

# Rosemount™ 0085 Pipe Clamp Sensor Assembly

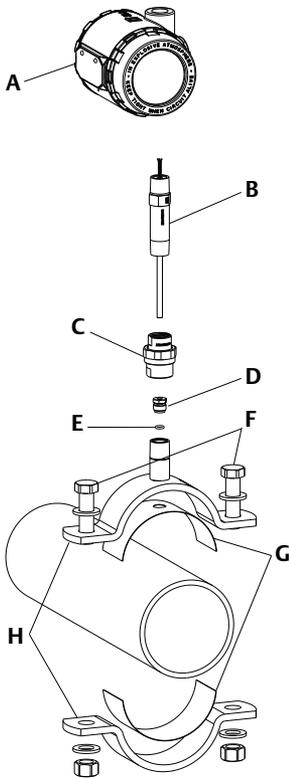


**NOTICE**

This guide provides basic guidelines for Rosemount 0085 Pipe Clamp Sensor. It does not provide instructions for configuration, diagnostics, maintenance, service, troubleshooting, explosion-proof, flameproof, or intrinsically safe (I.S.) installations. Refer to the Rosemount 0085 Pipe Clamp Sensor [Reference Manual](#) for more instruction. The manual and guide are also available electronically on [Emerson.com/Rosemount](http://Emerson.com/Rosemount).

If the Rosemount 0085 Sensor was ordered assembled to a temperature transmitter, see the appropriate Quick Start Guide for information on configuration and hazardous locations certifications.

**Figure 1. Rosemount 0085 Pipe Clamp Sensor Assembly Exploded View**



- |                                      |  |
|--------------------------------------|--|
| A. Transmitter                       | E. O-ring                                |
| B. Sensor with spring loaded adapter | F. Mounting hardware                     |
| C. Nipple union of the extension     | G. Corrosion protection inlay (optional) |
| D. Nut                               | H. Pipe clamp                            |

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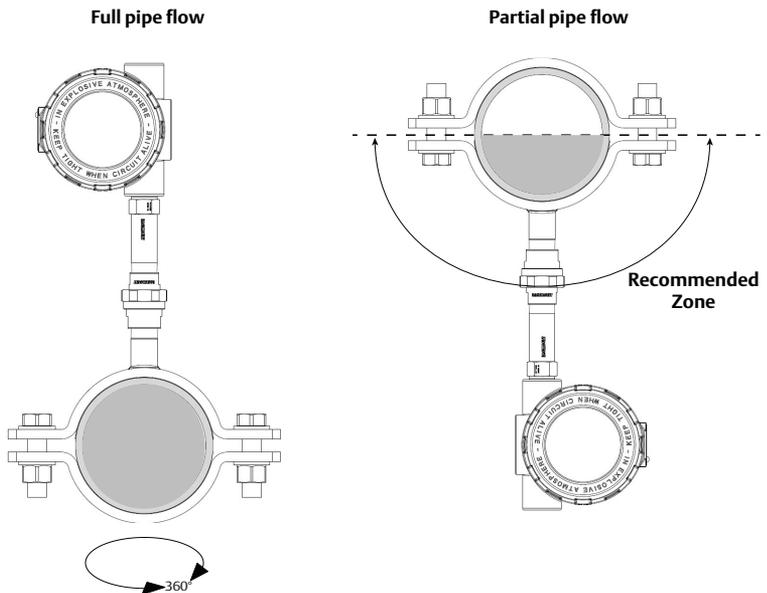
## 1.0 Location and orientation

The pipe clamp sensor should be mounted on the outside section of the pipe where the process medium is in contact of the inside of the pipe wall. Ensure that the pipe surface is clean of debris. The pipe clamp sensor should be mounted in a secure position to ensure there is no rotational movement after installation. To ensure ingress protection, the nut of the Rosemount 0085 Pipe Clamp sensor can be tightened to compress the O-ring to form a seal. The nut can be accessed and tightened by removing the sensor and the nipple union of the extension. Refer to “Location and orientation” on page 3 for the location of each part.

