DPS5000 SDI-12

Digital pressure sensing platform

The DPS5000 SDI-12 from Druck, part of the UNIK5000 family, offers integrated digital electronics to enhance the performance level of the UNIK 5000 Pressure Sensing Platform to levels unmatched by traditional analogue sensors. It uses SDI-12 protocol, over which fully compensated readings of pressure and temperature are sent, as well as control of many functions of the device.

High quality

With 50 years of pressure measurement experience, our field-proven Druck technology is at the heart of the new platform, resulting in a range of high quality, high stability pressure sensors.

Expertise

We have the people and the knowledge to support your needs for accurate and reliable product performance; our team of experts can help you make the right sensor selection, guiding you and providing the help and tools you need. It is important that you ensure that the sensor materials and performance selected are suitable for your application.

Features

- Ranges from 350 mbar to 70 bar
- Total accuracy to ±0.1 % FS
- Stainless steel or titanium construction
- Wide temperature range -40 °C to 80 °C
- Low power
- Customer set filter setting
- Excellent long-term stability
- Customizable and reconfigurable output formats

DPS5000 SDI-12 specifications

Operating pressure ranges

Gauge ranges
Any zero based range from 350 mbar to 70 bar (6 to 1000 psi)

Absolute ranges
Any zero based range from 350 mbar to 70 bar (6 to 1000 psi)

Barometric ranges
Any upper range limit (URL) with a minimum span of 350 mbar (5 psi) between 700 mbar to 1300 mbar (10 to 18 psi)

Over pressure
2 × pressure range for barometric range

4 × pressure range for all other ranges

Containment pressure
6 × pressure range (200 bar (3000 psi) maximum)

Supply
Voltage: 6 Vdc to 30 Vdc
Current: <10 mA measure at 25 °C
15 mA peak
<50 µA standby

Output/communications
SDI-12 protocol V1.4

Power on time
1000 ms to acquisition from power on

Insulation resistance
>100 MΩ at 500 Vdc

Performance

Pressure performance
Accuracy over the calibrated temperature range including zero and span setting and the effects of non-linearity, hysteresis and repeatability

A3 Premium: ±0.1 % FS over -10 to 50 °C (14 to 122 °F)

A2 Improved: ±0.2 % FS over -40 to 80 °C (-40 to 176 °F)

For barometric ranges FS is the URL

Accuracy effects increase pro-rata for pressure ranges below 700 mbar

Temperature performance
Accuracy over the calibrated temperature range ±3 °C (6 °F) with 0.1 °C (0.2 °F) resolution

Long term stability
±0.05 % FS/year typical

±0.1 % FS/year maximum at reference conditions

±0.2 % maximum over five years at reference conditions is available by arrangement with the factory

Stability effects increase pro-rata for pressure ranges below 700 mbar

Physical specifications

Environmental protection
Up to IP68, see electrical connector section

Operating temperature range
-40 °C to 80 °C (-40 °F to 176 °F)

Pressure media
Fluids compatible with stainless steel 316L and Hastelloy C276 or titanium

Statement in accordance with the European pressure equipment directive

Enclosure materials
Stainless steel 316L or titanium (body), PVDF (nose cone), and cable sheath as specified

Pressure connectors
See the ordering information

Electrical connector

Option code	Description	IP rating
2	Raychem cable	IP65
3	Polyurethane depth cable	IP68
4	Hytrel depth cable	IP68

Note: Maximum cable langth is 457 m (1500 ft).

Wiring details

Core color	Function
Black	Case
Red	+ VE Supply
Blue	- VE Supply
White	SDI-12 Data
Screen	Case

General certifications
RoHS 2011/65/EU

CRN Certified 0F18611.513467890YTN for pressure ranges up to and including 100 bar

CE conformity
Pressure equipment directive 2014/68/EU: sound engineering practice

EMC directive 2014/30/EU, AUS/NZ EMC compliant
BS EN 61326-1:2013

BS EN 61000-6-1: 2007

BS EN 61000-6-3: 2007 + A1:2011

Ordering information

1. Select part number

Main product Family

DPS Digital output transducer

5 5000 series

Diameter and material

0 25mm stainless steel

T 25mm titanium

Electrical connection

2 Raychem cable (See Note 1)

3 Polyurethane depth cable

4 Hytrel depth cable

Electronics option

E SDI-12 protocol

Compensated temperature range

TA -10 °C to +50 °C (See note 2)

TC -40 °C to +80 °C (See note 3)

Accuracy

A2 Improved

A3 Premium

Calibration

CC Full thermal

Hazardous area certification

H0 None

Pressure connector

- Stainless steel

PA G1/4 female

PB G1/4 male Flat

PC G1/4 male 60o Int cone

PD G1/8 male 60o Int cone

PE 1/4 NPT female

PF 1/4 NPT male

PG 1/8 NPT male

PH M20 x 1.5 male (3mm bore)

PJ M14 x 1.5 60o Int cone

PL 7/16-20 UNJF male 74o Ext

PN G1/2 male

PQ G1/2 quick connect

PR 1/2 NPT male

PV 7/16-20 UNF female

PW Depth cone (G1/4 female)

