User Manual   Marine Bridge System Display

MB-15 to MB-24
15, 15.6, 17, 17.3, 19, 21.5, 23.8 inch

Options :
- **AR Hardness Glass**
- **Touchscreen**
- **DC power**
- **Mounting Brackets**
- **Sun Visor**

IEC60945   FC   C€   RoHS

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   **MB-XX**
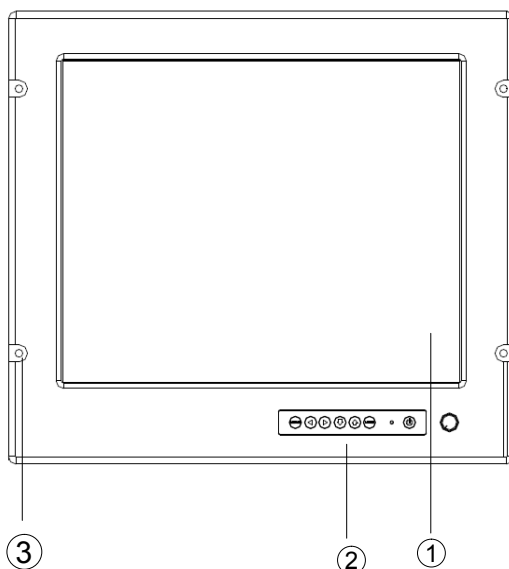

MB Display unit X 1

- 1.8 M VGA cable X 1
- 1.8 M HDMI cable X 1
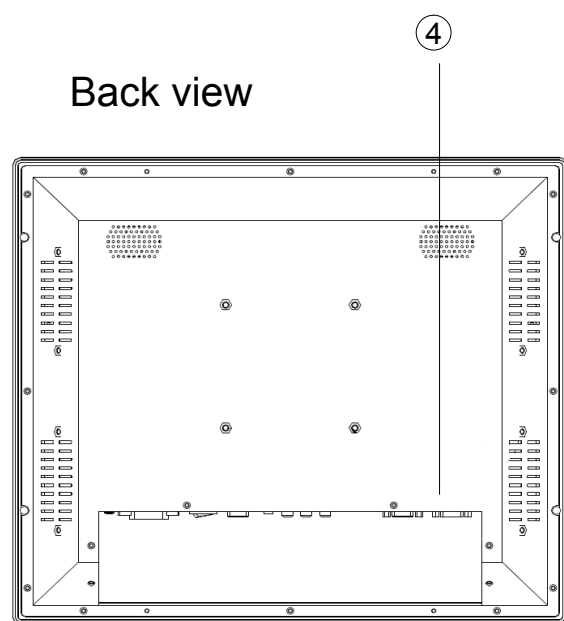- 1.8 M Audio cable X 1
- 1.8 M AV cable X 1
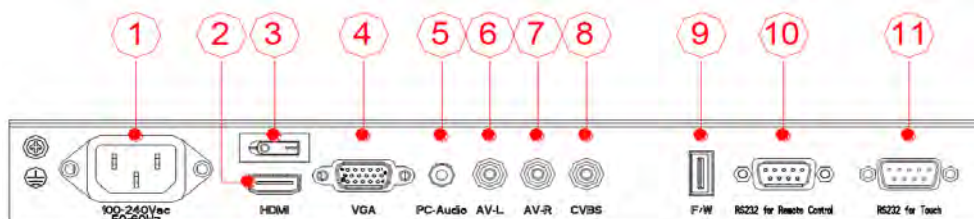- Power cord X 1

< 1.2 > Structure Diagram

Front view

Back view

④

③   ② ①

① LCD PANEL
② LCD OSD
③ Rack mounting hole
④ I/O bracket

1 . AC Inlet   7 . AV-R
2 . HDMI   8 . CVBS
3 . Power sw 9 . F/W update
4 . VGA   10 . RS232 for Remote control
5 . PC-Audio 11 . RS232 or USB-A for touch
6 . AV-L

① ② ③   ④   ⑤ ⑥ ⑦ ⑧   ⑨   ⑩   ⑪

100-240Vac 50-60Hz   HDMI   VGA   PC-Audio AV-L AV-R CVBS   F/W   RS232 for Remote Control   RS232 for Touch

Basic I/O : HDMI + VGA + AV + Audio w/ speaker
Options   : touchscreen & DC power

< 1.2 > Dimension-15 inch
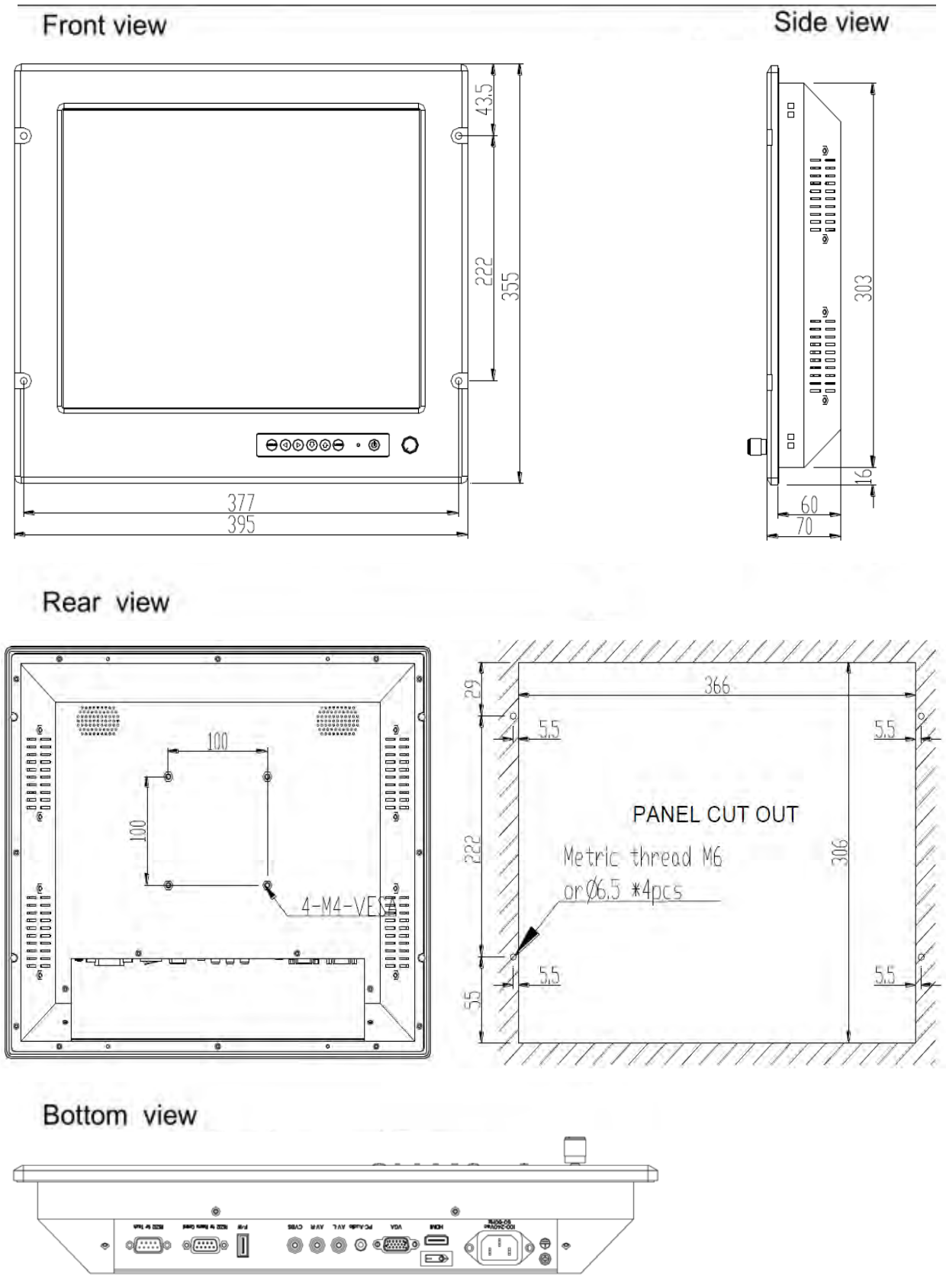
Front view

Side view

Rear view

PANEL CUT OUT

Metric thread M6
or Ø6.5 *4pcs

4-M4-VESA

Bottom view

Model	Product Dimension (W x H x D)	Packing Dimension (W x H x D)	Net Weight	Gross Weight
MB-15	395 x 355 x 70mm	530 x 490 x 220mm	7.5 kg	10 kg
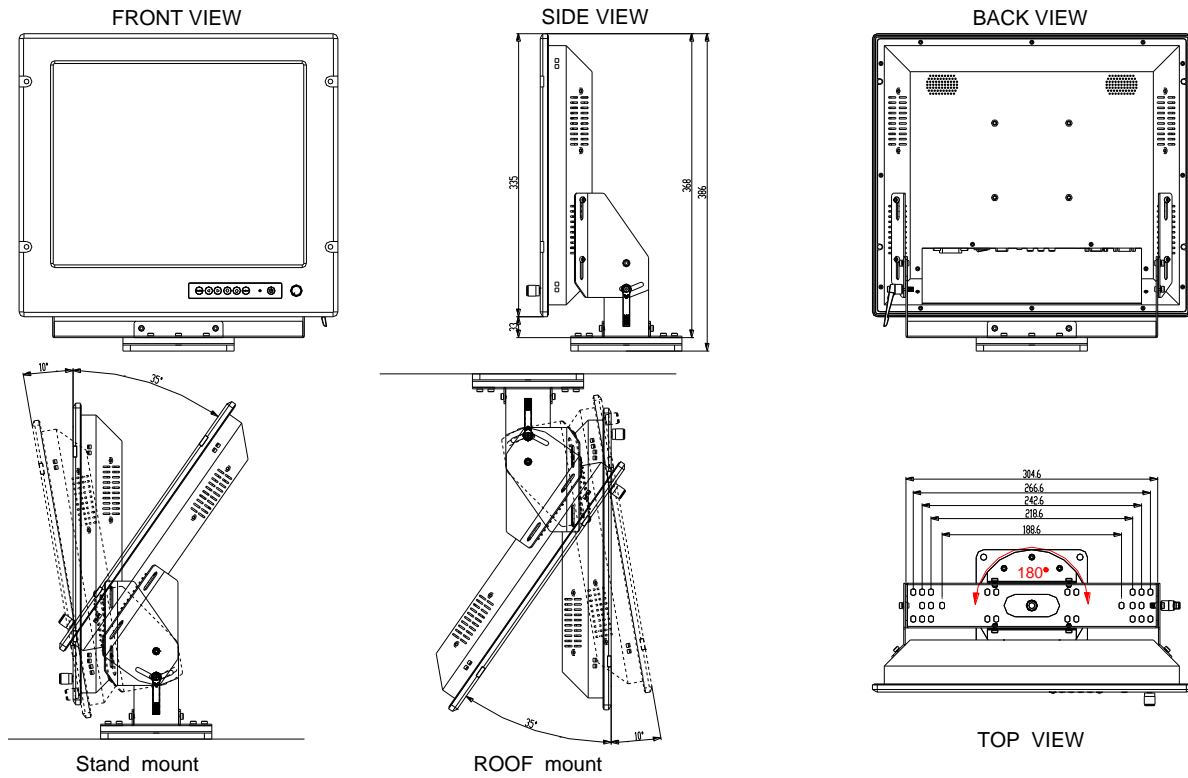
FRONT VIEW

SIDE VIEW

BACK VIEW

Stand mount

ROOF mount

180°

TOP VIEW

Mounting bracket for stand and roof mount (Option)

Mounting bracket + Rotary Bracket (Option)
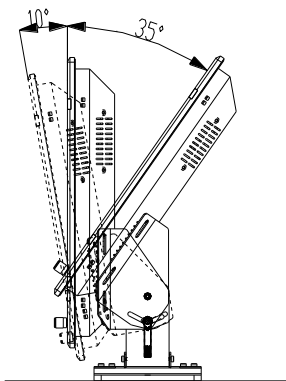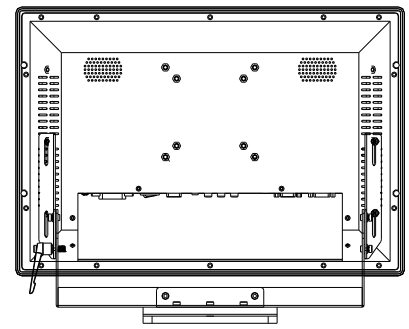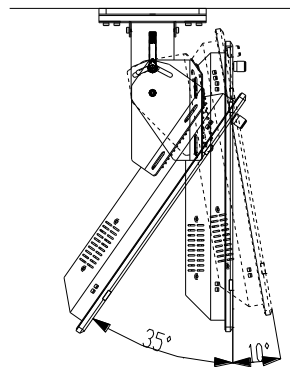

Sun Visor Bracket (Option)

