23 Inch Interactive Smart Shelf (ISS)

Model: LD230EKS-FPN1/LD230EKS-FPN2
CMMI ID：2020DJ12750

Product manual
(V1.0)

Please read the manual carefully in order to use the ISS well.
(In the following we will refer to this product collectively as ISS)

REVISION HISTORY

Version	Date	Page	Description
Ver 1.0	12th October,20'	ALL	First issued

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1. Safety notice

• Please read the following instructions carefully before using ISS.

• DO NOT use ISS near water or install in a high temperature environment

• DO NOT use ISS near water or install in a high-humidity environment

• DO NOT place ISS in direct sunlight or install near any heat sources (such as radiators, heat registers or stoves).

•. DO NOT block any ventilation openings. Leave at least 10cm space around the ISS.

• NEVER place ISS on an unstable cart, stand, bracket or table. It may cause serious personal injury, death or serious damage to the ISS.

• When installing ISS, please make sure that the power plug and socket are easily connected, and protect the power cord from being trampled or squeezed.

• DO NOT overload the wall outlets and connect too many appliances to the same AC power outlet.

• DO NOT use any unapproved items or cables to connect to ISS.

• ONLY USE accessories specified by the manufacturer.

• Clean only with a dry cloth and turn the power off before cleaning.

• Keep ISS and all package contents(including the EPE foam packaging cushion and protective board) out of the reach of children at all times

• Never attempt to repair or open ISS by yourself. Opening and removing the covers may expose you to dangerous voltage or other hazards. Failure to follow this WARNING may result in death or serious injury. Please contact your dealer or a service technician for assistance.

• Watching the screen too much time may hurt your eyesight. Rest your eyes for 10 minutes after 30 minutes of screen time.

▲ Warning : If using a Class 1 adapter, connect only to a grounded electrical outlet.

Consult an authorized service technician if ISS does not operate normally when you have followed the instructions in this manual.

2. ISS Components

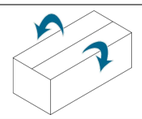
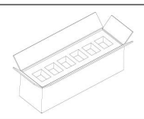
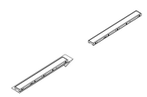
Check the following items in the box. If any attachments are missing, contact your local dealer where you purchased the ISS. Illustrations in this manual may differ from actual ISSs and projects.

ISS x 6

3. Pre-installation Instructions

Unpack

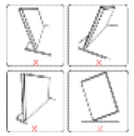
Please check the packaging first before unpack ISS. Prepare a flat and stable surface near a wall outlet.
Set the ISS box in an upright position according to the arrow markings on the outside of the ISS box.

procedure	1.Open the ISS box from the top side.	2.The top picture of the package is as below.	3.Remove the insulation foam on the top layer.	4.Take out the ISS one by one from the isolation layer of the second layer.	5.Remove the aluminum foil wrapper from each ISS.
diagram					

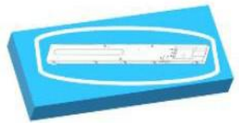
Carry

When carrying the ISS, be sure to hold the ISS firmly with both hands.
Do not apply force on the screen while hol ding it.
Avoid applying force or using sharp objects on the screen at all times.

Put



When placing the ISS, always place the screen face down according to the instructions in the following section.
Do not stand the ISS upright.
Do not use the four corners of the out side frame to support the ISS.



When placing the ISS down, place the screen face down on a flat and stable surface covered by a protection sheet and table mat, as shown in the illustration provided.

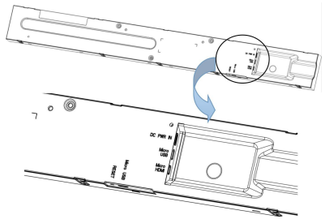
Never press or place anything on the rear cover. This may damage the internal parts of the ISS.

4. Installation Precautions

To avoid injuries, follow the installation instructions to safely install the ISS onto a wall.
It is recommended to allow a certified installation company conduct the wall mounting operation.

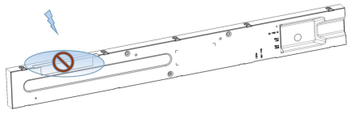
▲ CAUTION : Accidental dropping of the ISS may injure others.

NOTE: A wall mount may be purchased separately for easier installation.



