

User Manual

USM-100H series

Professional Mini Medical Computer

ADVANTECH

Enabling an Intelligent Planet

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.

Le document combine du texte et des illustrations, offrant une vue d'ensemble complète du système. Les informations sont présentées sous la forme d'une série d'actions séquentielles, permettant à l'utilisateur d'apprendre directement comment utiliser l'appareil.

Le texte fournit des explications et instruit l'utilisateur étape par étape dans l'utilisation pratique du produit, avec des instructions courtes et claires dans une séquence facile à suivre.

Definitions



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

Avertissement! Un *AVERTISSEMENT* fournit d'importantes informations concernant une situation potentiellement dangereuse qui, si elle n'est pas évitée, pourrait entraîner la mort ou des blessures graves.



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.

Mise en garde! Une *ATTENTION* fournit d'importantes informations concernant une situation potentiellement dangereuse qui, si elle n'est pas évitée, pourrait entraîner des blessures mineures ou modérées à l'utilisateur ou au patient et endommager l'équipement ou d'autres propriétés.



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

Acknowledgements

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Intel et Pentium sont des marques d'Intel Corporation.

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Product Warranty (2 years)

Advantech warrants the original purchaser that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products that have been repaired or altered by persons other than repair personnel authorized by Advantech, or products that have been subject to misuse, abuse, accident, or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, customers are billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details.

If you believe your product to be defective, follow the steps below.

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages displayed when the problem occurs.
2. Call your dealer and describe the problem. Have the manual, product, and any helpful information to hand when you call.
3. If your product is diagnosed as defective, obtain a return merchandise authorization (RMA) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a completed Repair and Replacement Order Card, and a proof of purchase date (such as a photocopy of your sales receipt) in a shippable container. Products returned without a proof of purchase date are not eligible for warranty service.
5. Write the RMA number clearly on the outside of the package, then ship it pre-paid to your dealer.

Declaration of Conformity

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 in residential installations. 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 again, users are encouraged to try to correct the interference using one or more of the following measures:

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

Warning! Any changes or modifications made to the equipment that are not expressly approved by the relevant standards authority may void your



authority to operate the equipment.

Avertissement! Toute modification apportée à l'équipement sans l'approbation explicite de l'autorité de normalisation compétente pourrait annuler votre droit à utiliser l'équipement.



Technical Support and Assistance

1. Visit the Advantech website at www.advantech.com/support to obtain the latest product information.
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 calling:
 - Product name and serial number
 - Description of your peripheral attachments
 - Description of your software (operating system, version, application software, etc.)
 - Comprehensive description of the problem
 - The exact wording of any error messages

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. Advantech recommends that a service contract be obtained with Advantech 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 adaptor 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 DC 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 -40° C (-40° F) or above 70° C (156° 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.
9. Classification:
 - 1). Class I DC power adaptor
 - 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.



11. Environmental protection: follow national requirements to dispose of unit.
12. 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 Advantech standards. Advantech Digital Healthcare cannot war-rant or endorse the safe performance of third-party replacement parts for use with our medical device.



13. Make sure the user does not allow contact between SIP/SOPs and the patient at the same time.
14. 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; Requirements and tests



MEDICAL – GENERAL MEDICAL EQUIPMENT
WITH RESPECT TO ELECTRICAL SHOCK, FIRE AND
MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH
ANSI/AAMI ES60601-1:2005/(R)2012 and A1:2012/(R)2012
and A2:2021, CAN/CSA-C22.2 No. 60601-1 (Amendment
2:2022 (MOD) to CAN/CSA-C22.2 No. 60601-1:14)

15. 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.



16. Grounding reliability can only be achieved when the equipment is connected to an equivalent receptacle marked "Hospital Only" or "Hospital Grade".
17. 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.

18. "WARNING - Do not modify this equipment without authorization of the manufacturer."
19. "WARNING – To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.
20. Pressing the power button on the front cover for turn off the device back to standby mode. Remove the DC power adaptor 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.

Consignes de sécurité

1. Suivez minutieusement ces instructions d'utilisation. Veuillez lire attentivement les consignes de sécurité.
2. Veuillez conserver ce guide d'utilisation pour référence ultérieure. Toute utilisation de ce produit requiert une profonde connaissance et le respect intégral de toutes les sections de ces instructions. Respectez toutes les consignes d'AVERTISSEMENT et de MISE EN GARDE comme indiqué à travers le présent guide et sur les étiquettes affichées sur l'appareil.
3. Toute réparation ne doit être effectuée que par un technicien de service qualifié. Advantech recommande d'obtenir un contrat de service avec Advantech Service afin d'effectuer toutes les réparations. Autrement, le fonctionnement adéquat de l'appareil serait compromis.



