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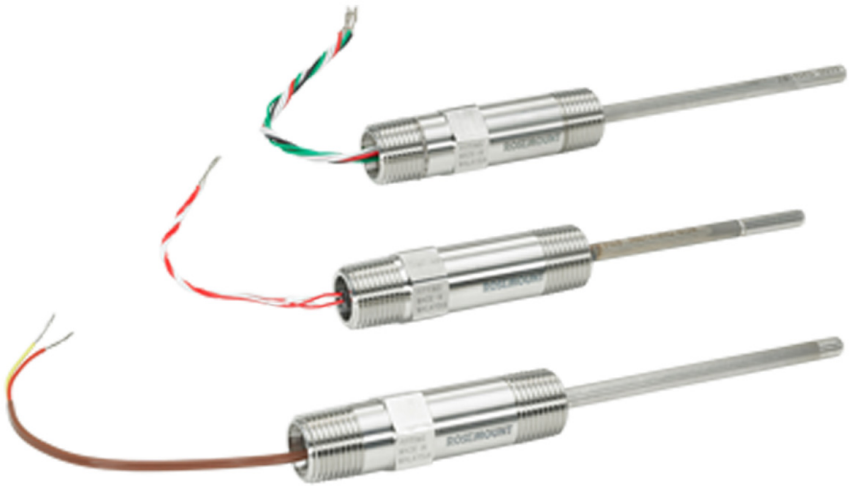
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Find the *Emerson / Rosemount Analytical 78N21C30N120E6* at our website: *Click HERE*

Quick Start Guide
00825-0300-2654, Rev CC
August 2017

Rosemount™ Volume 1 Sensor Assembly



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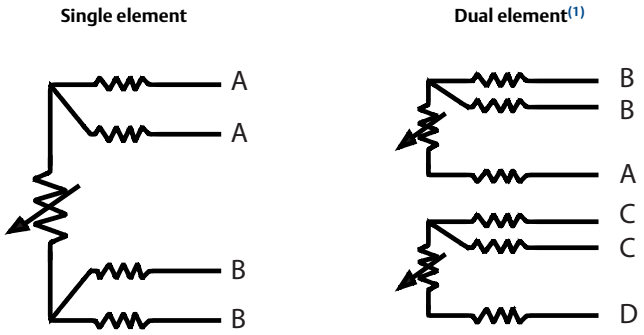
NOTICE

This guide provides basic guidelines for Rosemount 0068, 0078, and 0183 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 Volume 1 Sensor was ordered assembled to a temperature transmitter, see the appropriate transmitter Quick Start Guide for information on configuration and hazardous locations certifications.

1.0 Wiring diagrams

Figure 1. Rosemount Series 68, 68Q, 78, and 58C RTD Wire Colors



A. Red
B. White
C. Green
D. Black

1. Dual element sensors are only available on Rosemount Series 68Q and 78 Sensors.

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.

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2.0 Rosemount Series 58C sheath cutting

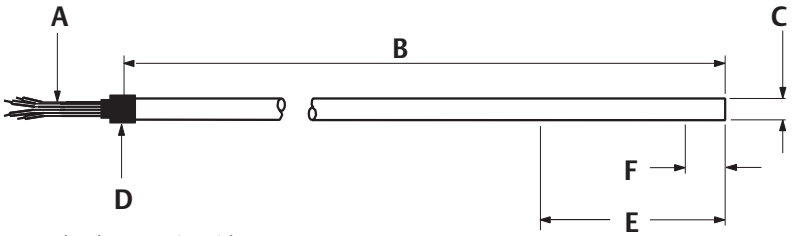
1. Determine the length to which the sheath will be cut. The finished length needs to include an additional 1.5-in. for compression fittings, or 2.5-in, for spring-loaded fittings (see Figure 2).
2. Remove and save the heat shrink tubing from the rear of the sensor.
3. Place the sensor in a vise, taking care not to overtighten, and position the tubing cutter on the sheath.
4. Score the sheath to a depth of approximately $^{1}/_{64}$-in. To prevent damage to the lead wire insulation, do not cut completely through the sheath.
5. Firmly grasp the end of the sheath with your hand or a pair of pliers. Using a sharp snapping motion, break off and remove the excess sheath material. Take care not to strip or damage the lead wire insulation while removing the excess sheath material.

Note
If you are unable to easily break off excess sheath material, deepen the score and repeat Step 5.

6. Replace the heat shrink tubing.

3.0 Drawings

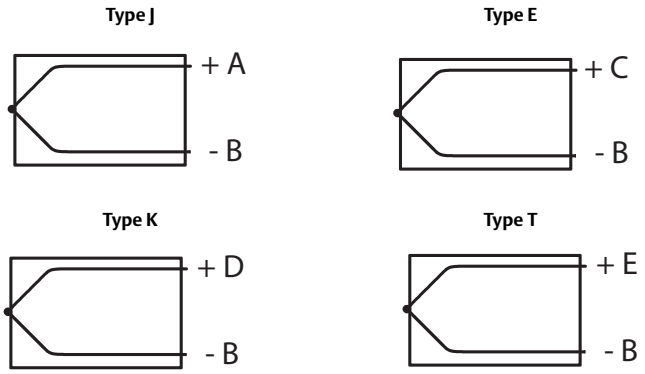
Figure 2. Rosemount Series 58C Sensor



A. Four lead wires 6 (152) long
B. X length ±0.25 (±6)
C. 0.25 ±0.002 (6.35 ±0.13) diameter
D. Heat shrink tubing
E. Do not cut or bend sheath within 2 (51)
F. 0.6 (15) max. sensing element

