APW5240

24.1" Widescreen Industrial Monitor
Supports 1920 x 1200 WUXGA Resolution
Rugged Aluminum Front Bezel

User Manual

ACNODES

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Legal Information

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Information in this document has been carefully checked for accuracy; however, no guarantee is given to the correctness of the contents. The information in this document is subject to change without notice. We are not liable for any injury or loss that results from the use of this equipment.

Safety Instructions
Please read all of these instructions carefully before you use the device. Save this manual for future reference.

- Unplug equipment before cleaning. Don't use liquid or spray detergent; use a moist cloth.
- Keep equipment away from excessive humidity and heat. Preferably, keep it in an air-conditioned environment with temperatures not exceeding 40º Celsius (104º Fahrenheit).
- When installing, place the equipment on a sturdy, level surface to prevent it from accidentally falling and causing damage to other equipment or injury to persons nearby.
- When the equipment is in an open position, do not cover, block or in any way obstruct the gap between it and the power supply. Proper air convection is necessary to keep it from overheating.
- Arrange the equipment's power cord in such a way that others won't trip or fall over it.
- If you are using a power cord that didn't ship with the equipment, ensure that it is rated for the voltage and current labeled on the equipment's electrical ratings label. The voltage rating on the cord should be higher than the one listed on the equipment's ratings label.
- Observe all precautions and warnings attached to the equipment.
- If you don't intend on using the equipment for a long time, disconnect it from the power outlet to prevent being damaged by transient over-voltage.
- Keep all liquids away from the equipment to minimize the risk of accidental spillage. Liquid spilled on to the power supply or on other hardware may cause damage, fire or electrical shock.
- Only qualified service personnel should open the chassis. Opening it yourself could damage the equipment and invalidate its warranty.
- If any part of the equipment becomes damaged or stops functioning, have it checked by qualified service personnel.

What the warranty does not cover

- Any product, on which the serial number has been defaced, modified or removed.
- Damage, deterioration or malfunction resulting from:
  - ☐ Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
  - ☐ Repair or attempted repair by anyone not authorized by us.
  - ☐ Any damage of the product due to shipment.
  - ☐ Removal or installation of the product.
  - ☐ Causes external to the product, such as electric power fluctuation or failure.
  - ☐ Use of supplies or parts not meeting our specifications.
  - ☐ Normal wear and tear.
  - ☐ Any other causes which does not relate to a product defect.
- Removal, installation, and set-up service charges.

Regulatory Notices Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

Any changes or modifications made to this equipment may void the user's authority to operate this equipment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-position or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Contents

Before Installation

■ It is very important to mount the equipment in a suitable cabinet or on a stable surface.

■ Make sure the place has a good ventilation, is out of direct sunlight, away from sources of excessive dust, dirt, heat, water, moisture and vibration.

Unpacking

The equipment comes with the standard parts shown in package content. Check and make sure they are included and in good condition. If anything is missing, or damaged, contact the supplier immediately.

How To Clean Your LCD Monitor

⚠ Caution :

■ To avoid the risk of electric shock, make sure your hands are dry before unplugging your monitor from or plugging your monitor into an electrical outlet.

■ When you clean your monitor, do not press down on the LCD screen. Pressing down on the screen can scratch or damage your display. Pressure damage is not covered under warranty.

■ Use only cleansers made specifically for cleaning monitors and monitor screens. Cleansers not made to clean monitors and monitor screens can scratch the LCD display or strip off the finish.

■ Do not spray any kind of liquid directly onto the screen or case of your monitor. Spraying liquids directly onto the screen or case can cause damage which is not covered under warranty.

■ Do not use paper towels or abrasive pads to clean your monitor. Using an abrasive pad or any wood based paper product such as paper towels can scratch your LCD screen.

Cleaning Your Monitor

To clean your LCD safely, please follow these steps :

① Disconnect the power cord.

② Gently wipe the surface using a clean, dry microfiber cloth. Use as little pressure as possible.

Cleaning Tough Marks and Smudges

To remove tough marks and smudges, please follow these steps :

① Disconnect the power cord.

② Spray a small amount of non-abrasive cleanser on a microfiber cloth.
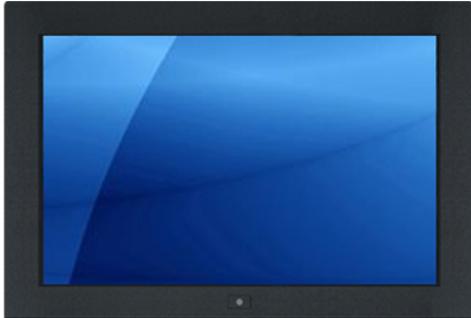
⚠ **Caution : Do not spray or apply any liquids directly onto the monitor. Always apply the solution to your microfiber cloth first, not directly on the parts you are cleaning.**

③ Gently wipe the surface. Use as little pressure as possible.

④ Wait until your monitor is completely dry before plugging it in and powering it up.

< 1.1 > Package Content

APW5240

24" High Resolution LCD display X 1

6ft VGA cable X 1

Power cord X 1

Remote controller X 1

Mounting hardware X 1 pack

- Mounting bracket x 4 pcs

- M4* 6mm screw x 8 pcs

- M4* 50mm screw x 8 pcs

Basic I/O

| Power | HDMI | DVI-D | VGA | Audio out | Audio in PC |

Option (1)

| Power | BNC Video | Audio in | DVI-D | VGA | Audio out | Audio in PC |

Option (2)

| Power | BNC Video | Audio in | HDMI | VGA | Audio out | Audio in PC |
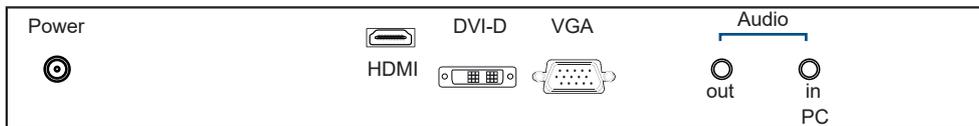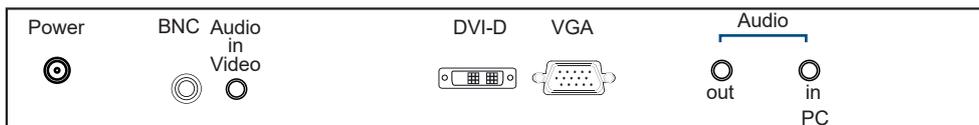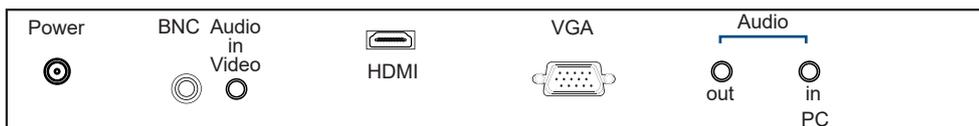
- **An abundance of input connections that include HDMI, DVI-D, VGA, BNC and audio**
- **On-chip Faroudja® DCDi Cinema processing**

