FLOLINE

Vet Bp-Pro

Patient Monitor

USER'S MANUAL

Changes

Should you notice errors or omissions in this manual, please notify us at:

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Copyright Information

Welcome to the Vet Bp-Pro!

Thank you for choosing this Vet Bp-Pro blood pressure monitor! Vet1 Pty Ltd has been the preeminent supplier of leading edge technology and innovative products to obtain blood pressure measurements. Devel- oped specifically for the veterinary care environment, the Vet Bp-Pro BP monitor quietly takes accurate blood pressure measurements very quickly and is extremely easy to use. The monitor also is lightweight and portable for convenient mobility between exam rooms and other clinic locations.

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1.Safety Considerations

1.1. Intended Use

The Vet Bp-Pro is intended to be used on companion animals, specifically dogs and cats, to obtain oscillometric blood pressure measurements, including systolic, diastolic and mean arterial pressure and heart beats per minute. This non-invasive monitor uses algorithms specifically designed for these animal populations.

1.2. User Responsibility

The Vet Bp-Pro is designed to perform in conformity with the description thereof contained in this operation manual when operated. The user of this monitor shall have the sole responsibility for any malfunction which results from im- proper use, faulty maintenance, improper repair, damage or alteration by anyone other than Vet1 Pty Ltd or their authorized service personnel.

2. Warnings and Precautions

2.1. Warnings

A WARNING indicates a situation which, if not avoided, could result in serious injury or death.

 WARNING: DO NOT connect patient hose or monitor to any other devices or connections, especially intravenous (IV) tubes as there is potential for air to be pumped into a blood vessel which could cause serious injury.

 WARNING: Do not use in the presence of flammable anesthetics; this could cause an explosion. This device is not suitable for use in an oxygen enriched environment.

2.2. CAUTION

A CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury to the user, patient or damage to the equipment or other property.

 CAUTION: This monitor is for veterinary use only. NOT for use on humans.

 CAUTION: DO NOT use the monitor for any purpose other than specified in this manual without written consent and approval from Vet1 Pty Ltd. Substitution of a component or accessory different from that supplied may result in measurement error. Repairs should be undertaken only by personnel trained or authorized by Vet1 Pty Ltd.

CAUTION: DO NOT use this monitor when oscillometric pulses may be altered by other devices or techniques.

2.3. TIP

A TIP provides application tips or other useful information to assure that you get the most from your equipment.
TIP: This device is designed to be used on dogs and cats. In this document where the word “patient” is used, this is to mean a small animal such as a cat, dog, or other small animal.

TIP: Accuracy of any blood pressure measurement may be affected by the position of the subject, the patient’s physical condition and use outside of the operating instructions detailed in this manual. Interpretation of blood pressure measurements should be made only by a veterinarian or trained medical staff. Minimise limb movement during the measurement.

TIP: To obtain accurate blood pressure readings, the cuff must be the correct size, and also be correctly fitted to the patient. Incorrect size or incorrect fitting may result in incorrect readings.

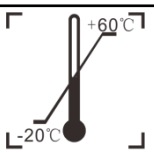
TIP: ENSURE batteries are inserted with the correct polarity. Improper installation may cause equipment damage or malfunction. Follow battery installation procedures.

3. Icon and Symbols

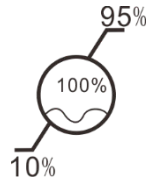
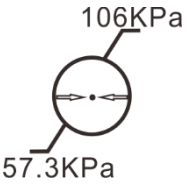
3.1. Equipment Symbols

	Power On/Off		General Warning Sign
	Alternating Current（AC）		Type BF applied part
TIP:	Refer to Instruction Manual/Booklet		USB Connector
	Manufacturing Date	SN	Serial Number
IPX2	Waterproof Grade Marking		Manufacturing Company
EC REP	EU Authorized Representative	CE xxxx	CE marking, which indicates that the relevant model complies with the requirements of the European Union regulations on medical devices.
	Disposal in compliance with WEEE		Manual consultation symbol
	Not made with natural latex		

3.2. Transport Symbol

	Fragile: Handle with care		Temperature Conditions: Do not expose the product to an environment that exceeds the displayed temperature limit
	Afraid of Rain		Location: Here up

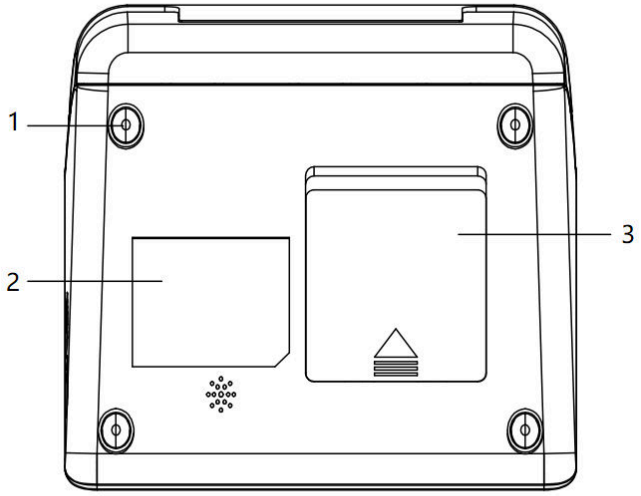
FLOLINE

	Humidity Storage Conditions: Do not expose the product to an environment that exceeds the displayed humidity value		Stacking Limit: up to 3 layers
	The atmospheric pressure during transportation shall not be higher than 106KPa or lower than 57.3KPa		

