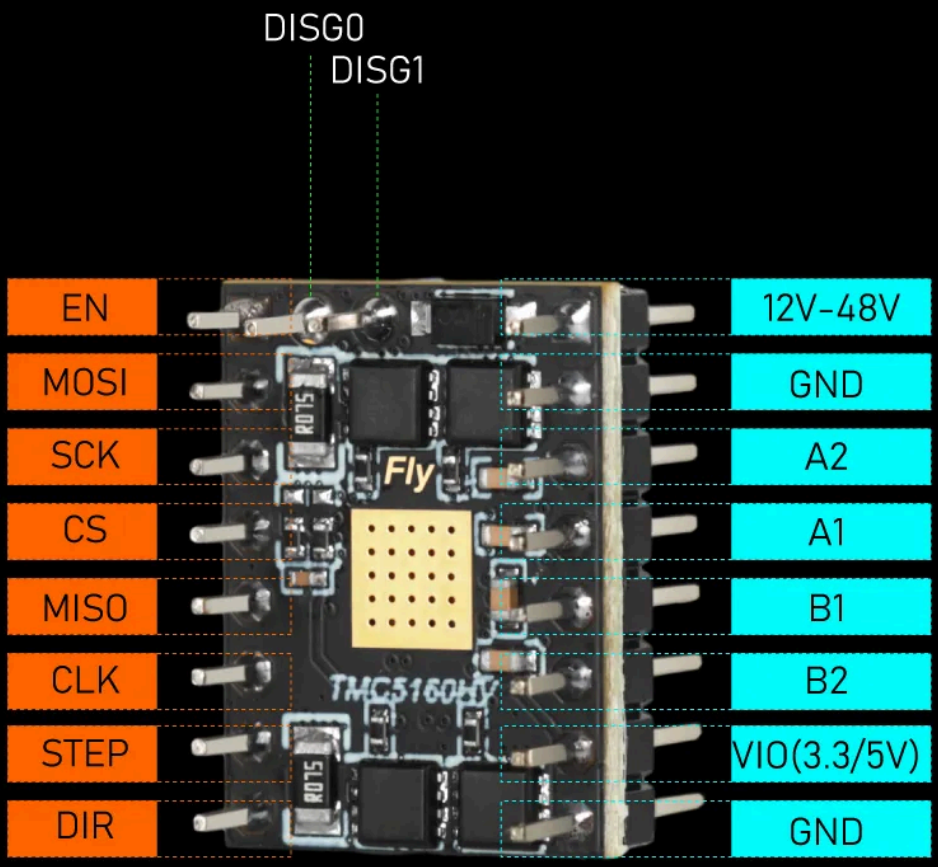
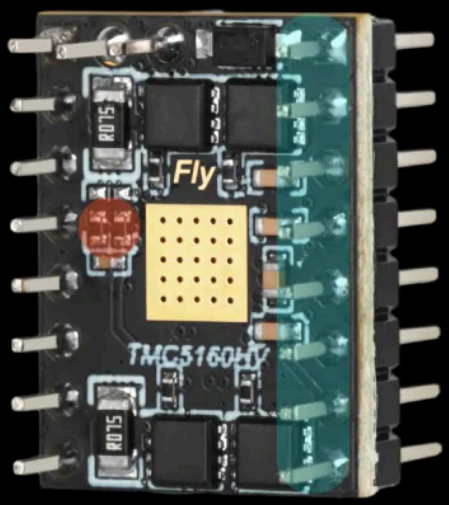
TMC 5160HV

Interface description

接口描述



- SD mode switch
  SD模式开关
- SPI mode switch
  SPI模式开关



- The extended row of pins can be powered by external power supplylf the main board PCB cannot withstand high current, the motor line can be directly inserted here

