










# Rosemount™ 8700M IECEx and ATEX Approval Document



## Rosemount 8700M Magnetic Flowmeter Platform

Order Code	8732EM Transmitter Rating	8705M and 8711M/L Flowtube Rating	Region	Agency	Certification Number
-	Ordinary Location *	Ordinary Location *	USA, Canada, EU, CU**	CSA or EAC	70081467X(CSA)
K5, KU	Explosion-Proof Class I Div 1; DIP	Explosion-Proof with Intrinsically Safe Electrodes Class I Div 1; DIP	USA	CSA	70081467X
N5, N6	Non-Incendive Class I Div 2; DIP	Non-Incendive with Intrinsically Safe Electrodes Class I Div 2; DIP	USA & Canada	CSA	70081467X
K6	Flameproof, Increased Safety, and Dust. Zone 1	Increased Safety with Intrinsically Safe Electrodes and Dust. Zone 1	USA & Canada	CSA	70081467X
ND	ATEX Dust	ATEX Dust	EU	DEKRA	14ATEX0071 X
N1	ATEX Non-Sparking or Increased Safety ATEX Dust	ATEX Non-Sparking or Increased Safety with Intrinsically Safe Electrodes and ATEX Dust	EU	DEKRA	14ATEX0071 X
K1	ATEX Flameproof with Increased Safety ATEX Dust	ATEX Increased Safety with Intrinsically Safe Electrodes and ATEX Dust	EU	DEKRA	14ATEX0071 X
NF	IECEX Dust	IECEX Dust	Global	DEKRA	IECEX DEK14.0031X
N7	IECEX Non-Sparking or Increased Safety IECEX Dust	IECEX Non-Sparking or Increased Safety with Intrinsically Safe Electrodes and IECEX Dust	Global	DEKRA	IECEX DEK14.0031X
K7	IECEX Flameproof with Increased Safety IECEX Dust	IECEX Increased Safety with Intrinsically Safe Electrodes and IECEX Dust	Global	DEKRA	IECEX DEK14.0031X
N8	EAC Non-Sparking EAC Dust	EAC Non-Sparking with Intrinsically Safe Electrodes and EAC Dust	Russia **	HAHMO ЛСБЭ	TC RU C-US.ГБ05.B.01269
K8	EAC Flameproof with Increased Safety EAC Dust	EAC Increased Safety with Intrinsically Safe Electrodes EAC Dust	Russia **	HAHMO ЛСБЭ	TC RU C-US.ГБ05.B.01269
N2	INMETRO Non-Sparking INMETRO Dust	INMETRO Non-Sparking with Intrinsically Safe Electrodes and INMETRO Dust	Brazil	DNV GL-INMETRO	DNV 18.0068 X
K2	INMETRO Flameproof with Increased Safety INMETRO Dust	INMETRO Increased Safety with Intrinsically Safe Electrodes INMETRO Dust	Brazil	DNV GL - INMETRO	DNV 18.0068 X
N9	KTL Non-Sparking KTL Dust	KTL Non-Sparking with Intrinsically Safe Electrodes and KTL Dust	Korea	KTL	16-KA4B0 – XXXX X****
K9	KTL Flameproof with Increased Safety KTL Dust	KTL Increased Safety with Intrinsically Safe Electrodes and KTL Dust	Korea	KTL	16-KA4B0 – XXXX X****
N3	NEPSI Non-Sparking NEPSI Dust	NEPSI Non-Sparking with Intrinsically Safe Electrodes and NEPSI Dust	China	NEPSI	GYJ15.1180X
K3	NEPSI Flameproof with Increased Safety NEPSI Dust	NEPSI Increased Safety with Intrinsically Safe Electrodes and NEPSI Dust	China	NEPSI	GYJ15.1180X
KN	CCOE Flameproof with Increased Safety	CCOE Increased Safety with Intrinsically Safe Electrodes	India	PESO	P354747/1
* 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.					
** Customs Union (Russia, Belarus and Kazakhstan)					
*** Planned submittal or in process with Agency.					
**** Where "X" will vary depending upon the factory location and specific certification.					

## 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.
	ATEX	European Union	Compliance with Equipment and Protective systems intended for use in Potentially Explosive Atmospheres directive (ATEX) (2014/34/EU)
	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 Customs Union (Russia, Belarus and Kazakhstan)	Compliance with all of the applicable technical regulations of the EAC Customs Union
	EAC Hazardous Location	Eurasian Customs Union (Russia, Belarus and Kazakhstan)	Compliance with Technical regulation, (TR CU 012/2011) – The safety of equipment for use in explosive environments.
	DNV GL - INMETRO	Brazil	Compliance with all of the applicable technical regulations of Brazil.
	NEPSI	China	Compliance with all of the applicable technical regulations of China.
	KTL	Korea	Compliance with all of the applicable technical regulations of Korea.

Product designated for Ordinary Location may be marked with CE, C-tick, FM, 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](http://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).

**CLASS 2258 02 - PROCESS CONTROL EQUIPMENT** - For Hazardous Locations – To Canadian Requirements.

<b>N6 &amp; N5</b>	<b>Class I, Groups A, B, C and D (Intrinsically Safe Output and Electrode circuit)</b>
<b>N6 &amp; N5</b>	<b>Class I, Division 2, Groups A, B, C and D (Non-Incendive)</b>
<b>N6 &amp; N5</b>	<b>Class II, Division 1, Groups E, F and G; Class III (Dust Ignition Proof)</b>
<b>K6</b>	<b>Class I, Zone 1 – Flame Proof, Increased Safety with Intrinsic safety</b>
<b>K6</b>	<b>Class II, Zone 21, - Protection by Enclosure</b>

**Magnetic Flow Meter** – Model 8732EM Transmitter with integral or remote mount or Model 8712EM Transmitter remote mount to Model 8705M or Model 8711M/L Magnetic Flow Tubes. Enclosure Type 4X and IP66 Rated.

Temperature Class, Maximum Surface Temperatures, and Ambient temperature ranges are defined for Integral and Remote mount configurations on Rosemount Drawings 08732-2061 (Division Installation) or 08732-2066 (Zone Installation). Equipment provides IS and NON-IS connections in accordance with drawing 08732-2061 or 08732-2066.

**CLASS 2258 82 - PROCESS CONTROL EQUIPMENT** - For Hazardous Locations –To US Requirements

<b>KU, K5</b>	<b>Class I, Division 1, Groups C and D (Explosion Proof)</b>
<b>N6, N5, KU, K5</b>	<b>Class I, Groups A, B, C and D (Intrinsically Safe Output and Electrode circuit)</b>
<b>N6, N5, KU, K5</b>	<b>Class I, Division 2, Groups A, B, C and D (Non-Incendive)</b>
<b>N6, N5, KU, K5</b>	<b>Class II, Division 1, Groups E, F and G; Class III (Dust Ignition Proof)</b>
<b>K6</b>	<b>Class I, Zone 1 – Flame Proof, Increased Safety with Intrinsic safety</b>
<b>K6</b>	<b>Class II, Zone 21, - Protection by Enclosure</b>

**Magnetic Flow Meter** – Model 8732EM Transmitter with integral or remote mount or Model 8712EM Transmitter remote mount to Model 8705M or Model 8711M/L Magnetic Flow Tubes. Enclosure Type 4X and IP66 Rated.

Temperature Class, Maximum Surface Temperatures, and Ambient temperature ranges are defined for Integral and Remote mount configurations on Rosemount Drawings 08732-2061 (Division Installation) or 08732-2066 (Zone Installation). Equipment provides IS and NON-IS connections in accordance with drawing 08732-2061 or 08732-2066.

#### Special Conditions of Safe Use for Class/Division: 8732EM

1. For use with the appropriate 8705M and 8711M/L Flow tubes only.
2. When the 8732EM transmitter is integrally mounted to 8705M or 8711M/L Flow Tubes, the ambient temperature ranges marked on each product need to be taken into consideration before installation. The Ambient temperature range for 8732EM transmitter is  $-40^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$  and the ambient temperature range for 8705M or 8711M/L Flow Tubes is  $-29^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ . Therefore, the  $-29^{\circ}\text{C}$  rating of the flow tubes will limit the overall cold temperature range of the complete system unless other approved temperature control methods are employed.
3. When the 8732EM transmitter is integrally mounted to 8705W or 8711R/U flow tubes, the ambient temperature ranges marked on each product need to be taken into consideration before installation. The ambient temperature for 8732EM transmitter is  $-40^{\circ}\text{C}$  to  $60^{\circ}\text{C}$  and the ambient temperature range for 8705W or 8711R/U flowtube is  $-50^{\circ}\text{C}$  to  $60^{\circ}\text{C}$ . Therefore, the  $-40^{\circ}\text{C}$  rating of the transmitter will limit the overall cold temperature range of the complete system unless other approved temperature control methods are employed.
4. The intrinsically safe 4-20 mA and pulse output cannot withstand the 500 V isolation test between signal and ground, due to integral transient protection up to a voltage of 250 Vac. This must be taken into account upon installation.

#### Special Conditions for Safe Use (X) for Class Zone: 8732EM

1. 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.
2. When “Special Paint Systems” are applied, instructions for safe use regarding potential electrostatic charging hazard have to be followed.
3. Terminals 1,2,3,4, for data communication, cannot withstand the 500 V isolation test between Signal and ground, due to integral transient protection. This must be taken into account upon Installation.

4. Conduit entries must be installed to maintain the enclosure ingress rating of IP66.
5. In order to maintain the ingress protection level on the M3 and M4 electrode housing, 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.
6. The flow tube and transmitter are not allowed to be thermally insulated.
7. The property class of the special fasteners which attach the Magnetic Flow Tube or Transmitter Remote Junction Box to the Magnetic Transmitter is A2-70 or A4-70 SST.
8. For information on the dimensions of the flameproof joints the manufacturer shall be contacted.
9. The Magnetic Flow Meter 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.

**Special Conditions of Safe Use for Class/Division: 8705M / 8711M/L**

1. The flow tube is IP68 only when mounted remotely from the transmitter.
2. Options V1, V2, or V3 are not Type 4X Corrosion Resistant.
3. Options F0234, V1, V2, or V3 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.

**Special Conditions for Safe Use (X) for Class Zone: 8705M / 8711M/L**

1. 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.
2. When “Special Paint Systems” are applied, instructions for safe use regarding potential electrostatic charging hazard have to be followed.
3. Terminals 1,2,3,4, for data communication, cannot withstand the 500 V isolation test between Signal and ground, due to integral transient protection. This must be taken into account upon Installation.
4. Conduit entries must be installed to maintain the enclosure ingress rating of IP66.
5. In order to maintain the ingress protection level on the M3 and M4 electrode housing, 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.
6. The flow tube and transmitter are not allowed to be thermally insulated.
7. The property class of the special fasteners which attach the Magnetic Flow Tube or Transmitter Remote Junction Box to the Magnetic Transmitter is A2-70 or A4-70 SST.
8. For information on the dimensions of the flameproof joints the manufacturer shall be contacted.
9. The Magnetic Flow Meter 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.

**Special Conditions of Safe Use for Class/Division: 8712EM**

1. For use with the appropriate 8705 and 8711 Flow tubes only.
2. The intrinsically safe 4-20 mA and pulse output cannot withstand the 500 V isolation test between signal and ground, due to integral transient protection up to a voltage of 250 Vac. This must be taken into account upon installation.

**Special Conditions for Safe Use (X) for Class Zone: 8712EM**

1. 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.
2. When “Special Paint Systems” are applied, instructions for safe use regarding potential electrostatic charging hazard have to be followed.
3. Conduit entries must be installed to maintain the enclosure ingress rating of IP66.
4. In order to maintain the ingress protection level on the M3 and M4 electrode housing, 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.
5. The flow tube and transmitter are not allowed to be thermally insulated.
6. The property class of the special fasteners which attach the Magnetic Flow Tube or Transmitter Remote Junction Box to the Magnetic Transmitter is A2-70 or A4-70 SST.
7. For information on the dimensions of the flameproof joints the manufacturer shall be contacted.
8. The Magnetic Flow Meter 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.
9. When utilizing the keypad of Magnetic Flow Transmitter Model 8712EM, instruction for safe use regarding potential electrostatic charging hazard have to be followed.
10. Terminals for the output signals of the magnetic Flow Transmitters, cannot withstand the 500 V isolation test between signal and ground, due to integral transient protection. This must be taken into account upon Installation.



**ROSEMOUNT™**

**EU Declaration of Conformity No: RFD 1094 Rev. K**

We,

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

declare under our sole responsibility that the product(s),

**Rosemount 8700M  
Magnetic Flowmeter Platform  
Transmitters: 8732EM and 8712EM  
Flow Tubes (Sensors): 8705M, 8711M/L and 8721**

to which this declaration relates, is in conformity with the provisions of the European Union Legislation, including the latest amendments, as shown in the attached schedule.

Assumption of conformity is based on the application of harmonized or applicable technical standards and, when applicable or required, a European Union Legislation notified body certification, as shown in the attached schedule.

(signature)

**14 February 2019**

(date of issue)

**Mark Fleigle**

(name - printed)

**Vice President - Technology and Product Development**

(function name - printed)



## ROSEMOUNT™

### Schedule EU Declaration of Conformity No. RFD 1094 Rev. K

#### EMC Directive 2014/30/EU

##### All Models

EN 61326-1: 2013

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#### LVD Directive 2014/35/EU

##### All Models

EN 61010-1: 2010

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#### PED Directive 2014/68/EU

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

#### **Model 8705-M Magnetic Flowmeter Sensor with Option "PD", in Line Sizes 1.5" - 36"**

QS Certificate of Assessment – 12317-2018-CE-USA-ACCREDIA

Module H Conformity Assessment

ASME B31.3: 2016

#### **Model 8705-M with Option "PD", in Line Sizes .5" – 1.0"**

Sound Engineering Practice

ASME B31.3: 2016

#### **Model 8711-M/L Magnetic Flowmeter Sensor with Option "PD", in Line Sizes 1.5" - 8"**

QS Certificate of Assessment - 12317-2018-CE-USA-ACCREDIA

Module H Conformity Assessment

ASME B31.3: 2016

#### **Model 8721 Magnetic Flowmeter Sensor, all sizes:**

Sound Engineering Practice

ASME B31.3: 2016



## ROSEMOUNT™

### Schedule

### EU Declaration of Conformity No. RFD 1094 Rev. K

#### ATEX Directive 2014/34/EU

Magnetic Flow Transmitters 8732EM, 8712EM and Flow Tubes 8705-M, 8711-M/L,

#### DEKRA 14ATEX0071 X – CERTIFICATE

##### Equipment Marking Summary:



II 2 (1) G	Ex db eb [ia Ga] IIC T6...T3 Gb	II 3 G	Ex nA ic IIC T5...T3 Gc
II 2 (1) G	Ex db [ia Ga] IIC T6...T3 Gb	II 3 G	Ex ec ic IIC T5...T3 Gc
II 3 (1) G	Ex nA [ia Ga] IIC T4...T3 Gc	II 2 D	Ex tb IIIC T 80 °C...T 200 °C Db
II 3 (1) G	Ex ec [ia Ga] IIC T4...T3 Gc	II 3 G	Ex nA ic [ia Ga] IIC T4 Gc
II (1) G	[Ex ia Ga] IIC	II 3 G	Ex ec ic [ia Ga] IIC T4 Gc
II 1/2 G	Ex eb ia IIC T5...T3 Ga/Gb	II 2 D	Ex tb IIIC T 80 °C Db
II 2 G	Ex eb ib IIC T5...T3 Gb		
II 1/3 G	Ex nA ia IIC T5...T3 Ga/Gc		
II 1/3 G	Ex ec ia IIC T5...T3 Ga/Gc		

EN 60079-0 : 2012 +A11: 2013  
 EN 60079-7 : 2015  
 EN 60079-15 : 2010

EN 60079-1 : 2014  
 EN 60079-11 : 2012  
 EN 60079-26 : 2015

EN 60079-31 : 2014

#### PED Notified Body

**DNV GL Business Assurance S.r.l.** [Notified Body Number: 0496]  
 Via Energy Park 14  
 Vimercate, 20871 Italy

#### ATEX Notified Body

**DEKRA Certification B.V.** [Notified Body Number: 0344]  
 Meander 1051, 6825 MJ Arnhem  
 P.O. Box 5185, 6802 ED Arnhem  
 The Netherlands

#### ATEX Quality Assurance Notified Body

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



## Rosemount 8700M Magnetic Flowmeter Platform IECEX & ATEX Approval Document

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1. Equipment Markings – See section VI in the tables on the following pages
  - a. EU-Type Examination Certificate (ATEX): DEKRA 14ATEX0071\_X
  - b. Certificate of Conformity (IEC Ex): IECEX DEK 14.0031X
2. Required Documentation:
  - a. 08732-2060 Installation Drawing Model 8732EM, 8712EM, 8705M, 8711-M/L ATEX/IECEX Hazardous (Ex) Locations
3. Referenced Documentation:
  - a. 00825-0X00-4444.pdf, Transmitter Quick Installation Guide (Where X = Communications Protocol Code)
  - b. 00825-0100-4727.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 08732-2060

<b>Rosemount 8732EM and 8712EM Flow Transmitter</b>	
<i>Power input</i>	90 - 250VAC, 0.45A, 40VA 12 - 30VDC, 0.25A, 3W 12 - 42VDC, 1.2A, 15W
<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>	500mA, 40V max, 9W max
<b>Rosemount 8705-M and 8711-M/L Flowtube<sup>(1)</sup></b>	
<i>Coil excitation input</i>	500mA, 40V max, 20W max
<i>Electrode circuit</i>	5V, 200uA, 1mW

(1) Provided by the transmitter

- e. Special Conditions for Safe Use (X): 8732EM
  - i. When “Special Paint Systems” are applied, instructions for safe use regarding potential electrostatic charging hazard have to be followed.
  - ii. Conduit entries must be installed to maintain the enclosure ingress rating of IP66.
  - iii. Terminals for the output signals of the Magnetic Flow Transmitters, cannot withstand the 500 V isolation test between signal and ground, due to integral transient protection up to a voltage of 250 Vac. This must be taken into account upon installation.

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- iv. The property class of the special fasteners which attach the Magnetic Flow Tube or Transmitter Remote Junction Box to the Magnetic Transmitter is A2-70 or A4-70 SST.
  - v. For information on the dimensions of the flameproof joints the manufacturer shall be contacted.
- f. Special Conditions for Safe Use (X): 8712EM
- i. When "Special Paint Systems" are applied, instructions for safe use regarding potential electrostatic charging hazard have to be followed.
  - ii. Conduit entries must be installed to maintain the enclosure ingress rating of IP66 or IP69K.
  - iii. When utilizing the keypad of Magnetic Flow Transmitter Model 8712EM, instructions for safe use regarding potential electrostatic charging hazard have to be followed.
  - iv. Terminals for the output signals of the Magnetic Flow Transmitters, cannot withstand the 500 V isolation test between signal and ground, due to integral transient protection up to a voltage of 250 Vac. This must be taken into account upon installation.
- g. Special Conditions for Safe Use (X): 8705M and 8711M/L
- i. The Magnetic Flow Tubes wetted parts may contain Titanium and Zirconium. It is the responsibility of the end user to eliminate ignition hazards due to impact or friction for processes that require EPL Ga or Gb.
  - ii. The Magnetic Flow Tube contains non conductive liners covering the grounded flow tube. For process requiring EPL Ga, precautions shall be taken to avoid the liner being charged by the flow of nonconductive media.
  - iii. In order to maintain the ingress protection level on the M3 and M4 electrode housing of the Magnetic Flow Tubes, 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.
  - iv. The property class of the special fasteners which attach the Magnetic Flow Tube or Transmitter Remote Junction Box to the Magnetic Transmitter is A2-70 or A4-70 SST.
  - v. When "Special Paint Systems" are applied, instructions for safe use regarding potential electrostatic charging hazard have to be followed.
  - vi. For information on the dimensions of the flameproof joints the manufacturer shall be contacted.
  - vii. Conduit entries must be installed to maintain the enclosure ingress rating of IP66.
- h. Where necessary, the essential characteristics of tools which may be fitted to the equipment.
- i. No proprietary tools required.
- i. List of the standards, including the issue date, with which the equipment is declared to comply:
- i. ATEX - EN 60079-0: 2012 +A11, EN 60079-1: 2014, EN 60079-7: 2015, EN 60079-11: 2012, EN 60079-15: 2010, EN 60079-26: 2015, EN 60079-31: 2014
  - ii. IECEx - IEC 60079-0: 2011, IEC 60079-1: 2014, IEC 60079-7: 2015 IEC 60079-11: 2011, IEC 60079-15: 2010, IEC 60079-26: 2014, IEC 60079-31: 2013
- j. 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).
- k. Contact address; Emerson -Rosemount, Micro Motion Inc  
12001 Technology Drive  
Eden Prairie  
MN 55344, United States of America



## Rosemount 8700M Magnetic Flowmeter Platform IECEX & ATEX Approval Document

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08732-AP02, Rev AG

### Nomenclature Magnetic Flow Transmitter Model 8712EM and electrical data

8712EM   R   2   B   2   N7   ...   M4   RT50   ...   Vx   ...   F090...  
 I        II   III   IV   V   VI        VII   VIII        IX        X

Designation	Explanation	Value	Explanation
I	Model	8712EM	Magnetic Flow Transmitter – Field Mount
II	Transmitter Mount	R	Remote Mount
III	Transmitter Power Supply	1 2 3	AC (90 - 250 Vac, 50 / 60 Hz) DC (12 - 42 Vdc) DC (12 – 30 Vdc)
IV	Outputs	A B F M P	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
V	Conduit entries	1 2	½-14 NPT female CM20, M20 female
VI	Safety Approval Option	N1 ATEX N7 IECEX N9 IECEX ND ATEX NF IECEX	Ⓢ II 3 (1) G    Ex nA ic [ia Ga] IIC T4 Gc ** Ⓢ II 3 (1) G    Ex ec ic [ia Ga] IIC T4 Gc ** Ⓢ II 2 D        Ex tb IIIC T80 °C Db Ex nA ic [ia Ga] IIC T4 Gc ** Ex ec ic [ia Ga] IIC T4 Gc ** Ex tb IIIC T80 °C Db Ex nA ic [ia Ga] IIC T4 Gc ** Ex ec ic [ia Ga] IIC T4 Gc ** Ex tb IIIC T80 °C Db Ⓢ II 2 D        Ex tb IIIC T80 °C Db Ⓢ II 2 D        Ex tb IIIC T80 °C Db Ⓢ II (1) G       [Ex ia Ga] IIC * Ex tb IIIC T80 °C Db Ex tb IIIC T80 °C Db [Ex ia Ga] IIC * NOTE:*    Intrinsically Safe Output (see IV) option only **    DC Transmitter Power Supply only (12 - 42 Vdc)
VII	Display Option	-- M4 M5	Without LOI and keypad LOI + keypad Display
VIII	Remote Cable Option	Rxx	Standard Temperature Component NOTE:    ***    Length = xx x 10 ft, max. 500 ft
IX	Options	-- Vx	Aluminum, standard paint Special Paint Systems ****
X	Specials	F090x	Special Paint Systems **** NOTE:    ****    Subject to special conditions for safe use.

