

Rosemount™ 2240S Multi-input Temperature Transmitter



1 Product certifications

Rev 2.20

1.1 European Directive and UKCA Regulations Information

A copy of the EU/UK Declaration of Conformity can be found at the end of this document.

The most recent revision of the EU/UK Declaration of Conformity can be found at [Emerson.com/Rosemount](https://www.emerson.com/Rosemount).

1.2 Ordinary location certification

As standard, the transmitter has been examined and tested to determine that the design meets the basic electrical, mechanical, and fire protection requirements by a Nationally Recognized Test Laboratory (NRTL), as accredited by the Federal Occupational Safety and Health Administration (OSHA).

1.3 Installing equipment in North America

The US National Electrical Code® (NEC) and the Canadian Electrical Code (CEC) permit the use of Division marked equipment in Zones and Zone marked equipment in Divisions. The markings must be suitable for the area classification, gas, and temperature class. This information is clearly defined in the respective codes.

1.4 USA

1.4.1 I5 USA Intrinsic Safety (IS)

Certificate	FM21US0009X
Standards	FM Class 3600–2018; FM Class 3610–2021; FM Class 3810–2021; ANSI/UL 60079-0–2020; ANSI/ISA 60079-11–2014; ANSI/ISA 61010-1–2012; ANSI/IEC 60529–2004; ANSI/NEMA 250–2008
Markings	IS / I,II,III / 1 / ABCDEFG / T4 Ta = -50 °C to 70 °C; D9240040-910 Entity/FISCO; Type 4X/IP66/IP67

I / 0 / AEx ia IIC / T4 Ga Ta = -50 °C to 70 °C;
 D9240040-910 Entity/FISCO; Type 4X/IP66/IP67

I / 1 / AEx ib [ia Ga] IIC T4 Gb Ta = -50 °C to 70 °C;
 D9240040-910 FISCO; Type 4X/IP66/IP67

Specific Conditions for Safe Use (X):

1. The enclosure contains aluminum and is considered to present a potential risk of ignition by impact or friction.
2. Rating I / 1 / AEx ib [ia Ga] IIC T4 Gb Ta = -50°C to 70°C; D9240040-910 FISCO; Type 4X/IP66/IP67 is only applicable when supplied from an FM certified AEx [ib] FISCO Power Supply with triplicate output voltage limitation meeting the requirements for two faults ("ia" voltage limitation).
3. The Rosemount 2240S Multi-Input Temperature Transmitter will not pass the 500Vrms dielectric strength test and this must be taken into account during installation.

	Ui	Ii	Pi	Ci	Li
Entity parameters	30 V	300 mA	1.3 W	2.2 nF	2 µH
FISCO parameters	17.5 V	380 mA	5.32 W	2.2 nF	2 µH

1.5 Canada

1.5.1 I6 Canada CSA Intrinsically Safe

Certificate	FM21CA0005X
Standards	CSA-C22.2 No. 61010-1 2012, CSA-C22.2 No. 25-2017, CSA-C22.2 No. 60529-05 2005 (2010), CSA-C22.2 No. E60079-0 2019, CSA-C22.2 No. E60079-11 2014, CSA-C22.2 No. 94:2011
Markings	IS / I,II,III / 1 / ABCDEFG / T4 Ta = -50 °C to 70 °C; D9240040-910 Entity/FISCO; Type 4X/IP66/IP67 Ex ia IIC T4 Ga Ta = -50 °C to 70 °C; D9240040-910 Entity/FISCO; Type 4X/IP66/IP67 Ex ib [ia Ga] IIC T4 Gb Ta = -50 °C to 70 °C; D9240040-910 FISCO; Type 4X/IP66/IP67


Specific Conditions for Safe Use (X):

1. The enclosure contains aluminum and is considered to present a potential risk of ignition by impact or friction.
2. Rating Ex ib [ia Ga] IIC T4 Gb Ta = -50 °C to 70 °C; D9240040-910 FISCO; Type 4X/IP66/IP67 is only applicable when supplied from an FM certified Ex [ib] FISCO Power Supply with triplicate output voltage limitation meeting the requirements for two faults ("ia" voltage limitation).
3. The Rosemount 2240S Multi-Input Temperature Transmitter will not pass the 500Vrms dielectric strength test and this must be taken into account during installation.

