

Sensor pressure transducer

CAREL

C Serie



D Serie



S Serie



P Serie



ITA Manuale d'uso

ENG User manual

**LEGGI E CONSERVA
QUESTE ISTRUZIONI**
**READ AND SAVE
THESE INSTRUCTIONS**

**NO POWER
& SIGNAL
CABLES
TOGETHER**
READ CAREFULLY IN THE TEXT!

WARNINGS



CAREL bases the development of its products on decades of experience in HVAC, on the continuous investments in technological innovations to products, procedures and strict quality processes with in-circuit and functional testing on 100% of its products, and on the most innovative production technology available on the market. CAREL and its subsidiaries nonetheless cannot guarantee that all the aspects of the product and the software included with the product respond to the requirements of the final application, despite the product being developed according to start-of-the-art techniques. The customer (manufacturer, developer or installer of the final equipment) accepts all liability and risk relating to the configuration of the product in order to reach the expected results in relation to the specific final installation and/or equipment. CAREL may, based on specific agreements, act as a consultant for the positive commissioning of the final unit/application, however in no case does it accept liability for the correct operation of the final equipment/system.

The CAREL product is a state-of-the-art product, whose operation is specified in the technical documentation supplied with the product or can be downloaded, even prior to purchase, from the website www.carel.com. Each CAREL product, in relation to its advanced level of technology, requires setup / configuration / programming / commissioning to be able to operate in the best possible way for the specific application. The failure to complete such operations, which are required/indicated in the user manual, may cause the final product to malfunction; CAREL accepts no liability in such cases. Only qualified personnel may install or carry out technical service on the product.

The customer must only use the product in the manner described in the documentation relating to the product.

In addition to observing any further warnings described in this manual, the following warnings must be heeded for all CAREL products:

- prevent the electronic circuits from getting wet. Rain, humidity and all types of liquids or condensate contain corrosive minerals that may damage the electronic circuits. In any case, the product should be used or stored in environments that comply with the temperature and humidity limits specified in the manual;
- do not install the device in particularly hot environments. Too high temperatures may reduce the life of electronic devices, damage them and deform or melt the plastic parts. In any case, the product should be used or stored in environments that comply with the temperature and humidity limits specified in the manual;
- do not attempt to open the device in any way other than described in the manual;
- do not drop, hit or shake the device, as the internal circuits and mechanisms may be irreparably damaged;
- do not use corrosive chemicals, solvents or aggressive detergents to clean the device;
- do not use the product for applications other than those specified in the technical manual.

All of the above suggestions likewise apply to the controllers, serial boards, programming keys or any other accessory in the CAREL product portfolio.

CAREL adopts a policy of continual development. Consequently, CAREL reserves the right to make changes and improvements to any product described in this document without prior warning.

The technical specifications shown in the manual may be changed without prior warning.

The liability of CAREL in relation to its products is specified in the CAREL general contract conditions, available on the website www.carel.com and/or by specific agreements with customers; specifically, to the extent where allowed by applicable legislation, in no case will CAREL, its employees or subsidiaries be liable for any lost earnings or sales, losses of data and information, costs of replacement goods or services, damage to things or people, downtime or any direct, indirect, incidental, actual, punitive, exemplary, special or consequential damage of any kind whatsoever, whether contractual, extra-contractual or due to negligence, or any other liabilities deriving from the installation, use or impossibility to use the product, even if CAREL or its subsidiaries are warned of the possibility of such damage.

DISPOSAL



INFORMATION FOR USERS ON THE CORRECT HANDLING OF WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)





In reference to European Union directive 2002/96/EC issued on 27 January 2003 and the related national legislation, please note that:


1. WEEE cannot be disposed of as municipal waste and such waste must be collected and disposed of separately;
2. the public or private waste collection systems defined by local legislation must be used. In addition, the equipment can be returned to the distributor at the end of its working life when buying new equipment.
3. the equipment may contain hazardous substances: the improper use or incorrect disposal of such may have negative effects on human health and on the environment;
4. the symbol (crossed-out wheeled bin) shown on the product or on the packaging and on the instruction sheet indicates that the equipment has been introduced onto the market after 13 August 2005 and that it must be disposed of separately;
5. in the event of illegal disposal of electrical and electronic waste, the penalties are specified by local waste disposal legislation.

Warranty on materials: 2 years (from the date of production, excluding consumables).

Certification: the quality and safety of CAREL products are guaranteed by the ISO 9001 certified design and production system.

Sensor pressure transducer

Series	D Female Series	C Female Series	C Male Series for CO2	D Male Series
Photo				
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 added to water.	All refrigerants compatible with AISI 316L stainless steel	All refrigerants compatible with AISI 316L stainless steel	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 added to water.
Series pressure range	From 7barg / 101.5psig / 700kPag to 60barg / 870.2psig / 6000kPag	From 7barg / 101.5psig / 700kPag to 60barg / 870.2psig / 6000kPag	120bar / 1740.4psig / 12000kPag and 150bar / 2175.6psig / 15000kPag	From 7barg / 101.5psig / 700kPag to 30barg / 435.1 psig / 3000kPag
Operating temperature	-40T125°C	-40T125°C	-40T100°C	-40T125°C
Fluid temperature	-40T125°C	-40T120°C	-20T120°C	-40T125°C
Output Signal	4...20mA	4...20mA	4...20mA	4...20mA
Power supply	8 to 32Vdc (protected against polarity reversal)	8 to 28Vdc (protected against polarity reversal)	8 to 28Vdc (protected against polarity reversal)	8 to 32Vdc (protected against polarity reversal)
Electrical connector	Male, 3 way Metri-Pack 150	Male, 3 way Metri-Pack 150	Male, 3 way Metri-Pack 150	Cable harness
Index of Protection	"IP55 or IP67, depends on connector plugged in. For more details, see SPKC***** accessory and table."	"IP55 or IP67, depends on connector plugged in. For more details, see SPKC***** accessory and table."	"IP55 or IP67, depends on connector plugged in. For more details, see SPKC***** accessory and table."	IP67
Accuracy (including linearity, hysteresis, repeatability, calibration error) static error @25°C at 5.0 or 24 Vdc	±1%FS (including linearity, hysteresis, repeatability, calibration error) static error @25°C, 24Vdc	N/A	N/A	±1%FS (including linearity, hysteresis, repeatability, calibration error) static error @25°C, 24Vdc
Material in contact with refrigerant	AISI 316L stainless steel (body housing), ceramic (measure cell) and chloroprene rubber (gasket)	AISI 316L stainless steel	AISI 316L stainless steel	AISI 316L stainless steel (body housing), ceramic (measure cell) and chloroprene rubber (gasket)
Mechanical connection	Female, 7/16"-20UNF - in 45° Flare	Female, 7/16"-20UNF - in 45° Flare	Male, 1/4" gas (with water-resistant and oil-resistant gasket)	Male, 7/16"-20UNF - in 45° Flare
Compliances	REACH RoHS CE	REACH RoHS CE	REACH RoHS CE	REACH RoHS CE
UL certified	File E493623 (code SPKT00G1D0 NOT included)	File E198839	File E198839	File E493623

C Male Series	S Female Series	P Female Series	P Female Series IP69K	P Soldering Series IP69K
				
