

GE
Intelligent Platforms



Hardware User Guide

DisplayPac-RPP

Preliminary

Part No: MAN000xx Rev. 1.1

**Computer
DYNAMICS**
A GE Intelligent Platforms Company

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FCC Statement

This device complies with part 15 FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- 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/her own expense.

Warnings, Cautions, and Notes as Used in this Publication



Warning notices are used in this publication to emphasize that hazardous voltages, currents, temperatures, or other conditions that could cause personal injury exist in this equipment or may be associated with its use.

In situations where inattention could cause either personal injury or damage to equipment, a Warning notice is used.



Caution notices are used where equipment might be damaged if care is not taken.



Notes merely call attention to information that is especially significant to understanding and operating the equipment.

Important Safety Precautions

Warning



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution



Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Safety and Warranty



- Please read these safety instructions carefully.
- Please keep this user's manual for later reference.
- Please disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning, use a damp cloth.
- For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
- Keep this equipment away from humidity.
- Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
- The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
- Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- All cautions and warnings on the equipment should be noted.
- If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
- Never pour any liquid into an opening. This could cause fire or electrical shock.
- Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.
- 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 well, or you cannot get it to work according to the user's manual.
 - The equipment has been dropped and damaged.
 - The equipment has obvious signs of breakage.
- Do not leave this equipment in an uncontrolled environment where the storage temperature is below -20° C (-4° F) or above 60° C (140° F), as this may damage the equipment.

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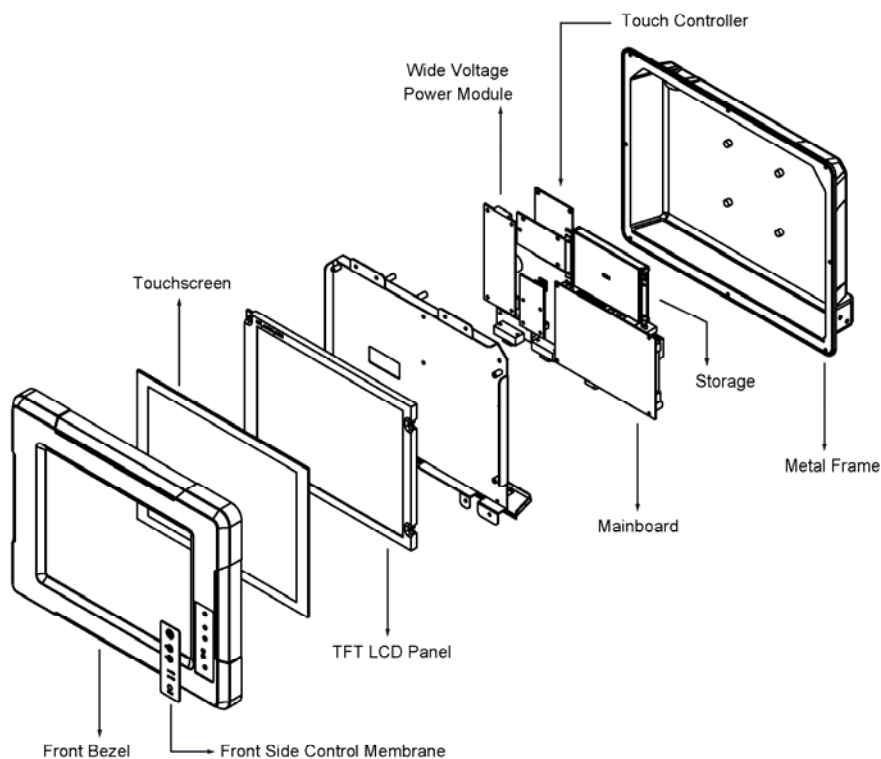
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1. Introduction

This chapter provides background information and detailed specification on the DisplayPac-RPP product.

1.1. General Information

The DisplayPac-RPP showcases high performance platform design offering fanless operation, low-power draw, sunlight readability, WLAN integration, anti-shock & vibration stability, IP65 protection and anti-corrosion coating within an aluminum, alloy housing. Robust, mobile design performs well in harsh environment applications such as logistics, transportation/ fleet management, heavy vehicles, utility and outdoors.



1.2. Specifications

| | |
|----------------|--|
| Form Factor | 3.5" |
| CPU | Intel® Celeron® M ULV 1.2/1.06 GHz processor |
| Chipset | Intel 945GME / ICH7M |
| Memory | 2x DDR2 DIMM socket, supports up to 2 GB DDR2 533/667 SDRAM (200 pins) |
| BIOS | Award 4 Mbit |
| VGA Controller | Intel GMA 950 Integrated Graphics Engine |
| VGA Memory | Up to 224 MB shared with system memory |
| LCD Support | Intel GMA 950 Integrated Graphics Engine built-in, single- or dual-channel panel support up to 1600x1200, 18 bit |
| Ethernet | 2x GigaLAN (Dual Realtek RTL8111B controller) |
| Audio | Realtek ALC655, 5.1 channel (Line-out, Line-in & MIC-in) |
| IDE | One channel supports Ultra DMA 33/66/100 |

