CERTIFICATE

Type Examination (1)

- (2) Product intended for use in potentially explosive atmospheres - Directive 2014/34/EU
- (3) Type Examination Certificate Number: DEKRA 15ATEX0003 X
- (4) Magnetic Flow Meter System Model 8750W Product:
- (5) Manufacturer: Emerson – Rosemount, Micro Motion Inc.
- (6) Address: 12001 Technology Drive, Eden Prairie, MN 55344, United States of America
- This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents (7) therein referred to.
- DEKRA Certification B.V., certifies that this product has been found to comply with the Essential Health and Safety (8) Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014.

The examination and test results are recorded in confidential test report no. NL/DEK/EXTR15,0001/02.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

> EN 60079-0 : 2012 + A11 ; 2013 EN 60079-15 : 2010

EN 60079-7 : 2015 EN 60079-31 : 2014 EN 60079-11 : 2012

Issue Number: 3

except in respect of those requirements listed at item 18 of the Schedule

- If the sign "X" is placed after the certificate humber, it indicates that the product is subject to the Specific Conditions (10) of Use specified in the schedule to this certificate
- This Type Examination Certificate/relates/only/to/the/design/and/construction/of/the specified/product and not to (11) the manufacturing process and its monitoring
- (12) The marking of the product shall/include the following Ex nA [ic] IIC T4 Gc

11/3/G



11/3 G Ex ec [ic] IIC/T4 Gc Ex nA ic IIC/T5../T4 Gc Ex ec ic/IIC/T5...T4/Gc 11 3 G 11/3/G 11 3 G Ex nA ic [ic] IIC T4 Gc 11 3 G Ex ec/ic/[ic]/IIC/T4/Gc/ II (3) G [Ex ic Gc] IIC 11 3 D Ex tc IIIC T80 °C Dc Ex tc/IIIC T80/°C...T130 °C/Dc 11 3 D

for details see Annex to Type Examination Certificate DEKRA/15ATEX0003 X, issue no. 3/

Date of certification:

22 March 2019

DEKRA Certification B.V.

R.H.D. Pommé Certification Manager

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(13) **SCHEDULE**

(14) to Type Examination Certificate DEKRA 15ATEX0003 X

Issue No. 3

(15) **Description**

Magnetic Flow Meter System Model 8750W

The Magnetic Flow Meter System Model 8750W comprises a Magnetic Flow Transmitter and Magnetic Flow Tube.

Magnetic Flow Transmitter Models 8750W...R and 8750W...T

The Magnetic Flow Transmitter Models 8750W...R and 8750W...T may be remote mounted from the Magnetic Flow Tubes or integral mounted on the Magnetic Flow Tubes respectively.

The Remote Mount Transmitter comprises a termination compartment in type of protection Ex nA, Ex ec or Ex tc for connecting power and output signal (optionally intrinsically safe Ex ic for Fieldbus and Profibus options only). The main compartment of the enclosure in types of protection Ex nA, Ex ec or Ex tc includes the electronics, optional Local Operator Interface (LOI) or display, intrinsically safe Ex ic supplies for the flow sensor and optionally intrinsically safe Ex ic output signal for Fieldbus and Profibus options only. For the connection to the Remote Mount Magnetic Flow Tube terminals for the field coils and electrode wiring (intrinsically safe Ex ic) are provided in the Remote Junction Box compartment in types of protection Ex nA, Ex ec or Ex tc.

The Integral Mount Transmitter is identical to the Remote Mount Transmitter, except that it is mounted directly on the tube adaptor of the Magnetic Flow Tube instead of to the Remote Junction Box.

For connection to the Magnetic Flow Tubes, the transmitter comprises a current limiting circuit.

Magnetic Flow Transmitter Model 8750W...W

The Magnetic Flow Transmitter Model 8750W...W is remote mounted from the Magnetic Flow Tube Model 8750W.

The main compartment of the enclosure in types of protection Ex ec, Ex nA or Ex tc includes the electronics, optional Local Operator Interface (LOI), optional intrinsically safe Ex ic supplies for the flow sensor. The optional keypad for the LOI is in type of protection Ex ic, which means that the keypad may be used when the transmitter is operating in an environments requiring EPL Gc or Dc.

