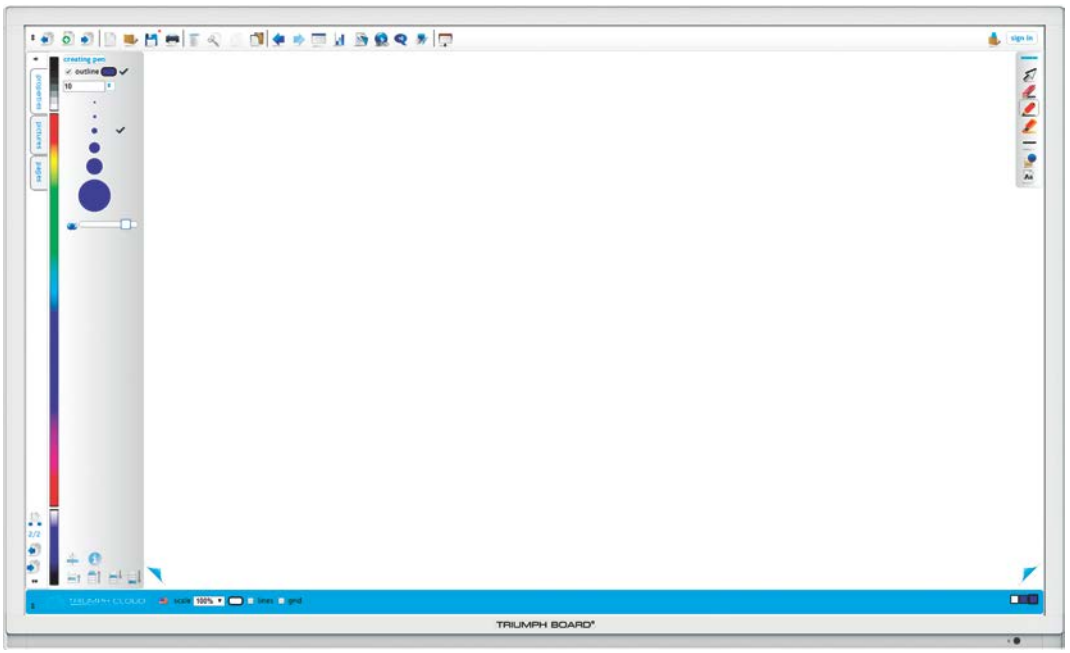
TRIUMPH BOARD®
One Idea Ahead

User Manual

INTERACTIVE FLAT PANEL

55”/ 65”/ 70”



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1. Product Description

TRIUMPH BOARD INTERACTIVE FLAT PANEL

TRIUMPH BOARD INTERACTIVE FLAT PANEL is a fully integrated, professional, multi-touch FULL HD IFP. The IR LED optical technology enables ten finger touches simultaneously using fingers, stylus or even a pointer.

TRIUMPH BOARD INTERACTIVE FLAT PANELs are an effective presentation tool for showing pictures, data, presentations, thoughts, ideas and business forecasts interactively. Engage the audience with the presentation with direct control of the computer through the INTERACTIVE FLAT PANEL.

TRIUMPH BOARD MINI PC10A for INTERACTIVE FLAT PANEL (optional)

TRIUMPH BOARD 10A is the powerful, fully integrated personal computer for the TRIUMPH BOARD INTERACTIVE FLAT PANEL.

TRIUMPH BOARD PC10A is equipped with an Intel i5 processor, integrated graphics and 4 GB RAM, which ensures high power for running current software. A 500 GB hard disk provides sufficient capacity for saving and storing user data.

TRIUMPH BOARD MINI PC10A is the ideal addition to TRIUMPH CLOUD, and the Display Note software bundle which are delivered together with the TRIUMPH BOARD IFP.

2. Technical Specifications

TRIUMPH BOARD 55” INTERACTIVE FLAT PANEL

EAN:	8592580112348
Screen Type:	TFT LCD/ A Standard/ LED backlight
Resolution:	1920 x1080
Refresh rate:	6 ms, 60 Hz, 1200:1
Display Area:	1209.6(H) × 680.4(V)
Outline Dimensions:	1304 x 800 x 104 mm
Package Dimensions:	1580 x 970 x 215 mm
Net / Gross weight:	39/55 kg

TRIUMPH BOARD 65” INTERACTIVE FLAT PANEL

EAN:	8592580112355
Screen Type:	TFT LCD/ A Standard/ LED backlight
Resolution:	1920 x1080
Refresh rate:	6 ms, 60 Hz, 1400:1
Display Area:	1428.48 (H) x 803.52 (V)
Outline Dimensions:	1523 x 924 x 104 mm
Package Dimensions:	1710 x 1140 x 215 mm
Net / Gross weight:	53/72 kg

TRIUMPH BOARD 70” INTERACTIVE FLAT PANEL

EAN:	8592580112362
Screen Type:	TFT LCD/ A Standard/ LED backlight
Resolution:	1920 x1080
Refresh rate:	8 ms, 60 Hz, 4000:1
Display Area:	1549.44 (H) x 871.56 (V)
Outline Dimensions:	1665 x 1015 x 104 mm
Package Dimensions:	1940 x 1200 x 215 mm
Net / Gross weight:	64/87 kg

Touch System

Sensing Type:	Infrared Transmission (multi-touch)
Response Time:	< 15ms
Response Area:	Single point, opaque objects of any diameter ≥5mm Multi-point, opaque objects of any diameter ≥8mm
Scan Frequency:	200Hz
Output Coordinates:	32767×32767
Communication Mode:	Full-speed USB
Writing Screen:	Mohs hardness of 7
PC System:	mini PC10A (Optional)

Inputs and Outputs

HDMI:	3
CVBS:	1
R/L(CVBS):	1
Coaxial Digital Audio Output:	1
Audio IN:	3
VGA OUT:	1
VGA IN:	3
RS232	1
Touch OUT:	1
Audio Output (headphone)	1
USB 2.0:	1
USB 3.0:	1
LAN (RJ45)	1
AC IN:	1
Power:	1

Sound System

Power Amplification:	2x10W
Sound:	Surround

Power

Power Requirements:	100 – 240 V AC 50/60 Hz
Overall Power Consumption:	< 200 - 350 W *
Standby Power Consumption:	< 0,5 W

* depends on the model

Ambient Conditions

Operation Temperature	0 – 40 °C
Operation Humidity:	10 – 90% RH
Storage Temperature:	- 20 C to 60 °C
Storage Humidity:	10 – 95% RH

TRIUMPH BOARD MINI PC10A for IFP

EAN:	8592580112164
Processor:	Intel i5
Graphics:	Integrated Intel® HD Graphics
Sound Card:	Integrated High Definition Audio Stereo
Networking:	Integrated 10/100/1000 Mbps adapted
Memory:	4 GB DDRIII
Hard Drive:	500 GB SATA
WIFI:	802.11 ac, WiFi 2,4/5 GHz + Bluetooth 4.0
USB:	4x USB 2.0 and 2x USB 3.0

Lan Port (RJ45):	1
VGA Out:	1
Mini Display Port	1
HDMI Output	1
Audio:	Side Headphone and Mic Ports
Operation System:	Microsoft Windows 10 Professional (OEM) 64-bit MultiLang
Net / Gross Weight:	1.8 / 2.14 kg

Android System

System Version	Android 4.2.1
CPU	ARM Cortex A9 dual-core CPU
GPU	Quad-Core
RAM	1.5GB
ROM	8GB

3. Safety Warning

Before using the device, please read the instructions carefully.

Placement

- Do not put the device on surfaces that are unstable, easy to tilt or which can fall.
- Do not put the device in places with direct sunlight, or near sources of heat, such as electric heaters or strong light sources.
- Do not use the device next to radiation emitting equipment.
- Do not put the device in damp places or places where it might be exposed to moisture or liquids.
- Do not insert any items inside of the device.
- Do not place heavy objects on the device.

Power Supply

- Please verify compatibility between the voltage value on back shell nameplate and the main power supply voltage value.
- In case of thunderstorm and lightning weather, please unplug power cord and antenna plug.
- When no one is indoors or the device will not be in use for an extended period of time, please unplug the power cord.
- Please protect the power cord from physical or mechanical damage.
- Please use the special power cord, and do not modify or extend the power cord.
- Please check and make sure the AC power ground wire is connected.

Screen

- When writing on screen, please do not use hard or sharp objects instead of styluses.
- When the screen requires cleaning, please unplug the power cord first.
- Please use a soft, dust-free, dry cloth to wipe the screen.
- Do not use water or a spray cleaner to clean the device.
- Please contact the service center for internal cleaning of the device.
- Do not display image with high brightness on the screen for a long time.

Range of Visibility

- The best distance between eyes of viewer and screen is 5 to 7 times of screen diagonal.
- The best viewing angle between eyes of viewer and listener and screen is within 176 degrees up and down, left and right.

Temperature

- Do not place the device near an electric radiator or heating unit.
- When moving the device from a low temperature area to a high temperature area, before connecting the device to power, please leave the device idle in the new environment for some time to allow for temperature adjustment, in order to sufficiently diffuse internal condensation prior to powering on.
- The Device's normal working temperature is 0 ~ 40°C, storage temperature is -20~60°C

Humidity

- Do not expose the machine to rain, moisture, or places near water.
- Please make sure the indoor environment is dry and cool, the machine’s normal working humidity is 10~90%, storage humidity is 10~90%.

Ventilation

- Please place the machine in ventilated places, and ensure machine's good heat dissipation.
- Please ensure ventilation spaces 10 cm on the sides and back, and 20 cm on the top of the machine.

