ONYX-MD116E

11.6” LCD with LED Backlight Intel® Elkhart Lake processor Dual smart card readers for multiple-care workflow Mobile Medical Assistant

MD116E Manual 7th Ed .
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Packing List

Before you begin installing your Mobile Medical Assistant, please make sure that the following items have been shipped:

- MD116E Mobile Medical Assistant
- Utility DVD-ROM, which contains Drivers and Utilities
- Adapter EDAC EM11011H

** Please use the USB interface external DVD Driver or check the ONYX Official website to download drivers: https://www.onyx-healthcare.com/

If any of these items are missing or damaged, you should contact your distributor or sales representative immediately.

*** Use power cord should follow then specification below:**

UL Listed, CSA approval, Detachable, Type SJT or above. 125/250 V minimum, 18 AWG/3C mini-mum, 3.0 m long maximum. One end terminates in 125 V, 10 A, with NEMA 5-15P or 250 V, 10 A with NEMA 6-15P, grounding type, the other end with an appliance coupler. Hospital grade.

If any of these items are missing or damaged, you should contact your distributor or sales representative immediately.

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Safety & Warranty

1. Read these safety instructions carefully.
2. Keep this user's manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
4. For pluggable equipment, the power outlet must be installed 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 could 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. **Patient is not intended operator, do not touch the device and patient at the same time.**
10. **Warning: Power adapter is considered part of medical products, to avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth. (Avertissement : L'adaptateur d'alimentation est considéré comme faisant partie des produits médicaux. Pour éviter tout risque d'électrocution, cet équipement ne doit être connecté qu'à un réseau d'alimentation avec mise à la terre.)**

11. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
12. All cautions and warnings on the equipment should be noted.

13. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
14. Never pour any liquid into an opening. This could cause fire or electrical shock.
15. **Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.**
16. **Warning: Do not modify this equipment without authorization of the manufacturer. (Avertissement: Ne pas modifier cet équipement sans l'autorisation du fabricant)**
17. **Warning : It is necessary for checking or replacing the battery pack every year. (Avertissement: Il est nécessaire de vérifier ou de remplacer la batterie chaque année)**
18. **When the tablet is under heavy loading, the battery may stop charging due to overheating. When this behavior happens, turn off the tablet before charging.**

19. **If any of the following situations arises, get the equipment checked by service personnel:**
    a. The power cord or plug is damaged.
    b. Liquid has penetrated into 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.

20. 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). IT MAY DAMAGE THE EQUIPMENT.

21. External equipment intended for connection to signal input/output or other connectors, shall comply with relevant UL / IEC standard (e.g. UL 60950-1/62368-1 for IT equipment and ANSI/AAMI ES 60601-1 AND CAN/CSA-C22.2 No. 60601-1) Any person who connects external equipment to signal input, signal output, or other connectors has formed a system and is therefore responsible for the system to comply with the standard IEC 60601-1, safety requirements for medical electrical systems.

Caution:

It may cause the danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacturer.

Classification

1. Degree of production against electric shock: not classified.
2. Degree of protection against the ingress of water: IPX0
3. Mode of operation: Continuous
4. Type of protection against electric shock: Class I equipment
5. No Applied Part, No AP/APG

Intended Use

The MD116E is intended to serve as a computer for integration with hospital systems. MD116E is designed for general purpose medical computing with built-in CPU, memory, storage, thermal solution, enclosure in the hospital environment, for data collection and for displaying information. The machine and power supply must not be used outdoors or in areas where an explosion hazard may occur. The user has to make sure the requirements from IEC 60601-1 are fulfilled, especially in combination from this machine with other electrical equipment. And it shall not be used for life supporting system. The latest version of this user manual is available for download from:
https://www.onyx-healthcare.com/service_en_3.php

FCC

This device complies with Part 18 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

UL Module Description

	Mobile Medical Assistant*, ONYX-MD116E module is developed to suitable for the Classification Mark requirement** *MEDICAL – GENERAL MEDICAL EQUIPMENT WITH RESPECT TO ELECTRICAL SHOCK, FIRE AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH* ***AAMI ES60601-1:2005/(R)2012 AND A1:2012/(R)2012 AND A2:2021, CAN/CSA-C22.2 No. 60601-1:14 (Reaffirmed 2022)

Safety Symbol Description

The following safety symbols are the further explanations for your reference.

