HMI DISPLAY MODULE-19.0

RASPI

2/8

File: raspi.kicad_sch

PICO

3/8

File: pico.kicad_sch

CONNECTOR

4/8

File: connector.kicad_sch

LCD

5/8

File: lcd.kicad_sch

KEYPAD

6/8

File: keypad.kicad_sch

LED

7/8

File: led.kicad_sch

ENCODER

8/8

File: encoder.kicad_sch

According to OSHA https://www.oshwa.org/a-resolution-to-redefine-spi-signal-names/

New signal names:

SDO - Serial Data Out. An output signal on a device where data is sent out to another SPI device.
SDI - Serial Data In. An input signal on a device where data is received from another SPI device.
CS - Chip Select. Activated by the controller to initiate communication with a given peripheral.
PICO (peripheral in/controller out). For devices that can be either a controller or a peripheral; the signal on which the device sends output when acting as the controller, and receives input when acting as the peripheral.
POCI (peripheral out/controller in). For devices that can be either a controller or a peripheral; the signal on which the device receives input when acting as the controller, and sends output when acting as the peripheral.
SDIO - Serial Data In/Out. A bi-directional serial signal.

Deprecated signal names:

MOSI - Master Out Slave In
MISO - Master In Slave Out
SS - Slave Select
MOMI - Master Out Master In
SOSI - Slave Out Slave In

Signal names unchanged:

SCK - Serial Clock. The clock for the bus generated by the controller.

HMI DISPLAY MODULE

WIZcube

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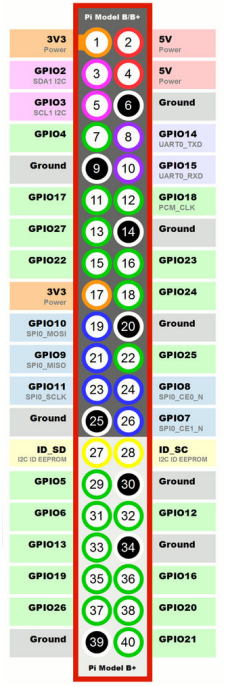
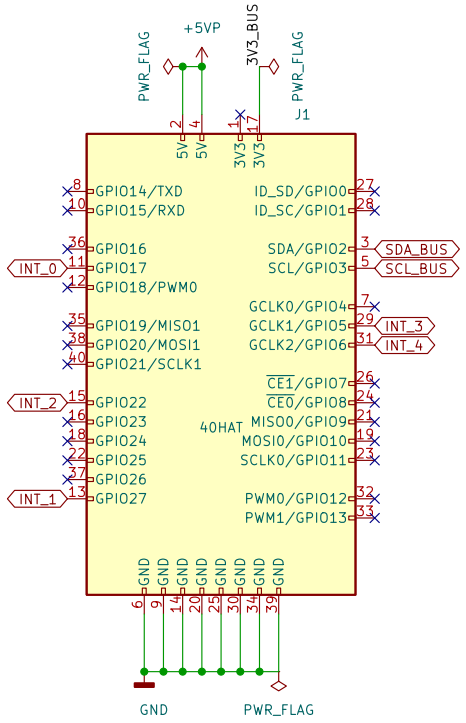
Sheet: /
File: M10HM01-19.kicad_sch

Title: M10MH01

Size: A4	Date: 2022-03-16	**Rev: 19.0**
KiCad E.D.A. kicad 6.0.4-6f826c9f35-116-ubuntu21.10.1		Id: 1/8

RASPBERRY PI HAT STAGE-19.0





LOG1
OSHWGR

H1
H2
H3
H4

MK1
MK2

FID1
FID2
FID3

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Sheet: /RASPI/
File: raspi.kicad_sch

Title: M10MH01

Size: A4	Date: 2022-03-16	**Rev: 19.0**
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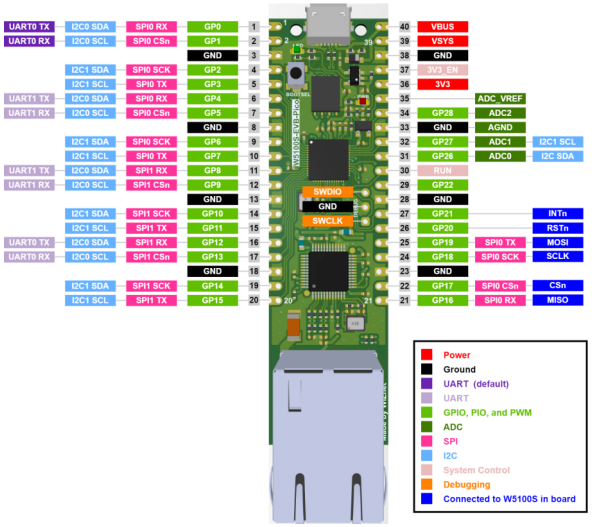
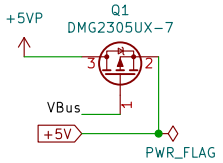
PICO STAGE-19.0

