

## Accessories - flexible tool for your help...

- E001 Trolley 01
- E110 Cord for Mains Supply, 3mtr
- E114 Cord for patient return electrode, 3mtr, Autoclavable
- E121 Cord for Bipolar forceps, 3mtr
- E131 Cord for Endoscopy, 3mtr
- E141 Universal adapter
- E151 Needle Electrode, 3/32, 5cm
- E152 Blade Electrode, 3/32, 5cm
- E153 Ball Electrode, 5cm, Ball size 4mm
- E154 Angled Blade Electrode, 5cm
- E155 Blade Electrode, 8cm
- E161 Blade Electrode, 12cm
- E171 Loop Electrode, 5 cm, Dia 8mm
- E172 Loop Electrode, 5 cm, Dia 12mm
- E174 Loop Electrode, 5 cm, Triangular 6mm
- E176 Loop Electrode, 8 cm, Dia 8mm
- E181 Loop Electrode, 12 cm, Dia 8mm
- E201 Footswitch, Single Paddle
- E202 Footswitch, Double Paddle
- E205 Patient return electrode, Steel
- E206 Patient return electrode, Steel, Pediatric
- E211 Patient return electrode, Rubber
- E213 Patient return electrode, Rubber Dual
- E214 Patient return electrode with cable, Rubber
- E216 Patient Plate with Cable, Single area, Disposable
- E221 Patient Plate with Cable, Dual area, Disposable
- E222 Patient Plate with Cable, Dual area, Pediatric, Disposable
- E241 Foot switching chuck handle
- E251 Monopolar Handswitching Pencil, Reusable
- E256 Monopolar Handswitching Pencil, Disposable
- E260 Monopolar Electrode Tip Cleaner
- E261 Bipolar Forceps, Jewelers, 10cm, 0.5mm tip
- E262 Bipolar Forceps, Adson, 12cm, 0.5mm tip
- E267 Bipolar Forceps, straight, 20cm, 1mm tip
- E268 Bipolar Forceps, Bayonet, 20 cm, 0.5mm tip
- E272 Bipolar Forceps, straight, 22 cm, 2mm tip
- E273 Bipolar Forceps, straight, Blunt, 22 cm, 2mm tip
- E276 Bipolar Forceps, Bayonet, 22 cm, 2mm tip
- E285 Bipolar Forceps, Bayonet, Non-Stick, 20 cm, 0.5mm tip
- E291 Bipolar Forceps, Bayonet, Irrigation, 20 cm, 1mm tip
- E295 Bipolar Forceps, Bayonet, Non-Stick, Irrigation, 20 cm, 0.5mm tip
- E305 Bipower Handle, Spring Action
- E321 Bipower Insert, Maryland, 32cm
- E322 Bipower Insert, Fenestrated, 32 cm



### Shalya- extended range...



Shalya Vista

Shalya TURoSeal

CE 0120

Add Hi-Tech Precision to your Surgical Expertise...

Complete range of electro surgical solutions...



www.shalya.in



Xcellance Medical Technologies Pvt. Ltd.

Plot No. W239, Rabale MIDC, TTC Industrial Area,  
Rabale, Navi Mumbai - 400 701. INDIA  
T: +91-22-2760 2261 / 2 / 3, F: +91-22-2760 2263  
E: info@shalya.in W: www.shalya.in

Helping you make the right choice..

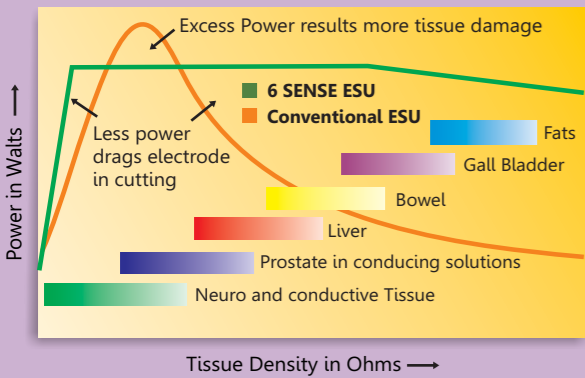
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# Shalya - advanced technological innovations...

