

DPI
Grundfos differential
pressure sensor, Industry
Installation and operating instructions

GB D F I E GR DK PL RU H CZ



GB Declaration of Conformity

We, Grundfos, declare under our sole responsibility that the product DPI, to which this declaration relates, is in conformity with these Council directives on the approximation of the laws of the EC member states:

- Low Voltage Directive (2006/95/EC).
Standard used: EN 61010-1: 2001.
 - EMC Directive (2004/108/EC).
Standards used: EN 61326-1: 2006 and EN 61326-2-3: 2006.
-

D Konformitätserklärung

Wir, Grundfos, erklären in alleiniger Verantwortung, dass das Produkt DPI, auf das sich diese Erklärung bezieht, mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EU-Mitgliedsstaaten übereinstimmt:

- Niederspannungsrichtlinie (2006/95/EG).
Norm, die verwendet wurde: EN 61010-1: 2001.
 - EMV-Richtlinie (2004/108/EG).
Normen, die verwendet wurden: EN 61326-1: 2006 und EN 61326-2-3: 2006.
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F Déclaration de Conformité

Nous, Grundfos, déclarons sous notre seule responsabilité, que le produit DPI, auquel se réfère cette déclaration, est conforme aux Directives du Conseil concernant le rapprochement des législations des Etats membres CE relatives aux normes énoncées ci-dessous :

- Directive Basse Tension (2006/95/CE).
Norme utilisée : EN 61010-1 : 2001.
 - Directive Compatibilité Electromagnétique CEM (2004/108/CE).
Normes utilisées : EN 61326-1 : 2006 et EN 61326-2-3 : 2006.
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I Dichiarazione di Conformità

Grundfos dichiara sotto la sua esclusiva responsabilità che il prodotto DPI, al quale si riferisce questa dichiarazione, è conforme alle seguenti direttive del Consiglio riguardanti il riavvicinamento delle legislazioni degli Stati membri CE:

- Direttiva Bassa Tensione (2006/95/CE).
Norma applicata: EN 61010-1: 2001.
 - Direttiva EMC (2004/108/CE).
Norme applicate: EN 61326-1: 2006 e EN 61326-2-3: 2006.
-

E Declaración de Conformidad

Nosotros, Grundfos, declaramos bajo nuestra propia responsabilidad que el producto DPI, al cual se refiere esta declaración, está conforme con las Directivas del Consejo en la aproximación de las leyes de los Estados Miembros del EM:

- Directiva de Baja Tensión (2006/95/CE).
Norma aplicada: EN 61010-1: 2001.
 - Directiva EMC (2004/108/CE).
Normas aplicadas: EN 61326-1: 2006 y EN 61326-2-3: 2006.
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GR Δήλωση Συμμόρφωσης

Εμείς, η Grundfos, δηλώνουμε με αποκλειστικά δική μας ευθύνη ότι τα προϊόντα DPI, στα οποία αναφέρεται η παρούσα δήλωση, συμμορφώνονται με τις εξής Οδηγίες του Συμβουλίου περί προσέγγισης των νομοθεσιών των κρατών μελών της ΕΕ:

- Οδηγία χαμηλής τάσης (2006/95/EC).
Πρότυπο που χρησιμοποιήθηκε: EN 61010-1: 2001.
 - Οδηγία Ηλεκτρομαγνητικής Συμβατότητας (EMC) (2004/108/EC).
Πρότυπα που χρησιμοποιήθηκαν: EN 61326-1: 2006 και EN 61326-2-3: 2006.
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(DK) Overensstemmelseserklæring

Vi, Grundfos, erklærer under ansvar at produktet DPI som denne erklæring omhandler, er i overensstemmelse med disse af Rådets direktiver om indbyrdes tilnærmelse til EF-medlemsstaternes lovgivning:

- Lavspændingsdirektivet (2006/95/EF).
Anvendt standard: EN 61010-1: 2001.
- EMC-direktivet (2004/108/EF).
Anvendte standarder: EN 61326-1: 2006 og EN 61326-2-3: 2006.

