

Model NPS31

Piezoresistive OEM pressure sensor
Flush Diaphragm

Materontek
Sensing and Internet of Things

Features

- ❑ Piezoresistive pressure chip encapsulated in an oil-filled metal housing
- ❑ Measuring ranges from 100mbar to 350bar
- ❑ Gauge pressure, absolute pressure
- ❑ Accuracy: $\pm 0.25\%FSO$ (Typ.)
- ❑ Flush diaphragm structure



Application

- ❑ Level measurement
- ❑ OEM
- ❑ Sanitary Industry
- ❑ Water treatment
- ❑ IoT pressure measurement

Technical data

Performance		
Accuracy*	$\pm 0.25\%FS$ (typ.), $\pm 0.5\%FS$ (max.)	*Linearity (best straight line) + Hysteresis + Repeatability
Linearity	$\pm 0.2\%FS$ (typ.), $\pm 0.3\%FS$ (max.)	
Hysteresis	$\pm 0.03\%FS$ (typ.), $\pm 0.05\%FS$ (max.)	
Repeatability	$\pm 0.03\%FS$ (typ.), $\pm 0.05\%FS$ (max.)	
Operating temperature	-30 to 85°C, option -20 to 150°C	
Compensated temperature range	0 to 60 °C(P \leq 0.35 bar), -10 to 70 °C(P>0.35 bar)	
Temperature coefficient zero	$\pm 0.75\%FS$ (typ.), $\pm 1.5\%FS$ (max.)	* (Pressure >0.1 bar)
Temperature coefficient sensitivity	$\pm 0.75\%FS$ (typ.), $\pm 1.5\%FS$ (max.)	
Vibration	10 g RMS(20 to 2000Hz)	
Shock	100 g(10ms)	
Cycles	10×10^6	
Overpressure	150 %FS	
Long term stability	$\pm 0.2\%FS$ (typ.)	

Electrical @25°C	
Zero output	$\pm 2\text{ mV} / V_S = 1.5\text{ mA}$
Full scale output	$90\text{ mV}(\text{typ.}), 150\text{ mV}(\text{max.}) / V_S = 1.5\text{ mA}$
Excitation	1 mA~2 mA
Bridge resistance	2~8 k Ω
Insulation resistance	100 M Ω @100VDC

Physical Specifications	
Housing	316L stainless steel
Diaphragm	316L stainless steel
Oil Filling	Silicone oil
Weight	~30g

The listed specifications and dimensions are subject to change without prior notice.

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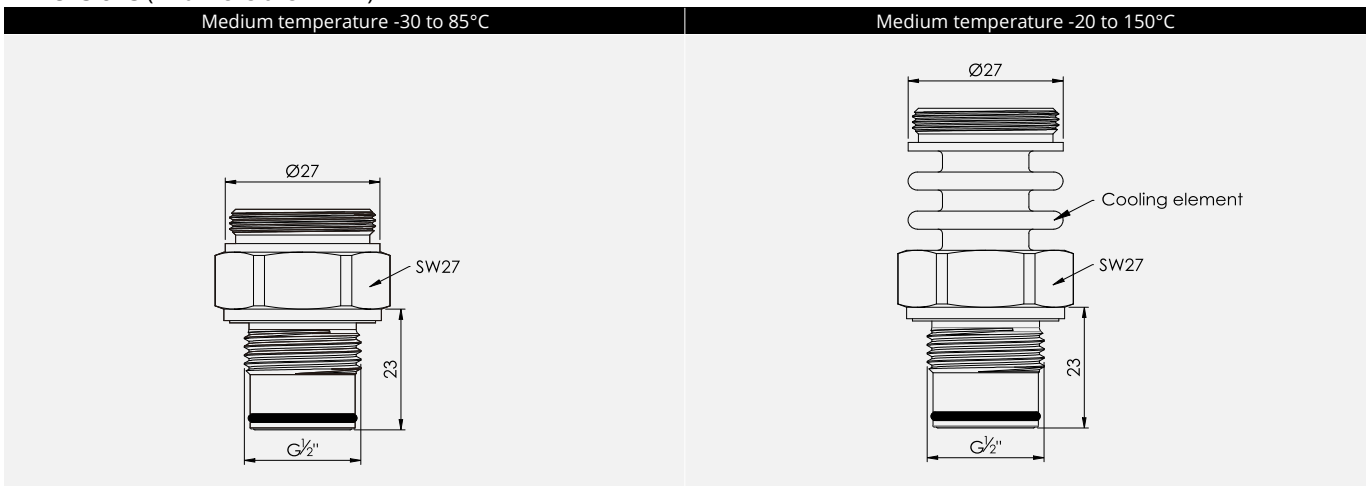
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Standard pressure range

Code	Nominal pressure [bar]	Gauge	Sealed gauge	Absolute
01	0...0.1	✓		
02	0...0.2	✓		
03	0...0.35	✓		✓
04	0...0.7	✓		✓
05	0...1	✓		✓
06	0...1.6	✓		✓
07	0...2.5	✓		✓
08	0...4	✓		✓
09	0...6	✓		✓
10	0...10	✓		✓
11	0...16	✓	✓	✓
12	0...25	✓	✓	✓
13	0...40		✓	
14	0...60		✓	
15	0...100		✓	
16	0...160		✓	
17	0...250		✓	
18	0...350		✓	

Code	Nominal pressure [bar]	Gauge	Sealed gauge	Absolute
19	-0.1...+0.1	✓		
20	-0.2...+0.2	✓		
21	-0.5...+0.5	✓		
22	-1...0	✓		
23	0...-1	✓		
24	-1...+1	✓		
25	-1...+1.6	✓		
26	-1...+2.5	✓		
27	-1...+4	✓		
28	-1...+6	✓		
29	-1...+9	✓		
30	-1...+10	✓		
31	-1...+16	✓		
32	-1...+25	✓		

Dimensions (All dimensions in mm)



Ordering code

Model	Range	Type	Output / Excitation	Electrical Connection	Medium temperature
NPS31	code	G gauge	A mV / 1.5 mA	F silicon rubber wires(L=100mm)	L -30 to 85°C
		S sealed gauge	B mV / DC 10V		H -20 to 150°C
		A absolute	C I ² C / 3.3~5VDC		
			D 0.5~4.5VDC / 5VDC		
			E 4~20mA / 10~30VDC		