

## VG5 Vector Control AC Drive

### Ratings:

0.75 to 100 HP	at 208 Vac
0.75 to 100 HP	at 230 Vac
0.75 to 500 HP	at 460 Vac
2 to 200 HP	at 575 Vac

- NEW**
- CE Approved (73 / 23 / EEC / 460 V only)
  - Improved PID Monitoring
  - Serial Communication speed is now 19.2 KBPS
  - 7 Languages standard



The VG5 is our 4th generation high performance vector controlled inverter. Its four distinct control modes make it a match for applications ranging from the simplest to most sophisticated. Closed loop vector offers precise speed or torque control modes. The unique flash ROM based CASE environment allows us to create custom software modifications to suit individual customer needs.

### Approvals:

- UL, cUL, CE

### Design:

- Alpha-numeric operator: removable, multi-lingual 2 lines x 16 character
- Analog monitor output: -10 to +10 Vdc proportional to output parameters
- Auto-tune to motor characteristics
- Carrier frequency to 15 kHz, dependent on rating
- Common DC bus capability
- DC bus reactor included: 25 to 100 HP at 230 Vac 30 to 250 HP at 460 Vac
- Dual motor parameter sets
- Master reset to user default parameters
- MTBF: exceeds 28 years
- Multi-speed settings
- NEMA 1 enclosed or protected chassis
- Overload capacity: 150% for 60 sec. (200% peak)
- Programmable flash ROM, via RS-232C, for custom applications
- Programmable outputs. One Form A and two open collector
- Remote speed reference: -10 to + 10 Vdc (20K ohms) or 4 to 20 mA (250 ohms)
- RS-232 communication port
- Run and fault contacts
- Set point (PID) control
- Signal follower: bias and gain
- Timer function
- User friendly programming
- 24 Vdc control logic
- 32-bit logic, including 16-bit DSP

### Operating Conditions:

- Altitude: to 3300 ft; higher by derating
- Ambient service temperature: -10°C to 40°C (104°F) NEMA 1, to 45°C (113°F) protected chassis
- Humidity: to 95% non-condensing
- Input voltage: +10% / - 15% 200 to 230 Vac 380 to 460 Vac 500 to 575 Vac
- Single-phase input with 30% derate
- 3-phase, 3-wire, phase sequence insensitive

### Options:

- Analog monitor, precision
- Analog reference, precision
- Control interface devices
- Digital or pulse monitor output
- Dual PG card (digital follower)
- Electronic line shaft software
- Encoder feedback: +5 or +12 V
- External dynamic braking
- **RAPIDPAK** pre-engineered industrial solutions
- Remote operator stations
- RS-485 communication port
- Saflink
- Serial communications cards
- Synchronous motor operation
- Two additional Form C contacts
- Winder software
- 1300 Hz output (Volts/Hertz)

### Performance:

- Adjustable accel/decel: 0.1 to 6000 sec.
- Controlled Speed Range: 40:1 Volts/Hertz 100:1 Sensorless Vector (open loop) 1000:1 Flux Vector (closed loop)
- Critical frequency rejection: 3 selectable, adjustable bands
- Displacement power factor: 0.98
- Drive efficiency: 96 to 98%
- Electronic reversing
- Inertia ride-thru
- Jog forward and reverse
- Output frequency: 0.1 to 400 Hz
- Power loss ride-thru: 2 sec. (maximum)
- Programmable auto restart (0 to 10 attempts) on resettable fault
- Selectable auto restart after momentary power loss
- Starting torque: 150%, minimum

### Protection:

- Current and torque limit
- DC bus CHARGE indicator
- Electronic motor overload (UL approved)
- Fault circuit: overcurrent, overvoltage and overtemperature
- Ground fault protection
- Input/output phase loss (defeatable)
- Optically-isolated controls
- Overtorque/undertorque detection
- Phase-to-phase / phase-to-neutral short circuit protection

### Vector Control: (open or closed loop)

- Encoder response: 300 kHz (Flux vector)
- Speed resolution: 0.01% with digital reference 0.1% with analog reference
- Speed regulation: (15° to 35°C) 0.2% with digital reference (Sensorless Vector) 0.01% with digital reference (Flux Vector) 0.1% analog reference (Flux Vector)
- Stall torque: to 150% at zero speed for 1 minute, 100% continuous
- Torque regulator or speed regulator

### V/Hz: (open or closed loop)

- Current limited stall prevention during accel, decel and run
- DC injection braking: ramp or coast to stop, adjustable current limited to 60% motor rating
- Frequency regulation (15° to 35°C): 0.01% with digital reference 0.1% with analog reference
- Frequency resolution: 0.1 Hz with digital reference 0.06 Hz with analog reference
- Slip compensation
- Speed search for start into spinning motor
- Torque boost: full range, auto
- Volt/hertz pattern: 15 preset and one user programmable