All refrigerants compatible with AISI 316L stainless steel	All refrigerants compatible with AISI 316L stainless steel	R12, R22, R134A, R404A, R407C, R410A, R448A, R449A, R452A, R502, R507, R513A, R744, HFO 1234ze, R290, R32, water (temperature >3°C). Not compatible with R717 (ammonia), not suitable to be used with glycol added to water.	R12, R22, R134A, R404A, R407C, R410A, R448A, R449A, R452A, R502, R507, R513A, R744, HFO 1234ze, R290, R32, water (temperature >3°C). Not compatible with R717 (ammonia), not suitable to be used with glycol added to water.	
From 7barg / 101.5psig / 700kPag to 30barg / 435.1psig / 3000kPag	From 4.2barg / 61psig / 420kPag to 90barg / 1305.3psig / 9000kPag	From 4.2barg / 61psig / 420kPag to 45barg / 652.7psig / 4500kPag	From 4.2barg / 61psig / 420kPag to 45barg / 652.7psig / 4500kPag	
-40T80°C	-40T135°C	-40T135°C	-40T135°C	
-40T120°C	-40T135°C	-40T135°C	-40T135°C	
4...20mA	0.5...4.5Vdc ratiometric	0.5...4.5Vdc ratiometric	0.5...4.5Vdc ratiometric	
8 to 28Vdc (protected against polarity reversal)	5Vdc ±10% (protected against polarity reversal)	5Vdc ±10% (protected against polarity reversal)	5Vdc ±10% (protected against polarity reversal)	
Cable harness	Male, 3 way Metri-Pack 150	Male, 3 way Metri-Pack 150	Male, 3 way Metri-Pack 150	
IP67	"IP55 or IP67 depends on connector plugged in. For more details, see SPKC***** accessory and table."	"IP55, IP67 depends on connector plugged in. For more details, see sensor table and SPKC***** accessory and table."	IP69K, only with IP69K cable (SPKC***2*) plugged in, for more details, see sensor table and SPKC***** accessory and table.	
N/A	N/A	±1.2% FS	±1.2% FS	
AISI 316L stainless steel	AISI 316L stainless steel	Ceramic, brass and HNBR o-ring	Ceramic, brass and HNBR o-ring	
Male, 7/16"-20UNF - in 45° Flare	Female, 7/16"-20UNF - in 45° Flare	Female, 7/16"-20UNF - in 45° Flare	Female, 7/16"-20UNF - in 45° Flare	
REACH RoHS CE	REACH RoHS CE	REACH RoHS CE	REACH RoHS CE	
File E198839	File E198839	File E493623	File E493623	

COMING SOON

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1. D Female Series



1.1 Technical specifications D Female Series

Carel type D pressure transducers have been developed for applications in the refrigeration and air-conditioning sectors. They have a 4 to 20 mA current output signal, and are powered at 8 to 28 Vdc. All the inside surfaces in contact with the fluid are made from AISI 316L steel.

Electrical

Power supply (protected against polarity reversal)	8 to 32Vdc
Power supply overvoltage	36Vdc
Maximum reverse voltage	-28Vdc
Output current	4...20mA
Output load	RL ≤ 500Ω
Response time	≤ 10ms, 0~99%FS
Insulation resistance	100MΩ @ 50V
Dielectric strength	500V 60"
Electrical connector	Male, 3 way 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, depends on connector plugged in. For more details, see SPKC***** accessory and table
Accuracy (including linearity, hysteresis, repeatability, calibration error)	±1%FS static error @25°C, 24Vdc
Total error band (including linearity, hysteresis, repeatability, calibration error) relative to all operating temperature and humidity @ 5.0 or 24 Vdc	±2.0%FS at 24Vdc (0 to 80°C) ±3.0%FS at 24Vdc (-40 to 125°C)
Life cycle	10 million cycles at FS

Physical

Vibrations IEC 60068-2-64	5...2000Hz / 10 g - in direction x - y - z
Shock IEC 60068-2-27	10g sinusoidal, 11 ms
Drop form any axis	1.0m (Falling from 1 meter high)
Material in contact with refrigerant	<ul style="list-style-type: none"> • AISI 316L stainless steel (body housing), • Ceramic (measure cell) • Chloroprene rubber (gasket)
Body housing	AISI 316L stainless steel
Tightening torque	12 to 16 Nm
Mechanical connection	Female, 7/16"-20UNF - in 45° Flare
Series pressure range	From 7bar to 60bar
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)
<i>Not compatible with R717 (ammonia), not suitable to be used with glycol added to water."</i>	R600, R600a, R290, R1270, R1234yf, R1234ze(e), R32, R407A, R407F, R447A, R448A, R449A, R450A, R452A, R452B, R454B, R455, R513A, R407H.
Vacuum pressure (referred to refrigerant circuit)	0.95bar, 95kPa (Absolute)
Weight	62g (Net weight)

EMC

Electrostatic discharges: EN 61000-4-2	15 kV (Defer in air)
Radiated immunity: EN 61000-4-3	80MHz to 2 GHz, 10V/m; 2GHz to 2.7GHz, 10V/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	9kHz to 80MHz, 3V
Magnetic fields at power supply frequency: EN 61000-4-8	30A/m (Impulsive magnetic fields)

Compliant with:

Compliances	<ul style="list-style-type: none"> • REACH • RoHS • CE
UL certified	File E493623 (code SPKT00G1D0 NOT included)

Part numbers

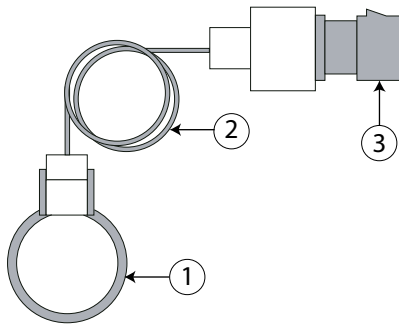
Code	Pressure (psi)		Pressure (bar)		Pressure (kPa)		over range			burst pressure		
	4 mA	20 mA	4 mA	20 mA	4 mA	20 mA	psi	bar	kPa	psi	bar	kPa
SPKT0021D0	-8	100	-0.5	7	-50	700	150	10.5	1050	300	21	2100
SPKT0011D0	0	145	0	10	0	1000	217.5	15	1500	435	30	3000
SPKT0041D0	0	260	0	18.2	0	1820	390	27.3	2730	780	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

Measure type Sealed gauge
 Full span definition FS (full span) = MAX output - MIN output = 16mA
 Prescriptions Important, for the purpose of protecting the sensor against damage due to inducted overvoltage and incorrect use, it is recommended to proceed as follows.

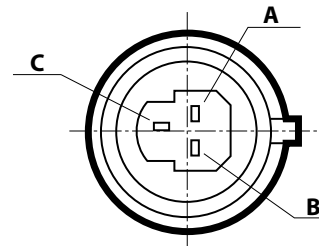
- **Power supply:** pressure sensors must be powered by a PELV source. If not connected to a Carel controller, protect with a 50 mA fuse on the positive of power supply.
- **Connection cable:** avoid winding the cable in spirals and adequately the separate cable from power cables.

Installation



- 1 Evaporation pipe
- 2 Capillary
- 3 Sensor pressure transducer

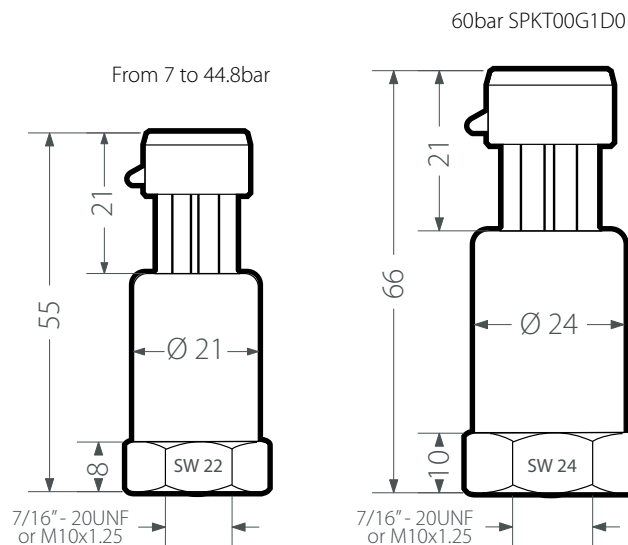
Electrical connection drawing



- A Not used
- B Supply
- C Out

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

Dimensions



2. C Female Series

2.1 Technical specifications C Female Series



Carel type C pressure transducers, is an high accuracy product that use piezoresistive technology, with a 4 to 20 mA current output and AISI 316L stainless steel housing body. Excellent EMC features, make this sensors suitable for harshest environments. Usable with all refrigerants compatible with AISI 316L stainless steel, also with latest low GWP & ODP like , HFO, HC and natural (e.g. Ammonia, Propane, Butane).

