



MAGNETEK

By Columbus McKinnon

IMPULSE® •G+/VG+ Series 5

VARIABLE FREQUENCY DRIVES



The Next Generation of Crane Performance

Featuring specific functions for safety, productivity, and ease of maintenance, IMPULSE®•G+/VG+ Series 5 Variable Frequency Drives can be the foundation of your overhead crane or hoist system. IMPULSE Series 5 Variable Frequency Drives are specially designed for material handling applications, providing a complete package of crane-specific capabilities far beyond a general-purpose VFD's functionality. With a range of built-in features, you can be assured you're getting a solution that will protect your operators, overhead cranes and hoists, and other equipment.

Magnetek® brand products represent quality and innovation in digital power and motion control technology. In fact, IMPULSE® Variable Frequency Drives (VFDs) act as the brains behind many of Columbus McKinnon's intelligent solutions. With our years of experience in overhead cranes, we can engineer to your specifications — integrating these VFDs with diagnostic and analytic solutions, automation tools, collision avoidance technology, and more. We can also create solutions for your unique applications, incorporating these VFDs into custom control panels, semi or fully automated systems, control houses, and other specialty control systems.

Distributed by Tri-State Equipment Company

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FEATURES AND BENEFITS

BUILT-IN SAFETY

IMPULSE•G+/VG+ Series 5 Variable Frequency Drives can detect and minimize instances of swinging or dropped loads, snapped cables, overload conditions, faults, collisions, and more. Available as standard, these features and more are integrated into IMPULSE Series 5 VFDs, preventing harm to the crane structure and equipment and, most importantly, creating a safe working environment for your operators.

NEW

SAFE TORQUE OFF

With an SIL3 rating, this provides a redundant hardware safety circuit that guarantees motor and brake power are removed when an E-STOP switch or safety controller opens the circuit, eliminating the need for external disconnects.

LOAD CHECK

Ensures continuous detection of hoist overload conditions, halting upward motion and only allowing the load to be lowered. Load Check monitors the hook load, eliminating the need for load cells in many applications.

TORQUE PROVING

Confirms the motor is providing enough torque to safely lift a load prior to releasing the brake.

TORQUE LIMITING

Prevents the crane from performing a lift that could overload the motor and cause mechanical fatigue.

BRAKE TORQUE TEST

Tests and measures brake torque with the press of a button, capturing a breakaway torque value that can be viewed on the keypad. This valuable tool determines the condition of the brake so you can perform preventative maintenance and quickly commission the crane.

ANTI-SHOCK

Automatically stabilizes loads by detecting and minimizing rapid increases in hoist motor torque, thus reducing the potential for crane damage caused by operator-induced load shock.

BRAKE INTEGRITY TEST

Tests the primary and emergency brakes to ensure they are mechanically capable of holding the load at the beginning and end of each lift.

PHASE LOSS DETECTION

Detects input and output phase loss conditions.

SNAPPED SHAFT DETECTION

Detects a broken motor shaft or coupling or discontinuity in the drive train.

AMBIENT OPERATING TEMPERATURE

Series 5 VFDs safely operate in temperatures from 14° to 140°F (-10° to 60°C), making them ideal for a wide range of applications.

SLACK CABLE DETECTION

Detects a slack cable condition and automatically stops hoist motion.

REVERSE PLUG SIMULATION

Allows quick direction changes without setting the brake.

GROUND FAULT AND SHORT CIRCUIT PROTECTION

Detects ground fault and output short circuit conditions, preventing operation. This helps reduce damage to the motor and VFD.



