

The Power house...

OUTPUT CHARACTERISTICS-ELECTROSURGICAL UNIT

ELECTRO SURGICAL UNIT	MODE	*PER	MAXIMUM P-P VOLTAGE	RATED LOAD (ohms)	MAX. POWER (WATTS)	**CREST FACTOR	DUTY CYCLE
BIPOLAR/SALINE	Plasma Cut	98	700	50	300	2.5	N/A
	Plasma Coag		900	50	250	4.5	N/A
BIPOLAR 475 KHz	Micro/Coag	98	480	100	250	2.5	N/A
	Macro/Cut		480	100	250	1.5	N/A
	Plasma Bipolar		295	100	250	1.5	N/A
	Auto		290	100	250	1.5	N/A
MONOPOLAR CUT 520KHz	Pure/Cut 1	98	1800	300	400	1.5	N/A
	Blend 1		2500	500	200	2.4	75%
	Blend 2		2600	500	200	3.4	60
	Endo/Gastro Cut		1500	200	250	1.8	50%
MONOPOLAR COAG 450 KHz	Soft/Contact	97	2500	150	150	4.6	25%
	Desiccate		2300	150	150	4.4	6.5%
	Forced/Fulgurate		6000	500	150	7.2	4.6%
	Spray		9500	500	150	10.0	

* PER (Power Efficiency Rating): A measure of an electrosurgical generators ability to deliver the selected power into a wide range of impedance.

** Crest Factor is an indicator of a waveforms' ability to coagulate bleeders without cutting effect.

OUTPUT CHARACTERISTICS - RF VESSEL SEALER & RF SCALPEL™

Ligasealer Modes (At 2MHz-475 KHz)	Maximum Open Circuit Voltage $V_{pp}(V_p)$	Maximum Short Circuit Current (Amperes)	Maximum Power Setting (Watts)	**Crest Factor
Low (Seal)	340 (170)	2.1	95	1.5
Medium (Fusion)	770 (400)	2.1	125	1.5
High (RF)	580 (295)	4.2	300	1.5
RF (scalpel)	480 (300)	3.0	300	1.5

CERTIFIED TO IEC-60601-2-2, IEC 60601-1-2 & IEC 60601-1

Weight and Dimensions Height : 25 cm Width : 33.5 cm Length : 47.0 cm Weight : 10 Kg.	Input Power Requirements Volts : 100-270 VAC Amps : 3-6A Input : 800 VA, 50/60 Hz
Low Frequency Leakage (50-60Hz) Patient leakage < 10 uArms	Audio Volume The mode indicator tones are adjustable to a minimum level of 45 dba at 1 meter.
High Frequency Leakage Less than 10 mA rms., all output	Operating Mode int 10s/30s

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DIVLABS
 INTUITIVE ENERGY

DIVLABS "TRINITY-9RF" Intuitive Energy Source with Vessel Sealing™ Technology



- Advanced, computerised monopolar "ESU" with tissue Impedance feedback technology.
- Intuitive Touch Screen Human Interface Energy Source with Advanced Computerised Monopolar & Bipolar tissue impedance feedback ESU.
- The Plug and play feature automatically adjusts the specific parameters as soon as the program is selected.
- Ten preset programs. Additional storage for upto ninety user set programs.
- Advanced RF-Scalpel technology - RF-Scalpel - reusable, cost effective 5mm instruments for thermofusion and dissection, with minimal thermal spread.
- Rapid cutting and reliable 7mm vessel sealing from a single surgical instrument (RF Scalpel) for open and laparoscopic procedure.
- Seal can withstand maximum blood pressure of 300mm of Hg (3x systolic).
- Wet field bipolar with inbuilt irrigator (optional).
- Plasma bipolar TURP / Hysteroscopic surgeries in saline (optional).
- Highly cost effective: RF BiClamp is reusable and the procedure saves time and suture material.

www.divlabsindia.com

DIVLABS
 INTUITIVE ENERGY

Intuitive User Interface...

