Technical Information

Honeywell

RMA 3000 Remote Meter Assemblies Specifications

34-ST-03-81 June 2012

Introduction

Overview

The Remote Meter Assembly RMA 3000 functions as an output and status indicator for a compatible Honeywell Smartline Transmitter or as an output indicator for a non-Honeywell transmitter operating in a 4-20mA current loop. The RMA 3000 consists of a meter mounted in an aluminum explosion-proof housing with several protective paint styles available.

Four meter types are available for mounting in the RMA 3000 housing:

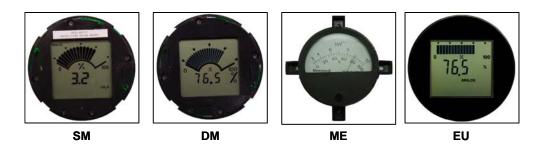
the Smart Meter (SM), the Digital Meter (DM), the Analog Meter (ME), and the Engineering Unit Display Meter (EU)

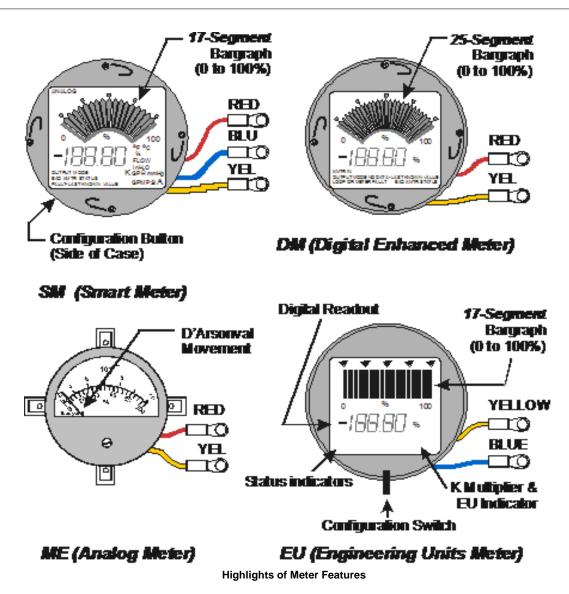
The **Smart Meter SM** can be used to display either output in % or engineering units appropriate to the transmitter depending on the transmitter type and configuration. The SM can be used with any one of the following Smartline Transmitters in either analog or DE mode: ST 3000 Smart Pressure Transmitter, or the STT 3000 Smart Temperature Transmitter The **Digital Meter DM** is used exclusively with Honeywell transmitters operating in the DE (Digital Enhanced) mode. The DM features a fan style 25 segment bargraph with digital indication and status displays. The DM digital indicator gives precise output of the transmitter from –199.9 to +199.9% of transmitter range. Engineering units are not available on the DM.

The **Analog Meter ME** is used with analog output transmitters to give % output using a needle-type meter movement.

The **Engineering Units Meter EU** provides digital display of temperature, pressure, level, flow, or other measurements in real Engineering Units. This meter provides a universal solution for 4-20mA measurement displays by converting any 4-20mA signal into an LCD digital display in the preferred engineering units.

The EU Display Meter is available for remote-mount field use or can be integrally mounted in the STT250 Temperature Transmitters or in the STT250 Model STT25H with the HART[™] protocol.





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Features and Functions

RMA300 - SM

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.

As indicated in the illustration, the SM is similar in appearance to the DM. That is, they both have a multisegment 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.

RMA300 - DM

Designed for use with Honeywell smart transmitters operating in the Digital (DE) Communications Mode, the DE Meter provides convenient, easy-to-read transmitter output and loop status indications on its liquid-crystal display. As shown in the figure, the DE Meter display features a 25-segment bargraph, a digital readout, and a set of status messages.

The 25-segment bargraph gives a gross indication of transmitter output from 0 to 100% that can be viewed from up to 30 feet away. The digital readout, a complement to the bargraph indication, gives a precise indication of transmitter output from -199.9 to +199.9% that can be read from up to 10 feet away.

Status messages serve as online diagnostics for various detectable loop conditions. When the transmitter is in the square root mode, the DE Meter still displays the transmitter output from 0 to 100%. The DE Meter has no square root mode or flow indicator display.

RMA300 - ME

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.

RMA300 - EU

The EU Display Meter is connected in series with the 4-20mA loop and is powered by the loop power. It operates by processing the 4-20mA signal via an analog-to-digital converter and scaling the digital measurement linearly into the desired operating range, which the user configures into the meter. The LCD display includes a selection of integral engineering units for temperature and pressure applications (for example - °C, °F, in H2O, psi, etc. and a "K" multiplier that can be included when larger ranges require it).