Electrical

Power supply (protected against polarity reversal)	8 to 28Vdc
Output current	4...20mA
Output load	< (U-8 V) / 0.025 A
Response time	<5ms, 0~99%FS
Insulation resistance	> 10 MΩ @ 300 VDC
Electrical connector	Male, 3 way Metri-Pack 150
Cable	See SPKC***** accessory

Performance

Operating temperature	-40T125°C
Compensation temperature	not available
Fluid temperature	-40T120°C
Storage temperature	-40T120°C
Ingress protection	IP55 or IP67, depends on connector plugged in. For more details, see SPKC***** accessory and table.
Total error band (including linearity, hysteresis, repeatability, calibration error) relative to all operating temperature and humidity @ 5.0 or 24 Vdc	± 1%FS at 24Vdc (0T50°C) ±2% FS at 24Vdc (-20T80°C) ±4% FS at 24Vdc (-40T120°C)
Life cycle	> 10 million cycles, 0... 100 %FS at 25 °C

Physical

Vibrations IEC 60068-2-64	5...2000Hz / 10 g - in direction x - y - z
Shock IEC 60068-2-27	20g sinusoidal, 11 ms
Drop form any axis	1.0m (Falling from 1 meter high)
Material in contact with refrigerant	AISI 316L stainless steel
Body housing	AISI 316L stainless steel
Tightening torque	12 to 16 Nm
Mechanical connection	Female, 7/16"-20UNF - in 45° Flare
Series pressure range	From 7barg to 60barg
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)

Certification

UL recognized	File E198839
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Compliant with:

Compliances	<ul style="list-style-type: none"> • REACH • RoHS • CE
UL certified	File E198839

Part numbers

Code ⁽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	210	15	1500	7680	530	53000
SPKT0011C*	0	145	0	10	0	1000	290	20	2000	7680	530	53000
SPKT0041C*	0	260	0	18.2	0	1820	580	40	4000	7680	530	53000
SPKT0031C*	0	435	0	30	0	3000	870	60	6000	7680	530	53000
SPKT00B1C*	0	650	0	44.8	0	4480	1160	80	8000	7680	530	53000
SPKT00G1C*	0	870	0	60	0	6000	1740	120	12000	7680	530	53000

Note:

⁽¹⁾: 0 = single package; 3= retail market package;

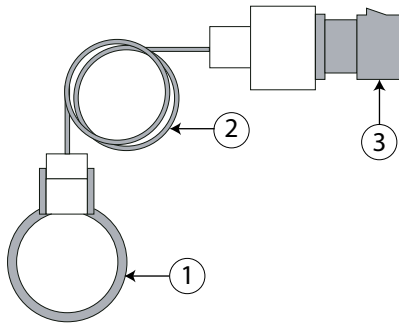
⁽²⁾: with built-in connector;

Notes

Measure type: Sealed gauge
 Full span definition: FS (full span) = MAX output - MIN output = 16mA
 Prescriptions: Important, for the purpose of protecting the sensor against damage due to inducted overvoltage and incorrect use, it is recommended to proceed as follows.

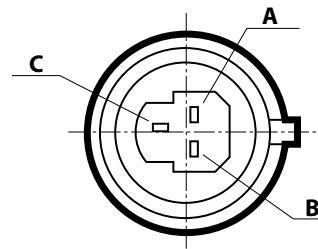
- **Power supply:** pressure sensors must be powered by a PELV source. If not connected to a Carel controller, protect with a 50 mA fuse on the positive of power supply.
- **Connection cable:** avoid winding the cable in spirals and adequately the separate cable from power cables.

Installation



1	Evaporation pipe
2	Capillary
3	Sensor pressure transducer

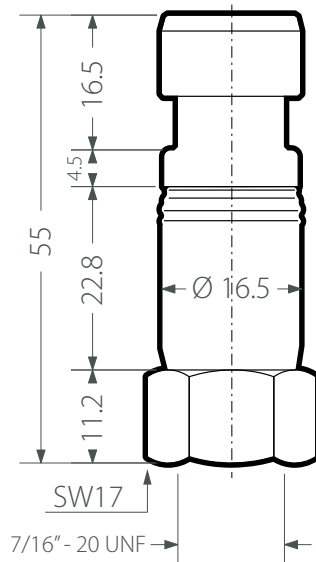
Electrical connection drawing



A	Not used
B	Supply
C	Out

⚠ Use capillary, do not use sealing glue or copper gasket for mechanical connection

Dimensions



3. C Male Series for CO2

3.1 Technical specifications C Male Series "High Pressure, ideal for CO2"



Carel type C pressure transducers, is an high accuracy product that use piezoresistive technology, with a 4 to 20 mA current output and AISI 316L stainless steel housing body. Excellent EMC features, make this sensors suitable for harshest environments. Usable with all refrigerants compatible with AISI 316L stainless steel, also with latest low GWP & ODP like , HFO, HC and natural (e.g. Ammonia, Propane, Butane).

Electrical

Power supply (protected against polarity reversal)	8 to 28Vdc
Output current	4...20mA
Output load	< (U-8V) / 0.025 A
Response time	<10ms, 0~99%FS
Insulation resistance	> 10 MΩ @ 50 VDC
Electrical connector	Male, 3 way Metri-Pack 150
Cable	See SPKC***** accessory

Performance

Operating temperature	-40T100°C
Fluid temperature	-20T120°C
Storage temperature	-20T120°C
Ingress protection	IP55 or IP67, depends on connector plugged in. For more details, see SPKC***** accessory and table.
Total error band (including linearity, hysteresis, repeatability, calibration error) relative to all operating temperature and humidity @ 5.0 or 24 Vdc	± 1%FS at 24Vdc (0T50°C) ±2% FS at 24Vdc (0T80°C) ±4% FS at 24Vdc (-40T100°C)
Life cycle	> 10 million cycles, 0...100 %FS at 25 °C

Physical

Vibrations IEC 60068-2-64	5...2000Hz / 10 g - in direction x - y - z
Shock IEC 60068-2-27	20g sinusoidal, 11 ms
Drop form any axis	1.0m (Falling from 1 meter high)
Material in contact with refrigerant	AISI 316L stainless steel
Body housing	AISI 316L stainless steel
Tightening torque	12 to 16 Nm
Mechanical connection	Male, 1/4" gas (with water-resistant and oil-resistant gasket)
Series pressure range	120bar and 150bar
Over pressure	2 times Pressure range, see table
Burst pressure	see table
Refrigerant compatibility	All refrigerants compatible with AISI 316L stainless steel
Weight	55g (Net weight)

Certification

UL recognized	File E198839
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Compliant with:

Compliances	<ul style="list-style-type: none"> • REACH • RoHS • CE
UL certified	File E198839

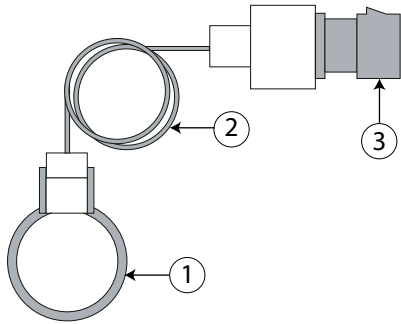
Part numbers

Code	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
SPKT00D8C0	0	2175	0	150	0	15000	7680	530	30000	7680	530	53000
SPKT00H8C0	0	1740	0	120	0	12000	7680	530	30000	7680	530	53000

Notes

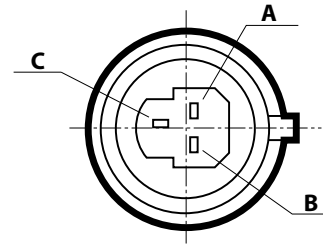
- Measure type Sealed gauge
- Full span definition FS (full span) = MAX output - MIN output = 16mA
- Prescriptions Important, for the purpose of protecting the sensor against damage due to inducted overvoltage and incorrect use, it is recommended to proceed as follows.
- **Power supply:** pressure sensors must be powered by a PELV source. If not connected to a Carel controller, protect with a 50 mA fuse on the positive of power supply.
 - **Connection cable:** avoid winding the cable in spirals and adequately the separate cable from power cables.

