

Motor Protection

MotorGuard™ Sinewave Filter

To improve energy efficiency, many commercial and industrial power systems are turning to the technology of PWM (pulse width modulated) output power supplies and drives.

A drawback of using PWM and other variable frequency drives is that the output is a square wave form, which can cause motor damage. Critical applications, such as HVAC systems and oil fields, require a more sinusoidal output waveform, eliminating these economical and efficient solutions.

TCI's MotorGuard™ filter converts the PWM wave form to a near sinusoidal wave form by eliminating the carrier frequency, allowing sensitive applications to take advantage of the efficiencies and savings that PWM output power supplies and drives offer.

In addition, the MotorGuard™:

- Eliminates Torque Ripple
- Eliminates Voltage Wave Reflection
- Can reach 15,000 feet for specific applications
- Reduces Motor Noise, Vibration and Heat
- Increases Motor Life



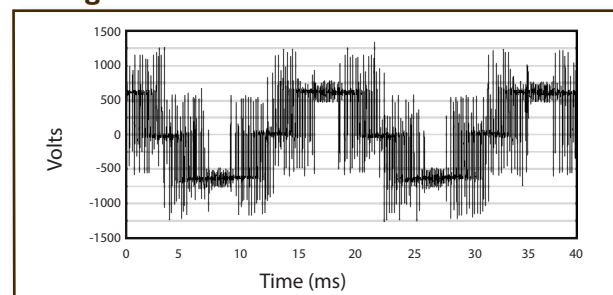
Advantages of the MotorGuard™

- Universal acceptance: can be used with virtually all AC induction motors, lead lengths and lead types and used with a wide range of carrier frequencies from 2 kHz to 16 kHz and beyond
- Reach long lead lengths up to 15,000 feet for specific applications
- Increases the life of your motor by eliminating voltage wave reflection and torque ripple
- Provides motor and cable protection by reducing motor noise, vibration and heat

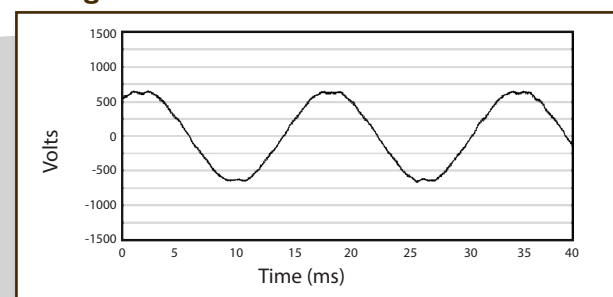
Typical Applications

- Multiple motor applications such as conveyors and blowers
- Test floor and test stand applications
- Shore-to-ship power for non-60 Hz systems
- HVAC systems to reduce audible noise
- Low voltage PWM power supply to medium voltage motor

Voltage Without MotorGuard™



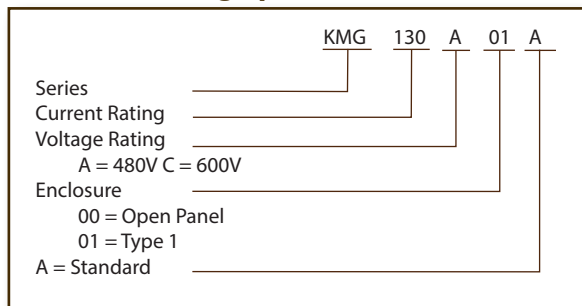
Voltage With MotorGuard™



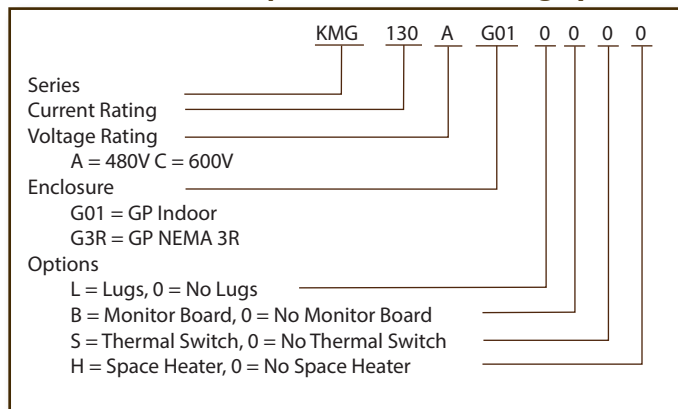
Technical Specifications

System Voltage	480 VAC, 600 VAC
Voltage Distortion	< 5% (typical)
Carrier Frequencies	2 kHz to 16 kHz
Output Frequencies	Up to 80 Hz
Short Term Overload Rating	Tolerance 200% for a maximum of 3 minutes
Insulation System	Class H (180° C) or Class R (220° C)
Temperature Rise	115° C or 155° C
Distance to Motor	Up to 15,000 feet
Environmental Conditions	
Operating Temperature	Open Panel 50° C (122° F); Enclosed Panel 40° C (104° F)
Reference Technical Standards	
Agency Approvals	Industrial - cUL, UL
Protection (enclosure)	Industrial Version: UL Open, UL Type 1 General Purpose: NEMA 1 & 3R
Warranty	One year of useful service, not to exceed 18 months from date of shipment

508A Industrial Enclosure UL Listed Part Numbering System



NEMA General Purpose Part Numbering System



Low Voltage PWM Power Supply to Medium Voltage Motor

Multiple Motor Applications

Block Diagram Test Stand

Extreme Long Lead Applications

Performance Guarantee

Properly sized and applied, the addition of a MotorGuard™ Output Filter is guaranteed to bring the application into compliance with NEMA Standards Publication No. MG-1. If the system fails to meet MG-1 standards with the addition of a MotorGuard™ filter, TCI will take back the output filter and pay shipping both ways. This offer is valid for 60 days from the installation date.

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