OSCP

MK2Z

Prototype IMU with an optical Z-axis gyroscope

An 11-DoF IMU that pairs an optical gyroscope on the heading (Z) axis with three MEMS gyro axes, three accelerometer axes, a three-axis TMR magnetometer and a two-axis inclinometer. Figures come from an initial batch of prototype units; confirm the current revision before design-in.



0.02 °/hr	0.01 °/√hr	±600 °/s	500 Hz	4.5 W	475 g
OPTICAL Z BIAS, TYPICAL	OPTICAL Z ANGLE RANDOM WALK	OPTICAL Z DYNAMIC RANGE	MAXIMUM OUTPUT RATE	POWER, TYPICAL	MASS

Sensors Per sensor	**Optical gyroscope** Z axis	**MEMS gyroscopes** 3 axes	**Accelerometers** 3 axes • MEMS	**Magnetometer** 3 axes • TMR	**Inclinometer** 2 axes • MEMS
Range	±600 °/s	±125 to ±4000 °/s, factory set	±2 to ±16 g, factory set	±20 G	±0.5 to ±3 g, selectable
In-run bias stability	0.02 °/hr typ. (0.01 min.)	<1.0 °/hr typ. (0.5 min.)	15 µg typ.	–	–
Bias repeatability	0.06 °/hr warm, 0.1 °/hr cold	–	–	–	–
Noise	0.0002 °/s/√Hz	0.001 °/s/√Hz	16 µg/√Hz typ.	1.9 mG RMS typ.	–
Random walk	0.009 to 0.01 °/√hr	0.06 °/√hr	0.008 m/s/√hr	–	–

INTERFACE AND ELECTRICAL

Host interface	RS-422 or CAN-FD variant
RS-422 link	921,600 baud, 8N1
CAN-FD link	1 Mbit/s arbitration and data
Output data rate	0, 100 or 500 Hz, selectable
Power-on time	500 ms
Supply voltage	12 to 34 VDC
Power consumption	4.5 W typical • 7.5 W max

ENVIRONMENT AND MECHANICAL

Operating temperature	–40 to +70 °C
Ingress protection	IP67, certification in progress
Environmental tests	EMC and shock certification not yet completed
Dimensions, body	83 × 86.5 × 65 mm
With mounting base	90 × 90 × 65 mm
Mounting • mass	Through-holes in the base • 475 g

APPLICATIONS

- Long-range UAVs
- Heavy machinery
- Marine and subsea
- Surveying and mapping
- Agriculture and construction
- Aerospace
- Space
- Defence and security
- Condition monitoring

CONNECTOR · 8-PIN

1	RS-422 RX–	5	Reset, active high (may float)
2	RS-422 RX+	6	RS-422 TX+ / CAN-FD P
3	Power ground	7	RS-422 TX– / CAN-FD N
4	Power, 12–34 V	8	Isolated ground (bus)

Tensility 54-00251 • mating 50-00983 • cable 10-03817 • max +34 VDC

INTEGRATION

C library • oscp-imu-c | Rust crate • oscp-imu | ROS 2 driver | ArduPilot driver | PX4 driver

Indicative values at +25 °C from an initial batch of prototype units; subject to change. Full limits and test conditions on request.
info@oscp.com • Documentation: **docs.oscp.com/IMU/MK2Z/overview** • Datasheet DS-Z • R2.

OSCPS Motion Sensing Inc.
Montréal, Quebec • oscp.com