< 1.2 > Structure Diagram

Front view   **Side View**

Bottom view

Rear view

① Rear case

② LCD panel

③ Protective 3mm glass

④ 6mm aluminum front bazel

⑤ Audio speaker, pair

⑥ LCD membrane

⑦ Remote sensor
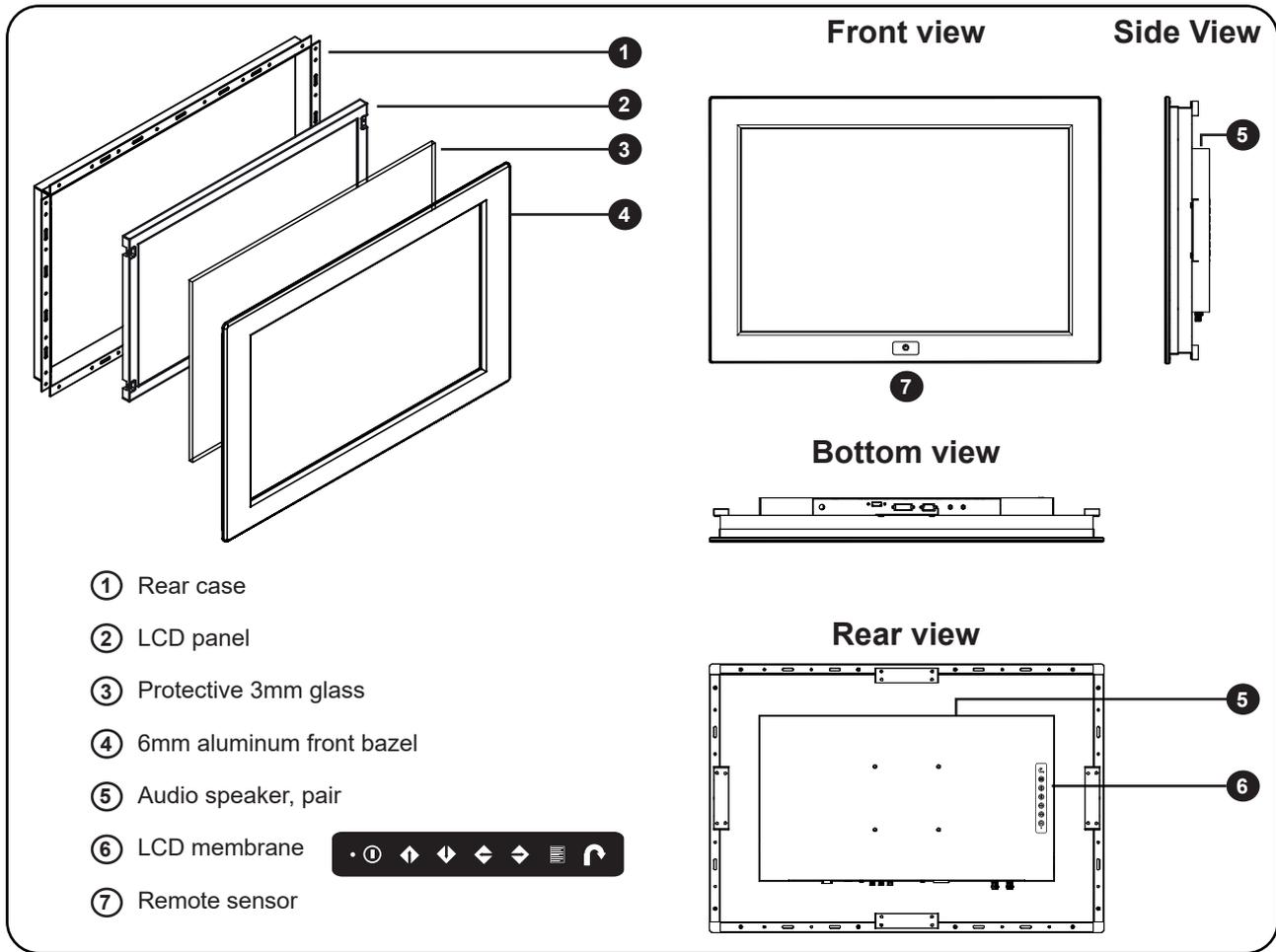
Model	Product Dimension (W x D x H)	Packing Dimension (W x D x H)	Net Weight	Gross Weight
APW5240	620.4 x 70.1 x 426 mm 24.4 x 2.8 x 16.8 inch	701 x 121 x 685 mm 27.6 x 4.8 x 27 inch	10.9 kg 24 lb	14.7 kg 32.3 lb
APW5240-IP	620.4 x 70.1 x 426 mm 24.4 x 2.8 x 16.8 inch	701 x 121 x 685 mm 27.6 x 4.8 x 27 inch	12.4 kg 27.3 lb	16.2 kg 35.6 lb

