

SKU:DFR0762 (<https://www.dfrobot.com/product-2072.html>)

 (Product Link)

Introduction

Specially designed for FireBeetle 2 series, this Gravity IO expansion shield offers various ports including digital, analog, I2C, UART, SPI, etc. Also, it comes with power input socket for connecting external power supply as well as EN pin for cutting off the power supply to main-board. The Gravity IO shield allows a convenient connection between DFRobot Gravity sensors and FireBeetle 2 series, no soldering required.

Features

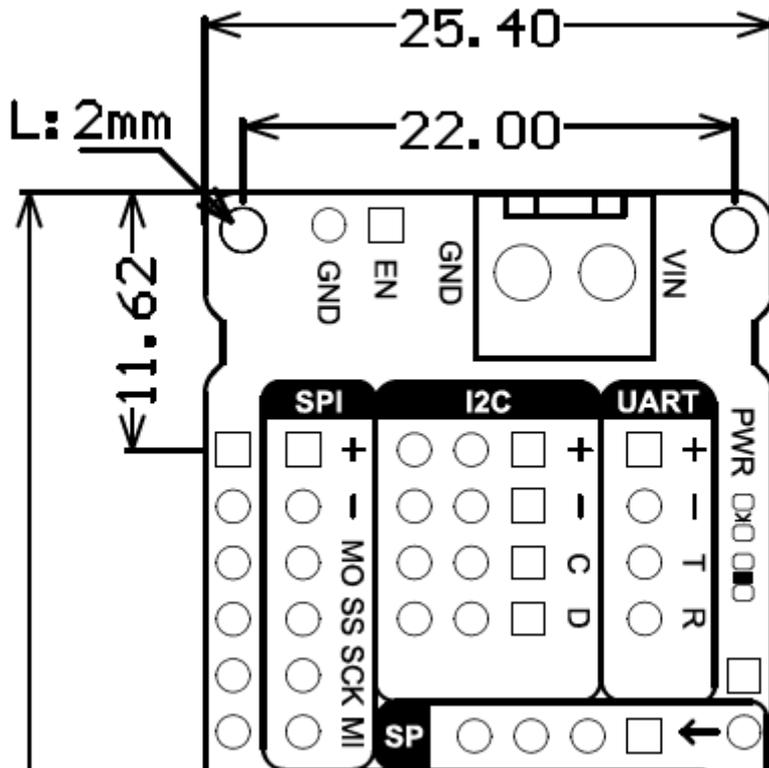
- Support FireBeetle 2.0 series mainboards, including M0 and ESP32-E.
- Support the pin sequence of Gravity series products.
- Support in-line SD card module.

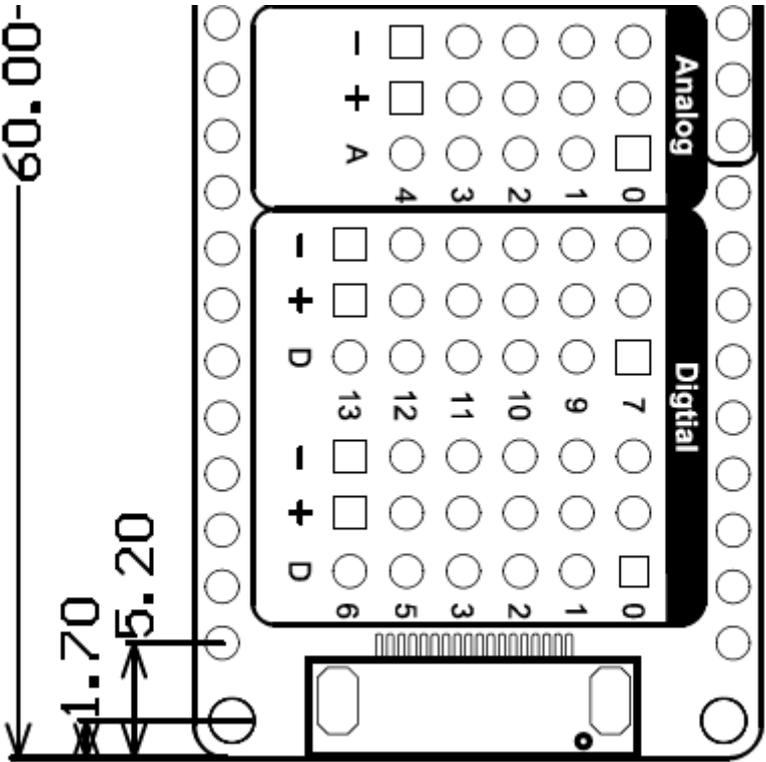
- Support GDI display interface
- Support external power socket
- EN pin mainboard power switch

Specification

- 12 groups of digital ports
- 5 groups of analog ports
- 3 groups of I2C ports in parallel
- 1 group of UART ports
- 1 group of SPI ports
- 1 group of sp ports
- GDI display interface
- External power supply cable socket

- EN jumper wire
- Dimension: 60 mm×25.4 mm/2.36×1.00"
- Fixed Hole Diameter: 2.0 mm/0.08"





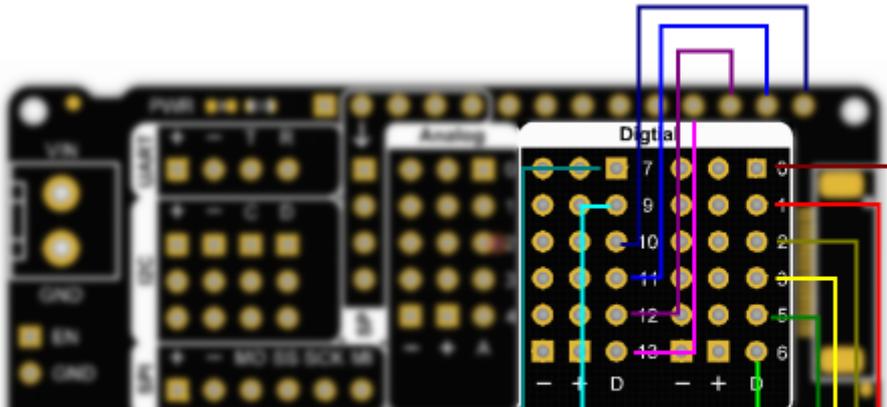
Function Description

The following instructions are only for the Arduino environment. If use it in other operating environment, please adjust the usage according to the schematics.

3.1 Digital ports

This IO expansion shield provides 12 groups of digital ports including 0~13 except 4 and 8, which can be used directly by IO number.

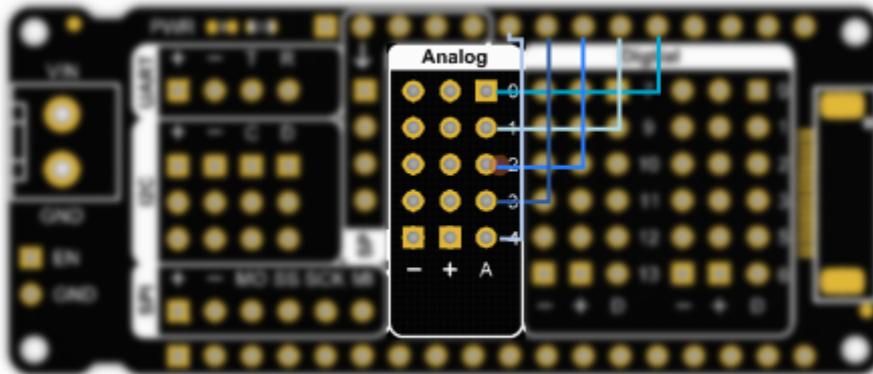
Note: When ESP32 uses pins in the Arduino environment, you need to use Dx such as D0 instead of directly using IO number 0, or use IO number corresponding to the mainboard.





