



MED-AS402

Medical Video recorder



Operation Manual

INSTRUCTIONS FOR THE USER

The document combines text and illustrations, providing a comprehensive overview of the system. The information is presented as a sequential series of actions, allowing the user to learn directly how to use the device.

The text provides explanations and instructs the user step-by-step in the practical use of the product, with short, clear instructions in an easy-to-follow sequence.

DEFINITIONS

Warning!



A **WARNING** statement provides important information about a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Caution!



A **CAUTION** statement provides important information about a potentially hazardous situation which, if not avoided, may result in minor or moderate injury to the user or patient or in damage to the equipment or other property.

Note!



A **NOTE** provides additional information intended to avoid inconveniences during operation.

SAFETY INSTRUCTIONS

1. Strictly follow these Instructions for Use; please read these safety instructions carefully.
2. Please keep this User Manual for later reference; any use of the product requires full understanding and strict observation of all portions of these instructions. Observe all WARNINGS and CAUTIONS as rendered throughout this manual and on labels on the equipment.
3. Repair of the device may only be carried out by trained service personnel. Recommends that a service contract be obtained with Service and that all repairs also be carried out by them. Otherwise the correct functioning of the device may be compromised.

Warning! *Because of the danger of electric shock, never remove the cover of a device while it is in operation or connected to a power outlet.*



4. If one of the following situations arises, have 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 manual.
 - The equipment has been dropped and damaged.
 - The equipment has obvious signs of breakage.
5. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning and keep this equipment away from humidity.

Caution! *To avoid short-circuiting and otherwise damaging the device, do not allow fluids to come in contact with the device. If fluids are accidentally spilled on the equipment, remove the affected unit from service as soon as possible and contact the service personnel to verify that patient safety is not compromised.*



6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.

Caution! *To prevent overheating, do not cover the openings or place the device in direct sunlight or near radiant heaters.*



7. 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. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over voltage.

Caution! *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).*



This may damage the equipment.

8. If your computer does not keep the correct time or the BIOS configuration has been reset to default, the battery may have no charge.

Caution! *Do not replace battery yourself. Please contact a qualified technician or your retailer.*



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 manufacturer.

Discard used batteries according to the manufacturer's instructions.

9. Classification:

- 1). Supply Class I adapter
- 2). No applied part
- 3). Continuous Operation
- 4). Not AP or APG category

Warning! *This device is not suitable for use in the presence of flammable anesthetic mixture with air, oxygen, nitrous oxide, or for life support systems.*



10. Environmental protection: follow national requirements to dispose of unit.

11. Maintenance: to properly maintain and clean the surfaces, use only the approved products or clean with a dry applicator.

Caution! *When servicing the device, always use replacement parts that are qualified to Cypress standards. Cypress cannot warrant or endorse the safe performance of third-party replacement parts for use with our medical device.*



12. Make sure the user does not allow contact between SIP/SOPs and the patient at the same time.

13. When networking with electrical devices, the operator is responsible for ensuring that the resulting system meets the requirements set forth by the following standards:

- EN 60601-1 (IEC 60601-1)
Medical electrical equipment
Part 1: General requirements for safety
- EN 60601-1-1 (IEC 60601-1-1)
Medical electrical equipment
Part 1-1: General requirements for safety
Collateral standard: Safety requirements for Medical electrical systems

- EN 60601-1-2 (IEC 60601-1-2)
Medical electrical equipment
Part 1-2: General requirements for safety
Collateral standard: Electromagnetic compatibility;



MEDICAL - GENERAL MEDICAL EQUIPMENT
AS TO ELECTRICAL SHOCK, FIRE AND MECHANICAL
HAZARDS ONLY IN ACCORDANCE WITH ANSI/AAMI
ES 60601-1 (2005) + AMD (2012),
CAN/CSA-C22.2 No. 60601-1 (2008) + (2014)

14. Accessory equipment connected to 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 out-side of the patient environment. If in doubt, consult the technical services department or your local representative.

Caution! Use suitable mounting apparatus to avoid risk of injury.



15. Grounding reliability can only be achieved when the equipment is connected to an equivalent receptacle marked "Hospital Only" or "Hospital Grade".
16. Use a power cord that matches the voltage of the power outlet, which has been approved and complies with the safety standard of your particular country.

