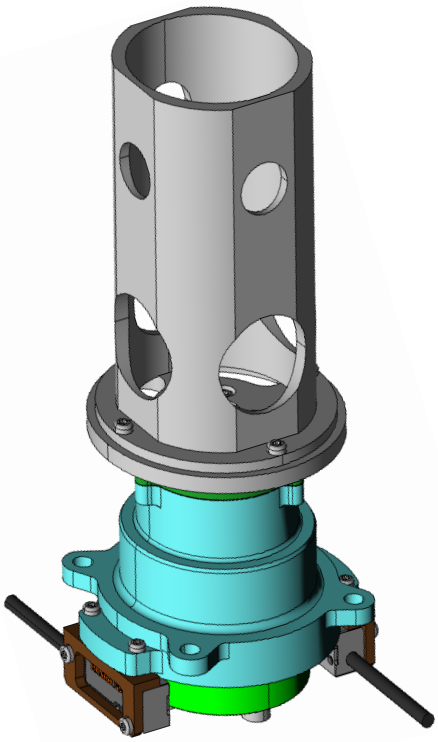
SCAN MECHANISM - 1 AXIS

DATASHEET ISP21A1181FP02493 - V0.15

Full-scale model



Mechanism DMU view

1-AXIS SCANNING MECHANISM

1 - Application

This fine pointing mechanism corrects and servo-controls the pointing over a range of degrees. It satisfies three main functions:

- Pointing accuracy and pointing stability at the microradian level
- Minimize mechanical noise generated by dynamic movements associated with pointing phases (low reaction efforts on support)
- Provide angular position feedback with microradian accuracy

2 - Description

The mechanism consists of a single axis on which the payload is mounted. The motor and encoder are mounted directly on the output shaft.

- Unlimited rotation in both directions
- Frameless zero-cogging electric motor
- 25 bits relative encoder

3 – Technical Data

CHARACTERISTICS	SPECIFICATIONS
Travel :	unlimited rotation in both directions
Absolute positioning accuracy	50 µrad
Positioning resolution	+/- 0.2 µrad
Pointing stability (static)	+/- 0.2 µrad
Pointing stability (pursuit mode)	< 1 µrad rms at [20;1000] Hz
Max velocity :	60 rpm
Min velocity :	< 7.5 µrad/s
Reaction force :	< 8.10^{-8} N at 0.1 Hz
Size (L x l x H) :	92 x 75 x 92 mm
Weight :	802 g (without electronics)
Materials :	TA6V/ Stainless steel
Electronic controller parameters:	Synchronous motor driver
Tension / power	24V to 36V / < 0.9W
Driving mode	FOC drive
Environment :	
Temperature (qualification)	OP : 20°C +/-2°C NOP : 0°C / 40°C
Vibrations	Random 12g RMS
Variant and options :	Specific design possible on demand: • Playload • Environment (temperature, vibrations…) • Encoder / limit switches • …

4- Dimensions (mm)