

Smart Wireless THUM™ Adapter



CE



WirelessHART

- 2-, 3-, or 4-wire HART® devices
- Flexibility to meet your most demanding applications
- Wireless output with >99% data reliability delivers rich HART data, protected by industry leading security
- Gain access to additional HART information, such as diagnostics or multi-variable data
- Add wireless to almost any measurement point
- Smart Wireless brings measurement capabilities to previously inaccessible locations

IEC 62591 (WirelessHART®)... the Industry Standard

Self-organizing, adaptive mesh routing

- No wireless expertise required, devices automatically find the best communication paths
- Network continuously monitors paths for degradation and repairs itself
- Adaptive behavior provides reliable, hands-off operation and simplifies network deployments, expansion, and reconfiguration
- Supports both star and mesh topologies

Industry standard radio with channel hopping

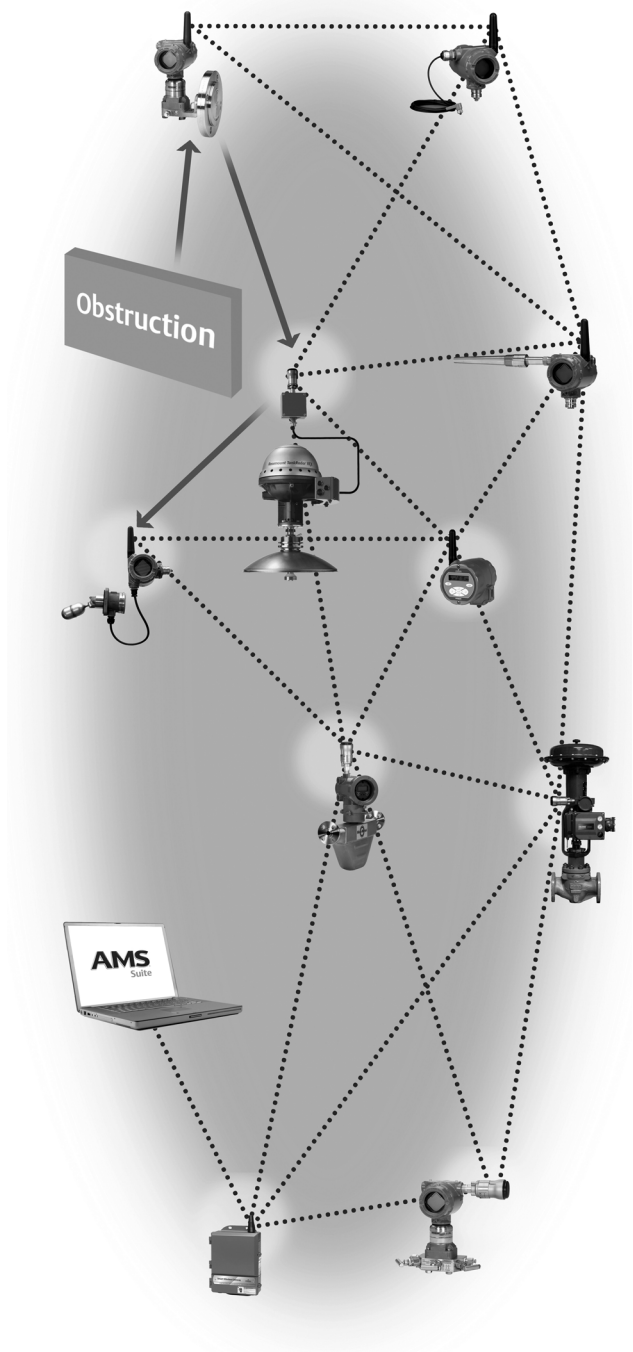
- Standard IEEE 802.15.4 radios
- 2.4 GHz ISM band sliced into 16 radio-channels
- Continually “hop” across channels to avoid interference and increase reliability
- Direct Sequence Spread Spectrum (DSSS) technology delivers high reliability in challenging radio environment

Self-healing network

- The self-organizing, self-healing network manages multiple communication paths for any given device. If an obstruction is introduced into the network, data will continue to flow because the device already has other established paths. The network will then lay in more communication paths as needed for that device.

