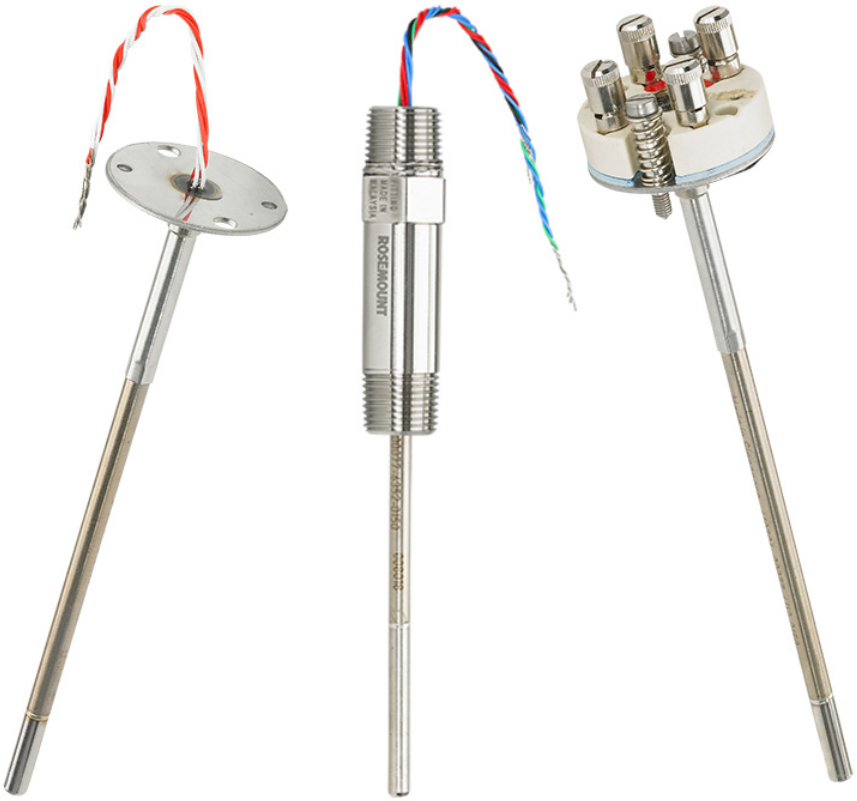
Quick Start Guide
00825-0200-2654, Rev BC
April 2015

Rosemount 0065/0185 Sensor Assembly



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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 Rosemount 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.

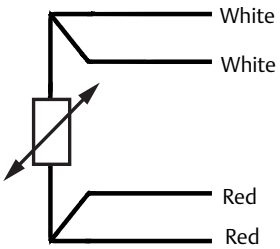
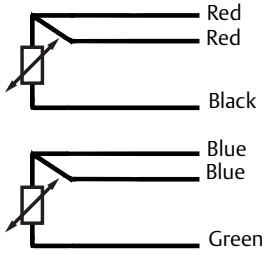
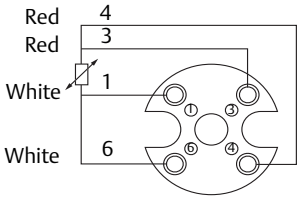
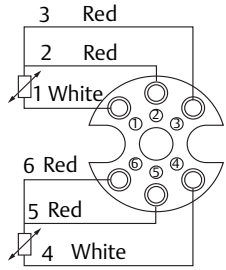
Conduit/cable entries

- 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

Wiring Diagrams

Figure 1. Series 65 RTD Lead Wire Configuration

<table>
<tr><th colspan="2">Series 65 RTD flying leads and spring-loaded adapter-termination codes 0, 1, or 3 only</th></tr>
<tr><th>Single element</th><th>Dual element</th></tr>
<tr><td> 
</td><td> 
</td></tr>
<tr><th colspan="2">Series 65 RTD terminal block termination code 2 and 4</th></tr>
<tr><th>Single element</th><th>Dual element</th></tr>
<tr><td> 
</td><td> 
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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. Series 185 Thermocouple Lead Wire Configuration

