Data sheet



Pressure transmitter

DST P110 / DST P140 for Data Center Liquid Cooling

Description

DST P110 and DST P140 are purpose-built for demanding data center cooling applications, delivering precise and reliable pressure monitoring with specifications tailored for these systems. Built on more than 30 years of experience in MEMS pressure sensing technology, the sensors provide stable and consistent measurement performance.

Features & benefits

- Fully welded stainless-steel media interface.
  - Hermetically sealed design for data center cooling needs, including OCP (Open Compute Project) requirements.
- MEMS pressure sensing technology.
  - Oil filled sensor without unnecessary gaskets in media contact for enhanced durability and leak free performance.
- Accuracy and total error band.
  - Defined accuracy and total error band to meet the highest data center standards.
- Quality and traceability.
  - Full product traceability in line with established quality procedures.
- Compliance.
  - UL recognized and aligned with OCP recommendations.
- Future proof.
  - Ready to be used with water glycol as well as with refrigerants.

Applications

- CDUs (Cooling Distribution Units)
- Pressure measurements at server racks
- CRAC: Computer Room Air Conditioning
- Chillers
- FWS (Facility Water System) and TCS (Technology Cooling System)
- Measurement of pressure in building pipes

Ordering

Product code numbers

Standard ordering type: Contact Danfoss for dedicated data centers code numbers. Other DST P110 and DST P140 codes follow the standard product data sheets or specific engineering sheet.

Product details

General data

Performance

Total error band	±0.5 % FS (20 °C – 60 °C)[1]
Response time	< 2 ms
Overload pressure	4 × FS[1]
Burst pressure	300 bar (absolute / sealed gauge) 5 x FS[1] (relative gauge)
Durability, P: 10 – 110 % FS[1]	10 x 10^6 cycles

[1] FS = Full scale

Electrical specifications

Nom. output signal (short-circuit protected)	**4 – 20 mA**	**Ratio metric (10 – 90% Vss)**
Supply voltage [UB], polarity protected	8 – 28 V	5 V DC ± 0.5 V DC
Supply voltage dependency	≤ ±0.1 % FS / 10 V	–
Load [RL] (load connected to 0 V)	RL ≤ (UB – 8 V) / 0.022 A	RL ≥ 2 kΩ at 5 V DC
Max. overvoltage protection	+36 V DC	+16 V DC
Max. reverse voltage	-36 V DC	-16 V DC
Diagnostic fault signal	3.8 mA low clipping 20.5 mA high clipping	99% Vss high clipping level

Environmental conditions

Nom. output signal (short-circuit protected)	**4 – 20 mA**	**Ratio metric (10 – 90% Vss)**
Media temperature range	-40 – 100 °C	-40 – 135 °C
Ambient temperature range	-40 – 85 °C	-40 – 125 °C
Storage temperature range	-40 – 150 °C	40 – 125 °C
EMC immunity up to 6 GHz	EN 61000-6-2	
EMC Emission	EN 61000-6-3	
ESD	EN IEC 61000-6-2:2005 & 2019 (IEC 61000-4-2) ±8 kV contact, ±15 kV air	
Insulation resistance	> 100 MΩ at 500 V DC	

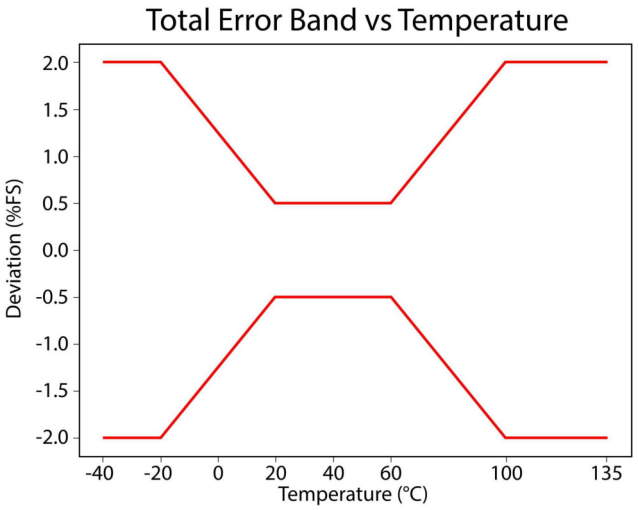
Electrical connections

Electrical connections	M12 x 1.0 IEC 61076-2-101	Round Packard Metri-Pack 150.2 Series	Angular DIN plug PG 9 EN 175301-803-A
Vibration resistance Random (IEC 60068-2-64)	10 g (5 Hz - 2 kHz)	15 g (20 Hz - 2 kHz)	10 g (20 Hz - 2 kHz)
Shock resistance (IEC 60068-2-27)	500 g / 1 ms		
Enclosure with mating connector	IP67		IP65

