

Veterinary Dental X-ray Unit



USER MANUAL

一、 Product Description

1.1 Characteristics and Usage:

This equipment is a high frequency dental X-ray machine designed and manufactured specially for pets, which has a attractive and tiny shape. Further more, it's pretty light and easy to carry for its usage. The device works with the international DC and high-frequency power supply, all its components are installed on the central processing circuit board. The product's used mainly to photograph the pet's intraoral tissues, the root canal treatment, among others. On the other hand, this machine can also be used in conjunction with sensors and image scanning equipment to greatly assist the users in the diagnosis and treatment process.

1.2 Safety Instructions:



Notice: Read and understand all cautions, safety messages and warnings in this manual.

- ※ Please read and familiarize with this manual to make sure a correct operation this equipment.
- ※ Check if the power cord is properly connected and works normal.
- ※ Operate the equipment in designated locations.
- ※ Keep the device and the beam limiter clean.
- ※ The regular inspection and maintenance of the equipment should be performed before each operation.
- ※ Turn on the sensor mode when using it.
- ※ Do not operate or store the device near a source of fire.
- ※ Do not use or store it where the air pressure or temperature exceed the range.
- ※ Maintain good ventilation and avoid direct sunlight, protect it from dust erosion and corrosive air.
- ※ Avoid placing the equipment near chemical storage and gas-filled storage facilities.

二、 Technical Data

Tube Voltage	60KV
Tube Current	2.0mA
Exposure Time	0.1-1.2s
Frequency	30KHz
Rated Power	120VA
Focus distance to skin	130mm
Tube Focus	0.4mm*0.4mm
Battery	2200mAh
Input Voltage	AC100V-240V±10%
Output Voltage	DC14.8V-16.8V
Ambient temperature	5°C-40°C
Relative Humidity	<75%RH
Net weight	2.2KG
Gross weight	4.5KG
Size(mm)	170*153*138
Package size(mm)	365*330*275

三、 Main Structure

3.1 Main body



3.2 Control Panel



1、 Exposure Switch

2、 Beam Limiter

3、 Control Panel

4、 Charging Port

5、 LCD Display

6、 Power Switch

7、 Tooth Position Selection

8、 Pet's Size Selection

9、 Film / Sensor Selection

10、 Exposure time setting

四、 Mode of Operation

4.1 Switch on the device

- a- Press and hold the power button for five seconds, the buzzer will sound, all the interfaces will appear on the LCD display, then the device will work in five seconds.
- b- The exposure condition will be displayed on the screen same as the last used one, which can be saved.
- c- The device will automatically shut down if there is no operation for 3 minutes.

4.1 Exposure time setting

- a- Select tooth position. According to the tooth to be examined, select the corresponding icon on the operation panel.



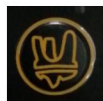
Upper incisor



Upper canine



Upper molar



Upper Premolar



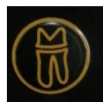
Lower incisors



Lower canine



Lower canine



Lower Premolar

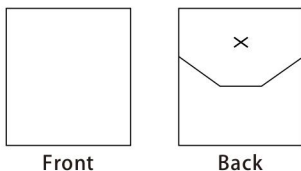
- b- Press “” the symbol  , lights up on the screen , to perform imaging by dental film ;
Press again “” the symbol  , lights up on the screen , to perform images by sensor ;
Press “” the symbol  , lights up on the screen , to examine cats or small breed animals ;
Press again “” , the symbol  , lights up on the screen , to examine dogs or large breed animals ;
Press “” to increase the exposure time ;
Press “” to reduce the exposure time .

4. 3 Film placement (or sensor placement)

Place the film (or the sensor) in the mouth, the front part of it near the palatal (or lingual) side of the tooth needed to be photographed, then hold the back side of it with a finger to ensure that it's close to the tooth.

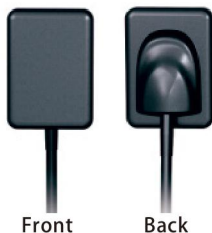
a- Film placement

Place the film in the mouth, the front part of it near the palatal (or lingual) side of the tooth needed to be photographed, then hold the back side of it with a finger to ensure that it's close to the tooth.

