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PowerFlex® 700S with Phase II Control



TECHNICAL DATA

HIGH PERFORMANCE AC DRIVE

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Reference Materials

For additional PowerFlex 700S Phase II Drive data and information, refer to the following publications:

Title	Publication	Available...
PowerFlex 700S Reference Manual, Phase II Control	PFLEX-RM003...	www.rockwellautomation.com/literature
PowerFlex 700S User Manual, Phase II Control	20D-UM006...	
PowerFlex 700S Quick Start, Phase II Control (Frames 1 - 6)	20D-QS002...	
PowerFlex 700S and 700H Installation Instructions (Frames 9 - 13)	PFLEX-IN006...	
DriveLogix5730 Controller User Manual	20D-UM003...	
PowerFlex 700S Drive & DriveLogix Controller	20D-RN007...	
Logix5000 Controllers Common Procedures	1756-PM001...	
Logix5000 Controllers General Instructions	1756-RM003...	
Logix5000 Controllers Process Control and Drives Instructions	1756-RM006...	
RSLogix 5000 Getting Results	9399-RLD300GR...	
RSNetworx for ControlNet Getting Results	9398-CNETGR...	
RSLink Getting Results Guide	9399-LINXGR...	
Wiring and Grounding for PWM AC Drives	DRIVES-IN001...	
Safety Guidelines for the Application, Installation and Maintenance of Solid State Control	SGI-1.1...	
A Global Reference Guide for Reading Schematic Diagrams	100-2.10...	
Guarding Against Electrostatic Damage	8000-4.5.2...	

For Allen-Bradley Drives Technical Support:

Title	Online at...
Allen-Bradley Drives Technical Support	www.ab.com/support/abdrives or call M-F, 7:00a.m. to 6:00p.m. Central STD time: 1.262.512.8176

Product Description

The Allen-Bradley PowerFlex® 700S AC drive, a version of PowerFlex 700 power platform, offers high performance drive control, advanced features and more built-in diagnostics for handling the most demanding drive applications. The PowerFlex 700S with DriveLogix™ combines the powerful performance and flexible control of PowerFlex AC drives with the high-performance Logix engine to produce a highly functional, cost-effective drive and control solution.



PowerFlex 700S AC Drive with Slim Cassette



PowerFlex 700S AC Drive with Expanded Cassette

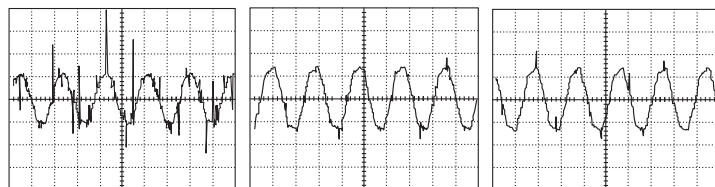
Key Features and Benefits

Packaging and Mounting

- The innovative bookshelf design allows **Zero Stacking™** or side-by-side mounting of the drives. With no minimum spacing required between drives, valuable panel space is conserved and installation cost is reduced.

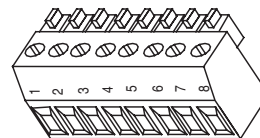


- The design of the PowerFlex® family of drives incorporates proven **noise reduction components** on both the input and output of the drive. Many of the global EMC standards can be met and many noise related application concerns can be reduced or eliminated using a standard "out-of-the-box" PowerFlex drive with no additional hardware or cost. By also incorporating higher rated components and significant voltage suppression devices for both phase-to-phase and phase-to-ground protection, power conditioning concerns and the need for additional hardware are significantly reduced.



Noise Reduction Charts

- **Pull-apart** control terminal blocks for easy wiring and quick disconnect.



- **DriveLogix** offers embedded Logix control for application programmability and control of auxiliary functions in one package, the PowerFlex 700S with DriveLogix.
 - Common programming environment and multiple programming languages supported by all Logix platforms.
 - Ladder Diagram, Function Block Diagram, Sequential Function Chart and Structured Text.
 - Eight (8) separate tasks including one (1) continuous and seven (7) periodic. Each task can support up to 32 programs and an unlimited number of routines for program organization.
 - 1.5 Mbytes of standard user memory.
 - CompactFlash™ for non-volatile storage.
 - Local connections for up to sixteen (16) Compact I/O modules.
 - Communication options include the RS-232 port and the same optional communication daughter cards used by the FlexLogix™ controller.
 - Virtual backplane concept for program portability to other Logix platforms, seamless integration into the NetLinx™ architecture and direct drive communication.

Start Up, Programming

- The PowerFlex 700S has optimized global voltage settings for quick configuration anywhere in the world. Multiple reset defaults make setup for your voltage/frequency fast and easy.
- An optional LCD Human Interface Module (HIM) provides programming, start up information, diagnostics and other information in full, easy to understand text. The display is a 7 line by 21 character backlit LCD screen. Four styles are available; full numeric keypad, operating and programming keys only and programming only.



Integrated Software

DriveTools™ SP

A powerful new PC based software suite, for programming, configuration and troubleshooting.

- DriveExecutive™ - for online/offline configuration and management of drives and drive peripherals.
- DriveObserver™ - for real time trending of drive information.



RSLogix™ 5000

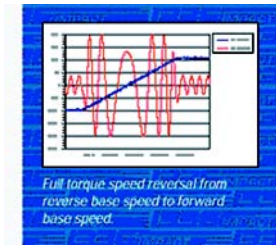
The PowerFlex 700S with DriveLogix utilizes RSLogix 5000, v13.0 or greater, with embedded DriveExecutive Lite for programming, configuration and troubleshooting the drive and embedded Logix controller.

- Single programming software package for the entire family of Logix 5000 products.
- Reduces learning curve between controllers.
- Multiple IEC1131-3 programming languages.
- Symbolic tag and structure data model.
- Integrated sequential and motion control.
- Power programming tools to increase productivity.



Operation

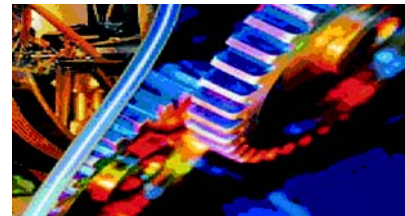
- **Multiple high performance motor control algorithms:** Flux Vector Control utilizes patented FORCE™ Technology for sensor and sensorless induction motor control and Brushless Permanent Magnet motor operation, provide maximum application flexibility.



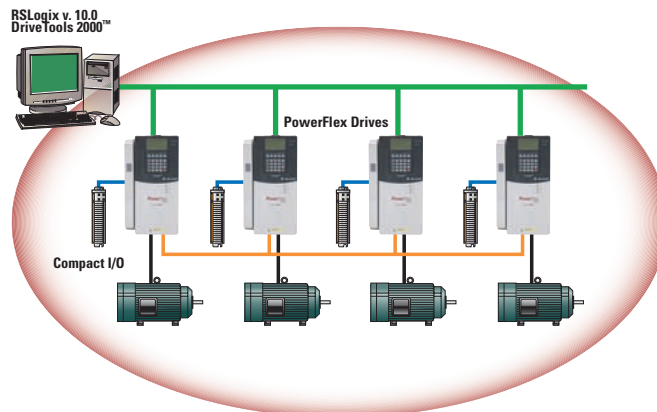
- An **array of feedback options**, including a standard incremental encoder, an optional incremental encoder, resolver, and high resolution encoder feedback interface cards optimize the accuracy of speed and position regulators. A Temposonics and Stall SSI interface for linear feedback devices are also available.



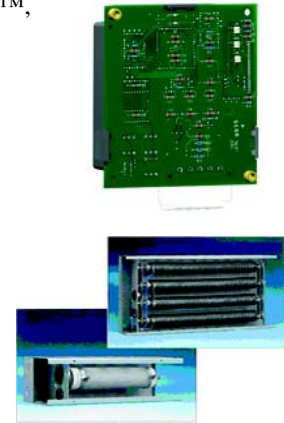
- An integrated position loop for applications from simple indexing to electronic line shaft.



- SynchLink™, a high performance, high speed, drive-to-drive link for transmitting synchronized and application data. The SynchLink fiber optic link provides the highest level of multiple drive coordination.



- Optional **internal communication** adapters provide fast and efficient control and/or data exchange with host controllers over popular interfaces. These interfaces include: DeviceNet™, ControlNet™, Profibus, Interbus, Remote I/O, Serial Communications and other communication networks.
- Standard chopper transistor and separately mounted or drive mounted resistors provide cost effective dynamic braking solutions.



Support

Rockwell Automation is committed to maintaining and supporting Allen-Bradley drives and installations. Included in this commitment is start-up support and consultation for drive applications.

ProtectionPlus Drive Start-Up

With ProtectionPlus Drive Start-Up Services from Rockwell Automation, you can leverage the extensive product and industry experience of Rockwell Automation technicians to quickly commission drives and reduce the time between integration and actual start-up.

ProtectionPlus Drive Start-Up Services verify drive installation to ensure proper electrical, mechanical and environmental criteria are met. This includes verification of power and I/O wiring to the drive, custom drive configuration/tuning to meet application specific requirements, and diagnosing/troubleshooting problems that occur during a standalone drive start-up. ProtectionPlus can also extend an eligible product parts warranty and add a labor warranty. For more information about ProtectionPlus Drive Services, contact your local Rockwell Automation sales office or authorized distributor, or visit: <http://support.rockwellautomation.com/SupportPrograms/>.

SupportPlus

For consultation on high performance drive applications, the SupportPlus program is offered. SupportPlus uses expert level Rockwell Automation system engineers to support the your engineering team. SupportPlus engineers will work with you to design the appropriate architecture, configure drives, recommend programming techniques and provide application assistance on the most effective ways to implement the control solution.

For more information, please call 262-512-8176 or refer to www.ab.com/support/abdrives.

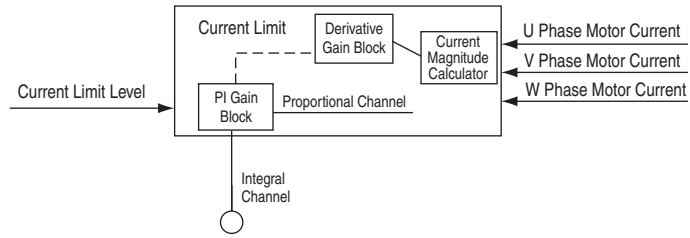
Drive Application Software

Drive Application Software brings together an outstanding range of application experience and performance drive products to provide you with pre-engineered and the most effective drive application solutions. For more information, refer to our web site: www.ab.com/drives/drappsw

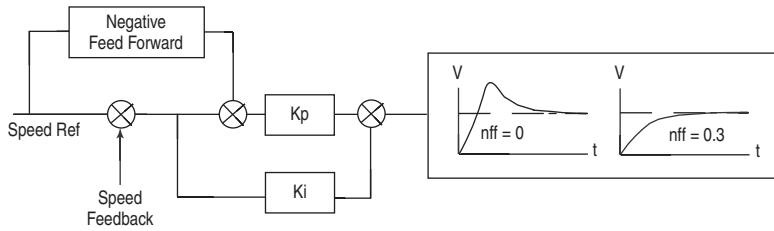


Performance

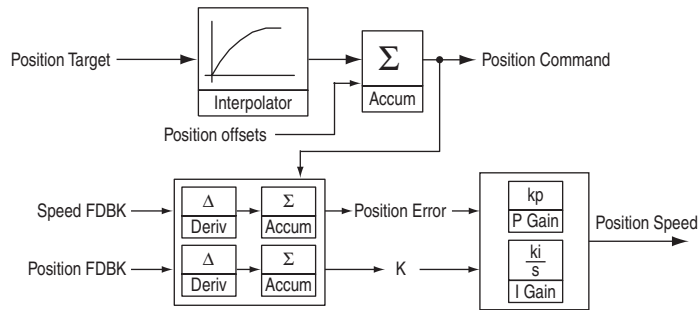
Digital Current Regulator outperforms older style analog regulators in speed, repeatability and drift.



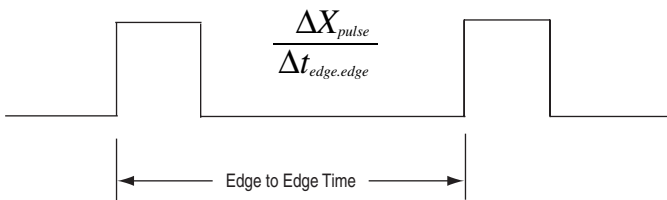
Negative Feed Forward reduces or eliminates overshoot during step speed changes. Helpful in preventing backup during stopping.



