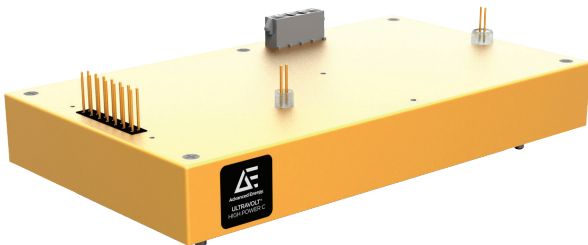


# High Voltage Power Supply for Next-Gen Photon-Counting Detector

**INDUSTRY****Medical Imaging****SOLUTION****Custom High Voltage Power Supply****EQUIPMENT****Photon-Counting CT application****CHALLENGE**

The challenge presented to AE was to deliver a  $>1000\text{V}/500\text{W}$  DC-DC power supply which will provide power to a next-gen photon-counting detector. Due to existing gantry design architectures the input voltage must be 12VDC. In conjunction with this input voltage, high G-forces (87-90g) must be sustained. Some of the key concerns for the manufacturer are trying to find the appropriate solution with the correct thermal conditions, weight and the ability to survive 87-90g during rotation. The customer was seeking a true partner who would be able to provide a dedicated custom high voltage power supply since they have been unable to find anything that matches their specific requirements, currently on the market.

**SOLUTION**

Due to the special mechanical design required for this high-G force application (along with application-specific electrical requirements) a fully custom solution was necessary. After careful consideration, onsite visits and numerous discussions with customer's engineers, AE's UltraVolt team tendered a modular power supply designed to meet all their requirements, including ability to:

- Minimize settling time to  $<1.6\text{mSec}$  which will directly improve image quality
- Provide full output power with existing 12V rail
- Fit in uniquely shaped and tightly controlled footprint
- High power-to-package size ratio

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## RESULT

After extensive system testing, the custom power supplies were selected for use in this next-generation Photon-counting equipment. The custom solution provided by AE enabled the customer to move away from legacy discrete 1kV high voltage power supplies powering individual detectors and instead power the entire array from a single HVPS solution. The fanless solution AE provided by offering a conduction-cooled design, allowed for simplified thermal considerations in the gantry. During all interactions with the customer, AE delivered exceptional technical and application support provided by a team of dedicated high voltage engineering members as well as medical imaging technology experts.

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## CONCLUSION

By choosing UltraVolt as a valued partner for this application the customer was able to receive a proposal that addressed their requirements for a reliable high voltage power supply for this photon-counting CT application. Our level of technical and commercial engagement, as well as AEI's strong understanding of the medical imaging market, provided the customer with the level of comfort they needed to ensure they chose the right partner for this project.



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