

Approvals Document – Class Division Rosemount™ Magnetic Flowmeter Platform 8782 Transmitter and MS Sensor














Rosemount™ 8782 Slurry Transmitter and MS Slurry Sensor Magnetic Flowmeter

Order Code	8782 Transmitter Rating	MS Sensor (Flowtube) Rating	Region	Agency	Certification Number
NH	Ordinary Location (non-hazardous)	Ordinary Location (non-hazardous)	USA, Canada, EU, EEU**	CSA and EAC	80102913
ND	ATEX / UKEX Dust with I.S. or Non I.S. outputs	ATEX / UKEX Dust	EU EU UK UK	CSA	Sira 19ATEX1120X Sira 19ATEX3121X CSAE 22UKEX1310X CSAE 22UKEX1315X
NF	IECEX Dust with I.S. or Non I.S. outputs	IECEX Dust	Global	CSA	IECEX SIR 19.0032X
N1	ATEX / UKEX Non-Sparking, Increased Safety (Ex ec), and Dust with I.S. or Non-I.S. outputs	ATEX / UKEX Non-Sparking, Increased Safety (Ex ec) with Intrinsically Safe Electrodes; ATEX / UKEX Dust	EU EU UK UK	CSA	Sira 19ATEX1120X Sira 19ATEX3121X CSAE 22UKEX1310X CSAE 22UKEX1315X
N2	INMETRO Non-Sparking, Increased Safety (Ex ec), and Dust	INMETRO Non-Sparking, Increased Safety (Ex ec) with Intrinsically Safe Electrodes; INMETRO Dust	Brazil	DNV INMETRO	***
N3	NEPSI Non-Sparking and Dust with I.S. or Non I.S. outputs	NEPSI Non-Sparking with Intrinsically Safe Electrodes; NEPSI Dust	China	NEPSI	GYJ20.1112X
N5	North America Approvals, Class I Div 2, Non-Incendive and Dust	North America Class I Div 2 Non-Incendive with Intrinsically Safe Electrodes; Dust	USA, Canada	CSA	80102913
N6	North America Approvals, Class I Zone 2, Class II Zone 22	North America Class I Zone 2 with Intrinsically Safe Electrodes; Class II Zone 22	USA, Canada	CSA	80102913
N7	IECEX Non-Sparking, Increased Safety (Ex ec), and Dust with I.S. or Non I.S. outputs	IECEX Non-Sparking, Increased Safety (Ex ec) with Intrinsically Safe Electrodes; IECEX Dust	Global	CSA	IECEX SIR 19.0032X
N8	EAC Non-Sparking, Increased Safety (Ex ec), and Dust	EAC Non-Sparking, Increased Safety (Ex ec) with Intrinsically Safe Electrodes; EAC Dust	EEU**	TOO T-Стандарт	EAЭC KZ 7500525.01.01.00972
N9	KTL Non-Sparking, Increased Safety (Ex ec), and Dust	KTL Non-Sparking, Increased Safety (Ex ec) with Intrinsically Safe Electrodes; KTL Dust	Korea	KTL	***
K1	N/A	ATEX / UKEX Increased Safety (Ex eb) with Intrinsically Safe Electrodes; ATEX / UKEX Dust	EU UK	CSA	SIRA 19ATEX1120X CSAE 22UKEX1310X
K2	N/A	INMETRO Increased Safety (Ex eb) with Intrinsically Safe Electrodes; INMETRO Dust	Brazil	DNV INMETRO	***
K3	N/A	NEPSI Increased Safety with Intrinsically Safe Electrodes; NEPSI Dust	China	NEPSI	GYJ20.1112X
K5	N/A	North America Class I Div 1 Explosionproof with Intrinsically Safe Electrodes; Dust	USA, Canada	CSA	80102913
K6	N/A	North America Class I Zone 1 with Intrinsically Safe Electrodes; Class II Zone 22	USA, Canada	CSA	80102913
K7	N/A	IECEX Increased Safety (Ex eb) with Intrinsically Safe Electrodes; IECEX Dust	Global	CSA	IECEX SIR 19.0032X
K8	N/A	EAC Increased Safety (Ex eb) with Intrinsically Safe Electrodes; EAC Dust	EEU**	TOO T-Стандарт	EAЭC KZ 7500525.01.01.00972
K9	N/A	KTL Increased Safety (Ex eb) with Intrinsically Safe Electrodes; KTL Dust	Korea	KTL	***
KW NW	N/A Non-Sparking, Increased Safety (Ex ec)	Increased Safety (Ex eb) with Intrinsically Safe Electrodes Non-Sparking, Increased Safety (Ex ec) with Intrinsically Safe Electrodes	India	PESO	P532032/1

* Complies with only the local country product safety, electromagnetic, pressure and other applicable regulations. Cannot be used in a classified or zoned hazardous location environment. No ordering code required.

** Eurasian Economic Union - EEU *** Planned submittal or in process with Agency.

Approval Markings and Logos

Symbol	Marking or Symbol Name	Region	Meaning of Marking or Symbol
	CE	European Union	Compliance with all applicable European Union Directives.
	UKCA	UK	Compliance with all applicable UK Legislation.
	ATEX and UKEX	European Union and UK	Compliance with Equipment and Protective systems intended for use in Potentially Explosive Atmospheres directive (ATEX) (2014/34/EU) and Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016 (S.I. 2016/1107)
	C-tick	Australia	Compliance with Australian applicable electromagnetic compatibility standards
	CSA	US = United States C = Canada	Indicates that the product was tested and has met the applicable certification requirements for the noted countries.
	Eurasian Conformity (EAC)	Eurasian Economic Union - EEU	Compliance with all of the applicable technical regulations of the EAC Customs Union
	EAC Hazardous Location	Eurasian Economic Union - EEU	Compliance with Technical regulation, (TR CU 012/2011) – The safety of equipment for use in explosive environments.
	EEU Pattern Approval Certificate	Russia	Indicates compliance of measuring instruments with the approved metrological and technical characteristics.
	DNV INMETRO	Brazil	Compliance with the applicable technical regulations of Brazil.
	NEPSI	China	Compliance with all applicable technical regulations of China.
	KTL	Korea	Compliance with all applicable technical regulations of Korea.

Product designated for Ordinary Location may be marked with CE, C-tick, CSA and/or EAC logos.

European Directive Information

The most recent revision of the EU Declaration of Conformity can be found at www.emerson.com.

Certifications

Canadian Standards Association (CSA)

Ordinary Location Certification

The transmitter and flowtube have been examined and tested to determine that the design meets basic electrical, mechanical, and fire protection requirements by CSA, a nationally recognized testing laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA). The intended use of this product is to measure the flow rate of fluids.

CLASS - C225206 - PROCESS CONTROL EQUIPMENT

CLASS - C225286 - PROCESS CONTROL EQUIPMENT-Certified to US Standards

Name: 8782 Slurry Transmitter

Electrical Rating:

90 to 250 Vac, 50/60 Hz, 1.5 A, 120 VA; or

12 to 42 Vdc, 10 A, 120 W; or

12 to 48 Vdc, 10 A, 120 W

Output: 85 V_{peak} max, 2.0 A max

Ambient Temperature: -40°C to +50°C

Enclosure Rating: IP66/IP69; Type 4X

Rated Altitude:

- AC Power Model - up to 4000 m above sea level at the rated input voltage of 90-250VAC.
- AC Power Model - up to 5000 m above sea level at a maximum input voltage of 150VAC.
- DC Power Model - up to 5000 m above sea level at rated input voltage.

Model: 8782abcdeffgg

a = Revisions Level: A

b = Transmitter Mounting Options: W

c = Power Supply: 1 or 2

d = Transmitter Outputs: A, B, F, P, D or M

e = Conduit Entry: 1 or 2

ff = Safety Approvals Code Option: **NH**

gg = Any Alpha-Numeric characters representing product options up to fifty digits.

Name: MS Slurry Sensor

Electrical Rating: 85 V_{max}, 2.0 A

Ambient Temperature: -50°C to +60°C (Stainless Steel)

-29°C to +60°C (Carbon Steel)

Enclosure Rating: IP66/IP68/IP69; Type 4X

Max Process Temperature: 177°C

Rated Altitude: Up to 5000 m

Dual Seal - When the DS option is selected.

Model: MSaaabceffghijklm

aaa = Line size: 030 - 360(3-36 inch)

b = Rev level: A

c = Mounting option: R = Remote

d = Conduit Entry: 1=1/2" NPT, 2= M20

e = Lining Material: Any one-digit alpha or numeric character

f = Electrode Material: Any one-digit alpha or numeric character

g = Electrode Type: Any one-digit alpha or numeric character

h = Flange Material: Any one-digit alpha or numeric character

i = Flange Type: Any one-digit alpha or numeric character
j = Flange Rating: Any one-digit alpha or numeric character
kk = Coil Housing Configuration: M0, M1, M2, or M4.
ll = Safety Approval Option: **NH**
m = Options: Any Alpha-Numeric characters representing non-safety product options up to fifty-two digits in length.
nn = Dual Seal Option: DS

Notes:

1. The 8782 Slurry Transmitter and the MS Slurry Sensor are permanently (conduit) connected, intended for continuous operation in extended environmental conditions as specified. Overvoltage Category II, Pollution Degree 2.
2. The 8785 Calibrator is permanently connected and transportable, intended for short-time operation in normal environmental conditions. Overvoltage Category II, Pollution Degree 2. Not intended for use in wet locations.
3. The 8782 Slurry Transmitter can be remotely connected to the 8707 Sensor which is separately certified under CSA Certificate 80102919.
4. The MS Slurry Sensor can be remotely connected to the 8782, 8732EM and the 8712EM transmitters. The 8732EM and 8712EM transmitters are separately certified under CSA certificate 80102916.

CLASS - C225206 - PROCESS CONTROL EQUIPMENT**CLASS - C225286 - PROCESS CONTROL EQUIPMENT - Certified to US Standards****CLASS - C225802 - PROCESS CONTROL EQUIPMENT - For Hazardous Locations****CLASS - C225882 - PROCESS CONTROL EQUIPMENT - For Hazardous Locations - Certified to US Standards****Class I, Division 2, Groups A, B, C, D; T4 with non-incendive field wiring****Class II, Division 2, Groups E, F, G; Class III; T5****Class II, Division 1, Groups E, F, G; Class III; T5**Name: **8782 Slurry Transmitter**

Electrical Rating:

90 to 250 Vac, 50/60 Hz, 1.5 A, 120 VA

12 to 42 Vdc, 10 A, 120 W

12 to 48 Vdc, 10 A, 120 W

Output: 85 Vpeak max, 2.0 A max

Ambient Temperature: -40°C to +60°C

Enclosure Rating: IP66/IP69; Type 4X

Rated Altitude:

- o AC Power Model - up to 4000 m above sea level at the rated input voltage of 90-250VAC.
- o AC Power Model - up to 5000 m above sea level at a maximum input voltage of 150VAC.
- o DC Power Model - up to 5000 m above sea level at rated input voltage.

Model: **8782abcdeffgg**

a = Revisions Level: A

b = Transmitter Mounting Options: W

c = Power Supply: 1 or 2

d = Transmitter Outputs: A, B, F, P, D or M

e = Conduit Entry: 1 or 2

ff = Safety Approvals Code Option: **N5**

gg = Any Alpha-Numeric characters representing product options up to fifty digits.

Class I, Zone 2, AEx/Ex ec ic [ia Ga] IIC T4 Gc ; Class I, Zone 2, AEx/Ex ic nA [ia Ga] IIC T4 Gc
Zone 22, AEx/Ex ic tc [ia Da] IIIC T80°C Dc
Zone 22, AEx/Ex ic tc IIIC T80°C Dc

Name: **8782 Slurry Transmitter**

Electrical Rating:

12 to 42 Vdc, 10 A, 120 W or

12 to 48 Vdc, 10 A, 120 W

Output: 85 V max, 2.0 A max

Ambient Temperature: -40°C to +60°C

Enclosure Rating: IP66/IP69; Type 4X

Rated Altitude:

- AC Power Model - up to 4000 m above sea level at the rated input voltage of 90-250VAC.
- AC Power Model - up to 5000 m above sea level at a maximum input voltage of 150VAC.
- DC Power Model - up to 5000 m above sea level at rated input voltage.

Model: **8782abcdeffgg**

a = Revisions Level: A

b = Transmitter Mounting Options: W

c = Power Supply: 2

d = Transmitter Outputs: A, B, F, P, D or M

e = Conduit Entry: 1 or 2

ff = Safety Approvals Code Option: **N6**

gg = Any Alpha-Numeric characters representing product options up to fifty digits.

Notes:

1. The 8782 Slurry Transmitter and the MS Slurry Sensor are permanently (conduit) connected, intended for continuous operation in extended environmental conditions as specified.
Overvoltage Category II, Pollution Degree 2.
2. The 8782 Slurry Transmitter can be remotely connected to the 8707 Sensor which is separately certified under CSA Certificate 80102919.
3. The MS Slurry Sensor can be remotely connected to the 8782, 8732EM and the 8712EM transmitters. The 8732EM and 8712EM transmitters are separately certified under CSA certificate 80102916.

**Class I, Division 2, Groups A, B, C, D; T6...T3 with Non-incendive field wiring
Class II, Division 1, Groups E, F, G; Class III; T71°C ...T206°C****Name: MS Slurry Sensor**

Electrical Rating: 85 Vpeak max, 2.0 A max

Ambient Temperature: -50°C to +60°C (Stainless Steel); -29°C to +60°C (Carbon Steel)

Enclosure Rating: IP66/IP68/IP69; Type 4X

Rated Altitude: Up to 5000 m

Max Process Working Pressure: 50 psi to 6170 psi depending on flange option chosen

Max Process Temperature: See conditions of acceptability for maximum process temperatures.

Dual Seal – When DS option selected

Model: MSaaabdefghijklm

aaa = Line size: 030 – 360(3-36 inch)

b = Rev level: A

c = Mounting option: R = Remote

d = Conduit Entry: 1=1/2" NPT, 2= M20

e = Lining Material: Any one-digit alpha or numeric character

f = Electrode Material: Any one-digit alpha or numeric character

g = Electrode Type: Any one-digit alpha or numeric character

h = Flange Material: Any one-digit alpha or numeric character

i = Flange Type: Any one-digit alpha or numeric character

j = Flange Rating: Any one-digit alpha or numeric character

kk = Coil Housing Configuration: M0, M1, M2, or M4.

ll = Safety Approval Option: **N5**

m = Options: Any Alpha-Numeric characters representing non-safety product options up to fifty-two digits in length.

nn = Dual Seal Option: DS

**Class I, Zone 2, AEx/Ex ec ic IIC T6...T3 Gc; Class I, Zone 2, AEx/Ex ic nA IIC T6...T3 Gc
Zone 22, AEx/Ex tb IIIC T65°C ...T200°C Db****Name: MS Slurry Sensor**

Electrical Rating: 85 Vpeak max, 2.0 A max

Ambient Temperature: -50°C to +60°C (Stainless Steel); -29°C to +60°C (Carbon Steel)

Enclosure Rating: IP66/IP68/IP69; Type 4X

Rated Altitude: Up to 5000 m

Max Process Working Pressure: 50 psi to 6170 psi depending on flange option chosen

Max Process Temperature: See conditions of acceptability for maximum process temperatures.

Dual Seal – When DS option selected

Model: MSaaabdefghijklm

aaa = Line size: 030 – 360(3-36 inch)

b = Rev level: A

c = Mounting option: R = Remote

d = Conduit Entry: 1=1/2" NPT, 2= M20

e = Lining Material: Any one-digit alpha or numeric character

f = Electrode Material: Any one-digit alpha or numeric character

g = Electrode Type: Any one-digit alpha or numeric character

h = Flange Material: Any one-digit alpha or numeric character

i = Flange Type: Any one-digit alpha or numeric character

j = Flange Rating: Any one-digit alpha or numeric character

kk = Coil Housing Configuration: M0, M1, M2, or M4.

ll = Safety Approval Option: **N6**

m = Options: Any Alpha-Numeric characters representing non-safety product options up to fifty-two digits in length.

nn = Dual Seal Option: DS

**Class I, Zone 1, AEx/Ex eb ia IIC T6...T3 Ga/Gb
Zone 21, AEx/Ex tb IIIC T65°C ...T200°C Db****Name: MS Slurry Sensor**

Electrical Rating: 85 Vpeak max, 2.0 A max

Enclosure Rating: IP66/IP68/IP69; Type 4X

Rated Altitude: Up to 5000 m

Process Working Pressure: 50 psi to 6170 psi depending on flange option chosen

Process Temperature: See conditions of acceptability for maximum process temperatures.

Dual Seal – When DS option selected

Model: MSaaabbcdefghijklm

aaa = Line size: 030 – 360(3-36 inch)

b = Rev level: A

c = Mounting option: R = Remote

d = Conduit Entry: 1=1/2" NPT, 2= M20

e = Lining Material: Any one-digit alpha or numeric character

f = Electrode Material: Any one-digit alpha or numeric character

g = Electrode Type: Any one-digit alpha or numeric character

h = Flange Material: Any one-digit alpha or numeric character

i = Flange Type: Any one-digit alpha or numeric character

j = Flange Rating: Any one-digit alpha or numeric character

kk = Coil Housing Configuration: M0, M1, M2, or M4.

ll = Safety Approval Options:

Class Zone: **K6**

m = Options: Any Alpha-Numeric characters representing non-safety product options up to fifty-two digits in length.

nn = Dual Seal Option: DS

Notes:

1. The 8782 Slurry Transmitter and the MS Slurry Sensor are permanently (conduit) connected, intended for continuous operation in extended environmental conditions as specified. Overvoltage Category II, Pollution Degree 2.
2. The MS Slurry Sensor/Sensor can be remotely connected to the 8782, 8732EM and the 8712EM transmitters. The 8732EM and 8712EM transmitters are separately certified under CSA certificate 80102916.

Special Conditions of Safe Use for Class/Division: 8782

1. For use only with model MS Sensors/Flow tubes.
2. The 8782 Slurry Transmitter is not capable of passing the 500 V isolation test on terminals due to integral transient protection. This must be considered upon installation.