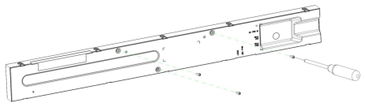
If you want to use ISS vertically or horizontally, ple ase adjust the ISS, make sure that the output and input ports of the ISS are free from obstructions, o therwise the ISS may not work.
Please make sure that there is enough space to pl ace the ISS before installation. For detailed dimen sions, please refer to the last page of this instructi on.

WLan Antenna



The top of the display has an antenna for WLan connectivity. When installing the ISS, make sure that no objects are placed on the wireless anten na and that there are no metal objects or equip ment in the area around the antenna.
Otherwise, the wireless signal will be weak or ev en no signal.

Holes of rear plate



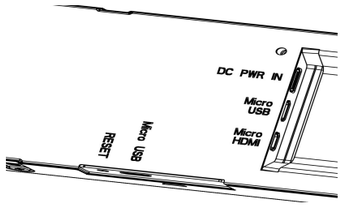
The back of the display is equipped with three screw-holes that allow for mounting. Firmly secu re a mount onto the display using three M3x6m m length screws (maximum torque: 4 kgf-cm).

5. ISS details

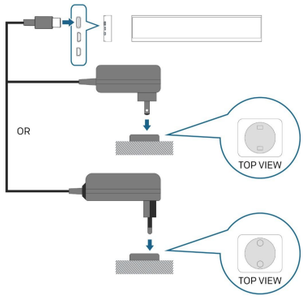
Introduction to external interface

The following image and table show the location of the connectors and other components.

Interface	Function
DC PWR IN	Connect the adapter to power the ISS
Micro USB*1 (OTG)	Connect to a computer via a USB cable to debug the ISS
Micro USB*1	Connect external storage devices containing videos or pictures or peripherals such as mouse and keyboard
Micro HDMI	Connect the ISS to the second monitor via an HDMI cable, and output the screen to the second monitor
RESET	1.Short press 1S to turn off the screen 2.Short press 3S to turn off the ISS and enter standby mode 3.Long press 7S to reset



Instructions for Power Connection



1.Connect the adapter Type-C interface to the "DC PWR-IN" interface.
2.Fully plug the power cord into the power socket.

After connecting the power, the ISS will automatically turn on.
CAUTION : Loose adapter plugs may cause current noise, please do not plug and unplug the adapter repeatedly.

Note:
• Adapters vary depending on the country of purchase of the device.
• In all cases, use a power cord that matches the AC voltage of the power outlet and has been approved and complied with the safety standards of your country/region.

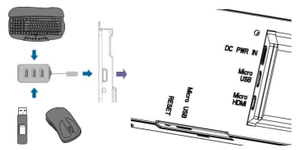
• Be sure to use the appropriate AC/DC adapter:

Warning: When disconnecting the AC power cord, be sure to unplug the adapter from the socket.
We recommend that you use this adaptor.
UL Listed Power Supply Unit marked "Class 2" or "LPS" or "PS2" and rated min. 12 V DC, 3A

6. External device

NOTE: Before connecting, make sure that all connected devices are powered off, and then turn on the powe r for each device (including the ISS) after establishing the connection.

Use Micro USB connection



1.Connect the Micro USB adapter cable or Micro USB h ub to the Micro USB interface of the ISS.
2.Connect any device below to Micro USB adapter cable or Micro USB hub
•After the flash drive, keyboard or mouse is connected, y ou can find the video/image files located on the flash driv e in the file manager.

NOTE: The display only supports the following vide o/image file formats (with their listed resolution) via the Micro-USB port:

JPEG/BMP/GIF/PNG/MPEG AUDIO/WAV AUDIO/ OGG AUDIO/FLAC AUDIO/MIDI AUDIO/H.263/VP8

7. System Introduction

Setting

You can use the Settings menu in the system to adjust the settings of many ISS.

1. Select the "All Applications" button on the right side of the main screen to enter the "All Applications" menu. Or, swipe up from the bottom edge of the screen. (As shown in Figure 1)
2. Select "Setting" in the "All Applications" list. (As shown in Figure 2)

External monitor

1.Connect the appropriate adapter to the Type-C power input port on the ISS.
2.Connect the Micro-HDMI cable to the Micro- HDMI output port on the ISS.
3.Connect the other end of the Micro-HDMI cable to the HDMI input port of other displays, and the display will start to copy the screen on the ISS.

