

## POWERFLEX AC DRIVES

### Motor Control

### Application

Ratings 100-115V 1 Phase  
In/3 Phase 230V Out

Ratings 200-240V

Ratings 400-480V

Ratings 500-600V

Ratings 690V

Ambient Temperature \*  
Limit for Enclosure Types

### EMC Filters

### Standards and Certifications

### Overload Capability

### Output Frequency Range

### User Interface

### Communications Options

### Analog Inputs

### Analog Outputs

### PTC Inputs

### Digital Inputs

### Relay Outputs

### Transistor Outputs

### Dynamic Braking

### Safety

## PowerFlex 4M AC Drive



- Volts per Hertz
- Open Loop Speed Regulation
- 0.2...1.1 kW • 0.25...1.5 Hp • 1.6...6 A
- 0.2...7.5 kW • 0.25...10 Hp • 1.6...33 A
- 0.37...11 kW • 0.5...15 Hp • 1.5... 24 A
- N/A
- N/A
- IP20: -10 to 50 °C (14 to 122 °F)
- IP20 zero stacking: -10 to 40 °C (14 to 104 °F)

- Internal (1 phase 240V and 3 phase 480V)
- External (1 & 3 phase)

- UL, CE, cUL, C-Tick

- 150% for 60 secs • 200% for 3 secs

- 0...400 Hz

- Local Keypad • Remote Keypad
- RSLogix 5000 • Studio 5000 • DriveTools SP
- Connected Components Workbench (CCW)

- Integral RS485 (Modbus RTU)
- Optional: \*DeviceNet, \*EtherNet/IP, \*PROFIBUS DP, \*ControlNet, \*LonWorks®, \*Bluetooth®
- \*Optional network for use only with DSI External Communications Kit

- Qty. 1 (unipolar voltage)

- None

- Qty. 1 (uses an Analog Input)

- Qty. 5 (24V DC, 2 programmable)

- Qty. 1 (form C)

- None

- Internal IGBT except catalog numbers ending in "3"

- No

*Found on page 22*

## PowerFlex 523 AC Drive



- Volts per Hertz
- Sensorless Vector Control
- Open Loop Speed Regulation
- 0.2...1.1 kW • 0.25...1.5 Hp • 1.6...6 A
- 0.2...15 kW • 0.25...20 Hp • 1.6...62.1 A
- 0.4...22 kW • 0.5...30 Hp • 1.4...43 A
- 0.4...22 kW • 0.5...30 Hp • 0.9...32 A
- N/A
- IP20: -20 to 50 °C (-4 to 122 °F)
- IP20 Zero Stacking: -20\* to 45 °C (-4 to 113 °F)
- IP20: -20 to 60 °C (140 °F), with current derating
- IP20: -20 to 70 °C: (158 °F) with current derating and optional control module fan kit

- Internal (1 phase 240V and 3 phase 480V)
- External (1 & 3 phase)

- UL, CE, cUL, C-Tick, RoHS, ACS 156, GOST-R, KCC, Semi-F47, REACH

- Normal Duty Application: 110% - 60 secs, 150% - 3 secs (For 20 Hp & above)
- Heavy Duty Application: 150% - 60 secs, 180% - 3 secs (200% - 3 secs programmable)

- 500 Hz

- 5 Digits, 16 segments LCD display with multiple languages and local keypad • Remote Keypad
- MainsFree™ Programming via USB • RSLogix 5000
- Studio 5000 • Connected Components Workbench (CCW)

- Integral RS485 (Modbus RTU)
- Optional: Dual-port EtherNet/IP, DeviceNet, PROFIBUS DP

- Qty. 1 (unipolar voltage or current)

- None

- Qty. 1 (uses an Analog Input)

- Qty. 5 (24V DC, 4 programmable)

- Qty. 1 (form C)

- None

- Internal IGBT

- No

*Found on page 46*

## PowerFlex 525 AC Drive



- Volts per Hertz • Sensorless Vector Control • Closed Loop Velocity Vector Control • Permanent Magnet Motor Control\*\*
- Open Loop Speed Regulation • Closed Loop Speed Regulation

- 0.4...1.1 kW • 0.5...1.5 Hp • 2.5...6 A

- 0.4...15 kW • 0.5...20 Hp • 2.5...62.1 A

- 0.4...22 kW • 0.5...30 Hp • 1.4...43 A

- 0.4...22 kW • 0.5...30 Hp • 0.9...32 A

- N/A

- IP20: -20 to 50 °C (-4 to 122 °F)
- IP20 Zero Stacking: -20\* to 45 °C (-4 to 113 °F)
- IP20: -20 to 60 °C (140 °F), with current derating
- IP20: -20 to 70 °C: (158 °F) with current derating and optional control module fan kit

- Internal (1 phase 240V and 3 phase 480V)
- External (1 & 3 phase)

- UL, CE, cUL, C-Tick, TVU, ATEX, GOST-R, Semi-F47, Marine (Lloyds), ACS156, REACH, RoHS, KCC

- Normal Duty Application: 110% - 60 secs, 150% - 3 secs (For 20 Hp & above)
- Heavy Duty Application: 150% - 60 secs, 180% - 3 secs (200% - 3 secs programmable)

- 500 Hz

- 5 Digits, 16 segments LCD display with multiple languages and local keypad • Remote Keypad
- MainsFree™ Programming via USB • RSLogix 5000
- Studio 5000 • Connected Components Workbench (CCW)

- Embedded EtherNet/IP
- Integral RS485 (Modbus RTU)
- Optional: Dual-port EtherNet/IP, DeviceNet, PROFIBUS DP

- Qty. 2 (1 bipolar voltage, 1 current)

- Qty: 1 (unipolar voltage or current)

- Qty. 1 (uses an Analog Input)

- Qty: 7 (24V DC, 6 programmable)

- Qty: 2 (1 form A Relay, 1 form B Relay)

- Qty. 2

- Internal IGBT

- Embedded Safe Torque-Off, SIL2, PLD, Cat 3

*Found on page 49*

\* Environmental considerations may apply

\*\*Permanent magnet motor control is scheduled for a future firmware release

# PowerFlex 4M AC Drive

Providing users with powerful motor speed control in a compact, space saving design, the PowerFlex 4M AC drive is the smallest and most cost effective member of the PowerFlex family of drives.