< 1.2 > Dimension

Front View

Side View

50

326
426

520.4
620.4

50

260.6
392
395.4

42.5
70.1

Rear View

620.4

UNIT : mm
1mm = 0.03937 inch

80.3

100

M4*4pcs

402.1

181.3

100

80
392

156

253.2

80

586.4

Bottom View

589.8

586.4

462.6

70.1
42.5

620.4
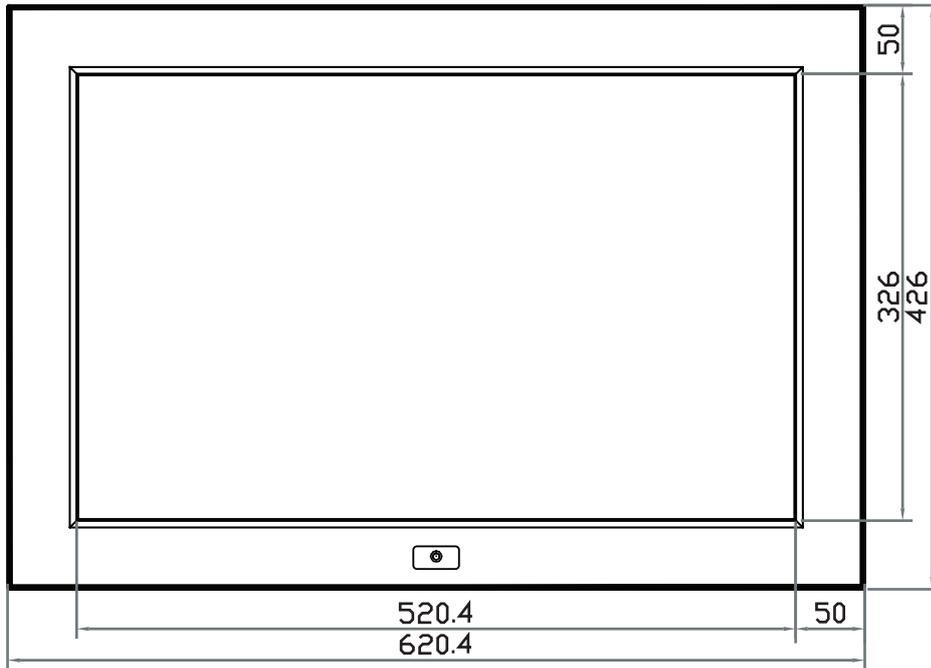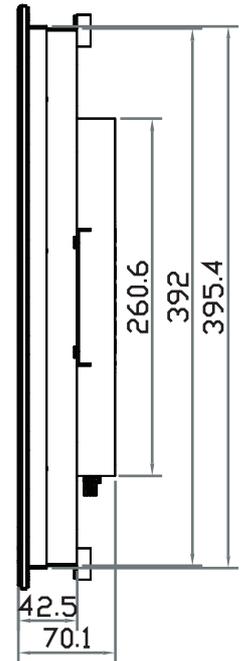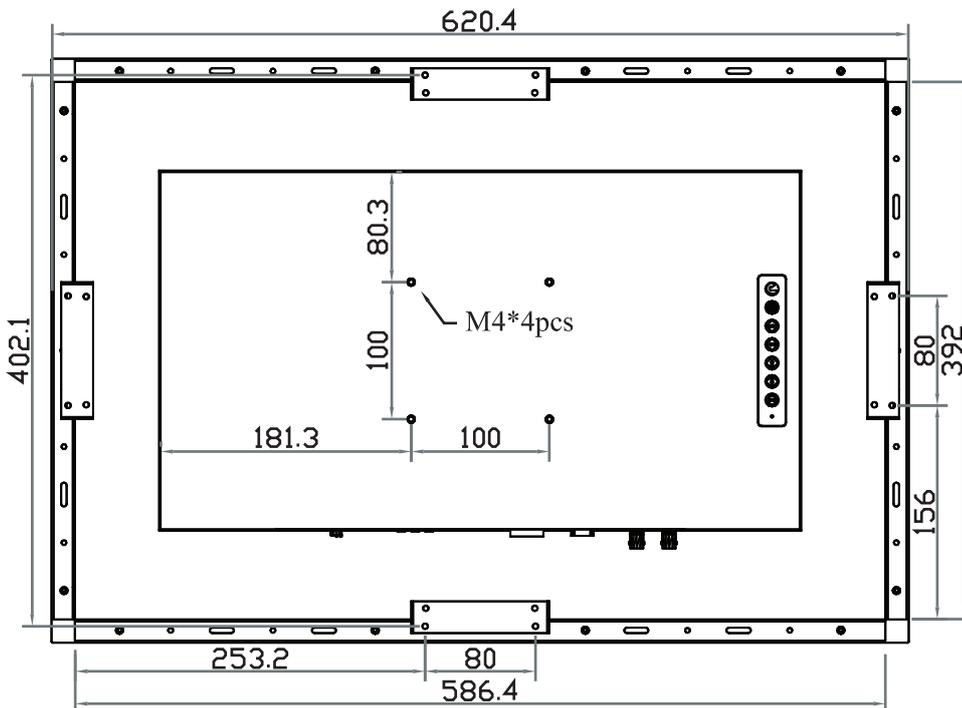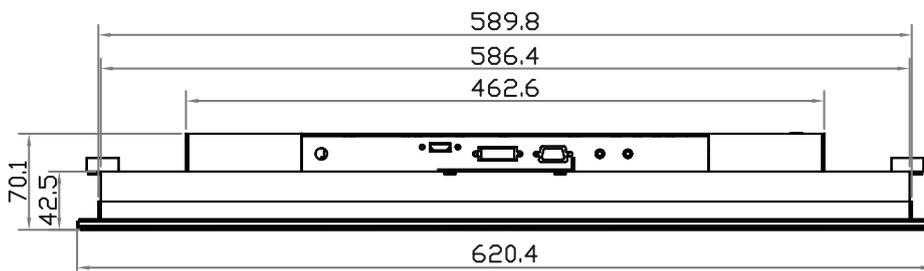
< 1.3 > Installation
(I) Panel mount

1   Mounting bracket

x 4 pcs

2   M4*6mm screw

x 8 pcs

3   M4*50mm screw

x 8 pcs
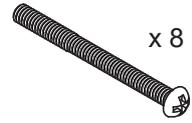
Hardware set part no. UV-BK#2
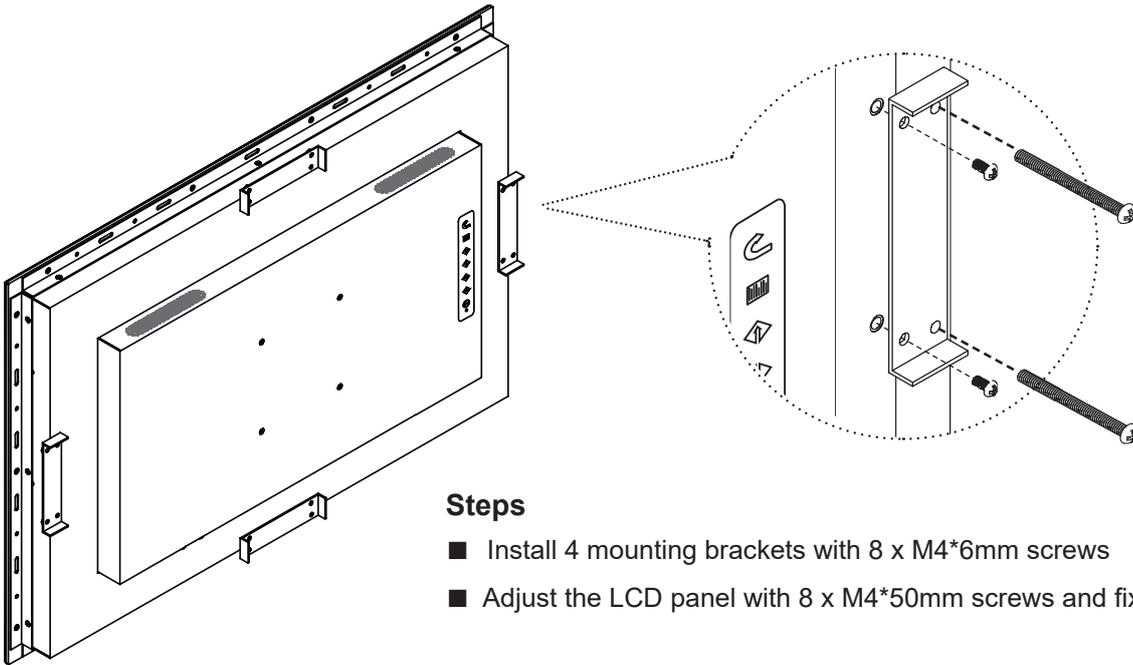
Steps

- Install 4 mounting brackets with 8 x M4*6mm screws
- Adjust the LCD panel with 8 x M4*50mm screws and fix it on the surface.

