

## GPS Breakout Ublox SAM-M8Q (Qwiic)

SPX-15106 ROHS

Ublox makes some incredibly sophisticated GPS receivers like the NEO-M8P. The SAM-M8Q is just as high quality, with equally impressive configurability, with a much lower price point. We broke out the basic pins and added all the supporting circuitry to make it even easier to use.

The M8Q is a GNSS receiver meaning it can receive signals from the GPS, GLONASS, Galileo and constellations. This increases precision and decreases lock time. And thanks to the onboard rechargeable RTC battery you'll have a GPS lock within seconds! Additionally, this Ublox receiver supports I2C (Ublox calls this Display Data Channel) so you can use the SparkFun Ublox Arduino Library to connect to this device over Qwiic and leave your serial port open! No more using Software Serial for GPS parsing!

Why buy this product over our Qwiic Titan X1 based product? Ublox based GPS products are configurable using the popular, but dense, windows program called u-center. All sorts of things can be configured on the M8Q: baud rates, update rate, geofencing, spoofing detection, external interrupts, SBAS/D-GPS, etc. The SAM-M8Q has a huge number of features whereas the Titan X1

has many similar features but without the easy-to-use software that u-center provides. Don't worry, we've got a tutorial showing how to get started with Ublox u-center.

The Qwiic Breakout for the SAM-M8Q has two Qwiic connectors for easy I2C access and the omnipresent 'FTDI' style connector for any USB to Serial connection (we recommend the Serial Basic). You'll want the USB to serial connection for configuring the module. We recommend using I2C to receive the NMEA sentences but you can also use the RX pin to receive standard NMEA sentences at 9600bps.

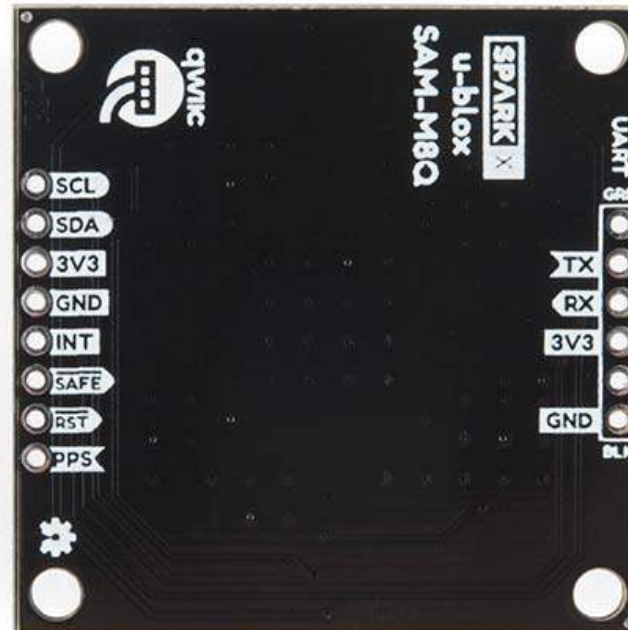
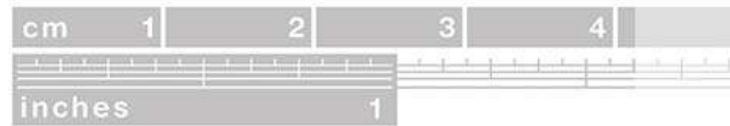
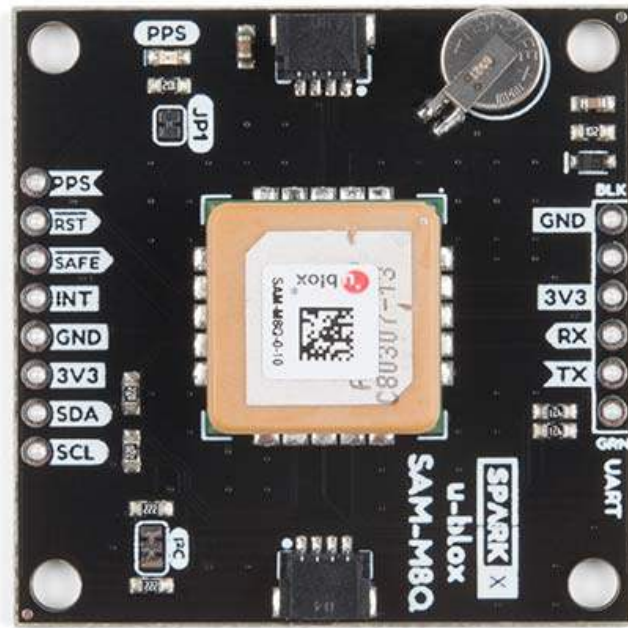
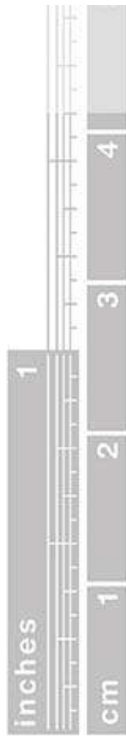
The onboard rechargeable battery provides power to the RTC on the SAM-M8Q. This reduces the time-to-first fix from a cold start (~30s) to a warm start (~5 seconds or faster). The battery will maintain RTC and GNSS orbit data without being connected to power for up to two weeks.

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We do not plan to regularly produce SparkX products so get them while they're hot!

## FEATURES

- 72-Channel GNSS Receiver
- 2.5m Horizontal Accuracy
- 18Hz Max Update Rate
- Time-To-First-Fix:
  - Cold: 26s
  - Hot: 1s
- Max Altitude: 50,000m
- Max G:  $\leq 4$
- Max Velocity: 500m/s
- Velocity Accuracy: 0.05m/s
- Heading Accuracy: 0.3 degrees
- Time Pulse Accuracy: 30ns
- 3.3V VCC and I/O
  - Current Consumption: ~29mA Tracking GPS+GLONASS
- Software Configurable
  - Geofencing
  - Odometer
  - Spoofing Detection
  - External Interrupt
  - Pin Control
  - Low Power Mode
  - Many others!
- Supports NMEA, UBX, and RTCM protocols over UART or I2C interfaces



<https://www.sparkfun.com/products/15106/12-4-18>