Avertissement! *Puisqu'il y a un risque de décharge électrique, n'enlevez jamais le couvercle de l'appareil lorsqu'il fonctionne ou s'il est branché à une prise d'alimentation.*

4. Faites vérifier l'équipement par un technicien de service si une des situations suivantes survient :
 - Le cordon d'alimentation ou l'adaptateur est endommagé
 - Du liquide a pénétré dans l'équipement.
 - L'équipement a été exposé à de l'humidité.
 - L'équipement ne fonctionne pas adéquatement ou vous ne pouvez pas le faire fonctionner selon les instructions du guide d'utilisation.
 - L'équipement a chuté et a été endommagé.
 - L'équipement présente des signes évidents de bris.
5. Débranchez cet équipement de la prise d'alimentation avant de le nettoyer. Utilisez un chiffon humide. N'utilisez pas de détergent liquide ou en aérosol pour nettoyer cet équipement et gardez-le loin de l'humidité.

ATTENTION! *Afin d'éviter les courts-circuits et, conséquemment, endommager l'appareil, évitez que des liquides ne viennent en contact avec l'appareil. Si des liquides sont déversés accidentellement sur l'appareil, mettez-le hors usage le plus tôt possible et communiquez avec le technicien de service afin de s'assurer que la sécurité des patients n'est pas compromise.*

6. Placez cet équipement sur une surface solide pendant l'installation. La chute de l'appareil peut l'endommager. Pour les équipements branchés, la prise d'alimentation doit être près de l'appareil et doit être facilement accessible.

ATTENTION! *Pour éviter la surchauffe, n'obstruez pas les grilles et ne placez pas l'appareil dans un endroit exposé aux rayons du soleil ou près d'un calorifère.*

7. Assurez-vous que la source d'alimentation est adéquate avant de brancher l'équipement à la prise d'alimentation. Placez le cordon d'alimentation loin des aires de circulation. Ne posez aucun objet sur le cordon d'alimentation. Si cet équipement n'est pas utilisé pour une longue période de temps, débranchez-le de la source d'alimentation afin d'éviter qu'il soit endommagé par de la surtension transitoire.

ATTENTION! *Ne gardez pas cet équipement dans un environnement non contrôlé où la température est inférieure à -40 °C (-40 °F) ou supérieure à 70 °C (156 °F). Autrement,*

l'équipement pourrait être endommagé.

8. Si l'horloge de votre ordinateur n'est pas exacte ou si la configuration du BIOS a été remise à sa valeur par défaut, la pile peut être déchargée.

9. Classification:

- 1). Adaptateur d'alimentation CC de classe I
- 2). Aucune pièce applicable
- 3). Fonctionnement en continu
- 4). Pas une catégorie AP ou APG

Avertissement! *L'utilisation de cet appareil n'est pas recommandée en présence de mélange de vapeurs anesthésiques inflammable avec de l'air, de l'oxygène, de l'oxyde nitreux ni avec les systèmes d'entretien de la vie.*

10. Protection de l'environnement : suivez les exigences nationales en matière de l'élimination de cet appareil.
11. Entretien: pour entretenir et nettoyer les surfaces adéquatement, utilisez uniquement des produits approuvés ou nettoyez à sec.



ATTENTION! *Lors de l'entretien de l'appareil, utilisez toujours des pièces de rechange conformes aux exigences d'Advantech. Advantech Digital Healthcare ne peut garantir ni approuver la performance sécuritaire des pièces de rechange fournies par un tiers pour être utilisées avec notre appareil médical.*

12. Assurez-vous que le patient ne vient pas en contact avec SIP/SOP en même temps.
13. Lorsque des appareils électriques sont mis en réseau, l'utilisateur est responsable de garantir que le système résultant est conforme aux exigences des normes suivantes :
 - EN 60601-1 (IEC 60601-1) Équipement médical électriquePartie 1: Exigences générales de sécurité

- EN 60601-1-1 (IEC 60601-1-1) Équipement médical électrique

Partie 1-1: Exigences générales de sécurité

Norme collatérale : Exigences de sécurité pour les systèmes médicaux électriques

- EN 60601-1-2 (IEC 60601-1-2) Équipement médical électrique

Partie 1-2: Exigences générales de sécurité

Norme collatérale: Compatibilité électromagnétique : Exigences et tests

14. Un équipement accessoire branché à des interfaces analogues ou numériques doit être conforme aux normes IEC nationales correspondantes (c.à.d IEC 60950 pour les équipements de traitement de données, IEC 60065 pour les équipements de vidéo, IEC 61010-1 pour les équipements de laboratoire et IEC 60601-1 pour les équipements médicaux.)

En outre, toutes les configurations du système doivent être conformes à la norme IEC 60601-1-1.

Quiconque qui branche un équipement additionnel à la sortie ou à l'entrée du signal est réputé configurer un système médical. Conséquemment, il est responsable de s'assurer que le système est conforme avec les exigences de la norme IEC 60601-1-1. Cet appareil est conçu pour être branché exclusivement avec un équipement certifié IEC 60601-1 dans l'environnement du patient et à un

équipement certifié IEC 60XXX à l'extérieur de l'environnement du patient. En cas de doute, consultez la division des services techniques ou votre représentant local.