4. Getting to know Vet Bp-Pro

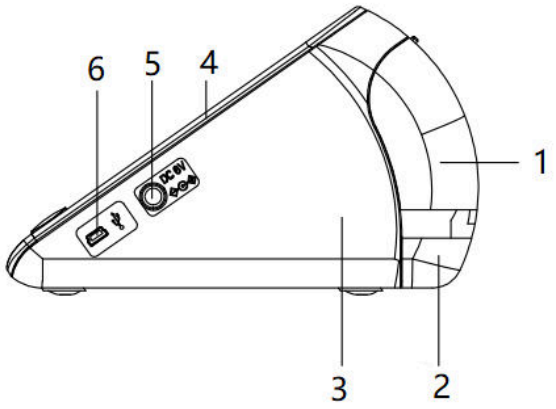
4.1. Main Unit

4.1.1. Bottom view



NO.	Name	Description
1.	Foot pad	Support manometer
2.	Label	Pressure gauge nameplate
3.	Battery	Support dry battery or lithium battery.

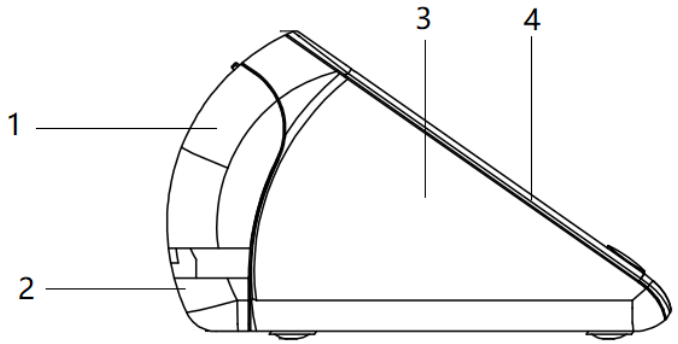
4.1.2. Left view



NO.	Name	Description

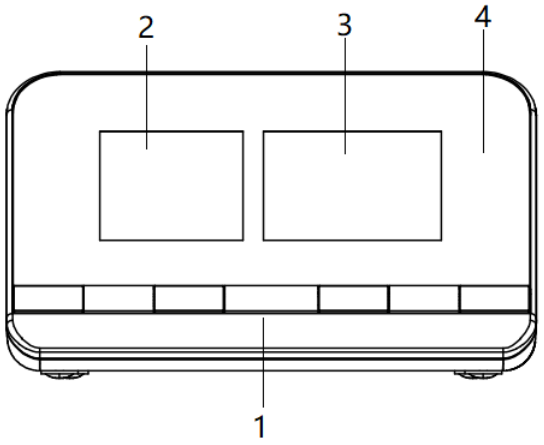
1.	Electronic manometer 6016 back cover	/
2.	Electronic manometer 6016 rear seat	/
3.	Electronic manometer 6016 case	/
4.	Electronic manometer 6016 upper cover	/
5.	Power interface	Connect the 6V power adapter for power supply
6.	Usb port	You can connect the usb port to upgrade the software

4.1.3. Right view



NO.	Name	Description
1.	Electronic manometer 6016 back cover	/
2.	Electronic manometer 6016 rear seat	/
3.	Electronic manometer 6016 case	/
4.	Electronic manometer 6016 upper cover	/

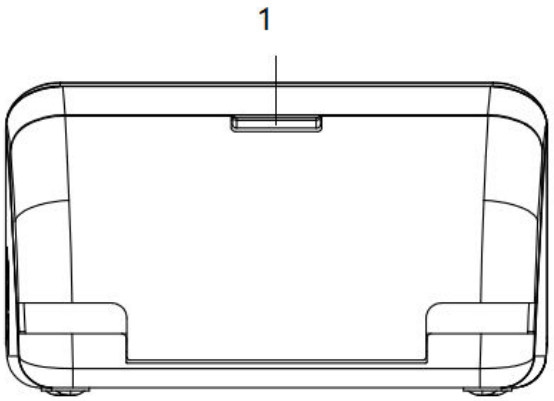
4.1.4. Front view



NO.	Name	Description

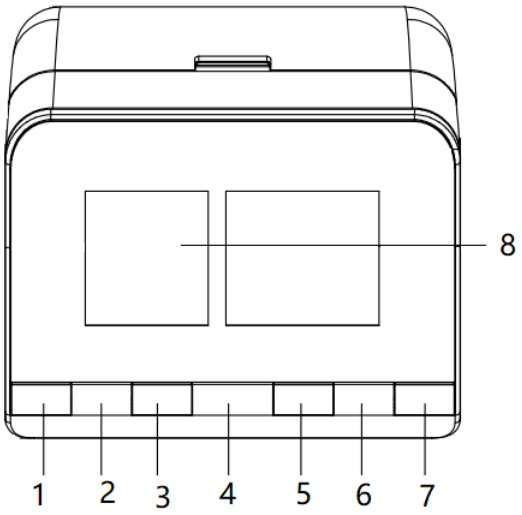
1.	Key press area	You can click the physical button to operate
2.	LCD screen	screen with touch function
3.	Segment LCD screen	Display blood pressure readings
4.	Panel of panels	/

4.1.5. Back view



NO.	Name	Description
1.	Warehouse door	Connect the air path interface and place the cuff

