



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.:	IECEX FME 08.0004X	Issue No: 14	<b>Certificate history:</b>
Status:	<b>Current</b>	Page 1 of 6	Issue No. 14 (2016-02-29)
Date of Issue:	<b>2016-02-29</b>		Issue No. 13 (2015-06-15)
Applicant:	<b>ABB Automation Products GmbH</b> Dransfelder Str. 2 D-37079-Göttingen <b>Germany</b>		Issue No. 12 (2014-03-07)
Electrical Apparatus:	<b>HygienicMaster and ProcessMaster Electromagnetic Flowmeters</b>		Issue No. 11 (2014-01-16)
<i>Optional accessory:</i>			Issue No. 10 (2013-07-09)
Type of Protection:	<b>Type of Protection "n"; Protection by enclosures "t"; Flameproof "d"; Increased safety "e"; Intrinsic safety "i" &amp; encapsulated "m"</b>		Issue No. 9 (2012-12-03)
Marking:	See Attachment		Issue No. 8 (2012-01-09)
			Issue No. 7 (2011-07-13)
			Issue No. 6 (2010-12-15)
			Issue No. 5 (2010-09-15)
			Issue No. 4 (2010-08-09)
			Issue No. 3 (2009-11-12)
			Issue No. 2 (2009-09-07)
			Issue No. 1 (2009-07-24)
			Issue No. 0 (2009-01-14)

Approved for issue on behalf of the IECEx  
Certification Body:

Mick Gower

Position:

Certification Manager

Signature:  
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

**FM Approvals Ltd**  
1 Windsor Dials  
SL4 1RS Windsor  
United Kingdom





# IECEX Certificate of Conformity

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Manufacturer: **ABB Automation Products GmbH**  
Dransfelder Str. 2  
D-37079-Göttingen  
Germany

Additional Manufacturing  
location(s):

**ABB Engineering (Shanghai) Ltd**  
No.4528, KangXin Road  
KangQiao Town,  
Pudong New District,  
Shanghai,  
201319,  
China

**ABB Limited**  
Salterbeck Trading Estate,  
Workington,  
Cumbria  
CA14 5DS  
United Kingdom

**ABB Limited**  
Oldends Lane  
Stonehouse,  
GL10 3TA,  
Gloucestershire,  
United Kingdom

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 electrical apparatus 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:

<b>IEC 60079-0 : 2011</b> Edition:6.0	Explosive atmospheres - Part 0: General requirements
<b>IEC 60079-1 : 2007-04</b> Edition:6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
<b>IEC 60079-11 : 2011</b> Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
<b>IEC 60079-15 : 2010</b> Edition:4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
<b>IEC 60079-18 : 2009</b> Edition:3	Explosive atmospheres Part 18: Equipment protection by encapsulation "m"
<b>IEC 60079-31 : 2008</b> Edition:1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure 't'
<b>IEC 60079-7 : 2006-07</b> Edition:4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical 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 Report:

GB/FME/ExTR08.0006/00  
GB/FME/ExTR08.0006/03  
GB/FME/ExTR08.0006/06

GB/FME/ExTR08.0006/01  
GB/FME/ExTR08.0006/04  
GB/FME/ExTR08.0006/07

GB/FME/ExTR08.0006/02  
GB/FME/ExTR08.0006/05  
GB/FME/ExTR08.0006/08



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GB/FME/ExTR08.0006/09

GB/FME/ExTR08.0006/10

GB/FME/ExTR08.0006/11

GB/FME/ExTR08.0006/12

GB/FME/ExTR08.0006/13

GB/FME/ExTR11.0005/03

Quality Assessment Report:

DE/TUN/QAR06.0010/05

GB/BAS/QAR08.0001/04

GB/BAS/QAR11.0006/03

GB/FME/QAR10.0007/05



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

See Attachment

### CONDITIONS OF CERTIFICATION: YES as shown below:

1. Sensors having exposed electrodes in the process shall be used in a non-flammable liquid process only.
2. The painted surface of the ProcessMaster may store electrostatic charge and become a source of ignition in applications with a low relative humidity <~30% relative humidity where the painted surface is relatively free of surface contamination such as dirt, dust, or oil. Guidance on protection against the risk of ignition due to electrostatic discharge can be found in EN TR50404 and IEC TR60079-32 (in preparation). Cleaning of the painted surface should only be done with a damp cloth.



