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.

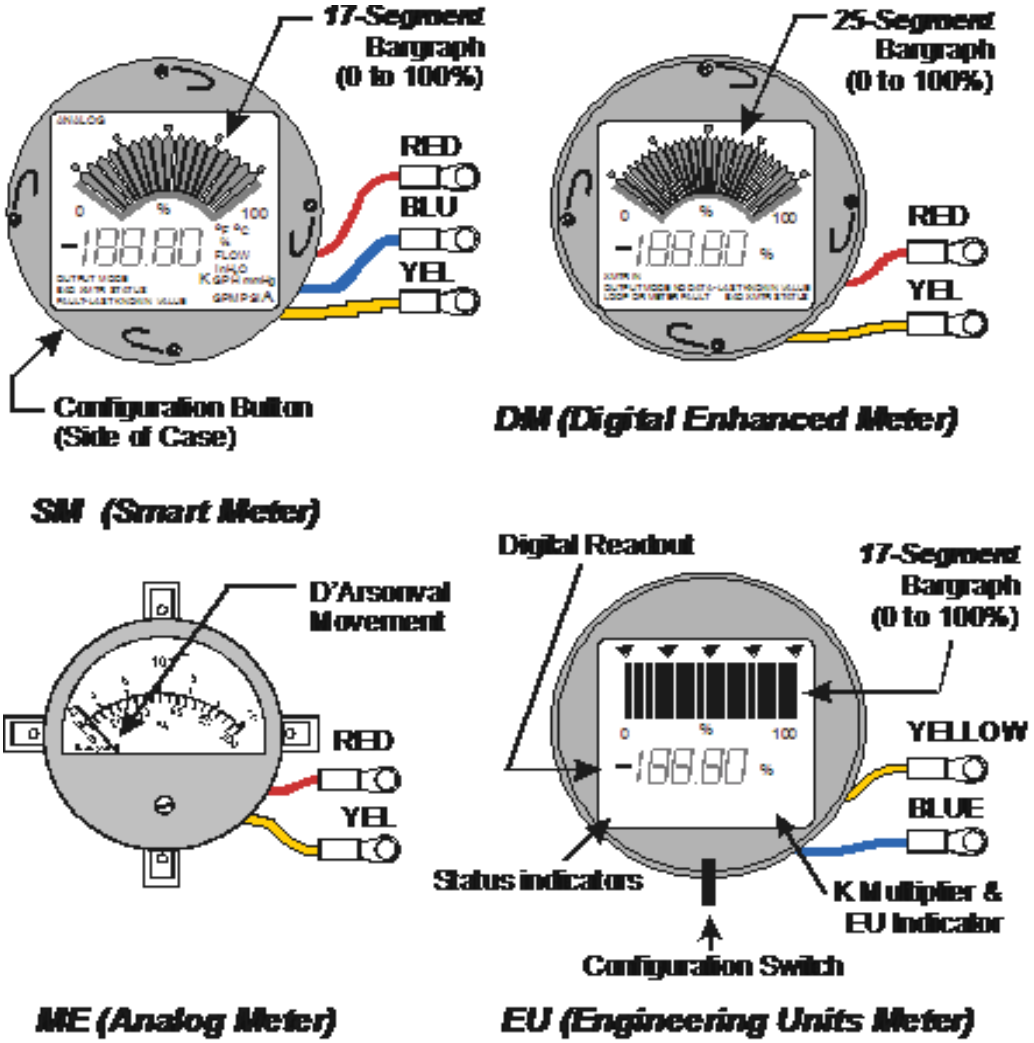
The EU Display Meter is available for remote-mount field use or can be integrally mounted in the STT250 Temperature Transmitters or in the STT250 Model STT25H with the HART™ protocol.

SM

DM

ME

EU



Highlights of Meter Features

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 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.

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.

RMA300SM Specifications

Operating Conditions		
Parameter	**Rated**	**Extreme, Transportation and Storage**
Ambient Temperature	-40 to +185 ºF -40 to +85 ºC	-58 to +194 ºF -50 to +90 ºC
Relative Humidity	0 – 100%	0 – 100%
Design		
Accuracy **Analog (4-20mA) Mode** **Honeywell Digital (DE) Mode**	± 0.5% of span Reproduces the transmitter signal exactly to within its resolution	
Display Resolution **Bargraph** **Digital Readout**	± 3% reading ± 0.05% for ± 199.9 reading range, ± 0.5% for ± 1999 reading range, ± 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 and 90 ºC (176 and 194 ºF), rendering the display unreadable. This effect is temporary.	

RMA300DM Specifications

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

RMA300ME Specifications

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

RMA300EU Specifications

Operating Conditions		
Parameter	**Rated**	**Extreme, Transportation and Storage**
Ambient Temperature	-40 to +185 ºF -40 to +85 ºC	-58 to +194 ºF -50 to +90 ºC
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 19990 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**	ºF, ºC, %, in H_2O, GPH, GPM, mmHg, PSI, PSIA Wide selection of printed units for temperature, pressure, and flow.	

