

- 7) **Recontour Edentulous Ridges**—Removal of redundant soft tissue makes impression taking and fitting complete and partial dentures more accurate and comfortable. Ideal for preparation of ovate pontic sites. Electrode recommendations: #T2; T5; #T8; #T16; #P4.
- 8) **Removal of Hyperplastic and Hypertrophic Tissue**—Ideal in case of medication-induced gingival hyperplasia. Electrode recommendations: #T2; #T5; #T8; #T16; #P4.
- 9) **Pericoronitis**—Fast, easy removal of pericoronal tissue above partially-erupted third molars. Electrode recommendations: #T5; #T8; #T16.
- 10) **Performing Gingivectomy or Gingivoplasty**—Predictably reduce depth of shallow periodontal pockets. Electrode recommendations: #T2; #T5; #T8; #T16; #P4.
- 11) **Frenectomy**—Relieve excess muscle tension and tissue pull and improve esthetics. Electrode recommendation: #T2.
- 12) **Exposing Teeth with Delayed Eruption**—Allow orthodontic eruption to proceed. Electrode recommendations: #T2; #T5; #T8; #T16.
- 13) **Performing Tissue Biopsy**—Controlled removal of suspect lesions with minimal tissue damage. Electrode recommendations: #T2; #T5.
- 14) **Exposing Pre-Placement Implant Sites**—Clean, smooth gingival incisions with control of bleeding for fast exposure of the implant placement site. (IMPORTANT: AVOID CONTACT WITH THE BONE.) Electrode recommendations: #T2; #T8; #T16.
- 15) **Periodontal Flaps**—Controlled, sharp incisions for better healing. Electrode recommendation: #T2.
- 16) **Controlling Bleeding of Nicked Gingival Papillae**—For accurate impressions after crown preparation. Electrode recommendation: #P4.
- 17) **Reshaping of Gingival Sulcus into Healthy U-shape**—After crown preparation. Electrode recommendation: #P4.



**parkell***inc.*

300 Executive Drive, PO Box 9004, Edgewood, NY 11717 • Phone: 631-249-1134  
 Fax: 631-249-1242 • Web: [www.parkell.com](http://www.parkell.com) • Email: [info@parkell.com](mailto:info@parkell.com)

**EC REP** European Authorized Representative: (Not a dealer/distributor)  
 EMERGO EUROPE, Molenstraat 15, 2513 BH, The Hague, The Netherlands  
 Tel: +31 (0)70 345 8570 Fax: +31 (0)70 346 7299

**CAUTION**

Federal Law restricts this device to sale by or on the order of a properly licensed practitioner.

**parkell***inc.*



**IMPORTANT—READ FIRST**

This manual, in whole or in part, should not be considered a substitute for formal training. Appropriate education in the use of electrosurgical procedures is **REQUIRED** prior to undertaking any procedures on patients.

**DEVICE DESCRIPTION**

The Sensimatic™ 700SE Electrosurge is a solid-state dental electrosurgery unit. It features a low-impedance, high-frequency output not found in older, vacuum tube-based electrosurgery units. Once set for the case at hand, the device adjusts for changes in tissue thickness automatically, to compensate for different resistance encountered in the soft tissue being treated.

**INTENDED USE/INDICATIONS**

Model 700SE is useful in restorative and operative dentistry, as well in the performance of oral surgery, periodontics, orthodontics, endodontics, prosthodontics, and crown and bridge procedures.

From the dozens of uses cited in current literature, here are some areas where electrosurgery has proven useful in the practice of general dentistry.

- For impression taking, to gain access to margins of prepared teeth or to remove interproximal tissue.
- To extend the clinical height of crowns.
- Gingivectomy.
- Removal of pericoronal tissue on 3rd molars.
- Biopsy.
- To reduce and remove swollen and hypertrophied gum tissue around the necks of teeth, to gain better access and visibility.
- To plane tissue of edentulous region prior to making impressions for prosthodontics.
- Control of bleeding prior to cementation or other restorative procedures.
- Incision, excision, drainage or coagulation of minor periodontal conditions.
- Exposure of unerupted teeth.
- For surgery with antisepsis and hemostasis.
- Implant surgery—**IMPORTANT NOTE:** Although electrosurgical devices allow clean, smooth incisions with lessened bleeding, they are recommended only for first-stage, implant placement surgery. Metal implants should not be touched with an active electrode. Therefore, use of these devices in later stages of implant surgical procedures is to be avoided.

