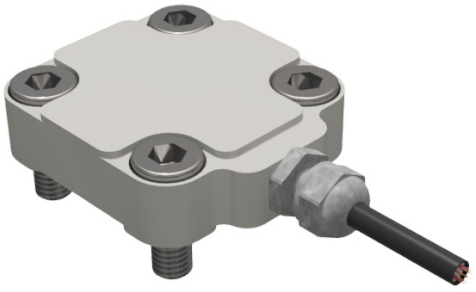
# STRAIN SENSOR 4DOT SM
## Technical Data Sheet

## CHARACTERISTICS



The 4dot SM is a precise and robust strain sensor developed for forming, machining and heavy industry. The patented design allows deployment near tools, even for routine measurements demanding sensitivity. Thanks to the semiconductor measuring element, the sensor can be used for statics and dynamic processes.

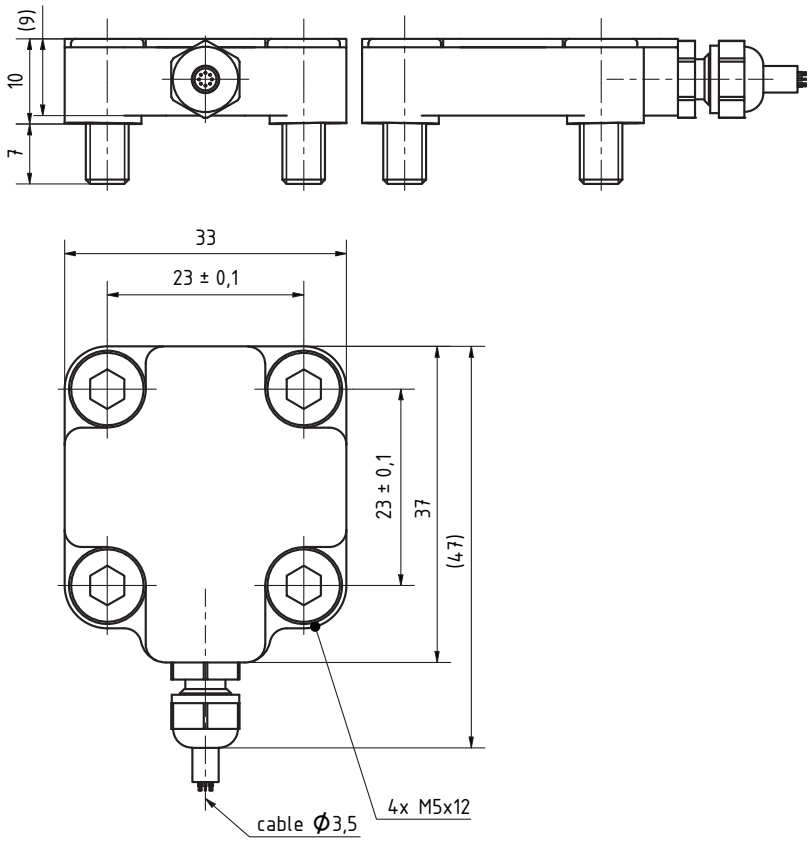
The design enables the measurement of dynamic processes even on surfaces subject to corrosion.

## APPLICATION

**General use:** strain measurement, force measurement, deformation measurement
**Applications:** forming machines, machine tools, mining machines, heavy industry, energy, transport, science and research

## CONNECTION DIMENSIONS

**External dimensions:** 33x47x10 mm (w×l×h )
**Connection dimensions:** 23x23 ±0,1 mm (4xM5 DIN 912)



# INSTALLATION

**Installation procedure**

1. Clean and degrease the M5 connection holes.
2. Wipe and coat the seating surface on the gauge body and under the screw heads with petroleum jelly. Do not introduce vaseline into the threads.
3. Apply thread adhesive to the threads according to the instructions.
4. Tighten bolts to 5 Nm (min 3 Nm, max 7 Nm - depending on application and bolts used).

