

VET800

Automatic blood pressure monitor for animals

Use the instructions

Operator's Manual

Description

Product name: animal automatic blood pressure detector

Product model: VET800

Product performance structure: composed of host and sleeve.

Scope of application: suitable for performing blood pressure measurement

Manufacturer:MR International Healthcare Technology Co.,Ltd.

Enterprise Registered address: Unit 83 on 3rd Floor,Yau Lee Center No.45,Hoi Yuen Road,Kwun Tong Kowloon,HK

The foreword

Before using this product, please read the instruction manual carefully and follow the relevant provisions of the instruction manual. This manual details the operation steps that must be paid attention to when using the product, those that may cause abnormal operation, the risks that may cause harm to the product or person, etc. Details are shown in each section. The Company shall not be liable for safety, reliability and performance guarantee for any abnormal phenomena or personal and machine dangerous injury caused by the failure to use, maintain and keep in accordance with the requirements of the Manual! No free repairs will be given to such faults either!

⚠ Note: Please read this instruction manual in detail before using this product.

The contents described in this specification comply with the actual situation of the product. If the software upgrade and some modifications occur, the changes contained in the instructions can be made without notice.

(一) Warning matters

The safety and effectiveness described below should be considered before using this product:

- The safety protection type of this product is the internal power supply type BF.
- The measurements should be explained by professional doctors in combination with clinical symptoms.
- The reliability of the use of this product is related to the compliance with the operation and maintenance instructions of this specification.

⚠ Warning: random replacement of accessories not provided by the Company may lead to errors. No maintenance personnel not trained by the Company or any other approved maintenance facility should attempt to maintain this product.

(二) Operator responsibility

- The operator must read the instructions in detail and strictly follow the instructions before using the product.
- The product is designed with full consideration of the guardianship safety requirements, but the operator should not ignore the care of the machine state and patient observation.
- The operator is liable to provide the company with the use of the product.

(三) Company responsibility

- The company is responsible for providing qualified products to users with the enterprise standards of this product.
- The company is responsible for completing the product installation, commissioning and technical training as required in the contract.
- The Company shall be responsible for the maintenance of warranty period (one year) and after warranty period as required in the contract.
- The company has the responsibility to respond to users' requirements in time.

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Chapter I overview

- For a comprehensive overview of the monitor, please read the overview.
- Master the operation method, please read the functional interface.
- For the location of the various interfaces, read Blood sphygmomanometer structure and accessories.

Warning

Do not use this instrument where flammable substances such as anesthetic are placed to prevent explosion.

Warning

Before use, the user shall check that the instrument and its accessories can work properly and safely.

Warning

Do not use a mobile phone near a handheld vital signs monitor. Too strong radiation fields from mobile phones will interfere with the normal functional use of handheld vital signs monitors.

The handheld vital signs monitor has slight electromagnetic radiation to the external environment, but does not affect the normal use of other equipment.

Warning

Packages must be treated in accordance with currently implemented waste control specifications and placed out of reach of children.

Warning

Please select the approved special accessories for the instruments.

Warning

The monitor can only be used for one monitor at a time.

Warning

Please stop using the instrument and contact us.

Warning

It is recommended to regularly test the instruments and accessories for damage and stop use if damage is found, and immediately contact the hospital biomedical engineer or our representative agency.

In addition, the comprehensive detection of the instrument, including safety detection, such as leakage current detection, should be tested by qualified personnel once a year.

Note

The software was developed according to the IEC60601-1-4 standards. The likelihood of risk due to procedural errors was minimized.

Be careful

When the products and accessories described in this manual are about to exceed the service term, they must be processed according to the relevant product processing specifications. If you wish to learn further information, please contact us or its representative agency.

1.1 Overview of the handheld vital signs monitor

Working environment:

temperature

Operating temperature 5°C ~ 40°C

Transportation and Storage temperature -20°C ~ + 55°C

Humidity

Working Humidity 15% ~80%

Transport and Storage Humidity $\leq 95\%$

Atmospheric pressure

700hPa~1060hPa

Power supply voltage

9 (V) 2A DC current

P \leq 2.6AH

Safety

This monitor is an internal power supply type BF equipment.

