

Smart Wireless THUM™ Adapter for Rosemount Process Level Transmitter Applications

KEY POINTS

- Product Certifications
- Technical Requirements
- Remote Mounting Kit
- Configuration Software
- Rosemount 5600 Series 4-wire installation
- Transmitter Software Version

INTRODUCTION

The Smart Wireless THUM Adapter is used to wirelessly communicate HART® data acquired from a Rosemount Process Level transmitter using a self-organizing WirelessHART™ network.



The THUM Adapter which consists of a radio transmitter, receiver, microprocessor and antenna, allows you to wirelessly transmit HART measurement and diagnostic information.

This document provides information and special considerations for using the THUM Adapter with the following Rosemount Process Level HART Transmitters:

- Rosemount 3100 Series Ultrasonic Level Transmitter
- Rosemount 3300 Series Guided Wave Radar Level and Interface Transmitter
- Rosemount 5300 Series High Performance Guided Wave Radar Level and Interface Transmitter
- Rosemount 5400 Series 2-Wire Radar Level Transmitter
- Rosemount 5600 Series 4-Wire Radar Level Transmitter

PRODUCT CERTIFICATIONS AND BARRIER (ASSOCIATED APPARATUS) REQUIREMENTS

The THUM Adapter is only for intrinsically safe (IS) approvals, e.g. model codes I1, I5, I6, and I7. As the THUM Adapter and Rosemount Process Level transmitter are ordered separately, the customer must ensure that these are ordered with the same IS approval (model code).

The user must perform an IS investigation and verify that the entity (output) parameters of the Barrier (Associated Apparatus) comply with the entity (input) parameters of the connected THUM Adapter and Rosemount Process Level transmitter. The entity parameters are specified in the respective QIGs as well as on the respective Control (Installation) Drawings. The Control (Installation) Drawings can be found in e.g. the Reference Manuals, see section “Documentation” for document reference numbers. The requirements on the Control (Installation) Drawings must be followed when installing the equipment.

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TECHNICAL REQUIREMENTS

During normal operation, or in fault condition, the THUM Adapter will cause a maximum drop of 2.5 volts in the connected loop. It is important to ensure that the power supply can provide at least 2.5 volts more than the minimum input voltage of the transmitter to make sure it works properly with the THUM Adapter installed.

Minimum input voltage (U_i) for Rosemount Process Level transmitters with THUM Adapter

Transmitter	Minimum input voltage (U _i)
Rosemount 3100	14.5 V dc
Rosemount 3300	13.5 V dc
Rosemount 5300	18.5 V dc
Rosemount 5400	18.5 V dc
Rosemount 5600	22.5 V dc

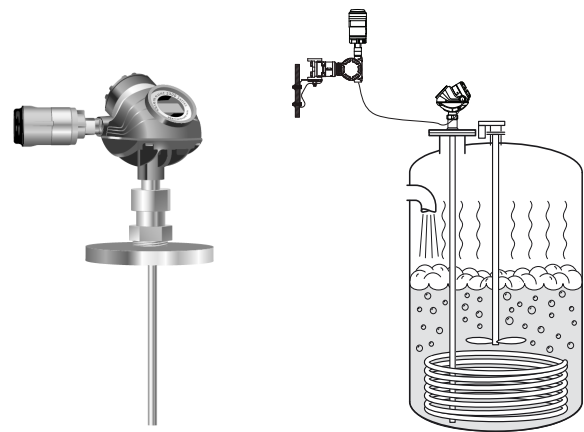
The voltage drop caused by the THUM Adapter across the loop is linear from 2.25 volts at 3.5 mA to 1.2 volts at 25 mA, but does not affect the 4–20 mA signal on the loop. Under fault conditions, the maximum voltage drop is 2.5 volts.

In order for the THUM Adapter to function properly there must be at least 250 Ohms resistance in the loop.

See the Reference Manuals and Product Data Sheets for more information about the minimum input voltage for each transmitter. For Document Reference numbers, see section “Documentation”.

REMOTE MOUNTING KIT

The THUM Remote Mounting Kit can be used when direct mounting of the THUM Adapter on the transmitter isn't feasible or advisable. This may be in situations where the wireless communication from the transmitter is obstructed, where direct mounting is physically difficult, or in certain transmitter configurations. Also, for retrofit installations where wireless communication from the transmitter may be obstructed, the remote mounting kit should be considered.



Rosemount 5300 with THUM directly mounted

Rosemount 5300 with THUM Remote Mounting Kit

Some applications may have heavy vibrations close to the maximum specification according to the product documentation for the transmitter. This may include vessels with heavy agitation, rapid fluid movement, or in cases where external equipment may induce vibrations. In these cases, the effects of vibration may become excessive for additional items attached to top-mounted devices. If this is likely, remote mounting of the THUM Adapter is recommended. This applies to the following Rosemount Process Level transmitters:

- Rosemount 5400 with Process Seal Antenna
- Rosemount 3300, Rosemount 5300, and Rosemount 5400 with SST Transmitter Head Housing
- Rosemount 3100 Series

The THUM Remote Mounting Kit is also recommended for the Rosemount 5600 Series due to the THUM Adapter Radio Frequency performance.

