GESELLSCHAFT FÜR INERTIALE MESS-, AUTOMATISIERUNGS- UND REGELSYSTEME MBH
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iVRU-FKS

Vertical Reference Unit with Fiber Optic Gyros, Ultra Low Noise MEMS Servo Accelerometers and integrated Strapdown Processor

With iVRU-FKS a vertical reference unit is provided for applications which require medium accuracy and simple using.

- Three rate gyros and three accels
- < 0.003 deg/s bias stability
- high shock resistance due to FOG / MEMS technology
- CAN / RS232 / HDLC interfaces
- Sync Input / Output available
- Stabilisation tasks
- Navigation and Guidance

iVRU-FKS is a triaxial system with three orthogonal mounted rugged fiber optic gyroscopes, three MEMS servo accelerometers and an integrated powerful micro-processor with 16 bit sensor data digitalisation to provide digital data transmission (CAN, RS232) and extended internal error modelling. As an option also analog output data can be provided. As a further option an internal GPS / magnetometer can be provided as well as a speed sensor interface to achieve higher performance also in difficult environment. Interfaces for platform stabilisation are available on request. Qualification according to MIL-STD-810F and MIL-STD-461E possible on request (iVRU-FKS-M).

Technical Data of iVRU-FKS:

	Gyro Performance		Accel Performance
Sensor Range:	± 200 °/s (*)		± 3 g
Bias:	< 0.003 °/s	(stabil. at const. temp.)	< 0.5 mg
	< 0.01 °/s	(OTR)	< 20 mg
Resolution:	< 0.001 °/s		< 0.02 mg
Linearity / Scale error:	< 0.2 % / < 0.2 %		< 0.2 % / < 0.2 %
g-sensitivity:	none		
Noise (0-100 Hz):	< 0.15 °/$\sqrt{h}$ (9 °/h/$\sqrt{Hz}$)		0.5 µg/$\sqrt{Hz}$ (0.0003 m/s/$\sqrt{h}$)
Bandwidth:	0...200 Hz		0...200 Hz

Attitude /rel.Heading Range:	± 180 ° Roll, ±90 ° Pitch, ±180 ° relative Heading
Attitude Accuracy:	< 0.1 ° roll/pitch (static or unaccelerated motion)
	< 0.2 ° roll/pitch under dynamics with velocity aiding (e.g. odometer option)
Track / Heading Accuracy:	depends on aiding options (if any: GPS and/or 3D magnetometer -> 0.2...3 °)
Attitude / rel.Heading Resolution:	< 0.01 °
Analog Interface (option)	0...5 V (compensated output, 6 channels 16 bit))
Output:	ω_x, ω_y, ω_z , a_x, a_y, a_z (rate and acceleration)
	Roll, Pitch, delta_Yaw or Yaw (attitude, rel. heading)
Digital resolution:	> 18 bit for acceleration and angular rate
Digital Interface:	CAN (up to 1 MBit/s; remote and continuous); **Sync-Trigger-Input/Output;**
	RS232/422 (up to 115,200 Bd); HDLC on request
Integrated Options:	Standard L1 GPS; odometer interface
Output Data Rate, Connector:	up to 200 Hz via CAN (400 Hz as an option), MIL-C-38999 III
Temperature:	-40...+71 °C (operating, case temperature), -40...+85 °C storage
Power, Start-up-Time:	11...34 V DC; approx. 10 W; < 1 sec
Size, Weight, Protection:	120x120x130 mm; approx. 1600 grams / IP66 ; approx. 2100 grams / IP68
Shock, Vibration:	90 g / 11 ms; 10...2000 Hz / 6 g random (other on request)

(*) = other on request (up to 300 °/s; > 1000 °/s possible in special design)

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