The EU Display Meter also includes a bar-graph display of measured signal as a percentage of the 16mA signal span. This enables confirmation from some distance away that the measurement loop is operating satisfactorily or that attention is required. The meter is configured by an integral selection switch, which enables setting the Low (4mA) and High (20mA) display range limits.

 $\mathsf{HART}^{\mathsf{TM}}$ is a trademark of the Hart Communication Foundation

RMA300SM Specifications

Operating Conditions				
Parameter	Rated	Extreme, Transportation and Storage		
Ambient Temperature	-40 to +185 °F	-58 to +194 °F		
	-40 to +85 °C	-50 to +90 °C		
Relative Humidity	0 – 100%	0 – 100%		
Design				
Accuracy				
Analog (4-20mA) Mode	± 0.5% of span			
Honeywell Digital (DE) Mode	Reproduces the transmitter signal exactly to within its resolution			
Display Resolution				
Bargraph	\pm 3% reading \pm 0.05% for \pm 199.9 reading range, \pm 0.5% for \pm 1999 reading range,			
Digital Readout				
	± 5% for ± 19990 reading range			
Maximum Meter Voltage (red lead to yellow lead)	42 VDC			
Maximum Loop Voltage Drop (yellow lead to screw terminal)	2.25 VDC			
Maximum Loop Operating Current	3.6 mA			
ATTENTION	The LCD display will turn black between 80 display unreadable. This effect is temporary.			

RMA300DM Specifications

Operating Conditions				
Parameter	Rated	Extreme, Transportation and Storage		
Ambient Temperature	-40 to +176 °F -40 to +80 °C	-58 to +194 °F -50 to +90 °C		
Relative Humidity	0 – 100% 0 – 100%			
Design	Design			
Display Resolution				
Bargraph	± 4% reading			
Digital Readout	± 0.1% reading			
ATTENTION	The LCD display will turn black between 80 and 90 °C (176 and 194 °F), rendering the display unreadable. This effect is temporary.			

RMA300ME Specifications

Operating Conditions				
Parameter Rated Extreme, Transportation and Stora				
Ambient Temperature	-40 to +176 °F -40 to +80 °C	-58 to +194 °F -50 to +90 °C		
Relative Humidity	0 – 100%	0 – 100%		
Design				
Display Resolution	± 1% reading			

RMA300EU Specifications

Operating Conditions	Operating Conditions				
Parameter	Rated		Extreme, Transportation and Storage		
Ambient Temperature	-40 to +185 °F -40 to +85 °C		-58 to +194 °F -50 to +90 °C		
Relative Humidity	10 – 90%, non condensing		0 – 100%		
Design					
Digital Display Accuracy		± 0.5% of span			
Digital Display Resolution		± 0.05% for ± 199.9 reading range, ± 0.5% for ± 1999 reading range, ± 5% for ± 19990 reading range ± 50% for ± 199900 reading range ± 500% for ± 1999000 reading range ± 5000% for ± 19990000 reading range		Shown as: 199.9 1999 19990 199.9 K 1999 K 1999 K	
Bargraph % Display Resolution		± 3% of reading on 17-segment scale			
Power Supply Volts drop	across meter	2.3 VDC with reverse polarity protection.			
Connection Polarity		Yellow = Positive (+ve); Blue = Negative (-ve)			
Minimum Loop Current		3.6 mA			
Available Engineering Units Integral LCD indicator As stick on label			H, GPM, mmHg, PSI, PSIA ted units for temperature, pre	essure. and flow.	

All Displays

Certification Conditions			
Installation	Ambient Limits		
Explosionproof/Flameproof	-4°F to +149°F		
	-20°C to +65°C		
Intrinsically Safe	-40°F to +140°F		
	-40°C to +60°C		

Enclosure Specifications

Material of Construction	Aluminum (SS available)
Number of Conduit Openings Two ½" NPT openings	
Available Adapters½ NPT to M-20 316SS conduit adapter½ NPT to ¾ NPT 316SS conduit adapter	
Paint	Beige or Red Epoxy

