



防爆合格证

证 号: GYJ24.1221X

制 造 商 Endress+Hauser SE+Co. KG

(地址: Hauptstrasse 1, 79689 Maulburg Germany)

产 品 名 称 放射线物位计

型 号 规 格 Gammapilot FMG50 系列

防 爆 标 志 Ex db ia II C T6...T1 Gb; Ex db II C T6...T1 Gb;
Ex tb IIIC T85°C Db; Ex db II C T6...T1 Gb, Ex tb IIIC T85°C Db

产 品 标 准 /

图 样 编 号 961002781

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 3836.2-2021, GB/T 3836.4-2021, GB/T 3836.31-2021
特颁发此证。

本证书有效期: 2024 年 09 月 30 日 至 2029 年 09 月 29 日

备 注
1. 安全使用注意事项见本证书附件。
2. 证书编号后缀“X”表明产品具有安全使用特殊条件, 内容见本证书附件。
3. 电气安全参数见本证书附件。

批 准

上海仪器仪表自控系统检验测试所有限公司
国家级仪器仪表防爆安全监督检验站
颁 发 日 期 二 〇 二 四 年 九 月 三 十 日

本证书仅对与认可文件和样品一致的产品有效。



SitiAs
Worldwide Access

EXPLOSION PROTECTION

CERTIFICATE OF CONFORMITY

Cert No. GYJ24.1221X

Manufacturer	Endress+Hauser SE+Co. KG (Address:Hauptstrasse 1 , 79689 Maulburg Germany)
Product	Compact Scintillation Detector
Model	Gammapilot FMG50 series
Ex marking	Ex db ia IIC T6...T1 Gb; Ex db IIC T6...T1 Gb; Ex tb IIIC T85°C Db; Ex db IIC T6...T1 Gb, Ex tb IIIC T85°C Db
Product standard	/
Drawing number	961002781

The product was found to comply with the following standard(s):

GB/T 3836.1-2021, GB/T 3836.2-2021, GB/T 3836.4-2021, GB/T 3836.31-2021

Valid until: 2029.09.29

Remarks

- 1.Conditions for safe use are specified in the attachment(s) to this certificate.
- 2.Symbol "X" placed after the certification number denotes specific conditions of use, which are specified in the attachment(s) to this certificate.
- 3.Safe parameters specified in the attachment(s) to this certificate.

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 2024.09.30

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



(GYJ24.1221X)

(Attachment I)

GYJ24.1221X 防爆合格证附件 I

由 Endress+Hauser SE+Co. KG 生产的 Gammapilot FMG50 系列放射线物位计, 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 3836.2-2021 爆炸性环境 第2部分: 由隔爆外壳“d”保护的设备

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”保护的设备

产品防爆标志为 Ex db ia IIC T6...T1 Gb; Ex db IIC T6...T1 Gb; Ex tb IIIC T85°C Db; Ex db IIC T6...T1 Gb, Ex tb IIIC T85°C Db, 防爆合格证号 GYJ24.1221X。

本证书认可的产品型号规格如下:

Gammapilot

FMG50-**aa bb c d e f g** + **ll mm nn oo pp qq zz ss**

aa 表示 NEPSI 认证代码, 可为 NP (Ex db ia IIC T6...T1 Gb)、NQ (Ex db IIC T6...T1 Gb)、NS (Ex tb IIIC T85°C Db)、N3 (Ex db IIC T6...T1 Gb, Ex tb IIIC T85°C Db);

bb 表示输出, 可为 BA (2-wire, 4...20mA HART)、DA (2-wire, Profibus PA)、FA (2-wire, PROFINET, 10Mbit/s (APL))、9Y (基于上述的微调, 与防爆无关);

c 表示显示/操作, 可为 A (W/o; switch)、C (节段显示无按钮)、D (节段显示无按钮+蓝牙)、E (触控图形显示)、F (触控图形显示+蓝牙)、L (准备显示 FHX50B+M12)、M (准备显示 FHX50B+M20)、N (准备显示 FHX50B+1/2-NPT)、O (准备显示 FHX50B+M20)、Y (基于上述的微调, 与防爆无关);

d 表示外壳/材料, 可为 B (单腔, 铝合金)、J (双腔, 铝合金)、K (双腔, 316L)、M (L型双腔, 铝合金)、N (L型双腔, 316L)、Y (基于上述的微调, 与防爆无关);