FRONT VIEW

SIDE VIEW

BACK VIEW

BOTTOM VIEW

TOP VIEW

Sun Visor bracket
ISOMETRIC EXPLODED VIEW

Dimension-15.6 inch

Front view

Side view

Rear view

PANEL CUT OUT
Metric thread M6 or ? 6.5 *4pcs

Bottom view
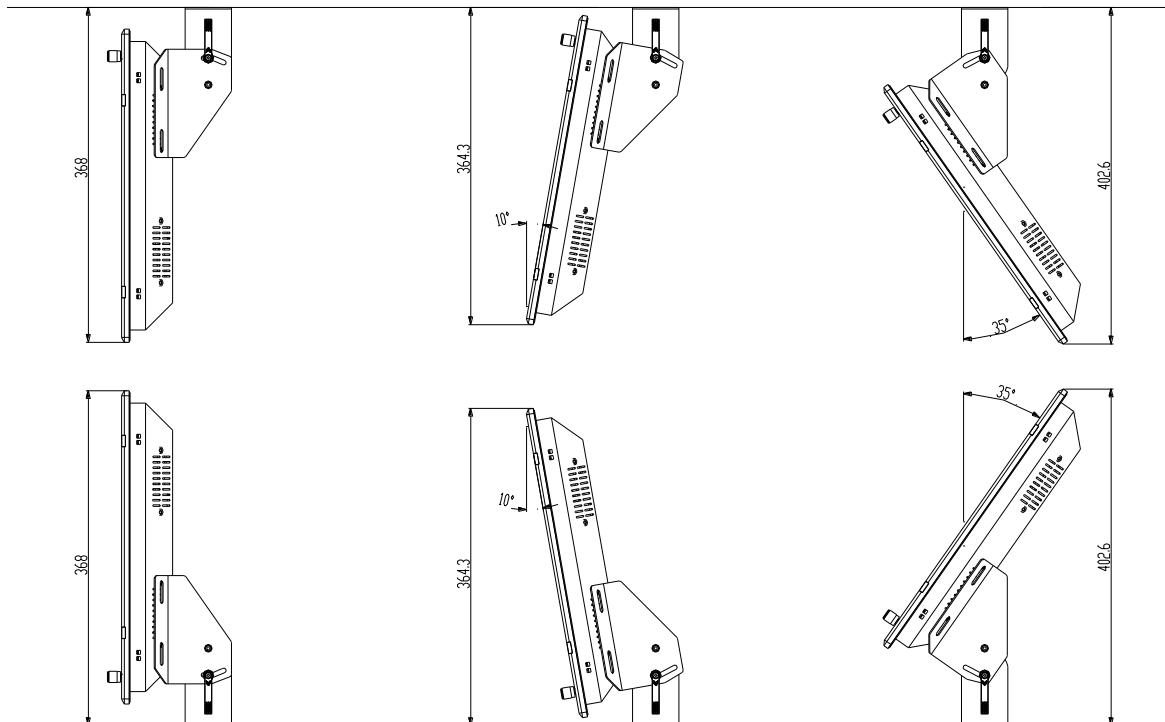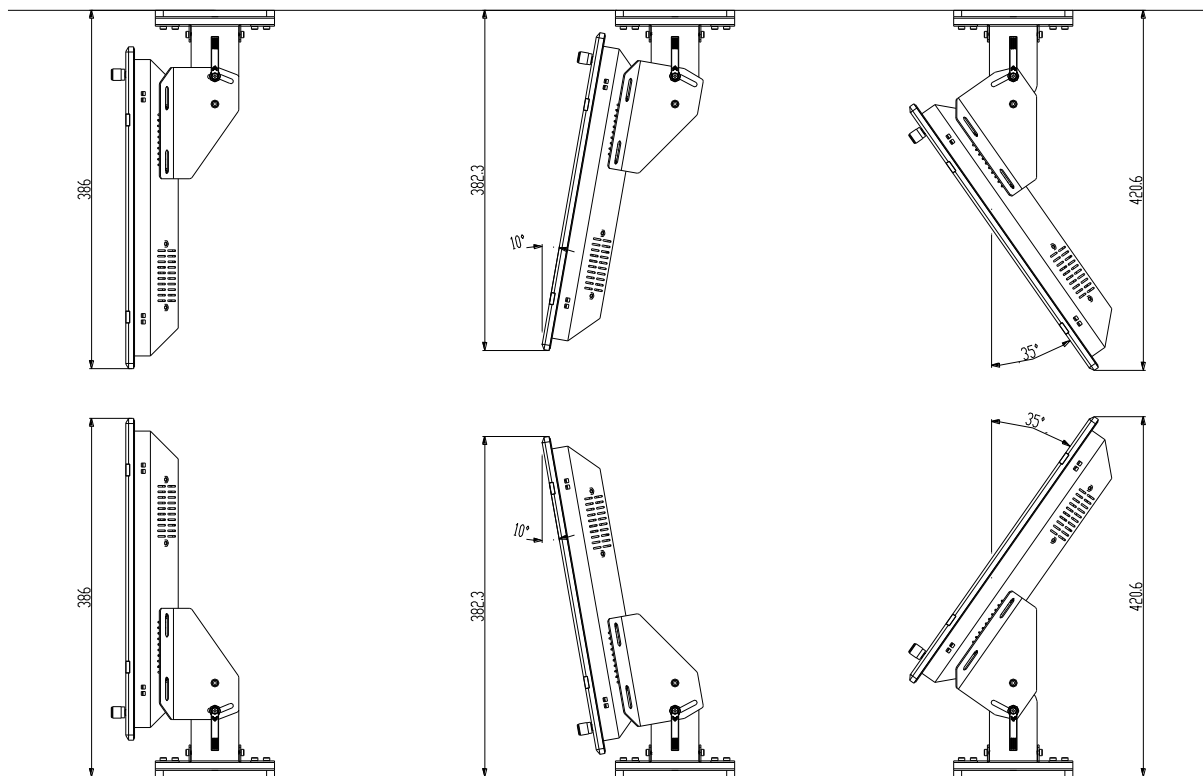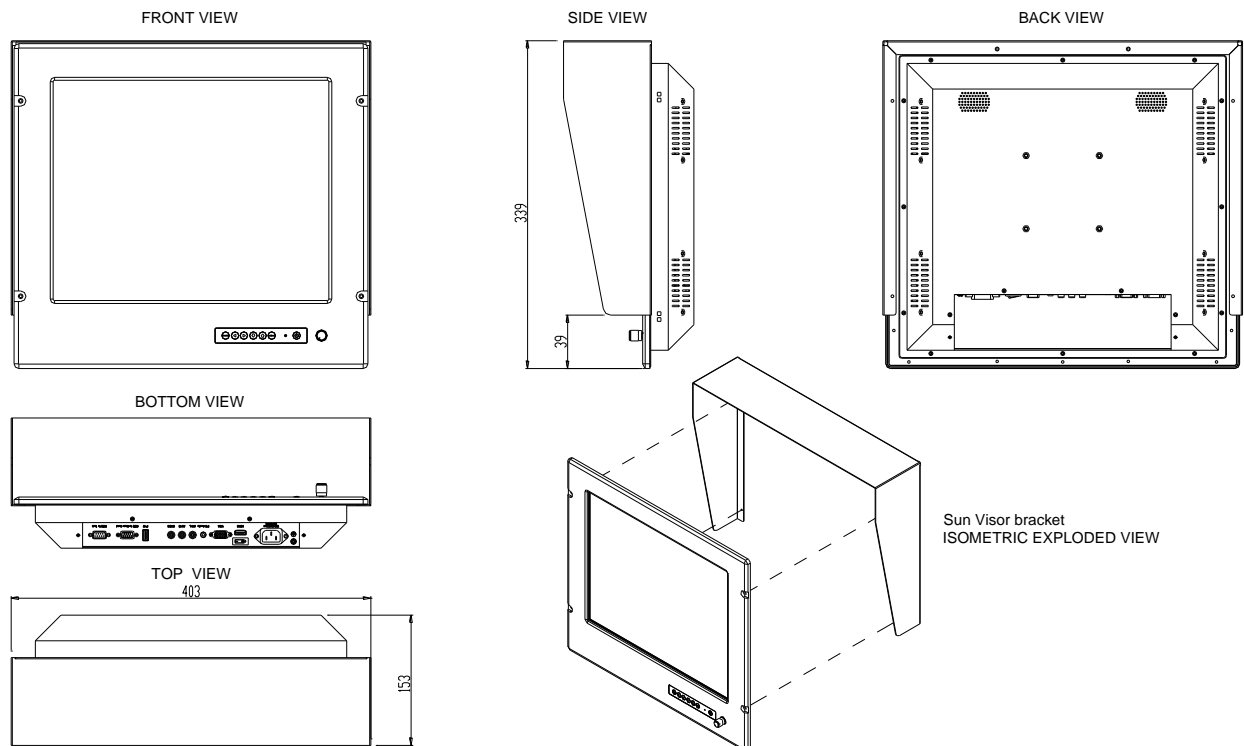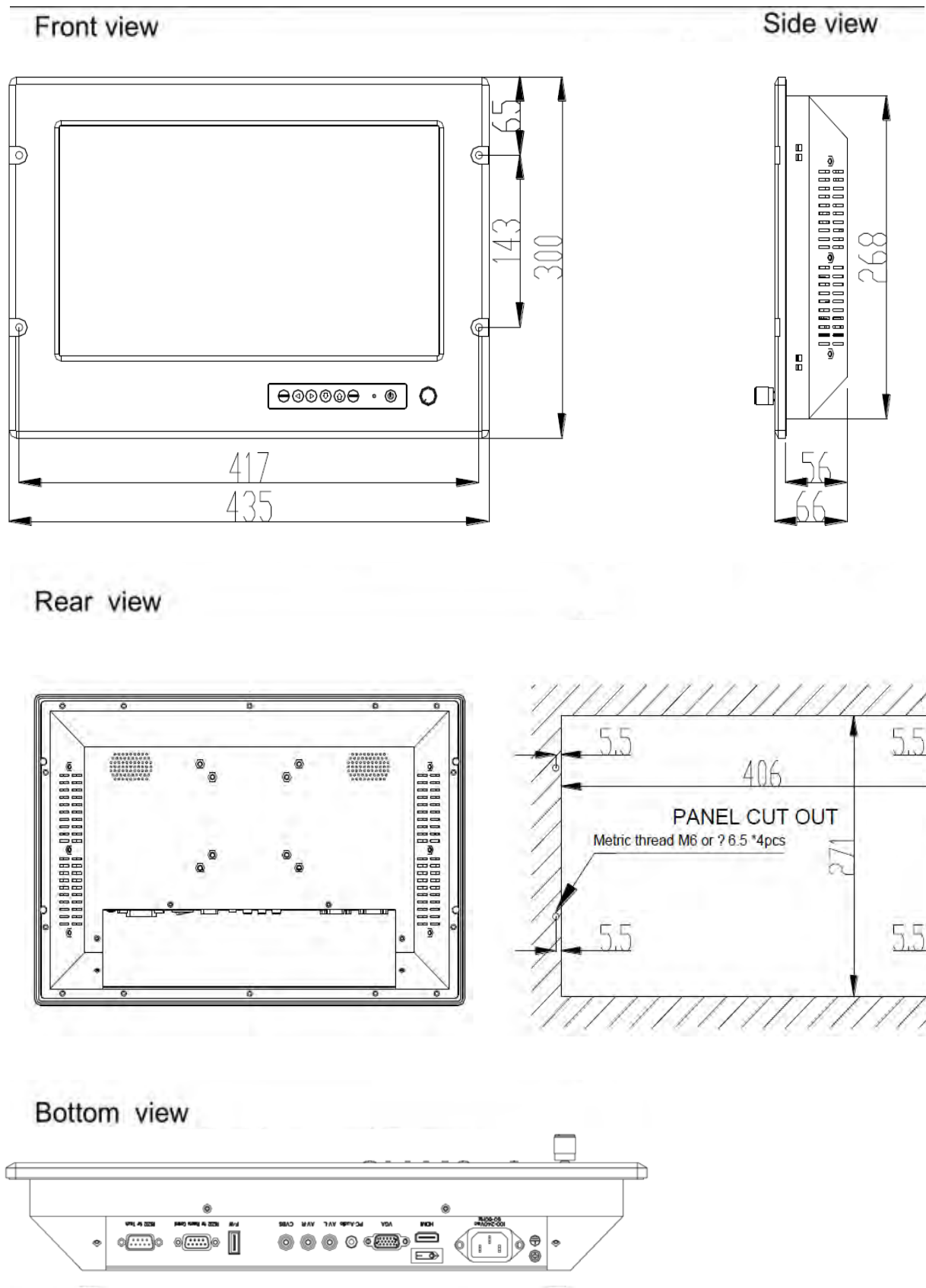
Model	Product Dimension (W x H x D)	Packing Dimension (W x H x D)	Net Weight	Gross Weight
MB-15W	435 x 300 x 66 mm	570 x 430 x 220 mm	7 kg	9 kg
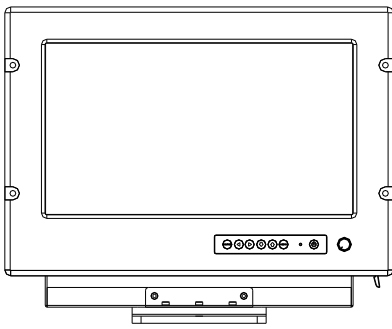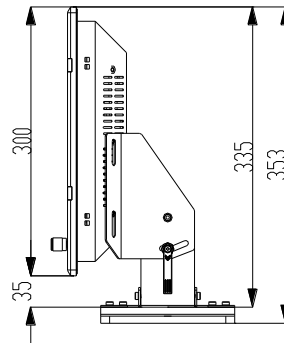
FRONT VIEW

SIDE VIEW

BACK VIEW

300

335

353

35

Stand mount

ROOF mount

TOP VIEW

344.6
320
296
272
242
180~

10°

35°

35°

10°

335

313.7

354.8

10°

35°

335

313.7

354.8

10°

35°

Mounting bracket + Rotary Bracket (Option)

Sun Visor Bracket(Option)

FRONT VIEW

SIDE VIEW

BACK VIEW
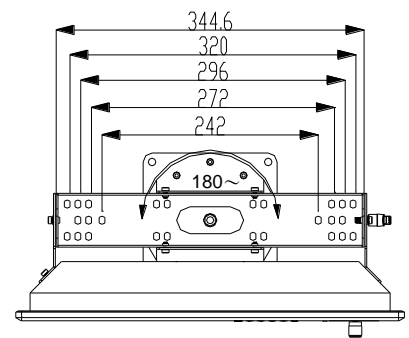
BOTTOM VIEW

TOP VIEW
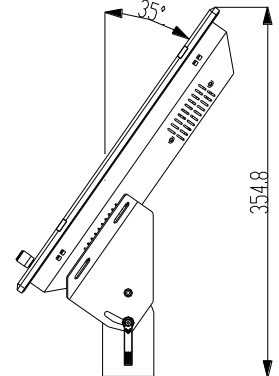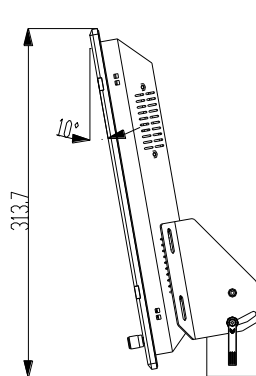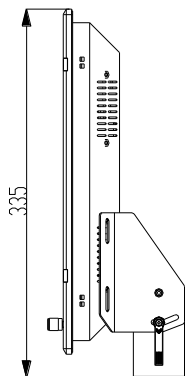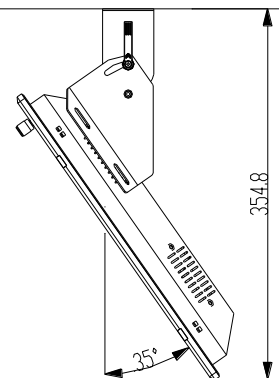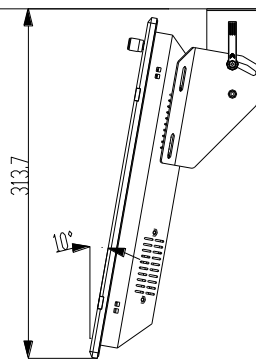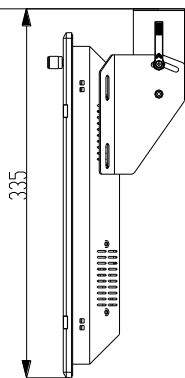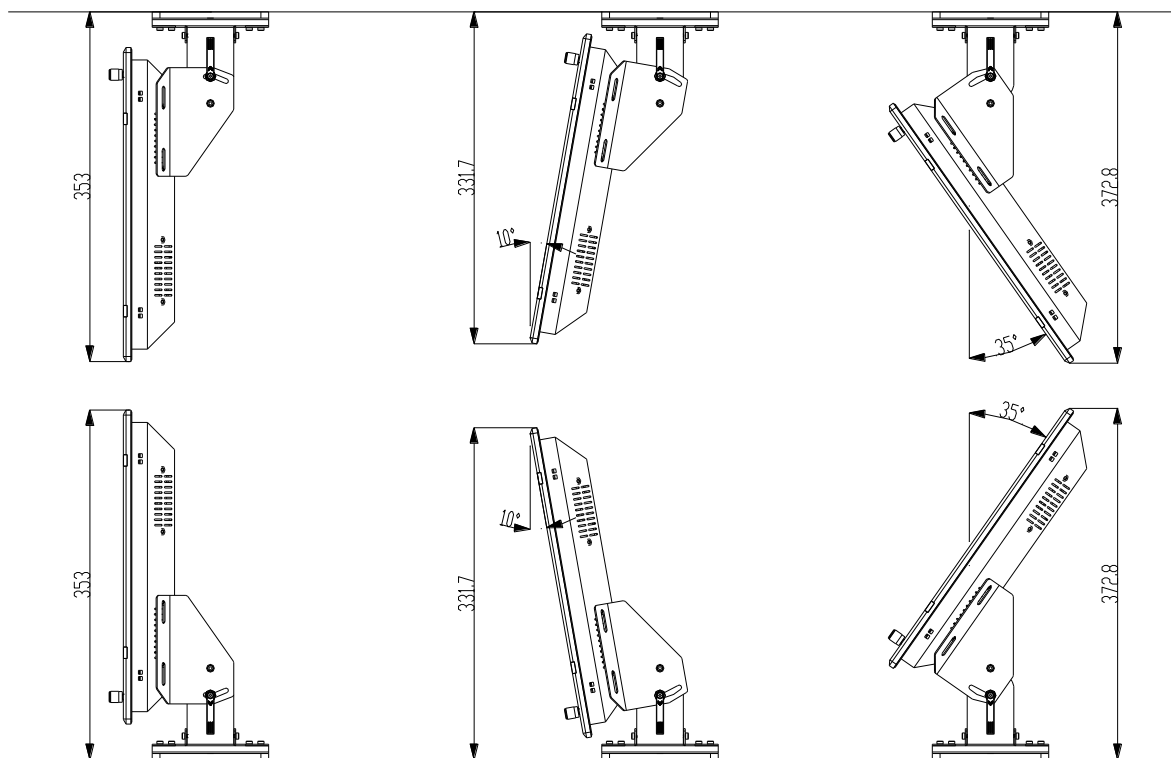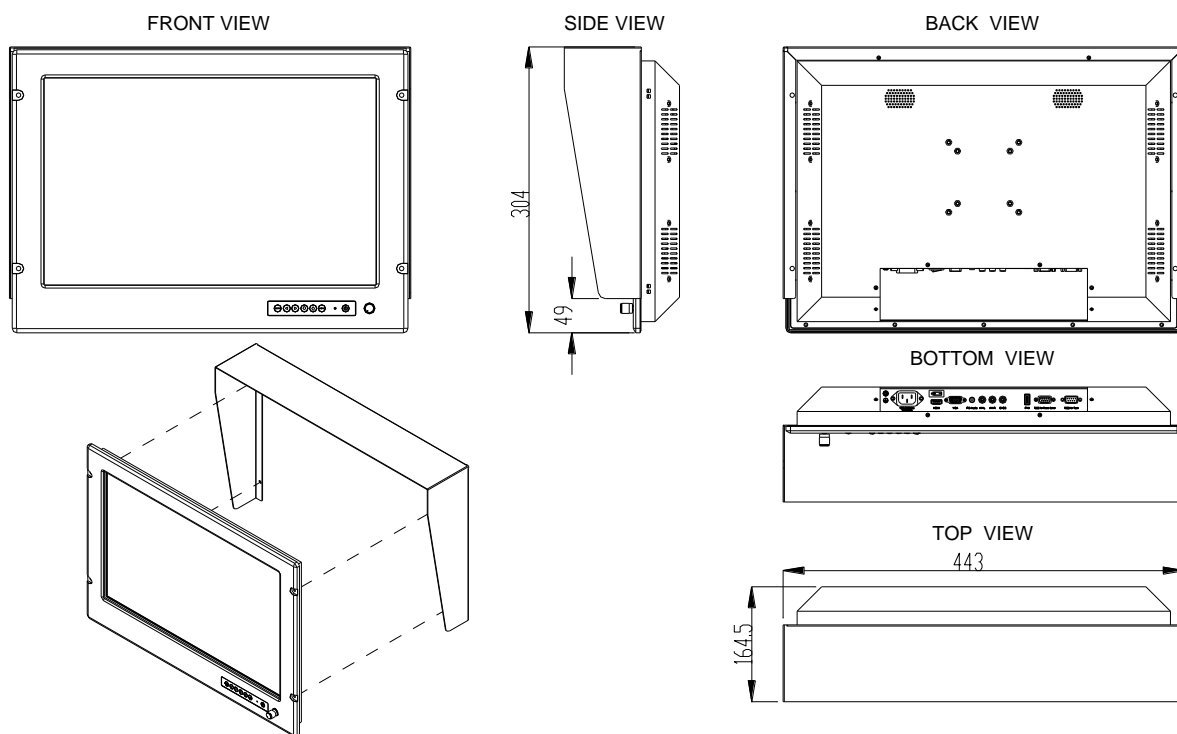
Dimension-17 inch

