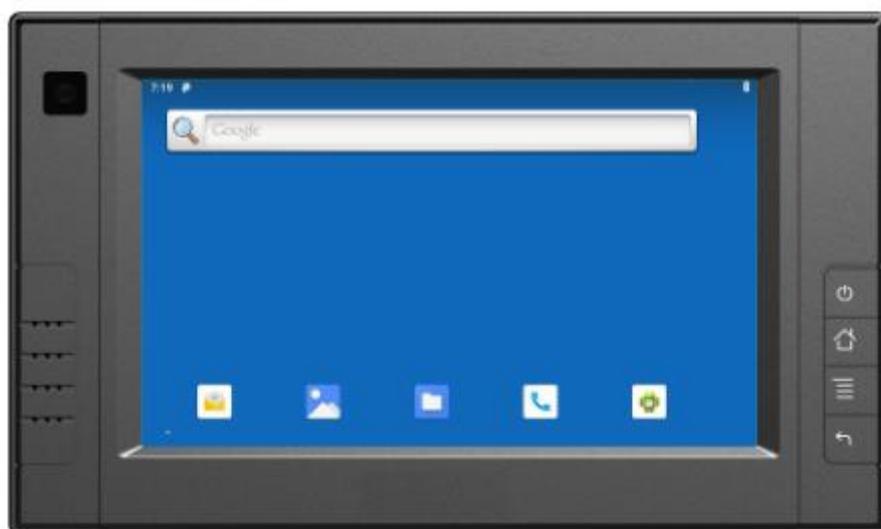


Embedded Computer User Manual



Safety maintenance:

Please maintain your system properly to make sure its service life and reduce the damage risk.

- It should avoid the humidity and extreme temperature when being used.
- Avoid prolonged exposure of the unit to direct sunlight or strong ultraviolet light.
- Do not drop the unit or let it be in any place with severe shock / vibration.
- Please avoid the collision as the LCD screen is very easy to be scratched. Do not use any sharp object to touch the screen.
- To clean the outside fuselage, please turn off the power, unplug the power cord, scrub / wipe with slightly damp soft cloth. When cleaning the screen, please wipe with the lint free soft cloth.
- Never attempt to disassemble or repair the machine, otherwise the unit may be damaged.
- Do not place your unit or accessories together with other flammable liquids, gases, or other explosive materials, to avoid danger.
- Please unplug the power plug and remove the built-in battery if long-term no-use, or thunder weather.

Content

1. Product Description	8
1-1 Brief Introduction	8
1-2 Optional Functions	8
1-3 Basic Parameters	9
1-4 Structure Function Explanation	11
2. Extended Cable Definition	12
3. Instructions SIM card & TF card	13
4. MENU	14
4-1 Gestures	14
4-2 Delete	14
4-3 Icon bar	15
4-4 Applied	16
4-5 Introduction	17
4-5-1 Power On / Off and Dormancy / Wake	17
4-5-2 Manage device power supply	17
4-5-3 Device is equipped with batteries	17
4-6 ACC Setting Path	20
4-7 Using GPIO	22
4-7-1 GPIO Tail Lines Instruction	22
4-7-2 GPIO Typical Connection	22
4-7-3 GPIO interface	23
5. Accessories	24
6. Trouble Shooting	25

1. Product Description

1-1 Brief Introduction

- ◆ 7" 16:9 Digital touch wide screen, 800×480 physical resolution, with rich colors;
- ◆ Comply with IP 64 Waterproof Standard;
- ◆ Android 9.0 operation system;
- ◆ Micro SD (TF) card storage, making the data reading reliable and daily expansion convenient.
- ◆ Speaker, Microphone

