

element™

K959 Medical Grade AIO Panel PC User Manual



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Manual Version 1.1

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Safety

IMPORTANT SAFETY INSTRUCTIONS

1. To disconnect the machine from the electrical power supply, turn off the power switch and remove the power cord plug from the wall socket. The wall socket must be easily accessible and in close proximity to the machine.
2. Read these instructions carefully. Save these instructions for future reference.
3. Follow all warnings and instructions marked on the product.
4. Do not use this product near water.
5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
6. Slots and openings in the cabinet and the back or bottom are provided for ventilation to ensure reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register or in a built-in installation unless proper ventilation is provided.
7. This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
8. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
9. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
10. To avoid the risk of electric shock, this equipment must only be connected to a supply mains with

protective earth.

11. No modification of this equipment is allowed.
12. Power supply is specified as part of medical equipment.
13. The medical PC can be cleaned in accordance with normal clinical cleaning practices, including wiping with water or medical grade wipes, provided no substance containing acids or cleaning alkali liquids is used.
14. Medical grade wipes must not contain more than 80% alcohol content measured against the total content of the wipe.
15. Operator shall not contact patient simultaneously when in use with the medical computer.

Sécurité

INSTRUCTIONS IMPORTANTES RELATIVES À LA SECURITE

1. Pour débrancher la machine de l'alimentation électrique, éteignez l'interrupteur d'alimentation et retirez le cordon d'alimentation de la prise murale. La prise murale doit être facilement accessible et à proximité de la machine.
2. Lisez attentivement ces instructions. Conservez ces instructions pour une référence future.
3. Suivez tous les avertissements et les instructions indiquées sur le produit.
4. Ne pas utiliser ce produit à proximité de l'eau.
5. Ne pas placer ce produit sur un chariot, un support ou une table. Le produit peut tomber, causant de graves dommages à l'appareil.
6. Les fentes et les ouvertures dans le boîtier, l'arrière ou le fond sont prévues pour la ventilation afin d'assurer un fonctionnement fiable du produit et le protéger de la surchauffe. Ces ouvertures ne doivent pas être obstruées ou couvertes. Les ouvertures ne doivent jamais être bloquées en plaçant l'appareil sur un lit, un canapé, un tapis ou autre surface similaire. Ce produit ne doit jamais être placé : à proximité ou sur un radiateur, sur un registre de chaleur ou dans une installation intégrée à moins qu'une ventilation adéquate soit prévue.
7. Ce produit doit être utilisé avec le type d'alimentation indiqué sur l'étiquette. Si vous n'êtes pas sûr du type d'alimentation disponible, consultez votre revendeur ou représentant local de l'entreprise.
8. Ne laissez rien reposer sur le cordon d'alimentation. Ne placez pas ce produit là où des personnes peuvent marcher sur le cordon.
9. N'introduisez jamais d'objets d'aucune sorte dans ce produit à travers les fentes du coffret car ils pourraient entrer en contact avec des points sous tension dangereux ou court-circuiter des pièces. Ne renversez jamais de liquide d'aucune sorte sur le produit.
10. Pour éviter tout risque de choc électrique, cet équipement ne doit être branché que sur une prise secteur avec terre.
11. Aucune modification de cet équipement n'est autorisée. 12. L'alimentation est spécifiée comme faisant partie du matériel médical.
13. L'ordinateur médical peut être nettoyé conformément aux pratiques de nettoyage cliniques habituelles, notamment en essuyant avec de l'eau ou des lingettes de qualité médicale, à condition

qu'aucune substance contenant des acides ou des liquides de nettoyage alcalins ne soient utilisés.

14. Les lingettes de qualité médicale ne doivent pas contenir plus de 80% d'alcool par rapport au contenu total de la lingette.

15. L'opérateur ne doit pas toucher le patient lorsqu'il utilise l'ordinateur médical.



This device complies with the requirements of the EEC directive 2014/30/EU with regard to “Electromagnetic compatibility” and 2014/35/EU “Low Voltage Directive”.



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

CAUTION ON LITHIUM BATTERIES

There is a danger of explosion if the battery is replaced incorrectly. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer’s instructions.



Battery Caution

Risk of explosion if battery is replaced by an incorrectly type. Dispose of used battery according to the local disposal instructions.



Safety Caution

Note: To comply with IEC60950-1 Clause 2.5 (limited power sources, L.P.S) related legislation, peripherals shall be 4.7.3.2 “Materials for fire enclosure” compliant.

4.7.3.2 Materials for fire enclosures

For MOVABLE EQUIPMENT having a total mass not exceeding 18kg.the material of a FIRE ENCLOSURE, in the thinnest significant wall thickness used, shall be of V-1 CLASS MATERIAL or shall pass the test of Clause A.2.

For MOVABLE EQUIPMENT having a total mass exceeding 18kg and for all STATIONARY EQUIPMENT, the material of a FIRE ENCLOSURE, in the thinnest significant wall thickness used, shall be of 5VB CLASS MATERIAL or shall pass the test of Clause A.1

AVERTISSEMENT SUR LES BATTERIES AU LITHIUM

Il y a un danger d'explosion si la batterie n'est pas remplacée correctement. Remplacez-la uniquement par une batterie identique ou de type équivalent recommandée par le fabricant. Les batteries usagées doivent être mises au rebut conformément aux instructions du fabricant.



Avertissement Batterie

Risque d'explosion si la batterie est remplacée par un élément incompatible. Jetez les batteries usagées selon les instructions des dispositions locales .



