

PowerFlex 4 and 40 AC Drives

Original Instructions



Product Overview

Providing users with powerful motor speed control in a compact, space saving design, the Allen-Bradley® PowerFlex® 4 and 40 AC drives are the smallest and most cost-effective members of the PowerFlex® family of drives. Available in power ratings from 0.2 to 11 kW (0.25 to 15 HP) and in voltage classes of 120, 240, 480 and 600 volts, PowerFlex 4 and 40 are designed to meet global OEM and end-user demands for flexibility, space savings, ease of use and are cost-effective alternatives for speed control of applications such as machine tools, fans, pumps and conveyors and material handling systems

Catalog Number Explanation

1-3	4	5	6-8	9	10	11	12	13-14
22A	–	A	1P5	N	1	1	4	AA
<i>a</i>		<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>

<i>a</i>		
Drive		
Code	Type	
22A	PowerFlex 4	
22B	PowerFlex 40	

<i>b</i>		
Voltage Rating		
Code	Voltage	Ph.
V	120V ac	1
A	240V ac	1
B	240V ac	3
D	480V ac	3
E	600V ac	3

<i>c1</i>		
Rating		
100-120V Single-Phase Input		
Code	Amps	kW (Hp)
2P3	2.3	0.4 (0.5)
5P0	5.0	0.75 (1.0)
6P0	6.0	1.1 (1.5)

<i>c2</i>		
Rating		
200-240V Single-Phase Input		
Code	Amps	kW (Hp)
2P3	2.3	0.4 (0.5)
5P0	5.0	0.75 (1.0)
8P0	8.0	1.5 (2.0)
012	12	2.2 (3.0)

<i>c3</i>		
Rating		
200-240V Three-Phase Input		
Code	Amps	kW (Hp)
2P3	2.3	0.4 (0.5)
5P0	5.0	0.75 (1.0)
8P0	8.0	1.5 (2.0)
012	12	2.2 (3.0)
017	17.5	3.7 (5.0)
024	24	5.5 (7.5)
033	33	7.5 (10)

<i>c4</i>		
Rating		
380-480V Three-Phase Input		
Code	Amps	kW (Hp)
1P4	1.4	0.4 (0.5)
2P3	2.3	0.75 (1.0)
4P0	4.0	1.5 (2.0)
6P0	6.0	2.2 (3.0)
010	10.5	4.0 (5.0)
012	12	5.5 (7.5)
017	17	7.5 (10)
024	24	11 (15)

<i>c5</i>		
Rating		
460-600V Three-Phase Input		
Code	Amps	kW (Hp)
1P7	1.7	0.75 (1.0)
3P0	3.0	1.5 (2.0)
4P2	4.2	2.2 (3.0)
6P6	6.6	4.0 (5.0)
9P9	9.9	5.5 (7.5)
012	12	7.5 (10)
019	19	11 (15)

<i>d</i>	
Enclosure	
Code	Enclosure
C	IP66, NEMA/UL Type 4X *
F	Flange Mount - IP20, NEMA/UL Type Open
H	Replacement Plate Drive - IP20, NEMA/UL Type Open Contact factory for ordering information.
N	Panel Mount - IP20, NEMA/UL Type Open

* Check availability before ordering.