By default, the ISS automatically outputs its video to the external display, b ut if the ISS settings are changed, the video output may be disabled.
To re- enable the video output to the external display, please follow the instructions below:
Note: The screen of this ISS is a touch screen, which supports menu sele ction by touch.

1.Turn on the main display.
2.Select the "All Applications" button on the right side of the main screen to enter the "All Applications" menu. Or swipe up from the bottom edge of the screen.(As shown in Figure 1)
3.Select "Setting" in the "All Applications" list.(As shown in Figure 2)
4.Select "Display" in the "Device" area of the "Settings" menu. (As shown in Figure 3)
5.Select "HDMI Settings" in the "Display" menu.(As shown in Figure4)
6.Enable HDMI in the menu.(As shown in Figure 5)

Connect to Internet

After powering on the ISS, you must follow the steps below to connect the ISS to the wireless router:

1. Select the "All Applications" button on the right side of the main screen to enter the "All Applications" menu or swipe up from the bottom edge of the screen. (As shown in Figure 1)
2. Select “Setting” in the "All Applications" list. (As shown Figure 2)
3. Select "WLAN" in the "Settings" menu area. (As shown in Figure 6)
4. Make sure the WLAN switch is enabled. (As shown in Figure 7)
5. Select the SSID of the router to be connected. To connect to an encrypted wireless hotspot, you need to enter the hotspot password.
6. Return to the "All Applications" list. In the "All Applications" menu, select the "Browser" Application, and then open a web page to ensure that you have correctly connected to the wireless network. (As shown in Figure 8)

Bluetooth connection settings

1. Select "Bluetooth" in the "Settings" menu. (As shown in Figure 9)
2. Make sure that the Bluetooth switch is enabled. (As shown in Figure 10)
3. Select the device to be paired.

System language setting

Change the display language from the settings menu.

1. Select "Language and Input Method" in the "Personal" area of the "Settings" menu. (As shown in Figure 11)
2. Select "Language" in the "Language and input" menu. (As shown in Figure 12)
3. Use the "bar" icon on the right side of the menu to drag the desired language from the default language list to the top or click "Add Language".(As shown in Figure 13)

Install the application

1. Select the "All Applications" button on the right side of the main screen to enter the "All Applications" menu. Or, swipe up from the bottom edge of the screen. (As shown in Figure 1)
2. In the "All Applications" menu, select "Explorer (As shown in Figure 14)
3. Find the location of the program installation file in the resource manager, and then select the file (take QQ as an example below).(As shown in Figure 15)
4. Select "Install" in the confirmation message that appears. The application will begin to install. (As shown in Figure 16)
5. Select "Open". (As shown in Figure 17)
6. After installing the application, you can open this application in the "All Applications" screen. (As shown in Figure 18)

