Pulse-40
Inertial Measurement Unit

6 DOF IMU
TACTICAL GRADE
0.8°/h | 6µg

Excellent Performance in Harsh Conditions in the Smallest Package

No Export Restriction

2-year Warranty

STABILIZATION

- High bandwidth (500Hz)
- High data rate (2KHz)
- < 2ms motion to output latency
- Ultra low noise gyro (0.08°/√h)
- Best in class Vibration Error (VRE)
- Calibrated from-40 to 85°C

Stabilize your system with high quality, reliable miniaturized IMU

Pulse-40 is perfect for high frequency dynamics and highly vibrating environments. Its very low noise decreases impact over the control system. Our production processes and calibration ensures consistency and repeatable behavior.

NAVIGATION

- Reliable in all conditions
- Continuous Built-in-test (CBIT)
- External clock synchronization
- Excellent bias instability (0.8°/h)
- Shocks and vibrations qualified to MIL-STD 810G

Enhance your navigation system accuracy and resilience with tactical grade miniature IMU

Pulse-40 brings your navigation system to the tactical grade. Performance is guaranteed in all weathers and in high vibration conditions. Make your system more reliable and save weight, power, and budget for your core business.

SBG SYSTEMS

HIGH-END MEMS

Selection of the most reliable accelerometers & gyroscopes able to cope with SBG Systems' high quality requirements.

ROBUST ENCLOSURE

Aluminum enclosure ensures optimal performance in shocks or vibrating conditions, and maintains sensor alignment over time.

-40°C to 85°C

AUTOMATED CALIBRATION

2 axis table

Accelerometers & gyroscopes compensation

- Bias and scale factor over full temperature range
- Non-linearity
- Cross-axis and misalignments effect

Benefits

- Maximized IMU performance
- Minimized human error risks
- Highly scalable & repeatable process

SCREENING PROCESS

2 axis table

CALIBRATION VALIDATION → PASS / FAIL

ACCELERATED AGEING to check sensor drift

ACCEPTANCE TEST → PASS / FAIL

IMU which fail is scraped

DELIVERING HIGH QUALITY IMU

with its own digital calibration report

Calibration report available online with no extra fee!
2 years warranty in standard.

- ✓ Quality & Consistency
- ✓ Leaflet Performance Guaranteed
- ✓ Reliability in all Conditions

THIS IS HOW WE BUILD TRUST

Specifications

Preliminary

1-sigma errors over full temperature range [-40 to 85°C]

GYROSCOPES & ACCELEROMETERS

Parameter	Gyroscope	Accelerometer
Measurement range	± 490°/s, ± 2000°/s [4]	±40 g
Scale factor error [1]	1,500 ppm	300 ppm
Non-linearity error [1]	50 ppm of FS	50 ppm of FS
Random walk [2]	0.08°/√h	0.02 m/s/√h
Bias instability [2]	0.8°/h	6 µg
One-year bias repeatability [1]	250°/h	1,500 µg [3]
Orthogonality	0.02°	0.01 °
Bandwidth	480 Hz	480 Hz
Vibration Rectification Error (VRE)	0.2°/h/g²	0.03 mg/g²

[1] Error measured over a one year accelerated ageing process.
[2] Allan variance method.
[3] Bias > 1,250 µg to comply with export regulation.
[4] 2000°/s version is export controlled. Contact us for more information.

MECHANICAL & ENVIRONMENTAL

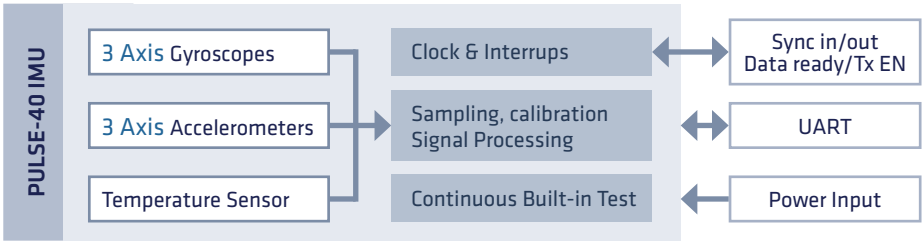
Mechanical dimensions	30 × 28 x 13.3 mm
Weight	12 g
Operating Temperature range	-40 to 85°C
Non operating Temperature range	-40 to 85°C
EMC	EN 55032:2015, EN 61000-4-3, EN 61000-6-1, EN 55024
Operating Vibrations	10 g RMS [20 - 2 kHz] MIL-STD-810G
MTBF (computed)	50,000 hours