4.1.6. Top view



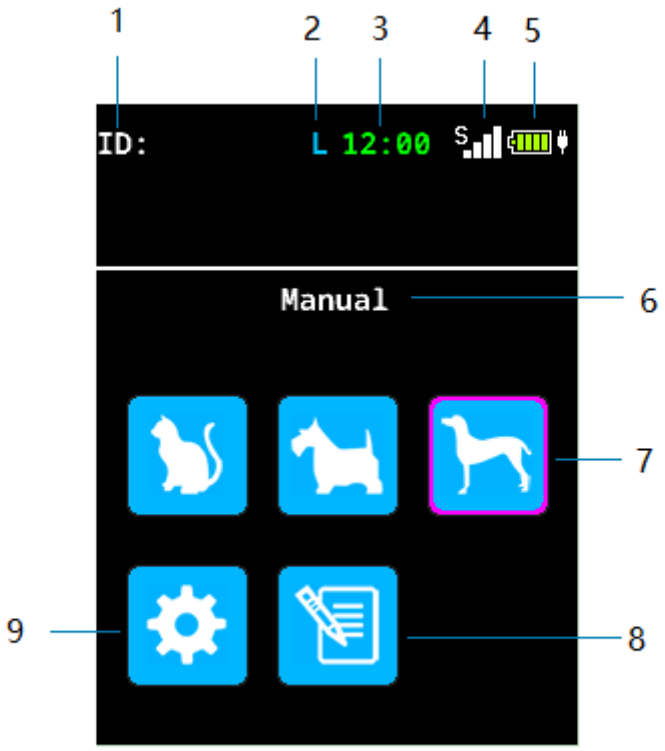
NO.	Name	Description

1.	Date setting button	Date setting shortcut key, you can quickly set the year, month, day, hour, minute.
2.	Record setting button	You can quickly create a new animal ID, or open the animal ID
3.	Left button	Move left or up
4.	Power Button	Turns monitor on and off.
5.	Right button	Move to the right or down
6.	File system button	The file system page is quickly displayed
7.	dark mode	Turn on or off night mode
8.	display screens	The function of the sphygmomanometer is shown

4.2. Main Screen View

After you begin using your Vet Bp-Pro, your main screen will display your most recent patient measurements. Here is a quick overview of the key symbols and numeric values you will see.

4.2.1. Main interface



NO.	Name	Description
1.	Animal ID area	You can enter up to 16 numbers or letters. If not entered, the ID information is empty.
2.	Animal size area	Displays the selected animal sizes L, M, S
3.	Time display area	Display current time, hours, minutes
4.	WiFi status display area	Display WiFi connection status or disconnection status
5.	Battery level monitoring icon	Power monitoring icon
6.	Measuring interval	Displays the measurement interval and the time from the next automatic measurement
7.	Animal Type Mode	You can choose the type of animal to measure
8.	File system	The file system page is quickly displayed
9.	Main menu	Setup menu

4.2.2. Measurement result display

NO.	Name	Description
1.	SYS/DIA	Blood pressure reading.
2.	MAP	Mean pressure reading.
3.	BPM	Heart beats per minute.

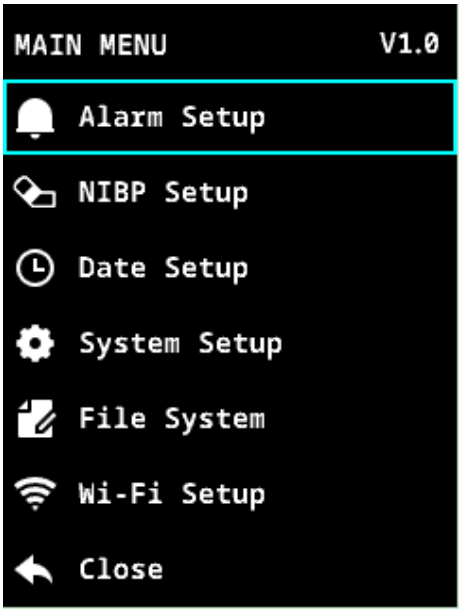
5. Animal Selection

Use different sizes of cuff depending on the size of the animal

NO.	Name	Description
#1 Cuff	Small animal	Vet Bp-Pro Animal cuff range 3-6cm.
#2 Cuff	Small animal	Vet Bp-Pro Animal cuff range 4-7cm.
#3 Cuff	Medium animal	Vet Bp-Pro Animal cuff range 5-10cm.
#4 Cuff	Medium animal	Vet Bp-Pro Animal cuff range 7-12cm.
#5 Cuff	Large animal	Vet Bp-Pro Animal cuff range 8-15cm.

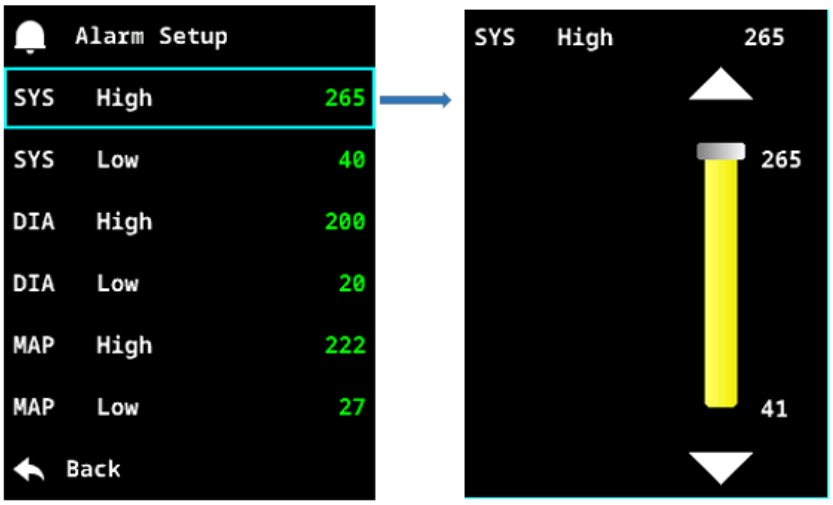
5.1. Main Menu Settings

Click [main menu] to display [Alarm Setup], [NIBP Setup], [Date Setup], [System Setup], [File System],[Wi-Fi Setup].