Avertissement de sécurité

Remarque: Pour répondre à la norme IEC60950-1 alinéa 2.5 (sources d'énergie limitées, LPS) liés la législation, les périphériques doivent être conforme 4.7.3.2 «Matériaux pour enceinte coupe-feu»

4.7.3.2 «Matériaux pour équipements coupe-feu»

Pour les équipements mobiles ayant une masse totale n'excédant pas 18kg :

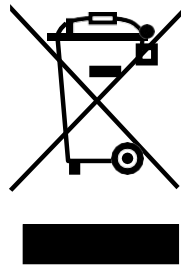
Les matériaux d'un équipement coupe-feu, dans l'épaisseur de paroi retenue la plus significativement mince, doivent être des matériels de CLASSE V-1 ou doivent passer le test de l'article A.2.

Pour équipements mobiles ayant une masse totale supérieure à 18 kg et pour tous les équipements FIXES :

Les matériaux d'un équipement coupe-feu dans l'épaisseur de paroi retenue la plus significativement mince, doivent être des matériels de CLASSE V-1, doivent être de classe Matériel 5VB ou doivent passer le test de l'article A.1

LEGISLATION AND WEEE SYMBOL

2012/19/EU Waste Electrical and Electronic Equipment Directive on the treatment, collection, recycling and disposal of electric and electronic devices and their components.



The crossed dust bin symbol on the device means that it should not be disposed of with other household wastes at the end of its working life. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure.

To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract.

This product should not be mixed with other commercial wastes for disposal.

Troubleshooting

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 system.
- Your computer has been dropped or damaged.
- You suspect that your computer needs service or repair.
- You want to clean the computer or screen.
- You want to remove/install any parts.

Repair of the device may only be carried out by the manufacture.

We recommend that a service contract be obtained with supplier and that all repairs also be carried out by them. Otherwise the correct functioning of the device may be compromised.

Revision History

Changes to the original user manual are listed below:

Revision	Description	Date
1.0	<ul style="list-style-type: none">Initial release	March, 2019
1.1	<ul style="list-style-type: none">Specification updated	March, 2021

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1. Intended Use

The Medical Computer is a computing device capable of storing, retrieving and sending data electronically. This Medical Computer, including its user interface, RTC battery, PCB and power supply, is intended to be fixed to a VESA wall mount in medical care environment.

This Medical Computer Hardware System must be operated by professional personnel (i.e., doctor, nurse...).

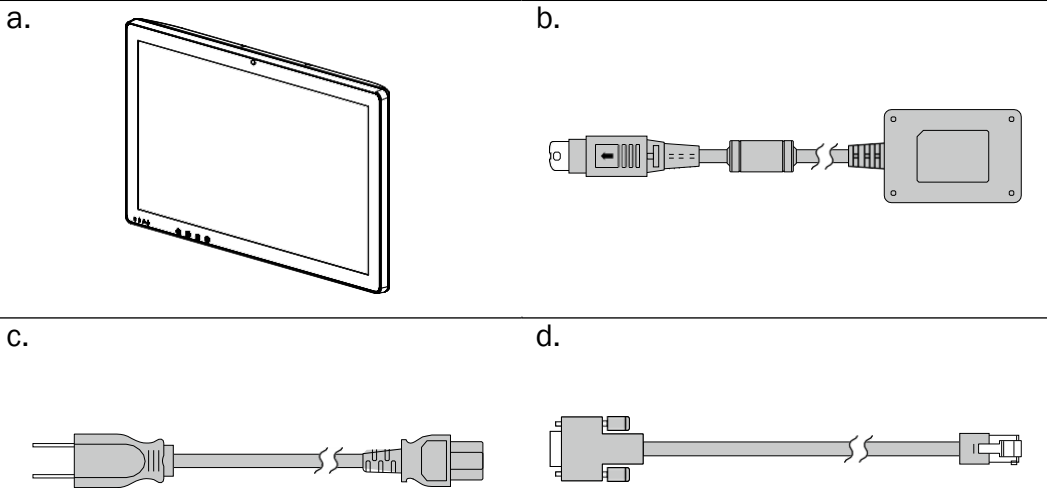
Application: Access to patient records / Hospital administration system / Bed management.

Cleaning method

- Turn off the system and disconnect the power cord and remove batteries before cleaning the system.
- Use non-alcohol and non-abrasive liquid to clean the touch screen.
- Spread the cleaning liquid onto a sponge or cloth and then wipe the touch screen gently.

2. Packing List

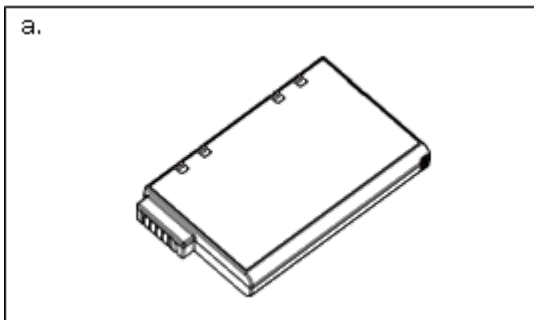
2-1. Standard Items



- a. System
- b. Power adapter
- c. Power cord
- d. RJ45-DB9 cable (x2)

Note: Power cord will be supplied differently according to various region or country.