Headphones

- Extended use of headphones at high volumes may damage hearing.. If external headphones/earbuds are needed, please turn down the machine volume in advance.

Standby

- The standby button on the front of device body will not completely shut off the device, but only place the device in standby mode.

Battery

- Please dispose of used batteries in the proper manner and recycle.
- To avoid danger, please do not let children touch the battery, and do not put the battery into water.

Caution

- This product is a Level 4 product, and may cause radio interference in the living environment. In this case, the user may be required to take practical measures to mitigate the effects.

Notes for Cleaning

- There are vents on back cover, please do not use any liquid on or spray this area directly during cleaning.

Power Switch **Status Signs**

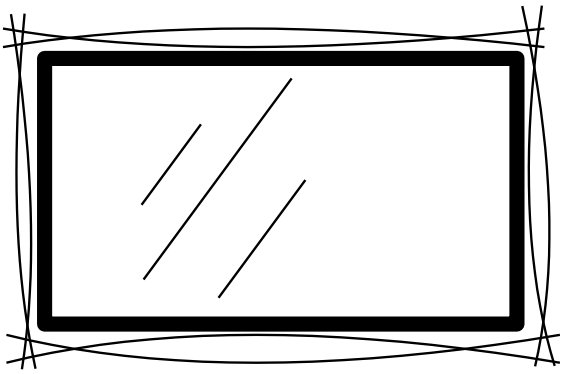
- “I” means power on, “O” means power off.

Notes for Maintenance

- This machine can only be maintained by certified engineer.

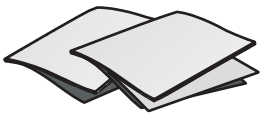
4. Preparing for Installation

Unpacking



Accessories

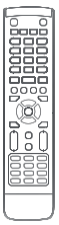
Quick start guide, styluses, cleaning pads, remote control, power cords (UK, US, EU), VGA cable, touch OUT USB, headphone cable, AV cable, USB Flash Drive and VC Camera Bracket.



Quick Start Guide

2x Stylus

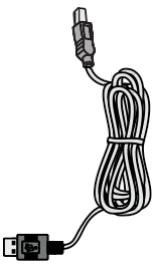
Cleanning Pads



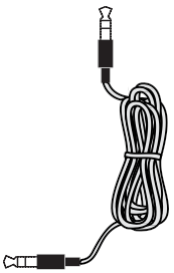
Remote control

Power Cord (US, UK, EU)

VGA Cable



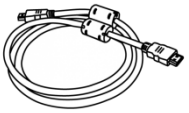
USB Cable



Headphone Cable

AV Cable

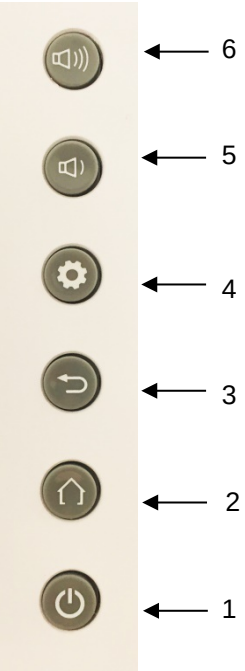
USB Flash Drive

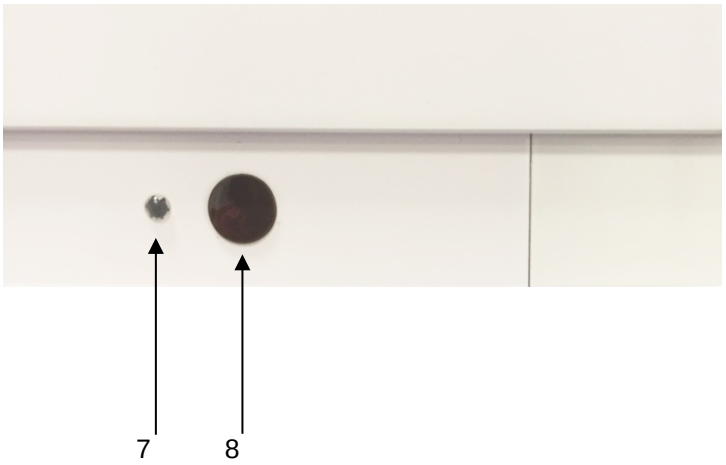


HDMI Cable

VC Camera Bracket

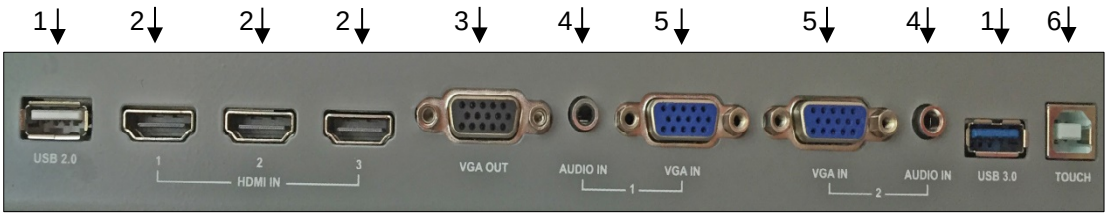
Control Panel



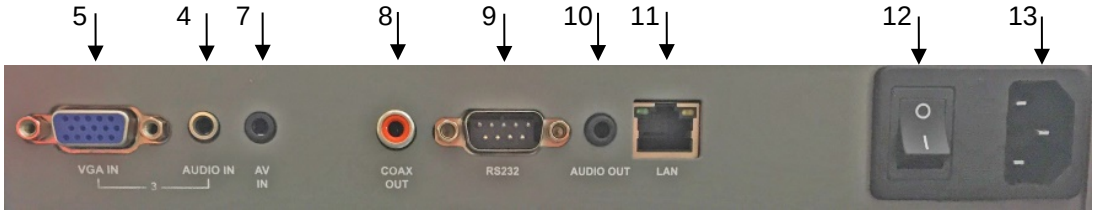


Number	Item	Function Description
1	⏻	Power on/off
2	HOME	HOME button: back to main interface
3	BACK	Return button: return to previous menu level
4	MENU	Menu button: call up function menu
5	VOL -	Volume down button: turn volume down
6	VOL +	Volume up button: turn volume up
7	Power indicator	Indicator color shows the status of power on/off (on - green / standby mode - orange / off - off)
8	Remote control signal Receiver	Receive the remote control signal.

5. IFP Interface Inputs, Outputs



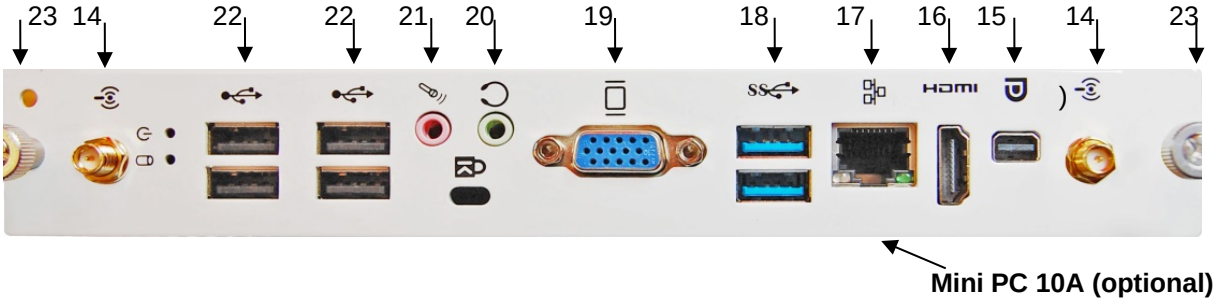
right side of IFP



right bottom side of IFP

Ports	Description of Function
1. **USB 2.0** **USB 3.0**	Connect USB devices such as mobile hard disk, USB disk, USB keyboard and mouse, USB drives, etc.
2. **HDMI IN**	High-definition multimedia interface signal input, for connecting to PC (personal computer) with HDMI output, set-top box, or other video device and can also implement touch function.
3. **VGA OUT**	Connected to display devices with VGA input function
4. **AUDIO IN**	External computer audio input
5. **VGA IN**	External computer image input
6. **TOUCH**	External computer touch signal input. Default touch function is available under internal computer. When connecting an external computer, in addition to connecting external computer VGA and audio signals, the external computer's USB port needs to be connected to the equipment. Under the condition that driver is installed, the external computer can be touch controlled through the equipment (touch function is effective in PC, VGA and HDMI channel by default)
7. **AV IN**	Composite video and audio input
8. **COAX OUT**	Coaxial output
9. **RS232**	Serial interface, used for mutual transfer of data between devices
10. **Audio Out**	3,5mm connector Audio Out
11. **LAN**	LAN interface, connecting RJ45 terminals. (This network port is only used for Android system)
12. **POWER SWITCH**	Power switch, to open and shut down AC power supply ON/OFF
13. **AC IN**	AC power input, connecting AC power supply