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## **DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):**

1. Equipment protection level (EPL's) added to markings.
2. Ambient temperature updated to -40C to +60C for all housings.
3. Signal cable length option (option l) changed to read "any two characters".
4. Accessory (option "s") removed from the description of the FEP315/FEP515.
5. Accessory (option "t") for the laid length changed to read "any two characters".
6. Connection box (option "v") has been added with option "UTA or UTS".
7. Additional manufacturing location address changed to the following:

ABB Engineering (Shanghai) Ltd.

No. 4528, KangXin Road

Pudong new District

Shanghai 201319

P.R. China.

8. Updated QARs.



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**Additional information:**

See attached file for device listing and rating updates.

**Annex:**

[Attachment IECEx FME08\\_0004\\_14.pdf](#)

**Electrical Apparatus**

FEP3\*\* ProcessMaster Electromagnetic Flowmeter  
 FEP5\*\* ProcessMaster Electromagnetic Flowmeter  
 FEH3\*\* HygienicMaster Electromagnetic Flowmeter  
 FEH5\*\* HygienicMaster Electromagnetic Flowmeter  
 FET3\*\* Transmitter  
 FET5\*\* Transmitter

***FEP315abcdefghijk0mnopqr.AY.t.u.w ProcessMaster Electromagnetic Flowmeter – Integral version***

***FEP515abcdefghijk0mnopqr.AY.t.u.w ProcessMaster Electromagnetic Flowmeter – Integral version***

- a = 3 digit number representing the bore diameter; 003, 004, 006, 008, 010, 015, 020, 025, 032, 040, 050, 065, 080, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 760, 800, 900, 001, 051, 101, 201, 401, 505, 601, 801, or 002.
- b = liner material: A, E, F, H, M, P, S, U, D, T or W
- c = Electrode design; 1, 2, 5, or 6.
- d = Measuring electrode material; A, C, D, E, F, G, H, J, K, N, R, S, T, or W
- e = Grounding accessories; 1, 2, 3, or 4.
- f = Process connection type; Up to PN100/CI600 or equivalent pressure rating any two characters or A7, A8, A9, H7, H8 or H9
- g = Process connection material; any single character
- h = Usage certifications; any single character
- i = Calibration type; any single character
- j = Temperature range of sensor/Ambient temperature range; 1, 2, 3, or 4
- k = Name plate language and type; any single character
- m = Explosion Protection Certification; L or M
- n = Protection Class: 1 or 4
- o = Cable Conduits ; A, or B
- p = Power supply; 1, 2, 3, or 4
- q = Input and output signal type; A, B, C, D, E, or F
- r = Configuration type/Diagnostics; 1, 2, 3, or 4.
- t = Laid length; any two characters.
- u = Transmitter housing design; H1, H2 or H4
- w = Sensor Housing Material; SMA or SMS

***FEP325abcdefghijklmno0Y.r.s.t.v.w ProcessMaster Electromagnetic Flowmeter – Remote version***

***FEP525abcdefghijklmno0Y.r.s.t.v.w ProcessMaster Electromagnetic Flowmeter – Remote version***

- a = 3 digit number representing the bore diameter; 003, 004, 006, 008, 010, 015, 020, 025, 032, 040, 050, 065, 080, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 760, 800, 900, 001, 051, 101, 201, 401, 505, 601, 801, or 002.
- b = liner material: A, E, F, H, M, P, S, U, D, T or W
- c = Electrode design; 1, 2, 5, or 6.
- d = Measuring electrode material; A, C, D, E, F, G, H, J, K, N, R, S, T, or W
- e = Grounding accessories; 1, 2, 3, or 4.
- f = Process connection type; Up to PN100/CI600 or equivalent pressure rating any two characters or A7, A8, A9, H7, H8 or H9
- g = Process connection material; any single character

h = Usage certifications; any single character  
 i = Calibration type; any single character  
 j = Temperature range of sensor/Ambient temperature range; 1, 2, 3, or 4  
 k = Name plate language and type; any single character  
 l = Signal Cable length and type: any single character.  
 m = Explosion Protection Certification; L or M  
 n = Protection Class: 1, 2, 3 or 4  
 o = Cable Conduits; A, or B  
 r = Configuration type/Diagnostics; 0, 1, 2, 3, or 4.  
 s = Accessories: AY or AP  
 t = Laid length; any two characters.  
 u = Transmitter housing design; H1, H2 or H4  
 v = Connection Box: UTA or UTS.  
 w = Sensor Housing Material; SMA or SMS.