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Figure 3. Rosemount Series 183 Thermocouple Wire Colors



A. White
B. Red
C. Purple
D. Yellow
E. Blue

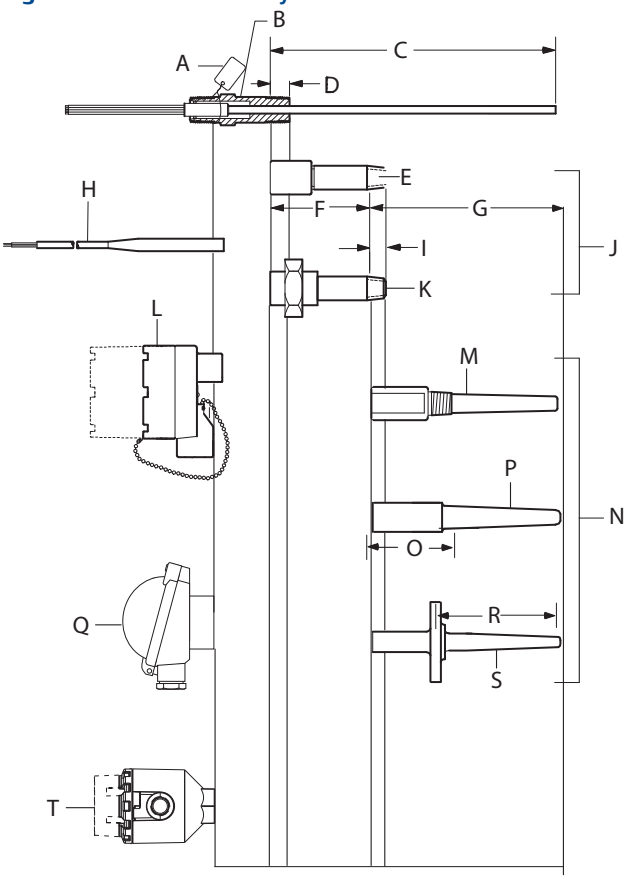
Table 1. Rosemount Series 183 Thermocouple Characteristics

Thermocouple types	Thermocouple wire alloys	Temperature range		Limits of error (interchangeability)
		°C	°F	
J	Iron/constantan	0 to 760	32 to 1400	±1.1 °C (2.0 °F) or ±0.4% of measured temperature, whichever is greater
K	Chromel®/Alumel®	0 to 1150	32 to 2102	±1.1 °C (2.0 °F) or ±0.4% of measured temperature, whichever is greater
E	Chromel/ constantan	0 to 871	32 to 1600	±1.0 °C (1.8 °F) or ±0.4% of measured temperature, whichever is greater
T	Copper/ constantan	–180 to 0	–292 to 32	±1.0 °C (1.8 °F) or ±1.5% of measured temperature, whichever is greater
		0 to 371	32 to 700	±0.5 °C (1.0 °F) or ±0.4% of measured temperature, whichever is greater

Note
To distinguish the two sensors in dual Rosemount 183 Sensors, there is an outer insulation wrapped around each pair of sensor wires.

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Figure 4. Sensor Assembly



A. Open identification tag
B. Standard adapter sensor assembly
C. Sensor immersion length “X”
D. 0.5-in. (13 mm) nominal engagement
E. Coupling-nipple
F. Extension length
G. Overall thermowell length
H. Lead wire extensions and seals
I. 0.5-in. (13 mm) nominal engagement
J. Extensions
K. Union-Nipple
L. Flat or Extended Cover Aluminum Connection Heads
M. Threaded Thermowell
N. Thermowells
O. T + 1.75-in. (44.5 mm)
P. Socket Weld Thermowell
Q. Polypropylene Connection Head
R. Thermowell Immersion Length
S. Flanged Thermowell
T. Rosemount Aluminum Connection Head

Note

Sensor assemblies can be provided without an enclosure or with an enclosure such as the connection heads shown above or assembled to a Rosemount transmitter.

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4.0 Product certifications

Rev 2.5

4.1 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 www.Emerson.com/Rosemount.

4.2 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).

4.3 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

North America

E5 FM Explosion proof, 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 ≤ T_a ≤ 85 °C); when installed per Rosemount drawing 00068-0013; 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 ≤ T_a ≤ 85 °C); when installed per Rosemount drawing 00068-0033; Type 4X (Spring loaded sensors must be installed in a thermowell to maintain Type 4X and Cl. II/III rating)

Europe

E1 ATEX Flameproof

Certificate: FM12ATEX0065X

Standards: EN 60079-0: 2012+A11:2013, EN 60079-1: 2007, EN 60529:1991 +A1:2000

Markings: ⟨Ex⟩ II 2 G Ex d IIC T6...T1 Gb, T6(−50 °C ≤ T_a ≤ +40 °C), T5...T1(−50 °C ≤ T_a ≤ +60 °C)

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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: IEC 60079-0:2011, IEC 60079-1:2007-04
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.

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. Guard the LCD display cover against impact energies greater than 4 joules.
3. Consult the manufacturer if dimensional information on the flameproof joints is necessary.

EAC

EM Technical Regulations Customs Union (EAC) Flameproof
Certificate: RU C-US.Gb05.B.00289
Markings: 1Ex d IIC T6...T1 Gb X

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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

KF Combination of E1 and E6
KD Combination of E5, E6, and E1

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Figure 5. Rosemount Series 68, 68Q, 78, and 58C Declaration of Conformity

EMERSON

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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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

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含有 China RoHS 管控物质超过最大浓度限值的部件型号列表 Rosemount 68/78/183
List of Rosemount 68/78/183 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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