

NanoShield V2.2 – Raspberry PI 3 and NanoDLP

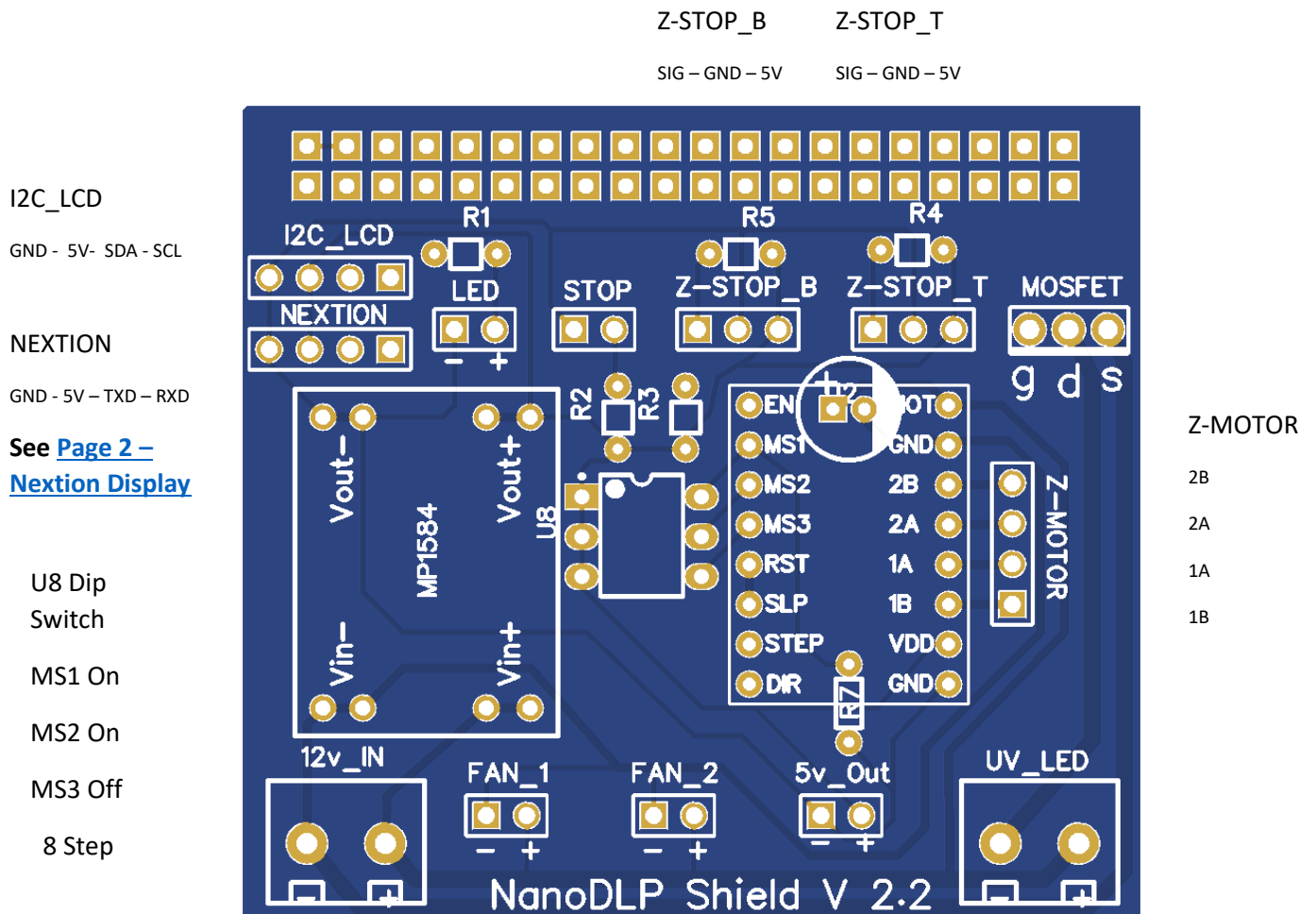
NanoShield V2.2 Board

<https://de.aliexpress.com/item/1-pc-Nanodlp-V2-2-PCB-Doppel-platine-f-r-Nanodlp-schild-V2-2-PCB-f/32967475128.html>

Nanoshield V2.1 / V2.2 Parts.