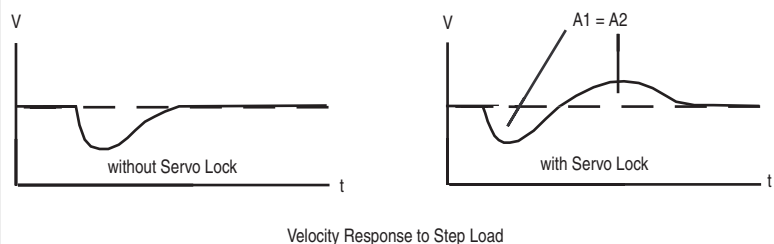
Coarse-to-Fine interpolation for **DriveLogix Motion**, direct positioning for precise control and point-to-point for indexing are all features of the **Integral Position Loop**. The loop easily handles applications such as simple indexing and electronic line shaft.



Advanced **Edge-to-Edge Algorithms** and pulse position averaging provides extremely accurate speed measurement and excellent performance at very low speed.

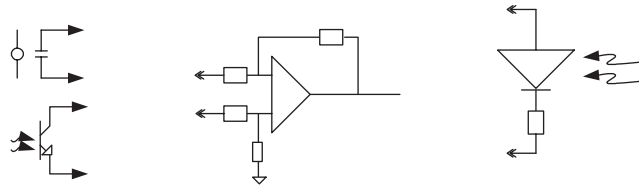


Servo Lock compensates for lost position during step loads to the velocity regulator. Offers optimum performance for draw applications and others.

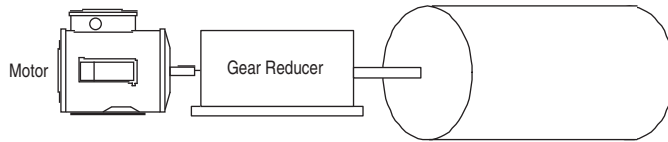


Performance, Cont.

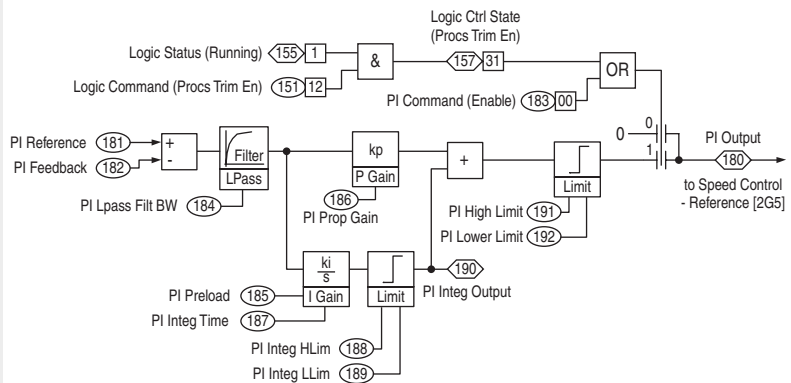
High Speed Analog & Digital I/O execute in 0.5 mSec or less to provide fast response and fast capture for registration information and position data. Output relays, optically isolated and differentially isolated I/O are supplied.



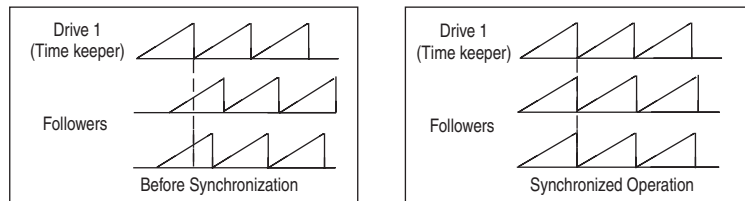
Inertia Adaptation stabilizes inertia disconnect due to gear boxes or flexible couplings. It also provides broadband resonance compensation, allowing up to 4x improvement to speed regulator bandwidth.



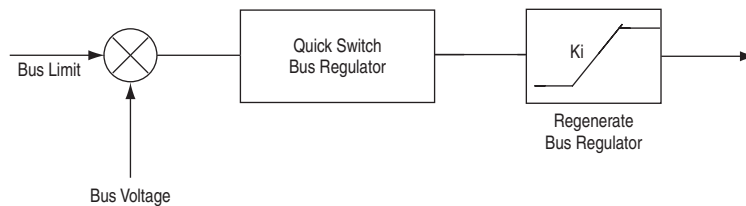
An **Enhanced Process Loop** executes six times faster than previous loops, providing greatly improved dynamic response in tension control applications.



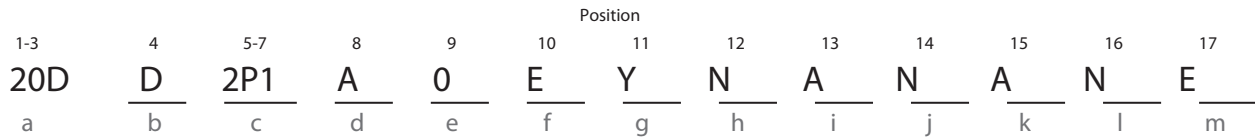
The **Control Loops** within each drive are **Synchronized**. In addition, the control loops for all drives on SynchLink are synchronized within micro-seconds. This provides exceptional link coordination and tracking for critical applications.



The **Enhanced Bus Regulator** reacts four times faster than previous products, providing quicker stops without over-voltage issues and outstanding performance in other regenerative applications.



Catalog Number Explanation



a	
Drive	
Code	Type
20D	PowerFlex 700S

b			
Voltage Rating			
Code	Voltage	Ph.	Prechg.
B §	240V AC	3	—
C §	400V AC	3	—
D §	480V AC	3	—
E ¶ §	600V AC	3	—
F ¶	690V AC	3	—
H ¶	540V DC	—	N
J ¶	650V DC	—	N
K ¶	810V DC	—	N
M ¶	932V DC	—	N
N >	325V DC	—	Y
P >	540V DC	—	Y
R >	650V DC	—	Y
T >	810V DC	—	Y
W >	932V DC	—	Y

¶ Note: CE Certification testing has not been performed on 600V class drives, Frames 1...4.

> Frames 5 & 6 Only.

¶ Frames 5 & up.

§ For DC input on Frames 1...4, use the corresponding AC input code B, C, D, or E.

c1			
ND Rating			
208/240V, 60Hz Input			
Code	208V Amps	240V Amps	Hp
4P2	4.8	4.2	1.0
6P8	7.8	6.8	2.0
9P6	11	9.6	3.0
015	17.5	15.3	5.0
022	25.3	22	7.5
028	32.2	28	10
042	48.3	42	15
052	56	52	20
070	78.2	70	25
080	92	80	30
104	120	104	40
130	130	130	50
154	177	154	60
192	221	192	75
260	260	260	100

c2		
ND Rating		
400V, 50 Hz Input		
Code	Amps	kW
2P1	2.1	0.75
3P5	3.5	1.5
5P0	5.0	2.2
8P7	8.7	4.0
011	11.5	5.5
015	15.4	7.5
022	22	11
030	30	15
037	37	18.5
043	43	22
056	56	30
072	72	37
085	85	45
105	105	55
125	125	55
170	170	90
205	205	110
260	260	132
261	261	132
300	300	160
385	385	200
460	460	250
500	500	250
590	590	315
650	650	355
730	730	400
820	820	450
920	920	500
1K0	1030	560
1K1	1150	630
1K3	1300	710
1K4	1450	800

c3		
ND Rating		
480V, 60 Hz Input		
Code	Amps	Hp
2P1	2.1	1.0
3P4	3.4	2.0
5P0	5	3.0
8P0	8	5.0
011	11	7.5
014	14	10
022	22	15
027	27	20
034	34	25
040	40	30
052	52	40
065	65	50
077	77	60
096	96	75
125	125	100
156	156	125
180	180	150
248	248	200
261	261	200
300	300	250
385	385	300
460	460	350
500	500	450
590	590	500
650	650	500
730	730	600
820	820	700
920	920	800
1K0	1030	900
1K1	1150	1000
1K3	1300	1200
1K4	1450	1250

c4		
ND Rating		
600V, 60Hz Input *		
Code	Amps	Hp
1P7	1.7	1
2P7	2.7	2
3P9	3.9	3
6P1	6.1	5
9P0	9	7.5
011	11	10
017	17	15
022	22	20
027	27	25
032	32	30
041	41	40
052	52	50
062	62	60
077	77	75
099	99	100
125	125	125
144	144	150
170	170	150
208	208	200
261	261	250
325	325	350
385	385	400
416	416	450
460	460	450
502	502	500
590	590	600
650	650	700
750	750	800
820	820	900
920	920	1000
1K0	1030	1100
1K1	1180	1300
1K5	1500	1600

* Note: CE Certification testing has not been performed on 600V class drives Frames 1...4.

d	
Enclosure	
Code	Enclosure
A	IP20, NEMA Type 1
B §	IP21, NEMA Type 1, MCC
N †	Open/IP00

† Frames 9 & up Only.

§ Frames 10-12 Only.

e	
HIM	
Code	Operator Interface
0	Blank Cover
2	Digital LCD
3	Full Numeric LCD
5	Prog. Only LCD
C	Full Numeric LCD, Door Mount *

* Frames 10 & up only.

c5		
ND Rating		
690V, 50 Hz Input *		
Code	Amps	kW
052	52	45
060	60	55
082	82	75
098	98	90
119	119	110
142	142	132
170	170	160
208	208	200
261	261	250
325	325	315
385	385	355
416	416	400
460	460	450
502	502	500
590	590	560
650	650	630
750	750	710
820	820	800
920	920	900
1K0	1030	1000
1K1	1180	1100
1K5	1500	1500

* Note: CE Certification testing has not been performed on 600V class drives Frames 1...4.

f	
Documentation	
Code	Documents
E	Manual
N	No Documentation

g	
Brake	
Code	w/Brake IGBT ‡
Y	Yes
N	No

‡ Brake IGBT is standard on Frames 1...3 and optional on Frames 4...9 ONLY.

h	
Brake Resistor	
Code	w/Resistor
Y	Yes *
N	No

* Not available for Frame 3 drives or larger.

i		
Emission		
Code	CE Filter *	CM Choke
A †	Yes	Yes
B ‡	Yes	No
N §	No	No

† Frames 1...6 Only.

‡ Frames 9 & up Only.

§ For use on a high resistive ground, an ungrounded distribution system, or a B phase grounded distribution system (Frame 9 only).

* Note: CE Certification testing has not been performed on 600V class drives Frames 1...4.

j	
Comm Slot	
Code	Version
N	None
C	DPI ControlNet (Coax)
D	DPI DeviceNet
E	DPI EtherNet/IP
R	DPI RIO
S	DPI RS-485 DF1
1	DriveLogix ControlNet (Coax)
2	DriveLogix ControlNet Redundant (Coax)
3	DriveLogix ControlNet (Fiber)
4	DriveLogix ControlNet Redundant (Fiber)
5	DriveLogix DeviceNet (Open Conn.)
6	DriveLogix EtherNet/IP

k				
Control Options				
Code	Control Option	Logic Expansion	Synch -Link	Cassette
A	Phase II	No	No	Expanded
B	Phase II	No	Yes	Expanded
C	Phase II	Yes	No	Expanded
D	Phase II	Yes	Yes	Expanded
G	Phase II	N/A	No	Slim
H	Phase II	N/A	Yes	Slim

l	
Feedback	
Code	Option
N †	Standard (Incremental Encoder)
A ‡	Resolver
B ‡	Stegmann Hi-Resolution Encoder
C ‡	Multi-Device Interface
E ‡	2nd Encoder
S ‡	Safe-Off (w/2nd Encoder)

‡ Expanded cassette required.

† One encoder interface is included with the base drive.

m	
Additional Config.	
Code	Description
E	Phase II Control
K	Phase II DriveLogix5730
L †	Phase II DriveLogix5730 w/EtherNet/IP

† This is an embedded EtherNet option that is only available with DriveLogix5730.