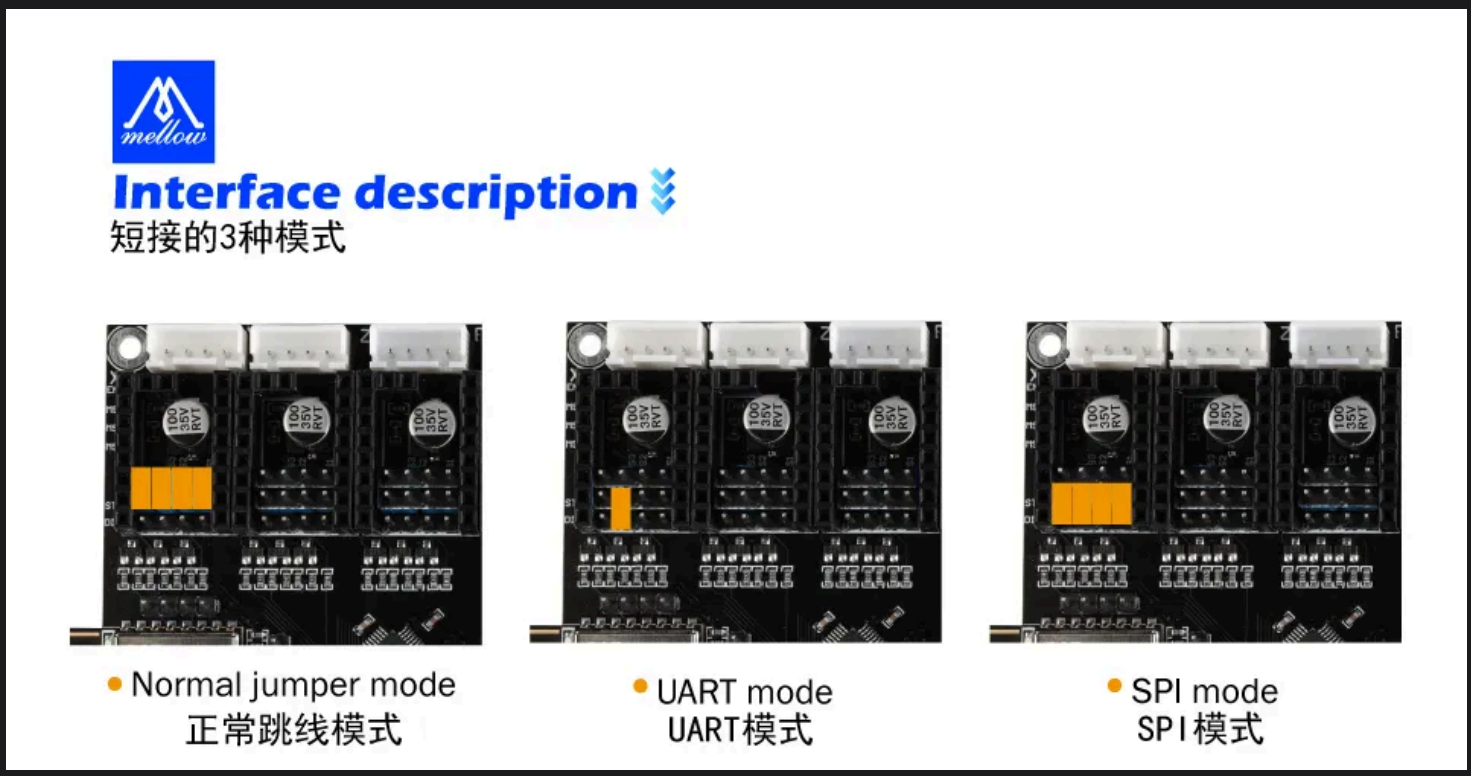
延长的一排引脚可以由外部电源供电。如果主板PCB不能承受高电流，电机线可以直接插入此处

Basic

- Input Voltage: 12V-48V
- Maximum Current: 4.4A
- Suitable for: Marlin/Klipper/RRF Firmware
- Drive Mode Support: TMC: SPI
- Stepper/Direction Interface with microPlyer Microstep Interpolation
- Maximum Resolution: 256 Microsteps
- Supports StealthChop2 Silent Operation and Smooth Motion
- Supports Resonance Suppression for Mid-Frequency Resonances
- Supports SpreadCycle High Dynamic Motor Control Chopper
- Supports dcStep Load-Dependent Speed Control
- Supports stallGuard2 High Precision Sensorless Motor Load Detection
- Supports coolStep Current Control, up to 75% Energy Saving

Mainboard Jumper

- TMC5160 uses SPI Jumper
- The SPI pin for FLY drive is the fourth pin counting down from the left. The CS pin is the SPI pin. If the motherboard does not have the corresponding pin position, SPI cannot be used.



TMC5160 Reference

DANGEROUS

- The sampling resistor for the driver is `sense_resistor: 0.075`. Please do not set it incorrectly.
- Only one of `spi_bus` and `spi_software` can be selected.

SPI Mode Reference

```
[tmc5160 stepper_x]
cs_pin:
spi_bus:
# spi_software_mosi_pin:
# spi_software_miso_pin:
# spi_software_sclk_pin:
run_current: 1.0                    # Motor Running Current Value
interpolate: False                  # Whether to Enable 256 Microstep
Interpolation (Enable is True, Disable is False)
sense_resistor: 0.075
stealthchop_threshold: 0
driver_DISS2G: 1
driver_DISS2VS: 1
```

Infinite Limit Usage

INFINITE POSITION USAGE TIP

- Infinite position usage requires occupying a limit port, normally IO1 is used for the first drive position, IO2 for the second drive position, and so on.
- When using infinite position, please make sure not to connect anything to the corresponding limit port.
- For some FLY motherboards, the drive ports are directly connected, please pay attention to whether DIAG is directly connected to the corresponding pin.

INFINITE LIMIT USAGE TIP

- The original `endstop_pin:` needs to be masked or deleted, add `endstop_pin: tmc5160_stepper_x:virtual_endstop`
- After configuring `diag1_pin:`, the limit status will be untriggered.
- Configure `driver_SGT:` and test a suitable value.

- Reference Configuration

```
[stepper_x]
# endstop_pin:PF3
endstop_pin: tmc5160_stepper_x:virtual_endstop
homing_retract_dist: 0        # Retract Distance, 0 may cause failed homing

[tmc5160 stepper_x]
diag1_pin: ^!
driver_SGT: 1

# After configuration, ensure that the limit status is untriggered.
# This pin usually uses the "^" prefix to enable internal pull-up.
# Sensitivity is related to belt tension and needs to be adjusted.
# (Ensure that `driver_SGTHRS` is set to an appropriate sensitivity at the same
time)
```


*Last updated on**Nov 22, 2024** by **Xiaok***