<i>e</i>	
HIM	
Code	Interface Module
1	Fixed Keypad

<i>f</i>	
Emission Class	
Code	Rating
0	Not Filtered
1	Filtered

<i>g</i>	
Brake IGBT	
Code	Description
3	Without Brake
4	With Brake

<i>h</i>	
Optional	
Code	Purpose
AA through ZZ	Reserved for custom firmware

Product Selection

Drive Ratings			PowerFlex 4			IP 20 Flange Mount ⁽²⁾	PowerFlex 40			IP 66, UL Type 4X Panel Mount	IP 20 Flange Mount ⁽²⁾
Input Voltage	kW	HP	Output Current	Catalog Number	Frame Size	Catalog Number	Output Current	Catalog Number	Frame Size	Catalog Number	Catalog Number
120V 50/60 Hz 1-Phase No Filter	0.2	0.25	1.5A	22A-V1P5N104	A	22A-V1P5F104	—	—	—	—	—
	0.4	0.5	2.3A	22A-V2P3N104	A	22A-V2P3F104	2.3A	22B-V2P3N104	B	22B-V2P3C104	22B-V2P3F104
	0.75	1.0	4.5A	22A-V4P5N104	B	22A-V4P5F104	5.0A	22B-V5P0N104	B	22B-V5P0C104	22B-V5P0F104
	1.1	1.5	6.0A	22A-V6P0N104	B	22A-V6P0F104	6.0A	22B-V6P0N104	B	22B-V6P0C104	22B-V6P0F104
240V 50/60 Hz 1-Phase NO BRAKE No Filter	0.2	0.25	1.4A	22A-A1P4N103	A	—	—	—	—	—	—
	0.4	0.5	2.1A	22A-A2P1N103	A	—	—	—	—	—	—
	0.75	1.0	3.6A	22A-A3P6N103	A	—	—	—	—	—	—
	1.5	2.0	6.8A	22A-A6P8N103	B	—	—	—	—	—	—
240V 50/60 Hz 1-Phase NO BRAKE With Integral "S Type" EMC Filter ⁽¹⁾	2.2	3.0	9.6A	22A-A9P6N103	B	—	—	—	—	—	—
	0.2	0.25	1.4A	22A-A1P4N113	A	—	—	—	—	—	—
	0.4	0.5	2.1A	22A-A2P1N113	A	—	—	—	—	—	—
	0.75	1.0	3.6A	22A-A3P6N113	A	—	—	—	—	—	—
240V 50/60 Hz 1-Phase With Integral "S Type" EMC Filter ⁽¹⁾	1.5	2.0	6.8A	22A-A6P8N113	B	—	—	—	—	—	—
	2.2	3.0	9.6A	22A-A9P6N113	B	—	—	—	—	—	—
	0.2	0.25	1.5A	22A-A1P5N114	A	—	—	—	—	—	—
	0.4	0.5	2.3A	22A-A2P3N114	A	—	2.3A	22B-A2P3N114	B	—	—
240V 50/60 Hz 1-Phase No Filter	0.75	1.0	4.5A	22A-A4P5N114	A	—	5.0A	22B-A5P0N114	B	—	—
	1.5	2.0	8.0A	22A-A8P0N114	B	—	8.0A	22B-A8P0N114	B	—	—
	2.2	3.0	—	—	—	—	12.0A	22B-A012N114	C	—	—
	0.2	0.25	1.5A	22A-A1P5N104	A	22A-A1P5F104	—	—	—	—	—
240V 50/60 Hz 1-Phase No Filter	0.4	0.5	2.3A	22A-A2P3N104	A	22A-A2P3F104	2.3A	22B-A2P3N104	B	22B-A2P3C104	22B-A2P3F104