Note! Environmental protection



Follow national requirements to dispose of unit.

17. "WARNING - Do not modify this equipment without authorization of the manufacturer."
18. "WARNING – To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth."
19. "CAUTION: This adapter Sinpro Power: Type: HPU101-107 is a forming part of the medical device".
20. Remove the power cord to fully turn off the device.
21. Installation is only to be carried out by trained and authorized personnel.
22. CAUTION! WARNING! If this device was not used in the manner which manufacturer suggested, the end system shall evaluate for further compliance.

EXPLANATION OF GRAPHICAL SYMBOLS



IEC 60878 and ISO 3864-B.3.6: Warning: dangerous voltage



ISO 7000-0434: Caution, consult ACCOMPANYING DOCUMENTS



IEC 60417 -5009: STAND-BY



IEC 60417-5032: Alternating Current



IEC 60417-5021: Equipotentiality



IEC 60417-5031: Direct Current

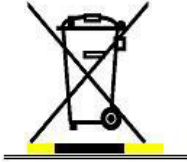


ISO 7010-M002: Follow instructions for use



DISPOSING OF OLD PRODUCTS

Within the European Union



EU-wide legislation, as implemented in each member state, requires that waste electrical and electronic products carrying the mark shown at left must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product, or if applicable, follow any agreements made between you and the provider.

The mark on electrical and electronic products only applies to the current European Union Member States.

FCC CLASS B

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 when the equipment is operated in a residential environment. This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with this user manual, it may cause harmful interference to radio communications.

Note that even when this equipment is installed and used in accordance with this user manual, there is still no guarantee that interference will not occur. If this equipment is believed to be causing harmful interference to radio or television reception, this can be determined by turning the equipment on and off. If interference is occurring, the user is encouraged to try to correct the interference by one or more of the following measures:

- 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 manual.

- The equipment has been dropped and damaged.
- The equipment has obvious signs of breakage.

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



LIST OF ACCESSORIES

Before installing your Point-of-Care Terminal, ensure that the following materials have been received:

- MED-AS402

Warning! No user serviceable parts inside; refer servicing to qualified personnel. Only the accessories indicated on the list of accessories above have been tested and approved to be used with the device. Accordingly it is strongly recommended that only these accessories be used in conjunction with the specific device. Otherwise the correct functioning of the device may be compromised.





ADDITIONAL INFORMATION AND ASSISTANCE

Contact your distributor, sales representative, or Cypress' 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
- This equipment is a source of electromagnetic waves. Before use please, make sure that there are not EMI sensitive devices in its surrounding which may mal-function therefore.

Environmental protection

- Follow national requirements to dispose of unit

Manufacturer:

Cypress technology Co., Ltd.

6F-5, No.130, Jiankang Rd., Zhonghe Dist., New Taipei City 23585, Taiwan (R.O.C.).

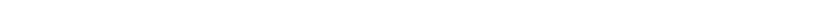
TEL: (02) 2226-9586

Visit the Cypress websites at en.cypress.com.tw if you need more information.



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1. GENERAL INFORMATION

1.1 Introduction

MED-AS402 is a video recorder that supports multi-channel recording at one time. It has video capture I/O, video display I/O and other I/Os. Video capture I/O includes HDMI, which supports video data up to 4k resolution and @60 frame rate, as well as Y/PbPr, CVBS, S-Video, SDI, HDMI, DVI-I which supports video data up to FHD resolution and @60 frame rate. There could be three I/Os for video display: DVI, Display Port, and HDMI. Dual-link 2560 x 1600 resolution and @60 frame rate is supported for DVI-D, while both HDMI and Display Port support maximum resolution at 4096x2160 (4K)@60Hz frame rate

Other I/Os include RJ-45 ports, USB 3.0 ports and USB 2.0 ports, RS-232 port, and Audio out/in 3.5mm stereo jack connectors.

With the SATA 3.0 interface, the AS402 is a user-friendly computer that system integrators can use this highly integrated multimedia system to easily implement into your applications. Apart from that, AS402 provides SDKs and APIs for system integrators to program their video applications efficiently. In other chapters, the SDKs and APIs provided will be described in more detail.

