

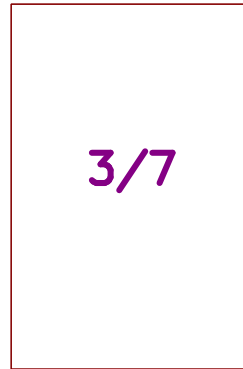
HMI DISPLAY MODULE-19.0

RASPI



File: raspi.kicad_sch

PICO



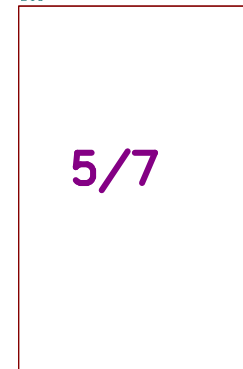
File: pico.kicad_sch

CONNECTOR



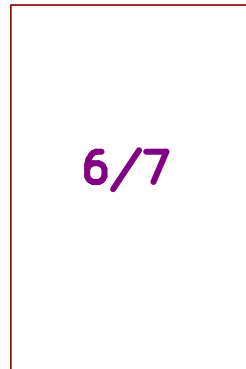
File: connector.kicad_sch

LCD



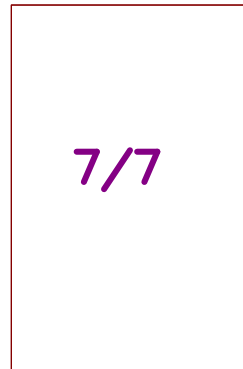
File: lcd.kicad_sch

KEYPAD



File: keypad.kicad_sch

LED



File: led.kicad_sch

According to OSHA <https://www.osha.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
Licensed under the CERN OHL P 2.0 or later

WIZcube

Sheet: Root
File: M10HM01-19.kicad_sch

Title: M10MH01

Size: A4 Date: 2022-03-16

KiCad E.D.A. 8.0.3

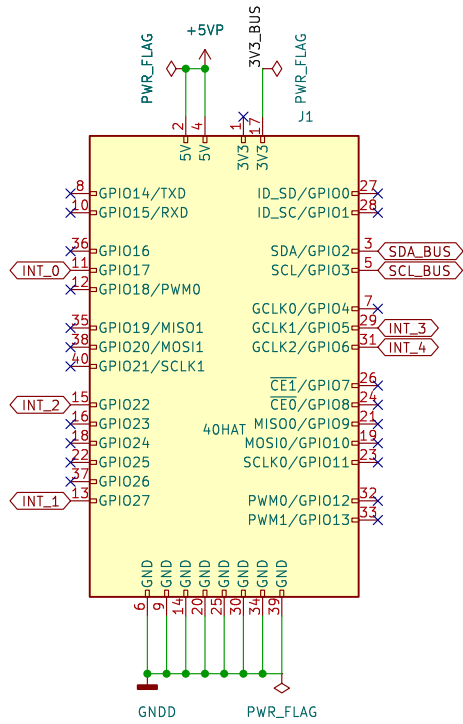


Rev: 19.0

Id: 1/7

RASPBERRY PI HAT STAGE-19.0


| Pi Model BB+ | |
|--------------------|----|
| 3V3 Power | 1 |
| 3V3 Power | 2 |
| GPI02 SDA1_I2C | 3 |
| 5V Power | 4 |
| GPI03 SCL1_I2C | 5 |
| Ground | 6 |
| GPI04 | 7 |
| 5V Power | 8 |
| Ground | 9 |
| 5V Power | 10 |
| GPI017 | 11 |
| GPI018 PCM_CLK | 12 |
| GPI027 | 13 |
| Ground | 14 |
| GPI022 | 15 |
| GPI023 | 16 |
| 3V3 Power | 17 |
| GPI024 | 18 |
| GPI010 SPI_MISO | 19 |
| Ground | 20 |
| GPI09 SPI_MOSI | 21 |
| GPI025 | 22 |
| GPI011 SPI_CS0 | 23 |
| GPI08 SPI_CS1 | 24 |
| Ground | 25 |
| GPI07 SPI_CS2 | 26 |
| ID_SD DC ID EEPROM | 27 |
| ID_SC DC ID EEPROM | 28 |
| Ground | 29 |
| GPI05 | 30 |
| Ground | 31 |
| GPI06 | 32 |
| GPI012 | 33 |
| Ground | 34 |
| GPI013 | 35 |
| Ground | 36 |
| GPI019 | 37 |
| GPI016 | 38 |
| GPI026 | 39 |
| Ground | 40 |
| GPI021 | 40 |



