

iODOT

Miniature Low Noise Angular Acceleration Sensor with Digital Output

The iODOT sensor is an angular acceleration sensor, based on a fiber optic gyro with high bandwidth.

- robust fiber optic gyro with high bandwidth
- interfaces: RS422
- wide range of power supply
- used for aircraft testing

Compared to other gyroscopes the optical gyroscope has the advantage of very low noise, short reaction time, high resolution, acceleration insensitivity and unsurpassed robustness. iODOT provides a compensated output (RS422 UART) for angular rate, angular acceleration and angle as well.

A serial interface allows to read data with up to 500 Hz and to configure the device by any computer using an external RS422/USB interface.



The iODOT comes in an ruggedized aluminum housing and contains the fiber optical sensing unit with fiber coil followed by high sophisticated analog and digital signal processing. The digital compensated output has a linearity error < 1 % (inside +/- 100

deg/s). The integrated micro-processor is used to control the RS422 interface. In summary the iODOT is created as a "plug & measure" sensor of the medium precision class for easy handling.

Technical data of the fiber optical gyro iODOT:

Measuring range:	± 480 deg/s $\pm 12'000$ deg/s ² (200 rad/s ²)
Digital output (compensated):	RS422 (UART)
Data output rate:	1 to 500 Hz (can be filtered internally within 1...500 Hz)
Bias:	< 0.1 °/s (over temperature)
Bias stability:	< 0.005 °/s (constant temperature)
Resolution:	< 0.002 °/s
Noise density:	0.0025 deg/s/ $\sqrt{\text{Hz}}$
Cross sensitivity to linear acceleration:	none
Linearity error, scale factor stability:	< 0.8 % up to +/-50 °/s, < 2 % up to +/-200 °/s, < 5 % < +/-400 °/s
Build-in-test and temperature sensor:	integrated
Temperature range:	-30...+60 °C (operating, case temp.), -55...+71 °C storage
Shock, Protection:	90 g, 11 ms; IP67; humidity control by Gore vent
Vibration:	6 g, 10...2000 Hz (rms)
MTBF:	> 15.000 hrs (estimated)
Mechanical dimensions:	95 x 42 x 50 mm (DxWxH); Mounting: 4 screws M3 (V2A)
Weight:	approx. 248 grams
Signal and power connector:	Micro-Sub-D 15 (socket)
Power supply:	10...34 V, P < 4 W

iMAR Navigation GmbH • Im Reihersbruch 3 • D-66386 St. Ingbert / Germany

Tel.: +49-6894-9657-0 • Fax : +49-6894-9657-22

www.imar-navigation.de • eMail: sales@imar-navigation.de