

## **RMA 3000 Remote Meter Assemblies**

### **User Manual**

**Doc. No.: 34-ST-25-19**

**Release: 7**

**Last Revision Date: May 2011**

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## About This Document

### Revision Notes

The following list provides notes concerning all revisions of this document.

<u>Doc ID</u>	<u>Rel ID</u>	<u>Date</u>	<u>Notes</u>
34-ST-25-19	Rev. 0	11/28	First issue of document.
34-ST-25-19	Rev. 1	6/25/04	Revised Appendix A, ATEX Directive 94/9/EC
34-ST-25-19	Rev. 2	8/19/05	Revised Appendix A, D
34-ST-25-19	Rev. 3	9/1/05	Revised Appendix C
34-ST-25-19	Rev. 4	5/08	Remove STT150 References, added EU Meter and Updated Appendices
34-ST-25-19	Rev. 5	12/08	IECEX certification added
34-ST-25-19	Rev. 6	10/09	CSA updates, table 1
34-ST-25-19	Rev. 7	May 2011	SAEx and ATEX approvals added

### Contacts

#### World Wide Web

The following lists Honeywell's World Wide Web sites that will be of interest to our customers.

<b>Honeywell Organization</b>	<b>WWW Address (URL)</b>
Corporate	<a href="http://www.honeywell.com/ps/hfs">http://www.honeywell.com/ps/hfs</a>
Honeywell Process Solutions	<a href="http://hpsweb.honeywell.com/Cultures/en-US/">http://hpsweb.honeywell.com/Cultures/en-US/</a> <a href="http://www.honeywell.com/ps">http://www.honeywell.com/ps</a>
International	<a href="http://www.honeywell.com/business/global.asp">http://www.honeywell.com/business/global.asp</a>

#### Telephone








Contact us by telephone at the numbers listed below.

By Telephone	Honeywell Solution Support Center Phone: 1-800-423-9883 (U.S. only) Outside the U.S. call: 1-602-313-6510
Additional Help	You may also seek additional help by contacting the Honeywell distributor who supplied your RMA 3000 transmitter.
By E Mail	You can also e-mail your technical questions or comments about this product to: Honeywell Solution Support Center e-mail: <b>ace@honeywell.com</b>
Problem Resolution	If it is determined that a hardware problem exists, a replacement transmitter or part will be shipped with instructions for returning the defective unit. Please do not return your transmitter without authorization from Honeywell's Solution Support Center or until the replacement has been received.

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## Symbol Definitions

The following table lists those symbols used in this document to denote certain conditions.

<u>Symbol</u>	<u>Definition</u>
	This CAUTION symbol on the equipment refers the user to the Product Manual for additional information. This symbol appears next to required information in the manual.
	<b>WARNING</b> <b>PERSONAL INJURY:</b> Risk of electrical shock. This symbol warns the user of a potential shock hazard where HAZARDOUS LIVE voltages greater than 30 Vrms, 42.4 Vpeak, or 60 VDC may be accessible. <b>Failure to comply with these instructions could result in death or serious injury.</b>
	ATTENTION, Electrostatic Discharge (ESD) hazards. Observe precautions for handling electrostatic sensitive devices
	Protective Earth (PE) terminal. Provided for connection of the protective earth (green or green/yellow) supply system conductor.
	Functional earth terminal. Used for non-safety purposes such as noise immunity improvement. NOTE: This connection shall be bonded to protective earth at the source of supply in accordance with national local electrical code requirements.
	Earth Ground. Functional earth connection. NOTE: This connection shall be bonded to Protective earth at the source of supply in accordance with national and local electrical code requirements.
	Chassis Ground. Identifies a connection to the chassis or frame of the equipment shall be bonded to Protective Earth at the source of supply in accordance with national and local electrical code requirements.

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# CE Conformity (Europe) Notice for Remote Meter Assemblies (RMA)

## About Conformity and Special Conditions

This product is in conformity with the protection requirements of **89/336/EEC**, the EMC Directive, and of **94/9/EC**, the Explosive Atmospheres (ATEX) Directive. Conformity of this product with any other “CE Mark” Directive(s) shall not be assumed.

Deviation from the installation conditions specified in this manual, and the following special conditions, may invalidate this product’s conformity with the EMC Directive.

- Shielded, twisted-pair cable such as Belden 9318 must be used for all signal/power wiring.
- The shield must be connected to ground at only one end of the cable. Connect it to the power supply and the meter sides of the wiring; leave the shield insulated at the transmitter side of the wiring.



### ATTENTION

The emission limits of EN 50081-2 are designed to provide reasonable protection against harmful interference when this equipment is operated in an industrial environment. Operation of this equipment in a residential area may cause harmful interference. This equipment generates, uses, and can radiate radio frequency energy and may cause interference to radio and television reception when the equipment is used closer than 30 meters (98 feet) to the antenna(e). In special cases, when highly susceptible apparatus is used in close proximity, the user may have to employ additional mitigating measures to further reduce the electromagnetic emissions of this equipment.

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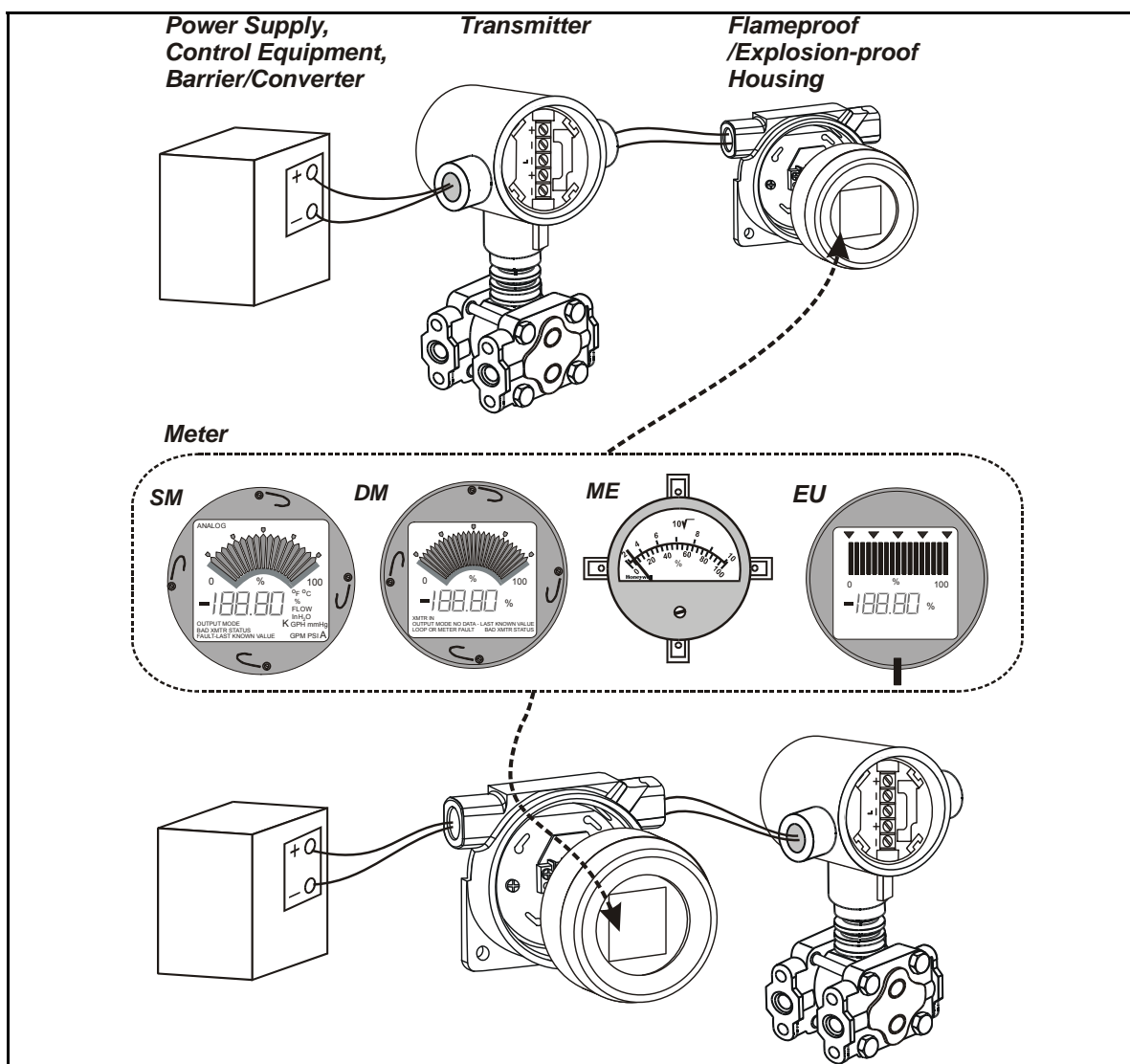
# RMA 3000 Description

## Function and Design

The Honeywell RMA 3000 Remote Meter Assemblies provide various means of remote-mounting a meter that is associated with a Honeywell Smartline Transmitter or a compatible non-Honeywell transmitter.

The RMA 3000 includes a remote meter housing that can be used in hazardous environments or in ordinary environments. When used in hazardous environments, the remote housing must be configured as a flameproof/explosion-proof housing, in which all points of entrance and exit for wiring are protected and sealed via rigid metal conduit or suitable cable gland fittings.

Four meter styles are available, and with a few exceptions any of these may be connected in either of two basic physical/wiring configurations, as indicated in Figure 1.



**Figure 1 Overview of RMA Configuration**

That is, the explosion-proof housing may be located

- at the end of a wiring run for the transmitter loop, or
- between the transmitter and the receiver devices.

This manual includes several sets of Honeywell-certified engineering drawings that specify RMA 3000 configurations and conditions that are approved for use in hazardous environments by various approval agencies (FM, CSA, and LCIE (ATEX)). Each of these drawings shows a configuration similar to that shown in Figure 1; that is, a single meter connected remote from a single transmitter.

In some selected cases (such as operation in non-hazardous locations), it is possible to connect more than one meter to a given transmitter. In these cases, the additional meter(s) may be placed either at the end of a wiring run, or at any location between the transmitter and other elements of the Remote Meter Assemblies configuration.

The number of meters that may be incorporated depends on the circuit configuration and on electrical characteristics of associated equipment. For more information regarding the use of multiple remote meters with a single transmitter, refer to the descriptions under the heading Multiple Remote Meters.