e 表示电气连接, 可为 A (Gland M20, plastic, IP66/68 NEMA Type 4X/6P)、B (Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P)、C (Gland M20, 316L, IP66/68 NEMA Type 4X/6P)、F (Thread M20, IP66/68 NEMA Type 4X/6P)、G (Thread G1/2, IP66/68 NEMA Type 4X/6P)、H (Thread NPT1/2, IP66/68 NEMA Type 4X/6P)、M (Plug M12, IP66/67 NEMA Type 4X)、P (Plug HAN7D, 90degree, IP65 NEMA Type 4X)、Y (基于上述的微调, 与防爆无关);

f 表示应用, 可为 A (环境温度-40...60°C/-40...140°F (PVT))、B (环境温度-20...80°C/-4...176°F (PVT-HT))、C (环境温度-40...80°C/-40...176°F (NaI))、9 (基于上述的微调, 与防爆无关);

g 表示传感器长度/材料, 可为 A (50×50mm; NaI(Tl) 晶体(掺铊的碘化钠))、B (50×100mm; NaI(Tl) 晶体(掺铊的碘化钠))、C (50×200mm; NaI(Tl) 晶体(掺铊的碘化钠))、E (50mm; PVT)、F (100mm; PVT)、G (200mm; PVT)、H (400mm; PVT)、I (800mm; PVT)、J (1200mm;

PVT)、K (1600mm; PVT)、L (2000mm; PVT)、M (2400mm; PVT)、N (3000mm; PVT)、O (3500mm; PVT)、P (4000mm; PVT)、Q (4500mm; PVT)、Y (基于上述的微调, 与防爆无关);

II 表示应用程序包(可选项), 可为EH(E plus a character or figure representing different Application packages as EH=Heartbeat Verification+Monitoring)、E9(基于上述的微调, 与防爆无关)或者空白;

mm 表示服务(可选项), 可为HF(防腐保护, 传感器和外壳)、HJ(ANSI Safety Red coating, 涂覆端子盖)、IK(蓝牙通信在交付时关闭)、IV(DVD 工具(DeviceCare Setup))、I6(客户定制参数)、I7(纸质产品文件)、I9(基于上述的微调, 与防爆无关)或者空白;

nn 表示测试, 申明/证书(可选项), 可为JA(Inspection certificate 3.1, EN10204, (material certificate sensor housing))、KB(Pressure test, internal procedure, test report)、KC(Helium leak test, internal procedure, test report)、KE(PMI test, internal procedure, test report)、KS(Welding documentation, pressurized seams, declaration)、K9(基于上述的微调, 与防爆无关)或者空白;

oo 表示其他认证(可选项), 可为LA(SIL)、LD(WHG overfill protection)、L9(基于上述的微调, 与防爆无关)或者空白;

pp 表示安装附件(可选项), 可为NA(过压保护)、OB(Plug marking according to IEC/ATEX Ex d)、O9(基于上述的微调, 与防爆无关)或者空白;

qq 表示配件附件(可选项), 可为PA(防水盖子, 316L)、PE(远程显示 RIA15, non-hazardous, Alu field housing)、PF(远程显示 RIA15, Ex, Alu field housing)、PI(HART communication resistor for RIA15, Ex/non-hazardous)、PV(Thermal shielding 1200mm - 3000mm PVT)、PW(Thermal shielding Nal, 200mm - 800mm PVT)、P6(Collimator front face)、P7(Collimator sensor side)、Q1(Mounting clamp 1×d=80mm, 1×d=95mm, up to 400mm)、Q2(Mounting clamp 2×d=80mm, 1×d=95mm, 800mm up to 1600mm)、Q3(Mounting clamp 3×d=80mm, 1×d=95mm, 2000mm up to 3000mm)、Q4(Retaining bracket)、R1(Plug connector M12, IP67)、R2(Plug connector M12, 90deg IP67, union nut, Cu Sn/Ni)、R9(基于上述的微调, 与防爆无关)或者空白;

zz 表示固定版本(可选项), 可为76(01.00. zz, PROFINET, Profile 4.02, DevRev01)、77(01.00. zz, PROFIBUS PA, Profile 3.02, DevRev01)、78(01.00. zz, HART 7, DevRev01)、99(基于上述的微调, 与防爆无关)或者空白;

ss 表示标牌(可选项), 可为Z1(Tagging (TAG), 316L plate, Paper plate, Customer plate, RFID TAG)、Z2(Bus address, see additional spec.)、Z9(基于上述的微调, 与防爆无关)或者空白。

