UNIK5000

(仅针对型号 5#0#)
压力传感器
在危险区域操作要求

NEPSI 本质安全性

English 1 – 2
中文 3 – 4



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A1

[1] UNIK 5#00 PRESSURE SENSOR
[2] #### 5#0#[#]-T#-A#-C#-##-##-########
[3] ########## ACCURACY

[4] ⊖ ###### - ###### ###### ## ⊕ ### - ### ## ######## [6]
[5] ⊖ ### - ### Vdc ## mA S/N ######## DD/MM/YY [7]

[8] GYJ23.1083U
[9] ☐ Ex ia IIC Ga [10]

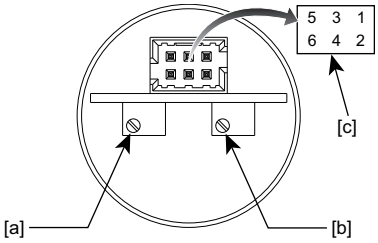
[11] ☐

[12] DRUCK LTD. LEICESTER, LE6 0FH, UK MADE IN ##### [13]

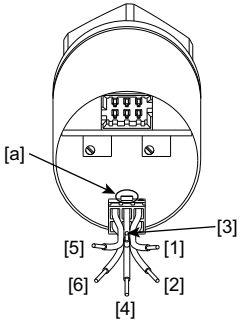
A2

		Ui (V)	Ii (mA)	Pi (W)	Ci (nF)	Li (mH)
PMP	5#03	16	299	1.0	367.4	0
	5#04					
	5#05					
	5#06					
PDCR	5#00	24	261	1.0	3.3	0
	5#01	24	261	1.0	14.3	0
PTX	5#02	28	180	0.7	63.8	0

A3



A4



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Requirements in Hazardous Areas

The original language of these instructions is English.

The data that follows is only applicable to a sub-assembly ('Ex component') with the specified marking details.

The component for use in potentially explosive atmospheres complies with Chinese certification requirements.

This component is designed for incorporation into an enclosure which may contain additional electronic circuitry. The result is an item of equipment whose own certification must permit the use of this component.

Before installing and using the component, read and understand all the related data. This includes all local safety procedures and installation standards, this document and the product datasheet or specification drawing (if applicable).

Relevant installation standards:

- GB/T 3836.13-2021
- GB 3836.15-2024
- GB 3836.16-2024
- GB/T 3836.18-2024
- GB 50257-2014

A copy of the NEPSI type-examination certificate is available from the manufacturer.

To install and use the component, use only approved engineers who have the necessary skills and qualifications.

Marking Details (Figure A1)

1. Product description.
2. Model number – To identify the meaning, refer to the product datasheet. If the model number is followed by four or eight numbers, '-####' or '-########', refer to the manufacturer's specification drawing E-A3-#### or ########.
3. Accuracy specification – refer to the product datasheet or specification drawing (if applicable).
4. Input: pressure range limits.
5. Input: power supply voltage range and current limits.
6. Output: signal voltage or current range.
7. Serial number; date of manufacture.
8. Certificate number.
9. Hazardous area markings.
10. NEPSI markings.
11. Reserved for other certification markings (if applicable).
12. Certificate holder's name and address.
13. Country of assembly: made in UK/China.

Installation

WARNING The component must not be installed in the presence of a potentially explosive atmosphere, or while it and/or the host circuit is energized – this can cause an explosion.

CAUTION Do not press or pierce the silicone gel around the printed circuit board and electronic components.

The plastic/rubber protection cap should not be removed from the pressure connector until the component is put into use.

Materials

The materials used for the primary enclosure and pressure bearing surfaces are identified in the product datasheet or on the specification drawing (if applicable).

Make sure that the materials are applicable for the installation.

External Temperature Limits

The permitted ambient temperature range for the component is -40°C to +80°C. Make sure that the process media also stays within these limits.

Position

Attach the component in a safe configuration that prevents unwanted stress (vibration, physical impact, shock, mechanical and thermal stresses). Do not install the component where it can be damaged by a material that causes corrosion. Provide additional protection for equipment that may be damaged in service.

Ingress Protection

The component must be incorporated into an enclosure providing the required degree of ingress protection for Group II as required by the standards.

Protection Type and Group	Ingress Protection
Intrinsically Safe 'ia', Group II	IP20 minimum

Note: The enclosure can have a higher IP rating – refer to the datasheet or, if applicable, the specification drawing.

Identification of Markings Put Into Use

The product may have been provided with markings for more than one method of protection. The method or methods put into use must be indicated, by marking the adjacent box (see Figure A1, items 9 or 11).

