

SMART 3

Western Surgical

INSTRUCTION & SERVICE MANUAL

Electro Surgical Generator

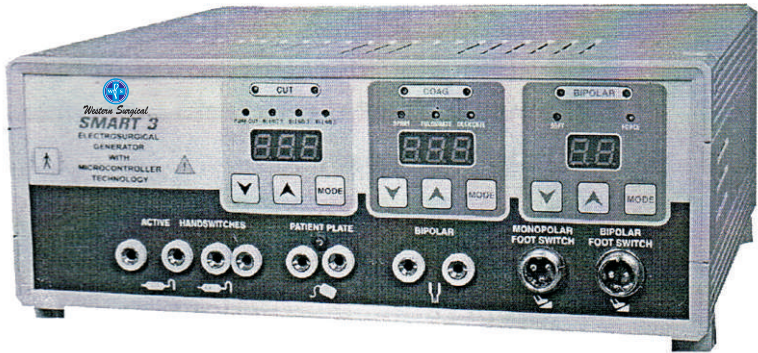


www.westernsurgical.in

Email : westernsurgical@gmail.com

Email : info@westernsurgical.in

Ph. : +91-281-2232871 / 2243159



SMART 3

Sr. No.....



Western Surgical

www.westernsurgical.in
Email : westernsurgical@gmail.com
Ph. : +91-281-2232871 / 2243159

Contents

1. GENERAL INFORMATION.....	2
1.1. introduction	2
1.2. scope	2
2. INSTALLATION	3
2.1. unpacking and handlings	3
2.2. pre-installation requisites for solid state electrosurgical unit	4
2.3. environmental requirements.....	5
3. SALIENT FEATURES.....	6
3.1. operating controls (front view)....	7
3.2. operating controls (rare view).....	9
3.3. operating instructions.....	10
3.4. accessories	12
3.5. smart 3 performance related to surgical speciality	13
4 ELECTROSURGICAL SAFETY TIPS	15
4.1. preventive maintenance.....	16
WARRANTY CERTIFICATE.....	17



Western Surgical

www.westernsurgical.in

Email : westernsurgical@gmail.com

Ph. : +91-281-2232871 / 2243159

1. GENERAL INFORMATION

1.1. INTRODUCTION

- ◆ Solid State Electro Surgical Unit
- ◆ Model: *SMART 3*
- Operating Manual

Thank you for purchasing the EASE's *SMART 3* model. To use the generator properly and to get the best from it carefully read this operation manual. After reading the manual, we suggest you to keep it in a convenient place for quick reference.

In order to instruct the user of an **Electro Surgical Generator** of the capabilities and limitations of his Generator a Greater deal of information must be provided. The user must be given more than the facts and specifications. Ideally he should be given a complete understanding of this equipment so he can use the generator in all situations and recognize potential hazards before they occur.

Taking into consideration all the above factors we have tried to make this manual more user friendly.

1.2. SCOPE

- Congratulations

Our *SMART 3* is the most versatile Electro Surgical Generator. It's a non-programmable model with basic cut, coag, and bipolar modes with capability of doing most of surgeries with lowest price.

The *SMART 3* has pure cut is exceptionally smooth and starts promptly even in irrigated procedures. The blend gives a good Hemostasis effect than cutting & the spray coagulation which rivals the best spark gap generators and with minimum cutting effect. The isolated bipolar output, which has a non-sparking characteristic, is ideal for microsurgery, Neuro Surgery, Laproscopy and other applications.

SMART 3 meets the surgeon's needs in the wide range of general procedures and in specialties including Gynecology, Urology, Neurology, Thorasic, Plastic and Reconstructive Surgery.

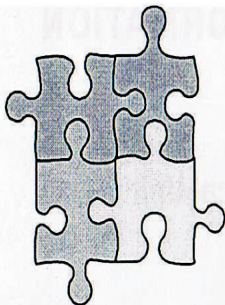


Western Surgical

www.westernsurgical.in

Email : westernsurgical@gmail.com

Ph. : +91-281-2232871 / 2243159



2. INSTALLATION

2.1. UNPACKING AND HANDLINGS

Carefully unpack the package and remove SMART 3 from its packing material, observes for the mechanical damage. Return the instrument if any mechanical defect is observed. Check the SMART 3 as per checklist to ensure receiving of all accessories.

