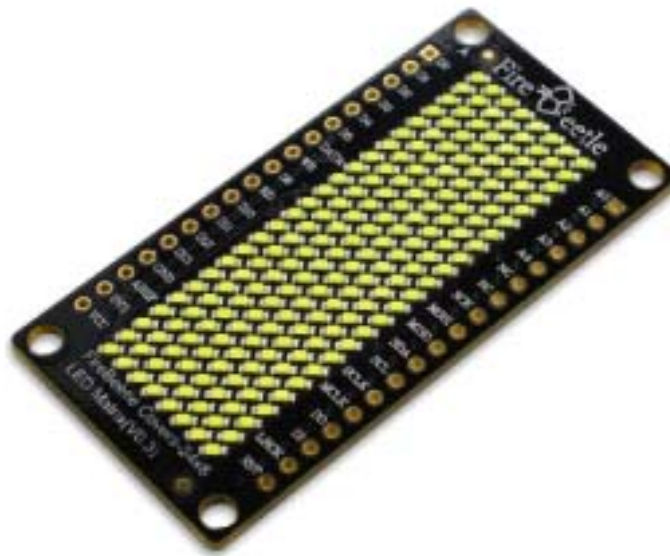




## FireBeetle Covers-24×8 LED Matrix (White)

SKU: DFR0484



## Introduction

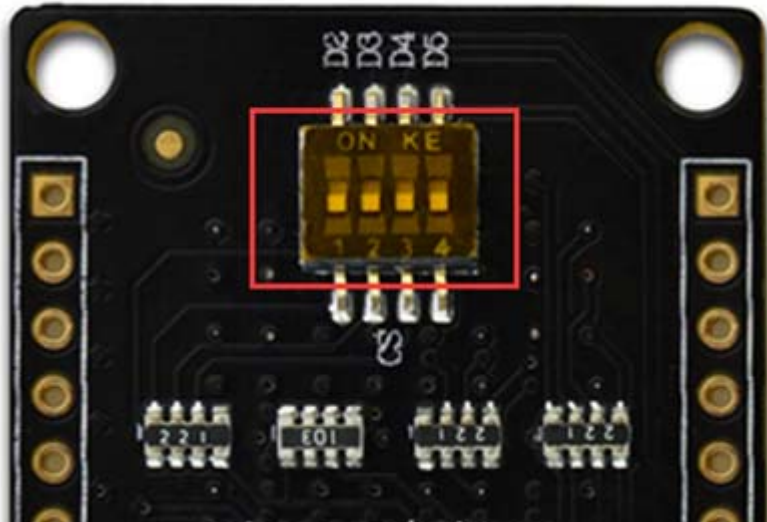
### FireBeetle Covers-24×8 LED Matrix

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 microcontroller like Arduino UNO.

## Specification

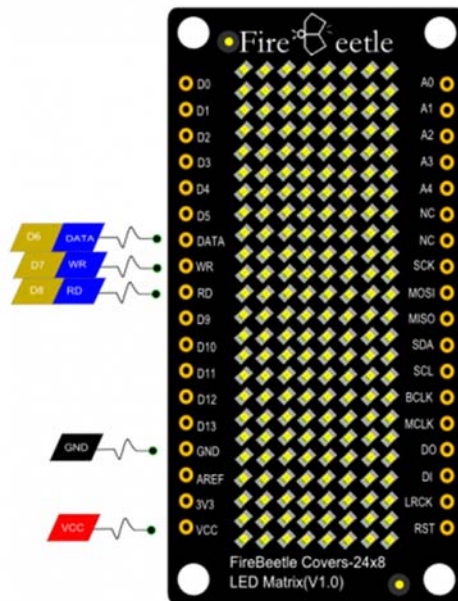
- Operating Voltage: 3.3~5V
- LED Color: Single color (White/Blue/Yellow/Red/Green)
- Drive Chip: HT1632C
- Working Current: 6~100mA
- Low-power Consumption: 5uA
- RC clock: 256KHz
- Chip Select (CS): D2, D3, D4, D5 selectable
- Serial Data Communication
- Support Arduino Library
- Support Scrolling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



FireBeetle Covers-24x8 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



FireBeetle Covers-24x8 LED Matrix

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

## Tutorial

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

## Requirements

- **Hardware**  
FireBeetle Board - ESP32 x 1  
FireBeetle Covers-24x8 LED Matrix x1
- **Software**  
Arduino IDE [Click to Download Arduino IDE from Arduino®](https://www.arduino.cc/en/Main/Software%7C)  
<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";

