

ENGINEERING  
TOMORROW

*Danfoss*

# DST P110 pressure sensor, improved **performance, reliability** and **self-diagnostics**

Introducing the DST P110 pressure sensor



Up to  
**50%**  
reduction in  
warranty claims  
through diagnostics

# Premium **MEMS** technology at a **competitive price**

Take advantage of the strong, reliable characteristics of an oil-filled sensing element at a cost-effective price point.

The physical properties of silicon provide a superior dynamic range leading to scalable accuracy over temperature and outstanding overpressure capabilities. The DST P110 sensor is built with a robust, stainless steel, welded design — eliminating the need for an internal O-ring and reducing the number of potential leak points. The hermetically-sealed design provides excellent media compatibility and making it ready for **today's and future refrigerants**.

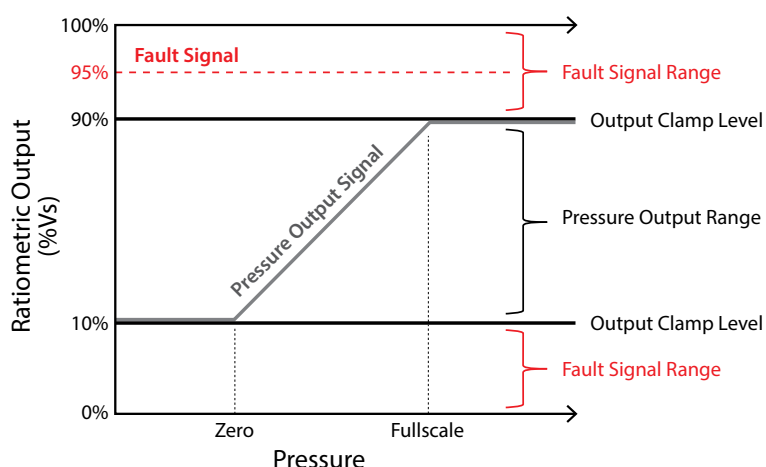


## **Self-diagnostic** Features

Increase machine uptime and reduce troubleshooting costs with the self-diagnostic features available with the DST P110 sensor — onboard diagnostics identify and communicate internal failure modes to the controller. Together with harness fault detection features, DST P110 saves troubleshooting costs by helping technicians rapidly identify the root cause of a problem.

### **Flexible Output and Diagnostics**

Ratiometric example



## **PRODUCT HIGHLIGHTS**

### **THE DST P110 sensor is:**

- **Tailored performance.** The sensor provides improved accuracy in a lower temperatures range, allowing a more efficient super heat control.
- **Rugged and reliable.** The P110 is protected by a corrosion-resistant stainless-steel housing and is designed to resist extreme vibration, temperature change, and electrical interference.
- **Thoroughly tested.** Danfoss uses a rigorous "test-to-failure" product development methodology that pushes every aspect of the design past the breaking point. This insight has hardened the P110 design and established a knowledge base for faster qualification in OEM applications.
- **Forward-looking.** The P110's onboard diagnostics identify and communicate internal failure modes to the controller. Together with harness fault detection capabilities, P110 saves troubleshooting costs by helping technicians rapidly identify the root cause of a problem.
- **Scalable and customizable.** The new electronics platform allows many performance specifications to be fine-tuned for application requirements.

### **The P110's output and fault signals can be programmed to fit application requirements:**

- **Pressure output range**  
Defines the measuring range of the sensor
- **Output clamp levels**  
Limit the pressure output signal if the pressure exceeds the normal range
- **Sensor fault signal**  
Placed in fault signal range above or below the pressure output range. Output at this level signals a sensor fault.
- **Harness fault detection**  
Low leakage current of the sensor allows the controller to recognize harness fault conditions. (requires a pull-down or pull-up resistor at the controller interface).