5.2. Alarm Setup

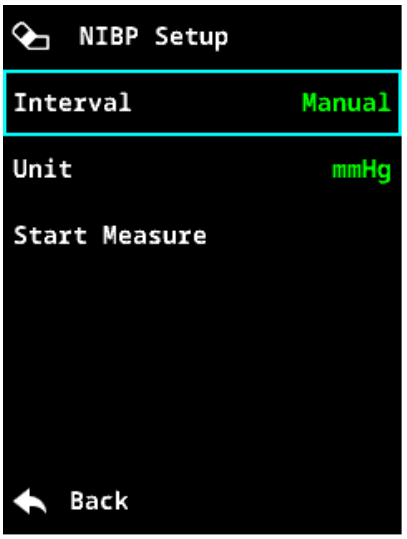
The Vet Bp-Pro allows all BP values (SYS, DIA,and MAP) to set alarm high and low limits.



- To change the alarm value, touch the corresponding blood pressure parameter.
- Touch the up or down marker to adjust the parameter alarm range.
- To reset to the default alarm value, touch [System Setup] ->[Restore].
- Measurement of blood pressure readings beyond the alarm limit range in the segment of the LCD screen flashing display .

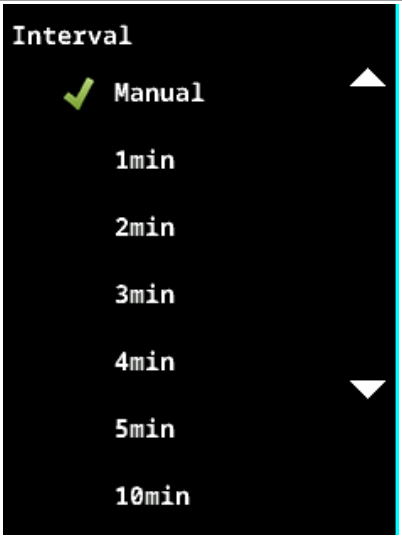
5.3. NIBP Setup

The Vet Bp-Pro NIBP Setup displays the [Interval], [Unit], and [StartMeasure] options.



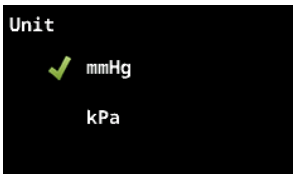
5.3.1. Interval

- The measurement interval can be selected as [Manual], [1min], [2min], [3min], [4min], [10min], [15min], [30min], [60min], [90min], the default is [Manual].
- The measurement interval is set as [Manual]. You need to manually click the [Start Measure]button for each blood pressure measurement. Set to other options to automatically start the next blood pressure measurement when the interval is over.



5.3.2. Unit

- Unit can be set to [mmHg], [kPa]
- The unit is set to [kPa] and the blood pressure value is displayed in the format of [kPa]

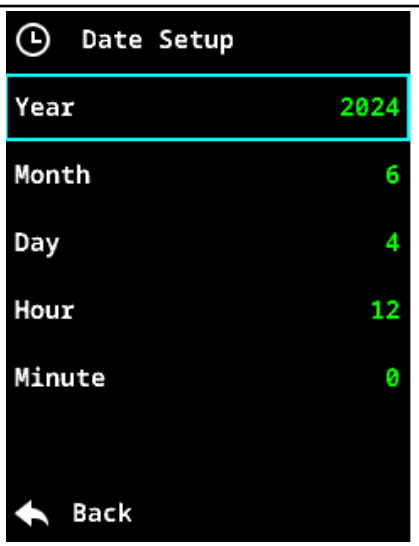


5.3.3. Start Measure

- Click [Start Measure] to start blood pressure measurement, and switch the button [Start Measure] to [Stop Measure] button.

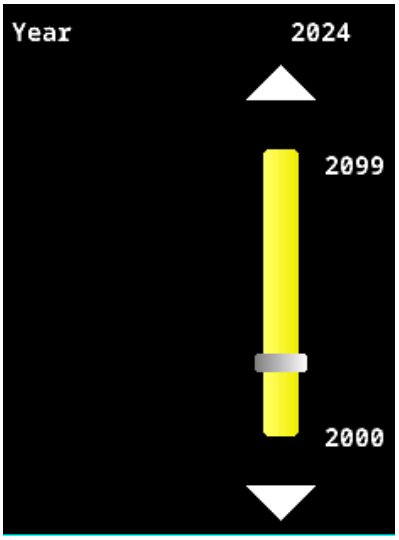
5.4. Date Setup

- Click [Date Setup] button, you can enter the date setting interface, set the year, month, day, hour and minute.
- Hour and minute are synchronized to the date display area on the main page.
- Click [Back] button to return to the main menu interface.



