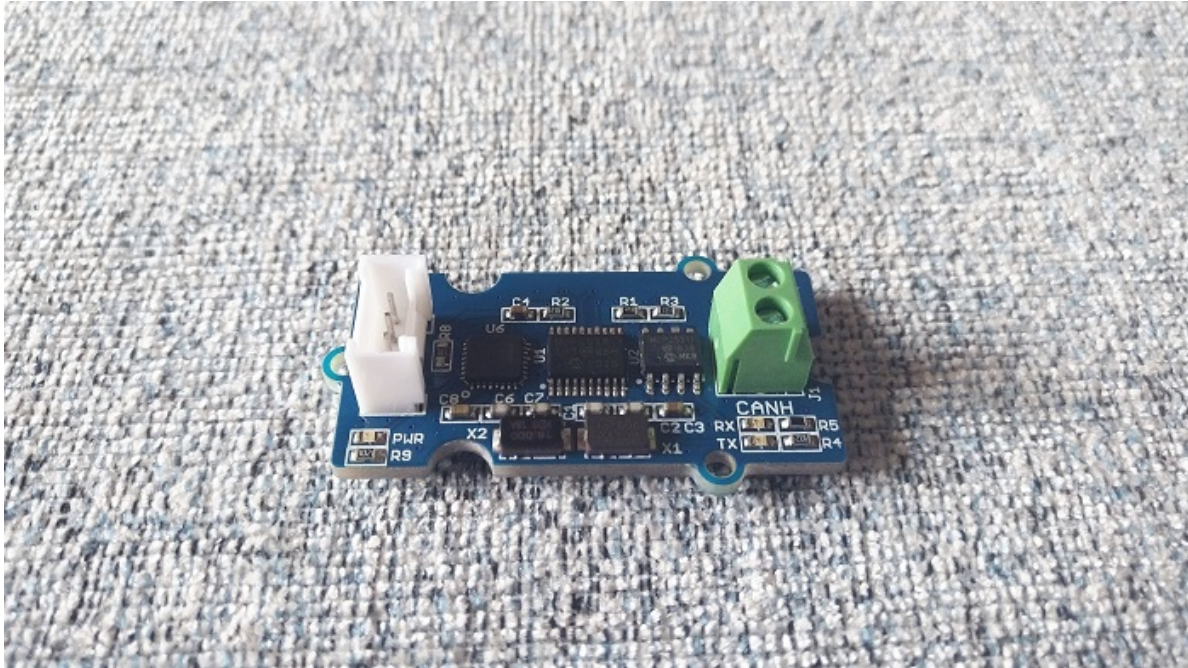


Serial CAN Bus

Introduction

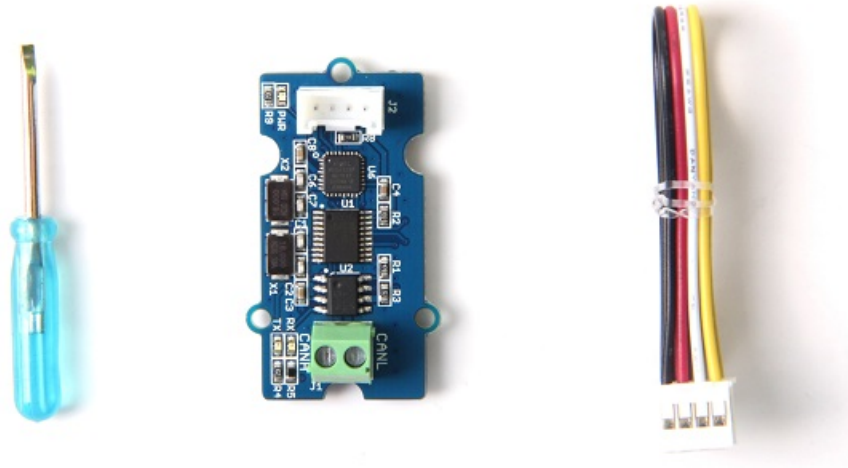


[<https://www.seeedstudio.com/Serial-CAN-BUS-Module-based-on-MCP2551-and-MCP2515-p-2924.html>]

The Serial CAN BUS provide your Arduino or others MCU with the capability to communication to CAN Bus, such as hacking your vehicle. CAN Bus is a common industrial bus because of its long travel distance, medium communication speed and high reliability.

This Serial CAN Bus module is based on **MCP2551** and **MCP2515**, which can provide speed up to **1Mb/s**.

