



# 0.95inch RGB OLED

## User Manual

### 1. Key Parameters

Driver Chip	SSD1331
Interface	SPI
Resolution	96x64
Display Size	0.95inch
Dimension	31.7mm*37mm
Colors	RGB, 65K colorful
Visible Angle	>160°
Operating Temp. (°C)	-20~70
Storage Temp. (°C)	-30~80

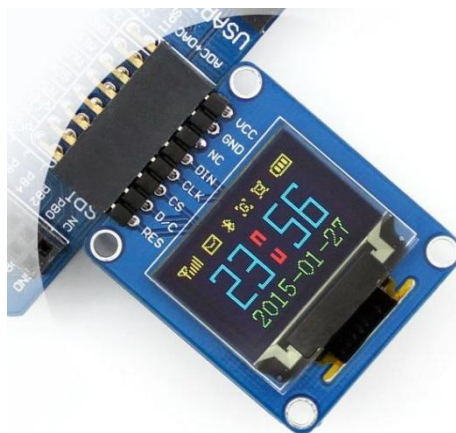
### 2. Operation Description

We will illustrate the usage of the module with an example by connecting Waveshare Open103R development board (STM32F103R MCU on board).

#### 2.1. Hardware connections

Connect module to the SPI2 interface of Open103R development board, power up. OLED displays information shows as below.

Figure 1: OLED information display



## 2.2. Software configuration

Open the project file .\IDE\ OLED.uvproj in Keil. After compiling successfully, download the project to Open103R development board.

## 3. Pin descriptions

Table 1: Pin descriptions

Pin No.	Symbol	Descriptions
1	VCC	Positive power supply (3.3~5V input voltage)
2	GND	Ground
3	NC	NC
4	DIN	Data
5	CLK	Clock
6	CS	Chip
7	D/C	This is Data/Command control pin. When it is pulled HIGH (i.e. connect to VDD), the data at D[7:0] is treated as data. When it is pulled LOW, the data at D[7:0] will be transferred to the command register.
8	RES	Reset signal input pin (active LOW)

### SSD1331 RGB OLED SPI interface.

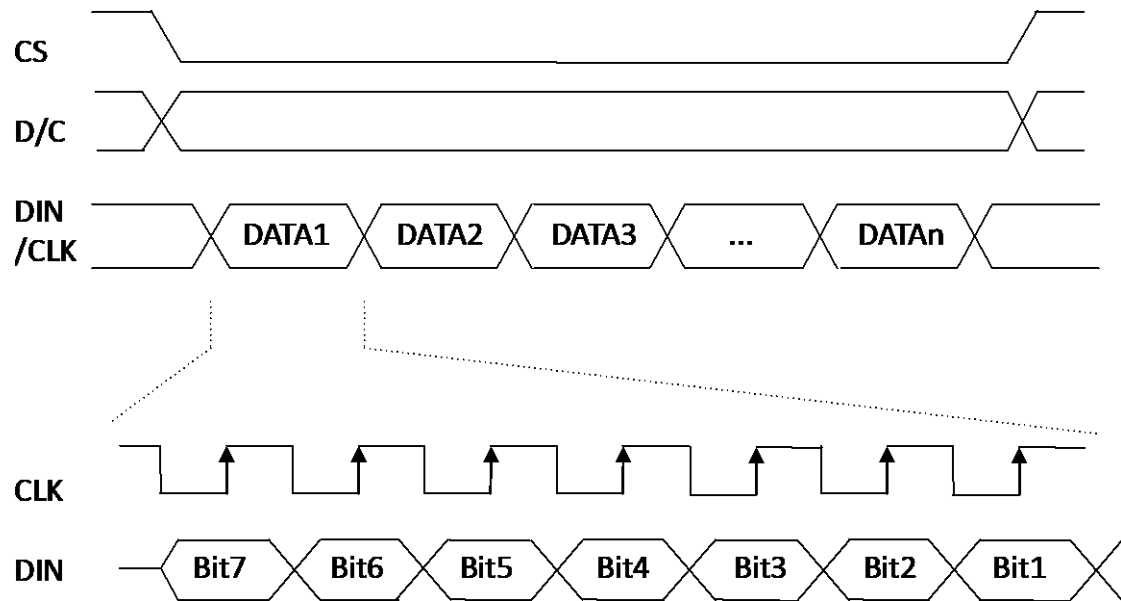
The serial interface consists of serial clock CLK, serial data DIN, DC and CS. DIN is shifted into an 8-bit shift register on every rising edge of CLK in the order of Bit7, Bit6... Bit0. DC is sampled on every eighth clock and the data byte in the shift register is written to the Display Data RAM or command register in the same clock.

Under serial mode, only write operations are allowed.

Table 2: Control pins of Serial interface

Function	CS	DC
Write command	L	L
Write data	L	H

Figure 2: Write procedure in SPI mode



Please refer to SSD1331-Revision 1.2.pdf for more detail about SSD1331.

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