	Follow operating instructions.
	Ground wire Protective Ground wire.
	Alternating current
	Direct current
	Stand-by switch (PC power button)

Contents

Chapter

1

General Information

1.1 Introduction

MD116E Mobile Medical Assistant is based on Intel® processor, which delivers a performance improvement of more than 100 percent compared to systems running traditional single-core processors. With four cores computing engines, MD116E can simultaneously execute four computing tasks. It accommodates one M.2 2280 Interface SATA /NVME SSD and one DDR4 SODIMM up to 32GB. The high brightness LCD, zero noise solution, integrated multimedia functions make them the perfect platform upon which to build comprehensive lifestyle computing applications. ONYX-MD116E includes all the features of a powerful computer into a slim and attractive chassis. It has a 11.6” 600 nits TFT display with 1920 x 1080 resolution. ONYX-MD116E owns Dual smart card reader to support ID check. Combining ONYX-MD116E into your system can achieve both cost-saving and efficient improvements in common medical applications. ONYX-MD116E is your perfect choice.

ONYX-MD116E was regarded as Medical Device Data Systems (MDDS). It is a hardware product that transfer, store, convert formats, and display medical device data. MDDS are not intended to be used for active patient monitoring.

1.2 Feature

- Intel® Elkhart Lake N6415 Quad Core Processor
- Supports One DDR4L SODIMM up to 32GB
- Dual hot-swappable batteries for 24/7 operation
- ORION client compatible

1.3 Specification

Hardware

Specifications

Processor	Intel® Pentium® (Elkhart Lake) N6415 (TDP = 6.5W)
System Memory	DDR4L SO-DIMM x1, Default 4 GB (Up to 32 GB)
OS Support	Microsoft® Windows 10/ Microsoft® Windows 11/Linux Ubuntu
Storage	M.2 Interface x1, 128/256/512GB/1TB (Optional)
Wireless Communication	802.11 a/b/g/n/ac/ac /ax+ BT5.2 (Optional Installation)
Camera	2 MP (Front) / 8 MP (Rear)
Touchscreen	Gorilla Glass 3
Digital Accelerometer	WE.2533020201601
Ambient Light Sensor	AMS.TSL25721FN
LTE+GPS	EM7421 (Optional)
Function Keys	Power /standby button x1 Function button x1 (for future use)
LED Indicators	x2
USB	1x Type-C, 1x Type-A USB 3.0 (each 5V/0.9A)
Ethernet	Gigabit LAN x1
Security	Smart Card Reader x2, RFID x1

DC-In	DC-In Jack x1
External	External Connector x1 (for future use)
Battery Type	Polymer
Battery	Capacity 4545 mAh x2 (Gallopwire/ OPM-P05T)
Battery Run Time	MD116E Approx. 8 hrs
Speaker	Max. 2.2W x2

LCD Specifications

Model	LG116HAN01 (G116HAN01.0-E-700)
Display Type	11.6" LCD
Max. Resolution	1920 x 1080
Contrast Ratio	800:1
Back Light Life Time	>50,000 Hrs

Note:

All ONYX LCD products are manufactured with High precision technology. However, there are a small number of defective pixels in all LCD panels that are not able to change color. This is a normal occurrence for all LCD displays from all manufacturers and should not be noticeable or objectionable under normal operation. All LCD panels are qualified for industry standard conditions in the following: total 7 dead pixels on a screen or if there are 3 within 1-inch square area of each other on the display.

Mechanical Specifications

Architecture	Close-frame
Color	Dark Gray
Construction	3mm ABS + PC TYPE Plastic housing
Rear cover	magnesium
Dimension (WxHxD)	312 (W) x 239 (H) x 37 (D) mm
Net Weight	Approx. 1.9 kg

Power Supply Specifications

Model	EDAC Adapter EM11011H
Input Voltage	100-240VAC, 2.0-1.0A, 50-60Hz
Output	12V, 10A, 120 W max.