### 1.1 Horizontal orientation

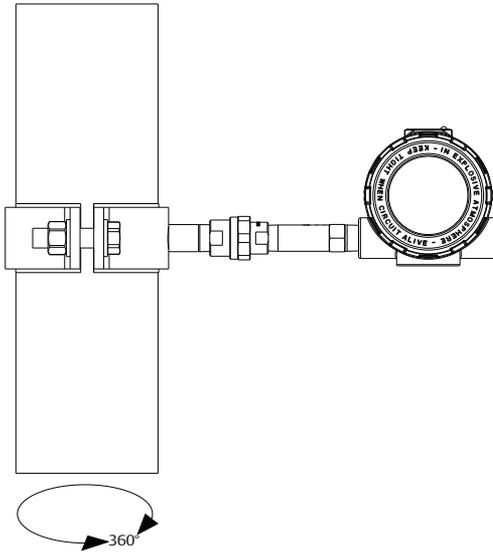
Though the Rosemount 0085 Pipe Clamp sensor can be mounted in any orientation for full pipe flow applications, the best practice is to mount the pipe clamp sensor on the upper half of the pipe. Refer to Figure 2 for more information.

**Figure 2. Horizontal Orientation**



### 1.2 Vertical orientation

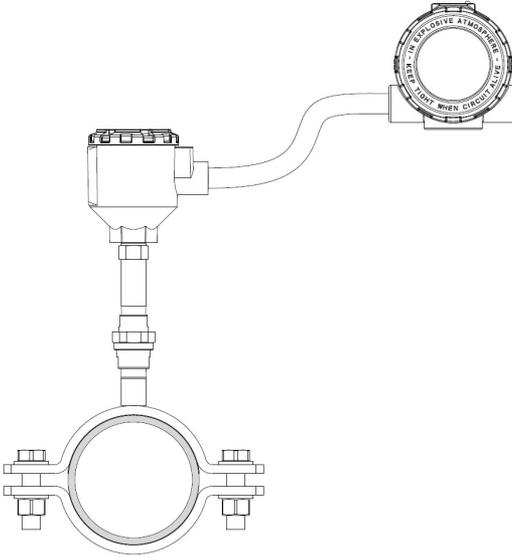
The pipe clamp sensor can be installed in any position around the circumference of the pipe.

**Figure 3. Vertical Orientation**

### 1.3 Special considerations

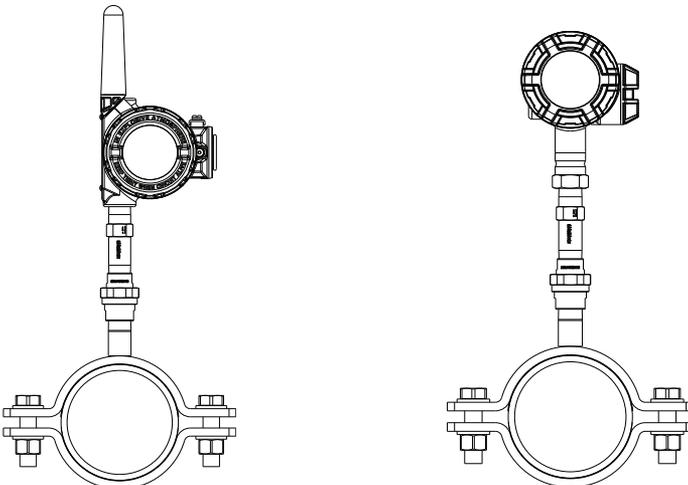
Under most circumstances, the Rosemount 0085 Pipe Clamp Sensor can be mounted in a direct mount configuration. Since heat from the process is transferred from the pipe clamp sensor to the transmitter housing, if the expected process temperature is near or beyond specification limits, consider using a remote mount configuration to isolate the transmitter from the process. Refer to the appropriate transmitter reference manual for temperature effects. [Figure 4](#) displays a pipe clamp sensor assembly in remote mount configuration.

**Figure 4. Pipe Clamp Sensor Assembly in Remote Mount Configuration**



Wireless transmitters with external antennas allow for multiple antenna configurations. All wireless transmitter should be appropriately 3 ft. (1 m) from any large structure or building to allow clear communication to other devices. Wireless transmitters with external antennas should be positioned vertically, either straight up or straight down.