1-2 Optional Functions

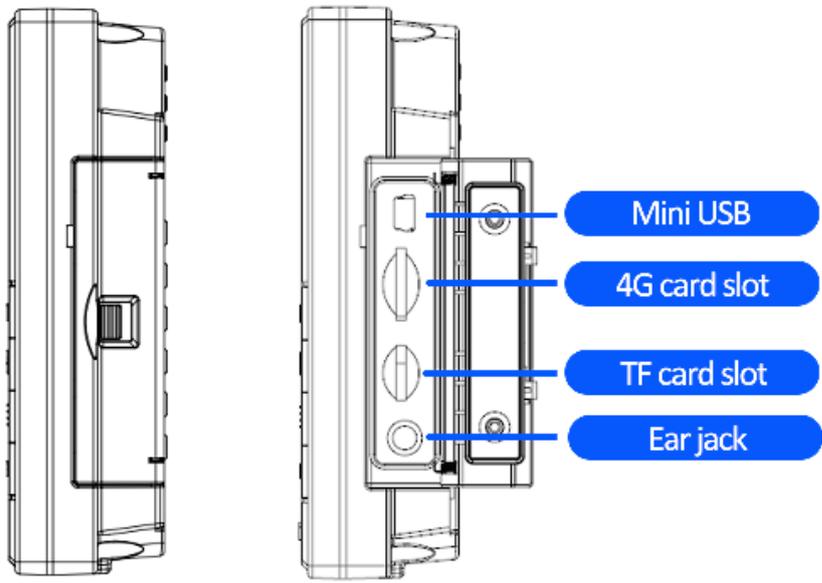
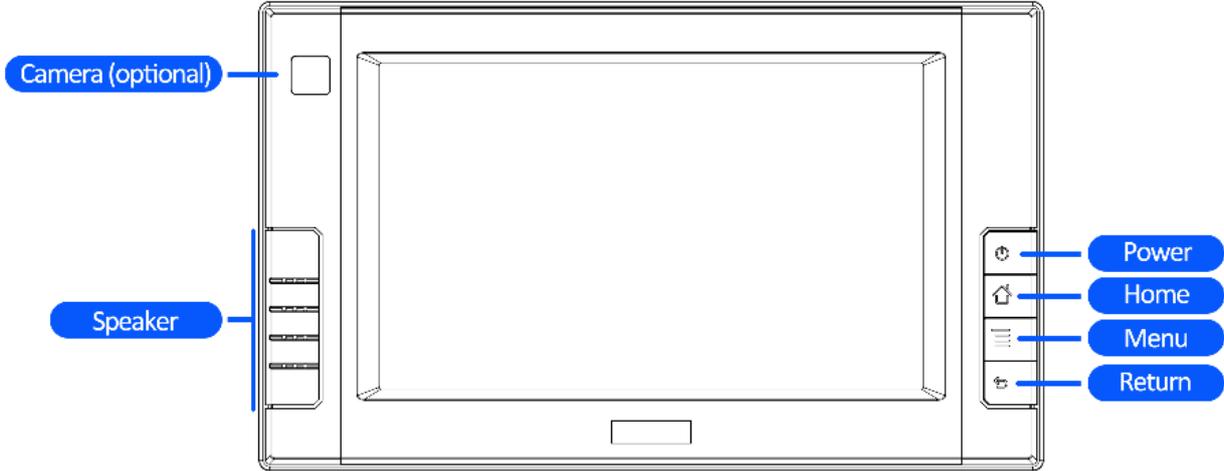
- ◆ GPS (external / built-in)
- ◆ Wi-Fi 802.11 b/g/n/ac (built-in)
- ◆ 4G (built-in)
- ◆ Bluetooth 5.0 (built-in)
- ◆ CAN bus×2
- ◆ 2200mAh Li-ion battery (built-in)

1-3 Basic Parameters

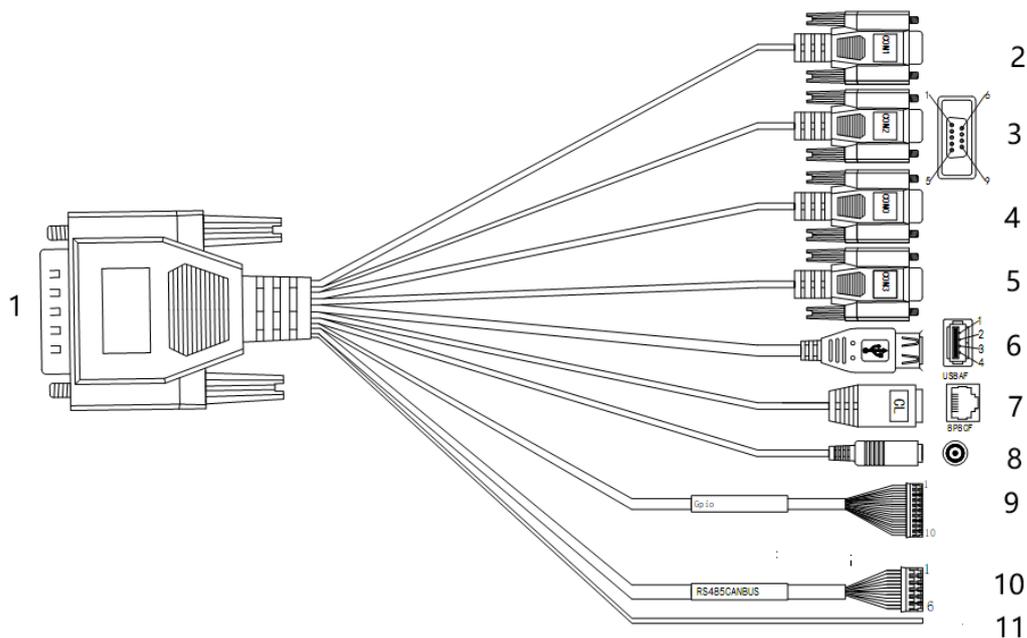
Specifications	
CPU	NXP i.MX 8M Mini, ARM® Cortex®-A53
	Quad-Core 1.6GHz
GPU	3D GPU (1xshader, OpenGL®ES 2.0) 2D GPU
OS	Android 9.0
RAM+ROM	2GB LPDDR4+16GB Flash
	4GB LPDDR4+32GB Flash (optional)
Video Decode	1080p60 (H.265, VP9, H.264, VP8)
Video Encode	1080p60 (H.264)
Sensors	Gyroscope & accelerometer; Compass
DISPLAY	
LCD	7 inch IPS, 800x480 resolution, 450 nit
Touch	Capacitive touch screen
INTERFACES	
LAN	1000M
GPIO	X 8 (Software freely define input and output)
COM	RS232x4 RS232x3+RS485x1 (optional)
	The optional Bluetooth and GPS will each occupy an RS232 port.
SIM Card	X1
SD Card	X1
USB	USB 2.0 Devicesx1, USB 2.0 Host x1
Earphone Jack	3.5mm
OPTIONAL FUNCTIONS	
CAN	×2
Cellular Network	3G / 4G
WIFI	IEEE 802.11 a/b/g/n/ac; 2.4GHz / 5GHz
BT	5.0

