HPC-1000

10.1” Home Automation Panel PC with
Intel® Atom N270 + Intel® 945GSE/ ICH7-M

User’s Guide

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Revision	Date	Edited by	Changes
1.0	10/29/2009	SLee	Initial Release
1.01	11/18/2009	SLee	FCC Compliance Statement Update
1.02	12/08/2009	SLee	Add Wall & Desktop Mounting Kits
1.03	12/16/2009	SLee	Update Power Rating, RS232/422/485

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Safety Instructions

■ Before You Begin

Before handling the product, read the instructions and safety guidelines on the following pages to prevent damage to the product and to ensure your own personal safety. Refer to the “Advisories” section in the Preface for advisory conventions used in this user’s guide, including the distinction between Warnings, Cautions, Important Notes, and Notes.

- Always use caution when handling/operating a computer. Only qualified, experienced, authorized electronics service personnel should access the interior of a computer. The power supplies produce high voltages and energy hazards, which can cause bodily harm.
- Use extreme caution when installing or removing components. Refer to the installation instructions in this user’s guide for precautions and procedures. If you have any questions, please contact Quanmax Post-Sales Technical Support.

WARNING

High voltages are present inside the chassis when the unit’s power cord is plugged into an electrical outlet. Turn off system power, turn off the power supply, and then disconnect the power cord from its source before removing the chassis cover. Turning off the system power switch does not remove power to components.

■ When Working Inside a Computer

Before taking covers off a computer, perform the following steps:

1. Turn off the computer and any peripherals.
2. Disconnect the computer and peripherals from their power sources or subsystems to prevent electric shock or system board damage. This does not apply when hot swapping parts.
3. Follow the guidelines provided in “Preventing Electrostatic Discharge” on the following page.
4. Disconnect any telephone or telecommunications lines from the computer.

In addition, take note of these safety guidelines when appropriate:

- To help avoid possible damage to system boards, wait five seconds after turning off the computer before removing a component, removing a system board, or disconnecting a peripheral device from the computer.
- When you disconnect a cable, pull on its connector or on its strain-relief loop, not on the cable itself. Some cables have a connector with locking tabs. If you are disconnecting this type of cable, press in on the locking tabs before disconnecting the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before connecting a cable, make sure both connectors are correctly oriented and aligned.

CAUTION

Do not attempt to service the system yourself except as explained in this user's guide. Follow installation and troubleshooting instructions closely.

Preventing Electrostatic Discharge

Static electricity can harm system boards. Perform service at an ESD workstation and follow proper ESD procedure to reduce the risk of damage to components. Quanmax strongly encourages you to follow proper ESD procedure, which can include wrist straps and smocks, when servicing equipment.
You can also take the following steps to prevent damage from electrostatic discharge (ESD):

- When unpacking a static-sensitive component from its shipping carton, do not remove the component's antistatic packing material until you are ready to install the component in a computer. Just before unwrapping the antistatic packaging, be sure you are at an ESD workstation or grounded. This will discharge any static electricity that may have built up in your body.
- When transporting a sensitive component, first place it in an antistatic container or packaging.
- Handle all sensitive components at an ESD workstation. If possible, use antistatic floor pads and workbench pads.
- Handle components and boards with care. Don't touch the components or contacts on a board. Hold a board by its edges or by its metal mounting bracket.
- Do not handle or store system boards near strong electrostatic, electromagnetic, magnetic, or radioactive fields.

■ Instructions for Lithium Battery

WARNING

Danger of explosion when battery is replaced with incorrect type. Only replace with the same or equivalent type recommended by the manufacturer.

Do not dispose of lithium batteries in domestic waste. Dispose of the battery according to the local regulations dealing with the disposal of these special materials (e.g. to the collecting points for disposal of batteries)

■ Voltage Ratings

The external power adaptor of the HPC-1000 has the following voltage ratings:

- Input: 100-240 VAC, 50-60 Hz
- Output: 30W, +12Vdc, 2.5A

Power Supplies:

Touch Electronic Co. Ltd / SA06-30S12R-W

Preface

■ How to Use This Guide

This guide is designed to be used as step-by-step instructions for installation, and as a reference for operation, troubleshooting, and upgrades.

