

Burst Pressure limits

3051SMV with coplanar or traditional process flange

10000 psig (689,5 bar)

Temperature limits

Ambient

- 40 to 185 °F (-40 to 85 °C)
- With LCD display ⁽¹⁾: -40 to 175 °F (-40 to 80 °C)
- With option code P0: -20 to 185 °F (-29 to 85 °C)

Storage

- 50 to 185 °F (-46 to 85 °C)
- With LCD display: -40 to 185 °F (-40 to 85 °C)
- With Wireless Output: -40 to 185 °F (-40 to 85 °C)

Process Temperature limits

At atmospheric pressures and above:

Silicone fill sensor ⁽²⁾⁽³⁾	
with coplanar flange	-40 to 250 °F (-40 to 121 °C) ⁽⁴⁾
with traditional flange	-40 to 300 °F (-40 to 149 °C) ⁽⁴⁾⁽⁵⁾
with level flange	-40 to 300 °F (-40 to 149 °C) ⁽⁴⁾
with 305 Integral manifold	-40 to 300 °F (-40 to 149 °C) ⁽⁴⁾⁽⁵⁾
Inert fill sensor ⁽²⁾⁽⁶⁾	-40 to 185 °F (-40 to 85 °C) ⁽⁷⁾

1. CD display may not be readable and LCD display updates will be slower at temperatures below -4 °F (-20 °C).
2. Process temperatures above 185 °F (85 °C) require derating the ambient limits by a 1.5:1 ratio. For example, for process temperature of 195 °F (91 °C), new ambient temperature limit is equal to 170 °F (77 °C). This can be determined as follows:
(195 °F - 185 °F) × 1.5 = 15 °F,
185 °F - 15 °F = 170 °F
3. 212 °F (100 °C) is the upper process temperature limit for DP Range 0.
4. 220 °F (104 °C) limit in vacuum service; 130 °F (54 °C) for pressures below 0.5 psia.
5. -20 °F (-29 °C) is the lower process temperature limit with option code P0.
6. 32 °F (0 °C) is the lower process temperature limit for DP Range 0.
7. For 3051SMV__1, 2, 140 °F (60 °C) limit in vacuum service.

Humidity limits

0–100% relative humidity

Turn-On time

Performance within specifications less than 5 seconds for 3051SMV (typical) after power is applied to the transmitter.

Volumetric displacement

Less than 0.005 in³ (0,08 cm³)

Damping

Analog output response to a step change is user-selectable from 0 to 60 seconds for one time constant. Each variable can be individually adjusted. This software damping is in addition to sensor module response time.

Failure mode alarm

If self-diagnostics detect a gross transmitter failure, the analog signal will be driven offscale to alert the user. Rosemount standard (default), NAMUR, and custom alarm levels are available (see Table A-1 below).

High or low alarm signal is software-selectable or hardware-selectable via the optional switch (option D1).

Table A-1. Alarm Configuration

	High alarm	Low alarm
Default	≥ 21.75 mA	≤ 3.75 mA
NAMUR compliant ⁽¹⁾	≥ 22.5 mA	≤ 3.6 mA
Custom levels ⁽²⁾	20.2 - 23.0 mA	3.6 - 3.8 mA

1. Analog output levels are compliant with NAMUR recommendation NE 43, see option codes C4 or C5.
2. Low alarm must be 0.1 mA less than low saturation and high alarm must be 0.1 mA greater than high saturation.

A.1.3 Physical specifications

Electrical connections

1/2–14 NPT, G1/2, and M20 × 1.5 (CM20) conduit. HART interface connections fixed to terminal block.

Process connections

1/4–18 NPT on 2 1/8-in. centers

1/2–14 NPT and RC 1/2 on 2-in. (50.8mm), 2 1/8-in. (54.0 mm), or 2 1/4-in. (57.2mm) centers (process adapters)

Process-wetted parts

Process isolating diaphragms

- 316L SST (UNS S31603)
- Alloy C-276 (UNS N10276)
- Alloy 400 (UNS N04400)
- Tantalum (UNS R05440)
- Gold-plated Alloy 400
- Gold-plated 316L SST

Drain/vent valves

316 SST, Alloy C-276, or Alloy 400/K-500 material (Drain vent seat: Alloy 400, Drain vent stem: Alloy K-500)

Process flanges and adapters

- Plated carbon steel
- SST: CF-8M (Cast 316 SST) per ASTM A743
- Cast C-276: CW-12MW per ASTM A494
- Cast Alloy 400: M-30C per ASTM A494

Wetted O-rings

Glass-filled PTFE
(Graphite-filled PTFE with isolating diaphragm code 6)

Non-Wetted parts

Electronics housing

- Low-copper aluminum alloy or SST: CF-3M (Cast 316L SST) or CF-8M (Cast 316 SST)
- NEMA® 4X, IP 66, IP 68 (66 ft (20 m) for 168 hours)

Coplanar sensor module housing

SST: CF-3M (Cast 316L SST)

Bolts

- Plated carbon steel per ASTM A449, Type 1
- Austenitic 316 SST per ASTM F593
- ASTM A453, Class D, Grade 660 SST
- ASTM A193, Grade B7M alloy steel
- ASTM A193, Class 2, Grade B8M SST
- Alloy K-500

Sensor module fill fluid

Silicone or inert halocarbon

Paint

Polyurethane

Cover O-rings

Buna-N

Shipping weights for Rosemount 3051S MultiVariable™ Transmitter (3051SMV)

3051SMV with PlantWeb™ housing: 6.7 lb (3,1 kg)

Table A-2. Transmitter Option Weights

Option code	Option	Add lb (kg)
1J, 1K, 1L	SST PlantWeb housing	3.5 (1,6)
1A, 1B, 1C	Aluminum PlantWeb housing	1.1 (0,5)
M5 ⁽¹⁾	LCD display for Aluminum PlantWeb housing	0.8 (0,4)
	LCD display for SST PlantWeb housing	1.6 (0,7)
B4	SST mounting bracket for coplanar flange	1.2 (0,5)
B1, B2, B3	Mounting Bracket for traditional flange	1.7 (0,8)
B7, B8, B9	Mounting Bracket for traditional flange with SST bolts	1.7 (0,8)
BA, BC	SST bracket for traditional flange	1.6 (0,7)
B4	SST mounting bracket for In-Line	1.3 (0,6)
F12, F22 ⁽²⁾	SST traditional flange with SST drain vents	3.2 (1,5)
F13, F23 ⁽²⁾	Cast C-276 traditional flange with Alloy C-276 drain vents	3.6 (1,6)
E12, E22 ⁽²⁾	SST coplanar flange with SST drain vents	1.9 (0,9)
F14, F24 ⁽²⁾	Cast Alloy 400 traditional flange with Alloy 400/K-500 drain vents	3.6 (1,6)

Table A-2. Transmitter Option Weights

Option code	Option	Add lb (kg)
F15, F25 ⁽²⁾	SST traditional flange with Alloy C-276 drain vents	3.2 (1,5)
G21	Level flange—3-in., 150	12.6 (5,7)
G22	Level flange—3-in., 300	15.9 (7,2)
G11	Level flange—2-in., 150	6.8 (3,1)
G12	Level flange—2-in., 300	8.2 (3,7)
G31	DIN Level flange, SST, DN 50, PN 40	7.8 (3,5)
G41	DIN Level flange, SST, DN 80, PN 40	13.0 (5,9)

1. Includes LCD display and display cover.
2. Includes mounting bolts.

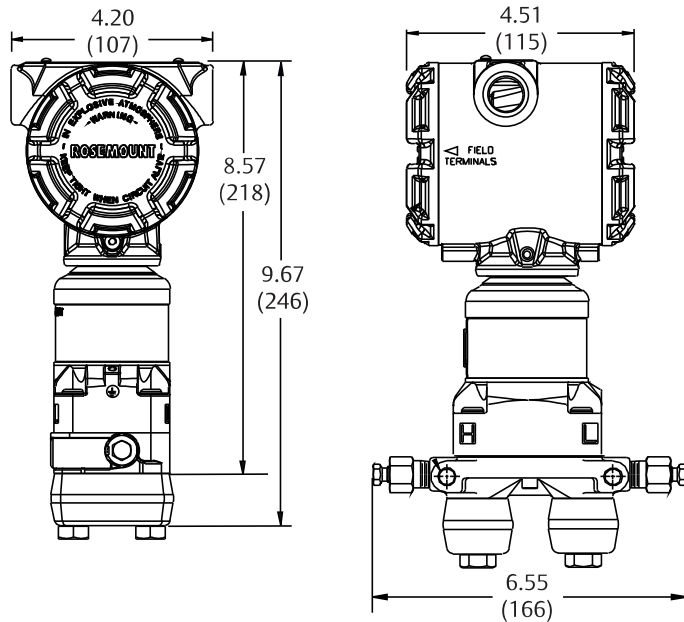
Item	Weight in lb. (kg)
Aluminum standard cover	0.4 (0,2)
SST standard cover	1.3 (0,6)
Aluminum display cover	0.7 (0,3)
SST display cover	1.5 (0,7)
LCD display ⁽¹⁾	0.1 (0,04)
PlantWeb terminal block	0.2 (0,1)

1. Display only.

A.2 Dimensional drawings

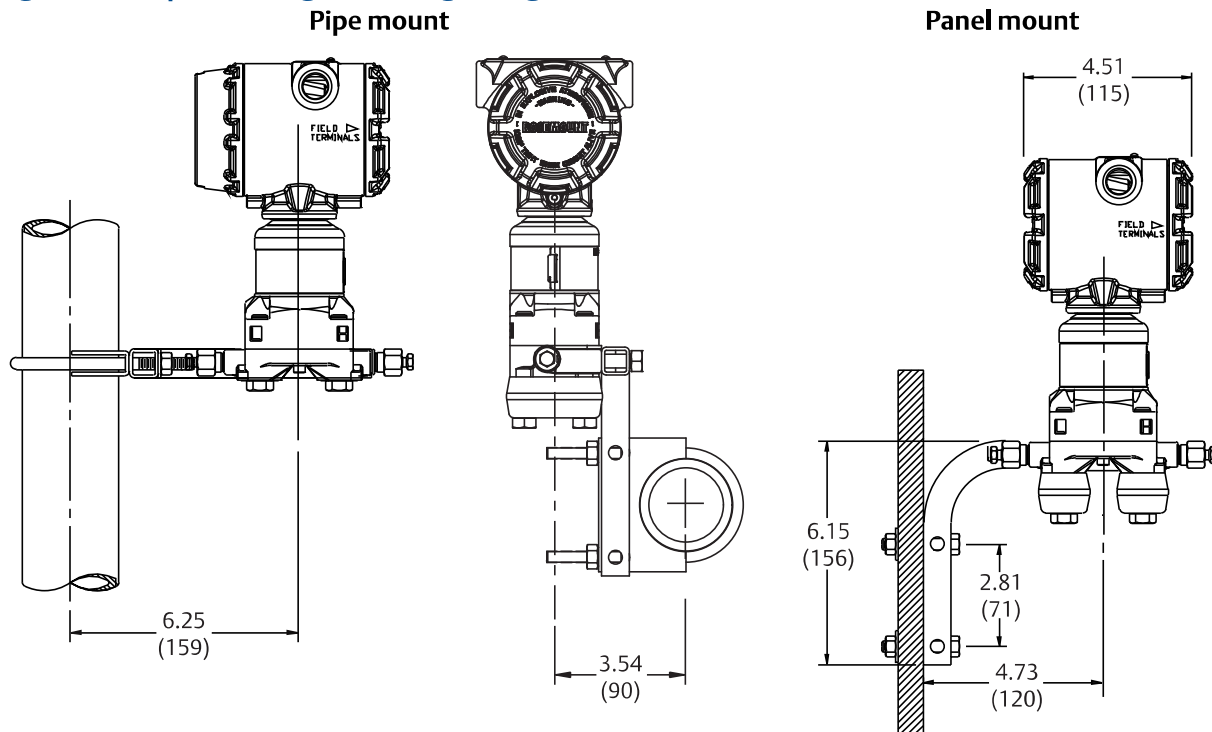
Process adapters (option D2) and Rosemount 305 integral manifolds must be ordered with the transmitter.

Figure A-1. PlantWeb Housing with Coplanar™ SuperModule™ Platform and 305 Coplanar Integral Manifold



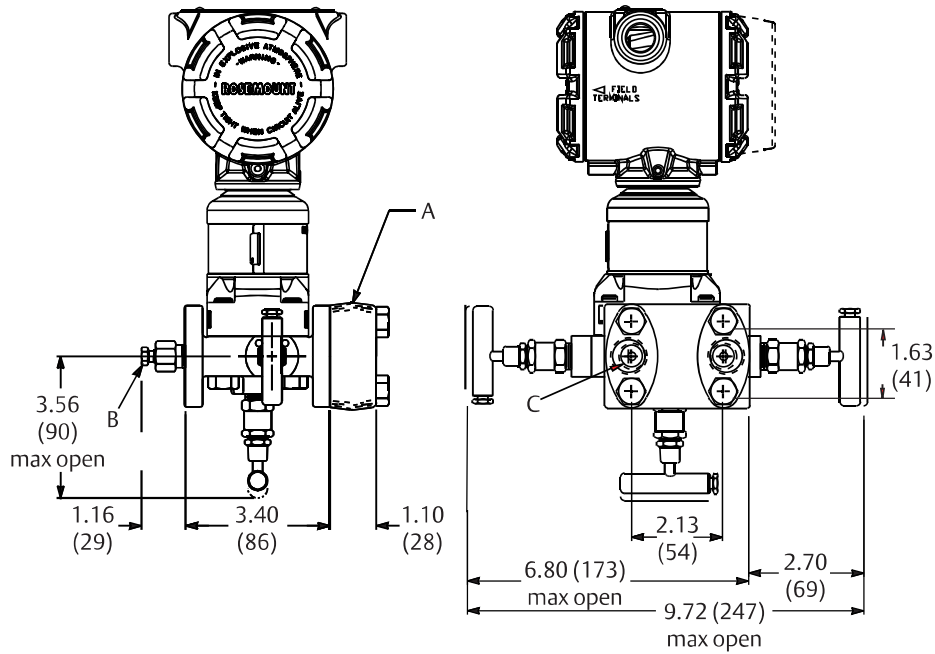
Dimensions are in inches (millimeters).

