

 **InSight[®] Blood Pressure Monitor**
Operator's Manual

The information in this manual is for reference only and is subject to change without notice and shall not be regarded as a commitment made by Woodley Equipment Company. We are not responsible for possible errors or inaccuracies in this manual.
















InSight Blood Pressure Monitor is a clinical blood pressure automatic monitor which is specially developed for animal blood pressure measurement. The subsequent upgrade will increase the function of pulse oxygen saturation and temperature measurement. The blood pressure cuff is tied to the animal's forelimb or tail. Portable devices are available in animal hospitals which can be used for dynamic monitoring of blood pressure, continuous monitoring and testing of different animal ID.

InSight Blood Pressure Monitor is a portable device which is lightweight and supports touch and keystroke operation. The device is powered by a single rechargeable lithium-ion battery or four AA batteries at the bottom of the device. All parameters in the device can set the highest and lowest alarm limits.

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Chapter I Icons and Symbols

Symbol	Details
	Access the settings screen
	Small animal mode
	Large animal mode
	Open the icon menu
	Start interval blood pressure measurement pattern
	Adjust the volume
	View data
	Exit menu
	Return to previous menu
	Delete all stored memory data
	Mean selected blood pressure values
	Begin STAT mode
	Bluetooth
	On/off/start/stop blood pressure measurements
	Battery power indicator

Chapter II Blood Pressure Monitor

2.1 Appearance



Settings Button
Enter the Settings menu.

Power Button
Press once to turn the monitor on, hold for 2 seconds to turn it off. After turning it on, press to measure or stop measurement.

Species Mode Button
Switch species mode.

2.2 Connection Interface

Power Adapter Interface

Insert the AC adapter plug into the InSight Blood Pressure Monitor, then plug the other end of the AC adapter into the power supply to charge the battery. Only use the AC adapter provided by Woodley Equipment Company. Only use the AC adapter when using the lithium battery power supply.