This instrument is suitable for blood pressure monitoring and can store up to 100 users (200 records per user) in field measurement mode, 48 hours of measurement data in monitoring mode with friendly operation interface, 4.3-inch color LCD screen and complete data review function, including data list and data trend chart.

Users can realize startup, manual measurement, system setting, parameter change and other operations through the 3 keys on the front panel of the instrument.

The sound and light alarm is low, and the red light flashes to replace the battery. When the measurement data exceeds the set alarm limit, the measurement font color turns red and produces a sound alarm. The user can turn on and off the alarm as required.

Note

The monitor is automatically shutdown in field measurement mode if there is no measurement operation

Chapter II Structure and Accessories

2.1Keys and lights

Set the button

Enter the Setup menu

Power button

Short press start, long press 2 seconds shutdown;

start, short press measurement or stop measurement.

Animal mode switch key

Make the size of the animal mode



Figure 2.1.1 Keypress and lamp

2.2Power interface



Figure 2.2.1 Power supply interface

2.3The hose interface



Figure 3.6.1 Hose interface

⚠ **Note** ⚠

The power adapter must be used and not when charging

2.4Attachment

- A、 5pcs animal NIBP cuffs
- B、 One blood pressure extends a tube
- C、 Charger one
- D、 A manual

⚠ **Warning** ⚠

Please use special accessories provided by the manufacturer or replace them in accordance with the manufacturer's requirements to avoid harm to the body.

Chapter II Installation

- Open the box and check
- Turn on
- Connect to the patient sensor

2.1 Unboxing and check

Carefully remove the monitor and accessories from the packaging box, and keep the packaging materials for later transportation or preservation. Please count the attachments by pressing the packing list.

- Check for any mechanical damage.
- Check all exposed wires and insert some accessories.

Please contact our sales department or agent immediately if you have questions.

2.2 boot

Press the power button, and the system enters the open interface.

Warning

If you find signs of damage to the monitor function, or error prompts, do not use this monitor for measurement, and please contact the biomedical engineer of the hospital or the company maintenance engineer.

Note

Check all the functions that can be used to ensure that the blood pressure monitor functions properly.

2.3 Connect the sensor

Note

Correct connect blood pressure cuff

Connect the required sensor to the blood pressure monitor and the patient measurement site.

2.4 Charging

The circuit is insufficient, and charge when the power indicator flashes

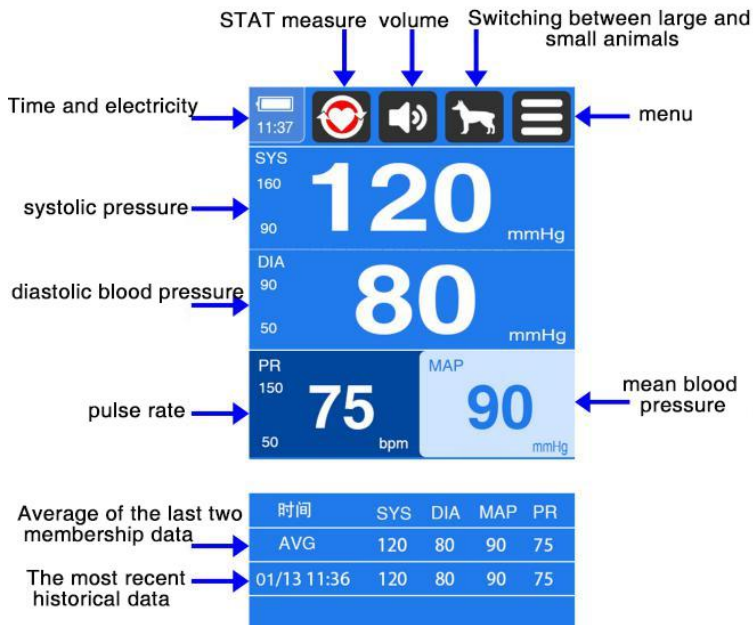
Chapter III Functional Interface

- Open the interface
- System menu

3.1 Opening of the machine interface

⚠Note⚠

The earliest records after the memory overflow are covered.



3.2 Blood pressure measurement interface

The MAP bar displays real-time cuff pressure and current measurement information.

