

Quick Installation Guide

00825-0100-4015, Rev BA
October 2009

Rosemount 3095FT

**Rosemount 3095FT MultiVariable™
Flow Data Logger**

Product Discontinued

- Step 1: Mount the Transmitter
 - Step 2: Consider Housing Rotation
 - Step 3: Set Jumpers and Switches
 - Step 4: Connect the Wiring and Power Up
 - Step 5: Verify Configuration
 - Step 6: Trim the Transmitter
- Product Certifications

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⚠ IMPORTANT NOTICE

This installation guide provides basic guidelines for the Rosemount 3095FT MultiVariable Flow Data Logger (reference manual document number 00809-0100-4015). It does not provide instructions for configuration, diagnostics, maintenance, service, or troubleshooting. Refer to the appropriate reference manual for more instruction. These manuals are also available electronically on www.rosemount.com.

⚠ 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.

- Before connecting HART-based communications in an explosive atmosphere, make sure the instruments in the loop are installed in accordance with intrinsically safe or non-incendive field wiring practices.
- In an Explosion-Proof/Flame-Proof installation, do not remove the transmitter covers when power is applied to the unit.

Process leaks may cause harm or result in death.

- To avoid process leaks, only use the o-ring designed to seal with the corresponding flange adapter.

Electrical shock can result in death or serious injury.

- Avoid contact with the leads and the terminals. High voltage that may be present on leads can cause electrical shock.

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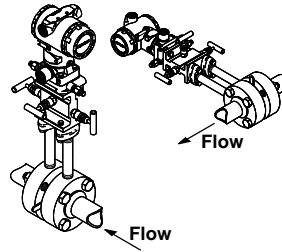
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STEP 1: MOUNT THE TRANSMITTER

Gas Flow Applications

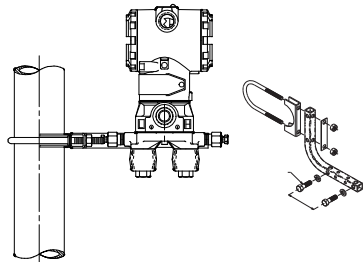
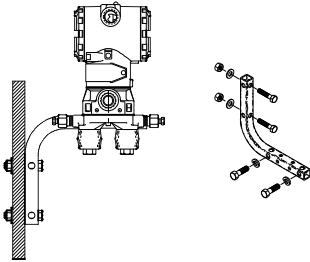
1. Place taps in the top or side of the line.
2. Mount beside or above the taps.



Panel Mount⁽¹⁾

Coplanar Flange

Pipe Mount



(1) Panel bolts are customer supplied.

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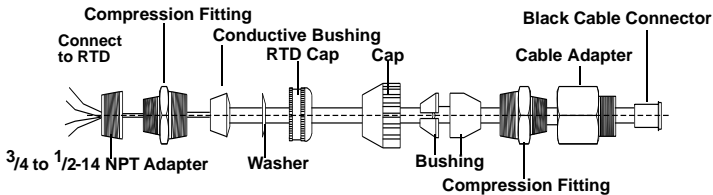
STEP 1 CONTINUED...

Install RTD Cable Assembly (optional)

Install the RTD Cable Assembly (optional). All RTD 3095 Cable Assemblies use the 3095 RTD Cable Connector. Identify the cable type being installed and follow the steps below.

- Installing an Armored Shielded RTD Cable (See Figure 1)
 - a. Fully engage the black cable connector to the 3095 RTD connector.
 - b. Tighten the cable adapter until metal contacts metal.
 - c. Install the compression fitting.
 - d. Tighten the cap onto the compression fitting.

Figure 1. Armored Shielded RTD Cable

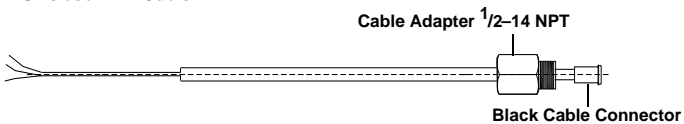


- Installing a Shielded 3095 RTD Cable (See Figure 2)

Note: Shielded cable is intended for use in a conduit.