Installation




- | | |
|---|----------------------------|
| 1 | Evaporation pipe |
| 2 | Capillary |
| 3 | Sensor pressure transducer |

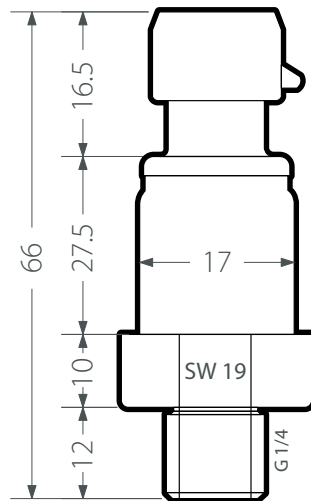
Electrical connection drawing



- | | |
|---|----------|
| A | Not used |
| B | Supply |
| C | Out |

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

Dimensions



4. D Male Series



4.1 Technical specifications D Male Series

Carel type D pressure transducers, use piezoresistive technology, with a 4 to 20 mA current output and AISI 316L stainless steel housing body. Compatible also with latest refrigerants (HFO & HC with low GWP & ODP).
No compatible with ammonia.

Electrical

Power supply (protected against polarity reversal)	8 to 32Vdc
Power supply overvoltage	36Vdc
Maximum reverse voltage	-28Vdc
Output current	4...20mA
Output load	RL ≤ 500Ω
Response time	≤ 10ms, 0~99%FS
Insulation resistance	100MΩ @ 50V
Dielectric strength	500V 60"
Electrical connector	Cable harness
Cable	Double insulation, gray external insulation, white and brown conductors insulation, halogen and silicone free

Performance

Operating temperature	-40T125°C
Operating humidity	0-90%rH
Compensation temperature	0T80°C
Fluid temperature	-40T125°C
Storage temperature	-40T135°C
Ingress protection	IP67
Accuracy (including linearity, hysteresis, repeatability, calibration error)	±1%FS - static error @25°C, 24Vdc
Total error band (including linearity, hysteresis, repeatability, calibration error) relative to all operating temperature and humidity @ 5.0 or 24 Vdc	±2.0%FS at 24Vdc (0 To 80°C) ±3.0%FS at 24Vdc (-40 To 125°C)
Life cycle	10 million cycles at FS

Physical

Vibrations IEC 60068-2-64	5...2000Hz / 10 g - in direction x - y - z
Shock IEC 60068-2-27	10g sinusoidal, 11 ms
Drop form any axis	1.0m (Falling from 1 meter high)
Material in contact with refrigerant	AISI 316L stainless steel (body housing), ceramic (measure cell) and chloroprene rubber (gasket)
Body housing	AISI 316L stainless steel
Tightening torque	12 to 16 Nm
Mechanical connection	Male, 7/16"-20UNF - in 45° Flare
Series pressure range	From 7barg to 30barg
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 added to water.
Vacuum pressure (referred to refrigerant circuit)	0.95bar, 95kPa (Absolute)
Weight	62g (Net weight)

EMC

Electrostatic discharges: EN 61000-4-2	15 kV (Defer in air)
Radiated immunity: EN 61000-4-3	80MHz to 2 GHz, 10 V/m 2GHz to 2.7GHz, 10V/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	9kHz to 80MHz, 3V
Magnetic fields at power supply frequency: EN 61000-4-8	30A/m (Impulsive magnetic fields)

Compliant with:

Compliances	<ul style="list-style-type: none"> • REACH • RoHS • CE
UL certified	File E493623

Part numbers

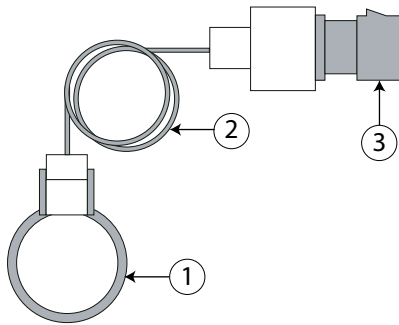
Code	Pressure (psi)		Pressure (bar)		Pressure (kPa)		over range			burst pressure		
	4 mA	20 mA	4 mA	20 mA	4 mA	20 mA	psi	bar	kPa	psi	bar	kPa
SPK10000D0	-8	100	-0,5	7	-50	700	150	10,5	1050	300	21	2100
SPK24000D0	-15	340	-1	24	-100	2400	520	36	3600	1020	72	7200
SPK30000D0	0	435	0	30	0	3000	652,5	45	4500	1305	90	9000

Note: All models are sealed gauge sensors

Notes

- Full span definition FS (full span) = MAX output - MIN output = 16mA
 Prescriptions 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 positive of power supply.
 - **Connection cable:** avoid winding the cable in spirals and adequately the separate cable from power cables.

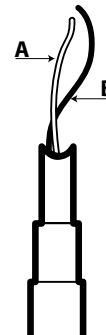
Installation



- 1 Evaporation pipe
- 2 Capillary
- 3 Sensor pressure transducer

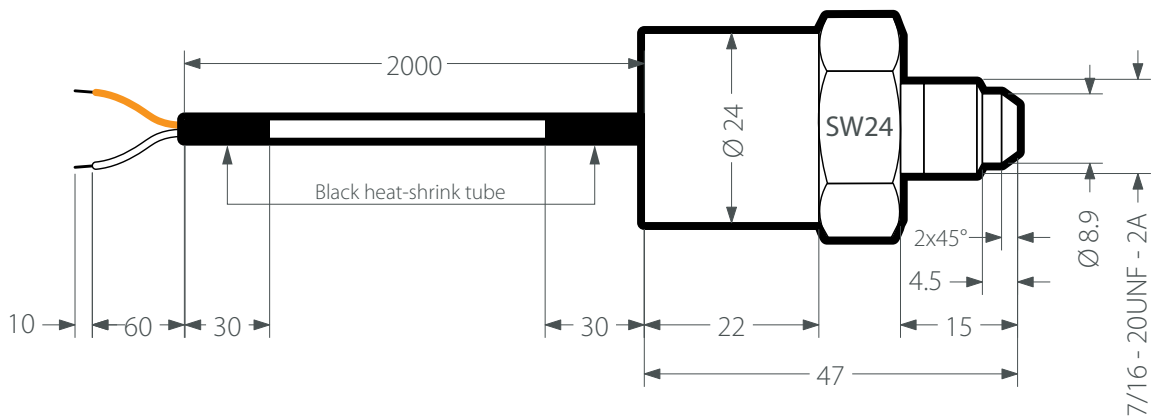
Use capillary, do not use sealing glue or copper gasket for mechanical connection

Electrical connection drawing



- A White (pressure output)
- B Brown (power supply)

Dimensions



5. C Male Series

5.1 Technical specifications C Male Series



Carel type C pressure transducers, is an high accuracy product that use piezoresistive technology, with a 4 to 20 mA current output and AISI 316L stainless steel housing body.

Excellent EMC features, make this sensors suitable for harshest environments.

