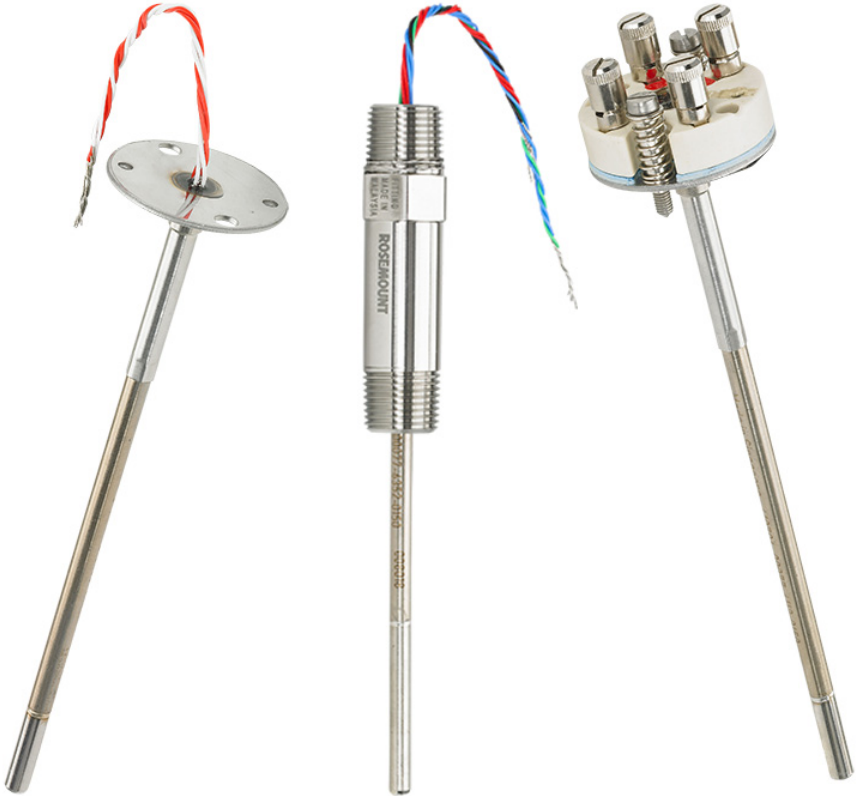


# Rosemount™ 0065/0185 Sensor Assembly



**NOTICE**

This guide provides basic guidelines for Rosemount 0065 and 0185 Sensor models. It does not provide instructions for configuration, diagnostics, maintenance, service, troubleshooting, Explosion-proof, Flameproof, or intrinsically safe (I.S.) installations.

If the Rosemount 0065 or 0185 Sensor was ordered assembled to a temperature transmitter, see the appropriate Quick Start Guide for information on configuration and hazardous locations certifications.

**WARNING**

**Explosions could result in death or serious injury.**

Installation of this transmitter in an explosive environment must be in accordance with the appropriate local, national, and international standards, codes, and practices.

**Conduit/cable entries**

Unless marked, the conduit/cable entries in the transmitter housing use a 1/2-14 NPT thread form. Entries marked "M20" are M20 x 1.5 thread form. On devices with multiple conduit entries, all entries will have the same thread form. Only use plugs, adapters, glands, or conduit with a compatible thread form when closing these entries.

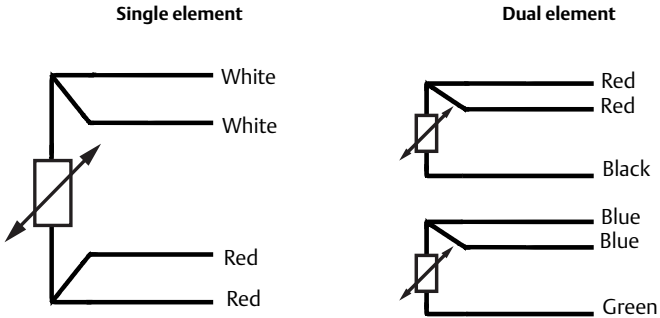
**Contents**

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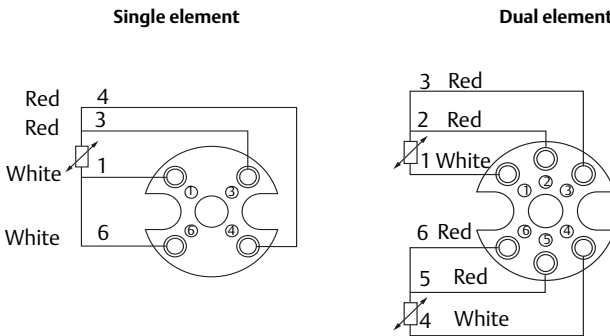
# 1.0 Wiring diagrams