3.3 Measurement result interface

SYS systolic blood pressure (mmHg)

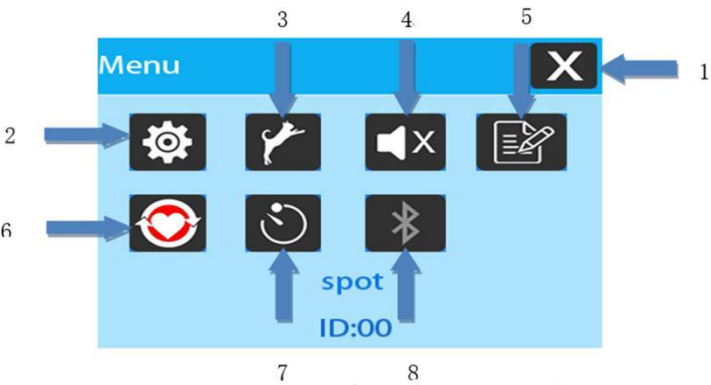
DIA Diastolic blood pressure (mmHg)

PULSE Pulse rate (bpm)

If the blood pressure measurement fails, the error code appears on the screen.

⚠Note⚠

When the blood oxygen probe is inserted, the pulse rate shows the pulse rate calculated by blood oxygen saturation; without no blood oxygen probe, the pulse rate of blood pressure.



3.4 Icon interface

With the Menu button on the main interface, the Icon Menu opens. The icon indicates that you can view the functional settings of the device. The Icon menu is not accessible during blood pressure measurements.

- Exit the icon menu
- Setup

For more information on selecting the settings, see Section 4.3

- Animal selection
- Speaker volume
- Memory

3.5The Start / Stop button



The button indicate the status of the VET800 monitor

- In the shutdown state, press the button to enter the opening interface and press two seconds.
- During the BP reading, press this button to measure blood pressure and press to stop measurement.
- The screen is a touch screen, touch the blood pressure measurement area can start or stop the measurement. Regions shown in the figure below



- Error, prompt status information, prompt warning appears

3.6 Settings

To access the settings interface, select the settings button () in the menu.

Work mode

You can select a multi-user or custody mode

User Settings

Optional or user

Set		X
Set Workmode	Spot	
Set User	>	
Set Alarm	>	
Set NIBP	>	
Set System	>	
Review	>	

Blood pressure setting

Blood pressure-related parameters can be set

System settings

You can set the system parameters

Work mode

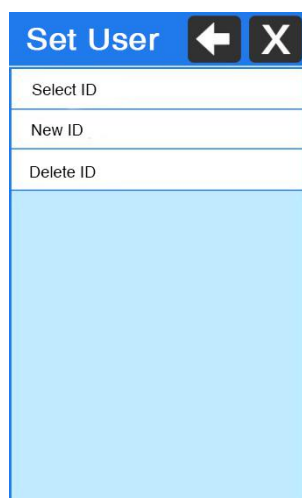
VET800 supports the (Spot) multi-user measurement mode or the (Monitor) monitoring mode.

User Settings

User settings functions include:

- User selection
- Increase users
- Delete the user

Up to 100 user data is recorded in Spot mode and only single user data. Spot mode is automatically dormant for 10 minutes with no measurement operation (saving mode is on), recording results every 30 seconds; Monitor mode does not sleep automatically, results are recorded every 2 seconds.



(Spot Mode)



(Monitor mode)

Alarm settings

The VET800 Monitor allows for clinical alarm signals for all values (systolic, diastolic blood pressure, pulse rate).

- To change the alarm value, select the Settings interface in the Icon Menu, and then select Alarm Settings.
- Click to touch the parameters to set, and then the settings interface will pop up.
- The number on the left is the minimum that can be set, and the number on the right is the maximum. The White progress bar indicates that it is currently available
- The upper and lower limits account for the total range.
- The upper limit setting minimum should not be lower than the lower limit, and the lower limit maximum should not be set higher than the upper limit setting.

- Click the number to enter the set point and click OK.

Set Alarm	
SYS High	100mmHg
SYS Low	90mmHg
DIA High	90mmHg
DIA Low	50mmHg
PR High	200bpm
PR Low	50bpm

SYS High			
100	mmHg		
40	280		
OK			
1	2	3	Del
4	5	6	0
7	8	9	.