Seamless integration to existing hosts

- Transparent and seamless integration
- Same control system applications
- Gateways connect using industry protocols



Contents

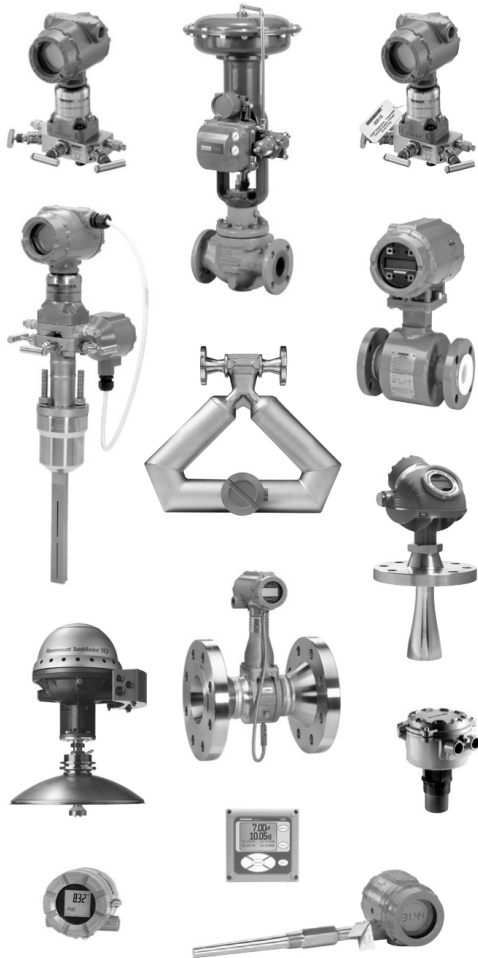
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Smart Wireless THUM Adapter



Device specifications

- Approvals: FM, CSA, ATEX, IECEx
- Input: Either 2-, 3-, or 4-wire HART 5.0 device
- SmartPower™: Power scavenging technology (no battery required)
- Minimum load on loop 250 Ohms



Enable enhanced valve capabilities

- Online, in-service valve testing through AMS® ValveLink SNAP-ON™ Application
- Monitor alerts such as travel deviation with AMS Device Manager, supply pressure, and electronics health
- Trend actual valve position

Gain access to advanced instrument diagnostics

- Rosemount 3051S with Advanced Process Diagnostics
- Micro Motion® Coriolis Meter Verification with optional AMS Meter Verification SNAP-ON
- Rosemount Radar Echo Curve
- Rosemount Magnetic Flow Meter Verification with AMS Device Manager

Efficiently gather data from multivariable devices

- Rosemount 3051S MultiVariable™ Transmitter and 3095 Mass Flow Transmitters
- Rosemount 3300 and 5300 Radar Level Transmitters
- Micro Motion Coriolis Meters
- Rosemount TankRadar Rex and TankRadar Pro
- Rosemount Magnetic Flowmeter
- Rosemount MultiVariable Vortex Flowmeter

Make any HART device wireless to access new measurement information

- Level
- Flow
- Valves
- Liquid and Gas Analytical
- Pressure
- Temperature

Remotely manage devices and monitor health with AMS Device Manager

- Reduce troubleshooting time
- As found, as left data
- Calibration tracking

Ordering Information

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See [page 5](#) for more information on Material Selection.

Table 1. Smart Wireless THUM Adapter Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.

The Expanded offering is subject to additional delivery lead time.

Model	Product description	
775	Smart Wireless THUM Adapter	
Output		
X	Wireless	
Housing		
D	Aluminum	★
E	SST	
Mounting connection		
1	¹ / ₂ - 14 NPT	★
2	M20-Conduit Adapter	★
PlantWeb functionality		
1	HART Data	★
Certification		
NA	No Approval	★
I5	FM Intrinsically Safe, Non-incendive	★
I6	CSA Intrinsically Safe	★
I1	ATEX Intrinsic Safety	★
N1	ATEX Type n	★
I7	IECEx Intrinsic Safety	★
N7	IECEx Type n	★
I2	INMETRO Intrinsic Safety	★
N2	INMETRO Type n	★
I3	China Intrinsic Safety	★
IP	Korea (KOSHA) Intrinsic Safety	★
IW	India (CCOE) Intrinsic Safety	★
IM	Technical Regulation Customs Union (EAC) Intrinsic Safety	
NM	Technical Regulation Customs Union (EAC) Type n	
KM	Technical Regulation Customs Union (EAC) Intrinsic Safety and Type n	
Wireless update rate, operating frequency, and protocol		
WA3	User Configurable Update Rate, 2.4 GHz DSSS, <i>WirelessHART</i>	★
Omni-directional, wireless antenna and SmartPower options		
WK9	Long range, Integral Antenna, Power Scavenging	★
Typical model number: 775XD11I5WA3WK9		