GPS	Built-in or external
ACC	X1
Microphone	Build-in Microphone
POWER	
Power Supply	DC 10-36V (DC 11-36V with built-in battery)
Power Consumption	≤10W
Battery(optional)	Built-in 2200mAh
OTHERS	
Speaker	X1
Dimension	220x132x36.5mm
Weight	740g
Environment	Dust resistance test: IP6x
	Water resistance test: IPx4
	Operating temperature:-10℃~65℃(14°F~149°F) 0℃~40℃(32°F~104°F)(Built-in battery)
	Storage temperature:-20℃~70℃(-4°F~158°F)

1-4 Structure Function Explanation



2. Extended Cable Definition



No.	Item	Specification
1	Convertor	To connect with device cable
2	COM 0 serial port	Bluetooth
3	COM 1 serial port	Used to print debug information
4	COM 2 serial port	Built-in GPS (optional): RS232 or GPS for optional External GPS (optional): GPS function only
5	COM 3 serial port	RS232 / RS485
6	USB host port	For data transmission
7	LAN port	For network connection
8	Power	Connect with power adapter
9	GPIO port	1 2 3 4 5
		GND commom GPIO 8 GPIO 7 GPIO 6
		6 7 8 9 10
		GPIO 5 GPIO 4 GPIO 3 GPIO 2 GPIO 1
10	CANBUS /RS 485	1 2 3 4 5 6
		CAN1H CAN1L CAN2H CAN2L RS485+ RS485-
11	ACC	Connect ACC power

3. Instructions SIM card & TF card

- ◆ The SIM card, memory card and the card connectors on the device are precision electronic components. When inserting the SIM card or memory card into the card connectors, you must insert after aligning to the position accurately in case of damaging the components. When removing the SIM card or memory card, please slightly push the upper edge of the card to loosen the card, then pull it out.
- ◆ The memory card will get heat after long time working. It is a normal phenomenon.
- ◆ If you don't use SIM card correctly, or cutting off the power or pulling out the SIM card during the operation, the network will be interrupted automatically.

Insert the memory card as shown in below picture

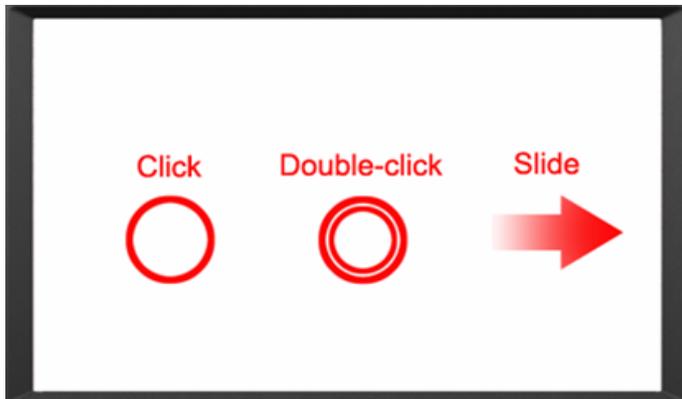
- ◆ Find the location of the SIM card or memory card slot on the unit, then push the SIM card or Micro SD card with the part of the metal contacts outward until it snaps into the location.
- ◆ Do not force to insert the SIM card or memory card to avoid damaging the card.
- ◆ Please do NOT insert micro SD card into SIM card slot improperly, otherwise, the micro SD will be very difficult to be taken out, or may even be damaged.



