1.1 SCP Mini pressure sensors

- ✓ **Stainless steel cell**
- ✓ **Small construction**
- ✓ **High burst pressure**
- ✓ **Resistant to pressure peaks**
- ✓ **Shock and vibration-proof**
- ✓ **Wide media resistance**
- ✓ **High linearity**
- ✓ **Long-term stability**

The Mini-SCP pressure sensor was designed for industrial application requirements and is used in control, regulation and monitoring systems where rapid pressure-dependent analogue signals are needed.
The SCP-Mini pressure sensor is outstanding because of its compact construction, high linearity and excellent interference resistance.

Construction
The SCP-Mini includes only a few active components – the sensor element, a signal-processing ASIC and a converter switch.
The ASIC is a programmable precision CMOS-ASIC with EEPROM data memory and analogue signal path, which is qualified for an extended working temperature range. Because of electronic calibration, a small total error and high long-term stability are achieved. The electronics are resistant to the effects of electromagnetic interference.
Pressure is captured with a zero-point and long-term stable measurement cell.
The hermetically welded stainless steel membrane is vacuum tight and highly resistant to bursting.
The standardised G1/4 BSPP corrosion-resistant stainless steel process connection, in so far as it is compatible with stainless steel, guarantees wide-ranging media resistance.

Applications
Plenty of electrical output signals and plug-in connectors guarantee a wide spectrum of applications.
This sensor is eminently suitable for permanent series usage in hydraulic and pneumatic applications, thanks to its long durability, high accuracy, high reliability and rugged stainless steel construction.

SCP Mini	004	006	010	016	025	040	060	100	160	250	400	600
pressure range * P_N (bar)	0...4	0...6	0...10	0...16	0...25	0...40	0...60	0...100	0...160	0...250	0...400	0...600
overload pressure P_{max} (bar)	2 times											
burst pressure P_{Burst} (bar)	3- times											2,5-times

Pressure connection	
pressure connection	G1/4A BSPP
	DIN 3852 T11, form E
erosion bore	0,6 mm
	ED-seal FKM
Material	
parts in contact with media	FKM; stainless steel 1.4542,1.4548; 17-4PH
housing	stainless steel 1.4301
protection class	IP67 DIN EN 60529 (with DIN EN 175301-803 form A plug IP65)
Plug-in connection	
4-pole; M12x1; IP67	
4-pole; DIN EN 175301-803 form A; IP65	
Electrical connection	
short circuit protect'n; reverse polarity protect'n; protect'n class 3	
Accuracy	
characteristic curve deviation	± 0,5 % FS start point setting
General	
response time	≤ 1 ms
long-term stability	< 0,1 % FS/a
weight	ca. 80 g
load reversals	≥ 20 Mio.

Environmental conditions	
environmental temperature range	-40…+85 °C
fluid temperature range	-40…+125 °C
compensated range	-20…+85 °C
storage temperature	-40…+125 °C
temperature coefficient	≤ ± 0,3 % FS/10 K
vibration resistance	IEC 60068-2-6; ± 5 mm; 10 Hz...32 Hz 200 m/s²; 32 Hz...2 kHz
shock resistance	IEC 60068-2-29: 500 m/s²; 11 ms IEC 60068-2-32: 1 m (free fall onto steel plate)
Electromagnetic compatibility	
interference emissions	DIN EN 61000-6-3
interference resistance	DIN EN 61000-6-2

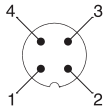
Output signal	**0…20 mA 3-core**	**4…20 mA 3-core**	**4…20 mA 2-core**	**0...10 V 3-core**
auxiliary energy $+U_b$ (U_{DC})	9…30 V	9…30 V	12...30 V	12...30 V
working resistance max.	(U_b-9 V)/28 mA	(U_b-9 V)/30 mA	(U_b-12 V)/20 mA	35 kΩ

* see page 82, 6.3

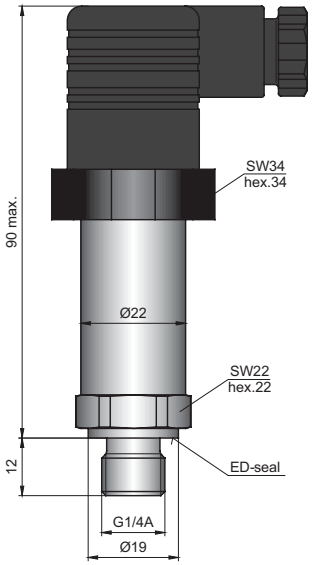
DIN EN 175301-803 form A (formerly DIN 43650) plug-in connector

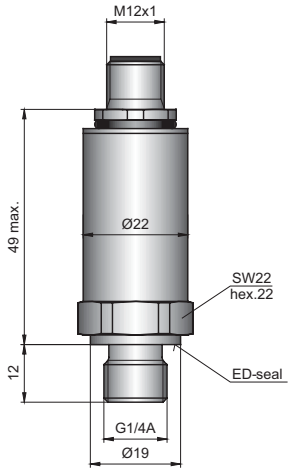
PIN	0...20 mA 3-core	4...20 mA 3-core	4...20 mA 2- core	0...10 V 3- core
1	P signal	P signal	P signal	P signal
2	0 V (GND)	0 V (GND)	n.c.	0 V (GND)
3	$+U_b$	$+U_b$	$+U_b$	$+U_b$
⏚	grounding conductor connection (not connected; must not be occupied!)			

M12 plug-in connector



PIN	0...20 mA 3- core	4...20 mA 3- core	4...20 mA 2- core	0...10 V 3- core
1	$+U_b$	$+U_b$	$+U_b$	$+U_b$
2	P signal	P signal	P signal	P signal
3	0 V (GND)	0 V (GND)	–	0 V (GND)
4	–	–	–	–





Order codes

Pressure range *

004; 006; 010; 016; 025; 040; 060; 100; 160, 250; 400; 600 bar

DIN EN 175301-803 form A, G1/4 BSPP, class 0.5 %

0...20 mA; 3-core	**SCP-xxx-14-06**
4...20 mA; 3-core	**SCP-xxx-24-06**
4...20 mA; 2-core	**SCP-xxx-34-06**
0...10 V; 3-core	**SCP-xxx-44-06**

M12 plug-in connector, G1/4 BSPP, class 0.5 %

0...20 mA; 3-core	**SCP-xxx-14-07**
4...20 mA; 3-core	**SCP-xxx-24-07**
4...20 mA; 2-core	**SCP-xxx-34-07**
0...10 V; 3-core	**SCP-xxx-44-07**

* see page 82, 6.3

Connecting cables and separate plugs

Connecting cable, made up **SCK-400-xx-xx**
(open cable end)

Cable length in m
02 2 m
05 5 m
10 10 m

Plug-in connector
45 M12 cable socket; straight
55 M12 cable socket; 90° angled
56 DIN EN 175301-803 Form A plug connector (alt DIN 43650)

Separate plugs

M12 cable socket; straight	**SCK-145**
M12 cable socket; 90° angled	**SCK-155**
DIN EN 175301-803 Form A plug connector (old DIN 43650)	**SCK-006**

1.2 SCP-EX Pressure sensors

- ✓ **Rugged**
- ✓ **Stable long-term**
- ✓ **Reliable**
- ✓ **Stainless steel**
- ✓ **EEx ia**

The SCP-EX pressure sensor was designed for explosion-risk applications (II 2G EEx ia IIC T4) and is used in control, regulation and monitoring systems where pressure-dependent analogue signals are needed.
The SCP-EX pressure sensor is outstanding for its compact construction, high linearity and excellent resistance to interference.