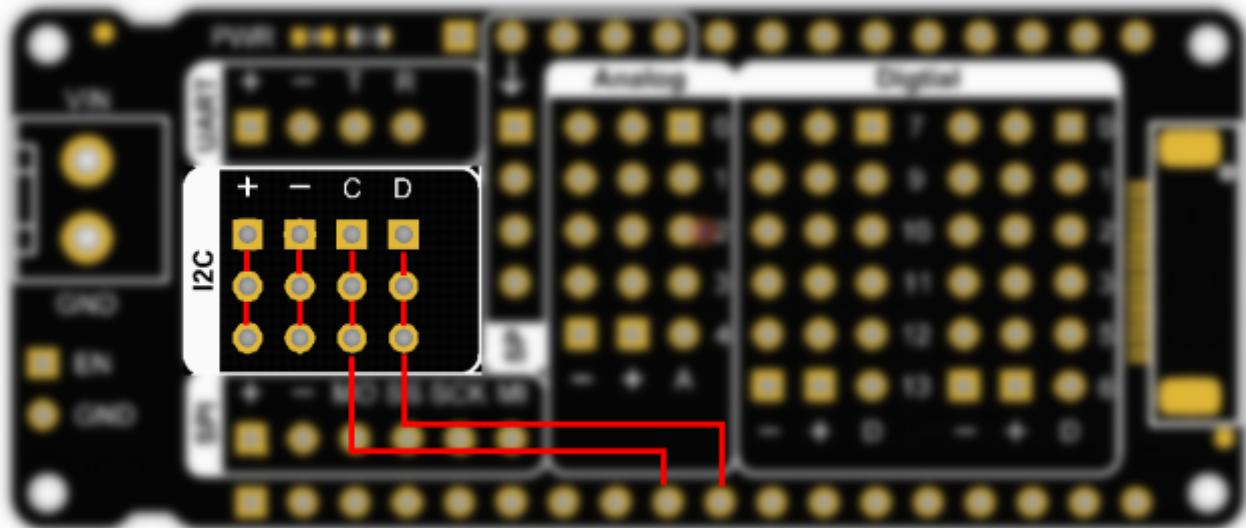
3.2 Analog ports

This IO expansion shield provides 5 groups of analog ports including A0~A4, which can be used directly by IO number.



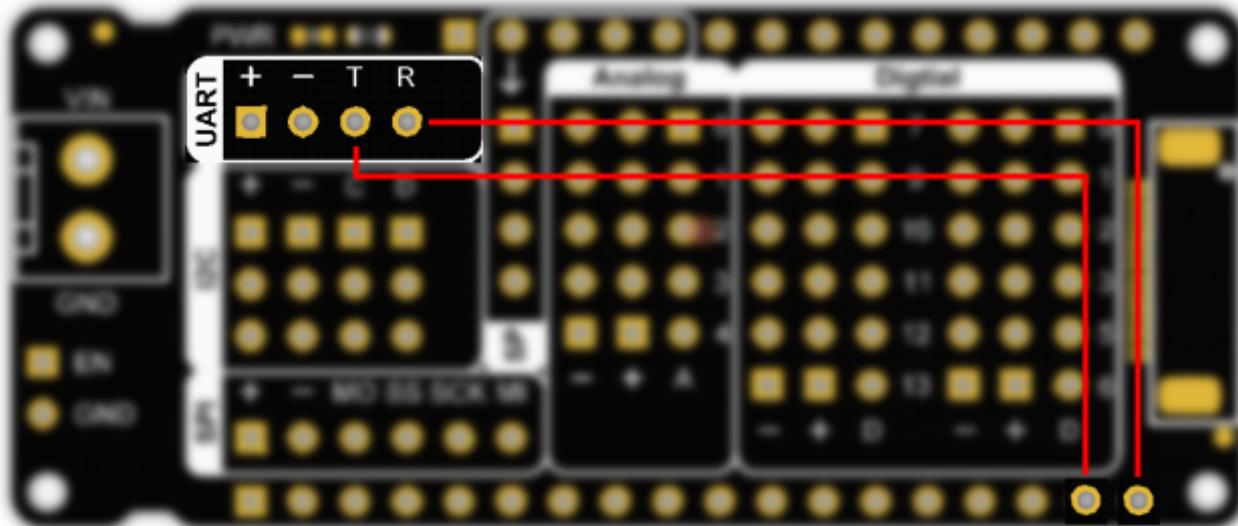
3.3 I2C ports

This shield provides 3 groups of I2C ports in parallel.