PROGRAM 2
Laparoscopic Surgery - RF Scalpel

PROGRAM 1
Open Surgery (Default Program)

PROGRAM 3
Cancer & Ablative Surgery

PROGRAM 4
TURP/TCRE Monopolar

PROGRAM 5
Plasma Saline Bipolar TURP/TCRE+COBLATION



CHECK PATIENT PLATE CONNECTIONS

Audio Patient Plate Alarm with visual pop-up

Monitoring & Control of Leakage current

CHECK HF LEAK

PROGRAM 6
CTVS-General

PROGRAM 7
CTVS - IMA Harvesting

PROGRAM 8
Pump Generator/Irrigator-Nuero + Spinal

PROGRAM 10
"Argon Beam" + "Liver Resection"

PROGRAM 9
LLETZ/LEEP with "Smoke evacuation"

Pop-up for seal completion

SEAL COMPLETE

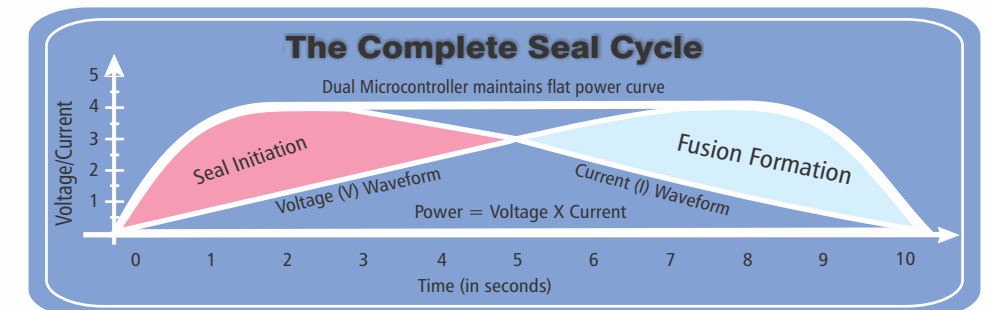
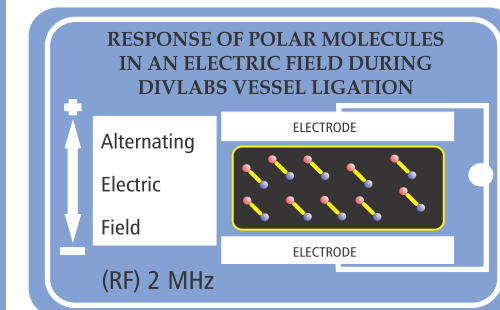
Pop-up for improper contact/incomplete seal

REGRASP



ADVANCE FEATURES

- ▶ 10 Pre set Programs and 90 onsite programs - 100 programmable memory locations and recall last setting.
 - ▶ Different programs adjust output power and modes automatically - manual override also possible from the control panel.
 - ▶ Advanced Dual Microprocessor feedback controlled "Intuitive" technology for high frequency cutting and coagulation/hemostasis of biological tissue by concentrating this energy at electrode tip to achieve different surgical effects like cutting, multiple blend levels, desiccation, fulguration, Spray and vapourisation etc.
 - ▶ Activation is both by footswitch and handswitch for all the different modalities - monopolar, bipolar and Ligasealer (Vessel sealer).
 - ▶ Intuitive "Pop Up" and audio signals for foll. events:
 - 1) Patient/neutral plate contact quality and connection for utmost patient safety.
 - 2) HF Leak - for monitoring and control of Leakage current.
- Bipolar controls are both automatic and by foot switch-auto start & auto stop.
- ▶ Advanced Electro surgical system which provides consistent performance by using latest and reproducible technology used to command the functionality as the need of surgical application . It comes with 100 programs for different specialities. On site program facility possible. Three different modes of cut, coag and bipolar can be stored individually in each program. True digital power readout with dossage error control. Self diagnostic mode with error display (25 error messages) Spark sensor technology and RS-232 interface.
 - ▶ Multi-feature Monopolar - With uro-cut, gastro-cut and spray coagulation for all demanding open and underwater procedures.
 - ▶ PPCQM - Patient to Patient plate Contact Quality Monitoring technology - monitors the quality and quantity of contact between the patient and the patient plate. If this contact is not proper the unit deactivates & alarms, thus eliminating any risk of Passive electrode site burns.
 - ▶ Different dedicated programs and accessories/instruments for Laparoscopic monopolar, bipolar, vessel sealer and RF Scalpel™ (Program 1 and Program 2)
 - ▶ All the vessel sealing , monopolar, RF Scalpel™ and bipolar accessories of both open and laparoscopic surgeries are of Divlabs make.
 - ▶ RF Scalpel™ Technology ensures Bipolar cut and coagulation at various levels. Intuitive "Pop Up" and audio signals for foll. events.
 - 1) Re grasp- for incorrect application of Vessel sealing instrument.
 - 2) Seal complete - Signal for the user to safely proceed with the cutter after successful sealing.
 - ▶ Compatible with Da Vinci Robtic System CUSA and Argon Beam Coagulator