Special Conditions of Safe Use for Class/Division: MS

1. The MS Slurry Sensor is intended for use only in combination with the 8782, 8732EM, 8712EM Transmitters or a Transmitter with equivalent or less output ratings.
2. Options V1 or V2 are not Type 4X Corrosion Resistant.
3. Options V1 or V2 may be subject to electrostatic discharge. To avoid electrostatic charge build-up, do not rub the flowmeter with a dry cloth or clean with solvents.
4. The temperature code, ambient temperature range, and maximum process temperature for the MS Slurry Sensors are as follows:

Hazardous Gas Locations (Group IIC, Groups A, B, C, D)

T-Code	Coil Housing Material	Line Size	Ambient Temperature Range	Maximum Process Temperature
T6	Carbon Steel	All	-29°C to 35°C	45°C
T5	Carbon Steel	3"	-29°C to 60°C	60°C
T4	Carbon Steel	3"	-29°C to 60°C	105°C
T3	Carbon Steel	3"	-29°C to 60°C	177°C
T5	Carbon Steel	4"-36"	-29°C to 60°C	65°C
T4	Carbon Steel	4"-36"	-29°C to 60°C	110°C
T3	Carbon Steel	4"-36"	-29°C to 60°C	177°C
T6	Stainless Steel	All	-50°C to 35°C	45°C
T5	Stainless Steel	3"	-50°C to 60°C	60°C
T4	Stainless Steel	3"	-50°C to 60°C	105°C
T3	Stainless Steel	4"-36"	-50°C to 60°C	177°C
T5	Stainless Steel	4"-36"	-50°C to 60°C	65°C
T4	Stainless Steel	4"-36"	-50°C to 60°C	110°C
T3	Stainless Steel	4"-36"	-50°C to 60°C	177°C

Hazardous Dust Locations (Group IIIC, Groups E, F, G) Division 2

T-Code	Coil Housing Material	Line Size	Ambient Temperature Range	Maximum Process Temperature
T65	Carbon Steel	All	-29°C to 35°C	45°C
T80	Carbon Steel	All	-29°C to 60°C	60°C
T135	Carbon Steel	All	-29°C to 60°C	105°C
T200	Carbon Steel	All	-29°C to 60°C	177°C
T65	Stainless Steel	All	-50°C to 35°C	45°C
T80	Stainless Steel	All	-50°C to 60°C	60°C
T135	Stainless Steel	All	-50°C to 60°C	105°C
T200	Stainless Steel	All	-50°C to 60°C	177°C

Hazardous Dust Locations (Group IIIC, Groups E, F, G) Division 1

T-Code	Coil Housing Material	Line Size	Ambient Temperature Range	Maximum Process Temperature
T71	Carbon Steel	All	-29°C to 35°C	45°C
T86	Carbon Steel	All	-29°C to 60°C	60°C
T141	Carbon Steel	All	-29°C to 60°C	105°C
T206	Carbon Steel	All	-29°C to 60°C	177°C
T71	Stainless Steel	All	-50°C to 35°C	45°C
T86	Stainless Steel	All	-50°C to 60°C	60°C
T141	Stainless Steel	All	-50°C to 60°C	105°C
T206	Stainless Steel	All	-50°C to 60°C	177°C

Special Conditions for Safe Use (X) for Class Zone: 8782 and MS

- Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. In addition, the equipment shall only be cleaned with a damp cloth.
- The 8782 Slurry Transmitter enclosure is manufactured from Aluminum Alloy. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered during installation.
- The MS Slurry Sensor is intended for use only in combination with the 8782 Slurry Transmitter or a Transmitter with equivalent or less output ratings.
- The 8782 Slurry Transmitter is not capable of passing the 500 V isolation test on terminals to chassis due to integral transient protection. This must be considered upon installation.

5. Appropriately rated conduit entries must be installed to maintain the enclosure ingress ratings of IP66, IP68 or IP69.
6. The MS Slurry Sensor contains nonconductive liners over the grounded tube. For process requiring EPL Ga, precautions shall be taken to avoid the liner being charged by the flow of nonconductive media.
7. To maintain the ingress protection level on the M4 electrode housing for the MS Slurry Sensor, the copper crush washer that seals the electrode access plug shall be replaced when the plug is reinstalled. The copper crush washer is one-time use only.
8. When "Special Paint Systems" are applied, instructions for safe use regarding potential electrostatic charging hazard have to be followed
9. Warning - Ignition hazard, wetted parts may contain Titanium and Zirconium. For processes requiring EPL Ga and Gb rated equipment, suitability for use must be determined by the end-user to eliminate ignition hazard due to impact or friction.
10. The sensor is not allowed to be thermally insulated.
11. The 8785 Calibrator is intended for use only in combination with the 8782 Slurry Transmitter or a Transmitter with equivalent or less output ratings.
12. The temperature code, ambient temperature range, and maximum process temperature for the MS Slurry Sensors are as follows:

Hazardous Gas Locations

T-Code	Coil Housing Material	Line Size	Ambient Temperature Range	Maximum Process Temperature
T6	Carbon Steel	All	-29°C to 35°C	45°C
T5	Carbon Steel	3"	-29°C to 60°C	60°C
T4	Carbon Steel	3"	-29°C to 60°C	105°C
T3	Carbon Steel	3"	-29°C to 60°C	177°C
T5	Carbon Steel	4"-36"	-29°C to 60°C	65°C
T4	Carbon Steel	4"-36"	-29°C to 60°C	110°C
T3	Carbon Steel	4"-36"	-29°C to 60°C	177°C
T6	Stainless Steel	All	-50°C to 35°C	45°C
T5	Stainless Steel	3"	-50°C to 60°C	60°C
T4	Stainless Steel	3"	-50°C to 60°C	105°C
T3	Stainless Steel	4"-36"	-50°C to 60°C	177°C
T5	Stainless Steel	4"-36"	-50°C to 60°C	65°C
T4	Stainless Steel	4"-36"	-50°C to 60°C	110°C
T3	Stainless Steel	4"-36"	-50°C to 60°C	177°C

Hazardous Dust Locations

T-Code	Coil Housing Material	Line Size	Ambient Temperature Range	Maximum Process Temperature
T65	Carbon Steel	All	-29°C to 35°C	45°C
T80	Carbon Steel	All	-29°C to 60°C	60°C
T135	Carbon Steel	All	-29°C to 60°C	105°C
T200	Carbon Steel	All	-29°C to 60°C	177°C
T65	Stainless Steel	All	-50°C to 35°C	45°C
T80	Stainless Steel	All	-50°C to 60°C	60°C
T135	Stainless Steel	All	-50°C to 60°C	105°C
T200	Stainless Steel	All	-50°C to 60°C	177°C

1. Equipment Markings – See section VI in the tables on the following pages
 - a. EU-Type Examination Certificate (ATEX): SIRA 19ATEX1120X, SIRA 19ATEX3121X
 - b. Certificate of Conformity (IECEX): IECEX SIR 19.0032X
 - c. UK-Type Examination Certificate (UKEX): CSAE 22UKEX1310X, CSAE 22UKEX1315X
2. Required Documentation:
 - a. 08782-0060 Installation Drawing Model 8782, 8732EM, 8712EM, MS, 8705M, 8711-M/L ATEX/IECEX Hazardous (Ex) Locations
3. Referenced Documentation:
 - a. 00825-0100-8782.pdf, Transmitter Quick Installation Guide
 - b. 00825-0100-00MS.pdf, Sensor Quick Installation Guide
4. The Required and Referenced Documents listed above address the following items:
 - a. Instructions for safety i.e.
 - i. Putting into service
 - ii. Use
 - iii. Assembling and dismantling
 - iv. Maintenance, overhaul and repair
 - v. Installation
 - vi. Adjustment
 - b. Where necessary, training instructions
 - c. Details which allow a decision to be made as to whether the equipment can be used safely in the intended area under the expected operating conditions
 - d. Electrical parameters, maximum surface temperatures and other limit values
 - i. Electrical –
 1. See document 08782-0060

Rosemount 8782 Flow Transmitter	
<i>Power input</i>	90 - 250VAC, 1.5A, 120VA 12 - 42VDC, 8.5A, 120W 12 - 48VDC, 8.5A, 120W
<i>Pulsed circuit</i>	<i>Internally powered (Active): Outputs up to 12VDC, 12.1mA, 73mW</i> <i>Externally powered (Passive): Input up to 28VDC, 100mA, 1W</i>
<i>4-20mA output circuit</i>	<i>Internally Powered (Active): Outputs up to 25mA, 24VDC, 600mW</i> <i>Externally Powered (Passive): Input up to 25mA, 30VDC, 750mW</i>
<i>MODBUS</i>	<i>Internally Powered (Active): Outputs up to 100mA, 3.3VDC, 100mW</i>
<i>Fieldbus</i>	<i>Externally Powered (Passive): 9-32VDC,</i>
<i>Profibus</i>	<i>Externally Powered (Passive): 9-32VDC,</i>
<i>Um</i>	250V
<i>Coil excitation output</i>	2.0A, 85V max
Rosemount MS Flowtube⁽¹⁾	
<i>Coil excitation input</i>	2.0A, 85V max
<i>Electrode circuit</i>	5V, 200uA, 1mW

(1) Provided by the transmitter

- e. Special Conditions for Safe Use (X): 8782 Transmitter and MS Sensor/Flowtube
 - i. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. In addition, the equipment shall only be cleaned with a damp cloth.
 - ii. The 8782 Transmitter enclosure is manufactured from Aluminum Alloy. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered during installation.
 - iii. The MS Flow Tube is intended for use only in combination with the 8782, 8732EM, 8712EM Transmitters or a Transmitter with equivalent or less output ratings.
 - iv. The 8782 transmitter is not capable of passing the 500 V isolation test on terminals to chassis due to integral transient protection. This must be considered upon installation.
 - v. Appropriately rated conduit entries must be installed to maintain the enclosure ingress ratings of IP66, IP68 or IP69.
 - vi. The MS Flow Tube contains nonconductive liners over the grounded tube. For process requiring EPL Ga, precautions shall be taken to avoid the liner being charged by the flow of nonconductive media.
 - vii. In order to maintain the ingress protection level on the M4 electrode housing for the MS Flow Tube, the copper crush washer that seals the electrode access plug shall be replaced when the plug is reinstalled. The copper crush washer is one time use only.
 - viii. When “Special Paint Systems” are applied, instructions for safe use regarding potential electrostatic charging hazard must be followed
 - ix. Warning - Ignition hazard, wetted parts may contain Titanium and Zirconium. For processes requiring EPL Ga and Gb rated equipment, suitability for use must be determined by the end user to eliminate ignition hazard due to impact or friction.
 - x. The sensor/ flow tube is not allowed to be thermally insulated.
 - xi. The temperature code, ambient temperature range, and maximum process temperature for the MS Flow Tubes are as follows:

Hazardous Gas Locations (Group IIC)

T-Code	Coil Housing Material	Line Size	Ambient Temperature Range	Maximum Process Temperature
T6	Carbon Steel	All	-29°C to 35°C	45°C
T5	Carbon Steel	3"	-29°C to 60°C	60°C
T4	Carbon Steel	3"	-29°C to 60°C	105°C
T3	Carbon Steel	3"	-29°C to 60°C	177°C
T5	Carbon Steel	4"-36"	-29°C to 60°C	65°C
T4	Carbon Steel	4"-36"	-29°C to 60°C	110°C
T3	Carbon Steel	4"-36"	-29°C to 60°C	177°C
T6	Stainless Steel	All	-50°C to 35°C	45°C
T5	Stainless Steel	3"	-50°C to 60°C	60°C
T4	Stainless Steel	3"	-50°C to 60°C	105°C
T3	Stainless Steel	4"-36"	-50°C to 60°C	177°C
T5	Stainless Steel	4"-36"	-50°C to 60°C	65°C
T4	Stainless Steel	4"-36"	-50°C to 60°C	110°C
T3	Stainless Steel	4"-36"	-50°C to 60°C	177°C

Hazardous Dust Locations (Group IIIC)

T-Code	Coil Housing Material	Line Size	Ambient Temperature Range	Maximum Process Temperature
T65	Carbon Steel	All	-29°C to 35°C	45°C
T80	Carbon Steel	All	-29°C to 60°C	60°C
T135	Carbon Steel	All	-29°C to 60°C	105°C
T200	Carbon Steel	All	-29°C to 60°C	177°C
T65	Stainless Steel	All	-50°C to 35°C	45°C
T80	Stainless Steel	All	-50°C to 60°C	60°C
T135	Stainless Steel	All	-50°C to 60°C	105°C
T200	Stainless Steel	All	-50°C to 60°C	177°C

- f. Where necessary, the essential characteristics of tools which may be fitted to the equipment.
 - i. No proprietary tools required.
- g. List of the standards, including the issue date, with which the equipment is declared to comply:
 - i. ATEX - EN IEC 60079-0:2018, EN 60079-7: 2015/A1: 2018, EN 60079-11: 2012, EN 60079-15: 2010, EN 60079-26: 2015, EN 60079-31: 2014
 - ii. IECEx - IEC 60079-0:2017 Ed. 7, IEC 60079-7: 2017: Ed. 5.1, IEC 60079-11: 2011, IEC 60079-15: 2010, IEC 60079-26: 2014, IEC 60079-31: 2013
- h. Supply wire requirements: Use 10 - 18 AWG wire rated for the proper temperature of the application. For wire 10 - 14 AWG use lugs or other appropriate connectors. For connections in ambient temperatures above 122°F (50 °C), use a wire rated for 194 °F (90 °C).
- i. Contact address; Emerson -Rosemount, Micro Motion Inc
12001 Technology Drive
Eden Prairie
MN 55344, United States of America

Nomenclature: Rosemount 8782 Slurry Magnetic Flow Meter Transmitter

8782 A W 2 A 2 N1 OPTIONS
I II III IV V VI VII VIII

Designation	Description	Value	Explanation
I	Model	8782	Slurry Magnetic Flowmeter Transmitter
II	Revision Level	A	Initial Revision Level
III	Transmitter Mount	W	Remote Wall Mount
IV	Transmitter Power Supply	1 2	AC (90 - 250 Vac, 50 / 60 Hz) DC (12 - 42 Vdc) DC (12 - 48 Vdc)
V	Outputs	A B F M P D	Non-I.S.: 4 - 20 mA with digital HART Protocol & Scalable Pulse Output I.S.: 4 - 20 mA Intrinsically Safe Output with digital HART Protocol & Intrinsically Safe Scalable Pulse Output I.S.: Foundation Fieldbus / FISCO Intrinsically Safe & Intrinsically Safe Scalable Pulse Output Non-I.S.: Modbus RS-485 I.S.: Profibus & Intrinsically Safe Scalable Pulse Output Profibus DP Digital Electronics; Scalable Pulse
VI	Conduit entries	1 2	½-14 NPT female CM20, M20 female
VII	Safety Approval Option	N1* ATEX and UKEX N7 IECEx* N9 IECEx* ND ATEX and UKEX NF IECEx *	Ⓜ II 3 (1) G Ex ic nA [ia Ga] IIC T4 Gc Ⓜ II 3 (1) G Ex ec ic [ia Ga] IIC T4 Gc Ⓜ II 3 (1) D Ex ic tc [ia Da] IIIC T80°C Dc Ⓜ II 3 D Ex ic tc IIIC T80°C Dc Ex ic nA [ia Ga] IIC T4 Gc Ex ec ic [ia Ga] IIC T4 Gc Ex ic tc [ia Da] IIIC T80°C Dc Ex ic tc IIIC T80°C Dc Ex ic nA [ia Ga] IIC T4 Gc Ex ec ic [ia Ga] IIC T4 Gc Ex ic tc [ia Da] IIIC T80°C Dc Ex ic tc IIIC T80°C Dc Ⓜ II 3 D Ex ic tc IIIC T80°C Dc Ⓜ II 3 (1) D Ex ic tc [ia Da] IIIC T80°C Dc Ex ic tc IIIC T80°C Dc Ex ic tc [ia Da] IIIC T80°C Dc * DC Transmitter Power Supply only
VIII	Other Options	variable	Alpha-numeric characters representing other product options

Nomenclature: Rosemount MS Slurry Magnetic Flow Meter Sensor

MS 003 A R 1 I W A C A 1 M0 K1 OPTIONS
I II III IV V VI VII VIII IX X XI XII XIII XIV

Designation	Description	Value	Explanation
I	Model	MS	Slurry Magnetic Sensor (Flow Tube)
II	Line Size	003 to 360	3" NPS (80 mm) to 36" NPS (900 mm)
III	Revision Level	A	Initial Revision Level
IV	Mounting Option	R	Remote
V	Conduit Entry	1 2	½-14 NPT CM20, M20
VI	Lining Material	Custom	Any one digit alpha or numeric character
VII	Electrode Material	Custom	Any one digit alpha or numeric character
VIII	Electrode Types	Custom	Any one digit alpha or numeric character
IX	Flange Material	Custom	Any one digit alpha or numeric character
X	Flange Type	Custom	Any one digit alpha or numeric character
XI	Flange Rating	Custom	Any one digit alpha or numeric character
XII	Coil Housing Configuration	M0 M1 M2 M4	Category 2 G or 3 G, EPL Gb or Gc Category 2 G or 3 G, EPL Gb or Gc Category 1/2 G or 3 G, EPL Ga/Gb or Gc Category 1/2 G or 3 G, EPL Ga/Gb or Gc
XIII	Safety Approvals	K1 ATEX and UKEX K7 IECEx K9 IECEx N1 ATEX and UKEX N7 IECEx ND ATEX and UKEX NF IECEx	ⓧ II 1/2 G Ex eb ia IIC T6...T3 Ga/Gb * ⓧ II 2 D Ex tb IIIC T65°C...T200°C Db ⓧ II 2 G Ex eb ib IIC T6...T3 Gb ** ⓧ II 2 D Ex tb IIIC T65°C...T200°C Db Ex eb ia IIC T6...T3 Ga/Gb * Ex tb IIIC T65°C...T200°C Db Ex eb ib IIC T6...T3 Gb ** Ex tb IIIC T65°C...T200°C Db Ex eb ia IIC T6...T3 Ga/Gb * Ex tb IIIC T65°C...T200°C Db Ex eb ib IIC T6...T3 Gb ** Ex tb IIIC T65°C...T200°C Db ⓧ II 3 G Ex ic nA IIC T6...T3 Gc ⓧ II 3 G Ex ec ic IIC T6...T3 Gc ⓧ II 2 D Ex tb IIIC T65°C...T200°C Db Ex ic nA IIC T6...T3 Gc Ex ec ic IIC T6...T3 Gc Ex tb IIIC T 65°C...T200°C Db ⓧ II 2 D Ex tb IIIC T65°C...T200°C Db Ex tb IIIC T65°C...T200°C Db NOTE:* Electrode Housing M2 and M4 only ** Electrode Housing M0 and M1 only
XIV	Other Options	Custom	Any Alpha-Numeric characters representing non-safety product options up to fifty-two digits in length



Declaration of Conformity



We,

Emerson – Rosemount, Micro Motion Inc
 12001 Technology Drive
 Eden Prairie, MN 55344
 USA

declare under our sole responsibility that the product,
Rosemount™ Magnetic Flowmeter Platform
8782 Transmitter and MS Sensors (Flow Tubes)

Authorized Representative in Europe:

Emerson S.R.L., company No. J12/88/2006, Emerson 4
 street, Parcul Industrial
 Tetarom II, Cluj-Napoca 400638, Romania

Regulatory Compliance Shared Services Department
 Email: europaeproductcompliance@emerson.com Phone:
 +40 374 132 035


For product compliance destination sales
 questions in Great Britain, contact Authorized
 Representative:

Emerson Process Management Limited at
ukproductcompliance@emerson.com or +44 11
 6282 23 64, Regulatory Compliance Department.

Emerson Process Management Limited, company
 No 00671801, Meridian East, Leicester LE19 1UX,
 United Kingdom

to which this declaration relates, is in conformity with:

- 1) the relevant statutory requirements of Great Britain, including the latest amendments.
- 2) the provisions of the European Union Directives, including the latest amendments.

