OxyProof K Series

Pressure transmitters for oxygen applications

ENGINEERING PROPOSAL

FEATURES

- **BAM safety approval for oxygen applications[11]**
- **0...-1 to 0...350 bar, gage or absolute**
- **0...10 V, 0.5...4.5 V, 0...5 V and 4...20 mA output**
- **Field interchangeable**

MEDIA COMPATIBILITY

Pressure inlet:	all media compatible with stainless steel 1.4404 (316L), ceramic Al_2O_3 and FKM
Housing:	stainless steel, protection class IP65 according to DIN40050[1]

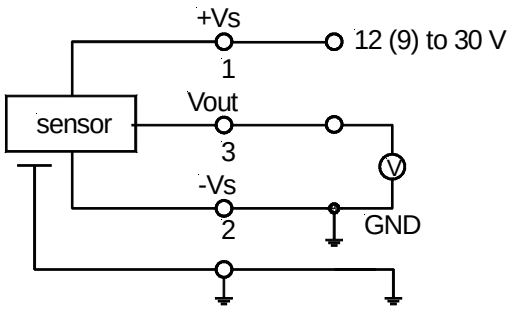
SPECIFICATIONS[9,10]

Maximum ratings

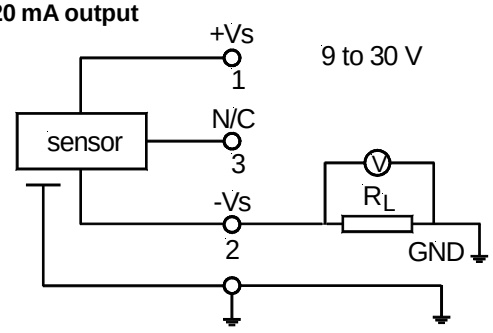
Supply voltage (reverse polarity protection)	
for 0...10 V output	12...30 V
for 0.5...4.5 V and 0...5 V output	9...30 V
for 4...20 mA output[2]	9...30 V
Maximum load current (source)	
for all voltage outputs	1 mA
Temperature limits	
Storage	-20 to 100 °C
Operating	-10 to 60 °C
Compensated	0 to 60 °C
Humidity limits	0 - 95 %RH
Vibration (5 to 500 Hz)	10 g_{RMS}
Mechanical shock	50 g
Proof pressure[3]	2 x rated pressure

ELECTRICAL CONNECTION

0...10 V, 0.5...4.5 V, 0...5 V output



4...20 mA output



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COMMON PERFORMANCE CHARACTERISTICS

V_S = 15 V, R_L > 100 kΩ, t_{amb} = 25°C

Characteristics			Min.	Typ.	Max.	Unit
Operating pressures			0 -1 -1 0 0 0 0 0 0 0 0 0 0 0 0 0		1 1 0 2 5 10 16 20 25 35 50 70 100 150 200 250 350	bar
Thermal effects (0 to 60 °C)[4]	Offset Span			0.02 0.02	0.05 0.05	%FSO/°C
Thermal effects (-40 to 0 °C)	Offset Span			0.03 0.03		
Non-linearity, hysteresis (BSL) and repeatability[5]	> 200 bar all others			±0.20 ±0.15	±0.40 ±0.25	%FSO
Long term stability[6]				±0.3		
Output noise (0 < f < 1 kHz)				±0.04		
Response time (10 to 90 %)				10		ms
Power supply rejection	Offset	voltage output current output		0.002 0.05		%FSO/V
	Span	voltage output current output		0.002 0.08		

INDIVIDUAL PERFORMANCE CHARACTERISTICS

0...10 V output (V_S = 15 V, R_L > 100 kΩ, t_{amb} = 25°C)

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	0...±1 bar devices all others	4.9	5 0.03	5.1 0.1	V
Full scale span[7]	0...±1 bar devices all others	4.9 9.9	5 10	5.1 10.1	
Output impedance				25	Ω
Current consumption (no load)			3	5	mA

0.5...4.5 V output (V_S = 15 V, R_L > 100 kΩ, t_{amb} = 25°C)

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	0...±1 bar devices all others	2.450 0.450	2.5 0.5	2.550 0.550	V
Full scale span[7]	0...±1 bar devices all others	1.950 3.950	2 4	2.050 4.050	
Output impedance				25	Ω
Current consumption (no load)			3	5	mA

0...5 V output (V_S = 15 V, R_L > 100 kΩ, t_{amb} = 25°C)

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	0...±1 bar devices all others	2.45	2.5 0.03	2.55 0.08	V
Full scale span[7]	0...±1 bar devices all others	2.45 4.95	2.5 5.0	2.55 5.05	
Output impedance				25	Ω
Current consumption (no load)			3	5	mA

4...20 mA output (V_S = 15 V, R_L = 100 Ω, t_{amb} = 25°C)

Characteristics		Min.	Typ.	Max.	Unit
Zero pressure offset	0...±1 bar devices all others	11.9 3.9	12.0 4.0	12.1 4.1	mA
Full scale span[7]	0...±1 bar devices all others	7.9 15.9	8.0 16.0	8.1 16.1	
Power consumption (I_L = 20 mA)			250		mW

