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Data Sheet

OEM Pressure Transmitters for heavy-duty applications

Type DST **P600** and DST **P650**



The compact OEM pressure transmitter programme is designed for use in severe hydraulic applications. The programme consists of two series:

- DST P600
- DST P650

The integrated pulse-snubber offers a high degree of protection against cavitations and liquid hammer, and the well thought out design results in excellent vibration stability and an exceptional robustness.

The high degree of EMI protection equips the pressure transmitter to meet most requirements. Running a powerful ARM-based micro-controller, offering diagnostic functions and intelligent performance features.

Patented Danfoss Quasi-DC (QDC™) technology inside. For improved immunity and long-term stability under even the most extreme field conditions.

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Features

- QDC™ inside
- Designed for use in severe OEM applications
- For medium and ambient temperatures up to 125 °C
- Output signal:
  - 10 - 90% ratiometric output
  - Absolute voltage output
  - 4-20 mA output
- Wetted parts made of stainless steel
- A wide range of pressure and electrical connections
- EMC protection up to 100 V/m
- EMC tested in accordance to Automotive ISO standards
- Fully digitally compensated
- Output clipping Min and Max

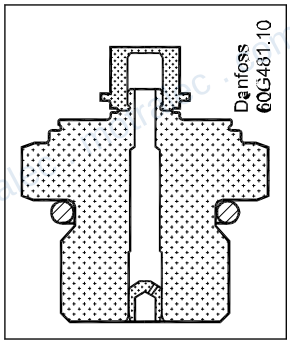
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Applications

Application and media conditions for DST P650

Figure 1: Pulse-snubber in DST P650



Application for DST P650

Cavitation, liquid hammer and pressure peaks may occur in liquid filled systems with changes in flow velocity, e.g. fast closing of a valve or pump starts and stops.

The problem may occur on the inlet and outlet side, even at rather low operating pressures.

Media condition for DST P650

The media viscosity has only little effect on the response time. Even at viscosities up to 100 cSt, the response time will not exceed 4 ms.

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Product Specification

Technical data

Table 1: Performance (EN 60770)

Accuracy (incl. nonlinearity, hysteresis and repeatability)	± 0.5% FS
Total error band [TEB]	-20 to 100°C: ≤ ± 2% FS -40 to 125°C: ≤ ± 3% FS
Response time liquids (10 – 90%)	2 ms
Durability, P: 10 – 90% FS	>10 × 10^6 cycles

Table 2: Overload and burst pressure

Nominal pressure [bar]	40	50	100	160	250	400	500
Overload pressure	120	150	300	480	750	1200	1500
Burst pressure	800	1000	1600	1600	2500(1)	2500(1)	2500(1)

(1) G ¼ A ISO 1179-2 burst pressure 2300 bar

NOTE:
Reachable burst pressure can degrade depending on selected pressure connection, used mounting torque & counter part material. See Table 8: Dimensions / Combinations

Table 3: Electrical specifications

Nom. output signal (Short-circuit protected)	0 - 10V	1 - 5 , 1 - 6V	4 - 20mA	10 – 90% ratiometric
Supply voltage [UB], polarity protected	13 - 32V	8 - 32V	8 - 32V	5 V ± 0.5 V
Supply – current consumption	3 mA	3 mA	- -	4.5 mA
Output impedance	≤25 Ω	≤25 Ω	- -	≤10 Ω
Load [R_L] (connected to 0 V)	RL ≥ 5 K Ω	RL ≥ 5 K Ω	See chart below	RL ≥ 5 kΩ
Load [R_L] (connected to + V)	Not possible	RL ≥ 10Kohm @ ≤ 26Vdc supply RL ≥ 13Kohm @ ≤ 32Vdc supply	See chart below	RL ≥ 5 kΩ

Figure 2: 4 - 20 mA output - min. / max.resistance vs supply voltage

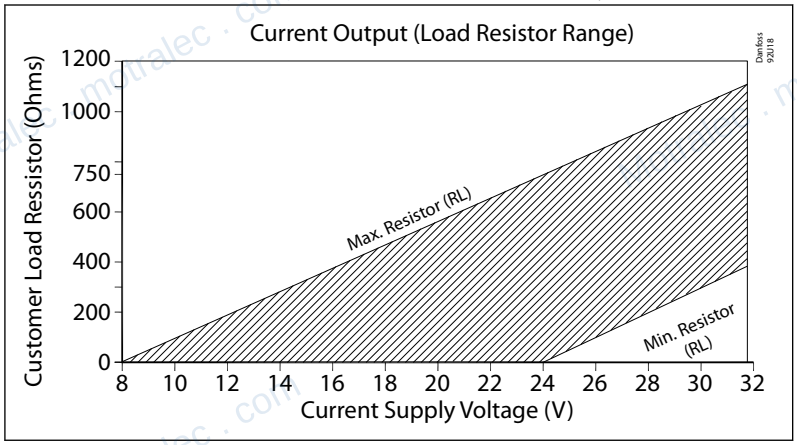


Table 4: Environmental conditions

Media temperature range		- 40 – 125 °C
Ambient temperature range		See page Electrical connections
Compensated temperature range		- 40 – 125 °C
Storage temperature range		-55 – 150 °C
EMC – Emission		EN 61326-2-3
EMC Directive		2014/30/EU
EMC – Immunity RF field	100 V/m	ISO 11452-2
Vibration stability	20Grms, 20-2000Hz	IEC 60068-2-64
Shock resistance	1000G	EN 60068-2-27
Enclosure (depending on electrical connection)		See page Electrical connections

