

DENTAL X-RAY UNIT

OPERATION MANUAL

PREFACE

We much appreciate your kindly selection for our portable dental X-ray unit.please read the operation manual carefully before using,so that you could learn all the details about technical specification,installation, operating methods and maintenance.

Please connect with the dealer if you have any problem after reading the operation manual.

Thank you again.

Equipment Maintenance

Because the equipment include the users operation and diagnosing patients,therefore must be maintained ,checked,diagnosed equipment maintenance every year,make sure the equipment safety.And this equipment involved in high voltage electrical control components,should check the safety of its insulation,grounding device reliability.

CONTENTS

ABOUT THE SYMBOL ····· 3
INTRODUCTION ····· 4
SPECIFICATIONS ····· 6
STRUCTURE ····· 7
OPERATION ····· 8
WARNING AND NOTICE ····· 12
MAINTENANCE AND KEEPING ····· 14
PACKING LIST ····· 14

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		B type

Chapter 2 INTRODUCTION

2.1 Charateristics 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

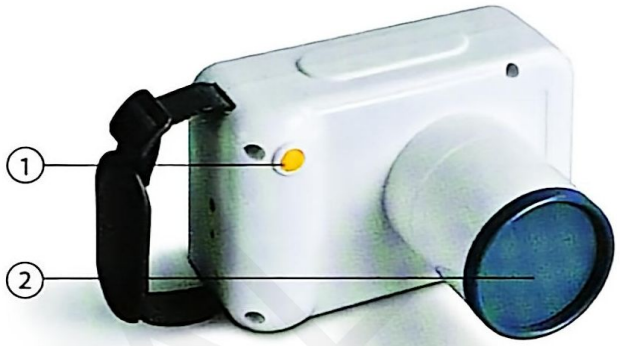
⚠ Caution:Please learn relative security measures and functions given in the file or on the unit.

- 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	2mA
Exposure time	0.1-2.0s
Frequency	30kHz
Rate power	120VA
Distance from skin to cone	130mm
Tube focus	0.8mmx08mm
Battery	DC14.8V 1300mAh
Charger input voltage	AC100V-240V±10%
Output voltage	DC16.8V
Ambient temperature	5°C~40°C
Relative temperature	<75% RH
Net weight	1.5KG
Size (mm)	110x140x165

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 time for each step if necessary.
- Press the "" to reduce time for each step if necessary.

5.3 Exposure time

tooth position		central incisors	canine	premolars	molars	occlusal
adult	film	0.25	0.32	0.4	0.5	0.63
	sensor	0.2	0.25	0.32	0.4	0.5
children	film	0.16	0.2	0.25	0.32	0.4
	sensor	0.13	0.16	0.2	0.25	0.32

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 hold the exposure button(until the end of the exposure),x-ray will be exposed as the setting time and blue LCD is dispaly “EXP” and the exposure LED be light.
- In the process of exposure,the buzzer sounds “Di Di” and the LCD turned to dispaly condition before exposure.and this condition will be memorized.

5.6 Turning off the device

- Pless 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 120 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 unauthorizd 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

DENTAL X-RAY UNIT

OPERATION MANUAL