| | |
|--------------------|--|
| Serial | 2x RS-232 (One 2*10 Pin-header) |
| USB | 4x USB 2.0 (2x rear I/O, 2x pin-header) |
| KB/mouse connector | Mini-DIN PS/2 interface |
| Expansion Slot | 1x Mini PCI (optional) |
| Power Adapter | DC IN 12V (default) or 8 to36V (optional) |
| Storage 8.4" | 4 GB CompactFlash card (default) Industrial Compact Flash Card (optional) |
| Storage 10.4" | 2.5" 40 GB HDD (default) 2.5" Flash Disk; SSD (optional) Compact Flash Card (optional) Industrial Compact Flash Card (optional) |
| OS Support | Windows® XP Embedded / Windows XP Professional Embedded / WinCE5.0 / Linux 2.6.11 |

1.2.1. DisplayPac-RPP Based on 855GME

| | |
|--------------------|--|
| Form Factor | 3.5" |
| CPU | Intel Celeron M 1.0 GHz |
| Chipset | Intel 855GME / ICH4 |
| Memory | 1x DDR SO-DIMM socket, supports up to 1 GB DDR 333 SDRAM |
| BIOS | Award 4 Mbit |
| VGA Controller | Intel Integrated Graphics Engine2 |
| VGA Memory | Shared system memory up to 64 MB |
| LCD Support | Intel Integrated Graphics Engine 2 built-in, single- or dual-channel panel support up to 1600x1200, 18 bit/24 bit |
| Ethernet | 2x GigaLAN (Dual Realtek RTL8110SCL controller) |
| Audio | Realtek ALC655, 5.1 channel (Line-out, Line-in & MIC-in) |
| IDE | One channel supports Ultra DMA 33/66/100 |
| Serial | 2x RS-232 (One 2*10 Pin-header) 1x RS-232/422/485 (optional) |
| USB | 4x USB (2x rear I/O, 2x pin-header) |
| KB/mouse connector | Mini-DIN PS/2 interface |
| Expansion Slot | 1x Mini PCI |
| Power Adapter | DC IN 12V (default) or 8 to36V (optional) |
| Storage 8.4" | 4 GB CompactFlash card (default) Industrial Compact Flash Card (optional) |
| Storage 10.4" | 2.5" 40 GB HDD (default) 2.5" Flash Disk; SSD (optional) Compact Flash Card (optional) Industrial Compact Flash Card (optional) |
| OS Support | Windows XP Embedded / Windows XP Professional Embedded / WinCE5.0 / Linux 2.6.11 |

1.2.2. DisplayPac-RPP Based on 945GSE

| | |
|----------------|--|
| Form Factor | 3.5" |
| CPU | Intel Atom N270 1.6 GHz |
| Chipset | Intel 945GSE / ICH7M |
| Memory | 1x SODIMM socket, supports up to 2 GB DDR2 400/533 |
| BIOS | Award 4 Mbit Flash |
| VGA Controller | Integrated Intel 945GSE, LVDS/CRT |
| VGA Memory | Shared memory up to 224 MB |
| LCD Support | Intel GMA950 graphics engine built-in, single- or dual-channel panel support up to 1600x1200, 18 bit |
| Ethernet | 2x GigaLAN (Dual Realtek RTL811B controller) |
| Audio | Realtek ALC655, 5.1 channel (Line-out, Line-in & MIC-in) |
| IDE | One channel supports Ultra DMA 33/66/100 |
| Serial | 1x RS-232, 1x RS-232/422/485 (optional) |
| USB | 4x USB (2x rear I/O, 2x pin-header) |

| | |
|--------------------|--|
| KB/mouse connector | Mini-DIN PS/2 interface |
| Expansion Slot | 1x Mini PCI |
| Power Adapter | DC IN 12V (default) or 8 to 36V (optional) |
| Storage 8.4" | 4 GB CompactFlash card (default) Industrial Compact Flash Card (optional) |
| Storage 10.4" | 2.5" 40 GB HDD (default) 2.5" Flash Disk; SSD (optional) Compact Flash Card (optional) Industrial Compact Flash Card (optional) |
| OS Support | Windows XP Embedded / Windows XP Professional Embedded / WinCE5.0 / Linux 2.6.11 |

1.3. LCD Selection Guide

The DisplayPac-RPP supports 8.4" to 10.4" TFT Panel. Please refer to the chart below:

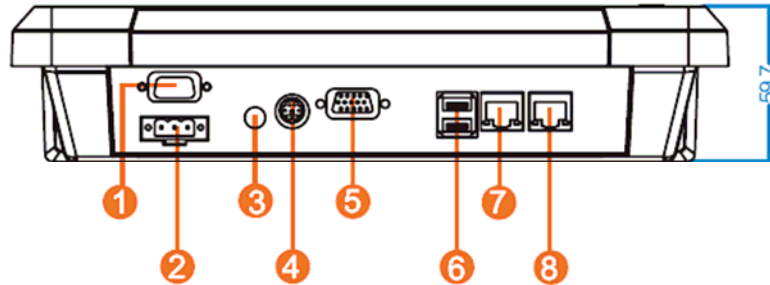
| Motherboard | LCD Size | Resolution (Recommended) | Display Color |
|--------------|----------|-----------------------------|------------------------|
| Intel 945GME | 8.4" | 800x600 | 262,144 (6 bit/colors) |
| | 8.4" | 640x480 | 262,144 (6 bit/colors) |
| | 8.4" | 1024x768 | 262,144 (6 bit/colors) |
| | 8.4" | 800x600 | 262,144 (6 bit/colors) |
| | 10.4" | 800x600 | 262,144 (6 bit/colors) |
| | 10.4" | 800x600 | 262,144 (6 bit/colors) |
| | 10.4" | 800x600 | 262,144 (6 bit/colors) |
| Intel 855GME | 8.4" | 800x600 | 262,144 (6 bit/colors) |
| | 8.4" | 640x480 | 262,144 (6 bit/colors) |
| | 8.4" | 1024x768 | 262,144 (6 bit/colors) |
| | 8.4" | 800x600 | 262,144 (6 bit/colors) |
| | 8.4" | 800x600 | 262,144 (6 bit/colors) |
| | 10.4" | 800x600 | 262,144 (6 bit/colors) |
| | 10.4" | 1024x768 | 16.2M (6 bit/color) |
| | 10.4" | 800x600 | 262,144 (6 bit/colors) |
| Intel 945GSE | 8.4" | 800x600 | 262,144 (6 bit/colors) |
| | 8.4" | 640x480 | 262,144 (6 bit/colors) |
| | 8.4" | 1024x768 | 262,144 (6 bit/colors) |
| | 8.4" | 800x600 | 262,144 (6 bit/colors) |
| | 10.4" | 800x600 | 262,144 (6 bit/colors) |
| | 10.4" | 800x600 | 262,144 (6 bit/colors) |
| | 10.4" | 800x600 | 262,144 (6 bit/colors) |
| | 10.4" | 640x480 | 262,144 (6 bit/colors) |

2. Getting Started

2.1. Input / Output Devices

2.1.1. 8.4-inch Input / Output Devices

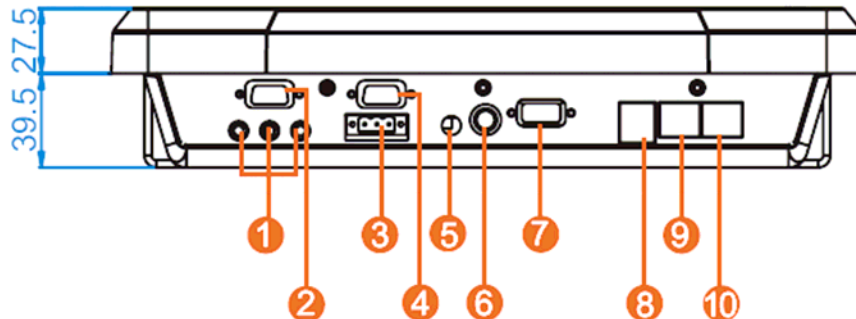
The following figure shows the I/O arrangement of the DisplayPac-RPP8. The backside of the chassis contains most of the connectors.



| | | |
|---|------------------------------|--|
| 1 | COM1 | 9-pin male Serial Port connector that can attach a serial mouse or other serial devices directly to the port. |
| 2 | DC Terminal Block (optional) | Pluggable 3pin terminal block power input |
| 3 | DC Lockable Input (default) | Connect the power cord to the AC outlet, and connect the power to the monitor through the AC/DC adapter. |
| 4 | PS/2 | PS/2 Connector plus Y cable to connect Keyboard and Mouse. |
| 5 | VGA | Use VGA port to connect an external Display. |
| 6 | USB 1,2 | USB-compatible devices can be plugged directly into the USB 2.0 port. |
| 7 | LAN1 | 10/100/1000 Mbps, connect a network cable to the standard RJ-45 port and get connection to the Local Area Network (LAN). |
| 8 | LAN2 | 10/100/1000 Mbps, connect a network cable to the standard RJ-45 port and get connection to the Local Area Network (LAN). |

2.1.2. 10.4-inch Input / Output Devices

The following figure shows the I/O arrangement of the DisplayPac-RPP10. The backside of the chassis contains most of the connectors.



| | | |
|----|------------------------------|--|
| 1 | Audio | Line in, Line out, MIC in |
| 2 | COM1 | 9-pin male Serial Port connector that can attach a serial mouse or other serial devices directly to the port. |
| 3 | DC Terminal Block (optional) | Pluggable 3pin terminal block power input |
| 4 | COM2 (optional) | 9-pin male Serial Port connector that can attach a serial mouse or other serial devices directly to the port. |
| 5 | DC Lockable Input (default) | Connect the power cord to the AC outlet, and connect the power to the monitor through the AC/DC adapter. |
| 6 | PS/2 | PS/2 Connector plus Y cable to connect Keyboard and Mouse. |
| 7 | VGA | Use VGA port to connect an external Display. |
| 8 | USB 1,2 | USB-compatible devices can be plugged directly into the USB 2.0 port. |
| 9 | LAN1 | 10/100/1000 Mbps, connect a network cable to the standard RJ-45 port and get connection to the Local Area Network (LAN). |
| 10 | LAN2 | 10/100/1000 Mbps, connect a network cable to the standard RJ-45 port and get connection to the Local Area Network (LAN). |

