

Data sheet

Pressure transmitter for Cooling Applications

DST P110



The Danfoss DST P110 series pressure transmitter is designed for demanding refrigeration, air conditioning and industrial cooling applications, such as:

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

Drawn from over 30 years of experience with MEMS pressure sensing, the DST P110 offers outstanding performance in a compact and durable stainless-steel package.

Running a powerful ARM-based microcontroller, the DST P110 offers diagnostic features and scalable performance features at a competitive price.

Features

- Hermetically sealed media interface (all stainless steel, fully welded)
- Compatible with all refrigerants
- Industry leading accuracy over a broad temperature range
- Compact and cost effective design for OEM applications
- Self-diagnostics minimize warranty costs
- Enables harness fault detection
- Superior shock and vibration resistance
- High overload and burst pressure
- Robust electronics platform for harsh electrical environments
- Low heat conduction Bi-metal solder tube (Copper/Stainless Steel) version available.

Conformity

- CE marked
- RoHS compliant
- UL file for refrigeration: E31024
- UL file for Hazloc: E510763

Data sheet | DST P110 Pressure Transmitter for cooling applications
Technical data

| | |
|-------------------------|---|
| Total error band | ± 1% FS (within specified temperature range ¹⁾) |
| Durability, P: 10%-110% | 10 x 10 ⁶ cycles |

Overload and burst pressure

| | |
|-------------------|-----------------|
| Burst pressure | 300 bar |
| Overload pressure | 4 x FS pressure |
| Response time | < 2 ms |

Environmental conditions

| | |
|-----------------------------|--|
| Media temperature range | -40 – 135 °C |
| Ambient temperature range | -40 – 125 °C ²⁾ |
| Storage temperature range | -50 – 125 °C |
| Voltage supply | 5V ± 10% |
| Output modes | Ratiometric (10-90% Vss) |
| Output limiting (clamping) | Low clamp 4% Vss High clamp 99% Vss |
| Over and reverse voltage | Protected to 16 V |
| Short circuit | Protected to 16 V |
| Miswiring | Protected |
| Diagnostic fault signal | 2% Vss |
| EMC compatibility | EN 61000-6-3 EN 61000-6-2 |
| ESD | IEC 61000-4-2 8 kV contact, 15 kV air |
| Insulation resistance | >100M Ohm at 500 Vdc |
| Vibration resistance | 16.5 g (20-2000 Hz) |
| Shock resistance | 1000 g (half sinus, 1 ms) |
| Enclosure material | AISI 304L Stainless steel and PBT (30% glass reinforced) |
| Material with media contact | AISI 304L Stainless steel; AISI 316L Stainless steel |
| Weight | approx. 61 g for solder tube & 62 g for female flare |
| Enclosure | IP 67 |

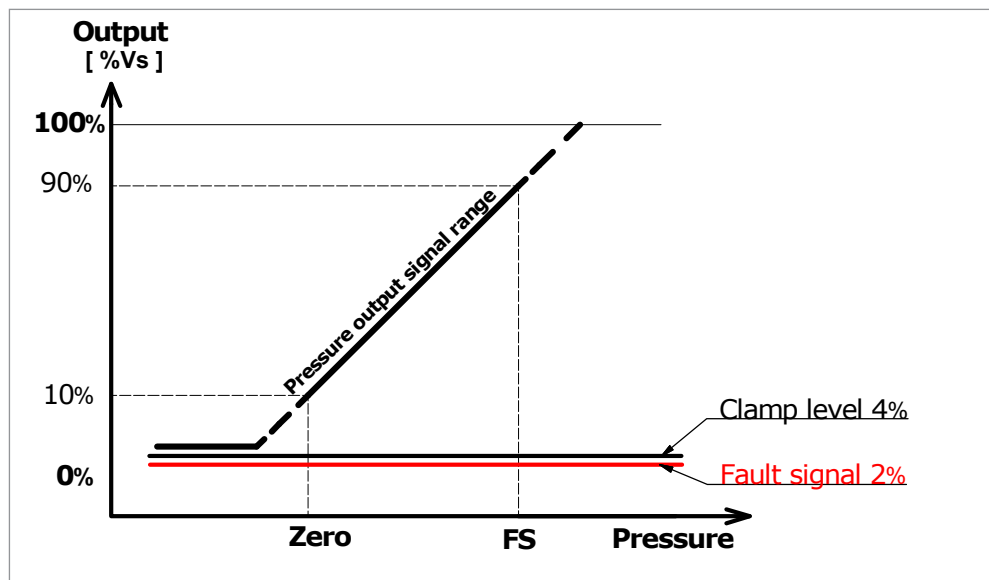
¹⁾ See code number table for focused accuracy ranges

²⁾ Contact Danfoss for higher temperatures

Output and diagnostics

Ratiometric example

Output and Diagnostics



Output range

- Defines the measuring range of the sensor

Output clamp levels

- Limit the pressure output signal if the pressure rises above or falls below the normal range

Sensor fault signal

- Placed 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 controller interface).

