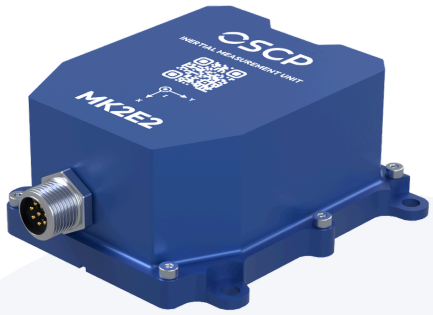
OSCP

MK2E2

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. It supplies raw motion data to your host navigation system.



<1.0 °/hr	**0.03** °/√hr	**±250** °/s	**500** Hz	**2** W	**230** g
OPTICAL Z BIAS, TYPICAL	OPTICAL Z ANGLE RANDOM WALK	OPTICAL Z DYNAMIC RANGE	MAXIMUM OUTPUT RATE	POWER CONSUMPTION	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	±250 °/s	±125 to ±4000 °/s	±2 to ±16 g	±20 G	±0.5 to ±3 g
In-run bias stability	<1.0 °/hr typ. (0.5 min.)	<1.0 °/hr typ. (0.5 min.)	15 µg typ.	–	–
Noise	0.0007 °/s/√Hz	0.001 °/s/√Hz	15 µg/√Hz	1.9 mG RMS typ.	–
Random walk	0.03 °/√hr	0.06 °/√hr	0.008 m/s/√hr	–	–
Z-axis output	Optical below 250 °/s, MEMS above, automatic		–	–	–

INTERFACE AND OPERATING CONDITIONS

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
Supply voltage	12 to 34 VDC
Power consumption	2 W
Operating temperature	–40 to +85 °C

ENVIRONMENT AND MECHANICAL

Ingress protection	IP57 (IP67 in certification)
Vibration, unpowered	Sine 20–2000 Hz, up to 8 g peak, 3 axes
Shock, unpowered	Half-sine, up to 40 g peak, 11 ms, 3 axes
EMC emissions	EN 55032 Class A, FCC Part 15, ICES-003
EMC immunity	EN 55035 / CISPR 35
Dimensions, body	78 × 63 × 36 mm
With mounting base	78 × 80 × 36 mm
Mounting • mass	M4 holes • 230 g

APPLICATIONS

- Drones and UAVs
- Autonomous vehicles
- Heavy machinery
- Agriculture and construction
- Mining and tunnels
- Marine navigation
- Aerospace
- 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

Typical values at +25 °C unless stated; preliminary and subject to change. Full limits and test conditions on request.
info@oscp.com • Documentation: **docs.oscp.com/IMU/MK2E2/overview** • Datasheet DS-E2 • R2.

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