



Metallux differential pressure sensors are made with a ceramic base plate and a flush diaphragm and work following the piezoresistive principle.

The Wheatstone bridge is screen printed on one side of the flush ceramic diaphragm which is, in turn, glued to the sensor body. The bridge can be protected by additional coating allowing the sensor to be exposed directly to water or liquid media.

Because of the Al₂O₃ ceramic excellent chemical resistance, the other side of the sensor does not need any additional protection.

Metallux differential pressure sensors feature an optional screen-printed PTC in order to measure the temperature drift of the fluid. The measurement can also be used to compensate the temperature drift of the Wheatstone bridge to achieve high accuracy readings.

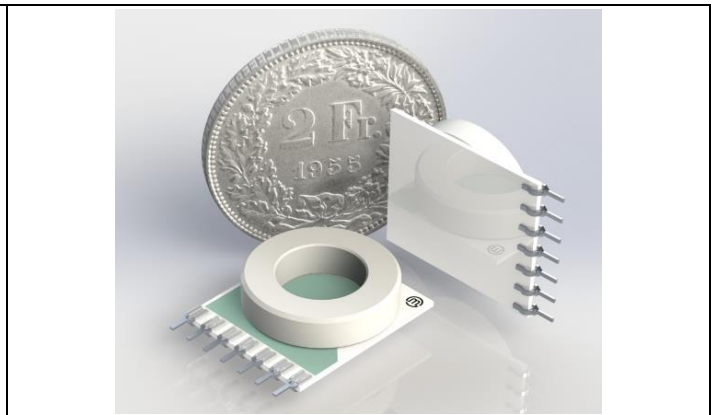
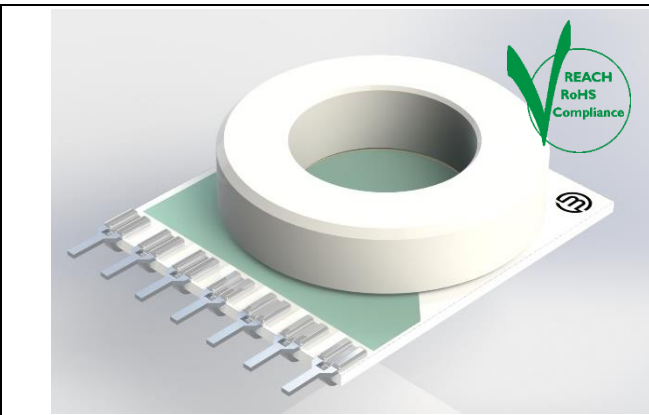
FEATURES

