IEI Integration Corp.

MODEL:

DM-F Series

6.5”/8”/12”/15”/17”/19”/22”/24” LCD Monitor

DisplayPort, HDMI, VGA, IP 65 Protection, RoHS

User Manual

Rev. 1.14 – January 21, 2016

RoHS Lead Free

Revision

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January 21, 2016	1.14	Added 6.5”, 8” and 19” model information
August 6, 2015	1.13	Added Section 3.2.8.1: Installing RS-232 Connector
April 29, 2015	1.12	Update Figure 3-2: 3-pin Terminal Block
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December 23, 2014	1.10	Update to R11 version
June 10, 2014	1.01	Update Section 4.4.1: Panel Mounting
March 25, 2014	1.00	Initial Release

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Manual Conventions

WARNING

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously.

CAUTION

Cautionary messages should be heeded to help reduce the chance of losing data or damaging the product.

NOTE

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes.

HOT SURFACE

This symbol indicates a hot surface that should not be touched without taking care.

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Chapter

1

Introduction

1.1 Overview

Figure 1-1: DM-F Series

The DM-F series LCD monitor is the latest member of IEI's line of sophisticated LCD designs with flat bezel. It is designed to fit industrial automation, or any other applications that require minimum installation space and flexible configuration. The flat front panel provides IP 65 protection, which effectively wards off dust and water. Flexible analog or digital interfaces are provided for ease of connection with a management computer.

1.2 Features

The DM-F series have the following standard features:

- Robust IP 65 aluminum front bezel
- Aesthetic ultra-thin bezel for seamless panel mount installation
- Wide range DC input: 9 V – 36 V or 12 V
- Flexible video input solution: VGA, HDMI, DisplayPort or DVI-D
- Resistive single touch or projected capacitive multi-touch options available

1.3 Model Variations

The DM-F series LCD monitor base models have a variety of variants. The model variations are listed in **Table 1-1**.

Model Number	LCD	Touchscreen	Power	HDMI	DisplayPort	DVI-D
DM-F65A/R-R10	6.5”	Resistive	12 V	Customized	No	Yes
DM-F08A/R-R10	8”	Resistive	12 V	Customized	No	Yes
DM-F12A/R-R10	12”	Resistive	9~36 V	Yes	Yes	Customized
DM-F12A/PC-R10		Capacitive	9~36 V	Yes	Yes	Customized
DM-F15A/R-R10	15”	Resistive	9~36 V	Yes	Yes	Customized
DM-F15A/PC-R10		Capacitive	9~36 V	Yes	Yes	Customized
DM-F17A/R-R10	17”	Resistive	9~36 V	Yes	Yes	Customized
DM-F17A/PC-R10		Capacitive	9~36 V	Yes	Yes	Customized
DM-F19A/R-R10	19”	Resistive	9~36 V	Yes	Yes	Customized
DM-F19A/PC-R10		Capacitive	9~36 V	Yes	Yes	Customized
DM-F22A/PC-R10	21.5”	Capacitive	9~36 V	Yes	Yes	Customized
DM-F24A/PC-R10	24”	Capacitive	9~36 V	Yes	Yes	Customized

Table 1-1: DM-F Series Model Variations

1.4 Applications

The DM-F series LCD monitor is designed for rigorous industrial environments where it may be exposed to both heat and moisture. Its durability and strength also makes it an ideal choice for public access computers. Some possible applications include:

- Digital surveillance
- Multimedia advertising platform
- General Computing
  - Computer-based testing center
  - General purpose information system
  - Mobile nursing station
  - Interactive education use
- Automation & Control
  - Plant environment monitoring
  - Factory automation HMI terminal

- Shop-floor/MES control

- Self-service Kiosk
  - Full-service receptionist kiosk
  - Hospital self-registration terminal
  - Interactive photo kiosk
  - Video rental kiosk
  - Self-service POS terminal

1.5 Front View

The front of the DM-F series LCD monitor is a flat panel LCD screen surrounded by an aluminum frame.

Figure 1-2 shows a typical monitor front view.

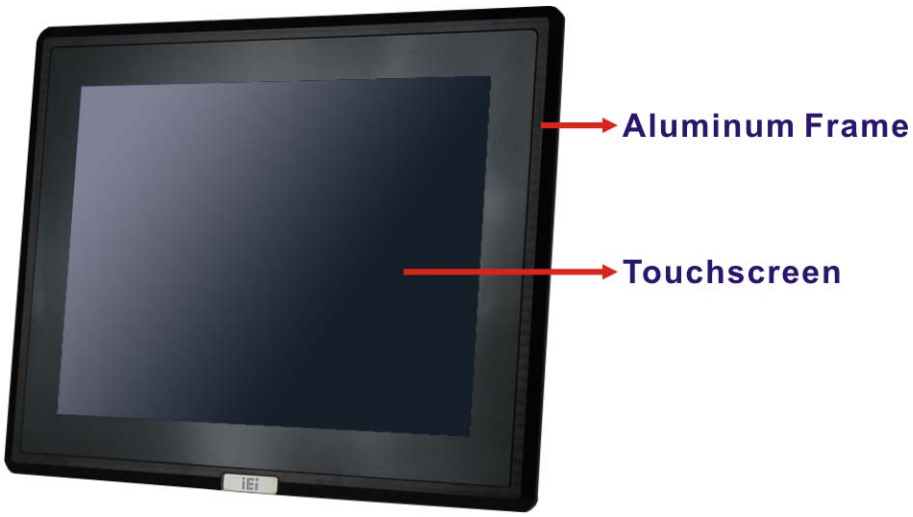

Figure 1-2: Typical Monitor Front View

1.6 Rear View

The rear panel provides access to retention screw holes that support VESA mounting. A 5-key/7-key membrane OSD keypad is also located on the rear panel.

The following diagrams show the rear panel of the DM-F series.

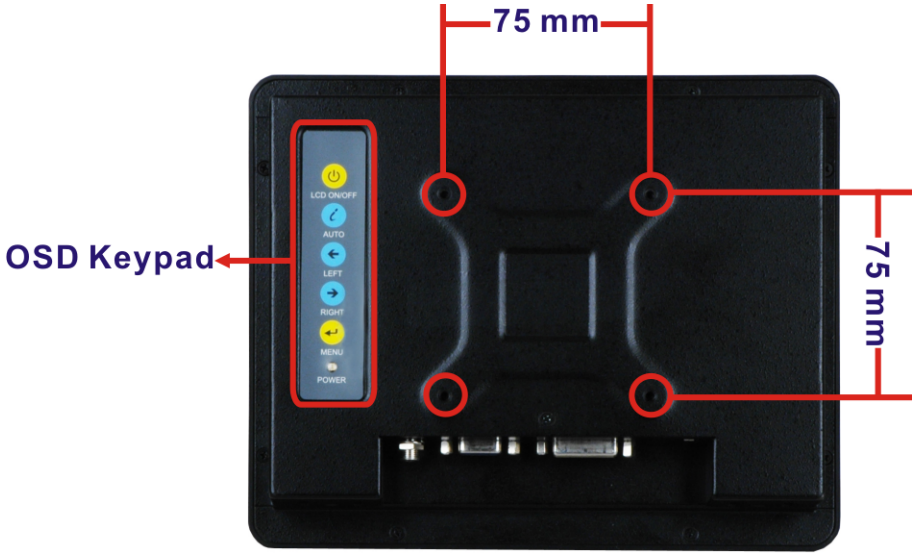

Figure 1-3: 6.5” and 8” Rear View

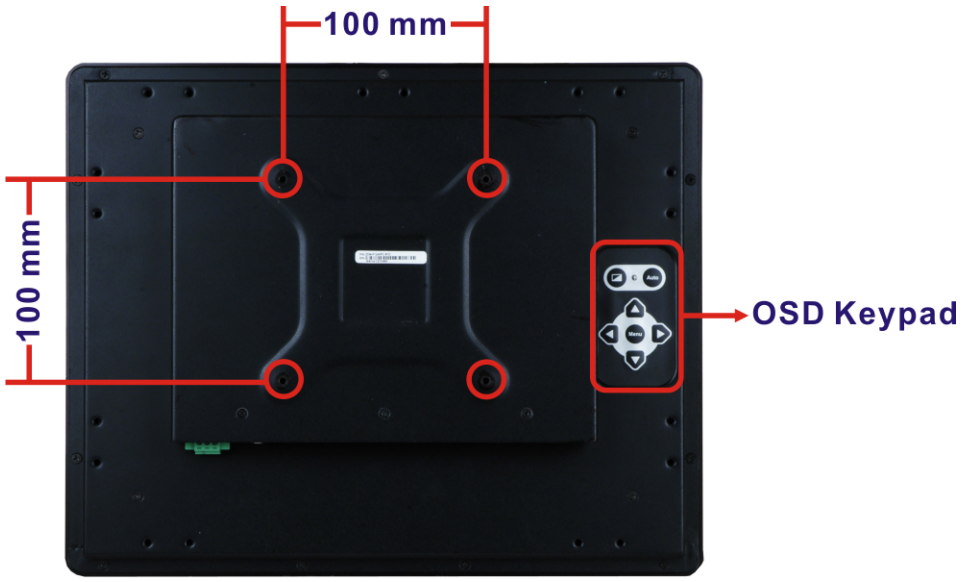

Figure 1-4: 12” – 24” Rear View

1.7 Connectors

The following sections show the I/O interfaces of the DM-F series LCD monitor. All connectors are fully described in **Section 3.2**.

1.7.1 6.5” and 8” Connectors

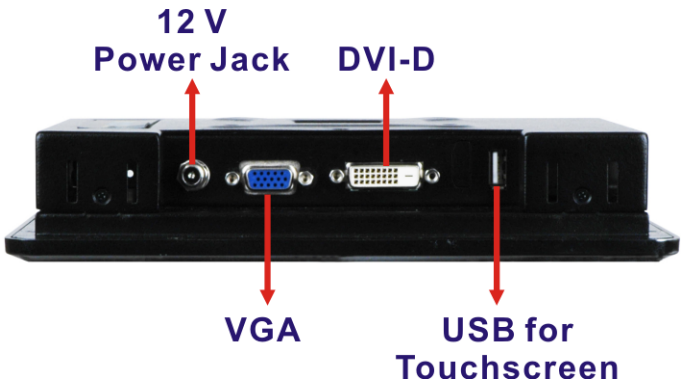

Figure 1-5: Bottom Panel Connectors (DM-F65A/08A)

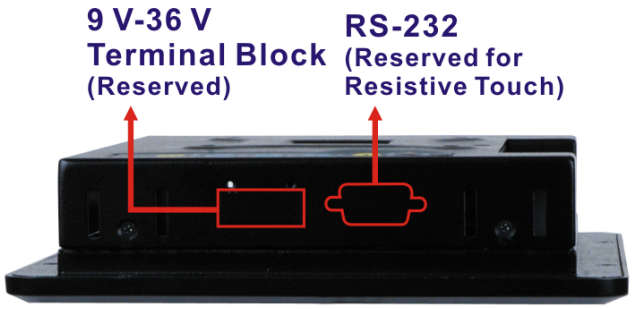

Figure 1-6: Side Panel Connectors (DM-F65A/08A)

1.7.2 12” – 19” Connectors

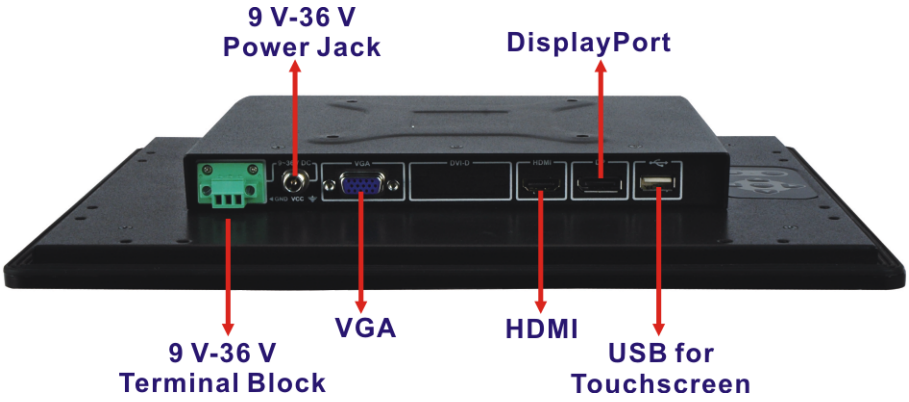

Figure 1-7: Bottom Panel Connectors (DM-F12A/15A/17A/19A)

Figure 1-8: Side Panel Connector (DM-F12A/15A/17A/19A)

1.7.3 21.5” and 24” Connectors

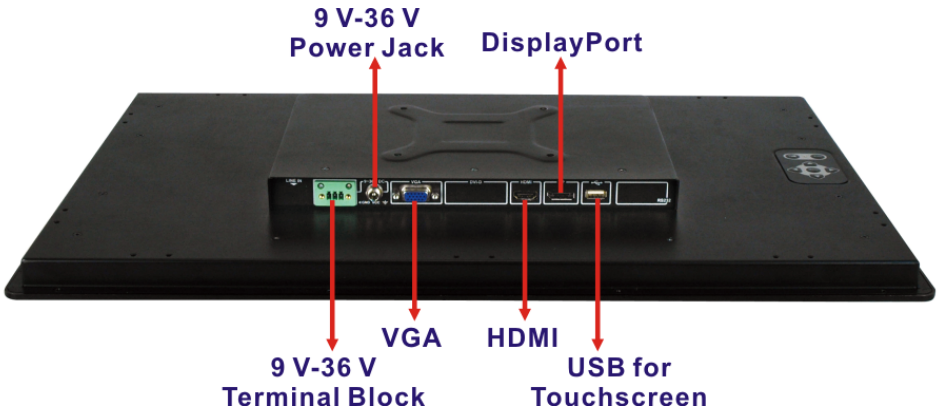

Figure 1-9: Bottom Panel Connectors (DM-F22A/24A)

1.8 Technical Specifications

Table 1-2 shows the DM-F series technical specifications.

Model	DM-F65A	DM-F08A	DM-F12A	DM-F15A	DM-F17A	DM-F19A	DM-F22A	DM-F24A
LCD Display	6.5" (4:3)	8" (4:3)	12" (4:3)	15" (4:3)	17" (5:4)	19" (4:3)	21.5" (16:9)	24" (16:9)
Max. Resolution	640x480	800x600	1024 x768	1024 x768	1280x1024	1280x1024	1920x1080	1920x1080
Brightness (cd/m²)	800	500	600	400	350	350	250	250
Contrast Ratio	600:1	500:1	700:1	700:1	1000:1	1000:1	1000:1	3000:1
LCD Color	16.2M	262K	16.2M	16.2M	16.7M	16.7M	16.7M	16.7M
Pixel Pitch (mm)	0.207 x 0.207	0.0675 x 0.2025	0.24 x 0.24	0.29 x 0.29	0.26 x 0.26	0.294 x 0.294	0.25 x 0.25	0.28 x 0.28
Viewing Angle (H/V)	160°/140°	140°/120°	160°/140°	160°/140°	170°/160°	170°/160°	170°/160°	178°/178°
Backlight MTBF (Hrs)	50,000	50,000	50,000	50,000	50,000	50,000	30,000	30,000
Touchscreen	5-wire resistive type		5-wire resistive type or projected capacitive type				Projected capacitive type	
Touch Controller	Penmount 6000		Resistive type: Penmount 6000 Projected capacitive type: EETI EXC7200					EETI EXC3000
AD Board	AV-60381	AV-60381	AV-6038	AV-6038	AV-6038	AV-6038	AV-6038	AV-6038
OSD Button	5-key	5-key	7-key	7-key	7-key	7-key	7-key	7-key
Smart OSD	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dimensions (mm) (W x H x D)	191.8 x 154.36 x 42.88	222.2 x 182.2 x 42.7	322.2 x 262.2 x 40.5	378.5 x 303 x 43.2	408.4 x 341.4 x 49.3	447.4 x 372.4 x 49.57	550.4 x 358.4 x 49.1	600 x 382 x 49.4
Cutout Dimensions (W x H) (mm)	180 x 140	206 x 154	305 x 245	361 x 286	391 x 324	430 x 355	532 x 340	577 x 359
Weight (kg) (Net/Gross)	1.1/2.6	1.33/4.5	2.7/4.9	3.5/5.5	4.4/7.1	5.9/9.9	6.3/9.6	7.6/10.9
Enclosure Color	Black C	Black C	Black C	Black C	Black C	Black C	Black C	Black C
Front Frame	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
Rear Cover	Sheet Metal	Sheet Metal	Sheet Metal	Sheet Metal	Sheet Metal	Sheet Metal	Sheet Metal	Sheet Metal
VESA Mount	75	75	100	100	100	100	100	100

Model	DM-F65A	DM-F08A	DM-F12A	DM-F15A	DM-F17A	DM-F19A	DM-F22A	DM-F24A
Optional Mounting Kit	Wall Rack Panel Arm Stand	Wall Rack Panel Arm Stand	Wall Rack Panel Arm Stand	Wall Rack Panel Arm Stand	Wall Rack Panel Arm Stand	Wall Panel Arm Stand	Wall Panel Arm Stand	Wall Panel Arm Stand
Operating Temp.	-20°C ~ 60°C (with air flow)						-10°C ~ 50°C (with air flow)	
Storage Temp.	-20°C ~ 70°C						-20°C ~ 60°C	
Humidity	10% ~ 95% (non-condensing)							
I/O Ports	1 x VGA 1 x DVI 1 x USB 2.0 (for touch)		1 x VGA 1 x HDMI 1 x DisplayPort 1.1 1 x USB 2.0 (for touch)					
Reserved Ports	1 x RS-232 (for resistive touch)		1 x RS-232 (for resistive touch)				N/A	
Power	1 x Lockable DC-in jack (12 V) Optional 9V - 36V power input terminal block		1 x Lockable DC-in jack (9 V - 36 V) 1 x Power input terminal block (9 V - 36 V)					
IP Level	IP 65 compliant front panel							
Safety & EMC	CE, FCC							

Table 1-2: DM-F Series Specifications

1.9 Physical Dimensions

The following sections describe the physical dimensions for each model of the DM-F series LCD monitor.

1.9.1 DM-F65A Physical Dimensions

The physical dimensions of the DM-F65A are shown in **Figure 1-12**.

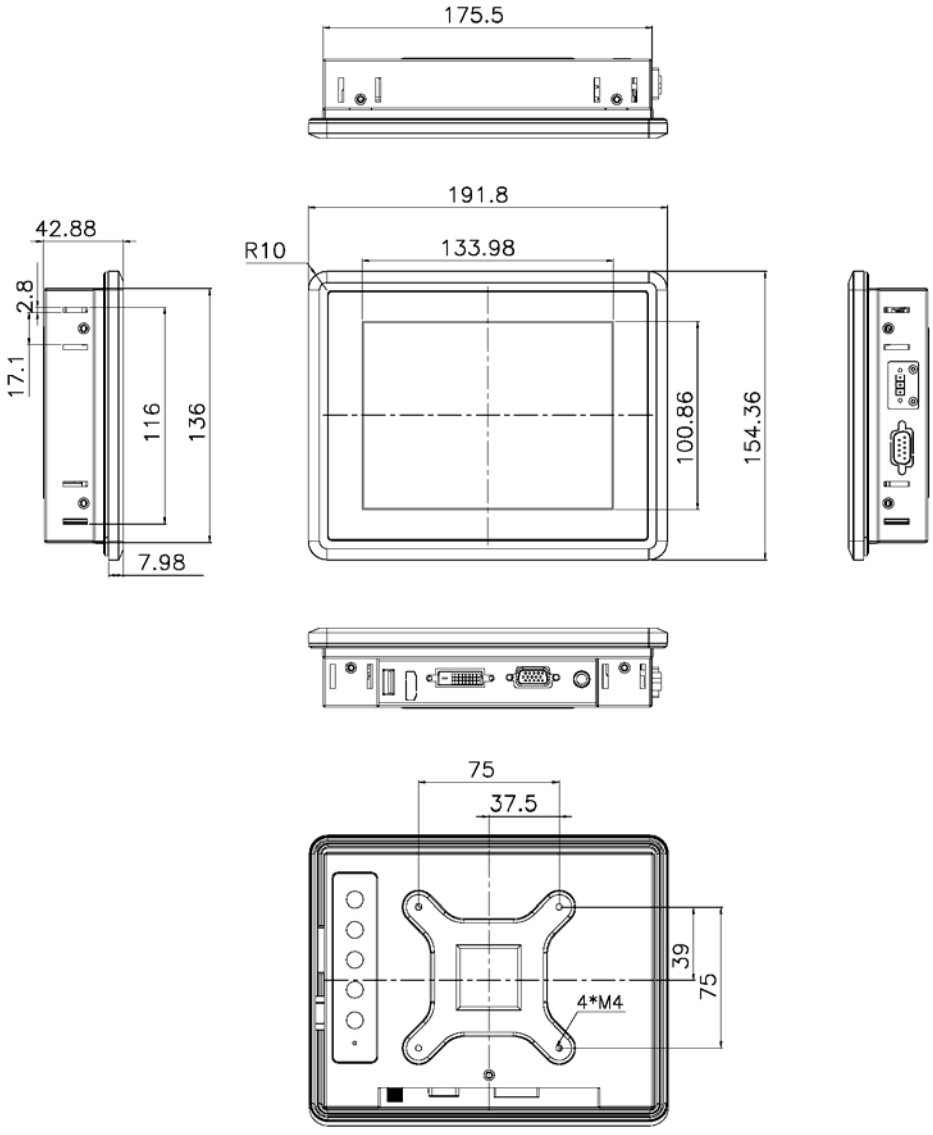

Figure 1-10: DM-F65A Physical Dimensions (Unit: mm)

1.9.2 DM-F08A Physical Dimensions

The physical dimensions of the DM-F08A are shown in **Figure 1-12**.

