

Rosemount 3051 Pressure Transmitter and Rosemount 3051CF Series Flowmeters

with 4-20 mA HART[®] Revision 5 and 7 protocol



Note

Before installing the transmitter, confirm the correct Device Driver is loaded on the host systems. See [page 3](#) for System Readiness.

NOTICE

This guide provides basic guidelines for Rosemount 3051 Transmitters. It does not provide instructions for configuration, diagnostics, maintenance, service, troubleshooting, Explosion-proof, Flameproof, or intrinsically safe (I.S.) installations. Refer to the Rosemount 3051 HART 7 Reference Manual (document number 00809-0100-4007) for more instruction. This manual is 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. Please review the approvals section of the 3051 reference manual for any restrictions associated with a safe installation.

- Before connecting a HART-based communicator 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/Flameproof 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.

Conduit/cable entries

- Unless marked, the conduit/cable entries in the transmitter housing use a ¹/₂-14 NPT thread form. Only use plugs, adapters, glands, or conduit with a compatible thread form when closing these entries.

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System readiness

Confirm HART Revision capability

- If using HART based control or asset management systems, please confirm the HART capability of those systems prior to transmitter installation. Not all systems are capable of communicating with HART Revision 7 protocol. This transmitter can be configured for either HART Revision 5 or 7.
- For instructions on how to change the HART revision of your transmitter, see page 13.

Confirm correct device driver

- Verify the latest Device Driver (DD/DTM™) is loaded on your systems to ensure proper communications.
- Download the latest Device Driver at www.emersonprocess.com or www.hartcomm.org.

Rosemount 3051 device revisions and drivers

Table 1 provides the information necessary to ensure you have the correct Device Driver and Documentation for your device.

Table 1. Rosemount 3051 Device Revisions and Files

	Identify device		Find device driver		Review instructions	Review functionality
Software release date	NAMUR software revision ⁽¹⁾	HART software revision ⁽²⁾	HART universal revision	Device revision ⁽³⁾	Manual document number	Changes to software ⁽⁴⁾
Dec-11	1.0.0	01	7	10	00809-0100-4007	See Footnote 4 for list of changes.
			5	9		
Jan-98	N/A	178	5	3	00809-0100-4001	N/A

1. NAMUR Software Revision is located on the hardware tag of the device. In accordance with NE53, revisions of the least significant level X (of 1.0.X) do not change functionality or operation of the device and will not be reflected in this device revision history.

2. HART Software Revision can be read using a HART capable configuration tool.

3. Device Driver file names use Device and DD Revision, e.g. 10_01. HART Protocol is designed to enable legacy device driver revisions to continue to communicate with new HART devices. To access new functionality, the new Device Driver must be downloaded. It is recommended to download new Device Driver files to ensure full functionality.

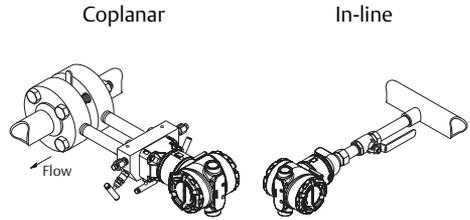
4. HART Revision 5 and 7 Selectable, Power Diagnostics, Safety Certified, Local Operator Interface, Process Alerts, Scaled Variable, Configurable Alarms, Expanded Engineering Units.

Transmitter installation

Step 1: Mount the transmitter

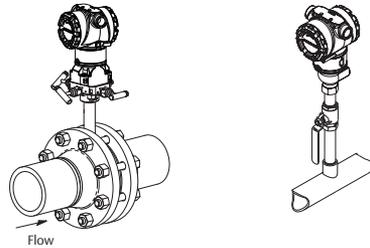
Liquid applications

1. Place taps to the side of the line.
2. Mount beside or below the taps.
3. Mount the transmitter so that the drain/vent valves are oriented upward.



Gas applications

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



Steam applications

1. Place taps to the side of the line.
2. Mount beside or below the taps.
3. Fill impulse lines with water.

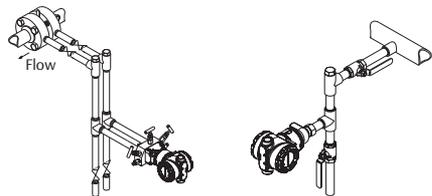
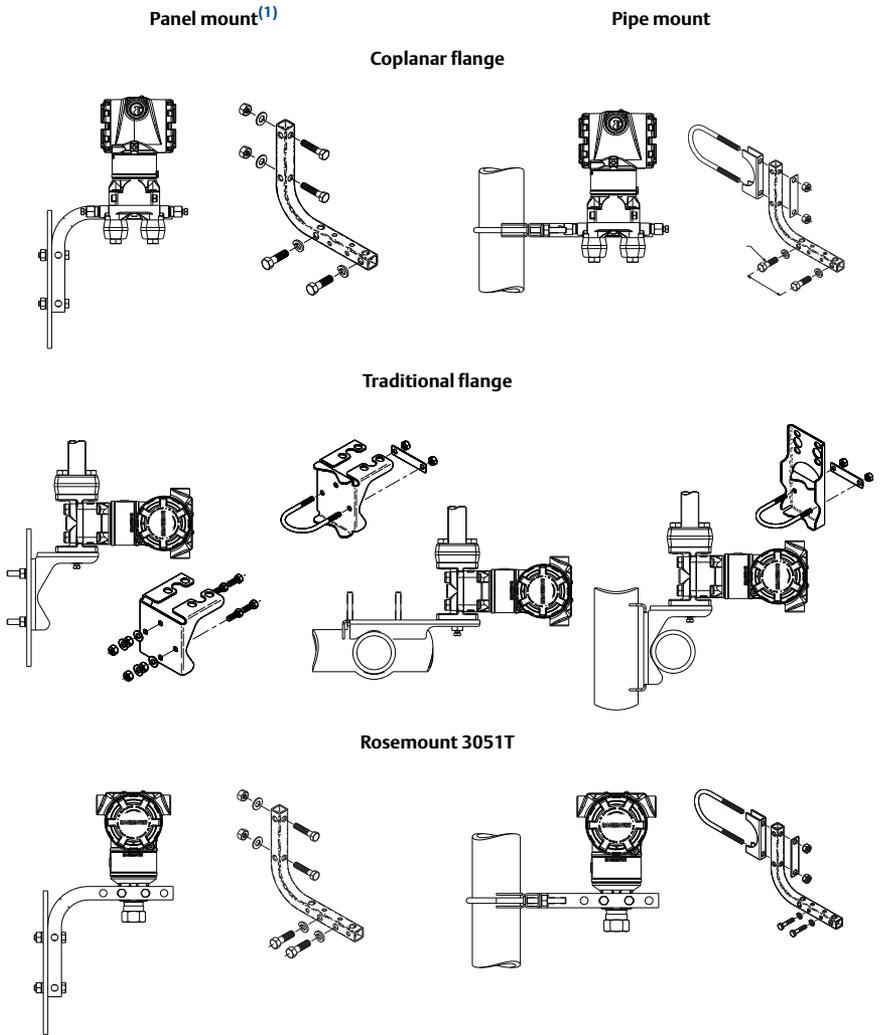