 13 October 2022 Mark Fleigle Vice President, Engineering Eden Prairie, MN USA
 (signature and date of issue) (name) (function) (place of issue)

ATEX Notified Body for EU Type Examination Certificate:

CSA Group Netherlands B.V. [Notified Body Number 2813]
 Utrechtseweg 310,
 6812 AR, Arnhem,
 Country: The Netherlands

ATEX Notified Body for Quality Assurance:

DNV Nemko Presafe AS [Notified Body number: 2460]
 P.O. Box 73, Blindern
 0314 Oslo
 Country: Norway

PED Notified Body

DNV Business Assurance Italia S.r.l.
 [Notified Body Number: 0496]
 Via Energy Park, 14, N-20871
 Vimercate (MB), Italy

UK Conformity Assessment Body for UK Type Examination Certificate: [Approved Body Number 0518]

CSA Group Testing UK Ltd
 Unit 6, Hawarden Industrial Park
 Hawarden, Deeside, CH5 3US
 Country: United Kingdom

UK Conformity Assessment Body for Quality Assurance:

DNV Business Assurance Ltd [Approved Body Number 8501]
 4th Floor, Vivo Building, 30 Stamford Street, SE1 9LQ
 Country: United Kingdom

PED Notified Body

DNV Business Assurance Italia S.r.l.
 [Notified Body Number: 0496]
 Via Energy Park, 14, N-20871
 Vimercate (MB), Italy



Declaration of Conformity



EMC Directive (2014/30/EU)

Harmonized Standards:
EN 61326-1:2013

Low Voltage Directive (2014/35/EU)

All Models:
Harmonized Standards:
EN 61010-1:2010/A1:2019/AC:2019-04

RoHS Directive (2011/65/EU): Amended 2015/863

All models

Harmonized Standards:
EN IEC 63000: 2018

PED Directive (2014/68/EU)

Equipment without the 'PD' option is NOT PED compliant and cannot be used in the EU without further assessment unless the installation is exempt under Article 1, paragraph 2 of the PED Directive 2014/68/EU.

Model MS Magnetic Flowmeter Sensor with option 'PD', in line sizes 3.0-inch (DN80) to 36-inch (DN900).

DNV QS Certificate of Assessment
Certificate No. 10000497900-PA-ACCREDIA-USA
Module H Conformity Assessment - ASME B31.3: 2020

ATEX Directive (2014/34/EU)

Sira 19ATEX1120X – EU TYPE CERTIFICATE Equipment Marking Summary

8782 Transmitter:

II 3 (1) G	Ex ec ic [ia Ga] IIC T4 Gc
II 3 (1) G	Ex ic nA [ia Ga] IIC T4 Gc
II 3 (1) D	Ex ic tc [ia Da] IIIC T80°C Dc

MS Sensors

II 1/2 G	Ex eb ia IIC T6...T3 Ga/Gb
II 2 G	Ex eb ib IIC T6...T3 Gb
II 2 D	Ex tb IIIC T65°C...T200°C Db

Sira 19ATEX3121X – TYPE CERTIFICATE Equipment Marking Summary

8782 Transmitter:

II 3 D	Ex ic tc IIIC T80°C Dc
--------	------------------------

MS Sensors

II 3 G	Ex ec ic IIC T6...T3 Gc
II 2 G	Ex ic nA IIC T6...T3 Gc

Harmonized Standards:

EN IEC 60079-0:2018	
EN 60079-7: 2015/A1: 2018	EN 60079-11: 2012
EN 60079-15: 2010	EN 60079-26: 2015
EN 60079-31: 2014	

Electromagnetic Compatibility Regulations 2016 (S.I. 2016/1091)

Designated Standards:
EN 61326-1:2013

Electrical Equipment (Safety) Regulations 2016 (S.I. 2016/1101)

All Models:
Designated Standards:
EN 61010-1:2010/A1:2019/AC:2019-04

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 Statutory Instrument, SI No. 3032

All models

Designated Standards:
EN IEC 63000: 2018

Pressure Equipment (Safety) Regulations 2016 (S.I. 2016/1105)

UK Compliance based on EU PED certification.

Equipment without the 'PD' option is NOT PER compliant and cannot be used in the UK without further assessment unless the installation is exempt under Article 1, paragraph 2 of the PED Directive 2014/68/EU.

Model MS Magnetic Flowmeter Sensor with option 'PD', in line sizes 3.0-inch (DN80) to 36-inch (DN900).

DNV QS Certificate of Assessment
Certificate No. 10000497900-PA-ACCREDIA-USA
Module H Conformity Assessment - ASME B31.3: 2020

Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016 (S.I. 2016/1107)

CSAE 22UKEX1310X – UK TYPE CERTIFICATE Equipment Marking Summary

8782 Transmitter:

II 3 (1) G	Ex ec ic [ia Ga] IIC T4 Gc
II 3 (1) G	Ex ic nA [ia Ga] IIC T4 Gc
II 3 (1) D	Ex ic tc [ia Da] IIIC T80°C Dc

MS Sensors

II 1/2 G	Ex eb ia IIC T6...T3 Ga/Gb
II 2 G	Ex eb ib IIC T6...T3 Gb
II 2 D	Ex tb IIIC T65°C...T200°C Db

CSAE 22UKEX1315X – TYPE CERTIFICATE Equipment Marking Summary

8782 Transmitter:

II 3 D	Ex ic tc IIIC T80°C Dc
--------	------------------------

MS Sensors

II 3 G	Ex ec ic IIC T6...T3 Gc
II 2 G	Ex ic nA IIC T6...T3 Gc

Designated Standards:

EN IEC 60079-0:2018	
EN 60079-7: 2015/A1: 2018	EN 60079-11: 2012
EN 60079-15: 2010	EN 60079-26: 2015
EN 60079-31: 2014	

**HAZARDOUS (Ex) LOCATION CONTROL AND INSTALLATION DRAWING
MODEL 8782, 8732EM, AND 8712EM MAGNETIC TRANSMITTERS
MODEL MS MAGNETIC SENSOR**

TABLE OF CONTENTS

PAGE	TITLE
2	GAS ENVIRONMENT - CLASS I DIVISION 2 SENSORS AND ALLOWED REMOTE MOUNT CLASS I DIVISION 1 OR CLASS I DIVISION 2 TRANSMITTERS
3	GAS ENVIRONMENT - CLASS I DIVISION 2 SENSOR TEMPERATURE CODE VS. PROCESS TEMPERATURE LIMITS
4	DUST ENVIRONMENT - CLASS II/III DIVISION 1 SENSORS AND ALLOWED REMOTE MOUNT CLASS II/III DIVISION 1 TRANSMITTERS
5	DUST ENVIRONMENT - CLASS II/III DIVISION 1 SENSORS TEMPERATURE CODE VS. PROCESS TEMPERATURE LIMITS
6	GAS ENVIRONMENT - COIL AND ELECTRODE CIRCUIT WIRING
7	DUST ENVIRONMENT - COIL AND ELECTRODE CIRCUIT WIRING
8	GAS ENVIRONMENT - OUTPUT WIRING
9	GAS ENVIRONMENT - INTRINSICALLY SAFE ENTITY CONCEPTS
10	GAS ENVIRONMENT - FISCO CONCEPT

⚠ WARNING: EXPLOSION HAZARD - PRODUCT INSTALLATION SHALL COMPLY WITH INFORMATION AS STATED IN THIS DOCUMENT.

1. WIRING METHOD SUITABLE FOR APPROPRIATE CLASS AND DIVISION AND PROTECTION TYPE.
2. TRANSMITTER MUST NOT BE CONNECTED TO EQUIPMENT GENERATING MORE THAN 250V.
3. COMPONENTS REQUIRED TO HAVE HAZARDOUS (Ex) LOCATION APPROVAL MUST BE APPROVED FOR THE GAS GROUP APPROPRIATE TO AREA CLASSIFICATION.
4. SEAL APPROVED FOR USE IN APPROPRIATE CLASS AND DIVISION AND GAS GROUP.
5. THE ELECTRODE CIRCUIT AND WIRING MUST BE INSTALLED AS INTRINSICALLY SAFE WHEN THE FLOWTUBE IS USED WITH FLAMMABLE PROCESS FLUIDS.
6. THE INTRINSICALLY SAFE 4-20mA AND DIGITAL OUTPUTS MUST USE TWISTED PAIR WITH AN INDIVIDUAL SHIELD FOR THE PAIR. IT IS ALSO RECOMMENDED TO USE SHIELDED TWISTED PAIR FOR THE PULSE OUTPUT.
7. USA-INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), NFPA-70 AND ANS/ISA-RP1206-01. CANADA-INSTALLATION SHALL BE IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE (CEC) PART I (C22.1). *INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS (CLASSIFIED) LOCATIONS*.
8. CONTROL EQUIPMENT CONNECTED TO BARRIER MUST NOT USE OR GENERATE MORE THAN 250V.
9. ASSOCIATED APPARATUS MANUFACTURER'S INSTALLATION DRAWING MUST BE FOLLOWED WHEN INSTALLING THIS EQUIPMENT.
10. THE TRANSMITTER IS NOT CAPABLE OF PASSING THE 500V ISOLATION TEST ON TERMINALS DUE TO INTEGRAL TRANSIENT PROTECTION. THIS MUST BE TAKEN INTO ACCOUNT UPON INSTALLATION.
11. THE ROSEMOUNT CABLING KITS, FOR INTRINSICALLY SAFE ELECTRODES, INCLUDE A CERTIFICATE OF CONFORMITY (COC) FROM THE MANUFACTURER FOR CAPACITANCE PER FOOT & INDUCTANCE PER FOOT. THESE PARAMETERS ARE ONLY REQUIRED FOR THE ENTITY CONCEPT METHOD OF INSTALLATION.
12. FOR ALL INSTALLATIONS MAXIMUM TERMINAL TIGHTENING TORQUE IS 10.6 IN LBS.
13. - WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT WHILE CIRCUIT IS LIVE UNLESS AREA IS KNOWN TO BE NON-HAZARDOUS.
 - AVERTISSEMENT - RISQUE D'EXPLOSION, NE PAS DEBRANCHER TANT QUE LE CIRCUIT EST SOUS TENSION, A MOINS QU'IL NE S'AGISSE D'UN EMPLACEMENT NON DANGEREUX.
 - WARNING - AFTER DE-ENERGIZING, DELAY 10 MINUTES BEFORE OPENING.
 - AVERTISSEMENT - APRÈS MISE HORS TENSION, ATTENDRE 10 MINUTES AVANT L'OUVERTURE.
 - WARNING - POTENTIAL ELECTROSTATIC CHARGING HAZARD - SEE INSTRUCTIONS.
 - AVERTISSEMENT - DANGER POTENTIEL DE CHARGES ÉLECTROSTATIQUES - VOIR INSTRUCTIONS)
14. DI/DO TERMINALS ARE NOT POPULATED. THE DI/DO OPTION (AX) IS NOT AVAILABLE WITH INTRINSICALLY SAFE OUTPUTS.
15. NO REVISION TO THIS DRAWING WITHOUT PRIOR CSA APPROVAL.
16. TRANSMITTER OUTPUTS ARE CONSIDERED INTRINSICALLY SAFE WHEN INSTALLED IN ACCORDANCE TO INTRINSICALLY SAFE CONCEPTS AND INSTALLATION REQUIREMENTS WITHIN THIS DOCUMENT.

NOTES:

REVISION	ECO NO.	APP'D	DATE
AA	1109115	MJM	9-12-19

INITIAL RELEASE

REVISION	ECO NO.	APP'D	DATE
AA	1109115	MJM	9-12-19

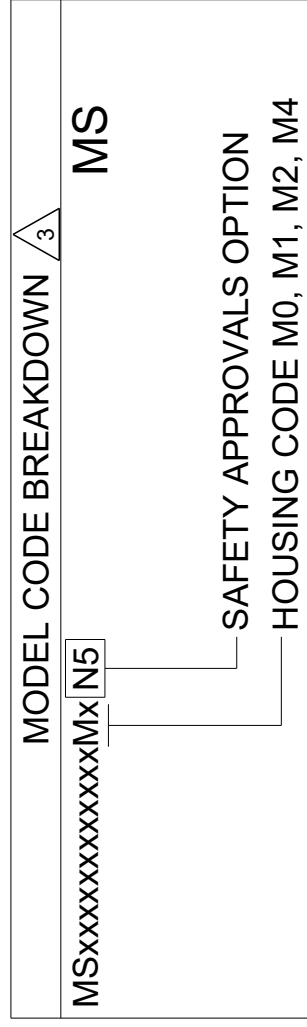
INITIAL RELEASE

EMERSON	ROSEMOUNT	INSTALLATION DRAWING	08782-0061
CANADIAN AND USA CLASS DIVISION		SCALE	REV
DR. N. BOND	2/14/19	C	AA
APPD. M. MAYER	2/26/19	3RD ANGLE	DRAWING NO.
DO NOT SCALE PRINT	CAD MAINTAINED	PRODUCT CODE	SHEET 1 OF 11

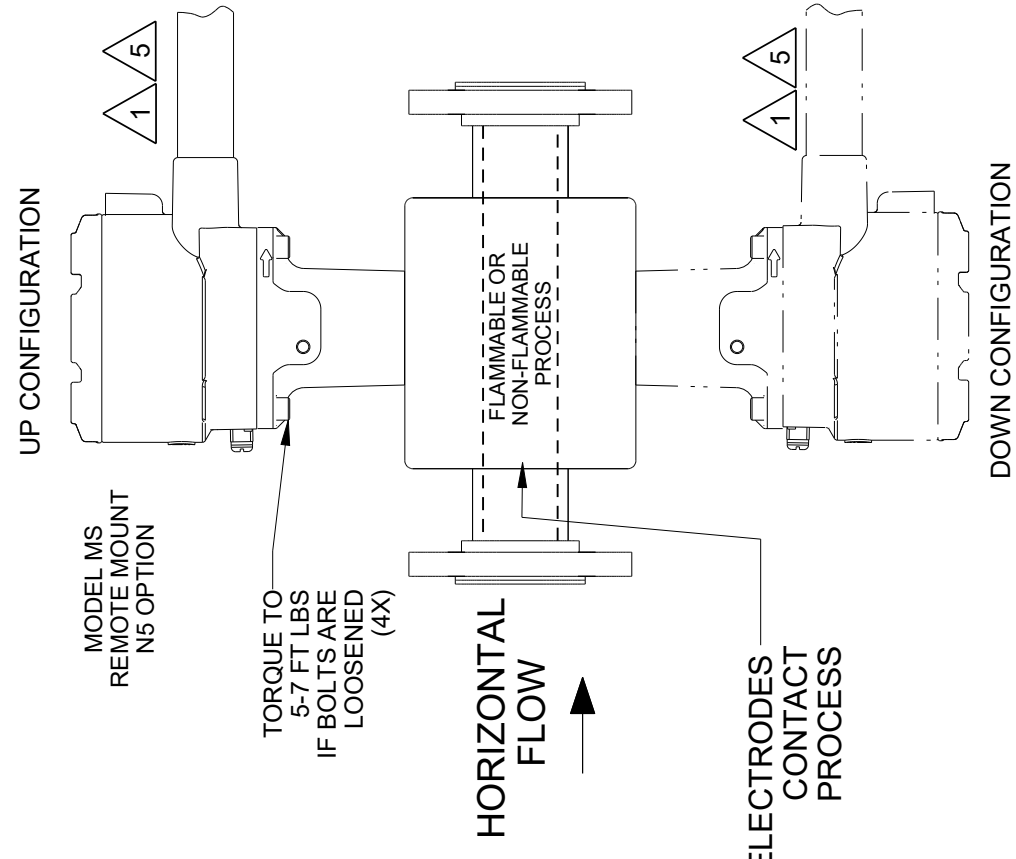
GAS ENVIRONMENT - CLASS I DIVISION 2 - SENSORS AND ALLOWED REMOTE MOUNT CLASS I DIVISION 1 OR CLASS I DIVISION 2 TRANSMITTERS

NON-INCENDIVE SENSOR REMOTE MOUNT CONFIGURATIONS

MODEL MS REMOTE MOUNT CONFIGURATION
WITH SAFETY APPROVALS OPTION 'N5'

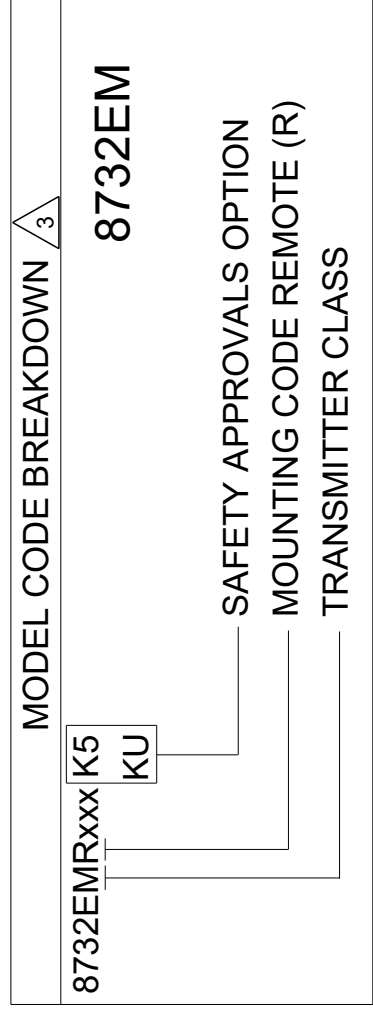


NON-INCENDIVE FOR CLASS I, DIV. 2 GRPS ABCD: T6...T3
WITH CARBON STEEL HOUSING (-29°C ≤ Ta ≤ 60°C) OR
WITH STAINLESS STEEL HOUSING (-50°C ≤ Ta ≤ 60°C)
SEE TABLE 1 FOR PROCESS TEMPERATURE LIMITS AND
ALLOWED MOUNTING CONFIGURATIONS

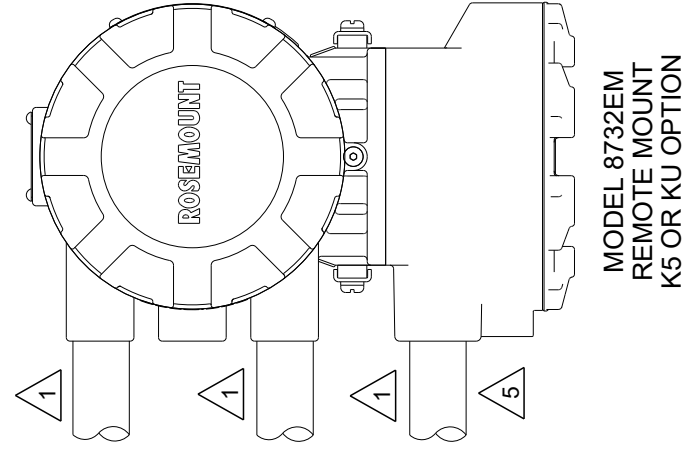


ALLOWED REMOTE MOUNT TRANSMITTER CONFIGURATIONS

MODEL 8732EM REMOTE MOUNT CONFIGURATION
WITH SAFETY APPROVAL OPTION 'K5' OR 'KU'

