

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

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

Certificate No .:	IECEx ULD 21.0019X	Page 1 of 4	Certificate history:
Status:	Current	Issue No: 1	Issue 0 (2021-12-17)
Date of Issue:	2022-01-27		
Applicant:	Endress+Hauser Flowtec AG Kägenstr. 7 4153 Reinach Switzerland		
Equipment:	Mass Flow Meters, CNGmass / LPGn	nass / Cubemass	
Optional accessory:			
Type of Protection:	Flameproof "db", Intrinsic Safety "ia' Enclosure "tb"	", Increased Safety "eb", Encapsulation "mb", E	Oust Ignition Protection by
Marking:	Ex db ia IIC T*…T1 Gb		
	Ex db eb ia mb IIC T*T1 Gb		
	Ex tb IIIC T85 °C T450 °C Db		
	*T5 for CNGmass and T6 for LPGmass	and Cubemass	
	-40°C ≤ Ta ≤ +60°C		
Certification Body:	In Denair of the IECEX		
Position:		Senior Project Engineer	
Signature: (for printed version)			
Date:			
 This certificate and s This certificate is no The Status and auth 	schedule may only be reproduced in full. t transferable and remains the property of the issui enticity of this certificate may be verified by visiting	ing body. g www.iecex.com or use of this QR Code.	
Certificate issued	l by:		
UL Internationa Borupvang 5A DK-2750 Balleru Denmark	I DEMKO A/S Jp		(ዚ)



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:

DK/ULD/ExTR21.0004/00

DK/ULD/ExTR21.0004/01

Quality Assessment Report:

DE/TUN/QAR06.0004/09



Certificate No .: IECEx ULD 21.0019X Page 3 of 4

Date of issue:

2022-01-27

Issue No: 1

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The mass flowmeters of type series LPGmass, CNGmass and Cubemass are mass flow meters providing additional information on volume flow, density and temperature of fluids. The measuring principle is based on the controlled generation of Coriolis forces. The transmitter is designed as 4-wire device with separate connections for supply and signal circuits. The CNGmass, LPGmass and Cubemass consist of three main parts, the transmitter housing, the electronics and the sensors. The enclosure of the transmitter is divided into 2 compartments, the terminal compartment relies on increased safety Ex eb and flameproof Ex db, the second compartment includes the electronic and relies on intrinsic safety Ex ia and encapsulation Ex mb. The material of construction of the G13 enclosure is aluminium alloy.

Please see Annex for additional information.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- For terminals No. 22 to No. 27, only devices with Um ≤ 253 V and Im ≤ 1 A are allowed to be connected.
- The relationship between flowmeter type, ambient temperature, process temperature and temperature class is as follows:

Temperature table	T6 (85 ^o C)	T5 (100°C)	T4 (135 ^o C)	T3 (200°C)	T2 (300°C)	T1 (450°C)
Ta = 45 ^o C						
LPGmass DN08/15	45	95	125	125	125	125
Ta = 50 ^o C						
CNGmass DN08/15/25	-	95	125	125	125	125
LPGmass DN08/15	-	95	125	125	125	125
LPGmass DN25/40/50	50	95	125	125	125	125
Cubemass DN1/2/4	50	95	130	150	200	200
Ta = 60 ^o C						
CNGmass DN08/15	-	90	125	125	125	125
CNGmass DN25	-	95	125	125	125	125
LPGmass DN08/15/25/40	-	95	125	125	125	125
LPGmass DN50	60	95	125	125	125	125
Cubemass DN1/2/4	-	95	130	150	200	200
Cubemass DN6	60	100	130	150	200	200

The dimensions of the flameproof joints are in parts other than the relevant minimum or maximum values of IEC 60079-1: 2014. For information on the dimensions of the flameproof joints contact the manufacturer

Recommended strip length for the connection terminal is 5-6mm.

The covers have to be screwed in up to the stop and fixed with the hexagon screw and the cover clamp.

For installation the special requirements of IEC 60079-14 must be observed.



