

1. D Series Female



1.1 Technical specifications - D Series Female

Carel type D pressure sensors use piezoresistive technology, with a 4 to 20 mA current output and AISI 316L stainless steel housing. Compatible also with the latest refrigerants (HFO & HC with low GWP & ODP).

Not compatible with ammonia.

This series is excluded from the scope of the Pressure Equipment Directive 2014/68/EU (the sensor itself does not have safety function).

Electrical

Power supply (protected against polarity reversal)	8 to 32 Vdc
Power supply overvoltage	36Vdc
Maximum reverse voltage	-28 Vdc
Output current	4-20 mA
Output load	RL ≤ 500 Ω
Response time	≤ 10 ms, 0~99% FS
Insulation resistance	100 MΩ @ 50 V
Dielectric strength	500 V 60"
Electrical connector	Male, 3-pin Metri-Pack 150
Cable	see SPKC***** accessory

Performance

Operating temperature	-40T125°C
Operating humidity	0-90%rH
Compensation temperature	0T80°C
Fluid temperature	-40T125°C
Storage temperature	-40T135°C
Ingress protection	IP55 or IP67, depending on the connector plugged in. For more details, see the SPKC***** accessory table
Accuracy (including linearity, hysteresis, repeatability, calibration error)	±1% FS static error @25°C, 24 Vdc
Total error band (including linearity, hysteresis, repeatability, calibration error) relative to all operating temperature and humidity values	±2.0% FS at 24 Vdc (0 to 80°C) ±3.0% FS at 24 Vdc (-40 to 125°C)
Life cycle	10 million cycles at FS

Physical

Vibrations IEC 60068-2-64	5-2000 Hz / 10 g - in direction x - y - z
Shock IEC 60068-2-27	10 g sinusoidal, 11 ms
Drop from any axis	1.0 m (falling from 1 metre high)
Material in contact with refrigerant	<ul style="list-style-type: none"> • AISI 316L stainless steel (housing), • Ceramic (measurement cell) • Chloroprene rubber (gasket)
Housing	AISI 316L stainless steel
Tightening torque	12 to 16 Nm
Mechanical connection	Female, 7/16"-20UNF - 45° flare
Pressure range	From 7 barg to 60 barg
Over pressure	1.5 times pressure range, see table
Burst pressure	3 times pressure range, see table
Refrigerant compatibility	R12, R22, R134a, R404a, R407c, R410a, R502, R507, R744(CO2) R600, R600a, R290, R1270, R1234yf, R1234ze(e), R32, R407A, R407F, R447A, R448A, R449A, R450A, R452A, R452B, R454B, R455, R513A, R407H - <i>Not compatible with R717 (ammonia), not suitable to be used with glycol-water mixtures.</i>
Vacuum pressure (referred to refrigerant circuit)	0.95 bar, 95 kPa (absolute)
Weight	62 g (net weight)

EMC

Electrostatic discharges: EN 61000-4-2	15 kV (in air)
Radiated immunity: EN 61000-4-3	80 MHz to 2 GHz, 10 V/m; 2 GHz to 2.7 GHz, 10 V/m
Burst: EN 61000-4-4	2 kV
Surge: EN 61000-4-5	2 kV
Immunity to conducted radio-frequency disturbance: EN 61000-4-6	9 kHz to 80 MHz, 3 V
Magnetic fields at power supply frequency: EN 61000-4-8	30 A/m (impulsive magnetic fields)

Compliant with:

Compliance	<ul style="list-style-type: none"> • REACH • RoHS • CE
UL certified	File E493623 (P/N SPKT00G1DO NOT included)

Part numbers

P/N	Pressure (psi)		Pressure (bar)		Pressure (kPa)		over range			burst pressure		
	4 mA	20 mA	4 mA	20 mA	4 mA	20 mA	psi	bar	kPa	psi	bar	kPa
SPKT0021D0	-8	100	-0.5	7	-50	700	150	10.5	1050	300	21	2100
SPKT0011D0	0	145	0	10	0	1000	217.5	15	1500	435	30	3000
SPKT0041D0	0	260	0	18.2	0	1820	390	27.3	2730	780	54.6	5460
SPKT0031D0	0	435	0	30	0	3000	652.5	45	4500	1305	90	9000
SPKT00B1D0	0	650	0	44.8	0	4480	975	67.2	6720	1950	134.4	13440
SPKT00G1D0	0	870	0	60	0	6000	1305	90	9000	2610	180	18000



Notes

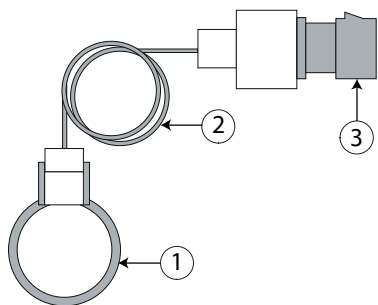
Measurement type Sealed gauge

Full span definition FS (full span) = MAX output - MIN output = 16 mA

Requirements Important, for the purpose of protecting the sensor against damage due to inducted overvoltage and incorrect use, it is recommended to proceed as follows.

- **Power supply:** pressure sensors must be powered by a PELV source. If not connected to a Carel controller, protect with a 50 mA fuse on the power supply positive.
- **Connection cable:** avoid winding the cable in spirals and adequately separate the cable from power cables.

Installation

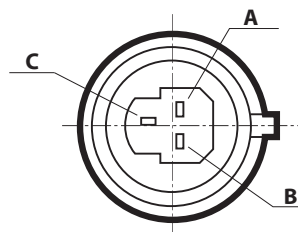


1	Evaporation pipe
2	Capillary tube
3	Pressure sensor-transducer



Use capillary tubes, do not use sealing glue or copper gaskets for mechanical connection

Electrical connection diagram



A	Not used
B	Power supply
C	I out

Dimensions