# Rosemount 8700M Magnetic Flowmeter Platform IECEx & ATEX Approval Document

24 January 2019  
08732-AP02, Rev AG

## Nomenclature Magnetic Flow Tube Model 8705-M and electrical data

8705 ... S A 005 ... M4 K1 ... G1 L1 B3 ... J1 SC ... V1 ... SH ... F090x  
 I II III IV V VI VII VIII IX X XI XII XIII XIV

Designation	Explanation	Value	Explanation
I	Model	8705	Magnetic Flow Tube
II	Electrode Material	Custom	See special conditions for safe use
III	Electrode Types	Custom	Seal of electrodes comply with IEC 61010-1.
IV	Line Size	005 to 360	½" NPS (15 mm) to 36" NPS (900 mm)
V	Electrode Housing *	M0 M1 M2 M3 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 1/3 G, EPL Ga/Gb or Ga/Gc Category 1/2 G or 1/3 G, EPL Ga/Gb or Ga/Gc Category 1/2 G or 1/3 G, EPL Ga/Gb or Ga/Gc
VI	Safety Approvals	K1 ATEX	⊕ II 1/2 G Ex eb ia IIC T5...T3 Ga/Gb *
			⊕ II 2 D Ex tb IIIC T80 °C...T200 °C Db
			⊕ II 2 G Ex eb ib IIC T5...T3 Gb **
			⊕ II 2 D Ex tb IIIC T80 °C...T200 °C Db
		K7 IECEx	Ex eb ia IIC T5...T3 Ga/Gb *
			Ex tb IIIC T80 °C...T200 °C Db
		K9 IECEx	Ex eb ib IIC T5...T3 Gb **
			Ex tb IIIC T80 °C...T200 °C Db
		N1 ATEX	⊕ II 1/3 G Ex nA ia IIC T5...T3 Ga/Gc * line sizes 8"- 36"
			⊕ II 1/3 G Ex ec ia IIC T5...T3 Ga/Gc * line sizes 8"- 36"
⊕ II 2 D Ex tb IIIC T80 °C...T200 °C Db			
⊕ II 3 G Ex nA ic IIC T5...T3 Gc * line sizes 0.5" - 6" / **			
⊕ II 3 G Ex ec ic IIC T5...T3 Gc * line sizes 0.5" - 6" / **			
⊕ II 2 D Ex tb IIIC T80 °C...T200 °C Db			
N7 IECEx	Ex nA ia IIC T5...T3 Ga/Gc * line sizes 8"- 36"		
	Ex ec ia IIC T5...T3 Ga/Gc * line sizes 8"- 36"		
	Ex tb IIIC T 80 °C...T200 °C Db		
	Ex nA ic IIC T5...T3 Gc * line sizes 0.5" - 6" / **		
ND ATEX	⊕ II 2 D Ex tb IIIC T80 °C...T200 °C Db		
	⊕ II 2 D Ex tb IIIC T80 °C...T200 °C Db		
NF IECEx	Ex tb IIIC T80 °C...T200 °C Db		
	NOTE:* Electrode Housing M2, M3 and M4 only ** Electrode Housing M0 and M1 only		
VII	Grounding rings material	Custom	See special conditions for safe use
VIII	Lining protector material	Custom	See special conditions for safe use
IX	Mounting Configuration	B3	Integral Mount with Model 8732EM
X	Optional conduit entries	J1	CM20, M20 female
XI	Remote Junction Box (RJB) material	--	Aluminum, standard paint
		SJ	316 Stainless steel
XII	Special paint options	Vx	Special Paint Systems ***
XIII	Wrapper (housing) material	--	Carbon Steel (w. Aluminum RJB), standard paint
		SH	316 Stainless Steel (w. Stainless Steel RJB)
XIV	Specials	F090x	Special Paint Systems ***
			NOTE: *** Subject to special conditions for safe use.

**Rosemount 8700M Magnetic Flowmeter Platform  
IECEx & ATEX Approval Document**

24 January 2019  
08732-AP02, Rev AG

**Nomenclature Magnetic Flow Tube Model 8711-M/L and electrical data**

8711 ... S A 15F L ... K1 ... G1 ... J1 SC ... V1 ... F090x  
 I            II III IV V            VI            VII            VIII IX            X            XI

Designation	Explanation	Value	Explanation
I	Model	8711	Magnetic Flow Tube
II	Electrode Material	Custom	See special conditions for safe use
III	Electrode Types	Custom	Seal of electrodes comply with IEC 61010-1.
IV	Line Size	015 to 080	1½" NPS (40 mm) to 8" NPS (900 mm)
V	Mounting Configuration	L M	Remote Mount from Transmitter Integral Mount with Transmitter
VI	Safety Approvals	K1 ATEX	⊕ II 2 G      Ex eb ib IIC T5...T3 Gb ⊕ II 2 D      Ex tb IIIC T80 °C...T200 °C Db
		K7 IECEx	Ex eb ib IIC T5...T3 Gb Ex tb IIIC T80 °C...T200 °C Db
		K9 IECEx	Ex eb ib IIC T5...T3 Gb Ex tb IIIC T80 °C...T200 °C Db
		N1 ATEX	⊕ II 3 G      Ex nA ic IIC T5...T3 Gc ⊕ II 3 G      Ex ec ic IIC T5...T3 Gc ⊕ II 2 D      Ex tb IIIC T80 °C...T200 °C Db
		N7 IECEx	Ex nA ic IIC T5...T3 Gc Ex ec ic IIC T5...T3 Gc Ex tb IIIC T80 °C...T200 °C Db
		ND ATEX	⊕ II 2 D      Ex tb IIIC T80 °C...T200 °C Db
		NF IECEx	Ex tb IIIC T80 °C...T200 °C Db
VII	Grounding rings material	Custom	See special conditions for safe use
VIII	Optional conduit entries	J1	CM20, M20 female
IX	Remote Junction Box material	-- SJ	Aluminum, standard paint * 316 Stainless steel *
			NOTE:    *      Flow Tube with Carbon Steel wrapper (housing)
X	Special paint options	Vx	Special Paint Systems **
XI	Specials	F090x	Special Paint Systems ** NOTE:    **      Subject to special conditions for safe use.

# HAZARDOUS (Ex) LOCATION CONTROL AND INSTALLATION DRAWING MODEL 8732EM AND 8712EM MAGNETIC FLOWTUBE TRANSMITTERS MODEL 8705-M AND 8711-M/L MAGNETIC FLOWTUBES

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12	DUST ENVIRONMENT - COIL AND ELECTRODE CIRCUIT WIRING
13	GAS ENVIRONMENT - OUTPUT WIRING
14	GAS ENVIRONMENT - INTRINSICALLY SAFE ENTITY CONCEPTS
15	GAS ENVIRONMENT - FISCO INTRINSICALLY SAFE ENTITY CONCEPTS
16	KD SENSOR AND INTEGRAL MOUNT K1 TRANSMITTER

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

1. WIRING METHOD SUITABLE FOR APPROPRIATE ZONE 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 ZONE AND GAS GROUP.

5. THE ELECTRODE CIRCUIT AND WIRING MUST BE INSTALLED AS INTRINSICALLY SAFE WHEN THE FLOWTUBE IS INSTALLED IN A HAZARDOUS (Ex) AREA WITH MINIMUM EXPLOSION PROTECTION LEVEL (EPL) OF Gb (Ex Ib) WHEN USED WITH THE K1, K7 OR K9 OPTION, AND AN EPL OF Gc WITH THE N1, N7 OR N9 OPTION. FLAMMABLE PROCESS FLUIDS WHICH REQUIRE AN EPL OF Ga (Ex Ia) FOR THE ELECTRODE CIRCUIT. SEE GAS ENVIRONMENT PAGES.

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. INSTALLATION SHOULD BE IN ACCORDANCE WITH LOCAL AND NATIONAL ELECTRICAL CODE, EN 60079-14 OR IEC 60079-14 "ELECTRICAL INSTALLATIONS DESIGN, SELECTION, AND ERECTION".

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 1-10 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. SAFETY APPROVALS OPTIONS N1, N7, N9, K1, K7, AND K9 HAVE EPL Db DUST RATINGS AND MAY BE INSTALLED IN HAZARDOUS DUST (Ex) ENVIRONMENT AS DESCRIBED IN THIS DOCUMENT.

14. DI/DO TERMINALS ARE NOT POPULATED. THE DI/DO OPTION (AX) IS NOT AVAILABLE WITH INTRINSICALLY SAFE OUTPUTS.

15. TRANSMITTER OUTPUTS ARE CONSIDERED INTRINSICALLY SAFE WHEN INSTALLED IN ACCORDANCE TO INTRINSICALLY SAFE CONCEPTS AND INSTALLATION REQUIREMENTS WITHIN THIS DOCUMENT.

16. CONDUIT ENTRIES MARKED "M20" ARE M20 X 1.5 THREAD FORM.

NOTES:

1	2	3	4	5	6
7	8	9	10	11	12
REVISION TABLE					
REVISION	ECO NO.	APP'D	DATE		
AJ	1082324	P.M.K.	6/7/18		
DESCRIPTION					
1) ADDED FIELDBUS, PROFIBUS AND FISCO CONCEPT INFORMATION					

A	B	C	D	E	F
G	H				

A	B	C	D	E	F
G	H				

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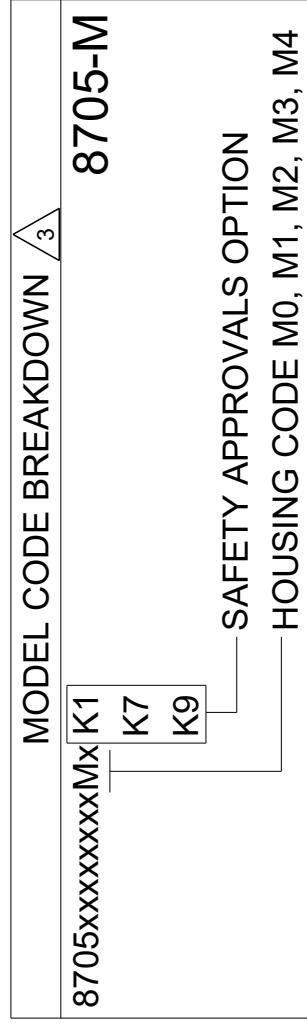




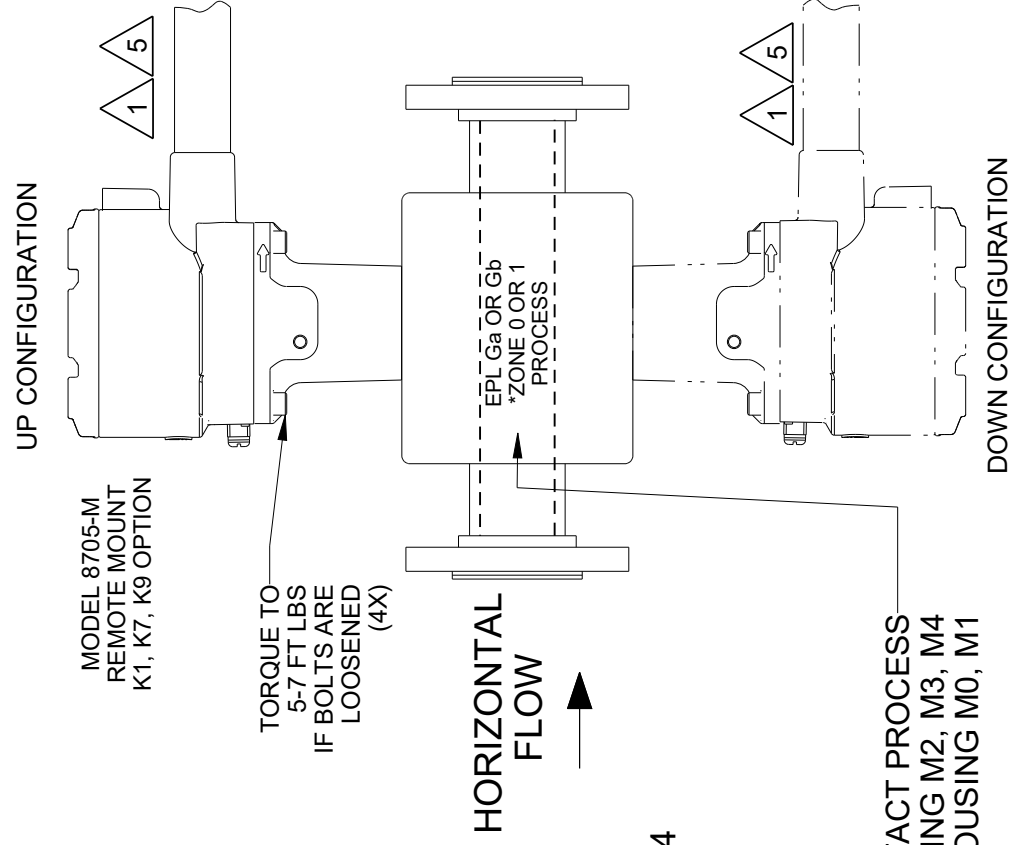
# GAS ENVIRONMENT - EPL Ga/Gb SENSOR WITH ALLOWED REMOTE MOUNT EPL Gb OR EPL Gc TRANSMITTERS

## Ex eb SENSOR REMOTE MOUNT CONFIGURATIONS

MODEL 8705-M REMOTE CONFIGURATION WITH SAFETY APPROVALS OPTION 'K1', 'K7', 'K9'

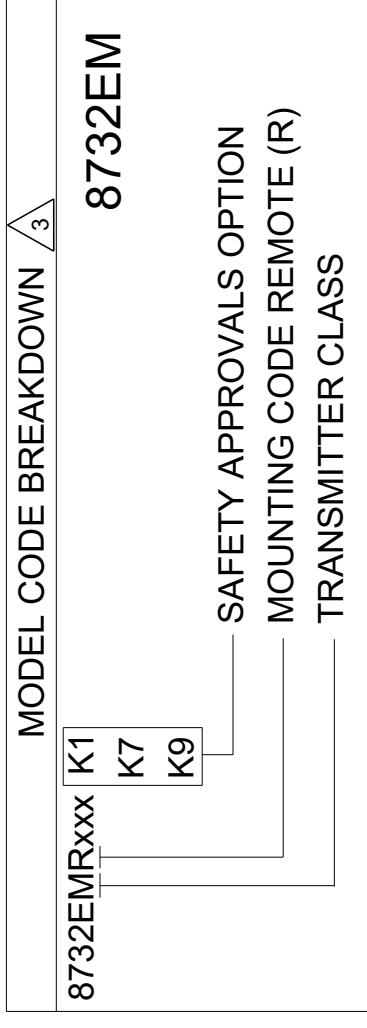


Ex eb ia IIC T5...T3 Ga/Gb (WITH HOUSING CODE M2, M3, M4)  
 Ex eb ib IIC T5...T3 Gb (WITH HOUSING CODE M0, M1)  
 EPL Gb, FOR USE IN HAZARDOUS (Ex) AREA - ZONE 1 OR 2 WITH CARBON STEEL HOUSING: (-29°C ≤ Ta ≤ 60°C)  
 WITH STAINLESS STEEL HOUSING: (-50°C ≤ Ta ≤ 60°C)  
 SEE TABLE 1 FOR PROCESS TEMPERATURE LIMITS AND ALLOWED MOUNTING CONFIGURATIONS  
 DUAL SEAL PER ANSI/ISA 12.27.01 WITH HOUSING CODE M2, M3, M4  
 INCREASED SAFETY WITH INTRINSICALLY SAFE ELECTRODES

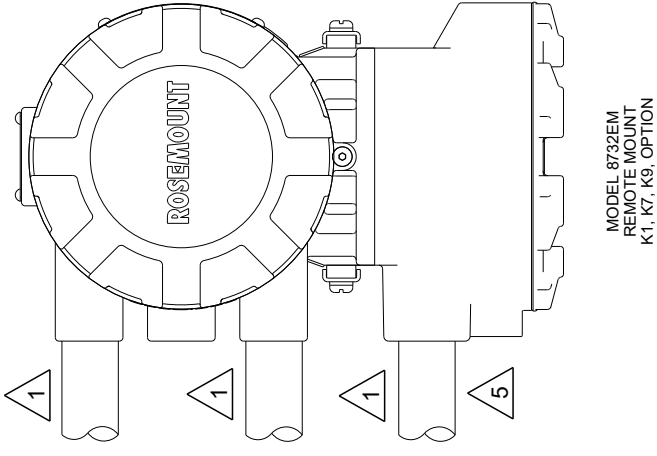


## ALLOWED REMOTE MOUNT TRANSMITTER CONFIGURATIONS

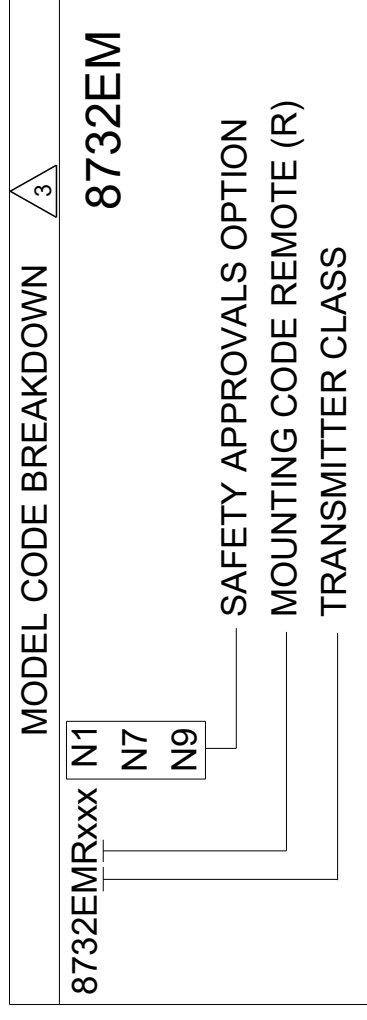
MODEL 8732EM REMOTE MOUNT CONFIGURATION WITH SAFETY APPROVAL OPTION 'K1', 'K7' OR 'K9'



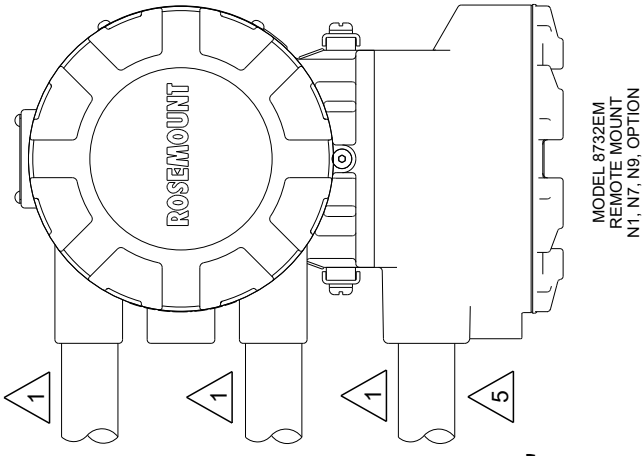
Ex db eb [ia] IIC T6...T3 Gb  
 EPL Gb, FOR USE IN ZONE 1 OR 2  
 TEMPERATURE CLASS EPL Gb: T6 (-50°C ≤ Ta ≤ 60°C)  
 FLAMEPROOF ELECTRONICS HOUSING, INCREASED SAFETY  
 TERMINAL BLOCK WITH INTRINSICALLY SAFE ELECTRODE  
 OUTPUT, INCREASED SAFETY REMOTE JUNCTION BOX



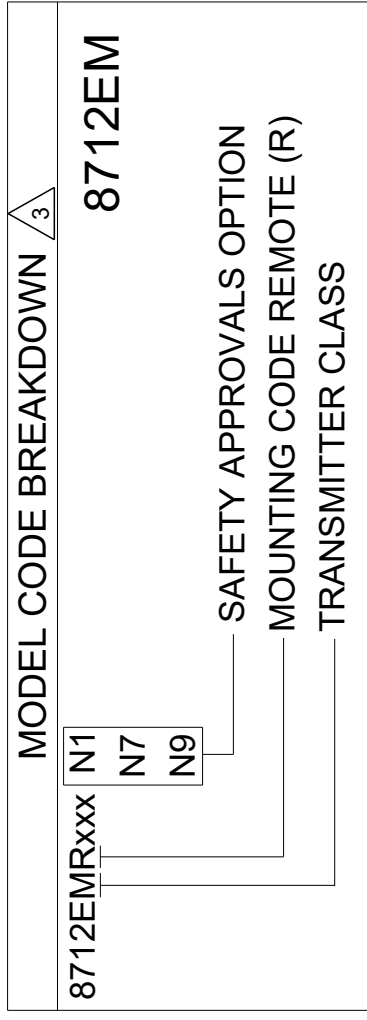
MODEL 8732EM REMOTE MOUNT CONFIGURATION WITH SAFETY APPROVAL OPTION 'N1', 'N7' OR 'N9'



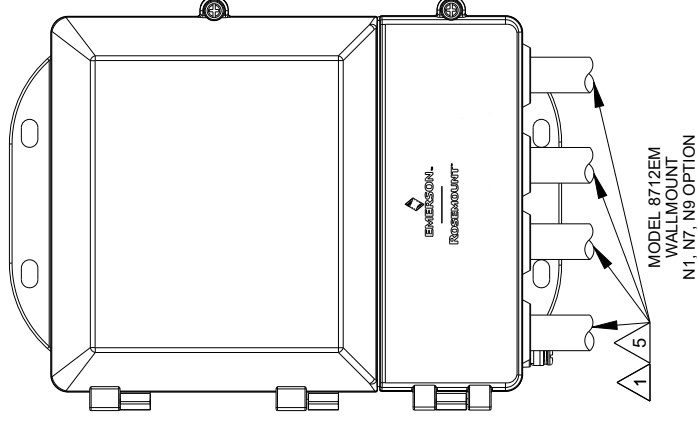
Ex na [ia] Ga] IIC T4...T3 Gc - DC POWER ONLY, IN PROTECTION TYPE 'n'  
 Ex ec [ia] Ga] IIC T4...T3 Gc - DC POWER ONLY, IN PROTECTION TYPE 'e'  
 EPL Gc, FOR USE IN ZONE 2  
 TEMPERATURE CLASS: EPL Gc: T4 (-50°C ≤ Ta ≤ 60°C)  
 WITH INTRINSICALLY SAFE ELECTRODE OUTPUT.