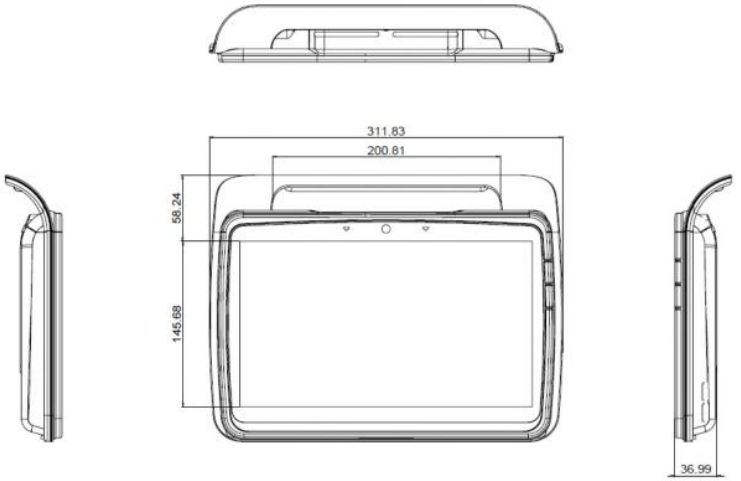
Environmental Specifications

Operating Temperature	MD116E: 0°C ~ 40°C (32°F ~ 104°F)
Operating Humidity	30% to 75% RH, non-condensing
Operating Pressure	700 to 1060 hPa
Storage / Transport Temperature	-20°C ~ 60°C (-4°F ~ 140°F)
Storage / Transport Humidity	10%~95%@35°C, non-condensing
Storage / Transport Pressure	700 to 1060 hPa
Vibration	0.5G / 5 ~ 500Hz (Random) / operation
Shock	20G peak acceleration (11 msec. duration) / operation
Drop(with packaging)	80 cm (1 Corner, 3 Edge, 6 Surface)
EMI / Safety	CE/FCC Class B, UL60601-1, EN60601-1, E1, EN1789(compliance)

Touch Screen

Type	Projective Capacitive / 5-wire Resistive
Interface	USB interface
Light Transmission	> 80%

1.4 Dimension



Chapter

2

Hardware Installation

2.1 Safety Precautions

Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

Débranchez toujours complètement le cordon d'alimentation de votre carte lorsque vous travaillez dessus. N'effectuez pas de connexions lorsque l'appareil est sous tension, car une montée soudaine de puissance peut endommager les composants électroniques sensibles.

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

Mettez-vous toujours à la terre pour éliminer toute charge statique avant de toucher la carte. Les appareils électroniques modernes sont très sensibles aux charges électriques statiques. Utilisez toujours un bracelet de mise à la terre. Placez tous les composants électroniques sur une surface antistatique ou dans un sac antistatique lorsqu'ils ne sont pas dans le châssis.

2.2 Quick Tour of ONYX-MD116E

Before you start to set up MD116E 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 MD116E upright on the desktop, its front panel appears as shown in Picture 2-1.

Picture 2.1: Front View of MD116E Series

When you turn the Mobile Medical Assistant around and look at its rear cover, the I/O port in left and right side, as shown in Picture 2-2. (The I/O section includes various I/O ports, including a DC-IN Jack, 1 Ethernet ports, 2 USB ports.). Top side have 2 Smart Card Reader (SR). Flash LED for fill light when use Rear camera.

Picture 2.2 Rear view of MD116E Series IO Port

2.4 Turn On and Boot up into Windows OS

This section is for Windows operating system only. If you are installing a different operating system, please contact your vendor for installation details.

Your MD116E will begin loading Windows OS once you push the power button to turn power on. After less than one minute, Windows desktop screen will appear.

You can select the programs from the start menu in the left-down corner of the desktop screen.

When turn on unit and the electrical quantity of battery is high, the LED Indicators will be bright green.

When turn on unit and the electrical quantity of battery is low, the LED Indicators will be bright orange.

2.5 Turn off

Turning off MD116E properly is important for system reliability. There are two ways to turn off the system.

1. On the start menu, click “shut down” and select “OK”
2. Push the power button and then the system will shut down automatically

2.6 Connectors

1. USB 3.0 These 9 Universal Serial Bus (USB) ports are

available for connecting USB 3.0 devices.

Type A x 1

Type C x 1

2.LAN (RJ-45) port. This port allows Gigabit connection

Driver Installation

Chapter 3

There are several installation ways depending on the driver package under different Operating Systems.