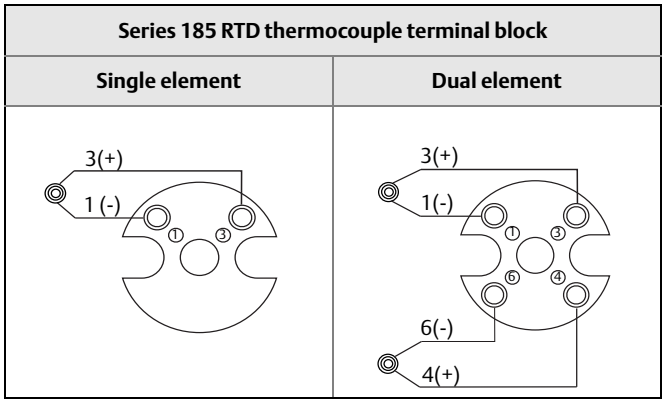


Table 1. Series 185 Thermocouple Characteristics

Type	Alloys (wire color)	Sheath material	Temp. range (°C)	Limits of error interchangeability DIN EN 60584-2	Tolerance class
J	Fe (+ black), CuNi (- white)	1.4541 (321 SST)	-40 to 375, 375 to 750	1.5 °C, 0.004 t	1
K	NiCr (+ green), NiAl (- white)	2.4816 (Inconel 600)	-40 to 375, 375 to 1000	1.5 °C, 0.004 t	1
N	NiCrSi (+ pink), NiSi (- white)	2.4816 (Iconel 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, 0.004t	1
T	Cu (+brown), Cu-Ni (-white)	1.4541 (321 SST)	-40 to 125, 125 to 350	0.5 °C, 0.004t	1

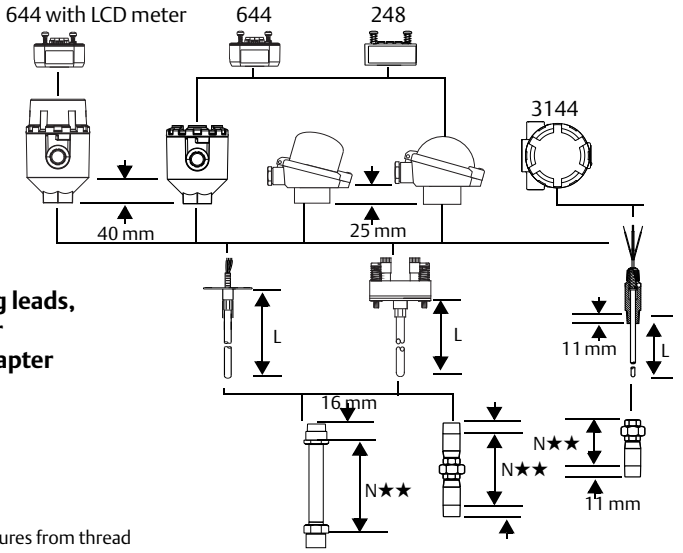
Note

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

Sensor Assembly Dimensions

Sensor assembly without thermowell

Head or field mount transmitters IP68 or IP65 connection heads



Sensor with flying leads, terminal block, or spring-loaded adapter

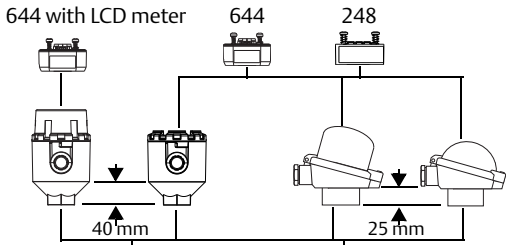
Extensions

★★ N dimension measures from thread engagement point.