**CONTRAINDICATIONS**

- Do not use this device around persons wearing a pacemaker or other implantable electronic devices.

## **WARNING**

- Always exert caution during use. Electrosurgery units are designed to allow controlled destruction of soft tissue and must be used carefully.
- Do not use in any situation where the electrode will touch metal restorations, implants, bone or teeth as this may result in electric shock, bone necrosis or implant rejection.
- Stop use immediately at the first sign of tissue blanching and avoid prolonged tissue contact. Allow tissue to cool for an appropriate interval between cuts. Excessive exposure may retard healing and cause sloughing.
- Do not use in the presence of flammable or explosive gases. Use of dental nitrous oxide/oxygen analgesia is acceptable. Solvents of adhesives should be allowed to evaporate before the use of electrosurgery. Some material may be ignited by sparks produced in normal use of the equipment (for example, cotton wool and gauze when saturated with oxygen). Endogenous gases may be ignited by electrosurgery.
- The unit should not be immersed in water or other liquids. Avoid placing where it can fall or be pulled into liquid. Do not reach for the device if it has fallen into liquid. Do not use the device after it has fallen into liquid. Return it to Parkell for servicing.
- Do not open the case of the unit—there are no user serviceable parts inside.
- Do not modify this device. Modification may violate safety codes and endanger patient and operator. Any modification will void the warranty.
- Interference produced by the operation of high frequency surgical equipment may adversely influence the operation of other electrical equipment. In case of interference, de-energize unit and increase distance to susceptible equipment. Connection to a different power circuit may also reduce interference.

## **PRECAUTIONS**

**Caution:** Do not operate the electrosurgery unit without using the patient indifferent pad. The pad should not touch the patient's bare skin, but should always have a thin layer of clothing between it and the skin.

**Caution:** Always turn power off before touching the electrode. After locking the electrode in the handpiece, examine it carefully to assure that the metal shaft is fully seated with no metal exposed.

**Caution:** Be sure the handpiece, cable and electrodes are completely dry before using. Inspect the handpiece and cables regularly to ensure their integrity.

**Caution:** Before each use, inspect the electrode to assure that the plastic sheathing (insulation) covering the metal shaft is intact. Do not bend the electrode where it is insulated, as this may crack the plastic sheath.

**Caution:** Release footswitch before inserting or removing the handpiece from the patient's mouth.

**Caution:** Do not allow cables to be coiled or twisted around metal objects.

## **Individualization of treatment**

If patient or operator is pregnant, has diabetes or a bleeding disorder, or is undergoing therapeutic radiation treatment, or has any significant medical condition where uncertainty exists, consult with their physician prior to use of electrosurgery.

## **Conformance to Standards**

The Sensimatic 700SE Electrosurge is ETL listed and conforms to IEC 60601-1, 60601-1-2 and 60601-2-2. Parkell's quality system is certified to ISO9001/ISO13485. Certified to CAN/CSA C22.2 No. 601.1. The device is CE marked—certified to European Medical Device Directive (93/42/EEC).

## **HOW SUPPLIED**

- Sensimatic power unit with foot switch
- 2 Self-stick handpiece holding clips
- Patient indifferent plate and cable
- 6 Electrodes
- AC power cord
- Surgical handpiece and cable
- Operator's manual

## **SERVICE AND PARTS**

Within the U.S., all repairs must be made by Parkell. Outside the U.S., repairs must be made by a Parkell-authorized facility.

Complete service and parts facility exists at Parkell, Inc., 300 Executive Drive, Edgewood, N.Y. 11717. Equipment needing service should be returned, freight pre-paid via United Parcel Service and insured for original purchase price. Include unit with all accessories, except electrodes. Ship in original carton. Add plenty of cushioning material and overbox to protect your unit during shipping. Storage & transit: Keep dry between 50°-110°F (10°- 43°C).