RV R1/4 male

- Titanium

PA G1/4 female

PB G1/4 male flat

PF 1/4 NPT male

PH M20 x 1.5 male (3mm bore)

PN G1/2 male

PR 1/2 NPT male

PW Depth cone (G1/4 female)

RJ M20 x 1.5 male (8mm bore)

RK M20 x 1.5 male (14mm bore)

Sensor output: can be selected in any order (see note 4)

- Level

L1 Meters

L2 Centimeters

L3 Feet

- Temperature

T1 Kelvin

T2 ° Celsius

T3 ° Fahrenheit

- Pressure

P Pressure (as specified)

- Voltage (Power Supply)

V Volts (as specified)

- No Output

N No output (see note 5)

DPS	**5**	**0**	**2**	**E**	**-**	**TA**	**-**	**A3**	**-**	**CC**	**-**	**H0**	**-**	**PA**	**-**	*	**-**	*	**-**	*	**-**	*

* = Sensor output

2. Specify maximum working pressure unit and reference. Available units are:

Symbol	Description	Symbol	Description	Symbol	Description
bar	bar	kPa	Kilo Pascal	mmHg	millimeters mercury
mbar	millibar	mmH_2O	millimeters water	inHg	inches mercury
psi	pounds/square inch	mH_2O	meters water	kgf/cm^2	Kilograms force/centimeters square
Pa	Pascal	in H_2O	inches water	atm	atmosphere
hPa	hecto Pascal	ft H_2O	feet water	MPa	Mega Pascal

3. Specify cable length and units:

Integer values in m or ft (maximum length 457 m (1500 ft)).

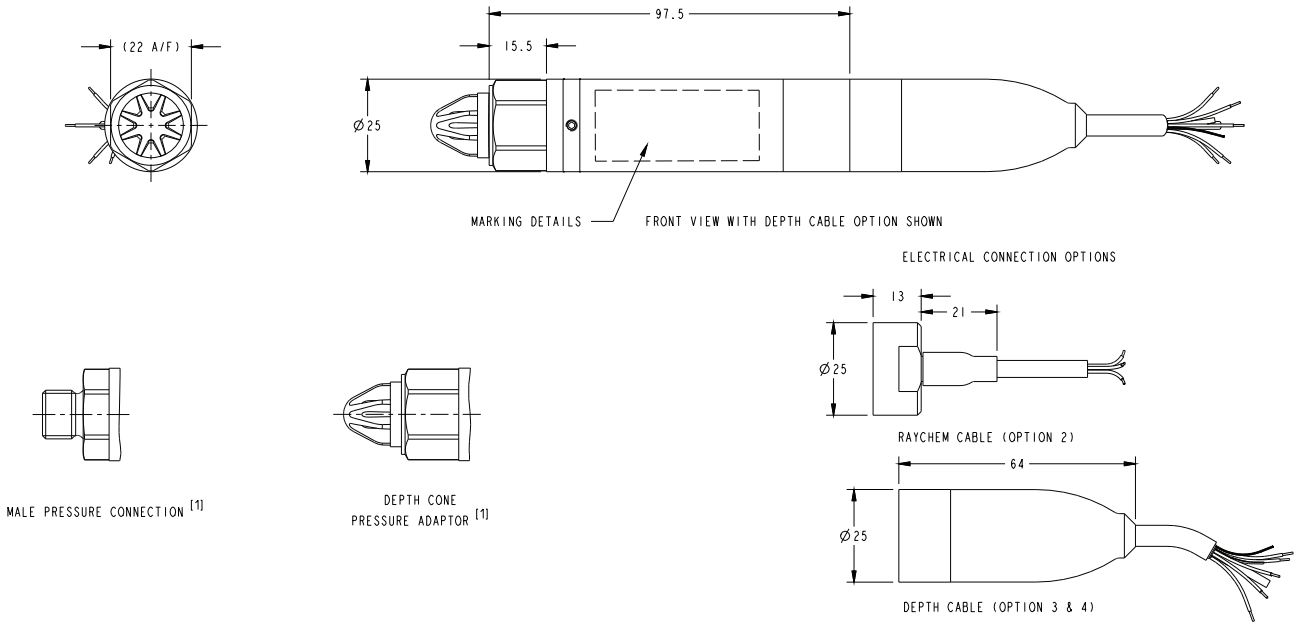
Notes:
1. Not available with a titanium body.
2. Choose A3-Premium accuracy with this option.
3. Choose A2-Improved accuracy with this option.
4. Maximum of 4 outputs. Each output option can only be selected once.
5. Once No output (N) is selected, subsequent options default to N.

Typical order examples

DPS503E-TA-A3-CC-H0-PW-T2-L1-P-V 700 mbar gauge 10m cable

DPS5T4E-TC-A2-CC-H0-PA-L3-T3-N-N 10 bar absolute 10m cable

Mechanical drawings



Note: All dimensions in millimeters.

EP SRL
Via SAN Faustino 155/P
41124 MODENA

www.epsas.i
Tel. 059/357600
ep.ma@epsas,it

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