

Evolution

ISSUE 32 Summer/Fall 2001 A PUBLICATION OF ELECTROMOTIVE SYSTEMS, A MAGNETEK CO.

Adjustable Frequency Drives Provide Many Advantages in Small Hoist Applications

Perhaps no other technological development in the past 20 years has done more to revolutionize overhead crane design than the Adjustable Frequency Drive. Today's Adjustable Frequency Controls and Flux Vector Motor Controls have become the industry standard. They are ideal for use in heavy-duty AC industrial cranes moving large loads, or where precise spotting, or high duty cycles are required.

We often overlook, however, the safety and performance benefits that AFDs provide for so called lighter duty applications, such as those in light manufacturing, machine shops, warehousing, etc. These applications usually involve small electric cable or electric chain hoists (referred to as "monorail hoists" or "package hoists") with single-speed or two-speed controls, operating on monorails or single girder crane bridges. These monorail hoists are more likely to be abused than their built-up counterparts. They are frequently subjected to overloads and higher duty cycles than their rating specifies. Finally, in many cases these hoists receive infrequent maintenance, and are often operated by unskilled personnel.

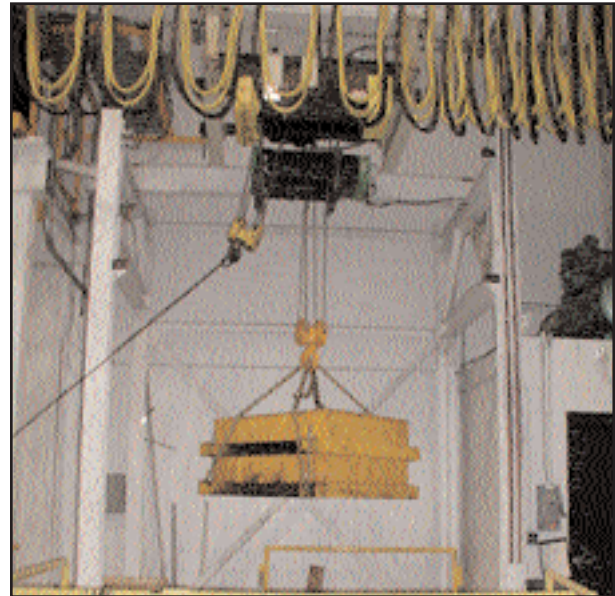
Given these realities, the use of IMPULSE® AFDs provides many advantages for small hoist applications.

Increased Versatility

No two applications are the same. Electromotive Systems' Impulse drives provide the monorail hoist user with a variety of operating modes:

- Most single-speed squirrel cage motors can be controlled by an Impulse AFD, including conical-rotor motors used by many European hoist manufacturers.
- Multiple control modes allow easily changing the operation to suit the needs of specific applications or the desires of individual operators. *Control modes include two, three and five discreet steps or infinitely variable speed selection.*
- Wider range of selectable speed choices (up to 40:1)* are available to the user compared to the fixed speed ratios provided by typical two-speed motors (2:1, 3:1 or 4:1) or micro-drives (10:1). *This also allows the OEM hoist builder to stock fewer motor-gearbox combinations.*

*Depending upon the drive selected and the motor characteristics.



Electromotive Systems Package Hoist Test Fixture

Enhanced Performance and Prolonged Equipment Life

At Electromotive Systems, improving the performance of your material handling system is foremost on our minds! The use of an Impulse drive will enhance the performance and prolong the life of your hoist in a variety of ways:

- Reduces the characteristic high starting currents of AC induction motors (500 - 700% inrush) to less than 150 - 200% (depending upon drive selected). *This minimizes the shock effect on both the load and the equipment, ensuring smooth movement of loads and prolonging equipment life.*
- Provides controlled programmable acceleration and deceleration rates, permitting a softer stop and start. *The result is reduced mechanical stress on the hoist, without a loss of productivity. With controlled deceleration, the motor mounted brakes perform the function of holding, not stopping the load, which greatly reduces brake wear and load slippage (when dynamic braking resistors are used), and results in longer brake life.*

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AFD Controls For Small Hoists

- Allows smooth transition between speed steps, eliminating the shock to mechanical components that occurs when two-speed motors change speed.
- Provides valuable monitoring and status information that can be used to evaluate hoist performance and establish preventive maintenance schedules.
- Features such as Reverse Plug Simulation™, Stall Prevention, Inching Control and Micro-Positioning™ Control, are built-in and individually selectable, further enhancing the hoist's performance.

