

PSC4-CAN • PSC5-CAN • PSC5B-CAN

Multichannel Pressure Scanner

- Simultaneous acquisition of 4 or 5 pressure signals
- Measuring ranges selectable from 125 Pa to 15 kPa (0.25 to 150 mbar) uni- and bi-directional
- Non-linearity & hysteresis: max. $\pm 0.25\%$ FSS, typ. $< 0.1\%$ FSS
- Data transmission via CAN bus and power supply via CAN interface
- Data transfer via USB without external power supply
- CAN bus configuration via USB
- Sampling rate per channel up to max. 100Hz
- Software and driver for LabVIEW and DBC files are included



Figure 1: PSC5 in standard housing



Figure 2: PSC5 in IP65 housing (custom version)

General Description

The pressure scanners from the PSC series are suitable for the simultaneous acquisition of multiple pressure signals. The temperature compensated sensors offer high accuracy and minimal offset drift.

The sensors are extremely overload-proof and are not damaged even at pressures above 10 times the measuring range.

The PSC-CAN instruments are equipped with 4 or 5 pressure measuring channels. The measurement range can be individually selected according to customer specifications. All pressure ranges are available both unidirectional (e.g. 0 to 2.5 kPa) and bidirectional (e.g. -2.5 to +2.5 kPa). The PSC5B also offers a barometric pressure sensor connected to the reference pressure.

Data transmission can be via USB or CAN bus.

The CAN bus parameters are configured via the USB interface. The measurement data is transmitted either with the CAN 2.0B or the CAN 2.0A protocol. Baud rates of up to 1 Mbaud are supported. A DBC file is supplied for easy integration into the respective measurement environment.

If the pressure scanner is connected to a computer via USB, it identifies itself as a virtual COM port. Operating parameters can be configured via a simple ASCII protocol. The measurement data can also be output as plain text via USB.

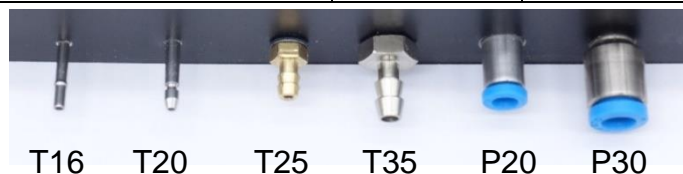
A TARA function for zeroing the transducers can be triggered via a software command.

Example programs for use with LabVIEW and Visual Basic are included.

Technical Specifications

Accuracy and scan rates					
Nonlinearity & Hysterese		max. $\pm 0.25\%$ FSS, typ. 0.1% FSS			
Scan rate per channel		1-100 Hz			
Optional barometric sensor (PSC5B)		600-1100mbar			
Power supply					
via USB		USB-powered (no additional power supply required)			
via CAN bus		7-24 V, 50 mA			
Environmental conditions					
Temperature		5° C...50° C			
Humidity		0...95%, non-condensing			
Operating medium		Air and non-corrosive gases			
Dimensions					
Housing (standard)		60 x 30 x 90 mm (B x H x T)			
Software and drivers					
Virtual COM-Port-Driver					
Configuration and logging software					
LabVIEW-example program as sourcecode					
Supported operation systems					
Windows XP, 7, 8, 10, 11, Linux					
Pressure connections					
ref.	DI [mm]	DA [mm]	hose material*	Max pressure	Suitable for
T16	1.3 ... 1.6		Silicone, PE, PVC	0.1MPa	All versions
T20	1.5 ... 2.0		Silicone	15kPa	All versions
T25	2.0 ... 2.5		Silicone	15kPa	All with a common reference
T35	2.5 ... 3.0		Silicone	15kPa	PSC8, PSC16 only
P20		2.0	PE, PU, PA	1MPa	PSC8, PSC16 only
P30		3.0	PE, PU, PA	1MPa	PSC8, PSC16 only

