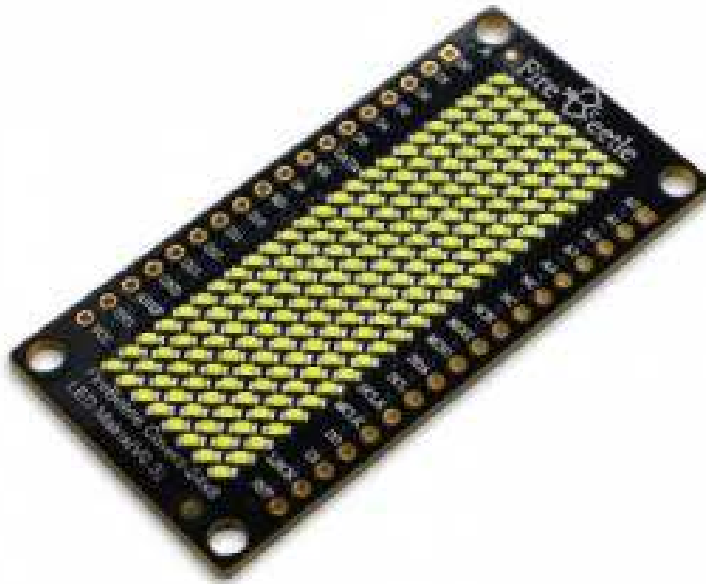# FireBeetle Covers-24×8 LED Matrix (Blue)
# SKU: DFR0485

Introduction

FireBeetle Covers-24×8 LED Matrix

DFRobot FireBeetle is a low-power consumption micro-controller intentionally designed for Internet of Things (IoT). This series micro-controllers aims at IoT node of low-power consumption, attending to build the IoT hardware platform quickly and conveniently. There are three types of FireBeetle, containing Boards (main control), Covers (expansion boards) and related Accessories.
This 24×8 LED Matrix display is special designed for FireBeetle series. It supports low-power consumption mode and scrolling display. With HT1632C high performance LED driver chip, every led has independent register, which makes it easy to drive separately. It integrates a 256KHz RC clock, only 5uA under low-power mode, support 16 scale PWM brightness adjustment. This product also works with the other Arduino micrcontroller like Arduino UNO.

Specification

- Operating Voltage: 3.3~5V
- LED Color: Single color (White/Blue/Yellow/Red/Green)
- Drive Chip: HT1632C
- Working Current: 6~100mA
- Low-power Consumption: 5uA
- RC clock: 256KHz
- Chip Select (CS): D2, D3, D4, D5 selectable
- Serial Data Communication
- Support Arduino Library
- Support Scrolling display
- Interface mode: FireBeetle Series Compatible
- Operating Temperature: -10℃~+85℃
- Dimension: 24 × 58(mm)/0.94 x 2.28(inches)
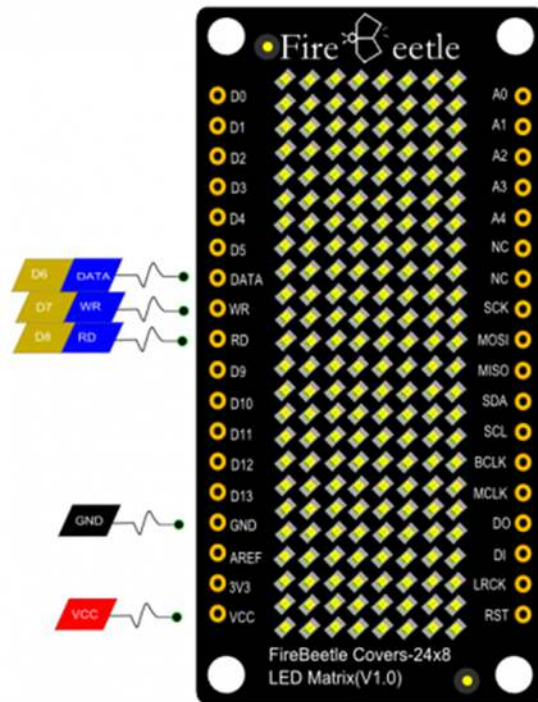- Weight: 26g

