



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEX DEK 14.0031X	Page 1 of 6	<u>Certificate history:</u>
Status:	Current	Issue No: 9	Issue 8 (2021-05-12)
Date of Issue:	2024-09-20		Issue 7 (2020-10-07)
Applicant:	Emerson - Rosemount, Micro Motion Inc. 12001 Technology Drive Eden Prairie, MN 55344 United States of America		Issue 6 (2019-03-22)
Equipment:	Magnetic Flow Transmitter Models 8732EM and 8712EM and Magnetic Flow Tube Models 8705-M and 8711-M/L		Issue 5 (2018-04-05)
Optional accessory:			Issue 4 (2017-09-12)
Type of Protection:	Ex db, Ex eb, Ex ia, Ex ib, Ex ic, Ex nA, Ex ec and Ex tb		Issue 3 (2017-03-14)
Marking:	For details see Annex 1 to NL/DEK/ExTR14.0033/09.		Issue 2 (2016-06-03)
			Issue 1 (2015-02-18)
			Issue 0 (2014-12-23)

R. Schuller

Certification Manager

Approved for issue on behalf of the IECEx
Certification Body:

Position:

Signature:
(for printed version)

Date:
(for printed version)

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6825 MJ Arnhem
Netherlands





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Manufacturer: **Emerson - Rosemount, Micro Motion Inc.**
12001 Technology Drive
Eden Prairie, MN 55344
United States of America

Manufacturing locations: **Emerson - Rosemount, Micro Motion Inc.**
12001 Technology Drive
Eden Prairie, MN 55344
United States of America

Flow Measurement Emerson SRL
Cluj Flow Technology Center
Str. Emerson, nr. 4
Parcul Industrial Tetarom 2
400641, Cluj-Napoca
Romania

Emerson Process Management Flow Technologies Co., Ltd.
111, Xing Min South Road
Jiangning District, Nanjing
Jiangsu Province, 211100
China

See following pages for more locations

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

- [IEC 60079-0:2017](#) Edition:7.0 Explosive atmospheres - Part 0: Equipment - General requirements
- [IEC 60079-1:2014](#) Edition:7.0 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
- [IEC 60079-11:2011](#) Edition:6.0 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
- [IEC 60079-15:2010](#) Edition:4 Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
- [IEC 60079-26:2021](#) Edition:4.0 Explosive atmospheres - Part 26: Equipment with Separation Elements or combined Levels of Protection
- [IEC 60079-31:2022](#) Edition:3.0 Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"
- [IEC 60079-7:2017](#) Edition:5.1 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[NL/DEK/ExTR14.0030/10](#)

[NL/DEK/ExTR14.0031/09](#)

[NL/DEK/ExTR14.0033/09](#)

Quality Assessment Report:

[NO/PRE/QAR15.0018/04](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Magnetic Flow Transmitter Model 8732EM

The Magnetic Flow Transmitter Model 8732EM may be remote mounted from or integrally mounted on the Magnetic Flow Tubes Models 8705-M or 8711-M/L.

The 8732EM Transmitter comprises a termination compartment in types of protection Ex eb, Ex db, Ex nA, Ex ec or Ex tb for connecting power and output signal (optionally intrinsically safe Ex ia). The main compartment of the enclosure in types of protection Ex db, Ex nA, Ex ec or Ex tb includes the electronics, optional Local Operator Interface (LOI) or display, intrinsically safe Ex ia supplies for the flow sensor and optionally intrinsically safe Ex ia output signal. The EtherNet option shall only be installed as Ex db or Ex tb.

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

The connection to the Remote Mount Magnetic Flow Tube terminals for the field coils and electrode wiring (optionally intrinsically safe Ex ia) are provided in the Remote Junction Box compartment in types of protection Ex eb, Ex nA, Ex ec or Ex tb.

The Integral Mount Transmitter is mounted directly on the tube adaptor of the Magnetic Flow Tube.

Degree of protection, per EN IEC 60079-0 and EN 60529:	IP66
Degree of protection, per EN 60529:	IP68 (10 m, 48 h)
Degree of protection, per ISO 20653:	IP69K

The degrees of protection noted above apply to both integral and remote mount configurations.

Ambient temperature range:	EtherNet/IP output	$-20\text{ °C} \leq T_{\text{amb}} \leq +60\text{ °C}$
	All other outputs	$-50\text{ °C} \leq T_{\text{amb}} \leq +60\text{ °C}$

For more information see Annex 1.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Magnetic Flow Transmitter Models 8732EM

- Models marked with ESD warning label, do not rub surface with a dry cloth or clean with solvents to avoid electrostatic charge build-up.
- Conduit entries must be installed to maintain the enclosure ingress rating of IP66, IP68 or IP69K.
- 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 up to a voltage of 250 Vac. This must be taken into account upon installation.
- The property class of the special fasteners which attach the Magnetic Flow Tube or Transmitter Remote Junction Box to the Magnetic Transmitter is A2-70 or A4-70 SST.
- For information on the dimensions of the flameproof joints the manufacturer shall be contacted.

