SHARP SERVICE MANUAL

CODE :00ZPNCE701S1E

LCD MONITOR

MODEL

PN-CE701H
PN-C751H
PN-C861H
PN-70HC1E
PN-75HC1
PN-86HC1

CONTENTS

MODEL NAME	DESTINATION
PN-CE701H, PNC751H, PN-C861H	US (Americas)
PN-70HC1E, PN-75HC1, PN-86HC1	EU (Europe / Asia)

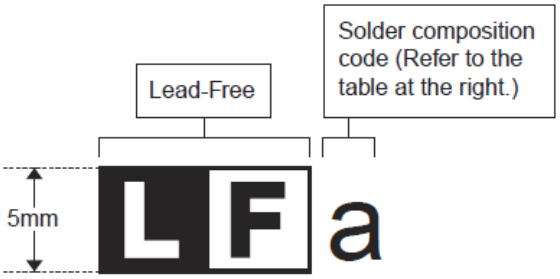
Parts marked with "!" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

LEAD-FREE SOLDER

The PWB's of this model employs lead-free solder. The "LF" marks indicated on the PWB's and the Service Manual mean "Lead-Free" solder.

The alphabet following the LF mark shows the kind of lead-free solder.



<Solder composition code of lead-free solder>

Solder composition	Solder composition code
Sn-Ag-Cu	a
Sn-Ag-Bi Sn-Ag-Bi-Cu	b
Sn-Zn-Bi	z
Sn-In-Ag-Bi	i
Sn-Cu-Ni	n
Sn-Ag-Sb	s
Bi-Sn-Ag-P Bi-Sn-Ag	p

(1) NOTE FOR THE USE OF LEAD-FREE SOLDER THREAD

When repairing a lead-free solder PWB, use lead-free solder thread. Never use conventional lead solder thread, which may cause a breakdown or an accident.

Since the melting point of lead-free solder thread is about 40°C higher than that of conventional lead solder thread, the use of the exclusive-use soldering iron is recommendable.

(2) NOTE FOR SOLDERING WORK

Since the melting point of lead-free solder is about 220°C, which is about 40°C higher than that of conventional lead solder, and its soldering capacity is inferior to conventional one, it is apt to keep the soldering iron in contact with the PWB for longer time. This may cause land separation or may exceed the heat-resistive temperature of components. Use enough care to separate the soldering iron from the PWB when completion of soldering is confirmed.

Since lead-free solder includes a greater quantity of tin, the iron tip may corrode easily. Turn ON/OFF the soldering iron power frequently.

If different-kind solder remains on the soldering iron tip, it is melted together with lead-free solder. To avoid this, clean the soldering iron tip after completion of soldering work.
If the soldering iron tip is discolored black during soldering work, clean and file the tip with steel wool or a fine filer.

CAUTIONS
THERE IS A RISK OF EXPLOSION IF THE BATTERY
IS REPLACED BY AN INCORRECT TYPE.
PROPERLY DISPOSE OF USED BATTERIES ACCORDING
TO THE INSTRUCTIONS.

ATTENTION
Il y a danger d'explosion s'il a replacement incorrect de la batterie.
Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.
Mettre au rébut les usagées conformément aux instructions dufabricant.

CAUTION: Double pole, neutral fusing. Disconnect mains before servicing.

ATTENTION. Double pôle, fusible sur le neutre. Débrancher l'alimentation avant l'entretien.

CHAPTER 1. OUTLINE OF THE PRODUCT

CHAPTER 2. INSTALLATION, SETTING

CHAPTER 3. INPORTANT INFORMATION FOR SERVICING THE DISPLAY

CHAPTER 4. SERVICE MENU/VARIOUS SETTING TOOL OPERATING PROCEDURES

CHAPTER 5. FIRMWARE UPDATE PROCEDURES

CHAPTER 6. DISASSEMBLY AND ASSEMBLY

CHAPTER 7. TROUBLESHOOTING

CHAPTER 8. HARADWARE DESCRIPTION

CHAPTER 1. OUTLINE OF THE PRODUCT

1. PRODUCT FEATURES

1-1. UHD(4K) LCD Display

Display the high-resolution images with 4K (3840 x 2160)

1-2. INFRARED BLOCKING TOUCH PANEL

Combination with ordinary type IR Touch Panel keeps the price position at an entry model level.

1-3. SOC CONTROLLER BASED ON ANDROID

The built-in SoC controller based on Android manages various touch systems without a PC for the display.

Embedded functions such as whiteboard and annotation and so on.

1-4. VARIOUS INPUT/OUTPUT TERMINALS AND FRONT FUNCTION BUTTONS

Front I/O terminals and function buttons enables quick usage of the functions

1-5. USE CASE ANDTARGET USER

- End users that use as a standard touch display in the mainly education market.

2. SPECIFICATIONS

2-1. PRODUCT SPECIFICATIONS

Model		PN-CE701H / PN-70HC1E
LCD component		70” Class [69-1/2 inch (176.56cm) diagonal] TFT LCD
Max. resolution (pixels)		3840 x 2160
Max. colors		Approx. 1.07 billion colors
Pixel pitch		0.40075 mm (H) × 0.40075 mm (V)
Brightness (typical)		350 cd/m^2 *1
Contrast ratio (typical)		4000:1
Viewing angle		176°Right/left /up/down (contrast ratio ≥ 10)
Screen active area inch (mm)		60-9/16 (W) x 34-1/16 (H) (1538.9 x 865.6)
Computer input signal		Analog RGB (0.7 Vp-p) [75 Ω],
Sync signal		Horizontal/vertical separate (TTL: positive/negative)
Plug and play		VESA DDC2B
Input terminals	Video	Mini D-sub 15 pin, 3 rows x 1 HDMI x 3 AV RCA *2 pin x 1 Component RCA *2 x 1
	Serial (RS-232C)	D-sub 9 pin x 1
	Audio	3.5 mm mini stereo jack x 1 RCA pin (L/R) x1
USB		2.0 compliant (Type A) x 4 2.0 compliant (Type A) x 2 (for Expansion slot)
Output terminals	Video	Mini D-sub 15 pin, 3 rows x 1
	Audio	3.5 mm mini stereo jack x 1 Digital audio output (optical) x 1
System	CPU	Arm Cortex – A53 processor (quad-Core)
	Memory	1.5GB
	Storage	8GB
	SD card slot	SD/SDHC x 1
	LAN terminal	10 BASE-T/100 BASE-TX (Wake on LAN only)
Wireless LAN		IEEE802.11ac/n/a/g/b compliant (When a wireless adapter is connected)
Expansion slot		19 V, 4.74 A (power supplied when expanding the functions with an optional part)
Speaker output (internal/external)		10 W + 10 W
Touch Panel	Detection method	Infrared blocking detection method
	Computer connector	USB (2.0 compliant) (Type B) x 2
Power requirement		AC 100 - 240 V, 4.5 A, 50/60 Hz
Operating temperature *3 *4		41°F to 95°F (5°C to 35°C)
Operating humidity *4		20% to 80% (no condensation)
Power consumption (standby mode *5)		400W *5 (0.5 W *6)
Dimensions (excluding protrusions) inch (mm)		Approx. 64-1/8 (W) x 3-15/16 (D) x 39 (H) (1629 x 100 x 990)
Weight lbs. (kg)		Approx. 119.0 (54)
Operating time		16 hours / day

*1 Brightness will depend on input mode and other picture settings. Brightness level will decrease over time. Due to the nature of the equipment, it is not possible to precisely maintain a constant level of brightness. This is the brightness of the LCD panel, not the brightness of the product.

*2 AV RCA and Component RCA cannot be used simultaneously

*3 Temperature condition may change when using the monitor together with the optional equipments recommended by SHARP.
In such cases, please check the temperature condition specified by the optional equipments.

*4 In addition, check the requirements of the computer and other devices to be connected, and make sure that all requirements are satisfied.

*5 When an option is installed in the expansion slot. When not installed, 295 W.

*6 When POWER SAVE MODE is set to ON.
When POWER SAVE MODE is set to OFF, and no optional part is attached: 2.0 W

Model		PN-C751H / PN-75HC1	PN-C861H / PN-86HC1
LCD component		75" Class [74-1/2 inch (189.3cm) diagonal] TFT LCD	86" Class [85-9/16 inch (217.4cm) diagonal] TFT LCD
Max. resolution (pixels)		3840 X 2160	
Max. colors		Approx. 1.07 billion colors	
Pixel pitch		0.4296 mm (H) × 0.4296 mm (V)	0.4935 mm (H) × 0.4935 (V)
Brightness (typical)		400 cd/m^2 *1	
Contrast ratio (typical)		1200:1	
Viewing angle		178°Right/left /up/down (contrast ratio ≥ 10)	
Screen active area inch (mm)		64-15/16 (W) x 36-9/16 (H) (1649.7 x 927.9)	74-5/8 (W) x 41-15/16 (H) (1895.0 x 1066.0)
Computer input signal		Analog RGB (0.7 Vp-p) [75 Ω],	
Sync signal		Horizontal/vertical separate (TTL: positive/negative)	
Plug and play		VESA DDC2B	
Input terminals	Video	Mini D-sub 15 pin, 3 rows x 1 HDMI x 3 Mini AV in x 1 Mini YPbPr x 1 (Component)	
	Audio	3.5 mm mini stereo jack x 1	
	Serial (RS-232C)	D-sub 9 pin x 1	
Output terminals	Audio	3.5 mm mini stereo jack x 1 Digital audio output (optical) x 1	
System	CPU	Arm Cortex – A53 processor (quad-Core)	
	Memory	1.5GB	
	Storage	8GB	
	LAN terminal	10BASE-T/100 BASE-TX (Wake on LAN only)	
Wireless LAN		IEEE802.11ac/n/a/g/b compliant (When a wireless adapter is connected)	
USB		2.0 compliant (Type A) x 3	
Expansion slot		19 V, 4.74 A (power supplied when expanding the functions with an optional part)	
Speaker output (internal/external)		10 W + 10 W	
Touch Panel	Detection method	Infrared blocking detection method	
	Computer connector	USB (2.0 compliant) (Type B) x 2	
Power requirement		AC 100 - 240 V, 5.2 A, 50/60 Hz	AC 100 - 240 V, 5.9 A, 50/60 Hz
Operating temperature *2 *3		41°F to 95°F (5°C to 35°C)	
Operating humidity *3		20% to 80% (no condensation)	
Power consumption *4 (standby mode *5)		460 W (0.5W)	530 W (0.5W)
Dimensions (excluding protrusions) inch (mm)		Approx. 68-5/16 (W) x 4-1/8 (D) x 40-13/16 (H) (1735 x 105 x 1036)	Approx. 78-1/4 (W) x 4-7/16 (D) x 46-1/4 (H) (1988 x 113 x 1175)
Weight lbs. (kg)		Approx. 134.5 (61)	Approx. 176.4 (80)
Operating time		16 hours / day	

*1 Brightness will depend on input mode and other picture settings. Brightness level will decrease over time. Due to the nature of the equipment, it is not possible to precisely maintain a constant level of brightness. This is the brightness of the LCD panel, not the brightness of the product.

*2 Temperature condition may change when using the monitor together with the optional equipments recommended by SHARP. In such cases, please check the temperature condition specified by the optional equipments.

*3 In addition, check the requirements of the computer and other devices to be connected, and make sure that all requirements are satisfied.

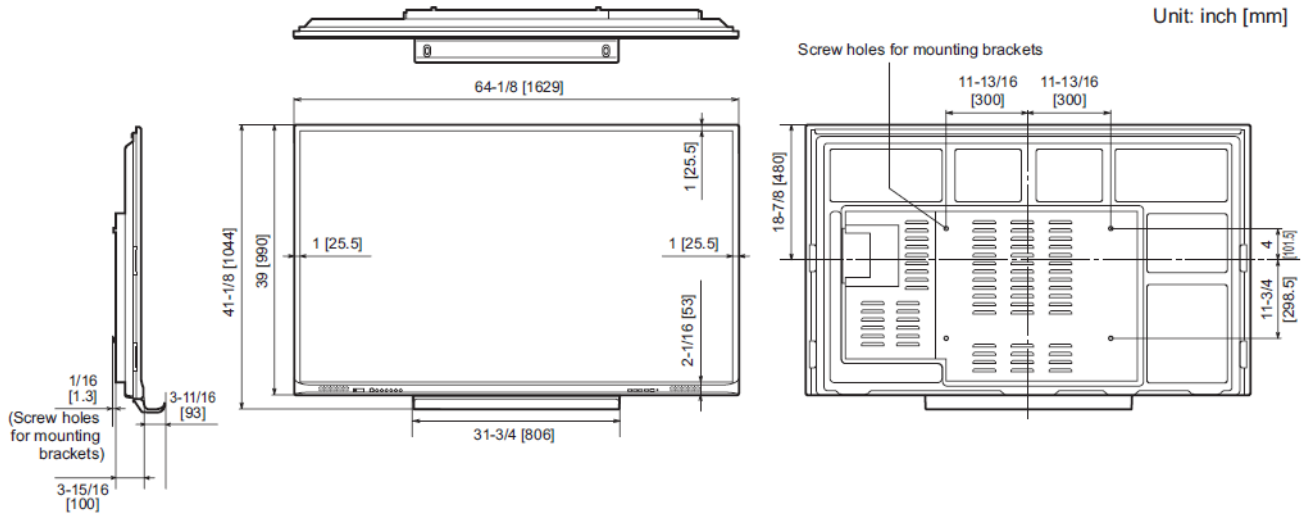
*4 When an option is installed in the expansion slot. When an option is not installed, PN-C861H: 420 W, PN-C751H: 360 W.

*5 When POWER SAVE MODE is set to ON.

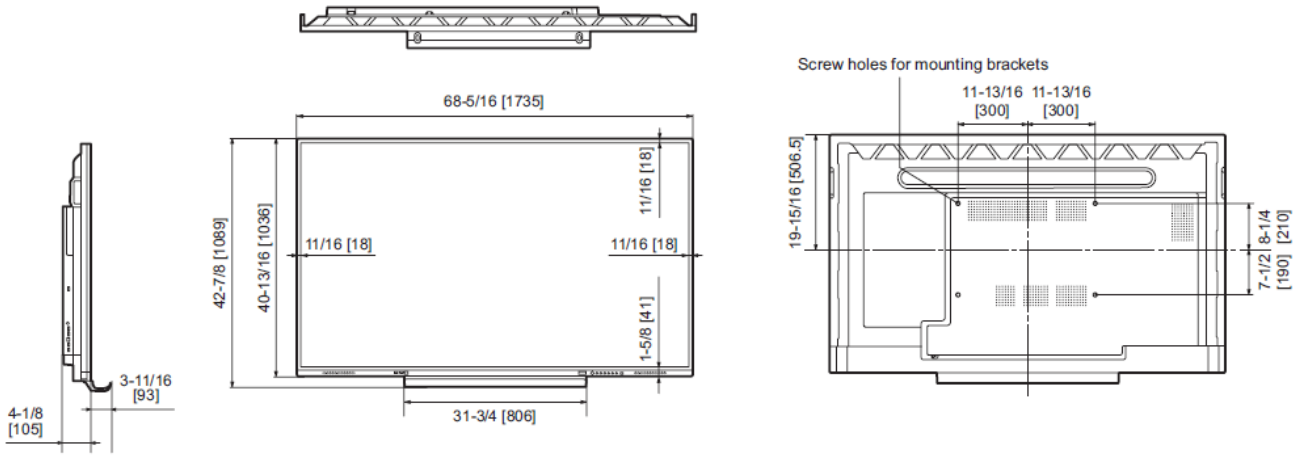
When POWER SAVE MODE is set to OFF, and no optional part is attached: 2.0 W

2-2. Dimensional Drawings (That the values shown are approximate values)

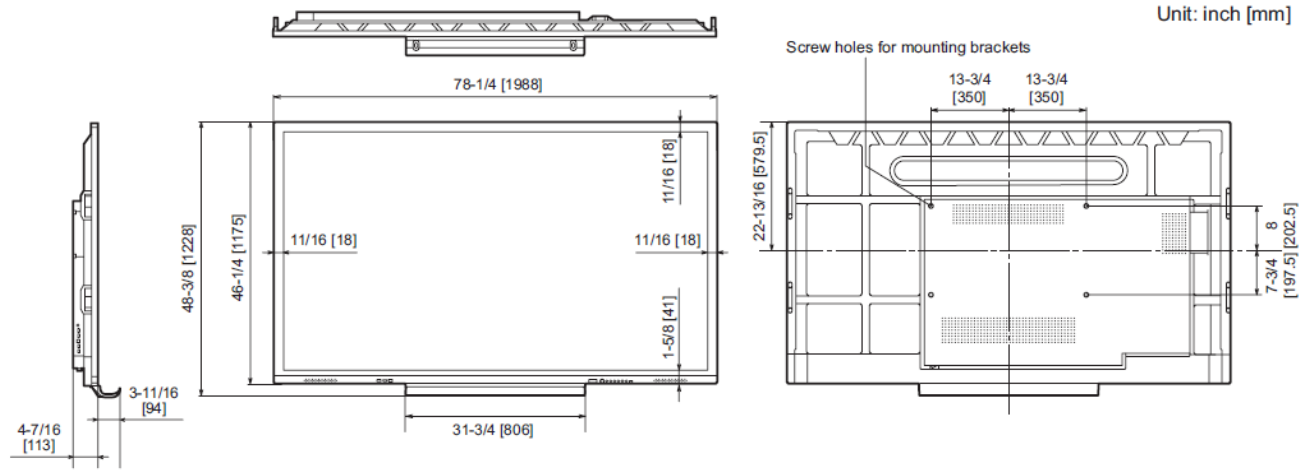
[PN-CE701H/70HC1E]



[PN-C751H/75HC1]



[PN-C861H/86HC1]



When mounting the monitor, be sure to use a wall-mount bracket that complies with the VESA-compatible mounting method.
SHARP recommends using screws 70 inch : M6 and 75/86 inch : M8 and tighten the screws.
Note that screw hole depth of the monitor is 70 inch : 3/8 inch (10 mm) and 75/86 inch : 1/2 inch (12mm). Loose mounting may cause the product to fall, resulting in serious personal injuries as well as damage to the product. The screw and hole should come together with over 75 inch : 5/16 inch (8 mm) and 75/86 inch : 3/8 inch (10mm) length of thread. Use a bracket which has been approved for UL1678 standard, and which can endure at least 4 times or more the weight of the monitor.

2-3. SUPPLIED COMPONENTS

- Liquid Crystal Display Monitor: 1
- Remote control unit: 1
- Cable clamp (affixing type): 3

- Power cord : 1
- R-03 battery (“AAA” size)) : 2
- CD-ROM (Utility Disk for Windows) : 1
- Setup Manual : 1
- Touch pen : 2
- Tray: 1
- Tray mounting screws (M3x15) : 5
- USB cable: 1
- Cover SHARP logo: 1
  Place this sticker onto the SHARP logo to cover the logo.
- Wireless Adapter: 1

* SHARP Corporation holds authorship rights to the Utility Disk program. Do not reproduce it without permission.
* For environmental protection!
  Do not dispose of batteries in household waste. Follow the disposal instructions for your area.

2-4. SYSTEM REQUIREMENTS

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Hardware	Must have a USB 2.0 compliant port. CD-ROM drive required for software installation
Operating system	Windows 8.1 (32-bit or 64-bit version), Windows 10 (32-bit or 64-bit version)
	macOS v10.13, v10.14
	Google chrome OS Version 74 or later

Requirements when the software (Windows) supplied with this monitor is used.

CPU	Intel Core i5-6360U or faster Intel Core i7-6650U or faster recommended
Video Output	Must be capable of output at a Vsync of 60 Hz or higher
Memory	At least 4GB
Free space on hard drive	At least 5GB (free space separately required for data storage)

To use the touch panel, connect the USB cable (supplied) to your computer.
The touch panel operates with the standard driver of each operating system. On the Mac, operation is only possible in mouse mode.
Install Pen Software from the supplied CD-ROM.
When the Information Display Downloader is installed, you can check and download the most recent versions of the software programs.
To install the software, see the manual for each.

2-5. SUPPORTED FORMATS

The types of files that can be played are so follows.

The operation of formats not indicated in the table is not guaranteed.

[Photo files]

Extension	Max.resolution
.jpg (.jpeg)	3840 x 2160
*.png	
*.bmp	

[Music files]

Extension	Sample rate	Maximum bit rate	Audio Coding
*.mp3	32/44.1/48kHz	320kbs	MPEG-1,2,2.5 L3

[Video files]

Extension	Video Coding	Max.resolution	Maximum bit rate
.mpg (.mpeg)	MPEG1/2 (MP@HL)	1920 x 1080 @30fps	40Mbps
*.mp4	H.264 (MP/HP)	1920 x 1080 @60fps	62.5Mbps
	HEVC/H.265 (MP)	4096 x 2160 @60fps	100Mbps
	MPEG1/2 (MP@HL)	1920 x 1080 @30fps	40Mbps
	MPEG4 (SP/ASP)	1920 x 1080 @30fps	
*.mkv	H.264 (MP/HP)	1920 x1080 @60fps	62.5Mbps
	HEVC/H.265 (MP)	4096 x 2160 @60fps	100Mbps
	MPEG1/2 (MP@HL)	1920 x1080 @30fps	40Mbps
	MPEG4 (SP/ASP)		
	VP8		20Mbps
	VP9	4096 x 2160 @60fps	100Mbps
*.webm	VP8	1920 x 1080 @30fps	20Mbps
	VP9 (Profile0.2)	4096 x 2160 @60fps	100Mbps
*.3gp	H.264 (MP/HP)	1920 x1080 @60fps	62.5Mbps
	MPEG4 (SP/ASP)	1920 x 1080 @30fps	40Mbps

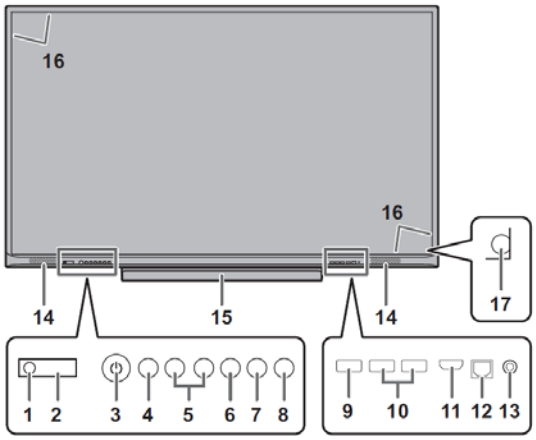
Extension	Audio Coding	Sample rate	Maximum bit rate
.mpg (.mpeg)	MPEG-1,2,2.5 L3	32/44.1/48kHz	320kbs
	MPEG-1,2 L2	16kHz - 48kHz	385kbps
	LPCM	8kHz - 48kHz	1.5Mbps
*.mp4	AAC, HEAAC	8kHz - 48kHz	AAC-LC:576kbps, V1: 288kbps, V2: 144kbps
	MPEG-1,2,2.5 L3	32/44.1/48kHz	320kbps
*.mkv	MPEG-1,2,2.5 L3	32/44.1/48kHz	320kbps
	MPEG-1,2 L2	16kHz - 48kHz	385kbps
	AAC, HEAAC	8kHz - 48kHz	AAC-LC:576kbps, V1: 288kbps, V2: 144kbps
*.webm	Vorbis (only stereo)	up to 48kHz	192kbps
*.3gp	AAC, HEAAC	8KHz - 48kHz	AAC-LC:576kbps, V1: 288kbps, V2: 144kbps

- Both video codec and audio codec need to be supported.
- In some cases it may not be possible to play the above files.
- A maximum of 32 alphanumeric characters can be used for folder name and file name.
- Do not use a file that is over 4 GB.

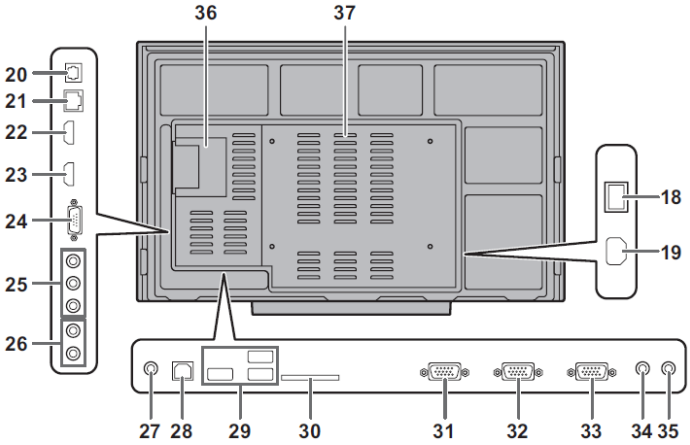
3. PART NAMES AND FUNCTION

[PN-CE701H/70HC1E]

■Front view



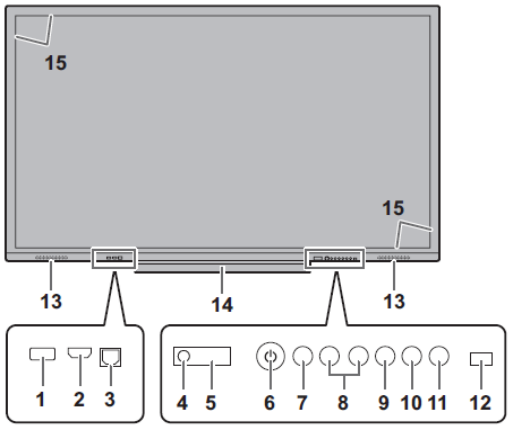
■Rear view



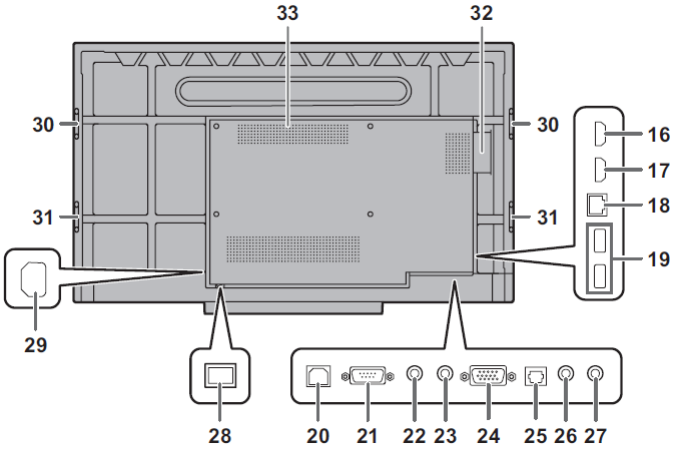
No.	Name	No.	Name
1	Power LED	22	HDMI 2 input terminal
2	Remote control sensor	23	HDMI 3 input terminal
3	POWER button	24	RS-232C input terminal
4	FREEZE button	25	Component input terminal
5	VOLUME +/- (Volume adjustment) buttons	26	Audio input terminals (for component input terminals)
6	Touch On/Off button	27	Audio output terminal
7	Menu button	28	TOUCH PANEL terminal 2 (for touch panel)
8	INPUT button	29	USB port (USB 2.0 compliant)
9	USB port (USB 2.0 compliant)	30	SD card slot
10	USB ports (for Expansion slot) (USB 2.0 compliant)	31	D-sub 1 input terminal (VGA1)
11	HDMI1 input terminal	32	D-sub 2 input terminal (VGA2)
12	TOUCH PANEL terminal 1 (for touch panel)	33	D-sub output terminal
13	Audio input terminal 1	34	Audio input terminal 1
14	Speakers	35	Audio input terminal 2
15	Tray	36	Expansion slot (OPS) This section is used to connect optional hardware for function expansion. Offering this attachment location is not a guarantee that future compatible hardware attachments will be released.
16	Infrared transmitter/receiver		
17	Brightness sensor		
18	Main power switch		
19	AC input terminal		
20	Digital audio output (optical) terminal	37	Vents
21	LAN terminal		

[PN-C751H/75HC1/C861H/86HC1]

■Front view



■Rear view



No.	Name	No.	Name
1	USB port (USB 2.0 compliant)	20	TOUCH PANEL terminal 2 (for touch panel)
2	HDMI1 input terminal	21	RS-232C input terminal
3	TOUCH PANEL terminal 1 (for touch panel)	22	Audio output terminal
4	Power LED	23	Audio input terminal
5	Remote control sensor	24	D-sub input terminal
6	POWER button	25	Digital audio output (optical) terminal
7	FREEZE button	26	Mini AV input terminal
8	VOLUME +/- (Volume adjustment) buttons	27	Mini component input terminal (YPBPR)
9	Touch On/Off button	28	Main power switch
10	Menu button	29	AC input terminal
11	INPUT button	30	Handles
12	Brightness sensor	31	Handles (PN-C861H/86HC)
13	Speakers	32	Expansion slot (OPS) This section is used to connect optional hardware for function expansion. Offering this attachment location is not a guarantee that future compatible hardware attachments will be released.
14	Tray		
15	Infrared transmitter/receiver		
16	HDMI 3 input terminal		
17	HDMI 2 input terminal		
18	LAN terminal	33	Vents
19	USB port (USB 2.0 compliant)		

■The status of Power LED

Status	Status of the monitor
Blue lit	Power on / Backlight off
Red lit	Power off (Standby mode)
Red and Blue flashing alternately (red 2 second -> blue 1 second)	Abnormal Temperature
Red and Blue flashing alternately (red 0.25 second -> blue 0.25 second)	Firmware updating
Red and Blue flashing alternately (red 3 second -> blue 1 second)	Firmware update failure

4. PERIPHERAL EQUIPMENTS

4-1. PERIPHERAL EQUIPMENTS

Product Name	Manufacturer	Model Name	Installation Direction	Note
Floor Stand	AURORA	FZS-90	Landscape	Recommended Product
Wall hanger	SANUS	VMPL3	Landscape	Recommended Product

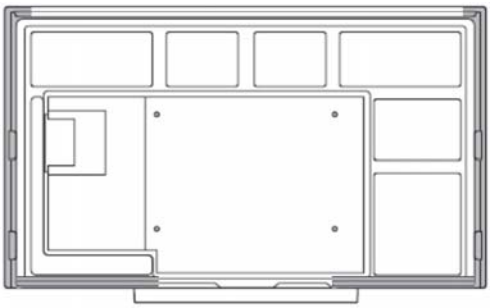
CHAPTER 2. INSTALLATION, SETTING

1. INSTALLATION

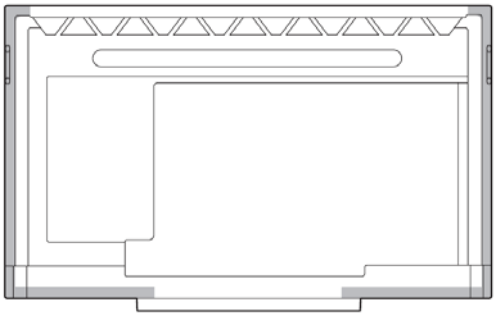
1-1. MOUNTING PRECAUTIONS

- This product is for use indoors.
- A mounting bracket compliant with VESA specifications is required.
- Since the monitor is heavy, consult your dealer before installing, removing or moving the monitor.
- Mounting the monitor on the wall requires special expertise and the work must be performed by an authorized SHARP dealer.
- Use the monitor with the surface perpendicular to a level surface.
- When moving the monitor, be sure to hold the parts marked by ▭ below. Do not grasp the screen or tray.
  This may cause product damage, failure, or injury.

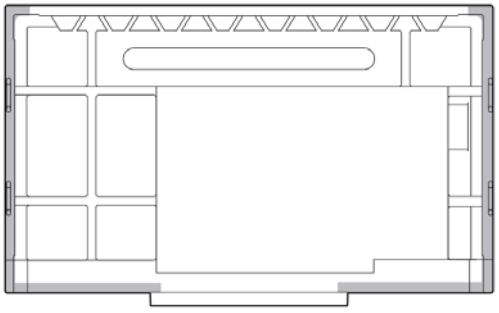
[PN-CE701H/70HC1E]



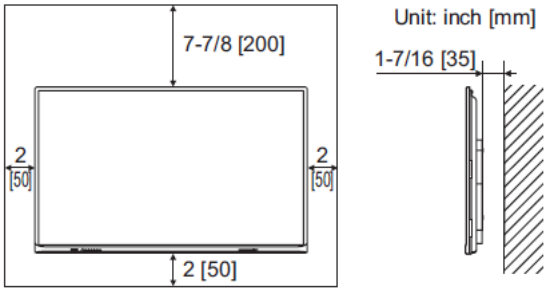
[PN-C751H/75HC1]



[PN-C861H/86HC1]



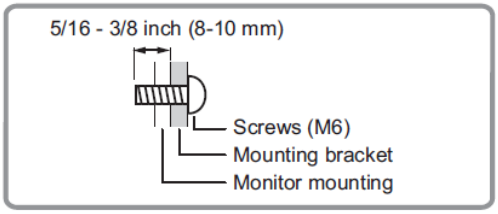
- This monitor should be used at an ambient temperature between 41°F (5°C) and 95°F (35°C). Provide enough space around the monitor to prevent heat from accumulating inside.



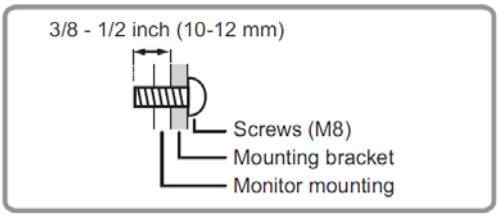
- If it is difficult to provide sufficient space for any reason such as the installation of the monitor inside a housing or of several units, or if the ambient temperature may be outside of the range of 41°F (5°C) to 95°F (35°C), install a fan or take other measures to keep the ambient temperature within the required range.
- Temperature condition may change when using the monitor together with the optional equipment's recommended by SHARP. In such cases, please check the temperature condition specified by the optional equipment's.
- Do not block any ventilation openings. If the temperature inside the monitor rises, this could lead to a malfunction.
- Do not place the monitor on a device which generates heat.
- Do not use the product in locations where the unit is exposed to direct sunlight or other strong light. Since this product operates with infrared rays, such light may cause a malfunction.
- When using multiple monitors closely, be sure the infrared transmitter/receiver does not affect the other ones.