Accessories and spare parts

Table 2. Accessories

Item Description	Part Number
Remote Mount Kit - AI	00775-9000-0001
Remote Mount Kit - SST	00775-9000-0011
M20-Conduit Adapter	00775-9001-0001

Specifications

Functional specifications

Input

Any 2-, 3-, or 4-wire HART powered device

Output

IEC 62591 (WirelessHART)

Humidity limits

0–100% relative humidity

Update rate

User selectable, 8 sec. to 60 min.

Physical specifications

Material selection

Emerson provides a variety of Rosemount product with various product options and configurations including materials of construction that can be expected to perform well in a wide range of applications. The Rosemount product information presented is intended as a guide for the purchaser to make an appropriate selection for the application. It is the purchaser's sole responsibility to make a careful analysis of all process parameters (such as all chemical components, temperature, pressure, flow rate, abrasives, contaminants, etc.), when specifying product, materials, options and components for the particular application. Emerson Process Management is not in a position to evaluate or guarantee the compatibility of the process fluid or other process parameters with the product, options, configuration or materials of construction selected.

Electrical connections

The THUM Adapter is connected into a powered 4–20 mA loop, powering itself by scavenging power. The THUM Adapter causes a voltage drop across the loop. The drop is linear from 2.25 V at 3.5 mA to 1.2 V at 25 mA, but does not effect the 4–20 mA signal on the loop. Under fault conditions, the maximum voltage drop is 2.5 V.

Power supply

Minimum load on loop 250 Ohms

To maintain normal operating functions of the sub-device, the power in the loop must have at least a 2.5 V margin at a 250 Ω load.

Limit power supply to 0.5 Amps maximum.

Limit power supply to 55 Vdc maximum.

Field communicator connections

Utilize wired device HART connections.

Materials of construction

Enclosure

Housing option D - Low-copper aluminum

Housing option E - 316 SST

Paint - Polyurethane

M20-Conduit Adapter - SST

M20-Conduit Adapter O-ring - Buna-n

Antenna

Poly butadine terephthalate (PBT) / Polycarbonate (PC)
integrated omni directional antenna

Weight

THUM Adapter only AL - 0.65 lbs. (0.29 kg)

THUM Adapter only SST - 1.1 lbs. (0.5 kg)

AL THUM Adapter with AL remote kit - 3.2 lbs. (1.45 kg)

SST THUM Adapter with SST remote kit - 5.8 lbs. (2.65 kg)

AL THUM Adapter with M20 conduit adapter - 0.85 lbs. (.038 kg)

SST THUM Adapter with M20 conduit adapter - 1.3 lbs. (0.59 kg)

Enclosure ratings

Housing option code D and remote mount kits are enclosure Type 4X and IP66.

Mounting

The THUM Adapter may be attached directly to the conduit of any 2- or 4-wire HART device or mounted remotely by using remote mount kit.

Performance specifications

ElectroMagnetic Compatibility (EMC)

All Models:

Meets all relevant requirements of EN 61326-1 (2006) when installed with shielded wiring. The sub-device must also use shielded wiring for installation.

Vibration effect

Output unaffected when tested per the requirements of IEC60770-1 field with general application or pipeline with low vibration level (10-60 Hz 0.15 mm displacement peak amplitude / 60-500 Hz 2g).

When the THUM Adapter is used on wired devices that are subject to vibration levels greater than 2g, it is recommended that the THUM Adapter be remotely mounted using the remote mount kit.

Temperature limits

Operating limit	Storage limit
-40 to 185 °F	-40 to 185 °F
-40 to 85 °C	-40 to 85 °C

Product Certifications

Approved manufacturing locations

Rosemount Inc. – Chanhassen, Minnesota, USA

Emerson Process Management GmbH & Co. - Wessling, Germany

Emerson Process Management Asia Pacific Private Limited - Singapore

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 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).

