

# **Apex Locator II**

## **User Manual**

# Contents

|   |    |
|---|----|
| 1.Introduction.....                                       | 2  |
| 2.Picture of main unit.....                               | 3  |
| 3.Assembling the Unit.....                                | 4  |
| 4.Before Using the Unit.....                              | 5  |
| 5.Testing the device by tester.....                       | 6  |
| 6.Explanations on the interfaces displayed.....           | 7  |
| 7.Demonstrate function.....                               | 7  |
| 8.Product function and operation.....                     | 8  |
| 9.Instruction.....  | 9  |
| 10.After Using the Unit.....                              | 10 |
| 11.Operation,storage, maintenance and transportation..... | 10 |
| 12.Trouble shooting.....                                  | 11 |
| 13.Sterilization and Replacement Parts.....               | 13 |

# 1.Introduction

## Description of the device

Apex locator is a supporting equipment of the endodontic treatment, through the measurement of the length of apical teeth, help the dentist to finish the endodontic treatment.

## Features of the device

Equipped with clear bright LCD, clear image and different color indicate the trajectory of the file clearly.

Based on advanced multiple frequency network impedance measurement technology and automatic calibrating ensures the measurements are accurate.

The accessories can be autoclaved under the high temperature and high pressure. Avoiding cross infection effectively.

## Intended use

This equipment applies to the measurements below:

1. Measurement of pulpitis, pulp necrosis, periapical periodontitis and tooth length.
2. Measurement of the tooth length before restoration of post crown.
3. Measurement of the tooth length of transplantation and retransplantation.

## Technical Specifications

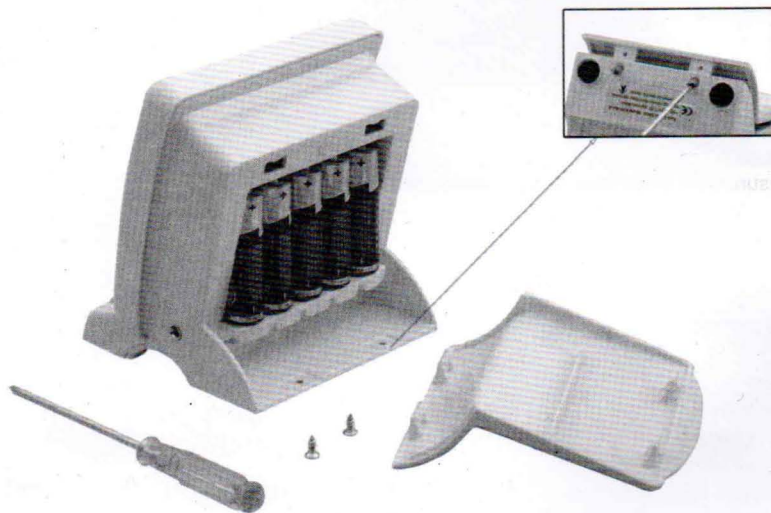
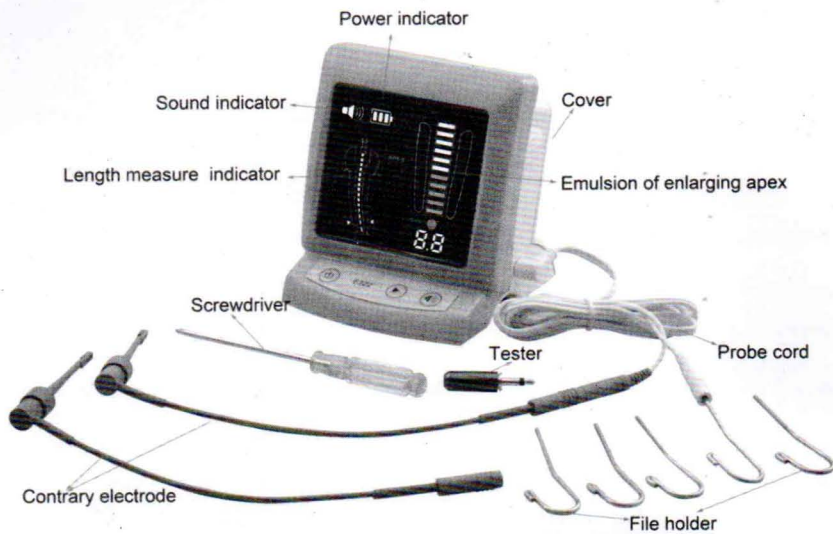
### Main unit

