



# 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 12.0004X	Issue No: 1	<u>Certificate history:</u>
Status:	<b>Current</b>	Page 1 of 4	Issue No. 3 (2014-04-07)
Date of Issue:	<b>2012-12-18</b>		Issue No. 2 (2013-07-30)
Applicant:	<b>ABB Automation Products GmbH</b> Dransfelder Straße. 2, D-37079 Göttingen <b>Germany</b>		Issue No. 1 (2012-12-18)
Electrical Apparatus:	<b>CoriolisMaster Flowmeter</b>		Issue No. 0 (2012-08-08)
<i>Optional accessory:</i>			
Type of Protection:	<b>d, e, i, t, nA, nR, []</b>		
Marking:	See attachment		

*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

Certificate No: IECEx FME 12.0004X Issue No: 1

Date of Issue: 2012-12-18 Page 2 of 4

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

Additional Manufacturing  
location(s):

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 : 2007-10</b> Edition:5	Explosive atmospheres - Part 0:Equipment - 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 60079-26 : 2006</b> Edition:2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga
<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/ExTR12.0007/00](#)      [GB/FME/ExTR12.0007/01](#)

Quality Assessment Report:

[DE/TUN/QAR06.0010/04](#)



# IECEX Certificate of Conformity

Certificate No: IECEx FME 12.0004X

Issue No: 1

Date of Issue: 2012-12-18

Page 3 of 4

## Schedule

### EQUIPMENT:

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

See Attachment

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

- 1) The CoriolisMaster is not fitted with a dedicated test port see the Manufacturers Instructions for the routine tests.



# IECEX Certificate of Conformity

---

Certificate No: IECEx FME 12.0004X

Issue No: 1

Date of Issue: 2012-12-18

Page 4 of 4

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

Issue 1: 1) Addition of Restricted Breathing 'nR' options and 2) additional sensor sizes.

**Annex:**

[GB FME Ex TR 12 0007 Attachment Nov 12.pdf](#)

**ELECTRICAL APPARTUS:**

Equipment and systems covered by this certificate are as follows:

- structure for FCB3\_ : **FC a3cdefghijklm.n.o.p** (Bent Tube - Integral transmitter/sensor & remote sensor)
- structure for FCH3\_ : **FC a3cdefghijklm.n.o.p** (Hygenic - Integral transmitter/sensor & remote sensor)
- structure for FCT3\_ : **FCT3cdklm.n** (transmitter only)

Note: Not all options are available.

- a = Product Family; B or H
- c = Tiers: 30 or 50
- d = Explosion Protection Certification: Y0, A2, or A1
- e = Connection Design: Y0, A1 or A2.
- f = Meter Size: 015E1, 015R0, 015R1, 025E1, 025R0, 025R2, 050E1, 050R0, 050R1, 080E1, 080R0, 080R1, 100E1, 100R0, 100R1, 150E1, 150R0 or 150R1.
- g = Process Connection Type: D2, D4, D5, D6, D7, E1, A1, A3, A6, A7, A8, A9, J1, J2, J3, M1, F1, T1, T2, T3, N3, or P1.
- h = Material wetted parts; A1, A2, H1, H2, C1, C2, T1 or L1.
- i = Flow calibration: Any single letter
- j = Density calibration: Any single letter
- k = Connection Design/Transmitter Housing type/Transmitter housing material/Cable glands: D1, D2, R1, R2, F1, F2, or Y0.
- l = Outputs: A1, A2, A3, H1, H2, H3 or Y0.
- m = Power Supply: A, B or Y
- n = Ambient temperature range: Blank, TA1, or TA4
- o = Fluid temperature range : Blank or TF1
- p = Extended Tower length: Blank or TE1

