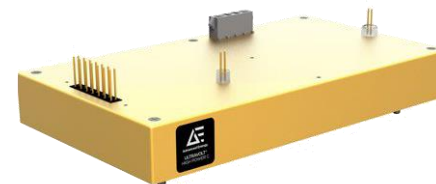


## Pulse Field Ablation

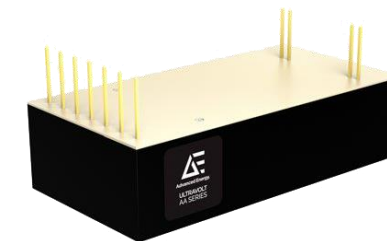
Pulsed Field Ablation (PFA) or Irreversible Electroporation (IRE) is driving new treatments for tumors and atrial fibrillation. PFA is a technique where a HV electrical field is applied to cells culminating in cell death. The voltage required is typically in the range of 1 to 3 kV with some applications requiring up to 5 kV with currents up to 65 mA. Pulse widths are typically in the range of 100 to 100  $\mu$ s with burst mode frequencies up to 5 MHz. The associated slew rates for the pulse are both significant and challenging.

Ultravolt High Power C is a compact, reliable HVPS providing tightly regulated output power and features fast rise-times ideal for pulsing applications. It is suitable for high-energy pulsers, amplifiers, and discharge devices with large capacitance, fast repetition rates, and high current loads.

In certain use cases, the customer may require a lower power HVPS for the purpose of a stimulation pulse application during the ablation procedure. This may be in the 20 to 30 W range at <50 V where the UltraVolt AA Series is a recommended choice of product.



