Installation Information

RIPS® E500 ROTARY SENSOR
INTRINSICALLY SAFE FOR HAZARDOUS DUST ATMOSPHERES

For certificate number and safety parameters information for product marked EX04, see next page.

ATEX /IECEx Qualified to Intrinsic Safety Standard
Certificate numbers SIRA 13ATEX2371X
IECEx SIR 13.0154X
Ex II 1GD
Ex ia IIC T4 Ga (Ta = -40°C to +80°C)
Ex ia IIIC T135°C Da (Ta = -40°C to +80°C)

Electronic Version | Output Description | Supply Voltage: \( V_s \) (tolerance) | Load resistance:
--- | --- | --- | ---
EX07 | 0.5 - 4.5V (ratioromic with supply) | +5V (4.5 - 5.5V) | 5kΩ min

Putting Into Service: The sensor must be used with a galvanic isolation barrier designed to supply the sensor with a nominal 5V and to transmit the sensor output to a safe area. The barrier parameters must not exceed:-

\[
\begin{align*}
U_i &= 11.4V \\
I_i &= 0.20A \\
P_i &= 0.51W \\
C_i &= 1.36\mu F^* \\
L_i &= 860\mu H^* \\
C_i &= 1.16\mu F \\
L_i &= 50\mu H \\
\end{align*}
\]

*Figures for 1km cable

The sensor is certified to be used with up to 1000m of cable, cable characteristics must not exceed:-

- Capacitance: \( \leq 200 \text{nF/m} \) for max. total of: \( 200 \text{nF} \)
- Inductance: \( \leq 810 \text{nH/m} \) for max. total of: \( 810 \text{µH} \)

Approval only applies to specified ambient temperature range and atmospheric conditions in the range: 0.80 to 1.10 Bar, oxygen \( \leq 21\% \).

The performance of the sensor may be affected by voltage drops associated with long cable lengths; For cable lengths exceeding 10 metres a five wire connection is recommended to eliminate errors introduced by cable resistance and associated temperature coefficients.

N.b. sensors supplied with cable, the free end must be appropriately terminated.

**Warning** - The M12 IEC 60947 connector may be rotated for purposes of convenient orientation of the connector and cable, however rotating the connector more than one complete revolution is not recommended.

**Repeated rotation of the connector will damage the internal wiring!**

**Use:** The sensor is designed to measure rotary displacement and provide an analogue output signal.

**Assembly and Dismantling:** The unit is not to be serviced or dismantled and re-assembled by the user.

**Maintenance:** No maintenance is required. Any cleaning must be done with a damp cloth.

**Mechanical Mounting:** Flange mounted or servo mount, with appropriate clips, options. The flange slots are 4.5 mm by 30 degrees wide on a 48 mm pitch. The sensor should be mounted with minimal axial and radial loading on the shaft for optimum life. It is recommended that the shaft is coupled to the drive using a flexible coupling. Tests indicate that life in excess of 16 million cycles can be achieved with 1kg side and end load.

**Output Characteristic:** The sensor has full rotational freedom and two sectors, 180° apart, over which linear response can be achieved. At the mid point of the calibrated range the output signal will be half full scale deflection, and the flat on the shaft is aligned with the registration mark in the base of the sensor. In the calibrated range the output increases as the shaft is rotated in an anti-clockwise direction viewed from the shaft. The calibrated output is factory set to be between 16° and 160°.

**Incorrect Connection Protection levels: Not protected** – the sensor is not protected against either reverse polarity or over-voltage. The risk of damage should be minimal where the supply current is limited to less than 50mA.

For further information please contact:
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Installation Information
RIPS® E500 ROTARY SENSOR
INTRINSICALLY SAFE FOR HAZARDOUS DUST ATMOSPHERES

For certificate number and safety parameters information for product marked EX07, see previous page.

ATEX Qualified to Intrinsic Safety Standard
Certificate numbers SIRA 00ATEX2076X
Ex II 1GD
EEx ia I/IIC T4 (Ta = -40°C to +80°C)
Ex ia D 20 T135°C (Ta = -40°C to +80°C)

<table>
<thead>
<tr>
<th>Electronics Version</th>
<th>Output Description:</th>
<th>Supply Voltage: V_i (tolerance)</th>
<th>Load resistance:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EX04</td>
<td>0.5 - 4.5V (ratiometric with supply) [Output code 'A']</td>
<td>+5V (4.5 - 5.5V)</td>
<td>5kΩ min</td>
<td></td>
</tr>
</tbody>
</table>

The barrier parameters must not exceed:

\[
\begin{align*}
U_i &= 11.4\text{V} & I_i &= 0.20\text{A} & P_i &= 0.51\text{W} \\
C_i &= 1.36\mu\text{F} & L_i &= 710\mu\text{H} & (\text{'Lxx' option}) \\
C_i &= 1.16\mu\text{F} & L_i &= 50\mu\text{H} & (\text{'J' option}) 
\end{align*}
\]

*Figures for 1km cable

The sensor is certified to be used with up to 1000m of cable, cable characteristics must not exceed:-

- Capacitance: \( \leq 200 \text{pF/m} \) for max. total of: 200 nF
- Inductance: \( \leq 660 \text{nH/m} \) for max. total of: 660 µH

With the exception of the certificate number and safety parameters above, all other notes regarding Putting Into Service, Use, Assembly and Dismantling etc. on previous page apply to sensors marked EX04 or EX07.