Figure A-2. Coplanar Flange Mounting Configurations



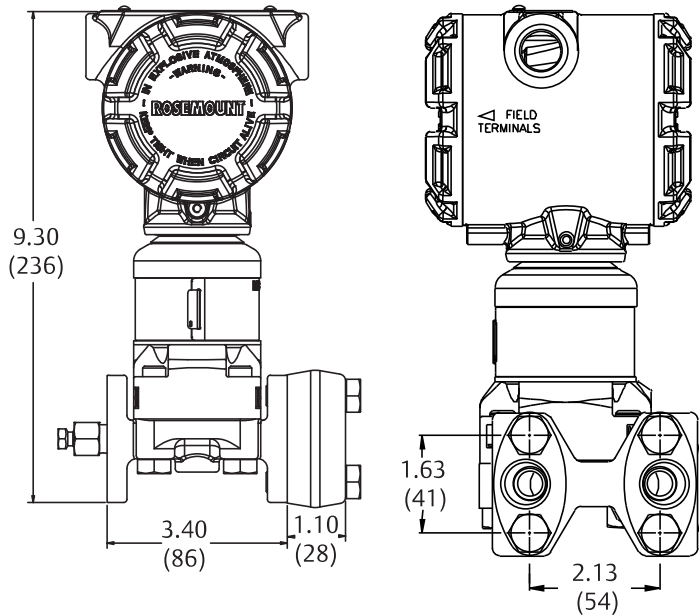
Dimensions are in inches (millimeters).

Figure A-3. PlantWeb Housing with Coplanar SuperModule Platform and 305 Traditional Integral Manifold



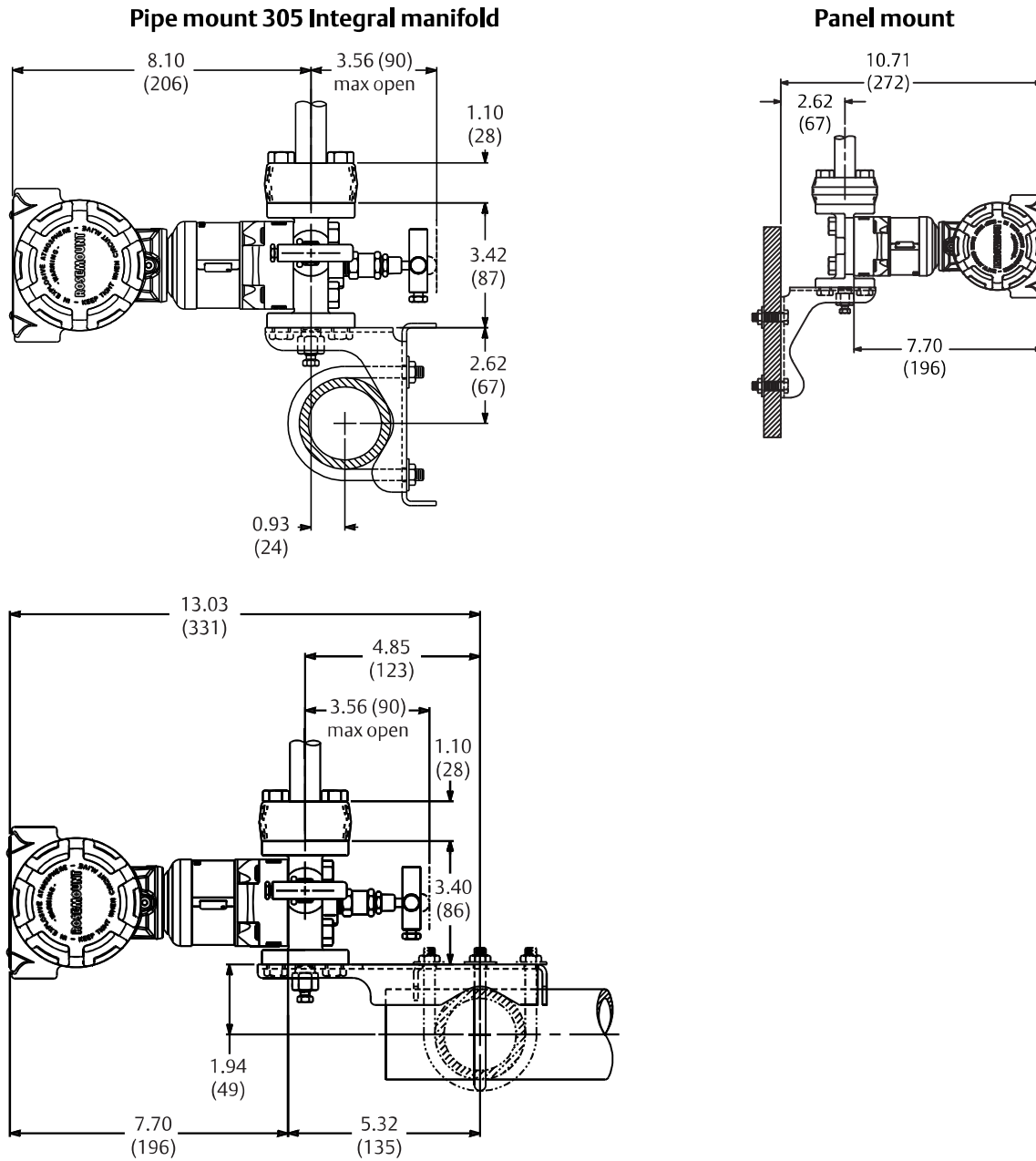
A. 1/2-14 NPT on mounting adapters
B. Drain vent valve
C. 1/4-18 NPT
Dimensions are in inches (millimeters).

Figure A-4. PlantWeb Housing with Coplanar SuperModule Platform and Traditional Flange



Dimensions are in inches (millimeters).

Figure A-5. Traditional Flange Mounting Configurations



Dimensions are in inches (millimeters).

A.3 Ordering information

A.3.1 Rosemount 3051S MultiVariable Transmitter

Table A-3. Rosemount 3051S Scalable™ MultiVariable Transmitter Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery. The Expanded offering is subject to additional delivery lead time.

Model	Transmitter type	
3051SMV	Scalable MultiVariable Transmitter	
Performance class		
3051SMV multivariable SuperModule, measurement types 1 and 2		
3 ⁽¹⁾	Ultra for Flow: 0.04% reading DP accuracy, 200:1 rangedown, 15-year stability, 12-year limited warranty	★
5	Classic MV: 0.04% span DP accuracy, 100:1 rangedown, 15-year stability	★
3051SMV single variable SuperModule, measurement types 3 and 4		
1 ⁽²⁾	Ultra: 0.025% span DP accuracy, 200:1 rangedown, 10-year stability, 12-year limited warranty	★
2	Classic: 0.055% span DP accuracy, 100:1 rangedown, 5-year stability	★
3 ⁽¹⁾	Ultra for Flow: 0.04% reading DP accuracy, 200:1 rangedown, 10-year stability, 12-year limited warranty	★
Multivariable type		
M	Multivariable measurement with fully compensated mass and energy flow	★
P	Multivariable measurement with direct process variable output	★
Measurement type		
1	Differential pressure, static pressure, and temperature	★
2	Differential pressure and static pressure	★
3	Differential pressure and temperature	★
4	Differential pressure	★
Differential pressure range		
0 ⁽²⁾⁽³⁾	-3 to 3 inH ₂ O (-7,47 to 7,47 mbar)	★
1	-25 to 25 inH ₂ O (-62,2 to 62,2 mbar)	★
2	-250 to 250 inH ₂ O (-623 to 623 mbar)	★
3	-1000 to 1000 inH ₂ O (-2,5 to 2,5 bar)	★
4	-300 to 300 psi (-20,7 to 20,7 bar)	★
5	-2000 to 2000 psi (-137,9 to 137,9 bar)	★
Static pressure type		
N ⁽⁴⁾	None	★
A	Absolute	★
G	Gage	★

Table A-3. Rosemount 3051S Scalable™ MultiVariable Transmitter Ordering Information

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Static pressure range		Absolute	Gage			
N ⁽⁴⁾	None	N/A	N/A			★
3	Range 3	0.5 to 800 psia (0,03 to 55,2 bar)	-14.2 to 800 psig (-0,98 to 55,2 bar)			★
4 ⁽⁵⁾	Range 4	0.5 to 3626 psia (0,03 to 250 bar)	-14.2 to 3626 psig (-0,98 to 250 bar)			★
Temperature input						
N ⁽⁶⁾	None					★
R ⁽⁷⁾	RTD input (Type Pt 100, -328 to 1562 °F [-200 to 850 °C])					★
Isolating diaphragm						
2 ⁽⁸⁾	316L SST					★
3 ⁽⁸⁾	Alloy C-276					★
5 ⁽⁹⁾	Tantalum					
7	Gold-Plated 316L SST					
Process connection	Size	Material type				
		Flange material	Drain vent	Bolting		
000	None					★
A11 ⁽¹⁰⁾	Assemble to Rosemount 305/306 Integral Manifold					★
A12 ⁽¹⁰⁾	Assemble to Rosemount 304 or AMF Manifold with SST traditional flange					★
B11 ⁽¹⁰⁾⁽¹¹⁾	Assemble to one Rosemount 1199 seal					★
B12 ⁽¹⁰⁾⁽¹¹⁾	Assemble to two Rosemount 1199 seals					★
C11 ⁽¹⁰⁾	Assemble to Rosemount 405 Primary Element					★
D11 ⁽¹⁰⁾	Assemble to Rosemount 1195 Integral orifice and Rosemount 305 Integral Manifold					★
EA2 ⁽¹⁰⁾	Assemble to Rosemount Annubar™ Primary Element with coplanar flange		SST	316 SST	N/A	★
EA3 ⁽¹⁰⁾	Assemble to Rosemount Annubar Primary Element with coplanar flange		Cast C-276	Alloy C-276	N/A	★
EAS ⁽¹⁰⁾	Assemble to Rosemount Annubar Primary Element with coplanar flange		SST	Alloy C-276	N/A	★
E11	Coplanar flange	1/4–18 NPT	Carbon Steel	316 SST	N/A	★
E12	Coplanar flange	1/4–18 NPT	SST	316 SST	N/A	★
E13 ⁽⁸⁾	Coplanar flange	1/4–18 NPT	Cast C-276	Alloy C-276	N/A	★
E14	Coplanar flange	1/4–18 NPT	Cast Alloy 400	Alloy 400/K-500	N/A	★
E15 ⁽⁸⁾	Coplanar flange	1/4–18 NPT	SST	Alloy C-276	N/A	★
E16 ⁽⁸⁾	Coplanar flange	1/4–18 NPT	Carbon Steel	Alloy C-276	N/A	★
E21	Coplanar flange	RC 1/4	Carbon Steel	316 SST	N/A	★
E22	Coplanar flange	RC 1/4	SST	316 SST	N/A	★
E23 ⁽⁸⁾	Coplanar flange	RC 1/4	Cast C-276	Alloy C-276	N/A	★

Table A-3. Rosemount 3051S Scalable™ MultiVariable Transmitter Ordering Information

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Process connection		Size	Material type			
			Flange material	Drain vent	Bolting	
E24	Coplanar flange	RC 1/4	Cast Alloy 400	Alloy 400/K-500	N/A	★
E25 ⁽⁸⁾	Coplanar flange	RC 1/4	SST	Alloy C-276	N/A	★
E26 ⁽⁸⁾	Coplanar flange	RC 1/4	Carbon Steel	Alloy C-276	N/A	★
F12	Traditional flange	1/4-18 NPT	SST	316 SST	N/A	★
F13 ⁽⁸⁾	Traditional flange	1/4-18 NPT	Cast C-276	Alloy C-276	N/A	★
F14	Traditional flange	1/4-18 NPT	Cast Alloy 400	Alloy 400/K-500	N/A	★
F15 ⁽⁸⁾	Traditional flange	1/4-18 NPT	SST	Alloy C-276	N/A	★
F22	Traditional flange	RC 1/4	SST	316 SST	N/A	★
F23 ⁽⁸⁾	Traditional flange	RC 1/4	Cast C-276	Alloy C-276	N/A	★
F24	Traditional flange	RC 1/4	Cast Alloy 400	Alloy 400/K-500	N/A	★
F25 ⁽⁸⁾	Traditional flange	RC 1/4	SST	Alloy C-276	N/A	★
F52	DIN-compliant traditional flange	1/4-18 NPT	SST	316 SST	7/16-in. bolting	★
G11	Vertical mount level flange	2-in. ANSI class 150	SST	N/A	N/A	★
G12	Vertical mount level flange	2-in. ANSI class 300	SST	N/A	N/A	★
G14 ⁽⁸⁾	Vertical mount level flange	2-in. ANSI class 150	Cast C-276	N/A	N/A	★
G15 ⁽⁸⁾	Vertical mount level flange	2-in. ANSI class 300	Cast C-276	N/A	N/A	★
G21	Vertical mount level flange	3-in. ANSI class 150	SST	N/A	N/A	★
G22	Vertical mount level flange	3-in. ANSI class 300	SST	N/A	N/A	★
G31	Vertical mount level flange	DIN- DN 50 PN 40	SST	N/A	N/A	★
EB6	Assemble to Primary Element with manifold and coplanar flange, CS, Alloy C-276					
F32	Bottom vent traditional flange	1/4-18 NPT	SST	316 SST	N/A	
F42	Bottom vent traditional flange	RC 1/4	SST	316 SST	N/A	
F62	DIN-compliant traditional flange	1/4-18 NPT	SST	316 SST	M10 bolting	
F72	DIN-compliant traditional flange	1/4-18 NPT	SST	316 SST	M12 bolting	
G41	Vertical mount level flange	DIN- DN 80 PN 40	SST	N/A	N/A	

Table A-3. Rosemount 3051S Scalable™ MultiVariable Transmitter Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery. The Expanded offering is subject to additional delivery lead time.

