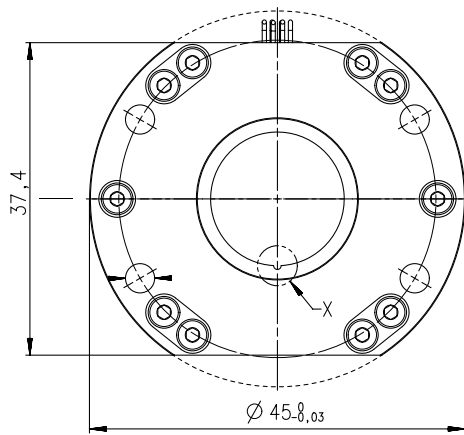
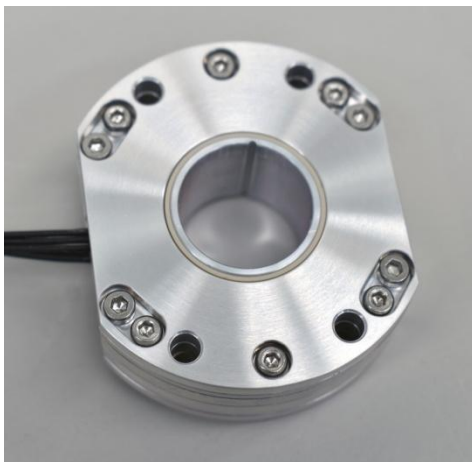


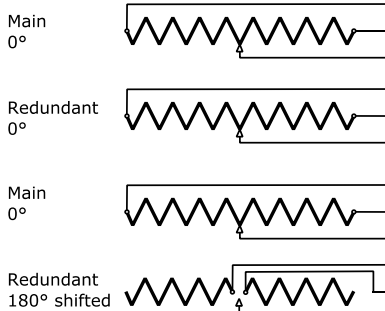
RUAG HSP Hollow Shaft Potentiometer

RUAG's Hollow Shaft Potentiometer (HSP) for Space Applications utilizes an ITAR free rotary position sensor. Suitable for Space and based on upgraded COTS-technology it features a high linearity at a small dead band.

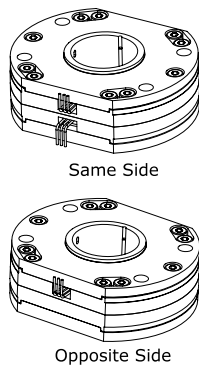
Potentiometers are very commonly used and reliable components to measure the rotary position of a device. RUAG's heritage in Solar Array Drive Mechanism (SADM) results in a deep understanding of potentiometers. RUAG enlarged their position sensor portfolio with the RUAG HSP in 2018, with the goal to assemble them into and improve the RUAG's SADM's performance and potential use in other mechanisms.



Connection Scheme



Cable Outlet



The use of for Space upgraded COTS technology keeps the costs at a low level while maintaining full functionality. Equipped with a full redundant arrangement the RUAG HSP is available in three possible configurations shifting the nominal and redundant output signal relative to each other. One of those can compensate the small dead band, another can increase the redundancy with separate signal paths. The performance is independent from the rotary direction.

Performance

Mechanical Properties

Inner Diameter	Ø16H6
Height	15,5mm
Outer Diameter	Ø45 (37,4mm flat side)
Cleanliness	ISO 8 Cleanroom or higher class ISO7/6 upon request
Operational lifetime	20y
On-ground lifetime	6y
Friction Torque	<5*10 ⁻³ Nm (TBC)
Mass	<50g (TBC)

Electrical Properties

Track Configuration	6y 10kΩ track (tested with 5V)
Electrical range	355°
Mechanical range	360° (no end stop)
Independent linearity	±0,1%
Rotation Speed	0.004°/sec – 6°/sec
Insulation resistance	10kΩ
Non op. [°C]	-105 to 110
Operating [°C]	-55 to 95
Output Cable Configuration	AWG26 ETFE (TBD, AWG28 possible)
Revolutions in ambient pressure	10.000
Revolutions in vacuum	100.000

3 configurations available

Config 0/0	Cable output 0°, main-redundant-signal 0°
Config 180/0	Cable output 180°, main-redundant-signal 0°
Config 0/180	Cable output 0°, main-redundant-signal 180°