***FEH315abcdefghijklmnpqrAY.t.u.w HygenicMaster Electromagnetic Flowmeter – Integral version***

***FEH515abcdefghijklmnpqrAY.t.u.w HygenicMaster Electromagnetic Flowmeter – Integral version***

a = 3 digit number representing the bore diameter; 003, 004, 006, 008, 010, 015, 020, 025, 032, 040, 050, 065, 080, or 100  
 b = liner material: A, P, or T  
 c = Electrode design; 1, 2, 5, or 6.  
 d = Measuring electrode material; A, C, D, E, F, G, H, J, K, N, R, S, T, or W  
 e = Grounding accessories; 1, or 2  
 f = Process connection type; Up to PN100/CI600 or equivalent pressure rating any two characters or A7, A8, A9, H7, H8 or H9  
 g = Process connection material; any single character  
 h = Usage certifications; any single character  
 i = Calibration type; An any single character  
 j = Temperature range of sensor/Ambient temperature range; 1, 2, 3, or 4  
 k = Name plate language and type; any single character  
 m = Explosion Protection Certification; L, or M  
 n = Protection Class: 1, or 4  
 o = Cable Conduits; A, or B  
 p = Power supply; 1, 2, 3, or 4  
 q = Input and output signal type; A, B, C, D, E, or F  
 r = Configuration type/Diagnostics; 1, 2, 3, or 4.  
 t = Laid length; any two characters.  
 u = Transmitter housing design; H1, H2 or H4  
 w = Sensor Housing Material; SMA or SMS

***FEH325abcdefghijklmno1Yrst HygenicMaster Electromagnetic Flowmeter – Remote version***

***FEH525abcdefghijklmno1Yrst HygenicMaster Electromagnetic Flowmeter – Remote version***

a = 3 digit number representing the bore diameter; 003, 004, 006, 008, 010, 015, 020, 025, 032, 040, 050, 065, 080, or 100.  
 b = liner material: A, P, or T  
 c = Electrode design; 1, 2, 5, or 6.  
 d = Measuring electrode material; A, C, D, E, F, G, H, J, K, N, R, S, T, or W  
 e = Grounding accessories; 1, or 2

- f = Process connection type; Up to PN100/CI600 or equivalent pressure rating any two characters or A7, A8, A9, H7, H8 or H9  
g = Process connection material; any single character  
h = Usage certifications; any single character  
i = Calibration type; any single character  
j = Temperature range of sensor/Ambient temperature range; 1, 2, 3, or 4  
k = Name plate language and type; any single character  
l = Signal Cable length and type: any single character.  
n = Protection Class: 1, 2, 3, or 4  
o = Cable Conduits; A, or B  
r = Configuration type/Diagnostics; 0, 1, 2, 3, or 4.  
s = Accessories: AY or AP  
t = Laid length; any two characters.

**FET325jk0Mnopqr Transmitter****FET525jk0Mnopqr Transmitter**

- j = Temperature range of sensor/Ambient temperature range; 1, 2, 3, or 4  
k = Name plate language and type; any single character  
n = Protection Class: 1 or 4  
o = Cable Conduits; A, or B  
p = Power supply; 1, 2, 3, or 4  
q = Input and output signal type; A, B, C, D, E, or F  
r = Configuration type/Diagnostics; 0, 1, 2, 3, or 4.  
u = Transmitter housing design; H1, H2 or H4

**FET325jklNopqr Transmitter****FET525jklNopqr Transmitter**

- j = Temperature range of sensor/Ambient temperature range; 1, 2, 3, or 4  
k = Name plate language and type; any single character  
l = Signal Cable length and type: any single character.  
n = Protection Class: 1, or 4  
o = Cable Conduits; A, or B  
p = Power supply; 1, 2, 3, or 4  
q = Input and output signal type; A, B, C, D, E, or F  
r = Configuration type/Diagnostics; 0, 1, 2, 3, or 4.  
u = Transmitter housing design; H2 or H4