Product Selection

IP21, NEMA Type 1, (Position d = A)

208/240V AC, Three-Phase Drives

240V AC Input ⁽¹⁾					208V AC input					IP21, NEMA Type 1 Cat. No., 20D...	Frame Size
Output Amp			Normal Duty HP	Heavy Duty HP	Output Amp			Normal Duty kW	Heavy Duty kW		
Cont.	1 Min.	3 Sec.			Cont.	1 Min.	3 Sec.				
4.2	4.8	6.4	1	0.75	4.8	5.6	7	0.75	0.37	20DB4P2A0EYNANANE	1
6.8	9	12	2	1.5	7.8	10.4	13.8	1.5	0.75	20DB6P8A0EYNANANE	1
9.6	10.6	14.4	3	2	11	12.1	17	2.2	1.5	20DB9P6A0EYNANANE	1
15.3	16.8	23	5	3	17.5	19.3	26.3	4	2.2	20DB015A0EYNANANE	1
22	24.2	33	7.5	5	25.3	27.8	38	5.5	4	20DB022A0EYNANANE	1
28	33	44	10	7.5	32.2	38	50.6	7.5	5.5	20DB028A0EYNANANE	2
42	46.2	63	15	10	48.3	53.1	72.5	11	7.5	20DB042A0EYNANANE	3
52	63	80	20	15	56	64	86	15	11	20DB052A0EYNANANE	3
70	78	105	25	20	78.2	86	117.3	18.5	15	20DB070A0ENNANANE	4
80	105	136	30	25	92	117.3	156.4	22	18.5	20DB080A0ENNANANE	4
104 (80) ⁽²⁾	115 (120)	175 (160)	40	30	120 (92)	132 (138)	175 (175)	30	22	20DB104A0ENNANANE	5
130 (104) ⁽²⁾	143 (156)	175 (175)	50	40	130 (104)	143 (156)	175 (175)	30	30	20DB130A0ENNANANE	5
154 (130) ⁽²⁾	169 (195)	231 (260)	60	50	177 (150)	195 (225)	266 (300)	45	37	20DB154A0ENNANANE	6
192 (154) ⁽²⁾	211 (231)	288 (308)	75	60	221 (177)	243 (266)	308 (308)	55	45	20DB192A0ENNANANE	6
260 (205) ⁽²⁾	286 (305)	390 (410)	100	75	260 (205)	286 (305)	390 (410)	66	55	20DB260A0ENNANANE	6

⁽¹⁾ Catalog number corresponds to output amps in this column. Drive must be programmed to lower voltage to obtain higher currents shown at right.

⁽²⁾ These drives have dual current ratings; one for normal duty applications, and one for heavy duty applications (in parenthesis). The drive may be operated at either rating.

380-480V AC, Three-Phase Drives

480V AC Input ⁽¹⁾					380-400V AC input					IP21, NEMA Type 1 Cat. No., 20D...	Frame Size
Output Amp			Normal Duty HP	Heavy Duty HP	Output Amp			Normal Duty kW	Heavy Duty kW		
Cont.	1 Min.	3 Sec.			Cont.	1 Min.	3 Sec.				
2.1	2.4	3.2	1	0.75	2.1	2.4	3.2	0.75	0.55	20DD2P1A0EYNANANE	1
3.4	4.5	6	2	1.5	3.5	4.5	6	1.5	0.75	20DD3P4A0EYNANANE	1
5	5.5	7.5	3	2	5	5.5	7.5	2.2	1.5	20DD5P0A0EYNANANE	1
8	8.8	12	5	3	8.7	9.9	13.2	4	2.2	20DD8P0A0EYNANANE	1
11	12.1	16.5	7.5	5	11.5	13	17.4	5.5	4	20DD011A0EYNANANE	1
14	16.5	22	10	7.5	15.4	17.2	23.1	7.5	5.5	20DD014A0EYNANANE	1
22	24.2	33	15	10	22	24.2	33	11	7.5	20DD022A0EYNANANE	1
27	33	44	20	15	30	33	45	15	11	20DD027A0EYNANANE	2
34	40.5	54	25	20	37	45	60	18.5	15	20DD034A0EYNANANE	2
40	51	68	30	25	43	56	74	22	18.5	20DD040A0EYNANANE	3
52	60	80	40	30	56	64	86	30	22	20DD052A0EYNANANE	3
65	78	104	50	40	72	84	112	37	30	20DD065A0EYNANANE	3
77 (65) ⁽²⁾	85 (98)	116 (130)	60	50	85 (72) ⁽⁴⁾	94 (108)	128 (144)	45	37	20DD077A0ENNANANE	4
96 (77) ⁽²⁾	106 (116)	144 (154)	75	60	105 (85)	116 (128)	158 (170)	55	45	20DD096A0ENNANANE	5
125 (96) ⁽²⁾	138 (144)	163 (168)	100	75	125 (96)	138 (144)	163 (168)	55	45	20DD125A0ENNANANE	5
156 (125) ⁽²⁾	172 (188)	233 (250)	125	100	170 (140)	187 (210)	255 (280)	90	75	20DD156A0ENNANANE	6
180 (156) ⁽²⁾	198 (234)	270 (312)	150	125	205 (170) ⁽⁵⁾	220 (255)	289 (313)	110	90	20DD180A0ENNANANE	6
248 (180) ⁽²⁾	273 (270)	372 (360)	200	150	260 (205)	286 (308)	390 (410)	132	110	20DD248A0ENNANANE	6
261 (205) ⁽²⁾	287 (308)	410 (410)	200	150	261 (205)	287 (308)	410 (410)	132	110	20DD261A0ENNBANANE	9
300 (245) ⁽²⁾	330 (368)	450 (490)	250	200	300 (245)	330 (368)	450 (490)	160	130	20DD300A0ENNBANANE	9
385 (300) ⁽²⁾	424 (450)	600 (600)	300	250	385 (300)	424 (450)	600 (600)	200	160	20DD385A0ENNBANANE	10
460 (385) ⁽²⁾	506 (578)	770 (770)	350	300	460 (385)	506 (578)	770 (770)	250	200	20DD460A0ENNBANANE	10
500 (420) ⁽²⁾	550 (630)	750 (840)	450	350	500 (420)	550 (630)	750 (840)	250	250	20DD500A0ENNBANANE	10
590 (520) ⁽²⁾	649 (780)	956 (956)	500	450	590 (520)	649 (780)	956 (956)	315	250	20DD590A0ENNBANANE	11
650 (590) ⁽²⁾	715 (885)	1062 (1062)	500	500	650 (590)	715 (885)	1062 (1062)	355	315	20DD650A0ENNBANANE	11
730 (650) ⁽²⁾	803 (975)	1095 (1170)	600	500	730 (650)	803 (975)	1095 (1170)	400	355	20DD730A0ENNBANANE	11
820 (730) ⁽²⁾	902 (1095)	1230 (1314)	700	600	820 (730)	902 (1095)	1230 (1314)	450	400	20DD820A0ENNBANANE	12

PowerFlex 700S Phase II Drive - Technical Data

480V AC Input (1)					380-400V AC input					IP21, NEMA Type 1 Cat. No., 20D...	Frame Size
Output Amp			Normal Duty HP	Heavy Duty HP	Output Amp			Normal Duty kW	Heavy Duty kW		
Cont.	1 Min.	3 Sec.			Cont.	1 Min.	3 Sec.				
920 (820) (2)	1012 (1230)	1380 (1476)	800	700	920 (820)	1012 (1230)	1380 (1476)	500	450	20DD920A0ENNBANANE	12
1030 (920) (2)(3)	1133 (1370)	1555 (1600)	900	800	1030 (920)	1133 (1370)	1555 (1600)	560	500	20DD1K0A0ENNBANANE	12
1150 (1030) (2)	1265 (1545)	1620 (1620)	1000	900	1150 (1030)	1265 (1545)	1620 (1620)	630	560	20DD1K1A0ENNBANANE	13
1300 (1150) (2)	1430 (1725)	2079 (2079)	1200	1000	1300 (1150)	1430 (1725)	2079 (2079)	710	630	20DD1K3A0ENNBANANE	13
1450 (1200) (2)	1595 (1800)	2175 (2400)	1250	1000	1450 (1200)	1595 (1800)	2175 (2400)	800	710	20DD1K4A0ENNBANANE	13

(1) Catalog number corresponds to output amps in this column. Drive must be programmed to lower voltage to obtain higher currents shown at right.

(2) These drives have dual current ratings; one for normal duty applications, and one for heavy duty (in parenthesis). The drive may be operated at either rating.

(3) Rating is limited to 35°C surrounding air.

(4) 380-400V, 85 A rating is limited to 45°C surrounding air.

(5) 380-400V, 205 A rating is limited to 40°C surrounding air.

600-690V AC, Three-Phase Drives

600V AC Input (1)(2)					690V AC input (2)					IP21, NEMA Type 1 Cat. No., 20D...	Frame Size
Output Amp			Normal Duty HP	Heavy Duty HP	Output Amp			Normal Duty kW	Heavy Duty kW		
Cont.	1 Min.	3 Sec.			Cont.	1 Min.	3 Sec.				
1.7	2	2.6	1	0.5	—	—	—	—	—	20DE1P7A0EYNNANANE	1
2.7	3.6	4.8	2	1	—	—	—	—	—	20DE2P7A0EYNNANANE	1
3.9	4.3	5.9	3	2	—	—	—	—	—	20DE3P9A0EYNNANANE	1
6.1	6.7	9.2	5	3	—	—	—	—	—	20DE6P1A0EYNNANANE	1
9	9.9	13.5	7.5	5	—	—	—	—	—	20DE9P0A0EYNNANANE	1
11	13.5	18	10	7.5	—	—	—	—	—	20DE011A0EYNNANANE	1
17	18.7	25.5	15	10	—	—	—	—	—	20DE017A0EYNNANANE	1
22	25.5	34	20	15	—	—	—	—	—	20DE022A0EYNNANANE	2
27	33	44	25	20	—	—	—	—	—	20DE027A0EYNNANANE	2
32	40.5	54	30	25	—	—	—	—	—	20DE032A0EYNNANANE	3
41	48	64	40	30	—	—	—	—	—	20DE041A0EYNNANANE	3
52	61.5	82	50	40	—	—	—	—	—	20DE052A0EYNNANANE	3
62	78	104	60	50	—	—	—	—	—	20DE062A0EYNNANANE	4
77 (63) (3)	85 (94)	116 (126)	75	60	82 (60)	90 (90)	120 (123)	75	55	20DE077A0ENNBANANE	5
99 (77) (3)	109 (116)	126 (138)	100	75	98 (82) (6)	108 (123)	127 (140)	90	75	20DE099A0ENNBANANE	5
125 (99) (3)	138 (149)	188 (198)	125	100	119 (98)	131 (147)	179 (196)	110	90	20DE125A0ENNBANANE	6
144 (125) (3)	158 (188)	216 (250)	150	125	142 (119)	156 (179)	213 (238)	132	110	20DE144A0ENNBANANE	6
170 (144) (3)	187 (216)	245 (245)	150	150	170 (144)	187 (216)	245 (245)	160	132	20DE170A0ENNBANANE	9
208 (170) (3)(4)	230 (250)	289 (289)	200	150	208 (170) (4)	230 (250)	289 (289)	200	160	20DE208A0ENNBANANE	9
261 (208) (3)	287 (312)	375 (375)	250	200	261 (208)	287 (312)	375 (375)	250	200	20DE261A0ENNBANANE	10
325 (261) (3)	358 (392)	470 (470)	350	250	325 (261)	358 (392)	470 (470)	315	250	20DE325A0ENNBANANE	10
385 (325) (3)	424 (488)	585 (585)	400	350	385 (325)	424 (488)	585 (585)	355	315	20DE385A0ENNBANANE	10
416 (325) (3)	458 (488)	585 (585)	450	350	416 (325)	458 (488)	585 (585)	400	315	20DE416A0ENNBANANE	10
460 (385) (3)	506 (578)	693 (693)	450	400	460 (385)	506 (578)	693 (693)	450	355	20DE460A0ENNBANANE	11
502 (460) (3)	552 (690)	828 (828)	500	450	502 (460)	552 (690)	828 (828)	500	450	20DE502A0ENNBANANE	11
590 (502) (3)	649 (753)	904 (904)	600	500	590 (502)	649 (753)	904 (904)	560	500	20DE590A0ENNBANANE	11
650 (590) (3)	715 (885)	1062 (1062)	700	650	650 (590)	715 (885)	1062 (1062)	630	560	20DE650A0ENNBANANE	12
750 (650) (3)	825 (975)	1170 (1170)	800	700	750 (650)	825 (975)	1170 (1170)	710	630	20DE750A0ENNBANANE	12
820 (750) (3)(4)(5)	902 (975)	1170 (1170)	900	700	820 (750)	902 (975)	1170 (1170)	800	630	20DE820A0ENNBANANE	12
920 (820) (3)	1012 (1230)	1380 (1410)	1000	900	920 (820)	1012 (1230)	1380 (1410)	900	800	20DE920A0ENNBANANE	13
1030 (920) (3)	1133 (1380)	1545 (1755)	1100	1000	1030 (920)	1133 (1380)	1545 (1755)	1000	900	20DE1K0A0ENNBANANE	13
1180 (1030) (3)	1298 (1463)	1755 (1755)	1300	1100	1180 (1030)	1298 (1463)	1755 (1755)	1100	1000	20DE1K1A0ENNBANANE	13
1500 (1300) (3)	1650 (1950)	2250 (2340)	1600	1400	1500 (1300)	1650 (1950)	2250 (2340)	1500	1300	20DE1K5A0ENNBANANE	14

(1) Catalog number corresponds to output amps in this column. Drive must be programmed to lower voltage to obtain higher currents shown at right.