(PL) Deklaracja zgodności

My, Grundfos, oświadczamy z pełną odpowiedzialnością, że nasze wyroby DPI, których deklaracja niniejsza dotyczy, są zgodne z następującymi wytycznymi Rady d/s ujednoczenia przepisów prawnych krajów członkowskich EG:

- Dyrektywa Niskonapięciowa (LVD) (2006/95/WE).
Zastosowana norma: EN 61010-1: 2001.
- Dyrektywa EMC (2004/108/WE).
Zastosowane normy: EN 61326-1: 2006 i EN 61326-2-3: 2006.

(RU) Декларация о соответствии

Мы, компания Grundfos, со всей ответственностью заявляем, что изделия DPI, к которым относится настоящая декларация, соответствуют следующим Директивам Совета Евросоюза об унификации законодательных предписаний стран-членов ЕС:

- Низковольтное оборудование (2006/95/ЕС).
Применявшийся стандарт: EN 61010-1: 2001.
- Электромагнитная совместимость (2004/108/ЕС).
Применявшиеся стандарты: EN 61326-1: 2006 и EN 61326-2-3: 2006.

(H) Megfelelőségi nyilatkozat

Mi, a Grundfos, egyedüli felelősséggel kijelentjük, hogy a DPI termék, amelyre jelen nyilatkozik vonatkozik, megfelel az Európai Unió tagállamainak jogi irányelveit összehangoló tanács alábbi előírásainak:

- Kisfeszültségű Direktíva (2006/95/EK).
Alkalmazott szabvány: EN 61010-1: 2001.
- EMC Direktíva (2004/108/EK).
Alkalmazott szabványok: EN 61326-1: 2006 és EN 61326-2-3: 2006.

(CZ) Prohlášení o shodě

My firma Grundfos prohlašujeme na svou plnou odpovědnost, že výrobky DPI na něž se toto prohlášení vztahuje, jsou v souladu s ustanoveními směrnice Rady pro sblížení právních předpisů členských států Evropského společenství v oblastech:

- Směrnice pro nízkonapěťové aplikace (2006/95/ES).
Použitá norma: EN 61010-1: 2001.
- Směrnice pro elektromagnetickou kompatibilitu (EMC) (2004/108/ES).
Použité normy: EN 61326-1: 2006 a EN 61326-2-3: 2006.

Bjerringbro, 20th April 2010



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Person authorised to compile technical file and
empowered to sign the EC declaration of conformity.

DPI

Grundfos differential pressure sensor, Industry

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Warning

Prior to installation, read these installation and operating instructions. Installation and operation must comply with local regulations and accepted codes of good practice.

1. Symbols used in this document



Warning

If these safety instructions are not observed, it may result in personal injury!

Caution

If these safety instructions are not observed, it may result in malfunction or damage to the equipment!

Note

Notes or instructions that make the job easier and ensure safe operation.

2. Delivery and handling

2.1 Delivery

Grundfos differential pressure sensor, type DPI, is supplied for direct mounting with 7/16"-20 UNF connection. Miscellaneous accessories are available on request.

2.2 Handling

Comply with local regulations and good practice for the handling of electronic equipment.

3. Applications

Grundfos differential pressure sensor, type DPI, is used for measuring differential pressure.

Caution

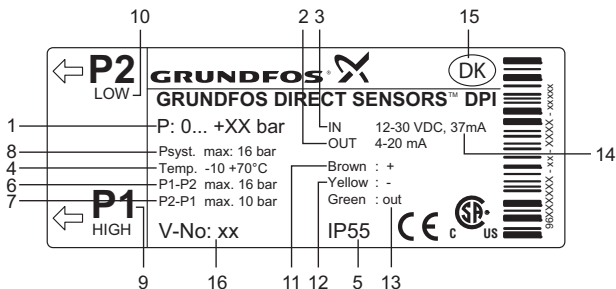
If the sensor is used in a manner not specified by the manufacturer, the protection provided may be damaged.



