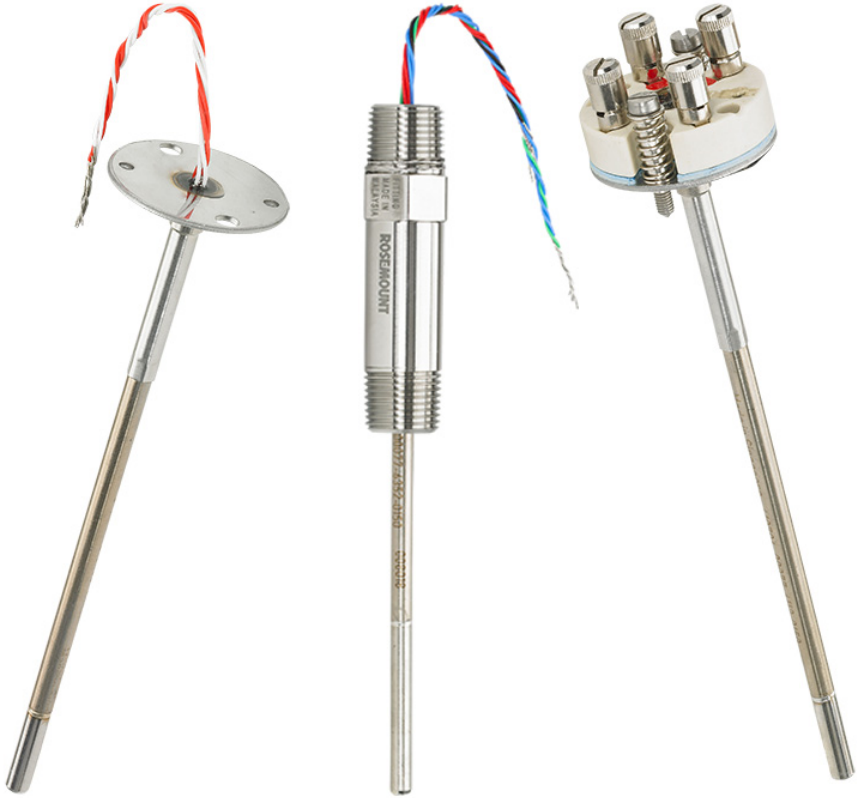
Quick Start Guide
00825-0200-2654, Rev DC
August 2017

Rosemount™ 0065/0185 Sensor Assembly



EMERSON™

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 × 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.

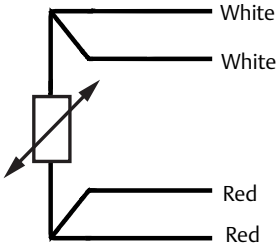
Contents

1.0 Wiring diagrams

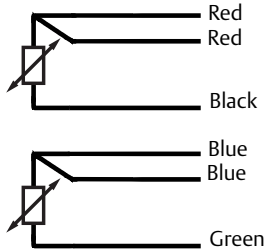
Figure 1. Rosemount Series 65 RTD Lead Wire Configuration

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

Single element

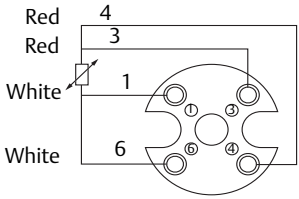


Dual element

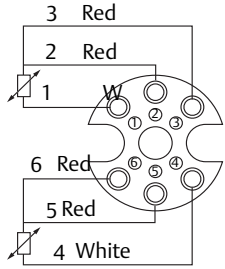


Terminal block (termination code 2 and 4)

