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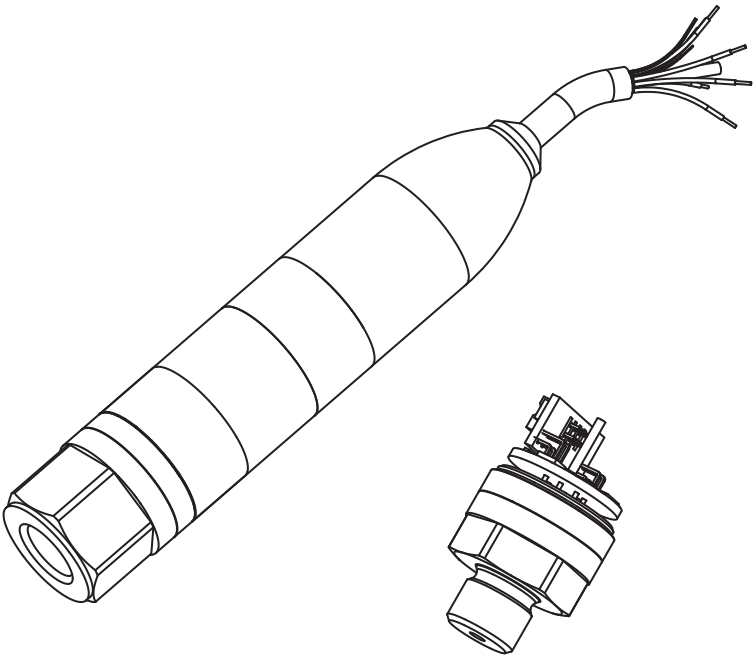
DPS5000

Pressure Sensors

Hazardous Area Installation Instructions

Equipment and Component Certification - UKEX Ex ia IIC Models



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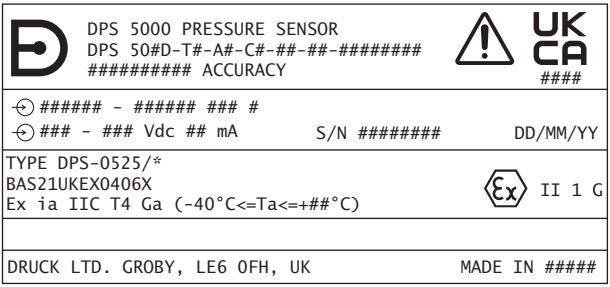
A1



A2

	Ui (V)	Ii (A)	Pi (W)	Ci (µF)	Li (µH)
TYPE DPS-0525/A	8.4	0.6	1.0	6.7 + ❶	1.9 + ❶
TYPE DPS-0525/B	8.4	0.3	2.0	6.7 + ❶	1.9 + ❶

A3

	D (m)	C (pF/m)	L (µH/m)
❶	≤ 64	618	1.37

A4

	C (nF)	L (µH)
❶	100	88

B1

B2

	Ui (V)	Ii (A)	Pi (W)	Ci (µF)	Li (µH)
DPS500D	8.4	0.6	0.63	6.7	1.9

1. DPS5000 Ex ia IIC (Excluding Model 500D)

The original language of these instructions is English.

The data that follows is only applicable to equipment with the specified marking details.

The equipment for use in potentially explosive atmospheres complies with UK Statutory Instruments 2016 No. 1107 regulation (as amended by UKSI 2019 no. 696).

The applied standards are:

- EN IEC 60079-0:2018
- EN 60079-11:2012

Read and understand all the related data before installing and using the equipment. This includes: all local safety procedures and installation standards (for example: IEC/EN 60079-14), this document, and the product datasheet or, if applicable, the specification drawing.

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

To install and use the equipment in potentially explosive atmospheres (“hazardous areas”), use only approved engineers who have the necessary skills and qualifications.

WARNING Do not use tools on the pressure sensor that might cause incendive sparks - this can cause an explosion.

Do not do live maintenance while an explosive atmosphere is present - this can cause an explosion. Use a safe work procedure. Refer to “Connections to Other Equipment” for permitted work.

Marking Details

Refer to Figure A1, and the explanation below:

1. Product description & details (e.g. range, model number, accuracy specification etc.)
2. ⚠ ‘Caution’ / ‘Warning’ symbol. To install and use this equipment in the specified hazardous area, read, understand and comply with this document.
3. ID number of the UK approved body responsible for quality assurance.
4. Pressure and electrical ratings.
5. Serial number; date of manufacture.
6. UKEX Certificate number.
7. Hazardous area markings.
8. Equipment group and category.
9. Reserved for other certification markings (if applicable).
10. Certificate holder’s name and address.
11. Country of assembly: ‘MADE IN UK’ or ‘MADE IN CHINA’.