## 6SENSE Technology- more and more sensible...

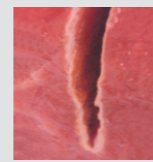
### Shalya ESU Vs Conventional ESU in Cut Mode



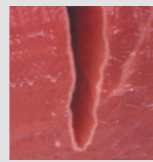
This is a recent innovation in field of advance feedback controlled Electrosurgical Technology. System maintains the set power over wider range of tissue by sensing -voltage, current, power, tissue density, patient return electrode monitoring and leakage RF current- at "2000 TIMES" per second.

### Features

- Minimizes dragging of electrodes in different tissues
- No need to adjust the power setting as the tissue changes
- 50% less thermal damage than conventional ESU's
- Minimizes the patient recovery time
- Reduces the risk of collateral tissue damage
- Minimum RF noise in other OT equipments
- Reduces the risk of neuro - muscular stimulation
- Less charring and sparking hence precise & clean cutting



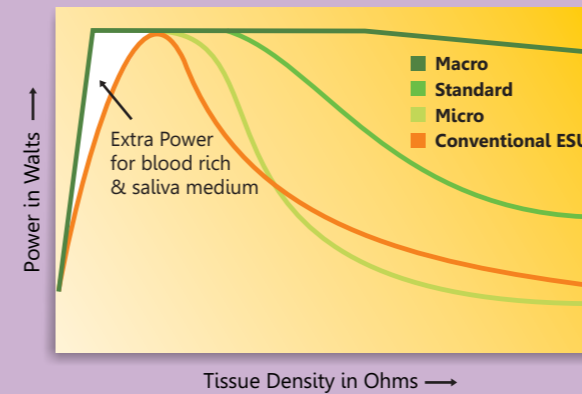
Conventional ESU  
Thermal spread >0.3 mm



6 SENSE ESU  
Thermal spread <0.15 mm

## Effect Modes- plotted response as the tissue demands...

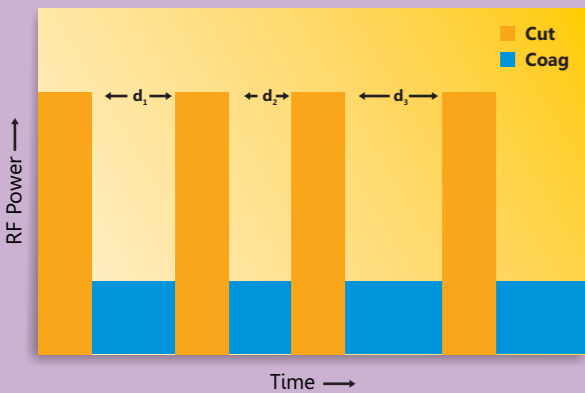
### Shalya ESU Vs Conventional ESU in Bipolar mode



- Cut Modes:** Achieves consistent cutting in all types of tissues by 6SENSE Technology.
- SP Cut / Low Cut:** Offers precision cutting at lower voltages, hence suitable for delicate cutting process where adjacent tissue damage should be minimum such as Neuro or ENT. This also reduces capacitive coupling in endoscopy hence suitable for such procedures.
- Pure Cut:** Suitable for clean & precisely controlled consistent cutting in all types of tissues. Minimum Dragging effect, useful for TURP.
- Blended Cut:** Consistent cutting power delivery with effective coagulation through a wide range of tissue types, reduces re-bleeding.
- Coag Modes:** These modes offer every range of coagulation ability for modern surgeries.
- Desiccate:** Specifically designed for contact coagulation at lower voltages, hence suitable for Neuro, ENT & Endoscopy cases.
- Fulgurate:** Suitable for non contact coagulation with moderate sparking in variety of applications such as cardiothoracic surgeries.
- Spray Coag:** Non touch coagulation for large areas with minimum depth of tissue damage & necrosis. Useful in Liver Cancer & Trauma.
- Bipolar Modes:** Delivers optimum Bipolar performance for improved coagulation.
- Micro /Precise Bipolar:** This mode offers clinical precision at lower voltages, prevent Sparking and reduce adjacent tissue damage used in Neuro, ENT, Ophthalmic surgery.
- Standard Bipolar:** Suitable for most of bipolar processes with optimized Coagulation.
- Macro Bipolar / Bipolar Cutting:** This mode offers smart control over consistent CUTTING effects in all types of tissues. Output is specifically designed for today's new generation of cutting instruments, bipolar needles and hooks.

