



2.13inch Touch E-Paper E-Ink Display for Raspberry Pi Zero, 250×122, ABS Case

SKU: 20716

Part Number: 2.13inch Touch e-Paper HAT (with case)

Brand: Waveshare

\$22.99

1
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\$21.99	10+
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\$21.29	100+

Related Products:

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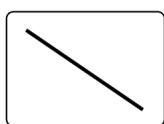
**DESCRIPTION****PACKAGE CONTENT**

2.13inch Touch E-Paper E-Ink Display For Raspberry Pi Zero, 250×122 Pixels, ABS Protection Case

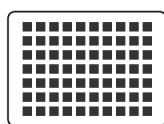
2.13" TOUCH E-PAPER WITH CASE

Partial Refresh Support, Low Power, Wide Viewing Angle, Paper-Like Effect

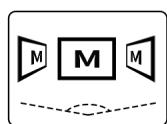
Specialized for Raspberry Pi Zero / Zero W

**Size**

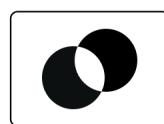
2.13"

Resolution

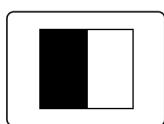
250×122

Viewing Angle

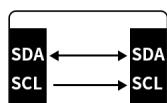
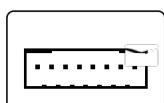
>170°

Display Color

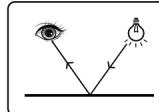
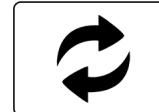
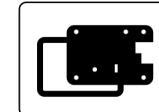
Black and White

Grey Scale

2

Touch Type**Touch Points****Touch Port****Touch Panel****Communication**

Contact

Capacitive	5-Points	I2C	Toughened Glass	SPI
Power Consumption	Display Duration	Display Panel	Experience	Comfortably Reading
				
Ultra Low	Persists without Power	E-paper	Paper-like	Eye Care, No Bluelight
Environment	Display Type	Refreshing	Enclosure	
				
Ambient Light Required	Passively Reflective	Partial Refresh Support	ABS Dull Polish	

Features At A Glance

- 2.13" capacitive touch e-Paper display, 5-point touch, 250x122 pixels
- Supports waken up by user-defined gesture
- No backlight, keeps displaying last content for a long time even when power down
- Ultra low power consumption, basically power is only required for refreshing
- Standard Raspberry Pi 40PIN GPIO extension header, supports **Raspberry Pi Zero / Zero W**
- Comes with development resources and manual (examples for Raspberry Pi)

Specifications

OPERATING VOLTAGE	3.3V	GREY SCALE	2
INTERFACE	3-wire SPI, 4-wire SPI	PARTIAL REFRESH TIME	0.3s
OUTLINE DIMENSIONS	69.15 x38.90mm	FULL REFRESH TIME	2s
DISPLAY SIZE	48.55 x23.70mm	REFRESH POWER	26.4mW(typ.)
DOT PITCH	0.194 x0.194mm	STANDBY CURRENT	<0.01uA (almost none)
RESOLUTION	250x122 pixels	VIEWING ANGLE	>170°
DISPLAY COLOR	black, white	TOUCH POINT	5 (max)

Advantages Of EINK

 Contact

E-paper display utilizes microcapsule electrophoretic technology for displaying, the principle is: charged particles suspended in clear fluid will move to sides of microcapsule when electric field is applied, making the microcapsule become visible by reflecting ambient light, just as traditional printed paper. E-paper display will clearly display images/texts under lamplight or natural light, requires no backlight, and features nearly up to 180° viewing angle. It is usually used as e-reader due to its paper-like effect.



