



SITIIAS
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防爆合格证

证 号: GYJ23.1384X

制 造 商 恩德斯+豪斯公司

(地址: CH-4153, Reinach BL1, Switzerland)

产 品 名 称 质量流量计

型 号 规 格 CNGmass、LPGmass、LNGmass

防 爆 标 志 Ex ia II C/II B T1...T6 Gb, Ex ia II C/II B T1...T6 Ga/Gb,
Ex ec II C T1...T6 Gc, Ex tb III C T**C Db

产 品 标 准 /

图 样 编 号 FEK3333-0000ZBB

经图样及技术文件的审查和样品检验, 确认上述产品符合下列标准:
GB/T 3836.1-2021, GB/T 3836.3-2021, GB/T 3836.4-2021, GB3836.20-2010,
GB/T 3836.31-2021

特颁发此证。

本证书有效期: 2023 年 05 月 24 日 至 2028 年 05 月 23 日

- 备 注
1. 安全使用注意事项见本证书附件。
 2. 型号规格说明见本证书附件。
 3. 电气安全参数见本证书附件。
 4. 本证书同时适用于恩德斯豪斯流量仪表技术(中国)有限公司(地址: 苏州工业园区苏虹中路 465 号)生产的同型号产品。



本证书仅对与认可文件和样品一致的产品有效。

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(GYJ23.1384X)

(Attachment I)

GYJ23.1384X防爆合格证附件 I

由恩德斯+豪斯公司生产的CNGmass、LPGmass和LNGmass系列质量流量计，经检验符合下列标准：

GB/T 3836.1-2021 爆炸性环境 第1部分：设备 通用要求

GB/T 3836.3-2021 爆炸性环境 第3部分：由增安型“e”保护的的设备

GB/T 3836.4-2021 爆炸性环境 第4部分：由本质安全型“i”保护的的设备

GB 3836.20 - 2010 爆炸性环境 第20部分：设备保护级别（EPL）为Ga级的设备

GB/T 3836.31-2021 爆炸性环境 第31部分：由防粉尘点燃外壳“t”保护的的设备

产品防爆标志Ex ia IIC/IIB T1...T6 Gb, Ex ia IIC/IIB T1...T6 Ga/Gb, Ex ec IIC T1...T6 Gc, Ex tb IIIC T**°C Db, 防爆合格证号GYJ23.1384X。

本证书认可产品的订购号如下：

D8**a****b****cc**-**dd****e****f****g****h**□□□□□□□□+##*#

OD8**a****b****cc**-**dd****e****f****g****h**□□□□□□□□+##*#

其中：**a**表示产品，可为C = CNGmass

E = LPGmass

L = LNGmass

b表示产品代系识别码，可为B = CNGmass, LPGmass, LNGmass

cc表示测量口径，可为08 = DN8 15 = DN15 25 = DN25

40 = DN40 50 = DN50 XX = 仅传感器

dd¹⁾表示NEPSI认证代码，可为

NG (Ex ia IIC/IIB T1...T6 Gb or Ex ia IIC/IIB T1...T6 Ga/Gb, Ex tb IIIC T**°C Db),

NU (Ex ia IIC/IIB T1...T6 Gb or Ex ia IIC/IIB T1...T6 Ga/Gb),

NJ (Ex ec IIC T1...T6 Gc) ;

e表示电源电压，可为D = 24 VDC;

f表示输入/输出型式，可为B、L、M、N或R;

g表示显示/操作，可为任意单个数字或字母;

