CIT CRYSTAL IMAGE
TECHNOLOGIES

User Manual   Marine Bridge System Display (high brightness)

MB-H
15, 17, 17.3, 19, 21.5, 23.8 inch

Options :
- AR Hardness Glass
- Touchscreen
- DC power
- SR-BKT
- RT-BKT
- SV-BKT

IEC60945 FC CE 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 specif cally for cleaning monitors and monitor screens. Cleansers not made to clean monitors and monitor screens can scratch the LCD display or strip off the f nish.

■ 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 microf ber 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 microf ber cloth.

⚠ **Caution : Do not spray or apply any liquids directly onto the monitor. Always apply the solution to your microf ber cloth f rst, 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.

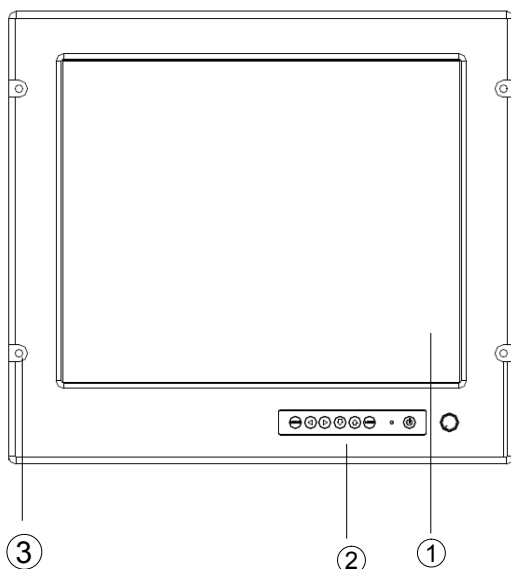**< 1.1 > Package Content**   **MB-H**

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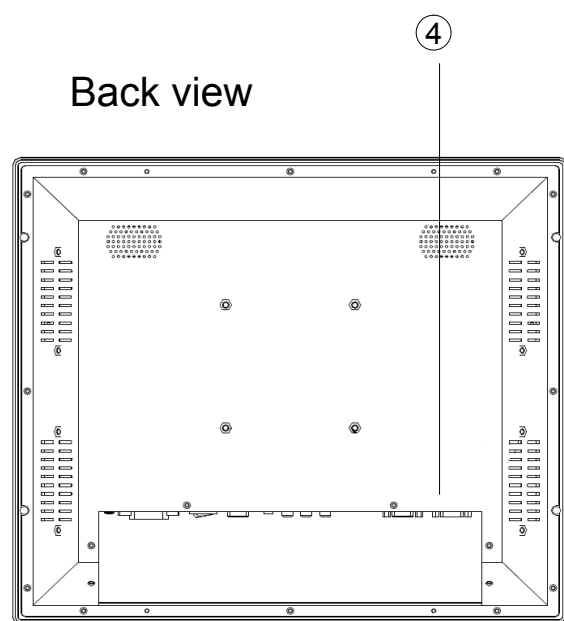- 1.8 M Audio cable X 1
- 1.8 M AV cable X 1
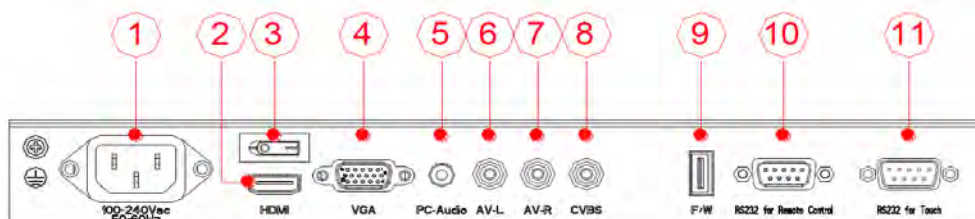- Power cord X 1

< 1.2 > Structure Diagram

Front view
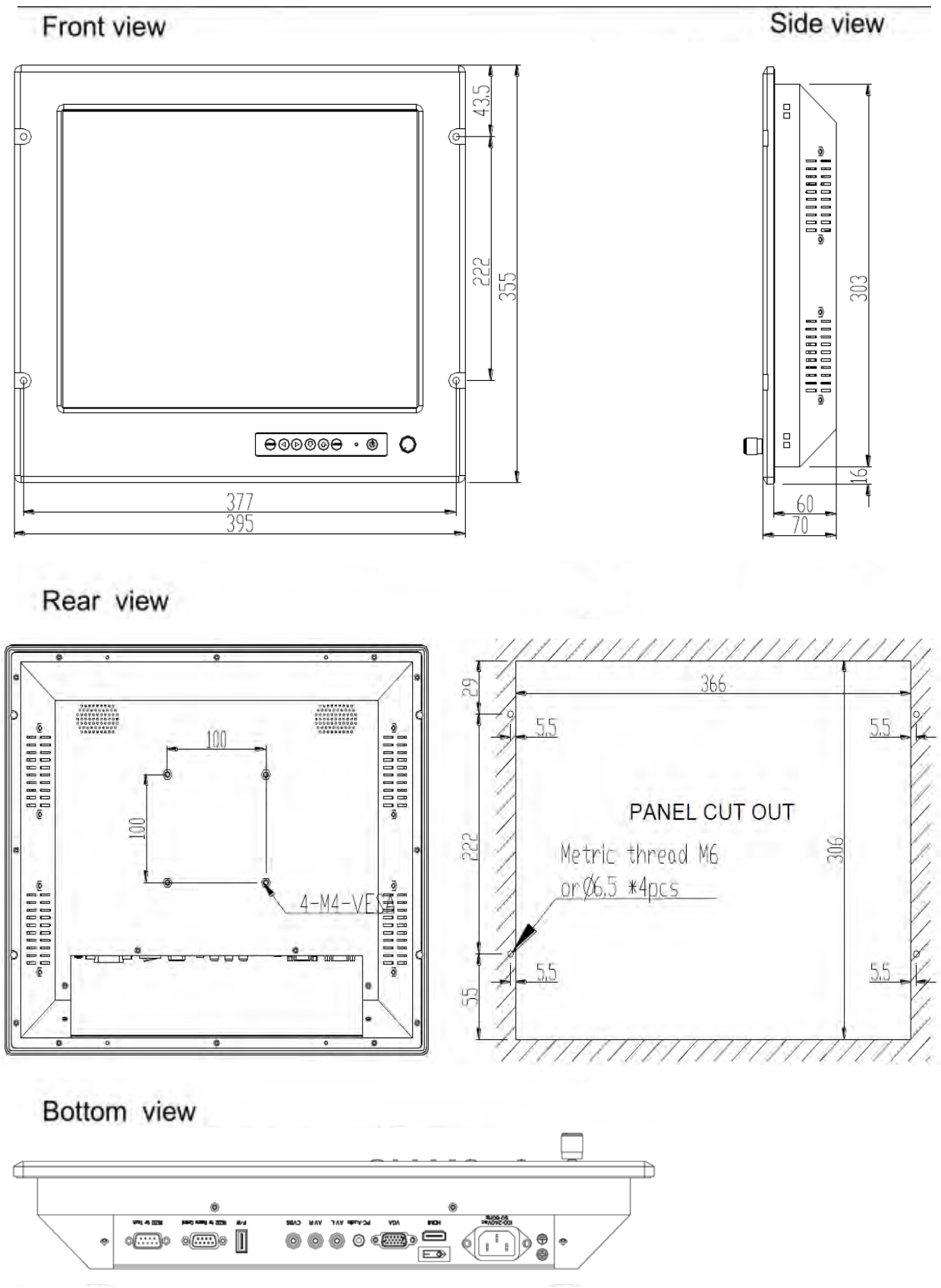
Back view

④

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

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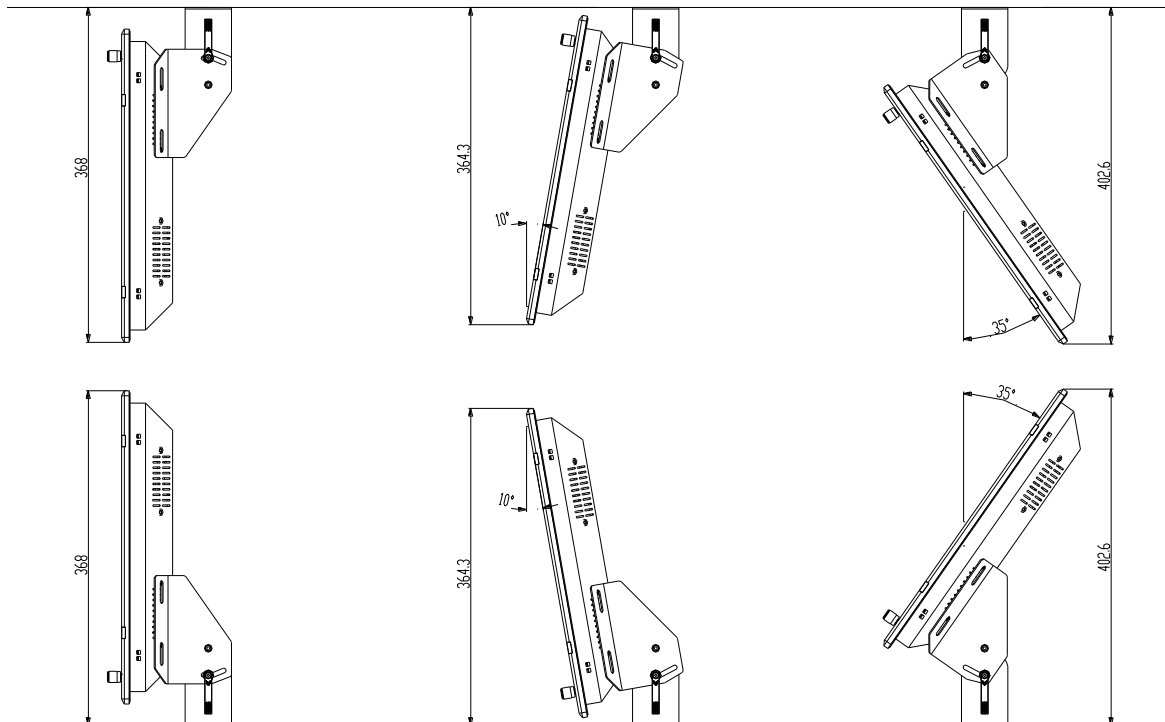Options   : touchscreen & DC power

