

LD series

Specialty low differential pressure sensors

- ranges from +/-100mbar (+/-40inWC) to 0-10mbar (0 to 4inWC)
- accuracy 0.25%
- 2-wire 4-20mA output
- compact and lightweight
- welded-aluminium construction
- very rugged
- IP65 protection
- wet air and aggressive vapours compatible
- 20msec response time
- up to 17.5bar/250psi over-pressure

Description

The LD series pressure sensors are specialty pressure sensors designed for accurate leak-test measurement in low ranges from 10mbar to 100mbar. The standard output is 2-wire 4 to 20mA current loop, voltage output being an option. They are suitable for mono or bi-directional measurement.

They come in three brands varying sensitivity and over-pressure capability.

Operation

A high-resolution contactless inductive position detector measures the position of a convoluted diaphragm exposed to the process media differential pressure. The detector is sealed from the media. The detector operation is insensitive to the media allowing the sensor operation with any media chemically compatible with its construction materials.

The sensing element, the transducer, the electronics and the mechanical parts are optimised for leak-testing.

Performances

The LD series design favours ruggedness and reliability and makes it suitable for demanding industrial applications. The micro-processor based electronics enhances compensations quality as well as it potentially offers a gateway to digital communications.

The LD series combine well-proven techniques with state of the art design.



actual size

application:
LEAK TESTING

NICHESENSOR

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LDdocen01b

Represented by

LD series

Low differential pressure sensors

Pressure measurement specification

model	LD1	LD2	LD3
FS(mbar, inWC)	+/- 25, 10	+/-50, 20	+/-100, 40
over-pressure (bar, psi)	3.5, 50	10.5, 150	17.5, 250
over-pressure effect on zero (%FS)		0.6 typical	
on sensitivity		neglectible	
line pressure effect (mbar/bar)	-0.03+/-0.006	-0.06+/-0.012	-0.13+/-0.024
(inWC/10psi)	-0.009+/-0.002	-0.017+/-0.003	-0.035+/-0.006
volume displacement (ml/mbar)	0.024	0.012	0.006
(ml/inWC)	0.06	0.03	0.015
pressure cavity volume:	approx 4.5ml each side		
max line pressure (bar, psi):	25, 350		

Electrical

- **supply voltage:** 6.5V to 30V (voltage output: 8.5V)
- **standard output signal:** 4-20mA 2-wire
- **optional output signal:** 0 - 5V 3-wire
- **load impedance:** $R_c(\text{k}\Omega)\text{max} = (\text{Valim}-6.5)\times 0.05$ for voltage output $R_{\text{cmin}} = 10\text{k}\Omega$
- **operating temperature range:** -40 to +70°C
- **humidity:** 0 - 100%
- **user settings:** user-accessible digital encoders
 - **zero:** +/-50%
 - **gain:** +/-10% min
 - **damping:** from 0 to 10 sec

Performance data

- (values referenced to full scale)
- **precision (non-linearity, repeatability, hysteresis):** 0.25%
 - **resolution:** 4.10-4, min 0.1Pa
 - **update period:** 12.5msec
 - **response time (dead time+time constant):** 50msec
 - **long-term stability:** +/- 0.3% typ over a year at reference conditions
 - **mounting position effect:** 30Pa/90° tilt, correctible by setting
 - **compensated temperature range:** 0 to 50°C
 - **temperature effects:** $\leq 2.10-4/^{\circ}\text{C}$ on zero and sensitivity
 - **supply voltage effects:** $\leq 5.10-4/\text{Volt}$
 - **consumption:** $\leq 3.7 \text{ mA}$ (basic)
 - **protection:** reverse excitation protected
 - **insulation resistance:** $>1\text{G}\Omega$ @500V
 - **CE-compliance:** EMC-emission to EN61000-6-3 and EMC-immunity to EN61000-6-2 (EN61000-6-1 for voltage output)