Enhanced Safety

Safety is a priority. That's why IMPULSE drives are designed and manufactured with important safety features:

- Load Check™ reduces the possibility of lifting an over load.
- Controlled acceleration and deceleration of trolley drives can minimize or eliminate dangerous load swing.
- Multi-Level Password Protection limits unauthorized modification of drive parameters.
- Safe Operating Windows™ reduce the possibility of programming unsafe parameters.
- Motor Thermal Overload prevents overloading of the motor.



Electromotive Systems works closely with many of the major OEM hoist manufacturers. In cooperation with

them, we have developed OEM hardware and software packages for hoists, which reflect the unique confines, as well as the special performance and safety requirements, of the overhead hoist market. We regularly test our AFDs on specific hoist models for individual OEM hoist manufacturers.

Electromotive Systems also works closely with OEM hoist manufacturers and their authorized service centers to retrofit existing hoists with Impulse AFDs, in order to optimize performance and safety, improve versatility, and prolong the hoist's useful life.

For over fifteen years, Electromotive Systems has been and continues to be the leader in supplying innovative solutions to the Crane and Hoist Industry, with over 50,000 Adjustable Frequency Drives presently in use. When ordering your next hoist, be sure to specify an Impulse Adjustable Frequency Drive.

For more information, contact your OEM hoist supplier or Electromotive Systems.



We're Updating Our Look!

ELECTROMOTIVE SYSTEMS

a  Magnetek Company

In this edition of Evolution, you may have noticed we've changed our logo. Our look is now more consistent with our parent company, Magnetek, and the changes they are making to their own logo. You'll start to see this more contemporary logo in our literature and correspondence soon!

Dear Electromotive Systems Customer,

It has come to my attention that several competitors are using the recent acquisition of Magnetek Drive Products Business Unit and the discontinuation of the Yaskawa / Safronics brand-label arrangement to imply that the Yaskawa / Magnetek relationship is going to be dissolved. This could not be farther from the truth.

To summarize, I would like to re-cap the recent actions taken by Yaskawa Electric America, Inc. (YEA) and approved by its parent company Yaskawa Electric Corporation (YEC):

On January 29, 2001, Yaskawa Electric America, Inc. ("YEA") assumed ownership and operation of the Magnetek Drive Products Business unit in New Berlin, Wisconsin. This group was formerly a part of the Drives & Systems group of Magnetek, Inc. This business unit sells, modifies and services general purpose and high performance AC drives. Magnetek retained the Industrial Controls Business (MIC) unit of its Drives & Systems group, with its specialized manufacturing and applications operations serving the crane and hoist, elevator, mining, power conditioning and fuel cell markets.

Coincident with the acquisition, YEA and Magnetek MIC signed a 5-year supply agreement. The agreement establishes Electromotive Systems as the sole seller of Yaskawa AC drives for the Overhead Material Handling market in North America. Yaskawa agreed not to sell directly, or support other channels attempting to sell AC drives in these markets.

In a separate action, on April 30, 2001, Safronics Inc. and Yaskawa Electric America, Inc. announced the discontinuation of their brand-label arrangement. Based on this agreement, Safronics will have access to the current Yaskawa AC drive products through the end of YEA's fiscal year (2/28/02). At the conclusion of the phase-out period, Yaskawa will supply products to Safronics under its own brand name and Safronics will continue to service and support the Yaskawa product line and provide spare parts through its national network of system integration centers.

Yaskawa clearly recognizes that Electromotive Systems is the only channel we will support for sales of AC drives into the North American Overhead Material Handling market. We will fully support only Electromotive Systems sales efforts into this industry. Our 5-year Supply Agreement is a formal and legal sign of that support.

