

# **DASUNG**

**The Inventor and Leader of E-ink Monitor  
Save Your Eyes**

**The World's First Ambient Light Reflective E-ink Monitor**

# Paperlike HD

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## **User Manual**

- Please Read This Manual Carefully  
Before Using Paperlike HD

## Caution

### ■ CAUTION 1: Be careful of the vapor

If there is a sudden temperature drop, there may be vapors in the monitor which may harm the circuit. Therefore, when Paperlike HD comes from outdoors to indoors during winter, it should be let stand for at least one hour until the vapors evaporate completely before using.

## Caution

### ■ CAUTION 2: Keep the appropriate temperature

The appropriate temperature is necessary for E-ink. Higher or lower temperature may reduce Paperlike HD's speed, contrast and lifetime.

The best working temperature is 15 °C ~ 35 °C , storage temperature is -20 °C ~ 60 °C . It will lead to irreversible damage to E-ink screen beyond this range of temperature.

## Caution

### ■ CAUTION 3: Store the packaging items

Please keep exterior and interior packing items. Paperlike HD belongs to precision electronic products and it may break during the shipment if there is no packaging protection. Also, a postal company may refuse non-original packaging parcels.

## Caution

### ■ CAUTION 4: Take it as a secondary monitor

Paperlike HD is more of a secondary monitor, which is mainly used for protecting eyes. Instead of a photoelectric display, Paperlike HD's display is based on ink droplets movements, so lifetime limit is unavoidable. Any misuse may lead to Paperlike HD's early damage.

## Caution

### ■ CAUTION 5: Use it with the recommended configuration

Paperlike HD can only realize gray display because of E-ink's principle. Given that currently mainstream operating systems only support conventional monitors and cannot match well with Paperlike HD, users should read this manual carefully. Manual provides the instruction for recommended configuration, which provides the best display effect. Certainly, it is also necessary for users to learn and explore independently.

## Caution

### ■ CAUTION 6: Connection may be unstable

Some PC/Laptop's motherboard chipset does not fully meet the USB/HDMI standard, which may not support Paperlike HD very well. Make sure that your PC/Laptop completely follows the international USB/HDMI standard. Otherwise, it may cause unstable connection with Paperlike.

## Protect your Paperlike HD

- Please use a soft cloth to clean the monitor. Do not use any other subjects on display that could damage the display.
- When you put Paperlike HD in the bag, please use the protection to avoid the damage.
- Do not store Paperlike HD at very high temperature or very low temperature.
- Avoid any sudden temperature change or humidity change
- The display is made of glass. When the pressure is given, Paperlike HD could be broken. When the display is broken, do not continue to use and immediately contact DASUNG .

## Patent

Paperlike HD E-ink monitor and/or related method of use may be subject to one or more of the relevant laws or acts of patent protection.

## Rights statement

The rights of final interpretation of this manual reserves to Beijing Dasung Tech Co., Ltd.

# Foreword

Congratulations! You have received E-ink eye-protection monitor — Paperlike HD from DASUNG Technology the first time. Thanks for your encouragement, trust and waiting!

Currently, 24 hours a day, our life is filled with all kinds of consumer electronics such as computer, pad and smartphone, which offer us convenience and change our world. But on the other hand, the radiation, stroboflash and blue light produced by those conventional monitors have strong side effects, which will bring unprecedented fatigue and pressure to our eyes.

It is well known that E-ink technology is the world's best ambient-light-reflect display technology. Its principle is driving ink droplets in microcapsules by voltage to make natural and clear images on the screen under environmental light. To protect our eyes, DASUNG applied the above E-ink technology to computer monitors creatively and developed a real sense of ambient-light-reflect computer monitor, which can satisfy eye-protection needs in general work and study.

As a new concept monitor, Paperlike HD has HDMI connection, it has the world's biggest 13.3" commercial E-ink display element, highest 2200\*1650 physical resolution, fastest response speed, optimal variable display mode and smartest ghost shadow cancellation technology. It can bring us numerous and complicated information from computer and internet in a natural way like traditional printing paper, which can protect our eyes fundamentally. In addition, we are also very particular about its appearance and workmanship. It should be said that Paperlike is an innovative product with high courage and honesty.