## Smart Pulse Cut- power on demand for Endo surgery...

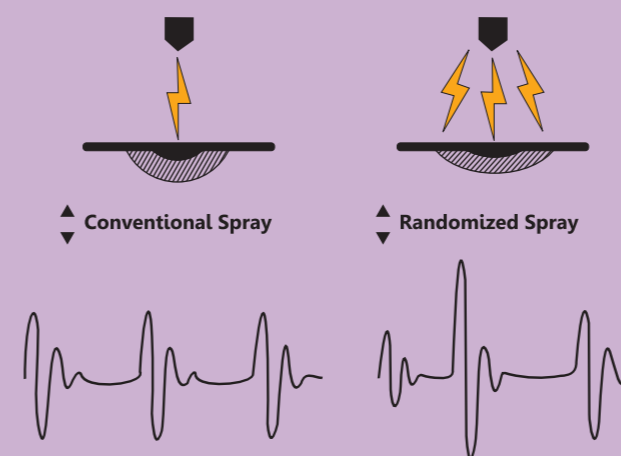
### Pulse Cut



For polypectomy & papillotomy, cutting is smartly divided in cut & pause, so that coagulation occurs in each pause. The system is intelligent to change the pause interval as tissue density changes, hence produces fine cutting with coagulation effect.

Smart Pulse Cut : Change in cut & pause as tissue demands.  
 $d_1, d_2, d_3$  are dependent on the tissue impedance.

## Randomized SPRAY COAG - the real spray...



In conventional spray coag, beam tends to follow the same path left by previous spark resulting in non uniform coagulation over larger area. By randomizing spray frequency & amplitude, spark tends to take multiple paths covering larger area.

### Features

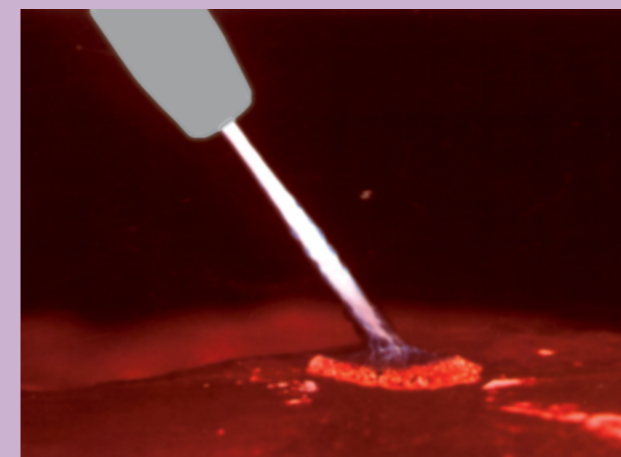
- Starts the sparking from longer distance
- Uniform & homogeneous coagulation over large surface area at lower power settings
- Less tissue necrosis & carbonization
- Increases the speed of coagulation
- Reduces the output voltages
- Drastically improves the performance when combined with Argon enhanced ESUs

## PREM- ultimate safety from burns...



Patient Return Electrode Monitoring – PREM - is the care & safety against the return electrode site burns. This ensures burn-free electrosurgery using DUAL AREA patient return electrode by continuous monitoring the contact quality with the patient. PREM system gives an audio-visual alarm and stops the RF output ensuring the safe procedure.

## Upgradeability - with the recent technology...



Argon delivery along with electrosurgical RF current allows efficient non - contact, uniform superficial and faster coagulation for better clinical results. Very effective for superficial & high impedance tissue and reduces collateral tissue damage, hence suitable to use with delicate tissue. Argon enhancement reduces smoke during open and endoscopic surgeries.