Providing application flexibility, feed-through wiring and ease-of-programming this drive is ideal for machine level speed control, for applications requiring space savings and easy-to-use AC drives.

## PowerFlex 4M at a glance

### Ratings

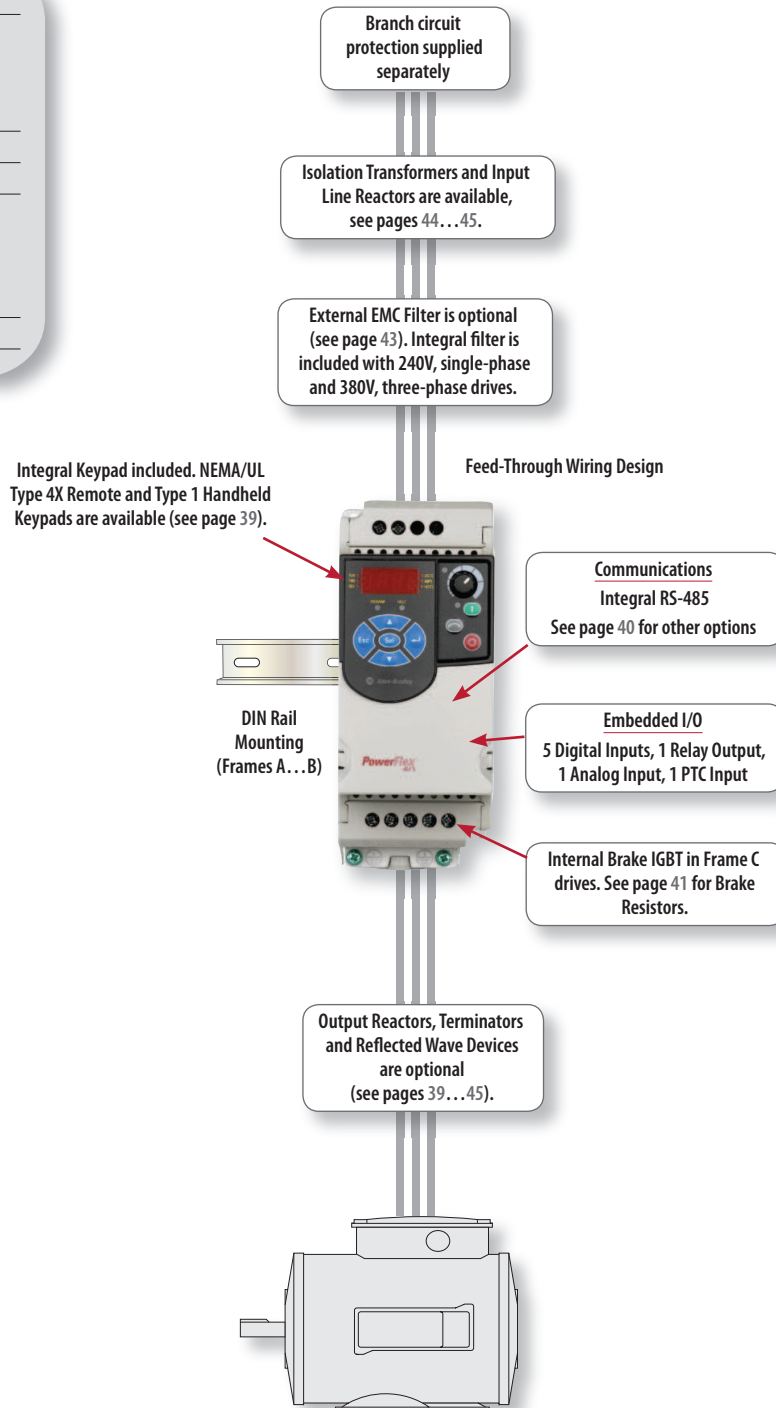
100...120V:	0.2...1.1 kW / 0.25...1.5 Hp / 1.6...6 A
200...240V:	0.2...7.5 kW / 0.25...10 Hp / 1.6...33 A
380...480V:	0.4...11 kW / 0.5...15 Hp / 1.5...24 A

**Motor Control** V/Hz Control

**Enclosures** IP20, NEMA/UL Type Open

- Certifications**
- C-Tick
  - c-UL, UL
  - CE
  - RoHS

**Options** See pages 39...45

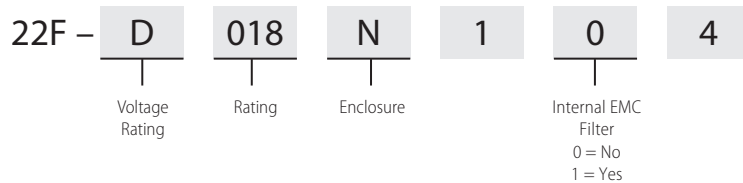


## Additional Information

PowerFlex 4M Technical Data, publication 22F-TD001

PowerFlex 4M User Manual, publication 22F-UM001

## Catalog Number Explanation



## Product Selection

### 100...120V AC, Single-Phase Input, Three-Phase Output Drives (50/60 Hz, No Brake)

Drive Ratings			IP20, NEMA/UL Type Open	with Integral "S Type" EMC Filter	
kW	Hp	Output Current	Frame Size	Cat. No.	
		A			
0.2	0.25	1.6	A	22F-V1P6N103	–
0.4	0.5	2.5	A	22F-V2P5N103	–
0.75	1	4.5	B	22F-V4P5N103	–
1.1	1.5	6	B	22F-V6P0N103	–