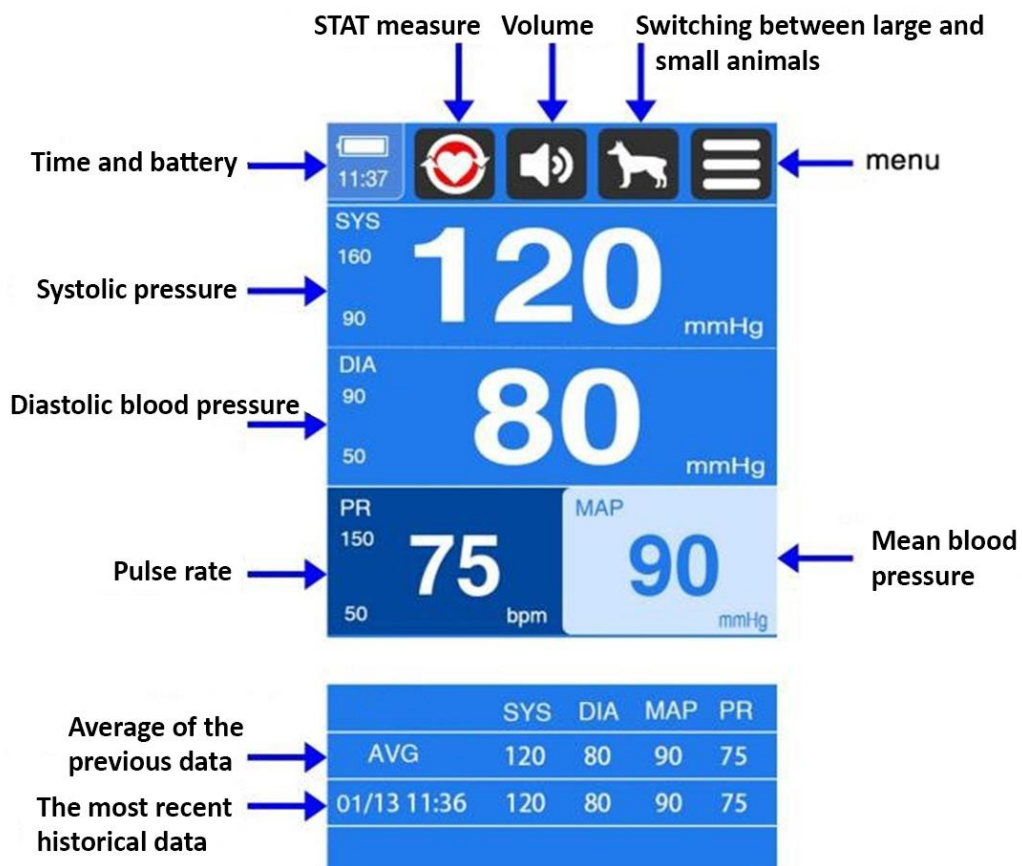
Blood Pressure Cuff Interface

Connect the NIBP tube to the back of the monitor and make sure the connector is connected to the correct position.

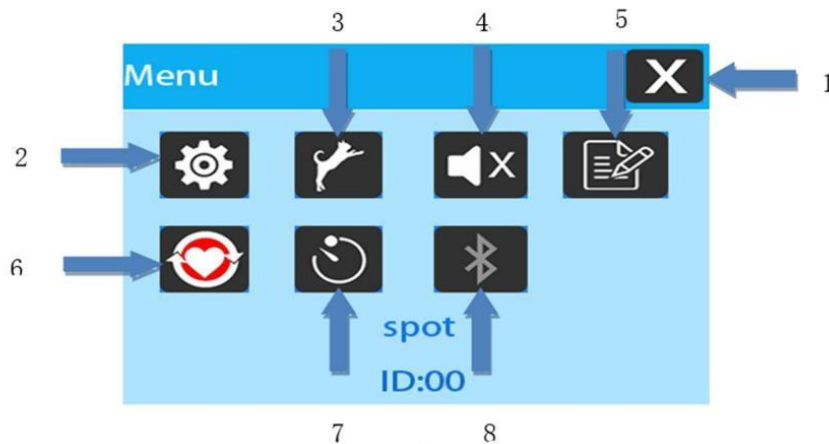


2.3 Screen Display

The monitor will display the measurement interface, as shown below.




Icon Menu



After pressing the 'Menu' button on the main interface, the 'Icon Menu' will display. The function settings of the device can be viewed through the icon indication. During blood pressure measurement, the 'Icon Menu' cannot be accessed.

1. Exit menu
2. Settings
3. Select species
4. Speaker volume
5. Memory
6. STAT mode (continuous measurement mode)
7. Interval blood pressure measurement pattern
8. Bluetooth

2.4 On/Off Button

 button indicates the status of the InSight Blood Pressure Monitor.

1. To switch on, press the on/off button.
2. During the blood pressure reading, press the on/off button to start measurement of the blood pressure and press again to stop the measurement.
3. Touching the blood pressure measurement area on the screen can start or stop the measurement.
4. If an error occurs, the warning will show on screen.



Chapter III System Functions

3.1 Species Selection

Select small animal mode, use #4 and below cuff size, suitable for measuring small animals (<8 kg), such as cats and dogs.

Select large animal mode, use #5 and above cuff size, suitable for measuring large animals (>8 kg). such as large dogs.

If species does not match, touch the main interface 'species size button' or shortcut key button to switch.



Size Animal Button




Shortcut Key

3.2 Volume

The default setting of the speaker in the InSight Blood Pressure Monitor is turned off. To switch between speaker off and on, press the 'volume' button to switch.



3.3 Settings

To enter the settings interface, select the settings button  on the menu.

Work Mode
SPOT or Monitor mode.

User Settings
Set different users.

Alarm Settings
Set alarm upper and lower limits.

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

Blood Pressure Settings
Set blood pressure settings.

System Settings
Set system settings.