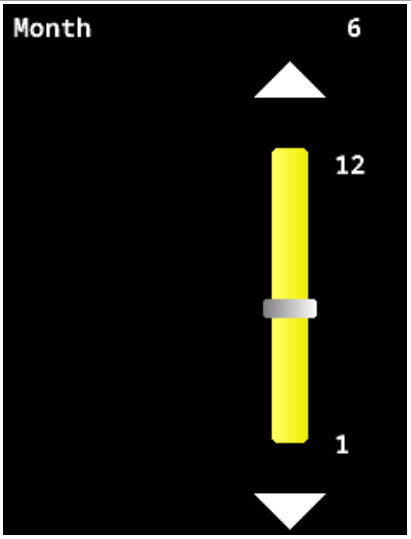
5.4.1. Year

- "Year" can be set by touching the up and down adjustment button, the range is [2000,2099].



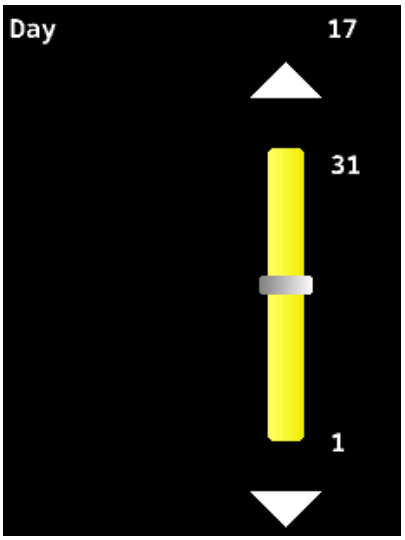
5.4.2. Month

- "Month" can be set by touching the up and down adjustment button, the range is [1,12].



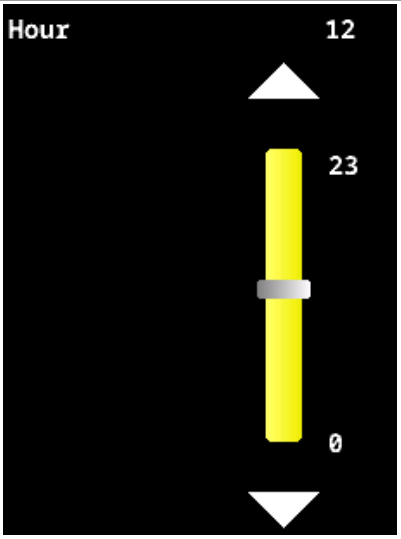
5.4.3. Day

- "Day" can be set by touching the up and down adjustment button, the range is [1,31].



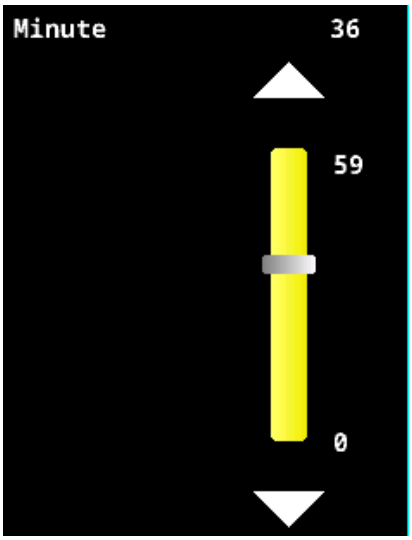
5.4.4. Hour

- "Hour" can be set by touching the up and down adjustment button, the range is [0,23].



5.4.5. Minute

- "Minute" can be set by touching the up and down adjustment button, the range is [0,23].



5.5. System Setup

- Click [System Setup] button, the interface displays [ID], [Category], [Language], [Brightness], [Power Save], [Restore] Settings.

5.5.1. ID

- ID is null by default.
- Click [ID] button to display [NEW] and [Open] Settings on the interface.

5.5.2. New

- Click the [New] button to display the input keyboard with up to 16 characters to create an ID name.
- Enter a valid ID. "ID Available" is displayed in green at the top of the keyboard.
- Enter an existing ID name with red "ID Invalid" on the top of the keyboard.
- The ID display area on the main page displays the newly created valid ID by default.

5.5.3. Open

- Click [Open] button to create a valid ID, which will be displayed on the interface.
- Select ID to display in [System] -> [ID].
- Select ID to synchronize it to the ID display area on the main interface.
- There are more than 5 valid ids, the left page button and the right page button can be clicked.

5.5.4. Category

- Click the [System Setup] -> [Category] button to display the “Small”, “Middle”, “Large”options.
- Default "Large" option.
- Select the "Small" option to display "L" in the animal size display area on the main interface, and the measurement mode focus "Cat" icon.
- Select the "Middle" option to display "M" in the animal size display area on the main interface, and the measurement mode focus "Medium dog" icon.
- Select the "Large" option to display "L" in the animal size display area of the main interface, and the "Large dog" icon is focused on the measurement mode.

5.5.5. Language

- Click the [System Setup] -> [Language] button to display the “English”, “Deutsch”, “Italiano”, “Francais”,

“Espanol”, “Pyccknn”, “portugues”, “Francais”, “Polski”, “Turkce”, “ykpaiHcbka”, “Indonesia”, “简体中文”, “繁体中文”options.

- System text translation for the language you set.
- Default display English.