- When the alarm is triggered, the set range will prompt the range on the main interface. A prompt sounds if the speaker is on. *For more information about alarms, see section 10.*

SYS upper and lower limit setting range: 40 mmHg ~ 280 mmHg

DIA upper and lower limit setting range: 10 mmHg ~ 220 mmHg

Upper and lower limits of pulse rate setting range: 25 bpm ~ 500 bpm

Blood pressure setting

Set NIBP	
Measure Mode	Manual
Cuff Type	Big
Pressure Unit	mmHg
Interval	15min

Measurement mode: Manual, Auto, Stat.

Cuff type: small, big two ways to choose.

Pressure unit: mmHg, KPA.

Measurement interval: Auto, The measurement interval can be set at 1,2,3,4,5,10,15,30,60 and 90.

System settings



From the Settings menu, select System Settings to pop the following menu:

- Energy Saving Mode: On, it goes dormant automatically in SPOT mode.
Off, not dormant in SPOT mode.

⚠ Note: ⚠

Energy-saving mode does not work on the monitoring mode.

- "Bluetooth": Bluetooth switch.
- Brightness options: levels 1,2,3, and 4.
- The Alarm Volume option is: 0,1,2, and 3.
- Time: Time adjustment.
- Equipment Maintenance: Developers can use it only.
- Device Information: Device version number.
- Restore Factory Settings: Besides the language settings, other functions restore the default factory settings

Chapter IV Non-invasive Blood Pressure Measurement (NIBP)

4.1 General

- Non-invasive blood pressure (NIBP) was measured by the oscillatory method;
- Measurement mode: manual measurement and automatic measurement
- Systolic BP, mean BP, diastolic BP, and pulse rates were measured.
- Can be used in big or small animal;

⚠Warning⚠

- 1) Do not measure NIBP on animals with sickle-cell disease or with any skin damage.
- 2) Animal with severe blood flow problems, or blood disorders, should consult physician before using the device, as the arm cuff inflation may cause bruising.
- 3) Select the correct animal type

4.2 Non-invasive blood pressure measurement (NIBP)

⚠Warning⚠

Make sure inflatable hose connect with the cuff and the monitor, and the hose is not folded or twisted.

1. Insert the inflatable hose into the NIBP socket.
 2. Tie the blood pressure cuff on the animal's limb (Figure 4.2.1).
- ◆ Make sure that the cuff is completely deflated.
 - ◆ Adjust an appropriate cuff size for the animal, and make sure that the symbol “φ” exactly on the appropriate artery. Ensure that the cuff is not wrapped too tightly. Otherwise, it may even cause ischemia..



Figure 4.2.1 Use the cuff

⚠Note⚠

The width of the cuff should be either 40% of the limb circumference or 2/3 of the upper arm length. The inflatable part of the cuff should be long enough to encircle 50-80% of the limb. The wrong size of cuff can cause erroneous readings.

Big animal reusable NIBP cuff:

Patient type	Circumferenc	Cuff width	Hose
---	---	----	

Big 1	18~26cm	10.6cm	1.5m or 3m
Big 2	25~35cm	14cm	
Big 3	33~47cm	17cm	
Big4	46~66cm	21cm	

Small disposable NIBP cuff:

Size	Circumference	Cuff width	Tube length
1	3～6cm	2.5cm	1.5m or 3m
2	4～8.0cm	3.2cm	
3	6～11cm	4.3cm	
4	7～13cm	5.1cm	
5	8～15cm	5.5cm	
Make sure that the cuff size is within the range.			

◆ Check that the edges of the cuff fall within the range marked <->.If not, change for a more appropriate cuff.

3. Connect the cuff to the inflatable tube.The limb used for pressure measurement should be placed at the same level as the patient's heart.If this cannot be done, the measurements are corrected by the following correction method:

◆ If the cuff is above the heart level, the per-cm gap should be added 0.75mmHg(0.10kPa to the display value).

◆ If the cuff is below the heart level, the gap per cm should be reduced at the displayed value).

4. Make ify the measurement mode is correct (displayed in the open interface information area).

5. Press the function button corresponding to the measurement on the front panel 2 to start the inflatable pressure measurement.

4.3 Operation prompt

1. Carry out an automatic measurement

The user can choose the time interval value for the automatic measurement.After that, the system is automatically inflated at the set interval.