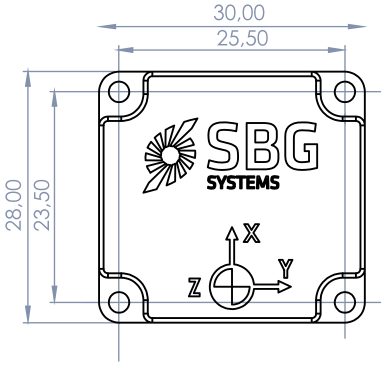
ELECTRICAL

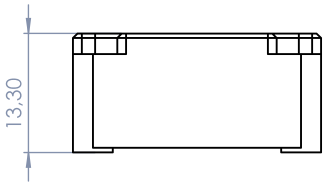
Input Voltage	[3.3 ; 5.5] V
Power consumption	Typical @5V 0.3W

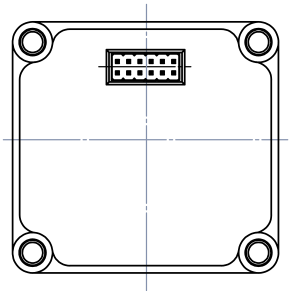
COMMUNICATION

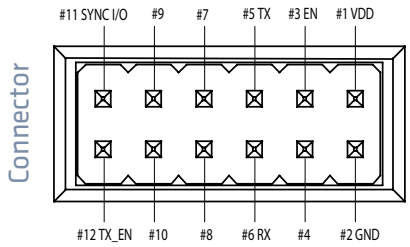
Output baud rate	Up to 4M bps
Output data rate	Up to 2kHz
Digital serial Interface	UART (LVTTL)





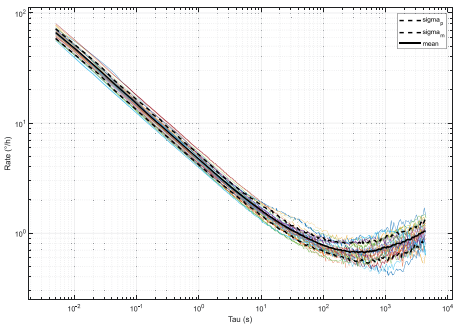




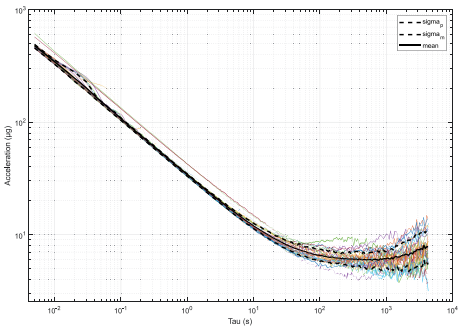


All values are in mm.

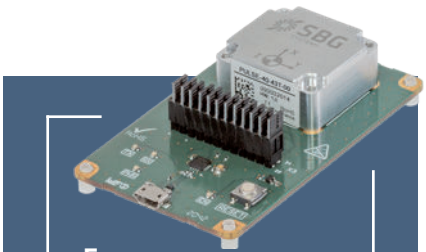
SENSORS SPECIFICATION – ALLAN VARIANCE



Gyroscopes



Accelerometers



Easy to evaluate

The Pulse-40 Starter Kit contains all accessories to start working in minutes!

Preliminary version. All specifications subject to change without notice.

SBG SYSTEMS

SBG Systems is a leading supplier of inertial motion sensing solutions since 2007. The company provides a wide range of inertial solutions from miniature to high accuracy. Combined with cutting-edge calibration techniques and advanced embedded algorithms, SBG Systems products are ideal solutions for industrial & research projects such as unmanned vehicle control, surveying applications, antenna tracking, and camera stabilization. **Committed to highest quality standards, SBG Systems is an ISO 9001:2015 certified company.**

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