

Very low differential pressure sensors

- ranges from +/-500 Pa to 0-50 Pa
- line pressure from vacuum to 2 bar
- accuracy 0.5%
- 2-wire 4-20mA output or 3-wire 0-5V
- compact and lightweight
- welded-aluminium construction
- very rugged
- IP65 protection
- wet air and aggressive vapours compatible

Description

The DV_ULP series pressure sensors provide accurate measurement of gas and liquids differential pressure in very low ranges from 5mbar downwards. The standard output is 2-wire 4 to 20mA current loop, or voltage 0 to 5 V, 0 to 10V output being an option. They are suitable for mono or bi-directional measurement.

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 every single application.

Performances

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



actual size

Applications

- Clean rooms
- Glove boxes
- Wind-tunnels
- Furnace monitoring
- Dryer monitoring
- Painting cabinets
- Filter monitoring
- Off-road vehicles

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DV_ULPdocen01a

Represented by

DV_ULP series

Very low differential pressure sensors

Pressure measurement specification

- **standard ranges:**
 - **bi-directional:** -5 to +5mbar, -2.5 to +2.5mbar, -1 to +1mbar
 - **uni-directional:** 0 to +5mbar, 0 to 2.5mbar, 0 to +1mbar
- **non-standard ranges:** maximum full scale 5mbar, minimum 0.5mbar (1mbar = 100Pa)
- **overpressure:** 500mbar
- **line pressure:** from vacuum to 2bar maximum
- **compatible media:** see physical description
- **supply voltage:** 6.5V to 30V (8.5V for 0 to 5V voltage output)
- **standard output signal:** 4-20mA 2-wire or 0-5V 3-wire
- **optional output signal:** 0-10V 3-wire
- **load impedance:** $R_c(\text{k}\Omega)_{\text{max}} = (\text{Valim}-6.5) \times 0.05$ for voltage output $R_{c\text{min}} = 10\text{k}\Omega$
- **operating temperature range:** -40 to +70°C
- **humidity:** 0 - 100%
- **user settings:** user-accessible multi-function potentiometer
 - **zero:** +/-50% (set when zero applied pressure)
 - **gain:** +/-10% min (set when full scale applied pressure)

Performance data

(values referenced to full scale)

- **precision (non-linearity, repeatability, hysteresis):** 0.5%
- **resolution:** 4.10⁻⁴, min 0.1Pa
- **long-term stability:** +/- 0.5% typ over a year at reference conditions
- **mounting position effect:** 20Pa/90° tilt, correctible by setting
- **compensated temperature range:** 0 to 50°C
- **temperature effects:** ≤2.10⁻⁴/°C on zero and sensitivity
- **supply voltage effects:** ≤ 5.10⁻⁴/ Volt
- **consumption:** ≤ 3.8 mA (basic)
- **protection:** reverse excitation protected
- **response time:** 150msec
- **insulation resistance:** >500MΩ@50V
- **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 with DIN output
- **electrical connection :** DIN43650 (plug supplied)
- **optional electrical connection :** 20cm wires through cable gland
- **optional electrical connection :** screw terminal
- **weight:** 500g
- **mounting:** 2x M4 holes in base, 4 mm deep

Options

- calibration certificate
- non-standard pressure range
- 0 to 10V voltage output
- mounting bracket
- square root extraction

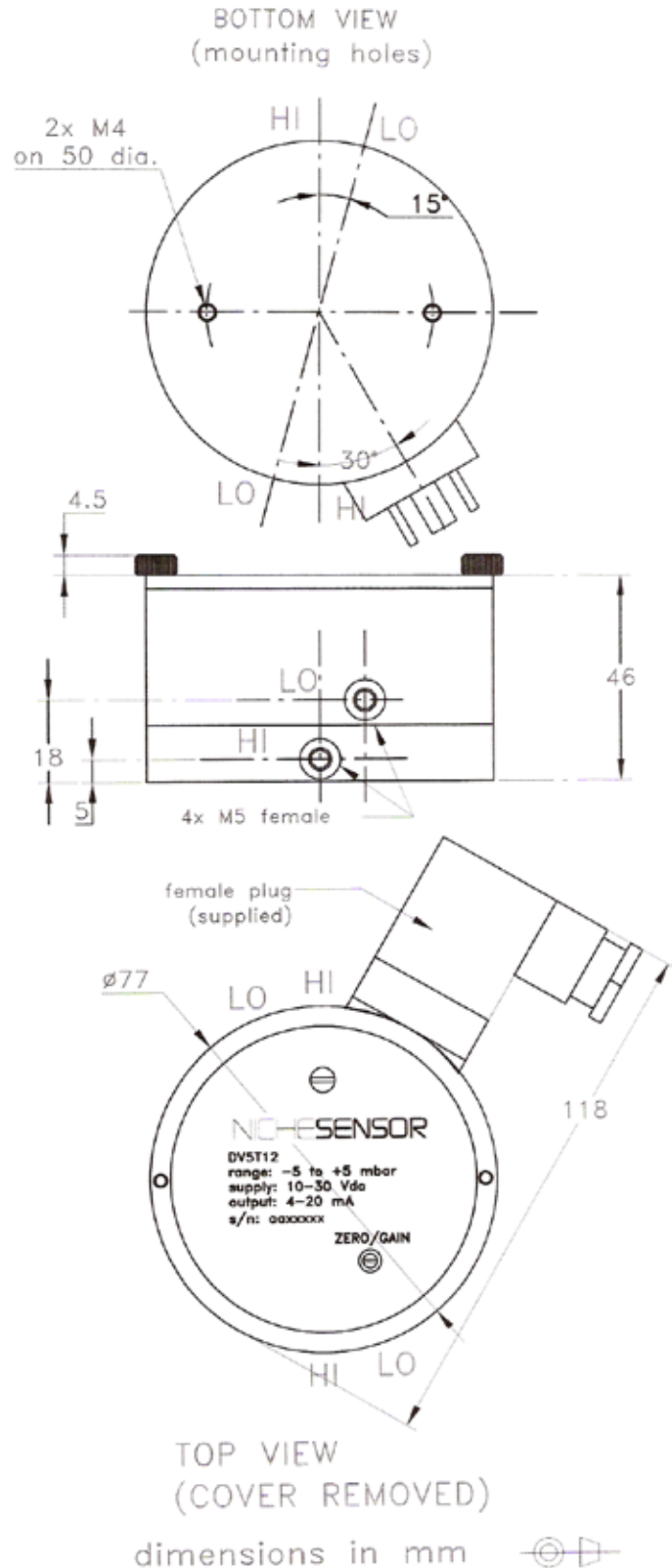
Ordering information

for example: **DV 2.5 T4 P**

2.5 = positive full scale in mbar
 T meaning current output
 4 meaning 4mA at zero pressure
 P meaning an option (to be precised)
 > 4 to 20mA output for 0 to 250Pa pressure sensor

Related products

high-performance DT aluminium series and DS stainless steel series
 high-resolution variable volumes VV
 calibration kits DTD



specifications subject to change without notice

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