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# ARDUINO MKR GSM 1400

Code: ABX00018

Arduino MKR GSM 1400 is a powerful board that combines the functionality of the Zero and global GSM connectivity. It is the ideal solution for makers wanting to design IoT projects with minimal previous experience in networking.

**Please note: This board does not ship with a SIM card.**



**Arduino MKR GSM 1400** has been designed to offer a practical and cost effective solution for makers seeking to add global GSM connectivity to their projects with minimal previous experience in networking. It is based on the Atmel [SAMD21](#) and a [SARAU201](#) GSM module.

The design includes the ability to power the board using a LiPo battery or external power source rated 5V. Switching from one source to the other is done automatically. A good 32 bit computational power similar to the [Zero board](#), the usual rich set of I/O interfaces, global GSM communication and the ease of use of the Arduino Software (IDE) for code development and programming. All these features make this board the preferred choice for the emerging IoT battery-powered projects in a compact form factor. The USB port can be used to supply power (5V) to the board. During cellular transmissions the peak current required by the board will exceed 500mA. This is in excess of what can be sourced by a standard USB port, so it is MANDATORY to have a 1500 mAh or higher LiPo battery plugged all the time, the current provided by the USB port will be supplemented by the battery. When powering the board using Vin, a 5V power supply that can supply at least 2A is required..

**Warning: Unlike most Arduino & Genuino boards, the MKR GSM 1400 runs at 3.3V. The maximum voltage that the I/O pins can tolerate is 3.3V. Applying voltages higher than 3.3V to any I/O pin could damage the board. While output to 5V digital devices is possible, bidirectional communication with 5V devices needs proper level shifting.**





## TECH SPECS

Microcontroller	SAMD21 Cortex-M0+ 32bit low power ARM MCU
Board Power Supply (USB/VIN)	5V
Supported Battery(*)	3.7V LiPo
Circuit Operating Voltage	3.3V
Digital I/O Pins	8
PWM Pins	12 (0, 1, 2, 3, 4, 5, 6, 7, 8, 10, A3 - or 18 -, A4 -or 19)
UART	1
SPI	1
I2C	1
Analog Input Pins	7 (ADC 8/10/12 bit)
Analog Output Pins	1 (DAC 10 bit)
External Interrupts	8 (0, 1, 4, 5, 6, 7, 8, A1 -or 16-, A2 - or 17)
DC Current per I/O Pin	7 mA
Flash Memory	256 KB
SRAM	32 KB
EEPROM	no
Clock Speed	32.768 kHz (RTC), 48 MHz
LED_BUILTIN	6
Full-Speed USB Device and embedded Host	
Antenna power	2dB
Carrier frequency	433/868/915 MHz
Working region	Global
Length	67.64 mm
Width	25 mm
Weight	32 gr.



## OSH: Schematics

The MKR GSM 1400 is open-source hardware! You can build your own board using the following files:

[EAGLE FILES IN .ZIP](#) [SCHEMATICS IN .PDF](#) [FRITZING IN .FZPZ](#)

## Pinout

[Download the pinout](#) in PNG format

## Antenna

The MKR GSM 1400 has to be used with a GSM antenna that can be attached to the board with the micro UFL connector.

Please check that it can accept frequencies in the GSM's range (880/915 MHz).

Please note: for best result, **do not** attach the antenna to a metallic surface like car chassis, etc.

## Batteries, Pins and board LEDs

**Battery capacity:** The connected battery must be a 3.7V LiPo

**Vin:** This pin can be used to power the board with a regulated voltage source rated from 5V. If the power is fed through this pin, the USB power source is disconnected. This is the only way you can supply 5v (range is 5V to maximum 6V) to the board not using USB. This pin is an INPUT.

**5V:** This pin outputs 5V from the the board when powered from the USB connector or from the VIN pin of the board. It is unregulated and the voltage is taken directly from the inputs.



**VCC:** This pin outputs 3.3V through the on-board voltage regulator. This voltage is 3.3V if USB or VIN is used and equal to the series of the two batteries when they are used

**LED ON:** This LED is connected to the input voltage source from either USB or VIN. It is also connected to the battery power. This means that it is ON (with a lower intensity) also when the battery is inserted.

**Onboard LED:** On MKR GSM 1400 the on board LED is connected to **D6** and not D13 as on the other boards. Blink example or other sketches that uses pin 13 for on board LED may need to be changed to work properly.