

Specifications and Features for G5 Drive 600 Volt

The G5 Drive incorporates a 32-bit RISC microcontroller to handle all logic functions as well as the complex, sine-coded PWM generating algorithms that control IGBT switching. Using 4 MB of flash ROM and Application Specific Integrated Circuits (ASICs), the G5 drive provides the benefits of all-digital control, serial communications, and adjustments that don't age, drift or vary with line voltage.

The drive is factory programmed and ready to run. When operated from a remote process control, no operator actions are required. For manual operation, set the frequency reference, set for local or remote control and press the RUN key.

The drive can communicate via all the popular communication protocols such as DeviceNet, Interbus-S, Modbus, Profibus-DP and others. In addition, CASE application specific software can be easily flashed to the onboard ROM.

The G5 is equipped with a serial port utilizing standard Modbus protocol. All drive interfaces allow for all parameters, diagnostics, and operational commands. Optional interface boards provide a wide range of control, monitoring, and diagnostic communication capabilities for integration from plant floor to supervisory level systems.

This drive incorporates the three most effective control modes in one product, providing the flexibility of a single drive platform with V/f, open loop vector and closed loop flux vector control performance.

Performance Features

- Ratings: 2 to 200 HP at 600 VAC
- Overload capacity: 150% for 60 sec (200% peak)
- Starting torque: 150%
- Electronic reversing
- Adjustable accel/decel: 0.1 to 6000 sec
- Controlled speed range: (1) 40:1, (2) 100:1, (3) 1000:1
- Drive efficiency: 96 to 98%
- Displacement power factor: 0.98
- Output frequency: 0.1 to 400 Hz (800 Hz Optional)
- Serial communication interface
- Jog forward and reverse
- Power loss ride-thru: 2 sec
- Inertia ride-thru

Design Features

- 32-bit microprocessor logic
- Alpha-numeric operator, removable, multilingual, 2 lines x 16 character
- 24 VDC control logic
- Programmable outputs. One form A and two open collector
- Timer function
- RS-232 communication port
- Multi-speed settings: 9 available
- Remote speed reference: -10 to +10 VDC (20 kohms) or 4 to 20 mA (250 ohms)
- Setpoint (PID) control
- PID plus reference control
- Signal follower: bias and gain
- Analog monitor output: -10 to +10 VDC proportional to output

- Selectable auto restart after momentary power loss
- Programmable auto restart (0 to 10 attempts) on resettable fault
- Critical frequency rejection: 3 selectable, adjustable bands

Control Methods:

(1) Volts/Hertz; (2) Open Loop vector; (3) Flux vector (closed loop)

Protective Features

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

Additional Vector Control Features

- Speed resolution
0.01% with digital reference
0.1% with analog reference
- Speed regulation: (15 ° to 35 °C)
(2) 0.1% with digital reference
(3) 0.01% with digital reference
(3) 0.1% analog reference
- (3) Encoder response: 300 kHz
- (3) Stall torque: to 150% at zero speed for 1 minute. 100% continuous.

- parameters
- Dual motor parameter sets
- Auto-tune to motor characteristics
- Easy access, parameter groups
- Common bus capability
- Programmable flash ROM, via R-232C
- Run and fault contacts (1A)
- Up/down/hold reference
- NEMA 1 enclosed or protected chassis

Service Conditions

- Ambient service temperature: -10 °C to 40 °C (104 °F) NEMA 1, to 45 °C (104 °F) NEMA 1, to 45 °C (113 °F) protected chassis
- Humidity: non-condensing 95%
- Altitude: to 3300 feet
- Service factor: 1.0
- Input voltage: +10%/-15%, 575 to 600 VAC
- Enclosure: NEMA 1 or protected chassis
- Input frequency: 50/60 Hz ± 5%
- 3-phase, 3-wire, phase insensitive
- Vibration: 1G (to 20 Hz), 0.2G (20 to 50 Hz)

Additional Features for V/Hz

- DC injection braking adjustable current level
- Ramp stop or coast to stop
- Frequency resolution:
0.01 Hz w/ digital ref., 0.06 Hz w/analog ref.
- Frequency regulation (15 ° to 35 °C)
0.01% w/digital ref., 0.1% w/analog ref.
- Torque boost: full range, auto
- Current limited stall prevention during accel, decel and run
- Synchronized start into rotating motor via speed search

- Volts/hertz ratio: 15 preset and one infinitely-adjustable pattern
- Slip compensation

Standards & Reliability

- UL and cUL listed
- IEC: 146A
- MTBF: Exceeds 28 years
- Circuit burn-in: 96 hours at 85°C
- Tested on fully-loaded motors
- Surface mount devices