Intended use – MED-AS402 is intended to serve as a medical video recorder for integration with hospital systems. MED-AS402 is designed for general purpose used in medical image or video related application in the hospital environment, for data collection and for displaying information via connecting a display.

It should not be used as a life-support system. The latest version of this user manual is available for download from en.cypress.com.tw

1.2 Specifications

System	CPU	Intel® Core™ i7-7700 3.6GHz
	Memory	16GB, Up to 32GB DDR4 2133MHz
	Storage	1TB, based on customers' requirement
System input rating	Input Voltage	100-240 AC
Video	Input Resolution	Up to 4K
	Output Resolution	Up to 4K
	Compression Format	MPEG2 H.264, H.265
Audio	Audio	2 (Mic-in/ Line-out) (Mic-in could be configured as "Line-in" under Win OS.)
IO Port	Video Display	1 x DVI, 1 x Display Port, 1 x HDMI (can be optional)
	Video Capture	4Kp60: 1 x HDMI
		FHD (max): Y/PbPr, CVBS, S-Video, SDI, HDMI, DVI-I (can be optional)
	COM	1 x RS232
	USB Ports	6 x USB 3.0 ports
		4 x USB 2.0 ports
	LAN	2 x RJ-45
	Audio	2 x Audio out/in 3.5mm stereo jack connectors

Power Supply	Input Voltage	100-240V AC, 47-63Hz, 500W
Certification	UL/CB 60601-1, CE & FCC Class B certified	
Environment	Temperature	0 ~ 40°C (Operating) -10 ~ 50°C (Storage/Transportation)
	Humidity	10%-90% @ 40°C (non-condensing) (Operating) 5 ~ 90% (non-condensing) (Storage/Transportation)
	Pressure	700-1060 hPa (Operation) 500-1060 hPa (Storage/Transportation)
Physical Characteristics	Dimensions (W x H x D)	329.5mmX320mmX145mm
	Weight	4.65Kg