MODEL 8712EM REMOTE MOUNT CONFIGURATION WITH SAFETY APPROVAL OPTION 'N1', 'N7' OR 'N9'

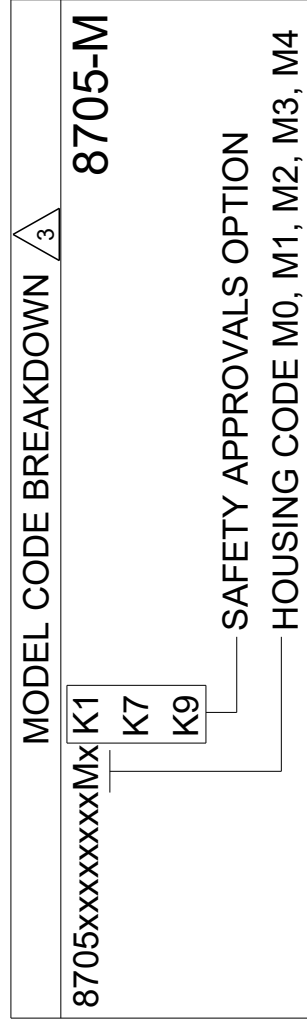


Ex na ic [ia] Ga] IIC T4 Gc - DC POWER ONLY, IN PROTECTION TYPE 'n'  
 Ex ec ic [ia] Ga] IIC T4 Gc - DC POWER, IN PROTECTION TYPE 'e'  
 EPL Gc, FOR USE IN ZONE 2  
 TEMPERATURE CLASS: EPL Gc: T4 (-40°C ≤ Ta ≤ 60°C)  
 WITH INTRINSICALLY SAFE ELECTRODE OUTPUT

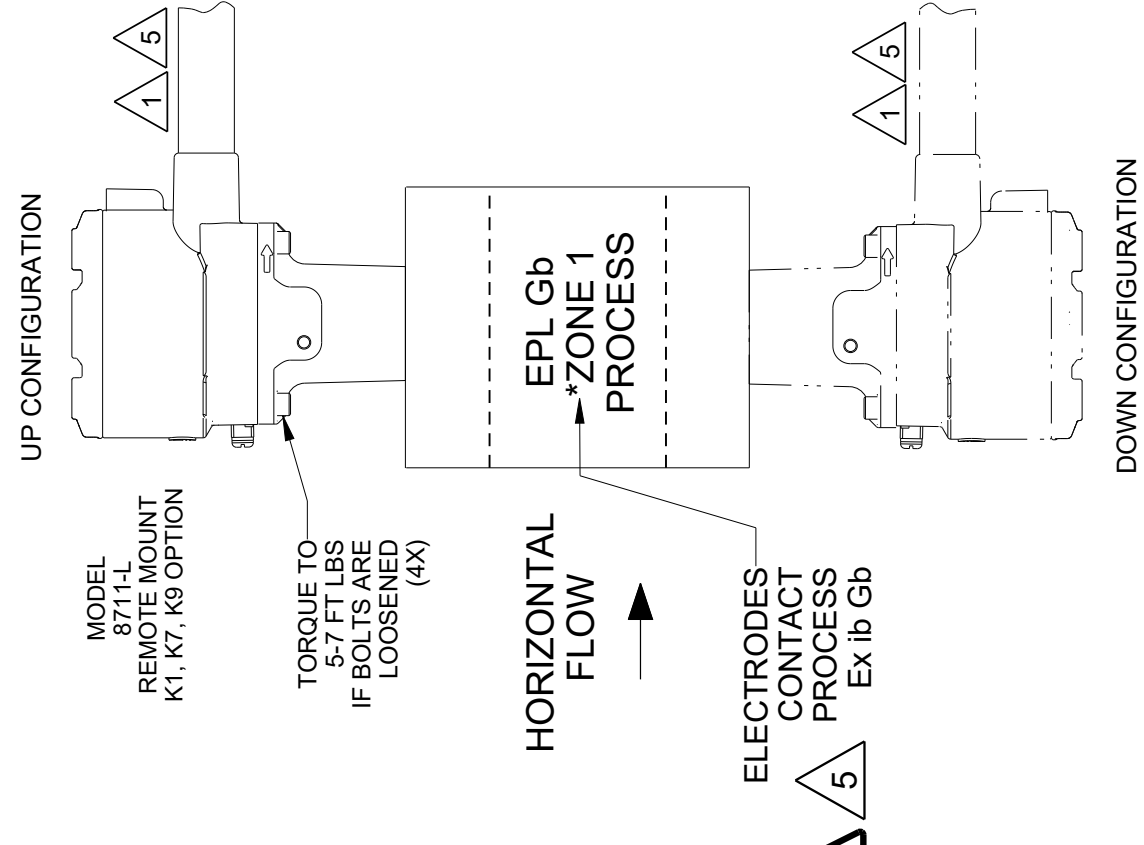


## Ex eb SENSOR REMOTE MOUNT CONFIGURATIONS

MODEL 8711-L REMOTE CONFIGURATION WITH SAFETY APPROVALS OPTION 'K1', 'K7', 'K9'



Ex eb ia IIC T5...T3 Gb.  
 EPL Gb, FOR USE IN HAZARDOUS (Ex) AREA - ZONE 1 OR 2  
 REMOTE MOUNT - TEMPERATURE CLASS: EPL Gc: T6  
 WITH CARBON STEEL HOUSING: (-29°C ≤ Ta ≤ 60°C)  
 WITH STAINLESS STEEL HOUSING: (-50°C ≤ Ta ≤ 60°C)  
 SEE TABLE 2 FOR PROCESS TEMPERATURE LIMITS AND ALLOWED MOUNTING CONFIGURATIONS  
 INCREASED SAFETY WITH INTRINSICALLY SAFE ELECTRODES



Ex eb ia IIC T5...T3 Gb.  
 EPL Gb, FOR USE IN HAZARDOUS (Ex) AREA - ZONE 1 OR 2  
 REMOTE MOUNT - TEMPERATURE CLASS: EPL Gc: T6  
 WITH CARBON STEEL HOUSING: (-29°C ≤ Ta ≤ 60°C)  
 WITH STAINLESS STEEL HOUSING: (-50°C ≤ Ta ≤ 60°C)  
 SEE TABLE 2 FOR PROCESS TEMPERATURE LIMITS AND ALLOWED MOUNTING CONFIGURATIONS  
 INCREASED SAFETY WITH INTRINSICALLY SAFE ELECTRODES

\* TYPICAL APPLICATION. CONSULT LOCAL HAZARDOUS AREA (Ex) ZONING FOR PROCESS FLUID CLASSIFICATION.

CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY.		SURFACE FINISH UNLESS OTHERWISE SPECIFIED	125	3RD ANGLE	SIZE	C	SCALE	-	REV	AJ
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES (mm). REMOVE ALL BURRS AND SHARP EDGES.		-DEC TOLERANCES-		DRAWING NO.		08732-2060		DRAWING NO.		
X ± .1 (2.5)	.XX ± .02 (0.5)			ROSEMOUNT				TITLE		
.XXX ± .010 (0.25)	±.152	ANGLES ± .2°		ATEX/IECEx HAZARDOUS (EX) LOCATIONS				EMERSON		
DO NOT SCALE PRINT		CAD MAINTAINED, (PROJ)		PRODUCT CODE		DOC TYPE		SHEET 3		OF 16
DR.		N. BOND		2/18/14		DRAWING NO.		08732-2060		
APPD.		E. MESSENGER		6/13/14						

# GAS ENVIRONMENT - EPL Ga/Gb SENSOR TEMPERATURE CODE VS. PROCESS TEMPERATURE

**TABLE 1 - 8705-M: Ex eb - PROTECTION TYPE 'INCREASED SAFETY'  
SAFETY APPROVAL OPTIONS 'K1', 'K7' AND 'K9'  
ALLOWED TRANSMITTER MOUNTING AND TEMPERATURE CODE VS. PROCESS TEMPERATURE**

Line Size	Maximum Process Temperature (°C)	Temperature Code	Transmitter Mounting
0.5"	60	T5	Integral/Remote
	120	T4	Integral/Remote
	150	T3	Remote
1"	60	T5	Integral/Remote
	120	T4	Integral/Remote
	150	T3	Remote
1.5"	60	T5	Integral/Remote
	105	T4	Integral/Remote
	140	T3	Remote
2"	60	T5	Integral/Remote
	105	T4	Integral/Remote
	140	T3	Remote
2.5"	60	T4	Integral/Remote
	110	T4	Remote
	150	T3	Remote
3"	60	T5	Integral/Remote
	115	T4	Remote
	150	T3	Remote
4"	60	T5	Integral/Remote
	115	T4	Remote
	155	T3	Remote
5"	60	T5	Integral/Remote
	120	T4	Remote
	155	T3	Remote
6"	60	T5	Integral/Remote
	120	T4	Remote
	155	T3	Remote
8-36"	60	T5	Integral/Remote
	120	T4	Remote
	155	T3	Remote**

\*\*LINE SIZES 8" AND GREATER SHOULD BE MOUNTED WITH REMOTE JUNCTION BOX (RJB) DOWN OR TO THE SIDE

**TABLE 2 - 8711-M/L: Ex eb - PROTECTION TYPE 'INCREASED SAFETY'  
SAFETY APPROVAL OPTIONS 'K1', 'K7' AND 'K9'  
ALLOWED TRANSMITTER MOUNTING AND TEMPERATURE CODE VS. PROCESS TEMPERATURE**

Line Size	Maximum Process Temperature (°C)	Temperature Code	Junction Box Orientation	Transmitter Mounting
1.5"	60	T5	Any	Integral/Remote
	100	T4	Any	Remote
	140	T3	Down	Remote
2"	60	T5	Any	Integral/Remote
	100	T4	Any	Remote
	140	T3	Down	Remote
3"	60	T4	Any	Integral/Remote
	110	T4	Any	Remote
	150	T3	Down	Remote
4"	60	T5	Any	Integral/Remote
	115	T4	Any	Remote
	155	T3	Down	Remote
6"	60	T5	Any	Integral/Remote
	115	T4	Any	Remote
	155	T3	Down	Remote
8"	60	T5	Any	Integral/Remote
	115	T4	Any	Remote
	160	T3	Down	Remote

08732-2060

DRAWING NO.

REV  
AJ

SURFACE FINISH UNLESS OTHERWISE SPECIFIED  $\sqrt{125}$

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.

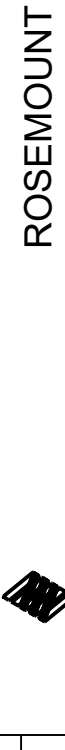
-DEC TOLERANCES-  
X ± .1 [2.5]  
.XX ± .02 [0.5]  
.XXX ± .010 [0.25]  
FRACTIONS ± 1/32 ANGLES ± 2'

DO NOT SCALE PRINT CAD MAINTAINED (PROJ)

APPD. E. MESSENGER 6/13/14

DR. N. BOND 2/18/14

PRODUCT CODE



ROSEMOUNT

TITLE

INSTALLATION DRAWING

ATEX/IECEx HAZARDOUS (EX) LOCATIONS

DRAWING NO. 08732-2060

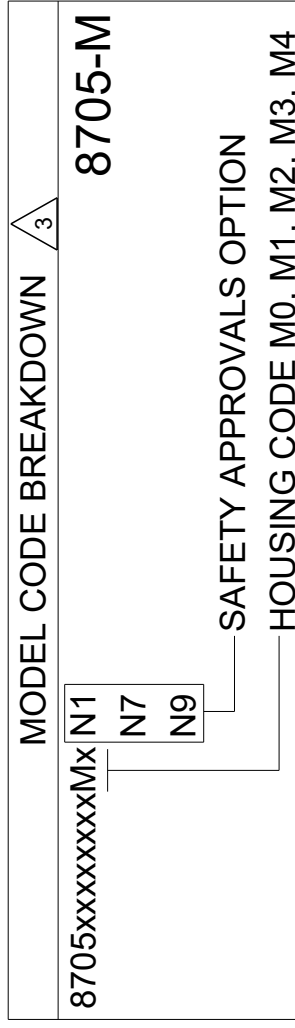
DOC TYPE SHEET 4 OF 16

FORM REV A

# GAS ENVIRONMENT - EPL Ga/Gc SENSOR WITH ALLOWED INTEGRAL MOUNT EPL Gc TRANSMITTERS

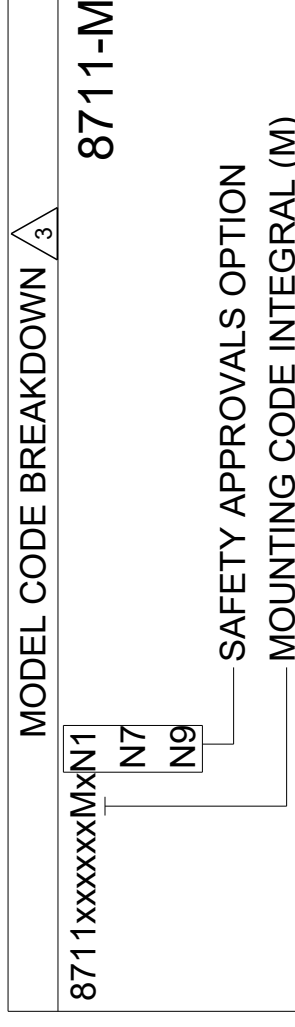
## Ex ec / Ex nA SENSOR INTEGRAL MOUNT CONFIGURATIONS

MODEL 8705-M INTEGRAL MOUNT CONFIGURATION WITH SAFETY APPROVALS OPTION 'N1', 'N7', 'N9'



Ex nA ia IIC T5 ... T3 Ga/Gc (WITH HOUSING CODE M2, M3, M4)  
 Ex ec ia IIC T5... T3 Ga/Gc (WITH HOUSING CODE M2, M3, M4)  
 Ex nA ic IIC T5 ... T3 Gc (WITH HOUSING CODE M0, M1)  
 Ex ec ic IIC T5... T3 Gc (WITH HOUSING CODE M0, M1)  
 EPL Gc, FOR USE IN HAZARDOUS (Ex) AREA - ZONE 2 WITH CARBON STEEL HOUSING: (-29°C ≤ Ta ≤ 60°C)  
 WITH STAINLESS STEEL HOUSING: (-50°C ≤ Ta ≤ 60°C)  
 SEE TABLE 3 FOR PROCESS TEMPERATURE LIMITS AND MOUNTING CONFIGURATIONS  
 DUAL SEAL PER ANSI/ISA 12.27.01 WITH HOUSING CODE M2, M3, M4  
 TYPE 'n' PROTECTION WITH INTRINSICALLY SAFE ELECTRODES

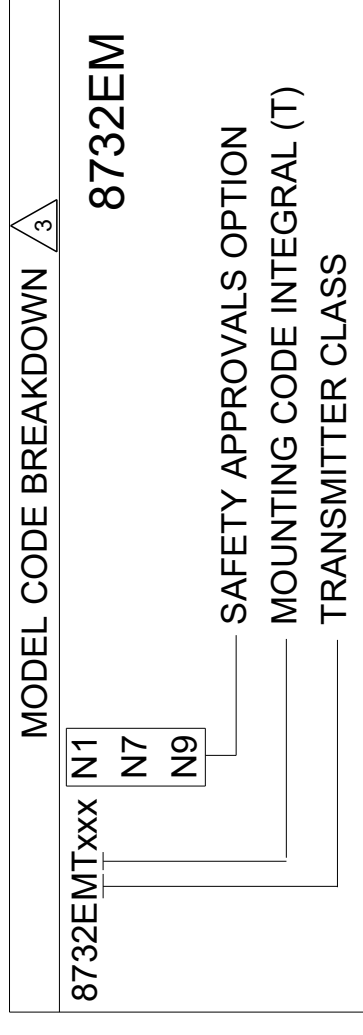
MODEL 8711-M INTEGRAL MOUNT CONFIGURATION WITH SAFETY APPROVALS OPTION 'N1', 'N7', 'N9'



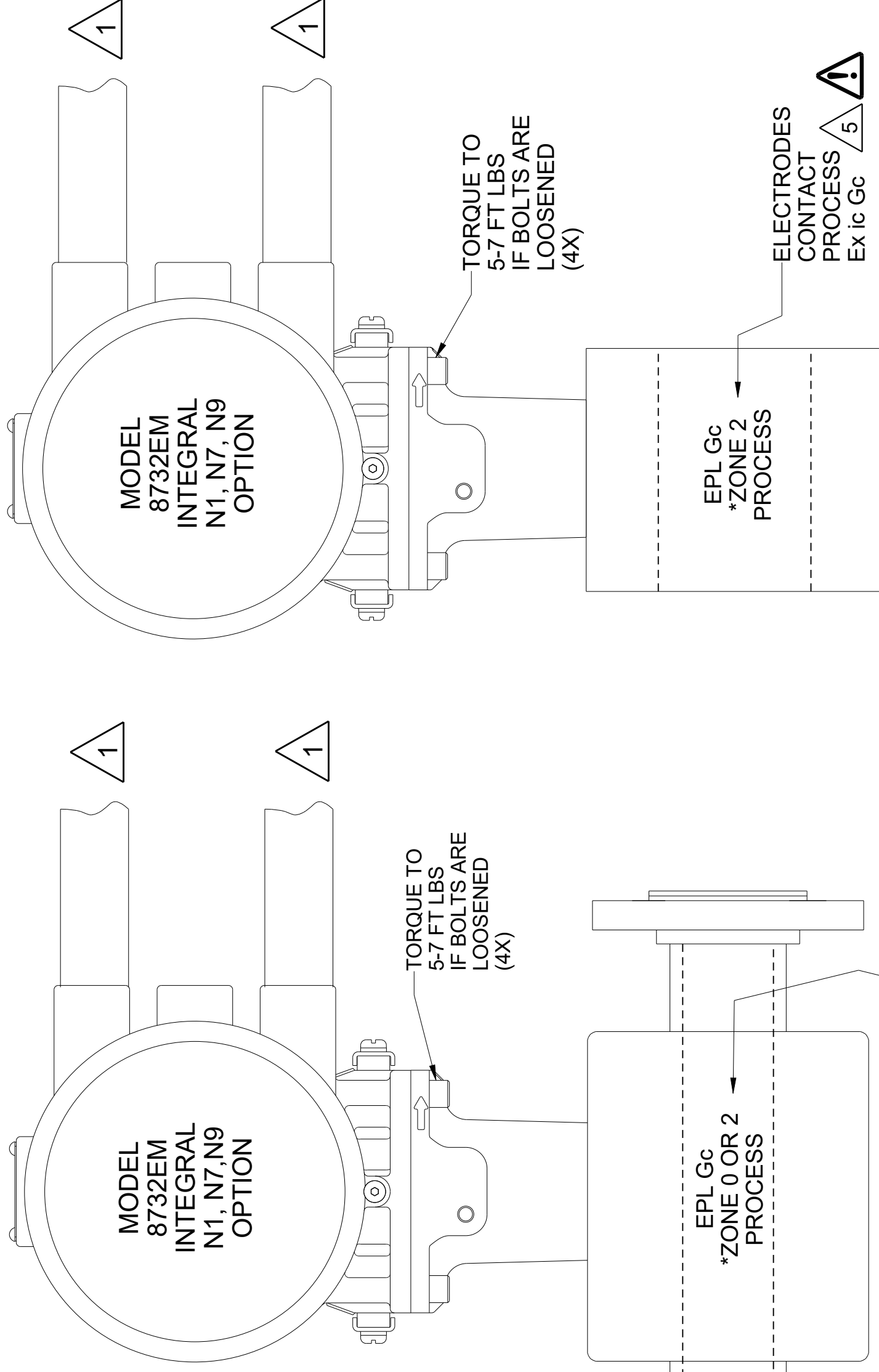
Ex nA ic IIC T5 ... T3 Gc  
 Ex ec ic IIC T5... T3 Gc  
 EPL Gc, FOR USE IN HAZARDOUS (Ex) AREA - ZONE 2 WITH CARBON STEEL HOUSING: (-29°C ≤ Ta ≤ 60°C)  
 WITH STAINLESS STEEL HOUSING: (-50°C ≤ Ta ≤ 60°C)  
 SEE TABLE 4 FOR PROCESS TEMPERATURE LIMITS AND ALLOWED MOUNTING CONFIGURATIONS  
 TYPE 'n' WITH INTRINSICALLY SAFE ELECTRODES

## ALLOWED INTEGRAL MOUNT TRANSMITTER CONFIGURATIONS

MODEL 8732EM INTEGRAL MOUNT CONFIGURATION WITH SAFETY APPROVALS OPTION 'N1', 'N7' OR 'N9'



Ex nA [ia Ga] IIC T4 ... T3 Gc - DC POWER ONLY, IN PROTECTION TYPE 'n'  
 Ex ec [ia Ga] IIC T4... T3 Gc - DC POWER ONLY, IN PROTECTION TYPE 'e'  
 EPL Gc, FOR USE IN HAZARDOUS (Ex) AREA - ZONE 2  
 SEE TABLE 3 OR TABLE 4 FOR TEMPERATURE CLASS



MODEL 8705-M INTEGRAL N1, N7, N9 OPTION

ELECTRODES CONTACT PROCESS  
 Ex ia Ga WITH HOUSING M2, M3, M4  
 Ex ic Gc WITH HOUSING M0, M1

MODEL 8711-M INTEGRAL N1, N7, N9 OPTION

ELECTRODES CONTACT PROCESS  
 Ex ic Gc

TORQUE TO 5-7 FT LBS IF BOLTS ARE LOOSENED (4X)

CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY.	SURFACE FINISH UNLESS OTHERWISE SPECIFIED	$125^\circ$	3RD ANGLE		SIZE C	SCALE -	REV AJ
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		ROSEMOUNT					
TITLE INSTALLATION DRAWING							
ATEX/IEC EX HAZARDOUS (EX) LOCATIONS							
DR. N. BOND	2/18/14	DRAWING NO. 08732-2060					
APPD. E. MESSENGER	6/13/14			SHEET 5 OF 16			
DO NOT SCALE PRINT		CAD MAINTAINED (PROE)		PRODUCT CODE			

\* TYPICAL APPLICATION: CONSULT LOCAL HAZARDOUS AREA (EX) ZONING FOR PROCESS FLUID CLASSIFICATION.

