



ENERTECH

Bi-Polar TURP

Vessel Sealing unit with Surgical Diathermy & BI-TURP Touch screen Controls



Model:
MAESTRO

ELECTRO SURGICAL GENERATOR + VESSEL SEALER + BIPOLAR TURP (Transurethral Resection of the Prostate Turp)

Maestro is a micro controller touch screen based top model of EnerTech with all the required features for Basic ESU, Vessel sealing & TURP (Under water / saline cut & Coagulation). Full power output at low cost with 100 user selectable & configurable program memory.

All surgeries Basic, General, Laparoscopy, ENT, Plastic & Derma ,
Ortho, GI, Neurology, Urology with Mono TURP

PERFORMANCE FEATURE :

- **Real Time Tissue Response Technology** : Real Time Tissue Response Technology provides surgeons with superior performance at lower power settings, minimizing the risk of tissue damage and neuromuscular stimulation.
- **Patient Plate Return Electrode Monitoring System** : It provides instant indication of the quality of contact of the patient plate return electrode. Failure or poor contact results in fault indication with sound alarm which substantially reduces the risk of burn under the patient return electrode. The advanced monitoring system gives a Real Time indication of the quality of the conductivity via the patient plate. There are 3 indicators. H = High contact and good conductivity. M = Medium . Contact and medium conductivity. L = Low contact and poor conductivity. This Feature enables the monitoring of contact quality and hence significantly reduces the chances of plate failure resulting in burns
- **High Power Efficiency of 97%** : The power efficiency of EnerTech generators are the highest in it's class 97%. This leads to multiple benefits like increased reliability, most compact size, high portability, economy and reduced power consumption.
- **Accessories contact detection during plug in and operation** : Accessories are detected during plug in and indicator for the footswitch turns red on screen indicating that the same are ready for operation. During Press mode the indicator turns green showing which mode has been activated, reducing chances of wrong mode operation .
- **Lowest Lateral Spread and safer and more white seal:** The premium quality of machine and instruments ensures that the system offer lowest lateral spread, causing less thermal spread and causing lower levels of charring and desiccation. This also ensures a better quality white seal and least damage to tissue with faster recovery.
- Each of the devices comprises with high power and low voltage bipolar mode and specialist instruments that combine tissue compression with tissue heating to produce haemostasis in veins or a bundle of tissue.
- The Product is delivered through a variety of Instruments for use in both Laparoscopic and open procedures in a range of surgical specialties, including gynaecological, colorectal, urology and general surgery
- **Vessel Sealing** : Permanently fuses vessels upto and including 7 mm diameter and tissue bundles without desiccation or isolation. Seals withstand 3 times normal systolic blood pressure. Uses body's own collagen, no requirement to insert foreign material into patient body which can cause complications. Feedback controlled response system automatically discontinues energy delivery when the seal is complete, eliminating the guess work. During sealing vessel impedance of tissue changes , unit constantly adjust and changes power delivery waveform in direct accordance to this change in tissue impedance and stops power delivery automatically on reaching at a pre determined optimum end -point . The power delivery ends with stop in audible sound indicating that the sealing has been successfully achieved .

Electro surgical Techniques :

Monopolar techniques and bipolar techniques

- In Monopolar procedure, the electric current flux of the active electrode passes through the patient body going until the return electrode. In bipolar procedures, the radio frequency was flow from an active electrode to another active electrode through a limited amount of tissue between the two electrodes.
- Modern electro surgical equipment produces a radio frequency wave of a very high frequency that reaches between 350000 cps (Cycles / Second or 350 Kilohertz) and 400000 cps (4 MHz). The wave used in electro surgeries is in the mean of the frequency used in the FM Radio, and thus, electro surgical waves are frequently called Radio frequency waves.
- Electro Surgical Cutting – electric sparking to tissue with the cutting effect In electro surgical cutting the objective is to heat the tissue cells so rapidly that they explode into steam leaving a cavity in the cell matrix. The heat is dissipated in the steam and therefore it does not conduct through the tissue to dry out adjacent cells. When the electrode is moved and fresh tissue is contacted new cells are exploded and incision is made. A true electro surgical cutting evolves sparking to tissue.
- **Endo cut mode** : Time – controlled cutting mode
- **Electro Surgical Coagulation (desiccation)** – Low Power Coagulation without sparking In desiccation the current is passed through the electrical resistance of the tissue and the heat arises in the tissue. When the tissue becomes hot the water is slowly driven out of the tissue and hence the name desiccation. One can see that the tissue turns light brown co lour, then it stems and bubbles as the water is driven out. Desiccation takes place with the active electrode in good contact with the tissue.
- **Electro Surgical Coagulation (fulguration)** – electric sparking to tissue without significant cutting: Fulguration can be defined as sparking to tissue with extremely high current density. In general, fulguration is always more efficient at producing necrosis and it requires only 1/5 of average current flow of desiccation. In Fulguration mode sparks will jump to the nearest moist tissue as long as voltage is high enough to make a spark.