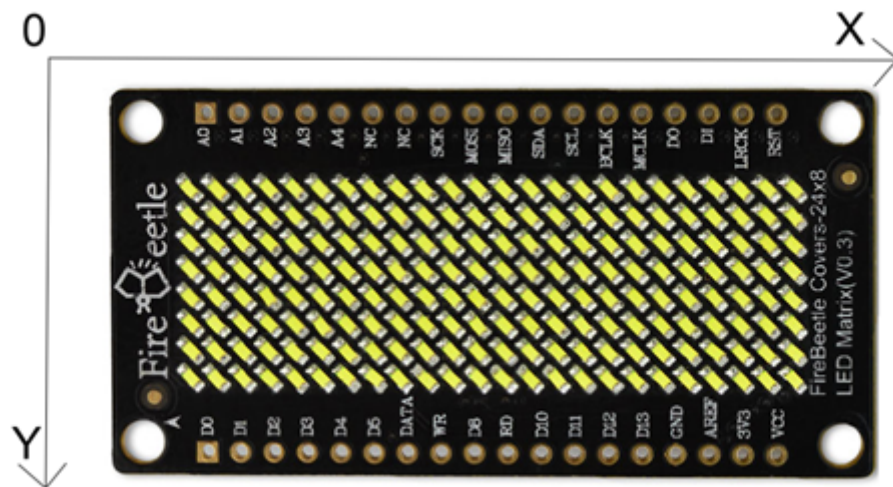
void setup() {
    // put your setup code here, to run once:
    ht1632c.begin();
    ht1632c.isLedOn(true);
    ht1632c.clearScreen();
    ht1632c.setCursor(0,0);
    ht1632c.print(str);
}
```

```
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-24x8 LED Matrix X-Y Axis Coordinate Diagram

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

### Sample Code:

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

### Sample Code: Scrolling Display

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

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

Sample code:

```
#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";

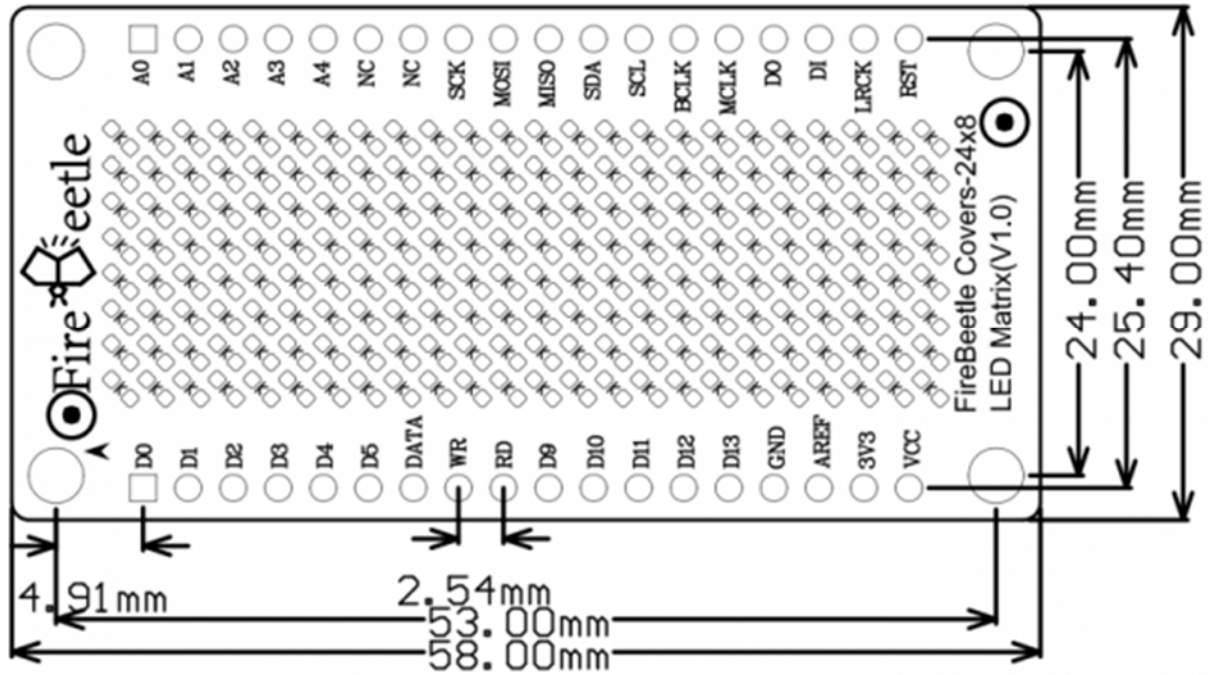
void setup() {
    Serial.begin(115200);
    // put your setup code here, to run once:
    ht1632c.begin();
    ht1632c.isLedOn(true);
    ht1632c.clearScreen();
    delay(500);
}

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

## Additional Instruction

FireBeetle Covers-24x8 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-24x8 LED Matrix Dimension