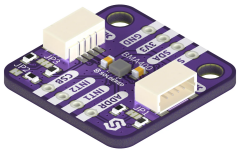
PRODUCT DATASHEET



Soldered Ultra-Low-Power Accelerometer BMA400 Breakout

333419

A 3-axis BMA400 accelerometer on a Qwiic breakout. It measures ±2 g to ±16 g and draws 160 nA in sleep mode.

Full product documentation, files and tutorials: **solde.red/333419**

CORE ATTRIBUTES

SKU	**333419**
DIMENSIONS	**22.0 × 22.0 × — mm**
ORIGIN	**HR**
BARCODE	**732388629701**

DESCRIPTION

The Ultra-Low-Power Accelerometer BMA400 Breakout carries the Bosch BMA400, a 12-bit 3-axis accelerometer made for battery-powered devices. Besides raw acceleration, the chip counts steps, detects taps, orientation and activity changes, and buffers samples in a 1 KB FIFO, so your microcontroller can sleep until an interrupt wakes it.

You pick a range of **±2 g, ±4 g, ±8 g or ±16 g** and an output data rate from **12.5 Hz to 800 Hz** in normal mode. The BMA400 draws **14.5 µA** in normal mode at its highest performance setting, **850 nA** in low-power mode at 25 Hz and **160 nA** in sleep mode (datasheet values at 1.8 V and 25 °C).

The board talks I2C at address **0x14**, or **0x15** when you change the ADDRESS jumper or pull the ADDRESS pin high. Two Qwiic connectors let you chain it with other boards, and two 4-pin 2.54 mm headers break out GND, 3V3, SDA, SCL, ADDRESS, INT1, INT2 and CSB. The 10 kΩ pull-ups on SDA and SCL can be disconnected with a jumper. Soldered provides an Arduino library and a MicroPython library with examples for readings, motion detection and step counting.

TECHNICAL DETAILS

- **Sensor:** Bosch BMA400, 12-bit, 3-axis
- **Range:** ±2 g, ±4 g, ±8 g, ±16 g
- **Output data rate:** 12.5 to 800 Hz (normal mode), 25 Hz (low-power mode)
- **Sensitivity:** 1024 LSB/g at ±2 g
- **Zero-g offset:** 50 mg typical
- **Noise density:** 180 µg/√Hz (X, Y), 240 µg/√Hz (Z), normal mode, OSR=3

- **Current (datasheet, 1.8 V, 25 °C):** 14.5 µA normal mode (OSR=3), 850 nA low-power mode (25 Hz), 160 nA sleep mode
- **Operating temperature:** -40 to +85 °C
- **Interface:** I2C, address 0x14 (default) or 0x15; INT1 and INT2 interrupt pins
- **Supply:** 1.72 to 3.6 V on the 3V3 pin
- **Connectors:** 2x Qwiic, 2× 4-pin 2.54 mm header (unsoldered)
- **I2C pull-ups:** 10 kΩ on SDA and SCL, disconnectable with a jumper
- **Mounting holes:** 2× 3.2 mm
- **Dimensions:** 22 × 22 mm

SPECIFICATIONS

INTERFACE	I2C, Digital Gpio
QWIIC COMPATIBLE	Yes
I2C ADDRESS DEFAULT	0x14
I2C ADDRESS CHANGEABLE	Yes
BREADBOARD COMPATIBLE	Yes
MEASUREMENT TYPES	Acceleration
MEASUREMENT RANGE	±2 g, ±4 g, ±8 g, ±16 g (selectable); ODR 12.5 to 800 Hz in normal mode, 25 Hz in low-power mode
MEASUREMENT ACCURACY	Zero-g offset 50 mg typ.; sensitivity 1024 LSB/g at ±2 g; noise density 180 µg/√Hz (X, Y), 240 µg/√Hz (Z), normal mode OSR=3, 25 °C
IC PART NUMBER	BMA400
SUPPLY VOLTAGE MIN V	1.72
SUPPLY VOLTAGE MAX V	3.6
LOGIC LEVEL	3V3 Only
OPERATING CURRENT (MA)	0.0145 mA
SLEEP CURRENT UA	0.16

DOCUMENTS

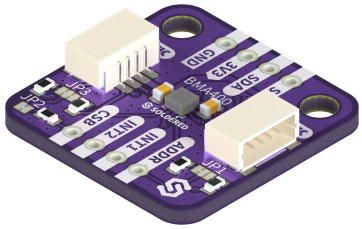
Main IC Datasheet · EN	https://cms.soldered.com/products/333419/documents/ic-datasheet/333419_ic-datasheet_00a3f0.pdf

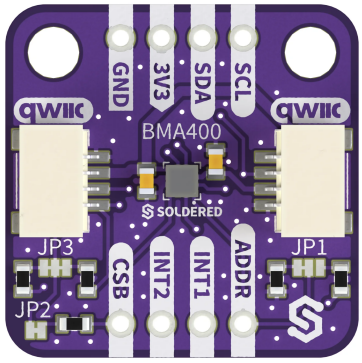
LINKS

Arduino Library	https://github.com/SolderedElectronics/Soldered-BMA400-Arduino-Library
Full Documentation	https://docs2.soldered.com/soldered-ultra-low-power-accelerometer-bma400-breakout/

MicroPython Module	https://github.com/SolderedElectronics/Soldered-BMA400-MicroPython-Library
mim_package	https://checkmim.com/packages/solderedelectronics+Soldered-BMA400-MicroPython-Library
Pinout	https://cms.soldered.com/products/333419/media/333419_pinout-png_9b72df.png

GALLERY




GND
3V3
SDA
SCL
qwiic
qwiic
BMA400
SOLDERED
JP3
JP1
JP2
CSB
INT2
INT1
ADDR