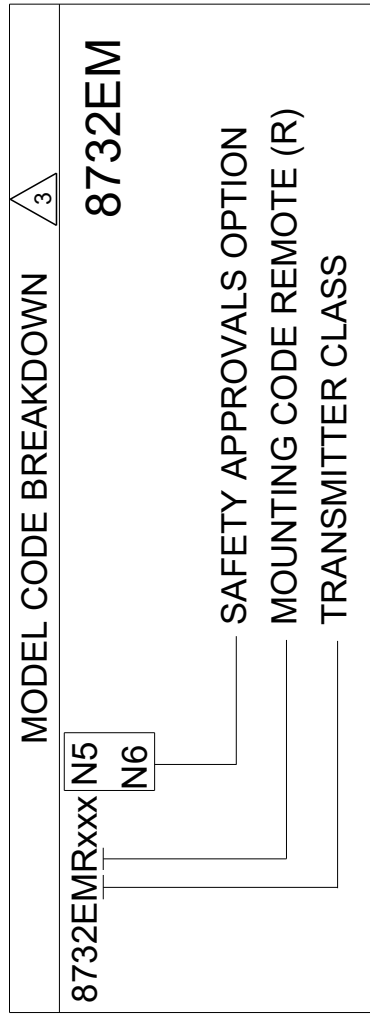


(US-NEC ONLY)
EXPLOSION-PROOF FOR CLASS I DIV 1 GRPS CD: T6
FACTORY SEALED
AMBIENT TEMPERATURE (-40°C ≤ Ta ≤ 60°C)

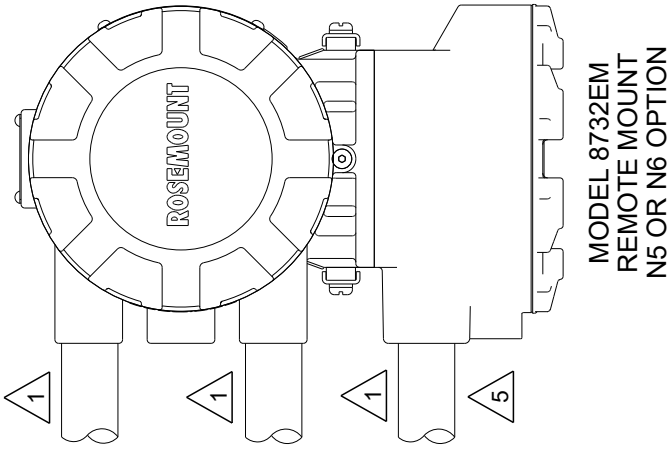


MODEL 8732EM
REMOTE MOUNT
K5 OR KU OPTION

MODEL 8732EM REMOTE MOUNT CONFIGURATION
WITH SAFETY APPROVAL OPTION 'N5' OR 'N6'

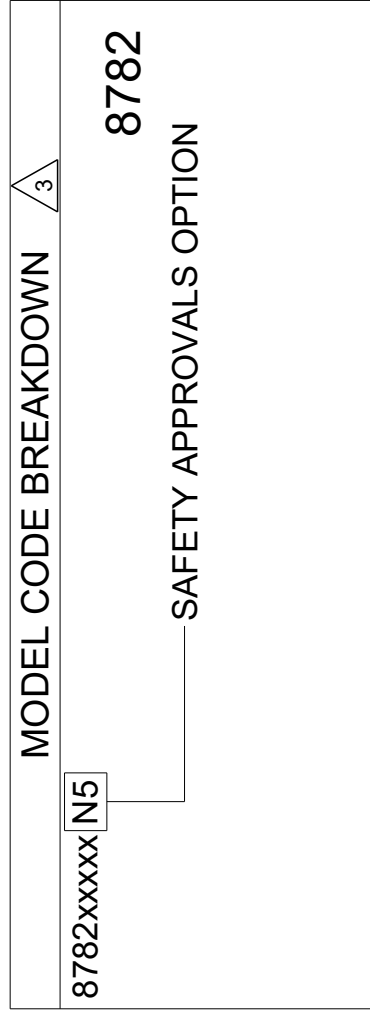


NON-INCENDIVE FOR CLASS I DIVISION 2 GRPS ABCD: T4
AMBIENT TEMPERATURE (-40°C ≤ Ta ≤ 60°C)

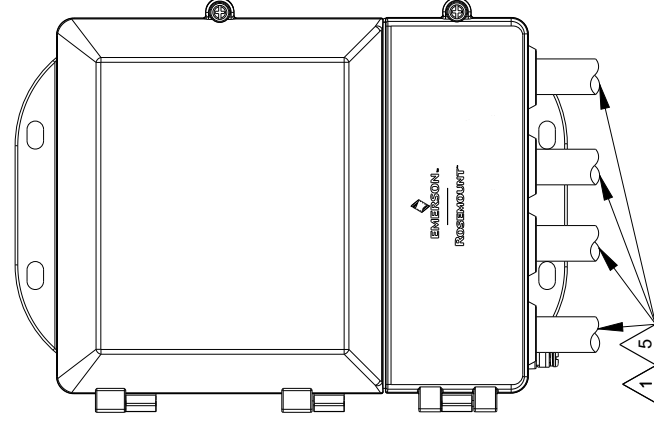


MODEL 8732EM
REMOTE MOUNT
N5 OR N6 OPTION

MODEL 8782 REMOTE MOUNT CONFIGURATION
WITH SAFETY APPROVAL OPTION 'N5'

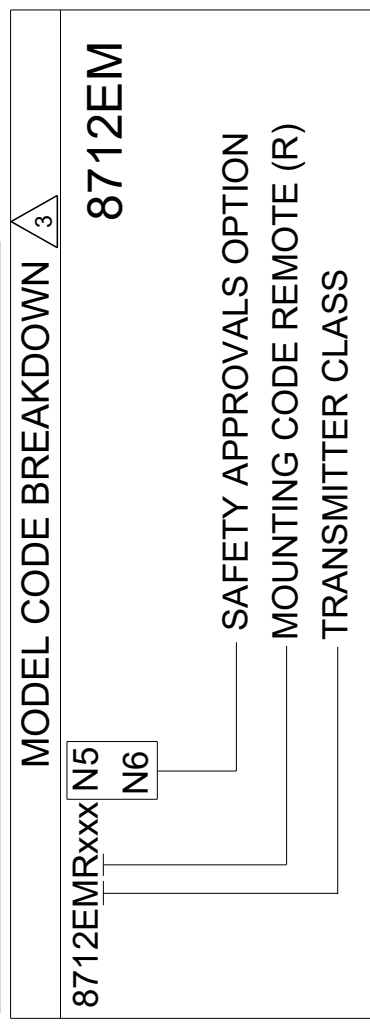


NON-INCENDIVE FOR CLASS I DIVISION 2 GRPS ABCD: T4
AMBIENT TEMPERATURE (-40°C ≤ Ta ≤ 60°C)

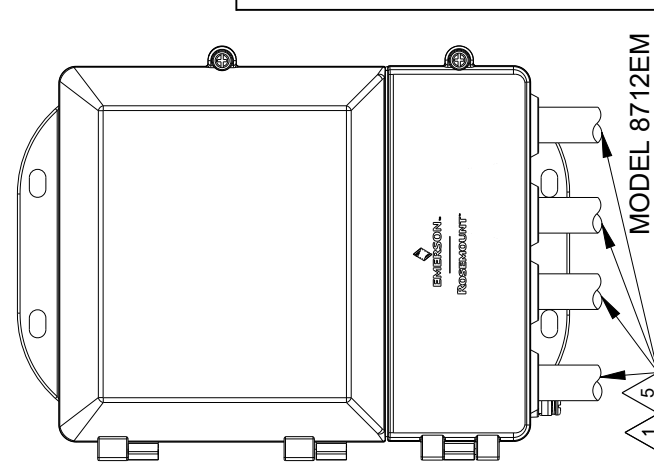


MODEL 8782
WALLMOUNT
N5 OPTION

MODEL 8712EM REMOTE MOUNT CONFIGURATION
WITH SAFETY APPROVAL OPTION 'N5' OR 'N6'



NON-INCENDIVE FOR CLASS I DIVISION 2 GRPS ABCD: T4
AMBIENT TEMPERATURE (-40°C ≤ Ta ≤ 60°C)



MODEL 8712EM
WALLMOUNT
N5 OR N6 OPTION

CONFIDENTIAL AND PROPRIETARY
INFORMATION IS CONTAINED HEREIN
AND MUST BE HANDLED ACCORDINGLY.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS IN INCHES (mm). REMOVE
ALL BURRS AND SHARP EDGES.

-DEC TOLERANCES-	
X ± .1	(2.5)
.XX ± .02	(0.5)
.XXX ± .010	(0.25)
FRACTIONS	ANGLES
± 1/32	± 2'

SURFACE FINISH UNLESS
OTHERWISE SPECIFIED

3RD ANGLE

SIZE

SCALE

REV

AA



ROSEMOUNT

TITLE

INSTALLATION DRAWING

CANADIAN AND USA CLASS DIVISION

DR. N. BOND 2/14/19 DRAWING NO.

08782-0061

APPD. M. MAYER 2/26/19

DO NOT SCALE PRINT CAD MAINTAINED (PROJ) PRODUCT CODE

SHEET 2 OF 11

GAS ENVIRONMENT - CLASS I DIVISION 2 SENSOR TEMPERATURE CODE VS. PROCESS TEMPERATURE LIMITS

TABLE 1				
MS CLASS I DIVISION 2 SENSOR TEMPERATURE CODE VS. PROCESS TEMPERATURE LIMITS				
T-CODE	COIL HOUSING MATERIAL	LINE SIZE	AMBIENT TEMPERATURE RANGE	MAXIMUM PROCESS TEMPERATURE
T6	CARBON STEEL	ALL	-29°C TO 35°C	45°C
T5	CARBON STEEL	3"	-29°C TO 60°C	60°C
T4	CARBON STEEL	3"	-29°C TO 60°C	105°C
T3	CARBON STEEL	3"	-29°C TO 60°C	177°C
T5	CARBON STEEL	4"-36"	-29°C TO 60°C	65°C
T4	CARBON STEEL	4"-36"	-29°C TO 60°C	110°C
T3	CARBON STEEL	4"-36"	-29°C TO 60°C	177°C
T6	STAINLESS STEEL	ALL	-50° TO 35°C	45°C
T5	STAINLESS STEEL	3"	-50° TO 60°C	60°C
T4	STAINLESS STEEL	3"	-50° TO 60°C	105°
T3	STAINLESS STEEL	4"-36"	-50° TO 60°C	177°C
T5	STAINLESS STEEL	4"-36"	-50° TO 60°C	65°C
T4	STAINLESS STEEL	4"-36"	-50° TO 60°C	110°C
T3	STAINLESS STEEL	4"-36"	-50° TO 60°C	177°C

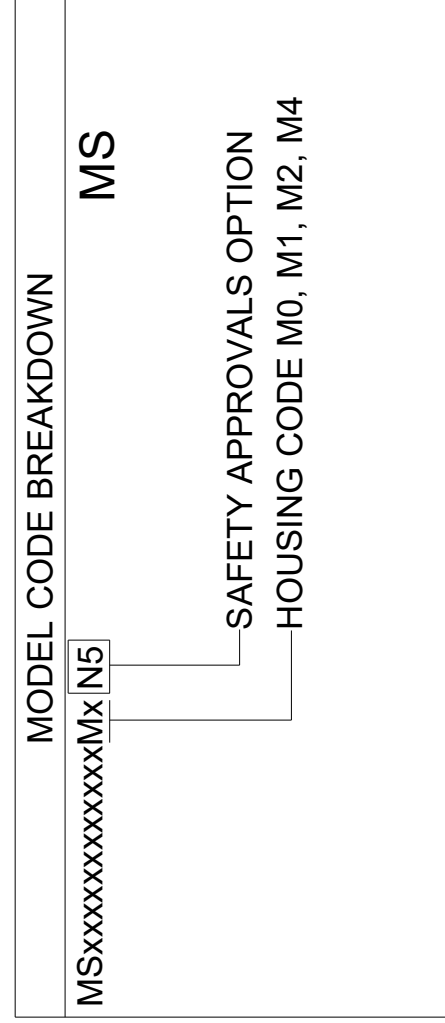
CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY.	SURFACE FINISH UNLESS OTHERWISE SPECIFIED	$\sqrt{12.5}$	3RD ANGLE		SIZE C	SCALE -	REV AA
TITLE ROSEMOUNT INSTALLATION DRAWING CANADIAN AND USA CLASS DIVISION							
DR. N. BOND 2/14/19 APPD. M. MAYER 2/26/19	DRAWING NO. 08782-0061						
DO NOT SCALE PRINT CAD MAINTAINED, (PROJ) PRODUCT CODE SHEET 3 OF 11							

DRAWING NO. 08782-0061

DUST ENVIRONMENT - CLASS II/III DIVISION 1 SENSORS AND ALLOWED REMOTE MOUNT CLASS II/III DIVISION 1 TRANSMITTERS

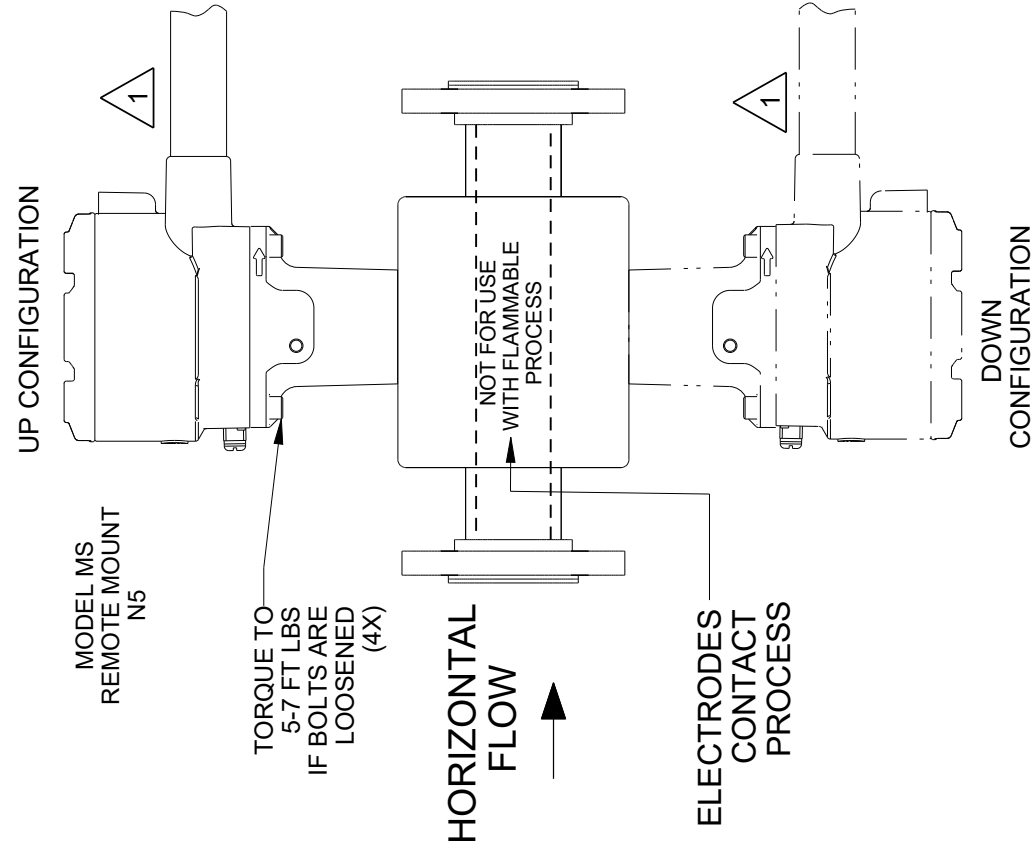
DUST-IGNITION PROOF SENSOR REMOTE MOUNT CONFIGURATIONS

MODEL MS REMOTE CONFIGURATION
WITH SAFETY APPROVALS OPTIONS 'N5'



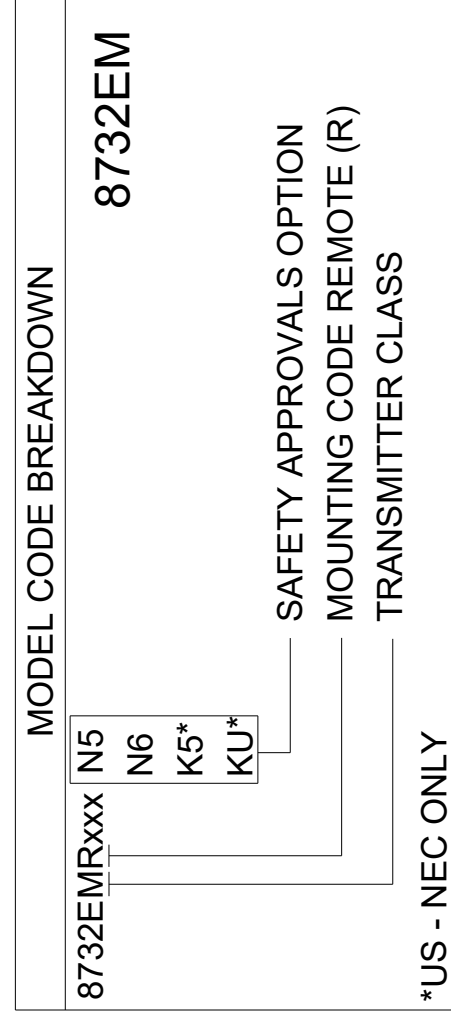
DUST-IGNITION PROOF FOR CLASS II/III DIV 1

GRPS: EFG: T71°C...T206°C
WITH CARBON STEEL HOUSING (-29°C ≤ Ta ≤ 60°C) OR
WITH STAINLESS STEEL HOUSING (-50°C ≤ Ta ≤ 60°C)
SEE TABLE 2 FOR PROCESS TEMPERATURE LIMITS AND
ALLOWED MOUNTING CONFIGURATIONS



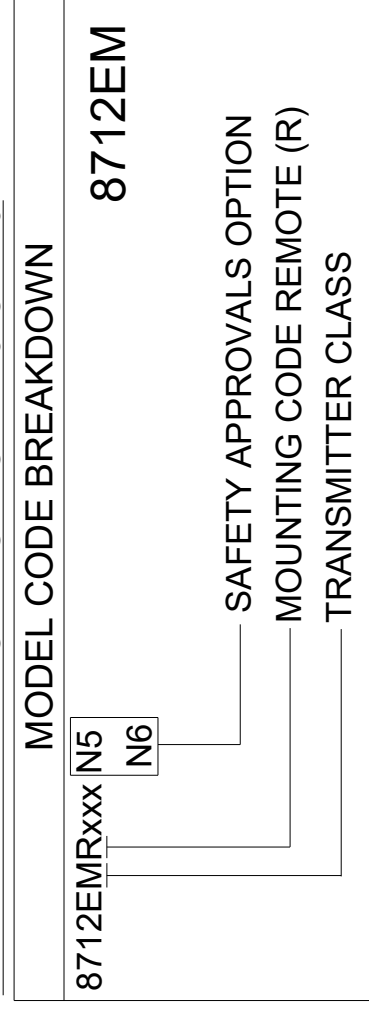
ALLOWED REMOTE MOUNT TRANSMITTER CONFIGURATIONS

MODEL 8732EM REMOTE MOUNT CONFIGURATION
WITH SAFETY APPROVALS OPTIONS 'N5', 'N6', 'K5', OR 'KU'