### 200...240V AC, Single-Phase Input, Three-Phase Output Drives (50/60 Hz, No Brake)

Drive Ratings			IP20, NEMA/UL Type Open	with Integral "S Type" EMC Filter ‡	
kW	Hp	Output Current	Frame Size	Cat. No.	
		A			
0.2	0.25	1.6	A	22F-A1P6N103	22F-A1P6N113
0.4	0.5	2.5	A	22F-A2P5N103	22F-A2P5N113
0.75	1	4.2	A	22F-A4P2N103	22F-A4P2N113
1.5	2	8	B	22F-A8P0N103	22F-A8P0N113
2.2	3	11	B	22F-A011N103	22F-A011N113

‡ This filter is suitable for use with a cable length of up to 5 meters for class A environments and up to 1 meter for class B environments.

**200...240V AC, Three-Phase Drives (50/60 Hz)**

Drive Ratings				IP20, NEMA/UL Type Open	with Integral "S Type" EMC Filter
kW	Hp	Output Current	Frame Size	Cat. No.	Cat. No.
		A			
0.2	0.25	1.6	A	22F-B1P6N103	—
0.4	0.5	2.5	A	22F-B2P5N103	—
0.75	1	4.2	A	22F-B4P2N103	—
1.5	2	8	A	22F-B8P0N103	—
2.2	3	12	B	22F-B012N103	—
3.7	5	17.5	B	22F-B017N103	—
<b>with Brake</b>					
5.5	7.5	25	C	22F-B025N104	—
7.5	10	33	C	22F-B033N104	—

**380...480V AC, Three-Phase Drives (50/60 Hz)**

Drive Ratings				IP20, NEMA/UL Type Open	with Integral "S Type" EMC Filter ‡
kW	Hp	Output Current	Frame Size	Cat. No.	Cat. No.
		A			
0.4	0.5	1.5	A	22F-D1P5N103	22F-D1P5N113
0.75	1	2.5	A	22F-D2P5N103	22F-D2P5N113
1.5	2	4.2	A	22F-D4P2N103	22F-D4P2N113
2.2	3	6	B	22F-D6P0N103	22F-D6P0N113
3.7	5	8.7	B	22F-D8P7N103	22F-D8P7N113
<b>with Brake</b>					
5.5	7.5	13	C	22F-D013N104	22F-D013N114
7.5	10	18	C	22F-D018N104	22F-D018N114
11	15	24	C	22F-D024N104	22F-D024N114

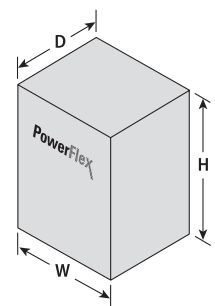
‡ This filter is suitable for use with a cable length of up to 10 meters for Class A environments.

**Approximate Dimensions and Weights**

Dimensions are in mm (in.) - weights are in kg (lb)

**IP20, NEMA/UL Type Open**

Frame	H	W	D	Weight
A	174.0 (6.85)	72.0 (2.83)	136.0 (5.35)	1.58 (3.5)
B	174.0 (6.85)	100.0 (3.94)	136.0 (5.35)	2.09 (4.6)
C	260.0 (10.24)	130.0 (5.12)	180.0 (7.09)	4.81 (10.6)



# PowerFlex 4-Class Options

## Human Interface Modules and Accessories

Description	Cat. No.	Used with PowerFlex Drive				
		4M	4	40	40P	400
Remote (Panel Mount) LCD Display, Digital Speed Control, CopyCat Capable. Includes 2.0 meter cable. IP66, NEMA Type 4X/12 - Indoor Use Only.	22-HIM-C2S ♣	✓	✓	✓	✓	✓
Remote Handheld, LCD Display, Full Numeric Keypad, Digital Speed Control, CopyCat Capable. Includes 1.0 meter cable. IP30, NEMA Type 1. Panel mount with optional Bezel Kit.	22-HIM-A3	✓	✓	✓	✓	✓
Bezel Kit. Panel Mount for LCD Display, Remote Handheld Unit. IP30, NEMA Type 1. Includes a 22-RJ45CBL-C20 cable.	22-HIM-B1	✓	✓	✓	✓	✓
DSI HIM Cable (DSI HIM to RJ45 cable)						
1.0 Meter (3.3 Feet)	22-HIM-H10	✓	✓	✓	✓	✓
2.9 Meter (9.5 Feet)	22-HIM-H30	✓	✓	✓	✓	✓

♣ The 22-HIM-C2S is smaller than the 22-HIM-C2 and cannot be used as a direct replacement.

## Safety Options

Description	Cat. No.	Used with PowerFlex Drive				
		4M	4	40	40P	400
DriveGuard Safe Torque-Off	20A-DG01				✓	

## Other Options

Description	Cat. No.	Used with PowerFlex Drive				
		4M	4	40	40P	400
Auxiliary Relay Board - Expands drive output capabilities - Frames D...H only.	AK-U9-RLB1					✓

## Terminators

Description ★	Cat. No.	Used with PowerFlex Drive				
		4M	4	40	40P	400
for use with 3.7 kW (5 Hp) and below drives	1204-TFA1	✓	✓	✓	✓	✓
for use with 1.5 kW (2 Hp) and up drives	1204-TFB2	✓	✓	✓	✓	✓

★ For selection information, refer to Appendix A of the Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication Drives-IN001.