2.2. Starting the DisplayPac-RPP and O/S Installation

1. Connect the power to the AC/DC adapter, and connect the power cord to the AC outlet.
2. Press the "Power On" switch to start the DisplayPac-RPP.
3. Press "DEL" to enter CMOS and check the BIOS setup.
4. You may install your own O/S if it is not installed.
5. When installing O/S, please follow the steps and use external equipment such as Keyboard and Mouse.



Please use external USB DVD-ROM to run the O/S and Driver setting (as picture showed below).

3. Touch Driver Installation

3.1. Introduction

The DisplayPac-RPP supports three types of Touch Panel Solutions: ELO AccuTouch touchscreen, ELO Infrared touchscreen and Premier Touch system. All touchscreens consist of a touchscreen and an electronic touchscreen controller.

The DisplayPac-RPP touch device uses a RS-232 interface touch controller card via the COM2 port inside the DisplayPac-RPP. Touch interface is recommend, see chart below. When the touch driver is installed, either the ELO or Premier Touch systems, it will detect COM2 port automatically.

The ELO AccuTouch and Premier touchscreen are based on patented resistive technology. It is installed over the face of the display. Since its shape matches the display face, the touchscreen has excellent clarity and minimal parallax.

The ELO CarrollTouch infrared (IR) technology uses a small frame around the display with LEDs and photoreceptors on opposite sides, hidden behind an IR-transparent bezel. The Controller sequentially pulses the LEDs to create a grid of IR beams. A touch obstructs one or more the beams, which identify the X and Y coordinates. CarrollTouch technology combines superior optical performance with excellent gasket-sealing capabilities, so it's an excellent choice for harsh industrial and outdoor kiosk applications. Touched with a finger, gloved hand, fingernail, or stylus, it delivers a fast, accurate response every time.

| Touch Interface | COM Port | 1*RS-232 | 2*RS-232 |
|-----------------|----------|---|----------|
| Touch Interface | Optional | <ul style="list-style-type: none">o RS-232 (default – via COM2)o USB | 1) USB |

3.2. The ELO AccuTouch / CarrollTouch Infrared Driver Installation

ELO AccuTouch / CarrollTouch infrared driver software provides a consistent software interface among all ELO AccuTouch / CarrollTouch infrared touchscreens and controllers.

Go to <http://www.elotouch.com/Support/dnld.asp> for a complete list of available drivers.

For Driver Installation, please install the "ELO Touch System Touch Tools CD" for Windows XP Professional Embedded, Windows 2000, Windows ME, Windows 98, Windows 95, Windows NT, Windows CE 2.x, 3.0, 4.x, Windows XP Embedded, Windows 3.1, DOS, OS/2 Warp, and Apple Macintosh. Just follow the step-by-step instructions to install the driver.

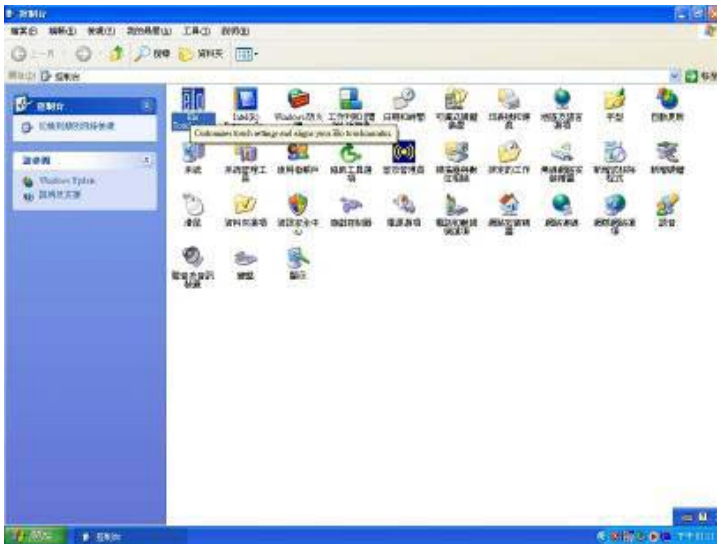
Choose "Auto-detect ELO devices " in the first step. If not, the following step will require users to choose COM2 port for detecting the devices.



