

Safety Instructions

Deltabar S

PMD70, PMD75, FMD76, FMD77, FMD78

4..20 mA HART, PROFIBUS PA,
FOUNDATION Fieldbus (基金会现场总线)

Ex ia IIC T6

NEPSI GYJ05166/GYJ05635

XC004P-A



en - Safety instructions for electrical apparatus for explosion-hazardous areas

zh - 爆炸环境中电气设备的安全指南

Deltabar S

PMD70, PMD75, FMD76, FMD77, FMD78

english

**Associated
Documentation**

This document is an integral part of the following Operating Instructions:

- HART: BA270P/00 and BA274P/00
- PROFIBUS PA: BA294P/00 and BA296P/00
- FOUNDATION Fieldbus: BA301P/00 and BA303P/00

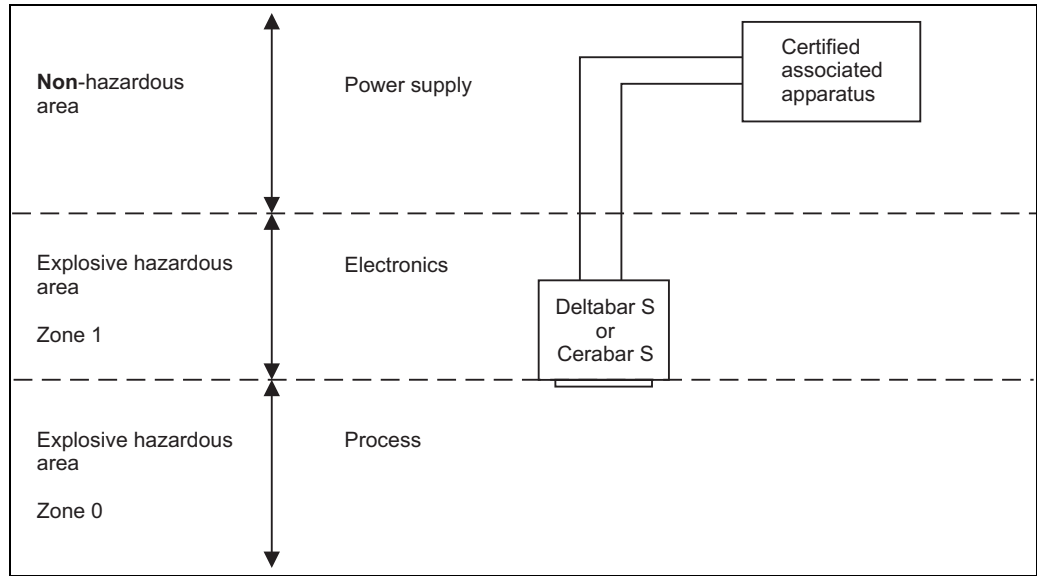
The Operating Instructions which are supplied and correspond to the device type apply.

Designation

Explanation of the labelling and type of protection can be found in the explosion protection brochure.

Designation of explosion protection**Ex ia IIC T6**

**Safety instructions:
Installation**



XC004en01

| Electronic: 4...20 mA HART | | | | | |
|---|---|-------------|---|--------------------------|-----------------|
| Type of protection | Electrical data | Temp. class | Ambient temperature range at housing | Process temperature | Type |
| Ex ia IIC T6...T4 | $U_i \leq 30 \text{ V DC}$ $I_i \leq 300 \text{ mA}$ $P_i \leq 1 \text{ W}$ $C_i \leq 11.8 \text{ nF}$ $L_i \leq 225 \text{ }\mu\text{H}$ | T6 | $-40^\circ\text{C} \leq T_a \leq +40^\circ\text{C}$ | $\leq 80^\circ\text{C}$ | all |
| | | T4 | $-40^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ | $\leq 85^\circ\text{C}$ | PMD70, FMD76 |
| | | | | $\leq 120^\circ\text{C}$ | PMD75 |
| The process temperatures refer to the temperature at the separation membrane of PMD70, PMD75 and FMD76. For FMD77 and FMD78, higher temperatures are permitted depending on the type of diaphragm seal (do not exceed the max. ambient temperature at the housing). | | | | | |