Construction
The SCP-EX includes only a few active components – the sensor element, a signal-processing ASIC and U/I converter switching.
The ASIC is a programmable precision CMOS-ASIC with EEPROM data memory and analogue signal path, which is qualified for an extended temperature range. Because of its electronic calibration, a
small total error and high long-term stability is achieved. The electronics are resistant to the effects of electromagnetic interference.
By means of appropriate protective switchings there are reverse polarity protection, over-voltage resistance and a limit on power loss in the event of an error.
Pressure is captured by a zero-point measurement cell which is stable in the long term.
The hermetically-welded stainless steel membrane is vacuum-tight and has extreme burst strength.
The standardised G1/4 BSPP corrosion-resistant stainless steel connecting thread, in so far as it is compatible with stainless steel, guarantees wide-ranging media resistance.

Applications
This sensor is eminently suitable for permanent series usage, thanks to its long durability, high accuracy, high reliability and rugged stainless steel construction.

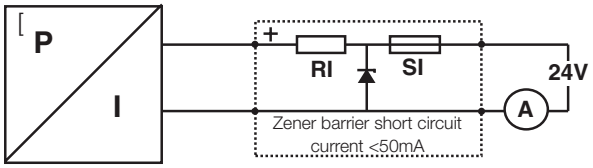
Safety advice
Please bear in mind the appropriate national safety directives (eg. VDE 0100) when installing, commissioning and running these pressure sensors.

SCP EX	1,0	1,6	2,5	004	006	010	016	025	040
pressure range * P_n (bar)	0…1,0	0…1,6	0…2,5	0…4	0…6	0…10	0…16	0…25	0…40
overload pressure P_o (bar)	1,5 times								
burst pressure P_{burst} (bar)	3 times								

SCP EX	060	100	160	250	400	600	1.000	1.600	2.000
pressure range * P_N (bar)	0…60	0…100	0…160	0…250	0…400	0…600	0…1000	0…1600	0…2000
overload pressure P_{max} (bar)	1,5 times					1,2 times			
burst pressure P_{Burst} (bar)	3 times					1,5 times			

Pressure connection	
process connection	G1/4A BSPP
	DIN 3852 T11, form E
	ED-seal FKM
Material	
parts in contact with media	CrNiCuNb 17-4 PH stainless steel; FKM
housing	X5CrNi18-10
protection class	IP67 DIN EN 60529
Plug-in connector	
4-pole; DIN EN 175301-803 form A; IP65	
Accuracy	
characteristic curve deviation	max. ± 0,5 % FS
EX approval	
ignition protection class	II 2G EEx ia IIC T4 (IBExU06ATEX 1045)
basic standard	EN 50014; EN 50020
maximum supply	30 V; 50 mA; 1 W
temperature class	T4 (environmental -40…+85 °C)
General	
response time	≤ 1 ms
long-term stability	< 0,2 % FS/a
weight	90 g
load reversals	≤ 20 Mio.

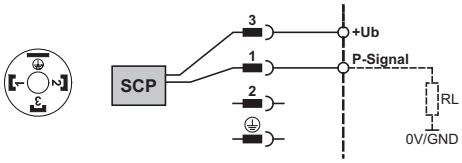
Environmental conditions	
environmental temperature range	-40…+85 °C
compensated range	-40…+85 °C
storage temperature	-40…+125 °C
vibration resistance	20 g to IEC 60068-2-6 and IEC 60068-2-36
temperature coefficient	≤ ± 0,2 % FS/10 K
shock resistance	IEC 60068-2-32 1 m (free fall onto steel plate)
EM compatibility	
interference emissions	< 30 dBµV/m DIN EN 61000-6-3
interference resistance	25 V/m DIN EN 61000-6-2
Power supply with EX approval	
output voltage	max. 24 VDC
output current	max. 50 mA
Ri (at 24 V)	510 Ω
output signal	4…20 mA (2-wire)

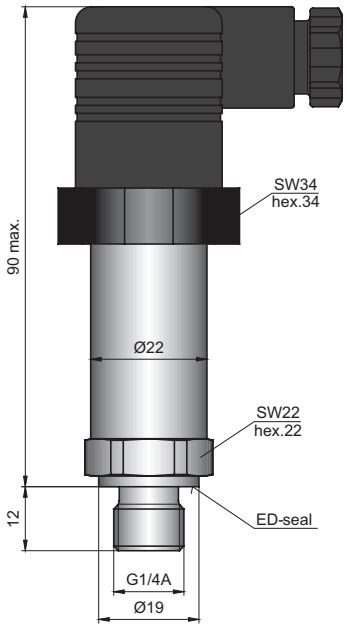


* see page 82, 6.3

SCP-EX

DIN EN 175301-803 form A





Order codes

Pressure range *

0.6/1.6/2.5
004/006/010/016/025
040/060/100/160/250
400/600/1000/1600/2000 bar

DIN EN 175301-803 Form A,
G1/4 BSPP
4...20 mA; 2-wire

SCP-xxx-34-06-EX

* see page 82, 6.3

1.3 SCP-MO Pressure sensors

- ✓ **Compact construction**
- ✓ **Stainless steel cell**
- ✓ **Load dump protection**
- ✓ **High burst pressure**
- ✓ **Pressure peak damping**
- ✓ **Shock and vibration-proof**
- ✓ **Vibration 50 g**
- ✓ **IP 65 high protection class**
- ✓ **High over-voltage protection**
- ✓ **High reverse polarity protection**
- ✓ **EMC up to 300 V/m**

The SCP-Mobil was specially developed for mobile hydraulic applications and may be modified to suit special customer requirements.

- ✓ Special electrical connections
- ✓ Special output signals
- ✓ Special protection measures
- ✓ Measurement range -1…+1 bar
  up to 0…4000 bar

With its Rugged and compact construction the hermetically-welded stainless steel membrane guarantees high long-term stability and freedom from leaks. The pressure cell is completely vacuum-tight, extremely resistant to bursting and accomodates all the standard media used in motor vehicles, mobile hydraulics and testing technologies. Thanks to its mechanical construction, a high degree of accuracy and long-term stability are guaranteed.

(On request a test certificate to DIN ISO 9001:2000 will be supplied)

Typical application fields

- ✓ Mobile hydraulics
- ✓ Industrial trucks
- ✓ Materials handling trucks
- ✓ Commercial vehicles
- ✓ Vehicle technology
- ✓ Braking systems
- ✓ Oil pressure
- ✓ Test equipment and technology
- ✓ Transmission control

Special electrical connections for mobile hydraulics
- ✓ Fixed cable connection
- ✓ AMP plug
- ✓ Deutsch plug with cable
- ✓ Packard plug
- ✓ MQS plug

Special output signals for mobile hydraulics
- ✓ 4…20 mA
- ✓ 1…5 V
- ✓ 1…6 V
- ✓ 0…10 V
- ✓ 0,5…4,5 V ratiometric
- ✓ PWM (variable frequencies)

Special protection measures for mobile hydraulics
- ✓ Pressure peak damping
- ✓ Load dump protection
- ✓ High over-voltage protection
- ✓ High reverse polarity protection
- ✓ EMC compatibility up to 300 V/m