Approval and Certification

Model Selection Guide, Table III

Approval Body	Approval Type	Location or Classification		
None	None			
Factory	Explosionproof, Dust Ignitionproof, Non-Incendive	Class I, Div. 1, Groups A, B, C, D; Class II, III, Div. 1, Groups E, F,G; Class I, Div. 2, Groups A, B, C, D (DM, ME & SM, T4 at 40°C)		
Mutual	Intrinsically Safe	Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G; (DM, ME & SM, T4 at 40°C)		
	Enclosure: Type 4X	·		
	Explosion Proof & Dust Ignition Proof	Class I, Div. 1, Groups B, C, D; Class II, III, Div. 1, Groups E, F, G (DM, ME & SM, T4 at 93°C; EU, T4 at 60°C)		
CSA	Intrinsically Safe	Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G; (DM, ME & SM, T4 at 93°C; EU, T4 at 60°C)		
	Enclosure: Type 4X	·		
	Intrinsically Safe	LCIE 02ATEX 6178X II 1 GD (Table II= TG or TB); II 2 GD (Table II= XC or XR); Ex ia IIC T5 (Ta= -40° to 60°C) Ex tD A21 IP6X T95°C (at Ta = 85°C) or T80°C (at Ta = 65°C)		
	Flameproof	LCIE 02ATEX6177X II 2 GD Ex d IIC T6(Ta= -40 °C to 65 °C) or T5 (Ta= -40 °C to 85 °C) Ex tD A21 IP6X T95°C (at Ta = 85°C) or T80°C (at Ta = 65°C)		
	Non Sparking	HON 02.202 II 3 GD Ex nA IIC T6 (Ta= -40 °C to 65 °C) or T5 (Ta= -40 °C to 85 °C) Ex tD A22 IP6X T95°C (at Ta = 85°C) orT80°C (at Ta = 65°C)		
ATEX *	Multiple Marking ** Intrinsically Safe, Flameproof and Non Sparking	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		
IECEx	Intrinsically Safe And Flameproof	Ex ia IIC T4 (Ta = -40°C to +85°C), T5 (Ta = -20°C to +60°C) Ex d IIC T6 (Ta = -20°C to +65°C), T5 (Ta = -40°C to +85°C)		
SAEx	Intrinsically Safe And Flameproof	Ex ia IIC T4 (Ta = -40°C to +85°C), T5 (Ta = -20°C to +60°C) Ex d IIC T6 (Ta = -20°C to +65°C), T5 (Ta = -40°C to +85°C)		

* See ATEX Installation requirements in the Operator manual

Model Selection Guides are subject to change and are inserted into the specifications as guidance only. Prior to specifying or ordering a model check for the latest revision Model Selection Guides which are published at: <u>https://www.honeywellprocess.com/en-US/pages/default.aspx</u>

Model Selection Guide

		34-ST-16U-46	
		Issue 31	
		Page 1 of 3	
	DWV 3000	Model Selectio	n Guide
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	Additional Warranty - 4 Years	W4	•

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Supplemental Accessories and Kits

Conduit Plugs and Adapters may be ordered separately (Meter Assemblies come with plastic dust plugs as standard)

Description	Material of Construction	Part Number
Certified conduit plugs for CSA, ATEX and IECEx		
1/2 NPT Certified Socket Plug	Zinc-plated Carbon Steel	50021832-501
1/2 NPT Certified Socket Plug	316 SS	50021832-502
Certified adapters for CSA, ATEX and IECEx		
1/2 NPT (male) to 3/4 NPT (female)	316 SS	50000682-501
1/2 NPT (male) to M20 (female)	316 SS	51202409-501
Certified cable glands for UL and cUL		
1/2 NPT	Brass Nickel plated	50023212-501

** Consult Honeyw ell Order Entry System for current parts pricing

TABLE III - APPROVALS RMA300 Availability Approval **Approval Type** Location or Classification Selection Body None None 9X ٠ Class I, Div. 1, Groups A, B, C, D; Explosionproof, Class II, III, Div. 1, Groups E, F, G;T4 at 40°C Dust Ignitionproof, Non-Incendive Factory Class I, Div. 2, Groups A, B, C, D 1C • Mutual Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G; Intrinsically Safe T4 at 40°C Enclosure Rating Type 4X Class I, Div. 1, Groups B, C, D; Explosion Proof & Class II, III, Div. 1, Groups E, F, G Dust Ignition Proof (DM, ME & SM, T4 at 93°C; EU, T4 at 60°C) CSA 2J • Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G; Intrinsically Safe (DM, ME & SM, T4 at 93°C; EU, T4 at 60°C) Enclosure Rating Type 4X II 1 GD (Table II = TG or TB); II 2 GD (Table II = XC or XR) Intrinsically Safe Exia IIC T5 (Ta = -20° C to $+60^{\circ}$ C), 3U • Zone 0/1 / Zone 20/21 ExtD A21 IP6X T95°C (at Ta = 85°C) or T80°C (at Ta = 65°C) II 2 GD Exd IIC T5 (Ta = -40° C to $+85^{\circ}$ C) T6 (Ta = -40° C to $+65^{\circ}$ C) ATEX* Flameproof ExtD A21 IP6X T95°C (at Ta = 85°C) or 33 • Zone 1 / Zone 21 T80°C (at Ta = 65°C) Enclosure IP66/67 II 3 GD Ex nA, IIC T5 (Ta = -40° C to $+85^{\circ}$ C) Non-Sparking T6 (Ta = -20° C to $+65^{\circ}$ C) 3Y Zone 2 / Zone 22 ExtD A22 IP6X T95°C (at Ta = 85°C) or • T80°C (at Ta = 65°C)