Usable with all refrigerants compatible with AISI 316L stainless steel, also with latest low GWP & ODP like , HFO, HC and natural (e.g. Ammonia, Propane, Butane).

Electrical

Power supply (protected against polarity reversal)	8 to 28Vdc
Output current	4...20mA
Output load	< (U-8V) / 0.025 A
Response time	<5ms, 0~99%FS
Insulation resistance	> 10 MΩ @ 300 VDC
Electrical connector	Cable harness
Cable	Double insulation, gray external insulation, white and brown conductors insulation

Performance

Operating temperature	-40T80°C
Fluid temperature	-40T120°C
Storage temperature	-40T120°C
Ingress protection	IP67
Total error band (including linearity, hysteresis, repeatability, calibration error) relative to all operating temperature and humidity @ 5.0 or 24 Vdc	± 1%FS at 24Vdc (0T50°C) ±2% FS at 24Vdc (-20T80°C) ±4% FS at 24Vdc (-40T120°C)
Life cycle	> 10 million cycles, 0... 100 %FS at 25 °C

Physical

Vibrations IEC 60068-2-64	5...2000Hz / 10 g - in direction x - y - z
Shock IEC 60068-2-27	20g sinusoidal, 11 ms
Drop form any axis	1.0m (Falling from 1 meter high)
Material in contact with refrigerant	AISI 316L stainless steel
Body housing	AISI 316L stainless steel
Tightening torque	12 to 16 Nm
Mechanical connection	Male, 7/16"-20UNF - in 45° Flare
Series pressure range	From 7barg to 30barg
Over pressure	up to 2 times Pressure range, see table
Burst pressure	see table
Refrigerant compatibility	All refrigerants compatible with AISI 316L stainless steel
Weight	45g (Net weight)

Certification

UL recognized	File E198839
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Compliant with:

Compliances	<ul style="list-style-type: none"> • REACH • RoHS • CE
UL certified	File E198839

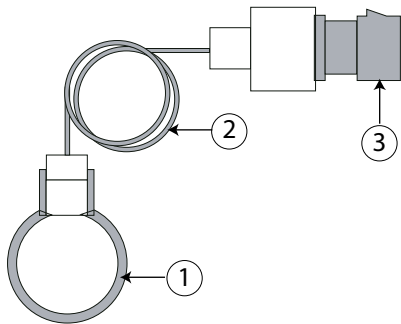
Part numbers

Code ⁽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
SPK100000*	-8	100	-0,5	7	-50	700	200	14	1400	7680	530	53000
SPK240000*	-15	340	-1	24	-100	2400	520	36	3600	7680	530	53000
SPK250000*	0	360	0	25	0	2500	530	37	3700	7680	530	53000
SPK300000*	0	435	0	30	0	3000	650	45	4500	7680	530	53000


Notes

- Measure type Sealed gauge
- Full span definition FS (full span) = MAX output - MIN output = 16mA
- Prescriptions 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 positive of power supply.
 - **Connection cable:** avoid winding the cable in spirals and adequately the separate cable from power cables.

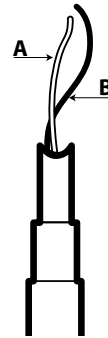
Installation



- 1 | Evaporation pipe
- 2 | Capillary
- 3 | Sensor pressure transducer

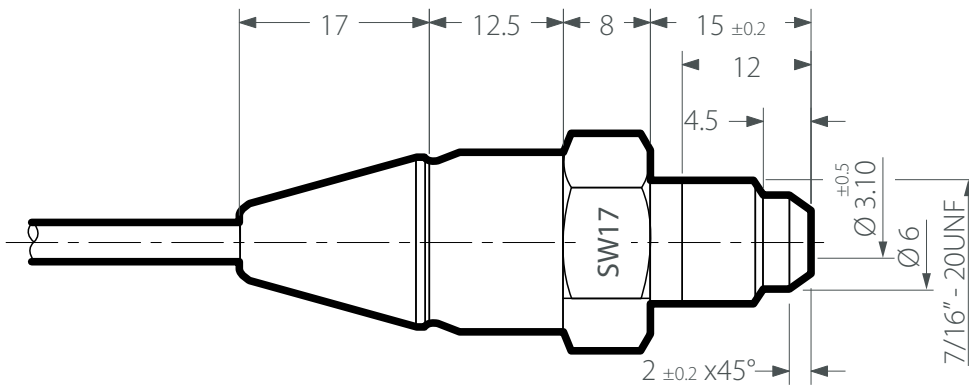
 Use capillary, do not use sealing glue or copper gasket for mechanical connection

Electrical connection drawing



- A | White (pressure output)
- B | Brown (power supply)

Dimensions



6. S Female Series

6.1 Technical specifications S Female Series



Carel type S pressure transducers, is an high accuracy product that use piezoresistive technology, with a 0.5...4.5 ratiometric output and AISI 316L stainless steel housing body.

Excellent EMC features, make this sensors suitable for harshesht environments.

Electronic parts are hermetically sealed, so the sensor can be installed on the refrigerant pipe (capillary tube is not needed) Usable with all refrigerants compatible with AISI 316L stainless steel, also with latest low GWP & ODP like , HFO, HC and natural (e.g. Ammonia, Propane, Butane).

Electrical

Power supply (protected against polarity reversal)	5Vdc ±10%
Power supply overvoltage	24Vdc
Current consuption	max 8mA
Output voltage	0.5...4.5Vdc ratiometric
Shorcircuit protection	yes
Output load	>5kΩ
Response time	<5ms, 0~99%FS
Insulation resistance	> 10 MΩ @ 500 VDC
Electrical connector	Male, 3 way Metri-Pack 150
Cable	See SPKC***** accessory

Performance

Operating temperature	-40T135°C
Fluid temperature	-40T135°C
Storage temperature	-40T125°C
Ingress protection	IP55 or IP67 depends on connector plugged in. For more details, see SPKC***** accessory and table.
Total error band (including linearity, hysteresis, repeatability, calibration error) relative to all operating temperature and humidity @ 5.0 or 24 Vdc	± 1%FS at 5Vdc (0T50°C) ±2% FS at 5Vdc (0T80°C) ±4% FS at 5Vdc (-40T125°C)
Life cycle	> 10 million cycles, 0...100 %FS at 25 °C

Physical

Vibrations IEC 60068-2-64	5...2000Hz / 10 g - in direction x - y - z
Shock IEC 60068-2-27	20g sinusoidal, 11 ms
Drop form any axis	1.0m (Falling from 1 meter high)
Material in contact with refrigerant	AISI 316L stainless steel
Body housing	AISI 316L stainless steel
Tightening torque	12 to 16 Nm
Mechanical connection	Female, 7/16"-20UNF - in 45° Flare
Series pressure range	From 4.2barg to 90barg
Over pressure	2.5 times Pressure range, see table
Burst pressure	see table
Refrigerant compatibility	All refrigerants compatible with AISI 316L stainless steel
Vacuum pressure (referred to refrigerant circuit)	not available
Weight	55g (Net weight)

EMC

Compliant with:

Compliances	<ul style="list-style-type: none"> • REACH • RoHS • CE
UL certified	File E198839