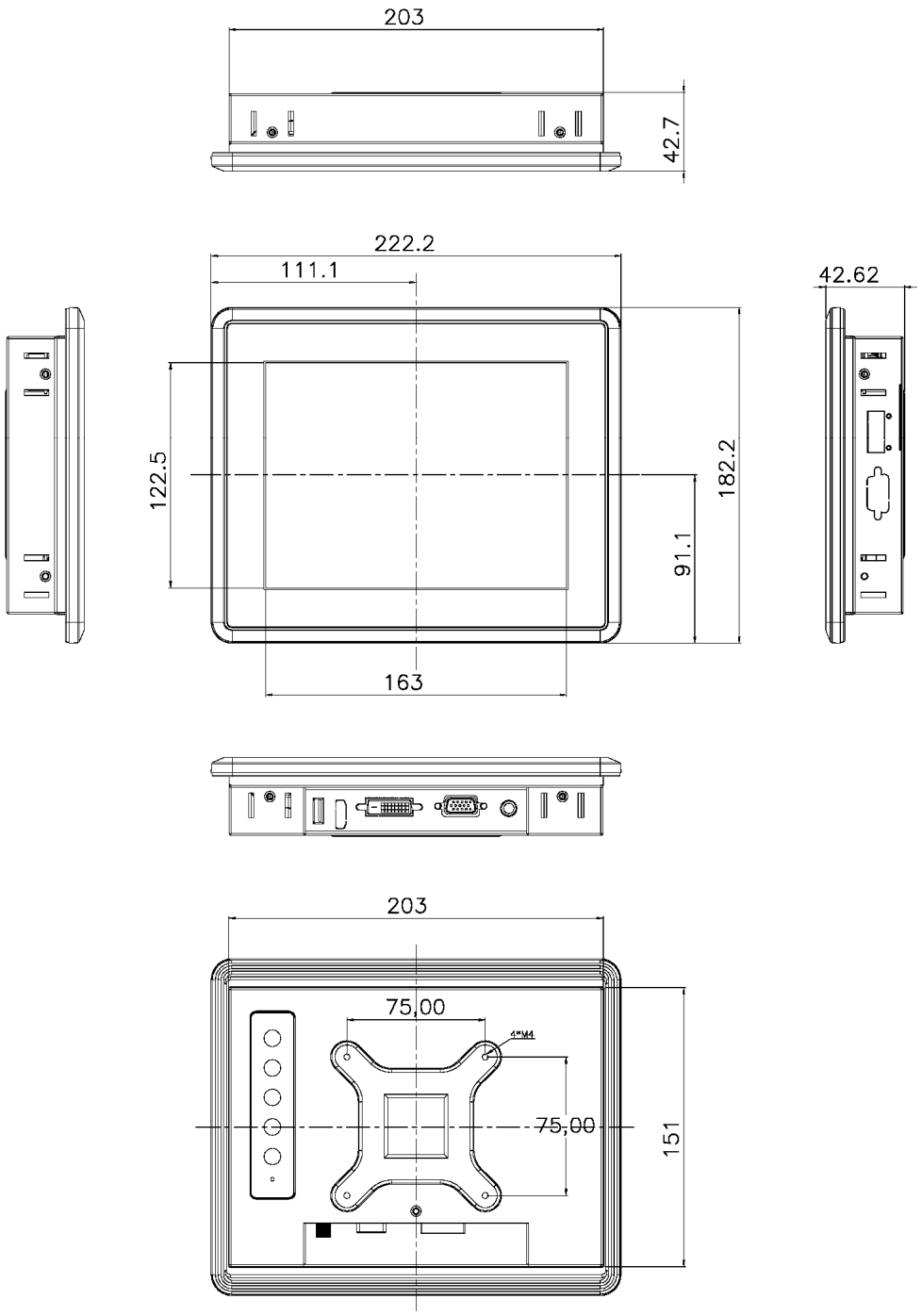

Figure 1-11: DM-F08A Physical Dimensions (Unit: mm)

1.9.3 DM-F12A Physical Dimensions

The physical dimensions of the DM-F12A are shown in **Figure 1-12**.

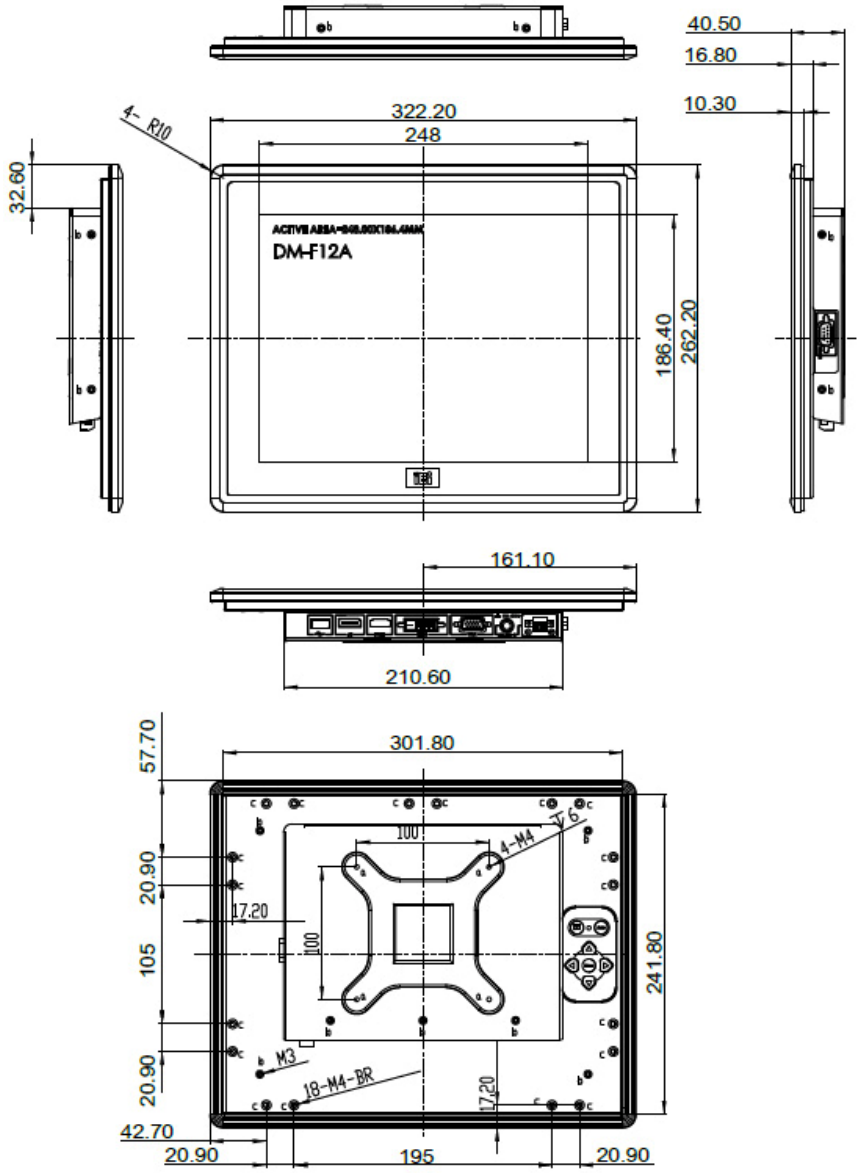

Figure 1-12: DM-F12A Physical Dimensions (Unit: mm)

1.9.4 DM-F15A Physical Dimensions

The physical dimensions of the DM-F15A are shown in **Figure 1-13**.

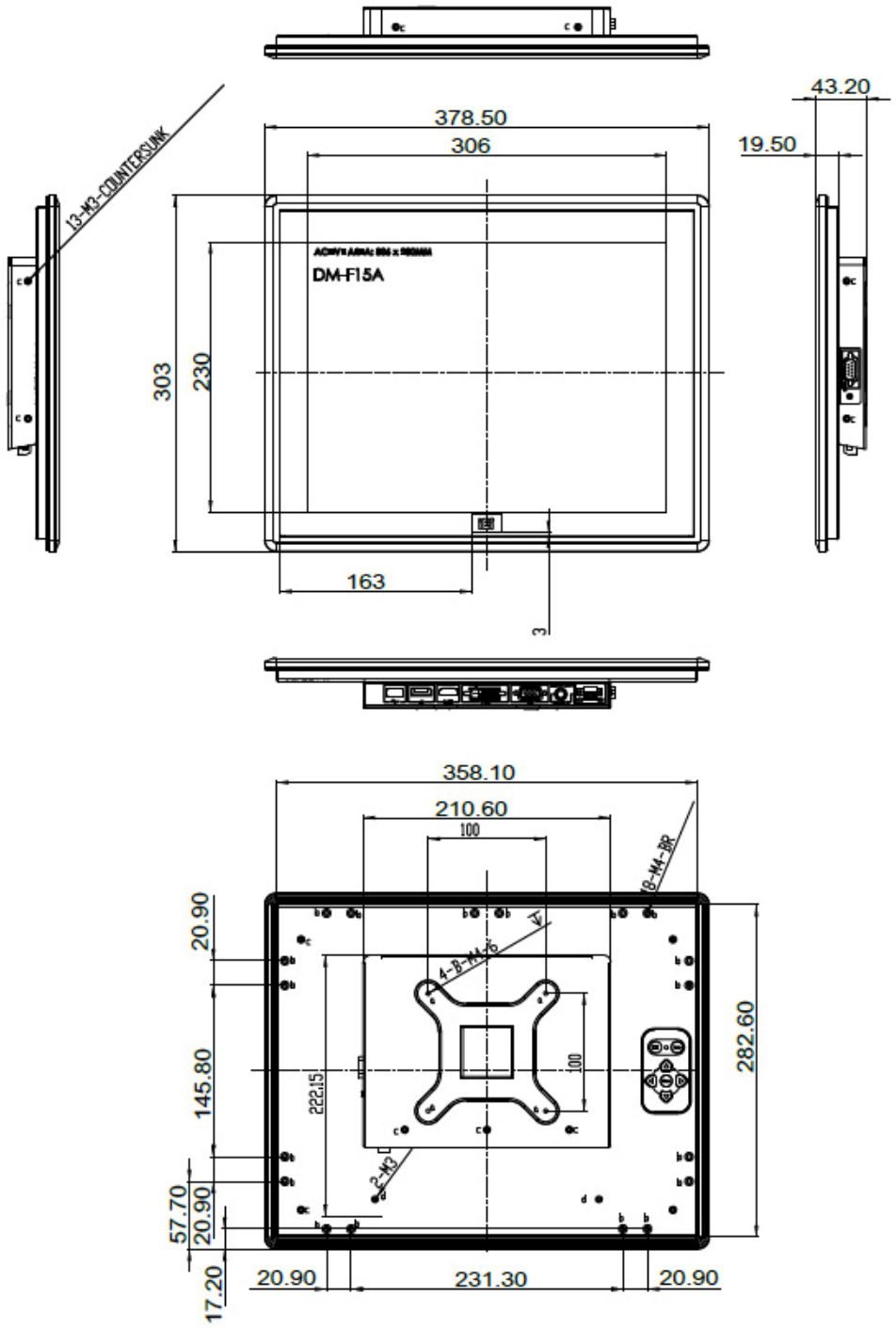

Figure 1-13: DM-F15A Physical Dimensions (Unit: mm)

1.9.5 DM-F17A Physical Dimensions

The physical dimensions of the DM-F17A are shown in **Figure 1-14**.

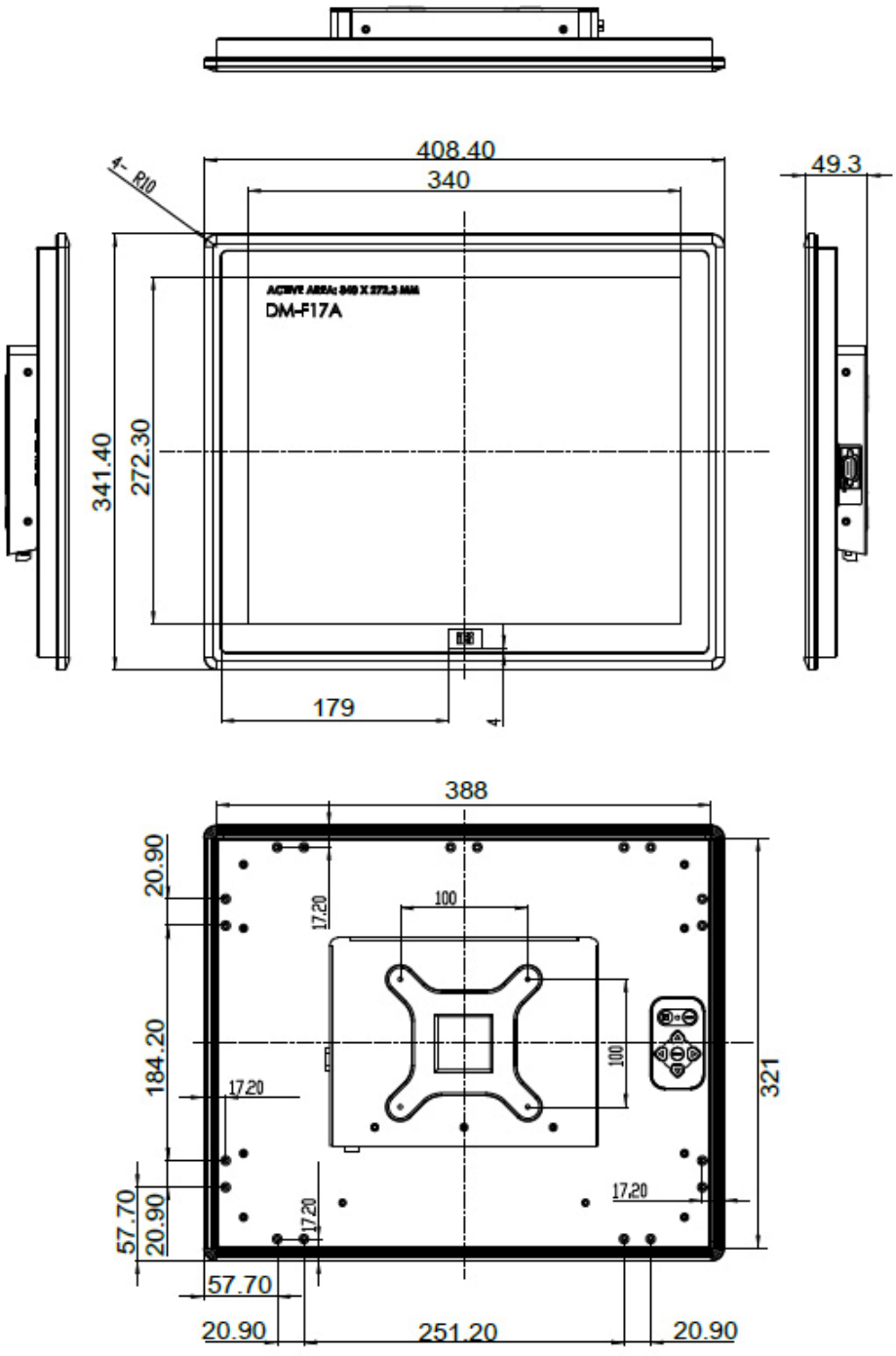

Figure 1-14: DM-F17A Physical Dimensions (Unit: mm)

1.9.6 DM-F19A Physical Dimensions

The physical dimensions of the DM-F19A are shown in **Figure 1-12**.

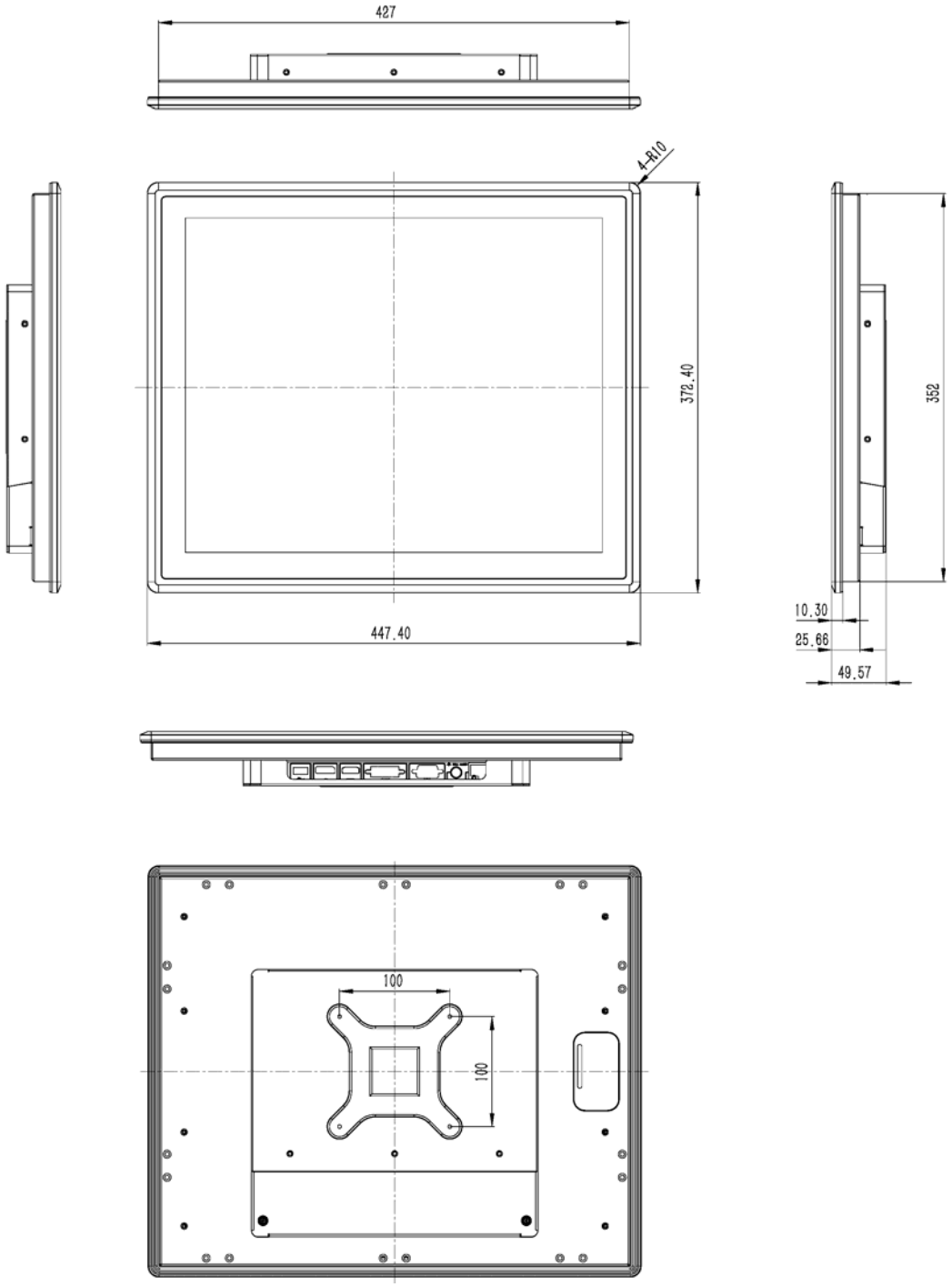

Figure 1-15: DM-F19A Physical Dimensions (Unit: mm)

1.9.7 DM-F22A Physical Dimensions

The physical dimensions of the DM-F22A are shown in **Figure 1-16**.