### Meter Types - Options

Remote Meter Assemblies provide for four meter types. The features of each are highlighted in Figure 2, and are described after the figure.

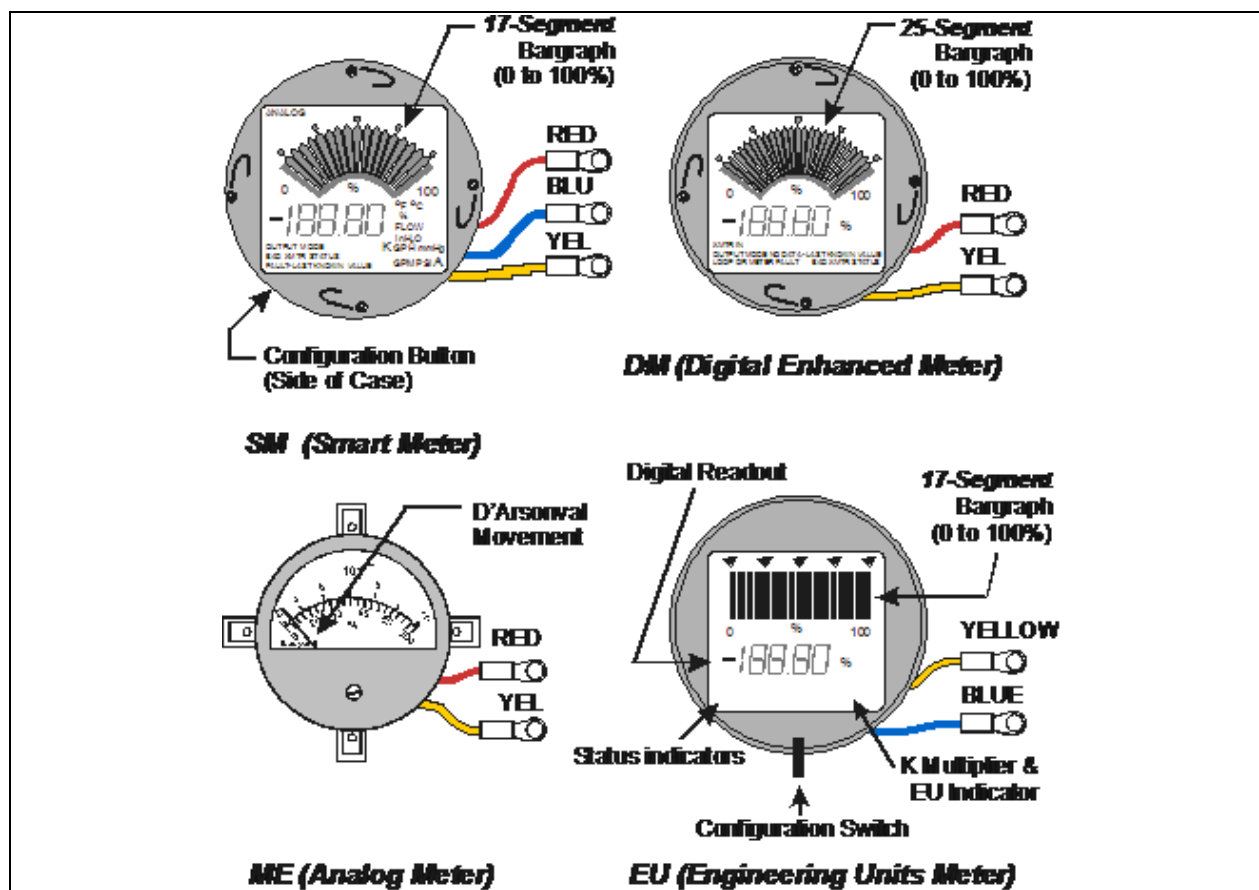


Figure 2 Highlights of Meter Features

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## **SM – Smart Meter**

The Smart Meter (SM) is described briefly here in a context of RMA installation only. For detailed information on digital enhanced operating mode, display features, operation, and calibration, refer to

**34-ST-25-08D** SM 3000 Smart Meter User's Manual.

**Function** - The Smart Meter (SM) is a digital device that functions as an output and status indicator for a compatible Honeywell Smartline Transmitter, or just as an output indicator for a non-Honeywell transmitter operating in a 4 to 20 mA current loop. It can operate in the analog mode (4-20 mA), or can operate in the Honeywell proprietary Digital Enhanced (DE) mode.

**Application** - The SM can be used as a Remote Meter Assemblies component with any one of the following Smartline Transmitters.

- ST 3000<sup>TM</sup> Smart Pressure Transmitter
- STT 3000<sup>TM</sup> Smart Temperature Transmitter

As indicated in the illustration, the SM is similar in appearance to the DM. That is, they both have a multi-segment fan-style bargraph that indicates from 0% to 100%, and both include status indicators. However, the SM can be easily distinguished from the DM in that the SM has:

- 17-segment bargraph (compared to 25 for the DM)
- more status indicators than the DM
- three wire connections (Red, Blue, and Yellow) to other components whereas the DM has two wire connections (Red and Yellow).
- The SM has a configuration button on the periphery of the case at lower left

**Electrical Characteristics** - The SM is a current-oriented device that is connected in series with the transmitter via the Yellow and Blue wires. The Red wire carries virtually no current; its purpose is to provide a digital communication signal voltage for the meter. In non-hazardous locations, the RMA 3000 can include more than one SM, and can be used in combination with the ME (analog meter). For more information, refer to the paragraphs under the heading **Multiple Remote Meters**.

## **DM – Digital Enhanced Meter**

The Digital Enhanced Meter (DM) is described briefly here only in the context of RMA 3000 application and installation. For detailed information such as DE operating mode, display features, operation, and calibration, refer to

**34-ST-25-07A** DE 3000 Smart Meter User's Manual.

**Function** - The Digital Enhanced Meter (DM) functions as an output and status indicator for a compatible Honeywell Smartline Transmitter operating in the DE mode only; that is, it cannot be used in the analog mode as can the SM.

**Application** - The DM can be used as an RMA 3000 component with any one of the following Smartline Transmitters operating in the DE (Digital Enhanced) mode.

- ST 3000<sup>TM</sup> Smart Pressure Transmitter
- STT 3000<sup>TM</sup> Smart Temperature Transmitter

**Electrical Characteristics** - The DM is a voltage-oriented device that is connected in parallel with the transmitter via the Red (positive) wire and Yellow (negative) wire. The DM is an AC-coupled device that senses the magnitude of the voltage pulses sent by the transmitter.

Each DM draws 0.5 mA of current. Several DM meters can be connected in parallel with the transmitter, provided that the sum of the current loads imposed by each DM in the loop does not exceed the capacity of the power supply.

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## **ME – Analog Meter**

**Function** - The ME is an analog device that functions as an output indicator for any transmitter that operates in the 4-20 mA current mode.

**Application** - The ME can be used as a Remote Meter Assembly component with any one of the following Smartline Transmitters operating in the analog (4 to 20 mA) mode.

**Electrical Characteristics** – The ME is an electromechanical device of the D'Arsonval type. That is, the current passing through a coil in the meter is used to deflect a needle to indicate the magnitude of the current, where a current of 4-20 mA represents 0% to 100%.

The ME can be used in combination with the SM in the same loop, provided that the formula presented under the SM description above in electrical characteristics for multiple meters is obeyed.

## **EU – Engineering Units Meter**

The Engineering Units Meter (EU) is described briefly here only in the context of RMA 3000 application and installation. For detailed information such as digital display features, installation, set up and operation, refer to

### **34-ST-25-18 Engineering Unit Meter User's Guide.**

**Function** - The Engineering Unit Meter is an LCD indicator that provides a digital display of a transmitter's output PV when connected in a 4 to 20 mA analog loop. The meter is compatible with Honeywell Smartline Transmitters operating in analog mode and with other non-Honeywell transmitters operating in a 4 to 20 mA current loop.

**Description** - The EU meter is designed to provide a simple indication of a transmitter's output value. A multi-segmented LCD display is encased in a circular black plastic frame for local installation to the transmitter. A printed circuit assembly (PWA) is mounted behind the display and contains the electronics and wire connections for the meter. The EU meter is powered from the transmitter loop current. A momentary contact toggle switch is mounted on the PWA and is used for setting up and verifying the display indication.

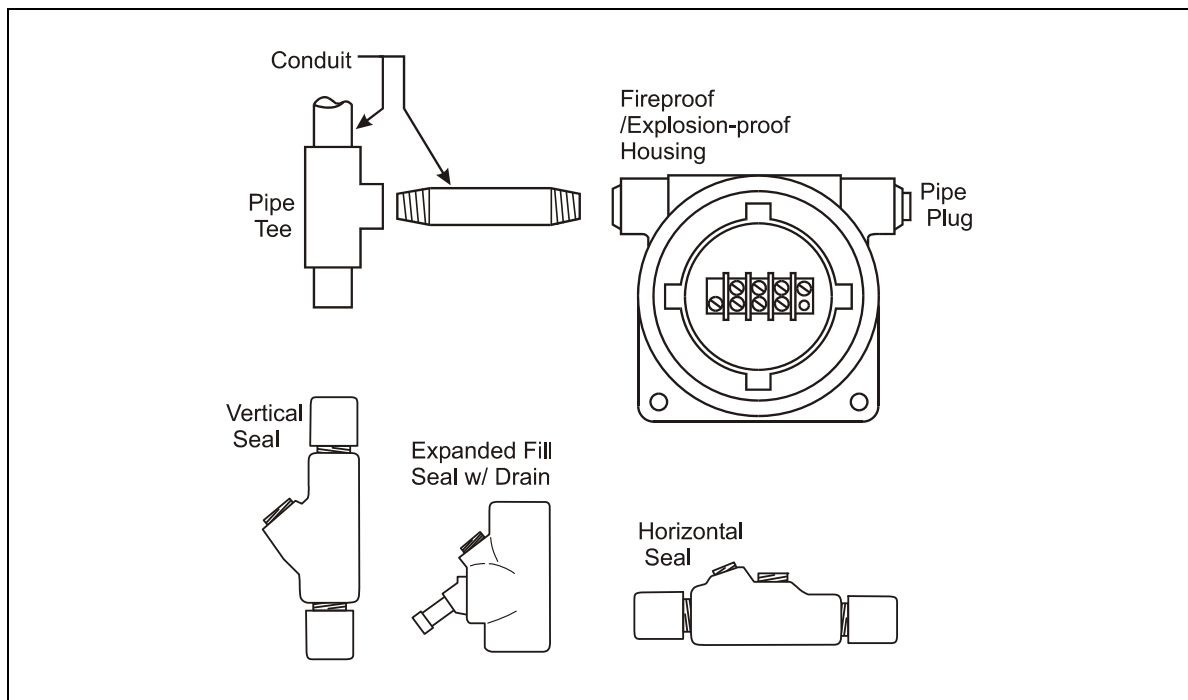
## Installation in Hazardous Locations

For installation in hazardous locations, the RMA 3000 must be configured and installed as detailed in the appropriate Honeywell-certified engineering drawing(s), which conform to practices specified by various approval agencies. Installation requirements vary somewhat among approval agencies.

