

PRODUCT PROFILE

PowerFlex® 40P AC Drive

Powerful Performance and Positioning

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.

Product Features

Improved Performance:

Closed Loop

Encoder/Pulse Train Input Standard

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

Operation Down to 1/2 Line Voltage

The PowerFlex 40P AC drive allows for the selection of ½ 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 ½ line voltage operation
- Increased power loss ride through

Optimized for Common DC Bus Installations

Enhanced Control of Internal Pre-charge

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)

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 options allow for panel mount NEMA/UL Type 1/IP30 as well as NEMA/UL Type 4/IP66 (with like enclosure) using the plate/flange drives. Plate drives also allow for a reduction in overall enclosure size based on a 75% reduction in enclosed Watts.

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.

Premier Integration with PowerFlex Drives

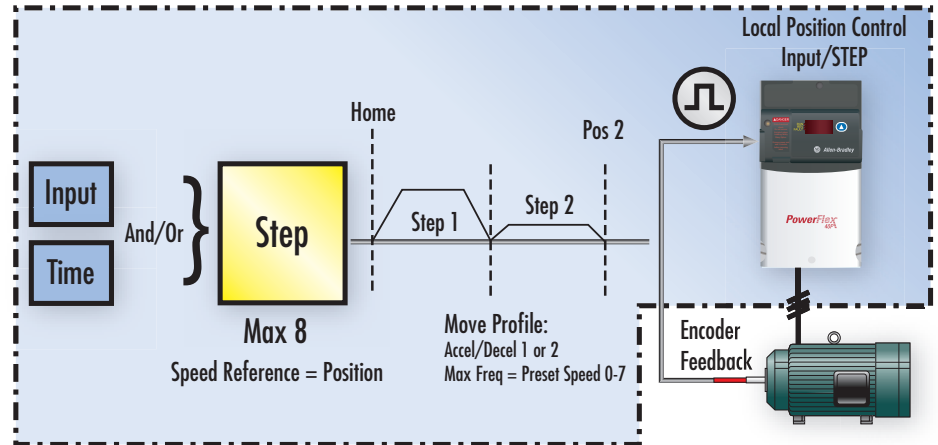
For simplified AC drive start-up and reduced development time using the Allen-Bradley® Logix control platform, we've integrated PowerFlex® AC drive configuration with RSLogix™ 5000 software. This single-software approach simplifies parameter and tag programming while still allowing stand-alone drive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

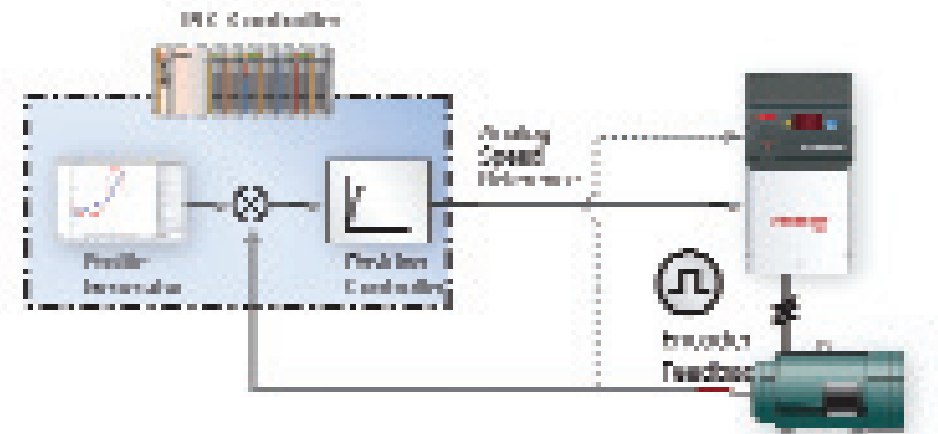
Local Position Control:

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:

By means of a PLC controller such as CompactLogix™, the PowerFlex 40P AC drive can be used 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

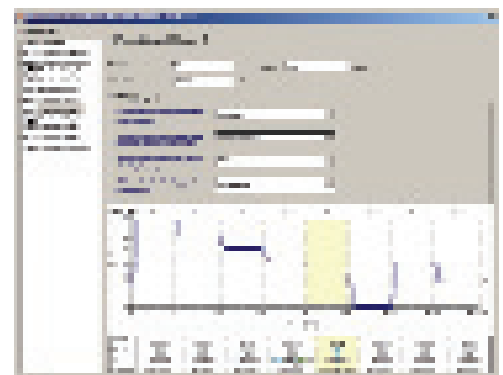


- Material Handling
 - Diverters
 - Smart Conveyors
- Packaging
 - Packaging Machine
 - Palletizers/ De-Palletizers

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

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



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

Hardware Features:

- Enhanced pre-charge control (for common DC Bus)
- Improved power loss ride through capability
- 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
- 1/2 line voltage operation
- 5/12/24V DC pulse train input
- Encoder Feedback with speed regulation of +/-0.3% of base speed across an 80:1 speed range

Applications:

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



*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 (0.5-10Hp) / 380-480V, 0.4-11 kW (0.5-15Hp) / 480-600V, 0.75-11 kW (1-15Hp) Frequency: 47 to 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° to 50° C (14° - 122°F) Plate drive for external Heatsink mounting up to IP66 NEMA/UL Type 1 / IP30: -10° to 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 4-20mA 1 programmable form C relay output 1 analog output (0 - 10V or 4 - 20mA) 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: 5VDC (±10%), 10-12VDC (±10%), or 24V DC (±15%) Frequency controlled PWM Allowable Pulse Frequency DC to 250Kz
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 (0.5-5Hp) 380-480V, 3Ø, 0.4-4.0 kW (0.5-5Hp) 480-600V, 3Ø, 0.75-4.0 kW (1-5Hp)
C Frame Ratings	200-240V, 3Ø, 5.5-7.5 kW (7.5-10Hp) 380-480V, 3Ø, 5.5-11 kW (7.5-15Hp) 480-600V, 3Ø, 5.5-11 kW (7.5-15Hp)
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 12mm (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 DSI cable accessories/HIMs DriveGuard Safety Relay (Series B)

PowerFlex, PowerFlex 40P, PowerFlex 40, StepLogic, RSLogix, CompactLogix, DriveGuard and Allen-Bradley are trademarks of Rockwell Automation. Trademarks not belonging to Rockwell Automation are the property of their respective companies.

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846