MOTORTRONICS™
Solid State AC Motor Control

Motor Safety Products

ABC
ELECTRONIC MOTOR BRAKE
3 TO 1000 HP / 208 TO 600V

Stop AC Motor Loads Quickly and Safely...
as easy as A-B-C

Safety First

Motortronics Motor Controls Made Easy

ABC Series for Maximum Safety, Increased Productivity

Electronic Braking

Electronic braking stops the load by injecting a controlled amount of DC current into a three phase AC motor. The ABC Series "automatic braking controller" features full-wave DC braking which can be adjusted to stop your load quickly, repeatable and reliably...even if load conditions change. It offers 50% more power than half-wave.

The ABC Series meets the three main objectives that are important in every industry: Maximized Safety, Increased Productivity and Maintenance-Free

Maximum Safety

The ABC Series is designed to eliminate dangerous coast-to-stop times of rotating machines and equipment. The ABC Series also eliminates the dangerous practice of jamming the machine to bring it to a stop, which can present potential danger to operators and passers-by alike. OSHA and other safety agencies pay close attention to these types of operating conditions and recognize brakes as an important part of a system to guard against potential dangers.

The ABC Series is an ideal way to add braking and eliminate dangerous "coast-to-stop" times in your application.

Increased Productivity

Long coast-to-stop times equal lost production time. Now you don't have to wait forever for the load to come to a stop before you make blade changes or change a tool. Simply stop your equipment using an ABC Series electronic brake for increased efficiency and product through-put.

The ABC Series also eliminates any need for "plug reversing." Reversing a load when it is still spinning creates mechanical shock which can cause equipment breakage and extended downtime. Your machinery can now do what it was designed to do... make product at a profit.

Easy to Install

The ABC Series microprocessor insures proper connections and coordinates system operation. Simply wire the ABC Series electronic brake into the motor starter circuit for a cost effective, maintenance-free means of bringing the motor and load to a stop. No isolation contactors, no additional logic wiring...it works right off the motor input leads! It's as easy as A-B-C.

Easy to Select

The ABC Series units are sized by amperage and should be selected based on the application requirements. "Standard Duty" ratings are sized for 95 - 110 % of motor FLA. "Extra Duty" ratings are sized for 150 - 250% of motor FLA. Specify maximum braking current and voltage when ordering.

Easy to Combine

Starter/Brake Combo Packages Motortronics solid state soft starters can be ordered with the ABC Option. This starter-brake combination provides a complete pre-packaged unit without the hassle of field wiring and additional controls. Easy installation is guaranteed since all connections are simplified to line-in, load-out, and start/stop control.

Maintenance Free Operation

Using the ABC Series electronic brake eliminates the wear and tear on mechanical brakes in the system. This means less time and money is spent replacing **discs** or **pads** (which is especially important given the "shorter life" material used in today's mechanical brakes). Let the mechanical brake act as a holding brake and let the ABC Series do the stopping.

The ABC Series eliminates the common (and also dangerous) practice of "jamming" equipment to stop the load. Expensive blades and tooling are no longer "sacrificed" to stop your motor. Use the ABC Series for faster, smoother stopping and maintenance free operation.

Warnings

The ABC is designed for use with full voltage non reversing starters and Motortronics Softstarts, use with other types of starters (wye-delta, auto xfmr, ect...) may require extra contactors and custom designed logic. The ABC is designed to reduce stopping times on high inertia loads with long coasting times, there can be a delay (up to 4-5 seconds) between when the motor stops driving and braking begins. If immediate braking is required, or the delay would cause a safety concern, fail-safe mechanical braking should be used.