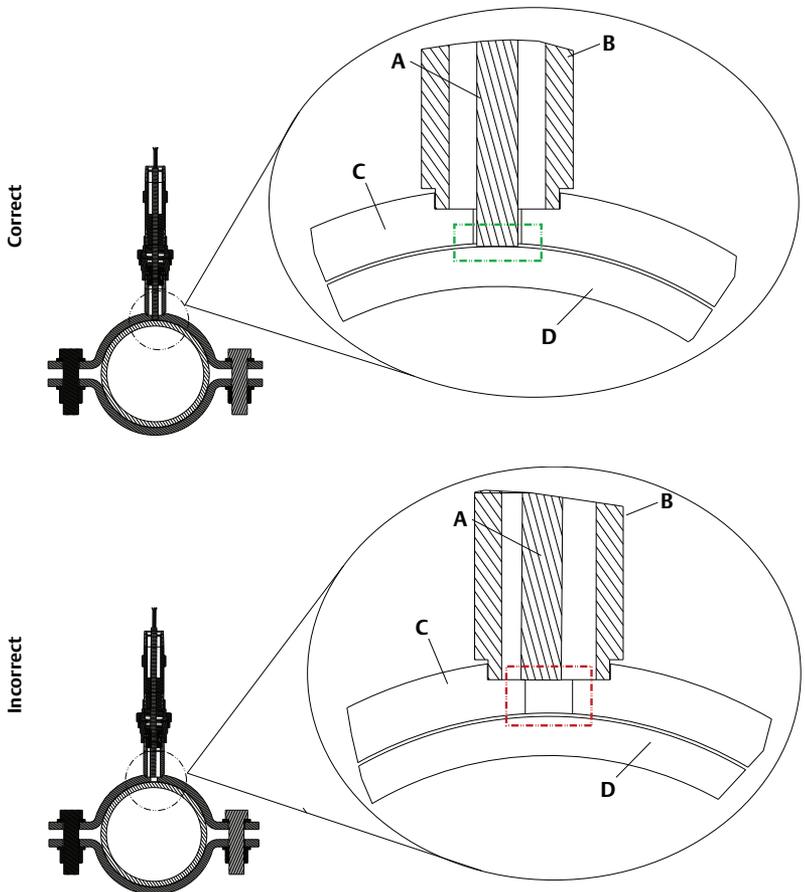
**Figure 5. Wireless Transmitter Orientation**



## 2.0 Install pipe clamp sensor

Select the area for pipe clamp sensor installation with the recommendations outlined in “Horizontal orientation” on page 3. Mount the pipe clamp sensor on the pipe and snug tighten the bolts. Ensure the sensor passes through the hole of the pipe clamp and has direct contact between the sensor tip and pipe. Refer to Figure 4 on page 5 for more information. Tighten the bolts to secure the pipe clamp sensor to the pipe.

**Figure 6. Sensor Tip and Pipe Contact**

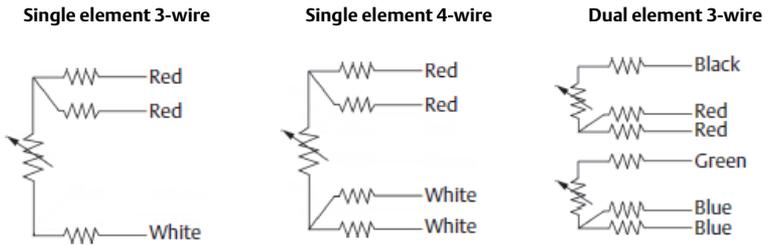


- A. Sensor
- B. Extension of pipe clamp
- C. Pipe clamp
- D. Pipe

## 2.1 Install transmitter

See appropriate transmitter reference manual for sensor-transmitter installation. Refer to [Figure 7](#) for sensor lead wire terminations.

**Figure 7. Sensor Lead Wire Termination**



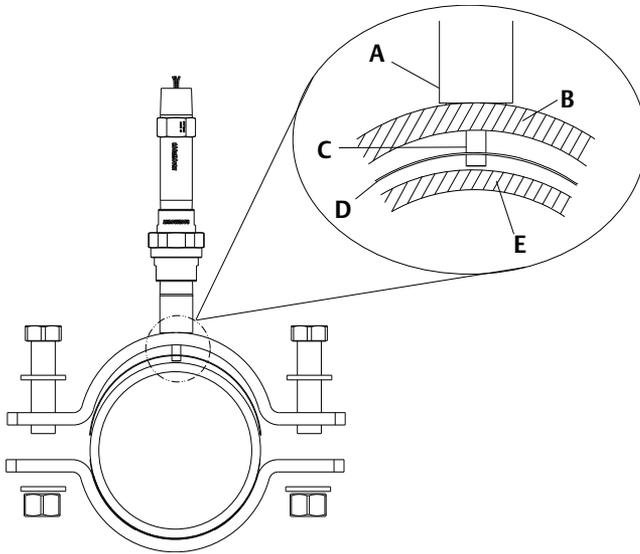
## 2.2 Commission transmitter

See appropriate transmitter reference manual for transmitter commissioning instructions.