Mike Knapek
VP Sales, Yaskawa Electric America

NEW Electrobar® FS Conductor Bar System

Electromotive Systems knows the safety and performance of your overhead material handling system are top priorities. That's why we proudly introduce the Electrobar FS Conductor Bar System for electrification of cranes, monorails and automated storage and retrieval systems!

The unique shape of the Electrobar FS Conductor Bar enhances its performance! It was designed to ensure:

- Electrical contact between the collector shoe and conductor bar
- Minimized wear to the conductor bar cover
- A significant reduction in potential loss of electrical contact at the joints
- Reduced deflection between hangers

We've also designed Electrobar FS to be easy to install and maintain. Just look at the following features:

- Modular, snap-in multi-pole conductor bar hangers reduce installation and maintenance time.
- Hangers include compression anchors—no drilling required.
- Expansion line elements

come completely pre-assembled.

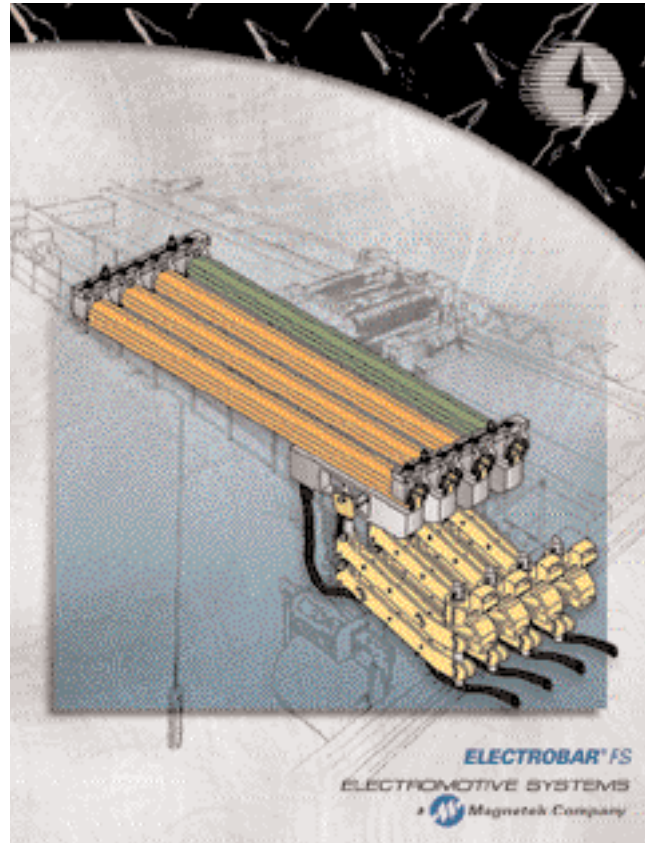
- Snap-on one-piece joint covers.
- Minimal system maintenance required—just periodically replace collector brush assemblies.
- Snap-in collector shoe assembly.

Plus, Electrobar FS is a value-packed conductor bar system!

- Systems up to 490 feet in length can be installed without expansion assemblies.
- Standard 15' bar lengths mean fewer joints to purchase. (Custom lengths are available by request).
- Common hangers and joint assemblies allow for reduced inventory levels.
- Standard systems designed for indoor or outdoor use—no special parts to purchase for outdoor applications.
- System design reduces installation labor costs.

You can be assured Electrobar FS was designed with safety in mind!

- Finger safe IP2 certified design minimizes potential for electrical contact.
- Grounding conductor bar is available with green cover for ease of identification.



We offer Electrobar FS in a variety of configurations to meet your application needs:

- Single and double shoe collector assemblies.
- 90, 125, 250 and 400 AMP ratings.
- Snap-in hanger kits available for 2, 3 and 4 pole applications.
- Single hangers are also available for special configurations.
- Single-arm or Pantograph style collectors.

- Can be used in horizontal or vertical mounted applications.