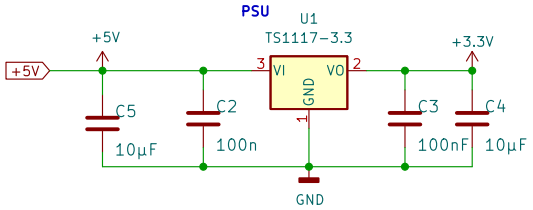
README FIRST

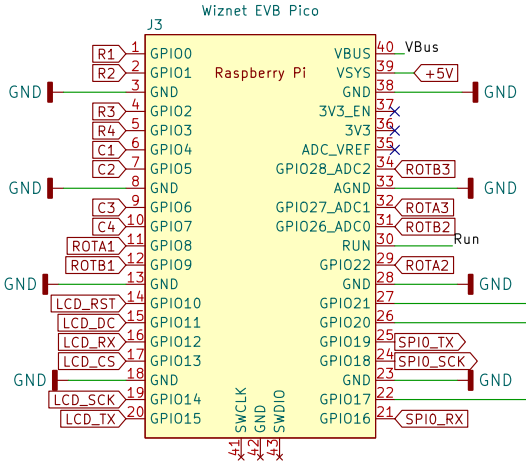
GPIO16-GPIO21 used by WIZNET
GPIO16, GPIO18, GPIO19 shared with WIZNET, CANBUS, SD, SPI on the BUS to control other M10 module through SPI
ALL have different CS pins and INTERRUPT pins

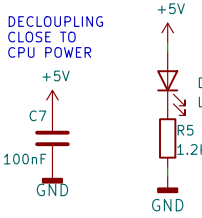


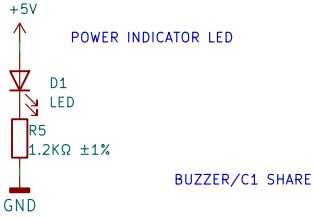
PMOSFET to allow powering PICO from external +5V while still connected via USB. Per Raspberry PI Pico datasheet.



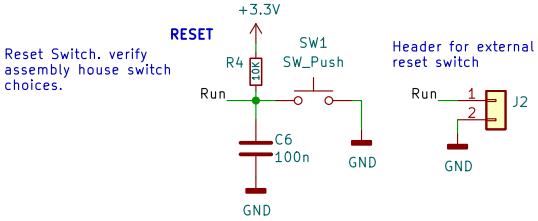


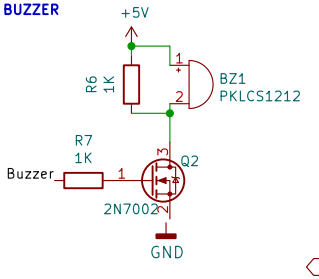


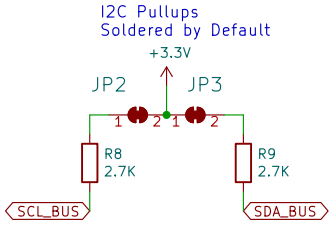


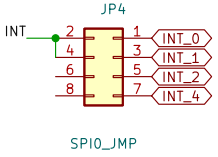


BUZZER/C1 SHARE









T- T_CLK GP10
O T_CS GP12
U T_DIN GP11
C T_DO GP8
H- T_IRQ

0: Keyboad row 1
1: Keyboad row 2
2: Keyboad row 3
3: Keyboad row 4
4: Keyboad column 1
5: Keyboad column 2
6: Keyboad column 3
7: Keyboad column 4
8: Encoder 1 pin A
9: Encoder 1 pin B
10: LCD RST
11: LCD D/C
12: LCD RX
13: LCD CS
14: LCD CLK
15: LCD TX
16: Wiznet
17: Wiznet
18: Wiznet
19: Wiznet
20: Wiznet
21: Wiznet
22: Encoder 2 pin A
26: Encoder 2 pin B
27: Encoder 3 pin A
28: Encoder 3 pin B (edited)

PICO STAGE
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Sheet: /PICO/
File: pico.kicad_sch

