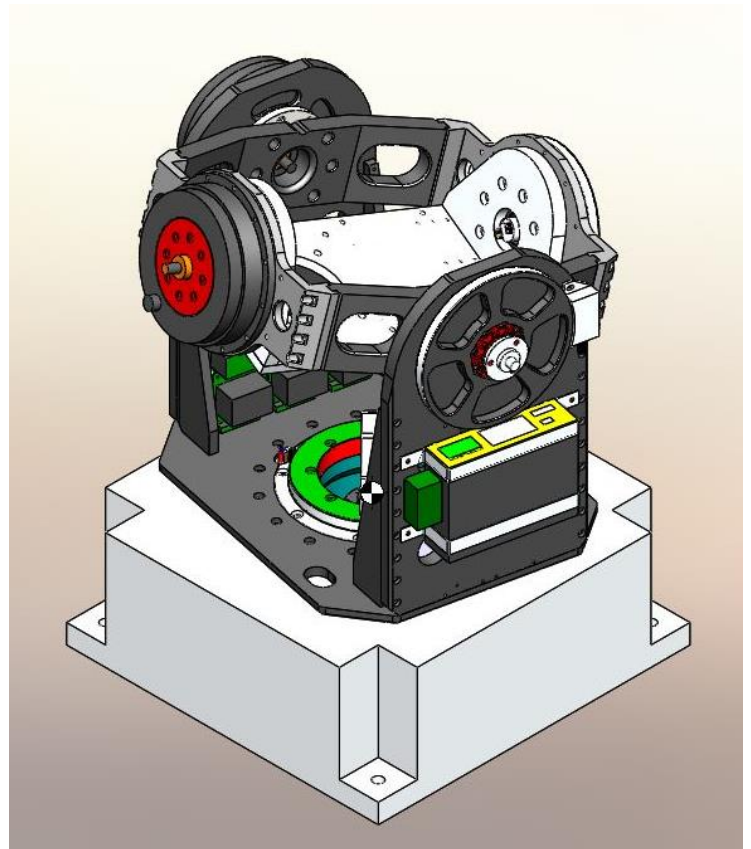


3-Axes Turntable iTURN-3S1

Features

- Multiturn continuous rotation in all three axes, fiber optical rotary joints and electrical sliprings
- Positioning resolution of $<0.000'2$ deg and high rate accuracy.
- High dynamics for advanced calibration and Hardware-in-the-loop (HIL) applications
- CAN, Ethernet and RS422 command
- Output of axes position, velocity, encoder counts
- Low weight, high reliability, Made in Germany
- Customized versions available on request; gyro stabilization available for usage in gimbal applications



Description

The iTURN-3S1 is a dynamic motion simulator that offers an attractive price/performance ratio. It may be used e.g. for gyro / IMU calibration and verification as well as for in-process simulations or optronics testing. Angular positioning, precise uniform rotation and angular motion profiling are typical operational modes. All operations are commanded via RS422 / CAN / Ethernet by a host computer. The control software is being delivered with the instrument and allows the full access to the device.

Payloads are mounted on the table top platen. A pattern of threaded holes accept a variety of test loads. The iTURN-3S1 is equipped with both electrical sliprings as well as fiber optical rotary joints (FORJ) to transmit high-speed data to/from the payload also via optical Ethernet. Electrical access is provided by shielded lines terminated on the platen and the base by D-Sub and optical connectors.

The iTURN-3S1 Test-Fixture is a high precision manufactured device containing precision bearings, encoders and direct drive brushless torque motors. The high resolution encoders, the slip ring capsules, the amplifier/controller assemblies and power supply are integrated inside of the iTURN-3S1, therefore no space consuming external 19" rack is required. All components are interchangeable facilitating repair and spare part supply management.

The system is designed to be used in open-loop (rate and position table application) as well as closed loop (HIL) applications with high bandwidth. Compared to standard hydraulic systems which are used by competitors for HIL applications, the bandwidth of the iTURN-3S1 shows leading performance beside of accuracy and high robustness as well as lowest request of maintenance, which are also main features of our iTURN series for applications in missile seeker and aircraft AHRS testing.

Specification Summary

General Configuration	Payload nominal	approx. 350 x 180 x 165 mm; 3 kg nom, up to 10 kg		
	Lines to UUT	Electrical: 10 lines, each 2 Amp single shielded Optical: 1 FORJ, 100 MByte/s Ethernet		
	Mounting platen	M5 threads with heli-coils, spacing all 25 x 25 mm, aluminum hard anodized		
	Platen flatness	< ± 0.05 mm		
	Axis orthogonality	< ± 10 arcsec between consecutive axes		
	Axis wobble	< ± 10 arcsec		
Dynamic		Inner Axis	Middle Axis	Outer Axis
	Rate	±500 deg/s	±500 deg/s	±500 deg/s
	Rate accuracy	better 0.05 %	better 0.05 %	better 0.01 %
	Rate resolution	0.000'1 deg/s	0.000'1 deg/s	0.000'1 deg/s
	Acceleration (with nom. load)	1'000 deg/s ²	500 deg/s ²	500 deg/s ²
	Torque	- depends on requirements -		
	Bandwidth (-3dB) ¹⁾	> 50 Hz	> 40 Hz	> 50 Hz
1) payload dependent				
Positioning	Resolution	0.000'2 deg	0.000'2 deg	0.000'2 deg
	Accuracy	better 5 arcsec	better 5 arcsec	better 5 arcsec
	Repeatability	better 3 arcsec	better 3 arcsec	better 3 arcsec
	Angular freedom	continuous	continuous	continuous
Environment and Supply	Temperature and Humidity:	Laboratory environment (15... 30 °C) Note: on request, the system can be delivered with a protection radome		
	Power Supply:	24 V DC (up to 800 W under dynamic load) Note: on request, an external 230 V AC power supply can be delivered with the iTURN-3S1		
Command	CAN - Bus:	up to 1 ms position and rate updates on all axes		
	Ethernet:	position and rate updates on all axes		
	RS422:	position and velocity via UART interface		

Note 1: All specification data are valid for operating a well-balanced payload.

Note 2: Several options are available, e.g. gyro stabilization for operation of the iTURN-3S1 on a moving platform.

Note 3: Customized versions can be provided on request regarding payload size and weight, dynamics, number of optical lines (FORJ), environment etc. Please contact our sales engineers for details.

Contact

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