1-2. MOUNTING PRECAUTIONS

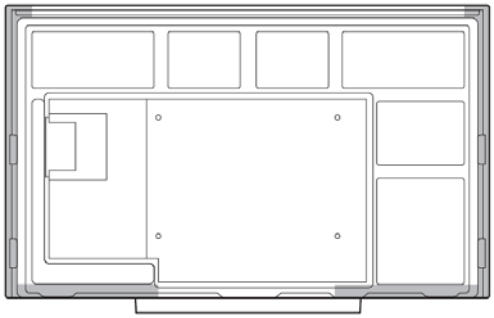
- When installing, removing or moving the monitor, ensure that this is carried out by at least 3 people (70inch), 4 people (75/86 inch)
- Be sure to use a wall-mount bracket designed or designated for mounting the monitor.
- This monitor is designed to be installed on a concrete wall or pillar. Reinforced work might be necessary for some materials such as plaster / thin plastic board / wood before starting installation.
- This monitor and bracket must be installed on a wall which can endure at least 4 times or more the weight of the monitor.
  Install by the most suitable method for the material and the structure.
- [PN-CE701H/70HC1E]
  To attach a VESA-compliant mounting bracket, use M6 screws that are 5/16 inch (8 mm) to 3/8 inch (10 mm) longer than the thickness of the mounting bracket.



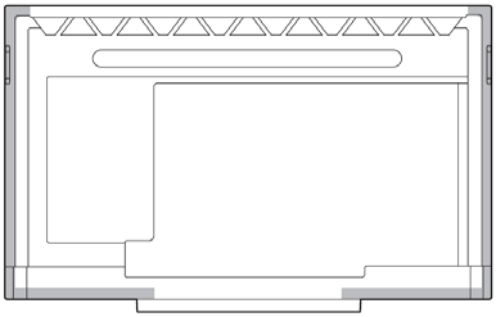
[PN-C751H/70HC1/C861H/86HC1]
To attach a VESA-compliant mounting bracket, use M8 screws that are 3/8 inch (10 mm) to 1/2 inch (12 mm) longer than the thickness of the mounting bracket.



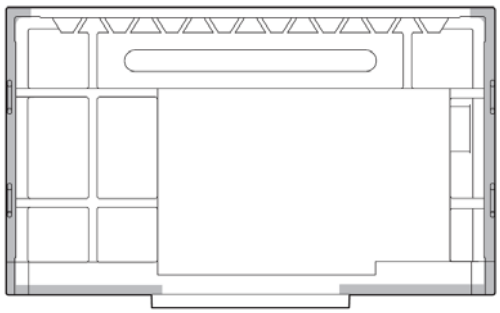
- Do not use an impact driver.
- When moving the monitor, be sure to hold the parts marked by ▭ below. Do not grasp the screen or tray.
  This may cause product damage, failure, or injury.
  [PN-CE701H/70HC1E]



[PN-C751H/75HC1]



[PN-C861H/86HC1]



- If you need to temporarily place the monitor on a table or other surface during installation, spread a thick soft cloth on the table to prevent damage to the screen and table.
- Prior to repacking or removal, remove the tray.
- After mounting, please carefully ensure the monitor is secure, and not able to come loose from the wall or mount.
- Do not use any screw holes other than those for mounting brackets, located on the rear of the monitor, for installation.

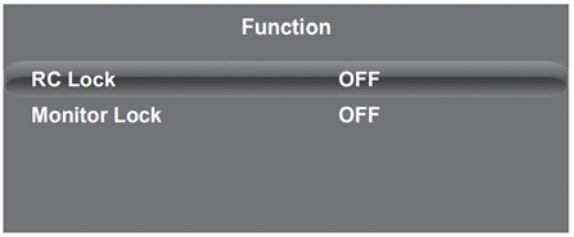
.

2. FUNCTION MENU

Press the FUNCTION button, and then press the MENU button within 10 seconds.

[PN-CE701H/70HC1E]

[PN-C751H/75HC1/C861H/86HC1]



ITEM	FUNCTION	DEFAULT VALUE
RC LOCK	You can disable the remote control buttons. OFF…. Enables operation. ON 1…. Disables all remote control operations. ON 2…. Disables all remote control operations other than POWER button (turning power on/off) and VOLUME +/- button (volume adjustment)	OFF
MONITOR LOCK	You can disable the monitor buttons.	OFF

<Note> Even if set RC Lock ON 1 or Monitor Lock to ON, POWER button is enabled during standby mode.

3. NETWORK INFORMATION

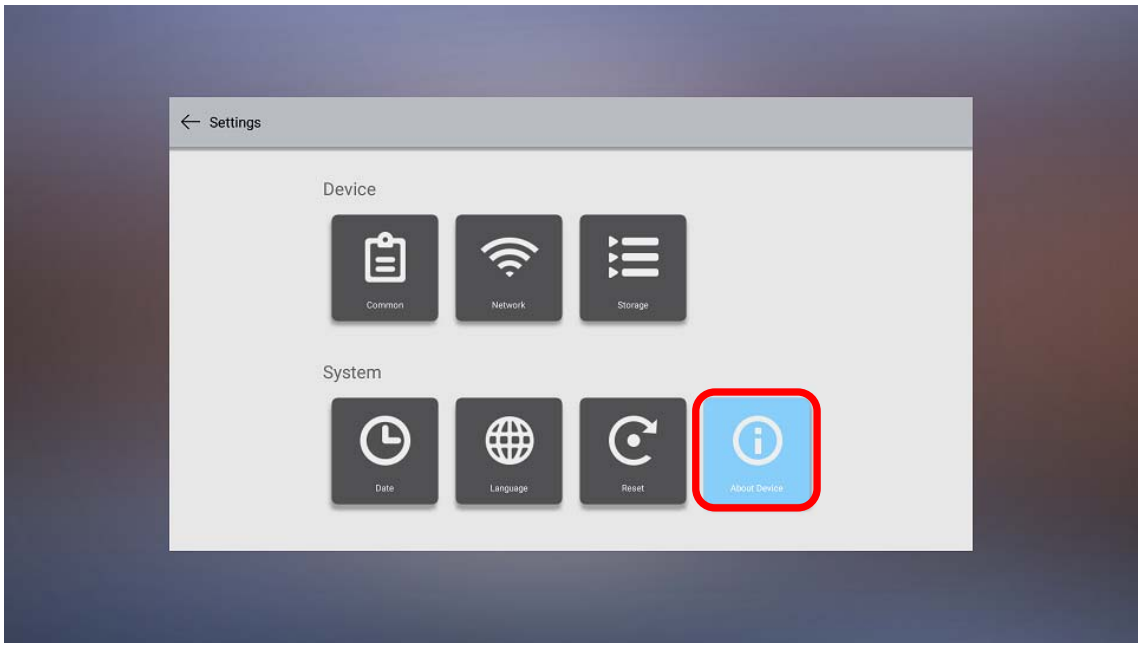
3-1. NETWORK INFORMATION DISPLAY PROCEDURE

[PN-CE701H/70HC1E]

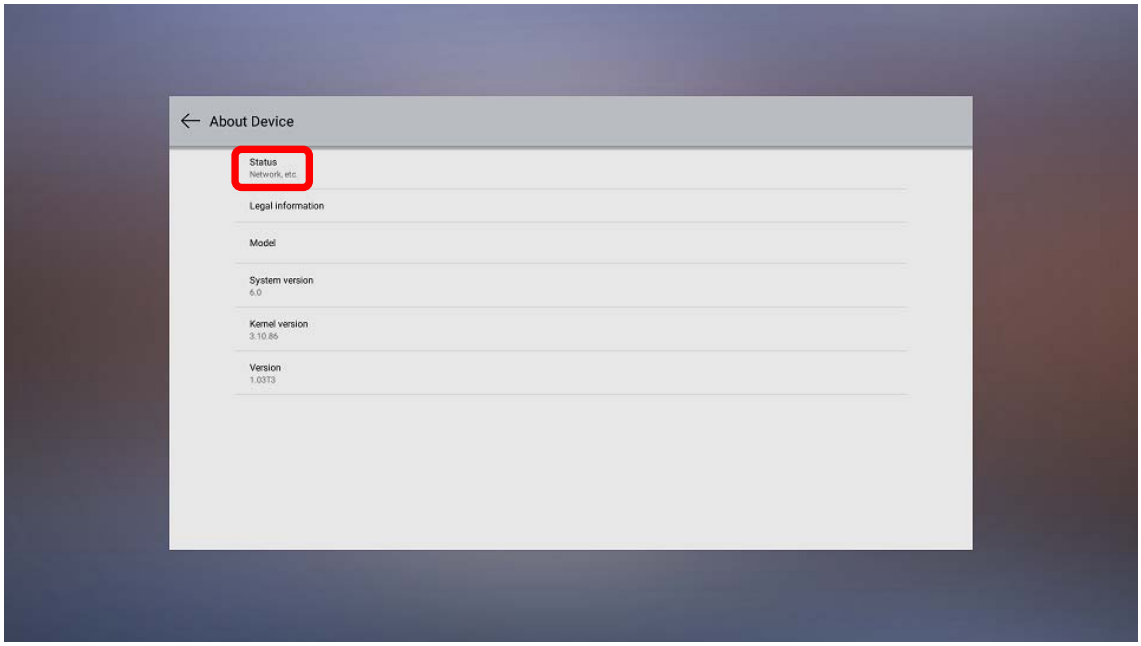
1) Change input mode to “APPLICATION”

2) Select “Settings”.

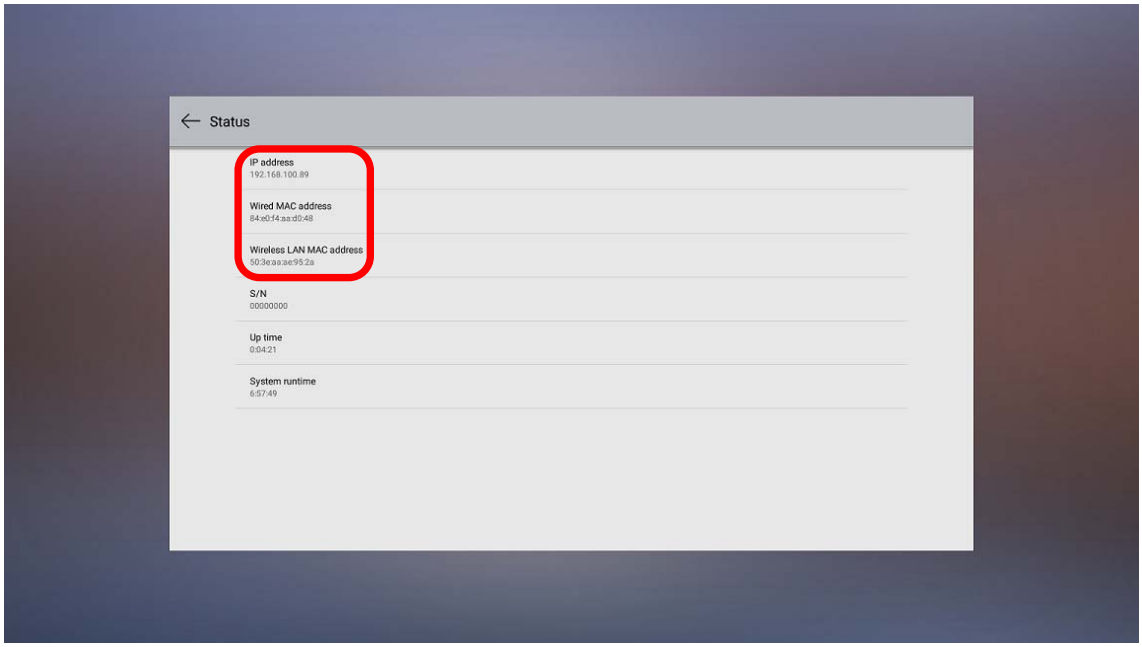
3) Select “About Device”



4) Select “Status”



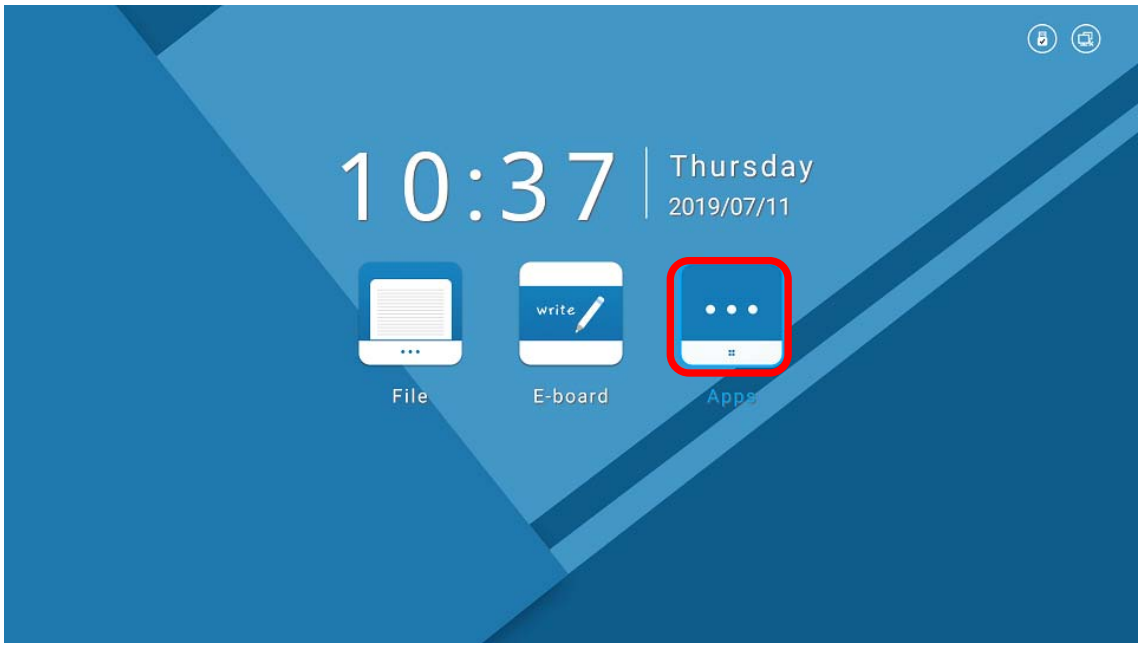
5) Display IP address and MAC address.



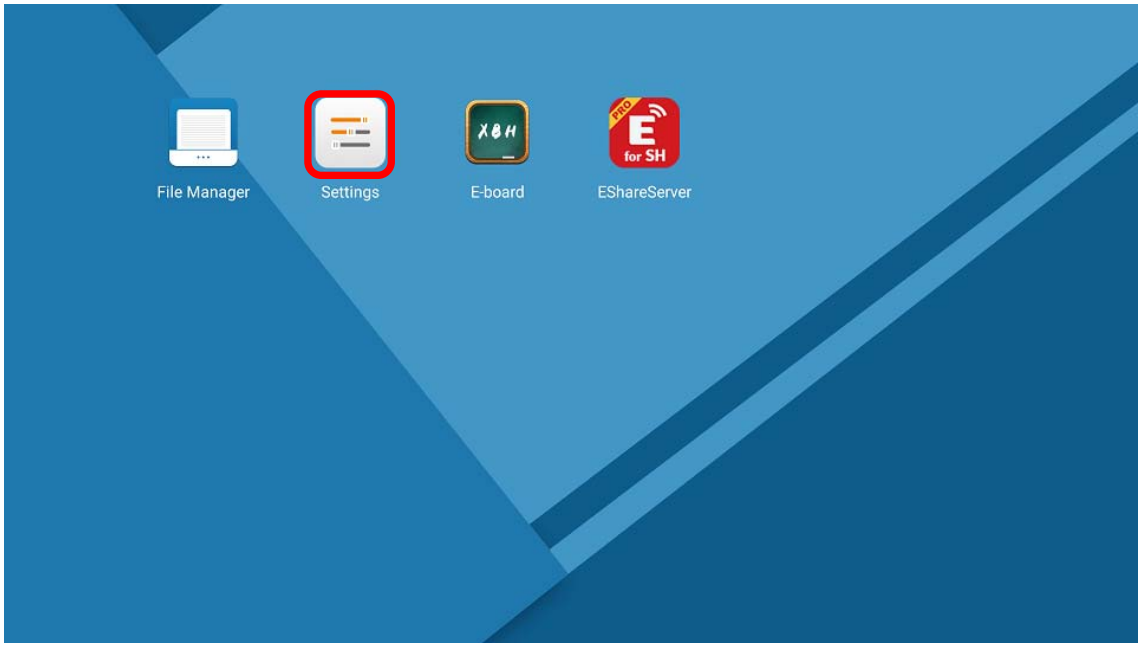
[PN-C751H/75HC1/C861H/86HC1]

1) Change input mode to “APPLICATION”

2) Select “Apps”.

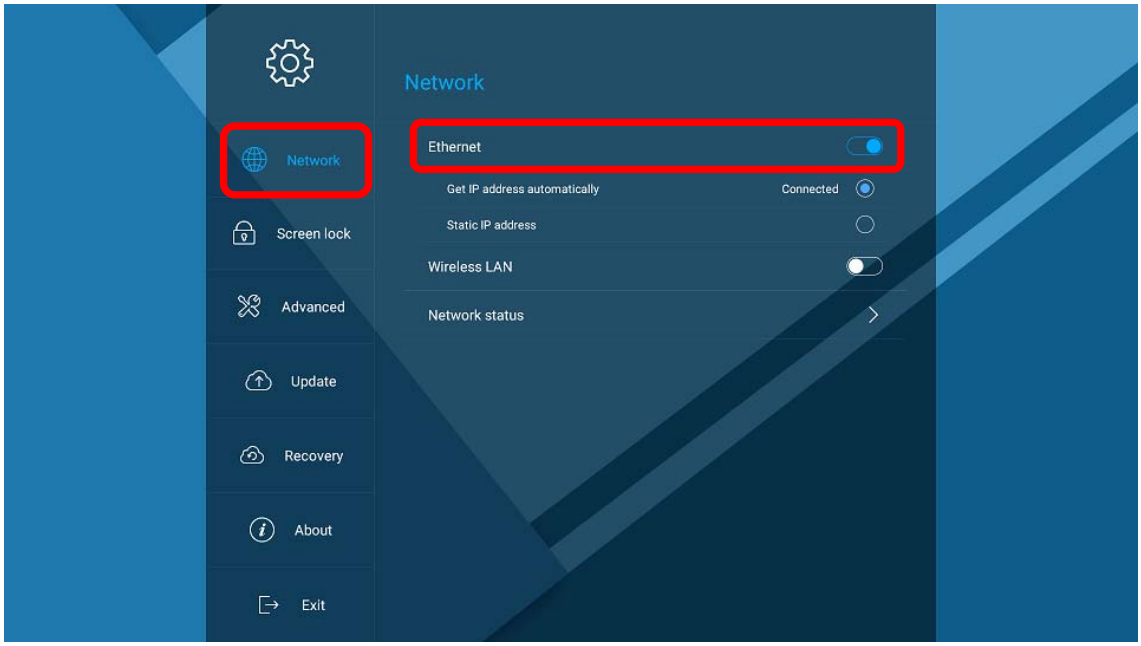


3) Select “Settings”

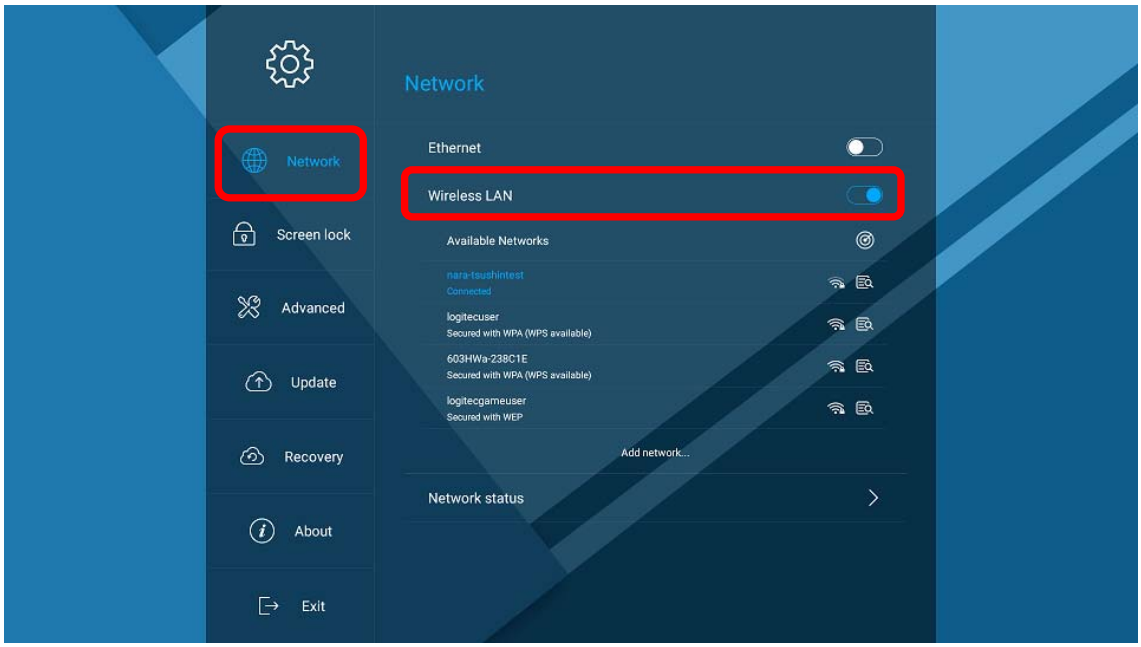


4) Select “Network”

(When LAN is enabled)

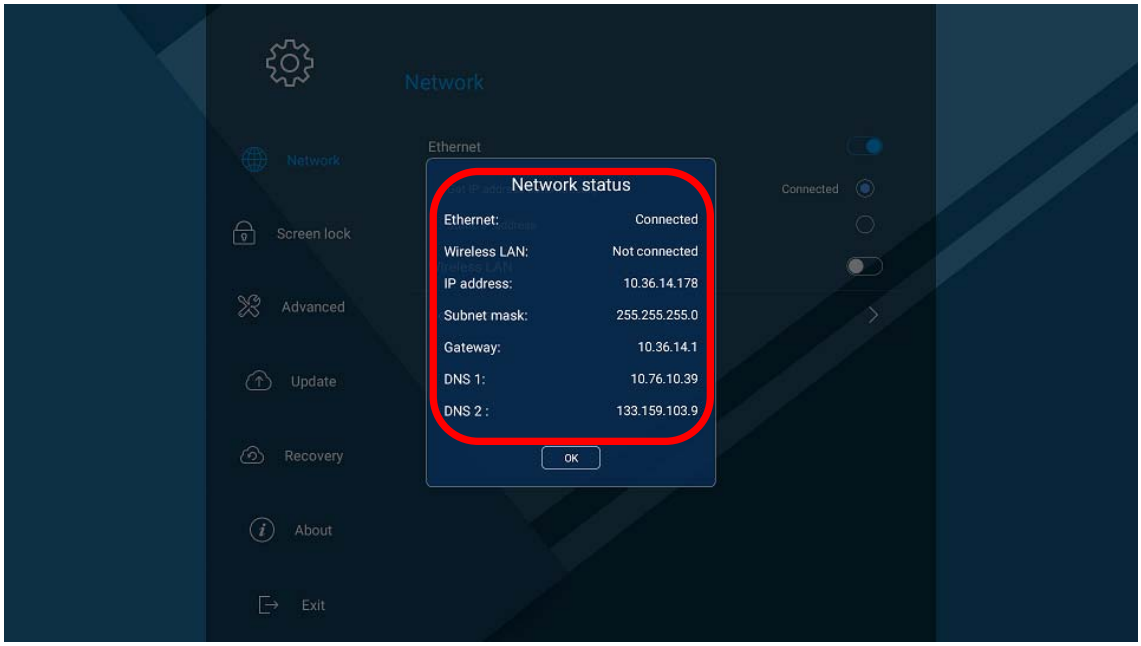


(When wireless LAN is enabled)

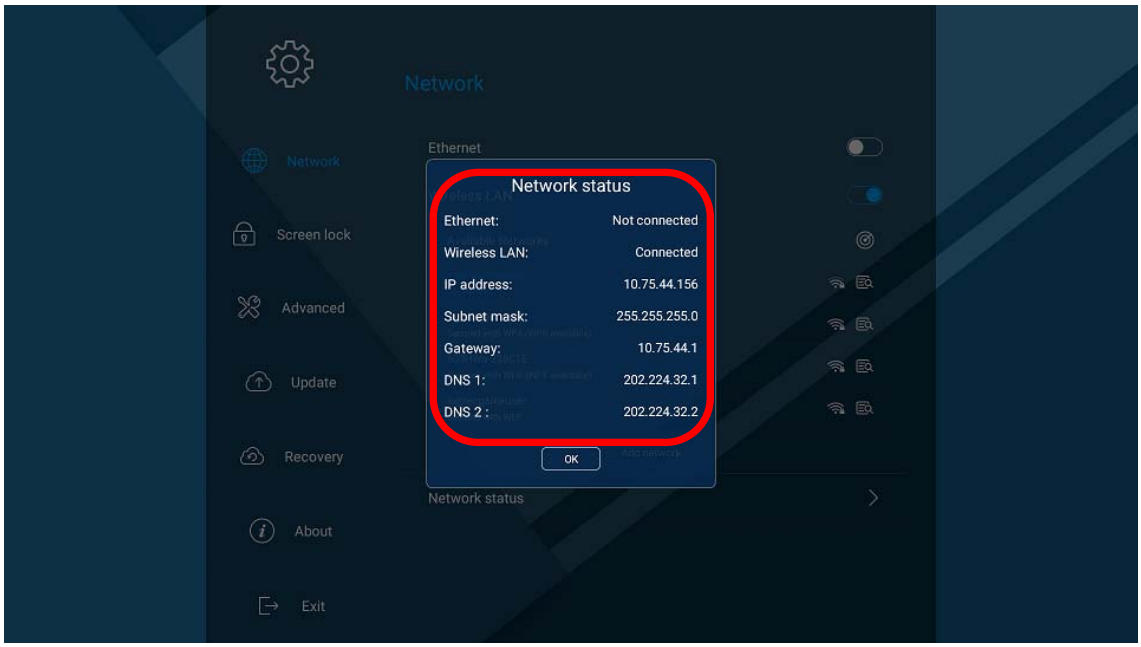


5)Select “Network status” and display IP address and other network information.

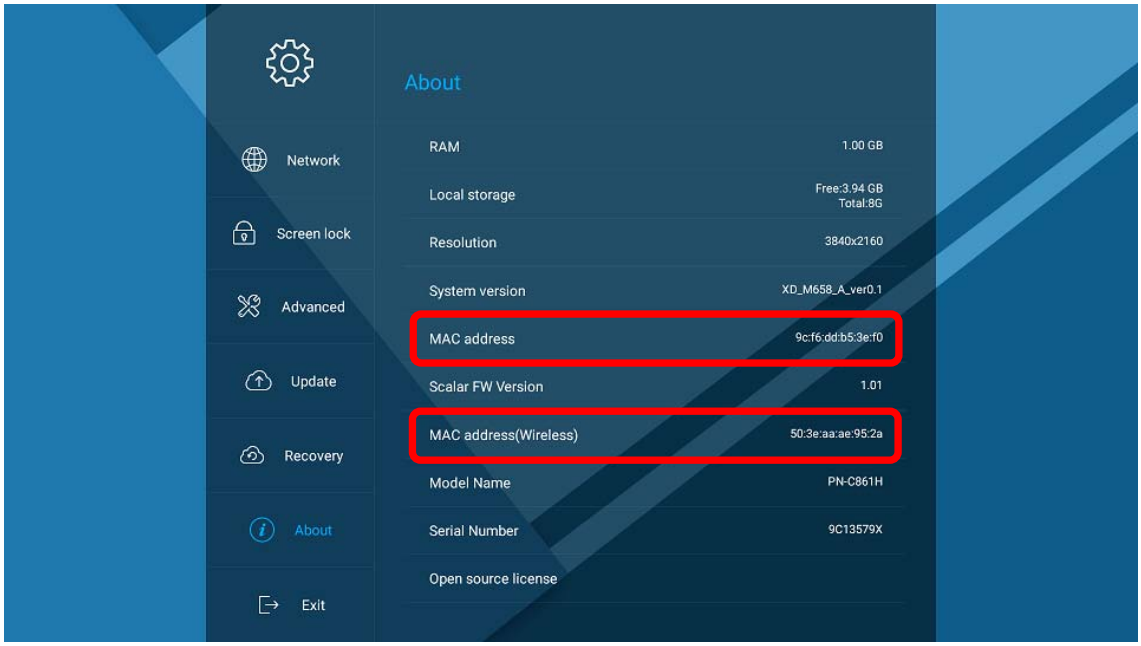
(When LAN is enabled)



(When wireless LAN is enabled)



6) Select “About” in “Setting” screen and display MAC address.



CHAPTER 3. IMPORTANT INFORMATION FOR SERVICING THE DISPLAY

1. MAIN PWB, LCD MODULE REPLACEMENT PROCEDURES

The following information as well as user setting information is saved to the EEPROM controlled by main firmware.

<INFORMATION STORED IN THE EEPROM'S CONTROLLED BY THE MAIN FIRMWARE.>

- SERIAL NUMBER
- USAGE TIME
- WHITE BALANCE SETTING VALUE
- CALIBRATION SETTING VALUE

Therefore, when the Main PWB or the LCD module is replaced, initialization and setting must be performed.

1-1. INFORMATION ITEMS

ITEM	CONTENT
SERIAL NUMBER	The machine has its own serial number which is described on the nameplate at the back of the machine.
USAGE TIME	This information is linked with the LCD module. After replacing the Main PWB, it is impossible to write the usage time to the new Main PWB. It is necessary to initialize the setting. It is necessary to initialize this setting when the LCD module is replaced.
WHITE BALANCE SETTING VALUE	This information is linked with the LCD module. When replacing the Main PWB, read the information before replacement, and write it to the new Main PWB after replacement. Execute resetting when the LCD module is replaced.
CALIBRATION SETTING VALUE	Since a service part Main PWB has been adjusted, there is no need to set when replacing the Main PWB. Setting may be required depending on the replaced part.

1-2. MAIN PWB REPLACEMENT PROCEDURES

[PN-CE701H/70HC1E]

1) Read the following information from the monitor before replacement of the Main PWB.
   - SERIAL NUMBER
     → SERVICE MENU [S/N] / Service tool [Serial Number]
   - WHITE BALANCE VALUE
     → DESIGN MENU [Factory Menu] – [White Balance] / Service tool [White Balance]
   - USAGE TIME
     → SERVICE MENU [USAGE TIME] / Service tool [Usage time]

     It is impossible to write the USAGE TIME to the monitor. Record the USAGE TIME as service information.

   (MEMO)

   The machine does not operate before replacement and reading cannot be made, this procedure is not required.
2) Replace the Main PWB.
3) Each service part has the firmware written in it. If necessary, the firmware should be updated to the latest.
   → CHAPTER 5. FIRMWARE UPDATE PROCEDURES"
4) Set the MODEL TYPE depending on the destination.
   → SERVICE MENU [MODEL TYPE]
5) Execute FACTORY RESET.
   → SERVICE MENU [FACTORY RESET]
6) Write the information read in the above step 1) and reset the USAGE TIME
   - SERIAL NUMBER
     → Service tool [Serial Number]
   - WHITE BALANCE VALUE
     → DESIGN MENU [Factory Menu] – [White Balance] / Service tool [White Balance]
   - Reset the USAGE TIME
     → Service tool [Usage Time]

   (When the reading cannot be executed, perform the following operation.)
   - Reset the USAGE TIME.
     → Service tool [Usage Time]
   - Reset the WHITE BALANCE set values.
     → Service tool [White Balance]
7) **Connect the internet. Automatically connect to Eshare company server and activate.**

   <Note> In the production line, all products connect to Eshare company server via internet and are activated

   The license key corresponding to the MAC address is written on the display. The key is stored in the EEPROM and is held by Factory reset, but since the license key is erased when the main pwb exchange or main firmware update is performed, it is necessary to connect to the internet again.

[PN-C751H/75HC1/C861H/86HC1]

1) Read the following information from the monitor before replacement of the Main PWB.
   - SERIAL NUMBER
     → SERVICE MENU [S/N] / Service tool [Serial Number]
   - WHITE BALANCE VALUE
     → SERVICE MENU [WHITE BALANCE SETTING] / Service tool [White Balance]
   - USAGE TIME
     → Service tool [Usage time]
     It is impossible to write the USAGE TIME to the monitor. Record the USAGE TIME as service information.

   (MEMO)
   - The machine does not operate before replacement and reading cannot be made, this procedure is not required.
2) Replace the Main PWB.
3) Each service part has the firmware written in it. If necessary, the firmware should be updated to the latest.
   → CHAPTER 5. FIRMWARE UPDATE PROCEDURES"
4) Set the PANEL ID depending on the inch size.
   → SERVICE MENU [PANEL ID]
5) Set the MODEL TYPE depending on the destination.
   → SERVICE MENU [MODEL TYPE]
   <Note> Setting PANEL ID and MODEL TYPE automatically sets the model name.
6) Execute FACTORY RESET.
   → SERVICE MENU [FACTORY RESET]
7) Write the information read in the above step 1) and reset the USAGE TIME
   - SERIAL NUMBER
     → Service tool [Serial Number]
   - WHITE BALANCE VALUE
     → SERVICE MENU [WHITE BALANCE SETTING] / Service tool [White Balance]
   - Reset the USAGE TIME
     → Service tool [Usage Time]

   (When the reading cannot be executed, perform the following operation.)
   - Reset the USAGE TIME.
     → Service tool [Usage Time]
   - Reset the WHITE BALANCE set values.
     → Service tool [White Balance]
8) **Connect the internet. Automatically connect to Eshare company server and activate.**
   <Note> In the production line, all products connect to Eshare company server via internet and are activated
   The license key corresponding to the MAC address is written on the display. The key is stored in the EEPROM and is held by Factory reset, but since the license key is erased when the main pwb exchange or main firmware update is performed, it is necessary to connect to the internet again.

