

SHORT PULSE MAGNET POWER SUPPLIES

AREA OF EXPERTISE

- Power Electronics

CERN has developed a family of short Pulse Power Supplies with very stringent specifications for the needs of particle accelerators such as Linacs, particles sources or injection systems. These power supplies are used to power conventional magnets, septum magnets, heating system of particles sources.

These power supplies are controlled using the FGC control system (Function Generator Controller) developed at CERN. CERN has developed a software layer to ease FGC integration with the EPICS and TANGO frameworks. In addition, software tools for remote monitoring and performance analysis are available.

IP STATUS

- Owned by CERN

Complete manufacturing folders are available for the following five types of power supplies. They can be licensed to interested industrial partners.

- MidiDisCap a Pulsed Current power supply, 50A for 5ms at 2Hz repetition rate.
- MaxiDisCap a Pulsed Current power supply, 320A for 5ms at 10Hz repetition rate.
- Sirius P2P a Pulsed Current power supply, 1000A for 12ms at 1.1Hz repetition rate.
- Sirius FP2P2S a Pulsed Current power supply, 3000A for 12ms at 1.1Hz repetition rate.
- MegaDisCap a Pulsed Current power supply, 2000A for 30ms at 2Hz repetition rate.

TECHNOLOGY READINESS LEVEL

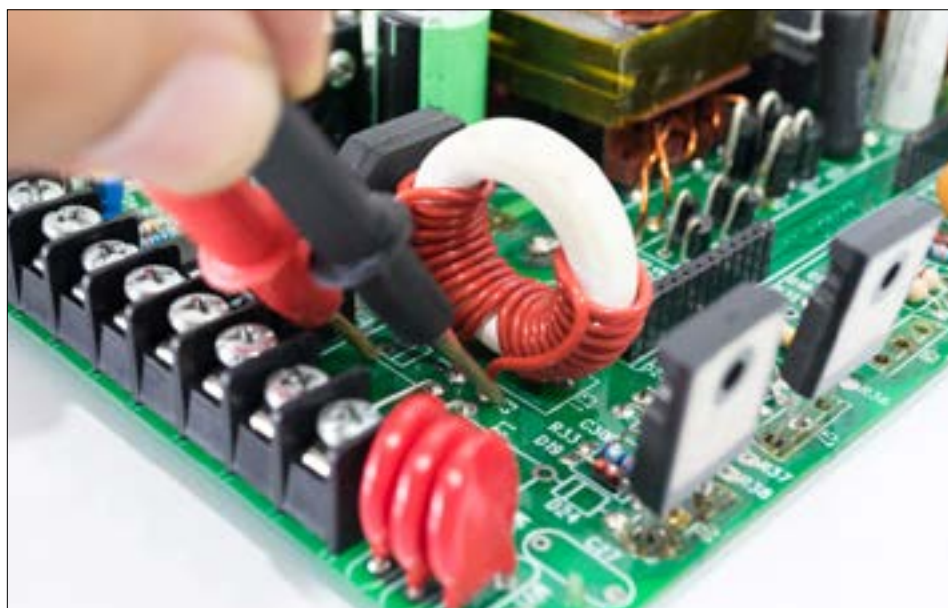
- Production level, widely used.

Other current levels can be obtained by adding a pulse transformer in series with
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technology

Knowledge Transfer
 Accelerating Innovation

FEATURES

- Sophisticated and flexible controls using FGC controllers.
- Pulse timing can be provided via cables to the FGC control crate.
- Seamless integration with the most commonly used controls frameworks (EPICS, TANGO).
- Powerful software tools allowing remote configuration and software updates and handling of one or more power supplies.
- Designs used and maintained at CERN for a period of 20 years or more. Both hardware and software components of the controls framework are regularly upgraded and improved.
- Reliable and proven designs operating for over ten years under very demanding conditions in the CERN accelerators.

APPLICATIONS

- Powering conventional magnets (bumpers, quadrupoles, dipole).
- Powering septum magnets.
- Powering particles sources.