Differential pressure measurement

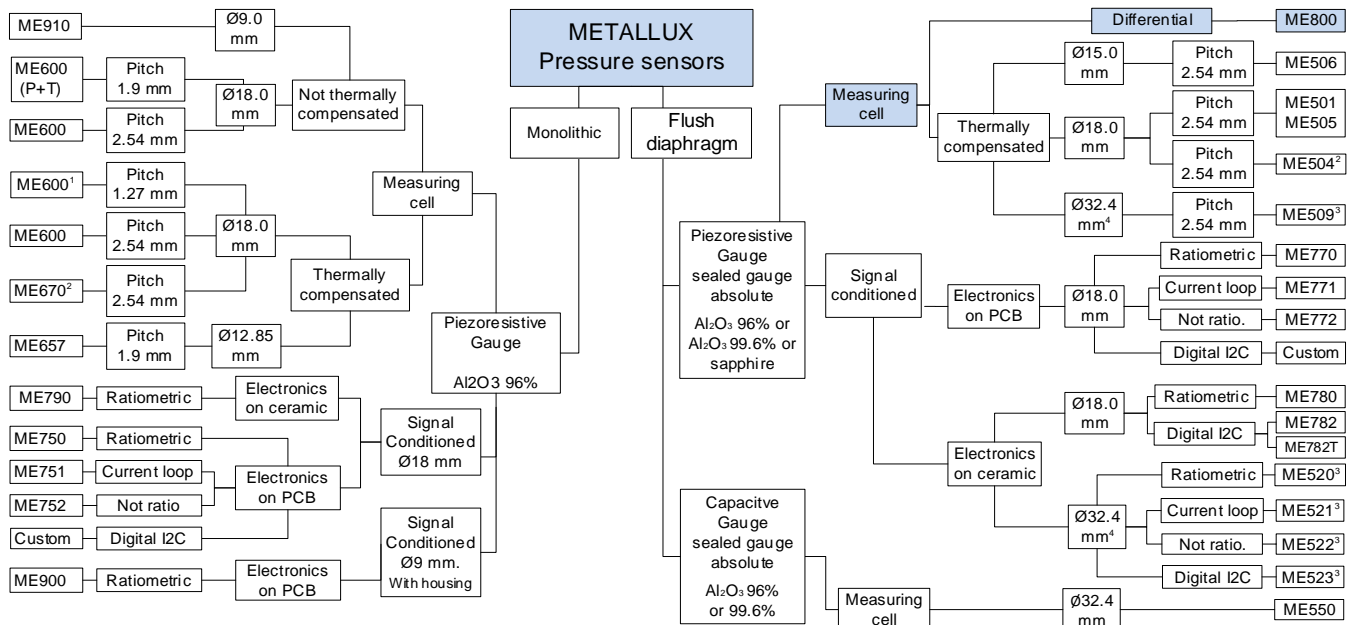
Fast temperature measurement

Simple and reliable structure

Analog output



Pressure sensors family tree



¹ Also available in not thermally compensated version
² Digitally trimmed offset, also available not thermally compensated

³ Not available with sapphire diaphragm.
⁴ Suitable for low pressure range (≤1 bar)

Technical characteristics

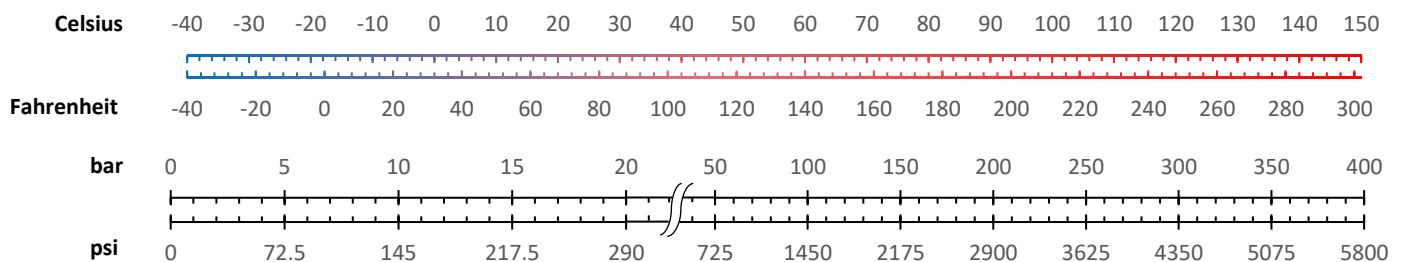
| Parameters | Units | Description |
|-----------------------|-------|---|
| Sensor type | - | Differential |
| Technology | - | Piezoresistive |
| Material | - | Ceramic Al ₂ O ₃ 96% |
| Weight | g | ≤ 5 |
| Response time | ms | ≤ 1 |
| Supply voltage range | VDC | 2...30 |
| Offset | mV/V | -0.1± 0.1 (Other nominal values available on request) |
| Current consumption | mA | ≤ 1.5 @ 10V |
| Operating temperature | °C | -20...+105(-4°F...+221°F) ¹ |
| PTC value | kΩ | 2200 ± 20% |
| TCR of PTC | ppm | 3050 ± 250 |
| Storage temperature | °C | -40...+125(-40°F...+257°F) ¹ |
| Bridge impedance | kΩ | 10 ± 30% |
| Compliant with | - | REACH, RoHS, Conflict Minerals free |