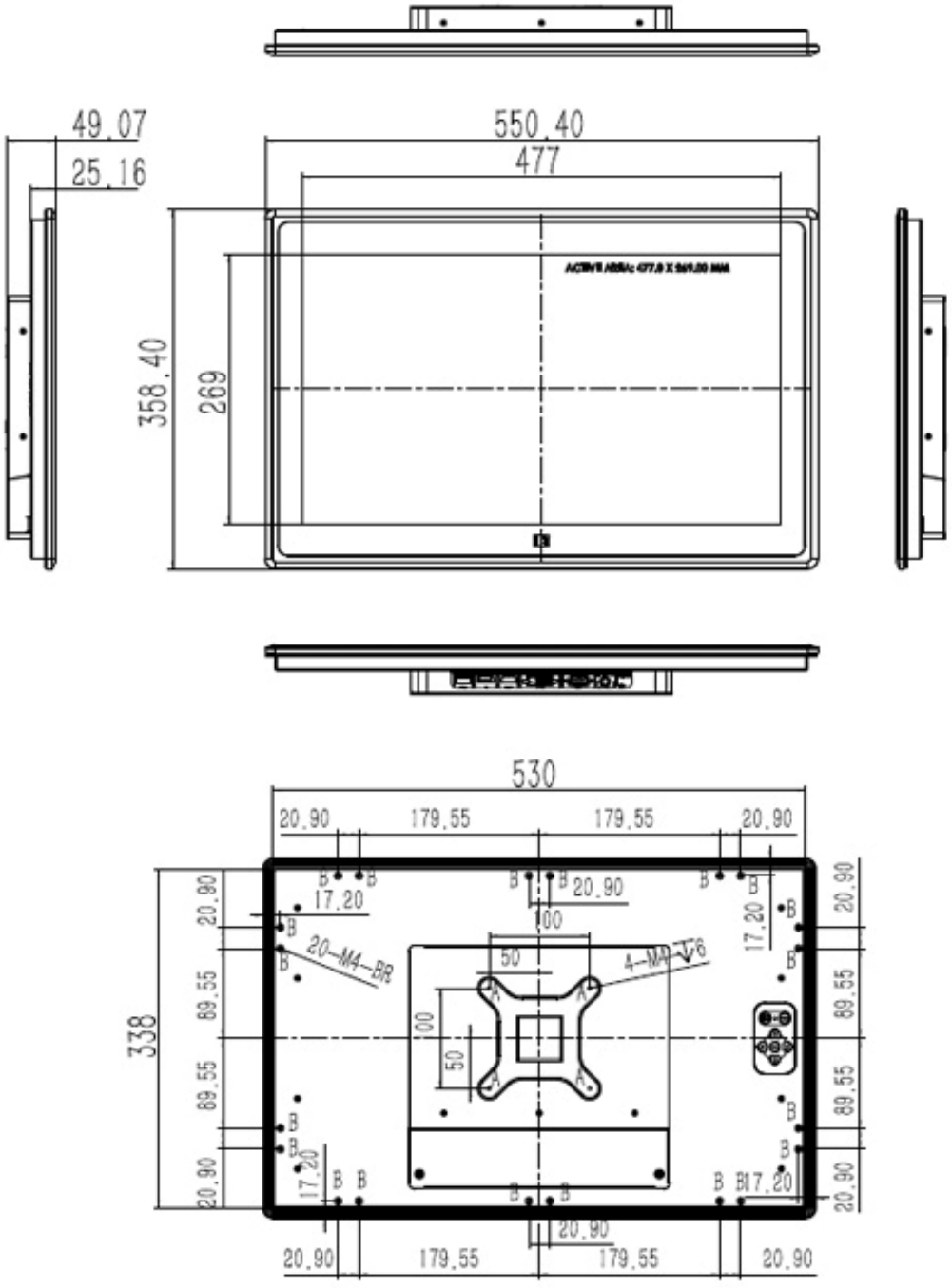

Figure 1-16: DM-F22A Physical Dimensions (Unit: mm)

1.9.8 DM-F24A Physical Dimensions

The physical dimensions of the DM-F24A are shown in **Figure 1-17**.

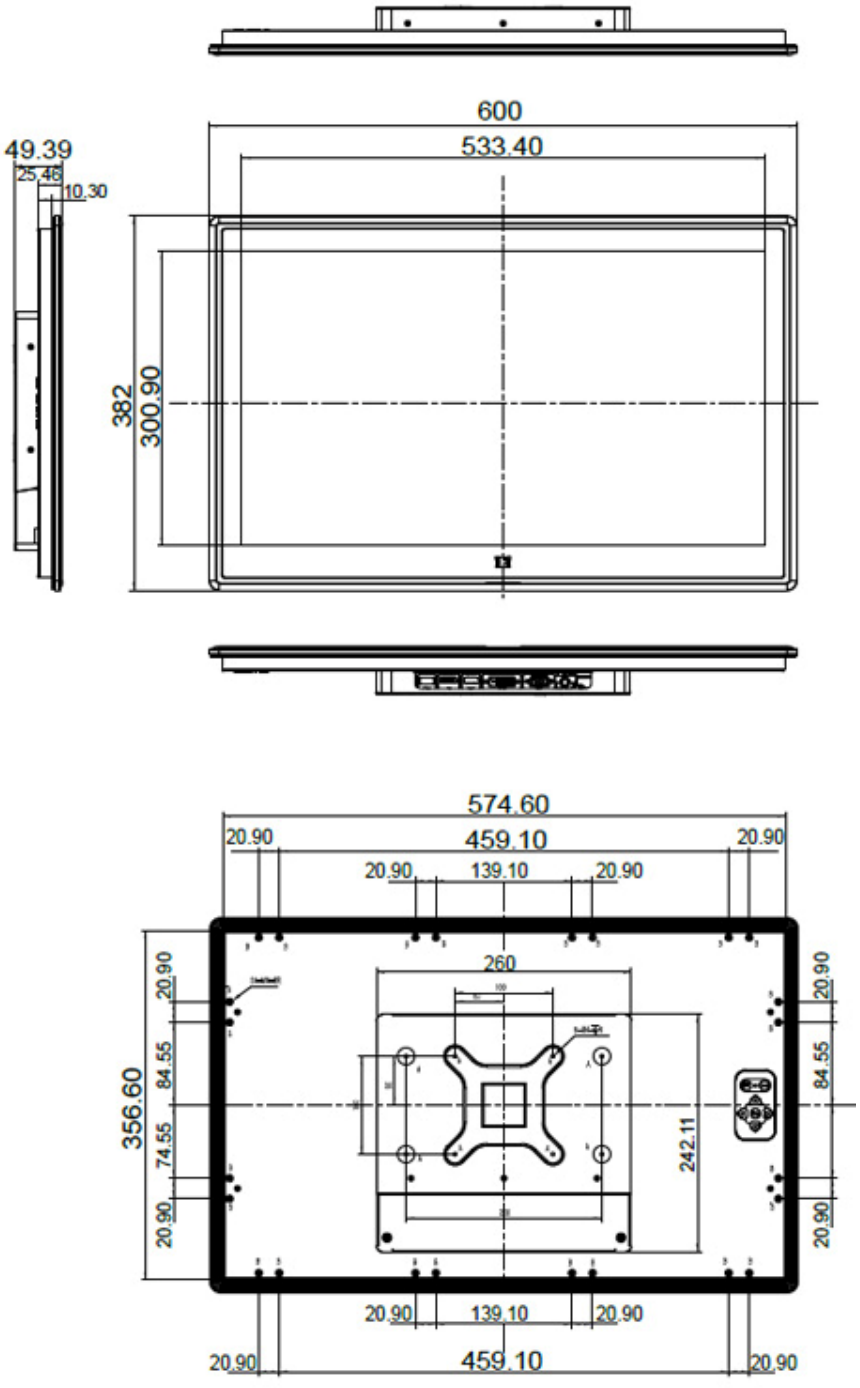

Figure 1-17: DM-F24A Physical Dimensions (Unit: mm)

Chapter

2

Unpacking

2.1 Unpacking Procedure

To unpack the DM-F series LCD monitor, follow the steps below:

WARNING:

The front side LCD screen has a protective plastic cover stuck to the screen. Only remove the plastic cover after the DM-F series LCD monitor has been properly installed. This ensures the screen is protected during the installation process.

Step 1: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the external (second) box.

Step 2: Open the external (second) box.

Step 3: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the internal (first) box.

Step 4: Lift the monitor out of the boxes.

Step 5: Remove both polystyrene ends, one from each side.

Step 6: Pull the plastic cover off the DM-F series LCD monitor.

Step 7: Make sure all the components listed in the packing list are present.

2.2 Packing List

The DM-F series monitor is shipped with the following components:

Quantity	Item	Image
1	DM-F series	
1	USB cable (for touchscreen) (**P/N**: 32001-006100-100-RS)	
1	VGA cable (**P/N**: 32000-036200-RS)	
1	Touch pen (resistive touch only) (**P/N**: 43125-0002C0-00-RS)	
1	60W 12V DC adapter with lockable connector (6.5” and 8” models only) (**P/N**: 63040-010060-120-RS)	
1	Utility CD (drivers and user manual)	

Table 2-1: Packing List

If any of the above items are missing or damaged, contact the distributor or sales representative immediately.

2.3 Optional Items

The following items are optional accessories for the DM-F series monitor:

Item	DM-F65A	DM-F08A	DM-F12A	DM-F15A	DM-F17A	DM-F19A	DM-F22A	DM-F24A
Arm	ARM-11-RS	ARM-11-RS	ARM-11-RS	ARM-31-RS	ARM-31-RS		ARM-31-RS	ARM-31-RS
Stand	STAND-B08	STAND-B08	STAND-A12-RS	STAND-A19-RS STAND-B19-RS	STAND-C19-RS STAND-A21-R10		STAND-C19-RS STAND-A21-R10	STAND-C19-RS STAND-A21-R10
Wall Mount Kit	AFLWK-12	AFLWK-12	WK-190MS-R10	WK-190MS-R10	WK-190MS-R10		WK-190MS-R10	WK-190MS-R10
Panel Mount Kit	FPK-04-R10	FPK-04-R10	FPK-01-R10	FPK-01-R10	FPK-01-R10		FPK-02-R10	FPK-03-R10
Rack Mount Kit	FRK65-R10	FRK08-R10	FRK12-R10	FRK15-R10	FRK17-R10		N/A	N/A
Cable Cover	N/A	N/A	N/A	DM-F-CC01-R10	DM-F-CC01-R10		DM-F-CC02-R10	DM-F-CC02-R10
RS-232 Touch Cable Kit	DM-F-COMKIT01-R10						N/A	N/A
HDMI Cable	N/A	N/A	32012-000100-200-RS					
Display Port Cable	N/A	N/A	32004-000200-100-RS					
Power Adapter	N/A	N/A	63040-010060-120-RS (60W 12V DC adapter with lockable connector)					

Chapter

3

Installation

3.1 Installation Precautions

When installing the DM-F series LCD monitor, please follow the precautions listed below:

- **Read the user manual**: The user manual provides a complete description of the DM-F series LCD monitor, installation instructions and configuration options.
- **DANGER! Disconnect Power**: Power to the monitor must be disconnected when installing the DM-F series LCD monitor, or before any attempt is made to access the rear panel. Electric shock and personal injury might occur if the rear panel of the monitor is opened while the power cord is still connected to an electrical outlet.
- **Qualified Personnel**: The DM-F series LCD monitor must be installed and operated only by trained and qualified personnel. Maintenance, upgrades, or repairs may only be carried out by qualified personnel who are familiar with the associated dangers.
- **Mounting**: Since the monitor may weigh up to 8 kg (not including a swing arm or other accessories), please ensure at least two people assist with mounting the monitor.
- **Air Circulation**: Make sure there is sufficient air circulation when installing the monitor. Leave at least 5 cm of clearance around the monitor to prevent overheating.
- **Grounding**: The monitor should be properly grounded. The voltage feeds must not be overloaded. Adjust the cabling and provide external overcharge protection per the electrical values indicated on the label attached to the back of the monitor.
- **Anti-static Discharge**: The rear panel of the monitor must to be removed to configure the monitor's AD board. When doing so, be sure the monitor is disconnected from its power source and take all necessary safety precautions to avoid electrocution and static discharge to the AD board. The use of a grounded wrist strap and an anti-static work pad is recommended.

3.2 External Peripheral Device Connection

The external I/O connector pinouts of the DM-F series industrial monitors are described in the following sections.

3.2.1 DC-in Jack

The lockable power connector connects to the power adapter and provides power to the monitor. Supported power voltage is varied among models as described below:

- **DM-F65A/08A**: 12 V
- **DM-F12A/15A/17A/19A/22A/24A**: 9 V – 36 V

Figure 3-1: DC Jack

3.2.2 9 V – 36 V Terminal Block (Optional)

Connect the leads of 9 V – 36 V DC power supply into the terminal block. Make sure that the power and ground wires are attached to the correct sockets of the connector.

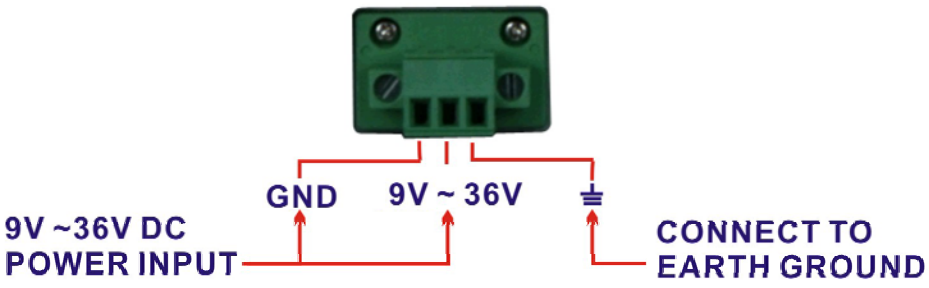

Figure 3-2: 3-pin Terminal Block

3.2.3 USB for Touch Panel Connector

Use the rear panel standard USB touch panel connector to connect the monitor to the system graphics interface.

PIN	DESCRIPTION	PIN	DESCRIPTION
1	VCC	2	USB20_N11
3	USB20_P11	4	GND

Table 3-4: USB Touch Panel Connector Pinouts

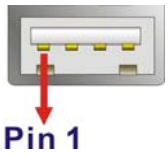

Figure 3-3: USB Touch Panel Connector

3.2.4 VGA Connector

Use the rear panel standard 15-pin female VGA connector to connect the monitor to the system graphics interface.

PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION
1	RED	6	GROUND	11	NC
2	GREEN	7	GROUND	12	DDCDAT
3	BLUE	8	GROUND	13	HSYNC
4	NC	9	NC	14	VSYNC
5	GROUND	10	GROUND	15	DDCCLK

Table 3-5: VGA Connector Pinouts

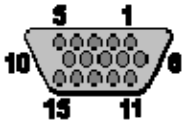

Figure 3-4: VGA Connector

3.2.5 DVI-D Connector (6.5” and 8” Models Only)

The 24-pin Digital Visual Interface (DVI) connector connects to high-speed, high-resolution digital displays. The DVI-D connector supports only digital signals.

PIN	DESCRIPTION	PIN	DESCRIPTION
1	TMDS Data2-	13	NC
2	TMDS Data2+	14	PVDD1
3	GND	15	GND
4	N/C	16	GND
5	N/C	17	TMDS Data0-
6	DDC Clock [SCL]	18	TMDS Data0+
7	DDC Data [SDA]	19	GND
8	Analog vertical sync	20	NC
9	TMDS Data1-	21	NC
10	TMDS Data1+	22	GND
11	GND	23	TMDS Clock +
12	NC	24	TMDS Clock -

Table 3-1: DVI-D Connector Pinouts

Figure 3-5: DVI-D connector

3.2.6 DisplayPort Connector (12” – 24” Models Only)

The DisplayPort connector transmits a digital signal to compatible DisplayPort display devices such as a TV or computer screen.

PIN	DESCRIPTION	PIN	DESCRIPTION
1	ML_L3N	2	GND
3	ML_L3P	4	ML_L2N
5	GND	6	ML_L2P
7	ML_L1N	8	GND
9	ML_L1P	10	ML_L0N
11	GND	12	ML_L0P
13	GND	14	GND
15	C_DDI0_DP_AUXP	16	GND
17	C_DDI0_DP_AUXN	18	C_DDI0_DP_HPD
19	GND	20	VCC
21	GND	22	GND
23	GND	24	GND

Table 3-1: Display Port Connector Pinouts

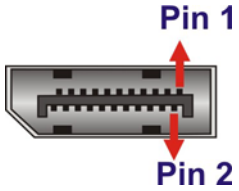

Figure 3-6: DisplayPort connector

3.2.7 HDMI Connector (12” – 24” Models Only)

The HDMI connector connects to a display device with HDMI interface.

PIN	DESCRIPTION	PIN	DESCRIPTION
1	HDMI_TMDS_C_DATA2	2	GND
3	HDMI_TMDS_C_DATA2#	4	HDMI_TMDS_C_DATA1
5	GND	6	HDMI_TMDS_C_DATA1#
7	HDMI_TMDS_C_DATA0	8	GND
9	HDMI_TMDS_C_DATA0#	10	HDMI_TMDS_C_CLK
11	GND	12	HDMI_TMDS_C_CLK#
13	NC	14	NC
15	HDMI_DDC_SCLK	16	HDMI_DDC_SDATA
17	GND	18	+5V_HDMI
19	HDMI_HPD		

Table 3-1: HDMI Connector Pinouts

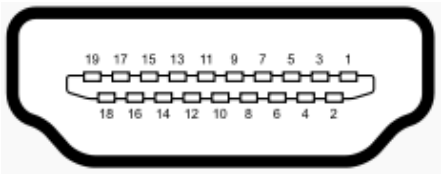

Figure 3-7: HDMI Connector

3.2.8 RS-232 Port for Touch Panel (Reserved for Resistive Touch)

Use the rear panel standard RS-232 DB-9 female touch panel connector to connect the monitor to the system graphics interface.

PIN	DESCRIPTION	PIN	DESCRIPTION
1	N/A	6	NDSR
2	NRX	7	NRTS
3	NTX	8	N/A
4	NDTR	9	N/A
5	GND		

Table 3-3: RS-232 Touch Panel Connector Pinouts

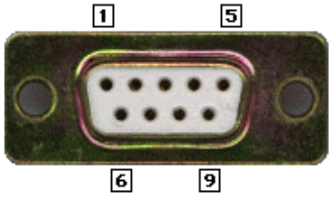

Figure 3-8: RS-232 Touch Panel Connector

3.2.8.1 Installing RS-232 Connector

If the DM-F series doesn't have the RS-232 connector on the side panel, the user can purchase the RS-232 Touch Cable Kit (DM-F-COMKIT01-R10) and install the RS-232 connector onto the system. Please note that the RS-232 port is only available for the resistive type models of the 6.5" – 19" monitors.

Step 1: Remove the rear cover retention screws and lift the rear panel off the monitor.

Figure 3-9: Rear Panel Retention Screw Removal (6.5" & 8")

Figure 3-10: Rear Panel Retention Screw Removal (12” – 24”)

Step 2: Remove the RS-232 knockout hole on the side panel.

Step 3: Connect the RS-232 flat cable to the internal RS-232 connector (1x9 pin, RS232_1) on the AD board. See **Figure 3-11**.

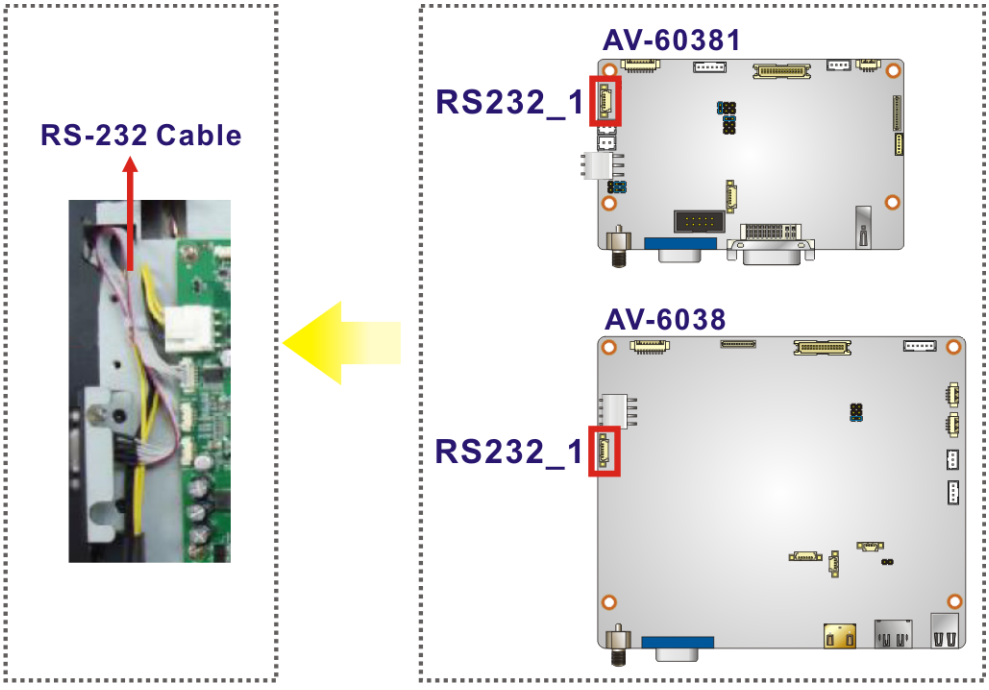

Figure 3-11: Connecting RS-232 Cable

Step 4: Insert the D-sub 9 connector of the RS-232 flat cable into the hole and secure the connector with two hex jack screws.

Figure 3-12: Hex Jack Screws for Securing RS-232 Connector

Step 5: Re-install the rear panel.

3.3 Mounting the Monitor

The DM-F series LCD monitor can be mounted in a panel, cabinet, rack or wall. The monitor can also be mounted on a monitor arm or stand. The mounting methods are described below.

CAUTION:

When mounting the monitor take care to tighten the retention screws or bolts until fully secure, but do not over tighten. Over tightening the retention screws or bolts may cause them to become stripped, rendering them useless.

3.3.1 Panel Mounting

Each model of the DM-F series LCD monitor has a series of mounting slots located on the top, side and bottom panels for mounting the monitor to a panel.

Table 3- lists the number of mounting clamps and holders required to mount the monitor to a panel.

Model	Mounting Clamps	Clamp Holders
DM-F65A	8	N/A
DM-F08A	8	N/A
DM-F12A	9	9
DM-F15A	9	9

DM-F17A	9	9
DM-F19A	10	10
DM-F22A	10	10
DM-F24A	12	12

Table 3-6: Panel Mounting Clamps

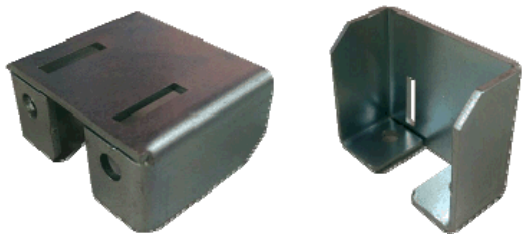

Figure 3-13: Mounting Clamps Holder

Figure 3-14: Mounting Clamps

To mount the DM-F series LCD monitor into a panel, please follow the steps below.