| Electronic: PROFIBUS PA and FOUNDATION Fieldbus (FISCO field device) | | | | | |
|---|---|-------------|---|--------------------------|-----------------|
| Type of protection | Electrical data | Temp. class | Ambient temperature range at housing | Process temperature | Type |
| Ex ia IIC T6...T4 | $U_i \leq 17.5 \text{ V DC}$ $I_i \leq 500 \text{ mA}$ $P_i \leq 1 \text{ W}$ or $U_i \leq 24 \text{ V DC}$ $I_i \leq 250 \text{ mA}$ $P_i \leq 1.2 \text{ W}$ $C_i \leq 5 \text{ nF}$ $L_i \leq 10 \text{ }\mu\text{H}$ (suitable for connection to a fieldbus system according to the FISCO-model) | T6 | $-40^\circ\text{C} \leq T_a \leq +40^\circ\text{C}$ | $\leq 80^\circ\text{C}$ | all |
| | | T4 | $-40^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ | $\leq 85^\circ\text{C}$ | PMD70, FMD76 |
| | | | | $\leq 120^\circ\text{C}$ | PMD75 |
| The process temperatures refer to the temperature at the separation membrane of PMD70, PMD75 and FMD76. For FMD77 and FMD78, higher temperatures are permitted depending on the type of diaphragm seal (do not exceed the max. ambient temperature at the housing). | | | | | |

Safety instructions:**General**

- Only install the devices in media for which the wetted materials have sufficient durability.
- For plastic process connections or plastic coatings, avoid electrostatic charging of the plastic surfaces.
- The type of protection changes as follows when the devices are connected to certified intrinsically safe circuits of Category ib: Ex ib IIC T6 and Ex ib IIC T4. Do not operate the sensor in Zone 0 if the transmitter is connected to an intrinsically safe circuit of Category Ex ib.
- In hazardous areas, intrinsically safe equipment shall only be operated on certified intrinsically safe circuits. The intrinsic safety can be jeopardised if, prior to the installation in the Ex-area, the device is operated with circuits which did not guarantee the U_i , I_i and P_i values indicated in the table above.
- The intrinsically safe input power circuit of the device is isolated from ground potential and has a dielectric strength of at least $500 V_{\text{rms}}$ with respect to it. For devices with integrated overvoltage protection (optional), the dielectric strength is min. $290 V_{\text{rms}}$ to earth.
- After aligning the housing (rotating), tighten the locking screw again.
- For installation, use and maintenance of the device, users must also observe the requirements stated in the Operating Instructions and the standards GB3836.13-2000, GB3836.15-2000 and GB50257-1996.
- The external earth connection facility should be connected reliably.
- The criteria for interconnection between the transmitter and the associated apparatus is:
 $U_o \leq U_i$, $I_o \leq I_i$, $P_o \leq P_i$, $C_o \geq C_i + C_c$, $L_o \geq L_i + L_c$ with U_o , I_o , P_o , C_o , L_o : output parameter of the associated apparatus C_c , L_c : distributed capacitance and inductance of cable.
- Changes in electrical and mechanical parts of the equipment could harm the type of explosion protection and are not allowed for the user.

Safety instructions:**Zone 0**

- Only operate devices in potentially explosive vapour/air mixtures under atmospheric conditions:
 $-20^\circ\text{C} \leq T \leq +60^\circ\text{C}$ and $0.8 \text{ bar} \leq p \leq 1.1 \text{ bar}$
- Associated apparatus with galvanic isolation between the intrinsically safe and non-intrinsically safe circuits are preferred.

For PMD70, FMD76 the following also applies:

- On installations requiring overvoltage protection to comply with national regulations or standards this device shall be installed using an overvoltage protector.