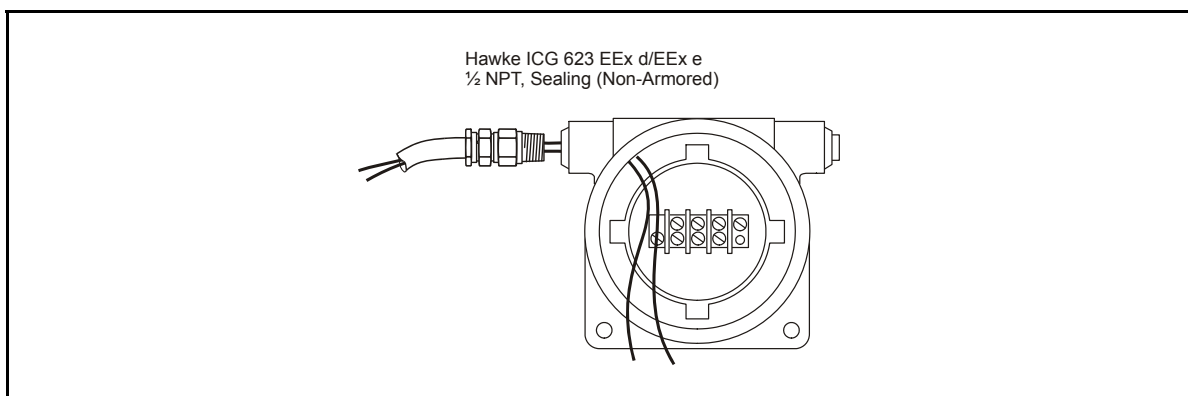
### Wiring-Port Seals at Remote Housing

When used in hazardous environments, the remote housing may be configured as a flameproof/explosion-proof housing, in which all points of entrance and exit for wiring are protected and sealed via rigid metal conduit or suitable cable gland fittings.

Examples of metal conduit fittings are shown in Figure 3, and an example of a sealed cable gland is shown in Figure 4.



**Figure 3 Examples of Typical Conduit Fittings**



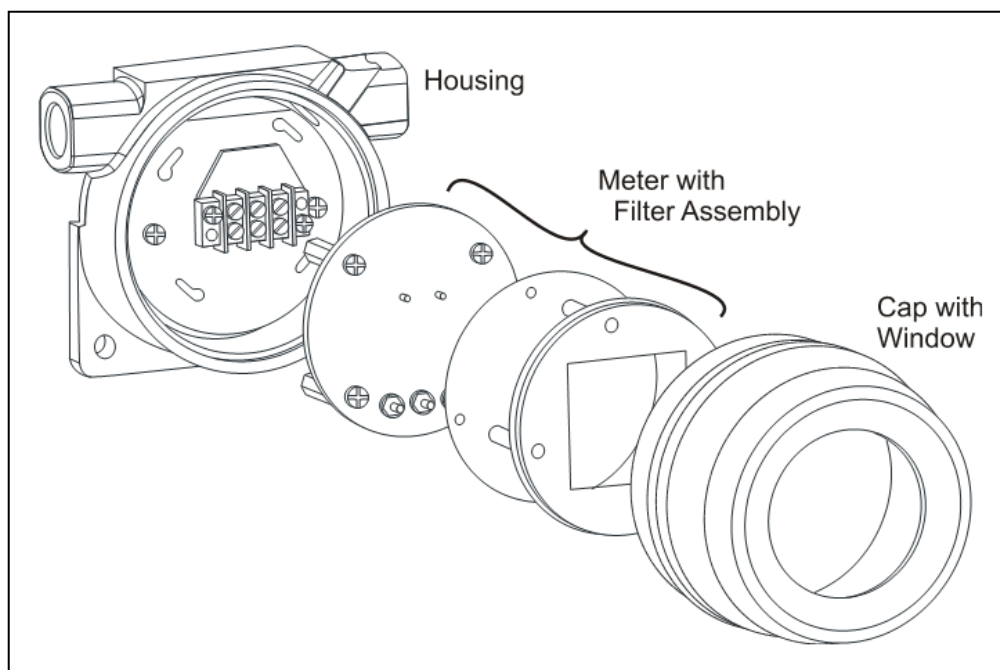
**Figure 4 Example of Sealed Cable Gland**

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## SM Meter Assembly

The SM Meter assembly includes an integral filter plate and an associated mounting plate in the flameproof/explosion-proof housing as shown in Figure 5. To install an SM 3000 Smart Meter:

- Remove the cap from the housing.
- Rotate the meter assembly counter-clockwise until it can be pulled from the mounting plate in the housing.
- Connect field wiring to the terminal block in the housing.
- Align four stand-offs on the bottom of the meter assembly with holes in the mounting plate, insert bottom of stand-offs in the holes, and turn the meter assembly clockwise to lock it in place. Ensure that the meter is oriented properly for viewing through the cap window.
- Lubricate the threads and the o-ring on the meter housing with a silicone grease such as Dow #33 or equivalent.
- Replace the cap.

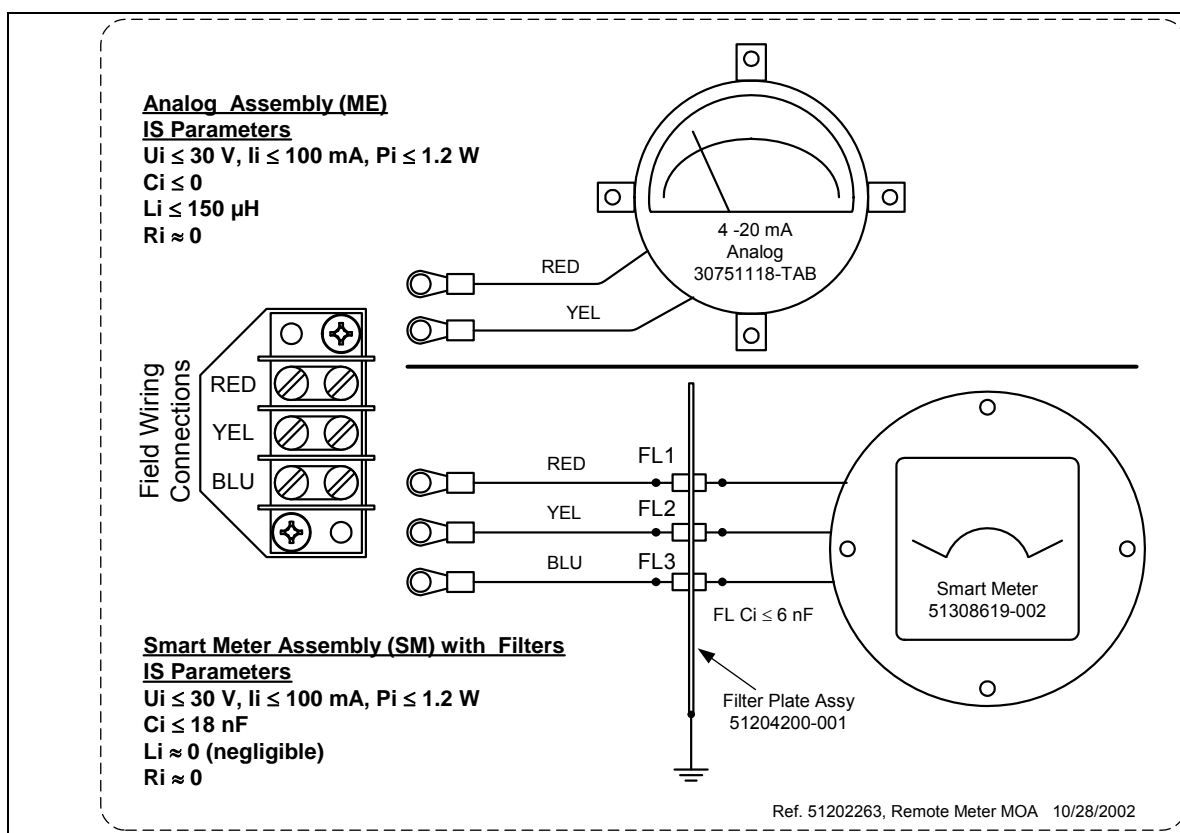


**Figure 5 SM Meter Assembly for CE Mark**

### Specific Parameters of the Mode of Protection (Intrinsic Safety)

The specific parameters for the mode of protection (Intrinsic Safety) for the Analog Meter (ME) and for the Smart meter (SM) are listed in Appendix C, under the specific agency.

A diagram of the field connections in from the flameproof/explosion-proof housing is given in Figure 6.



**Figure 6 RMA 3000 Intrinsic Safety Parameters**

## Approvals/Certifications

Each of the meter selections (SM/DM/ME/EU) itself carries no approvals or certifications for use in hazardous areas (or for RFI, etc). However, when it is properly installed in the flameproof/explosion-proof housing, or when installed as intrinsically safe, the meter is covered by the approvals and certifications of the housing (or as intrinsically safe) and of the installation practices used therewith. When installed as intrinsically safe, external wiring shall be in accordance with ordinary location requirements; that is, NEC or CEC or local codes.

For information regarding integral installation in Honeywell Smart Transmitters refer to the following publications.