FireBeetle Covers-24×8 LED Matrix Chip Select
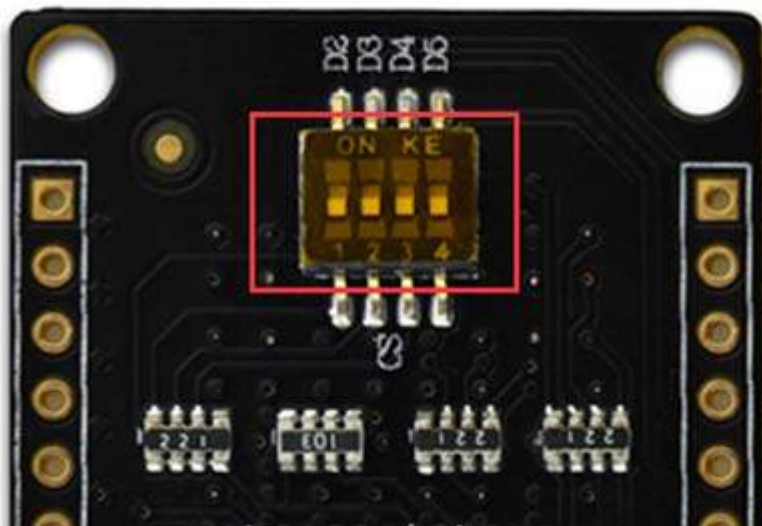
Note: FireBeetle Covers-24x8 LED Matrix has 4 CS pin, you can select the CS from the dialing switch, and one FireBeetle can control 4 LED matrix at the same time.

Board Overview

Num	Label	Description
1	DATA	DATA<——>D6
2	WR	WR<——>D7 (Generally Not Used)
3	CS	CS<——>D2, D3, D4, D5 selectable
4	RD	RD<——>D8
5	VCC	5V<——>USB; 3.7V<——>Lipo Battery

FireBeetle Covers-24×8 LED Matrix

Tutorial

In this section,we will demonstrate several example about how to use this LED matrix.

Requirements

- **Hardware**
  FireBeetle Board - ESP32 x 1
  FireBeetle Covers-24×8 LED Matrix x1

- **Software**
  Arduino IDE Click to Download Arduino IDE from Arduino®
  https://www.arduino.cc/en/Main/Software%7C
  Arduino Library (Github)
  https://github.com/Chocho2017/FireBeetleLEDMatrix.git

Sample Code: Hello
Note: You need use D(x) to call digital I/O pins under Arduino IDE. Or that will be IO(x).

CS = D2

```
#include "DFRobot_HT1632C.h"


#define DATA D6

#define CS D2

#define WR D7

//#define RD 7


DFRobot_HT1632C ht1632c = DFRobot_HT1632C(DATA, WR,CS);


char str[] = "Hello";


void setup() {
  // put your setup code here, to run once:
  ht1632c.begin();
  ht1632c.isLedOn(true);
  ht1632c.clearScreen();
```

```
        ht1632c.setCursor(0,0);
  ht1632c.print(str);

}


void loop() {
  // put your main code here, to run repeatedly:


}
```
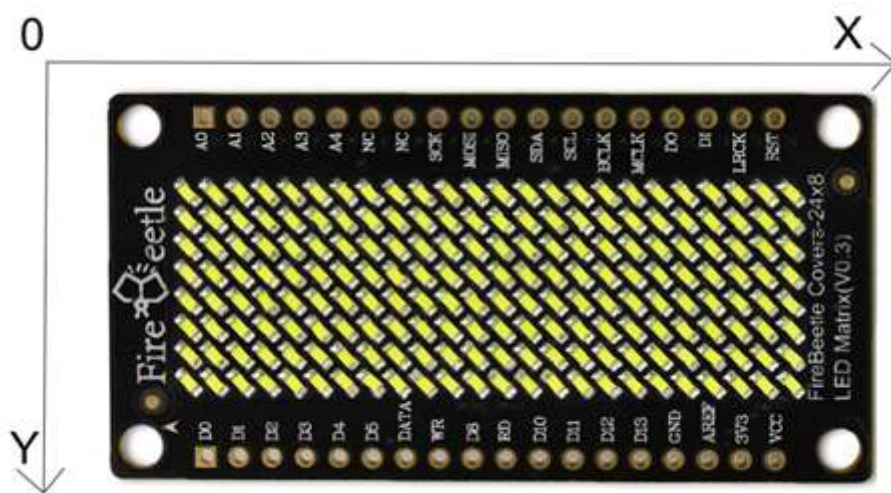
Sample Code: Draw Point