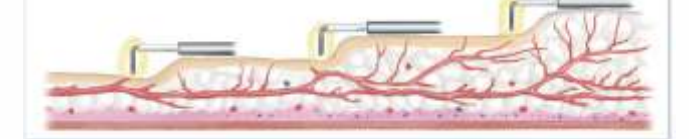
THE "PLASMA ENERGY"- TECHNOLOGY BRIEF

- ▶ The Divlabs system for bipolar resection impresses by its outstanding cutting quality and maximum safety.
- ▶ The special insulations of the bipolar system guarantee unique safety for patient and user.
- ▶ Enucleation Button Electrode mimics laser like performance
- ▶ The Divlabs system possesses not only an HF unit, but also a bipolar resectoscope , especially adjusted for the instrument with specific performance parameters for bipolar resection. In spite of this specification, the unit can also be used in all other surgical fields without any restrictions.

General advantages of the bipolar Divlabs system against monopolar resection:

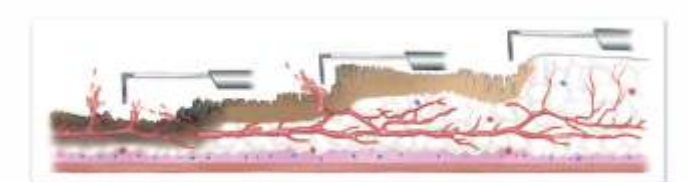
- ▶ No TURP Syndrome
- ▶ No Pulmonary edema and hyponatraemia as Saline is not toxic as compared to glycine
- ▶ Less conductive trauma, as the flow of the current between active and neutral electrode is strictly limited to the target area.
- ▶ Lower risk of capsular lesion.
- ▶ Less thermal damage to neighbouring tissues.

BIPOLAR PLASMA RESECTION



Reduced complications result in shorter catheterization and recovery times. Patients can even go home the same day	0.5-1 mm depth of penetration of plasma corona cuts tissue and seals vessels in one stroke resulting in excellent hemostasis.	Constant low voltage (220-320 VRMS) plasma corona used to vaporize tissue with the active and return electrode in close proximity.
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TRADITIONAL MONOPOLAR RESECTION



Tissue damage results in a longer recovery time and higher incidence of complications.	3-5 mm depth of penetration causing deep coagulation of tissue and charring leading to increased bleeding.	Constant high voltage (1,000-3,000 VRMS) required to remove tissue and traveling through patient's body.
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Advanced Electrosurgical system with Large Intuitive Touch Screen which provides consistent performance by using latest and reproducible technology used to command the functionality as the need of surgical application. It comes with ten programs for different specialities. 100 on site program facility possible. Three different modes of cut, coag and bipolar can be stored individually in each program. Audio Visual POP UP alarms for different conditions.

Advanced Performance Features

Monopolar-Computer Controlled intelligent cut with Feedback Response System

1 Four Cut Modes - (Auto Cut-Optional)

(a) **Pure cut** suitable for under water cutting (TURP, TUVP & TCRE) with URO-CUT, which eliminates lag time in initiating cut especially suited for urological procedure.

(b) **Blend1 & Blend2** - modes (program)

(c) **Low Cut- Endocut (Gastrocut)** - for G.I. Surgery

2 Four Coag Modes - (Auto Coag-Optional)

(a) **Soft** - Computerised pulsatile coagulation

(b) **Desiccation/Soft** -for low voltage soft coagulation suitable for laproscopic & delicate tissue work.