5.5.6. Brightness

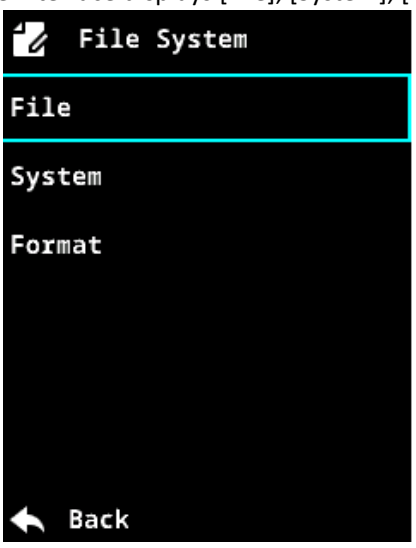
- " Brightness " can be set by touching the up  and down  adjustment button, the range is [1,5].
- When the screen shows the brightness switching gear, it also changes, and the stepped bar chart of brightness changes correspondingly with the gear switching.

5.5.7. Power Save

- Click the "Power Save" button to switch from off  to on  .
- Turn on the power saving mode, the screen does not operate for one minute, the brightness automatically reduces to the brightness 1 gear, click the screen, the brightness will be restored to the original gear.
- Restore
- Click [System Setup] -> [Restore] to display [Yes] and [No].
- Touch [Yes] button to restore factory Settings.
- Touch the [No] button to return to the [System Setup] interface.

5.6. File System

- Click [File System] button, the interface displays [File], [System], [Format] Settings.



5.6.1. File

- There are more than 5 valid ids, the left page button  and the right page button  can be clicked.
- Click any [ID name] -> [View] button to view the blood pressure measurement results of this ID.
- Click any [ID name] -> [Delete] button to display the [Yes] and [No] option buttons
- Click the [Yes] button to delete the ID

- Click [No] button to return to the previous menu interface

5.6.2. System

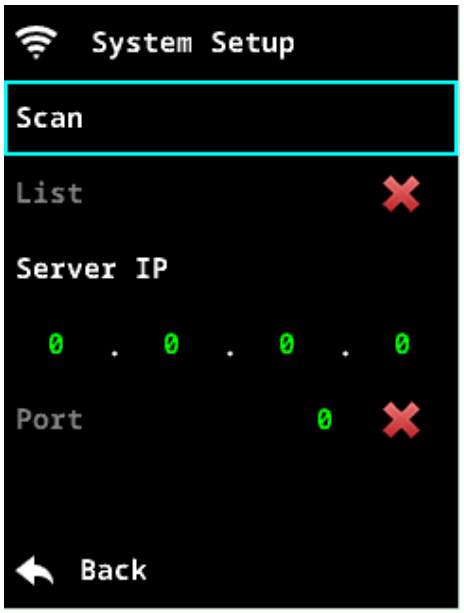
- Click [System] button to view system information, including "Capacity", "Free Space", "Used Space", and "NIBP Version".

5.6.3. Format

- Click [Format] button to display the [Yes] and [No] option buttons
- Click [Yes] button, the system performs formatting
- Click [No] button to return to the previous menu interface.

5.7. Wi-Fi Setup

- Click [Wi-Fi Setup] button, the interface displays [Scan], [List], [Server IP],[Port] Settings.



- Click the [Scan] button, and the [List] list will refresh the WiFi name.
- Click the [List] button to enter the WIFI name list, and you can view the WiF name by adjusting the button up and down.
- Click the Red Cross button to pop up the keyboard to input the WiFi password.
- The WiFi connection is successful, and the service IP address is filled in automatically.
- The WiFi connection is successful, click the Red Cross button to pop up the keyboard to set the port.
- If the WiFi connection is successful, the WiFi status icon will be displayed on the main interface. After setting the port, the WiFi status icon is displayed on the main screen.
- Set the WiFi port and click the [Transfer] button to transfer the blood pressure measurement data of the id name to the server.

6. Before You Begin: Important Preparations

These preparations can help ensure a successful and accurate blood pressure measurement.

6.1. Where to Apply the Cuff

Witleaf recommends that the cuff be placed on a front limb while the patient is lying on the right or left side. This helps ensure that the cuff is at heart level, which is best for measurement accuracy. Also, the patient is less likely to retract the front limb when the cuff gently squeezes it during the measurement. The cuff should be placed so that its artery marker aligns with the limb artery.

Alternate Patient Positioning: If the patient seems more comfortable seated, position the cuff as described above and hold up the limb during the BP measurement. This will help keep the cuff at heart level and relax the patient's muscles. If the patient appears agitated enough to bite or scratch, or is standing, the base of the tail is an acceptable alternate location.

6.2. Cuff Size

The Vet Bp-Pro comes with a variety of different BP cuff sizes. Each cuff contains important markings that help with selecting the right cuff size.

7. Using Vet Bp-Pro

7.1. Taking a BP Measurement

Step 1. Place blood pressure cuff on patient and connect the hoses.
Position the patient so that they are lying down. Place the cuff just above the paw making sure not to place it over a joint. Con- nect cuff hose to monitor hose. (See “Before You Begin” for cuff size/placement guidelines and alternate positioning options.)
TIP: The success of the BP measurement is dependent on choosing the correct cuff and attaching it to the patient correctly. The cuff is the sensor so make sure to snugly fit the cuff as this provides better signals to the monitor.
Step 2. Select Animal Mode.
On the home screen, select a small, medium, or large companion animal.
Step 3. Take blood pressure reading.
Press the Start/Stop button to start measuring blood pressure. Once the measurement is complete, the segment LCD displays SYS and DIA values, as well as MAP and heart rate (BPM).

