

PowerFlex® 40P AC Drive

Powerful Performance and Positioning

Product Features

Improved Performance with Closed Loop Control

The PowerFlex 40P AC drive allows for configurable closed loop control for either speed or position feedback for improved speed regulation, basic position control, or other pulse inputs for motor control.

- Improved speed regulation
- Basic position control

Improved Ride Through with Operation Down to 1/2 Line Voltage

The PowerFlex 40P AC drive allows for the selection of 1/2 DC Bus operation for use in critical applications where continued drive output is desired even in the event of brown out or low voltage conditions. The PowerFlex 40P AC drive also supports enhanced inertia ride through for additional low voltage mitigation.

- Selectable 1/2 line voltage operation
- Increased power loss ride through

Optimized for Common DC Bus Installations

Common DC Bus offers additional inherent breaking capabilities by utilizing all the drives/loads on the bus for energy absorption offering higher efficiency and cost savings.

The PowerFlex 40P AC drive has been optimized for use in Common DC Bus or Shared DC bus installations.

- Configurable pre-charge control
- Direct DC Bus connection



PowerFlex 40P AC Drive with DriveGuard safety relay option board (Series B)

Product Description

As part of the industry-leading PowerFlex® family of AC drives, the PowerFlex 40P AC drive addresses your needs for closed loop control and category 3 Safe-off in a compact and cost-effective design. The PowerFlex 40P AC drive is based on the popular PowerFlex 40 AC drive platform and shares common options and accessories.

Safety Inside

DriveGuard® Category 3 Safe-off Option (Series B)

With the DriveGuard option, category 3 Safe-off combines safety and productivity with zone control and cost savings through the reduction of components. The PowerFlex 40P AC drive with the Allen-Bradley® DriveGuard relay board option is a certified safety solution for AC drive control per EN954-1.

Flexible Packaging and Mounting Options

Versatile packaging and mounting options are available to meet your application and environmental requirements. These options include panel mount, zero-stacking and flange mount and are designed to meet IP and NEMA requirements.

Start Up, Programming and Operation

PowerFlex 40P drive programming is achieved by the use of an external HIM or via the resident DSI connection and PC programming tools.

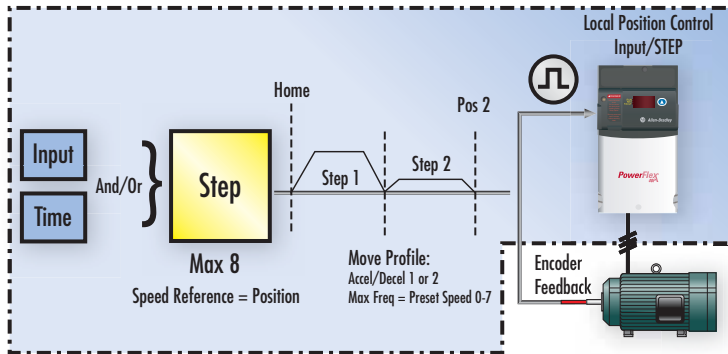
- DriveTools™ SP
- DriveExplorer™
- Pocket DriveExplorer™

StepLogic® wizards available for DriveTools SP and DriveExplorer (Lite or Full) assist in setup of position or velocity StepLogic programming.

LISTEN.
THINK.
SOLVE.®

Premier Integration with PowerFlex Drives

For simplified AC drive start-up and reduced development time using the Allen-Bradley Logix control platform, we've integrated PowerFlex AC drive configuration with RSLogix™ 5000 software. This single-software approach simplifies parameter and tag programming while still allowing stand-alone drive software tool use on the factory floor.



Simple Positioning

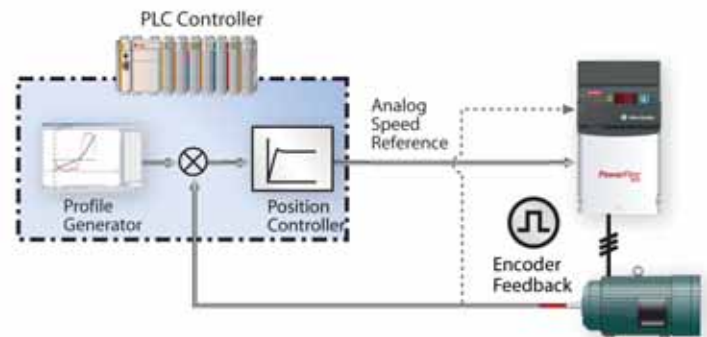
The PowerFlex 40P AC Drive comes standard with configurable dual channel (Quadrature) incremental Encoder or Pulse Train Input. The drive can provide 5V or 12V DC supply to the encoder and can accept 5V/12V or 24V DC pulse inputs. The PowerFlex 40P AC Drive can be used as an independent position controller for basic positioning or as part of an outer position control loop using an improved analog input.

Local Position Control:

With the use of StepLogic, the PowerFlex 40P AC drive can operate as an independent position controller for simple time or digital input based index positioning applications, eliminating the need for multiple sensors and limit switches.

Outer Position Control Loop:

Using a PLC controller such as CompactLogix™, the PowerFlex 40P AC drive can be leveraged for some simple motion control applications with more complex position profiles. The PLC controller calculates the required motion profile, builds the outer position control and provides a speed reference to the drive via analog I/O or over a field bus network connection.



