

# PowerFlex® 4 and PowerFlex® 40 AC Drives

Provide Optimized Simplicity

Providing users with powerful motor speed control, the Allen-Bradley® PowerFlex 4 and PowerFlex 40 AC drives are ideal for machine level speed control, and provide the application versatility to meet the demands of global OEMs and end users who require flexibility, space savings and ease of use. The PowerFlex 4 and PowerFlex 40 AC drives have commonality in three key areas:

## Flexible Packaging and Mounting Options

- Installation can be a virtual snap using the DIN rail mounting feature on selected drives.
- Flange mount drives are available to reduce overall enclosure size.
- Zero Stacking™ is allowable for ambient temperatures up to 40°C, saving valuable panel space. 50°C ambient temperatures are permitted with minimal spacing between drives.

## Easy to Start up and Operate

- Integral keypad features a 4 digit display and 10 additional LED indicators providing intuitive control.
- The keypad, control keys, and local potentiometer are active out of the box, simplifying start up.
- The most commonly programmed parameters are grouped together for fast and easy start up.

## Versatile Programming and Network Solutions

- Integral RS485 communications enable the drives to be used in a multi-drop network configuration. A serial converter module provides connectivity to any controller that has the ability to initiate DF1 messaging.
- DriveExplorer™ and DriveTools™ SP software can be used to program, monitor and control the drives.
- A NEMA/UL Type 4X remote and NEMA 1 handheld LCD keypad provide additional programming and control flexibility, both featuring the popular CopyCat function.

## 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.



**1**  
PowerFlex 4 AC Drive  
0.2 to 3.7 kW; 0.25 to 5  
Hp @ 120, 240, 480 V

**2**  
PowerFlex 40 AC Drive, 0.4 to  
11 kW; 0.5 to 15 Hp @ 120, 240,  
480, 600 V (Product shown with  
DeviceNet option)

**3**  
PowerFlex 4 and 40  
Flange Mount Drives

**4**  
PowerFlex 40  
NEMA / UL Type 4X/12  
(IP66/54) 0.4 to 3.7 kW  
(No additional  
accessory required for  
communication options)

### PowerFlex 4 AC Drive

Designed with simplicity and space savings in mind, the PowerFlex 4 is:

- Ideal for applications with limited panel space
- An economical replacement for electromechanical devices or DC solutions

### PowerFlex 40 AC Drive

The PowerFlex 40 AC drive shares all the same features and functionality of the PowerFlex 4 AC drive. In addition the PowerFlex 40 AC drive features sensorless vector control and has additional I/O capability. Designed with application versatility and robust performance in mind, the PowerFlex 40 AC drives also features:

- 0-10V or 4-20mA (10-bit) analog output for feedback or as reference for other drives
- Timer, counter and StepLogic® functions can reduce hardware design cost, simplifying control schemes
- Two analog input channels, including PID capability, offer enhanced application flexibility
- Integral communications options including DeviceNet™, ControlNet™, EtherNet/IP™ and a variety of 3rd party networks.
- IP66, NEMA/UL Type 4X/12 (indoor) – for mounting directly in the product environment. Listed by UL to resist dust, dirt, etc. and survive high pressure water spray. Also certified by NSF to ensure conformity with international food equipment standards.

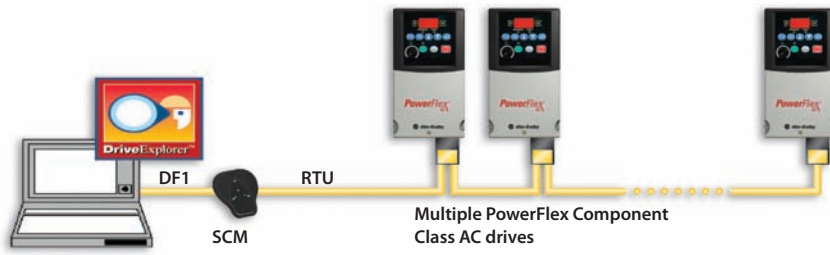
### PowerFlex 40 Configured Drives

PowerFlex 40 Configured Drives simplify installation and start up by allowing users to order drive packages that combine operator interface, control, communications and power options in pre-packaged assemblies. Offering a number of commonly requested pre-engineered options, as well as more complex custom-engineered combinations, this program provides a wide range of motor control options.

