

User Manual 24" Ultra High Resolution LCD

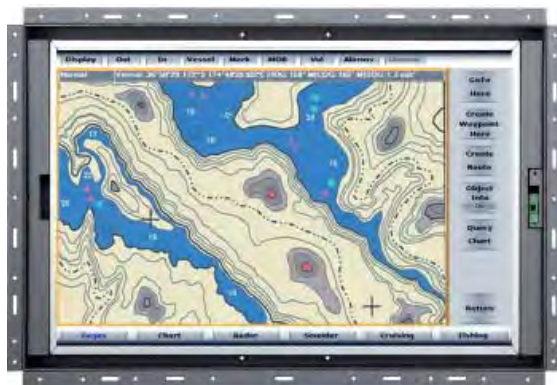


LCD-APX24

Aluminum front bezel

LCD-NAPX24

Front NEMA4 / IP65



LCD-OPX24

Universal Mounting Open Frame

FC CE

Legal Information

First English printing, October 2002

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 40° Celsius (104° 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.

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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.

< Part 1 >

< 1.1 > Package Content - LCD-APX24/NAPX24 24" High Res LCD Display

LCD-APX24/NAPX24



24" Ultra High Res LCD display X 1

6ft VGA cable X 1

6ft DVI-D cable X 1

6ft HDMI cable X 1

6ft RCA cable X 1

6ft S-Video cable X 1

Power cord X 1

Remote controller X 1

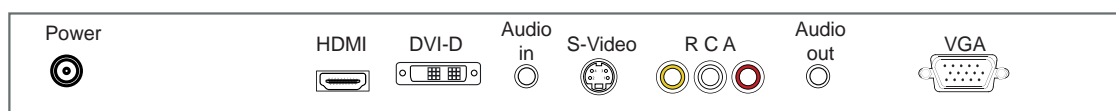
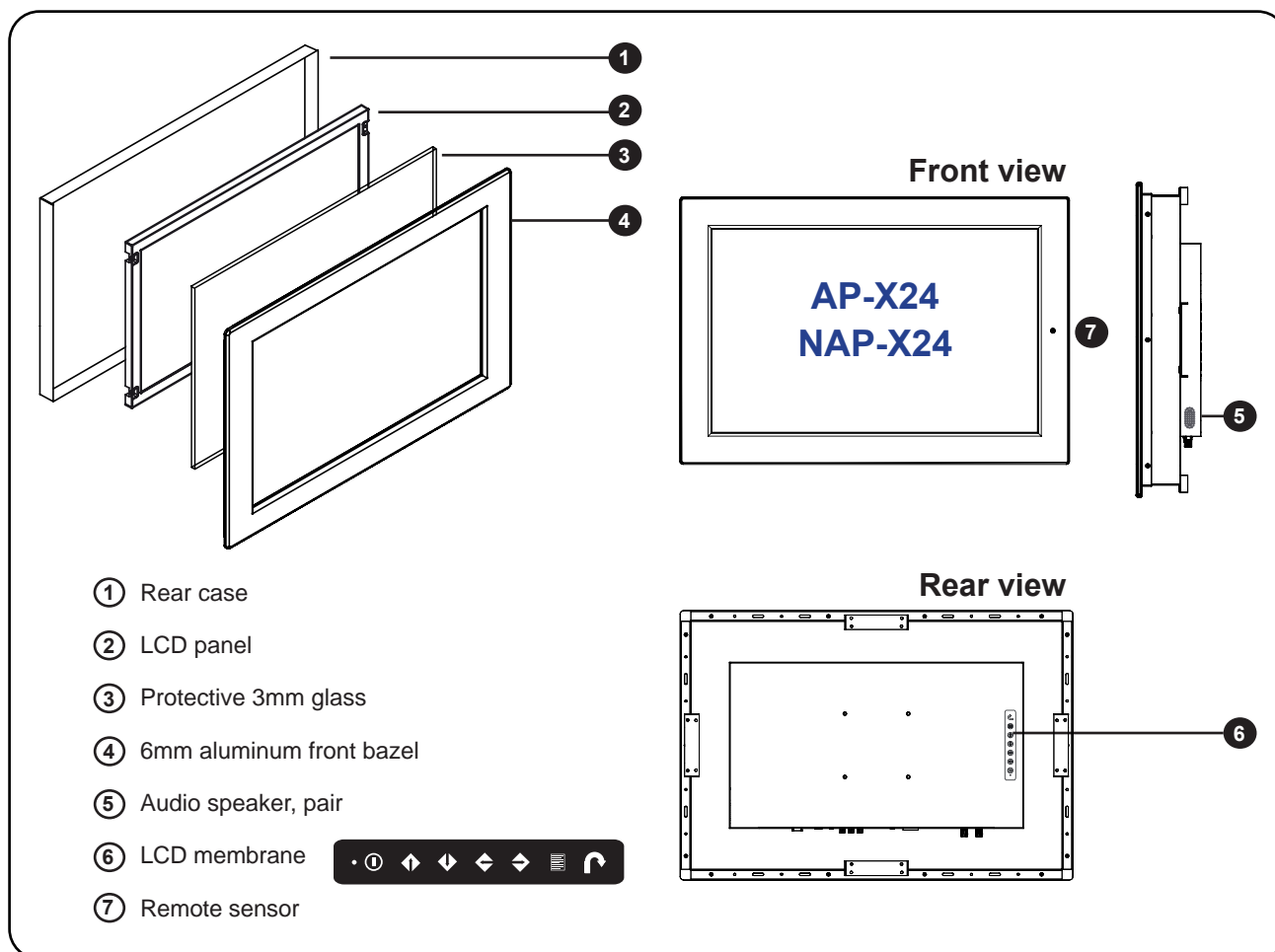
Mounting hardware X 1 pack

