

Measuring instrument for air temperature, relative humidity, and barometric air pressure for determining air density

- Internal barometric pressure sensor with M3 pressure connection
- External combined temperature and humidity sensor
- USB interface
- Optional CAN 2.0 interface
- Sampling rate per channel up to 100 Hz
- Software and drivers for LabVIEW included



General Description

The PSC-RHO measures the following parameters

- Air pressure
- Temperature
- Relative humidity

Air density is calculated from these values, taking relative humidity into account. Humidity has a significant impact on density, particularly on hot and humid days.

These parameters and the density calculated from them are output via the interface. Data is transmitted as ASCII text in the respective SI units or via the CAN bus.

Air pressure [Pa] → Relative humidity [%] → Temperature [°C] → Density [kg/m³]

e.g.:



96853.055 45.235 20.363 1.188

The transmission rate can be set between 1 and 100 Hz using a simple protocol. Configuration is performed via the USB port. When the device is connected via USB, it appears as a virtual COM port in the system. This allows any software that supports a serial protocol to be used.

For devices with a CAN bus, a DBC file is also included.

Power is supplied via the interface used. Optionally, the CAN bus can be used. In this case, an external power supply in the range of 7 to 24 VDC is required, which is supplied via the interface connection with an M8 connector.

Connectors

Front panel	Rear panel
	
T-H Sensor M8-4pol Pressure connector M3	USB-Micro

Technical Data

Sensoren	
Barometric pressure (intern)	700 ... 1200 hPa ± 2 hPa (mbar)
Temperature / Humidity (external sensor)	-40 ... 125°C ± 0.2 °C 1 ... 99 % ± 1 %
Schnittstellen und Stromversorgung	
USB	No external power supply required
CAN	Supply voltage 7 ... 28 V, 100 mA 1 – Supply + 2 – CAN low 3 – Gnd 4 – CAN high
Environmental conditions for the device	
Temperature	5° ... 50° C
Humidity	non condensing
Dimensions	
Housing	60 x 28 x 90 mm (B x H x T)

Serial Port

The virtual COM port can operate at any baud rate. The recommended settings are 19200 baud, 8 data bits, no parity, and 1 stop bit. DTR (Data Terminal Ready) must be set.

Befehl	Funktion	Antwort
CAL a x	Set the scaling factor for sensor a to the value x	#Scaler=.... Offset=....
CAL? A	Query the 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?	Retrieve device ID	#PSC24-LAN 2.4.0 #SN35000
RATE x	Define sampling rates Range x = 20 ...5000 [ms] Default: 1000 [ms] = 1 [Hz]	#Rate=x ms #Error: Rate-Range
RATE 0	Enable query and trigger mode Sending "?" outputs the current value	#Request-Mode active
?	Request current value (only in request mode)	0.00 0.00 0.00 0.00 ...
*RST	Load default settings	#RESET
FILTER x	Exponentiellen Filter aktivieren 0 = deaktiviert; >0 = Bereich des Filters in ms	#FILTER=x

A command is always terminated by a line break (CR, LF, or CR+LF). In all cases, sensor numbering starts with the number "1".

-Nur bei PSC-CAN Variante-		
CAN_ID x	Set CAN-ID	#OK
CAN_IT x	Set transmission type x = 0: Normal (11 bit, CAN 2.0A) x = 1 Extended 23 bit (23 bit, CAN 2.0B)	#OK
CAN?	Query CAN configuration	#ID:0x[...]_Speed:[baud]_IDT: [0,1]
CAN_Speed x	0: 125 kBaud 1: 250 kBaud 2: 500 kBaud 3: 1 MBaud	#OK