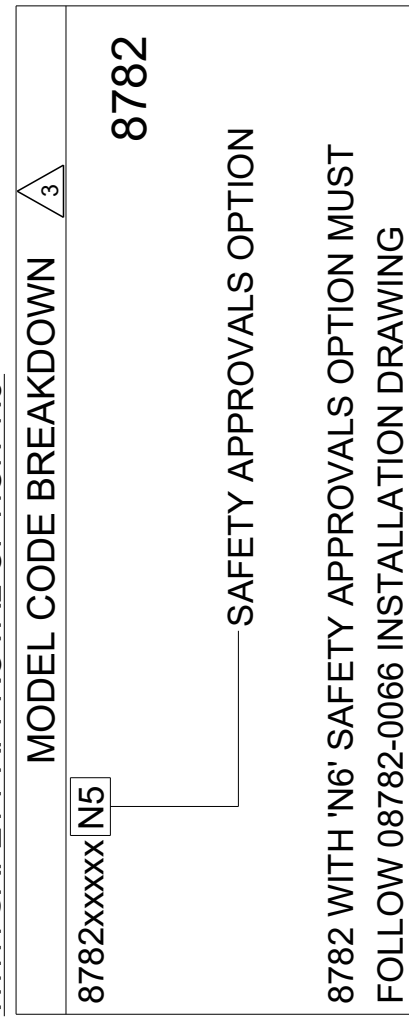
DUST-IGNITION PROOF FOR CLASS II/III DIV 1 GRPS: EFG: T5
AMBIENT TEMPERATURE (-40°C ≤ Ta ≤ 60°C)

MODEL 8712EM REMOTE MOUNT CONFIGURATION
WITH SAFETY APPROVALS OPTIONS 'N5' OR 'N6'

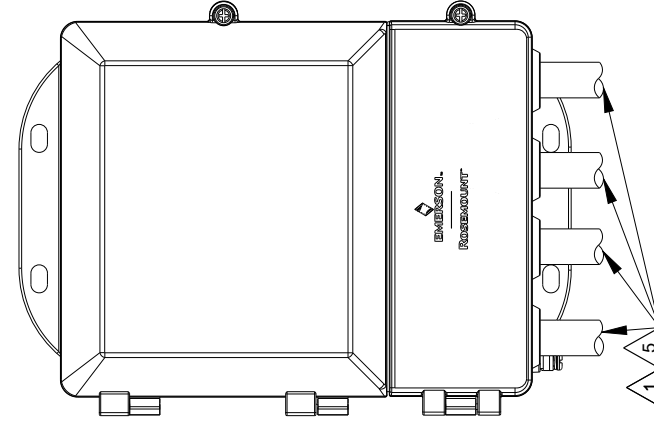


DUST-IGNITION PROOF FOR CLASS II/III DIV 1 GRPS: EFG: T5
AMBIENT TEMPERATURE (-40°C ≤ Ta ≤ 60°C)

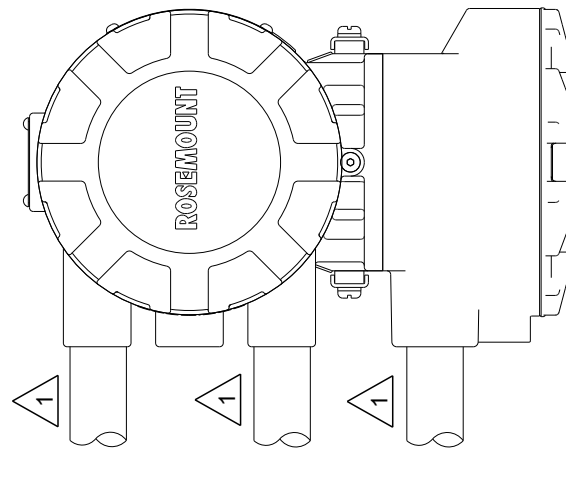
MODEL 8782 REMOTE MOUNT CONFIGURATION
WITH SAFETY APPROVALS OPTION 'N5'



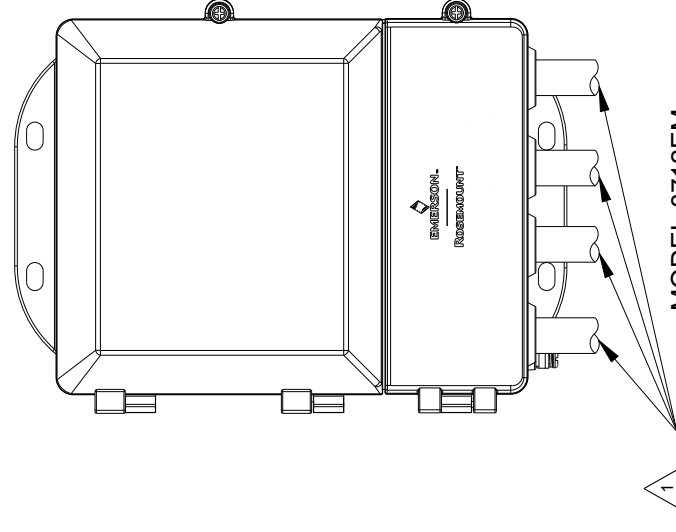
DUST-IGNITION PROOF FOR CLASS II/III DIVISION 1 GRPS EFG: T5
AMBIENT TEMPERATURE (-40°C ≤ Ta ≤ 60°C)



MODEL 8782
WALLMOUNT
N5 OPTION



MODEL 8732EM
REMOTE MOUNT
N5, N6, K5, OR KU



MODEL 8712EM
WALLMOUNT
N5, N6 OPTION



ROSEMOUNT

INSTALLATION DRAWING

CANADIAN AND USA CLASS DIVISION

DR. N. BOND 2/14/19 DRAWING NO. 08782-0061
APPD. M. MAYER 2/26/19

PRODUCT CODE

DOC TYPE

SHEET 4

OF 11

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SURFACE FINISH UNLESS OTHERWISE SPECIFIED

125°

3RD ANGLE

SIZE C

SCALE -

REV AA

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES (mm). REMOVE ALL BURRS AND SHARP EDGES.

-DEC TOLERANCES-
X ± .1 [2.5]
.XX ± .02 [0.5]
.XXX ± .010 [0.25]
FRACTIONS ± 1/32 ANGLES ± 2°

DO NOT SCALE PRINT CAD MAINTAINED (PROJ)

08782-0061 DRAWING NO.

DUST ENVIRONMENT - CLASS II/III DIVISION 1 AND DIVISION 2 SENSOR TEMPERATURE CODE VS. PROCESS TEMPERATURE LIMITS

TABLE 2 CLASS II/III DIV 1

MS DUST IGNITION-PROOF SENSOR TEMPERATURE CODE
VS.
PROCESS TEMPERATURE LIMITS

T-CODE	COIL HOUSING MATERIAL	LINE SIZE	AMBIENT TEMPERATURE RANGE	MAXIMUM PROCESS TEMPERATURE
T71	CARBON STEEL	ALL	-29°C TO 35°C	45°C
T86	CARBON STEEL	ALL	-29°C TO 60°C	60°C
T141	CARBON STEEL	ALL	-29°C TO 60°C	105°C
T206	CARBON STEEL	ALL	-29°C TO 60°C	177°C
T71	STAINLESS STEEL	ALL	-50°C TO 60°C	45°C
T86	STAINLESS STEEL	ALL	-50°C TO 60°C	60°C
T141	STAINLESS STEEL	ALL	-50°C TO 60°C	105°C
T206	STAINLESS STEEL	ALL	-50°C TO 60°C	177°C

TABLE 3 CLASS II/III DIV 2

MS DUST IGNITION-PROOF SENSOR TEMPERATURE CODE
VS.
PROCESS TEMPERATURE LIMITS

T-CODE	COIL HOUSING MATERIAL	LINE SIZE	AMBIENT TEMPERATURE RANGE	MAXIMUM PROCESS TEMPERATURE
T65	CARBON STEEL	ALL	-29°C TO 35°C	45°C
T80	CARBON STEEL	ALL	-29°C TO 60°C	60°C
T135	CARBON STEEL	ALL	-29°C TO 60°C	105°C
T200	CARBON STEEL	ALL	-29°C TO 60°C	177°C
T65	STAINLESS STEEL	ALL	-50°C TO 60°C	45°C
T80	STAINLESS STEEL	ALL	-50°C TO 60°C	60°C
T135	STAINLESS STEEL	ALL	-50°C TO 60°C	105°C
T200	STAINLESS STEEL	ALL	-50°C TO 60°C	177°C

CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY.

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES (mm). REMOVE ALL BURRS AND SHARP EDGES.

-DEC TOLERANCES-
X ± .1 [2.5]
.XX ± .02 [0.5]
.XXX ± .010 [0.25]
FRACTIONS ± 1/32 ANGLES ± 2'

SURFACE FINISH UNLESS OTHERWISE SPECIFIED

125

3RD ANGLE

SIZE

SCALE

REV

AA



ROSEMOUNT

TITLE
INSTALLATION DRAWING

CANADIAN AND USA CLASS DIVISION

DR. N. BOND 2/14/19 DRAWING NO. 08782-0061

APPD. M. MAYER 2/26/19

DO NOT SCALE PRINT CAD MAINTAINED (PROJ)

PRODUCT CODE

DOC TYPE

SHEET 5

OF 11

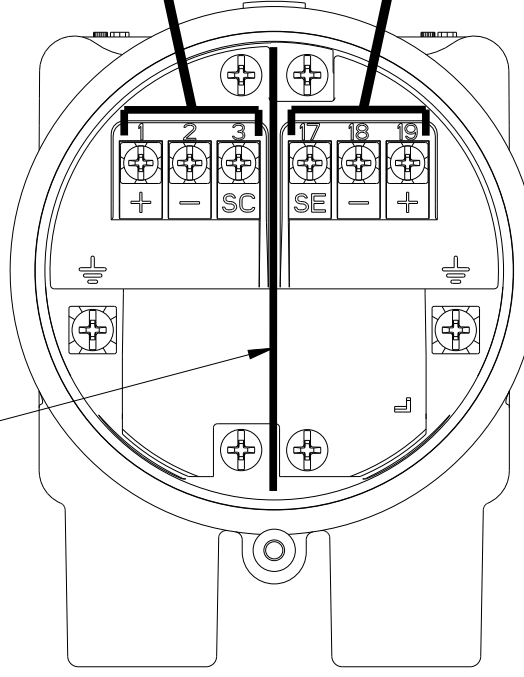
08782-0061

DRAWING NO.

GAS ENVIRONMENT-COIL AND ELECTRODE CIRCUIT WIRING

MODEL 8732EM WITH INTRINSICALLY SAFE ELECTRODE CIRCUIT FOR USE WITH MODEL MS SENSOR WITH SAFETY APPROVAL OPTION 'N5' COMPONENT CABLES ONLY. SEE TABLE BELOW FOR COMPATIBLE WIRING. SEE INSTALLATION WIRING DRAWING 08732-1504 FOR CABLING DETAILS. (FOR PROCESS TEMPERATURE LIMITS SEE TABLE 1)

DIVIDER REQUIRED FOR INTRINSIC SAFETY (Ex i)



NON-INTRINSICALLY SAFE COIL CIRCUIT WIRING OPTIONS:
INSTALL AS EXPLOSION-PROOF OR
INSTALL AS NON-INCENDIVE

5 INTRINSICALLY SAFE ELECTRODE CIRCUIT
SEGREGATE FROM NON-INTRINSICALLY SAFE WIRING

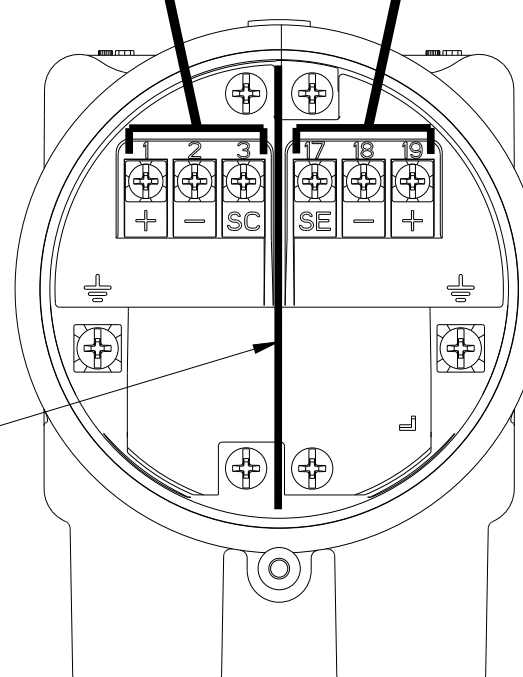
MS FLOWTUBE
REMOTE JUNCTION BOX

DIVIDER REQUIRED FOR INTRINSIC SAFETY

8732EM TRANSMITTER
REMOTE JUNCTION BOX

MODEL 8782 OR 8712EM WITH INTRINSICALLY SAFE ELECTRODE CIRCUIT FOR USE WITH MODEL MS SENSOR WITH SAFETY APPROVAL OPTION 'N5' COMPONENT CABLES ONLY. SEE TABLE BELOW FOR COMPATIBLE WIRING. SEE INSTALLATION WIRING DRAWING 08712-1504 FOR CABLING DETAILS. (FOR PROCESS TEMPERATURE LIMITS SEE TABLE 1)

DIVIDER REQUIRED FOR INTRINSIC SAFETY (Ex i)



NON-INTRINSICALLY SAFE COIL CIRCUIT WIRING OPTION:
INSTALL AS NON-INCENDIVE

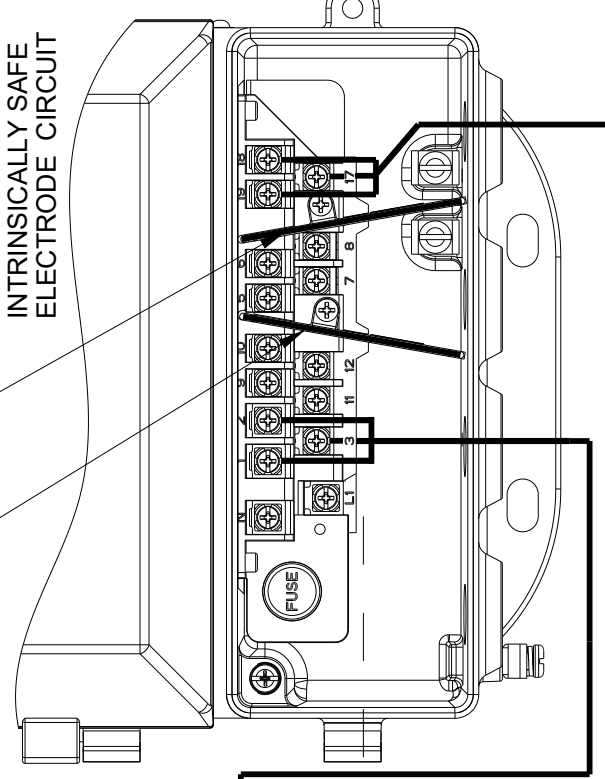
5 INTRINSICALLY SAFE ELECTRODE CIRCUIT
SEGREGATE FROM NON-INTRINSICALLY SAFE WIRING

MS FLOWTUBE
REMOTE JUNCTION BOX

8782 OR 8712EM TRANSMITTER
(LOWER COVER AND SAFETY COVER ARE NOT SHOWN)

DIVIDER ONLY REQUIRED IF OUTPUT IS INSTALLED AS INTRINSICALLY SAFE

DIVIDER REQUIRED FOR INTRINSICALLY SAFE ELECTRODE CIRCUIT



SYSTEM APPROVAL FOR INTRINSICALLY SAFE ELECTRODE INSTALLATION

THE MODEL 8782, 8732EM, 8712EM, AND MODEL MS MAGNETIC FLOWMETER REFERENCING CONTROL DRAWING 08782-0061 MAY USE UP TO 500 FEET (150 METERS) OF ROSEMOUNT SUPPLIED ELECTRODE CABLING FOR INTERCONNECTION OF THE DEVICES. THE CORRECT CABLING IS SUPPLIED AS PART OF THE FOLLOWING ROSEMOUNT CABLING KITS:

COIL AND INTRINSICALLY SAFE ELECTRODE COMPONENT CABLES:

ROSEMOUNT PART NO.	UNIT OF MEASURE	TEMPERATURE RANGE	SEE NOTE
08732-0065-0003	FEET	-20° C TO 75° C	11
08732-0065-0004	METERS	-20° C TO 75° C	
08732-0065-1003	FEET	-50° C TO 125° C	
08732-0065-1004	METERS	-50° C TO 125° C	

INDIVIDUAL OR REPLACEMENT INTRINSICALLY SAFE ELECTRODE COMPONENT CABLES:

ROSEMOUNT PART NO.	UNIT OF MEASURE	TEMPERATURE RANGE	SEE NOTE
08732-0061-0003	FEET	-20° C TO 75° C	11
08732-0061-0004	METERS	-20° C TO 75° C	
08732-0061-1003	FEET	-50° C TO 125° C	
08732-0061-1004	METERS	-50° C TO 125° C	

TERMINALS 19, 18, AND 17 CONTAIN TWO CHANNELS OF AN INTRINSICALLY SAFE CIRCUIT WITH A COMMON RETURN. ENTITY PARAMETERS SHOWN BELOW ARE THE SUMMATION OF BOTH CHANNELS.

TRANSMITTER ENTITY PARAMETERS
MODEL 8782, 8732EM, AND 8712EM
INTRINSICALLY SAFE ELECTRODE CIRCUIT
REMOTE JUNCTION BOX TERMINALS 19, 18, 17
 $U_o = 28.56V$
 $I_o = 5.77mA$
 $P_o = 165mW$
 $C_o = 61.7nF$
 $L_o = 1.0H$

ENTITY CONCEPT FOR INTRINSICALLY SAFE ELECTRODE INSTALLATION

FLOW TUBE ENTITY PARAMETERS
MODEL MS
INTRINSICALLY SAFE ELECTRODE CIRCUIT
REMOTE JUNCTION BOX TERMINALS 19, 18, 17
 $U_i = 30V$
 $I_i = 50mA$
 $P_i = 1.0W$
 $C_i = 1.9nF$
 $L_i = 630\mu H$

THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF ASSOCIATED APPARATUS AND INTRINSICALLY SAFE APPARATUS WHEN THE FOLLOWING IS TRUE:

$U_o \leq U_i$, $I_o \leq I_i$, $P_o \leq P_i$, $C_o \geq C_i + C_{cable}$, $L_o \geq L_i + L_{cable}$
THE ALLOWED CAPACITANCE, C_o IS SHARED BETWEEN THE CIRCUITS OF TERMINALS 19, 18, AND 17. CABLE CAPACITANCE MUST BE ASSESSED AS TWICE THE MEASURED VALUE PER LENGTH OF CABLE.

EXAMPLE 1: THE HIGHEST MEASURED CAPACITANCE OF A 3 CONDUCTOR, SHIELDED CABLE IS 58pF/ft WHEN MEASURED CONDUCTOR TO CONDUCTOR TIED TO SHIELD.

