HyperTouch 4.0"

Mechanical data

Material	PCB (FR4), IPS-Display
Dimensions	98mm x 59mm x 15mm
Weight (max)	80g

Electrical data / safety

Supply	via Raspberry Pi: 5V backlight, IO 3.3V
Insulation	none
Resolution	800x480p
Max. viewing angle	160°
Brightness	350 cd/m²
Interface Display	DPI RGB 18-bit
Active display area	51.84mm × 86.4mm
Display IC	Ilitek ILI9806E
Backlight IC	Diodes AL3050
Touchscreen IC	Goodix GT911 compatible

Environmental conditions

Climate resistance	EN 50090-2-2
Temperature during operation	0 … + 40°C
Storage temperature	- 25 . .. + 70°C
rel. Humidity (non-condensing)	5% .. 93%

EMV requirements	EN55032:2012;EN55024:2010
CE marking	according to the EMV directive

The CE mark is a free trade sign, which is only aimed at authorities and does not include any assurance of properties.

Description

The HyperTouch 4.0" is a high-resolution IPS display for the Raspberry Pi with multi-touch function.

It uses the built-in DPI interface of the Raspberry Pi for the connection and the touchscreen is connected via I²C.

The DPI interface enables a high refresh rate of 60fps and is superior to the SPI interface.

For Raspberry Pi Zero models there is the possibility of a space-saving soldering installation (optional).

The display has a backlight IC with an additional SingleWire dimming function.

Scope of delivery

· Display with touchscreen and adapter board
· 40-pin header for plug-in

Installation Installation instructions / drivers

https://github.com/shpi/hypertouch40

Plug-in mounting

HyperTouch 4.0" can be plugged onto all Raspberry Pi variants with a 40-pin header. Depending on the model, the 40-pin header extension is required. No soldering work is required.

The distance to the Raspberry Pi is 7mm variable. This enables the use of different housing variants or CPU coolers. The distance is at least 5mm to the USB sockets and leaves the necessary distance for Raspberry Pi 4 models for cooling.

There are mirrored Raspberry Pi mounting holes in the adapter PCB, so that it can be screwed on using spacers, for example (M2.5. 970200154 Wurth Elektronik).

5 - 12mm

20 - 27mm
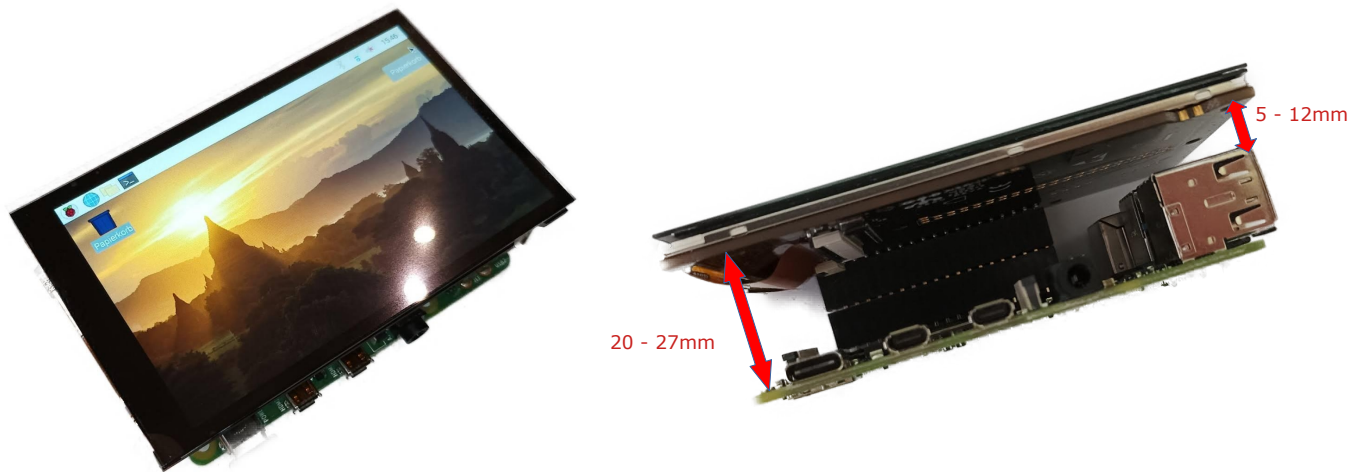
(Example Raspberry Pi 4 without housing)

Surface mounting for Zero models (for advanced users)

The HyperTouch 4.0" enables space-saving surface mounting of the Raspberry Zero models. The Zero models can be soldered with or without a header. When soldering without a header, it is advisable to fix the position of the zero using the holes (match or similar). The soldering must be done from the back. To do this, it is necessary to carefully remove the display from the circuit board. To do this, the double-sided adhesive tape must be carefully removed.