Mechanical characteristics

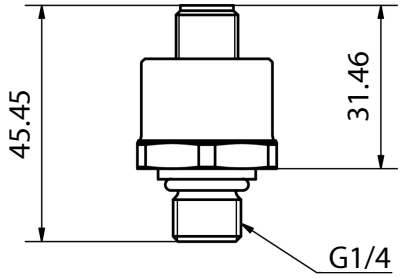
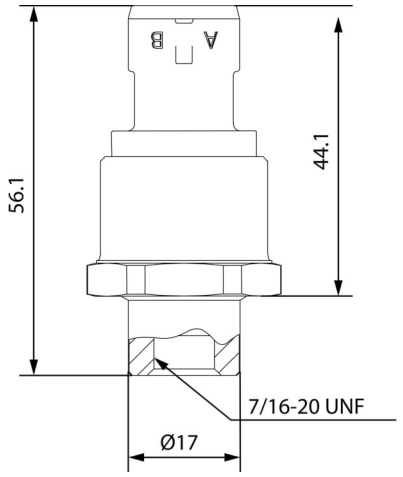
Enclosure material	AISI 304L stainless steel and PBT (30% glass reinforced)
Material with media contact (Wetted parts)	AISI 304L stainless steel AISI 316L stainless
Refrigerants	Coolants: Water / Glycol, Water, A2/A3 refrigerants
Electrical connections	See Electrical connections section
Weight (depending on pressure connection and electrical connection)	< 100 g
Gasket (if pressure connection specifies this)	EPDM

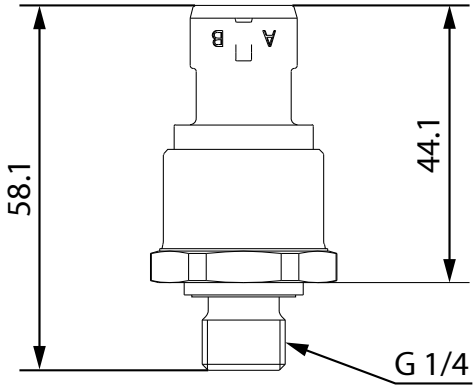
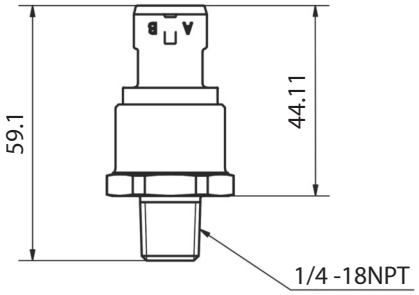
Performance

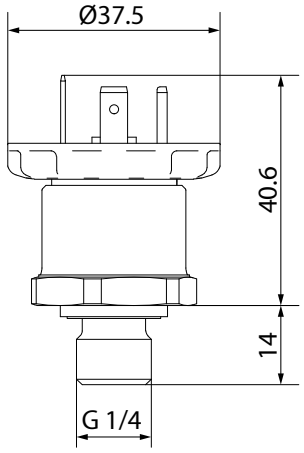
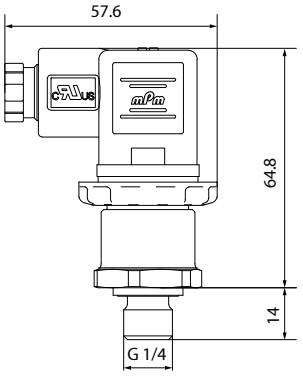


Note: Customized profiles available.