Step 1: Select the position on the panel to mount the monitor.

Step 2: Cut out a section of the panel that corresponds to the rear panel dimensions of the monitor. Take care that the panel section that is cut out is smaller than the overall size of the metal frame that surrounds the monitor but just large enough for the rear panel of the monitor to fit through.

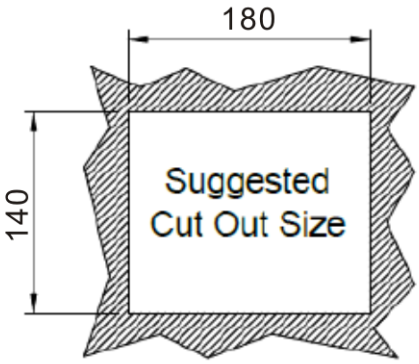

Figure 3-15: DM-F65A Cutout Dimensions (Unit: mm)

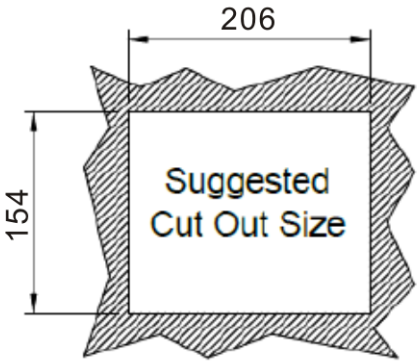

Figure 3-16: DM-F08A Cutout Dimensions (Unit: mm)

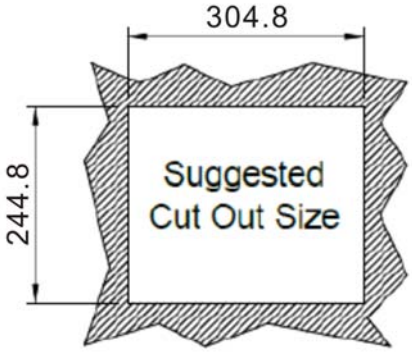

Figure 3-17: DM-F12A Cutout Dimensions (Unit: mm)

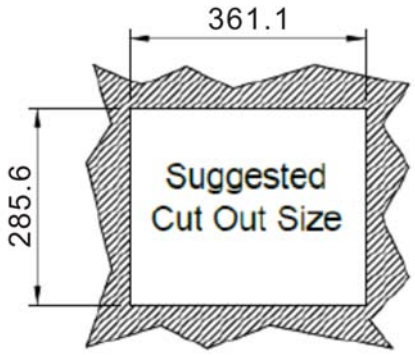

Figure 3-18: DM-F15A Cutout Dimensions (Unit: mm)

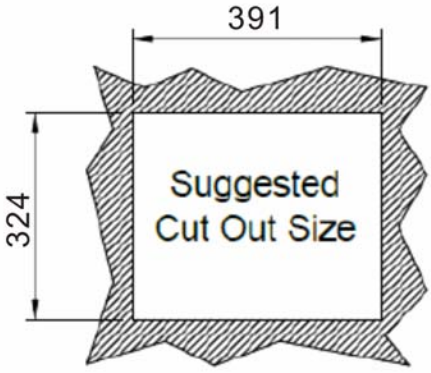

Figure 3-19: DM-F17A Cutout Dimensions (Unit: mm)

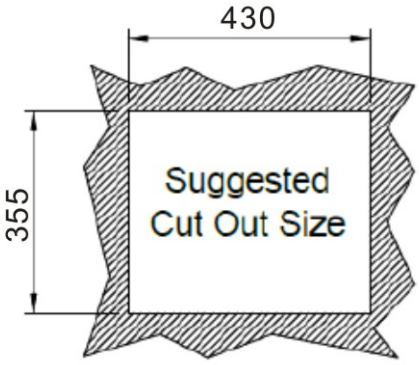

Figure 3-20: DM-F19A Cutout Dimensions (Unit: mm)

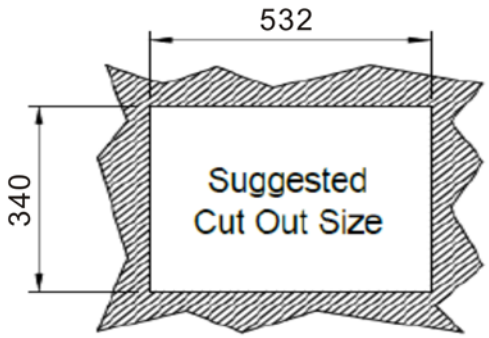

Figure 3-21: DM-F22A Cutout Dimensions (Unit: mm)

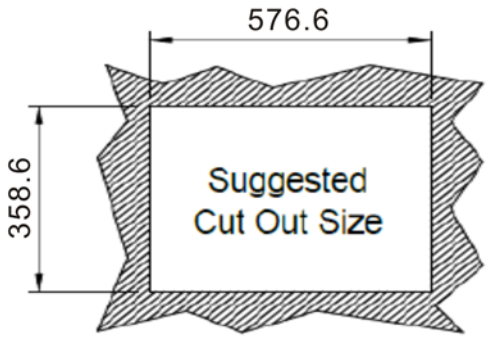

Figure 3-22: DM-F24A Cutout Dimensions (Unit: mm)

Step 3: Secure the mounting clamps holders to the corresponding holes on the rear of the monitor.

NOTE:

It is not required to install the clamp holders to the DM-F65A and DM-F08A monitors for panel/rack mounting. After sliding the monitor through the panel, simply insert the panel mounting clamps into the pre-formed holes along the top, side and bottom panels of the monitors. Then, tighten the screws that pass through the panel mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel.

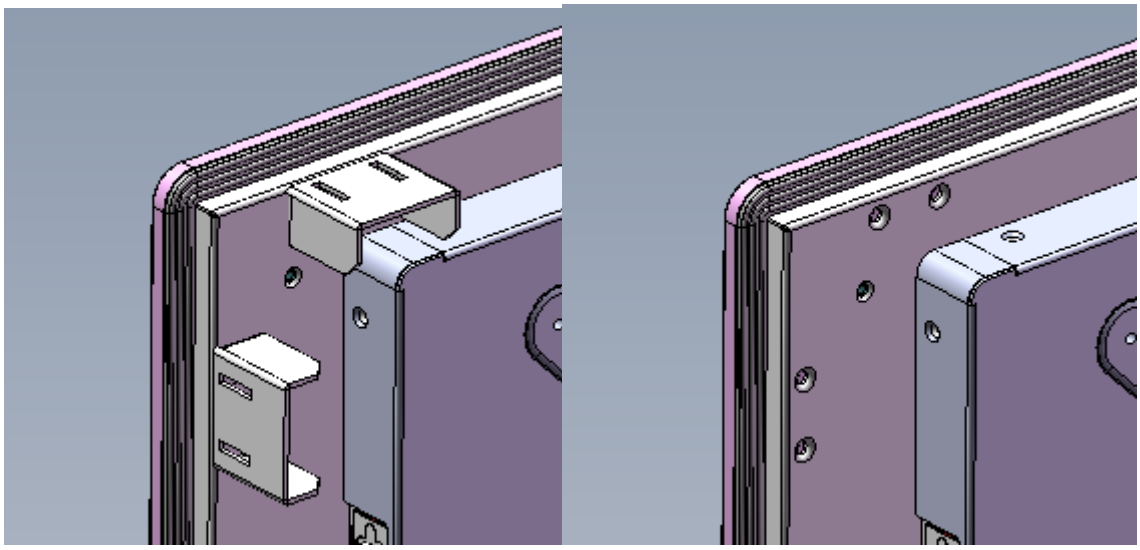

Figure 3-23: Secure the Mounting Clamps Holders

Step 4: Slide the monitor through the hole until the aluminum frame is flush against the panel.

Step 5: Insert the panel mounting clamps into the pre-formed holes of the clamp holders.

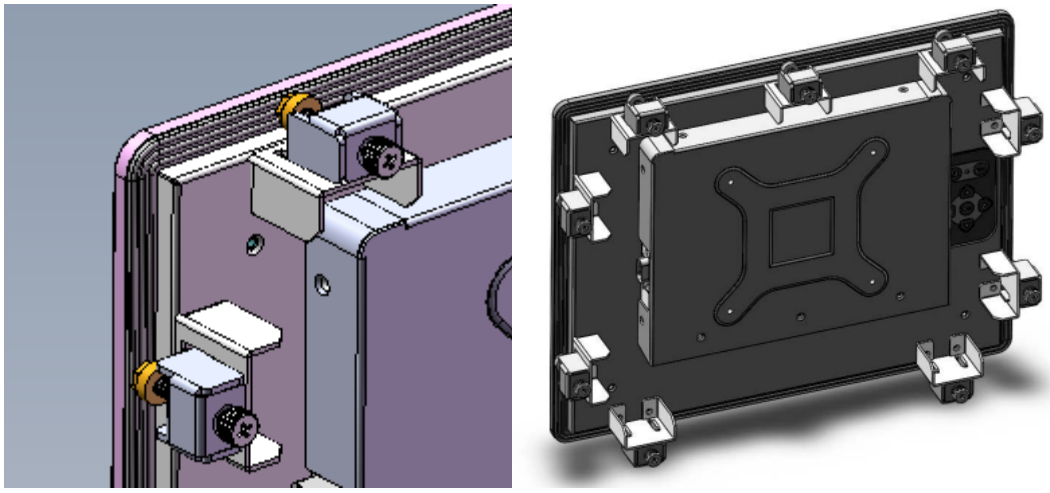

Figure 3-24: Panel Mounting Clamp Position

Step 6: Tighten the screws that pass through the panel mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel.

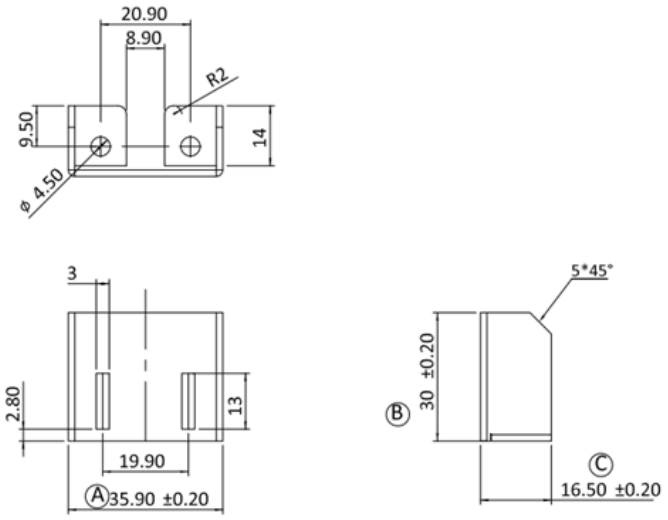

Figure 3-25: Mounting Clamps Holder Dimensions

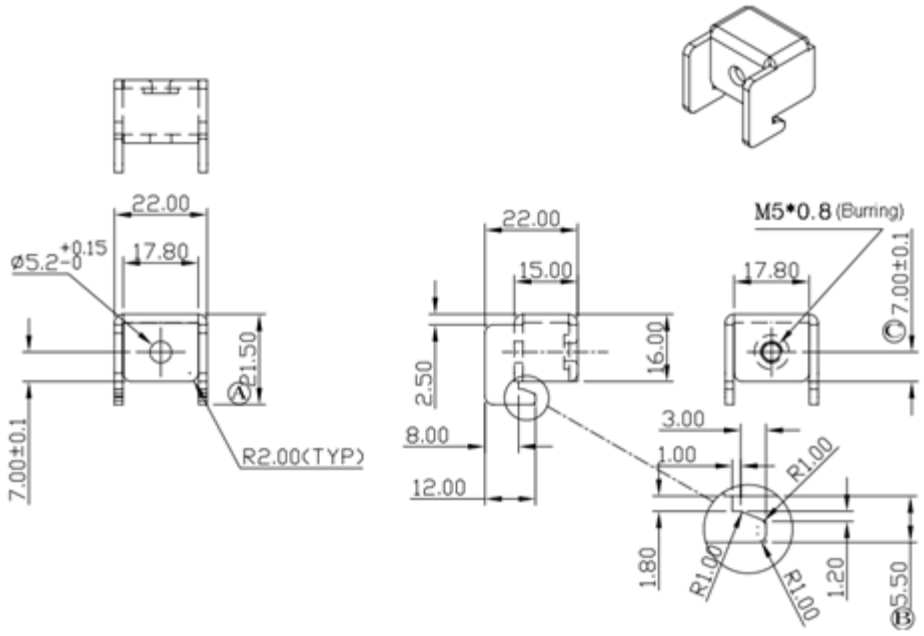

Figure 3-26: Ultra Set Plate Dimensions

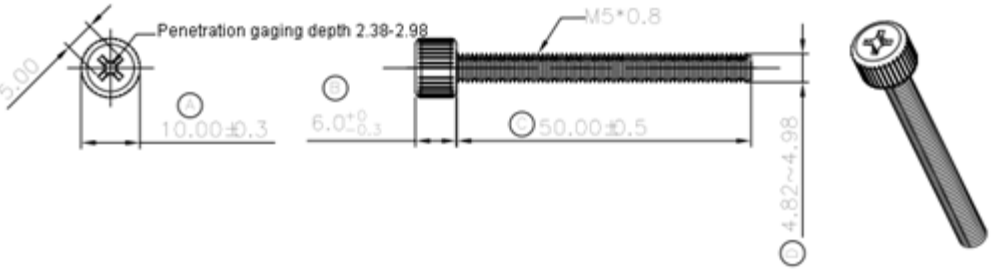

Figure 3-27: Bolt Dimensions

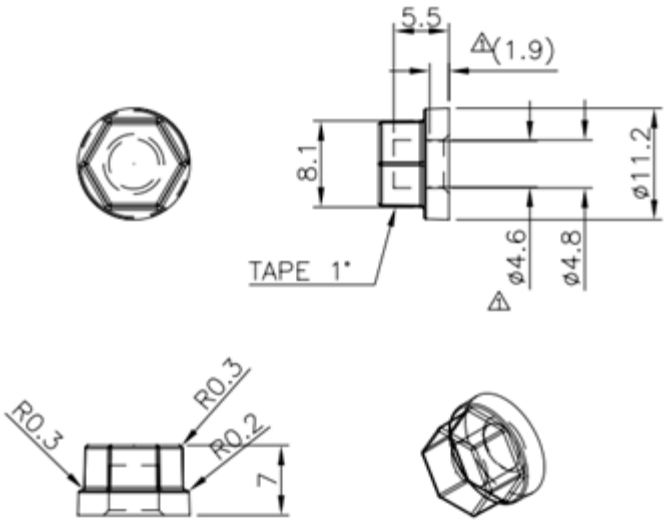

Figure 3-28: Steering Button Dimensions

3.3.2 Cabinet and Rack Installation

The DM-F series LCD monitor can be installed into a cabinet or rack. The installation procedures are similar to the panel mounting installation. To do this, please follow the steps below:

NOTE:

When purchasing a cabinet/rack installation bracket, make sure it is compatible with both the monitor and the cabinet/rack into which the monitor is installed.

Step 1: Slide the rear of the DM-F series LCD monitor through the rack/cabinet bracket until the aluminum frame is flush against the front of the bracket (Figure 3-29).

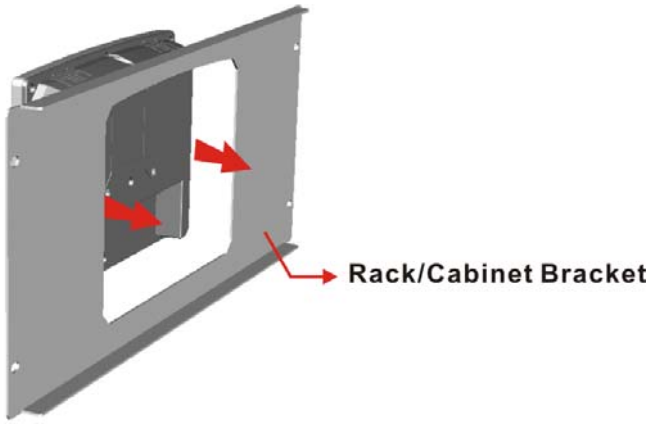

Figure 3-29: The Rack/Cabinet Bracket

Step 2: Secure the rack mounting holders to the rear of the monitor and insert the mounting clamps into the pre-formed holes of the mounting holders (Figure 3-30).

NOTE:

It is not required to install the clamp holders to the DM-F65A and DM-F08A monitors for panel/rack mounting. After sliding the monitor through the panel, simply insert the panel mounting clamps into the pre-formed holes along the top, side and bottom panels of the monitors.

Step 3: Tighten the screws that pass through the rack mounting clamps until the plastic caps at the front of all the screws are firmly secured to the bracket (Figure 3-30).

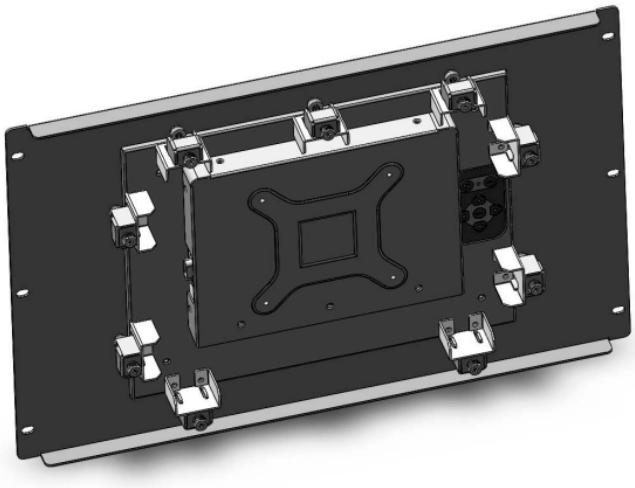

Figure 3-30: Secure the Rack/Cabinet Bracket

Step 4: Slide the LCD monitor with the attached rack/cabinet bracket into a rack or cabinet (Figure 3-31).

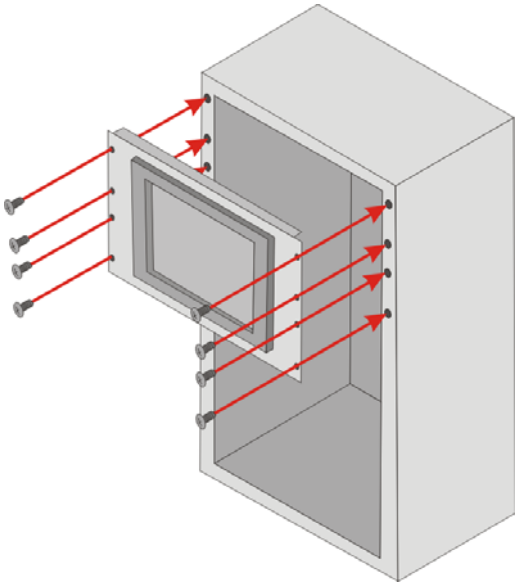

Figure 3-31: Install into a Rack/Cabinet

Step 5: Once the LCD monitor with the attached rack/cabinet bracket has been properly inserted into the rack or cabinet, secure the front of the rack/cabinet bracket to the front of the rack or cabinet (Figure 3-31).

3.3.3 Wall Mounting

CAUTION:

Due to safety concerns, it is highly recommended to use the VESA mounting kits provided by IEI for wall, stand and arm mounting. If the VESA mounting kit is purchased separately, please make sure the mounting kit is UL-listed.

Each model of the DM-F series LCD monitor has four holes located on the rear panel for mounting the monitor to a wall. To mount the DM-F series LCD monitor onto a wall, please follow the steps below.

Step 1: Attach the wall mounting kit to the mounting surface with the included screws. Make sure it is attached securely (Figure 3-32).

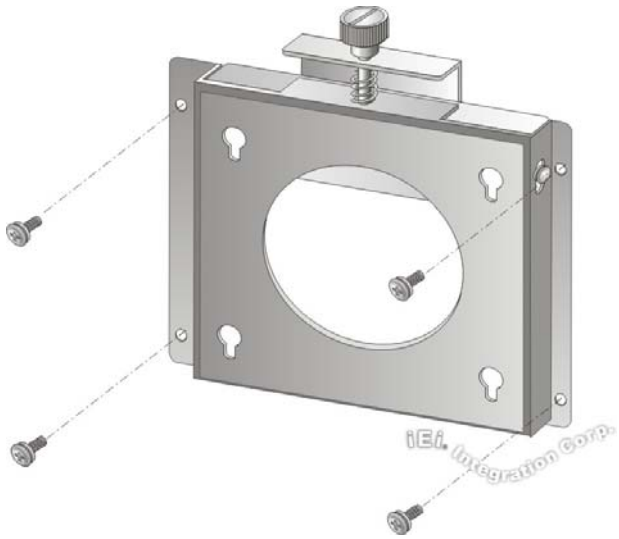

Figure 3-32: Attach Wall Mounting Kit to the Wall

Step 2: Screw the mounting screws to the mounting holes on the rear of the DM-F series (Figure 3-33).

Step 3: Hook the DM-F series into the mounting holes on the wall mounting kit (Figure 3-33).

