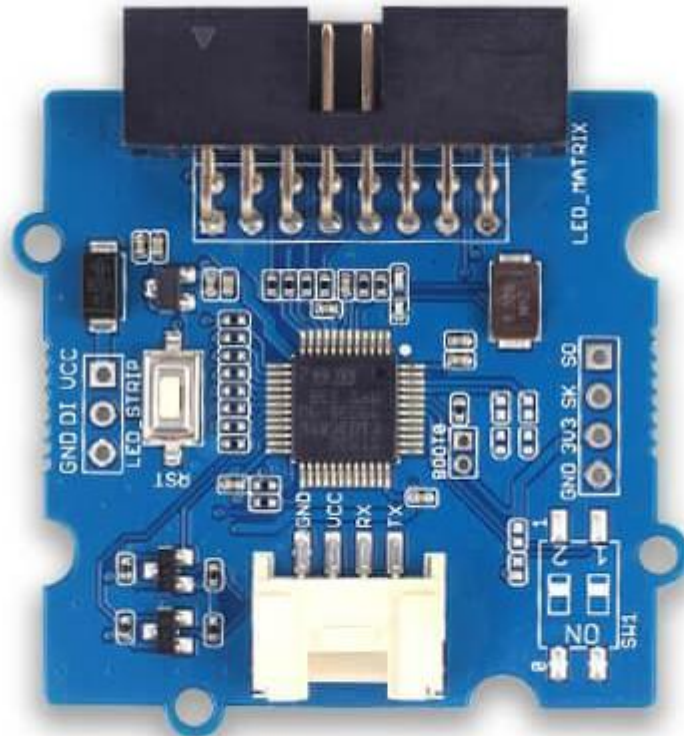# Grove - LED Matrix Driver v1.0

Grove - LED Matrix Driver v1.0 is UART (Serial) to dot matrix LED driver that incorporates various graphics functions.It can only support 32×64 LED matrix. This product is a **Grove** compatible UART interface. It provides easy and rich APIs that abstract the complexity of the underlying LED driving hardware. All you need to is just call these APIs in code to implement different functionalities for your project.

Each dot(i.e pixel) support dual color LEDs. It can produce three colors totally: red (primary color), green(primary color) and yellow (mixed color). The input current for all LEDs can be set at a time.

Note
This Grove module does not support changing the input current of each LED separately.

Features

- Grove compatible and easy to use
- Highly abstracted and complete API
- Support dual-color LED-pixel. Three colors totally (the third color is a mix of two primary color)
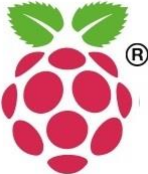- Interface: UART(SoftSerial in Arduino)

Tip
More details about Grove modules please refer to Grove System

Specifications

| Parameter	Value
Operating voltage(V)	3.3–5 Volts
Operating current(mA)	Maximum: 28–50 mA
Output voltage (from matrix driver)	3.3 Volts
Symbols/Graphics functions supported	Dot, straight line, circle, char, string, number, emoji, image (you can display these symbols by calling API directly in code)
Supported LED matrix size	32(row)×64(column)
Supported color in each LED matrix dot	Dual LEDs (green and red) and a mixed color(yellow), and you can use only one LED in each LED matrix dot
Connector for LED matrix	DBSTAR_HUB 08A
Protocol for Grove port	UART
Working temperature	-40–80 ℃
Dimensions	46.5×44 mm
Weight	9 g(for the module), 12.5(for all single package)

Platforms Supported

Arduino	Raspberry Pi	BeagleBone	Wio	LinkIt ONE

Caution

The platforms mentioned above as supported is/are an indication of the module's software or theoritical compatibility. We only provide software library or code examples for Arduino platform in most cases. It is not possible to provide software library / demo code for all possible MCU platforms. Hence, users have to write their own software library.