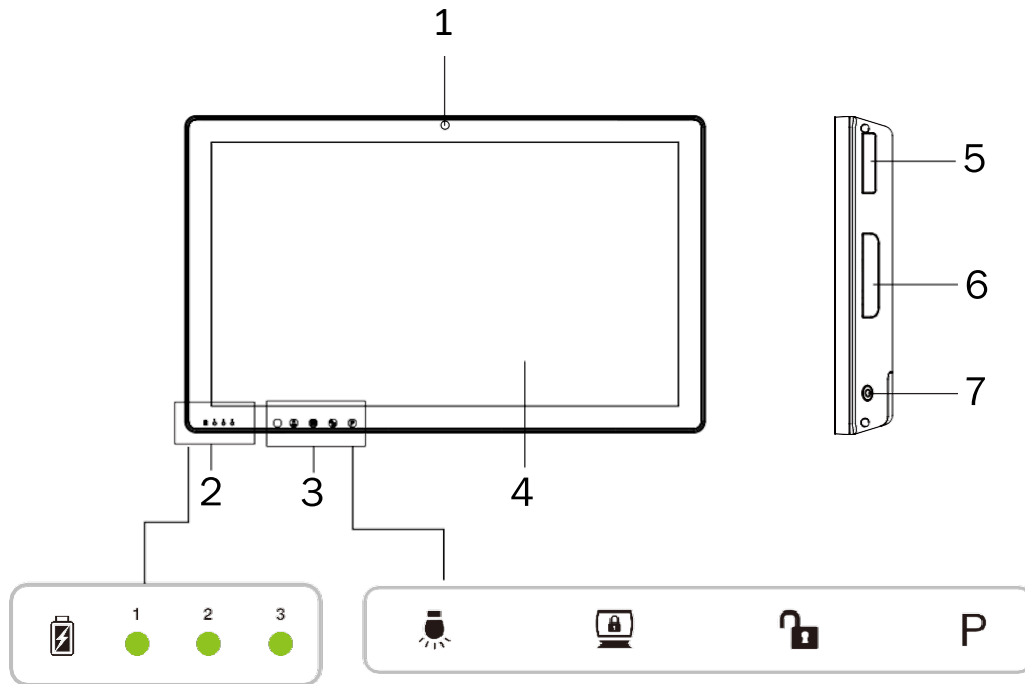
2-2. Optional Items



- a. Battery

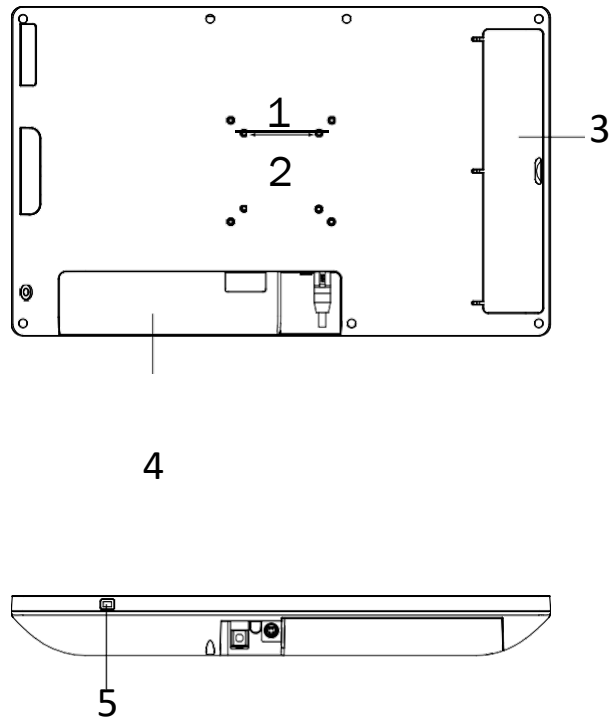
3. System View

3-1. Front & Side View



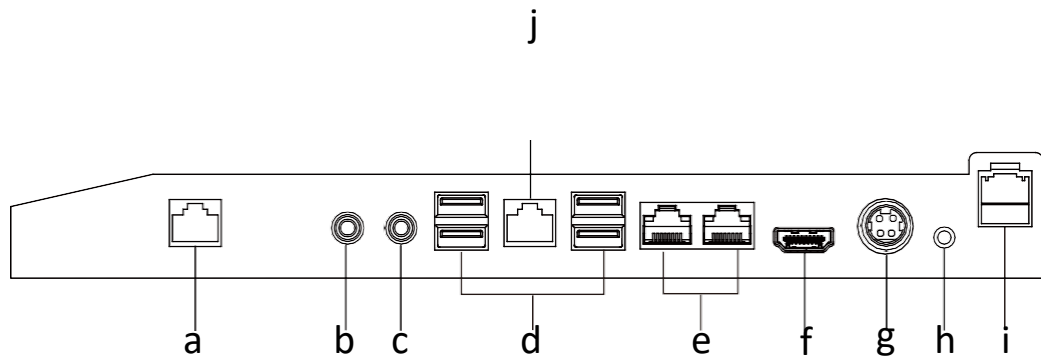
Item No.	Description
1	5M front camera (option)
2	batteries status
3	capacitive sensor touch function keys (from left to right: LED reading light /touch screen lock key /touch screen unlock key /programmable function key)
4	21.5" true flat PCAP multi-touch
5	Dummy cover of RFID & IC card reader
6	Dummy cover of MSR module
7	Power button