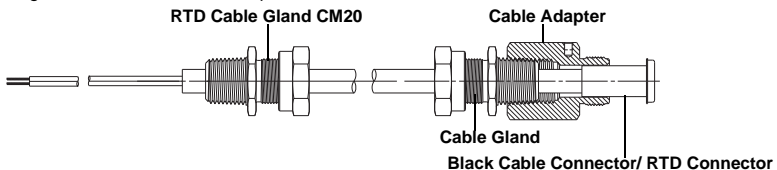
 - a. Fully engage the black cable connector to the 3095 RTD Connector.
 - b. Tighten the cable adapter until metal contacts metal.

Figure 2. Shielded RTD Cable



- Installing a ATEX/IECEx Flameproof 3095 RTD Cable (See Figure 3)
 - a. Fully engage the black cable connector to the 3095 RTD Connector.
 - b. Tighten the cable adapter and cable gland until metal contacts metal.

Figure 3. ATEX/IECEx Flameproof RTD Cable

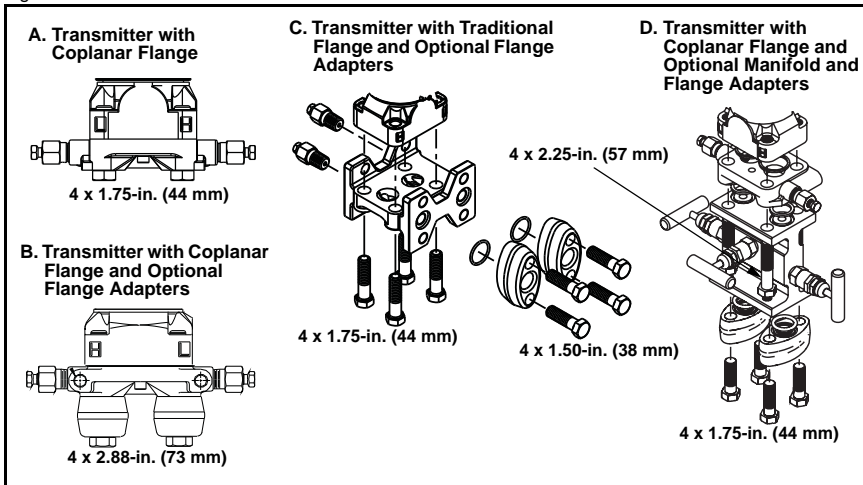


STEP 1 CONTINUED...

Bolting Considerations

If the transmitter installation requires assembly of the process flanges, manifolds, or flange adapters, follow these assembly guidelines to ensure a tight seal for optimal performance characteristics of the transmitters. Use only bolts supplied with the transmitter or sold by Emerson as spare parts. Figure 4 illustrates common transmitter assemblies with the bolt length required for proper transmitter assembly.

Figure 4. Common Transmitter Assemblies



Bolts are typically carbon steel or stainless steel. Confirm the material by viewing the markings on the head of the bolt and referencing Figure 5. If bolt material is not shown in Figure 5, contact the local Emerson Process Management representative for more information.









Use the following bolt installation procedure:

1. Carbon steel bolts do not require lubrication and the stainless steel bolts are coated with a lubricant to ease installation. However, no additional lubricant should be applied when installing either type of bolt.
2. Finger-tighten the bolts.
3. Torque the bolts to the initial torque value using a crossing pattern. See Figure 5 for initial torque value.
4. Torque the bolts to the final torque value using the same crossing pattern. See Figure 5 for final torque value.
5. Verify that the flange bolts are protruding through the isolator plate before applying pressure.

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STEP 1 CONTINUED...

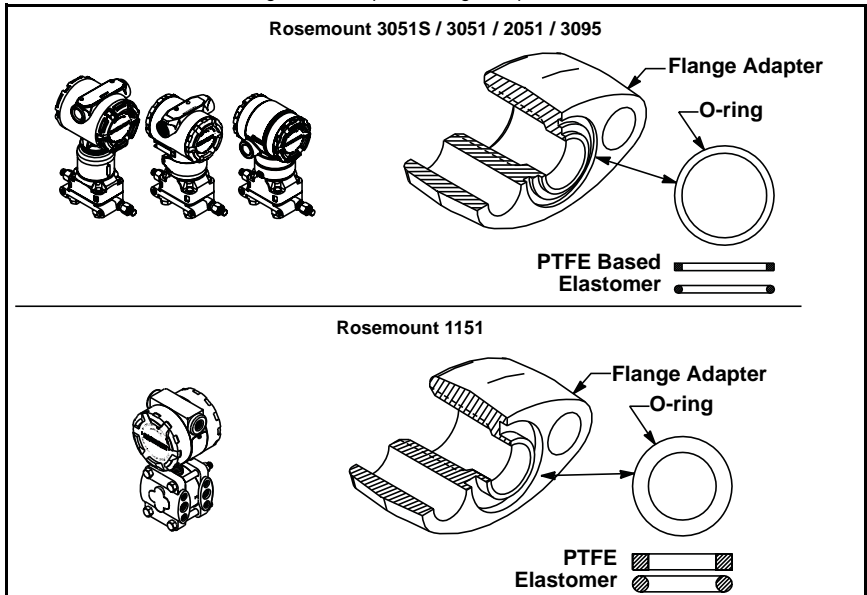
Figure 5. Torque values for the flange and flange adapter bolts