We know that this is only our first step taken and Paperlike HD needs to be improved in many aspects. For example, it is only a black-and-white monitor without showing more colors; its display speed cannot be comparable with conventional monitors and display resolution cannot be higher temporarily; the ghost shadow still exists; Paperlike HD's display effects may be greatly impacted by render effects in mainstream operating systems like Windows and Mac. We are keep fighting to bring you a better Paperlike HD, which may need your help, encouragement, and support. We also hope the users can learn and adapt while using Paperlike HD.

Wish you enjoy Paperlike HD and relax your eyes!

# Contents

Caution .....	I
Protect your Paperlike HD .....	VII
Patent .....	VII
Rights statement .....	VII
Foreword .....	VIII

## Instructions1

Packing .....	1
Component .....	1
Specification .....	3
Learn how to use .....	4
Advice and caution .....	4

## Paperlike HD handbook5

Paperlike HD use and settings .....	7
Paperlike HD .....	8
Setting .....	8
Recommendation .....	12

## Usage flow and fault diagnosis13

Usage flow and fault diagnosis .....	13
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## Instructions

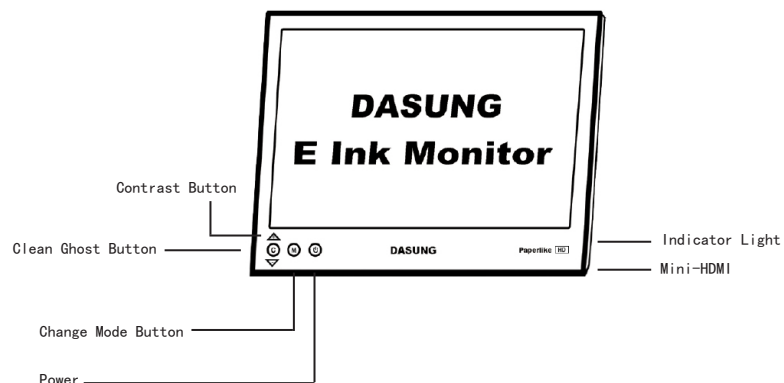
## Packing



- Paperlike HD
- USB disk with software installation package inside
- HDMI cable
- Portable stand
- Instructions
- VESA screws

- Indicator Light (show the work situation of Paperlike HD)
- Interface for Mini-HDMI (Only for data transmission and power supply. Other use shall be prohibited)
- Clear Ghost Button (One click to clear the ghost on screen)
- Change mode button (Click to change display mode)
- Power (Click to turn on and turn off Paperlike HD's)
- +/- Contrast Button (Deep/ Shallow contrast)
- C button and M mode button pressed together; monitor will reboot

## Components



## Specification

Paperlike HD	Screen	Max 13.3-inch E-ink screen (Carta & Flexible)
	Video transmission	HDMI
	Power supply	USB (5V-2A)
	Aspect Ratio	4 : 3
	Display	Reflects ambient light (no backlight)
	Resolution	2200×1650
	Best working temperature	15°C ~35°C
	Display mode	-A5 model : Increases image details -Floyd algorithm :Combines high quality image and high speed -A2 model : Filters out image details -A16 model : High detail visibility -A61 model : Better detail visibility than 16 model
	E-ink ghost shadow removal	Smart Quick Blink (DASUNG technology)
	Shell material	Plastic
	VESA standard hole	75mm×75mm
	External interface (small lamp)	USB-A
	Operating system compatibility	Windows 7 Windows 8/ Windows 10 Mac OS 10.11-10.14 Linux Ubuntu-16.04-Desktop-amd64
	Software	Free upgrade

## Learn how to use

Paperlike HD is not the born perfect product. You need to find a suitable using method for it. Because Windows and MAC OS usually take conventional monitor as the default one, they have all kinds of render effects such as rich color and animation, which is inappropriate for Paperlike HD's black-and-white display. Any inappropriate setting may cause ghost shadow and unclear font. Therefore, before using Paperlike HD, it is advised to follow the recommended setting, which requires unnecessary render effects to be off and font to be adjusted appropriately.

## Advice and caution

■ Video display and gameplay shall be prohibited. Paperlike HD is for daily office and learning needs. Excessive refresh will reduce Paperlike HD's working lifetime. Any caused problems due to abusive refresh usage are outside the scope of free warranty.

■ For VESA standard hole, make sure to use the VESA screws only provided by DASUNG. Improper screws may penetrate back cover and cause screen damage.

