IEi

IEI Technology Corp.

DM Industrial LCD Series

DM-121G, DM-150G and DM-170G

User Manual

RoHS Lead Free

Rev. 1.0 July, 2006

Revision History

Title	DM-170G Series LCD User Manual	
Revision Number	Description	Date of Issue
1.0	Initial release	March 2006

About This Manual

This document covers the description and installation instructions for the DM-170G series LCDs. The LCD monitors in this series are the 12.1 inch DM-121G, the 15 inch DM-150G and the 17 inch DM170G.

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Packing List

Before you begin installing your LCD, please make sure that the following items have been shipped:

- 1 x DM-170G/150G/121G series industrial LCD.

- 1 x DM-170G series User Manual in PDF format.

- 1 x AC Power Cord (cable type determined by the shipped-to area).

- 1 x 46W AC power adapter (12V/3.8A)

- 1 x VAG cable (15-pin D-SUB male-to-male/180cm)

- 5 x round head screws

- 5 x flat head screws

- 5 x wire strain bands

- 1 x power cable for terminal block (an optional item for the "M" models).

- 1 x touch screen RS-232 cable/touch pen/driver CD-ROM (an optional item for the "T-R" models)

- 1 x Installation, Utility, and Driver CD.

The part numbers of these items are listed below:

32000-000002-RS	AC Power Cable	1
32000-036200-RS	VGA Cable	1
63UP0451E12P64L-000-RS	45W AC Power Adapter	1
44003-030062-RS	Round Head Screw	5
44013-030041-RS	Flat Head Screw	5
46004-000200-RS	Wire Strain Band	5

32100-041000-RS	Power Cable for Terminal Block	1	Optional
32000-000050-RS	Touch Screen RS-232 Cable / Touch Pen / Driver CDROM	1	Optional

If any of these items are missing or damaged, you should contact your distributor or sales representative immediately.

Configuration Options

- Chassis coating/paint/color options

- Touch screen options

- RS-232 extension cable

- OSD extension wire cable

- Wall-mount bracket

- Replacement rubber gasket

Safety Precautions

1. Prior to installing, moving, and modifying the LCD panel, be sure that the unit's power is turned off and the power cord is disconnected.
2. Do not apply voltage levels that exceed the specified voltage range.   Doing so will cause fire or an electrical shock.
3. Electric shock can occur if the panel is opened.   Do not drop or insert any objects into the ventilation openings of the LCD.
4. Only qualified engineers from certified system integrators or VARs are allowed to make necessary functional modifications to the LCD, e.g., adding a touch screen.   IEI offer the customization service on a pre-order basis.
5. For installations related to human safety, connect a separately installed mechanical switch instead of the LCD's power switch.
6. Designs with stand-alone and fault-tolerant hardware considerations should be implemented using the series models as a critical alarm or production line control.
7. If considerable amount of dust, water, or fluids entered the LCD, turn off the power supply immediately, unplug the power cord, and contact your vendor.
8. Explosions may occur with installations in environments where flammable gases are present.

9. Special applications such as aviation/aerospace control, critical

10. Fault-tolerant and failsafe designs should be implemented with the use of the series models on transportation vehicles, ships, safety/security devices, or medical devices not related to life-support functionalities.   Users/integrators should take the responsibility for implementations with adequate levels of reliability and safety.

11. Preventive designs should be implemented so as to avoid the communications faults between the LCD and the PC/workstation/terminals that controls it.

Precautions about Damages to the LCD

1. Do not drop the LCD against a hard surface.   Doing so will damage the display.

2. Do not strike or exert excessive force onto the touch panel.

3. Touching the touch panel using a sharp object will damage the LCD panel.

4. Avoid environments exposed to direct sunlight, dust, or chemical vapors.

5. The LCD is passively cooled. In no circumstances should the LCD operate with the openings obstructed by foreign objects.   The ambient temperature of the installation site should be observed and controlled to avoid overheating the LCD.

6. Condensation might form inside the LCD chassis if exposed to sudden changes in temperature.

7. Carefully route the power cord so that people cannot step on it. Do not place anything over the power cord.

8. If the equipment should be left unused for an extended period of time, disconnect it from the power source to avoid damage by transient over-voltage.

9. If any of the following situations arises, get the equipment checked by service personnel:

The power cord or plug is damaged.

■   Liquid has penetrated into the equipment.

■   The equipment has been exposed to moisture.

■   The equipment does not work properly, or you cannot get it to work according to the user manual.

■   The equipment has been dropped and damaged.

■   The equipment shows obvious signs of breakage.

 WARNING!

Any changes or modifications made to the equipment that are not expressly approved by the relevant standards authority could void your authority to operate the equipment.

Additional Information and Assistance

Maintain and Cleaning

You need to note the following precautions before you begin to clean the LCD.
When you clean any single part or component of the computer, please read and understand the details below fully.

1. Never spray or squirt liquids directly onto any computer component. If you need to clean the device, please rub it with a piece of dry and soft cloth or a slightly moistened cloth with the exterior casing.

2. The interior of the LCD does not require cleaning.　Keep fluids away from the LCD and the interior of it.

3. Be cautious of the tiny removable components when you use a vacuum cleaner to absorb the dirt on the floor.

4. Turn the system off before you start to clean up the LCD.

5. Never drop any tiny objects through the openings of the LCD or get circuit board damp or wet.

6. Be cautious of all kinds of cleaning solvents or chemicals when you use it for the sake of cleaning. Some individuals may be allergic to the ingredients.

7. Avoid any food, drink or cigarette around the LCD.

Cleaning Tools

Although many companies have created products to help improve the process of cleaning your computer and peripherals, users can also use household items to clean their computers and peripherals. Below is a list of items you may need or want to use while cleaning your computer or computer peripherals.

Please keep in mind that some components in your computer may only be cleaned using a product designed for cleaning that component, if this is the case it will be mentioned in the cleaning tips.

Cloth - A piece of cloth is the best tool to use when rubbing up a component. Although paper towels or tissues can be used on most hardware as well, we still recommend you to rub it with a piece of cloth.

Water or rubbing alcohol – You may moisten a piece of cloth a bit with some water or rubbing alcohol and rub it on the computer.
Unknown solvents may be harmful to the plastics parts.

Vacuum cleaner - Absorb the dust, dirt, hair, cigarette particles, and other particles out of a computer can be one of the best methods of cleaning a computer. Over time these items can restrict the airflow in a computer and cause circuitry to corrode.

Cotton swabs - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas in your keyboard, mouse, and other locations.

Foam swabs - Whenever possible it is better to use lint free swabs such as foam swabs.

ESD Precautions

Observe all conventional anti-ESD methods while handling the components contained within the LCD should the need arises for adding a functionality.   The use of a grounded wrist strap and an anti-static work pad is recommended.   Avoid dust and debris or other static-accumulating materials in your work area.

Conventions Used in This Manual

Naming

From this point on and throughout the rest of this manual, the DM-170G series is referred to as simply the "LCD."

WARNING!

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously. Warnings are easy to recognize. The word "warning" is written as "**WARNING**," both capitalized and bold and is followed by text in italics. The italicized text is the warning message.

CAUTION!

Cautionary messages should also be heeded to help you reduce the chance of losing data or damaging the system. Cautions are easy to recognize. The word "caution" is written as "**CAUTION**," both capitalized and bold and is followed by text in italics. The italicized text is the cautionary message.

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 you avoid making mistakes. Notes are easy to recognize. The word "note" is written as "**NOTE**," both capitalized and bold and is followed by text in italics. The italicized text is the cautionary message.

Lists

Bulleted Lists: Bulleted lists are statements of non-sequential facts that can be read in any order. Each statement is preceded by a round black dot "•" or bullets in other shapes.

Numbered Lists: Numbered lists describe sequential steps you should follow in order.

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Contact Information

IEI TECHNOLOGY CORP.	
6F, No.29, Chung-hsing Rd., Sijhih City, Taipei Hsien 221, Taiwan	
Tel: +886-2-8691-6798	Fax: +886-2-6616-0030
E-mail: sales@iei.com.tw	

Chapter

1

General Information

1.1 Introduction

The DM-170G series is the latest member of IEI's line of sophisticated LCD designs, and it has been improved to be RoHS compliant.

The DM-170G series is equipped with a 12.1/15/17 inch TFT type color LCD.   With exceptional brightness and wide-view-angles, and fast response performance, the series is ideal for a wide range of applications.

The DM-170G supports resolutions up to 1280(H) X 1024(V) pixels with 260,000 colors. For resolutions of other models, please refer to the following discussions.

The DM-170G series is designed to fit Industrial automation or any applications that require minimum installation space and flexible configuration.   The flat front panel provides IP 65 protection which effectively ward off dust and water.

Flexible analog or DVI-D interfaces are provided for ease of connection with a management computer.   Resistive or capacitive types of touch panels are provided as ordering options. If remote/non-attentive control is preferred, RS-232 or USB interfaces can be applied using customized adapter cables.

The DM-170G series does not restrict itself to the automation applications. Applicable solutions include the following:

- Digital Surveillance
    - Digital surveillance
    - X-ray imaging terminal
    - Bedside entertainment
    - Multimedia advertising platform
- General Computing
    - Computer-based testing center
    - General purpose information system
    - Mobile nursing station
    - Interactive education uses

- ● Automation & Control

  - Plant environment monitoring

  - Factory automation HMI terminal

  - Shop-floor/MES control

- ● Self-service Kiosk

  - Full-service receptionist kiosk

  - Hospital self-registrating terminal

  - Interactive photo kiosk

  - Video rental kiosk

  - Self-service POS terminal

DM-170G Series Comparison Chart

Model	DM-121G	DM-150G	DM-170G
LCD Size	12.1"	15"	17"
Input Interface	VGA + DVI-D	VGA + DVI-D	VGA + DVI-D
Max. Resolution	800X600	1024X768	1280X1024
Brightness (cd/M^2)	400	350	300
Contrast	500:1	400:1	500:1
Color	262K	262K	16.2M
Pixel Pitch (mm)	0.3075	0.297	0.264
Front Frame	Aluminum	Aluminum	Aluminum
Chassis	Heavy-duty steel	Heavy-duty steel	Heavy-duty steel
View Angle (H/V)	140/110	120/100	140/130
Power Adapter	45W	45W	45W
OSD Functions	Yes	Yes	Yes
Mounting Methods	Wall/Panel/Rack/Arm	Wall/Panel/Rack/Arm	Wall/Panel/Rack/Arm
Color of Standard Models	Silver	Silver	Silver
Dimensions	340 x 260 x 58	410 x 309 x65.1	452 x 356 x 65.2