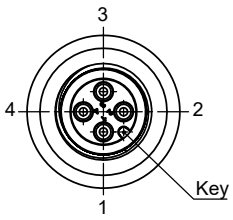
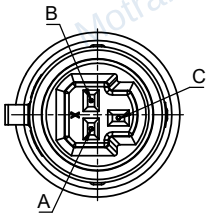
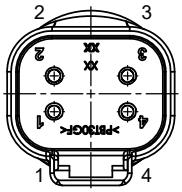
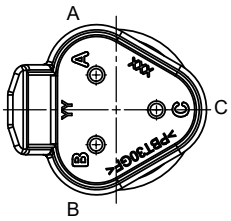
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Table 5: Mechanical conditions

Materials	Wetted parts	Stainless steel
	Enclosure	Stainless steel and plastic
	Pressure connection	Stainless steel
	Electrical connection	See page Electrical connections

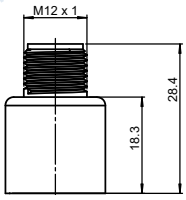
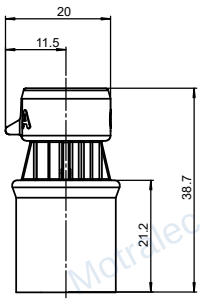
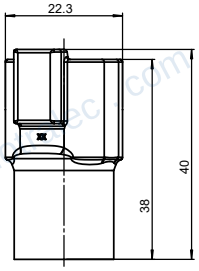
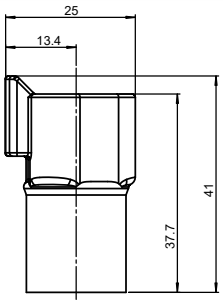
Electrical connections

Table 6: Electrical connections

Type code	C1	C2	C3	C7
	M12x1 EN60947-5-2	Round Packard Metri-Pack	Deutsch DT04-4P	Deutsch DT04-3P
				
Ambient temperature, ratiometric 10 – 90% , absolute voltage output	- 40 – 125 °C	- 40 – 125 °C	- 40 – 125 °C	- 40 – 125 °C
Ambient temperature, 4-20mA	- 40 – 105 °C	- 40 – 105 °C	- 40 – 105 °C	- 40 – 105 °C
Enclosure (IP protection fulfilled together with mating connector)	IP67	IP67	IP67	IP67
Material	SS, PBT 30% GFR Gold (Au) plated	Glass filled PBT 30% GFR Tin (Sn) plated	Glass filled PBT 30% GFR Gold (Au) plated	Glass filled PBT 30% GFR Tin (Sn) plated
Electrical connections, ratiometric 10 – 90% and absolute voltage output	Pin 1: + supply Pin 2: output Pin 3: - supply Pin 4: do not connect	Pin A: - supply Pin B: + supply Pin C: output	Pin 1: - supply Pin 2: + supply Pin 3: do not connect Pin 4: output	Pin A: + supply Pin B: - supply Pin C: output
Electrical connections 4-20 mA	Pin 1: + supply Pin 2: do not connect Pin 3: - supply Pin 4: do not connect	Pin A: - supply Pin B: + supply Pin C: do not connect	Pin 1: - supply Pin 2: + supply Pin 3: do not connect Pin 4: do not connect	Pin A: + supply Pin B: - supply Pin C: do not connect

Dimensions / Combinations

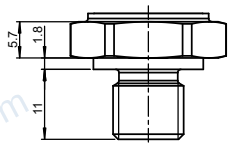
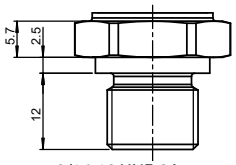
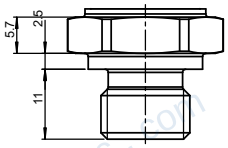
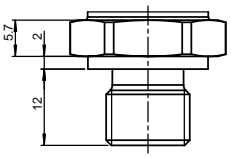
Table 7: Dimensions / Combinations

Type code	C1	C2	C3	C7
	M12 × 1 EN60947-5-2	Round Packard Metri-Pack	Deutsch DT04-4P	Deutsch DT04-3P
				

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Table 8: Dimensions / Combinations

Type code	BD08	BD11	FA08	GB04
Recommended torque [1]	22 - 25 Nm	27 - 30 Nm	31 - 35 Nm	35 - 38 Nm
HEX is 22 mm across flats.	 7/16 – 20 UNF-2A	 9/16-18 UNF-2A	 M14x1.5 per ISO 6149-2	 G ¼ A ISO 1179-2 (DIN3852-E)

[1] Depends on different parameters such as seal ring, mating material, thread lubrication and pressure level.

