

iNAV-FMS-VRU

Vertical Reference Unit with Closed-loop Fiber Optical Gyros

iMAR's vertical reference unit iNAV-FMS-VRU is a derivation of iMAR's well-known inertial measurement system iNAV-FMS for inertial control, stabilization, guidance, tracking and dynamic analysis, which is equipped with high precision multiplexed closed-loop fiber optical gyros and servo-accelerometers and covers applications which require high accuracy, reliability and an open interface.

The system provides interfaces for speed measurement (counter input or EM-Log/DVL via RS232/422) and GPS (embedded or external). Possible data outputs are RS232, CAN, Ethernet or/and analog output (synchro on request). Special adaptation of housing and mechanical dimensions is possible. Data processing (strap-down algorithms, attitude and heading

calculation, dead-reckoning navigation, aiding with external heading information and heading bandwidth improvement) inside of the measuring system is as well possible as data transmission of pure or corrected raw data.



iNAV-FMS-VRU can be operated from a PC under Windows™ using iMAR's NavCommand software or as a stand-alone device. Furthermore an open user-interface is available using iMAR's XIO standard so the user can operate the system from his own environment. Features like "virtual measurement point" are standard, an odometer input or a platform stabilisation interface are available as an

option. As an option a multi-antenna GPS can be used for advanced heading aiding. Only an European export license is required because the system is manufactured in Germany.

Technical Data of iNAV-FMS-VRU:

Range:	± 450 deg/s	± 5 g (option: ± 20 g)
Bias Stability:	0.75 deg/h	< 1 mg (1 σ , over temperature range)
Random Walk:	0.1 deg/ \sqrt{h}	
Resolution:	< 0.003 deg, < 0.005 deg/s	< 100 μ g
Linearity error:	< 0.03%	< 0.05 %
Angular Accuracy:	< 0.1 deg (Roll/Pitch, with speed and heading aiding) < 0.2 deg Heading (with temporary external aiding, e.g. GPS) < 1 deg/h Heading drift (without external aiding) Heave output on request available (< 5 % of heave, but at least 3 cm)	
Data rate:	1...400 Hz	
Initial Alignment:	using the internal 12 channel GPS receiver, external heading input recomm.	
Output (options):	RS232/RS422 (binary, ASCII or NMEA), Ethernet, CAN, analog or tbd	
Inputs (options):	(D)GPS, counter for odometer (A/B), EM-Log, DVL, compass, analog input channels	
Power:	10...34 V DC; approx. 35 W	
Temperature:	-30...+63 °C (operating within specification; option: -40...71 °C)	
Humidity, Shock:	8...100 %, IP67, 60 g, 11 ms (depends on shock mounts)	
Weight, Size:	5.2 kg ; 265 x 145 x 132 mm	
Applications:	Device stabilisation tasks, surveying and dynamics analysis on Naval vessels, rail vehicles, aircraft, cars/vans...	

For other accuracies please ask also for our systems of the series iNAV-RQH or iVRU-Fx.

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