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(WxHxD) mm			
Operating Temperature (°C)	0 to 50	0 to 50	0 to 50
IP Level	IP 65	IP 65	IP 65

Table 1-1:   Series Models Comparison Chart

1.2   Series Model Variations

12.1" LCD	
DM-121GS: 12.1" LCD Monitor, Aluminum Front, Silver Color	**DM-121GMS:** 12.1" LCD Monitor, Aluminum Front, Silver Color, 9~36V DC input
DM-121GS/T-R: 12.1" LCD Monitor, Aluminum Front, Silver Color, w/ 12.1" Touch Screen	**DM-121GMS/T-R:** 12.1" LCD Monitor, Aluminum Front, Silver Color, w/ 12.1" Touch Screen, 9~36V DC input
15" LCD	
DM-150GS: 15" LCD Monitor, Aluminum Front, Silver Color	**DM-150GMS:** 15" LCD Monitor, Aluminum Front, Silver Color, 9~36V DC input
DM-150GS/T-R: 15" LCD Monitor, Aluminum Front, Silver Color, w/ 15" Touch Screen	**DM-150GMS/T-R:** 15" LCD Monitor, Aluminum Front, Silver Color, w/ 15" Touch Screen, 9~36V DC input
17" LCD	
DM-170GS: 17" LCD Monitor, Aluminum Front, Silver Color	**DM-170GMS:** 17" LCD Monitor, Aluminum Front, Silver Color, 9~36V DC input
DM-170GS/T-R: 17" LCD Monitor, Aluminum Front, Silver Color, w/ 17" Touch Screen	**DM-170GMS/T-R:** 17" LCD Monitor, Aluminum Front, Silver Color, w/ 17" Touch Screen, 9~36V DC input

1.3   Specifications

1.3.1   Hardware Specifications

In order to properly setup an LCD, it is recommended that you take a glimpse of the product specifications below before you proceed with installation.

Front Panel Build Material	Aluminum with Chromate conversion coating or painted/coated per customer's request
Construction Chassis	Robust steel SECC t=1.2mm for demanding shock and vibration requirements

LCD Display Type	17", 15", or 12.1" high brightness TFT LCD
	
	    12.1": Toshiba LTD 12C30S/AUOG121SN01
	
	    15": AUO G150XG01
	
	    17": AUO M170EG01 V8

Display Resolution	17" LCD: 1280X1024 15" LCD: 1024X768 12.1" LCD: 800X600
Display Interface	Analog VGA or DVI-D
Brightness	300 cd/m^2 high brightness for industrial or out-door applications
Front Control	OSD function keys
AD Board	17" and 15": AV-5200/5300; 12.1": AV-9261/AV5300
Power Supply	45W adapter for 90-264 VAC power input; DC 9-36V input is supported via terminal block options (GMS models)
Mounting Options	Wall, panel, swing arm, rack, or desktop-stand options with specific accessories; Pre-drilled panel-mounting holes and 75/100mm interface pads for swing-arm mounting (VESA standard)
Touch Screen Options	3M or PanJit 5-wire or 8-wire options
Operating Temperature	0 to 50°C
Related Humidity	5 to 85%
Vibration	5-17Hz, 0.1" double amplitude displacement. 17-640Hz, 1.5G acceleration peak to peak.

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Shock	10G (1/2 sine, 11msec)
Color	Beige (Pantone 413C or any specified paint color)
Dimensions	17" LCD: 452(W) x 356(H) x 65 (D) mm; see the dimensions in the following discussion
Protection	IP-65
Environmental Friendliness	RoHS compliant
Ventilation	Natural cooling air circulation

Table 1-2: General Hardware Specifications

1.3.2 LCD Display Specifications

12.1" LCD (AUO):

Size	12.1"
Model	G121SN01
Resolution (pixel)	SVGA (800 x 600)
Active Area (mm)	246.0 x 184.5
Pixel Pitch (mm)	0.307
Mode	TN
Number of Colors	262K
Color Saturation (NTSC%)	55
View Angle (H/V)	150/110
Brightness (cd/m^2)	400
Contrast Ratio	500:1
Response Time (ms at 25°C)	35
Power Consumption (W)	7.3
Interface	1ch LVDS
Supply Voltage (V)	3.3
Backlight	2 CCFL
Lamp Life (hrs)	50,000

Table 1-3: 12.1" Display Specifications

12.1" LCD (Toshiba):

Size	12.1"
Model	LTD121C30S
Resolution (pixel)	SVGA (800 x 600)
Pixel Pitch (mm)	0.297
Number of Colors	262K (18 bits)
View Angle (H/V)	R/L: 70/70; U/D: 55/70
Brightness (cd/m^2)	350
Storage Temperature	-20 to 80°C
Lamp Life (hrs)	50,000

Table 1-4: 15" Display Specifications

15" LCD (AUO):

Size	15"
Model	G150XG01
Resolution (pixel)	XGA (1024 x 768)
Active Area (mm)	304.1 x 228.1
Pixel Pitch (mm)	0.297
Mode	TN
Number of Colors	262K
Color Saturation (NTSC%)	60
View Angle (H/V)	130/120
Brightness (cd/m^2)	350
Contrast Ratio	500:1
Response Time (ms at 25°C)	12
Power Consumption (W)	11.5
Interface	1ch LVDS
Supply Voltage (V)	3.3
Backlight	2 CCFL
Lamp Life (hrs)	50,000

Table 1-5: 15" Display Specifications

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17" LCD (AUO):

Size	17"
Model	M170EG01 V8
Resolution (pixel)	SXGA (1280 x 1024)
Aspect Ratio	5:4
Active Area (mm)	337.9 x 270.3
Pixel Pitch (mm)	0.264
Mode	TN
Number of Colors	16.2M
Color Saturation (NTSC%)	72
View Angle (H/V)	140/130
Brightness (cd/m^2)	300
Contrast Ratio	500:1
Response Time (ms at 25°C)	8
Power Consumption (W)	25.8
Interface	2ch LVDS
Supply Voltage (V)	5
Backlight	4 CCFL

Table 1-6: 17" Display Specifications

1.3.3   Optional Touch Screen Specifications

Model	PanJit S121F2/S150F5/S171E1 series
Type	Analog resistive 5-wire or 8-wire
Resolution	4096 x 4096 dpi based on controller resolution
Position Accuracy	Less than 1.5%
Light Transmission	Anti-glare type: 78% to 90%
Input Method	Finger, Stylus, or gloved hand
Temperature (typical)	Operating: -10 to 60°C (8-wire: -40 to 85°C) Storage: -20 to 70°C (8-wire: -40 to 85°C)
Surface Hardness	3H and above per JIS K5400
Electrostatic Protection	Touch panel: 30KV (Contact/Air) Controller: 20KV (Contact/Air)
Life	Hitting: more than 10 million hits for 5-wire models Drawing: more 300K alphabets for 5-wire models
Supported OSes	Windows XP/XP embedded, Windows 2000, Windows ME, Windows 98SE, Windows CE.Net 4.2 (x86 and ARM), WHQL certified, Linux Fedora Core I/II, Mandrake 10.0/10.1, RedHat 9.0

Table 1-7:   Optional Touch Screen Specifications

1.3.4   Optional Mounting Kits

Model	Description
PK-120M, PK-150M PK-170M	12", 15", 17" Monitor panel mounting kits
WK-120MS WK-150MS WK-170MS	12", 15", 17" Monitor wall mount kit, silver color
RK-121 RK-150 RK-170	12", 15", 17" Monitor rack mount kit
ARM-11 ARM-31	Monitor arm loading capacity up to 6kg / 14kg
STAND-100	Monitor stand up to 8kg

Table 1-8:   Optional Mounting Kits

1.3.5   Power Adapter

General Description:
■ 45 Watt AC/DC Adapter
■ Universal Input 90 to 264 VAC
■ EMI Meets FCC/CISPR 22 Class B
■ MTBF 165Khrs
■ Limited Power Source

Input Specifications:	
Input Voltage Range	90-264VAC
Input Frequency	47-63 Hz
Inrush Current	40A max. (Cold Start)

General Specifications:	
Hold-up Time	10mS typical
Leakage Current	0.5mA max.
Short Circuit Protection	Continuous
Over-voltage Protection	Yes

Continuous Output Power	45W max.
Hi-pot Isolation: Input / Output	4242VDC

Table 1-9:   Power Adapter Specifications

1.3   Product Dimensions

Series Dimensions:	
12.1" LCD	Cabinet: 310(W) x 230(H) x 50(D) mm Front panel: 340(W) x 260(H) x 8(D) mm
15" LCD	Cabinet: 383.6(W) x 282.6(H) x 55.10(D) (mm) Front panel: 410.0(W) x 309(H) x 9(D) (mm)
17" LCD	Cabinet: 422(W) x 328(H) x 55.2(D) mm Front panel: 452(W) x 356(H) x 9(D) mm

Table 1-10: Product Series Dimensions

12.1" LCD Dimension Drawing:
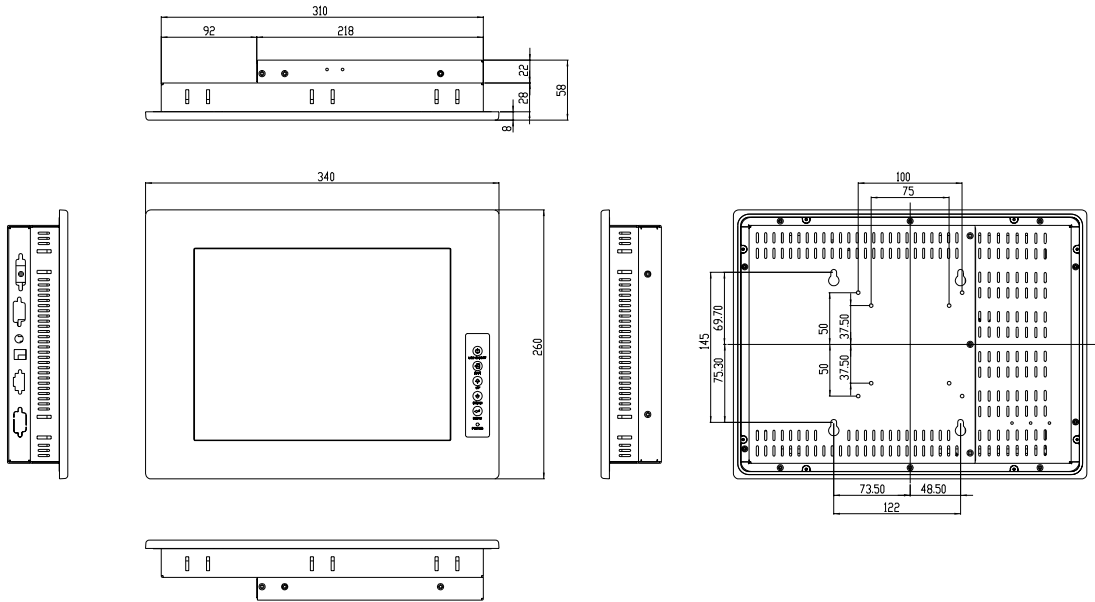
Figure 1-1:   DM-170G Series Front Panel 12.1" LCD Dimensions