Note on plugin-assembly
HyperTouch 4.0"

If you opt for plug-in installation, the installation of the supplied header extension is necessary for the normal Raspberry Pi models (not Zero). The header extension must be inserted at least 3mm into the display socket to establish a secure electrical connection. However, it does not have to be fully introduced. The variable range is approximately 20 – 27mm board to board spacing.

Please first insert the header extension into the display and not into the Raspberry Pi. The extension is very tight (to ensure sufficient mechanical stability at large distances) and is very difficult to remove.

If your display is not already glued (newer revision), please insert the header before you glue the display. If the display has already been glued on, avoid putting pressure on the display in the area of the display cable.

Attention: The header extension should not be removed from the display, otherwise individual gold spring pins could come loose. However, the gold nib pins can be carefully reinserted into the plastic part.

The display can then be plugged into the Raspberry Pi. If the display is to be removed from the Raspberry Pi, please do not apply force to the display, but remove it by holding it over the header (see image).
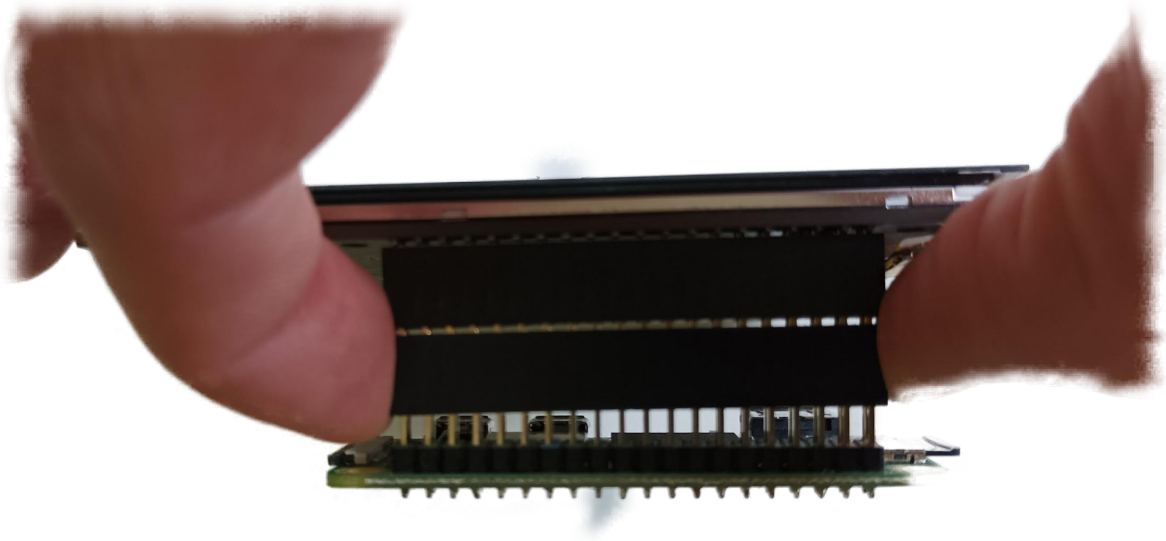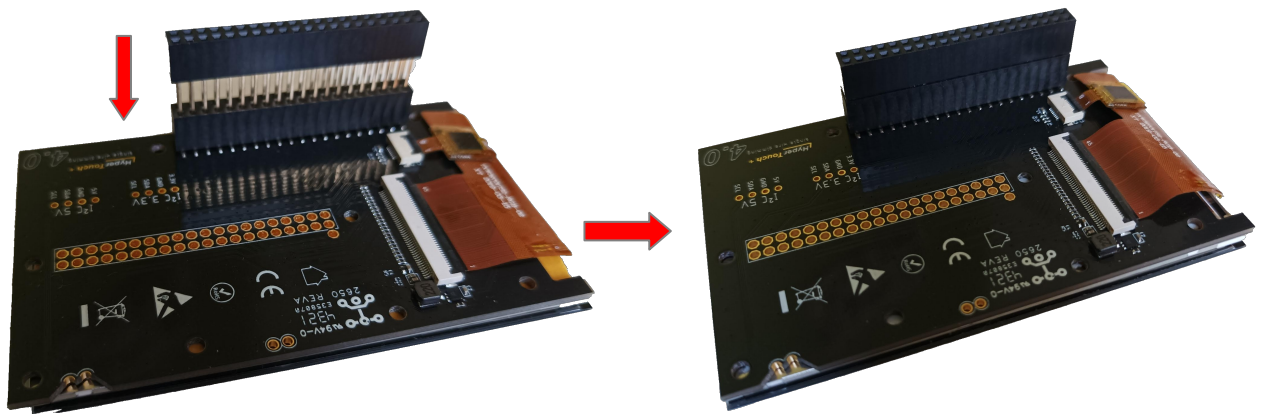
European Declaration of Conformity
HyperTouch 4.0"

