PIEZO ULTRASONIC SCALER

# A850

## Installation, Operation & User Manual

Countertop piezo scaler with city water or on-board bottle, LED handpiece and General, Perio and Endo modes · Operation, maintenance and sterilization




**DOCUMENT**
A850 Scaler Manual · Version 2.0
November 2026 · A850-MAN-001

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## How to read this manual

**WARNING** Risk of injury or damage to the equipment. Follow exactly.

**NOTE** Information that makes the job easier or the result more reliable.

## Technical support

**(800) 560-8222**

Monday to Friday, 8:00 AM to 5:00 PM Pacific.

SECTION 01

# Overview and specifications

The A850 piezo ultrasonic scaler is for prophylaxis, periodontal and other operative dental work. It scales with a fine, warm water spray and little of the effort hand instruments need, removing stubborn calculus and stain above and below the gumline and leaving crown and root surfaces clean and smooth.

## Indications

- All supragingival and subgingival scaling
- Periodontal debridement for all types of periodontal disease
- Endodontic procedures

## How the tip moves

A piezo crystal in the handpiece moves the tip back and forth in a straight line. The + and – buttons set the stroke, and the OPTION button selects General, Perio or Endo mode.

## Electrical

| | |
|---|---|
| **Vibration frequency** | 24–32 kHz |
| **Power supply input** | 100–240 V AC, 50/60 Hz |
| **Output** | 24 V DC, 1.7 A |

## Size and weight

| | |
|---|---|
| **Dimensions** | 21.6 cm H × 28.6 cm W × 17.8 cm D (8.5 × 11.25 × 7 in) |
| **Weight** | 1.13 kg |

## Operating conditions

| | |
|---|---|
| **Temperature** | 10 °C to 40 °C |
| **Relative humidity** | 30% to 75% |
| **Pressure** | 700 to 1060 hPa |

## Transport and storage

| | |
|---|---|
| **Temperature** | –10 °C to 70 °C |
| **Relative humidity** | 10% to 90% |
| **Pressure** | 500 to 1060 hPa |

## Standards

Conforms to IEC 60601-1-2:2001 and IEC 60601-1-1:2000. TPC's quality system is certified to ISO 9001 and ISO 13485. CE marked under the Medical Device Directive 93/42/EEC.

GETTING STARTED

# Safety and precautions

⚠ **WARNING** Not suitable for use in the presence of a flammable anesthetic mixture with air or with nitrous oxide.

⚠ **CAUTION** U.S. federal law restricts this device to sale by or on the order of a dental professional.

## Contraindication

Do not use ultrasonic systems for restorative procedures that involve condensing amalgam.

## Before each use

Check the case, power cord, handpiece cable, power inlet, water bottle, light source and handpiece holder. If the case is broken or any insulation is damaged, stop and return the unit to your dealer.

## During use

- Keep water flowing to the handpiece the whole time.
- If the handpiece overheats, check the water supply and let the unit rest.
- Use only compatible tips with the EMS (E) or Satelec (S) designation. Start each tip by hand before tightening it with the tip wrench, to check it is the right thread.
- Limit dry running, as for any piezo scaler.

## Precautions for all systems

- Keep the unit away from radiators and other heat sources, with air free to circulate around and under it.
- The unit is portable, but handle it with care when moving it.
- Flush the equipment and maintain the dental water supply regularly.
- Close the water shut-off valve to the unit every night. An in-line water filter is recommended.

ⓘ **TIP WEAR** Tips wear like a toothbrush. A tip with just 2 mm of wear loses about 50% of its scaling efficiency. Replace tips after about a year of use to keep them efficient and avoid breakage; use the included tip wear chart as a guide.