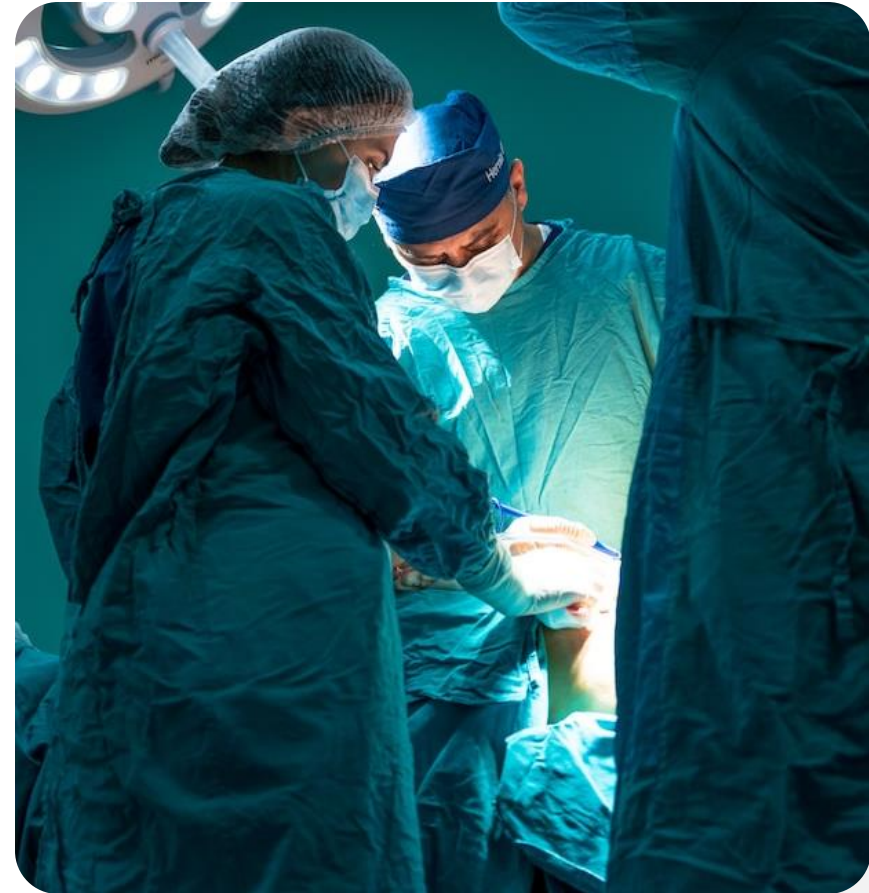
High Power C Series



Ultravolt AA Series

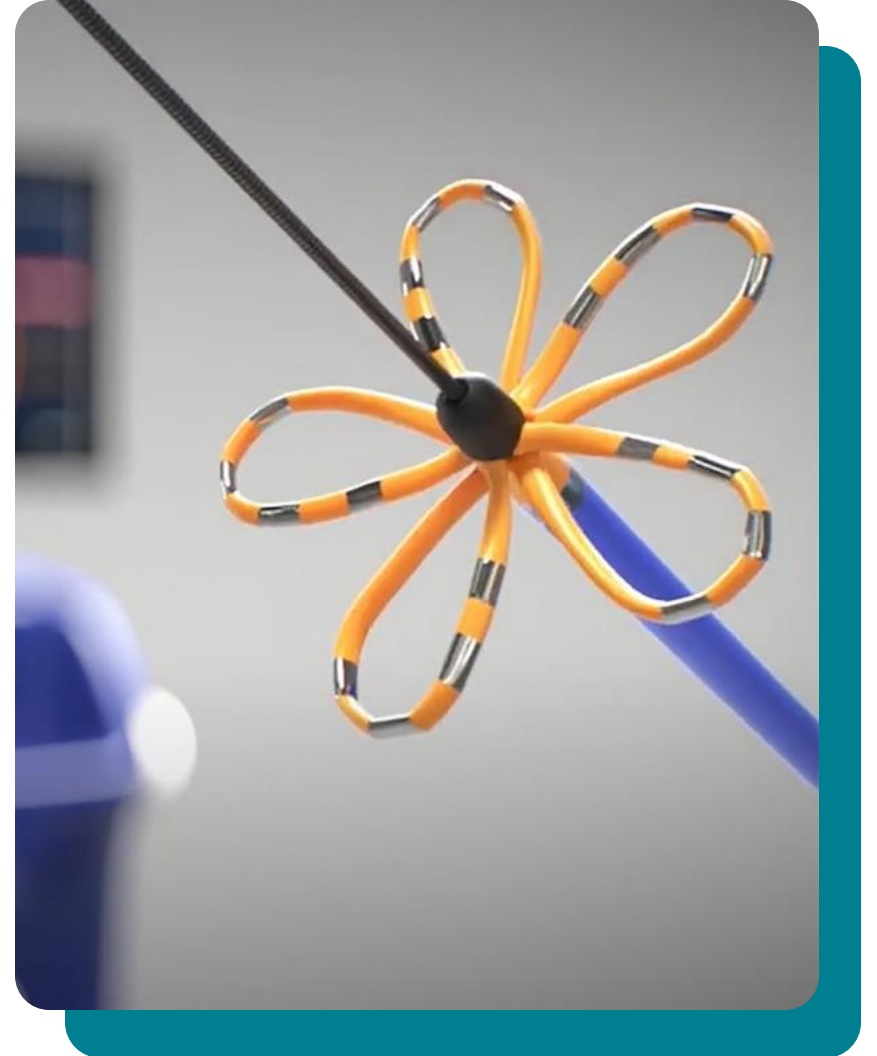
# Business Benefits

- ✓ Quick turnaround for delivery
- ✓ Proven and highly reliable
- ✓ Broadest medical power portfolio – preferred vendor
- ✓ Highest performance and quality
- ✓ Best in class QMS
- ✓ Dedicated medical engineering and customer support
- ✓ Standard off-the-shelf and full-custom solutions
- ✓ Lowest total cost of ownership

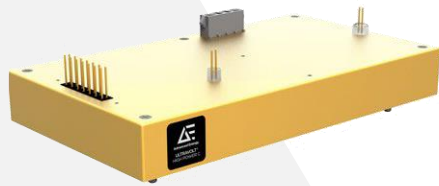


# Challenges

- ✓ Pulsed electric fields in the sub-microsecond range is faster and precise, causing less unnecessary damage than RF or cryoablation
- ✓ Demand for high-voltage and high-frequency pulse generators is pushing the limits of pulse power solid state technology
- ✓ Long lead times and lack of customer support delay time to market