1.3 Dimensions

Dimensions: 329.5 x 320 x 145 mm

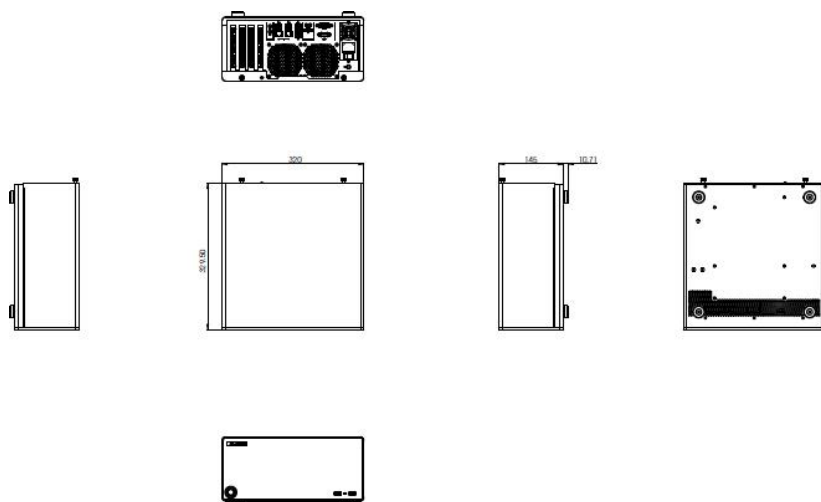


Figure 1.1 Dimensions of the MED-AS402



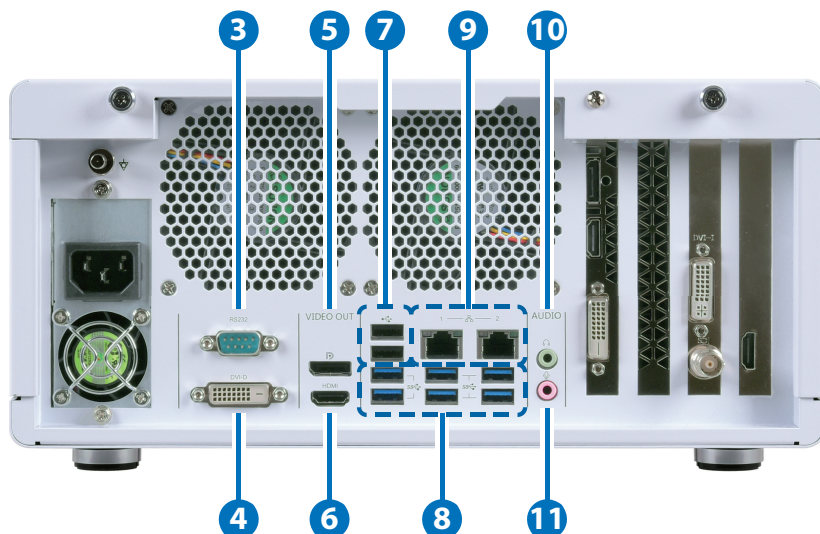
Figure 1.2 MED-AS402 Front Panel



❶ Power button (blue light)

❷ USB 3.0

Figure 1.3 MED-AS402 Rear Panel



- 3** RS232
- 4** DVI-D
- 5** Display Port
- 6** HDMI
- 7** USB 2.0
- 8** USB 3.0
- 9** RJ-45
- 10** Headphone
- 11** MIC

1.3.1 Optional Add-on Cards

Capture cards

Part Number	Description
DVP-7611HE	1ch HDV/SDI/ CVBS/YPrPr/S-video PCIe capture Card
DVP-7011UHE	1ch 4K HDMI 2.0 Video capture Card

There are SDKs and APIs for video capturing and recording which allow system integrators to implement into their use applications. After installing the capture cards to MED-AS402, software programmers can easily program their customized software application. For SDKs and APIs contents, you can download the related documents from Cypress official website.

Graphic card

Part Number	Description
GFX-NG1050TF16-5D1	GTX1050TI 4G PCIEX16 DVI+HDMI+DP FHFL

1.3.2 Cleaning and Disinfecting

During normal use of MED-AS402 the device may become dirty and should be regularly cleaned.

Steps:

1. Prepare cleaning detergent
2. Wipe MED-AS402 with a clean cloth that has been moistened in the detergent.
3. Wipe thoroughly with a clean cloth.

Suggested cleaning detergent:

1. 10% Sodium HyAS402hlorite 90% water solution.
2. A solution of 90% water, 6% benzyl alcohol, and 3% Hydrogen Peroxide
3. Glutaraldehyde (2.4%)

**Caution!**

- *Do not immerse or rinse the AS402 or its peripherals. If you accidentally spill liquid on the device, disconnect the unit from the power source. Contact your IT support department regarding the continued safety of the unit before placing it back in operation-Do not spray cleaning agent on the chassis.*
- *Do not use disinfectants that contain phenol.*
- *Do not autoclave or clean the AS402 or its peripherals with strong aromatic, chlorinated, ketone, ether, or ether solvents, sharp tools or abrasives. Never immerse electrical connectors in water or other liquids.*

1.4 Operating Principle

The device provides input through I/O ports mainly on the rear cover. The device computes the input data with its processing unit and then output the generated data to accessories or other devices through its I/O ports or through its LAN connections. The device is able to store data in its storage, and when the device is turned off, still maintain the data in the memory units of the storage.

1.5 Intended User Profile

Intend user profile:

Age: 18 to 65

Weight: not relevant

Health: not relevant

Nationality: Global

Patient state: patient will not be the operator.

Part of the body or type of tissue applied to or interacted with: hands, expected contact time shall be less than 1 min, and will not touch MED-AS402 so frequently once it is set up.

Education level: at least 8 years intensive reading experience (school)

Knowledge:

Minimum – read and understand “westernized Arabic” numerals when written in Arial font

- can distinguish: every parts of body as described in user manual
- trained and authorized by manufacturer only.

To be considered as trained and authorized, they must complete the training course of the manufacturer; see document number MED-AS402_User Manual for qualification method, when considered necessary by the manufacturer, technician shall be called back for retraining and annual training is also considered necessary.

Language understanding: English, whenever other languages are required, professional translation company shall translate and review by the manufacturer, see SOP document number: SOP_Writing_Guidelines-ed.3 Experience: Mentally and physical competent, specific medical training to understand basic knowledge for symbols.