### Features

- Uniform & faster coagulation
- Very effective for superficial & high impedance tissue such as bones, cancer fatty tissues
- Reduces collateral tissue damage, hence suitable to use with delicate tissue
- Reduces smoke
- System stops Argon delivery & ESU output if any of the system is not ready or fault condition in handshake mode

### UEM - Ultrasound Electrosurgical Module :

System can be connected to work with ultrasonic surgical Aspirator system in Sp. Cut and Soft Coag modes.



### Shalya DX

- 6 SENSE Technology ESU • 6 Bipolar Modes with 3 AutoBip Modes, Max Power – 70W
- 4 Cut Modes with PULSE CUT Mode for ERCP, Max Power - 300W
- 4 Coag Modes with low CF Fulgurate, Max Power – 120W • Randomized SPRAY Coag
- PREM - Patient Return Electrode Monitoring • BiCoag Alarm • Self Diagnosis
- Bipolar Cut - in Macro Bip • AutoBip : Auto Start & Stop of Bipolar without foot switch
- Argon Beam Coagulator up-gradable • User Programmable : TWENTY Surgical Programs
- Pulse Cut for Polypectomy & Papillotomy • Remote Setting from surgical field



### Shalya MX

- 2SiCoag : Two Simultaneous coag • 6 SENSE Technology ESU • PREM - Patient Return Electrode Monitoring
- 4 Cut Modes with PULSE CUT Mode for ERCP, Max Power - 300W • Pulse Cut for Polypectomy & Papillotomy
- 4 Coag Modes with low CF Fulgurate, Max Power – 120W • Randomized SPRAY Coag
- 6 Bipolar Modes with 3 AutoBip Modes, Max Power – 70W • BiCoag Alarm • Bipolar Cut - in Macro Bip
- AutoBip : Auto Start & Stop of Bipolar without foot switch • Argon Beam Coagulator up-gradable
- User Programmable : THIRTY Surgical Programs • Self Diagnosis • Remote Setting from surgical field
- Applications : Urology (Under water), Onco, Laparoscopy, Gynecology, Cardia Surgery, Neuro Surgery, Orthopedic, General Surgery, Plastic, Ent.



### Shalya SIGMA +

- 4.7 inch TFT Screen for flexible use • 2SiCoag : Two Simultaneous coag
- 4 Bipolar Modes, Max Power – 100W • Bipolar Cut - in Macro Bip
- 4 Cut Modes with PULSE CUT Mode for ERCP, Max Power - 400W
- 4 Coag Modes with low CF Fulgurate, Max Power – 150W
- 6 SENSE Technology ESU • PREM - Patient Return Electrode Monitoring
- Randomized SPRAY Coag • BiCoag Alarm • Self Diagnosis
- Argon Beam Coagulator up-gradable • Remote Setting from surgical field
- User Programmable : THIRTY Surgical Programs

D U R A B I L I T Y

S A F E T Y



### Shalya EASY+

- 2 Bipolar Modes, Max Power – 70W
- 4 Cut Modes with optional PULSE CUT Mode for ERCP, Max Power - 300W
- 3 Coag Modes, Max Power – 120W • 6 SENSE Technology ESU
- PREM - Patient Return Electrode Monitoring
- Randomized SPRAY Coag • Bipolar Cut - in Macro Bip • BiCoag Alarm
- Pulse Cut (Optional) for Polypectomy & Papillotomy • Remote Setting (up-gradable)
- User Programmable : TEN Surgical Programs • Self Diagnosis • Argon Beam Coagulator up-gradable

### Shalya EASY

- 2 Bipolar Modes, Max Power – 60W • 3 Cut Modes, Max Power - 250W
- 3 Coag Modes, Max Power – 100W • 6 SENSE Technology ESU
- PREM - Patient Return Electrode Monitoring • Randomized SPRAY Coag
- Bipolar Cut - in Macro Bip • BiCoag Alarm (Optional)
- User Programmable : THREE Surgical Programs • Self Diagnosis
- Argon Beam Coagulator up-gradable