**MARKING:**

[Ex ia Ga] IIC	FCT3cY0F_.....	Fieldhousing Transmitter only Associated Apparatus
Ex nA IIC T6...T2 Gc	FCa3cA2A_...	Remote sensor
Ex tb IIIC T85°C .. Tmedium	FCa3cA2A_...	Remote sensor - dust protected enclosure
Ex d e ia IIC T6 Gb (Ga)	FCT3cA1R_ _3...	Transmitter only – flameproof housing – Passive HART
Ex ia tb IIIC T85°C Db(Da)	FCT3cA1R_ _3...	Transmitter only – dust protected enclosure- Passive HART
Ex d e ib [ia Ga] IIC T6 Gb	FCT3cA1R_ _2...	Transmitter only – flameproof housing - Active HART
Ex d e [ia Ga] IIC T6 Gb	FCT3cA1R_ _2...	Transmitter only – flameproof housing - Active HART
Ex ib tb [ia Da] IIIC T85°C	FCT3cA1R_ _2...	Transmitter only – dust protected enclosure - Active HART
Ex tb [ia Da] IIIC T85°C	FCT3cA1R_ _2...	Transmitter only – dust protected enclosure - Active HART
Ex d e ia IIC T6...T2 Ga/Gb	FCa3cA1Y0fghijD_ _3..	Integral - Copa Housing – Passive HART
Ex ia tb IIIC T85°C .. Tmedium	FCa3cA1Y0fghijD_ _3..	Integral - Copa – dust protected encl. -Passive HART
Ex d e ia ib IIC T6...T2 Ga/Gb	FCa3cA1Y0fghijD_ _2..	Integral - Copa Housing – Active HART
Ex d e ia IIC T6...T2 Ga/Gb	FCa3cA1Y0fghijD_ _2..	Integral - Copa Housing – Active HART
Ex ia ib tb IIIC T85°C .. Tmedium	FCa3cA1Y0fghijD_ _2..	Integral - Copa – dust protected encl. -Active HART
Ex ia tb IIIC T85°C ..Tmedium	FCa3cA1Y0fghijD_ _2..	Integral - Copa – dust protected encl. -Active HART
Ex ia IIC T6...T2 Ga	FCa3cA1A_...	Remote sensor
Ex ia IIIC T85°C .. Tmedium Da	FCa3cA1A_...	Remote sensor - dust protected enclosure
Ex nA nR IIC T6...T2 Gc	FCa3cA2A_...	Remote sensor - dust protected enclosure
Ex nA nR IIIC T85°C Db	FCT3cA1R_ _2...	Transmitter only – dust protected enclosure - Active HART

**EQUIPMENT:**

The FCB3\*\* CoriolisMaster Bent Tube and FCH3\*\* CoriolisMaster Hygienic are a series of coriolis effect flowmeters. The electronics are housed within a cylindrical Copa housing. This housing is flameproof with increased safety terminal compartment. The electronics are common to all versions.

The flowmeters are available as compact (integral) and remote versions. A separate transmitter FCT3\*\* is available for use with the remote sensors.

A remote version of the transmitter is available for non-hazardous are mounting. This version uses a Fieldhousing and has outputs which are suitable for connection to hazardous area sensors.

**ELECTRICAL PARAMETERS:**

Electrical data for use in Zone2

Current active. HART FCa3cA2efghijk_1.. or _2..		Ex nA		Operating Value	
		U <sub>N</sub>	I <sub>N</sub>	U <sub>N</sub>	I <sub>N</sub>
		[V]	[mA]	[V]	[mA]
Current 1 active	Terminal 31/32 Terminal 32=PA	30	30	30	30
Current 2 passive	Terminal 33/34 Terminal 34=PA	30	30	30	30
Contact Output	Terminal 41/42	30	65	30	65
Contact Input	Terminal 81/82	30	10	30	10
Pulse Output	Terminal 51/52	30	65	30	65

Current passive. HART FCa3cA2efghijk_3..		Ex nA		Operating Value	
		U <sub>N</sub>	I <sub>N</sub>	U <sub>N</sub>	I <sub>N</sub>
		[V]	[mA]	[V]	[mA]
Current 1 passive	Terminal 31/32	30	30	30	30
Current 2 passive	Terminal 33/34	30	30	30	30
Contact Output	Terminal 41/42	30	65	30	65
Contact Input	Terminal 81/82	30	10	30	10
Pulse Output	Terminal 51/52	30	65	30	65