NOTE

Driver downloads and additional information are available under Downloads on our web site: www.quanmax.com.

■ Unpacking

When unpacking, follow these steps:

1. After opening the box, save it and the packing material for possible future shipment.
2. Remove all items from the box. If any items listed on the purchase order are missing, notify Quanmax customer service immediately.
3. Inspect the product for damage. If there is damage, notify Quanmax customer service immediately. Refer to “Warranty Policy” for the return procedure.

■ Regulatory Compliance Statements

This section provides the FCC compliance statement for Class B devices.

FCC Compliance Statement:

This equipment has been tested and found to comply with limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reason able protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radiofrequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that

interference will not occur in a particular installation. If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by Quanmax could void the user's authority to operate the equipment.

NOTE

The assembler of a personal computer system may be required to test the system and/or make necessary modifications if a system is found to cause harmful interference or to be noncompliant with the appropriate standards for its intended use.

■ Warranty Policy

Limited Warranty

Quanmax Inc.'s detailed Limited Warranty policy can be found under Support at www.quanmax.com. Please consult your distributor for warranty verification.
The limited warranty is void if the product has been subjected to alteration, neglect, misuse, or abuse; if any repairs have been attempted by anyone other than Quanmax or its authorized agent; or if the failure is caused by accident, acts of God, or other causes beyond the control of Quanmax or the manufacturer. Neglect, misuse, and abuse shall include any installation, operation, or maintenance of the product other than in accordance with the user's guide.
No agent, dealer, distributor, service company, or other party is authorized to change, modify, or extend the terms of this Limited Warranty in any manner whatsoever. Quanmax reserves the right to make changes or improvements in any product without incurring any obligation to similarly alter products previously purchased.

Return Procedure

For any Limited Warranty return, please contact Support at www.quanmax.com and

login to obtain a Return Material Authorization (RMA) Number. If you do not have an account, send an email to support@quanmax.com to apply for one.
All product(s) returned to Quanmax for service or credit must be accompanied by a Return Material Authorization (RMA) Number. Freight on all returned items must be prepaid by the customer who is responsible for any loss or damage caused by common carrier in transit. Returns for Warranty must include a Failure Report for each unit, by serial number(s), as well as a copy of the original invoice showing the date of purchase.
To reduce risk of damage, returns of product must be in a Quanmax shipping container. If the original container has been lost or damaged, new shipping containers may be obtained from Quanmax Customer Service at a nominal cost.
Quanmax owns all parts removed from repaired products. Quanmax uses new and reconditioned parts made by various manufacturers in performing warranty repairs and building replacement products. If Quanmax repairs or replaces a product, its warranty term is not extended.
Shipments not in compliance with this Limited Warranty Return Policy will not be accepted by Quanmax.

Limitation of Liability

In no event shall Quanmax be liable for any defect in hardware, software, loss, or inadequacy of data of any kind, or for any direct, indirect, incidental, or consequential damages in connection with or arising out of the performance or use of any product furnished hereunder. Quanmax's liability shall in no event exceed the purchase price of the product purchased hereunder. The foregoing limitation of liability shall be equally applicable to any service provided by Quanmax or its authorized agent.

■ Maintaining Your Computer

Environmental Factors

- **Temperature**

  The ambient temperature within an enclosure may be greater than room ambient temperature. Installation in an enclosure should be such that the amount of air flow required for safe operation is not compromised. Consideration should be given to the maximum rated ambient temperature. Overheating can cause a variety of problems, including premature aging and failure of chips or mechanical failure of devices.
  If the system has been exposed to abnormally cold temperatures, allow a

two-hour warm-up period to bring it up to normal operating temperature before turning it on. Failure to do so may cause damage to internal components, particularly the hard disk drive.