- Mounting bracket x 4 pcs

- M4* 6mm screw x 8 pcs

- M4* 50mm screw x 8 pcs

< 1.2 > Structure Diagram - LCD-APX24/NAPX24

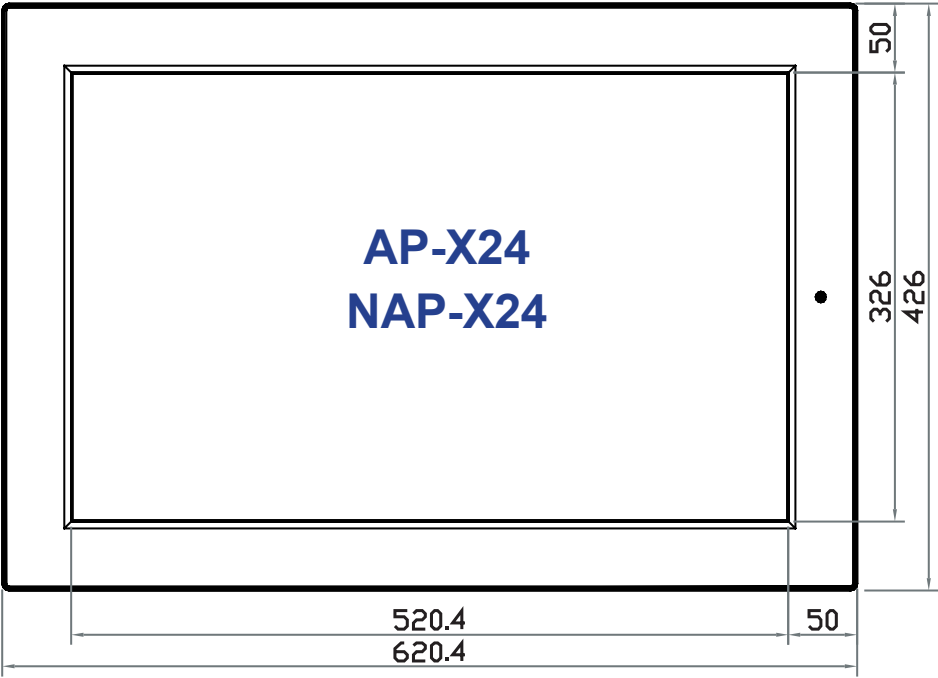


Standard I/O : HDMI, DVI-D, Audio, S-Video, RCA, VGA

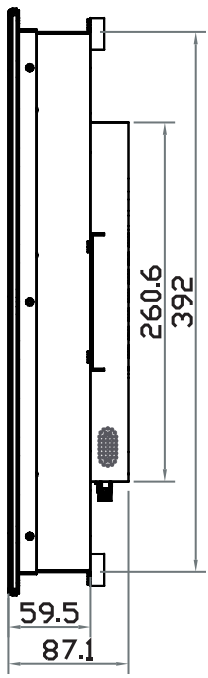
Options I/O : TV, USB for touchscreen
SDI or MCS (either one)

Model	Product Dimension (W x D x H)	Packing Dimension (W x D x H)	Net Weight	Gross Weight
LCD-APX24 LCD-NAPX24	620 x 87 x 426 mm 24.4 x 3.4 x 16.8 inch	778 x 173 x 524 mm 30.6 x 6.8 x 20.6 inch	10 kg 22 lbs	20 kg 44 lbs

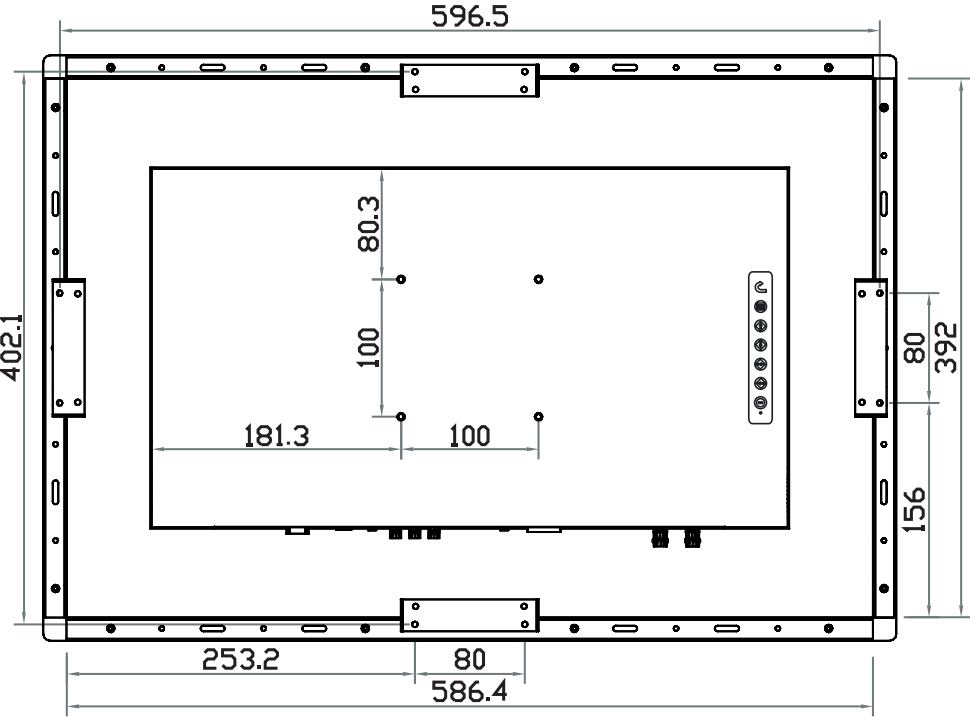
Front View



Side View

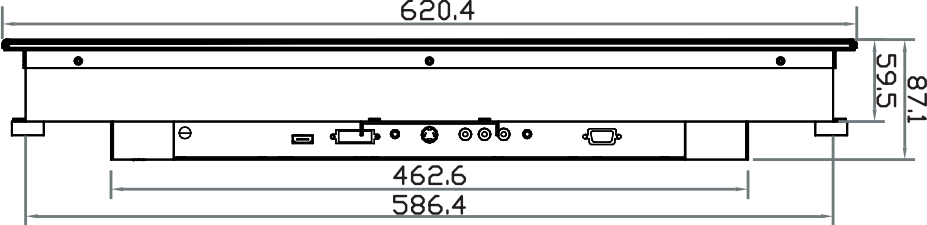


Rear View

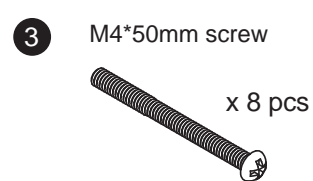
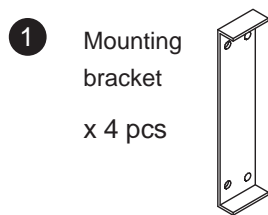