1-3. LCD MODULE REPLACEMENT PROCEDURES

1) Reset the USAGE TIME
   → Service tool [Usage Time]
2) Reset the WHITE BALANCE set values.
   → Service tool [White Balance]

2. HANDLING PRECAUTIONS

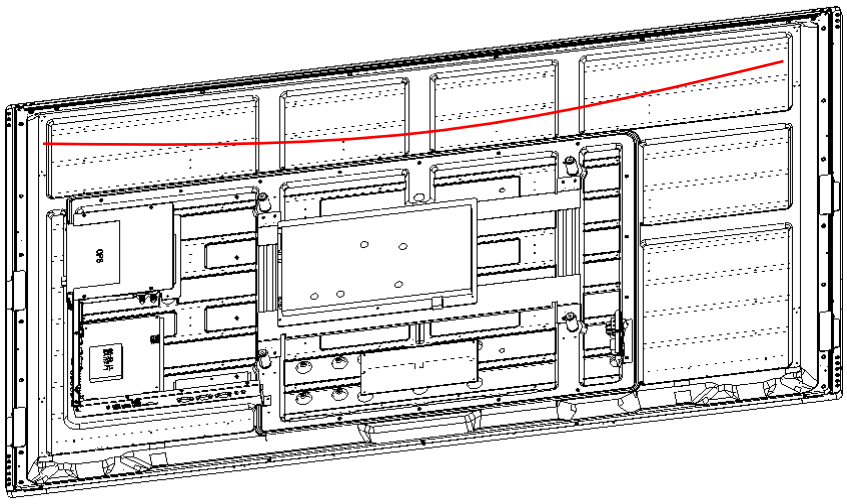
If remove the rear cover in flat position, the backlight rear frame trends to warp concavely. **Do not leave flat for a long time.**

There is no problem to work in the flat position for parts replacement, but do not leave it in the flat position for a long time.

When verify the defect, the monitor installs in temporary stand as much as possible.,

[The defective symptom when the monitor leave for a long time]

1) LCD module and touch panel glass make contact and the rainbow unevenness occurs.
   It may not be recovered.
2) When assemble the rear cover, the screw may not reach because of warp concavely.
   (Action)
   Using temporary stand, temporarily fix VESA screw part and lift concave warpage.



CHAPTER 4. SERVICE MENU/VARIOUS SETTING TOOL OPERATING PROCEDURES

1.OPERATING PROCEDURES

Press the [FUNCTION], [←], [↓], [→] and [↑] keys in sequence.

1-1. SERVICE MENU

[PN-CE701H/70HC1E]

Service Menu	
Model	PN-CE701H
S/N	9A000016
FIRMWARE VERSION	1.00
USAGE TIME	125(h)
FACTORY RESET	OFF ▼
MODEL TYPE	US ▼

[PN-C751H/75HC1/C861H/86HC1]

Service Menu	
MODEL	PN-C751H
S/N	9A000016
FIRMWARE VERSION	S75AS86A_S_0.13
USAGE TIME	14.0hour
FACTORY RESET	>>>
PANEL ID	75
MODEL TYPE	US
WHITE BALANCE SETTING	>>>
THERMAL CONTROL	>>>

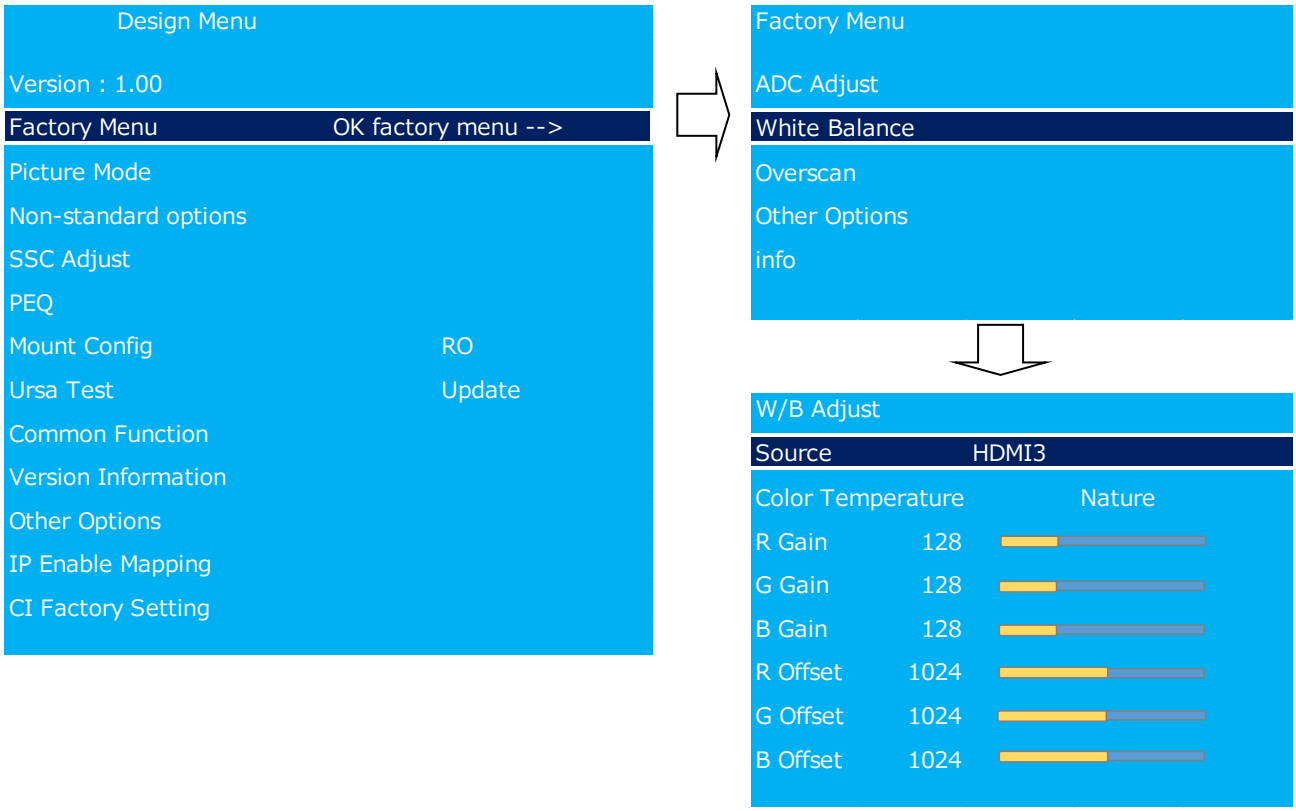
ITEM	CONTENT
MODEL	Model Name In case of PN-C751H/75HC1/C861H/86HC, change model name by panel ID setting (75 or 86) and model type setting (US or EU).
S/N	Serial number
FIRMWARE VERSION	Version of the main firmware
USAGE TIME	Usage time (the backlight lighting time)
FACTORY RESET	Initialization for Ex-factory.
PANEL ID (Only PN-C751/75HC1/C861/86HC1)	Change model name and internal panel settings parameter by this setting.
MODEL TYPE	Switch the destination settings. (US : North America model, EU ; Europe/Asia mode)
WHITE BALANCE SETTING	Used to set the white balance value. In case of PN-CE701H/70HC1E, white balance setting function is in Design menu. (Refer to next page)
THERMAL CONTROL (Only PN-C751/75HC1/C861/86HC1)	Current temperature and Log for power off error.

1-2. DESIGN MENU

[PN-CE701H/70HC1E]

Press the [INPUT], [2], [5], [8], [0]

<Note> Only the function of “White Balance” can be utilized. Do not change the setting of other functions.



ITEM	CONTENT
FACTORY MENU	Used to set the white balance value.
OTHER ITEMS	Do not change.

[PN-C751H/75HC1/C861H/86HC1]

Change the external input mode (HDMI etc.) and press the [MENU], [1], [1], [4], [7].

<Note> Do not change the setting.

2. FACTORY RESET

Resets the user adjustment value, USAGE TIME to the factory preset values.

1) Display the SERVICE MENU.

2) Select “FACTORY RESET”

3) Turn the main power switch off and then back on.

3. PANEL ID (PN-C751H/75HC1/C861H/86HC1)

Setting PANEL ID and MODEL TYPE automatically sets the model name

PANEL ID	MODEL TYPE	MODEL NAME
75	US	PN-C751H
	EU	PN-75HC1
86	US	PN-C861H
	EU	PN-86HC1

4. MODEL TYPE

Select the model type (destination).

The firmware is common to all models (destination). It responds to specification differences by switching model types.

1) Display the SERVICE MENU.

2) Select “MODEL TYPE”.

3) Select the destination.

<Differences of each model type setting>

ITEM	SETTING VALUE	
MODEL TYPE	US	EU
DESTINATION	North / South America	EU / ASIA
MODEL NAME - NAME ON INFORMATION OSD - REPLY PARAMETER FOR INF1 COMMAND	70 inch : PN-CE701H 75 inch : PN-C751H 86 inch : PN-c861H	70 inch : PN-70HC1E 75 inch : PN-75HC1 86 inch : PN-86HC1
DEFAULT LANGUAGE OF OSD MENU	English	
OPERATION MODE SELECTION AT INITIAL POWER-ON	Not Exit	Exit
DEFAULT VALUE OF OPERATION MODE	MODE 2	MODE 1
DEFAULT SETTING OF POWER SAVE MODE	ON	
DEFAULT SETTING OF POWER MANAGEMENT	ON	
DEFAULT SETTING OF OFF IF NO OPERATION	OFF	ON
DATE FORMAT	MM/DD/YYYY	DD/MM/YYYY
NOTATION OF TIME	12-hour time	24-hour time

5. WHITE BALANCE SETTING

The white balance setting is used to correct variations in each panel. When the panel is not changed, take over the panel setting to suppress variations. When the panel is changed, perform resetting to set the standard state.

You can configure the settings with use of the White Balance Setting Tool, or manually by the OSD.

5-1. WHEN REPLACING THE PWB (WHEN THE PANEL IS NOT CHANGED)

■ White Balance setting information read

Below are the procedures of reading the White Balance settings of the display before the replacement of PWB.

<THE SETTING INFORMATION IS READ FROM THE SERVICE MENU>

1) Select one of HDMI, D-SUB and APPLICATION modes with [INPUT] button.
2) Any image is displayed on the screen.
3) [PN-CE701H/70HC1E] Design Menu is displayed.
   [PN-C751H/75HC1/C861H/86HC1] SERVICE MENU is displayed.
4) Select “WHITE BALANCE SETTING”.
   The WHITE BALANCE SETTING menu is displayed. Write down the displayed setting value.

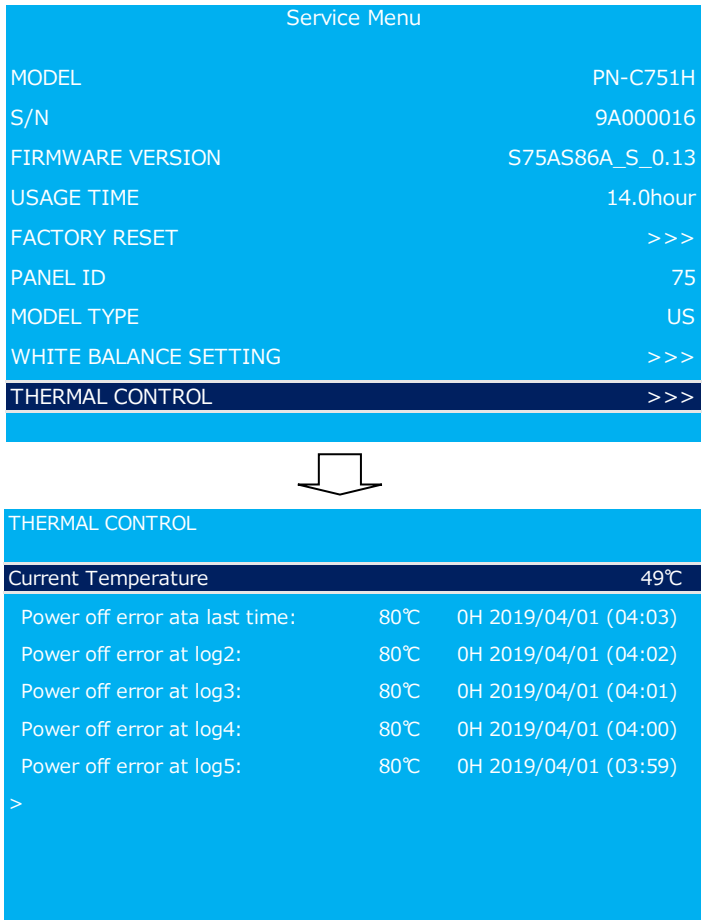
■ White Balance setting value write

After replacement of the PWB, perform the following procedures to write the setting information of the white balance.

1) Select one of HDMI and D-SUB modes with [INPUT] key.
2) Any image is displayed on the screen.
3) [PN-CE701H/70HC1E] Design Menu is displayed.
   [PN-C751H/75HC1/C861H/86HC1] SERVICE MENU is displayed.
4) Select “WHITE BALANCE SETTING”.
   The WHITE BALANCE SETTING menu is displayed.
5) Set the values R, G, B to the values previously written down.
6) Check to confirm that all the set values are set properly.
7) Read the set data of WHITE BALANCE and check to confirm that all the values are properly set.

6. THERMAL CONTROL (PN-C751H/75HC1/C861H/86HC1)

The current temperature and the power off error log can be checked from “THERMAL CONTROL” in Service Menu.



7. INSTRUCTIONS FOR LAUNCHER TOOL

7-1. Overview

■ Operation Environment

OS (32bit/64bit)	Windows 7 Windows8.1 Windows 10
Communication port	- RS-232C port which is recognized as COM port which recognize the communication, (9600bps communications are available.)

When communicating, both the PC side and the display side need to be set.

(Memo)

This tool does not operate properly in the power standby state or the signal standby. Put a signal on the current input or power management is set “No”.

■ How to Install Service Tool

1) All the tools are provided in a zip file. Decompress the zip file to C:¥

<Caution>

The operation may fail if space is inserted to folder path.

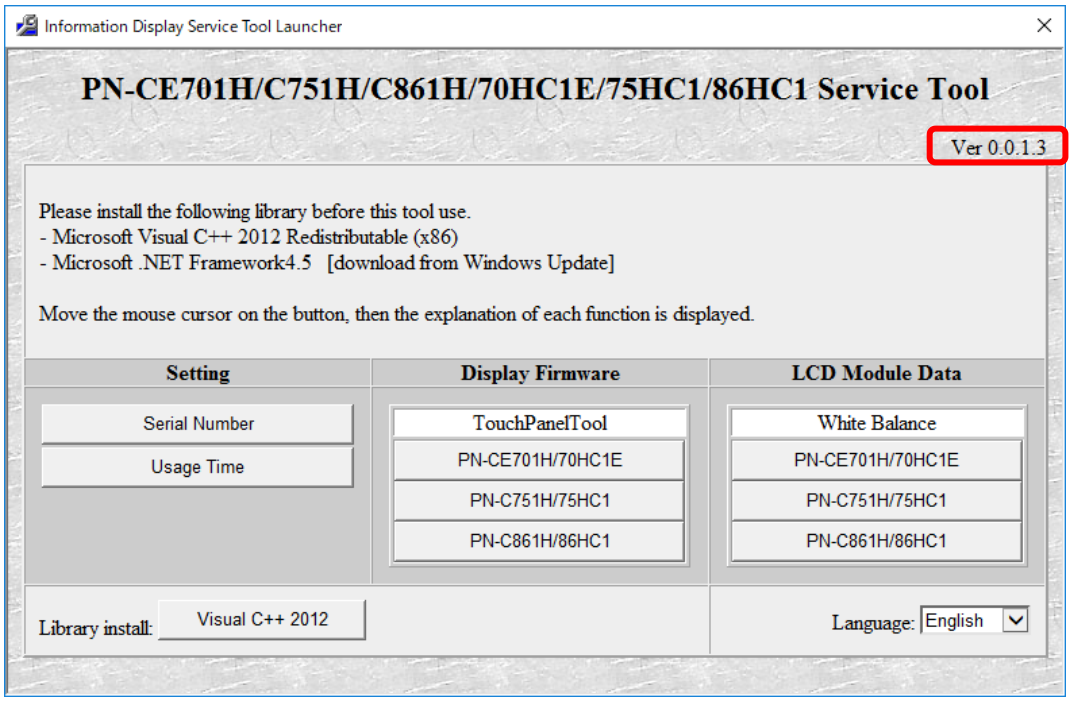
2) In case the Microsoft Visual C++ 2012 Runtime Library is not installed, execute bundled “vcredist_x86.exe” and install library.

* In case an error message "Command line option syntax error. Type Command /? for Help." is displayed, double-byte character (Japanese) may be included in user name. Log on with the user name with administrator authority which includes only one-byte character and install. If no user has been registered, go to User Accounts in Control Panel and register a user.

3) Download .Net Framework 4.5 or later from Microsoft home page and install before using this tool.

■ How to Confirm Version information of Service Tool

1) Activate Launcher Tool. Confirm version number of service tool shown on upper right of the window.

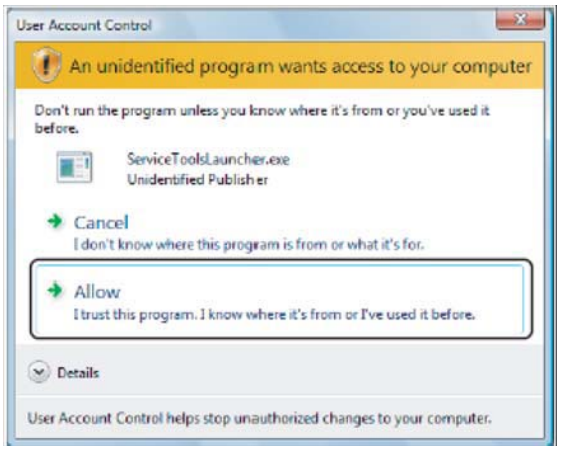


■ USE INSTRUCTIONS

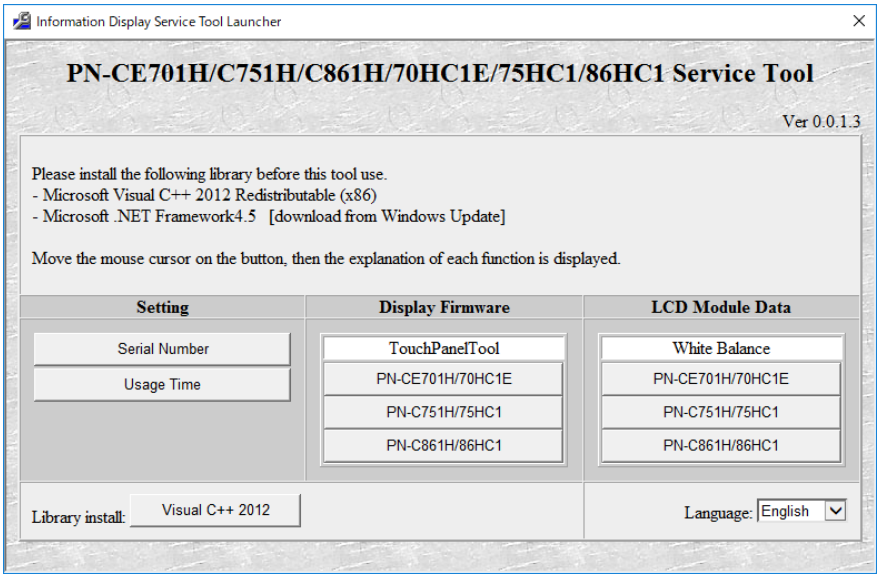
1) Execute “ServiceToolsLauncher.exe” in the folder where the service tool is extracted.

<Note>

- If it cannot be executed, the library may not be installed. In this case, please install the library, referring to Installation Procedures shown above.
  → Refer to “■How to Install Service Tool”.
- In case of the window of “User Account Control” is displayed as shown below, need to click [Allow].



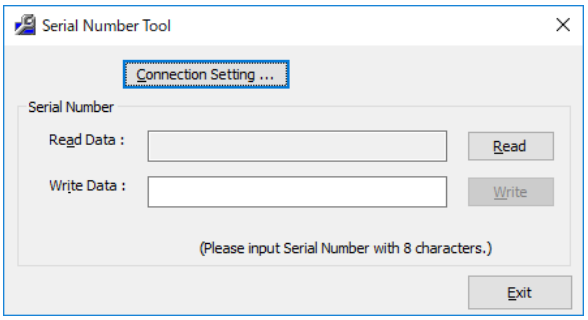
2) Once the service tool is booted, press the button as needed to conduct operations.



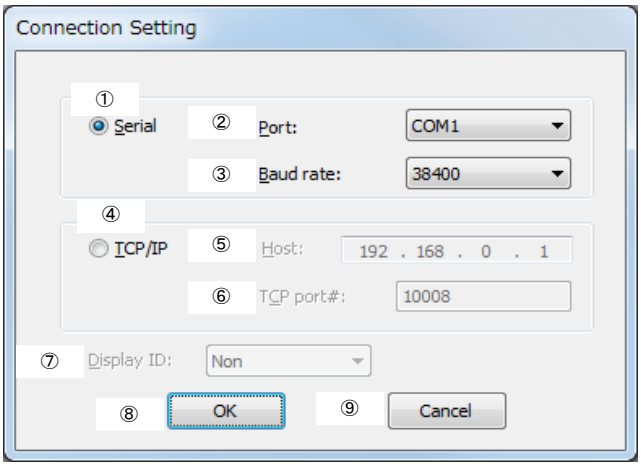
ITEM	BUTTON	DESCRIPTION
Setting	Serial Number	Read / Write the serial number of the monitor.
	Usage Time	Read / Reset the Usage Time to the monitor.
Display Firmware (Touch Panel Tool)	PN-CE701H/70HC1E	Launch the Touch Panel Tool for each inch.
	PN-C751H/75HC1	
	PN-C861H/76HC1	
LCD Module Data (White Balance)	PN-CE701H/70HC1E	Read / Write White balance settings of the display.
	PN-C751H/75HC1	
	PN-C861H/76HC1	
Library install	Visual C++ 2012	Install Microsoft Visual C++ 2012 Redistributable (x86). When this is not installed, install this at the beginning of the operation.

1) Press [Serial Number] button of the Service Tool Launcher.

2) Press [Connection setting]



3) Set the following connection setting.



NO	ITEM	DESCRIPTION
①	Serial connection	Select the connection method. Connection is done by RS-232C serial connection.
②	RS232C connection port	Specify the connection port of RS-232C Select COM1(default)～COM256 from the pull down list. If ① is not selected, gray out.
③	RS232C baud rate	Specify the baud rate of RS232 connection port. 9600 (default) If ① is not selected, gray out.
④	TCP/IP	Select the connection method. Connection is done by TCP/IP connection (LAN).
⑤	Host	Specify the IP address of the display to be connected. (Adjust to display setting) If ④ is not selected, gray out.
⑥	TCP port	Specify the data port of the display to be connected. default：10008 (Adjust to display setting) If ④ is not selected, gray out.
⑦	Display ID	Specify the Display ID to be connected. If not correspond to daisy chain, gray out.
⑧	Setting	Confirm the setting.
⑨	Cancel	Suspend the setting and close the screen.

4) When the connection error occurs, the following message is displayed.

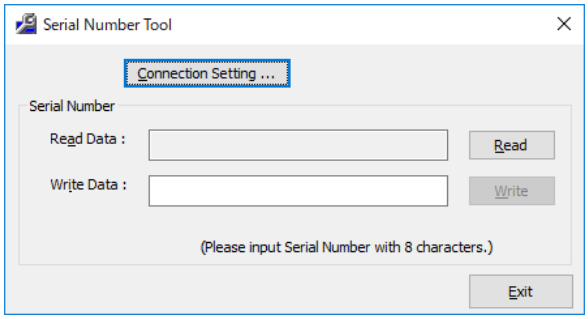
CODE	ERROR MESSAGE	DESCRIPTION
E1	Cannot open interface. Cannot connect. Please confirm setting.	The specified connection port could not be opened.
E2	Time out. Cannot connect. Please confirm setting.	Could not connect with the display and timeout occurred.
E3	Monitor return "ERR" code.	There was an error response from the display and connection failed.
E4	Interface is locked.	The RS232C/LAN setting of the display is set to “prohibit”
E5	Authentication is failed.	Authentication failed on LAN connection.
E6	Access is denied.	Access is denied
E7	Unselected error.	The connection setting of the display and the tool do not match.

8. SERIAL NUMBER TOOL PROCEDURES

8-1. START-UP OF THE SERIAL NUMBER SETTING TOOL

Press [Serial Number] button of the Service Tool Launcher.

8-2. SERIAL NUMBER SETTING PROCEDURES



The procedures of setting serial numbers with use of the Serial Number Tool are as follows.

1) Press [Connection Setting...] button to configure the communication settings.

2) Input the serial number you need to set in the field of Write Data.

3) Press [Write] button.

4) Press [Read] button and confirm that the set serial number is displayed in the Read Data field.

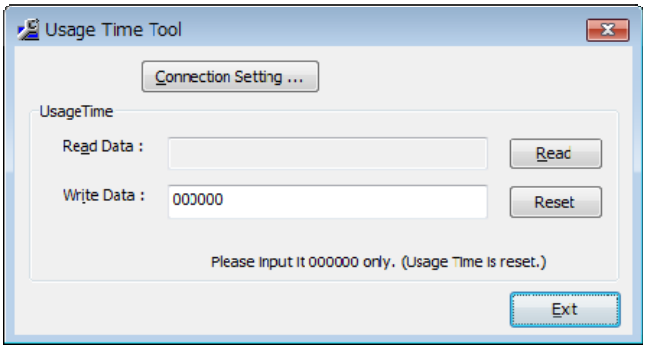
9. USAGE TIME TOOL PROCEDURES

9-1. START-UP OF THE USAGE TIME SETTING TOOL

Press [Usage Time] button of the Service Tool Launcher.

<Note> It is impossible to write the usage time to this monitor. So, when exchange the main pwb, reset the usage time.

9-2. USAGE TIME READING PROCEDURES



The procedures of reading the usage time with use of the Usage Time Tool are as follows.

1) Press [Connection Setting...] button to configure the communication settings.

2) Press [Read] button to read the usage time.

9-3. USAGE TIME RESETING PROCEDURES

The procedures of resetting the usage time with use of the Usage Time Tool are as follows.

1) Press [Connection Setting...] button to configure the communication settings.

2) Press [Reset] button to set the usage time to “0”.

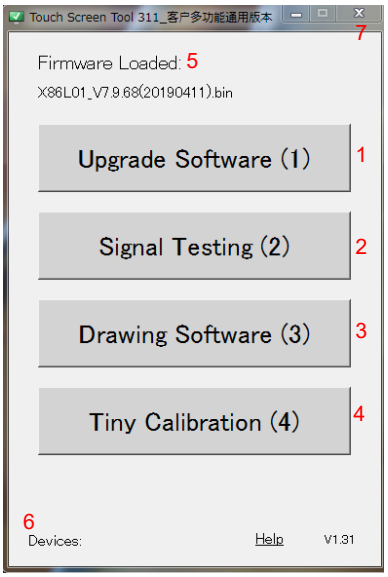
10. TOUCH PANEL TOOL

This touch panel tool is a tool for updating the touch panel firmware, executing the signal/drawing test and touch panel calibration.

10-1. PREPARATION

1) Connect by USB cable and Video terminal between PC and monitor.

2) Start the touch panel tool corresponding to the inch size of the connected monitor and then display the home screen.



No	ITEM	EXPLANATION	KEY OPERATION
1	Touch Panel Firmware Update (*1) -> Refer to “Chapter5”	Start the touch panel firmware update tool.	“Upgrade Software (1)”
2	Signal Test	Start the signal test tool	“Signal Testing (2)”
3	Drawing Test	Start the drawing test tool.	“Drawing Software (3)”
4	Calibration	Start the calibration tool.	“Tiny Calibration (4)”
5	Firmware Loaded	Display the file name of loaded firmware.	-
6	Devices :	Display the version of touch panel firmware.	-
7	Exit	Exit the touch panel tool.	“x”

(*1) The procedure of Touch Panel Firmware Update is explained in Chapter.5.

10-2. CONNECTION BETWEEN THE MONITOR AND PC

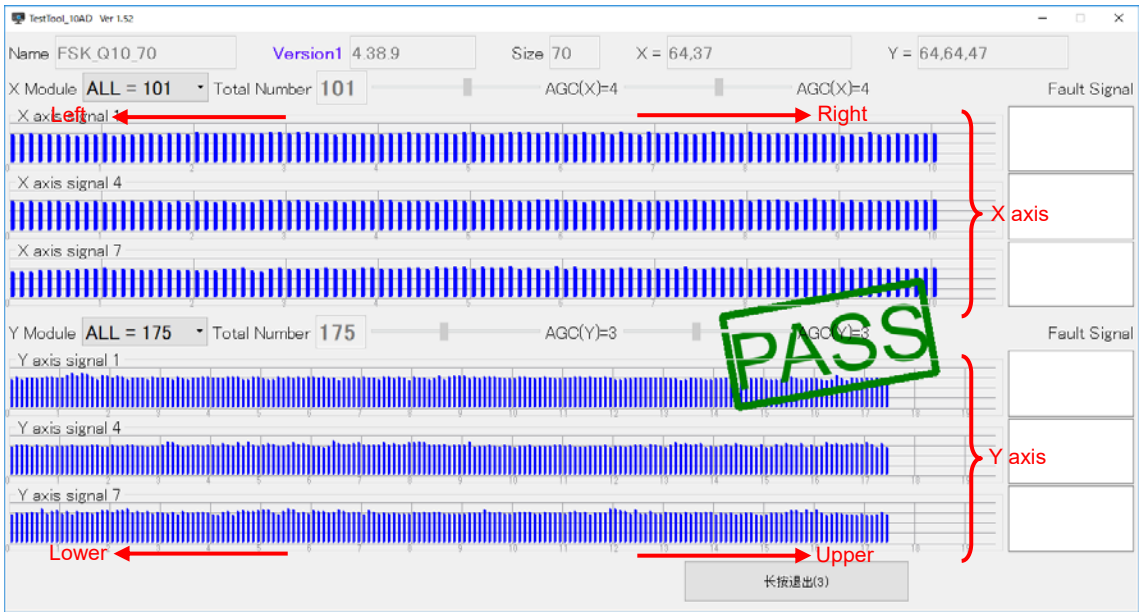
Connect the USB cable (TypeA-TypeB) and HDMI cable between the monitor and PC(Service tool).

10-3. SIGNAL TEST TOOL

1) Click “Signal Testing (2)” button.

2) Start Signal Test Tool and test signal strength automatically.

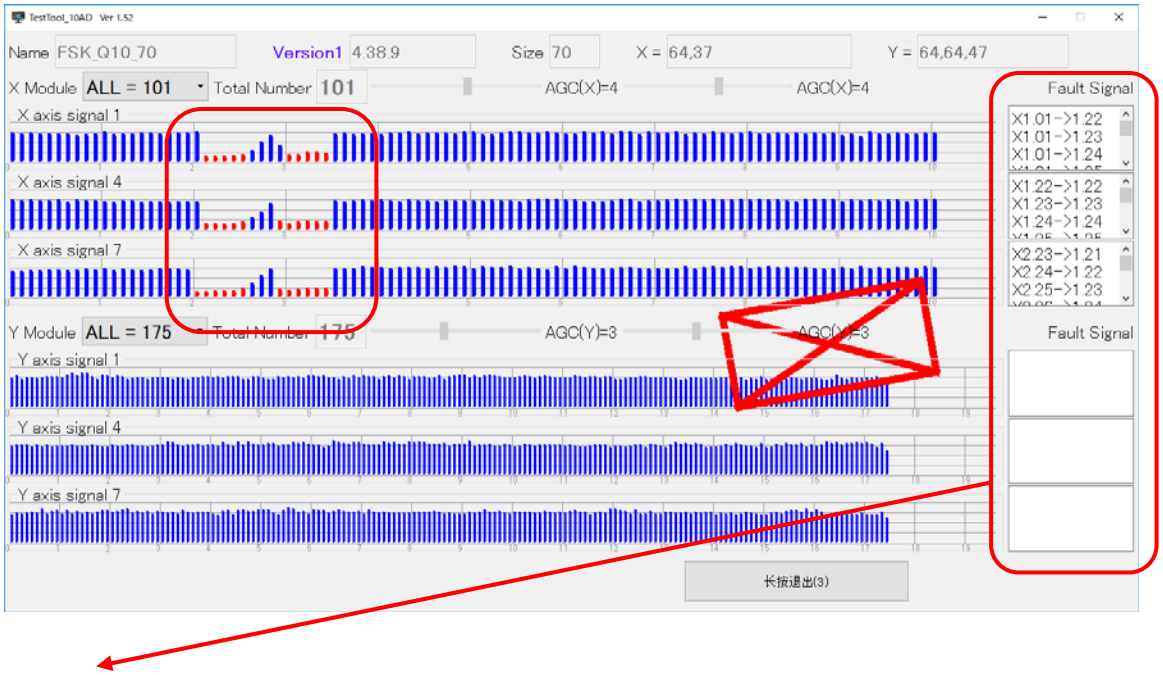
3) When pass the test, display “PASS” in the tool.



4) When the test result is NG, display the red bar.

The red bar is the NG place. When touching by the finger, the touch place is judged as NG and display the red bar.

In the status, move the finger horizontally or vertically while touching it, and the place that the red bar overlaps is the defective place.



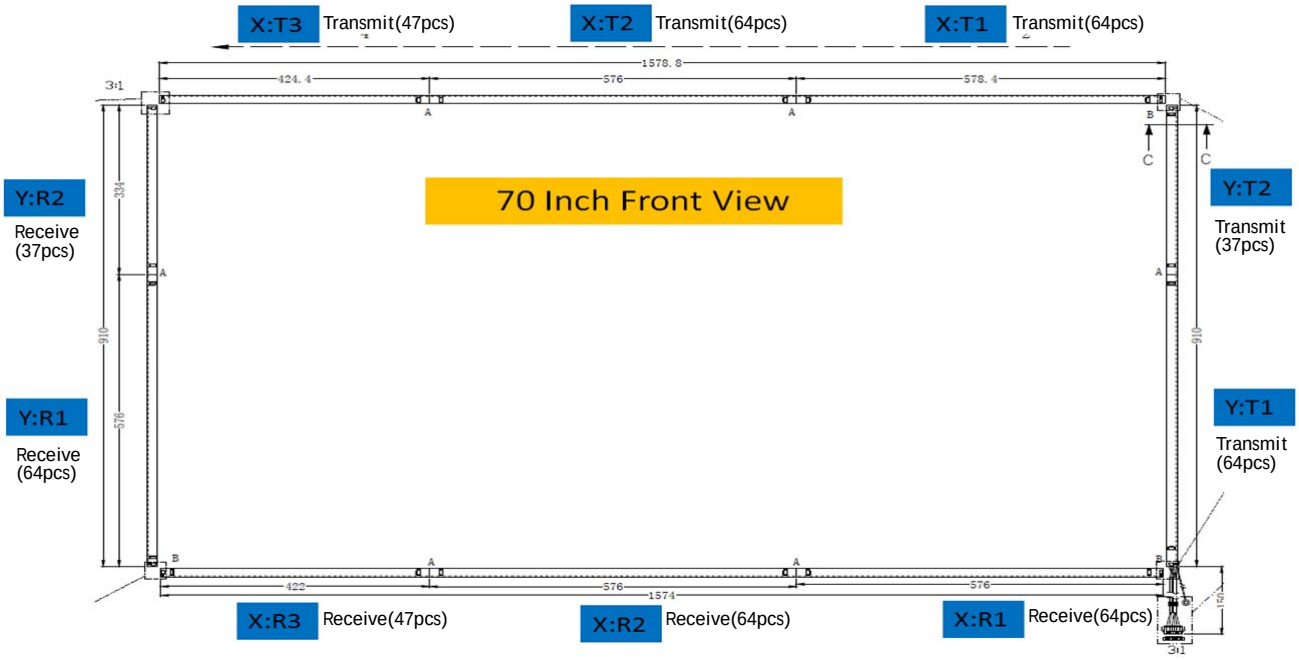
[How to see “Fault signal”]

This message indicate which LED in touch panel pwb is defective failure.

