

Best in Class AC MicroDrive



V7 Open Loop Vector Drive 1/8 - 10 HP

Yaskawa's V7 is a high performance AC drive for induction motors. This PWM design provides low motor noise and high starting torque. The V7 provides two control methods; V/Hz and also open loop vector control for precision speed regulation applications. In addition to good speed regulation, open loop vector control also provides higher torque at lower speeds. The V7 is intended for constant torque applications, with current overload rating of 150% for 60 seconds.

The V7 is fully featured and compact. The digital operator provides 4-digit LED status display with a built-in analog speed potentiometer, as well as digital programming of almost 200 parameters. The digital pulse train input provides a precise frequency input, and is the perfect solution for speed / follower applications. The seven standard multifunction inputs can be programmed to allow for 17 preset speeds. The V7 also has an analog input, a multifunction output, two multifunction open collector outputs, and an analog output as standard.

The V7 is ideally suited for applications such as conveyors, grinders, centrifuges, pumps, fans, blowers, machine tools, packaging, food processing, and commercial laundry.

One of the outstanding options for the V7 is DriveWizard. This software enables upload, download, and monitoring of parameters. Another software, CASE, can add functionality to the drive by reconfiguring drive defaults, establishing presets for OEM equipment, and by eliminating peripheral controls and PLCs.

A RS485 Modbus RTU communication port is standard, allowing 32 nodes on a single network. Plug-in interface option boards enable the V7 to communicate with all the major networks, such as DeviceNet, Profibus, and others. The option board installs directly on the drive control board via simple snap-in connectors.

A version of this drive called V7N is available with DeviceNet embedded in the drive control board, reducing cost and installation time. See Flyer FL.V7N.01.

Another version of this drive called V74X is available with integral NEMA 4X/12 enclosure for dusty and wet environments. See Flyer FL.V74X.01.

The V7 is provided in a NEMA 1 enclosure from 1/8 to 10 HP at 230 VAC and 1/2 to 10 HP at 460 VAC. (This V7 was previously named GPD 315/V7)

V7 is the perfect choice wherever high performance in a small size is required.

Performance Features

- Ratings: 1/8 to 10 HP at 230 VAC, 1/2 to 10 HP at 460 VAC
- Constant torque overload rating: 150% for 1 min., 200% for 30 Sec. (250% peak)
- DC injection braking, ramp to stop
- Electronic reversing
- Adjustable accel/decel: 0.01 to 6000 seconds
- Controlled speed range: 40:1⁽¹⁾ 100:1⁽²⁾
- Speed Regulation ± 0.5 to 1% with slip compensation⁽¹⁾ $\pm 0.2\%$ ⁽²⁾
- Drive efficiency: 95%
- Displacement power factor: 0.98
- Output frequency: 1.0 to 400 Hz
- Frequency resolution: 0.01 Hz with digital reference 0.06 / 60 Hz with analog reference
- Frequency accuracy: 0.01% with digital command 0.5% with analog command
- Volts / hertz ratio: infinitely adjustable pattern
- Open loop vector control
- DC Injection braking: adjustable amplitude, duration, current limited
- Torque boost: full range, auto
- Power loss ride-thru: 0.5 sec.
- Speed search
- Auto restart
- 3 Critical frequency rejection settings
- Slip Compensation
- Energy Savings Function
- PID with loss of feedback function

Design Features

- 16-bit microprocessor logic
- Digital keypad operator with analog speed pot
- LED status display
- Copy Keypad Function
- Remote Mount Keypad Capability
- RJ-45 Style Digital Operator Connector
- 7 multifunction digital inputs
- Programmable form C output contact for customer use: 1A at 250 VAC or 30 VDC
- 24 VDC control logic compatible with sourcing or sinking outputs (PNP or NPN)
- Carrier frequency: 10 kHz maximum
- 16 multi-speed settings plus jog speed
- Remote speed reference: 0-10 VDC (20 kohms) or isolated 4-20 mA (250 ohms)
- Signal follower: bias and gain
- 2 programmable open collector outputs
- Analog monitor output: 0-10 VDC proportional to output frequency or output current
- Approximately 200 parameters
- Digital pulse train input (30 kHz max.)
- Cooling fan controlled by drive run/stop
- RS485/RS422 serial communication port (up to 32 nodes)
- Baud rate of 19.2 kbps
- UL and cUL listed; CE approved
- UL recognized electronic overload
- MTBF: exceeds 28 years
- Dynamic Braking Transistor
- NEMA 1 enclosure

⁽¹⁾ V/Hz Mode

⁽²⁾ Open Loop Vector Mode

Protective Features

- Current limit, stall prevention during accel, decel, and run
- Motor and drive overload
- Over voltage
- Instantaneous over current
- Short circuit
- Under voltage
- Heatsink overheat
- Ground fault protection
- Over/under torque

Service Conditions

- Ambient service temperature: -10° to 40°C (14° to 105°F)
- Ambient storage temperature: -20° to 60°C (-4° to 140°F)
- Humidity: to 95% non-condensing
- Altitude: to 3280 ft; higher by derating
- Service factor: 1.0
- Input voltage: -15% to +10% 200 to 230 VAC, 380 to 460 VAC
- Input frequency: +/-5%; 50/60 Hz
- Phase sequence insensitive

Options

- Dynamic Braking resistor (external)
- Remote operator station
- Profibus, DeviceNet Communications
- External DC link reactor
- DriveWizard
- CASE software

Related Products



V7N General purpose, V/Hz or open loop vector, NEMA1, embedded DeviceNet, 1/8 - 10 HP.
Flyer FL.V7N.01



V74X General purpose, V/Hz or open loop vector, integral NEMA4X/12, 1/8 - 15 HP.
Flyer FL.V74X.01



J7 General purpose, V/Hz, microsize, 1/8 - 5 HP.
Flyer FL.J7.01



GPD 515/G5 General purpose, V/Hz, open loop vector, or flux vector control 1/2 - 1500 HP.
Bulletin 4515



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