Accessories

1. Monopolar and Bipolar Footswitch.
2. Stainless steel patient plate
3. Cord for patient plate.
4. Monopolar chuck handle.
5. Set of Reusable Electrode.
6. Bipolar Forceps with cord.
7. Disposable hand switch pencil



Western Surgical

www.westernsurgical.in

Email : westernsurgical@gmail.com

Ph. : +91-281-2232871 / 2243159

2.2. PRE-INSTALLATION REQUISITES FOR SOLID STATE ELECTROSURGICAL UNIT

Electrical requirements

- i. This machine has inbuilt switch mode power supply (SMPS), so there is no need of any external power supply to be connected. Use 230v single-phase $\pm 10\%$ power supply.
- ii. Operating room should have a good clean grounding (Earthing). Use of copper wire as grounding cable is recommended.
- iii. All 3-pin sockets (5 Amps or 15 Amps) on power supply board should have 3rd pin grounding connection (marked as "E" on socket and plug). Periodic checking of this Earthing is essential.
- iv. Voltage between neutral and earth (ground) terminals of power supply board should be less than 1.8 volt as per specifications.
- v. If this low voltage limit is not achievable easily, then use of ultra isolation Transformer (in addition to voltage stabilizer) is recommended. Isolation transformer ensures proper electrical isolation together with a separate clean grounding.
- vi. All operation tables in the theatre should be permanently grounded. Use good quality copper wire for this purpose.
- vii. The earth terminal cable or grounding cable should not be connected to patient plate either directly or indirectly. Patient plate should not have contact with any grounded object including operation table.





2.3. ENVIRONMENTAL REQUIREMENTS

- i. Operating room should have adequate number of air conditioning unit to ensure proper low temperature and humidity depending upon surgical specialties.
- ii. If A/C units are not working, air-circulating fans should be directed towards surgical diathermy unit to dissipate the generating heat.
- iii. Use only electrically conductive jelly specifically recommended for radio frequency applications. (550K c/s suitable for other diagnostic applications.)
- iv. Periodic inspection and checking the working of patient protection circuit is recommended if provided. (Preferably after every 4 months interval).
- v. Use and avoid spilling of proper solution over and near by the patient plate.
- vi. Check cable connection of metal plate with Diathermy unit every day. Loose connections if any should be tightened immediately.
- vii. Refer to safety tips and preventive maintenance notes, enclosed in manual.



Western Surgical

www.westernsurgical.in

Email : westernsurgical@gmail.com

Ph. : +91-281-2232871 / 2243159

3. SALIENT FEATURES

- Body Protected and cardiac protected design.
- Three modes in CUTS
- **Pure cut** with BLEND 1, BLEND 2 & BLEND 3 modes to give a surgeon, varying degree of hemostasis while cutting.
- Two Modes of coagulation
- **Spray** - Mode offers massive & rapid non-contact coagulation
- **Fulgurate** - To provide effective non-contact coagulation from distance, mainly appreciated by Urosurgeons and cardiovascular surgeons.
- **Desiccate** - mode delivers better coagulation with less depth of tissue necrosis. →Fulguration - →spray- To facilitate contact coagulation for precise control of individual bleeder.
- Separates Monopolar and Bipolar mode with individual foot-switches.



