

Magnetek® IMPULSE®•G+/VG+ Series 5 FAQ

Variable Frequency Drives Frequently Asked Questions

Introduction

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.

Using 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.

General Product Questions

Transitioning from IMPULSE•G+/VG+ Series 4 to Series 5 VFDs

1. Will we have to go through the terminal board swap process when replacing a terminal board?

No. The terminal boards in the Series 5 VFDs no longer have internal memory. Replacements are now plug-and-play.

2. When replacing an older drive, can the existing mounting holes be used? Will there be adaptor plates from Series 4 to Series 5?

The Series 5 VFDs offer a smaller overall footprint on models 30HP and above (up to 45% smaller on larger frame sizes). Because of this, mounting holes are in different positions. However, for some models, we can supply a mounting adapter so that new holes do not need to be drilled. The mounting adapter is compatible with the following models:

- 230VAC → 2003 to 2047 models
- 460VAC → 4001 to 4031 models
- 575VAC → TBD

3. Where are the Normally Closed MFDI settings?

The Normally Closed (N.C.) MFDI settings are always 100 (Hex) greater than the Normally Open (N.O) option. For example, Upper Limit 1 (N.O.) = 0x0006. Upper Limit 1 (N.C) = 0x0106.

(Note: NO and NC External Faults show up consecutively from values 0x20 to 0x2F.)

4. Are option cards swappable between Series 4 and Series 5?

Yes. All option cards from Series 4 are compatible with Series 5 VFDs.



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General Series 5 Variable Frequency Drive FAQs

5. What are the lights around the Magnetek symbol for?

- Blue (bottom) – Drive Ready
- Green (left) – Drive Run
- Red (right) – Drive Fault/Alarm

6. Are the Series 5 VFDs CE and CSA rated?

Yes (same as Series 4).

7. How does the collision avoidance feature work? If it is used, is there another feature that is disabled due to ports?

The laser analog output is wired to the analog input of the drive. Distances are set based on analog voltages. Parameters C3-40 to C3-47.

8. Is sway control enabled like the load share feature on the Series 4 VFDs, which is a parameter that needs to be toggled?

Sway control is disabled by default. Sway control can be enabled by setting parameter C14-01. It can be set to enabled always or enabled via MFDI.

8. If the interface board does not have internal memory, can it store the parameters?

Parameters are stored on the control board. The new keypad also stores up to 4 parameter files.

9. Can I run a 230 VAC motor on a 460 VAC VFD?

No. This is not recommended.

10. What is “Expert” mode?

“Expert” mode is an access level (A01-01) selection that allows users to view all parameters of the VFD. “Advanced” mode is the default option that hides some of the parameters that users are unlikely to use on a regular basis. (**Note:** In Series 4 VFDs, “Advanced” mode allowed users to view all parameters of the VFD, and therefore, it is equivalent to the Series 5 “Expert” mode.)

11. How can I do a rotational auto-tune without uncoupling the motor?

The “Stationary Auto-Tuning 1” method allows for Auto-Tuning without decoupling the motor. This method requires a short movement of the crane after the non-rotational auto-tune process, which allows the VFD to calibrate the Motor Rated Slip and No-Load Current.

12. Does sway control require hook height feedback?

The sway control feature is dependent on hook height feedback. If the hook height feedback signal does not match the actual height of the hook, then this error will lead to some sway. The more hook height position error there is, the more sway there will be. (**Note:** If the load is lifted

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to the same height before every traverse motion, then sway control can operate without hook height feedback.)

13. How do I set up infinitely variable speeds?

The Infinitely Variable speed control option can be selected via the A01-04 Speed Reference parameter. There are (2) options available: 2-Step Infinitely Variable and 3-Step Infinitely Variable. When the A01-04 parameter is modified, the VFD will automatically change other required parameters, such as settings for H01 Multi-Function Digital Inputs and B01 Speed Reference, for the feature to function correctly (X-Press Programming).

14. How many load share follower motors can be used from a single leader?

The load share software feature can support up to (2) follower motors. Please consult with the factory for load share applications with more than (2) follower motors.

15. My motor is vibrating. What could the issue be?

- Drive-related settings (Motor Parameters, Auto-Tuning, Torque Compensation, Hunting, ASR Setup Issues)
 - Verify the motor nameplate values are correctly entered into the E02 motor parameter section.
 - Verify that Auto-Tuning has been completed successfully. For VG+ closed-loop applications, performing a rotational auto-tune is especially important.
 - See “D03 Torque Compensation” details.
 - See “D04 ASR Automatic Speed Regular” details.
 - See “N01 Hunting Prevention” details.
- Noisy encoder feedback signals (VG+ only).
 - Verify the encoder cable does not run adjacent to any power wiring. In situations where the encoder cable must cross power wiring, the encoder cable should cross at 90 degrees.
 - Running in V/f control mode (A1-02) or Test Mode (E07) is a good way to determine if encoder noise is causing motor vibration issues.
- Mechanical components (Gearbox, Couplings, Brake Dragging, Motor Bearings).
 - Verify the gearbox, couplings, and brake components are not causing vibrations. Running the motor with the gearbox decoupled is a good way to determine if vibrations are being caused by any mechanical components downstream from the motor. While the gearbox is decoupled from the motor, turn the motor shaft by hand to detect any obvious motor bearing issues.