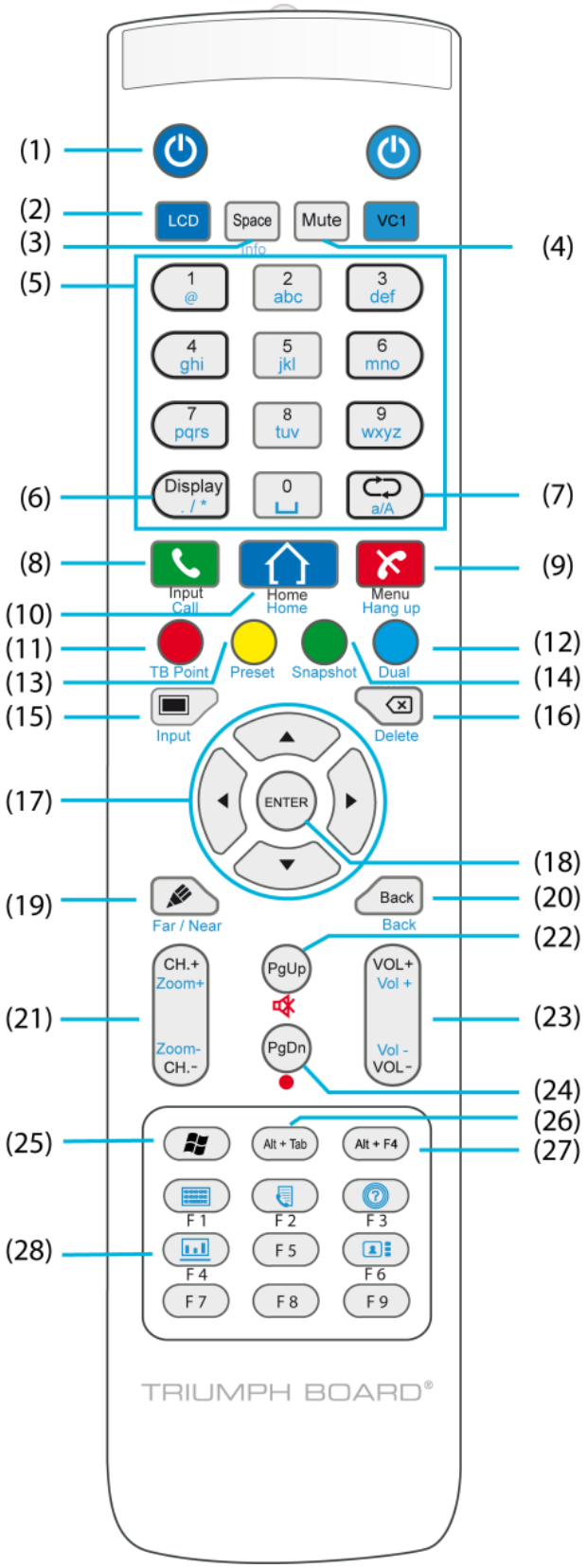
Mini PC 10A Interface Inputs, Outputs (optional)



Ports	Description of Function
14.	WIFI antenna interface
15. MINI DISPLAY PORT OUT	Connection to device with Display Port input function
16. HDMI OUT	Connection to devices with HDMI input function
17. LAN (RJ45)	Network interface, connecting RJ45 port to connect to the Internet. (This network port is only used for PC)
18. USB 3.0	USB 3.0 interface to connect USB devices, such as mobile hard disk, U disk, USB keyboard and mouse, USB drives, etc.
19. VGA OUT	Connection to display device with VGA input function
20. EARPHONE	Connected to device with headphone input function
21. MIC	Connect to device with microphone voice collection (used for recording function)
22. USB 2.0	USB 2.0 interface to connect USB devices, such as mobile hard disk, U disk, USB keyboard and mouse, USB drives, etc.
23. SCREWS	Screws for fixing the Mini PC into the slot of IFP.

6. Remote Control

Remote control button instructions



Detailed function description of remote control buttons

1. ⏻: Press this button to enter standby mode when power is on; Click this button to switch on in standby mode
2. LCD: Press this button to control your LED LCD screen.
   Note: Your Remote control has been set-up automatically for the function of your LED LCD.
3. SPACE: Built-in computer Space key
4. 🔇: Mute switch
5. NUMERIC KEYS: Numeric input keys
6. DISPLAY: Display channel information
7. 🔁: Function button
8. INPUT: Input signal source selection key, choose different sources as needed
9. MENU: Setting menu button, press this button to pop up
10. HOME: Android system main screen button
11. RED: TV function button, Lock/Unlock touch function
12. BLUE: TV function button
13. YELLOW: TV function button
14. GREEN: TV function button
15. ⬛ :Single key for blank screen
16. ⌫ :Backspace key
17. Direction keys
18. ENTER: Confirmation key, press this key to confirm mode selection
19. ✎ Quickly start writing software (TBC Lite in Android), select writing pen quickly if software is running
20. BACK: Return key
21. CH. +, CH.-: Function button
22. PG UP: Built-in computer page (previous page)
23. VOL+,VOL-: Volume switch key
24. PG DN: Built-in computer page (next page)
25. ⊞: Built-in computer Windows key
26. ALT+TAB: Built-in computer spacebar Alt + Tab
27. ALT+F4: Built-in computer program window close button
28. F1-F8: Built-in computer F1 – F9 function keys

NOTE: In case of no built-in computer, all function keys relating to the computer are regarded as having no operating functions.

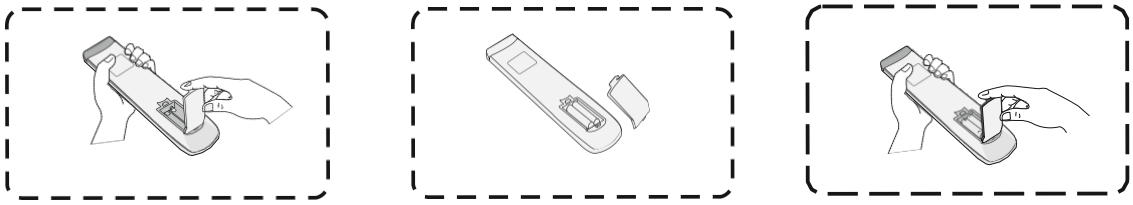
Remote Control Use Instructions

Install Batteries (batteries not included)

1) Open back cover of battery compartment on the back of remote control

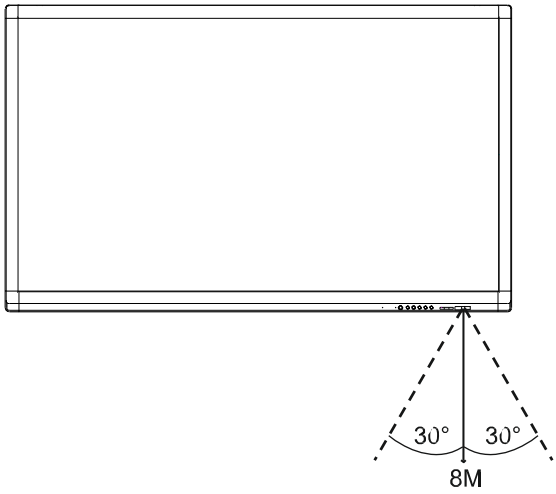
2) Install AAA type batteries according to the corresponding electrode, make sure battery positive and negative poles are correctly placed ("+"to"+", "-" to "-"), please do not mix old and new batteries

3) After batteries are installed, close the back cover of battery compartment, and snap the clip fastener shut against the bottom of the remote.



（1） （2） （3）

Range of remote control



Remote control can function normally within the range of 8 meters distance, 30 degrees left and right from the remote control receiver; in order to protect the environment, please dispose of waste batteries in a designated recycling box.

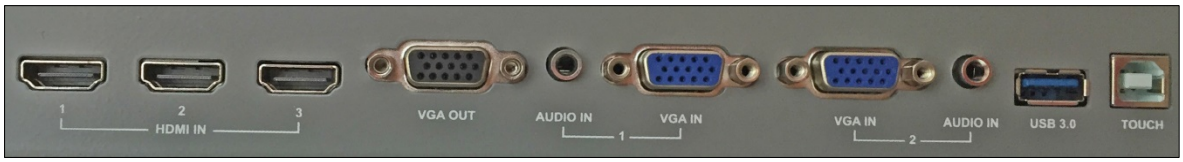
CAUTION

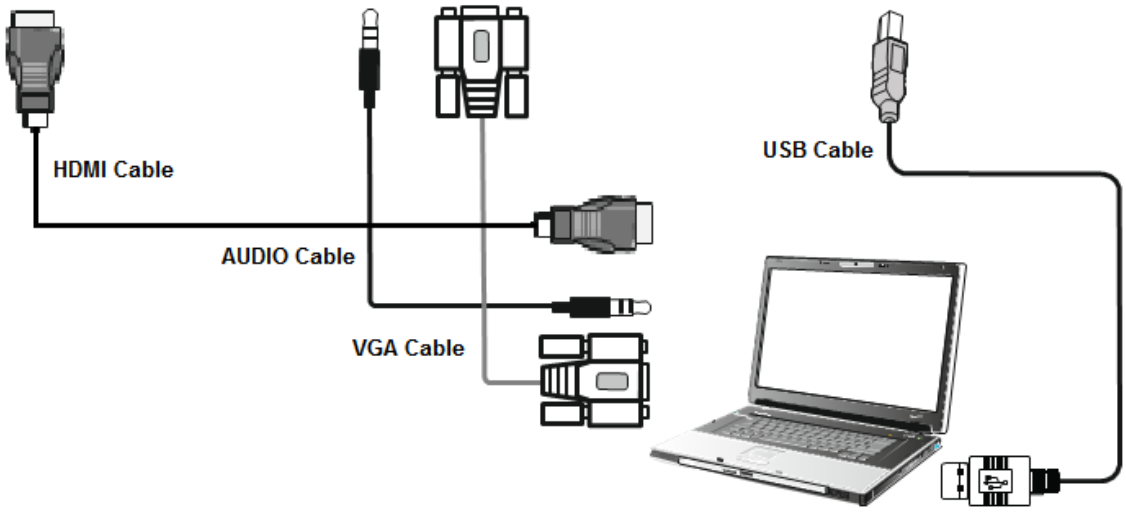
RISK OF EXPLOSION IF BATTERY IS
REPLACED WITH AN INCORRECT TYPE
DISPOSE OF USED BATTERIES
ACCORDING TO THE INSTRUCTIONS

7. Connection and Set Up

CAUTION
For the safety of you and the device, please do not connect any power cord before the external device has been prepared.