ATTENTION! *Utilisez un appareil de montage approprié afin d'éviter les blessures.*

15. La fiabilité de la mise en terre ne peut être garantie que si l'équipement est branché à une prise certifiée « Hôpital uniquement » ou « Grade-hôpital ».
16. Utilisez un cordon d'alimentation homologué de calibre correspondant à la tension du secteur et qui est conforme aux normes de sécurité propres à votre pays.



Protection de l'environnement

Suivez les exigences nationales en matière de l'élimination de cet appareil.

17. AVERTISSEMENT – Ne modifiez pas cet équipement sans l'autorisation du fabricant.
18. AVERTISSEMENT – Afin d'éviter le risque de décharges électriques, cet équipement doit être branché à une prise d'alimentation équipée d'une mise à terre.
19. Appuyez sur le bouton d'alimentation sur le capot avant pour éteindre l'appareil et le remettre en mode veille. Retirez le cordon d'alimentation pour éteindre complètement l'appareil.
20. L'installation doit être effectuée uniquement par du personnel qualifié et autorisé.
21. MISE EN GARDE! AVERTISSEMENT! Si cet appareil n'est pas utilisé selon les recommandations du fabricant, le système final sera évalué pour des conformités supplémentaires.

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



ISO 15223-1 Medical Device

Environmental Protection

Follow national requirements for disposing of this unit.

Disposing of Old Products

Within the European Union



EU-wide legislation, as implemented in each member state, requires that all waste electrical and electronic products bearing the mark shown on the left be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. To dispose of display products, follow the guidelines specified by your local authority, or ask the original equipment vendor for assistance, or if applicable, follow any agreements between yourself and the manufacturer. The above mark for electrical and electronic products is only applicable in current European Union member states.

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1. INTRODUCTION

Advantech's USM-100H of the industries medical grade slim mini-computer for hospital, clinic, and Cart application and healthcare environment.

Intel® 12th Gen Alder lake, Core™ i7-1265UE /i5-1245UE, owns powerful performance
The slim dimension, 230 * 167.8 * 43mm, can be installed at desk, Cart, any tiny space.

USM-100H features DDR 5 4800, NVME SSD and WIFI 6E & Bluetooth 5.2 to enhance capability. The design of fanless doesn't have rumble voice. The top side of system equips the VESA 75 x 75 and 100 x100 to mount in Cart. In addition, USM-100H is medical safety standard certified (IEC-60601-1-2; Edition 4), and deployable as an intelligent operating room solution. USM-100H is capable of using Windows 10 or Linux OS to deliver an open source environment that eases software development. With 10 years of longevity support, Advantech's USM-100H is an excellent, advanced, and powerful solution for medical applications.

WARNING!



Before unpacking and using the USM-100 equipment, read these user instructions to ensure correct usage. After reading these instructions, store them in a safe place for future reference. Incorrect handling of this product could possibly result in personal injury or physical damage. The manufacturer assumes no responsibility for any damage caused by mishandling that is beyond normal usage defined in these manuals.

ATTENTION!

Avant de déballer et d'utiliser l'USM-100, lisez ces instructions pour vous assurer de l'utiliser correctement. Après avoir lu ces instructions, rangez-les dans un endroit sûr pour pouvoir vous y référer ultérieurement. Une manipulation incorrecte de ce produit peut entraîner des blessures ou des dommages physiques. Le fabricant n'assume aucune responsabilité pour tout dommage résultant d'une mauvaise manipulation dépassant l'utilisation normale définie dans ces manuels.

WARNING!



Shut down your equipment immediately if it produces smoke, a strange odor, or unusual noise. Continued use may lead to fire. Immediately unplug the equipment and contact your dealer. Never attempt to repair this product yourself. Improper repair work can be dangerous. Never disassemble or modify this product. Tampering with this product may result in injury or fire. Be sure to use the power source delivered. Connection to an improper power source may cause fire. If water or other liquid spills into this equipment, do not continue to use it. Continued use may lead to fire. Unplug the power cord immediately and contact your dealer.

ATTENTION!

Arrêtez immédiatement votre équipement s'il produit de la fumée, une odeur étrange ou un bruit inhabituel. Une utilisation continue peut provoquer un incendie. Débranchez immédiatement l'équipement et contactez votre revendeur.

N'essayez jamais de réparer ce produit vous-même. Des travaux de réparation incorrects peuvent être dangereux. Ne jamais démonter ou modifier ce produit. Toute altération de ce produit peut provoquer des blessures ou un incendie.

Veillez à utiliser la source d'alimentation fournie. La connexion à une source d'alimentation inadéquate peut provoquer un incendie.