UNIT : mm
1mm = 0.03937 inch

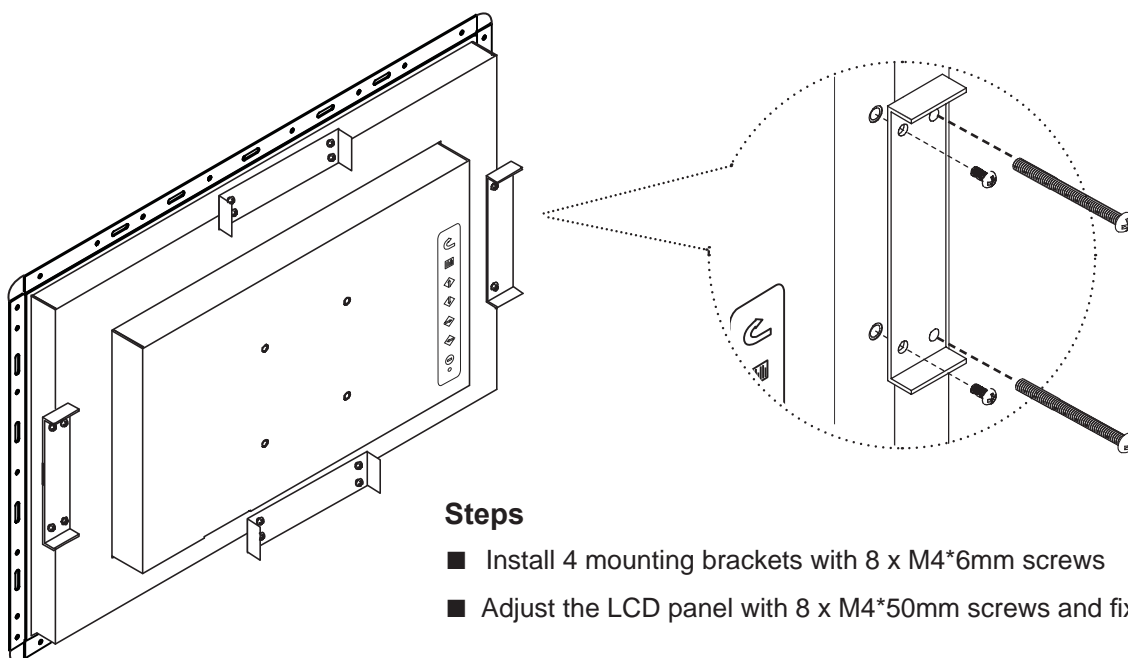
Bottom View



< 1.3 > Panel Mount Installation - LCD-APX24/NAPX24



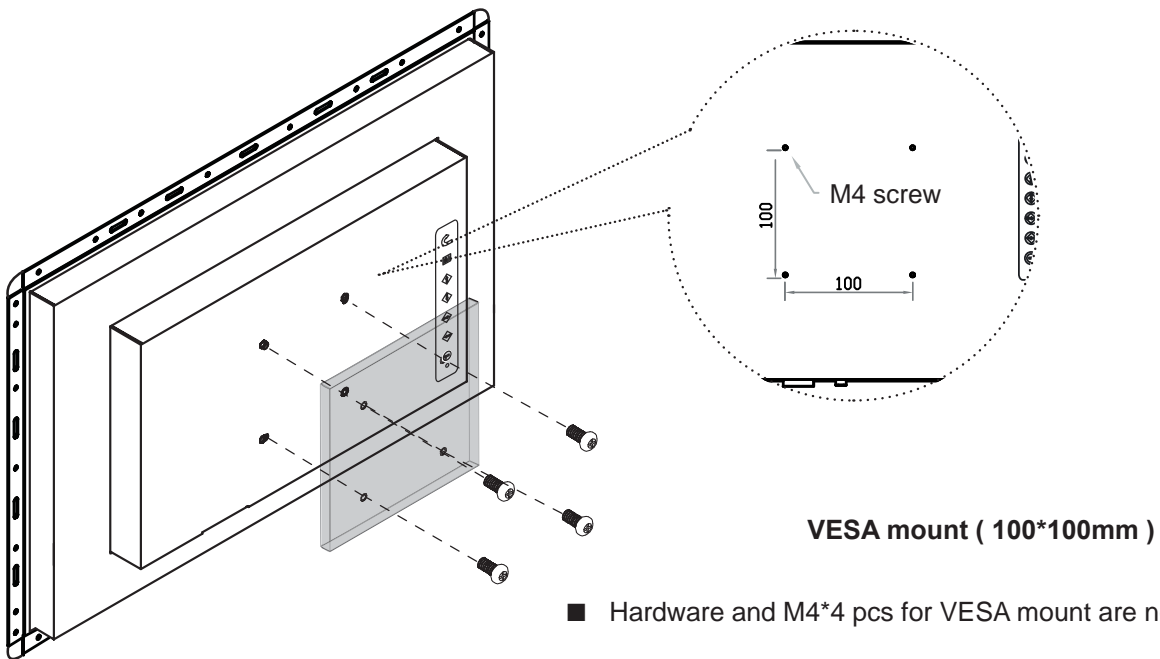
Hardware set part no. UV-BK#2



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.

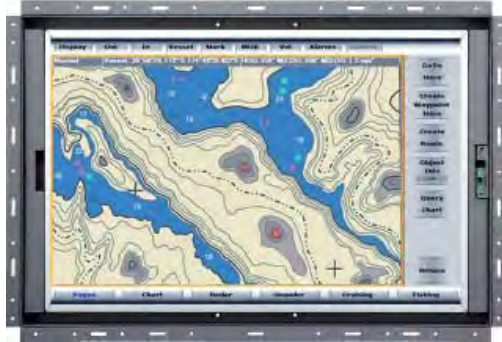
< 1.3 > VESA mount Installation - LCDAP-X24/NAPX24 24" High Res LCD Display



< Part 2 >

< 2.1 > Package Content - LCD-OPX24

LCD-OPX24



24" Ultra High Res LCD display X 1

6ft VGA cable X 1

6ft DVI-D cable X 1

6ft HDMI cable X 1

6ft RCA cable X 1

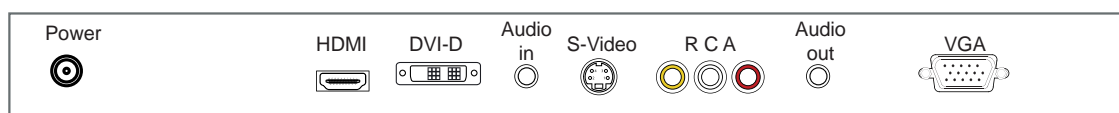
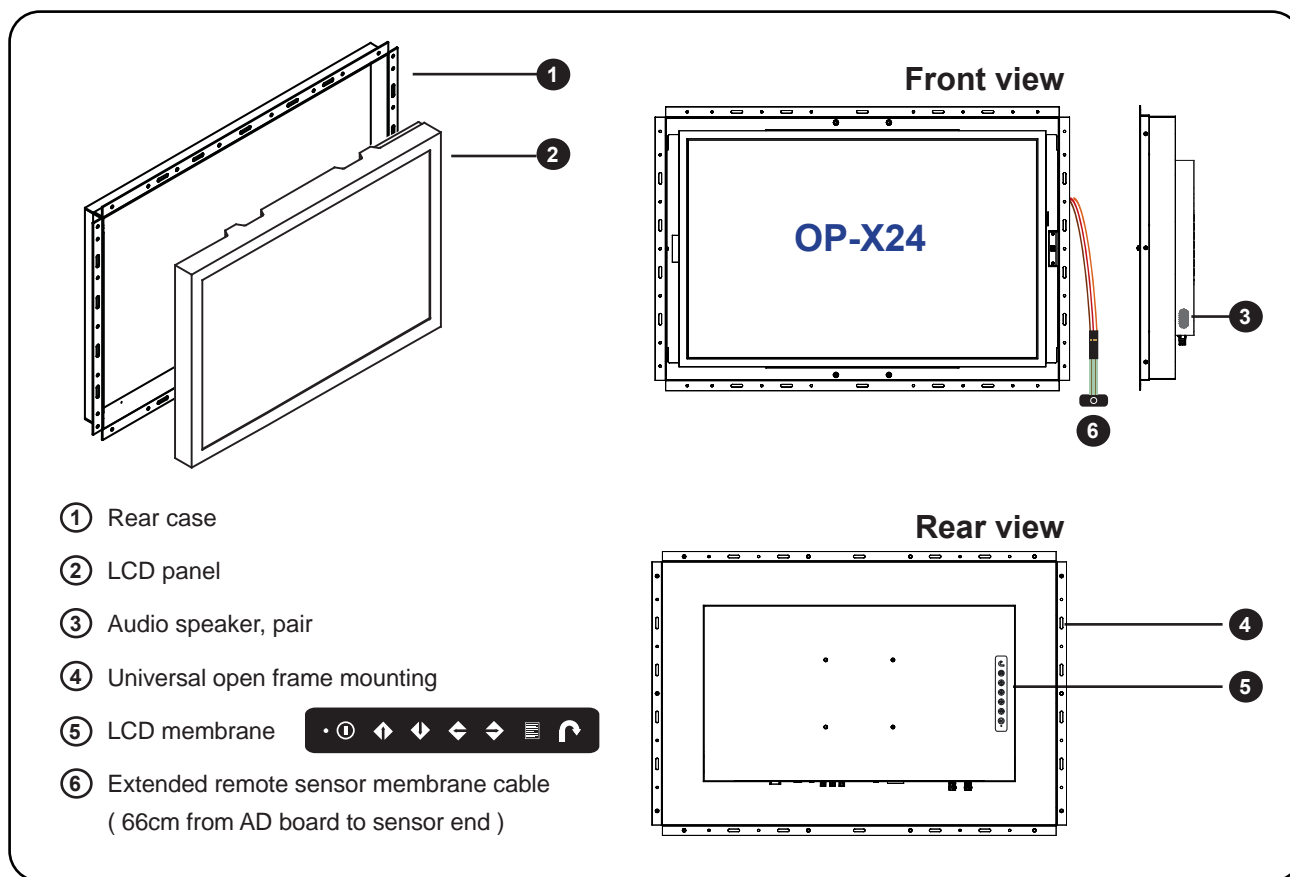
6ft S-Video cable X 1