## 3.0 Installing optional accessories

### 3.1 Corrosion protection inlay

The corrosion protection inlay provides a layer of protection to help minimize the possibility of dissimilar metal corrosion between the pipe clamp and pipe. The inlay is installed in between the pipe clamp and the pipe. Ensure the sensor is clearing the hole in the protection inlay after installation. Refer to [Figure 8](#) for more information.

**Figure 8. Pipe Clamp Sensor Assembly with Protection Inlay**

A. Extension of pipe clamp  
B. Pipe clamp  
C. Sensor

D. Corrosion protection inlay  
E. Pipe

## 3.2 Replacement sensor

The spring loaded sensor can be ordered for replacement using the Rosemount 0085 Pipe Clamp Sensor [Product Data Sheet](#).

Use the following steps to replace the sensor.

1. Loosen and remove the original sensor from the extension of the pipe clamp.
2. Add pipe compound or PTFE tape (where local piping codes allow) to the threads of the new sensor.
3. Insert the new sensor into the extension of the pipe clamp sensor and ensure the sensor tip passes through the hole of the pipe clamp. Refer to [Figure 6](#) for more information.
4. Screw in the sensor and tighten to 24 ft-lbs of torque.

## 4.0 Rosemount X-well™ Technology considerations

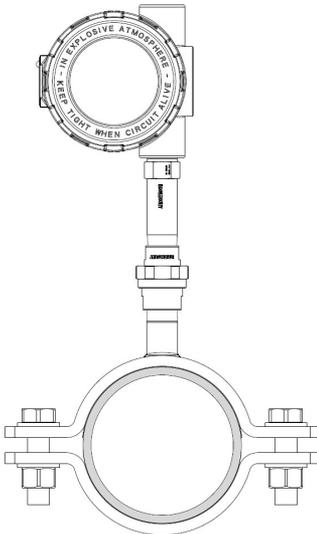
Rosemount X-well Technology is for temperature monitoring applications and is not intended for control or safety applications. It is available in the Rosemount 3144P Temperature Transmitter and 648 Wireless Temperature Transmitter in a factory assembled direct mount configuration with a Rosemount 0085 Pipe Clamp Sensor. It cannot be used in a remote mount configuration.

Rosemount X-well Technology will only work as specified with factory supplied and assembled Rosemount 0085 Pipe Clamp silver tipped single element sensor with an 80 mm extension length. It will not work as specified if used with other sensors. Installation and use of incorrect sensor will result in inaccurate process temperature calculations. It is extremely important the above requirements and installation steps below are followed to ensure Rosemount X-well Technology works as specified.

In general, pipe clamp sensor installation best practices shall be followed (see “[Location and orientation](#)” on page 3 for more details) as well as the specific Rosemount X-well Technology requirements noted below.

- Direct mounting of transmitter on pipe clamp sensor is required for Rosemount X-well Technology to properly function. [Figure 9](#) displays a transmitter/pipe clamp assembly that is in a direct mount configuration.

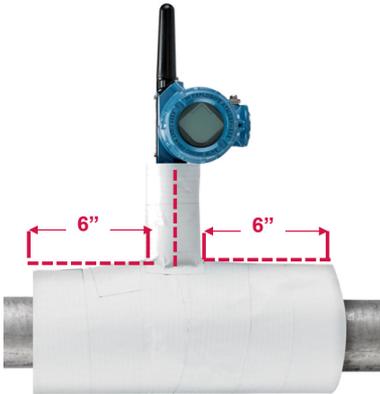
**Figure 9. Pipe Clamp Sensor Assembly in Direct Mount Configuration**



- Assembly shall be installed away from dynamic external temperature sources such as a boiler or heat tracing.