The following apply to all versions:
- ✓ Measurement range from -1…+1 bar up to 0…4000 bar
- ✓ Resistant to pressure peaks (incl. protection by erosion bore)
- ✓ Welded hermetically tight, i.e. wide media compatibility
- ✓ Shock and vibration resistant (50…1000 g depending on plug)

Pressure element	
welded hermetically tight	
stainless steel membrane (without oil covering)	
thin film technology (poly-Si on SiO2)	
measurement range:	-1…+1 bar and 0…4.000 bar
pressure connection:	G1/4 BSPP Form E/HEX 22
response time:	< 1 ms
pressure cycle resistance	> 10 mio. cycles
Total error	
mixed signal ASIC for signal processing	
at 20 °C	typically ± 0,5 % FS
at -20 °C to +100 °C	typically < ± 1,5 % FS
Temperature range	
usage temperature (according to type)	-40 °C to +110 °C max. up to +140 °C
medium	up to +125 °C
Environmental conditions	
protection class	IP 65 to DIN EN 60529 up to IP 69 K
EMC	up to 300 V/m
vibration	50 g
Housing	
length (according to variant)	27, 35 and 40 mm
Ø	22 mm
weight	90 g
dimensional drawing	similar to SCP-Mini

Order codes

SCP Mobil **SCP-xxx-x4-0x-MO**

Pressure range *
004; 006; 010; 016;
025; 040; 060; 100;
160; 250; 400; 600;
1600; 2500; 4000 bar

Output signal
3 4...20 mA; 2-core
4 0...10 V
A 0...5 V
B 0...6 V
R 0,5...4,5 V (ratio)
P PWM

Process connection
4 G1/4 BSPP
others on request

Electrical connection
0 fixed cable
7 M12x1; 4-pole
A AMP
P Packard
D Deutsch with cable
M MQS

* see page 82, 6.3

4.1 SCPSD PressureController

- ✓ **Compact**
- ✓ **Rugged**
- ✓ **Reliable**
- ✓ **Easy operation**
- ✓ **Long-term stability**
- ✓ **Excellent interference resistance**
- ✓ **Metallic housing**
- ✓ **High protection class**
- ✓ **Many variants**
- ✓ **Rotatable**
- ✓ **Analogue output**
- ✓ **Password**
- ✓ **MPa, bar, psi**

The PressureController combines the functions of a pressure switch, a pressure sensor and a display instrument:

- ✓ **Pressure display (manometer)**
- ✓ **Switching outputs**
- ✓ **Analogue signal**

Simple operation, compact construction and high reliability are the most important features of the PressureController. The **PressureController** offers excellent technical data and optimal pressure management combined with many mounting possibilities. It is therefore ideal for permanent series use in industrial applications.

Easy to operate
Parameter setting is carried out via the keys or with the help of a programming module.

High functionality
Every switching output can be set individually:
- ✓ Normally closed/normally open contacts
- ✓ On and off switching pressures
- ✓ Delay times
- ✓ Hysteresis/window function
- ✓ Damping

Intelligent settings which are not possible with a mechanical switch can be achieved with these convenient switch functions. Consequently several switches can be replaced by a single Controller.

The **analogue output** is individually settable
- ✓ 0/4…20 mA switchable
- ✓ Settable initial pressure
- ✓ Settable final pressure

Reliable/safe
Pressure is captured by a measuring cell with long-term stability. Any functional error is signalled and can be further processed in accordance with DESINA. Thanks to a password, an unauthorised change of parameters can be avoided.

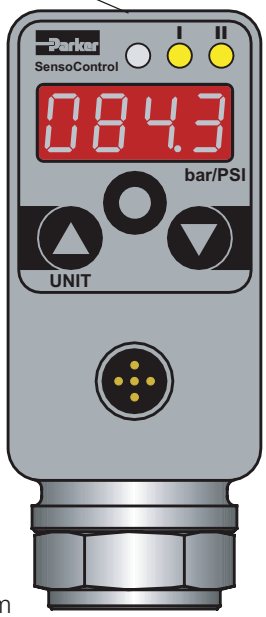
Rugged
The housing is made of metal and resistant to humidity, shock and vibrations. The electronics are protected from reverse polarity, overvoltage and short circuits.

Everything within view
The large illuminated display is readable even from a considerable distance. Pressures are shown in MPa, bar or psi.

Optimal installation possibilities
With its compact construction and excellent interference resistance the SCPSD is suitable for installation in critical conditions.
With its directionally settable housing, the display can always be read very easily.

Universal
Many versions are available to suit a wide variety of applications.

- ✓ Optical interface
- ✓ Switch status display



Everything in view
- ✓ Chamfered display
- ✓ Digital display
  - ✓ Large
  - ✓ Luminescent
- ✓ Display
  - ✓ psi/bar/Mpa
  - ✓ Actual pressure
  - ✓ Minimum pressure
  - ✓ Maximum pressure
  - ✓ Switching points

Easy to operate
- ✓ 3 large keys
- ✓ Display of units

Pressure connection
- ✓ Stainless steel
- ✓ Measuring cell stable long-term
- ✓ Wide media tolerance

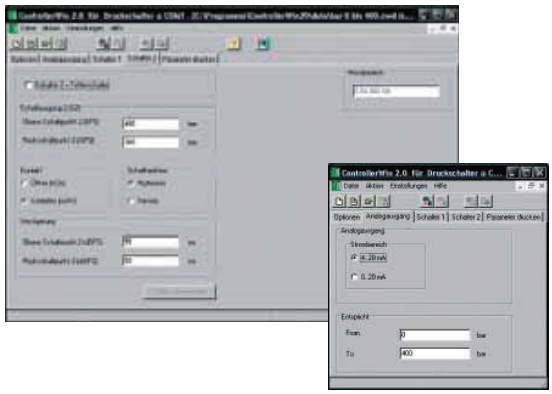
Rugged
- ✓ Metal housing
- ✓ Watertight
- ✓ High interference resistance
- ✓ Vibration resistant
- ✓ Shockproof

Flexible installation
- ✓ Compact
- ✓ Rotatable 290°

Thread
- ✓ Internal thread
- ✓ External thread

Tube clamp
- ✓ Safe mounting with a rugged SCSD-S27 clamp

Programming module
- ✓ Can be set with ControllerWIN software



SCPSD	004	010	016	060	100	250	400	600
pressure range * P_n (bar)	-1...4	-1…10	-1...16	0…60	0…100	0…250	0…400	0…600
overload pressure P_{max} (bar)	10	20	40	120	200	500	800	1200
burst pressure P_{burst} (bar)	12	25	50	550	800	1200	1700	2200
measuring element	ceramic low pressure			DMS thin film high pressure				