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



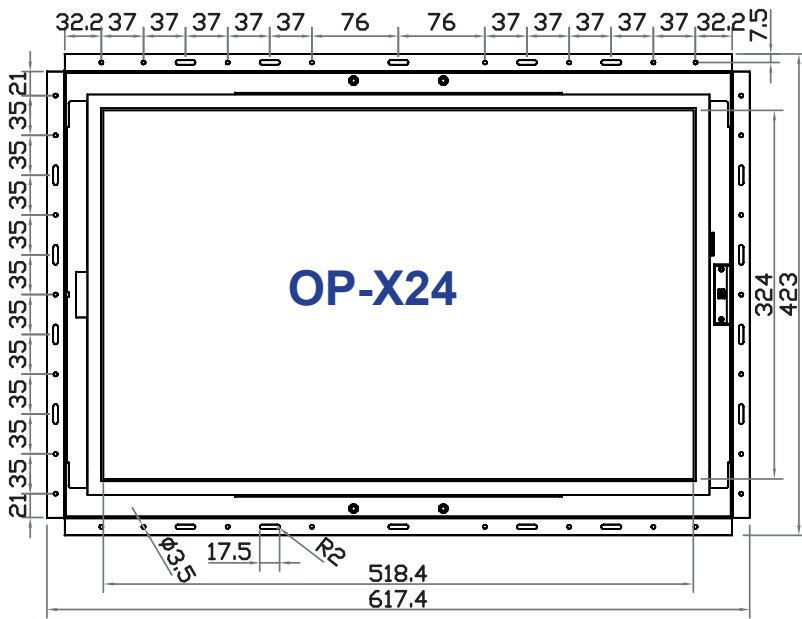
Standard I/O : HDMI, DVI-D, Audio, S-Video, RCA, VGA

Options I/O : TV, USB for touchscreen
SDI or MCS (either one)

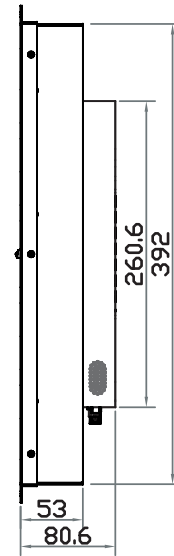
Model	Product Dimension (W x D x H)	Packing Dimension (W x D x H)	Net Weight	Gross Weight
LCD-OPX24	617 x 81 x 423 mm 24.3 x 3.2 x 16.7 inch	778 x 173 x 524 mm 30.6 x 6.8 x 20.6 inch	10 kg 22 lbs	20 kg 44 lbs