⚠CAUTION:

- A wrong cuff size and a folded or twisted bladder can cause inaccurate measurements.
- Do not touch the cuff or tubing during NIBP measurement.

7.2. Interrupting/Stopping a Measurement

To stop the ongoing measurement, touch the Start/stop button to end this blood pressure measurement and the monitor is ready to start a new reading.

8. Taking Care of the Vet Bp-Pro

8.1. Cleaning the Monitor

⚠CAUTION:

The Vet Bp-Pro is not sterilizable. Do not immerse the monitor in any fluid or attempt to clean with any liquid detergents, cleaning agents, or solvents.

Dampen a soft cloth with mild medical grade disinfectant and wipe the monitor to remove surface dust and dirt.

8.2. Preventative Maintenance

8.2.1. System Self Checks

The Vet Bp-Pro performs a range of system checks during normal operation. If the monitor detects a problem, it will display an error message recommending a trouble-shooting action or to contact Witleaf Customer Service.

8.2.2. Replaceable Parts

On a routine basis, inspect the monitor, cuffs and hoses for cracks, fraying, or kinks. Immediately replace any damaged part.

8.2.2.1. Accessories & Replacement Parts

Contact your sales representative to purchase the following items:

Description	Part Number	Details
#1 Cuff	V1PNIBPCO1	3 – 6 cm, black, non-locking
#2 Cuff	V1PNIBPCO2	4 – 7 cm, black, non-locking
#3 Cuff	V1PNIBPCO3	5– 10 cm, black, non-locking
#4 Cuff	V1PNIBPCO4	7 – 12 cm, black non-locking
#5 Cuff	V1PNIBPCO5	8 – 15 cm, black, non-locking

8.2.2.2. Status Messages

If the Vet Bp-Pro has a problem when measuring blood pressure, status information will appear on the monitor screen. Follow the instructions on the screen or the suggestions in the table below.

Status Message	Reason	Solution
Cuff loose	There is a leak in the cuff, hose or monitor. Also possible if cuff or hose is not attached to the monitor.	❖ Check that the hose is connected to the monitor and cuff. ❖ Check that the cuff is properly tightened. ❖ Check that the cuff is in the correct position. ❖ Check that the cuff is not leaking air. ❖ Check that the hose connections are not damaged or loose.
NIBP over range	The blood pressure value is outside of Vet Bp-Pro's published ranges.	❖ Make sure you are using the proper cuff size. ❖ Patient may have been moving too much. ❖ Check that the cuff is properly tightened and in proper position.

Weak signal	The monitor is not receiving a strong signal from the patient. Also possible if a rapid deflation occurs during a measurement.	❖ Check that the cuff is in the correct position. ❖ Check the patient. ❖ Check that the cuff is properly tightened. ❖ Check that the correct size cuff is used.
Air Leakage	Could be a leak in a valve or gas line.	❖ Check that the hose is connected to the monitor and cuff. ❖ Check that the cuff is properly tightened. ❖ Check that the cuff is in the correct position. ❖ Check that the cuff is not leaking air. ❖ Check that the hose connections are not damaged or loose.
Pressure Error	Maybe the valve doesn't open properly.	❖ Check the valve. ❖ Check if the line is blocked.
Excessive motion	When measuring, the signal contains motion artifacts or too much interference	❖ Check the patient for motion, trembling. Too much movement.
Over Pressure	Cuff pressure exceeds the normal range due to patient movement, air obstruction, or use of too small a cuff.	❖ Check that the correct size cuff is being used. ❖ Check that the hose has no sharp bends and is not pinched. ❖ Check that the patient is not lying or stepping on cuff. ❖ Ensure the patient is not moving excessively.
Signal staturation	The signal amplitude is too high due to movement or other reasons.	❖ Check the patient for movement, shaking, and excessive movement.
System Failure	A monitor system has failed.	❖ Service is required.
Timeout	Measurements were taken over 120 s in the large/medium animal mode and over 90 s in the small animal mode	❖ Check for loose cuff. ❖ Check that the cuff is in the correct position. ❖ Check animal mode. It might be in the wrong setting. ❖ Check the patient's condition,then measure again.
Low Battery power	Battery power is low	❖ Look at the battery life indicator icon on the home screen. Replace the battery if necessary.

9. Frequently Asked Questions

9.1. Frequently Asked Questions

- **How do I delete BP data?**

Select the file system key, select the ID that you want to delete, and click Delete. Before clearing memory, you will be asked to confirm or cancel the deletion. After clearing memory, you will delete all measurements for that ID.

- **How do I choose the measurement mode?**

With cuff size as the determining factor, animal measurement patterns were matched according to cuff size range.

- **How do I choose the correct cuff size?**

Wrap the cuff around the patient's limb and make sure the index line falls within the range marker. If two different cuff sizes fit the patient, choose the larger size.

- **How long will the batteries last?**

The electronic sphygmomanometer is in measurement mode and has a battery life of 1 hour. Battery life is very dependent on the boot time displayed on the touch screen. To extend life, Witleaf recommends turning on a power-saving mode.

- **Can I use this monitor on awake and anesthe- tised animals?**

Yes. The Vet Bp-Pro can be used on anesthetized animals as well as awake animals.

- **How do I keep the cuff from slipping down the limb or coming off?**

Attach the cuff as tight as possible. Extra attention will be needed on species with dense or thick fur. If the cuff will not stay attached, check the Velcro for fur and remove it if possible.