Fine Design, Precise Cut-Out

Highly Aligned Connectors, Rounded Corner Design, Slant Sides For Easily Standing



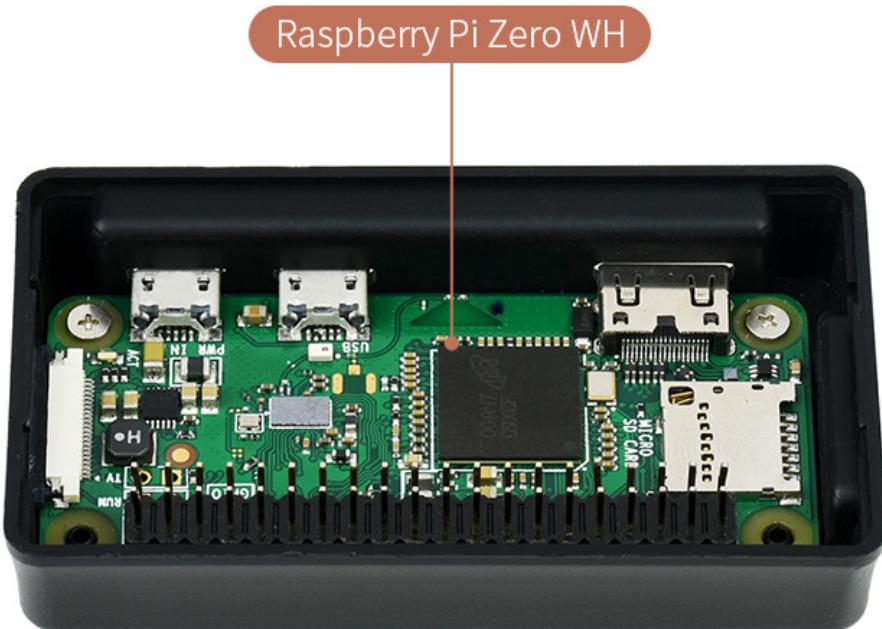
Heat Dissipation Holes On The Back

Combined With Thermal Tape, Effective Heat Dissipation



Standard Raspberry Pi 40PIN GPIO Header

Compatible With Raspberry Zero / Zero W

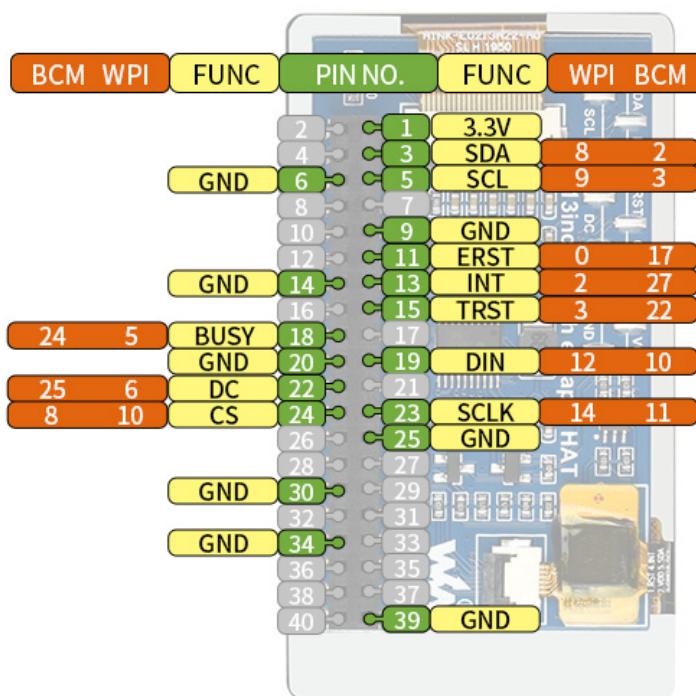


Raspberry Pi in the photo is NOT included.

Demonstration



Pinout Definition



3.3V	3.3V power supply
GND	Ground
SDA	Touch controller I2C data pin
SCL	Touch controller I2C clock pin
ERST	External reset (low active)
INT	Touch controller interrupt
TRST	Touch controller reset (low active)
DIN	SPI MOSI pin
SCLK	SPI SCLK pin
BUSY	Busy status output (high active)
DC	Data/Command control (high for data, low for command)
CS	SPI chip select (low active)

Outline Dimensions



How To Install

1. remove the back coating from the display, and attach the display to the upper case

