User Manual

PIT-15 Series

Patient Infotainment Terminal

Trusted ePlatform Services

ADVANTECH

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Declaration of Conformity

FCC Class B

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency 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 harmful interference to radio or television 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 into 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.

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

Caution! Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

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Technical Support and Assistance

1. Visit the Advantech web site at www.advantech.com/support where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
   – Product name and serial number
   – Description of your peripheral attachments
   – Description of your software (operating system, version, application software, etc.)
   – A complete description of the problem
   – The exact wording of any error messages

Warning!

1. Input voltage rated 17-19 VDC, 2.63 A (DC Mode).
2. Packing: please carry the unit with both hands, handle with care.
3. Maintenance: to properly maintain and clean the surfaces, use only approved products or clean with a dry applicator.

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well, or you cannot get it to work according to the user's manual.
    e. The equipment has been dropped and damaged.
    f. The equipment has obvious signs of breakage.
15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
16. If your computer is dramatically losing time or the BIOS configuration resets to default, then the battery has no power.

Caution!

1. Do not replace power adaptor yourself. Please contact a qualified technician or your retailer.
2. The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacture. Discard used batteries according to the manufacturer's instructions

17. CLASSIFICATION:
    - Supplied by Class I adapter
    - No applied parts
    - Continuous Operation
    - Not AP or APG category
18. Follow national requirements to dispose of unit.
19. Maintenance: to properly maintain and clean the surfaces, use only the approved products or clean with a dry cloth.
20. Contact information:
    No.1, Alley 20, Lane 26, Reuiguang Road Neihu District, Taipei, Taiwan 114, R.O.C
    TEL: (02)27927818
21.

Medical Equipment
With Respect to Electric Shock, Fire, and Mechanical Hazards Only, In Accordance with UL 60601-1, CAN/CSA C22.2 No. 601.1

22. This equipment shall not be used for life support systems.
23. Accessory equipment connected to the analog and digital interfaces must be in compliance with the respective nationally harmonized IEC standards (i.e. IEC 60950 for data processing equipment, IEC 60065 for video equipment, IEC 61010-1 for laboratory equipment, and IEC 60601-1 for medical equipment.) Furthermore all configurations shall comply with the system standard IEC 60601-1-1. Anyone who connects additional equipment to the signal input part or signal output part is configuring a medical system, and is therefore, responsible that the system complies with the requirements of the system standard IEC 60601-1-1. The unit is for exclusive interconnection with IEC 60601-1 certified equipment in the patient environment and IEC 60XXX certified equipment outside of the patient environment. If in doubt, consult the technical services department or your local representative.
24. Users must not allow SIP/SOPs and the patient to come into contact at the same time.
25. The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Note! Attention, consult the ACCOMPANYING DOCUMENTS.

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Chapter 1

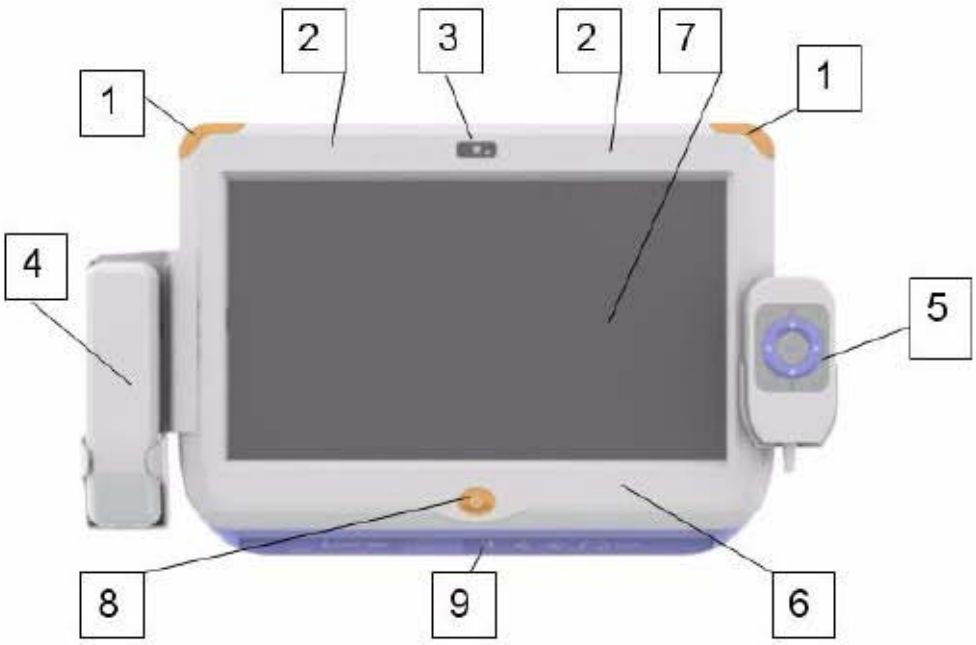
Introduction

This chapter briefly introduces the PIT-15 Series product.

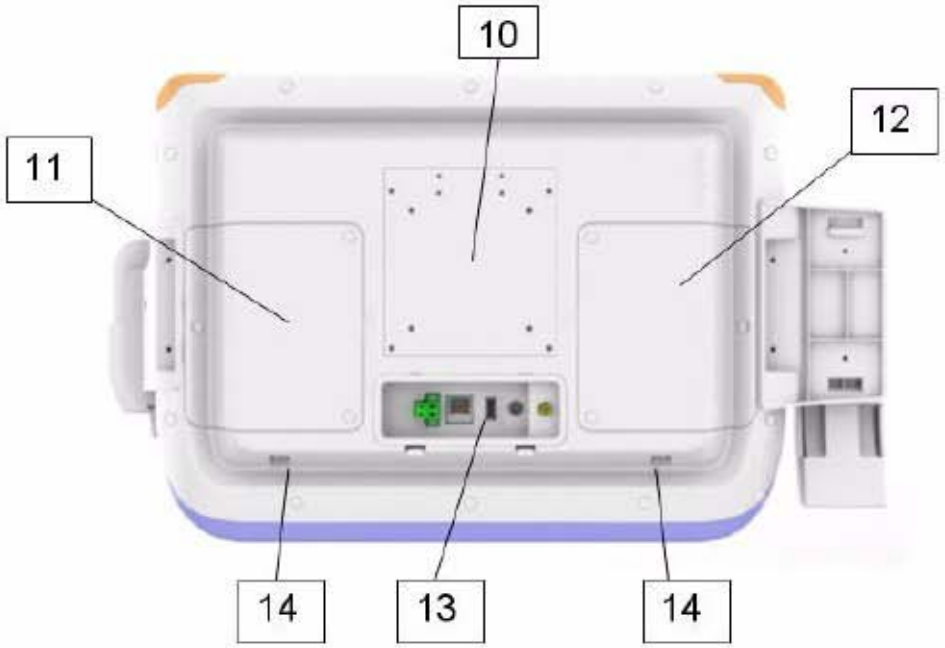
- Overview
- System Configuration

1.1 Overview

The PIT-15 Series Patient Infotainment Terminal is a standard product from Advantech with Windows XP Embedded OS built-in. In addition to providing hospital bedside patient information, remote monitoring, and care functions, the CPU and the LAN-enabled architecture of the PIT-15 Series terminal also serves as an integrated hospital gateway device. The PIT-15 Series equipped with an Intel Atom processor, 15.6 W touchscreen, onboard Ethernet, and audio, plays a key role as a hospital bedside care and monitoring solution. It connects the service calls and LED light signals of a hospital room through the LAN to the hospital administration center or nurse station.