Hardware Overview
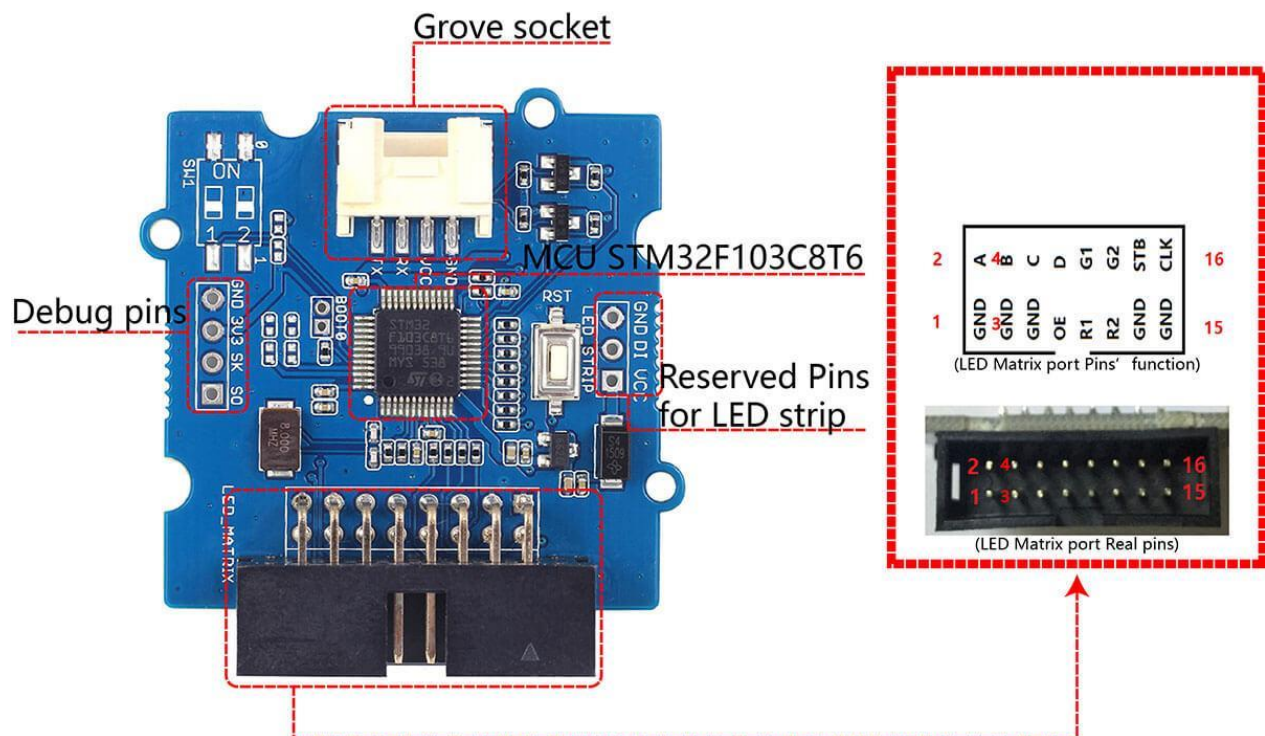
- **Grove socket**, to connect this product to main control board.
- **LED matrix port(DBSTAR_HUB 08A)**, to connect LED matrix. If you can not find a connector like this, you can user jumper wires as an alternative.

Package includes**(main parts)**

Parts name	Quantity
Grove - LED Matrix Driver v1.0	1 piece
Grove cable	1 piece

Getting Started

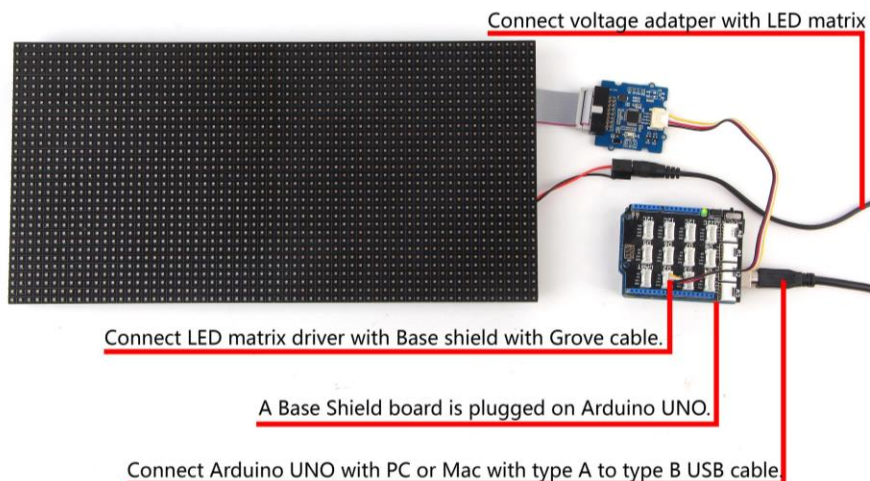Now let us run some basic examples with this module.

With Arduino

Material required

- Grove - LED Matrix Driver v1.0 × 1
- 32×64 LED matrix with one red and one green LEDs in matrix dots (single color LED matrix will also be fine) × 1
- Power line (ribbon shape) for × 1
- 5 Volts(output) Adapter to regulate input voltage for LED matrix × 1
- 8-pin(female) ribbon cable × 1
- Arduino UNO (other Arduino models will also be fine) × 1
- Grove cable × 1
- Grove - Base Shield × 1

Connections

Connect all parts as following:

Connect voltage adatper with LED matrix

Connect LED matrix driver with Base shield with Grove cable.