$C_{cable} = 2 \times 58pF/ft \times \text{FEET OF CABLE}$
 $C_i + C_{cable} < C_o$
CABLE LENGTH MUST BE UNDER 515 FEET

TERMINAL	LABEL
REMOTE MOUNT FLOWTUBE AND TRANSMITTER TERMINAL LAYOUT	
INTRINSICALLY SAFE ELECTRODE CIRCUIT	
19	ELECTRODE +
18	ELECTRODE -
17	ELECTRODE REFERENCE (SE)
NON-INTRINSICALLY SAFE COIL CIRCUIT	
1	COIL +
2	COIL -
3	COIL SHIELD (SC)

TERMINAL	LABEL
REMOTE MOUNT FLOWTUBE AND TRANSMITTER LAYOUT	
INTRINSICALLY SAFE ELECTRODE CIRCUIT	
19	ELECTRODE +
18	ELECTRODE -
17	ELECTRODE REFERENCE (SE)
NON-INTRINSICALLY SAFE COIL CIRCUIT	
1	COIL +
2	COIL -
3	COIL SHIELD (SC)

DRAWING NO. 08782-0061

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X ± .1 (2.5)	.XX ± .02 (0.5)	.XXX ± .010 (0.25)	± 1/32	± 2°

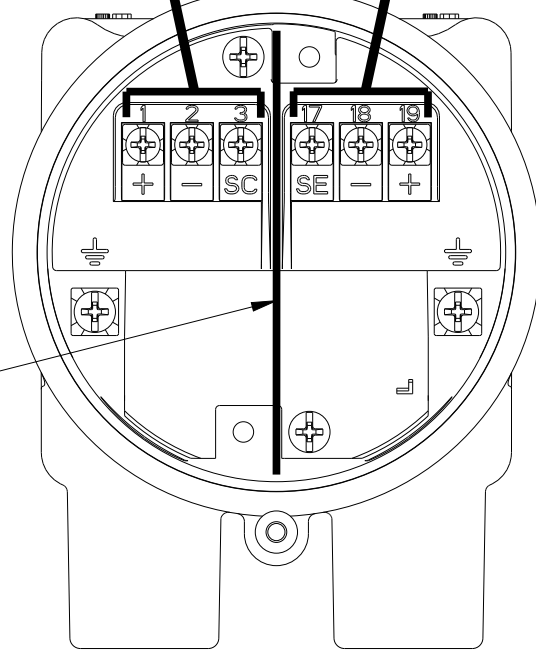


TITLE	ROSEMOUNT
INSTALLATION DRAWING	
CANADIAN AND USA CLASS DIVISION	
DR. N. BOND	2/14/19
APPD. M. MAYER	2/26/19
DO NOT SCALE PRINT	CAD MAINTAINED. (PROE)
PRODUCT CODE	08782-0061
DOC TYPE	SHEET6 OF 11

DUST ENVIRONMENT- COIL AND ELECTRODE CIRCUIT WIRING

MODEL 8732EM WITH NON-INTRINSICALLY SAFE ELECTRODE CIRCUIT FOR USE WITH MODEL MS SENSOR WITH SAFETY APPROVAL OPTION 'N5'
 COMPONENT OR COMBINATION COIL/ELECTRODE CABLE ALLOWED.
 SEE INSTALLATION WIRING DRAWING 08732-1504 FOR NON-INTRINSICALLY SAFE CABLING
 (FOR PROCESS TEMPERATURE LIMITS SEE TABLE 2)

OPTIONAL DIVIDER SHOWN



MS FLOWTUBE
REMOTE JUNCTION BOX

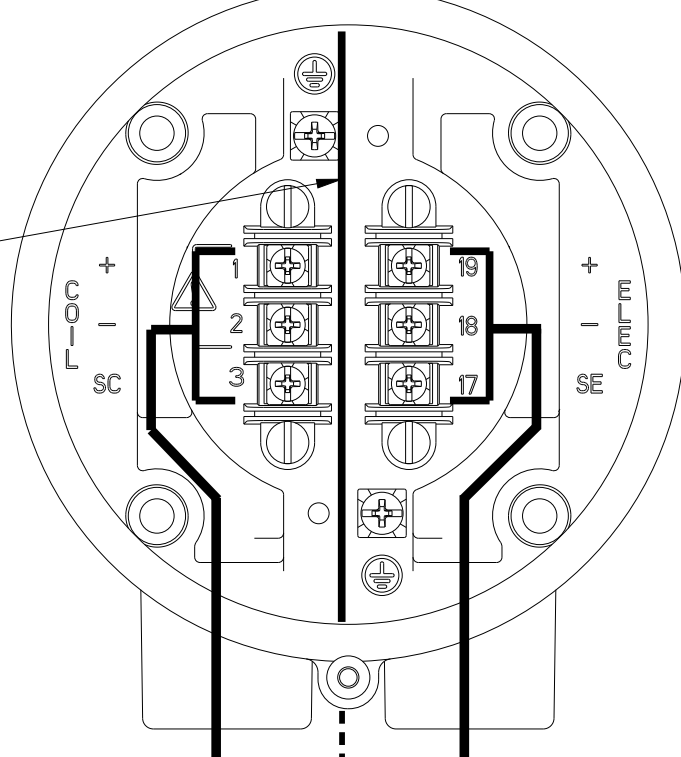
NON-INTRINSICALLY SAFE COIL CIRCUIT
 INSTALL USING CLASS II/III WIRING
 METHODS APPROPRIATE TO THE AREA DEVICE
 IS INSTALLED IN

FOR USE WITH NON-FLAMMABLE PROCESS ONLY.
 INSTALL ELECTRODE CIRCUIT AS NON-INTRINSICALLY SAFE
 USING CLASS II/III WIRING METHODS APPROPRIATE
 TO THE AREA DEVICE IS INSTALLED IN.

TERMINAL	LABEL
NON-INTRINSICALLY SAFE ELECTRODE CIRCUIT	
19	ELECTRODE +
18	ELECTRODE -
17	ELECTRODE REFERENCE (SE)
NON-INTRINSICALLY SAFE COIL CIRCUIT	
1	COIL +
2	COIL -
3	COIL SHIELD (SC)

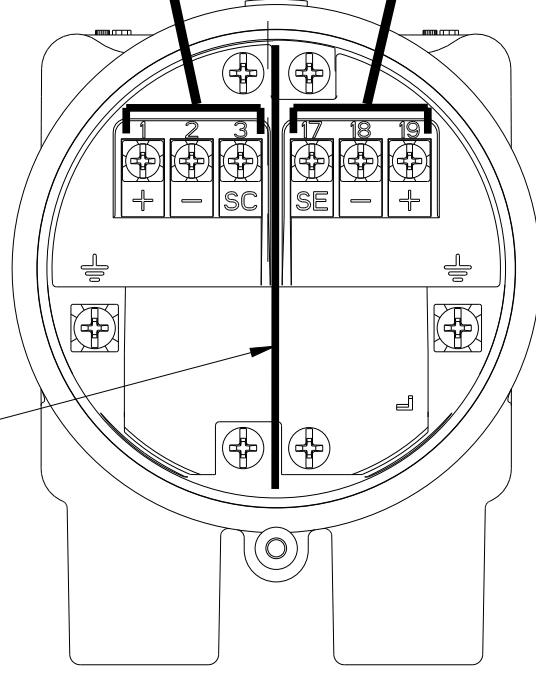
8732EM TRANSMITTER
REMOTE JUNCTION BOX

OPTIONAL DIVIDER SHOWN



MODEL 8782 OR 8712EM WITH NON-INTRINSICALLY SAFE ELECTRODE CIRCUIT FOR USE WITH MODEL MS WITH SAFETY APPROVAL OPTION 'N5'
 COMPONENT OR COMBINATION COIL/ELECTRODE CABLE ALLOWED.
 SEE INSTALLATION WIRING DRAWING 08712-1504 FOR NON-INTRINSICALLY SAFE CABLING
 (FOR PROCESS TEMPERATURE LIMITS SEE TABLE 2)

OPTIONAL DIVIDER SHOWN



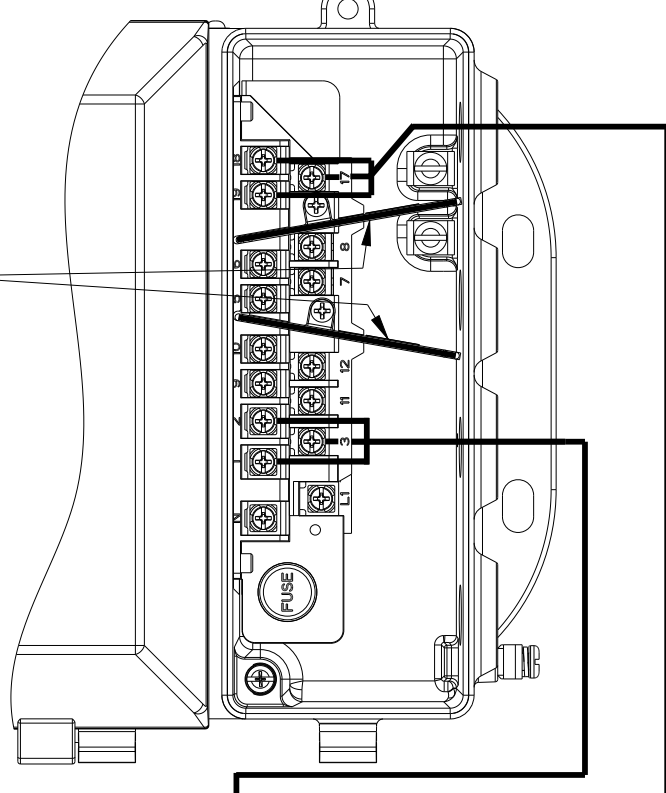
MS FLOWTUBE
REMOTE JUNCTION BOX

NON-INTRINSICALLY SAFE COIL CIRCUIT
 INSTALL USING CLASS II/III WIRING
 METHODS APPROPRIATE TO THE AREA DEVICE
 IS INSTALLED IN

FOR USE WITH NON-FLAMMABLE PROCESS ONLY.
 INSTALL ELECTRODE CIRCUIT AS NON-INTRINSICALLY SAFE
 USING CLASS II/III WIRING METHODS APPROPRIATE
 TO THE AREA DEVICE IS INSTALLED IN.

TERMINAL	LABEL
NON-INTRINSICALLY SAFE ELECTRODE CIRCUIT	
19	ELECTRODE +
18	ELECTRODE -
17	ELECTRODE REFERENCE (SE)
NON-INTRINSICALLY SAFE COIL CIRCUIT	
1	COIL +
2	COIL -
3	COIL SHIELD (SC)

OPTIONAL
DIVIDERS SHOWN



8782 OR 8712EM TRANSMITTER
(LOWER COVER AND SAFETY COVER ARE NOT SHOWN)

08782-0061
DRAWING NO.

CONFIDENTIAL AND PROPRIETARY
 INFORMATION IS CONTAINED HEREIN
 AND MUST BE HANDLED ACCORDINGLY.

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS IN INCHES (mm). REMOVE
 ALL BURRS AND SHARP EDGES.

-DEC TOLERANCES-
 X ± .1 [2.5]
 .XX ± .02 [0.5]
 .XXX ± .010 [0.25]
 FRACTIONS ANGLES
 ± 1/32 ± 2'

SURFACE FINISH UNLESS
 OTHERWISE SPECIFIED

125°

3RD ANGLE

SIZE C

SCALE -

REV AA

ROSEMOUNT

EMERSON

TITLE
 INSTALLATION DRAWING

CANADIAN AND USA CLASS DIVISION

DR. N. BOND 2/14/19 DRAWING NO. 08782-0061

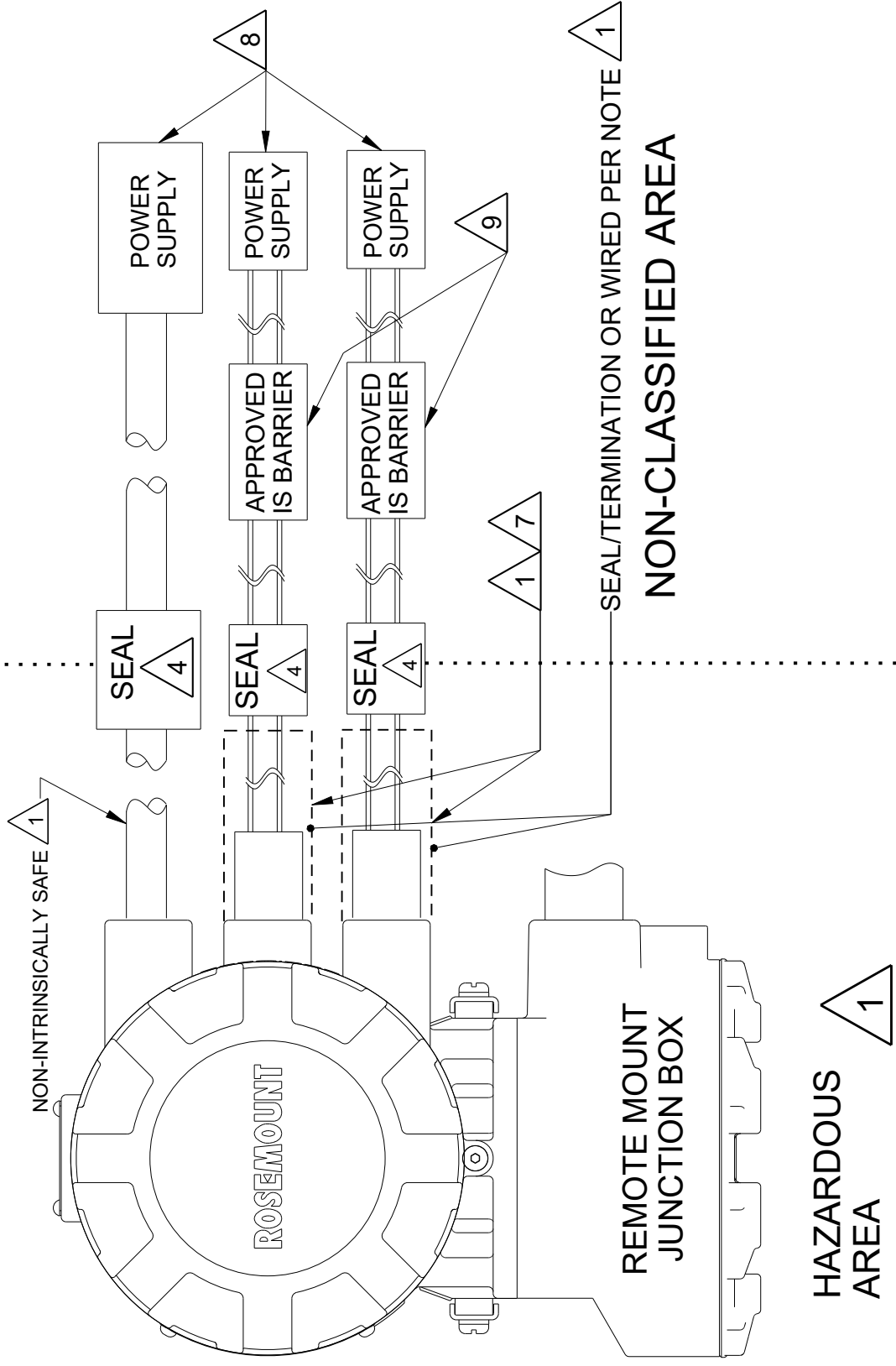
APPD. M. MAYER 2/26/19

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GAS ENVIRONMENT - OUTPUT WIRING

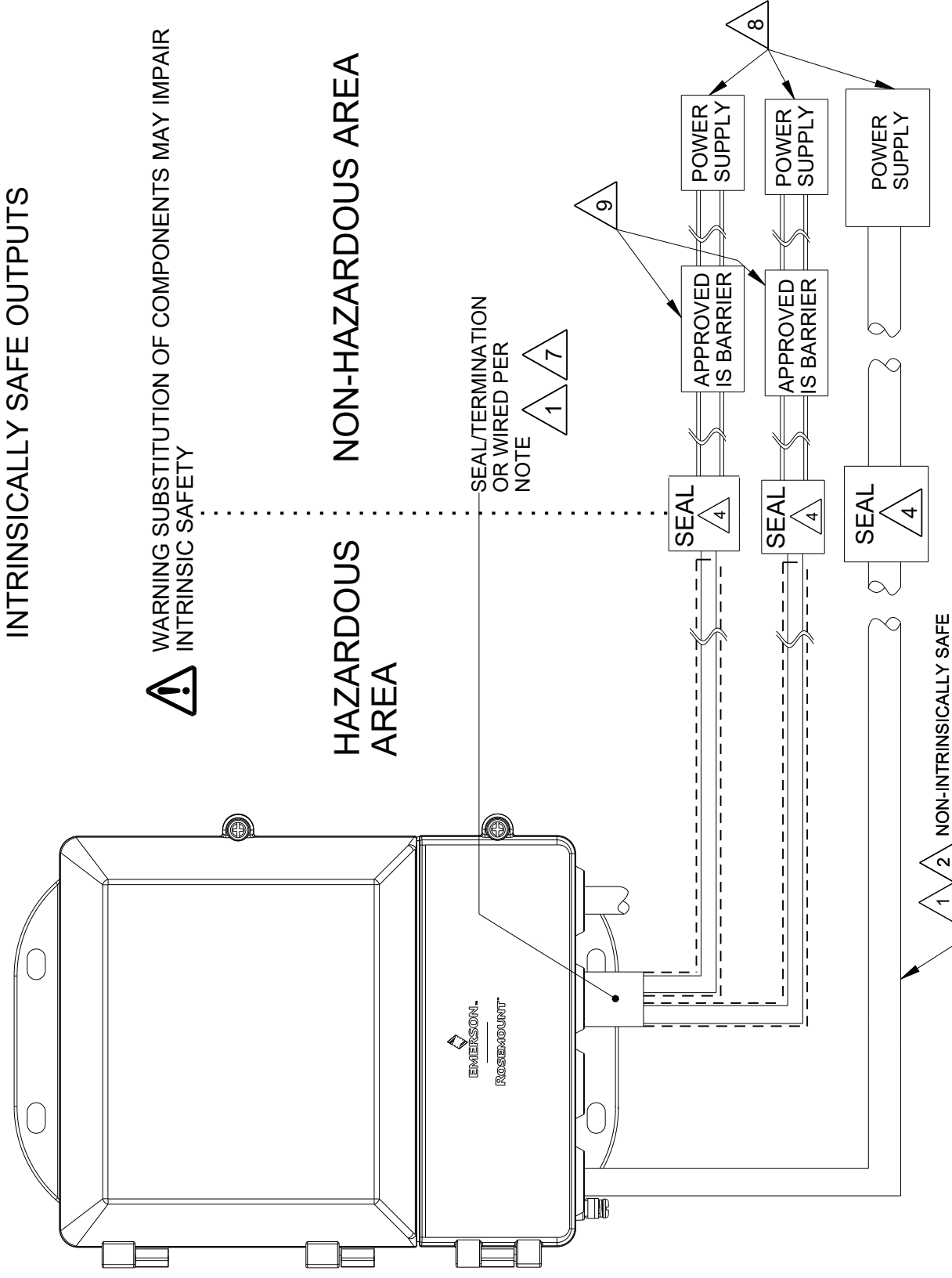
HAZARDOUS (CLASSIFIED) LOCATION CONFIGURATION
INTRINSICALLY SAFE OUTPUTS

WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY



HAZARDOUS LOCATION CONFIGURATION
INTRINSICALLY SAFE OUTPUTS

WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR
INTRINSIC SAFETY



8732EMxxx A N5
B N6
F K5*
M KU*
P

SAFETY APPROVALS

A	NON-INTRINSICALLY SAFE 4-20 mA
B	INTRINSICALLY SAFE 4-20mA AND PULSE OUTPUT
F	INTRINSICALLY SAFE FOUNDATION FIELDBUS AND PULSE OUTPUT
M	NON-INTRINSICALLY SAFE MODBUS AND PULSE OUTPUT
P	INTRINSICALLY SAFE PROFIBUS AND PULSE OUTPUT

TRANSMITTER CLASS

*US - NEC ONLY

8712EMxxx A N5
B N6
F
M
P

SAFETY APPROVALS

A	NON-INTRINSICALLY SAFE 4-20 mA
B	INTRINSICALLY SAFE 4-20mA AND PULSE OUTPUT
F	INTRINSICALLY SAFE FOUNDATION FIELDBUS AND PULSE OUTPUT
M	NON-INTRINSICALLY SAFE MODBUS AND PULSE OUTPUT
P	INTRINSICALLY SAFE PROFIBUS AND PULSE OUTPUT

TRANSMITTER CLASS

8782xxx A x N5
B
F
M
P

SAFETY APPROVALS

A	NON-INTRINSICALLY SAFE 4-20 mA
B	INTRINSICALLY SAFE 4-20mA AND PULSE OUTPUT
F	INTRINSICALLY SAFE FOUNDATION FIELDBUS AND PULSE OUTPUT
M	NON-INTRINSICALLY SAFE MODBUS AND PULSE OUTPUT
P	INTRINSICALLY SAFE PROFIBUS AND PULSE OUTPUT

8782 WITH 'N6' SAFETY APPROVALS OPTION MUST
FOLLOW 08782-0066 INSTALLATION DRAWING

CONFIDENTIAL AND PROPRIETARY
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AND MUST BE HANDLED ACCORDINGLY.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS IN INCHES (mm). REMOVE
ALL BURRS AND SHARP EDGES.