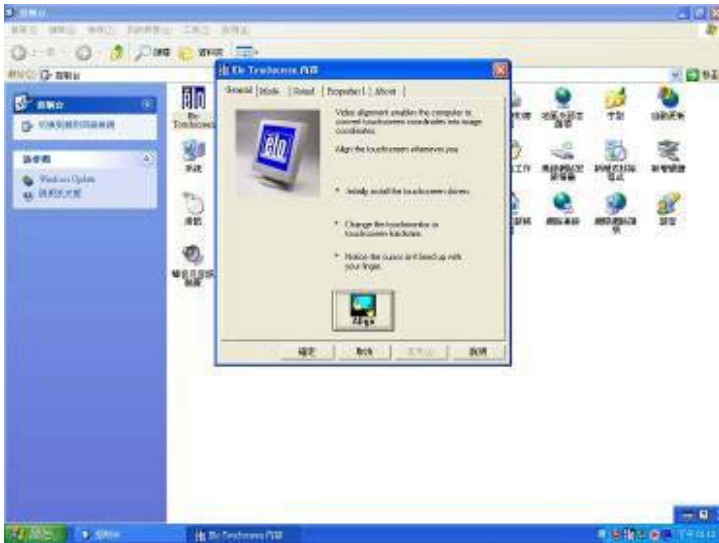
3.2.1. Configuration Utility

After finishing the installation, please follow the steps to test the configuration utility.

Step 1. Enter "My Computer", click the "ELO touchscreen" short-cut function.



Step 2. Click "Align" function key to go to next step.



Step 3. Correct 4 point locations on screen with the DisplayPac-RPP. Screen display as follows.



Step 4. Touch the “yes” function if the cursor follows your finger and finish the utility test.



3.3. The Premier Touch Driver Installation

TouchKit is the Premier Touch software, which contains drivers for the touch panel controllers specified as communication connectors, RS-232, PS/2 and USB, and the other two utilities.

The two utilities are as follows:

- Touch Tray support is a utility for emulating the right and left button of mouse through controlling touch panel. Users can toggle between right or left mouse buttons by this utility.
- Configuration support conducts the calibration and draw test of touch panel. Users can add or remove new RS-232 or PS/2 touch panel devices.

3.3.1. Install Touch-Kit

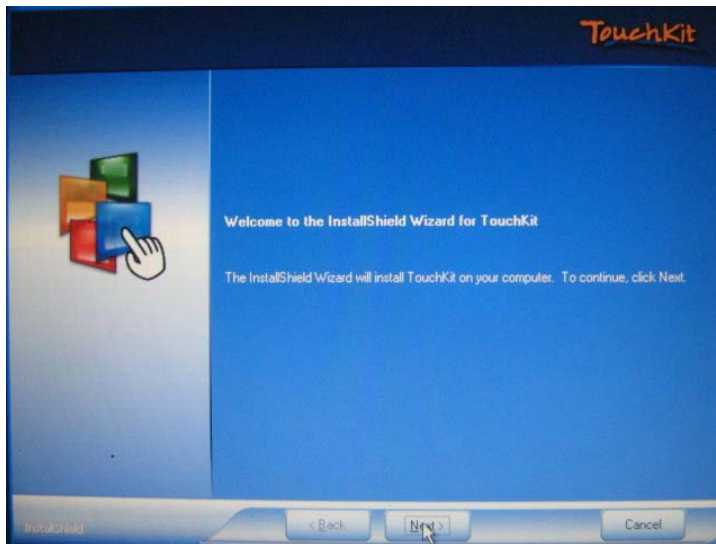
Follow these steps to install TouchKit.

- Step 1. Put the TouchKit CD into CD-ROM.
- Step 2. Open the Rugged PPC User Manual CD to Touch_PM directory.
- Step 3. Double click the Setup.exe, Windows will run the installation program.



Do not plug the USB controller into the system before the installation is finished.

- Step 4. Click Next to continue installation, it will auto-detect touch devices in COM2 port.

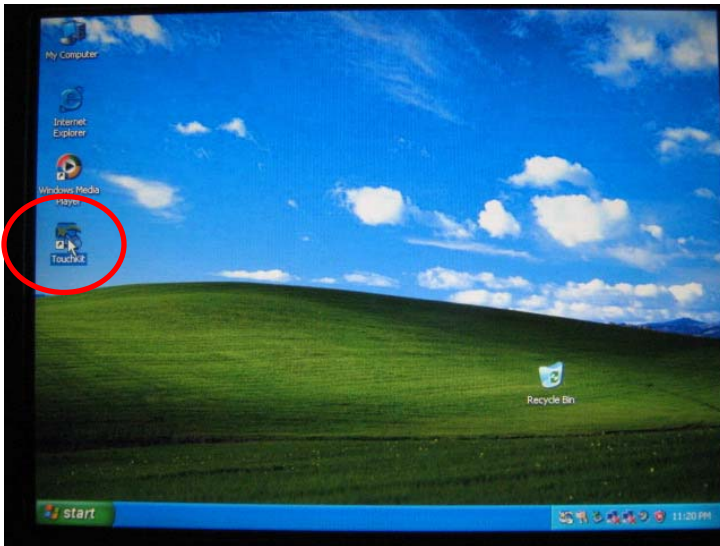


- Step 5. Follow the step-by-step instructions to finish the driver installation.