DI Inner diameter
DA Outer diameter
* recommendation



Pressure ranges

1)	Min ²⁾	Max ³⁾	Δp ⁴⁾		Proof ⁵⁾	Burst ⁶⁾	
Bi-direktional							
D	-125	125	0,02	[Pa]	25	75	[kPa]
D	-250	250	0,04	[Pa]	25	57	[kPa]
D	-500	500	0,07	[Pa]	25	57	[kPa]
D	-1,25	1,25	0,0002	[kPa]	50	57	[kPa]
D	-2,5	2,5	0,0004	[kPa]	50	57	[kPa]
D	-5,0	5,0	0,0007	[kPa]	50	125	[kPa]
D	-7,5	7,5	0,001	[kPa]	50	125	[kPa]
D	-15	15	0,002	[kPa]	50	200	[kPa]
D	-25	25	0,004	[kPa]	100	100	[kPa]
D	-50	50	0,008	[kPa]	100	100	[kPa]
D	-100	100	0,015	[kPa]	300	1000	[kPa]
D	-250	250	0,04	[kPa]	720	1700	[kPa]
D	-500	500	0,08	[kPa]	1200	1700	[kPa]
D	-1000	1000	0,16	[kPa]	1700	1700	[kPa]
Uni-directional							
D	0	250	0,02	[Pa]	25	75	[kPa]
D	0	500	0,04	[Pa]	25	75	[kPa]
D	0	1,25	0,0001	[kPa]	50	75	[kPa]
D	0	2,5	0,0002	[kPa]	50	75	[kPa]
D	0	5,0	0,0004	[kPa]	50	125	[kPa]
D	0	7,5	0,0005	[kPa]	50	125	[kPa]
D	0	15	0,001	[kPa]	50	200	[kPa]
D	0	25	0,002	[kPa]	100	100	[kPa]
D	0	50	0,004	[kPa]	100	100	[kPa]
D	0	100	0,008	[kPa]	300	1000	[kPa]
D	0	250	0,02	[kPa]	720	1700	[kPa]
D	0	500	0,04	[kPa]	1200	1700	[kPa]
D	0	1000	0,08	[kPa]	1700	1700	[kPa]
Absolute							
A	0	34	0,003	[kPa]	100	100	[kPa]
A	0	100	0,007	[kPa]	200	1,0	[MPa]
A	0	200	0,013	[kPa]	800	1,7	[MPa]
A	0	400	0,025	[kPa]	1,3	1,7	[MPa]
A	60	110	0,004	[kPa]	--	1,7	[MPa]

1. D: differential. Pressure difference can be applied via 2 connections. The reference port (min) of multiple sensors can also be combined on one connection
 2. A: absolute. Measurement of absolute pressure, an open pressure port indicates the barometric air pressure, if the pressure is within the measuring range
- 1) Nominal smallest possible value
 - 2) Nominal highest possible value
 - 3) Resolution of digitization (rounded)
 - 4) Maximum pressure that does not yet cause damage to the sensor
 - 5) Maximum differential pressure against environment that the internal sensor housing can withstand. At a higher pressure, the housing may crack. However, damage to the sensor occurs when the PROOF pressure is reached.

The measurement uncertainty is 0.25% of the measuring range (span min max). During factory calibration, a deviation from the nominal value significantly smaller than 0.1% of the measuring range is achieved.

Serial Interface

The virtual COM port can be operated at any baud rate. We recommend 19200, 8 data bits, no parity, 1 stop bit. **DTR (Data Terminal Ready) must be asserted.**

Command	Function	Answer
CAL a x	Set scaling factor for sensor a to value x	#Scaler=... Offset=...
CAL? A	Read scaling factors for sensor a	#Scaler=... Offset=...
EE_LOAD	Load calibration data from EEPROM	#EEPROM:loaded
EE_SAVE	Save calibration data to EEPROM	#EEPROM:saved
*IDN?	Read device ID	#PSC5B-CAN 2.4.0 #SN31000
RATE x	Define sample rate range x = 10 ...5000 [ms] standard: 1000 [ms] → 1 [Hz]	#Rate=x ms #Error: Rate-Range
RATE 0	Activate request and trigger mode actual values are read only after manual command "?" is sent	#Request-Mode active
?	Read actual value (request-mode only)	0.00 0.00 0.00 0.00 0.00
*RST	Load default settings	#RESET
SCAN_A x SCAN_B x SCAN_C x	Defines a scanlist (channel selection) binary, each bit represents one channel	
TARA	Zero adjustment for all sensors	#TARA
FILTER x	Activate exponential filter 0 = deactivated; >0 = filter range in ms	#FILTER=x
CAN_ID x	Set CAN-ID	#OK
CAN_IT x	Set interface x = 0: normal (11bit, CAN 2.0A) x = 1 extended 23bit (23bit, CAN 2.0B)	#OK
CAN?	Request CAN configuration	#ID:0x[...]_Speed:[baud]_IDT:[0,1]
CAN_Speed x	Set CAN bus rate 0: 125 kBaud 1: 250 kBaud 2: 500 kBaud 3: 1 MBaud	#OK

Each command is terminated by a line break (CR, LF or CR+LF). Sensor enumeration starts with the number 1. Sensor readings are separated with horizontal tab (0x09).