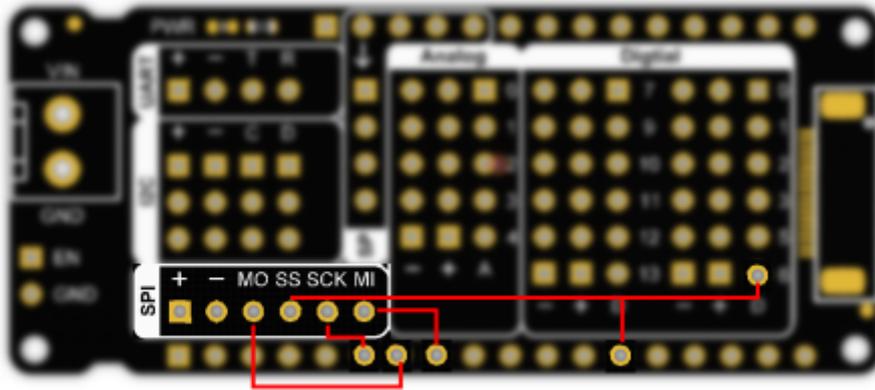
3.4 UART ports

This shield provides 1 group of UART ports. R corresponds to pin 0, T to pin 1. When using UART, please do not use pin 0 and pin 1.



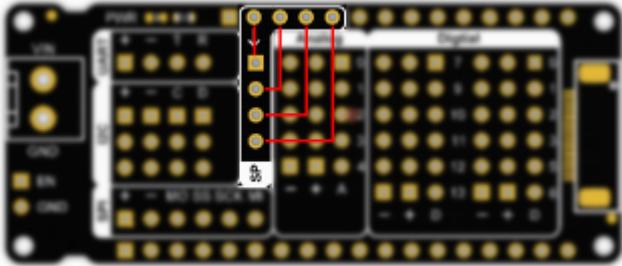
3.5 SPI ports

This shield provides 1 group of SPI ports, supporting to use SD card module in-line, and SS is connected to pin 6.