**Figure 1. Rosemount Series 65 RTD Lead Wire Configuration**

Flying leads and spring-loaded adapter (termination codes 0, 1, or 3 only)



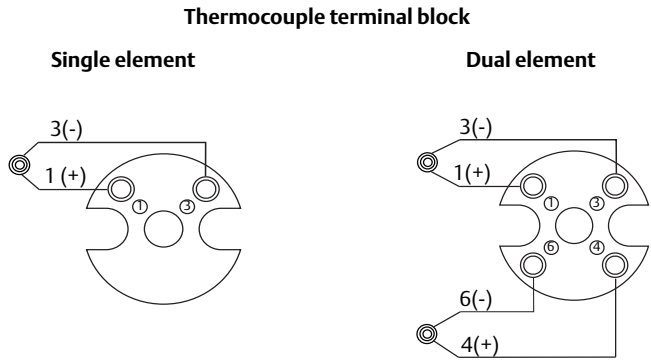
Terminal block (termination code 2 and 4)



**Note**

For 3-wire systems use one white and two red leads. Do not connect the white leads. Insulate or terminate the unused white lead in a manner that prevents shorting to the ground. For 2-wire systems, connect both sets of leads.

**Figure 2. Rosemount Series 185 Thermocouple Lead Wire Configuration**



**Table 1. Rosemount Series 185 Thermocouple Characteristics**

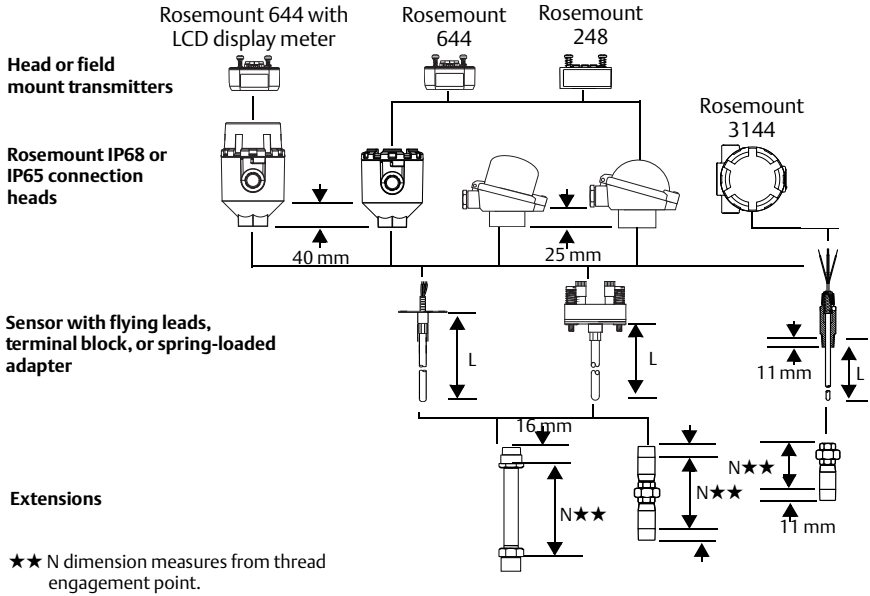
Type	Alloys (wire color)	Sheath material	Temperature range (°C)	Limits of error interchangeability DIN EN 60584-2	Tolerance class
J	Fe (+ black), Cu-Ni (-white)	1.4541 (321 SST)	-40 to 375, 375 to 750	1.5 °C, 0.004 t	1
K	Ni-Cr (+ green), Ni-Al (-white)	2.4816 (Alloy 600)	-40 to 375, 375 to 1000		1
N	Ni-Cr-Si (+ pink), Ni-Si (-white)				1
E	Ni-Cr (+violet), Cu-Ni (-white)	1.4541(321 SST)	-40 to 375, 375 to 800		1
T	Cu (+brown), Cu-Ni (-white)		-40 to 125, 125 to 350		0.5 °C, 0.004 t

