

# Specifications:

High Power IGBTs  
 Noise sensitivity  
 A.C. Voltages  
 HP(Kw)  
 Frequency input  
 Control Method  
 Control type  
 Output VAC  
 Rated Hz  
 Speed Range  
 Motor tuning

Motor Requirements  
 Speed controls

Programming method  
 Encoder inputs  
 Power supply  
 Brake relay terminals

Programmable relays  
 Output Hz  
 2 Analog Inputs  
 Accel/Decel times  
 Braking torque  
 Overload Capacity  
 Motor overcurrent  
 Overcurrent protection  
 Circuit protection  
 Voltage protection  
 Heat sink temp  
 Torque Control

DC bus voltage  
 Location

Enclosure

Vibration Resistance

Ambient Temperature  
 Storage Temperature  
 Humidity  
 Elevation

PE Warranty  
 24X7 Support

300+% of rated load (FLA) for minimum 5+ minutes IGBT spec.  
 Inherently noise insensitive - no grounding bar needed. **PE exclusive!**  
 208,385-415,230,460 ±15%; 240, 480 +10% or -20%; 575 +10% or -15%.  
 Popular sizes available off the shelf!  
 50 or 60Hz ± 10% nominal (others available).  
 Proprietary **PE Powerboost™** Hoist Vector motor algorithms.  
 Fully digital; sine-wave, 3-phase PWM.  
 Proportional to input voltage.  
 Up to 120 Hz Standard (others on request).  
 Advanced **Micro-Positioning™** to 6000:1 available , 1000:1 standard.  
**PE Quick-Tune™** - no need for motor/hoist decoupling saves time and \$\$\$.

**Simply run unloaded hoist UP and the drive sets itself!**  
 Use with most standard "off the shelf" or vector a.c. 3-phase motors.  
 Up to 50 distinct adjustable speeds and infinitely variable control.  
 Speeds can be set 0 to 120Hz (extended Hz version available).  
**Gang-Set®** quick instant start. All parameters are adjustable.  
 Optically isolated Quadrature inputs with miswiring & bad encoder checking.  
 On-board power supply for encoder or miscellaneous control.  
 Redundant high reliability multi-relay brake output with control current sensing.  
 2 high reliability auxiliary relays with programmability.  
 .01% -10°C to +60°C.  
 0-10 VDC; 0-5 VDC 0-20ma; 4-20ma others by request.  
 0.1 to 60 seconds - 15 sets; up to 9+ parameters adjustable.  
 175% standard - higher available as option (best in the industry).  
 175% for 5 minutes (50% higher than other drives and 5x as long!).  
 Thermal inputs, electromechanical OL input, programmable I<sup>2</sup>T.

300% of rated current.  
 Ground fault.  
 Overvoltage and undervoltage bus trips.  
 Thermoswitch trip on heatsink.  
 Adjustable all four quadrants, Forward, Reverse,  
 Up Regen, Down Regen.  
 Indicator LED on until DC bus voltage drops below 50VDC.  
 Safeguard unit from corrosive gases, liquids and excessive moisture.  
 Powder coated chromated steel (not plastic) for increased emi protection, and higher resistance to atypical shock and vibration.  
 PC boards and components secured with heavy duty connectors. All parts designed for some atypical vibration resistance - **PE exclusive!**  
 +14°F to +140°F (-10°C to +60°C) standard.  
 -4°F to +158°F (-20°C to +70°C).  
 Non-condensing.  
 Add sufficient cooling (or de-rate) for higher than 4000 feet (1220 meters).  
 Up to 3 year **PE** Warranty.  
 24 hour support - factory engineers with toll free number.

All specifications subject to change without notice.



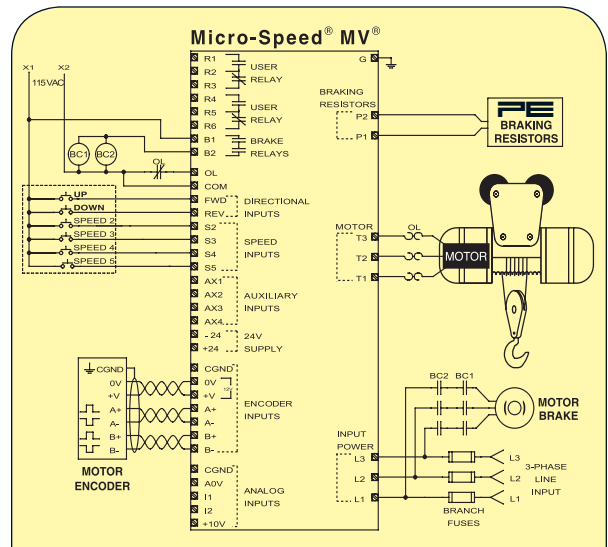
**Service Classes:**  
 All CMAA Class A-F  
 AISE TR6 Class 1 to 4  
 ASME HST-4 H1 to H5  
 HMI H1 to H5

**Applications:**  
**Micro-Speed® Multi-Vector®** for non-mechanical load brake style hoists, also for inclined systems or special requirement horizontal motion.