- **Humidity**

  High-humidity can cause moisture to enter and accumulate in the system. This moisture can cause corrosion of internal components and degrade such properties as electrical resistance and thermal conductivity. Extreme moisture buildup inside the system can result in electrical shorts, which can cause serious damage to the system.

  Buildings in which climate is controlled usually maintain an acceptable level of humidity for system equipment. However, if a system is located in an unusually humid location, a dehumidifier can be used to maintain the humidity within an acceptable range. Refer to the “Specifications” section of this user’s guide for the operating and storage humidity specifications.

- **Altitude**

  Operating a system at a high altitude (low pressure) reduces the efficiency of the cooling fans to cool the system. This can cause electrical problems related to arcing and corona effects. This condition can also cause sealed components with internal pressure, such as electrolytic capacitors, to fail or perform at reduced efficiency.

Power Protection

The greatest threats to a system’s supply of power are power loss, power spikes, and power surges caused by electrical storms, which interrupt system operation and/or damage system components. To protect your system, always properly ground power cables and one of the following devices.

- **Surge Protector**

  Surge protectors are available in a variety of types and usually provide a level of protection proportional with the cost of the device. Surge protectors prevent voltage spikes from entering a system through the AC power cord. Surge protectors, however, do not offer protection against brownouts, which occur when the voltage drops more than 20 percent below the normal AC line voltage level.

- **Line Conditioner**

Line conditioners go beyond the over voltage protection of surge protectors. Line conditioners keep a system's AC power source voltage at a fairly constant level and, therefore, can handle brownouts. Because of this added protection, line conditioners cost more than surge protectors. However, line conditioners cannot protect against a complete loss of power.

- **Uninterruptible Power Supply**

  Uninterruptible power supply (UPS) systems offer the most complete protection against variations on power because they use battery power to keep the server running when AC power is lost. The battery is charged by the AC power while it is available, so when AC power is lost, the battery can provide power to the system for a limited amount of time, depending on the UPS system.
  UPS systems range in price from a few hundred dollars to several thousand dollars, with the more expensive unit s allowing you to run larger systems for a longer period of time when AC power is lost. UPS systems that provide only 5 minutes of battery power let you conduct an orderly shutdown of the system, but are not intended to provide continued operation. Surge protectors should be used with all UPS systems, and the UPS system should be Underwriters Laboratories (UL) safety approved.

Chapter 1

Introduction

■ Overview

The HPC-1000 10.1” Panel PCs is combining the latest Intel 45nm Intel® Atom™ processor with the high integration of the Intel® 945GSE/ ICH7-M chipset for a wide range of industrial applications. Storage includes a 2.5" SATA hard drive or a solid-state drive (SSD), and Compact Flash. Supported interfaces include a GbE LAN, 2x serial ports, USB 2.0 ports, DVI-I, thus easily meeting a broad range of customer requirements. The HPC series provide a compact, high performance human-machine interface for home automation demands.

Check list

1. Take out the HPC-1000 from the carton box, check if the unit is properly secure in the plastic bag.
2. Check the contents of the carton box:

- 1x Panel PC
- 1x Drivers/ Manual CD
- 1x Quick Installation Guide
- 1x Power Adapter
- 1x Power Code (optional)
- 1x Wall Mount Kit (optional)
- 1x Desktop Stand Kit (optional)

Features

- 10.1" TFT LCD Display
- Intel® Atom™ Processor N270
- Intel® 945GSE / ICH7-M
- Resistive 5-wire TouchScreen
- 1x 2.5” SATA HDD or 1x SSD, and 1x CompactFlash
- 1x GbE, 1x COM, 2x USB ports, DVI-I
- Digital I/Os, 2x Speakers
- Optional Digital Camera (with MIC-in), RFID and Wireless LAN