# GAS ENVIRONMENT - EPL Ga/Gc SENSOR WITH ALLOWED REMOTE MOUNT EPL Gb OR EPL Gc TRANSMITTERS

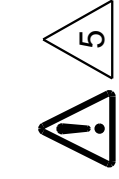
## Ex ec / Ex nA SENSOR REMOTE MOUNT CONFIGURATIONS

MODEL 8705-M REMOTE CONFIGURATION  
WITH SAFETY APPROVALS OPTION 'N1', 'N7', 'N9'

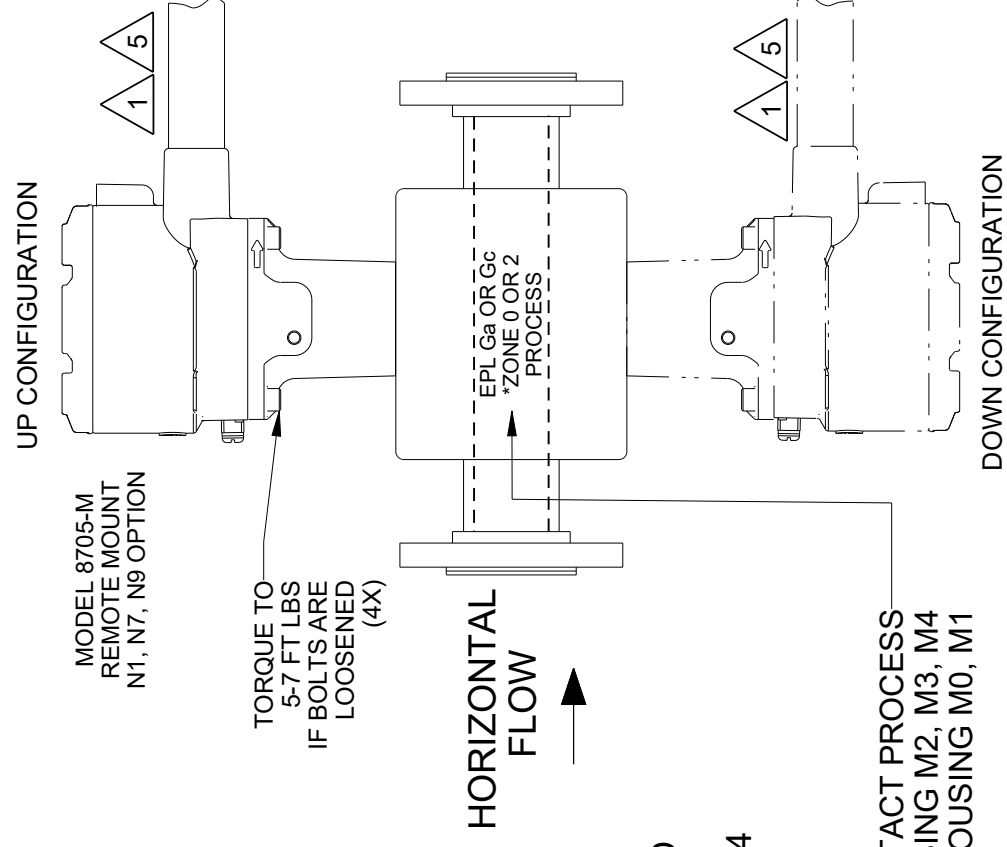
MODEL CODE BREAKDOWN 	
8705xxxxxxxMx	N1
	N7
	N9
SAFETY APPROVALS OPTION HOUSING CODE M0, M1, M2, M3, M4	

Ex nA ia IIC T5 ... T3 Ga/Gc (WITH HOUSING CODE M2, M3, M4)  
 Ex ec ia IIC T5... T3 Ga/Gc (WITH HOUSING CODE M2, M3, M4)  
 Ex nA ic IIC T5 ... T3 Gc (WITH HOUSING CODE M0, M1)  
 Ex ec ic IIC T5... T3 Gc (WITH HOUSING CODE M0, M1)  
 EPL Gc, FOR USE IN HAZARDOUS (Ex) AREA - ZONE 2  
 WITH CARBON STEEL HOUSING: (-29°C ≤ Ta ≤ 60°C)  
 WITH STAINLESS STEEL HOUSING: (-50°C ≤ Ta ≤ 60°C)  
 SEE TABLE 3 FOR PROCESS TEMPERATURE LIMITS AND ALLOWED MOUNTING CONFIGURATIONS

DUAL SEAL PER ANSI/ISA 12.27-01 WITH HOUSING CODE M2, M3, M4  
 TYPE 'n' PROTECTION WITH INTRINSICALLY SAFE ELECTRODES



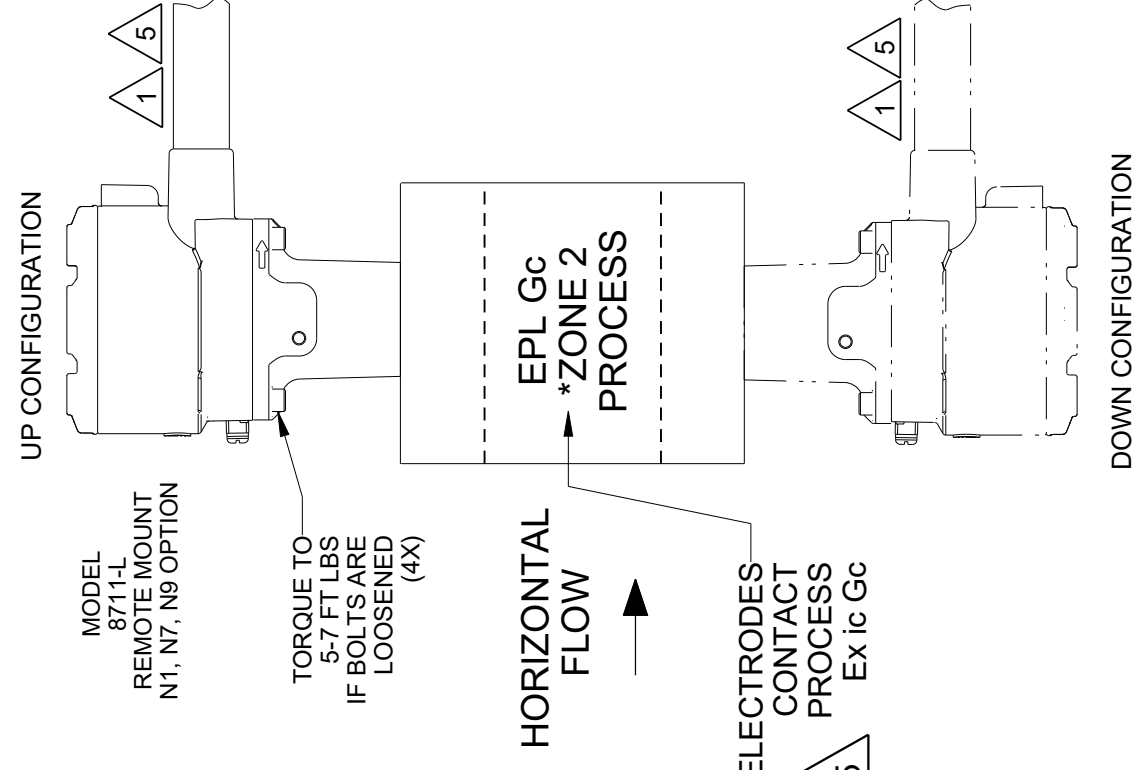
ELECTRODES CONTACT PROCESS  
 Ex ia Ga WITH HOUSING M2, M3, M4  
 Ex ic Gc WITH HOUSING M0, M1



MODEL 8711-L REMOTE CONFIGURATION  
WITH SAFETY APPROVALS OPTION 'N1', 'N7', 'N9'


MODEL CODE BREAKDOWN 	
8711xxxxxxLx	N1
	N7
	N9
SAFETY APPROVALS OPTION MOUNTING CODE REMOTE (L)	

Ex nA ic IIC T5 ... T3 Gc  
 Ex ec ic IIC T5... T3 Gc  
 EPL Gc, FOR USE IN HAZARDOUS (Ex) AREA - ZONE 2  
 WITH CARBON STEEL HOUSING: (-29°C ≤ Ta ≤ 60°C)  
 WITH STAINLESS STEEL HOUSING: (-50°C ≤ Ta ≤ 60°C)  
 SEE TABLE 4 FOR PROCESS TEMPERATURE LIMITS AND ALLOWED MOUNTING CONFIGURATIONS  
 TYPE 'n' WITH INTRINSICALLY SAFE ELECTRODES




## ALLOWED REMOTE MOUNT TRANSMITTER CONFIGURATIONS

MODEL 8732EM REMOTE MOUNT CONFIGURATION  
WITH SAFETY APPROVAL OPTION 'K1', 'K7' OR 'K9'

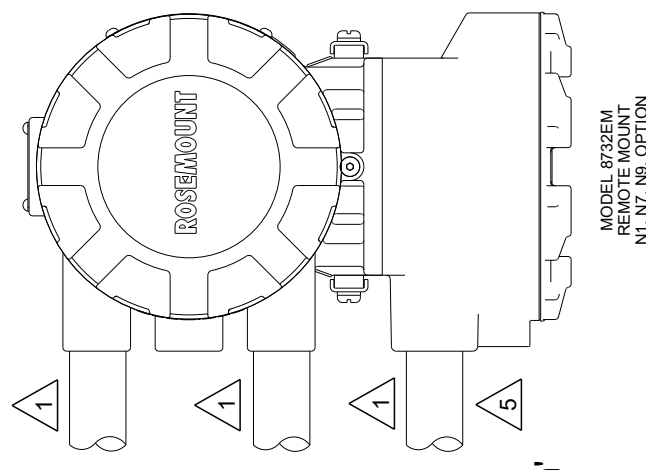
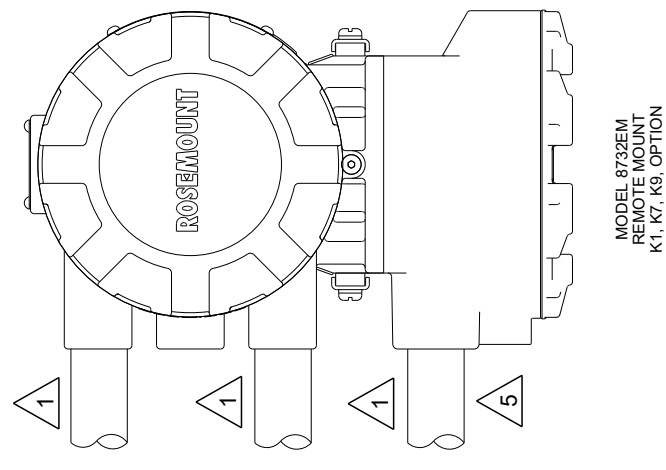
MODEL CODE BREAKDOWN 	
8732EMRxxx	K1
	K7
	K9
SAFETY APPROVALS OPTION MOUNTING CODE REMOTE (R) TRANSMITTER CLASS	

Ex db eb [ia] IIC T6... T3 Gb  
 EPL Gb, FOR USE IN ZONE 1 OR 2  
 TEMPERATURE CLASS EPL Gb: T6 (-50°C ≤ Ta ≤ 60°C)  
 FLAMEPROOF ELECTRONICS HOUSING, INCREASED SAFETY TERMINAL BLOCK WITH INTRINSICALLY SAFE ELECTRODE CIRCUIT, INCREASED SAFETY REMOTE JUNCTION BOX.


MODEL 8732EM REMOTE MOUNT CONFIGURATION  
WITH SAFETY APPROVAL OPTION 'N1', 'N7' OR 'N9'

MODEL CODE BREAKDOWN 	
8732EMRxxx	N1
	N7
	N9
SAFETY APPROVALS OPTION MOUNTING CODE REMOTE (R) TRANSMITTER CLASS	

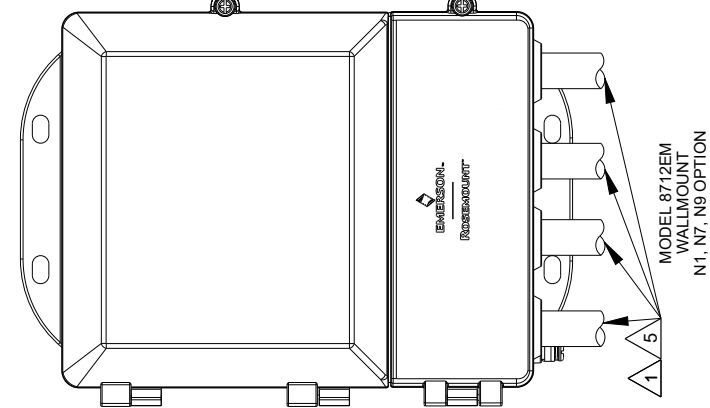
Ex nA [ia Ga] IIC T4 ... T3 Gc - DC POWER ONLY, IN PROTECTION TYPE 'n'  
 Ex ec [ia Ga] IIC T4... T3 Gc - DC POWER ONLY, IN PROTECTION TYPE 'e'  
 EPL Gc, FOR USE IN ZONE 2  
 TEMPERATURE CLASS: EPL Gc: T4 (-50°C ≤ Ta ≤ 60°C)  
 WITH INTRINSICALLY SAFE ELECTRODE CIRCUIT.



MODEL 8712EM REMOTE MOUNT CONFIGURATION  
WITH SAFETY APPROVAL OPTION 'N1', 'N7' OR 'N9'

MODEL CODE BREAKDOWN 	
8712EMRxxx	N1
	N7
	N9
SAFETY APPROVALS OPTION MOUNTING CODE REMOTE (R) TRANSMITTER CLASS	

Ex nA ic [ia Ga] IIC T4 Gc - DC POWER ONLY, IN PROTECTION TYPE 'n'  
 Ex ec ic [ia Ga] IIC T4 Gc - DC POWER, IN PROTECTION TYPE 'e'  
 EPL Gc, FOR USE IN ZONE 2  
 TEMPERATURE CLASS: EPL Gc: T4 (-40°C ≤ Ta ≤ 60°C)  
 WITH INTRINSICALLY SAFE ELECTRODE CIRCUIT.



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 C

SCALE -

REV AJ

ROSEMOUNT



## INSTALLATION DRAWING

ATEX/IECEx HAZARDOUS (EX) LOCATIONS

DR. N. BOND 2/18/14 DRAWING NO. 08732-2060  
 APPD. E. MESSENGER 6/13/14

DO NOT SCALE PRINT | CAD MAINTAINED. (PROE) | PRODUCT CODE | SHEET 6 OF 16

\* TYPICAL APPLICATION: CONSULT LOCAL HAZARDOUS AREA (Ex) ZONING FOR PROCESS FLUID CLASSIFICATION.

# GAS ENVIRONMENT - EPL Ga/Gc SENSOR TEMPERATURE CODE VS. PROCESS TEMPERATURE

TABLE 3 - 8705-M/L: Ex ec of Ex nA - PROTECTION TYPE 'e' OR TYPE 'n'  
SAFETY APPROVAL OPTIONS 'N1', 'N7' AND 'N9'  
ALLOWED TRANSMITTER MOUNTING AND TEMPERATURE CODE VS. PROCESS TEMPERATURE

Line Size	Maximum Process Temperature (°C)	Temperature Code	Transmitter Mounting
0.5"	60	T5	Integral/Remote
	120	T4	Integral/Remote
	180	T3	Remote
1"	60	T5	Integral/Remote
	120	T4	Integral/Remote
	180	T3	Remote
1.5"	60	T5	Integral/Remote
	105	T4	Integral/Remote
	170	T3	Remote
2"	60	T5	Integral/Remote
	105	T4	Integral/Remote
	170	T3	Remote
2.5"	60	T5	Integral/Remote
	110	T4	Remote
	170	T3	Remote
3"	60	T5	Integral/Remote
	115	T4	Remote
	175	T3	Remote
4"	60	T5	Integral/Remote
	115	T4	Remote
	175	T3	Remote
5"	60	T5	Integral/Remote
	120	T4	Remote
	175	T3	Remote
6"	60	T5	Integral/Remote
	120	T4	Remote
	180	T3	Remote
8-36"	60	T5	Integral/Remote
	120	T4	Remote
	180	T3	Remote**

\*\*LINE SIZES 8" AND GREATER SHOULD BE MOUNTED WITH REMOTE JUNCTION BOX (RJB) DOWN OR TO THE SIDE

TABLE 4 - 8711-M/L: Ex ec of Ex nA - PROTECTION TYPE 'e' OR TYPE 'n'  
SAFETY APPROVAL OPTIONS 'N1', 'N7' AND 'N9'  
ALLOWED TRANSMITTER MOUNTING AND TEMPERATURE CODE VS. PROCESS TEMPERATURE

Line Size	Maximum Process Temperature (°C)	Temperature Code	Junction Box Orientation	Transmitter Mounting
1.5"	60	T5	Any	Integral/Remote
	100	T4	Any	Remote
	160	T3	Down	Remote
2"	60	T5	Any	Integral/Remote
	100	T4	Any	Remote
	160	T3	Down	Remote
3"	60	T5	Any	Integral/Remote
	110	T4	Any	Remote
	170	T3	Down	Remote
4"	60	T5	Any	Integral/Remote
	115	T4	Any	Remote
	175	T3	Down	Remote
6"	60	T5	Any	Integral/Remote
	115	T4	Any	Remote
	180	T3	Down	Remote
8"	60	T5	Any	Integral/Remote
	115	T4	Any	Remote
	180	T3	Down	Remote

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

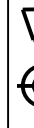
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES (mm). REMOVE ALL BURRS AND SHARP EDGES.

-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

AJ



ROSEMOUNT

TITLE  
**INSTALLATION DRAWING**  
ATEX/IECEx HAZARDOUS (EX) LOCATIONS

DR. N. BOND 2/18/14 DRAWING NO. 08732-2060  
APPD. E. MESSENGER 6/13/14

DO NOT SCALE PRINT CAD MAINTAINED (PROJ) PRODUCT CODE SHEET 7 OF 16

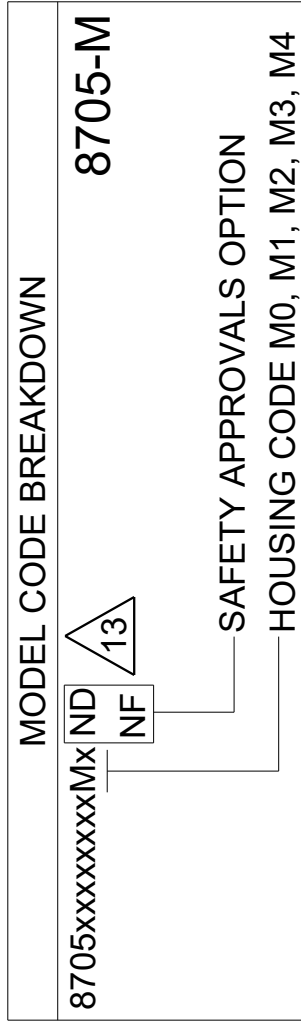
08732-2060

DRAWING NO.

# DUST ENVIRONMENT - EPL Db SENSOR WITH ALLOWED INTEGRAL MOUNT EPL Db TRANSMITTERS

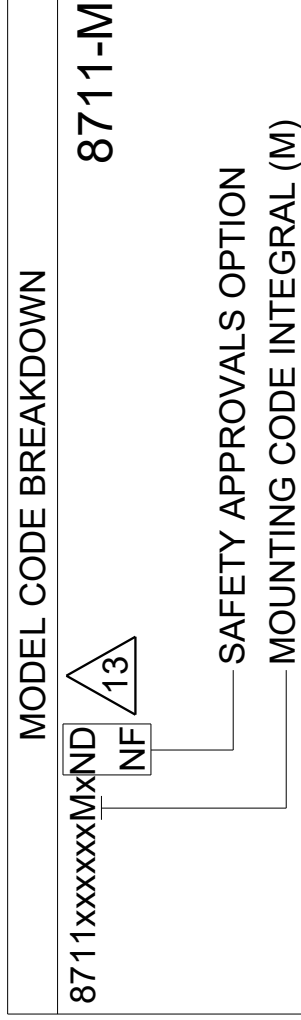
## Ex tb SENSOR INTEGRAL MOUNT CONFIGURATIONS

MODEL 8705-M INTEGRAL MOUNT CONFIGURATION WITH SAFETY APPROVALS OPTION 'ND', 'NF'



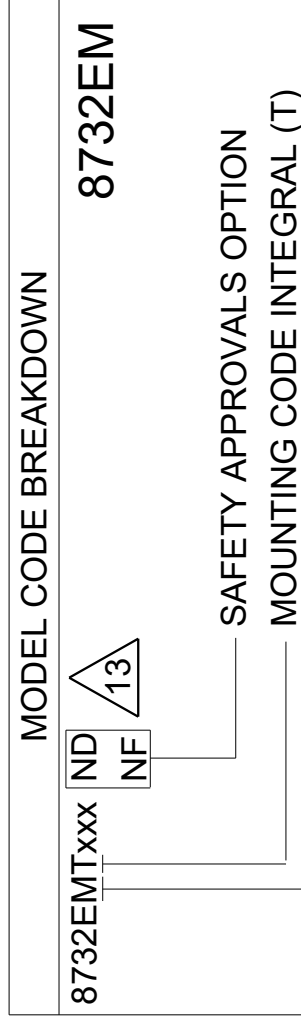
Ex tb IIIC T80 °C...T200 °C Db  
EPL Db, FOR USE IN ZONE 21  
WITH CARBON STEEL HOUSING: (-29°C ≤ Ta ≤ 60°C)  
WITH STAINLESS STEEL HOUSING: (-50°C ≤ Ta ≤ 60°C)  
SEE TABLE 5 FOR PROCESS TEMPERATURE LIMITS AND ALLOWED MOUNTING CONFIGURATIONS

MODEL 8711-M INTEGRAL MOUNT CONFIGURATION WITH SAFETY APPROVALS OPTION 'ND', 'NF'