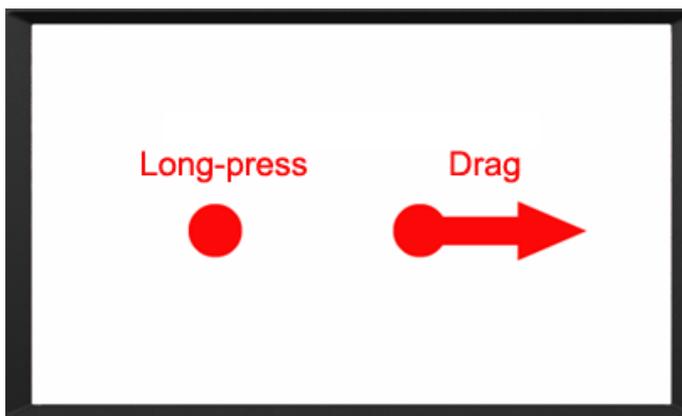
4. MENU

4-1 Gestures

Click, Double Click and Slide

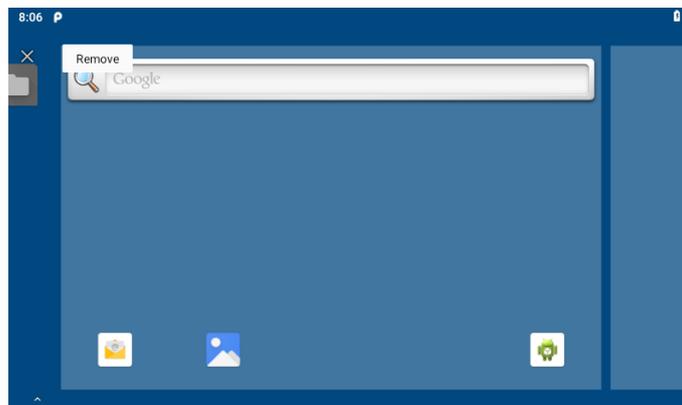


Long-press and Drag



4-2 Delete

Long-press the application icon, and drag to the Home screen, then drop to the recycle lift-up to delete this software.



4-3 Icon bar

Icon	Name	Description
	WLAN	Wi-Fi signal connection and status of signal weakness or strength.
	Bluetooth	Bluetooth available
	Not disturb	Turn it on and enter do not Disturb mode. The product is in silent state, no notification is displayed, and no notification prompt is issued.
	Auto rotation	The display is currently rotating automatically
	power saving mode	Power saving mode can be turned on only when using battery power
	NO card	Icon displayed when no SIM card.
	Mobile data	Display mobile signal connection status.
	Flight Mode	Flight mode status
	Position	GPS positioning
	Wi-Fi Hotspot	Wi-Fi Hotspot available

4-4 Applied

Scroll up to the “” icon in the lower left corner of the screen to see all the apps on the device

Icon	Name	Description
	Phone	Open the dial interface.
	E-mail	After you set up your e-mail account, you will be reminded when there are new e-mails.
	Calculator	Turn on the calculator.
	Recorder	When the recorder is turned on, it can save the recording record quickly.
	Calendar	In the calendar you can view the date, or you can add the schedule.
	Setting	It can be set up according to individual requirements
	Clock	Check the time and set the alarm, timer and stopwatch.
	Address book	View the address book and add new contacts.
	Picture	The gallery program supports viewing by folder path.
	File	Open to manage files.
	Camera	Turn on photographing mode.
	Music	Support for playing local and online music.
	Ethernet	Ethernet can be managed Modify static or dynamic IP and proxy Settings
	Search	Click to go to Google Search
	Browser	Android Web browser

4-5 Introduction

4-5-1 Power On / Off and Dormancy / Wake

Click the power button on the device to open/close the device when the device goes to sleep (screen saver program) with forced power outage.

The correct operation of the power key will help ensure the stability of the system. The device state indicated by the color of the lamp is displayed, as shown in the following table:

Indicator color	Device Status	
	Charging and Discharging	Power On/Off
Green light on	Uncharged or Full charged	Power on
Red light on	Charging	Power off or Power on
Red or Green light blinking	The device is abnormal, please cut off the external power supply immediately and return it back to the factory for repair.	

4-5-2 Manage device power supply

1. Power on: Press the power button, start the system after running the LOGO display.
2. Power off: Long press the power button for more than 2 seconds until the shutdown option pops out, then click the shutdown option.
3. Dormancy device: Automatic sleep, sleep time can be set in Settings; Press short to enter hibernation mode.
4. Wake up device: Short press the power button to wake up the sleeping device.