**Marking**

- |                                               |                                     |
|-----------------------------------------------|-------------------------------------|
| Ex nA nC mc IIC Gc T*                         | - FEP315 M /FEH315 M - Integral     |
| Ex tb IIIC T70°C...Tmedium Db                 | - FEP315 M /FEH315 M – Integral     |
| Ex nA nC ic mc IIC Gc T*- FISCO field device  | - FEP315 M /FEH315 M –              |
| Integral Ex nA nC mc IIC Gc T*                | - FEP515 M /FEH515 M - Integral     |
| Ex tb IIIC T70°C...Tmedium Db                 | - FEP515 M /FEH515 M – Integral     |
| Ex nA nC ic mc IIC Gc T*- FISCO field device- | FEP515 M /FEH315 M –                |
| Integral                                      |                                     |
| Ex d e ia ma IIC Gb T*                        | - FEH315 L – Integral – DN3 – DN100 |
| Ex ia tb IIIC Db T*                           | - FEH315 L – Integral – DN3 – DN100 |
| Ex ia tb IIIC Db T* - FISCO field device      | - FEH315 L – Integral – DN3 – DN100 |
| Ex d e ia ma IIC Gb T*                        | - FEH515 L – Integral – DN3 – DN100 |
| Ex ia tb IIIC Db T*                           | - FEH515 L – Integral – DN3 – DN100 |

Ex ia tb IIIC T* Db	- FISCO field device	- FEH515 L – Integral – DN3 – DN100
Ex d e ia ma IIC T* Gb		- FEP315 L – Integral – DN3-300
Ex d e ia ma IIC T* Gb-	FISCO field device	- FEP315 L – Integral – DN3-300
Ex ia tb IIIC T*Db		- FEP315 L – Integral – DN3-300
Ex ia tb IIIC T* Db	- FISCO field device	- FEP315 L – Integral – DN3-300
Ex d e ia ma IIC T* Gb		- FEP515 L – Integral – DN3-300
Ex d e ia ma IIC T* Gb-	FISCO field device	- FEP515 L – Integral – DN3-300
Ex ia tb IIIC T* Db		- FEP515 L – Integral – DN3-300
Ex tb ia IIIC T* Db	- FISCO field device	- FEP515 L – Integral – DN3-300
Ex d e ia IIC T* Gb		- FEP315 L – Integral - DN350-2000
Ex ia tb IIIC T* Db		- FEP315 L – Integral - DN350-2000
Ex ia tb IIIC T* Db	- FISCO field device	- FEP315 L – Integral - DN350-2000
Ex d e ia IIC T* Gb		- FEP515 L – Integral – DN350-2000
Ex ia tb IIIC T* Db		- FEP515 L – Integral – DN350-2000
Ex ia tb IIIC T* Db		- FEP515 L – Integral – DN350-2000
Ex nA IIC T* Gc		- FEP325 M /FEH325 – Remote
Ex nA ic IIC T* Gc	- FISCO field device	- FEP325 M /FEH325 – Remote
Ex tb IIIC T85°C...Tmedium Db		- FEP325 M /FEH325 - Remote
Ex nA IIC T* Gc		- FEP525 M /FEH525 – Remote
Ex nA ic IIC T* Gc	- FISCO field device	- FEP525 M /FEH525 – Remote
Ex tb IIIC T85°C...Tmedium Db		- FEP525 M /FEH525 - Remote
Ex e ia ma IIC T* Gb		- FEP325 L – Remote - DN3-300
Ex tb IIIC T* Db		- FEP325 L – Remote - DN3-300
Ex e ia ma IIC T* Gb		- FEP525 L – Remote - DN3-300
Ex tb IIIC T* Db		- FEP525 L – Remote - DN3-300
Ex e ia IIC T* Gb		- FEP325 L – Remote - DN350 – 2000
Ex tb IIIC T* Db		- FEP325 L – Remote - DN350 – 2000
Ex e ia IIC T* Gb		- FEP525 L – Remote - DN350 – 2000
Ex tb IIIC T* Db		- FEP525 L – Remote - DN350 - 2000
Ex nA nC mc IIC T4 Gc		- FET325 M Transmitter only
Ex nA ic IIC T* Gc	- FISCO field device	- FET325 M Transmitter only
Ex tb IIIC T70°C Db		- FET325 M Transmitter only
Ex nA nC mc IIC T4 Gc		- FET525 M Transmitter only
Ex nA ic IIC T* Gc	- FISCO field device	- FET525 M Transmitter only
Ex tb IIIC T70°C Db		- FET525 M Transmitter only
Ex d e [ia] IIC T* Gb		- FET325 L – Remote - Transmitter
Ex tb [ia] IIIC T70°C Db		- FET325 L – Remote – Transmitter
Ex d e [ia] IIC T* Gb		- FET525 L – Remote – Transmitter
Ex tb [ia Da] IIIC Db		- FET525 L – Remote – Transmitter