Front view
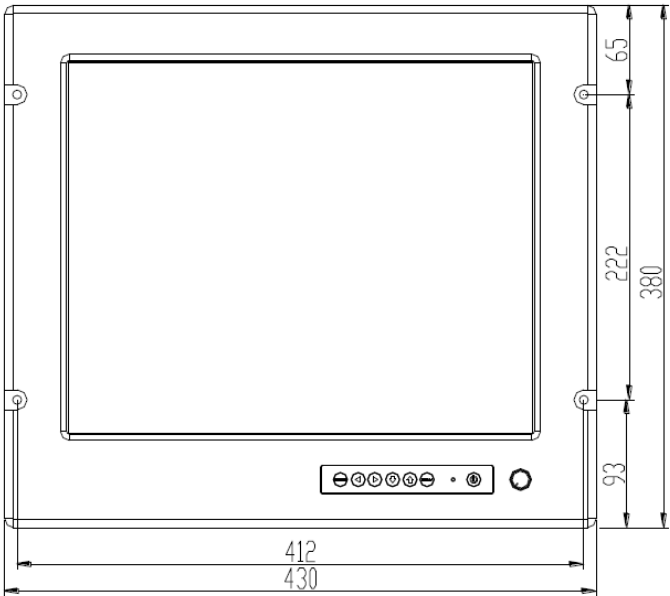
Side view
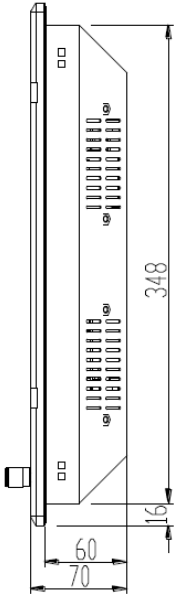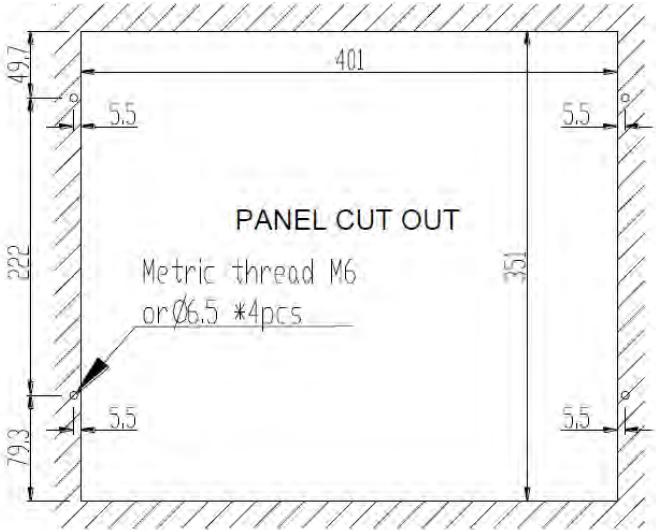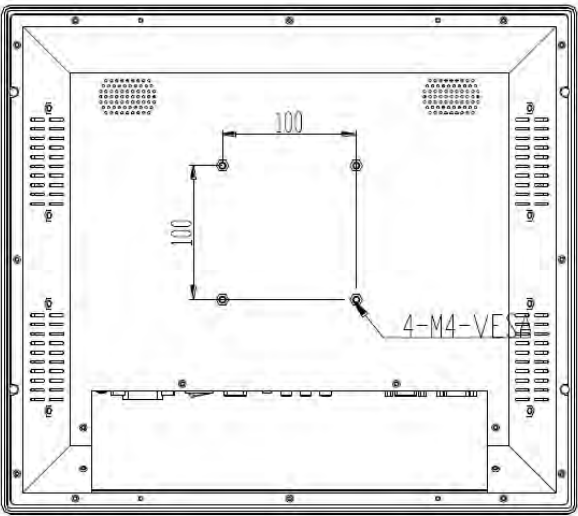
Rear view

Bottom view

PANEL CUT OUT

Metric thread M6
or⌀6.5 *4pcs
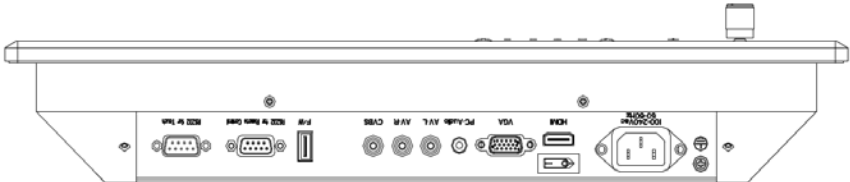
Model	Product Dimension (W x H x D)	Packing Dimension (W x H x D)	Net Weight	Gross Weight
MB-17	430 x 380 x 70 mm	560 x 510 x 220 mm	8.5 kg	11 kg

Mechanical Drawing with Robust Bracket (Option)
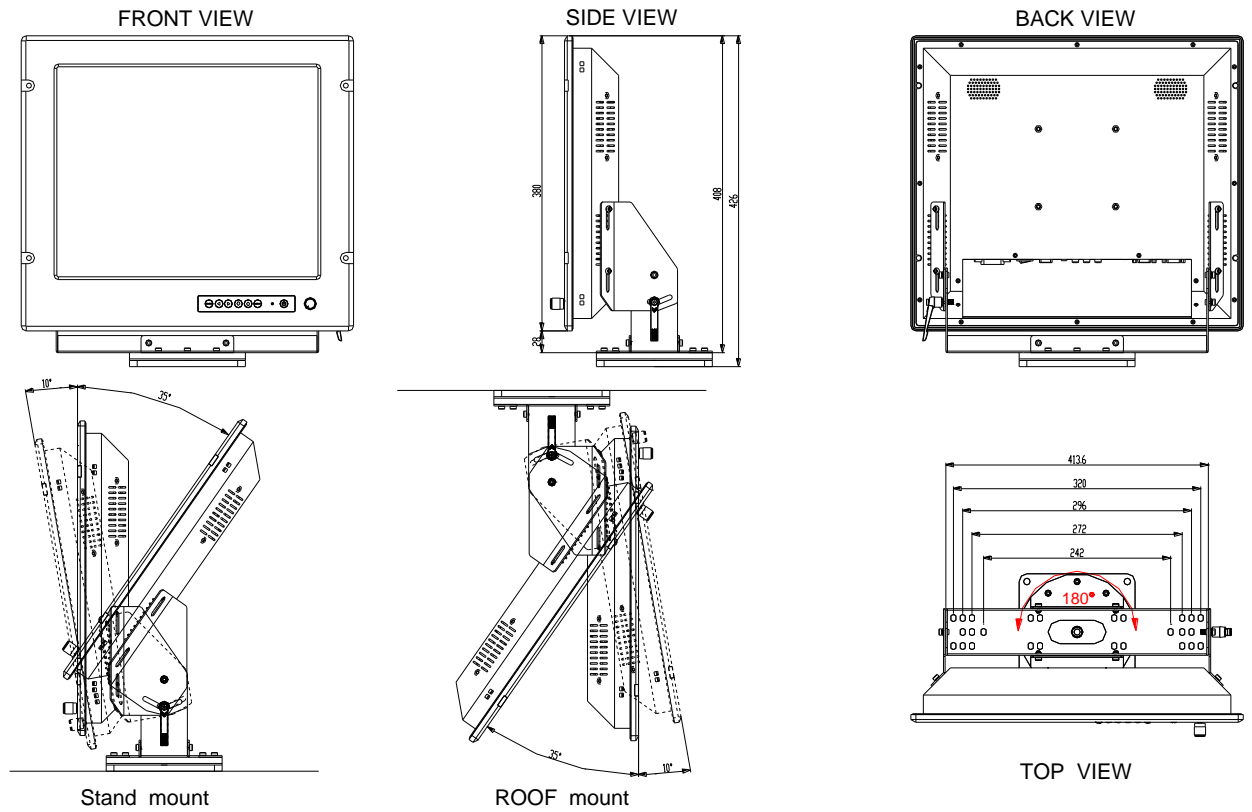
FRONT VIEW

SIDE VIEW

BACK VIEW

Stand mount

ROOF mount

TOP VIEW

Mounting bracket for stand and roof mount (Option)

Mounting bracket + Rotary Bracket (Option)

426

404.4

439

10°

35°

426

404.4

439

10°

35°

Sun Visor Bracket (Option)