(II) VESA mount (100*100mm)

M4 screw

100

100

VESA mount (100*100mm)

- Hardware and M4*4 pcs for VESA mount are not provided
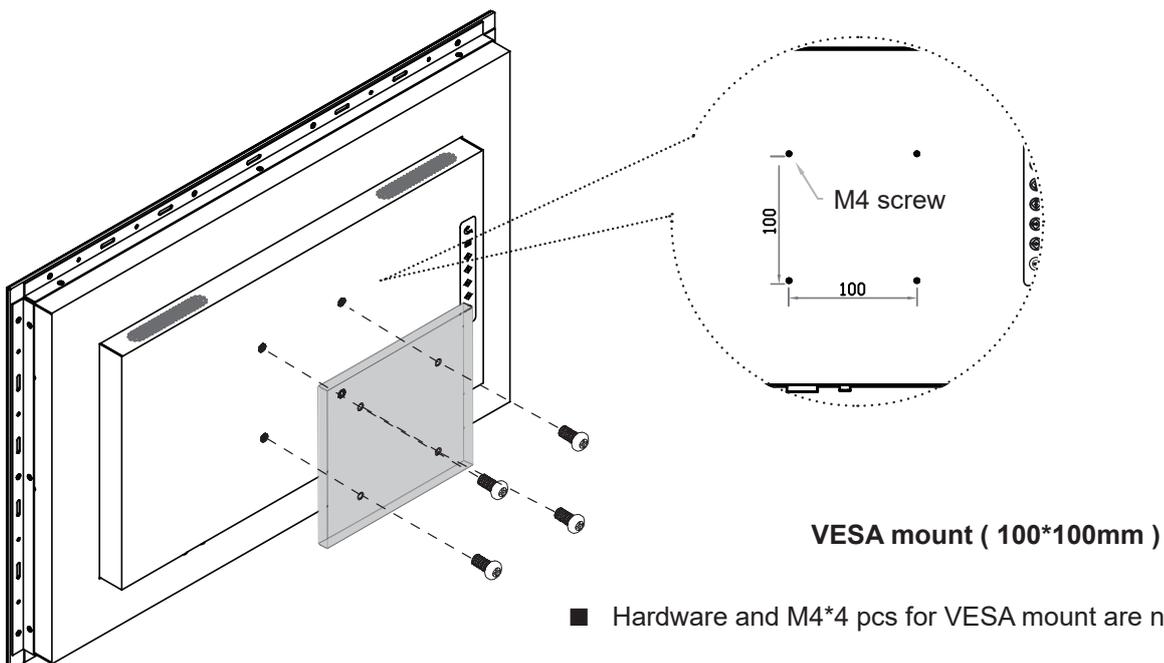
< Part 2 >

< 2.1 > Product Specifications

Mechanical Design	APW5240	APW5240-IP
Protection	6mm front bezel	NEMA 4 / IP65
Front Panel	Black, RAL 9005	
Rear Casing	Black, RAL 9005	
VESA mount	100 x 100 mm	
Universal mount	-	
Desktop stand	option	
Panel mount	bundled	

LCD Panel	
Panel Size (diagonal)	24.1-inch Widescreen TFT color LCD
Native resolution	1920 x 1200
Brightness (cd/m^2)	300
Contrast Ratio (typ.)	1000:1
Colors	16.7 M
Viewing Angle (L/R/U/D)	89/89/89/89
Response Time (ms)	14
Dot pitch (mm)	0.27
Display Area (mm)	518.40H x 324.0V
Surface treatment	Anti-glare, Hard-coating
Surface hardness	3H
Backlight Type	LED
MTBF (hrs)	30,000

Video	
Digital DVI	DVI-D single link
HDMI	HDMI 1.4 / HDCP 1.4
Analog VGA	Analog 0.7Vp-p
Composite (BNC)	NTSC & PAL
S-Video (4-pin)	NTSC & PAL

| Audio	
Input Connector Impedance / Power level	3.5mm stereo jack 30kΩ / 750mV
Output Connector Resistance / Power level	3.5mm stereo jack 30kΩ / 2.8V
Speaker: Dual Stereo	10W x 2

*When the audio output is connected, speaker output is OFF

Power	
Input	Auto-sensing 100 to 240VAC, 50 / 60Hz
Consumption:	
Screen ON	Max. 33W
Power saving mode	Max. 2W
Power button OFF	Max. 1W

Compliance	
EMC	FCC & CE
Safety	CE / LVD & UKCA
Environment	RoHS3 & REACH compliant

< 2.1 > Product Specifications

Environmental Conditions		
Operating	Temperature	0 to 55°C degree
	Humidity	20~90%, non-condensing
	Altitude	16,000 ft
Storage / Non-operating	Temperature	-20 to 60°C degree
	Humidity	5~90%, non-condensing
	Altitude	40,000 ft
	Shock	10G acceleration (11ms duration)
	Vibration	10~300Hz 0.5G RMS random vibration

Physical Specification		APW5240	APW5240-IP
Product (W x D x H)	mm	620.4 x 70.1 x 426	
	inch	24.4 x 2.8 x 16.8	
Packing (W x D x H)	mm	701 x 121 x 685	
	inch	27.6 x 4.8 x 27	
Net Weight		10.9 kg / 24 lb	12.4 kg / 27.3 lb
Gross Weight		14.7 kg / 32.3 lb	16.2 kg / 35.6 lb
Chassis color		Dark	
Chassis materials		Aluminum	

* All dimensions stated are subject to change if options are selected / integrated to base model part codes

Applicable Format		
DVI-D / VGA Input	PC Signal	1920 x 1200 x 60Hz
		1360 x 768 x 60Hz
		1280 x 1024 x 60 / 75Hz
		1280 x 960 x 60Hz
		1280 x 768 x 60 / 75Hz
		1152 x 864 x 75Hz
		1024 x 768 x 60 / 70 / 75Hz
		848 x 480 x 60Hz
		800 x 600 x 60 / 72 / 75Hz
		720 x 400 x 70Hz
		640 x 480 x 60 / 72 / 75Hz
		640 x 400 x 70Hz
		640 x 350 x 70Hz
	Audio Signal	2ch Linear PCM
HDMI Input	PC signal	Same as VGA
	HDMI 1.3	1920 x 1080 x 50 / 60Hz (1080p)
		1920 x 1080 x 25 / 30Hz (1080i)
		1280 x 720 x 50 / 60Hz (720p)
		720 x 480 x 50 / 60Hz (576p / 480p)
	Audio Signal	2ch Linear PCM

< 2.2 > On-screen Display Operation (OSD)

○ Power light
● Green = On
● Orange = Power saving

Membrane Switch	Function
⊖	Power on / off LCD
(menu icon)	Display the OSD menu
◈ ◈ ◈ ◈	Scrolls through menu options and adjusts the displayed control (To auto adjustment by pressing the button ◈ for 5 seconds)
↰	Exit the OSD screen Toggle analog, digital & video connection (DVI-D and video options only)

① **Picture**

Brightness   : Adjust the screen brightness

Contrast   : Adjust the difference between the image background
                (black level) and the foreground (white level)

Black level : Adjust background black level of the screen

Eco   : Screen in power saving mode

```
                        PICTURE
                                    HDMI  1920x1080@60.0Hz
PICTURE   BRIGHTNESS                              70  >
POSITION  CONTRAST                                50  >
          BLACK LEVEL                             50  >
COLOR     ECO                              STANDARD  >

OSD SET

RESET

MISC
          ▲/▼ : UP / DOWN        ◄/► : − / +    MENU : EXIT
                                               M52LW170DVI701IN
```

② **Position**

H-Position   : To adjust the horizontal position of the video

V-Position   : To adjust the vertical position of the video

Clock   : To auto adjust H. Size of the screen

Phase   : To fine tune the screen.