3-2. Rear & Bottom View



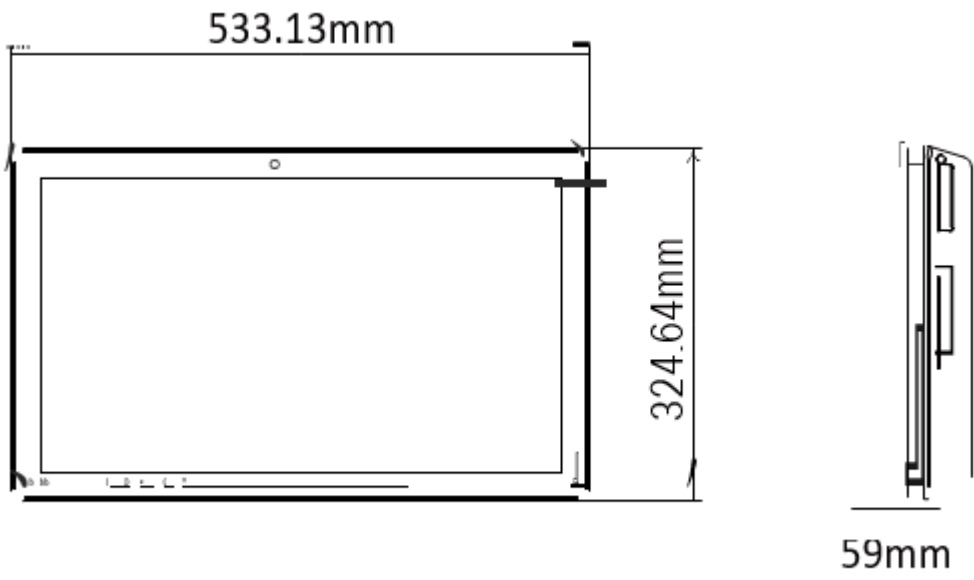
Item No.	Description
1	100 x 100 VESA mounting holes
2	75 x 75 VESA mounting holes
3	Battery door
4	Cable cover
5	LED reading light

3-3. I/O View



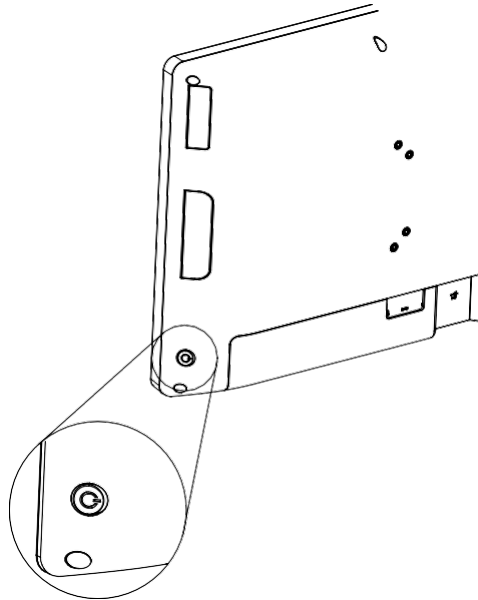
Item No.	Description
a	2 nd LAN
b	Mic in
c	Line out
d	USB 3.0(x4)
e	COM port 1, 2
f	HDMI
g	DC in
h	Power button
i	Powered USB 24V
j	LAN

3-4. Dimension



4. Basic Operation

4-1. Powering ON & OFF



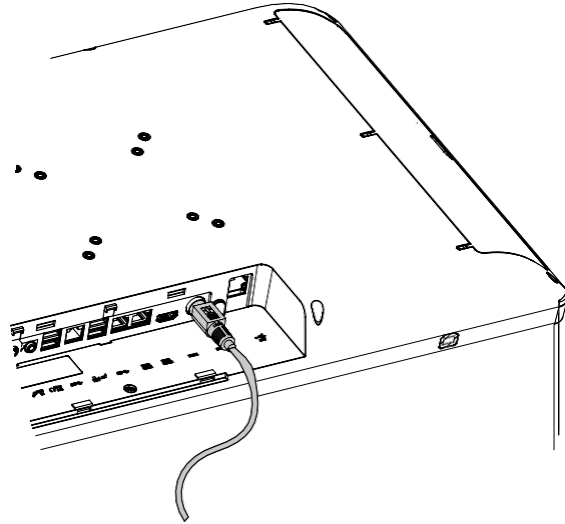
To activate the system, push and quickly release the power button and the display will come on in a few seconds. **NOTE:** The system must be plugged into power adapter or battery charged before turning on for the first time.

To turn off the system, power off the device safely using software function that “shuts down computer” provided in the operating system.

4-2. Charging the Battery

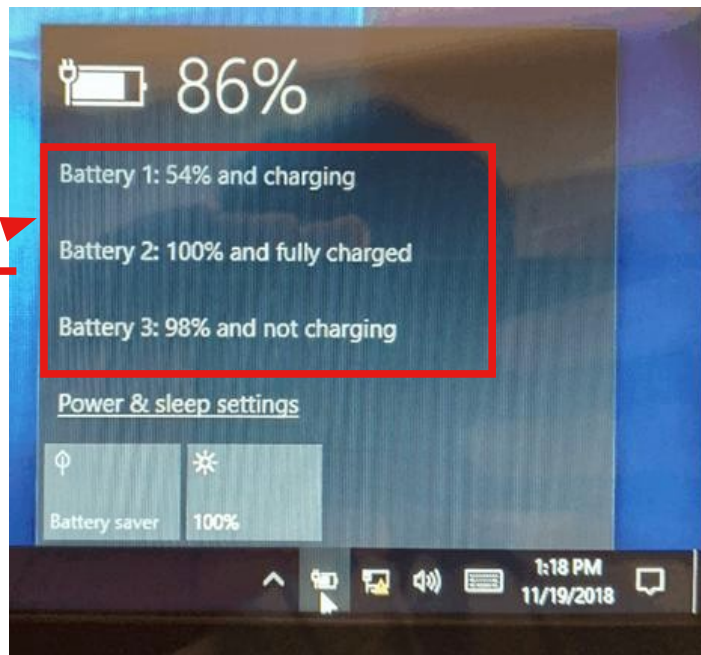
The system is equipped with 3 hot-swappable batteries.