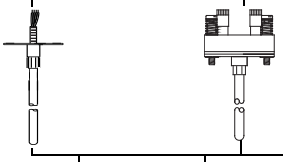
Tubular thermowell sensor assembly

Head or field mount transmitters

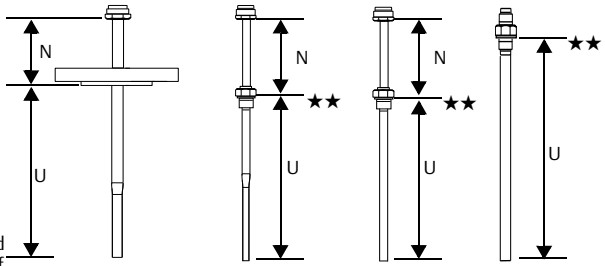
IP68 or IP65, connection heads



Sensor with flying leads or terminal block

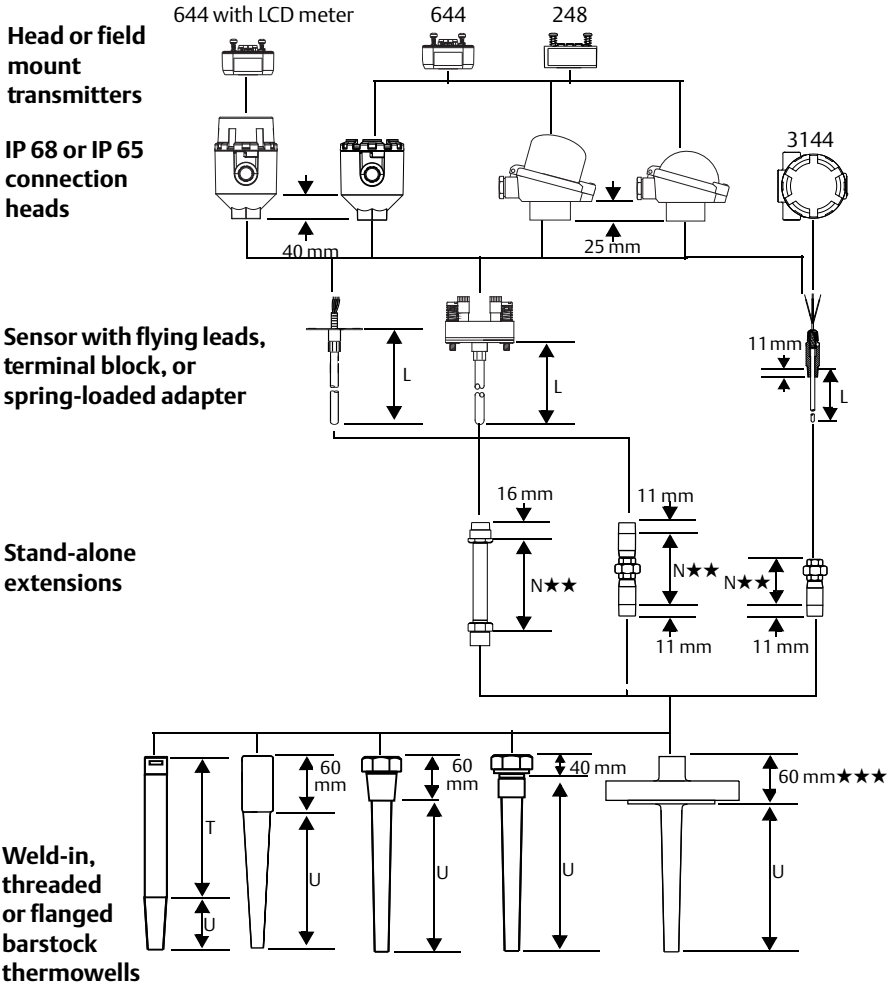


Threaded and flanged tubular thermowells



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

Barstock thermowell sensor assembly



★★ N dimension measures from thread engagement point.

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

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

Product Certifications

European Directive information

A copy of the EC Declaration of Conformity can be found at the end of the Quick Start Guide. The most recent revision of the EC Declaration of Conformity can be found at www.emersonprocess.com.