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、对于隔爆型产品, 涉及隔爆接合面的维修须联系产品制造商。
- 2、产品的安装和维护应避免产生静电火花危险。
- 3、传感器法兰连接的紧固件性能等级至少为 A4-70。

4、产品型号规格、温度组别/最高表面温度及使用环境温度范围的关系如下：

1) 本安防爆型式：

型号规格代码 <i>bb</i>	型号规格代码 <i>f</i>	温度组别	使用环境温度范围	
			型号规格代码 <i>c</i> = A/L/M/N/O	型号规格代码 <i>c</i> = C/D/E/F
BA/DA/FA	A	T6...T1	-40℃≤Ta≤+60℃	-40℃≤Ta≤+60℃
BA/FA	B	T6	-20℃≤Ta≤+70℃	-20℃≤Ta≤+60℃
		T5...T1	-20℃≤Ta≤+75℃	-20℃≤Ta≤+65℃
DA		T6	-20℃≤Ta≤+60℃	-20℃≤Ta≤+60℃
		T5...T1	-20℃≤Ta≤+65℃	-20℃≤Ta≤+65℃
BA/FA	C	T6	-40℃≤Ta≤+70℃	-40℃≤Ta≤+60℃
		T5...T1	-40℃≤Ta≤+75℃	-40℃≤Ta≤+65℃
DA		T6	-40℃≤Ta≤+60℃	-40℃≤Ta≤+60℃
		T5...T1	-40℃≤Ta≤+65℃	-40℃≤Ta≤+65℃

2) 防爆型式 Ex db：

型号规格代码 <i>bb</i>	型号规格代码 <i>f</i>	温度组别	使用环境温度范围
			型号规格代码 <i>c</i> = A/C/D/E/F/N/O
BA/DA/FA	A	T6... T1	-40℃≤Ta≤+60℃
BA/DA	B	T6	-20℃≤Ta≤+70℃
		T5... T1	-20℃≤Ta≤+75℃
FA		T6	-20℃≤Ta≤+75℃
		T5... T1	-20℃≤Ta≤+80℃
BA/DA	C	T6	-40℃≤Ta≤+70℃
		T5... T1	-40℃≤Ta≤+75℃
FA		T6	-40℃≤Ta≤+75℃
		T5... T1	-40℃≤Ta≤+80℃

3) 防爆型式 Ex tb：

型号规格代码 f	最高表面温度	使用环境温度范围
A	T85 $^{\circ}\text{C}$	$-40^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$
B		$-20^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$
C		$-40^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$

二、产品使用注意事项

1、产品外壳设有接地端子，用户在安装使用时应可靠接地。

2、产品电气参数如下：

1) 本安防爆型式 (Ex ia)

型号规格代码 <i>bb</i>	电源	本安参数
BA	4...20mA HART	Ui=30VDC Ii=300mA Pi=1W Ci=10nF Li= negligible
DA	FISCO	Ui=17.5VDC Ii=380mA Pi=5.32W Ci=5nF Li= negligible
	Entity	Ui=24VDC Ii=300mA Pi=1.2W Ci=5nF Li= negligible
FA	2-WISE	Ui=17.5VDC Ii=380mA Pi=5.32W Ci=5nF Li= negligible
	Entity	Ui=17.5VDC Ii=300mA Pi=1.2W Ci=5nF Li= negligible

2) 非本安防爆型式 (Ex db、Ex tb)

型号规格代码 <i>bb</i>	电源	电气参数
BA	4...20mA HART	$U \leq 35VDC$ $P \leq 1W$
DA	Profibus PA, Foundation Fieldbus	$U \leq 32VDC$ $P \leq 0.7W$
FA	PROFINET, 10Mbit/s (APL)	$U \leq 15VDC$ $P \leq 0.7W$