| | | | | | | |
|-----------------------------------|------------------|---|----------------|-----------|----------------------------------|-----------------|
| Nominal pressure FSO | bar | 4 | 10 | 16 | 25 | 40 |
| | psi ² | 58 | 145 | 232 | 362 | 580 |
| Overload pressure | bar | 6 | 20 | 30 | 50 | 80 |
| | psi ² | 87 | 290 | 435 | 725 | 1160 |
| Burst pressure | bar | 8 | 35 | 50 | 75 | 120 |
| | psi ² | 116 | 507 | 725 | 1088 | 1740 |
| Vacuum capability | bar | -1 | -1 | -1 | -1 | -1 |
| | psi ² | -14.5 | -14.5 | -14.5 | -14.5 | -14.5 |
| Total thickness | mm | 4.35 | 4.48 | 4.60 | 4.73 | 4.9 |
| | in | 0.171 | 0.176 | 0.181 | 0.186 | 0.193 |
| Sensitivity ³ | mV/V | 2.0...4.0 | 2.0...4.0 | 2.0...4.0 | 2.0...4.0 | 2.0...4.0 |
| Accuracy ⁴ (typ./max.) | %FS | ±0.4/±1.0 | ±0.4/±1.0 | ±0.4/±1.0 | ±0.4/±1.0 | ±0.4/±1.0 |
| Thermal offset shift (typ./max) | %FS/K | $\pm 0.02 / \pm 0.06$ +25 °C...+85 °C (+77 °F...+185 °F) $\pm 0.05 / \pm 0.15$ -20°C...+25°C (-4 °F...+77°F)/ +85°C...+105°C (+185°F...+221°F) | | | | Not compensated |
| Thermal span shift | %FS/K | Min. -0.03 | Typ. -0.016 | Max. 0 | -20 °C...105 °C (-4 °F...221 °F) | |
| Reliability tests ⁵ | - | 1 million 0 bar to Pnom pressure cycles | | | 500 hours burn-in @125°C | |
| | | 500h 85°C/85%RH@10V | | | 250 thermal cycles -40°C/+135°C | |