Figure 1. Panel and Pipe Mounting

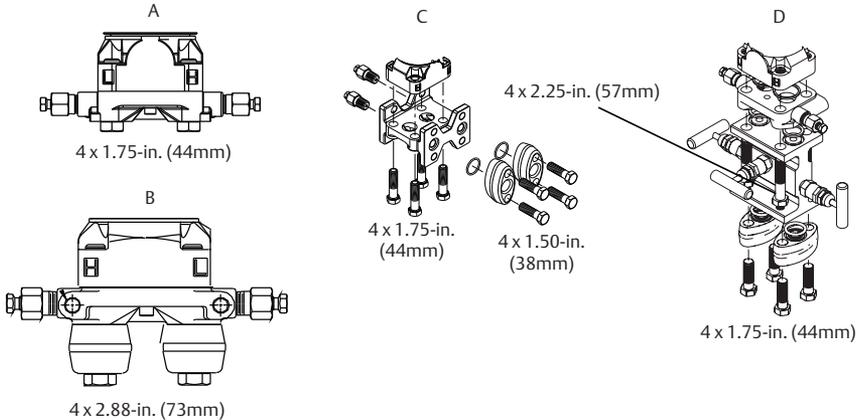


1.5/16 × 1 1/2 Panel Bolts are customer supplied.

Bolting considerations

If the transmitter installation requires assembly of the process flanges, manifolds, or flange adapters, follow the 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 2 on page 6](#) illustrates common transmitter assemblies with the bolt length required for proper transmitter assembly.

Figure 2. Common Transmitter Assemblies



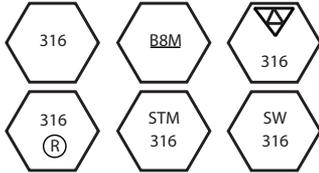
- A. Transmitter with Coplanar Flange
 B. Transmitter with Coplanar Flange and Optional Flange Adapters
 C. Transmitter with Traditional Flange and Optional Flange Adapters
 D. Transmitter with Coplanar Flange and Optional Manifold and Flange Adapters

Bolts are typically carbon steel or stainless steel. Confirm the material by viewing the markings on the head of the bolt and referencing [Table 2 on page 7](#). If bolt material is not shown in [Table 2](#), contact a 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 [Table 2](#) for initial torque value.
4. Torque the bolts to the final torque value using the same crossing pattern. See [Table 2](#) for final torque value.
5. Verify that the flange bolts are protruding through the isolator plate before applying pressure.

Table 2. Torque values for the flange and flange adapter bolts

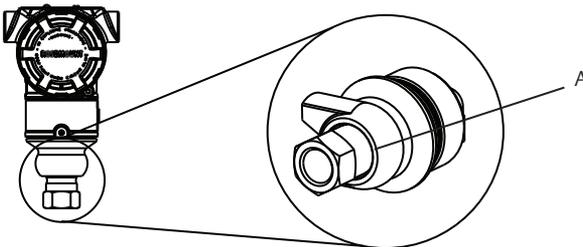
Bolt material	Head markings	Initial torque	Final torque
Carbon Steel (CS)		300 in.-lbs.	650 in.-lbs.
Stainless Steel (SST)		150 in.-lbs.	300 in.-lbs.

In-line gage transmitter orientation

The low side pressure port (atmospheric reference) on the in-line gage transmitter is located in the neck of the transmitter, behind the housing. The vent path is 360° around the transmitter between the housing and sensor. (See [Figure 3.](#))

Keep the vent path free of any obstruction, including but not limited to paint, dust, and lubrication by mounting the transmitter so that the process can drain away.

Figure 3. In-line Gage Low Side Pressure Port



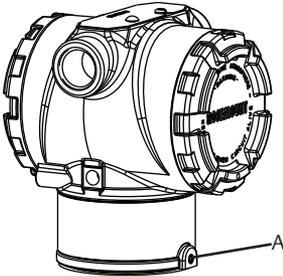
A. Low side pressure port (atmospheric reference)

Step 2: Consider housing rotation

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

1. Loosen the housing rotation set screw using a 5/64-in. hex wrench.
2. Turn the housing left or right maximum up to 180° from its original position⁽¹⁾. Please note that over rotating can damage the transmitter.
3. Re-tighten the housing rotation set screw to no more than 7 in-lbs when desired location is reached.

Figure 4. Transmitter Housing Set Screw



A. Housing rotation set screw (5/64-in.)

Step 3: Set the switches

Set Alarm and Security switch configuration before installation as shown in Figure 5.