4-5-3 Device is equipped with batteries

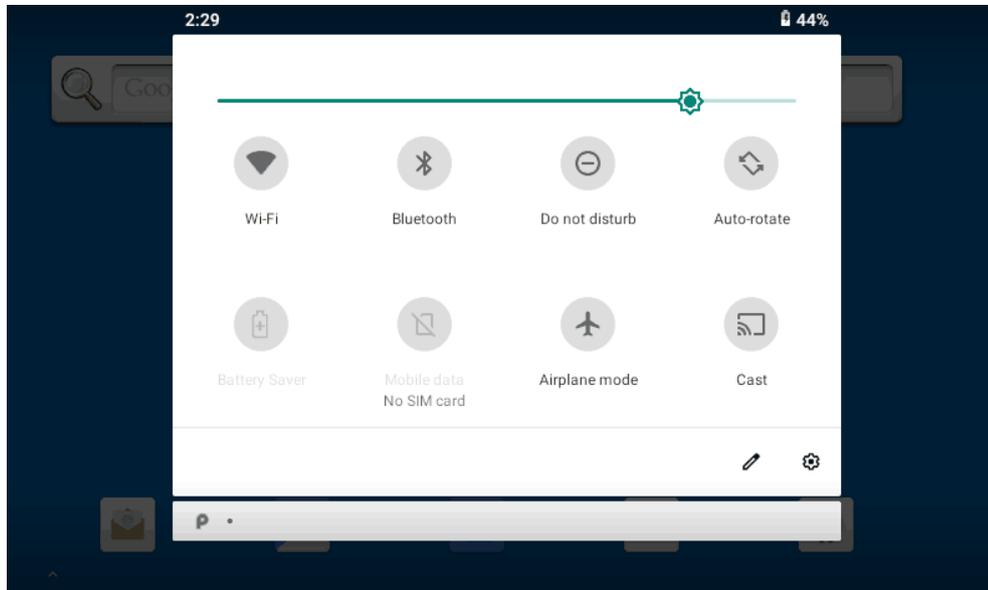
a. Rechargeable batteries

Due to transportation, the battery will be partially drained when the package is delivered to you. Make sure the battery is fully charged on the first charge.

Please keep dc in charging state when working. The device uses a DC input power source first, rather than a power source stored in an internal battery.

b. Check the battery level

During charging, the status bar will display the battery power indicator, showing the charging percentage. To see the percent charge, slide down the status bar to see the percent charge.



When the battery is fully charged, the DC input can be disconnected. If available, use a DC power supply to keep it charged.

c. Check the battery level

If the monitor cannot be continuously charged by dc power, to optimize the working time of the battery, it is recommended that you do the following

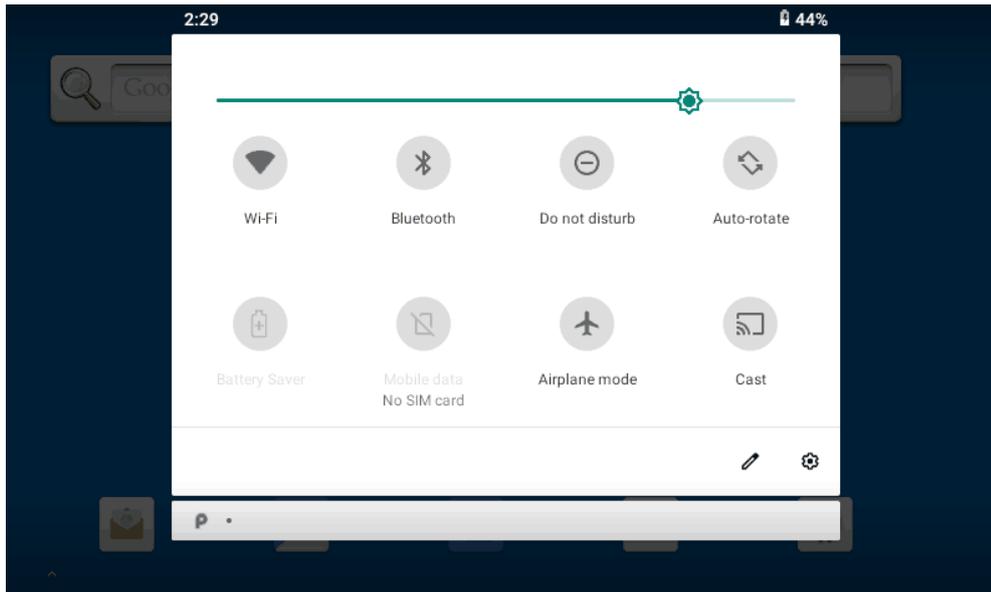
Turn down the display brightness.

Set a short time to go into sleep mode.

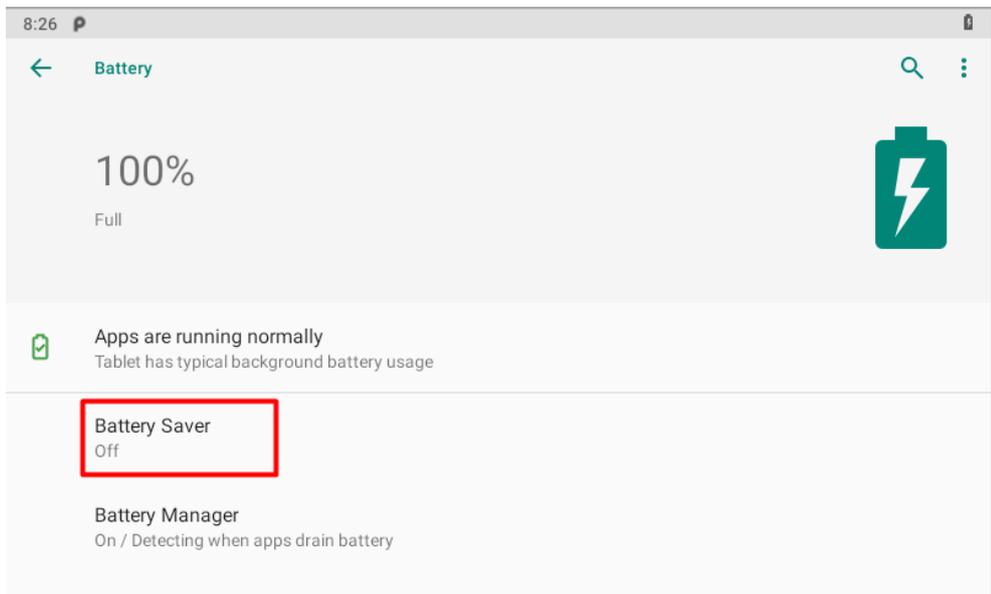
Turn off the monitor when not in use.