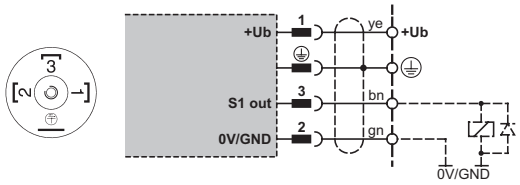
Input quantities	
reversing cycles	≥ 100 Mio.
scanning rate	≥ 5 ms
connecting thread	G1/4 BSPP; ED soft seal NBR** (DIN 3852 T2, form X); ED (DIN3852 T11, form E)
torque	35 Nm
parts in contact with media	low pressure: 1.4404 stainless steel; AL2O3 ceramic; NBR high pressure: stainless steels 1.4404; 1.4542
temperature range of medium	-20 …+85 °C
weight	approx. 300 g
Output quantities	
accuracy	± 0,5 % FS typ.; ± 1 % FS max.
temperature drift	± 0,02 % FS/°K typ. (at -20…+85 °C) ± 0,03 % FS/°K max.
long-term stability	± 0,2 % FS/a
repeat accuracy	± 0,25 % FS
switching point accuracy	± 0,5 % FS typ.; ± 1 % FS max.
display accuracy	± 0,5 % FS typ. ± 1 Digit ± 1 % FS max. ± 1 Digit
Response speed	
switching output	≤ 10 ms
analogue output	≤ 10 ms
Electrical connection	
power supply	15…30 VDC nominal 24 VDC; protection class 3
electrical connection	M12x1; 4-pole; 5-pole with gold-plated contacts. appliance inlet connector DIN EN 175301-803 form A (formerly DIN43650)
short circuit protection	yes
reverse polarity protection	yes
overload protection	yes
current consumption	< 100 mA

Housing	
	directionally adjustable up to 290°
material	pressure die-casting Z 410; painted
foil material	polyester
display	4-figure 7-segment LED; red; digit height 9 mm
protection class	IP67 DIN EN 60529; IP65 with plug-in connector DIN EN 175301-803 form A (formerly DIN43650)
Environmental conditions	
environmental temperature range	-20…+85 °C
storage temperature range	-40…+100 °C
vibration resistance	20 g; 10…500 Hz IEC60068-2-6***
shock resistance	50 g; 11 ms IEC60068-2-29***
EM compatibility	
interference emissions	EN 61000-6-3
interference resistance	EN 61000-6-2
Outputs	
switching outputs	2 MOSFET high side switches (PNP)
contact functions	normally open/normally closed; window/hysteresis; freely settable function
switching voltage	power supply - 1,5 VDC
switching current max.	0,5 A per switch
short circuit current	2,4 A per switch
analogue output	0/4…20 mA; programmable; freely scalable; RL ≤ (power supply - 8 V)/ 20 mA (≤ 500 Ω)

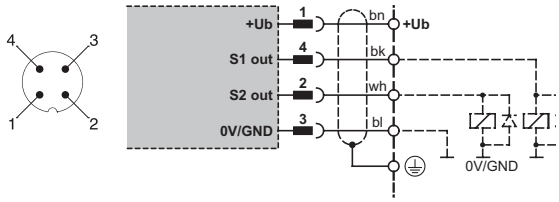
* see page 82, 6.3
** other sealing materials (FKM, EPDM etc.) on request
*** does not apply for DIN EN 175301-803 form A (formerly DIN43650) version

Connection designation

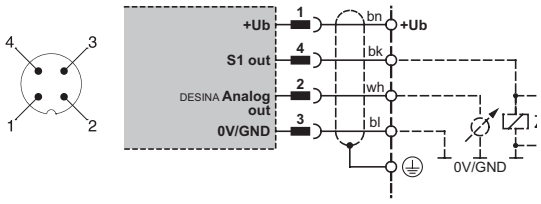
SCPSD-xxx-04-x6
1 switching output;
DIN EN 175301-803 form A (formerly DIN43650)



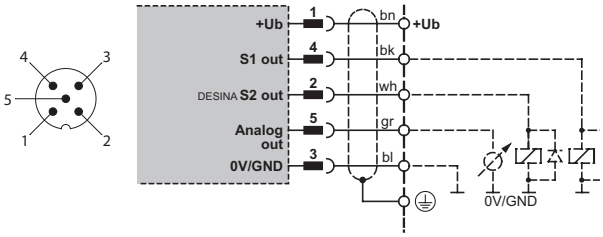
SCPSD-xxx-04-x7
2 switching outputs;
M12x1; 4-pole



SCPSD-xxx-14-x7
1 switching output;
1 analogue output;
M12x1; 4-pole



SCPSD-xxx-14-x5
2 switching outputs;
1 analogue output;
M12x1; 5-pole



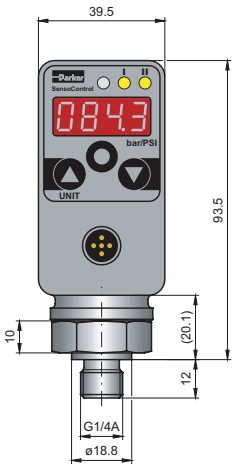
ye = yellow gn = green wh = white gr = grey
bn = brown bk = black bl = blue

Measurement range (bar)	Display resolution increment (bar)	Smallest reverse switch value RSP	Greatest switch value SP	Smallest settable difference between SP and RSP (SP-RSP)
-1…4	0,01	-1	4	0,08
-1…10	0,01	-1	10	0,05
-1…16	0,01	-1	16	0,09
0…60	0,1	0	60	0,3
0…100	0,1	0	100	0,6
0…250	1	0	250	2
0…400	1	0	400	3
0…600	1	0	600	3

Advice on selecting pressure ranges

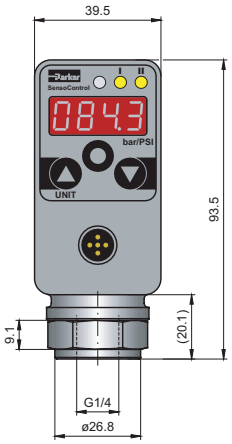
With pressure switches the settable pressure is very relevant.
Because a 400 bar pressure switch shows the same resolution (1 bar) as a 600 bar pressure switch (also 1 bar), a 600 bar pressure switch can be deployed even at a smaller nominal pressure (eg. 315 bar).
The positive effects of this are the same accuracy with higher safety and fewer product variants.