Si de l'eau ou tout autre liquide se déverse dans cet équipement, ne continuez pas à l'utiliser. Une utilisation continue peut provoquer un incendie. Débranchez immédiatement le cordon d'alimentation et contactez votre revendeur.

2. INTENDED USE

USM-100H is intended to serve as a medical computer integration with hospital systems. USM-100H is designed for general purpose used in medical computer 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 USM-100 system and its components have CE approval and comply with IEC60601-1-2. Installers, system integrators, and OEMs have to mitigate system and application specific risks. For critical systems, installers and system integrators are advised to consider arranging additional risk control measures, like external back-up system(s).

Le système USM-100 et ses composants sont homologués CE et conformes à la norme IEC60601-1-2. Les installateurs, les intégrateurs de systèmes et les équipementiers doivent atténuer les risques propres au système et aux applications. Pour les systèmes critiques, les installateurs et les intégrateurs de systèmes sont invités à envisager de prendre des mesures de contrôle des risques supplémentaires, tels que des systèmes de sauvegarde externes.

2.1 Intended User Profile

Intend user profile:

Age: 18 to 55

Weight: not relevant

Health: not relevant

Nationality: Global

Patient state: patient will not be the operator.

Occupation: medical IT engineer

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 USM-100H 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 USM-100H_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

2.2 Medical Installations

For integration into an IEC60601-1-compliant Medical Electrical System, the USM-100H have been tested and are compliant with IEC 60601-1-2 in combination with the power supply delivered. This power supply has a low leakage current (<50uA@264VAC) and is double isolated (MOOP&MOPP).



The system integrators (RESPONSIBLE ORGANIZATIONS) are reminded that the assembly of ME SYSTEMS and modifications during the actual service life must be checked for compliance with the requirements of IEC 60601-1. The standard gives more information about the general safety requirements for ME systems.

Il est rappelé aux intégrateurs de systèmes (ORGANISATIONS RESPONSABLES) que l'assemblage de ME SYSTEMS et les modifications apportées pendant la durée de vie réelle doivent être vérifiés pour vérifier leur conformité aux exigences de la CEI 60601-1. La norme donne plus d'informations sur les exigences générales de sécurité pour les systèmes ME.

3. SYSTEM COMPONENTS

3.1 Specification

Specifications

Computing System	CPU	Intel® Core™ i5-1245UE 10cores, 12M Cache, up to 4.40 GHz Intel® Core™ i7-1265UE 10cores, 12M Cache, up to 4.70 GHz
	Memory	Memory (default) 8GB DDR5 (supports up to 32GB DDR5 SODIMM)
	Wi-Fi (M.2 2230)	1 (for Wi-Fi/Bluetooth module, option)
	Bluetooth	BT5.3 (option)
	OS	Win10 LTSC, Win 11 Pro, Ubuntu 20.04
Storage	Primary Storage	NVME M.2 SSD 256GB (Max. support 2TB)
I/O	DC in	x 1, DC 12V, max. 84W
	USB 3.1 Gen2 (Type A)	x 4
	USB 3 Type C	x 1 (For display only)
	COM, RS232	x 1
	HDMI	x 1
	LAN non-isolation	1G x 2
	Mic in/ Head phone out	x 1
Physical Characteristics	Dimensions (W x H x D)	169.5 x 230.6 x 43mm
	VESA Mount	100 x 100; 75 x 75mm
	Weight	1.5kg
Power Input	AC/DC	AC:100-240V, 96W, DC:12V, LOCK PLUG, Medical grade
Power Button	Power with LED indicator	x 1
Certificate	EMC & Safety Cert.	Medical CE, FCC, IEC/EN 60601-1-2 4.1 st , IEC/EN 60601-1 3.2 nd
Environment Temperature	Operating	0 – 40 °C/32 – 104 °F
	Storage	0 – 50 °C/32 – 122 °F
Humidity	Operating	10 – 95%, 40 °C
	Storage	5 – 95%, 60 °C
Shock Resistance	10G peak acceleration (11ms duration)	
Warranty	System 2 years	