Do not use Grundfos DPI sensors in explosive environments zone-classified according to ATEX.

4. Identification

4.1 Nameplate



TM03 3063 2206

Fig. 1 Nameplate for DPI

Pos.	Description
1	Pressure range
2	Output signal
3	Supply voltage
4	Temperature range of medium
5	Enclosure class
6	Max. differential pressure, P1 ->P2
7	Max. differential pressure, P2 ->P1
8	Max. system pressure
9	Connection P1, high pressure (discharge side)
10	Connection P2, low pressure (suction side)
11	12 - 30 V supply voltage
12	GND (earth lead)
13	Signal lead
14	Max. current consumption
15	Country of origin
16	Version no.

Conversion of SI units into US units, see page 15.

5. Function

The sensor measures the differential pressure between the high pressure (P1) and the low pressure (P2). It may for example be the differential pressure between the flanges on the suction and discharge side of a pump.

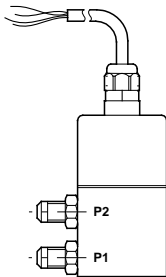


Fig. 2 DPI with position of P1 and P2

Connect the sensor to the pressure gauge tapings of the pump flanges or to other measuring points in the system by means of 7/16"-20 UNF copper capillary tubes.

The pressure measurement is carried out by a silicon chip covered with a special coating developed by Grundfos.

The sensor signal is sent to an external controller or to a motor controller.

The sensor is supplied with power from an external voltage supply or direct from the terminal box of the motor.

6. Installation

The sensor can be mounted direct on the side of the pump or on a wall by means of the mounting bracket supplied.

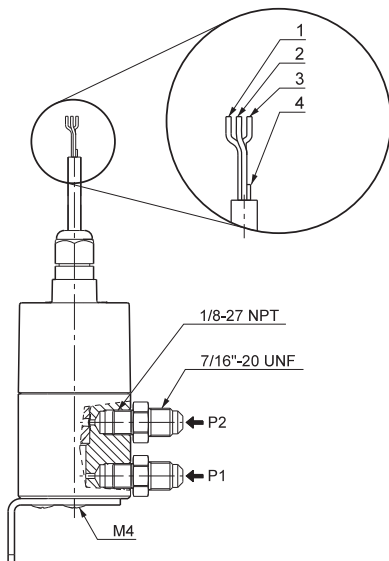


Fig. 3 Connections of the DPI

The DPI cable has four leads:

1	12 - 30 V supply voltage	Brown
2	GND (earth lead)	Yellow
3	Signal lead	Green
4	Test lead (can be cut off during mounting). This lead must not be connected to voltage supply.	White



The DPI must be supplied with power via a PELV supply (EN 60335-1) where GND is connected to protective earthing. Furthermore, connect the mounting bracket and/or one or both of the capillary tubes to earth.

6.1 Extension of cable

The DPI kit 2 enables the extension of the sensor cable to up to > 30 m. If extension of the cable is required, always follow the guidelines below to ensure optimum connection between sensor and controller. The six steps below refer to fig. 4 on page 12:

1. Remove the outer insulation 50 mm from each cable end. Pull the outer screen away from the cable ends.
Shorten and strip the individual conductors as shown.
2. Cut 1 $\varnothing 10$ shrink-on sleeve and 4 $\varnothing 3$ shrink-on sleeves in lengths of 20 mm.
3. Place the shrink-on sleeves as shown in fig. 4. Solder together conductor ends of the same colour.
4. Place the small shrink-on sleeves over the centre of each solder. Heat up the shrink-on sleeves from the centre and outwards using a heat gun in order to achieve the best result.
5. Hold the conductors close together and pull the outer screens over the joint, one screen at a time.
6. Place the big shrink-on sleeve over the centre of the joint and shrink it using the heat gun from the centre and outwards.

