Product Data Sheet September 2018 00813-0100-4075, Rev EB

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 (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

Wireless THUM Adapter	3
Ordering Information	4
Specifications	6

Product Certifications	8
Dimensional Drawings	10

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 Flow Meter
- Rosemount MultiVariable Vortex Flow Meter

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	Output			
Х	Wireless			
Housing				
D	Aluminum	*		
E	SST			
Mounting	Mounting connection			
1	1/2–14 NPT	*		
2	M20 conduit adapter	*		
PlantWeb functionality				
1	HART data	*		
Certificati	on			
NA	No approval	*		
15	FM Intrinsically Safe, Non-incendive	*		
16	CSA Intrinsically Safe	*		
11	ATEX Intrinsic Safety	*		
N1	ATEX Type n	*		
17	IECEx Intrinsic Safety	*		
N7	IECEx Type n	*		
12	INMETRO Intrinsic Safety	*		
N2	INMETRO Type n	*		
13	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			

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.

Wireless update rate, operating frequency, and protocol			
WA3	User configurable update rate, 2.4 GHz DSSS, WirelessHART	*	
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 (WirelessHART)

Humidity limits

0-100 percent 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 A 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 $\leq 1\%$ 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 2 g, 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

^{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 2.5

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 <u>Emerson.com/Rosemount</u>.

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 ($-50 \degree C \le T_a \le +70 \degree C$)
- 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($-50 \degree C \le T_a \le +70 \degree C$) 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 ($-50 \degree C \le T_a \le +70 \degree C$)
- **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($-50 \text{ °C} \le T_a \le +70 \text{ °C}$) 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: II 1G Ex ia IIC T4 Ga, T4(-50 °C \leq T_a \leq +70 °C)

- 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 60079-0:2012 + A11:2013, EN 60079-15:2010; Markings: ③ II 3G Ex nA IIC T4 Gc, T4(-50 °C ≤ T_a ≤ +70 °C) IP66

International

 $\begin{array}{ll} \mbox{I7} & \mbox{IECEx Intrinsic Safety} \\ & \mbox{Certificate: IECEx BAS 09.0050X} \\ & \mbox{Standards: IEC 60079-0:2011, IEC 60079-11:2011} \\ & \mbox{Markings: Ex ia IIC T4 Ga, T4(-50 °C <math display="inline">\leq T_a \leq +70 °C) \mbox{IP66} \\ \end{array}$

Special Conditions for Safe Use (X):

- 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

Special Conditions for Safe Use (X):

- 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 + Errata 1:2011, IEC 60079-15:2012 Markings: Ex nA IIC T4 Gc ($-50 \degree C \le T_a \le +70 \degree C$) 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

 IIIS 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.00993 Markings: 0Ex ia IIC T4 Ga X; T4 ($-50 \degree C \le T_a \le +70 \degree C$) IP66

Special Condition for Safe Use (X):

- 1. See certificate for special conditions.
- NMTechnical Regulation Customs Union (EAC) Type n
Certificate: TC RU C-US.AA87.B.00993
Markings: 2Ex nA IIC T4 Gc X;T4 ($-50 \degree C \le T_a \le +70 \degree C$)
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/104/4259(P366317) 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).

Global Headquarters

Emerson Automation Solutions

6021 Innovation Blvd. Shakopee, MN 55379, USA ● +1 800 999 9307 or +1 952 906 8888 ⇒ +1 952 949 7001 ► RFQ.RMD-RCC@Emerson.com

North America Regional Office

Emerson Automation Solutions 8200 Market Blvd. Chanhassen, MN 55317, USA 1 800 999 9307 or +1 952 906 8888 +1 952 949 7001 RMT-NA.RCCRFQ@Emerson.com

Latin America Regional Office

Emerson Automation Solutions

1300 Concord Terrace, Suite 400 Sunrise, FL 33323, USA 1 954 846 5030 1 954 846 5121 1 950 PMD PCC 95

RFQ.RMD-RCC@Emerson.com

Europe Regional Office

Emerson Automation Solutions Europe GmbH Neuhofstrasse 19a P.O. Box 1046 CH 6340 Baar Switzerland +41 (0) 41 768 6111 +41 (0) 41 768 6300

Ă RFQ.RMD-RCC@Emerson.com

Asia Pacific Regional Office

Emerson Automation Solutions

Middle East and Africa Regional Office

Emerson Automation Solutions

Emerson FZE P.O. Box 17033 Jebel Ali Free Zone - South 2 Dubai, United Arab Emirates +971 4 8118100 +971 4 8865465 RFQ.RMTMEA@Emerson.com

Linkedin.com/company/Emerson-Automation-Solutions

Twitter.com/Rosemount_News

Facebook.com/Rosemount

Youtube.com/user/RosemountMeasurement

Google.com/+RosemountMeasurement

Emerson Terms and Conditions of Sale are available upon request. The Emerson logo is a trademark and service mark of Emerson Electric Co. Rosemount is a mark of one of the Emerson family of companies. All other marks are the property of their respective owners. © 2018 Emerson. All rights reserved.