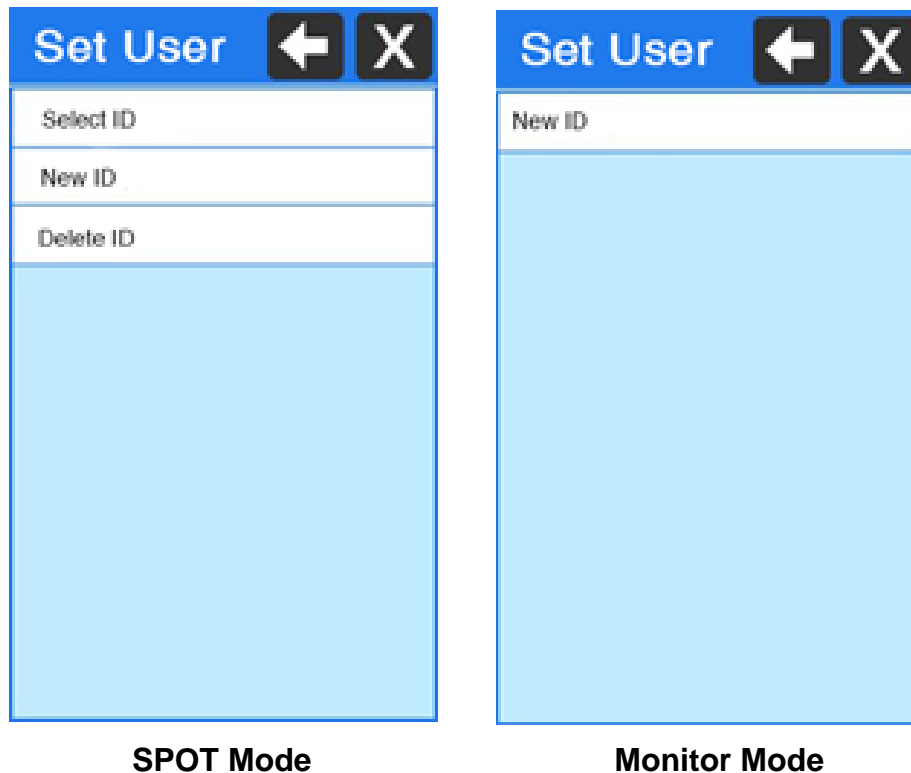
Data Review
View previous data lists and trend charts.

3.4 Work Mode

InSight Blood Pressure Monitor supports SPOT measurement mode or Monitor monitoring mode.

- SPOT mode supports up to 100 ID number management. Each ID supports 200 sets of data storage, suitable for different animals. When SPOT mode is turned on, it will enter sleep mode after 10 minutes without measurement.
- Monitor mode only supports single user management, support up to 1000 groups of data storage, suitable for continuous monitoring management.

Chapter IV User Settings



4.1 Alarm Settings

InSight Blood Pressure Monitor allows clinical alarm signals for all values (systolic blood pressure, diastolic blood pressure, pulse rate).

- To change the alarm value, select the settings interface in the icon menu and then select 'alarm settings'.
- Touch the parameter to be set and the setting interface will display.
- The number on the left is the minimum value that can be set and the number on the right is the maximum value that can be set. The white progress bar indicates the area that the current upper and lower limits occupy in the total range.
- Click the value box to enter the value, click 'OK' to confirm.

- When an alarm is triggered, the value beyond the set range will be prompted on the main interface. If the speaker is turned on, a beep will sound. See Chapter VI for more information on alarms.

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

SYS High ← X

100 mmHg

40 280

OK

1	2	3	Del
4	5	6	0
7	8	9	.

