

ER-FIMU-50 Minimum FOG IMU (Same performance to KVH 1775)

Introduction

ER-FIMU-50 FOG IMU is a minimum cost-effective inertial measurement device for navigation, control and dynamic measurement. The system adopts high reliability closed-loop fiber optic gyroscope and accelerometer, and ensures the measurement accuracy through multiple compensation techniques. Strict technology is adopted in the manufacturing process to ensure that the angular motion and linear motion parameters of the carrier can be accurately measured under harsh conditions.

The product has a great user experience. In addition to the wide-voltage power supply, users can also configure the output bandwidth, data update rate, communication port baud rate and communication protocol according to their needs.



Features

Minimum optical fiber IMU

Full temperature compensation

Strong shock resistance and vibration resistance

Bandwidth>100Hz

Data update rate: 100Hz~4000Hz

Baud rate configurable, up to 921.6Kbps

Weight<600g

Wide voltage supply 9V ~ 31V

Power consumption 4.8 W

Applications

AHRS

Guidance control system

Vehicle and ship attitude measurement

Inertial/satellite integrated navigation system

Drilling system

Mobile Mapping System

Satellite communication in motion

Specifications

FOG Gyro	
Measuring range	500°/s
Bias stability	0.5°/h
Bias repeatability	0.5°/h
Scale factor non-linearity	100ppm
Bandwidth	50Hz~200Hz
Angular random walk	0.02°/sqrt (h)
Accelerometer	
Measuring range	25g
Bias stability	100ug
Bias repeatability	100ug
Scale factor non-linearity	300ppm
Electrical/Mechanical Interface	
Power supply	9V~31V
Power	<4.8W
Starting time	3s

Interface	RS-422
Update Rate	100Hz~4000Hz
Size	F89mm*73mm
Weight	<600g
Operating environment	
Working temperature	-40°C~60°C
Storage temperature	-55°C~70°C
Vibration	6.06g (rms)
Impact	80g/3ms

Interface Definition

External use of J30J-15TL connector for communication

No.	Definition
1	RS422_Tx+
2	RS422_Tx-
3	RS422_Rx-
4	RS422_Rx+
5	/
6	CFG_Rst-
7	Msync-
8	TOV_OUT-
9	GND
10	VDD
11	Msync-
12	TOV_OUT+
13	CFG_Rst-
14	DGND
15	/

Communication Protocol

FOG IMU default timing broadcast mode output IMU data, output frequency 4K, 19 bytes of data per frame, baud rate 921600bps, 1 bit start, 8 bit data, 1 bit stop, no check, multi-byte variables, high bytes first, low bytes later.

Communication protocols can also be customized to the user's requirements.

No.	Name	Equivalent	Unit	Data Type	Remark
1	0xCC	/	/	Unsigned integer	fixed frame head
2	Send a count	1	/	Unsigned integer	0-200, 255 breakdown
3-5	X Gyro	0.00006	D/Sec.	Integer	Angular rate
6-8	Y Gyro	0.00006	D/Sec	Integer	Angular rate
9-11	Z Gyro	0.00006	D/Sec	Integer	Angular rate
12-13	X Accelerometer	0.008	M/Sec ²	Integer	Accelerated speed
14-15	Y Accelerometer	0.008	M/Sec ²	Integer	Accelerated speed
16-17	Z Accelerometer	0.008	M/Sec ²	Integer	Accelerated speed
18	Temperature	1	degree centigrade	Integer	/
19	Checksum	1	/	Unsigned integer	2-18 bytes