External Computer and Touch Connection





(1) Use VGA line to connect to VGA output port of external computer, and meanwhile use headphone audio line to connect to external computer audio output interface.
(2) Use USB line to connect to external computer USB port.
(3) After connection is completed, plug in power cord, and switch POWER to on.
(4) Start external computer.
(5) Press ⏻ key, and the equipment is powered on.
(6) Press the INPUT key to switch to VGA channel.

NOTE:

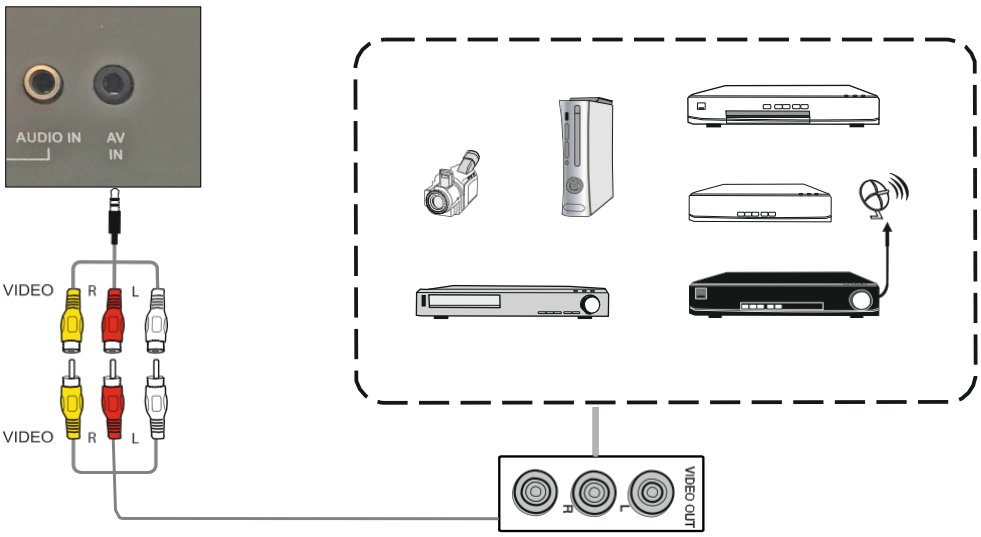
External computer input, equipment's best resolution is 1920x1080.
External computer can also connect to the equipment through the HDMI cable

- Recommended computer configuration:

2.0GHZ Processor, 1GB Memory, min. 256 color display card
1GB Available Hard Drive, Support Resolution 800*600, 1024*768
VGA-OUT/HDMI-OUT, Audio-OUT, USB Interface

Audio and video equipment

AV



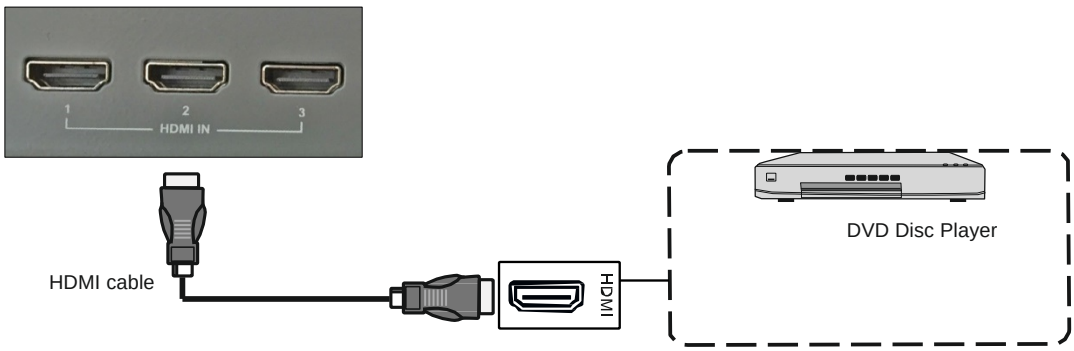
(1) Use AV audio and video lines to connect audio and video equipment with AV output (yellow for video, red for right sound channel, and white for left sound channel)

(2) After line connection, plug in power cord, and switch power to On

(3) Press ⏻ to turn equipment ON

(4) Press INPUT key to switch to CVBS port

HDMI1 / HDMI2 / HDMI3



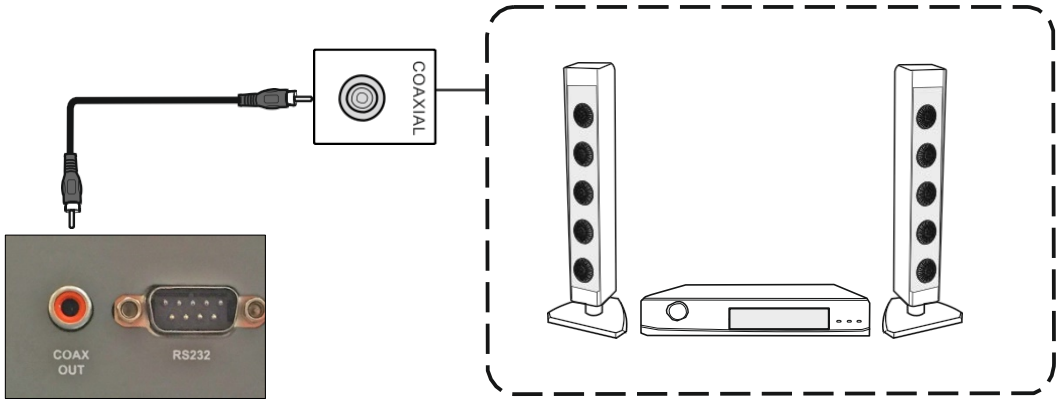
(1) Use HDMI line to connect audio and video equipment with HDMI output

(2) After line connection, plug in power cord, and switch power On

(3) Press ⏻ to turn equipment ON

(4) Press INPUT key to switch to HDMI port

Coaxial connection



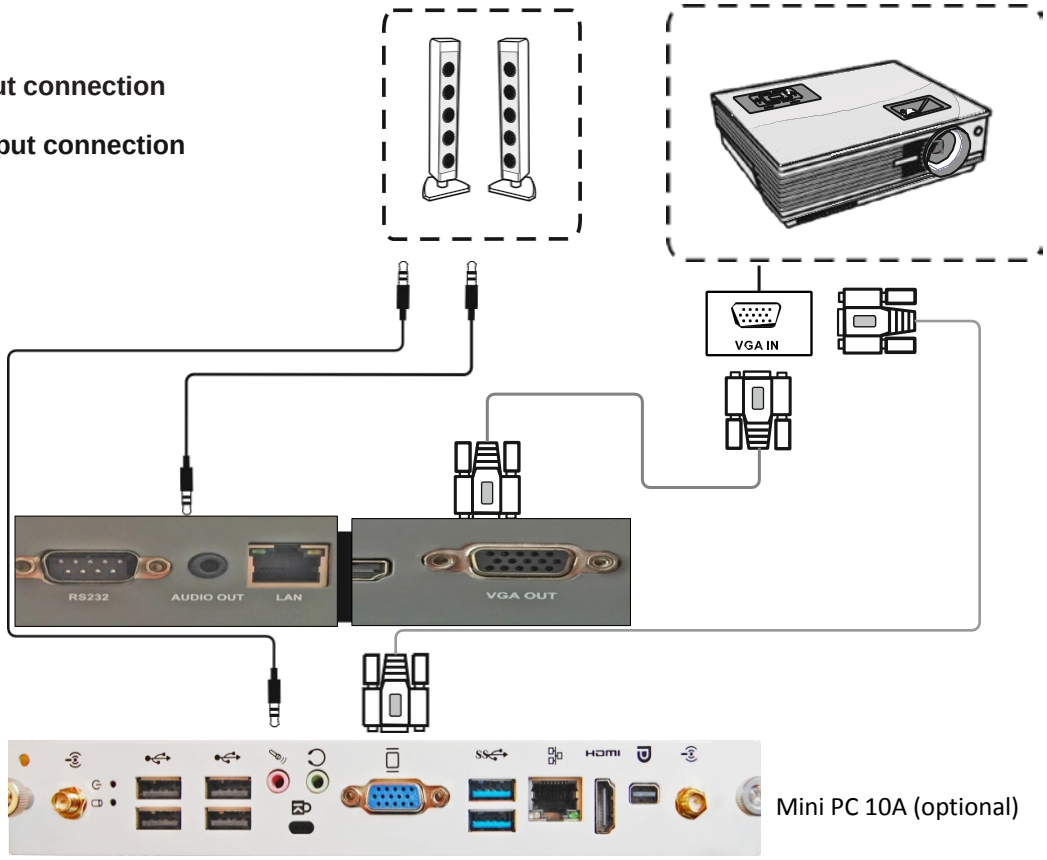
(1) Use coaxial line to connect audio device with coaxial input

(2) After line connection, plug in power cord, and switch power to ON

(3) Press ⏻ to turn equipment on

Video output connection

VGA output connection



Mini PC 10A (optional)

(1) Use VGA line to connect display devices with VGA input, and use headphone line to connect sound output