## Reflected Wave Reduction Modules

Voltage	ND kW	ND Hp	Cat. No.	Used with PowerFlex Drive				
				4M	4	40	40P	400
380... 480V AC	2.2...4	3...5	1321-RWR8-DP	✓	✓	✓	✓	✓
	4	5	1321-RWR12-DP	✓		✓	✓	✓
	5.5	7.5	1321-RWR18-DP	✓		✓	✓	✓
	7.5	10	1321-RWR25-DP	✓		✓	✓	✓
	11	15	1321-RWR25-DP	✓		✓	✓	✓
	15	20	1321-RWR35-DP					✓
	18.5	25	1321-RWR45-DP					✓
	22	30	1321-RWR55-DP					✓
	30	40	1321-RWR80-DP					✓
	37	50	1321-RWR80-DP					✓
	45	60	1321-RWR100-DP					✓
	55	75	1321-RWR130-DP					✓
500... 600V AC	75	100	1321-RWR160-DP					✓
	90	125	1321-RWR200-DP					✓
	110	150	1321-RWR250-DP					✓
	149	200	1321-RWR320-DP					✓
	187	250	1321-RWR320-DP					✓
	4	5	1321-RWR8-EP			✓	✓	
	5.5	7.5	1321-RWR12-EP			✓	✓	
	7.5	10	1321-RWR18-EP			✓	✓	
	11	15	1321-RWR25-EP			✓	✓	

## Reflected Wave Reduction Module with Common Mode Choke

Description ★	Cat. No.	Used with PowerFlex Drive				
		4M	4	40	40P	400
17A with Common Mode Choke	1204-RWC-17-A	✓	✓	✓	✓	✓

★ For selection information, refer to Appendix A of the Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication Drives-IN001.

**Communication Option Kits**

Description	Cat. No.	Used with PowerFlex Drive				
		4M	4	40	40P	400
BACnet® MS/TP RS485 Communication Adapter	22-COMM-B		✓ §	✓ △		✓
ControlNet™ Communication Adapter	22-COMM-C	✓ §	✓ §	✓ △	✓ △	✓
DeviceNet™ Communication Adapter	22-COMM-D	✓ §	✓ §	✓ △	✓ △	✓
EtherNet/IP™ Communication Adapter	22-COMM-E	✓ §	✓ §	✓ △	✓ △	✓
LonWorks® Communication Adapter	22-COMM-L		✓ §	✓ △	✓ △	✓
PROFIBUS™ DP Communication Adapter	22-COMM-P	✓ ‡	✓ ‡	✓ △	✓ △	✓
Serial Converter Module (RS485 to RS232). Provides serial communication via DF1 protocol for use with DriveExplorer and DriveExecutive™ software. Includes DSI to RS232 serial converter, 1203-SFC serial cable, 22-RJ45CBL-C20 cable, and DriveExplorer Lite CD.	22-SCM-232	✓	✓	✓	✓	✓
Serial Cable. 2.0 meter with a locking low profile connector. Connects the serial converter to a 9-pin sub-miniature D female computer connector.	1203-SFC	✓	✓	✓	✓	✓
Serial Null Modem Adapter. Use when connecting the serial converter to DriveExplorer on a handheld PC.	1203-SNM	✓	✓	✓	✓	✓
Universal Serial Bus™ (USB) Converter includes 2m USB, 20-HIM-H10 and 22-HIM-H10 Cables.	1203-USB	✓	✓	✓	✓	✓
DSI Cable. 2.0 meter RJ45 to RJ45 cable, male to male connectors.	22-RJ45CBL-C20	✓	✓	✓	✓	✓
Splitter Cable. RJ45 one to two port splitter cable.	AK-U0-RJ45-SC1	✓	✓	✓	✓	✓
Terminal Block. RJ45 two position terminal block (6 pieces) with two 120 Ohm terminating resistors (loose).	AK-U0-RJ45-TB2P	✓	✓	✓	✓	✓
Terminating Resistors. 120 Ohm resistor embedded in an RJ45 connector (2 pieces).	AK-U0-RJ45-TR1	✓	✓	✓	✓	✓
DSI External Communications Kit. External mounting kit for 22-COMM Communication Adapters.	22-XCOMM-DC-BASE	✓	✓	✓	✓	✓
External Communications Kit Power Supply Optional 100...240V AC Power Supply for External DSI Communications Kit.	20-XCOMM-AC-PS1	✓	✓	✓	✓	✓
Compact I/O Module (3 Channel)	1769-SM2	✓	✓	✓	✓	✓
Serial Flash Firmware Kit Updates drive firmware via computer.	AK-U9-FLSH1					✓
Communication Adapter Cover Houses the Communication Adapter for B and C Frame drives. Note: Cover adds 25 mm (0.98 in.) to the overall depth of the drive.						
Frame B Drive (PowerFlex 40)	22B-CCB			✓ ◆		
Frame C Drive (PowerFlex 40)	22B-CCC			✓ ◆		
Frame C Drive (PowerFlex 400)	22C-CCC					✓ ◆
Frame B Drive (PowerFlex 40P)	22D-CCB				✓ ◆	
Frame C Drive (PowerFlex 40P)	22D-CCC				✓ ◆	

- ‡ When a 22-COMM-P adapter is configured for multi-drive mode, a PowerFlex 40, 40P or 400 drive must be used as a master drive on the network.
- § PowerFlex 4 and PowerFlex 4M drives require External DSI Communication Kits. Communication Adapters cannot be drive mounted.
- △ Requires a Communication Adapter Cover when used with Frame B and C PowerFlex 40/40P drives or Frame C PowerFlex 400 drives.
- ◆ If IP30, NEMA/UL Type 1 is required, a 22-JBCB (Frame B drives) or 22-JBCC (Frame C drives) must also be ordered.