	0.75	1.0	4.5A	22A-A4P5N104	A	22A-A4P5F104	5.0A	22B-A5P0N104	B	22B-A5P0C104	22B-A5P0F104
	1.5	2.0	8.0A	22A-A8P0N104	B	22A-A8P0F104	8.0A	22B-A8P0N104	B	22B-A8P0C104	22B-A8P0F104
	2.2	3.0	—	—	—	—	12.0A	22B-A012N104	C	—	22B-A012F104
240V 50/60 Hz 3-Phase No Filter	0.2	0.25	1.5A	22A-B1P5N104	A	22A-B1P5F104	—	—	—	—	—
	0.4	0.5	2.3A	22A-B2P3N104	A	22A-B2P3F104	2.3A	22B-B2P3N104	B	22B-B2P3C104	22B-B2P3F104
	0.75	1.0	4.5A	22A-B4P5N104	A	22A-B4P5F104	5.0A	22B-B5P0N104	B	22B-B5P0C104	22B-B5P0F104
	1.5	2.0	8.0A	22A-B8P0N104	A	22A-B8P0F104	8.0A	22B-B8P0N104	B	22B-B8P0C104	22B-B8P0F104
	2.2	3.0	12.0A	22A-B012N104	B	22A-B012F104	12.0A	22B-B012N104	B	22B-B012C104	22B-B012F104
	3.7	5.0	17.5A	22A-B017N104	B	22A-B017F104	17.5A	22B-B017N104	B	22B-B017C104	22B-B017F104
	5.5	7.5	—	—	—	—	24.0A	22B-B024N104	C	—	22B-B024F104
	7.5	10.0	—	—	—	—	33.0A	22B-B033N104	C	—	22B-B033F104
480V 50/60 Hz 3-Phase No Filter	0.4	0.5	1.4A	22A-D1P4N104	A	22A-D1P4F104	1.4A	22B-D1P4N104	B	22B-D1P4C104	22B-D1P4F104
	0.75	1.0	2.3A	22A-D2P3N104	A	22A-D2P3F104	2.3A	22B-D2P3N104	B	22B-D2P3C104	22B-D2P3F104
	1.5	2.0	4.0A	22A-D4P0N104	A	22A-D4P0F104	4.0A	22B-D4P0N104	B	22B-D4P0C104	22B-D4P0F104
	2.2	3.0	6.0A	22A-D6P0N104	B	22A-D6P0F104	6.0A	22B-D6P0N104	B	22B-D6P0C104	22B-D6P0F104
	3.7	5.0	8.7A	22A-D8P7N104	B	22A-D8P7F104	—	—	—	—	—
	4.0	5.0	—	—	—	—	10.5A	22B-D010N104	B	22B-D010C104	22B-D010F104
	5.5	7.5	—	—	—	—	12.0A	22B-D012N104	C	—	22B-D012F104
	7.5	10.0	—	—	—	—	17.0A	22B-D017N104	C	—	22B-D017F104
	11.0	15.0	—	—	—	—	24.0A	22B-D024N104	C	—	22B-D024F104 ⁽³⁾
600V 50/60 Hz 3-Phase No Filter	0.75	1.0	—	—	—	—	1.7A	22B-E1P7N104	B	22B-E1P7C104	22B-E1P7F104
	1.5	2.0	—	—	—	—	3.0A	22B-E3P0N104	B	22B-E3P0C104	22B-E3P0F104
	2.2	3.0	—	—	—	—	4.2A	22B-E4P2N104	B	22B-E4P2C104	22B-E4P2F104
	4.0	5.0	—	—	—	—	6.6A	22B-E6P6N104	B	22B-E6P6C104	22B-E6P6F104
	5.5	7.5	—	—	—	—	9.9A	22B-E9P9N104	C	—	22B-E9P9F104
	7.5	10.0	—	—	—	—	12.0A	22B-E012N104	C	—	22B-E012F104
	11.0	15.0	—	—	—	—	19.0A	22B-E019N104	C	—	22B-E019F104