-DEC TOLERANCES-

X	± .1	[2.5]
.XX	± .02	[0.5]
.XXX	± .010	[0.25]
FRACTIONS	± 1/32	ANGLES ± 2°



TITLE
INSTALLATION DRAWING

CANADIAN AND USA CLASS DIVISION

DR. N. BOND 2/14/19 DRAWING NO. 08782-0061
APPD. M. MAYER 2/26/19

REVISIONS
REV AA
SCALE -
SIZE C
3RD ANGLE

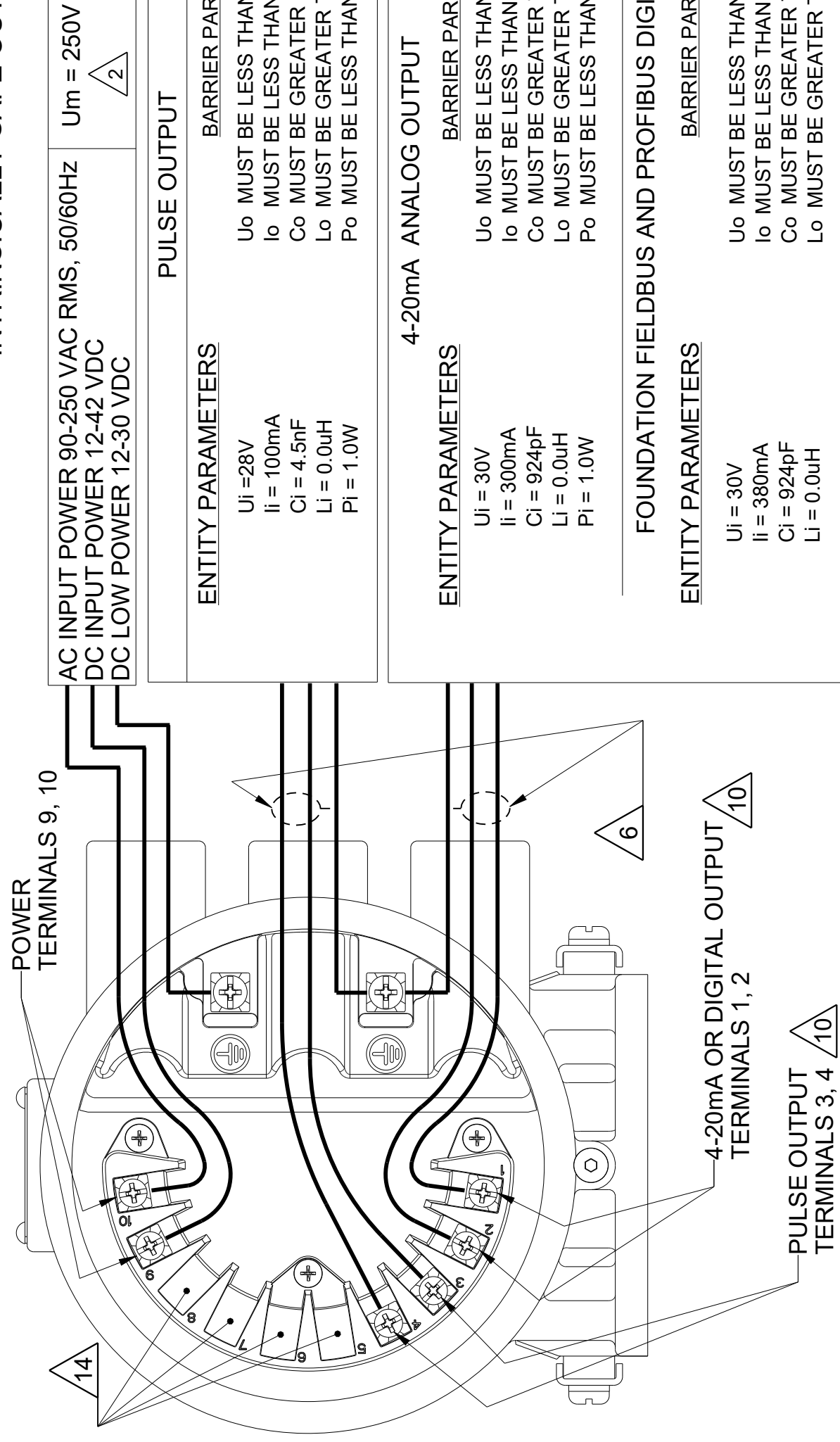
ROSEMOUNT

DO NOT SCALE PRINT CAD MAINTAINED (PROJ) PRODUCT CODE SHEET 8 OF 11

08782-0061
DRAWING NO.

GAS ENVIRONMENT - INTRINSICALLY SAFE ENTITY CONCEPTS

8732EM ENTITY CONCEPT FOR INTRINSICALLY SAFE OUTPUTS



DEFINITIONS:

- U_i = MAXIMUM INPUT VOLTAGE
- I_i = MAXIMUM INPUT CURRENT
- C_i = MAXIMUM INTERNAL CAPACITANCE
- L_i = MAXIMUM INTERNAL INDUCTANCE
- P_i = MAXIMUM INPUT POWER
- U_o = OPEN CIRCUIT VOLTAGE OF THE BARRIER
- I_o = SHORT CIRCUIT CURRENT OF THE BARRIER
- C_o = MAXIMUM ALLOWED CAPACITANCE
- L_o = MAXIMUM ALLOWED INDUCTANCE
- P_o = MAXIMUM OUTPUT POWER

THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF ASSOCIATED APPARATUS AND INTRINSICALLY SAFE APPARATUS WHEN THE FOLLOWING IS TRUE:
 $U_o \leq U_i, I_o \leq I_i, P_o \leq P_i, C_o \geq C_i + C_{cable}, L_o \geq L_i + L_{cable}$

ASSOCIATED APPARATUS MUST BE CSA APPROVED, AND FOLLOW MANUFACTURER'S INSTALLATION DRAWINGS. TO MAINTAIN THE INTRINSICALLY SAFE OUTPUT THE MODELS 8782, 8732EM, AND 8712EM MUST BE CONNECTED TO AN CSA APPROVED BARRIER THAT SATISFIES THE FOLLOWING CONDITIONS.

APPROVED WITH INTRINSICALLY SAFE CONNECTIONS FOR CLASS I, DIVISION 1, GROUPS ABCD; CLASS II AND III, DIVISION 1, GROUPS EFG.

ENTITY PARAMETERS

- $U_i = 28V$
- $I_i = 100mA$
- $C_i = 4.5nF$
- $L_i = 0.0uH$
- $P_i = 1.0W$

BARRIER PARAMETERS

- U_o MUST BE LESS THAN OR EQUAL TO 28V
- I_o MUST BE LESS THAN OR EQUAL TO 100mA
- C_o MUST BE GREATER THAN THE SUM OF $C_i + C_{cable}$
- L_o MUST BE GREATER THAN THE SUM OF $L_i + L_{cable}$
- P_o MUST BE LESS THAN OR EQUAL TO 1.0 WATTS

4-20mA ANALOG OUTPUT

ENTITY PARAMETERS

- $U_i = 30V$
- $I_i = 300mA$
- $C_i = 924pF$
- $L_i = 0.0uH$
- $P_i = 1.0W$

BARRIER PARAMETERS

- U_o MUST BE LESS THAN OR EQUAL TO 30V
- I_o MUST BE LESS THAN OR EQUAL TO 300mA
- C_o MUST BE GREATER THAN THE SUM OF $C_i + C_{cable}$
- L_o MUST BE GREATER THAN THE SUM OF $L_i + L_{cable}$
- P_o MUST BE LESS THAN OR EQUAL TO 1.0 WATTS

FOUNDATION FIELDBUS AND PROFIBUS DIGITAL OUTPUT

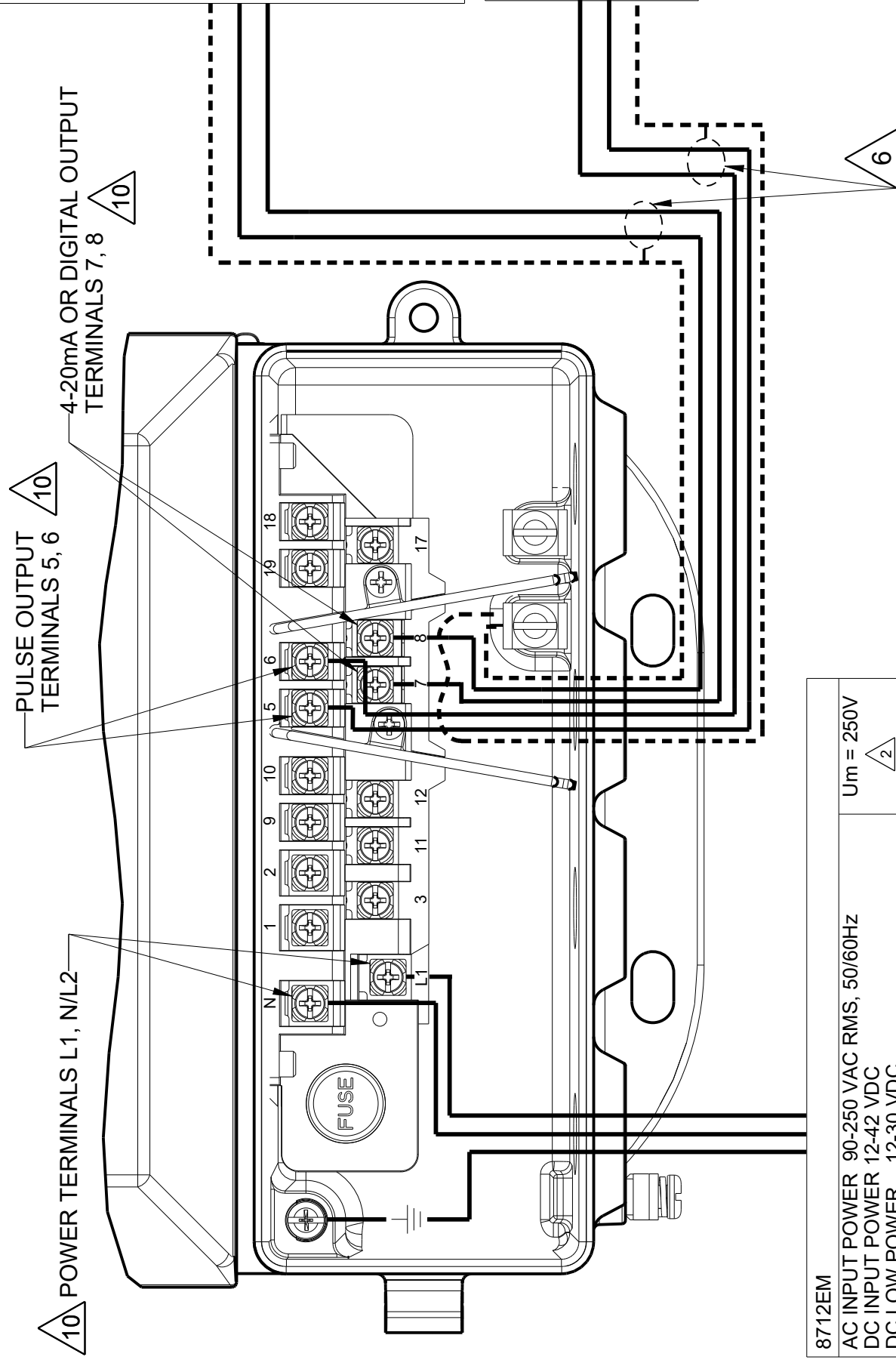
ENTITY PARAMETERS

- $U_i = 30V$
- $I_i = 380mA$
- $C_i = 924pF$
- $L_i = 0.0uH$

BARRIER PARAMETERS

- U_o MUST BE LESS THAN OR EQUAL TO 30V
- I_o MUST BE LESS THAN OR EQUAL TO 380mA
- C_o MUST BE GREATER THAN THE SUM OF $C_i + C_{cable}$
- L_o MUST BE GREATER THAN THE SUM OF $L_i + L_{cable}$

8782 AND 8712EM ENTITY CONCEPT FOR INTRINSICALLY SAFE OUTPUTS



4-20mA ANALOG OUTPUT

ENTITY PARAMETERS

- $U_i = 30V$
- $I_i = 300mA$
- $C_i = 924pF$
- $L_i = 0.0uH$
- $P_i = 1.0W$

BARRIER PARAMETERS

- U_o MUST BE LESS THAN OR EQUAL TO 30V
- I_o MUST BE LESS THAN OR EQUAL TO 300mA
- C_o MUST BE GREATER THAN THE SUM OF $C_i + C_{cable}$
- L_o MUST BE GREATER THAN THE SUM OF $L_i + L_{cable}$
- P_o MUST BE LESS THAN OR EQUAL TO 1.0 WATTS

FOUNDATION FIELDBUS AND PROFIBUS DIGITAL OUTPUT (FUTURE 8782 OPTION)

ENTITY PARAMETERS

- $U_i = 30V$
- $I_i = 380mA$
- $C_i = 924pF$
- $L_i = 0.0uH$

BARRIER PARAMETERS

- U_o MUST BE LESS THAN OR EQUAL TO 30V
- I_o MUST BE LESS THAN OR EQUAL TO 380mA
- C_o MUST BE GREATER THAN THE SUM OF $C_i + C_{cable}$
- L_o MUST BE GREATER THAN THE SUM OF $L_i + L_{cable}$

PULSE OUTPUT

ENTITY PARAMETERS

- $U_i = 28V$
- $I_i = 100mA$
- $C_i = 4.5nF$
- $L_i = 0.0uH$
- $P_i = 1.0W$

BARRIER PARAMETERS

- U_o MUST BE LESS THAN OR EQUAL TO 28V
- I_o MUST BE LESS THAN OR EQUAL TO 100mA
- C_o MUST BE GREATER THAN THE SUM OF $C_i + C_{cable}$
- L_o MUST BE GREATER THAN THE SUM OF $L_i + L_{cable}$
- P_o MUST BE LESS THAN OR EQUAL TO 1.0 WATTS

8712EM	AC INPUT POWER 90-250 VAC RMS, 50/60Hz $U_m = 250V$
	DC INPUT POWER 12-42 VDC
	DC LOW POWER 12-30 VDC
8782	AC INPUT POWER 90-250 VAC RMS, 50/60Hz $U_m = 250V$
	DC INPUT POWER 12-42 VDC

CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY.

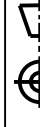
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES (mm). REMOVE ALL BURRS AND SHARP EDGES.

-DEC TOLERANCES-
X ± .1 [2.5]
.XX ± .02 [0.5]
.XXX ± .010 [0.25]
FRACTIONS ± 1/32
ANGLES ± 2°

SURFACE FINISH UNLESS OTHERWISE SPECIFIED



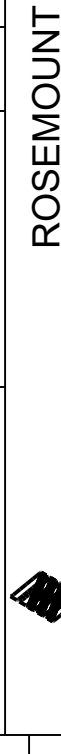
3RD ANGLE



SIZE C

SCALE -

REV AA



ROSEMOUNT

TITLE INSTALLATION DRAWING

CANADIAN AND USA CLASS DIVISION

DR. N. BOND	2/14/19	DRAWING NO. 08782-0061
APPD. M. MAYER	2/26/19	

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08782-0061
DRAWING NO.

GAS ENVIRONMENT - FISCO CONCEPT

FISCO CONCEPT

THE FISCO CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS TO ASSOCIATED APPARATUS NOT SPECIALLY EXAMINED IN SUCH COMBINATION. THE CRITERIA FOR INTERCONNECTION IS THAT THE VOLTAGE (V_{max}), THE CURRENT (I_{max}), AND THE POWER (P_{max}) WHICH AN INTRINSICALLY SAFE APPARATUS CAN RECEIVE AND REMAIN INTRINSICALLY SAFE CONSIDERING FAULTS, MUST BE EQUAL OR GREATER THAN VOLTAGE (V_{oc}), AND CURRENT (I_{sc}) WHICH CAN BE DELIVERED BY THE ASSOCIATED APPARATUS, CONSIDERING FAULTS AND APPLICABLE FACTORS. IN ADDITION, THE MAXIMUM UNPROTECTED CAPACITANCE (C_i) AND THE INDUCTANCE (L_i) OF EACH APPARATUS (OTHER THAN THE TERMINATION) CONNECTED TO THE FIELDBUS MUST BE LESS THAN OR EQUAL TO 5 nF AND 10 uH RESPECTIVELY.

IN EACH SEGMENT ONLY ONE ACTIVE DEVICE, NORMALLY THE ASSOCIATED APPARATUS, IS ALLOWED TO PROVIDE THE NECESSARY ENERGY FOR THE FIELDBUS SYSTEM. THE VOLTAGE (V_{oc}) OF THE ASSOCIATED APPARATUS IS LIMITED TO A RANGE OF 14 TO 17.5 VDC. ALL OTHER EQUIPMENT CONNECTED TO THE BUS CABLE HAS TO BE PASSIVE, MEANING THAT THEY ARE NOT ALLOWED TO PROVIDE ENERGY TO THE SYSTEM, EXCEPT A LEAKAGE CURRENT OF 50 uA FOR EACH CONNECTED DEVICE. SEPARATELY POWERED EQUIPMENT NEEDS GALVANIC ISOLATION TO ASSURE THAT THE INTRINSICALLY SAFE FIELDBUS CIRCUIT REMAINS PASSIVE.