SHPI GmbH hereby declares under our sole responsibility that
the product HyperTouch 4.0" are conform to the
following applicable community harmonized legislation:

Electromagnetic Compatibility Directive (EMC) 2014/30/EU
Directive of the European Parliament and of the Council of 26 February 2014 on the harmonization
of the laws of the Member States relating to electromagnetic compatibility

Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU
Directive of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of
certain hazardous substances in electrical and electronic equipment.

The following standards were used to assess the product:

EN55032:2012 Class B
EN55024:2010
EN61000-3-2:2014
EN61000-3-3:2013
EN63000:2018
EN62368-1:2018

Manufacturer: SHPI GmbH, Hamburger Str. 18, DE-16341 Panketal.

E. Harder

03/23/2020, Lutz Harder, CEO, SHPI GmbH

Circuit diagram / pin assignment
HyperTouch 4.0"

Raspberry PI

		Pin	Pin		
3.3V Output	3.3V	1	2	5V	5V Input
DPI V-SYNC	BCM 2	3	4	5V	5V Input
DPI H-SYNC	BCM 3	5	6	GND	GND
DPI Blue 2	BCM 4	7	8	BCM 14	DPI Green 4
GND	GND	9	10	BCM 15	DPI Green 5
DPI Green 7	BCM 17	11	12	BCM 18	Display Chip Select
Touch Interrupt	BCM 27	13	14	GND	GND
DPI Red 4	BCM 22	15	16	BCM 23	DPI Red 5
3.3V Output	3.3V	17	18	BCM 24	DPI Red 6
I2C Data	BCM 10	19	20	GND	GND
DPI Blue 7	BCM 9	21	22	BCM 25	DPI Red 7
I2C Clock	BCM 11	23	24	BCM 8	DPI Blue 6
GND	GND	25	26	BCM 7	DPI Blue 5
DPI DCLK	BCM 0	27	28	BCM 1	DPI Enable
DPI Blue 3	BCM 5	29	30	GND	GND
DPI Blue 4	BCM 6	31	32	BCM 12	DPI Green 2
DPI Green 3	BCM 13	33	34	GND	GND
Backlight Control	BCM 19	35	36	BCM 16	DPI Green 6
Display Data (SPI)	BCM 26	37	38	BCM 20	DPI Red 2
GND	GND	39	40	BCM 21	DPI Red 3

Input	🟢
Output	🟡
Display	⚪
Power	🔴

Note on the I2C 5V interface:
Only available with solder mounting of Raspberry Pi Zero models.

Troubleshooting

Unfortunately, some damage with streaking occurred in the current batch after shipping. Please contact us via LH@shpi.de with a photo of your display and we will send you a replacement immediately.

If the touchscreen does not work, please check via I2C Tools with the command "i2cdetect -y 11" whether the address 0x14 or 0x5D is recognized. If necessary, adapt the hypertouch40.dts file in line 57 to "ft6236@14" → "ft6236@5d".

Display / Touchscreen rotation

If the touchscreen or display does not have the desired orientation, you can adjust it in config.txt.

```
display_rotate=3 #(standard)

display_rotate =0 # portrait format 90°

display_rotate=1 # landscape format 180°

display_rotate=2 # portrait format 270°
```

You can adapt the touchscreen with the following commands:

```
dtparam=touchscreen-swapped-xy #(standard) remove if necessary

dtparam=touchscreen -inverted-x #(default) remove if necessary

dtparam=touchscreen-inverted-y
```