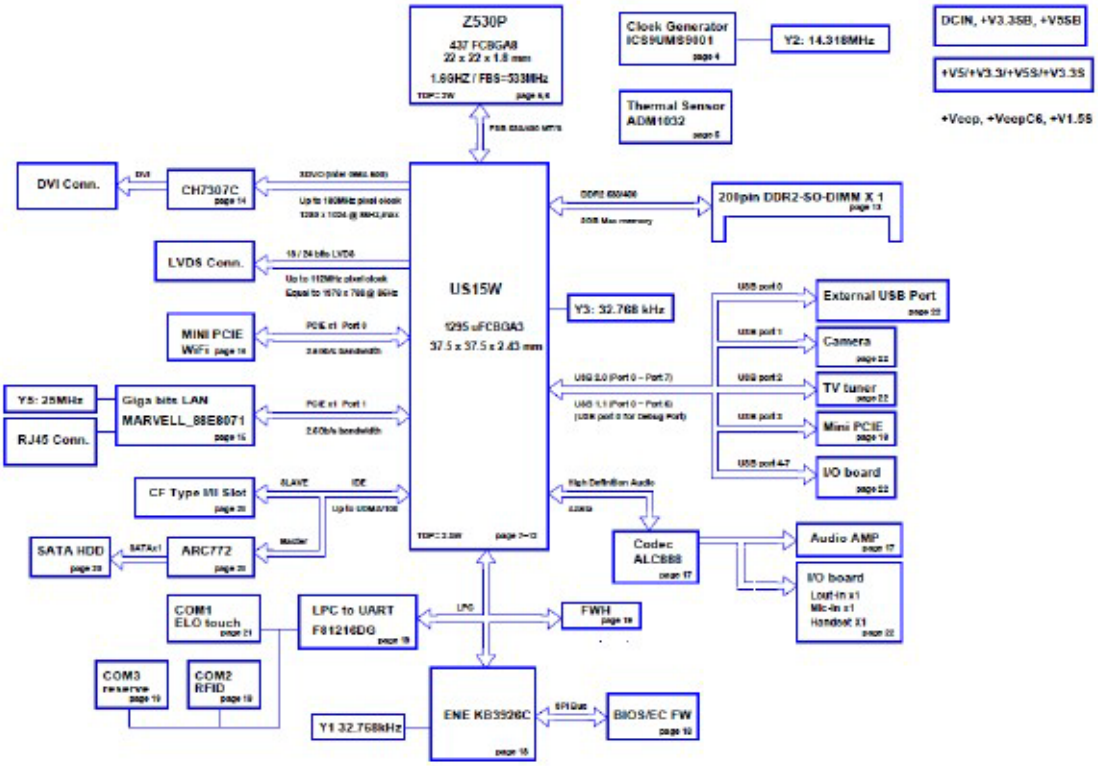


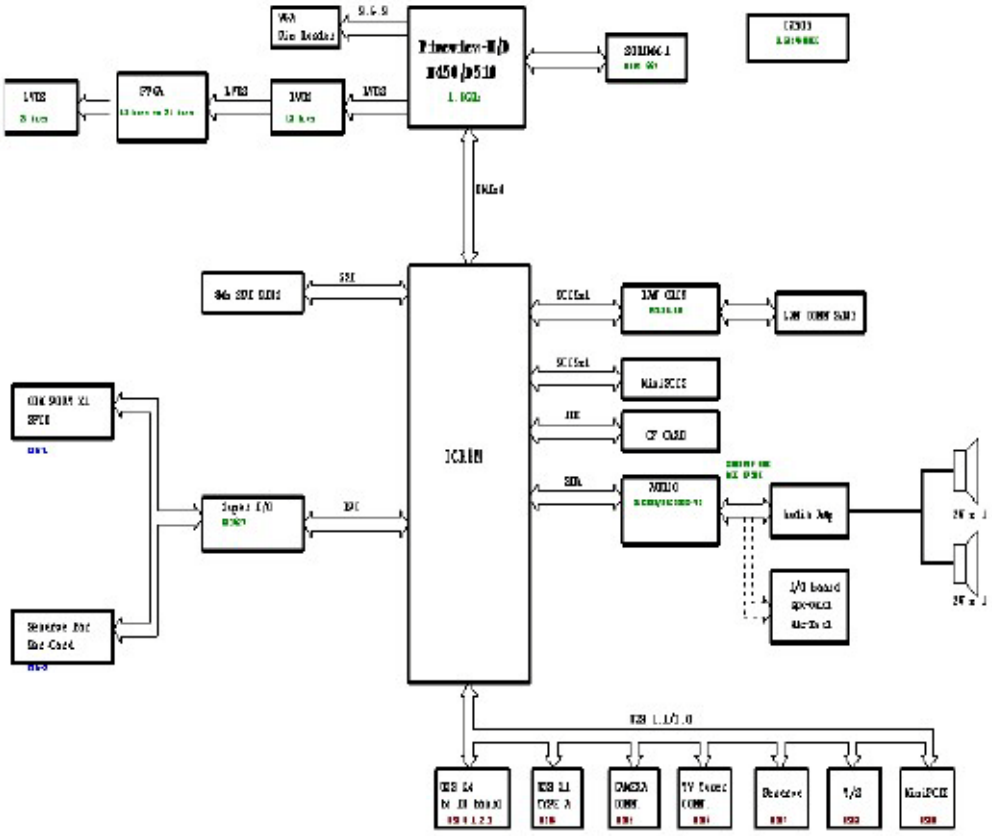
1. Light Indicators
2. WIFI
3. Built-in 1.3 Mega-pixel CMOS Camera (optional)
4. Phone handset (optional)
5. Wired Remote Controller (optional)
6. RFID reader
7. Touchscreen
8. Nurse call with hard wire
9. Bottom I/O Arrangement (Mic-in, Line out, USB port, Smart Card Reader)(75/100 compatible)
10. Vesa Mounting /heat sink
11. Access Door for CF card
12. Access Door for Hard drive and TV tuner Module



1.2 System Configuration

A block diagram of a PIT-15 Series Patient Infotainment Terminal based on a hospital bedside environment is shown below in the following diagram:





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Chapter 2

Hardware Description

This chapter describes the hardware features of the PIT-15 Series.

- Main Specifications
- General Specifications
- Mechanical Specifications
- External View

2.1 General Specifications

2.1.1 Standard PC Functions

- BIOS: Award 1024K x 8 (8 Mbit) Flash BIOS
- Chipset: Intel US15W core logic chipset
- Front side bus: Support 400/533 MHz
- Memory: DDR2 SODIMM 400/533 MHz up to 2 GB
- Audio: HD audio codec ALC888 + 2 x 2.2 W amplifier
- LAN: Marvell Yukon 88E8071 PCI-E Gigabit Ethernet controller
- SDVO/LVDS: Chrontel CH7307C SDVO and LVDS 18/24-bit transmitter
- Universal serial bus (USB) port: Supports up to 8 USB ports, 5 port for internal I/O, 3 ports for external I/O
  Mini PCI bus expansion slot: Accepts one mini PCIe bus Card
  Disk drive housing: Space for one 2.5" SATA HDD/CF Card
-
-

2.1.2 Flat Panel Interface

- Power button: With LED indicator
- Audio: Mic-in, Line-out
- USB: USB x 3
- LAN: Gigabit LAN
- SPK+MIC: build-in 2 x 2 W SPK + EM147 MIC
- Button: GPIO Programmable function
- Smart card reader: ISO7816 for IC card standard, PC/SC 1.0 for windows, smart card standard, Microsoft WHQL, EMV for Europay MasterCard Visa standard and USB-IF CCID standard

2.1.3 Module Feature

Features	Interface	Description
Wi-Fi Wireless	Mini PCIe	802.11b&g&n
RFID Kit	Internal USB	13.56 MHz, ISO-15693/14443
Camera module	Internal USB	2.0 M pixels CMOS camera LED
LED module	GPIO	Programmable, orange light handset
Handset module	RJ12	Build-in SPK & MIC
Remote controller	RJ12	Micro controller, up to 9 keys

2.1.4 Power Environmental

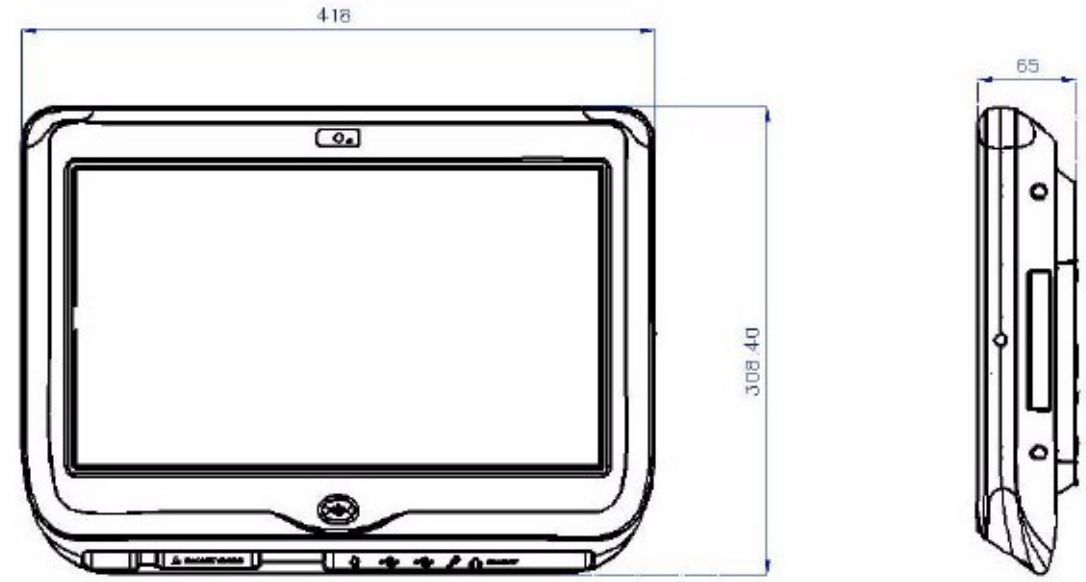
- Power adaptor: AC/DC
  – Input voltage: 100 Vac ~ 240 Vac
  – Output voltage: 19 V @ 3.95 A
- Medical adaptor: AC/DC
  – Input voltage: 100 Vac ~ 240 Vac
  – Output voltage: 18 V @ 3.5 A