SYS Upper and Lower Limit Range – 40 ~ 280 mmHg
 DIA Upper and Lower Limit Range – 10 ~ 220 mmHg
 Pulse Rate Upper and Lower Limit Range – 25 ~ 500 bpm

4.2 Blood Pressure Settings

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

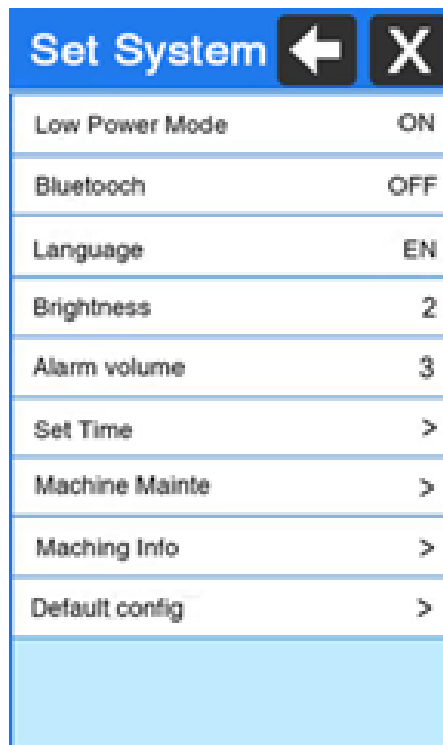
Measurement Mode: Manual, Auto, Stat (continuous)

Cuff: Small cuff mode (small animal), large cuff mode (large animal)

Pressure Unit: mmHg (mmHg), KPA

Measurement Interval: Measurement interval auto, the interval time can be set 1, 2, 3, 4, 5, 10, 15, 30, 60 and 90 minutes.

4.3 System Settings




Set System	
Low Power Mode	ON
Bluetooth	OFF
Language	EN
Brightness	2
Alarm volume	3
Set Time	>
Machine Maintenance	>
Machine Info	>
Default config	>

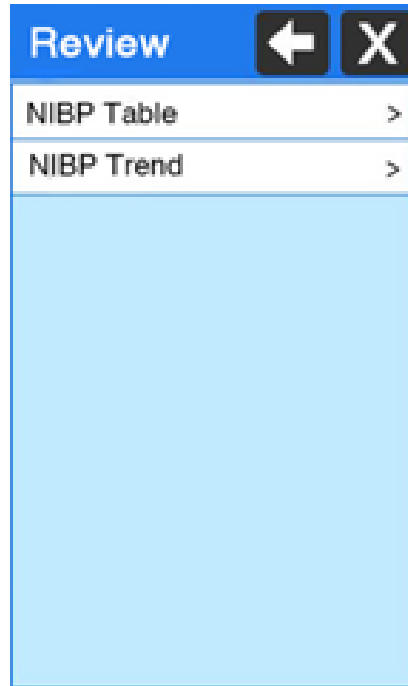
Select 'System Settings' in the Settings menu and the menu above will display.

- Low Power Mode: When on, it will automatically sleep in SPOT mode. When off, it will not sleep in SPOT mode.
Note: Low power mode does not work on monitoring mode.
- Bluetooth: Bluetooth on/off.
- Language Options: English, Chinese.
- Brightness Options: Level 1, Level 2, Level 3, Level 4
- Alarm Volume Options: Level 0, Level 1, Level 2, Level 3.
- Time: Time adjustment.
- Equipment Maintenance: Contact Woodley Equipment Company Technical Support team.
- Device Information: Device Version Number.
- Restore factory settings: In addition to language settings, other functions can be restored to default factory settings.