The wall of the enclosure may only be 0.5 mm thick. The method of marking must not dent, pierce or damage the product enclosure. The use of impact stamps and engraving is not permitted.

Electrical Connections

The component is fitted with a 6-pin electrical connector. For pin numbering, refer to Figure A3 item c.

The component may be supplied with a mating connector and flying leads. Refer to Figure A4 and key below:

1. Red
2. Yellow
3. Green
4. Blue
5. Orange
6. Black

a. Polarization feature.

The flying leads are 7/0.2 mm insulated copper wire.

To identify the electrical connections, refer to the product datasheet or, if applicable, the specification drawing.

The power supply and signal connections to the pressure sensor must be made via certified intrinsically safe associated apparatus, where the output current is limited by a resistor (R) such that Io = Uo / R.

The circuit must be intrinsically safe, in accordance with standard GB/T 3836.18-2024.

Table A2 gives the maximum input voltage (Ui), current (Ii), power (Pi), capacitance (Ci) and inductance (Li) values for the pressure sensor.

To prevent damage that can affect the protection rating, do not use flat screwdriver blades with tapered edges.

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Terminate the ends of stranded wire with crimped core sleeves.

Where a ‘SHUNT CAL’ terminal has been provided for test purposes, it shall only be connected to the ‘-VE SUPPLY’ terminal within the hazardous area.

Where a ‘CASE’ terminal has been provided, it shall not be used for electrically bonding the enclosure to earth.

Connect the earth/ground connections that are applicable to the installation.

PTX and PDCR variants are resistant to an AC test voltage of 500 V RMS as specified in GB/T 3836.4-2021. PMP variants are not resistant to the test voltage. This must be taken into account during installation.

Zero and Span Adjustment

As supplied, the component allows access to the zero and span adjustment potentiometers - Refer to Figure A3 and key below:

a. Zero potentiometer.

b. Span potentiometer.

c. Connector pins.

Use an insulated potentiometer adjustment tool.

Maintenance

Clean the case with a moist, lint-free cloth and a weak detergent. Refer also to “Installation” and “Repair”.

Repair

Do not try to do repairs to the component. Return the component to the manufacturer or an approved service agent.

The replacement component must have the equivalent certified approval.

Schedule of Limitations

The suffix “U” of the explosion-proof certificate number indicates that the product is an Ex component. The specific requirements are as follows:

1. This product must be installed in an enclosure with an enclosure rating of IP20 and additional certification for use in explosive hazardous environment.
2. PMP variants will not pass the 500 V RMS dielectric strength test. The associated equipment shall be equipped with an isolated safety barrier; if a Zener safety barrier is selected, it shall meet the requirements of GB 3836.15-2024 for the grounding of intrinsically safe circuits.
3. The following must be considered when installing this component in equipment:
   a. Maximum temperature rise for electronic components <20 mm^2 is 60 K.
   b. Maximum temperature rise for electronic components >1000 mm^2 is 16.3 K.

   Example:

   Component suitable for Temperature Class T5 up to +83.7°C maximum ambient or Temperature Class T4 up to +118.7°C maximum ambient.
4. 57## models only: The component enclosure contains light metals, which are considered to be a potential frictional ignition risk. It must be mounted such that it is protected from impact or friction.

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在危险区域操作要求

这些说明的原始语言为英语。

下文数据仅适用于带有指定标志的子单元 （“Ex 部件”）。

该部件在易爆环境中的使用符合中国认证要求。

此部件设计并入机箱中，它可能包含额外的电子电路。其结果是设备自己的认证必须允许使用此部件。

安装和使用该部件之前，请阅读并理解所有相关信息和数据。这包括所有当地安全法规和安装标准，本文档以及产品数据表或规格图 （如适用）。

相关的安装标准：

- GB/T 3836.13-2021
- GB 3836.15-2024
- GB 3836.16-2024
- GB/T 3836.18-2024
- GB 50257-2014

制造商可提供 NEPSI 型检验证书。

必须由具备必要技能和资质的工程人员来安装和使用本部件。

认证标志情况 （图 A1）

1. 产品说明
2. 型号 – 要确定其含义，请参考产品数据表。如果型号后跟 4 个数字 ‘-####’ 或 8 个数字 ‘-########’，请参考制造商的规格图 E-A3-#### 或 ########。
3. 精度规格 – 请参考产品数据表或规格图 （如适用）。
4. 输入：压力范围限制。
5. 输入：电源电压范围和电流限制。
6. 输出：信号电压或当前范围。
7. 序列号；生产日期。
8. 证书编号。
9. 危险区域标志。
10. NEPSI 标志。
11. 保留用于其他认证标志 （如适用）。
12. 证书持有人名称和地址。
13. 装配国：英国 / 中国制造。