Ta = -40°C to +60°C

\*See Operating Instructions

IP65/67 Integral version/Transmitter only version

IP65/67/68 Remote sensor

## Equipment

The FEP3\*\*/FEP5\*\* ProcessMaster, and FEH3\*\*/FEH5\*\* HygienicMaster are a series of electromagnetic flowmeters. The electronics are housed within a flameproof cylindrical enclosure with increased safety terminal compartment identified as a Type 3 (aluminium alloy or stainless steel) or a rectangular housing identified as Field Housing or Type 4. This is common for all versions of the electronics housing discussed. The FEP3\*\*/FEP5\*\* ProcessMaster, and FEH3\*\*/FEH5\*\* HygienicMaster are both available as compact (integral) and remote designs. A high process temperature version is available and uses a 100 mm stand-off between the Primary and the electronics or remote connection facilities. On the remote versions an increased safety junction box is used for

external connections. This junction box is manufactured from aluminium alloy (EN AC 44200) or stainless steel with a maximum magnesium content of 6%. The main circuitry for the flowmeters is contained within a black plastic cartridge. This is used in the FEP3\*\*/FEP5\*\* ProcessMaster, and FEH3\*\*/FEH5\*\* HygienicMaster and the FET325/FET525 Transmitter only versions. The backplane and connection facilities are different for each design. The cartridge contains the power supply board, the analogue/digital board and the display board.

## Electrical parameters

### Type 'n' version

Power Supply (Terminals L and N)

100 ... 230 V (-15/+10%) AC:

24 V (- 30/+10%) AC:

24 V (- 30/+30%) DC, Ripple: < 5 %. This is identified by option 'p'

FEP_15...(M) FEH_15...(M) FET_25...(M)		Operating Value	
		U <sub>N</sub> [V]	I <sub>N</sub> [mA]
Current Output 1 active/ passive	Terminal 31/32	30	30
Digital Output DO2 passive	Terminal 41/42	30	220
Digital Output DO1 active/ passive	Terminal 51/52	30	220
Digital Input* passive	Terminal 81/82	30	10

FEP_15...(M) FEH_15...(M) FET_25...(M) PA/FF communication		FNICO					
		U <sub>I</sub>	I <sub>I</sub>	P <sub>I</sub>	C <sub>I</sub>	C <sub>IPA</sub>	L <sub>I</sub>
		[V]	[mA]	[mW]	[nF]	[nF]	[uH]
Fieldbus Passive	Terminal 41/42	60	500	7000	1	1	5
PA/FF communication		Operating Value					
		U <sub>N</sub> [V]	I <sub>N</sub> [mA]				
Pulse Output DO2 Passive	Terminal 41/42	30	220				

### Zone 1 version

(Assembly with Current Output 1 active)

Power Supply (Terminals L and N)

100 ... 230 V (-15/+10%) AC:

24 V (- 30/+10%) AC:

24 V (- 30/+30%) DC, Ripple: < 5 %.

FEP315/FEP515 FEH315/FEH515		Ex i / IS					
		U <sub>o</sub>	I <sub>o</sub>	P <sub>o</sub>	C <sub>o</sub>	C <sub>OPA</sub>	L <sub>o</sub>
FET325/FET525 HART communication		[V]	[mA]	[mW]	[nF]	[nF]	[mH]
<b>Current Output 1</b> Active	Terminal 31/32	20	100	500	210	195	6
		U <sub>I</sub>	I <sub>I</sub>	P <sub>I</sub>	C <sub>I</sub>	C <sub>IPA</sub>	L <sub>I</sub>
		[V]	[mA]	[mW]	[nF]	[nF]	[mH]
		60	425*	2000*	8.4	24	0.065
<b>Digital Output</b> DO2 Passive	Terminal 41/42	U <sub>I</sub>	I <sub>I</sub>	P <sub>I</sub>	C <sub>I</sub>	C <sub>IPA</sub>	L <sub>I</sub>
		[V]	[mA]	[mW]	[nF]	[nF]	[nH]
		60	425*	2000*	3.6	3.6	170
<b>Digital Output</b> DO1 Passive	Terminal 51/52	60	425*	2000*	3.6	3.6	170
<b>Digital Input</b> Passive	Terminal 81/82	---	---	---	---	---	---