(2) CE Certification testing has not been performed on 600V class drives Frames 1...4.

(3) These drives have dual current ratings; one for normal duty applications, and one for heavy duty applications (in parenthesis). The drive may be operated at either rating.

(4) Rating is limited to 35°C surrounding air.

(5) 600V class drives at 820 amps (ND) such as 20DF820 & 20DE820 are only capable of producing 95% of starting torque under 10 Hz.

(6) Rating is limited to 40°C surrounding air.

IP21, NEMA Type 1, MCC (Position d = B)

380-480V AC, Three-Phase Drives

480V AC Input (1)					380-400V AC input					IP21, NEMA Type 1 Cat. No., 20D...	Frame Size
Output Amp			Normal Duty HP	Heavy Duty HP	Output Amp			Normal Duty kW	Heavy Duty kW		
Cont.	1 Min.	3 Sec.			Cont.	1 Min.	3 Sec.				
385 (300) (2)	424 (450)	600 (600)	300	250	385 (300)	424 (450)	600 (600)	200	160	20DD385B0ENNBANANE	10
460 (385) (2)	506 (578)	770 (770)	350	300	460 (385)	506 (578)	770 (770)	250	200	20DD460B0ENNBANANE	10
500 (420) (2)	550 (630)	750 (840)	450	350	500 (420)	550 (630)	750 (840)	250	250	20DD500B0ENNBANANE	10
590 (520) (2)	649 (780)	956 (956)	500	450	590 (520)	649 (780)	956 (956)	315	250	20DD590B0ENNBANANE	11
650 (590) (2)	715 (885)	1062 (1062)	500	500	650 (590)	715 (885)	1062 (1062)	355	315	20DD650B0ENNBANANE	11
730 (650) (2)	803 (975)	1095 (1170)	600	500	730 (650)	803 (975)	1095 (1170)	400	355	20DD730B0ENNBANANE	11
820 (730) (2)	902 (1095)	1230 (1314)	700	600	820 (730)	902 (1095)	1230 (1314)	450	400	20DD820B0ENNBANANE	12
920 (820)7	1012 (1230)	1380 (1476)	800	700	920 (820)	1012 (1230)	1380 (1476)	500	450	20DD920B0ENNBANANE	12
1030 (920) (2)(3)	1133 (1370)	1555 (1600)	900	800	1030 (920)	1133 (1370)	1555 (1600)	560	500	20DD1K0B0ENNBANANE	12

- (1) Catalog number corresponds to output amps in this column. Drive must be programmed to lower voltage to obtain higher currents shown at right.
- (2) These drives have dual current ratings; one for normal duty applications, and one for heavy duty (in parenthesis). The drive may be operated at either rating.
- (3) Rating is limited to 35°C surrounding air.

600-690V AC, Three-Phase Drives

600-690V AC input					IP21, NEMA Type 1 Cat. No., 20D...	Frame Size
Output Amp			Normal Duty HP	Heavy Duty HP		
Cont.(1)	1 Min.	3 Sec.				
261 (208) (2)	287 (312)	375 (375)	250	200	20DE261B0ENNBANANE	10
325 (261) (2)	358 (392)	470 (470)	350	250	20DE325B0ENNBANANE	10
385 (325) (2)	424 (488)	585 (585)	400	350	20DE385B0ENNBANANE	10
416 (325) (2)	458 (488)	585 (585)	450	350	20DE416B0ENNBANANE	10
460 (385) (2)	506 (578)	693 (693)	450	400	20DE460B0ENNBANANE	11
502 (460) (2)	552 (690)	828 (828)	500	450	20DE502B0ENNBANANE	11
590 (502) (2)	649 (753)	904 (904)	600	500	20DE590B0ENNBANANE	11
650 (590) (2)	715 (885)	1062 (1062)	700	650	20DE650B0ENNBANANE	12
750 (650) (2)	825 (975)	1170 (1170)	800	700	20DE750B0ENNBANANE	12
820 (750) (2)(3)(4)	902 (975)	1170 (1170)	900	700	20DE820B0ENNBANANE	12

- (1) Catalog number corresponds to output amps in this column.
- (2) These drives have dual current ratings; one for normal duty applications, and one for heavy duty applications (in parenthesis). The drive may be operated at either rating.
- (3) Rating is limited to 35°C surrounding air.
- (4) 600V class drives at 820 amps (ND) such as 20DF820 & 20DE820 are only capable of producing 95% of starting torque under 10 Hz.

DC Input Drives

Note: DC input for Frames 1...4 use the same code as AC input. Refer to the tables below for frames 5 and 6.

325V DC Input Drives

325V DC Input (1)					280V DC input					DC Precharge	IP21, NEMA Type 1 Cat. No., 20D...	Frame Size
Output Amp			Normal Duty HP	Heavy Duty HP	Output Amp			Normal Duty kW	Heavy Duty kW			
Cont.	1 Min.	3 Sec.			Cont.	1 Min.	3 Sec.					
104 (80) (2)	115 (120)	175 (160)	40	30	120 (92)	132 (138)	175 (175)	30	22	Y	N104A0ENNANANE	5
154 (130) (2)	169 (195)	231 (260)	60	50	177 (150)	195 (225)	266 (300)	45	37	Y	N154A0ENNANANE	6
192 (154) (2)	211 (231)	288 (308)	75	60	221 (177)	243 (266)	308 (308)	55	45	Y	N192A0ENNANANE	6
260 (205) (2)	286 (305)	390 (410)	100	75	260 (205)	286 (305)	390 (410)	66	55	Y	N260A0ENNANANE	6

- (1) Catalog number corresponds to output amps in this column. Drive must be programmed to lower voltage to obtain higher currents shown at right.
- (2) Frame 5 and 6 drives have dual current ratings; one for normal duty applications, and one for heavy duty applications (in parenthesis). The drive may be operated at either rating.

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650V DC Input Drives

650V DC Input (1)					540V DC input					DC Precharge	IP21, NEMA Type 1 Cat. No., 20D...	Frame Size
Output Amp			Normal Duty HP	Heavy Duty HP	Output Amp			Normal Duty kW	Heavy Duty kW			
Cont.	1 Min.	3 Sec.			Cont.	1 Min.	3 Sec.					
96 (77) (2)	106 (116)	144 (154)	75	60	105 (85)	116 (128)	158 (170)	55	45	N	J096A0ENNANANE	5
96 (77) (2)	106 (116)	144 (154)	75	60	105 (85)	116 (128)	158 (170)	55	45	Y	R096A0ENNANANE	5
125 (96) (2)	138 (144)	163 (168)	100	75	125 (96)	138 (144)	163 (168)	55	45	N	J125A0ENNANANE	5
125 (96) (2)	138 (144)	163 (168)	100	75	125 (96)	138 (144)	163 (168)	55	45	Y	R125A0ENNANANE	5
156 (125) (2)	172 (188)	233 (250)	125	100	170 (140)	187 (210)	255 (280)	90	75	N	J156A0ENNANANE	6
156 (125) (2)	172 (188)	233 (250)	125	100	170 (140)	187 (210)	255 (280)	90	75	Y	R156A0ENNANANE	6
180 (156) (2)	198 (234)	270 (312)	150	125	205 (170) (4)	220 (255)	289 (313)	110	90	N	J180A0ENNANANE	6
180 (156) (2)	198 (234)	270 (312)	150	125	205 (170) (4)	220 (255)	289 (313)	110	90	Y	R180A0ENNANANE	6
248 (180) (2)(3)	273 (270)	372 (360)	200	150	260 (205) (3)	286 (308)	390 (410)	132	110	N	J248A0ENNANANE	6
248 (180) (2)(3)	273 (270)	372 (360)	200	150	260 (205) (3)	286 (308)	390 (410)	132	110	Y	R248A0ENNANANE	6

(1) Catalog number corresponds to output amps in this column. Drive must be programmed to lower voltage to obtain higher currents shown at right.

(2) Frame 5 and 6 drives have dual current ratings; one for normal duty applications, and one for heavy duty applications (in parenthesis). The drive may be operated at either rating.

(3) Rating is limited to 45°C surrounding air.

(4) Rating is limited to 40°C surrounding air.

810V DC Input Drives

810 DC Input (1)					932 DC input					DC Precharge	IP21, NEMA Type 1 Cat. No., 20D...	Frame Size
Output Amp			Normal Duty HP	Heavy Duty HP	Output Amp			Normal Duty kW	Heavy Duty kW			
Cont.	1 Min.	3 Sec.			Cont.	1 Min.	3 Sec.					
99 (77) (2)(3)	109 (116)	126 (138)	100	75	98 (82) (3)	108 (123)	127 (140)	90	75	Y	T099A0ENNANANE	5
144 (125) (2)	158 (188)	216 (250)	150	125	142 (119)	156 (179)	213 (238)	132	110	Y	T144A0ENNANANE	6

(1) Catalog number corresponds to output amps in this column. Drive must be programmed to lower voltage to obtain higher currents shown at right.

(2) Frame 5 and 6 drives have dual current ratings; one for normal duty applications, and one for heavy duty applications (in parenthesis). The drive may be operated at either rating.

(3) Rating is limited to 40°C surrounding air.

Factory Installed Options

Human Interface and Wireless Interface Modules IP20/NEMA Type 1 (Position e)



Cat. Code: 0
No HIM (Blank Plate)



Cat. Code: 3
LCD Display, Full
Numeric Keypad



Cat. Code: 5
LCD Display,
Programmer Only



Cat. Code: C
Door Mounted Bezel
LCD Display, Full
Numeric Keypad
Frame 10 & Up

Documentation

Description	Cat. Code
	(Position f)
Quick Start Guide	E
No Documentation	N

Internal Brake IGBT

Drive Input Voltage	Brake IGBT	Frame	Cat. Code
			(Position g)
208-480V AC	Standard	1-3	Y
	Optional	4	Y
		5	Y
		4-6	N
		6	Y
		9	Y

Internal Dynamic Brake Resistors

These resistors have a limited duty cycle. Refer to the PowerFlex Dynamic Braking Selection Guide to determine if an internal resistor will be sufficient for your application. An external resistor may be required.

Drive Input Voltage	Frame	Brake Resistance	Cat. Code
		Ω	(Position h)
208...240V AC	Frame 1 (1.0-5.0 HP)	62	Y
	1 (7.5 Hp)	22	Y
	2	22	Y
380...600V AC	1	115	Y
	2	68	Y
	All	-	N

Internal EMC Filter

Drive Input Voltage	Frame	CE Filter	Cat. Code
			(Position i)
208-240V AC	1-6	with Filter	A
380-480V AC	1-6	with Filter	A
380-500V AC	9	No Filter ⁽¹⁾	N
380-500V AC	9 & Up	with Filter	B
600-690V AC	1-6	with Filter	A

⁽¹⁾ For use on a high resistive ground or ungrounded distribution system.