Permissible impairments:

- Mild reading vision impairment or vision corrected to log MAR 0,2 (6/10 or 20/32)
 - Average degree of aging-related short term memory impairment
 - impaired by 40 % resulting in 60 % of normal hearing at 500 Hz to 2 kHz
- Operating Principle:

The device provides input through I/O ports, and accessories through USB ports or its LAN connections. The device computes the input data with its processing unit and then output the generated data to accessories or other devices through its I/O ports or through its LAN connections. The device is able to store data in its storage, and when the device is turned off, still maintain the data in the memory units of the storage.

2. SYSTEM SETUP

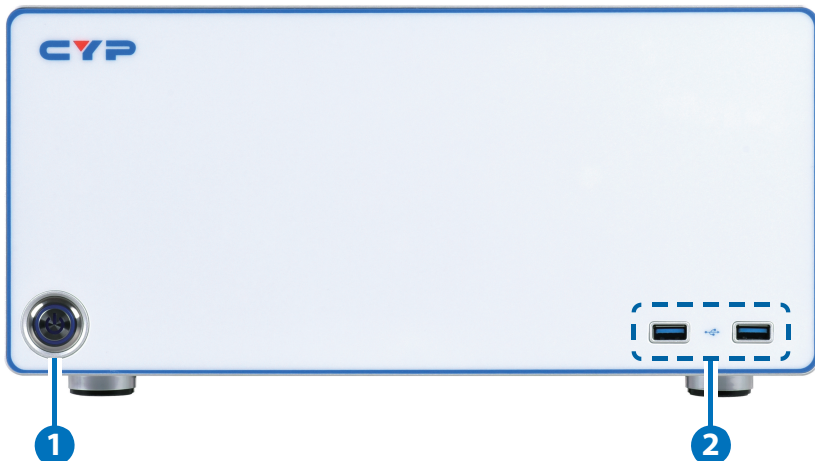
2.1 A Quick Tour of the MED-AS402

Before you start to set up the MED-AS402, take a moment to become familiar with the locations and purposes of the controls, drives, connections and ports, which are illustrated in the figures below.

When you place the MED-AS402 upright on the desktop, its front panel appears as shown in Figure 2.1.

2.1.1 Front View

Figure 2.1 Front View of the MED-AS402



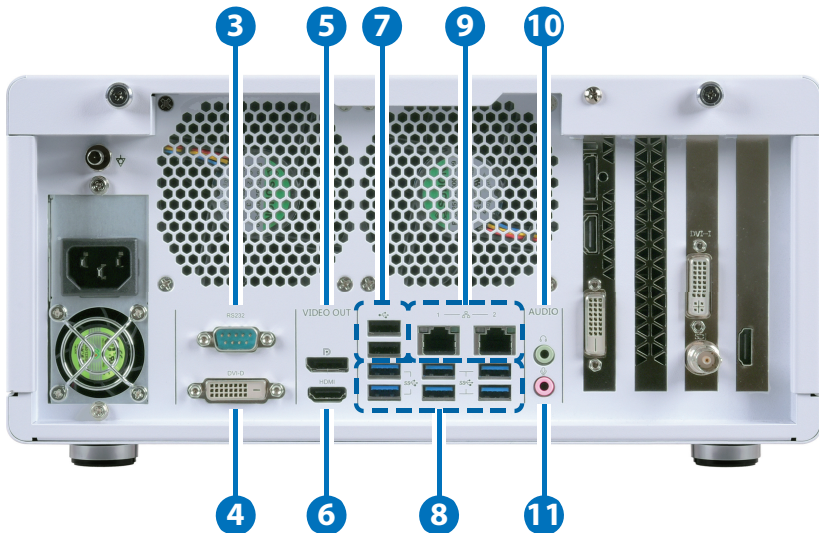
- 1 Power Button w/ indicator blue light when it is switched on
- 2 USB 3.0

2.1.2 Rear View

Figure 2-2: Rear view of MED-AS402

Most of I/O ports of MED-AS402 are located at the rear cover, including Display port, COM port, HDMI port, DVI-D port, Ethernet ports, USB ports and so on. Apart from the I/O ports shown in below fig 2.2, additional I/O ports are also included (not shown here) as add-on cards have been assembled to

MED-AS402 for capturing and recording video



- 3** RS-232
- 4** DVI-D out
- 5** Display Port out
- 6** HDMI out
- 7** USB 2.0 X 2
- 8** USB 3.0 X 6
- 9** Lan Ports (RJ-45) X 2
- 10** Audio out (Headphone)
- 11** Audio in (MIC)

NOTE: Equipotential terminal need link to hospital ground/earth system before system boot to protect operator and system.

