Product Data Sheet
September 2017
00813-0100-4075, Rev EA

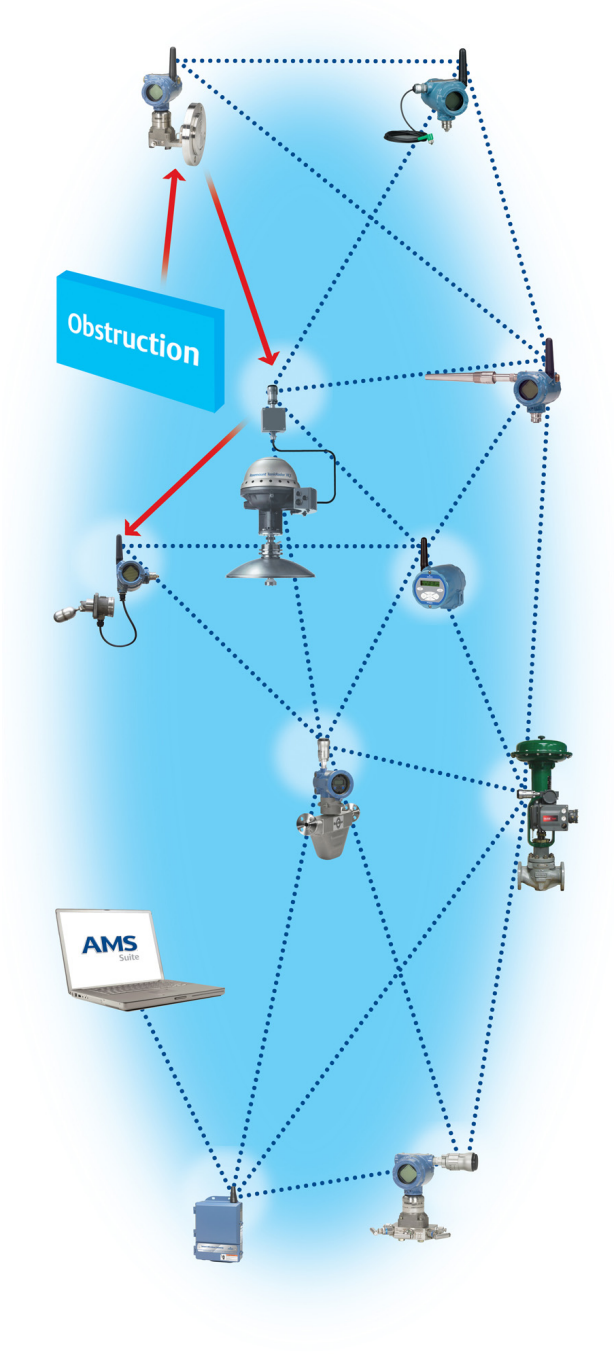
Emerson™ Wireless THUM™ Adapter

- 2-, 3-, or 4-wire HART®devices
- Flexibility to meet your most demanding applications
- Wireless output with >99 percent 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
- Wireless brings measurement capabilities to previously inaccessible locations

IEC 62591 (*Wireless*HART®)... 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

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 Rosemount 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 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 6 for more information on material selection.

Table 1. THUM Adapter Ordering Information

The starred offerings (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

Model	Product description	
775	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	
E5	USA Explosionproof	
E6	Canada Explosionproof	

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Wireless update rate, operating frequency, and protocol		
WA3	User configurable update rate, 2.4 GHz DSSS, *Wireless*HART	★
Omni-directional, wireless antenna and SmartPower options		
WK9	Long range, integral antenna, power scavenging	★
Typical model number: 775 X D 1 1 I5 WA3 WK9		

Table 2. Accessories

Item description	Part number
Remote mount kit - aluminum	00775-9000-0001
Remote mount kit - stainless steel	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 (*Wireless*HART)

Humidity limits

0–100% relative humidity

Update rate

User selectable, eight seconds to 60 minutes.

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 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

Polybutadine terephthalate (PBT)/Polycarbonate (PC) integrated omni directional antenna

Weight

THUM Adapter only AL - 0.65 lb (0.29 kg)

THUM Adapter only SST - 1.1 lb(0.5 kg)

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

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

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

SST THUM Adapter with M20 conduit adapter - 1.3 lb (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)

Meets all industrial environments of EN61326 and NAMUR NE-21 when installed with shielded wiring. The sub-device must also use shielded wiring for installation. Maximum deviation ≤1% span during EMC disturbance[1].

