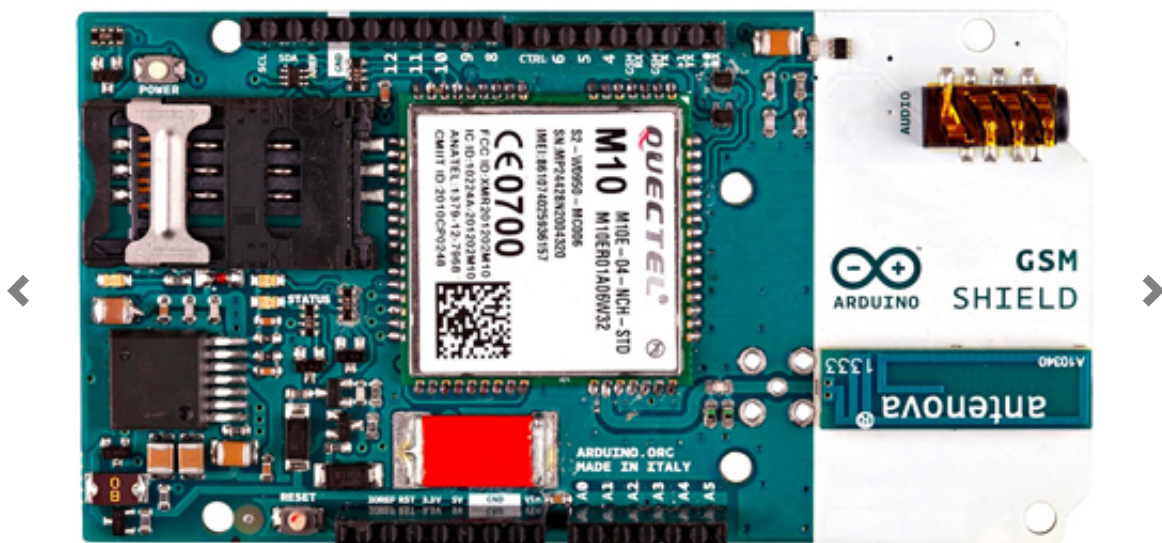# Arduino GSM Shield 2

With integrated antenna

With antenna connector

Schematic & Reference Design

Download: PDF of GSM shield schematic
(http://download.arduino.org/products/GSMSHIELD/Arduino-GSM-
Shield2-Rev3.2-SCH.pdf), Reference design
(http://download.arduino.org/products/GSMSHIELD/Arduino-GSM-
Shield2-Rev3.2-reference-design.zip)

The GSM library is included with Arduino IDE 1.0.4 and later.

Overview

The Arduino GSM Shield connects your Arduino to the internet using the
GPRS wireless network. Just plug this module onto your Arduino board, plug
in a SIM card from an operator offering GPRS coverage and follow a few
simple instructions to start controlling your world through the internet.
You can also make/receive voice calls (you will need an external speaker
and microphone circuit) and send/receive SMS messages.

As always with Arduino, every element of the platform – hardware, software and documentation – is freely available and open-source. This means you can learn exactly how it's made and use its design as the starting point for your own circuits. Hundreds of thousands of Arduino boards are already fueling people's creativity all over the world, everyday. Join us now, Arduino is you!

- Requires an Arduino board (not included)
- Operating voltage 5V (supplied from the Arduino Board)
- Connection with Arduino Uno on pins 2, 3 (Software Serial) and 7 (reset).

Description

The Arduino GSM Shield allows an Arduino board to connect to the internet, make/receive voice calls and send/receive SMS messages. The shield uses a radio modem M10 by Quectel (datasheet (http://download.arduino.org/products/GSMSHIELD/Arduino-GSM-Shield2-Rev3.2-SCH.pdf)). It is possible to communicate with the board using AT commands. The GSM library has a large number of methods to communicate with the shield.

The shield uses digital pins 2 and 3 for software serial communication with the M10. Pin 2 is connected to the M10's TX pin and pin 3 to its RX pin. The modem's PWRKEY pin is connected to Arduino pin 7.

The M10 is a Quad-band GSM/GPRS modem that works at the following frequencies: GSM850MHz, GSM900MHz, DCS1800MHz and PCS1900MHz. It supports TCP/UDP and HTTP protocols through a GPRS connection. GPRS maximum data downlink and uplink transfer speed is 85.6 kbps.

To interface with the cellular network, the board requires a SIM card provided by a network operator.

The most recent revision of the board uses the 1.0 pinout on rev 3 of the Arduino Uno board.

The micro to nano SIM adapter is included in the box.

Power requirements

It is recommended to power the board with an external power supply that can provide between 700mA and 1000mA. Powering an Arduino and the GSM shield from a USB connection is not recommended, as USB cannot provide the required current when the modem is in heavy use.

The modem can pull up to 2A of current at peak usage, which can occur during data transmission. This current is provided through the large orange capacitor on the board's surface.

On board indicators

The shield contains a number of status LEDs:

- On: shows that the Shield is getting power.
- Status: switches on when the modem is powered and data is being transferred to/from the GSM/GPRS network.
- Net: blinks when the modem is communicating with the radio network.

On board interfaces

The shield comes with a on-board audio jack as well, and it can be used for both microphone and line inputs. It is also possible to make voice calls. You don't need to add a speaker and microphone.

There are two small buttons on the shield. The button labeled "Reset" is tied to the Arduino reset pin. When pressed, it will restart the sketch. The button labeled "Power" is connected to the modem and will power the modem on and off. For early versions of the shield, it was necessary to press the power button to turn on the modem. Newer versions of the board will turn the modem on automatically.

If you have an early version of the shield, and it does not turn on automatically, you can solder a jumper to the CTRL/D7 pad on the reverse side of the board, and it will turn on when an attached Arduino receives power.

Several of the modem pins are exposed on the underside of the board. These provide access to the modem for features like speaker output and microphone input. See the datasheet for complete information.

Product Code

A000105 (with integrated antenna)

A000106 (with antenna connector)