■ Product Specifications

System	
CPU	Intel® Atom™ Processor N270
Chipset	Intel® 945GSE/ICH7-M
Memory	1x DDR2 400/533 SO-DIMM Socket, up to 2GB
Internal Storage	1x 2.5” SATA HDD or 1x SSD 1x CompactFlash
Expansion slots	None
Cooling	Fan-less
Material	Plastic front bezel & SECC chassis
I/Os	1x GbE, RJ-45 4x USB 2.0 1x DVI-I 1x COM with 5V/12V Power Selection (RS-232/422/485) 1x DB9 (4x Digital IN, 4x Digital OUT) 1x 6-pin mini-DIN Keyboard/ Mouse Connector 1x Power On/Off Switch 1x Power Connector
LCD Display	
Display type & size	10.1” TFT LCD WSVGA
Brightness	200 cd/m²
Resolution	16:10 WSVGA (1024 x 600)
Touch Screen	5-wire Resistive Type
Network	1x Gigabit Ethernet Wireless LAN 802.11b/g/n (optional)
RFID	RFID Module (optional)
Audio	Built-in 2x Stereo Speakers, MIC-IN
Camera	1.3 Megapixel digital camera + MIC
Environmental Specification	
Temperature	Operating: 0˚C to 45˚C (CF, SSD), 0˚C to 40˚C (2.5” HDD) Storage: 0˚C to 70˚C, 10%-85% rel. hum., non-condensing
Shock	Operating: 10 g / 11ms; Storage: 30 g / 11ms (half-sine)
Vibration	Operating (IEC 68-2-64 Fh): 5-500Hz, 1 g (rms) / 3-axes Storage (IEC 68-2-6 Fc): 5-500Hz, 2 g (rms) / 3-axes
Size and weight	
Dimensions	262 x 200 x 74mm (W x H x D)
Weight	1.7kg
Power Input	DC12V
Mounting Type	VESA
Compliant	CE, FCC Class B

Table 1 Specifications

■ System Tour

Front and Side Panel

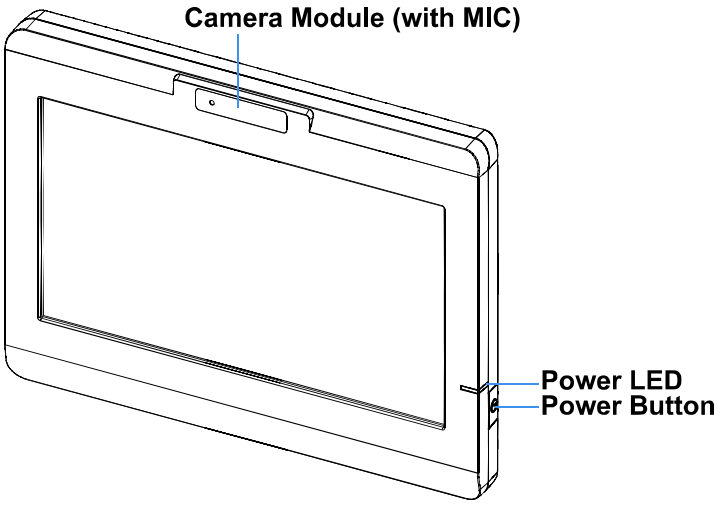
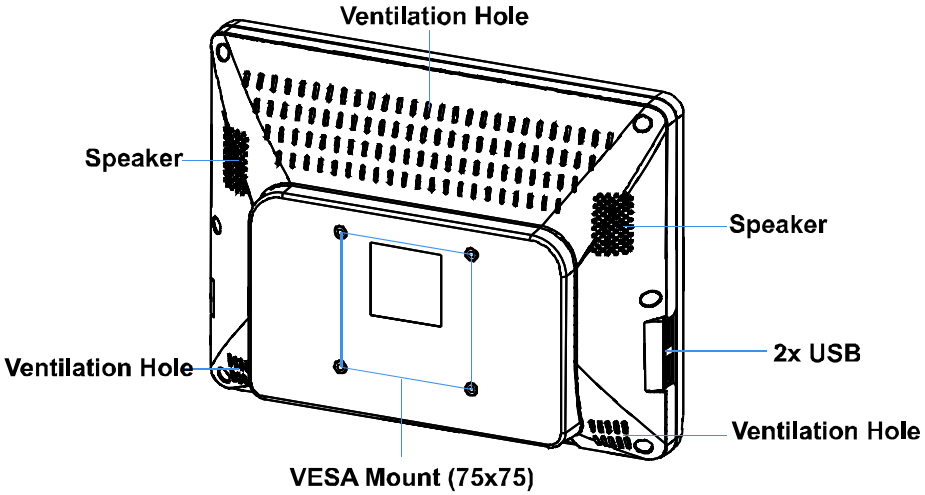


