

Static Orientation Sensor + GPS



The IG-30 is a high performance and miniature static orientation sensor. Especially designed for size and cost sensitive applications and based on the latest MEMS technologies, the IG-30 perfectly fits for a wide range of applications.

Two versions to meet your needs

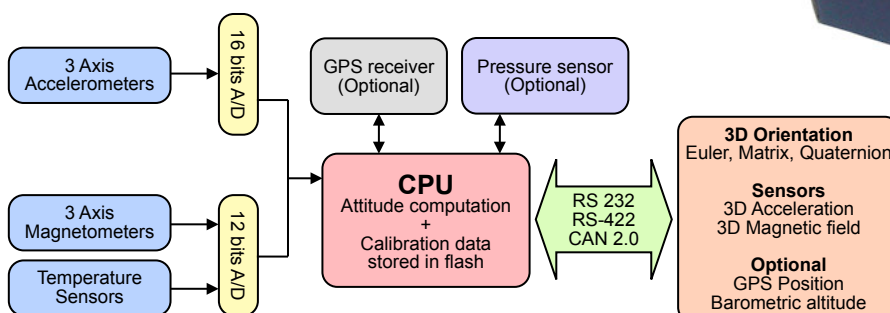
- The **IG-30A** is a static orientation sensor. It uses three accelerometers and three magnetometers, to compute a 3d orientation. The attitude computation is based on the earth gravity and the earth magnetic field and is thus accurate in quasi static conditions.
- The **IG-30G** combines in the same miniature package an IG-30A, a GPS receiver and a barometric altimeter. It provides precise orientation data in static conditions, as well as a GPS position and an accurate barometric altitude.

The IG-30 is ideal for advanced antenna tracking systems or precision compass for marine industry.

Easy and fast integration

SBG Systems has designed a powerful and easy to use Development Kit for this product. In just a few seconds, you can start evaluating and configuring your new device. Integrating the IG-30 in your application is even easier.

Simplified Block Diagram



Key Features

- Precise 3D orientation in quasi static conditions
- Calibrated over full temperature range -40 to 85°C for bias, gain, misalignments, cross-axis and gyro-g
- Advanced magnetometers calibration algorithms for both soft and hard iron effects
- Very compact and lightweight design (39 grams)
- Very low power design (<200 mW)
- Robust and high precision aluminum enclosure
- Available protocols RS-232, RS-422, CAN and USB
- High performance 4 Hz GPS receiver (IG-30G only)
- Accurate barometric sensor (IG-30G only)
- Completely compatible with IG-500 products
- Low cost

Fields of use

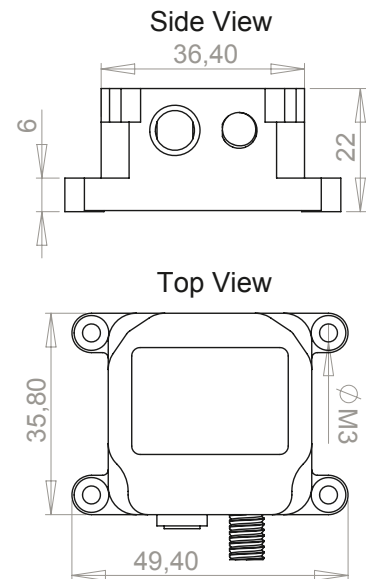
- Antenna tracking systems
- Digital 3d compass
- Unmanned vehicles
- Marine industry
- Biomechanics
- Augmented reality / Animation



Technical Specifications

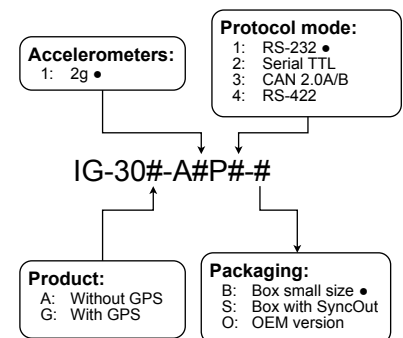
Parameter	Specification	Remarks	
Attitude			
Sensing range	360° in all axes		
Static accuracy	± 0.2° (Pitch, Roll) ± 0.5° (Heading)	Homogenous magnetic field	
Repeatability	< 0.1°		
Resolution	< 0.05°		
Output frequency	0 to 200 Hz 0 to 75 Hz	Calibrated sensors only Orientation mode	
Standard Sensors			
	Accelerometers	Magnetometers	
Measurement range	± 2 g	± 1.2 Gauss	Consult factory for other options
Non-linearity	< 0.2% of FS	< 0.2% of FS	
Bias Stability	± 2 mg	± 0.5 mGauss	Over temperature range
Noise density	0.01 g/√Hz	0.01 mG/√Hz	
Alignment error	< 0.1°	< 0.1°	
Bandwidth	0.1 to 100 Hz	0.1 to 50 Hz	User selectable
Sampling rate	1000 Hz	100 Hz	
GPS Receiver			
Receiver type	L1 frequency, C/A Code, 50-Channels, 4Hz	IG-30G only	
Position accuracy	2.0 meters 2.5 meters 5.0 meters	With SBAS support CEP (Horizontal accuracy) SEP (Vertical accuracy)	
Acquisition time	< 1.0 s / 29 s	Hot start / Cold start	
Sensitivity	-160 dB -160 dB -147 dB	Tracking Acquisition & Reacquisition Cold start	
Pressure Sensor			
Resolution	2.5 Pa	IG-30G only	
Pressure accuracy	± 50 Pa ± 150 Pa	Relative Absolute	
Long term stability	100 Pa	Over 12 months	
Update rate	100 Hz		
Communication			
Output modes	Euler angles, Quaternion, Matrix, Calibrated sensor data, Raw sensor data	Each output can be enabled or disabled by the user	
	GPS data, pressure, altitude	IG-30G only	
Interface options	Serial (RS-232, RS-422 or TTL 3.3V) CAN 2.0A/B up to 1 Mbit/s Usb using provided UsbToUart	RS-422 and CAN 2.0A/B are only available for OEM and S packages	
Serial data rate	9 600 to 230 400 bps	User selectable	
Physical			
Dimensions OEM	27x30x14 mm		
Dimensions Box	36x49x22 mm / 36x49x25 mm	B package / S package	
Weight OEM	5 grams / 8 grams	IG-30A / IG-30G	
Weight Box	39 grams / 45 grams	IG-30A / IG-30G	
Operating Temperature	-40 to 85°C	Non-condensing environment	
Storage Temperature	-40 to 85°C		
Shock Limit	1 000g (Powered), 5 000g (Unpowered)	Shocks can affect performance	
Enclosure	Robust and high precision aluminum		
Electrical			
Operating voltage	3.3 V to 30 V		
Power consumption	200 mW @ 5.0 V 400 mW @ 5.0 V	IG-30A, optimal consumption at 5.0 V IG-30G, optimal consumption at 5.0 V	
Start-up time	< 10 s	Optimal measurement	

Mechanical drawing for IG-30G



All dimensions are in millimeters

Product code options



• standard product options