Bolt Material	Head Markings	Initial Torque	Final Torque
Carbon Steel (CS)	 	300 in.-lbs.	650 in.-lbs.
Stainless Steel (SST)		150 in.-lbs.	300 in.-lbs.
			
			
			

O-rings with Flange Adapters

⚠ WARNING

Failure to install proper flange adapter O-rings may cause process leaks, which can result in death or serious injury. The two flange adapters are distinguished by unique O-ring grooves. Only use the O-ring that is designed for its specific flange adapter, as shown below.



⚠ Whenever the flanges or adapters are removed, visually inspect the o-rings. Replace them if there are any signs of damage, such as nicks or cuts. If you replace the o-rings, re-torque the flange bolts and alignment screws after installation to compensate for seating of the PTFE o-ring.

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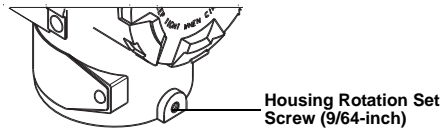
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STEP 2: CONSIDER HOUSING ROTATION

To improve field access or to better view the optional LCD display:

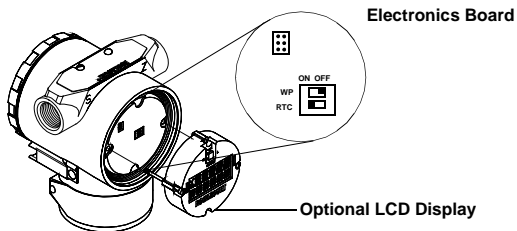
1. Loosen the housing set screw.
2. Rotate the housing clockwise to the desired position – up to 180° from its original position. Over rotating will damage the transmitter.
3. If the desired position is attained, tighten the housing rotation set screw.
4. If the desired position cannot be reached because the housing will not rotate further, rotate the housing counterclockwise until in the desired position is attained (up to 180° from its original position).
5. Tighten the housing rotation set screw.



STEP 3: SET JUMPERS AND SWITCHES

Verify write protect (WP) switch position. Default position for WP is *off*. Verify Real-Time clock (RTC) switch position. Default position for RTC is *on*.

Figure 6. Transmitter Electronics Board and Optional LCD Display



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STEP 4: CONNECT THE WIRING AND POWER UP

Use the following steps to wire the transmitter:

1. Remove the housing cover on the side marked FIELD TERMINALS.
2. Connect the lead from the positive power supply terminal to the “+” terminal (PWR) and the lead from the negative power supply terminal to the “-” terminal.

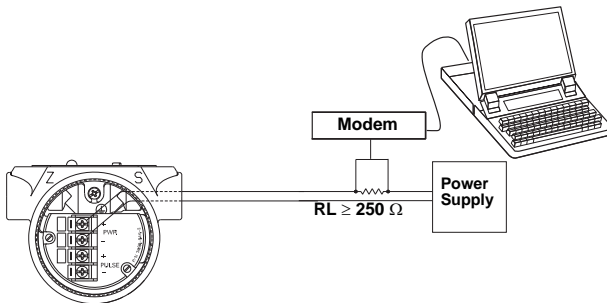
NOTE

Do not connect the powered signal wiring to the pulse terminals. Shielded twisted pair cable should be used for best results. Use 24 AWG or larger wire and do not exceed 5,000 feet (1500 meters).

3. Plug and seal unused conduit connections.
4. Install wiring with a drip loop. Arrange the drip loop so the bottom is lower than the conduit connections and the transmitter housing.