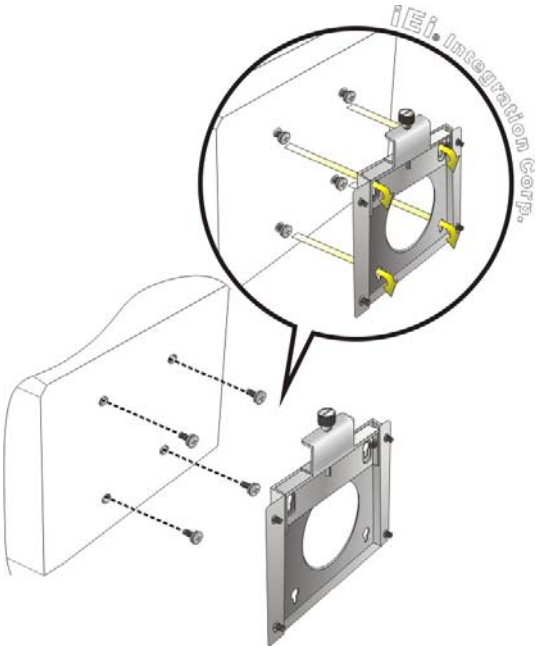

Figure 3-33: Hook Onto Wall Mounting Kit

Step 4: Tighten the top screw on the wall mounting kit to securely hold the DM-F series in place. After this screw is tightened, the DM-F series should not be able to move.

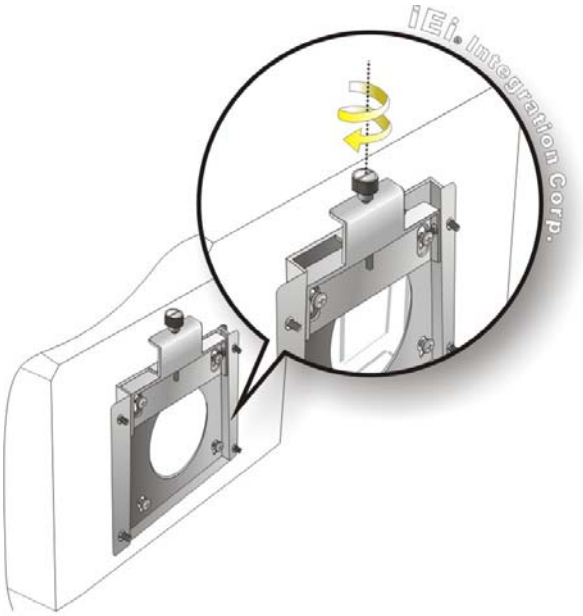

Figure 3-34: Tighten Retention Screw

3.3.4 Stand Installation

The DM-F series LCD monitor has Video Electronics Standards Association (VESA) standard mounting holes tapped into the rear panel. The standard holes are M4 set at 75 mm x 75 mm or 100 mm x 100 mm apart (Figure 3-35 and Figure 3-36).

Figure 3-35: VESA Mounting Holes (6.5” & 8”)

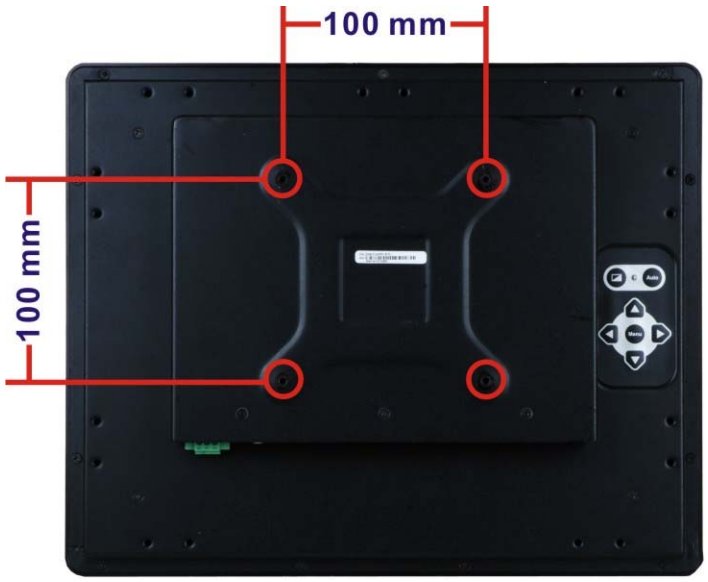

Figure 3-36: VESA Mounting Holes (12” – 24”)

To mount the DM-F series LCD monitor onto a stand, please follow the steps below.

Step 1: Line up the threaded holes on the monitor rear panel with the screw holes on the monitor stand mounting plate.

Step 2: Secure the monitor to the stand with the supplied retention screws (Figure 3-37).

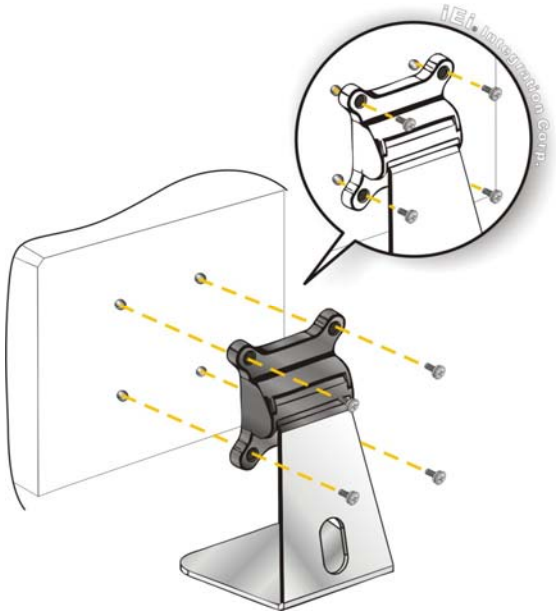

Figure 3-37: Monitor Stand Mounting

3.3.5 Arm Installation

The DM-F series LCD monitor has VESA standard mounting holes tapped into the rear panel. The standard holes are M4 set at 75 mm x 75 mm or 100 mm x 100 mm apart (Figure 3-35 and Figure 3-36). To mount the DM-F series LCD monitor onto a monitor arm, please follow the steps below.

Step 1: Line up the threaded holes on the monitor rear panel with the screw holes on the monitor arm mounting plate.

Step 2: Secure the monitor to the arm with the supplied retention screws (Figure 3-38).

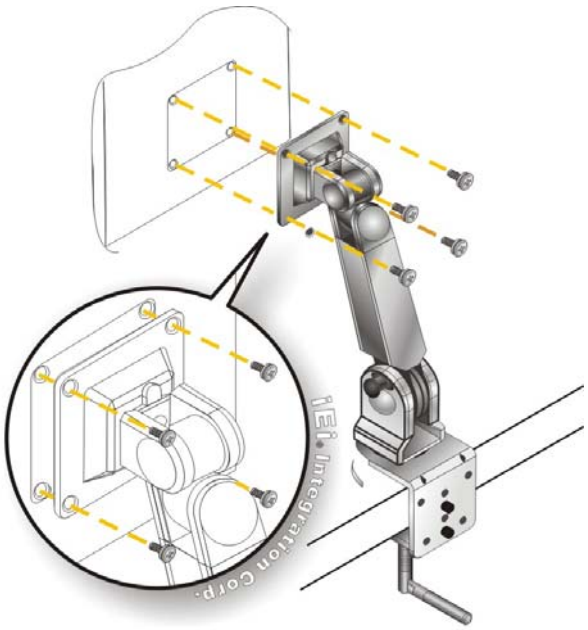

Figure 3-38: Monitor Arm Mounting

Chapter

4

On-Screen-Display (OSD) Controls

4.1 OSD Keypad

There are several on-screen-display (OSD) control buttons of the OSD keypad on the monitor rear panel. Figure 4-1 shows the 5-key membrane OSD keypad of the 6.5”and 8” LCD monitors.

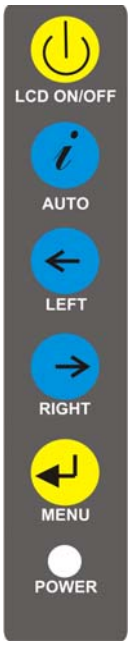

Figure 4-1: OSD Keypad for 6.5” and 8” Monitors

The function of each button is described in the following table.

LCD ON/OFF	Press this button to turn on or turn off the LCD screen.
AUTO	Press this button to automatically adjust the screen. When inside a menu, press this button to confirm the selection of the item.
LEFT	Press this button to decrease the value, or to scroll up from one selected item to another.
RIGHT	Press this button to increase the value, or to scroll down from one selected item to another.
MENU	Press this button to open the OSD window, exit the main menu or the current menu.

Table 4-1: OSD Control Buttons for 6.5” and 8” Monitors

Figure 4-2 shows the 7-key membrane OSD keypad of the 12” – 24” LCD monitors.

Figure 4-2: OSD Keypad for 12” – 24” Monitors

The function of each button is described in the following table.

LCD on / off	Press this button to turn on or turn off the LCD screen.
Auto	Press this button to automatically adjust the screen.
Menu	Press this button to open the OSD window, exit the main menu or the current menu.
Left	Press this button to increase the value. When inside a menu, press this button to enter the submenu or confirm the selection of the item.
Right	Press this button to decrease the value.
Up	Press this button to scroll up from one selected item to another.
Down	Press this button to scroll down from one selected item to another.

Table 4-2: OSD Control Buttons for 12” – 24” Monitors

4.2 OSD Menu Structure

Table 4-3 shows the OSD menu structure for all models of the DM-F series LCD monitor.

Level 0	Level 1	Level 2	Value
Image	Brightness		0 to 100
	Contrast		0 to 100
	Sharpness		-4 to 4
	Color	Auto	
		Color temp	5000K
			6500K
			9300K
			User
			Reset
Display	Auto Adjust		
	Phase		0 to 100
	Clock		0 to 100
	Display Position		
	Display Modes		Gamma off
			Gamma 2.2
System	Input	Display Port	
		VGA	
		DVI/HDMI	
		autoscan	
	OSD Setting	Timer	10sec/30sec/60sec
		Rotation	0˚/90˚/180˚/270˚
		Position	
		Transparency	0 to 100
	Information		
	Reset		

Table 4-3: OSD Menu Structure

4.3 Using the OSD

OSD menu options are described below.

4.3.1 Image Menu

Image menu features are shown in **Figure 4-3**.

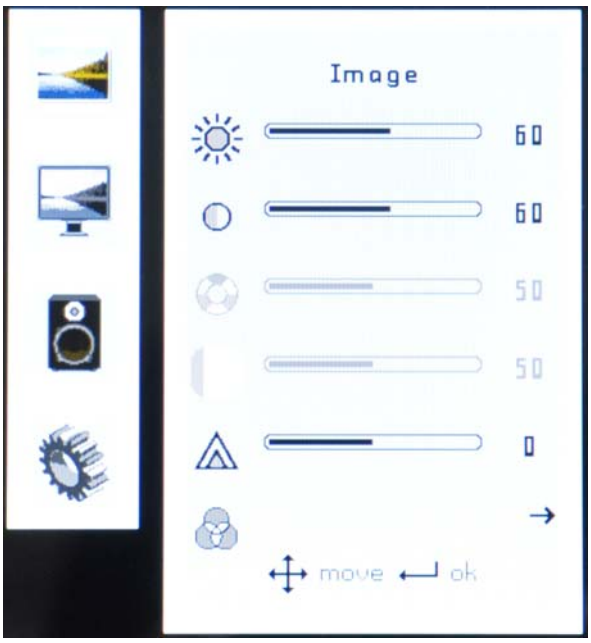

Figure 4-3: Image Menu

Brightness	The brightness option adjusts the brightness of screen. This function adjusts the offset value of ADC. Setting this value too high or too low will affect the quality of image.
Contrast	This function adjusts the gain value of ADC. Adjusting this value too high or too low will worsen the quality of image.
Sharpness	Adjusts the sharpness level. This option softens the edges around objects on the screen.
Color	Provides options for color settings. (**Figure 4-4**)

4.3.1.1 Color Setting

Color settings are shown in **Figure 4-3**.

Figure 4-4: Color Settings

auto Automatically adjusts the color settings.

Color temp This item allows adjustment of the following items.

- **5000k –** NTSC standard Kelvin
- **6500k –** NTSC standard Kelvin
- **9300k –** NTSC standard Kelvin
- **User** – This item allows fine-tuning the balance among Red, Green, and Blue color hues if images look garish or unrealistic.

4.3.2 Display Menu

Display menu features are shown in **Figure 4-5**.

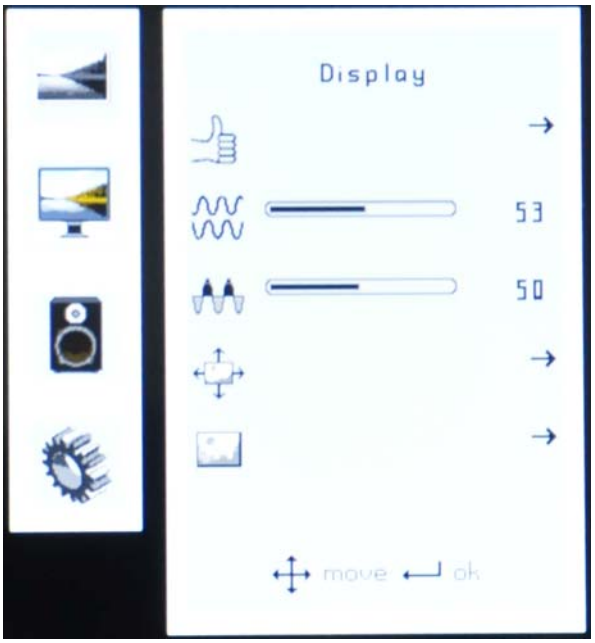

Figure 4-5: Display Menu

Auto Adjust	Automatically adjusts the LCD screen position.
Phase	Adjusts the input signal (analog only)
Clock	Adjusts the dot clock position
Display Position	Adjusts the horizontal and vertical position of the display screen
Display Mode	This item allows adjustment of the Gamma.

4.3.3 System Menu

System menu features are shown in **Figure 4-6**.

Figure 4-6: System Menu

Input	Allows selection of input device to use. (**Figure 4-7**)
OSD Settings	Provides options for OSD configuration. (**Figure 4-8**)
Information	Provides information on the LCD monitor, such as firmware version, release date and input resolution.
Reset	Restores the default OSD settings. Note that this will restore all default display settings.

4.3.3.1 Input

Input options are shown in **Figure 4-7**.

Figure 4-7: Input Options

Input options are described below.

Display Port	This item sets the input device to display port.
VGA	This item sets the input device to VGA.
HDMI	This item sets the input device to HDMI.
autoscan	Selects the input device to use automatically.

4.3.3.2 OSD Settings

The OSD settings are shown in **Figure 4-8**.

Figure 4-8: OSD Settings Menu

OSD settings are described below.

Timer	Determines how many seconds the OSD screen stays on screen before it disappears when OSD is left unattended.
Rotation	Adjusts the OSD rotation angle on the screen.
Position	Adjusts the OSD position on the screen.
Transparency	Adjust the transparency of the OSD menu background.

Chapter

5

Software Drivers

5.1 Introduction

The touch panel controller enables analog resistive touch panels for four-wire, five-wire & eight-wire models. The controller directly communicates with the PC system through the touch panel communications interface. The controller design is superior in sensitivity, accuracy, and friendly operation. The touch panel driver emulates the left mouse button and the right mouse button functions.

The touch panel driver supports the following operating systems:

- Microsoft® Windows® versions:
  - Microsoft® Windows® 2000
  - Microsoft® Windows® XP
  - Microsoft® Windows® 2003
  - Microsoft® Windows® 2008
  - Microsoft® Windows® Vista
  - Microsoft® Windows® 7
  - Microsoft® Windows® 8
- Microsoft® Windows® CE versions:
  - Microsoft® Windows® CE 4.2
  - Microsoft® Windows® CE 5.0
  - Microsoft® Windows® CE 6.0
- Linux Kernel 2.6
- DOS

Driver installation is described below.

5.2 RS-232 or USB Touchscreen

Before installing the driver, connect the DM-F series monitor to the motherboard. The DM-F series monitors support touchscreen modality through a USB or an RS-232 interface connection. Decide through which interface the touchscreen is to be controlled.

NOTE:

The default touchscreen interface for the DM-F series monitor is USB interface. The RS-232 interface is only reserved for the models with resistive type touchscreen.

- **RS-232 Interface:** If the touchscreen interface connection is an RS-232 connection, connect the RS-232 connector on the single board computer to the DB-9 connector of the DM-F series monitor.

- **USB Interface:** If the touchscreen interface connection is a USB connection, connect the USB connector on the single board computer to the external USB port connector of the DM-F series monitor.

5.3 Touch Panel Driver Installation

WARNING:

Before the touchscreen driver is installed, make sure the system is connected to the monitor with a USB cable or an RS-232 null cable. Also, make sure the VGA connector on the system is connected to the VGA connector on the bottom of the monitor.

To install the touch panel driver for the DM-F series, please follow the instructions below:

Step 1: **Connect the DM-F series monitor to the single board computer**. See above.

Step 2: **Install the driver CD**. Install the driver CD into the system to which the DM-F series monitor is connected.

Step 3: Select the **Touch Screen** option in the menu of driver CD. The directory in **Figure 5-1** appears.

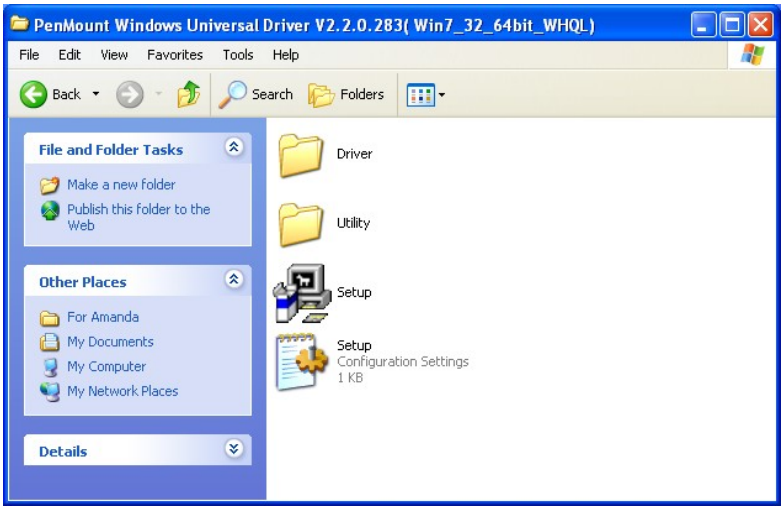

Figure 5-1: Setup Icon

Step 4: Double click the setup icon in **Figure 5-1**.

Step 5: The Welcome screen in **Figure 5-2** appears.

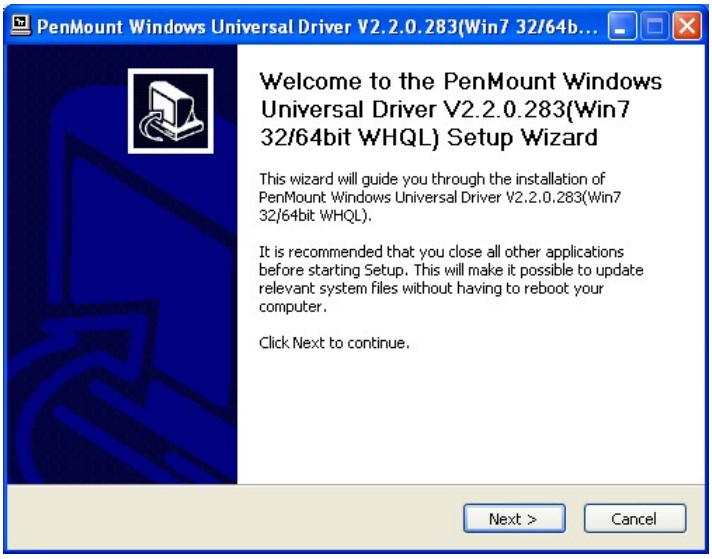

Figure 5-2: Welcome Screen

Step 6: Click **Next** to continue.

Step 7: The license agreement in **Figure 5-3** appears. Accept the terms of the agreement by clicking **I Agree**.

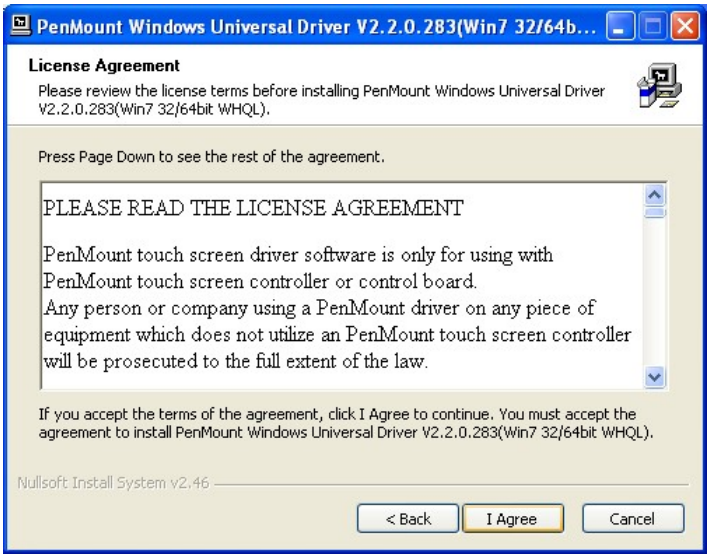

Figure 5-3: License Agreement

Step 8: The installation destination screen appears. See **Figure 5-4**. Click **Install**.