3.2 Dimension

Dimensions: 169.5 x 230 x 43mm

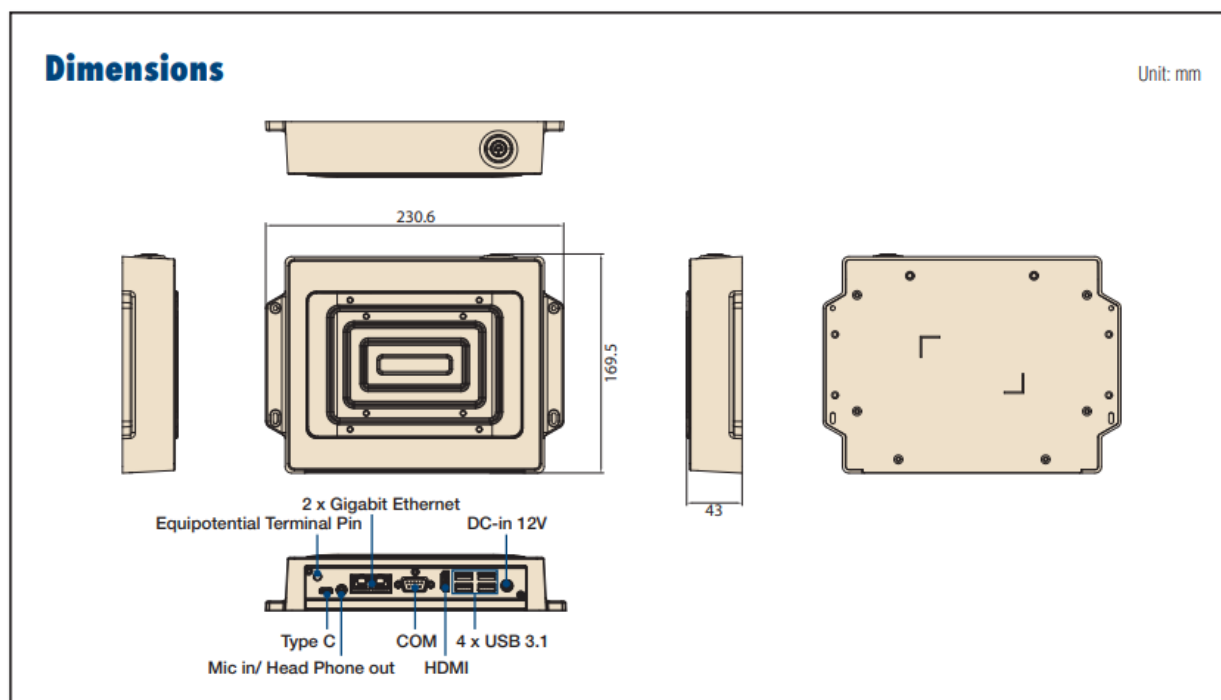


Figure 3-1 Dimensions of the USM-100H

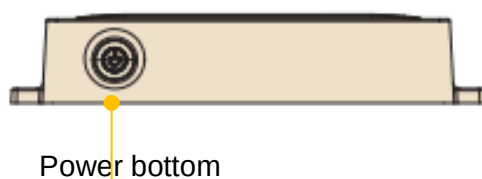


Figure 3-2 USM-100H Front Panel

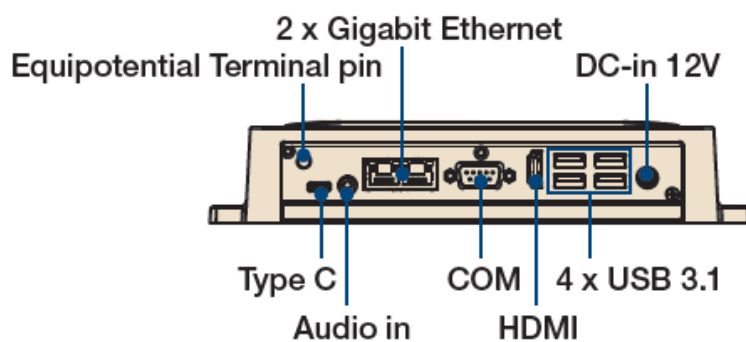


Figure 3-3 USM-100 Rear Panel

3.3 Cleaning and Maintenance Instructions



Before cleaning the USM-100, first disconnect the power supply, and then disconnect all other cables.



Avant de nettoyer l'enregistreur, débranchez d'abord l'alimentation de l'enregistreur, puis débranchez tous les autres câbles..

Use only a moist, soft, and lint-free cloth. Avoid abrasive cloths, towels, paper towels, and similar items that might cause damage to the aluminum housing. Ensure that no moisture enters any opening and only use mild cleaning agents.

Utilisez uniquement un chiffon humide, doux et non pelucheux. Évitez les chiffons abrasifs, les serviettes, les serviettes en papier et autres objets similaires qui pourraient endommager le boîtier en aluminium. Assurez-vous qu'aucune humidité ne pénètre dans les ouvertures et utilisez uniquement des agents de nettoyage doux.

The enclosure of USM-100 is made of aluminum that can help heat dissipation. Please provide regular maintenance to remove any dirt or dust on the enclosure that can reduce the cooling capacity of the enclosure.

Le boîtier de l' USM-100 est en aluminium, ce qui peut aider à dissiper la chaleur. Veuillez prévoir un entretien régulier pour éliminer toute saleté ou poussière sur le boîtier susceptible de réduire la capacité de refroidissement du boîtier.

Steps:

1. Prepare cleaning water
2. Wipe USM-100H with a clean cloth that has been moistened in the pure water.
3. Wipe thoroughly with a clean cloth.

Caution!