15" LCD Dimension Drawing:
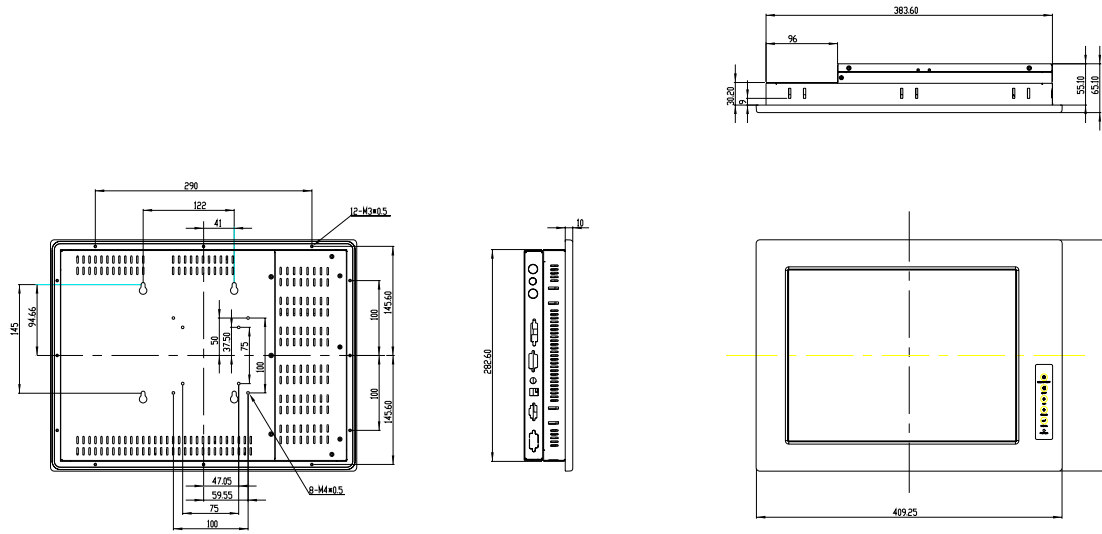
Figure 1-2: 15" LCD Dimensions

17" LCD Dimension Drawing:
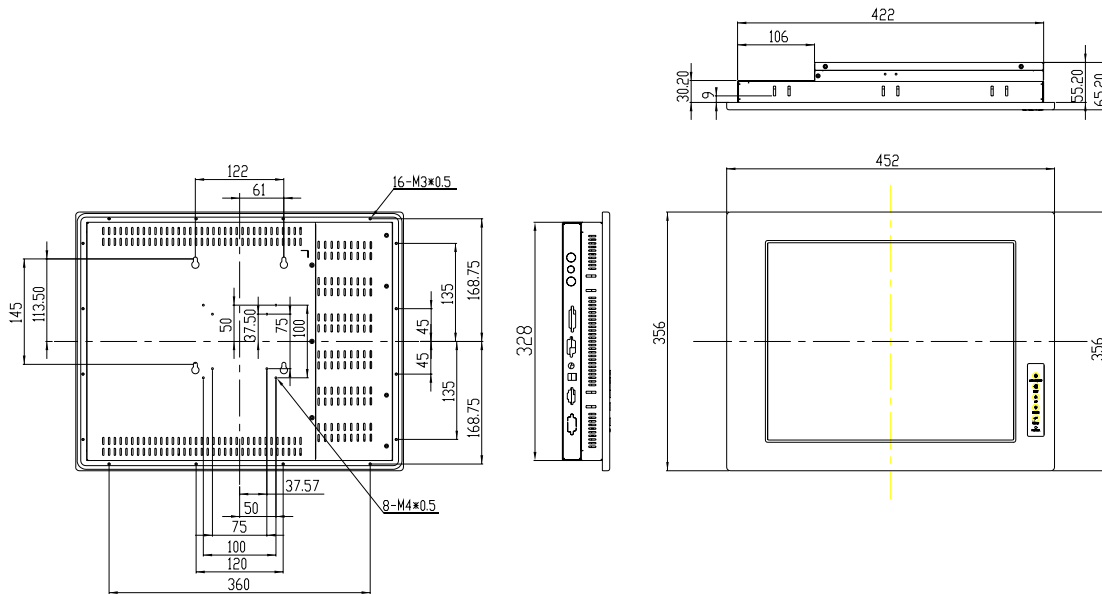
Figure 1-3: 17" LCD Dimensions

Chapter

2

Installation

WARNING!

■ The DM-170G series LCD must be installed and operated only by trained and qualified personal. Maintenance, upgrade, or repair on the open device may only be RMA'ed or carried out by qualified personnel who are familiar with the associated dangers.

■ Since the device may weigh up to 10 kg (not including a swing arm or accessories of the like), it is advisable to have another person assist in the installation.

■ Make sure there is sufficient air circulation around the device when installing the LCD.

■ The openings for cooling on the device (on upper and back-end side) must not be obstructed by objects or the like. If the ventilation holes are blocked, this can cause an overheating of the PC. At least 5 cm of space free around the unit should be available to prevent the device from possibly overheating!

■ The LCD should be properly grounded. The voltage feeds must not be overloaded. Adjust the cabling and provide external overcharge protection as noted by the electrical values indicated on the short description label attached to the back of the LCD.

■ Before the LCD is disassembled we strongly recommended that you should shut down the system and unplug the power cord. Electric shock and personal injury might occur if you access the main board inside the LCD while the power cord is still attached.

2.2   LCD Installation

The Touch Panel functionality comes as an optional implementation to the DM-170G LCD.   The LCD panel connects to the host system's VGA interface via the included VGA cable or a separately purchased DVI cable to a VTA card that features DVI connectivity.

2.2.1   LCD without a Touch Screen

Connection

Step 1.   Connect the graphics card to the VGA or DVI-D signal input port on the rear panel.

Step 2.   Connect the +12V DC jack or the DC power source to the terminal block.
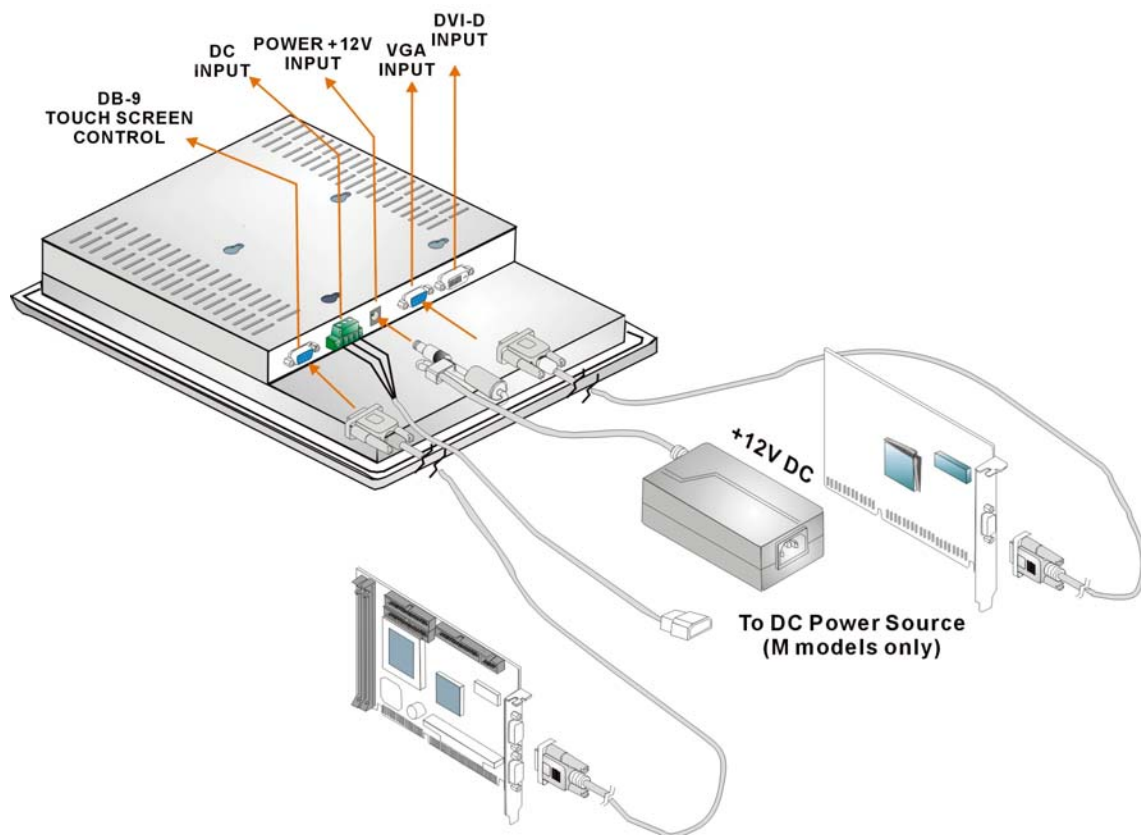
Figure 2-1:   Connection w/o Touch Screen
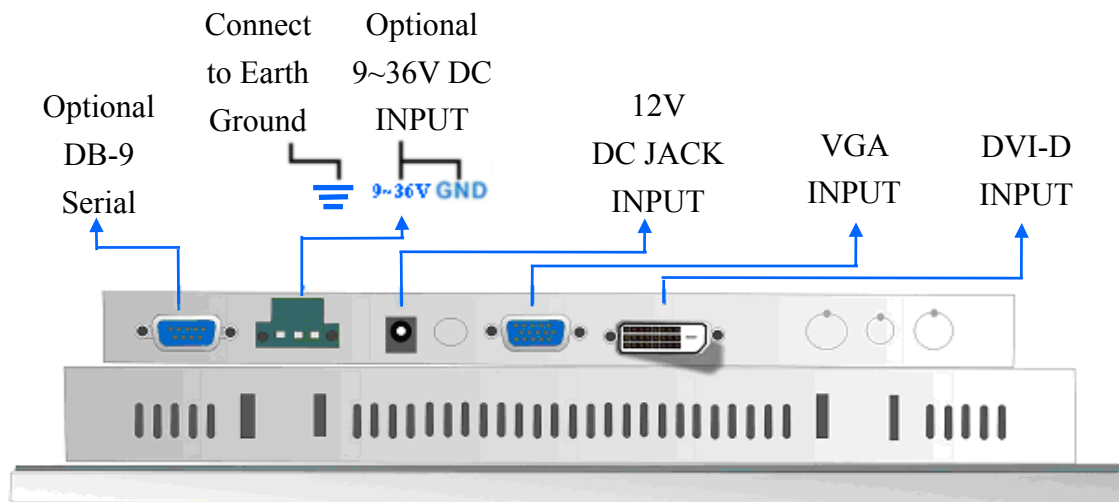
Figure 2-2:   Rear Panel Interfaces

2.2.2   LCD with a Touch Screen

Connection

Step 1.   Connect the CPU card to the RS-232 port on the rear panel (the "GMS" models).