Magnetic Flow Transmitter Models 8712EM

- Models marked with ESD warning label, do not rub surface with a dry cloth or clean with solvents to avoid electrostatic charge build-up.
- Conduit entries must be installed to maintain the enclosure ingress rating of IP66 or IP69K.
- When utilizing the keypad of Magnetic Flow Transmitter Model 8712EM, instructions for safe use regarding potential electrostatic charging hazard have to be followed.
- 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.

Magnetic Flow Tube Models 8705-M and 8711-M/L

- The Magnetic Flow Tubes wetted parts may contain Titanium and Zirconium. It is the responsibility of the end user to eliminate ignition hazards due to impact or friction for processes that require EPL Ga or Gb.
- The Magnetic Flow Tube contains non-conductive liners covering the grounded flow tube. For process requiring EPL Ga, precautions shall be taken to avoid the liner being charged by the flow of non-conductive media.
- In order to maintain the ingress protection level on the M3 and M4 electrode housing, the copper crush washer that seals the electrode access plug shall be replaced when the plug is reinstalled. The copper crush washer is one time use only.
- The property class of the special fasteners which attach the Magnetic Flow Tube or Transmitter Remote Junction Box to the Magnetic Transmitter is A2-70 or A4-70 SST.
- Models marked with ESD warning label, do not rub surface with a dry cloth or clean with solvents to avoid electrostatic charge build-up.
- For information on the dimensions of the flameproof joints the manufacturer shall be contacted.
- Conduit entries must be installed to maintain the enclosure ingress rating of IP66, IP68 or IP69K.



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Equipment (continued):

Magnetic Flow Transmitter Model 8712EM

The Magnetic Flow Transmitter Model 8712EM is remote mounted from the Magnetic Flow Tubes Models 8705-M or 8711-M/L.

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

The 8712EM Transmitter comprises a termination compartment in types of protection Ex ec, Ex nA or Ex tb for connecting power and output signal (with optional intrinsically safe Ex ia outputs), field coils and electrode wiring (optionally intrinsically safe Ex ia).

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

Degree of protection, per IEC 60079-0 and IEC 60529: IP66
Degree of protection, per ISO 20653: IP69K
Ambient temperature range: $-40\text{ °C} \leq T_{\text{amb}} \leq +60\text{ °C}$

Magnetic Flow Tube Models 8705-M and 8711-M/L

The Magnetic Flow Tube Models 8705-M and 8711-M/L are designed for use with Magnetic Flow Transmitter Model 8732EM or 8712EM.

The Magnetic Flow Tube Models 8705-M and 8711-M/L may be remote mounted from the Magnetic Flow Transmitter Model 8732EM or 8712EM or may be integrally mounted to the Magnetic Flow Transmitter Model 8732EM. The Magnetic Flow Tube Model 8705-M is utilized with flanges for process connection. Model 8711-M/L is utilized with wafer process connection.

The Remote Mount Flow Tube comprises a Remote Junction Box in types of protection Ex eb, Ex nA, Ex ec or Ex tb for the connection of the field coils and electrode wiring (optionally intrinsically safe Ex ia, Ex ib or Ex ic) to the Remote Mount Magnetic Flow Transmitter.

The field coils are mounted in a welded compartment in types of protection Ex eb, Ex nA, Ex ec or Ex tb. The electrodes (optionally intrinsically safe Ex ia, Ex ib or Ex ic) are mounted in the same welded compartment as the field coils but protrude into the process medium.

The electrodes utilized in Model 8705-M may optionally be mounted in electrode housings that allow EPL Ga rating.

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

Degree of protection, per IEC 60079-0 and IEC 60529: IP66, IP68 (10 m, 48 h)
Degree of protection, per ISO 20653: IP69K

The degrees of protection noted above apply to both integral and remote mount configurations.

Ambient temperature range:
Carbon Steel wrapper (housing): $-29\text{ °C} \leq T_{\text{amb}} \leq +60\text{ °C}$
Stainless Steel wrapper (housing): $-50\text{ °C} \leq T_{\text{amb}} \leq +60\text{ °C}$

For more information see Annex 1.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

1. Assessed per IEC 60079-26:2021 (Ed. 4.0) and IEC 60079-31:2022 (Ed. 3.0).
2. Addition of EtherNet/IP output for Magnetic Flow Transmitter Models 8732EM.
3. Update IP ratings for Magnetic Flow Transmitter Models 8732EM and Magnetic Flow Tube Models 8705-M and 8711-M/L.
4. Manufacturing locations updated.