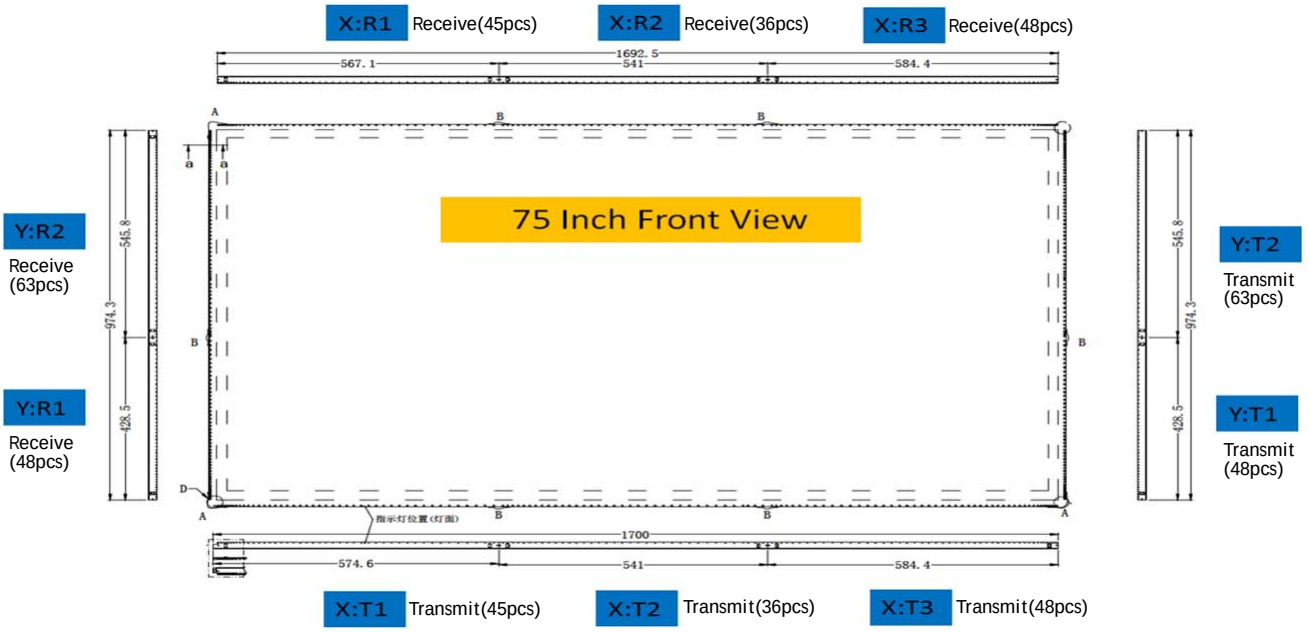
(For example)

Sample	Axis	Touch panel pwb	LED in touch panel pwb
X1.22	X axis	The first touch panel pwb of X axis	22nd LED in the first touch panel pwb of X axis,
Y2.34	Y axis	The second touch panel pwb of Y axis.	34th LED in the second touch panel pwb of Y axis.

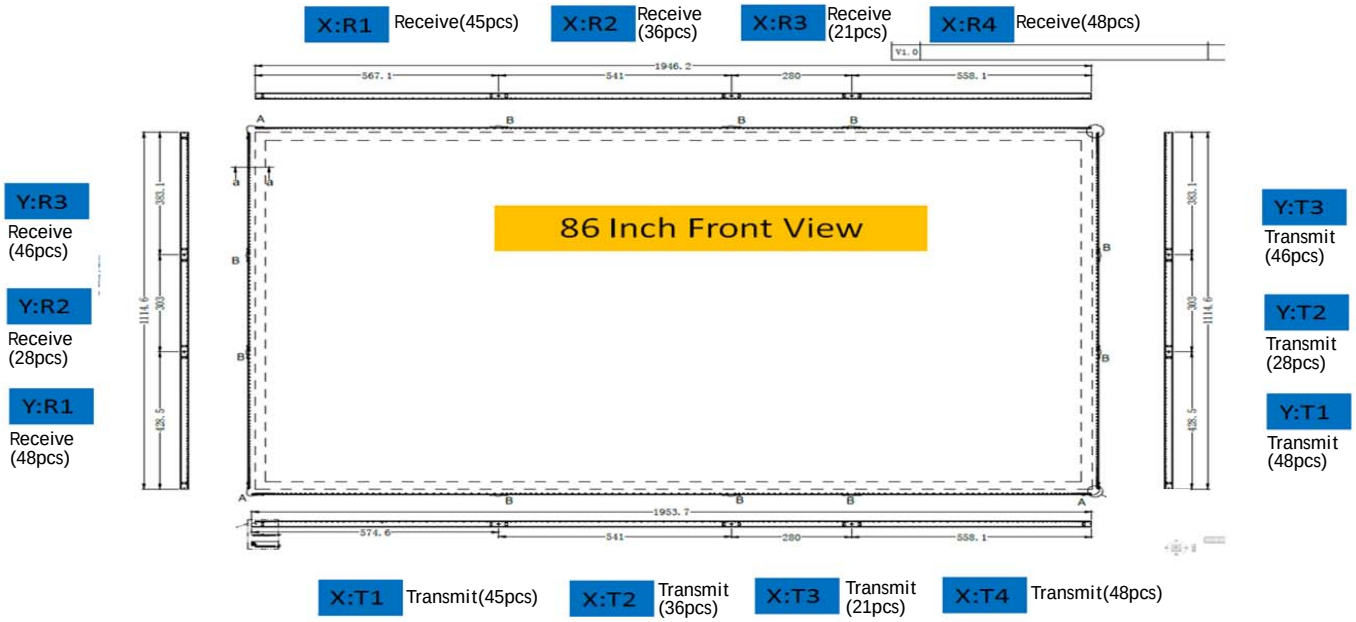
[PN-CE701H/70HC1E]



[PN-C751H/75HC1]



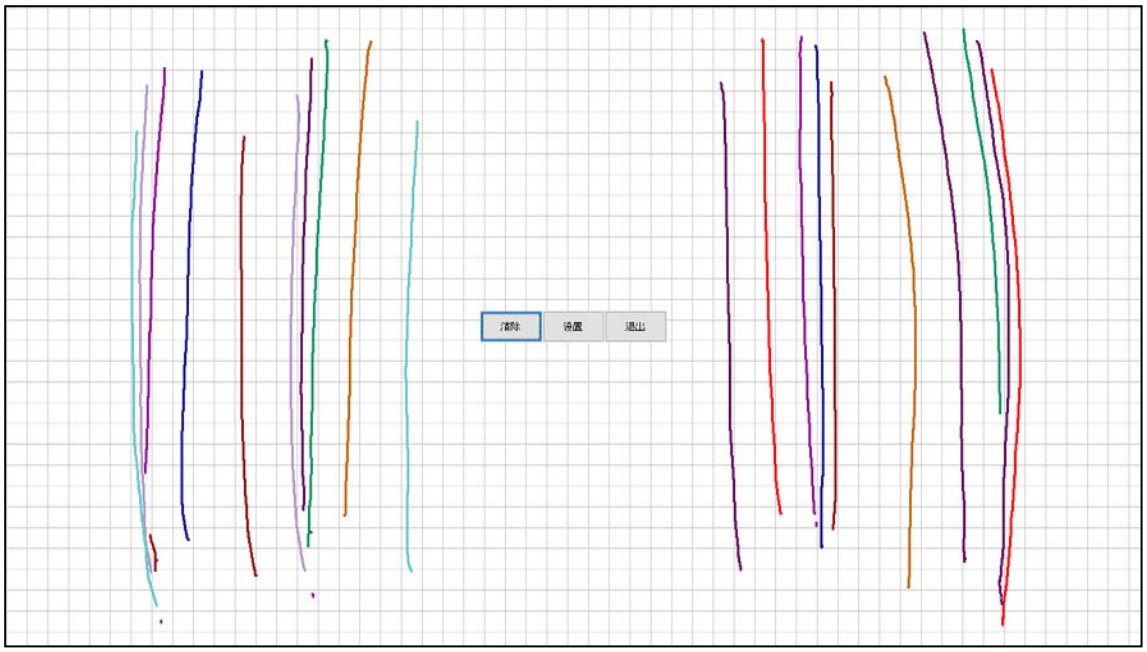
[PN-C861H/86HC1]

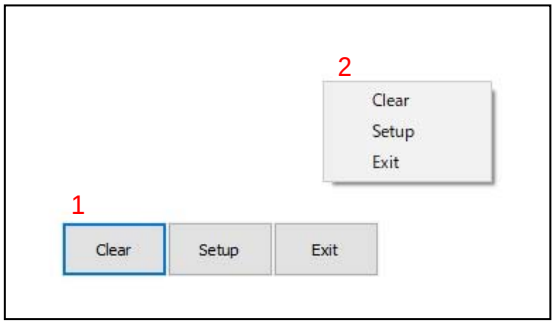


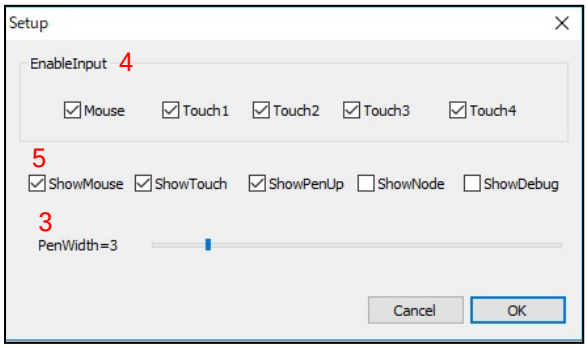
10-4. DRAWING TEST TOOL

1) Click “Drawing Software (3)” button and open the drawing test tool.

2) Check if it is possible to draw the line.





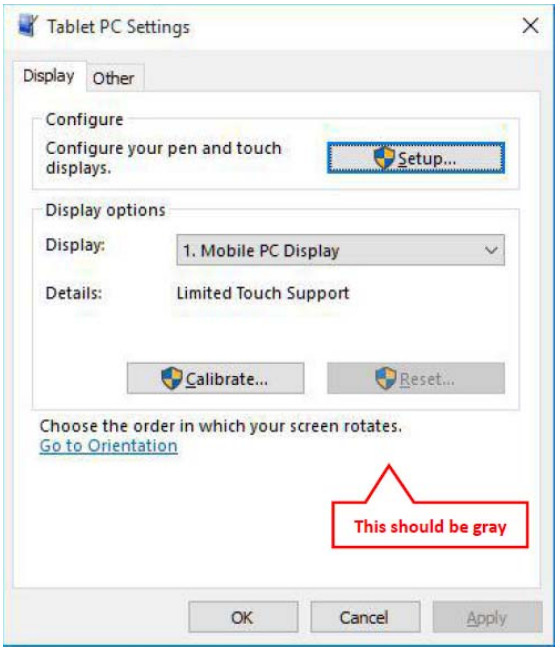


NO	ITEM	EXPLANATION
1	Clear	Clear the drawing.
2	Setting	Open the windows of drawing settings.
	Exit	Exit the drawing test tool.
3	PenWidth	Set the width of line.
4	Mouse	Set the method of touch (No need to change)
	Touch1	
	Touch2	
	Touch3	
	Touch4	
5	ShowMouse	Display the drawing by mouse.
	ShowTouch	Display the drawing by touch.
	ShowPenUp	Display the action that released the touch.
	ShowNode	Display the drawing place with ☐.
	ShowDebug	Display the debug information in the upper left corner.

10-5. CALIBRATION

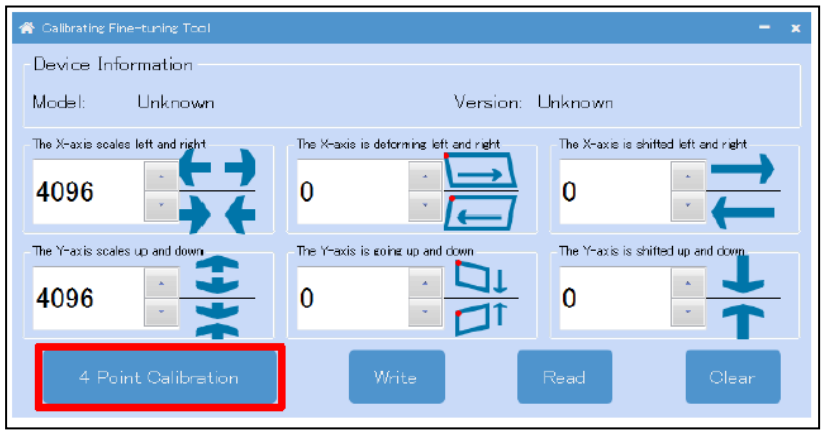
1) No calibration setting in Tablet PC Settings.

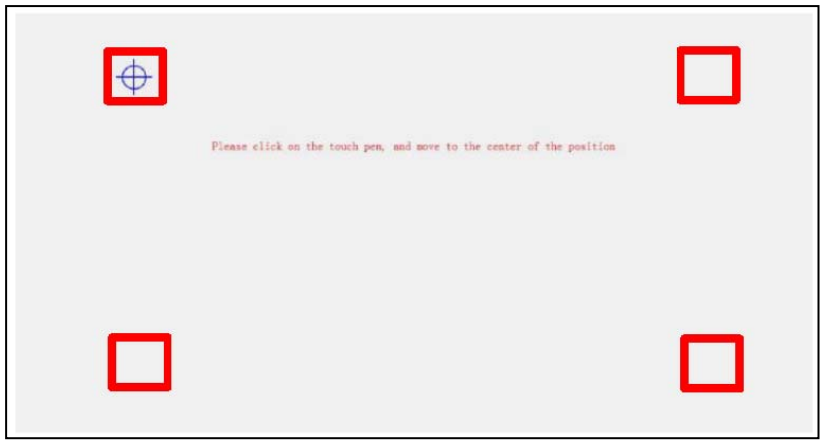
Confirm that [Reset] button is gray-out.

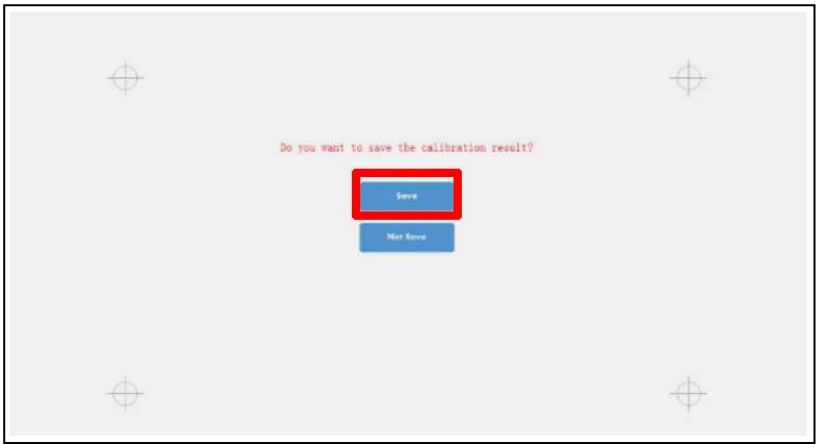


2) Click “Tiny Calibration (4)” and start the calibration tool.

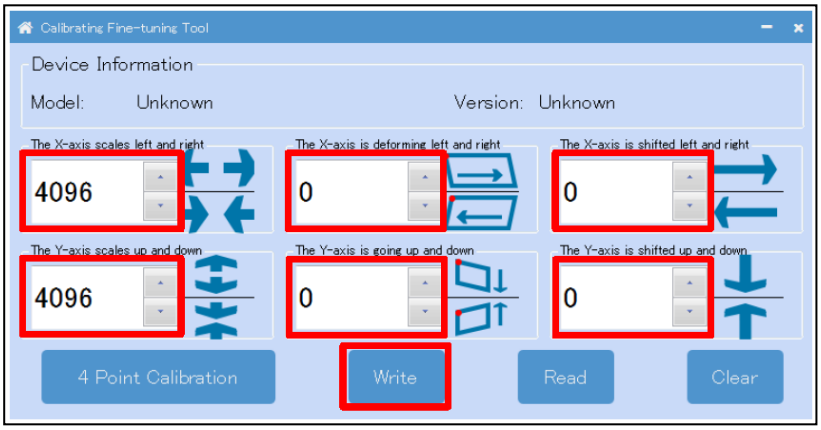
3) Execute [4 points Calibration] and Click [Save] and exit the tool.







4) Click “Write” button after making several adjustments.

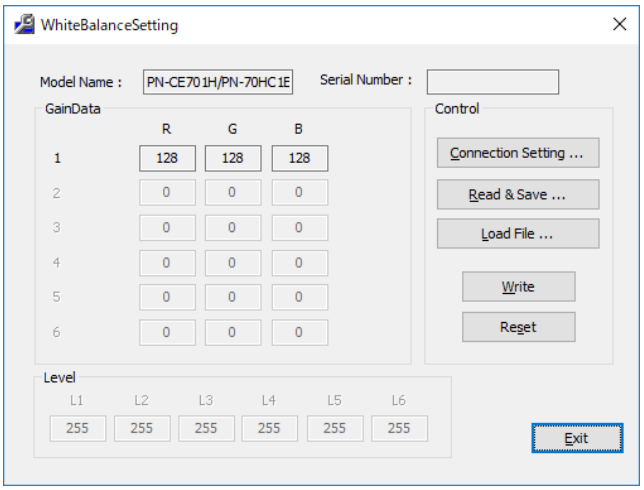


11. WHITE BALANCE SETTING TOOL PROCEDURES

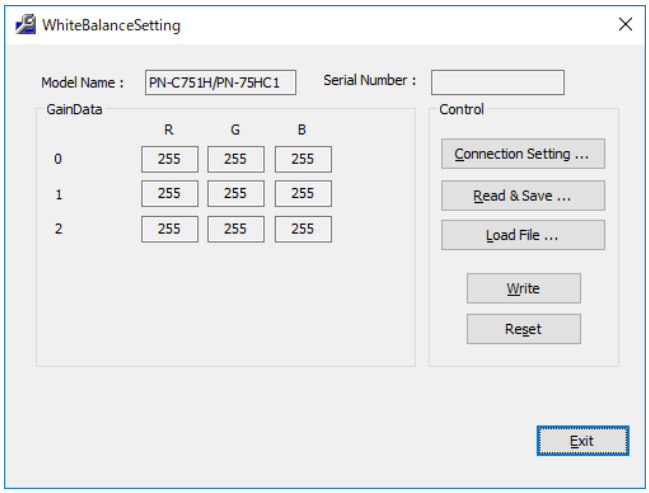
11-1. START-UP OF THE WHITE BALANCESETTING TOOL

Press [White Balance] button of the Service Tool Launcher.

[PN-CE701H/70HC1E]



[PN-C751H/75HC1/C861H/86HC1]



11-2. THE WHITE BALANCE SETTING TOOL PROCEDURE

■ How to read the white balance settings

The procedures of writing the settings that have been previously readout with use of the White Balance Setting Tool are as follows.

1) Press [Connection Setting...] button to configure the communication settings.
2) Turn on the power of Information Display.
3) Press [Read& Save] button.
4) When all settings have been read out, the set values are displayed, and the dialogue box of file save appears. At this point, the default file name is “[Model Name]_[Serial Number] _[Date(YYYYMMDD)].wni”. After confirming the file name, press [Save] button to save the settings.

■ How to write the white balance settings

The procedures of writing the settings that have been previously read out with use of the White Balance Setting Tool after exchanging Main pwb are as follows.

1) Press [Connection Setting...] button to configure the communication settings.
2) Turn on the power of Information Display.
3) Press [Load File...] button to select the setting file.
4) Press [Write] button, and the set values are written.

11-3. WHEN REPLACING THE LCD MODULE OR WHEN AN OLD PWB DOES NOT OPERATE

The procedures of resetting the settings to default are as follows.

1) Press [Connection Setting] button to configure the communication settings.
2) Turn on the power of Information Display.
3) Press [Reset] button. The White Balance settings are set to default.

11-4. ERROE MESSAGE

When various errors occur, the following messages is displayed.

ERROE MESSAGE	STATUS
Write is failed.	The writing of white balance settings data is failed or is canceled.
Reset process is failed.	Reset process is failed.
This Monitor is not Support. Is write processing continued?	The data to be written and the display series ID do not match.
Writing data is not for this monitor. Is write processing continued?	The data to be written is not for the target display.
Serial Number is different between monitor and writing data. Is write processing continued?	The date to be written and the serial number of the display do not match.
Model Name is different between monitor and writing data. Is write processing continued?	The data to be written and the model name of the display do not match.
Write is completed.	The writing of white balance settings data is completed.

CHAPTER 5. FIRMWARE UPDATE PROCEDURES

1. FIRMWARE

1-1. OVERVIEW

Main firmware, Touch panel firmware are updated.

[Data included in firmware]

Content	Description
Main firmware	The firmware of Main PWB (Included in Android system)
Touch panel firmware	The firmware of Touch panel

2. HOW TO UPDATE MAIN FIRMWARE VIA USB FLASH DRIVE

2-1. USB FLASH DRIVE

Use the USB flash drive which supports the following standard.

- Format : FAT32 (Upper limit of the cluster size : 64KB)
- USB : 2.0/1.1

<Caution>

- Set the proper volume label name.
- It does not correspond to SD card reader.
- It does not correspond to USB HUB
- Do not use the USB Flash Drive enciphered

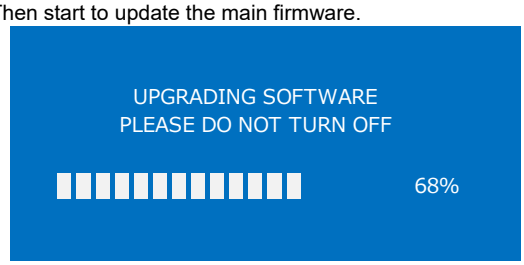
(*) The USB flash drive should be emptied beforehand.

2-2. UPDATE MAIN FIRMWARE VIA USB FLASH DRIVE

[PN-CE701H/70HC1E]

1) Insert the USB flash drive into the PC and copy the main firmware update file to USB flash drive.
   (*) Applicable updates : Main firmware (Android OS and Pre-installed apps)
2) Turn off the monitor.
3) Insert the USB flash drice to the monitor to USB terminal of the front side..

4) While pressing the POWER buton, turn on the main power switch.
   Then start to update the main firmware.



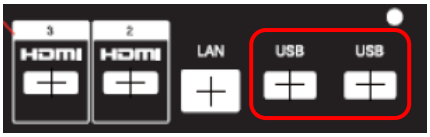
5) When the progress bar reached 100%, display “SHARP” Logo for about 5 minutes and display the initial message.
   Set the time and language.
6) Unmount the USB flash drive from unmount function of Storage of Setting menu and remove the USB flash drive.

[PN-C751H/75HC1/C861H/86HC1]

1) Insert the USB flash drive into the PC and copy the main firmware update file to USB flash drive.

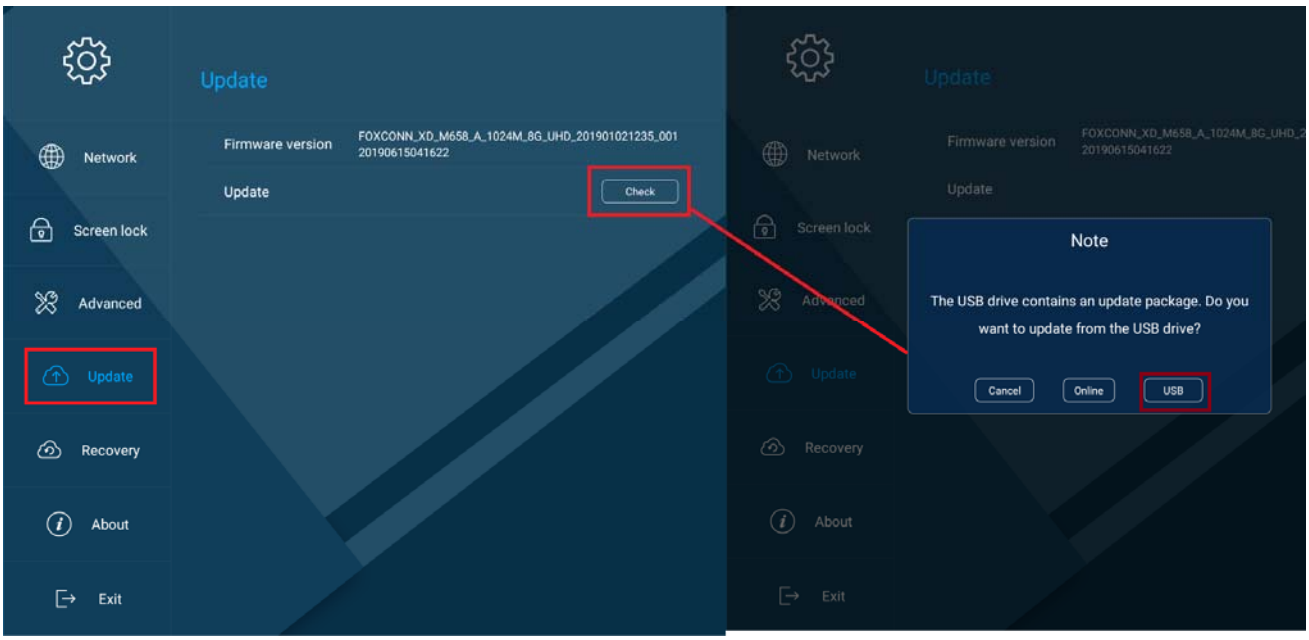
(*) Applicable updates : Main firmware (Android OS and Pre-installed apps)

2) Insert the USB flash drive to the monitor to USB terminal of the left side..

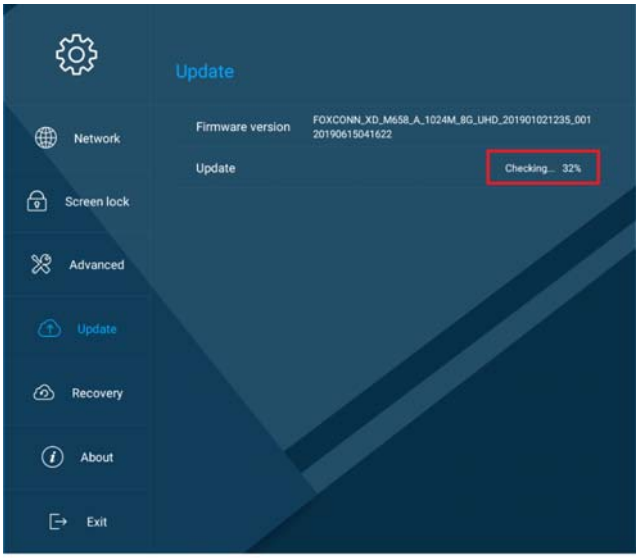


3) Turn on the monitor.

4) Enter “Apps” -> “Settings” -> “Update” and click the “Check” button on the right side of the screen and display “Note” screen, click “USB” button.



4) Display the screen to check the information



5) The system restarts automatically when the checking is completed and shown “Installing system update.” and “Installing upgrade package…” progress bar.

6) When the update is completed, the monitor shutdown automatically.

7) Turn on the power and check if all settings are restored to factory settings.

<Note>

When update the main firmware, delete the user setting value.

The user setting value will not delete with the firmware update (Running change)

<Note>

In the production line, all products connect to Eshare company server via internet and are activated

The license key corresponding to the MAC address is written on the display. The key is stored in the EEPROM and is held by

Factory reset, but since the license key is erased when main firmware update is performed, it is necessary to connect to the internet again.

2-3. CAUTION

- Do not save data other than the firmware data in the USB flash drive.
- It is not possible to use the USB flash drive with the security function with this procedure.
- When the file name of the created updater file, it is not possble to carry out the update.
- Do not disconnect the USB flash drive during updating.
- When the firmware versions before updating and after updating are the same, updating is stated.
- If the main firmware is broken, immediately enter the firmware update mode as soon as turn on the main power switch, and start the firmware update when detecting the USB memory with the firmware data.
- [PN-CE701H/70HC!E] Turn off, and turn on the main power switch while pressing the POWER button.,

2-4. WHEN UPDATE IS FAILED

The update is sometimes failed when the main power is turned off, the USB flash drive is disconnected during updating etc.

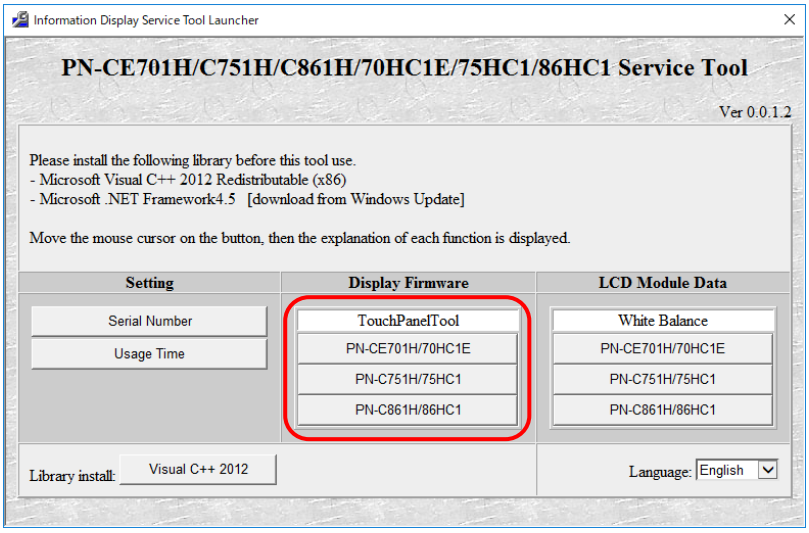
Then the power LED is lighting in red. Update the main firmware again.

3. HOW TO UPDATE TOUCH PANEL FIRMWARE BY SERVICE TOOL

3-1. UPDATE TOUCH PANEL FIRMWARE

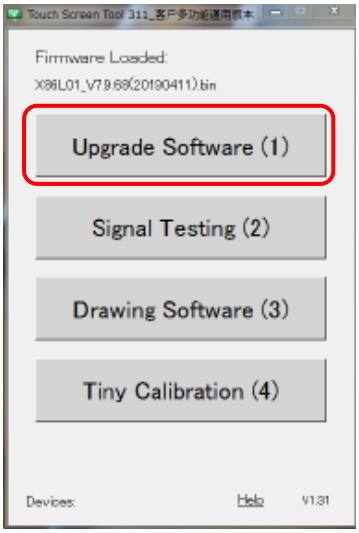
1) Connect by USB cable and Video terminal between PC and monitor.

2) Click the button of the model name of Touch Panel Tool on “Display Firmware” of Service Tool Launcher.

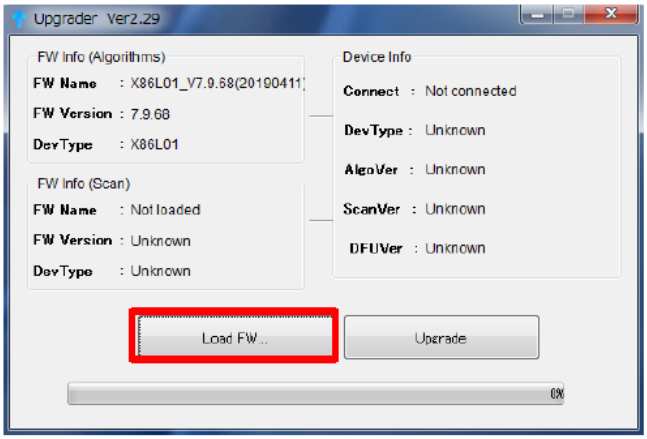


3) Start the touch panel tool and then display the home screen.

Click [Upgrade Software (1)] and start the touch panel firmware update tool.



4) Click [Load FW …] and select the touch panel firmware file (*.bin).

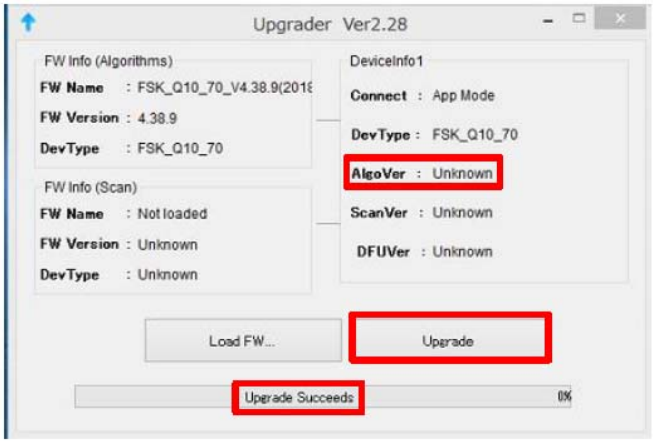


5) Click [Upgrade] and the progress bar starts moving.

When the progress bar reached 100%, display “Upgrade Succeeds” and reboot the touch panel system automatically.

“Algo Ver” is updated to the updated firmware version.

<Note> Do not turn off the power during updating.



6) If the touch panel firmware file selection is wrong, display “firmware does not match the device”.

Select the correct touch panel firmware file and update again.