## **WARRANTY REGISTRATION**

If you purchased this product directly from Parkell, your product is already registered with us. Your invoice is your "Warranty Registration" receipt.

If you purchased this product from a dealer, please register your product via the internet at [www.parkell.com](http://www.parkell.com). Click on the "Product Registration" button on the Home Page and fill out the online registration form. Please print out a copy of the "Warranty Registration" page for your records.

Electrodes are meant to be periodically replaced and as such are not covered by the warranty.

## **REPLACEMENT PARTS**

Part No. D633, Electrode Handpiece with cable

Part No. D635, Patient Indifferent Plate with cable

Replacement electrodes are available by contacting Parkell Customer Service at 800-243-7446, or on our website at [www.parkell.com](http://www.parkell.com).

## **INTERCHANGEABLE DENTAL ELECTRODES** (not shown to actual size)



T2—Scalpel Point



T5—Large Loop



T8—Vertical Loop



T16—Horizontal Loop



C3—Hemostasis Ball



AP 1.5—Troughing Point



P4—Proximal Hemostasis

## **SUGGESTED ELECTRODES FOR SPECIFIC APPLICATIONS**

- 1) **Access to Subgingival Caries**—Removal of gingival tissue provides a clean, dry restorative field. Electrode recommendations: #T2; #T8; #T16.
- 2) **Cementing Restorations**—Removal of tissue tags and control of bleeding for more retentive cementation. Electrode recommendations: #T5; #T8; #T16.
- 3) **Bleeding Control and Coagulation**—Makes impression taking, cavity preparation, restoration insertion, and all operative and crown and bridge procedures easier. Amount of hemostasis depends on tissue health. Electrode recommendations: #C3; #P4.
- 4) **Widening Gingival Sulcus**—Provides space for impression material beyond prep margin for more accurate impression taking. Electrode recommendations: #AP 1.5; #P4.
- 5) **Lengthen Clinical Crowns**—Salvage "unsalvageable" teeth by creating workable clinical crown length in endodontic, prosthodontic, and operative procedures. Electrode recommendations: #T2; #T8; #T16.
- 6) **Esthetic Tissue Contouring**—Improves smiles by altering gingival heights for a more esthetic appearance. Electrode recommendations: #T2; #T8; #T16.

## COMMON CLINICAL PROBLEMS AND THEIR CAUSES

- 1) Excessive elimination of tissue or excessive thinning of a gingival collar
  - a. Improper electrode selection (e.g. using a wide loop electrode on the labial surface of lower anterior teeth where a straight needle electrode is indicated).
  - b. Power set too high.
  - c. Poor surgical technique or case selection.
- 2) Dragging electrode action (even at the recommended dial setting)
  - a. Dirty electrode.
  - b. Excessively dry field.
  - c. Too deep tissue penetration (more than 2mm).
  - d. Failure to use the indifferent plate.
  - e. Inadequate contact between the patient and indifferent plate (sometimes due to extra thick clothing).
  - f. Impediment at site of contact.
  - g. Power set too low.
- 3) Retarded healing or tissue sloughing
  - a. Power set too high.
  - b. Dirty electrode.
  - c. Electrode penetration too deep.
  - d. Electrode movement not controlled well by operator (e.g. motion too slow, erratic electrode motion, staying too long in one spot, picking or pecking at tissue). Use a constant, controlled, even motion.
  - e. Poor moisture control—operative site must be moist, but not too wet.
  - f. Poor surgical technique or case selection.