< 1.2 > Dimension-15 inch

Front view

Side view

43.5
222
355
377
395
303
16
60
70

Rear view

100
100
4-M4-VESA

29
222
55
366
5.5
5.5
PANEL CUT OUT
Metric thread M6
or Ø6.5 *4pcs
5.5
306
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-15H	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

TOP VIEW

Mounting bracket + Rotary Bracket (Option)

386

382.3

10°

420.6

35°

386

382.3

10°

35°

420.6

Sun Visor Bracket (Option)

FRONT VIEW

SIDE VIEW

BACK VIEW

339

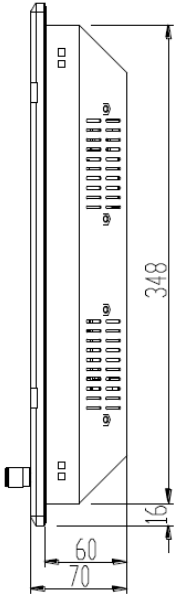39

BOTTOM VIEW

Sun Visor bracket
ISOMETRIC EXPLODED VIEW

TOP VIEW

403

153
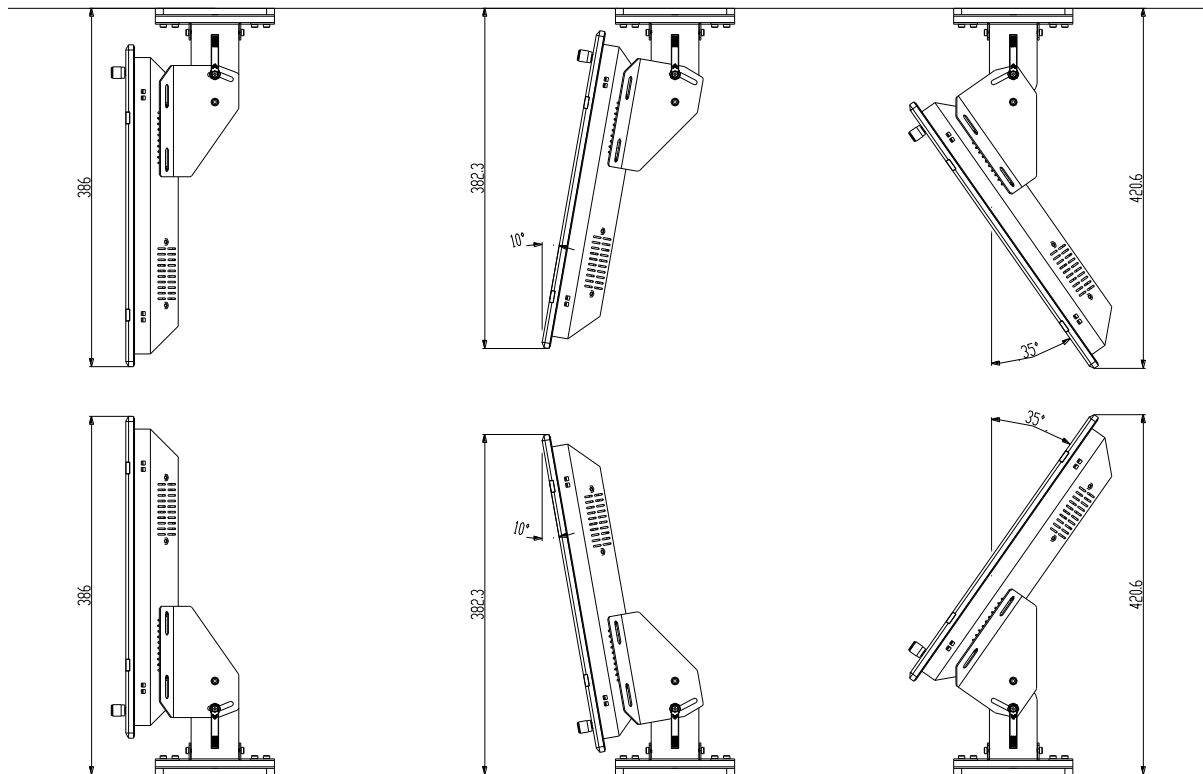
Dimension-17 inch

Front view
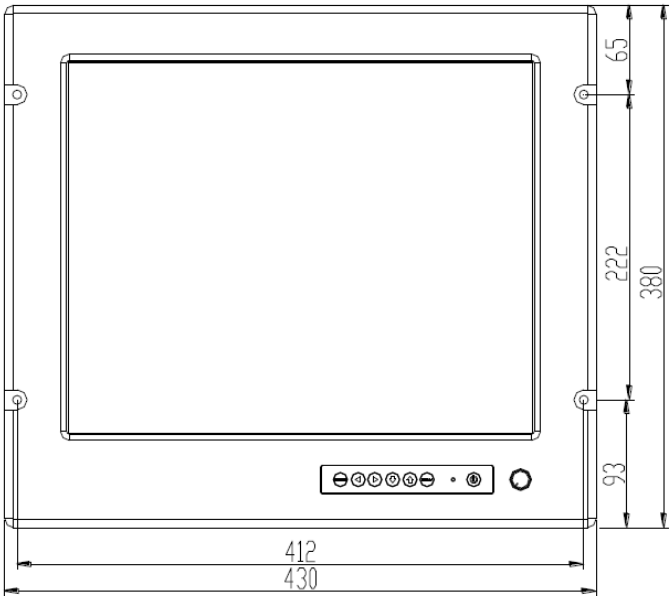
Side view
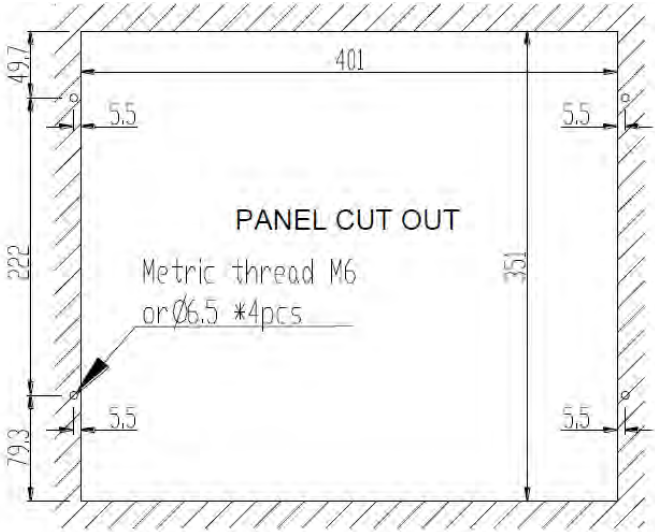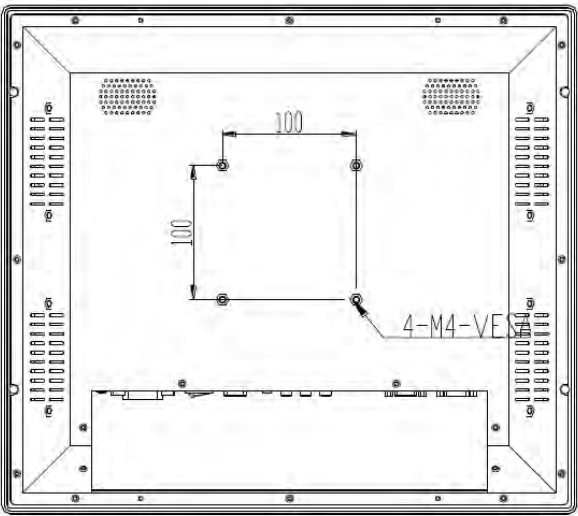
Rear view

PANEL CUT OUT

Metric thread M6
or Ø6.5 *4pcs

Bottom view
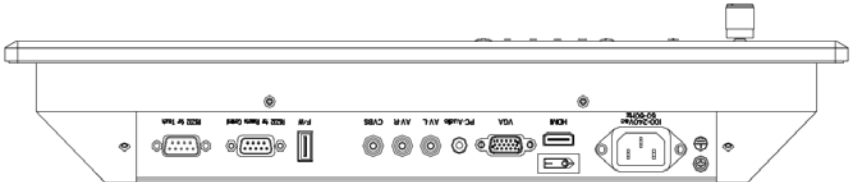
Model	Product Dimension (W x H x D)	Packing Dimension (W x H x D)	Net Weight	Gross Weight
MB-17H	430 x 380 x 70 mm	560 x 510 x 220 mm	8.5 kg	11 kg

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°
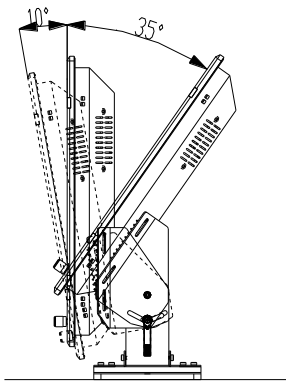
35°

Sun Visor Bracket (Option)