### ST 3000 Smart Pressure Transmitters

34-ST-25-14B	ST 3000 Smart Transmitter Release 300 and SFC Smart Field Communicator Model STS 103 User's Manual
34-ST-25-17	ST 3000 Smart Transmitter Release 300 with HART Communications Option User Manual
34-ST-25-33	ST 3000 Smart Transmitter Release 300 and SFC Smart Field Communicator Model STS 103 User's Manual

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### ST 3000 Smart Temperature Transmitters

EN1I-6190_Feb11	STT 3000 - Series STT250 Temperature Transmitter, Models STT25H, STT25D, STT25M. STT25T, STT25S Operator Manual
EN1I-6190_Mar10 (Legacy)	STT 3000 - Series STT250 Temperature Transmitter, Models STT25H, STT25D, STT25M. STT25T Operator Manual
EN1I-6162	STT 3000 Smart Temperature Transmitter Models STT350 Operator Manual
EN1I-6196	STT 3000 Smart Temperature Transmitter Models STT35F Operator Manual

## Approvals for Specific Configurations – Certified Drawings

Several specific configurations of Remote Meter Assemblies have been approved for use in hazardous locations by various approval agencies. Each of these specific configurations has been documented by Honeywell in controlled Engineering Drawings that are certified by Honeywell and approved by the appropriate body (FM, CSA, and ATEX). Copies of the certified drawings are included in this publication at the end of this section.

For descriptive purposes, a stylized, “generic” sample of these drawings is given in Figure 7, below.

As indicated in Figure 7, each drawing or set of drawings shows alternate wiring methods for placing the meter between the Power Supply/Control Equipment/Approved Associated Apparatus and the Transmitter, or for placing the meter at the end of the wiring loop. In many cases, wiring methods are similar for several configurations approved by various notified bodies. However, notes that specify entity parameters and special conditions are unique for each approval agency and for each configuration covered by that approving body. It is very important to select the correct drawing(s), and to comply with all notes regarding special conditions in the drawings.

When installed in ordinary, non-hazardous locations, wiring shall comply with National Electrical Code (NEC) or with local electrical code requirements.

### WARNING

For use of the RMA in hazardous locations, It is the user's responsibility to select the appropriate engineering drawings, and to ensure that all conditions specified in those drawings are adhered to in every respect.

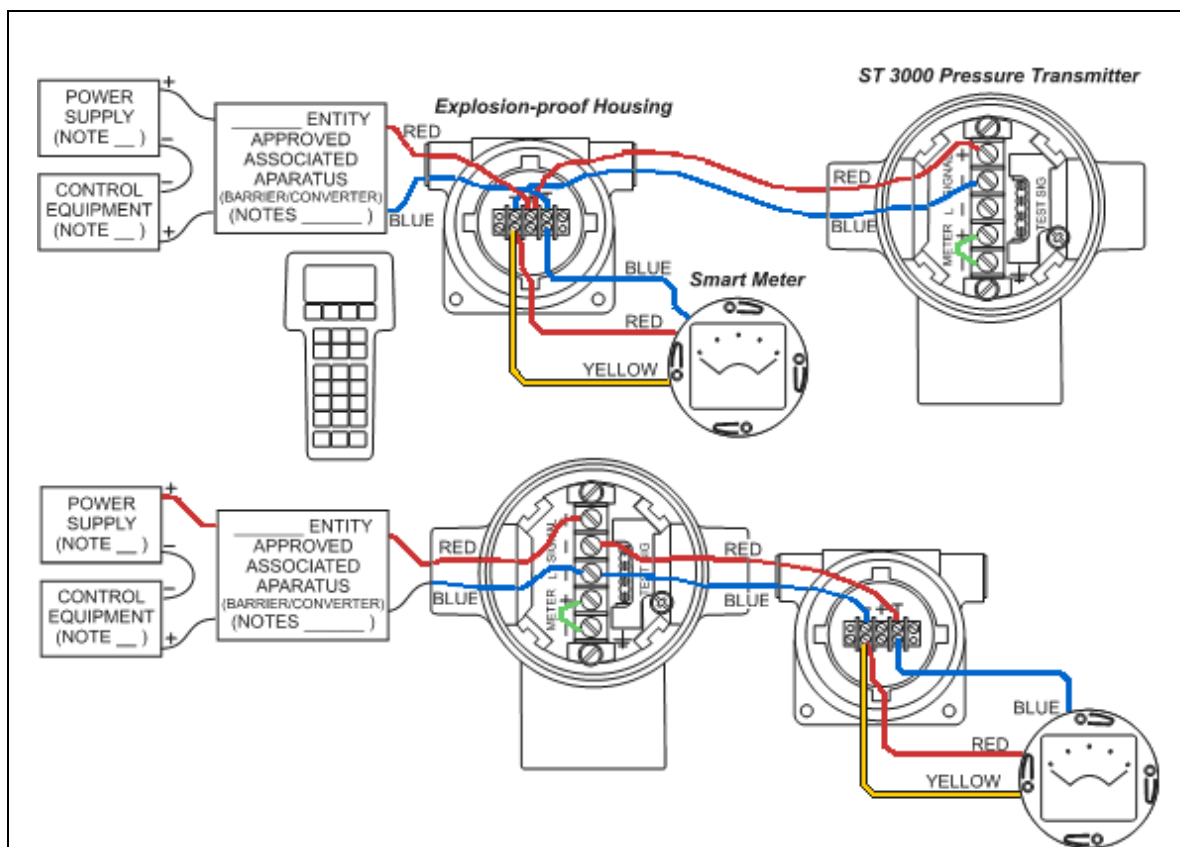


Figure 7 Stylized Sample of Certified Engineering Drawing

## List of Certified Engineering Drawings – Wiring Diagrams

The certified and approved engineering drawings available for specific applications in hazardous locations are listed in Table 1. Some of the drawings include details of integral mounting of the meter in transmitters, in addition to that for remote meter mounting.

**Table 1 Certified Engineering Drawings – Wiring Diagrams**

Application	Document Description	Drawing Number
ST 3000 Release 300 Series 100 and 900 Transmitters  Note – these drawings are also included in:  34-ST-25-14 ST 3000 Smart Transmitter Release 300 and SFC Smart Field Communicator Model STS103 User Manual  34-ST-33-39 ST 3000 Smart Transmitter Release 300 and SFC Smart Field Communicator Model STS103 Installation Guide	For intrinsically safe application (FM)  <u>Lightning Protection Option</u> Sheet 1 – Intrinsically Safe - FM Sheet 2 – RMA 300 - SM Sheet 3 – RMA 300 - ME Sheet 4 – RMA 300 - ME (Analog Meter) Sheet 5 – RMA 300- DM  <u>Non-Lightning Protection Option</u> Sheet 6 – RMA 300 - SM Sheet 7 – RMA 300 - ME Sheet 8 – RMA 300 - ME (Analog Meter) Sheet 9 – RMA 300 -DM	51204241
	For intrinsically safe application (CSA)  Interconnection Diagram, RMA3000 Remote Meter – CSA <b><u>(Supersedes Sheet 1 of 51204242)</u></b>  <u>Lightning Protection Option</u> Sheet 2 – RMA 300 - SM Sheet 3 – RMA 300 - ME Sheet 4 – RMA 300 - ME (Analog Meter) Sheet 5 – RMA 300- DM  <u>Non-Lightning Protection Option</u> Sheet 6 – RMA 300 - SM Sheet 7 – RMA 300 - ME Sheet 8 – RMA 300 - ME (Analog Meter) Sheet 9 – RMA 300 -DM	50029789  51204242
	For intrinsically safe application (ATEX)  <u>Lightning Protection Option</u> Sheet 1 – Intrinsically Safe - ATEX Sheet 2 – RMA 300 - SM Sheet 3 – RMA 300 - ME Sheet 4 – RMA 300 - ME (Analog Meter)  <u>Non-Lightning Protection Option</u> Sheet 5 – RMA 300- SM Sheet 6 – RMA 300 - ME Sheet 7 – RMA 300 - ME (Analog Meter)	51204243

Application	Document Description	Drawing Number
ST 3000 HART Series 100 and 900 Transmitters  (Note – these drawings are also included in  34-ST-25-17 Release 300 with HART Communications Option User Manual	For intrinsically safe application (FM)  <u>Lightning Protection Option</u> Sheet 1 – Intrinsically Safe - FM Sheet 2 – RMA 300 - ME (Analog Meter) Sheet 3 – RMA 300 - SM Sheet 4 – RMA 300 - ME  <u>Non-Lightning Protection Option</u> Sheet 5 – RMA 300 - ME (Analog Meter) Sheet 6 – RMA 300 - SM Sheet 7 – RMA 300 - ME	51205784
	For intrinsically safe application (CSA)  Interconnection Diagram, RMA3000 Remote Meter – CSA <u>(Supersedes Sheet 1 of 51450806)</u>  <u>Lightning Protection Option</u> Sheet 2 – Communicator Sheet 3 – RMA 300 - ME (Analog Meter) Sheet 4 – RMA 300 – SM Sheet 5 – RMA 300 - SM Sheet 6 – RMA 300 – ME Sheet 7 – RMA 300 – ME  <u>Non-Lightning Proof Option</u> Sheet 8 – RMA 300 - ME (Analog Meter) Sheet 9 – RMA 300 - SM Sheet 10 – RMA 300 - ME Sheet 11 – RMA 300 - ME	50029789  51450806

## Wiring Drawings - Overview

The wiring drawings included in the following tables are included in this manual to provide a quick reference for interpreting the information given in the Honeywell-certified engineering drawings referenced in the tables. These simplified drawings are intended for use along with certified engineering drawings to indicate the similarities / differences among various wiring configurations.

### WARNING

These simplified drawings are not intended as a substitute for the certified drawings. The certified drawings must be used as the sole source for wiring installation instructions.