Internal Communication Adapters

Description	Cat. Code (Position j)
None	N
ControlNet™ Communication Adapter (Coax)	C
DeviceNet™ Communication Adapter	D
EtherNet/IP™ Communication Adapter	E
Remote I/O Communication Adapter	R
RS485 DF1 Communication Adapter	S
DriveLogix Comm Option, ControlNet (Coax) ⁽¹⁾⁽²⁾	1
DriveLogix Comm Option, ControlNet Redundant (Coax) ⁽¹⁾⁽²⁾	2
DriveLogix Comm Option, ControlNet (Fiber) ⁽¹⁾⁽²⁾	3
DriveLogix Comm Option, ControlNet Redundant (Fiber) ⁽¹⁾⁽²⁾	4
DriveLogix Comm Option, DeviceNet (Open Conn.) ⁽¹⁾⁽²⁾	5
DriveLogix Comm Option, EtherNet/IP (Twisted Pair) ⁽¹⁾⁽²⁾	6

⁽¹⁾ Must have the DriveLogix option.

⁽²⁾ Requires Expanded Cassette.

Control Options

Control Option	Description	Cat. Code
		(Position k)
Phase II Control	Expanded Cassette Only	A
	Expanded Cassette w/SynchLink	B
	Expanded Cassette w/Logix Expansion Board	C
	Expanded Cassette w/Logix Expansion Board & SynchLink	D
	Slim Cassette	G
	Slim Cassette w/SynchLink	H

Feedback Options

Description	Cat. Code
	(Position l)
No Option (includes Standard Encoder Interface)	N
Resolver, 10...26V, 10 kHz, 10...16 bit	A
Stegmann - High Resolution Encoder Hyperface, 8.5V DC, 20 bit, 100k/r ⁽¹⁾	B
Multi-Device Interface - for Stegmann or Linear Temposonics ⁽¹⁾	C
2nd Encoder, 5V or 12V Configurable by the Drive ⁽¹⁾	E
DriveGuard Safe-Off (w/2nd Encoder) ⁽¹⁾	S
Stegmann & 2nd Encoder ⁽¹⁾	T
Stegmann & DriveGuard Safe-Off (w/2nd Encoder) ⁽¹⁾	U

⁽¹⁾ Requires Expanded Cassette.

User Installed Options

Human Interface and Wireless Interface Modules



No HIM (Blank Plate)
20-HIM-A0



LCD Display, Full
Numeric Keypad
20-HIM-A3



LCD Display,
Programmer Only
20-HIM-A5



Wireless Interface
Module
20-WIM-N1



Remote (Panel Mount)
LCD Display, Full
Numeric Keypad
20-HIM-C3S (1)(2)



Remote (Panel Mount)
LCD Display,
Programmer Only
20-HIM-C5S (1)(2)



Remote (Panel Mount)
Wireless Interface
Module
20-WIM-N4S (1)

(1) For indoor use only.

(2) Includes a 1202-C30 interface cable (3 meters) for connection to drive.

Human Interface Module Accessories

Description	Cat. No.
Bezel Kit for LCD HIMs, NEMA/UL Type 1 (1)	20-HIM-B1
PowerFlex HIM Interface Cable, 1 m (39 in) (2)	20-HIM-H10
Cable Kit (Male-Female) (3)	
0.33 Meters (1.1 Feet)	1202-H03
1 Meter (3.3 Feet)	1202-H10
3 Meter (9.8 Feet)	1202-H30
9 Meter (29.5 Feet)	1202-H90
DPI/SCANport™ One to Two Port Splitter Cable	1203-S03

(1) Includes an interface cable (1202-C30) for connection to drive.

(2) Required only when HIM is used as handheld or remote.

(3) Required in addition to 20-HIM-H10 for distances up to a total maximum of 10 Meters (32.8 Feet).

Communication Option Kits

Description	Cat. No.
ControlNet™ Communication Adapter (Coax)	20-COMM-C
DeviceNet™ Communication Adapter	20-COMM-D
EtherNet/IP™ Communication Adapter	20-COMM-E
HVAC Communication Adapter ⁽¹⁾	20-COMM-H
Interbus™ Communication Adapter	20-COMM-I
CANopen® Communication Adapter	20-COMM-K
Modbus/TCP Communication Adapter	20-COMM-M
PROFIBUS™ DP Communication Adapter	20-COMM-P
ControlNet™ Communication Adapter (Fiber)	20-COMM-Q
Remote I/O Communication Adapter	20-COMM-R
RS485 DF1 Communication Adapter	20-COMM-S
DriveLogix ControlNet Communication Adapter (Coax) ⁽²⁾⁽³⁾	1788-CNC
DriveLogix Comm Option, ControlNet Redundant (Coax) ⁽¹⁾⁽²⁾	1788-CNCR
DriveLogix Comm Option, ControlNet (Fiber) ⁽¹⁾⁽²⁾	1788-CNF
DriveLogix Comm Option, ControlNet Redundant (Fiber) ⁽¹⁾⁽²⁾	1788-CNFR
DriveLogix Comm Option, DeviceNet (Open Conn.) ⁽¹⁾⁽²⁾	1788-DNBO
DriveLogix Comm Option, EtherNet/IP (Twisted Pair) ⁽¹⁾⁽²⁾	1788-ENBT
DriveLogix5730 Comm Option, Embedded EtherNet/IP ⁽²⁾	20D-DL2-ENET0
External Communications Kit Power Supply	20-XCOMM-PS1
DPI External Communications Kit	20-XCOMMDC-BASE
External DPI I/O Option Board ⁽⁴⁾	20-XCOMMIO-OPT1
Compact I/O Module (3 Channel)	1769-SM1

(1) For use only in Modbus RTU mode.

(2) For use with DriveLogix option only.

(3) Requires Logix Expansion Board (20D-DL2-LEB0).

(4) For use only with DPI External Communications Kits 20-XCOMM-DCBASE.

Communication Accessories

Description	Cat. No.
Serial Null Modem Adapter	1203-SNM
Smart Self-powered Serial Converter (RS232) includes 1203-SFC and 1202-C10 Cables	1203-SSS
Universal Serial Bus™ (USB) Converter includes 2m USB, 20-HIM-H10 & 22-HIM-H10 Cables	1203-USB
ControlNet Ex Right-Angle T-Tap 1 Meter Coax Cable Assembly	1786-TPR

Auxiliary Control Power Supply

Description	Cat. No.
Auxiliary Control Power Supply	20-24V-AUX1 340

Accessories

Note: Please refer to publication number 1756-TD008 for details on SynchLink.

Description	Cat. No.
SynchLink Board	20D-P2-SLB0
SynchLink Fiber Base Block	1751-SLBA
SynchLink 4-port Fiber Splitter Block	1751-SL4SP
SynchLink Fiber Bypass Switch Block	1751-SLBP
2x1 Meter Fiber Link for Power Monitor/SynchLink	1403-CF001
2x3 Meter Fiber Link for Power Monitor/SynchLink	1403-CF003
2x5 Meter Fiber Link for Power Monitor/SynchLink	1403-CF005
10 Meter Fiber Link for Power Monitor/SynchLink	1403-CF010
20 Meter Fiber Link for Power Monitor/SynchLink	1403-CF020
50 Meter Fiber Link for Power Monitor/SynchLink	1403-CF050
100 Meter Fiber Link for Power Monitor/SynchLink	1403-CF100
250 Meter Fiber Link for Power Monitor/SynchLink	1403-CF250

Feedback Option Kits

Description	Cat. No.
Multi-Device Interface ⁽¹⁾	20D-MDI-C2
DriveGuard Safe-Off (w/2nd Encoder) ⁽¹⁾	20D-P2-DG01
2nd Encoder, 5V/12V ⁽¹⁾	20D-P2-ENC0
Resolver ⁽¹⁾	20D-RES-A1
Stegmann High Resolution Hyperface Encoder ⁽¹⁾	20D-STEG-B1

⁽¹⁾ Requires Expanded Cassette.

DriveLogix Option Kits

Description	Cat. No.
Logix Expansion board for DriveLogix5730 ⁽¹⁾	20D-DL2-LEB0
Industrial Compact Flash 64 Megabyte Memory Card for DriveLogix5730	1784-CF64

⁽¹⁾ Requires Expanded Cassette.

DriveLogix I/O Cables

Description	Cat. No.
DriveLogix5730 - Compact I/O cable, 3.28 ft. (1 meter), Left Bus Cap ⁽¹⁾⁽²⁾	20D-DL2-CL3
DriveLogix5730 - Compact I/O cable, 3.28 ft. (1 meter), Right Bus Cap ⁽¹⁾⁽²⁾	20D-DL2-CR3
Logix5000 RS-232 Programming Cable	1756-CP3

⁽¹⁾ Requires Expanded Cassette.

⁽²⁾ Refer to Publication 1769-SG001 for details and selection of Compact I/O.

1492 Wiring System Modules and Cables

Wiring System Modules and Cables provide an easy means to extend drive control wiring. A pre-wired cable (available in various lengths) plugs into the appropriate drive I/O terminal block. The remaining cable end plugs into the Wiring Module which provides a terminal block for direct I/O connection. See publication 1492-TD008 for detailed information.

1492 Wiring Module and Cable Selection

700S Drive I/O	Wiring Module Description	Wiring Module Cat. No.		Use with Cable (see below...)
		Fixed Terminal Block	Removable Terminal Block	
DC Discrete	Standard, 264V AC/DC	1492-IFM20F	1492-RIFM20F	1492-CABxxxA7S
Digital I/O (TB2)	Narrow Standard, 132V AC/DC	1492-IFM20FN	1492-RIFM20FN	1492-CABxxxA7S
	Extra Terminals (2 per I/O), 264V AC/DC	1492-IFM20F-2	1492-RIFM20F-2	1492-CABxxxA7S
Analog I/O (TB1)	6 Channel Isolated - 3 Terminals/Channel	1492-AIFM6S-3	1492-RAIFM6S-3	1492-ACABxxxZ7S
Encoder	2 Channel Encoder Input - 4 Outputs	1492-AIFMCE4	–	1492-ACABxxxX7S
	2 Channel Fused Encoder Input - 4 Fused Outputs	1492-AIFMCE4-F	–	1492-ACABxxxX7S

Pre-Wired Cable Assemblies

Description	Cat. No.
Pre-Wired Cable for Analog I/O	
0.5 Meter (1.6 Feet)	1492-ACAB005Z7S
1.0 Meter (3.3 Feet)	1492-ACAB010Z7S
2.5 Meters (8.2 Feet)	1492-ACAB025Z7S
5.0 Meters (16.4 Feet)	1492-ACAB050Z7S
Pre-Wired Cable for Discrete DC I/O	
0.5 Meter (1.6 Feet)	1492-CAB005A7S
1.0 Meter (3.3 Feet)	1492-CAB010A7S
2.5 Meters (8.2 Feet)	1492-CAB025A7S
5.0 Meters (16.4 Feet)	1492-CAB050A7S
Pre-Wired Cable for Encoder	
0.5 Meter (1.6 Feet)	1492-ACAB005X7S
1.0 Meter (3.3 Feet)	1492-ACAB010X7S
2.5 Meters (8.2 Feet)	1492-ACAB025X7S
5.0 Meters (16.4 Feet)	1492-ACAB050X7S

Phase II Drive Control Upgrade Kits

Description	Cat. No.
PowerFlex 700S Phase II Control with Expanded Cassette	20D-P2-CKE1
PowerFlex 700S Phase II Control with Slim Cassette	20D-P2-CKS1
PowerFlex 700S DriveLogix5730 Phase II Control with Expanded Cassette	20D-DL2-CKE1
PowerFlex 700S DriveLogix5730 Phase II Control with Slim Cassette	20D-DL2-CKS1

Internal Dynamic Brake Resistor Kits

These resistors have a limited duty cycle. Refer to the PowerFlex Dynamic Braking Selection Guide to determine if an internal resistor will be sufficient for your application. An external resistor may be required.

Drive Input Voltage	Brake Resistance (Ω)	Frame	Cat. No.
208-240V AC	62	1 (1.0 - 5.0 HP)	20BB-DB1-1
	22	1 (7.5 HP)	20BB-DB2-1
	22	2	20BB-DB1-2
380-600V AC	115	1	20BD-DB1-1
	68	2	20BD-DB1-2

Dynamic Brake, Chopper Only Kits

Description	Rating	Cat. No.
200-240V AC	18A	1336-WA018
	70A	1336-WA070
	115A	1336-WA115
380-480V AC	9A	1336-WB009
	35A	1336-WB035
	110A	1336-WB110
500-600V AC	9A	1336-WC009
	35A	1336-WC035
	85A	1336-WC085

Terminators

Description (1)	Cat. No.
for use with 3.7 kW (5 Hp) & below drives	1204-TFA1
for use with 1.5 kW (2 Hp) & up drives	1204-TFB2

(1) Refer to Appendix A of publication DRIVES-IN001... for selection information.