2.2 Mechanical Specifications

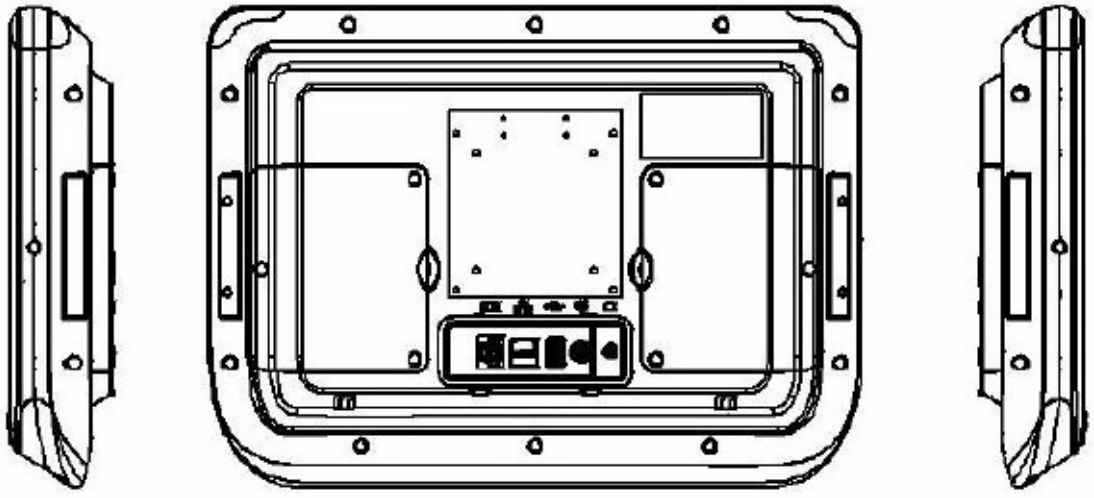
2.2.1 Mechanical Specifications (Terminal)

- System Dimensions: 418 (W) x 308.4 (H) x 65 (D) mm

Front Cover:



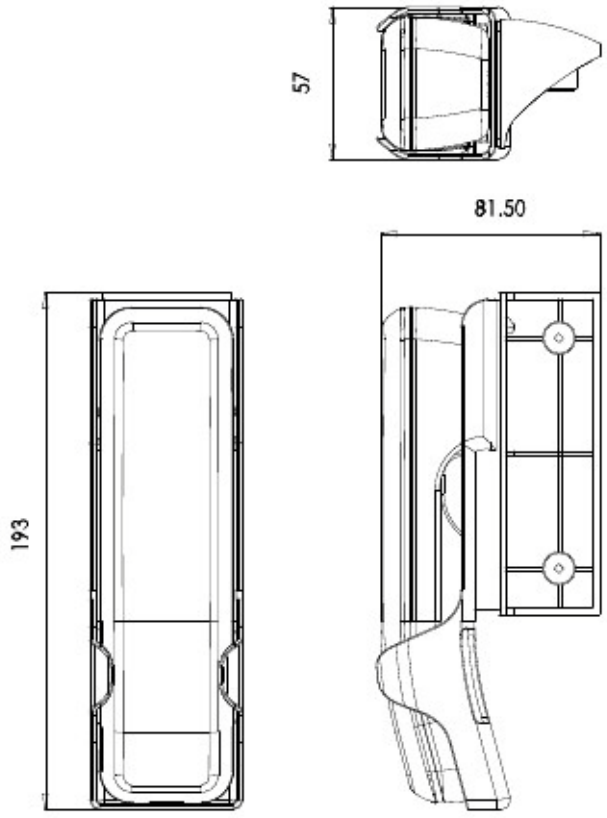
Rear Cover:



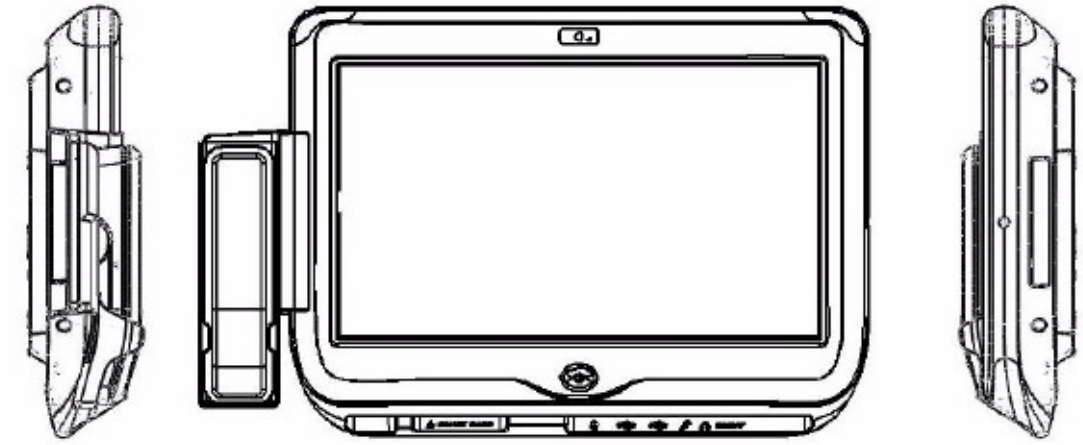
- Carton Dimensions: 620 (W) x 540 (H) x 180 (D) (excluding accessories box)
- Mounting System: Back box for wall mounting
- Gross Weight: 7.0 kg
- Net Weight: 5.0 kg

2.2.2 Mechanical Specifications (Terminal with Handset)

- System Dimensions: 494.5 (W) x 392.2 (H) x 73.5 (D) mm



Front Cover:



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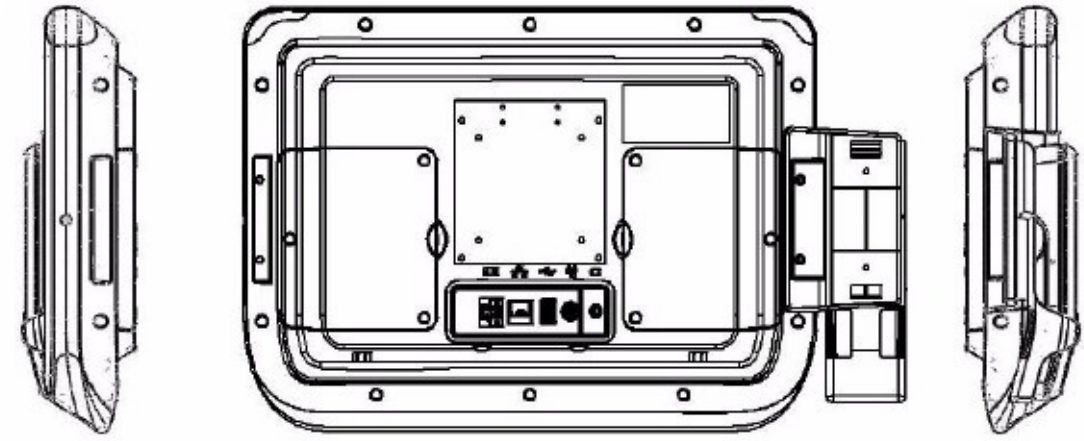
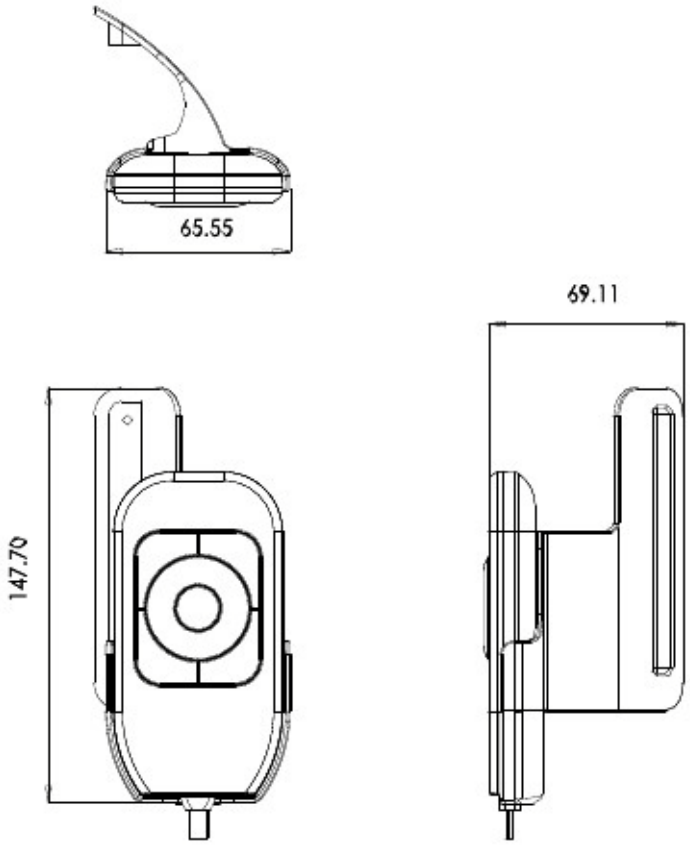


