

Custom High Voltage Power Supply Required in Mass Spectrometry System

INDUSTRY

Life Sciences

SOLUTION

Custom HV-DC/DC power supply

APPLICATION

Mass Spectrometry

CHALLENGE

A next-gen mass spectrometry system was designed by a leading life sciences equipment manufacturer to have a system with enhanced analytical features.

The equipment manufacturer was seeking a power conversion company that could both meet current requirements and provide a backwards compatible power supply for the previous mas spec systems.

The requirements of the next-gen mass spec system were:

- Multiple high voltage outputs, which power the dynode, source and electron multiplier sections of the instrument.
- Reversible dynodes consisting of two high voltage DC-DC supplies with a common reference point.
- The power supply's behavior must be repeatable and predictable under the same conditions, with focus on temperature and voltage, as this will have a marked effect on testing of samples.
- Tight linearity
- Exact fit within the existing enclosure as there is an incumbent.
- All outputs must meet the customer's demanding rise time and fall time specifications.

SOLUTION

Initially the approach of the AE team was to evaluate standard products, however, due to the unique electrical specifications and mechanical enclosure it became clear that a fully customized high voltage DC-DC solution was necessary to meet all requirements by the customer.

After intensive engineering review by the AE team, a complete package approach was developed.

The proposed solution was considered an excellent choice for this application due in large part to these attributes:

- The ability of the supply to meet all the stringent linearity, rise and fall time as well as ripple specifications
- The customer appreciated working with an engineering team who was easily accessible from the standpoint of technical assistance and was well-versed in numerous life sciences markets and applications
- AE's willingness to develop a drop-in solution
- Focusing on a design that not only meets the needs of the new system but could also be easily retrofitted into existing legacy systems

Among the factors listed above that affected the customer's decision, the following additional benefits were essential for the customer:

- Exceptional applications and engineering support
- Flexible engineering adjustments to meet need
- Reputation for quality and reliability
- AE being a leading company in custom and modular power supplies.

CONCLUSION / RESULT

The customer accepted the solution because it approached the interaction of each module from a systems-related angle.

Impressed not only by AE's technical acumen and long-standing experience in high voltage applications, especially in the high-performance segment for HV-DC/DC power supplies, the customer highly values the excellent customer service and product support for their global branches.



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