FRONT VIEW

SIDE VIEW

BACK VIEW

384

49

BOTTOM VIEW

TOP VIEW

438

168

Sun Visor bracket
ISOMETRIC EXPLODED VIEW

Dimension-17.3 inch

Front view

Side view

Rear view

PANEL CUT OUT

Metric thread M6 or ? 6.5 *4pcs

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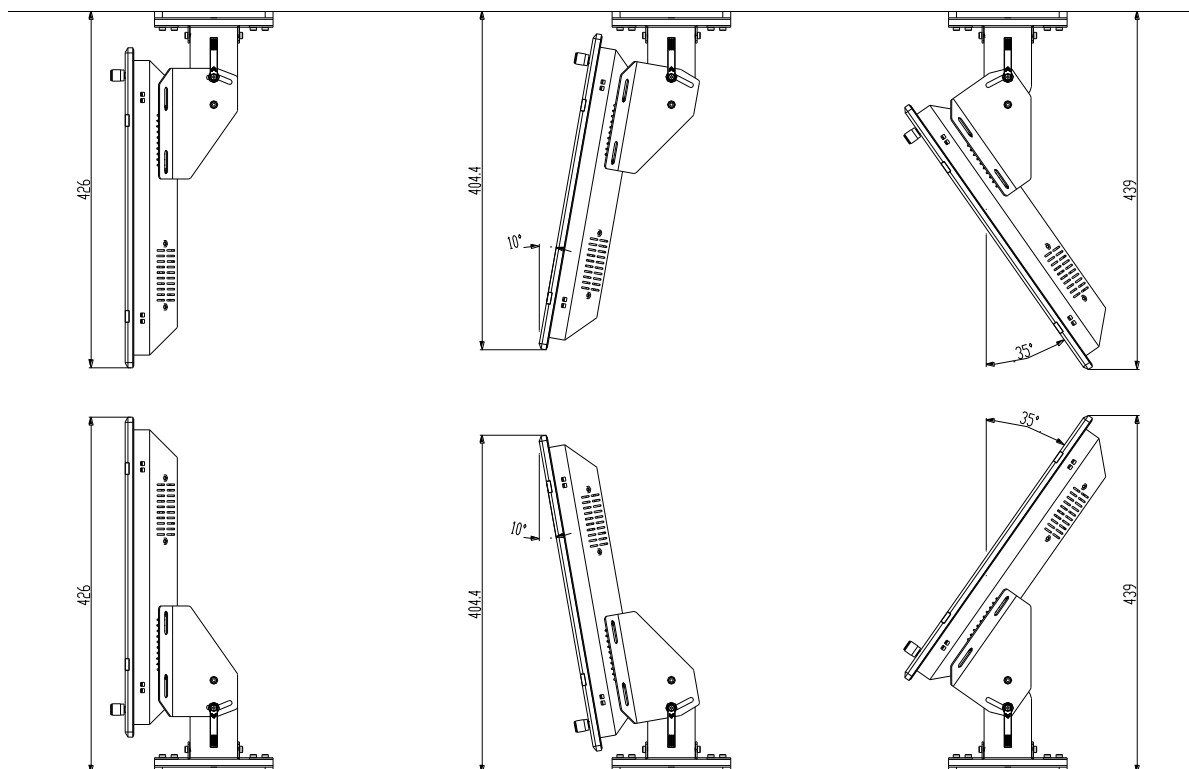
Model	Product Dimension (W x H x D)	Packing Dimension (W x H x D)	Net Weight	Gross Weight
MB-17WH	458 x 339 x 66 mm	590 x 470 x 220mm	7.5 kg	9.5 kg
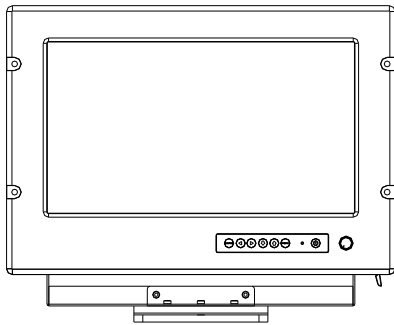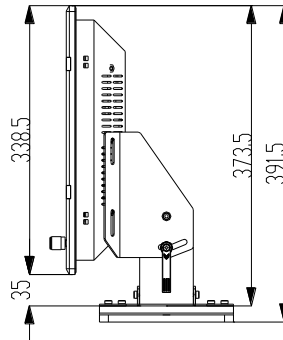
FRONT VIEW

SIDE VIEW

BACK VIEW

338.5

373.5

391.5

35

10° 35°

Stand mount

35° 10°

ROOF mount

367.6
320
296
272
242
180~

TOP VIEW

373.5

351.6

10°

386.4

35°

373.5

351.6

10°

386.4

35°
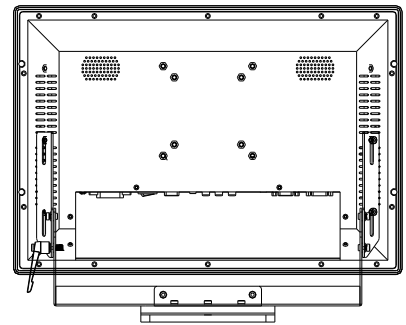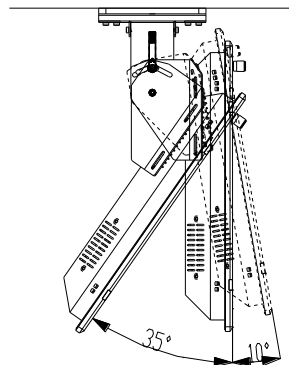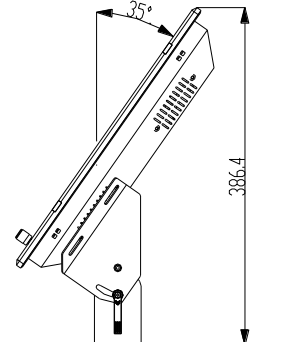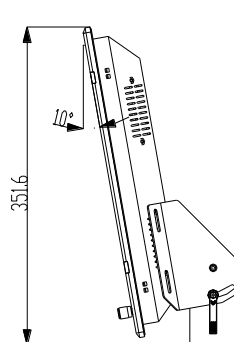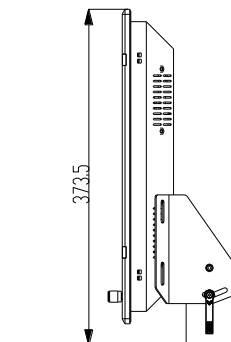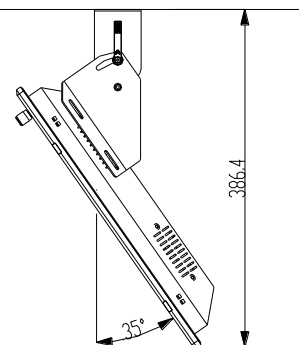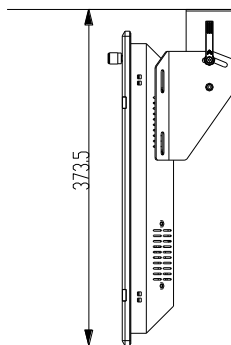
Mounting bracket + Rotary Bracket (Option)

Sun Visor Bracket (Option)
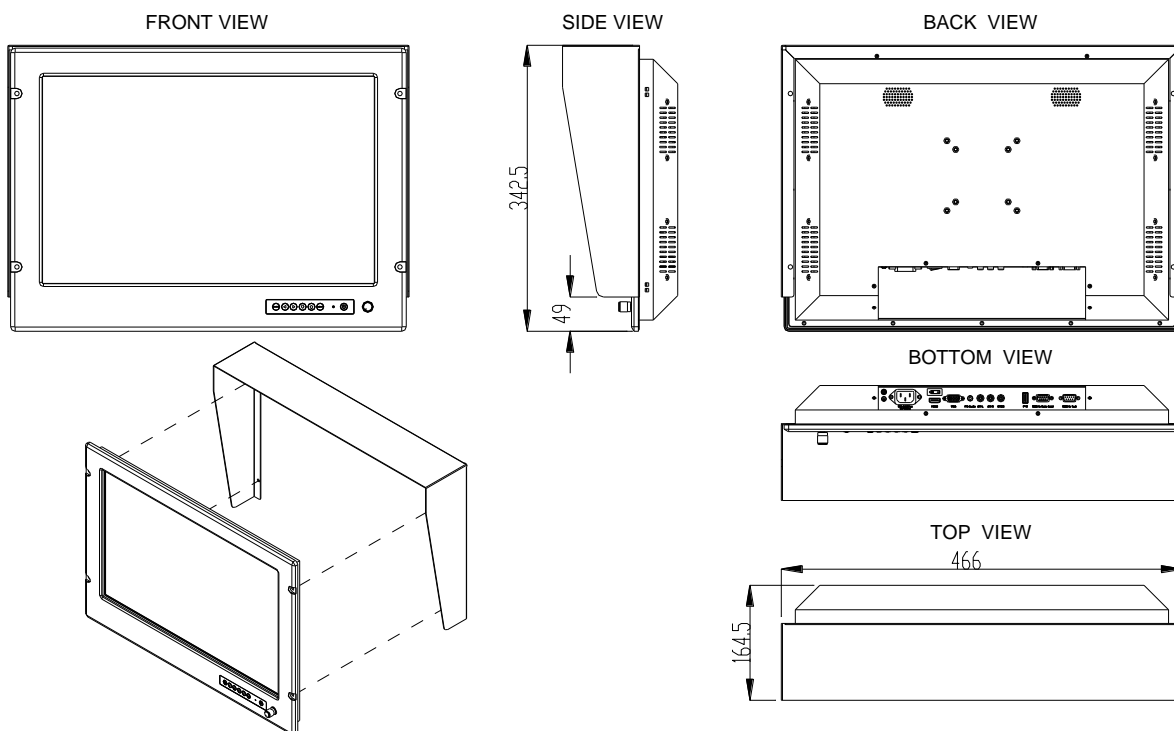
FRONT VIEW

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-19H	483 x 444 x 70 mm	620 x 580 x 220 mm	9.5 kg	13 kg

