SparkFun High Precision Temperature Sensor - TMP117 (Qwiic)

SEN-15805

The SparkFun Qwiic TMP117 breakout is a high precision temperature sensor equipped with an I²C interface. It outputs temperature readings with high precision of ±0.1°C across the temperature range of -20°C to +50°Cs with no calibration and a maximum range from -55°C to 150°C. The SparkFun High Precision Temperature Sensor also has a very low power consumption rate which minimizes the impact of self-heating on measurement accuracy. Utilizing our handy Qwiic system, no soldering is required to connect it to the rest of your system. However, we still have broken out 0.1"-spaced pins in case you prefer to use a breadboard.

The SparkFun High Precision Temperature Sensor also includes programmable temperature limits, and digital offset for system correction. While the TMP102 is capable of reading temperatures to a resolution of 0.0625°C and is accurate up to 0.5°C, the on-board TMP117 is not only more precise but has a 16-bit resolution of 0.0078°C!

To make this breakout even easier to use, we've written an Arduino library to help you get started "Qwiic-ly." Check the *Documents* tab above for more information.

The SparkFun Qwiic Connect System is an ecosystem of I²C sensors, actuators, shields and cables that make prototyping faster and less prone to error. All Qwiic-enabled boards use a common 1mm pitch, 4-pin JST connector. This reduces the amount of required PCB space, and polarized connections mean you can't hook it up wrong.

- Uses I²C interface (Qwiic-enabled)
- Four selectable addresses
  - **0x48 (default)**, 0x49, 0x4A, 0x4B
- 16-bit resolution, 0.0078°C
- High accuracy, digital temperature sensor
  - ±0.1°C (max) from –20°C to 50°C
  - ±0.15°C (max) from –40°C to 70°C
  - ±0.2°C (max) from –40°C to 100°C
  - ±0.25°C (max) from –55°C to 125°C
  - ±0.3°C (max) from –55°C to 150°C
- Operating temperature range
  - -55°C to +150°C
- Operating voltage range
  - 1.8V to 5.5V
  - Typically **3.3V** if using the Qwiic cable
- Low power consumption
  - 3.5µA (1-Hz conversion cycle)
  - 150nA (shutdown current)
- Programmable operating modes
  - Continuous, one-shot, and shutdown
- Programmable temperature alert limits
- Selectable averaging for reduced noise
- Digital offset for system correction
- NIST traceability

https://www.sparkfun.com/products/15805/12-3-19