○ Do not immerse or rinse the USM-100H 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 USM-100H 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.

ATTENTION!



○ N'immergez pas et ne rincez pas le USM-100H et ses périphériques. Si vous déversez accidentellement un liquide sur l'appareil, débranchez-le de la source d'alimentation. Communiquez avec votre division de soutien TI concernant la sécurité de l'appareil avant de le remettre en service. N'utilisez pas un produit en aérosol pour nettoyer le boîtier.

○ N'utilisez pas de désinfectant contenant du phénol.

○ Ne désinfectez pas l'ordinateur et ses périphériques dans un

autoclave et ne les nettoyez pas avec une substance aromatique ou chlorée, une cétone, un éther ou un autre solvant ni avec des outils tranchants ou abrasifs. N'immergez jamais les connecteurs électriques dans de l'eau ou dans tout autre liquide.

USM-100 Pass Cleaning verification test

- Test Standard: Reference ASTM D 4752-03 and in house test method of Advantech
- Test Solvent:
 1. AHP Accel TB (CAS Number:7722-84-1)
 2. 75% Alcohol (CAS Number: 64-17-5)
 3. Glutaraldehyde [C₅H₈O₂], 2% concentration (CAS Number:111-30-8)
 4. Isopropyl alcohol [(CH₃)₂CHOH], 70% concentration (CAS Number:7681-52-9)
 5. Sodium hypochlorite [NaOCl], 10% concentration (CAS Number:2893-78-9)
 6. CHLOR-CLEAN-1.7g NaDCC(1000 ppm available chlorine) (CAS Number:2893-78-9)
 7. Clorox Healthcare® Hydrogen Peroxide (CAS Number:7722-84-1)
 8. Clorox Healthcare® VersaSure
 9. Clorox Healthcare® Bleach Germicidal Wipes

3.4 EMC Notice



The USM-100H are IEC 60601-1-2; EN 60601-1-2 products. The Recorder are designed for use in general light industrial and medical environments according to the CENELEC standard definition.

Les USM-100 sont IEC 60601-1-2; Produits EN 60601-1-2. Les enregistreur sont conçus pour une utilisation dans les environnements industriels et médicaux légers, conformément à la définition standard du CENELEC.

Only use the power supply unit that was delivered with the Recorder, otherwise EMC compliance and warranty can be void.

Utilisez uniquement le bloc d'alimentation fourni avec le enregistreur, sinon la conformité et la garantie CEM peuvent être annulées.

3.5 Warm Surface Notice



CAUTION!

This USM-100 are passively cooled by heat convection via the enclosure of the product. The temperature of the enclosure can rise to nearly 50°C at an ambient temperature of 40°C without air flow.



MISE EN GARDE!

Ces enregistreur USM-100 sont refroidis passivement par convection thermique via l'enceinte du produit. La température de l'enceinte peut atteindre près de 50 ° C à une température ambiante de 40 ° C sans circulation d'air.

4. SYSTEM SETUP

4.1 A Quick Tour of the USM-100

Before you start to set up the USM-100, 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 USM-100 upright on the desktop, its front panel appears as shown in Figure 4.1.

4.1.1 Front View



Figure 4-1 Front View of the USM-100H

4.1.2 Rear View

Most of I/O ports of USM-100H are located at the rear cover, including D, COM port, HDMI port, Ethernet ports, USB ports, USB-C and so on. Apart from the I/O ports shown in below fig 4.2,

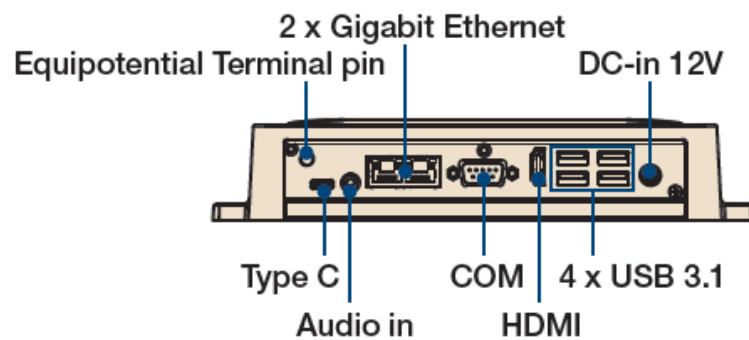


Figure 4-2 Rear View of the USM-100

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



CAUTION!

Please ensure that sufficient space is available around the USM-100H for heat convection. Do not stack the USM-100H.

The mains coupler is used as “disconnect device”, and must be available as such, or the socket outlet must be installed near the equipment and must be easily accessible, or an appropriate external disconnect device must be externally added in the installation.

MISE EN GARDE!

Veillez vous assurer qu'un espace suffisant est disponible autour de l'USM-100H pour la convection de la chaleur. N'empilez pas l'USM-100H.

