Instruction Manual Supplement
00809-0600-4530, Rev AB
November 2011

HART to Modbus Converter (HMC) Installation Instruction

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This instruction is a supplement to the Rosemount 5300 Series Reference Manual (Document No. 00809-0100-4530) and to the Rosemount 5400 Series Reference Manual (Document No. 00809-0100-4026).

SAFETY MESSAGES

Procedures and instructions in this section may require special precautions to ensure the safety of the personnel performing the operations. Information that raises potential safety issues is indicated by a warning symbol (⚠). Refer to the following safety messages before performing an operation preceded by this symbol.

⚠WARNING

Failure to follow these installation guidelines could result in death or serious injury

- Make sure only qualified personnel perform the installation.
- Use the equipment only as specified in this manual. Failure to do so may impair the protection provided by the equipment.

Explosions could result in death or serious injury

- Verify that the operating environment of the transmitter is consistent with the appropriate hazardous locations specifications.
- 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.
- To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.

Electrical shock can result in death or serious injury

- Use extreme caution when making contact with the leads and terminals.
- Make sure the main power to the Rosemount 5300 Series transmitter or Rosemount 5400 Series transmitter is off and the lines to any other external power source are disconnected or not powered while wiring the transmitter.

⚠WARNING

Any substitution of non-authorized parts or repair, other than exchanging the complete transmitter head or probe assembly, may jeopardize safety and is prohibited.

Unauthorized changes to the product are strictly prohibited as they may unintentionally and unpredictably alter performance and jeopardize safety. Unauthorized changes that interfere with the integrity of the welds or flanges, such as making additional perforations, compromise product integrity and safety. Equipment ratings and certifications are no longer valid on any products that have been damaged or modified without the prior written permission of Emerson Process Management. Any continued use of product that has been damaged or modified without the written authorization is at the customer's sole risk and expense.

INTRODUCTION

This document describes the installation procedure of a HART to Modbus Converter (HMC) when using with Rosemount 5300/5400 transmitters.

To upgrade the Rosemount 5300 or 5400 Series transmitters, use the modification kit together with the tools detailed below.

The Modification Kit

The modification kit consists of the following parts:

- Terminal Block
- 120Ω Termination Resistor
- CSA Bracket for Grounding - only included in Modification Kit for transmitters with CSA approval (Model Code E6)
- Spare Kit Modbus Label
- IS Ground Label
- Spare Part Kit Instruction
- HART to Modbus Manual Supplement

Figure S-1. Parts of the Modification Kit

NOTE!
Before starting to upgrade the transmitter to use with Modbus, make sure the transmitter head you are upgrading is eligible for the Modbus upgrade.

Transmitters with the following certificates are allowed to be upgraded to Modbus:

- transmitters with FM or CSA approval (Model Code E5 or E6)
- transmitters with no hazardous location certificates (Model Code NA)

Transmitters which cannot be upgraded to Modbus:

- transmitters with other type of approvals (for example, Intrinsic Safety Approval). Model Codes: E1, E3, E7, I1, IA, I3, IC, I5, IE, I6, IF, I7, IG, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL.
- transmitters containing Special Certifications with model code QS (Prior Use Certificate of FMEDA)
- transmitters containing Special Certifications with model code U1 (WHG Approval)

The model code is visible on the main label attached to the transmitter head. See Figure S-2.

Figure S-2. Model Code on the Main Label

The model code describes what options were included when the transmitter was ordered originally.

To find out if the transmitter is eligible for Modbus upgrade, look for E5, E6, or NA combination in the model code.

This letter/number combination is normally found at the end of the model code.

Example

Model Code 1
5301HA1S1V4AE00500AARA**E5**M1Q4

This model code contains E5 (FM approval) and is eligible for upgrade to Modbus.

Model Code 2
5301HA1S1V4AE00470AARA**I6**M1BRQ4

This model code contains I6 (CSA Intrinsic Safety approval) and is **not eligible** for upgrade to Modbus.

Model Code 3
5301HA1S1V4AE00470AARA**E5**M1**QS**

This transmitter contains the E5 code (FM approval) and the QS code also (Prior Use Certificate of FMEDA) and is therefore **not eligible** for Modbus Upgrade.

If unsure whether your transmitter can be upgraded to Modbus, contact your local Rosemount Level Specialist for more information.