NEW

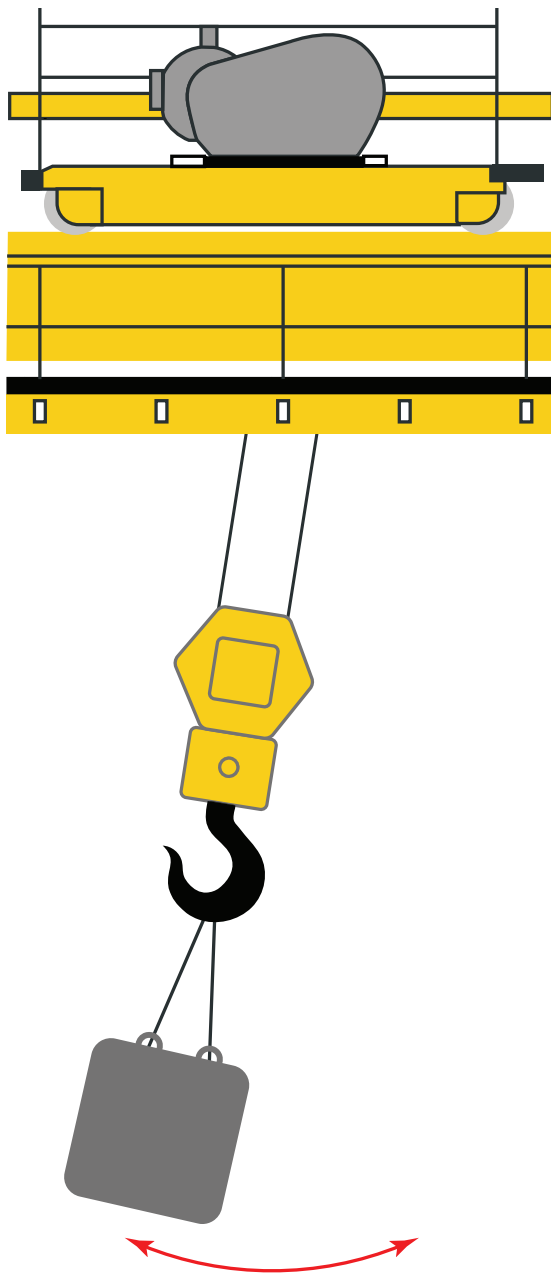
SWAY CONTROL AS STANDARD

Sway control, now built in to every IMPULSE Series 5 VFD, automatically counteracts load swing that can occur when traversing. This function allows crane operators to concentrate on load engagement/disengagement rather than minimizing load swing, reducing the risk of material damage caused by incidental contact of swinging loads. Plus, you'll see reduced maintenance costs and downtime since sway control decreases stress on structural, mechanical, and control components.

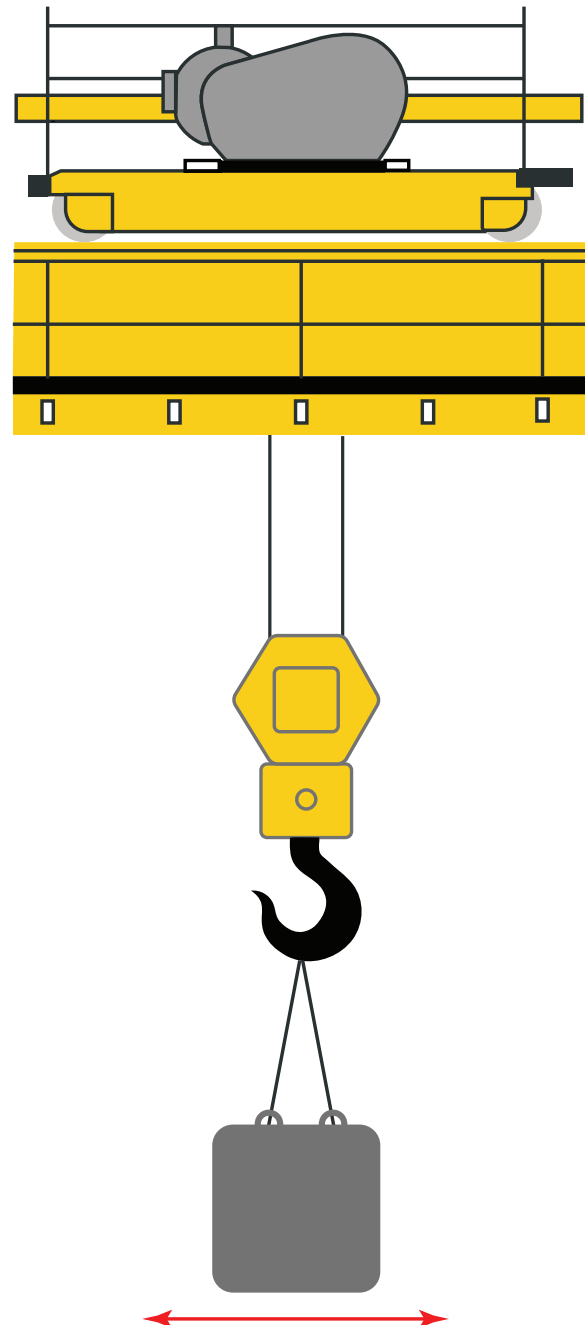
- Requires only one VFD per traverse motion, or multiple VFDs can be connected in a leader/follower configuration
- Operates in V/f, open loop vector, and closed loop vector control methods