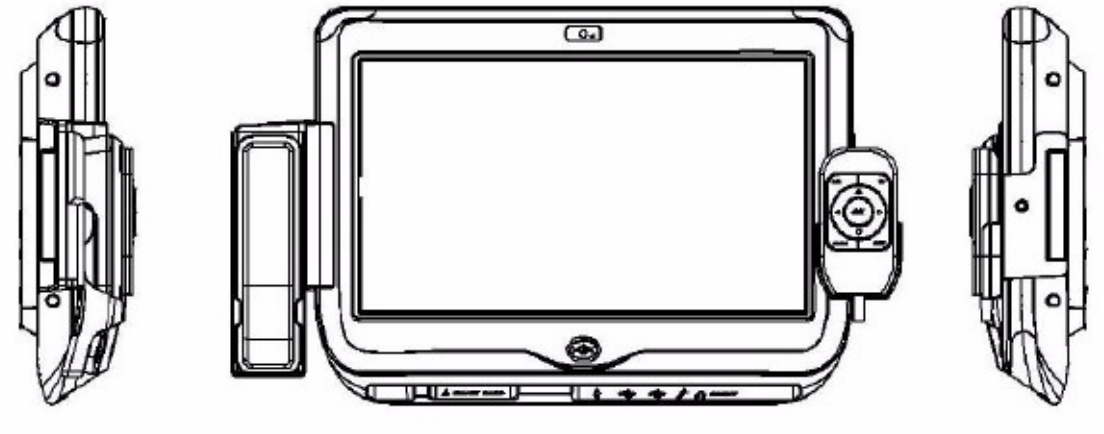
- Carton Dimensions: 620 (W) x 540 (H) x 180 (D) (excluding accessories box)
- Mounting System: Back of Box for Wall mounting
- Gross Weight: 7.0 kg
- Net Weight: 5.0 kg

2.2.3 Mechanical Specifications (Terminal with Remote Controller)

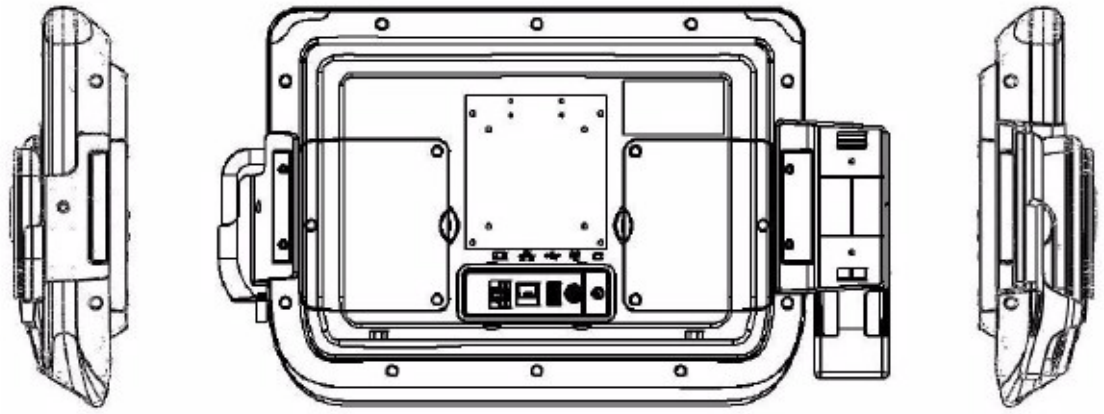
- System Dimensions: 532.3 (W) x 392.2 (H) x 73.5 (D) mm



Front Cover:

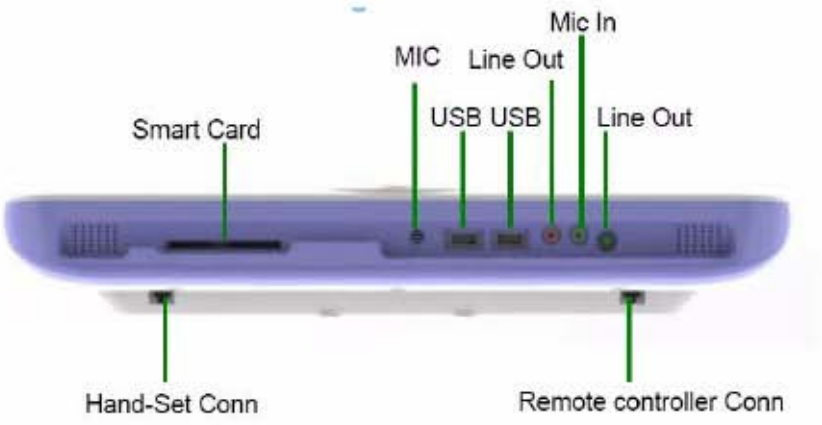


Rear Cover:

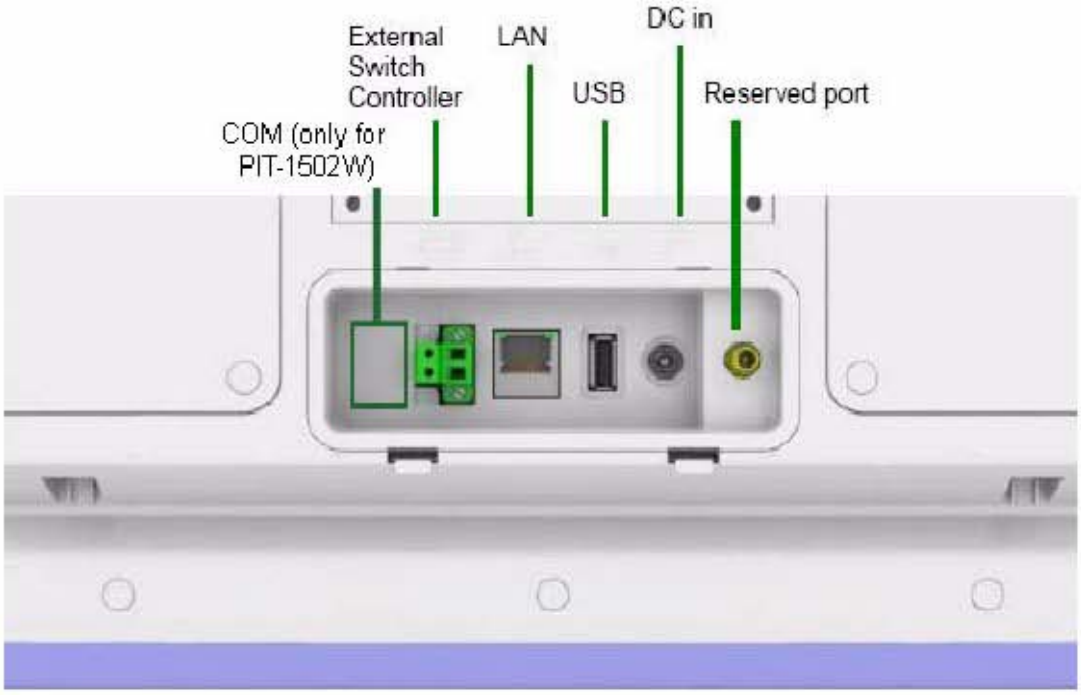


- Carton Dimensions: 620 (W) x 540 (H) x 180 (D) mm
- Mounting System: Back of Box for Wall mounting
- Gross Weight: 7.0 kg
- Net Weight: 5.0 kg

2.2.4 Mechanical Drawing for Button I/O



2.2.5 Mechanical Drawing for Rear I/O



*External Switch Controller: control port for LCD on/off switch on front panel.

2.3 External View

2.3.1 Front View

Front View (Terminal)

Front View (Terminal with Remote Controller)

Front View (Terminal with Remote Controller & Handset)

2.3.2 Side View

2.3.3 Rear View

Rear View (Terminal)

Chapter 3

Software Description

This chapter describes the software features of the PIT-15 Series.