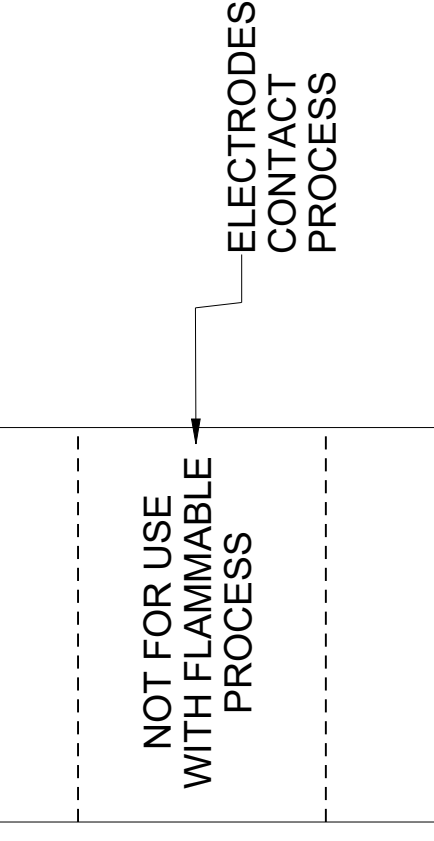
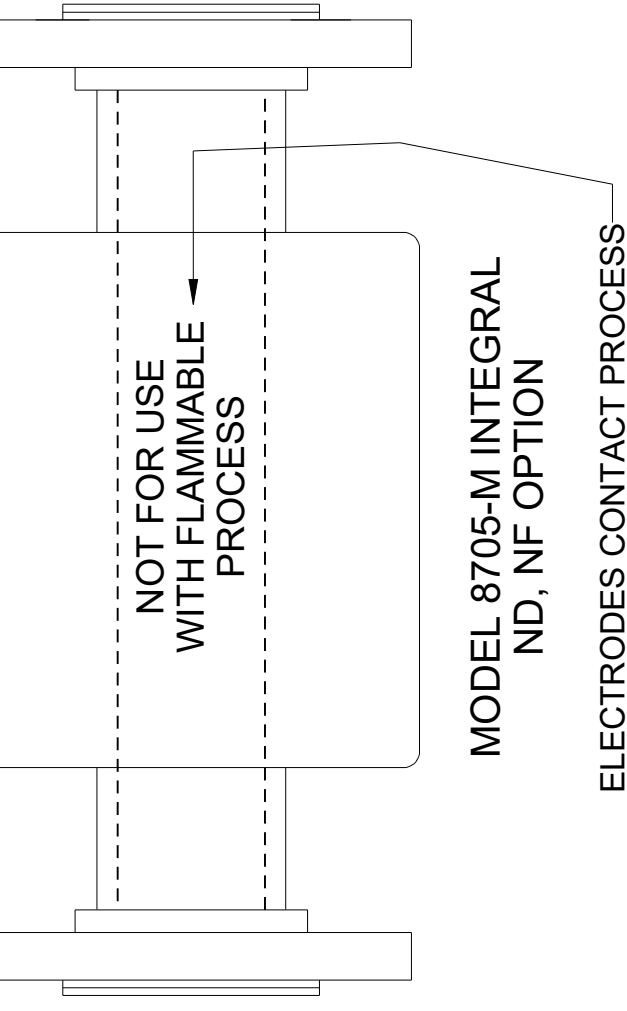
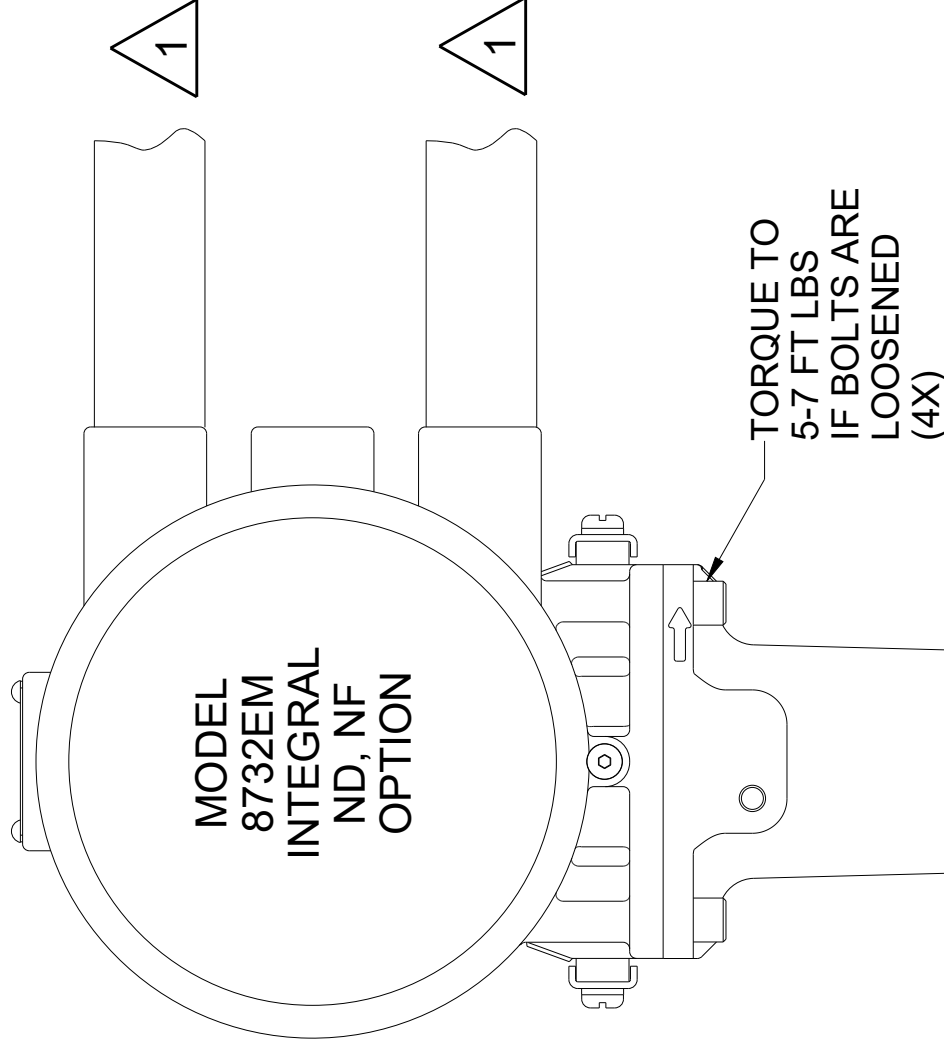
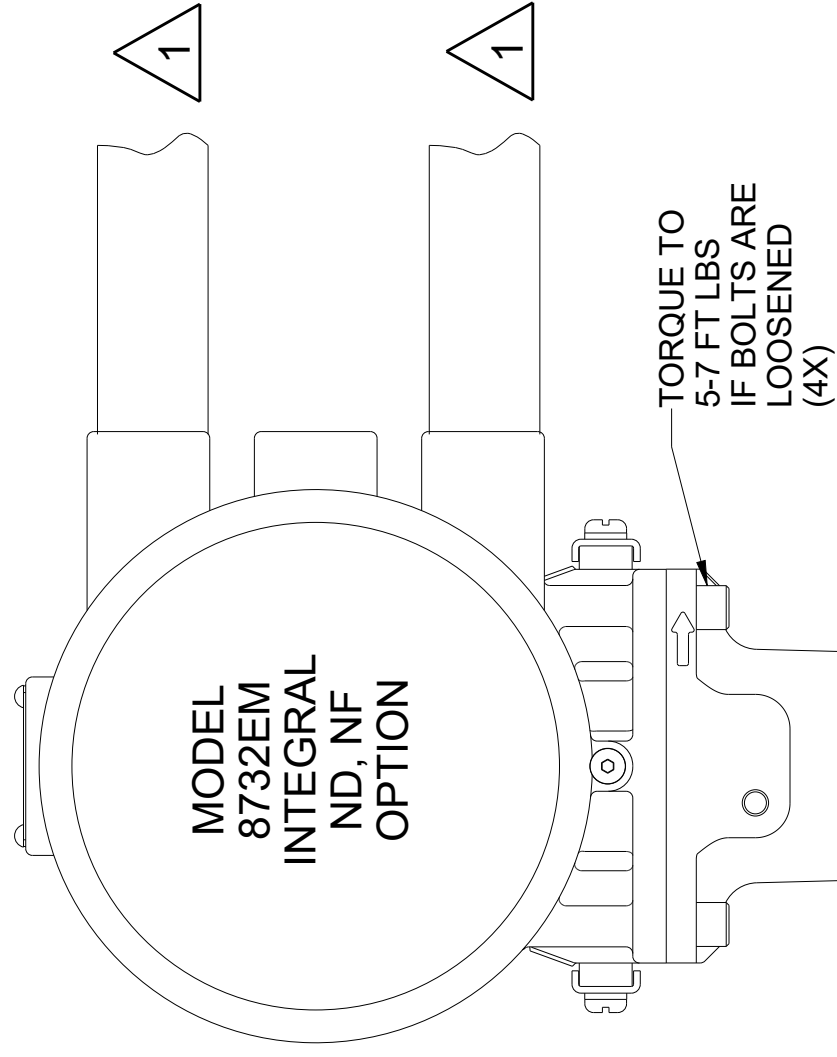
Ex tb IIIC T80 °C...T200 °C Db  
EPL Db, FOR USE IN ZONE 21  
WITH CARBON STEEL HOUSING: (-29°C ≤ Ta ≤ 60°C)  
WITH STAINLESS STEEL HOUSING: (-50°C ≤ Ta ≤ 60°C)  
SEE TABLE 6 FOR PROCESS TEMPERATURE LIMITS AND ALLOWED MOUNTING CONFIGURATIONS

MODEL 8732EM INTEGRAL MOUNT CONFIGURATION WITH SAFETY APPROVALS OPTION 'ND', 'NF'



Ex tb IIIC T 80 °C...T 200 °C Db  
EPL Db, FOR USE IN ZONE 21  
SEE TABLE 5 OR TABLE 6 TEMPERATURE CLASS AND SPECIFIED MAXIMUM SURFACE TEMPERATURE "T" OF FLOWTUBES ON WHICH THE TRANSMITTER IS MOUNTED.

## ALLOWED INTEGRAL MOUNT TRANSMITTER CONFIGURATIONS



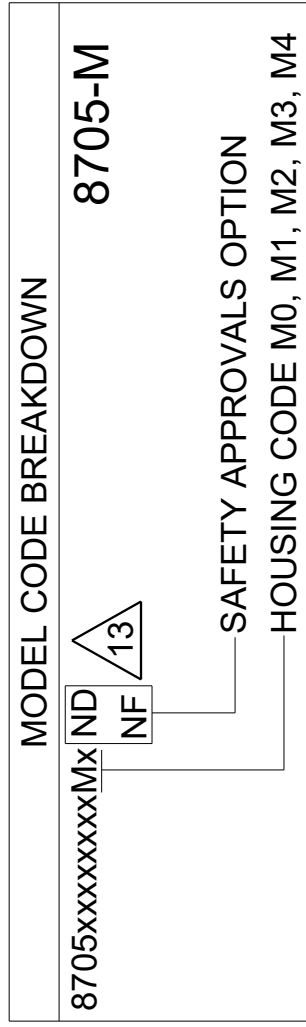
08732-2060  
DRAWING NO.

CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY.	SURFACE FINISH UNLESS OTHERWISE SPECIFIED	125	3RD ANGLE		SIZE	C	SCALE	-	REV	AJ
	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. ROSEMOUNT										
TITLE INSTALLATION DRAWING										
ATEX/IECEx HAZARDOUS (EX) LOCATIONS										
DR.	N. BOND	2/18/14	DRAWING NO.	08732-2060						
APPD.	E. MESSENGER	6/13/14	PRODUCT CODE	DO NOT SCALE PRINT   CAD MAINTAINED. (PROJ)   SHEET8 OF 16						

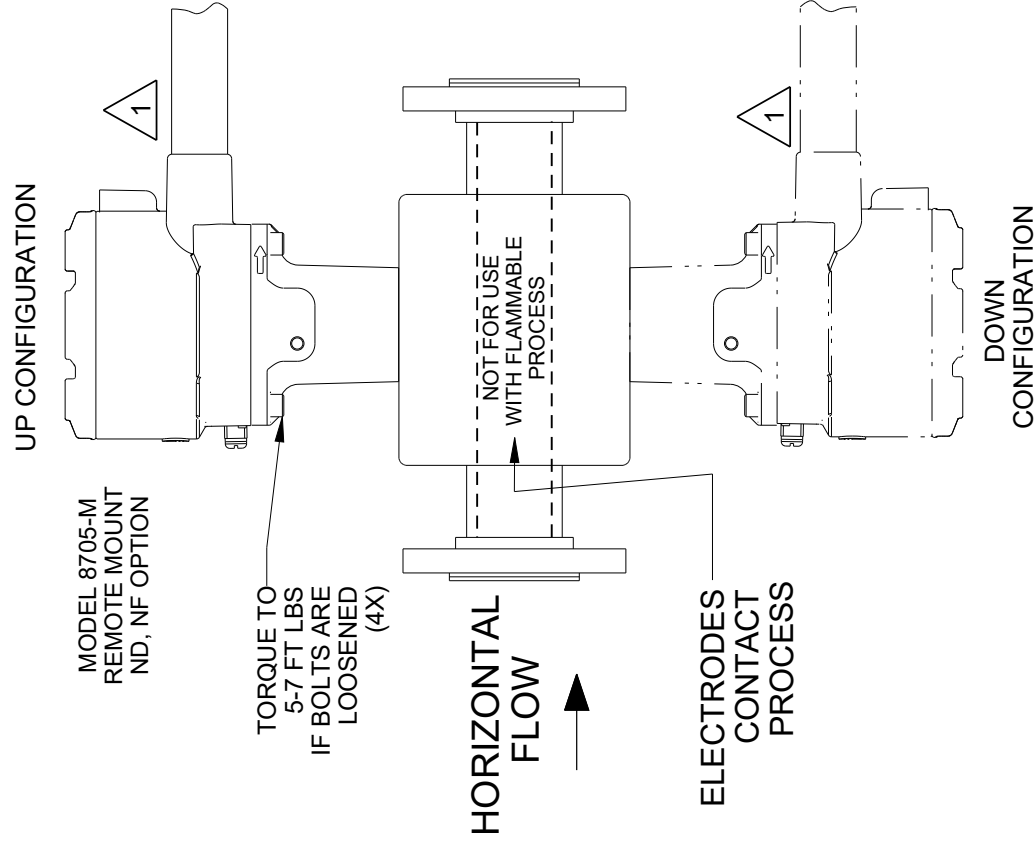
# DUST ENVIRONMENT - EPL Db SENSOR WITH ALLOWED REMOTE MOUNT EPL Db TRANSMITTERS

## Ex tb SENSOR REMOTE MOUNT CONFIGURATIONS

MODEL 8705-M REMOTE CONFIGURATION  
WITH SAFETY APPROVALS OPTION 'ND', 'NF'

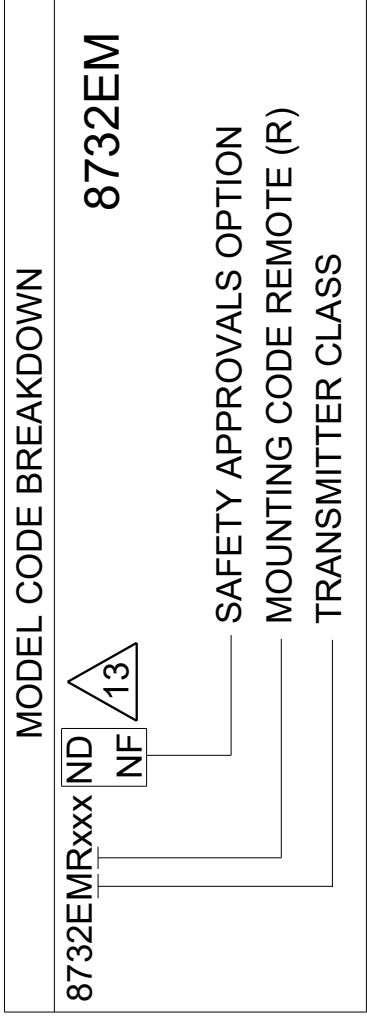


Ex tb IIIC T80 °C...T200 °C Db  
EPL Db, FOR USE IN ZONE 21  
WITH CARBON STEEL HOUSING: (-29°C ≤ Ta ≤ 60°C)  
WITH STAINLESS STEEL HOUSING: (-50°C ≤ Ta ≤ 60°C)  
SEE TABLE 5 FOR PROCESS TEMPERATURE LIMITS AND ALLOWED  
MOUNTING CONFIGURATIONS

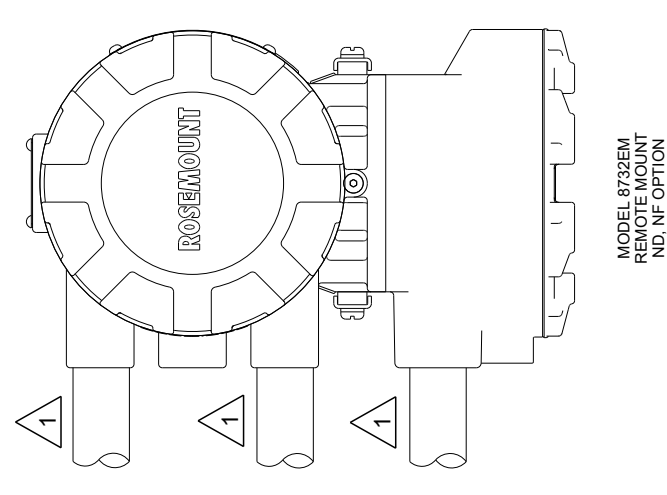


## ALLOWED REMOTE MOUNT TRANSMITTER CONFIGURATIONS

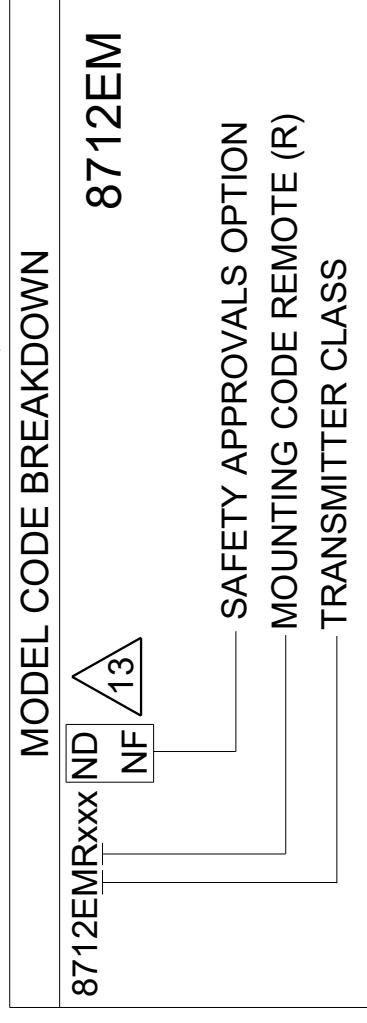
MODEL 8732EM REMOTE MOUNT CONFIGURATION  
WITH SAFETY APPROVAL OPTION 'ND', 'NF'



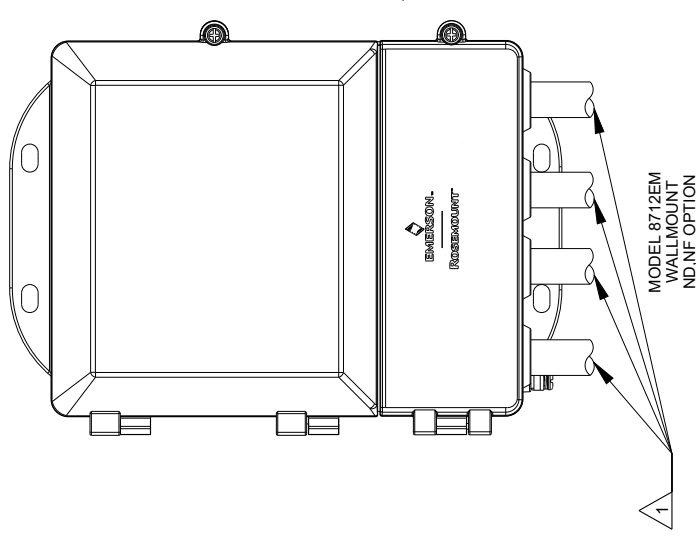
Ex tb IIIC T 80 °C...T 200 °C Db  
EPL Db, FOR USE IN ZONE 21  
REMOTE MOUNT TRANSMITTER MAXIMUM SURFACE  
TEMPERATURE T80°C (-50°C ≤ Ta ≤ 60°C)



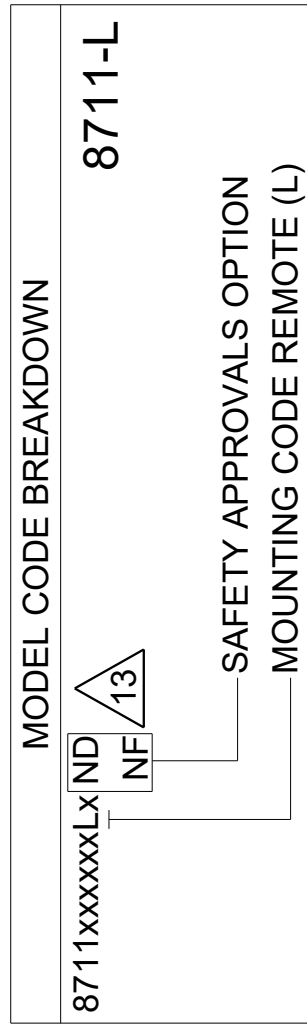
MODEL 8712EM REMOTE MOUNT CONFIGURATION  
WITH SAFETY APPROVAL OPTION 'ND', 'NF'



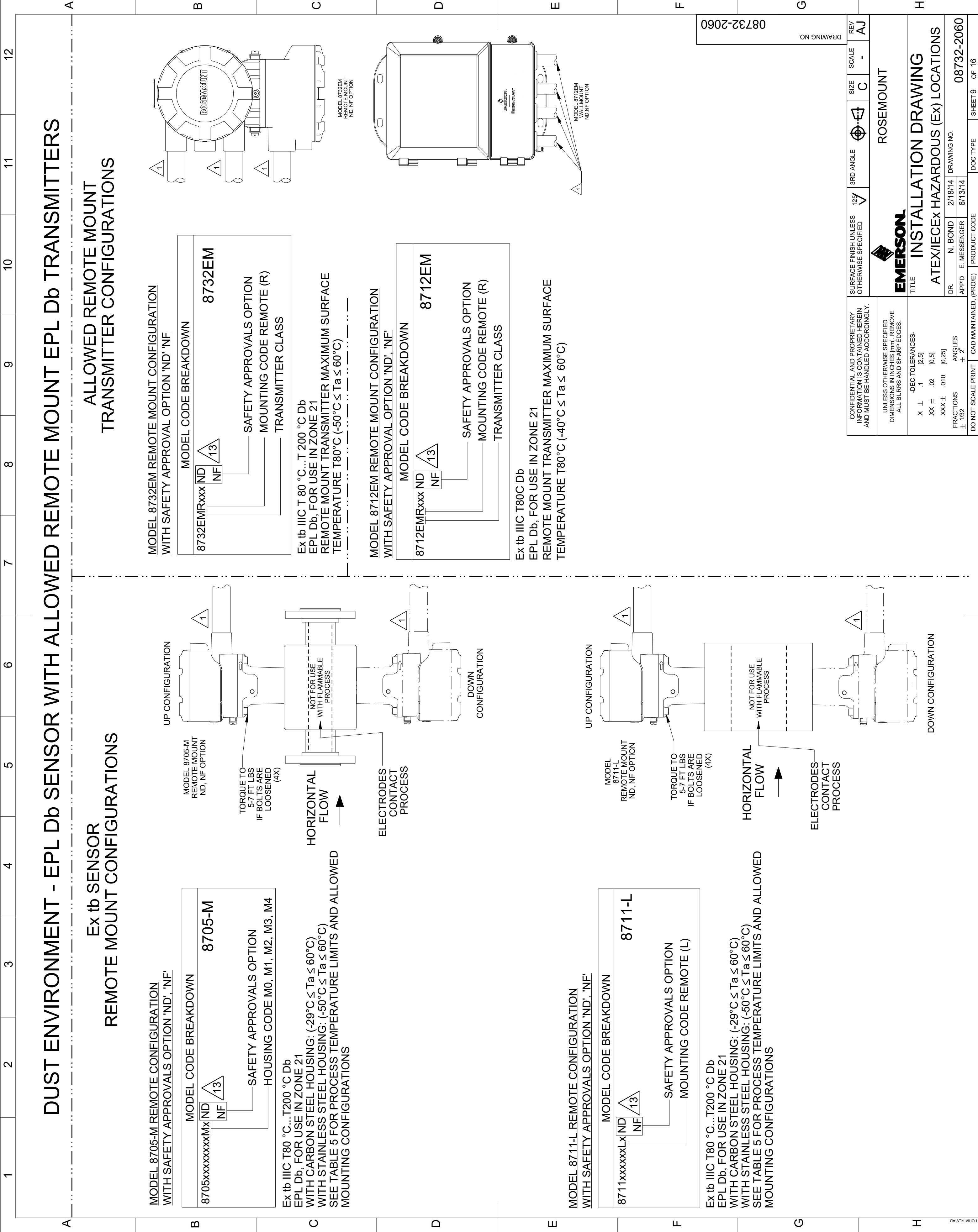
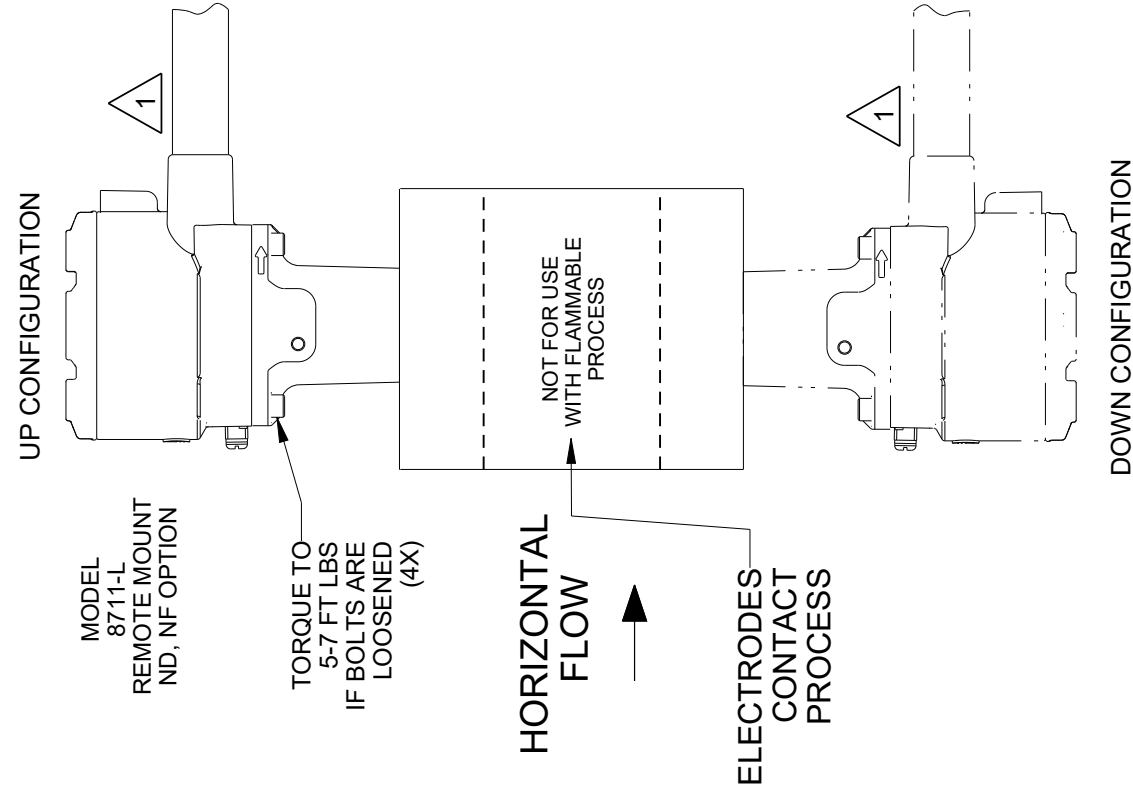
Ex tb IIIC T80C Db  
EPL Db, FOR USE IN ZONE 21  
REMOTE MOUNT TRANSMITTER MAXIMUM SURFACE  
TEMPERATURE T80°C (-40°C ≤ Ta ≤ 60°C)