Title: M10MH01

Size: A4	Date: 2022-03-16	**Rev: 19.0**
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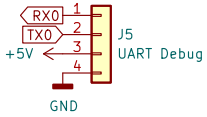
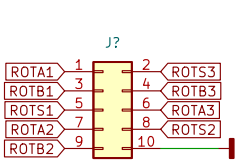
CONNECTOR STAGE-19.0

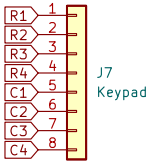
UART DEBUG CONNECTOR

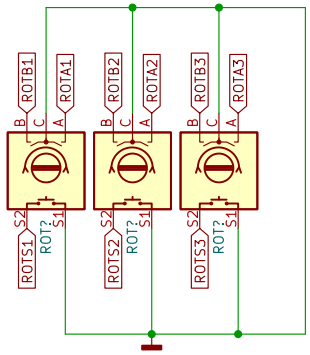


ROTARY ENCODER CONNECTOR



HEX KEYPAD CONNECTOR





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Sheet: /CONNECTOR/
File: connector.kicad_sch

Title: M10MH01

Size: A4	Date: 2022-03-16	**Rev: 19.0**
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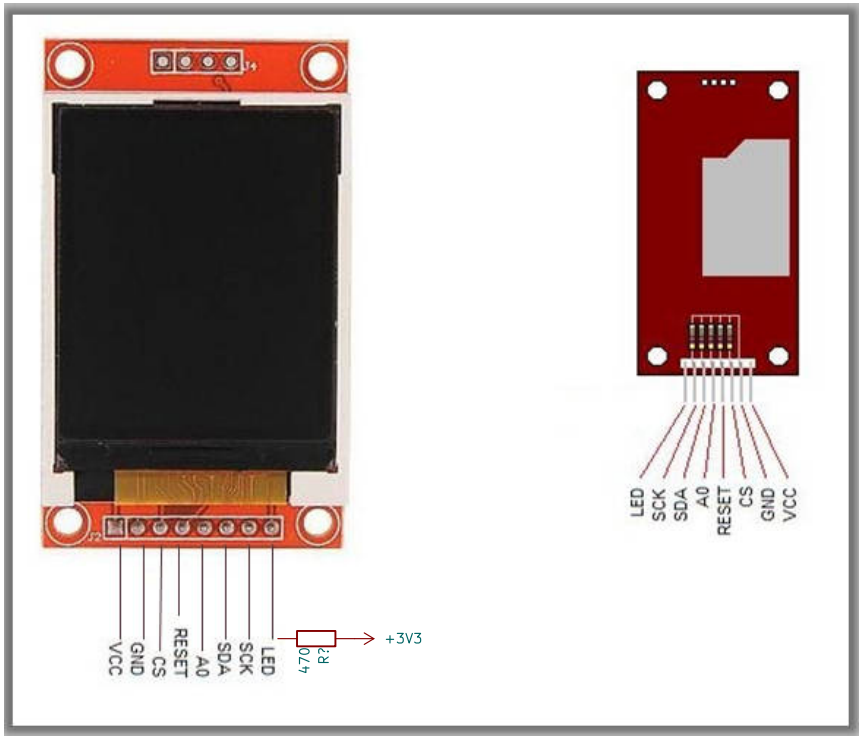
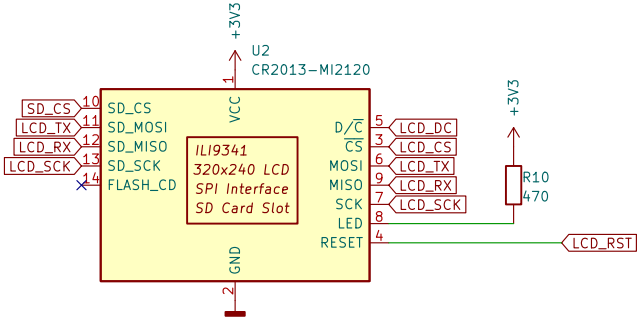
LCD STAGE-19.0



With touch
ILI9341 TFT SPI

	RPi Pico
VCC	3V3
GND	GND
CS	GP13
RESET	GP14
DC	GP15
SDI(MOSI)	GP7
SCK	GP6
LED	3V3
SDO(MISO)	
T- T_CLK	
O T_CS	
U T_DIN	
C T_DO	
H- T_IRQ	