	Ui	Ii	Pi	Ci	Li
Entity parameters	30 V	300 mA	1.3 W	2.2 nF	2 μH
FISCO parameters	17.5 V	380 mA	5.32 W	2.2 nF	2 μH

1.6 Europe and UK

1.6.1 I1 ATEX/UKEX Intrinsic Safety

- Certificate** FM09ATEX0047X
FM21UKEX0047X
- Standards** EN IEC 60079-0:2018
EN 60079-11:2012
EN 60529:2013
- Markings:**  FISCO Field Device
II 1 G Ex ia IIC T4 Ga Ta = -50 °C to 70 °C; Entity/
FISCO; IP66, IP67
II 2(1) G Ex ib [ia Ga] IIC T4 Gb Ta = -50 °C to 70 °C;
FISCO; IP66, IP67

Specific Conditions for Safe Use (X):

1. The enclosure contain aluminum and is considered to present a potential risk of ignition by impact or friction. Care must be taken during installation and use to prevent impact or friction.
2. Rating II 2(1) G Ex ib [ia Ga] IIC T4 Gb Ta = -50 °C to 70 °C; FISCO D9240040-976; IP66, IP67 is only applicable when supplied from a certified Ex [ib] FISCO Power Supply with triplicate output voltage limitation meeting the requirements for two faults ("ia" voltage limitation).

3. The Rosemount 2240S Multi-input Temperature Transmitter will not pass the 500Vrms dielectric strength test and this must be taken into account during installation.

	Ui	Ii	Pi	Ci	Li
Entity parameters	30 V	300 mA	1.3 W	2.2 nF	2 μH
FISCO parameters	17.5 V	380 mA	5.32 W	2.2 nF	2 μH

1.7 International

1.7.1 I7 IECEx Intrinsic Safety

Certificate	IECEX FMG 10.0010X
Standards	IEC 60079-0:2017, IEC 60079-11:2011,
Markings	Ex ia IIC T4 Ga; Tamb = -50 °C to +70 °C; Entity/ FISCO; IP66/IP67 Ex ib [ia Ga] IIC T4 Gb; Tamb = -50 °C to +70 °C; FISCO; IP66/IP67

Specific Conditions for Safe Use (X):

1. The enclosure contains aluminum and is considered to present a potential risk of ignition by impact or friction. Care must be taken during installation and use to prevent impact or friction.
2. Rating Ex ib [ia Ga] IIC T4 Gb; FISCO D9240040-976; IP66/IP67 is only applicable when supplied from a certified Ex [ib] FISCO Power Supply with triplicate output voltage limitation meeting the requirements for two faults ("ia" voltage limitation).
3. The Rosemount 2240S Multi-input Temperature Transmitter will not pass the 500Vrms dielectric strength test and this must be taken into account during installation.

	Ui	Ii	Pi	Ci	Li
Entity parameters	30 V	300 mA	1.3 W	2.2 nF	2 μH
FISCO parameters	17.5 V	380 mA	5.32 W	2.2 nF	2 μH

1.8 Brazil

1.8.1 I2 INMETRO Intrinsic Safety

Certificate	UL-BR 17.0927X
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- Standards** ABNT NBR IEC 60079-0:2013,
ABNT NBR IEC 60079-11:2013,
ABNT NBR IEC 60079-26:2016
- Markings** Ex ia IIC T4 Ga (Entity)
Ex ib IIC [ia Ga] T4 Gb (FISCO)
Tamb = -50 °C to +70 °C, IP 66/67