So if you're looking for a value-packed conductor bar system that reduces installation and maintenance time, and maximizes safety and performance, Electrobar FS is your answer.

For more information on Electrobar FS and all our electrification products, please contact our Electrification Sales Department at 1-800-288-8178, or request #123 on your reply card.

Introducing PulseStar® MRT5



Small and lightweight, the PulseStar MRT5 is ergonomically designed to fit comfortably in the palm of your hand, and is ideal for 3-motion/2-step applications. MRT systems can be powered with standard AA disposable batteries, or an optional 3.6-volt rechargeable battery. The PulseStar MRT, like all our PulseStar radio control products, uses a synthesized frequency, not fragile crystals, transmitting in the 400-470 MHz band. This ensures a safe, reliable radio link. For more information about this or other PulseStar Remote Radio Control products, contact your Electromotive Sales Representative or call our PulseStar Sales Department at 1-800-288-8178.

For more information on the PulseStar MRT and all our PulseStar radio control products, please contact our PulseStar Sales Department at 1-800-288-8178, or request #124 for PulseStar MRT only and #122 for all PulseStar products- on your reply card.

Reference Files



New ReFlx 120 Brochure

New and improved ReFlx 120 Collision Avoidance System enhances the performance of your overhead material handling system by preventing crane to crane or crane to object collisions. Avoiding collisions results in reduced maintenance costs and increased operator safety! ReFlx 120 Systems now feature a more reliable, solid-state control board in a smaller enclosure, making it easier to install. They are ideal for use with all types of adjustable frequency drives and stepped controls.

Please write #121 on your reply card to receive a copy of this brochure.

New Festoon Estimation Software

A Windows based, user-friendly program, Electromotive Systems's Festoon Estimation Software now contains a configurator for SBP2 Pendant Pushbutton Stations. Simply plug in your requirements and the software will generate a detailed bill of material with costs.

Please write #120 on your reply card to receive a copy of this CD.



PulseStar® Remote Radio Controls Brochure

Learn about our complete line of PulseStar Radio Remote Crane Controls in this new 6-page color brochure. PulseStar radio controls are lightweight, with modular designs, and range from simple, single-step, cost conscious standard models to the most sophisticated specially engineered systems. They feature synthesizer technology and operate in the 400-470 MHz band.

Please write #122 on your reply card to receive a copy of this brochure.



Festoon Systems and Cable Brochure

Electromotive Systems offers a complete line of Festoon Hardware and Cable, all detailed in our 20-page color brochure. Many new products have been added to our Festoon line, including Plug and Play Wiring Hardware and Mill Duty Festoon Trolleys. Electromotive Systems' Festoon product offering is one of the most complete and competitively priced you will find on the market.

Please write #119 on your reply card to receive a copy of this brochure.

Register On-Line for Training

New! Four-day Training Program

We know your time is valuable! That's why we've streamlined our training program to meet all your training needs in a comprehensive 4-day program!

Technical Training Program for Impulse®•G+/VG+ Series 2 and Impulse®•P3 Drives

October 23-25, January 15-17

This comprehensive 3-day training program starts with a review of basic drive theory and the "how to's" of selecting and applying adjustable frequency crane controls for overhead material handling applications. Programming information for the Impulse P3 and the Impulse G+ Series 2 Drives in both V/F and open loop vector mode is also covered. The second half of this session covers introduction, theory, and programming of our closed loop flux vector crane control, Impulse VG+ Series 2, and is ideal for anyone involved with the start-up and maintenance of flux vector motor controls. The training session concludes with a discussion of troubleshooting for all adjustable frequency crane controls.

PulseStar® Remote Crane Controls

October 26, January 18

Our one-day program details all the features and benefits of our PulseStar product line. You will learn about the application, use and troubleshooting of all the PulseStar models, and about the various technologies included in these advanced radio remote crane controls.

For more information, please visit our Web site at www.electromotive.com or call us at 1-800-288-8178. All training sessions take place at our suburban Milwaukee facility and are free of charge. However, you are responsible for your travel and lodging expenses. Space is limited and reserved on a first-come, first serve basis. Due to high demand, we do limit three people per company per training session.