CHAPTER 6. DISASSEMBLY AND ASSEMBLY

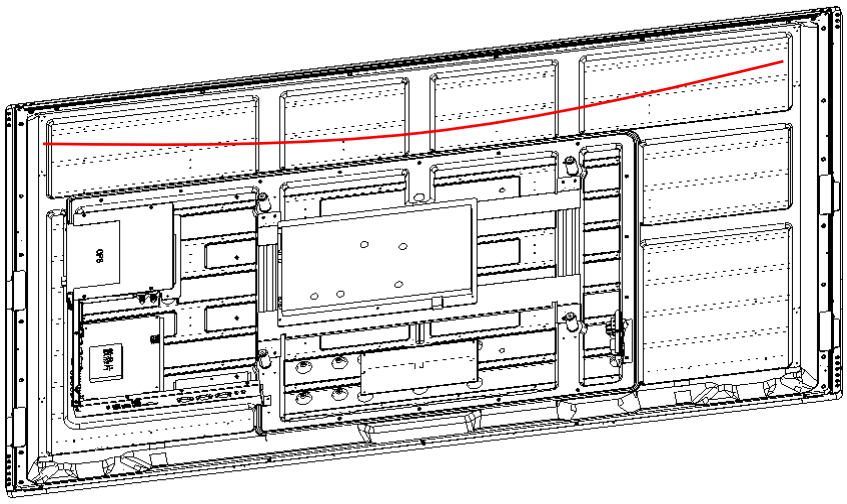
- Do not touch the PWBs which employ lead-free solder with bare hands. Always use gloves.
- Use the earth band when performing the procedures.
- When servicing the Display such as replacing a PWB, make sure to service with the Display laid and with a protective sheet spread over the LCD panel.
- While working with the Display laid, or when moving the Display after the work, applying stress to the bezel may cause it to get deformed. Be sure to handle it with great care.
- When the Rear cabinet is attached, refer the following “PWB AND WIRING DIAGRAM”, assemble the rear cabinet not to pinch the cable in the rear cabinet.

[CAUTION]

If remove the rear cover in flat position, the backlight rear frame trends to warp concavely. Do not leave flat for a long time.
There is no problem to work in the flat position for parts replacement, but do not leave it in the flat position for a long time.
Verify the defect in the state that the monitor installs in temporary stand as much as possible.,

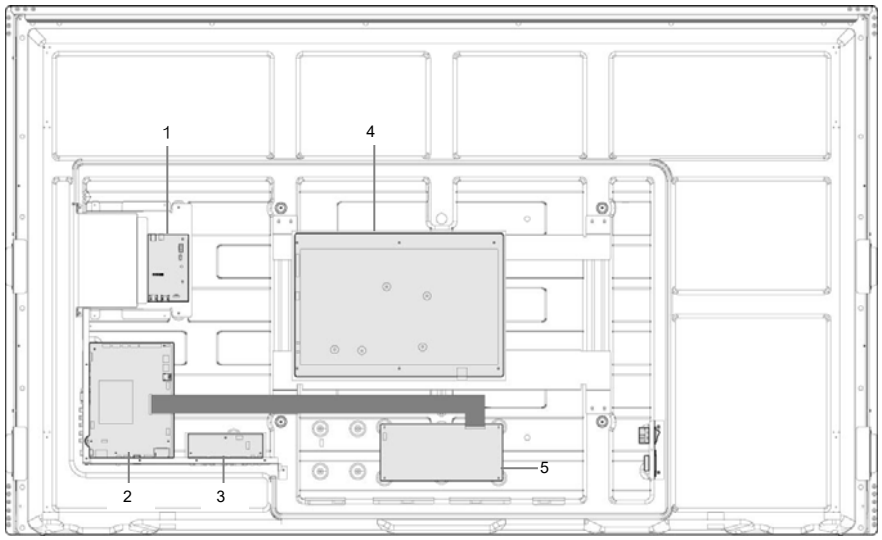
[The defective symptom when the monitor leave for a long time]

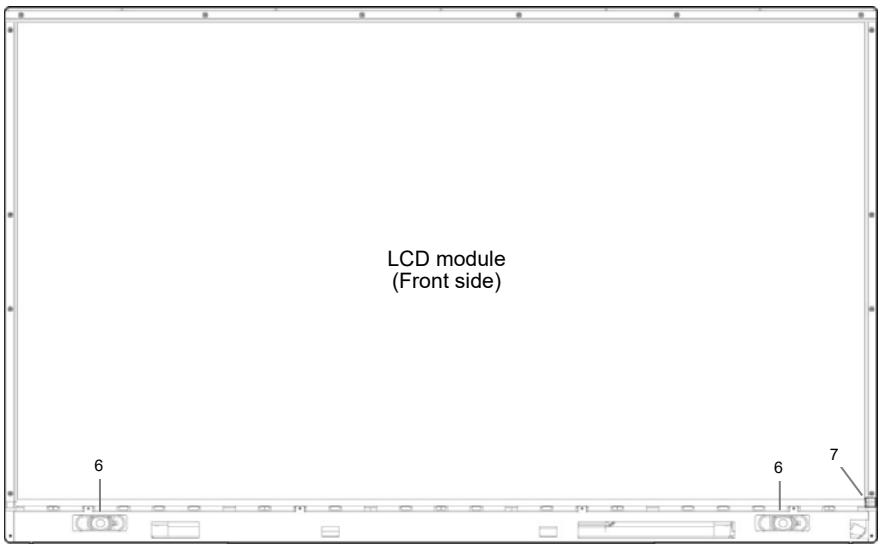
1) LCD module and touch panel glass make contact and the rainbow unevenness occurs.
   It may not be recovered.
2) When assemble the rear cover, the screw may not reach because of warp concavely.
   (Action)
   Using temporary stand, temporarily fix VESA screw part and lift concave warpage.

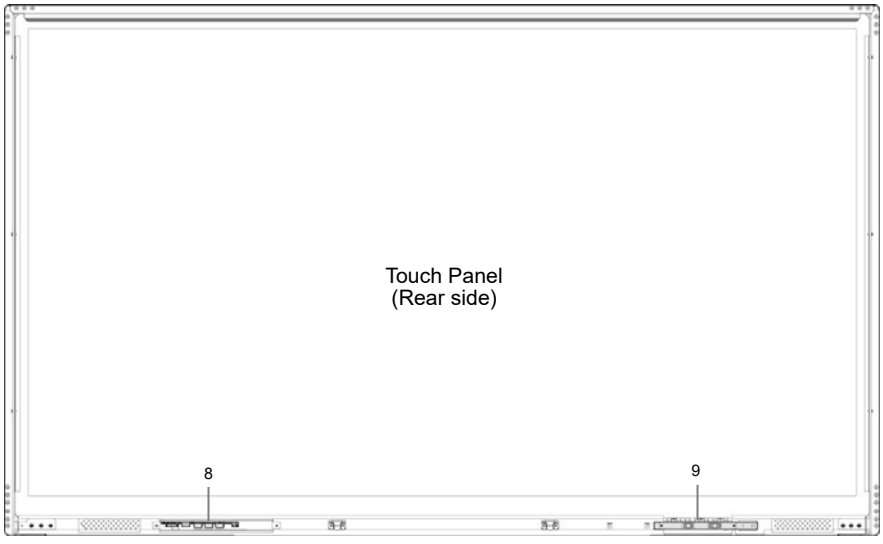


1. PN-CE701H/70HC1E

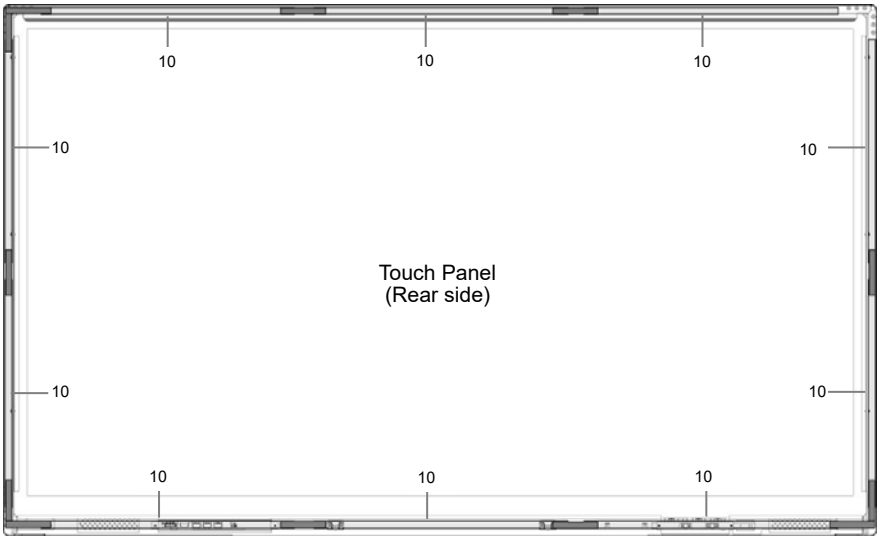
1-1. PWB AND WIRING DIAGRAM

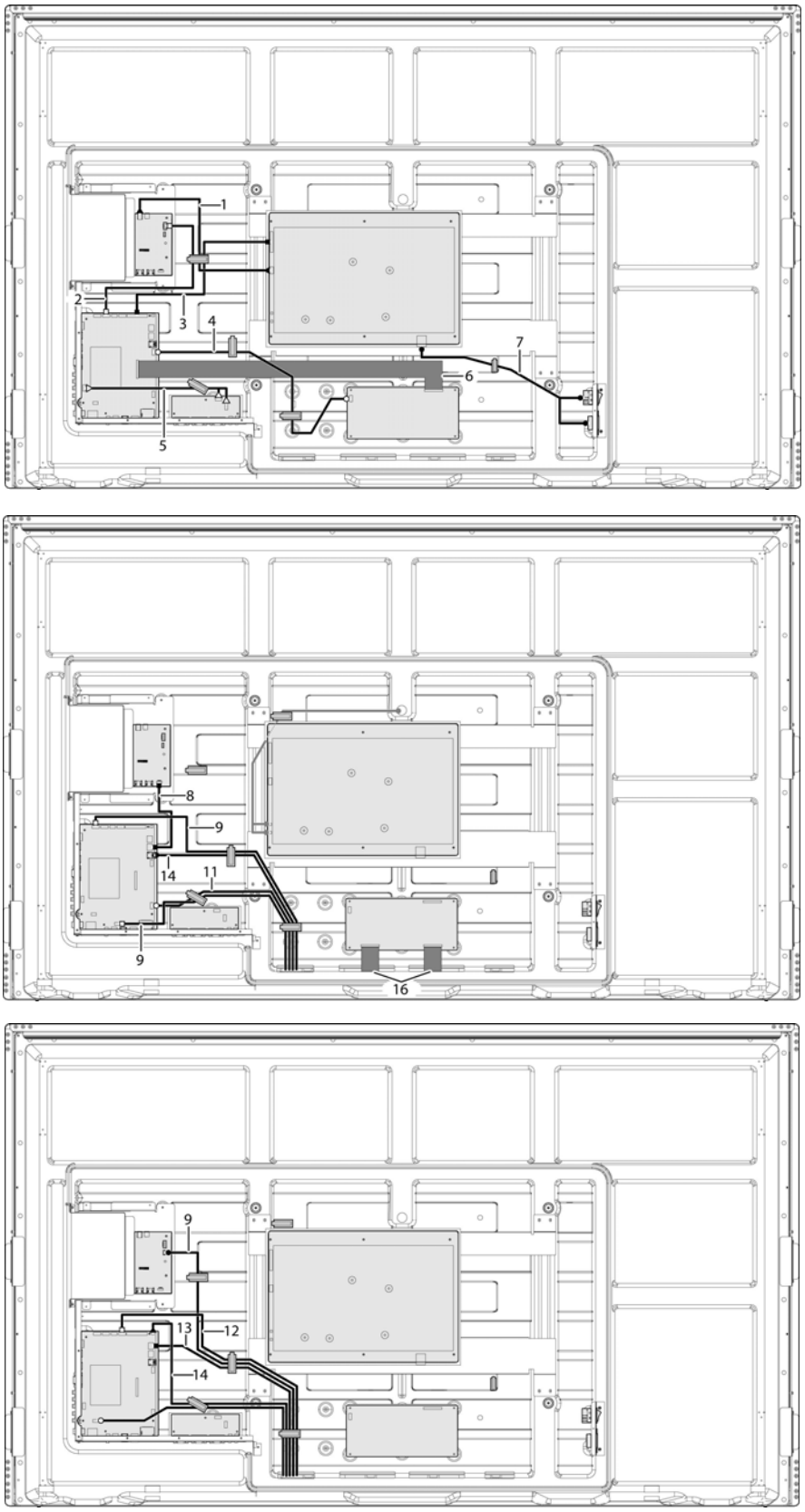




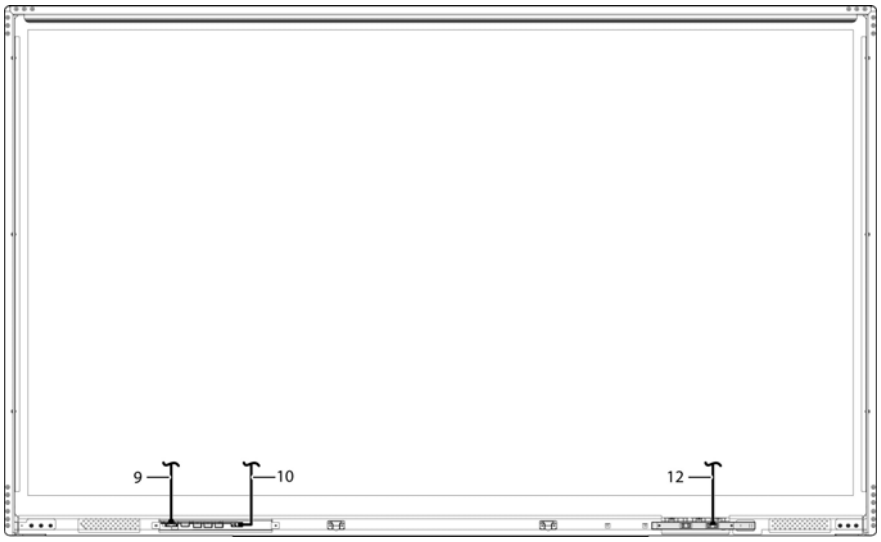


No.	PWB Name
1	OPS PWB
2	Main PWB
3	VGA PWB
4	Power PWB
5	T-CON PWB (Included with LCD module)
6	Speaker
7	Light sensor PWB
8	Front I/O PWB
9	Key PWB
10	Touch panel PWB

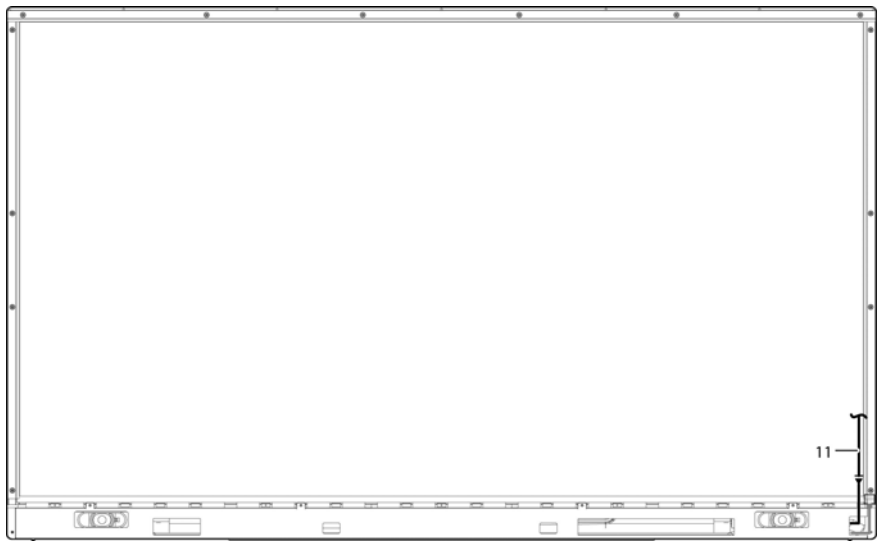

10
10
10
10
10
Touch Panel
(Rear side)
10
10
10
10
10



No.	Cable Name
1	OPS power cable
2	OPS control cable
3	Main PWB power cable A
4	Panel power cable A
5	VGA cable
6	LVDS cable
7	AV inlet cable
8	OPS HDMI cable
9	Front I/O cable A
11	Speaker cable A
12	Key PWB cable A
13	I/O HDMI cable
14	Touch cable
15	Light sensor cable
16	T-con PWB cable


9
10
12


14

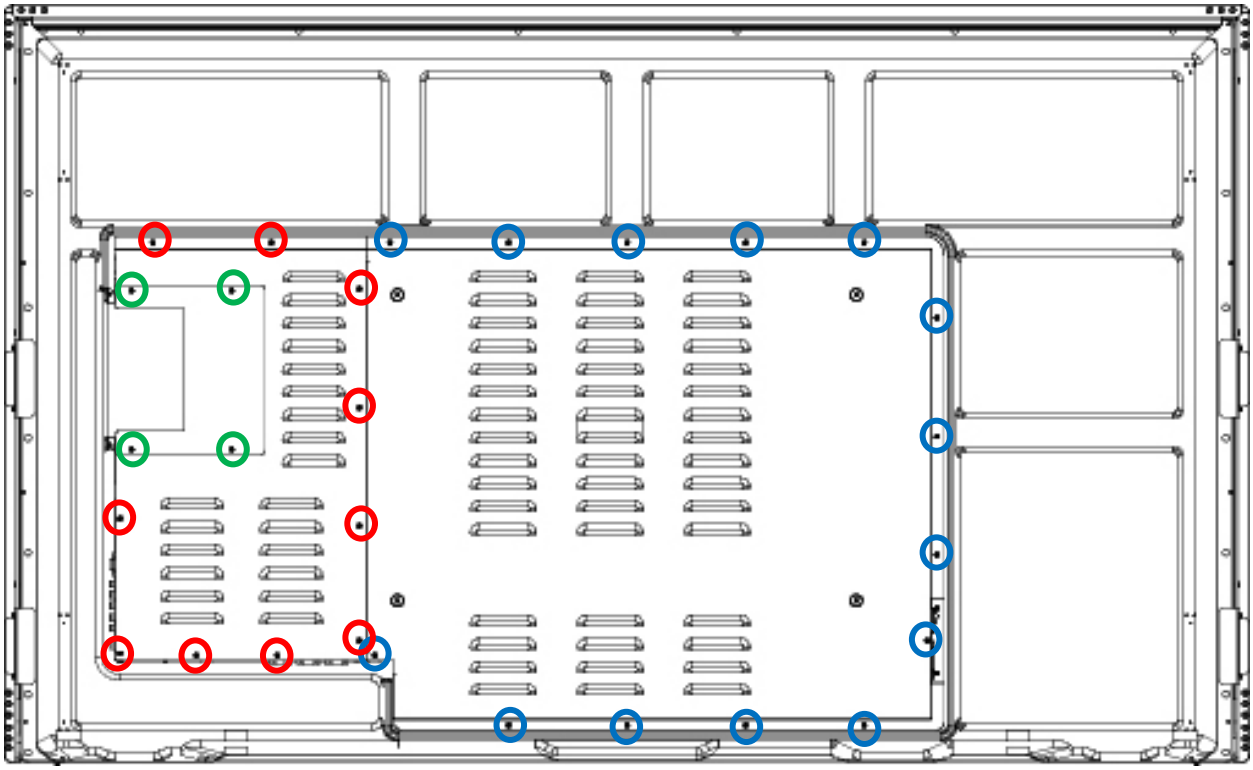

11

1-2. REAR COVER

1) Remove the screw (x 4pcs), and remove the OPS cover.

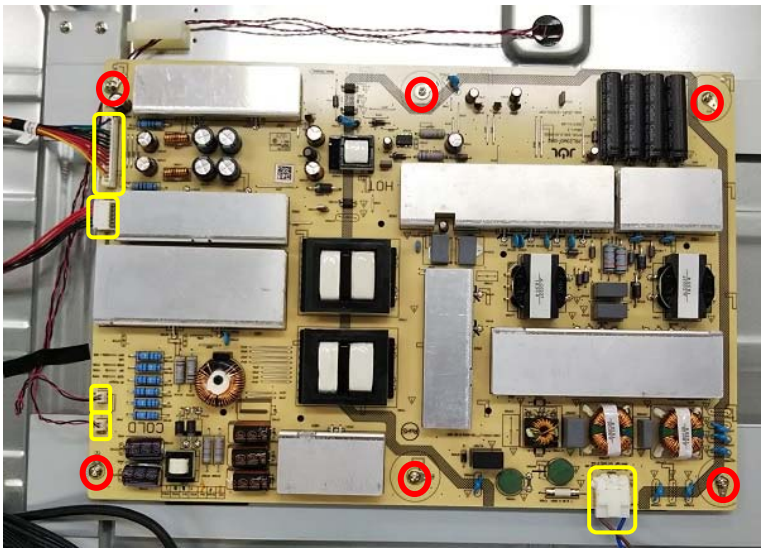
2) Remove the screw (x 10pcs), and remove the left rear cover.

3) Remove the screw (x 14pcs), and remove the right rear cover.



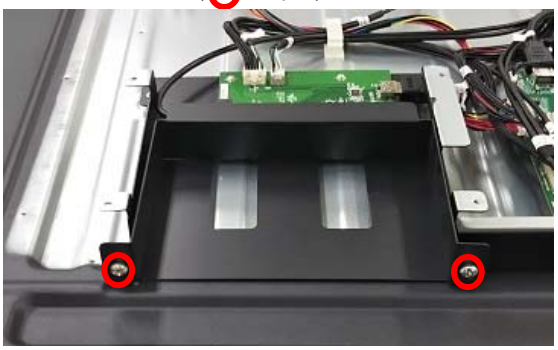
1-3. POWER PWB

1) Disconnect the connection of the cables (5 positions) and remove the screws (x 6 pcs) and remove the power pwb.

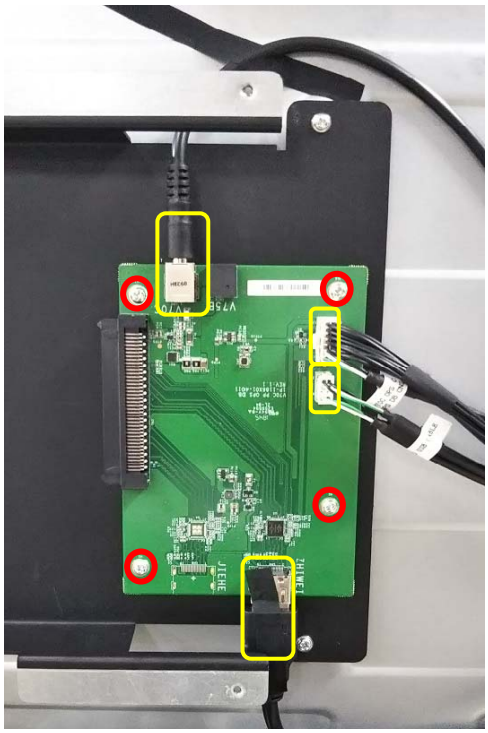


1-4. OPS PWB

1) Remove the screws (○ x 2 pcs) and remove the OPS cover.

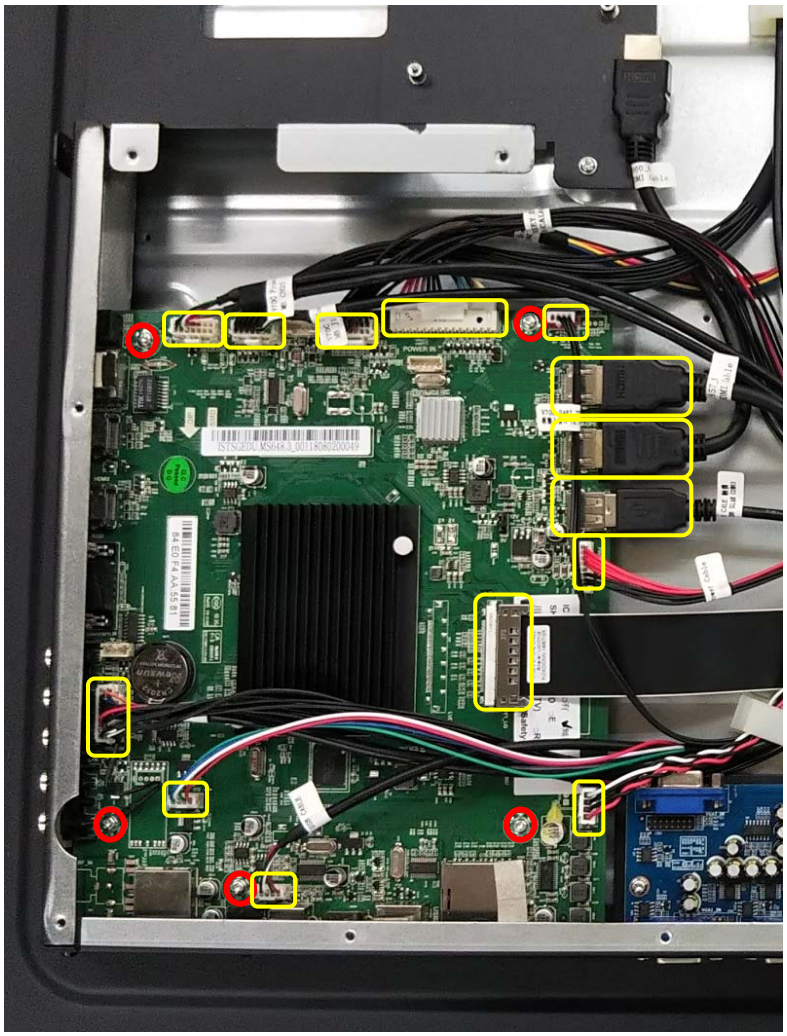


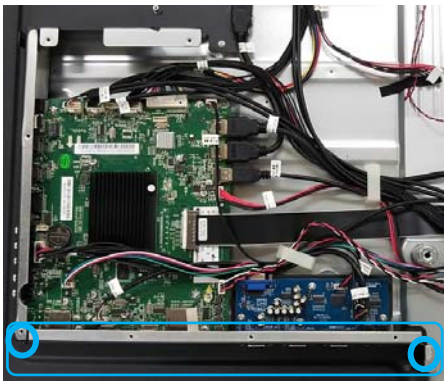
2) Disconnect the connection of the cables (4 positions) and remove the screws (○ x 4 pcs) and remove the OPS pwb.



1-5. MAIN PWB

1) Disconnect the connection of the cables (14 positions) and remove the screws (x 5 pcs)
and remove the screws (x 2 pcs) and remove the bottom I/F cover
and remove the main pwb.



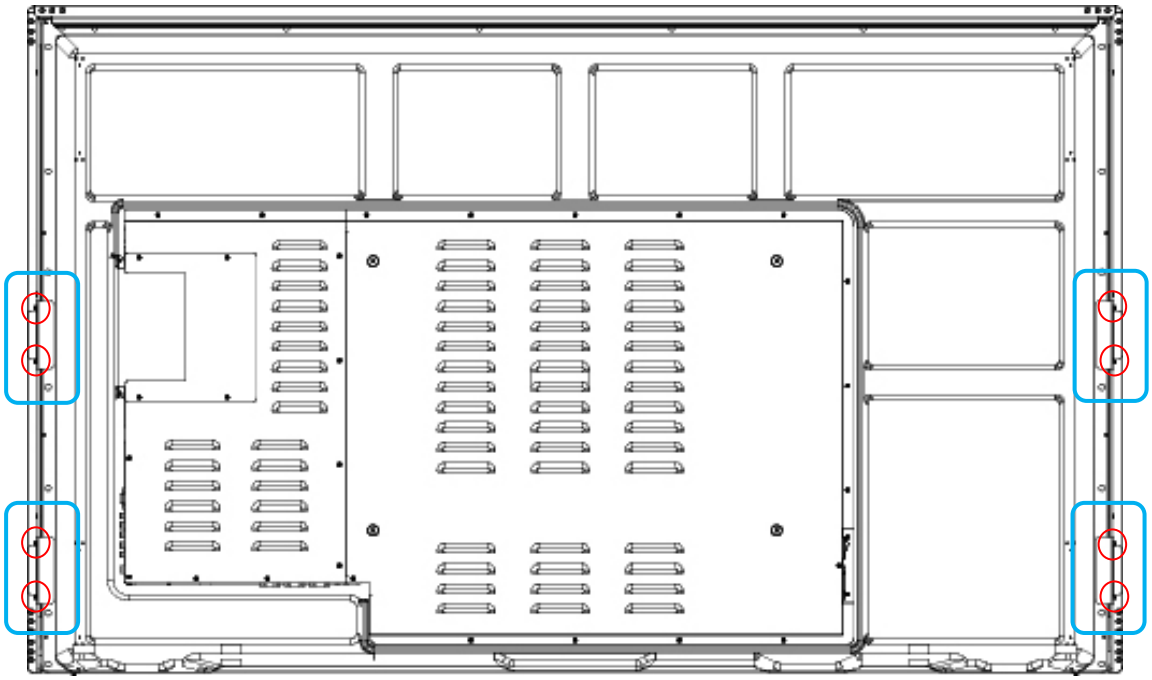


1-6. VGA PWB (ONLY PN-CE701H/70HC1E)

1) Disconnect the connection of the cables (2 positions) and remove the screws (x 3pcs) and remove the VGA pwb.

1-7 MAIN BODY AND TOUCH PANEL BODY

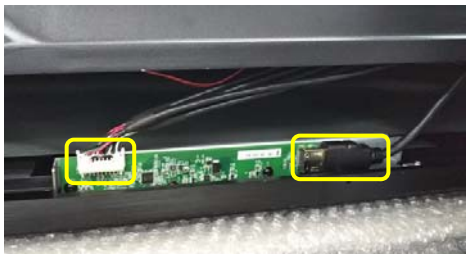
1) Remove the screw (○ x 8 screws [2 screws/angle]) and 4 attachment angles between LCD module and Touch panel.



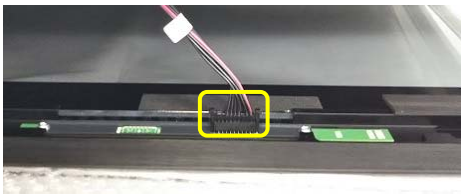
2) Lift up the main body a little and disconnect the connecter of cable (4 positions).

[Touch panel and Main pwb]

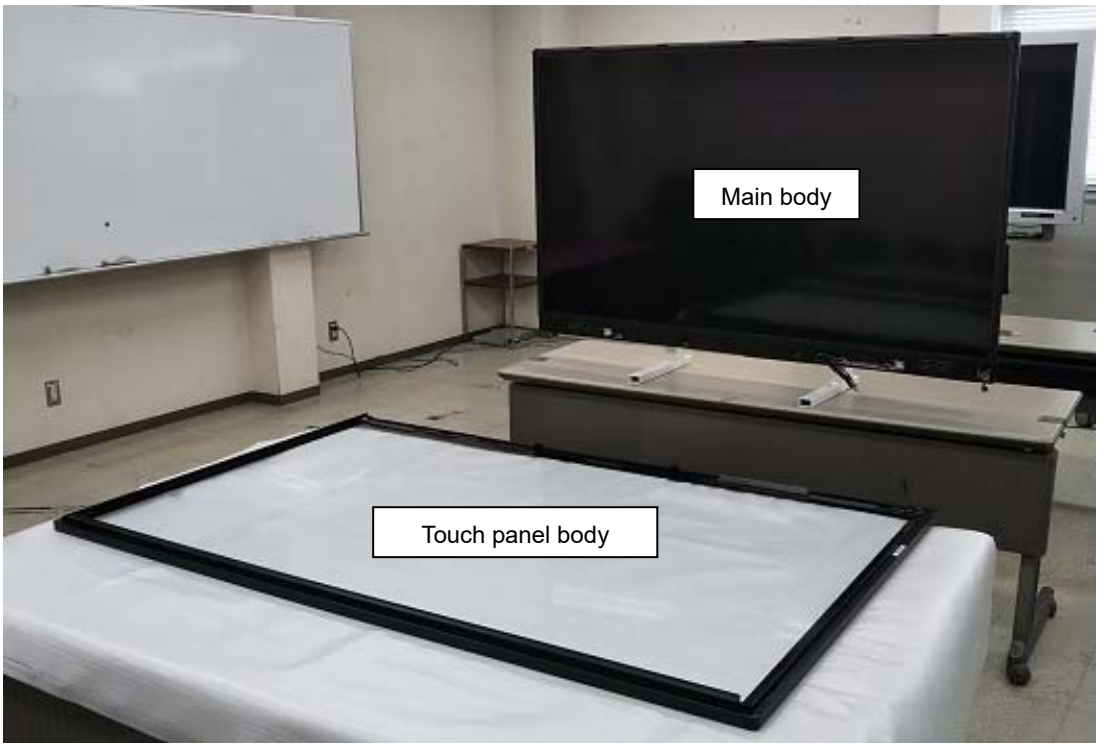
[Front I/O pwb and Main pwb]



[IR/Key pwb and Main pwb]



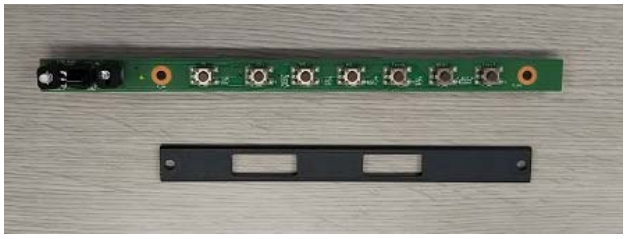
3) Separate the main body and touch panel body.



1-8. KEY PWB

1) Separate the main body and the touch panel body (Refer to 1-7)

2) Remove the screws (○ x 2pcs) and remove the Key pwb and angle.



3) Remove the key buttons.

1-9. FRONT I/O PWB

1) Separate the main body and the touch panel body (Refer to 1-7)

2) Remove the screws (○ x 2pcs) and remove the front I/O pwb and angle.

3) Remove the screws (○ x 3pcs) and separate the front I/O pwb and angle

1-10. LIGHT SENSOR PWB

1) Remove the rear cover (Refer to 1-2)

2) Separate the main body and the touch panel body (Refer to 1-7)

3) Disconnect the connecter of the cable in main pwb.

4) Remove the black tape and remove the light sensor pwb.

<Note> The light sensor pwb is attached by double side tape.