1. The batteries may be charged by connecting the supplied power adapter directly to the DC-in port on the system.
2. Open the cable cover and plug the cable directly into the connector. Then plug the adapter directly into the power outlet.



The system will charge in the order of battery 1 to battery 3.

Status will show the capacity of each battery.



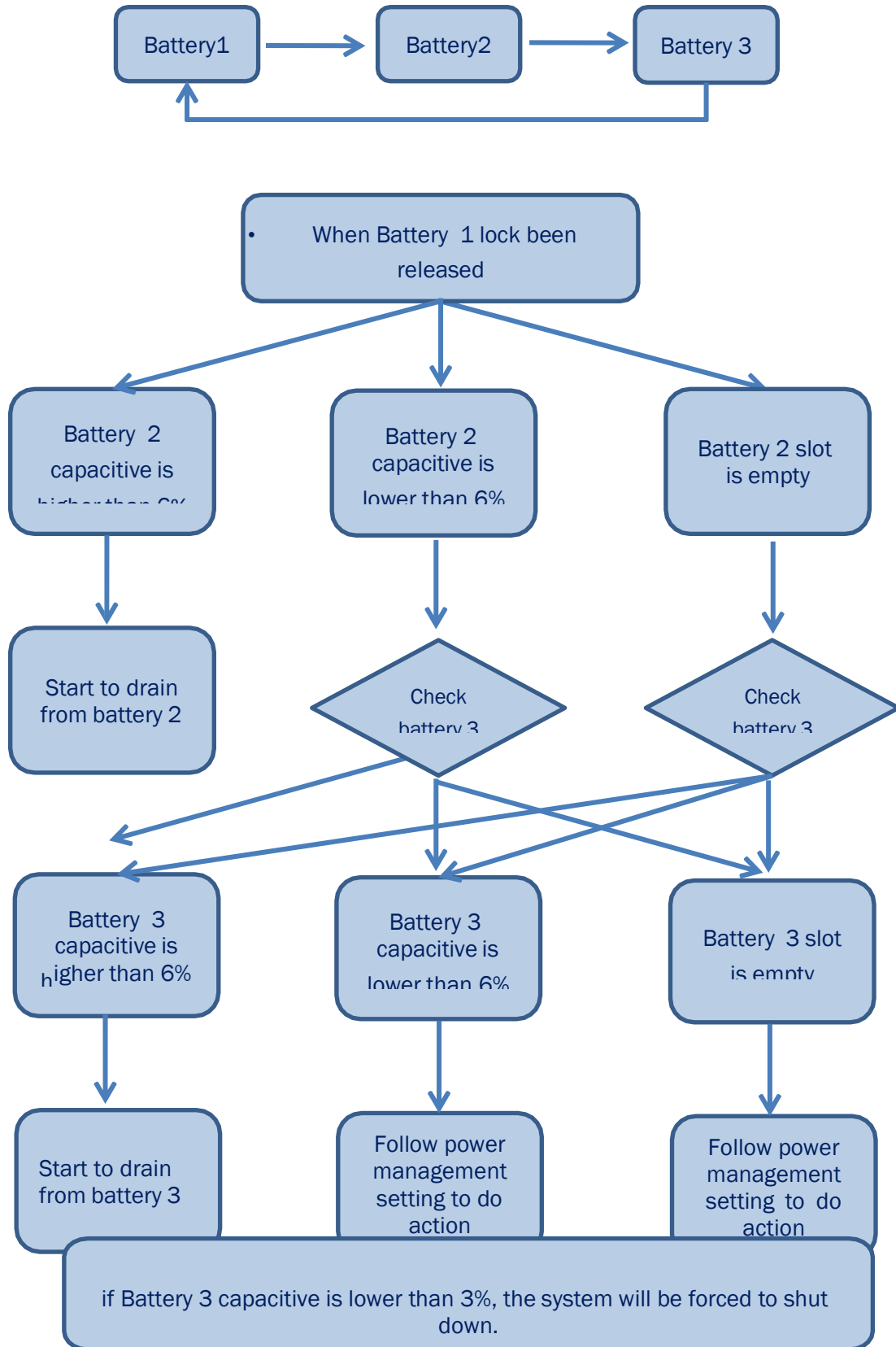
4-3. Battery Level Indication

Each battery provides an battery level indicator LED on the front of the system. The signals charge status are as follows:

DC in Mode	Battery	Battery full charged	GREEN
		Battery charging	GREEN blinks slowly
		Battery standby	GREEN
		Battery error	RED blinks quickly
	Without battery	No signal	
	Battery / Power off	Battery full charged	GREEN
		Battery charging	GREEN blinks slowly
Battery standby		GREEN	
Battery Mode	Battery	Battery discharging	ORANGE blinks slowly
		Battery standby	GREEN
		Battery lower 12%, higher 6%	RED blinks slowly
		Battery 6%	RED
		Battery error	RED blinks quickly
	Without battery	No signal	
	Battery / Power off	No signal	
	Battery / Power off	all batteries lower 6%	RED lights up for 6 seconds