Specific Conditions for Safe Use (X):

1. See certificate for special conditions.

	Ui	Ii	Pi	Ci	Li
Entity parameters	30 V	300 mA	1.3 W	2.2 nF	2 μH
FISCO parameters	17.5 V	380 mA	5.32 W	2.2 nF	2 μH

1.9 China

1.9.1 I3 NEPSI China Intrinsic Safety

- Certificate** GYJ18.1181X
- Standards** GB 3836.1-2010,
GB 3836.4-2010,
GB 3836.20-2010
- Markings** Ex ia IIC T4 Ga
Ex ib [ia Ga] IIC T4 Gb

Special Conditions for Safe Use (X):

1. See certificate for special conditions.

1.10 Technical Regulations Customs Union (TR-CU)



1.10.1 IM EAC Intrinsic Safety

- Certificate** RU C-SE.AA87.B.00350
- Markings** FISCO field mounted device
0Ex ia IIC T4 Ga X
1Ex ib [ia Ga] IIC T4 Gb X
Tamb = -50 °C to +70 °C, IP 66/67

Specific Conditions for Safe Use (X):

1. See certificate for special conditions.

	Ui	Ii	Pi	Ci	Li
Entity parameters	30 V	300 mA	1.3 W	2.2 nF	2 μH
FISCO parameters	17.5 V	380 mA	5.32 W	2.2 nF	2 μH

1.11 Japan**1.11.1 I4 Japan Intrinsic safe**

Certificate CML 17JPN2123X

Markings Ex ib [ia Ga] IIC T4 Gb, FISCO, -50 °C ≤ Ta ≤ +70 °C

Specific Conditions for Safe Use (X):

1. See certificate for special conditions.

	Ui	Ii	Pi	Ci	Li
FISCO parameters	17.5 V	380 mA	5.32 W	2.2 nF	2 μH

1.12 Republic of Korea

1.12.1 IP Korea Intrinsic safe

Certificate	11-KB4BO-0065X
Markings	FISCO Field Device (Fieldbus Terminal) Ex ia IIC T4

Special Conditions for Safe Use (X):

1. See certificate for special conditions.

	Ui	Ii	Pi	Ci	Li
Entity parameters	30 V	300 mA	1.3 W	2.2 nF	2 μ H
FISCO parameters	17.5 V	380 mA	5.32 W	2.2 nF	2 μ H

1.13 India

1.13.1 IW India Intrinsic safe

Certificate	P501691
Markings	Ex ia IIC T4 Ga Ex ib IIC [ia Ga] T4 Gb

Specific Conditions for Safe Use (X):

1. See certificate for special conditions.

1.14 Custody Transfer

Australia Custody Transfer

Certificate	No 5/1/7
Standards	Regulation 60: National Measurement Regulations 1999

Belgium Custody Transfer

BMS Certificate	NR. P6.0.014.02-B-16
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Croatia Custody Transfer

Certificate	558-02-01_01-15-2
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Czech Republic Custody Transfer

Certificate 0111-CS-C022-10

Estonia Custody Transfer

Certificate TJA 6.13-3_15.09.11

France Custody Transfer

Certificate No. LNE-24609

Germany Custody Transfer

Certificate PTB-1.5-4058175 (Rosemount Tank Gauging system)

India Custody Transfer

Certificate IND/13/12/191

Indonesia Custody Transfer

Certificate DITJEN MIGAS CT approval 26.10.2010

Italy Custody Transfer

Certificate 183349 (Rosemount Tank Gauging system)

Malaysia Custody Transfer

Certificate ATS 09-11

Netherlands Custody Transfer

NMI Certificate TC7982

Norway Custody Transfer

Certificate No. N-11-7146

Poland Custody Transfer

Certificate ZT-7 2013

Portugal Custody Transfer

Certificate P12_101.12_31

Serbia Custody Transfer

Certificate 393-7_0-01-2088

South Africa Custody Transfer

Certificate SAEx S11-065

Switzerland Custody Transfer

Certificate Zulassungszertifikat CH-L-11127-01

Russia Custody Transfer

GOST Pattern Approval:

Certificate SE.C.32.639.A No. 68126 (2240),
OC.C.29.010.A No. 70348 (Rosemount Tank
Gauging system)
OC.C.29.010.A No. 70349 (Rosemount Tank
Gauging system)

Kazakhstan Custody Transfer

GOST Pattern Approval:

Certificate KZ.02.02.06184-2018 (2240)
KZ.02.02.06533-2018 (Rosemount Tank Gauging
system)

OIML Custody Transfer

Certificate R85-2008-SE-11.01

1.15 Approval drawings

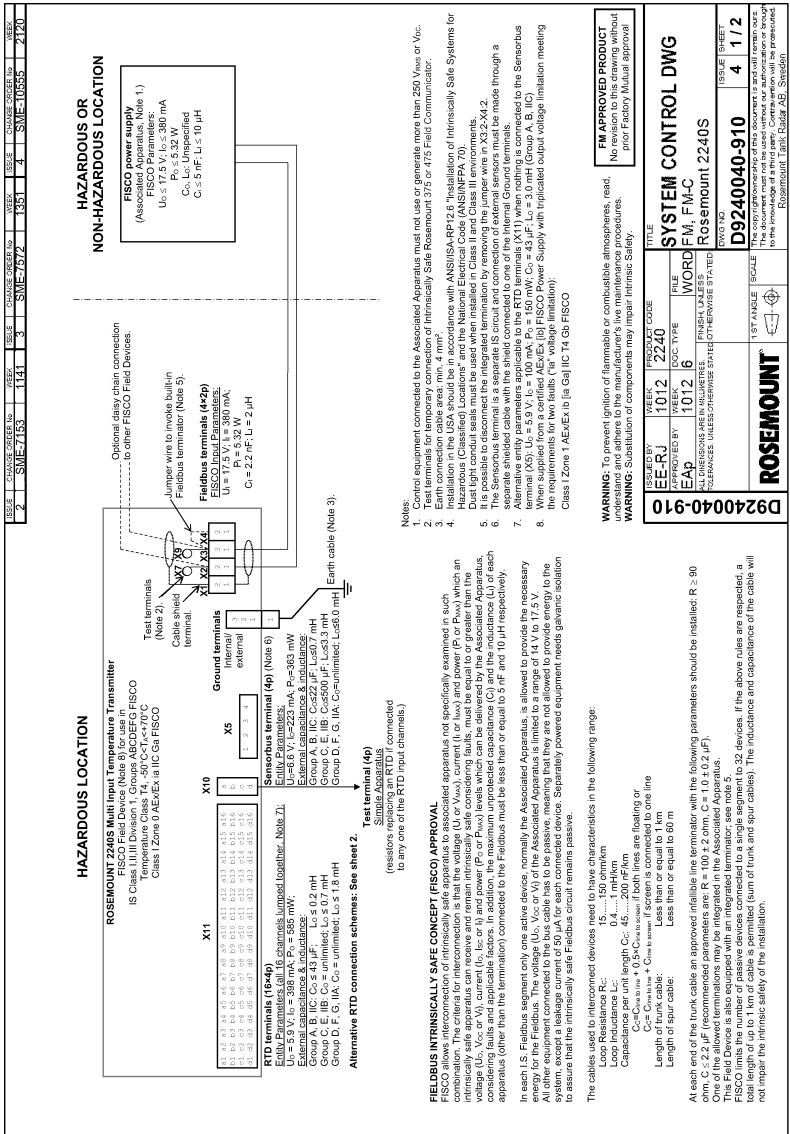
Follow the installation guidelines presented in Factory Mutual system control drawings in order to maintain certified ratings for installed devices.