3、产品为隔爆型时，电缆引入口 (1/2NPT) 须配用经防爆检验认可的、符合 GB/T 3836.1-2021 和 GB/T 3836.2-2021 标准、防爆等级 Ex db IIC Gb 的电缆引入装置或封堵件；产品为粉尘防爆时，电缆引入口 (1/2NPT) 须配用经防爆检验认可的、符合 GB/T 3836.1-2021 和 GB/T 3836.31-2021 标准、防爆等级 Ex tb IIIC Db 的电缆引入装置或封堵件，安装后外壳防护等级不得低于 GB/T 4208-2017 规定的 IP66/IP68。选用的电缆引入装置或封堵件应与产品的工作条件相适应。

4、本安型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。产品与关联设备的连接电缆应为带绝缘护套的屏蔽电缆,其屏蔽层应接地。

5、隔爆型和粉尘型产品现场使用和维护时,必须遵守“断电源后开盖”的原则。

6、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。

7、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。

8、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”的有关规定。

上海仪器仪表自控系统检验测试所有限公司

国家级仪器仪表防爆安全监督检验站

二〇二四年九月三十日



(GYJ24.1221X)

(Attachment I)

Attachment I to GYJ24.1221X

1. Description

Gammapiot FMG50 series Compact Scintillation Detector, manufactured by Endress+Hauser SE+Co.KG, has been certified and accords with following standards:

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

GB/T 3836.2-2021 Explosive atmospheres-Part 2: Equipment protection by flameproof enclosure "d"

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

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

The Ex marking is Ex db ia II C T6...T1 Gb; Ex db II C T6...T1 Gb; Ex tb IIIC T85°C Db; Ex db II C T6...T1 Gb, Ex tb IIIC T85°C Db, its certificate number is GYJ24.1221X.

Type approved in this certificate is shown as below:

Gammapiot

FMG50-aa bb c d e f g + ll mm nn oo pp qq zz ss

aa indicates Approval, which can be NP (Ex db ia II C T6...T1 Gb), NQ (Ex db II C T6...T1 Gb), NS (Ex tb IIIC T85°C Db), N3 (Ex db II C T6...T1 Gb, Ex tb IIIC T85°C Db);

bb indicates Output, including BA (2-wire, 4...20mA HART), DA (2-wire, Profibus PA), FA (2-wire, PROFINET, 10Mbit/s (APL)), 9Y (Modification of the above options, Changes not explosion protection relevant);

c indicates Display/Operating, including A (W/o; switch), C (Segment display without operation), D (Segment display without operation + Bluetooth), E (Graphic display with touch control), F (Graphic display with touch control + Bluetooth), L (Prepared for separated display FHX50B + M12 connector), M (Prepared for separated display FHX50B + M20 cable entry), N (Prepared for separated display FHX50B + 1/2-NPT entry thread), O (Prepared for separated display FHX50B + M20 entry thread), Y (Modification of the above options, Changes not explosion protection relevant);

d indicates Housing, including B (Single compartment; Alu, coated), J (2 compartment; Alu, coated), K (2 compartment; Stainless Steel 316L), M (Dual compartment L-shape; Alu, coated), N (Dual compartment L-shape; 316L), Y (Modification of the above options, Changes not explosion protection relevant);

e indicates Electrical Connection, including A (Gland M20, plastic, IP66/68 NEMA Type 4X/6P), B (Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P), C (Gland M20, 316L, IP66/68 NEMA Type 4X/6P), F (Thread M20, IP66/68 NEMA Type 4X/6P), G (Thread G1/2, IP66/68 NEMA Type 4X/6P), H (Thread NPT1/2, IP66/68 NEMA Type 4X/6P), M (Plug M12, IP66/67 NEMA Type 4X), P (Plug HAN7D, 90degree, IP65 NEMA Type 4X), Y (Modification of the above options, Changes not explosion protection relevant);

f indicates Application, including A (Ambient temperature -40...60°C / -40...140°F (PVT)), B (Ambient temperature -20...80°C / -4...176°F (PVT-HT)), C (Ambient temperature -40...80°C / -40...176°F (Nal)), 9 (Modification of the above options, Changes not explosion protection relevant);

g indicates Sensor length/Material, including A (50x50mm; Nal (TI) crystal (Thallium doped sodium iodide)), B (50x100mm; Nal (TI) crystal (Thallium doped sodium iodide)), C (50x200mm; Nal (TI) crystal (Thallium doped sodium iodide)), E (50mm; PVT), F (100mm; PVT), G (200mm; PVT), H (400mm; PVT), I (800mm; PVT), J (1200mm; PVT), K (1600mm; PVT), L (2000mm; PVT), M (2400mm; PVT), N (3000mm; PVT), O (3500mm; PVT), P (4000mm; PVT), Q (4500mm; PVT), Y (Modification of the above options, Changes not explosion protection relevant);

