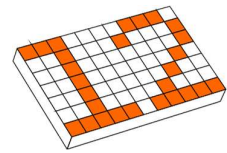




The “Orangina”



Serially interfaced, 11X7 LED frameless module

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Overview:

The “Orangina” is serially interfaced, 11X7 matrix module with high brightness, deep orange color LEDs. It is frameless and borderless and can be stacked in any directions, thanks to M3 mounting holes.

Tech specs:

Driving interface: 3 wire SPI, up to 1 MHz.

Operating voltage: 3.3-5.5V

Operating temperature range: 0-85C

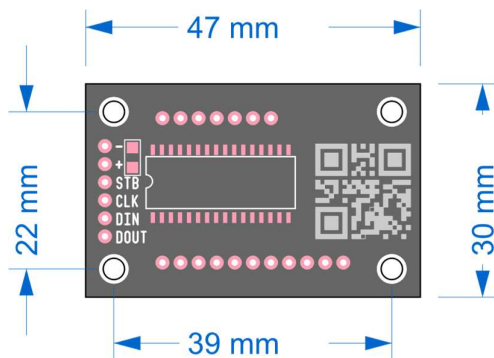
Current consumption: 20-100mA (Depends on supply voltage and brightness level)

Brightness adjustment: 8 Level PWM (Internally adjustable via the control register)

Physical dimensions: 47 X 30 X 10 mm (L-W-H).

Weight: <10 grams

Physical outline – see the picture below:



Electronic interfacing and software control over the screen display data

This module is built using TitanMicro’s TM1623 IC. This chip uses same driving logic and register addresses that are used in much more common TM1629, TM1628, TM1639 and so on, libraries for which are available for almost any development environment.

Electronic interfacing works in the following way – you apply power to the pins marked with + and – signs, and connect STB, CLK and DIN pins to MCU. Holding STB high, latches the input data, pulling it low allows write to the chip, so if you need to connect several of such modules to MCU, you can save pins, by connecting each module CLK and DIN pins together, and by pulling the appropriate STB pin low/high, you can select the particular module to write data into. There is DOUT pin which is not used. Also, there’s a space for a 1206 sized capacitor near the VDD/VSS pins. In most cases, there’s no need for capacitor, but if you’re using long (over 50cm) line and your power supply is relatively weak, you might need to solder a capacitor there for improved performance (reduces crosstalk and flicker, when nearby modules are addressed). Please use tantalum capacitors – depending on your situation, 22-100uf should work fine. You can also use ceramic caps, but these might start “singing”, due to high ripple current.

For the software interfacing, in short, the working sequence is as follows – first you send the initialization command on power up, followed by the mode selection command (no necessary to repeat these each time) then you set brightness register and then send display data as needed. This chip has 14 addresses (registers) all of which control the display data as follows: The even addresses control first 8 LEDs, starting from the top left (MSB bits first) and odd addresses control last 3 LEDs on the right (MSB bits first). There is no need to write to these segments in a sequence – you can address them as needed. All the register and command data can be obtained from the datasheets – they are same for all TitanMicro LED drivers with the SPI interface.