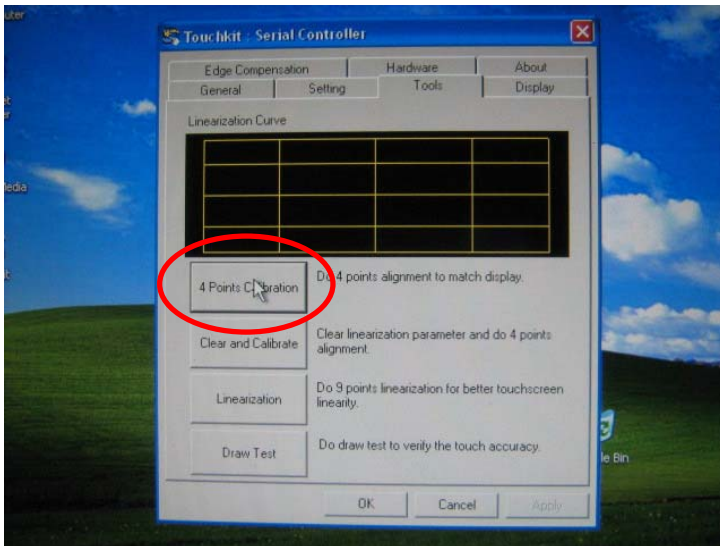
3.3.2. Configuration Utility

After finishing the installation, please follow the steps to test the configuration utility.

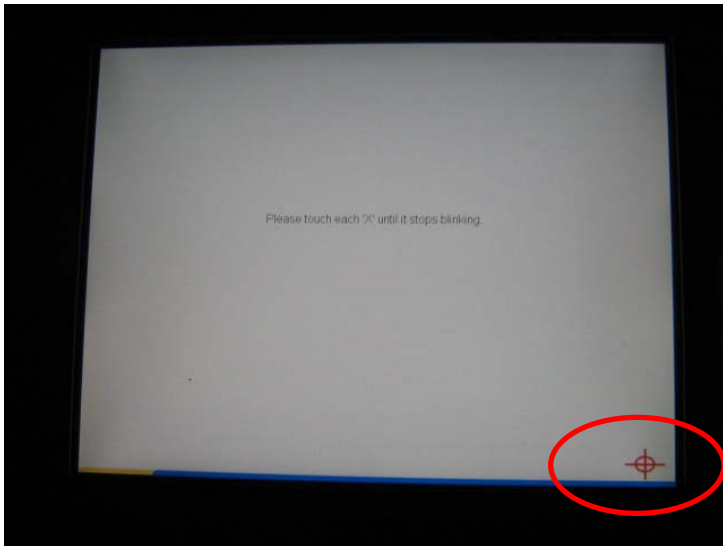
- Step 1. Click the "TouchKit" shortcut function in the desktop.



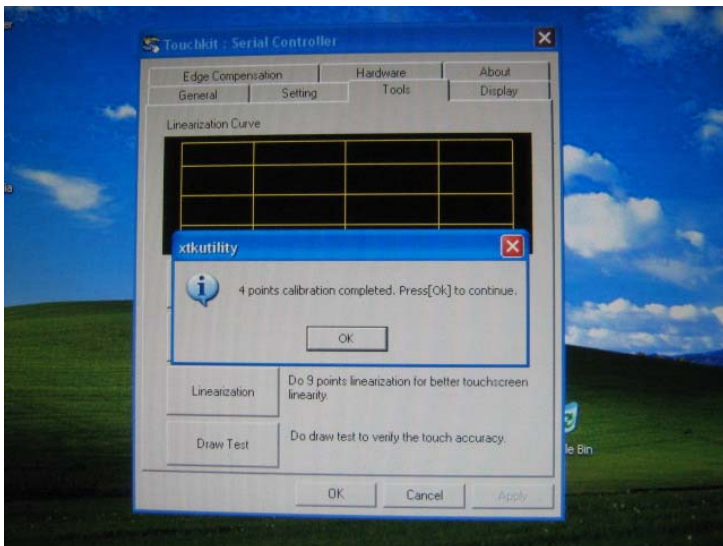
Step 2. Enter "General" function, choose the language you need, and then go to the next step. Enter "Tool" function alignments to match the display, and then go to next step.



Step 3. Correct 4 point locations on screen with the Panel. Screen will display as follows:



Step 4. Click "Yes" to continue (if 4 points calibration test is fine) and finish the test.