< 2.2 > Dimension - LCD-OPX24

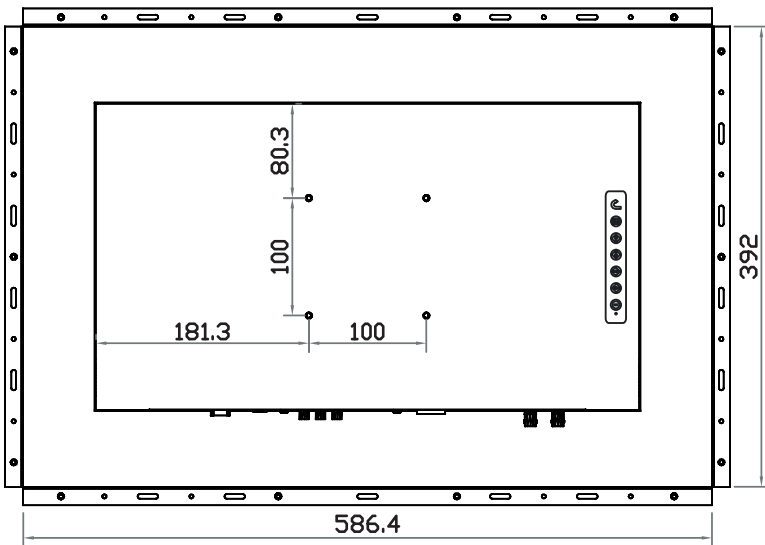
Front View



Side View



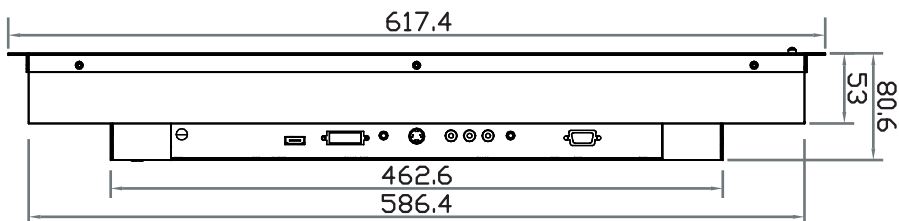
Rear View



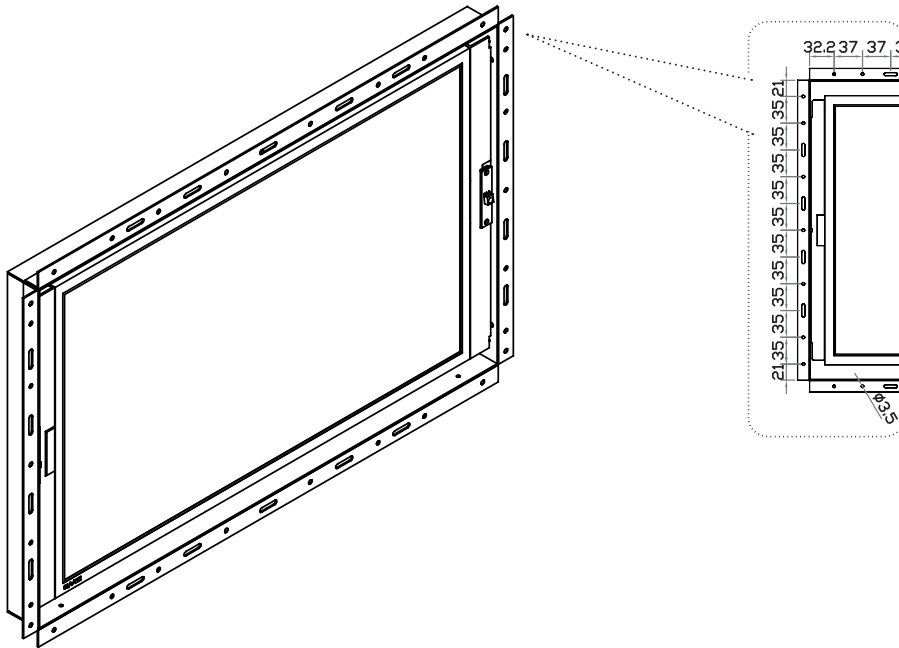
UNIT : mm

1mm = 0.03937 inch

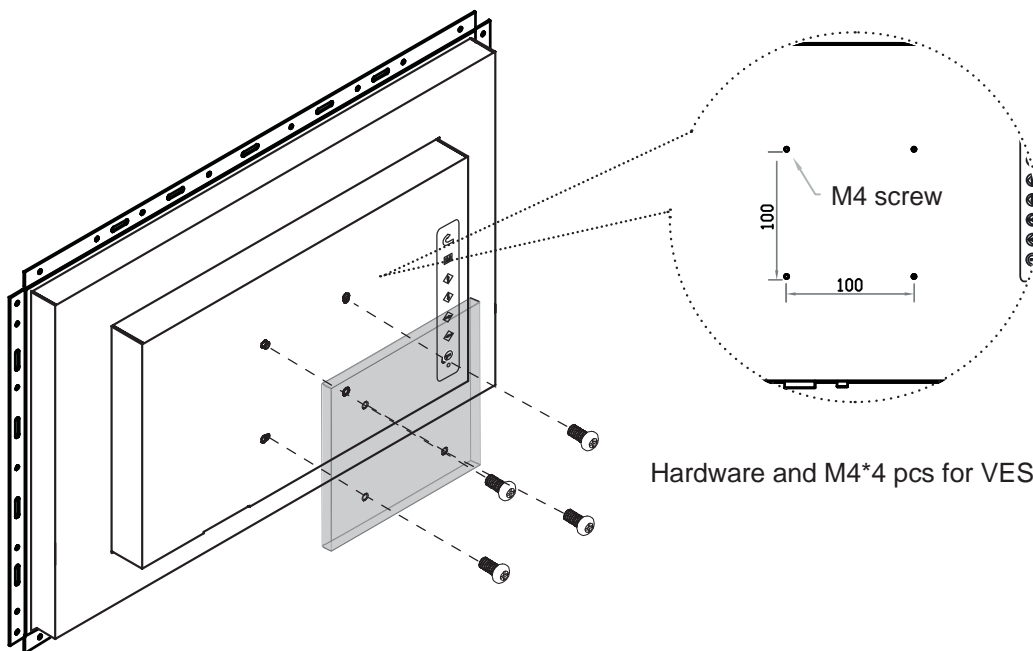
Bottom View



(I) Universal mount



(II) VESA mount (100*100mm)



Hardware and M4*4 pcs for VESA mounting are not provided

< Part 3 >

< 3.1 > Product Specifications

Mechanical Design		LCDAP/NAPX24	LCD-OPX24
	Front Panel	Black, RAL 9005	-
	Rear Casing	Dark grey, RAL 7037	Dark grey, RAL 7037
	VESA Mounting	100 x 100mm	100 x 100mm
	Other Mounting	Panel mount	Universal mount
	Protection	3mm protective glass	

LCD Panel	Panel Size (diagonal)	24.1-inch Widescreen TFT color LCD	
	Display pixel (dots x lines)	1920 x 1200	
	Brightness (typ.)	400	
	Contrast Ratio (typ.)	1000:1	
	Color	1.07 b	
	Viewing Angle (L/R/U/D)	89/89/89/89	
	Response Time (ms)	13	
	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)	40,000	

Video Connectivity	Digital	HDMI	HDMI 1.1, CEA-861-D
		DVI	DVI-D, TMDS single link
	Analog	VGA	Analog 0.7Vp-p
		Composite (RCA)	NTSC & PAL
		S-Video (4-pin)	NTSC & PAL
	Plug & Play	DVI / VGA	VESA EDID structure 1.3
	Synchronization	VGA	Separate, Composite & SOG

Audio Connectivity	Audio Input	Connector	3.5mm stereo jack
		Impedance / Power level	30kΩ / 750mV
	Audio Output	Connector	3.5mm stereo jack
		Resistance / Power level	30kΩ / 2.8V
	Speaker Output	Power	2 x 2W

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

Power	Power Supply	Range	Auto-sensing 100 to 240VAC, 50 / 60Hz
	Power Consumption	Screen display ON	125W or less
		Power saving mode	9W or less
		Power button OFF	2W or less

24" Ultra High Res LCD Display

Regulatory	Safety Approval	FCC & CE
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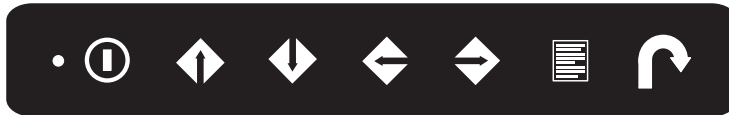
Environmental Conditions	Operating	Temperature	0 to 50°C degree
		Humidity	20~90%, non-condensing
	Storage	Temperature	-5 to 60°C degree
		Humidity	5~90%, non-condensing
		Shock	10G acceleration (11ms duration)
		Vibration	5~500Hz 1G RMS random

Physical Specification		LCDAP/NAPX24	LCD-OPX24
	Product (W x D x H)	620 x 87 x 426 mm 24.4 x 3.4 x 16.8 inch	617 x 81 x 423 mm 24.3 x 3.2 x 16.7 inch
	Packing (W x D x H)	778 x 173 x 524 mm 30.6 x 6.8 x 20.6 inch	778 x 173 x 524 mm 30.6 x 6.8 x 20.6 inch
	Net Weight	10 kgs / 22 lbs	10 kgs / 22 lbs
	Gross Weight	20 kgs / 44 lbs	20 kgs / 44 lbs

Applicable Format	DVI-D / VGA Input	PC Signal	1920 x 1200 x 60Hz
			1920 x 1080 x 60Hz
			1280 x 1024 x 60 / 75Hz
			1280 x 60 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
	HDMI Input	PC Signal	Same as VGA
		Video Signal	1080p : 60Hz
			720p : 50 / 60Hz
			480p : 60Hz
			576p : 50Hz
		Audio Signal	2ch Linear PCM (32 / 44.1 / 48 KHz)
	Composite / S-Video Input	NTSC	525 lines, 60 fields / sec
		PAL	625 lines, 50 fields / sec

< 3.2 > On-screen Display Operation (OSD)

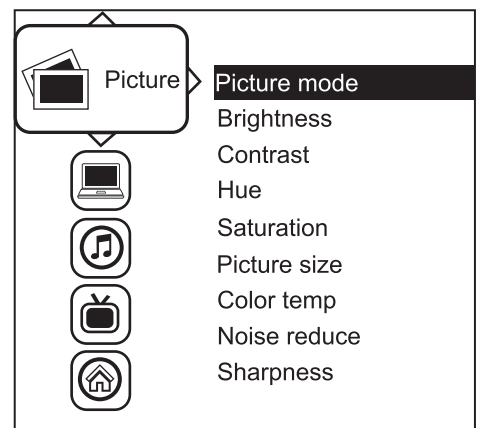
- Power light
- Green = On
- Orange = Power saving



Membrane Switch	Function
	Power on / off LCD
	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)

