

# V0 Display Screen

## V0 Display Flickering Instructions

### Connection

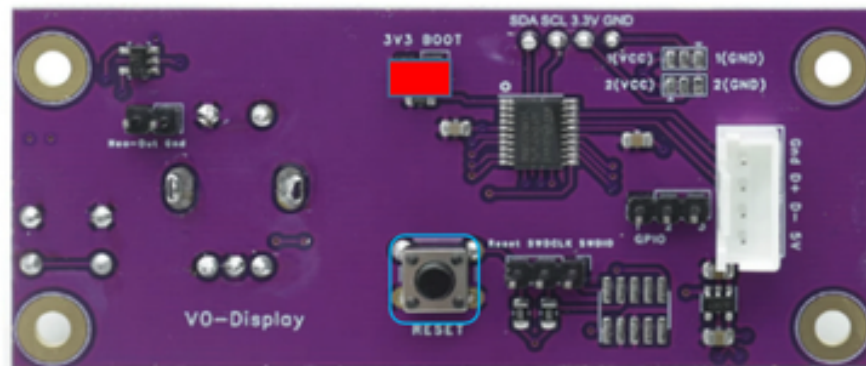
The display is connected to the host computer via USB.

### Firmware Pre-Installation Check

Determine if your display has firmware pre-installed:

#### If the display has pre-flashed firmware:

Install a jumper cap in the red area shown in the image below and press the RSSCT button to put the development board into DFU mode.



#### If the display does not have firmware pre-flashed:

The MCU defaults to DFU mode if no other firmware is installed.

Confirm that the development board enters DFU mode in step 4.

### Connect via SSH

Connect to your host computer using SSH.

### Verify DFU Mode

Run the command:

```
lsusb
```

Ensure the STM32 is listed in DFU mode.

```
fly@flygemini:~/klipper$ lsusb
Bus 008 Device 004: ID 0483:df11 STMicroelectronics STM Device in DFU Mode
Bus 008 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
Bus 005 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 007 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
Bus 004 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 006 Device 004: ID 1d50:6140 OpenMoko, Inc. stm32f405xx
Bus 006 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
Bus 003 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 002 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
Bus 001 Device 002: ID 2a5f:1000 MediaTek TENCENT WLAN
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 009 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
fly@flygemini:~/klipper$
```

## List DFU Devices

Run:

```
dfu-util --list
```

Note the information in the red box.

```
fly@flygemini:~/klipper$ dfu-util --list
dfu-util 0.9

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This program is Free Software and has ABSOLUTELY NO WARRANTY
Please report bugs to http://sourceforge.net/p/dfu-util/tickets/

Found DFU: [0483:df11] ver=2200, devnum=4, cfg=1, intf=0, path="8-1", alt=1, name="@Option Bytes /0x1FFFF800/01*010 e", serial="FFFFFFFFFFFF"
Found DFU: [0483:df11] ver=2200, devnum=4, cfg=1, intf=0, path="8-1", alt=0, name="@Internal Flash /0x08000000/032*0001Kg", serial="FFFFFFFFFFFF"
fly@flygemini:~/klipper$
```

## Access Klipper Directory

Run:

```
cd ~/klipper
```

## Configure Klipper

Run:

```
make menuconfig
```

```
[Top]
Stipper Firmware Configuration
[*] Enable extra low-level configuration options
  Micro-controller Architecture (STMicroelectronics STM32) ---->
  Processor model (STM32F042) ---->
  Bootloader offset (No bootloader) ---->
  Clock Reference (Internal clock) ---->
  Communication interface (USB (on PA9/PA10)) ---->
  USB ids ---->
  Optional features (to reduce code size) ---->
() GPIO pins to set at micro-controller startup

[Space/Enter] Toggle/enter    [?] Help    [/] Search
[Q] Quit (prompts for save)  [ESC] Leave menu
```

• Set the "Optional features" to:

```
[Top] + Optional features (to reduce code size)
Stipper Firmware Configuration
[*] Support GPIO "bit-banging" devices
[*] Support LCD devices
[*] Support external sensor devices
[ ] Support software based I2C "bit-banging"
[*] Support software based SPI "bit-banging"

[Space/Enter] Toggle/enter    [?] Help    [/] Search
[Q] Quit (prompts for save)  [ESC] Leave menu
```

• Hit **Q** to Exit and Save

Set the configuration as required, then exit and save.

## Clean Make Environment

Run:

```
make clean
```

## Flash Firmware

Run:

```
make flash FLASH_DEVICE=0483:df11
```

(Use the appropriate xxxx:yyyy from the previous step.)

## Final Steps

Remove the power jumper.

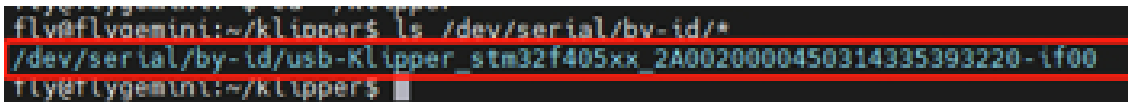
Press the reset button.

## Verify Serial Device

After completion, run:

```
ls /dev/serial/by-id/*
```

This should return a device starting with `/dev/serial/by-id/usb-Klipper_stm32f042x6...`.



```
flyerflygemint:~/klipper$ ls /dev/serial/by-id/*  
/dev/serial/by-id/usb-Klipper_stm32f405xx_2A0020000450314335393220-lf00  
flyerflygemint:~/klipper$
```

## Update Display Configuration

Copy the serial port name (e.g., `/dev/serial/by-id/usb-Klipper_stm32f042x6...`) and place it in the `[mcu display]` section of the display configuration file.

## Example Configuration for V0Display.cfg

[Copy](#)

```
[mcu display]
serial: /dev/serial/by-id/usb-Klipper_stm32f042x6_JKYZ-if00
restart_method: command
```

```
[display]
lcd_type: sh1106
i2c_mcu: display
i2c_bus: i2c1a
encoder_pins: ^display:PA4, ^display:PA3
click_pin: ^!display:PA1
kill_pin: ^!display:PA5
x_offset: 2
```

```
[neopixel displayStatus]
pin: display:PA0
chain_count: 1
color_order: GRB
initial_RED: 0.24
initial_GREEN: 0.02
initial_BLUE: 0.25
```

Your display should now work with Klipper. To get started, it's recommended to copy the configuration file to the same directory as `printer.cfg`, and then add `[include V0Display.cfg]` at the end of `printer.cfg` to include the file.