Bipolar Surgical Generator

- Bipolar high frequency surgical technique has been widely accepted by Neuro Surgery, Laparoscopy and general surgery in which desiccation is performed with Forceps or other biterminal electrodes. The bipolar instrument has two basic advantages over the conventional Monopolar electrode. The first, the patient plate is not used and thus one of the most common Sources of accidents is entirely eliminated .Second, the local nature of current flow means that the desiccation is extremely localized. In Neurosurgery, desiccation is commonly done with very fine Forceps. The advantage of the bipolar forceps is that the minimum of neural tissue

is necrotized because the desiccation does not radiate away from the electrodes the way it does with the Monopolar forceps.

- **Bipolar procedures require an isolated output.** If a grounded generator output is used and the patient's body happens to be grounded, only the electrode attached to the "Active" terminal will appear to work. The electrode attached to "patient" terminal will appear no more active than if it were made of wood. When the majority of the current is returning via some distant grounded place on the patient's body, the coagulation of the tissue will tend to spread radially away from the active electrode, just as it does with a Monopolar electrode. In true bipolar operation, only the tissue, which is grasped between the two electrodes, is desiccated. If the coagulation spreads more than about a millimeter from the direct path between the two electrodes, current is returning to ground through some grounded contact point on the patient's skin or at best it is leaving the patient's body via capacitance to ground. There are two types of Bipolar Coagulations.
- **Bipolar Coagulation and Bipolar Cut:** Gentle to tissue and accessories Soft coagulation lets you treat tissues both gently and effectively. The total absence of carbonization keeps necrosis a minimum, with beneficial results for the postoperative healing period. Tissue adhesion to the electrode is greatly reduced. Instruments are subject to less soiling, with fewer interruptions of surgery for cleaning instruments and accessories have a longer service life. By selecting a low output, the surgeon can follow the progress of the tissue coagulation millimeter by millimeter. This permits fast, precise Monopolar and bipolar work even in microscopically small structures.
- **Seal :** Seal mode provides unique combination of pressure and energy to create vessel fussion, leaving no foreign material behind. And no sticking and charring. Seal mode permanently fuses tissue bundles and vessels, reduce thermal spread and reduce time of surgery. The seal mode gives you something no other electrosurgical tool can permanent vessel occlusion. The Seal mode replaces almost all other haemostatic tools because it actually fuses vessel walls to create a permanent seal.
- **Bipolar TURP** is a refinement of conventional TURP. Physiological saline is used for irrigation and to conduct current instead of electrolyte-free solution .Although both the active cutting electrode and the neutral electrode are on the resectoscope ,current flows directly via the irrigating medium and the intermediate tissue. The cutting effect is brought about through the generation of plasma as the loop heats up the saline solution and the tissue. This causes a gas bubble to develop that forms plasma which then ignites and vaporises the tissue, thus enabling the cut. The ignition is visualised through the bright-yellow colour of the loop. The bipolar route of current brings some advantages over the monopolar standard method .Firstly ,the localized current flow means that its effect deeper in the body is reduced .It is therefore less likely that deeper lying structures will be damaged and any possible effect on cardiac pacemakers is also likely to be reduced. The major advantage, however is that the use of physiological saline the erotically rules out the possibility of TUR syndrome.