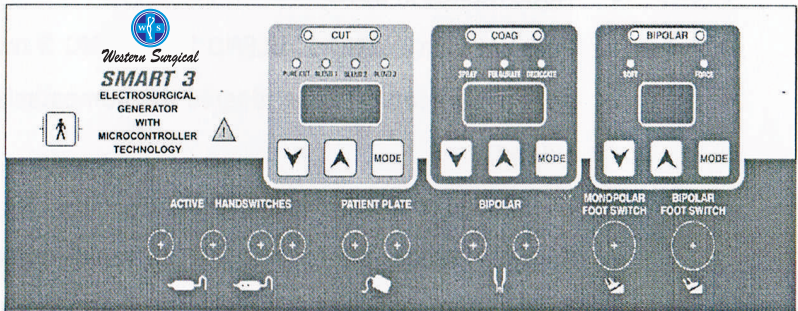
Western Surgical

www.westernsurgical.in

Email : westernsurgical@gmail.com

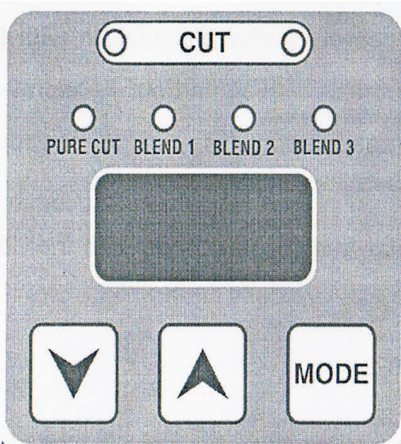
Ph. : +91-281-2232871 / 2243159

3.1. OPERATING CONTROLS (FRONT VIEW)



CUT MODE:

◆ CUT- In cut there are four modes.



- PURE CUT - Pure cut with lowest level of hemostasis.
- BLEND 1 - Cut with minimum level of hemostasis.
- BLEND 2 - Cut with Average level of hemostasis.
- BLEND 3 - Cut with aximum level of hemostasis



Western Surgical

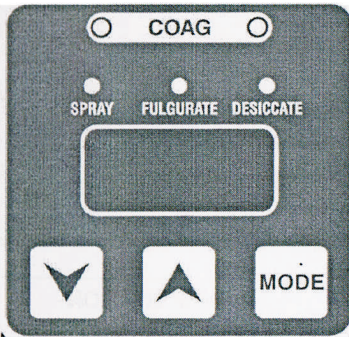
www.westernsurgical.in

Email : westernsurgical@gmail.com

Ph. : +91-281-2232871 / 2243159

COAG MODE

◆ **COAG Mode** : In coag there are three modes.

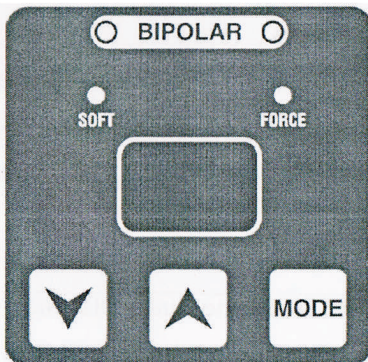


- **SPRAY** - Mode offers massive & rapid non-contact coagulation
- **FULGURATE**- To provide effective non-contact coagulation from distance, mainly appreciated by Urosurgeons and cardiovascular surgeons.
- **DESICCATE**- mode delivers better coagulation with less depth of tissue

necrosis.

BIPOLAR MODE

◆ **BIPOLAR Mode** - In bipolar there are three modes.



- **SOFT** - for highly precise control over coagulation process and privations of carbonization.
- **FORCE** - High voltage force coagulation for special purpose when speed is required CUT-Bipolar CUT technology lets you nearly eliminate excessive current, even

during precision cutting in minute tissue structure.



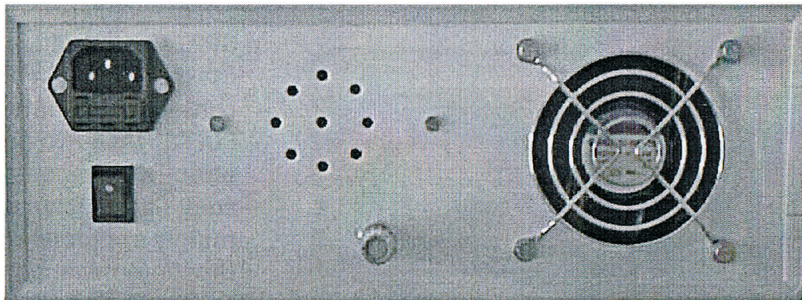
Western Surgical


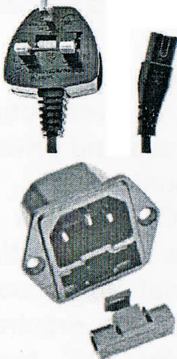

www.westernsurgical.in

Email : westernsurgical@gmail.com

Ph. : +91-281-2232871 / 2243159

3.2. OPERATING CONTROLS (RARE VIEW)



PHOTOGRAPHS	DESCRIPTION
	<p>On / off switch - This switch illuminates to indicate the main switch is on. Push the switch up to turn the main power on.</p>
	<p>Mains cord- is use to supply 230VAC Input to machine Mains Socket - The three - prong plug on the power cord connects to the mains receptable providing 230 volts 50HZ power.</p>
	<p>Audio Volume Dial - Dial controls the audio volume from inaudible to 65 db.</p>