LISTEN.  
THINK.  
SOLVE.™

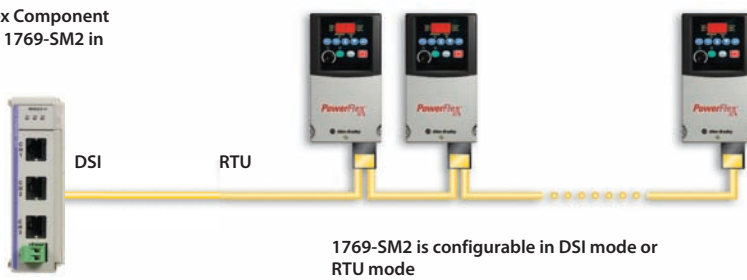
# Now we're talking... low cost communications!

## Simple RS485 Solutions

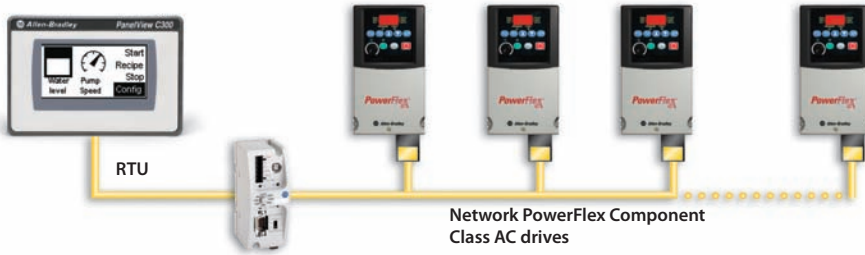


- Controls and monitors from a PC using DriveExplorer™ or DriveTools™ SP software
- Requires use of Serial Converter Module (SCM)

Up to 15 PowerFlex Component Class AC drives on 1769-SM2 in DSI mode

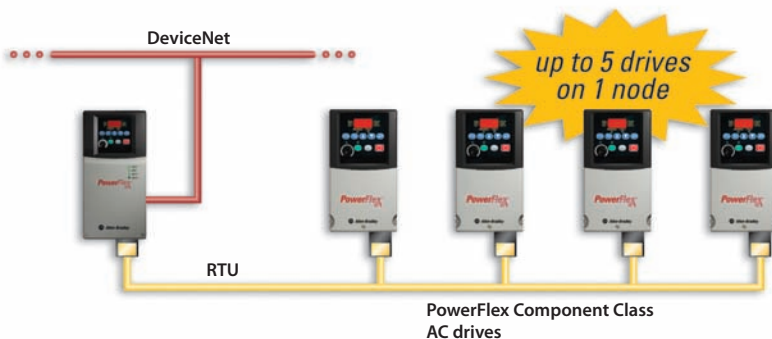


- Simple network control with any logic controller using DSI

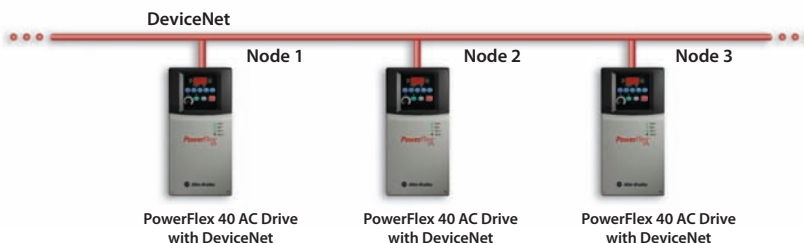


- Compatible with any device that acts as RTU Master
- Drive supports standard 03 and 06 RTU commands

## Advanced Network Solutions



- Multi-drive solution using a single PowerFlex 40 DeviceNet option
- Significantly reduces node count and system cost