Date of issue:

IECEx Certificate of Conformity

Certificate No .: IECEx ULD 21.0019X

Page 4 of 4

Issue No: 1

2022-01-27

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above) Issue 1: Update of drawing number FEK2033 to amend Temperature Class for Cubemass from T5 to T6.

Annex:

Annex to IECEx IECEx ULD 21.0019X Issue 1.pdf



Certificate No .:

IECEx ULD 21.0019X

Issue No.: 1 Page 1 of 5

TYPE DESIGNATION

Nomenclature for the CNGmass, LPGmass and Cubemass transmitter.

CNGmass 8aF bb-cdddefghiklm

a = F: Denoting version bb = Nominal Diameters: 08, 15, 25 c = Measuring Tube Material ddd = Process Connection e = Additional Test. Certificate f = Calibration Massflow g = Approval h = Housing: A = compact version, IP67, TYPE 4X, aluminium electronics enclosure i = Cable Entry: 0, A, B, C, F k = Power supply / Display. I = Custody Transfer Approval. m = Output / Input. LPGmass 8aE bb-cdddefghiklm a = F: Denoting version bb = Nominal Diameters: 08, 15,25,40,50 c = Measuring Tube Material. ddd = Process Connection. e = Additional Test, Certificate. f = Calibration. g = Approval h = Housing: A=compact version, IP67, TYPE 4X, aluminium electronics enclosure i = Cable Entry: 0, A, B, C, F k = Power supply / Display. I = Custody Transfer Approval. m = Output / Input. Cubemass 8aM bb-ccdefghijklm +nn a = C: Denoting Coriolis Sensors Series Type: Sensor C bb= Nominal Diameter: 01, 02, 04, 06 cc = Approval d = Output / Input: any single number or letter (coding a non-intrinsically safe circuit) e = Power Supply. f = Display / Operation.



Certificate No .:

IECEx ULD 21.0019X

Issue No.: 1 Page 2 of 5

g = Operation language.

- h = Housing: A=compact version, IP67, NEMA TYPE 4X, aluminium electronics enclosure
 - i = Cable entry: 0, A, B, C, F
 - j = Measuring tube material.
 - k = Process Connection.
 - I = Secondary Containment.
 - m = Calibration.

nn = Option in two digits (none, one or more) series of any combination of double number and/or letter (It can be "+",+" alone or none)

PARAMETERS RELATING TO THE SAFETY

U = 20...28V a.c. and / or U = 10..30 V d.c. 4VA/3.2W

Um = 253V

MARKING

Marking has to be readable and indelible; it has to include the following indications:

CNGmass/LPGmass/Cubemass:

		80	
1	4153 Reinach Switzerland	E	ndress+Hauser 🖽
	Order Code: 8XXXX-XXXXXXXX Ser.No.: XXXXXXXXXXXX TAG-No.:	(XXX 2022	IP67, Type 4X encl. 2) Ex th IIIC T85 CT450 C Db
45	$\begin{array}{c} \hline \hline$	3.2W 4VA	UL IECEX ULD 21.0019X UL 21 ATEX 2517X
	Um = 253 V		-40°C <tamb<+60°c< td=""></tamb<+60°c<>
			<u>→</u> XAD/06//



Certificate No.:

IECEx ULD 21.0019X

Issue No.: 1

Page 3 of 5

	General	1) CNGmass
CNGmass	8FF**_****B****	2) Ex db ia IIC T5T1 Gb
	8FF**-*****C****	2) Ex db eb ia mb IIC T5T1 Gb
LPGmass	General	1) LPGmass
	8FE**-*****B****	2) Ex db ia IIC T6T1 Gb
	8FE**-*****C****	2) Ex db eb ia mb IIC T6T1 Gb
	General	1) Cubemass
Cubemass	8CM**-81/84********	2) Ex db ia IIC T6T1 Gb
	8CM**-83********	2) Ex db eb ia mb IIC T6T1 Gb

ROUTINE EXAMINATIONS AND TESTS

Each piece of equipment defined above has to have successfully passed; before delivery:

• In accordance with clause 7.1 of the IEC 60079-7 standard, a dielectric strength test.