**IP30, NEMA/UL Type 1 Conversion Kit**

Description	Frame	Cat. No.	Used with PowerFlex Drive				
			4M	4	40	40P	400
Converts IP20 drive to IP30, NEMA/UL Type 1 enclosure. Includes conduit box, mounting screws and plastic top panel.	A	22-JBAA		✓			
	B	22-JBAB		✓	✓	✓	
	C	22-JBAC			✓	✓	✓
Converts IP20 drive to IP30, NEMA/UL Type 1 enclosure. Includes communication option conduit box, mounting screws and plastic top panel.	B	22-JBCB			✓	✓	
	C	22-JBCC			✓	✓	✓

## Dynamic Brake Resistors

Drive Rating			Minimum Resistance	Resistance <sup>▲</sup>	Cat. No. <sup>▽</sup>	Used with PowerFlex Drive				
Voltage	kW	Hp	Ohms ±10%	Ohms ±5%		4M	4	40	40P	400
100...120V, 50/60 Hz, Single-Phase	0.2	0.25	48	91	AK-R2-091P500		✓			
	0.4	0.5	48	91	AK-R2-091P500		✓	✓		
	0.75	1	48	91	AK-R2-091P500		✓	✓		
	1.1	1.5	48	91	AK-R2-091P500			✓		
200...240V, 50/60 Hz, Single-Phase	0.2	0.25	48	91	AK-R2-091P500		✓			
	0.4	0.5	48	91	AK-R2-091P500		✓	✓		
	0.75	1	48	91	AK-R2-091P500		✓	✓		
	1.5	2	48	91	AK-R2-091P500		✓	✓		
	2.2	3	32	47	AK-R2-047P500			✓		
200...240V, 50/60 Hz, Three-Phase	0.2	0.25	48	91	AK-R2-091P500		✓			
	0.4	0.5	48	91	AK-R2-091P500		✓	✓	✓	
	0.75	1	48	91	AK-R2-091P500		✓	✓	✓	
	1.5	2	48	91	AK-R2-091P500		✓	✓	✓	
	2.2	3	32	47	AK-R2-047P500		✓	✓	✓	
	3.7	5	19	47	AK-R2-047P500		✓	✓	✓	
	5.5	7.5	13	30	AK-R2-030P1K2	✓		✓	✓	
380...480V, 50/60 Hz, Three-Phase	0.4	0.5	97	360	AK-R2-360P500		✓	✓	✓	
	0.75	1	97	360	AK-R2-360P500		✓	✓	✓	
	1.5	2	97	360	AK-R2-360P500		✓	✓	✓	
	2.2	3	97	120	AK-R2-120P1K2		✓	✓	✓	
	4.0	5	77	120	AK-R2-120P1K2		✓	✓	✓	
	5.5	7.5	55	120	AK-R2-120P1K2	✓		✓	✓	
	7.5	10	39	120	AK-R2-120P1K2	✓		✓	✓	
	11	15	24	120	AK-R2-120P1K2 &	✓		✓	✓	
500...600V, 50/60 Hz, Three-Phase	0.75	1	120	360	AK-R2-360P500			✓	✓	
	1.5	2	120	360	AK-R2-360P500			✓	✓	
	2.2	3	82	120	AK-R2-120P1K2			✓	✓	
	4.0	5	82	120	AK-R2-120P1K2			✓	✓	
	5.5	7.5	51	120	AK-R2-120P1K2			✓	✓	
	7.5	10	51	120	AK-R2-120P1K2			✓	✓	
	11	15	51	120	AK-R2-120P1K2 &			✓	✓	

▲ Verify resistor Ohms against minimum resistance for drive being used.

▽ Resistors listed are rated 5% duty cycle.

& Requires two resistors wired in parallel.