Warning

Automatic mode of noninvasive pressure measurement pulls for too long, and the limb rubbing with the cuff may be accompanied by purpura, ischemia, and nerve damage.When monitoring patients, often check the color, warmth and sensitivity of the far end of the limb.Once any abnormality is observed, place the cuff in another place or stop the blood pressure measurement immediately.

2. Stop automatic measurement

Press the stop button at any time during the automatic measurement will stop the automatic measurement and the next automatic measurement is automatically started after interval 30.

3. Make a manual measurement

◆ Press the start button to start a manual measurement.

◆ In the free time of automatic measurement, press the start measurement button to start a

manual measurement. If the stop button is pressed again, the manual measurement is stopped and the automatic measurement continues.

⚠Note⚠

If there is doubt about reading accuracy, check the patient's vital signs by possible means before examining the function of the BP monitor.

⚠Warning⚠

If the equipment or accessories, especially if the liquid may get into the pipe or monitor, stop using and contact the maintenance department.

Restrictions of measurements

Depending on the patient, the oscillatory measurement has some limitation. This measurement looks for regular pulse waves generated by arterial pressure. When the patient condition makes this detection mode difficult, the measurement becomes unreliable and the time of the measurement increases. The user should recognize that the following conditions can interfere with the measurement method, making it unreliable or prolonged. In this case, the patient's condition will make the measurements impossible:

■ The patient moved

If the patient is moving, shaking, or spasticity, the measurements will be unreliable or even impossible, as these conditions may interfere with the detection of arterial pressure pulsation and the measurements will be prolonged.

■ Arrhythmia

If the patient shows irregular beats for arrhythmia, the measurement will be unreliable or even impossible, and the measurement time will be extended.

■ Heart and lung machine

If the patient is connected with an artificial cardiopulmonary machine, the measurement will not be made.

■ Pressure change

If the arterial pressure pulse is being analysed to obtain a measure, when the patient's blood pressure changes rapidly, the measurement will be unreliable or even not possible.

■ Severe shock

If the patient will be in severe shock or hypothermia, the measurement will be

unreliable. Because reduced blood flow to the periphery leads to a decrease in arterial pulsation.

- Extreme heart rate

Blood pressure measurements cannot be performed at the heart rate below 40bpm and above 240bpm.

- Patients with obesity

The thick fat layer under the limb reduces the accuracy of the measurement, as the fat prevents the shock from the arteries from reaching the cuff due to damping.

4.4 Non-invasive blood pressure (NIBP) error information and its causes

Error	Cause
SysErr	Self-test fail
SysErr2	NIBP module system error
CuffLoose	cuff is too loose or cuff not connect
CuffErr	Use small cuff under big animal mode
Leakage	valve or gas circuit leak
PressErr	NIBP Valves is not working appropriately
Weak	Animal's pulse is too weak or cuff is loose
OverRange	Animal's blood pressure exceeds the measurement range
Motion	During measurement, motion artifact in signal or too much interference
Protect	Cuff pressure exceeds the range, 300mmHg
Saturate	Too large signal amplitude caused by motion or other reasons
TimeOut	BIG animal: cuff pressure over 2kPa (15mmHg) last for more than 3minutes Small animal: cuff pressure over 0.67kPa (5mmHg) last for more than 90s
Reset	NIBP module reset

4.5 Maintenance and cleaning

Warning

- Don't press the rubber hose.
- Do not flow water or cleaning fluid into the blood pressure monitor connector outlet to prevent damage to the instrument.
- When cleaning the blood pressure monitor, wipe the periphery of the connector socket and not its inside.

Reused blood pressure cuff

The cuff can be sterilized by conventional autoclaving in a hot air oven, gas or

radiodisinfection, or immersed in a decontamination solution. But remember to take away the rubber bag when using this method. The cuffs are not dry cleaned. The cuffs can be machine or hand washed, which extends service life. Before cleaning, take out the latex rubber bag, wash the cuff dry, and then enter the rubber bag.

