

■ Chapter 1

ABOUT THE SYMBOL

Serial number	Symbol	Explain
1		High voltage
2		X-ray emitting
3		Caution
4		Power off
5		Power on
6		Ground wire connector
7		Fragile
8		Up sign
9		Max accumulation
10		Dryness
11		Dose permission sign
12		BF type

■ Chapter 2 INTRODUCTION

2.1 Characteristics and main use

This portable dental X-ray unit is high frequency machine. The body is small, light weight and nearly no radiation. It has excellent image quality, portable storage, save more space. It uses high frequency and DC international power supply. All of the components installed in the central PC board concentrated. Shock, set-up, electron tubes, all of them are insulation vacuum, sealed stereotype protection. There are also manual buttons installed on the surface of shell, as well as batteries and charges. This unit mainly suitable for oral pre-treatment for learning internal organizational structure, root canal therapy, dental implant and so on, is indispensable in daily life clinic equipment, especially for dental implant surgery. It also can connect with sensor, is great convenience.

2.2 Checking and Security



Caution: Please learn relative security measures and functions given in the file or on the unit.

- Operating the device in the designated order.
- Keep the device and the cone clean.
- Please use or operate the device and parts after taking a necessary periodic inspection.
- If you discover some difference in the sensor images even if you inspected its x-ray exposure time in the same way as before, then it means that the radiation of x-ray is abnormal, you must stop using it immediately and allow it to be inspected.
- Keep the device in the place where children are unable to touch.
- Don't use or store near the place which

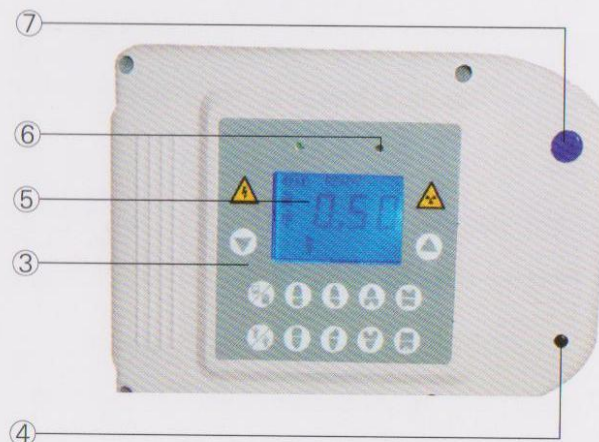
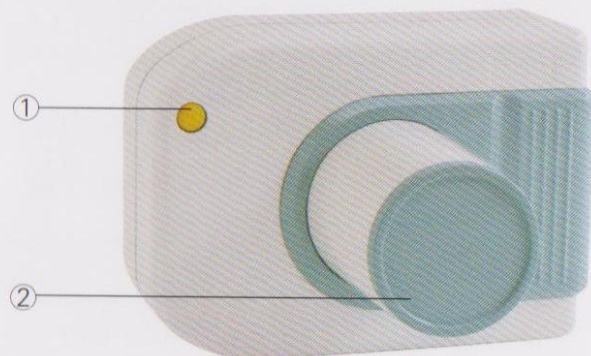
is possible to fire.

- Don't use or store where air pressure or temperature or moisture exceeds range.
- Keep good ventilation and avoid direct sunlight, protect against the eroding of dust and corrosive air.
- Don't use or store near to chemicals or combustible gas.

■ Chapter 3 SPECIFICATIONS

Tube voltage	60KV
Tube current	1mA
Exposure time	0.1–2.0s
Frequency	30KHz
Rate power	60VA
Distance from skin to cone	130mm
Tube focus	0.3mmx0.3mm
Battery	DC14.8V 6400mAh
Charger input voltage	AC100V–240V $\pm$ 10%
Output voltage	DC16.8V
Ambient temperature	5°C~40°C
Relative temperature	<75%RH
Net weight	2.5KG
Size(mm)	138x165x185

Chapter 4 STRUCTURE



4.1 The main body

- 1- Exposure switch
- 2- Beam cone
- 3- Control panel
- 4- Charging hole
- 5- LCD screen
- 6- Indicate lights
- 7- Power switch

4.2 Control panel

- 8- Adult/children selection
- 9- Film/sensor selection
- 10-Tooth position selection
- 11- Exposure time adjusted



■ Chapter 5 OPERATION

5.1 Turning on the device

- Press the power switch button for three seconds, all characters will appear on the LCD screen and the buzzer sounds, then loosen finger, the device will be ready for 5 seconds.
- Exposure condition will be displayed on the screen as the last time condition— it can saving the last time.
- The device will be turned off automatically if there is no any operation for 5 minutes.

5.2 Setting exposure time

- Select tooth position
- Press the " " to select film.
Press " " again to select sensor.
- Press the " " to select adult.
Press " " again to select child.
- Press the " " to increase 0.02 sec for each step if necessary.
- Press the " " to reduce 0.02 sec for each step if necessary.

5.3 Exposure time

Adult								
Child								
Film (sec)	0.2–0.3	0.3–0.5	0.5–0.6	0.6–0.8	0.8–0.9	0.9–1.1	1.1–1.2	1.2–1.4
Sensor (sec)	0.1–0.2	0.2–0.4	0.4–0.5	0.5–0.7	0.7–0.8	0.8–1.0	1.0–1.1	1.1–1.3

5.4 Place the film(or sensor)

- Put the sensor or a film in the mouth,keep film upright when select front tooth,horizontal when select back tooth.make the beam cone vertical to film or sensor.

5.5 Exposure

- Press the exposure button(exposure when loosening the button), x-ray will be exposed as the setting time and blue LCD is display "EXP" and the exposure LED be light.
- In the process of exposure, the buzzer sounds " Di Di" and the LCD turned to display condition before exposure, and this condition will be memorized.