External thread
SCPSD-xxx-x4-1x

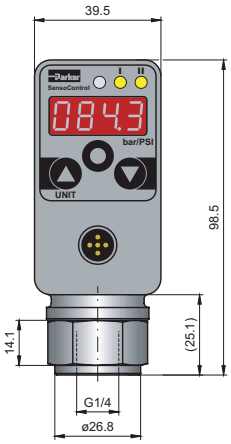


High and low pressure
DMS/ceramic

Internal thread
SCPSD-xxx-x4-2x

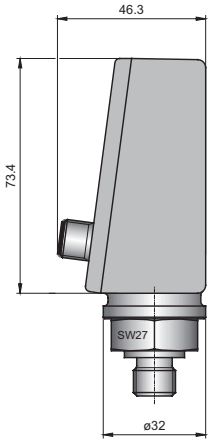


High pressure (from 60 bar)
DMS

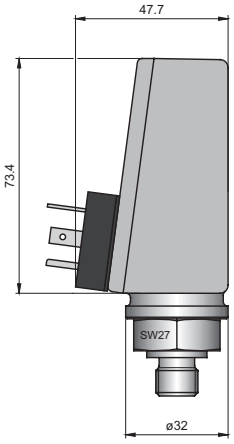


Low pressure (up to 16 bar)
Ceramic

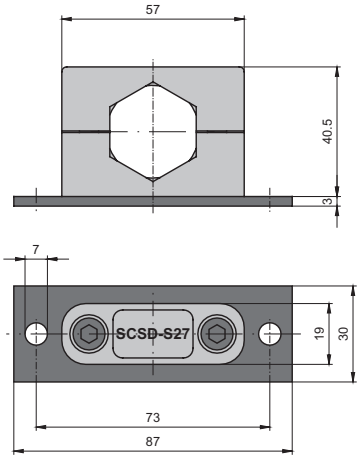
M12 plug-in connector
SCPSD-xxx-x4-x5



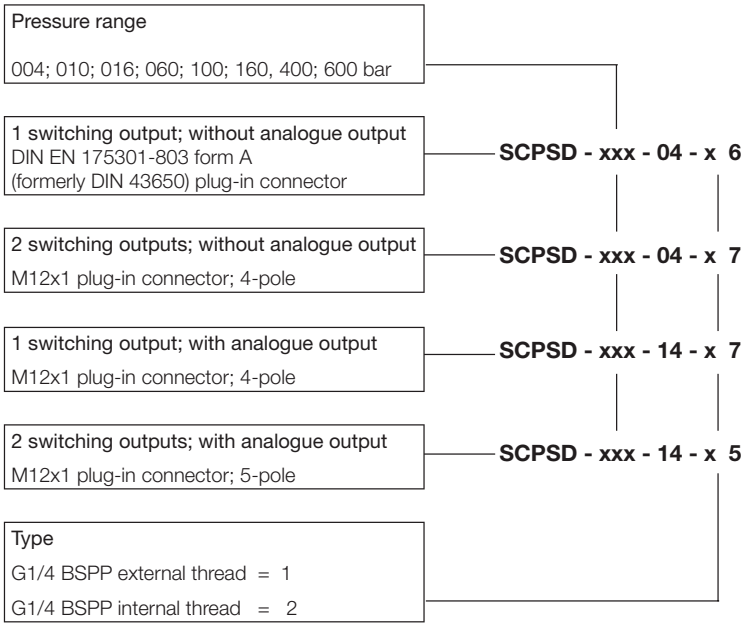
DIN EN 175301-803 form A (formerly DIN43650))
SCPSD-xxx-04-x6



Accessories
Clamp



SCPSD digital pressure switch



Ordering examples:

SCPSD-100-04-27
Pressure range 100 bar
2 switching outputs
G1/4 BSPP internal thread
M12 plug-in connector

SCPSD-60-14-27
Pressure range 60 bar
1 switching output
1 analogue output
G1/4 BSPP internal thread
M12 plug-in connector

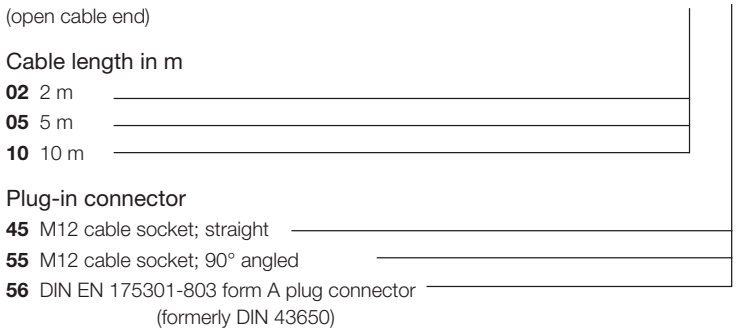
SCPSD-004-14-17
Pressure range 4 bar
2 switching outputs
1 analogue output
G1/4 BSPP external thread
M12 plug-in connector

Accessories:

PC programming kit	**SCSD-PRG-KIT**
Fixing clamp	**SCSD-S27**
Reducing adaptor M22x1,5	**SCA-1/4-M22x1.5-ED**
Reducing adaptor G1/2 BSPP	**SCA-1/4-ED-1/2-ED**
Damping adaptor	**SCA-1/X-EDX-1/X-D**
Flange adaptor for mechanical pressure switch	**SCAF-1/4-40**

Connecting cable and separate plugs

Connecting cable, ready-made **SCK-400-xx-xx**
(open cable end)



Separate plugs

M12 cable socket; straight	**SCK-145**
M12 cable socket; 90° angled	**SCK-155**
DIN EN 175301-803 Form A plug connector (formerly DIN 43650)	**SCK-006**

Pressure & temperature sensor with CANopen technology

The intelligent solution for combined pressure and temperature measurement

Pressure-/temperature sensor with CANopen technology

Flexible, innovative and reliable

This new pressure and temperature sensor in the SCPT Series offers flexible fields of application in automation technology. CANopen technology, in combination with pressure and temperature measurement, gives to the designer cost-effective and reliable measuring technology.

Advantages

- Combined pressure/temperature measurement
- Digital measured value capture and transmission
- Error monitoring/self-diagnosis
- Heartbeat function/SYNC

Applications

- Hydraulics/pneumatics
- Automation technology
- Paper machinery/automotive/ mobile hydraulics/windmills

Technical data

- Pressure range (measuring range) -1...16 / 0...60/150/400/600/1000 bar
- Temperature range (measuring range) -25°C ... +105°C (± 2.0% FS max.)
- Accuracy ± 0.25% FS (typ.)
- Response time 1 ms
- Housing Stainless steel 1.4404
  Seal FKM
- Connections electrical M12 5-pin
  hydraulic ½" BSP
- CANopen DS 301 v 4.1
  Type 2.0 A
  Profile DS 404 v 1.2
  Functions LSS (DSS 305 v 2.0)

Parker Hannifin GmbH & Co. KG
Fluid Connectors Group
Tube Fittings Division Europe
Am Metallwerk 9
D-33659 Bielefeld
Phone: +49 521 4048-0
Fax: +49 521 4048-4280
E-Mail: ermeto@parker.com
www.parker.com/euro_tfd

LEAF/4059-D1/UK — PM/Aktuell 0407

Pressure Transducers and Transmitters

ASIC 'Performer'

20, 60, 100, 250, 400 and 700 bar

25 700

ASIC 'Performer'

Applications for the ASIC Performer

- Fork lift trucks - braking and load systems.
- Truck mounted cranes - load safety systems.
- Earth moving machinery - hydraulic gearbox control.
- Racing car - gearbox, fuel, cooling and suspension systems.
- Water usage systems - pressurised systems for industrial and hi-rise usage.
- Forest Machinery - felling and logging.
- Paper mills - speed control and weighing systems.

The Parker Filtration ASIC Performer Pressure Transducers and Transmitters.

To overcome the historical problems caused by "gauge creep" of thick film sensors and the fragility of peizo-electric/ceramic based sensors, the new 'Performer' range uses a high-grade stainless steel element, which is coated with layers of both insulative and alloy materials. These are trimmed to a very close tolerance using state of the art, semiconductor grade, laser and Ion beam methods. This extremely accurate "front end" is then coupled with Application Specific Integrated Circuitry (ASIC) to produce a sensor that is both accurate and repeatable over a wide, fully compensated, temperature range, -40°C to +125°C. The "Performer" is now available in a variety of thread-form and connector options.

This new design offers a high stability, very low drift device, which can operate over a wide thermal range. Powered from an extended working supply range (11-30Vdc {PTD} and 11-35Vdc {PTX}).

In addition to the standard 6 pressure ranges available, using the ASIC technology (Application Specific Integrated Circuit) programmable software, any variation can be manufactured. Consult Parker for any additional information.

A comprehensive range of Pressure Transducers and Transmitters are available from Parker Filtration.

- One-piece body and diaphragm machining ensures long-term product stability.
- All stainless steel construction.
- 6 transducer pressure ratings with 0-5Vdc and 1-6Vdc outputs.
- 6 transmitter pressure ratings with a 2-wire 4-20mA output.
- Micro plug and M12 connector options.

Specification

Pressure ranges:
25, 60, 100, 250, 400, 700 bar.