**Note**

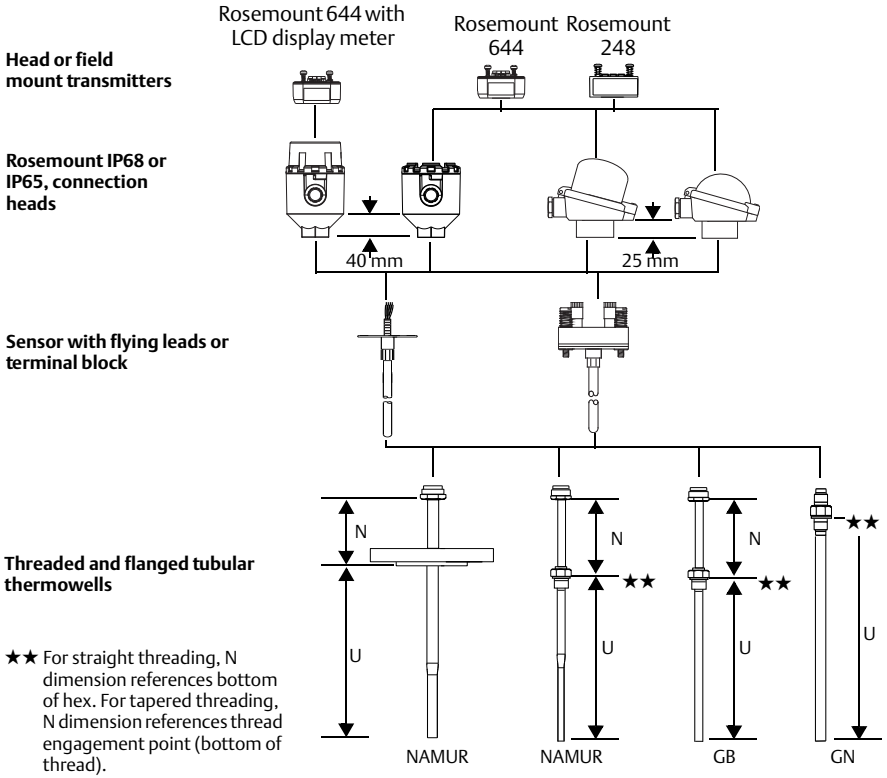
To distinguish the two sensors in Rosemount Dual 185 Sensors (flying lead or spring loaded styles), the lead wires of one sensor will be longer than the other sensor.

## 2.0 Sensor assembly dimensions

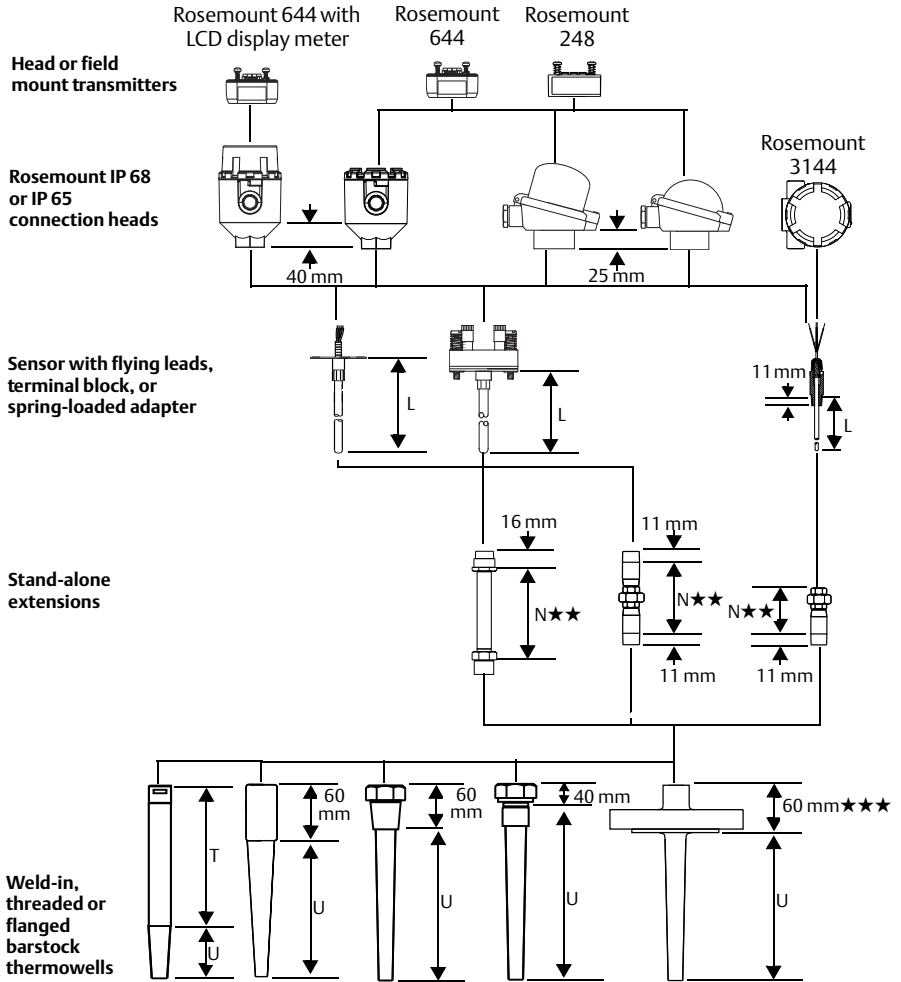
### 2.1 Sensor assembly without thermowell