Reflected Wave Reduction Modules w/Common Mode Choke

Description (1)	Cat. No.
17A with Common Mode Choke	1204-RWC-17-A

(1) Refer to Appendix A of publication DRIVES-IN001... for selection information.

Reflected Wave Reduction Modules

Voltage	Drive Cat. No.	ND HP	Cat. No.	Voltage	Drive Cat. No.	ND HP	Cat. No.
480V AC	20DD8P0	5	1321-RWR8-DP	600V AC	20DE6P1	5	1321-RWR8-EP
	20DD011	8	1321-RWR12-DP		20DE9P0	8	1321-RWR8-EP
	20DD014	10	1321-RWR18-DP		20DE011	10	1321-RWR12-EP
	20DD022	15	1321-RWR25-DP		20DE017	15	1321-RWR18-EP
	20DD027	20	1321-RWR25-DP		20DE022	20	1321-RWR25-EP
	20DD034	25	1321-RWR35-DP		20DE027	25	1321-RWR25-EP
	20DD040	30	1321-RWR45-DP		20DE032	30	1321-RWR35-EP
	20DD052	40	1321-RWR55-DP		20DE041	40	1321-RWR45-EP
	20DD065	50	1321-RWR80-DP		20DE052	50	1321-RWR55-EP
	20DD077	60	1321-RWR80-DP		20DE062	60	1321-RWR80-EP
	20DD096	75	1321-RWR100-DP		20DE077	75	1321-RWR80-EP
	20DD125	100	1321-RWR130-DP		20DE099	100	1321-RWR100-EP
	20DD140	100	1321-RWR160-DP		20DE125	125	1321-RWR130-EP
	20DD156	125	1321-RWR160-DP		20DE144	150	1321-RWR160-EP
	20DD180	150	1321-RWR200-DP		20DE170	150	1321-RWR200-EP
	20DD248	200	1321-RWR250-DP		20DE208	200	1321-RWR250-EP
	20DD261	200	1321-RWR320-DP				
20DD300	250	1321-RWR320-DP					

Isolation Transformers

For installations that have specific types of AC supply configurations or require drive protection due to AC line disturbances, isolation transformers are available.

Motor Rating kW (HP)	240V, 60 Hz, Three-Phase, 240V Primary & 240V Secondary	460V, 60 Hz, Three-Phase, 460V Primary & 460V Secondary	575V, 60 Hz, Three-Phase 575V Primary & 575V Secondary
	IP32 (NEMA Type 3R)	IP32 (NEMA Type 3R)	IP32 (NEMA Type 3R)
	Cat. No.	Cat. No.	Cat. No.
0.25 (0.33)	1321-3TW005-AA	1321-3TW005-BB	-
0.37 (0.5)	1321-3TW005-AA	1321-3TW005-BB	-
0.55 (0.75)	1321-3TW005-AA	1321-3TW005-BB	-
0.75 (1.0)	1321-3TW005-AA	1321-3TW005-BB	1321-3TW005-CC
1.1 (1.5)	1321-3TW005-AA	1321-3TW005-BB	-
1.5 (2.0)	1321-3TW005-AA	1321-3TW005-BB	1321-3TW005-CC
2.2 (3.0)	1321-3TW005-AA	1321-3TW005-BB	1321-3TW005-CC
4.0 (5.0)	1321-3TW007-AA	1321-3TW007-BB	1321-3TW007-CC
5.5 (7.5)	1321-3TW011-AA	1321-3TW011-BB	1321-3TW011-CC
7.5 (10)	1321-3TW014-AA	1321-3TW014-BB	1321-3TW014-CC
11 (15)	1321-3TW020-AA	1321-3TW020-BB	1321-3TW020-CC
15 (20)	1321-3TW027-AA	1321-3TW027-BB	1321-3TW027-CC
18.5 (25)	1321-3TW034-AA	1321-3TW034-BB	1321-3TW034-CC
22 (30)	1321-3TW040-AA	1321-3TW040-BB	1321-3TW040-CC
30 (40)	1321-3TW051-AA	1321-3TW051-BB	1321-3TW051-CC
37 (50)	1321-3TH063-AA	1321-3TH063-BB	1321-3TH063-CC
45 (60)	1321-3TH075-AA	1321-3TH075-BB	1321-3TH075-CC
55 (75)	1321-3TH093-AA	1321-3TH093-BB	1321-3TH093-CC
75 (100)	-	1321-3TH118-BB	1321-3TH118-CC
90 (125)	-	1321-3TH145-BB	1321-3TH145-CC
110 (150)	-	1321-3TH175-BB	1321-3TH175-CC
149 (200)	-	1321-3TH220-BB	-

Line/Load Reactors

For impedance matching, protection from AC line disturbances or motor protection, reactors are available for both the input and output sides of the drive.

Input and Output Line Reactors - 240V, 60 Hz, Three-Phase, 3% Impedance

Drive Cat. No.	Duty	HP	Input Line Reactor ⁽¹⁾		Output Line Reactor ⁽¹⁾	
			IP00 (Open Style) Cat. No.	IP11 (NEMA Type 1) Cat. No.	IP00 (Open Style) Cat. No.	IP11 (NEMA Type 1) Cat. No.
20DB2P2	Heavy Duty	0.33	1321-3R2-D	1321-3RA2-D	1321-3R2-D	1321-3RA2-D
20DB2P2	Normal Duty	0.5	1321-3R2-D	1321-3RA2-D	1321-3R2-D	1321-3RA2-D
20DB4P2	Heavy Duty	0.75	1321-3R4-A	1321-3RA4-A	1321-3R4-A	1321-3RA4-A
20DB4P2	Normal Duty	1	1321-3R4-A	1321-3RA4-A	1321-3R4-A	1321-3RA4-A
20DB6P8	Heavy Duty	1.5	1321-3R8-B	1321-3RA8-B	1321-3R8-A	1321-3RA8-A
20DB6P8	Normal Duty	2	1321-3R8-A	1321-3RA8-A	1321-3R8-A	1321-3RA8-A
20DB9P6	Heavy Duty	2	1321-3R8-A	1321-3RA8-A	1321-3R12-A	1321-3RA12-A
20DB9P6	Normal Duty	3	1321-3R12-A	1321-3RA12-A	1321-3R12-A	1321-3RA12-A
20DB015	Heavy Duty	3	1321-3R12-A	1321-3RA12-A	1321-3R18-A	1321-3RA18-A
20DB015	Normal Duty	5	1321-3R18-A	1321-3RA18-A	1321-3R18-A	1321-3RA18-A
20DB022	Heavy Duty	5	1321-3R18-A	1321-3RA18-A	1321-3R25-A	1321-3RA25-A
20DB022	Normal Duty	7.5	1321-3R25-A	1321-3RA25-A	1321-3R25-A	1321-3RA25-A
20DB028	Heavy Duty	7.5	1321-3R25-A	1321-3RA25-A	1321-3R35-A	1321-3RA35-A
20DB028	Normal Duty	10	1321-3R35-A	1321-3RA35-A	1321-3R35-A	1321-3RA35-A
20DB042	Heavy Duty	10	1321-3R35-A	1321-3RA35-A	1321-3R45-A	1321-3RA45-A
20DB042	Normal Duty	15	1321-3R45-A	1321-3RA45-A	1321-3R45-A	1321-3RA45-A
20DB052	Heavy Duty	15	1321-3R45-A	1321-3RA45-A	1321-3R55-A	1321-3RA55-A
20DB052	Normal Duty	20	1321-3R55-A	1321-3RA55-A	1321-3R55-A	1321-3RA55-A
20DB070	Heavy Duty	20	1321-3R55-A	1321-3RA55-A	1321-3R80-A	1321-3RA80-A
20DB070	Normal Duty	25	1321-3R80-A	1321-3RA80-A	1321-3R80-A	1321-3RA80-A
20DB080	Heavy Duty	25	1321-3R80-A	1321-3RA80-A	1321-3R80-A	1321-3RA80-A
20DB080	Normal Duty	30	1321-3R80-A	1321-3RA80-A	1321-3R80-A	1321-3RA80-A
20DB104	Heavy Duty	30	1321-3R80-A	1321-3RA80-A	1321-3R80-A	1321-3RA80-A
20DB104	Normal Duty	40	1321-3R100-A	1321-3RA100-A	1321-3R100-A	1321-3RA100-A
20DB130	Heavy Duty	40	1321-3R100-A	1321-3RA100-A	1321-3R100-A	1321-3RA100-A
20DB130	Normal Duty	50	1321-3R130-A	1321-3RA130-A	1321-3R130-A	1321-3RA130-A
20DB154	Heavy Duty	50	1321-3R130-A	1321-3RA130-A	1321-3R130-A	1321-3RA130-A
20DB154	Normal Duty	60	1321-3R160-A	1321-3RA160-A	1321-3R160-A	1321-3RA160-A
20DB192	Heavy Duty	60	1321-3R160-A	1321-3RA160-A	1321-3R160-A	1321-3RA160-A
20DB192	Normal Duty	75	1321-3R200-A	1321-3RA200-A	1321-3R200-A	1321-3RA200-A
20DB260	Heavy Duty	75	1321-3R200-A	1321-3RA200-A	1321-3R200-A	1321-3RA200-A
20DB260	Normal Duty	100	1321-3RB250-A	1321-3RAB250-A	1321-3RB250-A	1321-3RAB250-A

⁽¹⁾ Input line reactors were sized based on the NEC fundamental motor amps. Output line reactors were sized based on the VFD rated output currents.

Input and Output Line Reactors - 240V, 60 Hz, Three-Phase, 5% Impedance

Drive Cat. No.	Duty	HP	Input Line Reactor ⁽¹⁾		Output Line Reactor ⁽¹⁾	
			IP00 (Open Style) Cat. No.	IP11 (NEMA Type 1) Cat. No.	IP00 (Open Style) Cat. No.	IP11 (NEMA Type 1) Cat. No.
20DB2P2	Heavy Duty	0.33	1321-3R2-A	1321-3RA2-A	1321-3R2-A	1321-3RA2-A
20DB2P2	Normal Duty	0.5	1321-3R2-A	1321-3RA2-A	1321-3R2-A	1321-3RA2-A
20DB4P2	Heavy Duty	0.75	1321-3R4-B	1321-3RA4-B	1321-3R4-B	1321-3RA4-B
20DB4P2	Normal Duty	1	1321-3R4-B	1321-3RA4-B	1321-3R4-B	1321-3RA4-B
20DB6P8	Heavy Duty	1.5	1321-3R8-B	1321-3RA8-B	1321-3R8-B	1321-3RA8-B
20DB6P8	Normal Duty	2	1321-3R8-B	1321-3RA8-B	1321-3R8-B	1321-3RA8-B
20DB9P6	Heavy Duty	2	1321-3R8-B	1321-3RA8-B	1321-3R12-B	1321-3RA12-B
20DB9P6	Normal Duty	3	1321-3R12-B	1321-3RA12-B	1321-3R12-B	1321-3RA12-B
20DB015	Heavy Duty	3	1321-3R12-B	1321-3RA12-B	1321-3R18-B	1321-3RA18-B
20DB015	Normal Duty	5	1321-3R18-B	1321-3RA18-B	1321-3R18-B	1321-3RA18-B
20DB022	Heavy Duty	5	1321-3R18-B	1321-3RA18-B	1321-3R25-B	1321-3RA25-B
20DB022	Normal Duty	7.5	1321-3R25-B	1321-3RA25-B	1321-3R25-B	1321-3RA25-B

