



Pressure Transmitter



measuring
•
monitoring
•
analysing

SEN-98 / -99



- Gauge and absolute pressure
- -1 ... 0 to 0 ... 600 bar gauge /
0 ... 1 to 0 ... 25 bar abs
- Measuring span from 1 bar
- EMC emission and immunity:
as per EN 61326
- Case: with ventilation device
- Compensated temperature range:
-10 ... +80 °C (14 ... +176 °F)
- Calibration: adjustable
- Accuracy: $\leq 0.5\%$ of span



P2

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Description

The KOBOLD SEN-98/-99 Standard model is an electronic transmitter with ceramic sensor for air, industrial, technical gases and water and oil, designed to be installed in gas distribution plants, on bottles, on refrigerators, on compressors, on vacuum pumps and hydraulics and water high pressure plants. It is ideally suited to be used in the industry in general, in the gas stocking or machines production, in light or heavy pneumatics industry, in the refrigeration industry, in welding and vacuum.

Emission and immunity: according to EN 61326, (group 1 - class B; industrial applications)

¹⁾ max. measuring error according to IEC 61298-2, including non-linearity and hysteresis (limit-point calibration and reference conditions according to IEC 61298-1); accuracy $\leq \pm 0.75\%$ of span for measuring ranges 0... 1 bar and 0... 600 bar.

²⁾ + 0.5 % of span for measuring range 1 bar

³⁾ ex DIN 43650

Technical Details

Ranges: 0 ... 1/0 ... 600 bar, relative, (0 ... 15/0 ... 10 000 psi, relative)
 -1 ... 0/-1 ... +24 bar, relative;
 (-30" ... 0/-30" ... 350 psi, relative)
 0 ... 1/0 ... 25 bar, absolute

Non-linearity (BFSL): $\leq \pm 0.25\%$ of the range, according to IEC 61298-2

Repeatability: $\leq 0.1\%$ of the range, according to IEC 61298-2

Accuracy: $\leq \pm 0.5\%$ of the range¹⁾

Thermal drift: 0 ... +80 °C, 1 % of span; max. 2.5 % of span²⁾

Long term drift: $\leq 0.1\%$ of span

Process fluid temperature: -25 ... +100 °C

Ambient temperature: -25 ... +85 °C

Storage temperature: -30 ... +85 °C

Output signals: 4 ... 20 mA, 0 ... 5 V_{DC}, 0 ... 10 V_{DC}

Supply and max. load: see on page 3

Response time: < 4 ms (measuring); < 150 ms (switching on)

Zero calibration: $\pm 10\%$ span typical

Span calibration: $\pm 10\%$ span typical

Compensated temperature range: 0 ... +80 °C

Process connection: AISI 316L stainless steel

Sensor: ceramic (Al₂O₃)

Case: stainless steel AISI 316L, vented for pressure ranges ≤ 230 psi (≤ 16 bar)

Vibration resistance: 20 g (10...2000 Hz, according to IEC 60068-2-6)

Shock resistance: 40 g (6 ms, according to IEC 60068-2-27)

O-ring: FKM

Electric connection: EN 175301-803³⁾ form A, exit for cables
 $\varnothing 0.23 \dots 0.35''$ (6 ... 9 mm)

Protection degree: IP 65 as per IEC 529 / EN 60529

Weight: 0.39 lbs (0.18 kg)

Ranges bar, relative	Overpressure bar, relative	Burst pressure bar, relative
-1 ... 0	5	7
-1 ... 0.6	5	7
-1 ... 1.5	5	7
-1 ... 3	10	12
-1 ... 5	20	25
-1 ... 9	20	25
-1 ... 15	40	50
-1 ... 24	100	120
0 ... 1/0 ... 2.5	5	7
0 ... 4	10	12
0 ... 6/0 ... 10	20	25
0 ... 16	40	50
0 ... 25/0 ... 40	100	120
0 ... 60/0 ... 100	200	250
0 ... 160/0 ... 250	500	600
0 ... 400	600	800
0 ... 600	800	900

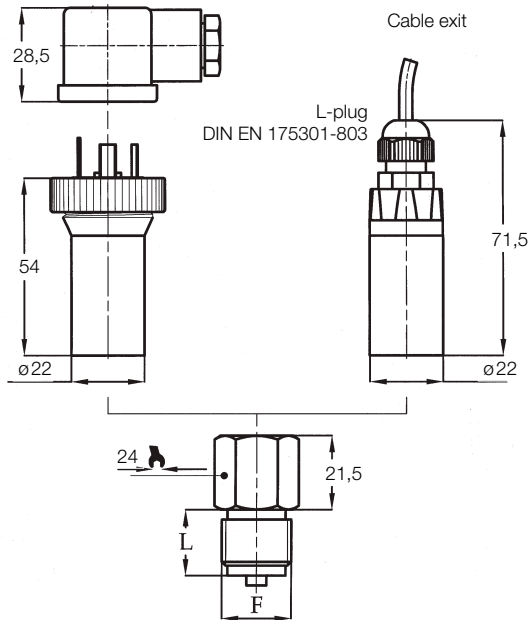
Other ranges available on demand. Units of measurement available in MPa, kPa too.

Absolute pressure ranges have same overpressure limits as gauge pressure ranges.