Figure 1 Mechanical Layout - Front and Side

Rear and I/O Panel



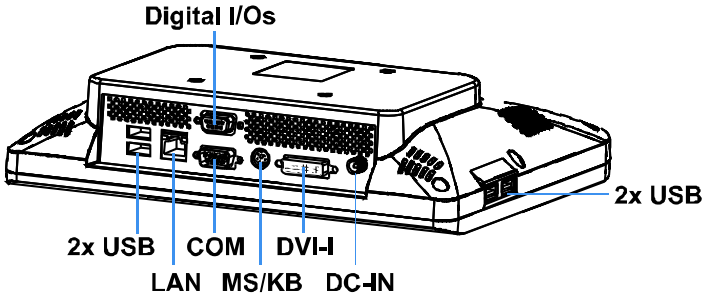


Figure 2 Mechanical Layout - I/O Panel

WARNING

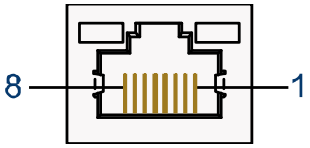
Be sure not to block any air vents on the computer. Blocked air vents can cause thermal problems.

■ External Connectors

Table 2 USB (USB2.0 Port 0, 1 Type A Connector)

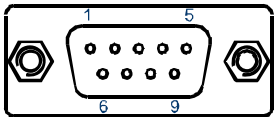
Pin	Signal Name	Pin	Signal Name
1	+5V	5	+5V
2	USB1-	6	USB0-
3	USB1+	7	USB0+
4	GND	8	GND

Table 3 LAN (10/100/1000 Ethernet RJ-45 Connector)



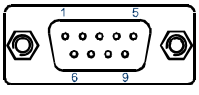
Pin	Signal	Pin	Signal
1	Tx+	5	NC
2	Tx-	6	Rx-
3	Rx+	7	NC
4	NC	8	NC

Table 4 Digital I/Os (DB9 Female Connector)



Pin	Signal	Pin	Signal
1	Digital Output 0	6	Digital Input 2
2	Digital Input 0	7	Digital Output 3
3	Digital Output 1	8	Digital Input 3
4	Digital Input 1	9	+5V
5	Digital Output 2	Screw	GND

Table 5 COM1 (RS-232/422/485 DB-9 Connector)



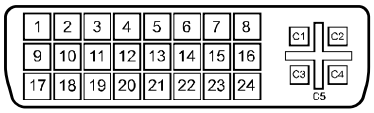
Pin	RS232	RS422	RS485 Half Duplex
1	DCD, Data carrier detect	TX-	DATA-
2	RXD, Receive data	RX+	N/A
3	TXD, Transmit data	TX+	DATA+
4	DTR, Data terminal ready	RX-	N/A
5	GND, ground	GND	GND
6	DSR, Data set ready	N/A	N/A
7	RTS, Request to send	N/A	N/A
8	CTS, Clear to send	N/A	N/A
9	RI, Ring indicator (+5V / +12V) *Note ：Selected by BIOS Setting*	N/A	N/A

*COM1 Function Type RS232/422/485 can be selected from BIOS setting.