Part numbers

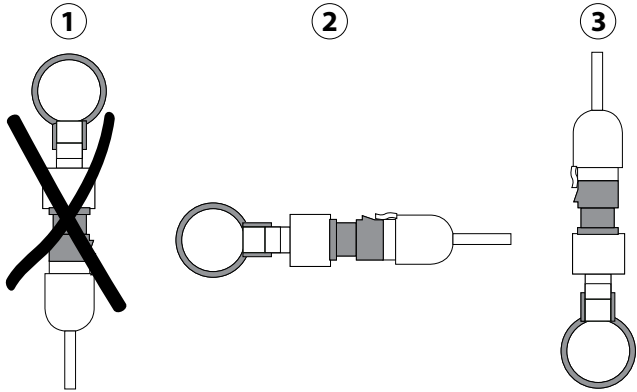
Code	Pressure (psi)		Pressure (bar)		Pressure (kPa)		over range			burst pressure		
	0.5 V	4.5 V	0.5 V	4.5 V	0.5 V	4.5 V	psi	bar	kPa	psi	bar	kPa
SPKT0051S0	-15	60	-1	4.2	-100	420	152	10.5	1050	6380	440	44000
SPKT0011S0	-15	135	-1	9.3	-100	930	338.7	23.3	2330	6380	440	44000
SPKT00E1S0	-15	185	-1	12.8	-100	1280	464.1	32	3200	6380	440	44000
SPKT0041S0	0	250	0	17.3	0	1730	627.3	43.2	4320	6380	440	44000
SPKT00F1S0	0	300	0	20.7	0	2070	750.6	51.7	5170	6380	440	44000
SPKT0031S0	0	500	0	34.5	0	3450	1251	86.2	8620	6380	440	44000
SPKT00B1S0	0	650	0	45.0	0	4500	1631.7	112.5	11250	6380	440	44000
SPKT00G1S0	0	870	0	60.0	0	6000	2175.6	150	15000	6380	440	44000
SPKT00L1S0	0	1305	0	90.0	0	9000	3263.2	225	22500	6380	440	44000

Notes

Measure type Sealed gauge
 Full span definition FS (full span) = MAX output - MIN output = 16mA
 Prescriptions Important, for the purpose of protecting the sensor against damage due to inducted overvoltage and incorrect use, it is recommended to proceed as follows.

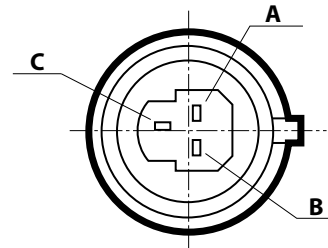
- **Power supply:** pressure sensors must be powered by a PELV source. If not connected to a Carel controller, protect with a 50 mA fuse on the positive of power supply.
- **Connection cable:** avoid winding the cable in spirals and adequately the separate cable from power cables.

Installation



1	NOT RECOMMENDED
2	RECOMMENDED
3	ACCEPTED

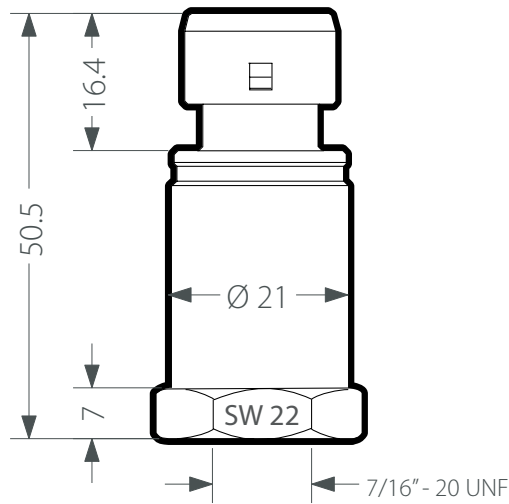
Electrical connection drawing



A	Ground
B	Supply voltage
C	Out

! Do not use sealing glue or copper gasket for mechanical connection

Dimensions



7. P Female Series



7.1 Technical specifications P Female Series

Carel type P pressure transducers, is a cost effect, high accuracy product that use piezoresistive technology, with a 0.5...4.5 ratiometric output and brass housing body. Excellent EMC features, make this sensors suitable for harshest environments. These sensors can be directly installed on the refrigerant pipe (capillary tube is not needed) Compatible with the most common refrigerants.

Electrical

Power supply (protected against polarity reversal)	5Vdc \pm 10%
Power supply overvoltage	18Vdc
Maximum reverse voltage	11Vdc
Current consumption	5mA typical
Output voltage	0.5...4.5Vdc ratiometric
Shorrcircuit protection	yes
Output load	>47k Ω
Response time	10ms max
Insulation resistance	1G Ω @ 50Vdc
Electrical connector	Male, 3 way Metri-Pack 150
Insulation material of electrical connector	PBT 30GF
Electrical contact material and surface finish material	Cu Zn20, Ni 2...3 μ m Sn 5 \pm 2,5 μ m
Cable	See SPKC***** accessory

Performance

Operating temperature	-40T135°C
Operating humidity	0-90%rH
Fluid temperature	-40T135°C
Storage temperature	-40T150°C
Ingress protection	IP55, IP67 depends on connector plugged in. For more details, see sensor table and SPKC***** accessory and table."
Accuracy (including linearity, hysteresis, repeatability, calibration error) static error @25°C at 5.0 or 24 Vdc	\pm 1.2% FS
Temperature error	\pm 0.013%FS./°C
Total error band (including linearity, hysteresis, repeatability, calibration error) relative to all operating temperature and humidity @ 5.0 or 24 Vdc	\pm 1.5%FS at 5Vdc (0T50°C) \pm 2.1% FS at 5Vdc (-40T90°C) \pm 2.6% FS at 5Vdc (90T135°C)"
Life cycle	10 million cycles, 0...100 %FS

Physical

Vibrations IEC 60068-2-64	12g (rms)
Shock IEC 60068-2-27	50g 6ms
Drop form any axis	1.5m (Falling from 1.5 meter high)
Material in contact with refrigerant	Ceramic, brass and HNBR o-ring
Body housing	Brass
Tightening torque	12 to 16 Nm
Mechanical connection	Female, 7/16"-20UNF - in 45° Flare
Series pressure range	From 4.2barg to 45barg
Over pressure	See table
Burst pressure	See table
Refrigerant compatibility	R12, R22, R134A, R404A, R407C, R410A, R448A, R449A, R452A, R502, R507, R513A, R744, HFO 1234ze, R290, R32, water (temperature >3°C). Not compatible with R717 (ammonia), not suitable to be used with glycol added to water.
Vacuum pressure (referred to refrigerant circuit)	0 bar absolute
Weight	30g (Net weight)

EMC

Electrostatic discharges: EN 61000-4-2	\pm 4kV contact, \pm 8kV in air
Radiated immunity: EN 61000-4-3	10V/m (80MHz \div 1GHz) 3V/m (1,4Ghz \div 2Ghz) 1V/m (2Ghz \div 2,7Ghz)
Burst: EN 61000-4-4	\pm 1kV
Surge: EN 61000-4-5	\pm 500V
Immunity to conducted radio-frequency disturbance: EN 61000-4-6	10V (150kHz \div 80Mhz)
Magnetic fields at power supply frequency: EN 61000-4-8	30 A/m continuous 300 A/m impulsive

Compliant with:

Compliances	<ul style="list-style-type: none"> • REACH • RoHS • CE
UL certified	File E493623

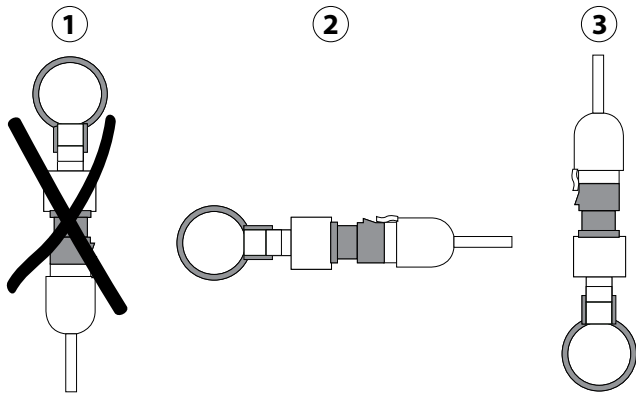
Part numbers

Carel code	Pressure (psi)		Pressure (bar)		Pressure (kPa)		Over pressure			Burst pressure		
	0.5 V	4.5 V	0.5 V	4.5 V	0.5 V	4.5 V	psi	bar	kPa	psi	bar	kPa
SPKT0053P* ⁽¹⁾	-15	60	-1	4,2	-100	420	360	25	2500	1595	110	11000
SPKT0013P* ⁽¹⁾	-15	135	-1	9,3	-100	930	430	30	3000	1595	110	11000
SPKT00E3P* ⁽¹⁾	-15	185	-1	12,8	-100	1280	550	38	3800	1595	110	11000
SPKT0043P* ⁽¹⁾	0	250	0	17,3	0	1730	780	54	5400	1595	110	11000
SPKT00F3P* ⁽¹⁾	0	300	0	20,7	0	2070	900	62	6200	1595	110	11000
SPKT0033P* ⁽¹⁾	0	500	0	34,5	0	3450	1010	70	7000	2494	172	17200
SPKT00B6P* ⁽¹⁾	0	650	0	45	0	4500	1310	91	9100	2494	172	17200

Notes

- Measure type Sealed gauge
 Full span definition FS (full span) = MAX output - MIN output = 4V
 Prescriptions 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 positive of power supply.
 - **Connection cable:** avoid winding the cable in spirals and adequately the separate cable from power cables.