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Additional manufacturing locations:

F-R Tecnologias De Flujo, S.A. de C.V.
Ave. Miguel de Cervantes 111
Complejo Industrial
Chihuahua, Chihuahua, 31136
Mexico

Annex:

[383527000-ExTR14.0033.09-Annex 1.pdf](#)

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

Nomenclature Magnetic Flow Transmitter Model 8732EM and electrical data

8732EM R 1 B 2 K1 ... M4 RT50 ... SH ... V1 ... F090...
 I II III IV V VI VII VIII IX X

Designation	Explanation	Value	Explanation																																												
I	Model	8732EM	Magnetic Flow Transmitter – Field Mount																																												
II	Transmitter Mount	R T	Remote Mount Integral Mount																																												
III	Transmitter Power Supply	1 2 3	AC (90 - 250 Vac, 50 / 60 Hz), not for Ex nA DC (12 - 42 Vdc) DC (12 - 30 Vdc)																																												
IV	Outputs	A B M F P E	Non-IS: 4 - 20 mA with digital HART Protocol & Scalable Pulse Output I.S.: 4 - 20 mA Intrinsically Safe Output with digital HART Protocol & Intrinsically Safe Scalable Pulse Output Non-I.S.: Modbus RS-485 I.S.: Intrinsically Safe Fieldbus / FISCO and Intrinsically Safe Scalable Pulse Output I.S.: Intrinsically Safe Profibus and Intrinsically Safe Scalable Pulse Output Non-I.S.: EtherNet/IP and Scalable Pulse Output (Safety Approval Options Kx (Ex db [ia Ga] / Ex tb), ND/NF (Ex tb))																																												
V	Conduit entries	1 or 4 2 or 5	½-14 NPT female CM20, M20 female																																												
VI	Safety Approval Option	K1 ATEX K7 IECEX K9 IECEX N1 ATEX	<table border="0"> <tr> <td>⊕ II 2 (1) G</td> <td>Ex db eb [ia Ga] IIC T6...T3 Gb</td> </tr> <tr> <td>⊕ II 2 D</td> <td>Ex tb IIIC T80 °C...T200 °C Db</td> </tr> <tr> <td>⊕ II 2 (1) G</td> <td>Ex db eb [ia Ga] IIC T6...T3 Gb</td> </tr> <tr> <td>⊕ II 2 (1) D</td> <td>Ex tb [ia Da] IIIC T80 °C...T200 °C Db **</td> </tr> <tr> <td>⊕ II 2 (1) G</td> <td>Ex db [ia Ga] IIC T6...T3 Gb</td> </tr> <tr> <td>⊕ II 2 D</td> <td>Ex tb IIIC T80 °C...T200 °C Db</td> </tr> <tr> <td>⊕ II 2 (1) G</td> <td>Ex db [ia Ga] IIC T6...T3 Gb</td> </tr> <tr> <td>⊕ II 2 (1) D</td> <td>Ex tb [ia Da] IIIC T80 °C...T200 °C Db **</td> </tr> </table> <table border="0"> <tr> <td>Ex db eb [ia Ga] IIC T6...T3 Gb</td> <td>Ex tb IIIC T80 °C...T200 °C Db</td> </tr> <tr> <td>Ex db eb [ia Ga] IIC T6...T3 Gb</td> <td>Ex tb [ia Da] IIIC T80 °C...T200 °C Db **</td> </tr> <tr> <td>Ex db [ia Ga] IIC T6...T3 Gb</td> <td>Ex tb IIIC T80 °C...T200 °C Db</td> </tr> <tr> <td>Ex db [ia Ga] IIC T6...T3 Gb</td> <td>Ex tb [ia Da] IIIC T80 °C...T200 °C Db **</td> </tr> </table> <table border="0"> <tr> <td>Ex db eb [ia Ga] IIC T6...T3 Gb</td> <td>Ex tb IIIC T80 °C...T200 °C Db</td> </tr> <tr> <td>Ex db eb [ia Ga] IIC T6...T3 Gb</td> <td>Ex tb [ia Da] IIIC T80 °C...T200 °C Db **</td> </tr> <tr> <td>Ex db [ia Ga] IIC T6...T3 Gb</td> <td>Ex tb IIIC T80 °C...T200 °C Db</td> </tr> <tr> <td>Ex db [ia Ga] IIC T6...T3 Gb</td> <td>Ex tb [ia Da] IIIC T80 °C...T200 °C Db **</td> </tr> </table> <table border="0"> <tr> <td>⊕ II 3 (1) G</td> <td>Ex nA [ia Ga] IIC T4...T3 Gc ***</td> </tr> <tr> <td>⊕ II 3 (1) G</td> <td>Ex ec [ia Ga] IIC T4...T3 Gc ***</td> </tr> <tr> <td>⊕ II 2 D</td> <td>Ex tb IIIC T80 °C...T200 °C Db</td> </tr> <tr> <td>⊕ II 3 (1) G</td> <td>Ex nA [ia Ga] IIC T4...T3 Gc ***</td> </tr> <tr> <td>⊕ II 3 (1) G</td> <td>Ex ec [ia Ga] IIC T4...T3 Gc ***</td> </tr> <tr> <td>⊕ II 2 (1) D</td> <td>Ex tb [ia Da] IIIC T80 °C...T200 °C Db **</td> </tr> </table>	⊕ II 2 (1) G	Ex db eb [ia Ga] IIC T6...T3 Gb	⊕ II 2 D	Ex tb IIIC T80 °C...T200 °C Db	⊕ II 2 (1) G	Ex db eb [ia Ga] IIC T6...T3 Gb	⊕ II 2 (1) D	Ex tb [ia Da] IIIC T80 °C...T200 °C Db **	⊕ II 2 (1) G	Ex db [ia Ga] IIC T6...T3 Gb	⊕ II 2 D	Ex tb IIIC T80 °C...T200 °C Db	⊕ II 2 (1) G	Ex db [ia Ga] IIC T6...T3 Gb	⊕ II 2 (1) D	Ex tb [ia Da] IIIC T80 °C...T200 °C Db **	Ex db eb [ia Ga] IIC T6...T3 Gb	Ex tb IIIC T80 °C...T200 °C Db	Ex db eb [ia Ga] IIC T6...T3 Gb	Ex tb [ia Da] IIIC T80 °C...T200 °C Db **	Ex db [ia Ga] IIC T6...T3 Gb	Ex tb IIIC T80 °C...T200 °C Db	Ex db [ia Ga] IIC T6...T3 Gb	Ex tb [ia Da] IIIC T80 °C...T200 °C Db **	Ex db eb [ia Ga] IIC T6...T3 Gb	Ex tb IIIC T80 °C...T200 °C Db	Ex db eb [ia Ga] IIC T6...T3 Gb	Ex tb [ia Da] IIIC T80 °C...T200 °C Db **	Ex db [ia Ga] IIC T6...T3 Gb	Ex tb IIIC T80 °C...T200 °C Db	Ex db [ia Ga] IIC T6...T3 Gb	Ex tb [ia Da] IIIC T80 °C...T200 °C Db **	⊕ II 3 (1) G	Ex nA [ia Ga] IIC T4...T3 Gc ***	⊕ II 3 (1) G	Ex ec [ia Ga] IIC T4...T3 Gc ***	⊕ II 2 D	Ex tb IIIC T80 °C...T200 °C Db	⊕ II 3 (1) G	Ex nA [ia Ga] IIC T4...T3 Gc ***	⊕ II 3 (1) G	Ex ec [ia Ga] IIC T4...T3 Gc ***	⊕ II 2 (1) D	Ex tb [ia Da] IIIC T80 °C...T200 °C Db **
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Nomenclature Magnetic Flow Transmitter Model 8732EM and electrical data (continued)