Dimensions

M12 x 1.0 - IEC 61076-2-101	Round Packard Metri-Pack 150.2 (Round)
	
G ¼ A – ISO 1179-2 *M12 x 1.0 Available in plastic and metal	**SAE female flare** *As per standard does not include gasket

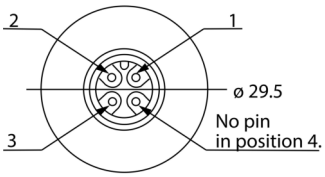
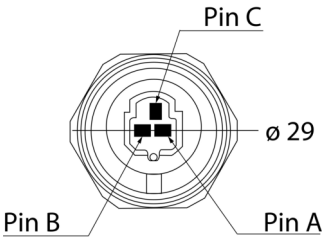
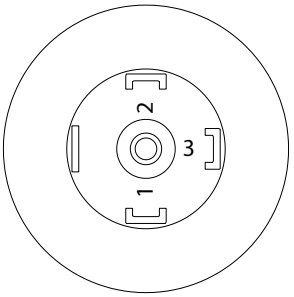
Round Packard Metri-Pack 150.2 (Round)	Round Packard Metri-Pack 150.2 (Round)
	
G ¼ A – ISO 1179-2	**¼-18 NPT**

Angular connector, no connector 4 pin - EN 175301-803-A	Angular connector, PG 9 - EN 175301-803-A
	
G ¼ A – ISO 1179-2	**G ¼ A – ISO 1179-2**

Note: All dimensions are in mm unless otherwise specified.

Connections

Electrical connections

Electrical connection specifications	M12 x 1.0 - IEC 61076-2-101	Round Packard Metri-Pack 150.2 (Round)	Angular connector, PG 9 - EN 175301-803-A
HEX 27			
Pin-plating	Gold (Au)	Tin (Sn)	Tin (Sn)
Output signal 4 – 20 mA Pin configuration	Pin 1: +Supply Pin 2: Not connected Pin 3: -Supply	Pin A: -Supply Pin B: +Supply Pin C: Not connected	Pin 1: +Supply Pin 2: -Supply Pin 3: Not connected Pin 4: Ground not connected
Ouput signal Ratiometric (10-90%) Pin configuration	-	Pin A: -Supply Pin B: +Supply Pin C: Output	Pin 1: +Supply Pin 2: -Supply Pin 3: Output Pin 4: Ground not connected

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	Issuer	Approval topic
Electrical Safety Certificate	UL E510763	UL - Underwriters Laboratories inc.	
Explosive Safety Certificate	UL E227388	UL - Underwriters Laboratories inc.	UL-CSA, Explosive
Electrical Safety Certificate	UL E494625	UL - Underwriters Laboratories inc.	
EU-UK Declaration	Danfoss EU-UK 075R0010.04	Danfoss	EMC, EU RoHS, UK RoHS
Electrical Safety Certificate	UL E31024	UL - Underwriters Laboratories inc.	
Hygienic Certificate	NSF C0252992	NSF International	Drinking Water
Hygienic Certificate	NSF C302135	NSF International	Drinking Water
UA Declaration	Danfoss UA 2023-01-10 Regulators PL01 PL04	Danfoss	Pressure, PED
Pressure Safety Certificate	LLC CDC EURO-TYSK UA.TR.089.1015.05-22	LLC CDC EURO TYSK - Ukraine	Pressure
Manufacturer's Declaration	Pressure Equipment Directive (PED)	Danfoss	Pressure, PED
UA Declaration	Danfoss UA 2024-07-25 cooling sensors	Danfoss	LVD, EMC
EAC Declaration	EAC KZ 7100841.13.12.00005	EAC - Eurasian Customs Union	EMC
Hygienic Certificate	NSF C863837	NSF International	Drinking Water
Export Control Declaration	Pressure & Temperature Sensors	Danfoss	
Export Control Declaration	Refrigerant Leakage Sensor	Danfoss	
Manufacturer's Declaration	Source of Ignition	Danfoss	Functional Safety
Hygienic Certificate	WRAS 260302024	WRAS - Water Regulations Advisory Scheme	Drinking Water
Electrical Safety Certificate	UL 61010 Component Process Control Equipment	UL - Underwriters Laboratories inc.	
Electrical Safety Certificate	UL121201 Component Process Control Equipment Hazardous Locations	UL - Underwriters Laboratories inc.	

Electrical Safety Certificate	UL121201 Component Refrigeration Hazardous Locations	UL - Underwriters Laboratories inc.	
Electrical Safety Certificate	UL 60730 Component Controllers Refrigeration	UL - Underwriters Laboratories inc.	
EU Declaration	PPWR_Packaging EU PL04	Danfoss	Packaging

Note: For drinking water approved pressure ports see DST P140 Data Sheet.

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.

The Danfoss Design center

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Danfoss Partner Portal/Product Data tool

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