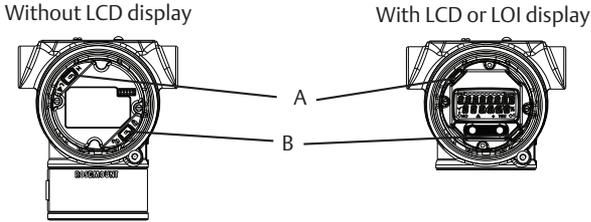
- The Alarm switch sets the analog output alarm to high or low.
 - Default alarm is high.
- The Security switch allows (unlocked symbol) or prevents (locked symbol) any configuration of the transmitter.
 - Default security is off (unlocked symbol).

Use the following procedure to change the switch configuration:

1. If the transmitter is installed, secure the loop, and remove power.
2. Remove the housing cover opposite the field terminal side. Do not remove the instrument cover in explosive atmospheres when the circuit is live.
3. Slide the security and alarm switches into the preferred position using a small screwdriver.
4. Reattach the transmitter cover. The cover must be fully engaged to comply with explosion-proof requirements.

1. 3051C original position aligns with "H" side; 3051T original position is the opposite side of bracket holes.

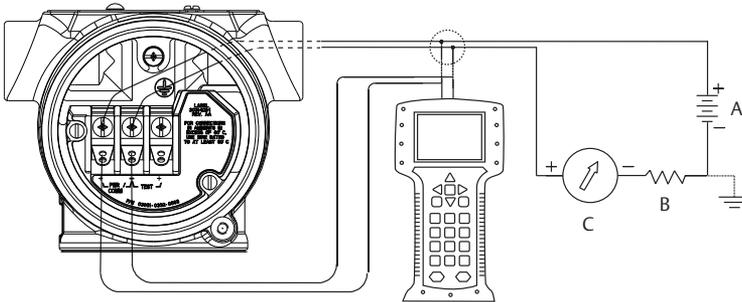
Figure 5. Transmitter Electronics Board



- A. Alarm
B. Security

Step 4: Connect the wiring and power up

Figure 6. Transmitter Wiring Diagrams (4–20 mA)



- A. 24 Vdc supply
B. $R_L \geq 250$
C. Current Meter (Optional)

Shielded twisted pair cable should be used for best results. Use 24 AWG or larger wire that does not exceed 5,000 feet (1500 meters) in length. If applicable, install wiring with a drip loop. Arrange the drip loop so the bottom is lower than the conduit connections and the transmitter housing.

⚠ CAUTION

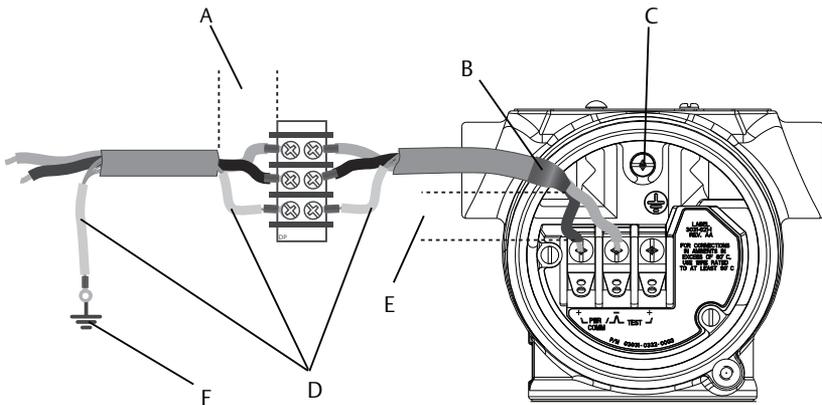
- Installation of the transient protection terminal block does not provide transient protection unless the 3051 case is properly grounded.
- Do not run signal wiring in conduit or open trays with power wiring, or near heavy electrical equipment.
- Do not connect the powered signal wiring to the test terminals. Power could damage the test diode in the terminal block.

Use the following steps to wire the transmitter:

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

3. Ground housing to fulfill local grounding regulations.
4. Ensure proper grounding. It is important that the instrument cable shield:
 - a. Be trimmed close and insulated from touching the transmitter housing
 - b. Be connected to the next shield if cable is routed through a junction box
 - c. Be connected to a good earth ground at the power supply end
5. If transient protection is needed, refer to section “Grounding for Transient Terminal Block” for grounding instructions.
6. Plug and seal unused conduit connections.
7. Replace the housing cover.

Figure 7. Wiring



- A. Minimize Distance
 B. Trim shield and insulate
 C. Protective Grounding Terminal

- D. Insulate Shield
 E. Minimize Distance
 F. Connect Shield Back to the Power Supply Ground

Grounding for transient terminal block

Ground termination is provided on the outside of the electronics housing and inside the terminal compartment. These grounds are used when the transient protection terminal blocks are installed. It is recommended that 18 AWG or larger wire is used to connect housing ground to earth ground (internal or external).

If the transmitter is currently not wired for power up and communication, follow procedures 1-7 of [Connect the wiring and power up](#). When the transmitter is properly wired, refer to [Figure 7](#) for internal and external transient grounding locations.

Step 5: Verify configuration

Verify the configuration using any HART capable configuration tool or Local Operator Interface (LOI) - option code M4. Configuration instructions for a Field Communicator and LOI are included in this step. See Rosemount 3051 reference manual (00809-0100-4007) for configuration instructions using AMS[®] Device Manager.

Verifying configuration with a Field Communicator

A Rosemount 3051 DD must be installed on the Field Communicator to verify configuration. Fast Key sequences for the latest DD are shown in [Table 3 on page 11](#). For Fast Key sequences using legacy DD's, contact your local Emerson Process Management representative.

Note

Emerson recommends installing the latest DD to access the complete functionality. Visit www.fieldcommunicator.com for information on updating the DD Library.

1. Verify device configuration using the fast key sequences in [Table 3](#).
 - a. A check (✓) indicates the basic configuration parameters. At minimum, these parameters should be verified as part of configuration and startup.
 - b. A (7) indicates availability only in HART revision 7 mode.