Spare Parts

Description		Cat. No.	Used with PowerFlex Drive				
			4M	4	40	40P	400
Fan Replacement Kits	Fan Replacement Kit - Frame A	SK-U1-FAN1-A1		✓			
	Fan Replacement Kit - Frame B, 1 Fan	SK-U1-FAN1-B1		✓	✓	✓	
	Fan Replacement Kit - Frame B, 2 Fans	SK-U1-FAN2-B1		✓	✓	✓	
	Fan Replacement Kit - Frame A	SK-U1-FFAN1-A1	✓				
	Fan Replacement Kit - Frame B	SK-U1-FFAN1-B1	✓				
	Fan Replacement Kit - Frame C	SK-U1-FFAN1-C1	✓				
	Fan Replacement Kit - Frame C, 1 Fan	SK-U1-FAN1-C1			✓	✓	✓★
	Fan Replacement Kit - Frame C, 1 Fan, 15 Hp	SK-U1-FAN1-C2			✓	✓	✓‡
	Fan Replacement Kit, NEMA 4X	SK-U1-FAN1-B4			✓		
	Fan Replacement Kit - Frame D, 2 Fans, B049... B090 & D038... D060 Ratings	SK-U1-FAN2-D1					✓
	Fan Replacement Kit - Frame E, 2 Fans, B120... B145 & D072... D142 Ratings	SK-U1-FAN2-E2					✓
	Fan Replacement Kit - Frame F, 2 Fans, IGBT, D170 & D208 Ratings	SK-U1-FAN2-F1					✓
	Fan Replacement Kit - Frame F, 1 Fan, Rectifier, D170 & D208 Ratings	SK-U1-FAN1-F2					✓
	Fan Replacement Kit - Frame F, 1 Fan, Choke, D170 & D208 Ratings	SK-U1-FAN1-F3					✓
	Fan Replacement Kit - Frame G, 1 Fan (Side), D260 & D310 Ratings	SK-U1-FAN1-G1					✓
	Fan Replacement Kit - Frame G, 4 Fans (Bottom), D260 & D310 Ratings	SK-U1-FAN4-G3					✓
	Fan Replacement Kit - Frame H, 1 Fan (Upper Side), D370 & D460 Ratings	SK-U1-FAN1-H1					✓
	Fan Replacement Kit - Frame H, 1 Fan (Middle Side), D370 & D460 Ratings	SK-U1-FAN1-H2					✓
	Fan Replacement Kit - Frame H, 4 Fans (Bottom), D370 & D460 Ratings	SK-U1-FAN4-H3					✓
Covers	Encoder Terminal Cover (All Frames)	SK-U1-DCVR4-EN				✓	
	Frame A Cover with Power Terminal Guard	SK-U1-ACVR1-A1		✓			
	Frame B Cover with Power Terminal Guard	SK-U1-ACVR1-B1		✓			
	Frame A Cover	SK-U1-FCVR-A1	✓				
	Frame B Cover	SK-U1-FCVR-B1	✓				
	Frame C Cover	SK-U1-FCVR-C1	✓				
	Frame B Cover with Power Terminal Guard	SK-U1-BCVR1-B1			✓		
	Frame C Cover with Power Terminal Guard	SK-U1-BCVR1-C1			✓		
	Frame B Cover, NEMA 4X	SK-U1-BCVR1-B4			✓		
	Frame B Cover with Power Terminal Guard	SK-U1-DCVR3-B1				✓	
	Frame C Cover with Power Terminal Guard	SK-U1-DCVR3-C1				✓	
	Frame C Cover with Power Terminal Guard	SK-U1-CCVR1-C1					✓
	Frame D Cover	SK-U1-CCVR1-D1					✓
	Frame E Cover	SK-U1-CCVR1-E1					✓
	Frame F Cover	SK-U1-CCVR1-F1					✓
	Frame G Cover	SK-U1-CCVR1-G1					✓
	Frame H Cover	SK-U1-CCVR1-H1					✓
	NEMA 4X Replacement Conduit Plugs	SK-U1-PLUGS-B4			✓		

★ 3...10 Hp at 200...240V AC and 3...10 Hp at 380...480V AC.

‡ 15...20 Hp at 380...480V AC.



## EMC Filters (Required to Meet CE Certification)

Drive Ratings			PowerFlex 4M		PowerFlex 4		PowerFlex 40/40P		PowerFlex 400
Input Voltage	kW	Hp	S Type Filter	L Type Filter	S Type Filter	L Type Filter	S Type Filter	L Type Filter	IPO0 (NEMA/UL Type Open)
			Cat. No. ★	Cat. No. §	Cat. No. ★	Cat. No. §	Cat. No. ★	Cat. No. §	Cat. No. ★
100...120V, 50/60 Hz, Single-Phase	0.2	0.25	–	22F-RF010-AL	–	22-RF010-AL	–	–	–
	0.4	0.5	–	22F-RF010-AL	–	22-RF010-AL	–	22-RF018-BL Δ	–
	0.75	1	–	22F-RF025-BL	–	22-RF018-BL	–	22-RF018-BL Δ	–
	1.1	1.5	–	22F-RF025-BL	–	22-RF025-CL ♣	–	22-RF018-BL Δ	–
200...240V, 50/60 Hz, Single-Phase	0.2	0.25	‡	22F-RF010-AL	‡	22-RF010-AL	–	–	–
	0.4	0.5	‡	22F-RF010-AL	‡	22-RF010-AL	‡	22-RF018-BL Δ	–
	0.75	1	‡	22F-RF010-AL	‡	22-RF010-AL	‡	22-RF018-BL Δ	–
	1.5	2	‡	22F-RF025-BL	‡	22-RF018-BL	‡	22-RF018-BL Δ	–
200...240V, 50/60 Hz, Single-Phase, NO BRAKE	0.2	0.25	–	–	‡	22-RF010-AL	–	–	–
	0.4	0.5	–	–	‡	22-RF010-AL	–	–	–
	0.75	1	–	–	‡	22-RF010-AL	–	–	–
	1.5	2	–	–	‡	22-RF018-BL	–	–	–
200...240V, 50/60 Hz, Three-Phase	0.2	0.25	22F-RF9P5-AS	22F-RF9P5-AL	22-RF9P5-AS	22-RF9P5-AL	–	–	–
	0.4	0.5	22F-RF9P5-AS	22F-RF9P5-AL	22-RF9P5-AS	22-RF9P5-AL	22-RF021-BS ◆	22-RF021-BL	–
	0.75	1	22F-RF9P5-AS	22F-RF9P5-AL	22-RF9P5-AS	22-RF9P5-AL	22-RF021-BS ◆	22-RF021-BL	–
	1.5	2	22F-RF9P5-AS	22F-RF9P5-AL	22-RF9P5-AS	22-RF9P5-AL	22-RF021-BS ◆	22-RF021-BL	–
	2.2	3	22F-RF021-BS	22F-RF021-BL	22-RF021-BS	22-RF021-BL	22-RF021-BS ◆	22-RF021-BL	22-RF034-CS
	3.7	5	22F-RF021-BS	22F-RF021-BL	22-RF021-BS	22-RF021-BL	22-RF021-BS ◆	22-RF021-BL	22-RF034-CS
	5.5	7.5	22F-RF039-CS	22F-RF039-CL	–	–	22-RF034-CS	22-RF034-CL	22-RF034-CS
	7.5	10	22F-RF039-CS	22F-RF039-CL	–	–	22-RF034-CS	22-RF034-CL	22-RF034-CS
	11	15	–	–	–	–	–	–	22-RFD070
	15	20	–	–	–	–	–	–	22-RFD100
	18.5	25	–	–	–	–	–	–	22-RFD100
	22	30	–	–	–	–	–	–	22-RFD150
	30	40	–	–	–	–	–	–	22-RFD150
37	50	–	–	–	–	–	–	22-RFD180	
380...480V, 50/60 Hz, Three-Phase	0.4	0.5	22F-RF6P0-AS	22F-RF6P0-AL	22-RF5P7-AS	22-RF5P7-AL	22-RF012-BS	22-RF012-BL	–
	0.75	1	22F-RF6P0-AS	22F-RF6P0-AL	22-RF5P7-AS	22-RF5P7-AL	22-RF012-BS	22-RF012-BL	–
	1.5	2	22F-RF6P0-AS	22F-RF6P0-AL	22-RF5P7-AS	22-RF5P7-AL	22-RF012-BS	22-RF012-BL	–
	2.2	3	22F-RF012-BS	22F-RF012-BL	22-RF012-BS	22-RF012-BL	22-RF012-BS	22-RF012-BL	22-RF018-CS
	3.7	5	22F-RF012-BS	22F-RF012-BL	22-RF012-BS	22-RF012-BL	22-RF012-BS	22-RF012-BL	22-RF018-CS
	5.5	7.5	22F-RF026-CS	22F-RF026-CL	–	–	22-RF018-CS	22-RF018-CL	22-RF018-CS
	7.5	10	22F-RF026-CS	22F-RF026-CL	–	–	22-RF018-CS	22-RF018-CL	22-RF018-CS
	11	15	22F-RF026-CS	22F-RF026-CL	–	–	22-RF026-CS	22-RF026-CL	22-RF026-CS
	15	20	–	–	–	–	–	–	22-RFD036
	18.5	25	–	–	–	–	–	–	22-RFD050
	22	30	–	–	–	–	–	–	22-RFD050
	30	40	–	–	–	–	–	–	22-RFD070
	37	50	–	–	–	–	–	–	22-RFD100
	45	60	–	–	–	–	–	–	22-RFD100
	55	75	–	–	–	–	–	–	22-RFD150
	75	100	–	–	–	–	–	–	22-RFD180
	90	125	–	–	–	–	–	–	22-RFD208
110	150	–	–	–	–	–	–	22-RFD208	
132	200	–	–	–	–	–	–	22-RFD323	
160	250	–	–	–	–	–	–	22-RFD480	
200	300	–	–	–	–	–	–	22-RFD480	
250	350	–	–	–	–	–	–	22-RFD480	

