

Medical ionization chamber required a high voltage power supply

INDUSTRY	SOLUTION	EQUIPMENT
Medical Treatments – Radiation Therapy	UltraVolt® MPM Series	Ionization chamber (Oncology Treatment)

CHALLENGE

A leader in radiotherapy has developed several LINAC and cyclotron platforms and required a high voltage power supply to power their ionization chamber. The purpose of this chamber is to determine the intensity of the radiation beam used during radiotherapy treatment by counting individual charged particles. The power supply needed to be compact as it will be in the “head” of the radiation device (just before the beam will be released to the patient) and used in “closed mode”, which means the chamber is an integral part of the “head” and not separated by a cable. The required voltage range was 250 V to 1500 VDC @ 1.5 W maximum. Output voltage regulation was not a strong concern so a proportional high voltage power supply would suffice in this application.

SOLUTION

Ultravolt’s P/N MPM12-1K5P was recommended, which proved to be the most cost-effective and electrically ideal high voltage power supply solution for this application. It is demonstrably robust and reliable in the system and was much more readily available than the competitor’s product. By working closely with the customer the experts on AE’s engineering team were able to satisfy all the requirements.



RESULT

Some of the customer's most valued attributes of the MPM Series:

- Proportional design helped simplify their control circuitry
- The compact size of the MPM allowed for easy installation into the "head" of the LINAC
- Rapid turn on prototypes in the early developmental phases allowed the customer to be more agile in their timeline
- The customer's historically successful business relationship with AE led them to develop system using our products
- Simplified high voltage subsystem design
- PCB size and enclosure packaging requirements
- Upgraded module and system performance without changing PCB layout
- Increased power subsystem robustness
- Added protection from line noise and external RF emissions

CONCLUSION

The MPM Series provided the customer with a cost-effective and electrically reliable solution in the critical dosage measuring stage of their LINAC. And, the customer was able to bring their system through testing and trials at an accelerated pace.



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