FRONT VIEW

SIDE VIEW

BACK VIEW

384

49

BOTTOM VIEW

Sun Visor bracket
ISOMETRIC EXPLODED VIEW

TOP VIEW

438

168

Dimension-17.3 inch

Front view

Side view

Rear view

PANEL CUT OUT

Metric thread M6 or ? 6.5 *4pcs

429

309.5

5.5

5.5

5.5

5.5

Bottom view
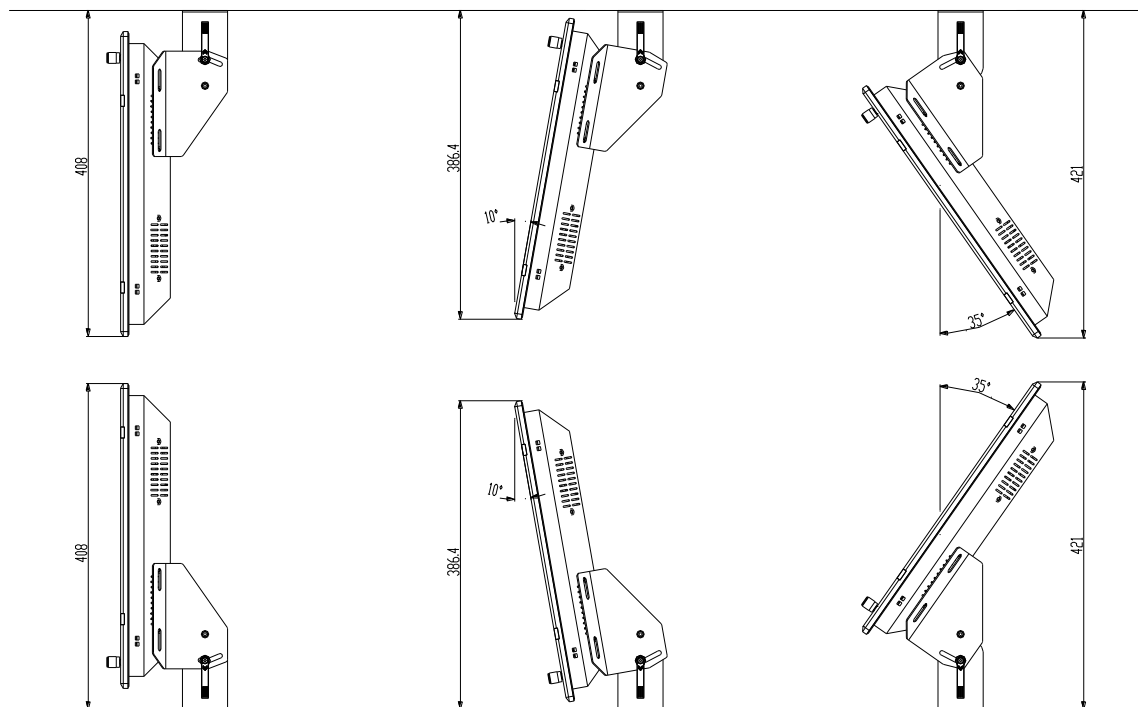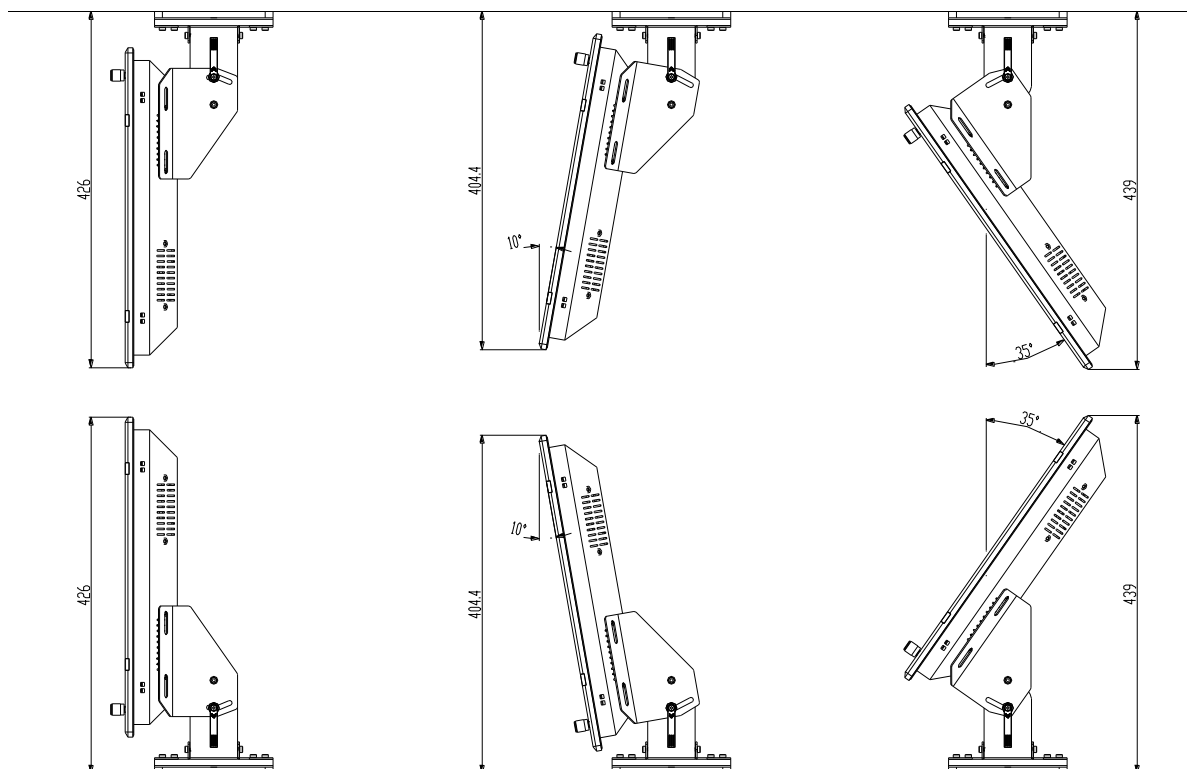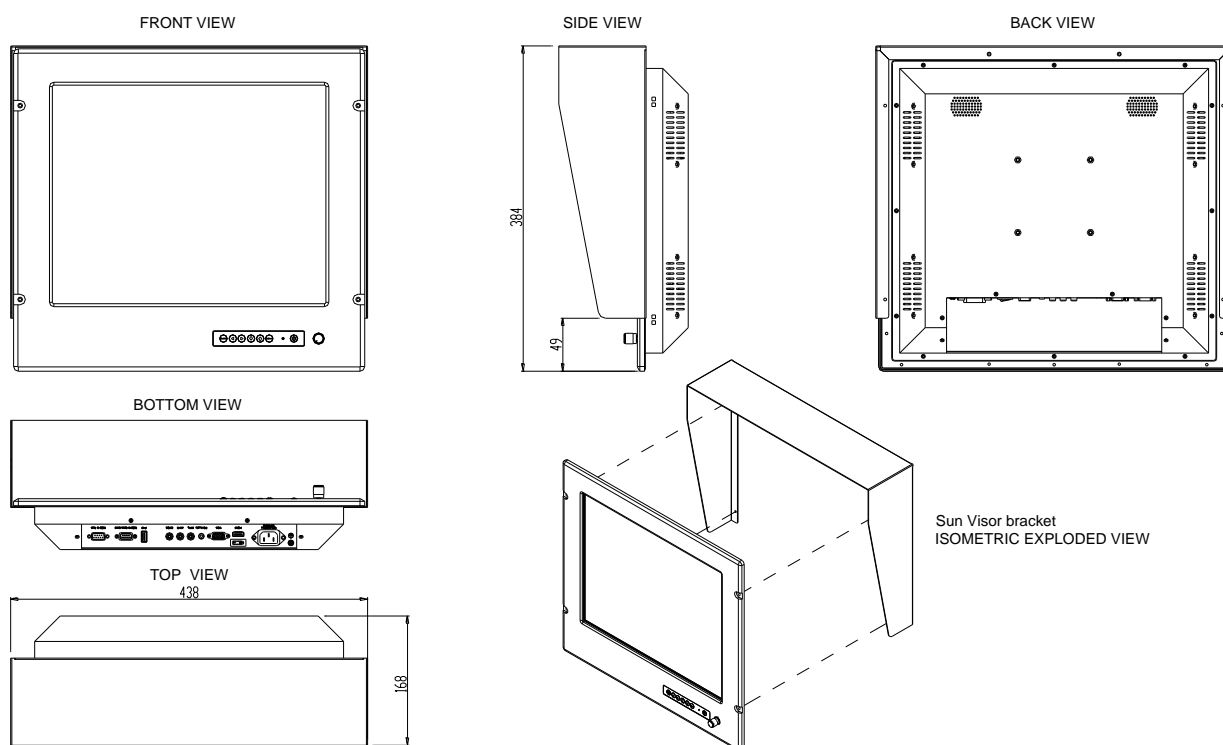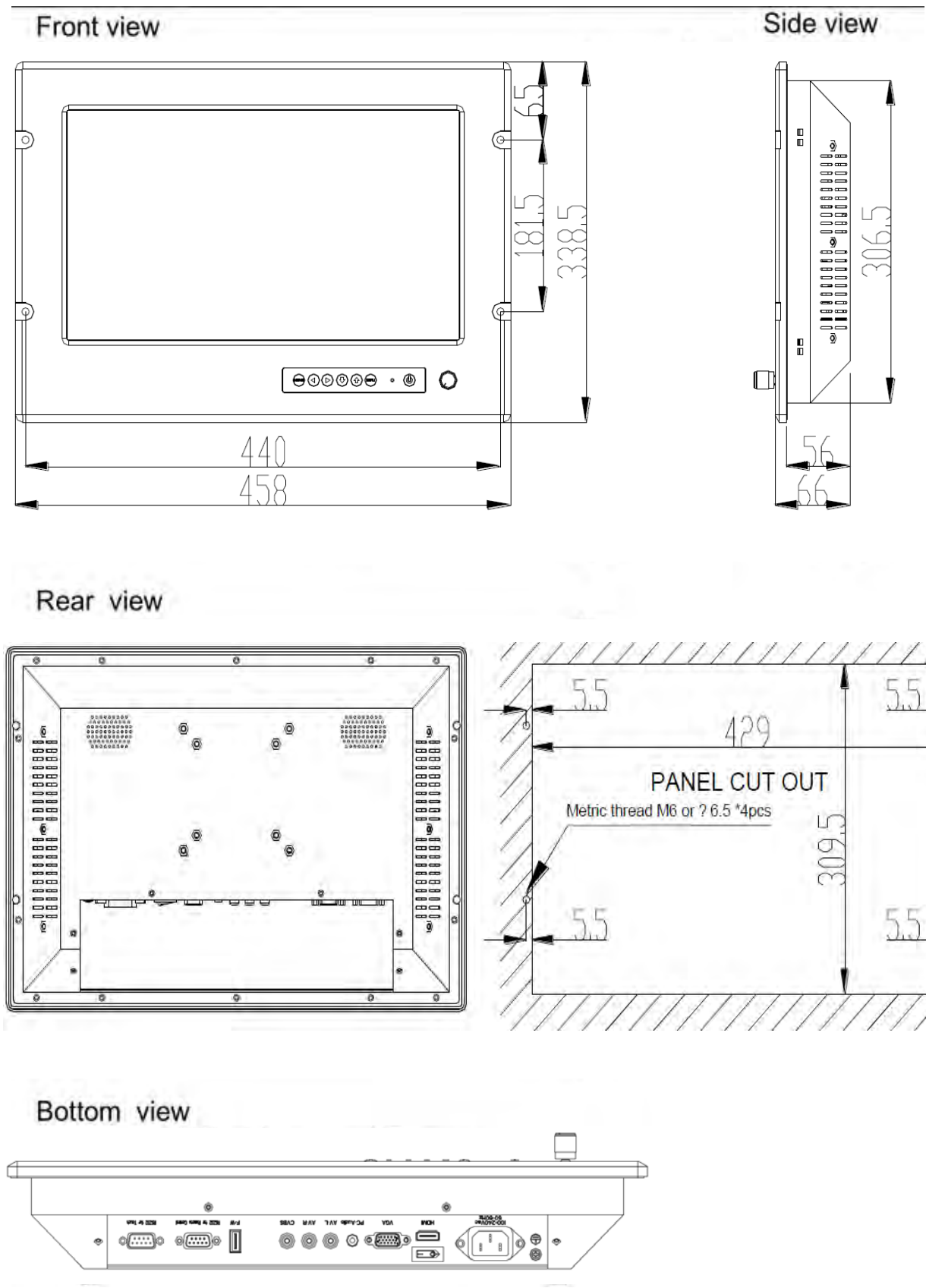
Model	Product Dimension (W x H x D)	Packing Dimension (W x H x D)	Net Weight	Gross Weight
MB-17W	458 x 339 x 66 mm	590 x 470 x 220mm	7.5 kg	9.5 kg
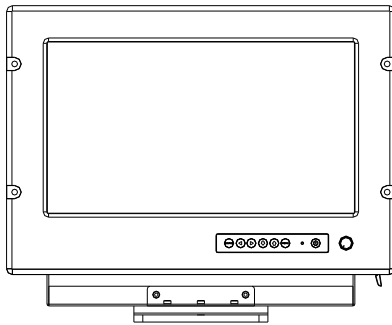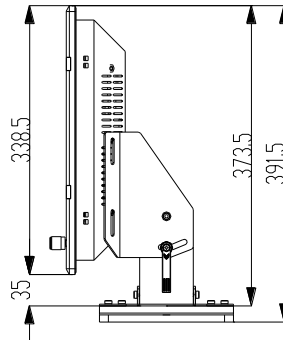
FRONT VIEW

SIDE VIEW

BACK VIEW

Stand mount

ROOF mount

TOP VIEW

Mounting bracket + Rotary Bracket (Option)

Sun Visor Bracket (Option)

FRONT VIEW

SIDE VIEW

BACK VIEW

BOTTOM VIEW

TOP VIEW

Dimension-19 inch

Front view

Side view

Rear view

PANEL CUT OUT

Metric thread M6
or Ø6.5 *4pcs

4-M4-VESA

Bottom view
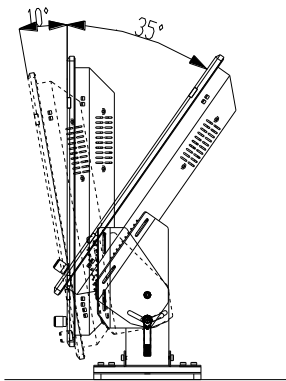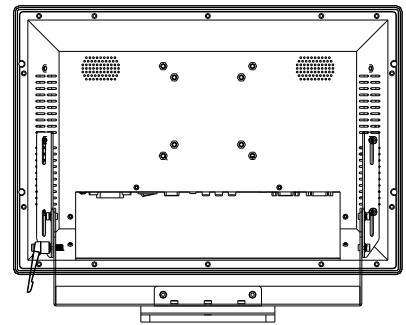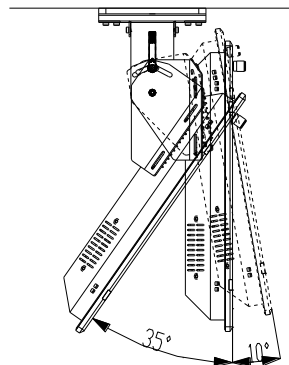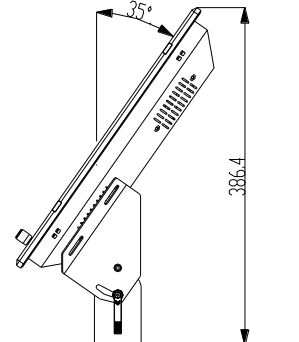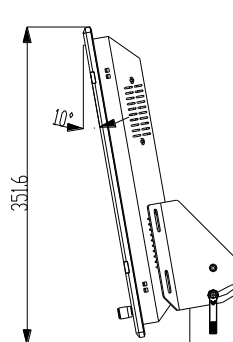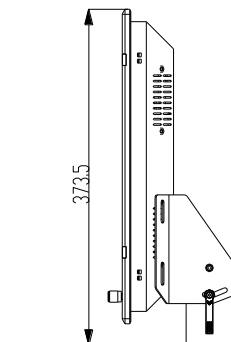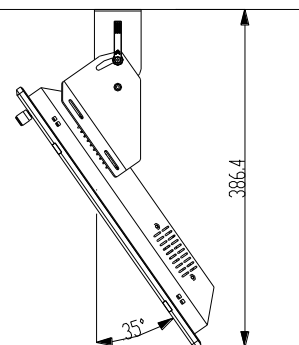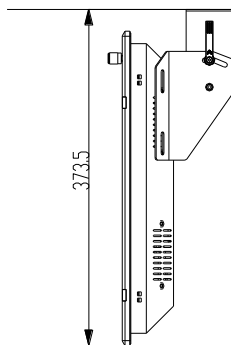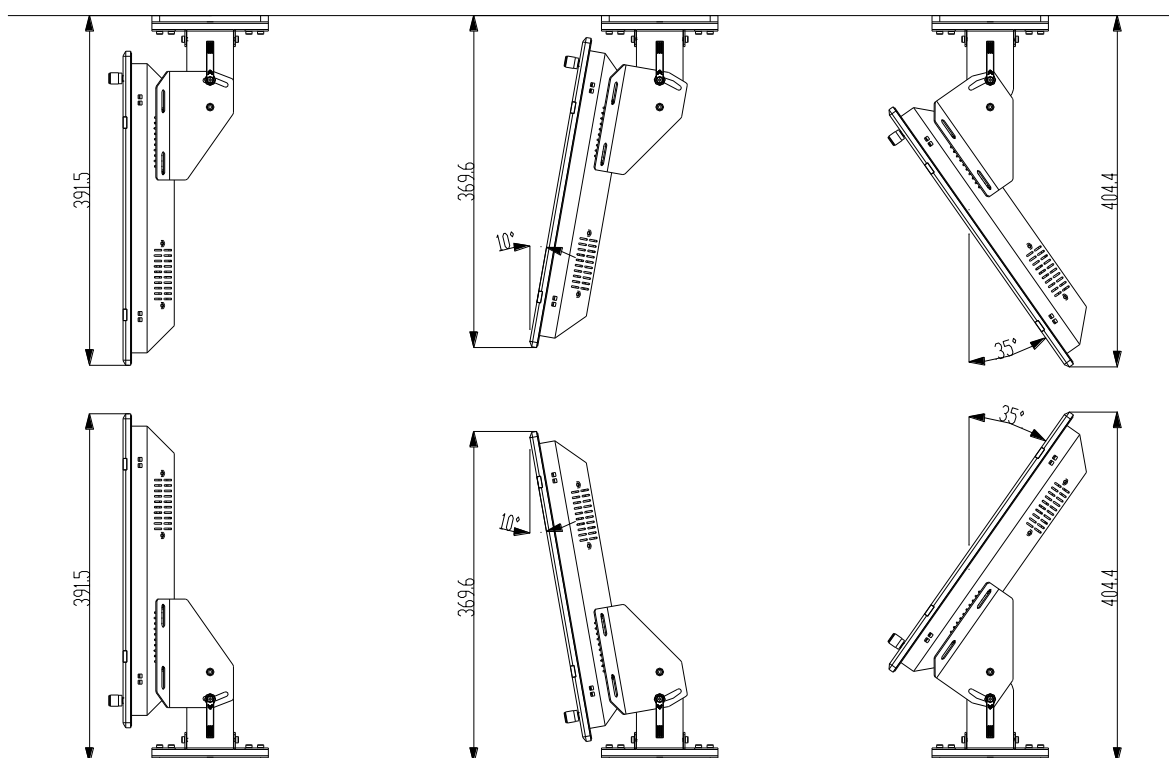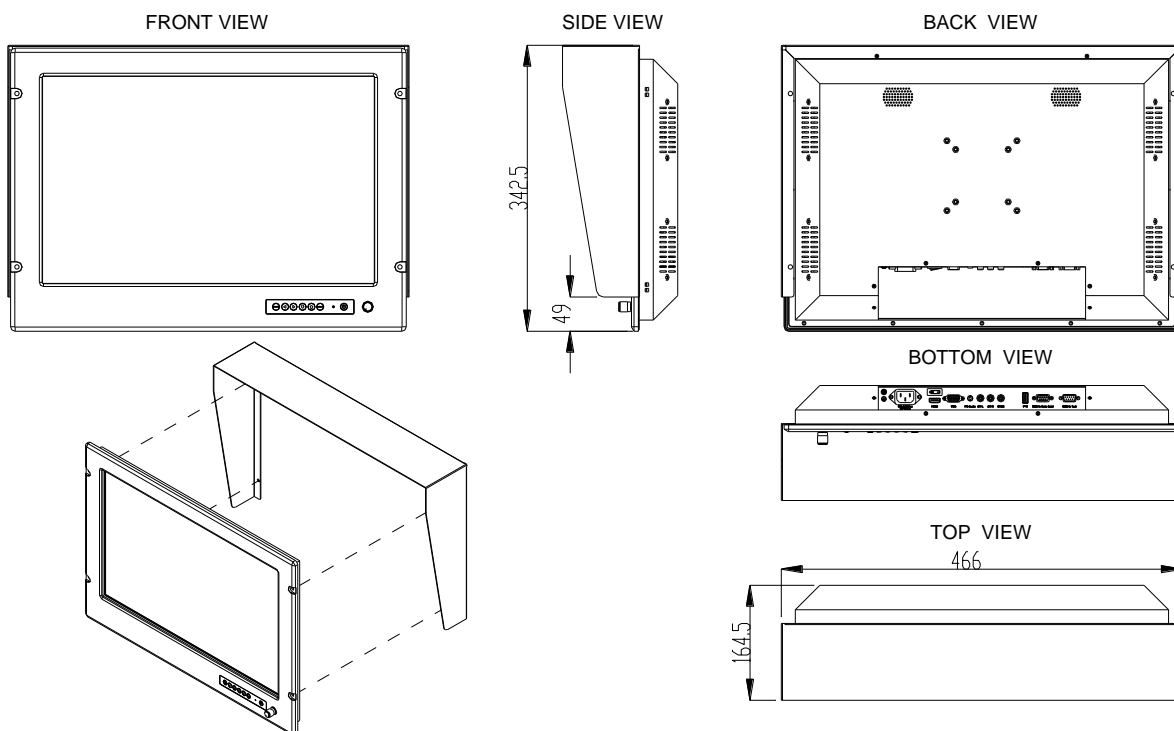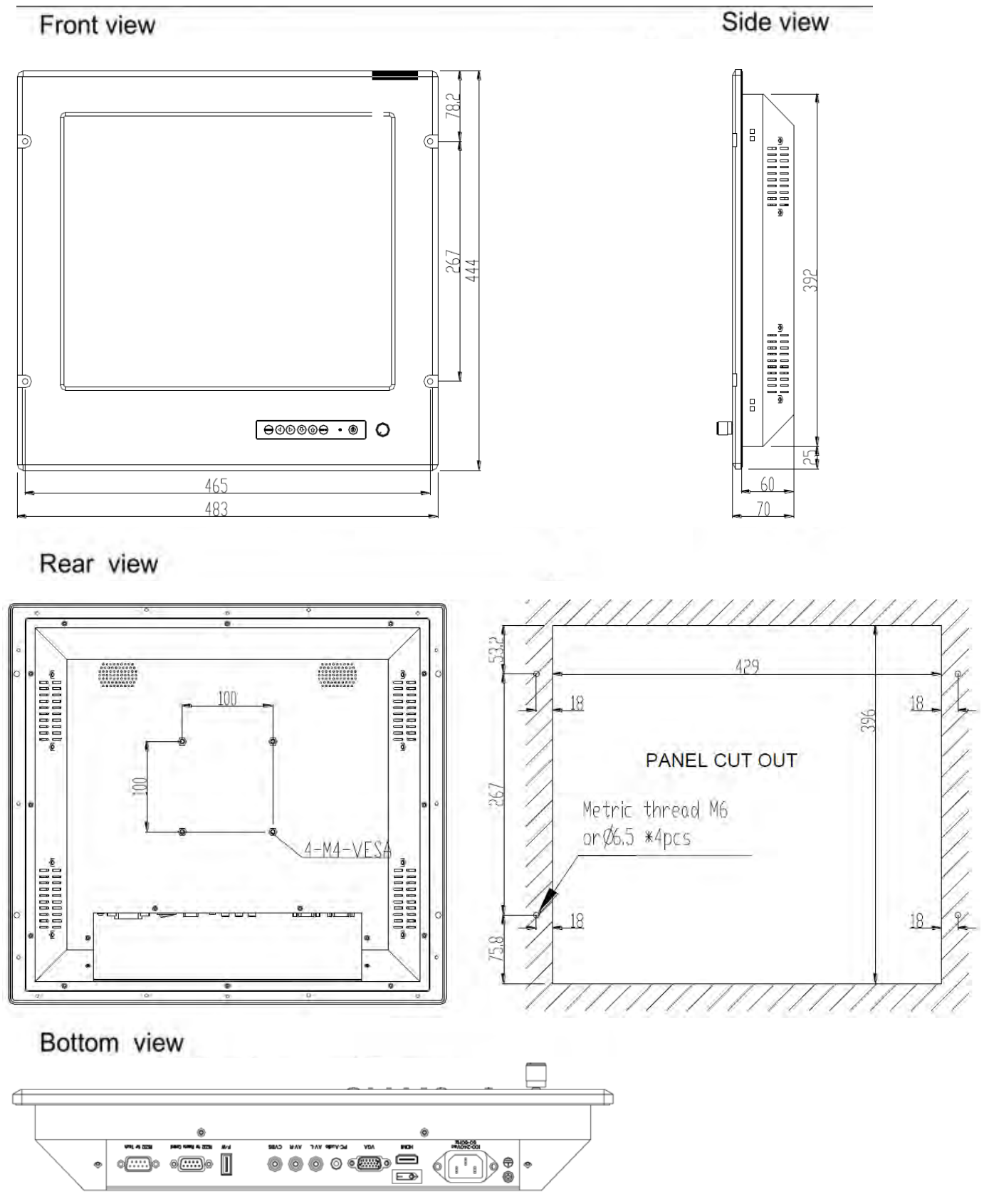
Model	Product Dimension (W x H x D)	Packing Dimension (W x H x D)	Net Weight	Gross Weight
MB-19	483 x 444 x 70 mm	620 x 580 x 220 mm	9.5 kg	13 kg

