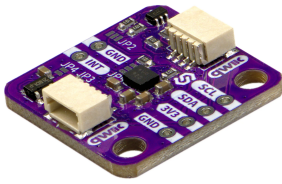


PRODUCT DATASHEET



Soldered BHI385 Smart IMU Breakout

333375

The BHI385 Smart IMU Breakout features a 6-axis IMU with advanced sensor fusion, providing 3D orientation and gesture recognition.

Full product documentation, files and tutorials: solde.red/333375

CORE ATTRIBUTES

SKU 333375

WEIGHT 20 g

BARCODE 732388641604

DESCRIPTION

BHI385 Smart IMU Breakout is built around Bosch Sensortec's **BHI385**, a 6-axis IMU with a 3-axis accelerometer and 3-axis gyroscope, plus an onboard 32-bit ARC EM4 processor running Bosch's BSX sensor fusion firmware. Instead of raw accelerometer and gyroscope samples, the chip outputs virtual sensors directly: **3D orientation**, step count, tap detection, and wrist gesture recognition, without putting any of that processing load on the host microcontroller. A Soldered Arduino library is available to read these outputs directly.

The board runs from a **3.3V supply**. An onboard LDO regulates that down to the 1.8V the BHI385 needs, and an onboard I2C level shifter handles the translation between the 3.3V logic side and the chip's 1.8V domain, so no external components are required. It communicates over **I2C** at up to 400 kHz, with a default address of 0x29; to switch to 0x28, remove the solder bridge on JP5 from the 0x29 pad and resolder it onto the 0x28 pad.

The accelerometer covers ± 4 to ± 32 g and the gyroscope covers ± 125 to ± 2000 dps, both software-selectable. Current draw is about 5 μ A in sleep mode, 200 μ A with only the accelerometer running, and 1.4 mA with the accelerometer and gyroscope both active. The board measures 23 × 23 mm, with two mounting holes sized for M3 screws.

TECHNICAL DETAILS

- **IC:** Bosch BHI385
- **Sensors:** 3-axis accelerometer, 3-axis gyroscope
- **Measurement range:** Accelerometer $\pm 4/\pm 8/\pm 16/\pm 32$ g, Gyroscope $\pm 125/\pm 250/\pm 500/\pm 1000/\pm 2000$ dps
- **Onboard processor:** 32-bit ARC EM4 (Fuser2), runs Bosch BSX sensor fusion
- **Communication:** I2C, up to 400 kHz
- **I2C address:** 0x29 (default), 0x28 via JP5 jumper
- **Operating voltage:** 3.3V (onboard LDO regulates to 1.8V for the chip)

- **Current consumption:** ~5 μ A sleep, ~200 μ A accelerometer only, ~1.4 mA accelerometer + gyroscope
- **Connector:** 2x Qwiic (formerly qwiic)
- **Dimensions:** 23 × 23 mm / 0.9 × 0.9 inch

SPECIFICATIONS

INTERFACE	I2C
QWIIC COMPATIBLE	Yes
I2C ADDRESS DEFAULT	0x29
I2C ADDRESS CHANGEABLE	Yes
BREADBOARD COMPATIBLE	Yes
MEASUREMENT TYPES	Acceleration, Angular Velocity, Gesture
IC PART NUMBER	BHI385
SUPPLY VOLTAGE MIN V	3.3
SUPPLY VOLTAGE MAX V	3.3
LOGIC LEVEL	3V3 Only
OPERATING CURRENT (mA)	1.4 mA
SLEEP CURRENT μ A	5

LINKS

Arduino Library Documentation	https://docs.soldered.com/bhi-385-smart-imu-breakout/arduino/initialization/
Arduino: Get Started	https://docs.soldered.com/bhi-385-smart-imu-breakout/arduino/getting-started/
Full Documentation	https://docs.soldered.com/bhi-385-smart-imu-breakout/overview/
Arduino Library	https://github.com/SolderedElectronics/Soldered-BHI385-Arduino-Library

GALLERY