Picture size : FULL SCREEEN / 4:3 / 5:4 / 16:10

```
                        POSITION
                                    HDMI  1920x1080@60.0Hz
PICTURE   H-POSITION                              70  >
POSITION  V-POSITION                              50  >
          CLOCK                                   50  >
COLOR     PHASE                                   50  >
          PICTURE SIZE                           OFF  >
OSD SET

RESET

MISC
          ▲/▼ : UP / DOWN        ◄/► : − / +    MENU : EXIT
                                               M52LW170DVI701IN
```
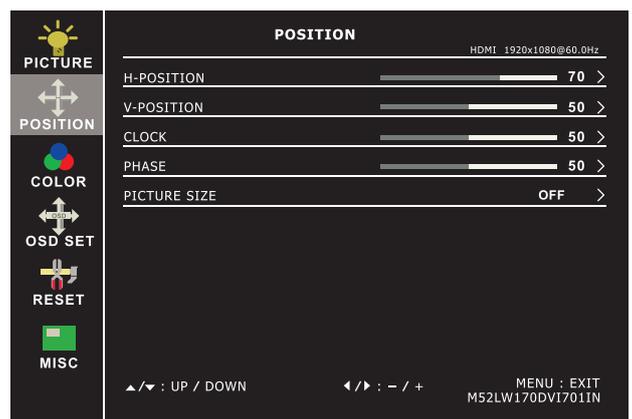
< 2.2 > On-screen Display Operation (OSD)

③ Color

Color temperature : User / Warm / Cool / 5400k mode and
Red / Green / Blue color balance

Sharpness : Adjust the image from weak to sharp

Hue : Adjust the screen hue value

Saturation : Adjust the saturation of the image color

Dynamic
luminous control : Control the dynamic brightness
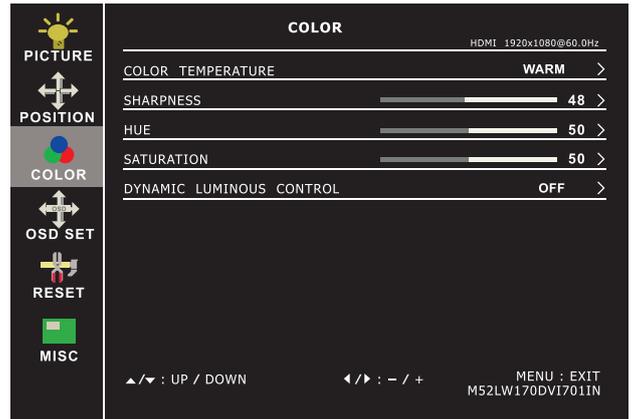
```
                              COLOR
                                        HDMI  1920x1080@60.0Hz
PICTURE
            COLOR  TEMPERATURE                        WARM    >
POSITION    SHARPNESS                          48  >
            HUE                                 50  >
COLOR       SATURATION                          50  >
            DYNAMIC  LUMINOUS  CONTROL               OFF    >
OSD SET

RESET

MISC
 ▲/▼ : UP / DOWN          ◄/► : − / +        MENU : EXIT
                                          M52LW170DVI701IN
```

④ OSD Set

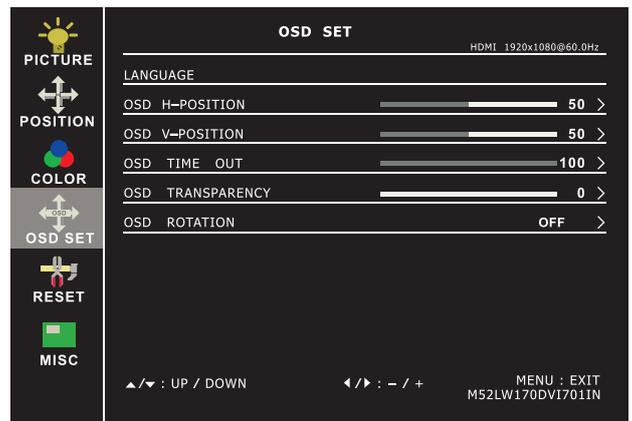Language : Select the language in which the OSD menu is
displayed - English

OSD H-Position : Align the screen image left or right

OSD V-Position : Align the screen image up or down
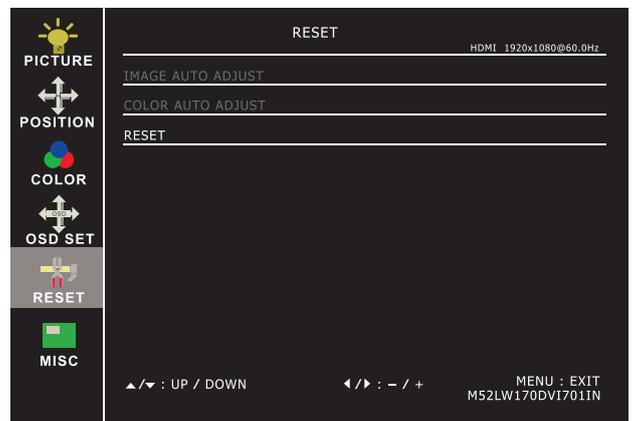
OSD time out : Adjust the screen timeout

OSD transparency : Adjust the screen transparency

OSD rotation : Rotate the screen - 90° / 180° / 270°

```
                             OSD  SET
                                        HDMI  1920x1080@60.0Hz
PICTURE     LANGUAGE
POSITION    OSD  H−POSITION                    50  >
            OSD  V−POSITION                    50  >
COLOR       OSD   TIME   OUT                  100  >
            OSD   TRANSPARENCY                  0  >
OSD SET     OSD   ROTATION                       OFF    >

RESET

MISC
 ▲/▼ : UP / DOWN          ◄/► : − / +        MENU : EXIT
                                          M52LW170DVI701IN
```