Transmitter output				
A	4–20 mA with digital signal based on HART protocol			★
Housing style	Material	Conduit entry size		
1A	PlantWeb housing	Aluminum	1/2–14 NPT	★
1B	PlantWeb housing	Aluminum	M20 × 1.5	★
1J	PlantWeb housing	SST	1/2–14 NPT	★
1K	PlantWeb housing	SST	M20 × 1.5	★
1C	PlantWeb housing	Aluminum	G1/2	
1L	PlantWeb housing	SST	G1/2	

Options (include with selected model number)

RTD cable (RTD sensor must be ordered separately)				
C12	RTD input with 12-ft. (3.66 m) of shielded cable			★
C13	RTD input with 24-ft. (7.32 m) of shielded cable			★
C14	RTD input with 75-ft. (22.86 m) of shielded cable			★
C20 ⁽¹²⁾	RTD input with 27-in. (69 cm) of armored shielded cable			★
C21	RTD input with 4-ft. (1.22 m) of armored shielded cable			★
C22	RTD input with 12-ft. (3.66 m) of armored shielded cable			★
C23	RTD input with 24-ft. (7.32 m) of armored shielded cable			★
C24	RTD input with 75-ft. (22.86 m) of armored shielded cable			★
C30 ⁽¹²⁾	RTD input with 25-in. (64 cm) of ATEX/IECEX Flameproof cable			★
C32	RTD input with 12-ft. (3.66 m) of ATEX/IECEX Flameproof cable			★
C33	RTD input with 24-ft. (7.32 m) of ATEX/IECEX Flameproof cable			★
C34	RTD input with 75-ft. (22.86 m) of ATEX/IECEX Flameproof cable			★
C40 ⁽¹²⁾	RTD input with 34-in. (86.36 cm) shielded cable and 24-in. (60.96 cm) FM Approved coupling flex			★
C41 ⁽¹²⁾	RTD input with 40-in. (101.60 cm) shielded cable and 30-in. (76.20 cm) FM Approved coupling flex			★
Mounting brackets ⁽¹³⁾				
B4	Coplanar flange bracket, all SST, 2-in. pipe and panel			★
B1	Traditional flange bracket, Carbon Steel, 2-in. pipe			★
B2	Traditional flange bracket, Carbon Steel, panel			★
B3	Traditional flange flat bracket, Carbon Steel, 2-in. pipe			★
B7	Traditional flange bracket, B1 with SST bolts			★
B8	Traditional flange bracket, B2 with SST bolts			★
B9	Traditional flange bracket, B3 with SST bolts			★
BA	Traditional flange bracket, B1, all SST			★
BC	Traditional flange bracket, B3, all SST			★

Table A-3. Rosemount 3051S Scalable™ MultiVariable Transmitter Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery. The Expanded offering is subject to additional delivery lead time.

Software configuration		
C1	Custom software configuration (Configuration Data Sheet required; see document number 00806-0100-4803.)	★
C2	Custom flow configuration (Configuration Data Sheet required; see document number 00806-0100-4803.)	★
C4	NAMUR alarm and saturation levels, high alarm	★
C5	NAMUR alarm and saturation levels, low alarm	★
C6	Custom alarm and saturation signal levels, high alarm	★
C7	Custom alarm and saturation signal levels, low alarm	★
C8	Low alarm (standard Rosemount alarm and saturation levels)	★
Flange adapter⁽¹³⁾		
D2	1/2-14 NPT flange adapter	★
D9	RC 1/2 SST flange adapter	
Ground screw		
D4	External ground screw assembly	★
Drain/vent valve⁽¹³⁾		
D5	Delete transmitter drain/vent valves (install plugs)	★
D7	Coplanar flange without drain/vent ports	
Conduit plug		
DO ⁽¹⁴⁾	316 SST Conduit Plug	★
Product certifications		
E1	ATEX Flameproof	★
I1	ATEX Intrinsic Safety	★
N1	ATEX Type n	★
ND	ATEX Dust	★
K1	ATEX Flameproof, Intrinsic Safety, Type n, Dust (combination of E1, I1, N1, and ND)	★
E4	TIIS Flameproof	★
E5	FM Explosion-proof, Dust Ignition-proof	★
I5	FM Intrinsically Safe, Division 2	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5 and I5)	★
E6 ⁽¹⁵⁾	CSA Explosion-proof, Dust Ignition-proof, Division 2	★
I6	CSA Intrinsically Safe	★
K6 ⁽¹⁵⁾	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E6 and I6)	★
E7	IECEx Flameproof, Dust Ignition-proof	★
I7	IECEx Intrinsic Safety	★

Table A-3. Rosemount 3051S Scalable™ MultiVariable Transmitter Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery. The Expanded offering is subject to additional delivery lead time.

Product certifications		
N7	IECEX Type n	★
K7	IECEX Flameproof, Dust Ignition-proof, Intrinsic Safety, and Type n (combination of E7, I7, and N7)	★
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsic Safety	★
E3	China Flameproof	★
I3	China Intrinsic Safety	★
KA ⁽¹⁵⁾⁽¹⁶⁾	ATEX and CSA Explosion-proof, Intrinsically Safe, Division 2 (combination of E1, E6, I1, and I6)	★
KB ⁽¹⁵⁾⁽¹⁶⁾	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5, E6, I5, and I6)	★
KC	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2 (combination of E5, E1, I5, and I1)	★
KD ⁽¹⁵⁾⁽¹⁶⁾	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe (combination of E5, E6, E1, I5, I6, and I1)	★
DW ⁽¹⁷⁾	NSF Drinking Water Certification	★
Alternate materials of construction		
L1 ⁽¹⁸⁾	Inert sensor fill fluid (differential and gage sensors only)	★
L2	Graphite-filled PTFE O-ring	★
L4 ⁽¹³⁾	Austenitic 316 SST bolts	★
L5 ⁽⁸⁾⁽¹³⁾	ASTM A193, Grade B7M bolts	★
L6 ⁽¹³⁾	Alloy K-500 bolts	★
L7 ⁽⁸⁾⁽¹³⁾	ASTM A453, Class D, Grade 660 bolts	★
L8 ⁽¹³⁾	ASTM A193, Class 2, Grade B8M bolts	★
Digital display		
M5	PlantWeb LCD display	★
Special procedures		
P1 ⁽¹⁹⁾	Hydrostatic testing with certificate	★
P9 ⁽²⁾	4500 psig (310 bar) static pressure limit	★
P0 ⁽²⁾⁽²⁰⁾	6092 psig (420 bar) static pressure limit	★
P2 ⁽¹³⁾	Cleaning for special services	
P3 ⁽¹³⁾	Cleaning for less than 1PPM chlorine/fluorine	
Special certifications		
Q4	Calibration Certificate	★
QP	Calibration Certificate and Tamper Evident Seal	★
Q8	Material Traceability Certification per EN 10204 3.1B	★
Q16	Surface Finish Certification for Sanitary Remote Seals	★
QZ	Remote Seal System Performance Calculation Report	★

Table A-3. Rosemount 3051S Scalable™ MultiVariable Transmitter Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery. The Expanded offering is subject to additional delivery lead time.

Transient protection		
T1	Transient terminal block	★
Conduit electrical connector⁽²¹⁾		
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size Mini, 4-pin, male connector (minifast®)	★
Cold temperature		
BRR	-60 °F (-51 °C) cold temperature start-up	★
Typical model number: 3051SMV 3 M 1 2 G 4 R 2 E12 A 1A B4 C2 M5		

1. Only available with DP range codes 2 and 3, 316L SST or Alloy C-276 isolating diaphragm and silicone fill fluid.
2. Only available with measurement type codes 3 and 4.
3. DP Range 0 is only available with traditional flange, 316L SST diaphragm material, and Bolting option L4.
4. Required for measurement type codes 3 and 4.
5. For measurement type 1 and 2 with DP range 1, absolute limits are 0.5 to 2000 psi (0,03 to 137,9 bar) and gage limits are -14.2 to 2000 psig (-0,98 to 137,9 bar).
6. Required for measurement type codes 2 and 4.
7. Required for measurement type codes 1 and 3. RTD Sensor must be ordered separately.
8. Materials of Construction comply with metallurgical requirements highlighted within NACE MR0175/ISO 15156 for sour oil field production environments. Environmental limits apply to certain materials. Consult latest standard for details. Selected materials also conform to NACE MR0103 for sour refining environments.
9. Tantalum diaphragm material is only available for DP ranges 2-5.
10. "Assemble to" items are specified separately and require a completed model number.
11. Consult an Emerson Process Management representative for performance specifications.
12. For use with Flowmeters with integral RTDs.
13. Not available with process connection option code A11.
14. Transmitter is shipped with 316 SST conduit plug (uninstalled) in place of standard carbon steel conduit plug.
15. Not available with M20 or G ½ conduit entry size.
16. RTD cable not available with this option.
17. Requires 316L SST diaphragm material, glass-filled PTFE O-ring (standard), and Process Connection code E12 or F12.
18. Silicone fill fluid is standard.
19. Not available with DP range 0.
20. Requires 316L SST or Alloy C-276 diaphragm material, assemble to Rosemount 305 Integral Manifold or DIN-compliant traditional flange process connection, and bolting option L8. Limited to differential pressure ranges 2-5.
21. Available with Intrinsically Safe approvals only. For FM Intrinsically Safe, Non-Incendive approval (option code I5), install in accordance with Rosemount drawing 03151-1009 to maintain outdoor rating (NEMA 4X and IP66).

A.3.2 Rosemount 300SMV housing kit

Table A-4. 300SMV Ordering Information

Model				
300SMV	Housing kit for 3051SMV			
Multivariable type				
M	Multivariable measurement with fully compensated mass and energy flow			★
P	Multivariable measurement with direct process variable output			★
Temperature input				
N	None			★
R ⁽¹⁾	RTD input (type Pt 100, -328 to 1562 °F [-200 to 850 °C])			★
Transmitter output				
A	4–20 mA with digital signal based on HART protocol			★
Housing style		Material⁽²⁾	Conduit entry	
1A	PlantWeb housing	Aluminum	1/2–14 NPT	★
1B	PlantWeb housing	Aluminum	M20 × 1.5 (CM20)	★
1J	PlantWeb housing	SST	1/2–14 NPT	★
1K	PlantWeb housing	SST	M20 × 1.5 (CM20)	★
1C	PlantWeb housing	Aluminum	G 1/2	
1L	PlantWeb housing	SST	G 1/2	

Options (include with selected model number)

RTD cable (RTD sensor must be ordered separately)		
C12	RTD input with 12-ft. (3.66 m) of shielded cable	★
C13	RTD input with 24-ft. (7.32 m) of shielded cable	★
C14	RTD input with 75-ft. (22.86 m) of shielded cable	★
C20 ⁽³⁾	RTD input with 27-in. (69 cm) of armored shielded cable	★
C21	RTD input with 4-ft. (1.22 m) of armored shielded cable	★
C22	RTD input with 12-ft. (3.66 m) of armored shielded cable	★
C23	RTD input with 24-ft. (7.32 m) of armored shielded cable	★
C24	RTD input with 75-ft. (22.86 m) of armored shielded cable	★
C30 ⁽³⁾	RTD input with 25-in. (64 cm) of ATEX/IECEX Flameproof cable	★
C32	RTD input with 12-ft. (3.66 m) of ATEX/IECEX Flameproof cable	★
C33	RTD input with 24-ft. (7.32 m) of ATEX/IECEX Flameproof cable	★
C34	RTD input with 75-ft. (22.86 m) of ATEX/IECEX Flameproof cable	★
C40 ⁽³⁾	RTD input with 34-in. (86.36 cm) shielded cable and 24-in. (60.96 cm) FM Approved coupling flex	★
C41 ⁽³⁾	RTD input with 40-in. (101.60 cm) shielded cable and 30-in. (76.20 cm) FM Approved coupling flex	★