■ Please use Paperlike HD between 15 degrees Celsius and 35 degrees Celsius. Otherwise may cause a significant decrease in performance.

■ Please do not use Paperlike HD in too humid or dusty environment, which reduces the working lifetime of Paperlike HD.

■ Please pay attention to the protection of Paperlike HD and handle it with care. Please do not use finger or other sharp objects to press or scratch screen. Man-made damage is outside the scope of free warranty.

■ Though Paperlike HD's display effect is as comfortable as paper, staring at the display excessively can also cause asthenopia. Please pay attention to rest.

■ Paperlike HD, as the world's unique E-ink monitor, is our technological achievement and protected by our patents. It is forbidden to copy or use for other commercial purpose. Any offender will be held liable for the violation under the relevant laws or acts in the relevant jurisdiction.

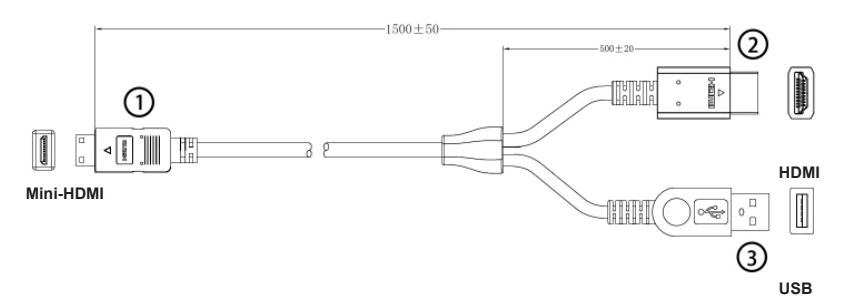


# Paperlike HD handbook

Paperlike HD has a mini-HDMI interface. There is a special HDMI+USB cable for video and power.

The cable has three ends:

- 1. mini-HDMI: Connect with Paperlike HD.
- 2. HDMI: Connect to your computer.
- 3. USB: For power. Connect to 5V/2A DC supplier or USB3.0.



Paperlike HD supports HDMI 1.2a, with 2200\*1650 physics resolution. It can be set as a normal LCD monitor in your OS setting for resolution, DPI, duplicated/extended and so on. With the button “M” on the monitor, you can switch between Floyd/A2/A16 image modes. After you launch the Paperlike HD software, you can choose A5 in 1100\*825.

Display mode	Any resolution	1100×825 resolution
A5 display mode		✓
A61 display mode		✓
A2 display mode	✓	✓
Floyd display mode	✓	
A16 display mode	✓	

We will recommend you install the Paperlike HD’s software strongly for the following advantages:

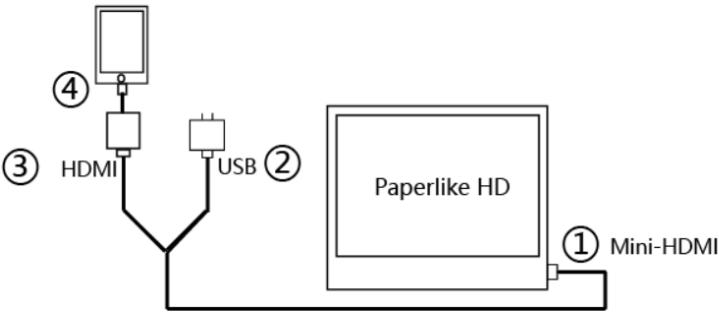
- To protect the screen better.
- To use the A5 at highest speed.
- To condition the contrast for various applications.
- To use Blink Refresh for ghost remove.

## Other Interface

- For the computer with DVI/mini-DP/DP/Thunderbolt interface, you can use the HDMI adapter.
- For the VGA interface, we do not recommend you to use VGA.

### ■ Work with iPhone/iPad (Lightning interface)

1. Plug out all the cables on Paperlike HD.
  2. Connect the mini-HDMI ① to Paperlike HD; then connect USB end ② to 5V-2A USB charger; after the indicated light turns green, connect HDMI end ③ to Apple Lightning Adapter; connect adapter ④ to iPhone or iPad.
  3. iPhone/iPad’s image will show in the middle of Paperlike HD.
- TIPS: The other mobile devices haven’t been tested.