Telecommunication compliance (for wireless products only)

All wireless devices require certification to ensure they adhere to regulations regarding the use of the RF spectrum. Nearly every country requires this type of product certification. Emerson is working with governmental agencies around the world to supply fully compliant products and remove the risk of violating country directives or laws governing wireless device usage.

FCC and IC (for wireless products only)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This device may not cause harmful interference. This device must accept any interference received, including interference that may cause undesired operation. This device must be installed to ensure a minimum antenna separation distance of 20 cm from all persons.

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.

USA

- I5** FM Intrinsically Safe (IS) and Non-incendive
 Certificate: 3036224
 Standards: FM Class 3600 – 1998, FM Class 3610 – 2007, FM Class 3611 – 2004, FM Class 3810 – 2005, NEMA 250 – 2003, IEC 60529 – 2004
- Markings: IS CL I, DIV 1, GP 1, A, B, C, D; CL II, DIV 1, GP E, F, G; Class III; Class 1, Zone 0 AEx ia IIC T4; NI CL I, DIV 2, GP A, B, C, D T4; T4(-50°C ≤ Ta ≤ +70°C) when connected per Rosemount drawing 00775-0010; Type 4X/IP66CSA

Canada

- I6** CSA Intrinsically Safe
 Certificate: 2174201
 Standards: CAN/CSA C22.2 No. 0-M91 (R2001), CAN/CSA C22.2 No. 94-M91 (R2001), CSA Std C22.2 No. 142-M1987, CAN/CSA C22.2 No. 157-92, CSA Std C22.2 No. 213-M1987, C22.2 No. 60529
- Markings: Intrinsically Safe Class I, Division 1, Groups A, B, C, and D T3C; Suitable for use in Class I, Division 2, Groups A, B, C, and D T3C; T3C(-50°C ≤ Ta ≤ +70°C) when installed per Rosemount drawing 00775-0012; Type 4X/IP66

Europe

- I1** ATEX Intrinsic Safety
 Certificate No.: Baseefa09ATEX0125X
 Standards: IEC 80079-0:2011; EN60079-11:2012;
 Markings:  II 1G Ex ia IIC T4 Ga, T4(-50°C ≤ Ta ≤ +70°C)

Special Conditions for Safe Use (X):

1. The surface resistivity of the antenna is greater than one gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.
2. The enclosure is 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 a zone 0.

- N1** ATEX Type n
 Certificate No.: Baseefa09ATEX0131
 Standards: IEC 60079-0:2011, EN 60079-15:2010;
 Markings:  II 3G nA IIC T4 Gc, T4(-50°C ≤ Ta ≤ +70°C)
 IP66

International

- I7 IECEx Intrinsic Safety
 Certificate: IECEx BAS 09.0050X
 Standards: IEC 60079-0:2011, IEC 60079-11:2011;
 Markings: Ex ia IIC T4 Ga, T4(-50°C ≤ Ta ≤ +70°C)
 IP66

Special Conditions for Safe Use (X):

1. The surface resistivity of the antenna is greater than one gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.
2. The Model 775 enclosure is 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 a zone 0.

- N7 IECEx Type n
 Certificate: IECEx BAS 09.0058
 Standards: IEC 60079-0:2011, IEC 60079-15:2010;
 Markings: Ex nA IIC T4 Gc, T4(-50°C ≤ Ta ≤ +70°C)
 IP66

Brazil

- I2 INMETRO Intrinsic Safety
 Certificate: NCC 6269.10X
 Standards: ABNT NBR IEC 60079-0:2008, ABNT NBR IEC 60079-11:2009, ABNT NBR IEC 60079-26:2008;
 Markings: Ex ia IIC T4 (-50°C ≤ Ta ≤ +70°C) Ga

Special Conditions for Safe Use (X):

1. The surface resistivity of the antenna is greater than 1GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.
2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; special care must be taken to minimize the risk of impact or friction of the housing which can cause the generation of sparks.

