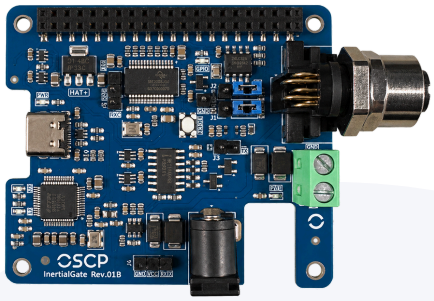
OSCP

# InertialGate

## IMU evaluation and interface board

Connect an OSCP MK2 IMU to a computer, a Raspberry Pi or your own host without building an interface first. Works with the RS-422 and CAN-FD variants of the MK2 family; on CAN-FD units it acts as a CAN-FD-to-SPI bridge.




| RS-422 / CAN-FD | USB-C | HAT+ | 5 V | 12–34 V | 57 × 66 mm |
|---|---|---|---|---|---|
| IMU VARIANTS SUPPORTED | VIRTUAL COM PORT, RS-422 UNITS | RASPBERRY PI COMPATIBLE | BOARD SUPPLY | IMU SUPPLY | BOARD SIZE |

| **Data paths**<br>By IMU variant | **RS-422 IMU variant**<br>Board translates RS-422 to UART | **CAN-FD IMU variant**<br>Board acts as a CAN-FD-to-SPI bridge |
|---|---|---|
| Jumpers J1 / J2 | Right position (RS422) | Left position (CAN) |
| USB-C | Virtual COM port, FTDI FT232HL | Power only, no data |
| Raspberry Pi | UART0, /dev/ttyAMA0 (dtoverlay uart0) | SPI0 CE0, mcp251xfd overlay, 20 MHz SPI |
| Custom host | J4 header: TX, RX, GND | CAN bus on the J1 / J2 centre pins (CANH, CANL) |
| Link settings | 921,600 baud, 8N1 (IMU setting) | 1 Mbit/s arbitration and data |
| Bus termination | – | On board, active with J1 / J2 installed |

## POWER

| | |
|---|---|
| Board supply | +5 V via USB-C, 40-pin header or Raspberry Pi |
| IMU supply | +12 to +34 V, barrel jack or screw terminal |
| Barrel jack | 5.5 × 2.1 mm, centre positive |
| Indicators | PWR, IMU PWR, RX / TX LEDs |

## BOARD AND MECHANICAL

| | |
|---|---|
| Raspberry Pi | HAT+ compliant, EEPROM identification |
| Reset | RST button, wired to the IMU reset pin |
| Size • mounting | 57 × 66 mm • M3 holes |
| Enclosure | 3D-printed ABS, clip-retained, removable |

## APPLICATIONS

- IMU evaluation on a PC
- Raspberry Pi integration
- CAN-FD networks
- Custom hosts via headers
- Bench and lab testing
- OEM board integration

## COMPATIBLE IMUS



**MK2M2**
MEMS inertial measurement unit



**MK2E2**
IMU with an optical Z-axis gyroscope



**MK2Z**
Prototype IMU with an optical Z-axis gyroscope



**MK2Z-3**
In development • optical gyroscopes on up to three axes

## GETTING STARTED

1. **Set the protocol.** Jumpers J1 and J2 to RS422 or CAN, matching your IMU.
2. **Power both.** +5 V to the board; +12 to +34 V to the IMU.
3. **Read data.** USB-C, Raspberry Pi or headers, as in Data paths.

Caution: no USB-C power while stacked on a Pi; one IMU power input at a time.

## INTEGRATION

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



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