Figure 1

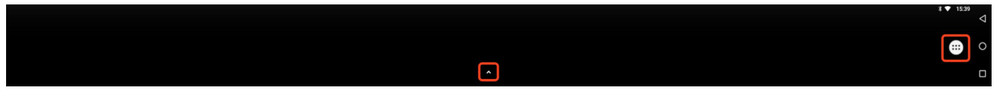


Figure 2

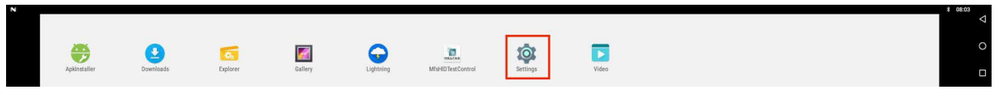


Figure 3

Figure 4

Figure 5

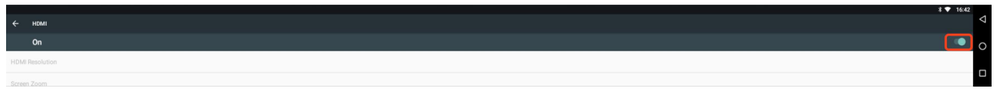


Figure 6

Figure 7

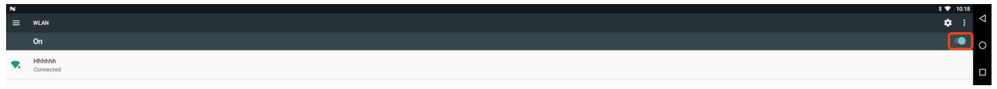


Figure 8

Figure 9

Figure 10

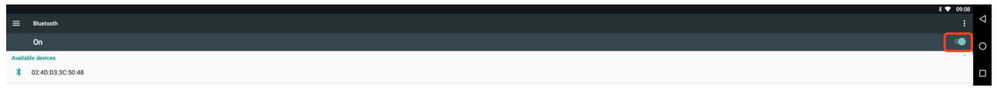


Figure 11

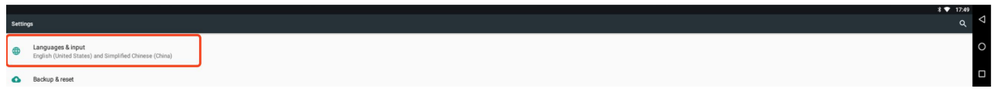


Figure 12

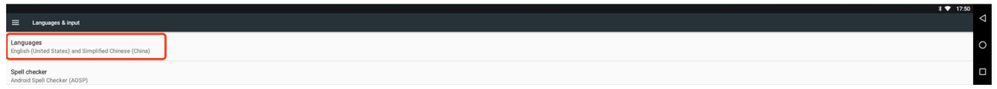


Figure 13

Figure 14

Figure 15

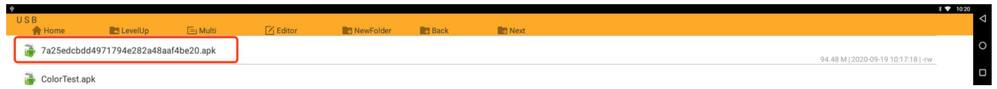


Figure 16

Figure 17

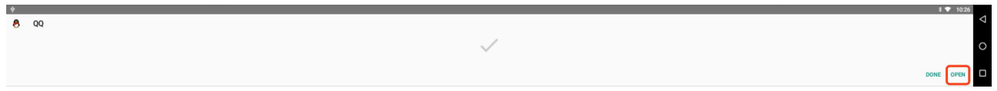
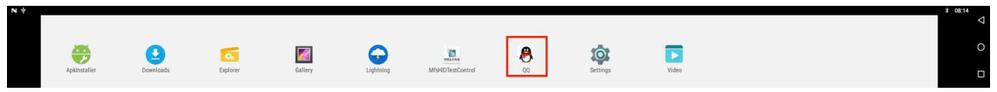


Figure 18



8. FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.
(2) This device must accept any interference received, including interference that may cause undesired operation.Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.
However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception,which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.

9. RoHS

Part Name	Hazardous substances					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr6+)	Polybrominated biphenyls (PBB)	Polybrominated Diphenyl Ether (PBDE)
PCB	X	O	O	O	O	O
Cable	O	O	O	O	O	O
Plastic	O	O	O	O	O	O
Metal parts	X	O	O	O	O	O
Display Panel	O	O	O	O	O	O

O:Indicates that the content of this hazardous substances in all homogeneous materials of this part is below the limit requirement specified in the standard GB/T 26572 《Limit requirements for restricted substances in electronic and electrical products》

X: Indicates that the content of the hazardous substances in at least one of the homogeneous materials of the part exceeds the limit requirement specified in GB/T 26572-2011

The data in this table is provided by professional certification agencies.

: ISS has passed the Japanese TELEC certification and meets all the requirements in the certification.

: In order to better care and protect the earth, when users no longer need ISS or the end of the ISS life, please abide by the relevant laws and regulations of the recycling of waste electrical and electronic products, and give it to the local manufacturer with the qualification of recycling processing recognized by the state for recycling processing.

HDMI® HIGH-DEFINITION MULTIMEDIA INTERFACE

The terms HDMI, HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc

REACH SVHC VCI

Appendix

NOTE: The following is the description of the ISS parameters for reference only. If you have any questions, please contact the supplier.