- Functions best with hoist hook height feedback, but is not required
- Eliminates need for high-maintenance feedback device such as an absolute encoder
- Compatible with existing master switch and radio control configurations such as multi-step, infinitely variable, or uni-polar/bi-polar analog
- Eliminates need for an external programmable logic controller (PLC)
- Includes optional inputs to fine tune the center of gravity when using multiple below-the-hook attachments or varying load sizes

Sway Control Off



Sway Control On



IMPROVED PRODUCTIVITY

Utilizing IMPULSE Series 5 VFDs, you can detect and correct potential issues before they happen, helping to ensure your cranes and hoists are able to operate uninterrupted. Plus, with advanced diagnostics, you have access to critical information like trending data, equipment usage history, event history, and more. This type of system feedback enables easier, faster troubleshooting and planned maintenance, which minimizes downtime and maximizes the efficiency of your Magnetek-brand VFDs.

NEW

HIGH-RESOLUTION KEYPAD

The new keypad makes reading diagnostics even easier. We restructured parameter menus to ensure you have access to the settings that best match your application needs without having to navigate through nonessentials.

NEW

LOW-VOLTAGE COMMISSIONING

With a new built-in USB port, you can directly connect to a PC to configure and adjust parameters. Need to power up the keypad? Only 24 VDC is needed. No PPE required.

NEW

DATE AND TIME STAMP

With new date and time stamps, now you can quickly identify fault events, determine corrective actions, and return your equipment to operation faster.

LOAD FLOAT

Enables a load to be held aloft at zero speed without setting the electric brake.

MICRO-SPEED

This feature enables better speed control by allowing operators to make precise, slow movements.

ENHANCED CONNECTIVITY

Whether you have a single crane or multiple cranes in difficult-to-reach locations, IMPULSE®•Link 5 can integrate with these new VFDs, providing easy setup and access to monitoring and diagnostics.

X-PRESS PROGRAMMING

Automatically configures several commonly used parameters and features when a control method, motion, or speed reference is selected.

ULTRA-LIFT

Allows for hoist operation above base speed with a light load or empty hook. Ultra-Lift continuously monitors motor torque and adjusts motor speed to operate at peak performance, improving facility safety and maximizing throughput.

EASY SYSTEM INTEGRATION

IMPULSE Series 5 VFDs can integrate with Columbus McKinnon's other Magnetek-brand power and motion control products to provide complete solutions that improve throughput, save energy, and simplify maintenance.



User-friendly keypad with digital display makes navigation and reading diagnostics easier than ever.

EASY MAINTENANCE

Downtime due to unexpected maintenance or equipment failure is expensive. By incorporating the intelligence of IMPULSE•G+/VG+ Series 5 VFDs into your overhead crane or hoist, you can proactively monitor and schedule maintenance to ensure you have the necessary parts and support available when you need it.

NEW **SMALLER EQUIPMENT FOOTPRINT**

For models up to 100 HP, many applications no longer need a separate dynamic braking unit, reducing costs and overall footprint.