Table A-4. 300SMV Ordering Information

Alarm limit		
C4	NAMUR alarm and saturation levels, high alarm	★
C5	NAMUR alarm and saturation levels, low alarm	★
C8	Low alarm (standard Rosemount alarm and saturation levels)	★
External ground screw assembly		
D4	External ground screw assembly	★
Product certifications		
E1	ATEX Flameproof	★
I1	ATEX Intrinsic Safety	★
N1	ATEX Type n	★
ND	ATEX Dust	★
K1	ATEX Flameproof, Intrinsic Safety, Type n, Dust (combination of E1, I1, N1, and ND)	★
E4	TIIS Flameproof	★
I4	TIIS Intrinsic Safety	★
K4	TIIS Flameproof and Intrinsic Safety (combination E4 and I4)	★
E5	FM Explosion-proof, Dust Ignition-proof	★
I5	FM Intrinsically Safe, Division 2	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5 and I5)	★
E6	CSA Explosion-proof, Dust Ignition-proof, Division 2	★
I6	CSA Intrinsically Safe	★
K6	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E6 and I6)	★
E7	IECEx Flameproof, Dust Ignition-proof	★
I7	IECEx Intrinsic Safety	★
N7	IECEx Type n	★
K7	IECEx Flameproof, Dust Ignition-proof, Intrinsic Safety, Type n (combination of E7, I7, and N7)	★
E2 ⁽⁴⁾	INMETRO Flameproof	★
I2 ⁽⁴⁾	INMETRO Intrinsic Safety	★
K2 ⁽⁴⁾	INMETRO Flameproof, Intrinsic Safety (combination of E2 and I2)	★
E3 ⁽⁴⁾	China Flameproof	★
I3 ⁽⁴⁾	China Intrinsic Safety	★
KA ⁽⁵⁾	ATEX and CSA Explosion-proof, Intrinsically Safe, Division 2 (combination of E1, E6, I1, and I6)	★
KB	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5, E6, I5, and I6)	★
KC ⁽⁵⁾	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2 (combination of E5, E1, I5, and I1)	★
KD ⁽⁵⁾	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe (combination of E5, E6, E1, I5, I6, and I1)	★

Table A-4. 300SMV Ordering Information

Digital display		
M5	PlantWeb LCD display	★
Terminal blocks		
T1	Transient terminal block	★
Conduit electrical connector⁽⁶⁾		
GE	M12, 4-pin, male connector (eurofast)	★
GM	A size mini, 4-pin, male connector (minifast)	★
Typical model number: 300SMV M R 1A C22 M5		

1. RTD Sensor must be ordered separately.
2. Material specified is cast as follows: CF-8M is the cast version of 316 SST, CF-3M is the cast version of 316L SST, CW-12MW is the cast version of Alloy C-276, M-30C is the cast version of Alloy 400. For housing, material is aluminum with polyurethane paint.
3. For use with Flowmeters with integral RTDs.
4. Contact an Emerson Process Management representative for availability.
5. RTD cable not available with this option.
6. Available with Intrinsically Safe approvals only. For FM Intrinsically Safe, Non-Incendive approval (option code I5), install in accordance with Rosemount drawing 03151-1206 to maintain outdoor rating (NEMA 4X and IP66).

A.4 Accessories

A.4.1 Rosemount Engineering Assistant (EA) software packages

The Rosemount Engineering Assistant software supports flow configuration for the 3051SMV. The package is available with or without modem and connecting cables. All configurations are packaged separately.

For best performance of the EA Software, the following computer hardware and software is recommended:

- Pentium-grade Processor: 500 MHz or faster
- Operating System: Windows™ 2000, XP Professional, or Windows 7
- 32-bit
- 64-bit
- 256 MB RAM
- 100 MB of available hard disk space
- RS232 serial port or USB port (for use with HART modem)
- CD-ROM

Engineering Assistant software packages

Code	Product description
EA	Engineering Assistant software program
Software media	
3	EA Rev. 6 (compatible with 3051SMV only)
Language	
E	English
Modem and connecting cables	
O	None
H	Serial Port HART modem and cables
B	USB Port HART modem and cables
C	FOUNDATION Fieldbus™ PCM-CIA interface card and cables
License	
N1	Single PC license
N2	Site license
Typical model number: EA 2 E O N1	

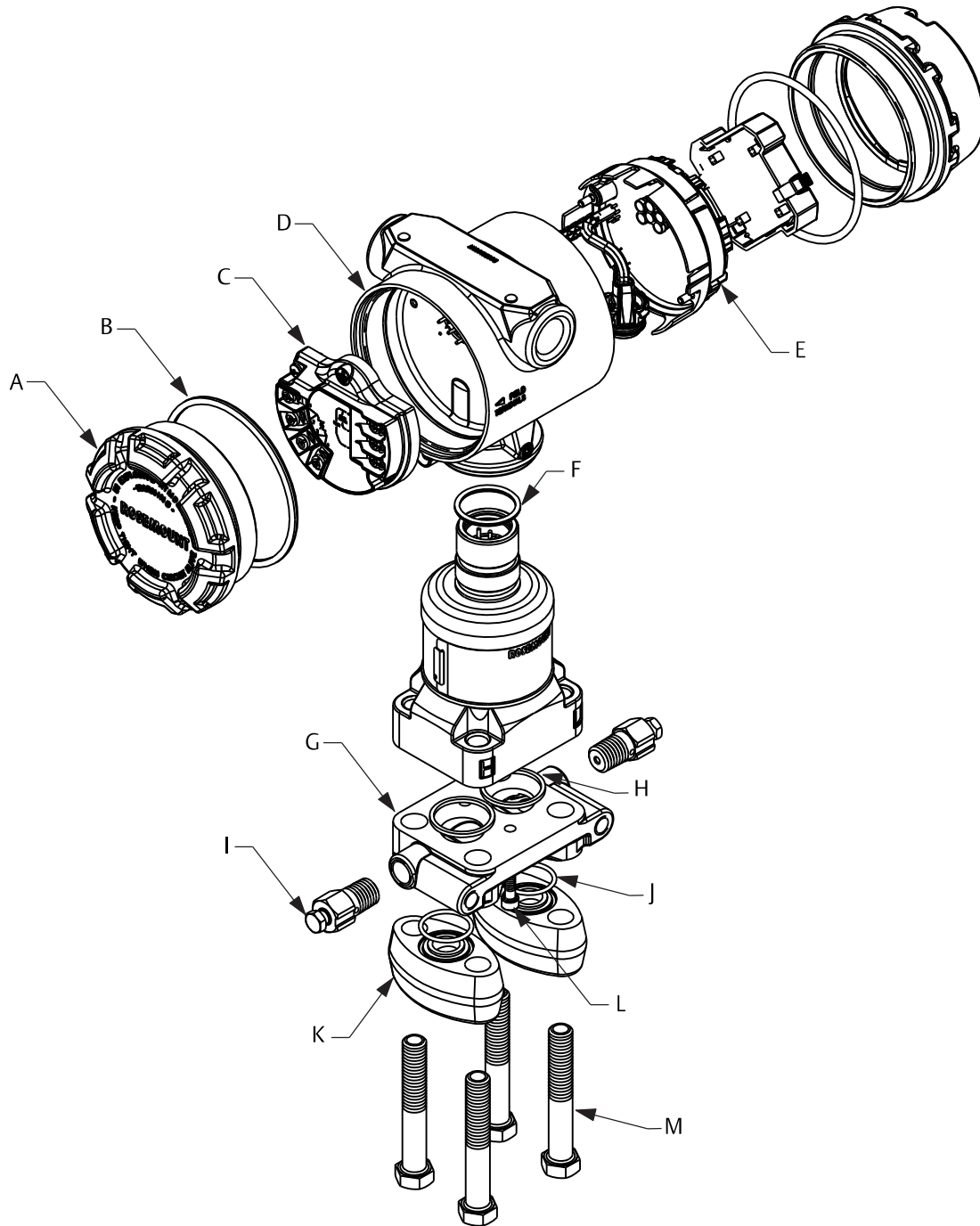
Accessories

Item description	Part number
Serial Port HART modem and cables only	03095-5105-0001
USB Port HART modem and cables only ⁽¹⁾	03095-5105-0002

1. Supported by SNAP-ON™ EA with AMS™ Device Manager version 6.2 or higher.

A.5 Exploded view diagram

The following drawing shows the name and location for commonly ordered spare parts.



A. Cover
B. Cover O-ring
C. Terminal block
D. PlantWeb housing
E. Feature board
F. Module O-ring
G. Coplanar flange

H. Process flange O-ring
I. Drain/vent valve
J. Flange adapter O-ring
K. Flange adapters
L. Flange alignment screw (not pressure retaining)
M. Flange/adapters bolts

Appendix B Product Certifications

Rev 1.5

European Directive Information	page 153
Ordinary Location Certification	page 153
Installing Equipment in North America	page 153
Installation drawings	page 159

B.1 European Directive Information

A copy of the EC Declaration of Conformity can be found at the end of the Quick Start Guide. The most recent revision of the EC Declaration of Conformity can be found at <http://www.EmersonProcess.com/Rosemount>.

B.2 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).

B.3 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.

B.3.1 USA

- E5** FM Explosionproof (XP) and Dust-Ignitionproof (DIP)
Certificate: 3008216
Standards: FM Class 3600 – 2011,
FM Class 3615 – 2006,
FM Class 3616 – 2011,
FM Class 3810 – 2005,
ANSI/NEMA 250 – 2003
Markings: XP CL I, DIV 1, GP B, C, D; DIP CL II, DIV 1,
GP E, F, G; CL III; T5(-50 °C ≤ T_a ≤ +85 °C);
Factory Sealed; Type 4X
- I5** FM Intrinsic Safety (IS) and Nonincendive (NI)
Certificate: 3031960
Standards: FM Class 3600 – 2011,
FM Class 3610 – 2007,
FM Class 3611 – 2004,
FM Class 3810 – 2005, NEMA 250 – 1991
Markings: IS CL I, DIV 1, GP A, B, C, D; CL II, DIV 1,
GP E, F, G; Class III; Class 1, Zone 0 AEx ia
IIC T4; NI CL 1, DIV 2, GP A, B, C, D;
T4(-50 °C ≤ T_a ≤ +70 °C) when connected
per Rosemount™ drawing 03151-1206;
Type 4X

Note

Transmitters marked with NI CL 1, DIV 2 can be installed in Division 2 locations using general Division 2 wiring methods or Nonincendive Field Wiring (NIFW). See Drawing 03151-1206.

- IE** FM FISCO
Certificate: 3031960
Standards: FM Class 3600 – 2011,
FM Class 3610 – 2010,
FM Class 3611 – 2004,
FM Class 3616 – 2006,
FM Class 3810 – 2005, NEMA 250 – 1991
Markings: IS CL I, DIV 1, GP A, B, C, D;
T4(-50 °C ≤ T_a ≤ +70 °C); when connected
per Rosemount drawing 03151-1006;
Type 4X

B.3.2 Canada

- E6** CSA Explosionproof, Dust-Ignitionproof, and Division 2
Certificate: 1143113
Standards: CAN/CSA C22.2 No. 0-10, CSA Std C22.2 No. 25-1966, CSA Std C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA Std C22.2 No. 142-M1987, CSA Std C22.2 No. 213-M1987, ANSI/ISA 12.27.01-2003, CSA Std C22.2 No. 60529:05
Markings: Explosionproof Class I, Division 1, Groups B, C, D; Dust-Ignitionproof Class II, Division 1, Groups E, F, G; Class III; suitable for Class I, Division 2, Groups A, B, C, D; Type 4X
- I6** CSA Intrinsically Safe
Certificate: 1143113
Standards: CAN/CSA C22.2 No. 0-10, CSA Std C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA Std C22.2 No. 142-M1987, CSA Std C22.2 No. 157-92, ANSI/ISA 12.27.01-2003, CSA Std C22.2 No. 60529:05
Markings: Intrinsically Safe Class I, Division 1; suitable for Class 1, Zone 0, IIC, T3C; when connected per Rosemount drawing 03151-1207; Type 4X
- IF** CSA FISCO
Certificate: 1143113
Standards: CAN/CSA C22.2 No. 0-10, CSA Std C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA Std C22.2 No. 142-M1987, CSA Std C22.2 No. 157-92, ANSI/ISA 12.27.01-2003, CSA Std C22.2 No. 60529:05
Markings: FISCO Intrinsically Safe Class I, Division 1; Groups A, B, C, D; suitable for Class I, Zone 0; T3C; when installed per Rosemount drawing 03151-1207; Type 4X

B.3.3 Europe

- E1** ATEX Flameproof
Certificate: KEMA 00ATEX2143X
Standards: EN 60079-0:2012, EN 60079-1: 2007, EN 60079-26:2007 (3051SFx models with RTD are certified to EN 60079-0:2006)
Markings: Ⓢ II 1/2 G Ex d IIC T6...T4 Ga/Gb, T6(-60 °C ≤ T_a ≤ +70 °C), T5/T4(-60 °C ≤ T_a ≤ +80 °C)

Temperature class	Process temperature
T6	-60 °C to +70 °C
T5	-60 °C to +80 °C
T4	-60 °C to +120 °C

Special Conditions for Safe Use (X):