The following drawings are included in the documentation for the Rosemount 2240S Multi-input Temperature Transmitter:

- [D9240040-910 System Control Drawing](#) for hazardous location installation of intrinsically safe FM-US and FM-C approved apparatus
- [D9240040-976 System Control Drawing](#) hazardous location installation of intrinsically safe FM ATEX/UKEX and FM IECEx approved apparatus

Electronic copies of the system control drawings can also be found on the “Manuals & Drawings” CD ROM that is shipped with the Rosemount 2240S Multi-Input Temperature Transmitter.

Figure 1-1: System Control Drawing D9240040-910



FM APPROVED PRODUCT Not for use in Class I, Division 1, Hazardous Locations without prior Factory Mutual approval.	
SYSTEM CONTROL DWG F.M., F-M-C Rosemount 2240S	TITLE CODE 2240 REV 1012 DATE 10/12/16 DESIGNED BY EAP CHECKED BY 1012/6 WORD 1/1/2
19" PANEL SCALE ROSEMOUNT	19" PANEL SCALE 4 1/2 IS/SL SHEET The drawing must be used without our authorization or through our agent, Rosemount, Inc., Foster, WI, USA.

LISTE	CHANGING SHEET NO.	REVISION	DATE	CHANGE ORDER NO.	DATE	CHANGE ORDER NO.	DATE
Z	SIME-7193	114	3	SIME-7372	131	4	SIME-10955
Z	SIME-7193	114	3	SIME-7372	131	4	SIME-10955

HAZARDOUS LOCATION

ROSEMOUNT 2240S Multi Input Temperature Transmitter
Intrinsically Safe Apparatus (Associated Apparatus)
 Temperature Class T4, -50°C to +170°C
 Class I Zone 0 AEx-Ex, a IIC Ga-Entry

RTD terminals (16x4)
 U_o = 5.9 V, I_o = 398 mA, P_o = 585 mW
 External capacitance & inductance:
 C_o = 0.2 nF, L_o = 0.2 nH
 Group C, E, IIB, Co = unlimited, L_o ≤ 0.7 nH
 Group D, F, G, IIA, Co = unlimited, L_o ≤ 1.6 nH

Sensibus terminal (4p) (Note 6)
 U_o = 6.6 V, I_o = 223 mA, P_o = 963 mW
 External capacitance & inductance:
 C_o = 0.2 nF, L_o = 0.2 nH
 Group C, E, IIB, Co = 540 nF, L_o ≤ 3.3 nH
 Group D, F, G, IIA, Co unlimited, L_o ≤ 8.0 nH

Test terminal (4p) Sense Apparatus
 (Note 7) - This terminal is an RTD. If connected to any one of the RTD input channels.)