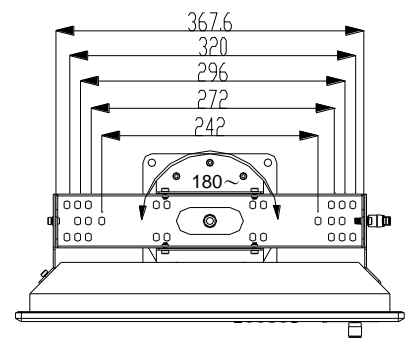## Mechanical Drawing with Robust Bracket (Option)

FRONT VIEW

SIDE VIEW

BACK VIEW

444

472

490

28

366..6
320
296
272
242
180°

TOP VIEW

10° 35°

Stand mount

35° 10°
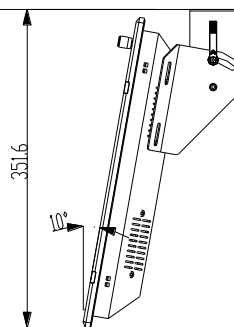
ROOF mount

Mounting bracket for stand and roof mount (Option)

472

447.9

10°

471.4

35°

472

447.9

10°

35°

471.4

Mounting bracket + Rotary Bracket (Option)

490
465.9
489.4
10°
35°
490
465.9
489.4
10°
35°

Sun Visor Bracket (Option)

FRONT VIEW

SIDE VIEW

BACK VIEW

448

73

BOTTOM VIEW

TOP VIEW

491

178
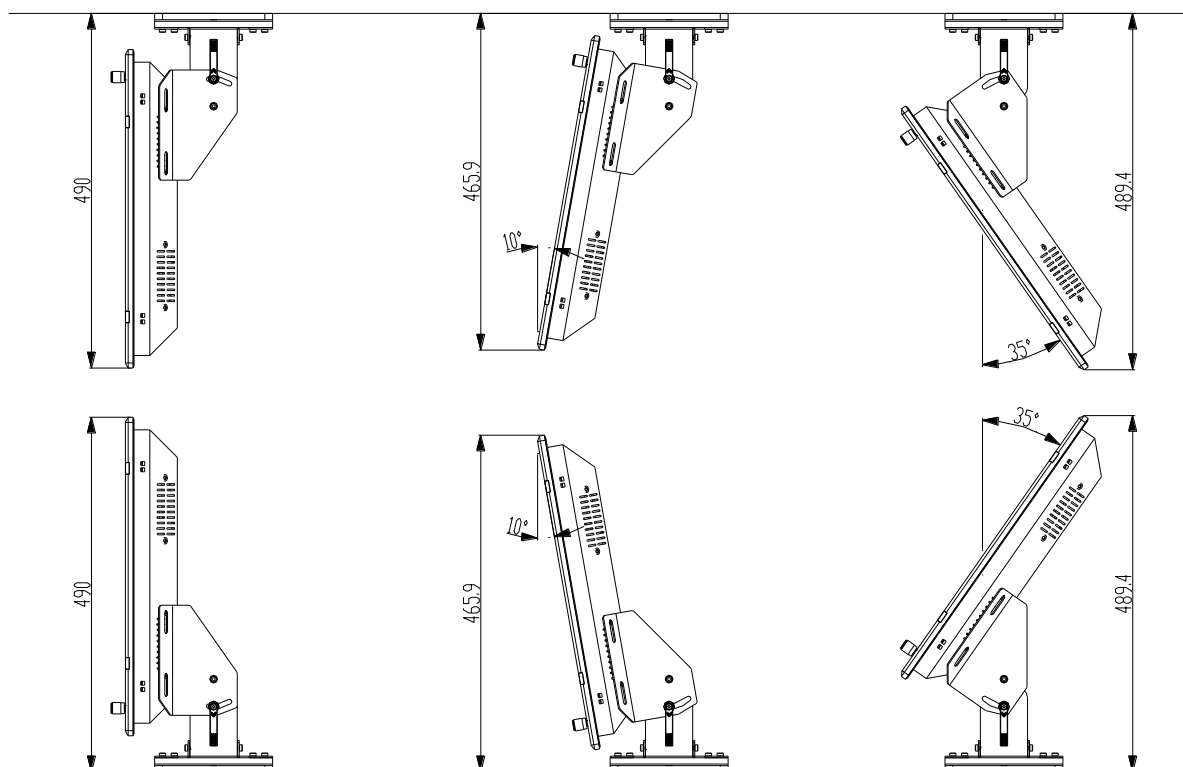
Sun Visor bracket
ISOMETRIC EXPLODED VIEW

Dimension-21.5 inch

Front view
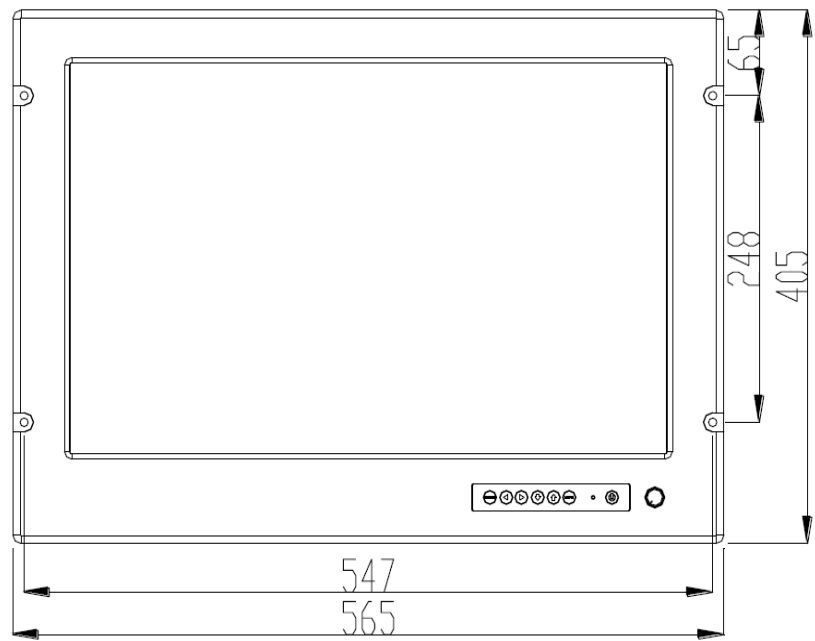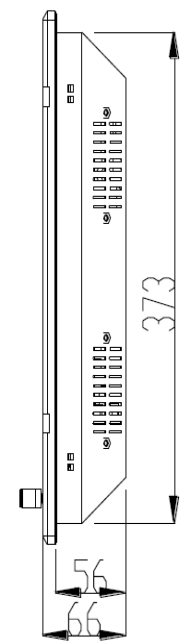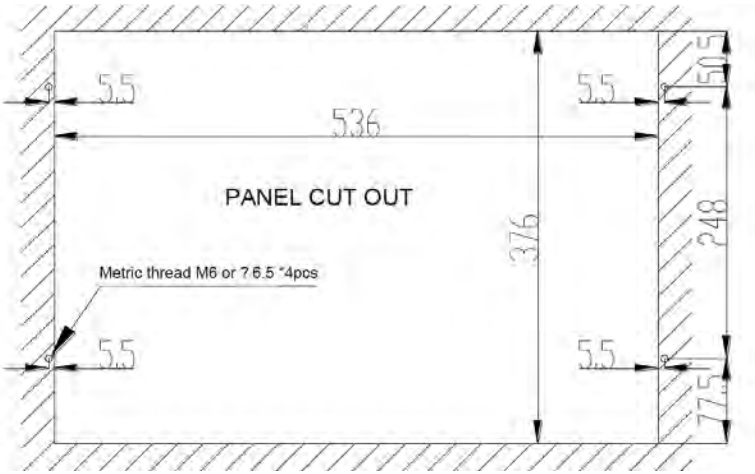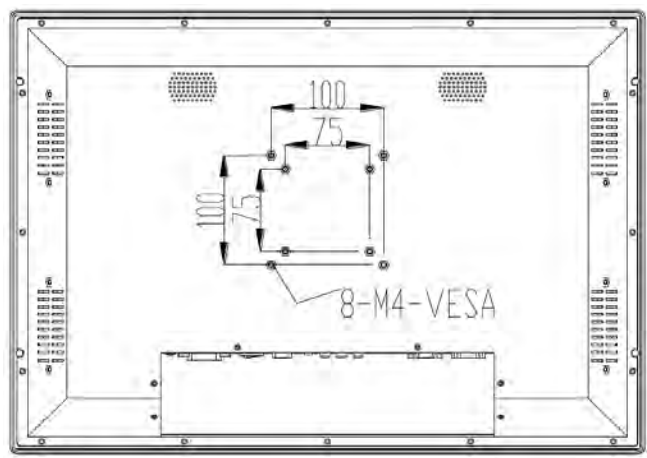
Side view