UPCOMING TRAINING DATES

October 23-26
January 15-18

ELECTROMOTIVE SYSTEMS
a  **Magnetek Company**

Providing the Vision, Products, & Engineered Solutions
that Maximize Crane & Hoist Performance

Evolution is published by Electromotive Systems a MagneTek Company. Questions and comments can be directed to Editor, Evolution, Electromotive Systems a MagneTek Company, Post Office Box 13615, Milwaukee, WI 53213-9866. phone (262) 783-3500 • www.electromotive.com

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New Faces @ Electromotive Systems

Hobie Moran

Electromotive Systems welcomes Hobie Moran as our new Regional Sales Manager for Mexico, Arkansas and Louisiana. Hobie has over 20 years experience in the material handling industry, most recently at Omron IDM Controls, where he served as the National Marketing Manager for the Crane and Hoist Industry. Prior to this, Hobie spent six years with Konecranes-Crane Pro Services as a Sales Representative, Branch Manager and finally, District Sales Manager. Hobie's background also includes the 1989 formation of Moran Industrial Safety Corporation, where he provided Crane Safety and Operator Training to the US Navy, Coast Guard and Army, as well as construction companies and petrochemical refineries. Hobie attended Texas A & M University, where he studied Architecture and Marketing, and holds Accreditation for Maritime Inspection of Shore Based Cranes by the US Department of Labor-OSHA. Hobie lives in Houston, Texas with his wife Melissa and their 3-year-old son Trevor. He is an avid salt-water fisherman and hunter.



Tonya Hammond Paige

Tonya joins Electromotive Systems as Manager, Customer Service. For the past four years, Tonya served as Account Manager at Everbrite Inc., a sign manufacturing and engineering company. Her background also includes positions as a Customer Service Representative and Inside Sales Representative in the graphic arts and printing industries. Tonya has an Associate Degree from Milwaukee Area Technical College in Printing & Publishing, as well as a Bachelor of Science from the University of Wisconsin-Stout in Industrial Technology. Tonya has a stepson, Tony, age 11. She enjoys traveling, reading, and music concerts. In her spare time, Tonya serves a variety of functions in her church and volunteers at Children's Hospital.



Jeremy Albrecht

Jeremy joins Electromotive Systems as an Inside Sales Representative in the Electrification Sales group. Previously, Jeremy was an Account Manager at an electrical wire and cable distributor. Jeremy received his Bachelor of Science in Marketing and Communications, with an emphasis on sales, from the University of Wisconsin-Whitewater. In his free time, Jeremy likes to work out, ride motorcycles, and travel.



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B U S I N E S S R E S P O N S E C A R D

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Name _____

Title _____

Company _____

Address _____

City/ State/ Zip _____

Phone _____ Fax _____

e-mail _____

Write in number to receive additional information _____

I have an immediate interest or need. Please have an Application Engineer or Sales Representative contact me.

WE'RE ISO 9001 REGISTERED!



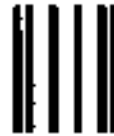
ISO 9001 Management Representative and Process Improvement Engineer, Robyn Johnson, presents Electromotive's ISO 9001 Registration plaque to Peter McCormick, VP, General Manager

After over a year of preparation and implementation of our Quality Management System, this June Electromotive Systems underwent an audit by Perry Johnson Registrars, the world's best known authority on ISO standards. Electromotive passed the audit and has achieved ISO 9001 registration! This means you can be assured we're committed to delivering quality products and services. Customer satisfaction is our number one priority!

ISO 9001

ELECTROMOTIVE AND OMROM IDM *Sign Marketing Agreement*

Electromotive Systems has signed a marketing agreement with Omron IDM Controls of Houston, TX. Under the terms of the agreement, Omron IDM will transfer sales and support for their crane and hoist customers to Electromotive Systems, and will work to convert IDM's existing customers and new opportunities to Electromotive's products. IDM's involvement in the crane and hoist industry will be limited to board repair and service.



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