POSITEK LIMITED

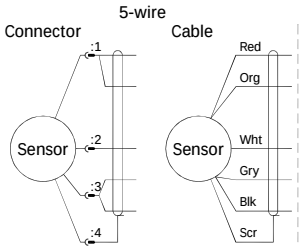
Installation Information

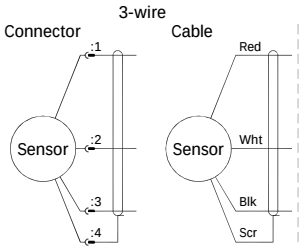
RIPS® A502 SMALL ANGLE ROTARY SENSOR

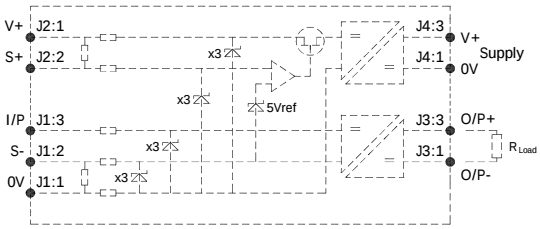
INTRINSICALLY SAFE FOR HAZARDOUS MINING ENVIRONMENTS

ANZEx Qualified to Intrinsic Safety Standard Certificate numbers ITACS ANZEX 07.4039X			Ex ia I/IIC T4 (Ta = -40°C to +80°C)
Electronics Version	**Output Description:**	**Supply Voltage:** V_s (tolerance)	**Load resistance:**
EX03	0.5 - 4.5V (ratiometric with supply) [Output code 'A']	+5V (4.5 - 5.5V)	5kΩ min

Connector Pin Layout:
IEC 60947-5-2







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:-

Ui = 11.4V **Ii = 0.46A** **Pi = 0.51W**
Ci = 1.56µF* **Li = 150µH*** ('Lxx', 'LQxx', 'Mxx', 'MQxx' options) *Figures for 150m cable
Ci = 1.01µF **Li = 50µH** ('J' option)

The sensor is certified to be used with up to **150m** of cable, cable characteristics must not exceed:-

Capacitance: max. total of: 550 nF
Inductance: ≤ 660 nH/m for max. total of: 100 µH

Approval only applies to specified ambient temperature range and atmospheric conditions in the range: 0.80 to 1.10 Bar, oxygen ≤ 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!

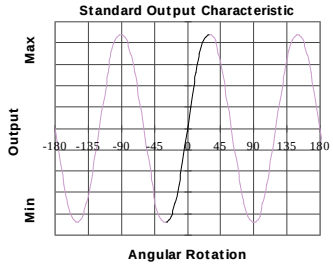
Use: The sensor is designed to measure rotary displacement and provide an analogue output signal.

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

Maintenance: Accumulated dust layer must not exceed a depth of 50 mm.

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 six sectors, 60° 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 5° and 15°.



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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