# TECHNICAL DATA

**Measurements:**

- Physical quantity: Strain
- Measurement directions: 0°, 45°, 90°
- Range (basic version): ± 750 µm/m
- Sensitivity (K-factor): 55

**Compensation**

- Digital – designed for dynamic processes and constant temperatures. Compensation curve on request.
- Analog – by connecting to a half-bridge or full-bridge.

**Mechanical**

- External dimensions: 33x47x10 mm (w×l×h)
- Weight: 45 g without cable

**Temperature**

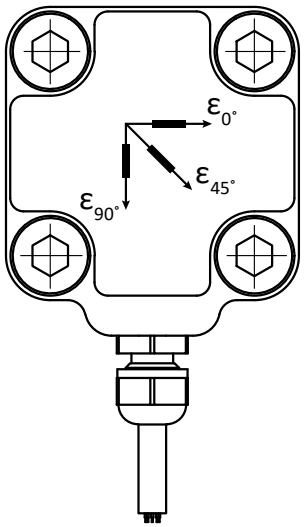
- Sensor operating temperature: -20 °C up to 110 °C
- Operating temperature cable L: 0 °C up to 80 °C
- Operating temperature cable H: -20 °C up to 200 °C
- Transport temperature: -20 °C up to 80 °C

**Material**

- Measuring element: semiconductor
- Body: stainless steel
- Cable: PUR

**Electric properties**

- Measuring element resistance: 120 Ω or 350 Ω
- Supply voltage: 2,5-10 V DC




*Measurement directions*

# WIRING

**3 axis**

| Axis | Number | Cable colour | Cable connection |
|---|---|---|---|
| 0° | 1 | white | INT1 |
| 0° | 2 | brown | EXT1 |
| 90° | 3 | green | INT2 |
| 90° | 4 | yellow | EXT2 |
| 45° | 5 | grey | INT3 |
| 45° | 6 | pink | EXT3 |
| PT | 7 | red | EX |
| PT | 8 | blue | COM |

**full-bridge**

| Axis | Number | Cable colour | Cable connection |
|---|---|---|---|
| full-bridge | 1 | white | EX+ |
| full-bridge | 2 | brown | EX- |
| full-bridge | 3 | green | AI+ |
| full-bridge | 4 | yellow | AI- |
| PT | 7 | grey | EX |
| PT | 8 | pink | COM |

# CONFIGURATION

SM T - Q 350 - R - 1000 - L 5

**Sensor type**

SM – transformation sensor

**Mounting design**

() - hole for M5 screw

T - with internal thread M5

G - designed for glueing to surface

**Wiring**

Q - quarter bridge

H - half bridge

F - full bridge

**Resistance**

120 Ω

350 Ω

**Measuring elements of the transformation of quarter bridge**

L0 - linear 0˚

L90 - linear 90˚

C - cross 0˚, 90˚

R - rose 0°,45°,90°

NA - not any for quarter and half bridge

**Temperature sensor**

0 - without sensor

1000 - PT1000

100 - PT100

**Cabling type**

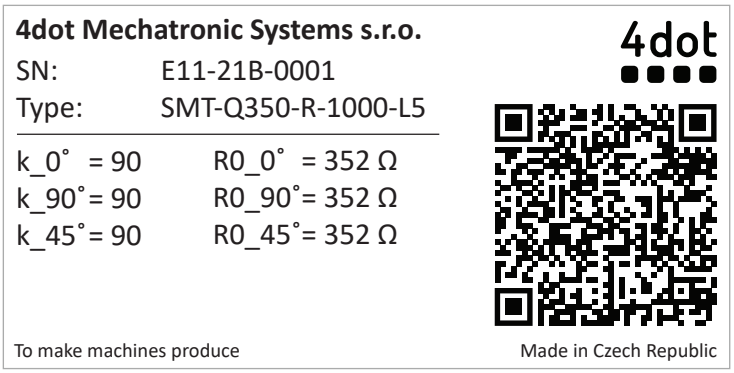
L - temperatures up to 80˚C

H - temperatures up to 200˚C

**Cabling**

Cable length in metres

# LABEL




*Sample of the label*

**This technical solution is protected under patent numbers PV 308886 and IN 532749, with additional patents pending.**