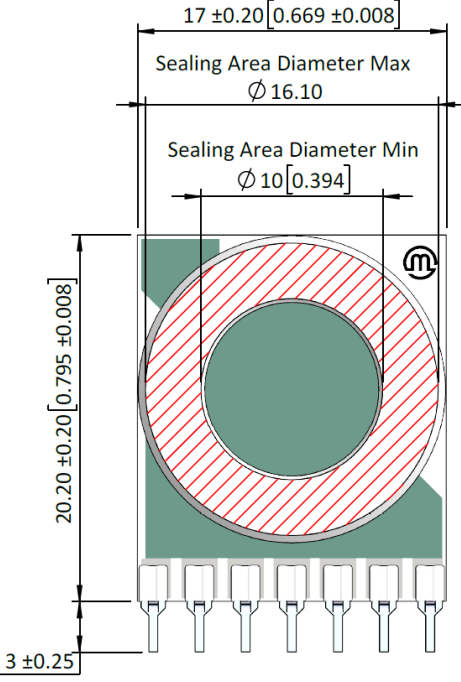
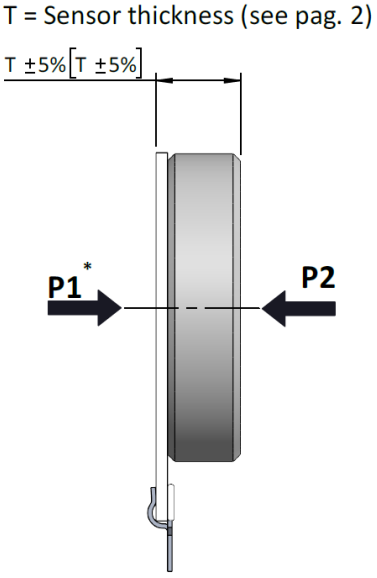
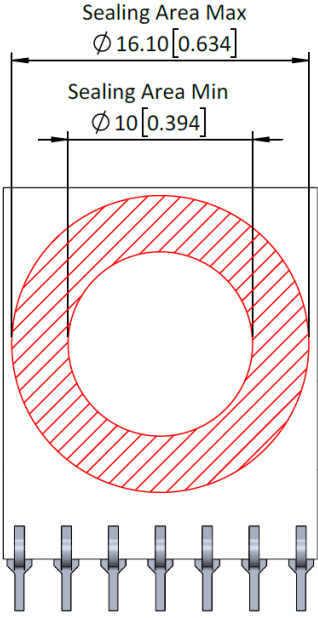
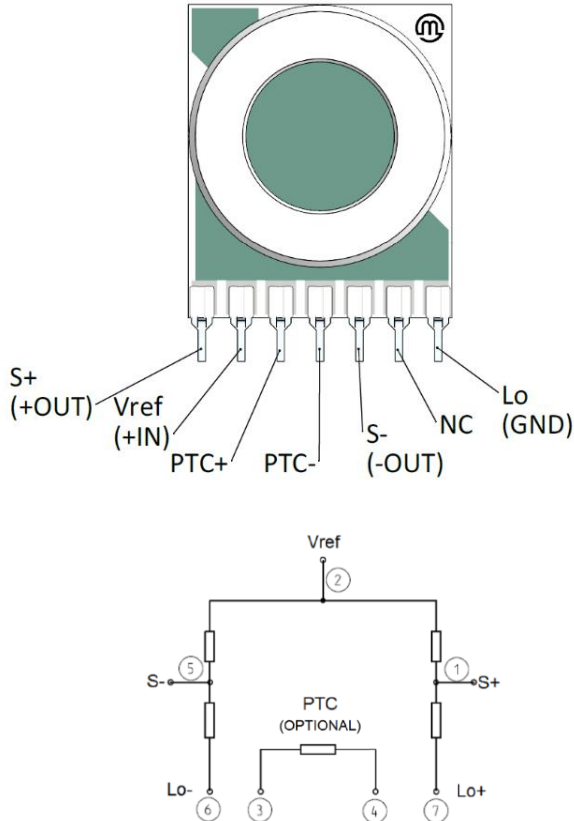
Tests performed at 25°C in Metallux housings, unless otherwise specified. Different housings may affect accuracy and thermal performances.

- Temperature limits depend on connection type, see box "Other types available" on page 3
- Psi values for reference only.
- The sensitivity of each production batch is constant, within the indicated range and with minimal dispersion.
- Accuracy = $\sqrt{\text{NonLinearity}^2 + \text{Hysteresis}^2 + \text{NonRepeatability}^2}$, terminal based.
- All technical characteristics will remain within indicated ranges performing the above-mentioned reliability tests. Test performed on sensors without additional coating (Parylene)

Conversion tools



Mechanical drawings and electrical schematics

| Top view | Side view |
|---|--|
|  |  <p>T = Sensor thickness (see pag. 2) $T \pm 5\% [T \pm 5\%]$</p> <p>* P1 > P2</p> |
| Bottom view | Schematic |
|  |  |

All quotes are in mm [inches] – General tolerance ISO 2768-1 M

Ordering code

| | ME800 | --- | - | - |
|------------------------------------|---|-----|---|---|
| Pressure range | 0...4 bar | 004 | | |
| | 0...10 bar | 010 | | |
| | 0...16 bar | 016 | | |
| | 0...25 bar | 025 | | |
| | 0...40 bar | 040 | | |
| | Others on request (enquiry for customization) | 999 | | |
| Temperature sensor on board | Without | | 0 | |
| | PTC | | 1 | |
| | Others on request (enquiry for customization) | | 9 | |
| Termination type | Pins – 3 mm | | | 0 |
| | Others on request (enquiry for customization) | | | 9 |
| Additional coating | Without | | | 0 |
| | Parylene coating | | | 1 |
| | Others on request (enquiry for customization) | | | 9 |

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To be disposed of according to local regulations (OTRif 16 02 97 for Switzerland, CER 16 02 16 for European Union)