

ICP



ICP-10111 Barometric Pressure Sensor

v1.0
2025-07-15
Rev. A

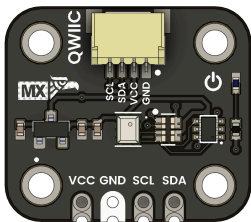
Compact and efficient sensor designed for high-accuracy atmospheric pressure measurements

PRODUCT OVERVIEW

The ICP-10111 Barometric Pressure Sensor Module is a compact and efficient sensor designed for high-accuracy atmospheric pressure measurements with low power consumption. Based on MEMS capacitive technology, this module offers ultra-low noise performance, exceptional relative accuracy, and stable sensor throughput. Ideal for weather monitoring, altitude measurement, and environmental sensing, it delivers industry-leading precision in demanding applications.

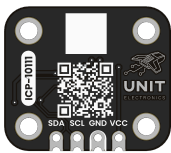
PRODUCT VIEWS

TOP VIEW



Component placement and connectors

BOTTOM VIEW



Underside components and connections

KEY TECHNICAL SPECIFICATIONS

POWER SUPPLY

Supply 3.3 V–5.5 V (module), 1.8 V (sensor core)
Voltage:
Supply Current:
Low Power (10 Hz): **1.3 μ A**

CONNECTIVITY

Interfaces: up to 400 kHz, 7-bit address 0x63
Connector: **Qwiic + Pin Headers**

PIN CONFIGURATION

PIN	VOLTAGE LEVEL	FUNCTION
VCC	3.3 V – 5.5 V	Provides power to the on-board regulator and sensor core.
GND	0 V	Common reference for power and signals.
SDA	1.8 V to VCC	Serial data line for I²C communications.
SCL	1.8 V to VCC	Serial clock line for I²C communications.

COMMUNICATION INTERFACES

INTERFACE	SIGNALS / PINS	TYPICAL USE
UART	—	Not supported
I²C	SDA, SCL, VCC, GND (via Qwiic/STEMMA QT™)	Main digital interface for pressure & temperature
SPI	—	Not supported

TECHNICAL FEATURES

Board Dimensions 20.32 mm × 17.78 mm	Mounting Holes 4 × Ø 2.2 mm
High-stability MEMS capacitive pressure sensor with low drift	Integrated temperature sensor for on-board compensation
Ultra-low-noise ΔΣ ADC with 24-bit resolution	Three user-selectable power/noise modes for optimized current usage
Qwiic/STEMMA QT connector for solder-free I²C daisy-chaining	On-board level shifting and 1.8 V core regulator
Wide operating range –40 °C to +85 °C, 30 kPa to 110 kPa	

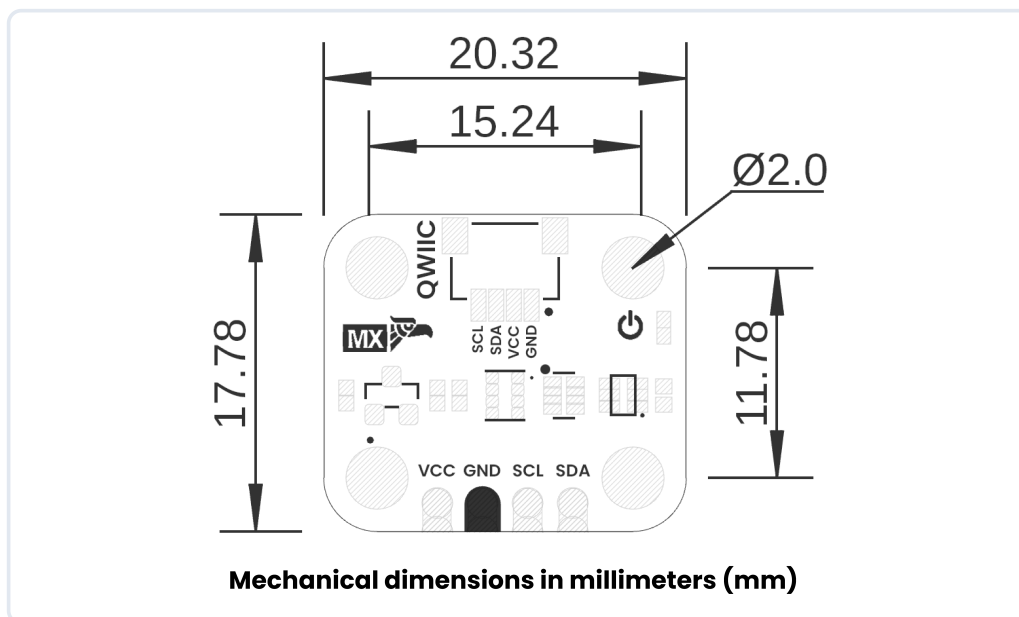
TYPICAL APPLICATIONS

Weather Stations & Barographs	Track atmospheric pressure trends.	Altimeters & UAVs
Estimate real-time altitude changes.	Indoor/Outdoor Navigation	Enhance GPS accuracy with pressure-based elevation.
Wearables & IoT	Monitor environmental conditions in low-power devices.	Climatology & Research
High-resolution pressure mapping for science projects.	Weather Forecasting	