**MX Multi-Vector®** for special application & mechanical load brake hoists.

**Multi-Vector® CRH** for conical rotor style with encoder feedback.

*Special OEM designs available.*



UP and DOWN limit switches can be placed in various locations depending on application requirements. Lights or alarms can be driven by user relays 1 or 2. Two optically isolated analog outputs & serial interface option not shown. Motors & Encoders are also available from **PE**.



# Micro-Speed® Multi-Vector®

## DESIGNED FOR HOIST MODERNIZATION & NEW CRANE APPLICATIONS

- **PE Quick-Tune™** No motor/hoist decoupling required! • Easy setup includes **Gang-Set®**
- Superior hardware & software hoist control design • Highest overload & duty cycle available!
- Internal dynamic braking IGBT's • 50% Higher temperature rating to +60°C! • AND MORE...

**MV**  
 No Load Brake Hoist VFD

**MX**  
 Special Application/Features VFD

**CX•CXH**  
 Traverse Motion & Load Brake Hoist VFDs

**CRH**  
 Conical Rotor Hoist VFD

**MSM**  
 Micro-Sized Crane/Hoist VFD

**MD**  
 Special OEM Design Drives

**SM, BT**  
 1 & 2 speed Soft-Starts

**CA**  
 Crane Automation Systems, Motors & Encoders

**PS**  
 Panel Solutions— Custom & Standard

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MADE IN THE USA

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**PE Power Electronics International, Inc.**

# Micro-Speed® Multi-Vector® Hoist Speed Control

Micro-Speed® Multi-Vector® is an advanced "closed loop" hoist variable speed drive for superior "no load brake" style overhead hoist control. With its high duty cycle rating and ruggedness, all types of a.c. single-speed and wound rotor hoists can now add load insensitive, reliable and safe multi-speed capability. Power Electronics has packaged over 30 years of crane/hoist drive experience into the Multi-Vector® drive.

**Multi-Vector® is the hoist industry's drive of choice. If it's PE –it's worry free!™**

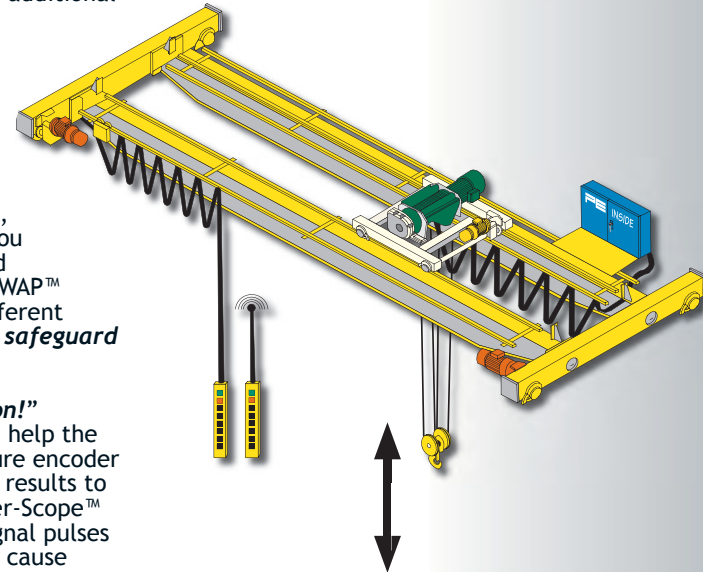
**PE** Power Electronics®  
International, Inc.

•Quality •Design •Manufacturing •Support

new

## Exclusive PAGE SWAP™ "The feature you will need later—if not today!"

Instead of 1 variable speed drive, you can have up to 10! When running, 9 additional drive parameter lists (PAGES) can be "swapped" in and out depending on your application requirements. PAGE-SWAP™ is a unique and exclusive feature built into Multi-Vector® drives. Gone are the days you have to be an expert in programming, your crane/hoist processes and applications will gain flexibility. **Why be limited?** You can have multiple settings of nearly all adjustable parameters and the ability to switch to a completely new set of settings—**instantly**. "On the fly" changes via inputs (limit switch, speed signals, outside switches, etc.) or via conditions met (such as overloads, special speed points, torque set points, adjustable internal timers, etc.). PAGE-SWAP™ to a totally new process. You control what you want! All without computers, PLC's or other complicated devices! Completely intuitive control and setup, and its powerful! PAGE-SWAP™ can be set up differently in the future for ever-changing demands and different applications. **No other drive available has this incredible flexibility to safeguard your investment into the future! PE exclusive!**



new

## Encoder-Scope™ "Takes the guesswork out of encoder installation!"

Built into the drive is a sophisticated hardware & software tool which will help the installer diagnose any encoder issues. Electronic checking of the quadrature encoder signal wires is accomplished by the Multi-Vector® drive, which reports the results to the installer. It will detect missing or mis-wired connections. Also, Encoder-Scope™ displays the electromechanical condition of the encoder, including lost signal pulses due to broken encoder electronics, etc. Electrical noise on the wiring can cause incorrect operation from any encoder. Encoder-Scope™ reports this "noise" to the installer for correction. Encoder-Scope™ allows for quick field analysis without the need for complicated oscilloscopes and other testing equipment. Multi-Vector® is truly a "multi-talented" drive! **Another PE exclusive!**

## Zip-Move™

Extends hoist speed on underloaded hook in both UP and/or DOWN directions. Settings are fully user selectable. Actual speed can be varied depending on load on hook.