Table 6 KB/MS (PS/2 KB/MS Mini-DIN Connector)

Pin	Signal
1	KBDAT
2	MSDAT
3	GND
4	+5V
5	KBCLK
6	MSCLK

Table 7 DVI-I (DVI-I Connector)



Pin	Signal Name	Pin	Signal Name
1	TX2N	2	TX2P
3	GND	4	TX5N
5	TX5P	6	SD_CLK
7	SD_DATA	8	VSYNC
9	TX1N	10	TX1P
11	GND	12	TX4N
13	TX4P	14	VGA_PWR
15	VGA_EN	16	HPD
17	TX0N	18	TX0P
19	GND	20	TX6N
21	TX6P	22	GND
23	TCLP	24	TXLN
PIN	**Signal Name**		
C1	Analog red		
C2	Analog green		
C3	Analog blue		
C4	Analog horizontal sync		
C5	Analog ground		

■ Mechanical Dimensions

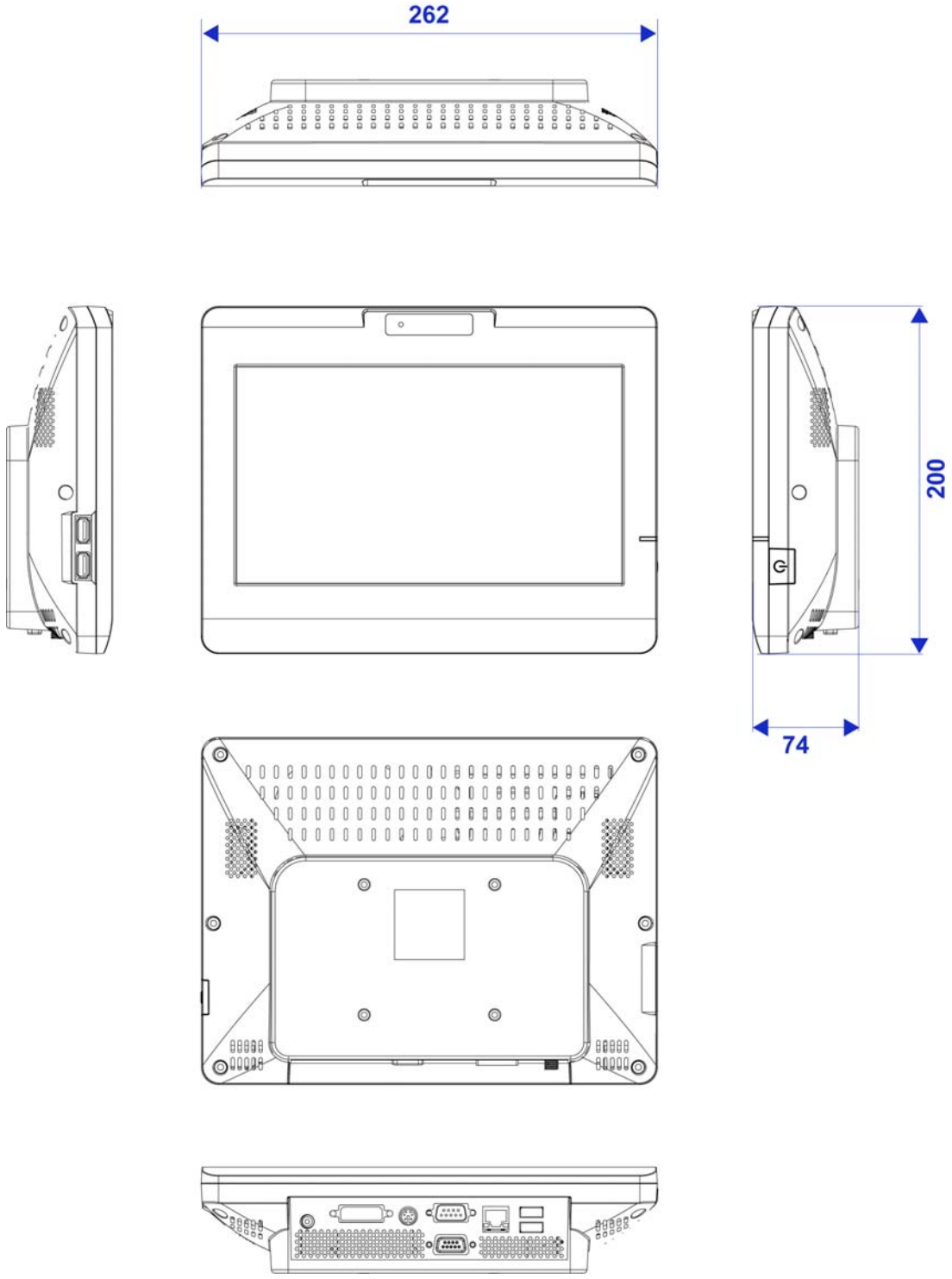


Figure 3 Mechanical Dimensions

Chapter 2

Getting Started

■ Power Connection Turning on the system

1. Secure the power adapter cable to the DC jack (DC IN) of the HPC-1000
2. Connect the power cable to the power adapter
3. Connect the power cable to a power outlet