Designation	Explanation	Value	Explanation
VI	Safety Approval Option	N7 IECEX	Ex nA [ia Ga] IIC T4...T3 Gc *** Ex ec [ia Ga] IIC T4...T3 Gc *** Ex tb IIIC T80 °C...T200 °C Db
			Ex nA [ia Ga] IIC T4...T3 Gc *** Ex ec [ia Ga] IIC T4...T3 Gc *** Ex tb [ia Da] IIIC T80 °C...T200 °C Db **
		ND ATEX	⊕ II 2 D Ex tb IIIC T80 °C...T200 °C Db
			⊕ II 2 (1) D Ex tb [ia Da] IIIC T80 °C...T200 °C Db
NF IECEX	Ex tb IIIC T80 °C...T200 °C Db		
	Ex tb [ia Da] IIIC T80 °C...T200 °C Db		
		NOTE: * Reserved ** Intrinsically Safe Output (see IV) options B, F or P *** DC Transmitter Power Supply only (12 - 42 Vdc)	
VII	Display Option	M4 M5	LOI Display
VIII	Remote Cable Option	RTxx ****	Standard Temperature Component
		RHxx ****	Extended Temperature Component
		NOTE: ****	Length = xx × 10 ft, max. 500 ft
IX	Options	--	Aluminum, standard paint
		SH	Stainless Steel Electronics Housing
		Vx	Special Paint Systems *****
X	Specials	F090x	Special Paint Systems *****
		NOTE: *****	Subject to special conditions for safe use.