A legend for use with the wiring diagrams overview is given in Figure 8. In this illustration, the power source shown at left in a dashed outline represents all of the following components shown in the certified drawings:

- Power Supply
- Control Equipment
- Approved Associated Apparatus

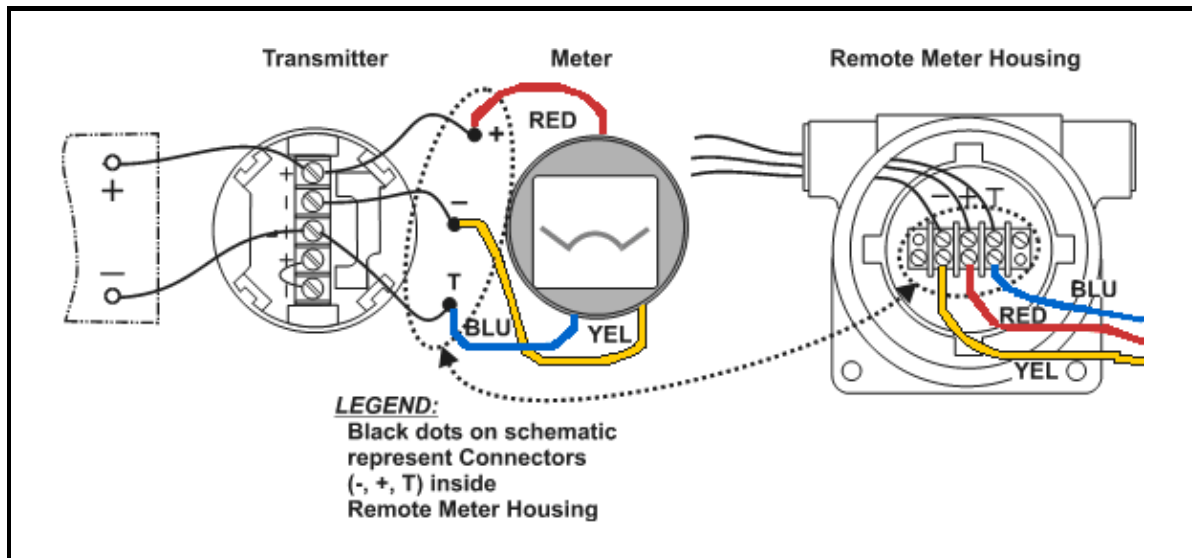
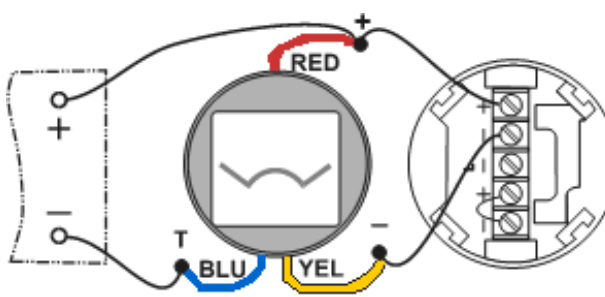
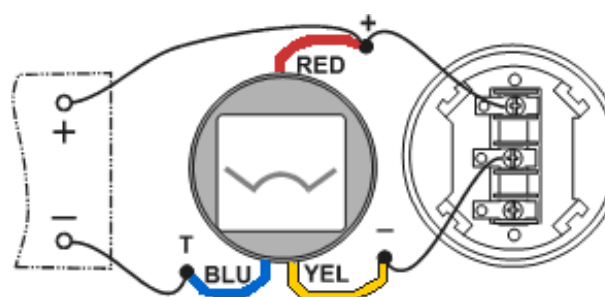
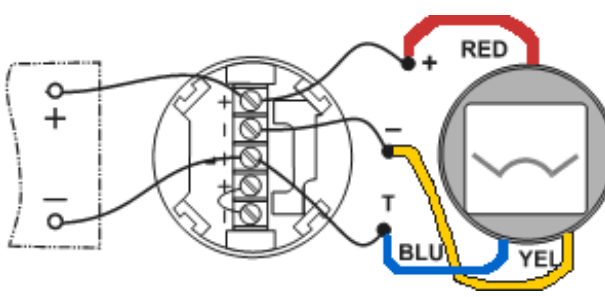


Figure 8 Legend for Wiring Diagrams Overview

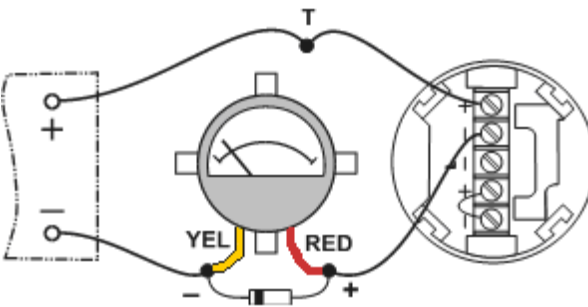
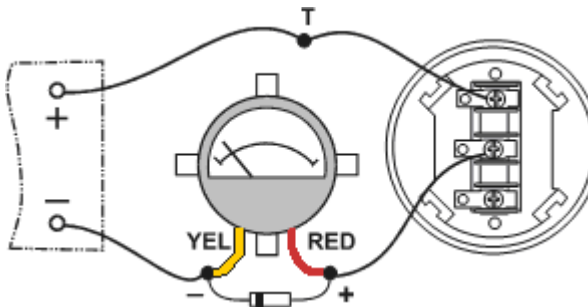
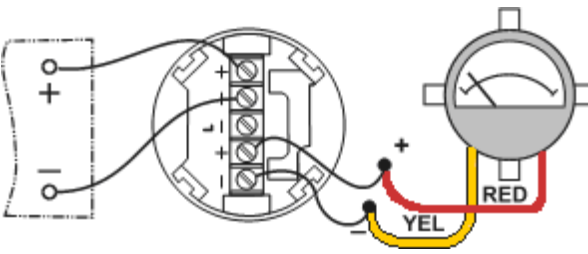
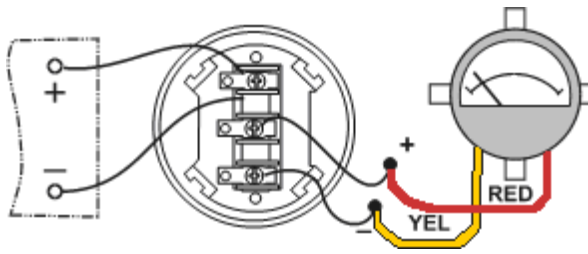
**Table 2 Wiring Overview: SM/ST 3000 Transmitter without HART Option**

<b>SM for Release 300 Transmitter (without HART Option)</b>	
<b><i>With</i> Lightning Protection Option; Drawings:</b> 51204241-2 (FM) 51204242-2 (CSA) 51204243-2 (ATEX)	<b><i>Without</i> Lightning Protection Option; Drawings:</b> 51204241-6 (FM) 51204242-6 (CSA) 51204243-5 (ATEX)
	
	

**Table 3 Wiring Overview: SM/ST 3000 Transmitter with HART Option**

<b>SM with HART Option</b>	
<p><b>With</b> Lightning Protection Option; Drawings:                      51205784-3 (FM)                      51450806-4, -5 (CSA)</p>	<p><b>Without</b> Lightning Protection Option; Drawings:                      51205784-6 (FM)                      51450806-9 (CSA)</p>

**Table 4 Wiring Overview: ME/ST 3000 Transmitter with or without HART Option**

<b>ME</b>	
<p><b>With Lightning Protection Option; Drawings:</b></p> <p>51204241-3 (FM)                      51204242-3 (CSA)                      51204243-3 (ATEX)                      51205784-4 (FM – HART)                      51450805-6, -7 (CSA – HART)</p>	<p><b>Without Lightning Protection Option; Drawings:</b></p> <p>51204241-7 (FM)                      51204242-7 (CSA)                      51204243-6 (ATEX)                      51205784-7 (FM – HART)                      51450806-10, -11(CSA – HART)</p>
	
	<p>Note – This configuration is approved only for HART.</p> 

**Table 5 Wiring Overview: DM/ST 3000 (Not Approved for HART)**

<b>DM Release 300 Transmitter</b>	
<b><i>With</i> Lightning Protection Option; Drawings:</b> 51204241-5 (FM) 51204242-5 (CSA)	<b><i>Without</i> Lightning Protection Option; Drawings:</b> 51204241-9 (FM) 51204242-9 (CSA)

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## Installation in Non-Hazardous Locations

When installed in ordinary, non-hazardous locations, wiring shall comply with National Electrical Code (NEC) or with local electrical code requirements.

### Multiple Remote Meters

The Honeywell-certified engineering drawings of wiring configurations that have been approved by FM, CSA and ATEX include only configurations that include a single meter (SM, DM, ME or EU) with a single Honeywell ST 3000 Pressure Transmitter.

However, the Honeywell remote meter housing provides a convenient means of connecting multiple meters to a single transmitter in non-hazardous locations.

### Series-Connected Meters

As mentioned under **Meter Types – Options** near the beginning of this manual, the SM and the ME are current-oriented, series-connected devices. Multiple meters (any combination of SM and ME) may be connected to a given transmitter, provided that the following condition is met.

$$\text{Voltage}_{\text{Pwr Supply}} \geq$$

$$\text{Minimum Terminal Voltage}_{\text{Transmitter}} + \text{Number of SMs (2.3 volts)} + \text{Resistance}_{\text{Total Loop (22 mA)}}$$

NOTE: Total loop resistance must include wiring and cabling as well as for associated apparatus such as barrier devices and control equipment such as Field Terminal Assembly (FTA) and FTA cabling.

### Parallel-Connected Meters

As mentioned under **Meter Types – Options** near the beginning of this manual, the Digital Enhanced meter (DM) is a voltage-oriented device that is connected in parallel to a transmitter.

Each DM draws 0.5 mA of current. Several DM meters can be connected in parallel with the transmitter, via the yellow wire (negative) and red (positive) wires, provided that the sum of the current loads imposed by each DM in the loop does not exceed the capacity of the power supply.

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## Appendix A – ATEX Certificate

### Purpose and Content of this Appendix

This Manual includes information required under the ATEX Directive regarding:

1. The appearance and meaning of each certification mark (CE Mark) that appears on the label(s) affixed to the product.
2. Instructions for installation and use of the product.

Details regarding certification marks that appear in labeling for this product are given in this addendum.

#### Attention

The publication cited above and the functioning and construction (except for labeling) of the devices described therein are essentially unchanged. The purpose of this addendum is to provide details of the purpose and appearance of the labels attached to each device under ATEX Directive 94/9/EC.

#### Attention

Before installing the equipment in a potentially explosive atmosphere, please read the information provided in this Manual, which supports the ATEX certifications for this product.

### CE Conformity

The Honeywell RMA 3000, Models RMA300, DM, SM, ME and EU Remote Meter Assemblies are in conformity with the protection requirements of the following European Council Directives: 94/9/EC, the Explosive Atmospheres (ATEX) Directive, and 2004/108/EC, the EMC Directive. Conformity of this product with any other “CE Mark” Directive(s) shall not be assumed.

Deviation from the installation procedures and conditions specified in the Operator’s Manual may invalidate this product’s conformity with the ATEX and EMC Directives.

Conformity of this product with any other “CE Mark” Directive(s) shall not be assumed.

## Marking, ATEX Directive

Honeywell's RMA 3000, Models RMA300, DM, SM, ME & EU Remote Meter Assemblies, with the following nameplates attached, has been certified to comply with Directive 94/9/EC of the European Parliament and the Council as published in the Official Journal of the European Communities No. L 100/1 on 19-April-1994.