# Paperlike HD use and settings

## Paperlike HD

Connect Paperlike HD to your computer (It will auto-boot. No need to press any button) and launch the Paperlike HD software. You can use the buttons on the monitor and software for various controls of Paperlike HD.



■ Button

C: Completely clear the ghost on the screen, the same as the software Hot key refresh (not blink refresh).

M: Switch the image mode. At 1100\*825 resolution, the image mode will be switched between A5-A2-A61. At variable resolution, the image mode will be switched between Floyd-A2-16.

Power: Turn the monitor on/off. (There is no need to press it when just power on the Paperlike HD)

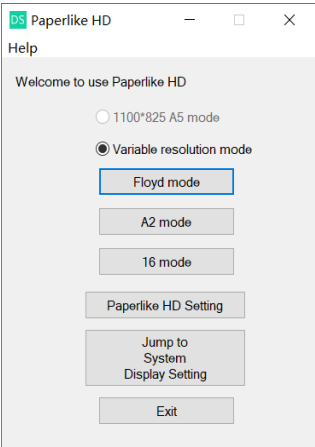
+/- : Contrast Button (Deep/ Shallow contrast)

C + M: Restart the monitor. (Restart the monitor when it is abnormal.)

## Setting

There are four parts of software interface:

- Part I: Resolution selection
- Part II: Mode selection
- Part III: Setting
- Part IV: Exit



## Resolution selection

In this version, you can set two types of resolution, namely: 1100\*825 A5 mode and variable resolution mode. The variable resolution mode includes resolutions between 1100\*825 and 2200\*1650. Some computer may not support “1100\*825 A5 mode” in duplicated mode.

Note: If you want to select more resolution, please click on the software “Jump to System Display Setting” button, select the resolution in the system settings.

## Mode selection

1100 \* 825 A5 Mode: used at 1100\*825 resolution, including three image modes: A5 / A2 / A61.

Variable resolution mode: Resolution between 1100\*825 and 2200\*1650, including three image modes, Floyd / A2 / A16.

## Setting

### Paperlike HD settings

☐ Swift-clear-ghost with pressing "Alt" key+"C" key

☐ Swift-clear-ghost regular  second(60s-600s)

☐ Swift-clear-ghost smart in switching window

Full-clear-ghost with shortcut(As "C" button on Paperlike HD)

### ■Clear-ghost setting

#### 1.Swift-clear-ghost

Clear the ghost on Paperlike HD swiftly.

1.1 Swift-clear-ghost by pressing “Alt” key and “C” key together.

1.2 Swift-clear-ghost regularly every period you set.

1.3 Swift-clear-ghost when you switch the application.

#### 2.Full-clear-ghost

Use the shortcut to clear all the ghost on Paperlike HD. Just like pressing the “C” button on Paperlike HD.  
The shortcut could be set as Ctrl/Alt/Shift and alphabet together.

### ■Display optimization (not available in Mac software)

Remove the Windows system rendering effects (such as fade, text edge shadow effect, etc.), so that the display effect will be more clear and sharper.

### ■Subject selection (not available in Mac software)

Switch the default desktop theme, the white desktop theme and the light gray desktop theme. Pure white desktop can reduce ghost and make the display better.

### ■Show cursor position (not available in Mac software)

Show cursor position

☐ Show cursor position in pressing "Ctrl" key

☐ Show cursor position smartly

1.Show cursor position in pressing “Ctrl” key

Pressing “Ctrl” key, then there will be a circle on the Paperlike HD. The center of the circle is the cursor.

2.Show the cursor position smartly

The circle will indicate the cursor's position on Paperlike HD after you move the mouse.

### ■Contrast setting

Contrast Shallow Moderate Deep

Shortcut setting

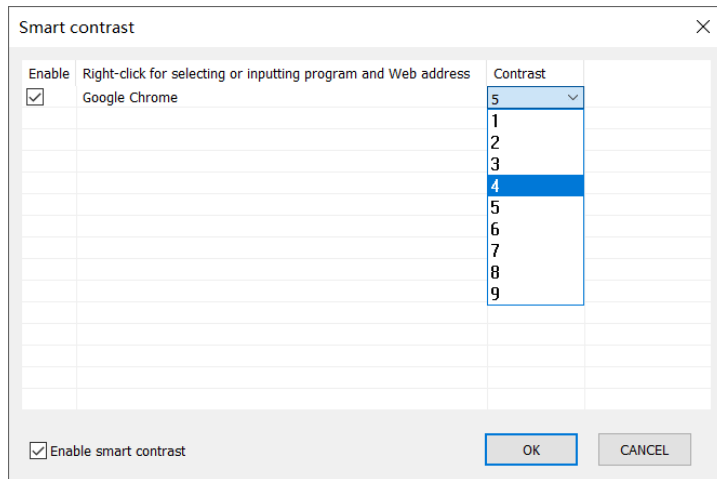
Smart contrast ☐ Smart contrast varying with different applications

Here, you can adjust the contrast at current mode to suit different application.

