ELECTRONICS & DEFENSE

STIM300

- Small size, low weight and low cost
- ITAR free
- Insensitive to magnetic fields
- 0.3 °/h gyro bias instability
- 0.15 °/√h angular random walk
- ±400 °/s angular rate input range
- 10 °/h gyro bias error over temperature gradients
- 0.04 mg accelerometer bias instability
- ±10 g acceleration input range (optional ranges available)
- 3 inclinometers for accurate levelling
- Auxiliary input



(39 mm x 45 mm x 22 mm)

STIM300 is a high performance and rugged Inertial Measurement Unit (IMU) comprised of 3 highly accurate MEMS gyros, 3 high stability accelerometers and 3 inclinometers. The IMU is factory calibrated and compensated for temperature effects over the full temperature operating range.

The STIM300 is based upon Sensonor's proven gyro sensor technology in production for more than two decades. It performs exceptionally well across many applications due to its very low vibration and shock sensitivity. The IMU is gualified according to high-performance aircraft vibration standard.

Range and features

STIM300 full-scale angular rate input range is ± 400 °/s and the output is capped at ± 480 °/s. Standard acceleration input range is ± 10 g. Axis misalignment of as little as 1 mrad is achieved by electronic axis alignment. STIM300 requires a single 5 V power supply and has a digital serial RS422 interface.

STIM300 offers several user selectable output formats and sample rates for gyro and accelerometer data:

- Angular Rate
- Incremental Angle
- Average Angular Rate
- Integrated Angle
- Acceleration
- Integrated Velocity
- Incremental Velocity
- Average Acceleration

Device configurations and self-diagnostics

A reliable RISC ARM microcontroller enables easy device configuration and programming. The user can set output unit format, sample frequency and datagram content, LP filter cut-off frequency, RS422 transmission bit rate and line termination.

STIM300 is continuously monitoring its internal status and track more than 100 parameters that the user can access. This includes monitoring of:

- Internal references
- Sensors for error and overload
- Internal temperatures
- RAM and flash
- Supply voltage

Evaluation tools

STIM300 evaluation tools supporting PCI or USB connectivity are available. The evaluation tools offer easy access to measurement data and configuration of the IMU. It supports data sampling at alternative rates, graphical presentation, and data logging to file. The evaluation tools contain a RS422 interface for USB or PCI hardware setup, all necessary cabling, and PC software.

Application areas

The STIM300 IMU is well suited for stabilization, guidance and navigation applications in Industrial, Aerospace and Defence markets. The design is field proven in Military Land Navigators, Missile systems, Target acquisition systems, Airborne surveillance, DIRCM, Remote Weapon Systems, Launch vehicles and Satellites.

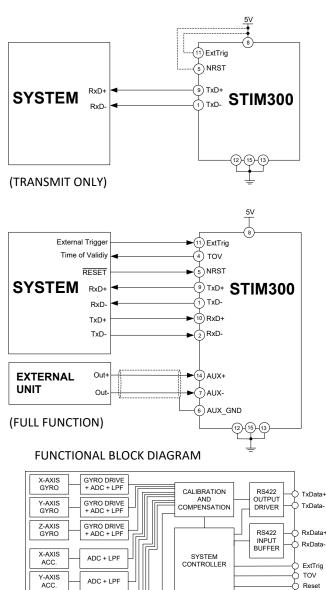
In many applications, STIM300 can competitively replace IMUs based on Fiber Optic Gyros (FOGs) and improve system performance with respect to robustness, reliability, size, weight, power and cost.

In many applications, STIM00 can competitively replace IMUs based on Fiber Optic Gyros (FOGs) and improve system performance with respect to robustness, reliability, size, weight, power and cost.



STIM300 Inertia Measurement Unit

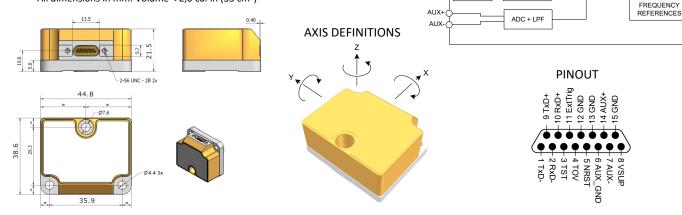
Parameter	Min	Nom	Max	Unit	
GENERAL					
Weight		55		g	
Operating temperature	-40		85	°C	
Supply voltage	4.5	5.0	5.5	V	
Power consumption		1.5	2	W	
Time to valid data		0.7	1	S	
Sample rate			2000	SPS	
Mechanical shock, any direction			1500	g	
RS422 transmission bit rate			5.18	Mbit/s	
Misalignment		1		mrad	
GYRO					
Input range		±400 ¹⁾		°/s	
Non-linearity (condition: ±200 °/s)		15		ppm	
Resolution		0.22		°/h	
Bias instability		0.3		°/h	
Angular random walk		0.15		°/√h	
Bias error over temperature gradients		±10 ²⁾		°/h rms	
Linear acceleration effect					
Bias (no g-compensation)		7		°/h/g	
Bias (with g-compensation)		1			
Scale factor (no g-compensation)		400		ppm/g	
Scale factor (with g-compensation)		50			
Scale factor accuracy		±500		ppm	
ACCELEROMETER					
Input range		±10 ³⁾		g	
Resolution		1.9		μg	
Bias instability		0.04		mg	
Velocity random walk		0.07		m/s/√h	
Bias error over temperature gradients		±2 ²⁾		mg rms	
Scale factor accuracy		±200		ppm	
INCLINOMETER					
Input range		±1.7		g	
Resolution		0.2		μg	
Scale factor accuracy		±500		ppm	



1) Optional ranges are available 2) Condition: $\Delta T \leq 1^{\circ}$ C/min 3) Optional ranges: ±5 g, ±30 g and ±80 g

MECHANICAL DIMENSIONS

All dimensions in mm. Volume < 2,0 cu. in (33 cm³)



Safran Sensing Technologies Norway AS

sales@sensonor.com

Z-AXIS ACC.

X-AXIS INCL.

Y-AXIS

INCL.

Z-AXIS

INCL

ADC + LPF

ADC + LPF

ADC + LPF

ADC + I PE

safran-sensing-technologies.com

SELF-DIAGNOSTICS

> POWER MANAGEMENT /

VOLTAGE AND

Information furnished by Safran is believed to be accurate and reliable. However, no responsibility is assumed by Safran for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Safran reserves the right to make changes without further notice to any products herein. Safran makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Safran assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consultant rights of Safran. Trademarks and registered trademarks are the property of their respective owners. Safran products are not intended for any application in which the failure of the Safran product cores subtaines, and registered trademarks are the property of their respective owners. Safran products are not intended for any application in which the failure of the Safran and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and reasonable legal fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Safran was negligent regarding the design or manufacture of the part.



. .)+5∨