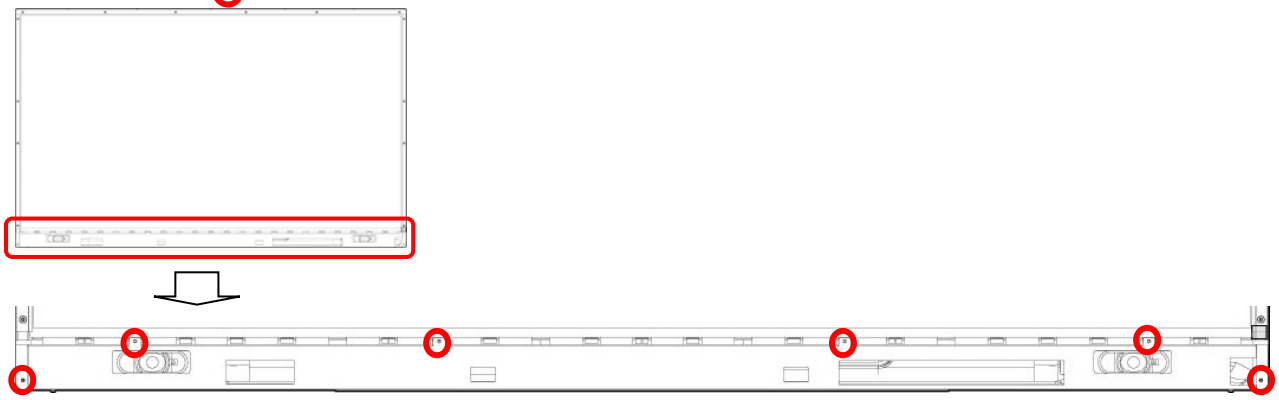
1-11. SPEAKER

1) Remove the rear cover (Refer to 1-2)

2) Separate the main body and the touch panel body (Refer to 1-7)

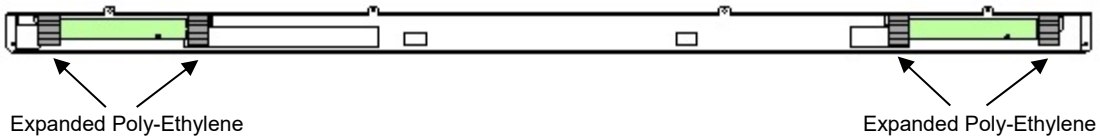
3) Disconnect the connecter of the cable in main pwb.

4) Remove the screws (x 6pcs) and remove the front cover.



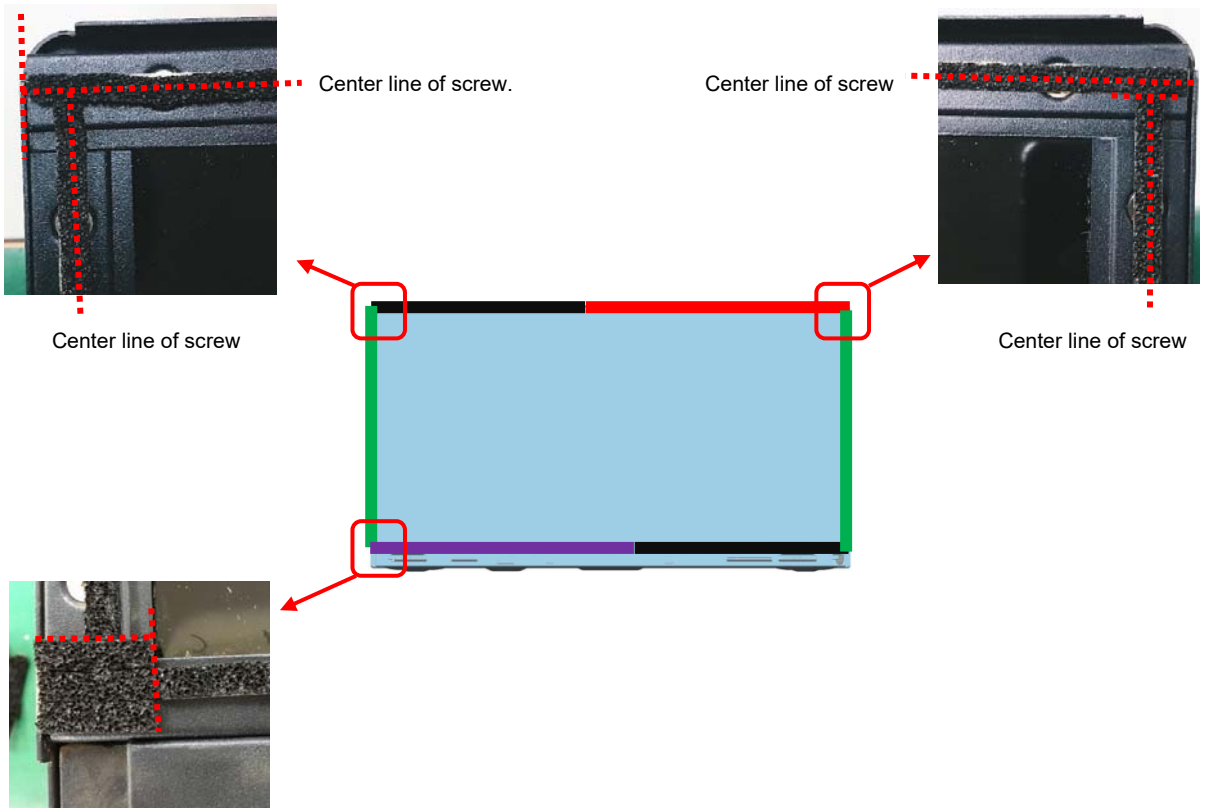
5) Remove the speakers attached the front cover.

The speaker is sandwiched by expanded poly-ethylen.



1-12. LCD MODULE

1) Separate the main body and the touch panel body (Refer to 1-7)
2) Remove the rear cover and all pwb and all cable and angles
3) Remove the light sensor pwb and the front cover and speakers.
4) Paste the dustproof sheet after exchange LCD module.

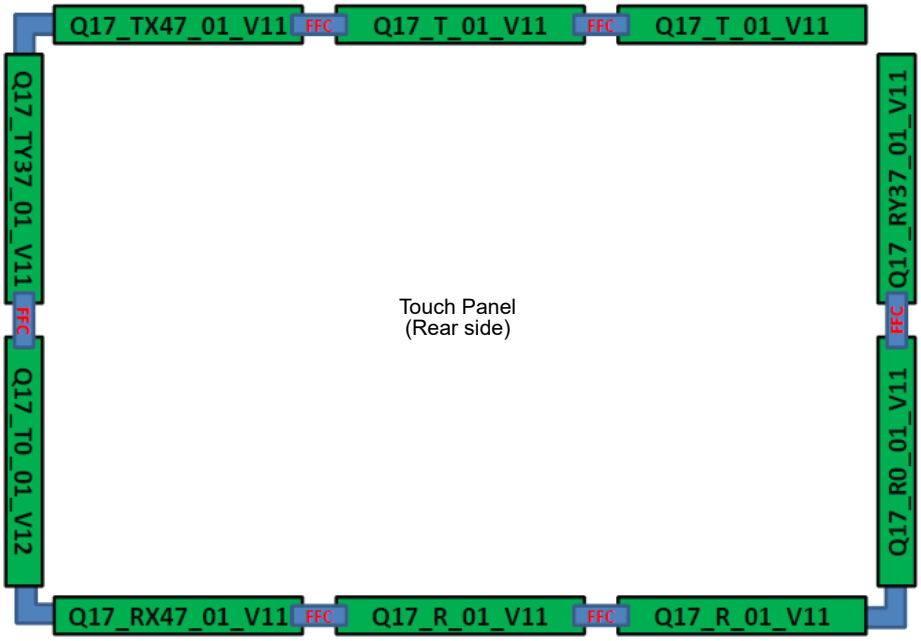


<Note>
There is no gap between the dustproof sheets.
When installing the dustproof sheets, make sure that the dustproof sheet is straight and not skewed.
When attaching the dustproof sheet, make sure that the sheet is not pulled hard and that the sheet does not stretch or deform.
After installing the dustproof sheet, press the dustproof sheet firmly and attach the dustproof sheet.

1-13. TOUCH PANEL PWB

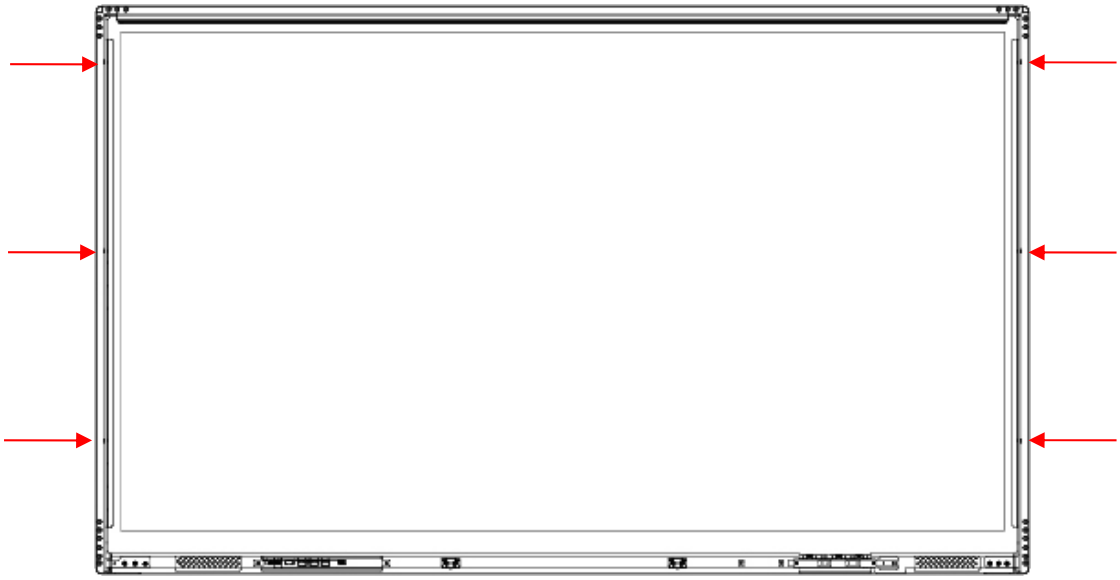
Touch panel body consists of 3 top and bottom, 2 right left touch panel pwb.

The part names of each touch panel pwb are as follows.



1) Separate the main body and the touch panel body (Refer to 1-7)

2) Remove the screws (→ x 6pcs).and remove 2 angles.



3) Remove the screws (O x 12pcs)

[Upper left corner]

[Upper right corner]

Remove the bezel a little and disassemble the touch panel.

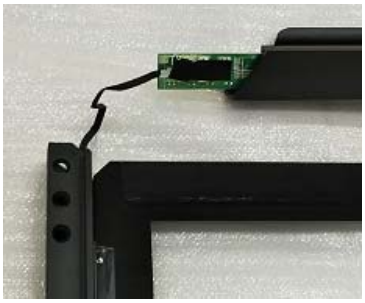
4) Remove the screws (O x 18pcs) and remove the corner cover.

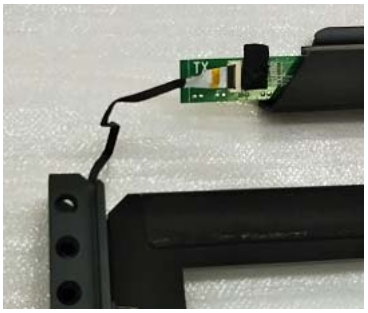
[Lower left corner]

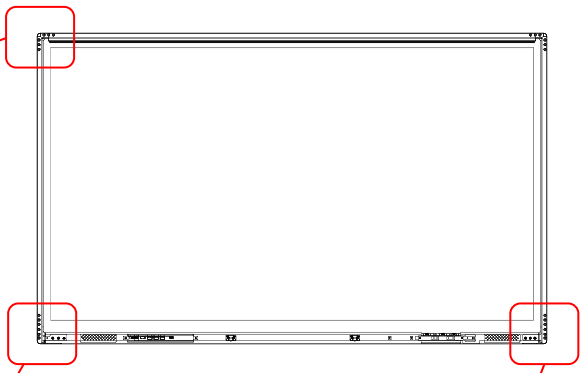
[Lower right corner]

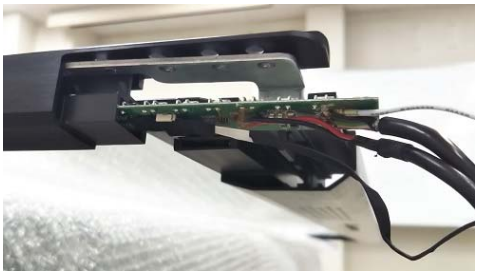
Remove the corner cover

5) Disconnect the connector of the cable and pull out the touch panel pwb.





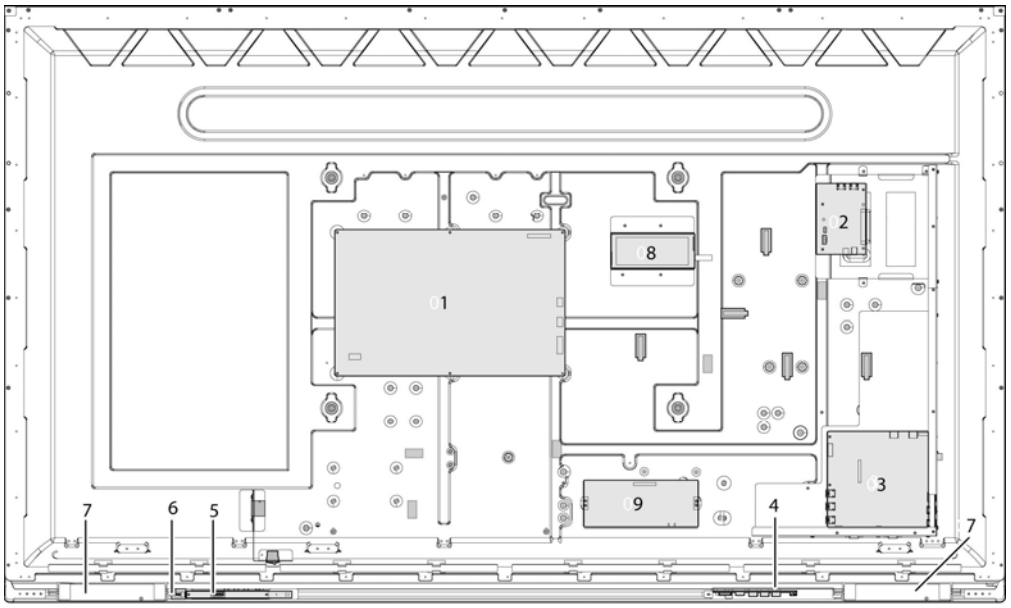




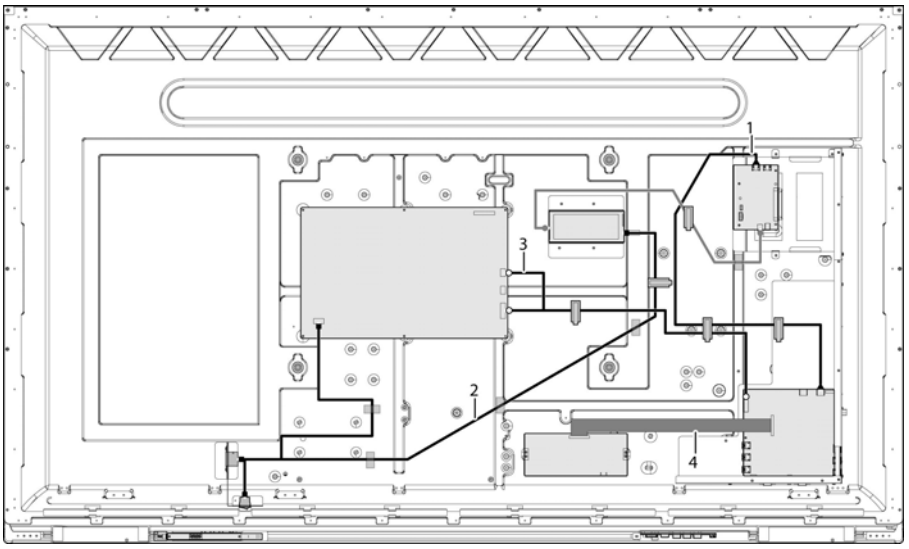
2. PN-C751H/75HC1/C861H/86HC1

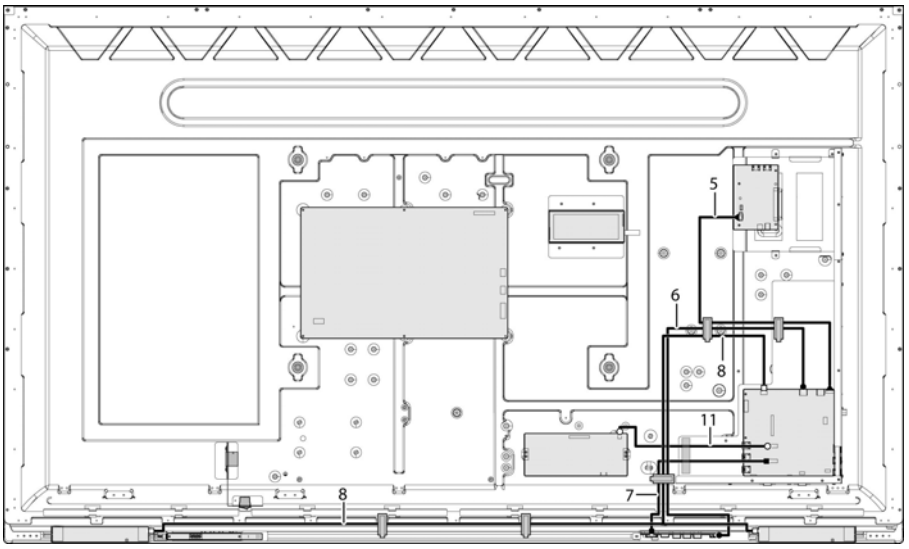
2-1. PWB AND WIRING DIAGRAM

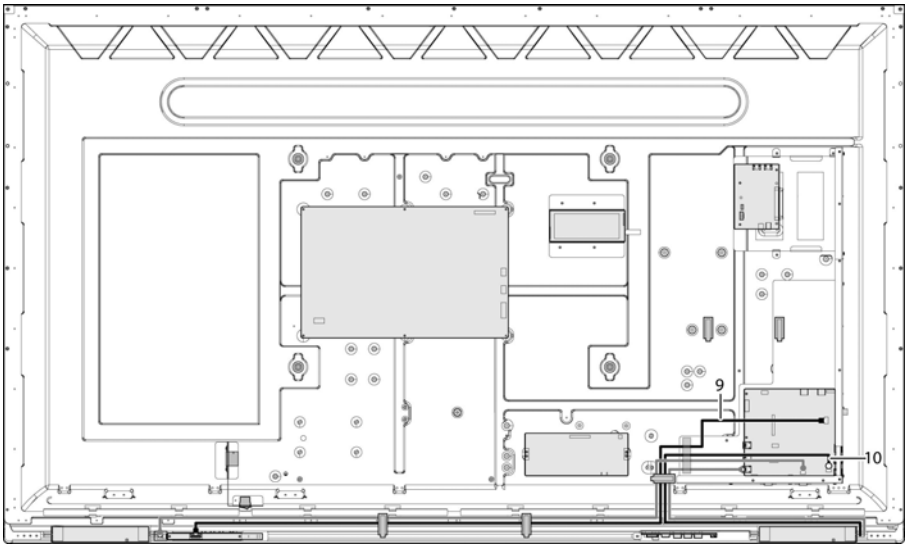
[PN-C751H/75HC1]



No.	PWB Name
1	Power PWB
2	OPS PWB
3	Main PWB
4	Front I/O PWB
5	Key PWB
6	Light sensor PWB
7	Speaker
8	AC Adaptor for OPS
9	T-CON PWB

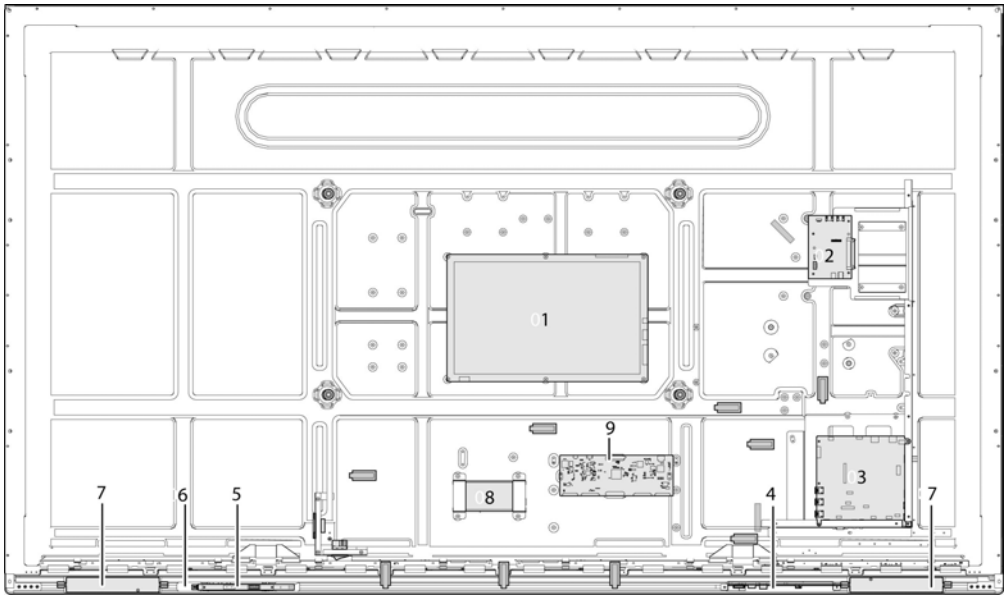




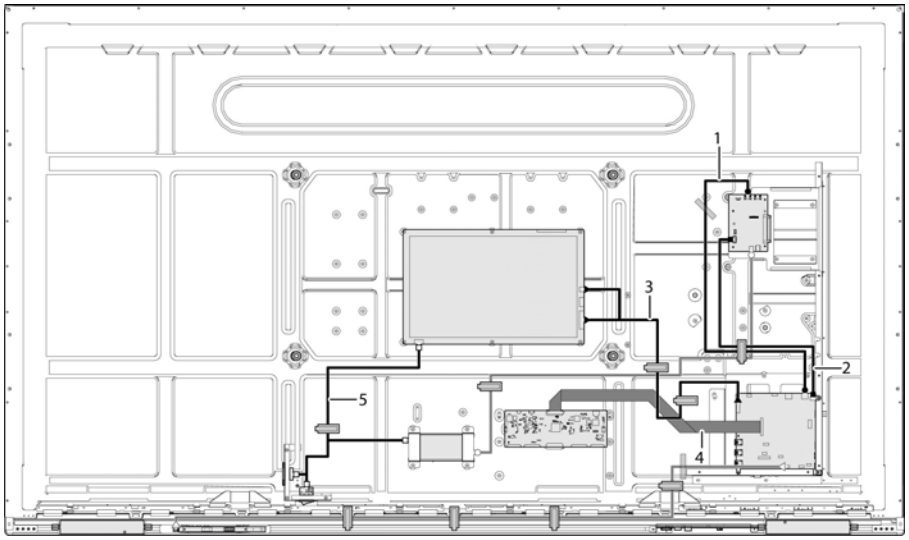


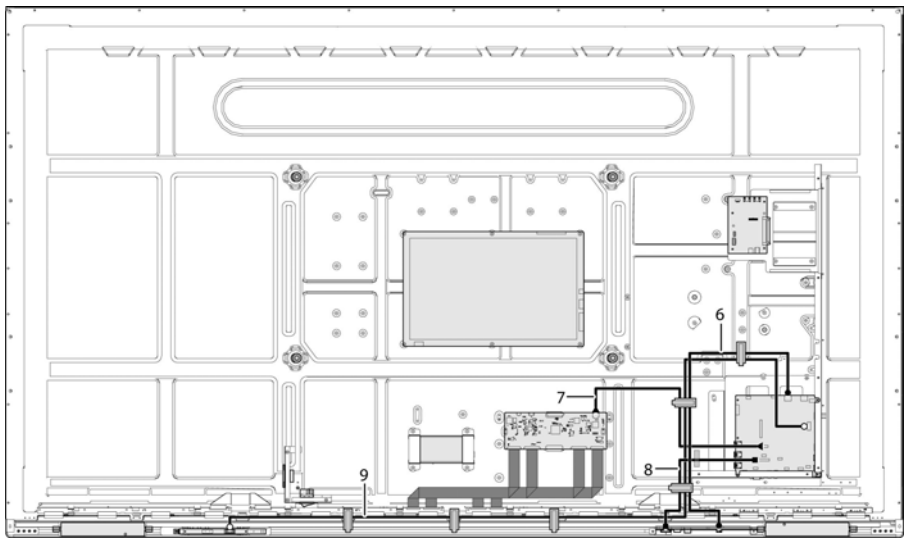
No.	Cable Name
1	OPS HDMI cable
2	AC inlet cable
3	Main PWB power cable
4	LVDS FFC
5	OPS control cable
6	I/O HDMI cable
7	Front I/O USB cable
8	Speaker cable
9	Key PWB cable
10	Touch cable
11	Panel power cable

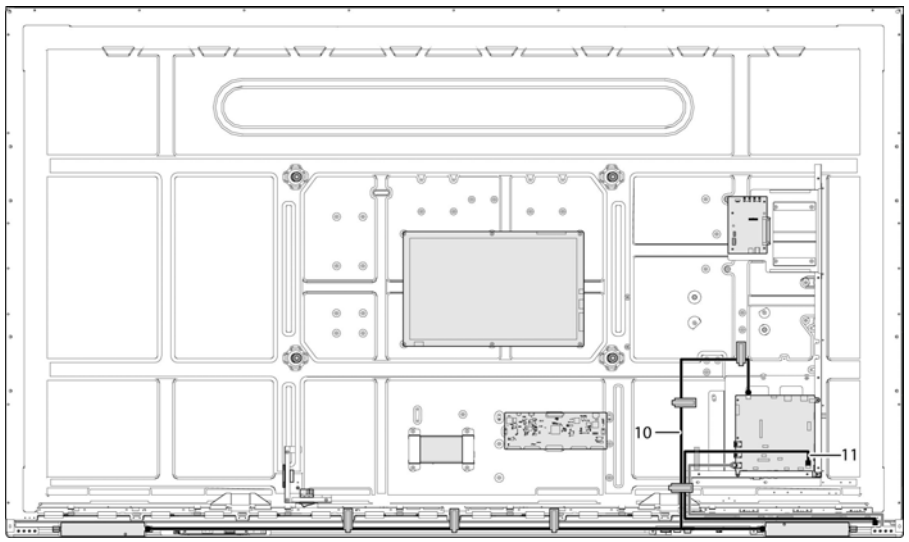
[PN-C861H/86HC1]



No.	PWB Name
1	Power PWB
2	OPS PWB
3	Main PWB
4	Front I/O PWB
5	Key PWB
6	Light sensor PWB
7	Speaker
8	AC Adaptor for OPS
9	T-CON PWB





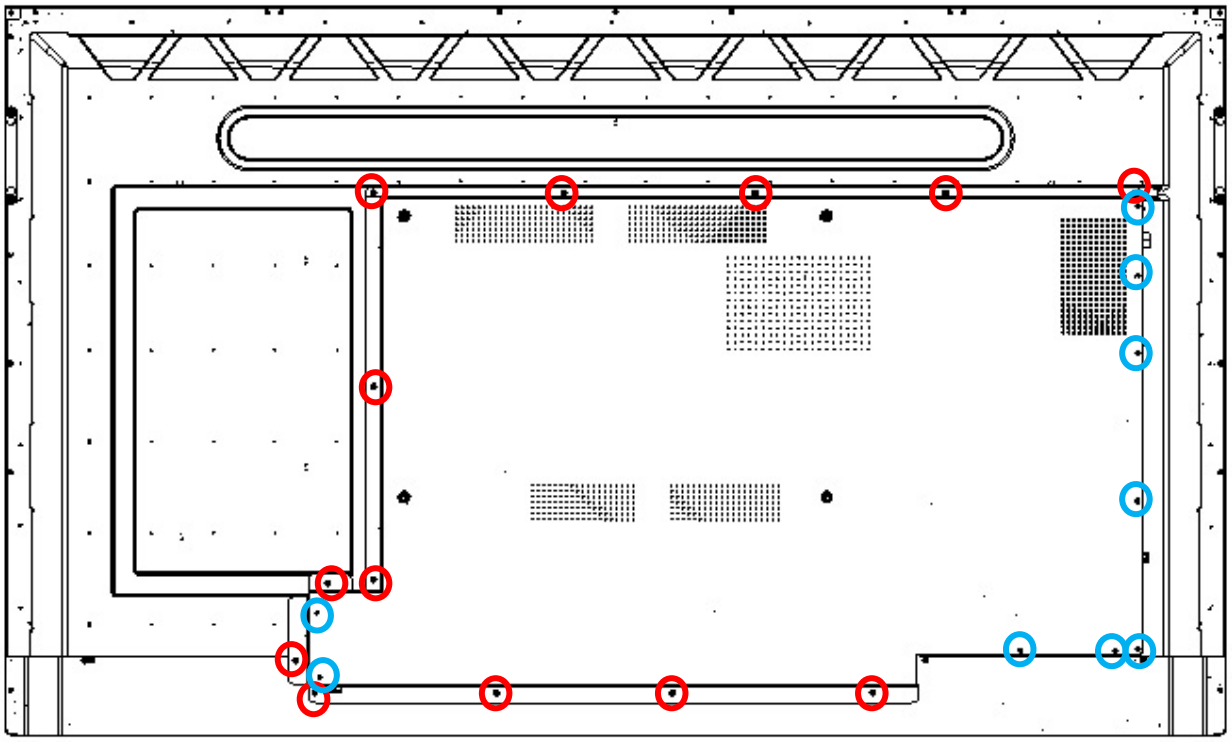


No.	Cable Name
1	OPS HDMI cable
2	OPS control cable
3	Main PWB power cable
4	T-con FFC
5	AC inlet cable
6	I/O HDMI cable
7	Panel power cable
8	Front I/O USB cable
9	Key PWB cable
10	Speaker cable
11	Touch cable

2-2. REAR COVER

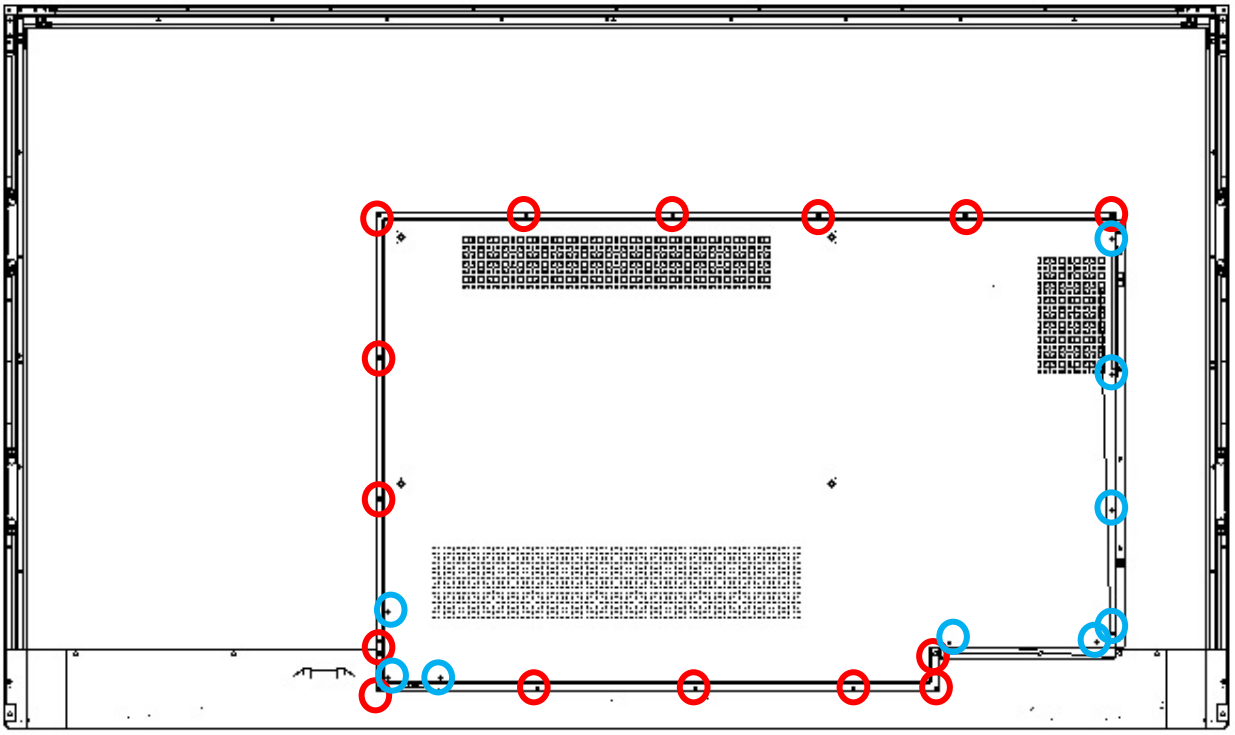
[PN-C751H/75HC1]

1) Remove the screw (x 13pcs, x 9pcs) and remove the rear cover.



[PN-C861H/86HC1]

1) Remove the screw (x 15pcs, x 9pcs) and remove the rear cover.

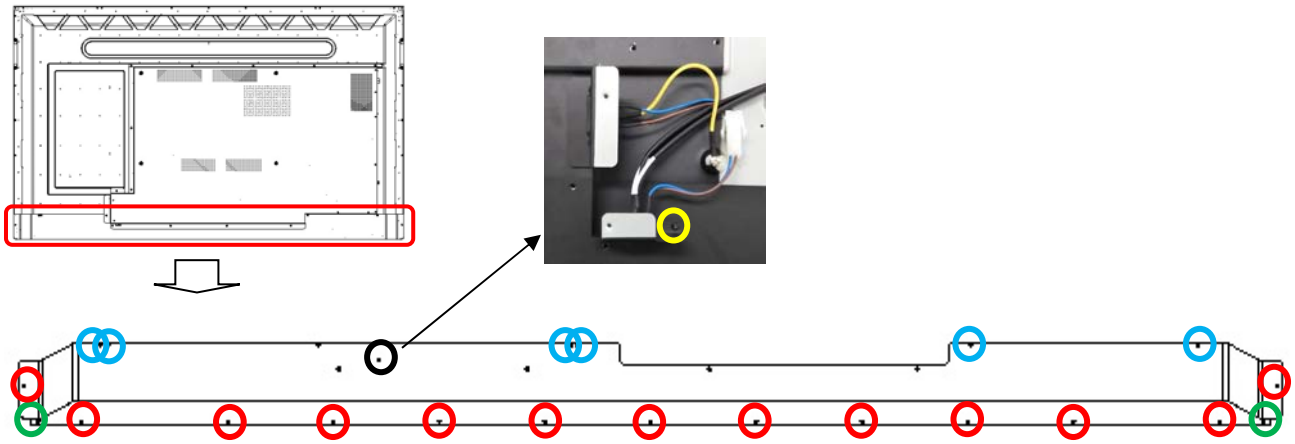


2-3. REAR BOTTOM COVER

[PN-C751H/75HC1]

1) Remove the rear cover. (Refer to 2-2)

2) Remove the screws (x 13pcs, x 6pcs, x 2pcs, x1pc) and remove the rear bottom cover.