5.6 Turning off the device

- Press the power switch button for two seconds and then loosen finger, the device will be turned off.

5.7 Error messages

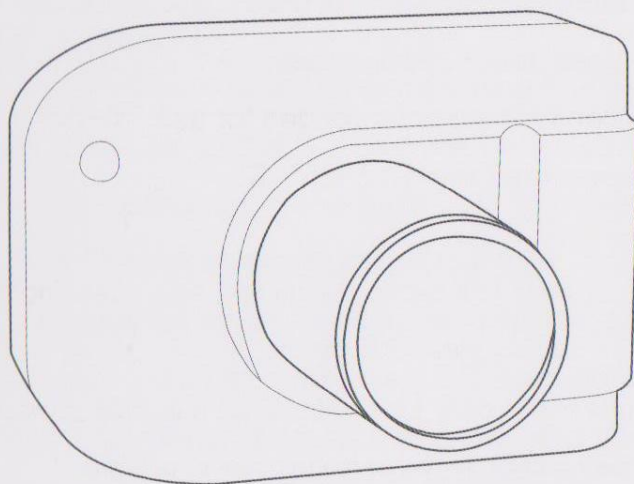
If there is any error message occurs on the device, the message as follows may help you identifying the problems.

- **E01:** may lower battery, the battery needs to charge
- **E10:** may no filament voltage
- **E11:** may lower filament voltage
- **E12:** may higher filament voltage
- **E13:** filament may always bright
- **E30:** kV may abnormal
- **E31:** kV may lower
- **E32:** kV may higher
- **E40:** mA may abnormal
- **E41:** mA may lower
- **E42:** mA may higher
- **E50:** x-ray generator may overheated

If display E10~E42, turn off the device immediately and use the device again about 5mins later. If display E50, turn off the device immediately and use the device again about 30mins later.

5.8 Charging battery

- High efficiency lithium battery enables you to irradiate x-ray more than 500 times after charging one time, and the battery are not easily to changed even for long-term use.
- Using only the authorized charger provided as an accessory when charging the battery.



■ Chapter 6

WARNING AND NOTICE

6.1 Warning

- Warning About Using:
 - Make sure the person who using this device is legally.
 - If pregnant, ask a health professional before taking x-ray.
 - An excessive exposure of radiation leaking may cause human body reaction lightly.
 - Humidity conditions recommended for storage: 10–85%RH.
 - Humidity conditions recommended for use: 15–80%RH.
 - Optimal humidity range: 15–60%RH.
 - Temperature conditions recommended for storage: 10–50° C.
 - Temperature conditions recommended for use: 10–35° C.
 - Optimal temperature range: 10–25° C.

Other Warning:

- If any problem or error founded in the device, stop operating and then consult with the designated A/S center.
- Do not disassemble or modify the device, since it include generates x-rays, if not use properly, it may damage users or patients.

- Do not allow an unauthorized person to use or repair it.
- The range of permissible voltage AC 100–240V, please use the charger within this range.
- There is a potential danger for an electrical shock if you connect the power plug to consent or remove it.
- Do not touch the device with your wet hand or make a physical contact with the conducting part.
- If use an unauthorized charger, battery may be damaged.
- If not be used for long time, need to charge the unit per month
- Used battery should not be thrown away in trash, please put that in a recycling box or exclusive case.

6.2 Notice

- Once charging had finished (indicator of charger changes from red to green), disconnect the DC output connect from the charger and pull out the power cord and store it.
- Battery is a expendable supply and duration of a battery is shortened slowly after the first purchase. Please buy a new battery if duration decreases by a half when compared to the first use. Contact the A/S center for purchase inquiry.

■ Chapter 7

MAINTENANCE AND KEEPING

- Keep the device in the place where only authorized personal can reach.
- Please clean the device daily by cleaning clothes and must keep cone clean.
- Please do not remodel the device arbitrary.
- Recommend to check the device once a year at the designated A/S center for safe use.
- Please recharge the battery every three months when it not in use for long time, and keep it in store.
- Daily tests and annual maintenance.
- When turn on, please confirm error message is not display on the LCD screen.
- Please confirm whether buzzer sound is heard and "EXP" words on the LCD, and exposure LED could see normally at x-ray exposure.
- Every year for safe use, safety check-up is necessary.

■ Chapter 8 PACKING LIST

No.	Name	Piece
1	Main body	1
2	Charger	1
3	User manual	1

锂电池保养 (Lithium battery maintenance)

1. 用户第一次使用机器前，必须先充满电，方可开机。

Please make sure charge fully before the first using .

2. 当机器提醒“E01”必须立即充电，机器长期不用应充入80%的电量，并每隔3个月充一次电池，以免电池过放电，导致电池损坏。

when the machine indicates “E01” must charging immediately. if not using for a long time Should charging 80% electricity and rechargeable every 3 months to avoid the battery over discharge to cause damage.

3. 充电器上的红灯变为绿灯亮时不表示电池充满，绿灯亮后仍需继续充电2小时。

The indicate light of the charger from red turn green is not mean the battery is fully, please charging continue 2 hours when the light turns green.

4. 锂电池不耐冲击、高温、潮湿，电磁波、高压等，所以，运输和使用机器时应注意环境并轻拿轻放。

The lithium battery is not resistant to impact, high temperature, damp, electromagnetic wave, high pressure. Please pay attention to the environment and gently during the transportation and the using.

5. 请使用机器自带的充电器给电池充电，不要使用劣质或其他类型的电池充电器。

Please use the charger with the machine self and do not use inferior or other types of battery charger.