Hazardous locations certifications

USA

E5 FM Explosion-proof and Dust-Ignition-proof
Certificate: 0R7A2.AE
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; T6(-50 °C ≤ Ta ≤ +155 °C); Type 4X

Canada

E6 CSA Explosion-proof 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 ≤ Ta ≤ +85 °C)

Europe

E1 ATEX Flameproof
Certification number: FM12ATEX0065X
Standards Used: 60079-0:2012; EN60079-1:2007
Markings: Ⓔx II 2 G Ex d IIC T6...T1 Gb, T6(-50 °C ≤ Ta ≤ +40 °C), T5...T1 (-50 °C ≤ Ta ≤ +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 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.

I1 ATEX Intrinsic Safety
Certificate: IBExU03ATEX1066X
Standards Used: EN 60079-0:2012, EN 6079-11:2012, EN 60079-26:2007
Markings: Ⓔx II 1 G Ex ia IIC T6; Ⓔx II 1/2 G Ex ia IIC T6; Ⓔx II 2 G Ex ia IIC T6; CE1180

Special Conditions for Safe Use (X):

1. The installation and the operation of the temperature sensors has to be carried out according to the requirements of the operating instructions.
2. The maximum permissible temperatures of the medium are dependent on the electric output of the supply in case of failure.
3. With maintenance of the collar-tube distance have to be guaranteed the maximum permissible ambient temperatures.
4. The maximum ambient temperature for use in Category 1 G is 60 °C.

N1 ATEX Type n
Certificate: BAS00ATEX3145
Standards used: EN 60079-0:2012, EN 60079-15:2010
Markings: Ⓔx II 3 G Ex nA IIC T5 Gc (-40 °C ≤ Ta ≤ +70 °C); CE1180

ND ATEX Dust
Certification number: FM12ATEX0065X
Standards Used: EN 60079-0:2012; EN 60079-31: 2009
Markings: Ⓔx II 2 D Ex tb IIIC T130 °C Db (-40 °C ≤ Ta ≤ +70 °C); CE1180

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 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.

International

E7 IECEx Flameproof
Certificate: IECEx FMG 12.0022X
Standards Used: be IEC60079-0:201, IEC60079-1:2007-04
Markings: Ex d IIC T6...T1 Gb, T6(-50 °C ≤ Ta ≤ +40 °C), T5...T1(-50 °C ≤ Ta ≤ +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 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.

Brazil

E2 INMETRO Flameproof
Certificate: NCC 12.1147 X
Standards used: ABNT NBR IEC 60079-0: 2008; ABNT NBR IEC 60079-1: 2009
Markings: Ex d IIC T6...T1 Gb IP66W (-40 °C ≤ Ta ≤ +65 °C)

Special Conditions for Safe Use (X):

1. For information on the dimensions of the flameproof joints the manufacturer shall be contacted.
2. Special care must be taken to ensure that the connection head temperature does not exceed 85 °C, when thermocouples or RTDs are assembled with transmitters listed in Table 2 of certificate number NCC 12.1147X.
3. The user should evaluate the use conditions of the rod considering its mechanical and chemical characteristics in order to avoid making efforts that deteriorate the rod or process fluids that may cause its corrosion.

Japan

E4 Japan Flameproof (0065 only)
Certificate: TC17226
Markings: Ex d IIC T6;(-20 °C ≤ Ta ≤ +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.