NON-HAZARDOUS LOCATION

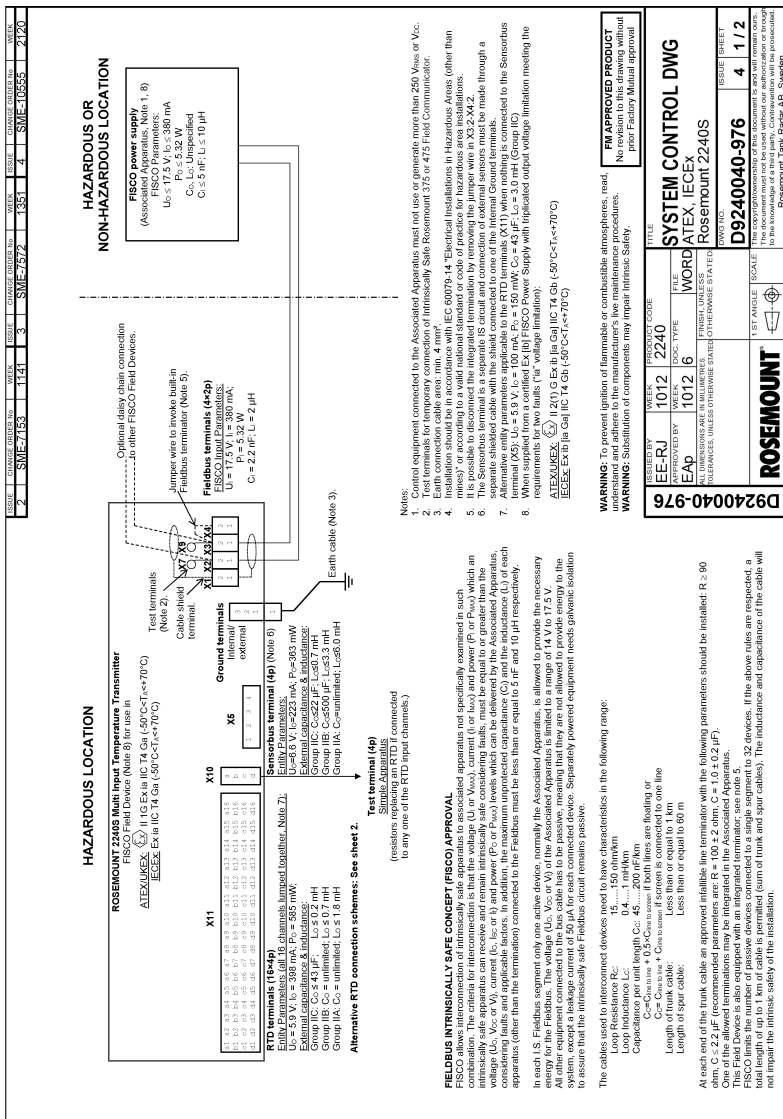
Intrinsically Safe power supply (Associated Apparatus, Note 1).
 External Parameters:
 U_o = 30 V, I_o = 300 mA, P_o = 1.3 W
 Co = 0.2 nF, L_o = 0.2 nH (connected cables and Fieldbus Devices)
 Lo ≥ Total inductance of connected cables and Fieldbus Devices.

Notes:

- Control equipment connected to the Associated Apparatus must not use or generate more than 250 V or V_{oc}.
- Test terminals for temporary connection of Intrinsically Safe Rosemount 375 or 475 Field Communicator.
- Earth connection cross area: min. 4 mm².
- For connection to the Associated Apparatus, use the associated cable with ANS/ISA-PP12.6 (Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations) and the National Electrical Code (ANSI/NFPA 70).
- Dist light conduit seals must be used when installed in Class II and Class III environments.
- The Sensibus terminal is a separate IS circuit and connection of external sensors must be made through a separate shielded cable with the shield connected to one of the internal Ground terminals.
- The Test terminal (4p) Sense Apparatus (Note 7) is connected to the Sensibus terminal (X5), U_o = 5.9 V, I_o = 100 mA, P_o = 160 mW, Co = 43 nF, L_o = 3.0 nH.

IS/ATE REF:	SHEET:	PROJECT CODE:	TITLE:
EE-RJ	1012	2240	SYSTEM CONTROL DWG
DESIGNED BY:	DATE BY:	DOC. TYPE:	REV:
EAP	1012	6	WORD
<small>ALL DIMENSIONS ARE IN MILLIMETRES. FINISH UNLESS OTHERWISE STATED.</small>			
<small>TOLERANCES UNLESS OTHERWISE SPECIFIED OF THE FINEST STATED</small>			
ROSEMOUNT	SCALE:	TEST TABLE:	DATE:
D9240040-910	1:1	A/01	4 / 2 / 2

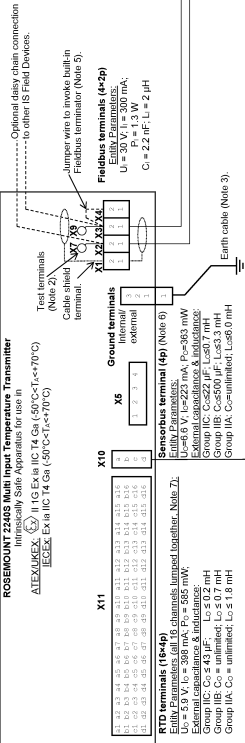
Figure 1-2: System Control Drawing D9240040-976