Not applicable to the application. To check the battery usage of each application, the application can be a serious drain on the battery. Not applicable to the application. To check the battery usage of each application, the application can be a serious drain on the battery.

Enable CPU power saving mode on the battery Settings page to limit the maximum CPU performance to save battery power and reduce device temperature. To get to the battery Settings page, slide down the status bar in the upper right corner and long press the power-saving mode button to turn it on.

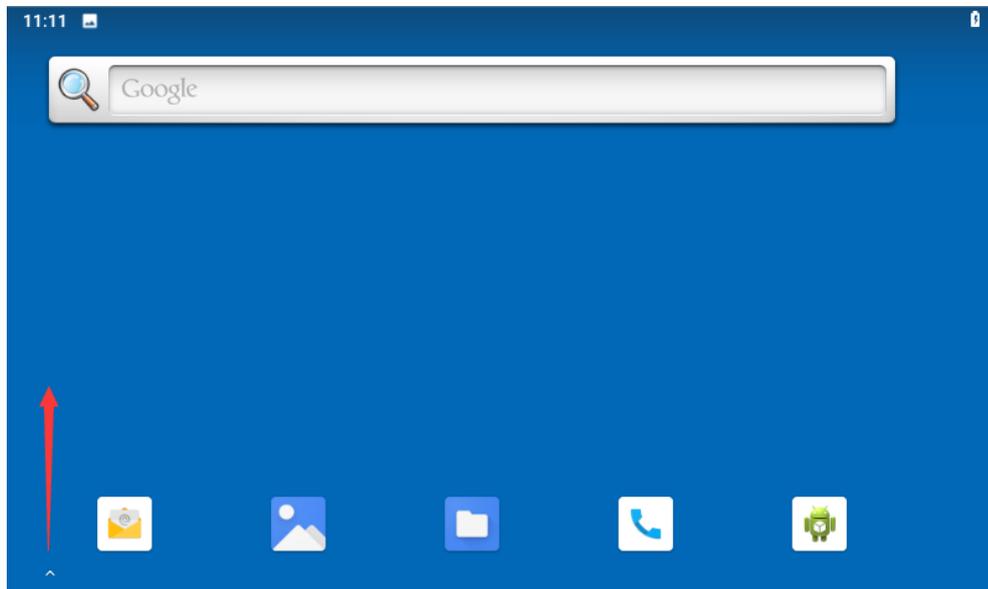


Turn on the switch after enter the system, as shown in the figure below

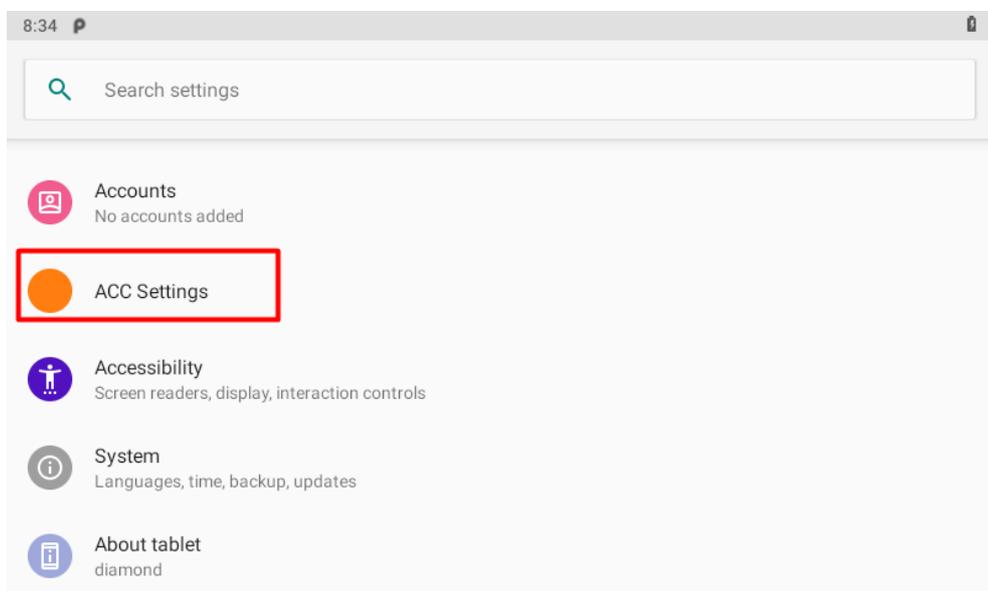


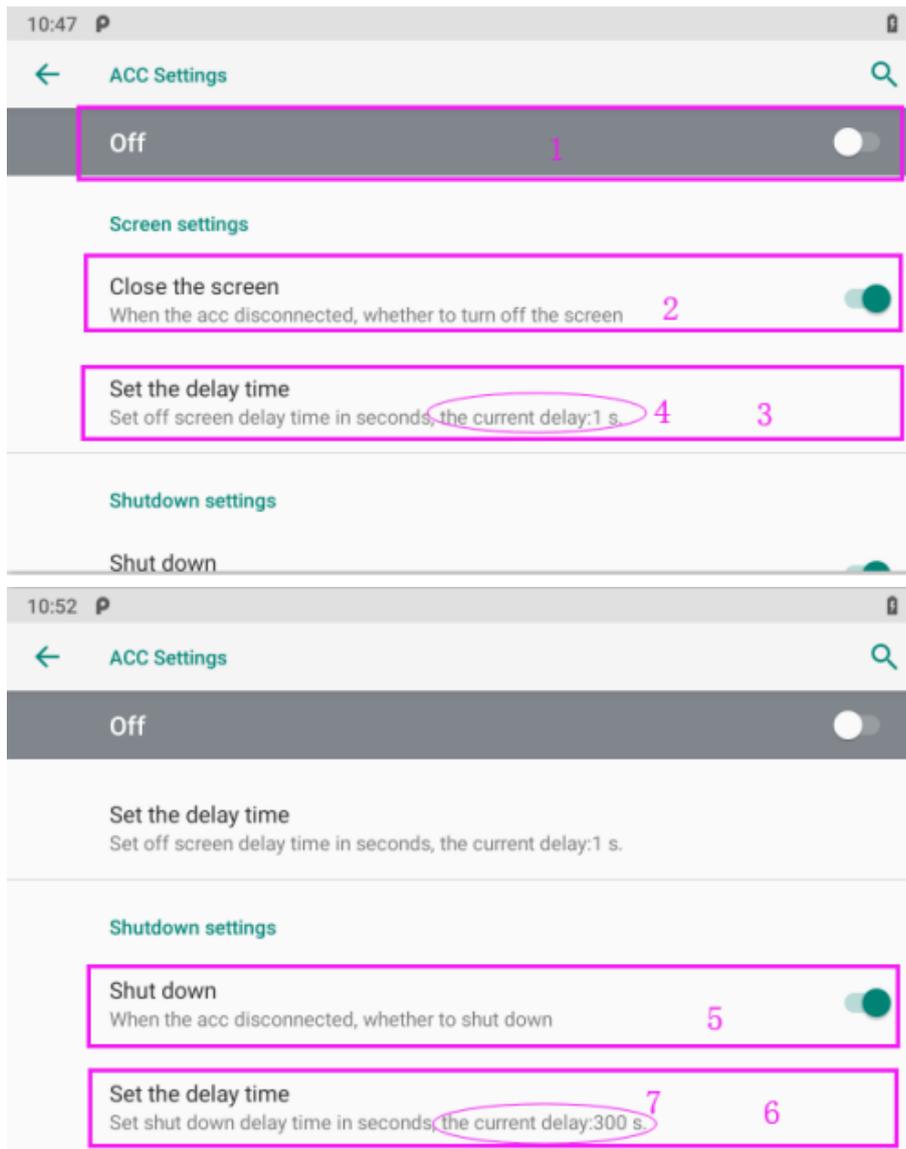
4-6 ACC Setting Path

ACC settings located in ACC Settings under the category of System in the Settings of Android OS. Please refer to Figure 2-1, 2-2 and 2-3:



Click  go to Settings and select "ACC Settings" as shown.





ACC settings as shown in Figure 2-4 & Figure 2-5.

Mark 1: The main switch of the three functions controlled by ACC, namely, light up the screen, close the screen and shut down.

Mark 2: The switch of close screen function controlled by ACC.

Mark 3: Click to pop-up dialog box as shown in Figure 2-6, to edit the screen off delay time after ACC outage.

Mark 4: The current screen off delay time after ACC outage.

Mark 5: The switch of Trigger to shut down function by ACC outage.

Mark 6: Click to pop-up dialog box as shown in Figure 2-7, to edit the shut down delay time after ACC outage.

Mark 7: The current shut down delay time after ACC outage.