THE CABLE USED TO INTERCONNECT DEVICES NEEDS TO HAVE THE PARAMETERS IN THE FOLLOWING RANGE:

Loop Resistance R_c : 15.....150 Ohm/km
 Inductance per unit length L_c : 0.4.....1 mH/km
 Capacitance per unit length C_c : 45.....200 nF
 Length of trunk cable: less than or equal to 1000m
 Length of spur cable: less than or equal to 60m

AT EACH END OF THE TRUNK CABLE AN APPROVED INFALLIBLE LINE TERMINATION WITH THE FOLLOWING PARAMETERS IS SUITABLE.

$$R = 90 \dots 102 \text{ Ohm} \quad C = 0 \dots 2.2 \text{ } \mu\text{F}$$

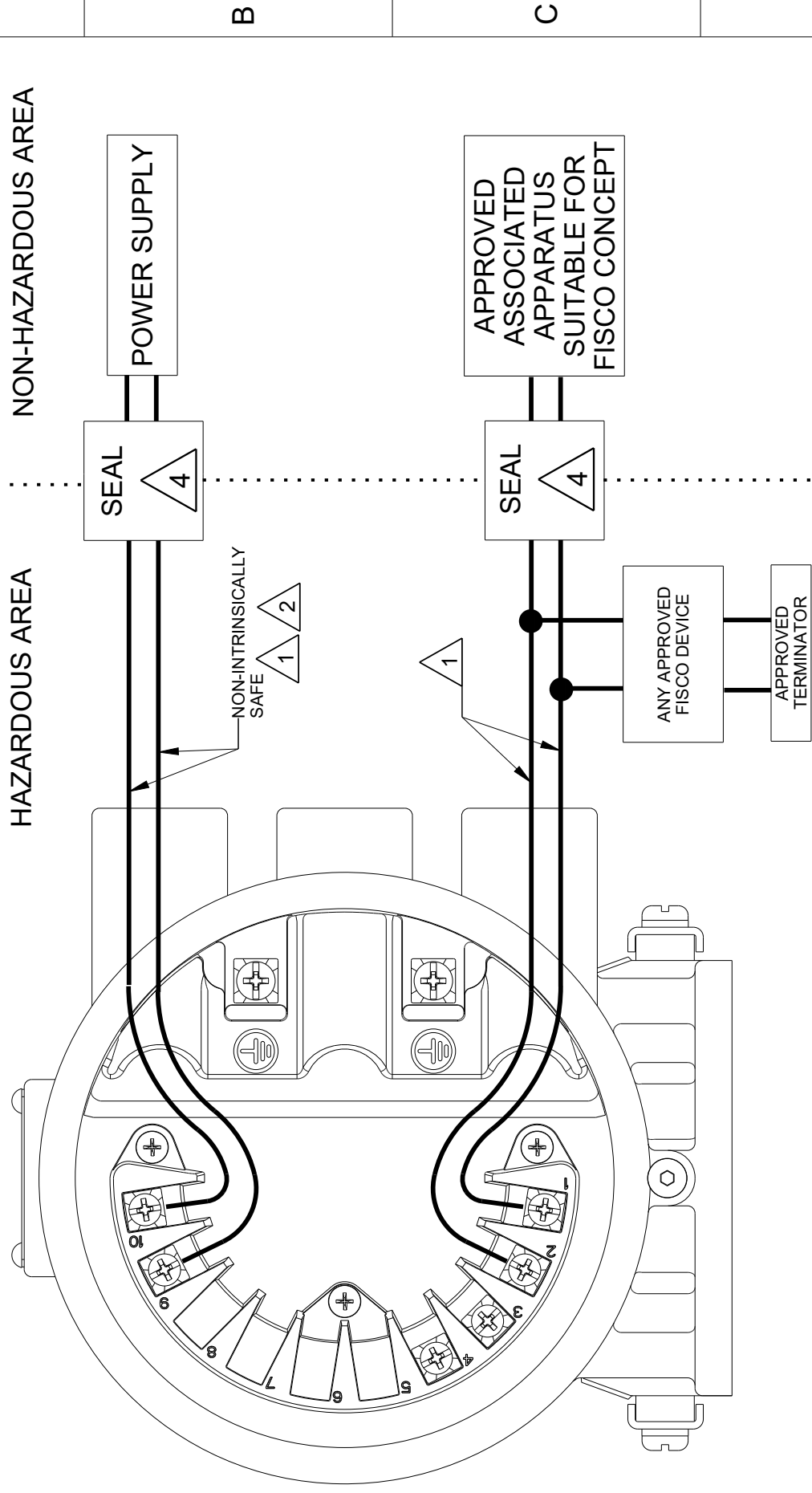
ONE OF THE ALLOWED TERMINATIONS MIGHT ALREADY BE INTEGRATED IN THE ASSOCIATED APPARATUS. THE NUMBER OF PASSIVE APPARATUS CONNECTED TO THE BUS SEGMENT IS NOT LIMITED TO I.S. REASONS. IF THE ABOVE RULES ARE RESPECTED, UP TO A TOTAL LENGTH OF 1000 m (SUM OF TRUNK AND ALL SPUR CABLES) OF CABLE IS PERMITTED. THE INDUCTANCE AND THE CAPACITANCE OF THE CABLE WILL NOT IMPAIR THE INTRINSIC SAFETY OF THE INSTALLATION.

ENTITY PARAMETER

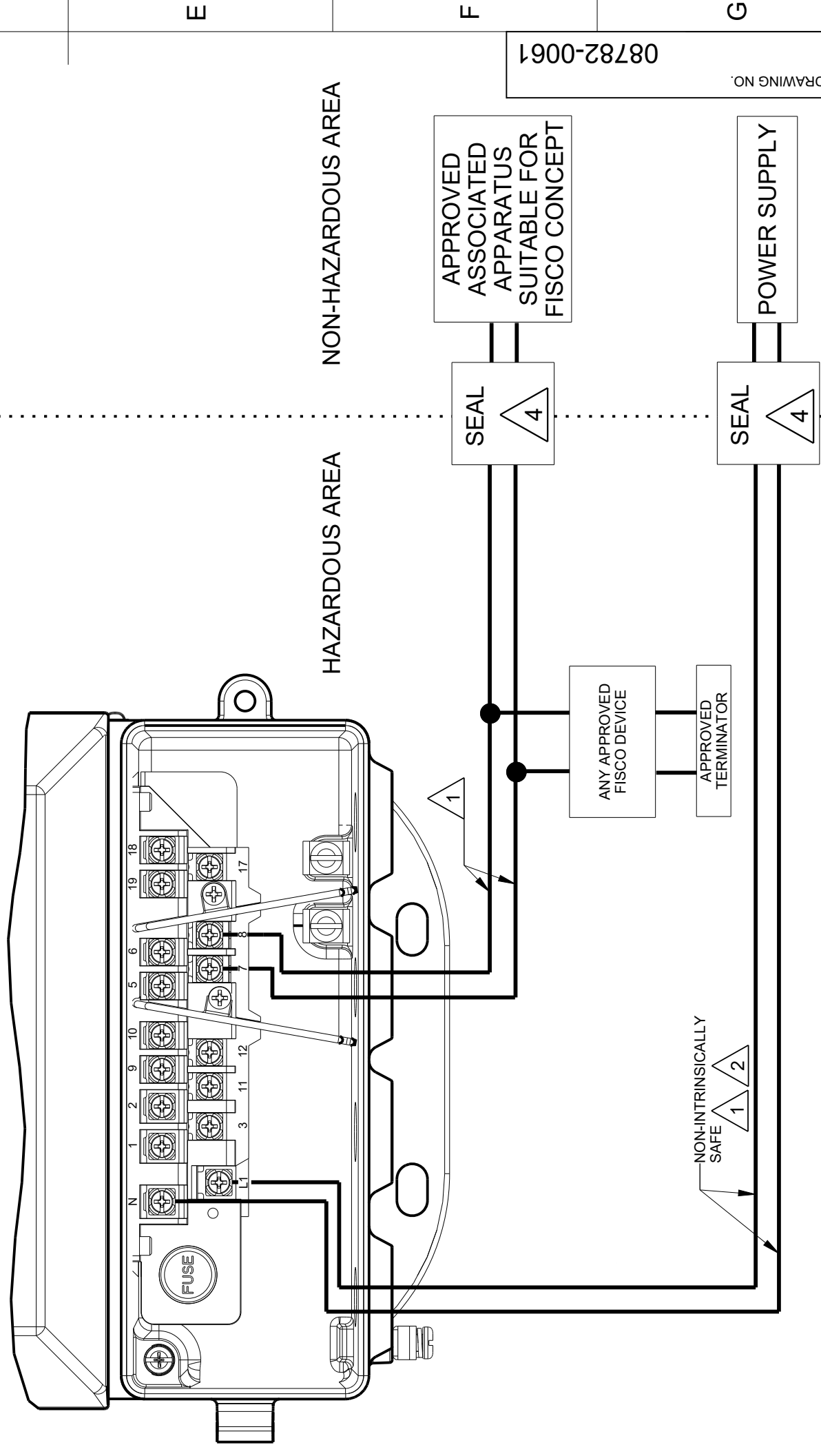
$U_i = 30V$
 $I_i = 380 \text{ mA}$
 $C_i = 924 \text{ pF}$
 $L_i = 0.0 \text{ uH}$
 $P_i = 5.32 \text{ W}$

BARRIER PARAMETERS

U_o MUST BE LESS THAN OR EQUAL TO 30V
 I_o MUST BE LESS THAN OR EQUAL TO 380 mA
 C_o MUST BE GREATER THAN THE SUM OF $C_i + C_{cable}$
 L_o MUST BE GREATER THAN THE SUM OF $L_i + L_{cable}$



8712EM & 8782



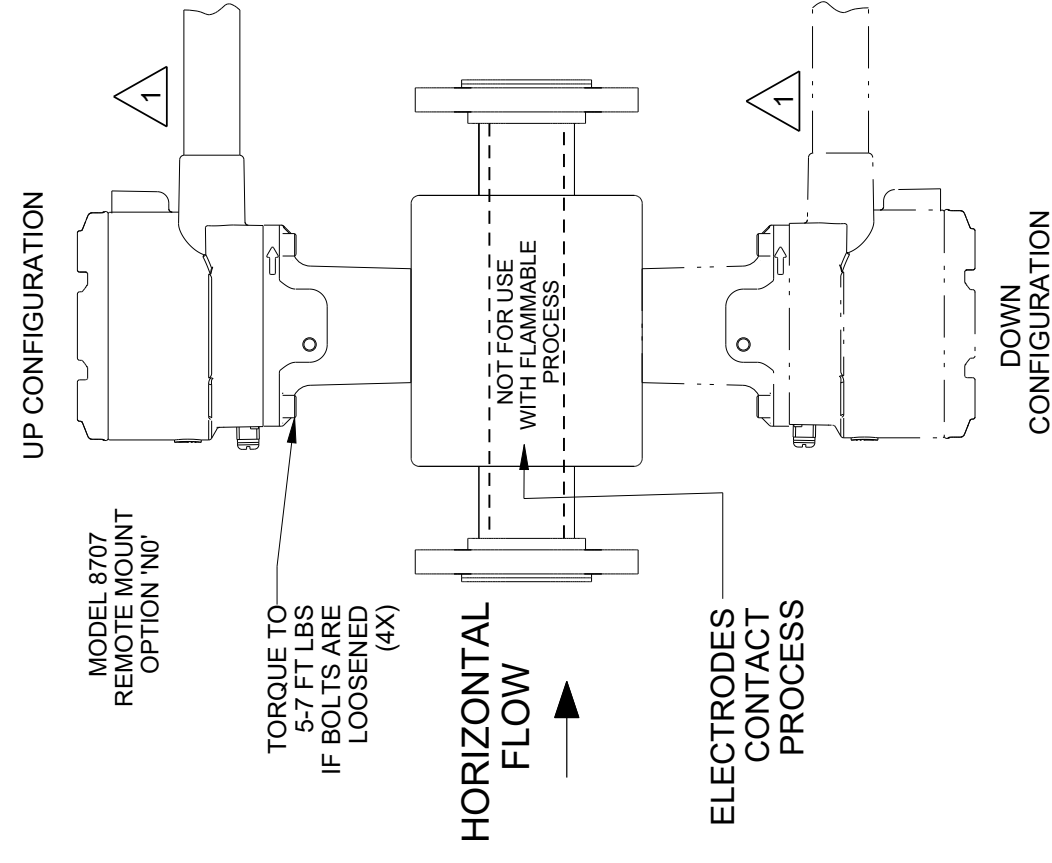
CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY.	SURFACE FINISH UNLESS OTHERWISE SPECIFIED	125	3RD ANGLE	SIZE	C	SCALE	-	REV	AA
	UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES (mm). REMOVE ALL BURRS AND SHARP EDGES.	-DEC TOLERANCES- X ± .1 [2.5] .XX ± .02 [0.5] .XXX ± .010 [0.25] FRACTIONS ± 1/32 ANGLES ± 2'							
EMERSON TITLE INSTALLATION DRAWING CANADIAN AND USA CLASS DIVISION ROSEMOUNT									
DR. N. BOND 2/14/19 DRAWING NO. 08782-0061 APPD. M. MAYER 2/26/19									
DO NOT SCALE PRINT CAD MAINTAINED. (PROJ) PRODUCT CODE SHEET 10 OF 11									

8707 SENSOR AND 8782 TRANSMITTER

DUST ENVIRONMENT - CLASS II/III DIVISION 1 - REMOTE MOUNT CONFIGURATION

MODEL 8707 REMOTE CONFIGURATION WITH SAFETY APPROVALS OPTIONS 'N0'

MODEL CODE BREAKDOWN	3
8707xxxxxxxxx N0	8707
SAFETY APPROVALS OPTION	
MODEL 8707 FOLLOW INSTALLATION DRAWING 08732-1051 OR 08732-1052	
DUST IGNITION PROOF FOR CLASS II/III DIV 1 GRPS EFG : TEMP CODE T3C (-50°C ≤ Ta ≤ 60°C)	



MODEL 8782 REMOTE MOUNT CONFIGURATION WITH SAFETY APPROVAL OPTION 'N5'

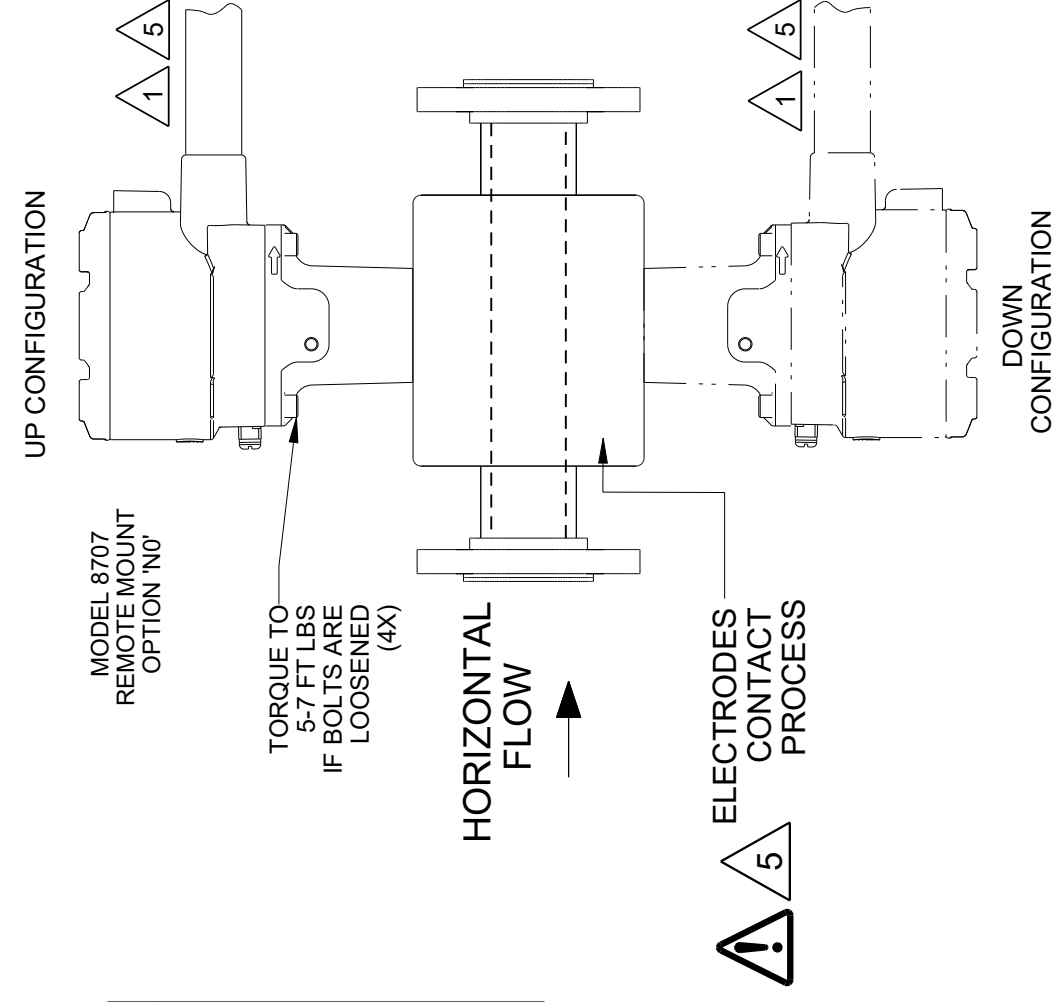
MODEL CODE BREAKDOWN	3
8782xxxxx N5	8782
SAFETY APPROVALS OPTION	
8782 WITH 'N6' SAFETY APPROVALS OPTION MUST FOLLOW 08782-0066 INSTALLATION DRAWING	
DUST-IGNITION PROOF FOR CLASS II/III DIVISION 1 GRPS EFG: T5	
AMBIENT TEMPERATURE (-40°C ≤ Ta ≤ 60°C)	

MODEL 8782 WALLMOUNT N5 OPTION

GAS ENVIRONMENT - CLASS I DIVISION 2 - REMOTE MOUNT CONFIGURATION

MODEL 8707 REMOTE CONFIGURATION WITH SAFETY APPROVALS OPTIONS 'N0'

MODEL CODE BREAKDOWN	3
8707xxxxxxxxx N0	8707
SAFETY APPROVALS OPTION	
MODEL 8707 FOLLOW INSTALLATION DRAWING 08732-1051 OR 08732-1052	
CLASS I, DIV. 2 GRPS ABCD: TEMP CODE T3C (-50°C ≤ Ta ≤ 60°C)	



MODEL 8782 REMOTE MOUNT CONFIGURATION WITH SAFETY APPROVAL OPTIONS 'N5'

MODEL CODE BREAKDOWN	3
8782xxxxx N5	8782
SAFETY APPROVALS OPTION	
NON-INCENDIVE FOR CLASS I DIVISION 2 GRPS ABCD: T4	
AMBIENT TEMPERATURE (-40°C ≤ Ta ≤ 60°C)	

MODEL 8782 WALLMOUNT N5 OPTION

CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY.	SURFACE FINISH UNLESS OTHERWISE SPECIFIED	125	3RD ANGLE	SCALE	-	REV	AA
	UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES (mm). REMOVE ALL BURRS AND SHARP EDGES.	EMERSON		ROSEMOUNT	DRAWING NO. 08782-0061		
-DEC TOLERANCES-		TITLE		INSTALLATION DRAWING			
X ± .1 [2.5]	CANADIAN AND USA CLASS DIVISION		ROSEMOUNT				
.XX ± .02 [0.5]	DR. N. BOND 2/14/19		DRAWING NO. 08782-0061				
.XXX ± .010 [0.25]	APPD. M. MAYER 2/26/19		DOC TYPE SHEET 11 OF 11				
FRACTIONS ± 1/32	DO NOT SCALE PRINT CAD MAINTAINED (PROJ)		PRODUCT CODE				



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