- The device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
 - For information on the dimensions of the flameproof joints the manufacturer shall be contacted.
- I1** ATEX Intrinsic Safety
Certificate: Baseefa08ATEX0064X
Standards: EN 60079-0: 2012, EN 60079-11: 2012
Markings: Ⓢ II 1 G Ex ia IIC T4 Ga, T4(-60 °C ≤ T_a ≤ +70 °C)

Parameters	HART®	FOUNDATION Fieldbus™	SuperModule™ only	RTD (for 3051SFx)
Voltage U _i	30 V	30 V	7.14 V	30 V
Current I _i	300 mA	300 mA	300 mA	2.31 mA
Power P _i	1 W	1.3 W	887 mW	17.32 mW
Capacitance C _i	14.8 nF	0	0.11 μF	0
Inductance L _i	0	0	0	0

Special Conditions for Safe Use (X):

- If the equipment is fitted with the optional 90 V transient suppressor, it is incapable of withstanding the 500 V isolation from earth test and this must be taken into account during installation.
 - 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 or abrasion if located in a Zone 0 environment.
- IA** ATEX FISCO
Certificate: Baseefa08ATEX0064X
Standards: EN 60079-0: 2012, EN 60079-11: 2012
Markings: Ⓢ II 1 G Ex ia IIC T4 Ga, T4(-60 °C ≤ T_a ≤ +70 °C)

Parameters	FISCO
Voltage U _i	17.5 V
Current I _i	380 mA
Power P _i	5.32 W
Capacitance C _i	0
Inductance L _i	0

ND ATEX Dust

Certificate: BAS01ATEX1374X
 Standards: EN 60079-0: 2012, EN 60079-31: 2009
 Markings: Ⓔ II 1 D Ex ta IIIC T105 °C T₅₀₀ 95 °C Da,
 (-20 °C ≤ T_a ≤ +85 °C), V_{max} = 42.4 V

Special Conditions for Safe Use (X):

1. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP66.
2. Unused cable entries must be filled with suitable blanking plugs which maintain the ingress protection of the enclosure to at least IP66.
3. Cable entries and blanking plugs must be suitable for the ambient temperature range of the apparatus and capable of withstanding a 7J impact test.
4. The SuperModule(s) must be securely screwed in place to maintain the ingress protection of the enclosure(s).

N1 ATEX Type n

Certificate: Baseefa08ATEX0065X
 Standards: EN 60079-0: 2012, EN 60079-15: 2010
 Markings: Ⓔ II 3 G Ex nA IIC T4 Gc,
 (-40 °C ≤ T_a ≤ 70 °C), V_{max} = 45 V

Special Condition for Safe Use (X):

1. If fitted with a 90 V transient suppressor, the equipment is not capable of withstanding the 500 V electrical strength test as defined in Clause 6.5.1 of EN 60079-15:2010. This must be taken into account during installation.

B.3.4 International

E7 IECEx Flameproof and Dust

Certificate: IECEx KEM 08.0010X (Flameproof)
 Standards: IEC 60079-0:2011, IEC 60079-1: 2007,
 IEC 60079-26:2006 (3051SFx models with RTD are certified to IEC 60079-0:2004)
 Markings: Ex d IIC T6...T4 Ga/Gb,
 T6(-60 °C ≤ T_a ≤ +70 °C),
 T5/T4(-60 °C ≤ T_a ≤ +80 °C)

Temperature class	Process temperature
T6	-60 °C to +70 °C
T5	-60 °C to +80 °C
T4	-60 °C to +120 °C

Special Conditions for Safe Use (X):

1. The device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. For information on the dimensions of the flameproof joints the manufacturer shall be contacted.

Certificate: IECEx BAS 09.0014X (Dust)
 Standards: IEC 60079-0:2011, IEC 60079-31:2008
 Markings: Ex ta IIIC T105 °C T₅₀₀ 95 °C Da,
 (-20 °C ≤ T_a ≤ +85 °C), V_{max} = 42.4 V

Special Conditions for Safe Use (X):

1. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP66.
2. Unused cable entries must be filled with suitable blanking plugs which maintain the ingress protection of the enclosure to at least IP66.
3. Cable entries and blanking plugs must be suitable for the ambient temperature range of the apparatus and capable of withstanding a 7J impact test.
4. The 3051S - SuperModule must be securely screwed in place to maintain the ingress protection of the enclosure.

I7 IECEx Intrinsic Safety

Certificate: IECEx BAS 08.0025X
 Standards: IEC 60079-0: 2011, IEC 60079-11: 2011
 Markings: Ex ia IIC T4 Ga, T4(-60 °C ≤ T_a ≤ +70 °C)

Parameters	HART	FOUNDATION Fieldbus	SuperModule only	RTD (for 3051SFx)
Voltage U _i	30 V	30 V	7.14 V	30 V
Current I _i	300 mA	300 mA	300 mA	2.31 mA
Power P _i	1 W	1.3 W	887 mW	17.32 mW
Capacitance C _i	14.8 nF	0	0.11 μF	0
Inductance L _i	0	0	0	0

Special Conditions for Safe Use (X):

1. If the equipment is fitted with the optional 90 V transient suppressor, it is incapable of withstanding the 500 V 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 or abrasion if located in a Zone 0 environment.

- IG** IECEx FISCO
Certificate: IECEx BAS 08.0025X
Standards: IEC 60079-0: 2011, IEC 60079-11: 2011
Markings: Ex ia IIC T4 Ga, T4(-60 °C ≤ T_a ≤ +70 °C)

Parameters	FISCO
Voltage U _i	17.5 V
Current I _i	380 mA
Power P _i	5.32 W
Capacitance C _i	0
Inductance L _i	0

- N7** IECEx Type n
Certificate: IECEx BAS 08.0026X
Standards: IEC 60079-0: 2011, IEC 60079-15: 2010
Markings: Ex nA IIC T5 Gc, (-40 °C ≤ T_a ≤ 70 °C)

Special Condition for Safe Use (X):

1. If fitted with a 90 V transient suppressor, the equipment is not capable of withstanding the 500 V electrical strength test as defined in Clause 6.5.1 of IEC 60079-15:2010. This must be taken into account during installation.

B.3.5 Brazil

- E2** INMETRO Flameproof
Certificate: UL-BR 15.0393X
Standards: ABNT NBR IEC 60079-0:2008 + Corrigendum 1:2011, ABNT NBR IEC 60079-1:2009 + Corrigendum 1:2011, ABNT NBR IEC 60079-26:2008 + Corrigendum 1: 2008
Markings: Ex d IIC T* Ga/Gb, T6(-60 °C ≤ T_a ≤ +70 °C), T5/T4(-60 °C ≤ T_a ≤ +80 °C), IP66

Special Conditions for Safe Use (X):

1. The device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. For information on the dimensions of the flameproof joints, the manufacturer shall be contacted.

- I2** INMETRO Intrinsic Safety
Certificate: UL-BR 15.0357X
Standards: ABNT NBR IEC 60079-0:2008 + Addendum 1:2011, ABNT NBR IEC 60079-11:2009
Markings: Ex ia IIC T4 Ga, T4(-60 °C ≤ T_a ≤ +70 °C), IP66*

Special Conditions for Safe Use (X):

1. If the equipment is fitted with the optional 90V transient suppressor, it is incapable of withstanding the 500 V isolation from earth test and this must be taken into account during installation.
2. For processes with temperatures above 135 °C, the user must assess whether the SuperModule temperature class is suitable for such applications, because in this situation there is a risk of the SuperModule temperature being above T4.

Parameters	HART		FOUNDATION Fieldbus	
	Input	RTD	Input	RTD
Voltage U _i	30 V	30 V	30 V	30 V
Current I _i	300 mA	2.31 mA	300 mA	18.24 mA
Power P _i	1 W	17.32 W	1.3 W	137 mW
Capacitance C _i	14.8 nF	0	0	0.8 nF
Inductance L _i	0	0	0	1.33 mH

B.3.6 China

- E3** China Flameproof and Dust Ignition-proof
Certificate: 3051SMV: GYJ14.1039X
[Mfg USA, China, Singapore]
3051SFx: GYJ11.1711X
[Mfg USA, China, Singapore]
Standards: 3051SMV: GB3836.1-2010, GB3836.2-2010, GB3836.20-2010
3051SFx: GB3836.1-2010, GB3836.2-2010, GB3836.20-2010, GB12476.1-2000
Markings: 3051SMV: Ex d IIC T6/T5 Ga/Gb
3051SFx: Ex d IIC T6/T5 Ga/Gb; DIP A20 T_A 105 °C; IP66

Special Conditions for Safe Use (X):

1. Symbol "X" is used to denote specific conditions of use: For information on the dimensions of the flameproof joints the manufacturer shall be contacted.
2. The relationship between T code and ambient temperature range are as follows:

T code	Ambient temperature range
T6	-50 °C ~ +65 °C
T5	-50 °C ~ +80 °C

3. The earth connection facility in the enclosure should be connected reliably.

4. During installation, use and maintenance of the product in explosive atmosphere, observe the warning “Do not open cover when circuit is alive”. During installation, use, and maintenance in explosive dust atmosphere, observe the warning “Do not open when an explosive dust atmosphere is present”.
5. During installation there should be no mixture harmful to the housing.
6. During installation, use and maintenance in explosive dust atmosphere, product enclosure should be cleaned to avoid dust accumulation, but compressed air should not be used.
7. During installation in a hazardous location, cable glands and blanking plugs certified by state appointed inspection bodies with Ex d IIC Gb or Ex d IIC Gb DIP A20 [Flowmeters] IP66 type of protection should be used. Redundant cable entries should be blocked with blanking plugs.
8. End users are not permitted to change any components, but to contact the manufacturer to avoid damage to the product.
9. Maintenance should be done when no explosive gas and dust atmosphere is present.
10. During installation, use and maintenance of this product, observe following standards:
 GB3836.13-1997 “Electrical apparatus for explosive gas atmospheres Part 13: Repair and overhaul for apparatus used in explosive gas atmospheres”
 GB3836.15-2000 “Electrical apparatus for explosive gas atmospheres Part 15: Electrical installations in hazardous area (other than mines)”
 GB3836.16-2006 “Electrical apparatus for explosive gas atmospheres Part 16: Inspection and maintenance of electrical installation (other than mines)”
 GB50257-1996 “Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering”

- I3** China Intrinsic Safety
 Certificate: 3051SMV: GYJ14.1040X
 [Mfg USA, China, Singapore]
 3051SFx: GYJ11.1707X
 [Mfg USA, China, Singapore]
 Standards: 3051SMV: GB3836.1-2010,
 GB3836.4-2010,
 GB3836.20-2010
 3051SFx: GB3836.1/4-2010,
 GB3836.20-2010,
 GB12476.1-2000
 Markings: 3051SMV: Ex ia IIC T4 Ga
 3051SFx: Ex ia IIC T4 Ga, DIP A20 T_A105 °C
 IP66

Special Conditions for Safe Use (X):

1. The enclosure may contain light metal, attention should be taken to avoid ignition hazard due to impact or friction.
2. The apparatus is not capable of withstanding the 500V electrical strength test defined in Clause 6.3.12 of GB3836.4-2010.
3. Ambient temperature range: -60 °C ~ +70 °C.
4. Intrinsically safe electric parameters:

Maximum input voltage: U _i (V)	Maximum input current: I _i (mA)	Maximum input power: P _i (W)	Maximum internal parameters:	
			C _i (nF)	L _i (μH)
30	300	1.0	14.8	0

	Maximum output voltage: U _i (V)	Maximum output current: I _i (mA)	Maximum output power: P _i (W)	Maximum external parameters:	
				C _i (nF)	L _i (μH)
RTD	30	2.31	17.32	0	0
SuperModule	7.14	300	8871.0	110	0

5. The cables between this product and associated apparatus should be shielded cables. The shield should be grounded reliably in non-hazardous area.
6. The product should be used with Ex certified associated apparatus to establish explosion protection system that can be used in explosive gas atmospheres. Wiring and terminals should comply with the instruction manual of the product and associated apparatus.
7. End users are not permitted to change any components, contact the manufacturer to avoid damage to the product.
8. During installation in hazardous location, cable glands, conduit, and blanking plugs certified by state-appointed inspection bodies with DIP A20 IP66 type of protection should be used. Redundant cable entries should be blocked with blanking plugs.
9. During installation, use, and maintenance in explosive dust atmosphere, observe the warning “Do not open when an explosive dust atmosphere is present”.
10. Maintenance should be done when no explosive dust atmosphere is present.
11. During installation, use and maintenance of this product, observe following standards:
 GB3836.13-1997 “Electrical apparatus for explosive gas atmospheres Part 13: Repair and overhaul for apparatus used in explosive gas atmospheres”
 GB3836.15-2000 “Electrical apparatus for explosive gas atmospheres Part 15: Electrical installations in hazardous area (other than mines)”

GB3836.16-2006 “Electrical apparatus for explosive gas atmospheres Part 16: Inspection and maintenance of electrical installation (other than mines)”

GB50257-1996- “Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering”

B.3.7 EAC – Belarus, Kazakhstan, Russia

EM Technical Regulation Customs Union (EAC) Flameproof

Certificate: RU C-US.GB05.B.00835

Markings: Ga/Gb Ex d IIC T6...T4 X

IM Technical Regulation Customs Union (EAC) Intrinsic Safety

Certificate: RU C-US.GB05.B.00835

Markings: 0Ex ia IIC T4 Ga X

B.3.8 Japan

E4 Japan Flameproof

Certificate: TC19070, TC19071, TC19072, TC19073

Markings: Ex d IIC T6

B.3.9 Republic of Korea

EP Republic of Korea Flameproof

Certificate: 12-KB4BO-0180X [Mfg USA],
11-KB4BO-0068X [Mfg Singapore]

Markings: Ex d IIC T5 or T6

IP Republic of Korea Intrinsic Safety

Certificate: 10-KB4BO-0021X [Mfg USA, SMMC]

Markings: Ex ia IIC T4

B.3.10 Combinations

K1 Combination of E1, I1, N1, and ND

K2 Combination of E2 and I2

K5 Combination of E5 and I5

K6 Combination of E6 and I6

K7 Combination of E7, I7, and N7

KA Combination of E1, I1, E6, and I6

KB Combination of E5, I5, E6, and I6

KC Combination of E1, I1, E5, and I5

KD Combination of E1, I1, E5, I5, E6, and I6

KM Combination of EM and IM

KP Combination of EP and IP

B.3.11 Additional Certifications

SBS American Bureau of Shipping (ABS) Type Approval

Certificate: 00-HS145383

Intended Use: Measure gauge or absolute pressure of liquid, gas or vapor applications on ABS classed vessels, marine, and offshore installations.