FCa3cA2A_... Size DN15-50 Remote Sensor		Size	Operating Value		Ex nA	
			$U_N$	$I_N$	$U_N$	$I_N$
			[V]	[mA]	[V]	[mA]
Driver	Terminal 91/92	DN15	12	37	12	37
		DN25		37		37
		DN50		27		27
Sensor Flowsignal	Terminal 85...90	DN15	6	6	6	6
		DN25				
		DN50				
PT1000	Terminal 93...96	DN15	12	2	12	2
		DN25				
		DN50				

Electrical data for use in Zone1

FCa3cA1A_... Size DN15-150 Remote Sensor		Size	Operating Value		Ex i					
			$U_N$ [V]	$I_N$ [mA]	$U_i = U_o$ [V]	$I_i = I_o$ [mA]	$P_i = P_o$ [mW]	$C_i = C_o$ [nF]	$C_{IPA} = C_{OPA}$ [nF]	$L_i = L_o$ [mH]
Driver	Terminal 91/92	DN15	12	37	13.2	74	245	4.8	0	3.0
		DN25		37		74	245			3.0
		DN50		27		66	220			17.6
		DN80		37		75	250			6.4
		DN100		37		61	205			8.8
		DN150		37		54	180			8.8
Sensor Flowsignal	Terminal 85...90	DN15	6	6	6.6	9.0	14.9	0	0	1.1
		DN25								3.0
		DN50								3.0
		DN80								1.5
		DN100								1.5
		DN150								1.5
PT1000	Terminal 93...96	DN15 to DN150	12	2	13.2	2.3	8.0	11	0	0

Current passive. HART FCT3cA1R_3.. FCa3cA1Y0fghijD_3..		Ex e		Operating Value		Ex ia					
		U <sub>M</sub> [V]	I <sub>M</sub> [A]	U <sub>N</sub> [V]	I <sub>N</sub> [mA]	U <sub>I</sub> [V]	I <sub>I</sub> [mA]	P <sub>I</sub> [mW]	C <sub>I</sub> [nF]	C <sub>IPA</sub> [nF]	L <sub>I</sub> [mH]
Current 1 Passive	Terminal 31/32	60	35	30	30	60	300	2000	0.47	0.47	0.17
Current 2 Passive	Terminal 33/34	60	35	30	30	60	300	2000	0.47	0.47	0.17
Contact Output	Terminal 41/42	60	35	30	65	60	300	2000	0.47	0.47	0.17
Contact Input	Terminal 81/82	60	35	30	10	60	300	2000	0.47	0.47	0.17
Pulse Output	Terminal 51/52	60	35	30	65	60	300	2000	0.47	0.47	0.17

Current active. HART FCT3cA1R_2.. FCa3cA1Y0fghijD_2..		Ex e		Operating Value		Ex ib					
		U <sub>M</sub> [V]	I <sub>M</sub> [A]	U <sub>N</sub> [V]	I <sub>N</sub> [mA]	U <sub>O</sub> [V]	I <sub>O</sub> [mA]	P <sub>O</sub> [mW]	C <sub>O</sub> [nF]	C <sub>OPA</sub> [nF]	L <sub>O</sub> [mH]
Current 1 Active	Terminal 31/32 Terminal 32=PA	60	35	30	30	20	100	500	217	0	3.8
						U <sub>I</sub> [V]	I <sub>I</sub> [mA]	P <sub>I</sub> [mW]	C <sub>I</sub> [nF]	C <sub>IPA</sub> [nF]	L <sub>I</sub> [mH]
						60	100	500	2.4	2.4	0.17
Current 2 Passive	Terminal 33/34 Terminal 34=PA	60	35	30	30	U <sub>I</sub> [V]	I <sub>I</sub> [mA]	P <sub>I</sub> [mW]	C <sub>I</sub> [nF]	C <sub>IPA</sub> [nF]	L <sub>I</sub> [mH]
						30	100	760	2.4	2.4	0.17
Contact Output	Terminal 41/42	60	35	30	65	15	30	115	2.4	2.4	0.17
Contact Input	Terminal 81/82	60	35	30	10	30	60	500	2.4	2.4	0.17
Pulse Output	Terminal 51/52	60	35	30	65	15	30	115	2.4	2.4	0.17