2.2 Installation Procedures

2.2.1 Connecting the Power Cord

The MED-AS402 can only be powered by connecting the power cord to its power supply (FSP500M-80PA), and pressing the power button on the front cover. Be sure to always handle the power cords by holding the plug ends only.

Follow these procedures in order:

1. Connect the female end of the power cord to the 3-pin AC male plug of MED-AS402.
2. Connect the 3-pin male plug of the power cord to an electrical outlet.

Figure 2.7 Connecting the power cord

2.2.2 Connecting the Ground Pin

Step 1. System ready and find the Equipotential Terminal on rear side of AS402.

An Equipotential Terminal is provide to optionally connect to a hospital ground/earth system



Figure 2-8: MED-AS402 Equipotential Terminal Pin

Step 2. Prepare the Grounding cable and the other terminal link to hospital ground/earth system.



Figure 2-9: Grounding cable with connector

Step 3. Grounding cable plug with MED-AS402 Equipotential Terminal
(See Figure 2-8)

2.3 Running the BIOS Setup Program

Your MED-AS402 was probably set up and configured by your dealer prior to delivery. You may still find it necessary to use the BIOS (Basic Input-Output System) setup program to change system configuration information, such as the current date and time or your type of hard drive. The setup program is stored in read-only memory. It can be accessed either when you turn on or reset the MED-AS402, by pressing the "F2 or Del" key on your keyboard immediately after powering on the computer.

The settings you specify with the setup program are recorded in a special area of memory called CMOS RAM. This memory is backed up by a battery so that it will not be erased when you turn off or reset the system. Whenever you turn on the power, the system reads the settings stored in CMOS RAM and compares them to the equipment check conducted during the power on self-test (POST). If an error occurs, an error message will be displayed on screen, and you will be prompted to run the setup program.

2.4 Installing System Software

Recent releases of operating systems from major vendors include setup programs which load automatically and guide you through hard disk preparation and operating system installation. The guidelines below will help you determine the steps necessary to install your operating system on the AS402 hard drive.

Note: Some distributors and system integrators may have already pre-installed system software prior to shipment of your MED-AS402.

If required, insert your operating system's installation or setup diskette into the external diskette drive until the release button pops out.

The BIOS supports system boots up directly from the CD-ROM drive. You may also insert your system installation CD-ROM disk into your external CD-ROM drive.

Power on or reset the system by pressing the "Esc" or Del" key to boot into BIOS menu and adjust the boot device sequence.

You can also press F7 key when booting; a bootable device popup menu will appear, you can select bootable device that you want. MED-AS402 will automatically load the operating system from the diskette or CD-ROM.

If you are presented with the opening screen of a setup or installation program, follow the instructions on screen. The setup program will guide you through preparation of your hard drive, and installation of the operating system.



2.5 Installing the Drivers

After installing your system software, you will be able to set up the Chipset, Graphics, Ethernet, and Audio functions from your own external CD-ROM drive. All the drivers can be downloaded via Cypress official website.

The standard automatic installation procedures for installing the Chipset, Graphics, Audio, and Ethernet are described in Chapter 3.

Troubleshooting

When system behaves abnormally, such as:

1. Failure to power on
2. Failure to power off
3. AC power in and all switches ON, but system doesn't power on

Contact your distributor, sales representative, or CYP'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
- Symptoms, photo or video if available.

Guidance and Manufacturer's Declaration – Electromagnetic Emissions

Emissions Test	Compliance	Electromagnetic Environmental Guidance
RF emissions CISPR 11	Group 1	MED-AS402 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	MED-AS402 is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Not applicable	
Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and the MED-AS402		

MED-AS402 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the model MED-AS402 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the model AS402 as recommended below, according to the maximum output power of the communications equipment.