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PMD70、PMD75、FMD76、 FMD77、FMD78

中文

相关资料

该文件是下列操作手册的组成部分：

- HART：BA270P/00 和 BA274P/00
- PROFIBUS PA：BA294P/00 和 BA296P/00
- 基金会现场总线（FOUNDATION Fieldbus）：BA301P/00 和 BA303P/00

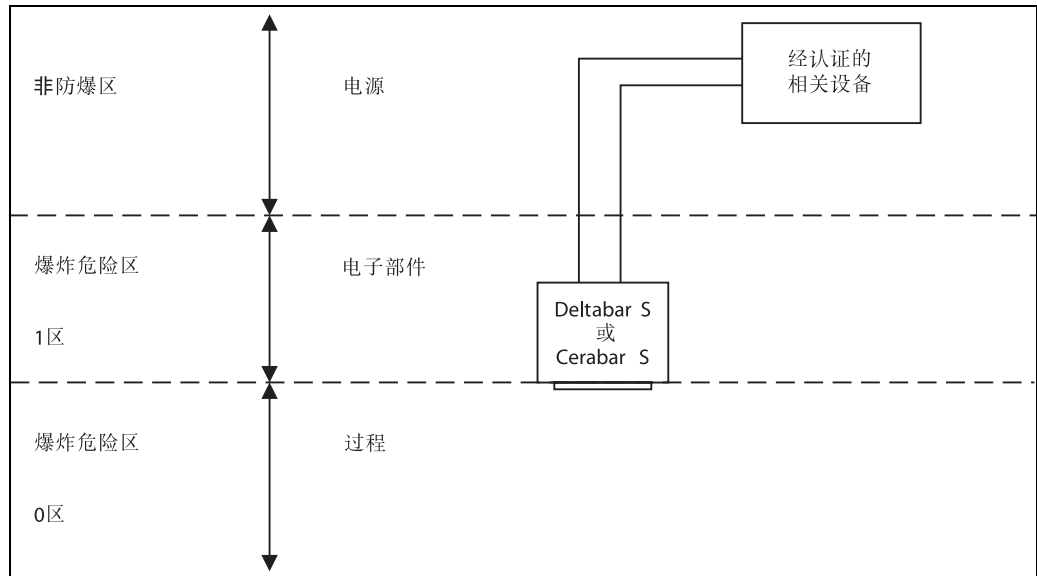
根据用户订购仪表的具体型号，提供相应的操作手册。

名称

防爆标志和防护类型的说明请查询防爆手册。

防爆代号

Ex ia IIC T6

安全指南：
安装

XC004zh01

| 电子部件：4...20 mA HART | | | | | |
|---|--|------|---|-----------------------------------|-------------|
| 防护类型 | 电气参数 | 温度等级 | 外壳处的环境温度范围 | 过程温度 | 类型 |
| Ex ia IIC T6...T4 | $U_i \leq 30 \text{ V DC}$ $I_i \leq 300 \text{ mA}$ $P_i \leq 1 \text{ W}$ $C_i \leq 11.8 \text{ nF}$ $L_i \leq 225 \text{ } \mu\text{H}$ | T6 | $-40 \text{ }^\circ\text{C} \leq T_a \leq +40 \text{ }^\circ\text{C}$ | $\leq 80 \text{ }^\circ\text{C}$ | 所有型号 |
| | | T4 | $-40 \text{ }^\circ\text{C} \leq T_a \leq +70 \text{ }^\circ\text{C}$ | $\leq 85 \text{ }^\circ\text{C}$ | PMD70、FMD76 |
| | | | | $\leq 120 \text{ }^\circ\text{C}$ | PMD75 |
| 过程温度指的是 PMD70、PMD75 和 FMD76 分离陶瓷膜片上的温度。对于 FMD77 和 FMD78，根据采用的膜片密封的类型，可在较高过程温度中操作（但是外壳处不可超出最大环境温度值）。 | | | | | |