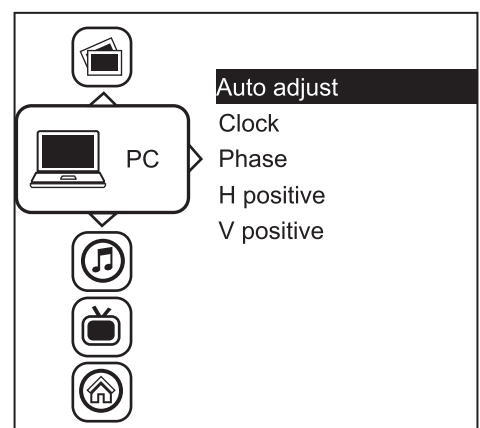
① Picture

Picture mode :	Standard / Vivid / Soft / User mode to choose
Brightness :	Adjust background black level of the screen image
Contrast :	Adjust the difference between the image background (black level) and the foreground (white level)
Hue:	Adjust the screen hue value
Saturation :	Adjust the saturation of the image color
Picture size :	Adjust the image size
Color temp :	Standard / Cool / Warm / User to choose
Noise reduce :	Reduce the noise of the image
Sharpness :	Adjust the image from weak to sharp



② PC

Auto adjust :	Automatically adjust sizes, centers and fine tunes the video signal to eliminate waviness and distortion.
Clock :	Adjust the clock value
Phase :	Adjust the phase value
H. Position :	Align the screen image left or right
V. Position :	Align the screen image up or down

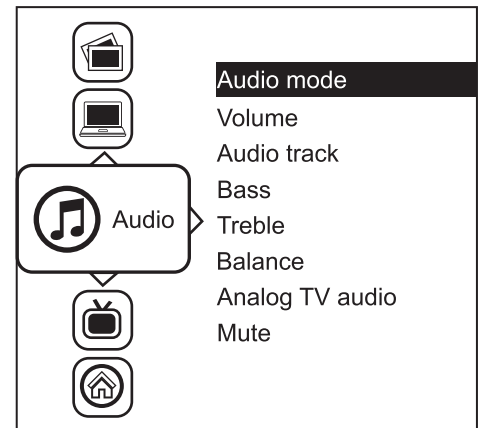


< 3.2 > On-screen Display Operation (OSD)

24" Ultra High Res LCD Display

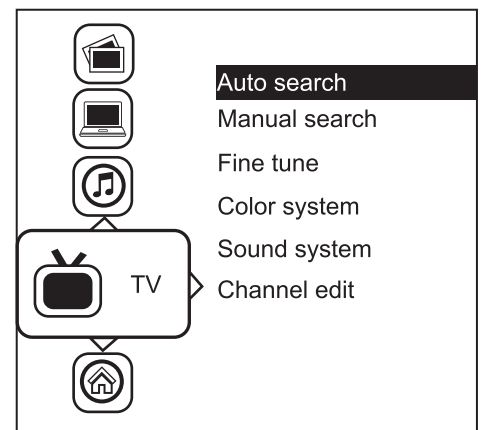
③ Audio

Audio mode :	Movie / Voice / Normal / Music mode to choose
Volume :	Adjust the volume of sound
Bass :	Set the value of bass sound
Treble :	Set the value of treble sound
Balance :	Set the balance value of treble and bass sound
Analog TV audio :	Set the value of analog TV audio sound
Mute :	Turn off the surrounding sound



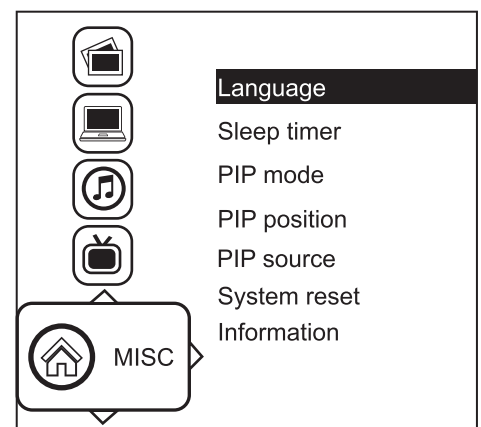
④ TV

Auto search :	Automatically search
Manual search :	Search the TV manual
Fine tune :	Fine tune the TV signal
Color system :	Adjust the TV color
Sound system :	Adjust the TV sound
Channel edit :	Edit the channel

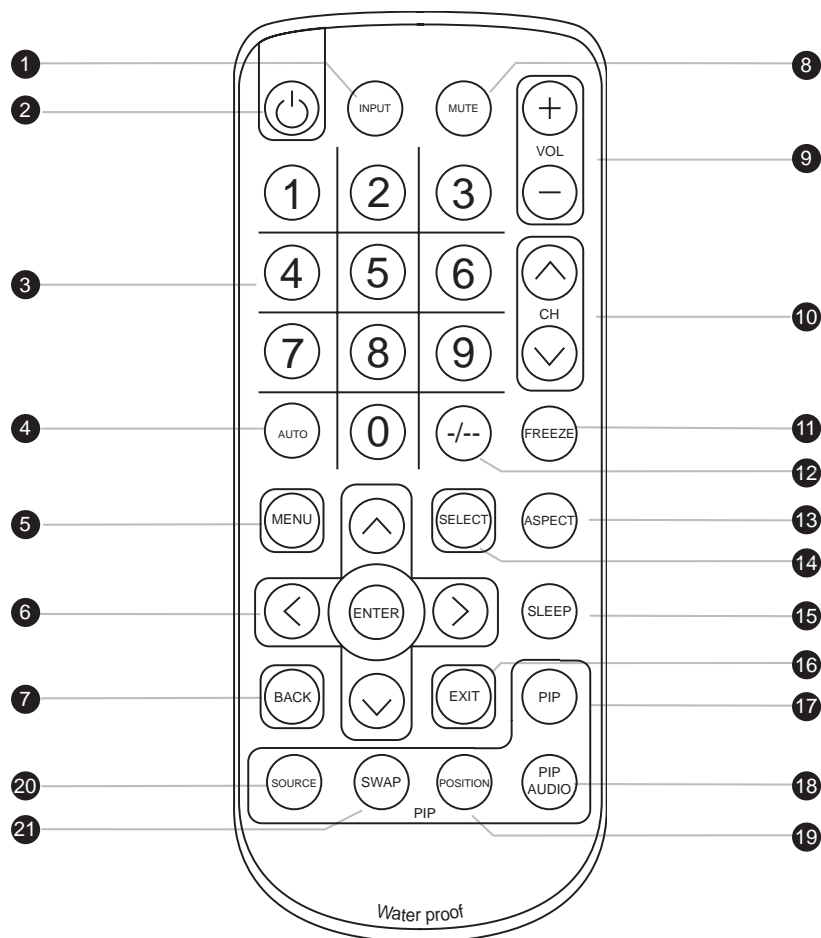


⑤ MISC

Language :	Select the language in which the OSD menu is displayed - English
Sleep timer :	Set the off time
PIP mode :	Adjust picture in picture setting
PIP position :	Enter into PIP position
PIP source :	Enter into the Sub source and sound source
System reset :	Return the adjustment back to factory setting
Information :	Select for Help



< 3.3 > 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

< 4.1 > Option Table

Basic Options	AP / NAP	OP
SDI ***	✓	✓
Touchscreen	✓	✓
MCS multi-display control ***	✓	✓
MIL-type / lockable connector	✓	✓
TV	✓	✓

*********The user can only select either SDI or MCS inputs.**

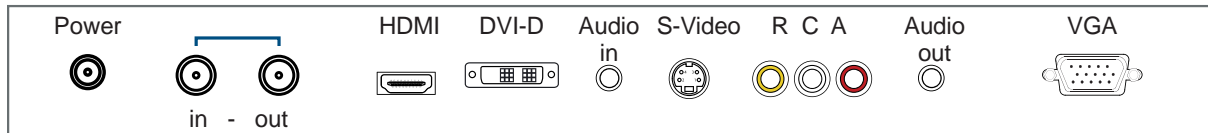
< 4.2 > Options : 3G / HD / SD-SDI input



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

Designed for use with CIT's Full HD 1080p and ultra high resolution 1920 x 1200 LCD displays, Crystal Image provides a SDI input module without using additional space or power and it comes standard with a 2-year warranty.