Tools

The following tools are needed for the installation of the HMC:

- universal screw spanner: used to dismount and mount the transmitter head
- Phillips screwdriver: used to unscrew and fasten the transmitter block. Also used for cables.

INSTALLATION PROCEDURE

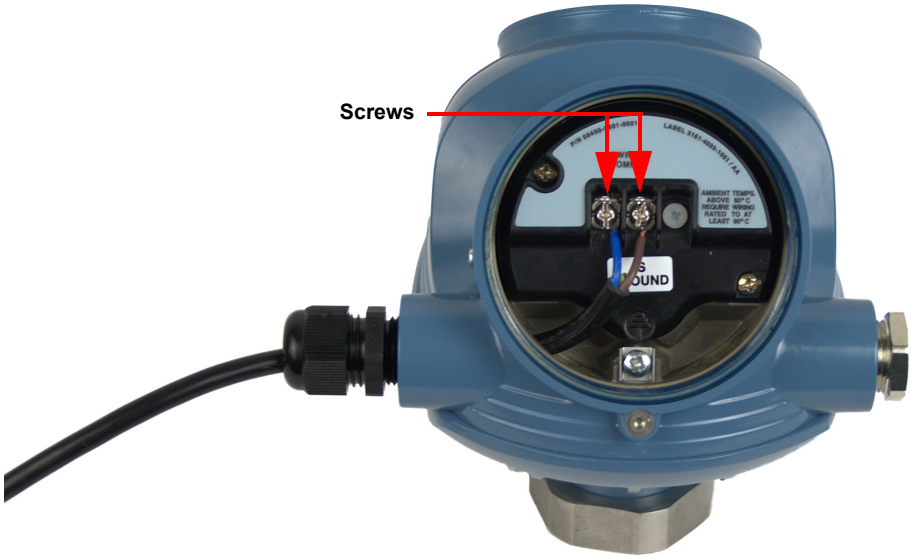
When upgrading the Rosemount 5300/5400 Series, make sure to follow and observe local safety regulations when working with electrical equipment within hazardous locations.

Always make sure to have the necessary site permissions before starting any kind of work within the hazardous locations. If unsure, consult the local personnel on site.

Step 1: Disconnecting the Transmitter Head

1. Power off the device at the power source.
2. Remove the cover from the transmitter.

3. Detach the connected cables from the transmitter using a screwdriver.



4. If necessary, move the transmitter head to a safe, non-hazardous area.

⚠WARNING

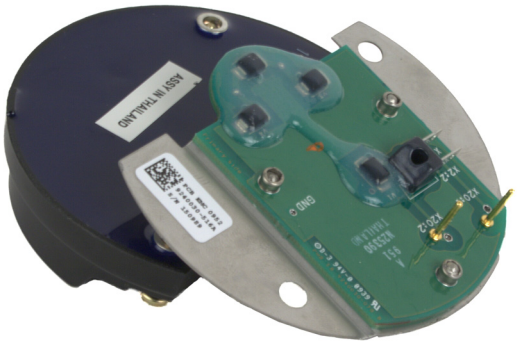
Bring the transmitter head to a suitable location for maintenance work and continue with exchanging the Terminal Block. Make sure to follow proper protection procedures in order to avoid damage from Electrostatic Discharges (ESD).

Step 2: Installing the Spare Part Kit

1. Unscrew the two screws holding the terminal block in place.

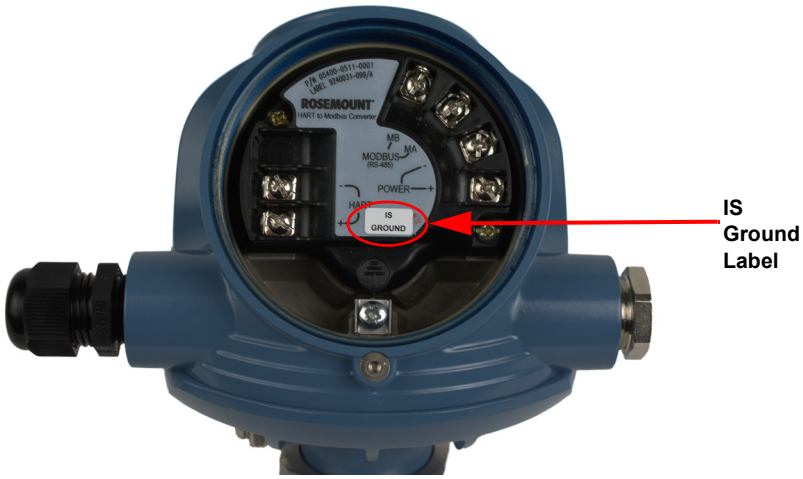
2. Remove the Terminal Block from the transmitter.