TECHNICAL SPECIFICATIONS

PARAMETERS	MAESTRO
Power	400 W
Operating Frequency	480 KHz
Input voltage	170-260 VAC/50 Hz
Display	Touch screen
Weight	5.5 kg
Program	100 Program memory
Tissue response circuit	Available
Patient plate Monitoring System	Available
Modes	
Monopolar cut mode	
Pure cut	400 W
Precise cut	300
Blend 1	250 W
Blend 2	225 W
Blend 3	200
Blend 4	175
Blend 5	150
Endocut	99 W
Endocut 1	150
Endocut 2	100
Endocut 3	75
Monopolar coagulation modes	
Spray	120W,
Coarse spray	100 W ,
Fine spray	150 W
Fulguration	150 W
Coarse Fulgurate	150 W
Fine Fulgurate	150 W
Desiccation/soft	150 W
Bipolar modes	
Bi-Coag	120 W
Bi-Cut	120W
Tu - cut	300 W
Tu- Coag	250 W
Sealer Mode	
Seal	150 W

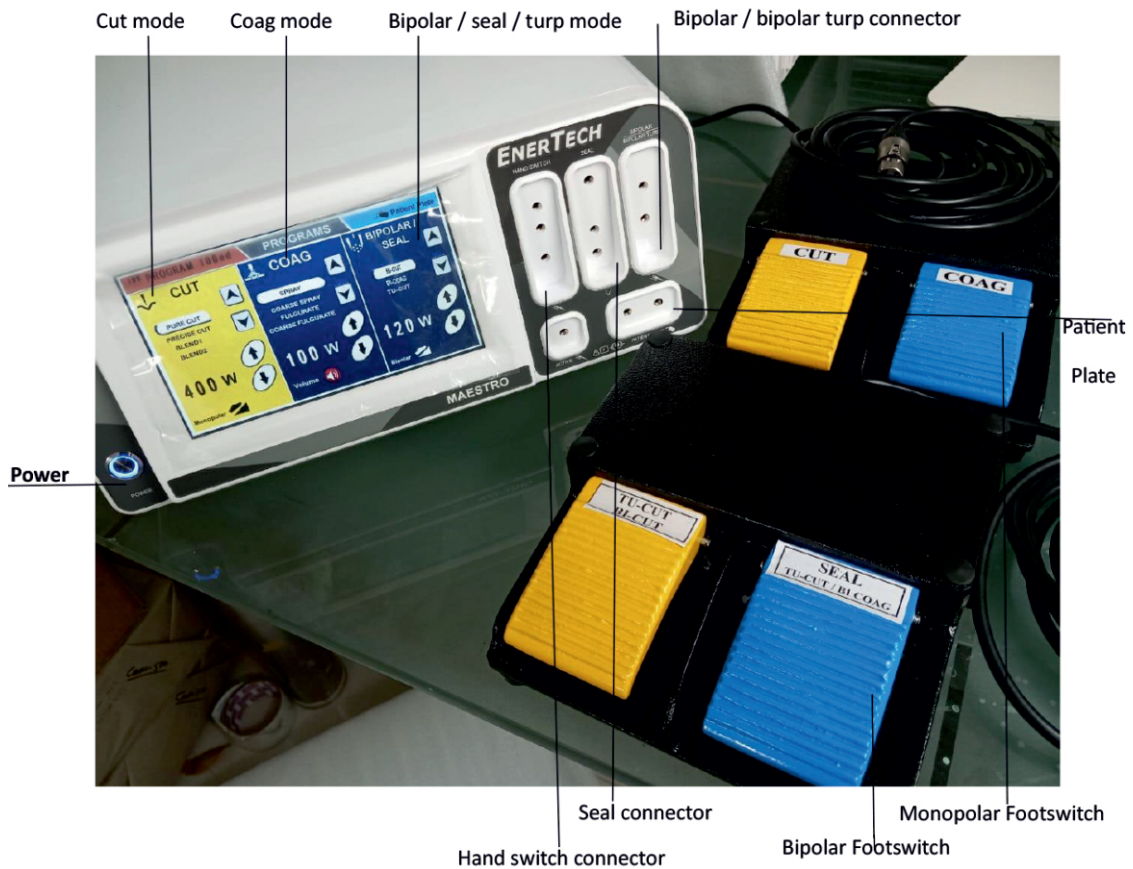


ENERTECH

ACCESSORIES



UNIT VIEWS



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