Western Surgical

www.westernsurgical.in

Email : westernsurgical@gmail.com

Ph. : +91-281-2232871 / 2243159

3.3. OPERATING INSTRUCTIONS

1. Plug the power cable into 230 V ac., 50Hz outlet. Make sure outlet is Switched OFF before inserting the power cable.
2. Insert the active accessories into the front panel receptacle
3. Connect the footswitch cable to the front panel connector.
4. Switch the mains outlet ON.
5. Display shows

CUT	COAG	BIPOLAR
000	000	00

6. Select required mode using front panel mode switch i.e. Pure, Blend 1, Blend 2, Blend 3 in cut mode or Spray, Fulgurate, Desiccate in coag mode & Soft, force in bipolar mode

➤ CUT MODE

- **PURE CUT** - maximum setting limit is up to 300W@480Khz. Press up down key to set the reading.
- **BLEND 1** - maximum setting limit is up to 250W@480Khz. Press up down key set the reading.
- **BLEND 2** - MAXIMUM setting limit is up to 200W@480Khz. Press up down key set the reading.
- **BLEND 3** - maximum setting limit is up to 150W@480Khz. Press up down key set the reading.
- Press cut foot switch or hand switch for desired operation. By pressing footswitch or hand switch cut indicator illuminate yellow and audio speaker will activate.

➤ COAG MODE

- **SPRAY** - maximum setting limit is up to 120W@480Khz. Press up down key to set the reading.
- **FULGURATE** - maximum setting limit is up to 150W@480Khz. Press up down key to set the reading.
- **DESICCATE** - maximum setting limit is up to 150W@480Khz. Press up down key to set the reading.



Western Surgical

www.westernsurgical.in

Email : westernsurgical@gmail.com

Ph. : +91-281-2232871 / 2243159

- Press coag foot switch or hand switch for desired operation. by pressing footswitch or hand switch coag indicator illuminate blue and audio sound will activate.

➤ BIPOLAR MODE

- **SOFT** - maximum setting limit is up to 80W@480Khz. Press up down key set to the reading.
- **FORCE** - maximum setting limit is up to 80W@480Khz. Press up down key to set the reading.
- Press bipolar foot switch for desired operation. by pressing footswitch bipolar indicator illuminate blue and audio sound will activate.




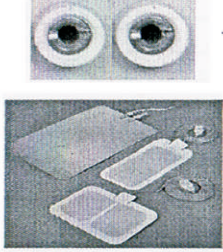
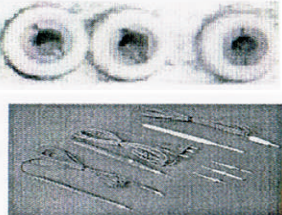
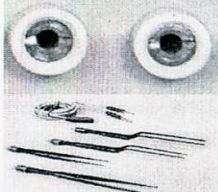
Western Surgical

www.westernsurgical.in

Email : westernsurgical@gmail.com

Ph. : +91-281-2232871 / 2243159

3.4. ACCESSORIES

PHOTOGRAPHS	DESCRIPTION
	<p align="center">MONOPOLAR & BIPOLAR FOOT SWITCH</p> <p>The 3-pin connector is use to attach Monopolar footswitch In Monopolar foot switch there are two functional switch</p> <ol style="list-style-type: none"> 1) CUT 2) COAG <p>The 2-pin connector is use to attach bipolar footswitch</p>
	<p align="center">PATIENT PLATE</p> <p>This 2-pin receptable accepts the patient return electrode connector used in Monopolar procedures. Plate 3½" x 6" (8.9cm x 15.2cm) with 8' (2.4m) cord</p>
	<p align="center">ELECTROSURGICAL HAND SWITCH PENCIL & MONOPOLAR ACTIVE ELECTRODE</p> <p>Monopolar Active Receptable (Hand Switch) – This receptable will accept the 3 – pin hand switching active accessories. Monopolar Active Receptable (Accessory) - This receptable has single output jack.</p>
	<p align="center">AUTOCLAVABLE BIPOLAR FORCEPS</p> <p>Bipolar Active Receptable – This receptable will accept 2 – pin bipolar accessories.</p>