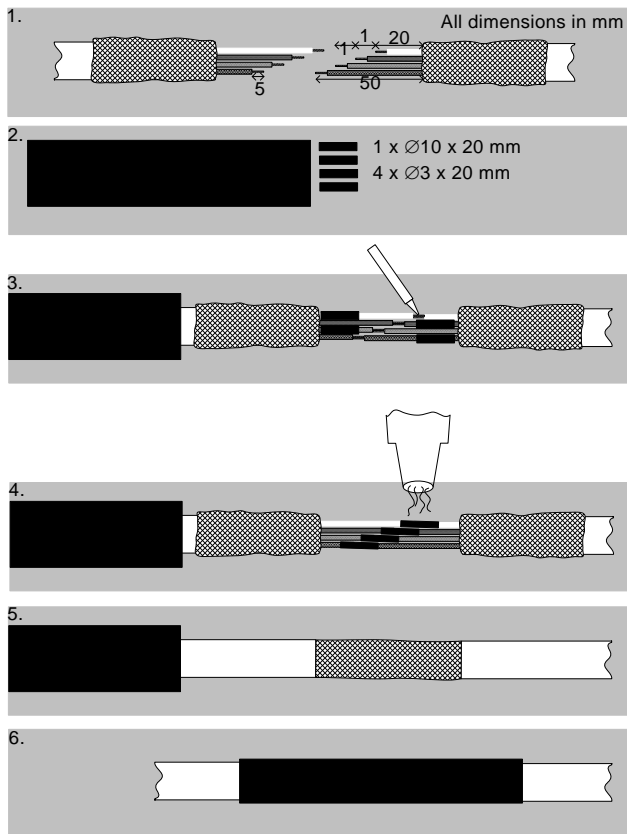


Fig. 4 How to join the cables

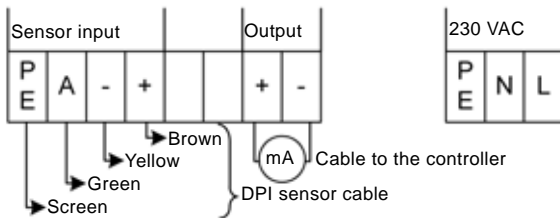
6.2 Connection of amplifier

If the cable is more than 30 m long, use an amplifier to ensure correct signal values.

Connect the amplifier according to the diagram below:

Fischer EN10-3

GB



TM04 0570 0808

Fig. 5 Wiring diagram for amplifier

7. Technical data

7.1 Electrical data

Voltage supply to the sensor:	12 - 30 VDC
PELV (protective extra low voltage) (EN 60335-1)	
Load:	24 V: max. 500 ohm 16 V: max. 200 ohm 12 V: max. 100 ohm
Output signal, 3-wire:	4 - 20 mA
Enclosure class:	IP 55 (according to EN 60529)

7.2 Temperatures

Temperature at sensor:	-10 °C to +70 °C temporarily (max. 10 min.) up to 80 °C
Ambient temperature:	-10 °C to +70 °C
Storage temperature:	-40 °C to +80 °C

7.3 Miscellaneous

Cable length:	0.9 m
Cable length for DPI kit 2:	5 m
Max. air humidity:	95 %
Pressure range DPI:	0.... 0.6, 1.0, 1.6, 2.5, 4.0, 6.0, 10 bar
Pressure range DPI kit 2:	0.... 1.2, 2.5, 4.0, 6.0, 10 bar

Conversion of SI units into US units, see page 15.

8. Service

If the sensor is defective, replace the sensor.

9. Disposal

This product or parts of it must be disposed of in an environmentally sound way:

1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop.

10. Conversion tables

Pressure

SI unit [bar]	US unit [psi]
0.6	8.7
1	14.5
1.6	23.2
2.5	36.3
4	58
6	87
10	145
16	232

GB

Temperature

SI unit [°C]	US unit [°F]
-10	14
0	32
10	50
20	68
30	86
40	104
50	122
60	140
70	158
80	176

Subject to alterations.

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