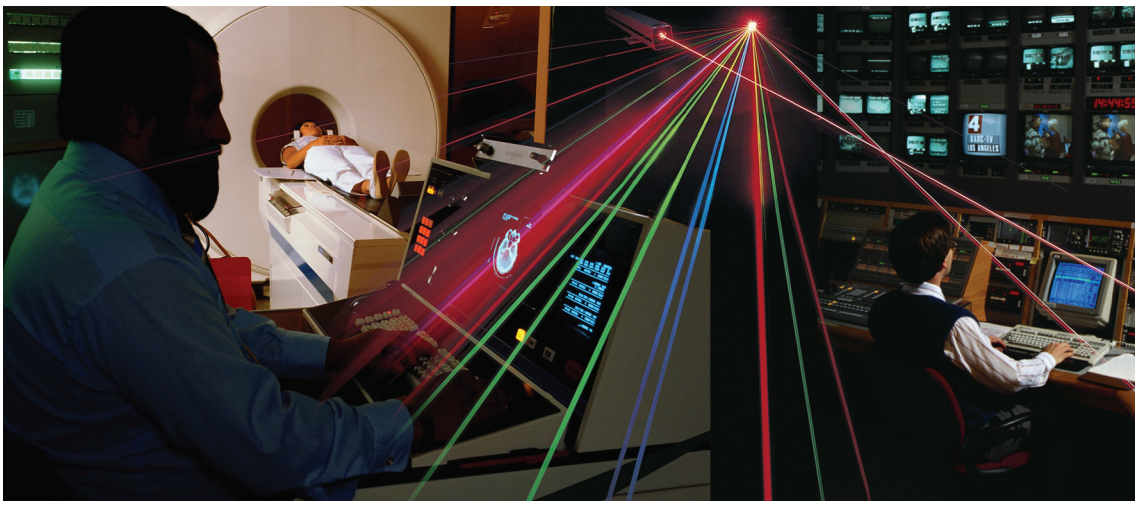
National Aeronautics and Space Administration

Technology *Opportunity*

Electrical Component Technology

Multi-Loop High-Voltage Power Supply with Fast Rise-and-Fall Time



NASA's Marshall Space Flight Center (MSFC) has developed a new high-voltage power supply (HVPS) that is both space-qualified and has a fast rise-and-fall time. The HVPS is programmable up to 1250V and is capable of delivering 300mA at full output voltage. The closed loop design controls the output stage of the HVPS, eliminating the need for a preload. The elimination of a preload makes this power supply ideal for use in applications where power efficiency is critical. The rise-and-fall times are much faster than anything else commercially available, which could have considerable benefits in imaging applications, allowing for imaging over time intervals orders of magnitude smaller than is achievable with other power supplies.

Benefits

- Programmable from 0–1250V
- Delivers up to 300mA at full output voltage
- Operates at no-load
- Leakage current of less than 150pA
- Rise-and-fall times of less than 100us
- Space-qualified

Commercial Applications

- Laser and optics research
- Imaging systems
- Medical equipment
- Industrial controls and automation
- Telecom
- Data networking
- Military/aerospace

The Technology

NASA's Marshall Space Flight Center has developed a programmable HVPS that does not require a pre-load. The closed-loop design features two feedback loops to control the output voltage. The first loop controls the output of the pre-regulator, which can be programmed to the desired voltage, while the output stage of the power supply is inactive. The second loop controls the output stage of the HVPS after the output has been activated, eliminating the need for a preload.

For More Information

If you would like more information about this technology or about NASA's technology transfer program, please contact:

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Partnership Opportunities

This patent-pending technology is part of NASA's Technology Transfer Program, which seeks to stimulate commercial use of NASA-developed technology. Companies are invited to explore co-development opportunities for the technology with a view to licensing commercial products. NASA is flexible in its agreements, and opportunities exist for exclusive, nonexclusive, or exclusive field-of-use patent licensing.

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