All Displays

Certification Conditions	
Installation	**Ambient Limits**
Explosionproof/Flameproof	–4ºF to +149ºF –20ºC to +65ºC
Intrinsically Safe	–40ºF to +140ºF –40ºC to +60ºC

Enclosure Specifications

Material of Construction	Aluminum (SS available)
Number of Conduit Openings	Two ½" NPT openings
Available Adapters	½ NPT to M-20 316SS conduit adapter ½ 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 Mutual	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 40ºC)
	Intrinsically Safe	Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G; (DM, ME & SM, T4 at 40ºC)
	Enclosure: Type 4X	
CSA	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 93ºC; EU, T4 at 60ºC)
	Intrinsically Safe	Class I, II, III, Div. 1, Groups A,B,C,D,E,F,G; (DM, ME & SM, T4 at 93ºC; EU, T4 at 60ºC)
	Enclosure: Type 4X	
ATEX *	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)
	Multiple Marking ** Intrinsically Safe, Flameproof and Non Sparking	 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) 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) HON 02.202 II 3 GD Ex nA IIC T6, -40 ≤ Ta ≤ 65°C Ex tD A22 IP6X T95°C (at Ta = 85°C) orT80°C (at Ta = 65°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:
https://www.honeywellprocess.com/en-US/pages/default.aspx

Model Selection Guide

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RMA 3000 Remote Meter Assemblies

Model Selection Guide

Instructions

- Select the desired key number. The arrow to the right marks the selection available.
- Make one selection from Table I. Select Table II options as desired.

Key Number	I	II (Optional)	III
RMA300	- _ _	- _ _ , _ _	- _ _

KEY NUMBER

Description	Selection	Availability
Remote Meter	RMA300	↓

TABLE I - METER TYPE

Smart Meter	SM	•	b
Digital Meter	DM	m	
EU Meter	EU	•	
Analog Meter	ME	•	

SM (R600) ***DM*** ***EU*** ***ME***

TABLE II - OPTIONS

No Selection	00	•	
Meter Housing Options			
Stainless Steel Customer wired-on Tag (4 lines, 28 characters per line, customer supplied information)	TG	•	b
Stainless Steel Customer wired-on Tag (blank)	TB	•	
Mounting Bracket - Carbon Steel	MB	•	b
Mounting Bracket - SS	SB	•	
1/2" NPT to M20 316 SS Conduit Adapter (BASEEFA EEx d IIC)	A1	g	b
1/2" NPT to 3/4" NPT 316 SS Conduit Adapter	A2	h	
Wiring Entry Plugs: No Conduit Entry plugs supplied. For conduit plugs,adapters and cable glands see the "Supplemenatal Accessories and Kits" section below this table			
Beige Epoxy Painted Housing	XC	•	b
Red Epoxy Painted Housing	XR	•	
End Cap Live Circuit Warning Label in Spanish	SP	a	b
End Cap Live Circuit Warning Label in Portuguese	PG	a	
End Cap Live Circuit Warning Label in Italian	TL	a	
End Cap Live Circuit Warning Label in German	GE	a	
Warranty Options and Certificates			
User's Manual Paper Copy	UM	•	
Certificate of Conformance (F2474)	F3	•	
Additional Warranty - 1 Year	W1	•	b
Additional Warranty - 2 Years	W2	•	
Additional Warranty - 3 Years	W3	•	
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 Honeywell Order Entry System for current parts pricing

TABLE III - APPROVALS

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

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ATEX* 	Multiple Marking ** Int. Safe, Zone 0/1, or Flameproof, Zone 1, or	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) 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)	3C	•	
	Non-Sparking Zone 2	Enclosure IP66/67			
IECEx	Flameproof, Zone 1	Ex d IIC T6 (Ta = -20°C to +65°C), T5 (Ta = –40°C to +85°C) Enclosure IP66/67	CA	•	
	Intrinsically safe, Zone 0/1	Ex ia IIC T4 (Ta = -40°C to +85°C), T5 (Ta = –20°C to +60°C)			
SAEx	Flameproof, Zone 1	Ex d IIC T6 (Ta = -20°C to +65°C), T5 (Ta = –40°C to +85°C) Enclosure IP66/67	ZA	•	
	Intrinsically safe, Zone 0/1	Ex ia IIC T4 (Ta = -40°C to +85°C), T5 (Ta = –20°C to +60°C)			

* 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 [√] 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 Letter	Available Only With		Not Available With	
	Table	Selection	Table	Selection
a	III	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	I	9X, 1C, 2J, 33, 3Y	III	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

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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 www.honeywellprocess.com/RMA-3000-Remote-Meter-Assemblies or contact your Honeywell account manager.

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