Power Voltage                      DC 7.5 V (5\*DC 1.5V AA Alkali dry cells)

Power Consumption              below 0.65 W

Display                              reflex colored LCD displaypiezo-electric buzzer

## 2. Picture of main unit





### 3.Assembling the Unit

- 1 .Turn the bottom screw off.
- 2.Slide the cover in the direction indicated by the arrow in the illustration
- 3.Place 5 AA batteries included in the package as indicated on the unit.
- 4.Line up the tabs on the cover with die notches on Root Canal Meter and slide the cover on.
- 5.Slide the cover all the way down until it is securely attached, Then set by screw.

#### Replacing Batteries

Replace the batteries as soon as the battery power indicator starts flashing.



#### WARNING

Do not use the unit if the battery power display is flashing. The unit may not function properly if the battery power is low.

- 1.Hold the cover and slide the stopper on the bottom towards the liquid crystal display.
- 2.Slide the cover in the direction indicated by the arrow in the illustration and remove it

from Apex Locator.

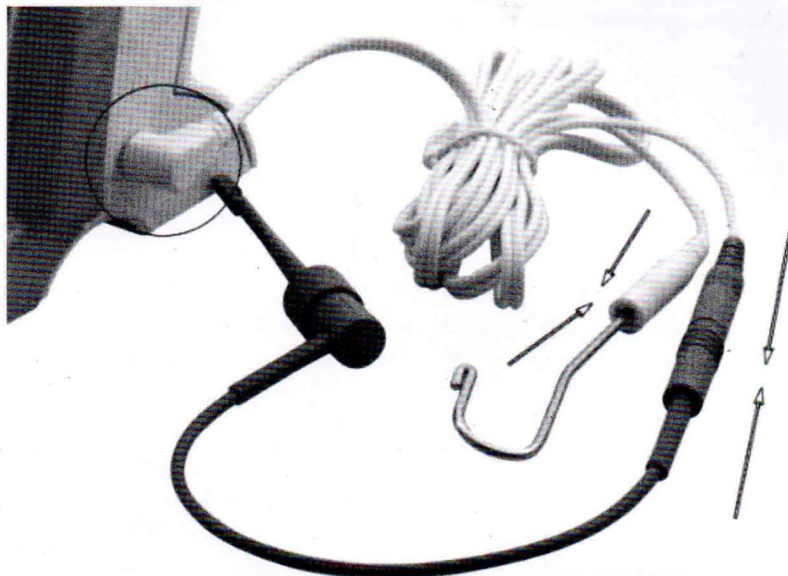
3.Take out the old batteries and replace them with new ones. Make sure the plus and minus poles are correctly lined up.



#### NOTE

- Root Canal Meter is shipped without the batteries installed.
- Remove batteries if long time no use.
- Do not reverse the plus and minus poles.
- Always use alkaline AA batteries.
- Replace all five batteries at the same time.
- Never use batteries that are leaky, deformed, discolored or otherwise abnormal.
- Dispose of old batteries according to local codes and regulations.
- In case of battery leakage, carefully dry the battery terminals and remove all of the leaked liquid. Replace the battery with a new one.

#### 4.Before Using the Unit



1.Insert the probe cord completely into the jack on the left side of Root Canal Meter .

#### NOTE

- Handle Canal Measurement Module carefully; do not drop, bump or expose it to other kinds of impacts or shocks. Rough handling could cause damage.
- Make sure the plug is securely plugged into the jack. A poor connection can cause malfunction.
- Do not drop anything on or bang the plug after it has been inserted into the jack.