LOG1
OSHWGR

- MK1
- MK2
- FID1
- FID2
- FID3

- H1
- H2
- H3
- H4

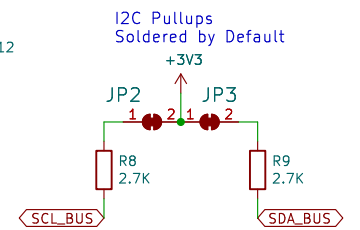
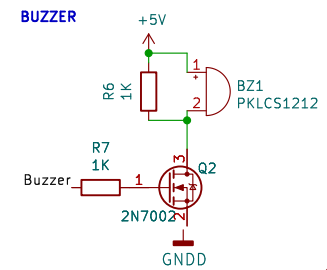
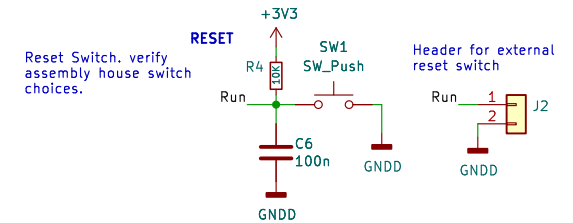
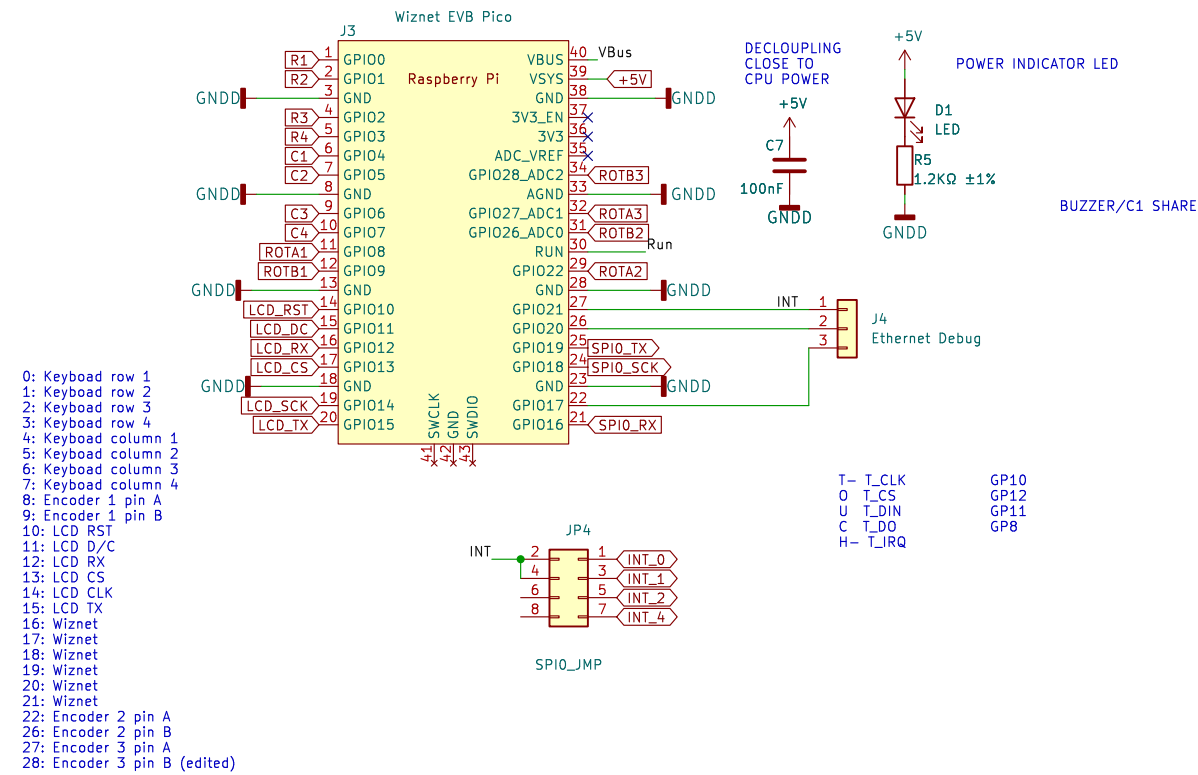
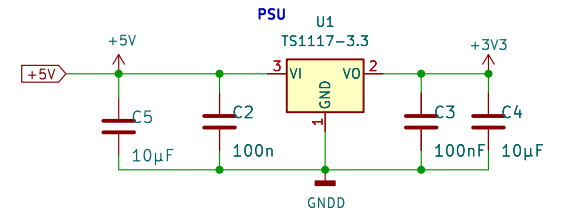
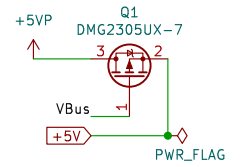
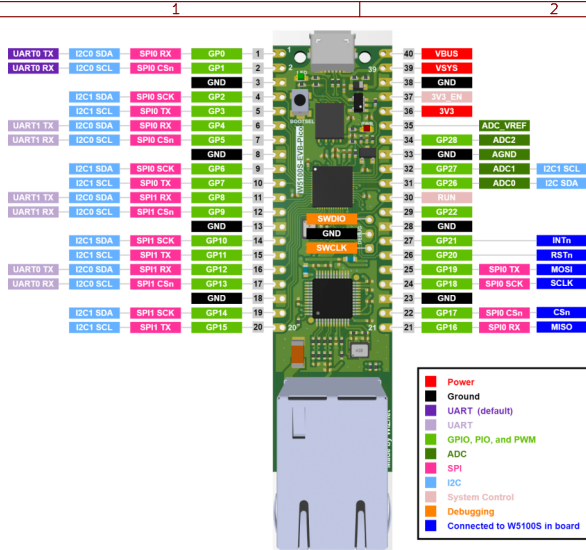
| | |
|--|----------------------|
|  GR000004 | |
| | |
| Sheet: RASPI File: raspi.kicad_sch | |
| Title: M10MH01 | |
| Size: A4 | Date: 2022-03-16 |
| KiCad E.D.A. 8.0.3 | Rev: 19.0 Id: 2/7 |