Shortcut setting

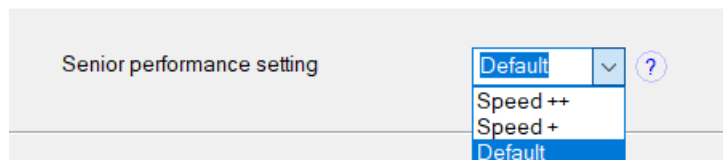
You can use the keyboard to adjust the contrast.

## ■Smart contrast



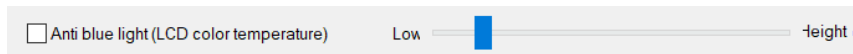
The contrast will be set according to the different application or website. You can set the default contrast to different application or website.

## ■Senior performance setting



You can set the deep electrophoretic parameter. The Paperlike HD will be faster or darker.

## ■Anti-blue light



The blue light from LED may affect your eyes and sleep quality. Many other anti-blue light software will affect Paperlike HD's image quality. We offer this function to reduce the blue light from LED without affecting the image quality of Paperlike HD in EXTEND MODE.

## ■Enable screen saver

The software will protect your Paperlike HD when you don't use mouse or keyboard for 60s. (For Mac, you need to do the privacy setting

## ■Save settings

Next time when you start the software, it will automatically run according to the setting and resolution you saved previously.

## Recommendation

■In 2200\*1650 resolution, if you feel the words are too small, you can change the zoom of system(DPI) to 175%-200%. In duplicated mode, the DPI will affect both the LCD and Paperlike HD.

■As Paperlike HD is 4:3 (not 16:9 as usual), in some resolutions, there may be black stick at the edge of the screen.

■Paperlike HD is the fastest E Ink product which response nearly as quickly as the LCD. However, the refresh rate is still lower than the LCD. You may feel the cursor is not fast enough. We recommend you change the cursor's size and the moving speed.

■Use together with the LCD. Use more keyboard rather than mouse. (such as "PgUp/ PgDn")

■Plug in the USB before HDMI.

■Plug out the cable before the PC is power off/ restart.

## Usage flow and fault diagnosis

### 【Indicated light】

Paperlike HD's indicated light has 3 states:

【Light off】 There is no power. Please connect/re-connect the USB to the power.

【Blue/White】 Paperlike HD is booting.

【Green】 Paperlike HD is ready.

If Paperlike HD has no response, please exit the software, disconnect all the cable. And do the following steps:

<b>Power Off</b>	Exit the software. Disconnect all the cable.
<b>Turn-on Power-1</b>	Only connect the USB to the power. The light will turn from white to blue, then the screen will refresh black/white and stay white. The light will stay green.
	Problem: 1, The light stayed white/blue. 2, The screen did not change. Solve: The power is not stable. Please re-connect the USB or press button "C" + "M".
<b>Turn-on Power-2</b>	Connect the HDMI to the PC. PC's screen may be black for a second. Than you can see the image on Paperlike HD.
	Problem: There is no image on the Paperlike HD, and no more monitors can be seen in OS' Display Setting. Solve: HDMI is not stable, reconnect it; click "Detect" in OS' Display Setting Problem: The image on the Paperlike HD looks strange. Slove: Press "C" button; Change the contrast in software; Reconnect the HDMI cable
<b>Working Stage 1</b>	It displays well.(Without software)
	Problem: The image did not move. Solve: Press "C"+"M" to restart the Paperlike HD Use 5V-2A

<b>Working Stage 2</b>	Run the software.
	Problem: The image did not move. Solve: Move the mouse or press the keyboard to exit the screen saver;
	Problem: The software is not useable. Solve: 1. VGA/USB adapter is not useable. 2. Launch the software in extended mode.

## This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

[illegible]

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