

DS_ULP series

Very low differential pressure sensors

- ranges from +/-500 Pa to 0-50 Pa
- accuracy 0.15%
- 2-wire 4-20mA or 3-wire 0-5V output
- compact and lightweight
- welded-stainless steel construction
- very rugged
- IP65 protection
- wet air and aggressive vapours compatible

Description

The DS_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, voltage 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 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 DS_ULP series design favours ruggedness and reliability and makes it suitable for demanding industrial applications. The micro-processor based electronics enhances compensation quality as well as it potentially offers a gateway to digital communications. The DS_ULP series combine well-proven techniques with state of the art design.



actual size

Applications

- Test benches
- Glove boxes
- Wind-tunnels
- Furnace monitoring
- Filter monitoring
- Flow measurement

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DS_ULPdocen01c

Represented by

DS_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
- **overpressure:** 500 mbar
- **line pressure:** 25 bar maximum
- **compatible media:** see physical description
- **supply voltage:** 6.5V to 30V (voltage output: 8.5V to 30V)
- **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 $R_{c\text{min}} = 10\text{k}\Omega$
- **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):**
 - **uni-directional ranges:** 0.15%
 - **bi-directional ranges:** 0.2%
- **resolution:** 4.10⁻⁴, min 0.1Pa
- **line pressure effect:** 0.01 mbar/bar maximum
- **long-term stability:** +/- 0.15% typ. over a year at reference conditions
- **mounting position effect:** 30Pa/90° tilt, correctible by setting
- **compensated temperature range:** 0 à 50°C
- **temperature effects:** ≤2.10⁻⁴/°C on zero and sensitivity
- **supply voltage effects:** ≤ 5.10⁻⁴/ Volt
- **consumption:** ≤ 3.7 mA (basic)
- **protection:** reverse excitation protected
- **response time:** 50msec (excepting damping)
- **CE-compliance:** EMC-emission to EN61000-6-3 and
EMC-immunity to EN61000-6-2 (EN61000-6-1 for voltage output)
- **insulation resistance:** >1GΩ@500V

Physical description

- **housing:** 316L stainless steel
- **construction:** EB-welded
- **sensing element:** beryllium copper and brass
- **pressure ports:** M5 female
- **environmental protection:** IP 65
- **electrical connection :** DIN43650 (plug supplied)
- **weight:** 1100g
- **mounting:** 2x M4 holes in the base, 4 mm deep

Options

- **pressure adaptors** 1/8NPTf or 1/8BSPPf
- **calibration certificate**
- **non-standard pressure range**
- **voltage output (0 to 5V)**
- **expanded compensated temperature range**
- **mounting bracket**
- **welded pressure fittings (Cajon VCR)**
- **square root extraction**
- **inconel sensing element (copper-free)**

Ordering information

for example: **DS 2.5 T4 P**

2.5 = positive full scale in mbar

T meaning current output

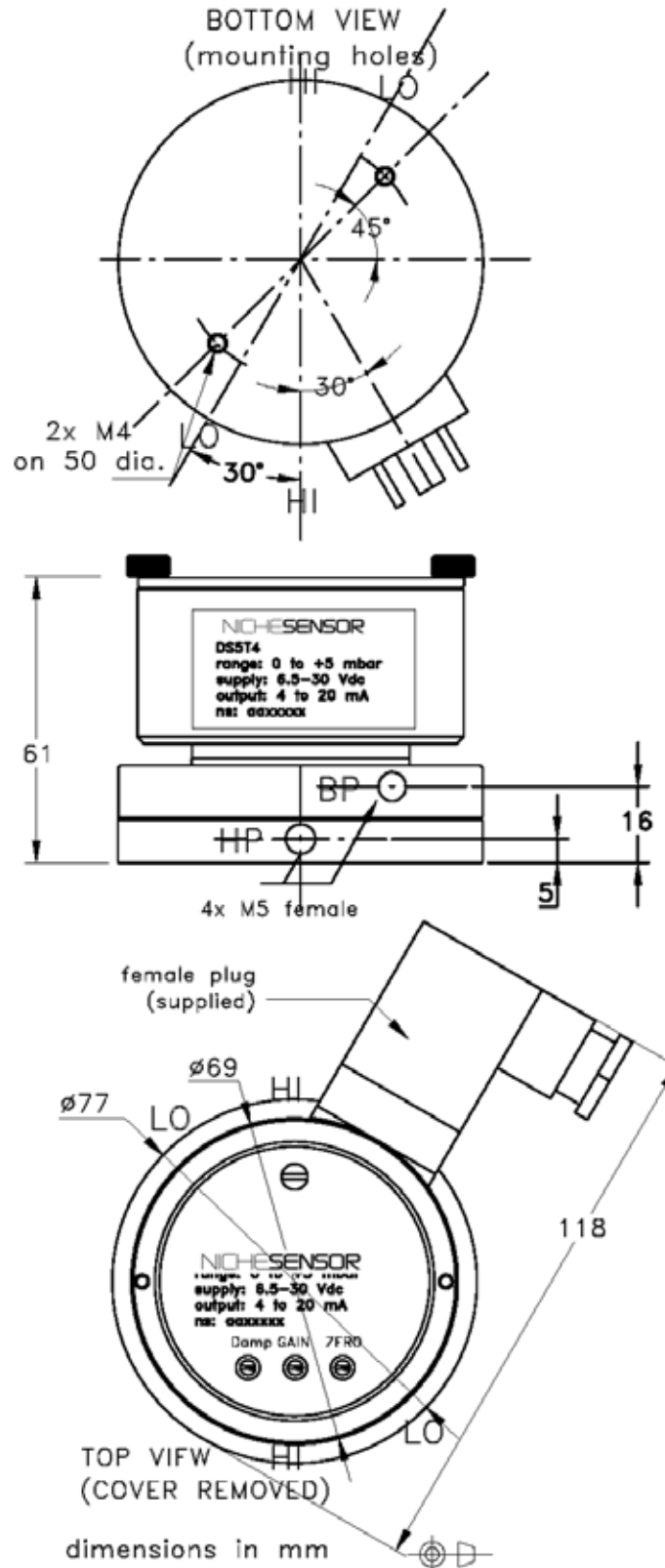
4 meaning 4mA at zero pressure

P meaning an option (to be precised)

> 4 to 20mA output for 0 to 2.5mbar pressure sensor

Related products

DS_LP and DS_MP series ; aluminium DT series



specifications subject to change without notice