(continued on next page)

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ATEX*	Multiple Marking ** Int. Safe, Zone 0/1, or Flameproof, Zone 1, or Non-Sparking Zone 2	II 1 GD (Table II TG or TB) II 2 GD (Table II= XC or XR) Exia IIC T5 (Ta= -40° to 60°C) II 2 GD Ex d IIC T6 (Ta= -40°C to 65°C) or T5 (Ta = -40°C to +85°C) Ex tD A21 IP6X T95°C (at Ta = 85°C) or T80°C (at Ta = 65°C) II 3 GD Ex nA IIC T6 (Ta = -20°C to +65°C)or T5 (Honeywell) T5 (Ta = -40°C to +85°C) Ex tD A22 IP6X T95°C (at Ta = 85°C) or T80°C (at Ta = 65°C) Enclosure IP66/67	ЗC	•
IECEx	Flameproof, Zone 1 Intrinsically safe, Zone 0/1	Ex d IIC T6 (Ta = -20°C to +65°C), T5 (Ta = -40°C to +85°C) Enclosure IP66/67 Ex ia IIC T4 (Ta = -40°C to +85°C), T5 (Ta = -20°C to +60°C)	СА	•
SAEx	Flameproof, Zone 1 Intrinsicallysafe, Zone 0/1	Ex d IIC T6 (Ta = -20° C to $+65^{\circ}$ C), T5 (Ta = -40° C to $+85^{\circ}$ C) Enclosure IP66/67 Ex ia IIC T4 (Ta = -40° C to $+85^{\circ}$ C), T5 (Ta = -20° C to $+60^{\circ}$ C)	ZA	-

* See ATEX installation requirements in the Operator's Manual

**The user must determine the type of protection required for installation of the equipment. The user shall then check the box $[\sqrt{}]$ adjacent to the type of protection used on the equipment certification nameplate. Once a type of protection has been checked on the nameplate, subsequently the equipment shall not be reinstalled using any of the other certification types.

RESTRICTIONS

Restriction	Available Only With Not Available With			Not Available With
Letter	Table	Selection	Table	Selection
а	Ξ	3U,33,3Y,3C		
b	Select only one option from this group			
g	III	3U, 33, 3Y, 3C, CA, ZA		
h	III	1C, 2J		
m	ļ	9X, 1C, 2J, 33, 3Y	Ξ	3U, 3C, CA, ZA

Notes: See 13:ST-OE-9 for OMS Order Entry Information including TC, manuals, certificates, drawings and SPINS. See 13:ST-27 for Published Specials with pricing.

Ordering Example: RMA300-SM-MB,TG-2J

ASIA PACIFIC

(TAC) hfs-tacsupport@honeywell.com

Australia

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

China – PRC - Shanghai

Honeywell China Inc. Phone: (86-21) 5257-4568 Fax: (86-21) 6237-2826

Singapore

Honeywell Pte Ltd. Phone: +(65) 6580 3278 Fax: +(65) 6445-3033

South Korea

Honeywell Korea Co Ltd Phone: +(822) 799 6114 Fax: +(822) 792 9015

EMEA

Honeywell Process Solutions, Phone: + 80012026455 or +44 (0)1202645583 FAX: +44 (0) 1344 655554 Email: (Sales) <u>sc-cp-apps-</u> <u>salespa62@honeywell.com</u> or (TAC) <u>hfs-tac-</u> <u>support@honeywell.com</u>

NORTH AMERICA

Honeywell Process Solutions, Phone: 1-800-423-9883 Or 1-800-343-0228

Email: (Sales) ask-ssc@honeywell.com or

(TAC) <u>hfs-tac-</u> <u>support@honeywell.com</u>

SOUTH AMERICA

Honeywell do Brasil & Cia Phone: +(55-11) 7266-1900 FAX: +(55-11) 7266-1905

Email: (Sales) ask-ssc@honeywell.com or

(TAC) <u>hfs-tac-</u> <u>support@honeywell.com</u>

The information and specifications in this document are subject to change without notice

For More Information

Learn more about how Honeywell's RMA 3000 Remote Meter Assemblies can provide accurate transmitter output, visit our website <u>www.honeywellprocess.com/RMA-3000-</u> <u>Remote-Meter-Assemblies</u> or contact your Honeywell account manager.

Honeywell Process Solutions

1860 West Rose Garden Lane Phoenix, Arizona 85027 Tel: 1-800-423-9883 or 1-800-343-0228 www.honeywellprocess.com

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