

Sensorex®

RVDT sensor

SX36RV SI



Meggitt (Sensorex) (IS) SX36RV provides a sinusoidal signal, with a linear voltage over the measurement range. The primary is excited by an AC voltage, and is picked up by the secondary winding on the transformer principle; the position of the rotating core determines the transformer ratio of each secondary winding.

As the secondaries are wound in opposition, the difference between the secondary outputs is proportional to the core angle, relative to the housing. The zero position is where each secondary voltage is equal and opposite. This is determinate in factory, and the position marked on both spindle and housing.

A rotary displacement sensor is free to make a full rotation, however, in practice, it is only usually used up to $\pm 45^\circ$, where the linearity is within 0.5% of full scale. This linearity improves as the range decreases, typically 0.1% for a range of $\pm 5^\circ$.

This series works with an AC/AC mode, and the signal can be treated with the Meggitt (Sensorex) 690 210 266 signal conditioner.

The sensor is made from a light anodized alloy. Output is given through a 20 meter ETFE isolated cable with gauge 26 copper wires.

They can be used :

- In surface industries
- In permanent presence of gaseous explosive atmosphere (zone 1) (for a zone 0 use(*), please consult us)
- With the gas listed in subdivisions IIB, IIC

(*) the RVDT external housing includes aluminum; it shall be protected against any impact or friction.

Utilization range

- Electrical :
Power supply: 2.2Vrms $\pm 20\%$
/ 3500Hz ± 50 Hz
- Mechanical :
The mechanical loads applied to the axis must not exceed the following values:
axial direction : 30N
radial direction : 30N
- Operating and storage temperatures:
 $-40^\circ/+100^\circ\text{C}$

Applications

- Valve position measurement
- Steam turbine servo-valve control

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General specifications at +25°C

| | | | | |
|-------------------------------|----------|----------|----------|----------|
| Stroke (°) | ±10 | ±30 | ±45 | ±60 |
| Full scale (°) | 20 | 60 | 90 | 120 |
| Non linearity (% of FS) | ±0.25 | ±0.25 | ±0.5 | ±1.5 |
| Sensitivity (mV/V/°) | 2.5±0.25 | 2.5±0.25 | 2.5±0.25 | 2.5±0.25 |
| Zero null voltage (mVrms max) | 10 | 10 | 10 | 10 |
| Primary impedance (Ω) | 140 | 140 | 140 | 140 |
| Secondary impedance (Ω) | 720 | 720 | 720 | 720 |
| Primary resistance (Ω) | 44±20% | 44±20% | 44±20% | 44±20% |
| Secondary resistance (Ω) | 330±20% | 330±20% | 330±20% | 330±20% |

Note: Sensor primary and secondary must be associated to intrinsically safe devices, and these associations must be compatible as regards intrinsic safety rules.

Selection guide

| Stroke | Product reference | Marking details | T6° for Ta° | T5° for Ta° | T4° for Ta° |
|--------|-------------------|------------------------------|-------------|-------------|-------------|
| ±10° | 690100641 | Ex ia IIB or IIC T6 to T4 | <60 | <75 | <100 |
| ±30° | 690100642 | Ex ia IIB or IIC T6 to T4 | <60 | <75 | <100 |
| ±45° | 690100643 | Ex ia IIB or IIC T6 to T4 | <60 | <75 | <100 |
| ±60° | 690100644 | Ex ia IIB or IIC T6 to T4 | <60 | <75 | <100 |

Contact