(2) After line connection, plug in power cord, and switch power to On

(3) Press ⏻ to turn equipment on

(4) Press INPUT key to switch to PC port

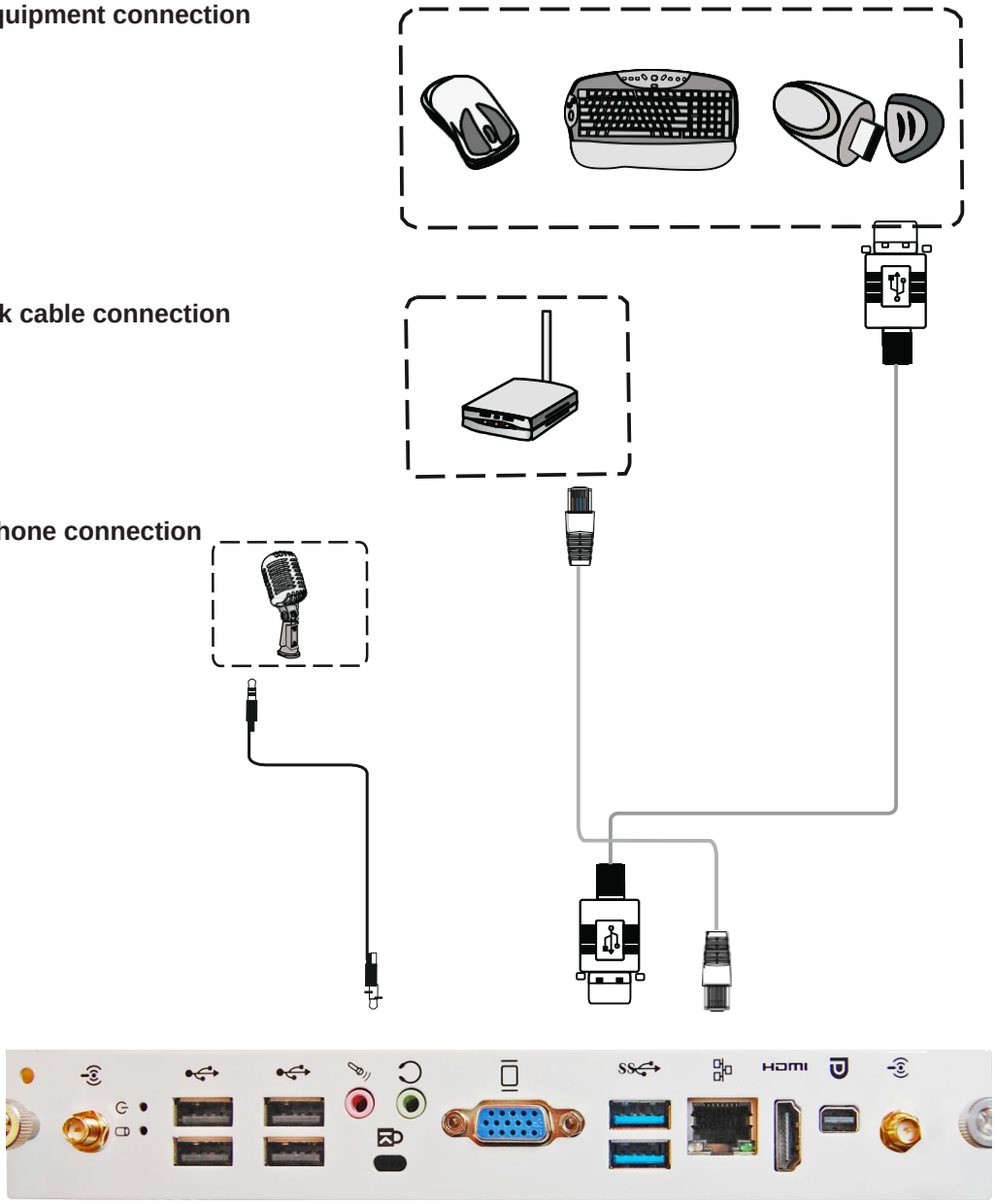
(5) Set internal computer as VGA output or multi-screen display TV

Note: VGA OUT of TV outputs VGA IN graphics and sound

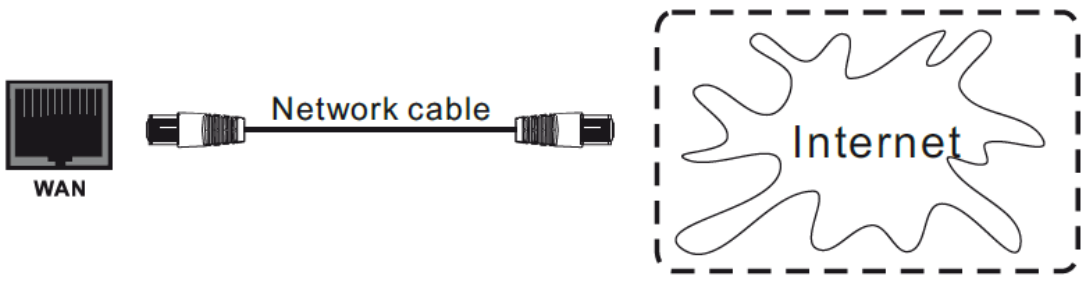
USB Equipment connection

Network cable connection

Microphone connection

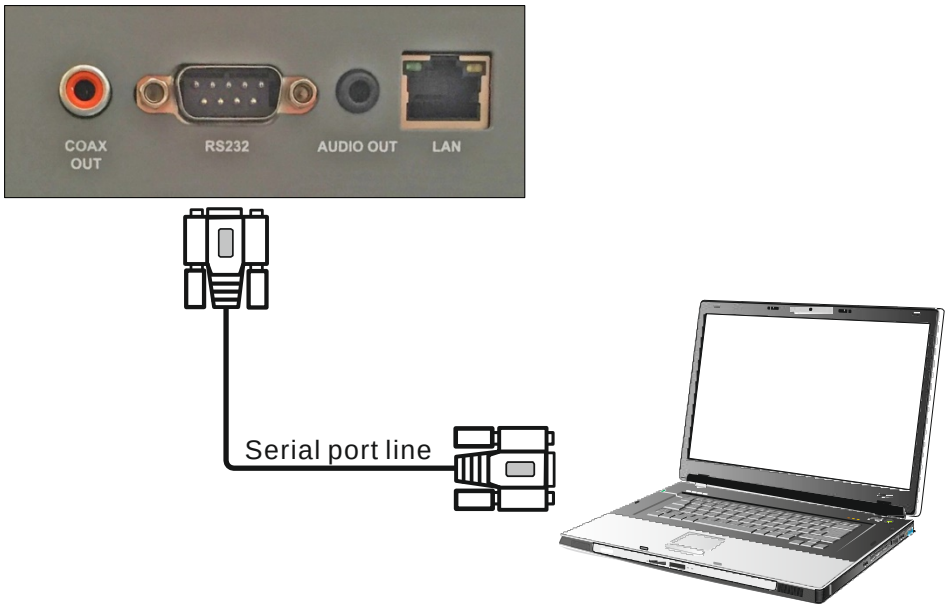


WAN connection



NOTE: If the user wants the built-in computer and android system to connect to the Internet at the same time.

RS232 Serial port connection



After using the serial port line to connect central control equipment and the device, certain functions of the device can be controlled via the central control device, such as: device ON/OFF, and adjustment of sound volume, etc.

Basic PC Operations:

1. If the TV is on and the computer is not started, press INPUT key to switch from channels other than PC to the PC channel, then turn on the computer.

2. When the computer is on, hold down POWER key for 2 seconds, click to select "Confirm" in the pop-up reminder menu to shut down the TV and computer simultaneously.

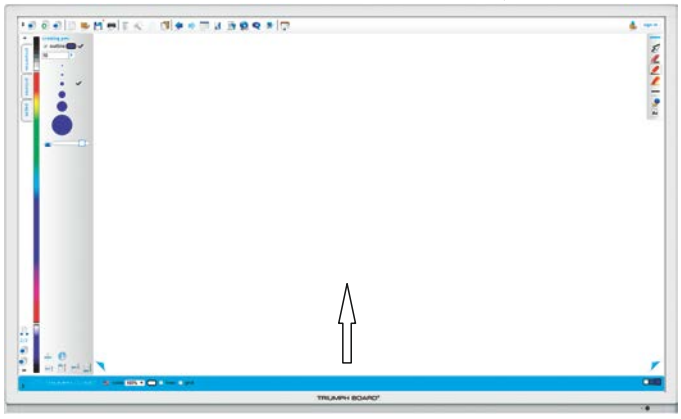
3. Under the PC channel when it is on, touch to select "WINDOWS" button on the lower left of the desktop or press "WINDOWS" key on remote control, and then select "power off" item, to turn off computer without turning off TV.

8. Menu Operation

One Touch Menu Operation

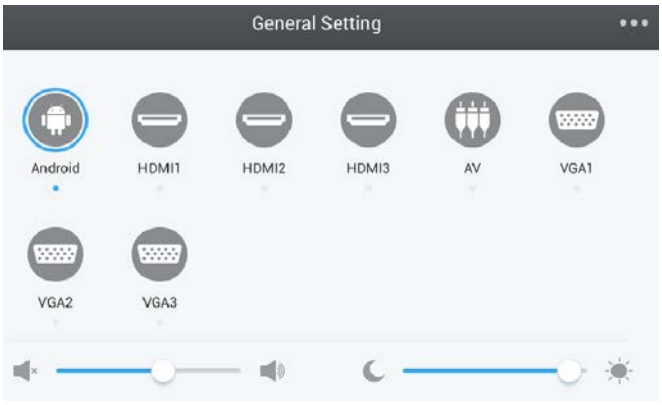
Call up method

Take middle point position on the bottom of display screen as the starting point, use finger or stylus to drag towards screen center position to call up touch menu, as shown below.