## CLEANING & STERILIZATION

- 1) **Sensimatic power unit** may be wiped clean with pads or wipes moistened with 70% ethyl alcohol or a surface disinfectant after unplugging the unit. Assure that it is thoroughly dry before use. Warn auxiliary personnel not to wet or attempt to sterilize the power unit itself.
- 2) **Cables, Handles and Indifferent Plate** can be kept clean by washing with soap and water or wipe with pads or wipes moistened with 70% ethyl alcohol or a surface disinfectant. Knots, kinks, curls or sharp bends in cables are to be avoided. Make sure these parts are completely dry before each use. Occasional attention should be given to electrical contacts to assure that they are clean and free of film or corrosion. **DO NOT** dry heat sterilize the accessories.
- 3) **Electrodes** should be thoroughly cleaned by hand with pads or wipes moistened with 70% ethyl alcohol or a surface disinfectant after each use, making sure all deposits and debris are removed from the tips. An ultrasonic cleaner may be used after wiping by hand. Failure to properly clean electrodes prior to autoclaving can result in ineffective sterilization. If carbon deposits cannot be easily removed, fine sandpaper or a rotary wire wheel can be carefully used to re-expose the shiny metal.

The electrodes should be sterilized in a steam autoclave after each use. Steam sterilization should be carried out by standard autoclave (gravity displacement) cycle at 250°F (121°C) for 30 minutes at 15 psi. **DO NOT** sterilize electrodes in dry heat.

- 4) **The handpiece with attached cable** can also be autoclaved using the same procedure as the electrodes.

## MAINTENANCE

To assure continuing proper performance from your Sensimatic 700SE, it should be returned to Parkell, freight pre-paid, at least once every 24 months for inspection. There will be a moderate charge for this service.

## SPECIFICATIONS

**Power Requirements:** Line Voltage: 117 Volts  $\pm$  10% AC, 60 Hz, 2 amps maximum  
Optional 220 Volts  $\pm$  10%, 50/60 Hz, 1.2 amps maximum

**Fuses:** 2.5A, 120/230V, Type T (Both line and neutral fused)

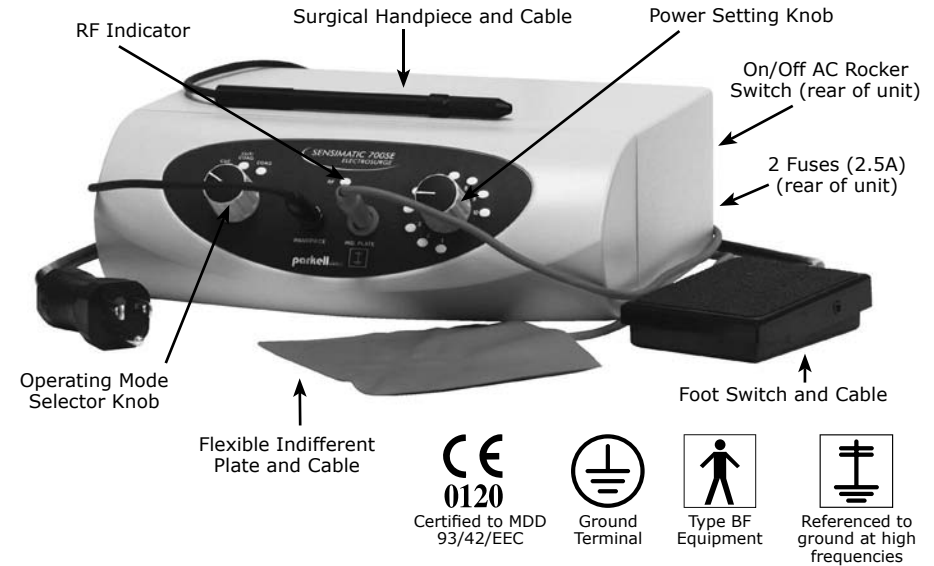
**Operating Frequency:** 1.4 -1.7 MHz (megahertz)

**Maximum Power Output:** 50 Watts rms (@ 400 Ohm load) approximate

**Maximum Output Voltage (no load):** 300 Volts rms

**Size:** 3 1/4" H x 7 3/4" D x 9 1/4" W (83mm x 191mm x 235mm)

**Weight:** 6.1 pounds (2.8 kg)

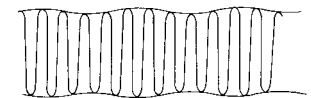


## HIGH FREQUENCY (RF) OUTPUT MODES

The Sensimatic generates 3 different high frequency waveforms. Each has differing surgical characteristics, which cause different histological effects on soft tissue.