NEW **QUICK REPLACEMENTS**

Spare parts are easier to replace than ever. Memory has been removed from the terminal board, so replacements are quick and easy.

INDUSTRY-LEADING RELIABILITY

IMPULSE Series 5 VFDs have some of the best mean times between failures on the market, making them ideal for the harsh operating conditions seen in overhead material handling applications.

BUNDLING CAPABILITIES

Save time by integrating IMPULSE Series 5 VFDs with diagnostic and analytic software, collision avoidance technology, automation tools, and more — all from the same source. We're the experts in overhead cranes and can help you with any project needs.

PREVENTATIVE MAINTENANCE MONITORS

Drive maintenance is performed before a failure to minimize downtime.

REDUCED WEAR AND TEAR

These VFDS minimize wear on motors and the bridge, trolley, and hoist brakes. Plus, decreased mechanical stress on the crane and hoist reduce maintenance costs.

UNSURPASSED PRODUCT SUPPORT

You can count on Magnetek and IMPULSE VFDs to help you achieve maximum performance and reliability for your overhead material handling systems. Support includes on-call technicians 24/7/365, on-site and in-house product training programs, and full testing prior to shipment. Plus, IMPULSE•G+ & VG+ Series 5 VFDs are backed by our industry-leading three-year warranty.



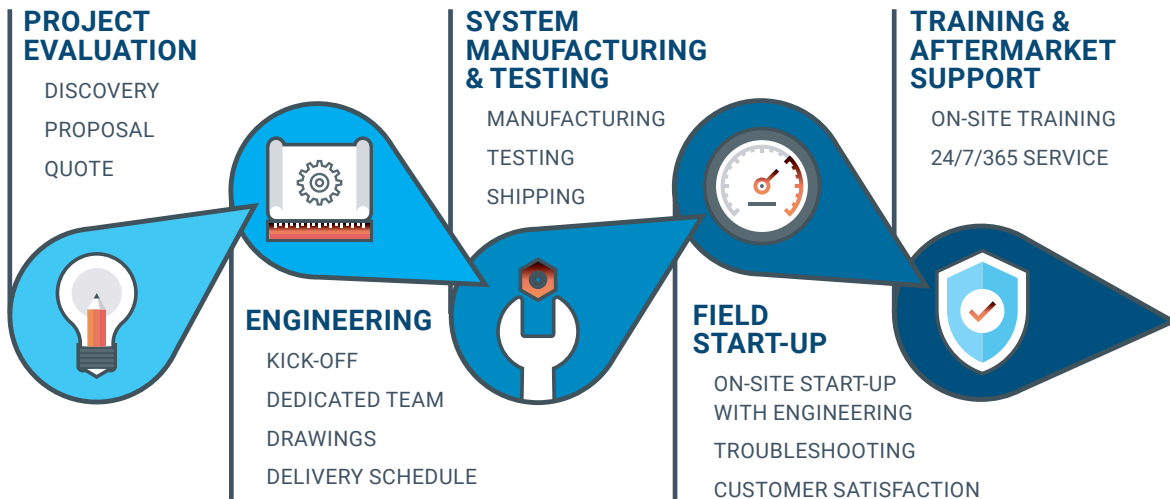
CAPABILITIES

IMPULSE•G+ Series 5	IMPULSE•VG+ Series 5
Ratings	
<ul style="list-style-type: none"> • 200-240 VAC, 3.5 to 415A <ul style="list-style-type: none"> - 0.75 to 150 HP (0.6 to 112 kW) • 380-480 VAC, 1.8 to 605A <ul style="list-style-type: none"> - 0.75 to 500 HP (0.6 to 373 kW) 	<ul style="list-style-type: none"> • 200-240 VAC, 3.5 to 415A <ul style="list-style-type: none"> - 0.75 to 150 HP (0.6 to 112 kW) • 380-480 VAC, 1.8 to 605A <ul style="list-style-type: none"> - 0.75 to 500 HP (0.6 to 373 kW)
Class of Service	
<ul style="list-style-type: none"> • CMAA Class A to F • AIST TR6 Class 1 to 4 • ASME HST-4 H1 to H5 	<ul style="list-style-type: none"> • CMAA Class A to F • AIST TR6 Class 1 to 4 • ASME HST-4 H1 to H5
Output Speed Control Range	
<ul style="list-style-type: none"> • 40:1 in V/f • 200:1 in Open Loop Vector 	<ul style="list-style-type: none"> • 1500:1 in Closed Loop Vector
Speed Reference Methods	
<ul style="list-style-type: none"> • Up to 17 Distinct Speeds (Multi-Step) • 2-Step Infinitely Variable • 3-Step Infinitely Variable • Analog (0-10 VDC, ±10 VDC, 0-20 mA, 4-20 mA) • Digital Pulse Train Input (32 kHz max) • Industrial Communications (eg: Ethernet/IP) • Modbus RTU (RS-485) 	<ul style="list-style-type: none"> • Up to 17 Distinct Speeds (Multi-Step) • 2-Step Infinitely Variable • 3-Step Infinitely Variable • Analog (0-10 VDC, ±10 VDC, 0-20 mA, 4-20 mA) • Digital Pulse Train Input (32 kHz max) • Industrial Communications (eg: Ethernet/IP) • Modbus RTU (RS-485)