Maximum over pressure:
Rated pressure x2.

Maximum burst pressure:
Rated pressure x6.
Snubber fitted inside thread form.

Vibration:
>50g.

Installation:
Spanner size 22A/F.
Max. (recommended) tightening torque = 30Nm.

Preferred Thread Form Options

G1/4 (1/4BSP) with bonded seal.

All thread forms and sensor interface are made from 17-4PH stainless steel.

Non standard threads - contact Parker CMC

Electrical

Supply voltage

11 - 30Vdc

11 - 30Vdc

11- 35Vdc

Output

0 - 5Vdc

1 - 6Vdc

4 - 20mA

Transducer current draw = 8mA

Linearity, Hysteresis, Repeatability, Response and Temperature

Linearity:
(over any 80°C temp range).
<+/-0.05%.

Hysteresis:
(over any 80°C temp range).
<+/-0.05% full scale.

Repeatability:
(over any 80°C temp range).
<+/-0.05% full scale.

Functional temp range:
-40°C to +125°C.

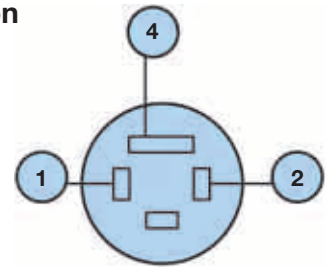
Temperature error:
(over any 80°C temp range) <1%.

Stability:
<0.1%FS after 1m cycles.

Response time:
<1mS.

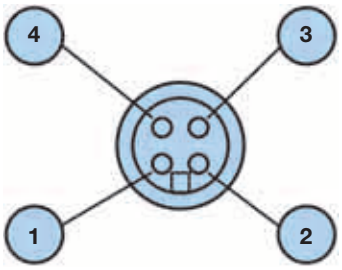
Wiring Information

Micro DIN option



Micro DIN option		
Pin number	**Transmitter**	**Transducer**
1	N/A	Signal output
2	Supply +ve	Supply +ve
4	Return	Supply ref (0v)

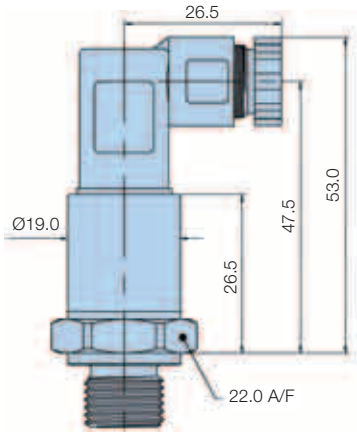
M12 option



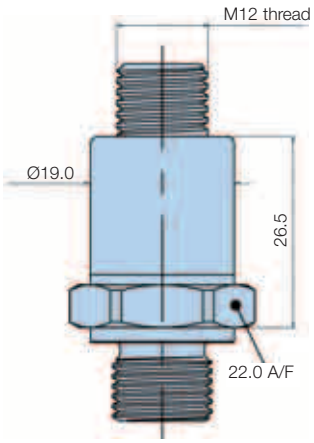
M12 option		
Pin number	**Transmitter**	**Transducer**
1	Supply +ve	Supply +ve
2	N/A	Signal output
3	Return	Supply ref (0v)
4	N/A	N/A

Installation Details

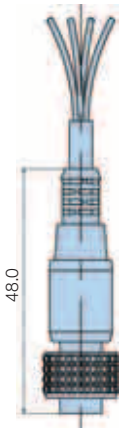
Micro DIN option



M12 option



Flying lead option



ASIC 'Performer'

Ordering Information

Standard products table

Product number	Description - pressure transducer	Model	Output	Pressure	Thread form	Connector
PTDVB2501A1C1	0 - 5 Vdc 250 bar 1/4 BSP bonded seal micro-din 43650	PTD	VB	250	1	A1C1
PTDVB4001A1C1	0 - 5 Vdc 400 bar 1/4 BSP bonded seal micro-din 43650	PTD	VB	400	1	A1C1
PTDVB2501A1C2	0 - 5 Vdc 250 bar 1/4 BSP bonded seal M12	PTD	VB	250	1	A1C2
PTDVB4001A1C2	0 - 5 Vdc 400 bar 1/4 BSP bonded seal M12	PTD	VB	400	1	A1C2
PTDVB0201A1C1	0 - 5 Vdc 20 bar 1/4 BSP bonded seal micro-din 43650	PTD	VB	020	1	A1C1
PTDVB0201A1C2	0 - 5 Vdc 20 bar 1/4 BSP bonded seal M12	PTD	VB	020	1	A1C2

Per tutti i codici, al posto della A, deve essere selezionata la B

Product number	Description - pressure transmitter	Model	Output	Pressure	Thread form	Connector
PTXB4001A1C2	4 - 20 mA 400 bar 1/4 BSP bonded seal M12	PTX	B	400	1	A1C2
PTXB0201A1C1	4 - 20 mA 20 bar 1/4 BSP bonded seal micro-din 43650	PTX	B	020	1	A1C1
PTXB0201A1C2	4 - 20 mA 20 bar 1/4 BSP bonded seal M12	PTX	B	020	1	A1C2
PTXB4001A1C1	4 - 20 mA 400 bar 1/4 BSP bonded seal micro-din 43650	PTX	B	400	1	A1C1
PTXB2501A1C1	4 - 20 mA 250 bar 1/4 BSP bonded seal micro-din 43650	PTX	B	250	1	A1C1
PTXB2501A1C2	4 - 20 mA 250 bar 1/4 BSP bonded seal M12	PTX	B	250	1	A1C2

Per tutti i codici, al posto della A, deve essere selezionata la B

Accessories

Product number	Supercedes	Description
P833PVC2M	P.833PVC-2M	2 meter PVC coated 4 core cable
P833PVC5M	P.833PVC-5M	5 meter PVC coated 4 core cable
P833PVC10M	P.833PVC-10M	10 meter PVC coated 4 core cable

Note 1: Part numbers featured with bold highlighted codes will ensure a 'standard' product selection.
Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.

Product configurator

025 25 B1C1

Product number	Output options		Pressure range (bar)		Thread form		Connector	
PTD	**VB**	0 - 5 Vdc	**025**	0 - 25	**1**	1/4 BSP with bonded seal	**A1C1**	Micro-din 43650
PTX	**SB**	1 - 6 Vdc	**060**	0 - 60			**A1C2**	M12
	B	4 - 20mA (PTX only)	**100**	0 - 100				
	RB	0.5 - 4.5 ratiometric	**250**	0 - 250				
	PB	0.1 - 4.9	**400**	0 - 400				
			600	0 - 600				

B1C2

600 600

Note 1: Part numbers featured with bold highlighted codes will ensure a 'standard' product selection.
Note 2: Alternate displayed part number selection will require you to contact Parker Filtration for availability.

