CASE STUDY

High Voltage Power Supply required for use in intraoperative EMG monitor (nerve integrity monitoring system)

INDUSTRY	SOLUTION	EQUIPMENT
Medical	AEQ5-100FL0.5 & modified AEQ5-150BP0.5	Nerve integrity monitoring system

CHALLENGE

Our customer was using a derivative of a legacy product, the proportional PXS Series and turned to Advanced Energy for a next-generation system. The end system, a nerve integrity monitoring machine, required:

1. Tight control accuracy (±5%) at 100 V ±5% and ±125 V ±5%.
2. To keep control scale factor at 100% regardless of V_{max} rating.
3. Accurate and repeatable voltage control.

SOLUTION

The solution proposed by our team was the Ultravolt® AEQ series of high voltage DC-DC converters. More specifically the AEQ5-100FL0.5 and a modified AEQ5-150BP0.5 were recommended for the customer application. The AEQ 100 V was used as-is and the AEQ150 ±150 V unit was modified to reduce output to ±125 V ±5%. Additional adjustments to V_{max} were explored during the prototyping stage. Because of its small size, ease of voltage control and output voltage accuracy and stability, the AEQ series is ideal for use in high-voltage products where space and weight are critical requirements.

RESULT

As per their requirement, the end customer was able to get more precise control of output voltage due to the programmable (as opposed to proportional) design provided by the AEQ Series. Its programmable control enhances flexibility, precision, and reliability to address the specific application needs. The modified AEQ unit limits maximum Vout for easier system integration and scaling within the end application. The form factor was in line with our closest competitor, but AE offered a much more accurately adjustable product and higher isolation which was essential for the end-customer. The strong historical support for both low voltage and high voltage applications with this customer enhanced the relationship and allowed them to have confidence in AE's suggested solutions (and modifications). Our flexible engineering adjustments to evolving requirements also allowed for a faster time to market.

Advanced Energy

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