

# SODAQ ExpLoRer

This is the ExpLoRer board that we designed for Microchip.

Here’s an overview of the features:

Microcontroller	ATSAMD21G18, 32-Bit ARM Cortex M0+
Compatibility	Arduino M0 Compatible
Size	93 x 55 mm
Operating Voltage	3.3V
I/O Pins	20
Analog Output Pin	10-bit DAC
External Interrupts	Available on all pins
DC Current per I/O pin	7 mA
Flash Memory	256 KB and 4MB (external flash)
SRAM	32KB
EEPROM	Up to 16KB by emulation
Clock Speed	48 MHz
Power	5V USB power and/or 3.7 LiPo battery
Charging	Solar charge controller, up to 500mA charge current

LED	RGB LED, Blue LED
LoRa	Microchip RN2483 Module
Bluetooth	Microchip RN4871 Module
Cyptochip	ATECC508A
Temperature sensor	MCP9700AT
USB	MicroUSB Port

# Getting started

Download the latest Arduino IDE

<https://www.arduino.cc/en/Main/Software>

To use the board in the Arduino IDE you need to load a custom board file for the SODAQ SAMD boards.

[http://downloads.sodaq.net/package\\_sodaq\\_samd\\_index.json](http://downloads.sodaq.net/package_sodaq_samd_index.json)

File→Preferences

Install the latest version of the SODAQ SAMD boards

Tools→Boards→Boards Manager...

To use the RN4871 Bluetooth module (BLE) please download the Arduino library here:

[Microchip\\_RN487x](#)

# Pinout

## Handy pin definitions!

Now that you’re using the SODAQ ExpLoRer board files, you’ll be able to use our handy pin definitions.

Our pin definitions allow you to address by name instead of pin number.

Here are all the pin definitions for the SODAQ ExpLoRer:

Pin description	Pin number	Definition
RGB Red LED		LED_RED
RGB Green LED		LED_GREEN
RGB Blue LED		LED_BLUE
Blue LED	D13	LED_BUILTIN
Bluetooth Wake		BLUETOOTH_WAKE
Bluetooth Reset*		BT_RESET
Push Button*		BUTTON
LoRa Reset*		LORA_RESET
Temperature Sensor	A6	TEMP_SENSOR

\*Rev5 and higher

## Schematics

Click here for the latest schema:

[explorer\\_schematic\\_rev5b](#)

for the previous version download the schema here:

[explorer\\_schematic\\_rev3-3](#)

# Hardware Serials

The SODAQ ExpLoRer has 4 hardware serials:

**SerialUSB** – This is for when you are debugging over the USB Cable.

**Serial** – Serial is attached to pin D1/TX and D0/RX.

**Serial1** – Is connected to the Bluetooth Module.

**Serial2** – Is connected to the RN2483 LoRaWAN Module.

```
void setup() {  
  // put your setup code here, to run once:  
  SerialUSB.begin(57600);  
  Serial.begin(57600);  
  Serial1.begin(57600);  
  Serial2.begin(57600);  
}  
  
void loop() {  
  // put your main code here, to run repeatedly:  
  
}
```

## SerialUSB

The sketch starts direct after uploading new code or when connected to a power source. After opening a Serial Monitor the code will not reset, add the following code to your sketch if you want your sketch to wait for a Serial Monitor.

```
while ((!SerialUSB) && (millis() < 30000)) {  
    // Wait for SerialUSB or start after 30 seconds  
}
```

# Battery management

The ExpLoRer can run on a battery. By default the ExpLoRer is delivered with a coin cell battery. To charge the battery you need to connect an usb and/or solar panel.

The ExpLoRer can only run on one battery at the same time, move the jumper to connect the internal (coin cell) or external battery. It will only charge the battery connected with this jumper.

Connect any 3.3v – 5.2v power to the solar connector, this source will charge the battery.

# Bootloader mode

To save power it is possible to disable the usb connection.

If the **reset button** is **pressed twice within a second** the current sketch will not start and the board will go into bootloader mode and is expecting a new sketch. On your computer you will see a different com port.

# Tag Connect headers

Blue : Bluetooth

Red : LoRa

Pink : MCU