You can draw points at any place of the Matrix. X-Y axis coordinate diagram:

FireBeetle Covers-24×8 LED Matrix X-Y Axis Coordinate Diagram

```
 setPixel(x,y) : Set coordinates
 writeScreen() : Draw points
```

Sample Code:

```
 ht1632c.setPixel(0,0);
 writeScreen();
```

Sample Code: Srolling Display

You can use "'setPixel'" to set the start point, and print **str** with **ms** srolling display.

```
 print(str,ms):  // str = string; ms = delay time
```

Smaple code:

```cpp
#include "DFRobot_HT1632C.h"

#define DATA D6
#define CS D2
#define WR D7

DFRobot_HT1632C ht1632c = DFRobot_HT1632C(DATA, WR,CS);

char str[] = " DFROBOT 2017";

void setup() {
  Serial.begin(115200);
  // put your setup code here, to run once:
  ht1632c.begin();
  ht1632c.isLedOn(true);
  ht1632c.clearScreen();
  delay(500);
}

void loop() {
  // put your main code here, to run repeatedly:
  ht1632c.print(str,50);
  //delay(100);
}
```
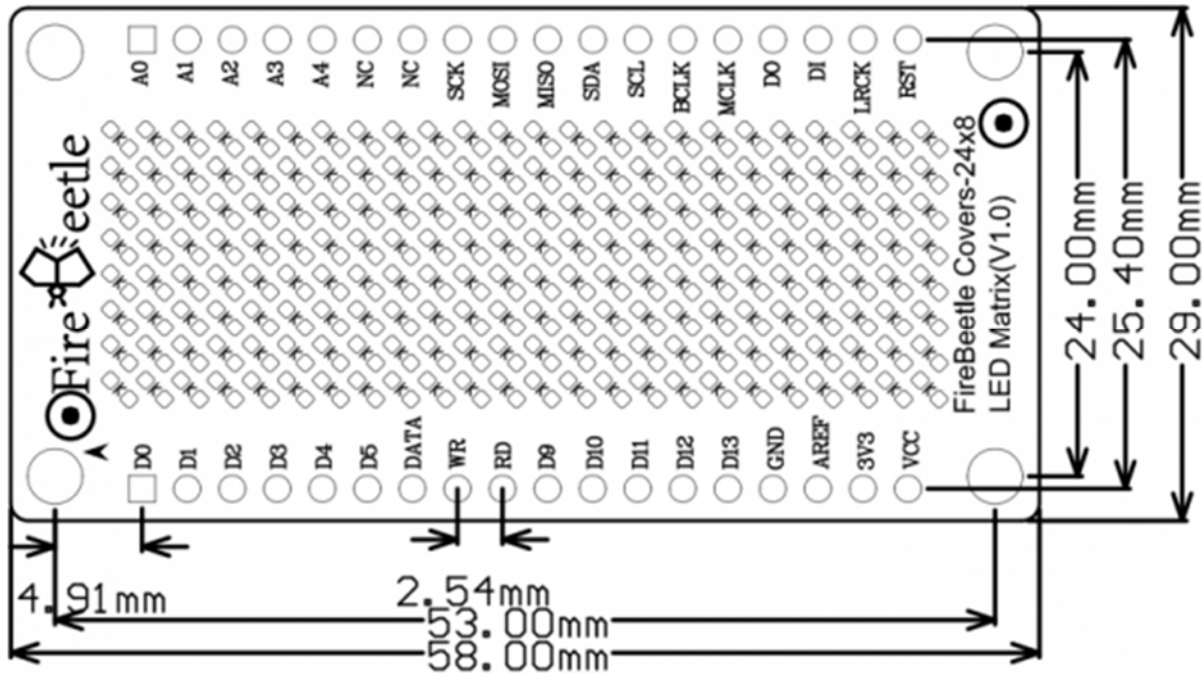
Additional Instruction

FireBeetle Covers-24×8 LED Matrix support Low-power consumption mode, you can use **inLowpower** function to enter Low-power consumption mode. When it is in Low-power consumption mode, it will close RC clock automatically.

Dimension

FireBeetle Covers-24×8 LED Matrix Dimension