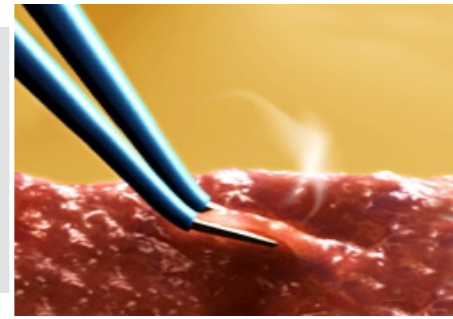
### Shalya LX

- 2 Bipolar Modes, Max Power – 50W • 3 Cut Modes, Max Power - 200W
- 3 Coag Modes, Max Power – 80W • 6 SENSE Technology ESU
- PREM - Patient Return Electrode Monitoring • Randomized SPRAY Coag
- Bipolar Cut - in Macro Bip • User Programmable - ONE Surgical Program
- Self Diagnosis • Argon Beam Coagulator up-gradable



## Smart Bipolar - auto bipolar & bicoag alarm for modern bipolar tools...

**BiCoag Alarm** : Audio feedback after completion of Bipolar Coag, reduces charring and sticking.  
**AutoBip** : Automatic Start & Stop of Bipolar current by tissue sensing without foot switch activation.



## 2SiCoag - two coagulation generation in one...

This is the unique feature of Shalya series, which system delivers two simultaneous coagulation outputs at a time with independent control. Two surgeons can work at a time on different surgical area in a same case with flexibility as using separate ESU. This makes the system more useful in cardiovascular & trauma surgeries. (Optional feature in Shalya TURoSeal)

## Remote Power & Mode Settings - from surgical field..

Surgeon can change power and mode settings of ESU directly from sterile surgical field using conventional hand switching electro-surgical pencil.



## Smart Surgical Assistant - to help you in need...

User set able and Preset Programs : This helps you in setting up the system very fast after turning ON.  
 By pressing **PROGRAM** key, power setting display shows procedure's name or number of program. After selection of required program, press **RECALL** just once to set system for selected application.

## Self Diagnosis- fastest error identification & solution...

System features the self diagnostic function during self test at the time of starting ON to ensure smooth functioning. As soon as fault is detected, it gives alarm and error code is displayed. The Service manual may be referred to rectify the error.



## Application-

**RECOMMENDED POWER SETTINGS:** The below recommended settings are derived after feedback from various procedures & users. However, some deviations may be required. Power setting depends on anatomy, tissue type & size of electrode used.

PROCEDURES/ SURGERY	CUT (W)	COAGULATION (W)	BIPOLAR (W)
Plastic/ Neuro/ ENT/ Spine/ Ophthal/ Neurosurgery	PURE - 25 - 35	SOFT - 25 - 35	MICRO - 01 - 10
Lapro/ Endo/ GI/ Ortho/ Open/ General surgery	PURE - 35 - 45	FULGURATE - 30 - 40	MACRO - 15 - 20
Onco surgery/ Gynaccology/ Hernia/ Fatty Tissues	PURE - 50 - 60	SPRAY - 45 - 55	MACRO - 15 - 25
GI Endocut/ Pulse Cut/ Papillotomy/ Polypectomy	ENDO CUT - 80 - 100	SOFT - 35 - 40	-
Urology TURP/ Gynac TCRE/ Hysteroscopy	PURE - 100 - 140	FULGURATE - 45 - 55	-

## General Technical Specifications - comparison at a glance...

**Monopolar Cut** : Pure Sine wave 390 kHz  
 Sp Cut - Programmable Pulse or continuous output, 300 W at 300 Ω, CF 1.5  
 Pure - Continuous output, 300 W at 300 Ω, CF 1.5  
 Blend - Bursts repeating at 29 kHz 55% ON cycle, 200 W at 300 Ω, CF 2.5

**Bipolar** : Pure Sine wave 390 kHz  
 Micro - Lower output voltage, 70 W at 100 Ω, CF 1.5  
 Standard - Medium output voltage, 70 W at 100 Ω, CF 1.5  
 Macro - Higher output voltage, 70 W at 100 Ω, CF 1.5