Le coupleur secteur est utilisé comme «dispositif de déconnexion» et doit être disponible en tant que tel. La prise de courant doit être installée à proximité de l'équipement et doit être facilement accessible, ou un dispositif de déconnexion externe approprié doit être ajouté à l'extérieur de l'installation.

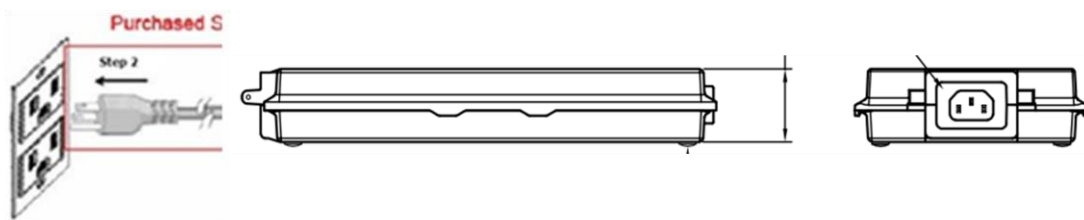
5. INSTALLATION PROCEDURE

5.1 Connecting the DCIN (Medical Type)

The USM-100H SERIES can only be powered by AC adapter (FSP Model no. FSP120M-KHA). 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 AC adapter.
2. Connect the 3-pin male plug of the power cord to an electrical outlet.



Note! This adaptor is optional, if with cart and equipment products direct DC 12V power supply, do not need to use this adapter.
The cart and equipment must meet the IEC60601-1 certification to provide POC DC power.



5.2 Connecting the Ground Pin

Step1. System ready and find the Equipotential Terminal on rear side of USM-100H. An Equipotential Terminal is provide to optionally connect to a hospital ground/earth system.

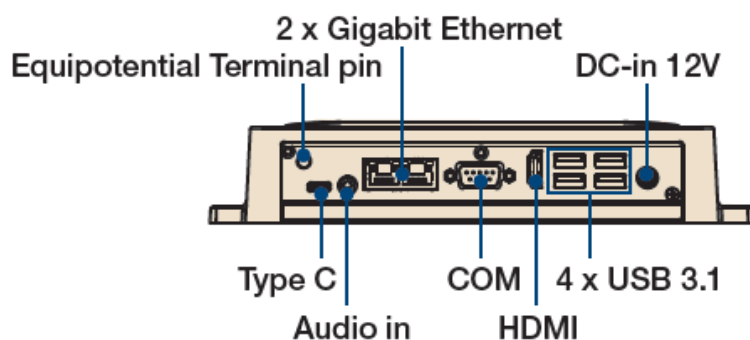


Figure 5-1: USM-100H Equipotential Terminal Pin

Step2. Prepare the Grounding cable and the other terminal link to hospital ground/earth system.



Figure 5-2: Grounding cable with connector

Step3. Grounding cable plug with USM-100H Equipotential Terminal (See Figure 5-1)

5.3 Running BIOS Setup Program

Your USM-100H SERIES 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 panel PC, by pressing the “Del” key on your keyboard immediately after powering on the computer.

5.4 Install 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 panel PC hard drive.

Note! *Some distributors and system integrators may have already pre-installed system software prior to shipment of your panel PC.*



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 Flash disk. You may also insert your system installation Flash disk into USB port.

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

You can also press F12 key when booting; a bootable device popup menu will appear, you can select bootable device that you want. The Point-of-Care Terminal will automatically load the operating system from the Flash disk.

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.

5.5 Install Driver

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 Advantech official website.

After installing your system software, you will be able to set up the Chipset, Graphics, Ethernet, Audio functions by driver.

The standard automatic installation procedures for installing the drivers are described in Chapter 3.

The various drivers and utilities in the CD-ROM disc have their own text files which help users install the drivers and understand their functions. These files are a very useful supplement to the information in this manual

All driver could download from Advantech website

Guidance and Manufacturer's Declaration – Electromagnetic Emissions

Emissions Test	Compliance	Electromagnetic Environmental Guidance
RF emissions CISPR 11	Group 1	USM-100H 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	USM-100H 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 D	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Meet the requirements	

Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and the USM-100H

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
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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

USM-100H is intended for use in the electromagnetic environment specified below. The customer or the user of the model USM-100H should assure that it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environmental Guidance
Electrostatic dis-charge (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	Voltage Dips: i) 0% reduction for 0.5 cycle at 50Hz, 0% reduction for 1 cycle at 50Hz Performance Criterion B ii) 70% reduction for 25/30 cycles at 50/60Hz Performance Criterion C Voltage Interruptions: 0% reduction for 250/300 cycles at 50/60Hz Performance Criterion C	Voltage Dips: i) 0% reduction for 0.5 cycle at 50Hz, 0% reduction for 1 cycle at 50Hz Performance Criterion B ii) 70% reduction for 25/30 cycles at 50/60Hz Performance Criterion C Voltage Interruptions: 0% reduction for 250/300 cycles at 50/60Hz Performance Criterion C	Main power quality should be that of a typical commercial or hospital environment. If the user of the model USM-100 requires continued operation during main power interruption, it is recommended that the model USM-100 be powered from an uninterruptible power supply.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30A/m	30A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

NOTE U_T is the A.C. main voltage prior to application of the test level.