4-4. Battery Discharging Mode Flowchart

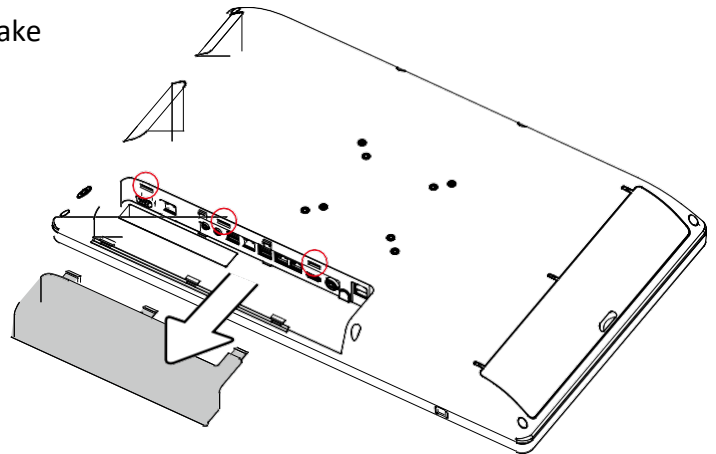
Battery discharging will be started from Battery1 when system boot on battery discharging mode.



5. System Assembly

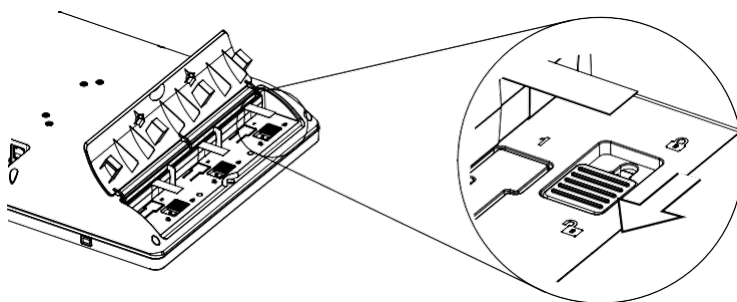
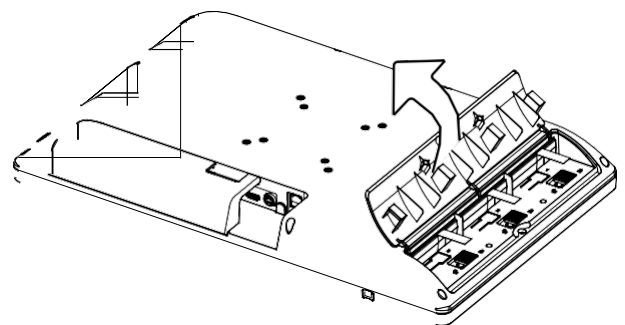
5-1. Opening the Cable Cover

1. Place the system face down, make sure not to scratch the screen.
2. Press and pull the cable cover outwards to release it from the system.



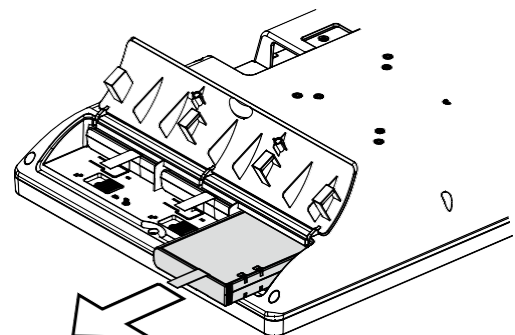
5-2. Replacing the Battery

1. Place the system face down, make sure not to scratch the screen.



2. Slide the latch down as shown to unlock.

3. Pull the plastic puller (see picture) to release the battery out of the system.



6. Specification

Model Name	K959
Mainboard	D87U
CPU	Intel SKYLAKE U CPU Celeron 3955U 2GHz, LLC 2M i5-6300U 2.4GHz, LLC 3M
System memory	DDR4 2133 MHz (32GB Max) ; 2 Channel
LCD/Touch Panel	
LCD size	21.5" LED LCD
Brightness	250 nits
Maximal resolution	1920 x 1080
Touch screen type	True flat projected capacitive touch
Storage	
HDD	2.5" Slim HDD bay, SATA HDD
Flash memory	SATA SSD Flash memory card 8G/16G/32G/64G (option)
Peripherals	
Web cam (option)	5M Web Cam
RFID (option)	RFID (USB)
Smart card reader (option)	Smart card reader (USB)
Expansion	
Mini PCIe socket	1
M.2	1 x M.2 slot half size ; Key ID- E (1 x USB & PCIe)
External I/O Ports	
USB	4 x USB 3.0
Serial / COM	2 x RJ48 (BIOS setting 0V, RS232/422/485)
HDMI	1
LAN	1 x WG1219LM)
2 nd LAN	1 x Intel WG1211AT)
Audio jack	1 x Mic-in, 1 x Line-out
DC jack	1 x Latch type (4pin)
Powered USB	1 x 24V
Control/ Indicate	
Power button	1
LED indicator	3 dual color LED indicators for 3 battery status
Audio	

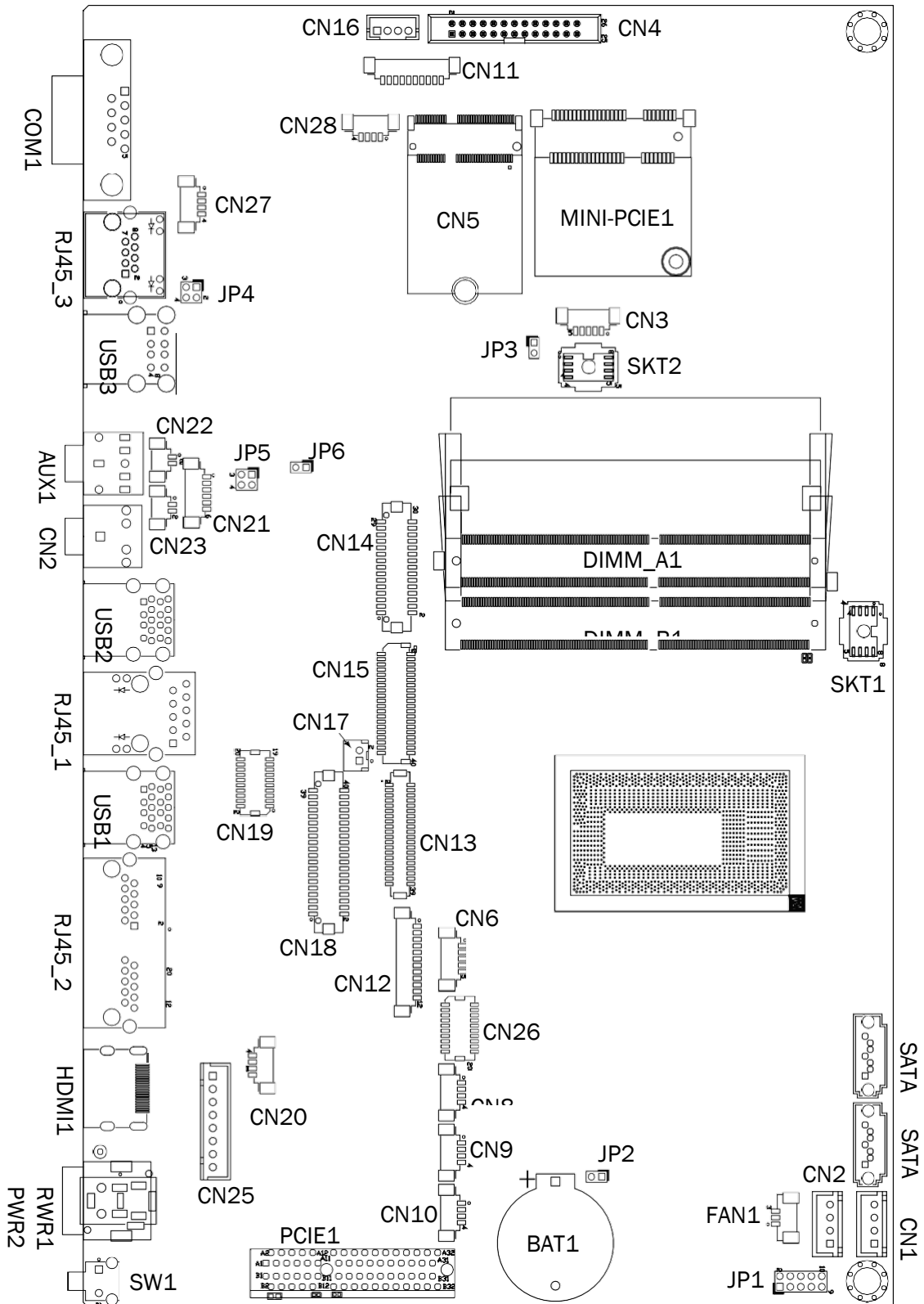
Speaker	1 x 2W
Power	
Wide range voltage	12V ~ 48V
Power adapter	DC 19V / 120W
Battery	
Battery	3 x hot swappable battery with 240WHrs capacity
Environment	
EMC & Safety	FCC/CE Class B/LVD

Model Name	K959
Mainboard	D87U
Certification	FCC/CE(EN55032:2010 + AC:2016 CLASS B) EN60601-1-2:2015 Standard: ANSI/AAMI ES60601-1 (2005/®2012 + A1:2012, C1:2009/(R)2012+ A2:2010/(R)2012) - Amendment 1 - Revision Date 2012/08/21 CAN/CSA-C22.2 No. 60601-1:14 - Edition 3 - Revision Date 2014/03 RoHS(2011/65/EU) WEEE(2012/19/EU)
Operating temperature	0°C ~ 35°C (32°F ~ 95°F)
Storage temperature	-20° ~ 60°C (-4°F ~ 140°F)
Operating altitude range	0-2000m
Storage altitude range	0-2000m
Humidity	10% - 90% RH non-condensing
Dust & Water proof	IP 65 (front panel)
Dimensions (W x D x H)	533 x 325 x 59 mm
Weight (N.W.)	7kg
Mounting	75mm x 75mm /100mm x 100mm standard VESA / panel mount
OS support	Windows 7, Windows IOT 10(64-bit) Linux : Ubuntu After 15.10, Fedora After 23

*This specification is subject to change without prior notice.

7. Configuration

7-1. D87U Motherboard Layout



7-2. Connectors & Functions

Connector	Function
CN1/2	SATA power connector
CN3	EC debug port
CN4	Printer connector
CN5	M.2 WiFi socket
CN6	SDV connector
CN8/9/10	USB2.0 connector
CN11	COM4 connector
CN12	Inverter connector
CN13	eDP connector
CN14	Bedside connector
CN15	DP/HDMI Connector
CN16	DICOM Connector
CN17	DICOM for LVDS_VDD_EN
CN18	LVDS connector
CN19	SDR connector
CN20	ON/OFF & Power LED connector
CN21	Build in Speaker/MIC connector
CN22	Build in speaker(left)
CN23	Build in speaker(right)
CN24	Audio jack
CN25	Charger board power connector
CN26	Charger board function connector
CN27/28	LAN2 LED connector for by pass no isolator
PCIE1	PCIE X4 slot connector
FAN1	FAN connector
HDMI	HDMI connector
AUX1	MIC in jack
PWR1/PWR2	DC Jack
RJ11_1	Cash drawer connector
RJ45_1	LAN1 connector
RJ45_2	COM1/COM2_RS232/422/485
RJ45_3	LAN2 connector
DiMM_A1 / DIMM_B1	DDR4 SO-DIMM
SATA0/SATA1	SATA connector
BAT1	Battery socket
USB1/USB2	USB3.0

USB3	Isolator USB connector
COM1	CRT connector
SW1	Power button
MINI_PCIE1	Mini PCIe WiFi socket
JP1	LCD ID setting
JP2	Clear CMOS
JP3	Hardware reset
JP4/5	isolator USB speed select
JP6	Audio Mono setting

7-3. Jumper Setting

Audio Mono select

Function	JP6
Mono	<div style="border: 1px solid black; padding: 2px; display: inline-block;">1 2</div>
▲ Standard	<div style="border: 1px solid black; padding: 2px; display: inline-block;">1 2</div>

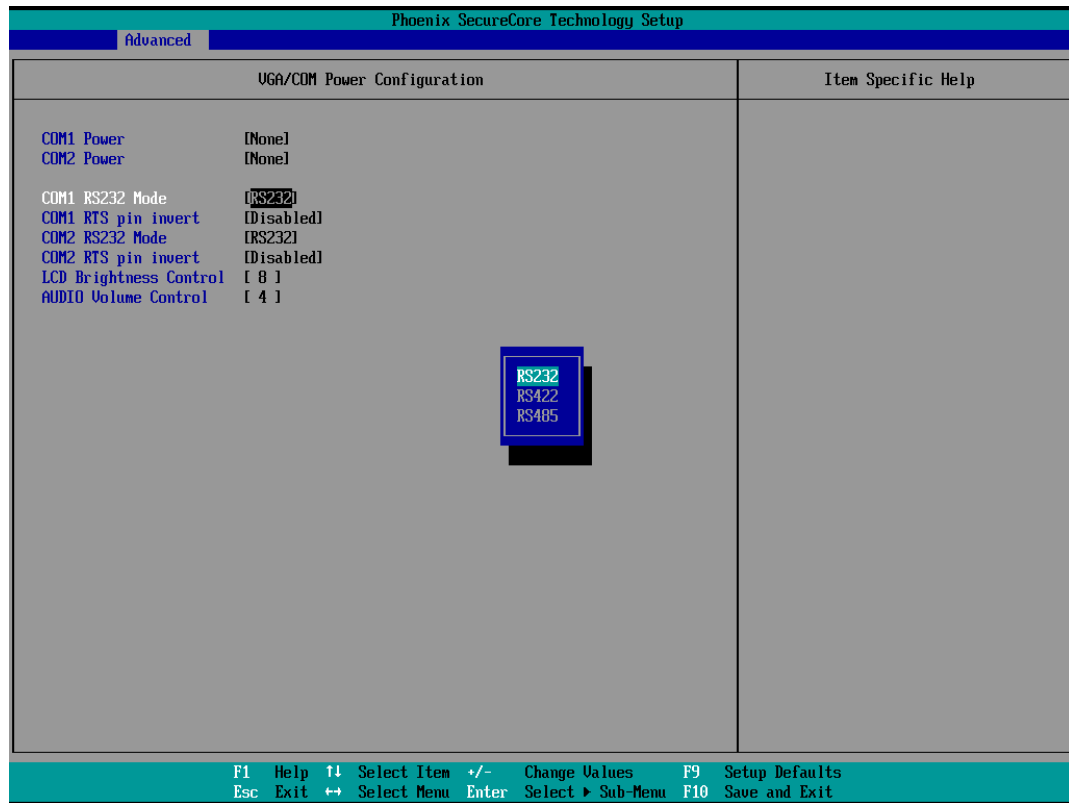
LCD ID Setting

Panel#	Resolution	LVDS		Output Interface	JP1
		Bits	Channel		
14	1920 x 1080	24	Dual	LVDS Panel	<div style="border: 1px solid black; padding: 2px; display: inline-block;">1</div> 3 5 7 9 2 4 6 8 10
15	1920 x 1080	24	Dual	LVDS Panel	1 3 5 7 9 2 4 6 8 10

1
2 Jumper open
 1
2 Jumper short
 ▲ = Manufacturer Default Setting

COM1/COM2 Power Setting

COM1, COM2 can be set to provide power to your serial device. The voltage can be set to +5V or +12V in the BIOS.



1. Power on the system, and press the key when the system is booting up to enter the BIOS Setup utility.
2. Select the Advanced tab.
3. Select **VGA/COM Power Configuration** Ports and press <Enter> to go to display the available options.
4. To enable the power, select COM1 ,COM2 Power setting and press <Enter>. Select Power and press <Enter>. Save the change by pressing F10.