Settings menu

Input Settings



- Press INPUT button on remote control or via above “A” touch method to call up General Setting menu;

  Press ▼/▲/◄/► button on the remote control to select the channel you need;

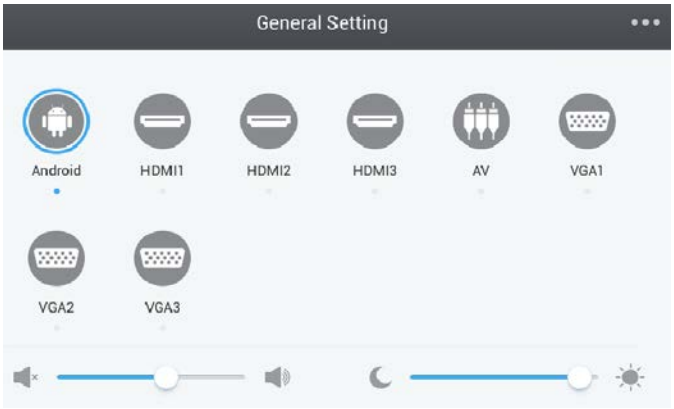
- Press the Enter button on the remote control, or click directly to confirm selected input

  channel;

  Press return key on the remote control, or click blank area outside menu to exit menu.

  Note: PC channel will only display when you connect the built-in computer.

Volume and Brightness Settings



- Press INPUT button on the remote control or via touch A method to call up Input Setting menu;
- Press ◀/ ▶button on the remote control or drag volume adjustment progress bar to adjust volume
- Press ◀ /▶ button on the remote control or drag brightness adjustment progress bar to adjust
- Press return key on the remote control, or click blank area outside menu to exit menu.

Audio Settings

- Press INPUT button on remote control or use touch method A to call up the General Setting menu;
- Press ▶ button on the remote control or click General Setting “ ••• ” icon directly to enter Audio Setting menu;
- Press button on the remote control or click mute icon

to Mute On/Off
- Press return key on the remote control, or click blank area outside menu to exit menu.

Display Settings

- Press INPUT button on the remote control or via touch use method A to call up the General Setting menu;
- Press ►button on the remote control under General Setting menu or click " ••• "icon with touch pen to enter the Display Setting menu;
- Press▼/▲/◄/►button on the remote control or click directly to select and adjust each option;
- Press return key on the remote control, or click blank area outside menu with touch pen to exit menu.

Brightness

- Press ◄/► button on the remote control or directly drag icon with touch pen to adjust brightness of image;

Contrast

- Press ◄/► button on the remote control or directly drag icon with touch pen to adjust contrast of image;

Hue

- Press ◄/► button on the remote control or directly drag icon with touch pen to adjust hue of image;

Sharpness

- Press ◄/► button on the remote control or directly drag icon with touch pen to adjust sharpness of image;

Standard, Bright, Colorful, Soft image presets

- Press ◄/► button on the remote control or directly click on presets icons to change image presets

Screen Settings

- Under channels other than Android, press Menu button on the remote control or via touch A method to call up General Setting menu;
- Press ▶ button on the remote control or click " ••• " icon directly. Press Menu on remote control to enter Screen Setting menu;
- Press▼/▲/◀/▶ button on the remote control or click directly with touch pen to select and adjust each option;
- Press return key on the remote control, or click blank area outside menu with touch pen to exit menu.

Aspect ratio 4:3

- Press ◀/▶ button on the remote control or click on icon directly with touch pen to change aspect ratio of image.

Aspect ratio 16:9

- Press ◀/▶ button on the remote control or click on icon directly with touch pen to change aspect ratio of image.

PTP

- Press ◀/▶ button on the remote control or click on icon directly with touch pen to change aspect ratio of image.

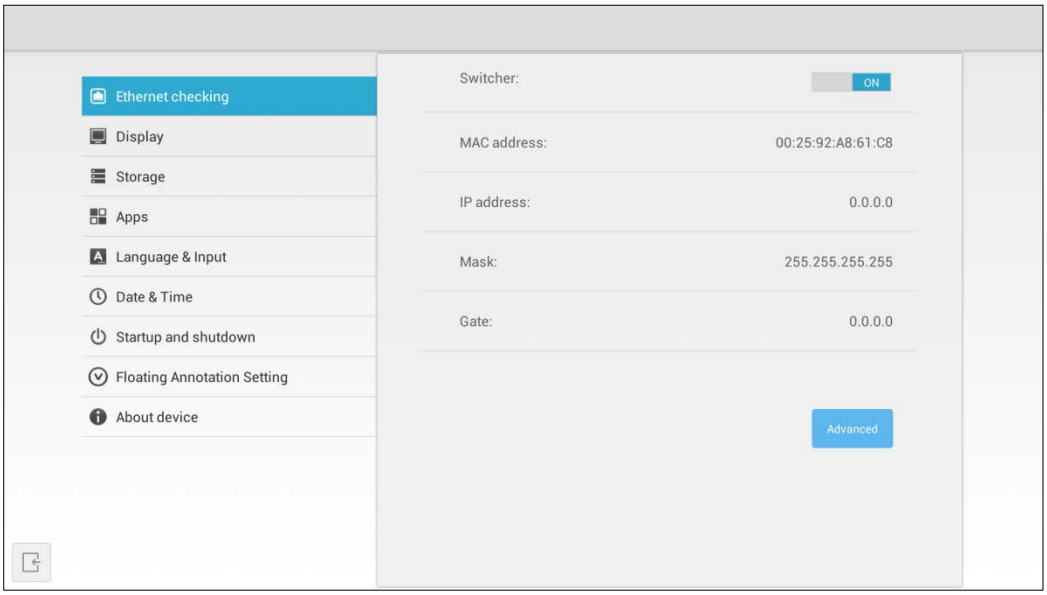
Auto aspect ratio

- Press ◀/▶ button on the remote control or click on icon directly with touch pen to change aspect ratio of image.

Note: Different options in different channels can't be adjusted, please select according to actual situation.

9. More Settings (Advanced settings)

Advanced settings menu



- Under Apps menu, click on Settings call up Advanced settings menu;
- Press ▼/▲/◄/►button on remote control or click directly to select each option;

Press return key on remote control or front panel of equipment to exit menu.

Ethernet Checking

View the current network connection status and the network parameters of the device.

Display

Adjust equipment display brightness/system wallpaper and system font size.

Storage

View the system storage information.

Apps

Display each application in Android system memory.

Language & Input

Adjust display language and input method settings of Android system.

Date & Time

Under Android system, set system time and format (time can be automatically obtained or manually set).

Startup and Shutdown

Adjust Launch setting and Timer switch

Floating Annotation Setting

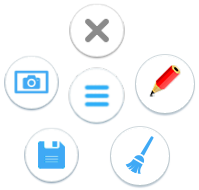
Adjust Annotation menu

About Device

Display Android system software version information.

System tool menu

Fig.1

Fig.2 

- Place two fingers on the screen (about 20~50mm apart) and keep in position more than two seconds under any channel to call up System tool menu (Figure1);
- In System tool menu, menu is shown in Figure 2.
- In System tool menu , input only using your fingers; stylus and remote control cannot perform annotation.

System tool menu icon	Pop up/hide sub-menu icons
Main back icon	Click to return to previous operation interface
Main home icon	Click to return to main interface of Android system
Mark pen icon	Click to make annotation in the picture
Screen Zoom icon	Click to Zoom in/out actual screen
Apps icon	Click to quick access to aplications
Screenshot icon	Click for screenshot of actual screen image Screenshot storage location: TB Finder/Notes/Mark
Mark clean icon	Click to delete annotation in the picture
Red mark pen icon	Red color annotation, click to change color
Close icon	Click to close system tool menu

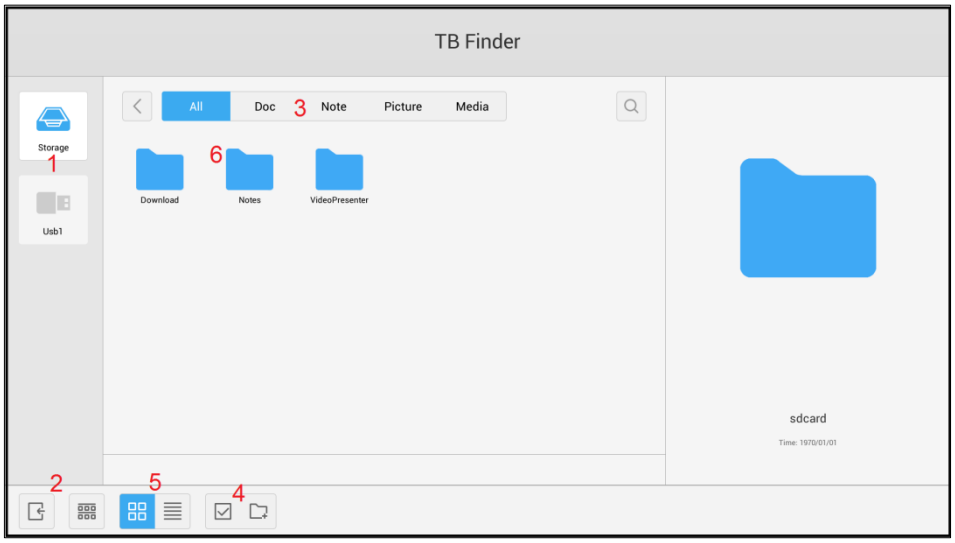
10. Android System Interface

Main Interface

- Switch to Android channel to display main interface as shown above;
- Press ◀/▶key on the remote control to select icon below, and press Enter key to enter corresponding program, or click on the associated icon directly to enter the program;
- In any program, press the Home button on the remote control or <Home key> on the side frame of the IFP to return to the main interface.