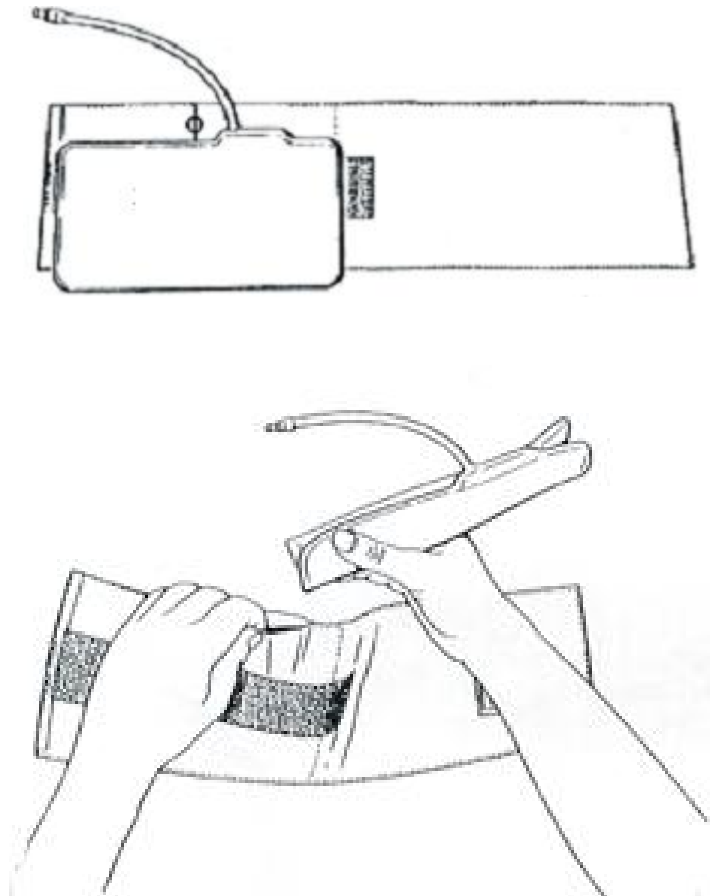


Figure 4.5.1 Replace the glue bag in the cuff

To reinstall the rubber bag into the cuff, first put the rubber bag on the head end of the cuff, so that the rubber pipe and the large opening at the long end of the cuff, now roll up the rubber bag longitudinally and insert into the large opening of the cuff, hold the skin pipe and cuff, shake the entire cuff until the rubber bag is in place. Put the tube into the cuff and wear it through small holes.

Disposable blood pressure cuff

A disposable blood pressure cuff is specified for only one patient. Don't use the same cuff for different patients. A disposable cuff cannot be sterilized or autoclaved and steam-sterilized. A disposable cuff can be cleaned with soap to control the infection.

⚠Note⚠

To protect the environment, disposable blood pressure cuffs must be recycled or properly treated.

Chapter V Product Specification

Name: BP meter

Model number: VET800

Flood prevention degree: ordinary sealing equipment, does not have the function of preventing liquid entry

Display mode: 4.3 " color LCD screen display.

Dimensions: Volume 15.9cm x 12.7cm x 13.3cm.

Weight: belt with battery 0.95 Kg.

NIBP Specification:

Measuring Technology: Automatic oscillometry technology

Mode: Manual, Auto, Stat

Measuring Interval in AUTO Mode: 1 ~ 90 (Min)

Measuring Interval in Continuous Mode: 5 (Min)

Pulse Rate Range: 40 ~ 240 (bpm)

Alarm: SYS, DIA, MEAN

Measuring Range:

SYS 40 ~ 270 (mmHg)

MEAN 20 ~ 230 (mmHg)

DIA 10 ~ 210 (mmHg)

Resolution

Pressure 1mmHg

Accuracy Pressure

Maximum Mean error ± 5 mmHg Maximum Standard deviation 8mmHg

Over-pressure Protection 300 (mmHg)

Alarm Limit Setting

SYS 40~280 mmHg DIA 10~220 mmHg

Transportation and storage temperature and humidity: -20°C ~ + 55°C 95%RH

Transportation: General transportation tools can be used or according to the requirements of the

order contract. Severe shock, vibration, rain and snow splashing should be avoided during transportation

Storage: The packaged monitor shall be stored in the ambient temperature -20°C ~ + 55°C, relative humidity not greater than 95%, non-corrosive gas and well-ventilated room.

Atmospheric pressure: 700 hPa~ 1060 hPa

Battery: lithium battery

Safety type: Internal power supply type BF application equipment

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