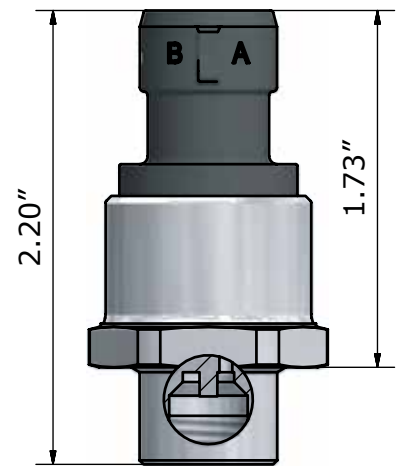
## Performance Specifications

Pressure Ranges (absolute and gauge)	0 – 4.5 bar through 0 – 50 bar (0 – 65 psi through 0 – 725 psi)
Total Error Band	Optimized for application fit +/- 1% F.S. typical
Operating Temperature Range	-40° to 125°C (-40° to 257°F)
Media Temperature Range	-40° to 135°C (-40° to 275°F)
Overload Pressure	4x fullscale pressure
Burst Pressure	>250 bar (>3626 psi)
Endurance	>10 million cycles, 10%-110% F.S.
Response Time	<2 ms Programmable filtering available
Wetted Materials	304L Stainless Steel 316L Stainless Steel

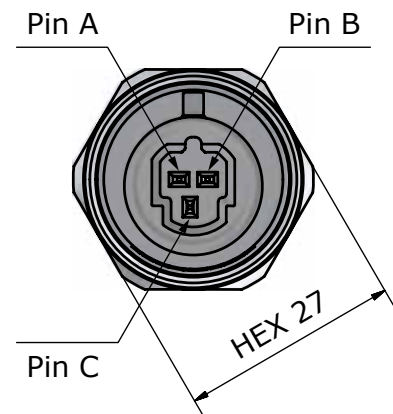
## Application examples

- Variable refrigerant flow (VRF)
- Chillers
- Transport refrigeration
- Commercial refrigeration
- Variable speed HVAC
- Heat pumps

## Dimensions



Shown with Packard Metri-Pack and SAE female flare with depression pin. Please contact Danfoss for other available configurations.



Pin configurations

A = -Supply

B = +Supply

C = Output

## Electrical Specifications

Output Modes	Ratiometric (programmable, ex. 10%-90% Vss) Absolute Voltage (programmable, ex. 1-5Vdc) Current (programmable, ex. 4-20mA)
Output Limiting (clamping)	Programmable
Over and Reverse Voltage	Protected
Short Circuit	Protected
Miswiring	Protected
Diagnostic Fault Signal	Programmable
EMC	EN 61000-6-3 EN 61000-6-2
ESD	IEC 6100-4-2 8kV contact, 15kV air

Please contact Danfoss for full specifications and available configurations.

## Environmental Specifications

Enclosure	IP67
Mech. Vibration, Random	IEC 600068-2-64, 16.5 gRms 3 x 2h, 10Hz-2 kHz, at 25°C
Mech. Shock	IEC 60068-2-27, Level : 500g/1msec
Free Fall	IEC60068-2-32,3x1m (xyz) on concrete
Media Interface Materials	Stainless steel, AISI304L / AISI316L

# A dedicated **partner** you can rely on

Danfoss develops new product solutions with both its customers and its extensive application expertise in mind. Years of producing reliable, effective solutions for the refrigeration and cooling market have provided valuable insight that can then be leveraged to work for you.

**DANFOSS IS COMMITTED TO WORKING WITH YOU TO FIND THE RIGHT SOLUTION FOR YOUR UNIQUE APPLICATION NEEDS.**



## System solutions

Danfoss products are designed to provide value on their own and as part of an optimized system.



## Application expertise

Your challenges are also our challenges. We understand your unique needs because we partner with you every step of the way for a wide variety of cooling applications.

For more information, visit [sensors.danfoss.com](https://sensors.danfoss.com)