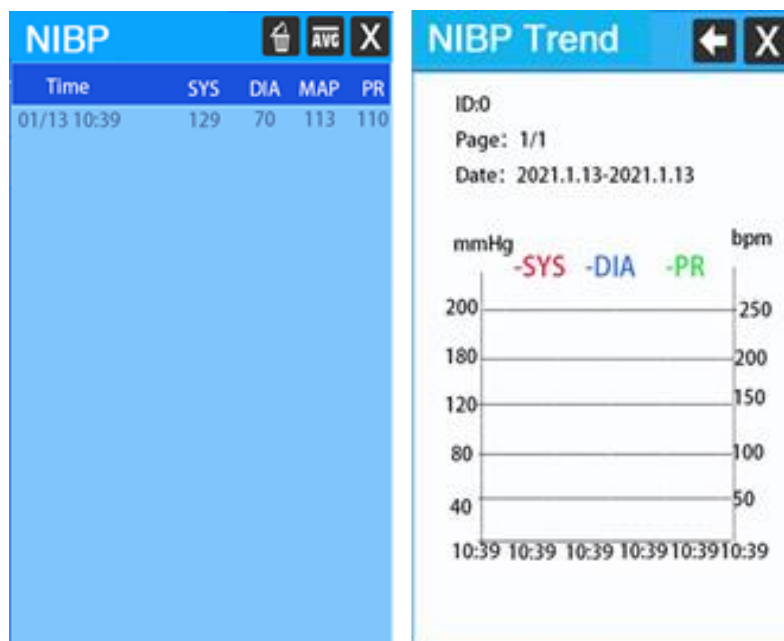
4.4 Data Review

Select 'Data Review' in the 'Settings' menu or select  in the icon menu to enter the historical data viewing interface.

See below example in Monitor mode.



The user can check the blood pressure list and blood pressure trend chart in 'Data Review'.



The trend graph shows systolic blood pressure, diastolic blood pressure, pulse rate in different colours. The vertical axis on the left represents pressure and the vertical axis on the right represents pulse rate. The red line represents SYS, the blue line represents DIA and the green line represents PR. The horizontal axis shows the time and the trend also includes ID, page number and date.

Time	SYS	DIA	MAP	PR
AVG	129	70	113	113
01/13 10:39	129	70	113	113

Blood pressure lists show measurements including time, SYS, DIA, MAP, PR and average calculations. When the data is selected, the average calculations will be shown. Select the data to be calculated. Press 'delete' to delete the data.

View Average Data

In the data list, blood pressure data can be averaged. Click on the identifier to select the row you want to calculate the average value for, showing the average value of the selected measurement result.

Average of selected data



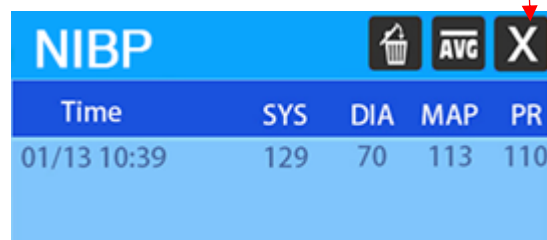
NIBP				
Time	SYS	DIA	MAP	PR
01/13 10:39	129	70	113	110

NIBP				
Time	SYS	DIA	MAP	PR
AVG	129	70	113	113
01/13 10:39	129	70	113	113

Delete Data

In the data list, clicking on the 'Delete data' button will delete all blood pressure data under the user.

Delete all memory data



NIBP				
Time	SYS	DIA	MAP	PR
01/13 10:39	129	70	113	110

Chapter V Blood Pressure Measurement

5.1 Select the Cuff

InSight Blood Pressure Monitor is equipped with different sizes of blood pressure cuff. Each cuff contains important marks which helps to select the correct cuff size. Measure the circumference of the limb and select the cuff with a width of 40% of the dog's limb circumference and 30% of the cat's limb circumference. When the cuff is too small, the blood pressure will be too high.

It is recommended that the cuff be placed on the forelimb when the animal lies on the left or right. This helps ensure that the cuff is at the same level as the heart and the measurement accuracy is the highest. The cuff should be placed in a position to align its arterial markings with the limb artery.

If the animal looks comfortable, fix the cuff and hold the limb during blood pressure measurement. This will help keep the cuff at the same level as the heart. If the animal is anxious enough to bite or scratch the cuff, the base of the tail is a good, fixed position.