Table 3. Device Revision 9 and 10 (HART7), DD Revision 1 Fast Key Sequence

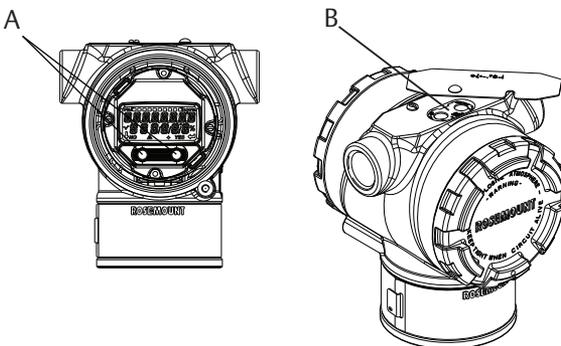
	Function	Fast Key sequence	
		HART 7	HART 5
✓	Alarm and Saturation Levels	2, 2, 2, 5, 7	2, 2, 2, 5, 7
✓	Damping	2, 2, 1, 1, 5	2, 2, 1, 1, 5
✓	Range Values	2, 2, 2	2, 2, 2
✓	Tag	2, 2, 7, 1, 1	2, 2, 7, 1, 1
✓	Transfer Function	2, 2, 1, 1, 6	2, 2, 1, 1, 6
✓	Units	2, 2, 1, 1, 4	2, 2, 1, 1, 4
	Burst Mode	2, 2, 5, 3	2, 2, 5, 3
	Custom Display Configuration	2, 2, 4	2, 2, 4
	Date	2, 2, 7, 1, 4	2, 2, 7, 1, 3
	Descriptor	2, 2, 7, 1, 5	2, 2, 7, 1, 4
	Digital to Analog Trim (4 - 20 mA Output)	3, 4, 2	3, 4, 2
	Disable Configuration Buttons	2, 2, 6, 3	2, 2, 6, 3
	Rerange with Keypad	2, 2, 2, 1	2, 2, 2, 1
	Loop Test	3, 5, 1	3, 5, 1

Table 3. Device Revision 9 and 10 (HART7), DD Revision 1 Fast Key Sequence

	Function	Fast Key sequence	
		HART 7	HART 5
	Lower Sensor Trim	3, 4, 1, 2	3, 4, 1, 2
	Message	2, 2, 7, 1, 6	2, 2, 7, 1, 5
	Scaled D/A Trim (4 - 20 mA Output)	3, 4, 2	3, 4, 2
	Sensor Temperature/Trend (3051S)	3, 3, 3	3, 3, 3
	Upper Sensor Trim	3, 4, 1, 1	3, 4, 1, 1
	Digital Zero Trim	3, 4, 1, 3	3, 4, 1, 3
	Password	2, 2, 6, 5	2, 2, 6, 4
	Scaled Variable	3, 2, 2	3, 2, 2
	HART revision 5 to HART revision 7 switch	2, 2, 5, 2, 3	2, 2, 5, 2, 3
7	Long Tag	2, 2, 7, 1, 2	N/A
7	Find Device	3, 4, 5	N/A
7	Simulate Digital Signal	3, 4, 5	N/A

Verifying configuration with Local Operator Interface (LOI)

The optional LOI can be used for commissioning the device. The LOI is a two button design with internal and external buttons. The internal buttons are located on the display of the transmitter, while the external buttons are located underneath the top metal tag. To activate the LOI push any button. LOI button functionality is shown on the bottom corners of the display. See [Table 4](#) and [Figure 9](#) for button operation and menu information.

Figure 8. Internal and External LOI Buttons

- A. Internal buttons
- B. External buttons

Note

See Figure 10 on page 15 to confirm External Button Functionality.

Table 4. LOI Button Operation

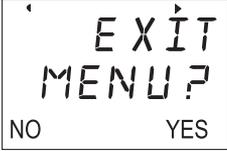
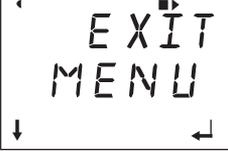
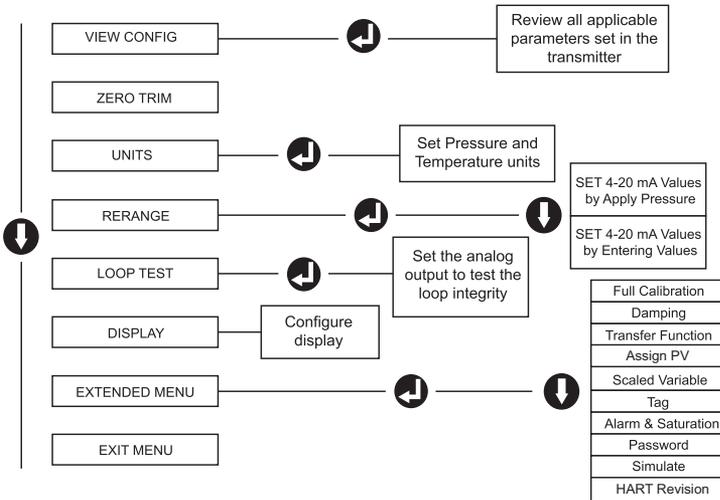
Button		
Left	No	SCROLL
Right	Yes	ENTER

Figure 9. LOI Menu



Switch HART revision mode

If the HART configuration tool is not capable of communicating with HART Revision 7, the 3051 will load a generic menu with limited capability. The following procedures will switch the HART revision mode from the generic menu:

1. Manual Setup > Device Information > Identification > Message
 - a. To change to HART Revision 5, Enter: “HART5” in the Message field.
 - b. To change to HART Revision 7, Enter: “HART7” in the Message field.

Note

See Table 3 on page 11 to change HART revision when the correct Device Driver is loaded.