## 2.2 Tubular thermowell assembly



## 2.3 Barstock thermowell assembly<sup>(1)</sup>



★★ N dimension measures from thread engagement point.

★★★ This dimension is 80 mm for Class 1500 and 2500 flanges.

1. The Rosemount 644 is available with or without a LCD display.

## 3.0 Product certifications

Rev 1.13

### 3.1 European Directive information

A copy of the EU Declaration of Conformity can be found at the end of the Quick Start Guide. The most recent revision of the EU Declaration of Conformity can be found at [Emerson.com/Rosemount](http://Emerson.com/Rosemount).

### 3.2 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).

### 3.3 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.

### 3.4 Hazardous Locations Certifications



#### USA

- E5** FM Explosionproof and Dust-Ignition proof  
 Certificate: FM17US0170X  
 Standards Used: FM Class 3600: 2011; FM Class 3611: 2004; FM Class 3615: 2006;  
 FM Class 3810: 2005; ANSI/NEMA - 250: 1991  
 Markings: XP CL I, Div 1, GP B, C, D; DIP CL II/III, Div 1, GP E, F, G;  
 T5(-50 °C ≤ T<sub>a</sub> ≤ +85 °C); Type 4X

#### Canada

- E6** CSA Explosionproof and Dust-Ignition proof  
 Certificate: 1063635  
 Standards Used: CSA C22.2 No. 0-M91, CSA C22.2 No. 25-1966,  
 CSA C22.2 No. 30-M1986, CSA C22.2 No. 94-M91;  
 CSA C22.2 No. 142-M1987, CSA C22.2 No. 213-M1987  
 Markings: XP CL I, Div 1, GP B, C, D; DIP CL II/III, Div 1, GP E, F, G; CL I, Div 2, GP A, B,  
 C, D; (-50 °C ≤ T<sub>a</sub> ≤ +85 °C)

#### Europe

- E1** ATEX Flameproof  
 Certificate: FM12ATEX0065X  
 Standards Used: EN 60079-0:2012 + A11:2013, EN60079-1:2014,  
 Markings:  II 2 G Ex db IIC T6...T1 Gb; T5... T1(-50 °C ≤ T<sub>a</sub> ≤ +40 °C),  
 T5... T1(-50 °C ≤ T<sub>a</sub> ≤ +60 °C);  1180




**Specific Conditions of Use:**

1. See certificate for ambient temperature range.
2. The non-metallic label may store an electrostatic charge and become a source of ignition in Group III environments.
3. Guard the LCD cover against impact energies greater than 4 joules.
4. Flameproof joints are not intended for repair.
5. A suitable certified Ex d or Ex tb enclosure is required to be connected to temperature probes with Enclosure option "N".
6. Care shall be taken by the end user to ensure that the external surface temperature on the equipment and the neck of DIN Style Sensor probe does not exceed 130 °C.
7. Non-Standard Paint options may cause risk from electrostatic discharge. Avoid installations that cause electrostatic build-up painted surfaces, and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.

**I1** ATEX Intrinsic Safety

Certificate: Baseefa16ATEX0101X

Standards: EN 60079-0:2012+A11:2013, EN 607960079-11:2012

Markings:  II 1 G Ex ia IIC T5/T6 Ga (see certificate for schedule)

Thermocouples; P <sub>i</sub> = 500 mW	T6 60 °C ≤ T <sub>a</sub> ≤ +70 °C
RTDs; P <sub>i</sub> = 192 mW	T6 60 °C ≤ T <sub>a</sub> ≤ +70 °C
RTDs; P <sub>i</sub> = 290 mW	T6 60 °C ≤ T <sub>a</sub> ≤ +60 °C
	T5 60 °C ≤ T <sub>a</sub> ≤ +70 °C