# Key Features & Specs



High Power C Series

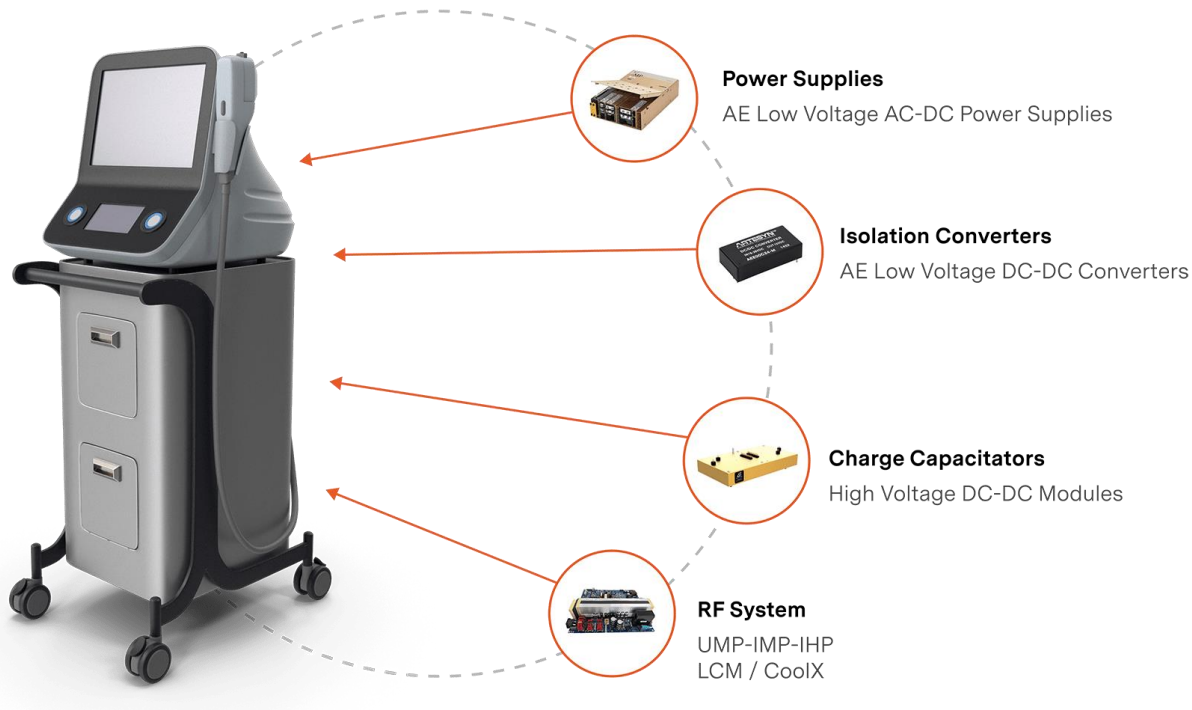


Ultravolt AA Series

Our power supplies meet the requirements of a wide range of applications within electrosurgery.

- ✓ Regulated high voltage outputs ranging from 125V to 60kVDC maximum
- ✓ Positive or negative polarity models
- ✓ 60, 125, or 250W maximum power (dual polarity 60 or 125W maximum power)
- ✓ 24VDC input
- ✓ Output ripple performance <1%
- ✓ Controlled high voltage overshoot enhances longevity of external load components
- ✓ Temperature coefficient 50ppm/°C
- ✓ Simplified integration with available 0 to 5VDC or 0 to 10VDC interface for constant voltage or constant current mode operation
- ✓ Reliable modular, fan-less design

# Cross Sell Opportunities



## Power Factor Correction

Artesyn AIF - PFC SERIES

## AC/DC power supplies

Artesyn LPS360-M Series  
Excelsys CoolX600 Series  
SL Power NGB425

Pulsed Electric Field is an emerging therapy segment. Research and development into pulsed field ablation (PFA) is of particular interest as the ultra-short pulses increase therapeutic effects while minimizing thermal issues. However, you must be able to deliver high voltage (HV) electrical energy accurately while these systems need to meet varied parameters without compromising precise control.

## Critical Sensing & Control

Luxtron® Fiber Optic Temperature Sensors

While PFA is a non-thermal tissue ablation therapy, medical device manufacturers use fiber optic temperature sensors during development to confirm safety when adjusting pulse parameters and to monitor for effects on adjacent tissue and structures. The FOT sensors from AE are safe and accurate for use in the electric fields created by PFA.

# Block Diagram – What We Power