Final assembly equipment:

- Between Primary side, pin 1 and 2 of connection terminal are connected and Earth, GND of secondary side and earth connected ≥ 500Vac for at least 60 seconds.
- Between Primary side, pin 1 and 2 of connection terminals are connected, and IO side, pin 22,23,24,25,26 and 27 of connection terminal are connected ≥ 500Vac for at least 60 seconds.
- Between IO side, pin 22,23,24,25,26 and 27 of connection terminal are connected, and Earth, GND of secondary side and earth are connected ≥ 500Vac for at least 60 seconds.
- In accordance with clause 9.1 of IEC, visual inspection.
 - Each piece of "m" equipment shall be subjected to a visual inspection. No damage shall be evident, such as cracks in the compound, exposure of the encapsulated parts, flaking, inadmissible shrinkage, swelling, decomposition, failure of adhesion (separation of any adhered parts) or softening.
- In accordance with clause 9.2 of the IEC 60079-18 standard, a dielectric strength test.
 - Between Primary, terminals 1 and 2, and IO side, terminals 22,23,24,25,26 and 27 ≥ 500Vac or ≥ 700Vdc for at least 1 second or alternatively ≥ 1.2 times the test voltage for at least 100 ms.
 - Between Primary, terminals 1 and 2, and Earth ≥ 500Vac or ≥ 700Vdc at least 1 second or alternatively ≥ 1.2 times the test voltage for at least 100 ms.
 - Between IO side, terminals 22,23,24,25,26 and 27 and Earth ≥ 500Vac or ≥ 700Vdc at least 1 second or alternatively ≥ 1.2 times the test voltage for at least 100 ms.
 - In accordance with clause 11.2 of the IEC 60079-11 standard, a transformers test.



Certificate No .:

IECEx ULD 21.0019X

Issue No.: 1 Page 4 of 5

• Between Primary and Secondary ≥ 1500Vrms for at least 60 seconds or alternatively ≥ 1800Vrms for at least 1 second.



Certificate No.:

IECEx ULD 21.0019X

Issue No.: 1 Page 5 of 5

The Coriolis sensor is certified separately per Certificate of Conformity IECEx CSA 15.0003U Issue 4. The relationship between the type of devices, the sensor types and the marking is shown in the following table:

Mass Flow Meter Type	Sensor IECEx CSA 15.0003U Issue 4	Marking
CNGmass	Promass FP Nominal diameter/Size: DN8/15/25	Ex db ia IIC T5T1 Gb Ex db eb ia mb IIC T5T1 Gb, and Ex tb IIIC T85 °CT450 °C Db
LPGmass	Promass E Nominal diameter/Size: DN8/15/25/40/50/80	Ex db ia IIC T6T1 Gb resp. Ex db eb ia mb IIC T6T1 Gb and Ex tb IIIC T85 °CT450 °C Db
Cubemass	Sensor C Nominal diameter/Size: DN1/2/4/6	Ex db ia IIC T6T1 Gb resp. Ex db eb ia mb IIC T6T1 Gb and Ex tb IIIC T85 °CT450 °C Db

LIST OF CERTIFIED COMPONENTS

The following additional previous editions of Standards noted under the "Standards" section of this Certificate were applied to integral Components as itemized below. There are no significant safety related changes between these previous editions and the editions noted under the "Standards" section.

Product	Certificate Number	Standards
Terminal block, 236-0508/000-	IECEx PTB 06.0042U	IEC 60079-0:2017
009/999-950, WAGO		IEC 60079-7:2017
Line Bushing, 07-9102, BARTEC	IECEx EPS 13.0045U	IEC 60079-0:2017
		IEC 60079-1:2014-06
Coriolis Sensors, Promass FP	IECEx CSA 15.0003U	IEC 60079-0:2017
Promass E		IEC 60079-11:2011
Endress+Hauser Flowtec AG		⁽¹⁾ IEC 60079-15:2017
		(1)IEC 60079-26:2014-
		10
		IEC 60079-31:2013
		(1)IEC 60079-7:2015
		⁽¹⁾ These sensor
		protection concepts are
		not employed in the
		equipment