**Specific Conditions of Use:**

1. The equipment must be installed in an enclosure which affords it a degree of ingress protection of at least IP20.

**N1** ATEX Type n


Certificate: BAS00ATEX3145

Standards: EN 60079-0:2012, EN 60079-15:2010

Markings:  II 3 G Ex nA IIC T5 Gc (-40 °C ≤ T<sub>a</sub> ≤ +70 °C)**ND** ATEX Dust

Certificate: FM12ATEX0065X

Standards: EN 60079-0:2012+A11:2013; EN 60079-31: 2014

Markings:  II 2 D Ex tb IIIC T130 °C Db (-40 °C ≤ T<sub>a</sub> ≤ +70 °C)**Specific Conditions of Use:**

1. See certificate for ambient temperature range.
2. The non-metallic label may store an electrostatic charge and become a source of ignition in Group III environments.
3. Guard the LCD display cover against impact energies greater than 4 joules.
4. Flameproof joints are not intended for repair.
5. A suitable certified Ex d or Ex tb enclosure is required to be connected to temperature probes with Enclosure option "N".
6. Care shall be taken by the end user to ensure that the external surface temperature on the equipment and the neck of DIN Style Sensor probe does not exceed 130 °C.
7. Non-Standard Paint options may cause risk from electrostatic discharge. Avoid installations that cause electrostatic build-up on painted surfaces, and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.

## International

### E7 IECEx Flameproof

Certificate: IECEx FMG 12.0022X

Standards: IEC60079-0:2011, IEC60079-1:2014-06

Markings: Ex db IIC T6...T1 Gb, T6(-50 °C ≤ T<sub>a</sub> ≤ +40 °C), T5...T1(-50 °C ≤ T<sub>a</sub> ≤ +60 °C)

#### **Specific Conditions of Use:**

1. See certificate for ambient temperature range.
2. The non-metallic label may store an electrostatic charge and become a source of ignition in Group III environments.
3. Guard the LCD display cover against impact energies greater than 4 joules.
4. Flameproof joints are not intended for repair.
5. A suitable certified Ex d or Ex tb enclosure is required to be connected to temperature probes with Enclosure option "N".
6. Care shall be taken by the end user to ensure that the external surface temperature on the equipment and the neck of DIN Style Sensor probe does not exceed 130 °C.
7. Non-Standard Paint options may cause risk from electrostatic discharge. Avoid installations that cause electrostatic build-up on painted surfaces, and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.

## Brazil

### E2 INMETRO Flameproof

Certificate: UL-BR 13.0535X

Standards Used: ABNT NBR IEC 60079-0: 2013; ABNT NBR IEC 60079-1: 2016;

ABNT NBR IEC 60079-31: 2014

Markings: Ex db IIC T6...T1 Gb T6...T1: (-50 °C ≤ T<sub>a</sub> ≤ +40 °C), T5...T1:

(-50 °C ≤ T<sub>a</sub> ≤ +60 °C) Ex tb IIIC T130 °C Db (-40 °C ≤ T<sub>a</sub> ≤ +70 °C)

#### **Specific Conditions of Use:**

1. See product description for ambient temperature limits and process temperature limits.
2. The non-metallic label may store an electrostatic charge and become a source of ignition in Group III environments.
3. Guard the LCD display cover against impact energies greater than 4 joules.
4. Consult the manufacturer if dimensional information on the flameproof joints is necessary.
5. A suitable certified Ex d or Ex tb enclosure is required to be connected to temperature probes with Enclosure option "N".
6. Care shall be taken by the end user to ensure that the external surface temperature on the equipment and the neck of DIN Style Sensor probe does not exceed 130 °C.

## Japan

### E4 Japan Flameproof (0065 only)

Certificate: TC17226

Markings: IIC T6; (-20 °C ≤ T<sub>a</sub> ≤ +65 °C); Process Temperature: -20 °C to +85 °C

#### **Specific Conditions of Use:**

1. The wiring shall be suitable for a temperature over 80 °C.

## EAC – Belarus, Kazakhstan, Russia

**EM** Technical Regulation Customs Union (EAC) Flameproof  
 Certificate: RU C-US.GB05.B.00289  
 Markings: 1Ex d IIC T6...T1 Gb X

**Specific Conditions of Use:**

1. See certificate for special conditions.

**IM** Technical Regulation Customs Union (EAC) Intrinsic Safety  
 Certificate: RU C-US.GB05.B.00289  
 Markings: 0Ex ia IIC T6 Ga X; Ga/Gb Ex ia IIC T6 X; 1Ex ia IIC T6 Gb X