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

Nomenclature Magnetic Flow Transmitter Model 8712EM and electrical data

8712EM R 2 B 2 N7 ... M4 RT50 ... Vx ... F090...
 I II III IV V VI VII VIII IX X

Designation	Explanation	Value	Explanation
I	Model	8712EM	Magnetic Flow Transmitter – Field Mount
II	Transmitter Mount	R	Remote Mount
III	Transmitter Power Supply	1 2 3	AC (90 - 250 Vac, 50 / 60 Hz) DC (12 - 42 Vdc) DC (12 – 30 Vdc)
IV	Outputs	A B M F P	Non-I.S.: 4 - 20 mA with digital HART Protocol & Scalable Pulse Output I.S.: 4 - 20 mA Intrinsically Safe Output with digital HART Protocol & Intrinsically Safe Scalable Pulse Output Non-I.S.: Modbus RS-485 I.S.: Intrinsically Safe Fieldbus / FISCO and Intrinsically Safe Scalable Pulse Output I.S.: Intrinsically Safe Profibus and Intrinsically Safe Scalable Pulse Output
V	Conduit entries	1 2	½-14 NPT female CM20, M20 female
VI	Safety Approval Option	N1 ATEX N7 IECEX N9 IECEX ND ATEX NF IECEX	ⓧ II 3 (1) G Ex nA ic [ia Ga] IIC T4 Gc ** ⓧ II 3 (1) G Ex ec ic [ia Ga] IIC T4 Gc ** ⓧ II 2 D Ex tb IIIC T80 °C Db ⓧ II 3 (1) G Ex nA ic [ia Ga] IIC T4 Gc ** ⓧ II 3 (1) G Ex ec ic [ia Ga] IIC T4 Gc ** ⓧ II 2 (1) D Ex tb [ia Da] IIIC T80 °C Db * Ex nA ic [ia Ga] IIC T4 Gc ** Ex ec ic [ia Ga] IIC T4 Gc ** Ex tb IIIC T80 °C Db Ex nA ic [ia Ga] IIC T4 Gc ** Ex ec ic [ia Ga] IIC T4 Gc ** Ex tb [ia Da] IIIC T80 °C Db * ⓧ II 2 D Ex tb IIIC T80 °C Db ⓧ II 2 (1) D Ex tb [ia Da] IIIC T80 °C Db * Ex tb IIIC T80 °C Db Ex tb [ia Da] IIIC T80 °C Db *
		NOTE:*	Intrinsically Safe Output (see IV) options B, F, or P
		**	DC Transmitter Power Supply only (12 - 42 Vdc)
VII	Display Option	-- M4 M5	Without LOI and keypad LOI + keypad Display
VIII	Remote Cable Option	Rxx	Standard Temperature Component
		NOTE:	*** Length = xx × 10 ft, max. 500 ft
IX	Options	-- Vx	Aluminum, standard paint Special Paint Systems ****
X	Specials	F090x	Special Paint Systems ****
		NOTE:	**** Subject to special conditions for safe use.

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

Nomenclature Magnetic Flow Tube Model 8705-M and electrical data

8705 ... S A 005 ... M4 K1 ... G1 L1 B3 ... J1 SC ... V1 ... SH ... F090x
I II III IV V VI VII VIII IX X XI XII XIII XIV

Designation	Explanation	Value	Explanation
I	Model	8705	Magnetic Flow Tube
II	Electrode Material	Custom	See special conditions for safe use
III	Electrode Types	Custom	Seal of electrodes comply with IEC 61010-1.
IV	Line Size	005 to 360	½" NPS (15 mm) to 36" NPS (900 mm)
V	Electrode Housing *	M0 M1 M2 M3 M4	Category 2 G or 3 G, EPL Gb or Gc Category 2 G or 3 G, EPL Gb or Gc Category 1/2 G or 1/3 G, EPL Ga/Gb or Ga/Gc Category 1/2 G or 1/3 G, EPL Ga/Gb or Ga/Gc Category 1/2 G or 1/3 G, EPL Ga/Gb or Ga/Gc
VI	Safety Approvals	K1 ATEX	II 1/2 G Ex eb ia IIC T5...T3 Ga/Gb *
			II 2 D Ex tb IIIC T80 °C...T200 °C Db
			II 2 G Ex eb ib IIC T5...T3 Gb **
			II 2 D Ex tb IIIC T80 °C...T200 °C Db
		K7 IECEX	Ex eb ia IIC T5...T3 Ga/Gb *
			Ex tb IIIC T80 °C...T200 °C Db
		K9 IECEX	Ex eb ib IIC T5...T3 Gb **
			Ex tb IIIC T80 °C...T200 °C Db
		N1 ATEX	II 1/3 G Ex nA ia IIC T5...T3 Ga/Gc * line sizes 8"- 36"
			II 1/3 G Ex ec ia IIC T5...T3 Ga/Gc * line sizes 8"- 36"
II 2 D Ex tb IIIC T80 °C...T200 °C Db			
II 3 G Ex nA ic IIC T5...T3 Gc * line sizes 0.5" - 6" / **			
II 3 G Ex ec ic IIC T5...T3 Gc * line sizes 0.5" - 6" / **			
II 2 D Ex tb IIIC T80 °C...T200 °C Db			
N7 IECEX	Ex nA ia IIC T5...T3 Ga/Gc * line sizes 8"- 36"		
	Ex ec ia IIC T5...T3 Ga/Gc * line sizes 8"- 36"		
	Ex tb IIIC T 80 °C...T200 °C Db		
	Ex nA ic IIC T5...T3 Gc * line sizes 0.5" - 6" / **		
ND ATEX	II 2 D Ex tb IIIC T80 °C...T200 °C Db		
	NF IECEX Ex tb IIIC T80 °C...T200 °C Db		
NOTE:*		Electrode Housing M2, M3 and M4 only	
**		Electrode Housing M0 and M1 only	
VII	Grounding rings material	Custom	See special conditions for safe use
VIII	Lining protector material	Custom	See special conditions for safe use
IX	Mounting Configuration	B3	Integral Mount with Model 8732EM
X	Optional conduit entries	J1	CM20, M20 female
XI	Remote Junction Box (RJB) material	-- SJ	Aluminum, standard paint 316 Stainless steel
XII	Special paint options	Vx	Special Paint Systems ***
XIII	Wrapper (housing) material	-- SH	Carbon Steel (w. Aluminum RJB), standard paint 316 Stainless Steel (w. SST RJB or SST Integral Mount Transmitter)
XIV	Specials	F090x	Special Paint Systems ***
		NOTE: ***	Subject to special conditions for safe use.

