

Fiber optic gyro IMU systems



Products Guide

FOG Components

IMU Systems

FOG Devices

RLG Devices

FOG Instruments

Features

- Designed for easy integration
- High bandwidth and low noise
- Small, compact design
- Excellent shock performance
- Flexible interfaces and programmable message outputs and data rates
- RS-422 Asynchronous

Application

- Guided weapons
- Smart Munitions
- Unmanned Air Vehicles
- Fiber sensor
- Optron system stabilization
- Radar antenna stabilization

2016 NEW VERSION

FOGPhotonics,inc

one Idealphotonics company

Description



FOGPhotonics's TRF is a small lightweight and low cost strap down Inertial Measurement Unit(IMU) family, based on Fiber Optic Gyro technology.

The TRF-500s is a high performance IMU with an excellent cost/performance ratio. The TRF-500s has digital outputs of linear acceleration and angular rates, short data latency for flight control applications and extended BIT. The TRF-500s is a tactical grade FOG based on closed loop gyros suitable for military high-end applications. TRF-500s is a robust, reliable product with state-of-the-art gyros and accelerometers.

Specification

IMU Specifications		
Parameter	Units	TRF-500s
Input rate(Max)	°/sec	500
Initialization Time (valid data)	S	≤0.007(10s,1σ)
Bias Repeatability (day to day)	°/hr(1σ)	0.1
Scale factor repeatability	ppm(1σ)	≤10
Scale Factor Non-Linearity (max rate, 25°C)	ppm,(1σ)	≤10
Band width	HZ	>100
Dimension	mm	280x124X186
Weight	g	< 7000
Operation temperature	°C	-45-+71
Storage temperature	°C	-55-+85
Shock	g	20 g, 11 msec, sawtooth
Vibrations	g ² /HZ	0.04
Interface		RS422 Or RS422;ARINC-429
Power supply	V	±28VDC
MTBF	Hours	36000
Baud Rate	Kbps	Typ 11528kbps (User selectable 9.6 Kbps to 921.6
Data Rate	Hz	Typ400Hz(User Selectable 1 to 1000 Hz)

Accelerometer Specifications	
Accelerometer Technology	Quartz
Input Limit (max)	± 10 g
Bias Instability (constant temp)	<0.05 mg, 1 σ
Scale Factor Temperature Sensitivity	250 ppm/° C, 1 σ (max), ≤100 ppm/° C, 1 σ (typical)
Bandwidth (-3 dB)	≥200 Hz
Velocity Random Walk (25° C)	≤0.12mg/ √ Hz(0.23 ft/sec/ √ hr)

Navigation Accuracy	
Position(CEP)	Pure inertia: 2.0nmile/20min Combination:20m
Velocity Accuracy(RMS)	Pure inertia: 2m/s Combination:0.5m/s
Heading Accuracy(1σ)	Pure inertia: 0.5° Combination:0.3°

Attitude Accuracy(1σ)

Pure inertia: 0.1°

Combination: 0.1°

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