MODEL 8711-L REMOTE CONFIGURATION  
WITH SAFETY APPROVALS OPTION 'ND', 'NF'



Ex tb IIIC T80 °C...T200 °C Db  
EPL Db, FOR USE IN ZONE 21  
WITH CARBON STEEL HOUSING: (-29°C ≤ Ta ≤ 60°C)  
WITH STAINLESS STEEL HOUSING: (-50°C ≤ Ta ≤ 60°C)  
SEE TABLE 5 FOR PROCESS TEMPERATURE LIMITS AND ALLOWED  
MOUNTING CONFIGURATIONS



CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY.	SURFACE FINISH UNLESS OTHERWISE SPECIFIED	125	3RD ANGLE	SIZE	C	SCALE	-	REV	AJ
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES (mm). REMOVE ALL BURRS AND SHARP EDGES.	EMERSON								
-DEC TOLERANCES-	ROSEMOUNT								
X ± .1 [2.5]	TITLE <b>INSTALLATION DRAWING</b>								
.XX ± .02 [0.5]	ATEX/IECEx HAZARDOUS (EX) LOCATIONS								
.XXX ± .010 [0.25]	DR.	N. BOND	2/18/14	DRAWING NO.	08732-2060				
FRACTIONS ± 1/32	APPD.	E. MESSENGER	6/13/14	DOC TYPE	SHEET9 OF 16				
ANGLES ± 2°	DO NOT SCALE PRINT   CAD MAINTAINED, (PROJ)   PRODUCT CODE								

08732-2060  
DRAWING NO.

# DUST ENVIRONMENT - EPL Db SENSOR TEMPERATURE CODE VS. PROCESS TEMPERATURE

TABLE 5 - 8705-M: Ex tb PROTECTION BY ENCLOSURE 't'  
SAFETY APPROVAL OPTIONS 'ND' AND 'NF'  
ALLOWED TRANSMITTER MOUNTING AND TEMPERATURE CODE VS. PROCESS TEMPERATURE

Line Size	Maximum Process Temperature (°C)	Dust Temperature Code	Transmitter Mounting
0.5"	60	T 80°C	Integral/Remote
	90	T 110°C	Integral/Remote
	120	T 140°C	Integral/Remote
	180	T 200°C	Remote
1"	60	T 80°C	Integral/Remote
	90	T 110°C	Integral/Remote
	120	T 140°C	Integral/Remote
	180	T 200°C	Remote
1.5"	60	T 80°C	Integral/Remote
	90	T 110°C	Integral/Remote
	105	T 125°C	Integral/Remote
	170	T 190°C	Remote
2"	60	T 80°C	Integral/Remote
	90	T 110°C	Integral/Remote
	105	T 125°C	Integral/Remote
	170	T 190°C	Remote
2.5"	60	T 80°C	Integral/Remote
	90	T 110°C	Integral/Remote
	110	T 130°C	Remote
	170	T 190°C	Remote
3"	60	T 80°C	Integral/Remote
	90	T 110°C	Remote
	115	T 135°C	Remote
	175	T 195°C	Remote
4"	60	T 80°C	Integral/Remote
	90	T 110°C	Remote
	115	T 135°C	Remote
	175	T 195°C	Remote
5"	60	T 80°C	Integral/Remote
	90	T 110°C	Remote
	120	T 140°C	Remote
	175	T 195°C	Remote
6"	60	T 80°C	Integral/Remote
	90	T 110°C	Remote
	120	T 140°C	Remote
	180	T 200°C	Remote
8-36"	60	T 80°C	Integral/Remote
	90	T 110°C	Remote
	120	T 140°C	Remote
	180	T 200°C	Remote**

\*\*LINE SIZES 8" AND GREATER SHOULD BE MOUNTED WITH REMOTE JUNCTION BOX (RJB) DOWN OR TO THE SIDE

TABLE 6 - 8711-ML: Ex tb PROTECTION BY ENCLOSURE 't'  
SAFETY APPROVAL OPTIONS 'ND' AND 'NF'  
ALLOWED TRANSMITTER MOUNTING AND TEMPERATURE CODE VS. PROCESS TEMPERATURE

Line Size	Maximum Process Temperature (°C)	Dust Temperature Code	Junction Box Orientation	Transmitter Mounting
1.5"	60	T 80°C	Any	Integral/Remote
	80	T 100°C	Any	Remote
	100	T 120°C	Any	Remote
	160	T 180°C	Down Only	Remote
2"	60	T 80°C	Any	Integral/Remote
	80	T 100°C	Any	Remote
	100	T 120°C	Any	Remote
	160	T 180°C	Down Only	Remote
3"	60	T 80°C	Any	Integral/Remote
	80	T 100°C	Any	Remote
	110	T 130°C	Any	Remote
	170	T 190°C	Down Only	Remote
4"	60	T 80°C	Any	Integral/Remote
	80	T 100°C	Any	Remote
	115	T 135°C	Any	Remote
	175	T 195°C	Down Only	Remote
6"	60	T 80°C	Any	Integral/Remote
	80	T 100°C	Any	Remote
	115	T 135°C	Any	Remote
	180	T 200°C	Down Only	Remote
8"	60	T 80°C	Any	Integral/Remote
	80	T 100°C	Any	Remote
	115	T 135°C	Any	Remote
	180	T 200°C	Down Only	Remote

08732-2060  
DRAWING NO.

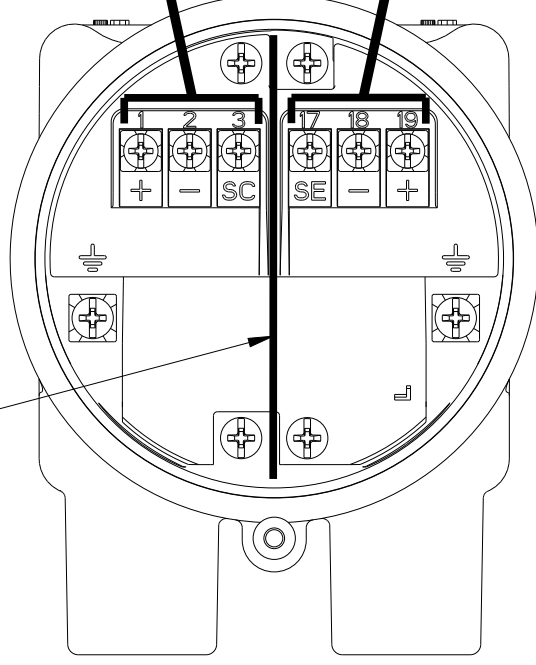
CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY.	SURFACE FINISH UNLESS OTHERWISE SPECIFIED	125	3RD ANGLE	SIZE	C	SCALE	-	REV	AJ
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES (mm). REMOVE ALL BURRS AND SHARP EDGES.	EMERSON. ROSEMOUNT								
-DEC TOLERANCES- X ± .1 [2.5] .XX ± .02 [0.5] .XXX ± .010 [0.25] FRACTIONS ± 1/32 ANGLES ± 2'	TITLE <b>INSTALLATION DRAWING</b> ATEX/IECEx HAZARDOUS (EX) LOCATIONS								
DO NOT SCALE PRINT	CAD MAINTAINED (PROJ)	PRODUCT CODE	DOC TYPE	SHEET 10 OF 16		DR. N. BOND 2/18/14 DRAWING NO. 08732-2060 APPD. E. MESSENGER 6/13/14			



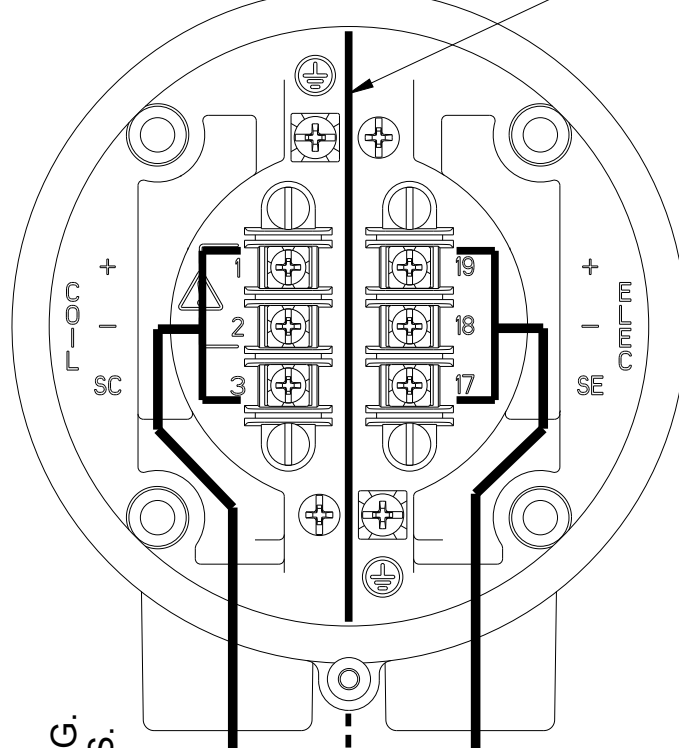
# GAS ENVIRONMENT - COIL AND ELECTRODE CIRCUIT WIRING

MODEL 8732EM WITH INTRINSICALLY SAFE ELECTRODE CIRCUIT FOR USE WITH 8705-M OR 8711-L WITH SAFETY APPROVAL OPTIONS N1, N7, N9, K1, K7, AND K9

COMPONENT CABLES ONLY. SEE TABLE BELOW FOR COMPATIBLE WIRING. SEE INSTALLATION WIRING DRAWING 08732-1504 FOR CABLING DETAILS. (FOR PROCESS TEMPERATURE LIMITS SEE TABLES 1-4)



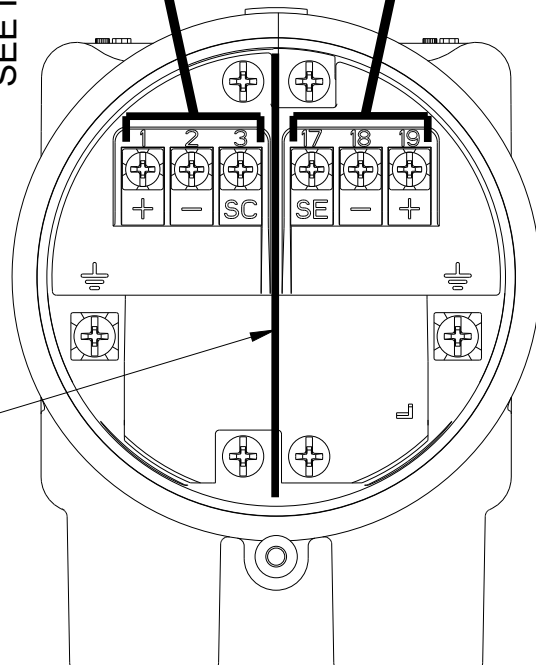
8705-M OR 8711-L FLOWTUBE REMOTE JUNCTION BOX



8732EM TRANSMITTER REMOTE JUNCTION BOX

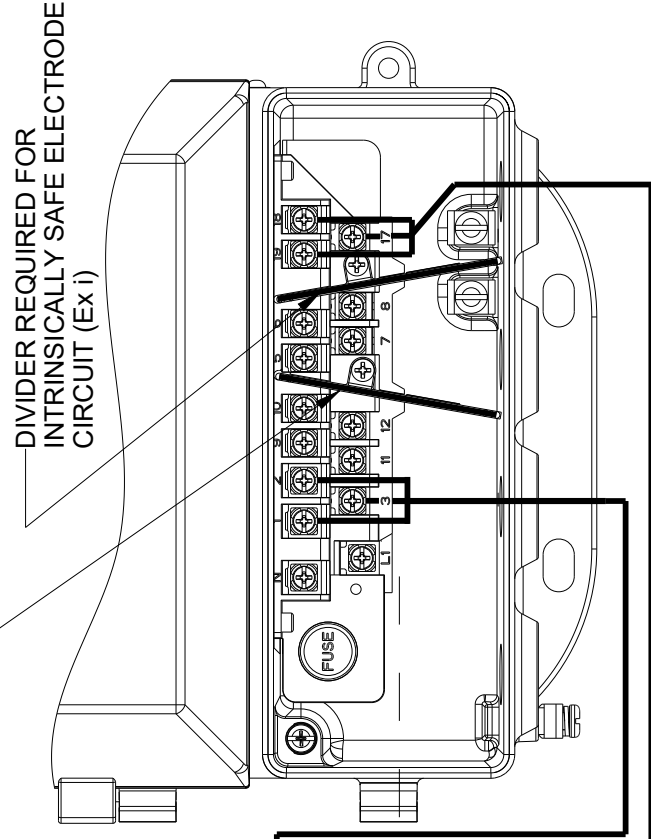
MODEL 8712EM WITH INTRINSICALLY SAFE ELECTRODE CIRCUIT FOR USE WITH 8705-M OR 8711-L WITH SAFETY APPROVAL OPTIONS N1, N7, N9, K1, K7, AND K9

COMPONENT CABLES ONLY. SEE TABLE BELOW FOR COMPATIBLE WIRING. SEE INSTALLATION WIRING DRAWING 08712-1504 FOR CABLING DETAILS. (FOR PROCESS TEMPERATURE LIMITS SEE TABLES 1-4)



8705-M OR 8711-L FLOWTUBE REMOTE JUNCTION BOX

DIVIDER ONLY REQUIRED IF OUTPUT IS INSTALLED AS INTRINSICALLY SAFE OUTPUT (Ex i)



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

## SYSTEM APPROVAL FOR INTRINSICALLY SAFE ELECTRODE INSTALLATION

THE MODEL 8732EM, 8712EM, AND MODEL 8705-M OR MODEL 8711-L MAGNETIC FLOWMETER REFERENCING CONTROL DRAWING 08732-2060 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:

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	

COIL AND INTRINSICALLY SAFE ELECTRODE COMPONENT CABLES:

INDIVIDUAL OR REPLACEMENT INTRINSICALLY SAFE ELECTRODE COMPONENT CABLES:	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 8732EM AND 8712EM  
INTRINSICALLY SAFE ELECTRODE CIRCUIT  
REMOTE JUNCTION BOX TERMINALS 19, 18, 17  
 $U_o = 28.56V$   
 $I_o = 5.77mA$   
 $P_o = 165mW$   
 $C_o = 61.7nF$   
 $L_o = 1.0H$

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

ENTITY CONCEPT FOR INTRINSICALLY SAFE ELECTRODE INSTALLATION



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

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

DIVIDER REQUIRED FOR INTRINSIC SAFETY (Ex i)

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.

FLOW TUBE ENTITY PARAMETERS  
MODEL 8705-M, 8711-L  
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

08732-2060  
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-	FRACCTIONS	ANGLES
X ± .1 (2.5)	.XX ± .02 (0.5)	.XXX ± .010 (0.25)	± 1/32	± 2°

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:	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	



ROSEMOUNT  
**INSTALLATION DRAWING**  
 ATEX/IEC/EX HAZARDOUS (EX) LOCATIONS

DR. N. BOND 2/18/14 DRAWING NO. 08732-2060  
 APPD. E. MESSENGER 6/13/14

DO NOT SCALE PRINT | CAD MAINTAINED. (PROE) | PRODUCT CODE | SHEET 11 OF 16

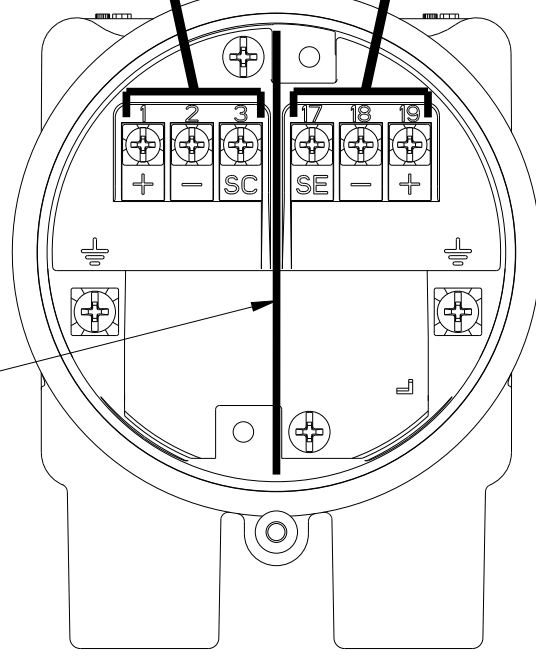
# DUST ENVIRONMENT - COIL AND ELECTRODE CIRCUIT WIRING

MODEL 8732EM WITH NON-INTRINSICALLY SAFE ELECTRODE CIRCUIT FOR USE WITH MODEL 8705-M OR 8711-L WITH SAFETY APPROVAL OPTIONS

OPTIONAL DIVIDER SHOWN

COMPONENT OR COMBINATION COIL/ELECTRODE CABLE ALLOWED.  
SEE INSTALLATION WIRING DRAWING 08732-1504 FOR NON-INTRINSICALLY SAFE CABLING  
(FOR PROCESS TEMPERATURE LIMITS SEE TABLES 5 AND 6)

OPTIONAL DIVIDER SHOWN



8705-M OR 8711-L FLOWTUBE  
REMOTE JUNCTION BOX

NON-INTRINSICALLY SAFE COIL CIRCUIT  
INSTALL USING EPL D<sub>b</sub> 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 EPL D<sub>b</sub> WIRING METHODS APPROPRIATE TO THE  
AREA DEVICE IS INSTALLED IN.