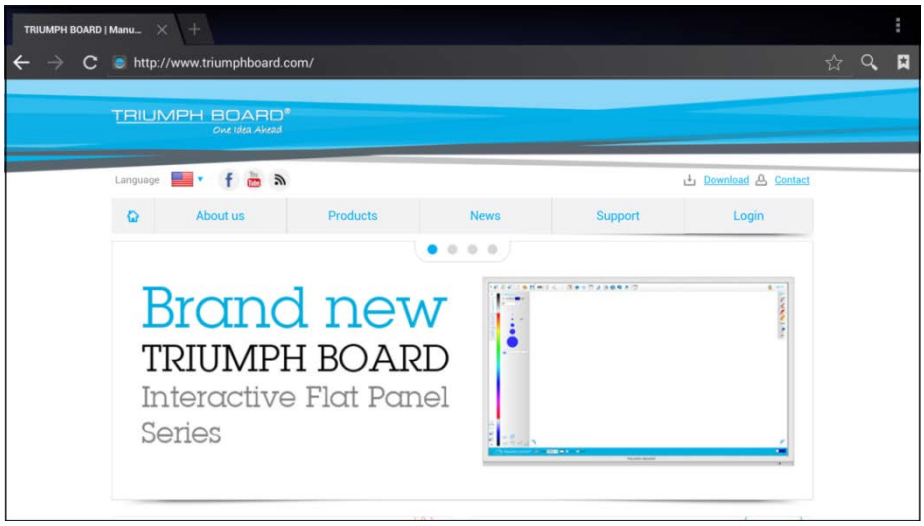
TB Finder

Display files in Android system memory and Android system external storage.



1. Storage device display	Click with touch pen to enter corresponding storage devices area
2. Menu/exit menu	Click menu icon with touch pen to pop up menu options {order (type/size/time)} Click exit icon with touch pen to directly exit resource browse.
3. File type menu	All: all types of files **Doc:** Office files **Note:** files with your mark **Picture:** image files **Media:** audio-video files
4. File operation menu	Can perform basic operationson a file such as select/delete/create/copy/cut
5. File arrangement menu	Divided into two arrangement modes by icon and by list
6. Main display area	Display files corresponding to type of storage (Storage, USB flash disk etc.)

Browser



- In the connected network state, enter web browsing for surfing the internet, click on "x" symbol in the upper left corner to close it.

Settings **(Advanced Settings)**

- Shortcut Settings in settings menu, see page 25.

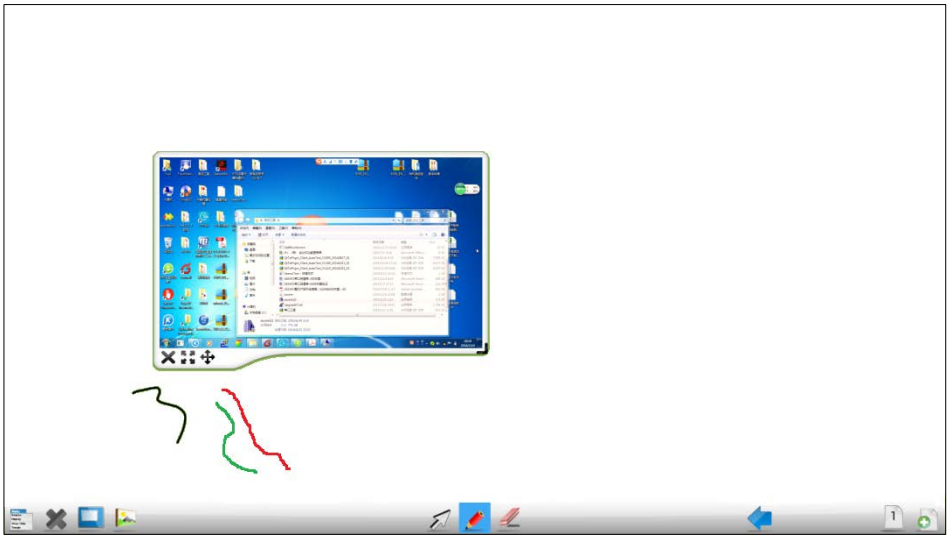
Apps

Caution!

Please note that you cannot install your own applications into the Apps section!

Each application must be suitable for screen resolution and hardware specifications, as some apps may have display or performance problems!

TB Comenius Lite



Menu icon	Click to bring up sub-menu (change background/save)
Exit icon	Click to exit TB Comenius Lite software
Picture in picture	Click to brig up picture in picture interface, see page 30
Image import icon	Click to import required image from memory card
Select icon	Click to select Whiteboard writing symbols, can click or check to select
Brush icon	Click to write, press long for three seconds to enter settings screen, to set brush color and thickness
Eraser icon	Click to erase writing symbols, can be erased by box selection
Undo icon	Click to cancel previous step
Redo icon	Click to restore previous step
Page icon	Display writing page number displayed by current picture
Add page icon	Click to add a new page of writing or image

11. Multimedia File Playback Interface

Image play

- Close current picture
- Magnify current picture
- Reduce current picture
- Display previous picture
- Play/pause
- Play next picture
- Counterclockwise rotate current picture displayed
- Clockwise rotate current picture displayed
- Play setting {Animation effect (on/off)/Slide time interval/Set as wallpaper}

Audio play

- Close current audio file
- Play previous audio
- Play/pause file
- Play next audio file
- Playlist
- Loop play
- Random play
- Single play

Video play

⊗	Close current video file playing
⏮	Play previous video
⏪	File Fast backward
⏸	Play/pause
⏩	Fast Forward
⏭	Play next audio file
☰	Playlist

13. Troubleshooting

Board fails to work normally

Remote control failure	1. Check whether there are other objects between remote control and television remote control receiving window, blocking signal transmission and thus leading to failure of remote control. 2. Check whether the battery terminal in the remote control is correctly connected. 3. Check whether remote control needs battery replacement.
Device automatically shuts down	1. Check whether the sleep function is set or not. 2. Check whether there has been a sudden power outage. 3. Check whether there is no signal automatic shutdown.

PC mode

Signal out of range	1. Check whether display is set correctly. 2. Check whether resolution is the best resolution. 3. Adjust line and field synchronization in menu.
Background has vertical lines or streaks	1. Select automatic correction in menu. 2. Adjust clock and phase position in menu.
Image lack of color, color is incorrect	1. Check whether VGA is not securely connected or has a quality problem. 2. Adjust color and brightness or contrast in menu.
Display format that is not supported	1. Select automatic correction in menu. 2. Adjust clock and phase position in menu.

Touch Function

Touch function invalid	1. Check whether touch driver is installed and started. 2. Check whether the size of article touched is comparable with finger.
Touch positioning not correct	1. Check whether driver is properly installed and make correction. 2. Check whether touch using finger or stylus is facing the screen.

Video Malfunctions

No picture and no sound	1. Check whether the device is in active mode. 2. Check whether the signal wire is plugged in securely, using the corresponding INPUT. 3. If in internal computer mode, check whether internal computer is running.
With horizontal or vertical stripes or image distortion	1. Check whether signal wire is securely connected. 2. Check whether other electronic equipment or power tools are placed around the device.
No color, color is weak or image is weak	1. Adjust color and brightness or contrast in menu. 2. Check whether signal wire is securely connected.

Audio Malfunctions

Image but no sound	1. Check whether mute button is pressed for mute. 2. Press VOL. + / - to adjust volume. 3. Check whether audio line is connected correctly.
Only one speaker has sound	1. Adjust sound balance in menu. 2. Check whether computer sound control panel only sets up one sound channel. 3. Check whether audio line is connected correctly.
VGA output without sound	1. Check whether an external device is connected with headphone cable.

14. Software protocols

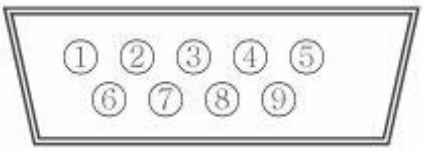
This document describes the hardware interface specification and software protocols of the RS232 interface communication between LED LCD and PC or other control unit with RS232 protocol.

14.1 Description

Hardware specification

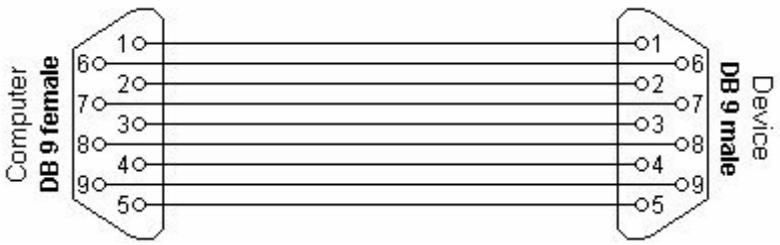
LED LCD communication port is on the rear bottom side
(1) Connector type: DSUB 9 Pin Male
(2) Pin Assignment

Male DSUB 9Pin
(outside view)



Pin #	Signal	Remark
1	NC	
2	TXD	Output to TV
3	RXD	Input from TV
4	NC	
5	GND	
6	NC	
7	NC	
8	NC	
9	NC	
frame	GND	

- Pin2 is TXD, Pin3 is RXD. Pin-to-Pin connection as below.