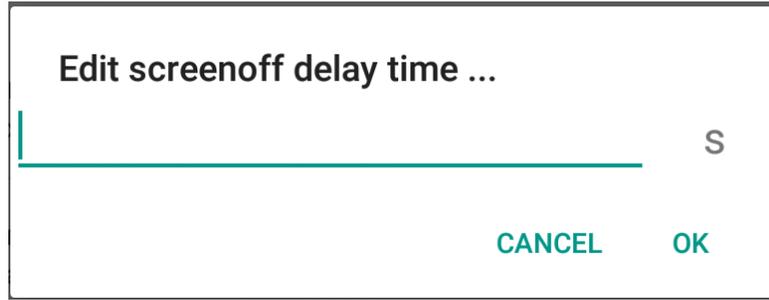


Figure 2-6 Screen off delay time setting dialog box

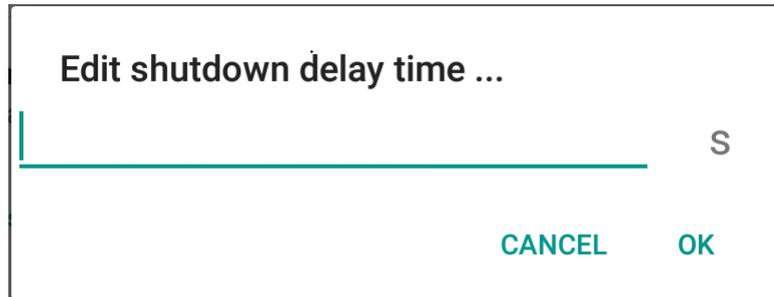


Figure 2-7 Shut down delay time setting dialog box

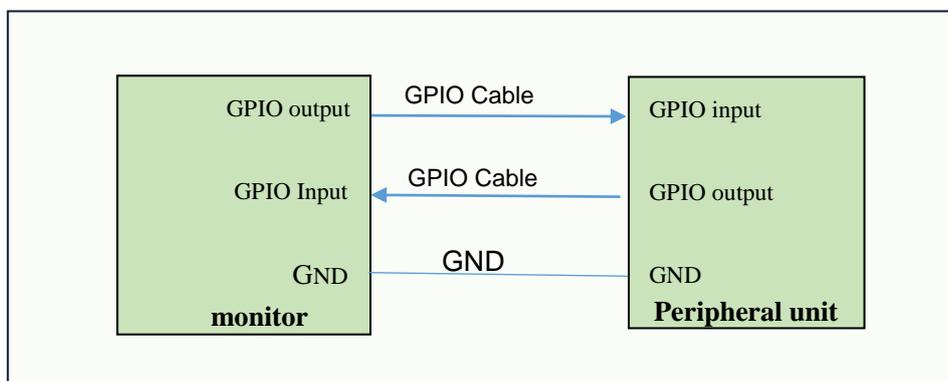
4-7 Using GPIO

4-7-1 GPIO Tail Lines Instruction

Regarding the definition diagram of GPIO interface, please see the details in Chapter “ 2. Extended Cable Definition ”.

4-7-2 GPIO Typical Connection

The following figure is a typical connection method of GPIO. In order to ensure the data communicate normally, please connect the GPIO interface of monitor as shown in the following figure.



4-7-3 GPIO interface



Double-click “/mx8gpio” to enter the GPIO interface:

name	direction	state	operation
GPIO 0	IN	HIGH	READ ?
GPIO 1	OUT	HIGH	READ
GPIO 2	IN	HIGH	READ
GPIO 3	IN	HIGH	READ
GPIO 4	IN	HIGH	READ
GPIO 5	IN	HIGH	READ
GPIO 6	IN	HIGH	READ
GPIO 7	IN	HIGH	READ

At the bottom of the interface, there are two buttons: "READ_ALL 3" and "SET_ALL_LOW 4".

Name: GPIO pin number.

Direction: GPIO state. You can choose GPIO as the input state or output state. As shown in figure “1”.

State: HIGH of high level, LOW of low level

Operation: Read whether the current mode is high or low, displayed in the status bar.

READ_ALL: GPIO is the state of the level at input.

SET_ALL: GPIO is the state of the level at output.

5. Accessories

Standard accessories:



1

2

3

- | | |
|-------------------|--------|
| 1. Extended cable | 1piece |
| 2. DC12V adapter | 1piece |
| 3. Mini USB cable | 1piece |
| 4. User manual | 1copy |

Optional accessories:



1

2

3

- | | |
|---------------------------|--------|
| 1. 75mm VESA rail slot | 1piece |
| 2. Mounting bracket | 1piece |
| 3. 2200mAh Li-ion battery | 1piece |

6. Trouble Shooting

Power Problem

Cannot boot up

- 1、 Wrong cable connection
 - a) Connect Extended cable with device first, and connect the AC end of DC adapter with DC input port of Extended cable, then the other end of DC adapter connect with power plug socket.
- 2、 Bad connection
 - a) Check every connection and socket of power source

Screen Problem

- 1、 No picture on screen.
- 2、 The application reaction time is too long and cannot be activated when clicked.
- 3、 The image appears delay or still when switching.

Please restart your system if the device has any problem as described above.

- 4、 Display screen is misty
 - a) Please check whether the display screen surface has dust filth or not. Please simply wipe with clean and soft cloth.

Due to constant effort to improve products and product features, specifications may change without notice.