4. Press the power switch on the front panel to turn on the system

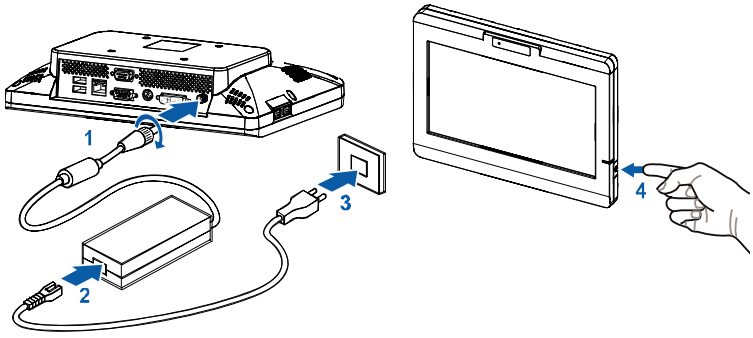


Figure 4 Turning on the system

■ VESA Mounting

The HPC-1000 comes with VESA FDMI 75 standard mounting holes as shown below. Use 4 screws with the appropriate length for your VESA mounting bracket.

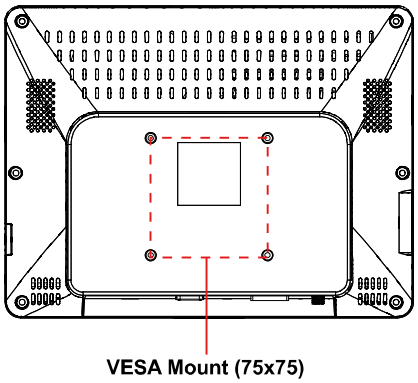


Figure 5 Mounting hole locations on the HPC-1000

■ Wall Mount Kit

■ Below are the demonstrations of how to use Quanmax wall-mount kits .

Step1
Secure the VESA kit to the panel PC using the 4 screws. (M4x5L flat head)

Step2
Install the wall-mount kit to the proper place of the wall by using the 6 screws.

Step3
Attach the panel PC to the wall-mount kit which has been well fixed on the wall.

Step4
Secure the wall-mount kit and panel PC with screw by using Phillips Screwdriver