The Remote Mount Transmitter comprises a termination compartment in types of protection Ex ec, Ex nA or Ex tb for connecting power and output signal. For the connection to the Magnetic Flow Tubes, terminals are provided for the optional intrinsically safe Ex ic field coils and electrode wiring.

For connection to the Magnetic Flow Tubes, the transmitter comprises a current limiting circuit.



(13) **SCHEDULE**

(14) to Type Examination Certificate DEKRA 15ATEX0003 X

Issue No. 3

Description (continued)

Magnetic Flow Tube

The Magnetic Flow Tube of the Magnetic Flow Meter System Model 8750W is designed for use with Magnetic Flow Transmitter of that same system.

The Magnetic Flow Tube for the Meter System Model 8750W may be remote mounted from the Magnetic Flow Transmitter or integral mounted to the Magnetic Flow Transmitter. The Flow Tube is utilized with flanges for process connection.

The Remote Mount Flow Tube comprises a Remote Junction Box in types of protection Ex nA, Ex ec or Ex tc for the connection of the field coils and electrode wiring (intrinsically safe Ex ic) to the Remote Mount Magnetic Flow Transmitter. The field coils are mounted in a welded compartment in types of protection Ex nA, Ex ec or Ex tc. The electrodes (intrinsically safe Ex ic) are mounted in the same welded compartment as the field coils but protrude into the process medium.

When utilized as EPL Dc equipment, EPL Dc does not apply to the process.

The Integral Mount Flow Tube is identical to the Remote Mount Flow Tube, except that it is intended to be mounted directly to the Magnetic Transmitter instead of to the Remote Junction Box.

For nomenclature, thermal data, product ratings, electrical data and description of system elements see Annex to this certificate.

Installation instructions

The instructions provided with the product shall be followed in detail to assure safe operation.

(16) **Report Number**

No. NL/DEK/ExTR15.0001/02

(17) Specific conditions of use

Terminals for the output signals of the Magnetic Flow Transmitters, cannot withstand the 500 V isolation test between signal and ground, due to integral transient protection. This must be taken into account upon installation.

When utilizing the keypad of Magnetic Flow Transmitter Model 8750W...W, instructions for safe use regarding potential electrostatic charging hazard have to be followed.

When "Special Paint Systems" are applied, instructions for safe use regarding potential electrostatic charging hazard have to be followed.

Conduit entries must be installed to maintain the enclosure ingress rating of IP66 (Transmitter and Flow Tube), IP68 (Flow Tube) or IP69K (Flow Tube or 8750W...W transmitter) as applicable.

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(13) **SCHEDULE**

(14) to Type Examination Certificate DEKRA 15ATEX0003 X

Issue No. 3

(18) Essential Health and Safety Requirements

Covered by the standards listed at item (9).

(19) **Test documentation**

As listed in Report No. NL/DEK/ExTR15.0001/02.

(20) Certificate history

Issue 1 - 217353600 Initial certificate.

- Issue 2 217353200 Update the existing certificate, DEKRA 15ATEX0003X for Magnetic Flow Transmitter Model 8750W for type of protection Ex ec (update from EN 60079-15 : 2010 to EN 60079-7 : 2015) Update the existing certificate, DEKRA 15ATEX0003X for Magnetic Flow Tube Model 8750W for type of protection Ex ec (update from EN 60079-15 : 2010 to EN 60079-7 : 2015) Addition of the of Magnetic Flow Transmitter Model 8750W...W. The Model 8750W...W transmitter is assessed in accordance with EN 60079-0 : 2012 for types of protection Ex nA according to EN 60079-15 : 2010, Ex ec according to EN 60079-7 : 2015 and Ex tb according to EN 60079-31 : 2014. Editorial changes in description of the Magnetic Flow Transmitter Model 8750W in order to be able to differentiate between the models.
- Issue 3 381942200 Assessment for Ex ec protection for Magnetic Flow Tube Model 8750W. Add Foundation Fieldbus / FISCO and Profibus options for Magnetic Flow Meter System Model 8750W. Miscellaneous drawing updates.

