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	• 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 - *Not compatible with R717 (ammonia), not suitable to be used with glycol-water mixtures.*
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	• 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

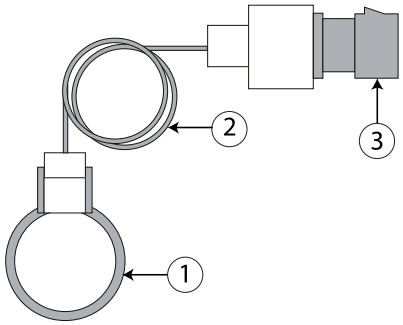
Measurement type: Sealed gauge

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.

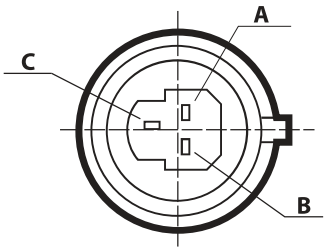
Installation



1	Evaporation pipe
2	Capillary tube
3	Pressure sensor-transducer

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

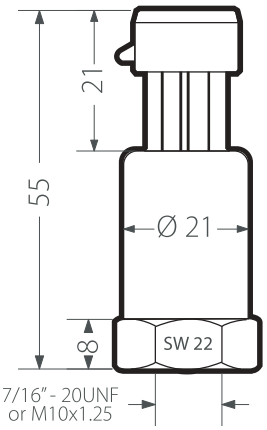
Electrical connection diagram



A	Not used
B	Power supply
C	I out

Dimensions

From 7 to 44.8bar



60bar SPKT00G1D0