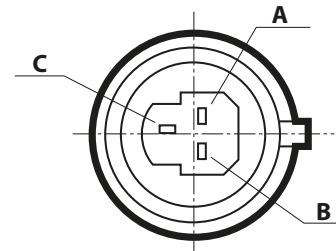
Installation



1	NOT RECOMMENDED
2	RECOMMENDED
3	ACCEPTED

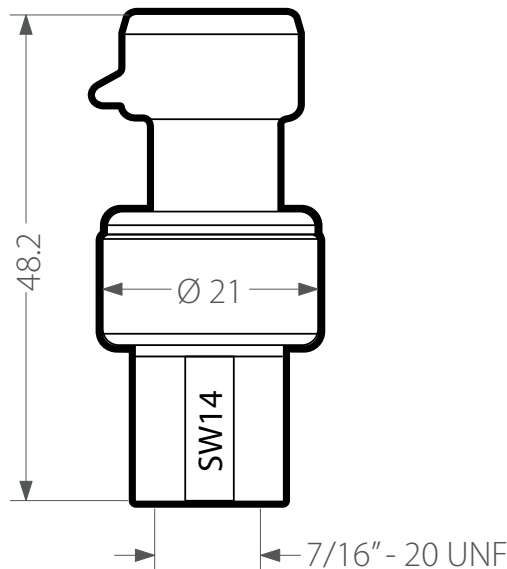
Do not use sealing glue or copper gasket for mechanical connection

Electrical connection drawing



A	Ground - PIN n.3
B	Power supply - PIN n.1
C	Output signal - PIN n.2

Dimensions



8. P Female Series IP69K



8.1 Technical specifications P Female Series IP69K

Carel type P pressure transducers, is a cost effect, high accuracy product that use piezoresistive technology, with a 0.5...4.5 ratiometric output and brass housing body.

Excellent EMC features, make this sensors suitable for harshest environments.

These sensors can be directly installed on the refrigerant pipe (capillary tube is not needed)

Compatible with the most common refrigerants.

Electrical

Power supply (protected against polarity reversal)	5Vdc \pm 10%
Power supply overvoltage	18Vdc
Maximum reverse voltage	11Vdc
Current consuption	5mA typical
Output voltage	0.5...4.5Vdc ratiometric
Shorcircuit protection	yes
Output load	>47k Ω
Response time	10ms max
Insulation resistance	1G Ω @ 50Vdc
Electrical connector	Male, 3 way Metri-Pack 150
Insulation material of electrical connector	PBT 30GF
Electrical contact material and surface finish material	Cu Zn20, Ni 2...3 μ m Sn 5 \pm 2,5 μ m
Cable	See SPKC***** accessory

Performance

Operating temperature	-40T135°C
Operating humidity	0-90%rH
Fluid temperature	-40T135°C
Storage temperature	-40T150°C
Ingress protection	IP69K, only with IP69K cable (SPKC***2*) plugged in, for more details, see sensor table and SPKC***** accessory and table.
Accuracy (including linearity, hysteresis, repeatability, calibration error) static error @25°C at 5.0 or 24Vdc	\pm 1.2% FS
Temperature error	\pm 0.013%FS./°C
Total error band (including linearity, hysteresis, repeatability, calibration error) relative to all operating temperature and humidity @ 5.0 or 24Vdc	\pm 1.5%FS at 5Vdc (0T50°C) \pm 2.1% FS at 5Vdc (-40T90°C) \pm 2.6% FS at 5Vdc (90T135°C)
Life cycle	10 million cycles, 0...100 %FS

Physical

Vibrations IEC 60068-2-64	12g (rms)
Shock IEC 60068-2-27	50g 6ms
Drop form any axis	1.5m (Falling from 1.5 meter high)
Material in contact with refrigerant	Ceramic, brass and HNBR o-ring
Body housing	Brass
Tightening torque	12 to 16 Nm
Mechanical connection	Female, 7/16"-20UNF - in 45° Flare
Series pressure range	From 4.2barg to 45barg
Over pressure	See table
Burst pressure	See table
Refrigerant compatibility	R12, R22, R134A, R404A, R407C, R410A, R448A, R449A, R452A, R502, R507, R513A, R744, HFO 1234ze, R290, R32, water (temperature >3°C). Not compatible with R717 (ammonia), not suitable to be used with glycol added to water.
Vacuum pressure (referred to refrigerant circuit)	0 bar absolute
Weight	30g (Net weight)

EMC

Electrostatic discharges: EN 61000-4-2	\pm 4kV contact, \pm 8kV in air
Radiated immunity: EN 61000-4-3	10V/m (80MHz \div 1GHz) 3V/m (1,4Ghz \div 2Ghz) 1V/m (2Ghz \div 2,7Ghz)
Burst: EN 61000-4-4	\pm 1kV
Surge: EN 61000-4-5	\pm 500V
Immunity to conducted radio-frequency disturbance: EN 61000-4-6	10V (150kHz \div 80Mhz)
Magnetic fields at power supply frequency: EN 61000-4-8	30 A/m continuous 300 A/m impulsive

Compliant with:

Compliances	<ul style="list-style-type: none"> • REACH • RoHS • CE
UL certified	File E493623

Part numbers

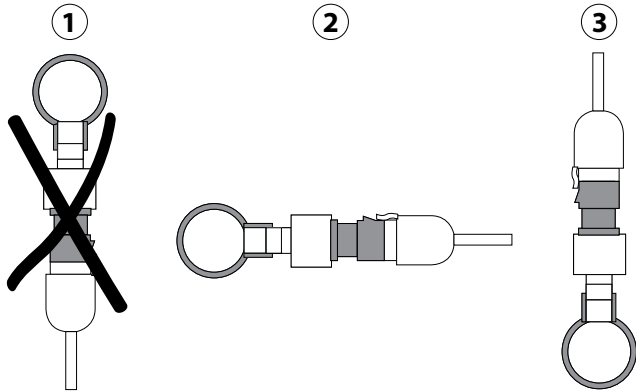
Carel code	Pressure (psi)		Pressure (bar)		Pressure (kPa)		Over pressure			Burst pressure		
	0.5 V	4.5 V	0.5 V	4.5 V	0.5 V	4.5 V	psi	bar	kPa	psi	bar	kPa
SPKT0153P* ⁽¹⁾	-15	60	-1	4,2	-100	420	360	25	2500	1595	110	11000
SPKT0113P* ⁽¹⁾	-15	135	-1	9,3	-100	930	430	30	3000	1595	110	11000
SPKT01E3P* ⁽¹⁾	-15	185	-1	12,8	-100	1280	550	38	3800	1595	110	11000
SPKT0143P* ⁽¹⁾	0	250	0	17,3	0	1730	780	54	5400	1595	110	11000
SPKT01F3P* ⁽¹⁾	0	300	0	20,7	0	2070	900	62	6200	1595	110	11000
SPKT0133P* ⁽¹⁾	0	500	0	34,5	0	3450	1010	70	7000	2494	172	17200
SPKT01B6P* ⁽¹⁾	0	650	0	45	0	4500	1310	91	9100	2494	172	17200

*⁽¹⁾ = 0 single pack, 1 multiple pack 50pcs, 3 distribution pack

Notes

- Measure type Sealed gauge
 Full span definition FS (full span) = MAX output - MIN output = 4V
 Prescriptions 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 positive of power supply.
 - **Connection cable:** avoid winding the cable in spirals and adequately the separate cable from power cables.