Western Surgical

www.westernsurgical.in

Email : westernsurgical@gmail.com

Ph. : +91-281-2232871 / 2243159

3.5. SMART 3 PERFORMANCE RELATED TO SURGICAL SPECIALITY

<u>CARDIOTHORACIC – Cotonyary Bypass</u>	<u>Standard</u>
<u>Settings</u>	
• Coagulation _____	60 watts
• Coagulation – heart surface _____	15 watts
• Blend cutting _____	90 watts
<u>UROLOGY TURP, BLADDER TUMER</u>	
• Pure Cut _____	165 watts
• Coagulation _____	60 watts
• Coagulation to bladder neck _____	12-15 watts
• Blend cut for bladder tumors _____	175 watts
• Coagulation for bladder tumors _____	50 watts
<u>NEUROSURGERY – Craniotomy, AVM, Aneurysm</u>	
• Standard Bipolar: Desiccation _____	85 watts
• Standard Bipolar: Desiccation _____	8 watts
(Under magnification)	
• Cut/Blend _____	85 watts
• Coag _____	25 watts
<u>ENT-T&A's</u>	
• Coagulation _____	35 watts
<u>GYN – Tuboligations</u>	
• Blend cut _____	20 watts
• Coagulation _____	30 watts
• Standard Bipolar _____	20 watts
• Microingertillity Bipolar _____	8 watts
<u>Tuboplasty</u>	
• Blend _____	32 watts
• Coag _____	18 watts
• Bipolar under magnification _____	8 watts



Western Surgical

www.westernsurgical.in

Email : westernsurgical@gmail.com

Ph. : +91-281-2232871 / 2243159

GASTEROINTIONAL ENDOSCOPY - POLYPECTOMY

- Coag _____ 25 watts
- Blend _____ 25 watts

PAPILLOTOMY / SPHINCTROTOMY

- Blend _____ 55-65
watts

GENERAL SURGERY - GALL BLADDER

- Pure Cut _____ 140 watts

Fulgurate Liver Bed

- Coag _____ 60 watts

Breast Biopsy

- Coag _____ 35 watts

Miscellaneous

- Coag _____ 35 watts
- Blend _____ 80-120
watts

Orthopedics (Lateral Release)

- Coag _____ 30 watts
- Blend (meniscotome shaving) _____ 80 watts
- Coag _____ 20 watts
- Blend (miscellaneous) _____ 35 watts
- Coag _____ 35 watts
- Blend (meniscotome shaving) _____ 80 - 120 watts



Western Surgical

www.westernsurgical.in

Email : westernsurgical@gmail.com

Ph. : +91-281-2232871 / 2243159



4 ELECTROSURGICAL SAFETY TIPS

Prior to use : (General)

1. Know which E.S.U. will be used and how to use it. Consult the instruction Manual.
2. Have all equipment and accessories available and use only accessories designed and approved for the unit.
3. Check the operation of the alarm systems. If applicable, check the operation of the return cable sentry prior to placement of the return electrodes.
4. Replace all broken, bent, excessively scratched or otherwise damaged return electrodes.
5. Do not cut, crease or sharply bend a disposable return electrode.
6. Avoid the use of flammable anesthetics. (A warning to this effect should be evident on the E.S.U. cover).
7. Always place E.C.G. electrodes as far away from the site of surgery as possible.
8. Do not use needle E.C.G. electrodes.
9. Replace non-insulated instruments with updated equipment.
10. Check the line cord and plug on the E.S.U. extension cords should not be used.
11. Do not use any power or accessory cord that is broken, cracked, frayed or taped.
12. Use a conductive gel specifically designed for electro surgery.
13. Have backup equipment available. (Patient Return Electrode Placement)
14. Always place the return electrode on the patient as close to the electro surgical site as possible. Avoid fatty, bony, hairy, heavily areas and bony protuberances.