PowerFlex 700S Phase II Drive - Technical Data

Drive Cat. No.	Duty	HP	Input Line Reactor ⁽¹⁾		Output Line Reactor ⁽¹⁾	
			IP00 (Open Style)	IP11 (NEMA Type 1)	IP00 (Open Style)	IP11 (NEMA Type 1)
			Cat. No.	Cat. No.	Cat. No.	Cat. No.
20DB028	Heavy Duty	7.5	1321-3R25-B	1321-3RA25-B	1321-3R35-B	1321-3RA35-B
20DB028	Normal Duty	10	1321-3R35-B	1321-3RA35-B	1321-3R35-B	1321-3RA35-B
20DB042	Heavy Duty	10	1321-3R35-B	1321-3RA35-B	1321-3R45-B	1321-3RA45-B
20DB042	Normal Duty	15	1321-3R45-B	1321-3RA45-B	1321-3R45-B	1321-3RA45-B
20DB052	Heavy Duty	15	1321-3R45-B	1321-3RA45-B	1321-3R55-B	1321-3RA55-B
20DB052	Normal Duty	20	1321-3R55-B	1321-3RA55-B	1321-3R55-B	1321-3RA55-B
20DB070	Heavy Duty	20	1321-3R55-B	1321-3RA55-B	1321-3R80-B	1321-3RA80-B
20DB070	Normal Duty	25	1321-3R80-B	1321-3RA80-B	1321-3R80-B	1321-3RA80-B
20DB080	Heavy Duty	25	1321-3R80-B	1321-3RA80-B	1321-3R80-B	1321-3RA80-B
20DB080	Normal Duty	30	1321-3R80-B	1321-3RA80-B	1321-3R80-B	1321-3RA80-B
20DB104	Heavy Duty	30	1321-3R80-B	1321-3RA80-B	1321-3R80-B	1321-3RA80-B
20DB104	Normal Duty	40	1321-3R100-B	1321-3RA100-B	1321-3R100-B	1321-3RA100-B
20DB130	Heavy Duty	40	1321-3R100-B	1321-3RA100-B	1321-3R100-B	1321-3RA100-B
20DB130	Normal Duty	50	1321-3R130-B	1321-3RA130-B	1321-3R130-B	1321-3RA130-B
20DB154	Heavy Duty	50	1321-3R130-B	1321-3RA130-B	1321-3R130-B	1321-3RA130-B
20DB154	Normal Duty	60	1321-3R160-B	1321-3RA160-B	1321-3R160-B	1321-3RA160-B
20DB192	Heavy Duty	60	1321-3R160-B	1321-3RA160-B	1321-3R160-B	1321-3RA160-B
20DB192	Normal Duty	75	1321-3R200-B	1321-3RA200-B	1321-3R200-B	1321-3RA200-B
20DB260	Heavy Duty	75	1321-3R200-B	1321-3RA200-B	1321-3R200-B	1321-3RA200-B
20DB260	Normal Duty	100	1321-3RB250-B	1321-3RAB250-B	1321-3RB250-B	1321-3RAB250-B

⁽¹⁾ Input line reactors were sized based on the NEC fundamental motor amps. Output line reactors were sized based on the VFD rated output currents.

Input and Output Line Reactors - 480V, 60 Hz, Three-Phase, 3% Impedance

Drive Cat. No.	Duty	HP	Input Line Reactor ⁽¹⁾		Output Line Reactor ⁽¹⁾	
			IP00 (Open Style)	IP11 (NEMA Type 1)	IP00 (Open Style)	IP11 (NEMA Type 1)
			Cat. No.	Cat. No.	Cat. No.	Cat. No.
20DD1P1	Heavy Duty	0.33	1321-3R1-C	1321-3RA1-C	1321-3R2-B	1321-3RA2-B
20DD1P1	Normal Duty	0.5	1321-3R1-C	1321-3RA1-C	1321-3R2-B	1321-3RA2-B
20DD2P1	Heavy Duty	0.75	1321-3R2-A	1321-3RA2-A	1321-3R2-A	1321-3RA2-A
20DD2P1	Normal Duty	1	1321-3R2-A	1321-3RA2-A	1321-3R2-A	1321-3RA2-A
20DD3P4	Heavy Duty	1.5	1321-3R4-C	1321-3RA4-C	1321-3R4-B	1321-3RA4-B
20DD3P4	Normal Duty	2	1321-3R4-B	1321-3RA4-B	1321-3R4-B	1321-3RA4-B
20DD5P0	Heavy Duty	2	1321-3R4-B	1321-3RA4-B	1321-3R8-C	1321-3RA8-C
20DD5P0	Normal Duty	3	1321-3R8-C	1321-3RA8-C	1321-3R8-C	1321-3RA8-C
20DD8P0	Heavy Duty	3	1321-3R8-C	1321-3RA8-C	1321-3R8-B	1321-3RA8-B
20DD8P0	Normal Duty	5	1321-3R8-B	1321-3RA8-B	1321-3R8-B	1321-3RA8-B
20DD011	Heavy Duty	5	1321-3R8-B	1321-3RA8-B	1321-3R12-B	1321-3RA12-B
20DD011	Normal Duty	7.5	1321-3R12-B	1321-3RA12-B	1321-3R12-B	1321-3RA12-B
20DD014	Heavy Duty	7.5	1321-3R12-B	1321-3RA12-B	1321-3R18-B	1321-3RA18-B
20DD014	Normal Duty	10	1321-3R18-B	1321-3RA18-B	1321-3R18-B	1321-3RA18-B
20DD022	Heavy Duty	10	1321-3R18-B	1321-3RA18-B	1321-3R25-B	1321-3RA25-B
20DD022	Normal Duty	15	1321-3R25-B	1321-3RA25-B	1321-3R25-B	1321-3RA25-B
20DD027	Heavy Duty	15	1321-3R25-B	1321-3RA25-B	1321-3R25-B	1321-3RA25-B
20DD027	Normal Duty	20	1321-3R35-B	1321-3RA35-B	1321-3R25-B	1321-3RA25-B
20DD034	Heavy Duty	20	1321-3R35-B	1321-3RA35-B	1321-3R35-B	1321-3RA35-B
20DD034	Normal Duty	25	1321-3R35-B	1321-3RA35-B	1321-3R35-B	1321-3RA35-B
20DD040	Heavy Duty	25	1321-3R35-B	1321-3RA35-B	1321-3R45-B	1321-3RA45-B
20DD040	Normal Duty	30	1321-3R45-B	1321-3RA45-B	1321-3R45-B	1321-3RA45-B
20DD052	Heavy Duty	30	1321-3R45-B	1321-3RA45-B	1321-3R55-B	1321-3RA55-B
20DD052	Normal Duty	40	1321-3R55-B	1321-3RA55-B	1321-3R55-B	1321-3RA55-B
20DD065	Heavy Duty	40	1321-3R55-B	1321-3RA55-B	1321-3R80-B	1321-3RA80-B
20DD065	Normal Duty	50	1321-3R80-B	1321-3RA80-B	1321-3R80-B	1321-3RA80-B
20DD077	Heavy Duty	50	1321-3R80-B	1321-3RA80-B	1321-3R80-B	1321-3RA80-B
20DD077	Normal Duty	60	1321-3R80-B	1321-3RA80-B	1321-3R80-B	1321-3RA80-B
20DD096	Heavy Duty	60	1321-3R80-B	1321-3RA80-B	1321-3R80-B	1321-3RA80-B
20DD096	Normal Duty	75	1321-3R100-B	1321-3RA100-B	1321-3R100-B	1321-3RA100-B
20DD125	Heavy Duty	75	1321-3R100-B	1321-3RA100-B	1321-3R100-B	1321-3RA100-B

PowerFlex 700S Phase II Drive - Technical Data

Drive Cat. No.	Duty	HP	Input Line Reactor ⁽¹⁾		Output Line Reactor ⁽¹⁾	
			IP00 (Open Style)	IP11 (NEMA Type 1)	IP00 (Open Style)	IP11 (NEMA Type 1)
			Cat. No.	Cat. No.	Cat. No.	Cat. No.
20DD125	Normal Duty	100	1321-3R130-B	1321-3RA130-B	1321-3R130-B	1321-3RA130-B
20DD140	Heavy Duty	75	1321-3R100-B	1321-3RA100-B	1321-3R100-B	1321-3RA100-B
20DD140	Normal Duty	100	1321-3R130-B	1321-3RA130-B	1321-3R130-B	1321-3RA130-B
20DD156	Heavy Duty	100	1321-3R130-B	1321-3RA130-B	1321-3R130-B	1321-3RA130-B
20DD156	Normal Duty	125	1321-3R160-B	1321-3RA160-B	1321-3R160-B	1321-3RA160-B
20DD180	Heavy Duty	125	1321-3R160-B	1321-3RA160-B	1321-3R160-B	1321-3RA160-B
20DD180	Normal Duty	150	1321-3R200-B	1321-3RA200-B	1321-3R200-C	1321-3RA200-C
20DD248	Heavy Duty	150	1321-3R200-B	1321-3RA200-B	1321-3R200-C	1321-3RA200-C
20DD248	Normal Duty	200	1321-3RB250-B	1321-3RAB250-B	1321-3RB250-B	1321-3RAB250-B
20DD261	Heavy Duty	150	1321-3R200-B	1321-3RA200-B	1321-3R200-B	1321-3RA200-B
20DD261	Normal Duty	200	1321-3RB250-B	1321-3RAB250-B	1321-3RB250-B	1321-3RAB250-B
20DD300	Heavy Duty	200	1321-3RB250-B	1321-3RAB250-B	1321-3RB250-B	1321-3RAB250-B

⁽¹⁾ Input line reactors were sized based on the NEC fundamental motor amps. Output line reactors were sized based on the VFD rated output currents.

Input and Output Line Reactors - 480V, 60 Hz, Three-Phase, 5% Impedance

Drive Cat. No.	Duty	HP	Input Line Reactor ⁽¹⁾		Output Line Reactor ⁽¹⁾	
			IP00 (Open Style)	IP11 (NEMA Type 1)	IP00 (Open Style)	IP11 (NEMA Type 1)
			Cat. No.	Cat. No.	Cat. No.	Cat. No.
20DD1P1	Heavy Duty	0.33	1321-3R1-B	1321-3RA1-B	1321-3R2-C	1321-3RA2-C
20DD1P1	Normal Duty	0.5	1321-3R1-B	1321-3RA1-B	1321-3R2-C	1321-3RA2-C
20DD2P1	Heavy Duty	0.75	1321-3R2-C	1321-3RA2-C	1321-3R2-B	1321-3RA2-B
20DD2P1	Normal Duty	1	1321-3R2-B	1321-3RA2-B	1321-3R2-B	1321-3RA2-B
20DD3P4	Heavy Duty	1.5	1321-3R4-D	1321-3RA4-D	1321-3R4-D	1321-3RA4-D
20DD3P4	Normal Duty	2	1321-3R4-D	1321-3RA4-D	1321-3R4-D	1321-3RA4-D
20DD5P0	Heavy Duty	2	1321-3R4-D	1321-3RA4-D	1321-3R8-D	1321-3RA8-D
20DD5P0	Normal Duty	3	1321-3R8-D	1321-3RA8-D	1321-3R8-D	1321-3RA8-D
20DD8P0	Heavy Duty	3	1321-3R8-D	1321-3RA8-D	1321-3R8-C	1321-3RA8-C
20DD8P0	Normal Duty	5	1321-3R8-C	1321-3RA8-C	1321-3R8-C	1321-3RA8-C
20DD011	Heavy Duty	5	1321-3R8-C	1321-3RA8-C	1321-3R12-C	1321-3RA12-C
20DD011	Normal Duty	7.5	1321-3R12-C	1321-3RA12-C	1321-3R12-C	1321-3RA12-C
20DD014	Heavy Duty	7.5	1321-3R12-C	1321-3RA12-C	1321-3R18-C	1321-3RA18-C
20DD014	Normal Duty	10	1321-3R18-C	1321-3RA18-C	1321-3R18-C	1321-3RA18-C
20DD022	Heavy Duty	10	1321-3R18-C	1321-3RA18-C	1321-3R25-C	1321-3RA25-C
20DD022	Normal Duty	15	1321-3R25-C	1321-3RA25-C	1321-3R25-C	1321-3RA25-C
20DD027	Heavy Duty	15	1321-3R25-C	1321-3RA25-C	1321-3R25-C	1321-3RA25-C
20DD027	Normal Duty	20	1321-3R35-C ⁽²⁾	1321-3RA35-C ⁽²⁾	1321-3R25-C	1321-3RA25-C
20DD034	Heavy Duty	20	1321-3R35-C ⁽²⁾	1321-3RA35-C ⁽²⁾	1321-3R35-C	1321-3RA35-C
20DD034	Normal Duty	25	1321-3R35-C	1321-3RA35-C	1321-3R35-C	1321-3RA35-C
20DD040	Heavy Duty	25	1321-3R35-C	1321-3RA35-C	1321-3R45-C	1321-3RA45-C
20DD040	Normal Duty	30	1321-3R45-C	1321-3RA45-C	1321-3R45-C	1321-3RA45-C
20DD052	Heavy Duty	30	1321-3R45-C	1321-3RA45-C	1321-3R55-C	1321-3RA55-C
20DD052	Normal Duty	40	1321-3R55-C	1321-3RA55-C	1321-3R55-C	1321-3RA55-C
20DD065	Heavy Duty	40	1321-3R55-C	1321-3RA55-C	1321-3R80-C	1321-3RA80-C
20DD065	Normal Duty	50	1321-3R80-C	1321-3RA80-C	1321-3R80-C	1321-3RA80-C
20DD077	Heavy Duty	50	1321-3R80-C	1321-3RA80-C	1321-3R80-C	1321-3RA80-C
20DD077	Normal Duty	60	1321-3R80-C	1321-3RA80-C	1321-3R80-C	1321-3RA80-C
20DD096	Heavy Duty	60	1321-3R80-C	1321-3RA80-C	1321-3R80-C	1321-3RA80-C
20DD096	Normal Duty	75	1321-3R100-C	1321-3RA100-C	1321-3R100-C	1321-3RA100-C
20DD125	Heavy Duty	75	1321-3R100-C	1321-3RA100-C	1321-3R100-C	1321-3RA100-C
20DD125	Normal Duty	100	1321-3R130-C	1321-3RA130-C	1321-3R130-C	1321-3RA130-C
20DD140	Heavy Duty	75	1321-3R100-C	1321-3RA100-C	1321-3R100-C	1321-3RA100-C
20DD140	Normal Duty	100	1321-3R130-C	1321-3RA130-C	1321-3R130-C	1321-3RA130-C
20DD156	Heavy Duty	100	1321-3R130-C	1321-3RA130-C	1321-3R130-C	1321-3RA130-C
20DD156	Normal Duty	125	1321-3R160-C	1321-3RA160-C	1321-3R160-C	1321-3RA160-C
20DD180	Heavy Duty	125	1321-3R160-C	1321-3RA160-C	1321-3R160-C	1321-3RA160-C
20DD180	Normal Duty	150	1321-3R200-C	1321-3RA200-C	1321-3R200-C ⁽²⁾	1321-3RA200-C ⁽²⁾
20DD248	Heavy Duty	150	1321-3R200-C	1321-3RA200-C	1321-3R200-C ⁽²⁾	1321-3RA200-C ⁽²⁾