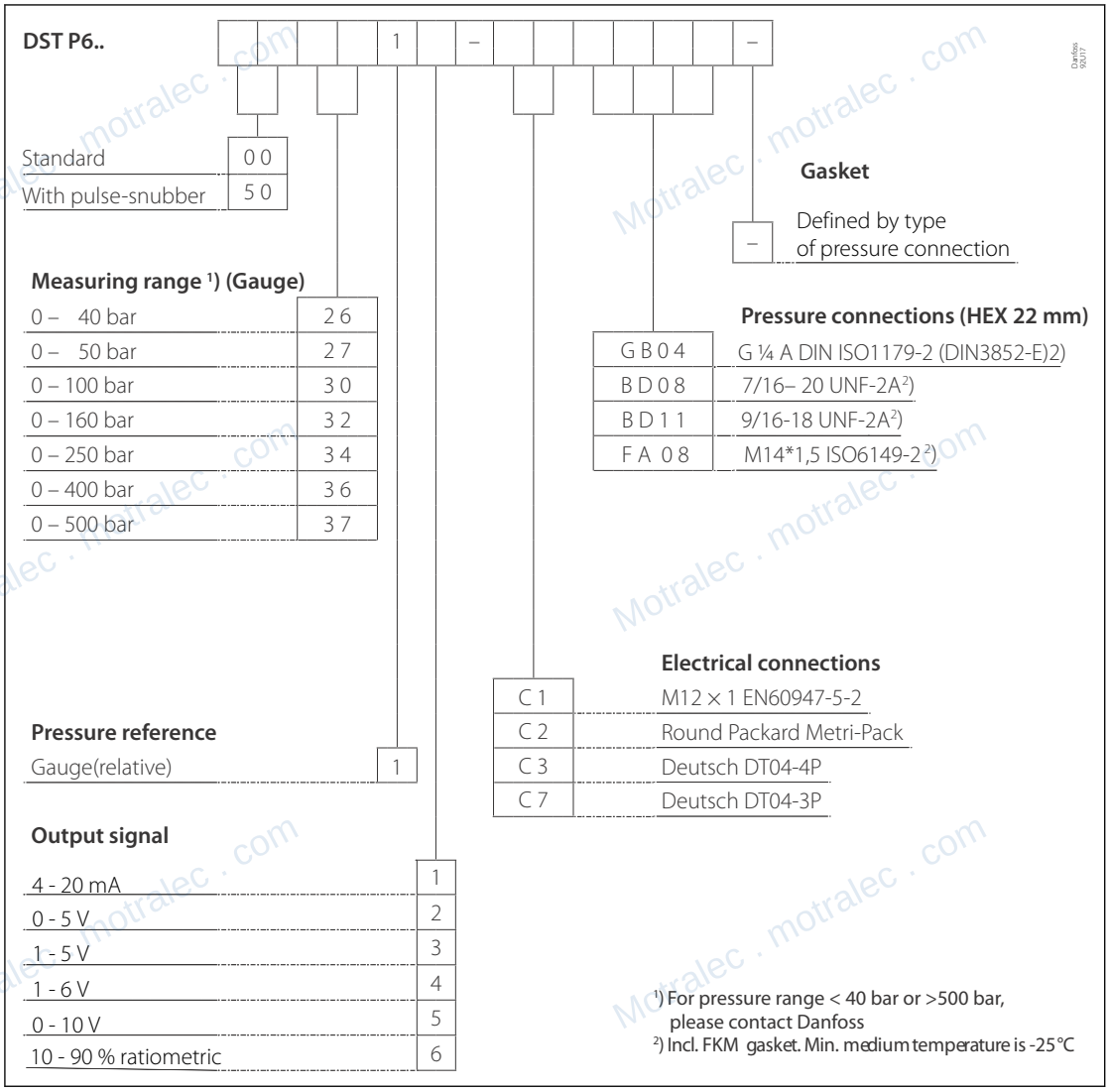
NOTE:
For other combinations please contact Danfoss

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Ordering

Ordering standard

Figure 3: Ordering standard



NOTE:
For other combinations and variants please contact Danfoss

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Certificates, declarations and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at danfoss.com or contact your local Danfoss representative if you have any questions.

Approvals

- CE
- UKCA
- RoHS
- REACH
- MTTFd >100 years

UL recognized File E494625
Conditions of Acceptability – when installed in the final use equipment, etc., the following are among the considerations to be made:

- To be Powered by a Class 2 Source, or similar
- Supply voltage and current rating see Product Specification
- MWP (max working pressure) see Product Specification
- Altitude up to 8000 meters
- Medium and ambient temperatures see Product Specification
- Maximum relative humidity 95% non-condensing
- Evaluated for Pollution Degree 2
- Class 2 Device Wiring Only

Technical assistance may be obtained from Danfoss Sensing Solutions, DK 6430 Nordborg – Denmark

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