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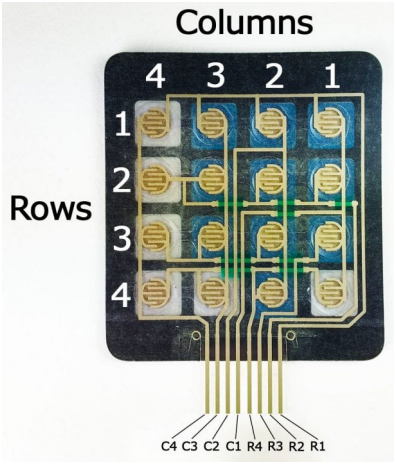
Sheet: /LCD/
File: lcd.kicad_sch

Title: M10MH01

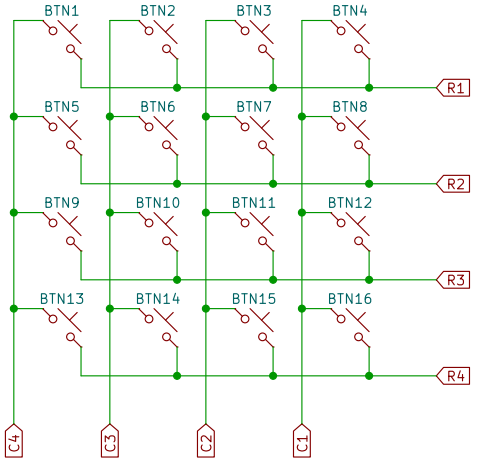
Size: A4	Date:	Rev: 19.0
KiCad E.D.A. kicad 6.0.4-6f826c9f35~116~ubuntu21.10.1		Id: 5/8



KEYPAD-19.0

VARIUS LAYOUT CAN BE DONE TO SUPPORT
BETTER CNC OR 3D PRINTER CONTROL

0: Keyboad row 1
1: Keyboad row 2
2: Keyboad row 3
3: Keyboad row 4
4: Keyboad column 1
5: Keyboad column 2
6: Keyboad column 3
7: Keyboad column 4



VOUT=3,3V*(R302+R303+R304+R305+R306)/R301+R302+303+R304+R305+R306
= 2,74V

S1=3,3V
S2=3,3V*4000/6000=2,2
S3=3,3V*3000/6000=1,65
S4=3,3V*2000/6000=1,1
S5=3,3V*1000/6000=0,55
S6=0V

GROVE I2C CONNECTOR BUT JST EH
Pitch of 2.5 mm.
Power jumper selectd for a stand alone application

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Sheet: /KEYPAD/
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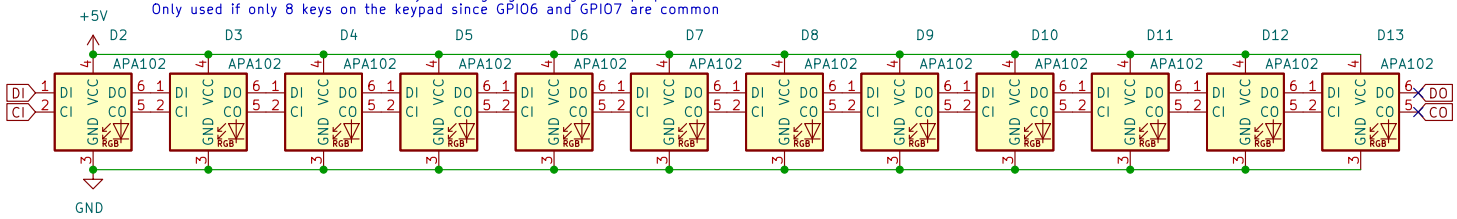
Size: A4	Date:	**Rev: 19.0**
KiCad E.D.A. kicad 6.0.4-6f826c9f35~116~ubuntu21.10.1		Id: 6/8

These RGB LEDS can be used as keyboard ligting or as general purpose indicators
Only used if only 8 keys on the keypad since GPIO6 and GPIO7 are common



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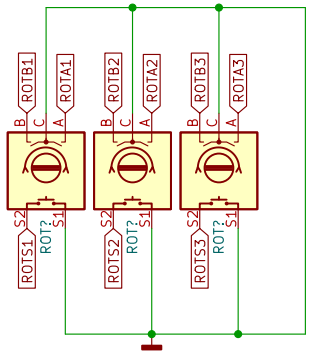
Sheet: /LED/
File: led.kicad_sch

Title: M10MH01

Size: A4	Date:	**Rev: 19.0**
KiCad E.D.A. kicad 6.0.4-6f826c9f35~116~ubuntu21.10.1		Id: 7/8

ENCODER STAGE-19.0



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KiCad E.D.A. kicad 6.0.4-6f826c9f35-116-ubuntu21.10.1		Id: 8/8