Programmable Terminals	
<ul style="list-style-type: none"> • (8) 24 VDC Digital Inputs (120 VAC optional) • (3) Digital Dry Contact Relay Outputs (1A max at 250 VAC, 1A max at 30 VDC, Form A) • (1) Dedicated Fault Relay Output (1A max at 250 VAC, 1A max at 30 VDC, Form C) • (3) Analog Inputs (0-10 VDC, ±10 VDC, 0-20 mA, 4-20 mA) • (2) Analog Outputs (0-10 VDC, ±10 VDC, 4-20 mA) • Consult Factory for Additional I/O Option Cards 	<ul style="list-style-type: none"> • (8) 24 VDC Digital Inputs (120 VAC optional) • (3) Digital Dry Contact Relay Outputs (1A max at 250 VAC, 1A max at 30 VDC, Form A) • (1) Dedicated Fault Relay Output (1A max at 250 VAC, 1A max at 30 VDC, Form C) • (3) Analog Inputs (0-10 VDC, ±10 VDC, 0-20 mA, 4-20 mA) • (2) Analog Outputs (0-10 VDC, ±10 VDC, 4-20 mA) • Consult Factory for Additional I/O Option Cards
Applications	
<ul style="list-style-type: none"> • Worm Gear and Mechanical Load Brake Hoists • Traverse Motions 	<ul style="list-style-type: none"> • Non-Mechanical Load Brake Hoists • Traverse Motions (Consult the Factory)

ENGINEERED-TO-ORDER SOLUTIONS

We understand the benefits and challenges of overhead cranes and hoists. Using our expertise, we will assess your application needs and work side by side with you to transform your systems and processes with our industry-leading power and motion control technology. With a suite of products and decades of experience, we can develop a high-performing system, including those that utilize IMPULSE G+/VG+ Series 5 VFDs, to your exact requirements, complete with drawings, control fabrication, and comprehensive testing.

You'll benefit from a dedicated controls engineer who will manage your project from start to finish, ensuring your system is delivered on time to your exact specifications. Not only will they program the PLC code for your system, but they also handle on-site field startup and training for your project. From project evaluation to aftermarket support, we are here to ensure your success.



INDUSTRY-LEADING SERVICE & TRAINING

With a legacy spanning nearly 150 years, Columbus McKinnon's best-in-class products are used in a variety of industries around the world. Developed by our team of product managers, engineers, and manufacturing professionals, our products are designed for top-of-the-line performance, reliability, and safety.

Whether you need help selecting the best product or system for your lifting application or assistance with routine maintenance, we are here for you. Our highly trained team of service technicians offers superior aftermarket support, available to you 24/7, 365 days a year.



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