SDI



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

< 4.3 > Options : MCS

24" Ultra High Res LCD Display

MCS (Multi-display Control)

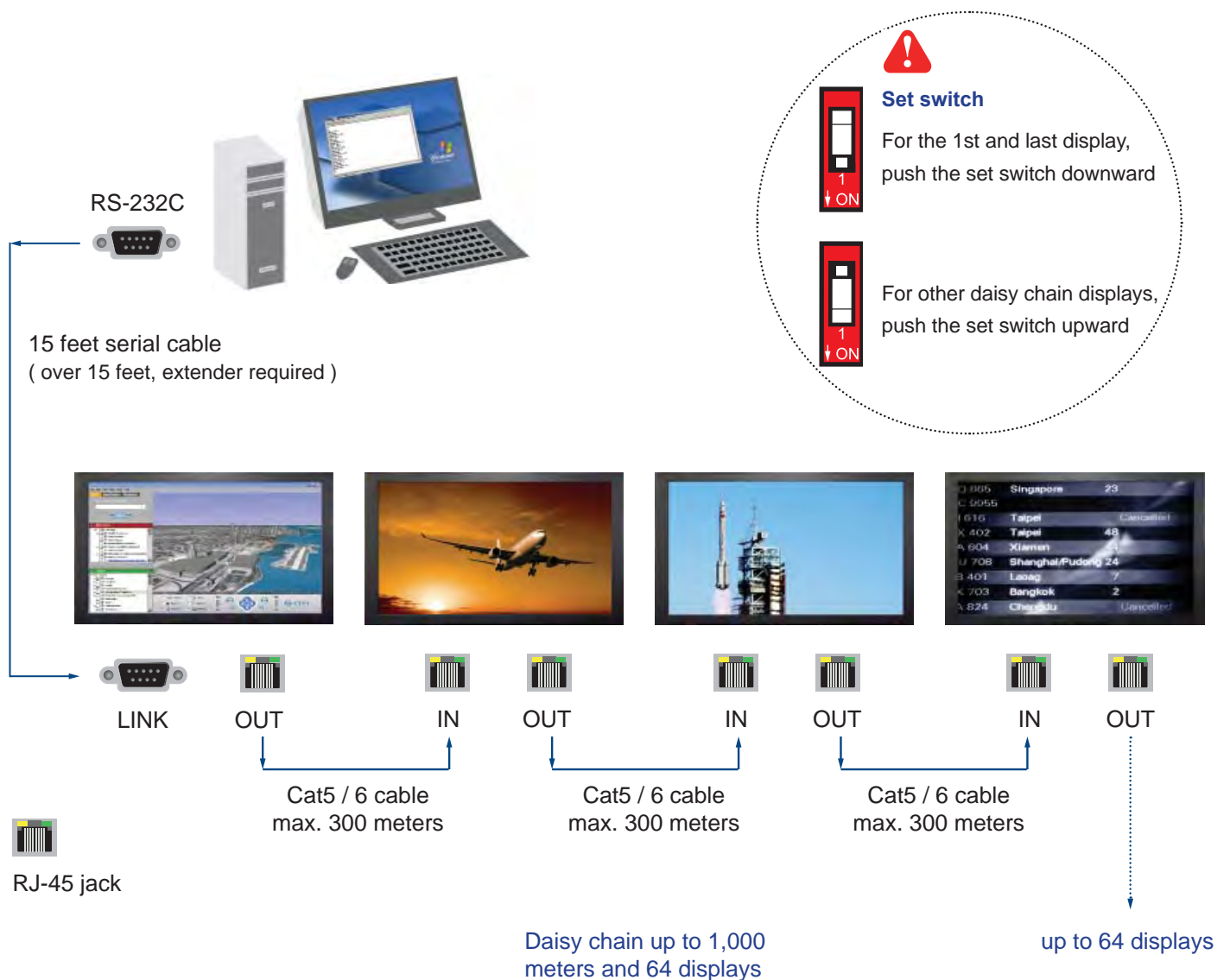
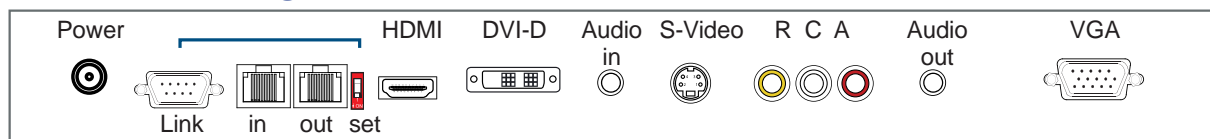
More control is always good. Especially when it is necessary and easy. Crystal Image provides MCS solution to control the **OSD** of various Crystal Image LCD display up to 64 units.



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 CIT LCD displays, Crystal Image provides a MCS input module without using additional space or power and it comes standard with a 2-year warranty.

MCS



< 4.3 > Options : MCS

MCS (Multi-display Control)



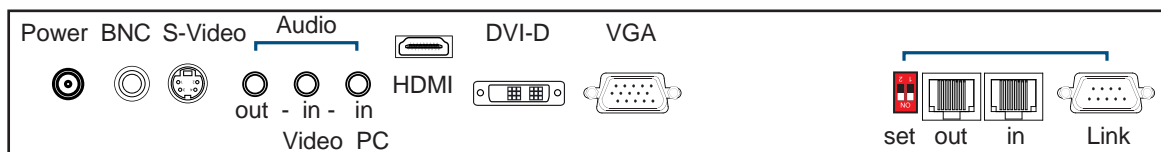
24" High Resolution LCD Display

More control is always good. Especially when it is necessary and easy. Crystal Image provides MCS solution to control the **OSD** of various Crystal Image LCD display up to 64 units.

