Before operating, please read this Manual carefully. Please store this Manual properly for future reference.
# Table of Contents

Chapter I Overview..................................................................................................................3  
 1.1 Introduction ......................................................................................................................3  

Chapter II Main parts & accessories.........................................................................................4  
 2.1 Button and indicator light ...............................................................................................4  
 2.2 Power socket .....................................................................................................................5  
 2.3 Reset Micro USB ..............................................................................................................5  
 2.4 Ports .................................................................................................................................5  
 2.5 Mounting hole ..................................................................................................................6  
 2.6 Accessories ......................................................................................................................6  

Chapter III Interface ...............................................................................................................7  
 3.1 Main interface ...................................................................................................................7  
 3.2 SpO2 Measurement Interface .........................................................................................7  
 3.3 System menu ...................................................................................................................8  
 3.4.1 Work mode Setup .......................................................................................................8  
 3.4.2 Alarm setup: Set the alarm limit of each parameter ..................................................9  
 3.4.3 SpO2 Set Up ...............................................................................................................9  
 3.4.4 System set up: System Parameters Set Up ..............................................................9  
 3.4.5 Review: Measurement Results Review ...................................................................11  
 3.5.1 Table ........................................................................................................................12  
 3.5.2 Trend Chart ...............................................................................................................12  

Chapter IV SpO2 Measurement ...............................................................................................13  
 4.1 Measurement Parameters ...............................................................................................13  
 4.2 Measurement Instruction ...............................................................................................13  
 4.3 Cautions ..........................................................................................................................13  
 4.4 SpO2 Possible Causes of error ......................................................................................14  

Chapter V Specifications .........................................................................................................15  
 5.1 Equipment Classification (IEC 60601-1) ....................................................................15  
 5.2 Accuracy range ...............................................................................................................15  
 5.3 Measurement accuracy ................................................................................................16  

Chapter VI Instruction of USB Data Upload ...........................................................................17  
 6.1 Instruction of USB Data Upload .....................................................................................17
Chapter I Overview

1.1 Introduction
The MONITOR is used to measure Spo2, or blood oxygen saturation.

WARNING This equipment must be operated by veterinary professionals. Personnel who are not authorized or trained should not attempt to operate this device.

NOTE The illustrations in this manual may be slightly different than actual device due to manufacturer updates.

Safety

Do not use monitor while charging.

Degree of protection against electric shock: Type BF Applied.

The MONITOR is suitable for small animal vital signs monitoring. With the spot measurement mode, it stores up to 100 patients’ data (200 records for each patient). With the monitoring mode, it stores 48 hours of measurement data, with a friendly interface, 3.5” color TFT screen, and data review functions.

When using audio and visual alarm mode, the red light flashes when power is low. When measuring results are outside the specified limits, the font of the result becomes red and an audio alarm sounds. The user can turn on or off alarms.

NOTE The device will shut off automatically in spot measurement mode with 1 minute of no activity. Auto shut off can be disabled if needed. See section 3.2.3.
2.1 Button and indicator light

- **Power** - Switch on/off
- **Mute** - Press this key to mute or unmute audible
- **Function 1** - Carry out functions as indicated by text showing on the lower left corner of screen
- **Function 2** - Carry out functions as indicated by text showing on the lower right corner of screen
- **Select** - Choose different options on setting menu
- **Alarm light** - Red light flashes when alarm is triggered or when battery is low.
- **Power light** - Solid red light indicates monitor is charging. Solid green light indicates full charge.
2.2 Power Socket on Bottom

![Power Socket Image]

**Fig. 2.2.1 power socket**

<table>
<thead>
<tr>
<th>NOTE</th>
<th>device</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Please use the power adapter as provided only. Do not use while charging.</td>
</tr>
</tbody>
</table>

2.3 Reset Micro USB

![Reset Micro USB Image]

**Fig. 2.3.1 Reset Micro USB**

Open the protecting shell, and plug a paper clip into the reset hole. Press hard, the device will be reset.