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.



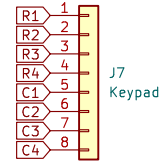
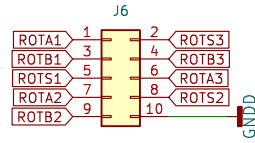
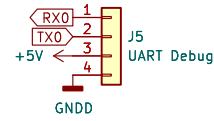
PICO STAGE
 Licensed under the CERN OHL P 2.0 or later
WIZcube
 Sheet: PICO
 File: pico.kicad_sch
Title: M10MH01
 Size: A4 Date: 2022-03-16
 KiCad E.D.A. 8.0.3
Rev: 19.0
 Id: 3/7

CONNECTOR STAGE-19.0

UART DEBUG CONNECTOR

ROTARY ENCODER CONNECTOR

HEX KEYPAD CONNECTOR



CONNECTOR STAGE
Licensed under the CERN OHL P 2.0 or later

WIZcube

Sheet: CONNECTOR
File: connector.kicad_sch

Title: M10MH01

Size: A4 Date: 2022-03-16
KiCad E.D.A. 8.0.3

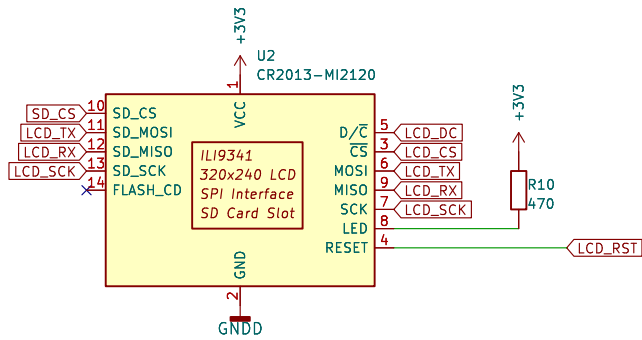
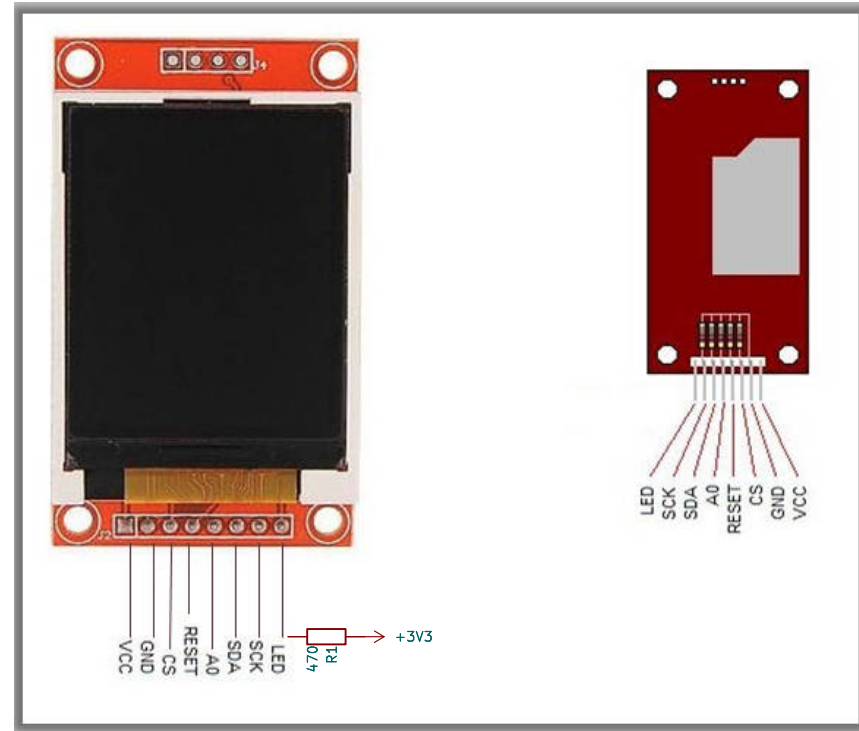