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 2 g).

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 85 °C	–40 to 185 °F –40 to 85 °C

1. *During the surge event, device may exceed maximum EMC deviation limit or reset; however, device will self-recover and return to normal operation within specified start-up time.*

Product Certifications

Rev 2.2

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 Emerson.com/Rosemount.

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).

Telecommunication compliance (for wireless products only)

All wireless devices require certification to ensure that 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

E5 USA Explosionproof
Certificate: CSA 2174201
Standards: FM Class 3600 - 2011, FM Class 3615 - 2006, ANSI/UL 61010-1 3rd Edition
Markings: Class I, Division 1, Groups A, B, C and D; T5, T6; Type 4X and IP66 (–50 °C ≤ T_a ≤ +70 °C)

I5 USA 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 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 ≤ T_a ≤ +70 °C) when connected per Rosemount drawing 00775-0010; Type 4X/IP66

Canada

E6 Canada Explosionproof
Certificate: CSA 2174201
Standards: CAN/CSA C22.2 No. 0-M91, CSA Std. C22.2 No. 30-M1986, CAN/CSA-C22.2 No. 94-M91, CAN/CSA-C22.2 No. 61010-1-12, CSA Std. C22.2 No. 60529
Markings: Class I, Division 1, Groups A, b, C and D; T5, T6; Type 4X and IP66 (–50 °C ≤ T_a ≤ +70 °C)

I6 Canada 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, D T3C; Suitable for use in Class I, Division 2, Groups A, B, C, D T3C; T3C(–50 °C ≤ T_a ≤ +70 °C) when installed per Rosemount drawing 00775-0012; Type 4X/IP66

Europe

I1 ATEX Intrinsic Safety
Certificate: Baseefa09ATEX0125X
Standards: IEC 60079-0:2011; EN60079-11:2012;
Markings: ⟨Ex⟩ II 1G Ex ia IIC T4 Ga, T4(–50 °C ≤ T_a ≤ +70 °C)

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 dry cloth.
2. The Rosemount 775 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.

N1 ATEX Type n
Certificate: Baseefa09ATEX0131
Standards: IEC 60079-0:2011, EN 60079-15:2010
Markings: ⟨Ex⟩ II 3G nA IIC T4 Gc, T4(–50 °C ≤ T_a ≤ +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 ≤ T_a ≤ +70 °C) IP66

Special Conditions for Safe Use (X):

1. The surface resistivity of the antenna is greater than 1 GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or dry cloth.
2. The Rosemount 775 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.

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 ≤ T_a ≤ +70 °C) IP66

Brazil

I2 INMETRO Intrinsic Safety
Certificate: UL-BR 15.0089X
Standards: ABNT NBR IEC 60079-0:2008, ABNT NBR IEC 60079-11:2009
Markings: Ex ia IIC T4 Ga (–50 °C ≤ T_a ≤ +70 °C), IP66

Special Conditions for Safe Use (X):

1. The surface resistivity of the antenna is greater than 1 GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or 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: UL-BR 15.0027
Standards: ABNT NBR IEC 60079-0:2008, IEC 60079-15:2010;
Markings: Ex nA IIC T4 Gc (–50 °C ≤ T_a ≤ +70 °C) IP66

China

I3 NEPSI Intrinsic Safety
Certificate: GYJ14.1094X
Standards: GB3836.1 - 2010, GB3836.4 - 2010, GB3836.20-2010
Markings: Ex ia IIC T4 Ga, –50 ~ +70 °C

Special Condition for Safe Use (X):

1. See certificate for special conditions.

Japan

I4 TIIS Intrinsically Safe
Certificate: TC22150X
Markings: Ex ia IIB T4 Ga, –50 ~ +70 °C

Special Condition for Safe Use (X):

1. See certificate for special conditions.

EAC – Belarus, Kazakhstan, Russia

IM Technical Regulation Customs Union (EAC) Intrinsic Safety
Certificate: TC RU C-US.AA87.B.00228
Markings: 0Ex ia IIC T4 Ga X; T4 (–50 °C ≤ T_a ≤ +70 °C) IP66

Special Condition for Safe Use (X):

1. See certificate for special conditions.

NM Technical Regulation Customs Union (EAC) Type n
Certificate: TC RU C-US.AA87.B.00228
Markings: 2Ex nA IIC T4 Gc X;T4 (–50 °C ≤ T_a ≤ +70 °C) IP66