If the connected controller has an internal pull up or pull down resistor at the analog channel input, then the loss of ground or supply voltage (V_{ss}) connection to the sensor will result in a near V_{ss} or near ground signal voltage.

Contact Danfoss for detailed information and requirements.

Ordering

| Type | Operating range | Units | Colour code electrical connector | Focus temperature range (1% TEB) | Pressure port | Code no. | Code no. I-Pack ²⁾ |
|-----------------------|-----------------|--------|----------------------------------|----------------------------------|--------------------------------|----------|-------------------------------|
| DST P110 | 0 – 150 | psia | Green | -20 °C – 40 °C | 7/16 UNF, female ¹⁾ | 075G1014 | 075G4003 |
| | 0 – 200 | psia | Green | -20 °C – 40 °C | | 075G1016 | 075G4005 |
| | 0 – 400 | psi sg | Black | 0 °C – 80 °C | | 075G1019 | 075G4008 |
| | 0 – 500 | psi sg | Black | 0 °C – 80 °C | | 075G1021 | 075G4010 |
| | -1 – 12 | bar sg | Green | -20 °C – 40 °C | | 075G1013 | 075G4002 |
| | -1 – 34 | bar sg | Black | 0 °C – 80 °C | | 075G1018 | 075G4007 |
| | -1 - 49 | bar sg | Black | -30 °C – 40 °C | | 075G1080 | 075G4058 |
| | 0 – 10 | bar sg | Green | 0 °C – 80 °C | | 075G1012 | 075G4001 |
| | 0 – 15 | bar sg | Green | -20 °C – 40 °C | | 075G1085 | 075G4063 |
| | 0 – 20 | bar sg | Green | -20 °C – 40 °C | | 075G1015 | 075G4004 |
| | 0 – 30 | bar sg | Black | 0 °C – 80 °C | | 075G1017 | 075G4006 |
| | 0 – 32 | bar sg | Black | 0 °C – 80 °C | | 075G1036 | 075G4019 |
| | 0 – 50 | bar sg | Black | 0 °C – 80 °C | | 075G1020 | 075G4009 |
| | 0 – 10 | bar | Green | -40 °C – 40 °C | Solder tube | 075G1072 | 075G4051 |
| | 0 – 30 | bar | Black | 0 °C – 100 °C | | 075G1071 | 075G4050 |
| Electrical connection | | | Round Packard , Metri-Pack | | | | |

¹⁾ 1/4" flare with a deflator pin

²⁾ I- Pack contains 60 pcs. per box for 7/16 UNF & 55 pcs. per box for solder tube

Electrical connector colour coding:

Black: High pressure profile

Green: Low pressure profile

CO₂ application: Sensors with an overload pressure exceeding 90bar can be used for CO₂ applications - see overload pressure specification on page 2

Accessories

| Type | I-Pack Code no. | Qty/Box | Description |
|--|------------------------|----------|-------------------------|
| Cable with Metri-Pack 150 (Round) mating connector | 060G8085 | 100 pcs. | 0.8 m with outer sheath |
| Cable with Metri-Pack 150 (Round) mating connector | 060g8086 | 100 pcs. | 1.3 m with outer sheath |
| Cable with Metri-Pack 150 (Round) mating connector | 064G0910 ¹⁾ | 14 pcs. | 10 m with outer sheath |

¹⁾ Multi Pack code number is 064G0950

For more options and info, please go to <https://store.danfoss.com/>

Dimensions/Combinations

| Metri-Pack 150 (Round) | Metri-Pack 150 (Round) |
|------------------------|------------------------|
| | |
| SAE female flare | Solder tube |

Electrical connections

| | |
|-------------|---|
| HEX 27 | |
| Pin-plating | Tin (Sn) |
| | Pin A: ±Supply Pin B: +Supply Pin C: Output |