https://de.aliexpress.com/item/1-set-Komponente-f-r-Nanodlp-schild-V2-1-V2-2-PCB-f-r-SLA-Nano/32885420521.html?spm=a2g0x.10010108.100007.3.1bcee2ab2MXL4q&pvid=80c557c4-2220-40ad-8c2a-e3c0d59f5e4f&gps-id=pcDetailLeftTopSell&scm=1007.13482.95643.0&scm-url=1007.13482.95643.0&scm_id=1007.13482.95643.0

Important: R2, R3, R4, R5 replace with 20K



HIGH IMPORTANT: Before placing A4988 or connect Shield to Raspberry PI 3 or connecting optical END stops adjust first the MP1584 so VOut+ is 5.00 V See [Page2 – Adjust MP1584](#)

BOM:

R1--100 ohm

R7 -- 100 k ohm

R2, R3, R4, R5, --20 kOhm (Take care to change 10 k in 20 k)

H2 Elektrolytcondensator --100 uf

Mosfet-IRFZ44N

U8 Dip Switch (Microsteps A4988)

Adjust MP1584

Go to: <https://www.youtube.com/watch?v=Wb5JIAkboEg>

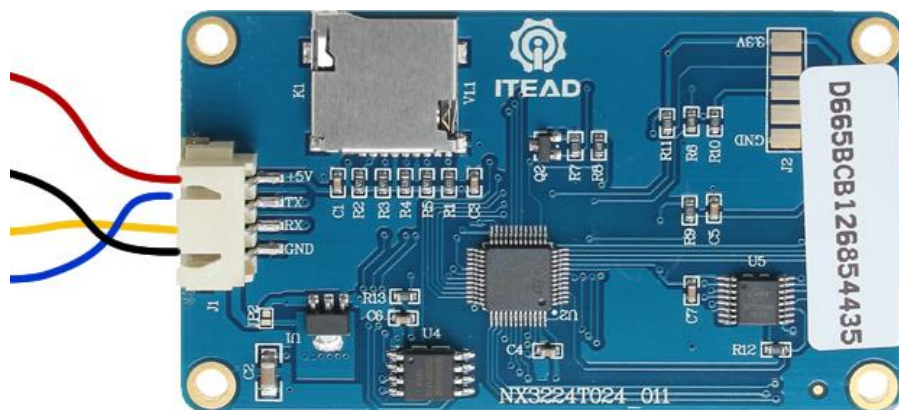
We use the part that starts from 2.35 Minutes – 5.48 to adjust. (all other parts are for the old NanoShield V1.0)

Nextion Display

Connector
Shield

5V ← 5V
GND ← GND
TXD ← RX
RXD ← TX

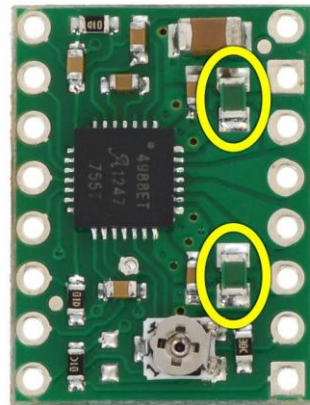
So: TXD
and RXD are
crossed.



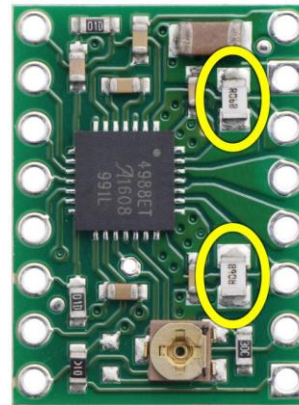
Adjust Vref A4988

$V_{REF} = 8 \times I_{MAX} \times R_{CS}$ I_{MAX} is current Steppermotor.

R_{CS} is the current sense resistance; original versions of this board used 0.050Ω current sense resistors, but we switched to using 0.068Ω current sense resistors in January 2017, which makes more of the adjustment potentiometer's range useful. The following picture shows how to identify which current sense resistors your board has:



$R_{CS} = 50 \text{ m}\Omega$



$R_{CS} = 68 \text{ m}\Omega$

Identification of original $50 \text{ m}\Omega$ sense resistors (left) and $68 \text{ m}\Omega$ sense resistors (right) introduced in January 2017.

To measure please use a multimeter connect the minus (black) to GND and set the positive (red) pin on the disc of the trimpot and set the voltage which match with V_{REF} .