Mechanical Drawing with Robust Bracket (Option)
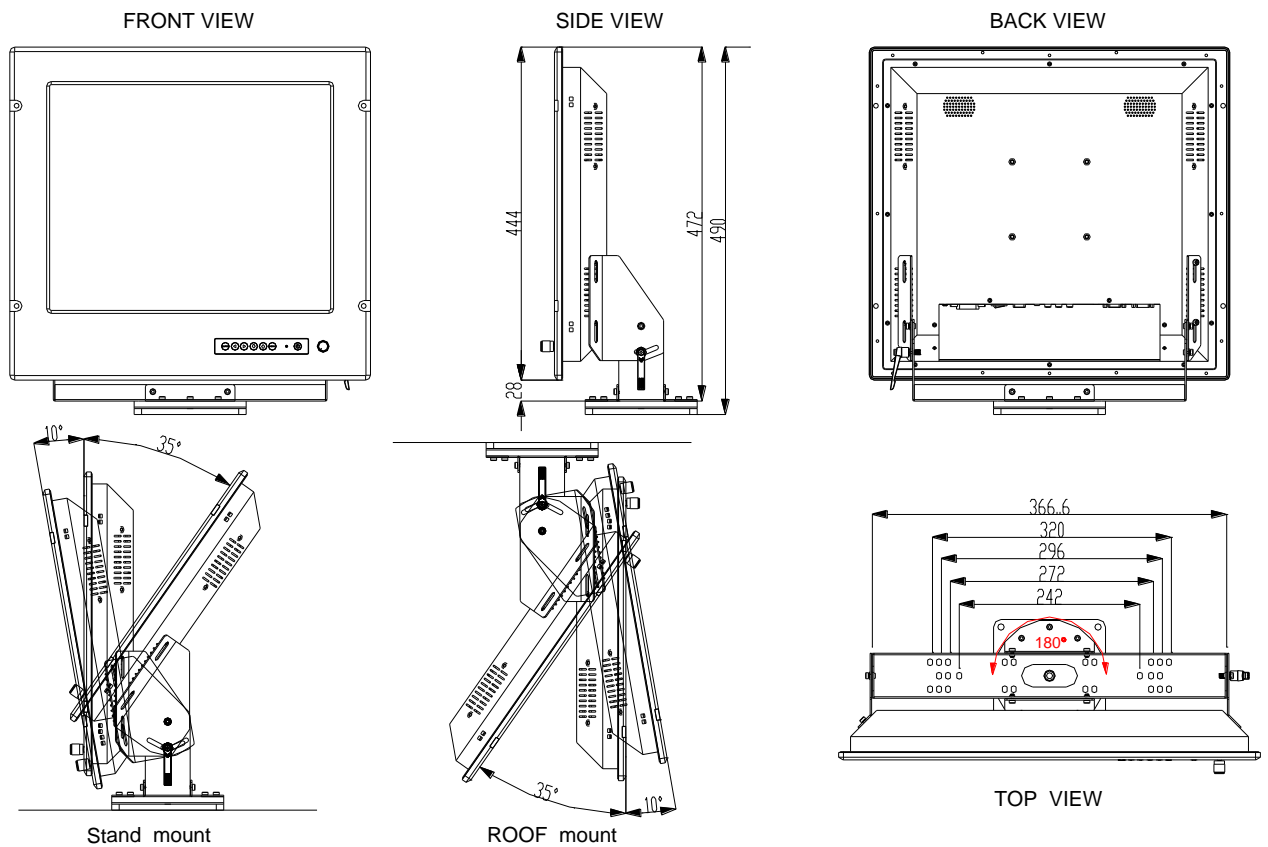
FRONT VIEW

SIDE VIEW

BACK VIEW

444

472

490

28

366.6
320
296
272
242

180°

Stand mount

ROOF mount

TOP VIEW

10°

35°

35°

10°

Mounting bracket for stand and roof mount (Option)

472

447.9

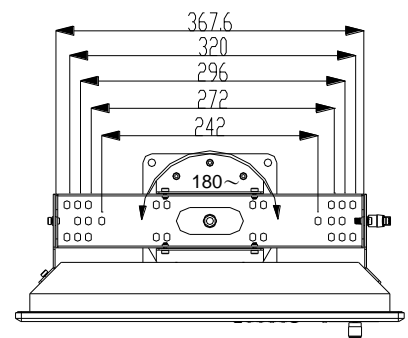471.4

10°

35°

472

447.9

471.4

10°

35°

490

465.9

10°

489.4

35°

490

465.9

10°

35°

489.4

FRONT VIEW

SIDE VIEW

BACK VIEW

448

73

BOTTOM VIEW

TOP VIEW

491

178
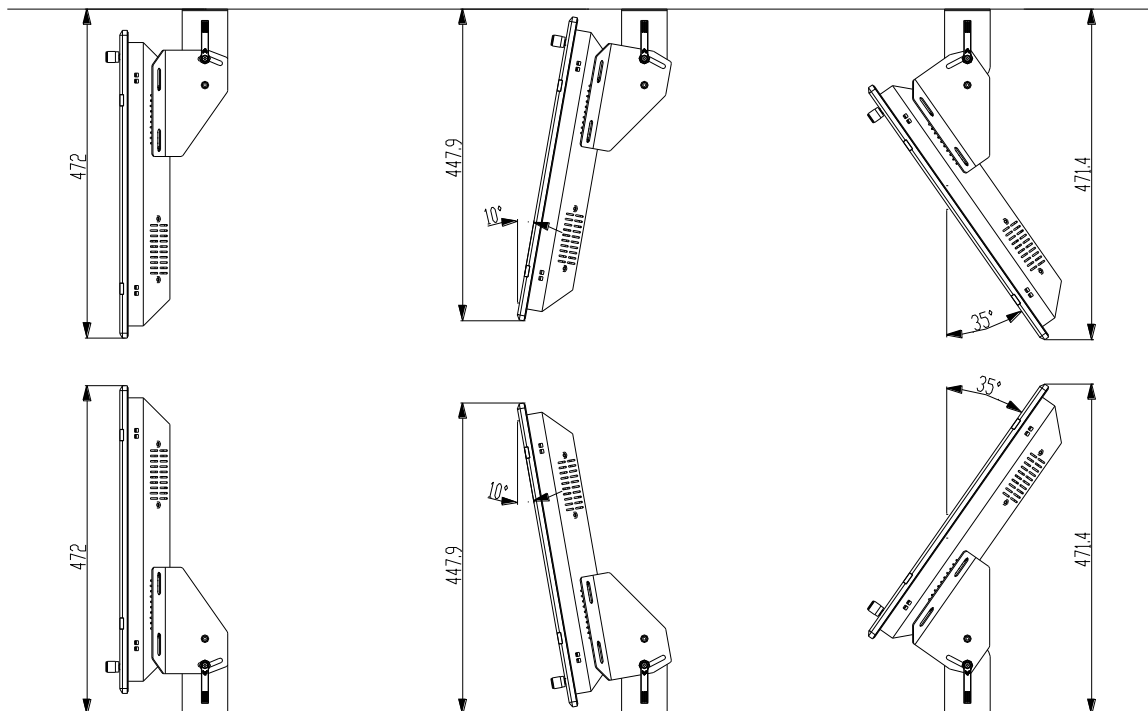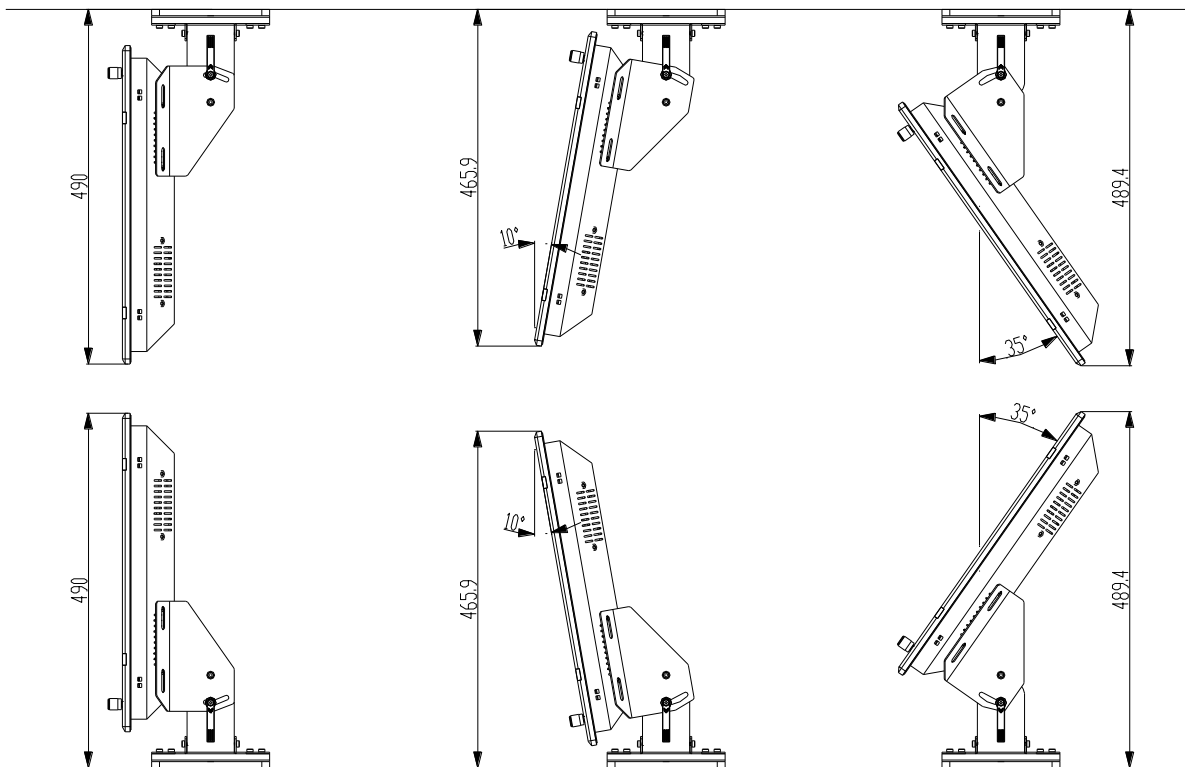
Sun Visor bracket
ISOMETRIC EXPLODED VIEW
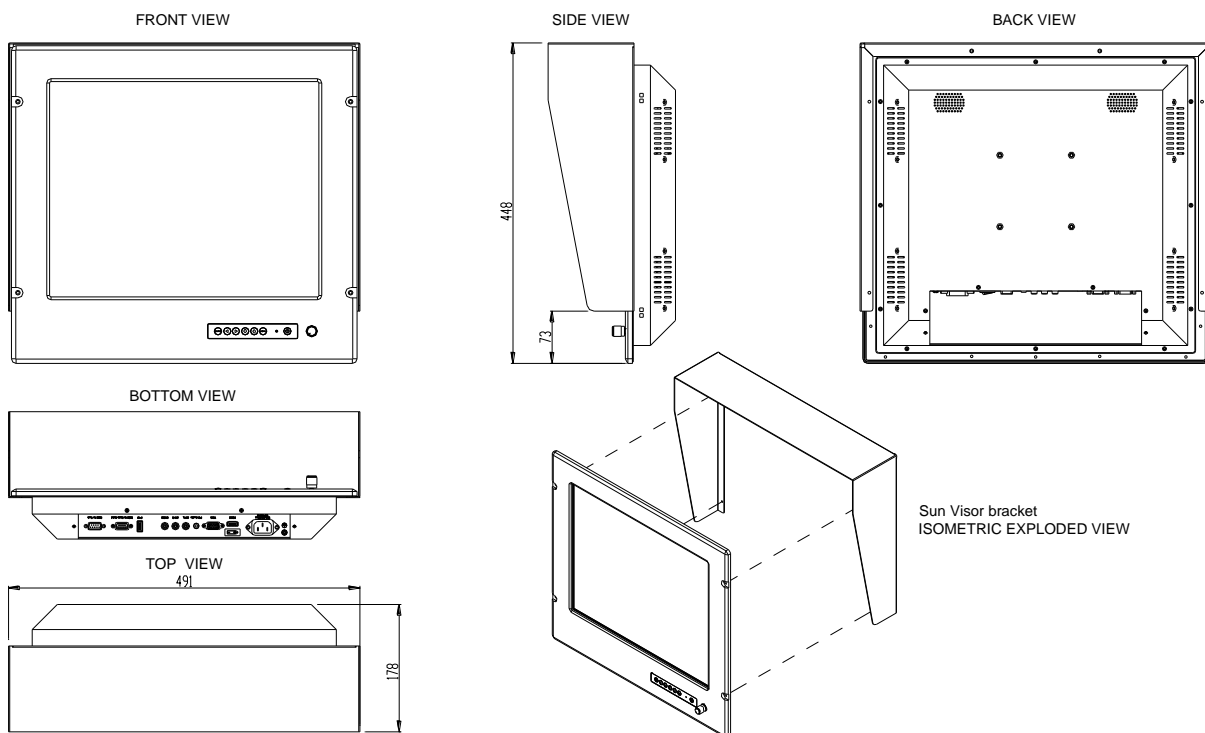
Dimension-21.5 inch