Step 6: Trim the transmitter

Devices are calibrated by the factory. Once installed, it is recommended to perform a zero trim on gage and differential pressure transmitters to eliminate error due to mounting position or static pressure effects. A zero trim can be performed using either a Field Communicator or configuration buttons.

For instructions using AMS, please see the Rosemount 3051 HART 7 Product Manual (00809-0100-4007).

Note

When performing a zero trim, ensure that the equalization valve is open and all wet legs are filled to the correct level.

⚠ CAUTION

It is not recommended to zero an absolute transmitter, models 3051CA or 3051TA.

1. Choose your trim procedure.
 - a. Analog Zero Trim – Sets the analog output to 4 mA.
 - Also referred to as a “rerange,” it sets the Lower Range Value (LRV) equal to the measured pressure.
 - The display and digital HART output remains unchanged.
 - b. Digital Zero Trim – Recalibrates the sensor zero.
 - The LRV is unaffected. The pressure value will be zero (on display and HART output). 4 mA point may not be at zero.
 - This requires that the factory calibrated zero pressure is within a range of 3% of the URL [$0 + 3\% \times \text{URL}$].

Example

URV = 250 inH₂O

Applied Zero Pressure = $+ 0.03 \times 250 \text{ inH}_2\text{O} = + 7.5 \text{ inH}_2\text{O}$ (compared to factory settings) values outside this range will be rejected by the transmitter.

Trimming with a Field Communicator

1. Connect the Field Communicator, see “[Connect the wiring and power up](#)” on [page 9](#) for instructions.
2. Follow the HART menu to perform the desired zero trim.

Table 5. Zero Trim Fast Keys

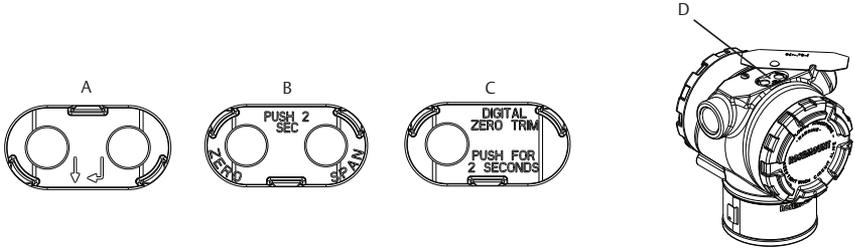
	Analog zero (set 4 mA)	Digital zero
Fast Key Sequence	3, 4, 2	3, 4, 1, 3

Trimming with configuration buttons

A zero trim is to be performed using one of the three possible sets of external configuration buttons located under the top tag.

To access the configuration buttons, loosen the screw and slide the tag on the top of the transmitter. Confirm the functionality using [Figure 10](#).

Figure 10. External Configuration Buttons



A. LOI
B. Analog Zero and Span

C. Digital Zero
D. Configuration Buttons

Use the following procedures to perform a Zero Trim:

Perform trim with LOI (option M4)

1. Set the transmitter pressure.
2. See [Figure 9 on page 13](#) for the operating menu.
 - a. Perform an analog zero trim by selecting Rerange.
 - b. Perform a digital zero trim by selecting Zero Trim.

Perform trim with analog zero and span (option D4)

1. Set the transmitter pressure.
2. Press and hold the zero button for two seconds to perform an analog zero trim.

Perform trim with digital zero (option DZ)

1. Set the transmitter pressure.
2. Press and hold the zero button for two seconds to perform a digital zero trim.

Safety instrumented systems installation

For Safety Certified installations, refer to product manual (00809-0100-4007) for installation procedure and system requirements.

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.rosemount.com.

Ordinary Location Certification from FM Approvals

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

North America

- E5** USA Explosionproof (XP) and Dust-Ignitionproof (DIP)
 Certificate: 0T2H0.AE
 Standards: FM Class 3600 - 2011, FM Class 3615 - 2006, FM Class 3810 - 2005, ANSI/NEMA 250 - 2003
 Markings: XP CL I, DIV 1, GP B, C, D; DIP CL II, DIV 1, GP E, F, G; CL III; T5(-50 °C ≤ T_a ≤ +85 °C); Factory Sealed; Type 4X
- I5** USA Intrinsic Safety (IS) and Nonincendive (NI)
 Certificate: 1Q4A4.AX
 Standards: FM Class 3600 - 2011, FM Class 3610 - 2010, FM Class 3611 - 2004, FM Class 3810 - 2005
 Markings: IS CL I, DIV 1, GP A, B, C, D; CL II, DIV 1, GP E, F, G; Class III; DIV 1 when connected per Rosemount drawing 03031-1019; NI CL 1, DIV 2, GP A, B, C, D; T4(-50 °C ≤ T_a ≤ +70 °C), T5(-50 °C ≤ T_a ≤ +40 °C) [HART]; Type 4x

Special Conditions for Safe Use (X):

1. The Model 3051 transmitter housing contains aluminum and is considered a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact and friction.
 2. The Model 3051 transmitter with the transient terminal block (Option code T1) will not pass the 500 Vrms dielectric strength test and this must be taken into account during installation.
- C6** CSA Explosionproof, Dust-Ignitionproof, Intrinsic Safety and Division 2
 Certificate: 1053834
 Standards: ANSI/ISA 12.27.01-2003, CSA Std. C22.2 No. 30 -M1986, CSA Std. C22.2 No.142-M1987, CSA Std. C22.2. No.157-92, CSA Std. C22.2 No. 213 - M1987
 Markings: Explosionproof for Class I, Division 1, Groups B, C and D; Suitable for Class I, Zone 1, Group IIB+H2, T5; Dust-Ignitionproof Class II, Division 1, Groups E, F, G; Class III Division 1; Intrinsically Safe Class I, Division 1 Groups A, B, C, D when connected in accordance with Rosemount drawing 03031-1024, Temperature Code T3C; Suitable for Class I, Zone 0; Class I Division 2 Groups A, B, C and D, T5; Suitable for Class I Zone 2, Group IIC; Type 4X; Factory Sealed; Single Seal (See drawing 03031-1053)