Step 2.   Install the drivers for managing the touch screen from the utility CD shipped with the system.
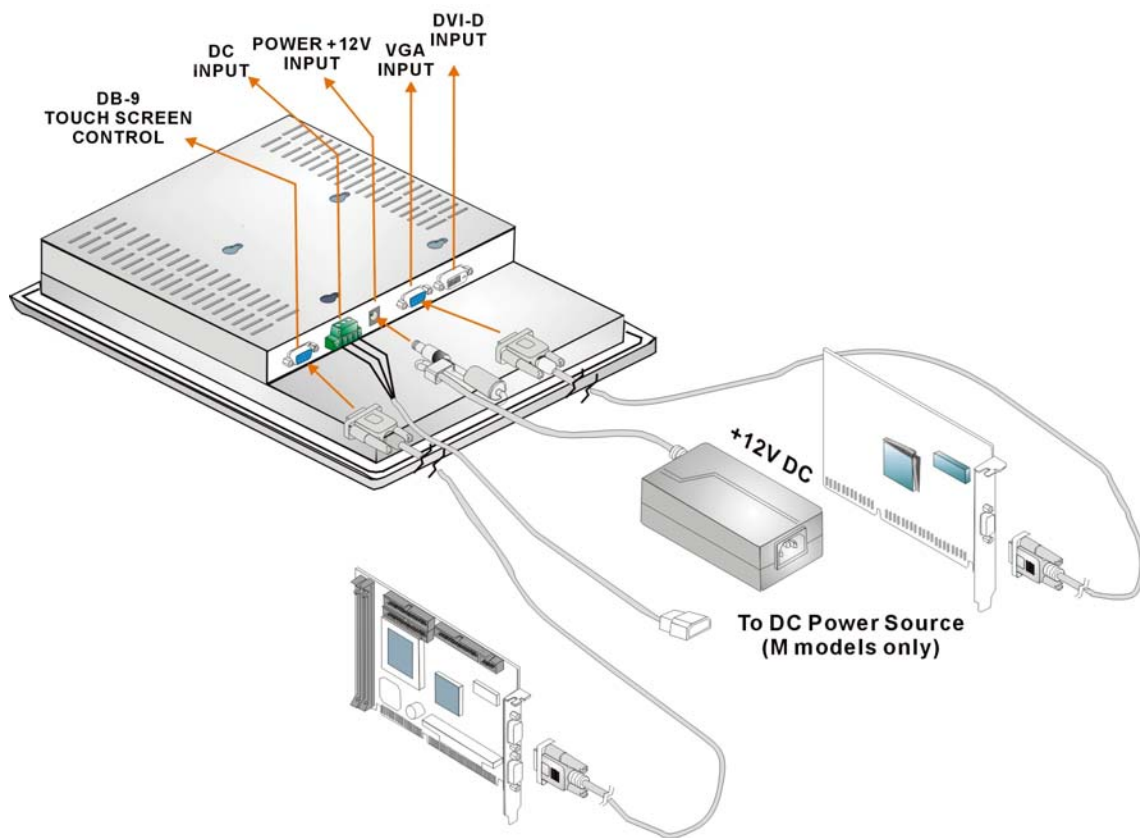
Figure 2-3:   Connection w/ Touch Screen

2.3   Panel Mounting

Before panel mounting the LCD, a hole must be cut in the panel. Care should be taken with the cut-out dimensions. Cut-out dimensions are shown in the table below and the cut-out panel is shown in the following diagram.

![NOTE icon] **NOTE:**

The thickness of the flat panel should not exceed 6mm
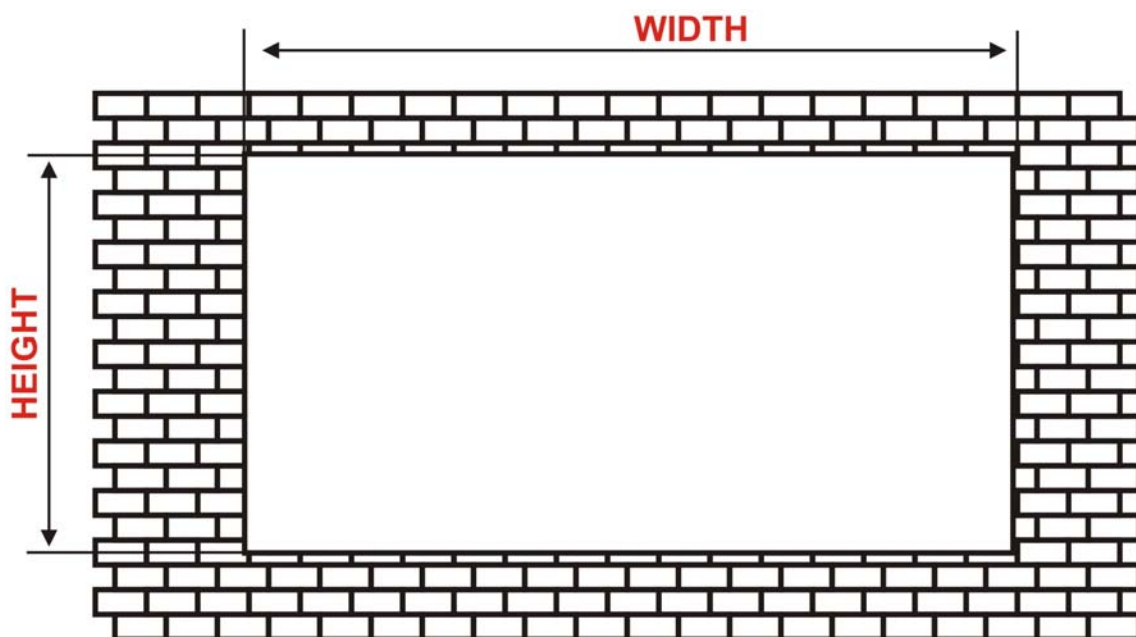
Figure 2-4:   Cut-out Panel

Model	Width	Height
DM-121G	310.0mm	230.0mm
DM-150G	421.5mm	328.0mm
DM-170G	383.6mm	280.4mm

Table 1-11:   Panel Cut-out Dimensions

To mount the LCD into a panel, please follow the steps below.

Step 1.   Place the LCD into the panel.

Step 2.   Fasten the LCD into the panel using four supporters as diagrammed below.
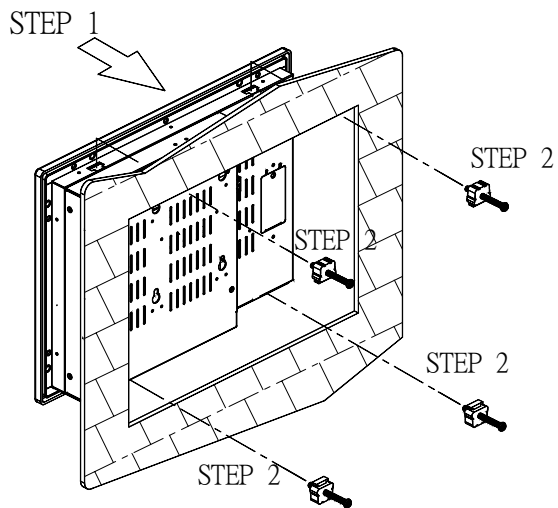
Figure 2-5:   Panel Mounting
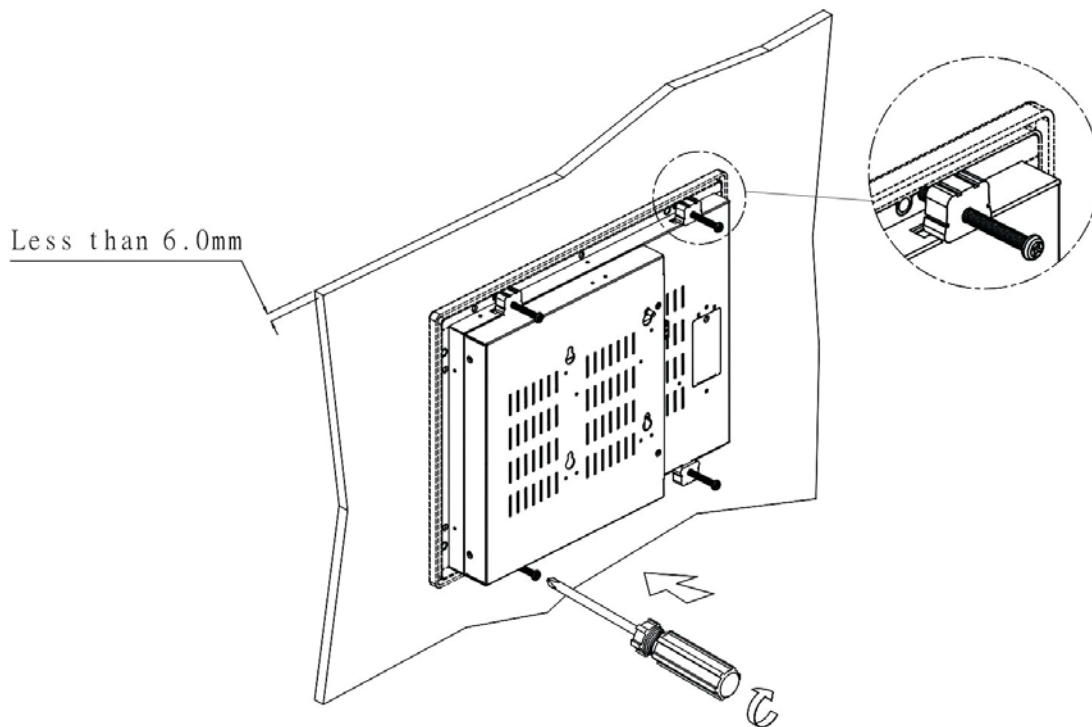
Figure 2-6:   Panel Mounting Details