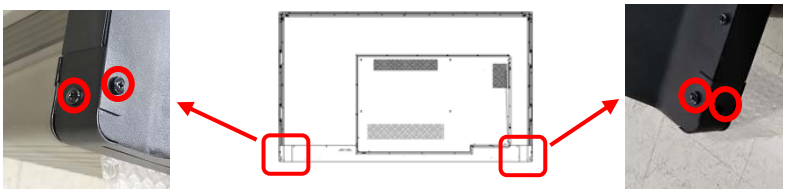


[PN-C861H/86HC1]

1) Remove the rear cover. (Refer to 2-2)

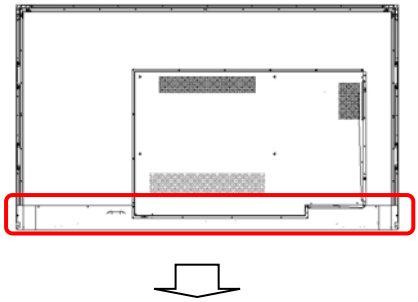
2) Remove the connecter sheet metal of main pwb. (Refer to 2-6)

3) Remove the screw (x 4pcs) and remove 2 corner covers.

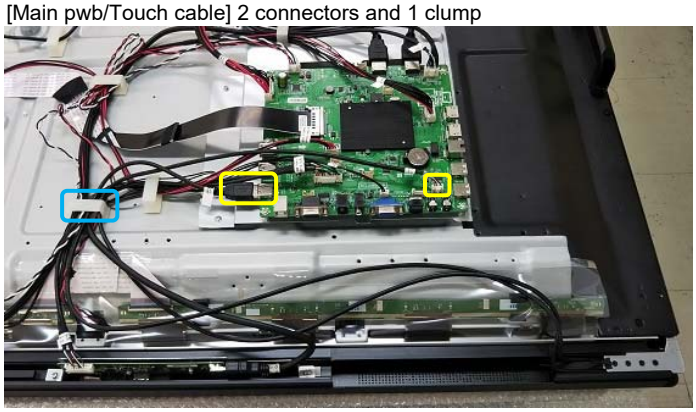


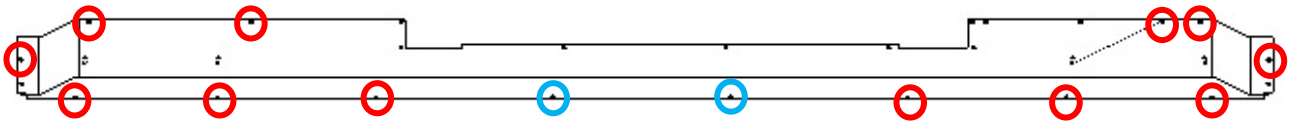
4) Remove the screw (x 12pcs, x 2pcs) and

lift up the rear bottom cover a little and disconnect some connecters / clumps and remove the rear bottom cover.



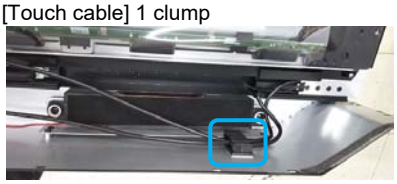
[Main pwb/Touch cable] 2 connectors and 1 clump





[Speaker] 1 connector

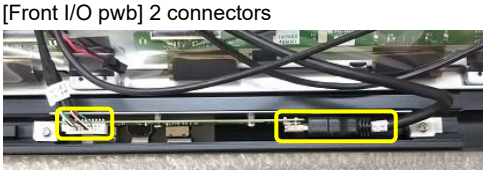
[Touch cable] 1 clump



[Key pwb and Light sensor pwb] 2 connectors

[Speaker] 1 connector

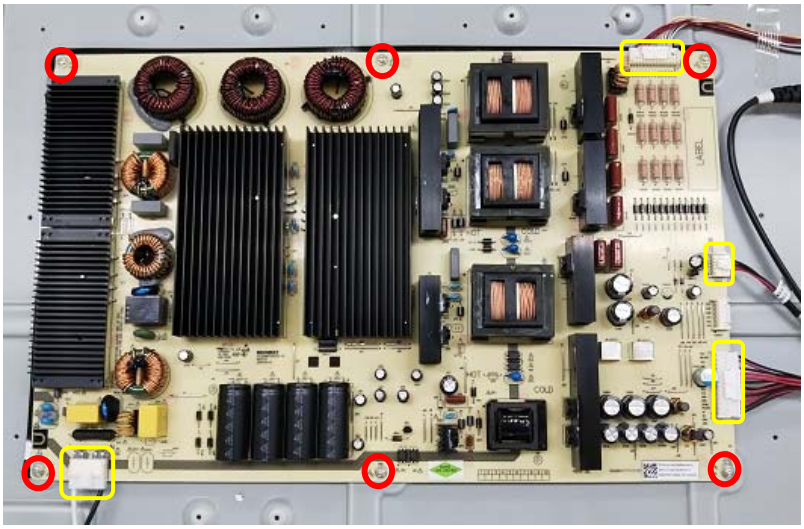
[Front I/O pwb] 2 connectors



2-4. POWER PWB

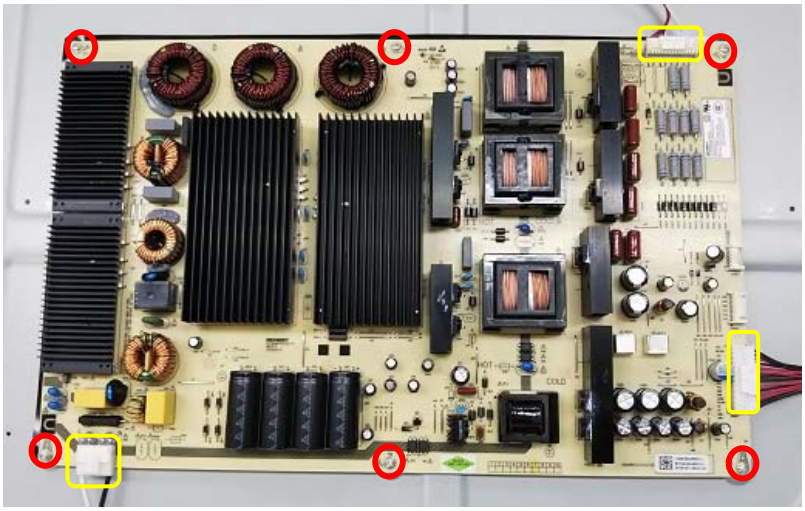
[PN-C751H/75HC1]

1) Disconnect the connection of the cables (4 positions) and remove the screws (O x 6 pcs) and remove the power pwb.



[PN-C861H/86HC1]

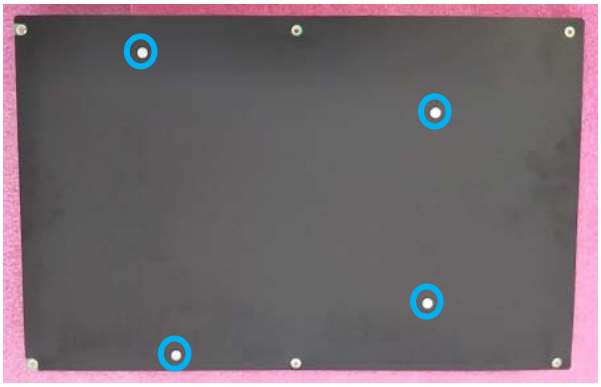
1) Disconnect the connection of the cables (3 positions) and remove the screws (O x 6 pcs) and remove the power pwb.



<Note>

The power pwb is attached the black sheet in the rear side. This black sheet is fixed by 4 support pins.

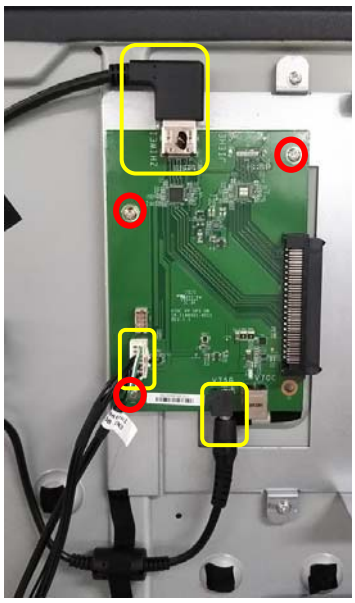
When exchanging the power pwb, remove the sheet from the defective power pwb and attach it to the new power pwb.



2-5. OPS PWB

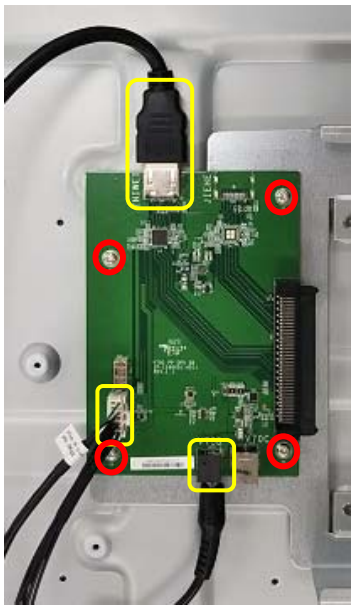
[PN-C751H/75HC1]

1) Disconnect the connection of the cables (3 positions) and remove the screws (O x 3 pcs) and remove the OPS pwb.



[PN-C861H/86HC1]

1) Disconnect the connection of the cables (3 positions) and remove the screws (O x 4 pcs) and remove the OPS pwb.

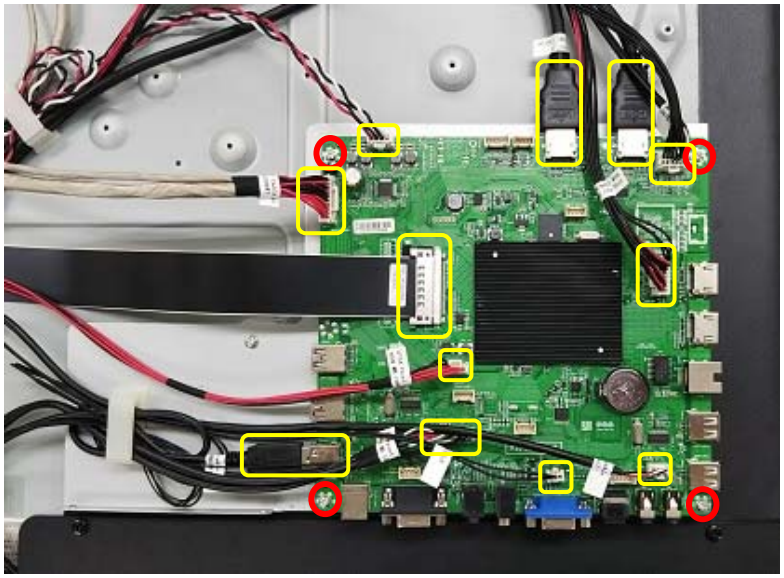


2-6. MAIN PWB

[PN-C751H/75HC1]

1) Remove the screws (○ x 7pcs) and remove the connector sheet metal.

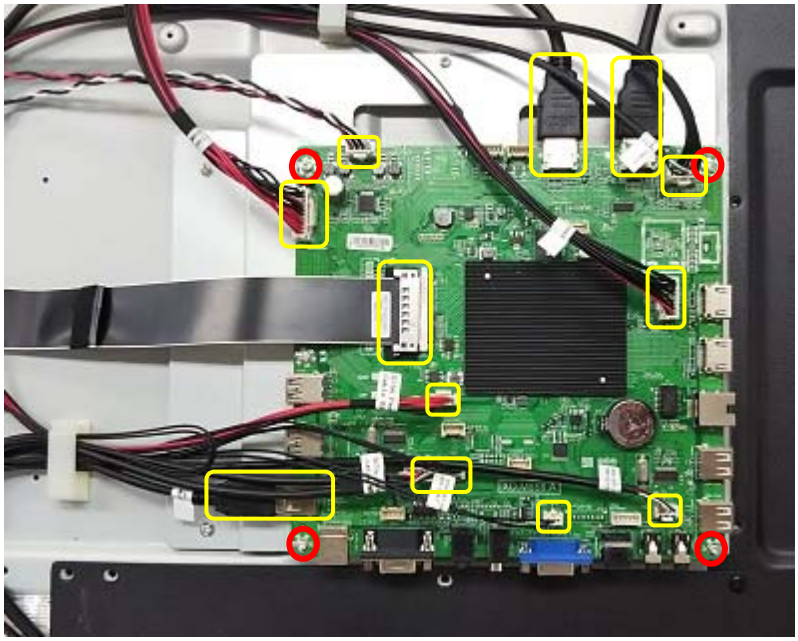
2) Disconnect the connectors (12positions) and remove the screws (○ x 4pcs) and remove the main pwb.



[PN-C861H/86HC1]

1) Remove the screws (x 5pcs, x 2pcs, x 4pcs) and remove the connector sheet metal.

2) Disconnect the connectors (12positions) and remove the screws (x 4pcs) and remove the main pwb.

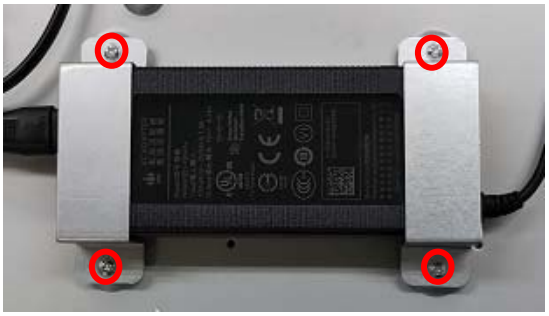


2-7. ADAPTOR FOR OPS

1) Remove the screws (O x 4 pcs) and remove the adaptor for OPS.

[PN-C751H/75HC1]

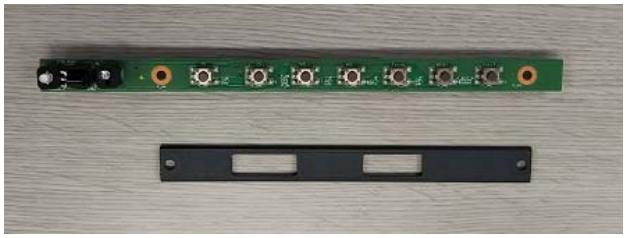
[PN-C861H/86HC1]



2-8. KEY PWB

1) Remove the rear cover and the rear bottom cover. (Refer to 2-2, 2-3)

2) Disconnect the connecter of the cable and remove the screws (O x 2pcs) and remove the Key pwb and angle.



3) Remove the key buttons.

2-9. FRONT I/O PWB

1) Remove the rear cover and the rear bottom cover. (Refer to 2-2, 2-3).

2) Disconnect the connecter of the cables (2 positions)

3) Remove the screws (○ x 2pcs) and remove the front I/O pwb and angle.

4) Remove the screws (○ x 3pcs) and separate the front I/O pwb and angle

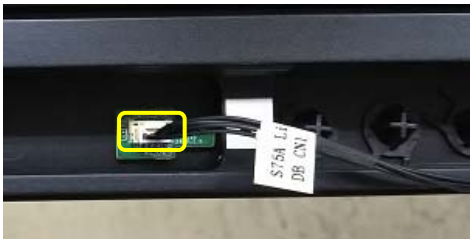
2-10. LIGHT SENSOR PWB

1) Remove the rear cover and the rear bottom cover. (Refer to 2-2, 2-3).

2) Remove the front I/O pwb (Refer to 2-9)

3) Disconnect the connecter of the cable and remove the light sensor pwb.

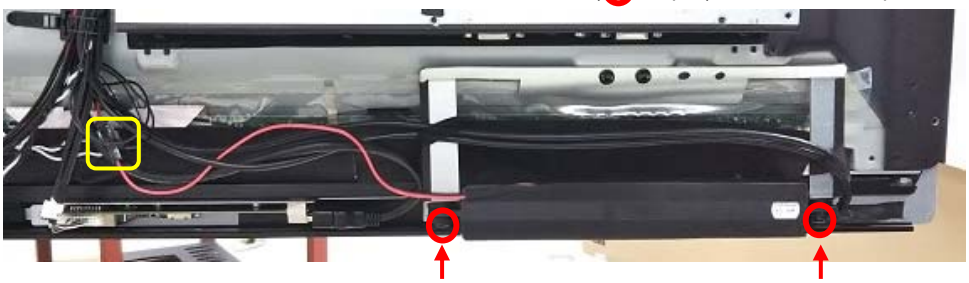
<Note> The light sensor pwb is attached by double side tape.



2-11. SPEAKER

[PN-C751H/75HC1]

1) Remove the rear cover and the rear bottom cover. (Refer to 2-2, 2-3).
2) Disconnect the connecter of the cable and remove the screws (O x 2pcs) and remove the speaker.



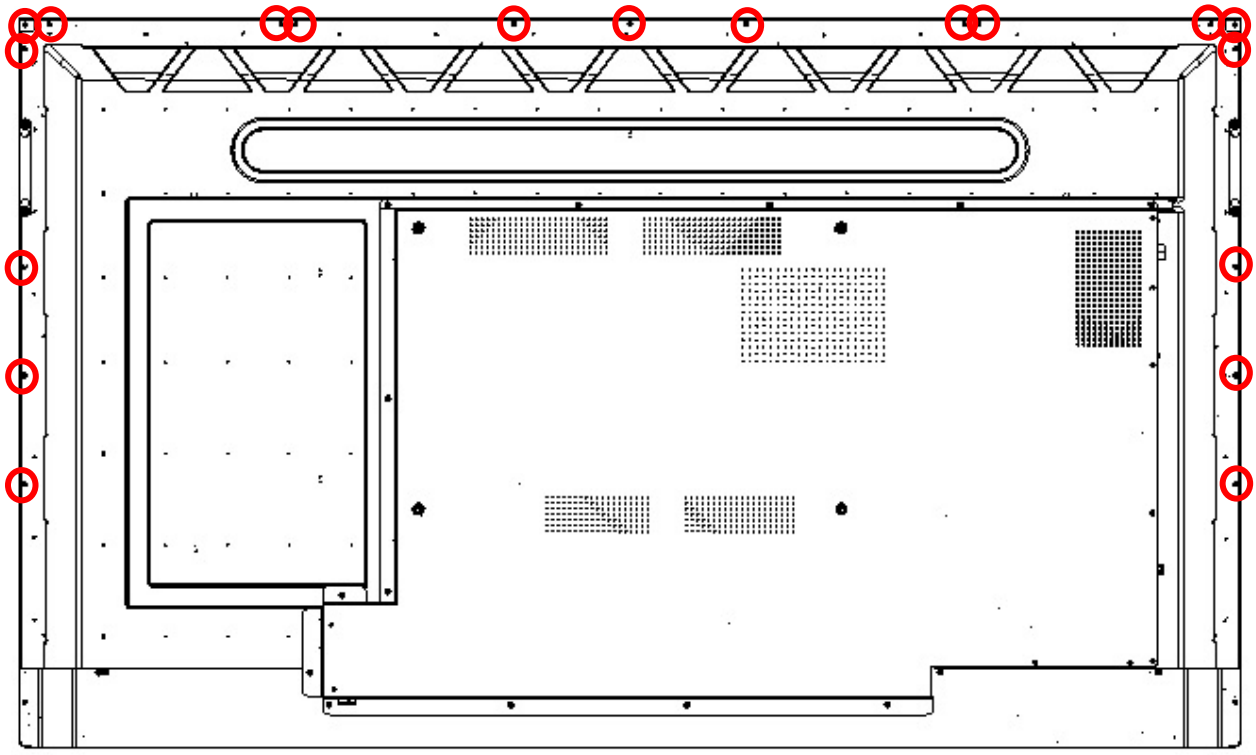
[PN-C861H/86HC1]

1) Remove the rear cover and the rear bottom cover. (Refer to 2-2, 2-3).
2) Remove the screws (O x 2pcs) and remove the speaker.

2-12. MAIN BODY AND TOUCH PANEL BODY

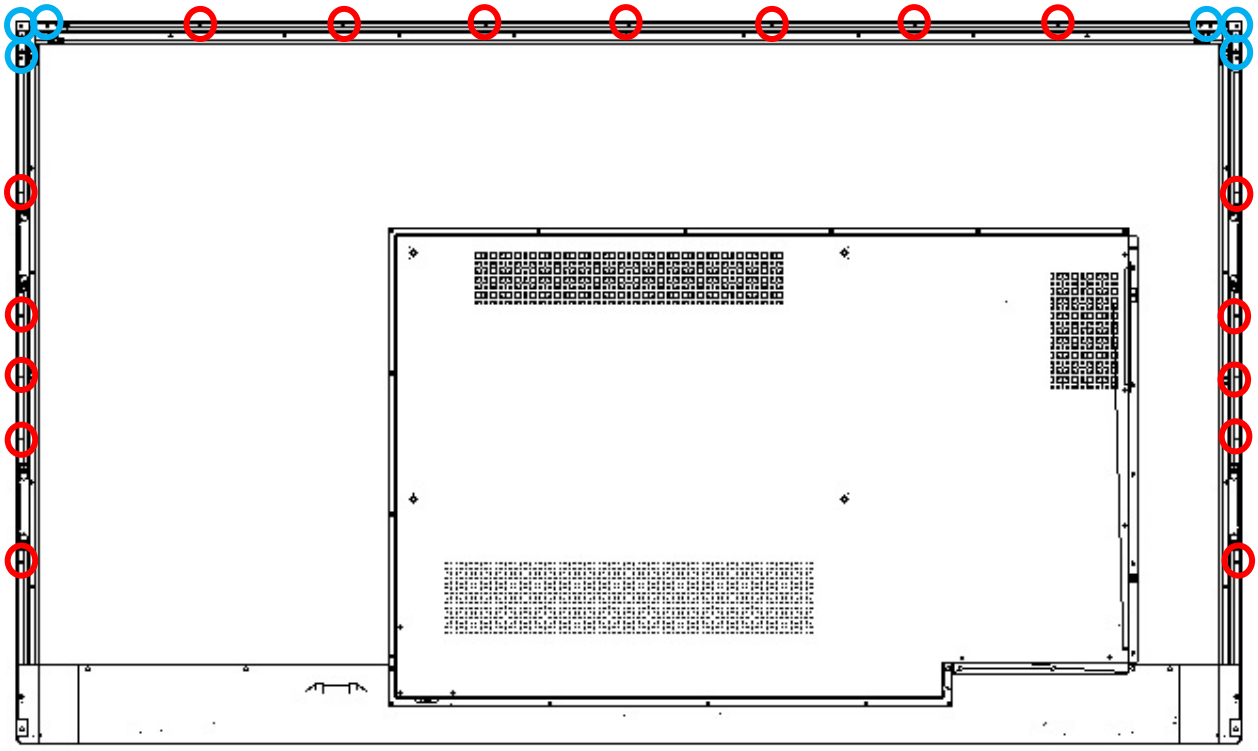
[PN-C751H/75HC1]

1) Remove the rear cover and the rear bottom cover.
2) Remove the screws (○ x 19pcs).

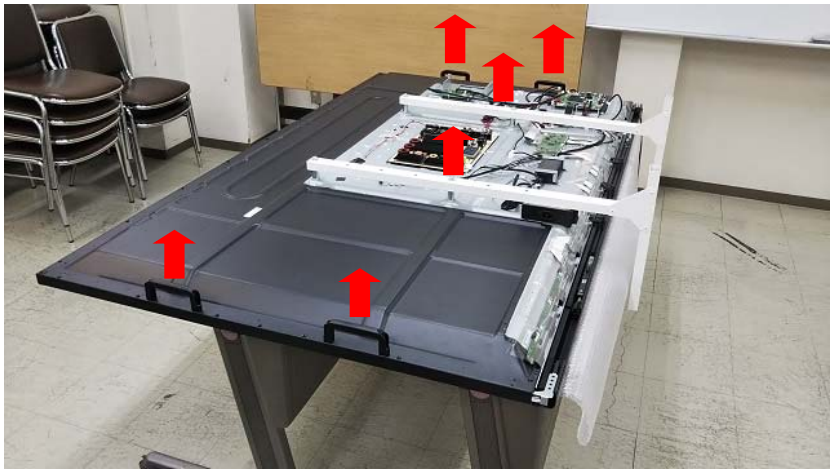


[PN-C861H/86HC1]

1) Remove the rear cover and the rear bottom cover.
2) Remove the screws (○ x 17pcs, ○ x 6pcs).



3) Lift up the main body.



<Note>
75 inch has 2 handles. 86 inch has 4 handles.

4) Separate the main body and touch panel.

2-13. LCD MODULE

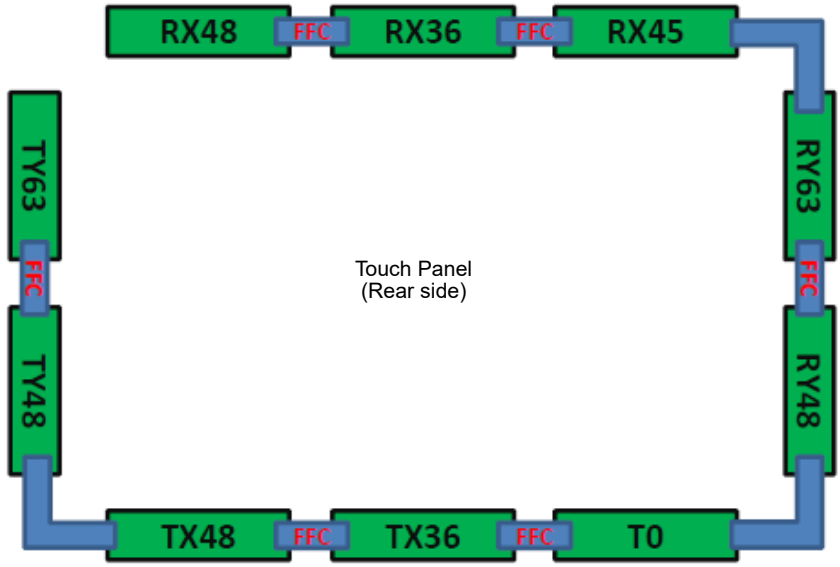
1) Separate the main body and the touch panel body (Refer to 2-12)
2) Remove all pwb and all cable and angles

2-14. TOUCH PANEL PWB

[PN-C751H/75HC1]

Touch panel body consists of 3 top and bottom, 2 right left touch panel pwb.

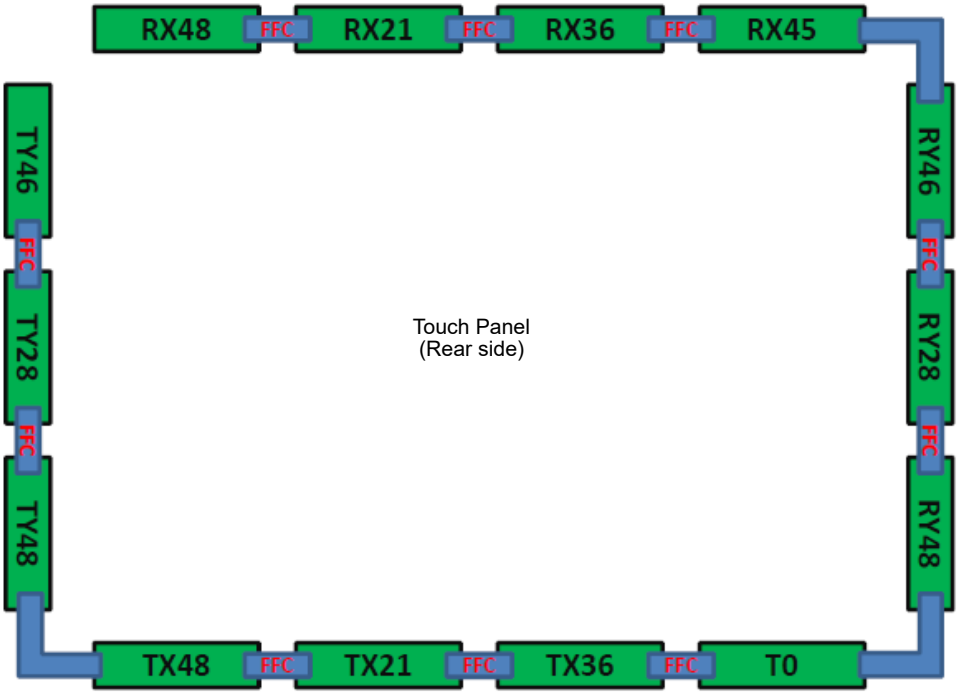
The part names of each touch panel pwb are as follows.



[PN-C861H/86HC1]

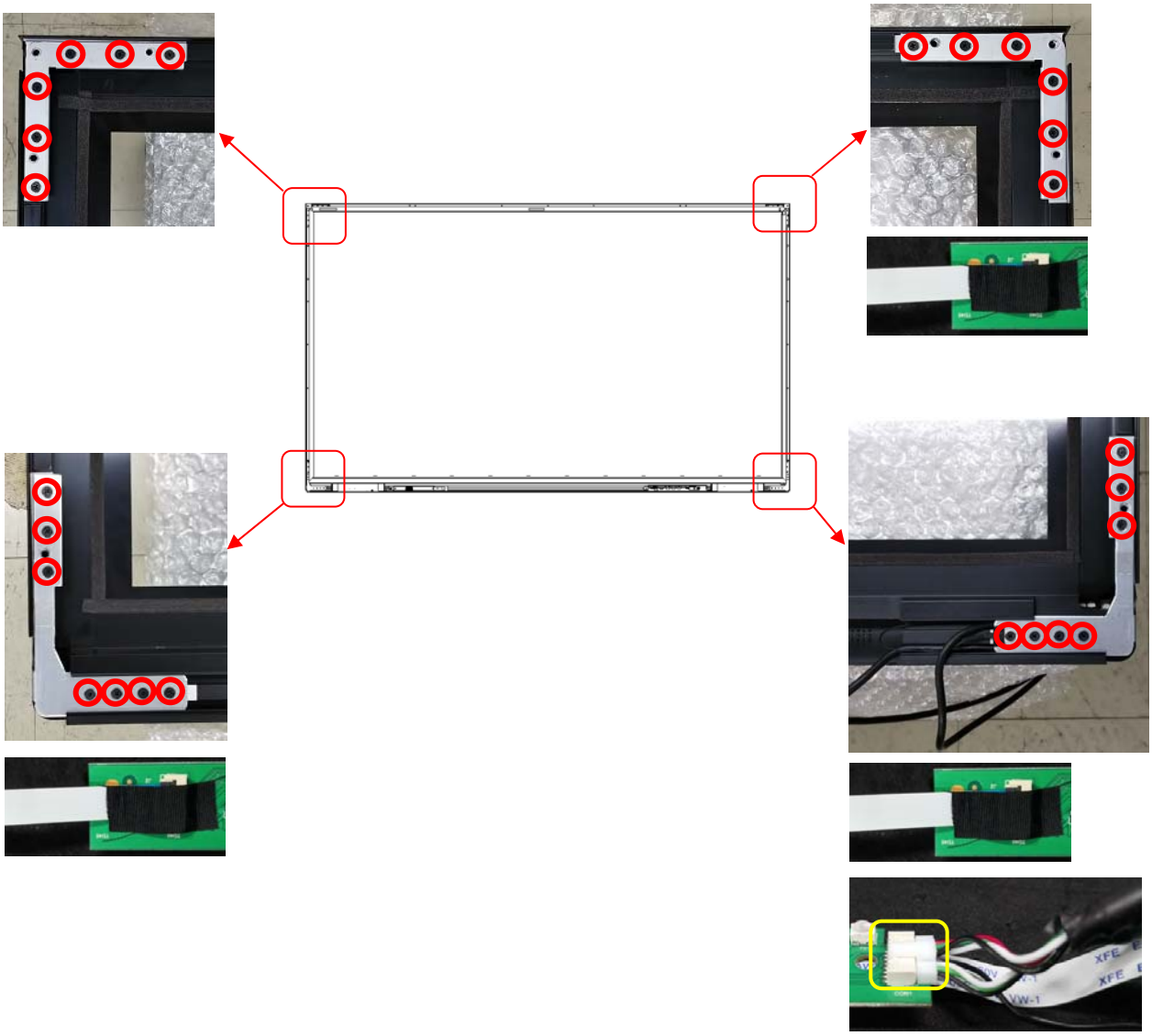
Touch panel body consists of 4 top and bottom, 3 right left touch panel pwb.

The part names of each touch panel pwb are as follows.



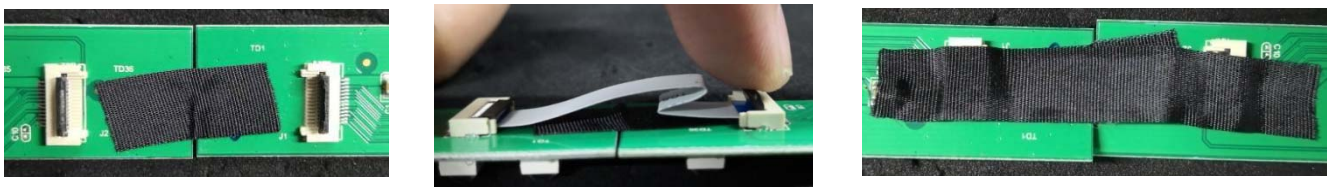
1) Separate the main body and the touch panel body (Refer to 2-12)

2) Remove the screws (O x 26pcs) and disconnect the connecter of touch panel FFC's in upper-right/lower-right/lower-left corner and disconnect the connecter of the cable in lower-right corner and remove the touch panel pwb.



<Note>

The touch panel FFC between the touch panel pwb is as follows.



CHAPTER 7. TROUBLESHOOTING

1. HOW TO RESPOND BY TROUBLE SYMPTOM (IN CASE OF NON-DEFECTIVE MODE)

First of all, after confirming whether it is the symptom caused by installation environment or user setting, proceed to specifying the defect location in the 2 section and subsequent items.