10. Limited Warranty

Vet1 Pty Ltd provides to the original purchaser the following limited warranty from date of invoice.

Monitors	24 months
Cuffs/Hoses	90 days

Shenzhen Witleaf Medical Electronics Co.Ltd. warrants each instrument to be free from defects in material and workmanship. The liability of this policy includes the cost paid to the factory when the customer's equipment is returned. Vet1 Pty Ltd will repair any component(s) or part(s) that it finds to be defective during the period of this limited warranty. Should a defect become apparent, the original purchaser should first notify Vet1 Pty Ltd of the suspected defect. The instrument should be carefully packaged and shipped prepaid to:

After Service
Vet1 Pty Ltd
Warehouse, National Technical Service & Support Centre:
Unit 20, 10-14 Louis Court, QLD 4209
AUS: 1300 378 713
NZ: 0800 366 115
Email: sales@vet1.com.au

If the instrument has been damaged by accident, misuse, negligence, an act of God, or serviced by any person not authorised by Vet1 Pty Ltd this limited warranty is void. This document sets forth the entire obligation of Vet1 Pty Ltd and no other warranties, whether expressed, implied, or statutory, are provided. No representative or employee of Vet1 is authorised to assume any additional liability or grant any further warranties beyond what is stated herein.

11. Technical Information

11.1. Factory Default Settings

Parameter Name	Default Value
Clinical Alarms – low SYS	40 mmHg
Clinical Alarms – High SYS	265 mmHg
Clinical Alarms – low DIA	20 mmHg
Clinical Alarms – High DIA	200 mmHg
Clinical Alarms – low MAP	27 mmHg
Clinical Alarms – High MAP	222 mmHg
Interval	Manual
Unit	mmHg
Category	Large
Language	English
Brightness	Fourth gear
Power Save	Off

11.2. Performance Specifications

Method of Measurement:		Oscillometric
Blood Pressure Range:	SYS:	40 –265mmHg
	MAP:	27 – 222mmHg
	DIA:	20 – 200mmHg
Pulse Rate Range:		25 to 300 BPM (Beats Per Minute)
Cuff Deflate Rate:		Deflation step size varies with heart rate, cuff pressure and cuff volume
Initial Inflation Pressure:		160 mmHg (default)
Transducer Accuracy:		±3mmHg between 0 mmHg and 300 mmHg
Transducer Calibration:		Recommended bi-annually or if a calibration problem is suspected
Operating Conditions:	Temperature:	5°C to 40°C
	Relative Humidity:	15% to 95% non-condensing humidity
	Barometric:	70.0 kpa ~ 106.0 kpa
Storage Conditions:	Temperature:	-20°C to 60°C
	Relative Humidity:	10% to 95% non-condensing humidity
	Barometric:	57.3 kpa ~ 106.0 kpa
Power:		4000mAh 3.7U Lithium battery . 6V power adapter.
Dimensions:		7.09” x 6.69” x 4.09” (18.0cm x 17.0cm x 10.4cm)
Weight:		1.66 lbs (0.753Kg).

11.3. Electromagnetic Compatibility (EMC)

Guidance and manufacturer's declaration – electromagnetic emissions		
The Vet Bp-Pro is intended for use in the electromagnetic environment specified below. The customer or the user of the Vet Bp-Pro should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group1	The Vet Bp-Pro uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment
RF emissions CISPR 11	Class B	The Vet Bp-Pro is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply networks that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-3	Not applicable	
Voltage fluctuations/ flicker emissions	Not applicable	

Guidance and manufacturer's declaration – electromagnetic immunity			
The Vet Bp-Pro is intended for use in the electromagnetic environment specified below. The customer or user of the Vet Bp-Pro should assure that it is used in such an environment.			
Immunity test	IEC 60601test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	Not applicable	
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Not applicable	
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% (30% dip in UT) for 25 cycles. <5% (>95% dip in UT) for 5 s	Not applicable	
Power frequency (50/60 Hz) Magnetic field IEC 61000-4-8	3 A/m	3 A/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			
Guidance and manufacturer's declaration – electromagnetic immunity			

FLOLINE

The Vet Bp-Pro is intended for use in the electromagnetic environment specified below. The customer or user of the Vet Bp-Pro should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the Vet Bp-Pro, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
Conducted RF IEC 61000-4-6	3 V rms	3 V rms	Recommended separation distance $d = 1.2\sqrt{P}$
			$d = 1.2\sqrt{P}$ 80 MHz to 800 MHz
Radiated RF IEC 61000-4-3	3 V/m	3 V/m	$d = 2.3\sqrt{P}$ 800 MHz to 2,5 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacture and d is the recommended separation distance in metres (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 rangeb Interference may occur in the vicinity of equipment marked with the following symbol:
NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies. NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			
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 Vet Bp-Pro is used exceeds the applicable RF compliance level above, the Vet Bp-Pro should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the Vet Bp-Pro. b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.			

Recommended separation distances between portable and mobile RF communications equipment and the Vet Bp-Pro			
The Vet Bp-Pro is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Vet Bp-Pro can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and Vet Bp-Pro as recommended below, according to the maximum output power of the communi-cations equipment.			
Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter (m)		
	150 kHz to 80 MHz $d=1.2\sqrt{P}$	80 MHz to 800 MHz $d=1.2\sqrt{P}$	800 MHz to 2,5 GHz $d=2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

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For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (m) can be esti- mated 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.