- N2 INMETRO Type n
 Certificate: NCC 6156.10
 Standards: ABNT NBR IEC 60079-0:2008, IEC 60079-15:2010;
 Markings: Ex nA IIC T4 Gc, Gc(-50° ≤ Ta ≤ +70°C)
 IP66

China

- I3 NEPSI Intrinsic Safety
 Certificate: GYJ091293X
 Standards: GB3836.1 – 2000, GB3836.4 - 2000
 Markings: Ex ia IIC T4

Special Conditions for Safe Use (X):

See certificate for special conditions.

Japan

- I4 TIIS Intrinsic Safety
 Certificate: TC20024
 Markings: Ex ia IIB T4

EAC – Belarus, Kazakhstan, Russia

- IM EAC Intrinsic Safety and Type n
 Certificate: RU C-US.??05.B.00099
 Markings: 0Ex ia IIC T4 X Ga;
 2Ex nA IIC T4 X Gc;
 IP66;

Republic of Korea

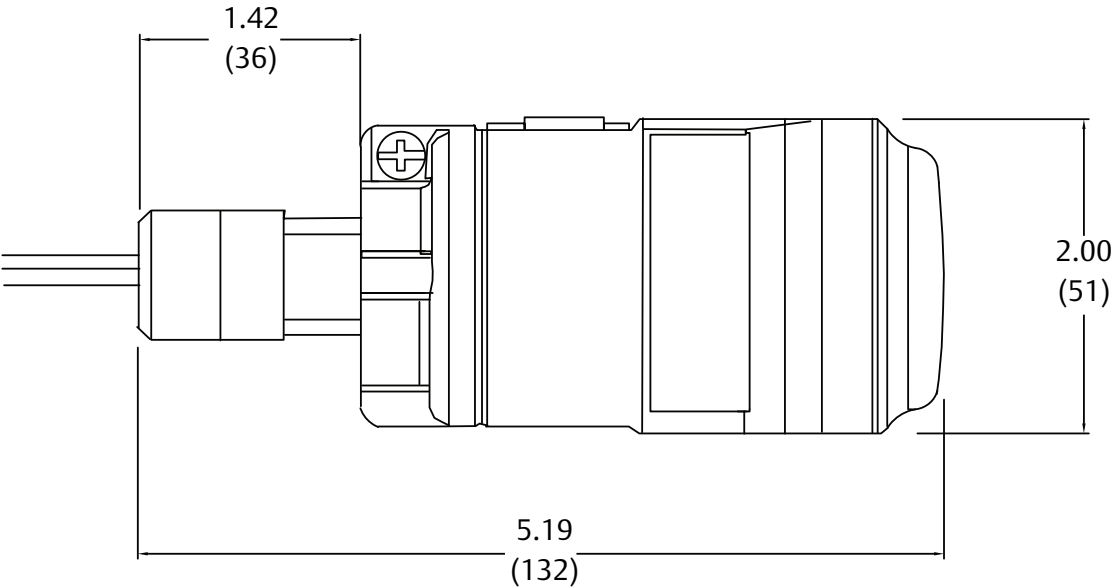
- IP Korea (KOSHA) Intrinsic Safety
 Certificate: 10-KB4BO-0010X
 Markings: Ex ia IIC T4

India

- IW India (CCOE) Intrinsic Safety
 Certificate: A/P/HQ/MH/104/2023(P242867)
 Markings: Ex ia IIC T4