Front view
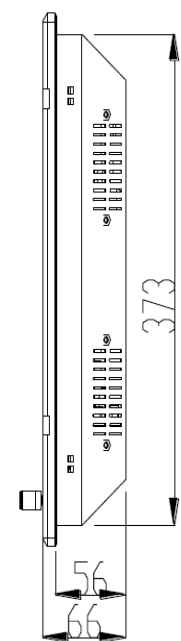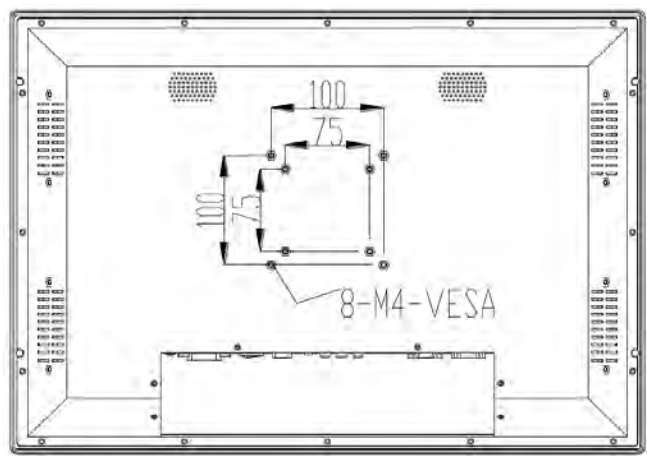
Side view

Rear view

PANEL CUT OUT

Metric thread M6 or ? 6.5 *4pcs

8-M4-VESA

Bottom view

Model	Product Dimension (W x H x D)	Packing Dimension (W x H x D)	Net Weight	Gross Weight
MB-21W	565 x 405 x 66 mm	700 x 540 x 220 mm	11 kg	14.5 kg

Mechanical Drawing with Robust Bracket (Option)
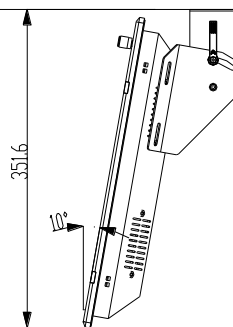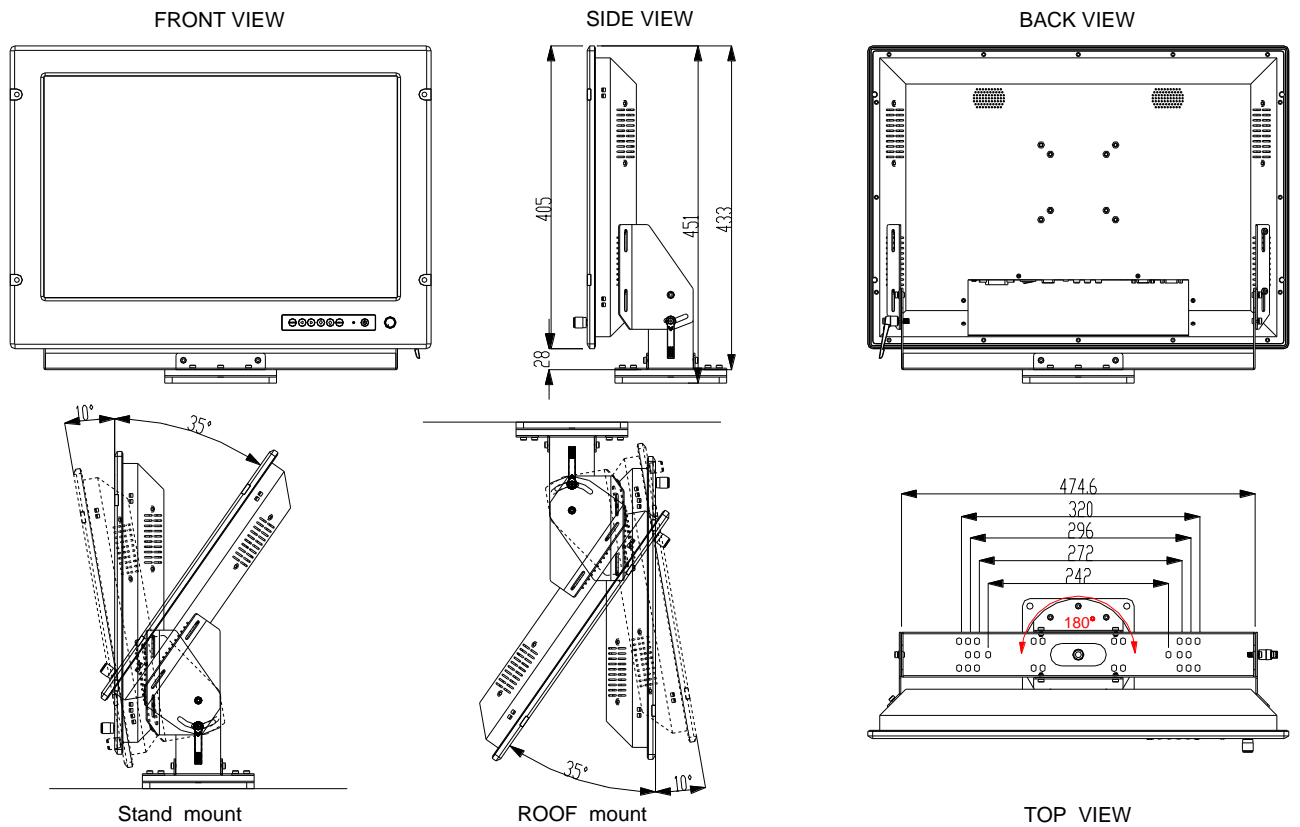
FRONT VIEW

SIDE VIEW

BACK VIEW

Stand mount

ROOF mount

TOP VIEW

Mounting bracket for stand and roof mount (Option)

451

428.16

453.11

10°

35°

451

428.16

453.11

10°

35°

FRONT VIEW

SIDE VIEW

BACK VIEW

409

49

BOTTOM VIEW

TOP VIEW

573

164.5
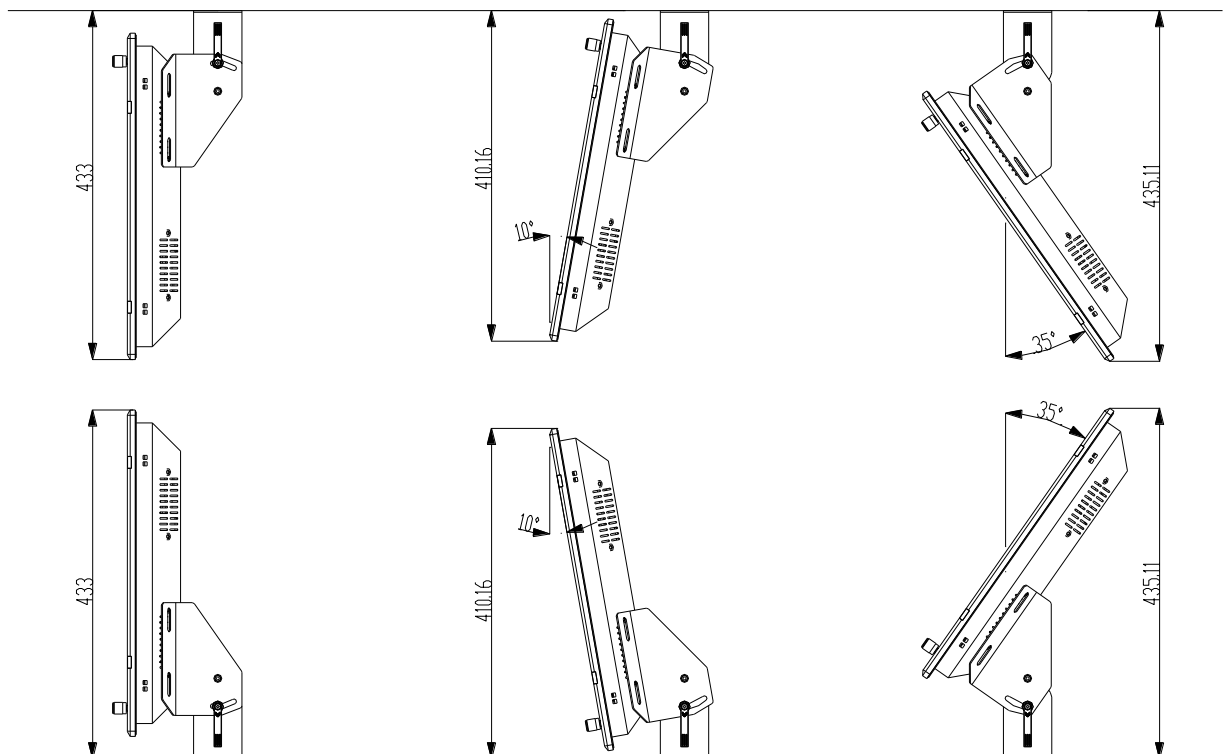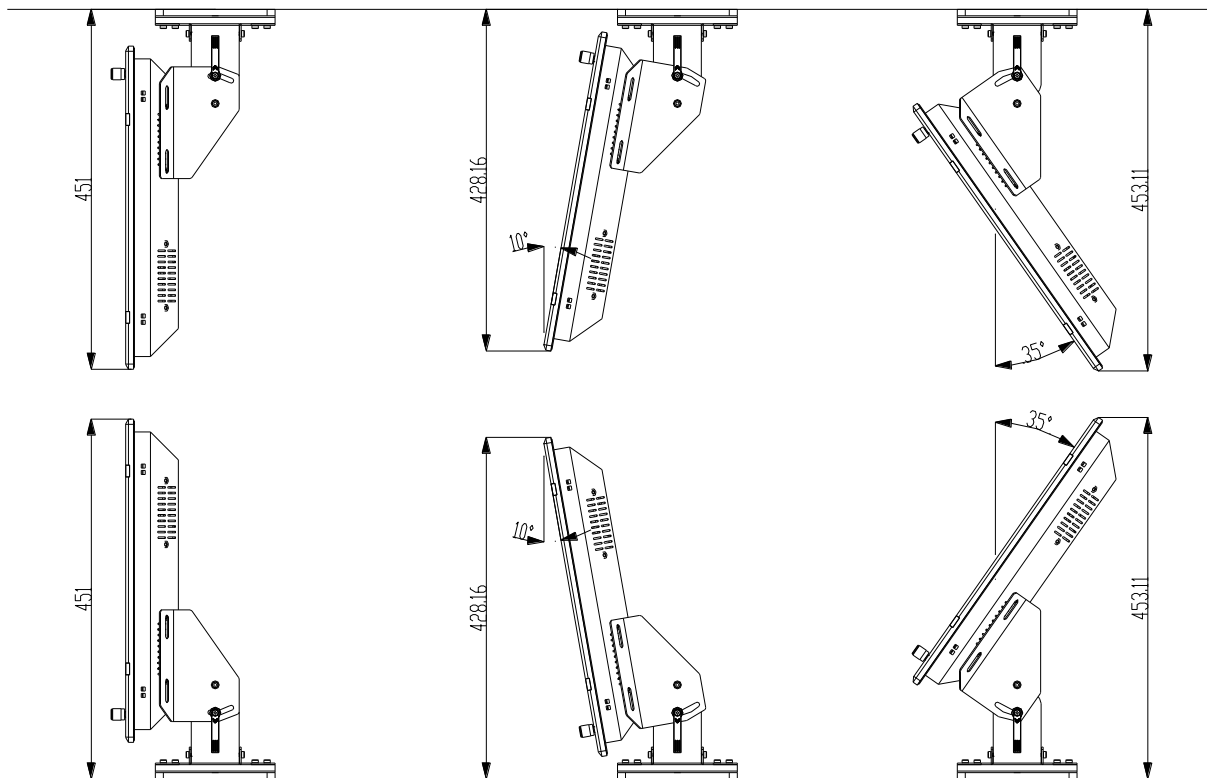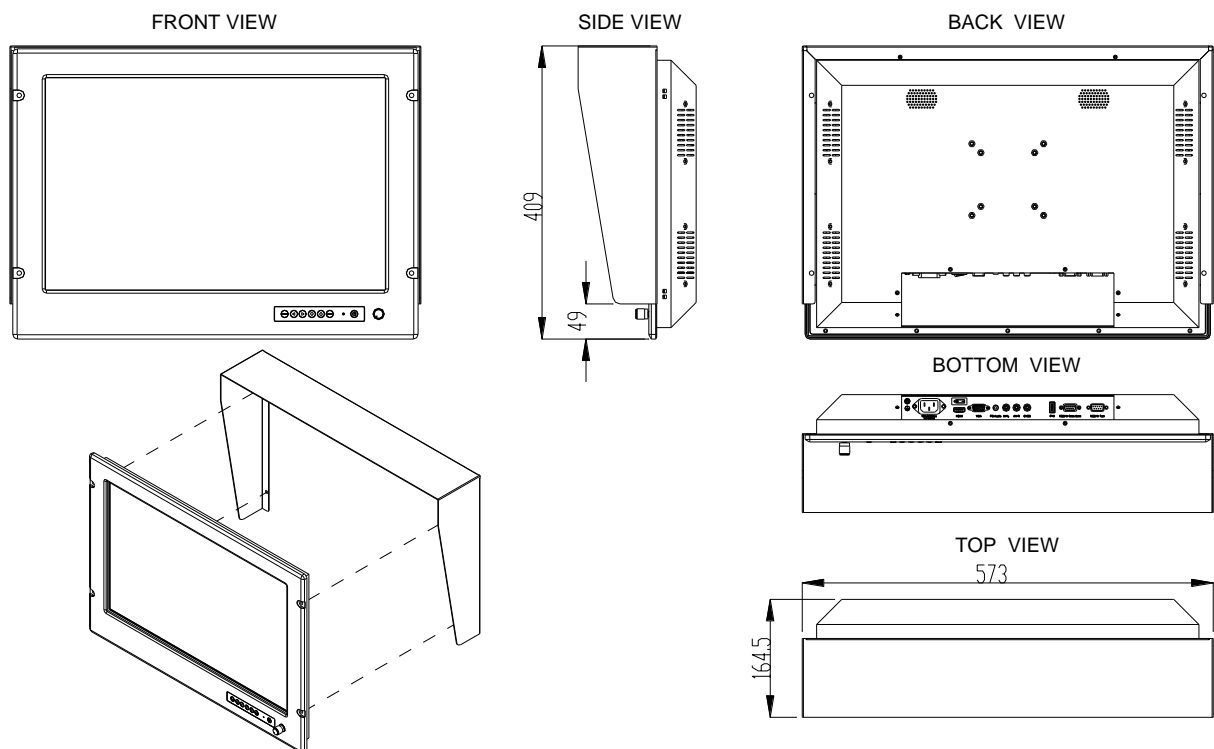
Dimension-23.8 inch

