

iVRU-CB-M

Small Size Vertical Reference Unit with Advanced MEMS Gyros, MEMS Accelerometers and integrated Strapdown Processor

iVRU-CB-M is a MEMS sensor based vertical reference and motion reference unit (IMS) used for applications which require stable accuracy and simple usage.

- Three MEMS rate gyros and three MEMS accelerometers
- < 0.01 deg/s short time bias stability
- internal GPS receiver (SBAS capability) and odometer interface
- CAN / RS232 / RS422 interfaces
- Stabilization tasks, vehicle guidance, UAV control
- Guidance & Attitude Control



gyroscopes used in, three MEMS 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 an internal GPS or/and external magnetometer can be provided as well as a speed sensor to achieve higher performance also in difficult environment. An additional flange plate is a-

iVRU-CB-M is a triaxial gyro system with three orthogonal mounted rugged MEMS available as option.

Technical Data of iVRU-CB-M:

	Gyro Performance	Accel Performance
Sensor Range:	± 300 °/s	± 4 g
Bias:	< 0.01 °/s (stabil. at const. temp.) < 0.2 °/s (OTR -40...+75 °C) < 0.003 °/s (short time stability)	< 1 mg < 10 mg (typ. 0.1% of range)
Resolution:	< 0.002 °/s	< 0.2 mg
Linearity / Scale error:	< 0.2 % / < 0.3 % (1 sigma OTR)	< 0.2 % / < 0.3 %
g-sensitivity:	< 0.02 °/s/g	
Noise (0-100 Hz):	< 0.25 °/s (in band)	< 1 mg/ $\sqrt{\text{Hz}}$
Bandwidth:	0.5 °/ $\sqrt{\text{h}}$ (ARW) 0...70 Hz	0...50 Hz
Attitude / Heading Range:	± 180 ° Roll, ± 90 ° Pitch, ± 180 ° relative Heading	
Attitude Accuracy:	< 0.5 ° roll/pitch (static or linear unaccelerated motion, unaided mode) < 1 ° roll/pitch with velocity aiding (e.g. GPS / odometer option)	
Track / Heading Accuracy:	depends on aiding options (if any: GPS and/or 3D magnetometer -> 0.2...3 °)	
Attitude / Heading Resolution:	< 0.01 °	
Analog Output:	none	
Digital Output:	$\omega_x, \omega_y, \omega_z, a_x, a_y, a_z$ (rate and acceleration), BIT option: Roll, Pitch, delta_Yaw (attitude, rel. heading)	
Integrated Options:	Standard L1 GPS; odometer interface	
Digital resolution:	> 16 bit	
Digital Interface, start-up-time:	CAN (up to 1 MBit/s; remote and continuous); External Sync Input available; RS232 or RS422 (up to 115,200 Bd); HDLC on request; < 1 sec	
Output Data Rate, Connector:	up to 200 Hz via CAN / RS232; MIL-C-38999 III 37 pin; SMA for GPS antenna	
Temperature:	-40...+85 °C (case temperature)	
Power:	11...34 V DC, approx. 6 W	
Size:	L x H x W = 105 x 70 x 75 (metal case, IP65); optional additional flange plate with 125 x 75 x 3 mm mounting holes available	
Weight, Shock, Vibration:	approx. 0.55 kg, 200 g, 1 ms ; 20...2000 Hz 5 g(rms) endurance	

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

Phone: +49-(0)-6894-9657-0 • Fax: +49-(0)-6894-9657-22

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