Single element



Dual element



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

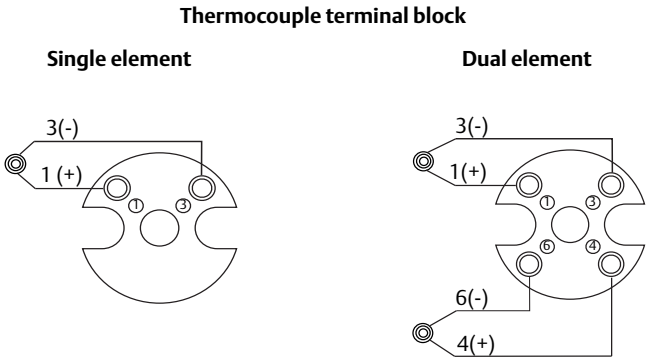


Table 1. Rosemount Series 185 Thermocouple Characteristics

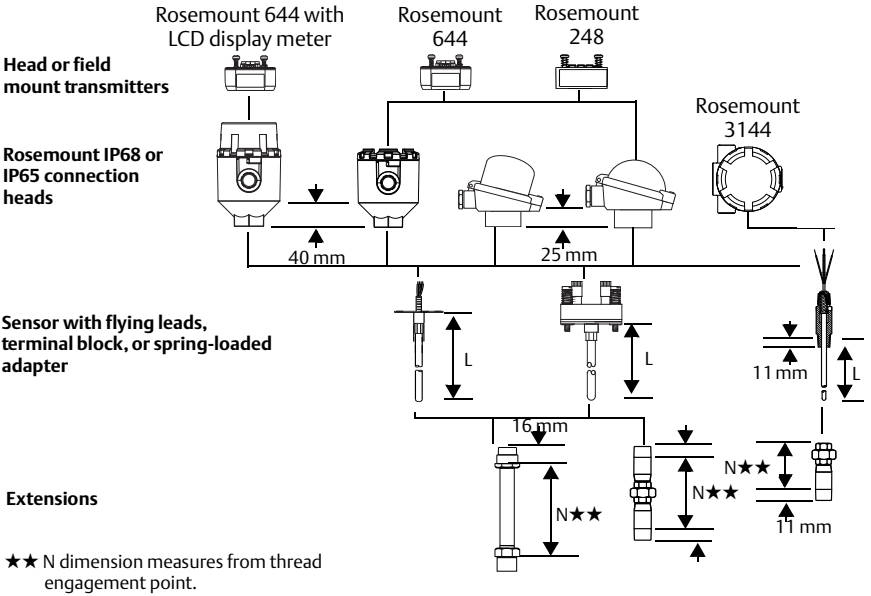
Type	Alloys (wire color)	Sheath material	Temp. range (°C)	Limits of error interchangeability DIN EN 60584-2	Tolerance class
J	Fe (+ black), Cu-Ni (–white)	1.4541 (321 SST)	–40 to 375, 375 to 750	1.5 °C, 0.004 t	1
K	Ni-Cr (+ green), Ni-Al (–white)	2.4816 (Alloy 600)	–40 to 375, 375 to 1000	1.5 °C, 0.004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

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.