- Windows XP Embedded Software Specifications

3.1 Windows XP Embedded Software Specifications

Real-Time OS Kernel

- Win XPE 7 Language Version

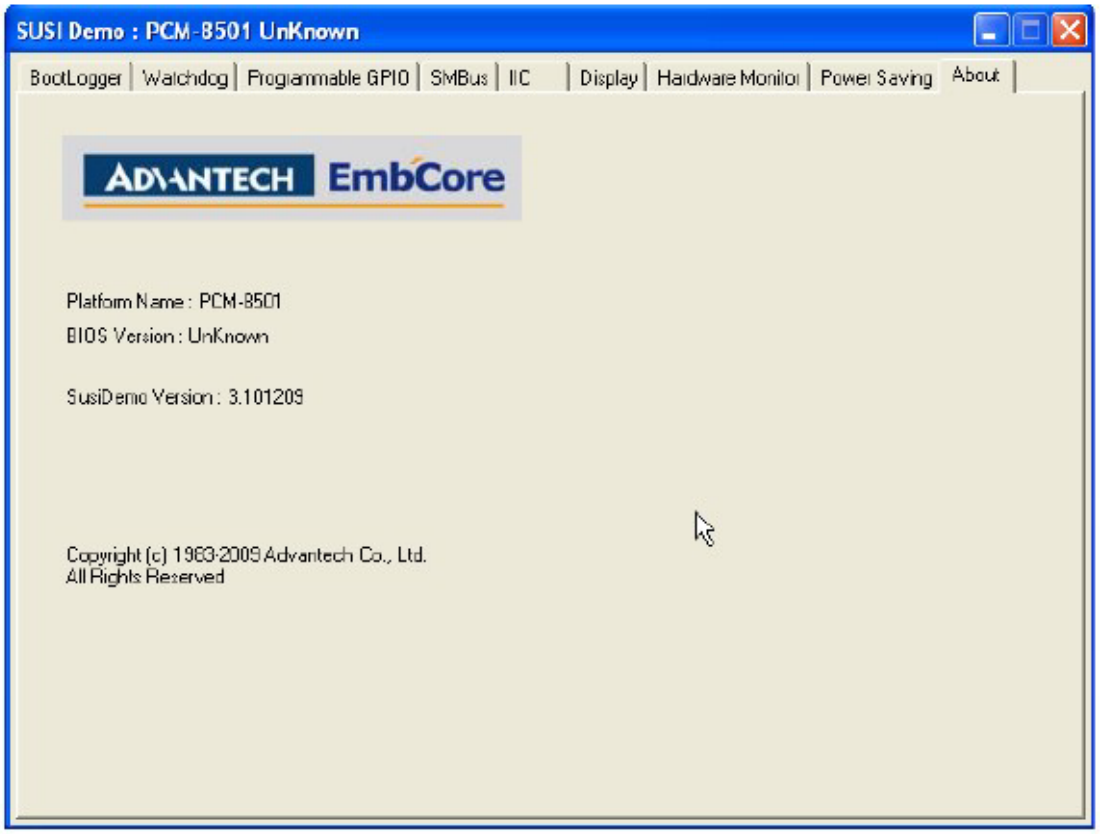
Driver list

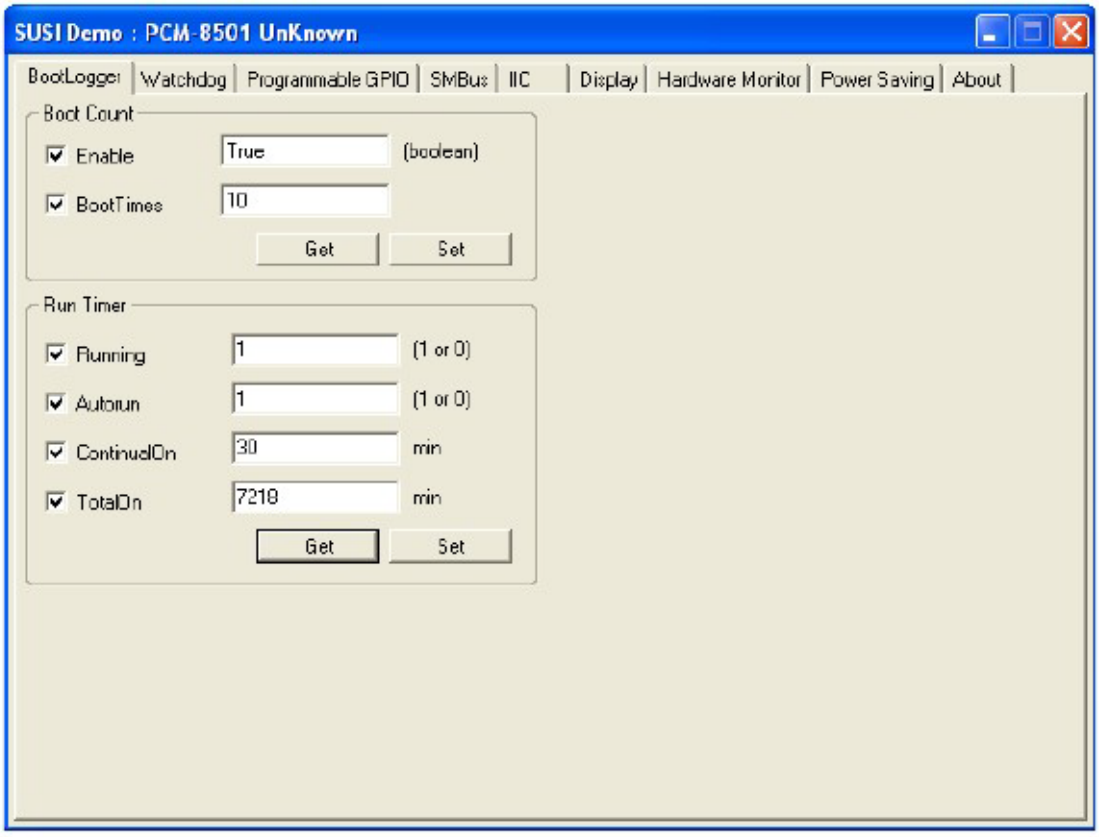
Chipset	Intel US15W	Rev:
Graphics	Intel GMA950	Rev:
Audio	Realtek Audio ALC880	Rev:5.10.0.5512
LAN	Marvell Yukon Ethernet Controller	Rev: 8.61.7.3
Camera	D-Max UVC 2 M Webcam	Rev: 6.11.200.4
Smartcard reader	ALCOR micro USB smartcard reader	Rev: 5.11.9520.7
Touch	Elo TouchSys. 2216 AccuTouch@USB	Rev: 4.4.0.0
WLAN	Qcom WIFI module	Rev:1.2.3.0