2.4   Arm Mounting

The DM-170S series is not only suitable for panel and wall mounting but also ideal for arm mounting with a 75/100mm VESA standard mounting positions.
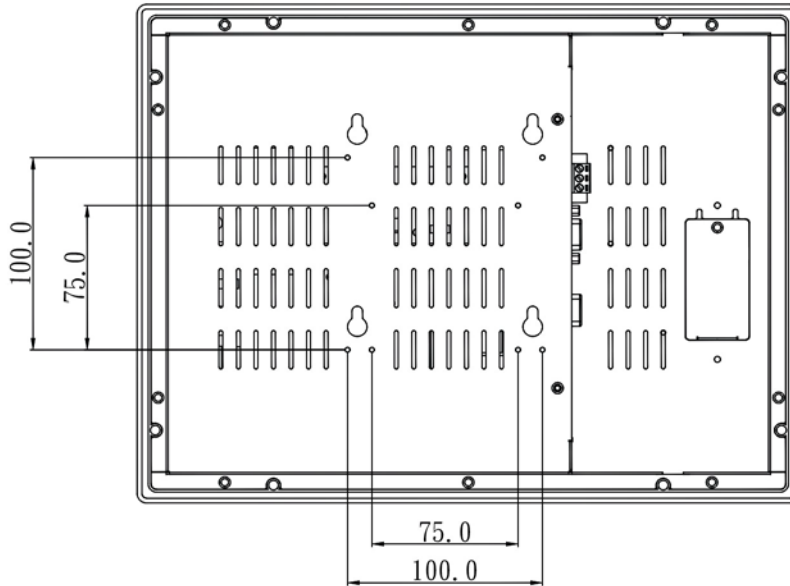
Figure 2-7:   VESA Standard Holes

Figure 2-8:   Exemplary Swing-arm Installation

2.5　　　Wall Mounting

The DM-170G series can be mounted on wall with the help of wall-mounting holders.　Holes should be drilled on the wall according to the diagrams below.
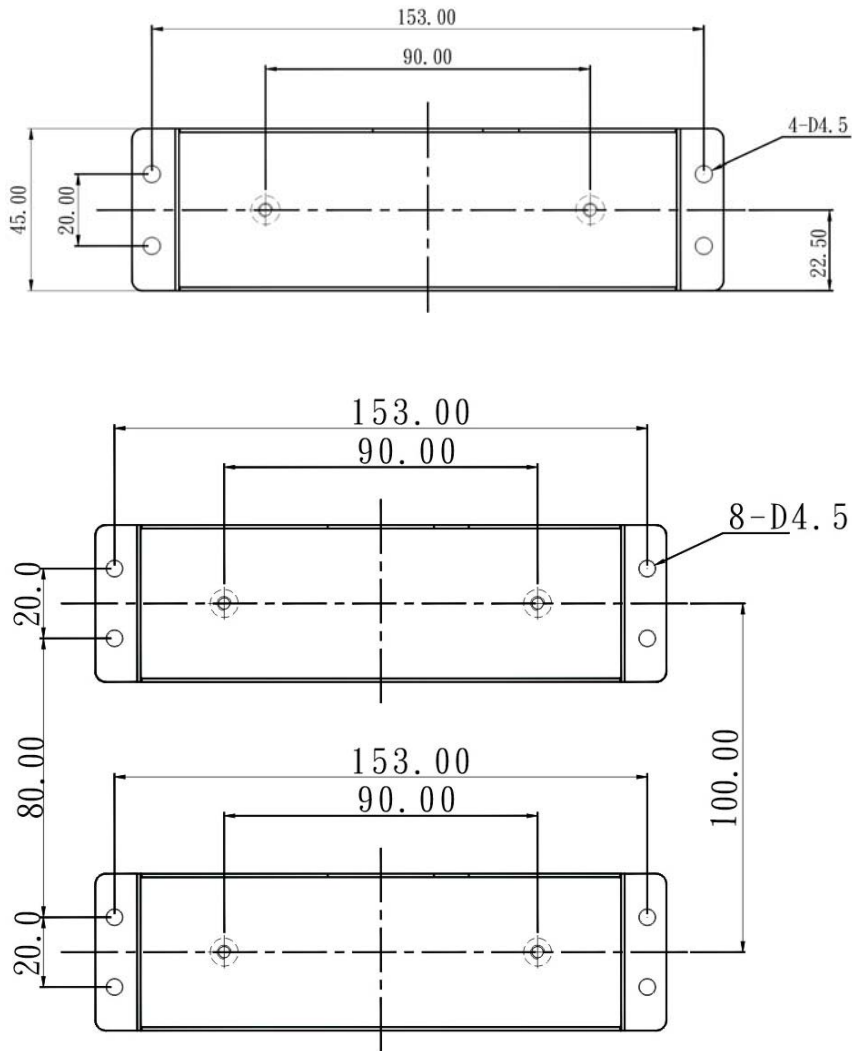
Figure 2-9:　　Wall-mounting Holder Dimensions and Hole Positions

Mounting Steps:

Step 1. Fasten the two wall-mount brackets to the wall each with four screws.

Step 2. Fasten the four screw bolts to the wall-mount brackets as shown below.
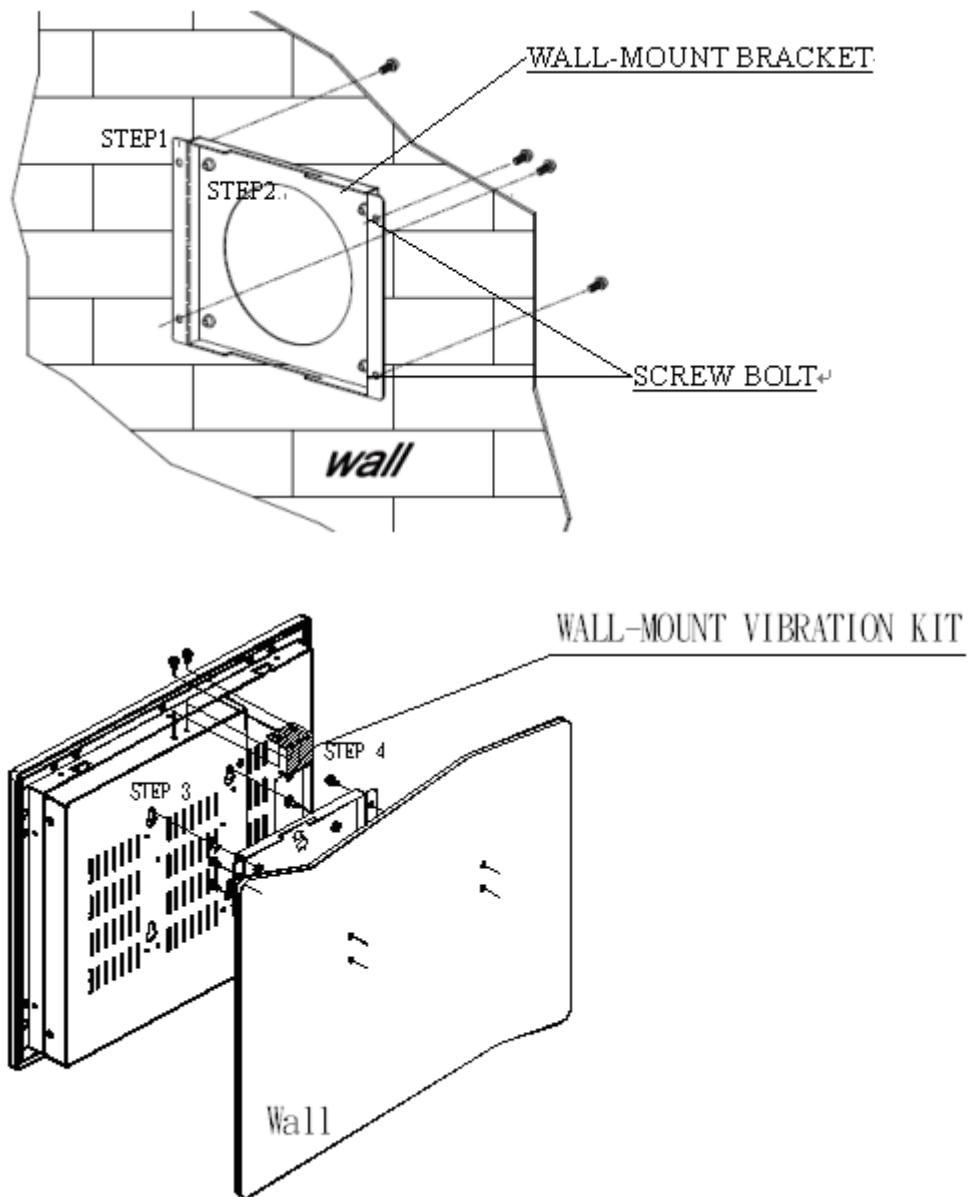
Figure 2-10: Attaching Wall-mount Brackets and the Vibration Kit

Step 3. Hang the LCD onto the wall.

Step 4. Fasten the wall-mount vibration stopper to the top.