安装

警告 该部件不可安装于存在易爆空气的环境中，否则当其和 / 或主机电路通电时 – 可能发生爆炸。

小心 不要在印刷电路板和电子元件周围按压或穿透硅凝胶。

不应卸下压力接头上的塑料 / 橡胶保护盖，直到该部件投入使用。

材料

主机箱和承压面采用的材质标识在产品数据表或规格图（如适用）中。

确保这些材料适用于系统。

外部温度极限

该部件的许可环境温度介于 -40°C 至 +80°C。确保过程介质也保持在此限制范围内。

位置

请将该部件安装在可以防范意外情况 （振动、物理影响、冲击、机械和热应力）的妥善环境中。不要将本部件安装在可能被易导致腐蚀的物质损害的地方。请为在使用期间可能受损的设备提供额外保护。

进入保护

该部件必须并入机箱，根据标准的要求提供所需的二类程度的进入保护。

防护等级	进入保护
本质安全性 ‘ia’，II 类	IP20 最低

注：机箱可具有较高 IP 等级 – 请参考数据表或 （如适用）规格图。

投入使用的标志识别

本产品可能提供有一种以上的防护方法标志。这个或这些方法的投入使用必须如相邻的框标志所指示 （请参见图 A1，9 或 11 项）。

机箱壁可能仅有 0.5 mm 厚。标志方法必须不能使机箱凹陷，戳穿或损坏产品机箱。不允许使用冲击戳和雕刻方法。

电气连接

该部件配有一个 6 针电气接头。有关引脚编号，请参见图 A3 中的 c 项。该部件可能提供有配套接头和分线头引线。请参阅下面的图 A4 和键：

1. 红色
2. 黄色
3. 绿色
4. 蓝色
5. 橙色
6. 黑色

a. 极化特征

分线头引线为 7/0.2 mm 绝缘铜线。

要确定电气连接，请参考产品数据表或 （如适用）规格图。

压力传感器的电源和信号线路连接必须根据设备相关的本质安全认证制造，其中输出电流受电阻限制 (R)，使得 Io = Uo / R。

电路必须根据标准 GB/T 3836.18-2024 达到本质安全。

表 A2 给出压力传感器的最大输入电压 (Ui)、电流 (Ii)、功率 (Pi)、电容 (Ci) 和感应系数 (Li) 值。

为防止出现损坏可能影响防护等级，不要使用锥形边缘的平口螺丝刀。使用卷曲芯套固定绞线端。

其中 “ 分路校准 ” 端提供用于测试目的，仅在危险区域中连接到 “-VE 电源 ” 端。

其中提供的 “ 盒 ” 端，不可用于机箱电粘结接地。

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连接适用于系统的接地线路。

PTX 和 PDCR 改装型号可以承受 GB/T 3836.4-2021 规定的 500 V rms 交流测试电压。PMP 改装型号不可承受测试电压。必须在安装过程中考虑到这一点。

零位和量程调整

该部件的提供方式允许访问零位和量程调整电位计 - 请参阅下面的图 A3 和键：

a. 调零电位计

b. 量程电位计

c. 接头针脚

使用绝缘的电位计调整工具。

维护

请使用不带棉绒的湿布和较温和的清洁剂清洁该设备。另请参考 “ 安装 ” 和 “ 维修 ”。

维修

请勿试图修理本部件。请将该部件返交给制造商或经核准的维修机构。

更换部件必须具有相当的认证批准。

限制安排

防爆合格证号后缀 “U” 代表产品为 Ex 元件，具体要求如下：

1. 该产品必须安装在具有外壳防护等级 IP20 以上的外壳内，并进行附加认证，方可在爆炸性危险环境中使用。
2. PMP 改装型号不可经受 500 V RMS 绝缘强度试验。其关联设备应配用隔离式安全栅；如选用齐纳式安全栅，应符合 GB 3836.15-2024 标准关于本安电路接地的要求。
3. 在设备中安装此部件时必须要考虑到以下要求。
   a. <20 mm^2 的电子元件的最大温度上升为 60 K。
   b. >1000 mm^2 的电子元件的最大温度上升为 16.3 K。

   示例：

   适用于温度等级 T5 的部件最高适应 +83.7°C 的最大环境温度，或者适用于温度等级 T4 最高适应 +118.7°C 的最大环境温度。
4. 仅适用于 57## 型号：本部件机箱包含轻金属，这被认为是一种潜在的摩擦燃烧危险。其安装方式必须注意防护这类冲击或摩擦。

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