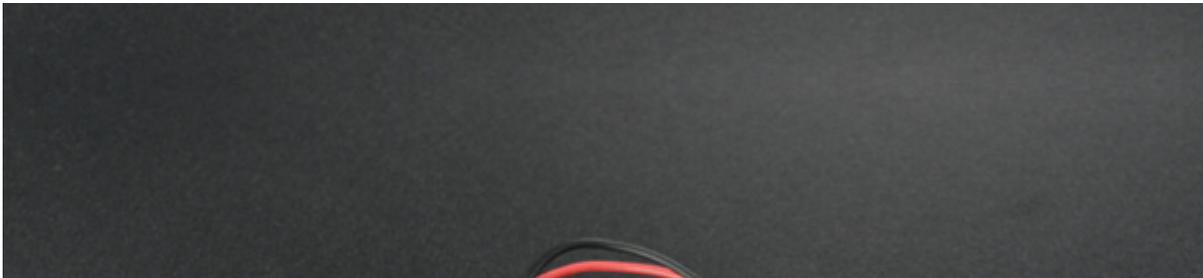


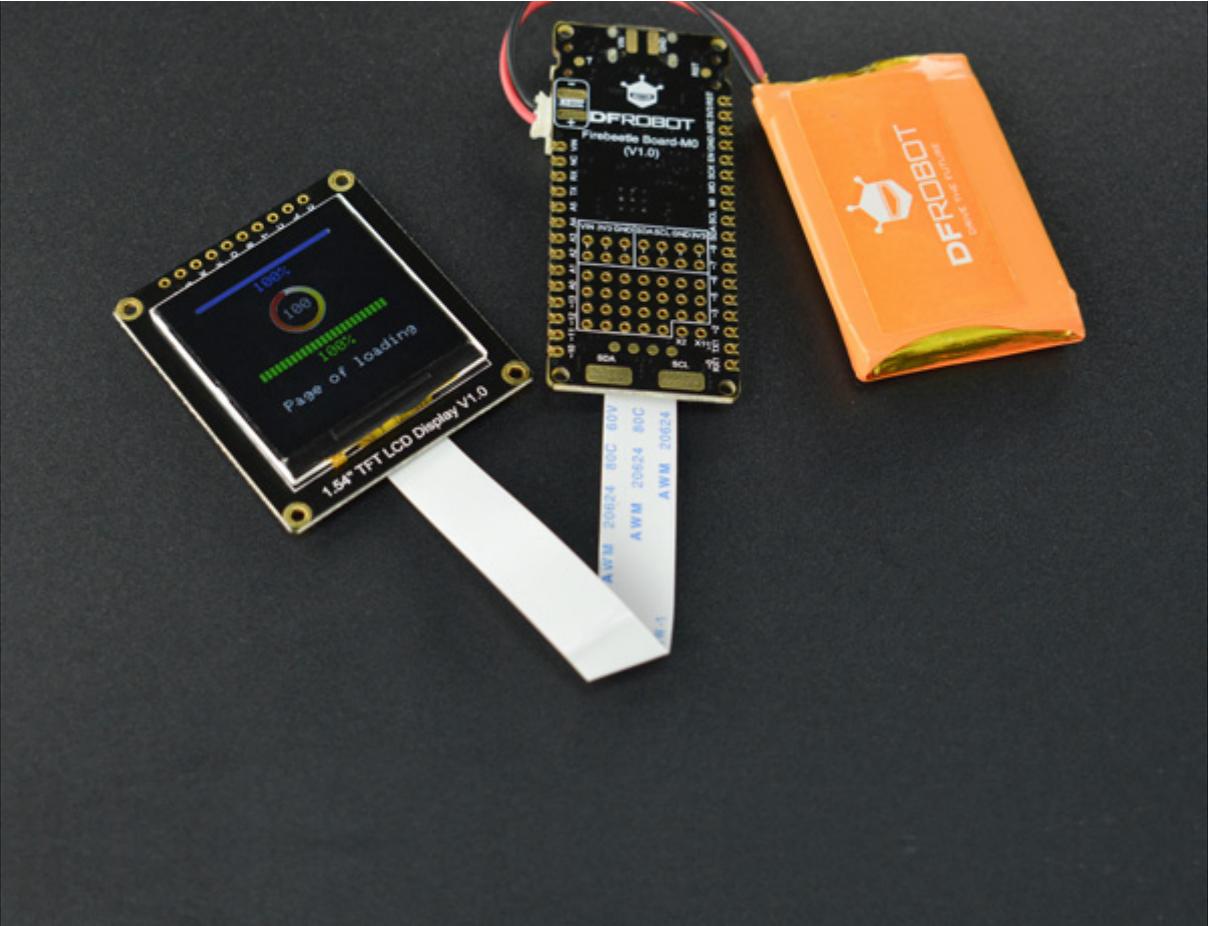
3.6 SP pin

The SP pin presents different functions on different mainboards, representing NC, RXD, TXD, A5 on M0, and I2C on ESP32-E.



3.7 GDI display interface





1.54" TFT LCD Display V1.0

DFROBOT
Firebeetle Board-M0
(V1.0)

DFROBOT
3.7V 100mAh

AWM 20824 80C 80V
AWM 20824 80C
AWM 20824

100%

100%

100%

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This interface is a DFRobot dedicated GDI, with 18pin-FPC cable connection and single wire connection to the screen, providing you with the simplest way to use the screen.