h表示外壳，可为A = 一体式铝合金G300

B = 一体式不锈钢G301

C = 一体式不锈钢G302

□代码表示电缆引入装置、测量管材料、过程连接、校准和客户信息。

**表示备选信息

#表示附加信息

注¹⁾：安全栅的防爆标志Ex ec [ia Ga] IIC T4 Gc。

详见产品使用说明书。

一、产品安全使用特殊条件

产品防爆合格证号后缀“X”表示产品有安全使用特殊要求，具体内容如下：

1、产品外壳设有接地端子，用户在安装使用时应可靠接地；产品的本安电路须等电位连接。

2、产品使用环境温度范围：-50℃~+60℃；

产品介质温度范围：-50℃~+150℃（CNGmass、LPGmass）
-200℃~+150℃（LNGmass）。

3、产品使用环境温度、最高介质温度和温度组别的关系如下：

3.1、当代码 $dd = NG$ 或 NU ， $h = A$ 或 B 时：

温度组别 (最高表面温度)	T6 (85℃)	T5 (100℃)	T4 (135℃)	T3 (200℃)	T2 (200℃)	T1 (200℃)
最高使用环境温度	35	50	60	60	60	60
最高过程温度	50	85	120	150	150	150

3.2、当代码 $dd = NG$ 或 NU ， $h = C$ 时：

温度组别 (最高表面温度)	T6 (85℃)	T5 (100℃)	T4 (135℃)	T3 (200℃)	T2 (200℃)	T1 (200℃)
最高使用环境温度	35	45	50	50	50	50
最高过程温度	50	85	120	150	150	150

3.3、当代码 $dd = NJ$ ， $h = A$ 或 B 时：

温度组别	T6	T5	T4	T3	T2	T1
最高使用环境温度	35	50	60	60	60	60
最高过程温度	50	85	120	150	150	150

3.4、当代码 $dd = NJ$ ， $h = C$ 时：

温度组别	T6	T5	T4	T3	T2	T1
最高使用环境温度	-	50	60	60	60	60
最高过程温度	-	85	120	150	150	150

4、当 $dd = NJ$ 时，安全栅应该装配在符合GB/T 3836.1标准且外壳防护等级不小于IP54的外壳当中。

一、产品使用注意事项

1、产品在现场维护使用时应遵循“危险场所严禁通断设备”的原则。

2、产品必须与已通过防爆认证的关联设备配套共同组成本安防爆系统方可使用于爆炸性气体环境。其系统接线必须同时遵守本产品 and 所配关联设备的使用说明书要求，接线端子不得接错。

3、电气参数

3.1、安全栅Promass 100:

电源 (Terminals 1 and 2)	Modbus RS485 (Terminals 26 and 27)
$U_N = 20\sim30\text{ Vdc}$ $U_m = 260\text{ Vac}$ $P \leq 4.8\text{ W}$	$U_N = 5\text{ Vdc}$ $U_m = 260\text{ Vac}$
本安输出电路	
电源 (Terminals 10 and 20)	Modbus RS485 (Terminals 62 and 72)
$U_o = 16.24\text{ V}$ $I_o = 0.623\text{ A}$ (0.25A 熔丝保护) $P_o = 2.45\text{ W}$ $L_o = 92.8\text{ }\mu\text{H}$ (II C) or $372\text{ }\mu\text{H}$ (II B) $C_o = 0.433\text{ }\mu\text{F}$ (II C) or $2.57\text{ }\mu\text{F}$ (II B) $L_o/R_o = 14.6\text{ }\mu\text{H}/\Omega$ (II C) or $58.3\text{ }\mu\text{H}/\Omega$ (II B)	

流量计CNGmass/LPGmass/LNGmass

电路	端子	U_i	I_i	P_i	C_i	L_i
电源	10, 20	16.24V	0.623A	2.45W	6nF	0 μ H
Modbus RS485	62, 72					

3.2、产品可外接经防爆认证的接口设备，本安输出参数如下：

$U_o=7.5\text{V}$ $I_o=100\text{mA}$ $P_o=160\text{mW}$ $C_i=0\text{nF}$ $L_i=0\text{mH}$

3.3、当 $dd = \text{NJ}$ 时，电气参数如下：

输入/输出代码 $f = \text{B}$

电路	端子	电气参数
电源	1, 2	$U_N = 20\sim30\text{ Vdc}$ $P \leq 3.5\text{ W}$
4~20mA HART输出	26, 27	$U_N \leq 30\text{ Vdc}$
PFS输出	24, 25	$U_N \leq 30\text{ Vdc}$