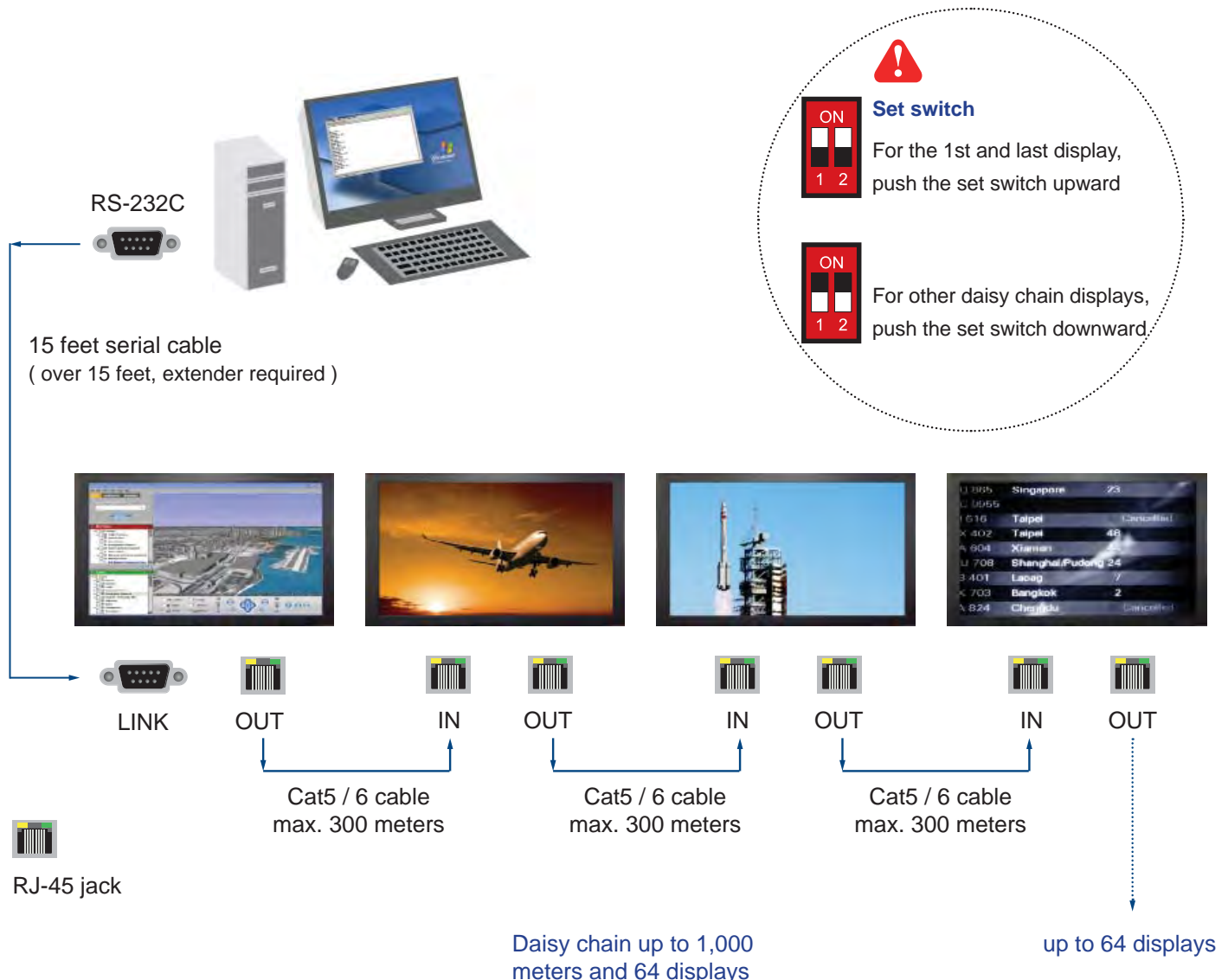
The RS-232C is used for the communication between the PC and the first display via a 15 feet serial cable while the CAN bus is used for the various LCD displays cascade together via CAT 5/6 cable, and daisy chain up to 1,000 meters.

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

MCS



*** Please download the protocol of MCS control at :
<http://www.rackmountsales.com/v/pdf/citummcs.pdf>



**X24" USB Touchscreen Specification**

Model	TRB e-Resistive	TMR2 Multi-touch
Technology	5-Wire Resistive	Infrared
Touch Point	Single	Dual
Method	Stylus or Finger	Finger or Gloved Hand
Activation Force	≤ 50g / Stylus=R0.8	No pressure required
Durability	10 million touches	300 million touches
Response Time	15 ms	25 ms
Optical Transmittance	80% ± 3%	90% ±2%
Surface Hardness	3H	7H
Haze	8% ± 3%	7%
Glass	3.2 ±0.2 mm	3 mm ±10%
Connector	USB Type A	USB Type A
Compatibility	Windows 7 / XP / Vista, Linux	Windows 7

- 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**TRB Driver**

Please follow the below steps to setup the touch screen:-

Step 1. Run the bundled CD disc or download the driver from the link below :

<http://www.rackmountsales.com/Products/Touchscreen/Driver/Download.aspx>

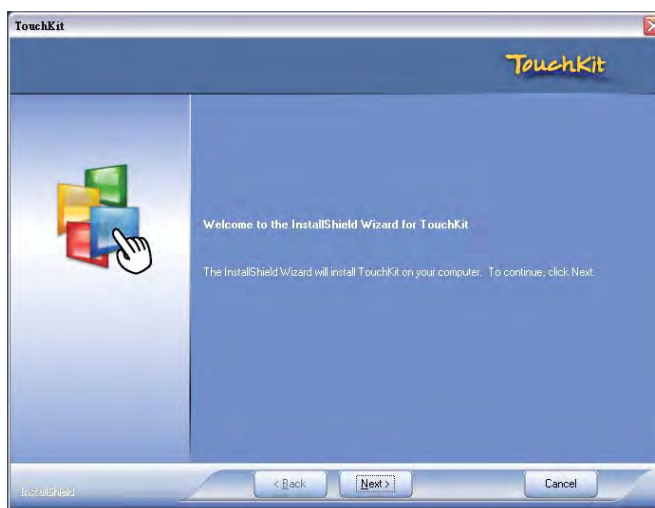
Step 2. Double click the Setup.exe

Step 3. Follow the installation instruction to finish the setup

Step 4. After installation, run the TouchKit program & the "4 point calibration"





Please do the initial calibration after the first setup



< 4.5 > Options : MIL-type or Lockable Connector 24" Ultra High Res LCD Display

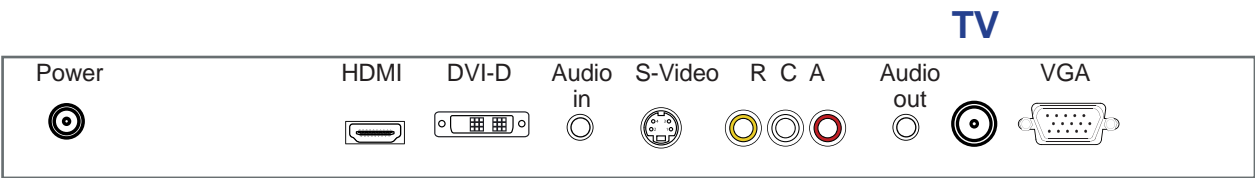
	Input	Part no.	MIL Standard
MIL - type Connector	DC Power *** (Male)	MS3470W8-33P 	MIL - DTL - 26482
	VGA *** (Male)	MS3470W14-15P 	MIL - DTL - 26482

*** There are several additional MIL DC and VGA connector types with varying design characteristics to meet cost considerations and to provide users with the most design flexibility possible. For more information, please contact us.

	Input	Part no.	Standard
Lockable Connector	DC Power (Male)	YM-Ext-461CP001 	D-type 3W3
	USB	LUSB - A111 - 00 	-

*** MIL - type or Lockable connectors above can be integrated with our LCD displays. Sale service just for connectors not provided.

< 4.6 > Options : TV (Analog)



For RC-2 remote controller specifications, please refer to P.14