\* = dual or single channel intrinsically safe barrier with resistive outputs

The electrical parameters are (using FISCO certified supplies):

FEP_15...(L) FEH_15...(L) FET_25...(L) PA/FF communication		Ex i / IS					
		U <sub>I</sub>	I <sub>I</sub>	P <sub>I</sub>	C <sub>I</sub>	C <sub>IPA</sub>	L <sub>I</sub>
		[V]	[mA]	[mW]	[nF]	[nF]	[uH]
<b>Fieldbus</b> Passive	Terminal 97/98	17	380	5320	1	1	5
<b>Pulse</b> <b>Output</b> DO2 Passive	Terminal 41/42	U <sub>I</sub>	I <sub>I</sub>	P <sub>I</sub>	C <sub>I</sub>	C <sub>IPA</sub>	L <sub>I</sub>
		[V]	[mA]	[mW]	[nF]	[nF]	[uH]
		60	500*	2000*	3.6	3.6	0.17

\* = dual or single channel intrinsically safe barrier with resistive outputs

The electrical parameters are (using barriers with resistive outputs):

FEP_15...(L) FEH_15...(L) FET_25...(L) PA/FF communication		Ex i / IS					
		U <sub>I</sub>	I <sub>I</sub>	P <sub>I</sub>	C <sub>I</sub>	C <sub>IPA</sub>	L <sub>I</sub>
		[V]	[mA]	[mW]	[nF]	[nF]	[uH]
<b>Fieldbus</b> Passive	Terminal 97/98	60	500	5000	1	1	5
<b>Pulse</b> <b>Output</b> DO2 Passive	Terminal 41/42	U <sub>I</sub>	I <sub>I</sub>	P <sub>I</sub>	C <sub>I</sub>	C <sub>IPA</sub>	L <sub>I</sub>
		[V]	[mA]	[mW]	[nF]	[nF]	[uH]
		60	500*	2000*	3.6	3.6	0.17

\* = dual or single channel intrinsically safe barrier with resistive outputs

### Zone 1 version

(Assembly with Current Output 1 passive)

Power Supply (Terminals L and N)

100 ... 230 V (-15/+10%) AC:

24 V (-30/+10%) AC:

24 V (-30/+30%) DC, Ripple: < 5 %.

FEP_15...(L) FEH_15...(L) FET_25...(L) HART communication		Ex i / IS					
		U <sub>I</sub>	I <sub>I</sub>	P <sub>I</sub>	C <sub>I</sub>	C <sub>IPA</sub>	L <sub>I</sub>
		[V]	[mA]	[mW]	[nF]	[nF]	[nH]
<b>Current Output 1</b> Passive	Terminal 31/32	60	500*	2000*	8,4	24	170
<b>Digital Output</b> DO2 Passive	Terminal 41/42	60	500*	2000*	3,6	3,6	170
<b>Digital Output</b> DO1 Active/Passive	Terminal 51/52	60	500*	2000*	3,6	3,6	170
<b>Digital Input</b> Passive	Terminal 81/82	60	500*	2000*	3,6	3,6	170

\* = dual or single channel intrinsically safe barrier with resistive outputs

Non intrinsically safe communications options. (Assembly with current output 1 active)

FEP_15...(L) FEH_15...(L) FET_25...(L) HART communication		Rated Value		Operating Value	
		U <sub>M</sub>	I <sub>M</sub>	U <sub>N</sub>	I <sub>N</sub>
		[V]	[mA]	[V]	[mA]
<b>Current Output 1</b> Active	Terminal 31/32	60	35	30	30
<b>Digital Output</b> DO2 Passive	Terminal 41/42	60	35	30	220
<b>Digital Output</b> DO1 Active/Passive	Terminal 51/52	60	35	30	220
<b>Digital Input</b> Passive	Terminal 81/82	---	---	---	---