How to enable OLED display

Prerequisite Setup [3]

Run the standard updates:

```
sudo apt-get update
sudo apt-get -y upgrade
sudo apt-get install python3-pip
```

and upgrade setuptools:

```
sudo apt install --upgrade python3-setuptools
```

Setup Virtual Environment

To Install and activate the virtual environment, use the following commands:

```
sudo apt install python3-venv
python3 -m venv env --system-site-packages
```

You will need to activate the virtual environment every time the Pi is rebooted.
To activate it:

```
source env/bin/activate
```

Automated Install

```
cd ~
pip3 install --upgrade adafruit-python-shell
wget https://raw.githubusercontent.com/adafruit/Raspberry-Pi-Installer-Scripts/master/raspi-blinka.py
sudo -E env PATH=$PATH python3 raspi-blinka.py
```

When it finishes, it will ask you if you would like to reboot. Choose **yes**

Check I2C and SPI

The script will automatically enable I2C and SPI. You can run the following command to verify:

```
ls /dev/i2c* /dev/spi*
```

You should see the response

```
/dev/i2c-1  /dev/i2c-11  /dev/i2c-12  /dev/spidev0.0  /dev/spidev0.1  /dev/spidev10.0
```

Install Other Packages

Activate virtual environment:

```
source ~/env/bin/activate
```

Install a few modules:

```
pip3 install adafruit-circuitpython-ssd1306
```

```
pip3 install pi-ina219
```

```
pip3 install rpi-lgpio
```

Deactivate virtual environment:

```
deactivate
```

Run OLED

1. Download the required scripts

```
cd ~
# git clone https://github.com/suptronics/oled.git
git clone https://github.com/geekworm-com/oled
cd oled
```

2. Run the script to test the display

```
~/env/bin/python3 x729.py
```

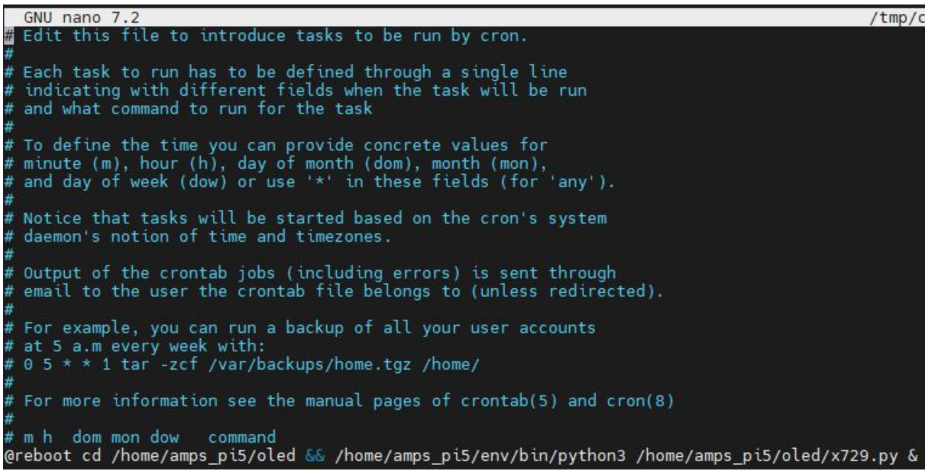
3. Run the script at Raspberry Pi boot

```
sudo crontab -e
```

4. Add a line at the end of the file that reads like this:
   PS: we must toogle to the /home/pi/oled directory because .ttf files is required to locate in current directory,you can refer to x729.py source file, or you can also remove the 'cd /home/pi/oled &&' if you use the absolute path of the ttf file in the source code.

```
@reboot cd /home/amps_pi5/oled && /home/amps_pi5/env/bin/python3 /home/amps_pi5/oled/x729.py &
```

5. Save and exit.

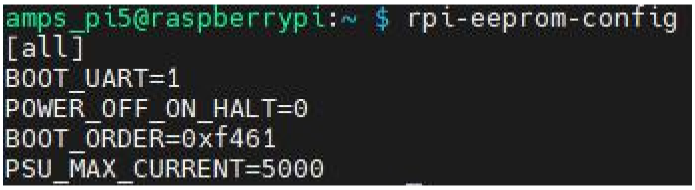


```
  GNU nano 7.2                                                                         /tmp/c
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').
#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h  dom mon dow   command
@reboot cd /home/amps_pi5/oled && /home/amps_pi5/env/bin/python3 /home/amps_pi5/oled/x729.py &
```