Western Surgical

www.westernsurgical.in

Email : westernsurgical@gmail.com

Ph. : +91-281-2232871 / 2243159

15. Avoid placing the return electrode where fluids may pool.
16. Do not slide the return electrode under the patient. The patient should be lifted and placed on the return electrode.
17. If the patient has a pacemaker, the return electrode should be as far from it as possible.

4.1. PREVENTIVE MAINTENANCE

- **Generators**

1. Do not use the top of the generator as a table. Fluids can enter the generator.
2. Keep the generator and foot switch clean. Use a damp cloth and mild detergent. Do not use solvents.
3. Coil the power cord when not in use.
4. Unplugged the power cord by grasping the plug, not the cord.
5. Have a qualified Biomedical Engineer inspect the unit at least every six month.
6. If a E.S.U. is dropped, it should not be used until inspected by Biomedical Engineer.

- **Accessories**

1. Establish procedures for cleaning and sterilization per manufactures recommendation.
2. Replace adoptions that do not provide write connections.
3. Inspect "Permanent" cords and cables for clerks in insulations.
4. Rotate your stock of pre-gelled return electrodes according to lot numbers.

Marketed By :

Western Surgical



"Happy Home", 2nd Floor, 23, Karanpara,
B/h. S.T. Bus Stand, Kanak Road,
Rajkot-360 001. Ph. : 0281-2232871/2243159
Mo. : 98250 69069 - 98250 45997
Email : westersurgical@gmail.com
Email : info@westersurgical.in

* www.westersurgical.in *

WARRANTY CERTIFICATE

Our product is warranted to be free from electrical and mechanical defects in material and workmanship, under normal use our product must not have been moved from the site of original installation. A new or remanufactured part to replace the defective part will be provided without charge for the part itself, through an authorized service dealer. The replacement part assumes the unused portion of the warranty.

WE WILL NOT BE RESPONSIBLE FOR:

1. Damage or repairs required as a consequence of faulty installation or application by others.
2. Damage or repairs needed as a consequence of any misapplication, negligent handling, improper servicing, unauthorized alteration, or improper operations.
3. Failure to start due to voltage conditions, blown fuses, open circuit breakers or other damages due to the inadequacy or interruption of electrical service.
4. Damage as a result of floods, winds, fires, lightning, accidents, corrosive atmosphere, or other conditions beyond the control of company.
5. Parts not supplied or designated by company.

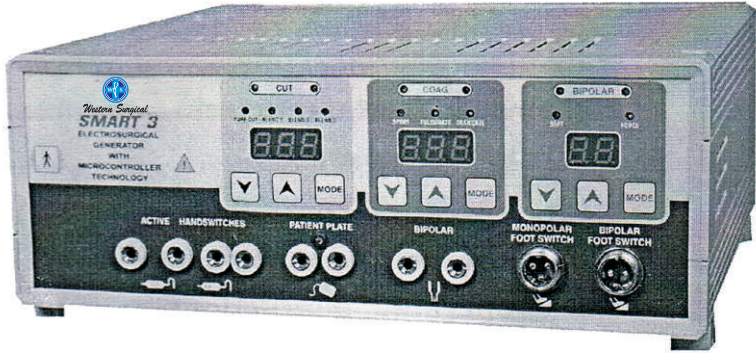
Date of Installation	Installed By
Model No.	Serial No.
Warranty Period	
Name of Doctor & Address :	

**Marketed By: Western Surgical
Sign With Stamps**



Western Surgical

www.westernsurgical.in
Email : westernsurgical@gmail.com
Ph. : +91-281-2232871 / 2243159



SMART 3

Due to constant upgradation design, price and features are subject to change without prior notice.

Western Surgical

"Happy Home", 2nd Floor, 23, Kanarpara,
 B/h. S.T. Bus Stand, Kanak Road,
 Rajkot-360 001. Ph. : 0281-2232871/2243159
 Mo. : 98250 69069 - 98250 45997
 Email : westersurgical@gmail.com
 Email : info@westersurgical.in

* www.westersurgical.in *