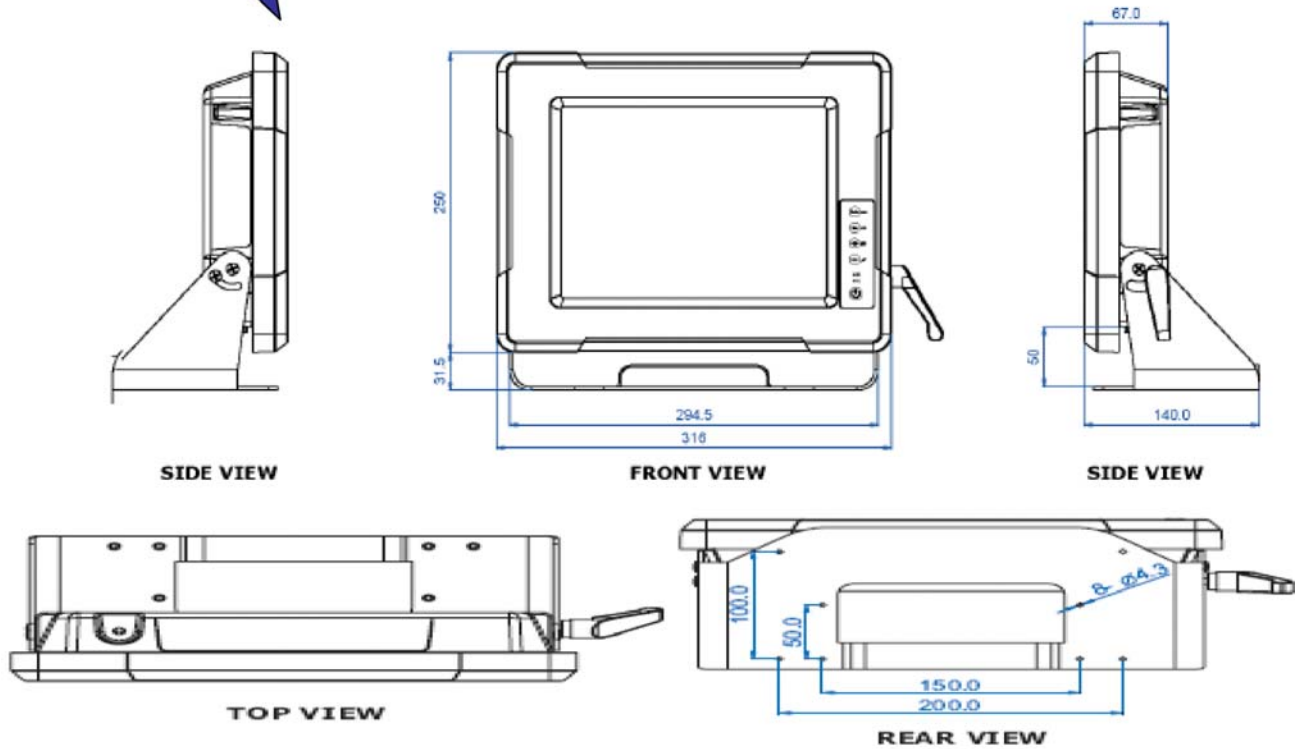
4. DisplayPac-RPP Mounting Guide

The DisplayPac-RPP is suitable for most industrial/commercial applications, by any kind of mounting approach. There are two main mounting approaches: Vehicle or VESA mounting, with both approaches being very easy for users to install, as the following illustrations show:

Application 1

VEHICLE MOUNTING

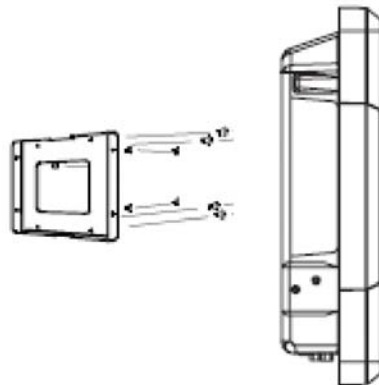
Mount with Vehicle mount kits and then mounted into mounting bracket.



Application 2

WALL MOUNTING

Mount with VESA mount kits and then mounted into wall



4.1. Vehicle Mounting

Before setting up the rugged bracket, ensure all items are available as shown below.

DisplayPac-RPP Bracket Accessory List

- One bracket stand
- Three M5x10 screws with washer
- One "Locking handle" adjustment tool with metal washer

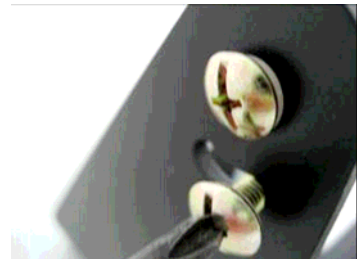
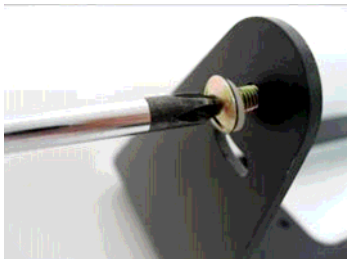