- The pipe clamp sensor makes direct contact with pipe surface. Moisture buildup between sensor and pipe surface or sensor hangup in assembly can cause inaccurate process temperature calculations. Refer to “Install pipe clamp sensor” on page 6 for more information on proper sensor to pipe surface contact.
- Insulation at least 1/2-in. thick (with R-value of  $> 0.42 \text{ m}^2 \times \text{K/W}$ ) is required over the sensor clamp assembly and sensor extension up to transmitter head to prevent heat loss. Apply a minimum of six inches of insulation on each side of the pipe clamp sensor. Care should be taken to minimize air gaps between insulation and pipe. See Figure 10 for more information.

**Figure 10. Pipe Clamp Insulation**



**Note**

DO NOT apply insulation over transmitter head.

- Although it will come from the factory configured as such, ensure the pipe clamp RTD sensor is assembled in the correct wire configuration. Refer to the appropriate transmitter reference manual for correct wire configurations.

## 5.0 Product Certifications

Rev 1.10

### 5.1 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).

### 5.2 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).

### 5.3 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.

### 5.4 North America

#### **E5** FM Explosionproof and Dust-Ignitionproof

Certificate: 0R7A2.AE

Standards: FM Class 3600- 2011, FM Class 3615-2006, FM Class 3810-2005, ANSI/NEMA® 250-1991

Markings: XP CL I, DIV 1, GP B, C, D, T6; DIP CL II/III, DIV 1, GP E, F, G, T6; Type 4X; Installed per 00068-0013

#### **E6** CSA Explosionproof, Dust-Ignitionproof

Certificate: 1063635

Standards: CAN/CSA C22.2 No. 0-M91, CSA Std. C22.2 No. 25-1966, CSA Std. C22.2 No. 30-M1986, CSA Std. C22.2 No.94-M91, CSA Std. C22.2 No. 142-M1987, CSA Std. C22.2 No. 213-M1987

Markings: XP Class I Groups B, C, and D; DIP Class II Groups E, F, G; Class III; Class I Div. 2 Groups A, B, C, D; Class I Zone 1 Group IIB+H2; Class I Zone 2 Group IIC; Installed per 00068-0033

### 5.5 Europe

#### **E1** ATEX Flameproof

Certificate: FM12ATEX0065X

Standards: EN60079-0:2012, EN60079-1:2007

Markings:  II 2 G Ex d IIC T6...T1 Gb

#### **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.

**11 ATEX Intrinsic Safety**

Certificate: Baseefa16ATEX0101X

Standards: EN60079-0:2012, EN60079-1:2007

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

**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.

## 5.6 International

**E7 IECEx Flameproof**

Certificate: IECEx FMG 12.0022X

Standards: IEC60079-0:2011, IEC60079-1:2007

Markings: Ex d IIC T6...T1 Gb

**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.

## 5.7 EAC

**EM Explosionproof/Flameproof**

Markings: 1Ex db IIC T6..T1 Gb X; T6 (-50 °C to 40 °C); T5..T1 (-50 °C to 60 °C); IP66/IP167

**Special Condition for Safe Use (X):**

1. See certificate.

**IM** Intrinsic Safety

Markings: 0Ex ia IIC T5/T6 Ga X; T5, Pi = 0.29 W, (-60 °C to +70 °C); T6, Pi = 0.29 W, (-60 °C to +60 °C); T6, Pi = 0.192 W, (-60 °C to +70 °C)

**Special Condition for Safe Use (X):**

1. See certificate.

**KM** Combination of EM, IM, and Dust-Ignitionproof

Markings: Ex tb IIIC T130 °C Db X (-60 °C to +70 °C);

Markings for both EM and IM above are included with this option.

**Special Condition for Safe Use (X):**

1. See certificate.

## 5.8 Korea

**EP** Korea Explosionproof/Flameproof

Certificate: 13-KB4BO-0560X

Markings: 1Ex db IIC T6..T1 Gb X; T6 (-50 °C to 40 °C); T5..T1 (-50 °C to 60 °C); IP66/IP167

**Special Condition for Safe Use (X):**

1. See certificate.

Figure 11. Rosemount 0085 Pipe Clamp Sensor Declaration of Conformity

	<b>EU Declaration of Conformity</b> No: RMD 1059 Rev. M	
<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	31-July-2017	
_____	_____	_____
(name)	(date of issue)	
Page 1 of 2		



# EU Declaration of Conformity

No: RMD 1059 Rev. M



## 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 0085  
List of Rosemount 0085 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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