Ranges psi, relative	Overpressure psi, relative	Burst pressure psi, relative
-30 ... 0 in Hg/psi	72	100
-30 ... 30 in Hg/psi	72	100
-30 ... 60 in Hg/psi	145	175
-30 ... 100 in Hg/psi	290	360
-30 ... 150 in Hg/psi	290	360
0 ... 15/0 ... 30	72	100
0 ... 60	145	175
0 ... 100/0 ... 160	290	360
0 ... 300	580	725
0 ... 600	1450	1740
0 ... 1000/0 ... 1500	2900	3625
0 ... 2000/0 ... 3000	7250	8700
0 ... 5000/0 ... 6000	8700	11600
0 ... 10000	11600	13050

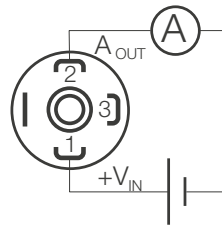
Other ranges available on demand. Units of measurement available in MPa, kPa too

Dimensions [mm]

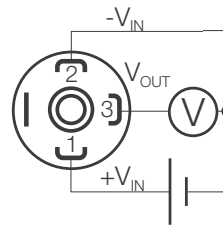
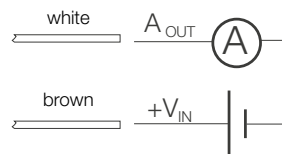


F	L [mm]
A - G 1/2 A (standard)	20
B - G 1/4 A	13
F - 1/2-14" NPT	20
G - 1/4-18" NPT	13

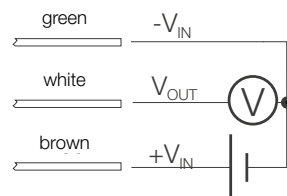
Wiring Diagram



4...20 mA



0...5 V_{DC}
0...10 V_{DC}





Order Details (Example: SEN-9800 0 B075 A 0)

Model	Output	Measuring range		Mechanical connection	Options
Gauge pressure ranges SEN-9800... (with electrical plug connection EN 175301-803) SEN-9830²⁾... (M12x1 male electrical connection) SEN-9840¹⁾²⁾... (2 m PVC cable, IP65) SEN-9850¹⁾²⁾... (2 m Polyurethane cable, IP68)	0 = 4-20 mA, 2-wire (standard) 1 ²⁾ = 0...5 V _{DC} (8...30 V _{DC}) 2 ²⁾ = 0...10 V _{DC} (14...30 V _{DC})	Gauge pressure ranges C 315 = -1 ... 0 bar C 505²⁾ = -1 ... 0.6 bar C 515²⁾ = -1 ... 1.5 bar C 525²⁾ = -1 ... 3 bar C 535²⁾ = -1 ... 5 bar C 545²⁾ = -1 ... 9 bar C 555²⁾ = -1 ... 15 bar C 565²⁾ = -1 ... 24 bar B 025 = 0 ... 1 bar B 035 = 0 ... 1.6 bar B 045 = 0 ... 2.5 bar B 055 = 0 ... 4 bar B 065 = 0 ... 6 bar B 075 = 0 ... 10 bar B 085 = 0 ... 16 bar A 095 = 0 ... 25 bar A 105 = 0 ... 40 bar A 115 = 0 ... 60 bar A 125 = 0 ... 100 bar A 135 = 0 ... 160 bar A 145 = 0 ... 250 bar A 155 = 0 ... 400 bar A 165²⁾ = 0 ... 600 bar	H 315²⁾ = -30 ... 0 in Hg H 317²⁾ = -30 ... 30 in Hg/psig H 319²⁾ = -30 ... 60 in Hg/psig H 321²⁾ = -30 ... 100 in Hg/psig H 323²⁾ = -30 ... 150 in Hg/psig P 025²⁾ = 0 ... 15 psig P 045²⁾ = 0 ... 30 psig P 057²⁾ = 0 ... 60 psig P 065²⁾ = 0 ... 100 psig P 077²⁾ = 0 ... 160 psig P 085²⁾ = 0 ... 200 psig P 086²⁾ = 0 ... 250 psig P 088²⁾ = 0 ... 300 psig P 100²⁾ = 0 ... 500 psig P 105²⁾ = 0 ... 600 psig P 115²⁾ = 0 ... 1000 psig P 126²⁾ = 0 ... 1500 psig P 130²⁾ = 0 ... 2000 psig P 140²⁾ = 0 ... 3000 psig P 147²⁾ = 0 ... 4000 psig P 150²⁾ = 0 ... 5000 psig P 157²⁾ = 0 ... 6000 psig P 162²⁾ = 0 ... 8000 psig P 165²⁾ = 0 ... 10000 psig	A = G 1/2, male (standard) B²⁾ = G 1/4, male F²⁾ = 1/2" NPT, male G²⁾ = 1/4" NPT, male	0 = without S²⁾ = oxygen service Y²⁾ = special option (specify in clear text)
Absolute pressure ranges SEN-9900²⁾... with electrical plug connection EN 175301-803) SEN-9930²⁾... (M12x1 male electrical connection) SEN-9940¹⁾²⁾... (2 m PVC cable, IP65) SEN-9950¹⁾²⁾... (2 m Polyurethane cable, IP68)		Absolute pressure ranges²⁾ B 025 = 0 ... 1 bar B 035 = 0 ... 1.6 bar B 045 = 0 ... 2.5 bar B 055 = 0 ... 4 bar B 065 = 0 ... 6 bar B 075 = 0 ... 10 bar B 085 = 0 ... 16 bar A 095 = 0 ... 25 bar			

¹⁾ zero calibration not available

²⁾ minimum order quantity = 10 pieces per item (identical model code)

Output signal code	4 ... 20 mA (standard) 0	0 ... 5 V _{DC} 1	0 ... 10 V _{DC} 2
No. of wires	2	3	3
Load max. (Ω)	R _L ≤ (Vin-8)/0.02	R _L ≥ 5 KΩ	R _L ≥ 10 KΩ
Supply: +Vin (V _{DC})	10 ... 30	8 ... 30	14 ... 30
Ground	(please refer to Installation Manual)		