### • RF Mode No. 1—“CUT MODE” (cutting with least coagulation)

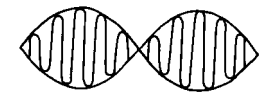
A filtered, unmodulated current for cutting with the least amount of coagulation. Suited for closed wound surgery where incisions will be sutured. Fulguration (also called “Spark Gap Current”) is available using Mode No. 1, with a power setting of 8 or higher. In dentistry, fulguration is mostly used to vaporize small, hyperplastic tissue tags from around crown margins prior to impression taking.



*Fully rectified, fully filtered.*

### • RF Mode No. 2—“CUT/COAG MODE” (cutting with balanced coagulation)

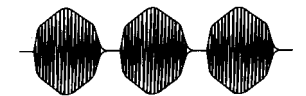
A fully rectified, modulated, undamped current for cutting with coagulation when control of bleeding is desired. It is the most widely employed current in dentistry and is suited for cutting procedures where incisions will not be sutured.



*Fully rectified, unfiltered.*

### • RF Mode No. 3—“COAG MODE” (full coagulation without cutting)

A partially-rectified current for coagulation without cutting. This waveform has been found most effective for precise pin-point surface coagulation with minimal tissue destruction.



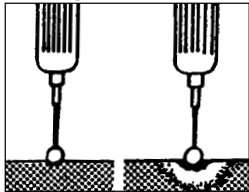
*Partially rectified, unfiltered.*

## **INSTRUCTIONS FOR USE**

### **Connecting the unit:**

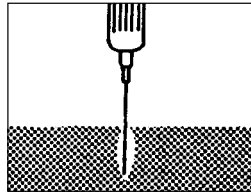
- 1) Locate the device where it will be convenient. Make sure the AC power rocker switch in the rear of the unit is in the OFF position before connecting the power cord. Plug power cord into the back of unit and then plug the power plug into a grounded electrical outlet. NEVER OPERATE THE UNIT WITHOUT COMPLETE AND PROPER GROUNDING.
- 2) Plug the patient indifferent plate and surgical handpiece into the matching color-coded outlets on the front panel.
- 3) The patient indifferent plate must be used for all dental procedures. The entire area of the dispersive electrode should be placed in firm, nonconductive contact with the patient, preferably against the patient's upper back, contacting the maximum possible area. Do not place the indifferent plate in contact with bare skin. Do not attach the indifferent plate to metal frame of chair. The patient, operator or assistant should not come into contact with metal parts, such as metal arm rests of chairs. Use only non-conducting (plastic) instruments (mirror, retractor, saliva evacuation tube, etc.) when performing procedures.
- 4) Make sure the unit is turned off before touching or changing electrodes. Select the appropriate electrode for the procedure and make sure the metal electrode is clean, and that the plastic sheathing (insulation) is in good condition. Insert electrode into surgical handpiece, making sure it is fully seated with no metal shaft exposed. Turn the collar of the handpiece until electrode is locked in place.
- 5) Push the AC rocker switch on the rear of the unit to the ON position. Turn the mode selector knob on the front panel from OFF to the chosen operating wave form and the power output knob to select the power for the case at hand. The appropriate indicator LEDs will light to show that the unit is on. Always verify settings before using.
- 6) Operating the Unit:
  - a. Always verify power settings before use.
  - b. Use the lowest possible power setting for the procedure at hand. Once the power is set, the 700SE's power output is adjusted automatically by the unit in response to the tissue condition at the operative site. This eliminates the need for repeated minor power adjustments.
  - c. For coagulation with ball electrodes, an appropriate initial power setting is "3". Coagulation is related to the length of time the electrode is in contact with the tissue, the size of the electrode, the circular or spotting motion used during tissue contact and the power level. Whitish blanching at the site indicates coagulation has occurred.
  - d. For incisions using needle-type electrodes, an appropriate initial power setting is "4".
  - e. For excisions using small loop-type electrodes, an appropriate initial power setting is "5".
  - f. When using larger loop electrodes, an appropriate initial power setting is "6".
  - g. For fulguration (carbonization of tissue), use mode #1. An appropriate initial power setting is "8".
  - h. If a clean electrode drags during cutting, or if hemostasis does not occur during coagulation, increase the power to the next higher setting until desired therapeutic results are achieved.