Figure 7 shows wiring connections necessary to power a 3095FT and enable communications with a personal computer.

Figure 7. Transmitter Wiring Diagrams

**NOTE**

Installation of the transient protection terminal block does not provide transient protection unless the 3095FT case is properly grounded.

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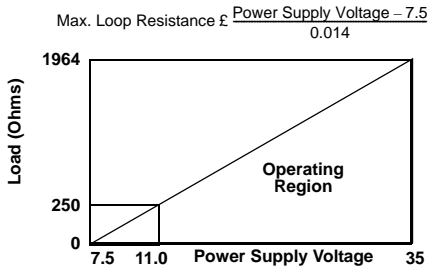
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Power Supply

The dc power supply should provide power with less than two percent ripple. The total resistance load is the sum of the resistance of the signal leads and the load resistance of the controller, indicator, and related pieces. Note that the resistance of intrinsic safety barriers, if used, must be included.

Figure 8. Load Limitation



Communication requires a minimum loop resistance of 250 ohms.

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STEP 5: VERIFY CONFIGURATION

To verify configuration, the user must first be connected to the Rosemount 3095FT using the Rosemount 3095FT User Interface Software (see Figure 7 on page 8).

3095FT User Interface Software Packages

- Single PC license: 03095-5100-0104
Site license: 03095-5100-0105
- Single PC license, Serial Port HART
Modem and cables: 3095-5100-0102
- Single PC license, USB HART Modem and Cables (Requires Windows XP or 2000
Operating System): 03095-5100-0103

Verify Units of Measure

1. Select **Maintenance, Transmitter**, and then **Units** to display the “Transmitter Default Units” screen.
2. Verify the transmitter units of measure for DP, SP, and PT.
3. Select **OK** to exit.

Verify Damping

1. Select **Maintenance, Transmitter**, and then **Damping** to display the “Set Transmitter Damping” screen.
2. Verify the damping values for DP, SP, and PT.
3. Select **OK** to exit

Verify PV Default Values

1. Select **Maintenance, Transmitter**, and then **Default Values**.
2. Verify the default values.
3. Select **OK** to exit.

Verify Flow Parameters and Gas Properties Values

1. Select **Flow, Flow Parameters** to display “Flow Parameters” screen.
2. Verify values displayed on “Flow Parameters” screen.
3. Select OK to exit.
4. Select **Flow, Gas Properties** to display “Gas Properties” screen.
5. Verify values displayed on “Gas Properties” screen.
6. Select OK to exit.

Verify Audit Trail Configuration

1. Select **Flow, Audit Trail** to display the “Audit Parameters” and “Logged Variables” drop down menus.
2. Verify values displayed on both the “Audit Parameters” and “Logged Variables” screens.
3. Select OK to exit.

STEP 6: TRIM THE TRANSMITTER

NOTE

Transmitters are shipped from Emerson Process Management, Rosemount Division fully calibrated per request or by the factory default of full scale.

Zero Trim

A zero trim is a single-point adjustment used for compensating mounting position effects. When performing a zero trim, ensure the low side block valve is closed, the equalize valve is open, and the high side block valve is open.

If zero offset is less than 3% of true zero, follow the instruction below.

Trim DP Offset (Zero)

1. Click **Maintenance, Transmitter, Verify/Calibrate** on the taskbar.
2. Select **DP** and click **Calibrate**.
3. Select **Offset (Zero) Only** and click **OK**.
4. Reference the displayed instructions and wait for **Measured Value** to stabilize. Click **OK** to complete.
5. Once the zero trim is complete, verify that the high side block valve is open, close the equalize valve tightly, then open the low side block valve.

Trim SP Offset (Zero)

1. When performing a offset or zero SP trim, ensure the low side block valve is closed, the equalize valve is open, and the high side block valve is closed. Then, open vent to atmosphere.
2. Click **Maintenance, Transmitter, Verify/Calibrate** on the taskbar.
3. Select **SP** and click **Calibrate**.
4. If using GP type sensor, select **Offset (Zero) Only** and click **OK**.
If using AP type sensor, do not zero. Instead, enter an Offset value based on a barometric pressure reading.