5.2 How to Measure Blood Pressure

1. Fix the animal's position, lying down is preferred. Place the cuff on the limb. The cuff has a sensor to ensure that the cuff is close to the animal's skin to provide a better signal for the monitor. Connect the NIBP tube to the monitor.
2. Select the species according to the animal's weight or cuff type.
3. Press the start/stop button or click in the blood pressure measurement data screen area to start the blood pressure measurement. After the measurement is complete, the measurement results are displayed.
4. During the measurement, press the start/stop button or click in the blood pressure measurement data screen area to stop the measurement.

Note: During blood pressure readings, the icon menu is not available. To access the icon menu, wait until the blood pressure reading is complete or press the start/stop button to stop the reading.

Note: It is recommended that animals be measured after being calm for 5 minutes.

5.3 Interval Measurement Mode

During the blood pressure interval measurement mode, the InSight Blood Pressure Monitor automatically measures the blood pressure value according to the set time interval. The interval can be modified by the interval blood pressure setting.

Note: In interval measurement mode, blood pressure measurement can be started manually. If the measurement is stopped during the measurement, the equipment will exit the interval measurement mode and enter the manual measurement mode.



Interval
Measurement
Mode

5.4 STAT Mode (Continuous Measurement Mode)

InSight Blood Pressure Monitor will automatically continuously measure blood pressure in STAT mode.

Note: In STAT mode, when the equipment does not start measuring blood pressure, it can start the blood pressure measurement manually. If the measurement is stopped during the measurement process, the equipment will exit the interval measurement mode and enter the manual measurement mode.



STAT Mode

Chapter VI Alarm

6.1 Technical Alarm

When an error occurs during blood pressure measurement, a technical alarm will be activated.

During the alarm period, a sound will be emitted and a pop-up window will appear to warn the cause of the failure. Invalid blood pressures will not be displayed.

Alarm	Reasons	Solutions
Air leakage	There is a leak in the cuff, tube or main unit. It will also appear if the cuff or tube is not connected to the main unit.	<p>Check if the tube is connected to the BP monitor and cuff.</p> <p>Check if the cuff is properly fastened.</p> <p>Check if the cuff is in the correct position.</p> <p>Check if the cuff is leaking.</p> <p>Check if the tube connection is damaged or loose.</p>
Out of range	Blood pressure exceeds InSight Blood Pressure Monitor monitoring.	<p>Make sure that the cuff used is the correct size.</p> <p>Animal may be too active.</p>
Weak signal	InSight Blood Pressure Monitor did not detect signal. If rapid deflation occurred during the measurement, it may also happen.	<p>Check if the cuff is in the correct position.</p> <p>Check if the cuff is properly fastened.</p> <p>Check if the correct size cuff is used.</p>
Excessive movement	The monitor is receiving a sudden noise or operation.	<p>Check the species mode. It may be set incorrectly.</p> <p>Check if the animal is trembling or has excessive activity.</p>

		<p>Check if the cuff is in the correct position.</p> <p>Check if the correct size cuff is used.</p>
Measuring time is too long	The monitor couldn't detect strong and continuous signals from the animal for enough time.	<p>Check to make sure if the cuff is tightly attached to the animal and is properly placed.</p> <p>Check if the cuff is in the correct position.</p> <p>Check if the animal is moving or shaking.</p>
Battery is too low	Low battery power.	<p>See the battery life indicator on the main screen.</p> <p>If necessary, replace the battery.</p>
Airflow blocked	Air cannot pass through the tube or cuff.	<p>Check to make sure that the tube is not bent or squeezed.</p> <p>Check if the animal is lying or stepping on the cuff.</p> <p>Check if the cuff is in the correct position.</p>
Wrong cuff pressure	The cuff pressure temporarily exceeds 300 mmHg due to animal movement, air blockage or use of a small cuff.	<p>Make sure the appropriate cuff is used.</p> <p>Check to make sure that the tube is not bent or squeezed.</p> <p>Check if the animal is lying or stepping on the cuff.</p> <p>Make sure the animal is not overly active.</p>
Monitor not ready	The monitor is preparing for the next measurement or may need maintenance.	<p>Press the Start/Stop button to start a new measurement. If repeated errors occurs, calibration or maintenance may be required.</p> <p>Contact Woodley Equipment Company if necessary.</p>
System error	Hardware problems or abnormal cuff pressure when it's turned on.	<p>Disconnect the cuff from the device and restart.</p> <p>If it cannot be solved, it needs service maintenance.</p>