(c) **Fulgurate/Forced** non-contact coagulation for minimal smoke generation.

(c) **Spray** for non-contact large tissue area coagulation with minimum depth of necrosis.

Bipolar-SLS (Computer controlled Self Limiting System-Unmodulated-Auto Optional)

1 Precise

- Computerised pulsatile bipolar

2 Micro

- for delicate tissue work by controlled desiccation without charring, adhesion or blanching of adjacent tissue.

3 Macro

- for new generation of macro bipolar cutting instruments (Tri-polar) for LAVH procedure etc.

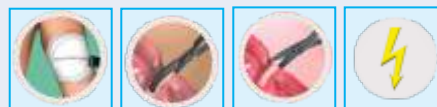
4 RF

- Advanced computerised wet field Bipolar works under blood, saline etc.

Advanced Safety Features

1 **PPCQM- Patient to Patient plate contact Quality monitoring technology** - monitors the quality & quantity of contact between the patient & the patient plate. If this contact is not proper the unit deactivates & alarms, thus eliminating any risk of **Passive electrode site burns**. (Optional)

2 It deactivates the unit & give **Audio Visual POP UP alarms** in case of any discontinuity in the patient plate cord. Exclusive PEM (Patient Electrode monitoring)



3 **Isolated RF output** directs current to return back to the generator to reduce the risk of **Alternate site burns** & to ensure patient safety in case of any discontinuity in patient plate cord. This current has no reference to ground so it does not cause noticeable interference with the ECG monitor, Cardiac pacemaker etc.

4 **Independent activation** of handswitching, foot switching & bipolar output to protect against inadvertent output from an idle accessory lying on or near the patient or surgical staff.

5 **Class '2' leakage cancelling**, a must for lengthy procedure like Cardiac surgery (CABG) etc.

6 Meets all general requirements of Safety for Electromagnetic compatibility (EMC) as per IEC-60601-1-2 including 36.201 (CISPR 11 Group 1) - Emissions, 36.202-Immunity and 36.202.1-General.

7 Inbuilt system for monitoring and control of leakage current.

8 Advance tissue impedance feedback technology which control output power according to tissue impedance.

Enhanced Operating Convenience

1 Separate Bipolar generator controls and footswitch with auto selectivity reduces the dependency on the operating room staff during the procedure.

2 One handswitching monopolar outputs and one handswitching bipolar output combined with Laproscopic Clippons, eliminates the need of footswitches during endoscopic procedures.

3 Bipolar controls are both automatic and by footswitch with auto start and auto control.

4 Facility for simultaneous coagulation.

Upgradations

1 Adv RF-Scalpel technology-RF Scalpel - reusable, cost effective instruments for thermofusion and dissection, with minimal thermal spread.

2 Rapid cutting and reliable 7mm vessel sealing from a single surgical instrument (RF Scalpel) for open and laparoscopic procedure.

3 Seal can withstand maximum blood pressure of 300mm of Hg (3x systolic).

4 Wet field bipolar with inbuilt irrigator.

5 Plasma bipolar TURP / Hysteroscopic surgeries in saline.

6 Upgradable to Argon Plasma Coagulation system.

OUTPUT CHARACTERISTICS-ELECTROSURGICAL UNIT

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Different Programs

PROGRAM 1 Open Surgery (Default Program)	PROGRAM 2 Laparoscopic Surgery - RF Scalpel	PROGRAM 3 Cancer & Ablative Surgery	PROGRAM 4 TURP/TCRE Monopolar	PROGRAM 5 Plasma Saline Bipolar TURP/ TCRE+COBLATION
PROGRAM 6 CTVS-General	PROGRAM 7 CTVS - IMA Harvesting	PROGRAM 8 Pump Genertor /Irrigator- Nuero + Spinal	PROGRAM 9 LLETZ/LEEP with "Smoke evacuation "	PROGRAM 10 "Argon Beam" + "Liver Resection"



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* Specifications subject to change without notice.

* Accessories shown are not part of main unit.

DIVLABS
An ISO - 13485 Certified Company

DIVLABS HEALTHCARE PVT. LTD.

AN ISO 9001:2000 & ISO: 13485 COMPANY

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