输入/输出代码 $f = \text{L}$

电路	端子	电气参数
电源	1, 2	$U_N = 20\sim30\text{ Vdc}$ $P \leq 3.3\text{ W}$
Profibus DP	26, 27	$U_N \leq 30\text{ Vdc}$

输入/输出代码f = M

电路	端子	电气参数
电源	1, 2	$U_N = 20 \sim 30 \text{ Vdc}$ $P \leq 2.5 \text{ W}$
Modbus RS485	26, 27	$U_N = 5 \text{ Vdc}$

输入/输出代码f = N, R

电路	端子	电气参数
电源	1, 2	$U_N = 20 \sim 30 \text{ Vdc}$ $P \leq 3.3 \text{ W}$
EtherNet/IP, PROFINET	26, 27	$U_N = 5 \text{ Vdc}$

- 4、接口设备参数： $U_m = 7.5 \text{ Vdc}$ ；仅能使用于非爆炸危险场所。仅可使用E+H接口连接器。
- 5、产品在粉尘环境使用维护时，应定期采取清洁措施，以防止表面积聚粉尘。
- 6、用户不得自行随意更换该产品的电气零部件，应会同产品制造商共同解决运行中出现的故障，以免影响防爆性能和损坏现象的发生。
- 7、产品的安装、使用和维护应同时遵守产品使用说明书、GB/T 3836.13-2021 “爆炸性环境 第13部分：设备的修理、检修、修复和改造”、GB/T 3836.15-2017 “爆炸性环境 第15部分：电气装置的设计、选型和安装”、GB/T 3836.16-2022 “爆炸性环境 第16部分：电气装置的检查与维护” GB/T 3836.18-2017 “爆炸性环境 第18部分：本质安全电气系统”、GB 50257-2014 “电气设备安装工程爆炸和火灾危险环境电气装置施工及验收规范”及GB 15577-2018 粉尘防爆安全规程。

三、制造厂责任

- 1、产品制造厂必须将上述产品安全使用特殊条件和使用注意事项纳入该产品使用说明书。
- 2、制造厂必须严格按照NEPSI认可的文件资料生产。





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EXPLOSION PROTECTION CERTIFICATE OF CONFORMITY

Cert No. GYJ23.1384X

Manufacturer	Endress+Hauser Flowtec AG (Address: CH-4153, Reinach BL1, Switzerland)
Product	Coriolis Mass Flowmeter
Model	CNGmass, LPGmass, LNGmass
Ex marking	Ex ia IIC/IIB T1...T6 Gb, Ex ia IIC/IIB T1...T6 Ga/Gb, Ex ec IIC T1...T6 Gc, Ex tb IIIC T**°C Db
Product standard	/
Drawing number	FEK3333-0000ZBB

The product was found to comply with the following standard(s):
GB/T 3836.1-2021, GB/T 3836.3-2021, GB/T 3836.4-2021, GB 3836.20-2010,
GB/T 3836.31-2021

Valid until: 2028.05.23

Remarks

1. Conditions for safe use are specified in the attachment to this certificate.
2. Model designation is specified in the attachment to this certificate.
3. Safe parameters specified in the attachment to this certificate.
4. This certificate is also applicable for the product with the same type manufactured by Endress+Hauser Flowtec (China) Co., Ltd. (address: Su Hong Zhong Lu No.465, Suzhou-SIP, China)



Approval

Shanghai Inspection and Testing Institute of
Instruments and Automation Systems Co., Ltd.
National Supervision and Inspection Center for
Explosion Protection and Safety of Instrumentation
Date of issue 2023.05.24

This Certificate is valid for products compatible with the documents and samples approved by NEPSI.