Guidance and Manufacturer's Declaration – Electromagnetic Immunity

The model USM-100H is intended for use in the electromagnetic environment specified below. The customer or the user of the model USM-100H should assure that it is used in such an environment.

Immunity test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environmental Guidance
Conducted RF IEC 61000-4-6	3 and 6 Vrms 150 kHz to 80 MHz and specific ISM, AM frequency	3 and 6 Vrms 150 kHz to 80 MHz and specific ISM, AM frequency	Portable and mobile RF communications equipment should be used no closer to any part of the model POC-421-12/POC-424-12 SERIES, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended Separation Distance $d = 1,2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2,3 \sqrt{P}$ 800 MHz to 2,5 GHz 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).
Radiated RF IEC 61000-4-3	3V/m 80 MHz to 2.7 GHz, and specific frequency	3V/m 80 MHz to 2.7 GHz, and specific frequency	Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, ^a should be less than the compliance level in each frequency range. ^b Interference may occur in the vicinity of equipment marked with the following symbol:
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 USM-100 is used exceeds the applicable RF compliance level above, USM-100 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.

6. OPERATION AND SAFETY

6.1 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:

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

6.2 Thermal

The vent hole on the rear cover of USM-100H 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 USM-100H 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.



Avertissement! Ne placez pas votre système USM-100H sur un oreiller ou tout autre matériau mou lorsqu'il est allumé, car le matériau peut bloquer le flux d'air et provoquer une surchauffe de l'ordinateur.



6.3 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 DC adaptor came equipped with a three-wire grounding plug (a plug that has a third grounding pin). This plug will fit only a grounded AC outlet. 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.



Avertissement! *Votre adaptateur CC est équipé d'une fiche de mise à la terre à trois fils (une fiche dotée d'une troisième broche de mise à la terre). Cette fiche s'adapte uniquement à une prise secteur mise à la terre. Si vous ne parvenez pas à insérer la fiche dans une prise car la prise n'est pas mise à la terre, contactez un électricien agréé pour remplacer la prise par une prise correctement mise à la terre. N'annulez pas l'objectif de la fiche de mise à la terre.*



Avertissement! *N'introduisez jamais d'objets d'aucune sorte dans ce produit par les ouvertures du boîtier. Cela pourrait être dangereux et provoquer un incendie ou un choc électrique dangereux.*



6.4 Proper Handling

Handle your USM-100H with care. It is made of metal, and has sensitive electronic components inside.
Don't use a damaged USM-100H.

Set USM-100H on a stable work surface.
Do not push objects into the ventilation openings.
To lift or move your system, hold its sides.

7. CERTIFICATIONS AND APPROVALS

7.1 EC Declaration of Conformity

USM-100 comply to the following standards and regulations:

2014/30/EU EMC directive

IEC 60601-1-2: 2014 + A1: 2020

EN 60601-1-2: 2015 + A1: 2021

BS EN 60601-1-2: 2015 + A1: 2021

CISPR 11: 2015 + A1: 2016 + A2: 2019 (Ed 6.2)

IEC 61000-3-2: 2018

IEC 61000-3-3: 2013 + A1: 2017

IEC 61000-4-2: 2008

IEC 61000-4-3: 2006 + A1: 2007 + A2: 2010

IEC 61000-4-4: 2012

IEC 61000-4-5: 2014 + A1: 2017

IEC 61000-4-6: 2013 + COR1: 2015

IEC 61000-4-8: 2009

IEC 61000-4-11: 2004 + A1: 2017

2011/65/EC RoHS directive

2012/19/EU WEEE directive

2001/95/EC General product safety

IEC 60601-1:2005 + A1:2012 + A2:2020

EN 60601-1:2006+A11:2011+A1:2013+A12:2014+ A2:2021

ANSI/AAMI ES60601-1:2005/(R)2012 and A1:2012/(R)2012 and A2:2021;

CAN/CSA-C22.2 No. 60601-1 (Amendment 2:2022 (MOD) to CAN/CSA-C22.2 No. 60601-1:14)
CAN/CSA C22.2 No. 62368-1-14
UL 62368-1, Second Edition
J62368-1 (2020)
EN 62368-1:2014+A11:2017, BS EN 62368-1:2014+A11:2017
AS/NZS 62368.1:2018
CEI EN 62368-1:2016

7.2 **Manufacturing**

USM-100H have been manufactured in compliance with ISO13485.

Please verify specifications before quoting. This guide is intended for reference purposes only.

All product specifications are subject to change without notice.

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