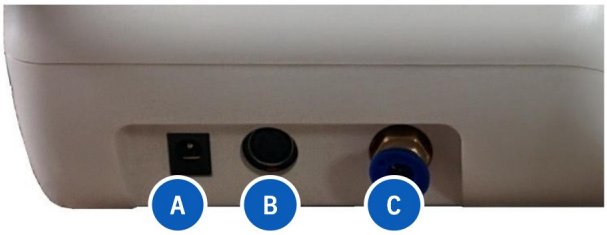
SECTION 02

# Water supply, unpacking and connections

If someone other than a trained TPC distributor installs the unit, follow these requirements.

## Water line

- The unit's water supply line is factory installed. Do not disconnect it from the unit.
- Supply pressure must be 1 to 4 bar (14.5 to 58 psi). Above 58 psi, fit a pressure regulator.
- Fit a manual shut-off valve so the water can be turned off when the office is empty.
- Flush the office water line thoroughly before connecting the unit.
- Or fill the on-board bottle with purified water.




## In the box

1. A850 unit with water supply line and handpiece with cable
2. Detachable power supply with power cord
3. Foot switch with cable
4. Autoclavable handpiece
5. Ultrasonic tip and tip wrench
6. Flexible water tube for the water supply, 1.8 m
7. Water bottle

## Connections

**A** **Power input**
24 V DC from the power supply.

**B** **Foot switch connector**

**C** **Water inlet**
Push-fit connection for the city water line.

SECTION 03

# Controls




**A** **ON/OFF**
Turns the unit on. The indicator lights when it is on.

**B** **WATER**
Selects the water source: city water, bottle or dry. The lights show the choice.

**C** **OPTION**
Selects General (G), Perio (P) or Endo (E) mode.

**D** **– / +**
Lowers or raises the scaling power.

**E** **Power level**
The bar shows the power setting.

**F** **Water bottle**
Fill with purified water or a medicament solution.

**G** **Water knobs**
**Tap symbol:** flow control from the city water inlet; clockwise reduces flow, counterclockwise increases it. **Bottle symbol:** pump speed for bottle water. Lower flow gives warmer lavage.

**H** **Handpiece and holder**
The handpiece drives the tip and carries the lavage; the holder keeps it secure when not in use.

OPERATION

# Using the scaler

1. **Connect** the foot switch, power supply and, if used, the water line to the back of the unit.
2. **Choose the water source:** fill the bottle, or connect the city water line.
3. **Fit a tip:** start it by hand, then tighten it with the tip wrench. Connect the handpiece to the front socket.
4. **Turn the unit on** with ON/OFF and press WATER to select City, Bottle or Dry.
5. **Select a mode** (General, Perio or Endo) with OPTION.
6. **Set the power** with – and +.
7. **Press the foot switch** to start. Adjust the water flow with the knob on the side.