Applications



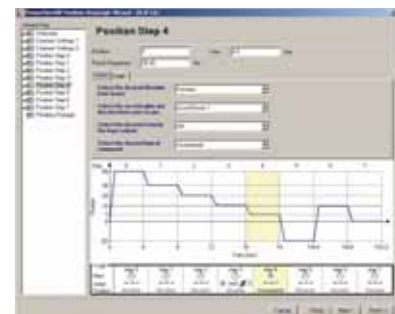
Material Handling

- Diverters
- Smart Conveyors



Packaging

- Packaging Machine
- Palletizers/De-Palletizers



StepLogic wizards available for DriveTools SP and DriveExplorer (Lite or Full) software.

Position Programming Made Easy

- Simple and intuitive programming of common settings
- Graphical representation of application
- Provides printable list of parameter changes
- Works with DriveExplorer (full & lite) and DriveTools SP

Textile and Fiber Applications

The PowerFlex 40P AC drive has specific functions added to make it ideal for low cost Fiber and Textile applications. The addition of the embedded Pulse Train Input provides economical and configurable speed control. Drives can also be set up to ratio speed given a single speed reference. With flexible communication options to multiple field bus networks and plate drive capability allowing for a reduction in cabinet size, the PowerFlex 40P AC drive is an ideal fit for the diverse needs of your Fibers and Textile applications.

Software Features:

- Output frequency up to 500 Hz
- Slip calculation and display (induction motor)
- Synchronized input ramps
- Synchronous or induction motor control
- Speed ratio over communication command
- 8 preset speeds and 4 Accel/Decel ramps
- Standard traverse and P-Jump

Hardware Features:

- Enhanced pre-charge control (for common DC Bus)
- 1/2 line voltage operation
- Improved power loss ride through capability
- 5/12/24V DC pulse train input
- Standard NEMA/UL Type 1/IP30 panel mount version as well as plate drive and flange mount configurations for a 75% reduction of enclosed watts
- Encoder Feedback with speed regulation of +/-0.3% of base speed across an 80:1 speed range

Applications:

- Drafting machines
- Carding machines
- Ring spinning machines – drafting rolls speed ratio to main spindle drive
- Draw/twist and texturing machines
- Roving machines – motion capabilities with standard motors with economical feedback
- Synthetic fiber spinning machines
- Fiber winder control



PowerFlex 40P AC drive.
Plate drive for mounting to external heat sink.



Specifications

Operator Interface	4-digit display, 3 additional LED indicators and scroll/reset button, optional remote Human Interface Modules (HIM) or PC interface
Standards	UL, C-Tick, CE, EMC EN61800-3, low voltage EN60204-1/EN50178 EN 954-1 with DriveGuard® option
Electrical	Maximum Short Circuit Rating: 100,000 Amps Symmetrical
Input Specifications	3-Phase Voltage: 200...240V, 0.4...7.5 kW (0.5...10 Hp)/380...480V, 0.4...11 kW (0.5...15 Hp)/480...600V, 0.75...11 kW (1...15 Hp) Frequency: 47...63 Hz Logic Control Ride Through: >0.5 seconds, 2 seconds typical
Output Specifications	Voltage: Adjustable from 0V to rated motor voltage Intermittent Current: 150% for 60 seconds
Enclosure and Ambient Operating Temperature	Open Type/IP20: -10...50 °C (14...122 °F) Flange Mount: Front = IP20, NEMA/UL TYPE Open; Back/Heatsink = IP40/54/65, NEMA/UL TYPE 1/12/4/4X Plate drive for external Heatsink mounting up to IP66 NEMA/UL Type 1/IP30: -10...40 °C (14...104 °F) with optional conduit kit
Frequency Range	0-500 Hz
Control	24V sink or source control 3 dedicated inputs for start, stop and reverse 4 programmable inputs for functions such as preset speed, jog, etc ±10V (bipolar), 0...10V and 4...20 mA 1 programmable form C relay output 1 analog output (0...10V or 4...20 mA) 2 programmable opto outputs
Feedback Types	Line Driver Type Encoder Quadrature (dual channel) or Single Channel 5/12V DC supply, 10 mA minimum per channel Single ended or differential (A, B channel) Duty cycle of 50%, +10% Pulse-Train Input Configurable Input Voltage: 5V DC (±10%), 10-12V DC (±10%), or 24V DC (±15%) Frequency controlled PWM Allowable Pulse Frequency DC to 250 Hz
Dynamic Braking	Built-in brake chopper
Carrier Frequency	2-16 kHz. The drive rating is based on 4 kHz
Frequency Accuracy	Digital input within + 0.05% of set frequency Analog input within 0.5% of maximum output frequency
B Frame Ratings	200...240V, 3Ø, 0.4...3.7 kW (0.5...5 Hp) 380...480V, 3Ø, 0.4...4.0 kW (0.5...5 Hp) 480...600V, 3Ø, 0.75...4.0 kW (1...5 Hp)
C Frame Ratings	200...240V, 3Ø, 5.5...7.5 kW (7.5...10 Hp) 380...480V, 3Ø, 5.5...11 kW (7.5...15 Hp) 480...600V, 3Ø, 5.5...11 kW (7.5...15 Hp)
Dimensions mm (inches)	B Frame: 180 (7.09) H x 100 (3.94) W x 136 (5.35) D* C Frame: 260 (10.2) H x 130 (5.1) W x 180 (7.1) D* * Add 12 mm (0.5") when using the DriveGuard safety relay board option
Additional Functionality	Sensorless vector control with slip compensation or Encoder feedback Process PID StepLogic functions (relays and timers) PTC input compatible Position Control Regulation with Encoder feedback or analog input
Additional Accessories	Internal Communications: RS485 Integral Communication options: – DeviceNet™ – EtherNet/IP™ – PROFIBUS DP™ – ControlNet™ – LonWorks® – Bluetooth® EMC line filters Line reactors Dynamic brake resistors DSL cable accessories/HIMs DriveGuard Safety Relay (Series B)

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