NOTE

For Absolute Pressure (AP) Sensor: If open to atmosphere, reading should be at atmospheric pressure (roughly 12 - 15 psi (0.8 – 1.0 bar), *not* zero. Use a barometer that is four times as accurate as the Rosemount 3095 AP sensor.

5. Reference the displayed instructions and wait for **Measured Value** to stabilize. Click **OK** to complete.
6. Once the offset or zero SP trim is complete, verify that vent is closed, the high side block valve is open, close the equalize valve tightly, then open the low side block valve.

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PRODUCT CERTIFICATIONS

Approved Manufacturing Locations

Rosemount Inc. — Chanhassen, Minnesota USA

European Directive Information

The EC declaration of conformity for all applicable European directives for this product can be found on the Rosemount website at www.rosemount.com. A hard copy may be obtained by contacting our local sales office.

ATEX Directive (94/9/EC)

Emerson Process Management complies with the ATEX Directive.

European Pressure Equipment Directive (PED) (97/23/EC)

3095F_2/3,4/D Flow Transmitters

- QS Certificate of Assessment - EC No. PED-H-20
Module H Conformity Assessment

All other 3095_ Transmitters/Level Controller

- Sound Engineering Practice

Transmitter Attachments: Process Flange - Manifold

- Sound Engineering Practice

Primary Elements, Flowmeter

- See appropriate Primary Element QIG

Electro Magnetic Compatibility (EMC) (89/336/EEC)

3095FT Flow Transmitters

- EN 50081-1: 1992; EN 50082-2:1995; EN 61326:1997 / A1:1998 – Industrial

Ordinary Location Certification for Factory Mutual

As standard, the transmitter has been examined and tested to determine that the design meets basic electrical, mechanical, and fire protection requirements by FM, a nationally recognized testing laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

Hazardous Locations Certifications

North American Certifications

Factory Mutual (FM) Approvals

- A** Explosion Proof for Class I, Division 1, Groups B, C, and D. Dust-Ignition Proof for Class II, Division 1, Groups E, F, and G. Suitable for Class III, Division 1, indoor and outdoor (Enclosure type 4X) hazardous locations. Factory Sealed. Provides non-incendive RTD connections for Class I, Division 2, Groups A, B, C, and D. Install per Rosemount drawing 03095-1025.
- B** Combination of Approval Code A and the following: Intrinsically Safe for use in Class I, Division 1, Groups A, B, C, and D; Class II, Division 1, Groups E, F, G; nonincendive for Class I, Division 2, Groups A, B, C, and D. Temperature Code T4. Enclosure type 4X. Factory Sealed. Install per Rosemount drawing 03095-1020.

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Canadian Standards Association (CSA) Approvals



- C** Explosion Proof for Class I, Division 1, Groups B, C, and D. Dust-Ignition Proof for Class II, Division 1, Groups E, F, and G. Suitable for Class III, Division 1, indoor and outdoor hazardous locations, CSA enclosure Type 4X. Factory Sealed. Provides non-incendive RTD connection for Class I, Division 2, Groups A, B, C, and D. Approved for Class I, Division 2, Groups A, B, C, and D. Install in accordance with Rosemount Drawing 03095-1024.
- D** Combination of Approval Code C and the following: Intrinsically Safe for Class I, Division 1, Groups A, B, C, and D when installed in accordance with Rosemount drawing 03095-1021. Temperature Code T3C.

European Certifications


- H** ATEX Flameproof Certification
Certificate Number: KEMA02ATEX2320X  II 1/2 G
Ex d IIC T5 (-50°C ≤ T_{amb} ≤ 80°C)
T6 (-50°C ≤ T_{amb} ≤ 65°C)
CE 1180
- M** ATEX Dust Certification
Certificate Number: KEMA02ATEX2321X  II 1 D
Ex tD A20 T90°C (-40°C ≤ T_{amb} ≤ 80°C)
V = 55Vdc MAX
I = 23mAdc MAX
IP66
CE 1180

IECEx Certifications

- 7** IECEx Flameproof
Certificate Number: IECEx KEM 06.0018
Zone 0/1 Ex d IIC T6 (-20°C ≤ T_a ≤ 65°C)
Zone 0/1 Ex d IIC T5 (-20°C ≤ T_a ≤ 80°C)
V_{max} = 55 Vdc
I_{max} = 23 mAdc
- 8** IECEx Dust
Certificate Number: IECEx KEM 06.0018
Ex tD A22 T90°C
IP66

