Arduino MKR GPS Shield



Overview

If you are experimenting with monitoring fleets, high-altitude scientific experiments, or any kind of project requiring localization of devices, the MKR GPS Shield will offer you the functionality you need, and it is plug 'n' play!

The MKR GPS Shield is based on the u-blox SAM-M8Q GNSS (Global Navigation Satellite System) module. It is meant to be used on top of boards in the MKR format, but thanks to its Eslov connector, it is also possible to hook it up to any board having that kind of connector available using a cable.

This module is designed to operate with different positioning services concurrently. It receives and processes the signals from GPS, GLONASS, and Galileo. It interfaces with Arduino boards either through a serial interface, when used with headers and put on top of a MKR board, or through an I2C interface and a dedicated ESLOV cable supplied as bundle.

Configuration Commands and Backup

The GPS module can be configured via special commands. We have included an on-board battery holder for the system to keep the configurations made via software. This can be convenient when e.g. changing the operation mode of the GPS to 1g, something common in high altitude experiments, where specific settings away from the default ones are needed for the device.

Another example is the use of Galileo's localization option, which is disabled by default, but can be enabled by sending a configuration message (UBXCFG-GNSS) to the receiver. You can find a detailed description of all of the commands in the protocol here.

Getting Started

Our Arduino_MKRGPS library handles the two different interfaces and offer a consistent set of APIs designed for a full usage of the GPS acquired information

Tech specs

GNSS RECEIVER	u-blox module SAM-M8Q (datasheet)
CONNECTORS	MKR headers / Eslov
INPUT VOLTAGE	3.3V
OPERATING VOLTAGE	3.3V
BACKUP BATTERY	CR1216
COMMUNICATION	Serial / I2C / DCC
LENGTH	45mm
WIDTH	25mm
WEIGHT	14g

Additional I2C Port

The MKR GPS Shield has an additional connector meant as an extension of the I2C bus. It's a small form factor 5-pin connector with 1.0 mm pitch. The mechanical details of the connector can be found in the connector's datasheet.

The I2C port, also referred to as the Eslov self-identification port within Arduino, comes with: SDA, SCL, GND, +5V, and an extra digital pin meant to send an alarm to the otherwise plain I2C devices connected to it. The pinout is shown in the following image:

