USER MANUAL

INFUSION WORK STATION

(EN-D9 Smart , EN-D9 Z)

CE 0197

Manufacturer: Shenzhen Enmind Technology Co., Ltd.

Room 201, Block A, No.1, Qianhai Road 1, Qianhaishen Port Cooperative District, Shenzhen, 518000, Guangdong, P.R. China

Site included: 5th Floor, Block A, Defengsheng Building, No.41 Dabao Road, Bao'an District 23, Shenzhen, 518101, P.R.China

TEL: +86 755 2331 6007

Authorized representative in the European Community: Shanghai International Holding Corp. GmbH (Europe)

Address: Eiffestrasse 80, 20537 Hamburg, Germanrry

Preface

1 Application Scope of the User Manual

Applicable to Infusion Work Station of our company.

This User Manual describes the product's most complete configuration, accessories and functions which may not exist in the product of the user, for more detailed information, please contact manufacturer.

2 Applicable Object of the User Manual

It is applicable to the professional trained nurse, doctor, and maintenance technician of this device.

3 Use Instructions

This User Manual covers the basic information on the safety and effectiveness of the product for guiding the operator to correctly install, test, operate, use and maintain the product. Please read this manual thoroughly before use and use the product in a correct way. Please carefully keep the User Manual for future use.

Our company is responsible for the reliability and performance of the device only all following conditions are met:

- Use the device according to this User Manual.
- The device can only be disassembled, assembled, replaced, tested, improved and repaired by the professional technicians of our company.
- All components and accessories as well as consumables for repairing are provided by manufacturer.
- Relevant electric devices meet the international standard IEC/EN 60601-1 and this User Manual.

4 Paraphrase

【】 means mechanical button

〖〗 means touch button

( ) further Information

\- means inapplicable

√ means accordant

→ means operation steps

Warning /Attention: it may possibly cause physical injury or death if the cautions covered in the warning are not obeyed.

Caution: it may possibly cause physical injury or property loss if the cautions are not obeyed.

Note: in case fails to follow the supplementary or prompt information on the operation instructions may possibly cause physical injury the device fault or property loss if it is not obeyed.

Accessories: the optional components which are necessary and (or) suitable for using with the device in order to achieve the expected purpose, or provide convenience for achieving the expected purpose, or improve the expected purpose, or increase the additional functions of the equipment.

Content

Chapter1 Safety Instructions

1.1 Warnings

⚠

- Before using, please check the device, connecting wire and accessories to ensure that it can work normally and safely. If there's anything abnormal, immediately stop working and contact our after sale service department. Additionally, the adhesion or intrusion of fluid/drug may possibly cause the device fault and malfunction. Therefore, please clean the device after use, and store it correctly.
- For CLASS I ME EQUIPMENT to avoid the risk of electric shock, this equipment must only be connected to a supply mains with protective earth.
- This device must be operated by trained professional medical care personnel.
- Patients are not allowed to maintain, clean, or export historical records ,etc., of the device or its components when using the device.
- Do not use this equipment in an environment with flammable or explosive substances such as anesthetics to prevent fire or explosion.
- It is not allowed to store or use the device in the environment with active chemical gas (including gas for disinfecting) and moist environment since it may influence the inside components of the Infusion Work Station and may possibly cause performance drop or damage of the inside components.
- Please do not only depend on information prompt during use, please periodically check it to avoid accident.
- Tightly fix this device on the infusion stand and ensure the stability of the infusion stand. Be careful when moving the infusion stand and this device to avoid the device dropping and infusion stand falling or knocking the surrounding objects.
- Avoid device running with faults, so as not to cause medical accidents and endanger the health and even life of patients.
- The device can set up to 5 plug-in boxes with a total of 15 channels. When installing, ensure that each level of plug-in boxes is reliably fixed.
- It is not allowed to disassemble or refit this device or use it for other purposes except expected usage.
- Appliance couplers are considered disconnect devices. Do not place the device in a difficult position to operate.
- If any operator requests more information such as circuit diagrams, part lists and product descriptions so that repairs can be carried out by qualified technicians, please contact us.
- No one is allowed to repair this device except our company or the authorized repair technician of our company.
- The infusion pump and syringe pump used with the this equipment should be used in accordance with its user manual.
- This device can only be connected to the products designated by our company. In order to ensure the safety of patients, please do not connect products not specified by our company to this equipment and interface.

1.2 Cautions

⚠

- Before its first use after purchase, or this device is not used for a long period, please charge the device with AC power supply. If it is not fully charged, under power failure, the device can't continue working with built-in battery power supply.
- When new device, or put into use after storage for a period of time, or ready to use after repair, please check and ensure:

  The appearance of the device is in good condition, no cracks, no leakage, clean and tidy;
  The moving parts are flexible and effective, and the button is pressed smoothly and effectively;
  The brightness of the display screen is uniform, no bad point, and the touch screen operation is flexible and effective;
  The power cable is installed firmly and is not easy to be pulled off;
  Set and check system time to ensure that history records are recorded correctly.
- This device can not be used in the places with radiological installation or magnetic resonance device as well as the places with high pressure oxygen therapy.
- Not to position device to make it difficult to operate the disconnection device.
- Other devices near this device must meet corresponding EMC requirements, otherwise, it may influence the performance of this device.
- The equipment should be used within the environmental specifications specified in this manual
- Avoid direct sunlight, high temperature or high humidity.
- If only the internal battery is used for power supply, ensure that the battery is fully charged before use and still in effective working condition.
- This equipment is connected to the power supply using a flexible cord with a grid power plug, unplug it if necessary to disconnect it from the grid power supply, and do not place the equipment in a place where it is difficult to operate the disconnecting device.
- Under general conditions, please use AC power supply as much as possible since it can prolong the service life of the battery at a certain degree. When using AC power supply, ensure that the grounding wire is reliably connected with the ground, and only the AC power wire attached with this device shall be adopted. The built-in battery can only be used as the assistant power supply when the AC power supply can't reliably connected with the ground and is not under normal conditions (power failure or moving infusion).
- Before connecting this device with power supply, please keep the power socket and plug dry, and the power voltage and frequency meet the requirements listed in the device label or this User Manual.
- The device is equipped with the audible and visual alarm system, and the red and yellow alarm indicators will light on by turn to check if the alarm system can work normally, and the speaker makes the "beep" sound.
- Please keep the device away from the AC power socket for a certain distance to avoid fluid/drug splashing or dropping in the socket, otherwise, it may possibly cause short circuit.
- It is not allowed to press and operate the button with sharp object (such as pencil tip and nail), otherwise, it may possibly cause early damage to button or surface film.

- When using the scanner, do not touch the scanner and the patient at the same time to avoid unexpected risks.
- When transferring the equipment in the hospital, please ensure that there are more than two people to support and operate it, so as not to damage the equipment or cause the equipment to roll over, resulting in injury accidents.
- If the device suffered from dropping or impacting, please immediately stop using it, and contact our after sale service department, because the inside components of the device may be possibly damaged even the appearance is not damaged and abnormality is not occurred when working.
- Read carefully the warnings, precautions and procedures in this user manual.

1.3 Dialogue Window

Displayed in the form of a message box on the device display. Mainly for operation confirmation, etc.

For instance :

Figure1.3-1 Operation select information

Figure 1.3-1

1.4 Symbols

Not all of the below symbols are existed in the device you have purchased.

Table 1.4-1

Marks	Description	Marks	Description
LOT	Batch code		Protective earth (ground)
SN	Serial number	**IP44**	Dustproof and waterproof Prevent the pouring of solid objects larger than 1.0 mm in diameter and the intrusion of splashing water in all directions
	Caution		Both direct and alternating current
	Defibrillation-proof type CF applied Part		battery
	Date of Manufacture		Handle with harmless method
20	environment-friendly use period (20 a)		Manufacturer
EC REP	Authorized Representative in the European Community		Non-ionizing electromagnetic radiation
	Input / output		RJ45
	This side up		Fragile items
	Keep dry	8	Stacking level limit
CE 0197	CE-mark/Notified Body		Please refer to the instruction manual/manual
-20℃ 60℃	Transportation package temperature limit range is-20～60℃	10% 95%	The limited humidity range of transportation package is 10%～95%
50kPa 106kPa	The environmental pressure of transportation package is limited to 50～106kPa		

Chapter2 Overview

2.1 Application Scope

2.1.1 Expected Purpose

Supply power to the infusion pump and syringe pump, and communicate with the specified type of infusion pump and syringe pump through the communication interface; collect the data of the infusion pump and syringe pump, and transmit it to the central infusion management system through wired/wireless network, and prompt alarm information.

2.1.2 Expected Working Environment

The device is expected to be used in institutes or units with healthcare capability. Including but not limited to: emergency department, ICU (intensive care unit), NICU (neonate intensive care unit), operating room.

2.1.3 Suitable Objects

Adult, Pediatric or Neonate.

2.2 Contraindications

None.

2.3 Working Principle

The Infusion Work Station through connect the plug-in box and the main controller, and then connected with the designated infusion pump through the communication interface to realize real-time data communication and collection, and at the same time provide the pump with power supply function, and through wireless or wired network data communication.

2.4 Structure and Performance

2.4.1 Structure and Performance

The Infusion Work Station consists of a mobile stand with a communication interface and a power supply and integrated software, and a wireless module is optional. This device can communicate with the syringe pump and infusion pump, collect the data of the pump, and transmit the data through wired or wireless network. It also has Cascade, history records, patient management and alarm functions and so on.

2.4.2 Functional Specifications

This device has two models:EN-D9 Smart, EN-D9 Z, the main function differences are shown in table below.

Function /Model	EN-D9 Smart	EN-D9 Z
Cascade	●	●
WI-FI	●	○
Alarm	●	●
Data Interface	●	●
Pump Station Interface	●	●
Channel number	≤15	≤15
Battery	●	●
Loudspeaker	●	●
Screen size	7 inch	7 inch
Remarks:“●”Standard;,“○”Optional.		

⚠ This User Manual describes the most configuration and most complete functions, due to model difference or optional components, not all functions are equipped in the product you purchased.

2.5 Product Specification

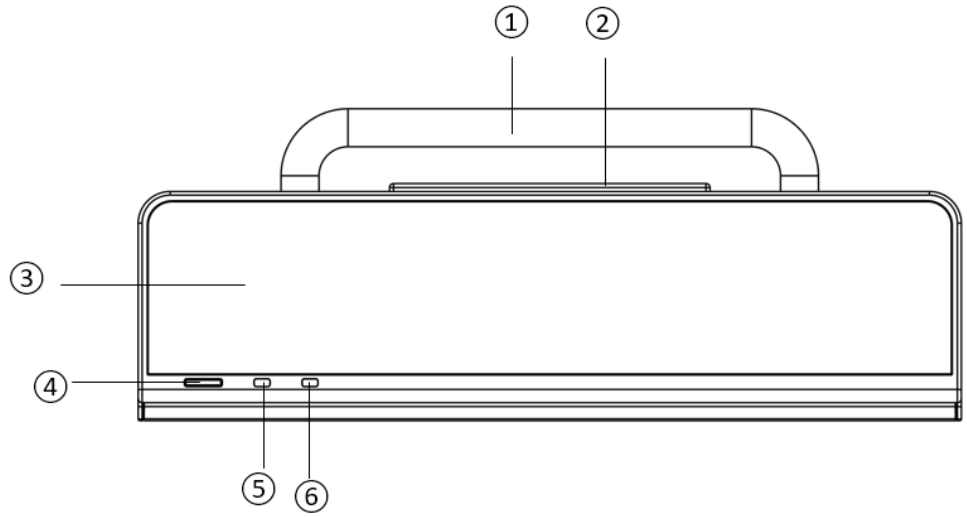
Safety Classification	
Electric protection Type	Class I
Electric protection Level	Defibrillation proof type CF applied Part(The applied part is the syringe and infusion line mounted on the pump).
Protection against fluid ingress	IP44
Working mode	Continuous operation
Classification	Portable device, non-portable device.
Specification Parameters	
Plug-in box number	1 to 5 plug-in boxes
Channel number	3 to 15 channels
Applicable infusion pump	EN-V9 series infusion pump
Applicable syringe pump	EN-S9 series syringe pump
Fuse	T3.15AL, 250Vac, OD-Length:8.5mm, length-Width:4mm, Height:8mm
Appearance parameters	controller: ≤211mm(W)*173mm(D)*88mm(H) 3 channels(include controller): ≤211mm(W)*173mm(D)*342mm(H) 6 channels(include controller): ≤211mm(W)*173mm(D)*596mm(H) 9 channels(include controller): ≤211mm(W)*173mm(D)*850mm(H) 12 channels(include controller): ≤211mm(W)*173mm(D)*1104mm(H) 15 channels(include controller): ≤211mm(W)*173mm(D)*1358mm(H)

Weight	≤1.4kg(controller), ≤1.8kg(plug-in box)
Power Supply	
AC power supply	100V-240V AC, 50Hz/60Hz, 3 channels: 1.5A, 15channels: 7.5A
Scanner power	5V
Input power	3channels≤140 VA, 9 channels≤380 VA, 15 channels≤480VA
Work Station port	15VDC
Battery	
Battery model	303763
Battery type	lithium battery
Battery specification	11.1V, 2600mAh
Charging time	Off status≤6h
Running time	Restore factory default status, use a new battery full of electricity to power: Turn on Wi-Fi and provide interconnection function for 15 pumps, and the battery life time is ≥4h.
Network connectivity and network security	
Wi-Fi module working frequency	2.4GHz(2.412GHz~2.484GHz) 5GHz(5.17GHz-5.25GHz)(5.725GHz-5.835GHz)
Interface type	Wi-Fi communication
Wi-Fi protocol	Supports IEEE 802.11a/b/g/n wireless standards and adopts UDP protocol format
Data Security (Wireless)	Use ENMIND encryption protocol
Encryption	TKIP, AES
Data Security (Wired)	The interface protocol adopts UDP protocol and use ENMIND encryption protocol.
Network communication	Support HL7 standard protocol.
User access	The Wi-Fi password needs to be set, The communication protocol includes independent IP, server IP and port number, and the password is used for authentication.
USB Transmission Protocol	Support standard USB2.0 protocol
Software Release Version	
EN-D9 Smart	1
EN-D9 Z	1
Alarm	

Alarm signal sound pressure level	When the sound is set at lowest level, alarm signal sound pressure level ⩾ 50dB(A) When the sound is set at highest level, alarm signal sound pressure level ⩽ 80dB(A)
Alarm information	No Battery Inserted, Battery Nearly Empty, Battery Empty, System Error, No Power Supply, Network Interruption, (Channel Number) Plug-in Box Disconnection.
Environment	
Non AP/APG type equipment	Do not use it in the environment with inflammable anesthetic gas mixed with air, and inflammable anesthetic gas mixed with oxygen or nitrous oxide.
Operating	(1) temperature: 5-40℃ (2) humidity: 15-95%, non-condensable (3) atmospheric pressure: 57-106kPa
Transport & Storage	(1) temperature: -20-60℃ (2) humidity: 10%-95%, non-condensable (3) atmospheric pressure: 50kPa-106kPa
Safety Standard	
Main Safety	IEC 60601-1:2005+A1:2012+A2:2020 Medical Electrical Equipment-Part 1: General Requirements for basic Safety and essential performance IEC 60601-1-2 :2014+A1:2020 Medical electrical equipment – Part 1-2: General requirements for basic safety and essential performance-Collateral Standard: Electromagnetic disturbances-Requirements and tests IEC 60601-1-8:2006+A1:2012+A2:2020 Medical electrical equipment –Part 1-8: General requirements for basic safety and essential performance–Collateral Standard: General requirements, tests and guidance for alarm systems in medical electrical equipment and medical electrical systems

Chapter3 Appearance

3.1 Controller front View



① Handle

② Alarm indicator (red/yellow)

While Infusion Work Station alarms, indicator light glitters, with different frequency and color, more information please refer to Chapter 7.1.

③ Touch screen

④ 【Power】

Press the power button briefly to enter setting interface, the user can set the power off, or cancel.

Press and hold the power button until the screen turns off and the device turns off.

⑤ AC indicator(green)

Turn on: Connect AC power supply.

Turn off: dis-connect AC power supply.

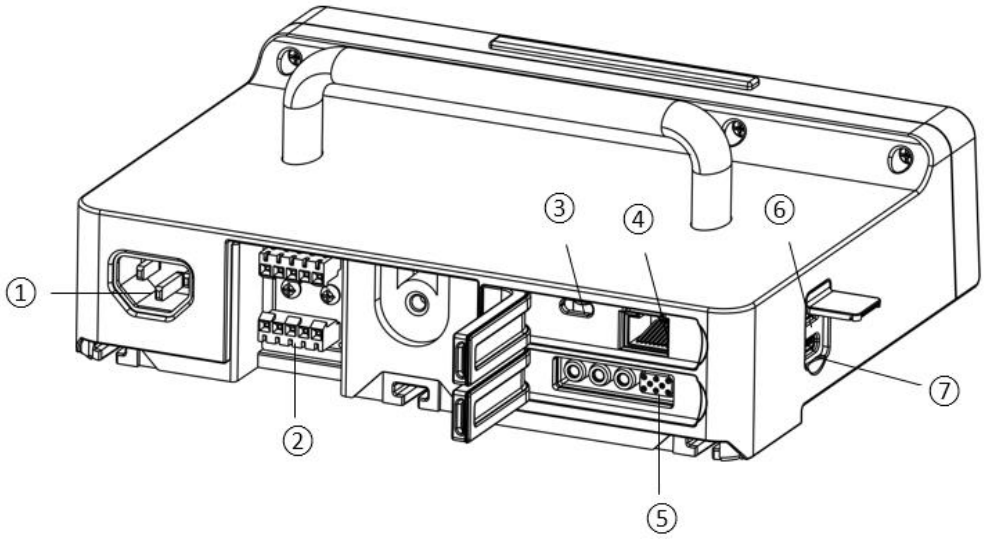
⑥ Battery indicator (green)

Indicator flashing: device on, battery charging/power supply.

Indicator lights on: the battery is full of electricity.

Indicator lights off: device shut down, no batteries.

3.2 Controller back View



① AC Power interface(Support 100-240V 50/60Hz AC)

② Channel AC interface

③ Multi-function interface 1: Nurse call interface, upgrade interface.

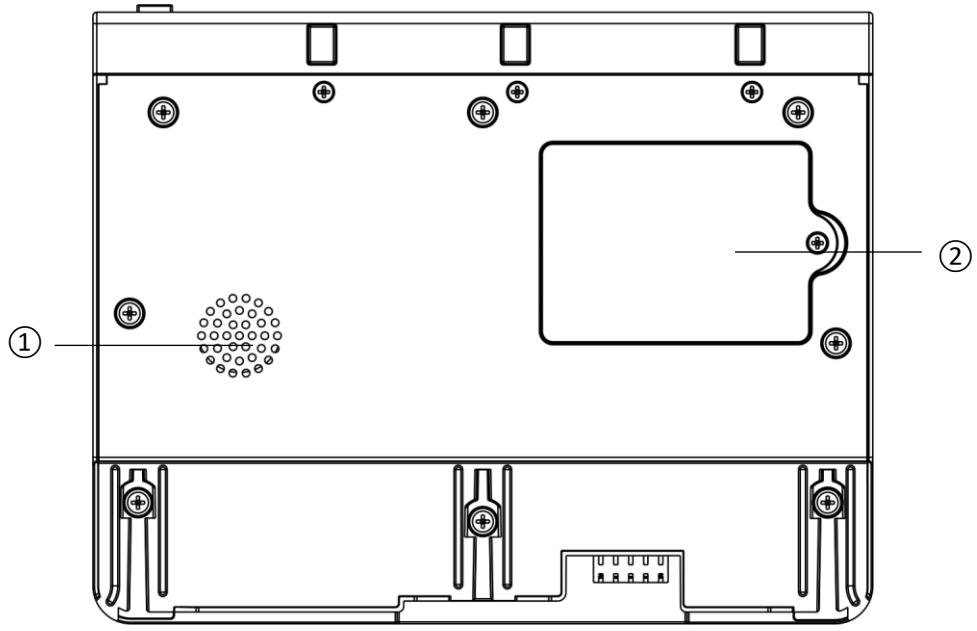
④ RJ45 interface

⑤ Reserved interface

⑥ Multi-function interface 2: Used to export history records.

⑦ USB interface: Used to connect the scanner.

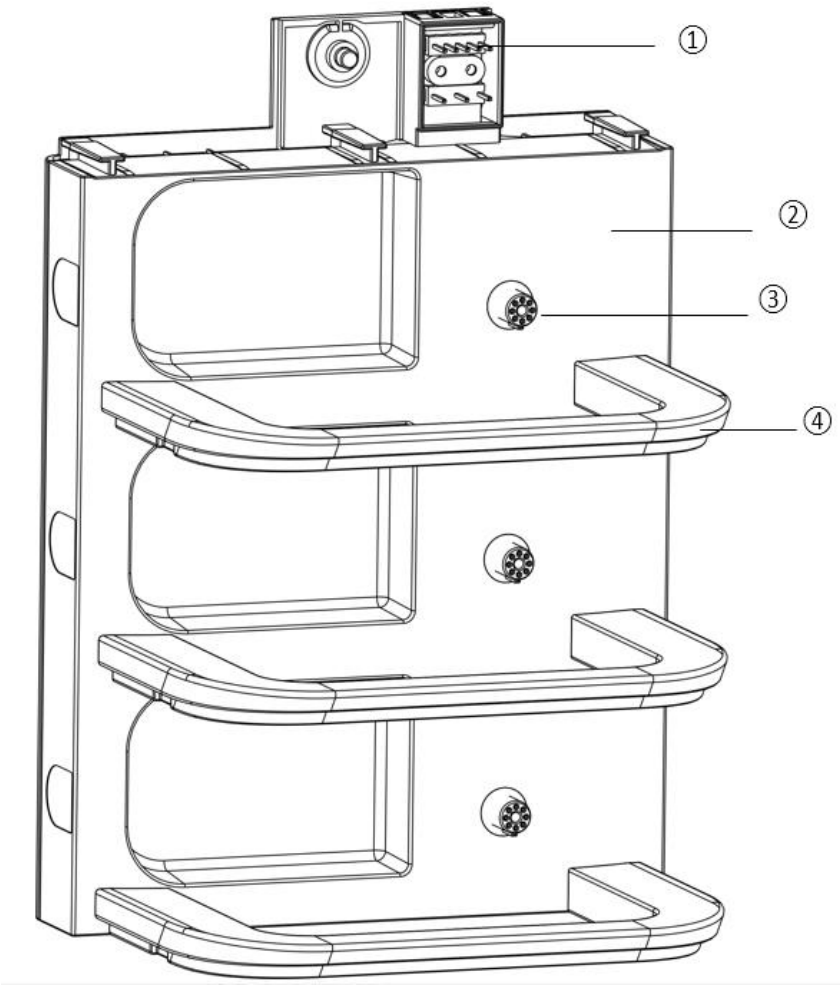
3.3 Bottom View



① Loudspeaker

② Battery cover(Includes a removable lithium battery)

3.4 Plug-in Box front View



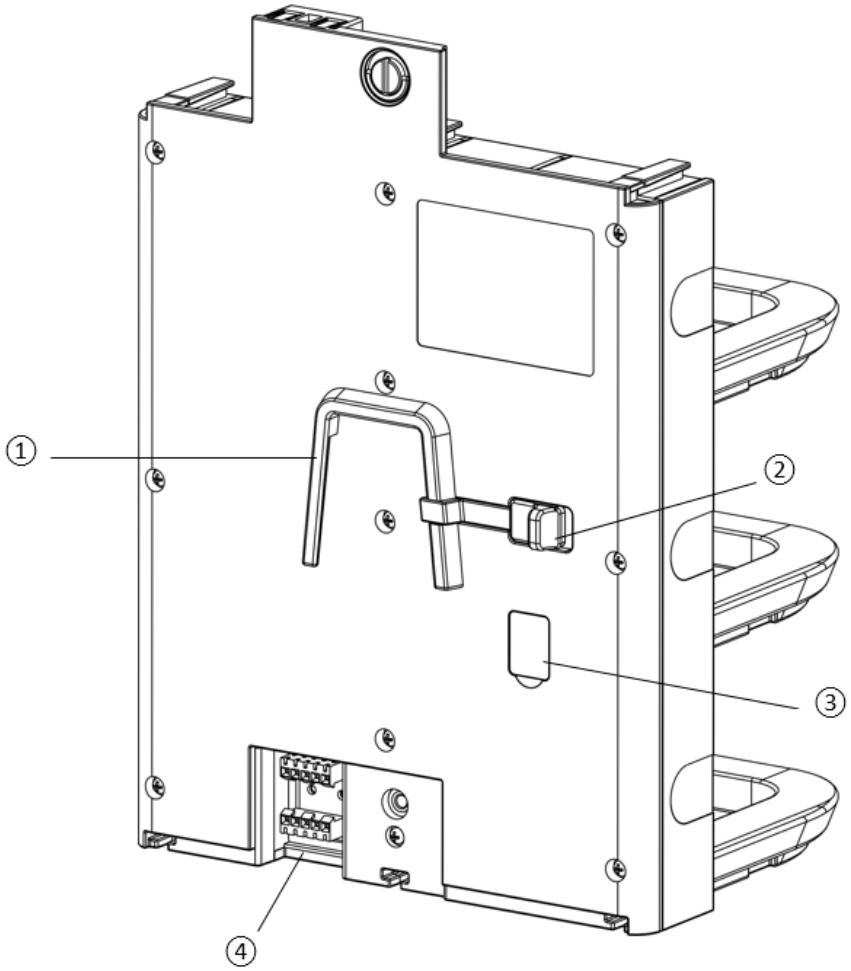
① Channel AC interface

② Slot

③ Work Station port

④ Guide rail

3.5 Plug-in Box back View



① Head

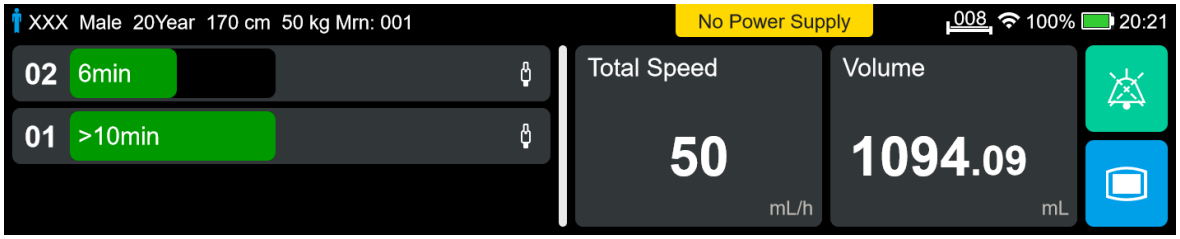
② Lock

③ DIP switch

④ Channel AC interface

3.6 Display Screen

The display screen interface layout composes of title bar and typical interface.



3.6.1 Title Bar

Title bar displays real-time state information and is not touchable, the left upper corner displays the name of current editing parameter.

Table3.6.1-1

Icon	Paraphrase	Description
	Wi-Fi indication icon	Indicate Wi-Fi connection state.
001	Bed No.	It means current Bed No.
	Battery charging indication icon	Display the current battery charging state
	Battery status indication icon	The percentage numerical or remaining time value at the left side of the icon displays the remained battery. Since the remained battery may change, it may possibly show the following states:
	Adult, male	Indicates that the patient is an adult male.
	Adult, female	Indicates that the patient is an adult female.
	Adult, indefinite	Indicates that the patient is an adult and the gender is indefinite.
	Child, male	Indicates that the patient is a child male.

	child, female	Indicates that the patient is a child female.
	child, indefinite	Indicates that the patient is a child and the gender is indefinite.

3.6.2 Typical Interface

The following interfaces are displayed during preparation and running: main interface, alarm interface, prompt interface, menu, input method interface.

Table3.6.2-1

Icon	Paraphrase	Description
	Menu	Click the icon to enter the menu interface.
	Home	Click the icon to enter the main interface.
	Page indication	The gray icon indicates the current page, and the total number of icons indicates the total number of pages.
	Power off	Click the icon to turn off the device.
	Cancel	Click the icon to cancel the current operation.
	Confirm	Click the icon to confirm the current operation.
	Return/Cancel	Click this icon, cancel the current operation and return to the back menu
	Mute	Click the icon to pause the alarm sound.
	ON	Mean this function is ON
	OFF	Mean this function is OFF.

3.6.2.1 Input Method Interface

The input method interface contains the title bar, input box, and edit box.

(1)Title bar: display the parameter name currently edited.

(2) Input box: real-time display of input content.

(3) Edit box: Include main keypad and function key.

- The main keypad consists of numeric keys and symbol keys. You can click continuously to switch.
- Function key consists of 『Backspace』, 『Cancel』, 『Confirm』, and 『Case switch』.

Table3.6.2- 2

Icon	Paraphrase	Description
	Backspace	Delete
	Case switch	English case switch
	Cancel	Cancel editing and exit
	Confirm	Save input and exit
	Space	/
!?#	Symbol Keys	Symbol switch
123	Numeric Keys	Numeric switch

Chapter4 Installation

4.1 Unpacking and Checking

(1) Please check the appearance before unpacking, if broken, please contact the transportation company or our after-sale service department quickly.

(2) Please carefully open the package to avoid damaging the device and relevant accessories.

(3) After unpacking, please check the objects according to the packing list, if there're insufficient or damaged accessories, please contact our company as soon as possible.

(4) Please keep relevant accessories, User Manual.

(5) Please keep the packing case and packing materials for future transportation or storage.

⚠ Warning: ● Please put the packing materials out of reach of children. Please obey local laws and regulations or the hospital waste treatment system to handle the packing materials.

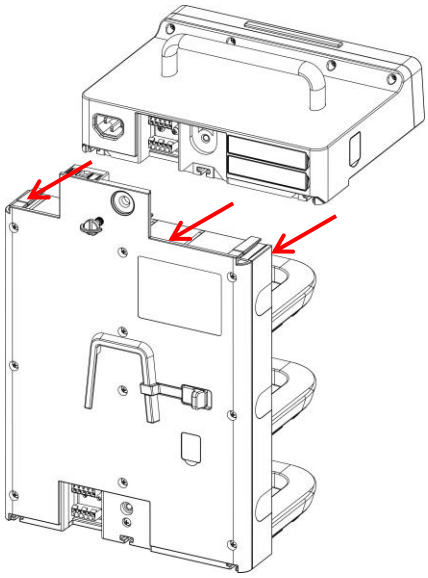
4.2 Installation

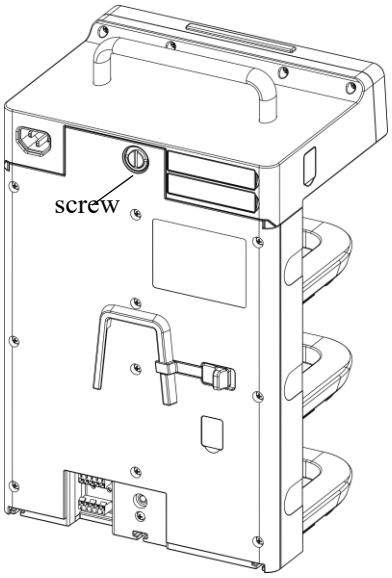
⚠ Warnings:

- This device shall be installed by the designated technicians of our company.
- All devices that connect with this equipment must pass the designated IEC standards (for example: IEC 60601-1 medical electric device safety) certification, and all devices must be connected according to the valid version of IEC 60601-1 system. The technician who takes charge of connecting to additional devices with the equipment interface is responsible for meeting the IEC 60601-1 standard. Please contact our company if you have any enquiry.
- Before installation, please make sure that the infusion stand or pendant meets the requirements of IEC 60601-1 that the load should meet 4 times the declared load, and the declared load of the infusion stand is greater than the total weight of the device (including the 1 main controller, 1 plug-in box unit and 3 pumps).
- When connecting this device with other electric devices to form the combination with special function, if the combination can't be confirmed dangerous or not, please contact our company or the electric expert of hospital to ensure that the necessary safety of all devices in the combination won't be destroyed.
- This device must be used and stored in the environment regulated by our company.

4.2.1 Install the Controller and Plug-in Box

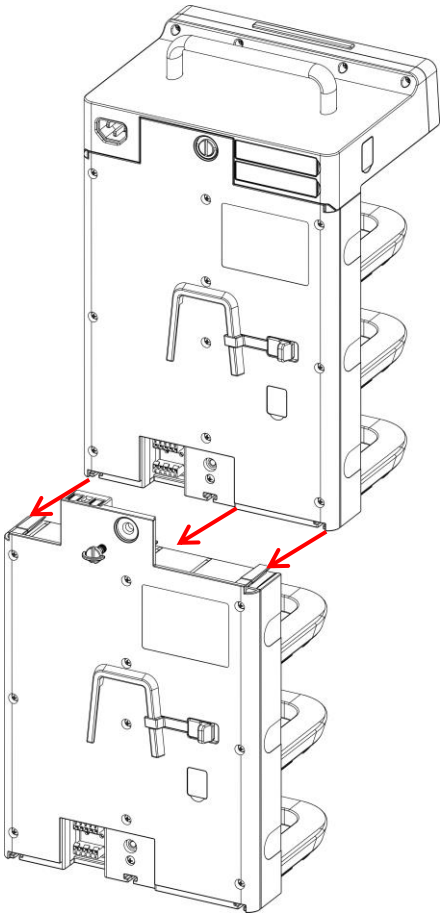
Combine the plug-in box and the controller according to the direction and position shown in the figure, and push them horizontally to ensure that they are pushed in place. After pushing them in place, tighten the screw.

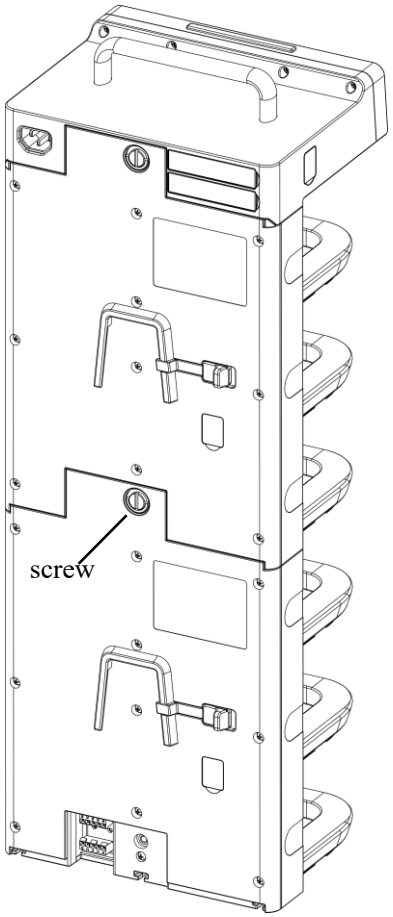




4.2.2 Install the Plug-in Boxes

Combine the plug-in boxes according to the direction and position shown in the figure, and push them horizontally to ensure that they are pushed in place. After pushing them in place, tighten the screw.

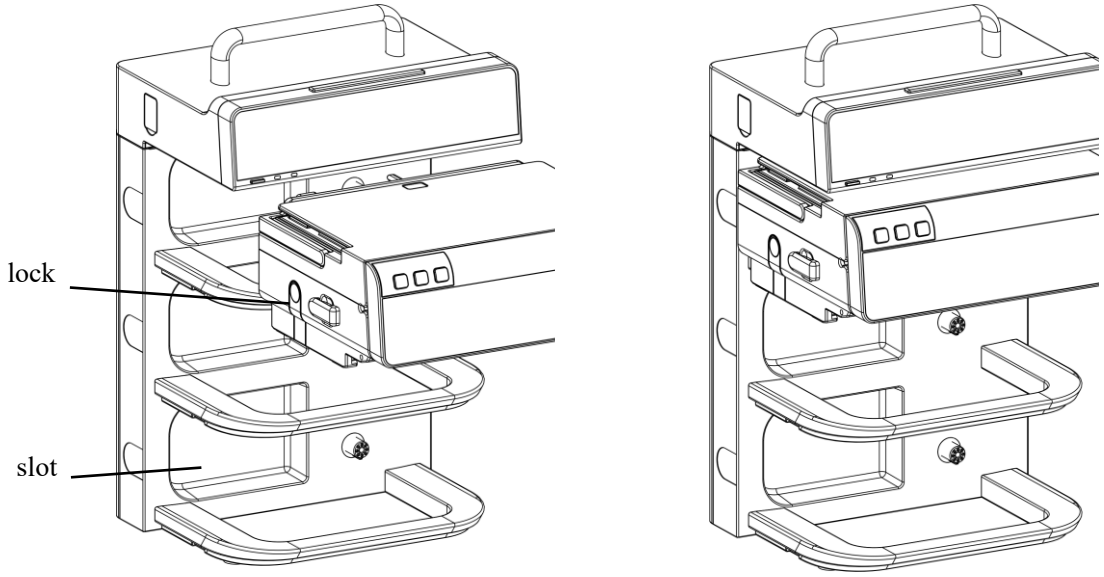




4.2.3 Plug in the Pumps

Keep the pump horizontally aligned with the plug-in box slot and push the pump into the plug-in box slot. When the pump is locked, a "click" will be heard.

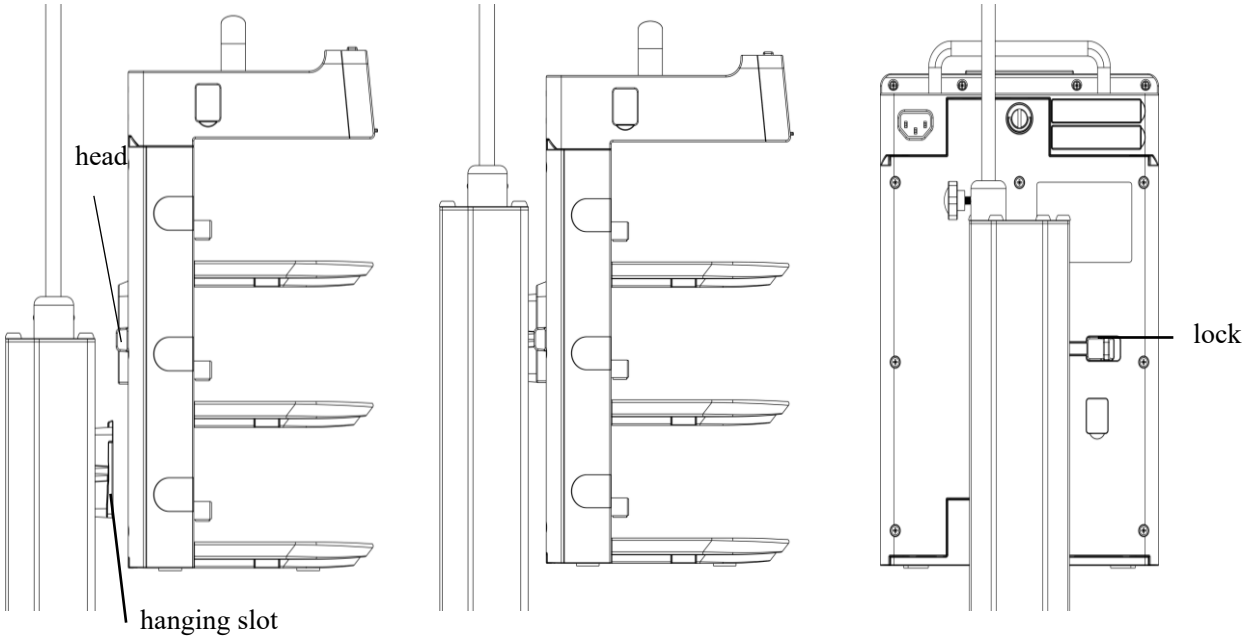
If you need to pull out the pump from the slot of the plug-in box, press the lock on the left side of the pump and take out the pump at the same time.



4.2.4 Install the Infusion Work Station to the Trolley

Snap the head of the plug-in box into the hanging slot of the trolley vertically from above.

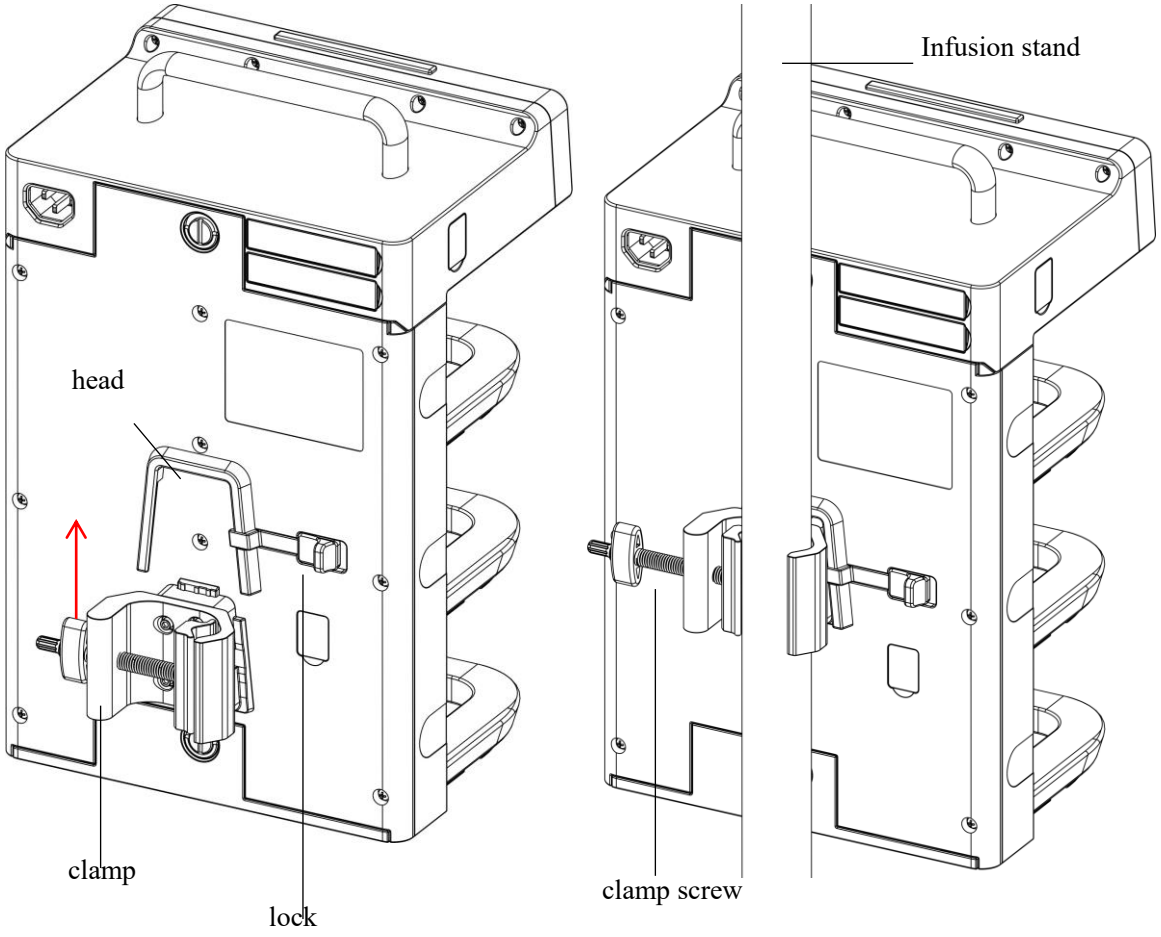
If you want to remove, push the lock on the plug-in box to the right, and then lift the plug-in box up, and take it out.



4.2.5 Install the Infusion Work Station to the Infusion Stand

First install the clamp on the plug-in box, the steps are: insert the clamp into the hanging slot from bottom to top according to the direction shown in the figure. If want to remove, push the lock on the plug-in box to the right and remove.

After the clamp is installed, turn the clamp down 90℃, rotate the pole clamp screw (knob) and unscrew to leave the space. and place the clamp on the infusion stand (the infusion stand should meet the diameter of 15-32mm, the minimum bearing capacity should be≥77.6kg, and cannot be dumped), after adjusting the position of the Infusion Work Station, tighten the clamp knob to fix the plug-in box on the infusion stand. When tightening the clamp, should held tightly the Infusion Work Station by hand, and then loosened after tightening to avoid slipping.



Chapter5 Basic Operation

5.1 Operation Flow

¤ Power on

¤ Plug in pumps

¤ Start infusion

¤ Infusion finish

¤ Remove the pumps

¤ Power of

5.1.1 Power on and Self-test

(1) After installation according to chapter 4.2 of this manual, connect to AC power. At this point, the AC indicator on the Infusion Work Station will light on, and the battery will start charging as long as the AC power supply is connected.

Note: When the Infusion Work Station only uses the internal battery for power supply, it does not have the function of supplying power to the pump of each channel. Only when the Infusion Work Station is connected to the AC power supply, can it supply power to the pump of each channel.

(2) Press【Power】button , power on the device.

(3) After power on, the system will automatically check the FLASH, EEPROM, loudspeaker and so on. When self-test, the device gives an alarm sound, and the alarm light is lit in yellow and red respectively.

(4) After the self-test is successful, system will enter the Infusion monitor interface.

⚠ Warning: ● when starting up, please pay attention to whether the alarm system of the device performs self-test as described above, and whether there is an alarm related to self-test . If the self-test item does not pass, please contact the company and you are not allowed to continue using the device.

Note: To ensure that you can clearly see the main interface of the device, you are advised to operate and use the device within 1 meter of the device.

5.1.2 Plug in Pumps

Please refer to chapter 4.2.3 of this manual for the operation steps.

Note: Only support the infusion pump designated by our company.

5.1.3 Start Infusion

Please refer to the manual of the pump to install the infusion set or syringe, set parameter, purge and other operations. If necessary, you can use the Cascade function. For the Cascade infusion operation steps, please refer to chapter 6.6 of this manual.

If the Cascade function is used, after starting the infusion, the infusion pump on the channel will infuse sequentially according to the Cascade number. When the pump with the serial number 1 starts infusion, the other pumps participating in the Cascade enter the waiting state. After the pump of the previous serial number completes the infusion, the pump of the subsequent serial number automatically starts the infusion until the last pump completes the infusion.

5.1.4 Infusion Monitoring

The infusion monitoring interface displays the information of all pumps connected to the this device, including patient information, infusion remaining time, drugs information, total speed and volume.

5.1.4.1 Infusion Information

Infusion information of the pump connected to this device can be viewed on the infusion monitoring interface, including channel number of the pump, remaining time, drugs and pump identifier ( indicating syringe pump and  indicating infusion pump), which can be scrolling through. The title bar will display the patient information.

5.1.4.2 Infusion Record

Click 『Volume』 to view the infusion record.

『Volume Of Time Period』 displays the cumulative volume of infusion in the set time period. Set the time period and interval, and you can view the infusion volume during this period.

『Last 24 Hours』 shows the cumulative volume of infusion in the most recent period. Set the required time, and you can check the infusion volume during this period. The time setting range is 1~24 hours.

『Current Volume』displays the current cumulative volume of infusion, click 『Current Volume』 to choose to clear the cumulative volume.

Click  to choose to clear all infusion records.

5.1.4.3 Total Speed

Infusion monitoring interface displays the total speed of all currently running pumps.

5.1.4.4 Quick Setting

Swipe left on the right side of the interface to call up the quick menu. This device supports change brightness and sound quickly.

5.1.5 Infusion Completion

After the last pump in the Cascade link is completed, the “VTBI near end” alarm is triggered.

5.1.6 Remove the Pumps

Please refer to chapter 4.2.3 of this manual for the operation steps.

5.1.7 Power off

Make sure the infusion is finished and disconnect the device from the patient before shutting down.

Method 1: Press and hold the 【Power】 button until the screen turns off and the device shuts down.

Method 2: Shortly press the 【Power】 button to enter the shutdown interface, and click 『Power Off』 to shut down the device.

Click 『Back』 to return to the interface before the shutdown setting.

Chapter6 System Setting

6.1 Settings

On the main interface, click 『Unified Configuration』and Enter the password en@2341 to enter the setting interface. This device supports uniform configuration parameters for the pumps plugged in this device.

Click 『Infusion Config』to enter the infusion parameter setting interface, It can be seen :Infusion Pump KVO Rate, Syringe Pump KVO Rate, KVO Time, Bolus Rate, Down Occlusion Pressure, Bubbles Size, Cumulated Air, Finish Pre-Alarm, Reminder Alarm, Units Setting, Drop Sensor, Drop Sensor Level, Micro Mode, Special Parameters, Department parameters, where the infusion parameters can be set.

Click『System Config』to choose whether to synchronize with the local settings, click  to synchronize, click  to not synchronize, and enter the system parameter setting interface, where system parameters can be set.

Click 『Config Delivery』 to send the parameters to the pumps plugged in this device and in an idle state.

Support automatic synchronization function. Turn on the 『Auto Sync』 switch to automatically send the parameters to the pump in idle state.

Note: If you turn on the 『Auto Sync』 switch, whenever the device recognizes a new pump, it will automatically send the parameters to the pump.

6.2 General

In the main interface, click『General』to enter into the equipment setting interface.

6.2.1 Network

This device supports wireless interconnection and wired interconnection. The interconnection can realize information upload: upload the patient information, infusion status, and alarm information of the Infusion Work Station to the Central Infusion Management System.

Notes:

- This function needs to be set by professional device maintenance personnel.
- After the interconnection function is turned on, the device can periodically transmit device data to the outside world. The data can only be used for display and does not provide any treatment suggestions.

6.2.1.1 Wireless Interconnection

Wireless interconnection operation steps:

(1) Click 『WIFI Settings』 enter setting interface to turn on the 『WIFI 』 switch;

(2) Go to『Nearby Network』Click『Refresh List』to select a Wi-Fi for connection, or enter『Add Network』to add a new Wi-Fi;

(3) Configure the local IP, mask and default gateway parameters;

(4) Enter 『Server Settings』 to configure the server IP and server port(10060).

This device supports the DHCP function, and when the DHCP switch is turned on, the IP address and other information can be obtained automatically.

Notes:

- The wireless access must be set by the professional technician recognized by our company.
- The transmitted data of this device doesn't provide any suggestion on therapy, and this data shall not be used for calculating the therapeutic schedule.
- When the data is adopted by the third party's equipment or software, it is only for displaying, and shall not be used for alarming or calculating.

6.2.1.2 Wired Interconnection

Support the use of RJ45 wired network interface to interconnect with the Central Infusion Management System through Ethernet.

Wired interconnection operation steps:

(1)Connect the network cable and turn on the 『LAN』 switch;

(2)Click 『Add Network』 to configure the IP, mask and default gateway parameters

(3) Enter 『Server Settings』 to configure the server IP and server port.

6.2.2 Sound

Click 『Sound』 and enter the system password en@2341 to enter the sound setting interface. Slide to set the level, confirm and click  , the higher the level, the louder it is. You are advised to select an appropriate sound level as required.

Sound level: 1 to 10 levels are optional, respectively 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%. The default is 10%.

⚠ Warning: ● Volume levels need to be set according to actual usage. The sound level at the work station must not be lower than the ambient volume level, and adjusting the volume is password protected.

6.2.3 Date & Time

Click 『Date &Time』 to enter the date and time setting interface. On this screen, you can set the system date, time, and format.

『Use 24-hour Format』is a time format setting. If you turn it on, it is in 24-hour format. If you turn it off, it is in 12-hour format.

Click『Select Date Format』, the date format can be British, American and Chinese.

Set the time and date format. Click 『Date』 and 『Time』 to set the date and time.

6.2.4 Brightness

Click 『Brightness』 to enter the brightness setting interface. Slide to set the level, confirm and click  , the higher the level, the brighter it is. You are advised to select an appropriate sound level as required.

Brightness level: 1 to 10 levels are optional, respectively 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%. The default is 50%.

6.2.5 Night mode

Click 『Night Mode』 to enter into night mode switch setting interface to set the start and end time of the night mode and the night brightness, arrival time at night, the system automatically adjusts the brightness to the User defined value.

6.2.6 Nurse Call

The nurse call function means that the device can output signals to the nurse call system to call the nurse when an alarm occurs.

Click 『Nurse Call』 to enter the interface for setting parameter. Enter『Nurse Call Alarm Level』 to set the alarm level triggering the nurse call, which is adjustable in two levels. Enter『Mode Setting』to Set the output signal type, high output or low output can be selected.

Notes:

- The nurse call function must be used with special cable.
- The user shall not only depend to Cascade on the nurse call function as the main alarm notice mode, and shall identify according to the equipment alarm and the patient state.

6.3 Patient

On the main interface, click 『Patient』 to enter the setting interface.

6.3.1 Patient Information

Click 『Patient Information』 to enter the patient information setting interface. The Bed No.(bed number), MRN(medical record number), Name, Patient Type, Gender, Age, Weight and Height can be set.

Click 『Delete Patient』 to delete all information of the current patient.

6.3.2 Prescription

Click 『Prescription』 and input the system password en@2341 to enter the prescription interface, and view the prescription information.

After this device is interconnected with the Central Infusion Management System, it can receive prescription. After receiving the prescription successfully, the system will automatically send the unexecuted prescription to the idle pump plug in this device. According to the usage, the device sends the prescription for bolus injection to the syringe pump, and the prescription for drip infusion to the infusion pump.

The prescription information is for viewing only and cannot be edited, including the prescription of the day, the unfinished prescription and the completed prescription.

Click 『Prescription Of The Day』 option, this menu will display the prescription execution time is the current day and has not been executed.

Click 『Unfinished Prescription』 option, and this menu will displays the prescription which status as Checked Not Executed, Executing prescription, Completed, Execution Interrupt..

Click 『Finished Prescription』 option, this menu shows that the prescription which status is completed.

Click 『Prescription Clear』,All current Prescriptions will be cleared.

Click 『Manual Send Prescription』,All Prescriptions have been sent to the pump.

6.4 Records

Click『Records』in the main interface to enter setting interface. The device can store more than 5000 historical records. When the record is full, the new record overwrites the old one.

6.4.1 History Events

Click 『History Events』to enter the history events interface. History events include Power On, Power Off, Config Delivery, Delete Patient, Enter Patient Information. Each history event displays the event name, date and time the event occurred.

6.4.2 Alarm Events

Click『Alarm Events』to enter the alarm event menu. Contains all alarm events, each alarm event displays the name of the alarm event, the date and time of occurrence, and the alarm priority.

6.4.3 Export History Records

This device supports exporting history records through the maintenance tool.

Click 『Export History Records』 to enter the export state, then open the history record export tool on the PC, connect the Type-C data cable, after the communication is realized, the history record can be read and exported to the PC, both text and Excel files format are supported.

6.5 System

Click『System』under the menu interface, enter the system information setting interface

6.5.1 Equipment Management

Click『Equipment Management』option, you can set information such as hospital, department, equipment name, etc.

6.5.2 Language

This device supports simplified Chinese, English, etc. Click『Language』to change device language.

6.5.3 SN (Serial Number)

Check the serial number of the device, and user can’t modify the serial number.

6.5.4 Version

Check the software version in this interface.

6.5.5 System Maintenance

Press Menu to enter the main interface, click 『System』menu, choose 『Maintenance』, enter the password, enter the system maintenance setting interface.

6.6 Cascade

This device supports the Cascade function, and realizes three Cascade modes: sequence Cascade, Loop

Cascade and customization Cascade. After the Cascade is turned on, the pump will infuse in accordance with the set sequence.

Sequence Cascade: After starting the infusion, the pumps will infuse in a top-to-bottom order. The whole infusions ends when the last pump infusion is completed.

Loop Cascade: After starting the infusion, the pumps will infuse in the order of the cycle number. After the last pump completes the infusion, start the infusion of the first pump again, and automatically enter the next cycle.

Customization Cascade: After starting the infusion, the pumps will infuse in the order of the Cascade number. After the pump with front serial number completes the infusion, the pump with latter serial number will automatically starts the infusion until the last pump completes the infusion.

Note: Modes that support Cascade: mL/h Mode, Body-weight Mode, Body Surface Mode, Dose Mode.

6.6.1 Online Cascade

By connecting to the Infusion Work Station, the device can realize sequence, Loop and customization Cascade.

Cascade infusion steps:

(1) Connect the pump to the Infusion Work Station, and then start the infusion of the first pump in the Cascade chain;

(2) Set the infusion parameters of each pump in the chain;

(3) Click the  icon on the pump that needs to be Cascade to enter the Cascade setting interface, and select 『Cascade To Channel X』(“X” means channel number);

(4) If necessary, turn on the Loop Cascade switch on the last pump in the Cascade chain.

Note: This device can only be connected to the products designated by our company.

6.6.2 Cancel Cascade

If you need to cancel the Cascade, click 『Cancel Cascade』 on the current pump to cancel the Cascade of this pump and subsequent pumps.

Note: For loop Cascade, click 『Cancel Cascade』 on the current pump, the whole Cascade chain will be disconnected

6.7 Import and Export Data

The device supports importing drug library, brand library and prescription through the Central Infusion Management System, and exporting history records and patient information through the Download Tool.

6.8 Scanner

The device supports the connection of scanner, you can through scanning code input patient information.

Chapter7 Alarm Prompt and Troubleshooting

7.1 Introduction to Alarm Level

During infusion preparation and infusion, this device will alarm when reaching or exceeding the set alarm threshold value and prompt with sound, light and text. According to the importance of alarm information as well as the emergency and safety, the alarm is divided into two levels: high and low (The principle of alarm priority classification: when the device is running and the treatment is not affected, a low-level alarm is reported to remind the user). All alarms are technical alarms, no physiological alarms. Please refer to table below for details:

Table7.1-1

Alarm Level	Sound Signal Interval	Sound Signal	Duty cycle	Light color /flash frequency
High alarm	8s	Di di di-di di Di di di-di di	20%～60%	Red indicator flashes /2.0±0.6Hz
Low alarm	25s	Di di di	100%	Yellow indicator lights on

If there's alarm, the system will display the alarm interface. Click  to exit the alarm interface.

Click  to mute, if alarm is not eliminated, the alarm sound will be sent out 2min later.

When the power loss time is less than 30 seconds, the alarm settings before the power loss will be automatically restored.

ALARM SIGNAL sound pressure level range:

50dB(A)≤the LOW PRIORITY auditory ALARM SIGNALS ≤ the HIGH PRIORITY auditory ALARM SIGNALS≤80dB(A)

7.2 Multi-level Alarm Rules

When there're several alarms, the system will alarm according to the following rules:

Table7.2-1

Multilevel Alarm	Rules
Several alarms of different levels generate simultaneously	Display the alarms of highest level with sound, light and text, until the highest alarm is all lifted, and then report the secondary alarm
Several alarms of same level generate simultaneously	Alarm circularly by turns, the time interval is 1.5s
The device and pump exist or trigger alarm at the same time	The device displays its own alarm information, and the pump's alarm light is on, the screen displays the pump's alarm information, the alarm sound is suppressed, and the device sends out the highest-level alarm sound and light prompts.

7.3 Alarm Handle

⚠ Warning: ● When there's alarm, please check the conditions of the patient, remove the reason of alarm and then continue working.

Please refer to Appendix A for the alarm solution.

7.4 Fault Analysis and Solution

When there's fault, the Infusion Work Station screen will display the fault alarm information, this item is the alarm of high level. Please eliminate the fault alarm according to the prompt. If it can't be eliminated, please stop the device, contact our company to repair and test the device, do not put it into operation before the device has passed the inspection, otherwise, it may possibly cause unpredictable harm if it works with fault.

If the device is on fire/burns for unknown reason, or has other abnormal conditions, the user shall immediately cut off power supply and contact our customer service department.

Under single fault state, the max infusion volume is 2ml.

⚠Notes:

● The distance between the operator of the Infusion Work Station and the pump should not exceed 0.5m, so as not to affect the operator to correctly identify the alarm.

● The visible distance of the alarm signal is 4 meters, within 4 meters you can see the alarm indicator or the simulated alarm indication area; the visible distance of the alarm information is 1 meter, within 1 meter you can see the alarm text and alarm icon.

● The single condition or path failure can be simulated to verify the normal detection function of the alarm system and sensor. For example: power-on self-test, real-time self-test during operation.

Chapter8 Maintenance

8.1 Cleaning, Disinfecting and Sterilizing

⚠ Warnings:

- Please cut off power supply and unplug the AC power wire before cleaning the device.
- During cleaning and disinfecting, please keep the device horizontal and upwards to protect the device and accessories from fluid.

8.1.1 Cleaning

(1)The daily maintenance is mainly to clean the housing and the device body. It is inevitable that fluid/drug may flow in the equipment during infusion. Some fluid drug may corrode the Infusion Work Station and cause working fault. After infusion, please timely clean the device, wipe it with moist and clean soft fabric, and then naturally dry it.

(2)When cleaning the device interface, please wipe it with dry and soft fabric, confirm the interface is dry before using.

(3)Please do not soak the device in water. Although this device has certain waterproof function, when fluid splashes on the device, please check if it works normally, perform insulation and electric leakage test if needed.

8.1.2 Disinfecting

(1)Disinfecting may possibly cause harm of certain degree to the equipment, it is suggested to disinfect the equipment if it is needed.

Please disinfect the equipment with common disinfecting agent such as 70% ethanol, 10%saline, 1%Sodium hypochlorite, 2% Glutaraldehyde, 3%hydrogen peroxide, Jianzhisu quaternary ammonium salt air disinfectant spray and so on. Please follow the instructions of the disinfecting agent.

(2)After disinfecting, wet the soft fabric with warm water, dry the fabric and then wipe the equipment with it.

(3)Do not sterilize the equipment with high pressure steam sterilizer, do not dry the equipment with dryer or similar product.

⚠ Warning: ● Please do not adopt Cidex OPA orthophthalaldehyde, methyl ethyl ketone or similar solvent, otherwise, it may corrode the equipment.

8.2 Periodical Maintenance

Notes:

- The medical mechanism shall set up complete maintenance plan, otherwise, it may possibly cause the equipment malfunction or fault, and may possibly hurt the physical safety.
- In order to ensure the safe use and prolong the service life of the equipment, it is suggested to periodically maintain and check it once every 6 months. Some items shall be maintained by the user, and some items shall be maintained by the dealer of the equipment.
- Please timely contact our company if the equipment is found defective.

8.2.1 Check the Appearance

(1) The appearance of the equipment shall be clean and under good condition without crack and water leakage.

(2) The buttons are flexible and effective without invalid phenomenon; the sensitivity of the touch screen is normal.

(3) The power wire is under good condition and installed tightly.

(4) After connecting with external power supply, check whether the AC indicators of the device and the battery indicator are lit normally.

(5) Adopt the accessories designated by our company.

(6) The environment meets the requirements.

8.2.2 Performance Check

(1) Self-test and normal infusion function.

(2) Alarm function normal .

(3) Battery performance.

8.2.3 Maintenance Plan

The following check/maintenance items must be performed by the professional technician recognized by our company. If the following maintenance item are necessary, please contact our company. Please clean and disinfect the equipment before testing or maintaining.

Maintenance Items	Cycle
Safety check according to IEC 60601-1	Once every 2 years, please check after replacing the printed circuit board assembly or the equipment is dropped or knocked.

8.3 Repair

⚠ Warning: ● The maintenance of the equipment and the replacement of the components shall be carried out by professionals recognized by the company. Special attention shall be paid to the detection of the power supply when the power module is replaced. Observe whether there is a false alarm, connect the AC power supply, and the battery is charged normally.

8.3.1 Normal Repair Process

Please contact our company or authorized service personnel to repair if there's any fault, do not disassemble and repair the equipment. After repair, please perform overall test for the equipment. Our company may provide the circuit diagram and components list to the authorized repair technician if needed.

8.3.2 Maintenance for Long Term Store

If the equipment won't be used for a long period, please pack the equipment in the package, and store it in the shade, cool and dry place without direct sunlight.

The following operations are necessary for using it again:

(1) Relay function should be verified before re-use.

(2) Test the battery discharging and charging duration to confirm that the battery is also usable.

8.4 Equipment Components/Accessories

⚠ Warnings:

- Only the components and accessories designated by our company shall be adopted, otherwise, it may possibly damage the equipment or drop the equipment performance.
- During the normal service life of the equipment, the battery are consumables, it is suggested to replace

them once every 2 years, please contact the dealer or our company to replace them.

Standard Accessories	One battery
	AC Cable
	Locking mechanism
	Trolley
	Wi-Fi Module
Optional Accessories	Scanner
	Nurse call cable
Remarks: Only one of the trolley and the locking mechanism can be selected.	

8.5 Production Date

Please refer to the label of the product.

8.6 Recycling

The normal service life of this equipment is 10 years, and depends on the use frequency and maintenance. The equipment must be rejected after reaching the service life, please contact the manufacturer or the dealer to get more detailed information.

1. The obsolete equipment may be returned to the original dealer or manufacturer.
2. The used lithium-ion polymer battery has the same treatment method, or according to the applicable laws and regulations.
3. Please handle according to the equipment rejecting flow of your medical mechanism.

Chapter9 Battery

This equipment is equipped with rechargeable lithium-ion polymer battery to ensure the normal infusion when the equipment is moved or the external power supply is cut off. The whole machine is guaranteed for 18 months and the battery is guaranteed for 6 months.

When connecting external power supply, no matter the equipment is power on or not, the battery is charged. When charging, the equipment screen displays the battery charging indication icon  . In case only built-in battery is adopted for supplying power, and when the remained battery is less than 20%, please connect the equipment with external power supply to charge the battery.

⚠ Warning: ● Only the battery designated by our company shall be adopted.

9.1 Check the Battery Performance

The performance of the built-in battery may drop according to the using duration, it is suggested to check the battery once a month.

(1) Remove all pumps plugged in this device.

(2) Supply public power to the equipment to charge the battery for 6h at least.

(3) Supply power to the device only with battery, and turn on Wi-Fi to provide interconnection function for 15 pumps, and then test the time till the battery runs down and the equipment is turned off.

(4) If the battery power supply time is significantly lower than the time stated in the specification, consider replacing the battery or contacting us.

Notes:

- The warranty period of the equipment is 1 year. It is not recommended to purchase battery spare parts in large quantities.
- Recommendations for long-term use or storage of the device are: charge it to 50-80%, and then store it.
- Do a complete charge and discharge every 3 months, and then continue to charge to 50-80%, and then continue to store, so as to cycle storage.

9.2 Replaced the Battery

It is recommended to replace the battery every 2 years, it is suggested to replace the battery by the dealer or manufacturer.

⚠ Warning: ● Untrained personnel are forbidden to replace the battery, otherwise it may cause the battery to burn, explode, leak and cause personal injury.

Chapter10 After Sale Service

This product offers 18 months free warranty after purchase. The warranty period is from the installation date listed on the “Warranty Card”. The “Warranty Card” is the only voucher for calculating the warranty period, in order to maintain your benefit, please carefully fill into and keep the “Warranty Card”, and hand over the copy for the company to the installation technician.

1.The damages of the equipment caused by the following shall not enjoy free warranty service.

2.Fault caused by incorrect operation, unauthorized refitting or repair.

The damages caused by incorrect operation during the transportation process after purchase.

3.The fault and damages caused by fire, salt injury, toxic gas, earthquake, windstorm, flood, abnormal voltage and other natural disasters.

For the damages or faults mentioned above, our company provides repair services but charge at repair cost.

Chapter11 Appendix

Appendix A Alarm and Solution

Alarm Type	Alarm Level	Alarm delay	Reason	Solution
Battery empty	High	＜1s	1.When power is supplied by the built-in battery only, under low battery, the alarm duration is >3min.	Immediately connect with external power supply.
			2. Battery ageing or the equipment charging circuit is fault.	Please contact the dealer or manufacturer for repair.
System error	High	＜3s	If system self-check fail or internal fault, system error alarm will give with code number.	Restart device to check whether alarm eliminated, if still exist, contact maintenance personnel.
No battery inserted	Low	＜1s	No battery is installed or the internal battery is disconnected	Install battery after power off.
Battery nearly empty	Low	＜1s	1. When power is supplied only with the built-in battery, under low battery, the alarm duration is >30min.	The alarm automatically eliminates after connecting the external power supply.
			2. Battery ageing or the equipment charging circuit is fault.	Please contact the dealer or manufacturer for repair.
No power supply	Low	＜1s	Under ON state, AC power supply is adopted, but the AC power wire is dropped during the process.	The alarm automatically eliminates after connecting the external power supply.
Network Interruption	Low	＜15s	The network connection to the Central Infusion Management System is disconnected.	Check the network status. If the fault persists, contact the manufacturer for repair.
(Channel Number)Plug-in Box Disconnection	Low	＜1s	The communication between main controller and plug-in box is disconnected.	Check the installation of the plug-in boxes.

Description: The maximum alarm delay time from when the device generates an alarm to when the Central Infusion Management System displays the alarm is less than 10s（Network Interruption excepted）.

Note: When alarm rings, click the『Mute』icon on the screen to temporarily stop sound alarm for 2min.

Appendix B EMC Electro Magnetic Compatibility declaration

This product needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided, and this unit can be affected by portable and mobile RF communications equipment.

⚠ Cautions:

This unit has been thoroughly tested and inspected to assure proper performance and operation!

This machine should not be used adjacent to or stacked with other equipment and that if adjacent or stacked use is necessary, this machine should be observed to verify normal operation in the configuration in which it will be used.

⚠ Warnings:

- The use of ACCESSORIES, transducers and cables other than those specified, with the exception of transducers and cables sold by the MANUFACTURER of the Infusion Work Station as replacement parts for internal components, may result in increased EMISSIONS or decreased IMMUNITY of the Infusion Work Station.
- To provide the OPERATOR or RESPONSIBLE ORGANIZATION with warnings regarding any significant RISKS of reciprocal interference posed by the presence of the ME EQUIPMENT during specific investigations or treatments.

<table>
<tr><th colspan="3">Guidance and manufacture’s declaration – electromagnetic emission</th></tr>
<tr><td colspan="3">The Infusion Work Station is intended for use in the electromagnetic environment specified below. The customer or the user of the Infusion Work Station should assure that it is used in such an environment.</td></tr>
<tr><td>Emissions test</td><td>Compliance</td><td>Electromagnetic environment – guidance</td></tr>
<tr><td>RF emissions
CISPR 11</td><td>Group 1</td><td>The Infusion Work Station 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.</td></tr>
<tr><td>RF emissions
CISPR 11</td><td>Class A</td><td rowspan="3">The Infusion Work Station 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.</td></tr>
<tr><td>Harmonic emissions
IEC 61000-3-2</td><td>Not applicable</td></tr>
<tr><td>Voltage fluctuations/ flicker emissions
IEC 61000-3-3</td><td>Not applicable</td></tr>
</table>

Guidance and manufacture's declaration – electromagnetic immunity			
The Infusion Work Station is intended for use in the electromagnetic environment specified below. The customer or the user of the Infusion Work Station should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±8 kV contact ±15 kV air	Floors should be wood, concrete or ceramic tile. If floor 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	±2kV for power supply lines	Mains 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	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% UT (>95% dip in UT) for 0.5 cycle 40% UT (60% dip in UT) for 5 cycles 70% UT (30% dip in UT) for 25 cycles <5% UT (>95% dip in UT) for 5 sec	<5% UT (>95% dip in UT) for 0.5 cycle 40% UT (60% dip in UT) for 5 cycles 70% UT (30% dip in UT) for 25 cycles <5% UT (>95% dip in UT)for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Infusion Work Station requires continued operation during power mains interruptions, it is recommended that the Infusion Work Station be powered from an uninterruptible power supply or a battery.
Power frequency (50Hz/60Hz) magnetic field IEC 61000-4-8	3 A/m	400A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE UT is the a.c. mains voltage prior to application of the test level.			

<table>
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<tr><td>Immunity test</td><td>IEC 60601 test level</td><td>Compliance level</td><td>Electromagnetic environment - guidance</td></tr>
<tr><td>Conducted RF
IEC 61000-4-6</td><td>3 Vrms
150 kHz to 80 MHz</td><td>10 Vrms</td><td rowspan="2">Portable and mobile RF communications equipment should be used no closer to any part of the Infusion Work Station, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
Recommended separation distance
$d = 1.167\sqrt{P}$
$d = 1.167\sqrt{P}$ 80 MHz to 800 MHz
$d = 2.333\sqrt{P}$ 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).
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:</td></tr>
<tr><td>Radiated RF
IEC 61000-4-3</td><td>3 V/m
80 MHz to 2.5 GHz</td><td>10 V/m</td></tr>
<tr><td colspan="4">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.</td></tr>
<tr><td colspan="4">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 the Infusion Work Station is used exceeds the applicable RE compliance level above the Infusion Work Station should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the Infusion Work Station.
b. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 10 V/m.</td></tr>
</table>

Recommended separation distances between
portable and mobile RF communications equipment and the Infusion Work Station .

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

Rated maximum output power of transmitter (W)	Separation distance according to frequency of transmitter (m)		
	150 KHz to 80 MHz $d = 1.167\sqrt{P}$	80 MHz to 800 MHz $d = 1.167\sqrt{P}$	800 MHz to 2.5 GHz $d = 2.333\sqrt{P}$
0.01	0.117	0.117	0.233
0.1	0.369	0.369	0.738
1	1.167	1.167	2.333
10	3.689	3.689	7.379
100	11.667	11.667	23.333

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 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.

Appendix C Factory Default Data Set

Parameters	Default Setting	Parameters	Default Setting
Wi-Fi	OFF	Auto Sync	OFF
Night Mode	OFF	Sound	10%
Nurse Call	OFF	Brightness	50%

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