Serial port communication setting:

- Baud Rate Select: 9600bps (fixed)
- Data bits: 8bits (fixed)
- Parity: None (fixed)
- Stop Bits: 1(fixed)

Protocols

- Command Format

No.	Content	Description	Remar
1	0xAA	Head	fixed value
2	0xBB		fixed value
3	0xCC		fixed value
4		Main command	
5		subcommand	
6	0x00	Length	valid data
7	checksum	checksum	Sum from No.4 to No.6.
8	0xDD	End	fixed value
9	0xEE		fixed value
10	0xFF		fixed value

IR Code list

Function	Mode	Code	Note
Power	ON	AA BB CC 01 00 00 01 DD EE FF	
	OFF	AA BB CC 01 01 00 02 DD EE FF	
Channels	TV	AA BB CC 02 01 00 03 DD EE FF	
	CVBS	AA BB CC 02 02 00 04 DD EE FF	
	VGA3	AA BB CC 02 0B 00 0D DD EE FF	
	VGA1	AA BB CC 02 03 00 05 DD EE FF	
	VGA2	AA BB CC 02 04 00 06 DD EE FF	
	HDMI1	AA BB CC 02 06 00 08 DD EE FF	
	HDMI2	AA BB CC 02 07 00 09 DD EE FF	
	HDMI3	AA BB CC 02 05 00 07 DD EE FF	
	PC	AA BB CC 02 08 00 0A DD EE FF	
	Android	AA BB CC 02 0A 00 0C DD EE FF	
Volume	000—100	AA BB CC 03 00 xx ** DD EE FF	
	MUTE	AA BB CC 03 01 00 04 DD EE FF	
	UNMUTE	AA BB CC 03 01 01 05 DD EE FF	
Aspect	16:9	AA BB CC 08 00 00 08 DD EE FF	
	4:3	AA BB CC 08 01 00 09 DD EE FF	

	Point to point	AA BB CC 08 07 00 0F DD EE FF	
TV channels	ATV 00-99	AA BB CC 05 00 XX ** DD EE FF	
Power of PC	ON	AA BB CC 09 01 00 0A DD EE FF	OK
	OFF	AA BB CC 09 00 00 09 DD EE FF	OK
Function	Mode	Code	Note
Function of Remote Control	WIN	AA BB CC 07 0B 00 12 DD EE FF	
	Space	AA BB CC 07 46 00 4D DD EE FF	
	Alt+Tab	AA BB CC 07 1D 00 24 DD EE FF	
	Alt+F4	AA BB CC 07 1F 00 26 DD EE FF	
	NUM_1	AA BB CC 07 00 00 07 DD EE FF	
	NUM_2	AA BB CC 07 10 00 17 DD EE FF	
	NUM_3	AA BB CC 07 11 00 18 DD EE FF	
	NUM_4	AA BB CC 07 13 00 1A DD EE FF	
	NUM_5	AA BB CC 07 14 00 1B DD EE FF	
	NUM_6	AA BB CC 07 15 00 1C DD EE FF	
	NUM_7	AA BB CC 07 17 00 1E DD EE FF	
	NUM_8	AA BB CC 07 18 00 1F DD EE FF	
	NUM_9	AA BB CC 07 19 00 20 DD EE FF	
	NUM_0	AA BB CC 07 1B 00 22 DD EE FF	
	Display	AA BB CC 07 1C 00 23 DD EE FF	

	Refresh	AA BB CC 07 4C 00 53 DD EE FF	
	Input	AA BB CC 07 07 00 0E DD EE FF	
	Home	AA BB CC 07 48 00 4F DD EE FF	
	Menu	AA BB CC 07 0D 00 14 DD EE FF	
	Delete	AA BB CC 07 40 00 47 DD EE FF	
	Energy	AA BB CC 07 4E 00 55 DD EE FF	
	UP	AA BB CC 07 47 00 4E DD EE FF	
	DOWN	AA BB CC 07 4D 00 54 DD EE FF	
	LEFT	AA BB CC 07 49 00 50 DD EE FF	
	RIGHT	AA BB CC 07 4B 00 52 DD EE FF	
	ENTER	AA BB CC 07 4A 00 51 DD EE FF	
	Point	AA BB CC 07 06 00 0D DD EE FF	
	Back	AA BB CC 07 0A 00 11 DD EE FF	
	CH+	AA BB CC 07 02 00 09 DD EE FF	
	CH-	AA BB CC 07 09 00 10 DD EE FF	
	VOL+	AA BB CC 07 03 00 0A DD EE FF	
	VOL-	AA BB CC 07 41 00 48 DD EE FF	
	PageUp	AA BB CC 07 42 00 49 DD EE FF	
	PageDown	AA BB CC 07 0F 00 16 DD EE FF	
	F1	AA BB CC 07 45 00 4C DD EE FF	
	F2	AA BB CC 07 12 00 19 DD EE FF	
	F3	AA BB CC 07 51 00 58 DD EE FF	
	F4	AA BB CC 07 5B 00 62 DD EE FF	
	F5	AA BB CC 07 44 00 4B DD EE FF	
	F6	AA BB CC 07 50 00 57 DD EE FF	
	F7	AA BB CC 07 43 00 4A DD EE FF	
	F8	AA BB CC 07 1A 00 21 DD EE FF	
	F9	AA BB CC 07 04 00 0B DD EE FF	
	F10	AA BB CC 07 59 00 60 DD EE FF	
	F11	AA BB CC 07 57 00 5E DD EE FF	
	F12	AA BB CC 07 08 00 0F DD EE FF	
	RED	AA BB CC 07 5C 00 63 DD EE FF	
	GREEN	AA BB CC 07 5D 00 64 DD EE FF	\
	YELLOW	AA BB CC 07 5E 00 65 DD EE FF	\
	BLUE	AA BB CC 07 5F 00 66 DD EE FF	\
Function	Mode	Code	Note

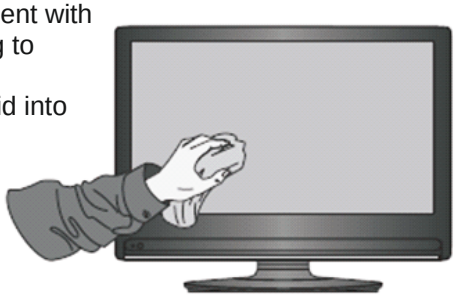
Status Check Codes：

Function	Search Code	Reply Code	Status	Example
Check Power Status	AA BB CC 01 02 00 03 DD EE FF	AA BB CC 80 00 00 80 DD EE FF	ON	
		AA BB CC 80 01 00 81 DD EE FF	OFF	
Check volume	AA BB CC 03 02 00 05 DD EE FF	AA BB CC 82 00 xx ** DD EE FF	Volume is xx	xx=the amount of volume. EX.
				The volume is 30(decimal)=1E (Hexadecimal), xx=1E,**=03+00 +1E(Hexadecimal)=21
Check audio status	AA BB CC 03 03 00 06 DD EE FF	AA BB CC 82 01 00 83 DD EE FF	MUTE	
		AA BB CC 82 01 01 84 DD EE FF	UNMUTE	
Check input status	AA BB CC 02 00 00 02 DD EE FF	AA BB CC 81 01 00 82 DD EE FF	TV	
		AA BB CC 81 02 00 83 DD EE FF	AV	
		AA BB CC 81 03 00 84 DD EE FF	VGA1	
		AA BB CC 81 04 00 85 DD EE FF	VGA2	
		AA BB CC 81 05 00 86 DD EE FF	HDMI3	
		AA BB CC 81 06 00 87 DD EE FF	HDMI1	
		AA BB CC 81 07 00 88 DD EE FF	HDMI2	
		AA BB CC 81 08 00 89 DD EE FF	PC	
		AA BB CC 81 0A 00 8B DD EE FF	ANDROID	
		AA BB CC 81 0C 00 8D DD EE FF	WHDI	
		AA BB CC 81 0B 00 8C DD EE FF	VGA3	
Check PC status	AA BB CC 09 02 00 0B DD EE FF	AA BB CC 83 00 00 83 DD EE FF	ON	
		AA BB CC 83 01 00 84 DD EE FF	OFF	
		AA BB CC 83 02 00 85 DD EE FF	SLEEP	
		AA BB CC 83 03 00 86 DD EE FF	Hibernate	

15. Maintenance

Proper maintenance can prevent many early defects. Regular, careful cleaning can keep the device like brand- new.
Please unplug power plug before cleaning and maintenance, to prevent electric shock.

Clean screen
Mix a small amount of fabric softener or dishwashing detergent with warm water. Dip a soft cloth into the mixture, and then wring to a semi-dry state. Use this to wipe the screen of the device. Repeat several times, being careful not to squeeze any liquid into the device when wiping the device.



Clean front frame
Please use dry, soft, lint-free cloth to wipe front frame.

Device to remain unused for extended period
If the device will not be used for an extended period of time, such as during a vacation, please make sure to unplug the cord to prevent any possible dangers caused by power surges from lightning.

For cleaning glass surface of your IFP, we recommended to use TRIUMPH Cleaning Pads EAN:8592580083365.

16. Display Mode

1. VGA mode

Resolution / Display mode	Field frequency (Hz)
640x480	60
800x600	
1024x768	60
1280x800	
1920x1080	50
	60

2. HDMI mode

Resolution / Display mode	Field frequency (Hz)
480p	60
480i	
576p	50
576i	
720p	50
	60
1080i	50
	60
1080p	50
	60
2160p	30

17. Repair Service and Contacts

Please contact your local supplier regarding warranty and technical service. You can find all warranty conditions and service partners on our website **www.triumphboard.com/support/warranty**. If you have any questions please email us at **info@triumphboard.com**

TRIUMPH BOARD a.s.

Neklanova 122/15

128 00 Prague 2

Czech Republic

EU

Phone: +420 224 910 221

Fax: +420 224 910 218

E-mail: info@triumphboard.com

www.triumphboard.com

Notices

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