The following information is provided as part of the labeling of the transmitter:

- Name and Address of the manufacturer: Honeywell, Phoenix, AZ 85053 USA.
- Notified Body identification: DEKRA Quality B.V., Arnhem, the Netherlands

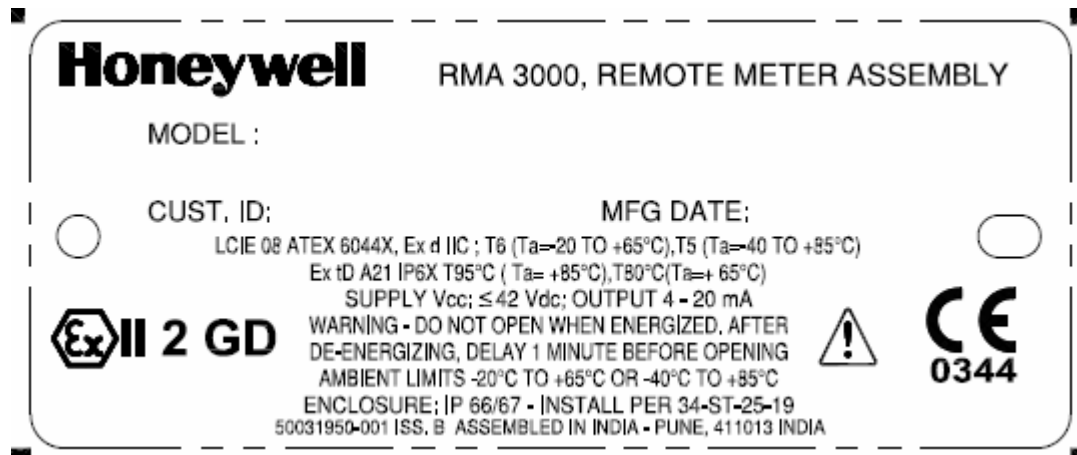


- Complete model number (See the Model Selection Guide 34-ST-16-46).

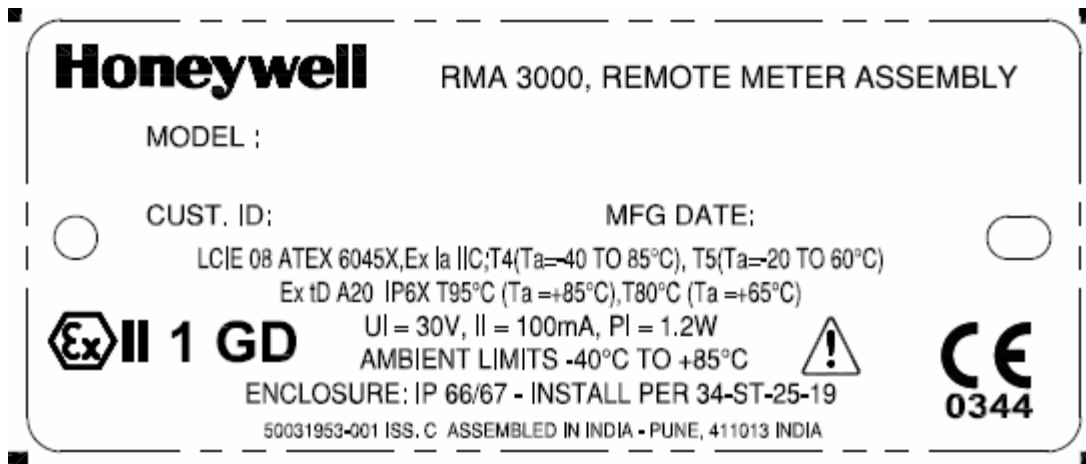
The serial number is 10 digits long. The first digit is the STT Type (R, U, or S.) The second digit is the year code (0-9). The third and fourth digits are the week code (in hexadecimal). The remaining six digits are the serial number.

## Marking and Inscriptions

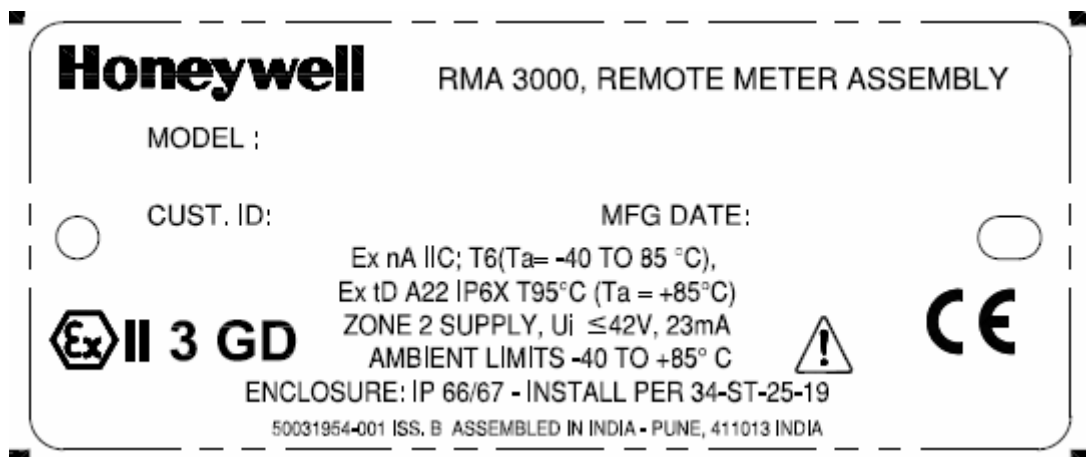
Nameplate 50031950-001, is mounted on the enclosure. The following is a representation of this nameplate:



Nameplate 50031953-001, ia, is mounted on the enclosure. The following is a representation of this nameplate:



Nameplate 50031954-001, nA (Zone 2), is mounted on the enclosure. The following is a representation of this nameplate::



<b>Special conditions for safe use,</b>	The RMA 3000, Models RMA300, SM, ME & EU Remote Meter Assemblies are intrinsically safe apparatus that can be installed in potentially explosive atmospheres.
<b>Intrinsic Safety (X)</b>	<p>The power terminals (+, -) must be connected only to a certified associated intrinsically safe apparatus.</p> <p>The electrical parameters (U, I, and P) of the associated apparatus connected to the power terminals (+, -) must not exceed the following values:  <math>U_i \leq 30V</math> <math>I_i \leq 100\text{ mA}</math> <math>P_i \leq 1,2\text{ W}</math></p> <p>Ambient temperature: - 20°C to 60°C  - 40°C to 85°C</p> <p>Temperature classification: T5 up to <math>T_a \leq 60^\circ\text{C}</math>  T4 up to <math>T_a \leq 85^\circ\text{C}</math></p>
<b>Specific Parameters for Flameproof and Non Sparking Installation</b>	<p>Power supply to field wiring terminals, + and -: <math>U_{cc} \leq 42\text{ V}</math></p> <p>Output Signal: 4 – 20 mA</p>
<b>Special conditions for safe use, Flameproof and Non Sparking Installation</b>	Ambient operating temperature: -40 to 85°C

## DECLARATION OF CONFORMITY

**ATEX****CE 0344**

We declare under our sole responsibility that the following products,

**RMA 3000 Remote Meter Assemblies**

to which this declaration relates, are in conformity with the protection requirements of Council Directive: 94/9/EC (ATEX Directive) on the approximation of the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres, and 89/336/EEC (EMC Directive) as amended by 92/31/EEC, 93/68/EEC and 2004/108/EC on the approximation of the laws of the Member States relating to Electromagnetic Compatibility.

The models covered by this Declaration and evidence of conformity with the ATEX Directive are shown below. Conformity to the ATEX Directive is in accordance with the following European standards.

**EN 60079-0-2004 Electrical Apparatus for Potentially Explosive Atmospheres - General Requirements**



**EN 60079-1-2004 Electrical Apparatus for Potentially Explosive Atmospheres - Flameproof Enclosure "d"**

**EN 60079-11-2007 Electrical Apparatus for Potentially Explosive Atmospheres -Part 11-Intrinsic Safety "i"**

**EN 60079-26-2004 Special Requirements for Construction, Test and Marking of Electrical Apparatus of Equipment Group II, Category 1 G**

**Notified Bodies:** **EC Type Examination Certificates**  
LCIE – Groupe Bureau Veritas – 0081  
33, Avenue du Général Leclerc  
92260 Fontenay-aux-Roses  
France

**Production Quality Assurance Notification**  
KEMA Quality B. V. – 0344  
Utrechtseweg 310  
6812 AR Arnhem  
The Netherlands

Certificate	Protection	Description
LCIE 08 ATEX 6045 X	 <b>II 1 G</b> Ex ia IIC, T4	Models RMA300ME, RMA300SM, RMA300EU Remote Meter Assemblies
LCIE 08 ATEX 6044 X	 <b>II 2 G</b> Ex d IIC, T5	Models RMA300DM, RMA300SM, RMA300ME & RMA300EU Remote Meter Assemblies

**Manufacturing Location:**

**Honeywell Automation India Ltd.**  
56 & 57 Hadapsar Ind Estate,  
Pune 411013, India.

The authorized signatory to this declaration, on behalf of the manufacturer, and the Responsible Person is identified below.

**Honeywell Automation India Ltd.**  
56 & 57 Hadapsar Industrial Estate  
Pune 411013, India

Bhavesh Varia

Product Safety and Approval Engineer

Issue Date: 30 April, 2008

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## Appendix B - Hazardous Location Wiring

### North America

#### ***Class I, Division 1 and Group II, Zone 1 Requirements:***

Wiring shall be in accordance with the applicable portions of the National Electrical Code, ANSI/NFPA 70 (NEC), for the United States, the Canadian Electrical Code, CSA C22.1 (CEC), for Canada.

**NEC.** Fixed wiring methods for Class I, Division 1 locations, specifies threaded rigid metal conduit, threaded steel intermediate metal conduit, type MI (mineral insulated), type MC (metal clad), or type ITC (intermediate tray cable), listed for use in Class I, Division 1 locations, with termination fittings approved for the location (Division 1, Group C & D). Sealing and drainage shall be provided in accordance with Article 501-5(a), (c), (d), and (f).

Wiring methods for Class I, Zone 1 locations, allows all wiring methods permitted for Class I, Division 1 locations (above).