The following is a list of pins used by the GDI interface

FPC PINS Standard	IO Expansion Shield Line Sequence
VCC display power	3.3 V
BLK display backlight	12/D13
GND	GND
SCIK SPI clock	18/SCK
MOSI SPI host output	23/MOSI
MISO SPI host input	19/MISO
DC data/command	25/D2
RES reset	26/D3
CS display chip select	14/D6

SDCS SD card chip select FPC PINS Standard	IO Expansion Shield Line Sequence
FCS font library chip select	13/D7
TCS touch chip select	0/D5
	4/D12

SCL I2C clock	22/SCL
SDA I2C data	21/SDA
INIT initialization	16/D11
BUSY-TE anti-tear pin	17/D10
X1 extensible pin 1	NC
X2 extensible pin 2	NC

When using the FPC to connect to the screen, configure the corresponding pin number according to the GDL demo, usually only three pins are required for configuring.

Displays supporting GDI:

- 1.54 in 240x240 IPS TFT LCD Display with MicroSD Card (<https://www.dfrobot.com/product-2072.html>)
- 2.0 in 320x240 IPS TFT LCD Display with MicroSD Card (<https://www.dfrobot.com/product-2071.html>)
- 2.8 in 320x240 TFT LCD Resistive Touchscreen with MicroSD Card Slot (<https://www.dfrobot.com/product-2106.html>)
- 3.5 in 480x320 TFT LCD Capacitive Touchscreen with MicroSD Card Slot (<https://www.dfrobot.com/product-2107.html>)

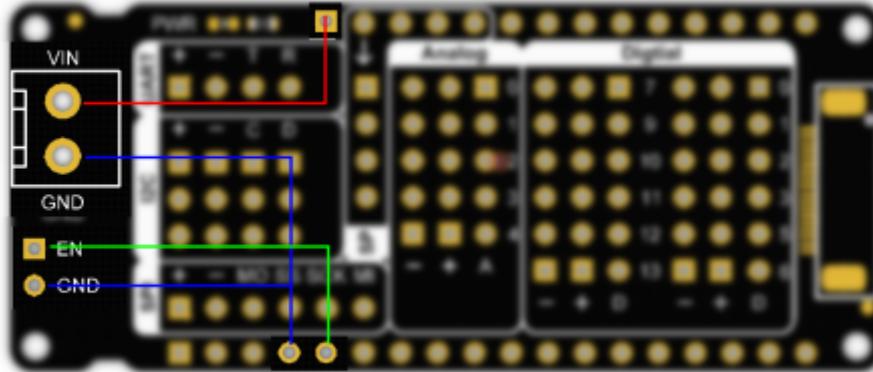
For specific usage, please refer to: GDL display wiki:

https://wiki.dfrobot.com/2.0_Inches_320_240_IPS_TFT_LCD_Display_with_MicroSD_Card_Breakout_SKU_DFR0664

(https://wiki.dfrobot.com/2.0_Inches_320_240_IPS_TFT_LCD_Display_with_MicroSD_Card_Breakout_SKU_DFR0664)

NOTE: Please do not reuse related pins. The GDI on the expansion shield only supports ESP32-E. If you need to use GDI for M0, please use the GDI integrated on the development board.

Power socket and EN switch



VIN: Connect to the VCC pin on the mainboard. The terminal is convenient for connecting the spiral battery. Note: When VIN is connected to an external power supply, do not connect the main control to other power supply or USB.

GND: Common ground

EN: It can be designed as the maincontroller switch. When EN is grounded, the main controller

will stop running.

FAQ

For any questions, advice or cool ideas to share, please visit the **DFRobot Forum** (<https://www.dfrobot.com/forum/>).

More Documents

 **DFshopping_car1.png** Get **FireBeetle Covers Gravity IO Expansion Shield** (<https://www.dfrobot.com/product-203.html>) from DFRobot Store or **DFRobot Distributor**. (<https://www.dfrobot.com/index.php?route=information/distributorslogo>)

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