⑤ Reset

Reset : Return the adjustment back to factory setting

```
                             RESET
                                        HDMI  1920x1080@60.0Hz
PICTURE     IMAGE AUTO ADJUST
POSITION    COLOR AUTO ADJUST
            RESET
COLOR

OSD SET

RESET

MISC
 ▲/▼ : UP / DOWN          ◄/► : − / +        MENU : EXIT
                                          M52LW170DVI701IN
```
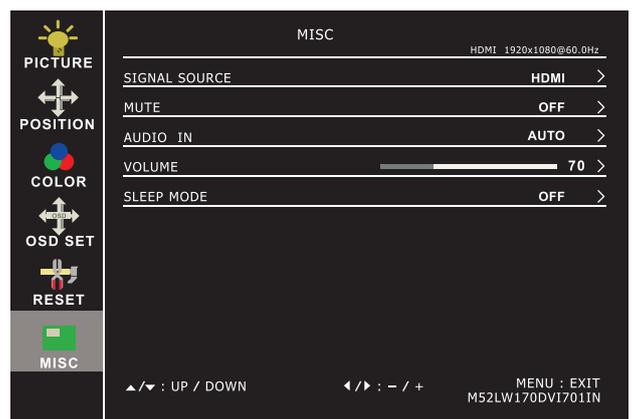
⑥ MISC

Signal source : Select the signal source - DP / HDMI1 / HDMI2

Mute : Turn off the surrounding sound

Audio in : Auto / Line in / DP

Volume : Adjust the volume of sound

Sleep mode : Set the off time - 10 min / 20 min / 30 min /
50 min / 60 min / 120 min / 240 min

```
                             MISC
                                        HDMI  1920x1080@60.0Hz
PICTURE     SIGNAL SOURCE                      HDMI   >
POSITION    MUTE                                OFF    >
            AUDIO  IN                          AUTO   >
COLOR       VOLUME                           70  >
            SLEEP MODE                          OFF    >
OSD SET

RESET

MISC
 ▲/▼ : UP / DOWN          ◄/► : − / +        MENU : EXIT
                                          M52LW170DVI701IN
```

< 2.3 > How to Use Picture In Picture (PIP) / Picture By Picture (PBP)

< 2.3.1 > Picture in Picture (PIP)

Mode

Display the Sub screen in the Main screen.

OSD Menu → MISC → PIP Mode → Large / Small / OFF

Main screen ←————→ [diagram] ←———— **Sub screen**

Position

Adjust the position of the Sub screen (top left, bottom left, top right, bottom right)
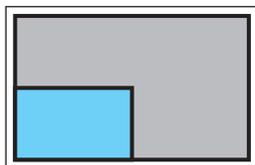
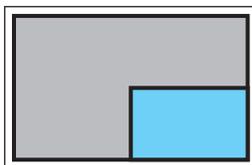OSD Menu → MISC → PIP Position → top left / top right / bottom left / bottom right

top left   **top right**

bottom left   **bottom right**

Size

Adjust the size of the Sub screen (Large / Small)

OSD Menu → MISC → PIP Mode → Large / Small

Size of Sub screen

LCD Monitor	Large Sub screen	Small Sub screen
1920 x 1200	552 x 414	480 x 360
1920 x 1080	552 x 414	480 x 360
1440 x 900	414 x 310	360 x 270
1366 x 768	392 x 294	340 x 254
1280 x 1024	368 x 276	320 x 240

< 2.3.2 > Picture By Picture (PBP)

Mode

Display the Sub screen next to the Main screen.

OSD Menu → MISC → PIP Mode → PBP

Main screen → ... ← Sub screen

Size

LCD Monitor	Main / Sub screen
1920 x 1200	955 x 716
1920 x 1080	955 x 716
1440 x 900	715 x 536
1366 x 768	678 x 508
1280 x 1024	635 x 476

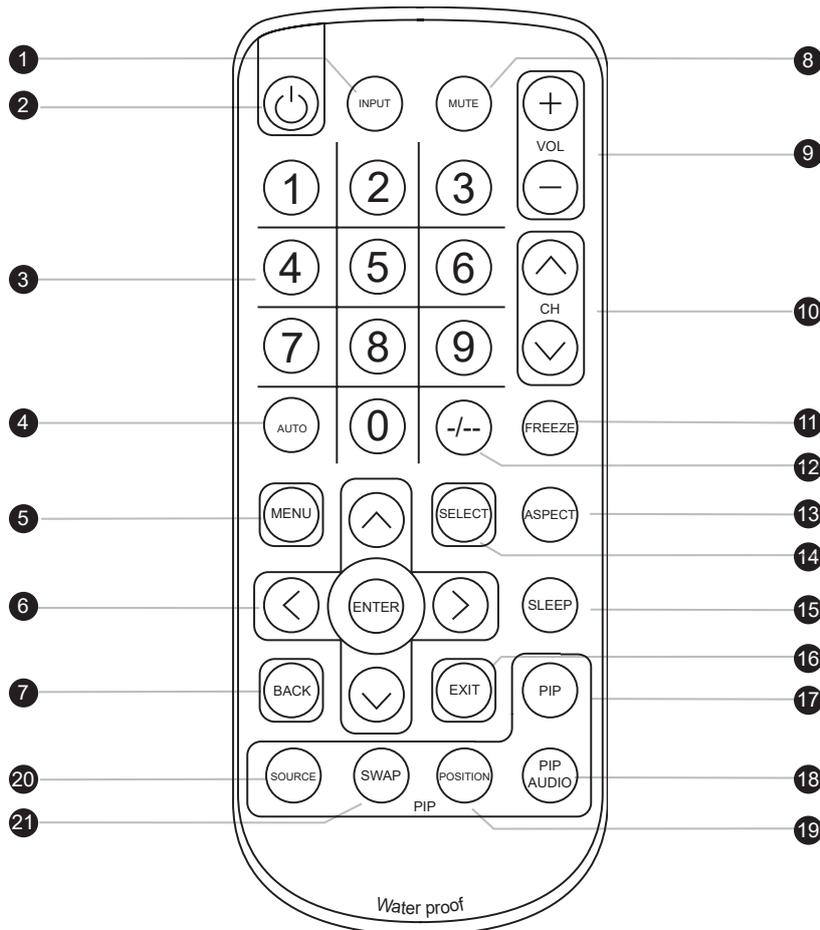## < 2.3.3 > PIP / PBP Source

To select an input signal for PIP / PBP Sub screen.