3. Detach the EB board by pulling it straight out from the backside of the existing terminal block.

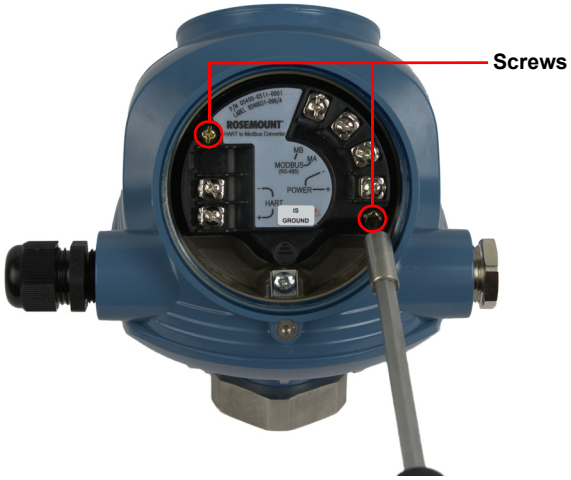


4. Attach the removed EB board to the new Modbus terminal block.

5. Attach the IS Ground Label to the front of the terminal block.

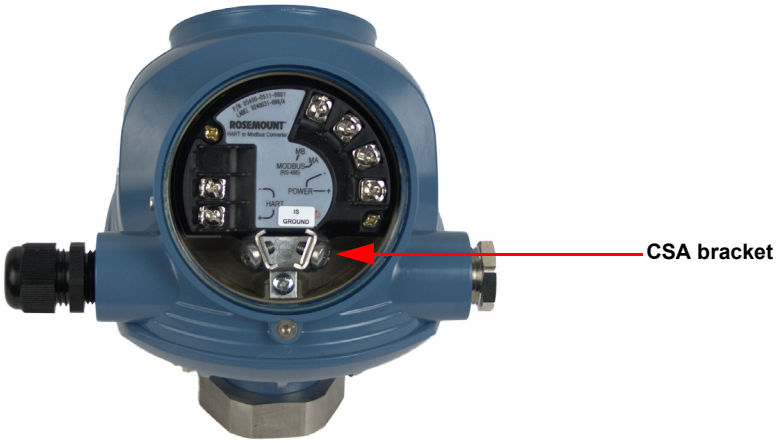


6. Mount the Modbus terminal block using a screwdriver.



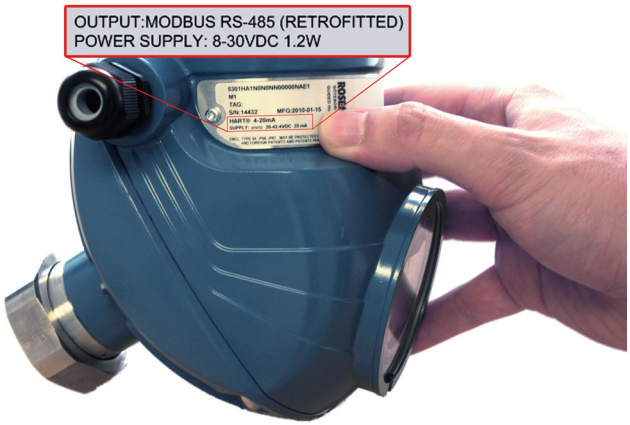
7. If upgrading to a CSA approved transmitter (Model Code E6), a CSA bracket must be mounted at the standard grounding point.

8. Remove the existing grounding bracket and mount the included CSA bracket.



9. Attach the included transmitter label on the original label as indicated in the figure. Make sure that the original output information is covered by the new label only.

   If the existing label is dirty and sticky, clean it first before attaching the new label.



Step 3: Connecting the Transmitter Head

1. Attach the power cables using a screwdriver.

2. Attach the communication cables to the new terminal block.

   If the transmitter is the last node on the communication line, a termination resistor is required.

3. Mount the cover.
4. Power on the device at the power source.

For more information, refer to the Rosemount 5300/5400 with HART to Modbus Converter Manual Supplement (Document No. 00809-0500-4530).

Rosemount 5300/5400 Series

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