Defective symptom	Action
No power.	- Is the power code disconnected? - Does the main power switch off?
There is no picture or sound.	(The power LED is off) - Is the power supplied to this monitor? - Is the power code disconnected? - Is the main power switch off? (The power LED lights red) - This monitor is in standby mode. Turn on the power.
Unstable video.	- The signal may be incompatible. - Try the automatic screen adjustment when VGA(D-SUB) is in use.
The video from the HDMI input terminal does not appear properly.	- Does the HDMI cable support 4K, and is it HDMI standard compliant? The monitor will not work with cables that are not standard compliant. - Is the input signal compatible with this monitor? - When connecting a device that does not support 4K Vsync 50/60 Hz signals, set the HDMI Mode to Mode2.
The video from D-sub input terminal does not appear properly.	- Is the input signal compatible with this monitor?
There is a picture but no sound	- Is the sound muted? - Make sure the volume is not set to minimum. - Are audio cables connected properly?
Sound from left and right speakers is reserved. Sound is heard from only one side.	- Are audio cables connected properly?
Remote control does not work.	- Are the batteries inserted with polarity (+,-) aligned? - Are the batteries exhausted? - Point the remote control unit toward the monitor's remote control sensor. - Is operation with the remote control unit disabled? * With "FUNCTION" menu, Make sure the status of "RC LOCK"
The remote control unit's buttons for operating the HDMI-connected device do not work.	- Is HDMI CEC set to ON on the Setting menu (PN-C751H/C861H) or under HDMI Settings on the image menu (PN-CE701H)? - On the monitor, only the POWER button is enabled. - Switch to a different input mode, and then try switching the input mode back to HDMI.
Control buttons do not work. There is no picture.	- Load noises from outside may be interfering with normal operation. Turn off the power and turn it on after waiting at least 5 seconds, and then check the operation.
The touch panel does not respond.	- Is the USB cable connected properly? - Did you connect your computer to the video input terminal on the front when connected to TOUCH PANEL terminal 1 on the front, or to the video input terminal on the rear when connected to TOUCH PANEL terminal 2 on the rear? - Is the Touch ON/OFF button set to Off?

Defective symptom	Action
The response of the touch panel is slow. Some parts of the screen do not respond. A different place is touched.	- Is the screen exposed to direct sunlight or other strong light? The touch panel uses infrared rays and thus may not operate correctly. -Is there an obstacle between the infrared transmitter/receiver and the touch pen or your finger? An obstacle will prevent correct operation. If your fingers or a sleeve are too close to the screen, correct operation will not be possible. - Is the infrared transmitter/receiver dirty? Gently wipe off any dirt with a soft cloth. -If the touch panel is touched with a small tip less than about 5/16 inch (8 mm) x 5/16 inch (8 mm), the touch may not be detected by infrared and correct operation will not take place. -When starting your computer or connecting the USB cable, do not touch the touch panel. If you touch the touch panel, this may be detected as an element failure in the infrared transmitter/receiver and incorrect operation will result.
The monitor makes a cracking sound.	-You may occasionally hear a cracking sound from the monitor. This happens when the cabinet slightly expands and contracts according to change in temperature. This does not affect the monitor's performance.

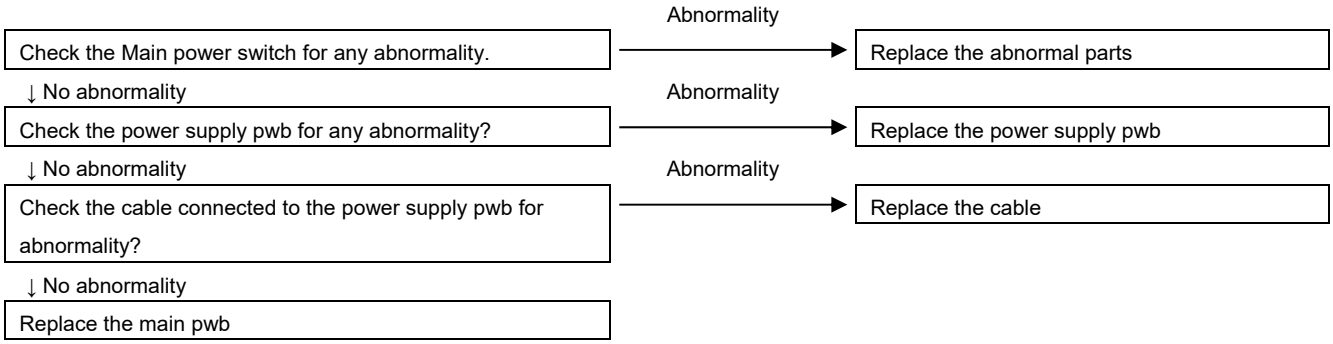
[the power LED status]

Status	Status of the monitor
Blue lit	Power on / Backlight off
Red lit	Power off (Standby mode)
Red and Blue flashing alternately (red 2 second -> blue 1 second)	Abnormal Temperature
Red and Blue flashing alternately (red 0.25 second -> blue 0.25 second)	Firmware updating
Red and Blue flashing alternately (red 3 second -> blue 1 second)	Firmware update failure

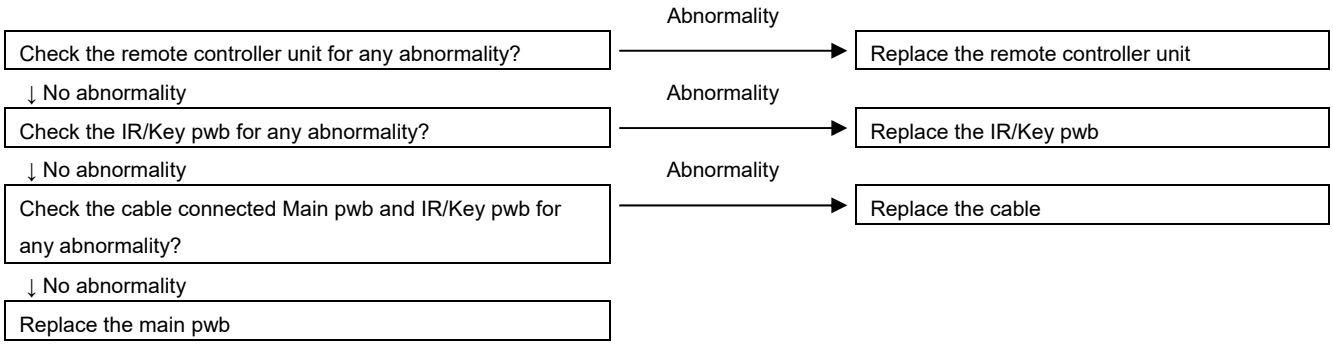
2. HOW TO RESPOND BY TROUBLE SYMPTOM (IN CASE OF DEFECTIVE MODE)

No	Description
1	THE POWER IS NOT SUPPLIED (THE LED DOES NOT LIGHT UP)
2	THE REMOTE CONTROL DOES NOT WORK
3	THE DISPLAY DOES NOT WORK / DISPLAY ABNORMALITY
4	THE BACKLIGHT DOES NOT LIGHT UP
5	SOUND IS NOT OUTPUTTED / OUTPUT SOUND ABNORMALITY
6	CANNOT CONTROL RS-232C
7	THE RED AND BLUE FLASHED ALTERNATELY (RED 2 SECOND -> BLUE 1 SECOND) (ABNORMAL TEMPERATURE)
8	ANDROID DOES NOT WORK.
9	CANNOT CONNECT TO WIRELESS LAN (Eshare)
10	CANNOT RECOGNIZE USB FLASH DRIVE AND SD CARD
11	TOUCH PANEL ABNORMALITY

2-1. THE POWER IS NOT SUPPLIED (THE LED DOES NOT LIGHT UP)



2-2. THE REMOTE CONTROL DOES NOT WORK



2-3. THE DISPLAY DOES NOT WORK / DISPLAY ABNORMALITY

When the power is turned on, the backlight lights up for several seconds?
→ No → Go to "2-4. THE BACKLIGHT DOES NOT LIGHT UP"
↓ Yes

IS the menu displayed under the signal input state?
→ No → Replace the main pwb
↓ Yes

Check the LCD module for any abnormality?
- Check the connection cable
- Check the TCON pwb

→ Abnormality → Replace the abnormal parts
↓ No abnormality

Replace the main pwb

2-4. THE BACKLIGHT DOES NOT LIGHT UP

When the power is turned on, the backlight lights up for several seconds?
→ Yes → Go to "2-3. THE DISPLAY DOES NOT WORK / DISPLAY ABNORMALITY"
↓ No

Check the main pwb for any abnormality?
→ Abnormality → Replace the main pwb
↓ No abnormality

Replace the power supply pwb

2-5. SOUND IS NOT OUTPUTTED / OUTPUT SOUND ABNORMALITY

Check the audio input cable for any abnormality?
→ Abnormality → Replace the audio input cable
↓ No abnormality

Check the audio output cable for any abnormality?
→ Abnormality → Replace the audio output cable
↓ No Abnormality

Check the internal speaker for any abnormality?
→ Abnormality → Replace the internal speaker
↓ No abnormality

Replace the main pwb

2-6. CANNOT CONTROL RS-232C

The setting of the monitor is turned to RS-232C settings?
- Baud rate
- Data Length
- Parity bit
- Stop bit
- Flow control

→ Change the current setting to the correct ones in the menu.
The setting of Baud rate is changed in OSD menu of monitor. The other items are changed in PC.
↓ Yes

Is the RS-232C cable normal?
→ Abnormality → Replace the RS-232C cable
↓ No abnormality

Replace the main pwb

2-7. THE RED AND BLUE FLASHED ALTERNATELY (RED 2 SECOND -> BLUE 1 SECOND) (ABNORMAL TEMPERATURE)

Is there any problem with the installation location and the state?
→ Abnormality → Check the installation location

↓ No abnormality

Is the vent blocked?
→ Abnormality → Remove the obstructions

↓ No abnormality

Check the IR/Key pwb for any abnormality?
→ Abnormality → Replace the IR/Key pwb

↓ No abnormality

Replace the main pwb

2-8. ANDROID DOES NOT WORK

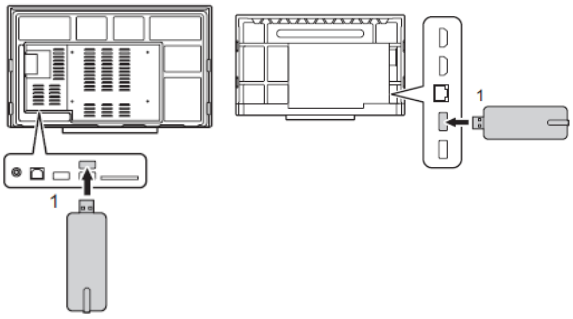
Execute SERVICE MENU 1 [FACTORY RESET] and initialize the Main pwb.

↓ cannot initialize

Replace the Main pwb

2-9. CANNNOT CONNECT TO WIRELESS LAN (Eshare)

Does the wireless adaptor insert the right USB terminal?
[PN-CE701H/70HC1E] [PNC751H/75HC1/C861H/86HC1]



→ No → Change the USB terminal.

↓ Yes

Set the wireless function to ON?
→ No → Change the setting

↓ Yes

After update the main firmware or exchange the main pwb, has the monitor connected to the internet?
→ No → Connect the internet. Automatically connect to Eshare company server via internet and are activated.

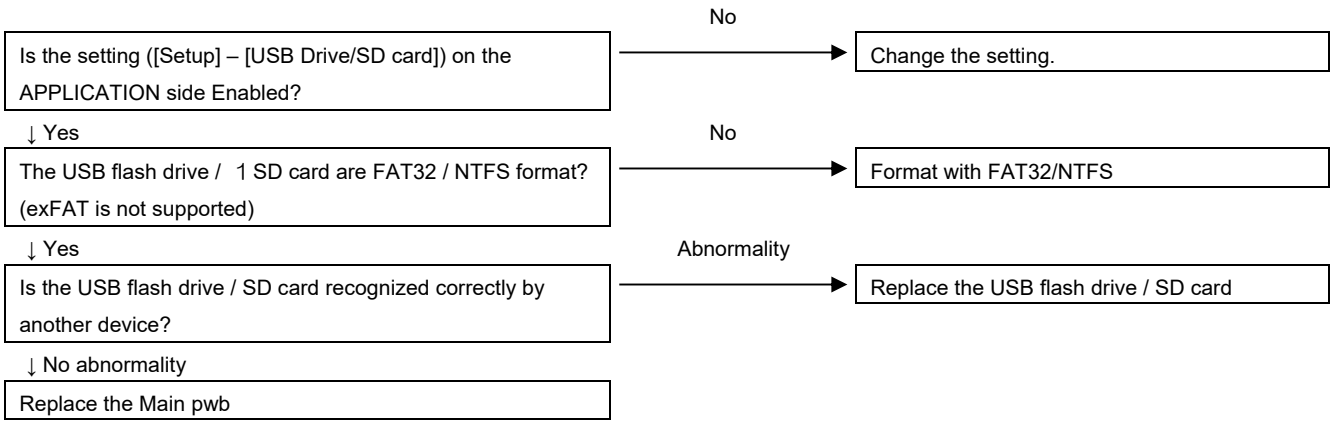
↓ Yes

Check the wireless adapter for any abnormality?
→ Abnormality → Replace the wireless adaptor

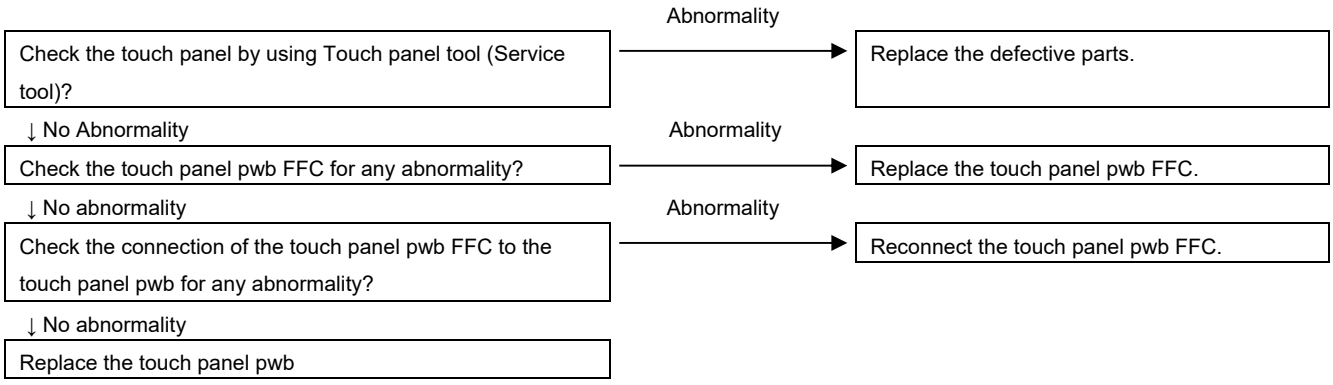
↓ No abnormality

Replace the Main pwb

2-10. CANNOT RECOGNIZE USB FLASH DRIVE AND SD CARD



2-11. TOUCH PANEL ABNORMALITY



CHAPTER 8. HARDWARE DESCRIPTIONS

1. CIRCUIT DESCRIPTIONS

1-1. UNIT COMPOSITION

[PN-CE701H/70HC1E]

PARTS NAME	FUNCTION
LCD module	Display the video signal from Main PWB.
Main PWB	Control the video signals and outputs each input video signal to each resolution signals to fit with the panel Carry Android OS.
VGA PWB	Control the VGA signals;
Power PWB	Convert the power voltage from DC to AC and supply the power voltage to each PWB.
OPS PWB	Connect OPS
Front I/O PWB	Located on the front bottom bezel and control the signal input and output.
IR/Key PWB	LED shows monitor status, Infrared receives control signals from Remote Controller and outputs the key input from the bottom of the monitor as the electrical signals.
Light sensor PWB	Measure the intensity of outside light.
Touch panel PWB	Calculate the detected signals from the touch panel system and outputs the coordinate information.
Speaker	10W x 2 Speaker

[PN-C751H/75HC1/C861H/86HC1]

PARTS NAME	FUNCTION
LCD module	Display the video signal from Main PWB.
Main PWB	Control the video signals and outputs each input video signal to each resolution signals to fit with the panel Carry Android OS.
Power PWB	Convert the power voltage from DC to AC and supply the power voltage to each PWB.
Power PWB for OPS	Convert the power voltage from DC to AC and supply the power voltage to OPS
OPS PWB	Connect OPS
Front I/O PWB	Located on the front bottom bezel and control the signal input and output.
IR/Key PWB	LED shows monitor status, Infrared receives control signals from Remote Controller and outputs the key input from the bottom of the monitor as the electrical signals.
Light sensor PWB	Measure the intensity of outside light.
Touch panel PWB	Calculate the detected signals from the touch panel system and outputs the coordinate information.
Speaker	10W x 2 Speaker

1-2. LCD MODULE

ITEM	PN-CE701H PN-70CH1E	PN-C751H PN-75HC1	PN-C861H PN-86HC1
LCD	70 inch class LCD	75 inch class LCD	86 inch class LCD
Screen size (Diagonal length)	69-1/2 inch diagonal	74-1/2 inch diagonal	85-9/16 inch diagonal
Max. resolution	3840 x 2160		
Max. colors	1.07 billion colors (10bit)		
Pixel pitch (mm)	0.40075(H) x 0.40075 (V)	0.4296 (H) x 0.4296 (V)	0.494 (H) x 0.494 (V)
Max. brightness	350cd/㎡	400cd/㎡	
Contrast ratio	4000：1	1200：1	1200：1
Viewing angle	176 degree (CR≧10)	178 degree (CR≧10)	
Display Screen Size	1,538.88 (H) x 865.62 (V)	1,649.66 (H) x 927.93 (V)	1,895.04 (H) x 1,065.96 (V)
Response Speed (Standard Value)	8ms		
Color Purity (NTSC Ratio)	72%	70%	
Backlight	Direct type		
Backlight life	30,000 hours (16hours / 365days)		
Screen uniformity	75%		
Manufacturer (Panel)	SDP	LG	LG

1-3. Main PWB

[PN-CE701H/70HC1E]

INPUT / OUTPUT TERMINAL			PN-CE701H/70HC1E	
Input terminal	Front	HDMI	x 1 (Support HDMI 2.0, HDCP2.2, HDR10) (HDMI CEC not supported) -Users cannot save the content written in overlay mode with HDMI input.	
		USB (Type A)	x 1 (USB 2.0)	
		Audio	x 1 φ3.5mm mini stereo jack terminal, Line-in	
		USB (Type B)	x 1(for touch panel connect) *Usable for the source via the front HDMI input	
		USB (Type A) for OPS-PC	X 2(USB 2.0)	
	Rear	Computer / AV signal	x 2 Analog terminal (Mini D-sub 15 pins)	
		HDMI	x 2(Support HDMI 2.0, HDCP2.2, HDR10, HDMI CEC) -HDMI CEC Function supports conjunction with power source only and does not support the other functions. -Users cannot save the content written in overlay mode with HDMI input.	
		Audio	x 1 φ3.5mm mini stereo jack terminal, Line-in	
			x 1 RCA(L/R)	
		Video	‘x 1 RCA	Video and Component video are common.
		Component	‘x 1 RCA	
		USB (Type A)	x 3 (USB 2.0)	
		USB (Type B)	x 1(for touch panel connect) *Usable for the source via the front HDMI input	
		RS-232C (Interactive)	x 1 D-sub9 pin	
		SD Card Slot	‘x 1(SD/SDHC) (SDXC not supported)	
		Lan Terminal (Interactive)	‘x 1(RJ45) (for display control and network connection)	
Output terminal	Rear	Computer / AV signal	x 2 Analog terminal (Mini D-sub 15 pins)	
		Audio	x 1 φ3.5mm mini stereo jack terminal (PC/AV common), Line-out	
			‘x 1 SPDIF	
Expansion slot		OPS slot	x 1 OPS compatible slot - Support 4K60p - LAN connection not supported internally	

[PN-C751H/75HC1/C861H/86HC1]

INPUT / OUTPUT TERMINAL			PN-C751H/75HC1/C861H/86HC1
Input terminal	Front	HDMI	x 1 (Support HDMI 2.0, HDCP2.0, HDR10) (HDMI CEC not supported) -Users cannot save the content written in overlay mode with HDMI input.
		USB (Type A), common with OPS-PC and main unit.	x 1 (USB 2.0)
		USB (Type B)	x 1(for touch panel connect) *Usable for the source via the front HDMI input
	Rear	Computer / AV signal	x 1 Analog terminal (Mini D-sub 15 pins)
		HDMI	x 2(Support HDMI 2.0, HDCP2.2, HDR10, HDMI CEC) -HDMI CEC Function supports conjunction with power source only and does not support the other functions. -Users cannot save the content written in overlay mode with HDMI input.
		Audio	x 1 φ3.5mm mini stereo jack terminal, PC-Audio
		Video	‘x 1 mini jack (mini-AV in)
		Component	‘x 1 mini jack (mini-YPbPr)
		USB (Type A)	x 2 (USB 2.0)
		USB (Type B)	x 1 (for touch panel connect) *Usable for the source via the front HDMI input
		RS-232C (Interactive)	x 1 D-sub9 pin
		Lan Terminal (Interactive)	‘x 1(RJ45) (for display control and network connection)
Output terminal	Rear	Audio	x 1 φ3.5mm mini stereo jack terminal (PC/AV common), Line-out
			‘x 1 SPDIF
Expansion slot		OPS slot	x 1 OPS compatible slot - Support 4K60p - LAN connection not supported internally

1-4. Built-in controller based on Android

HARDWARE	FUNCTION	EXPLANATION
HARDWARE	SoC (System on Chip)	[PN-CE701H/70HC1E] • Mstar MSD648WY CPU: Arm® Cortex® -A53 processor (quad core) [PN-C751H/75HC1, PN-C861H/86HC1] • Mstar MSD658WQ CPU: Arm® Cortex® -A53 processor (quad core)
	Memory	[PN-CE701H/70HC1E] • 1.5GB [PN-C751H/75HC1, PN-C861H/86HC1] • 1GB
	Storage	• 8GB (eMMC)
	Network	• LAN (10BASE-T/100BASE-TX) (Wake on LAN supported) • Wireless LAN : Use wireless dongle • Bluetooth not supported
	Clock Accuracy	• Within ±60s per month
	Power Supply	• Internal supplied • Power fail recovery : Always turning ON when supplying electricity
	Use conditions	• 16 hours / day operation *Must be rebooted once a day for the stable operation.
	Startup time	[PN-CE701H/70HC1E] 20 seconds [PN-C751H/75HC1, PN-C861H/86HC1] 35 seconds
SOFTWARE	OS	• Based on Android OS 6.0 or higher Android CTS(Compatible Test Suite) not supported GMS(Google Mobile Service) certification not supported (Android exempted device)
	Applications	Android standard applications : No [PN-CE701H/70HC1E] • Whiteboard (enables to use annotation function) (Drawing) • Media player (Local MM) • File explorer • Settings • Wireless display (EshareServer) [PN-C751H/75HC1, PN-C861H/86HC1] • Whiteboard (enables to use annotation function) (E-board) • File Manager (Media player & File explorer) • Settings • Wireless display (EshareServer)

1-5. TOUCH PANEL

This model is adopted with Infrared intercepting for multiple touch system.

ITEM	EXPLANATION
Touch point	[PN-CE701H/70HC1E] : 10 points [PN-C751H/75HC1, PN-C861H/86HC1] : 20 points
Area Recognition	■Built-in controller [PN-CE701H/70HC1E] : Support OS is Android 6.0 and deletable by hand [PN-C751H/75HC1, PN-C861H/86HC1] : Support OS is based on Android 6.0 and deletable by hand ■SHARP Pen Software Not supported
Driver	Supported OS : Windows 8.1(32/64bit), Windows 10(32/64bit), and Chrome OS v74 or later by driver-less ：macOS 10.13/10.14 Supported the single-touch operation for macOS without special driver.
Setting of Touch Sensing	ON and OFF of a touch panel operation can be set up with front button
Portrait Installation	No
Power Supply	From the main power supply of the4 display

1-6. WIRELESS ADAPTER

TP-Link Archer T4U

ITEM		DESTINATION	
		FOR US/EU	FOR ASIA/RUSSIA/OTHERS
I/O Ports		USB 2.0 / 3.0 x 1 (Type A)	
Color		Body color : Black	
Wireless LAN	Communication Method	IEEE802.11a/b/g/n/ac	IEEE802.11b/g/n
	Communication Speed	Max. 400Mbps(2.4GHz), 867Mbps(5GHz)	Max. 400Mbps,(2.4GHz)、
	Frequency Range	5GHz (IEEE802.11a/n/ac), 2.4GHz (IEEE802.11b/g/n)	2.4GHz (IEEE802.11b/g/n)
	Security	WEP, WPA/WPA2, WPA-PSK/WPA2-PSK	
Dimensions		92.47 (L) X 31.55 (W) X 13.9 (H) mm	

1-7. TEMPERATURE SENSOR

This function is to monitor the inner temperature continuously and control the operation of the display when it is over heated.

The sensor has a threshold level which notices high temperature and control the power-off (Standby mode).

There is no function to control dimming the brightness.

TEMPERATURE STATUS	CONTROL
Notification of High temperature	Notifying by Red and Blue LED flashing alternately. (Red 2 second -> Blue 1 second)
The control of power-off (Standby mode)	If the temperature over the threshold, the display power-off for safety.

The temperature threshold is as follows.

[PN-CE701H/70HC1E]

TEMPERATURE	POWER LED (*1)	POWER STATUS	LOG
65℃ ≦ T < 80℃	Red and Blue flashing alternately (Red 2 second -> Blue 1 second)	Remain “Power on”	No function
80℃ ≦ T	Red and Blue flashing alternately (Red 2 second -> Blue 1 second)	Move “Power off (Standby mode)	No function

(*1) The power LED is not flashing red and blue alternately at first. -> This function is supported by running change.

[PN-C751H/75HC/C861H/86HC1]

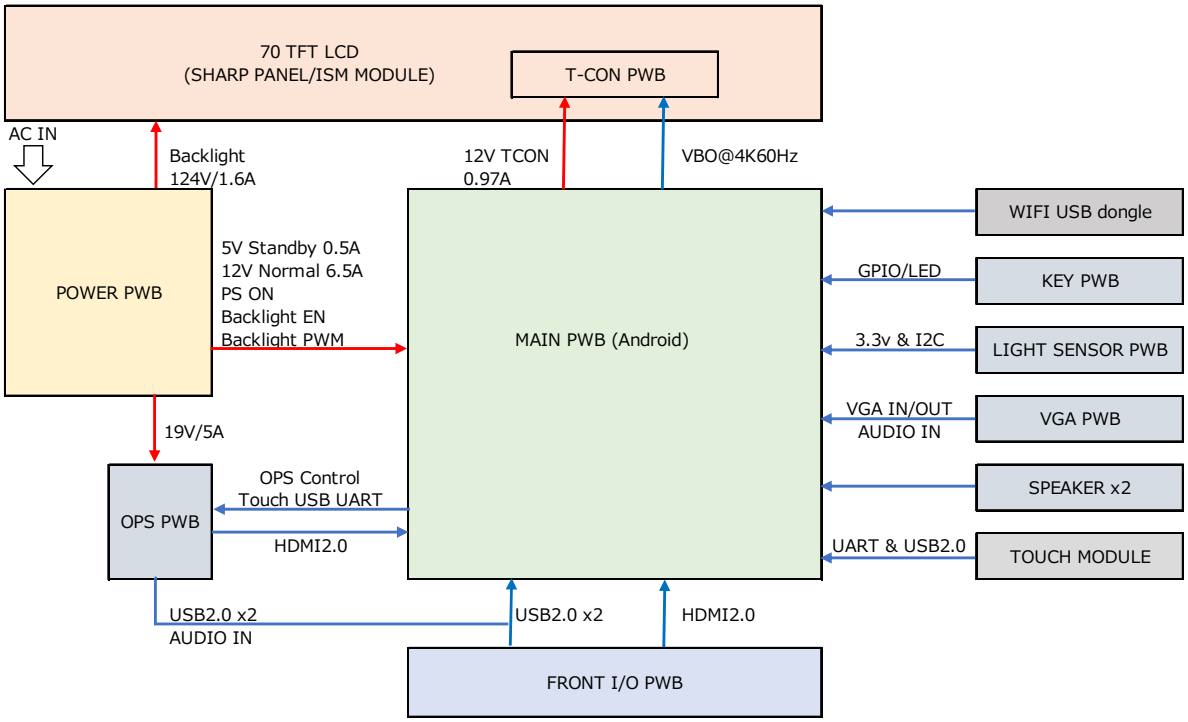
TEMPERATURE	POWER LED (*1)	POWER STATUS	LOG
65℃ ≦ T < 80℃	Red and Blue flashing alternately (Red 2 second -> Blue 1 second)	Remain “Power on”	No function
80℃ ≦ T	Red lit. (*2)	Move “Power off (Standby mode)	Save log (*2)

(*2) The power LED status of temperature error and power off (standby mode) are same (Red lit).

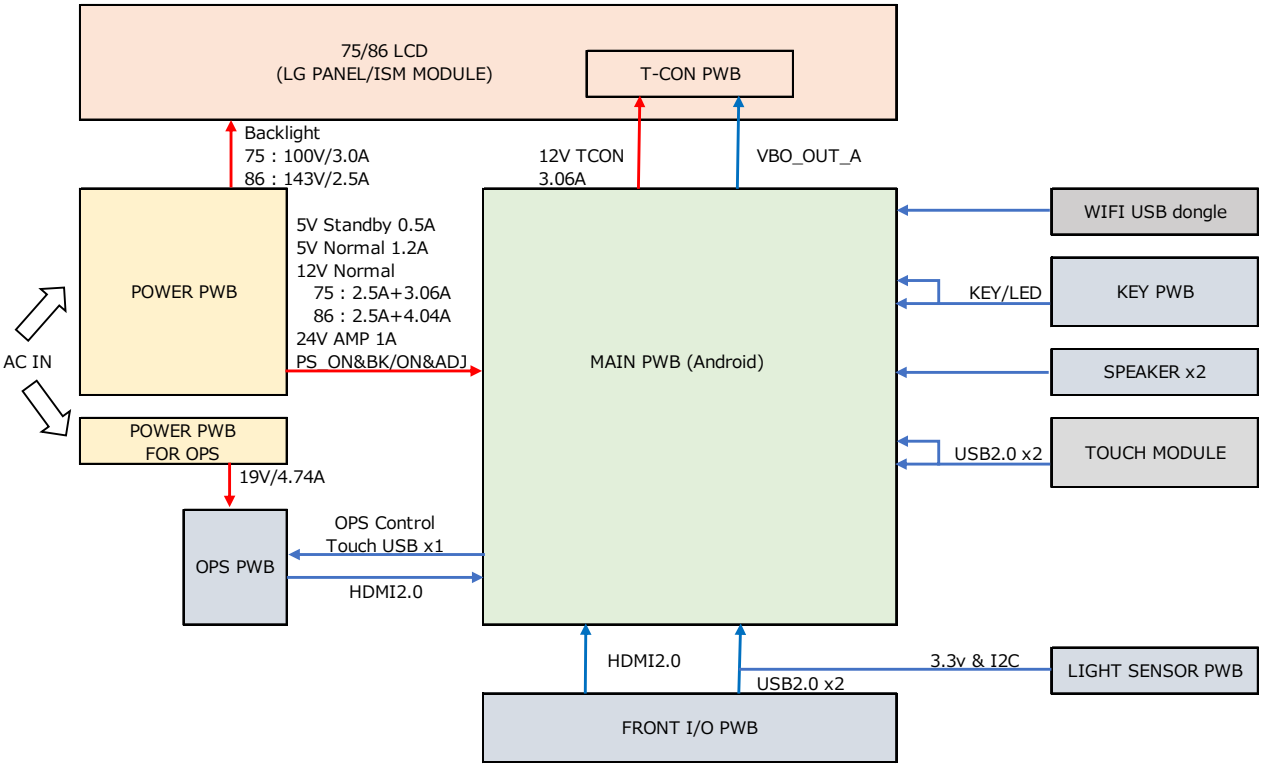
Therefore, the log of temperature error is saved to distinguish them.

2. BLOCK DIAGRAM

[PN-CE701H/70HC1E]



[PN-C751H/75HC1, PN-C861H/86HC1]



Service Manual Revision History

Model : PN-CE701H, PN-70HC1E, PN-C751H, PN-75HC1, PN-C861H, PN-86HC1

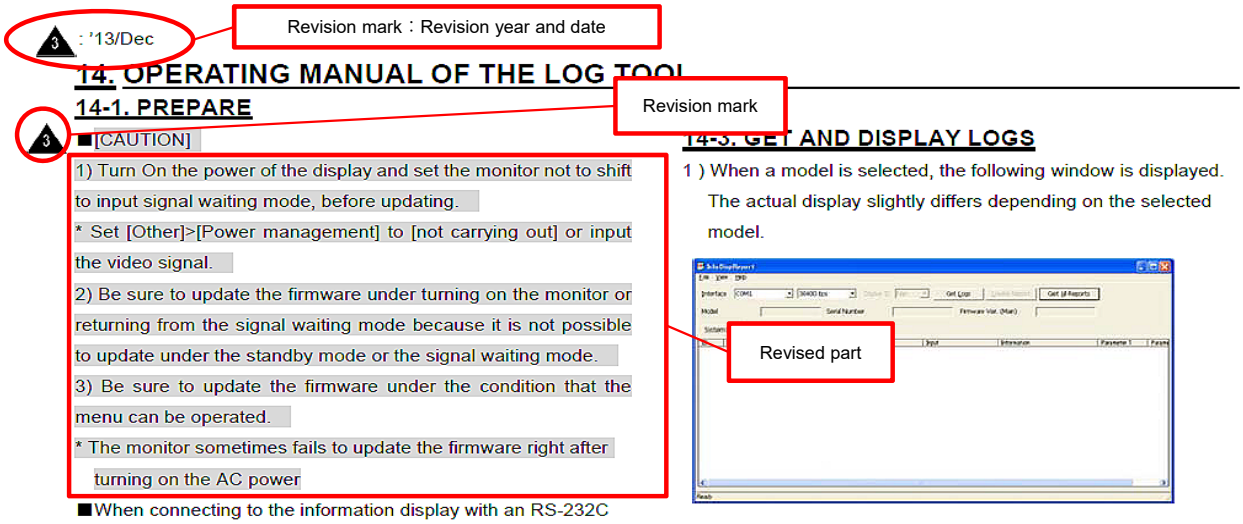
No.	Revised version	Change time	Chapter	Page	Revision history
1	New Release	2019/9/17	-	-	Issued the first edition of Service manual

<About the revision mark on the Service Manual>

The meaning of the revision mark described in the Service manual is as follows.

The number of the revision recprd = the number of the revision mark.

No.	Revised version	Change time	Chapter	Page	Revision history
1	New Release	2014/1/1	-	-	First edision issued Service Manual
2	XXXX Release	XXXX/X/X	X	X-X	XXXXXXXXXXXXXXXXXXXXXX
3	XXXX Release	XXXX/X/X	X	X-X	XXXXXXXXXXXXXXXXXXXXXX



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