The THUM Remote Mounting Kit part number is 00775-9000-0001.

Technical Note

00840-0100-4026, Rev AA
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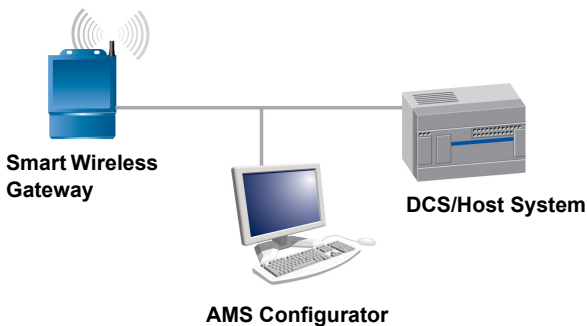
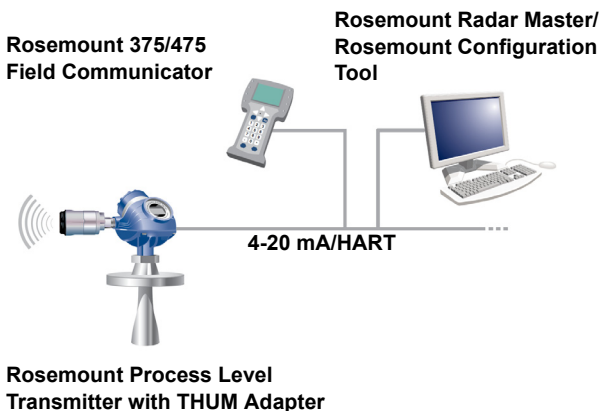
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When choosing an installation location and position for the THUM Adapter, take into account access to the device. If possible, the THUM Adapter should be positioned vertically, either straight up or straight down, and it should be approximately 3 ft. (1 m) from any large structure, building, or conductive surface to allow for clear communication to other devices. If the THUM Adapter is mounted horizontally, wireless communication range may be decreased.

CONFIGURATION AND TROUBLESHOOTING

The THUM Adapter can route any HART command to the Rosemount Process Level transmitters. When using the AMS[®] Device Manager, this allows for configuration commands to be sent to the transmitter.

For the Rosemount 5300/5400 Series, the echo curve can be read and used for configuration and troubleshooting through AMS⁽¹⁾.



The standalone PC configuration software tools Rosemount Radar Master (RRM) and Rosemount Configuration Tool (RCT) support primary/secondary master mode, which allows RRM and RCT to communicate with the transmitter in parallel with the THUM Adapter (wired connection). RRM and RCT are used for advanced configuration and troubleshooting such as recording echo curve frames to file.

ROSEMOUNT 5600 SERIES 4-WIRE INSTALLATION

The Rosemount 5600 Series must be used with the THUM Remote Mounting Kit and it may only be connected to the primary output (model code 5A, 5B, 5C, and 5D).

4-wire wiring diagrams for active or passive device output can be found in the THUM QIG, see section "Documentation" for document reference number.

TRANSMITTER SOFTWARE VERSION

The Smart Wireless THUM Adapter has been designed and tested to work with all HART Rev. 5 devices or later which covers a span of about 20 years of installed devices in the field.

In particular, the THUM Adapter has been tested and verified using the following software revisions:

Transmitter	Recommended software version
Rosemount 3100	3.2 or higher
Rosemount 3300	12 or higher
Rosemount 5300	1A4 or higher
Rosemount 5400	1C2 or higher
Rosemount 5600	3A4 or higher

(1) Reading the echo curve using a WirelessHART network will take longer time compared to wired HART.

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DOCUMENTATION

See the following documentation for more information:

Smart Wireless THUM Adapter	Document Reference No.
Reference Manual	00809-0100-4075
Product Data Sheet	00813-0100-4075
Quick Installation Guide	00825-0100-4075
Rosemount 3100 Series	Document Reference No.
Reference Manual	00809-0100-4840
Product Data Sheet	00813-0100-4840
Quick Installation Guide	00825-0100-4840
Rosemount 3300 Series	Document Reference No.
Reference Manual	00809-0100-4811
Product Data Sheet	00813-0100-4811
Quick Installation Guide	00825-0100-4811
Rosemount 5300 Series	Document Reference No.
Reference Manual	00809-0100-4530
Product Data Sheet	00813-0100-4530
Quick Installation Guide	00825-0100-4530
Rosemount 5400 Series	Document Reference No.
Reference Manual	00809-0100-4026
Product Data Sheet	00813-0100-4026
Quick Installation Guide	00825-0100-4026
Rosemount 5600 Series	Document Reference No.
Reference Manual	00809-0100-4024
Product Data Sheet	00813-0100-4024
Quick Installation Guide	00825-0100-4024

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