Rev: 19.0
Id: 4/7

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 | |



LCD STAGE
Licensed under the CERN OHL P 2.0 or later



WIZcube
Sheet: LCD
File: lcd.kicad_sch

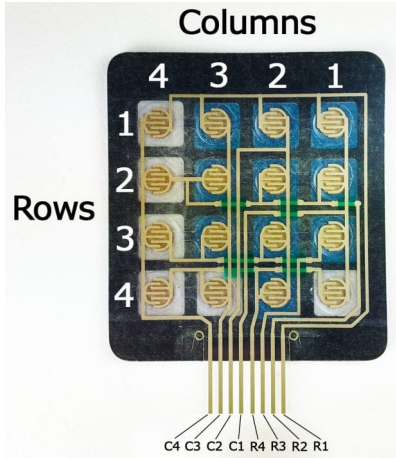
Title: M10MH01

Size: A4
KiCad E.D.A. 8.0.3

Date:

Rev: 19.0

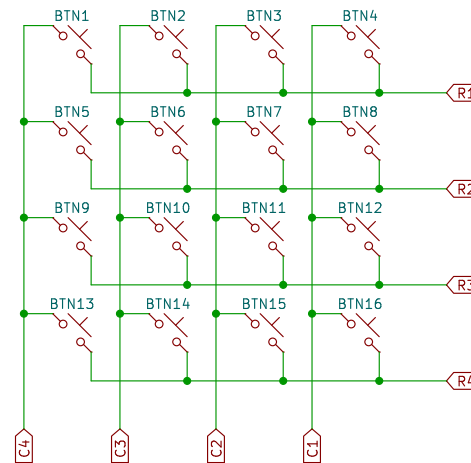
Id: 5/7



KEYPAD-19.0

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

- 0: Keypad row 1
- 1: Keypad row 2
- 2: Keypad row 3
- 3: Keypad row 4
- 4: Keypad column 1
- 5: Keypad column 2
- 6: Keypad column 3
- 7: Keypad column 4



$$V_{OUT} = 3,3V * (R302 + R303 + R304 + R305 + R306) / (R301 + R302 + R303 + R304 + R305 + R306) = 2,74V$$

- 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 selected for a stand alone application

KEYPAD
Licensed under the CERN OHL P 2.0 or later

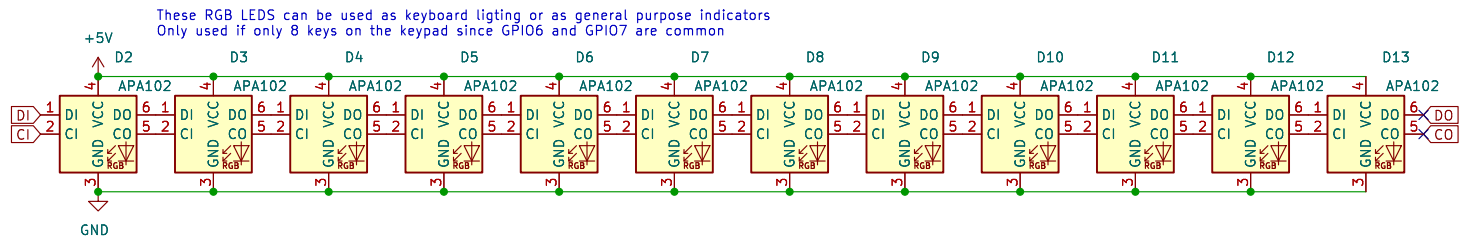


Sheet: KEYPAD
File: keypad.kicad_sch

Title: M10MH01

Size: A4 Date:
KiCad E.D.A. 8.0.3

Rev: 19.0
Id: 6/7



Licensed under the CERN OHL P 2.0 or later

WIZcube

Sheet: LED

File: led.kicad_sch

Title: M10MH01

Size: A4

Date:

Rev: 19.0

KiCad E.D.A. 8.0.3

Id: 7/7