**Annex 1 to: Report No. NL/DEK/ExTR14.0033/09
IECEX DEK 14.0031X**



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

Nomenclature Magnetic Flow Tube Model 8711-M/L and electrical data

8711 ... S A 15F L ... K1 ... G1 ... J1 SC ... V1 ... F090x
I II III IV V VI VII VIII IX X XI

Designation	Explanation	Value	Explanation
I	Model	8711	Magnetic Flow Tube
II	Electrode Material	Custom	See special conditions for safe use
III	Electrode Types	Custom	Seal of electrodes comply with IEC 61010-1.
IV	Line Size	015 to 080	1½" NPS (40 mm) to 8" NPS (900 mm)
V	Mounting Configuration	L M	Remote Mount from Transmitter Integral Mount with Transmitter
VI	Safety Approvals	K1 ATEX	⊕ II 2 G Ex eb ib IIC T5...T3 Gb ⊕ II 2 D Ex tb IIIC T80 °C...T200 °C Db
		K7 IECEX	Ex eb ib IIC T5...T3 Gb Ex tb IIIC T80 °C...T200 °C Db
		K9 IECEX	Ex eb ib IIC T5...T3 Gb Ex tb IIIC T80 °C...T200 °C Db
		N1 ATEX	⊕ II 3 G Ex nA ic IIC T5...T3 Gc ⊕ II 3 G Ex ec ic IIC T5...T3 Gc ⊕ II 2 D Ex tb IIIC T80 °C...T200 °C Db
		N7 IECEX	Ex nA ic IIC T5...T3 Gc Ex ec ic IIC T5...T3 Gc Ex tb IIIC T80 °C...T200 °C Db
		ND ATEX	⊕ II 2 D Ex tb IIIC T80 °C...T200 °C Db
		NF IECEX	Ex tb IIIC T80 °C...T200 °C Db
VII	Grounding rings material	Custom	See special conditions for safe use
VIII	Optional conduit entries	J1	CM20, M20 female
IX	Remote Junction Box material	-- SJ	Aluminum, standard paint * 316 Stainless steel *
		NOTE: *	Flow Tube with Carbon Steel wrapper (housing)
X	Special paint options	Vx	Special Paint Systems **
XI	Specials	F090x	Special Paint Systems **
		NOTE: **	Subject to special conditions for safe use.

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

Temperature class and specified maximum surface temperature “T” (continued)

Magnetic Flow Tube Model 8705-M

5"	60 °C	Ex eb Ex ec Ex nA	Integral/Remote	T5	Ex tb	Integral/Remote	T80 °C
	90 °C		Remote	T4		Remote	T110 °C
	120 °C		Remote	T4		Remote	T140 °C
	155 °C		Remote	T3		Remote	T175 °C
	175 °C	Ex ec Ex nA	Remote	T3		Remote	T195 °C
6"	60 °C	Ex eb Ex ec Ex nA	Integral/Remote	T5	Ex tb	Integral/Remote	T80 °C
	90 °C		Remote	T4		Remote	T110 °C
	120 °C		Remote	T4		Remote	T140 °C
	155 °C		Remote	T3		Remote	T175 °C
	180 °C	Ex ec Ex nA	Remote	T3		Remote	T200 °C
8-36"	60 °C	Ex eb Ex ec Ex nA	Integral/Remote	T5	Ex tb	Integral/Remote	T80 °C
	90 °C		Remote	T4		Remote	T110 °C
	120 °C		Remote	T4		Remote	T140 °C
	155 °C		Remote	T3		Remote	T175 °C
	180 °C	Ex ec Ex nA	Remote *	T3		Remote *	T200 °C

NOTE: * Line Size 8" and greater shall be mounted with Remote Junction Box Down or to the Side.