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(GYJ23.1384X)

(Attachment I)

Attachment I to GYJ23.1384X
(translation)

1. Description

CNGmass, LPGmass and LNGmass series Coriolis Mass Flowmeter, manufactured by Endress+Hauser Flowtec AG, has been certified accords with following standards:

GB/T 3836.1-2021 Explosive atmospheres-Part 1: Equipment-General requirements

GB/T 3836.3-2021 Explosive atmospheres-Part 3: Equipment protection by increased safety“e”

GB/T 3836.4-2021 Explosive atmospheres-Part 4: Equipment protection by intrinsic safety“i”

GB3836.20-2010 Explosive atmospheres-Part 20: Equipment with equipment protection level (EPL) Ga

GB/T 3836.31-2021 Explosive atmospheres-Part 31: Equipment dust ignition protection by enclosure“t”

The Ex marking is Ex ia II C/II B T1...T6 Gb, Ex ia II C/II B T1...T6 Ga/Gb, Ex ec II C T1...T6 Gc, Ex tb III C T**°C Db, its certificate number is GYJ23.1384X.

The order code of the approved product is detailed as below:

D8**a b cc-dd e f g h i kk III m** +##*#

OD8**a b cc-dd e f g h i kk III m n** +##*#

a indicates product , including

C= CNGmass,

E=LPGmass,

L=LNGmass;

b indicates generation, including B = Generation of Flowmeter;

cc indicates nominal diameters, including 08 = DN8,15 = DN15,25 = DN25,40 = DN40,50 = DN50,XX = sensor only;

dd¹⁾ indicates NEPSI approval code, including

NG (Ex ia II C/II B T1...T6 Gb or Ex ia II C/II B T1...T6 Ga/Gb,Ex tb IIIC T**°C Db),

NU (Ex ia II C/II B T1...T6 Gb or Ex ia II C/II B T1...T6 Ga/Gb),

NJ (Ex ec II C T1...T6 Gc) ;

e indicates power supply, including D = 24 VDC;

f indicates input/output, including = B, L, M, N or R;

g indicates display/operation, any single number or letter;

h indicates housing, including

A= aluminium compact, G300,

B= stainless steel compact, G301,

C= stainless steel compact, G302;

i indicates cable entry, any single number or letter ;

kk indicates measuring tube material, any double letter or number ;

III indicates process connection, any triple number or letter;

m indicates calibration, any single number or letter ;

Note 1): The associated Safety Barrier is approved for Ex ec [ia Ga] IIC T4 Gc.

For details, see the instruction manual.

2. Special Conditions for Safe Use

The suffix "X" placed after the certificate number indicates that this product is subject to special conditions for safe use, that is:

2.1 The external earth connection facility of the enclosure shall be connected reliably. The intrinsically safe circuits of the transmitter should be connected to earth.

2.2 Ambient temperature range: $-50^{\circ}\text{C} \sim +60^{\circ}\text{C}$.

Process temperature range : $-50^{\circ}\text{C} \sim +150^{\circ}\text{C}$ for CNGmass and LPGmass;

$-200^{\circ}\text{C} \sim +150^{\circ}\text{C}$ for LNGmass

2.3 The relationship between ambient temperature range, max. medium temperature and temperature class is shown as following:

2.3.1 approval code **dd** = NG or NU; **h** = A or B

Temperature class (max surface temperature)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (200°C)	T1 (200°C)
Max ambient temp	35	50	60	60	60	60
Max process temp	50	85	120	150	150	150

2.3.2 approval code **dd** = NG or NU; **h** = C

Temperature class (max surface temperature)	T6 (85°C)	T5 (100°C)	T4 (135°C)	T3 (200°C)	T2 (200°C)	T1 (200°C)
Max ambient temp	35	45	50	50	50	50
Max process temp	50	85	120	150	150	150

2.3.3 approval code **dd** = NJ; **h** = A or B

Temperature class	T6	T5	T4	T3	T2	T1
Max ambient temp	35	50	60	60	60	60
Max process temp	50	85	120	150	150	150

2.3.4 approval code **dd** = NJ; **h** = C

(GYJ23.1384X)**(Attachment I)**

Temperature class	T6	T5	T4	T3	T2	T1
Max ambient temp	-	50	60	60	60	60
Max process temp	-	85	120	150	150	150

2.4 The safety barrier shall be installed in an enclosure that provides a minimum ingress protection of IP54 in accordance with GB/T 3836.1 when approval code **dd** = NJ.