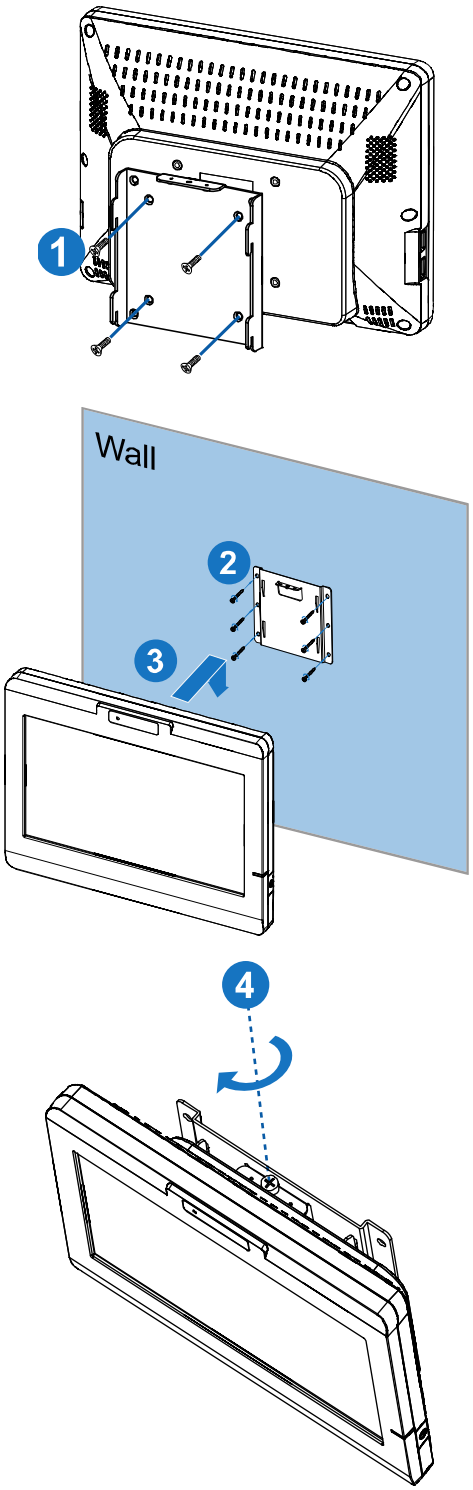


Figure 6 Wall Mounting Demonstrations

■ Desktop Stand

Step1
Assembling the desktop stand

Step2
Secure the VESA kit to the desktop stand using the 4 screws. (M4x5L round head)

Step3
Secure the panel PC to the desktop stand using the 4 screws. (M4x5L flat head)

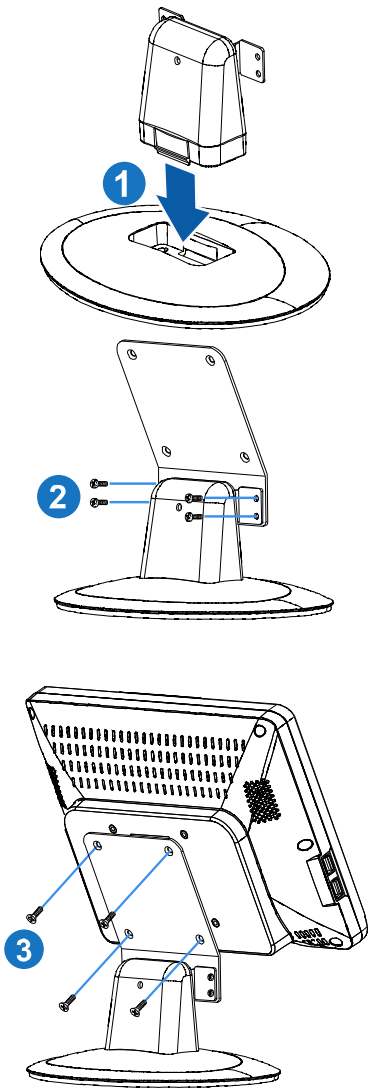


Figure 7 Install Desktop Stand

■ Operating System and Drivers

If your product does not come with an operating system pre-installed, you will need to install an operating system and the necessary drivers to operate it. After you have finished assembling your system and connected the appropriate power source, power it up using the power supply and install the desired operating system.
You can download the drivers for the product from the Quanmax website at www.quanmax.com and install as instructed there. For other operating systems, please contact Quanmax.

NOTE

1. To install the VGA driver, please double-click “Setup.exe” which is under below folder. **\Intel VGA\Utilities**
2. If your system goes into suspend mode, please push the power button for 2 seconds to wake up the system.

■ Maintenance and Prevention

Your HPC-1000 system requires minimal maintenance and care to keep it operating correctly.

- Occasionally wipe the system with a soft dry cloth.
- You should only remove persistent dirt by use of a soft, slightly damp cloth (use only a mild detergent).
- Make sure the ventilation holes are clear of debris.

CAUTION

Do **NOT** do any of the following:

- Allow water to enter the computer
- Use a heavily dampened cloth
- Spray water directly inside of computer