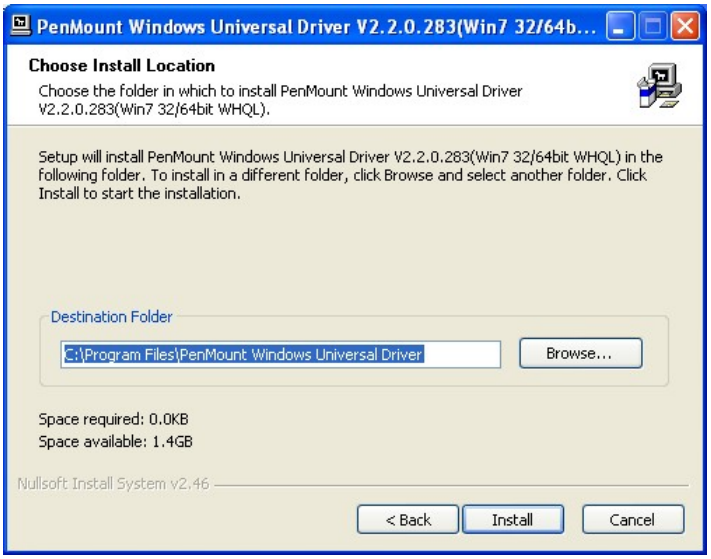

Figure 5-4: Initiate Install

Step 9: The installation of the program begins. See **Figure 5-5**.

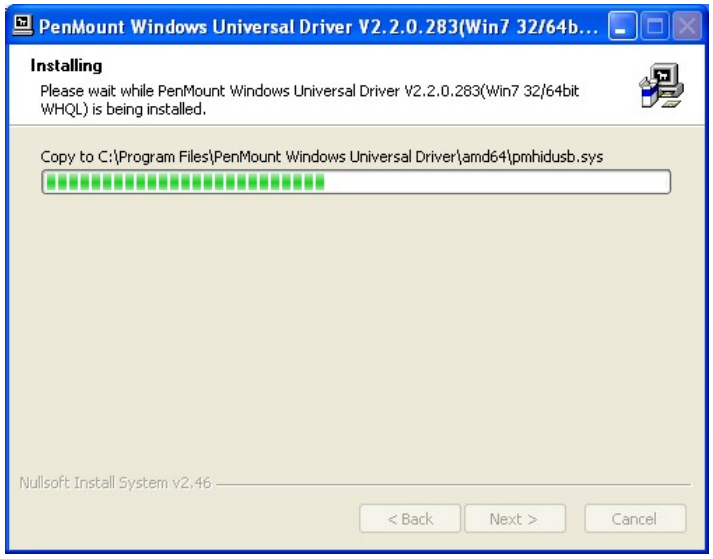

Figure 5-5: Installation Starts

Step 10: When the installation is complete, the complete screen appears. See **Figure 5-6**.

To complete the installation process click **Finish**.

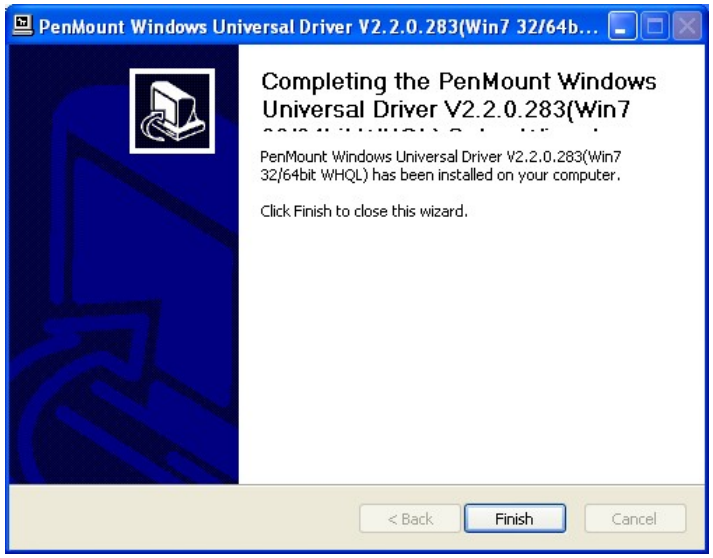

Figure 5-6: Finish Installation

5.4 Change the Touchscreen Interface

If the touchscreen interface must be changed from a USB interface to an RS-232 interface or from an RS-232 interface to a USB interface, the following steps must be followed.

Step 1: Uninstall the touchscreen driver

Step 2: Remove the interface cable i.e. remove the USB cable or the RS-232 cable

Step 3: Install the new cable i.e. install the RS-232 cable or the USB cable.

Step 4: Reinstall the driver CD as described above.

5.5 Calibrating the Touchscreen

To calibrate the touchscreen cursor with the motion of the touch pen (or finger), please follow the steps below:

Step 1: Make sure the system is properly connected through a USB or an RS-232 interface to the DM-F series monitor.

Step 2: Make sure the touchscreen driver is properly installed.

Step 3: Locate the PenMount Monitor icon in the bottom right corner of the screen.

Figure 5-7: PenMount Monitor Icon

Step 4: Click the icon. A pop up menu appears. See **Figure 5-8**.

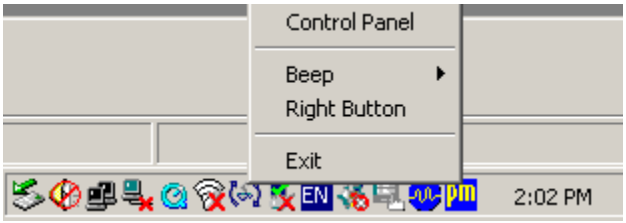

Figure 5-8: PenMount Monitor Popup Menu

Step 5: Click Control Panel in the pop up menu shown in **Figure 5-8.**

Step 6: The configuration screen in **Figure 5-9** appears.

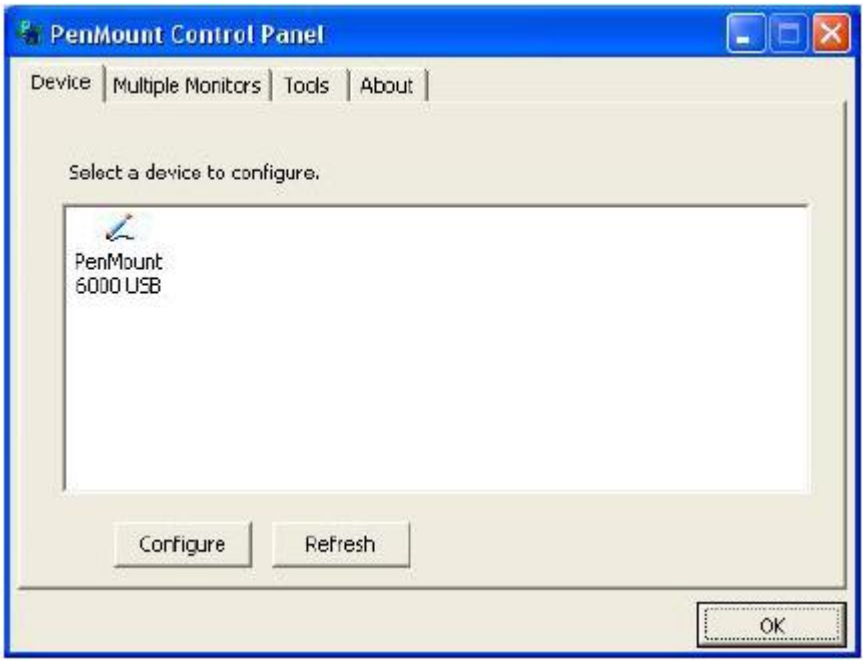

Figure 5-9: Configuration Screen

Step 7: Double click the PenMount 6000 icon as shown in **Figure 5-9**.

Step 8: The calibration initiation screen in **Figure 5-10** appears.

Step 9: Select the Standard Calibration button as shown in **Figure 5-10**.

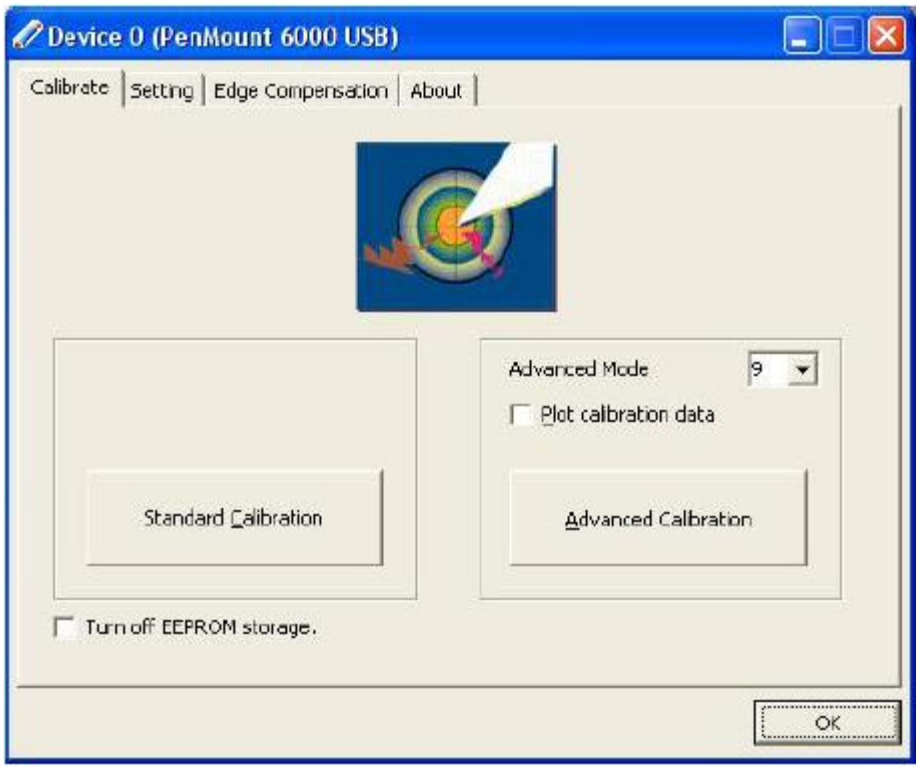

Figure 5-10: Calibration Initiation Screen

Step 10: The calibration screen in is shown. See **Figure 5-11**.

Figure 5-11: Calibration Screen

Step 11: Follow the instructions. The user is asked touch the screen at five specified points after which the screen is calibrated.

Chapter

6

AD Boards

6.1 AD Board Overview

The DM series LCD monitor AD board provides a wide variety of control interfaces. There are two AD boards used for the DM series monitors: AV-6038 and AV-60381. Refer to **Table 1-2** for a listing of DM series monitors and their associated AD board. The following sections describe each AD board in detail.

6.2 AV-6038 AD Board

The connector locations of the AV-6038 are shown in Figure 6-1. The Pin 1 locations of the on-board connectors are also indicated in the diagrams below. The connector pinouts for these connectors are listed in the following sections.

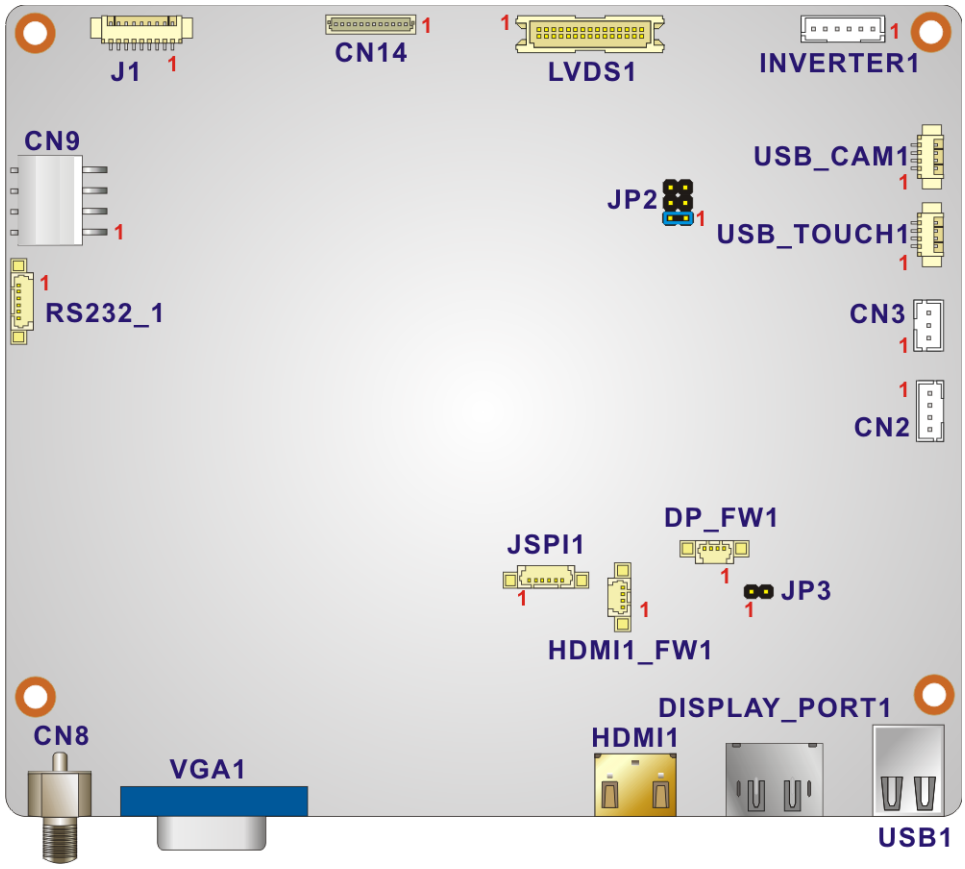

Figure 6-1: AV-6038 AD Board Layout Diagram

6.2.1 AV-6038 Peripheral Interface Connectors

Table 6-1 shows a list of the peripheral interface connectors on the AV-6038 AD board. Pinouts of the connectors that are used in the DM-F series can be found in the following sections.

Connector	Type	Label
Backlight Inverter connector	6-pin wafer, p=2.00 mm	INVERTER1
COM debug port connector	2-pin wafer, p=2.00 mm	CN2
Camera connector	4-pin wafer, p=1.25 mm	USB_CAM1
DisplayPort firmware connector	4-pin wafer, p=1.25 mm	DP_FW1
HDMI firmware connector	4-pin wafer, p=1.25 mm	HDMI_FW1
Infrared connector	2-pin wafer, p=2.00 mm	CN3
LVDS connector	30-pin crimp, p=1.25 mm	LVDS1
OSD keypad connector	12-pin wafer, p=1.00 mm	CN14
Power input connector	4-pin wafer, p=3.96 mm	CN9
RS-232 connector for touchscreen	6-pin wafer, p=1.25 mm	RS232_1
SPI flash connector	6-pin wafer, p=1.25 mm	JSPI1
USB connector for touchscreen	4-pin wafer, p=1.25 mm	USB_TOUCH1
Touchscreen connector	9-pin wafer, p=1.25 mm	J1
Jumper	**Type**	**Label**
LVDS panel voltage select jumper	6-pin header, p=2.54 mm	JP2
EIDE firmware update jumper	2-pin header, p=2.00 mm	JP3

Table 6-1: AV-6038 Peripheral Interface Connectors

6.2.2 Backlight Inverter Connector (INVERTER1)

PIN NO.	DESCRIPTION
1	BKL_POWER1
2	BKL_POWER1
3	ENABKL
4	BRIGHTNESS
5	GND
6	GND

Table 6-2: Backlight Inverter Connector (INVERTER1) Pinouts

6.2.3 LVDS Connector (LVDS1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	A0P_C	4	A0M_C
5	A1P_C	6	A1M_C
7	A2P_C	8	A2M_C
9	CLK1P_C	10	CLK1M_C
11	A3P_C	12	A3M_C
13	GND	14	GND
15	A4P_C	16	A4M_C
17	A5P_C	18	A5M_C
19	A6P_C	20	A6M_C
21	CLK2P_C	22	CLK2M_C
23	A7P_C	24	A7M_C
25	GND	26	GND
27	VCC	28	VCC
29	VCC	30	VCC

Table 6-3: LVDS Connector (LVDS1) Pinouts

6.2.4 OSD Keypad Connector (CN14)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V_OSD	2	+12V
3	OSD1	4	OSD2
5	OSD3	6	OSD4
7	OSD5	8	OSD6
9	OSD7	10	MLED8
11	GND	12	+3.3V_DVDD

Table 6-4: OSD Keypad Connector (CN14) Pinouts

6.2.5 Power Input Connector (CN9)

PIN NO.	DESCRIPTION
1	GND
2	GND
3	VCC
4	VCC

Table 6-5: Power Input Connector (CN9) Pinouts

6.2.6 RS-232 Connector for Touchscreen (RS232_1)

PIN NO.	DESCRIPTION
1	NDSR
2	NRX
3	NRTS
4	NTX
5	NDTR
6	GND

Table 6-6: RS-232 Connector for Touchscreen (RS232_1) Pinouts

6.2.7 USB Connector for Touchscreen (USB_TOUCH1)

PIN NO.	DESCRIPTION
1	VCC_TOUCH
2	D2F-
3	D2F+
4	GND

Table 6-7: USB Connector for Touchscreen (USB_TOUCH1) Pinouts

6.2.8 Touchscreen Connector (J1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	X+	2	X-
3	Y+	4	SENSE
5	X+	6	X-
7	Y+	8	Y+
9	GND		

Table 6-8: Touchscreen Connector (J1) Pinouts

6.2.9 LVDS Panel Voltage Select Jumper (JP2)

	DESCRIPTION
Short 1-2	+3.3 V (for 12” and 15”)
Short 3-4	+5 V (for 17”, 19”, 21.5” and 24”)
Short 5-6	NC

Table 6-9: LVDS Panel Voltage Select Jumper (JP2) Pinouts

6.2.10 EIDE Firmware Update Jumper (JP3)

	DESCRIPTION
1	EDID_WP
2	GND

Table 6-10: EIDE Firmware Update Jumper (JP3) Pinouts

6.3 AV-60381 AD Board

The connector locations of the AV-60381 are shown in Figure 6-1. The Pin 1 locations of the on-board connectors are also indicated in the diagrams below. The connector pinouts for these connectors are listed in the following sections.

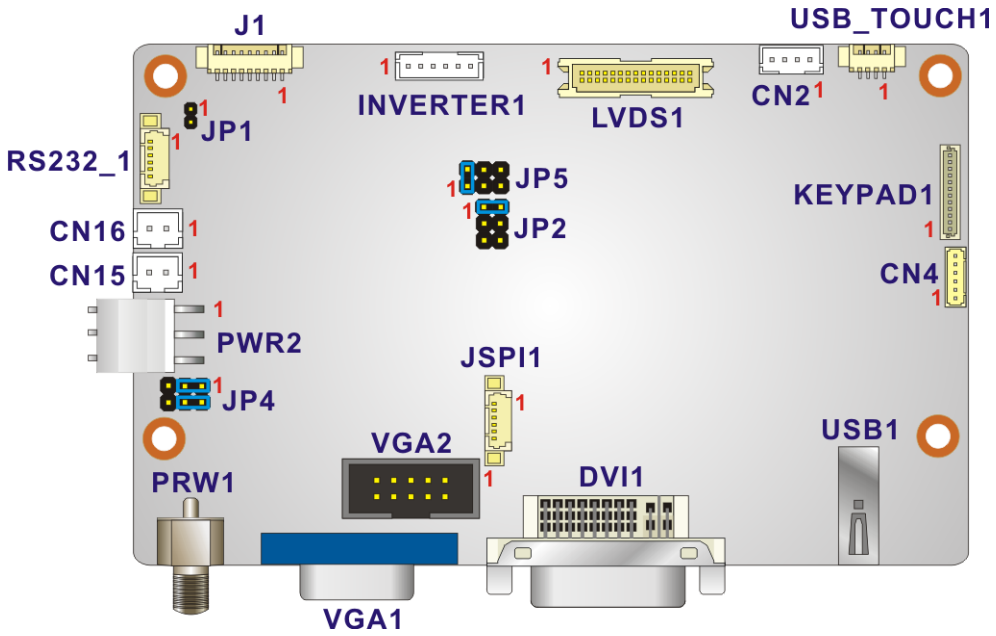

Figure 6-2: AV-60381 AD Board Layout Diagram

6.3.1 AV-60381 Peripheral Interface Connectors

Table 6-1 shows a list of the peripheral interface connectors on the AV-60381 AD board. Pinouts of the connectors that are used in the DM-F series can be found in the following sections.

