Spider V1.0 - V2.0 www.wiki.fysetc.com/spider

For NeoPixels:

3-PIN RGB LED 5 VDC, 130 LEDS MAX

5VDC | PD3 | GND

Z Motor Sockets: For 1 Stepper Motor place 2 Jumpers as shown below in either Z1 or Z2 Socket.

For 2 Stepper Motors DO NOT use 2 Jumpers

Z Socket

3.3 V DC

RST M3 M2 M1

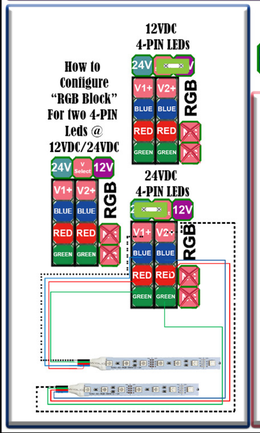
SPI/UART

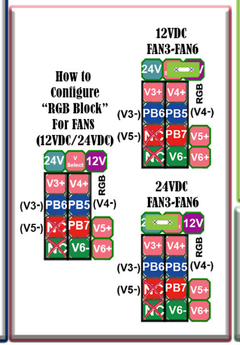
SPI

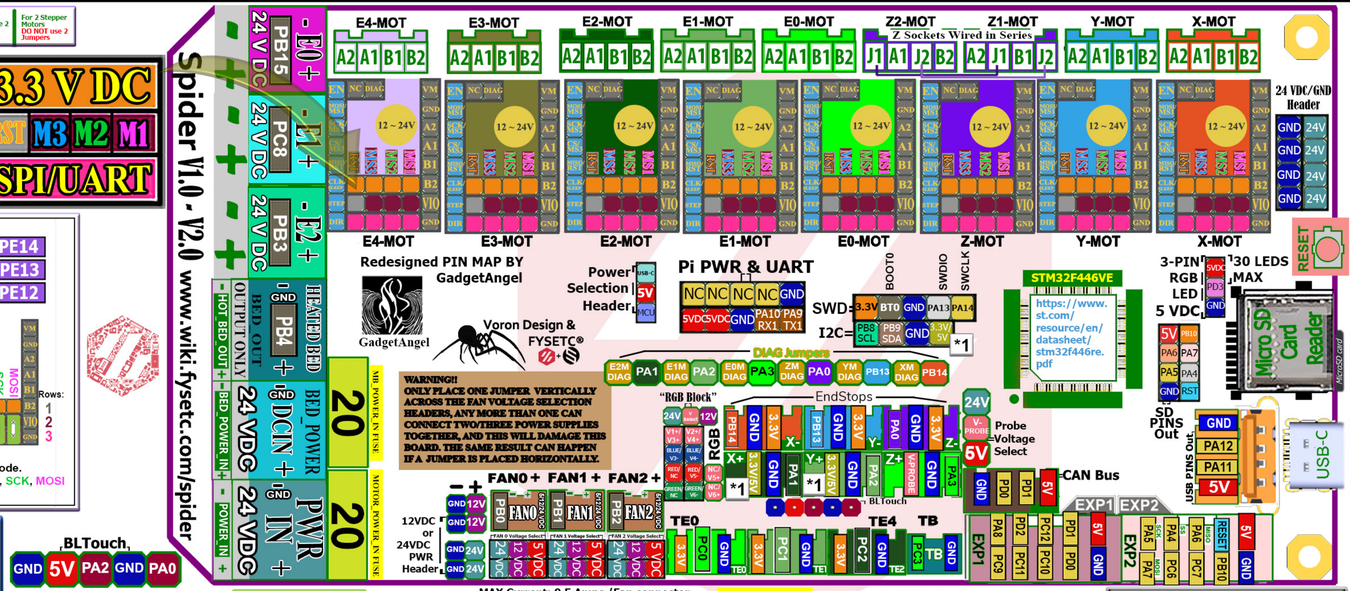
MOSI	PE14
MISO	PE13
SCK	PE12
X-MOT-CS	PE7
Y-MOT-CS	PE15
Z-MOT-CS	PD10
E0-MOT-CS	PD7
E1-MOT-CS	PC14
E2-MOT-CS	PC15
E3-MOT-CS	PA15
E4-MOT-CS	PD11

Rows: 1 2 3

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







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.

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

Rows: 1 2 3

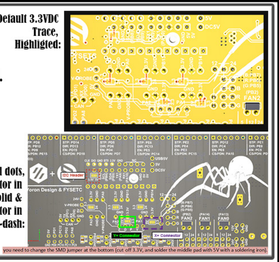
Only one (1) Jumper is needed for this mode. Jumper located in column MS3 and row 2 & 3.

*1 Note on 3.3V/5V label:

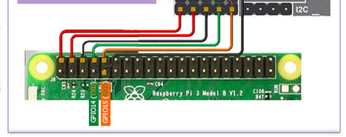
FYSETC Spider boards have additional Jumper Pads which are located on the back side of the board. These Jumper Pads can be soldered so that you can change the supply voltage on certain PINS. Please see the FYSETC Spider schematic diagram and look for the following labels: "JP3", "JP5", "JP8", "JP20",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

Default 3.3VDC Trace, Highlighted:

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



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.

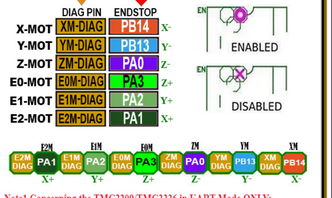
You can refer here:

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



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).

Probe Voltage Select (PL08N) 24 VDC Selected — 5 VDC Selected (BLTouch)

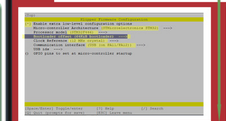
USB Port V2.0 Type-C

USB-C_D+	PA12
USB-C_D-	PA11

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

1. Power off the Spider
2. Install a jumper between BT0 and 3.3V
3. Connect Spider & PI via USB
4. Power on the Spider
5. from your ssh session, run 'lsusb', and find the ID of the dfu device.
6. run 'make flash 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:

```
usb-Klipper_stm32f446xx_4800500050435037313038 -> ../ttyACM0
```

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

SDCARD FIRMWARE INSTALL

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 microSD card (if this card has previously been used for this process, remove all old firmware.bin and old.bin files)
3. safely eject the microSD card
4. insert the microSD card
5. power on 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:

```
usb-Klipper_stm32f446xx_4800500050435037313038 -> ../ttyACM0
```

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