

Compact and Cost-Effective Custom Power Supply for High-End Ultrasound System

INDUSTRY

Medical Imaging

SOLUTION

Compact, quick time to market, and cost-effective custom power supply

EQUIPMENT

Ultrasound

CHALLENGE

This medical imaging customer was looking for a competitive mid-tier platform of their existing high-end ultrasound system. Their system features some of the most advanced imaging technologies in the market. In medical devices such as ultrasound machines, the quality, size and reliability of the power supply are vital for

accurate and consistent results in order to fulfill additional requirements such as minimal acoustic noise and mobility of the system. The challenge when providing a power supply unit for this customer was understanding the full spectrum of device requirements, beyond just voltage and current, which was imperative.

SOLUTION

The redesigned platform created by the AE team addresses the mid-range Ultrasound segment. Advanced Energy designed a custom solution with each circuit block being a re-use of existing proven building blocks from the AE portfolio. We matched the customer specifications with AE typical building blocks, ranging from AC-DC power train to DC-DC platforms such as the LCM and NGB series.

AE competencies for custom products:

- **Fundamental AC/DC Power Train Topologies** – AC-DC 2 W to 20 kW, low leakage current, and EMI Compliant
- **Battery Charging & Management** – Intelligent Communications with Smart Batteries
- **Thermal Management** – High Efficiency, Force Air or Fan less solutions
- **DC-DC Platforms** – High efficient and Low Voltage topologies
- **Digital Control** – Extensive Digital Communications & Control

RESULT

Creating a custom solution with leverage on standard products saves time during the development cycle as the engineering team do not need to start from scratch. This fast development cycle ensures the customer can realize the cost savings quickly and the re-use of proven micro-controller units for control and communication enable quick prototype sampling. The AE team's ability to leverage components used on high volume and reliable standard products like the LCM and NGB series maximized cost savings. It also assures quality and reliability as it is a proven solution already. Whatever the system needs – Advanced Energy has the proven building blocks and deep application knowledge to simplify the customer design and shorten time to market. The use of high-power density and efficiency circuit blocks provided significant chassis size reduction, and the smaller size solution allows to minimize overall system space. Advanced Energy power supplies are designed to provide compact, high performance and reliable power conversion. These supplies ensure that ultrasound devices operate at their peak performance levels, delivering consistently accurate results.



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