2.4 Ports on top

![Ports Image]

**Fig. 2.4.1 Ports**

<table>
<thead>
<tr>
<th>NOTE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not all ports are available on all models.</td>
</tr>
</tbody>
</table>
2.5 Mounting hole

![Mounting hole](image)

Fig. 2.5.1 Mounting

| NOTE | Mounting hole is used with the optional Pole/Cage Mount device (J1459P). |

2.6 Accessories

A. SpO2 sensor, 1 pc
B. SpO2 clips, 1 small, 1 large
C. USB cable, 1 pc
D. Power Adaptor, 1 pc
E. Charging Dock, 1 pc
F. User Manual, 1 pc
Chapter III Interface

3.1 Main Interface

Fig. 3.1.1 Main Interface

3.2 Spo2 Measurement Interface
3.3 System Menu
Turn on the device, press “Set” button to enter the system setup menu.

![Fig. 3.3 System Menu](image)

3.4.1 Work Mode Setup: SPOT & Monitoring Mode
SPOT mode is best used to obtain a single reading, or series of readings. Monitoring mode is best used when needing to continuously monitor a patient undergoing sedation, anesthesia, critical events, etc. Under SPOT mode, the device will shut off automatically after 1 minute of no monitoring activity. The results will be saved/stored at intervals ranging from 4-120 seconds, as set by the user (see section 3.4.3). ID management can only occur under SPOT mode (see section 3.4.5)

Under Monitoring mode, auto-shut off is disabled and the device works continuously. The results are recorded at intervals ranging from 4-120 seconds, as set by the user (see section 3.4.3). User ID’s can be selected under Monitoring mode, but ID creation and management can only occur in SPOT mode (see section 3.4.5).

**NOTE** After the internal memory is full, the earliest records will be overwritten.
3.4.2 Alarm Setup: Set the alarm limit.

SpO2 alarm range: 100%~0%
Pulse rate alarm range: 0~501 BPM

Fig. 3.4.2 Alarm

3.4.3 SpO2 Set Up
Beep: Turn beep per heart beat on/off
Mean Time: Select the time interval for recording data

3.4.4 System Set up: User Preferences Set Up

Fig. 3.4.4 System Setup
Low Power Mode:
Under SPOT mode, the device will shut off automatically with no measurement taken within 1 minute. To disable auto shut off, set Low Power Mode to “off”.

**NOTE**
Under monitoring mode, Low Power Mode (auto shut off) is unavailable.

Bluetooth: On/Off

**NOTE**
The Bluetooth function is not available in current version of device.

Language: English, Chinese
Brightness: Level 1, Level 2
Time: Adjustable
Set ID (under Spot mode): select ID, New ID, Delete ID. ID’s can only be created & selected in SPOT mode. Once the ID is created & selected, user can switch to Monitoring mode to begin monitoring and recording data for that ID.

Default Configuration: To Restore the Default Factory Settings
Machine Maintenance: For service technicians only
Machine Information: Version No.
3.4.5 Review: Measurement Results Review

Choose “OK”, system will display saved IDs. Select ID and press “ok” to display the results:
3.5.1 Table
Spo2 Table:  Time, SpO2, PR

3.5.2 Trend Chart
Spo2 Trend Chart

![SpO2 Trend Chart](image)

Fig. 3.5.2 SpO2 Trend Chart

The SpO2 trend chart displays Sp02 and Pulse Rate. The left vertical axis is oxygen saturation in percent, the right vertical axis is pulse rate and the horizontal axis is time.
Chapter IV SpO2 Measurement

4.1 Measurement Parameters
Arterial oxygen saturation (SpO2): Oxyhemoglobin percentage of total hemoglobin
Pleth waveform (Pleth): patient pulse signal in Pleth waveform
Pulse Rate: pulse per minute
Index bar: in proportion to the pulse strength
Blood flow perfusion index: PI values reflect the pulse strength. The stronger the pulse the higher the PI value.

4.2 Measurement instruction
SPO2 sensor:
1) Connect the SpO2 sensor to the monitor appropriately
2) Press the power button to turn on the monitor
3) Place the SpO2 sensor on the patient appropriately. Lingual surface is preferred but sensor can also be placed on lip, ear, prepuce/vulva, or any other non-haired, minimally pigmented surface.