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Note: In this document [.] is used as decimal separator.

Description

Magnetic Flow Meter System Model 8750W

The Magnetic Flow Meter System Model 8750W comprises a Magnetic Flow Transmitter and Magnetic Flow Tube.

Magnetic Flow Transmitter Models 8750W...R and 8750W...T

The Magnetic Flow Transmitter Models 8750W...R and 8750W...T may be remote mounted from the Magnetic Flow Tubes or integral mounted on the Magnetic Flow Tubes respectively.

The Remote Mount Transmitter comprises a termination compartment in type of protection Ex nA, Ex ec or Ex tc for connecting power and output signal (optionally intrinsically safe Ex ic for Fieldbus and Profibus options only). The main compartment of the enclosure in types of protection Ex nA, Ex ec or Ex tc includes the electronics, optional Local Operator Interface (LOI) or display, intrinsically safe Ex ic supplies for the flow sensor and optionally intrinsically safe Ex ic output signal for Fieldbus and Profibus options only. For the connection to the Remote Mount Magnetic Flow Tube terminals for the field coils and electrode wiring (intrinsically safe Ex ic) are provided in the Remote Junction Box compartment in types of protection Ex nA, Ex ec or Ex nA, Ex ec or Ex tc.

The Integral Mount Transmitter is identical to the Remote Mount Transmitter, except that it is mounted directly on the tube adaptor of the Magnetic Flow Tube instead of to the Remote Junction Box.

For connection to the Magnetic Flow Tubes, the transmitter comprises a current limiting circuit.

Degree of protection, per EN-IEC 60079-0 and EN-IEC 60529:	IP66
Ambient temperature range:	$-29 \text{ °C} \le \text{T}_{\text{amb}} \le +60 \text{ °C}$

Magnetic Flow Transmitter Model 8750W...W

The Magnetic Flow Transmitter Model 8750W...W is remote mounted from the Magnetic Flow Tubes.

The main compartment of the enclosure in types of protection Ex ec or Ex nA or Ex tc includes the electronics, optional Local Operator Interface (LOI), optional intrinsically safe Ex ic supplies for the flow sensor. The optional keypad for the LOI is in type of protection Ex ic.

The Remote Mount Transmitter comprises a termination compartment in types of protection Ex ec or Ex nA or Ex tb for connecting power and output signal. For the connection to the Magnetic Flow Tubes, terminals are provided for the optional intrinsically safe Ex ic field coils and electrode wiring.

For connection to the Magnetic Flow Tubes, the transmitter comprises a current limiting circuit.

Degree of protection, per EN-IEC 60079-0 and EN-IEC 60529:	IP66
Degree of protection, per ISO 20653:	IP69K
Ambient temperature range:	-40 °C ≤ T _{amb} ≤ +60 °C



Description (continued)

Magnetic Flow Tube Model 8750W

The Magnetic Flow Tube of the Magnetic Flow Meter System Model 8750W is designed for use with Magnetic Flow Transmitter of that same system.

The Magnetic Flow Tube for the Meter System Model 8750W may be remote mounted from the Magnetic Flow Transmitter or integral mounted to the Magnetic Flow Transmitter. The Flow Tube is utilized with flanges for process connection.

The Remote Mount Flow Tube comprises a Remote Junction Box in types of protection Ex nA, Ex ec or Ex tc for the connection of the field coils and electrode wiring (intrinsically safe Ex ic) to the Remote Mount Magnetic Flow Transmitter. The field coils are mounted in a welded compartment in types of protection Ex nA, Ex ec or Ex tc. The electrodes (intrinsically safe Ex ic) are mounted in the same welded compartment as the field coils but protrude into the process medium.

When utilized as EPL Dc equipment, EPL Dc does not apply to the process.

The Integral Mount Flow Tube is identical to the Remote Mount Flow Tube, except that it is intended to be mounted directly to the Magnetic Transmitter instead of to the Remote Junction Box.