1.Display

LCD panel	Size	23 inch
	Backlight type	LED
	Display area	585.562 (H) *48.187 (V) [mm]
	Resolution	1920*158
	Brightness	700cd/㎡
	Viewing angle	89° (CR≥10) (typ.)
	Refresh rate	60Hz

2. Touch screen

Touch panel	Contact material	Polarizer
	Touch technology	LG In-cell touch
	Interface driver	USB free drive
	Touch method	Fingers or Capacitive pen
	Support system	Android

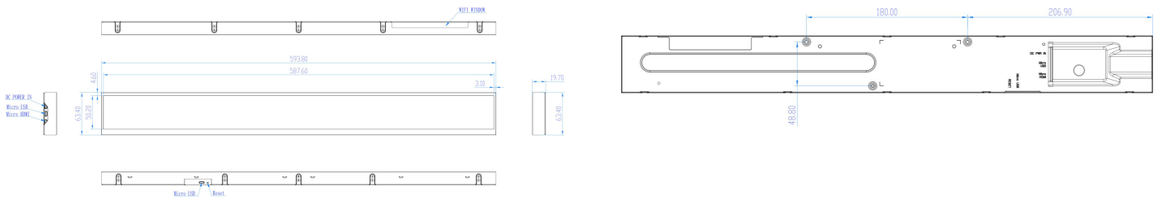
3. System Configuration

Android	Android version	Android 7.1
	CPU/GPU	RK3288W ;
	ROM	8G ROM
	RAM	1G RAM

4. Use environment

Use Environment	Working temperature	0℃ ~ 45℃
	Working humidity	10% RH ~ 80% RH
	Storage temperature	-20℃ ~ 60℃
	Storage humidity	10% RH ~ 80% RH
	Service life	50000 hour

ISS Size



Manufacturer's Name: LG Display Co., Ltd.
Product Name: ISS(interactive smart shelf)
Model number: LD230EKS-FPN1
Operating Temperature: 0° C to 40° C
This device in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. All essential radio test suites have been carried out.

Operation Frequency:	Bluetooth: 2402-2480MHz WiFi: IEEE 802.11b/g/n HT20: 2412-2472MHz IEEE 802.11n HT40: 2422-2462MHz
Modulation Type:	GFSK, Pi/4 DQPSK, 8DPSK, DSSS, OFDM
Antenna Designation:	Internal ant
Antenna Gain	3dBi

This product can be used across EU member states.

LG Display

DECLARATION OF CONFORMITY

-. Number : DoC_LD230EKS_FPN1-01

-. Name & address of the Manufacturer
: LG Display Co., Ltd.
LG Twin Tower, 128, Yeoui-daero, Yeongdeungpo-gu, Seoul 07336, Republic of Korea

This declaration of conformity is issued under the sole responsibility of the manufacturer -.
Object of the declaration (Product Information)
: Type of Product - Interactive Smart Shelf :
Model Name - LD230EKS-FPN1

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation
- References to the relevant harmonised standards used, or references to the specifications in relation to which conformity is declared

- The Radio Equipment Directive (RED)
: Health and Safety (Article 3.1a) EN 62368-1:2014+A11:2017, EN62311:2008
: EMC(Article 3.1b) ETSI EN 301 489-1 V2.2.3, Draft ETSI EN 301 489-17 V3.2.2
: Radio Aspects (Article 3.2) ETSI EN 300 328 V2.2.2
※ The Notified Body - LGAI TECHNOLOGICAL CENTER, S. A./Applus (NB-0370)
Certificate - 0370-RED-4231

- Electromagnetic Compatibility (EMC) 2014/30/EU
: EN 55032:2015, EN 55035:2017/A11:2020, EN IEC 61000-3-2:2019, EN 61000-3-3:2013/A1:2019
※ The Notified Body - ISET Srl Unipersonale (NB-0865)
Certificate - ISETC.000920210615

- Low Voltage Directive 2014/35/EU
: EN 62368-1:2014+A11: 2017
※ The Notified Body - ISET Srl Unipersonale (NB-0865)
Certificate - ISETC.000920210615

- RoHS DIRECTIVE 2011/65/EU and 2015/863/EU.
It is confirmed that a sample of the product has been tested and found in conformity with below standard(s)
: RoHS (IEC 62321)

- Eco-Design Directive According to EC Commission Regulation No. 801/2013 & 1275/2008 & 2019/2021 &2019/2013

CE

Date of Issue : 05-JUL-21

Authorized by (Name/Function): YongChae Jung / Manager

Signature : Y.C. Jung

LG Display

www.lgdisplay.com

FCC WARNING

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Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC’s RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.