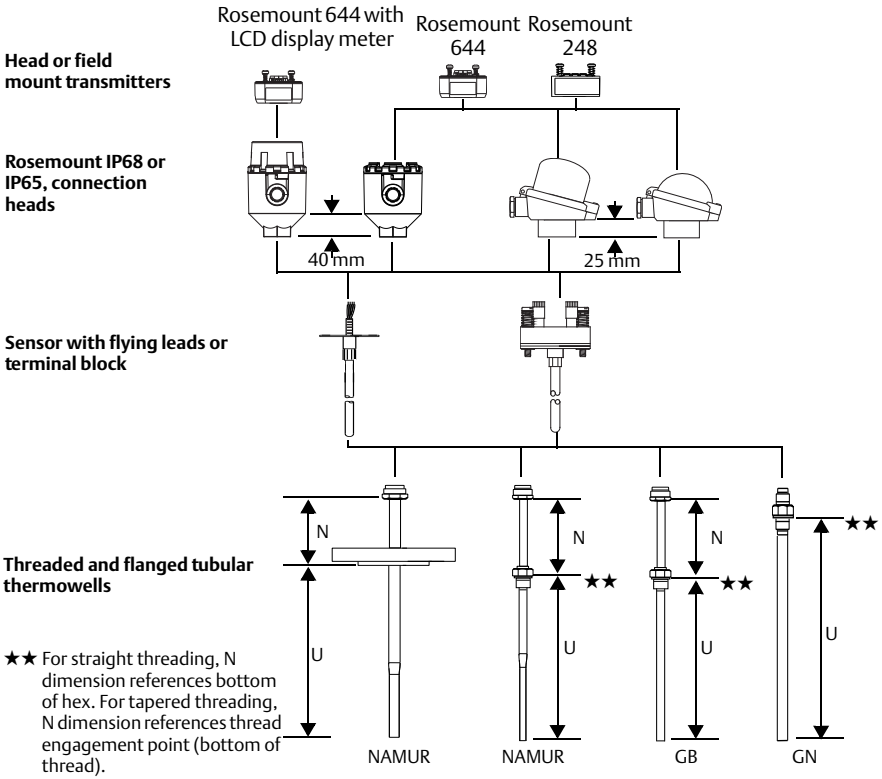
2.0 Sensor assembly dimensions

2.1 Sensor assembly without thermowell



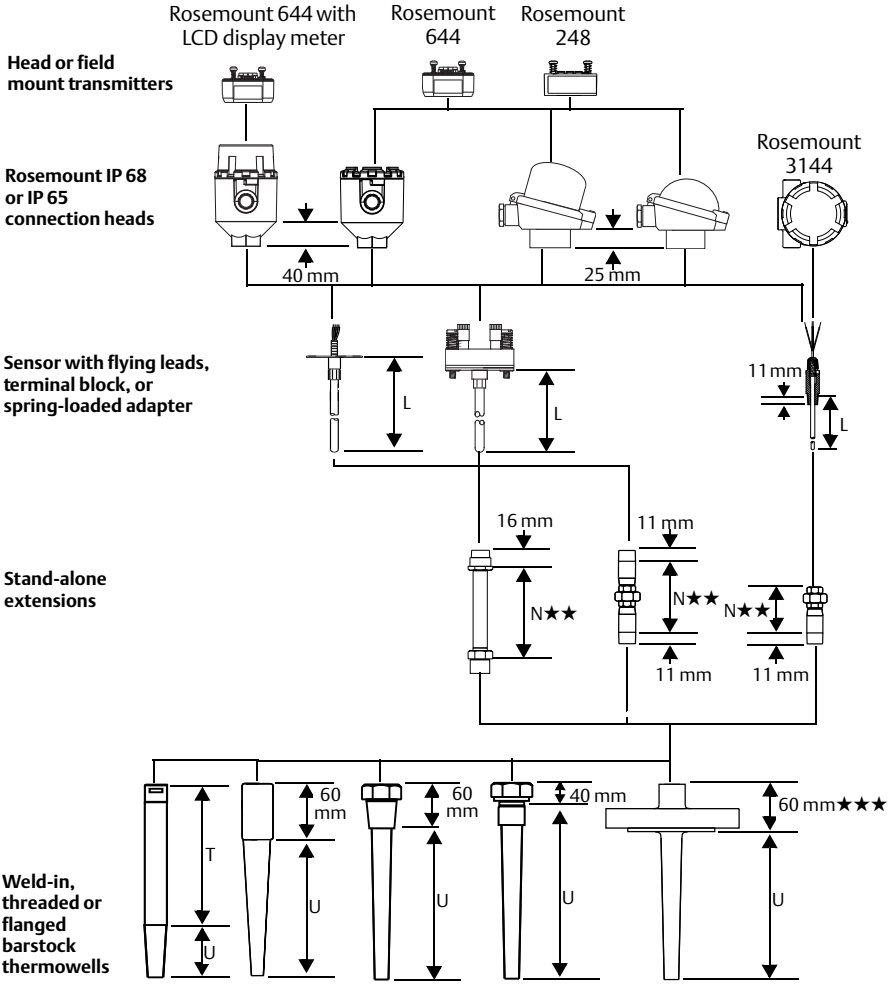
★★ N dimension measures from thread engagement point.

2.2 Tubular thermowell sensor assembly



★★ For straight threading, N dimension references bottom of hex. For tapered threading, N dimension references thread engagement point (bottom of thread).

2.3 Barstock thermowell sensor assembly(1)



★★ N dimension measures from thread engagement point.

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

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

3.0 Product certifications

Rev 1.11

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.