Pressure Sensor Materials

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

Make sure that the materials are applicable for the installation.

Installation

Before using the equipment, remove the plastic/rubber protection cap from the pressure connector.

External Temperature Limits

The permitted ambient temperature range for the equipment is -40°C to +80°C (TYPE DPS-0525/A) or -40°C to +70°C (TYPE DPS-0525/B). Make sure that the process media also stays within these limits.

Position

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

Ingress Protection

As specified by the certification, the enclosure has a minimum ingress protection (IP) rating of IP20 when correctly installed.

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

When installed, the electrical connectors and wiring must provide the minimum ingress protection (IP) rating indicated above.

Identification of Markings Put into Use

The product may have been provided with markings for more than one method of protection (see Figure A1, items 7 or 9).

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

Electrical Connections

Refer to the “Application Notes” supplied. The DPS5000 is resistant to an AC test voltage of 500 V RMS as specified in IEC/EN 60079-11.

The power supply and signal connections to the pressure sensor must be made through a 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, refer to IEC/EN 60079-25.

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

Table A3 refers to the capacitance (C) and inductance (L) of the factory-fitted cable that may be supplied with the sensor. Any length of cable may be provided, up to a maximum limit specified in column D.

Table A4 refers to the maximum cable capacitance (C) and inductance (L) that may be fitted by the installer to sensors supplied without factory-fitted cable.

To prevent damage that can affect the protection rating, do not use flat screwdriver blades with tapered edges. Terminate the ends of stranded wire with crimped core sleeves.

Connect the earth/ground connections applicable to the installation. If applicable, make sure the cable screen is isolated from the pressure sensor.

Connections to Other Equipment

Before connecting a pressure calibrator, make sure it is certified ‘intrinsically safe’ and that all the electrical connections are intrinsically safe. Stay within the permitted limits for the electrical system.

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 equipment. Return the equipment to the manufacturer or an approved service agent.

Specific Conditions of Use

1. The non-metallic parts may constitute a potential electrostatic ignition risk. Do not rub non-metallic parts with a dry cloth.

Declaration Requirements – UK SI 2016 No. 1107 (as amended by UKSI 2019 no. 696)

This equipment is designed and manufactured to meet the essential health and safety requirements not covered by the UKEX Type Examination Certificate BAS21UKEX0406X when installed as detailed above.

2. DPS5000 Ex ia IIC (Model 500D Only)

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 UK Statutory Instruments 2016 No. 1107 regulation (as amended by UKSI 2019 no. 696).

The applied standards are:

- EN IEC 60079-0:2018
- EN 60079-11:2012

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

Read and understand all the related data before installing and using the component. This includes this document and the product data sheet or, if applicable, the specification drawing.

A copy of the UKEX 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

Refer to Figure B1, and the explanation below:

1. Model number - To identify the meaning, refer to the product data sheet. If the model number is followed by four or eight numbers, ‘-####’ or ‘-########’, refer to the manufacturer’s specification drawing E-A3-#### or ########.
2. UKEX Certificate number.
3. Certificate holder’s name.

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.

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, if applicable, on the specification drawing.

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 the component if it may be damaged in service.

Ingress Protection

As specified by the certification, the enclosure has a minimum ingress protection (IP) rating of IP20 when correctly installed.

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

Electrical Connections

Refer to the “Application Notes” supplied. The item of equipment must withstand a test voltage of 500 V RMS as specified in IEC/EN 60079-11.

Maximum Input Values

Table B2 gives the maximum input voltage (Ui), current (Ii), power (Pi), capacitance (Ci) and inductance (Li) values for the Ex component.

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

1. The component must be incorporated into an enclosure providing the required degree of ingress protection.
2. The following must be considered when installing this component in equipment:
   a. Maximum temperature rise for electronic components <20 mm^2 is 126K.
   b. Maximum temperature rise for electronic components ≥20 mm^2 and ≤10 cm^2 is 95K.

The component is therefore suitable, for example, for a Temperature Classification of T4 in an ambient temperature of up to +80°C maximum.

Declaration Requirements – UKSI 2016 No. 1107 (as amended by UKSI 2019 No. 696)

This component is designed and manufactured to meet the essential health and safety requirements not covered by UKEX Type Examination Certificate BAS21UKEX0405U when installed as detailed above.

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Services and Support Locations

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