2.6 Rack Mounting

The DM-170G series can be integrated into industry standard 19" rack cabinets using optional rack-mount kits.   The dimensions of the rack-mount kit for a 12.1" LCD is shown below.   All series models using each specific rack-mounting kit can fit into 19" rack cabinets.
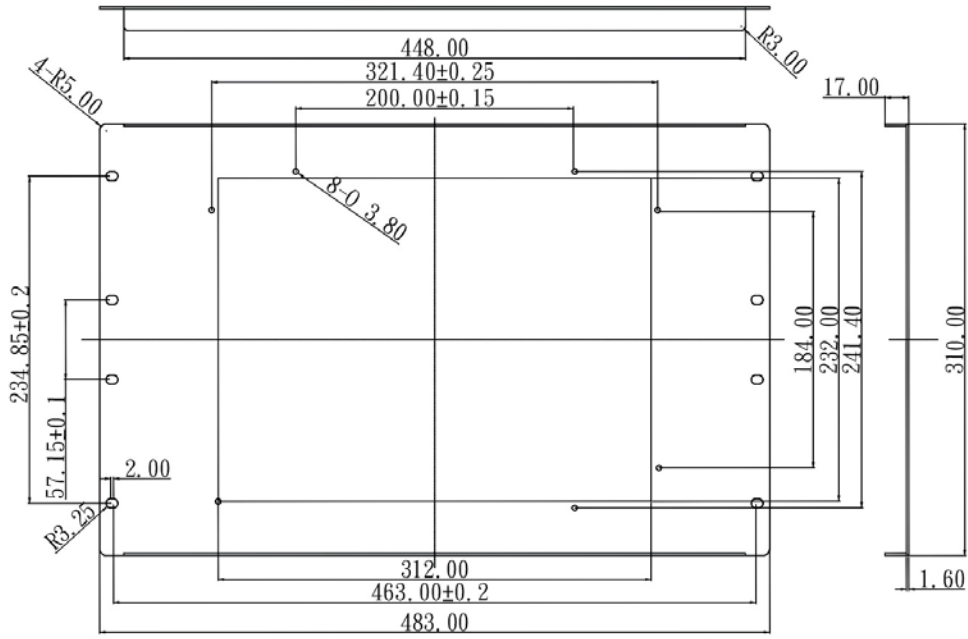
Rackmount Kit Dimension

Figure 2-11:   Rack-mounting Kit Dimensions

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Steps 1 & 2. Fasten the rack-mount kit to the back of the LCD.
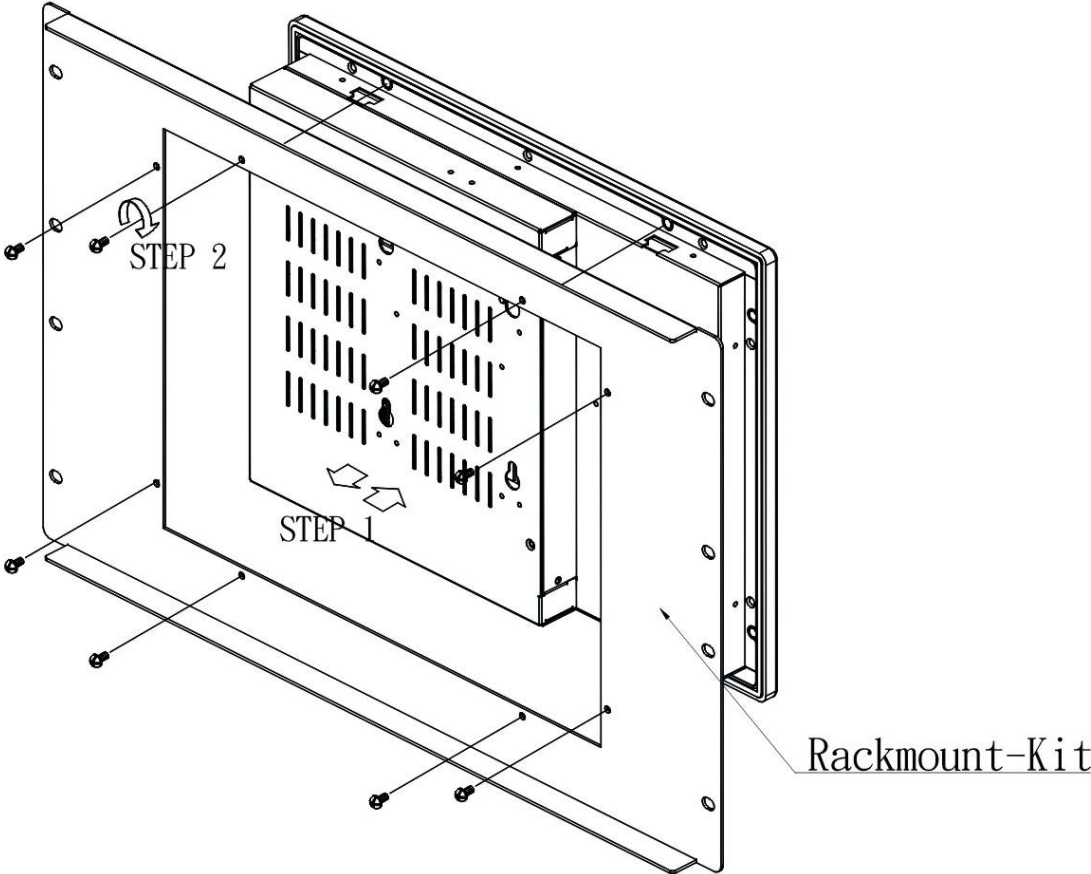
Figure 2-12: Rack-mounting Steps 1 and 2

Steps 3 & 4.   Fasten the LCD along with the rack-mount kit to the rack posts of a rack cabinet.
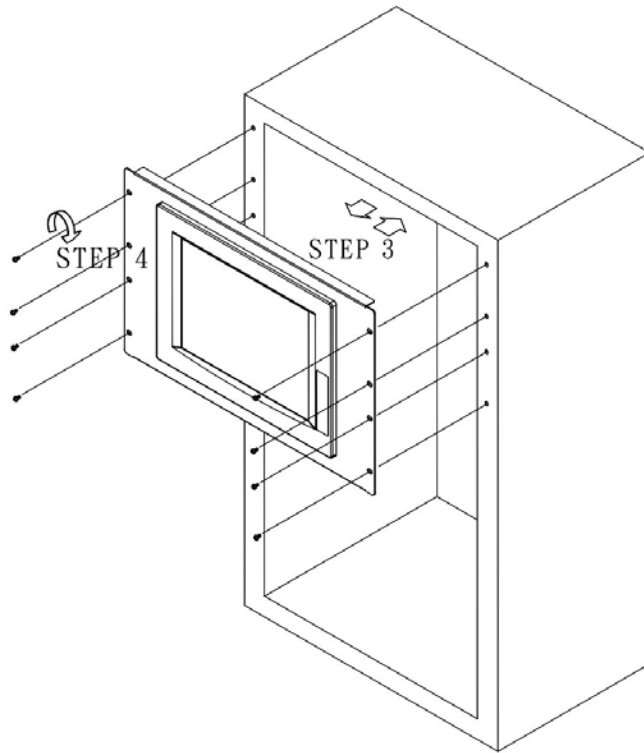

Figure 2-13:   Rack-mounting Steps 3 and 4

2.7   Cabling

Power Supply Terminals

Connect the power cable according to the following procedures.

Step 1.   Check if the power cord is disconnected from the wall plug.

Step 2.   Loosen screws from the terminal, align and insert the wire terminals form your power cord and tighten the screws.   Replace the terminal block's plastic cover (if applied).

Cable Tie Attachment

After all cables have been properly connected, you may use cable ties to secure these cables to the plastic cable tie holders on the rear panel.   Doing this helps prevent accidental disconnection which might lead to system down time.

 CAUTION!

Following are the responsibilities of system design and integrators:
1.   Separation of the input/output lines to increase noise resistance.
         Methods like twisting the power wires attached to the terminal should

       be applied.
2.   Power cord should not be bundled with main circuit lines or the input/output signal lines.
3.   Surge protection and proper grounding.

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Chapter

3

OSD Controls

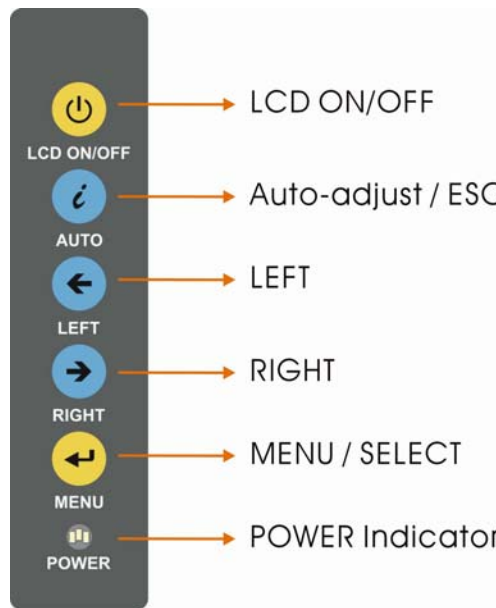## 3.1   User Mode OSD Structure

Figure 3-1:   OSD Buttons

![NOTE icon] **NOTE:**

Pressing the direction keys (LEFT or RIGHT) brings out a simple menu which adjusts the LCD screen brightness and contrast values.

Level 0	Level 1	Value
Main Display Features Menu	Brightness	0 to 100
	Contrast	0 to 100
	Horizontal Size	0 to 100
	Phase	0 to 100
	H. Position	0 to 100
	V. Position	0 to 100
	Sharpness	1 to 5
Speaker	Volume	This menu is currently disabled, and will be implemented with models equipped with speakers.
	Mute	
Color Menu	9300	- preset NTSC value
	7500	- preset NTSC value
	User	RGB values from 0 to 100

Language Menu	English	Select
	French	
	German	
	Spanish	
	Italian	
	Japanese	
	Russian	
	Traditional Chinese	
	Simplified Chinese	
OSD Menu	OSD Time Out	0 to 60 sec
	OSD Position	1 to 5
	OSD Transparency	0 to 100
	Auto Setting	On or Off
	Recall	No or Yes
	Aspect Ratio	4:3 or 5:4
Signal Menu	Digital	Select
	Analog	
Backlight Menu	Light Enable	On or Off
	Light Contrast	0 to 100
	Light Brightness	0 to 100
	Light H Start	0 to 100
	Light H Width	0 to 100
	Light V Start	0 to 100
	Light V Height	0 to 100

Table 3-1:   OSD Menu Structure

Using the OSD

Main Display Features

■ **Brightness**

The brightness option adjusts the brightness of screen.   This function adjusts the offset value of ADC.   Please mind that setting this value too high or too low will affect the quality of image.

■ **Contrast**

This function adjusts the gain value of ADC.   Please mind that adjusting this value too high or too low will worsen the quality of image.

■ **Horizontal Size**

This item allows you to adjust the screen size in the Horizontal direction.

■ **Phase**

This option adjusts the input signal and dot clock position. (Analog only)

■ **H. Position**

Adjusts the horizontal position of the display screen

■ **V. Position**

Adjusts the vertical position of the display screen.

■ **Sharpness**

Adjusts the sharpness level to one of the 5 preset values.   This option may help reducing the softening edges around displayed objects.

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Color

45

This menu allows you to fine-tune the palette of color hues for your LCD.