SBV Bureau Veritas (BV) Type Approval

Certificate: 31910 BV

Requirements: Bureau Veritas Rules for the Classification of Steel Ships

Application: Class Notations: AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS

SDN Det Norske Veritas (DNV) Type Approval

Certificate: A-13243

Intended Use: Det Norske Veritas' Rules for Classification of Ships, High Speed and Light Craft, and Det Norske Veritas' Offshore Standards

Application:

Location classes	
Type	3051S
Temperature	D
Humidity	B
Vibration	A
EMC	A
Enclosure	D/IP66/IP68

SLL Lloyds Register (LR) Type Approval

Certificate: 11/60002


Application: Environmental categories ENV1, ENV2, ENV3, and ENV5

D3 Custody Transfer – Measurement Canada Accuracy

Approval Certificate: AG-0501, AV-2380C

B.4 Installation drawings

Figure B-1. Factory Mutual (FM)

CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY	REVISIONS				
	REV	DESCRIPTION	CHG. NO.	APP'D	DATE
	AA	NEW RELEASE	RTC1025256	A.J.W.	1/2/08
	AB	UPDATE NOTES & ADD RTD TO DIAGRAMS	RTC1025712	A.J.W.	2/28/08
<p>ENTITY APPROVALS FOR MODEL 3051SMV</p> <p>OUTPUT CODE "A" (4-20 mA HART) I.S. SEE SHEETS 2-3 NONINCENDIVE SEE SHEET 4</p> <p>THE ROSEMOUNT TRANSMITTERS LISTED ABOVE ARE F.M. APPROVED AS INTRINSICALLY SAFE WHEN USED IN CIRCUIT WITH F.M. APPROVED BARRIERS WHICH MEET THE ENTITY PARAMETERS LISTED IN THE CLASS I, II, AND III, DIVISION 1 GROUPS INDICATED.</p> <p>TO ASSURE AN INTRINSICALLY SAFE SYSTEM, THE TRANSMITTER AND BARRIER MUST BE WIRED IN ACCORDANCE WITH THE BARRIER MANUFACTURER'S FIELD WIRING INSTRUCTIONS AND THE APPLICABLE CIRCUIT DIAGRAM.</p>					
CAD MAINTAINED (MicroStation)					
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES [mm]. REMOVE ALL BURRS AND SHARP EDGES. MACHINE SURFACE FINISH 125 -TOLERANCE- .X ± .1 [2,5] .XX ± .02 [0,5] .XXX ± .010 [0,25] FRACTIONS ANGLES ± 1/32 ± 2° DO NOT SCALE PRINT	CONTRACT NO.		 ROSEMOUNT® 8200 Market Boulevard • Chanhassen, MN 55317 USA		
	DR. Myles Lee Miller 12/17/07				
	CHK'D				
	APP'D.				
	APP'D. GOVT.		SIZE A	FSCM NO	DWG NO. 03151-1206
		SCALE N/A	WT. _____	SHEET 1 OF 5	

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AB				

ENTITY CONCEPT APPROVALS

THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS TO ASSOCIATED APPARATUS NOT SPECIFICALLY EXAMINED IN COMBINATION AS A SYSTEM. THE APPROVED VALUES OF MAX. OPEN CIRCUIT VOLTAGE (V_{oc} , U_o OR V_t) AND MAX. SHORT CIRCUIT CURRENT (I_{sc} , I_o , OR I_t) AND MAX. POWER $P_o(V_{oc} \times I_{sc}/4)$ OR $(V_t \times I_t/4)$, FOR THE ASSOCIATED APPARATUS MUST BE LESS THAN OR EQUAL TO THE MAXIMUM SAFE INPUT VOLTAGE (V_{max} , OR U_i), MAXIMUM SAFE INPUT CURRENT (I_{max} OR I_i), AND MAXIMUM SAFE INPUT POWER (P_{max} OR P_i) OF THE INTRINSICALLY SAFE APPARATUS. IN ADDITION, THE APPROVED MAX. ALLOWABLE CONNECTED CAPACITANCE (C_a) OF THE ASSOCIATED APPARATUS MUST BE GREATER THAN THE SUM OF THE INTERCONNECTING CABLE CAPACITANCE AND THE UNPROTECTED INTERNAL CAPACITANCE (C_i) OF THE INTRINSICALLY SAFE APPARATUS, AND THE APPROVED MAX. ALLOWABLE CONNECTED INDUCTANCE (L_a) OF THE ASSOCIATED APPARATUS MUST BE GREATER THAN THE SUM OF THE INTERCONNECTING CABLE INDUCTANCE AND THE UNPROTECTED INTERNAL INDUCTANCE (L_i) OF THE INTRINSICALLY SAFE APPARATUS.

NOTE: ENTITY PARAMETERS LISTED APPLY ONLY TO ASSOCIATED APPARATUS WITH LINEAR OUTPUT.

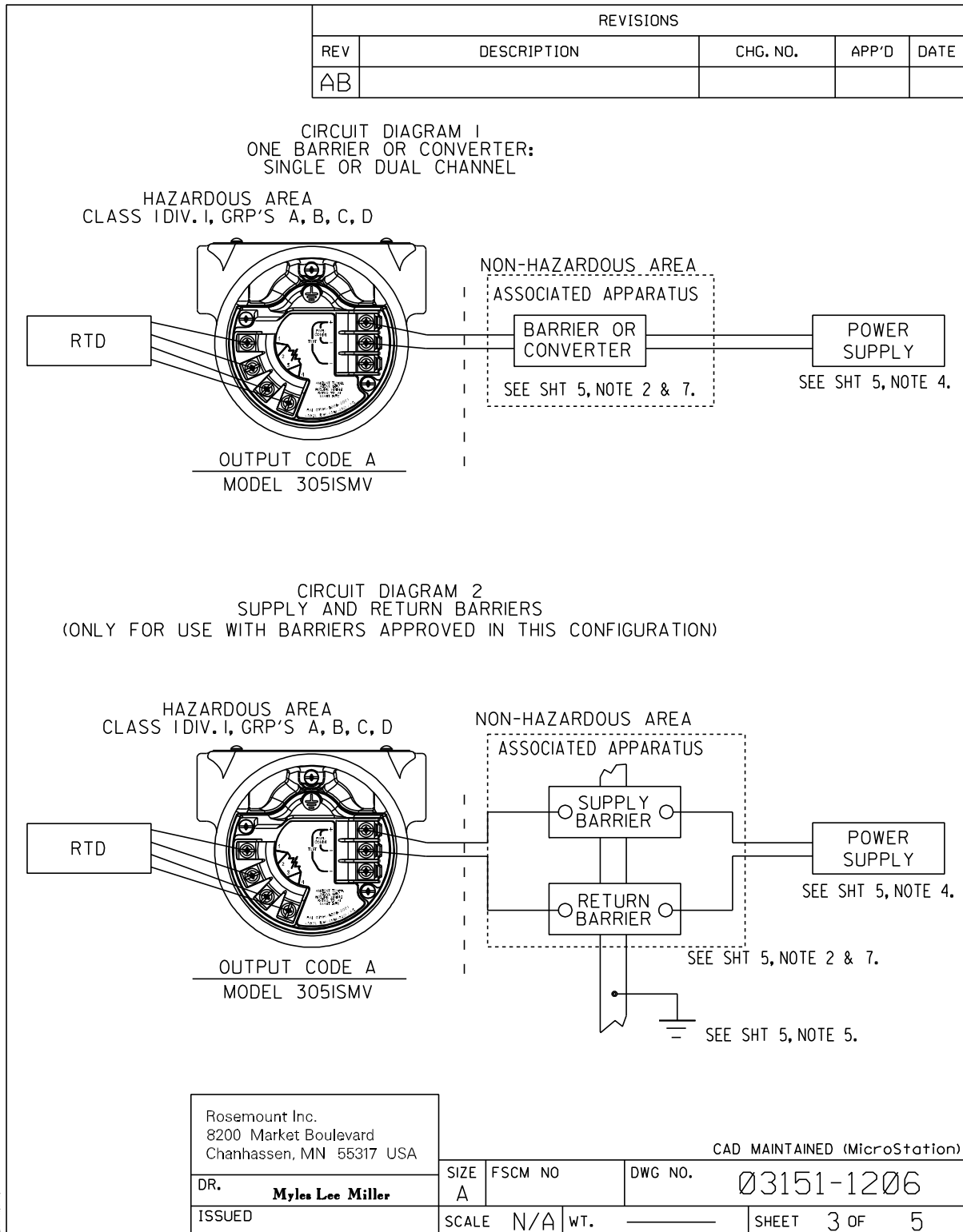
FOR OUTPUT CODE 'A' MODEL 3051SMV CLASS I, DIV. 1, GROUPS A, B, C AND D

U_i or $V_{MAX} = 30V$	U_o, V_t or V_{oc} IS LESS THAN OR EQUAL TO 30V
I_i or $I_{MAX} = 300mA$	I_o, I_t or I_{sc} IS LESS THAN OR EQUAL TO 300mA
P_i or $P_{MAX} = 1.0$ WATT	$(\frac{V_t \times I_t}{4})$ or $(\frac{V_{oc} \times I_{sc}}{4})$ IS LESS THAN OR EQUAL TO 1.0 WATT
$C_i = 14.8nF$	C_a IS GREATER THAN 14.8nF
$L_i = 0\mu H$	L_a IS GREATER THAN $0\mu H$
T4 ($T_a = -50^\circ C$ to $+70^\circ C$)	

FOR RTD SENSOR PARAMETERS

$V_t = 7.14V$
$I_t = 3.64mA$
$P_o = 6.5mW$
$C_a = 13.5nF$
$L_a = 1 H$

Rosemount Inc. 8200 Market Boulevard Chanhassen, MN 55317 USA		CAD MAINTAINED (MicroStation)		
DR. Myles Lee Miller	SIZE A	FSCM NO.	DWG NO. 03151-1206	
ISSUED	SCALE N/A	WT.	SHEET 2 OF 5	



REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AB				

NON-CLASSIFIED LOCATION

APPROVED
NONINCENDIVE
SUPPLY

V_{oc}
 C_a
 L_a

SEE SHT 5,
NOTES 2 & 4

NONINCENDIVE FIELD CIRCUIT
CLASS I, DIV. 2 LOCATIONS

HAZARDOUS (CLASSIFIED) LOCATION
CLASS I, DIV. 2, GRP'S A, B, C, D

V_{max_1}
 C_{I_1}
 L_{I_1}
 I_{max_1}

V_{max_2}
 C_{I_2}
 L_{I_2}
 I_{max_2}

V_{max_3}
 C_{I_3}
 L_{I_3}
 I_{max_3}

V_{max_N}
 C_{I_N}
 L_{I_N}
 I_{max_N}

WIRING PER NEC® (NFPA 70) NATIONAL ELECTRICAL CODE® ARTICLE 501-4(b)
501-4 (b) EXCEPTION (NONINCENDIVE FIELD CIRCUIT) EXCEPTION: "WIRING IN NONINCENDIVE CIRCUITS SHALL BE PERMITTED USING ANY OF THE METHODS SUITABLE FOR WIRING IN ORDINARY LOCATIONS."