Issues – Power Supply Support 5A

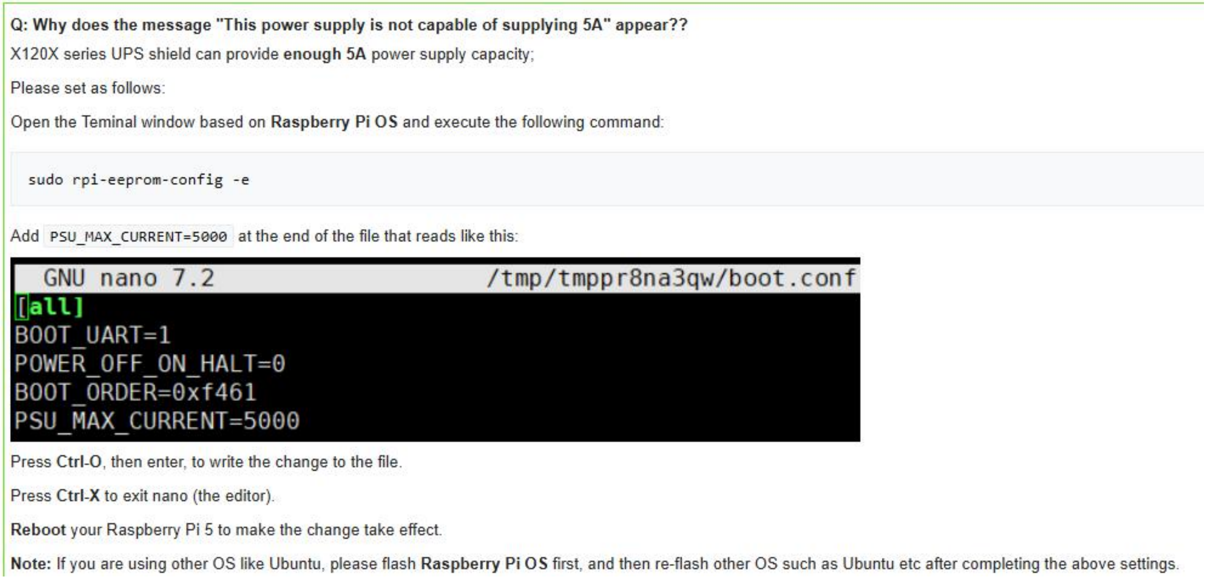
Check if EEPROM is configure properly

```
rpi-eeprom-config
```



```
amps_pi5@raspberrypi:~ $ rpi-eeprom-config
[all]
BOOT_UART=1
POWER_OFF_ON_HALT=0
BOOT_ORDER=0xf461
PSU_MAX_CURRENT=5000
```

If “PSU_MAX_CURRENT=5000” are not found then please proceed to perform following instructions.



Q: Why does the message "This power supply is not capable of supplying 5A" appear??

X120X series UPS shield can provide **enough 5A** power supply capacity;

Please set as follows:

Open the Teminal window based on **Raspberry Pi OS** and execute the following command:

```
sudo rpi-eeprom-config -e
```

Add `PSU_MAX_CURRENT=5000` at the end of the file that reads like this:

```
  GNU nano 7.2                    /tmp/tmppr8na3qw/boot.conf
[all]
BOOT_UART=1
POWER_OFF_ON_HALT=0
BOOT_ORDER=0xf461
PSU_MAX_CURRENT=5000
```

Press **Ctrl-O**, then enter, to write the change to the file.

Press **Ctrl-X** to exit nano (the editor).

Reboot your Raspberry Pi 5 to make the change take effect.

Note: If you are using other OS like Ubuntu, please flash **Raspberry Pi OS** first, and then re-flash other OS such as Ubuntu etc after completing the above settings.