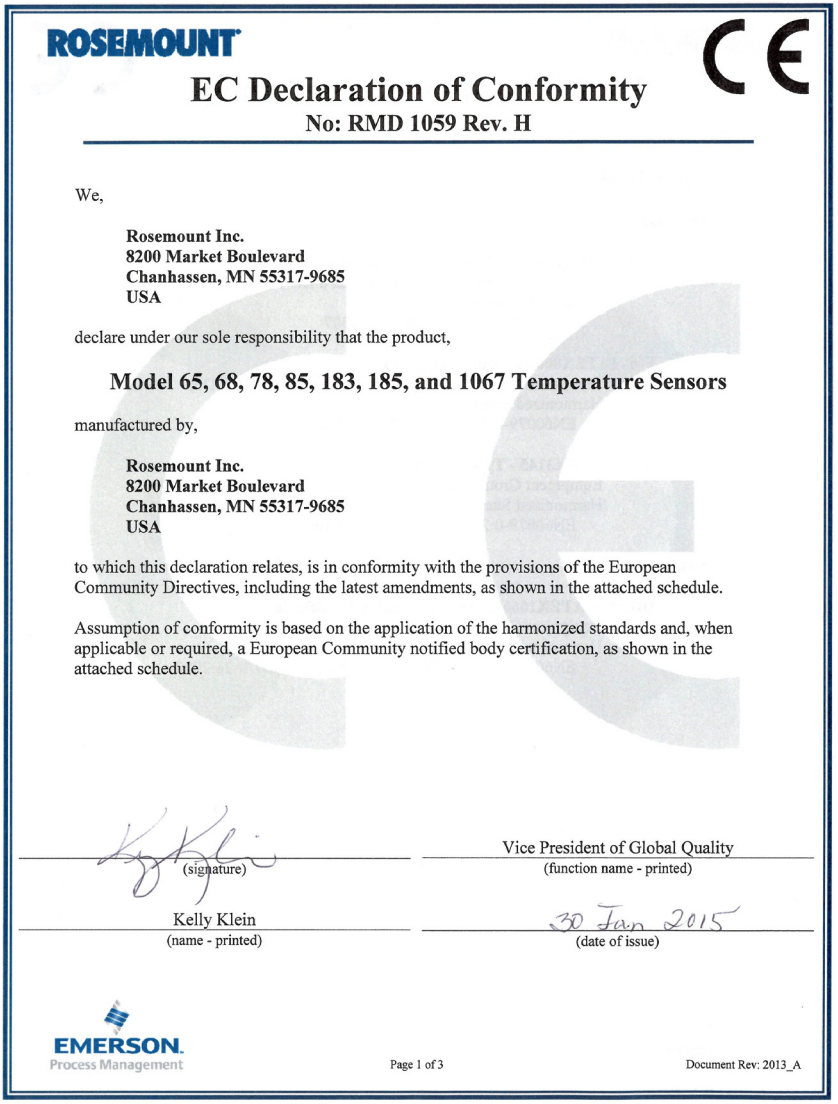
Combinations

KD Combination of E1, E5, and E6

K1 Combination of E1, I1, N1, and ND

KM Combination of EM and IM

Figure 3. Rosemount 0065 Sensor Assembly Declaration of Conformity



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CE

EC Declaration of Conformity

No: RMD 1059 Rev. H

We,

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

declare under our sole responsibility that the product,

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 Community 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 Community notified body certification, as shown in the attached schedule.

(signature)

Vice President of Global Quality
(function name - printed)

Kelly Klein
(name - printed)

30 Jan 2015
(date of issue)

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Page 1 of 3

Document Rev: 2013_A

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EC Declaration of Conformity

No: RMD 1059 Rev. H

CE

ATEX Directive (94/9/EC)

All Models

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

FM12ATEX0065X - Dust Certificate
Equipment Group II Category 2 D (Ex tb IIIC T130°C Db)
Harmonized Standards:
EN60079-0:2012, EN60079-31:2009

BAS00ATEX3145 - Type n Certificate
Equipment Group II Category 3 G (Ex nA IIC T5 Gc)
Harmonized Standards:
EN60079-0:2012, EN60079-15:2010

Models 65 and 185

IBExU03ATEX1066X - Intrinsic Safety Certificate
Equipment Group II Category 2 G (Ex ia IIC T6)
Harmonized Standards:
EN60079-0:2012, EN60079-11:2012, EN60079-26:2007

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Page 2 of 3

Document Rev: 2013_A

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EC Declaration of Conformity

No: RMD 1059 Rev. H

ATEX Notified Bodies for EC Type Examination Certificates

FM Approvals [Notified Body Number: 1725]
1151 Boston Providence Turnpike
P.O. Box 9102 Norwood, MA 02062 USA

BASEEFA Limited [Notified Body Number: 1180]
Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
United Kingdom

IBExU [Notified Body Number: 0637]
Fuchsmühlenweg, 7
09599 Freiberg
Germany

ATEX Notified Body for Quality Assurance

BASEEFA Limited [Notified Body Number: 1180]
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