Spider V2.2

www.wiki.fysetc.com/spider

For NeoPixels:

3-PIN RGB LED 5 VDC: 5VDC, PD3, GND — 30 LEDS MAX

3.3 V DC

TST M3 M2 M1

SPI/UART

SPI

X-MOT-CS	PE7
Y-MOT-CS	PE15
Z-MOT-CS	PD10
E0-MOT-CS	PD7
E1-MOT-CS	PC14
E2-MOT-CS	PE15
E3-MOT-CS	PA15
E4-MOT-CS	PD11
MOSI	PE14
MISO	PE13
SCK	PE12

Four (4) Jumpers are needed for this mode.
Jumpers located in: columns MISO, CS, SCK, MOSI and rows 2 & 3.

UART (CS)

X-MOT:	PE7
Y-MOT:	PE15
Z-MOT:	PD10
E0-MOT:	PD7
E1-MOT:	PC14
E2-MOT:	PC15
E3-MOT:	PA15
E4-MOT:	PD11

Only one (1) Jumper is needed for this mode.
Jumper located in column MS3 and row 2 & 3.

*1 Note on 3.3V/5V label:

FYSETC Spider boards have additional Jumper Pads which are located on the back side of the board. These Jumper Pads can be soldered so that you can change the supply voltage on certain PINS. Please see the FYSETC Spider schematic diagram and look for the following labels: “JP3”, “JP5”, “JP8”, “JP20”, “JP21”, “JP22”, and “JP23”.

Default 3.3VDC Trace, Highlighted:

I2C header in Red dots, Y+ connector in Green-solid & Z+ connector in Purple-dash:

Select Motor Voltage For “Y-MOT” & “X-MOT” Motors

Set 24 VDC

Set 48 VDC

USB Port V2.0 Type-C

USB-C_D+ PA12

USB-C_D- PA11

USB Pins Out: used to connect the Raspberry Pi inside the printer via USB.

Connect the Raspberry Pi to Spider

The spider provides a serial port for connecting to the Raspberry Pi or WiFi module, and this interface has a strong enough (8A MAX) 5V power supply. In order to use the only hardware serial port of the Raspberry Pi, you need to disable the console function and map the hardware serial port to GPIO14 and GPIO15.

You can refer here:

sudo raspi-config
=> Interfacing Option
=> Serial
=> NO
=> YES
sudo nano /boot/config.txt
=> add this line :
dtoverlay=pi3-disable-bt
=> then
sudo reboot
sudo nano /boot/cmdline.txt
=> remove the word phase
"console=serial0,115200" or
"console=ttyAMA0,115200"
sudo reboot

STALLGUARD (Sensor-less Homing)

DIAG pin to/from Driver — Endstops to/from MCU

	DIAG PIN	ENDSTOP
X-MOT	XM-DIAG	PB14
Y-MOT	YM-DIAG	PB13
Z-MOT	ZM-DIAG	PA0
E0-MOT	E0M-DIAG	PA3
E1-MOT	E1M-DIAG	PA2
E2-MOT	E2M-DIAG	PA1

ENABLED / DISABLED

Note1 Concerning the TMC2209/TMC2226 in UART Mode ONLY:
If using limit switches/enstops, ensure the DIAG pin is NOT connected to the MCU Endstop (i.e., ensure the ‘Diag Jumper’ is removed).

Note2 For TMC2209/TMC2226 in UART Mode ONLY:
if you are using it for your extruder motor and you want to use a filament runout sensor, ensure the DIAG/DIAG1/DIAG0 PIN is NOT connected to the MCU Endstop to allow the filament runout sensor to work properly (i.e., ensure the ‘Diag Jumper’ is removed for the corresponding extruder motor).

How to Configure “RGB Block” For two 4-PIN Leds @ 12VDC/24VDC

12VDC 4-PIN LEDs

24VDC 4-PIN LEDs

How to Configure “RGB Block” For FANS (12VDC/24VDC)

12VDC FAN3-FAN6

24VDC FAN3-FAN6

FAN Voltage Selection Block

24VDC Selected

12VDC Selected

5VDC Selected

MAX Current: 0.5 Amps /Fan connector

MOTOR_POWER_IN FUSE 20 For stepper motor drivers.

MB_POWER_IN FUSE 20 For heated bed, circut logic, fans, & hotend heaters.

Note: If you are unsure about any of the information provided on this PIN Diagram, please ask for help from the 3D printer community, check the Processor’s data sheet and the board’s schematic diagram.

Power Selection Header

Board Powered by USB-C Port — Board Powered by POWER_IN

Probe Voltage Select (PL08N)

24 VDC Selected

5 VDC Selected (BLTouch)

Micro SD Card Reader

SS	PA4
MOSI	PA7
SCK	PA5
MISO	PA6
SD_DET	PB10

All options the same as except for Bootloader offset!
If your Spider was made prior to 2021_06_23 use 64KiB bootloader, otherwise use 32KiB bootloader!

Klipper Building Options for The FYSETC Spider (made prior to 2021/06/23):

Klipper Building Options for The FYSETC Spider (made after 2021/06/23):

Two Options available for Klipper Firmware Installation:

DFU FIRMWARE INSTALL

SDCARD FIRMWARE INSTALL

1. Power off the Spider
2. Install a jumper between BT0 and 3.3V
3. Connect Spider B to via USB
4. Power on Spider
5. from your Linux machine, run ‘lsusb’, and find the ID of the dfu device.
6. Edit the make FLASH_DEVICE=1234:5678’ replace 1234:5678 with the ID from the previous step.
7. power off the Spider
8. remove the jumper from BT0/3.3V
9. Power up the Spider
10. you can confirm that the flash was successful, by running ls /dev/serial/by-id. If the flash was successful, this should now show a klipper device, similar to:

(NOTE: this test is not applicable if the firmware was compiled for UART, rather than USB)

1. Use a tool such as cyberduck or winscp to copy the klipper.bin file off your pi, onto your computer.
2. Rename klipper.bin to firmware.bin

Important: If the file is not renamed, the bootloader will not be updated properly.

1. Ensure that your sdcard is formatted FAT32 (NOT EXFAT!)
2. copy firmware.bin onto the mksmz50 sprd (if this card has previously been used for this process, remove all old firmware.bin and old.bin files)
3. power down the Spider
4. Insert the microSD card
5. Power up the Spider
6. after a few seconds, the Spider should be flashed
7. you can confirm that the flash was successful, by running ls /dev/serial/by-id. If the flash was successful, this should now show a klipper device, similar to:

(NOTE: this test is not applicable if the firmware was compiled for UART, rather than USB)

	EN	STEP	DIR	CS
X-MOT	PE9	PE11	PE10	PE7
Y-MOT	PD9	PD8	PB12	PE15
Z-MOT	PD15	PD14	PD13	PD10
E0-MOT	PD4	PD5	PD6	PD7
E1-MOT	PE5	PE6	PC13	PC14
E2-MOT	PE3	PE2	PE4	PC15
E3-MOT	PE8	PD12	PC4	PA15
E4-MOT	PC5	PE1	PE0	PD11