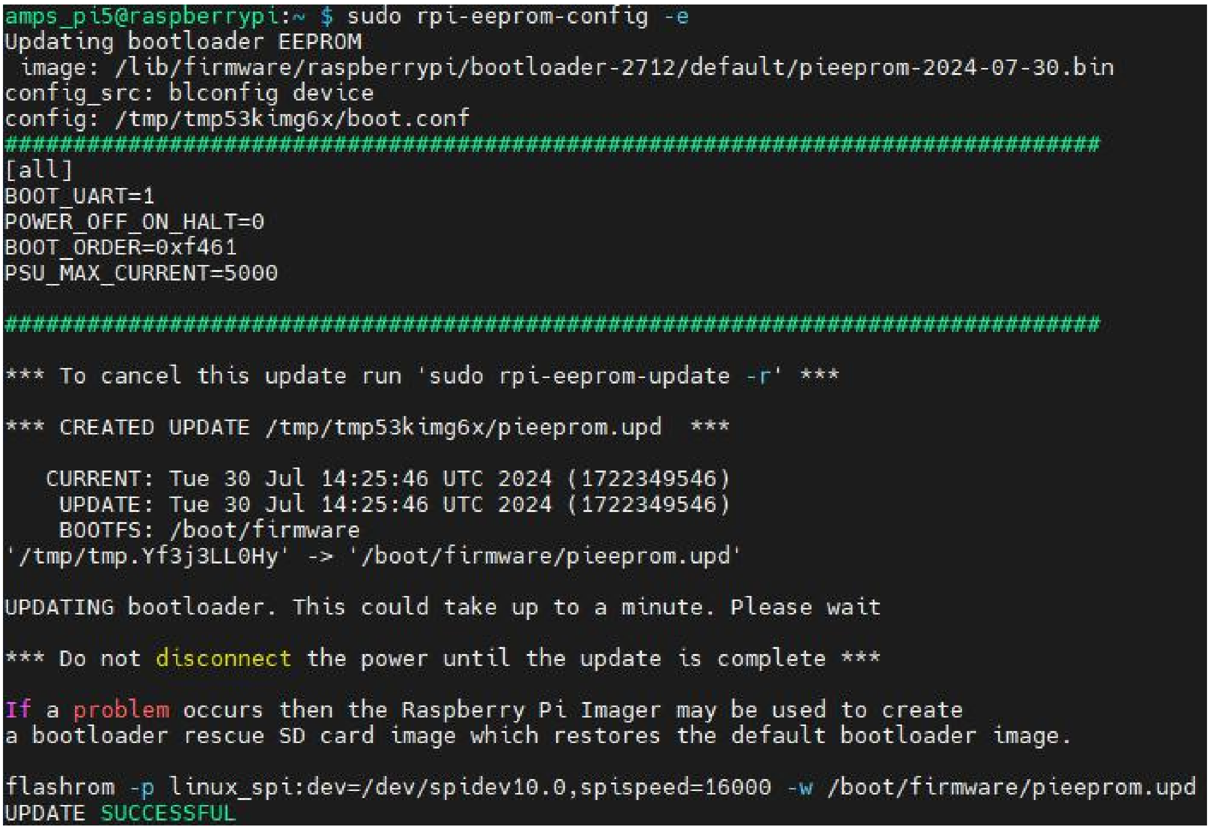
Open Raspberry Pi Configuration

```
sudo rpi-eeprom-config -e
```

Add this line at the end of the file.

```
PSU_MAX_CURRENT=5000
```

Once successfully save and exit the nano editor, Raspberry Pi will automatically write into its EEPROM.

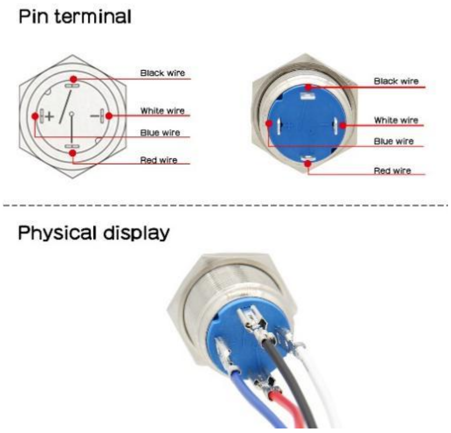


```
amps_pi5@raspberrypi:~ $ sudo rpi-eeprom-config -e
Updating bootloader EEPROM
 image: /lib/firmware/raspberrypi/bootloader-2712/default/pieeprom-2024-07-30.bin
config_src: blconfig device
config: /tmp/tmp53kimg6x/boot.conf
################################################################################
[all]
BOOT_UART=1
POWER_OFF_ON_HALT=0
BOOT_ORDER=0xf461
PSU_MAX_CURRENT=5000

################################################################################

*** To cancel this update run 'sudo rpi-eeprom-update -r' ***

*** CREATED UPDATE /tmp/tmp53kimg6x/pieeprom.upd  ***

   CURRENT: Tue 30 Jul 14:25:46 UTC 2024 (1722349546)
    UPDATE: Tue 30 Jul 14:25:46 UTC 2024 (1722349546)
    BOOTFS: /boot/firmware
'/tmp/tmp.Yf3j3LL0Hy' -> '/boot/firmware/pieeprom.upd'

UPDATING bootloader. This could take up to a minute. Please wait

*** Do not disconnect the power until the update is complete ***

If a problem occurs then the Raspberry Pi Imager may be used to create
a bootloader rescue SD card image which restores the default bootloader image.

flashrom -p linux_spi:dev=/dev/spidev10.0,spispeed=16000 -w /boot/firmware/pieeprom.upd
UPDATE SUCCESSFUL
```

References

1. https://wiki.geekworm.com/X729

2. https://wiki.geekworm.com/X729-script
3. https://learn.adafruit.com/circuitpython-on-raspberrypi-linux/installing-circuitpython-on-raspberry-pi#automated-install-3081632
4. https://wiki.geekworm.com/PSW19


Pin terminal
Black wire
White wire
Blue wire
Red wire
+
-
Black wire
White wire
Blue wire
Red wire
Physical display