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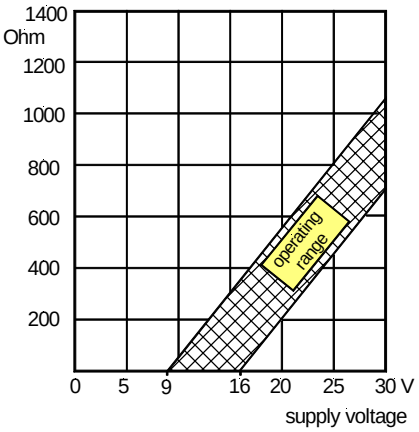
ELECTROMAGNETIC CAPABILITY[8]

	Test conditions	Criterion	Interference
Radiated, radio frequency electromagnetic field immunity (RFI)	EN61000-4-3: Grade 3, 10 V/m, 80 to 1000 MHz 80 % AMC (1 kHz)	A	<1 %FSO
Electrical fast transient / burst immunity (EFT)	EN61000-4-4: Grade 3, ±2 kV	B	<1 %FSO
Electrostatic discharge immunity test (ESD)	EN61000-4-2: Grade 4, ±8 kV, contact discharge	B	<1 %FSO
Immunity to conducted disturbances induced by radio-frequency fields	EN61000-4-6: Grade 3, 0.15 to 80 MHz 10 V, 80 % AMC (1 kHz)	A	<1 %FSO

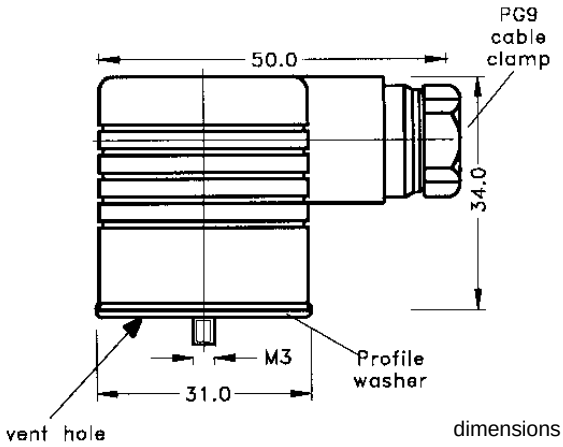
LOAD LIMITATION

4...20 mA output version



RECOMMENDED PLUG (DIN 43650-A)

Plug and profile washer included in delivery!



dimensions in mm

Specification notes (for all devices):

1. The package is an all-sealed housing. IP65 protection is given when the connector is locked with a rubber washer. For proper function the gage port is vented to the atmosphere through the connector/cable assembly. Thus the cable end must have access to the ambient pressure.
2. The minimum supply voltage is directly proportional to the load resistance seen by the transmitter. For more details see the load limitation diagram.
3. Proof pressure is the maximum pressure which may be applied without causing damage to the sensing element.
4. Thermal effects tested and guaranteed from 0 to 60°C relative to 25°C. All specifications shown are relative to 25°C.
5. Non-linearity refers to the **B**est **S**traight **L**ine fit measured for offset, full scale span and 1/2 full scale span.
6. Long term stability is the change in output after one year or 1 million pressure cycles.
7. Span is the arithmetic difference in transmitter output signal measured at zero pressure and the maximum operating pressure.
8. Test are in accordance with EN61000-6-2, April 1999.
9. CE-labelling is in accordance with 89/336/EEC.
10. The pressure transmitters must not be used as safety accessories according to article 1, 2.1.3 of the directive 97/23/EC.
11. BAM certification-No: BAM/ZBA/001/07. The BAM certificate refers only to the burn-out safety of the materials in oxygen service.

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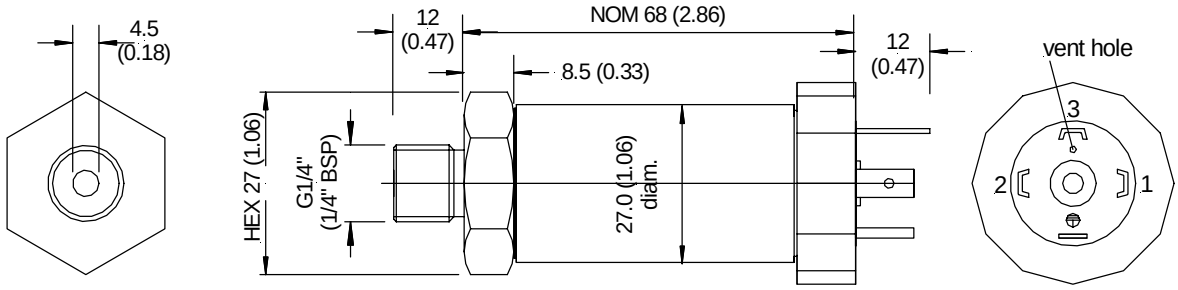
OUTLINE DRAWING

Electrical termination: **DIN 43650-A**
Pressure connection: **G 1/4" (1/4" BSP)**



mass: 210 g

dimensions in mm (inches)

Note:
Other pressure ranges, output signals, electrical terminations and pressure connections are available on request. Minimum order quantity may apply.

Please contact your nearest Sensortechnics sales office for further information.