REV	CHANGE	DATE	BY	CHKD	DATE	BY	CHKD	DATE	BY
2	SME-7183	11/4	3	SME-7572	1/81	4	SME-10655	2/20	

HAZARDOUS OR NON-HAZARDOUS LOCATION

HAZARDOUS LOCATION



HAZARDOUS OR NON-HAZARDOUS LOCATION

Intrinsically Safe power supply (Associated Apparatus; Note 1)

Fieldbus Parameters:

- $U_s \leq 30$ V; $I_s \leq 300$ mA; $P_s \leq 1.3$ W
- $C_s \geq$ Total capacitance of connected cables and fieldbus devices.
- $L_s >$ Total inductance of connected cables and fieldbus devices.

HAZARDOUS LOCATION

Optional daisy chain connection to other IS Field Devices.

Jumpers wire to invoke built-in Fieldbus terminal (Note 5)

Fieldbus terminals (4+4p)

Fieldbus Parameters:

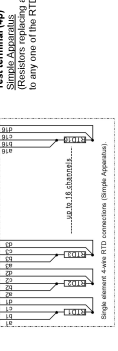
- $U = 24$ V; $I = 100$ mA; $P = 1.3$ W
- $C = 2.2$ μ F; $L = 2$ μ H

Earth cable (Note 3).

Notes:

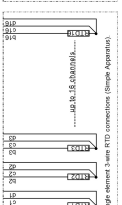
- Control equipment connected to the Associated Apparatus must not use or generate more than 250 Vrms or Vcc.
- Test terminals for temporary connection of Intrinsically Safe Rosemount 375 or 475 Field Communicator.
- Installation should be in accordance with IEC 60079-14 "Electrical Installations in Hazardous Areas (other than mines)" or according to a valid national standard or code of practice for hazardous area installations.
- For installation in a hazardous area, the transmitter must be installed in a suitable enclosure.
- The Sensorbus terminal is a separate IS circuit and connection of external sensors must be made through a separate shielded cable with the shield connected to one of the Internal Ground terminals.
- For installation in a hazardous area, the transmitter must be installed in a suitable enclosure.
- terminal (X5): $U_s \leq 5.9$ V; $I_s = 100$ mA; $P_s = 150$ mW; $C_s = 43$ μ F; $L_s = 3.0$ mH

Alternative RTD connection schemes (Simple Apparatus)



Test terminal (4p) Simple Apparatus

(Resistors replacing an RTD if connected to any one of the RTD input channels.)



WARNING: To prevent ignition of flammable or combustible atmospheres, read, understand and adhere to the manufacturer's live maintenance procedures. **WARNING:** Substitution of components may impair intrinsic safety.

IDENTIFY	ONLY	2240	TITLE	SYSTEM CONTROL DWG
EE-RJ	1012	1012	REV	WORD ATEX, IECEx
EAp	1012	6	REV	WORD ATEX, IECEx
ALL DIMENSIONS ARE IN MILLIMETRES (FIRST UNLESS OTHERWISE STATED)				
TOLERANCES, UNLESS OTHERWISE STATED: (0) FRACTIONAL (0.1) DECIMAL (0.01) PERCENT				
PROJECT NO.	D9240040-976			TEST SHEET
				4 / 2 / 2

ENTITY CONCEPT APPROVAL

The Entity concept allows interconnection of intrinsically safe apparatus not specifically examined in certification as a system. The approved values of max open circuit voltage (U_c, V_{cc} or V₀), max short circuit current (I_{sc}, I_c or I₀), max voltage (U or V_{sc}), maximum safe input current (I or I_{sc}) and maximum safe input power (P or P_{sc}) of the intrinsically safe apparatus. In addition, the approved max. allowable connected capacitance (C_c or C₀) of the associated apparatus must be greater than the sum of the interconnecting cable inductance and the unprotected internal inductance (L_i) of the intrinsically safe apparatus.