OSD Menu → MISC → PIP Source → VGA / S-Video / Composite / DVI / HDMI / SDI / YPbPr / TV

The PIP / PBP is operable in the following table :

Main \ Sub	VGA	S-Video	Composite	DVI-D	HDMI	SDI	YPbPr	TV
VGA	X	O	O	O	O	O	O	O
S-Video	O	X	X	O	O	O	O	X
Composite	O	X	X	O	O	O	O	X
DVI	O	O	O	X	X	O	O	O
HDMI	O	O	O	X	X	O	O	O
SDI	O	O	O	O	O	X	X	O
YPbPr	O	O	O	O	O	X	X	O
TV	O	X	X	O	O	O	O	X

< 2.4 > Remote Controller (RC-2)

|		
①	**INPUT**	Select the source
②	⏻	Switches on or off the TV
③	**0 - 9**	Only use in TV mode. Select channels. For channel numbers 10 and above, enter the second digit within two seconds.
④	**AUTO**	Auto adjust
⑤	**MENU**	Display the menu on the screen or go to the previous menu
⑥	**▲ / ▼ / ◄ / ► / ENTER**	Go to the upper menu or select the previous value / Go to the next menu or select the next value / Decrease the setting value / Increase the setting value or enter to the select item setting Enter to the select item settings or excude the setting
⑦	**BACK**	Back to previous value
⑧	**MUTE**	Turn on or off the speaker
⑨	**Vol + / -**	Increase or decrease the speaker volume
⑩	**CH + / -**	For TV model only, increase or decrease the channel number
⑪	**FREEZE**	Reserve for OEM model
⑫	**- / --**	For setting input single or double digits
⑬	**ASPECT**	Adjust the screen size
⑭	**SELECT**	To select the existing item
⑮	**SLEEP**	Select the sleeping time
⑯	**EXIT**	Exit the menu or cancel
	PIP functions	
⑰	**PIP**	Picture in picture
⑱	**PIP AUDIO**	To set the audio of in PIP mode
⑲	**POSITION**	To set the screen position in PIP mode
⑳	**SOURCE**	PIP Source
㉑	**SWAP**	Swap screen in PIP mode

< Part 3 > Option
< 3.1 > Options : 3G / HD / SD-SDI Input

Acnodes' SDI input is an ideal solution for the broadcast-grade video and high resolution CCTV market.

Designed for use with LCD displays, a SDI input module can support up to 1080p @60Hz resolution without using additional space or power and it comes standard with a 2-year warranty.
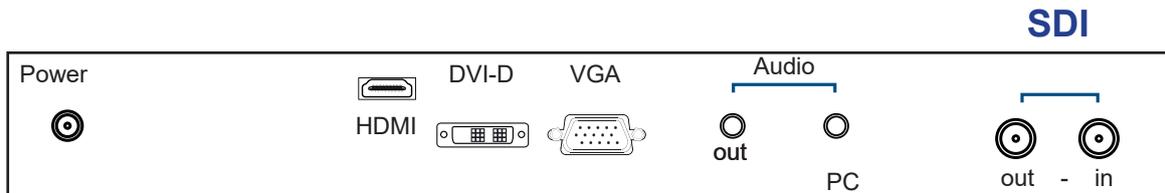
*** For **SDI** option, the AD board comes standard with HDMI, DVI-D, VGA and audio inputs.

INPUT	3G-SDI IN	BNC x 1 / 0.8Vp-p (75 ohm)
	3G-SDI OUT	BNC x 1 / Active through, equalized & relocked

| Standard Compliance	Video	SMPTE 425M / 274M / 296M / 125M ITU-R BT.656
	Audio	SMPTE 299M / 272M-C

Compatible Video Format	3G-SDI	1080p	@60 / 50Hz, 4:2:2
		1080p	@30 / 25 / 24Hz, 4:4:4
		1080i	@60 / 50Hz, 4:4:4
		720p	@60 / 50Hz, 4:4:4
	HD-SDI	1080p	@30 / 25 / 24Hz, 4:2:2
		1080i	@60 / 50Hz, 4:2:2
		720p	@60 / 50Hz, 4:2:2
	SD-SDI	480i	@60Hz, 4:2:2
	ITU-R BT.656	576i	@50Hz, 4:2:2

Compatible Audio Format	3G-SDI	48kHz, 16 / 20 / 24 bit, 2 CH, Synchronized Video
	HD-SDI	48kHz, 16 / 20 / 24 bit, 2 CH, Synchronized Video
	SD-SDI	48kHz, 16 / 20 / 24 bit, 2 CH, Synchronized / Asynchronized Video

Max. Transmission Distance 75 ohm coaxial cable	3G-SDI	150m at 2.97Gb/s
	HD-SDI	250m at 1.485Gb/s
	SD-SDI	480m at 270Mb/s

< 3.2 > Options : MCS
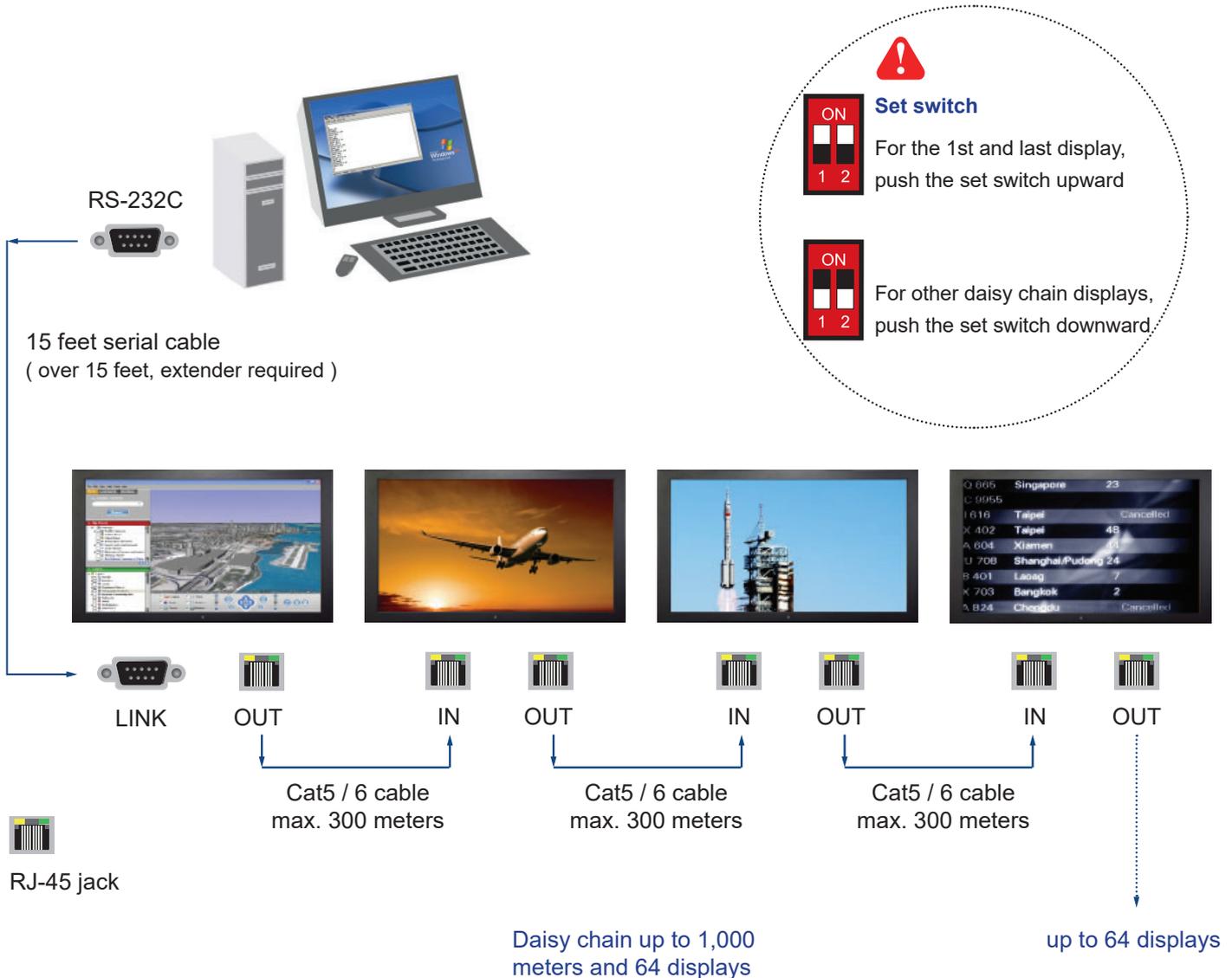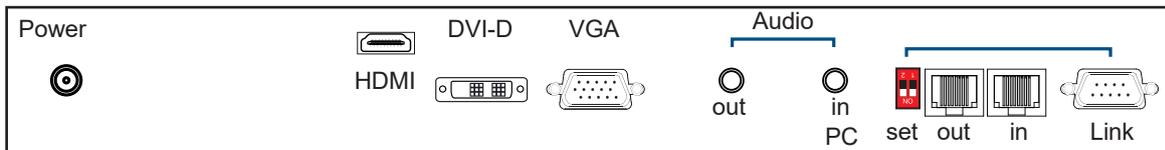
MCS
(Multi-display Control)
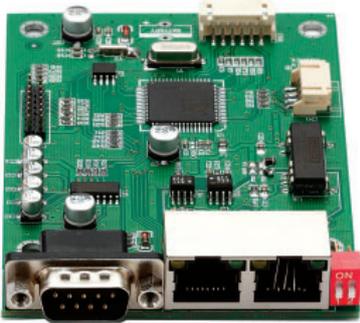
More control is always good. Especially when it is necessary and easy. Acnodes provides MCS solution to control the **OSD** of various LCD display up to 64 units.