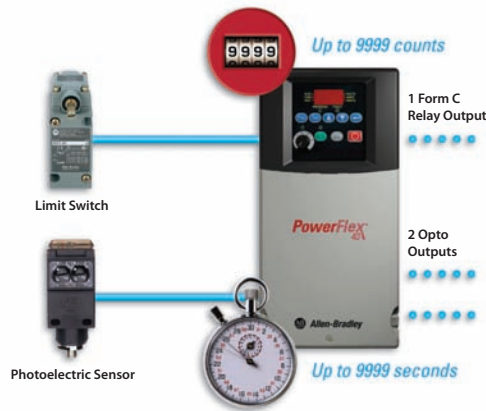


- Network configuration using PowerFlex 40 drives with DeviceNet option cards
- Provides highest performance and most flexible configuration capabilities

# And, even lower cost machine level control.

## Timer and Counter Functions

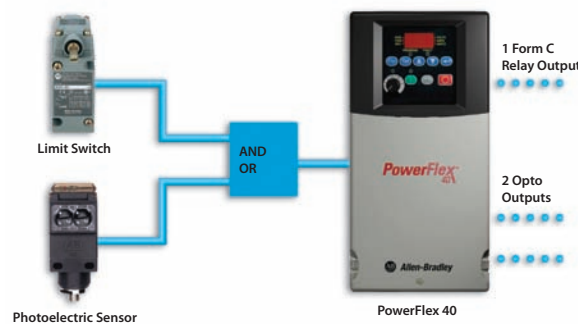
- Digital inputs control digital outputs based on timer or counter function



*Ideal for:*  
**Mixers**  
**Fillers**  
**Shrink-wrap machines**

## Basic Logic Functions

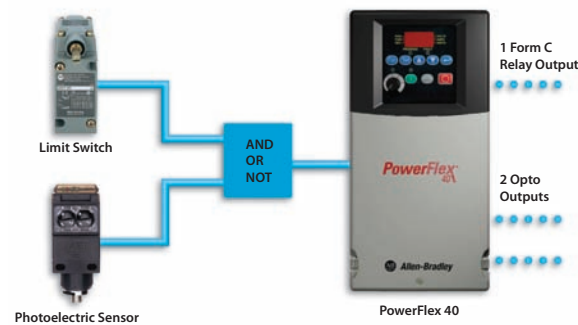
- Digital inputs control digital outputs based on Boolean logic
- AND and OR logic inputs provide application flexibility



*Ideal for:*  
**Packaging machines**  
**Conveyors**  
**Palletizers**

## StepLogic® Function

- Logic controlled steps using preset speed settings
- Each step can be programmed to:
- Step based on digital input status including AND, OR and NOT logic
- Step based on specific time
- Control speed, direction and accel/decel rate
- Control the status of an output
- Make deterministic jumps



*Ideal for:*  
**Positioning**  
**Shuttle transfer cars**  
**Machine tool**  
**Batch process**

## NEMA/UL Type 4X/12 (IP66/54)

- NEMA/UL Type 4X/12 for Washdown application Standards met:
- UL Type 4X (high pressure water)
- UL Type 12 (dust)
- IP66/54 (dust and high pressure water)
- C-Tick, CE
- NSF
- Communication options do not require additional accessories.



PowerFlex 40 NEMA / UL Type 4X/12 IP66/54

*Ideal for washdown or dust-tight areas in:*  
**Food and Beverage Applications**  
**Pulp and Paper**  
**Machine Tool**  
**Textile**  
**Pharmaceutical**