Rated Maximum Output Power of Transmitter W	Separation Distance According to Frequency of Transmitter m		
	150 kHz to 80 MHz $d = 1,2 \sqrt{P}$	80 MHz to 800 MHz $d = 1,2 \sqrt{P}$	800 MHz to 2,5 GHz $d = 2,3 \sqrt{P}$
0,01	0,12	0,12	0,23
0,1	0,38	0,38	0,73
1	1,2	1,2	2,3
10	3,8	3,8	7,3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation in the table above applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Guidance and Manufacturer's Declaration – Electromagnetic Immunity


MED-AS402 is intended for use in the electromagnetic environment specified below. The customer or the user of the model MED-AS402 should assure that it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environmental Guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 8 kV contact ± 15 kV air	± 8 kV contact ± 15 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/output lines	Main power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Main power quality should be that of a typical commercial or hospital environment.

Interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% UT (>95% dip in UT) for 0,5 cycle 40% UT (60% dip in UT) for 5 cycles 70% UT (30% dip in UT) for 25 cycles <5% UT (>95% dip in UT) for 5 sec	<5% UT (>95% dip in UT) for 0,5 cycle 40% UT (60% dip in UT) for 5 cycles 70% UT (30% dip in UT) for 25 cycles <5% UT (>95% dip in UT) for 5 sec	Main power quality should be that of a typical commercial or hospital environment. If the user of the model MED-AS402 requires continued operation during main power interruption, it is recommended that the model MED-AS402 be powered from an uninterruptible power supply.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE UT is the A.C. main voltage prior to application of the test level.			

Guidance and Manufacturer's Declaration – Electromagnetic Immunity

The model MED-AS402 is intended for use in the electromagnetic environment specified below. The customer or the user of the model MED-AS402 should assure that it is used in such an environment.

Immunity test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environmental Guidance
<p>Conducted RF IEC 61000-4-6</p> <p>Radiated RF IEC 61000-4-3</p>	<p>3 Vrms 150 kHz to 80 MHz 3 V/m</p> <p>80 MHz to 2,5 GHz</p>	Vrms V/m	<p>Portable and mobile RF communications equipment should be used no closer to any part of the model MED-AS402, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended Separation Distance</p> <p>$d = 1,2 \sqrt{P}$</p> <p>$d = 1,2 \sqrt{P}$ 80 MHz to 800MHz</p> <p>$d = 2,3 \sqrt{P}$ 800MHz to 2,3 GHz</p> <p>where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range.</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 

NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

- a** Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which MED-AS402 is used exceeds the applicable RF compliance level above, MED-AS402 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the unit.
- b** Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

3. OPERATION AND SAFETY

3.1 General Safety Guide

For your own safety and that of your equipment, always take the following precautions.

Disconnect the power plug (by pulling the plug, not the cord), from your computer if any of the following conditions exists:

- The power cord or plug becomes frayed or otherwise damaged
- You spill something into the case
- Your computer has been dropped or the case has been otherwise damaged
- You suspect that your computer needs service or repair
- You want to clean the computer
- You want to remove/install any parts

3.2 Thermal


The vent hole on the rear cover of MED-AS402 as well as system fans, CPU fan function as a cooling air flow inlet and outlet. These air inlets and outlets transfer heat from inside the computer to the cooler air outside. Do not block these holes/vents with any soft material, nor should its system fans and CPU fan be removed arbitrary.


Warning! *Do not place your MED-AS402 system on a pillow or other soft material when it is on, as the material may block the airflow and cause the computer to overheat.*



3.3 Disconnect the Power

The only way to disconnect power completely is to unplug the power cord. Make sure at least one end of the power cord is within easy reach so that you can unplug the computer when you need to.

Warning!  Your AC cord came equipped with a three-wire grounding plug (a plug that has a third grounding pin). This plug will fit only a grounded AC out-let. If you are unable to insert the plug into an outlet because the outlet is not grounded, contact a licensed electrician to replace the outlet with a properly grounded outlet. Do not defeat the purpose of the grounding plug.

Warning!  Never push objects of any kind into this product through the openings in the case.

Doing so may be dangerous and result in fire or a dangerous electric shock. Never place anything on system case before turning off the computer.

Never turn on your computer unless all of its internal and external parts are in place. Operating the computer when it is open or missing parts can be dangerous and can damage your computer.

3.5 Proper Handling

Handle your MED-AS402 with care. It is made of metal, and has sensitive electronic components inside.

Don't use a damaged MED-AS402.

Set MED-AS402 on a stable work surface.

Do not push objects into the ventilation openings. To lift or move your system, hold its sides.



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