SOP for Bracket Stand Assembly

1. Put the DisplayPac-RPP on the bracket stand, aligning the screw holes.



2. Screw on three normal M5x10 screw to affix the product upon the stand.



3. Screw on locking handle to screw the DisplayPac-RPP tight.

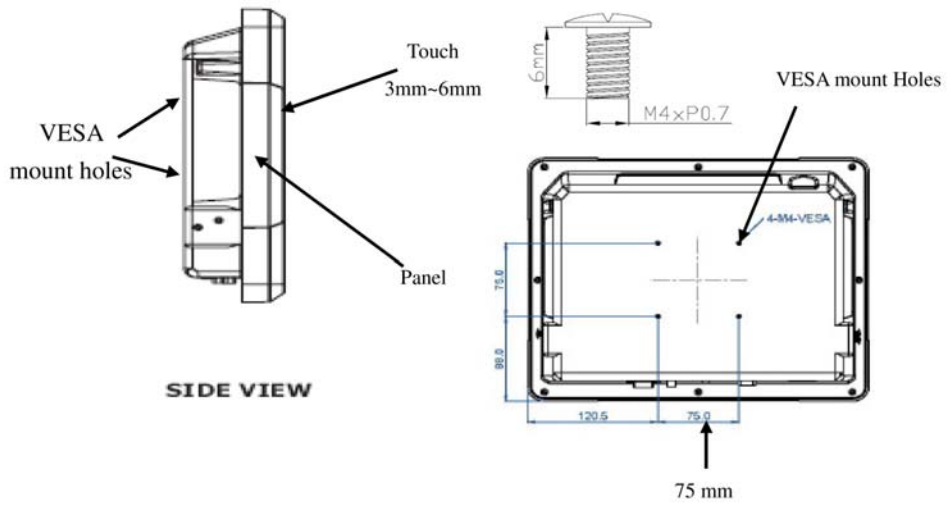


4. Loosen the hand-screw adjustment tool, then adjust product angle on the stand. Screw the product tight again to fix.



4.2. VESA Mounting

Fix the Panel PC with four screws (standard VESA), and fasten on the wall with other four screws (75 mm x 75 mm).

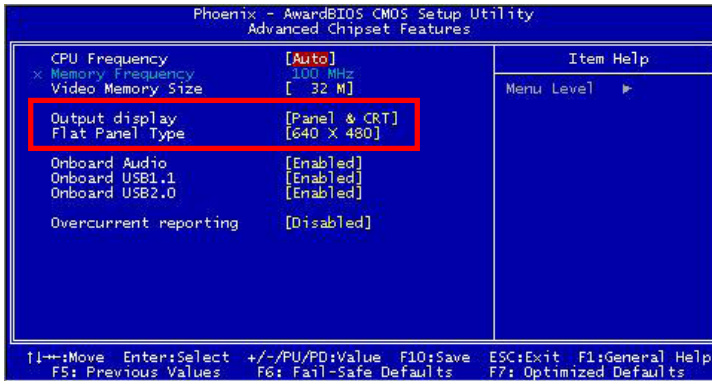


5. Known Issues

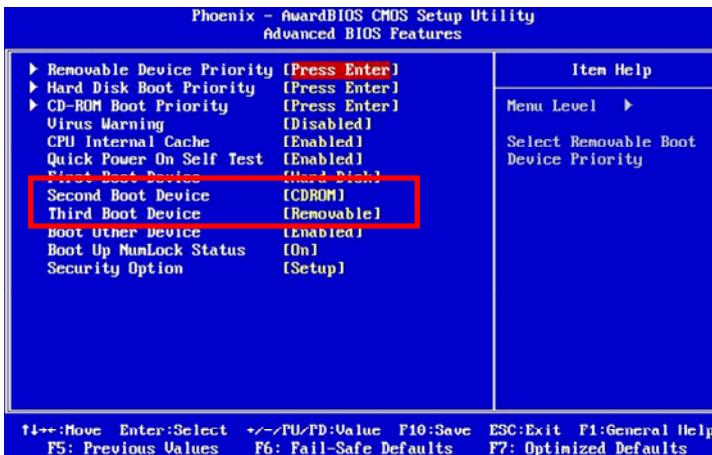
1. When using an “external display” such as a CRT or LCD for external mode, the resolution of external display may be recommended equal to the CMOS setting for panel (Flat Panel Type). If the external display is a lower resolution than CMOS setting in Windows, it may cause the display to be indistinct.

Recommendation in CMOS setting:

- Choose “CRT” only when use external display.
- Choose “Panel” only when use internal panel display.



2. If customers need to use USB-HDD or USB-CDROM for booting an operating system at start-up time, and it is recommended the “Quick Power On Self Test” function be disabled in CMOS setting.



6. Notices

1. When you use CF card as storage of Operating System, you need to use "Fixed Disk Mode" type Compact Flash Card instead of removable disk mode.
2. The internal Compact Flash socket is NOT A PLUG & PLAY DEVICE, you may remove the CF card only at POWER-OFF status.

7. RMA Request & Return Form

If you need to return one of our products for repair, please complete our RMA Request Form found on the [support page](#) of our website.

About Computer Dynamics

Computer Dynamics (A GE Intelligent Platforms Company) is a leading global provider of flat panel display solutions for a wide range of industries and applications. Our comprehensive product offering includes open-frame, enclosed, and environmentally sealed flat panel display systems in both computer and monitor configurations. The company is headquartered in the U.S. and is a part of GE Intelligent Platforms. Whether you're looking for one of our standard products or a fully custom solution, Computer Dynamics has the breadth, experience and 24/7 support to deliver what you need. For more information, visit www.cdynamics.com.

Computer Dynamics Contact Information

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Additional contact information available on our web site at www.cdynamics.com/contact.asp

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