Rear view

PANEL CUT OUT

Metric thread M6 or ? 6.5 *4pcs

8-M4-VESA

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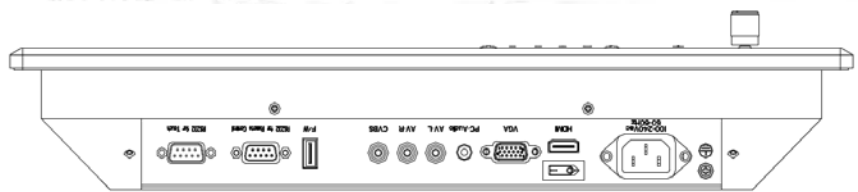
Model	Product Dimension (W x H x D)	Packing Dimension (W x H x D)	Net Weight	Gross Weight
MB-21WH	565 x 405 x 66 mm	700 x 540 x 220 mm	11 kg	14.5 kg

Mechanical Drawing with Robust Bracket (Option)

FRONT VIEW

SIDE VIEW

BACK VIEW

Stand mount

ROOF mount

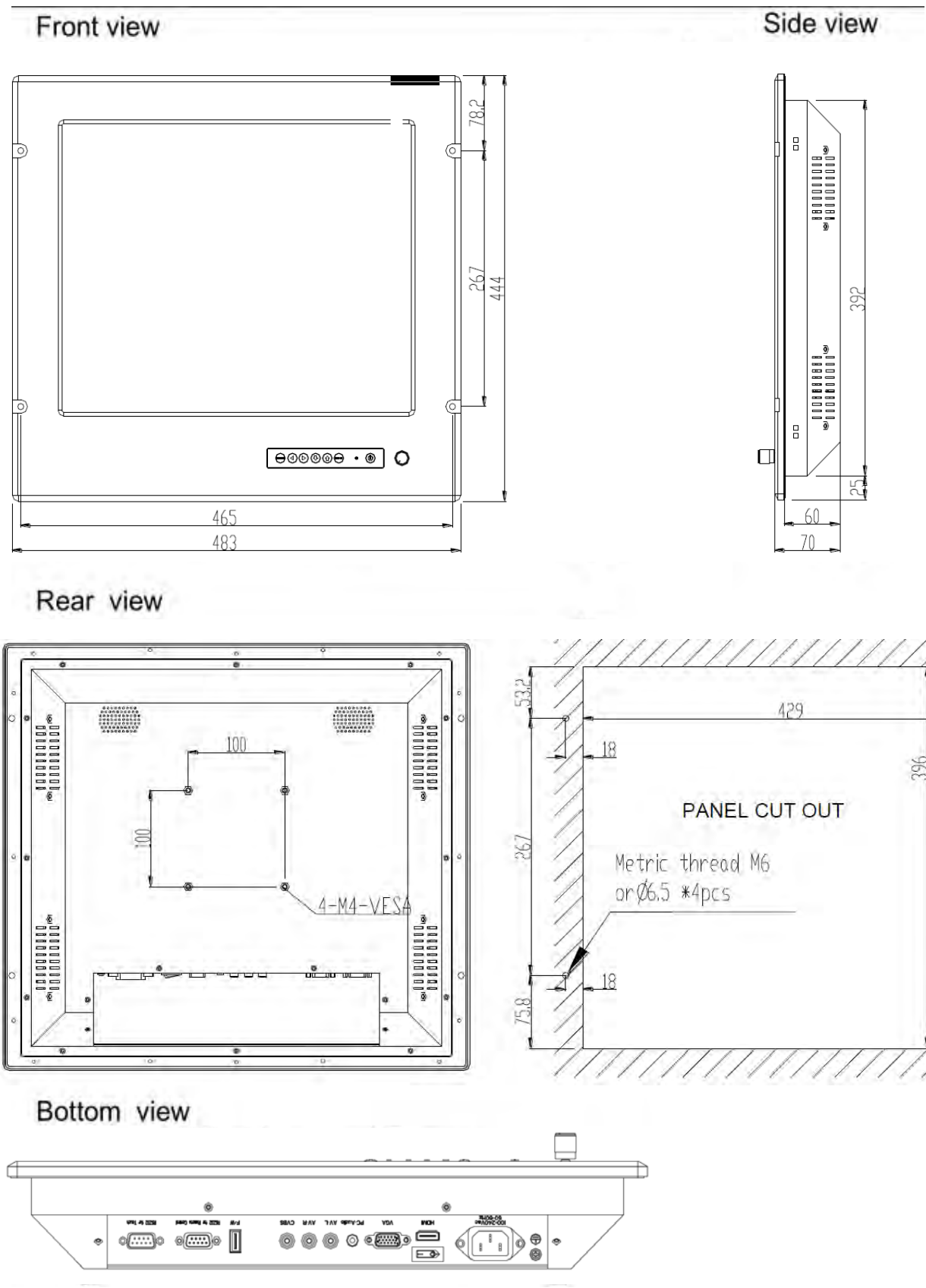TOP VIEW

Mounting bracket for stand and roof mount (Option)

Mounting bracket + Rotary Bracket (Option)

451

428.16

10°

453.11

35°

451

428.16

10°

35°

453.11

Sun Visor Bracket (Option)