Physical description

- **housing:** aluminium alloy alodine1000-treated
- **construction:** EB-welded
- **sensing element:** beryllium copper and brass
- **pressure ports:** M5 female
- **environmental protection:** IP 65
- **electrical connection :** DIN43650 (plug supplied)
- **weight:** 350g
- **mounting:** 2x M4 holes 4 mm deep and 2x8-32 holes 3/16 deep

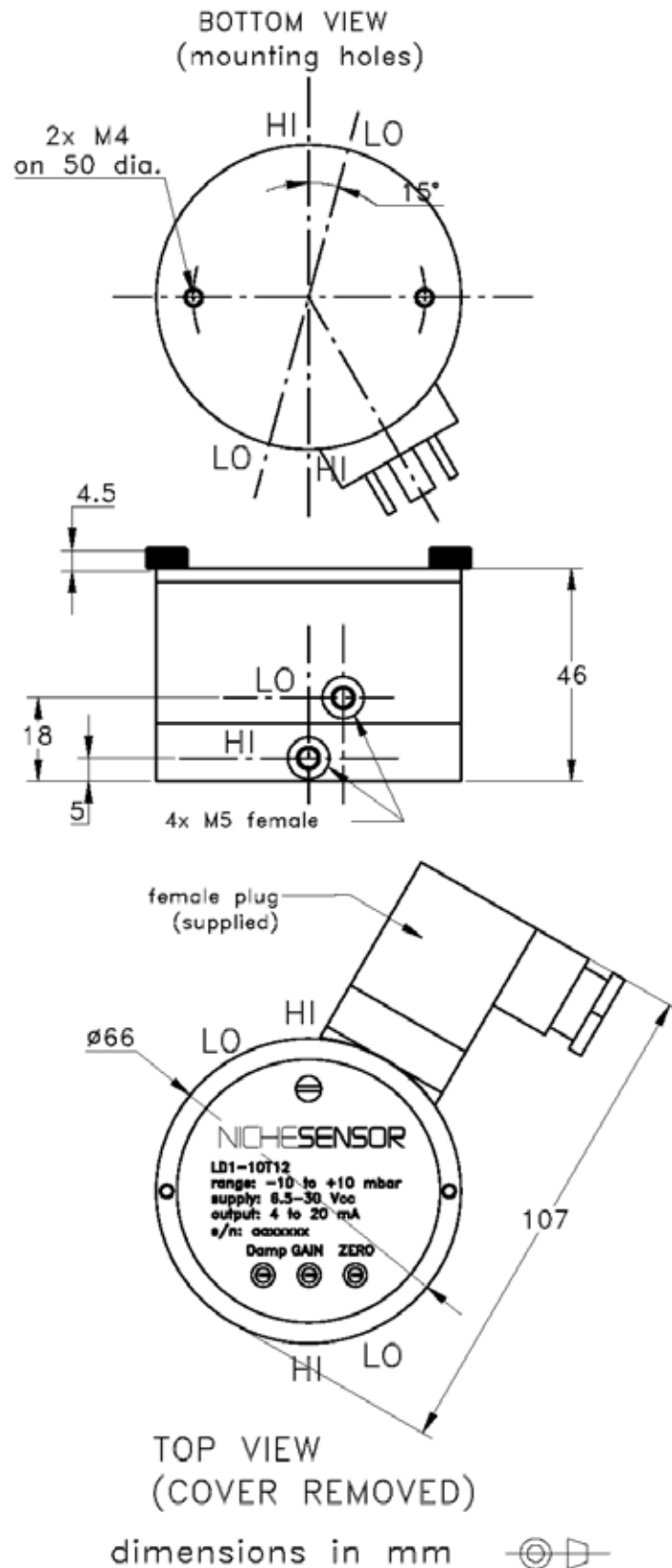
Options

- calibration certificate
- non-standard pressure range (not less than 20%xnominal FS)
- voltage output (0 to 5V)
- mounting bracket
- 1/8BSP or 1/8NPT pressure adaptors

Ordering information

for example: **LD1 10 T12 P**

10 = positive full scale in mbar
T meaning current output
12 meaning 12mA at zero pressure



specifications subject to change without notice

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