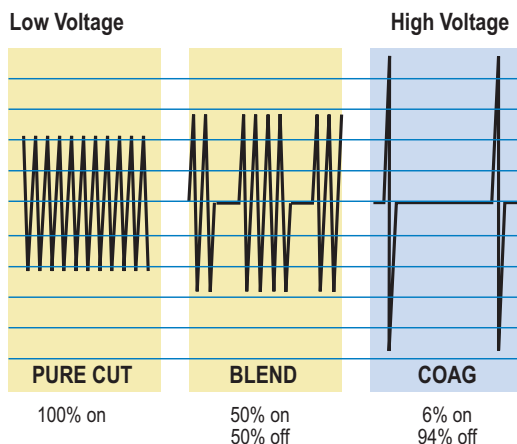


## Basics of Monopolar Electrosurgery

Valleylab Clinical Hotline receives calls from doctors and nurses asking the difference between the CUT mode and COAG mode. Users are confused about which footswitch pedal or pencil button to activate to get a BLEND mode. This issue of the Clinical Information Hotline News will discuss when and how to use the cut, coag and blend modes of Monopolar Electrosurgery.

Electrosurgery means direct application of electrical energy to tissue. During monopolar (one pole/electrode) electrosurgery, one single electrode (pencil or instrument) delivers the electrosurgical current to the surgical site. The current travels through the patient's body to reach the patient return electrode (PRE). The PRE returns the current to the ESU to complete the circuit. For return electrode placement information, please refer to Clinical Information Hotline News, *Does Placement of the Patient Return Electrode Make a Difference?*, Vol.2, Issue3.

Monopolar current can be delivered to tissue in several waveforms.



Typical Example

### CUT mode

When cutting effect is desired, it is recommended that the electrode be held *just above* the tissue. The *non-contact cut* technique creates a wedge of steam between the electrode and the target tissue during the process of cellular vaporization. This creates a clean cutting effect with little to no coag and minimal thermal damage to adjacent tissue. Cut mode can also be used to coagulate bleeders by touching the electrode to the target tissue. This *contact* technique is called **desiccation** and provides hemostasis.

- Use *non-contact CUT* for safe, low voltage current to cut with little to no hemostatic effect.
- Use *contact CUT* for safe, low voltage current to touch small surface areas intended for desiccation.

### BLEND mode

Most Blend modes are selected by pressing a button on the "Cut" side of the ESU that then converts the pure cut waveform into an interrupted blend waveform. The Blend waveform has "rest" cycles that allow coagulation to occur. In order to use the Blend mode, the cut pedal or button must be activated.

- Use Blend if cut with hemostasis is desired.
- Use Blend if low voltage coag (desiccation) is desired such as in laparoscopy.

### COAG mode

Coag mode is designed for coagulating with a superficial effect. Coag mode can be used as a *contact* (desiccation) or *non-contact* (fulguration or spray). The spray mode is

(over)



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efficient in coagulating oozing vessels and capillaries. Tissue destruction with the use of the Spray Coag mode is superficial when short activations are employed. Deeper tissue damage will occur when longer, continuous activation is used or when the electrode comes in contact with the tissue. It is possible to cut with the coag mode, but it will not deliver the clean tissue effect the cut mode is capable of performing.

- Use Spray Coag for bleeding or oozing beds and for large superficial area coagulation.
- Use Low Voltage Coag during laparoscopic procedures to reduce capacitive coupling and insulation failure.

For more detailed information on electrosurgery, call the Valleylab Clinical Information Hotline and ask for a [free Principles of Electrosurgery](#) booklet.



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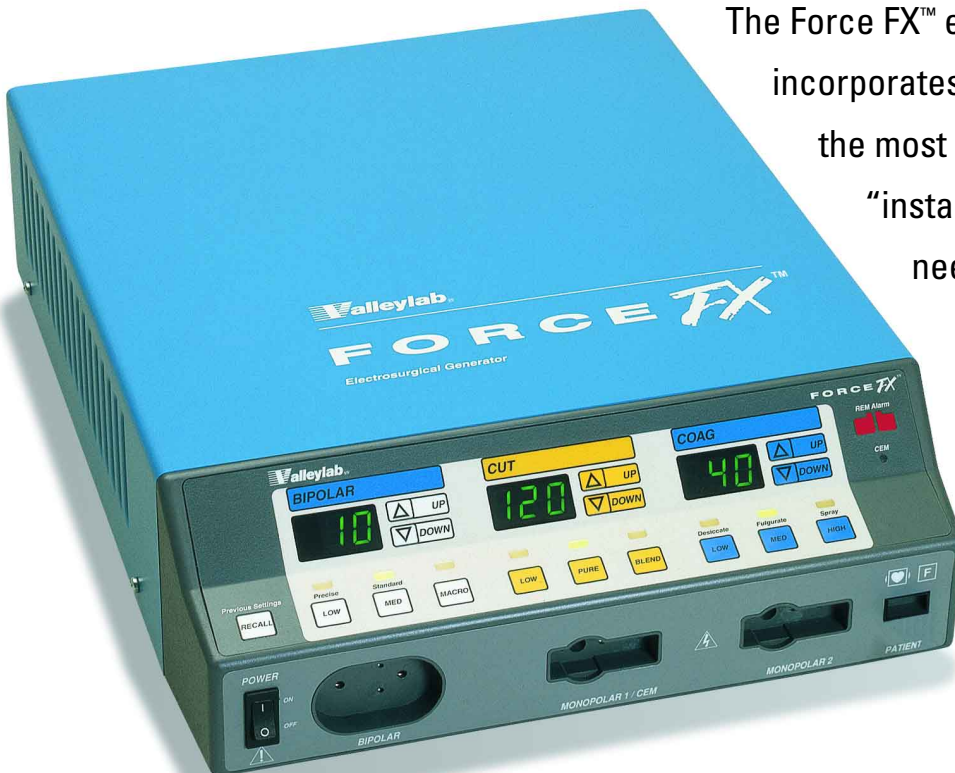
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