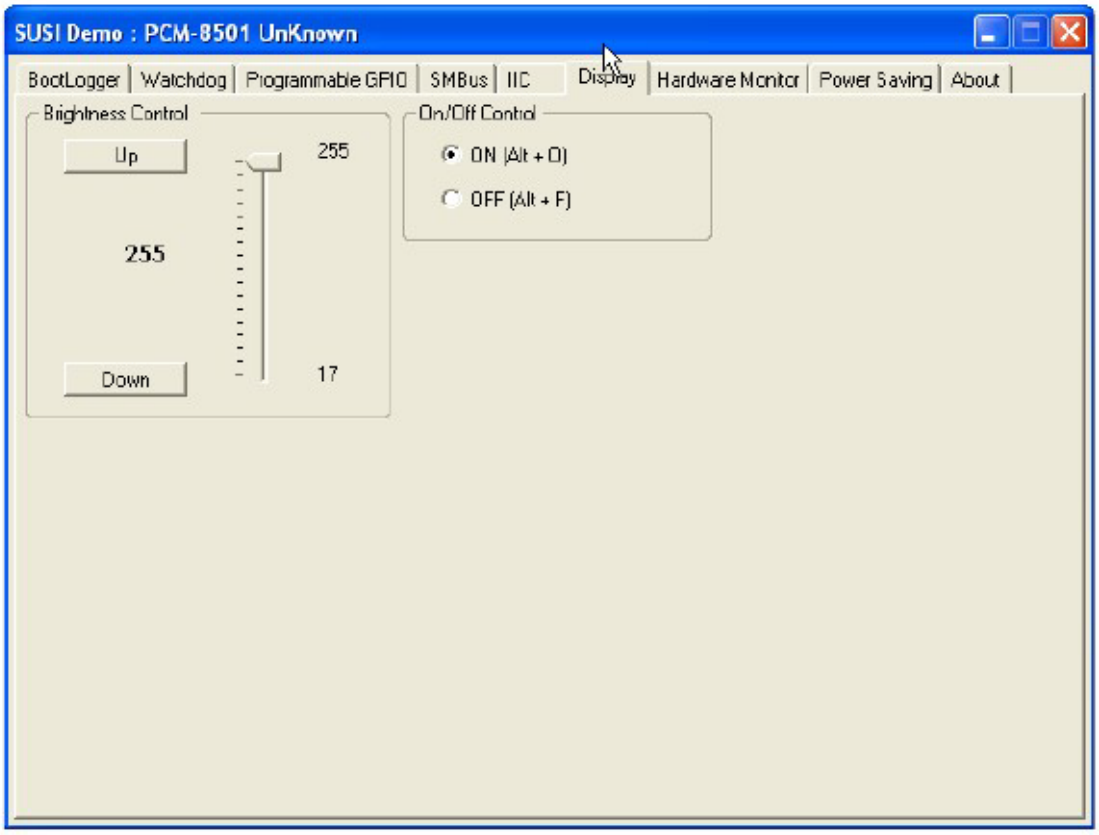
Embedded Application Software

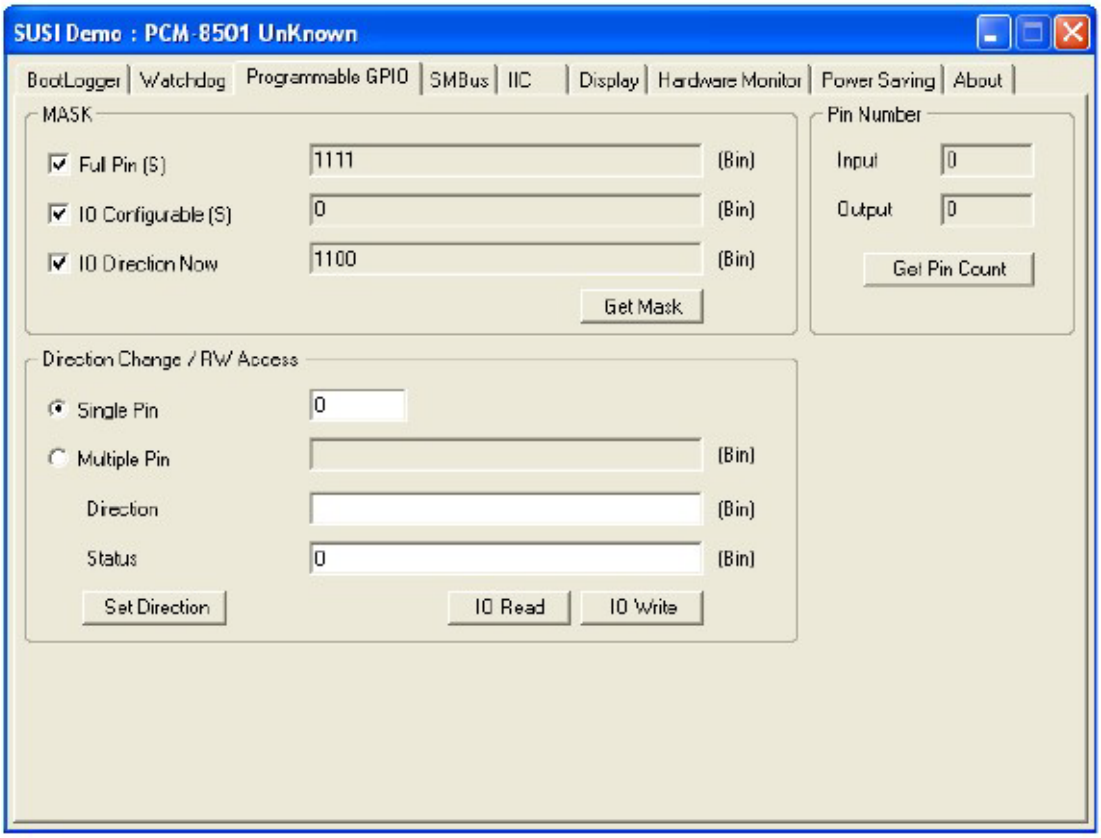
- Advanced SUSI

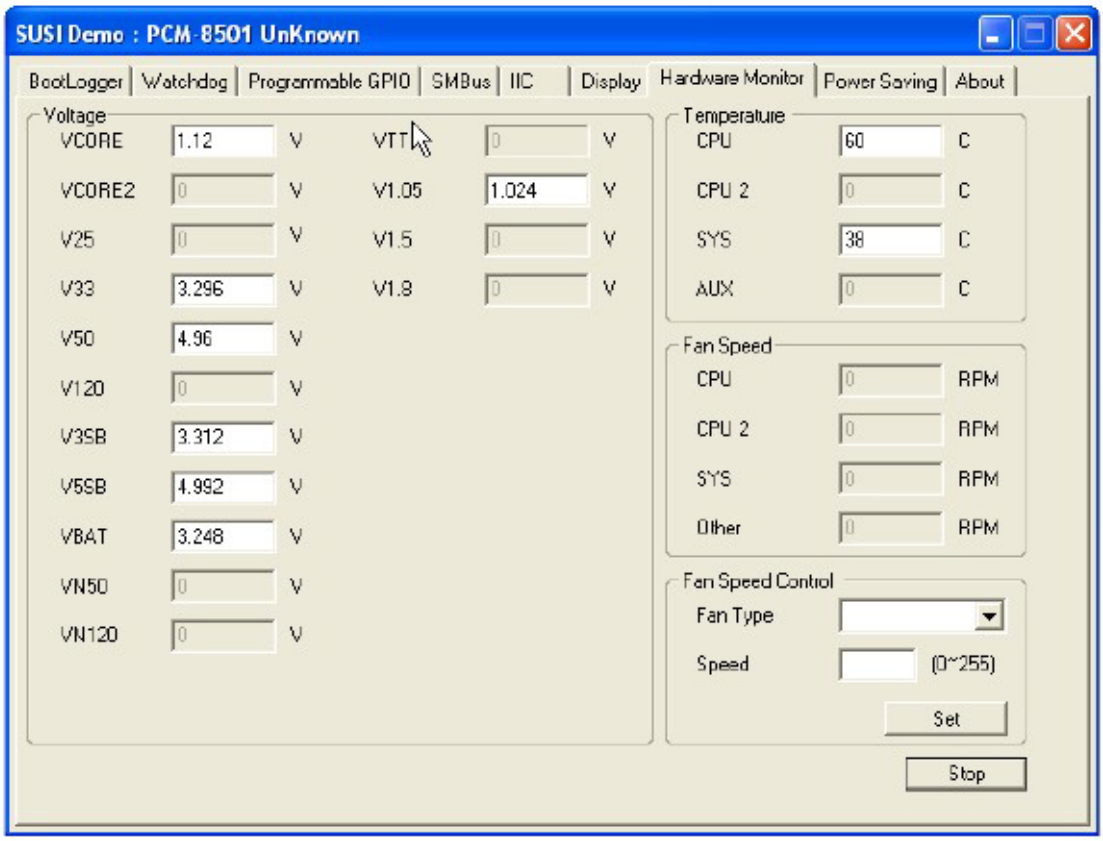
  SUSI demo program

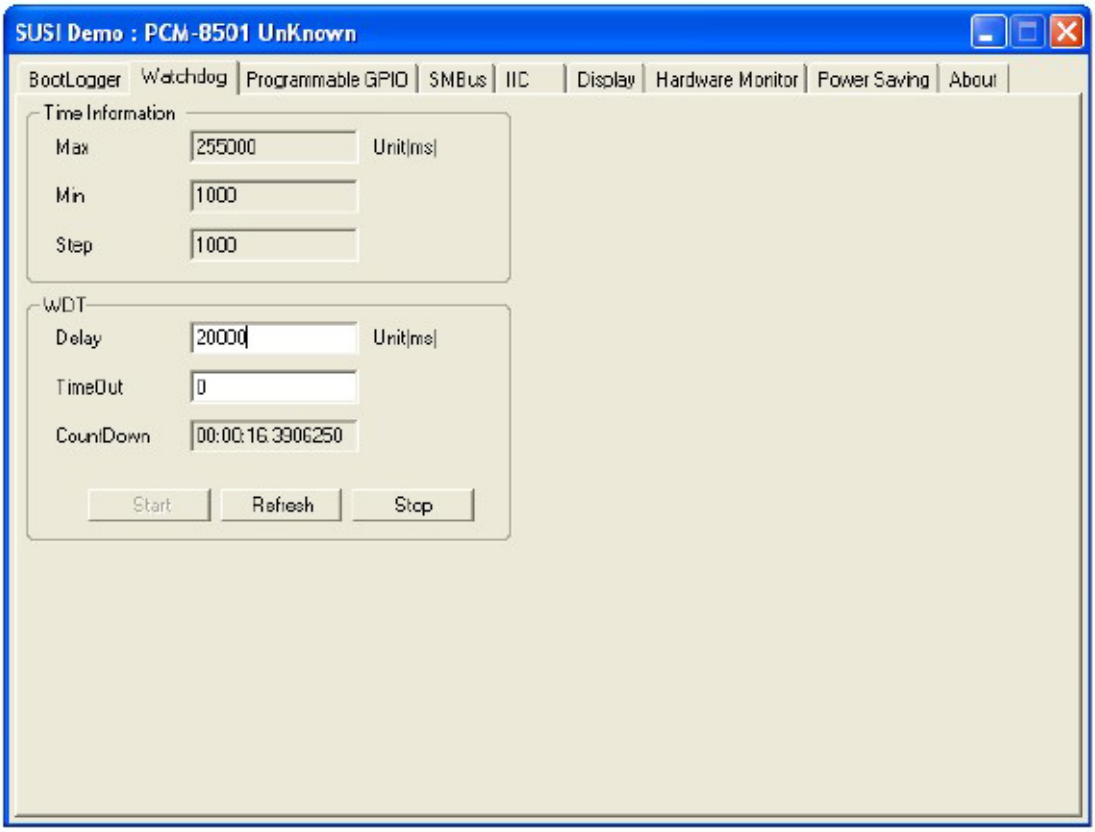





SUSI Demo : PCM-8501 UnKnown
BootLogger
Watchdog
Programmable GPIO
SMBus
IIC
Display
Hardware Monitor
Power Saving
About
Brightness Control
Up
255
255
Down
17
On/Off Control
ON (Alt + O)
OFF (Alt + F)