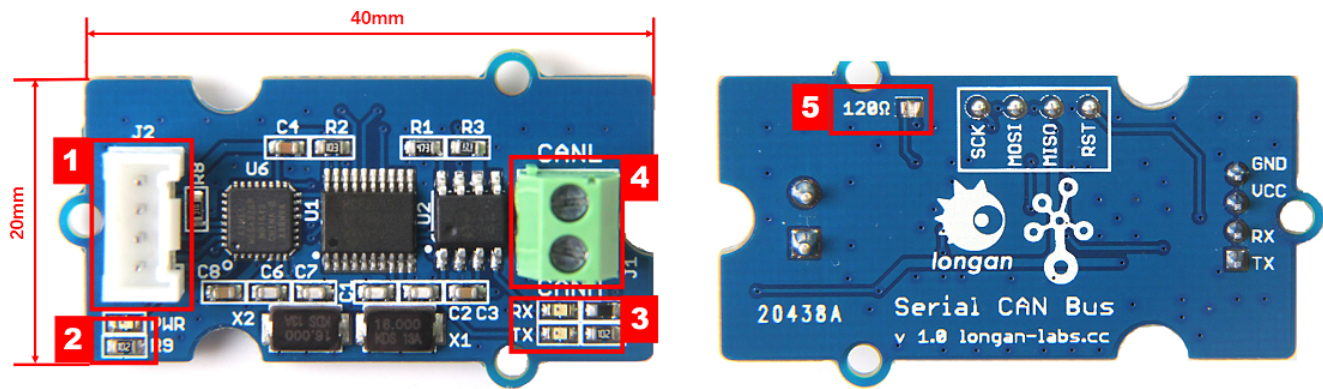
Partlist



Features

- Uart to CAN Bus communication
- Work with Arduino/BeagleBone board/Pi or any MCU that integrated with Uart.
- AT command
- Up to 115200 Uart baud rate (default 9600)
- Up to 1Mb/s CAN Bus baud rate
- TX and RX led indicator
- 4pin Grove connector
- 3.3 / 5V working voltage
- Easy-to-use Arduino library
- Small size: 20x40 mm

Hardware Overview



1. 4 pin 2.0mm Grove Connector
2. Power and status led indicator
3. Send and Recv led indicator
4. 3.5mm terminal to connect to CAN Bus (CAN_H & CAN_L)
5. 120Ω resistor, default connected, if you don't need you cut this pad with a box cutter.

AT Command

You can achieve the complete function of this Serial CAN Bus module with only a few AT command.

CMD	Description
+++	Switch from Normal mode to Config mode
AT+S=[value]	Set serial baud rate
AT+C=[value]	Set CAN Bus baud rate
AT+M=[N][EXT][value]	Set mask
AT+F=[N][EXT][value]	Set filter
AT+Q	Switch to Normal Mode



Note

All of the cmd should end with '\n'

Set Serial Baud Rate

You can set the serial baud rate of the module with this command. There're 5 rates available, up to 115200 b/s.

```
AT+S=[value]
```



value	0	1	2	3	4
baud rate(b/s)	9600	19200	38400	57600	115200

**Note**

Default is 9600

Eg: Set serial baud rate to 57600

```
AT+S=3
```

**Response**

OK or ERROR

Set CAN Bus Baudrate

You can use this command to set the rate of CAN Bus, there's 18 rates available. Normally, if you want to hack your vehicle, 500k is the right one.

```
AT+C=[value]
```



value	01	02	03	04	05	06	07	08
rate(kb/s)	5	10	20	25	31.2	33	40	50

!!! tip Note Default is 500K

Eg: Set CAN BUS baud rate to 50K

```
AT+C=08
```

**Response**

OK or ERROR

Set Mask

There're 2 Mask for the module, Mask0 and Mask1.

```
AT+M=[N][EXT][value]
```



N:

- 0: Mask0
- 1: Mask1

EXT:

- 0: Standard Frame
- 1: Extended Frame

value:

Need 8 bit of character, hexadecimal.

Eg: Set Mask1 to 0x3DF, standard frame:

```
AT+M=[1][0][00003DF]
```



Response

OK or ERROR

Set Filt

There're 6 Mask for the module, Filt0 ~ Filt5

```
AT+F=[N][EXT][value]
```



N:

N	0	1	2	3	4	5
Filt	Filt0	Filt1	Filt2	Filt3	Filt4	Filt5

EXT:

- 0: Standard Frame
- 1: Extended Frame

value:

Need 8 bit of character, hexadecimal.

Eg: Set Filt3 to 0x2C, standard frame:

```
AT+M=[1][0][0000002C]
```



Response

OK or ERROR

Normal Mode

When the module working on Normal mode, you can send and receive data from CAN Bus.

Send

You should send 14 byte of data per frame. Define as below,

bit	0	1	2	3	4	5	6	7
define	ID3	ID2	ID1	ID0	EXT	RTR	DTA0	DTA1



- ID0~ID3: CAN ID
- EXT: 0 for standard frame, 1 for extended frame
- RTR: 0 for standard frame, 1 for remote frame
- DTA0~DTA7: 8 byte of data

Eg.

Send {1, 2, 3, 4, 5, 6, 7, 8} to ID:0x3DC, Standard frame:

```
{0, 0, 3, 0xDC, 0, 0, 1, 2, 3, 4, 5, 6, 7, 8}
```



Recv

You will get 12 byte of data per frame. Define as below,

bit	0	1	2	3	4	5	6	7
define	ID3	ID2	ID1	ID0	DTA0	DTA1	DTA2	DTA3



- ID0~ID3: CAN ID
- DTA0~DTA7: 8 byte of data

Arduino Library

We provide an library for Aruino Software Serial.

Please download it at [Github](https://github.com/Longan-Labs/Serial_CAN_Arduino) [https://github.com/Longan-Labs/Serial_CAN_Arduino]

There're many examples for the library, which is consist of,

- **send** - How to send a frame to CAN Bus
- **recv** - How to recv a frame from CAN Bus
- **debug** - debug mode, you can send a cmd to the module
- **set_can_baudrate** - set can bus baudrate
- **set_mask_filt** - set mask and filt of the module

Reference

- [Arduino Library](https://github.com/Longan-Labs/Serial_CAN_Arduino) [https://github.com/Longan-Labs/Serial_CAN_Arduino]
- [How to get ONE](https://www.seeedstudio.com/Serial-CAN-BUS-Module-based-on-MCP2551-and-MCP2515-p-2924.html) [https://www.seeedstudio.com/Serial-CAN-BUS-Module-based-on-MCP2551-and-MCP2515-p-2924.html]
- [Schematics in Eagle File](https://github.com/Longan-Labs/Eagle_File_Serial_CAN_Bus/archive/master.zip) [https://github.com/Longan-Labs/Eagle_File_Serial_CAN_Bus/archive/master.zip]