

Features Instant Response™ technology for improved performance at lower power settings



- **Instant Response Technology:** Instant Response technology provides increased performance at lower power settings, reducing the risk of tissue damage and neuromuscular stimulation, and lowering the need to turn up the generator.
- **A Smoother Cut Through All Tissue Types:** The Force FX™ automatically adjusts, responding to tissue changes, maintaining power delivery and minimizing drag.
- **Improved Safety and Dependability**
Minimize Electrosurgical Risks: Capacitive coupling is lowered by 30-50% when using Instant Response™ technology. The reduction is provided by minimizing the RMS voltage and the high frequency harmonics. Decreased voltage means less neuromuscular stimulation and increased precision of delivery of energy to lower collateral damage.

► A Quick Look

- 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
- Spray coagulation voltage of no more than 9000 volts peak-to-peak output for broad, but superficial coagulation with limited capacitive coupling
- A Power Efficiency Rating (PER) of approximately 98 for accurate and consistent cut performance
- Three cut modes, all controlled by Instant Response™ technology, offer surgeons a variety of choices:
 - Low Cut for delicate tissue or laparoscopic cases
 - Pure Cut for a clean, precise cut
 - Blend for cutting with hemostasis
- Four coag modes:
 - Desiccate for low voltage contact coagulation suitable in laparoscopic and delicate tissue work
 - Fulgurate (high crest factor) for efficient noncontact coagulation in most applications
 - Fulgurate (low crest factor) for lower voltage coagulation requirements
 - Spray for coagulating large tissue areas with superficial depth of necrosis

See reverse for additional features

Technical Specifications (110-120V)

Output Waveforms

Bipolar

- Precise: 470 kHz sinusoid
- Standard: 470 kHz sinusoid
- Macro: 470 kHz sinusoid

Monopolar Cut

- Low: 390 kHz sinusoid. Similar to the Pure Cut mode except the maximum voltage is limited to a lower value.
- Pure: 390 kHz sinusoid
- Blend: 390 kHz bursts of sinusoid, recurring at 27 kHz intervals. 50% duty cycle envelope.

Monopolar Coag

- Desiccate: 240 kHz sinusoid repeated at 39 kHz. 8% duty cycle.
- Fulgurate: 390 kHz damped sinusoid bursts with a repetition frequency of 30 or 57 kHz into 500 ohms
- Spray: 390 kHz damped sinusoidal bursts with a randomized repetition centered at 28 kHz. Frequencies include 21 kHz

- Output power changes by less than 15% or 5 watts, whichever is greater, as the line voltage varies from 104-132 volts and 208-264 volts (at rated load).

Low Frequency Leakage (50-60 Hz); source current, patient leads, all outputs tied together

- Normal polarity, intact chassis ground: <10 μ A
- Normal polarity, ground open: < 50 μ A
- Reverse polarity, ground open: < 50 μ A
- Sink current, 140V applied, all inputs: < 50 μ A

PER = 98

- 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: 11.1 cm (4-3/8 in.)
- Width: 35.6 cm (14 in.)
- Length: 43.9 cm (17 in.)
- Weight: < 8.1 kg (<18 lbs)

Input Power Requirements

- Operating range is 85 to 132 AC volts. Maximum current is 7 amperes in Cut and 4 amperes in Coag.

High Frequency Leakage

- Bipolar: Less than 60 mA (rms)
- Monopolar: Less than 150 mA (rms)

REM™ Contact Quality Monitoring System

- Measurement Frequency: 80 kHz \pm 10 kHz
- Measurement Current: Less than 10 μ A
- 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 approximately 42 ohms. If the pad-patient impedance falls below the baseline impedance, a new baseline is established.

Output Characteristics

Bipolar

- Precise Mode:
 - Maximum P-P Voltage: 450
 - Rated Load (OHMS): 100
 - Maximum Power (Watts): 70
 - Crest Factor* (Typical): 1.5
- Standard Mode:
 - Maximum P-P Voltage: 320
 - Rated Load (OHMS): 100
 - Maximum Power (Watts): 70
 - Crest Factor* (Typical): 1.5
- Macro Mode:
 - Maximum P-P Voltage: 750
 - Rated Load (OHMS): 100
 - Maximum Power (Watts): 70
 - Crest Factor* (Typical): 1.5

Monopolar Coag

- Desiccate Mode:
 - Maximum P-P Voltage: 3500
 - Rated Load (OHMS): 500
 - Maximum Power (Watts): 120
 - Crest Factor* (Typical): 5
- Fulg. High Crest Factor* Mode:
 - Maximum P-P Voltage: 8500
 - Rated Load (OHMS): 500
 - Maximum Power (Watts): 120
 - Crest Factor* (Typical): 7.0
- Fulg. Low Crest Factor *Mode:
 - Maximum P-P Voltage: 6900
 - Rated Load (OHMS): 500
 - Maximum Power (Watts): 120
 - Crest Factor* (Typical): 5.5
- Spray Mode:
 - Maximum P-P Voltage: 9000
 - Rated Load (OHMS): 500
 - Maximum Power (Watts): 120
 - Crest Factor* (Typical): 8

CEM™ Mode

- Monopolar Cut (Low):
 - Maximum P-P Voltage: 1000
 - Rated Load (OHMS): 300
 - Maximum Power (Watts): 100
 - Crest Factor* (Typical): 1.5

Monopolar Coag (Desiccate):

- Maximum P-P Voltage: 3500
- Rated Load (OHMS): 500
- Maximum Power (Watts): 70
- Crest Factor* (Typical): 5
- * Crest Factor is an indicator of a waveform's ability to coagulate without cutting

► A Quick Look

- Three bipolar modes
 - Precise, Standard, and Macro
- Precise, Standard, and Macro are controlled by the Instant Response™ system
- Precise and Standard settings utilize low voltage to prevent sparking
- Versatile system that is uniquely compatible with other devices, including:
 - Force Argon™ II and Force GSU™ argon coagulation system
 - CUSA Excel™ and CUSA™ 200 ultrasonic surgical aspirators
 - OptiMumm™ smoke evacuator, through a direct cable link
 - Valleylab VLCM bipolar current monitor
- Compatible with and used as the electrosurgical energy source for:
 - Dyonics* Control RF arthroscopic ablation system
 - Dyonics* Electroblade™ rotary resection system
 - Cook Vascular Perfecta™ EDS pacemaker lead extraction system
- Compatible with, and the exclusive electrosurgical generator for, the Computer Motion Hermes™ Voice Command System