3 Conditions for Safe Use

3.1 Any maintenance shall be performed only when the warning "Do not disconnect equipment while circuits are alive, unless the area is known to be non-hazardous" is observed.

3.2 The product should be used in explosive gas atmospheres together with approved associated apparatus, follow the instruction manual of this product and associated apparatus when connecting the wiring. Connect the wiring terminals correctly.

3.3 Safe parameters:

3.3.1 Safety barrier Promass 100:

Power supply (Terminals 1 and 2)	Modbus RS485 (Terminals 26 and 27)
$U_N = 20 \sim 30 \text{ Vdc}$ $U_m = 260 \text{ Vac}$ $P \leq 4.8 \text{ W}$	$U_N = 5 \text{ Vdc}$ $U_m = 260 \text{ Vac}$
Intrinsically safe output circuits	
Power supply (Terminals 10 and 20)	Modbus RS485 (Terminals 62 and 72)
$U_o = 16.24 \text{ V}$ $I_o = 0.623 \text{ A}$ (limited by fuse of 0.25A) $P_o = 2.45 \text{ W}$ $L_o = 92.8 \mu\text{H}$ (II C) or $372 \mu\text{H}$ (II B) $C_o = 0.433 \mu\text{F}$ (II C) or $2.57 \mu\text{F}$ (II B) $L_o/R_o = 14.6 \mu\text{H}/\Omega$ (II C) or $58.3 \mu\text{H}/\Omega$ (II B)	

Transmitter CNGmass/LPGmass/LNGmass:

circuits	terminals	U_i	I_i	P_i	C_i	L_i
Power supply	10, 20	16.24V	0.623A	2.45W	6nF	0μ H
Modbus RS485	62, 72					

3.3.2 This product can be connected to an separated certified interface, with following maximum values:

$$U_o=7.5\text{V} \quad I_o=100\text{mA} \quad P_o=160\text{mW} \quad C_i=0\text{nF} \quad L_i=0\text{mH}$$

3.3.3 When the symbol **dd** = NJ, the electrical data is as follows:

input/output code **f** = B

circuits	terminals	electrical data
Power supply	1, 2	$U_N = 20\sim 30 \text{ Vdc}$ $P \leq 3.5 \text{ W}$
Output 4~20mA HART	26, 27	$U_N \leq 30 \text{ Vdc}$
Output PFS	24, 25	$U_N \leq 30 \text{ Vdc}$

input/output code $f = L$

circuits	terminals	electrical data
Power supply	1, 2	$U_N = 20\sim 30 \text{ Vdc}$ $P \leq 3.3 \text{ W}$
Profibus DP	26, 27	$U_N \leq 30 \text{ Vdc}$

input/output code $f = M$

circuits	terminals	electrical data
Power supply	1, 2	$U_N = 20\sim 30 \text{ Vdc}$ $P \leq 2.5 \text{ W}$
Modbus RS485	26, 27	$U_N = 5 \text{ Vdc}$

input/output code $f = N, R$

circuits	terminals	electrical data
Power supply	1, 2	$U_N = 20\sim 30 \text{ Vdc}$ $P \leq 3.3 \text{ W}$
EtherNet/IP, PROFINET	26, 27	$U_N = 5 \text{ Vdc}$

3.4 Service connector: $U_m = 7.5 \text{ Vdc}$; only to be used if the location is known to be non-hazardous. The service connector is limited for use with E+H interfaces only.

3.5 Clean the surface of this product termly when using in combustibile dust atmosphere.

3.6 The user shall not change the configuration in order to maintain/ensure the explosion protection performance of this product. Any change may impair safety.

3.7 For installation, use and maintenance of this product, the end user should observe the instruction manual and the following standards:

GB/T 3836.13-2021 "Explosive atmospheres- Part 13:Equipment repair,overhaul,reclamation and modification".