6.2 Physiological Alarm

Physiological alarm occurs when the measured value reaches or exceeds the high or low limit set by this parameter. When physical alarm occurs, there will be a red warning LED indicator and intermittent beep sound.

Chapter VII Technical Information

7.1 Product Model

Model: InSight Blood Pressure Monitor

Model Description: Single blood pressure

7.2 Performance Indicators

Blood Pressure Performance

Method of Measurement	Schematic method
Blood Pressure Range	SYS: 40 – 270 mmHg DIA: 20 – 230 mmHg MEAN: 10 – 200 mmHg
Pulse Rate Range	BPM 40 – 240
Cuff Accuracy	(0 – 300 mmHg) \pm 3 mmHg

Other

Note: If the monitor is used or stored outside the specified temperature and humidity range, its performance may be affected.

Conditions of Use	0 – 50°C, 15% – 90% humidity
Storage Conditions	-20 – 65°C, 15% – 90% humidity
Altitude	Measurement accuracy is not affected by altitude
Power	Lithium ion batteries and/or AC adapter
Input Voltage Range	Universal (100 – 240 V AC)
Input Frequency Range	General purpose (50 – 60 Hz)
Adapter Output	DC: 9 V-2A
Lithium Batteries	7.4 V, 2.6 Ah, 19.24 Wh
Dimensions	15.9 x 12.7 x 13.3 cm
Weight	0.95 kg (with battery)

Chapter VIII Frequently Asked Questions

How many measurements can be stored in memory?

In SPOT mode, each ID number can store 200 measurement data. While the 201st measurement is carried out, the monitor automatically replaces the first measurement. When the creation ID is full, the user needs to manually delete the previous ID number to create a new ID number.

In Monitor mode, up to 1000 measurements can be stored. The monitor has a loop memory. In the 1001st measurement, the monitor automatically replaces the first measurement.

For medium-sized dogs, which animal mode should I choose?

Judge according to the size of the cuff used. If the most suitable cuff used is #3 or smaller, select small animal mode. Select large animal mode if the most suitable cuff is #4 cuff or larger cuff.

How to choose the correct cuff size?

Wrap the cuff around the animal's limb to ensure that the scale is within the marked range. If there are two different cuff sizes that match the animal, choose a larger size.

How long can the battery last?

When continuously monitoring blood pressure, the measurement interval is set to 5 minutes and the fully charged battery should continue to work for at least 4 hours before charging. If only manual blood pressure measurements are performed, a fully charged battery should continue to perform at least 150 blood pressure measurements before recharging. It takes more than 6 hours to fully charge the battery. The battery life depends to a large extent on how long the touch screen is displayed as 'on'. In order to extend the life of the battery as much as possible, it is recommended to turn on the automatic shutdown.

Can this monitor be used on awake and anaesthetic animals?

Yes. InSight Blood Pressure Monitor can be used in anesthetised and awake animals.

How to prevent the cuff from sliding down or falling off?

Fasten the cuff as tightly as possible. Special attention must be paid to the density or thickness of species fur.

Any other power options?

Yes. The device is equipped with a main power supply, connected to the built-in battery charge. When the device is not connected to the power supply, the battery allows the device to be portable for use.

How much is the minimum and maximum weight of cats and dogs?

1 kg (minimum) – 200 kg (maximum).

When to use InSight Blood Pressure Monitor for blood pressure measurements?

There are no restrictions. Any cat or dog with a suitable cuff range limb is applicable.

Warranty

1 year warranty for the main unit, 3 months for the blood pressure tube.



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