**LEAKAGE CURRENTS**

- RF leakage current
  - Monopolar : < 150 mA rms
  - Bipolar : < 60 mA rms
- Low Frequency leakage currents
  - Normal polarity, intact ground : < 10 μA
  - Normal polarity, ground open : < 50 μA

**FEEDBACK SYSTEM**

- 3 Microprocessor Controlled 6SENSE Technology with sampling rate above 4000 sense/second
- Maximum output power deviation < 15% or 5 watts, whichever is greater at any setting with PER-98

**Monopolar Coag** : Damped Sine wave 460 kHz  
 Soft - Repetition Frequency 62 kHz, 120 W at 500 Ω, CF 5.0  
 Fulgurate LCF - Repetition Frequency 42 kHz, 120 W at 500 Ω, CF 6.2  
 Fulgurate HCF - Repetition Frequency 34 kHz, 120 W at 500 Ω, CF 7.0  
 Spray - Randomized Repetition Frequency 34 kHz < f < 50 kHz, 120 W at 500 Ω, CF 8.0

**DESIGN STANDARD**  
 Classification according to the EC- Directive 93/ 42/ EEC: Class IIb;  
 General Safety Standards: IEC 60601-1-1, IEC 60601-2-2; EMI/EMC Compatibility Standard: IEC 60601-1-2, IS Safety Standard: IS 7583

**PREM SYSTEM**  
 Measuring Frequency : 85 kHz ± 10 kHz  
 Measuring current : < 10 μA  
 Acceptable Resistance Range upto 40%  
 Dual Area PREM Patient Return Electrode : 5-135 Ω (Adaptive)  
 Single Area Patient Return Electrode : < 10 Ω

**INPUT POWER**  
 Operating Voltage : 180-265Volt AC, (other ratings available on request)  
 Max. Power input : 1000 VA,  
 Fuse : 4 A, UPS Backup : 1.5KVA

Specification	MX	DX	Easy+	Easy	LX	Sigma+	Sigma
<b>BIPOLAR</b>							
Micro	70W	70W	70W	60W	50W	100W	100W
Standard	70W	70W				100W	100W
Macro	70W	70W	70W	60W	50W	100W	100W
Bipolar Cut						100W	100W
<b>CUT</b>							
SP Cut (Low)	300W	300W	300W	250W	200W	400W	350W
Pure	300W	300W	300W	250W	200W	400W	350W
Blend	200W	200W	200W	150W	120W	250W	200W
Pulse Cut	300W	300W	300W,Optional			400W	350W
<b>COAG</b>							
Desiccation/Soft	120W	120W	120W	100W	80W	150W	120W
Fulgurate	120W	120W	120W	100W	80W	120W	120W
Fulgurate LCF	120W	120W				120W	120W
Spray	120W	120W	120W	100W	80W	120W	120W
<b>SAFETY</b>							
PREM	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Leakage RF current	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>O/P CHANNELS</b>							
Monopolar	2 F/H	1 F/H	1 F/H	1 F/H	1 F/H	1 F, 1H	1 F/H
Bipolar	1 F/H/A	1 F/H/A	1 F	1 F	1 F	1 F	1 F
<b>FEATURES</b>							
2SiCoag	Yes					Yes	
Inbuilt programs	30	20	10	3	1	30	30
Argon Enhancement	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BiCoag Alarm	Yes	Yes	Yes	Up -gradable		Yes	Yes
Auto Bipolar	Yes	Yes				Auto Stop	Auto Stop
Remote Setting	Yes	Yes	Up -gradable			Yes	Yes
<b>DIMENSIONS</b>							
In cm LxWxH	45.0x35.5x11.5	45.0x35.5x11.5	38.0x30.5x11.5	38.0x30.5x11.5	38.0x30.5x11.5	37.0x31.5x12.0	37.0x31.5x12.0
Weight in Kgs	< 7.5	< 7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Notes : F : Foot Control, H : Hand Control, A : Auto Control, O/P : Output  
 CF : Crest factor indicates the ability of a waveform to coagulate without cutting, Note : Unit is available in other HF power ratings on request.