## Multi-Zip-Move™

(option) Run multiple hoists together with this exclusive PE feature which coordinates extended hoist speeds for underloaded hooks.

## Slack-Check™

This feature detects slack load condition on the hook and allows stopping of hoist in the down direction. Protects hoist from accidental excessive lowering of hoist blocks and reeving. Can be used for other purposes.

## Multi-Float™

Full-featured floating of the load in the safest and simplest manner.

## Check-Load™

Fully adjustable monitoring of hoist load. Reduces the possibility of picking overloads.

## Brake Test™

Checks integrity of brake before run, after run, or both. **Fully adjustable.**

## Brake Control Check™

Exclusive PE function actually checks for current to the brake contactor coil as one more check for hoist safety. **Another PE exclusive safety feature.**

## Safety-Start™

Hoist cannot be operated without a valid control signal. Includes "electronic" interlock which won't allow "start" with both the UP and DOWN signals present.

## Quik-Stop™

Quicker deceleration profile when no operator signal is present. **It is fully adjustable.**

## Quik-Plug™

Quick, fast and smooth deceleration when reverse "plug" signal is received from the Operator. **It is fully adjustable.**



## Built RUGGED!

- Field proven with the **high reliability design** that you always expect from PE drives!
- So tough one drive will do all CMAA duties A through F!
- Regen transistor circuitry is **inside** unit - no extra parts to purchase, mount and wire!
- **Powerful Components** can handle up to 300% inrush current capacity!
- Electronic power devices high duty cycle rated.
- Beefier system - zero maintenance - can handle the "unexpected"!
- Rugged all steel enclosure for increased reliability in hostile environments.
- Entire Multi-Vector® designed for higher temp reliability up to +60C!  
**No other brand drives are designed for high temp as standard!**

## Built EASIER to use!

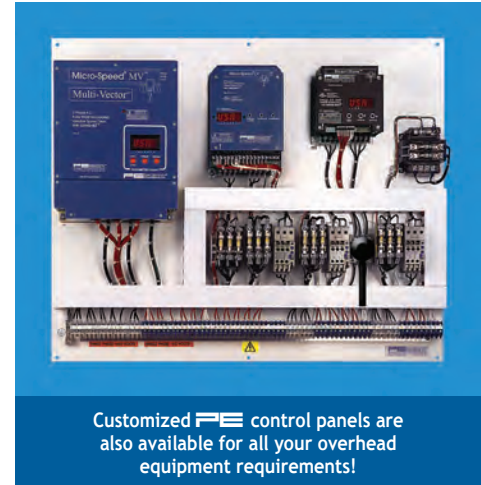
- Super-Quick setup - **no need to decouple motor from hoist**—run the hoist in UP direction—and you are set to go. PE's Multi-Vector® does the hard stuff! Can save a day of installation costs!
- Famous "GANG-SET®" system for quick field set-up! If you know CX® and Smart-Move® PE drives, you can install a Multi-Vector®! **WOW!**
- Familiar adjustment—most of the same parameters as in other PE drives!
- No extra grounding bar or rail required for most applications. **Saves you \$\$\$\$.**
- Power Electronics' famous Upgrade Path Philosophy™ is carried on in the Multi-Vector® series. Software interface and hardware compatibility remains now and into the future!
- Easy to use Test Run diagnostics — read current, torque, encoder, etc.
- Same easy access to power & control wiring as in all other PE drives!
- **No add on boards** used! Our 115V (and other voltages) circuitry is built right into every drive! Encoder interface built in! Complete with testing and alerts!
- Encoder wiring checkup! **Wire it incorrectly and the Multi-Vector® tells you!**
- The Multi-Vector® is specifically designed for hoist control. It is not a reprogrammed "general purpose" drive.
- Easy setting of multiple speed points, acceleration and deceleration settings, including infinitely variable speeds.
- **All the features you want or need!**

## Built to impress!

- Superior Ultra-Smooth low speed and load floating - no vibration and no "roll-back or drift" on starting or stopping.
- More features with less programming!
- Hoist + Motor models - treats entire system right!
- Easy maintenance (**None!**)
- Quick & Simple installation - up and running in minutes (**not days!**)

## Built to be Safer!

- Super Quick reliability check prior to every run!
- The Multi-Vector® checks for phase loss, motor continuity, brake loss, and encoder integrity, proper torque, etc.
- No operation without proper control signals.
- Optically isolated inputs and outputs.
- Safety is a number one priority in design.
- Designed with high overload capacity!



1.847.428.9494

Call Power Electronics on your next project!  
Crane/hoist Drives, automation & control panels!

www.PE info.com