1:50 SCALE

ROSEMOUNT, Tank, Radar AB, Sweden


1.16 Declaration of Conformity

Figure 1-3: Rosemount 2240S EU Declaration of Conformity

Rev. #2



Declaration of Conformity



We, **Rosemount Tank Radar AB**
 Layoutvägen 1
 S-43533 Mölnlycke
 Sweden

declare under our sole responsibility that the product,


Rosemount™ 2240 Multi-Input Temperature Transmitter

manufactured by

Rosemount Tank Radar AB
 Layoutvägen 1
 S-43533 Mölnlycke
 Sweden

to which this declaration relates, is in conformity with:

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



 (signature)

2022-09-02, Mölnlycke

 (date of issue & place)

Dajana Prastalo

 (name)

Manager Product Approvals

 (function)

ATEX Notified Body for EU Type Examination Certificates and Type Examination Certificates:

FM Approvals Europe Ltd. [Notified Body Number: 2809]
 One Georges Quay Plaza
 Dublin, D02 E440
 Ireland

ATEX Notified Body for Quality Assurance:

DNV GL Presafe AS [Notified Body Number: 2460]
 Veritasveien 3
 1363 Håvik
 Norway


UKEX Conformity Assessment Body for UKEX Type Examination Certificates:

FM Approvals Ltd. [Notified Body Number: 1725]
 1 Windsor Dials
 Berkshire, SL4 1RS
 United Kingdom


UK Notified Body for Quality Assurance:

DNV Business Assurance UK Ltd [Notified Body Number: 6501]
 4th Floor Vivo Building
 30 Stamford Street
 London, SE1 9LQ
 United Kingdom

Rev. #2



Declaration of Conformity



<p><u>EMC Electromagnetic Compatibility Directive 2014/30/EU</u></p> <p>Harmonized Standards: EN 61326-1:2013</p> <hr/> <p><u>ATEX Directive (2014/34/EU)</u></p> <p>FM09ATEX0047X</p> <p>Intrinsic Safety (Foundation@Fieldbus, FISCO):</p> <p>Equipment Group II, Category 1 G, Ex ia IIC T4 Ga Equipment Group II, Category 2 (1) G, Ex ib [ja Ga] IIC T4 Gb</p> <p>Harmonized Standards: EN IEC 60079-0:2018 EN 60079-11:2012 EN 60529-1991/A1:2000/A2:2013</p> <hr/> <p><u>RoHS Directive (2011/65/EU) Amended 2015/863</u></p> <p>Harmonized Standards: IEC 63000:2018</p>	<p><u>Electromagnetic Compatibility Regulations 2016 (S.I. 2016/1091)</u></p> <p>Designated Standards: EN 61326-1:2013</p> <hr/> <p><u>Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016 (S.I. 2016/1107)</u></p> <p>FM21UKEX0047X</p> <p>Intrinsic Safety (Foundation @ Fieldbus, FISCO):</p> <p>Equipment Group II, Category 1G, Ex ia IIC T4 Ga Equipment Group II, Category 2 (1) G, Ex ib [ja Ga] IIC T4 Gb</p> <p>Designated Standards: EN IEC 60079-0:2018 EN 60079-11:2012 EN 60529-1991/A1:2000/A2:2013</p> <hr/> <p><u>The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012</u></p> <p>Designated Standards: IEC 63000:2018</p>
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The most recent revision of the EU Declaration of Conformity for the Rosemount 2240S can be found at [Emerson.com/Rosemount](https://www.emerson.com/Rosemount).



Product Certifications
00880-0100-2240, Rev. AA
February 2023

For more information: [Emerson.com](https://www.emerson.com)

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ROSEMOUNT™