A Base Shield board is plugged on Arduino UNO.

Connect Arduino UNO with PC or Mac with type A to type B USB cable.

Tip: this connection is used to power LED matrix. The main point is connecting voltage adapter output wire (output voltage must be up to 5 volts or little more and output current must up to 4 A) to VCC(anode) and GND(cathode) pins on LED matrix. So you can take another connection manner with other handy wires or cables.
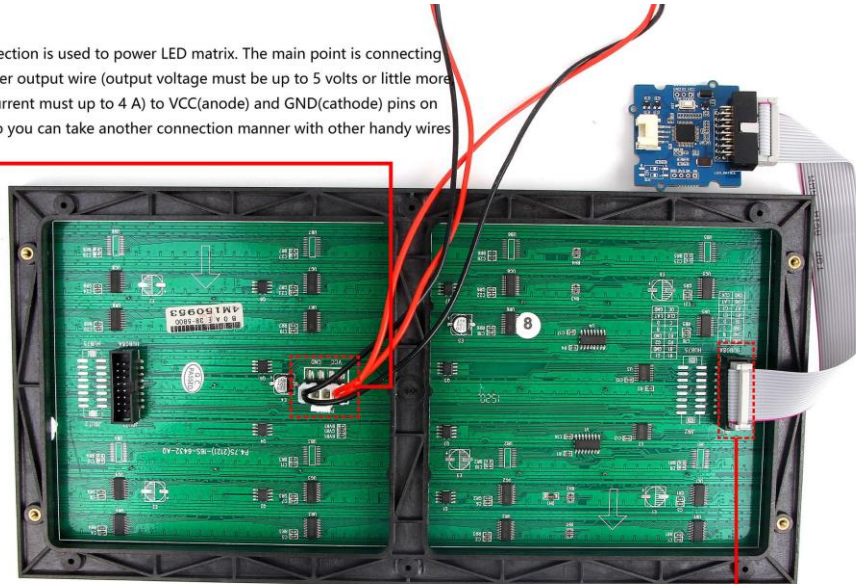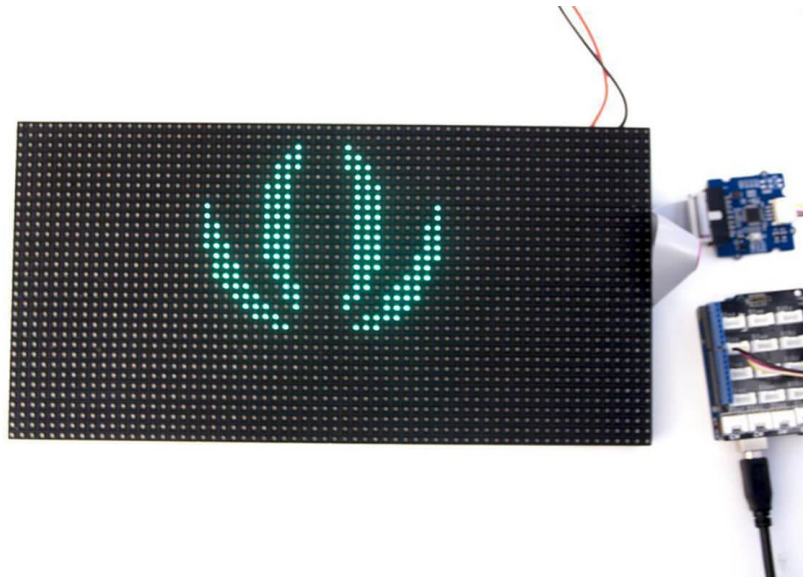
Note the 8-pin ribbon cable can only connect to the port marked with JINT(input port).

Coding Work

You can find more demo sketch at https://github.com/Seeed-Studio/Grove_LED_Matrix_Driverand development library at https://github.com/Seeed-Studio/Grove_LED_Matrix_Driver

1. A typical demo code. You can upload code to main control board with Codebender.

2. Download and upload the code. If you do not know how to upload an Arduino sketch, please visit https://www.arduino.cc/en/Guide/Windows for Windows user or https://www.arduino.cc/en/Guide/MacOSX for Mac user. You can see the result as below.

Resources

- Schematic file
- STM32F103C8T6 Datasheet
- Library on Github
- Firmware for this product

Tech Support

Please submit any technical issue into our forum.