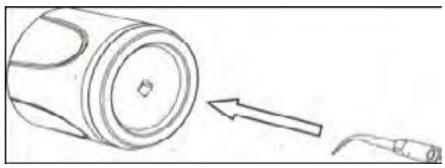


**Fig. 1** Thread the tip in by hand, then tighten it moderately with the tip wrench. Do not overtighten.

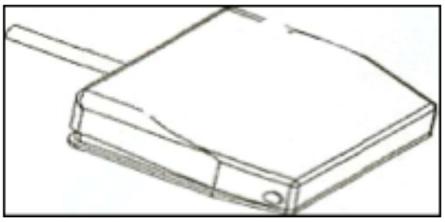


**Fig. 2** Foot switch released: ultrasonic action and water stop

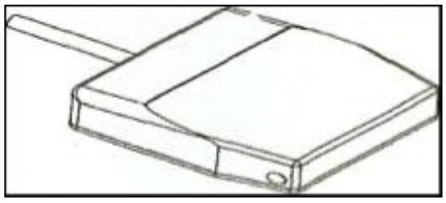


**Fig. 3** Pressed fully: the tip vibrates and water flows

## Connecting and removing the handpiece

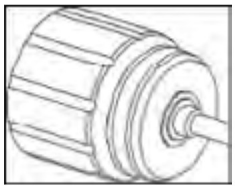


**Fig. 4** Cable connector

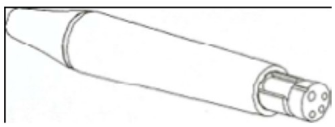


**Fig. 5** Handpiece

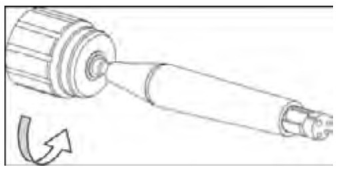


**Fig. 6** Twist to connect or remove

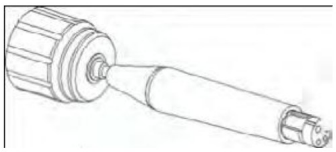


**Fig. 7** Connected

**TIP** Rinse the connector O-ring with a little water before connecting the handpiece to the cable. It makes the O-ring last longer.

SECTION 04

# Daily maintenance

Clean and disinfect the outer surfaces: cabinet, water bottle, knobs, power cord, handpiece cable, foot switch and its cable. Clean and sterilize the handpiece and tips.

## Start of the day

1. Fill the bottle with purified water or a medicament solution, or connect the water line, and select the source with WATER.
2. Connect a sterilized handpiece to its cable.
3. Hold it over a sink, set the power to low, press the foot switch and flush the water line at maximum flow for at least **2 minutes**.
4. Fit a freshly sterilized tip.

## Between patients

1. Remove the used tips and handpiece; clean and sterilize them (page 9).
2. Wipe down the surfaces with an approved non-immersion disinfectant, following its maker's instructions: spray it on a clean towel, wipe, discard the towel, and let it air dry.
3. Connect a handpiece, hold it over a sink and flush at maximum flow for **30 seconds**.
4. Fit a freshly sterilized tip.

## End of the day

1. Remove the used tips and handpiece; clean and sterilize them.
2. Clean and disinfect the surfaces as between patients.
3. Close the water shut-off valve to the unit.

**DISINFECTANTS** Water-based disinfectants are preferred. Some alcohol-based ones can damage or discolor plastic.

CARE

# Sterilization

## Tips

1. If needed, rinse the tip under water to remove debris. Do not use cleaning or disinfecting solutions, including ultrasonic cleaning solutions.
2. Seal the tip in a paper or paper/plastic steam pouch, paper side up.
3. Autoclave at **134 °C / 216 kPa (273 °F / 31 psi) for 12 minutes**, then dry for 20–30 minutes.
4. Keep the tip in the sealed pouch until use.

## Handpiece

1. Wipe it with a cloth soaked in instrument cleaner, rinse it with water and dry it with a clean cloth.
2. Disconnect it from the cable and remove the tip.
3. Autoclave at **134 °C for 12 minutes**, then dry for 20–30 minutes. Remove it as soon as the cycle ends.
4. Dry the electrical contacts of the handpiece and cable connector before reconnecting.

⚠ **CAUTION** Do not use cold sterilization solutions. Do not use chemical disinfectant before sterilizing; it can quickly damage the materials. Do not sterilize the handpiece cable.

## Replacing the LED

1. Remove the tip.
2. Unscrew the nipple counterclockwise and remove it.
3. Pull out the LED cartridge and insert a new one, with its pins aligned.
4. Refit the nipple and the tip.

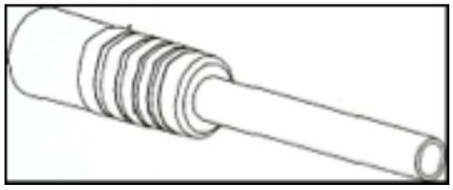


Fig. 8 Handpiece nipple

SECTION 05

# Accessories and support

## Accessories

1. Switching power supply with power cord
2. Tips and tip wrench
3. Foot switch
4. Sterilizable box
5. Water tubing with connector
6. Handpiece
7. User manual
8. Water bottle

### Technical support

**(800) 560-8222**

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