GB/T 3836.15-2017 "Explosive atmospheres- Part 15:Electrical installations design, selection and erection".

GB/T 3836.16-2022 "Explosive atmospheres- Part 16:Electrical installations inspection and maintenance".

GB/T 3836.18-2017 "Explosive atmospheres-Part 18: Intrinsically safe electrical systems".

GB 15577-2018 "Safety regulations for dust explosion prevention and protection". (Only if installed in dust hazardous areas)

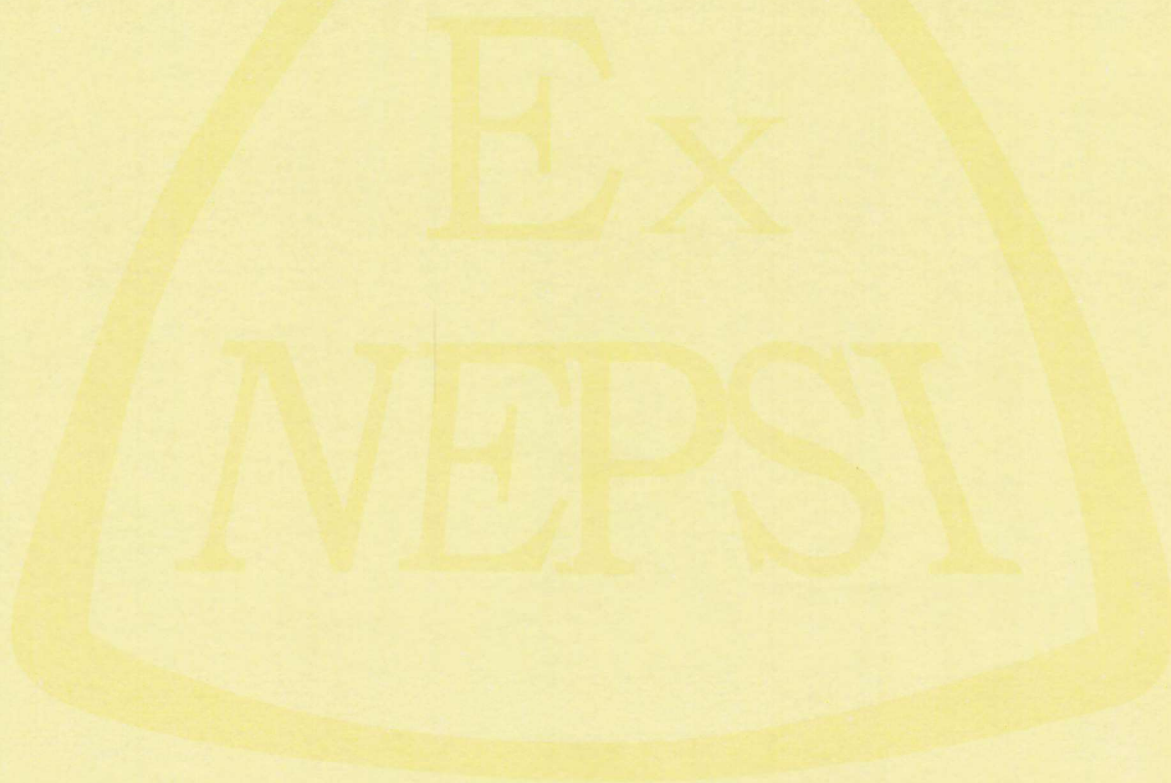
GB 50257-2014 "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".

4. Manufacturer's Responsibility

4.1 Conditions for safe use and special conditions for safe use, as specified above, should be included in the documentation the user is provided with.

4.2 Manufacturing should be done according to the documentation approved by NEPSI.

Shanghai Inspection and Testing Institute of
Instruments and Automation Systems Co., Ltd.
National Supervision and Inspection Center for
Explosion Protection and Safety of Instrumentation
2023.05.24



Promass 100, Cubemass 100, CNGmass/LPGmass/LNGmass Modbus RS485 Connection to Safety Barrier