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

Temperature class and specified maximum surface temperature “T” (continued)

Magnetic Flow Tube Model 8711-M/L

Line Size [NPS]	Max. Process Temperature	Type of protect.	Transmitter Mounting	T-class	Type of protect.	Transmitter Mounting	Maximum surface temperature “T”
1½”	60 °C	Ex eb Ex ec Ex nA	Integral/Remote	T5	Ex tb	Integral/Remote	T80 °C
	80 °C		Integral/Remote	T4		Remote	T100 °C
	100 °C		Remote	T4		Remote	T120 °C
	140 °C *		Remote	T3		Remote	T160 °C
	160 °C *	Ex ec Ex nA	Remote	T3		Remote	T180 °C
2”	60 °C	Ex eb Ex ec Ex nA	Integral/Remote	T5	Ex tb	Integral/Remote	T80 °C
	80 °C		Integral/Remote	T4		Remote	T100 °C
	100 °C		Remote	T4		Remote	T120 °C
	140 °C *		Remote	T3		Remote	T160 °C
	160 °C *	Ex ec Ex nA	Remote	T3		Remote	T180 °C
3”	60 °C	Ex eb Ex ec Ex nA	Integral/Remote	T5	Ex tb	Integral/Remote	T80 °C
	80 °C		Remote	T4		Remote	T100 °C
	110 °C		Remote	T4		Remote	T130 °C
	150 °C *		Remote	T3		Remote	T170 °C
	170 °C *	Ex ec Ex nA	Remote	T3		Remote	T190 °C
4”	60 °C	Ex eb Ex ec Ex nA	Integral/Remote	T5	Ex tb	Integral/Remote	T80 °C
	80 °C		Remote	T4		Remote	T100 °C
	115 °C		Remote	T4		Remote	T135 °C
	155 °C *		Remote	T3		Remote	T175 °C
	175 °C *	Ex ec Ex nA	Remote	T3		Remote	T195 °C
6”	60 °C	Ex eb Ex ec Ex nA	Integral/Remote	T5	Ex tb	Integral/Remote	T80 °C
	80 °C		Remote	T4		Remote	T100 °C
	115 °C		Remote	T4		Remote	T135 °C
	155 °C *		Remote	T3		Remote	T175 °C
	180 °C *	Ex ec Ex nA	Remote	T3		Remote	T200 °C
8”	60 °C	Ex eb Ex ec Ex nA	Integral/Remote	T5	Ex tb	Integral/Remote	T80 °C
	80 °C		Remote	T4		Remote	T100 °C
	115 °C		Remote	T4		Remote	T135 °C
	160 °C *		Remote	T3		Remote	T180 °C
	180 °C *	Ex ec Ex nA	Remote	T3		Remote	T200 °C

NOTE: * Flow tubes on lines with these process temperatures shall be mounted with Remote Junction Box Down.

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

Electrical data

Magnetic Transmitter Model 8732EM

Supply circuit (terminals 9 and 10): AC power supply 90-250 Vac; 50/60 Hz; 40 VA; $U_m = 250$ V
Supply circuit (terminals 9 and 10): DC power supply 12-42 Vdc; 15 W; $U_m = 250$ V
Supply circuit (terminals 9 and 10): DC power supply 12-30 Vdc; 3 W; 0.25 A; $U_m = 250$ V
Dissipated power: AC or DC 32 VA (w. Flow Tube connected)

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

Output Signals

Profibus, Foundation Fieldbus:

Output circuit (terminals 1 and 2):

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

$U_i = 30$ V; $I_i = 380$ mA; $P_i = 2.85$ W; $C_i = 924$ pF; $L_i = 0$ μ H.

Output circuit (terminals 3 and 4): Pulse

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

$U_i = 28$ V; $I_i = 100$ mA; $P_i = 1.0$ W; $C_i = 4.5$ nF; $L_i = 0.0$ μ H.

FISCO:

Output circuit (terminals 1 and 2):

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

$U_i = 30$ V; $I_i = 380$ mA; $P_i = 5.32$ W; $C_i = 924$ pF; $L_i = 0$ μ H.

Output circuit (terminals 3 and 4): Pulse

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

$U_i = 28$ V; $I_i = 100$ mA; $P_i = 1.0$ W; $C_i = 4.5$ nF; $L_i = 0.0$ μ H.

RS-485 Modbus digital Output & Scalable Pulse Output:

Output circuit (terminals 1 and 2): Modbus $U_m = 250$ V

Output circuit (terminals 3 and 4): Pulse $U_m = 250$ V

4 - 20 mA with digital HART Protocol & Scalable Pulse Output:

Output circuit (terminals 1 and 2): 4-20 mA $U_m = 250$ V

Output circuit (terminals 3 and 4): Pulse $U_m = 250$ V

4 - 20 mA Intrinsically Safe Output with digital HART Protocol & Intrinsically Safe Scalable Pulse Output:

Output circuit (terminals 1 and 2): 4-20 mA

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

$U_i = 30$ V; $I_i = 300$ mA; $P_i = 1.0$ W; $C_i = 924$ pF; $L_i = 0.0$ μ H.

Output circuit (terminals 3 and 4): Pulse

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

$U_i = 28$ V; $I_i = 100$ mA; $P_i = 1.0$ W; $C_i = 4.5$ nF; $L_i = 0.0$ μ H.

