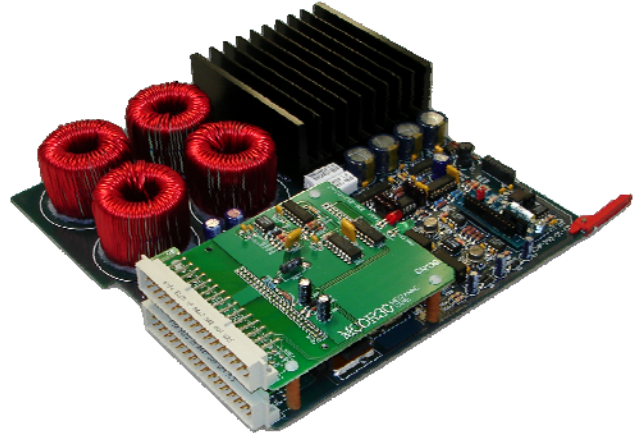


General Description

The MCOR 30 system is an 8-channel precision magnet driver, capable of providing bi-polar output currents in the range from -30A to $+30\text{A}$. The output current can be adjusted smoothly through zero. A single, unregulated bulk power supply provides the main DC power for the entire crate. The MCOR system employs a modular architecture, so that any individual channel is serviceable without disturbing the operation of adjacent channels in the same crate.



The 2510R30 occupies two slots in a 17-slot, 6U by 220 mm, Eurocard crate. The module and its mezzanine card connect to the crate backplane via two standard 48 - pin connectors. About half of the output current is carried by the Mezzanine Card connector. A blinking front-panel Red LED indicates a fault trip. A Green front-panel LED indicates the presence of Bulk Power. A 16-pin Front-Panel Test connector provides quick access to important major node points.

Features

- Proven member of a modular Power Module family, more than 800 units are in service
- Precision-regulated Bi-Polar output provides up to $+30$ to -30 Amps for Magnet loads.
- Smooth operation through zero amps output current, no “Crossover” problems.
- All 2510R30 MCOR30 Power Modules are identical and interchangeable, and can be used in any application within its ratings. When a module is replaced, the Programming Card is plugged into the replacement module.
- Each channel has a critically-damped, LC noise filter with a cut-off frequency of about 8 kHz.
- A 16-pin front panel diagnostics connector taps onto major circuit nodes which enables quick “in-the-crate” fault evaluation.

Applications

- Particle accelerator beams
- Industrial Robotics
- Motor control
- Medical equipment

Programming Card

Each magnet design has a unique inductance and frequency characteristic, and in addition each corrector installation has a unique cable plant resistance and maximum current rating.

In order to provide “custom-tailored” service to each corrector magnet, yet retain a high degree of modularity and consistency in the driver design, each MCOR 12 power module accommodates a small programming (PGM) card. This card contains a set of passive components that match several important characteristics of power module to its corrector magnet, including:

- IVA (output current vs. SAM voltage) determined by R101
R=300,000/ full-scale output current
- DVI (DAC voltage vs. output current) determined by R102
R=300,000/ full-scale output current
- Tuning compensation values – C101 (pole), R103 (zero)
- IMMO (maximum output current limit) determined by R104
R=3,000 ohm for 7.5 max output
R=20,000 ohm for 12A max output
R=OPEN CKT for 15A max output
- Internal or external sync selection

It is important to note that all MCOR 12 power modules are identical and interchangeable. Every power module is capable of any full-scale current rating, as dictated by the plug-in PGM card that “piggybacks” on the power module. The PGM card is the only item that changes from slot to slot, giving the power module a tailored response to its corrector magnet. Each PGM card is labeled with the building, rack level and slot to which it belongs. When a power module is replaced, the programming card is removed from the old power module and installed on the new one, preserving the tailored response for that corrector magnet.

Bi Ra Systems - Tel: (505) 881-8887 • Fax: (505) 888-0651 • www.bira.com
2410 Midtown PL NE – Suite A – Albuquerque NM 87107, United States of America



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