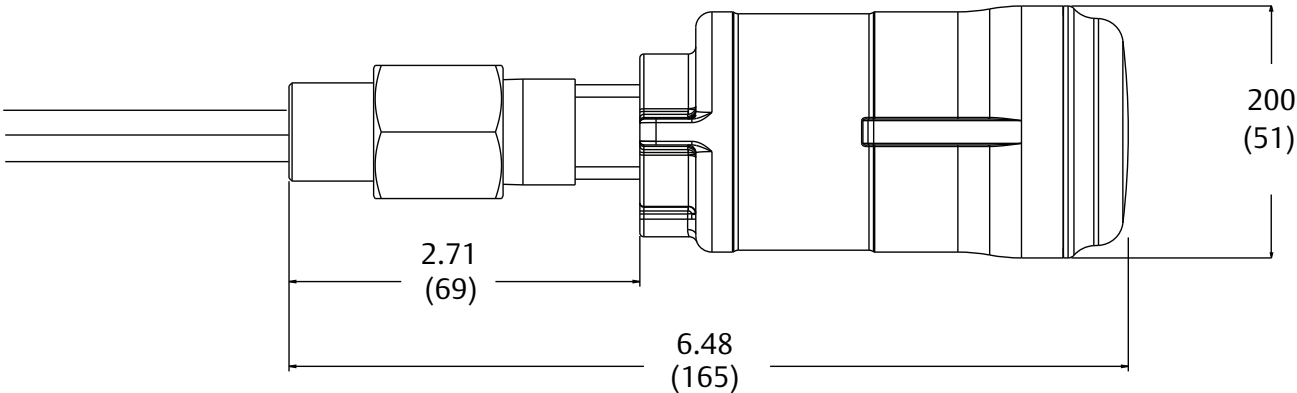
Dimensional Drawings

THUM Adapter 1/2 NPT



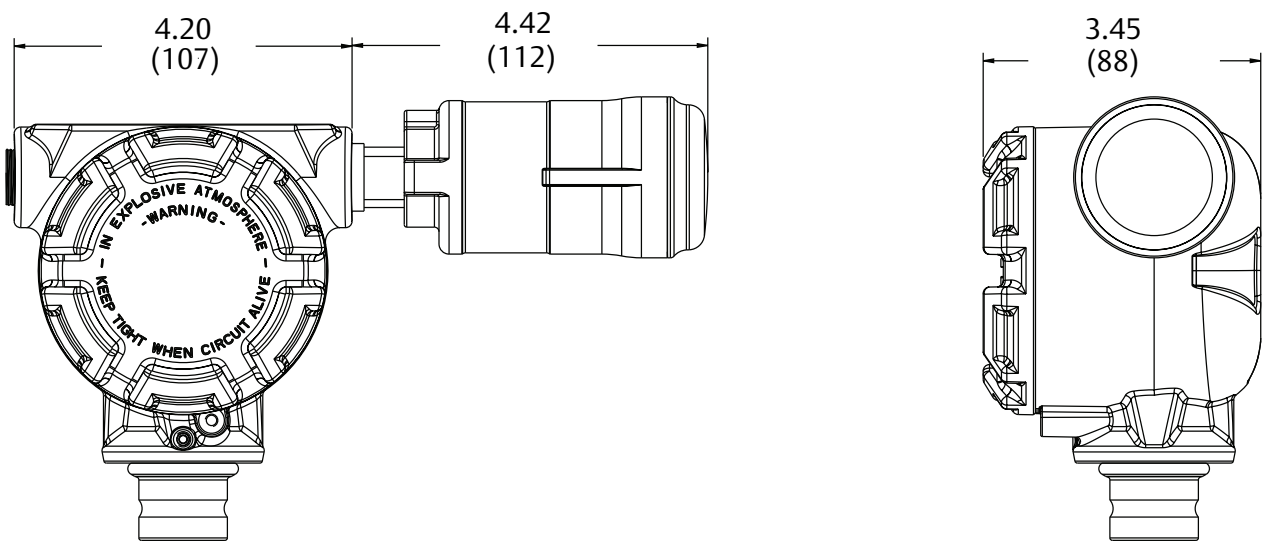
Dimensions are in inches (millimeters).

THUM Adapter with M20 Conduit Adapter



Dimensions are in inches (millimeters).

THUM Adapter with Remote Mount Kit



Dimensions are in inches (millimeters).

Emerson Process Management

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55317 USA
T (U.S.) 1-800-999-9307
T (International) (952) 906-8888
F (952) 906-8889
www.rosemount.com

Emerson Process Management

Blegistrasse 23
P.O. Box 1046
CH 6341 Baar
Switzerland
T +41 (0) 41 768 6111
F +41 (0) 41 768 6300
www.rosemount.com

Emerson Process Management

Asia Pacific Pte Ltd
1 Pandan Crescent
Singapore 128461
T +65 6777 8211
F +65 6777 0947
Service Support Hotline: +65 6770 8711
Email: Enquiries@AP.EmersonProcess.com
www.rosemount.com

Emerson Process Management

Latin America
1300 Concord Terrace, Suite 400
Sunrise Florida 33323 USA
T + 1 954 846 5030
www.rosemount.com

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