FRONT VIEW

SIDE VIEW

BACK VIEW

409

49

BOTTOM VIEW

TOP VIEW

573

164.5
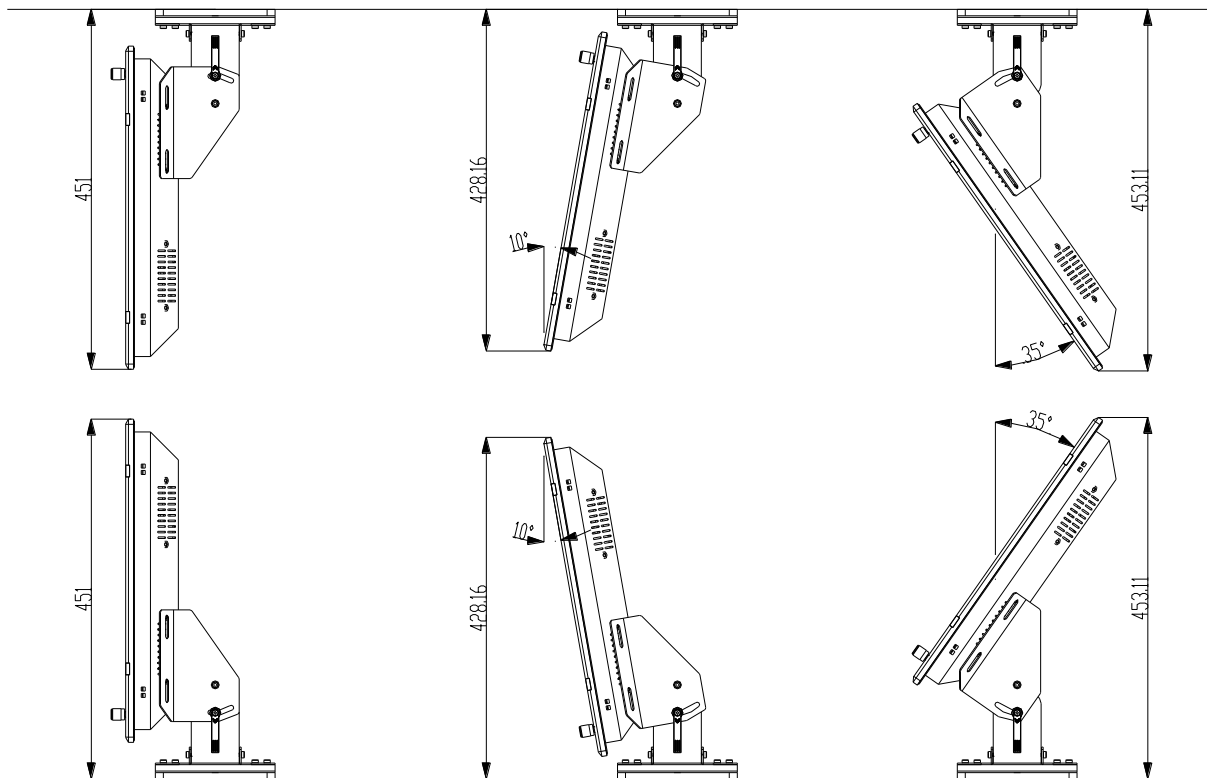
Dimension-23.8 inch

Front view
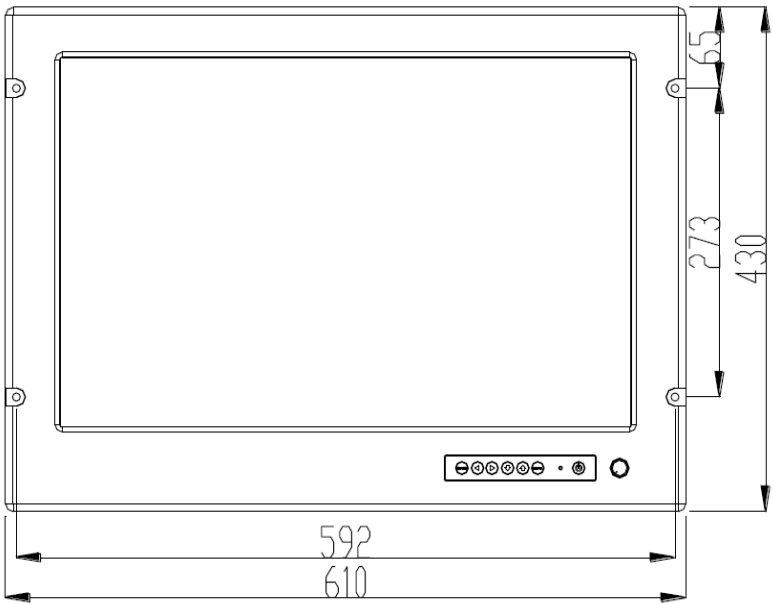
Side view
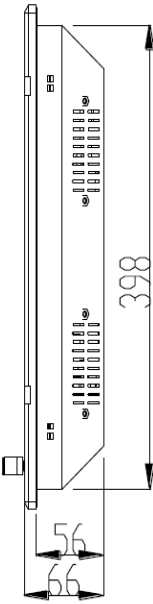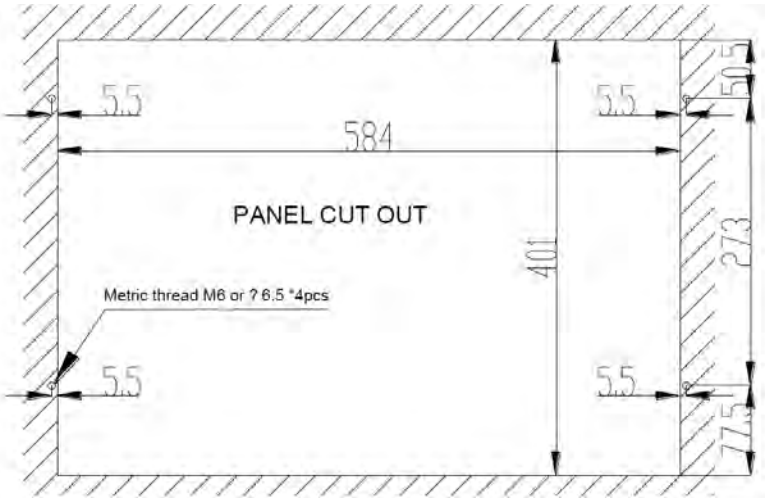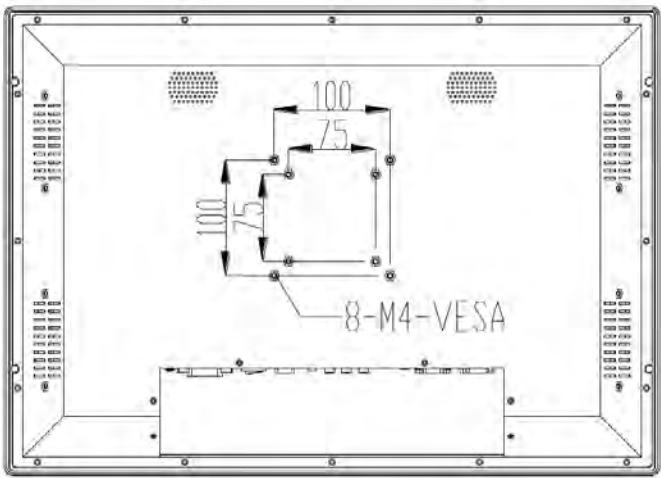
Rear view

PANEL CUT OUT

8-M4-VESA

Metric thread M6 or ? 6.5 *4pcs

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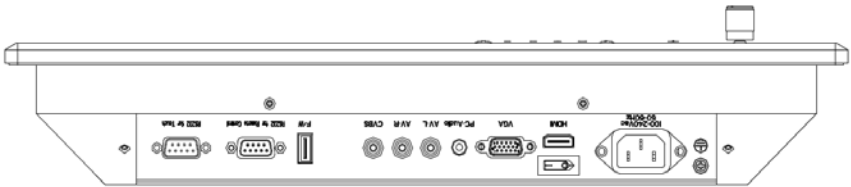
Model	Product Dimension (W x H x D)	Packing Dimension (W x H x D)	Net Weight	Gross Weight
MB-24H	610 x 430 x 66 mm	740 x 560 x 220 mm	12 kg	15.5 kg

Mechanical Drawing with Robust Bracket (Option)
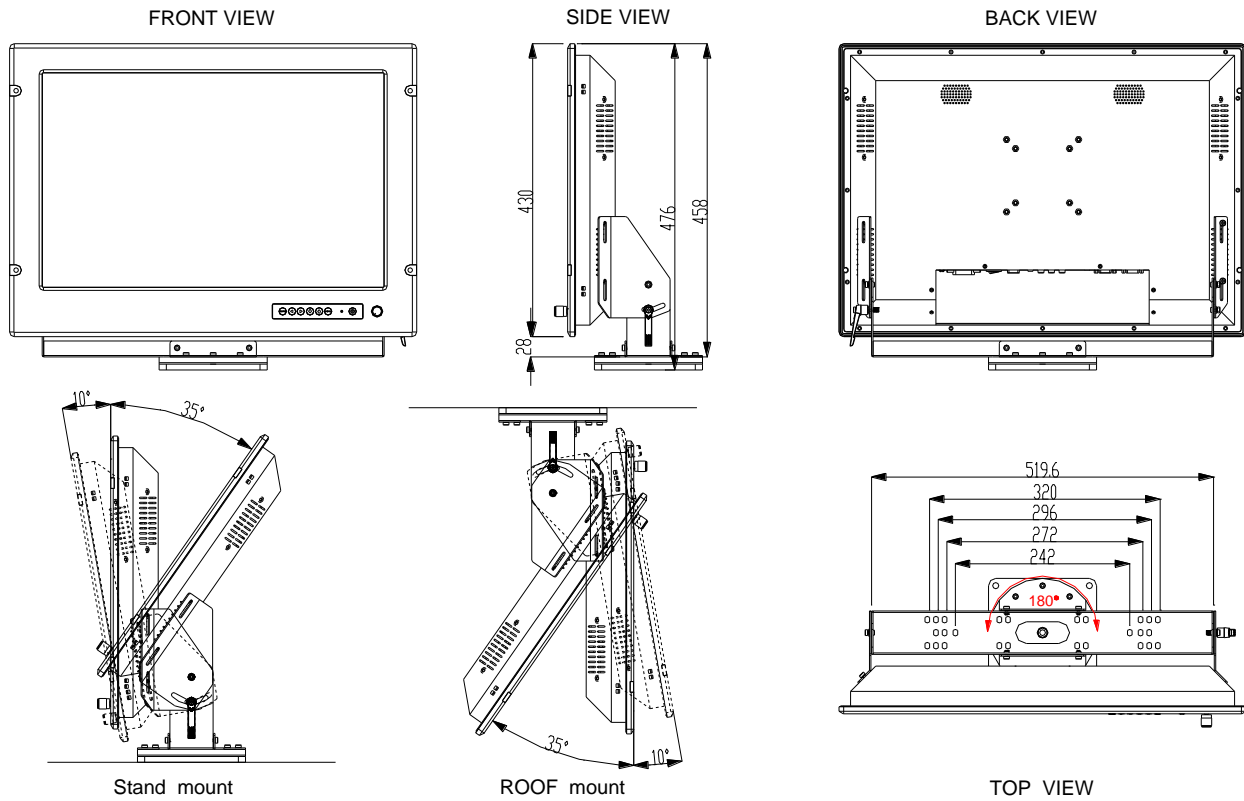
FRONT VIEW

SIDE VIEW

BACK VIEW

Stand mount

ROOF mount

TOP VIEW

Mounting bracket for stand and roof mount (Option)