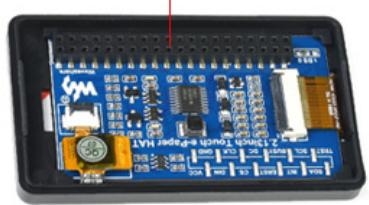
back coating



upper case

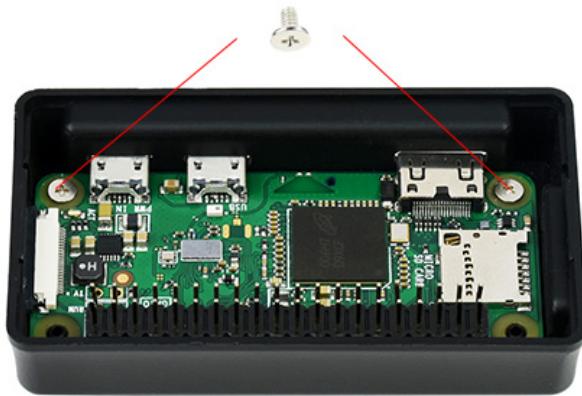
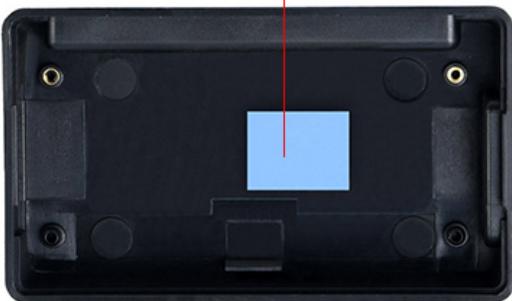


after attaching



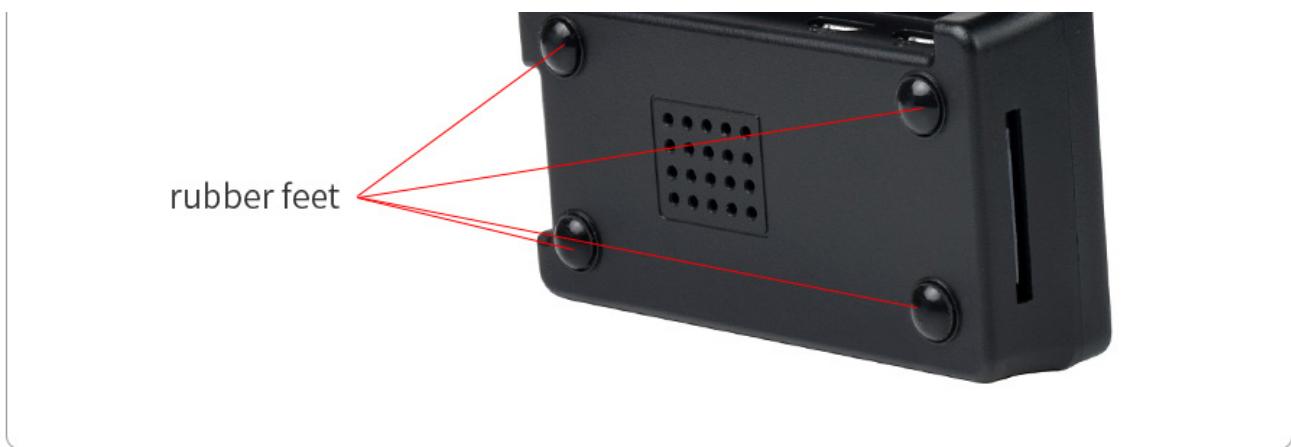
2. attach the thermal tape on heat dissipation holes of lower case, fix the Zero with screws

thermal tape



3. combine the upper and lower cases (by aligning the pinheaders), attach the rubber feet.





Resources & Services



WAVESHARE
ORIGINAL ✓



PROFESSIONAL
TECH SUPPORT



RICH RESOURCES
MANUAL & DEMO



User Manual



Circuit Diagram



Example Code



Dev Resources

[WIKI: 2.13inch_Touch_e-Paper_HAT](#)

* Resources for different product may vary, please check the wiki page to confirm the actually provided resources.