2.Insert the file holder's gray male plug into the gray female connector on the probe cord. Insert the contrary electrode into the white female connector on the probe cord.

## **NOTE**

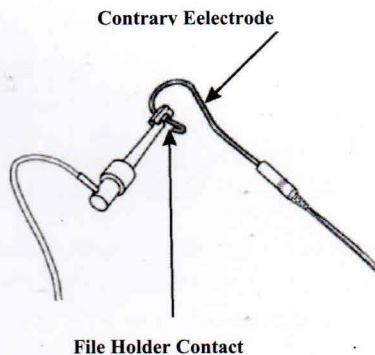
The device will shut down automatically after 3 minutes without operation.

Make sure if the plug of the measuring wire is inserted into the socket correctly.

Make sure if the file clip and lip hook are connected well to the measuring wire.

Make the lip hook touch the bent wire of the file clip [as showed in picture] to confirm all the instruction bars are displayed on the LCD screen.

A continuous beep sound will be generated during the operation.



## **5. Testing the device by tester**

Users can use the tester to check if the device work properly, specific operation are as follows:

Pulling out the the measuring wire and turn off the device.

Insert the tester.

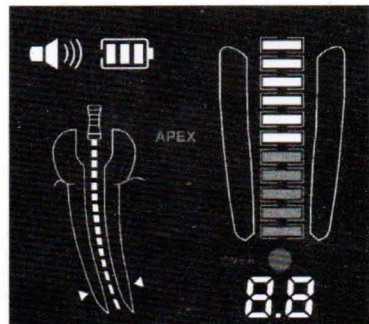
Turn on the device, it is works fine when green area of the display light.

## 6.Explanations on the interfaces displayed

1.The screen displays the front region of the apical foramen by instruction bars. Please refer to the white region as showed.

2.The file has gone to the position near by the apical foramen when the green bars displayed

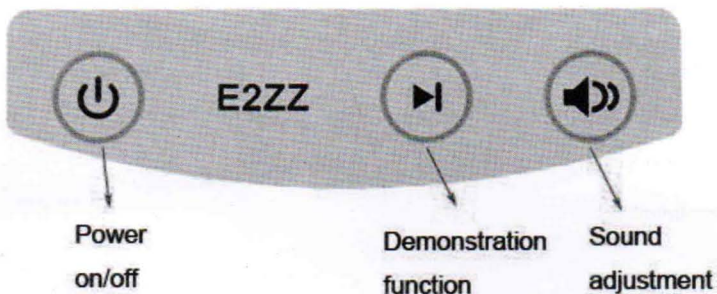
3.The file has exceeded the apical foramen when the red bars displayed. A continuous beep sound will be generated at the same time



## 7.Demonstrate function

Demonstrate function can show the movement process of endo file when measuring. Specific operation are as follows:

- Pulling out the the measuring wire.
- Turn on the device.
- Long pressing the play button for 1 second can enter the demonstrate function which shows the movement process of endo file.
- Repress the demonstrate function button men exit demonstrate function.





## **8.Product function and operation**

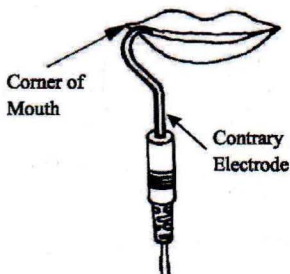
### **Usage requirements**

- (a)Apex locator should be precise, repeatable, and easy to operate. The following requirements are necessary besides the proper operation method.
- (b)The dentists should have the knowledge of teeth position and average length and the skill to operate the device.
- (c)A fully exposed access cavity to show the pulpal cabin.
- (d).A X-ray photo to show the whole length and root canal of the teeth.
- (e)The endo file should not be too big or too small to avoid cutting through the apical foramen.
- (f)Mark an anatomized symbol on the diseased tooth and memorize it on the case history. This symbol should be marked on the health bridge or on the tooth filled integrated. The position of the mark should be on the incisal edge of the anterior tooth or on the spire of the molars. For those bridge that's broken obviously, this symbol should be on the tooth surface supported by the dentin instead of on the suspended enamel.
- (g)The acute inflammation surrounding the apex has been gone and the infected material has been cleaned. It is also necessary to get rid of the pulp and necrosis tissue.