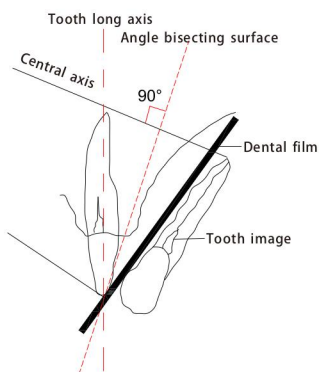


b- Sensor placement


Place the sensor in the mouth, the front part of it near the palatal (or lingual) side of the tooth needed to be photographed, then hold the back side of it with a finger to ensure that it's close to the tooth.






c- The position of the film and the direction of the X-rays is as the figure on the right side, along the central axis, the X-rays point from the tooth to the film. If the position of the central axis deviates from the correct position, (the angle of the center line and the angle dividing surface is less or more than 90°), then the radiographic image may be shorter or longer than the actual tooth.



4.4 Exposure

 The exposure switch must be pressed during the whole process, or the exposure will stop when it's released.

- a- Press the exposure switch and on the top right corner of the LCD will appear the icon , at this moment the machine is exposing.
- b- After exposing, on the LCD displays the icon  the device enters a cooling mode. The next exposure cannot be performed until the icon  is shown on the screen.
- c- During the entire exposure, both hands must hold the equipment in a horizontal position and must not shake or move.

4.5 Switch off the device

Keep pressing the power switch for five seconds, until it performs a "beep" sound, the device will turn off.

4.6 Error messages and solutions

4.6.1 When the device does not work properly, below error messages will be shown on the screen.

E01: Low battery

E05: high voltage generator could be over heated

E10: could be no filament voltage

E11: filament voltage could be low

E12: filament voltage could be overloaded

E13: filament could be on always

E30: the kV could be abnormal

E31: the kV could be too low

E32: the kV could be too high

E40: the mA could be abnormal

4.6.2 Solutions

If E01 appears, please charge the battery immediately, for the other codes, please contact the supplier.

4.7 Charging

- If the battery voltage is low and does not work properly, please charge it in time.
- Please charge the battery once a month if the equipment is not used for a long period of time to make sure the battery's proper operation.
- Only the original charger provided with the machine may be used.
- Once the charging is complete (the indicator light of the charger changes from red to green), disconnect the power supply and store it.
- The battery is a consumable item and only one original battery is supplied with each unit. If there's any need to purchase a new one, please consult the manufacturer.

五、Warnings and Precautions

- ※ Make sure the users have relevant training.
- ※ Professional advice is needed if the patient is pregnant to take an X-ray photograph.
- ※ Excessive radiation exposure may cause slight damage to the human body.
- ※ Try not to interrupt the exposure several times in a row, it might reduce the lifespan of the equipment.
- ※ Recommended Storage Humidity: 10~75%RH。
- ※ Recommended Operating Humidity: 15~70%RH。
- ※ Optimal humidity range: 15~60%RH。
- ※ Recommended Storage Temperature: 10~40° C。
- ※ Recommended Operating Temperature: 10~35° C。
- ※ Optimal temperature range: 10~30° C。
- ※ If any problem or error is found in the device that cannot be solved, stop the operation immediately and consult the designated manufacturer.
- ※ Do not disassemble or modify the device.
- ※ Only qualified and authorized personnel may operate or repair this equipment.
- ※ Please charge the equipment within the allowed range of AC 100-240V
- ※ When connecting the device to the power or moving it, there is a potential danger of mild electric shock.
- ※ Do not touch the device or its conductive parts with wet hands.
- ※ The battery may be damaged if charged with an unauthorized charger.
- ※ The discarded batteries are forbidden to be disposed in the environment, but solely in appropriate recycling bins conforming to the regulations.

六、Packing List

NO.	Description	Quantity
1	Main Machine	1
2	Charger	1