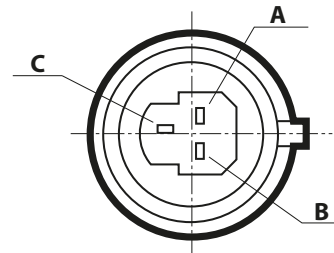
Installation



1	NOT RECOMMENDED
2	RECOMMENDED
3	ACCEPTED

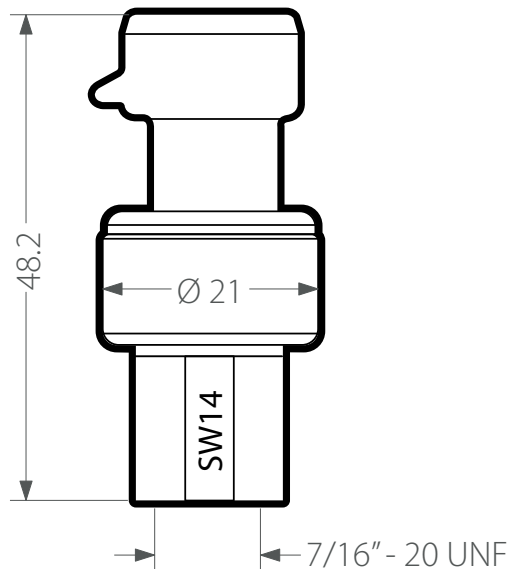
Do not use sealing glue or copper gasket for mechanical connection

Electrical connection drawing



A	Ground - PIN n.3
B	Power supply - PIN n.1
C	Output signal - PIN n.2

Dimensions



9. Cables for Pressure Sensors

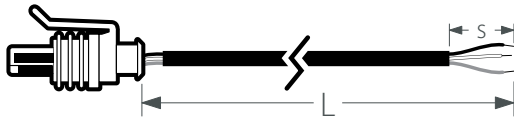
9.1 Cable SPKC Series

The SPKC series pressure sensor cables are flexible and feature a PVC insulating sheath with wide temperature range (from -20°C up to 105°C). These are ideal for use as static internal wiring in electronic equipment. The cables are available in various lengths, in versions with IP55 - IP67 - IP69K Packard connectors. They are used for connecting the entire Carel SPKT* series pressure sensors (ratiometric and 4-20 mA). It is available series, which provides the JST XHP 2 and 3-wires connector for quick connection (it is agree with compatible connection).

Characteristics for all cables

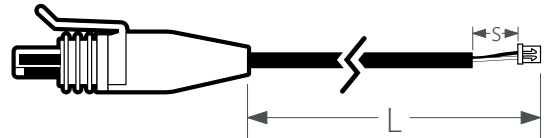
Nominal voltage (V)	300Vac
Wire size (mm ²)	3x 0.324mm ² - AGW22/19
Operating temperature	-20°C to 105°C
Wire resistance	≤ 59.4 Ω/Km
Insulation cable	PVC Class 43. Hardness (91 ± 2) Sh-A
Sheath colour	RAL7035
Wire colours	White - Black - Green
Average sheath thickness	≥0.76 mm - ≥30 mils
Radius of curvature	≥12 x D
Cable outside diameter	5.1 mm
Flame resistance	VW1 - FT-1
Compliant with standards	UL758 & UL1581

Pins	3x 0.35-0.50mm ²
Material	Nylon
Model	Female with seal gasket
Maximum current	14 A
Operating temperature	-40°C to 105°C
Colour	Black



Packard IP protection	IP55
Terminations	Tin finishing terminals

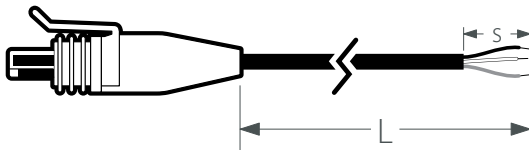
P/N	Length (ref. L)		s (mm)	Min. orderable quantity
	m	inch		
SPKC002300	2	78,7	50	1 pcs
SPKC005300	5	196,8	50	1 pcs
SPKC00A300	12	472,4	50	1 pcs



Packard IP protection	IP67 (EN60529)
Terminations	2-ways JST

Molding material	Thermoplastic Polyamide
Colour	Black

Housing P/N	XHP-2
Pins	2 pins
Pin-to-Pin Pitch	2,5mm
Electric contact P/N	SXH-001T-P0.6
Operating temperature	-25°C to 85°C

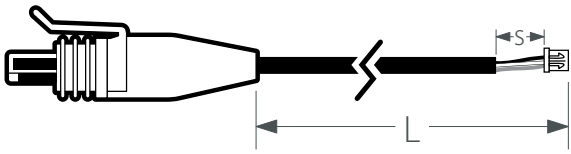


Packard IP protection	IP67 (EN60529)
Terminations	Tin finishing terminals

Molding material	Thermoplastic Polyamide
Colour	Black

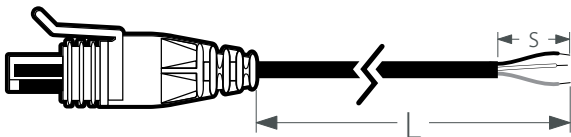
P/N	Length (ref. L)		s (mm)	Min. orderable quantity
	m	inch		
SPKC00D311	0,65	25,5	70	50 pcs
SPKC00E311	0,83	32,6	70	50 pcs
SPKC00B311	1	39,3	150	50 pcs
SPKC00C311	1,3	51,1	150	50 pcs
SPKC002310	2	78,7	50	1 pcs
SPKC002311	2	78,7	50	100 pcs
SPKC00M311	3	118	50	10 pcs
SPKC00F310	4	157,4	50	1 pcs
SPKC005310	5	196,8	50	1 pcs
SPKC005311	5	196,8	50	50 pcs
SPKC00G310	6,6	259,8	50	1 pcs
SPKC00A310	12	472,4	50	1 pcs

P/N	Length (ref. L)		s (mm)	Min. orderable quantity
	m	inch		
SPKC002410	2	78,7	50	1 pcs
SPKC005410	5	196,8	50	1 pcs



Packard IP protection	IP67 (EN60529)
Terminations	3-ways JST
Molding material	Thermoplastic Polyamide
Colour	Black
Housing P/N	XHP-3
Pins	3 pins
Pin-to-Pin Pitch	2,5mm
Electric contact P/N	SXH-001T-P0,6
Operating temperature	-25°C to 85°C

P/N	Length (ref. L)		s (mm)	Min. orderable quantity
	m	inch		
SPKC002510	2	78,7	50	1 pcs
SPKC005510	5	196,8	50	1 pcs



Packard IP protection	IP67 (EN60529) - IP69K (ISO20653)
Terminations	Tin finishing terminals
Molding material	TPU
Colour	Red, type 2/R325

P/N	Length (ref. L)		s (mm)	Min. orderable quantity
	m	inch		
SPKC002321	2	78,7	50	10 pcs
SPKC005321	5	196,8	50	10 pcs
SPKC00A321	12	472,4	50	10 pcs
SPKC00Q321	18	708,7	50	10 pcs

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