4.3 Cautions
1) Must use the SpO2 sensor supplied with the monitor
2) Keep the SpO2 sensor stable to get accurate measurement results
3) When the SpO2 sensor or the patient is moving, the measurement results may not be accurate
4) Do not put the SpO2 sensor on the same limb as a blood pressure cuff, bandage or peripheral catheter.
5) Check all the cables and make sure the SPO2 sensor is in good condition before use
6) Do not use the monitor when the patients pulse rate is lower than 25 bpm, it may give incorrect results.
7) During long term monitoring, user should verify the SpO2 sensor is still correctly placed. Re-position as needed every 2-4 hours.
8) Keep the SpO2 probe placement location clean. Blood, dirt or other fluids may cause inaccurate results.
## 4.4 SpO2 Error and SpO2 Possible Cause of error

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>SysErr3</td>
<td>SPO2 module self-test error</td>
</tr>
<tr>
<td>SysErr4</td>
<td>SPO2 module communication</td>
</tr>
<tr>
<td>no pulse</td>
<td>Can’t find pulse</td>
</tr>
<tr>
<td>no Sensor</td>
<td>SPO2 sensor not connected</td>
</tr>
<tr>
<td>Sensor off</td>
<td>Sensor is no longer placed on patient</td>
</tr>
<tr>
<td>Searching</td>
<td>Searching for pulse</td>
</tr>
</tbody>
</table>
Chapter V Specifications

5.1 Equipment Classification (IEC 60601-1)
IEC Class II, Type BF applied

Display: 3.5” Color TFT
Dimension: 65mm x 30mm x 145mm (2.5” x 1.2” x 5.7”)
Weight: 250g (8.8 oz) with rechargeable battery

Working Environment:
Temperature
Operating: 5°~ 40°C (41°~104°F)
Storage/Transportation: -20°~+55°C (-4°~131°F)

Humidity
Operating: 15%~80%
Storage/Transportation: ≤ 95%

Power: 4V, DC, P≤3.2VA
Power Source: AC power or battery

Fuse (self-recovery):
  Input fuse: 2A/250V
  Fuse (battery): 60Vdc/3A(max)

Battery
  Lithium ion rechargeable battery: 3.6V/4.2Ah
  Work time: 8hours
  Charge time: 6hours

Measurement Range:
  Spo2: 0~100%
  PR: 0-500 bpm
  Perfusion Index: 0.05%-20%

5.2 Accuracy Range
Spo2: 70%-100%
PR: 30-500 bpm
Perfusion Index: 0.05%-20%
5.3 Measurement accuracy

SpO2: +/- 2 digits (70-100%)
    Undefined (<70%)

On motion condition:
    Pulse rate: +/- 3 digits
    SpO2: +/- 3 digits
Chapter VI Instruction of USB Data Upload

6.1 Instruction of USB Data Upload

1) Open ‘HandleVitalSignsMonitorSoftwareSetup’

2) Select ‘Run anyway’

3) Select ‘Next’
4) Select ‘Install’

5) Select ‘Next’
6) Select ‘Finish’

![Device Driver Installation Wizard]

Completing the Device Driver Installation Wizard

The drivers were successfully installed on this computer.
You can now connect your device to this computer. If your device came with instructions, please read them first.

<table>
<thead>
<tr>
<th>Driver Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>STMicroelectronics (usb...)</td>
<td>Ready to use</td>
</tr>
</tbody>
</table>

[Finish] [Cancel]

7) Select ‘Close’

![Microsoft Visual C++ 2010 x64 Redistributable Setup]

Setup has detected that this computer does not meet the requirements to install this software. The following blocking issues must be resolved before you can install Microsoft Visual C++ 2010 x64 Redistributable Setup software package.

Please resolve the following:

A newer version of Microsoft Visual C++ 2010 Redistributable has been detected on the machine.

Please, see the Microsoft Visual Studio website for more information.

[Continue] [Close]
8) The icon below will appear on your desktop

![Icon Image]

9) Open the software and connect the InSight Vet Vital Signs via USB to the computer, select Import to transfer data to the PC.

![Software Interface Image]