Please follow the sequence below to install the drivers:

For Windows 10/11:

Step 1 – Chipset Driver

Step 2 – Graphics Driver

Step 3 – SIO Driver

Step 4 – TXE Driver

Step 5 – Audio Driver

Step 6 –BT Driver

Step 7 –GPS Driver

Step 8 – Ethernet on External Driver

Step 9 – LAN Driver

Step 10 – SMART CARD READER Driver

Appendix

A

Miscellanea

A.1 General Cleaning Tips

You may need the following precautions before you begin to clean the computer. When you clean any single part or component for the computer, please read and understand the details below fully.

1. Never spray or squirt the liquids directly onto any computer component. If you need to clean the device, please rub it with a piece of dry cloth.
2. Be cautious of the tiny removable components when you use a vacuum cleaner to absorb the dirt on the floor.
3. Turn the system off before you start to clean up the component or computer.
4. Never drop the components inside the computer or get circuit board damp or wet.
5. Be cautious of all kinds of cleaning solvents or chemicals when you use it for the sake of cleaning. Some individuals may be allergic to the ingredients.
6. Try not to put any food, drink or cigarette around the computer.

A.2 Cleaning tools

Although many companies have created products to help improve the process of cleaning your computer and peripherals users can also use household items to clean their computers and peripherals. Below is a listing of items you may need or want to use while cleaning your computer or computer peripherals.

Keep in mind that some components in your computer may only be able to be cleaned using a product designed for cleaning that component, if this is the case it will be mentioned in the cleaning tips.

- **Cloth** - A piece of cloth is the best tool to use when rubbing up a component. Although paper towels or tissues can be used on most hardware as well, we still recommend you to rub it with a piece of cloth.
- **Water or rubbing alcohol** – You may moisten a piece of cloth a bit with some water or rubbing alcohol and rub it on the computer. Unknown solvents may be harmful to the plastics parts.
- **Vacuum cleaner** - Absorb the dust, dirt, hair, cigarette particles, and other particles out of a computer can be one of the best methods of cleaning a computer. Over time these items can restrict the airflow in a computer and cause circuitry to corrode.
- **Cotton swabs** - Cotton swaps moistened with rubbing

alcohol or water are excellent tools for wiping hard to reach areas in your keyboard, mouse, and other locations.

- **Foam swabs** - Whenever possible it is better to use lint free swabs such as foam swabs.

Note:

We strongly recommended that you should shut down the system before you start to clean any single components.

Please follow the steps below.

1. Close all application programs.
2. Close operating software.
3. Turn off power switch
4. Remove all device
5. Pull out power cable

A.3 Scrap Computer Recycling

If the computer equipment need the maintenance or are beyond repair, we strongly recommended that you should inform us as soon as possible for the suitable solution. For the computers that are no longer useful or work well, please contact with worldwide distributors for recycling.

The worldwide distributors show on the following website:

https://www.onyx-healthcare.com/contact_en.php

Note:

Follow the national requirement to dispose unit

A.4 MD116E Battery LED identification

	Charging	LED pattern
PSU connected with battery	Yes	On and Flashing (*)
	No	On (*)
Only PSU	N/A	On, Cyan

(*) Please refer to the following table for the LED color when the PSU connected with the battery packs.

Battery Status	Capacity %	LED Color
Charging	0-1%	Cyan (switch to AC mode)
	1-20%	Vermillion
	21-95%	Amber
	96~100%	Green
Discharging	<7%	Vermillion, Flashing (cannot Boot)
	7-10%	Vermillion

	11-30%	Amber
	31-100%	Green

Status	**Battery Capacity**	**LED Display**
Steady Push Button	< 10%	1 LED Flashing
	< 20%	1 LED ON
	< 30%	1 LED ON 1 LED Flashing
	< 40%	2 LED ON
	< 50%	2 LED ON 1 LED Flashing
	< 60%	3 LED ON
	< 70%	3 LED ON 1 LED Flashing
	< 80%	4 LED ON
	< 90%	4 LED ON 1 LED Flashing
	= 100%	5 LED ON

A.5 FCC Statement:

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

(1) This device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. These requirements set a SAR limit of 1.6 Wkg averaged over one gram of tissue. The highest SAR value reported under this standard during product certification is 0.769 Wkg.

—The operation of this device is prohibited on oil platforms, cars, trains, boats, and aircraft, except that operation of this device is permitted in large aircraft while flying above 10,000 feet. —Operation of transmitters in the 5.925-7.125 GHz band is prohibited for control of or communications with unmanned aircraft systems.