Special Condition for Safe Use (X):

1. See certificate for special conditions.

Republic of Korea

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

Special Condition for Safe Use (X):

1. See certificate for special conditions.

India

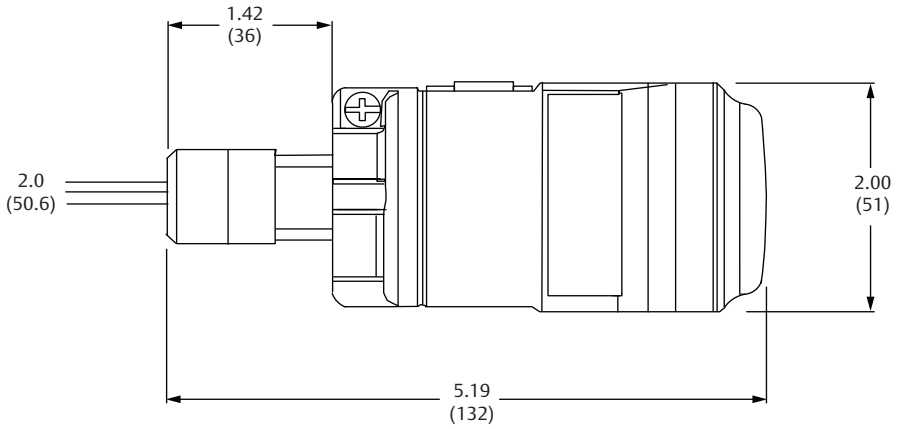
IW India (CCOE) Intrinsic Safety
Certificates: A/P/HQ/MH/104/2023(P242867)
Markings: Ex ia IIC T4

Combinations

KM Combination of IM and NM

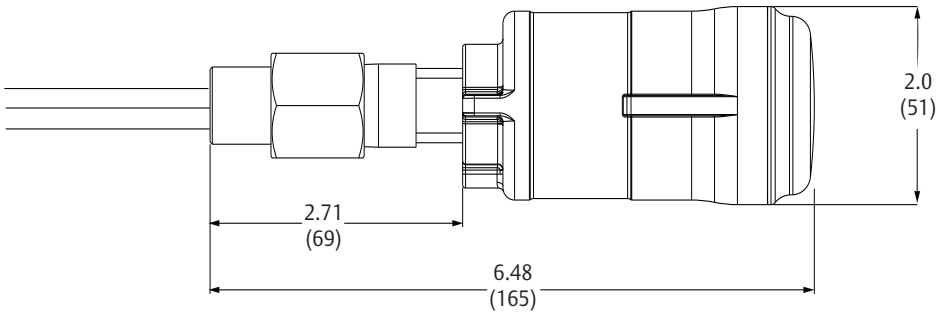
Dimensional Drawings

Figure 1. THUM Adapter 1/2 NPT



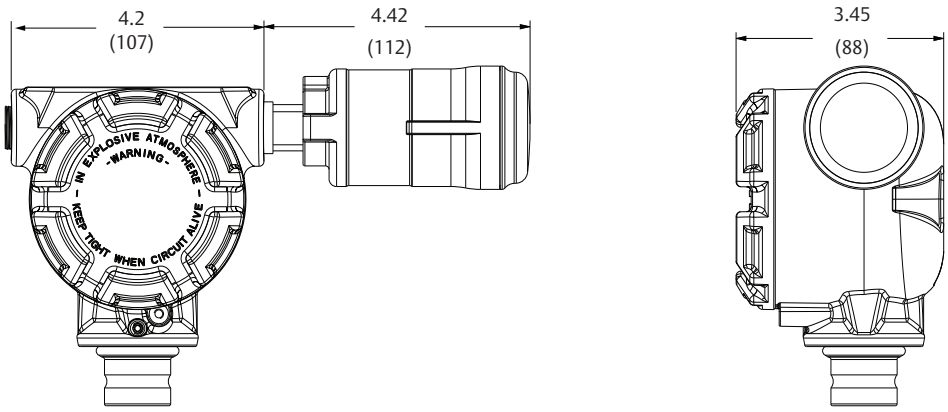
Dimensions are in inches (millimeters).

Figure 2. THUM Adapter with M20 Conduit Adapter



Dimensions are in inches (millimeters).

Figure 3. THUM Adapter with Remote Mount Kit



Dimensions are in inches (millimeters).

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