h indicates Application Package (optional), including EH (E plus a character or figure representing different Application packages as EH=Heartbeat Verification+Monitoring), E9 (Modification of the above options, Changes not explosion protection relevant), or blank;

mm indicates Services (optional), including HF (Corrosion protection, sensor and housing), HJ (ANSI Safety Red coating, terminal cover coated), IK (Bluetooth communication deactivated at delivery), IV (Tooling DVD (DeviceCare Setup)), I6 (Customized parameter setting), I7 (Product documentation on paper), I9 (Modification of the above options, Changes not explosion protection relevant), or blank;

nn indicates Test, Certificate/Declaration (optional), including JA (Inspection certificate 3.1, EN10204, (material certificate sensor housing)), KB (Pressure test, internal procedure, test report), KC (Helium leak test, internal procedure, test report), KE (PMI test, internal procedure, test report), KS (Welding documentation, pressurized seams, declaration), K9 (Modification of the above options, Changes not explosion protection relevant), or blank;

oo indicates Additional approvals (optional), including LA (SIL), LD (WHG overfill protection), L9 (Modification of the above options, Changes not explosion protection relevant), or blank;

pp indicates Accessories mounted (optional), including NA (Overvoltage protection), OB (Plug marking according to IEC/ATEX Ex d), O9 (Modification of the above options, Changes not explosion protection relevant), or blank;

qq indicates Accessories enclosed (optional), including PA (Weather protection cover, 316L), PE (Remote display RIA15, non-hazardous, Alu field housing), PF (Remote display RIA15, Ex, Alu field housing), PI (HART communication resistor for RIA15, Ex/non-hazardous), PV (Thermal shielding 1200mm – 3000mm PVT), PW (Thermal shielding Nal, 200mm – 800mm PVT), P6 (Collimator front face), P7 (Collimator sensor side), Q1 (Mounting clamp 1 × d=80mm, 1 × d=95mm, up to 400mm), Q2 (Mounting clamp 2 × d=80mm, 1 × d=95mm, 800mm up to 1600mm), Q3 (Mounting clamp 3 × d=80mm, 1 × d=95mm, 2000mm up to 3000mm), Q4 (Retaining bracket), R1 (Plug connector M12, IP67), R2 (Plug connector M12, 90deg IP67, union nut, Cu Sn/Ni), R9 (Modification of the above options, Changes not explosion protection relevant), or blank;

zz indicates Firmware-Version (optional), including 76 (01.00.zz, PROFINET, Profile 4.02, DevRev01), 77 (01.00.zz, PROFIBUS PA, Profile 3.02, DevRev01), 78 (01.00.zz, HART 7, DevRev01), 99 (Modification of the above options, Changes not explosion protection relevant), or blank;

ss indicates Marking (optional), including Z1 (tagging (TAG), 316L plate, Paper plate, Customer plate, RFID TAG), Z2 (Bus address, see additional spec.), Z9 (Modification of the above options, Changes not explosion protection relevant), or blank.

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 specified as follows:

2.1 For information on the dimensions of the flameproof joints contact the manufacturer.

2.2 The device shall be installed and maintained such that hazards caused by electrostatic discharge are excluded.

2.3 The screws used for the sensor flange connection must have a minimum strength according to A4-70.

2.4 The relationship between product type, temperature class/maximum surface temperature and ambient temperature range is shown as below:

1) Intrinsically safe types:

Product type <i>bb</i>	Product type <i>f</i>	Temperature class	Ambient temperature range	
			Product type <i>c</i> = A/L/M/N/O	Product type <i>c</i> = C/D/E/F
BA/DA/FA	A	T6...T1	-40°C≤Ta≤+60°C	-40°C≤Ta≤+60°C
BA/FA	B	T6	-20°C≤Ta≤+70°C	-20°C≤Ta≤+60°C
		T5...T1	-20°C≤Ta≤+75°C	-20°C≤Ta≤+65°C
DA		T6	-20°C≤Ta≤+60°C	-20°C≤Ta≤+60°C
		T5...T1	-20°C≤Ta≤+65°C	-20°C≤Ta≤+65°C
BA/FA	C	T6	-40°C≤Ta≤+70°C	-40°C≤Ta≤+60°C
		T5...T1	-40°C≤Ta≤+75°C	-40°C≤Ta≤+65°C
DA		T6	-40°C≤Ta≤+60°C	-40°C≤Ta≤+60°C
		T5...T1	-40°C≤Ta≤+65°C	-40°C≤Ta≤+65°C