(1) This filter is suitable for use with a cable length of at least 10 meters for Class A and 1 meter for Class B environments.

(2) Meets IP40/54/65 (NEMA 1/12/4/4X) when installed in an enclosure of like rating.

(3) Requires use of external DC Bus Inductor or AC Line Reactor.

Shaded areas are applicable to PowerFlex 40 only.

Specifications

Drive Ratings — PowerFlex 4

Catalog Number	Output Ratings		Input Ratings			Branch Circuit Protection				Power Dissipation	
	kW (HP)	Amps	Voltage Range	kVA	Amps	Fuses ⁽²⁾	140M Motor Protectors ^{(3) (4)}	Contactors	Min. Enclosure Volume ⁽⁵⁾ (in. ³)	Internal	Total
100...120V AC – 1-Phase Input, 0...230V 3-Phase Output											
22A-V1P5N104	0.2 (0.25)	1.5	90...126	0.75	6.0	10	140M-C2E-C10	100-C09	1655	10	25
22A-V2P3N104	0.4 (0.5)	2.3	90...126	1.15	9.0	15	140M-C2E-C16	100-C12	1655	9	30
22A-V4P5N104	0.75 (1.0)	4.5	90...126	2.25	18.0	30	140M-D8E-C20	100-C23	1655	12	50
22A-V6P0N104	1.1 (1.5)	6.0	90...126	3.00	24.0	40	140M-F8E-C32	100-C37	1655	12	70
200...240V AC – 1-Phase Input, 0...230V 3-Phase Output (No Brake) ⁽¹⁾											
22A-A1P4N103	0.2 (0.25)	1.4	180...265	0.7	3.2	6	140M-C2E-B40	100-C09	1655	10	25
22A-A2P1N103	0.4 (0.5)	2.1	180...265	1.05	5.3	10	140M-C2E-B63	100-C09	1655	9	30
22A-A3P6N103	0.75 (1.0)	3.6	180...265	1.8	9.2	15	140M-C2E-C16	100-C12	1655	12	50
22A-A6P8N103	1.5 (2.0)	6.8	180...265	3.4	14.2	25	140M-C2E-C16	100-C16	1655	16	80
22A-A9P6N103	2.2 (3.0)	9.6	180...265	4.8	19.6	30	140M-D8E-C25	100-C23	1655	11	110
200...240V AC – 1-Phase Input, 0...230V 3-Phase Output ⁽¹⁾											
22A-A1P5N104	0.2 (0.25)	1.5	180...265	0.75	5.0	10	140M-C2E-B63	100-C09	1655	10	25
22A-A2P3N104	0.4 (0.5)	2.3	180...265	1.15	6.0	10	140M-C2E-B63	100-C09	1655	9	30
22A-A4P5N104	0.75 (1.0)	4.5	180...265	2.25	10.0	15	140M-C2E-C16	100-C12	1655	12	50
22A-A8P0N104	1.5 (2.0)	8.0	180...265	4.0	18.0	30	140M-D8E-C20	100-C23	1655	16	80
200...240V AC – 3-Phase Input, 0...230V 3-Phase Output											
22A-B1P5N104	0.2 (0.25)	1.5	180...265	0.75	1.8	3	140M-C2E-B25	100-C09	1655	10	25
22A-B2P3N104	0.4 (0.5)	2.3	180...265	1.15	2.5	6	140M-C2E-B40	100-C09	1655	9	30
22A-B4P5N104	0.75 (1.0)	4.5	180...265	2.25	5.2	10	140M-C2E-C10	100-C09	1655	12	50
22A-B8P0N104	1.5 (2.0)	8.0	180...265	4.0	9.5	15	140M-C2E-C16	100-C12	1655	16	80
22A-B012N104	2.2 (3.0)	12.0	180...265	5.5	15.5	25	140M-C2E-C16	100-C16	1655	16	115
22A-B017N104	3.7 (5.0)	17.5	180...265	8.6	21.0	35	140M-F8E-C25	100-C23	1655	16	165
380...480V AC – 3-Phase Input, 0...460V 3-Phase Output											
22A-D1P4N104	0.4 (0.5)	1.4	340...528	1.4	1.8	3	140M-C2E-B25	100-C09	1655	15	30
22A-D2P3N104	0.75 (1.0)	2.3	340...528	2.3	3.2	6	140M-C2E-B40	100-C09	1655	13	40
22A-D4P0N104	1.5 (2.0)	4.0	340...528	4.0	5.7	10	140M-C2E-B63	100-C09	1655	13	60
22A-D6P0N104	2.2 (3.0)	6.0	340...528	5.9	7.5	15	140M-C2E-C10	100-C09	1655	17	90
22A-D8P7N104	3.7 (5.0)	8.7	340...528	8.6	9.0	15	140M-C2E-C16	100-C16	1655	14	145