Front view
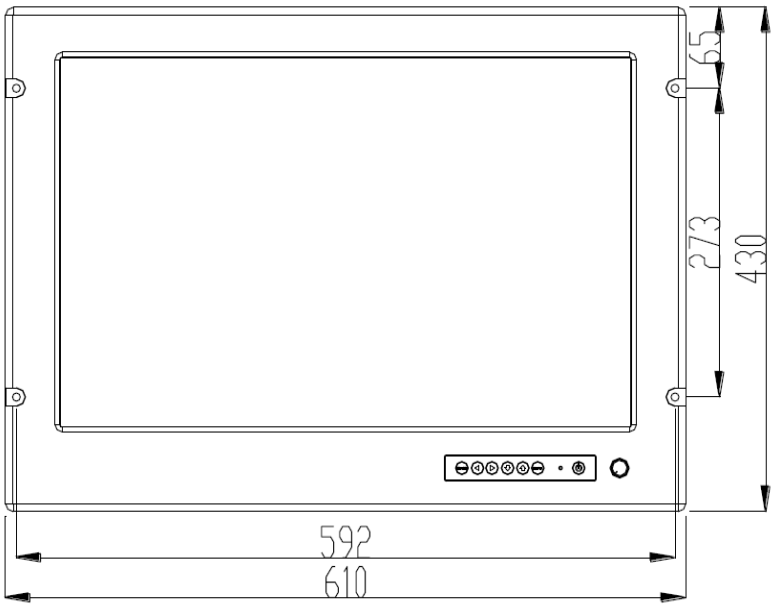
Side view
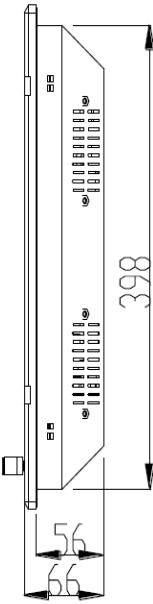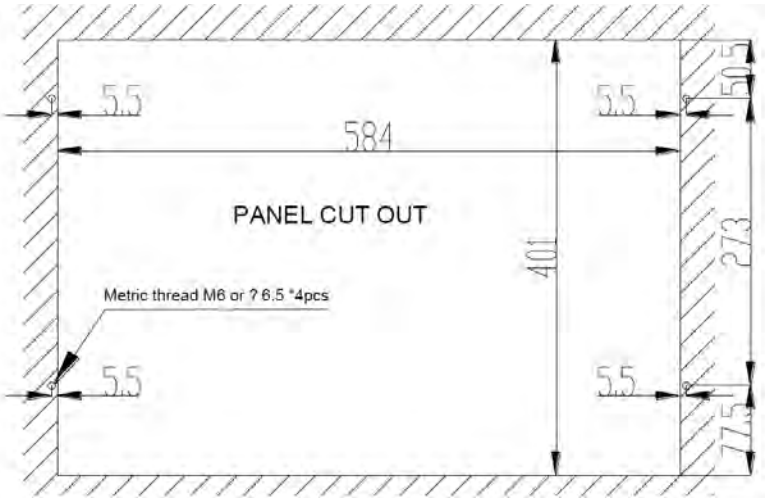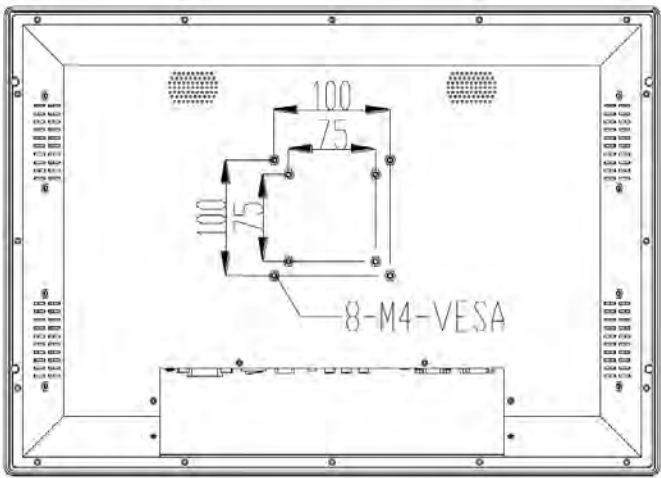
Rear view

PANEL CUT OUT

Metric thread M6 or ? 6.5 *4pcs

8-M4-VESA

Bottom view
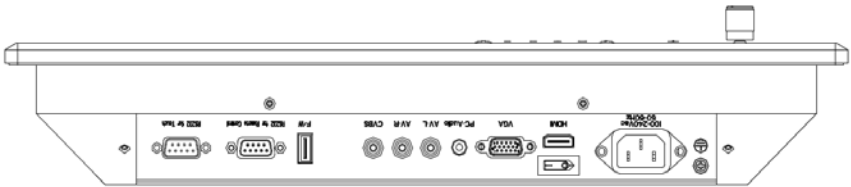
Model	Product Dimension (W x H x D)	Packing Dimension (W x H x D)	Net Weight	Gross Weight
MB-24W	610 x 430 x 66 mm	740 x 560 x 220 mm	12 kg	15.5 kg

Mechanical Drawing with Robust Bracket (Option)
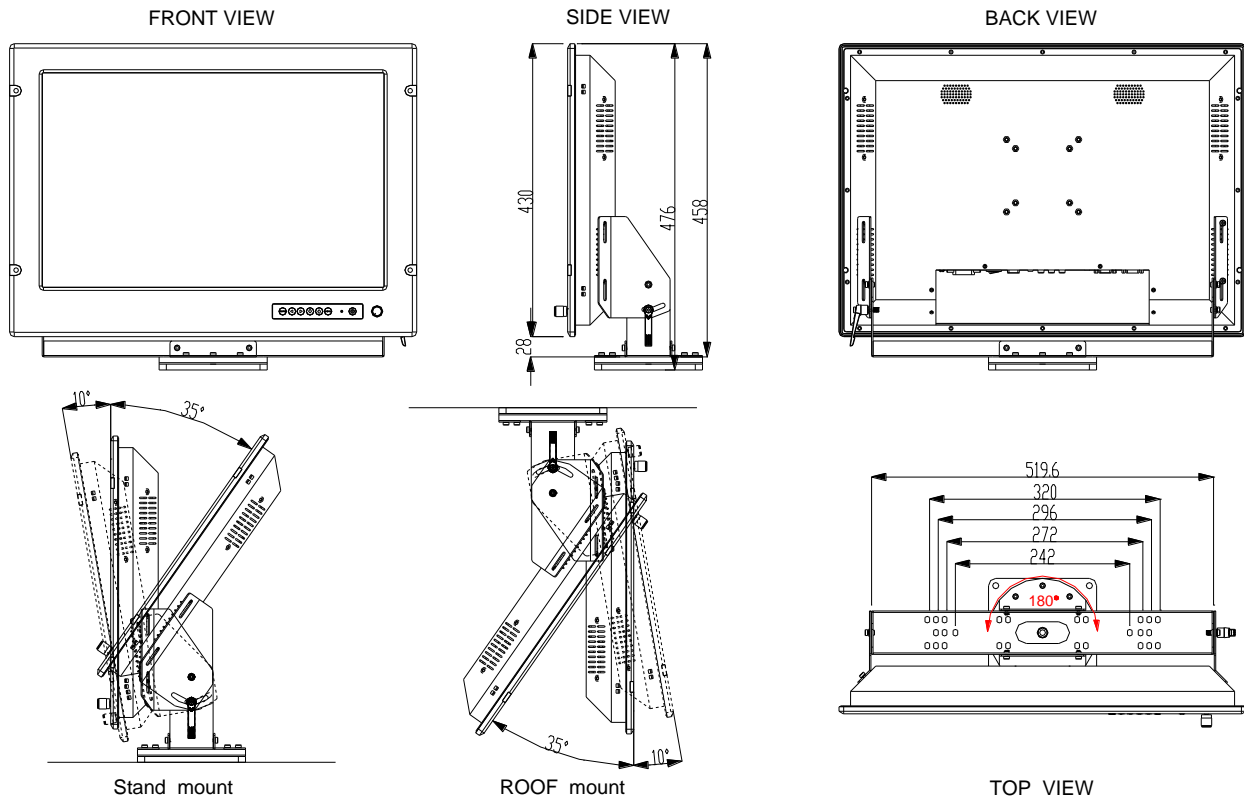
FRONT VIEW

SIDE VIEW

BACK VIEW

430

476

458

28

10°

35°

Stand mount

35°

10°

ROOF mount

519.6

320

296

272

242

180°

TOP VIEW

Mounting bracket for stand and roof mount (Option)

458

434.78

10°

455.59

35°

458

434.78

10°

35°

455.59

Mounting bracket + Rotary Bracket (Option)

Sun Visor Bracket (Option)
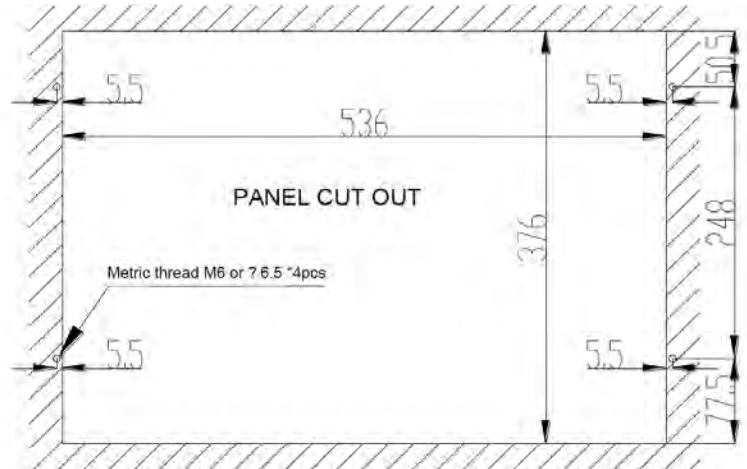
FRONT VIEW

SIDE VIEW

BACK VIEW

BOTTOM VIEW

TOP VIEW
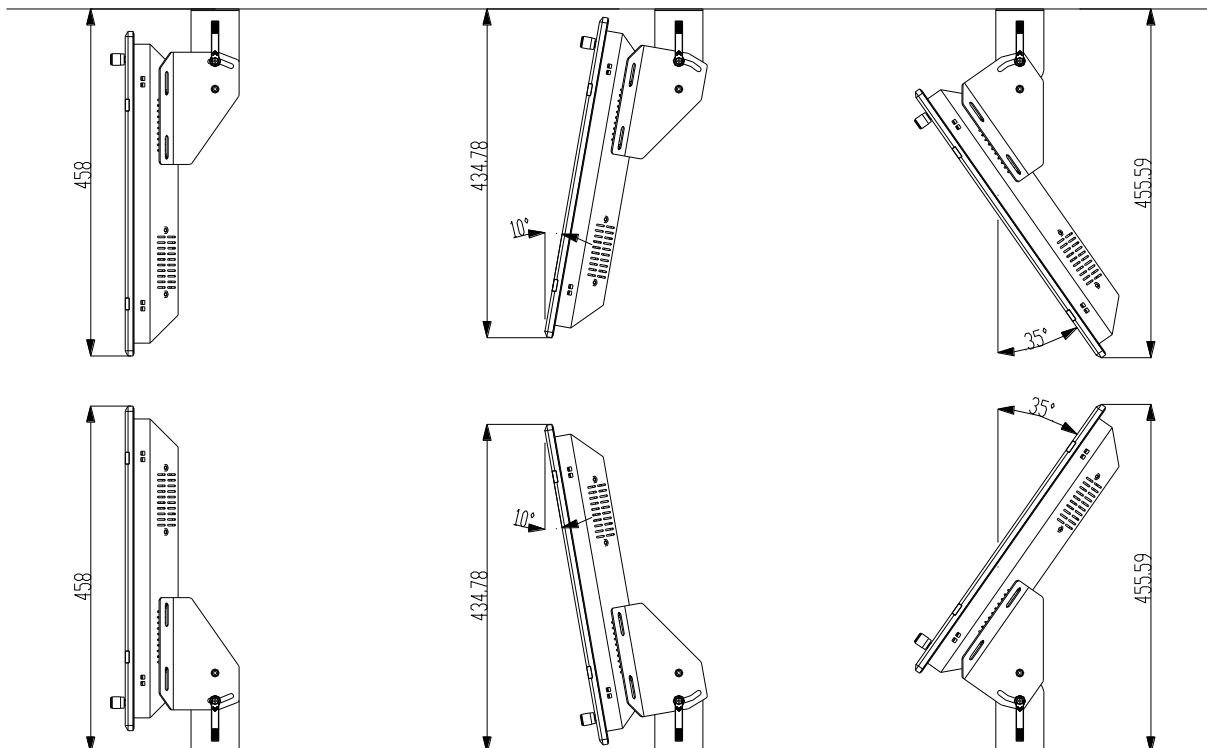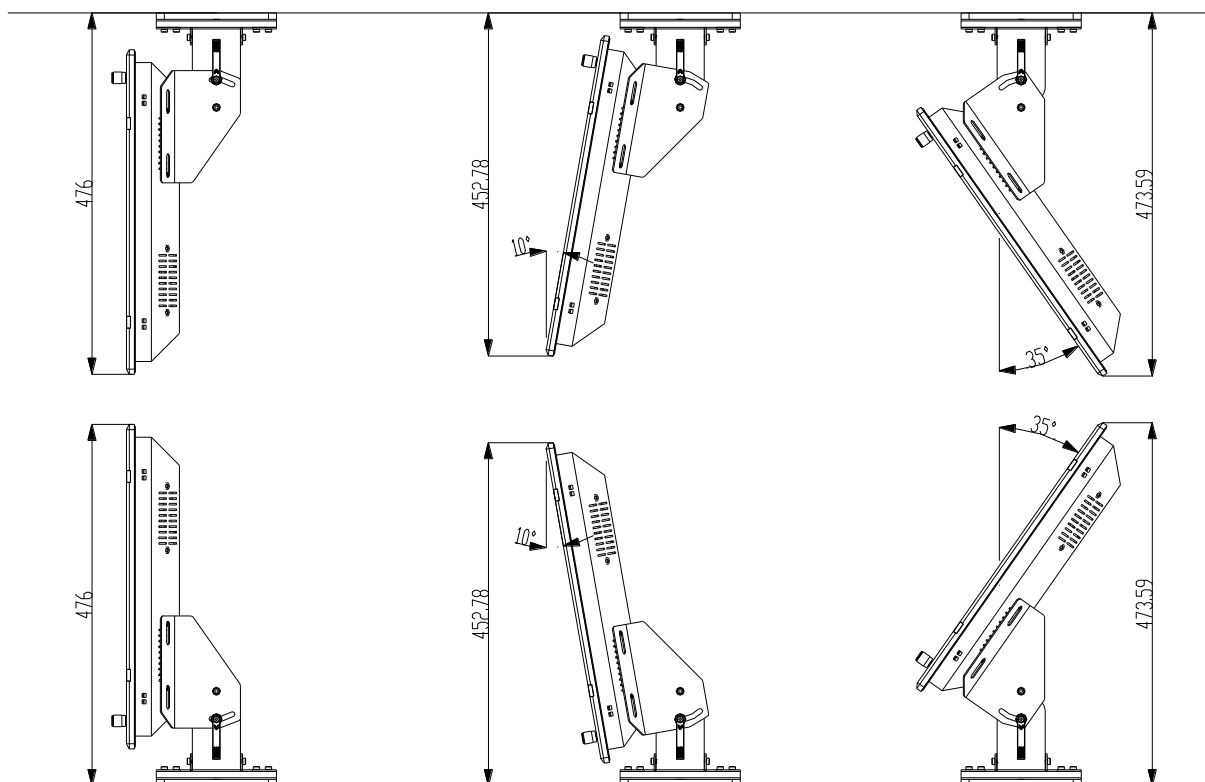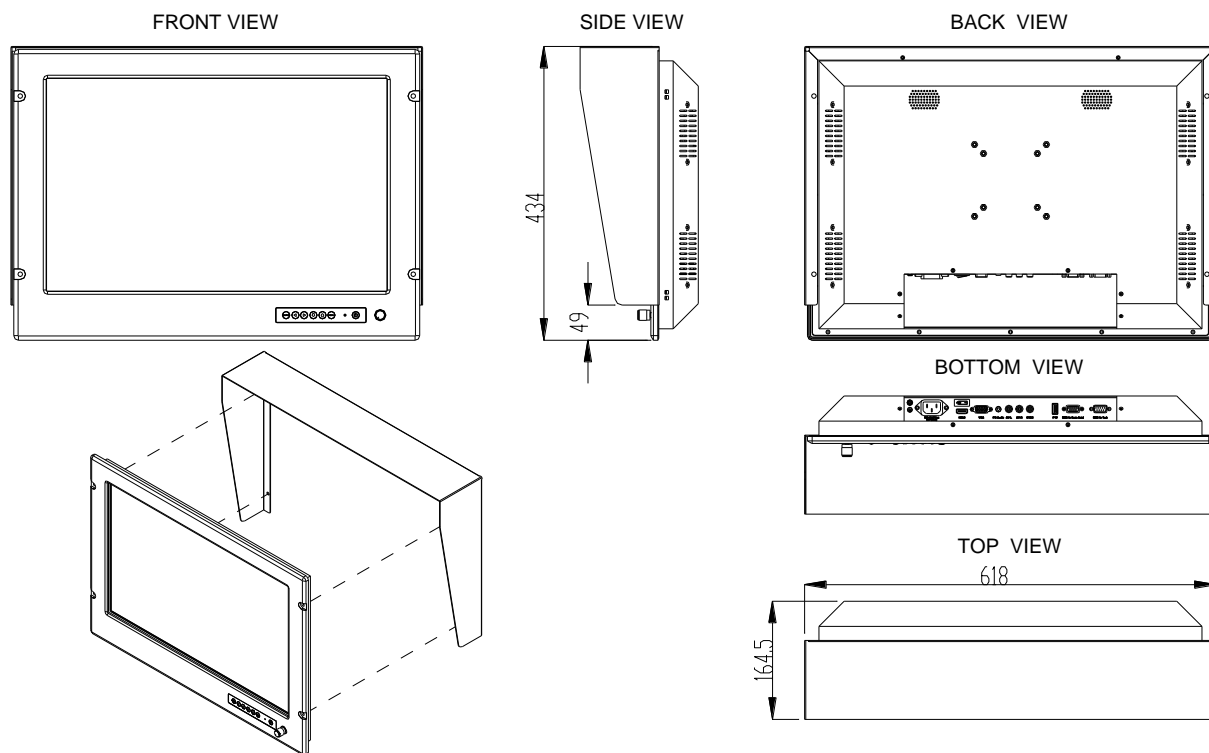
< 1.3 > Panel Mounting Installation:

Metric thread M6 *4pcs
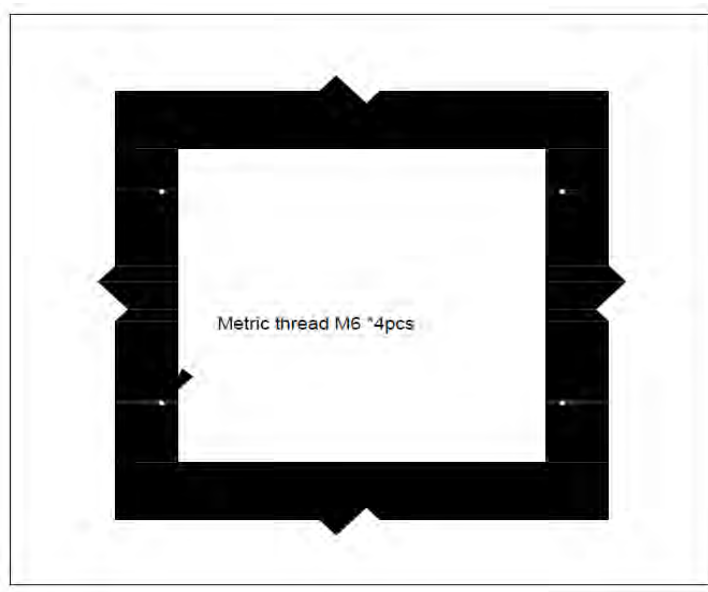
Step ①

Prepare a cutout on a fixture according to the cutout dimensions
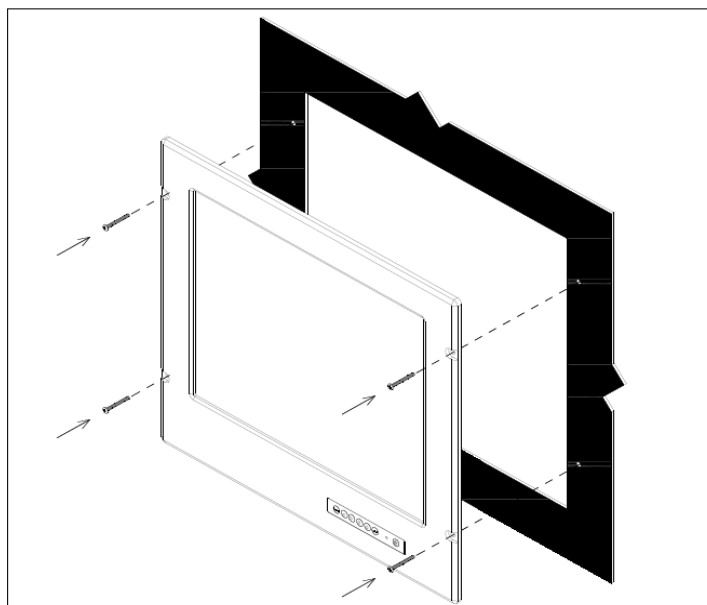
Step ②

4 x M6 screw set are required.
Fix the Display into the panel bracket
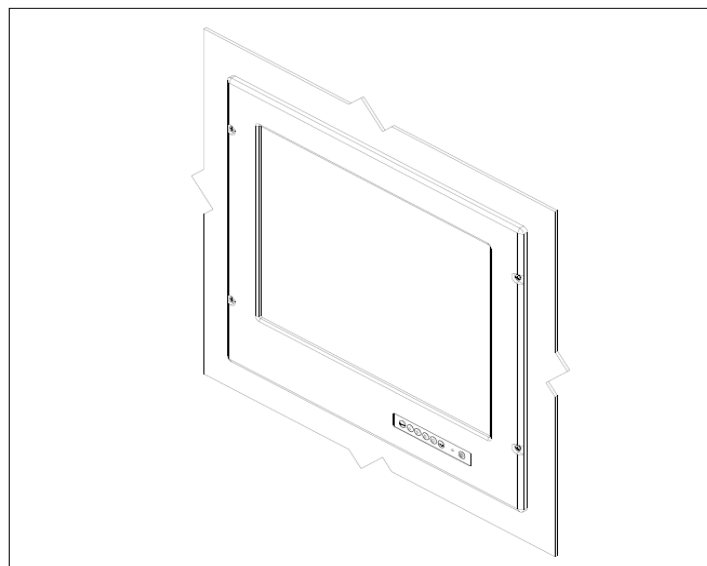
Step ③

Finish

< 1.3 > Vesa Mounting Installation:
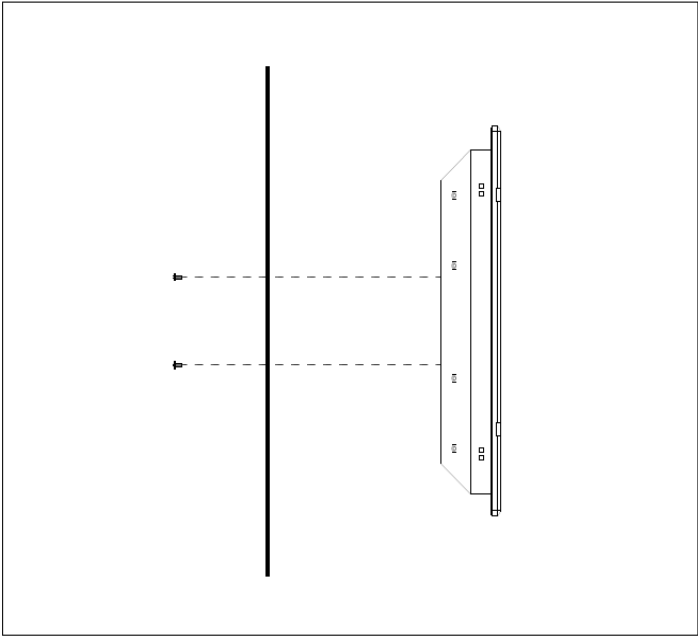
Step ①

Side view
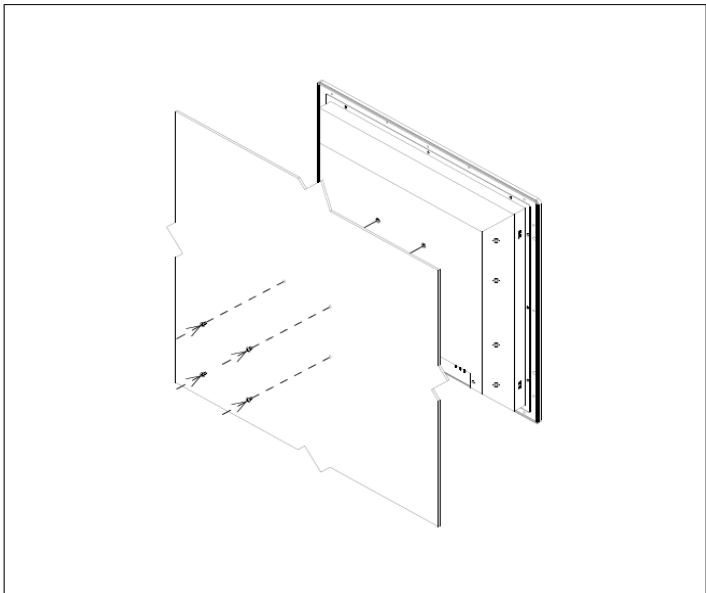
Step ②

4 x M4-8L screw set are required.
Fix the Display into the panel bracket
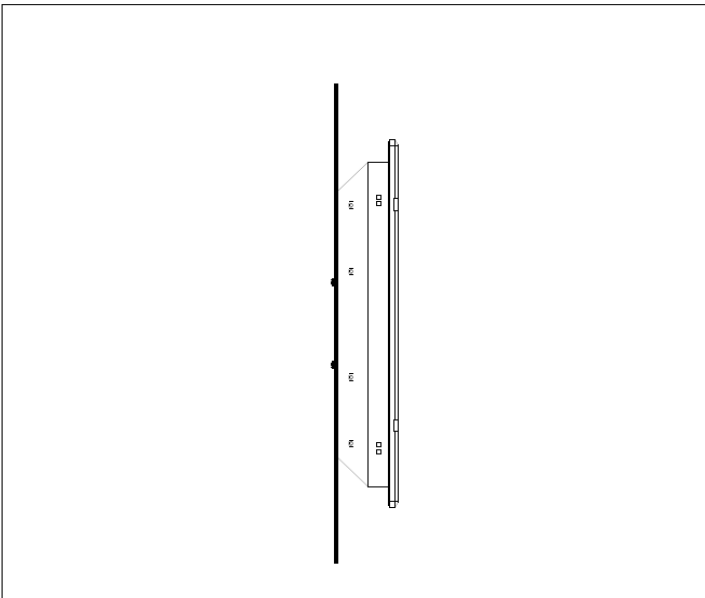
Step ③

Finish

< Part 2 >
< 2.1 > Product Specifications

LCD Panel	Model NO.	MB-15	MB-15W	MB-17
	Panel Size (diagonal)	15-inch TFT LCD	15.6-inch TFT LCD	17-inch TFT LCD
	Display pixel (dots x lines)	1024 x 768	1366 x 768	1280 x 1024
	Brightness (typ.)	450	220	250
	Contrast Ratio (typ.)	700:1	400:1	1000:1
	Color	16.7M	262K	16.7M
	Viewing Angle (H/V)	160/140	90/50	170/160
	Response Time (ms)	16	16	6
	Dot pitch (mm)	0.297(H) x 0.297(V)	0.252(H) x 0.252(V)	0.264(H) x 0.264(V)
	Display Area (mm)	304.1(H) x 228.1(V)	344.232(H) x 193.536(V)	337.92(H) x 279.336(V)
	Backlight Type	LED	LED	LED
	MTBF (hrs)	100,000	12,000	50,000

LCD Panel	Model NO.	MB-17W	MB-19	MB-21W
	Panel Size (diagonal)	17.3-inch wide TFT LCD	19-inch TFT LCD	21.5-inch wide TFT LCD
	Display pixel (dots x lines)	1920 x 1080	1280 x 1024	1920 x 1080
	Brightness (typ.)	300	250	250
	Contrast Ratio (typ.)	650:1	1000:1	3000:1
	Color	262K	16.7M	16.7M
	Viewing Angle (H/V)	140/120	170/160	178/178
	Response Time (ms)	16	8	18
	Dot pitch (mm)	0.1989(H) x 0.1989(V)	0.294(H) x 0.294(V)	0.248(H) x 0.248(V)
	Display Area (mm)	381.89(H) x 214.81(V)	376.32(H) x 301.06(V)	476.64(H) x 268.11(V)
	Backlight Type	LED	LED	LED
	MTBF (hrs)	50,000	50,000	50,000

LCD Panel	Model NO.	MB-24W
	Panel Size (diagonal)	23.8-inch wide TFT LCD
	Display pixel (dots x lines)	1920 x 1080
	Brightness (typ.)	250
	Contrast Ratio (typ.)	1000:1
	Color	16.7M
	Viewing Angle (H/V)	178/178
	Response Time (ms)	14
	Dot pitch (mm)	0.2745(H) x 0.2745(V)
	Display Area (mm)	527.04(H) x 296.46(V)
	Backlight Type	LED
	MTBF (hrs)	50,000

Video Connectivity	Digital	HDMI	HDMI 1.3
	Analog	VGA	Analog 0.7Vp-p
		Composite (RCA)	NTSC & PAL
	Plug & Play	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
	Speaker	Dual Stereo Speaker	2W x 2

Power	Power Supply	Range	Auto-sensing 100 to 240VAC, 50 / 60Hz
	DC Power Input (option)	12 V	9-18 V
		24 V	18-36 V
		48 V	36-72 V
		125 V	72-144 V

Regulatory	Safety	FCC & CE & IEC60945 certified	
	Environmental	RoHS2 & REACH compliant	

Environmental Conditions	Operating	Temperature	0 to 50°C degree
		Humidity	5~95%, non-condensing
	Storage (Non-operating)	Temperature	-20 to 60°C degree
		Humidity	5~90%, non-condensing
		Shock	15G acceleration(11ms duration)
		Vibration	5~500Hz 1G RMS random

Applicable Format	HDMI / VGA Input	PC Signal	1920 x 1080 x 60Hz
			1680 x 1050 x 60Hz
			1600 x 900 x 60Hz
			1440 x 1050 x 60Hz
			1440 x 900 x 60 / 75Hz
			1366 x 768 x 60 / 75Hz
			1280 x 1024 x 60 / 70 / 75Hz
			1280 x 960 x 60Hz
			1280 x 768 x 60Hz
			1280 x 720 x 60Hz
			1152 x 864 x 75Hz
			1024 x 768 x 60 / 70 / 75Hz
			800 x 600 x 60 / 72 / 75Hz
			640 x 480 x 60 / 72 / 75Hz
			640 x 400 x 70Hz
			640 x 350 x 70Hz

< 2.2 > On-screen Display Operation (OSD)

OSD Control buttons

LCD OSD can establish and setup LCD display. Setup instructions of four buttons are as follows:

Button	Functions
Power	Turn on or off the LCD Display
Menu	Activate OSD menu, select a menu and press MENU key to confirm the selection and enter the submenu.
▲ ▼ ◄ ►	Scroll through menu options and adjust the displayed control
Source	press to select video source

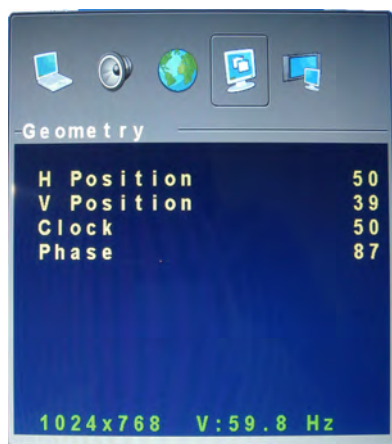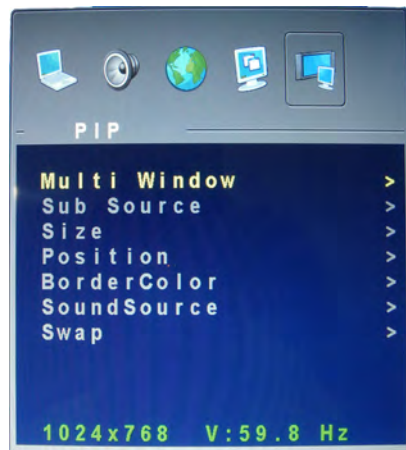Picture   Sound   OSD setup


Phase   PIP

< Part 3 >

< 3.1 > Options : Touchscreen

F21" USB Touchscreen Specification

Model	TRB e-Resistive	TCB e-Capacitive
Technology	5-Wire Resistive	Capacitive
Touch Point	Single	Single
Method	Stylus or Finger	Finger
Activation Force	≤ 50g / Stylus=R0.8	≤ 50g
Durability	10 million touches	300 million touches
Response Time	15 ms	20 ms
Optical Transmittance	80% ± 3%	87% ±2%
Surface Hardness	3H	9H
Haze	8% ± 3%	7%
Glass	3.2 ±0.2 mm	2.8 mm ±10%
Connector	USB Type A	
Compatibility	Windows 7 / XP / Vista, Linux	

- ■ USB touchscreen package includes 2 x 1.8 M USB cable
- ■ For detailed information, please refer to the attached CD disc
- ■ As the touchscreen unit is not made of toughened glass, please handle it carefully

< 3.2 > Options : DC power

V+ GND V-
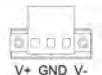
Model	12V	24V	48V	125V
Input rating				
Input voltage:	12-Volt	24-Volt	48-Volt	125-Volt
Input range:	9-18 V	18-36 V	36-72 V	72-144 V
Output rating				
Output voltage:	12-Volt	12-Volt	12-Volt	12-Volt
Output current:	6.25 A	6.25 A	6.25 A	6.25 A
Efficiency	80%	80%	80%	80%

< 3.3 > Options : RT-Bkt (Rotary Plate Robust Bracket)

Rotary Plate

Bracket

Rotary Plate + Bracket