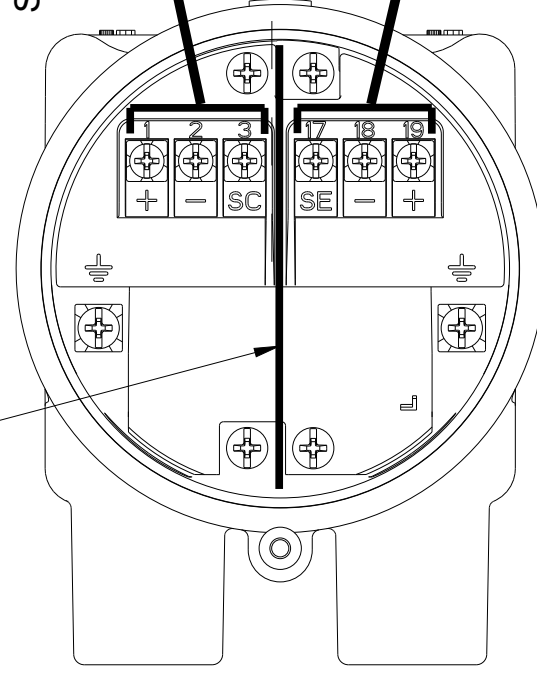
TERMINAL	LABEL
NON-INTRINSICALLY SAFE ELECTRODE CIRCUIT	
19	ELECTRODE +
18	ELECTRODE -
17	ELECTRODE REFERENCE (SE)
NON-INTRINSICALLY SAFE COIL CIRCUIT	
1	COIL +
2	COIL -
3	COIL SHIELD (SC)

8732EM TRANSMITTER  
REMOTE JUNCTION BOX

MODEL 8712EM WITH NON-INTRINSICALLY SAFE ELECTRODE CIRCUIT FOR USE WITH MODEL 8705-M OR 8711-L WITH SAFETY APPROVAL OPTIONS

OPTIONAL DIVIDER SHOWN

COMPONENT OR COMBINATION COIL/ELECTRODE CABLE ALLOWED.  
SEE INSTALLATION WIRING DRAWING 08712-1504 FOR NON-INTRINSICALLY SAFE CABLING  
(FOR PROCESS TEMPERATURE LIMITS SEE TABLES 5 AND 6)



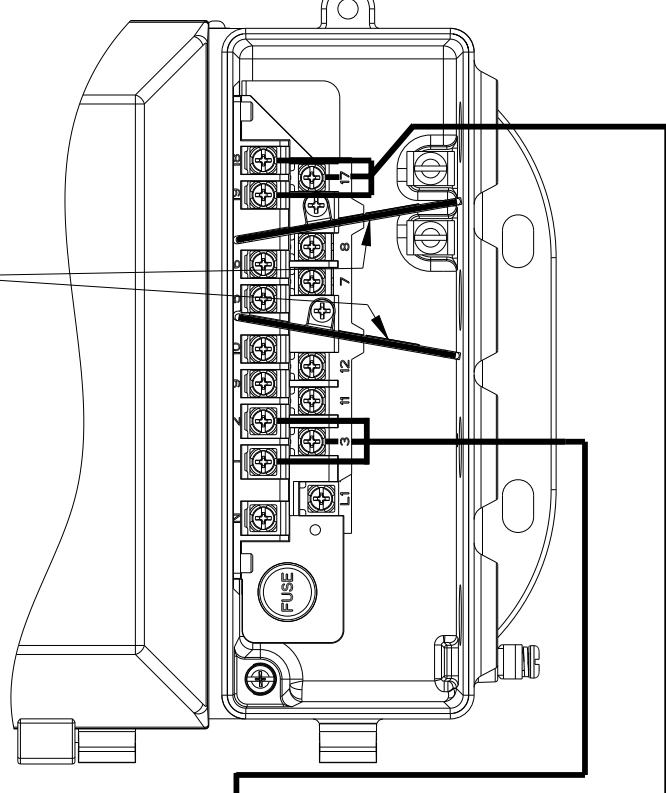
8705-M OR 8711-L FLOWTUBE  
REMOTE JUNCTION BOX

NON-INTRINSICALLY SAFE COIL CIRCUIT  
INSTALL USING EPL D<sub>b</sub> 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 EPL D<sub>b</sub> 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



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

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 C

SCALE -

REV AJ



ROSEMOUNT

TITLE  
**INSTALLATION DRAWING**  
ATEX/IECEx HAZARDOUS (EX) LOCATIONS

DR. N. BOND 2/18/14 DRAWING NO. 08732-2060  
APPD. E. MESSENGER 6/13/14

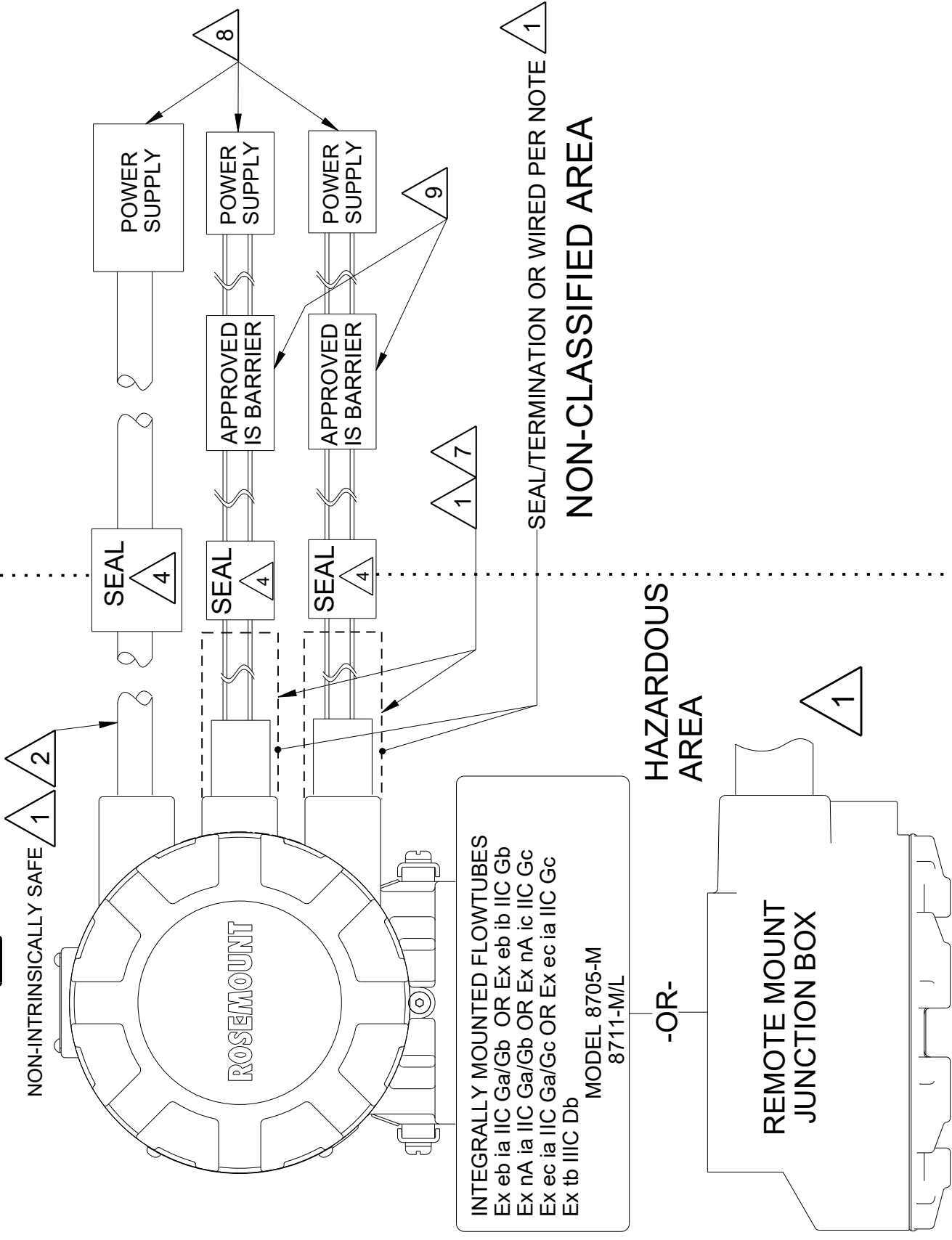
DO NOT SCALE PRINT | CAD MAINTAINED. (PROE) | PRODUCT CODE | DOC TYPE | SHEET 12 OF 16

08732-2060  
DRAWING NO.

# GAS ENVIRONMENT - OUTPUT WIRING

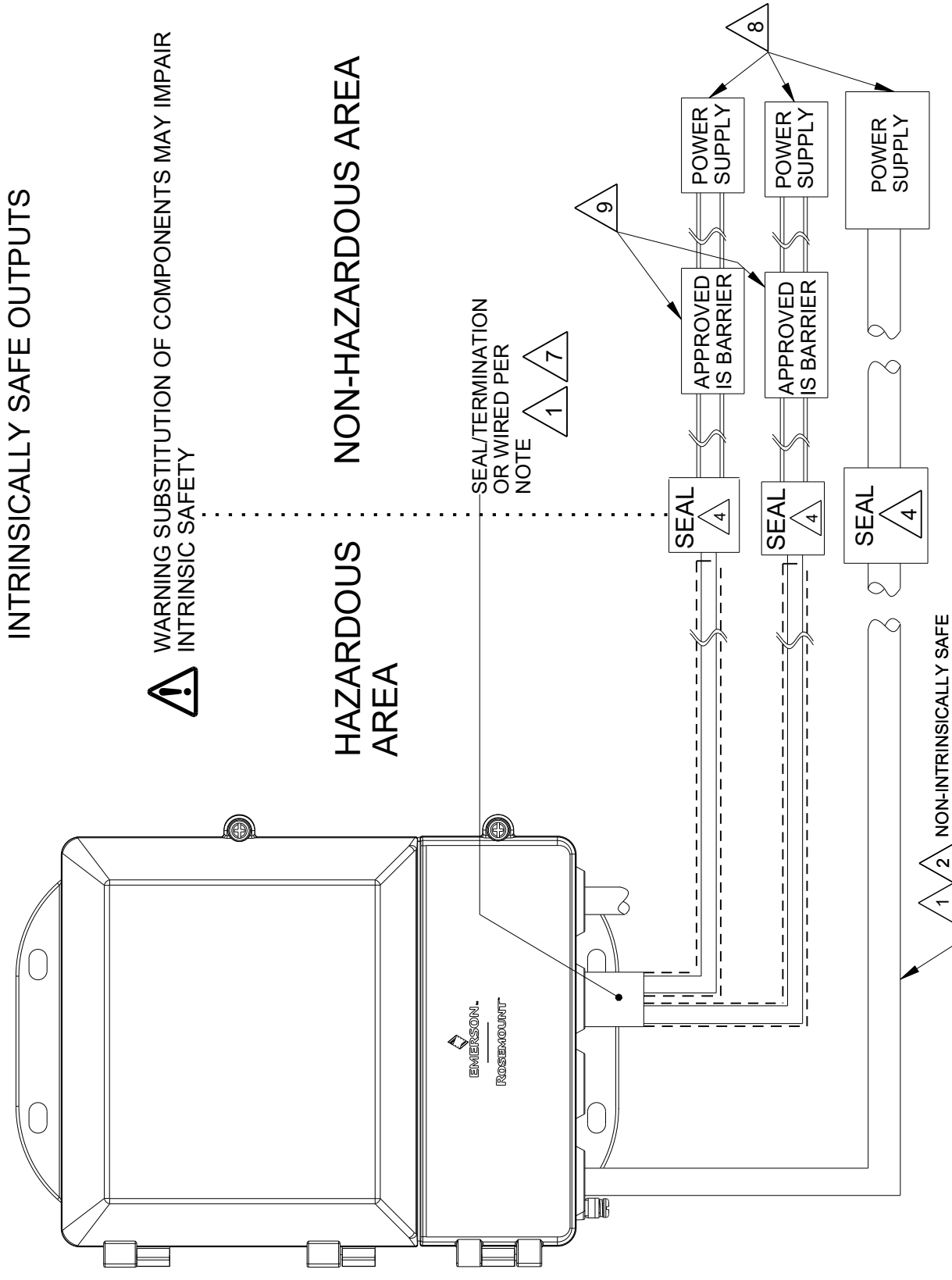
HAZARDOUS (CLASSIFIED) LOCATION CONFIGURATION  
INTRINSICALLY SAFE OUTPUTS

**!** WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY



HAZARDOUS LOCATION CONFIGURATION  
INTRINSICALLY SAFE OUTPUTS

**!** WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY



## 8732EM MODEL CODE BREAKDOWN

### COMMUNICATION OUTPUT OPTIONS

8732EM xx A x	K1	A	NON-INTRINSICALLY SAFE 4-20 mA
B	K7	B	INTRINSICALLY SAFE 4-20mA AND PULSE OUTPUT
F	K9	F	INTRINSICALLY SAFE FOUNDATION FIELDBUS AND PULSE OUTPUT
M	N1	M	NON-INTRINSICALLY SAFE MODBUS AND PULSE OUTPUT
P	N7	P	INTRINSICALLY SAFE PROFIBUS AND PULSE OUTPUT

### SAFETY APPROVALS TRANSMITTER CLASS

## 8712EM MODEL CODE BREAKDOWN

### COMMUNICATION OUTPUT OPTIONS

8712EM xx A x	N1	A	NON-INTRINSICALLY SAFE 4-20 mA
B	N7	B	INTRINSICALLY SAFE 4-20mA AND PULSE OUTPUT
F	N9	F	INTRINSICALLY SAFE FOUNDATION FIELDBUS AND PULSE OUTPUT
M	ND	M	NON-INTRINSICALLY SAFE MODBUS AND PULSE OUTPUT
P	NF	P	INTRINSICALLY SAFE PROFIBUS AND PULSE OUTPUT

### SAFETY APPROVALS TRANSMITTER CLASS

WHEN CONNECTED IN ACCORDANCE WITH THIS DOCUMENT, THE ROSEMOUNT TRANSMITTER MODEL 8732EM OR 8712EM WITH INTEGRAL MOUNT FLOWTUBE OR REMOTE-MOUNT JUNCTION BOX IS APPROVED AS:

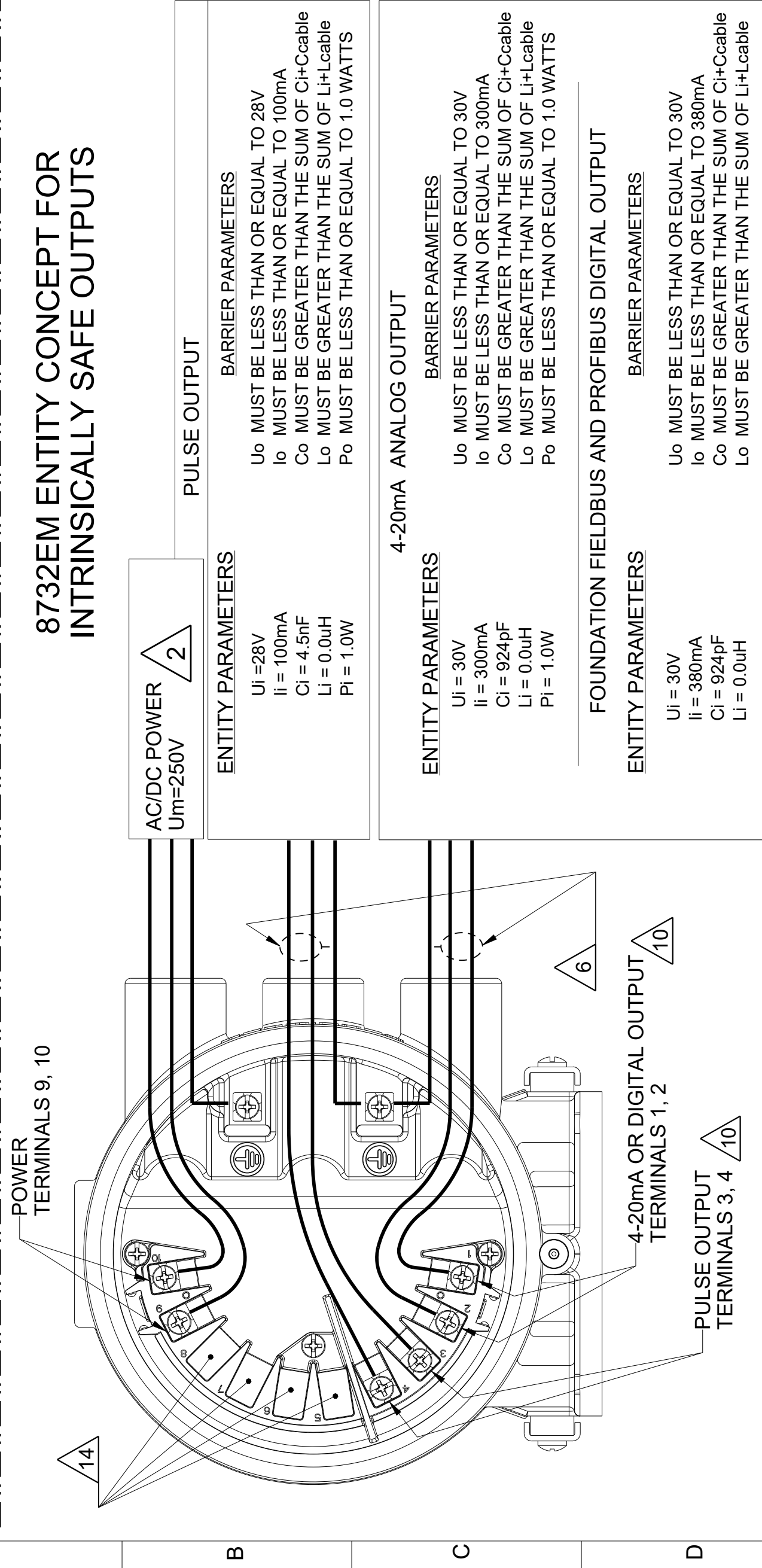
SAFETY APPROVAL OPTIONS CODE	RATINGS
K1/K7/K9	8732EM: Ex db eb [ia Ga] FLAMEPROOF/INCREASED SAFETY WITH INTRINSICALLY SAFE ELECTRODE CONNECTIONS
K1/K7/K9 WITH OUTPUT CODE 'B' OR 'F' OR 'P'	8732EM: Ex db eb [ia Ga] FLAMEPROOF/INCREASED SAFETY WITH INTRINSICALLY SAFE ELECTRODE CONNECTIONS AND INTRINSICALLY SAFE OUTPUT
N1/N7/N9	8732EM: Ex ec [ia Ga] TYPE 'e' AND Ex nA [ia Ga] TYPE 'n' WITH INTRINSICALLY SAFE ELECTRODE CONNECTIONS - DC POWER ONLY 8712EM: Ex ec ic [ia Ga] TYPE 'e' AND Ex nA ic [ia Ga] TYPE 'n' WITH INTRINSICALLY SAFE ELECTRODE CONNECTIONS - DC POWER ONLY
N1/N7/N9 WITH OUTPUT CODE 'B' OR 'F' OR 'P'	8732EM: Ex ec [ia Ga] TYPE 'e' AND Ex nA [ia Ga] TYPE 'n' WITH INTRINSICALLY SAFE ELECTRODE CONNECTIONS AND INTRINSICALLY SAFE OUTPUTS - DC POWER ONLY 8712EM: Ex ec ic [ia Ga] TYPE 'e' AND Ex nA ic [ia Ga] TYPE 'n' WITH INTRINSICALLY SAFE ELECTRODE CONNECTIONS AND INTRINSICALLY SAFE OUTPUTS - DC POWER ONLY
ND/NF	8732EM OR 8712EM: Ex tb IIIC PROTECTION BY ENCLOSURES
ND/NF WITH OUTPUT CODE 'B' OR 'F' OR 'P'	8732EM OR 8712EM: Ex tb IIIC PROTECTION BY ENCLOSURES WITH INTRINSICALLY SAFE OUTPUTS: [Ex ia Ga] IIC

DRAWING NO. 08732-2060

CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY.	SURFACE FINISH UNLESS OTHERWISE SPECIFIED	125°	3RD ANGLE	✓	SCALE	-	REV	AJ
<b>EMERSON</b> ROSEMOUNT								
<b>INSTALLATION DRAWING</b>								
ATEX/IECEx HAZARDOUS (EX) LOCATIONS								
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES (mm). REMOVE ALL BURRS AND SHARP EDGES.			-DEC TOLERANCES-			DR. N. BOND 2/18/14 DRAWING NO. 08732-2060		
X ± .1 [2.5]			.XX ± .02 [0.5]			APPD. E. MESSENGER 6/13/14		
.XXX ± .010 [0.25]			FRACTIONS ± 1/32			DO NOT SCALE PRINT CAD MAINTAINED (PROJ) PRODUCT CODE		
ANGLES ± 2°			DOC TYPE SHEET 13 OF 16			TITLE		

# GAS ENVIRONMENT - INTRINSICALLY SAFE ENTITY CONCEPTS

## 8732EM ENTITY CONCEPT FOR INTRINSICALLY SAFE OUTPUTS



**DEFINITIONS:**

- Ui = MAXIMUM INPUT VOLTAGE
- Ii = MAXIMUM INPUT CURRENT
- Ci = MAXIMUM INTERNAL CAPACITANCE
- Li = MAXIMUM INTERNAL INDUCTANCE
- Pi = MAXIMUM INPUT POWER
- Uo = OPEN CIRCUIT VOLTAGE OF THE BARRIER
- Io = SHORT CIRCUIT CURRENT OF THE BARRIER
- Co = MAXIMUM ALLOWED CAPACITANCE
- Lo = MAXIMUM ALLOWED INDUCTANCE
- Po = MAXIMUM OUTPUT POWER

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

$$U_o \leq U_i, I_o \leq I_i, P_o \leq P_i, C_o \geq C_i + C_{\text{cable}}, L_o \geq L_i + L_{\text{cable}}$$

**ENTITY PARAMETERS**

- Ui = 28V
- Ii = 100mA
- Ci = 4.5nF
- Li = 0.0uH
- Pi = 1.0W

**BARRIER PARAMETERS**

- Uo MUST BE LESS THAN OR EQUAL TO 28V
- Io MUST BE LESS THAN OR EQUAL TO 100mA
- Co MUST BE GREATER THAN THE SUM OF Ci+Ccable
- Lo MUST BE GREATER THAN THE SUM OF Li+Lcable
- Po MUST BE LESS THAN OR EQUAL TO 1.0 WATTS

**4-20mA ANALOG OUTPUT**

**ENTITY PARAMETERS**

- Ui = 30V
- Ii = 300mA
- Ci = 924pF
- Li = 0.0uH
- Pi = 1.0W

**BARRIER PARAMETERS**

- Uo MUST BE LESS THAN OR EQUAL TO 30V
- Io MUST BE LESS THAN OR EQUAL TO 300mA
- Co MUST BE GREATER THAN THE SUM OF Ci+Ccable
- Lo MUST BE GREATER THAN THE SUM OF Li+Lcable
- Po MUST BE LESS THAN OR EQUAL TO 1.0 WATTS

**FOUNDATION FIELDBUS AND PROFIBUS DIGITAL OUTPUT**

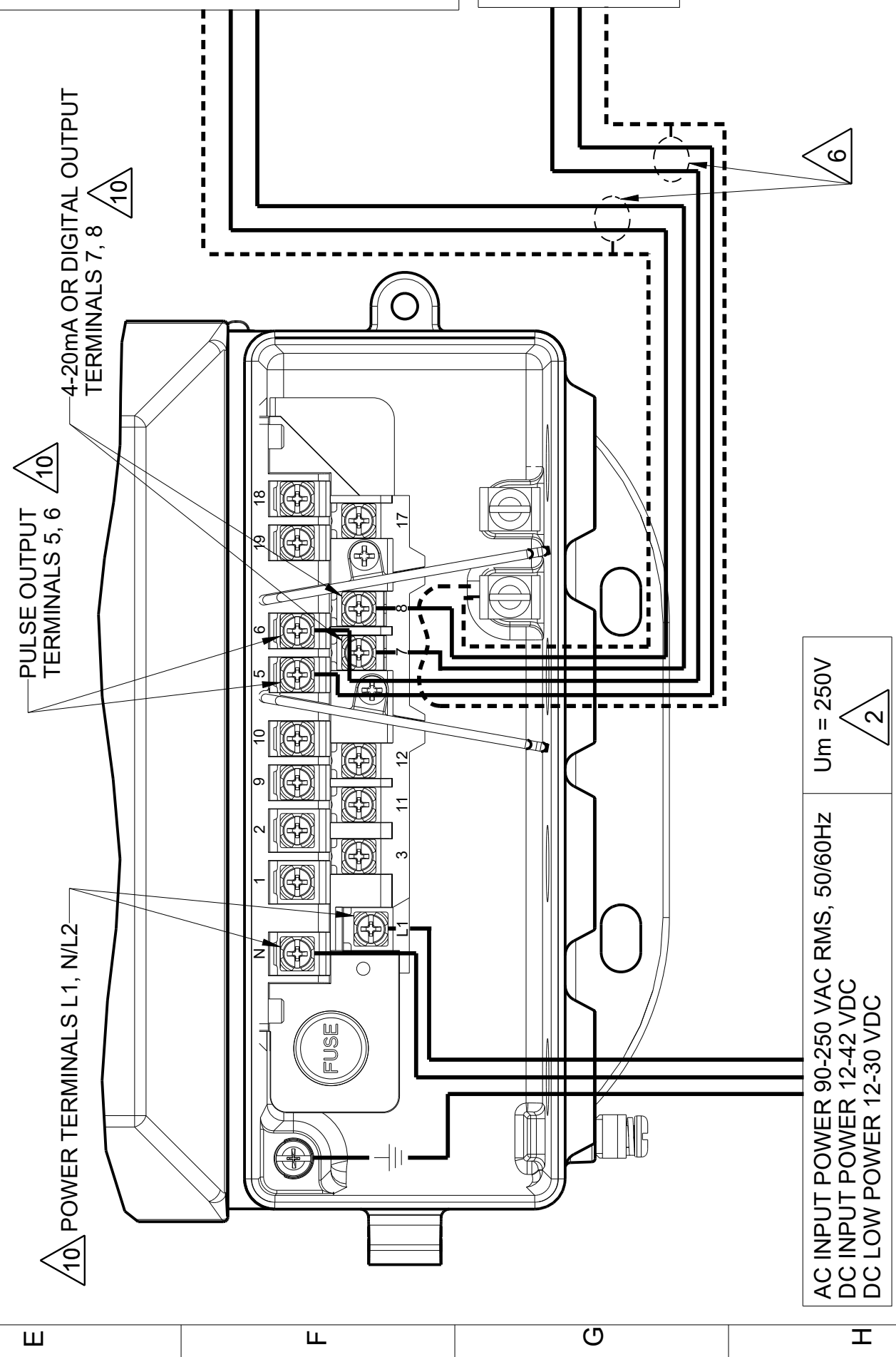
**ENTITY PARAMETERS**

- Ui = 30V
- Ii = 380mA
- Ci = 924pF
- Li = 0.0uH

**BARRIER PARAMETERS**

- Uo MUST BE LESS THAN OR EQUAL TO 30V
- Io MUST BE LESS THAN OR EQUAL TO 380mA
- Co MUST BE GREATER THAN THE SUM OF Ci+Ccable
- Lo MUST BE GREATER THAN THE SUM OF Li+Lcable

