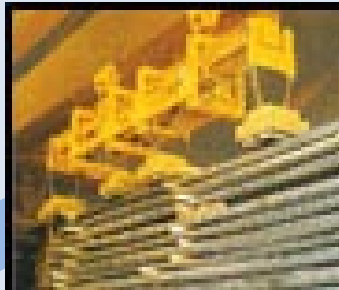


Kinetics Smart-flux Magnet Optimization System
Programmable Sequence Of Operation & Timing Logic
Integrated Solid State Rectification & Magnet Controller
Kinetics Model Type: RTMC



Alternating current to direct current smart flux magnet control system

Kinetics Industries, designer and manufacturer of regulated and non-regulated rectifiers for heavy industrial, mill applications applied to motors and field applications since the early 1960's, has designed the Kinetics model type RTMC rectifier / magnet controller to be a highly reliable and robust, integrated, smart logic, regulated – magnet controller for maximum productivity enhancement and durability.

Kinetics', proprietary, *Stata-Flux* controlled power up and *Dynamic Discharge Power Circuitry* provides a power management system for optimum magnet performance by programmable operational parameters and infinitely adjustable operating voltages and timing functions. The flexibility of the Kinetics *Smart Flux* magnet power control allows the user to tailor the magnet operation to the product or material being handled and optimize magnet performance. The programmable operational flexibility of the Kinetics *Smart Flux* system provides users with maximum material handling management productivity enhancement through coordinated magnet control to the desired metal handling process with "standard", traditional, heavy lift magnets.

Whether the application is the handling of scrap, plate, beams, sheet goods, pipe, rod or irregularly shaped ferrous products; the Kinetics RTMC *Stata-Flux* control system has the flexibility and control functionality to optimize the speed and consistency of material handling productivity. RTMC has been designed to be compatible with conventional or existing operating controls and magnets.

Kinetics' integrated combination rectifier and static magnet flux controller has been designed for long term dependable service in harsh mill environments incorporating; robust power circuitry, heavy duty electronic circuitry, signal isolation, RFI suppression isolation and an isolation transformer for protection against interaction with "other" drives and control on a common AC input power feed / distribution.

The Kinetics' RTMC *Smart Flux* controller, incorporates Kinetics' innovative proprietary *Dynamic Power Discharge* circuitry for highly dependable and extremely fast magnet discharge. The fast response of the RTMC system minimizes the dwell time to apply reverse field polarity for magnet cleaning and material separation.

The programming capability of the *smart flux* system allows for programmed flux forcing on magnet "charging" and lowered "carry" voltages. The user friendly programming functions of the voltages of operation and timing intervals enables cooler magnet operation, maximum magnet lift capacity, longer magnet life and reduced energy consumption.

Kinetics Industries - Since 1939

Kinetics RTMC – Smart flux rectifier / magnet controller

System key features:

- Kinetics' highly reliable, heavy mill duty, bi-directional SCR regulated rectifier designed and rated for highly inductive magnet loads.
- Kinetics fast response 100% solid state magnet controller system.
- Shortened magnet operation cycling time by Kinetics' *Dynamic Power Discharge Circuitry*
- Negative field polarity reversal for consistent & reliable "magnet clearing" for deliberate & uniform load separation.
- Thyristor rectifier voltage control provides solid state flux-forcing capability for accelerated magnet charge.
- Thyristor rectifier voltage control provides reduced rectifier voltage control for magnet load holding at reduced magnet temperature and magnet carrying load capacity.
- User friendly, digital, programmable timing of operational cycle functions for magnet charging, load holding, load drop and polarity reversal for uniform magnet load clearing.
- *Stata –FF-Economy* function for automatic voltage reduction to a magnet hold – magnet operates cooler reducing energy consumption and maximizing magnet lifting capacity is available.
- Reverse flux forcing for accelerated magnet clearing for dependable and uniform metal separation.
- Incomplete sequence of operation protection.
- Increase the lifting capacity of magnet by improved operational efficiency.
- Increase crane or mill utilization capacity by faster turn cycles of fast magnet charge – greater magnet lift capacity by consistently cooler magnet run temperatures – fast magnet cleaning.
- System can be powered from a direct feed AC generator – isolation transformer is changed to an auto-transformer significantly reducing cost, space footprint and weight. Idea for mobile scrap yard magnet crawler cranes.

Kinetics RTMC advantages over traditional electro-mechanical magnet controller packages:

- Kinetics *Smart Flux* technology for highly flexible and infinity adjustable time and voltage function for magnet production optimization. Increases magnet lighting capacity 20 to 50%.
- Capacity for magnet & process tailoring to maximize process productivity and product quality control.
- Enhanced magnet protections for reduced maintenance and extension of magnet longevity
- Reduced space utilization footprint
- Solid state RTMC system has reduced maintenance requirement verses electro-mechanical, "arching" contact tip wear, contactors and relays.
- Energy efficiency optimization via the design of the RTMC system and smart control of the magnet performance by smart magnet flux management.
- Enclosures can be non-vented, totally enclosed, for harsh or all weather installation environments. Kinetics' solid state RTMC systems do not have the problem of corrosive gases generated by arching contactors and relays that requires enclosure venting.
- Smart diagnostics of the system for ease of service and maintenance.
- Kinetics' proven solid state rectification and inductive field control technology manufactured with robust construction for the highly demanding, harsh environments of the metals and metal processing industries.
- All major and critical components within the RTMC system are designed, manufactured, tested and supported directly by Kinetics.



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Kinetics RTMC – Smart flux rectifier / magnet controller

Optimizing magnet performance RTMC adjustments:

- DC flux-forcing voltage level and time interval adjustments.
- Magnet holding voltage adjustment.
- Negative magnet excitation polarity reversal voltage level and time interval adjustment.
- Adjustable current limit protection setting.
- Adjustable immense over current protection setting.
- Dribble voltage control and adjustable time interval control.
- Fully automatic *Smart Flux* mode or manual modes of operation via selection switch.
 - Remote automatic control can be provided via a externally supplied sequence of operation initiation signal of 0 - 10 volts, dry contact or 4 – 20 milliamp.
 - Manual or test mode operation via a control potentiometer at the RTMC unit for 0 to 100% voltage output.

Standard *Kinetics* RTMC Product Features:

- AC thermal magnet circuit breaker with a through the door, dead front entry safety, operator handle. Breaker operation handle includes a safety lockout / tag-out provision.
- Isolation dry type transformer with copper conductor.
- Robust, three phase, full wave, thyristor rectifier designed and rated for 24/7 operation and demanding heavy industrial production mill environment.
- Solid state adjustable DC current limit control function.
- Solid state DC immense over current protection.
- Continuous operation in environmental ambient of -10°C to 60°C ambient.
- Heavy industrial, NEMA3R, vented enclosure. Full length hinged door with screw down latches.
- Suitable for mill and yard crane mounting.
- DC ammeter & voltmeter.
- Digital display for unit operation status and mode of operation.
- Indication lights for power on and blown power semi-conductor fuse.
- Enclosure options of dust tight, and all-weather; NEMA12 , 4 and 4X.

Optional Features Available:

- Continuous monitoring and measurement of magnet core temperature with communication output.
- RS485 communications for remote annunciation of unit status and operating parameter adjustment.
- Designated generator power source ultra space efficient design package.
- Energize multiple or specific magnets for operation via a common RTMC unit.



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