Degree of protection, per EN-IEC 60079-0 and EN-IEC 60529: Degree of protection, per ISO 20653: Ambient temperature range: IP66, IP68 (10m, 48h) IP69K -29 °C ≤ T_{amb} ≤ +60 °C



Nomenclature Magnetic Flow Meter System Model 8750W and electrical data

<u>8750\</u> I	<u>N R 1 A 2</u> II III IV V		<u>05 Z1 M4 AX V1 R50</u> /II VIII IX X XI IX		
Desig- nation	Explanation	Value	Explanation		
I	Model	8750W	Flow Meter System Model 8750W		
11	Transmitter Mount	R T W	Remote Mount Integral Mount Wall Mount		
ш	Transmitter Power Supply	1 2	AC (90 - 250 Vac, 50 / 60 Hz), not for Ex nA or Ex ec DC (12 - 42 Vdc)		
IV	Transmitter Outputs	A M F P 0	4 - 20 mA with digital HART Protocol & Scalable Pulse Output Modbus RS-485 Intrinsically Safe Fieldbus / FISCO and Intrinsically Safe Scalable Pulse Output Intrinsically Safe Profibus and Intrinsically Safe Scalable Pulse Output Spare Flow Tube, no Transmitter		
v	Conduit Entries	1 2 4 5	1/2-14 NPT female CM20, M20 female 1/2-14 NPT female, 8750WR / T only CM20, M20 female, 8750WR / T only		
VI	Electrode Type	A, B, E, F 0	Seal of electrodes comply with IEC 61010-1. Spare Transmitter, No Flow Tube		
VII	Line Size	005 to 480 000	½" NPS (15 mm) to 48" NPS (1200 mm) Spare Transmitter, no Flow Tube		
VIII	Safety Approvals	Z1 ATEX	Transmitter Models 8750WR and 8750WT:		
		Z7 / Z9 IECEx	Transmitter Models 8750WR and 8750WT: Ex nA [ic] IIC T4 Gc * Ex ec [ic] IIC T4 Gc * Ex tc IIIC T80 °CT130 °C Dc ** Transmitter Model 8750WW: Ex nA ic [ic] IIC T4 Gc * Ex ec ic [ic] IIC T4 Gc * Ex tc IIIC T80 °C Dc ** Flow Tube: Ex nA ic IIC T5T4 Gc Ex ec ic IIC T5T4 Gc Ex tc IIIC T80 °CT130 °C Dc		



Nomenclature Magnetic Flow Meter System Model 8750W and electrical data (continued)

Desig- nation	Explanation	Value	Explanation		
		ND ATEX	Transmitter Models 8750WR and 8750WT + Flow Tube:		
VIII Safety Approvals (cont)		NF IECEx	Transmitter Models 8750WR and 8750WT + Flow Tube: Ex tc IIIC T80 °CT130 °C Dc ** [Ex ic Gc] IIC *** Transmitter Model 8750WW: Ex tc IIIC T80 °C Dc ** [Ex ic Gc] IIC ***		
			NOTE:* Model 8750W Transmitter DC Power Supply only ** Model 8750W Transmitter AC and DC Power Supply *** Intrinsically Safe Output (see IV) option only		
IX	Transmitter Display	 M4 M5	Without LOI and keypad LOI (+ keypad for Transmitter Model 8750WW only) Display		
х	Transmitter Discrete Input/Output	AX	Two Discrete Channels (DI/DO 1, DO 2)		
XI	Specials Paint	Vx	Special Paint Systems ***		
			NOTE: *** Subject to special conditions for safe use.		
XII	Remote Cable	Rxx ****	Standard Temperature Component		
711			NOTE: **** Length = xx ^x 10 ft, max. 500 ft		

Temperature class and specified maximum surface temperature "T"

Magnetic Flow Transmitter Models 8750W...R and 8750W...T

Remote Mount	Temperature class:	Τ4
	Maximum surface temperature "T":	T80 °C
Integral Mount	See Temperature class and specifie	ed maximum surface temperature "T"
	of Flow Tube on which the transmitt	ter is mount.