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 Explosion-proof and Dust-Ignition-proof
Certificate: FM17US0170X
Standards: 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 ($-50\ °C \le T_a \le +85\ °C$); Type 4X

Canada

E6 CSA Explosion-proof and Dust-Ignition-proof
Certificate: 1063635
Standards: 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; ($-50\ °C \le T_a \le +85\ °C$)

Europe

E1 ATEX Flameproof
Certificate: FM12ATEX0065X
Standards: 60079-0:2012+A11:2013; EN60079-1:2007
Markings: Ⓔx II 2 G Ex d IIC T6...T1 Gb, T6($-50\ °C \le T_a \le +40\ °C$), T5...T1 ($-50\ °C \le T_a \le +60\ °C$), CE 1180

Special Conditions for Safe Use (X):

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.

I1 ATEX Intrinsic Safety
Certificate: Baseefa16ATEX0101X
Standards: EN 60079-0:2012+A11:2013, EN 607960079-11:2012
Markings: Ⓔx II 1 G Ex ia IIC T5/T6 Ga (see certificate for schedule)

Thermocouples; P_i = 500 mW	T6 60 °C ≤ T_a ≤ +70 °C
RTDs; P_i = 192 mW	T6 60 °C ≤ T_a ≤ +70 °C
RTDs; P_i = 290 mW	T6 60 °C ≤ T_a ≤ +60 °C
	T5 60 °C ≤ T_a ≤ +70 °C

Special Condition for Safe Use (X):

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: Ⓔx II 3 G Ex nA IIC T5 Gc (–40 °C ≤ T_a ≤ +70 °C)

ND ATEX Dust
Certificate: FM12ATEX0065X
Standards: EN 60079-0:2012+A11:2013; EN 60079-31: 2014
Markings: Ⓔx II 2 D Ex tb IIIC T130 °C Db (–40 °C ≤ T_a ≤ +70 °C)

Special Conditions for Safe Use (X):

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, IEC60079-1:2007-04
Markings: Ex d IIC T6...T1 Gb, T6(-50 °C ≤ T_a ≤ +40 °C), T5...T1(-50 °C ≤ T_a ≤ +60 °C)

Special Conditions for Safe Use (X):

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: ABNT NBR IEC 60079-0: 2008 + Corrigendum 1:2011; ABNT NBR IEC 60079-1: 2009 + Corrigendum 1:2011
Markings: Ex d IIC T6...T1* Gb T6...T1*: (–50 °C ≤ T_a ≤ +40 °C), T5...T1*:(–50 °C ≤ T_a ≤ +60 °C)

Special Conditions for Safe Use (X):

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: Ex d IIC T6; (–20 °C ≤ T_a ≤ +65 °C); Process Temperature: –20 °C to +85 °C

Special Condition for Safe Use (X):

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

Special Condition for Safe Use (X):

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

Special Condition for Safe Use (X):

1. See certificate for special conditions.

Korea

EP Korea Explosionproof/Flameproof
Certificate: 13-KB4BO-0560X
Markings: Ex d IIC T6...T1; T6(−50 °C ≤ T_{amb} ≤ +40 °C), T5...T1(−50 °C ≤ T_{amb} ≤ +60 °C)

Special Condition for Safe Use (X):

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

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EU Declaration of Conformity

No: RMD 1059 Rev. M

CE

We,

Rosemount, Inc.
8200 Market Boulevard
Chanhassen, MN 55317-9685
USA

declare under our sole responsibility that the product,

Rosemount™ Model 65, 68, 78, 85, 183, 185, and 1067 Temperature Sensors

manufactured by,

Rosemount, Inc.
8200 Market Boulevard
Chanhassen, MN 55317-9685
USA

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.

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.

(signature)	Vice President of Global Quality (function)
Chris LaPoint (name)	31-July-2017 (date of issue)

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EMERSON

EU Declaration of Conformity

No: RMD 1059 Rev. M

CE

ATEX Directive (2014/34/EU)

FM12ATEX0065X - Flameproof Certificate
Equipment Group II Category 2 G (Ex d IIC T6…T1 Gb)
Harmonized Standards:
EN60079-0:2012+A11:2013, EN60079-1:2007

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	O	O	O	O	O	O
壳体组件 Housing Assembly	O	O	O	O	O	O
传感器组件 Sensor Assembly	O	O	O	O	O	O

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.

O: 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.
O: 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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