

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.

Valleylab™

call 800.255.8522 to order



What is Instant Response™ Technology?

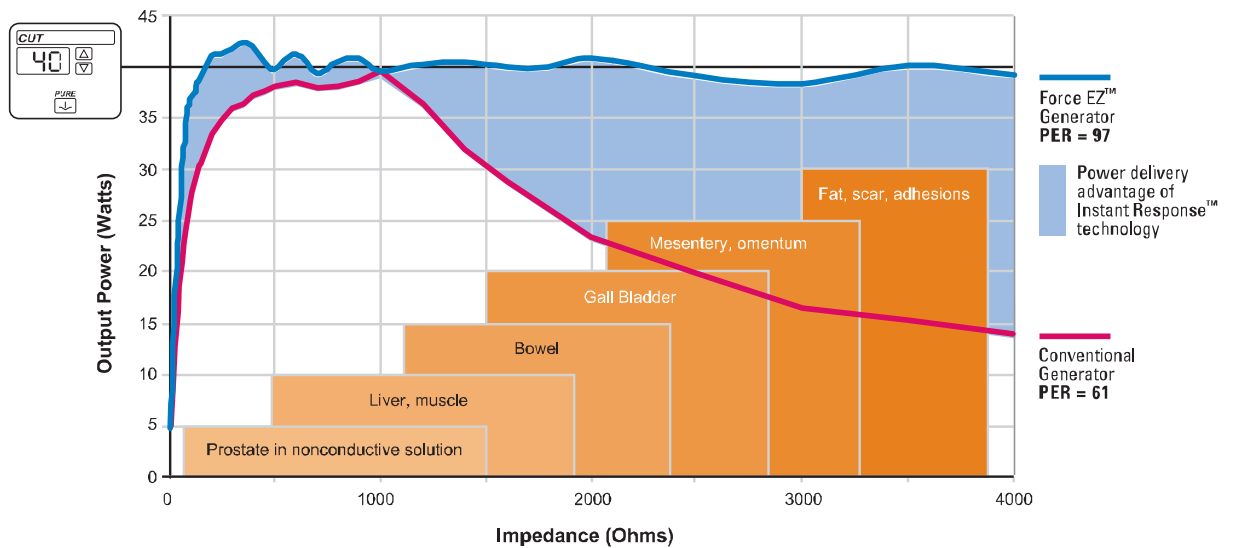
Instant Response™ technology features an advanced feedback system that recognizes changes in tissue 200 times per second, and *adjusts* voltage and current accordingly to maintain appropriate power. This unique capability differentiates Instant Response™ generators from any other, as shown by their high 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

Output power changes by less than 15% or 5 watts, whichever is greater, as the line voltage varies from 90-135 volts and 186-264 volts (into a 300 ohm load).

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.

PER = 97

PER (Power Efficiency Rating) is the measure of an electrosurgical generator's ability to accurately deliver the selected power into a wide range of tissue types.

WEIGHT AND DIMENSIONS

Height: 12.7 cm (5 in.)

Width: 40.6 cm (16 in.)

Length: 39.5 cm (15.6 in.)

Weight: < 6.8 kg (< 15 lbs)

INPUT POWER REQUIREMENTS

	110-120Vac	220-240Vac
Operating Range	85-140Vac	170-280Vac
Max Current Cut	8A	4A
Max Current Coag	4.2A	2.1A

HIGH FREQUENCY LEAKAGE

Bipolar: Less than 60 mA_{rms}

Monopolar: Less than 150 mA_{rms}

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.

Adaptive REM™

REM™ trip is baseline impedance plus 40%. For example, if the baseline impedance is 30 ohms, the upper level trip is approximately 42 ohms. If the pad-patient impedance falls below the baseline impedance, a new baseline is established.

Designed to meet UL, cUL, IEC 801, IEC 601, and AAMI HF-18 specifications.



OUTPUT CHARACTERISTICS

	MODE	MAXIMUM P-P VOLTAGE	RATED LOAD (OHMS)	MAXIMUM POWER (WATTS)	CREST FACTOR* (TYPICAL)
Bipolar	Standard	300	100	70	1.5
Monopolar Cut	Pure	2000	300	300	1.5
	Blend	3400	300	200	2.1
Monopolar Coag	Desiccate Low 1	3500	500	120	5.0
	Low 2	660	300	120	1.5
	Low 3	1100	300	120	1.5
	Fulgurate High 1	6200	500	120	5.0
	High 2	8500	500	120	7.0

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

ORDER INFORMATION

CATALOG NUMBER	DESCRIPTION	ORDER QUANTITY
Force EZ-C (110-120V)	Microcontroller-based isolated electrosurgical generator, designed for all general surgical procedures. Unit includes the Valleylab adaptive REM™ system and Instant Response™ technology.	1 each
Force EZ-8C (220-240V)		

Valleylab
a division of Tyco Healthcare Group LP
5920 Longbow Drive
Boulder, CO 80301-3299 USA
800 255 8522