2) Ex db types:

Product type <i>bb</i>	Product type <i>f</i>	Temperature class	Ambient temperature range
			Product type <i>c</i> = A/C/D/E/F/N/O
BA/DA/FA	A	T6...T1	-40°C ≤ Ta ≤ +60°C
BA/DA	B	T6	-20°C ≤ Ta ≤ +70°C
		T5...T1	-20°C ≤ Ta ≤ +75°C
FA		T6	-20°C ≤ Ta ≤ +75°C
		T5...T1	-20°C ≤ Ta ≤ +80°C

BA/DA	C	T6	-40°C≤Ta≤+70°C
		T5...T1	-40°C≤Ta≤+75°C
FA		T6	-40°C≤Ta≤+75°C
		T5...T1	-40°C≤Ta≤+80°C

3) Ex tb types:

Product type <i>f</i>	Maximum surface temperature	Ambient temperature range
A	T85°C	$-40^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$
B		$-20^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$
C		$-40^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$

3. Conditions for Safe Use

3.1 The external earth connection facility shall be connected reliably.

3.2 Electrical data:

1) Intrinsically safe types (Ex ia)

Product type <i>bb</i>	Power supply	Intrinsically safe parameters
BA	4...20mA HART	$U_i=30\text{VDC}$ $I_i=300\text{mA}$ $P_i=1\text{W}$ $C_i=10\text{nF}$ $L_i=\text{negligible}$
DA	FISCO	$U_i=17.5\text{VDC}$ $I_i=380\text{mA}$ $P_i=5.32\text{W}$ $C_i=5\text{nF}$ $L_i=\text{negligible}$
	Entity	$U_i=24\text{VDC}$ $I_i=300\text{mA}$ $P_i=1.2\text{W}$ $C_i=5\text{nF}$ $L_i=\text{negligible}$
FA	2-WISE	$U_i=17.5\text{VDC}$ $I_i=380\text{mA}$ $P_i=5.32\text{W}$ $C_i=5\text{nF}$ $L_i=\text{negligible}$
	Entity	$U_i=17.5\text{VDC}$ $I_i=300\text{mA}$ $P_i=1.2\text{W}$ $C_i=5\text{nF}$ $L_i=\text{negligible}$

2) Non-intrinsically safe types (Ex db, Ex tb)

Product type <i>bb</i>	Power supply	Safe parameters
BA	4...20mA HART	$U \leq 35\text{VDC}$ $P \leq 1\text{W}$
DA	Profibus PA, Foundation Fieldbus	$U \leq 32\text{VDC}$ $P \leq 0.7\text{W}$
FA	PROFINET, 10Mbit/s(APL)	$U \leq 15\text{VDC}$ $P \leq 0.7\text{W}$

3.3 As flameproof product, suitable certified cable gland and blanking plug approved by ExTL according to GB/T 3836.1-2021 and GB/T 3836.2-2021 with Ex marking “Ex db II C Gb” shall be used and correctly installed; as dust product, suitable certified cable gland and blanking plug approved by ExTL according to GB/T 3836.1-2021 and GB/T 3836.31-2021 with Ex marking “Ex tb IIIC Db” shall be used and correctly installed, after installation, degree of protection of enclosure is at least IP66/IP68 according to GB/T 4208-2017. The cable

glands and blanking plugs to be used shall suitable for the product working conditions.

3.4 This 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. Connecting cable between this product and associated apparatus should be insulated screen cable; connect the cable screen functionally to earth ground.

3.5 Obey the warning “Keep tight when the circuit is alive” when the area is known to be hazardous (Ex db & Ex tb product).

3.6 Clean the surface of this product termly when using in combustible dust atmosphere.

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

3.8 For installation, use and maintenance of this product, the end user shall 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 50257-2014 “Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering”.

GB 15577–2018 “Safety regulations for dust explosion prevention and protection”.

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