Magnetic Flow Transmitter Model 8750W...W

Remote Mount	Temperature class:			
	Maximum surface temperature "T":	T80 °C		

Magnetic Flow Tube

Line Size [NPS]	Max. Process Temperature		Transmitter Mounting	T-class	Type of protect.	Transmitter Mounting	Maximum surface temperature "T"
	60 °C		Integral	T4		Integral	T80 °C
A 11	60 °C	Ex ec	Remote	T5	Ev to	Remote	T80 °C
All	90 °C	Ex nA	Integral/Remote	T4	Ex tc	Integral/Remote	T100 °C
	120 °C		Remote	T4		Remote	T130 °C



Electrical data

Magnetic Flow Transmitter Models 8750W...R and 8750W...T

Supply circuit (terminals 9 and 10):AC power supply90-250 Vac; 50/60 Hz; 40 VA; $U_m = 250 V$ Supply circuit (terminals 9 and 10):DC power supply12-42 Vdc; 15 W; $U_m = 250 V$ Dissipated power:AC or DC32 VA (w. Flow Tube connected)

Data circuit (terminals 5, 6, 7 and 8): Digital I/O signals $U_m = 250 \text{ V}$

Output Signals

Profibus, Foundation Fieldbus:

Output circuit (terminals 1 and 2):

In type of protection intrinsic safety Ex ic IIC, only for connection to a certified intrinsically safe circuit, with the following maximum values:

 $U_i = 30 \text{ V}; I_i = 380 \text{ mA}; P_i = 2.85 \text{ W}; C_i = 924 \text{ pF}; L_i = 0 \text{ }\mu\text{H}.$

Output circuit (terminals 3 and 4): Pulse In type of protection intrinsic safety Ex ic IIC, only for connection to a certified intrinsically safe circuit, with the following maximum values: $U_i = 28 \text{ V}$; $I_i = 100 \text{ mA}$; $P_i = 1.0 \text{ W}$; $C_i = 4.5 \text{ nF}$; $L_i = 0.0 \text{ \mu}\text{H}$.

FISCO:

Output circuit (terminals 1 and 2):

In type of protection intrinsic safety Ex ic IIC, only for connection to a certified intrinsically safe circuit or a circuit in accordance with FISCO, with the following maximum values: $U_i = 30 \text{ V}$; $I_i = 380 \text{ mA}$; $P_i = 5.32 \text{ W}$; $C_i = 924 \text{ pF}$; $L_i = 0 \text{ µH}$.

Output circuit (terminals 3 and 4): Pulse

In type of protection intrinsic safety Ex ic IIC, only for connection to a certified intrinsically safe circuit, with the following maximum values:

 $U_i = 28 \text{ V}; I_i = 100 \text{ mA}; P_i = 1.0 \text{ W}; C_i = 4.5 \text{ nF}; L_i = 0.0 \text{ }\mu\text{H}.$

RS-485 Modbus digital Output & Scalal	<u>ole Pulse Output:</u>			
Output circuit (terminals 1 and 2):	Modbus	U _m = 250 V		
Output circuit (terminals 3 and 4):	Pulse	U _m = 250 V		
<u>4 - 20 mA with digital HART Protocol &</u>	Scalable Pulse Outp	<u>out:</u>		
Output circuit (terminals 1 and 2):	4-20 mA	U _m = 250 V		
Output circuit (terminals 3 and 4):	Pulse	U _m = 250 V		
The second terms to Manual law of an Day Elem Tales and a strengther				
Transmitter Remote Mount Junction Box, Flow Tube connection				
Output circuit (terminals 1, 2 and 3):	Coil drive	500 mA; 40 Vmax.; 9 Wmax.		

For explosive gas or vapour atmospheres (Category 3 G or EPL Gc):Output circuit (terminals 17, 18, 19):Electrode circuitIn types of protection intrinsic safety Ex ic IIC, with the following maximum values: $U_o = 28.56$ V; $I_o = 5.77$ mA; $P_o = 165$ mW; $C_o = 61.7$ nF; $L_o = 1.0$ H.

