ELECTROSURGICAL GENERATORS

Force EZ™ Electrosurgical Generator
with Instant Response™ technology

INSTANT RESPONSE™ TECHNOLOGY

Instant Response™ technology provides surgeons with improved performance at lower power settings, minimizing the risk of tissue damage and neuromuscular stimulation, and decreasing the need to “turn up the generator.”

A SMOOTHER CUT THROUGH ALL TISSUE TYPES

The Force EZ™ generator adjusts automatically, responding to tissue changes, maintaining power delivery, and minimizing drag.

ADDED SAFETY AND RELIABILITY MINIMIZES ELECTROSURGICAL RISKS

Capacitive coupling is reduced by 30-50% when using Instant Response™ technology. This reduction is achieved by limiting the RMS voltage and the high frequency harmonics. Lower voltage means less neuromuscular stimulation and more precise delivery of energy to reduce collateral damage.

call 800.255.8522 to order
What is Instant Response™ Technology?

Instant Response™ technology features an advanced feedback system that recognizes changes in tissue 200 times per second, and adjusts voltage and current accordingly to maintain appropriate power. This unique capability differentiates Instant Response™ generators from any other, as shown by their high power efficiency rating (PER). That’s smart™ generator technology.

PER indicates the ability of a generator to accurately deliver the selected power into a wide range of tissue types. With a PER of 97, the Force EZ™ generator provides a consistent surgical effect.*

**Instant Response™ technology provides consistent power through different tissue types.**

The Force EZ™ generator provides surgeons with the advantage of accurately delivering the selected power setting, even through resistant tissue. The power curve below illustrates the Force EZ™ generator’s consistent output.

When a conventional generator encounters tissue changes, both power delivery and cutting efficiency are reduced. This means that higher power settings are required in order to cut through all types of tissue. With higher power settings, more energy is delivered, and tissue damage increases.

* PER values are approximate and are measured at 40 watts.
Unique Features of the Force EZ™ Electrosurgical Generator

- Instant Response™ technology ensures that the power delivered remains virtually constant, regardless of the tissue type.
- Improved performance at lower power settings minimizes the risk of tissue damage and neuromuscular stimulation.
- Three internal microcontrollers reduce system reaction time and increase the system’s processing speed.
- Easy to use, cost effective system when performance is required and price is of equal concern.
- A Power Efficiency Rating (PER) of approximately 97 for accurate and consistent cut performance.
- Two cut modes, both controlled by Instant Response™ technology, offer surgeons a variety of choices:
  - Pure Cut for a clean, precise cut.
  - Blend for cutting with hemostasis.
- Two primary coag modes:
  - Low for low voltage contact coagulation suitable in laparoscopic and delicate tissue work.
  - High for efficient noncontact coagulation in most applications.
- Standard bipolar mode:
  - Standard mode is controlled by Instant Response™ technology and utilizes low voltage to prevent sparking.
- Versatile system that is uniquely compatible with other devices, including:
  - Force Argon™ II and Force GSU™ argon coagulation system.
  - OptiMumm™ smoke evacuator, through a direct cable link.
- Separate monopolar and bipolar footswitch connectors on rear panel for easy set up.
- Convenient design for boom applications:
  - Additional front mounted footswitch connector is switchable, allowing monopolar or bipolar activation from a monopolar footswitch.
**Force EZ™-C Electrosurgical Generator**

**Technical Specifications**

**OUTPUT WAVEFORMS**

- **Bipolar**: 470 kHz sinusoid
- **Monopolar Cut**
  - Pure: 393 kHz sinusoid
  - Blend: 393 kHz bursts of sinusoid, recurring at 27 kHz intervals. 50% duty cycle envelope.
- **Monopolar Coag**
  - Desiccation:
    - Low 1: 240 ± 40 kHz sinusoid recurring at 39 kHz, 8% duty cycle
    - Low 2: 393 kHz sinusoid
    - Low 3: 393 kHz sinusoid
  - Fulguration:
    - High 1: 470 ± 40 kHz damped sinusoidal bursts with a repetition frequency of 57 kHz
    - High 2: 470 ± 40 kHz damped sinusoidal bursts with a repetition frequency of 30 kHz

**LOW FREQUENCY LEAKAGE (50-60 HZ)**

- Source current, patient leads, all outputs tied together:
  - Normal polarity, intact chassis ground < 10 µA
  - Normal polarity, ground open < 50 µA
  - Reverse polarity, ground open < 50 µA
  - Sink current, 140V applied, all inputs < 50 µA

**POWER READOUTS**

Agree with actual power into rated load to within ±15% or 5 watts, whichever is greater. Dosage error monitor.

**LOW FREQUENCY LEAKAGE (50-60 HZ)**

- Bipolar: Less than 60 mA
- Monopolar: Less than 150 mA

**REM™ CONTACT QUALITY MONITORING SYSTEM**

- Measurement Frequency: 80 kHz ± 10 kHz
- Measurement Current: Less than 10 µA
- Acceptable Resistance Ranges:
  - REM™ pad — 5-135 ohms
  - Non-REM™ pad — less than 20 ohms
- Acceptance range is 5-135 ohms after REM PolyHesive™ II return electrode is applied.

**POWER CHARACTERISTICS**

<table>
<thead>
<tr>
<th>MODE</th>
<th>MAXIMUM RATED LOAD (WATTS)</th>
<th>MAXIMUM POWER CREST FACTOR*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bipolar</td>
<td>100</td>
<td>1.5</td>
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</tbody>
</table>
| Pure       | 2000                        | 300                         | 1.5
| Blend      | 3400                        | 300                         | 2.1
| Desiccate  | 3500                        | 500                         | 5.0
| Low 1      | 660                         | 300                         | 1.5
| Low 2      | 1100                        | 500                         | 1.5
| Low 3      | 6200                        | 300                         | 5.0
| Fulgurate  | 8500                        | 500                         | 7.0

*Crest Factor is an indicator of a waveform’s ability to coagulate without cutting.

**INPUT POWER REQUIREMENTS**

- 110-120Vac: 85-140Vac
- 220-240Vac: 170-280Vac

**ORDER INFORMATION**

- Force EZ-C (110-120V)
- Force EZ-8C (220-240V)

Microcontroller-based isolated electrosurgical generator, designed for all general surgical procedures. Unit includes the Valleylab adaptive REM™ system and Instant Response™ technology.