**For Coagulation—**



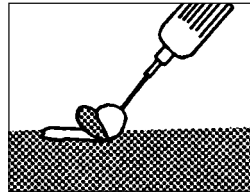
**Use ball electrodes  
(Start at about No. 3)**

**For Incisions—**



**Use needle electrodes  
(Start at about No. 4)**

**For Excisions—**



**Use loop electrodes  
(Start at about No. 5)**

- 7) Good hand support and finger rests are necessary before tissue is contacted. To activate the handpiece, assure that the electrode is safely positioned within the surgical field and depress the foot pedal. When the handpiece is active, the green RF indicator LED will light and an audio tone will sound.
- 8) Tissues being operated upon should ALWAYS be slightly moist to dissipate heat and maintain conductivity. However, excess moisture will lessen effectiveness and may cause patient discomfort. The right moisture balance makes for the best treatment.
- 9) Local anesthesia is indicated for all electrosurgical treatment.
- 10) To avoid minor shocks, use only non-conducting (plastic) instruments (mirror/retractor, saliva evacuation tube, etc.) when performing electrosurgical procedures.
- 11) Operate with the electrode tip as perpendicular as possible to the plane of surgical intervention. Keep the electrode in constant, controlled, uninterrupted motion. Cut with a light, smooth, even stroke. Avoid electrode penetrations of more than 1mm in depth. For deep incisions, make repeated shallow penetrations with a back and forth, wiping stroke, and allow approximately 10 seconds between incisions for the tissue to cool.
- 12) Periodically wipe carbonized tissue tags from the electrode with an alcohol-moistened wipe, making sure to de-energize the unit first by removing your foot from the foot pedal. The electrode must be clean to maximize the precision of the incision.
- 13) Familiarize yourself with the use of the Sensimatic 700SE Electrosurge by practicing on a fresh piece of moist, lean beef or pork at room temperature. Cover the indifferent plate with a plastic bag and place the meat directly on top of it. Work in a well ventilated area to avoid breathing the cutting fumes.

### **IMPORTANT INFORMATION ABOUT ELECTRODES**

- ALWAYS TURN THE POWER UNIT OFF BEFORE TOUCHING OR CHANGING ELECTRODES, AND KEEP YOUR FOOT OFF THE FOOT PEDAL DURING THIS PROCEDURE.
- Before each use, make sure the plastic insulation sheathing covering the electrode is completely intact. Replace the electrode if damaged. Check the integrity of the handpiece and cable at this time as well.
- Make sure the electrode is fully seated in the handpiece (with no metal shaft exposed) and is locked in the handpiece.
- DO NOT BEND THE METAL SHAFT OF THE ELECTRODE, as you may damage the plastic insulation sheathing. If you want to alter the shape of the bare metal cutting portion of the electrode, do so only before its first use by bending the cutting wire at the end of the electrode away from the start of the insulation, using the appropriate orthodontic plier, to avoid nicking or breaking the wire.
- Electrodes must be kept spotlessly clean. Dirty electrodes will impair their function, and cause unnecessary tissue damage. Between uses, wipe electrodes clean with an alcohol-moistened pad to remove charred tissue.
- While electrodes may be autoclaved several times, they are a consumable item, and are meant to be periodically replaced. They are not covered by the warranty.

### **ODOR CONTROL**

Clinical use of electrosurgery generates fumes from the tissues being treated, which will create unpleasant odors in the operatory. This should be explained in advance to the patient. Use of high volume oral evacuation equipment by the dental assistant during surgery will remove most of the odor. Air fresheners sprayed in the room prior to surgery will also help to minimize odors. You may also find it helpful to apply a small dab of mentholated petrolatum ointment (e.g. Vicks® VapoRub®) on the upper lip of the patient to mask odors.