SUSI Demo : PCM-8501 UnKnown
BootLogger
Watchdog
Programmable GPIO
SMBus
IIC
Display
Hardware Monitor
Power Saving
About
MASK
Full Pin (S)
1111
(Bin)
IO Configurable (S)
0
(Bin)
IO Direction Now
1100
(Bin)
Get Mask
Pin Number
Input
0
Output
0
Get Pin Count
Direction Change / RW Access
Single Pin
0
Multiple Pin
(Bin)
Direction
(Bin)
Status
0
(Bin)
Set Direction
IO Read
IO Write


SUSI Demo : PCM-8501 UnKnown
BootLogger
Watchdog
Programmable GPIO
SMBus
IIC
Display
Hardware Monitor
Power Saving
About
Voltage
VCORE 1.12 V
VCORE2 0 V
V25 0 V
V33 3.296 V
V50 4.96 V
V120 0 V
V3SB 3.312 V
V5SB 4.992 V
VBAT 3.248 V
VN50 0 V
VN120 0 V
VTT 0 V
V1.05 1.024 V
V1.5 0 V
V1.8 0 V
Temperature
CPU 60 C
CPU 2 0 C
SYS 38 C
AUX 0 C
Fan Speed
CPU 0 RPM
CPU 2 0 RPM
SYS 0 RPM
Other 0 RPM
Fan Speed Control
Fan Type
Speed (0~255)
Set
Stop


SUSI Demo : PCM-8501 UnKnown
BootLogger
Watchdog
Programmable GPIO
SMBus
IIC
Display
Hardware Monitor
Power Saving
About
Time Information
Max 255000 Unit[ms]
Min 1000
Step 1000
WDT
Delay 20000 Unit[ms]
TimeOut 0
CountDown 00:00:16.3906250
Start
Refresh
Stop

Chapter 4

Design Requirements

This chapter describes the design requirements of the PIT-15 Series.

- Environmental Specifications
- Reliability

4.1 Environmental Specifications

Temperature & Humidity

- Operating Temperature: 0 ~ 40° C
- Storage Temperature: 0 ~ 60° C
- Relative Humidity: 0 ~ 95% RH (Non-condensed)

Case / Panel Temperature

- Less than 40° C @ 25° C ambient temperature (front bezel)

Safety

- CE

EMI

- FCC class B approved

Vibration:

- 10 ~ 18 Hz, 1.5 mm peak-to-peak displacement
- 18 ~ 500 Hz, 1 G acceleration

4.2 Reliability

MTBF

- 20,000 hours

Touchscreen

- 1 million touch actuation times on a single point with a 5/8" diameter silicon finger under a 350 g load at 2 Hz
- Power Requirements
- DC Input Voltage: 19 V
- Power Consumption: less than 60 W

Chapter 5

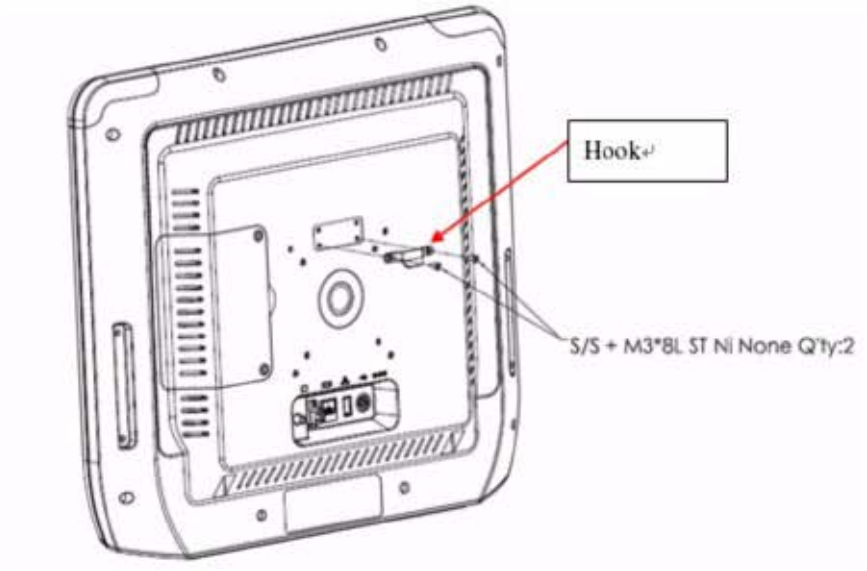
Installation

This chapter describes the installation of the PIT-15 Series.

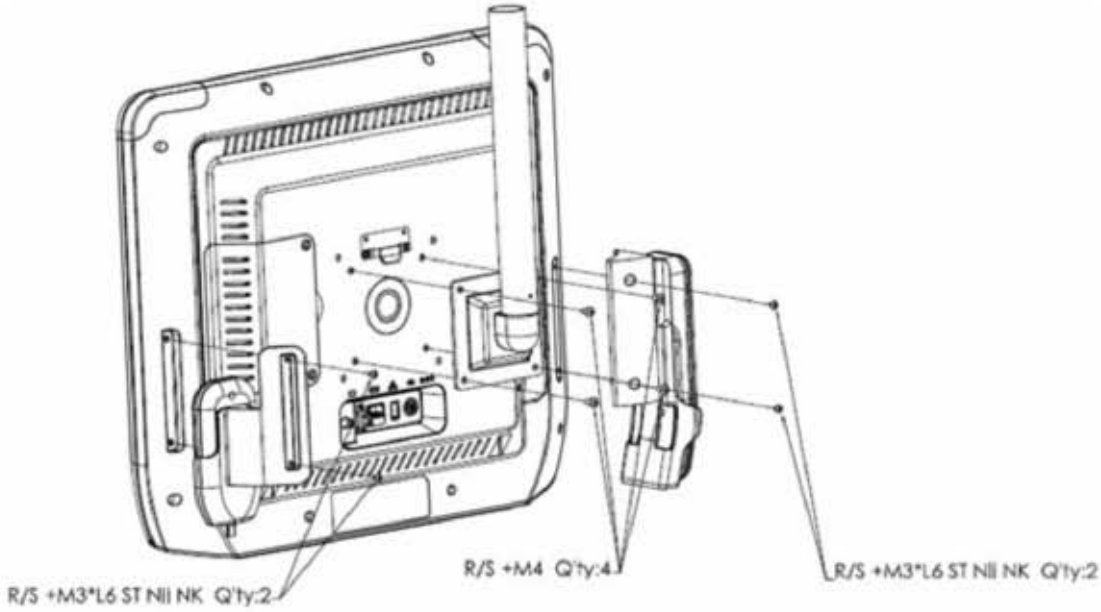
- Installation for Terminal
- Installation for Handset
- Installation for Remote Controller
- Installation for Arm

5.1 Terminal Installation

Step 1. Affix hook.

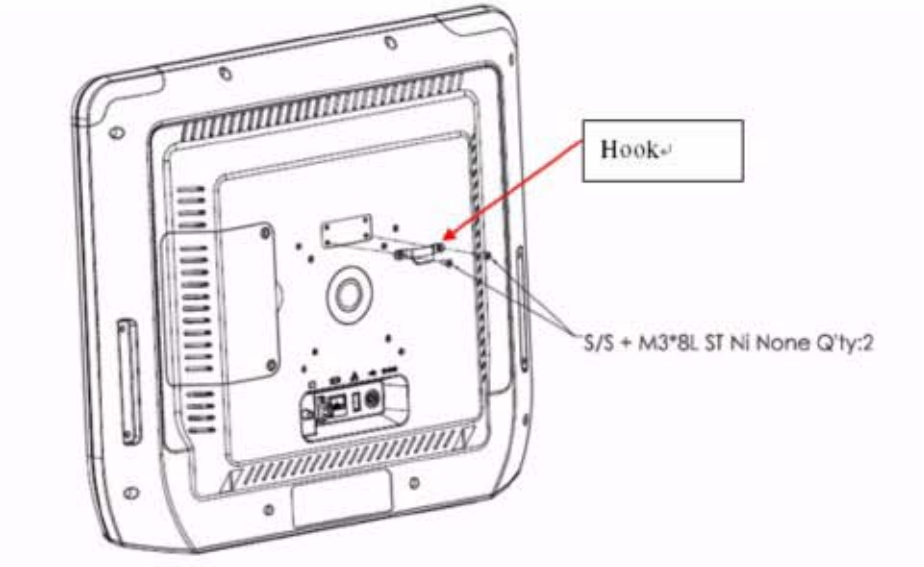


Step 2. Affix ARM + Handset Bracket + Remote Control Bracket.

