

High Voltage Power Supply required for use in automated mass spectrometry microbial identification system

INDUSTRY

Medical – Mass Spectrometry (Industrial Microbiology)

SOLUTION

UltraVolt's 1/8A12-P4 and 1A12-N4-F-M (UltraVolt A Series)

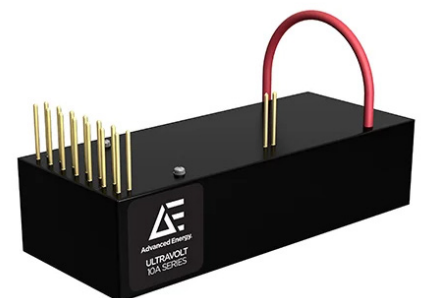
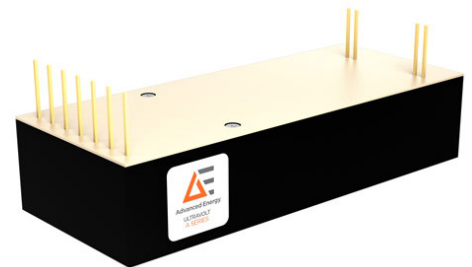
EQUIPMENT

Mass spectrometry microbial identification system

CHALLENGE

This customer has developed an automated mass spectrometry microbial identification system that uses Matrix Assisted Laser Desorption Ionization Time-of-Flight (MALDI-TOF) technology. MALDI-TOF technology has been proven over the last 10 years as an extremely effective method of identifying microorganisms and is more efficient and accurate than traditional molecular methods. In a clinical laboratory environment, it is especially well suited at distinguishing between closely related bacterial species with a high degree of confidence, but it must be noted that this advantage hinges highly on the integrity and content of the database. The application being created by the industry leading end-customer is the most powerful entry in this platform aimed at end users such as quality control laboratories. The challenge for AE was providing a pair of DC/DC high voltage power supplies for this application. The system required a compact 125V & 1000V DC-to-DC power supply, with enhanced ripple & noise reduction on the 1000V supply.

The customer's end-platform will have a 10-year life span so the product support for production needed to last that time frame with follow-up support for remaining units in the field. The primary high voltage requirements are +125V/4W and +1000V/4W, with both running off a 12V rail. The +1000V supply required enhanced output ripple & noise reduction. UltraVolt has been in contact with several contract manufacturers for the duration of the design process.



SOLUTION

Advanced Energy's UltraVolt A Series high voltage power supplies were recommended as the best solution. Based upon the customer's requirements, models 1/8A12-P4 was an excellent choice for the +125V output. For the +1000V supply, the low ripple & noise requirement was recommended but with the suggestion of adding the -F and -M options to the base 1A12-N4, resulting in P/N 1A12-N4-F-M.

Among the benefits realized by using UltraVolt:

- The form factor appealed to the customer due to the physical size constraints of their system.
- Historically favourable and long-standing relationship with the contract manufacturer gave the end customer confidence in selecting UltraVolt as a viable high voltage power supply source for this project.
- The expected long support life for the UltraVolt A Series was a critical gating factor in high voltage power supply vendor selection.
- AE's experience in supporting mass spec applications provided them with additional confidence in choosing UltraVolt as their source.

RESULTS

UltraVolt's dedication to fast technical support and cost-competitive pricing enabled this customer to develop their new mass spec system quickly and with minimal timeline change. The customer used the UltraVolt supply in their proof-of-principle efforts, where it worked as intended. The contract manufacturer did not want to introduce additional risk into the development, so they left those supplies in the design. Since it performed well, they wanted a reliable system and chose it based on more of a risk-based approach on what was known to already work.

CONCLUSION

The UltraVolt A Series allows the customer to precisely control and monitor high voltage output and current with one of several available analog interfaces which allows it to meet specific application needs with customizable mechanical and electrical performance options. Product support of at least 10 years, rapid responses to technical queries and attention to the costs of the proposed solution were critical to keep pace with this product's expedited development cycle. By working closely with the customer's contract manufacturers and by providing excellent technical support as well as cost-competitive pricing, UltraVolt facilitated their launch of the end-application into the existing MALDI-TOF microbial ID field. By virtue of AE's strong skills in product management and continual customer support, they achieved AOAC approval ahead of other competitors, placing AE in a leading competitive position.



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