## 8712EM ENTITY CONCEPT FOR INTRINSICALLY SAFE OUTPUTS



**ENTITY PARAMETERS**

- Ui = 30V
- Ii = 300mA
- Ci = 924pF
- Li = 0.0uH
- Pi = 1.0W

**4-20mA ANALOG OUTPUT**

**BARRIER PARAMETERS**

- Uo MUST BE LESS THAN OR EQUAL TO 30V
- Io MUST BE LESS THAN OR EQUAL TO 300mA
- Co MUST BE GREATER THAN THE SUM OF Ci+Ccable
- Lo MUST BE GREATER THAN THE SUM OF Li+Lcable
- Po MUST BE LESS THAN OR EQUAL TO 1.0 WATTS

**FOUNDATION FIELDBUS AND PROFIBUS DIGITAL OUTPUT**

**ENTITY PARAMETERS**

- Ui = 30V
- Ii = 380mA
- Ci = 924pF
- Li = 0.0uH

**BARRIER PARAMETERS**

- Uo MUST BE LESS THAN OR EQUAL TO 30V
- Io MUST BE LESS THAN OR EQUAL TO 380mA
- Co MUST BE GREATER THAN THE SUM OF Ci+Ccable
- Lo MUST BE GREATER THAN THE SUM OF Li+Lcable

**PULSE OUTPUT**

**ENTITY PARAMETERS**

- Ui = 28V
- Ii = 100mA
- Ci = 4.5nF
- Li = 0.0uH
- Pi = 1.0W

**BARRIER PARAMETERS**

- Uo MUST BE LESS THAN OR EQUAL TO 28V
- Io MUST BE LESS THAN OR EQUAL TO 100mA
- Co MUST BE GREATER THAN THE SUM OF Ci+Ccable
- Lo MUST BE GREATER THAN THE SUM OF Li+Lcable
- Po MUST BE LESS THAN OR EQUAL TO 1.0 WATTS

AC INPUT POWER 90-250 VAC RMS, 50/60HZ Um = 250V  
 DC INPUT POWER 12-42 VDC  
 DC LOW POWER 12-30 VDC

CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY.	SURFACE FINISH UNLESS OTHERWISE SPECIFIED	125	3RD ANGLE	SIZE	SCALE	REV
	V		⊕	C	-	AJ
ROSEMOUNT						
<b>EMERSON</b>						
<b>INSTALLATION DRAWING</b>						
<b>ATEX/IEC EX HAZARDOUS (EX) LOCATIONS</b>						
TITLE						
DR.	N. BOND	2/18/14	DRAWING NO.			
APPR.	MESSENGER	6/13/14	DRAWING NO.			
DO NOT SCALE PRINT	CAD MAINTAINED (PROJ)	PRODUCT CODE	SHEET 14	OF 16		

DRAWING NO. 08732-2060

1 2 3 4 5 6 7 8 9 10 11 12

A B C D E F G H

# 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 FIELD BUS MUST BE LESS THAN OR EQUAL TO 5 nF AND 10  $\mu$ H RESPECTIVELY.

IN EACH SEGMENT ONLY ONE ACTIVE DEVICE, NORMALLY THE ASSOCIATED APPARATUS, IS ALLOWED TO PROVIDE THE NECESSARY ENERGY FOR THE FIELD BUS 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  $\mu$ A FOR EACH CONNECTED DEVICE. SEPARATELY POWERED EQUIPMENT NEEDS GALVANIC ISOLATION TO ASSURE THAT THE INTRINSICALLY SAFE FIELD BUS 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:

$R = 90.....102 \text{ Ohm}$        $C = 0.....2.2 \mu\text{f}$

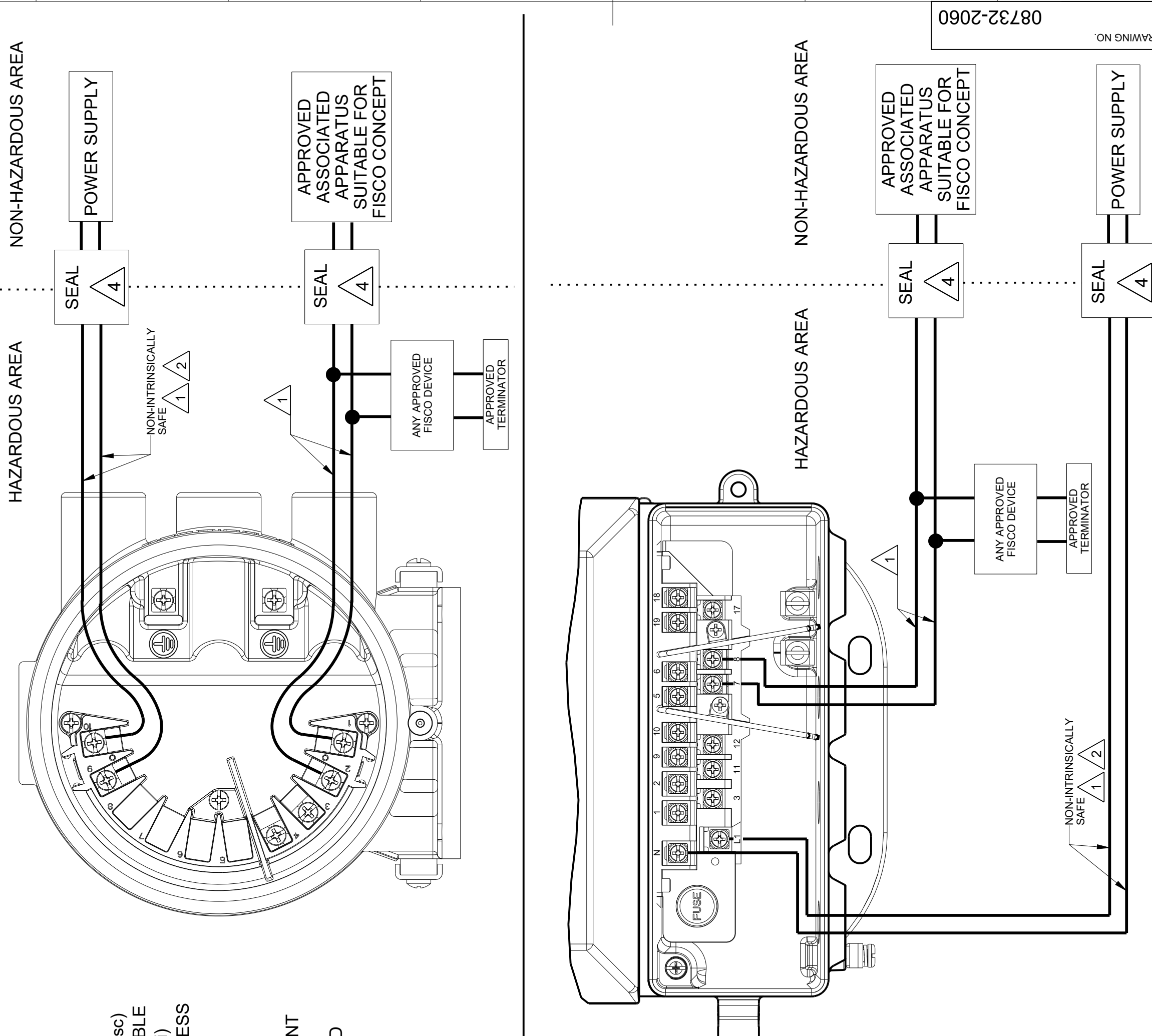
ONE OF THE ALLOWED TERMINATIONS MIGHT ALREADY BE INTEGRATED IN THE ASSOCIATED APPARATUS. THE NUMBER OF PASSIVE APPARATUS CONNECTED TO THE BUS SEGMENT IS NOT LIMITED TO I.S. REASONS. IF THE ABOVE RULES ARE RESPECTED, UP TO A TOTAL LENGTH OF 1000 m (SUM OF TRUNK AND ALL SPUR CABLES) OF CABLE IS PERMITTED.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

## ENTITY PARAMETER

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

## 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  $L_i + L_{cable}$

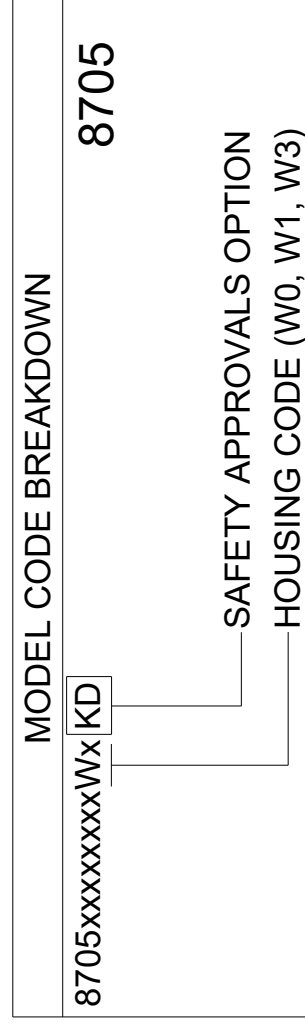


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	UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES (mm). REMOVE ALL BURRS AND SHARP EDGES.	-DEC TOLERANCES- X ± .1 [2.5] .XX ± .02 [0.5] .XXX ± .010 [0.25] FRACTIONS ± 1/32 ANGLES ± 2'							
<b>EMERSON</b> TITLE: <b>INSTALLATION DRAWING</b> ATEX/IECEx HAZARDOUS (EX) LOCATIONS									
DR. N. BOND 2/18/14 DRAWING NO. 08732-2060 APPE. MESSENGER 6/13/14									
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# KD SENSOR AND INTEGRAL MOUNT K1 TRANSMITTER

## ALLOWED ZONE 1 SENSOR INTEGRAL MOUNT CONFIGURATIONS

MODEL 8705 INTEGRAL MOUNT CONFIGURATION WITH SAFETY APPROVALS OPTION 'KD'

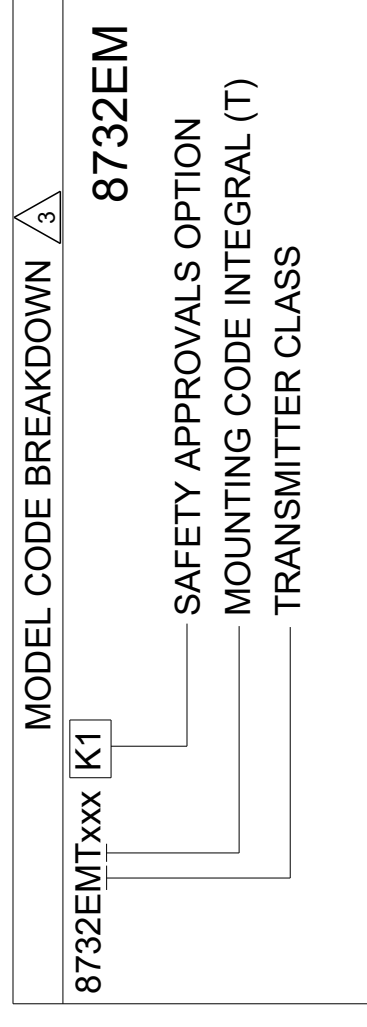


MODEL 8711-U INTEGRAL CONFIGURATION WITH SAFETY APPROVALS OPTION 'KD'

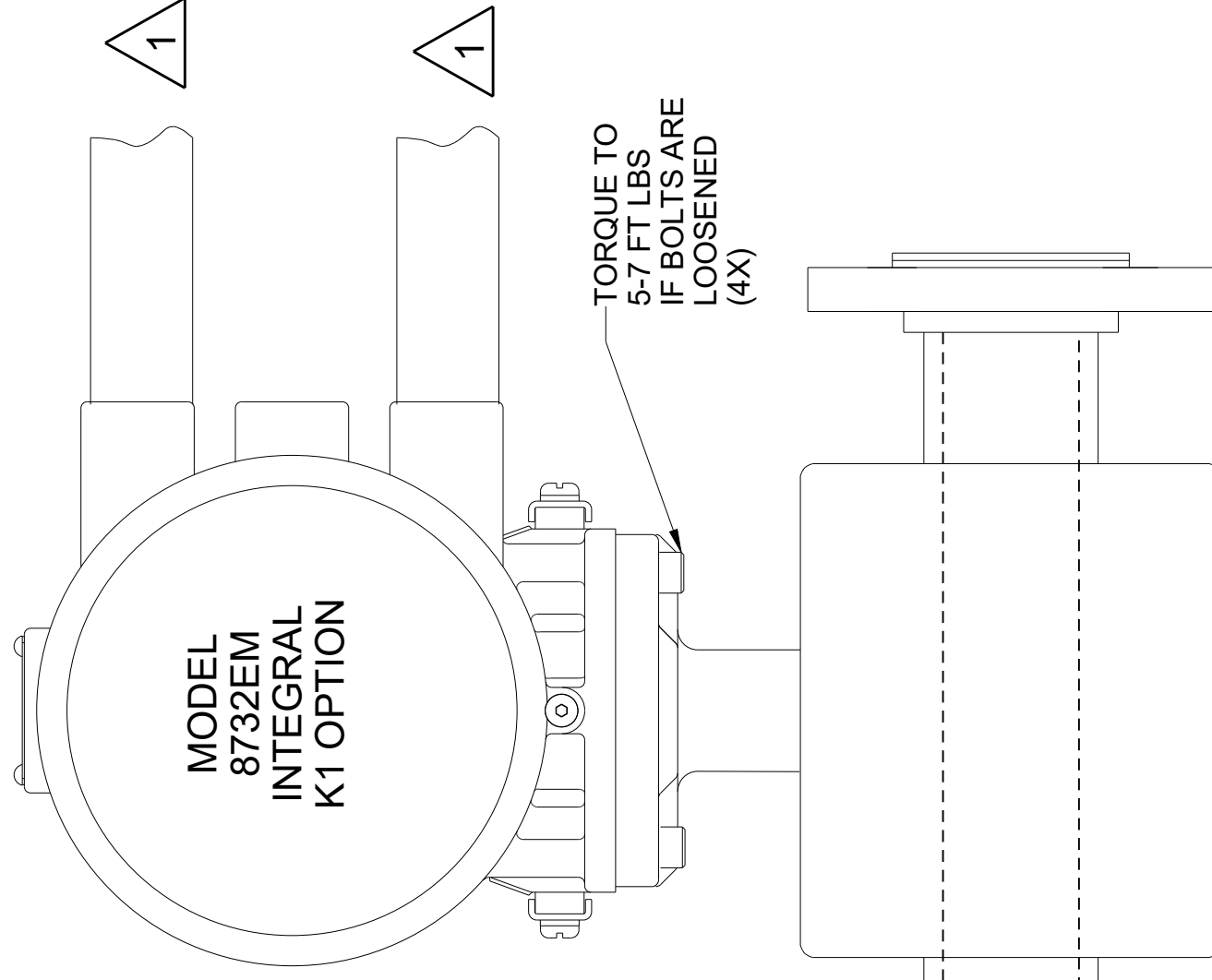


## ALLOWED ZONE 1 INTEGRAL MOUNT TRANSMITTER CONFIGURATIONS

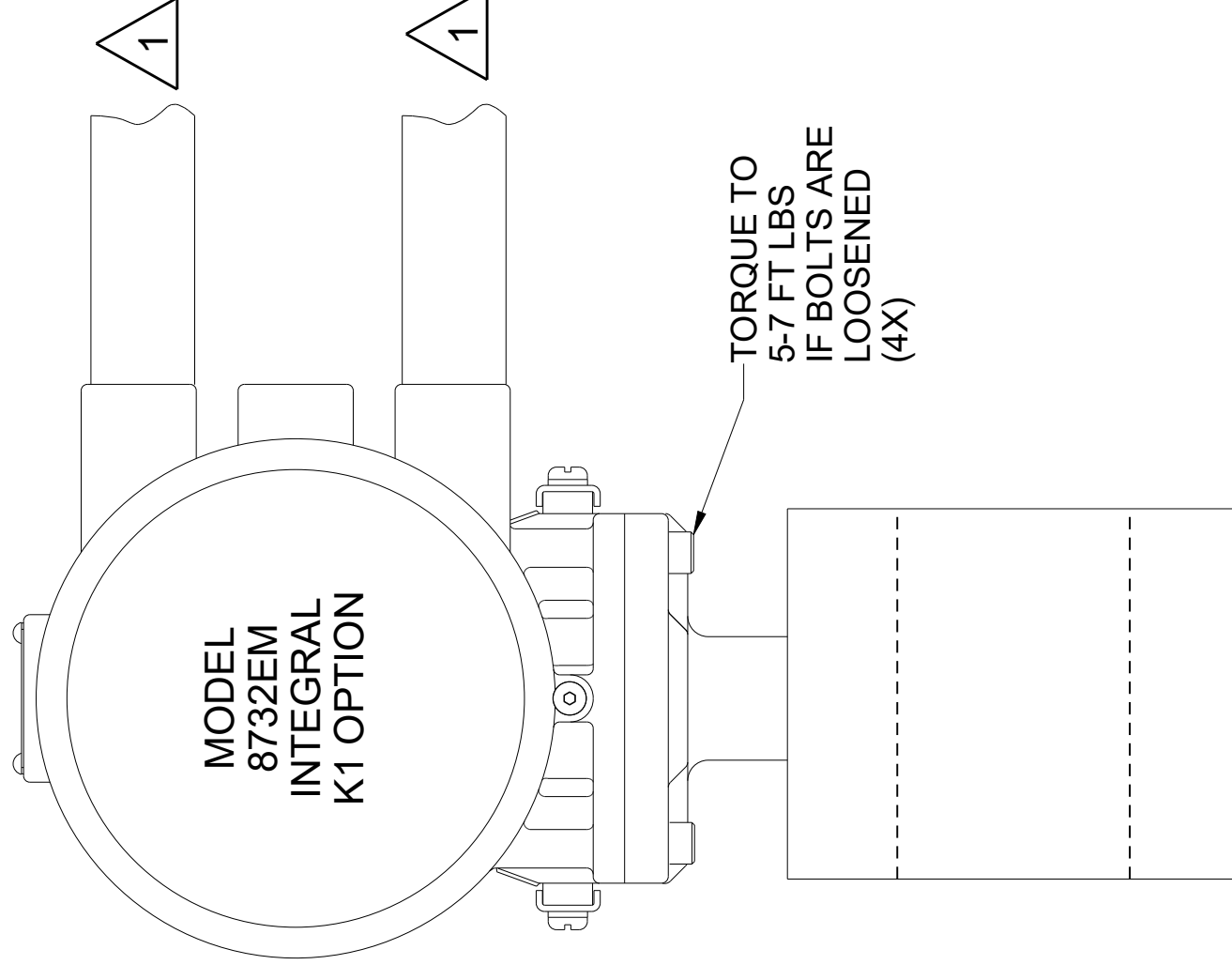
MODEL 8732EM INTEGRAL MOUNT CONFIGURATION WITH SAFETY APPROVAL OPTION 'K1'



Ex db eb [ja] IIC T6...T3 Gb  
EPL Gb. FOR USE IN ZONE 1 OR 2  
SEE TABLE 1 OR TABLE 2 FOR TEMPERATURE CLASS  
FLAMEPROOF ELECTRONICS HOUSING, INCREASED SAFETY  
TERMINAL BLOCK WITH INTRINSICALLY SAFE ELECTRODE  
OUTPUT



MODEL 8705 INTEGRAL  
KD OPTION



MODEL 8732EM INTEGRAL  
KD OPTION

TABLE 7 - COMPATIBILITY AND INSTALLATION CONSIDERATIONS FOR 8732EM 'K1' TRANSMITTER AND 8705/8711 'KD' FLOW TUBES.

INSTALLATION SCENARIO 1:  
8732EM 'K1' TRANSMITTER INTEGRALLY MOUNTED TO 8705 OR 8711 'KD' FLOW TUBE:  
REFER TO TABLES 1 AND 2 FOR ALLOWED TRANSMITTER MOUNTING AND TEMPERATURE CODE VS. PROCESS TEMPERATURE LIMITS.  
INSTALLATION SHOULD BE IN ACCORDANCE WITH LOCAL AND NATIONAL ELECTRICAL CODE, EN 60079-19 OR IEC 60079-19 "EQUIPMENT REPAIR, OVERHAUL AND RECLAMATION"

INSTALLATION SCENARIO 2:  
8732EM 'K1' TRANSMITTER REMOTELY MOUNTED TO 'KD' 8705/8711 FLOW TUBE:  
REMOTE MOUNT TRANSMITTER - TEMPERATURE CLASS: EPL Gb: T6  
THE ORIGINAL 8705/8711 TEMPERATURE CODE VS PROCESS TEMPERATURE INSTALLATION REQUIREMENTS APPLY.  
REFER TO ORIGINAL 8705/8711 FLOW TUBE INSTALLATION DRAWING, 08732-1050.

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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 C

SCALE -

REV AJ

**EMERSON.**  
ROSEMOUNT

TITLE **INSTALLATION DRAWING**

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DRAWING NO. 08732-2060

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