■ **9300**

NTSC standard Kelvin

■ **7500**

NTSC standard Kelvin

■ **User**

This item allows you to fine-tune the balance among Red, Green, and Blue color hues if images look garish or unrealistic.

Language

This menu provides options for selecting ODS screen legends in a preferred language.

OSD Configuration

- ■ **OSD Time Out**

  Determines how many seconds the OSD screen stays on screen before it disappears
  when OSD is left unattended.

- ■ **OSD Position**

  Adjusts the OSD position on the screen.   The position 1 is on the upper left of the
  screen, position 2 on the upper right, position 3 the center, and vice versa.

- ■ **OSD Transparency**

  Determines the opaqueness of OSD background.

- ■ **Auto Setting**

  This function automatically adjusts the LCD screen position in situations such as
  connecting the LCD to a different host computer.

- ■ **Recall**

  Restores the default OSD settings. Note that this will restore all default display
  settings.

- ■ **Aspect Ratio**

  Adjusts the display ratio referring to the width of the screen and then to the height of
  the screen.

Signal

This menu allows you to manually select the type of graphic source input, i.e., analog (15-pin VGA) or digital (DVI-D).

Backlight

■ **Light Enabled**

Turns backlight on or off.

■ **Light Contrast**

Adjust the backlight contrast.

■ **Light Brightness**

Adjust the backlight brightness.

■ **Light H Start**

Adjusts the backlight projection area in the horizontal direction.

■ **Light H Width**

Adjusts the width of the backlight projection area.

- **Light V Start**

  Adjusts the backlight projection area in the vertical direction.

- **Light V Height**

  Adjusts the size of backlight projection area in the vertical direction.

Chapter

4

Software Drivers

Touch Panel Driver

This touch panel controller provides the optimistic performance of analog resistive touch panels for four-wire, five-wire & eight-wire models. It communicates with PC system directly through the COM4 serial port interface.　The design is superior in sensitivity, accuracy, and friendly operation. The touch panel driver emulates mouse left and right button function and supports operation systems including Microsoft Windows 95/98/ME/2000/NT/XP/XP Tablet PC Edition, Windows CE 2.12/3.0/. NET, Linux, iMac and DOS.

To install the driver, locate the Touchkit driver folder in the utility CD that came your LCD. Select and open your OS sub-folder and double-click the Setup icon to start the installation program.

The Touchkit welcome message should prompt. Click Next to continue.

　　　　　　　　　　　　　　　　　　　　　　　IEI® Technology Corp.
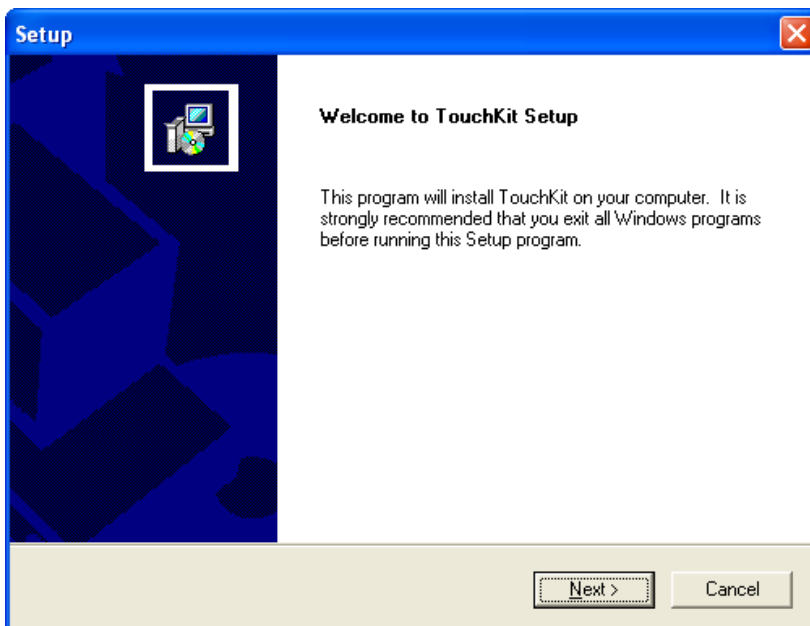
Your DM-170G series touch panel option is connected via serial port interface.   You do not have to select the PS/2 option here.   Click Next to continue.
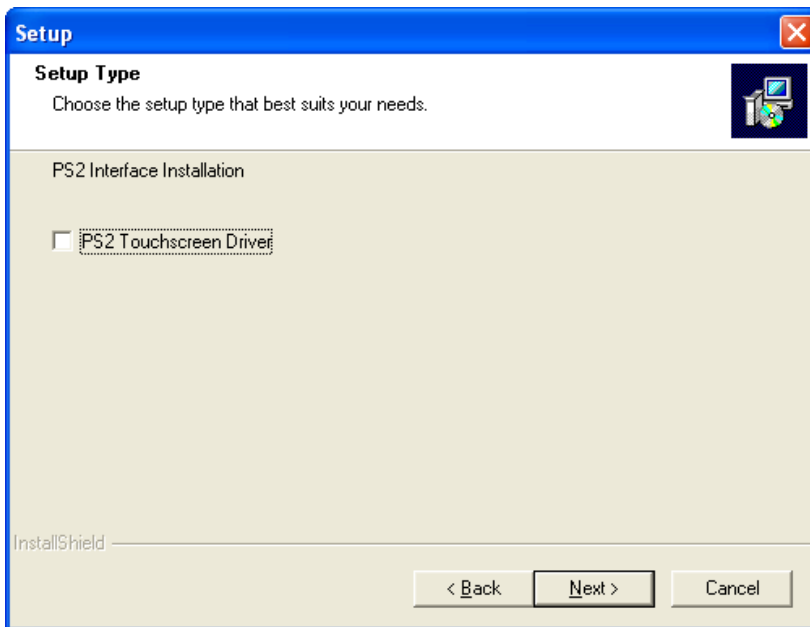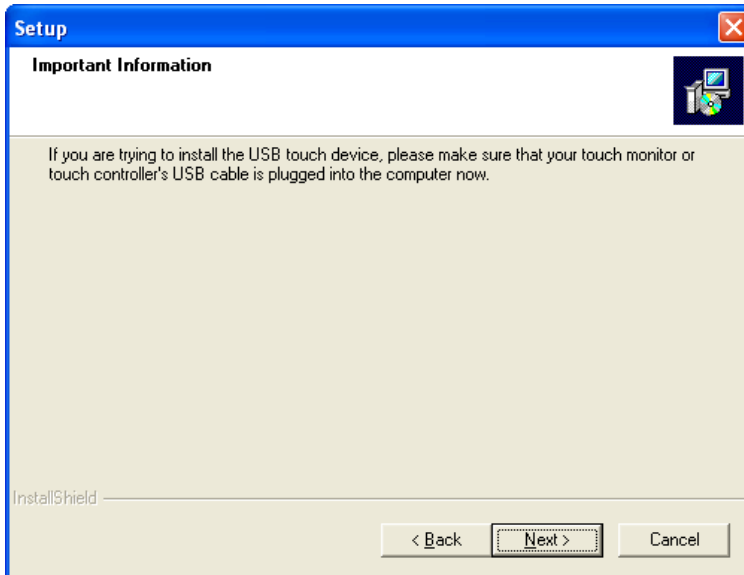
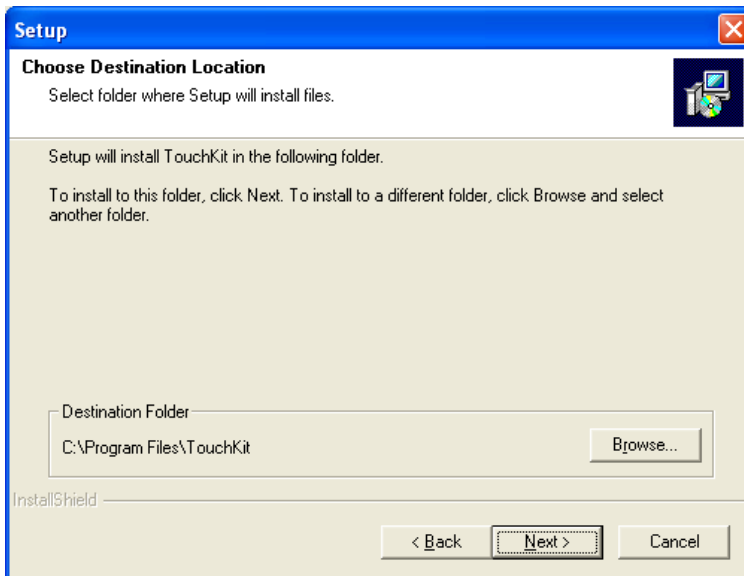Select the Auto 4Pts Calibration Utility check box and click Next to continue.
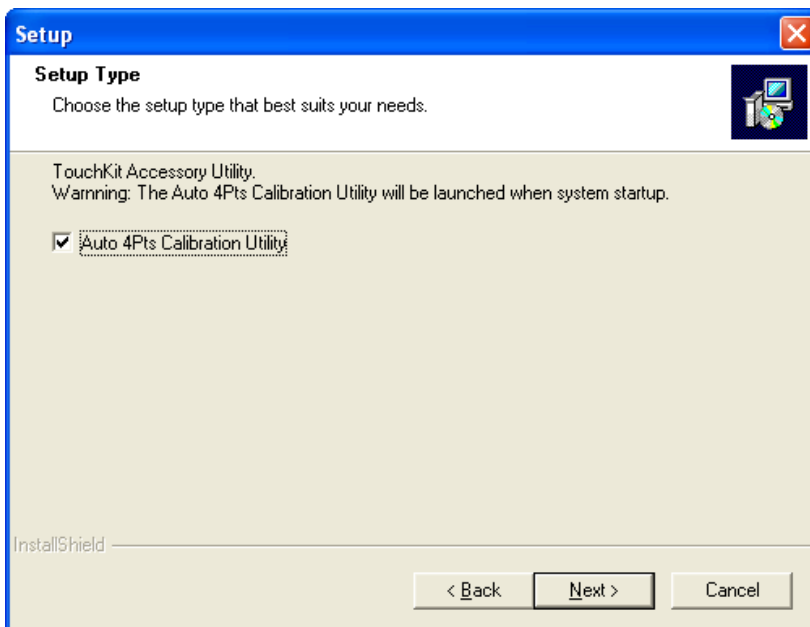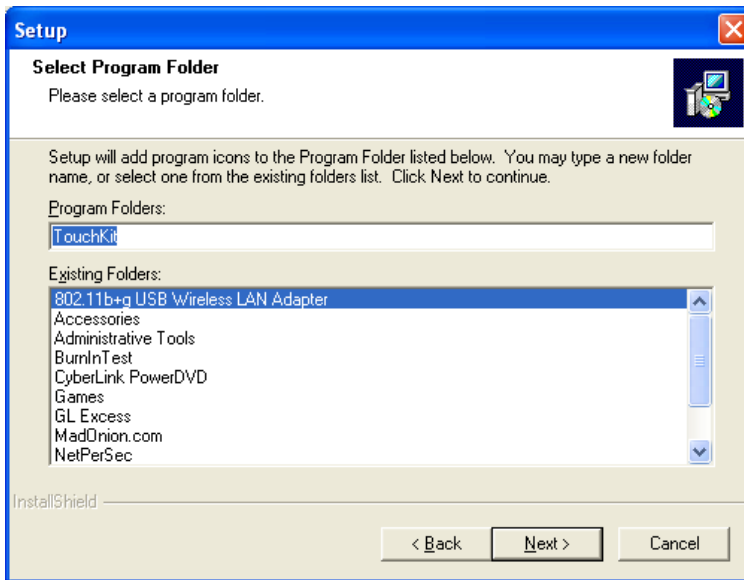
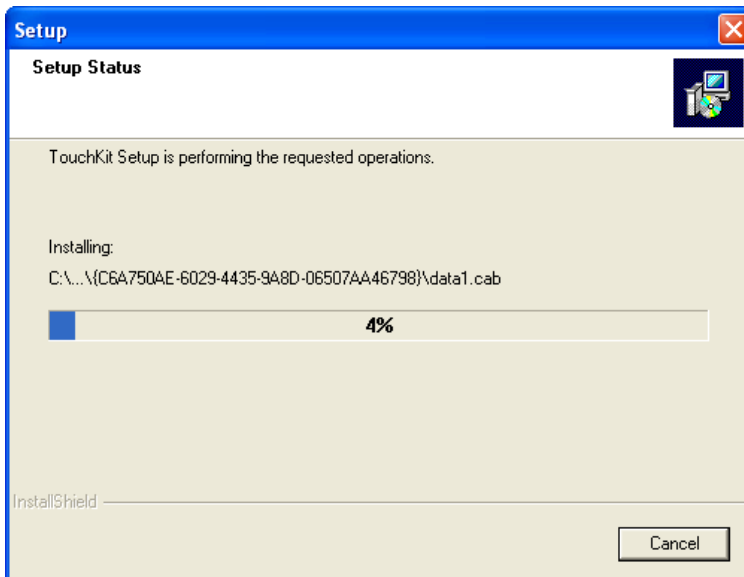Click OK to proceed.
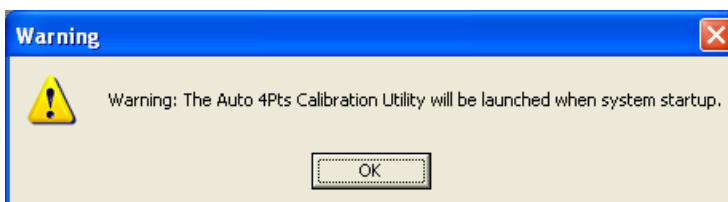
Click Next to skip this message.