(1) 200...240V AC - 1-Phase drives are also available with an integral EMC filter. Catalog suffix changes from N104 to N114 or N103 to N113.

(2) Recommended Fuse Type: UL Class J, CC, T or Type BS88; 600V (550V) or equivalent.

(3) The AIC ratings of the Bulletin 140M Motor Protector Circuit Breakers may vary. See [Bulletin 140M Motor Protection Circuit Breakers Application Ratings](#).

(4) Manual Self-Protected (Type E) Combination Motor Controller, UL listed for 208 Wye or Delta, 240 Wye or Delta, 480Y/277 or 600Y/347. Not UL listed for use on 480V or 600V Delta/Delta, corner ground, or high-resistance ground systems.

(5) When using a Manual Self-Protected (Type E) Combination Motor Controller, the drive must be installed in a ventilated or non-ventilated enclosure with the minimum volume specified in this column. Application specific thermal considerations may require a larger enclosure.

Drive Ratings — PowerFlex 40

Catalog Number	Output Ratings		Input Ratings			Branch Circuit Protection				Power Dissipation	
	kW (HP)	Amps	Voltage Range	kVA	Amps	Fuses ⁽²⁾	140M Motor Protectors ^{(3) (4)}	Contactors	Min. Enclosure Volume ⁽⁵⁾ (in. ³)	Internal	Total
100...120V AC – 1-Phase Input, 0...230V 3-Phase Output											
22B-V2P3N104	0.4 (0.5)	2.3	90...132	1.15	9.0	15	140M-C2E-C16	100-C12	1655	9	30
22B-V5P0N104	0.75 (1.0)	5.0	90...132	2.45	20.3	35	140M-D8E-C20	100-C23	1655	12	55
22B-V6P0N104	1.1 (1.5)	6.0	90...132	3.0	24.0	40	140M-F8E-C32	100-C37	1655	12	70
200...240V AC – 1-Phase Input, 0...230V 3-Phase Output ⁽¹⁾											
22B-A2P3N104	0.4 (0.5)	2.3	180...264	1.15	6.0	10	140M-C2E-B63	100-C09	1655	9	30
22B-A5P0N104	0.75 (1.0)	5.0	180...264	2.45	12.0	20	140M-C2E-C16	100-C12	1655	12	55
22B-A8P0N104	1.5 (2.0)	8.0	180...264	4.0	18.0	30	140M-D8E-C20	100-C23	1655	16	80
22B-A012N104	2.2 (3.0)	12.0	180...264	5.5	25.0	40	140M-F8E-C32	100-C37	2069	11	110
200...240V AC – 3-Phase Input, 0...230V 3-Phase Output											
22B-B2P3N104	0.4 (0.5)	2.3	180...264	1.15	2.5	6	140M-C2E-B40	100-C07	1655	9	30
22B-B5P0N104	0.75 (1.0)	5.0	180...264	2.45	5.7	10	140M-C2E-C10	100-C09	1655	12	55
22B-B8P0N104	1.5 (2.0)	8.0	180...264	4.0	9.5	15	140M-C2E-C16	100-C12	1655	16	80
22B-B012N104	2.2 (3.0)	12.0	180...264	5.5	15.5	25	140M-C2E-C16	100-C23	1655	16	115
22B-B017N104	3.7 (5.0)	17.5	180...264	8.6	21.0	35	140M-F8E-C25	100-C23	1655	16	165
22B-B024N104	5.5 (7.5)	24.0	180...264	11.8	26.1	40	140M-F8E-C32	100-C37	2069	28	225
22B-B033N104	7.5 (10.0)	33.0	180...264	16.3	34.6	60	140M-F8E-C45	100-C60	2069	28	290
380...480V AC – 3-Phase Input, 0...460V 3-Phase Output											
22B-D1P4N104	0.4 (0.5)	1.4	342...528	1.4	1.8	3	140M-C2E-B25	100-C07	1655	15	30
22B-D2P3N104	0.75 (1.0)	2.3	342...528	2.3	3.2	6	140M-C2E-B40	100-C07	1655	13	40
22B-D4P0N104	1.5 (2.0)	4.0	342...528	4.0	5.7	10	140M-C2E-B63	100-C09	1655	13	60
22B-D6P0N104	2.2 (3.0)	6.0	342...528	5.9	7.5	15	140M-C2E-C10	100-C09	1655	17	90
22B-D010N104	4.0 (5.0)	10.5	342...528	10.3	13.0	20	140M-C2E-C16	100-C23	1655	14	150
22B-D012N104	5.5 (7.5)	12.0	342...528	11.8	14.2	25	140M-D8E-C20	100-C23	2069	23	160
22B-D017N104	7.5 (10.0)	17.0	342...528	16.8	18.4	30	140M-D8E-C20	100-C23	2069	24	200
22B-D024N104	11.0 (15.0)	24.0	342...528	23.4	26.0	50	140M-F8E-C32	100-C43	2069	25	285
460...600V AC – 3-Phase Input, 0...575V 3-Phase Output											
22B-E1P7N104	0.75 (1.0)	1.7	414...660	2.1	2.3	6	140M-C2E-B25	100-C09	1655	13	40
22B-E3P0N104	1.5 (2.0)	3.0	414...660	3.65	3.8	6	140M-C2E-B40	100-C09	1655	13	60
22B-E4P2N104	2.2 (3.0)	4.2	414...660	5.2	5.3	10	140M-D8E-B63	100-C09	1655	17	90
22B-E6P6N104	4.0 (5.0)	6.6	414...660	8.1	8.3	15	140M-D8E-C10	100-C09	1655	14	150
22B-E9P9N104	5.5 (7.5)	9.9	414...660	12.1	11.2	20	140M-D8E-C16	100-C16	2069	23	160
22B-E012N104	7.5 (10.0)	12.2	414...660	14.9	13.7	25	140M-D8E-C16	100-C23	2069	24	200
22B-E019N104	11.0 (15.0)	19.0	414...660	23.1	24.1	40	140M-F8E-C25	100-C30	2069	25	285

(1) 200...240V AC - 1-Phase drives are also available with an integral EMC filter. Catalog suffix changes from N104 to N114 or N103 to N113.

(2) Recommended Fuse Type: UL Class J, CC, T or Type BS88; 600V (550V) or equivalent.

(3) The AIC ratings of the Bulletin 140M Motor Protector Circuit Breakers may vary. See [Bulletin 140M Motor Protection Circuit Breakers Application Ratings](#).

(4) Manual Self-Protected (Type E) Combination Motor Controller, UL listed for 208 Wye or Delta, 240 Wye or Delta, 480Y/277 or 600Y/347. Not UL listed for use on 480V or 600V Delta/Delta, corner ground, or high-resistance ground systems.

(5) When using a Manual Self-Protected (Type E) Combination Motor Controller, the drive must be installed in a ventilated or non-ventilated enclosure with the minimum volume specified in this column. Application specific thermal considerations may require a larger enclosure.