NanoDLP Settings

Important: The connections of the Shield V2.2 are different then you see on the Aliexpress site and also different from <https://www.thingiverse.com/thing:2749678> if you use this settings your Raspberry PI3 will be damaged totally

Here are the correct settings for NanoDLP Software.

NanoDLP Shield V2.2	BCM NanoDLP	Name	Physical Board		Name	BCM NanoDLP	NanoDLP Shield V2.2
		3.3V	1	2	5V		5V
I2C-SDA		SDA 1	3	4	5V		5V
I2C-SCL		SCL 1	5	6	GND		GND
		GPIO 7	7	8	TXD		Nextion TXD
		GND	9	10	RXD		Nextion RXD
		GPIO 0	11	12	GPIO 1		
STOP	BCM 27	GPIO 2	13	14	GND		
DIR	BCM 22	GPIO 3	15	16	GPIO 4	BCM 23	STEP
		3.3V	17	18	GPIO 5	BCM 24	EN
		MOSI	19	20	GND		
		MISO	21	22	GPIO 6	BCM 25	Z-STOP_Bottom
		SLCK	23	24	CE0		
		GND	25	26	CE1		
		SDA 0	27	28	SCL 0		
		GPIO 21	29	30	GND		
		GPIO 22	31	32	GPIO 26		
Z-STOP_TOP	BCM 13	GPIO 23	33	34	GND		
		GPIO 24	35	36	GPIO 27		
UV_LED	BCM 26	GPIO 25	37	38	GPIO 28		
		GND	39	40	GPIO 29		

Print screens settings NanoDLP Software.

Printer Settings

Printer Name: NanoDLPshield V2.2 | Type: Projector / LCD | Language: English | Theme: Blue / Dark

Setup Mode: Advanced | Shield Use: Disabled | Shutter: Open Before Each Layer

Set: Printername – NanoDLPxxx Setup Mode -Advanced Shield Use – Disabled.

Movement GPIOs

Step GPIO for Z-Axis: Physical 16, BCM 23 | Direction GPIO: Physical 15, BCM 22 | Endstop Switch - Top Limit: Physical 33, BCM 13 | Endstop Switch - Bottom Limit: Physical 22, BCM 25

Endstop Switch - Default State: Low | Driver Enable GPIO: Physical 18, BCM 24 | Enable GPIO State: Low | Enable GPIO Mode: Enable Before Each Print

Setup: Movement GPIOs See: [Page4 – NanoDLP Settings](#)

Shutter

Shutter Type: True/False Signal | Shutter GPIO: Physical 37, BCM 26

Servo Pulse Width - Open: 500 ms | Servo Pulse Width - Close: 2500 ms | Servo Signal Length: 1000 milliseconds

Set: Shutter Type – True/False Signal Shutter GPIO See: [Page4 – NanoDLP Settings](#)

Display

Horizontal Resolution: 1440 | Vertical Resolution: 2560 | XY Resolution: 47,000000 µm | Y Resolution: 47,000000 µm

Lens Barrel Factor: 0,000000 | Center of Barrel - X: 0 Pixel | Center of Barrel - Y: 0 Pixel | Mirror Layers: Disabled

Display Communication Type: HDMI Power On/Off - Standby | Display Warm-up Time: 0,000000 Second | Query Lamp Hours

If LCD Display is: 5.5 inch 2 k LCD voor DLP/SLA 3d printer Model KLD-1260

Set: Horizontal Res 1140 Vertical Res 2560 X/Y Res 47,000000 Y Res 47,000000

Display Communication Type HDMI Power On/Off-StandBy

Motor

Max Speed: 3000 rpm/Second | Min Speed: 1000 | Motor Startup Speed: 100 | Motor Step Angle: 1,800000

Microstep: 8,000000 | Leadscrew Pitch: 4,000000 millimeter | Z-Axis Height: 1250 Pulse

Set: Max Step Angle 1,800000 (Most common) Micro Step 8,000000

Lead Screw Pitch 4,000000 (check Screw pitch) Z-Axis Height 1250 (Set Max distance between Z-Stop_Bottom and Z-Stop_Top)

Physical Buttons

Stop/Shutdown Physical GPIO

Disable

Hardware Fault Detection

Stepper Driver Fault Detection GPIO

Disable

Various Settings

TCP Port to Listen

Restart Required

80

Play Sound After Print Stop

Enable

Remote Slicer

TCP IP:Port of Slicer

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