	PowerFlex 4 AC Drive	PowerFlex 40 AC Drive																																												
<b>Operator Interface</b>	Integral keypad with 4 digit, 10 additional LED indicators and local potentiometer, remote Human Interface Modules (HIM) optional	Integral keypad with 4 digit, 10 additional LED indicators and local potentiometer, remote Human Interface Modules (HIM) optional (IP66 does not include local potentiometer)																																												
<b>Standards</b>	UL, C-Tick, CE, EMC EN61800-3, Low Voltage EN60204-1/EN50178																																													
<b>Electrical</b>	Maximum Short Circuit Rating: 100,000 Amps Symmetrical																																													
<b>Protection</b>	Electronic Motor Overload Protection: I <sup>2</sup> t protection – 150% for 60 seconds, 200% for 3 seconds (Provides Class 10 protection)																																													
<b>Input Specifications</b>	1 Phase Voltage: 100 - 120V / 200 - 240V 3-Phase Voltage: 200 - 240V / 380 - 480V Frequency: 47 to 63 Hz Logic Control Ride Through: >0.5 seconds, 2 seconds typical Voltage: Adjustable from 0V to rated motor voltage Intermittent Current: 150% for 60 seconds	1 Phase Voltage: 100 - 120V / 200 - 240V 3-Phase Voltage: 200 - 240V / 380 - 480V / 480 - 600V Frequency: 47 to 63 Hz Logic Control Ride Through: >0.5 seconds, 2 seconds typical Voltage: Adjustable from 0V to rated motor voltage Intermittent Current: 150% for 60 seconds																																												
<b>Output Voltage Range/ Overload Capacity</b>	Voltage: Adjustable from 0V to rated motor voltage Intermittent Current: 150% for 60 seconds, 200% for 3 secs																																													
<b>Enclosure and Ambient Operating Temperature</b>	Open Type / IP20: -10° to 50° C (14° - 122°F) with specified distance between drives or Open Type / IP20: -10° to 40° C (14° - 104°F) Zero Stacked NEMA/UL Type 1 / IP30: -10° to 40° C (14° - 104°F) with optional conduit box kit	Open Type / IP20: -10° to 50° C (14° - 122°F) with specified distance between drives or Open Type / IP20: -10° to 40° C (14° - 104°F) Zero Stacked NEMA/UL Type 1 / IP30: -10° to 40° C (14° - 104°F) with optional conduit box kit NEMA/UL Type 4X/12 / IP66: -10° to 40° C (14° - 104°F)																																												
<b>Frequency Range</b>	0 - 240 Hz	0 - 400 Hz																																												
<b>Control I/O</b>	24V sink or source control 3 dedicated inputs for start, stop and reverse 2 programmable inputs for functions such as preset speed, jog, etc. 0 - 10V or 4 - 20mA input 1 programmable form C relay output	24V sink or source control 3 dedicated inputs for start, stop and reverse 4 programmable inputs for functions such as preset speeds, 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																																												
<b>Dynamic Braking</b>	7th IGBT included on all ratings (except no brake drives)	7th IGBT included on all ratings																																												
<b>Carrier Frequency</b>	2-16 kHz. The drive rating is based on 4 kHz																																													
<b>Frequency Accuracy</b>	Digital input within + 0.05% of set frequency Analog input within 0.5% of maximum output frequency																																													