EMC Filters (continued)

Drive Ratings			PowerFlex 4M		PowerFlex 4		PowerFlex 40/40P		PowerFlex 400
Input Voltage	kW	Hp	S Type Filter	L Type Filter	S Type Filter	L Type Filter	S Type Filter	L Type Filter	IPOO (NEMA/UL Type Open)
			Cat. No. ★	Cat. No. §	Cat. No. ★	Cat. No. §	Cat. No. ★	Cat. No. §	Cat. No. ★
500...600V, 50/60 Hz, Three-Phase	0.75	1	–	–	–	–	–	22-RF8P0-BL	–
	1.5	2	–	–	–	–	–	22-RF8P0-BL	–
	2.2	3	–	–	–	–	–	22-RF8P0-BL	–
	4.0	5	–	–	–	–	–	22-RF8P0-BL	–
	5.5	7.5	–	–	–	–	–	22-RF015-CL	–
	7.5	10	–	–	–	–	–	22-RF015-CL	–
	11	15	–	–	–	–	–	22-RF024-CL	–

- ★ This filter is suitable for use with a cable length of up to 10 meters for Class A and 1 meter for Class B environments.
- ‡ Drives are available in these ratings with internal “S Type” filters.
- § This filter is suitable for use with a cable length of up to 100 meters for Class A and 5 meters for Class B environments.
- ♣ The piggyback mounting option cannot be used with Frame B PowerFlex 4 drives and Frame C EMC Line Filters.
- △ PowerFlex 40 Only.
- ◆ Filter must be Series B or later.

DC Series Bus Inductors

Voltage	Drive Rating			Inductance	Cat. No.	Used with PowerFlex Drive				
	kW	Hp	Amps	mH		4M	4	40	40P	400
200...240V, 50/60 Hz, Three-Phase	2.2	3	12	1.00	1321-DC12-1					✓
	3.7	5	17.5	0.65	1321-DC18-1					✓
	5.5	7.5	32	0.85	1321-DC32-1			✓		✓
	7.5	10	40	0.75	1321-DC40-2			✓		✓
400...480V, 50/60 Hz, Three-Phase	2.2	3	6	2	1321-DC9-2					✓
	4.0	5	10.5	2.1	1321-DC12-2					✓
	5.5	7.5	18	3.75	1321-DC18-4			✓		✓
	7.5	10	25	1.28	1321-DC25-4			✓		✓
	11	15	32	2.68	1321-DC32-3			✓		✓
	15	20	30	2.5	1321-DC40-4					✓
500...600V, 50/60 Hz, Three-Phase	5.5	7.5	12	2.1	1321-DC12-2_600			✓		
	7.5	10	18	3.75	1321-DC18-4			✓		
	11	15	25	1.28	1321-DC25-4			✓		