IN NORMAL OPERATION
DEVICES CONTROL THROUGH-CURRENT

PARAMETERS (NON-INCENDIVE FIELD WIRING)	DEVICE	ROSEMOUNT 305ISMV
	305ISMV	
	4-20mA / HART	
V_{max}	42.4v	
Maximum normal operating current	22mA	
C_1	14.8nF	
L_1	0uH	
$I_{max_N} >=$	$I_{q_N} + I_{signal_N}$	

I_{max} for an individual device = $I_q + I_{signal}$
 I_q = Quiescent current through device
 (Maximum quiescent current for the device)
 I_{signal} = Signaling current through device
 (Protocol may limit signaling to one device at a time)

Operating $I_{max} = I_{q_1} + I_{q_2} + \dots + I_{q_N} + I_{signal\ max}$
 $I_{signal\ max} = \text{Max. of } (I_{signal_1}, I_{signal_2}, \dots, I_{signal_N})$
 TEMP CODE: T4 ($T_a = -50^\circ\text{C TO } +70^\circ\text{C}$)

ROSEMOUNT 3051 TRANSMITTERS ARE CURRENT CONTROLLERS ON INDIVIDUAL PARALLEL BRANCHES WITH RESPECT TO THE POWER SUPPLY. IN NONINCENDIVE INSTALLATIONS THE I_{max} FOR EACH TRANSMITTER IS NOT RELATED TO THE MAXIMUM CURRENT OF THE POWER SUPPLY (I_{sc}) IN THE SAME MANNER AS FOR TRANSMITTER INSTALLED PER I.S. REQUIREMENTS, BECAUSE NONINCENDIVE REQUIREMENTS INCLUDE ONLY NORMAL OPERATING CONDITIONS.

REFERENCE: APPENDIX A7 (FM3611 2004)

Rosemount Inc. 8200 Market Boulevard Chanhausen, MN 55317 USA		CAD MAINTAINED (MicroStation)		
DR. Myles Lee Miller	SIZE A	FSCM NO	DWG NO. 03151-1206	
ISSUED	SCALE N/A	WT.		SHEET 4 OF 5


REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AB				

NOTES:

1. NO REVISION TO THIS DRAWING WITHOUT PRIOR FM APPROVAL.
2. ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.
3. DUST-TIGHT CONDUIT SEAL MUST BE USED WHEN INSTALLED IN CLASS II AND CLASS III ENVIRONMENTS.
4. CONTROL EQUIPMENT CONNECTED TO ASSOCIATED APPARATUS MUST NOT USE OR GENERATE MORE THAN 250 V_{rms} or V_{dc}.
5. RESISTANCE BETWEEN INTRINSICALLY SAFE GROUND AND EARTH GROUND MUST BE LESS THAN 1.0 OHM.
6. INSTALLATION SHOULD BE IN ACCORDANCE WITH ANSI/ISA-RP12.06.01 "INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS (CLASSIFIED) LOCATIONS" AND THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70).
7. THE ASSOCIATED APPARATUS MUST BE FM APPROVED.
8. WARNING - SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.
9. THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS WITH ASSOCIATED APPARATUS WHEN THE FOLLOWING IS TRUE:
 V_{max} or U_i IS GREATER THAN or EQUAL TO V_{oc}, V_t or U_o
 I_{max} or I_i IS GREATER THAN or EQUAL TO I_{sc}, I_t or I_o
 P_{max} or P_i IS GREATER THAN or EQUAL TO P_o
 C_a IS GREATER THAN or EQUAL TO THE SUM OF ALL C_i's PLUS C_oable
 L_a IS GREATER THAN or EQUAL TO THE SUM OF ALL L_i's PLUS L_oable
10. WARNING - TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.
11. THE ASSOCIATED APPARATUS MUST BE A RESISTIVELY LIMITED SINGLE OR MULTIPLE CHANNEL FM APPROVED BARRIER HAVING PARAMETERS LESS THAN THOSE QUOTED, AND FOR WHICH THE OUTPUT AND THE COMBINATIONS OF OUTPUTS IS NON-IGNITION CAPABLE FOR THE CLASS, DIVISION AND GROUP OF USE.

Rosemount Inc. 8200 Market Boulevard Chanhassen, MN 55317 USA	CAD MAINTAINED (MicroStation)		
DR. Myles Lee Miller	SIZE A	FSCM NO	DWG NO. 03151-1206
ISSUED	SCALE N/A	WT. _____	SHEET 5 OF 5

Figure B-2. Canadian Standards Association (CSA)

CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY	REVISIONS				
	REV	DESCRIPTION	CHG. NO.	APP'D	DATE
	AA	NEW RELEASE	RTC1025256	A.J.W.	1/2/08
<p>APPROVALS FOR</p> <p>OUTPUT CODE "A" I.S. ENTITY PARAMETERS SHEET 2 OUTPUT CODE "A" (4-20 mA HART) I.S. SEE SHEETS 3 & 4</p> <p>TO ASSURE AN INTRINSICALLY SAFE SYSTEM, THE TRANSMITTER AND BARRIER MUST BE WIRED IN ACCORDANCE WITH THE BARRIER MANUFACTURER'S FIELD WIRING INSTRUCTIONS AND THE APPLICABLE CIRCUIT DIAGRAM.</p> <p>WARNING - EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION I.</p> <p>AVERTISSEMENT - RISQUE D'EXPLOSION - LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATERIEL INACCEPTABLE POUR LES EMPLACEMENTS DE CLASSE I, DIVISION I.</p>					
CAD MAINTAINED (MicroStation)					
<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES [mm]. REMOVE ALL BURRS AND SHARP EDGES. MACHINE SURFACE FINISH 125</small> <small>-TOLERANCE-</small> <small>.X ± .1 [2,5]</small> <small>.XX ± .02 [0,5]</small> <small>.XXX ± .010 [0,25]</small> <small>FRACTIONS ANGLES</small> <small>± 1/32 ± 2°</small> <small>DO NOT SCALE PRINT</small>	CONTRACT NO.		 ROSEMOUNT® <small>8200 Market Boulevard • Chanhassen, MN 55317 USA</small>		
	DR. Myles Lee Miller 12/17/07				
	CHK'D		SIZE A		
	APP'D.		FSCM NO		DWG NO. 03151-1207
	APP'D. GOVT.		SCALE N/A	WT. _____	SHEET 1 OF 5

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AA				

ENTITY CONCEPT APPROVALS

THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS TO ASSOCIATED APPARATUS NOT SPECIFICALLY EXAMINED IN COMBINATION AS A SYSTEM. THE APPROVED VALUES OF MAX. OPEN CIRCUIT VOLTAGE (V_{oc}) AND MAX. SHORT CIRCUIT CURRENT (I_{sc}) AND MAX. POWER ($V_{oc} \times I_{sc}/4$), FOR THE ASSOCIATED APPARATUS MUST BE LESS THAN OR EQUAL TO THE MAXIMUM SAFE INPUT VOLTAGE (V_{max}), MAXIMUM SAFE INPUT CURRENT (I_{max}), AND MAXIMUM SAFE INPUT POWER (P_{max}) OF THE INTRINSICALLY SAFE APPARATUS. IN ADDITION, THE APPROVED MAX. ALLOWABLE CONNECTED CAPACITANCE (C_a) OF THE ASSOCIATED APPARATUS MUST BE GREATER THAN THE SUM OF THE INTERCONNECTING CABLE CAPACITANCE AND THE UNPROTECTED INTERNAL CAPACITANCE (C_i) OF THE INTRINSICALLY SAFE APPARATUS, AND THE APPROVED MAX. ALLOWABLE CONNECTED INDUCTANCE (L_a) OF THE ASSOCIATED APPARATUS MUST BE GREATER THAN THE SUM OF THE INTERCONNECTING CABLE INDUCTANCE AND THE UNPROTECTED INTERNAL INDUCTANCE (L_i) OF THE INTRINSICALLY SAFE APPARATUS.

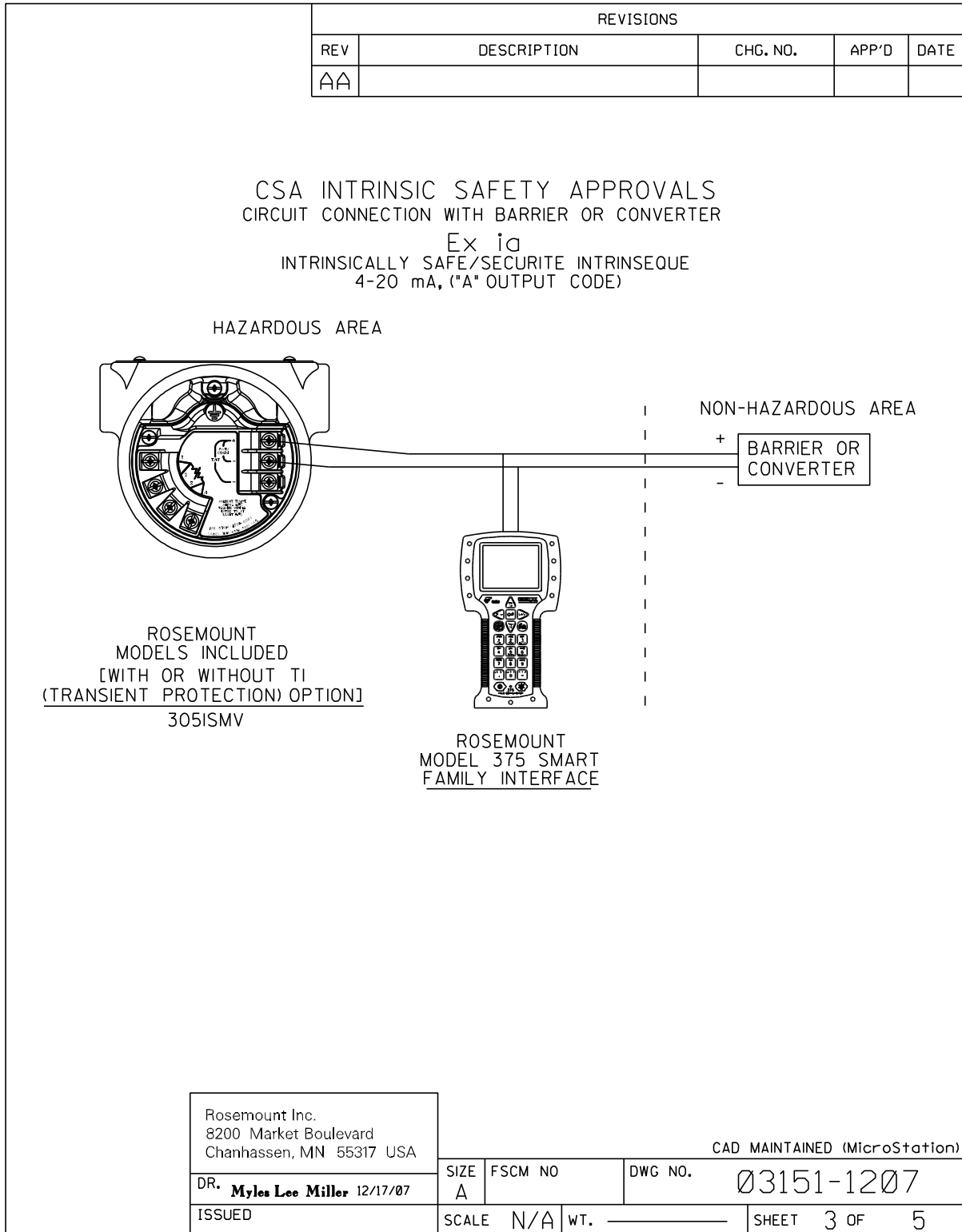
FOR OUTPUT CODE "A" MODEL 3051SMV
CLASS I, DIV. 1, GROUPS A, B, C AND D

$V_{MAX} = 30V$	V_{OC} IS LESS THAN OR EQUAL TO 30V
$I_{MAX} = 300mA$	I_{SC} IS LESS THAN OR EQUAL TO 300mA
$C_1 = 14.8nF$	C_A IS GREATER THAN $14.8nF + C_{cable}$
$L_1 = 0\mu H$	L_A IS GREATER THAN $0\mu H + L_{cable}$

NOTE: ENTITY PARAMETERS LISTED APPLY ONLY TO ASSOCIATED APPARATUS WITH LINEAR OUTPUT.

Rosemount Inc. 8200 Market Boulevard Chanhassen, MN 55317 USA		CAD MAINTAINED (MicroStation)		
DR.	Myles Lee Miller	SIZE A	FSCM NO.	DWG NO. 03151-1207
ISSUED		SCALE N/A	WT. _____	SHEET 2 OF 5

From Rev. AC



					REVISIONS																																		
					REV	DESCRIPTION	CHG. NO.	APP'D	DATE																														
					AA																																		
4-20 mA, ("A" OUTPUT CODE)																																							
DEVICE		PARAMETERS				APPROVED FOR CLASS I, DIV.I																																	
CSA APPROVED SAFETY BARRIER		30 V OR LESS * 330 OHMS OR MORE * 28 V OR LESS * 300 OHMS OR MORE 25 V OR LESS 200 OHMS OR MORE * 22 V OR LESS * 180 OHMS OR MORE				GROUPS A, B, C, D																																	
FOXBORO CONVERTER 2AI-I2V-CGB, 2AI-I3V-CGB, 2AS-I3I-CGB, 3A2-I2D-CGB, 3A2-I3D-CGB, 3AD-I3I-CGB, 3A4-I2D-CGB, 2AS-I2I-CGB, 3F4-I2DA						GROUPS B, C, D																																	
CSA APPROVED SAFETY BARRIER		30 V OR LESS 150 OHMS OR MORE				GROUPS C, D																																	
					<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="5">Rosemount Inc. 8200 Market Boulevard Chanhasen, MN 55317 USA</td> <td colspan="5" style="text-align: right;">CAD MAINTAINED (MicroStation)</td> </tr> <tr> <td colspan="2">DR. Myles Lee Miller</td> <td>SIZE A</td> <td>FSCM NO</td> <td colspan="2">DWG NO. 03151-1207</td> <td colspan="4"></td> </tr> <tr> <td colspan="2">ISSUED</td> <td>SCALE N/A</td> <td>WT.</td> <td colspan="2"></td> <td colspan="4">SHEET 4 OF 5</td> </tr> </table>					Rosemount Inc. 8200 Market Boulevard Chanhasen, MN 55317 USA					CAD MAINTAINED (MicroStation)					DR. Myles Lee Miller		SIZE A	FSCM NO	DWG NO. 03151-1207						ISSUED		SCALE N/A	WT.			SHEET 4 OF 5			
Rosemount Inc. 8200 Market Boulevard Chanhasen, MN 55317 USA					CAD MAINTAINED (MicroStation)																																		
DR. Myles Lee Miller		SIZE A	FSCM NO	DWG NO. 03151-1207																																			
ISSUED		SCALE N/A	WT.			SHEET 4 OF 5																																	

Form Rev. AC

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AA				

NOTES:

1. APPROVED ASSOCIATED APPARATUS MUST BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. CSA APPROVED ASSOCIATED APPARATUS MUST MEET THE FOLLOWING PARAMETERS:
 V_{oc} LESS THAN OR EQUAL TO (V_{max}) AND I_{sc} LESS THAN OR EQUAL TO (I_{max}) .
3. THE MAXIMUM NON-HAZARDOUS AREA VOLTAGE MUST NOT EXCEED 250V.
4. THE INSTALLATION MUST BE IN ACCORDANCE WITH CANADIAN ELECTRICAL
5. CAUTION: USE ONLY SUPPLY WIRES SUITABLE FOR 5°C ABOVE SURROUNDING TEMPERATURE.
6. WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.





Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55317 USA

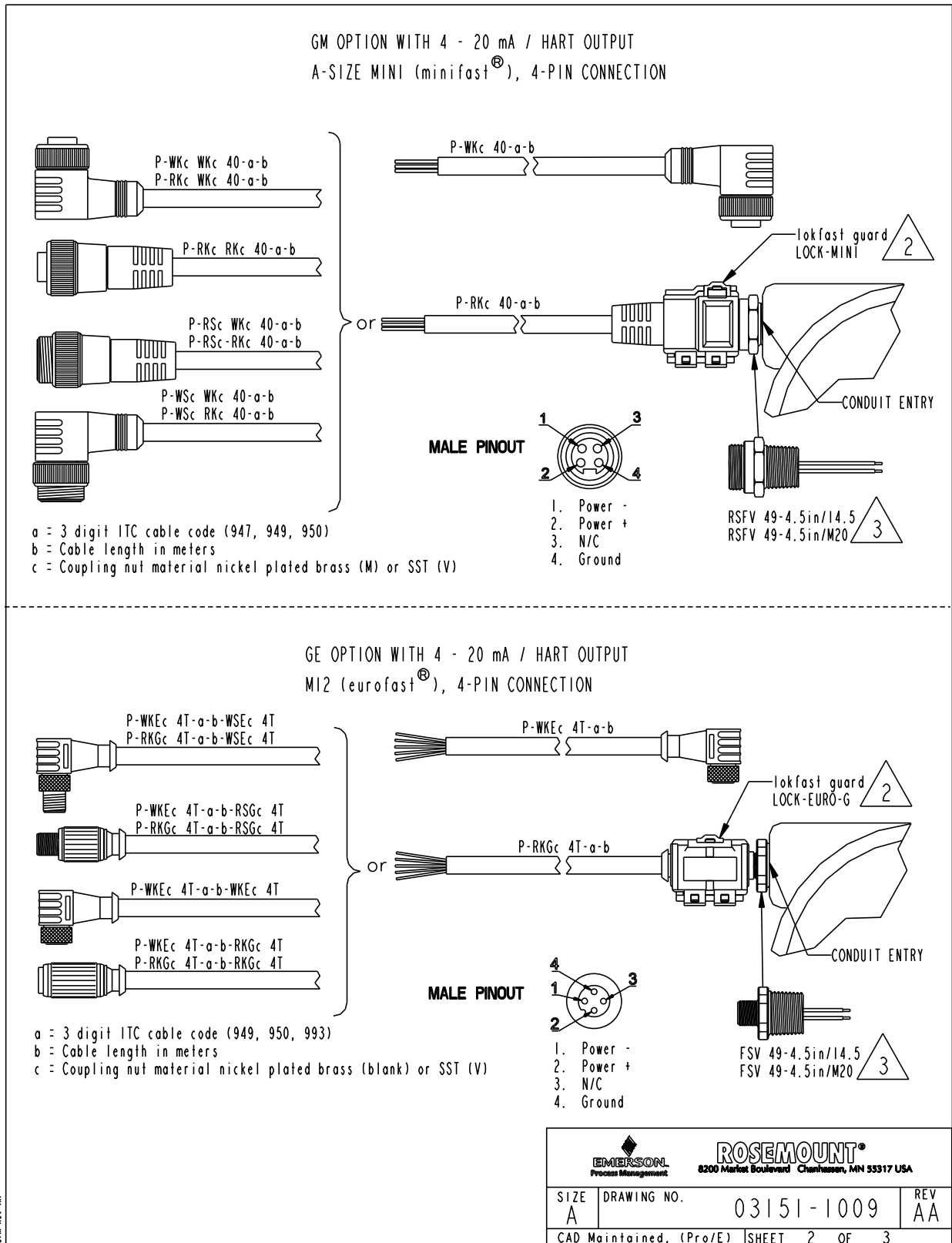
CAD MAINTAINED (MicroStation)

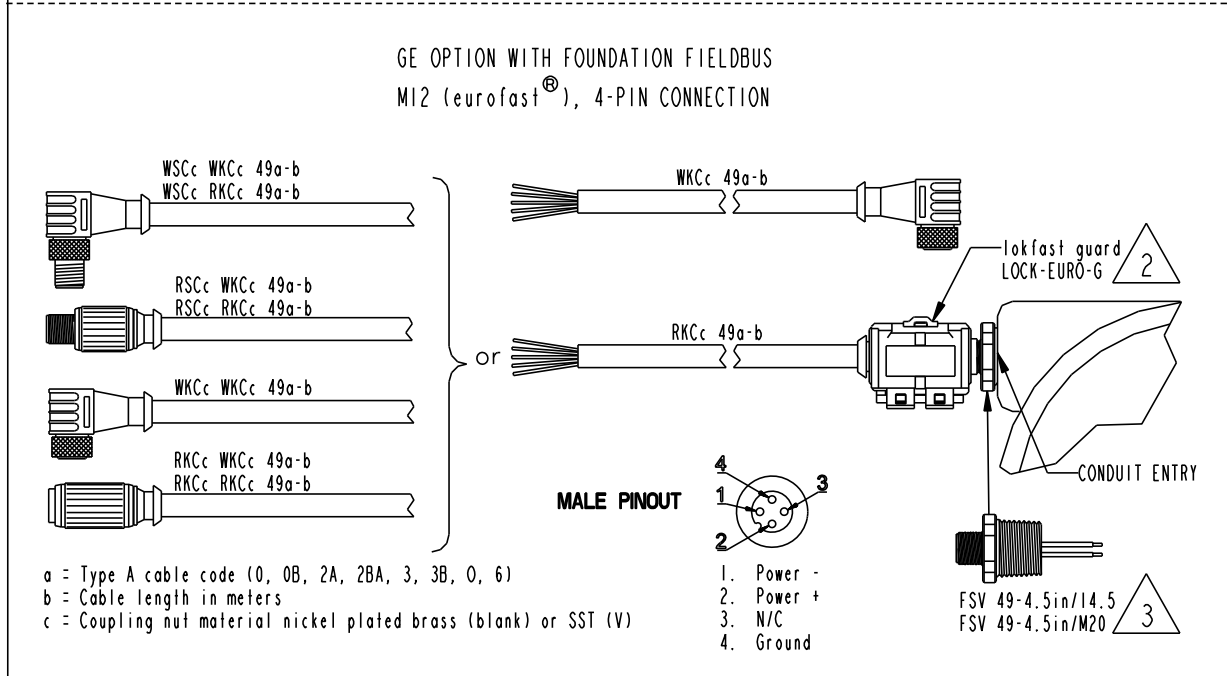
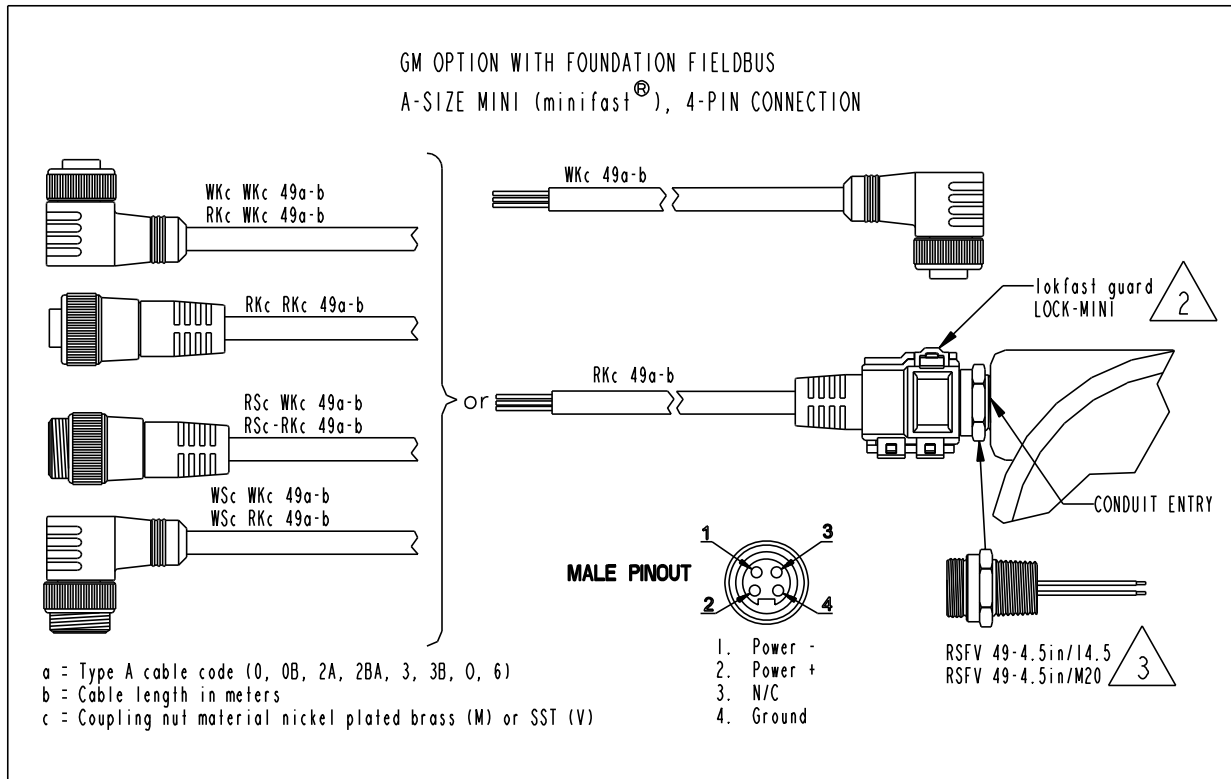
DR. Myles Lee Miller	SIZE A	FSCM NO.	DWG NO. 03151-1207
ISSUED	SCALE N/A	WT. ————	SHEET 5 OF 5

Porter Rev. AC

Figure B-3. GE/GM Option NEMA® 4X

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	REV	DESCRIPTION	ECO NO.	APP'D	DATE
	AA	NEW RELEASE	RTC1022362	B.L.H.	9/1/06
<p>NOTES:</p> <p>1. USE TURCK CORDSETS AS SPECIFIED IN THIS DRAWING WITH GE / GM OPTION TO ENSURE OUTDOOR RATING (NEMA 4X or IP66).</p> <p>2.  LOK-FAST GUARD IS REQUIRED FOR CLASS 1 DIVISION 2 INSTALLATIONS.</p> <p>3.  (X)XXV 49-4.5IN/14.5 IS INSTALLED INTO 1/2-14 NPT CONDUIT ENTRY THREADS. (X)XXV 49-4.5IN/M20 IS INSTALLED INTO CM20 CONDUIT ENTRY THREADS.</p> <p>4. eurofast® AND minifast® ARE REGISTERED TRADEMARKS OF TURCK INC.</p>					
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES [mm]. REMOVE ALL BURRS AND SHARP EDGES. MACHINE SURFACE FINISH 125 -TOLERANCES- .X ± .1 [2,5] .XX ± .02 [0,5] .XXX ± .010 [0,25] FRACTIONS ± 1/32 ANGLES ± 2° DO NOT SCALE PRINT	  8200 Market Boulevard Chanhassen, MN 55317 USA				
TITLE GE / GM OPTION NEMA 4X INSTALLATION, FM					
DR. Myles Lee Miller		8/29/06	SIZE A	DRAWING NO. 03151-1009	
APP'D Bryce Hagbom		8/30/06		REV AA	
CAD MAINTAINED, (PRO/E)				SHEET 1 OF 3	





Form Rev. 1A

		ROSEMOUNT® 8200 Market Boulevard Chanhassen, MN 55317 USA	
SIZE A	DRAWING NO. 03151-1009	REV AA	
CAD Maintained, (Pro/E)		SHEET 3 OF 3	

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