Europe

E8 ATEX Flameproof and Dust

Certificate: KEMA00ATEX2013X; Baseefa11ATEX0275X

Standards: EN60079-0:2012, EN60079-1:2007, EN60079-26:2007, EN60079-31:2009

Markings: Ⓢ II 1/2 G Ex d IIC T6/T5 Ga/Gb, T6(-50 °C ≤ T_a ≤ +65 °C),
T5(-50 °C ≤ T_a ≤ +80 °C);Ⓢ II 1 D Ex ta IIIC T95 °C T₅₀₀ 105 °C Da (-20 °C ≤ T_a ≤ +85 °C)**Table 6. Process Temperature**

Temperature class	Process temperature
T6	-50 °C to +65 °C
T5	-50 °C to +80 °C

Special Conditions for Safe Use (X):

1. This device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
 2. For information on the dimensions of the flameproof joints the manufacturer shall be contacted.
 3. The capacitance of the wrap around label, being 1.6 nF, exceed the limit in Table 9 of EN60079-0. The user shall determine suitability for the specific application.
 4. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.
- I1** ATEX Intrinsic Safety and Dust
Certificate: BAS97ATEX1089X; Baseefa11ATEX0275X
Standards: EN60079-0:2012, EN60079-11:2012, EN60079-31:2009
Markings: Ⓢ II 1 G Ex ia IIC T5/T4 Ga, T5(-60 °C ≤ T_a ≤ +40 °C), T4(-60 °C ≤ T_a ≤ +70 °C)
Ⓢ II 1 D Ex ta IIIC T95 °C T₅₀₀ 105 °C Da (-20 °C ≤ T_a ≤ +85 °C)

Table 7. Input Parameters

	HART
Voltage U_i	30 V
Current I_i	200 mA
Power P_i	0.9 W
Capacitance C_i	0.012 μF
Inductance L_i	0 mH

Special Conditions for Safe Use (X):

1. The apparatus is not capable of withstanding the 500 V insulation test required by EN60079-11. This must be taken into account when installing the apparatus.
2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however care should be taken to protect it from impact or abrasion if located in Zone 0.
3. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.

N1 ATEX Type n and Dust

Certificate: BAS00ATEX3105X; Baseefa11ATEX0275X

Standards: EN60079-0:2012, EN60079-15:2010, EN60079-31:2009

Markings: Ⓜ II 3 G Ex nA IIC T5 Gc (-40 °C ≤ T_a ≤ +70 °C);Ⓜ II 1 D Ex ta IIIC T95 °C T₅₀₀ 105 °C Da (-20 °C ≤ T_a ≤ +85 °C)**Special Conditions for Safe Use (X):**

1. This apparatus is not capable of withstanding the 500 V insulation test that is required by EN60079-15. This must be taken into account when installing the apparatus.
2. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.

International

E7 IECEx Flameproof and Dust

Certificate: IECEx KEM 09.0034X; IECEx BAS 10.0034X

Standards: IEC60079-0:2011, IEC60079-1:2007-04, IEC60079-26:2006,
IEC60079-31:2008Markings: Ex d IIC T6/T5 Ga/Gb, T6(-50 °C ≤ T_a ≤ +65 °C), T5(-50 °C ≤ T_a ≤ +80 °C);Ex ta IIIC T95 °C T₅₀₀ 105 °C Da (-20 °C ≤ T_a ≤ +85 °C)**Table 8. Process Temperature**

Temperature class	Process temperature
T6	-50 °C to +65 °C
T5	-50 °C to +80 °C

Special Conditions for Safe Use (X):

1. This device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. For information on the dimensions of the flameproof joints the manufacturer shall be contacted.
3. The capacitance of the wrap around label, being 1.6 nF, exceed the limit in Table 9 of EN60079-0. The user shall determine suitability for the specific application.
4. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.

I7 IECEx Intrinsic Safety

Certificate: IECEx BAS 09.0076X

Standards: IEC60079-0:2011, IEC60079-11:2011

Markings: Ex ia IIC T5/T4 Ga, T5(-60 °C ≤ T_a ≤ +40 °C), T4(-60 °C ≤ T_a ≤ +70 °C)**Table 9. Input Parameters**

	HART
Voltage U_i	30 V
Current I_i	200 mA
Power P_i	0.9 W
Capacitance C_i	0.012 μF
Inductance L_i	0 mH

Special Conditions for Safe Use (X):

1. If the apparatus is fitted with optional 90 V transient suppressor, it is not capable of withstanding the 500 V insulation test required by IEC60079-11. This must be taken into account when installing the apparatus.
2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in Zone 0.

IECEx Mining (Special A0259)

Certificate: IECEx TSA 14.0001X

Standards: IEC60079-0:2011, IEC60079-11:2011

Markings: Ex ia I Ma (-60 °C ≤ T_a ≤ +70 °C)

Table 10. Input Parameters

	HART
Voltage U_i	30 V
Current I_i	200 mA
Power P_i	0.9 W
Capacitance C_i	0.012 μF
Inductance L_i	0 mH

Special Conditions for Safe Use (X):

1. If the apparatus is fitted with optional 90 V transient suppressor, it is not capable of withstanding the 500 V insulation test required by IEC60079-11. This must be taken into account when installing the apparatus.
2. It is a condition of safe use that the above input parameters shall be taken into account during installation.
3. It is a condition of manufacture that only the apparatus fitted with housing, covers and sensor module housing made out of stainless steel are used in Group I applications.

N7 IECEx Type n

Certificate: IECEx BAS 09.0077X

Standards: IEC60079-0:2011, IEC60079-15:2010

Markings: Ex nA IIC T5 Gc (-40 °C ≤ T_a ≤ +70 °C)

Special Condition for Safe Use (X):

1. The apparatus is not capable of withstanding the 500 V insulation test required by IEC60079-15. This must be taken into account when installing the apparatus.