476

452.78

10°

473.59

35°

476

452.78

10°

35°

473.59

FRONT VIEW

SIDE VIEW

434

49

BACK VIEW

BOTTOM VIEW

TOP VIEW

618

164.5
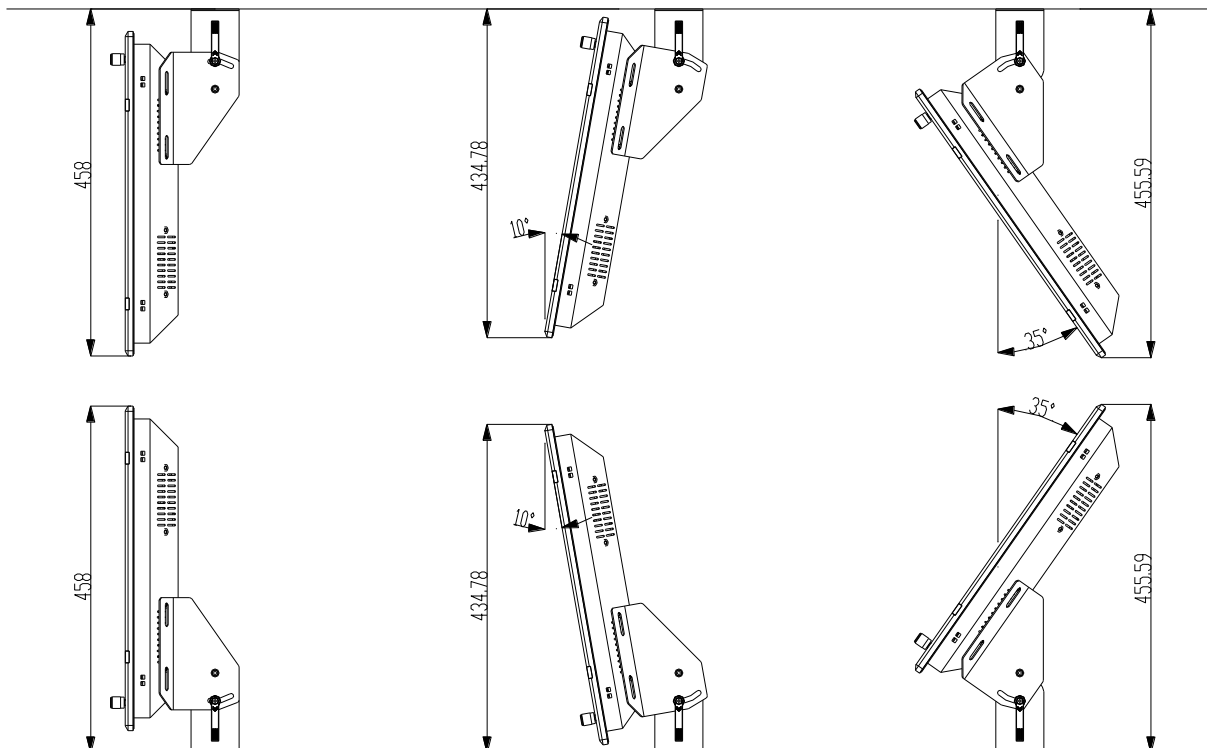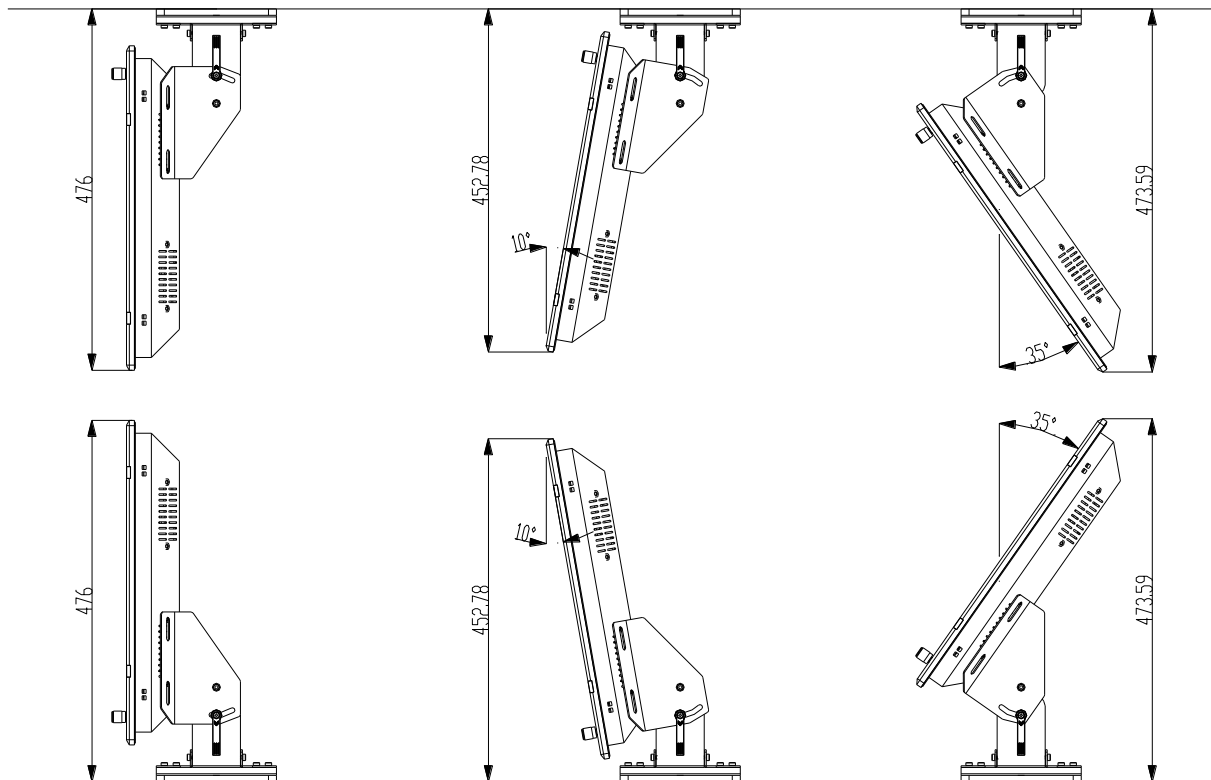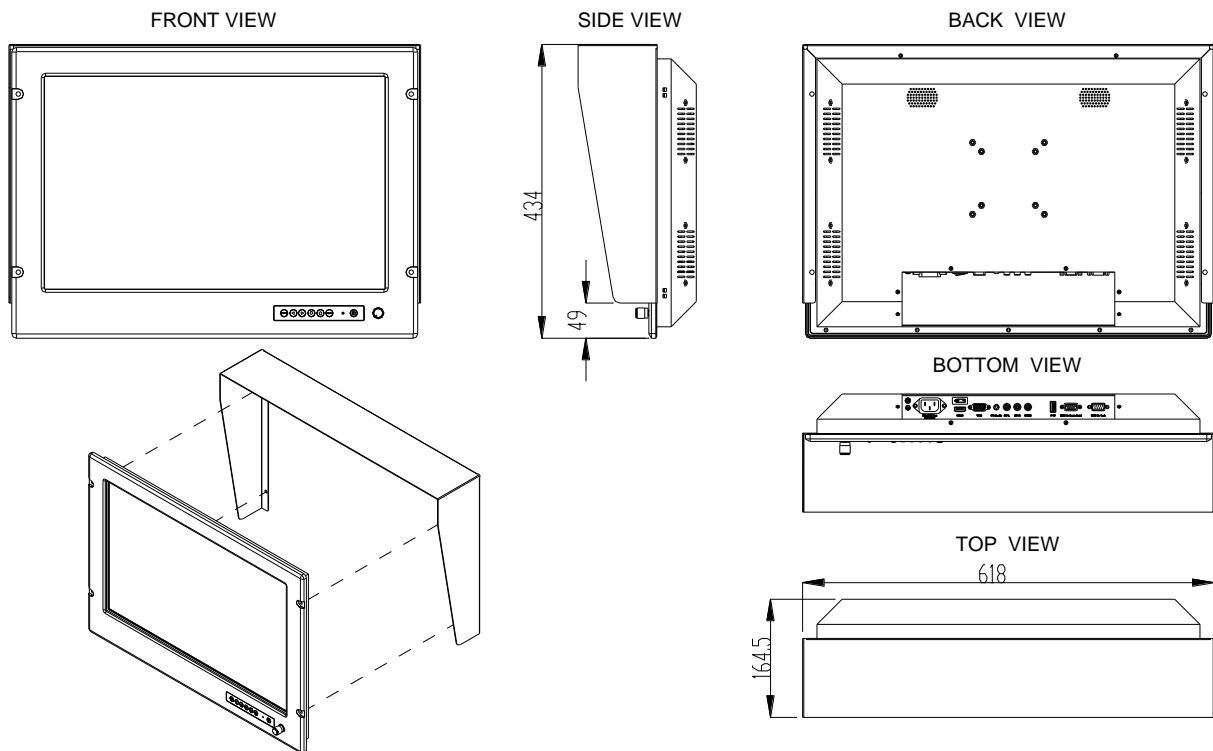
< 1.3 > Panel Mounting Installation:

Metric thread M6 *4pcs
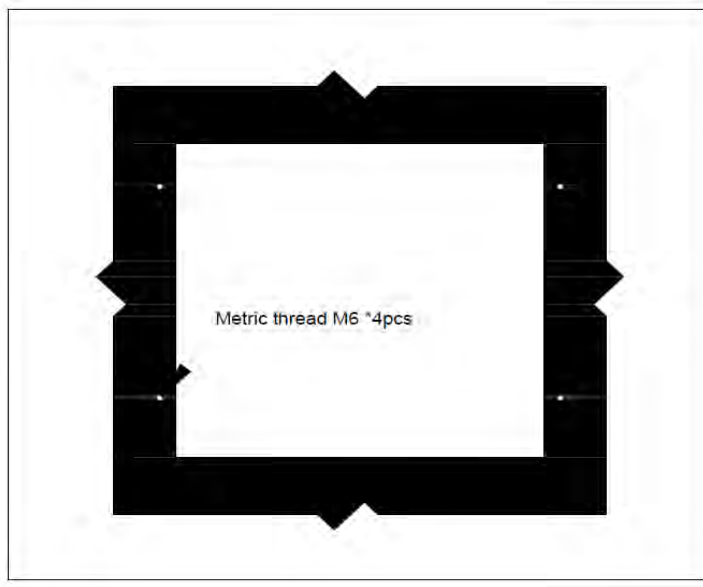
Step ①

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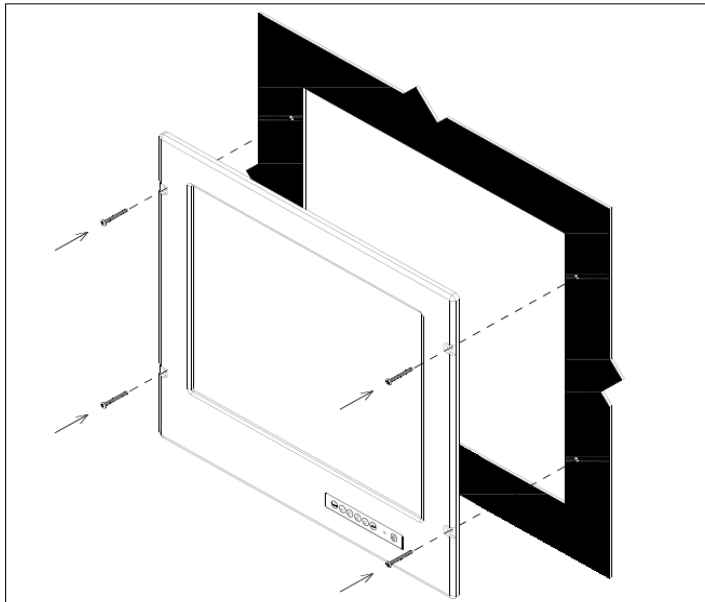
Step ②