Examples of standard part number product ordering

PTXB0201A1C2

4 – 20mA output transmitter
20 bar maximum pressure
1/4" BSP with bonded seal
M12 connector
(See cable selection for IP68 protection)

PTDVB2501A1C1

0 – 5 volt output transducer
250 bar maximum pressure
1/4" BSP with bonded seal
DIN43650 connecting plug

Parker Hannifin GmbH,
Tube Fittings Division Europe,
Abt. SensoControl
Am Metallwerk 9, Postfach 33652,
D-33659 Bielefeld, Germany
Telephon:0049 (0)521- 4048-4374
Fax: 0049 (0)521- 4048-4421

Technical specification SCP-xxx-x4-0x-A

SCP	025	060	100	250	400	600
Pressure range (bar) 0...	25	60	100	250	400	600
Overload pressure max. (bar)	2-times					2-times
Burst-pressure min. (bar)	3-times					2,5-times

Pressure port
Connection to measuring media
Threaded stud
G1/4A (BSPP)
DIN 3852 T11, Form E
Drilling
0,6mm
Seal
Seal DIN 3869-14 FKM
Materials: Viton,
Stainless Steel
1.4542,1.4404

Electrical Connection
Short-circuit protection*1
Polarity-reversal protection
Protectionclass 3

Plug connector
4-pin, M12x1, IP 67 *2
4-pin, Industrial Micro Din 9.4mm IP65 *2

Accuracy
Characteristic curve deviation
Max. ≤± 0,5 %FS
Total error *3 at -20...85°C
Max. ≤± 1,5 %FS

Thermal coefficient
Zero point
Max. ≤± 0,3 %FS/10 K
Sensitivity
Max. ≤± 0,3 %FS/10 K

Environmental conditions
Working temperature range
-40...+85 °C
Fluid temperature range
-40...+125 °C
Compensated range
-20...+85 °C
Storage temperature
-40...+125 °C

General
Response time
=< 1 ms
Long-term stability
< 0,1 %FS/a (typ.)
Load alternating cycles
>100 Mio.
Weight
ca. 80 g

Vibration resistance
IEC 60068-2-6:
± 5 mm / 10 Hz...32 Hz
200 m/s² / 32 Hz...2 kHz

Shock resistance
IEC 60068-2-29: 500 m/s² 11 ms
IEC 60068-2-32:
1 m (free-fall onto steel plate) *4

EM-according
DIN EN 61000-6-3
DIN EN 61000-6-2

*1 with outputsignal 0..5V/1...6V short-circuit protection short-time
*2 in connected situation
*3 including non-linearity, hysterese, repeatability, Calibration, temperature influence
*4 not for electriacl Connector (plug)

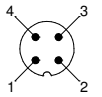
Output signal	4..20 mA 2-wire	0…5 V	1... 6 V
Auxiliary power +Ub (U_{DC})	9..36 V	12...36 V	12...36 V
Load impedance max.	>50 Ohm /<500 Ohm	=>10 kOhm	=>10 kOhm
	Rmax=(Ub-9 V)/0,02A		
Noise	max 0,1%FS	max 0,1%FS	max 0,1%FS

Connection Transmitter (ViewTransmitter):

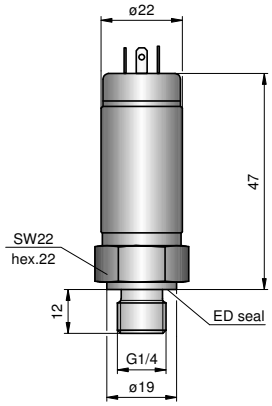
Connector
Industrial Micro Din
9.4mm

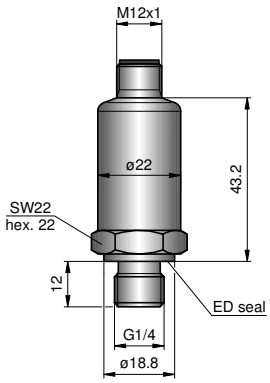
PIN	4...20 mA -wire	0.... 5V	1...6 V
1	n.c.	P-Signal	P-Signal
2	+Ub	+Ub	+Ub
3	n.c.	n.c.	n.c.
⏚	P-Signal	0 V / GND	0 V / GND

Connector
M12



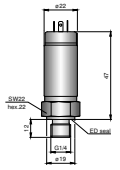
PIN	4...20 mA 2-wire	0... 5 V	1...6 V
1	+Ub	+Ub	+Ub
2	n.c.	P-Signal	P-Signal
3	P-Signal	0 V / GND	0 V / GND
4	n.c.	n.c.	n.c.



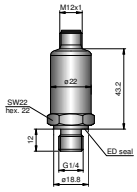


Pressure Range
025; 060; 100;
250; 400; 600 bar

Connector
Industrial Micro Din 9.4mm;
G1/4 BSPP, class 0.5 %
4...20 mA; 2-core **SCP-xxx-34-0C-A**
0…5V **SCP-xxx-A4-0C-A**
1…6V **SCP-xxx-B4-0C-A**



Connector
M12x1
G1/4 BSPP, class 0.5 %
4...20 mA; 2-core **SCP-xxx-34-07-A**
0…5V **SCP-xxx-A4-07-A**
1…6V **SCP-xxx-B4-07-A**



Separate plugs
M12 cable socket; straight **SCK-145**
M12 cable socket; 90° angled **SCK-155**
Industrial Micro Din 9.4mm **SCK-00C**

SensoControl Order Code			Specification	
SCP-025-34-0C-A	4..20 mA / 2 wire	25 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-060-34-0C-A	4..20 mA / 2 wire	60 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-100-34-0C-A	4..20 mA / 2 wire	100 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-250-34-0C-A	4..20 mA / 2 wire	250 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-400-34-0C-A	4..20 mA / 2 wire	400 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-600-34-0C-A	4..20 mA / 2 wire	600 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-025-34-07-A	4..20 mA / 2 wire	25 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-060-34-07-A	4..20 mA / 2 wire	60 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-100-34-07-A	4..20 mA / 2 wire	100 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-250-34-07-A	4..20 mA / 2 wire	250 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-400-34-07-A	4..20 mA / 2 wire	400 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-600-34-07-A	4..20 mA / 2 wire	600 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-025-A4-0C-A	0-5 V	25 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-060-A4-0C-A	0-5 V	60 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-100-A4-0C-A	0-5 V	100 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-250-A4-0C-A	0-5 V	250 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-400-A4-0C-A	0-5 V	400 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-600-A4-0C-A	0-5 V	600 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-025-A4-07-A	0-5 V	25 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-060-A4-07-A	0-5 V	60 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-100-A4-07-A	0-5 V	100 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-250-A4-07-A	0-5 V	250 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-400-A4-07-A	0-5 V	400 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-600-A4-07-A	0-5 V	600 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-025-B4-0C-A	1-6 V	25 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-060-B4-0C-A	1-6 V	60 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-100-B4-0C-A	1-6 V	100 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-250-B4-0C-A	1-6 V	250 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-400-B4-0C-A	1-6 V	400 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-600-B4-0C-A	1-6 V	600 bar	DIN Micro C	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-025-B4-07-A	1-6 V	25 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-060-B4-07-A	1-6 V	60 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-100-B4-07-A	1-6 V	100 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-250-B4-07-A	1-6 V	250 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-400-B4-07-A	1-6 V	400 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS
SCP-600-B4-07-A	1-6 V	600 bar	M12	G1/4 BSPP, ED, Viton, 0,5% FS

- **Robust stainless steel design**
- **Response times of 1 ms**
- **Capturing of pressure peaks**
- **Accuracy ± 0,25 % typ.**
- **Flexible operation**
- **SCPT sensors with 5 pin socket for Serviceman/Service Master**

Fast response times guarantee the safe capture of pressure peaks in hydraulic systems. The robust stainless steel construction allows a variety of applications, for example cooling water or pneumatics.

All pressure sensors are delivered with a diagnosis adaptor (M16x2) installed. Connection to the hydraulic system takes place quickly and safely. Times for installation are reduced.