Connector	Type	Label
Auto dimming connector	6-pin wafer, p=1.25 mm	CN4
Backlight Inverter connector	6-pin wafer, p=2.00 mm	INVERTER1
COM debug port connector	2-pin wafer, p=2.00 mm	CN2
LVDS connector	30-pin crimp, p=1.25 mm	LVDS1
OSD keypad connector	12-pin wafer, p=1.00 mm	KEYPAD1

Power input connector	3-pin wafer, p=3.96 mm	PWR2
Power input connector (+12 V)	2-pin wafer, p=2.00 mm	CN15
Power output connector	2-pin wafer, p=2.00 mm	CN16
RS-232 connector for touchscreen	6-pin wafer, p=1.25 mm	RS232_1
SPI flash connector	6-pin wafer, p=1.25 mm	JSPI1
USB connector for touchscreen	4-pin wafer, p=1.25 mm	USB_TOUCH1
Touchscreen connector	9-pin wafer, p=1.25 mm	J1
VGA connector	10-pin box header, p=2.00 mm	VGA2
Jumper	**Type**	**Label**
Backlight voltage select jumper	6-pin header, p=2.54 mm	JP5
LVDS panel voltage select jumper	6-pin header, p=2.54 mm	JP2
Power input setting jumper	6-pin header, p=2.54 mm	JP4
Touchscreen type select jumper	2-pin header, p=2.00 mm	JP1

Table 6-11: AV-60381 Peripheral Interface Connectors

6.3.2 Backlight Inverter Connector (INVERTER1)

PIN NO.	DESCRIPTION
1	BKL_POWER1
2	BKL_POWER1
3	ENABKL
4	BRIGHTNESS
5	GND
6	GND

Table 6-12: Backlight Inverter Connector (INVERTER1) Pinouts

6.3.3 LVDS Connector (LVDS1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	A0P_C	4	A0M_C
5	A1P_C	6	A1M_C
7	A2P_C	8	A2M_C
9	CLK1P_C	10	CLK1M_C
11	A3P_C	12	A3M_C
13	GND	14	GND
15	A4P_C	16	A4M_C
17	A5P_C	18	A5M_C
19	A6P_C	20	A6M_C
21	CLK2P_C	22	CLK2M_C
23	A7P_C	24	A7M_C
25	GND	26	GND
27	VCC	28	VCC
29	VCC	30	VCC

Table 6-13: LVDS Connector (LVDS1) Pinouts

6.3.4 OSD Keypad Connector (KEYPAD1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V_OSD(NC)	2	+12V(NC)
3	Left	4	Auto
5	Right	6	Power
7	Menu	8	Led_GREED (UP)
9	Down (NC)	10	Led_RED
11	GND	12	+3.3V_DVDD(NC)

Table 6-14: OSD Keypad Connector (KEYPAD1) Pinouts

6.3.5 Power Input Connector (PWR2)

PIN NO.	DESCRIPTION
1	+9 V ~ +36 V to external power module
2	GND
3	+12 V input

Table 6-15: Power Input Connector (PWR2) Pinouts

6.3.6 RS-232 Connector for Touchscreen (RS232_1)

PIN NO.	DESCRIPTION
1	NDSR
2	NRX
3	NRTS
4	NTX
5	NDTR
6	GND

Table 6-16: RS-232 Connector for Touchscreen (RS232_1) Pinouts

6.3.7 USB Connector for Touchscreen (USB_TOUCH1)

PIN NO.	DESCRIPTION
1	VCC_TOUCH
2	D2F-
3	D2F+
4	GND

Table 6-17: USB Connector for Touchscreen (USB_TOUCH1) Pinouts

6.3.8 Touchscreen Connector (J1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	X+	2	X-
3	Y+	4	SENSE
5	X+	6	X-

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
7	Y+	8	Y+
9	GND		

Table 6-18: Touchscreen Connector (J1) Pinouts

6.3.9 VGA Connector (VGA2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RED	2	SMCLK
3	GREEN	4	SMDATA
5	BLUE	6	GND
7	H-SYNC	8	GND
9	V-SYNC	10	GND

Table 6-19: VGA Connector (VGA2) Pinouts

6.3.10 Backlight Voltage Select Jumper (JP5)

	DESCRIPTION
Short 1-2	+3.3 V
Short 3-4	+5 V
Short 5-6	+12 V

Table 6-20: Backlight Voltage Select Jumper (JP5) Pinouts

6.3.11 LVDS Panel Voltage Select Jumper (JP2)

	DESCRIPTION
Short 1-2	+3.3 V (for 6.5” and 8”)
Short 3-4	+5 V
Short 5-6	NC

Table 6-21: LVDS Panel Voltage Select Jumper (JP2) Pinouts

6.3.12 Power Input Setting Jumper (JP4)

	DESCRIPTION
Short 1-3, 2-4	+12 V from power jack (PRW1)
Short 3-5, 4-6	Input with external connector (external power module is needed)

Table 6-22: Power Input Setting Jumper (JP4) Pinouts

6.3.13 Touchscreen Type Select Jumper (JP1)

	DESCRIPTION
1	5-wire touchscreen
2	4-wire/8-wire touchscreen

Table 6-23: Touchscreen Type Select Jumper (JP1) Pinouts

Appendix

A

Regulatory Compliance

DECLARATION OF CONFORMITY

This equipment has been tested and found to comply with specifications for CE marking. If the user modifies and/or installs other devices in the equipment, the CE conformity declaration may no longer apply.

FCC WARNING

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Appendix

B

Safety Precautions

WARNING:

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the DM-F Series.

B.1 Safety Precautions

Please follow the safety precautions outlined in the sections that follow:

B.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***Follow the electrostatic precautions*** outlined below whenever the DM-F Series is opened.
- ***Make sure the power is turned off and the power cord is disconnected*** whenever the DM-F Series is being installed, moved or modified.
- ***Do not apply voltage levels that exceed the specified voltage range***. Doing so may cause fire and/or an electrical shock.
- ***Electric shocks can occur*** if the DM-F Series chassis is opened when the DM-F Series is running.
- ***Do not drop or insert any objects*** into the ventilation openings of the DM-F Series.
- ***If considerable amounts of dust, water, or fluids enter the*** DM-F Series, turn off the power supply immediately, unplug the power cord, and contact the DM-F Series vendor.
- **DO NOT**:
  - Drop the DM-F Series against a hard surface.
  - Strike or exert excessive force onto the LCD panel.
  - Touch any of the LCD panels with a sharp object
  - In a site where the ambient temperature exceeds the rated temperature

B.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the DM-F Series may result in permanent damage to the DM-F Series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the DM-F Series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the DM-F Series is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ***Self-grounding***: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring or working with an electrical component, place it on an antic-static pad. This reduces the possibility of ESD damage.
- ***Only handle the edges of the electrical component***: When handling the electrical component, hold the electrical component by its edges.

B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the DM-F Series, please follow the guidelines below.

B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the DM-F Series, please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.

- The interior of the DM-F Series does not require cleaning. Keep fluids away from the DM-F Series interior.
- Be cautious of all small removable components when vacuuming the DM-F Series.
- Turn the DM-F Series off before cleaning the DM-F Series.
- Never drop any objects or liquids through the openings of the DM-F Series.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the DM-F Series.
- Avoid eating, drinking and smoking within vicinity of the DM-F Series.

B.2.2 Cleaning Tools

Some components in the DM-F Series may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the DM-F Series.

- Cloth – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the DM-F Series.
- Water or rubbing alcohol – A cloth moistened with water or rubbing alcohol can be used to clean the DM-F Series.
- Using solvents – The use of solvents is not recommended when cleaning the DM-F Series as they may damage the plastic parts.
- Vacuum cleaner – Using a vacuum specifically designed for computers is one of the best methods of cleaning the DM-F Series. Dust and dirt can restrict the airflow in the DM-F Series and cause its circuitry to corrode.
- Cotton swabs - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- Foam swabs - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

C

smartOSD

C.1 IEI smartOSD Quick Installation Guide

IEI smartOSD is a proprietary On-Screen-Display (OSD) software solution from IEI that enables easy, remote monitor setting adjustments in a Windows environment. IEI smartOSD delivers excellent performance and provides more flexibility than the typical OSD hardware solutions when adjusting a monitor. smartOSD also allows monitor settings such as brightness, contrast, screen position, size, color gain to be read and changed over normal video cable (VGA or HDMI).

C.2 Pre-installation Notice

Before installing smartOSD software, please make sure one of the following operating systems is installed:

- Windows 95
- Windows NT 4.0
- Windows 98
- Windows 2000
- Windows 2003
- Windows XP
- Windows Vista
- Windows 7

C.3 smartOSD Installation

Connect the DM-F series to a host computer. Insert the CD that came with the system and follow the instructions below.

Step 1: Insert the CD into a CD drive connected to the system.

Step 2: Locate the setup file and double click on it.

Step 3: The welcome screen shown in Figure C-1 appears.

Figure C-1: smartOSD Welcome Screen

Step 4: Click **Next** to continue.

Step 5: The Folder Select screen in **Figure C-2** appears.

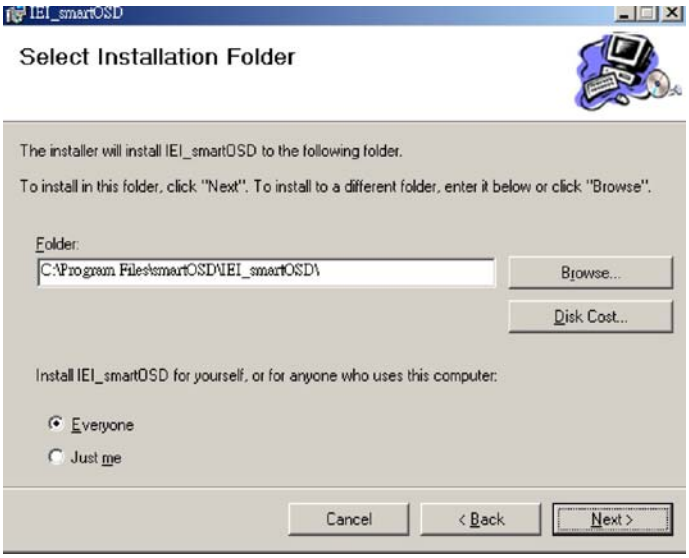

Figure C-2: smartOSD Folder Select Screen

Step 6: Select the installation folder in Figure C-2 shown above.

Step 7: Click **Next** to continue.

Step 8: The screen in Figure C-3 appears.

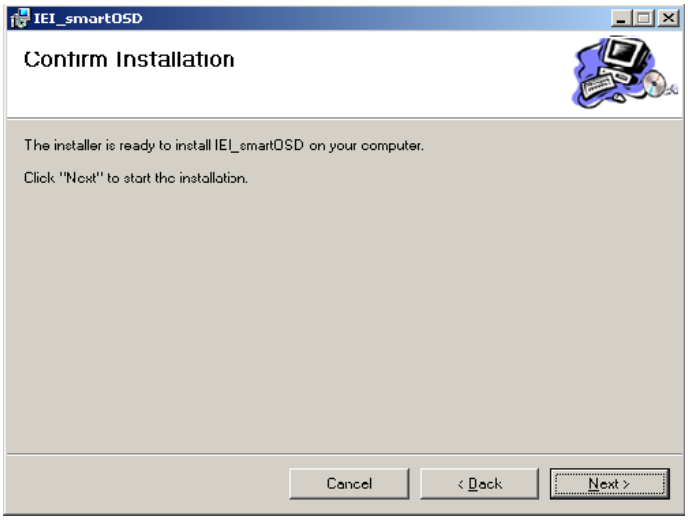

Figure C-3: smartOSD Confirm Installation

Step 9: Confirm the installation by clicking **Next** in the screen above.

Step 10: The program starts to install and the progress bar shown in FIgure C-4 appears.

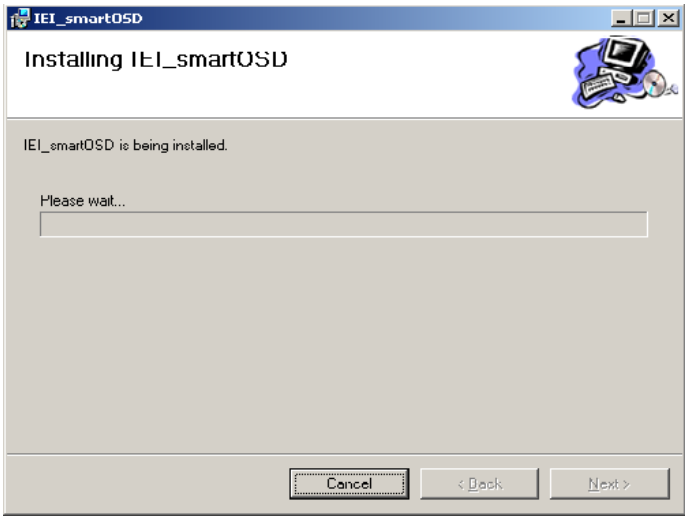

Figure C-4: smartOSD Installation Progress

Step 11: When the installation is complete the “Complete Installation” screen in Figure C-5 appears.

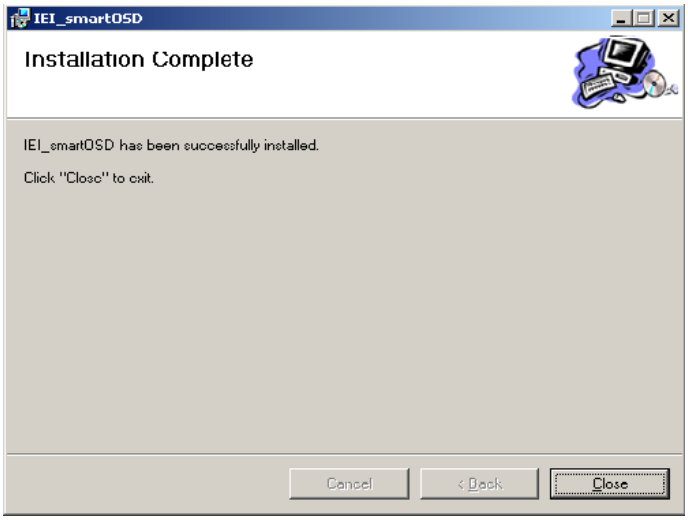

Figure C-5: smartOSD Installation Complete

Step 12: Click **Close** in the screen above.

Step 13: After quick setup is complete, the IEI smartOSD wizard logo appears on the desktop as shown in the screen below.

Step 14: To access the smartOSD, click the smartOSD wizard logo.

C.4 Software Illustration

The table below shows the smartOSD menu structure for all IEI LCD monitors.

NOTE:

To update the display setting status immediately, push the refresh button on every page

To turn the system on, press ALT + P.

Item	Elements
Management	Save/Load File
	Power Management
EDID	EDID contains basic information about the monitor and its capabilities.
Image	Brightness
	Contrast
	Sharpness
Display	Auto Adjust
	Phase
	Clock
Color	Auto Color
	User Red Gain
	User Green Gain
	User Blue Gain
	Color Temperature
	Gamma (disabled in the DM-F Series)
PIP	PIP (disabled in the DM-F Series)
	PIP Source Input (disabled in the DM-F Series)
	PIP Size (disabled in the DM-F Series)
System	Monitor Power Control

	Auto Brightness (disabled in the DM-F Series)
	Main Source Input (YPbPr, S-Video and CVBS disabled)
	Volume (disabled in the DM-F Series)
	Factory Presets/OSD Lock/OSD Unlock
	Mute (disabled in the DM-F Series)