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EC Declaration of Conformity			
No: RMD 1000 Rev. H			
We,			
Rosemount Inc. 8200 Market Boulevard Chanhassen, MN 55317-6985			
declare under our sole responsibility that the product,			
Model 3095 Transmitters & Level Controller			
manufactured by,			
Rosemount Inc. 12001 Technology Drive Eden Prairie, MN 55344-3695 USA	and	8200 Market Boulevard Chanhassen, MN 55317-9687 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.			
January 22, 2009 (Date of issue)	 (signature)		
	Larrell De Jong (name)		
	Manager Global Quality (function name)		
 EMERSON. Process Management	Page 1 of 4	K:\product\ELC\DCS3095_RMD1000.doc	
File No. 3095 CE Marking			

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Schedule	
EC Declaration of Conformity RMD 1000 Rev. II	
EMC Directive (2004/108/EC)	
Model 3095FB, 3095FT, and 3095M Flow Transmitters and 3095C Level Controller EN 61326-1:1997 with amendments A1, A2, and A3	
PED Directive (97/23/EC)	
Model 3095FM with Static LP Ranges 4 or D QS Certificate of Assessment - EC No. PED-H-100 Module H Conformity Assessment	
All other model 3095_ Transmitters/Level Controller Sound Engineering Practice	
Transmitter Attachments: Process Flange - Manifold Sound Engineering Practice	
ATEX Directive (94/9/EC)	
Model 3095M Flow Transmitters and Model 3095C Level Controller	
Intrinsic Safety	
Certificate: BAS08ATEX1359X (Output Code A) Equipment Group II Category 1 G Ex ia IIC T5 (Ta = -45°C to +40°C) Ex ia IIC T4 (Ta = -45°C to +70°C) Harmonized Standards: EN60079-0:2006; EN60079-1:2007	
Certificate: BAS08ATEX022X (Output Code V) Equipment Group II Category 1 G Ex ia IIC T5 (Ta = -45°C to +40°C) Ex ia IIC T4 (Ta = -45°C to +70°C) Harmonized Standards: EN50014:1997 + A1, A2; EN50020:2002; EN60079-26:2004	
Non-Incendive Type n	
Certificate: BAS08ATEX1360X Equipment Group II Category 3 G Ex nL IIC T5 (Ta = -45°C to +40°C) Ex nL IIC T4 (Ta = -45°C to +70°C) Harmonized Standards: EN60079-0:2006; EN60079-15:2005	
Certificate: BAS08ATEX023X Equipment Group II Category 3 G Ex nA nL IIC T5 (Ta = -45°C to +40°C) Ex nA nL IIC T4 (Ta = -45°C to +70°C) Harmonized Standards: EN60079-15:2005	
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Schedule
EC Declaration of Conformity RMD 1000 Rev. H

Model 3095FM Flow Transmitters and Model 3095C Level Controller

Flameproof
Certificate: KEMA00ATEX2320X
Equipment Group II Category 1/2 G
Ex d IIC T6 (-20°C ≤ Ta ≤ +60°C)
Harmonized Standards: EN60075-0:2006; EN60079-1:2007

Dust
Certificate: KEMA00ATEX2321
Equipment Group II Category 1 D "ID" T90°C
Standards: EN61241-0:2006 and EN61241-1:2004 with EN50014-1997 and EN50281-1:1998.



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Schedule

EC Declaration of Conformity RMD 1000 Rev. H

PED Notified Body

Det Norske Veritas (DNV) [Notified Body Number: 0575]
Veritasveien 1, N-1322
Hovik, Norway

ATEX Notified Bodies for EC Type Examination Certificate

Baseefa (2001) Ltd. [Notified Body Number: 1180]
Rockhead Business Park
Staden Lane,
Buxton, SK17 9RZ
Derbyshire
United Kingdom

KEMA [Notified Body Number: 0344]
Utrechtseweg 310, 6812 AR Arnhem
P.O. Box 5185, 6802 ED Arnhem
The Netherlands
Postbank 6794687

ATEX Notified Body for Quality Assurance

Baseefa (2001) Ltd. [Notified Body Number: 1180]
Rockhead Business Park
Staden Lane,
Buxton, SK17 9RZ
Derbyshire
United Kingdom

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