VISUAL DOCUMENTATION

PRIMARY TECHNICAL DOCUMENTATION

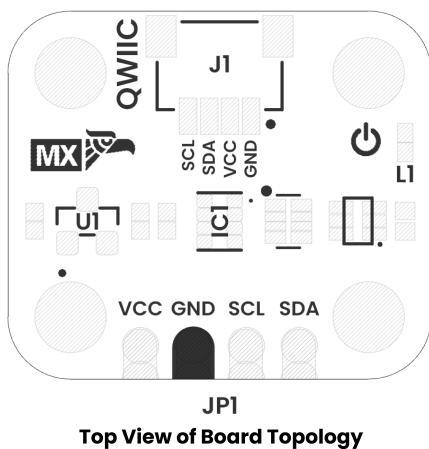
MECHANICAL DIMENSIONS



Physical dimensions and mounting specifications (measurements in millimeters)

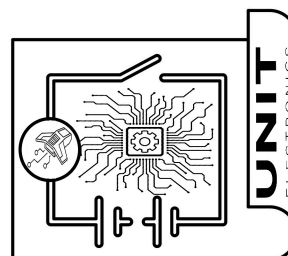
SUPPLEMENTARY TECHNICAL DOCUMENTATION

SYSTEM TOPOLOGY



Connection topology and system integration

CIRCUIT SCHEMATIC



Detailed circuit schematic diagram

USAGE

- Arduino IDE
- Install SparkFun_ICP10111 library via Library Manager
- Include and in your sketch
- PlatformIO
- Add sparkfun/sparkfun-icp10111@^1.0.0 to lib_deps in platformio.ini
- Raspberry Pi (Linux/C or Python)
- Use the I²C-1 bus (/dev/i2c-1) with smbus2 (Python) or i2c-dev (C)
- CircuitPython / MicroPython

- Install adafruit_icp10111 from the Adafruit bundle
- Use busio.I2C or I2C() to communicate over SDA/SCL

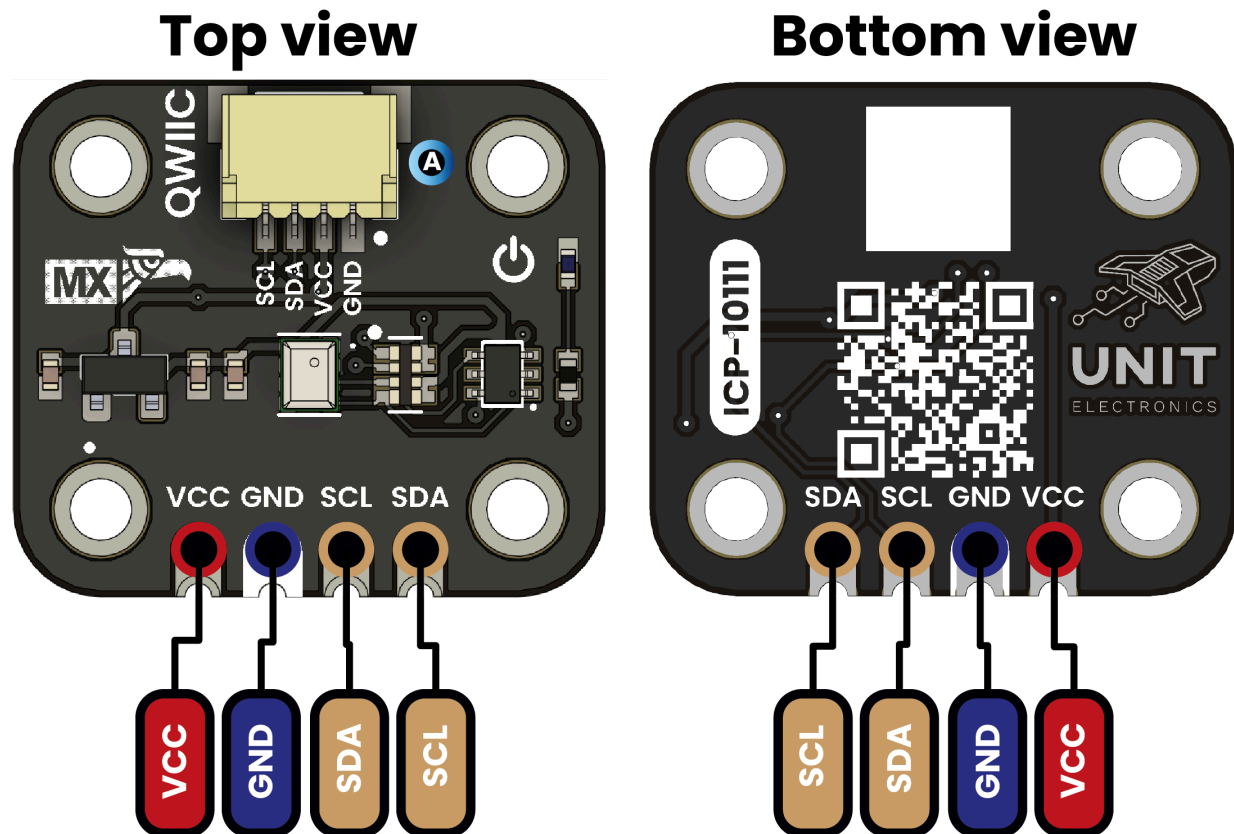
DOWNLOADS

- [Schematic PDF](#)
- [Board Dimensions DXF](#)
- [Pinout Diagram PNG](#)

PIN CONFIGURATION & LAYOUT

Detailed pin assignment and connector layout

PINOUT



Description:

 Supply voltage

 GND

 I2C

 **QWIC**[®]

Complete pin configuration diagram showing all connectors, pin assignments, and electrical connections for proper integration

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Professional Technical Datasheet

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For commercial distribution