The RS-232C is used for the communication between the PC and the first display via a 15 feet serial cable while the CAN bus is used for the various LCD displays cascade together via CAT 5/6 cable, and daisy chain up to 1,000 meters.

Designed for use with LCD displays, Acnodes provides a MCS input module without using additional space or power and it comes standard with a 2-year warranty.

MCS

Set switch

For the 1st and last display, push the set switch upward

For other daisy chain displays, push the set switch downward

RS-232C

15 feet serial cable
(over 15 feet, extender required)

LINK   OUT   IN   OUT   IN   OUT   IN   OUT

Cat5 / 6 cable
max. 300 meters

Cat5 / 6 cable
max. 300 meters

Cat5 / 6 cable
max. 300 meters

RJ-45 jack

Daisy chain up to 1,000
meters and 64 displays

up to 64 displays

< 3.3 > Options : Touchscreen & Driver

24" USB Touchscreen Specification

Model	TRB e-Resistive
Technology	5-Wire Resistive
Touch Point	Single
Input Type	Finger or Stylus
Resolution	2048 x 2048
Touch Point Accuracy	-
Response Speed	15 ms
Activation Force	≤ 50 g
Surface Hardness	3H
Light Transmission	80% ± 3%
Haze	8% ± 3%
Durability	10 million touches
Top Layer	ITO Film
Bottom Layer	ITO Glass
Thickness	2.2 ± 0.2 mm
Connector	USB Type A
Compatibility	Windows 7 / XP / Vista, Linux

- ■ USB touchscreen package includes 1 x 6ft USB cable, quick reference guideline and CD disc
- ■ For detailed information, please refer to the attached CD disc
- ■ As the touchscreen unit is not made of toughened glass, please handle it carefully

USB Touchscreen

Power	HDMI	DVI-D	VGA
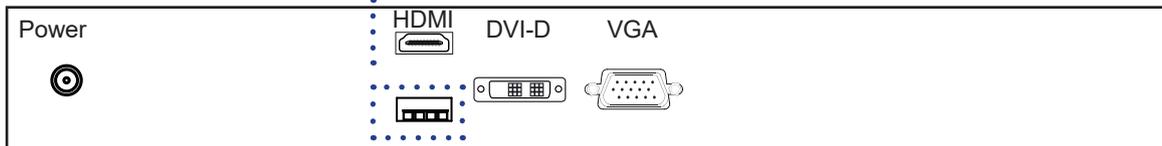
< 3.4 > Options : Touchscreen & Driver

TRB Driver

Please follow the below steps to setup the touch screen:-
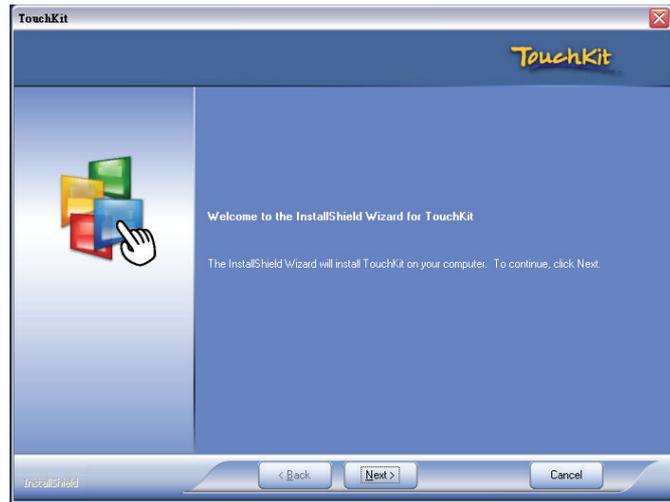
Step 1. Run the bundled CD disc

Step 2. Double click the Setup.exe

Step 3. Follow the installation instruction to finishthesetup
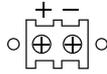
Step 4. After installation, run the TouchKit program & the "4 point calibration"

Please do the initial calibration after the first setup

< 3.5 > Options : DC Power

Model	12V	24V	48V	125V	250V
Input rating					
Input voltage:	12-Volt	24-Volt	48-Volt	110-Volt	300-Volt
Input range:	9 ~ 18V	18 ~ 36V	36 ~ 75V	66 ~ 160V	180 ~ 425V
Input current					
- No load	50 mA	50 mA	50 mA	35 mA	10 mA
- Full load	4950 mA	2450 mA	1220 mA	749 mA	600 mA
Output rating					
Output voltage:	12-Volt	12-Volt	12-Volt	12-Volt	12-Volt
Output current:	4.16A	4.16A	4.16A	6.25A	12.5A
Efficiency	84%	85%	85%	91%	86%

***   **For DC power option :**

     (1) If the unit with LCD, | earthing | **may be required**