<b>Ratings</b>	<table border="1"> <thead> <tr> <th>Input Voltage Class</th> <th>Output Voltage Class</th> <th>A Frame Ratings</th> <th>B Frame Ratings</th> </tr> </thead> <tbody> <tr> <td>100...120V, 1Ø</td> <td>0...230V, 3Ø</td> <td>0.2...0.37 kW (0.25...0.5 Hp)</td> <td>0.75...1.1 kW (1...1.5 Hp)</td> </tr> <tr> <td>200...240V, 1Ø</td> <td>0...230V, 3Ø</td> <td>0.2...0.75 kW (0.25...1 Hp)</td> <td>1.5...2.2 kW (2...3 Hp)</td> </tr> <tr> <td>200...240V, 3Ø</td> <td>0...230V, 3Ø</td> <td>0.2...1.5 kW (0.25...2 Hp)</td> <td>2.2...3.7 kW (3...5 Hp)</td> </tr> <tr> <td>380...480V, 3Ø</td> <td>0...460V, 3Ø</td> <td>0.37...1.5 kW (0.5...2 Hp)</td> <td>2.2...3.7 kW (3...5 Hp)</td> </tr> </tbody> </table>	Input Voltage Class	Output Voltage Class	A Frame Ratings	B Frame Ratings	100...120V, 1Ø	0...230V, 3Ø	0.2...0.37 kW (0.25...0.5 Hp)	0.75...1.1 kW (1...1.5 Hp)	200...240V, 1Ø	0...230V, 3Ø	0.2...0.75 kW (0.25...1 Hp)	1.5...2.2 kW (2...3 Hp)	200...240V, 3Ø	0...230V, 3Ø	0.2...1.5 kW (0.25...2 Hp)	2.2...3.7 kW (3...5 Hp)	380...480V, 3Ø	0...460V, 3Ø	0.37...1.5 kW (0.5...2 Hp)	2.2...3.7 kW (3...5 Hp)	<table border="1"> <thead> <tr> <th>Input Voltage Class</th> <th>Output Voltage Class</th> <th>B Frame Ratings</th> <th>C Frame Ratings (IP20 only)</th> </tr> </thead> <tbody> <tr> <td>100...120V, 1Ø</td> <td>0...230V, 3Ø</td> <td>0.4...1.1 kW (0.5...1.5 Hp)</td> <td></td> </tr> <tr> <td>200...240V, 1Ø</td> <td>0...230V, 3Ø</td> <td>0.4...1.5 kW (0.5...2 Hp)</td> <td>2.2 kW (3 Hp)</td> </tr> <tr> <td>200...240V, 3Ø</td> <td>0...230V, 3Ø</td> <td>0.4...3.7 kW (0.5...5 Hp)</td> <td>5.5...7.5 kW (7.5...10 Hp)</td> </tr> <tr> <td>380...480V, 3Ø</td> <td>0...460V, 3Ø</td> <td>0.4...4.0 kW (0.5...5 Hp)</td> <td>5.5...11 kW (7.5...15 Hp)</td> </tr> <tr> <td>480...600V, 3Ø</td> <td>0...575V, 3Ø</td> <td>0.75...4.0 kW (1...5 Hp)</td> <td>5.5...11 kW (7.5...15 Hp)</td> </tr> </tbody> </table>	Input Voltage Class	Output Voltage Class	B Frame Ratings	C Frame Ratings (IP20 only)	100...120V, 1Ø	0...230V, 3Ø	0.4...1.1 kW (0.5...1.5 Hp)		200...240V, 1Ø	0...230V, 3Ø	0.4...1.5 kW (0.5...2 Hp)	2.2 kW (3 Hp)	200...240V, 3Ø	0...230V, 3Ø	0.4...3.7 kW (0.5...5 Hp)	5.5...7.5 kW (7.5...10 Hp)	380...480V, 3Ø	0...460V, 3Ø	0.4...4.0 kW (0.5...5 Hp)	5.5...11 kW (7.5...15 Hp)	480...600V, 3Ø	0...575V, 3Ø	0.75...4.0 kW (1...5 Hp)	5.5...11 kW (7.5...15 Hp)
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<b>Dimensions mm (inches)</b>	A Frame: 152 (5.98) H X 80 (3.15) W X 136 (5.35) D B Frame: 180 (7.09) H X 100 (3.94) W X 136 (5.35) D	B Frame: 180 (7.09) H X 100 (3.94) W X 136 (5.35) D B Frame: (IP66 - NEMA/UL Type 4X/12): 170 (10.6) H X 165 (6.50) W X 198 (7.8) D C Frame: 260 (10.2) H X 130 (5.1) W X 180 (7.1) D																																												
<b>Communications</b>	Integral RS485 with Modbus RTU/DSI Optional: - DeviceNet™ 1. - PROFIBUS™ DP 1 - EtherNet/IP™ 1. - BACnet® 1 - ControlNet™ 1. - Bluetooth® 1. - LonWorks™ 1. <small>1. Optional network for use only with External DSI Communications Kit.</small>	Integral RS485 Optional: - DeviceNet™. - LonWorks™ - EtherNet/IP™. - BACnet® - PROFIBUS™ DP - Bluetooth® - ControlNet™. .																																												
<b>Features</b>	Flying Start	Sensorless vector control Process PID StepLogic™ functions (relay and timer) PTC input compatible																																												
<b>Additional Accessories</b>	EMC line filters, Line reactors Dynamic brake resistors, DSI cable accessories																																													

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