Selection Guide

PART NUMBER	COLORS	GREY SCALE	RESOLUTION	DISPLAY SIZE (MM)	OUTLINE DIMENSION (MM)	FULL REFRESH TIME (S)	PARTIAL REFRESH ¹	PI HEAD-ER ²	FLEXIBLE	INTERFACE
1.02inch e-Paper Module	black, white	2	128×80	21.76 × 14.00	42.0 × 27.0	2	✓			SPI
1.54inch e-Paper Module	black, white	2	200×200	27.60 × 27.60	48.0 × 33.0	2	✓			SPI
1.54inch e-Paper Module (B)	red, black, white	2	200×200	27.60 × 27.60	48.0 × 33.0	14				SPI
1.54inch e-Paper Module (C)	yellow, black, white	2	152×152	27.51 × 27.51	48.0 × 33.0	27				SPI
1.64inch e-Paper Module (G)	red, yellow, black, white	2	168×168	29.568 × 29.568	47 × 38	12				SPI
2.13inch e-Paper HAT	black, white	2	250×122	48.55 × 23.70	65.0 × 30.2	2	✓	✓		SPI
2.13inch e-Paper HAT (B)	red, black, white	2	250×122	48.55 × 23.70	65.0 × 30.2	15		✓		SPI
2.13inch e-Paper HAT (C)	yellow, black, white	2	212×104	48.55 × 23.70	65.0 × 30.2	15		✓		SPI
2.13inch e-Paper HAT (D)	black, white	2	212×104	48.55 × 23.70	59.2 × 29.2	2	✓	✓	✓	SPI
2.13inch e-Paper HAT (G)	red, yellow, black, white	2	250×122	48.55 × 23.70	65.0 × 30.2	25		✓		SPI
2.13inch Touch e-Paper HAT	black, white	2	250×122	48.55 × 23.70	69.15 × 38.90	2	✓	✓		SPI
2.13inch Touch e-Paper HAT (with case)	black, white	2	250×122	48.55 × 23.70	72.20 × 41.90	2	✓	✓		SPI
2.36inch e-Paper Module (G)	red, yellow, black, white	2	296×168	52.096 × 29.568	69.5 × 38.5	12				SPI
2.66inch e-Paper Module	black, white	2	296×152	30.704 × 60.088	37.0 × 83.5	6	✓			SPI
2.66inch e-Paper Module (B)	red, black, white	2	296×152	30.704 × 60.088	37.0 × 83.5	15				SPI
2.66inch e-Paper Module (G)	red, yellow, black, white	2	360×184	60.05 × 30.69	85.0 × 38.5	26				SPI
2.7inch e-Paper HAT	black, white	4	264×176	57.29 × 38.19	85.0 × 56.0	6	✓	✓		SPI
2.7inch e-Paper HAT (B)	red, black, white	2	264×176	57.288 × 38.192	73.5 × 56.0	15		✓		SPI
2.9inch e-Paper Module	black, white	4	296×128	66.89 × 29.05	89.5 × 38.0	3	✓			SPI
2.9inch e-Paper Module (B)	red, black, white	2	296×128	66.89 × 29.05	89.5 × 38.0	15				SPI
2.9inch e-Paper Module (C)	yellow, black, white	2	296×128	66.89 × 29.05	89.5 × 38.0	15				Contact
2.9inch e-Paper HAT (D)	black, white	2	296×128	66.90 × 29.06	79.0 × 36.7	2	✓	✓	✓	SPI