**CEC.** Wiring methods for Class I, Zone 1 (Class I, Division 1 per Appendix J18-106) locations, specifies threaded rigid metal conduit or cables approved for hazardous locations with associated cable glands (explosion-proof seal fittings) that comply with Rule 18-100 and Appendix B18-100.

When installed with rigid metal conduit explosion-proof seal fittings approved for the location shall be installed in each conduit run within 3.8 cm (1.5 in.) of the Sensor Assembly explosion-proof enclosure.

When installed with cable, explosion-proof seal fittings shall be installed within 3.5 cm (1.5 in.) of the Sensor Assembly explosion-proof/flameproof enclosure, or explosion-proof/flameproof direct entry cable glands approved for the location shall be used.

#### ***Class I, Division 2 and Group II, Zone 2 Requirements:***

**NEC** Fixed wiring methods for Class I, Division 2 locations, specifies threaded rigid metal conduit, threaded steel intermediate metal conduit, type MI (mineral insulated), type MC (metal clad), type ITC (intermediate tray cable), or type TC (tray cable), listed for use in Class I, Division 2 locations, with cable with termination fittings approved for the location (Division 2, Group C & D). Sealing and drainage shall not be required to be explosion-proof and shall be provided in accordance with Article 501-5(b), (c), (d), and (f).

Wiring methods for Class I, Zone 2 locations, allows all wiring methods permitted for Class I, Division 2 locations (above).

**CEC** Wiring methods for Class I, Zone 2 (Class I, Division 2 per Appendix B18-156) locations, specifies threaded rigid metal conduit or cables approved for hazardous locations with associated cable glands that comply with Rule 18-100, or type TC cable installed in cable tray in accordance with Rule 12-2204; or type ACWU cable, with associated cable glands that comply with the requirements of Rule 18-150; or type ACIC control and instrument cables with interlocking metallic armor and a continuous jacket, with associated cable glands that comply with the requirements of Rule 18-150.

### **Cable Systems for Division 1 / Zone 1 and Division 2 / Zone 2**

#### ***Marine Shipboard Cable Installations on Offshore Oil Rigs and Drilling Platforms:***

Cable and fittings for threaded connection to equipment in hazardous locations shall conform to the installation and use provisions of Sub-part 111.60 of the United States Coast Guard Electrical Engineering Regulations, Subchapter J (Title 46 Code of Federal Regulations, Part 110 to 113 inclusive) as applied by the authority having jurisdiction for the installation.

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***European Union and Countries That Follow ATEX/IECEx Practices:***

Cables for Fixed Apparatus shall be thermoplastic sheathed cables, thermosetting sheathed cables, elastomeric sheathed cables, or mineral insulated metal sheathed cables for fixed wiring.

Cables for fixed wiring shall have flame propagation characteristics that enable them to withstand the tests according to EN 60332-1-1 and EN 60332-1-2.

Cable entry systems (cable glands) shall comply with all of the requirements referred to in the appropriate apparatus standards (EN 60079-0 and EN 60079-1), the cable entry device is appropriate to the type of cable employed, and maintains the respective method of protection.

The cable entry system shall comply with one of the following:

- a) Cable terminal compartment with cable entry device and a particular type of cable in compliance with EN 60079-1.
- b) Thermoplastic, thermosetting or elastomeric cable that is substantially compact and circular, has extruded bedding and the fillers, if any, are non-hygroscopic may utilize flameproof cable entry devices, incorporating a compression seal.
- c) Mineral insulated cable with or without plastic outer covering with appropriate flameproof entry device.
- d) Flameproof sealing device (e.g. a stopper box or sealing chamber) specified in the apparatus documentation or having component approval and employing cable entry devices appropriate to the cables used. The sealing devices such as stopper boxes or sealing chambers shall incorporate compound or other appropriate seals which permit stopping around individual cores. Sealing devices shall be fitted at the point of entry of the cables to the apparatus.
- e) Flameproof cable entry devices incorporating compound filled seals or other equivalent sealing arrangements.
- f) Other means which maintain the integrity of the flameproof enclosure.

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## Appendix C - Hazardous Locations Certification

Copies of the certificates can be found at:

<http://hpsweb.honeywell.com/Cultures/en-US/Products/Approvals/documents.htm>

## Entity Concept

Under entity requirements, the concept allows interconnection of intrinsically safe apparatus to associated apparatus, not specifically examined in such combination. The criteria for interconnection is that the voltage ( $V_{max}$ ) and current ( $I_{max}$ ), which intrinsically safe apparatus can receive and remain intrinsically safe, considering faults, must be equal to or greater than the voltage ( $V_{oc}$  or  $V_t$ ) and current ( $I_{sc}$  or  $I_t$ ) levels which can be delivered by the associated apparatus, considering faults and applicable factors. In addition, the maximum unprotected capacitance ( $C_i$ ) and inductance ( $L_i$ ) of the intrinsically safe apparatus, including interconnecting wiring, must be less than or equal to the capacitance ( $C_a$ ) and inductance ( $L_a$ ) which can be safely connected to the associated apparatus. If these criteria are met, then the combination may be connected and remain intrinsically safe. Both FMRC and CSA entity parameters are defined in Tables 6 and 7.

**Table 6 Factory Mutual (FM) Certification**

<b>Code</b>	<b>Description</b>	
<b>1C</b>	<p>Explosion-proof for Class I, Division 1, Groups A, B, C &amp; D. Dust Ignition-proof for Class II, Division 1, Groups E, F &amp; G. Suitable for Class III, Division 1. Conduit seals required within 18" of enclosure, Group A only.</p> <p>Intrinsically Safe for use in Class I, Division 1, Groups A, B, C &amp; D; Class II, Division 1, Groups E, F &amp; G; Class III, Division 1, T4 at 40°C, T3A at 93°C maximum ambient, when connected in accordance with Honeywell drawing 50034080.</p> <p>Non-incendive for use in Class I, Division 2, Groups A, B, C &amp; D; Suitable for Classes II &amp; III, Division 2, Groups F &amp; G, T4 at 93°C maximum ambient, hazardous locations. 42 Vdc max.</p> <p>Environmental: Indoor and outdoor hazardous locations (NEMA 4X).</p>	
<b><u>Intrinsic Safety Entity Parameters</u> <sup>(1)</sup></b>		<b><u>Class I, II, III, Divisions 1 and 2, Groups A - G</u></b>
$V_{Max} \leq$	42.4 V	
$I_{Max} =$	225 mA	
$P_{Max} =$	1.2 W	
$C_i =$	4.2 nF	
$L_i =$	0	With no integral indicator, or with integral Smart Meter, option SM.
$L_i =$	150 $\mu$ H	With Analog Meter, option ME.

<sup>(1)</sup> Install in accordance with Honeywell drawing 50034080.

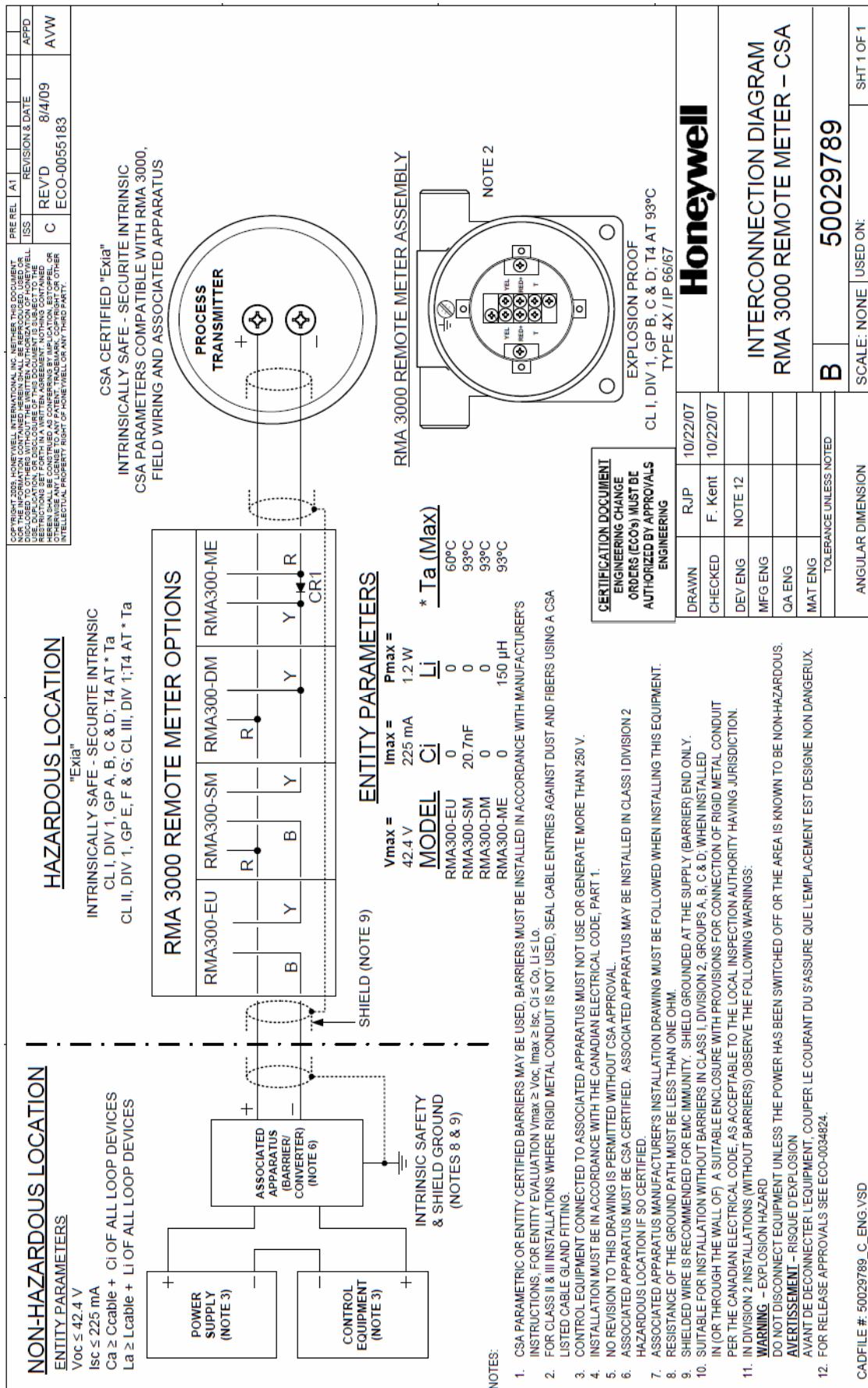


**Table 7 Canadian Standards Association (CSA Certification)**







<b><u>Code</u></b>	<b><u>Description</u></b>
<b>2J</b>	<p>Explosion Proof for Class I, Division 1, Groups B, C &amp; D. Dust-Ignition-Proof for Class II, Division 1, Groups E, F &amp; G; Class III, Division 1. Conduit seals not required. 42 Vdc max.</p> <p>Intrinsically Safe for Class I, Groups A, B, C &amp; D; Class II, Groups E, F &amp; G; Class III, Divisions 1, T4 at 40°C, T3A at 93°C maximum ambient. Install per Honeywell drawing 50029789.</p> <p>Suitable for Class I, II &amp; III, Division 2, Groups A, B, C, D, E, F &amp; G hazardous locations, T4 at 93°C. 42 Vdc max.</p> <p>Environmental: Indoor and outdoor hazardous locations (Encl 4X).</p>

<b><u>CSA Certified Barriers <sup>(1)</sup></u></b>	<b><u>Class I, II, III, Division 1 and 2, Groups</u></b>
28V / 200 $\Omega$	A – G
20V / 150 $\Omega$	C – G

<sup>(1)</sup> Install in accordance with Honeywell drawing 50029789.