| 电子部件：PROFIBUS PA 和基金会现场总线（FOUNDATION Fieldbus）（FISCO 现场设备） | | | | | |
|---|---|------|---|-----------------------------------|-------------|
| 防护类型 | 电气参数 | 温度等级 | 外壳处的环境温度范围 | 过程温度 | 类型 |
| Ex ia IIC T6...T4 | $U_i \leq 17.5 \text{ V DC}$ $I_i \leq 500 \text{ mA}$ $P_i \leq 1 \text{ W}$ 或 $U_i \leq 24 \text{ V DC}$ $I_i \leq 250 \text{ mA}$ $P_i \leq 1.2 \text{ W}$ $C_i \leq 5 \text{ nF}$ $L_i \leq 10 \text{ } \mu\text{H}$ （根据 FISCO 模式，能与现场总线系统相连接） | T6 | $-40 \text{ }^\circ\text{C} \leq T_a \leq +40 \text{ }^\circ\text{C}$ | $\leq 80 \text{ }^\circ\text{C}$ | 所有型号 |
| | | T4 | $-40 \text{ }^\circ\text{C} \leq T_a \leq +70 \text{ }^\circ\text{C}$ | $\leq 85 \text{ }^\circ\text{C}$ | PMD70、FMD76 |
| | | | | $\leq 120 \text{ }^\circ\text{C}$ | PMD75 |
| 过程温度指的是 PMD70、PMD75 和 FMD76 分离陶瓷膜片上的温度。对于 FMD77 和 FMD78，根据采用的膜片密封的类型，可在较高过程温度中操作（但是外壳处不可超出最大环境温度值）。 | | | | | |

安全指南：
概述

- 当仪表的接触部件具有足够耐久度时，才可将仪表安装于介质中。
- 对于塑料工艺连接件或塑料涂层，应避免塑料表面产生静电荷。
- 仪表与防爆类别为 ib 的本安型电路相连时，防护类型变为 Ex ib IIC T6 和 Ex ib IIC T4。若变送器与防爆类别为 Ex ib 的本安型电路相连时，不可在 0 区中操作传感器。
- 在防爆区中使用时，本安型仪表只可工作于经认证的本安型电路中。在防爆区中安装前，若仪表工作于参数值不同于上表中的 U_i 、 I_i 和 P_i 的电路中，则系统的本质安全类型可能会有所降低。
- 本安型设备的输入电源电路与地电势是绝缘的，它相对地电势至少有 $500 V_{\text{rms}}$ 绝缘强度。对于带有集成过压保护装置（可选）的设备，对地的绝缘强度最小为 $290 V_{\text{rms}}$ 。
- 对准外壳（旋转）后，再次拧紧锁紧螺钉。
- 设备在安装、使用和维护过程中，用户必须遵守操作手册和 GB3836.13-2000、GB3836.15-2000 及 GB50257-1996 标准中陈述的要求。
- 外部接地连接部件应可靠连接。
- 变送器与相关设备间的连接标准是：
 $U_o \leq U_i$ 、 $I_o \leq I_i$ 、 $P_o \leq P_i$ 、 $C_o \geq C_i + C_c$ 、 $L_o \geq L_i + L_c$ 。 U_o 、 I_o 、 P_o 、 C_o 、 L_o 为相关设备的输出参数 C_c 、 L_c 电缆的分布电容和电感。
- 改动设备的电气和机械部件会降低防爆保护的类型，用户请勿擅自改动。

安全指南：
0 区

- 在有可能爆炸的水蒸气 / 空气混合物中操作仪表满足这样的大气条件：
 $-20\text{ °C} \leq T \leq +60\text{ °C}$ 和 $0.8\text{ bar} \leq p \leq 1.1\text{ bar}$
- 在本安型和非本安型电路间最好采用电气隔离的相关设备。

对于 PMD70 和 FMD76，下述原则也适用：

- 对安装时需要过压保护以符合国家规定或标准的设备，应该使用过压保护器进行安装。

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