Brazil

E2 INMETRO Flameproof

Certificate: UL-BR 13.0643X

Standards: ABNT NBR IEC60079-0:2008 + Errata 1:2011,

ABNT NBR IEC60079-1:2009 + Errata 1:2011,

ABNT NBR IEC60079-26:2008 + Errata 1:2008

Markings: Ex d IIC T6/T5 Ga/Gb, T6(-50 °C ≤ T_a ≤ +65 °C), T5(-50 °C ≤ T_a ≤ +80 °C)

Special Conditions for Safe Use (X):

1. This device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.

2. In case of repair, contact the manufacturer for information on the dimensions of the flameproof joints.
 3. The capacitance of the wrap around label, being 1.6 nF, exceeds the limit in Table 9 of ABNT NBR IEC 60079-0. The user shall determine suitability for the specific application.
- I2** INMETRO Intrinsic Safety
 Certificate: UL-BR 13.0584X
 Standards: ABNT NBR IEC60079-0:2008 + Errata 1:2011, ABNT NBR IEC60079-11:2009
 Markings: Ex ia IIC T5/T4 Ga, T5(-60 °C ≤ T_a ≤ +40 °C), T4(-60 °C ≤ T_a ≤ +70 °C)

Table 11. Input Parameters

	HART
Voltage U_i	30 V
Current I_i	200 mA
Power P_i	0.9 W
Capacitance C_i	0.012 μF
Inductance L_i	0 mH

Special Conditions for Safe Use (X):

1. If the equipment is fitted with an optional 90V transient suppressor, it is not capable of withstanding the 500 V insulation test required by ABNT NBR IRC 60079-11:2008. This must be taken into account when installing the equipment.
2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in Zone 0.

China

E3 China Flameproof

Certificate: GYJ14.1041X; GYJ10.1313X [Flowmeters]

Standards: GB3836.1-2000, GB3836.2-2000, GB4208-1993, GB12476-2000

Markings: Ex d IIC T6/T5, T6(-50 °C ≤ T_a ≤ +65 °C), T5(-50 °C ≤ T_a ≤ +80 °C)**Special Condition for Safe Use (X):**

Refer to Appendix B of the Rosemount 3051 reference manual (00809-0100-4007).

I3 China Intrinsic Safety

Certificate: GYJ13.1362X; GYJ101312X [Flowmeters]

Standards: GB3836.1-2010, GB3836.4-2010, GB3836.20-2010, GB12476.1-2000

Markings: Ex ia IIC T5/T4 Ga, T5(-60 °C ≤ T_a ≤ +40 °C), T4(-60 °C ≤ T_a ≤ +70 °C);
DIP A20 T_A 80 °C**Special Condition for Safe Use (X):**

Refer to Appendix B of the Rosemount 3051 reference manual (00809-0100-4007).

N3 China Type n

Certificate: GYJ101111X

Standards: GB3836.1-2000, GB3836.8-2003

Markings: Ex nA IIC T5(-40 °C ≤ T_a ≤ +70 °C)**Special Condition for Safe Use (X):**

Refer to Appendix B of the Rosemount 3051 reference manual (00809-0100-4007).

Japan

- E4** Japan Flameproof
 Certificate: TC20577, TC20578, TC20583, TC20584
 Markings: Ex d IIC T5

Technical Regulations Customs Union (EAC)

- EM** EAC Flameproof
 Certificate: RU C-US.Gb05.B.00400
 Markings: Ga/Gb Ex d IIC T5/T6 X, T5(-60 °C ≤ T_a ≤ +80 °C), T6(-60 °C ≤ T_a ≤ +65 °C)
Special Condition for Safe Use (X):
 See certificate for special conditions.
- IM** EAC Intrinsically Safe
 Certificate: RU C-US.Gb05.B.00400
 Markings: HART: 0Ex ia IIC T4/T5 Ga X, T4(-60 °C ≤ T_a ≤ +70 °C), T5(-60 °C ≤ T_a ≤ +40 °C)
 Fieldbus/PROFIBUS[®]: 0Ex ia IIC T4 Ga X (-60 °C ≤ T_a ≤ +60 °C)
Special Condition for Safe Use (X):
 See certificate for special conditions.

Combinations

- K2** Combination of E2 and I2
K5 Combination of E5 and I5
K6 Combination of C6, E8, and I1
K7 Combination of E7, I7, and N7
K8 Combination of E8, I1, and N1
KB Combination of E5, I5, and C6
KD Combination of E8, I1, E5, I5, and C6
KM Combination of EM and IM

Conduit Plugs and Adapters

- IECEx Flameproof and Increased Safety
 Certificate: IECEx FMG 13.0032X
 Standards: IEC60079-0:2011, IEC60079-1:2007, IEC60079-7:2006-2007
 Markings: Ex de IIC Gb
- ATEX Flameproof and Increased Safety
 Certificate: FM13ATEX0076X
 Standards: EN60079-0:2012, EN60079-1:2007, IEC60079-7:2007
 Markings: Ⓢ II 2 G Ex de IIC Gb

Table 12. Conduit Plug Thread Sizes

Thread	Identification mark
M20 × 1.5	M20
1/2- 14 NPT	1/2 NPT
G ¹ /2A	G ¹ /2

Table 13. Thread Adapter Thread Sizes

Male thread	Identification mark
M20 × 1.5	M20
1/2- 14 NPT	1/2 NPT
G ¹ /2A	G ¹ /2
Female thread	Identification mark
M20 × 1.5 - 6H	M20
1/2- 14 NPT	1/2 - 14 NPT
PG 13.5	PG 13.5

Special Conditions for Safe Use (X):

1. When the thread adapter is used with an enclosure in type of protection increased safety “e” the entry thread shall be suitably sealed in order to maintain the ingress protection rating (IP) of the enclosure.
2. The blanking plug shall not be used with an adapter.
3. Blanking Plug and Threaded Adapter shall be either NPT or Metric thread forms. G¹/2 and PG 13.5 thread forms are only acceptable for existing (legacy) equipment installations.