**Specific Conditions of Use:**

1. See certificate for special conditions.

## Korea

**EP** Korea Explosionproof/Flameproof  
 Certificate: 13-KB4BO-0560X  
 Markings: Ex d IIC T6...T1; T6( $-50^{\circ}\text{C} \leq T_{\text{amb}} \leq +40^{\circ}\text{C}$ ), T5...T1( $-50^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$ )




**Specific Conditions of Use:**

1. See certificate.

## Combinations

**KD** Combination of E1, E5, and E6  
**K1** Combination of E1, I1, N1, and ND  
**KM** Combination of EM and IM

Figure 3. Rosemount Temperature Sensor Declaration of Conformity

	<b>EU Declaration of Conformity</b> No: RMD 1059 Rev. N	
<p>We,</p> <p><b>Rosemount, Inc.</b> 8200 Market Boulevard Chanhassen, MN 55317-9685 USA</p> <p>declare under our sole responsibility that the product,</p> <p><b>Rosemount™ Model 65, 68, 78, 85, 183, 185, and 1067 Temperature Sensors</b></p> <p>manufactured by,</p> <p><b>Rosemount, Inc.</b> 8200 Market Boulevard Chanhassen, MN 55317-9685 USA</p> <p>to which this declaration relates, is in conformity with the provisions of the European Union Directives, including the latest amendments, as shown in the attached schedule.</p> <p>Assumption of conformity is based on the application of the harmonized standards and, when applicable or required, a European Union notified body certification, as shown in the attached schedule.</p>		
		
_____ (signature)	_____ Vice President of Global Quality (function)	
_____ Chris LaPoint (name)	_____ 7-Sept-2017 (date of issue)	
<p>Page 1 of 2</p>		



# EU Declaration of Conformity

No: RMD 1059 Rev. N



## ATEX Directive (2014/34/EU)

### FM12ATEX0065X - Flameproof Certificate

Equipment Group II Category 2 G (Ex db IIC T6...T1 Gb)

Harmonized Standards:

EN60079-0:2012+A11:2013, EN60079-1:2014

### FM12ATEX0065X - Dust Certificate

Equipment Group II Category 2 D (Ex tb IIIC T130°C Db)

Harmonized Standards:

EN60079-0:2012+A2013, EN60079-31:2014

### BAS00ATEX3145 - Type n Certificate

Equipment Group II Category 3 G (Ex nA IIC T5 Gc)

Harmonized Standards:

EN60079-0:2012+A11:2013, EN60079-15:2010

### Baseefa16ATEX0101X - Intrinsic Safety Certificate

Equipment Group II Category 1 G (Ex ia IIC T5/T6 Ga)

Harmonized Standards:

EN60079-0:2012+A11:2013, EN60079-11:2012

## RoHS Directive (2011/65/EU)

Harmonized Standard: EN 50581:2012

## ATEX Notified Bodies

### FM Approvals [Notified Body Number: 1725]

1151 Boston Providence Turnpike

P.O. Box 9102 Norwood, MA 02062 USA

### SGS Baseefa Limited [Notified Body Number: 1180]

Rockhead Business Park

Staden Lane

Buxton Derbyshire

SK17 9RZ United Kingdom

## ATEX Notified Body for Quality Assurance

### SGS Baseefa Limited [Notified Body Number: 1180]

Rockhead Business Park

Staden Lane

Buxton Derbyshire

SK17 9RZ United Kingdom

含有 China RoHS 管控物质超过最大浓度限值的部件型号列表 Rosemount 0065/0185  
List of Rosemount 0065/0185 Parts with China RoHS Concentration above MCVs

部件名称 Part Name	有害物质 / Hazardous Substances					
	铅 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr +6)	多溴联苯 Polybrominated biphenyls (PBB)	多溴联苯醚 Polybrominated diphenyl ethers (PBDE)
电子组件 Electronics Assembly	○	○	○	○	○	○
壳体组件 Housing Assembly	○	○	○	○	○	○
传感器组件 Sensor Assembly	○	○	○	○	○	○

本表格系依据 SJ/T11364 的规定而制作。

This table is proposed in accordance with the provision of SJ/T11364.

○: 意为该部件的所有均质材料中该有害物质的含量均低于 GB/T 26572 所规定的限量要求。

○: Indicate that said hazardous substance in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.

X: 意为在该部件所使用的所有均质材料里，至少有一类均质材料中该有害物质的含量高于 GB/T 26572 所规定的限量要求。

X: Indicate that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.















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