Isolation Transformers for PowerFlex 400 - IP32, NEMA/UL Type 3R Standalone, 4...6% Nominal Impedance

Rating		Wiring Diagram (see page 126)	208V Primary	230V Primary	460V Primary		575V Primary	
			208V, 60 Hz, Three-Phase Secondary	230V, 60 Hz, Three-Phase Secondary	230V, 60 Hz, Three-Phase Secondary	460V, 60 Hz, Three-Phase Secondary	230V, 60 Hz, Three-Phase Secondary	460V, 60 Hz, Three-Phase Secondary
			Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
2.2	3.0	1	1321-3TW005-XX	1321-3TW005-AA	1321-3TW005-BA	1321-3TW005-BB	1321-3TW005-CA	1321-3TW005-CB
22	30	2	–	1321-3TW040-AA	1321-3TW040-BA	1321-3TW040-BB	1321-3TW040-CA	1321-3TW040-CB
30	40	2	–	1321-3TW051-AA	1321-3TW051-BA	1321-3TW051-BB	1321-3TW051-CA	1321-3TW051-CB
37	50	2	–	1321-3TH063-AA	1321-3TH063-BA	1321-3TH063-BB	–	–
45	60	2	–	–	–	1321-3TH075-BB	–	–
55	75	2	–	–	–	1321-3TH093-BB	–	–
75	100	2	–	–	–	1321-3TH118-BB	–	–
90	125	2	–	–	–	1321-3TH145-BB	–	–
110	150	2	–	–	–	1321-3TH175-BB	–	–
132	200	2	–	–	–	1321-3TH220-BB	–	–
160	250	2	–	–	–	1321-3TH275-BB	–	–
200	300	2	–	–	–	1321-3TH330-BB	–	–
250	350	2	–	–	–	1321-3TH440-BB	–	–

## Line Reactors - 3% Impedance

Voltage	Drive Ratings			IP00 ★ (NEMA/UL Open Type)	IP11 ★ (NEMA/UL Type 1)	Used with PowerFlex Drive				
	kW	Hp	Amps	Cat. No.	Cat. No.	4M	4	40	40P	400
200...240V, 60 Hz, Three-Phase	0.2	0.25	2.0	1321-3R2-A	—	✓	✓			
	0.4	0.5	4.0	1321-3R4-B	—	✓	✓	✓	✓	
	0.75	1	8.0	1321-3R8-B	—	✓	✓	✓	✓	
	1.5	2	8.0	1321-3R8-A	—	✓	✓	✓	✓	
	2.2	3	12	1321-3R12-A	1321-3RA12-A	✓	✓	✓	✓	✓
	3.7	5	17.5	1321-3R18-A	1321-3RA18-A	✓	✓	✓	✓	✓
	5.5	7.5	24	1321-3R25-A	1321-3RA25-A	✓		✓	✓	✓
	7.5	10	33	1321-3R35-A	1321-3RA35-A	✓		✓	✓	✓
	11	15	49	1321-3R45-A	1321-3RA45-A					✓
	15	20	65	1321-3R55-A	1321-3RA55-A					✓
	18.5	25	75	1321-3R80-A	1321-3RA80-A					✓
	22	30	90	1321-3R80-A	1321-3RA80-A					✓
	30	40	120	1321-3R100-A	1321-3RA100-A					✓
37	50	145	1321-3R130-A	1321-3RA130-A					✓	
380...480V, 60 Hz, Three-Phase	0.4	0.5	2.0	1321-3R2-B	—	✓	✓	✓	✓	
	0.75	1	4.0	1321-3R4-C	—	✓	✓	✓	✓	
	1.5	2	4.0	1321-3R4-B	—	✓	✓	✓	✓	
	2.2	3	6.0	1321-3R8-C	1321-3RA8-C	✓	✓	✓	✓	✓
	4.0	5	10.5	1321-3R8-B	1321-3RA8-B	✓	✓	✓	✓	✓
	5.5	7.5	12	1321-3R12-B	1321-3RA12-B	✓		✓	✓	✓
	7.5	10	17	1321-3R18-B	1321-3RA18-B	✓		✓	✓	✓
	11	15	22	1321-3R25-B	1321-3RA25-B	✓		✓	✓	✓
	15	20	30	1321-3R35-B	1321-3RA35-B					✓
	18.5	25	38	1321-3R35-B	1321-3RA35-B					✓
	22	30	45.5	1321-3R45-B	1321-3RA45-B					✓
	30	40	60	1321-3R55-B	1321-3RA55-B					✓
	37	50	72	1321-3R80-B	1321-3RA80-B					✓
	45	60	88	1321-3R80-B	1321-3RA80-B					✓
	55	75	105	1321-3R100-B	1321-3RA100-B					✓
	75	100	142	1321-3R130-B	1321-3RA130-B					✓
	90	125	170	1321-3R160-B	1321-3RA160-B					✓
110	150	208	1321-3R200-B	1321-3RA200-B					✓	
500...600V, 60 Hz, Three-Phase	0.75	1	2.0	1321-3R2-B	—			✓	✓	
	1.5	2	4.0	1321-3R4-C	—			✓	✓	
	2.2	3	4.0	1321-3R4-B	—			✓	✓	
	4.0	5	8.0	1321-3R8-C	—			✓	✓	
	5.5	7.5	12	1321-3R12-B	—			✓	✓	
	7.5	10	12	1321-3R12-B	—			✓	✓	
	11	15	18	1321-3R18-B	—			✓	✓	

★ Catalog numbers listed are for 3% impedance. 5% impedance reactor types are also available. Refer to 1321 Power Conditioning Products Technical Data, publication 1321-TD001.