Provide an alternate destination folder or click Next to accept the default location.
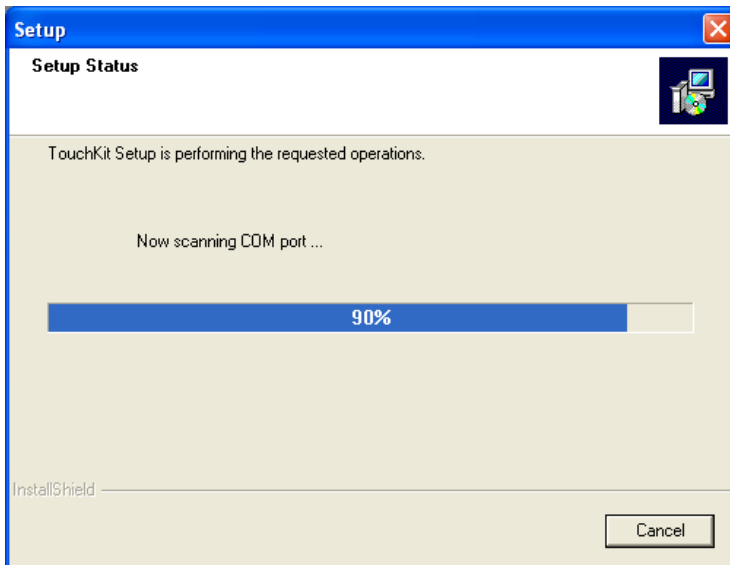
Provide a different name to be displayed in the program folder, or click Next to accept the
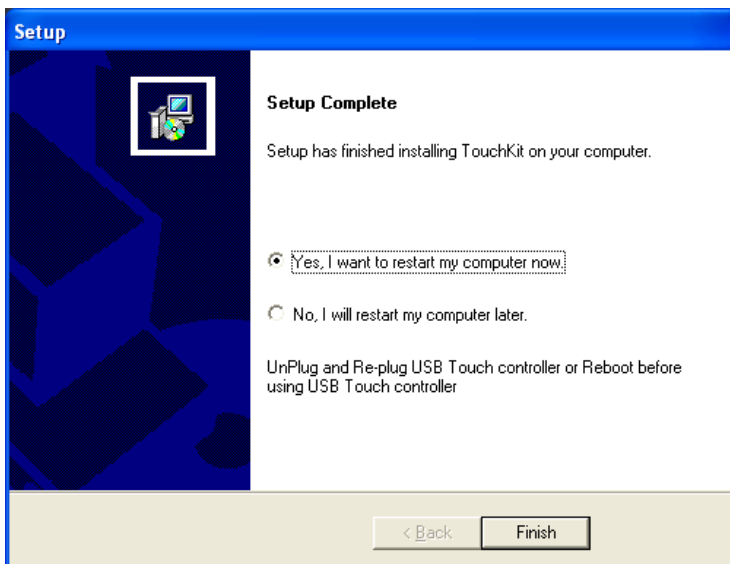
default.

The installation should now extract and copy files to the selected folder.

The installation program will then scan the available COM port connection.

You will then be prompted to restart your system.　You may choose to reboot later by selecting the No check box.　Click Finish to continue.

The Touchkit utility should start immediately allowing you to finish the initial setup.
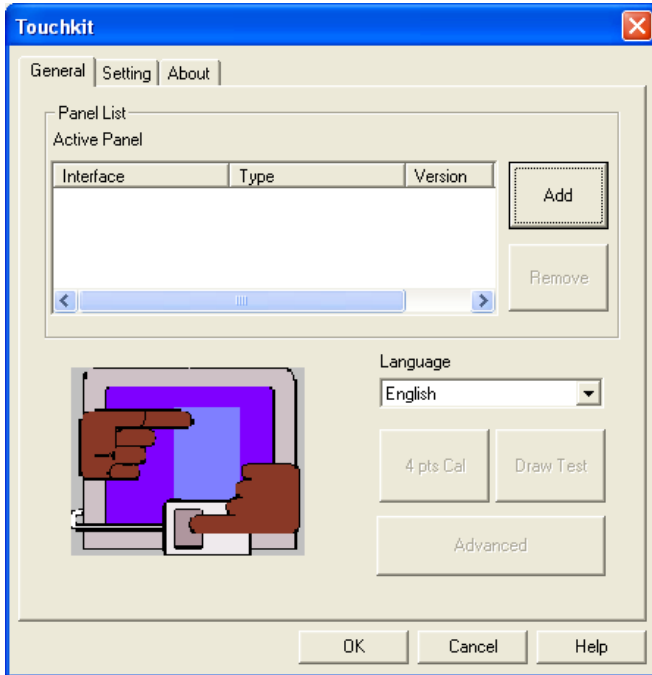
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Appendix

A

Accessories

6.1   Accessory List

Item	Part No.	Description	Qty.
1	63000-UP0451E12P71L 63SPU60105-002	POWER SUPPLY..POTRANS POWER POWER SUPPLY..POTRANS POWER	1
2	32000-000002	POWER CORD/175CM	1
3	32000-036200	VGA CABLE D-SUB 15P M TO M/180CM	1
4	32100-041000	WIRE CABLE/40CM	1
5	42011-000150	PANEL-MOUNT KIT	4(or 10)
6	41014-011602	WALL-MOUNT VIBRATION KIT	1
7	41020-002702	WALL-MOUNT BRACKET	2
8	42005-000603	SCREW BOLT	4
9	44003-050501	SCREW M5X50	4(or 10)
10	44033-030061	SCREW M3	10
11	44033-040062	SREW M4	8
12	32000-000098	ROUND CABLE D-SUB 9P /180CM, For: TOUCH SCREEN (OPTIONAL)	1

Table A-1 Accessory List

Listed above are the optional items and should be separately purchased.

Appendix

B

Maintenance

Gasket Replacement

A gasket used for a long time may gradually lose its ability to protect the LCD from fluids and vapors.   Scratches or dirt may accumulate and it is recommended to change the gasket at least once a year.

Replacement Procedure:

Step 1.   Place the LCD on a flat, level surface with the display screen facing downwards.   If the LCD is mounted on a vertical wall or panel, remove it from the installation site.

Step 2.   Remove the old gasket from the sides of the LCD.

Step 3.   Attach the new gasket to the LCD.   Make sure the gasket fits precisely into the groove along the rear-side edges of the LCD's front panel.
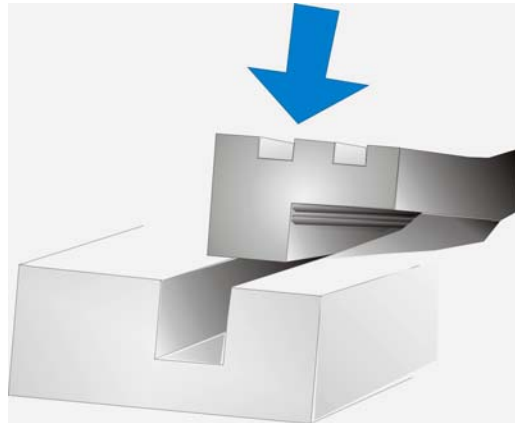
Step 4.   Check if the gasket is properly attached to the LCD.

NOTE:

The compliance to the IP 65 standard depends on correct installation of the gasket.   Be sure to check for proper installation of the gasket before installing it into previous position.