2.9inch Touch e-Paper HAT	black, white	4	296×128	66.89 × 29.05	89.10 × 42.70	3	✓	✓		SPI
3inch e-Paper Module (G)	red, yellow, black, white	2	400×168	70.4 × 29.568	88.5 × 41	12				SPI
3.52inch e-Paper HAT	black, white	2	360×240	74.51 × 49.67	86.5 × 57	1.5		✓		SPI
3.7inch e-Paper HAT	black, white	4	480×280	47.32 × 81.12	58.0 × 96.5	3	✓	✓		SPI
4.01inch e-Paper HAT (F)	7-Color	2	640×400	86.40 × 54.00	98.5 × 70.0	30		✓		SPI
4.2inch e-Paper Module	black, white	4	400×300	84.80 × 63.60	103.0 × 78.5	5	✓			SPI
4.2inch e-Paper Module (B)	red, black, white	2	400×300	84.80 × 63.60	103.0 × 78.5	15				SPI
4.26inch e-Paper HAT	black, white	4	800×480	92.80 × 55.68	107.0 × 64.0	4	✓	✓		SPI
4.3inch e-Paper UART Module	black, white	4	800×600	88.00 × 66.00	118.0 × 75.0	1.5				UART
4.37inch e-Paper Module (G)	red, yellow, black, white	2	512×368	90.11 × 64.77	101.5 × 81.5	14				SPI
5.65inch e-Paper Module (F)	7-Color	2	600×448	114.9 × 85.8	138.5 × 100.5	<35				SPI
5.83inch e-Paper HAT	black, white	2	648×480	119.232 × 88.320	125.4 × 99.5	5		✓		SPI
5.83inch e-Paper HAT (B)	red, black, white	2	648×480	119.232 × 88.320	125.4 × 99.5	20		✓		SPI
6inch e-Paper HAT	black, white	16	800×600	122.4 × 90.6	138.4 × 101.8	<1	✓	✓		USB/SPI/ I20
6inch HD e-Paper HAT	black, white	16	1448×1072	122.4 × 90.6	138.4 × 101.8	<1	✓	✓		USB/SPI/ I20
7.3inch E-Paper HAT (F)	7-Color	2	800×480	160 × 96	170.2 × 111.2	35		✓		SPI
7.3inch E-Paper HAT (G)	red, yellow, black, white	2	800×480	160 × 96	170.2 × 111.2	16		✓		SPI
7.5inch e-Paper HAT	black, white	2	800×480	163.20 × 97.92	170.2 × 111.2	5		✓		SPI
7.5inch HD e-Paper HAT	black, white	2	880×528	163.24 × 97.94	170.2 × 111.2	5		✓		SPI
7.5inch e-Paper HAT (B)	red, black, white	2	800×480	163.20 × 97.92	170.2 × 111.2	26		✓		SPI
7.5inch HD e-Paper HAT (B)	red, black, white	2	880×528	163.24 × 97.94	170.2 × 111.2	21		✓		SPI
7.5inch e-Paper HAT (C)	yellow, black, white	2	640×384	163.20 × 97.92	170.2 × 111.2	16		✓		SPI
7.8inch e-Paper HAT	black, white	16	1872×1404	158.18 × 118.64	173.8 × 127.6	<1	✓	✓		USB/SPI/ I20
9.7inch e-Paper HAT	black, white	16	1200×825	202.8 × 139.43	218.8×156.4	<1	✓	✓		USB/SPI/ I20
10.3inch e-Paper HAT	black, white	16	1872×1404	209.66 × 157.25	216.7 × 174.4	<1	✓	✓		USB/SPI/ I20
10.3inch e-Paper HAT (D)	black, white	16	1872×1404	209.66 × 157.25	227.7 × 165.8	<1	✓	✓	✓	USB/SPI/ I20
12.48inch e-Paper Module	black, white	2	1304×984	252.98 × 190.90	280.0 × 229.5	<8		✓		SPI
12.48inch e-Paper Module (B)	red, black, white	2	1304×984	252.98 × 190.90	280.0 × 229.5	37		✓		SPI
13.3inch e-Paper HAT	black, white	16	1600×1200	270.40 × 202.80	285.80 × 213.65	<1	✓	✓		USB/SPI/ I20
13.3inch e-Paper HAT (K)	black, white	2	960×680	275.52 × 195.16	286.32 × 212.26	5		✓		SPI

1. It usually takes about 0.3s for partial refresh

2. Pi Header: standard Raspberry Pi 40PIN GPIO extension header, supports Raspberry Pi series boards