<u>For combustible dust atmospheres (Category 3 D or EPL Dc):</u> Output circuit (terminals 17, 18, 19): Electrode circuit 5 V; 200 µA; 1 mW



Electrical data (continued)

Magnetic Flow Transmitter Model 8750W...W

Supply circuit (terminals L1 and N/L2):AC power supply90-250 Vac; 50/60 Hz; 40 VA; $U_m = 250 V$ Supply circuit (terminals DC+ and DC-):DC power supply12-42 Vdc; 15 W; $U_m = 250 V$ Dissipated power:AC or DC32 VA (w. Flow Tube connected)

Data circuit (terminals 9, 10, 11 and 12): Digital I/O signals $U_m = 250 \text{ V}$

Output Signals

Profibus, Foundation Fieldbus:

Output circuit (terminals 7 and 8):

In type of protection intrinsic safety Ex ic IIC, only for connection to a certified intrinsically safe circuit, with the following maximum values:

 $U_i = 30 \text{ V}; I_i = 380 \text{ mA}; P_i = 2.85 \text{ W}; C_i = 924 \text{ pF}; L_i = 0 \text{ }\mu\text{H}.$

Output circuit (terminals 5 and 6): Pulse In type of protection intrinsic safety Ex ic IIC, only for connection to a certified intrinsically safe circuit, with the following maximum values: $U_i = 28 \text{ V}$; $I_i = 100 \text{ mA}$; $P_i = 1.0 \text{ W}$; $C_i = 4.5 \text{ nF}$; $L_i = 0.0 \text{ µH}$.

FISCO:

Output circuit (terminals 7 and 8):

In type of protection intrinsic safety Ex ic IIC, only for connection to a certified intrinsically safe circuit or a circuit in accordance with FISCO, with the following maximum values: $U_i = 30 \text{ V}$; $I_i = 380 \text{ mA}$; $P_i = 5.32 \text{ W}$; $C_i = 924 \text{ pF}$; $L_i = 0 \text{ µH}$.

Output circuit (terminals 5 and 6): Pulse

In type of protection intrinsic safety Ex ic IIC, only for connection to a certified intrinsically safe circuit, with the following maximum values:

 $U_i = 28 \text{ V}; I_i = 100 \text{ mA}; P_i = 1.0 \text{ W}; C_i = 4.5 \text{ nF}; L_i = 0.0 \text{ }\mu\text{H}.$

<u>RS-485 Modbus digital Output & Scalab</u> Output circuit (terminals 7 and 8): Output circuit (terminals 5 and 6):	<u>ble Pulse Output:</u> Modbus Pulse	U _m = 250 V U _m = 250 V		
4 - 20 mA with digital HART Protocol &	Scalable Pulse Outp	out:		
Output circuit (terminals 7 and 8):	4-20 mA	U _m = 250 V		
Output circuit (terminals 5 and 6):	Pulse	U _m = 250 V		
Flow Tube connection				
Output circuit (terminals 1, 2 and 3):	Coil drive	500 mA; 40 Vmax.; 9 Wmax.		
For explosive gas or vapour atmospheres (Category 3 G or EPL Gc): Output circuit (terminals 17, 18, 19): Electrode circuit In types of protection intrinsic safety Ex ic IIC, with the following maximum values:				
$U_o = 28.56 \text{ V}; I_o = 5.77 \text{ mA}; P_o = 165 \text{ mW}; C_o = 61.7 \text{ nF}; L_o = 1.0 \text{ H}.$				
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<u>For combustible dust atmospheres (Category 3 D or EPL Dc):</u> Output circuit (terminals 17, 18, 19): Electrode circuit 5 V; 200 µA; 1 mW



Flow Tube

Flow Tube Remote Mount Junction Box, Transmitter connection Input circuit (terminals 1, 2 and 3): Coil drive 500 mA; 40 Vmax; 20 Wmax.

For explosive gas or vapour atmospheres (Category 3 G or EPL Gc): Input circuit (terminals 17, 18 and 19): Electrode circuit In type of protection intrinsic safety Ex ic IIC, with the following maximum values: $U_i = 30 \text{ V}$; $I_i = 50 \text{ mA}$; $P_i = 1.0 \text{ W}$; $C_i = 1.9 \text{ nF}$; $L_i = 630 \text{ \muH}$.

<u>For combustible dust atmospheres (Category 3 D or EPL Dc):</u> Input circuit (terminals 17, 18 and 19): Electrode circuit 5 V; 200 μA; 1 mW