FIBER OPTIC GYRO
8088 000-112

The Fiber Optic Gyro (FOG) is a compact, solid state, single axis rate sensor. Backed up by over 50-years' experience in inertial sensors.

Design
The FOG is composed of two main parts:
· Optical Part
This part is a fiber optic ring inter-ferometer comprising fiber coil, phase modulator, two fused fiber optic couplers, fiber optic polarizer, super luminescent light module and photo receiving module with pre-amplifier.
· Electronic Part
This part is a processing PCB that converts the optical module output into rate proportional voltage.

Operation
A Fiber Optic Gyro is based on the Sagnac effect. The time for light to travel in a coil is dependent of the rotation of the coil. In a ring fiber optic gyro light is divided into two beams entering a fiber coil in opposite directions. After exiting the coil the two beams are combined in a coupler and a phase difference proportional to the rate of rotation is measured.

Fiber Optic Gyro (FOG).

Applications
· Gun stabilization
· Missile stabilization
· Inertial measurement units
· Sight stabilization
· Camera stabilization
· Antenna stabilization
· Autonomous vehicles

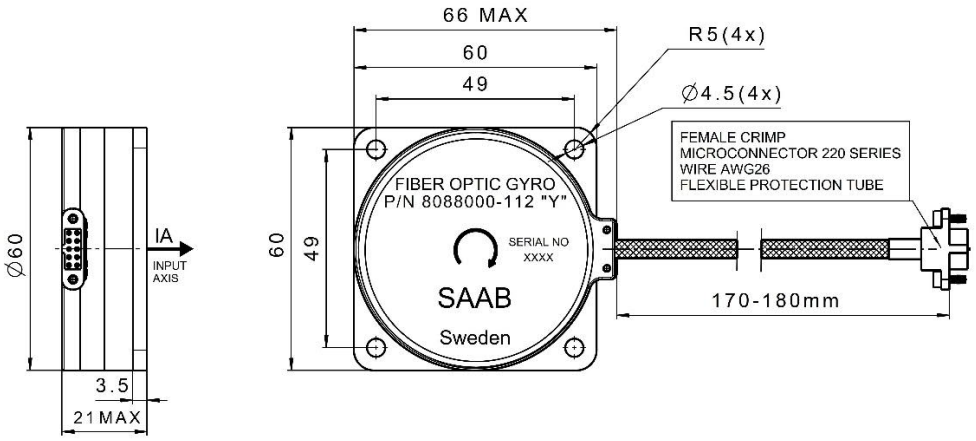
Features
· Solid state
· Low drift
· No delay
· High shock usability
· Small size
· Short start-up time
· Non ITAR

Company Background
Saab has been a producer of gyros of various designs for over 50 years. Production was initially intended for Saab designed aircraft sight and missile requirements.

Since the end of 70´s, the gyro production have expanded into a product line of its own including design and production of gyro products for worldwide customers. Up to the present time, we have produced more than 50.000 sensors. Gyros based on FOG technology has been the main product since the end of 90´s.

Mechanical Gyros.

DIMENSIONAL DRAWING 8088 000-112



SPECIFICATION VERSION 8088 000-112

CHARACTERISTICS	UNIT	VALUE
Range	°/s	150 [1]
Bias Over Temperature Range	°/h max	180
Scale factor @±50°/s, differential	mVDC°/s	65.0
Scale factor error Over Temperature Range	%	±2
Non-linearity ±100°/s, linear regression	%	±1.0
Non-linearity ±150°/s, linear regression	%	±3.0
Start-up time	msec max	250
Bias Stability (Allan variance)	°/h max	1
Angle Random Walk (Allan variance)	°/√h max	0.05
Bandwidth	Hz min	100
Axis misalignment	mrad max	±8
Built In Test Output	VDC_{OK}	0.6-1.8
Temperature Sensor Output	mV	f(T)=(Tx10+500)±30
Weight	grams max	90
Output load	kΩ	10
POWER REQUIREMENTS		
Voltage, supply I	VDC	+5 ±0.25
Voltage, supply II	VDC	+10.0 – +15.5 [2]
Voltage, supply III	VDC	-10.0 – -15.5 [2]
Current, supply I	mA max	200
Current, supply II	mA max	50
Current, supply III	mA max	50
ENVIRONMENTS		
Shock	g : msec	90 : 6
Vibration, sine	g : Hz	10 : 20-2000
Vibration, random	g^2/Hz : Hz	0,09 : 20-2000
Operating temperature range (OTR)	ºC	-30 to +70
Storage temperature range	ºC	-40 to +75

[1] Also available in 750°/s version

[2] Calibrated at ±15 ±0.25V

Specifications subject to change without notice November 2021

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