EtherNet/IP Output & Scalable Pulse Output:

Output circuit (RJ45 Receptacle): Ethernet/IP $U_m = 250$ V

Output circuit (terminals 3 and 4): Pulse $U_m = 250$ V

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

Electrical data (continued)

Magnetic Transmitter Model 8712EM

Supply circuit (terminals L1 and N/L2):	AC power supply	90-250 Vac; 50/60 Hz; 40 VA; $U_m = 250$ V
Supply circuit (terminals DC+ and DC-):	DC power supply	12-42 Vdc; 15 W; $U_m = 250$ V
Supply circuit (terminals DC+ and DC-):	DC power supply	12-30 Vdc; 3W; 0.25 A, $U_m = 250$ V
Dissipated power:	AC or DC	32 VA (w. Flow Tube connected)

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

Output signals

Profibus, Foundation Fieldbus:

Output circuit (terminals 7 and 8):

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

$U_i = 30$ V; $I_i = 380$ mA; $P_i = 2.85$ W; $C_i = 924$ pF; $L_i = 0$ μ H.

Output circuit (terminals 5 and 6): Pulse

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

$U_i = 28$ V; $I_i = 100$ mA; $P_i = 1.0$ W; $C_i = 4.5$ nF; $L_i = 0.0$ μ H.

FISCO:

Output circuit (terminals 7 and 8):

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

$U_i = 30$ V; $I_i = 380$ mA; $P_i = 5.32$ W; $C_i = 924$ pF; $L_i = 0$ μ H.

Output circuit (terminals 5 and 6): Pulse

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

$U_i = 28$ V; $I_i = 100$ mA; $P_i = 1.0$ W; $C_i = 4.5$ nF; $L_i = 0.0$ μ H.

RS-485 Modbus digital Output & Scalable Pulse Output:

Output circuit (terminals 7 and 8): Modbus $U_m = 250$ V

Output circuit (terminals 5 and 6): Pulse $U_m = 250$ V

4 - 20 mA with digital HART Protocol & Scalable Pulse Output:

Output circuit (terminals 7 and 8): 4-20 mA $U_m = 250$ V

Output circuit (terminals 5 and 6): Pulse $U_m = 250$ V

4 - 20 mA Intrinsically Safe Output with digital HART Protocol & Intrinsically Safe Scalable Pulse Output:

Output circuit (terminals 7 and 8): 4-20 mA

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

$U_i = 30$ V; $I_i = 300$ mA; $P_i = 1.0$ W; $C_i = 924$ pF; $L_i = 0.0$ μ H.

Output circuit (terminals 5 and 6): Pulse

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

$U_i = 28$ V; $I_i = 100$ mA; $P_i = 1.0$ W; $C_i = 4.5$ nF; $L_i = 0.0$ μ H.

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

Electrical data (continued)

Flow Tube connection

Output circuit (terminals 1, 2 and 3): Coil drive 500 mA; 40 Vmax.; 9 Wmax.

For explosive gas or vapor atmospheres (Categories 1 G, 2 G and 3 G or EPL Ga, Gb, and Gc):

Output circuit (terminals 17, 18, 19): Electrode circuit

In types of protection intrinsic safety Ex ia IIC, Ex ib IIC or Ex ic IIC, with the following maximum values:
 $U_o = 28.56 \text{ V}$; $I_o = 5.77 \text{ mA}$; $P_o = 165 \text{ mW}$; $C_o = 61.7 \text{ nF}$; $L_o = 1.0 \text{ H}$.

For combustible dust atmospheres (Category 2 D or EPL Db):

Output circuit (terminals 17, 18, 19): Electrode circuit 5 V; 200 μA ; 1 mW

Flow Tube Models 8705-M

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 vapor atmospheres (Categories 1 G, 2 G, 3 G or EPL Ga, Gb, Gc):

Input circuit (terminals 17, 18 and 19): Electrode circuit

In type of protection intrinsic safety Ex ia IIC, Ex ib IIC or Ex ic IIC, with the following maximum values:
 $U_i = 30 \text{ V}$; $I_i = 50 \text{ mA}$; $P_i = 1.0 \text{ W}$; $C_i = 1.9 \text{ nF}$; $L_i = 630 \mu\text{H}$.

For combustible dust atmospheres (Category 2 D or EPL Db):

Input circuit (terminals 17, 18 and 19): Electrode circuit 5 V; 200 μA ; 1 mW

Flow Tube Models 8711-M/L

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 vapor atmospheres (Categories 2 G, 3 G or EPL Gb, Gc):

Input circuit (terminals 17, 18 and 19): Electrode circuit

In type of protection intrinsic safety Ex ib IIC or Ex ic IIC, with the following maximum values:
 $U_i = 30 \text{ V}$; $I_i = 50 \text{ mA}$; $P_i = 1.0 \text{ W}$; $C_i = 1.9 \text{ nF}$; $L_i = 630 \mu\text{H}$.

For combustible dust atmospheres (Category 2 D or EPL Db):

Input circuit (terminals 17, 18 and 19): Electrode circuit 5 V; 200 μA ; 1 mW