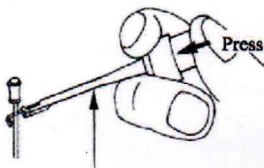
### **The following cases are not suited for a normal measurement:**

- (1)The size of the root similar to the size of apical foramen.
- (2)Bleeding or the blood overflow from the apical foramen.
- (3) The tooth crown is broken
- (4)There is a crack on the tooth root
- (5)A retreatment to an endo which was filled with condensation
- (6)There is a metal crown which has connected to the gingival.

## Operating the Unit

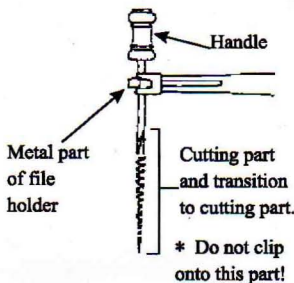


1. Press in direction of arrow with the thumb.
2. Clip file.
3. Release thumb.



File Holder

File or Reamer



## 9.Instruction

(1) Insert the plug of measuring wire into the socket in the side of main unit. Turn it on. The battery is on the left of screen.

(2) The equipment is in the normal condition. The equipment shuts down after 3 minutes without use.

(3) The volume is adjustable. Please press the volume bottom for a setting.

(4) Hang the lip hook on the hp, make sure it contact the oral mucosa as a reference electrode.

(5) Clip the file with file clip, approach to the apex, then there will be continuous alarm when the distance is less than 2mm .

### Attention:

a) When grip the root canal with a needle file, please grip the upper of the metal part (near the root canal at the needle handle). If you grip the lower part (blade or moving part), it will wear the metal part of the file folder and the resin part.

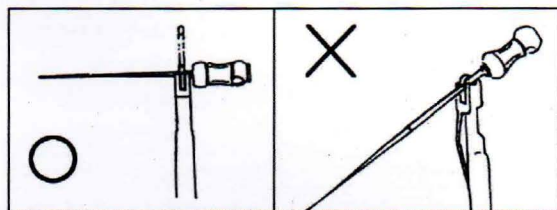
b) When measure the length of root canal, please don't use the metal needle file. If you operate the device without the dentistry glove, it will cause leakage phenomenon and result of measurement is inaccurate. Therefore, please use the resin needle file and remember don't touch the metal part with finger.

c) Please don't use the worn file clip, and it will make the result of measurement inaccurate.

d) Please reference the [Picture 18 (a)] to grip the needle file. If as [Picture 18 (b)], it can't properly measure the length of the root canal due to the improper force, and the front of the root canal pin is easy to wear.

(6) When the file reaches the apex, adjust the rubber piece set on the end of the file to the reference point (incisal edge or fossa edge), then pull out the end of the file, measure the length between the top of the file and the rubber piece, and this is the working length of the tooth. It also can use the measuring instead of file clip, when it is inconvenient to measure the back teeth.

(7) The components that touch body must be autoclaved under high temperature and high pressure. The shell and measuring wire should be cleaned every month by 75% alcohol.



**Attention:** Avoiding the silk-screen when cleaning.

## 10. After Using the Unit

(1) Turn off the unit after use.

\* The unit will automatically turn off after 5 minutes of non-use.

(2) Disconnect the probe cord from the unit and remove the file holder and contrary electrode from the probe cord.



When disconnecting and connecting the contrary electrode, probe cord and file holder, never pull or push on the cords themselves; always grip the connectors.

## 11. Operation, storage, maintenance and transportation

Operation Conditions

Environment temperature:  $+5^{\circ}\text{C} \sim +40^{\circ}\text{C}$

Relative humidity:  $<80\%$ .

Atmosphere pressure:  $50\text{kPa} \sim 106\text{kPa}$