Additional Certifications

SBS American Bureau of Shipping (ABS) Type Approval

Certificate: 09-HS446883A-PDA

Intended Use: Measure gauge or absolute pressure of liquid, gas or vapor applications on ABS classed vessels, marine, and offshore installations.

ABS Rules: 2009 Steel Vessels Rules 1-1-4/7.7, 4-6-2/5.15, 4-8-3/13.1

SBV Bureau Veritas (BV) Type Approval

Certificate: 23155/A3 BV

Requirements: Bureau Veritas Rules for the Classification of Steel Ships

Application: Class notations: AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS; Pressure transmitter type 3051 cannot be installed on diesel engines

SDN Det Norske Veritas (DNV) Type Approval

Certificate: A-14086

Intended Use: Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application:

Location classes	
Type	3051
Temperature	D
Humidity	B
Vibration	A
EMC	B
Enclosure	D

SLL Lloyds Register (LR) Type Approval

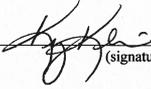
Certificate: 11/60002

Application: Environmental categories ENV1, ENV2, ENV3 and ENV5

C5 Custody Transfer - Measurement Canada Accuracy Approval

Certificate: AG-0226; AG-0454; AG-0477

Figure 11. Rosemount 3051 EC Declaration of Conformity

ROSEMOUNT	CE
EC Declaration of Conformity No: RMD 1017 Rev. T	
3051	
We,	
Rosemount Inc. 8200 Market Boulevard Chanhassen, MN 55317-9685 USA	
declare under our sole responsibility that the product,	
Model 3051 Pressure Transmitters	
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)	14 - Apr - 2014 _____ (date of issue)
 EMERSON Process Management	Page 1 of 4 Document Rev: 2013_A

ROSEMOUNT



EC Declaration of Conformity

No: RMD 1017 Rev. T

EMC Directive (2004/108/EC)

All Models 3051 Pressure Transmitters
 EN 61326-1:2006
 EN 61326-2-3:2006

PED Directive (97/23/EC)

Models 3051CA4; 3051CD2, 3, 4, 5; 3051HD2, 3, 4, 5; (also with P9 option)
Pressure Transmitters

QS Certificate of Assessment - EC Certificate No. 59552-2009-CE-HOU-DNV
 Module H Conformity Assessment
 Other Standards Used: ANSI/ISA61010-1:2004, EN60770-1:1999

All other model 3051 Pressure Transmitters
 Sound Engineering Practice

Transmitter Attachments: Diaphragm Seal - Process Flange - Manifold
 Sound Engineering Practice

Model 3051CFx Flowmeter Transmitters (All 3051CFx models are SEP except as noted in the table below)

QS Certificate of Assessment - CE-41-PED-H1-RMT-001-04-USA
 Module H Conformity Assessment
 Evaluation standards: ASME B31.3:2010

Model/Range	PED Category	
	Group 1 Fluid	Group 2 Fluid
3051CFA: 1500# & 2500# All Lines	II	SEP
3051CFA: Sensor Size 2 150# 6"to 24" Line	I	SEP
3051CFA: Sensor Size 2 300# 6"to 24" Line	II	I
3051CFA: Sensor Size 2 600# 6"to 16" Line	II	I
3051CFA: Sensor Size 2 600# 18"to 24" Line	III	II
3051CFA: Sensor Size 3 150# 12"to 44" Line	II	I
3051CFA: Sensor Size 3 150# 46"to 72" Line	III	II
3051CFA: Sensor Size 3 300# 12" to 72" Line	III	II
3051CFA: Sensor Size 3 600# 12"to 48" Line	III	II
3051CFA: Sensor Size 3 600# 60" to 72" Line	IV	III
3051CFP: 150#, 300#, 600# 1-1/2"	I	SEP
3051CFP: 300# & 600# 1-1/2"	II	I
3051CFP: 1-1/2" Threaded & Welded	II	I



ROSEMOUNT

EC Declaration of Conformity

No: RMD 1017 Rev. T

ATEX Directive (94/9/EC)

Model 3051 Pressure Transmitter

BAS97ATEX1089X - Intrinsic Safety
 Equipment Group II Category 1 G
 Ex ia IIC T5/T4 Ga

Harmonized Standards Used:
 EN60079-11:2012
 Other Standards Used:
 EN60079-0:2012

BAS00ATEX3105X - Type n and Certificate
 Equipment Group II Category 3 G
 Ex nA IIC T5 Gc

Harmonized Standards Used:
 EN60079-15:2010
 Other Standards Used:
 EN60079-0:2012

Baseefa11ATEX0275X - Dust Certificate
 Equipment Group II Category 1 D
 Ex ta IIIC T95°C T₅₀₀105°C Da

Harmonized Standards Used:
 EN60079-31:2009
 Other Standards Used:
 EN60079-0:2012

KEMA00ATEX2013X - Flameproof Certificate
 Equipment Group II Category 1/2 G
 Ex d IIC T6 or T5 Ga/Gb

Harmonized Standards Used:
 EN60079-1:2007, EN60079-26:2007
 Other Standards Used:
 EN60079-0:2012


EMERSON
 Process Management

ROSEMOUNT**EC Declaration of Conformity****No: RMD 1017 Rev. T****PED Notified Body****Model 3051 Pressure Transmitters**

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

3051CFx Series Flowmeter Transmitters

Bureau Veritas UK Limited [Notified Body Number: 0041]
Parklands 825A, Wilmslow Road, Didsbury
Manchester M20 2RE
United Kingdom

ATEX Notified Bodies for EC Type Examination Certificate

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

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

ATEX Notified Body for Quality Assurance

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



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