



Pressure transmitter

DST P650

Description

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.

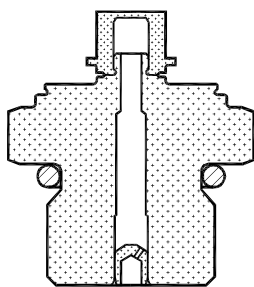
Features & benefits

- 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

Applications

Application and media conditions for DST P650

Pulse-snubber in DST P650



Application for DST P650

Cavitation, liquid hammer and pressure peaks may occur in liquid filled systems with changes in low 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.

Ordering

Product code numbers

DST P6..

Standard	With pulse-snubber
0 0	5 0

Measuring range ¹⁾ (Gauge)

0 – 40 bar	2 6
0 – 50 bar	2 7
0 – 100 bar	3 0
0 – 160 bar	3 2
0 – 250 bar	3 4
0 – 400 bar	3 6
0 – 500 bar	3 7

Pressure reference

Gauge(relative) → 1

Output signal

4 - 20 mA	1
0 - 5 V	2
1 - 5 V	3
1 - 6 V	4
0 - 10 V	5
10 - 90 % ratiometric	6

Gasket

Defined by type of pressure connection → -

Pressure connections (HEX 22 mm)

G B 0 4	G ¼ A DIN ISO1179-2 (DIN3852-E)2)
B D 0 8	7/16– 20 UNF-2A ²⁾)
B D 1 1	9/16-18 UNF-2A ²⁾)
F A 0 8	M14*1,5 ISO6149-2 ²⁾)

Electrical connections

C 1	M12 × 1 EN60947-5-2
C 2	Round Packard Metri-Pack
C 3	Deutsch DT04-4P
C 7	Deutsch DT04-3P

¹⁾ For pressure range < 40 bar or > 500 bar, please contact Danfoss
²⁾ Ind. FKM gasket. Min. medium temperature is -25°C

Note: Non-standard build-up combinations may be selected. However, minimum order quantities may apply. Please contact your local Danfoss office for further information.

Note: For a detailed overview of our existing code numbers, please visit the Danfoss Product Store at store.danfoss.com. You can use the filtering options to find the right sensor for your specific needs.

Product details

General data

Technical data

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

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⁾

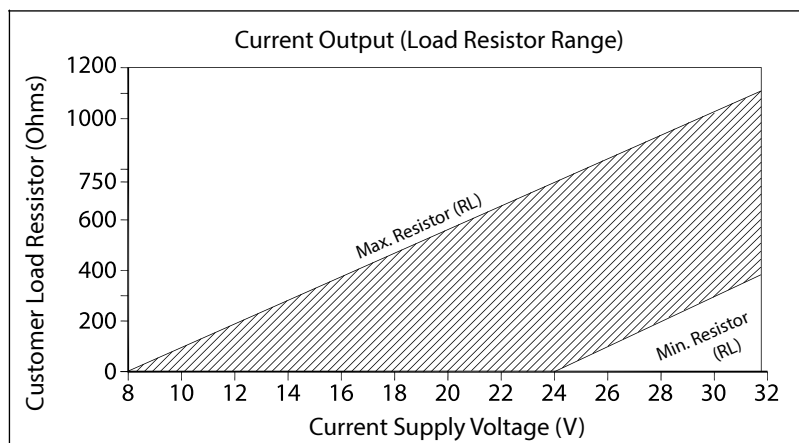
⁽¹⁾ G ¼ A ISO 1179-2 burst pressure 2300 bar

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

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

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



Environmental conditions

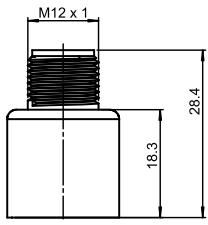
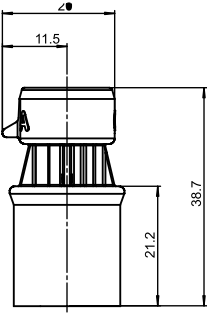
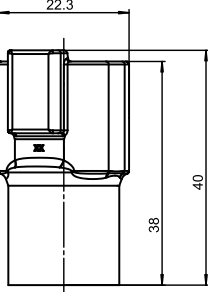
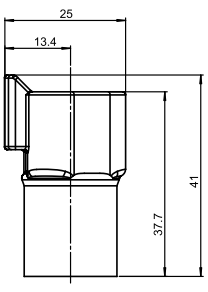
Media temperature range		- 40 – 125 °C
Ambient temperature range		See Electrical connections
Compensated temperature range		- 40 – 125 °C
Storage temperature range		-55 – 150 °C
EMC – Emission		EN 61326-2-3
EMC Directive		2014/30/EU
EMC – Immunity RF field	100 V/m	ISO 11452-2
Vibration stability	20Grms,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

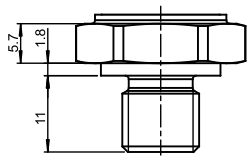
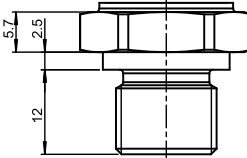
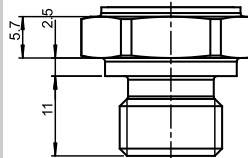
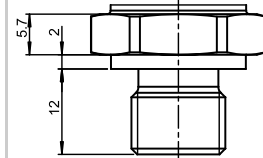
Mechanical conditions

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

Dimensions

Dimensions / Combinations

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

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 1/4 A ISO 1179-2 (DIN3852-E)

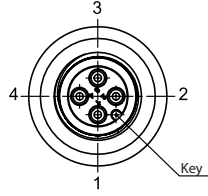
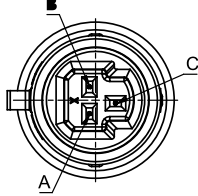
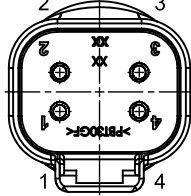
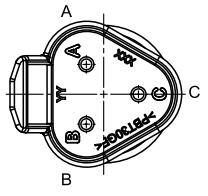
⁽¹⁾ Depends on different parameters such as seal ring, mating material, thread lubrication and pressure level.

Note: For other combinations please contact Danfoss.

Note: Dimensions are in mm, unless stated otherwise.

Connections

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

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.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Certification body	Approval topic
Electrical Safety Certificate	UL E494625	UL - Underwriters Laboratories inc.	
EU-UK Declaration	Danfoss EU-UK 090R0011.02	Danfoss	EMC
UA Declaration	Danfoss UA 2023-01-10 Regulators PL01 PL04	Danfoss	Pressure
Pressure Safety Certificate	LLC CDC EURO-TYSK UA.TR.089.1015.05-22	LLC CDC EURO TYSK - Ukraine	Pressure
Manufacturer's Declaration	Danfoss MD 063R1015.AB	Danfoss	MTBF
UA Declaration	Danfoss UA 2024-07-25 cooling sensors	Danfoss	LVD
EAC Declaration	EAC KZ 7100841.13.12.00005	EAC - Eurasian Customs Union	EMC
Export Control Declaration	Pressure & Temperature Sensors	Danfoss	
Export Control Declaration	Refrigerant Leakage Sensor	Danfoss	

Contact details

Online support

Danfoss offers a wide range of support along with our products, including digital information, software, mobile apps and expert guidance. See the possibilities below.



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