Pressure Range	**Applications**
-1...015 bar	Pneumatics/ low pressure
0...060 bar	Medium pressure
0...150 bar	Medium pressure
0...400 bar	Operating pressure hydraulics
0...600 bar	High pressure
0 ... 1000 bar	High pressure peaks
Temperature Range	
-25...+105°C	Oil temperature

Serviceman/Service Master

SCPT-xxx-02-02

SCPT Pressure/Temperature Sensor

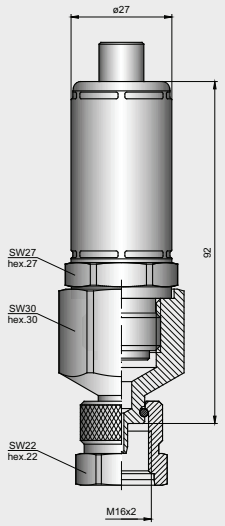
with push-pull connector (5 pin)
+ SCA-1/2-EMA-3

-1...015 bar	**015**
0...060 bar	**060**
0...150 bar	**150**
0...400 bar	**400**
0...600 bar	**600**

+ SCA-1/2-EMA-3-HP

0...1000 bar	**1000**

Connection cable	#
Serviceman (4 pin) 2 m	SCK-102-02-08
Serviceman/Service Master (5 pin) 3 m	SCK-102-03-02
Extension 5 m	SCK-102-05-12



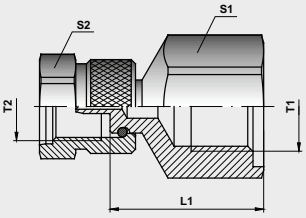
SCPT-xxx-02-02

#		SCPT-015	SCPT-060	SCPT-150	SCPT-400	SCPT-600	SCPT-1000
Pressure Measuring Range (bar)		-1…015	0…060	0...150	0...400	0...600	0...1.000
Accuracy (± %) FS	typ.	0,25	0,25	0,25	0,25	0,25	0,25
	max.	0,5	0,5	0,5	0,5	0,5	0,5
Overload Pressure P_{max} (bar)		30	120	300	800	1.200	1.200
Burst Pressure (bar)		150	500	900	1.200	1.800	2.500
Temperature Measuring Range (°C) Accuracy (± 1,5 %) FS		-25…+105	-25…+105	-25…+105	-25…+105	-25…+105	-25…+105

FS = Full Scale Range

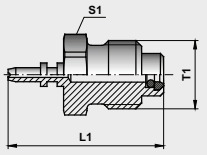
Response Time (ms)	1
Pressure Port	1/2“ BSPP
Housing	Stainless Steel 1.4301
Weight (g)	200
Seal	Viton® (FKM)
Parts in Contact with Media	Stainless Steel 1.4301 Viton® (FKM)

Ambient Temperature Range (°C)	-25…+80
Storage Temperature Range (°C)	-20...+80
T_{max} Fluid (°C)	+105
Reliability Cycles (10^6)	100
Shock Load	IEC 68-2-29
Vibration Resistance	IEC 68-2-6 10...500 Hz

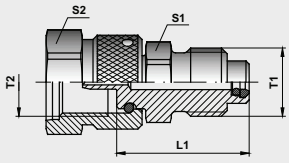


Diagnostic adaptor

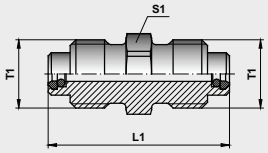
#	PN	T1	T2	L1	S1	S2
SCA-1/4-EMA-3	1000 bar	1/4 BSPP	M16x2	32	27	22
SCA-1/2-EMA-3	630 bar	1/2 BSPP	M16x2	36	30	22
SCA-1/2-EMA-3-HP	1000 bar	1/2 BSPP	M16x2	36	32	22



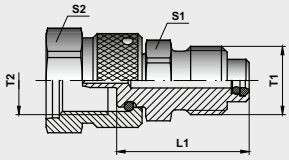
SCA-EMA-3/1



SCA-EMA-3/2



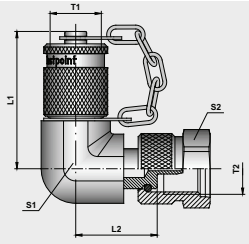
SCA-EMA-3/3



SCA-EMA-3/4

Diagnostic couplings

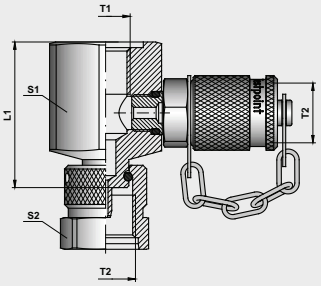
#	PN	T1	T2	L1	S1	S2
SCA-EMA-3/1	630 bar	M16x2	--	37	17	--
SCA-EMA-3/2	630 bar	M16x2	S12x1.65	31	17	17
SCA-EMA-3/3	630 bar	M16x2	M16x2	43	17	--
SCA-EMA-3/4	630 bar	M16x2	M16x1.5	31	17	17



90° Diagnostic adaptor with coupling

#	PN	T1	T2	L1	L2	S1	S2
SCA-90-EMA-3	630 bar	M16x2	M16x2	49	26	19	22

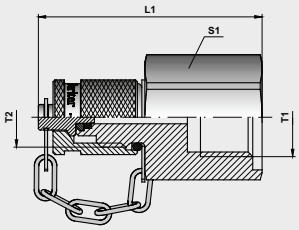
Please pay attention to pressure range



90º Twin connector, ventable SMA3

#	PN	T1	T2	L1	S1	S2
SCA-1/4-EMA-3-EL	630 bar	1/4 BSPP	M16x2	39	30	22
SCA-1/2-EMA-3-EL	630 bar	1/2 BSPP	M16x2	42	36	22

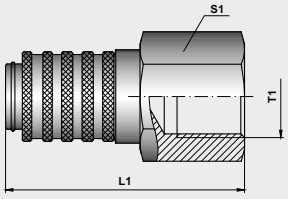
- **90° elbow connector with VSTI (see catalogue 4100)**
- **∆p-adjustment for exact differential pressure measurement**
- **Venting of hydraulics with SMA3 (see catalogue 4100)**



Sensor connections for hose

#	PN	T1	T2	L1	S1	S2
SCA-1/4-EMA-3-S	630 bar	1/4 BSPP	M16x2	54	24	--
SCA-1/2-EMA-3-S	630 bar	1/2 BSPP	M16x2	60	30	--

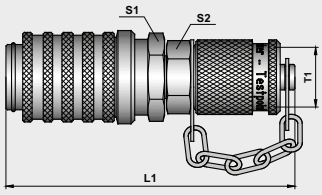
- **SMA-3 diagnostic hose (see catalogue 4100)**



SCA-1/2-PQC

Parker Diagnostic quick couplings

#	PN	T1	T2	L1	S1	S2
SCA-1/4-PQC	400 bar	1/4 BSPP	--	--	--	--
SCA-1/2-PQC	400 bar	1/2 BSPP	--	64	30	--
SCA-EMA-3/PD	630 bar	M16x2	--	78	21	17



SCA-EMA-3/PD

Please pay attention to pressure range

PN (bar)	630
P_{max} (bar)	800
Burst pressure (bar)	1.200

PN (bar)	1.000
P_{max} (bar)	1.200
Burst pressure (bar)	2.000