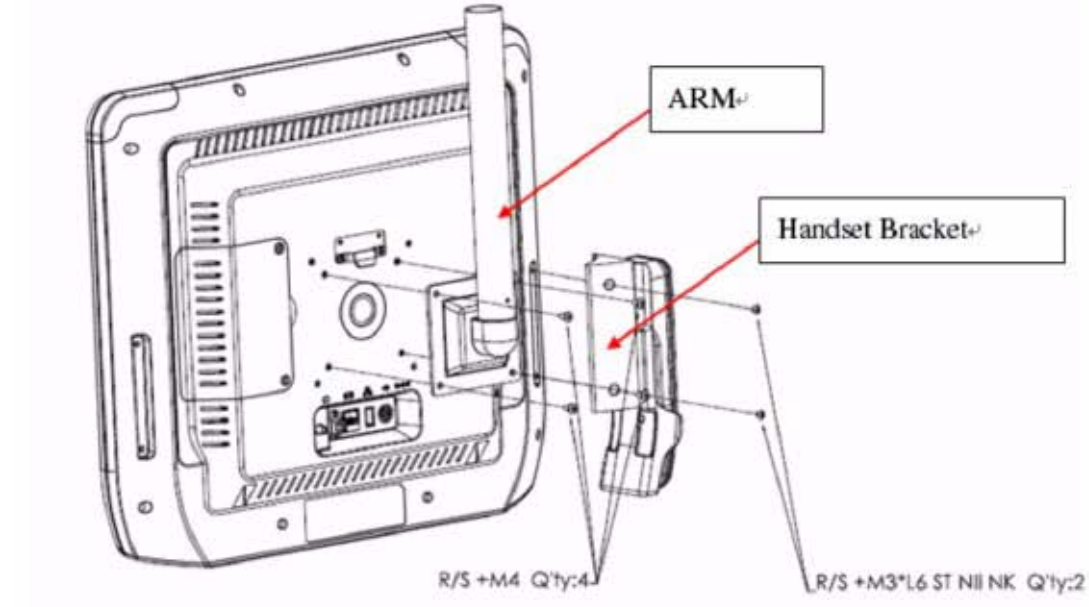


5.2 Handset Installation

Step 1. Affix Hook.

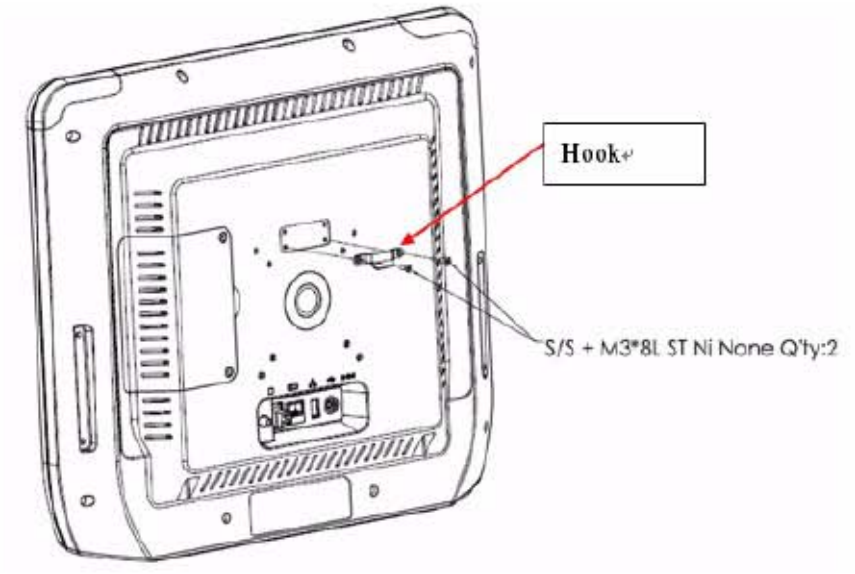


Step 2. Affix ARM + Handset Bracket + Handset.

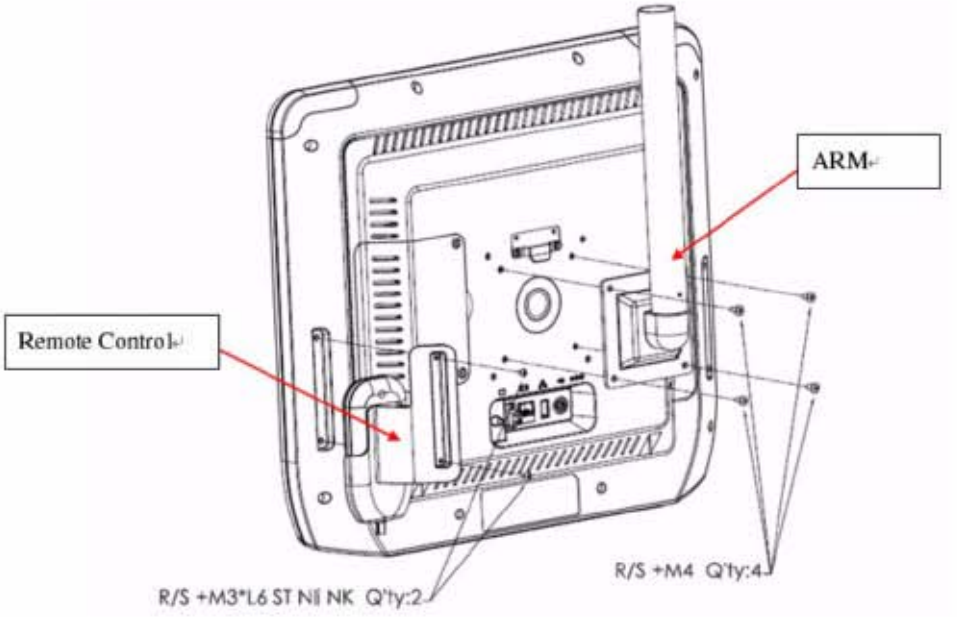


5.3 Remote Controller Installation

Step 1. Affix Hook.

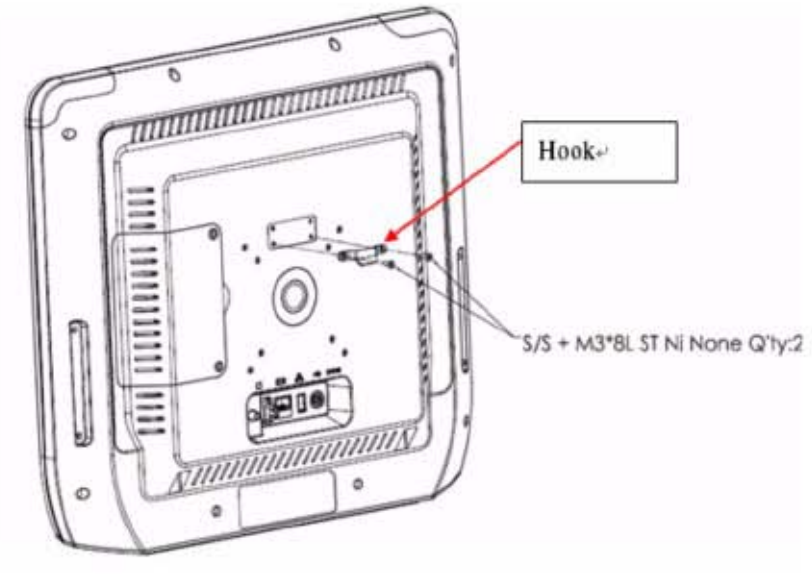


Step 2. Affix ARM + Handset Bracket + Remote Control Bracket.

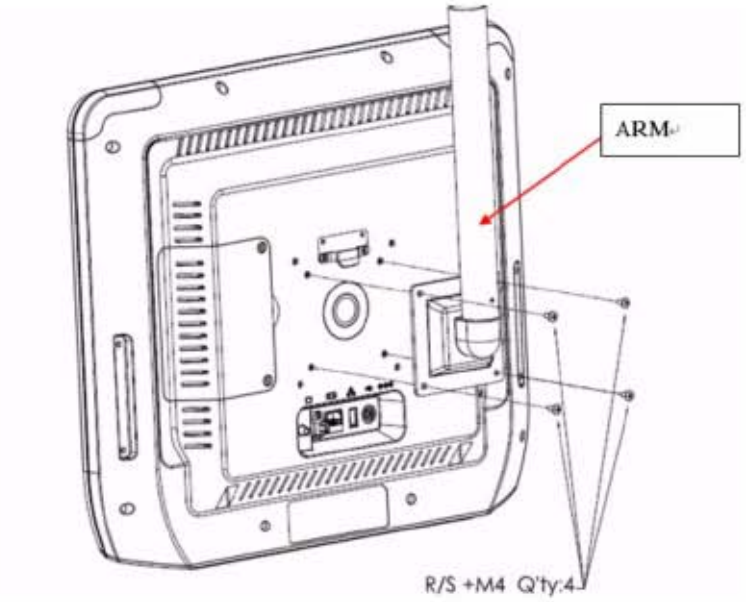


5.4 Arm Installation

Step 1. Affix Hook.



Step 2. Affix ARM + Handset Bracket + Handset.



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