Table C-1: SmartOSD Menu Structure

C.4.1 Manage Page

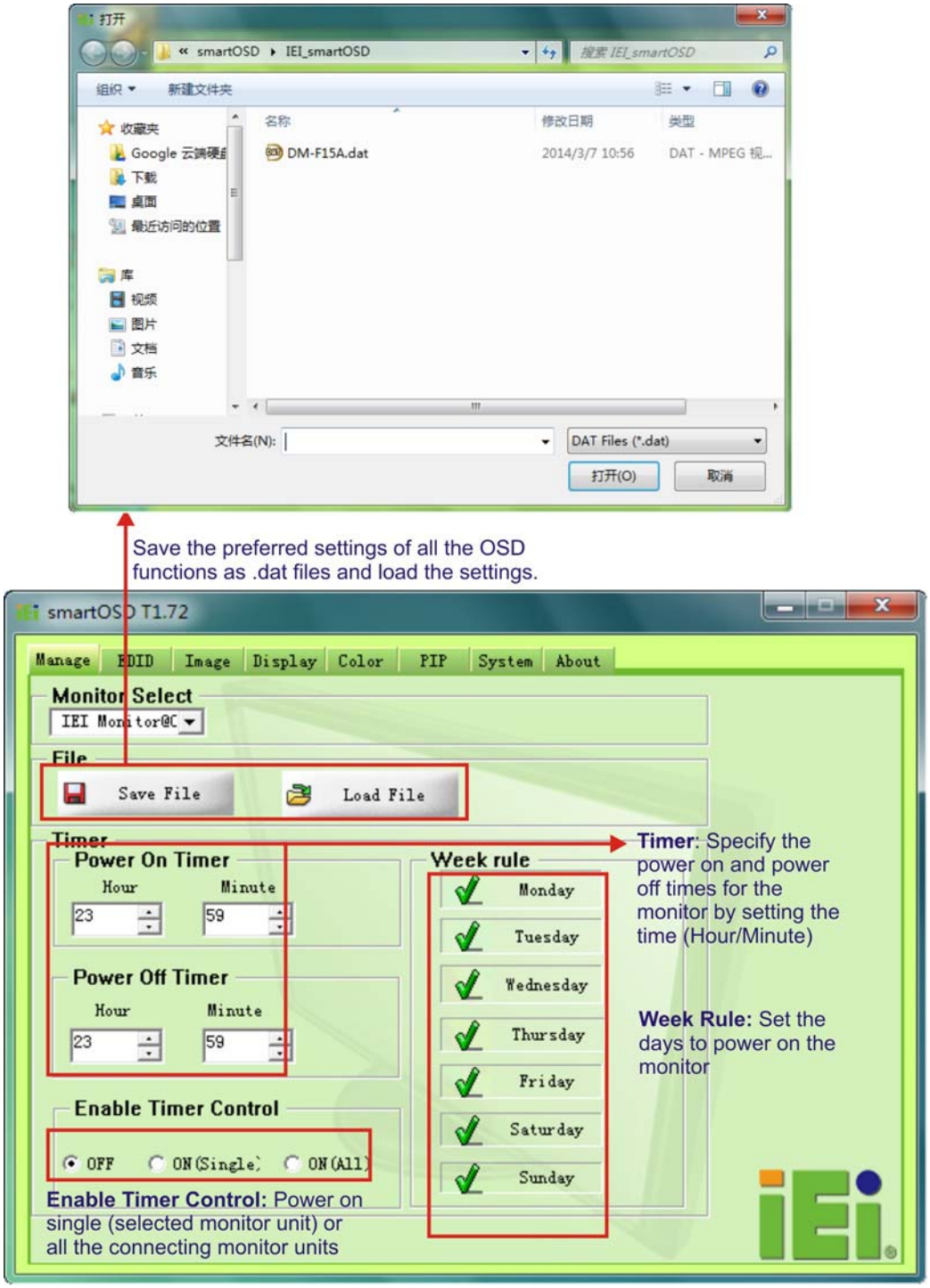

Figure C-6: Manage Page

C.4.2 EDID Page

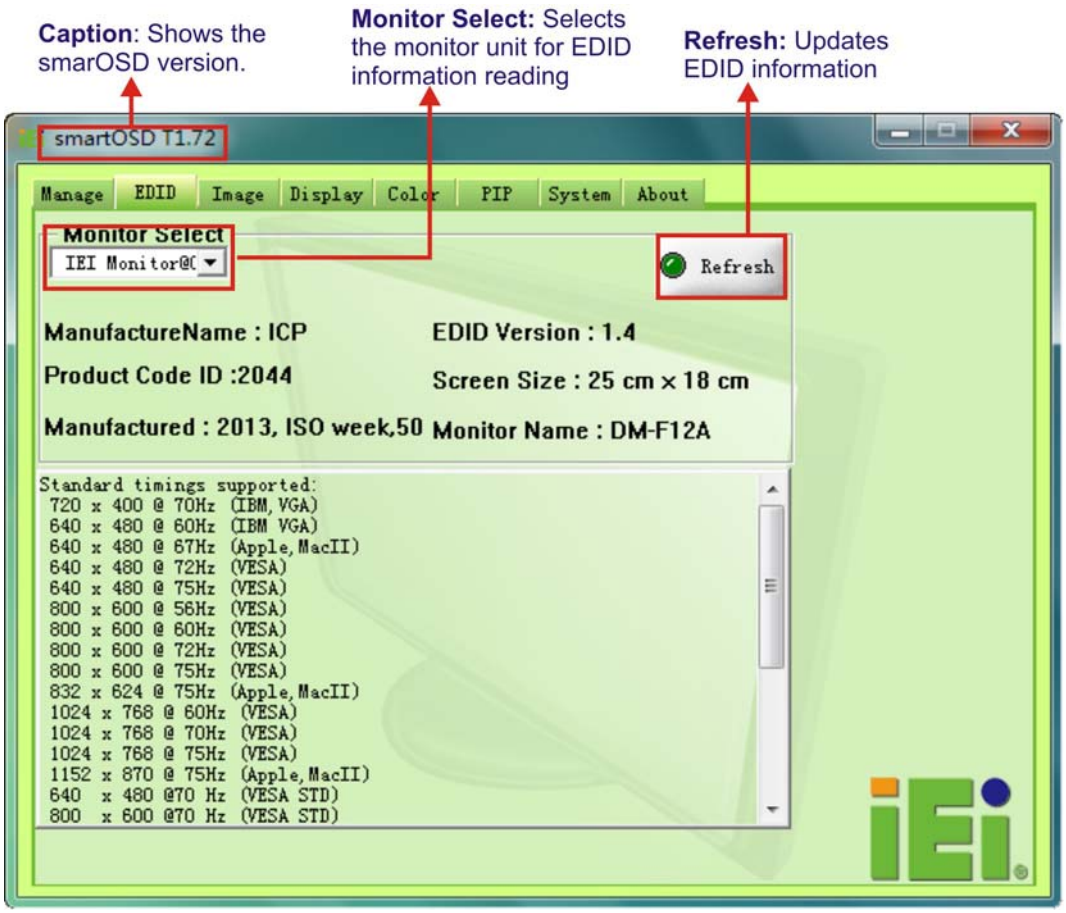

Figure C-7: EDID Page

C.4.3 Image Page

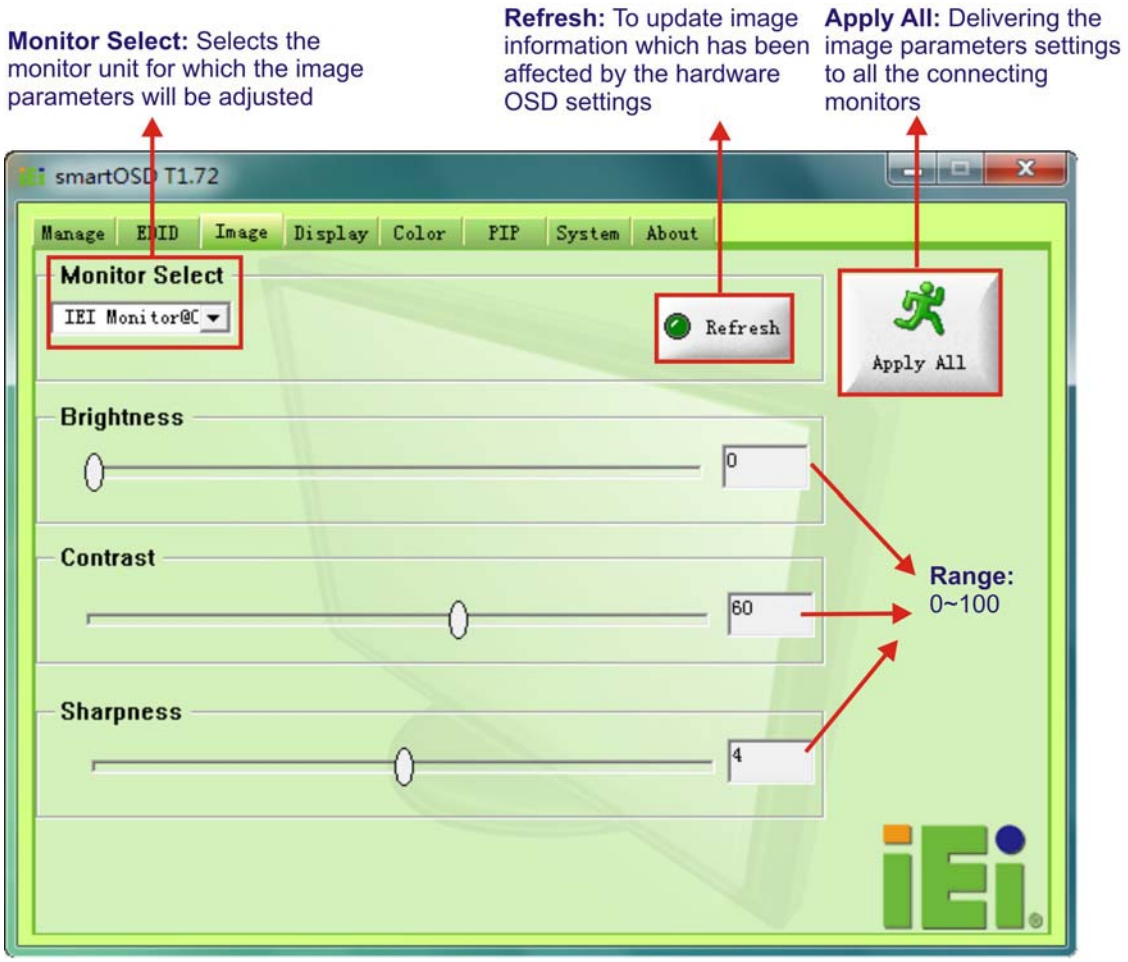

Figure C-8: Image Page

C.4.4 Display Page (for analog signal)

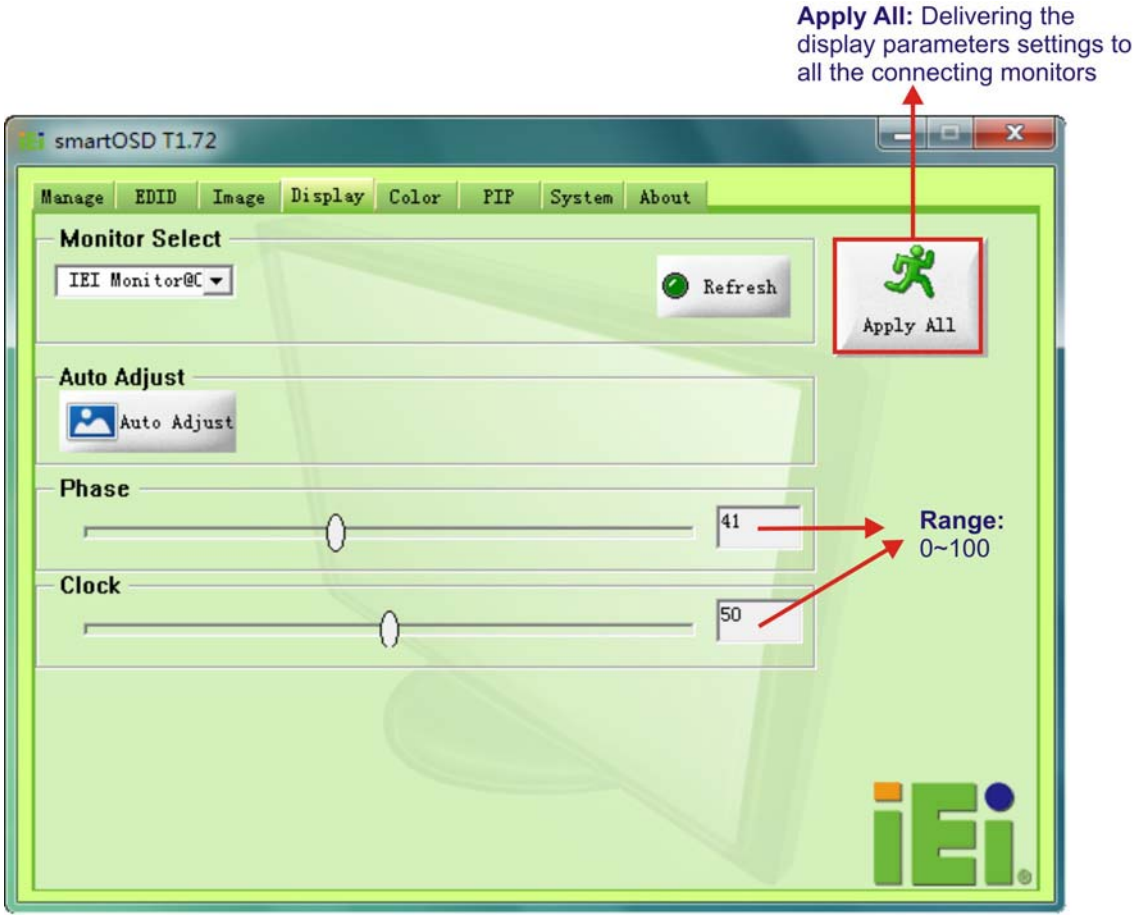

Figure C-9: Display Page

C.4.5 Color Page

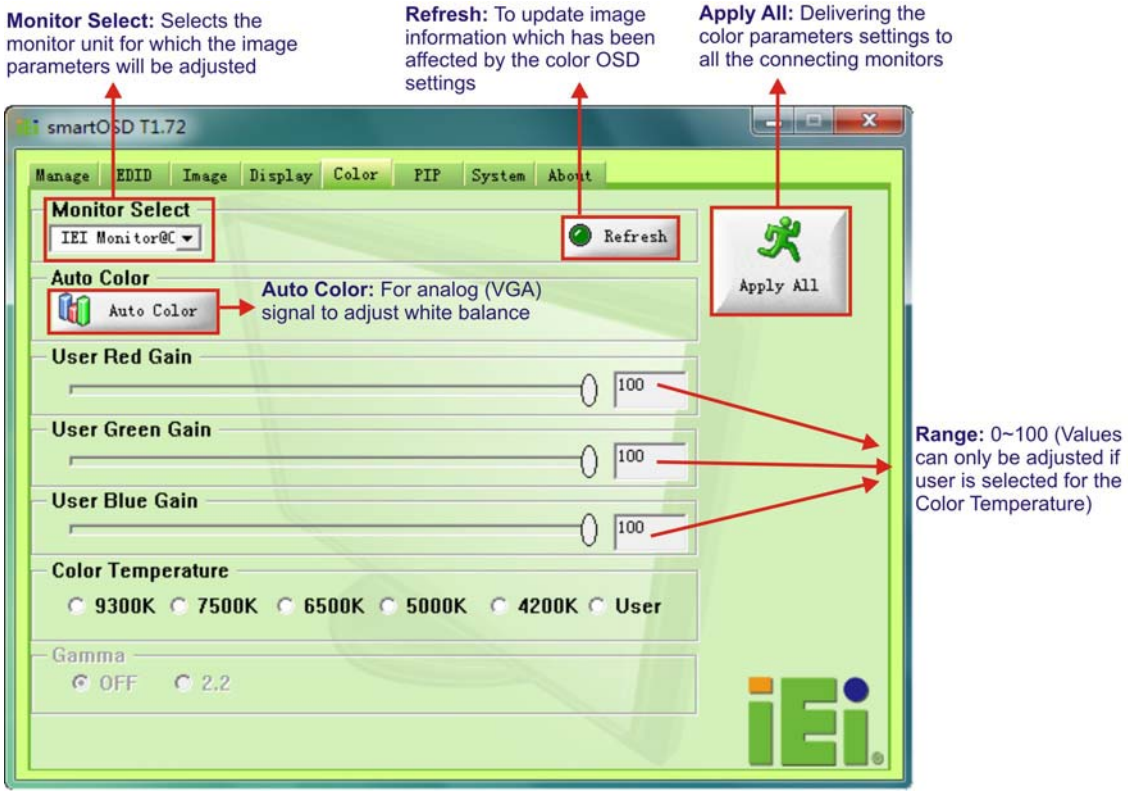

Figure C-10: Color Page

C.4.6 PIP Page

NOTE:

The functions in the PIP page are only available in the MLCD-KIT Series and AFOLUX Series monitors.

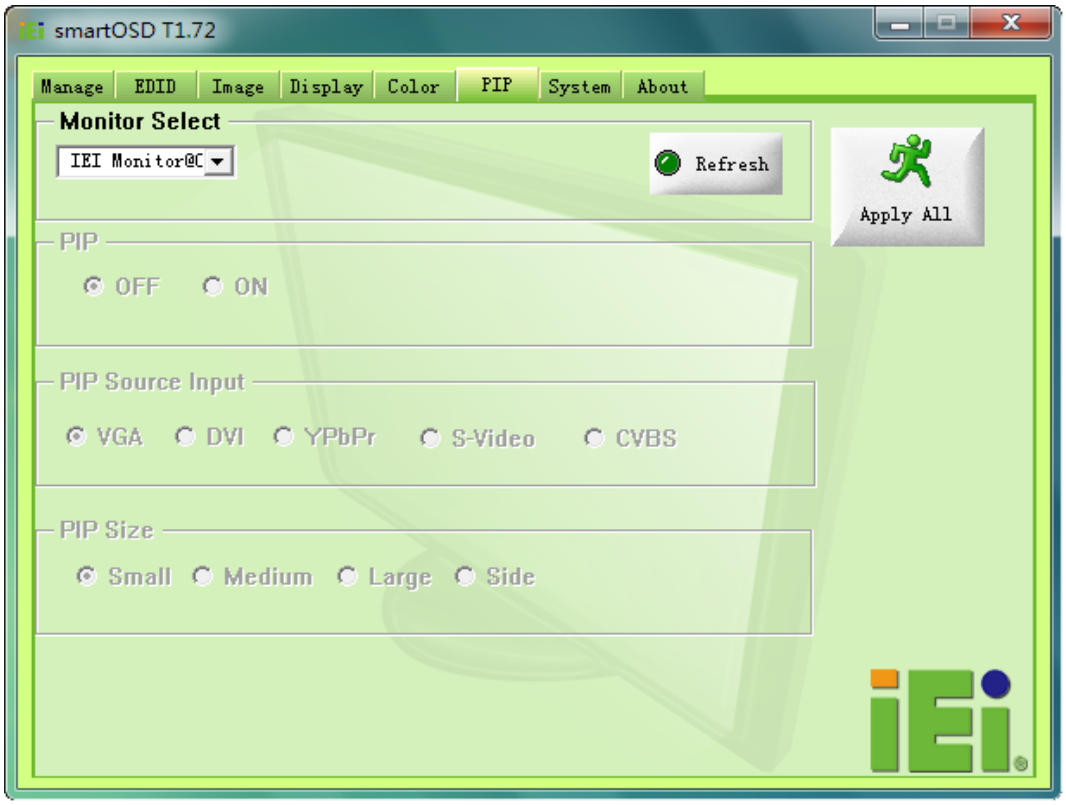

Figure C-11: PIP Page

C.4.7 System Page

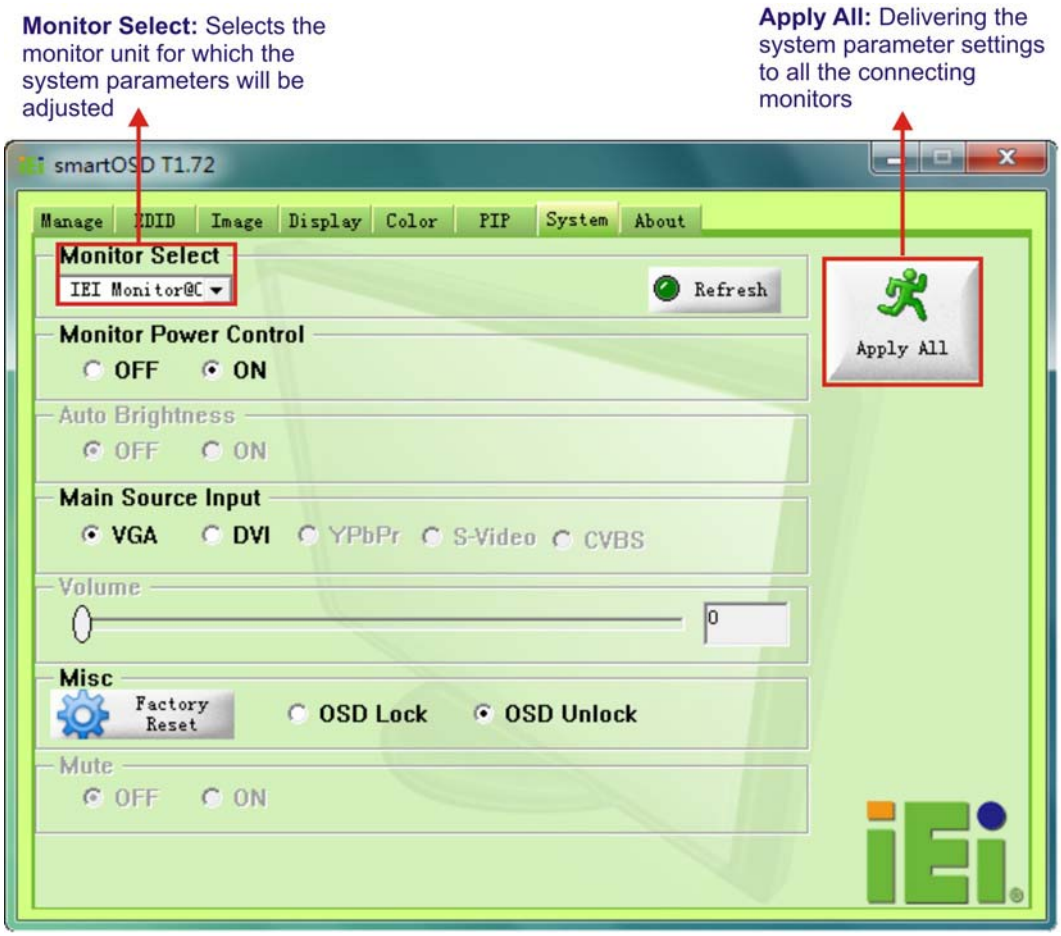

Figure C-12: System Page

NOTE:

Some of the functions in the System Page are only available to some of the IEI LCD series as following:

- Auto Brightness: SRM, MLCD-KIT and AFOLUX series only
- Main Source Input: MLCD-KIT and AFOLUX series only
- Volume: AFOLUX series only
- Mute: AFOLUX series only

C.4.8 About Page

Figure C-13: About Page

C.5 smartOSD FAQ

For troubleshooting, please see the steps below:

C.5.1 Windows 2000 Installation Failure

Installation fails under Windows 2000 and shows the following image:

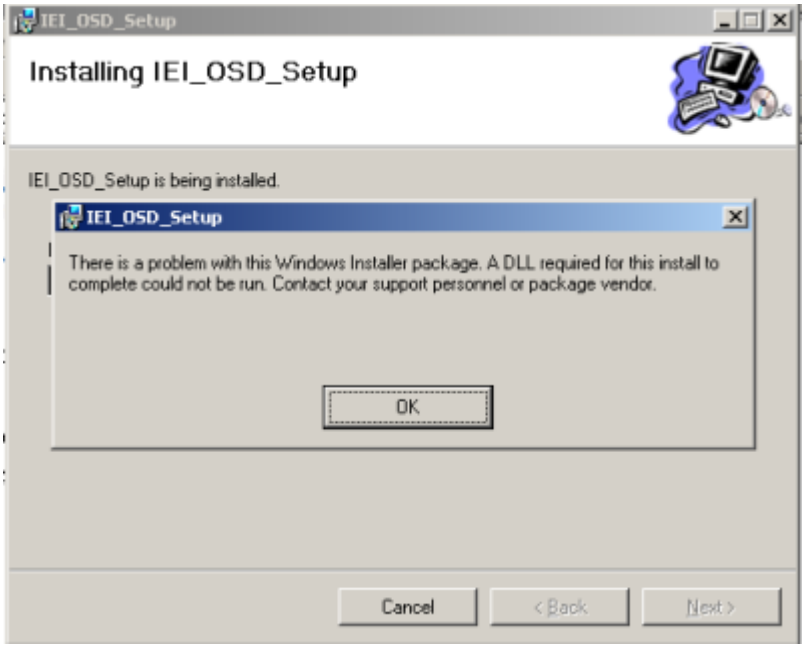

Figure C-14: DLL Missing

Solution: Download and install service pack Windows Installer 3.1

C.5.2 Vista Installation Failure

Installation fail under Vista while showing following image:

Figure C-15: Windows Vista Error

Solution: Install SmartOSD.exe as the administrator authority

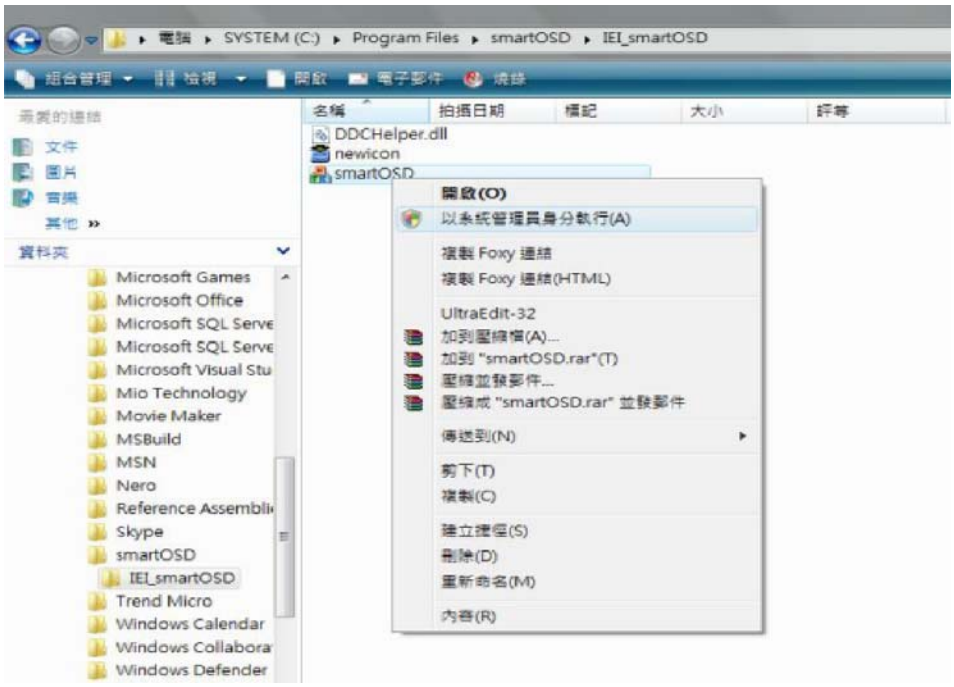

Figure C-16: Install as Administrator

C.5.3 Model Failure

The Model Fail error message shown below appears.

Figure C-17: Firmware Incompatibility

Solution: SmartOSD only supports firmware version 2.0 and following versions.

C.5.4 DDC Port Failure

The DDC port fail error message shown below appears.

Figure C-18: DDC Port Failure

Solutions:

- Check VGA or HDMI cable
- Check an IEI monitor is being used
- Make sure the version is version 2.3 for the AFOLUX/MDM series and version 1.5 for the DM/ISDM/TDM/SRM/LCD-KIT series that have the SmartOSD functions
- Check if the OSD control status is busy. A busy signal may cause the signal message for a short time.