ABC Series for Maintenance Free Operation

Specifications

Voltage Rating:	Models rated from 208 - 600V +/- 10%, Selectable for 50/60Hz +/- 2 Hz
Current Ratings:	10 - 1000A in 10 sizes: 10, 24, 50, 100, 200, 300, 400, 550, 800, 1000A
Output Capacity:	25% duty cycle at 100% unit rating
Power Circuit:	Full wave bridge, 4 SCRs, designed for use with or without isolation contactors
Transient Protection:	RC snubber dv/dt circuit on each SCR device
Fusing:	Approved for use with existing motor starter fusing when unit is sized for motor FLA. Consult NEC for any other fusing requirements.
Control Circuit:	Self-powered directly from line terminals. No separate control voltage required
Control Method:	Microprocessor unit controls sequencing, I/O monitoring and status annunciation. Braking current is adjustable via true RMS regulated control using phase angle firing of SCRs.
Operator Adj.:	Brake Time and Jog Time = 7 position binary dipswitch Brake Current = potentiometer
Adjustment Ranges:	Brake Jog Times = 0 - 127 seconds in 1 sec. increments Brake Current = Up to 100% unit rating
Inputs:	Starter Monitor = Dry input for auxiliary contact from motor starter. Jumper selectable for N.O. or N.C. contact. Brake Disable = Dry input for N.O. contact to disable braking before or during operation. Can be wired to the starter thermal overload N.O. auxiliary contact to prevent braking of overloaded motor. Motor Power Sensor (T3) = voltage input used for sensing motor power presence in sequencing/status circuit and for zero speed sensing during braking
Outputs:	Starter Coil Interlock = Two sets of FORM "C" relay contacts for use in interlocking the starter coil and/or other devices to prevent energizing as the braking power is applied. Mechanical Brake Release = N.O. relay contact for use in controlling electromechanical brake as a holding brake. When the ABC Series is "disabled," this circuit controls the mechanical brake normally as if it is the only brake in the system.
Aux Contact Ratings:	5 amps, 250VAC max
LED Indicators:	Large LEDs: Braking = green; Fault = red Small LEDs: Power On, Jog/Armed, Brake Off, Disabled, Over Temp, and Wiring Error
Operating Temp.:	0 - 50 C (32-122 F) open, 0 - 40 C (32 - 104) enclosed
Ambient Conditions:	0 - 95% relative humidity 0 - 3300ft (1000m) elevation
Approvals:	UL, cUL Listed

Typical Applications

Saws, Chippers, Cutting, Molding, Grinders, Testing Bench, Slicing Machinery, Punch Presses, Power Tools, Batch Processing, Conveyors & Shakers, Light Curtains and Reversing Applications.

ABC Series: Simple, Safe and Reliable

Zero Speed Sense that REALLY WORKS

An exceptionally accurate method of microprocessor controlled sensing determines when the motor shaft has come to a stop. Braking current is removed when the motor stops, eliminating excess braking current which means longer motor life.

The Credentials to do the Job

the ABC Series has been designed and tested to meet the most stringent industry standards.

Full-Wave DC braking

More braking capability than similarly rated half-wave brakes... faster stopping, and more effective overall performance. The ABC Series provides smooth, low level peak braking current for smooth stopping and minimal motor heating.

...Easy to Read LED Status Indicators

Power On, Braking and Fault indicators make set-up, operating and troubleshooting easy as "A-B-C". An additional status display module can also be mounted on the enclosure door of NEMA 4/12 enclosed units (optional).

Jog Feature for Easy Setup

Built-in jogging circuitry allows you to select the time you need for machine setup and positioning without applying DC current to the motor windings. DC current is only applied when system setup is complete...no excess current, no exess heating, no premature motor failure.

Current Control for Better Performance

Unlike other brakes that only provide voltage control, the ABC Series is a current regulated brake. It automatically adjusts for resistance changes in the motor windings due to any input voltage fluctuations. What does this mean? Repeatable, reliable operation every time you stop your motor.

Works Hand in Hand with Your Mechanical Brake

The ABC Series has a built-in feature to control a mechanical holding brake. Easy to connect and setup, any fault indication automatically enables the mechanical brake for fail safe operation.

Operator Interface Offers Finger Safe Design

An isolated operator interface module is mounted on the dead-front panel of the ABC Series chassis / NEMA 1 units. Setup of jog time, brake time and brake current are made right on the face of the brake. No covers to remove, no internal adjustments to be made, no chance of accidental contact with live

...and Simple to Use Adjustments

Jog Time - allows you to select the time needed for machine setup or motor rotation check prior to normal braking operation. During this time, the ABC Series will not "arm" or go to the braking routine when a stop command is given.

Brake Time - Sets the maximum amount of time the ABC Series will be allowed to inject DC braking current into the motor. This setting is used as a "back-up" to the Zero-Speed Sense and provides reliable, repeatable stopping every time.

Brake Current - adjusts the level of DC braking current injected into the motor windings. Current controlled braking provides smoother, more effective braking torque thoughout the stop cycle. Closed loop feedback prevents injecting more current than the unit is capable of handling. It automatically adjusts to compensate for changes in motor winding resistance and any changes in input voltage so that braking time and torque is the same every time you stop your motor.

ABC Series

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PN: MT-ABC-031824