**Table 8 ATEX – LCIE Certification**

Code	Description
3U	Intrinsically Safe: LCIE 02ATEX 6178X  II 1 G Ex ia IIC T5 (Ta= -40° to 60°C)
33	Flameproof: LCIE 02ATEX6177X  II 2 G Ex d IIC T6 (Ta= -40 to +65°C) II 2 D Ex tD A21 IP6X T95°C (at Ta = 85°C) or T80°C (at Ta = 65°C)
3Y	Non Sparking: HON 02.202  II 3 G Ex nA IIC T6, -40 ≤ Ta ≤ 65°C II 3 D Ex tD A22 IP6X T95°C (at Ta = 85°C) or T80°C (at Ta = 65°C)
3C *	Intrinsically Safe: LCIE 02ATEX 6178X  II 1 G Ex ia IIC T5 (Ta= -40° to 60°C)  Flameproof: LCIE 02ATEX6177X  II 2 G Ex d IIC T6 (Ta= -40 to +65°C) II 2 D Ex tD A21 IP6X T95°C (at Ta = 85°C) or T80°C (at Ta = 65°C)  Non Sparking: HON 02.202  II 3 G Ex nA IIC T6, -40 ≤ Ta ≤ 65°C II 3 D Ex tD A22 IP6X T95°C (at Ta = 85°C) or T80°C (at Ta = 65°C)
* The user must determine the type of protection required for installation the equipment. The user shall then check the box [a] adjacent to the type of protection used on the equipment certification nameplate. Once a type of protection has been checked on the nameplate, the equipment shall not then be reinstalled using any of the other certification types.	

## Certification and Conformity Details

ATEX Intrinsic Safety Parameters <sup>(1)</sup>
U <sub>i</sub> = 30 V I <sub>i</sub> = 100 mA P <sub>i</sub> = 1.2 W C <sub>i</sub> = 4.2 nF R <sub>i</sub> = 0 L <sub>i</sub> = 0 With no integral indicator, or with integral Smart Meter, option SM. L <sub>i</sub> = 150 μH With Analog Meter, option ME.

<sup>(1)</sup> Install in accordance with Honeywell drawing 51204243.

**Table 9 IECEx- LCIE 08.0034**

Code	Description
CA	Intrinsically Safe: Ex ia IIC T4 (Ta = -40°C to +85°C), T5 (Ta = -20°C to +60°C) Flameproof: Ex d IIC T6 (Ta = -20°C to +65°C), T5 (Ta = -40°C to +85°C)

IECEx Intrinsic Safety Entity Parameters
Ui = 30 V Ii = 100 mA Pi = 1.2 W Ci = 4.2 nF Ri = 0 Li = 0 (With no integral indicator, or with integral Smart Meter, option SM.) Li = 150 µH (With Analog Meter, option ME)

**Table 10 South Africa- SAEx S/09-341X**

Code	Description
ZA	Intrinsically Safe: Ex ia IIC T4 (Ta = -40°C to +85°C), T5 (Ta = -20°C to +60°C) Flameproof: Ex d IIC T6 (Ta = -20°C to +65°C), T5 (Ta = -40°C to +85°C)

SAEx Intrinsic Safety Entity Parameters
Ui = 30 V Ii = 100 mA Pi = 1.2 W Ci = 4.2 nF Ri = 0 Li = 0 (With no integral indicator, or with integral Smart Meter, option SM.) Li = 150 µH (With Analog Meter, option ME)





## Sales and Service

For application assistance, current specifications, pricing, or name of the nearest Authorized Distributor, contact one of the offices below.

<p><b>Asia Pacific Global Technical Support Field Instruments</b> Phone: +65 6580 3156 Fax: +65 6445-3033</p> <p><b>Australia</b> Honeywell Limited Phone: +(61) 7-3846 1255 FAX: +(61) 7-3840 6481 Toll Free 1300-36-39-36 Toll Free Fax: 1300-36-04-70</p> <p><b>China – PRC – Beijing</b> Honeywell China Inc. Phone: +(86-10) 8458-3280 Fax: +(86-10) 8458-4650</p> <p><b>China – PRC – Shanghai</b> Honeywell China Inc. Phone: (86-21) 5257-4568 Fax: (86-21) 6237-2826</p> <p><b>China – PRC – Chengdu</b> Honeywell China Inc. Phone: +(86-28) 6613-5078 Fax: +(86-28) 8678-7061</p> <p><b>China – PRC – Xi'an</b> Honeywell China Ltd - Xi'an. Phone: +(86-29) 8833-7490 Fax: +(86-29) 8833-7489</p> <p><b>China – PRC – Shenzhen-</b> Honeywell China Inc. Phone: +(86) 755-2518-1226 Fax: +(86) 755-2518-1221</p> <p><b>Indonesia</b> PT Honeywell Indonesia Phone: +(62) 21-535-8833 FAX: +(62) 21-5367 1008</p> <p><b>Honeywell Automation India Ltd.</b> Honeywell Ltd. Phone: +(91) 6603-9400 Fax: +(91) 6603-9600</p> <p><b>Japan</b> Honeywell Inc. Phone: +(81) 3 6730 7197 Fax: +(81) 3 6730 7228</p> <p><b>Malaysia</b> Honeywell Engineering Sdn Bhd Phone: +(603) 7958-4788 Fax: +(603) 7958-8922</p>	<p><b>New Zealand</b> Honeywell Limited Phone: +(64-9) 623-5050 Fax: +(64-9) 623-5060 Toll Free (0800) 202-088</p> <p><b>Singapore</b> Honeywell Pte Ltd. Phone: +(65) 6580 3278 Fax: +(65) 6445-3033</p> <p><b>South Korea</b> Honeywell Korea Co Ltd Phone: +(822) 799 6114 Fax: +(822) 792 9015</p> <p><b>Thailand</b> Honeywell Systems (Thailand) Ltd. Phone: +(662) 693-3099 FAX: +(662) 693-3089</p> <p><b>Taiwan R.O.C.</b> Honeywell Taiwan Ltd. Phone: +(886-2) 2245-1000 FAX: +(886-2) 2245-3243</p> <p><b>SE Asia Countries</b> see Honeywell (Singapore) for: Philippines, Pakistan, Cambodia, Guam, Laos, Myanmar, Vietnam, East Timor</p> <p><b>SE Asia Countries</b> see Honeywell Automation India Ltd for: Bangladesh, Nepal, Sri Lanka</p> <p><b>EUROPE</b> <b>Austria</b> Honeywell Austria GmbH Phone: +43 (316)400123 FAX: +43 (316)40017</p> <p><b>Belgium</b> Honeywell SA/NV Phone: +32 (0)2728 24 07 FAX: +32 (0)2728 22 45</p> <p><b>Bulgaria</b> Honeywell EOOD Phone: +(359) 2 40 20 900 FAX: +(359) 2 40 20 990</p> <p><b>Czech Republic</b> Honeywell spol. s.r.o. Phone: +420 242 442 232 FAX: +420 242 442 131</p>	<p><b>Denmark</b> Honeywell A/S Phone: +(45) 39 55 55 55 FAX: +(45) 39 55 55 58</p> <p><b>Finland</b> Honeywell OY Phone: +358 (0)20752 2753 FAX: +358 (0) 20752 2751</p> <p><b>France</b> Honeywell SA Phone: +33 (0)1 60198075 FAX: +33 (0)1 60198201</p> <p><b>Germany</b> Honeywell AG Phone: +49 (69)8064-299 FAX: +49 (69)806497336</p> <p><b>Hungary</b> Honeywell Kft. Phone: +36-1-451 4300 FAX: +36-1-451 4343</p> <p><b>Italy</b> Honeywell S.p.A. Phone: +390292146307 FAX: +39 0292146377</p> <p><b>The Netherlands</b> Honeywell B.V. Phone: +31 (0) 20 5656200 FAX: +31 (0) 20 5656210</p> <p><b>Norway</b> Honeywell A/S Phone: (45) 39 55 55 55</p> <p><b>Poland</b> Honeywell Sp. zo.o Phone: +48-22-6060900 FAX: +48-22-6060901</p> <p><b>Portugal</b> Honeywell Portugal Lda Phone: +351 21 424 5000 FAX: +351 21 424 50 99</p> <p><b>Romania</b> Honeywell Bucharest Phone: +40 (0) 21 2316437 FAX: +40 (0) 21 2316439</p> <p><b>Russian Federation (RF),</b> Honeywell Field Solutions Kievskaya str., 7, Moscow 121059, Russia Phone +7 (495) 796 98 60 Fax +7 (495) 797 99 64</p> <p><b>Slovak Republic</b> Honeywell s.r.o. Phone: +421-2-58247 410 FAX: +421-2-58247 415</p>	<p><b>Spain</b> Honeywell S.A. Phone: +34 (0)91313 61 00 FAX: +34 (0)91313 61 30</p> <p><b>Sweden</b> Honeywell AB Phone: +(46) 8 775 55 00 FAX: +(46) 8 775 56 00</p> <p><b>Switzerland</b> Honeywell AG Phone: +41 18552448 FAX: +(41) 1 855 24 45</p> <p><b>Turkey</b> Honeywell Turkey A.S. 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Specifications are subject to change without notice.

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