2. C Series Female

2.1 Technical specifications - C Series Female

Carel type C pressure sensors are highly accurate products that use piezoresistive technology, with a 4 to 20 mA current output and AISI 316L stainless steel housing. Excellent EMC features make these sensors suitable for the harshest environments. Usable with all refrigerants compatible with AISI 316L stainless steel, also with latest low GWP & ODP fluids, including HFOs, HCs and natural (e.g. ammonia, CO_2). 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 28 Vdc
Output current	4-20 mA
Output load	< (U-8 V) / 0.025 A
Response time	<5 ms, 0~99% FS
Insulation resistance	> 10 MΩ @ 300 VDC
Electrical connector	Male, 3-pin Metri-Pack 150
Cable	See SPKC****** accessory
Dielectric strength	300 V 60"

Performance	
Operating temperature	-40T125°C
Compensation temperature	not available
Fluid temperature	-40T120°C
Storage temperature	-40T120°C
Ingress protection	IP55 or IP67, depending on the connector plugged in. For more details, see SPKC****** accessory table.
Total error band (including linearity, hysteresis, repeatability, calibration error) relative to all operating temperature and humidity values	±1% FS at 24 Vdc (0T50°C) ±2% FS at 24 Vdc (-20T80°C) ±4% FS at 24 Vdc (-40T120°C)
Life cycle	> 10 million cycles, 0-100% FS at 25°C

Physical	
Vibrations IEC 60068-2-64	5-2000 Hz / 10 g - in direction x - y - z
Shock IEC 60068-2-27	20g 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	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	2 times pressure range, see table
Burst pressure	See table
Refrigerant compatibility	All refrigerants compatible with AISI 316L stainless steel
Weight	45g (net weight)

Compliant with:	
Compliance	• REACH • RoHS • CE
UL certified	File E198839

Part numbers

P/N [1]	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
SPKT0021C*	-8	100	-0.5	7	-50	700	652,5	45	4500	4350	300	30000
SPKT0011C*	0	145	0	10	0	1000	652,5	45	4500	4350	300	30000
SPKT0041C*	0	260	0	18.2	0	1820	652,5	45	4500	4350	300	30000
SPKT0031C*	0	435	0	30	0	3000	652,5	45	4500	4350	300	30000
SPKT00B1C*	0	650	0	44.8	0	4480	2175	150	15000	4350	300	30000
SPKT00G1C*	0	870	0	60	0	6000	2175	150	15000	4350	300	30000

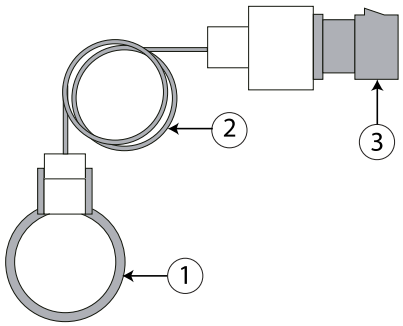
Note:
[1]: 0 = single package; 3= retail market package;
[2]: with built-in connector;

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.

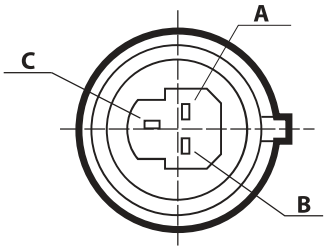
Installation



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