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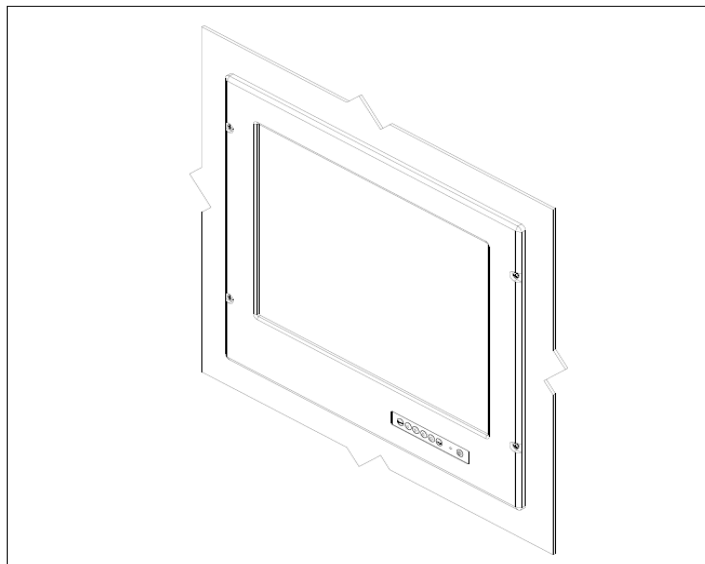
Step ③

 Finish

< 1.3 > Vesa Mounting Installation:
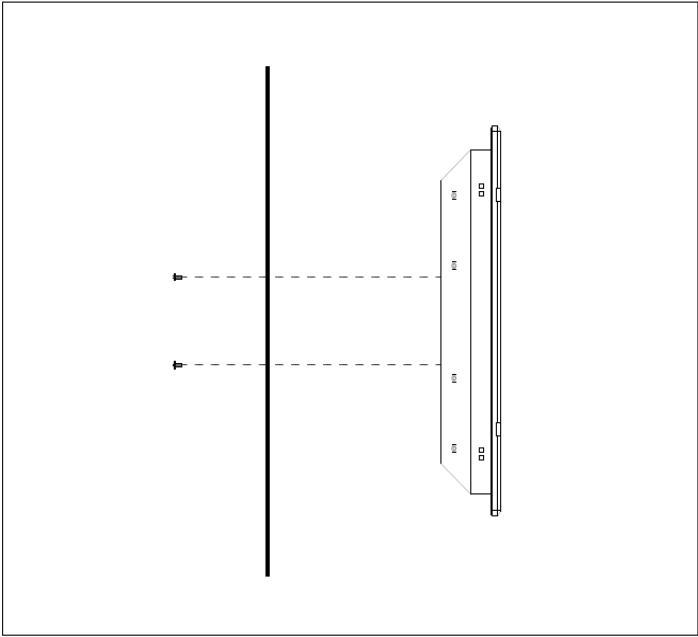
Step ①

Side view
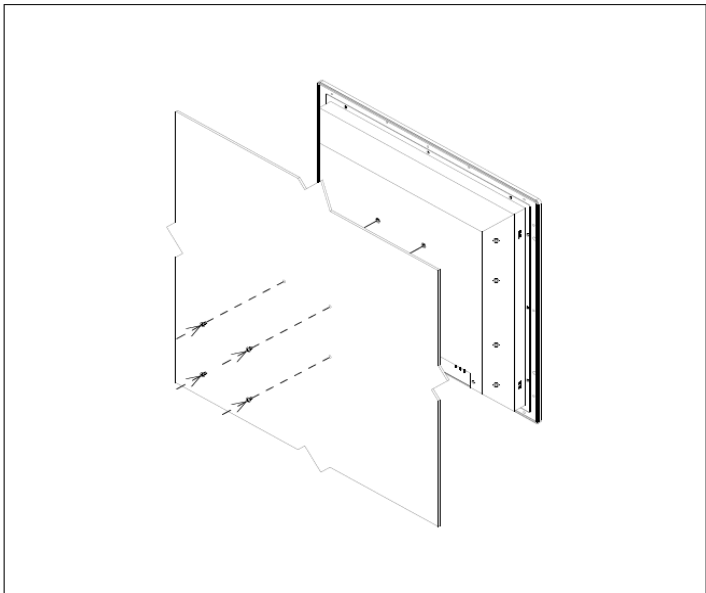
Step ②

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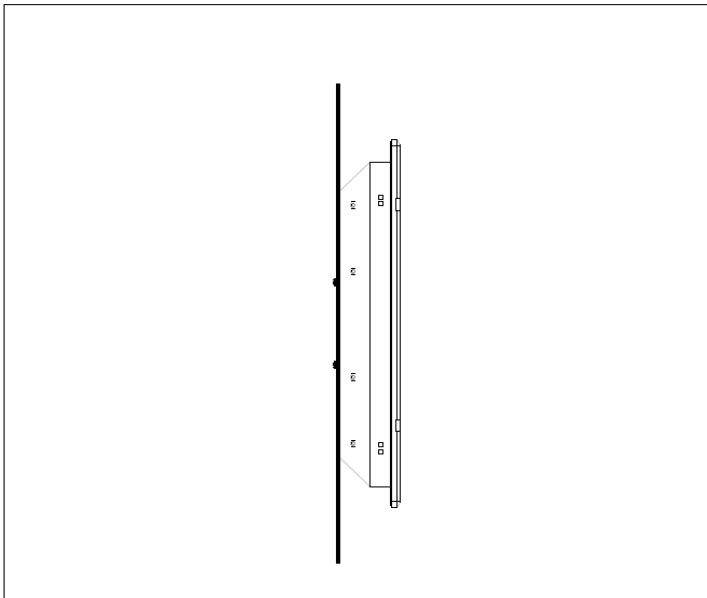
Step ③

Finish

< Part 2 >

< 2.1 > Product Specif cations

LCD Panel	Model NO.	MB-15H	MB-17B	MB-17WH
	Panel Size (diagonal)	15-inch TFT LCD	17-inch TFT LCD	17.3-inch wide TFT LCD
	Display pixel (dots x lines)	1024 x 768	1280 x 1024	1920 x 1080
	Brightness (typ.)	1000	1000	1000
	Contrast Ratio (typ.)	700:1	1000:1	650:1
	Color	16.7M	16.7M	262K
	Viewing Angle (H/V)	160/140	170/160	140/120
	Response Time (ms)	16	6	16
	Dot pitch (mm)	0.297(H) x 0.297(V)	0.264(H) x 0.264(V)	0.1989(H) x 0.1989(V)
	Display Area (mm)	304.1(H) x 228.1(V)	337.92(H) x 279.336(V)	381.89(H) x 214.81(V)
	Backlight Type	LED	LED	LED
	MTBF (hrs)	100,000	50,000	10,000

| LCD Panel	Model NO.	MB-19H	MB-21WH	MB-24H
	Panel Size (diagonal)	19-inch TFT LCD	21.5-inch wide TFT LCD	23.8-inch wide TFT LCD
	Display pixel (dots x lines)	1280 x 1024	1920 x 1080	1920 x 1080
	Brightness (typ.)	1000	1000	1000
	Contrast Ratio (typ.)	1000:1	3000:1	1000:1
	Color	16.7M	16.7M	16.7M
	Viewing Angle (H/V)	170/160	178/178	178/178
	Response Time (ms)	8	18	14
	Dot pitch (mm)	0.294(H) x 0.294(V)	0.248(H) x 0.248(V)	0.2745(H) x 0.2745(V)
	Display Area (mm)	376.32(H) x 301.06(V)	476.64(H) x 268.11(V)	527.04(H) x 296.46(V)
	Backlight Type	LED	LED	LED
	MTBF (hrs)	50,000	50,000	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:

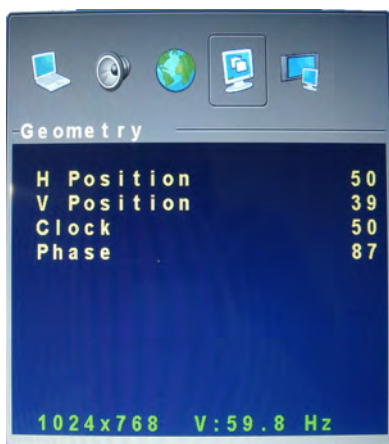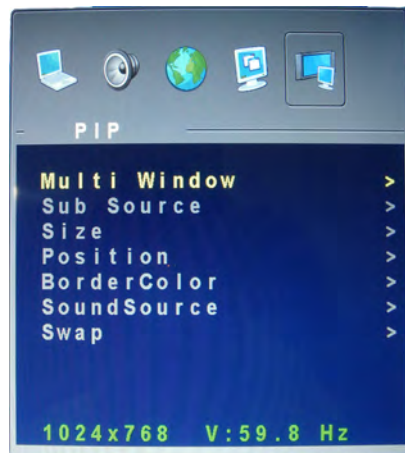| Button	Functions
Power	Turn on or off the LCD Display
Menu	Activate OSD menu, select a menu and press MENU key to confirm the selection and enter the submenu.
▲ ▼ ◄ ►	Scroll through menu options and adjust the displayed control
Source	press to select video source

Picture

Sound
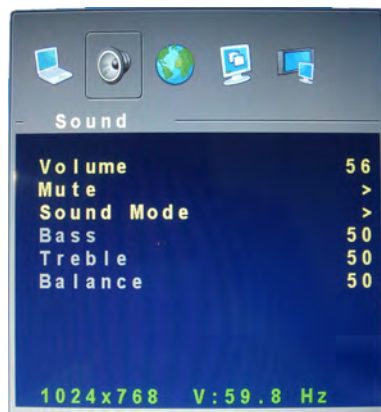
OSD setup

Phase

PIP

< Part 3 >
< 3.1 > Options : Touchscreen

F21" USB Touchscreen Specif cation

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

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