PowerFlex 700S Phase II Drive - Technical Data

Drive Cat. No.	Duty	HP	Input Line Reactor ⁽¹⁾		Output Line Reactor ⁽¹⁾	
			IP00 (Open Style)	IP11 (NEMA Type 1)	IP00 (Open Style)	IP11 (NEMA Type 1)
			Cat. No.	Cat. No.	Cat. No.	Cat. No.
20DD248	Normal Duty	200	1321-3RB250-C	1321-3RAB250-C	1321-3RB250-C	1321-3RAB250-C
20DD261	Heavy Duty	200	1321-3R200-C	1321-3RA200-C	1321-3R200-C	1321-3RA200-C
20DD261	Normal Duty	200	1321-3RB250-C	1321-3RAB250-C	1321-3RB250-C	1321-3RAB250-C
20DD300	Heavy Duty	150	1321-3RB250-C	1321-3RAB250-C	1321-3RB250-C	1321-3RAB250-C

(1) Input line reactors were sized based on the NEC fundamental motor amps. Output line reactors were sized based on the VFD rated output currents.

(2) 4% impedance.

Input and Output Line Reactors - 600V, 60 Hz, Three-Phase, 3% Impedance

Drive Cat. No.	Duty	HP	Input Line Reactor ⁽¹⁾		Output Line Reactor ⁽¹⁾	
			IP00 (Open Style)	IP11 (NEMA Type 1)	IP00 (Open Style)	IP11 (NEMA Type 1)
			Cat. No.	Cat. No.	Cat. No.	Cat. No.
20DE1P7	Heavy Duty	0.5	1321-3R1-C	1321-3RA1-C	1321-3R2-B	1321-3RA2-B
20DE1P7	Normal Duty	1	1321-3R2-B	1321-3RA2-B	1321-3R2-B	1321-3RA2-B
20DE2P7	Heavy Duty	1	1321-3R2-B	1321-3RA2-B	1321-3R4-D	1321-3RA4-D
20DE2P7	Normal Duty	2	1321-3R4-D	1321-3RA4-D	1321-3R4-D	1321-3RA4-D
20DE3P9	Heavy Duty	2	1321-3R4-D	1321-3RA4-D	1321-3R4-C	1321-3RA4-C
20DE3P9	Normal Duty	3	1321-3R4-C	1321-3RA4-C	1321-3R4-C	1321-3RA4-C
20DE6P1	Heavy Duty	3	1321-3R4-C	1321-3RA4-C	1321-3R8-C	1321-3RA8-C
20DE6P1	Normal Duty	5	1321-3R8-C	1321-3RA8-C	1321-3R8-C	1321-3RA8-C
20DE9P0	Heavy Duty	5	1321-3R8-C	1321-3RA8-C	1321-3R12-C	1321-3RA12-C
20DE9P0	Normal Duty	7.5	1321-3R12-C	1321-3RA12-C	1321-3R12-C	1321-3RA12-C
20DE011	Heavy Duty	7.5	1321-3R12-C	1321-3RA12-C	1321-3R12-B	1321-3RA12-B
20DE011	Normal Duty	10	1321-3R12-B	1321-3RA12-B	1321-3R12-B	1321-3RA12-B
20DE017	Heavy Duty	10	1321-3R12-B	1321-3RA12-B	1321-3R18-B	1321-3RA18-B
20DE017	Normal Duty	15	1321-3R18-B	1321-3RA18-B	1321-3R18-B	1321-3RA18-B
20DE022	Heavy Duty	15	1321-3R18-B	1321-3RA18-B	1321-3R25-B	1321-3RA25-B
20DE022	Normal Duty	20	1321-3R25-B	1321-3RA25-B	1321-3R25-B	1321-3RA25-B
20DE027	Heavy Duty	20	1321-3R25-B	1321-3RA25-B	1321-3R35-C	1321-3RA35-C
20DE027	Normal Duty	25	1321-3R35-C	1321-3RA35-C	1321-3R35-C	1321-3RA35-C
20DE032	Heavy Duty	25	1321-3R35-C	1321-3RA35-C	1321-3R35-B	1321-3RA35-B
20DE032	Normal Duty	30	1321-3R35-B	1321-3RA35-B	1321-3R35-B	1321-3RA35-B
20DE041	Heavy Duty	30	1321-3R35-B	1321-3RA35-B	1321-3R45-B	1321-3RA45-B
20DE041	Normal Duty	40	1321-3R45-B	1321-3RA45-B	1321-3R45-B	1321-3RA45-B
20DE052	Heavy Duty	40	1321-3R45-B	1321-3RA45-B	1321-3R55-B	1321-3RA55-B
20DE052	Normal Duty	50	1321-3R55-B	1321-3RA55-B	1321-3R55-B	1321-3RA55-B
20DE062	Heavy Duty	50	1321-3R55-B	1321-3RA55-B	1321-3R80-B	1321-3RA80-B
20DE062	Normal Duty	60	1321-3R80-B	1321-3RA80-B	1321-3R80-B	1321-3RA80-B
20DE077	Heavy Duty	60	1321-3R80-B	1321-3RA80-B	1321-3R80-B	1321-3RA80-B
20DE077	Normal Duty	75	1321-3R80-B	1321-3RA80-B	1321-3R80-B	1321-3RA80-B
20DE099	Heavy Duty	75	1321-3R80-B	1321-3RA80-B	1321-3R80-B	1321-3RA80-B
20DE099	Normal Duty	100	1321-3R100-B	1321-3RA100-B	1321-3R100-B	1321-3RA100-B
20DE125	Heavy Duty	100	1321-3R100-B	1321-3RA100-B	1321-3R100-B	1321-3RA100-B
20DE125	Normal Duty	125	1321-3R130-B	1321-3RA130-B	1321-3R130-B	1321-3RA130-B
20DE144	Heavy Duty	125	1321-3R130-B	1321-3RA130-B	1321-3R130-B	1321-3RA130-B
20DE144	Normal Duty	150	1321-3R160-B	1321-3RA160-B	1321-3R160-B	1321-3RA160-B

(1) Input line reactors were sized based on the NEC fundamental motor amps. Output line reactors were sized based on the VFD rated output currents.

Input and Output Line Reactors - 600V, 60 Hz, Three-Phase, 5% Impedance

Drive Cat. No.	Duty	HP	Input Line Reactor (1)		Output Line Reactor (1)	
			IP00 (Open Style)	IP11 (NEMA Type 1)	IP00 (Open Style)	IP11 (NEMA Type 1)
			Cat. No.	Cat. No.	Cat. No.	Cat. No.
20DE1P7	Heavy Duty	0.5	1321-3R1-B	1321-3RA1-B	1321-3R2-C	1321-3RA2-C
20DE1P7	Normal Duty	1	1321-3R2-C	1321-3RA2-C	1321-3R2-C	1321-3RA2-C
20DE2P7	Heavy Duty	1	1321-3R2-C	1321-3RA2-C	1321-3R4-D (2)	1321-3RA4-D (2)
20DE2P7	Normal Duty	2	1321-3R4-D (2)	1321-3RA4-D (2)	1321-3R4-D (2)	1321-3RA4-D (2)
20DE3P9	Heavy Duty	2	1321-3R4-D (2)	1321-3RA4-D (2)	1321-3R4-D	1321-3RA4-D
20DE3P9	Normal Duty	3	1321-3R4-D	1321-3RA4-D	1321-3R4-D	1321-3RA4-D
20DE6P1	Heavy Duty	3	1321-3R4-D	1321-3RA4-D	1321-3R8-D	1321-3RA8-D
20DE6P1	Normal Duty	5	1321-3R8-D	1321-3RA8-D	1321-3R8-D	1321-3RA8-D
20DE9P0	Heavy Duty	5	1321-3R8-D	1321-3RA8-D	1321-3R12-C (2)	1321-3RA12-C (2)
20DE9P0	Normal Duty	7.5	1321-3R12-C (2)	1321-3RA12-C (2)	1321-3R12-C (2)	1321-3RA12-C (2)
20DE011	Heavy Duty	7.5	1321-3R12-C (2)	1321-3RA12-C (2)	1321-3R12-C	1321-3RA12-C
20DE011	Normal Duty	10	1321-3R12-C	1321-3RA12-C	1321-3R12-C	1321-3RA12-C
20DE017	Heavy Duty	10	1321-3R12-C	1321-3RA12-C	1321-3R18-C	1321-3RA18-C
20DE017	Normal Duty	15	1321-3R18-C	1321-3RA18-C	1321-3R18-C	1321-3RA18-C
20DE022	Heavy Duty	15	1321-3R18-C	1321-3RA18-C	1321-3R25-C (2)	1321-3RA25-C (2)
20DE022	Normal Duty	20	1321-3R25-C (2)	1321-3RA25-C (2)	1321-3R25-C (2)	1321-3RA25-C (2)
20DE027	Heavy Duty	20	1321-3R25-C (2)	1321-3RA25-C (2)	1321-3R35-C (2)	1321-3RA35-C (2)
20DE027	Normal Duty	25	1321-3R35-C (2)	1321-3RA35-C (2)	1321-3R35-C (2)	1321-3RA35-C (2)
20DE032	Heavy Duty	25	1321-3R35-C (2)	1321-3RA35-C (2)	1321-3R35-C (2)	1321-3RA35-C (2)
20DE032	Normal Duty	30	1321-3R35-C (2)	1321-3RA35-C (2)	1321-3R35-C (2)	1321-3RA35-C (2)
20DE041	Heavy Duty	30	1321-3R35-C (2)	1321-3RA35-C (2)	1321-3R45-C	1321-3RA45-C
20DE041	Normal Duty	40	1321-3R45-C	1321-3RA45-C	1321-3R45-C	1321-3RA45-C
20DE052	Heavy Duty	40	1321-3R45-C	1321-3RA45-C	1321-3R55-C	1321-3RA55-C
20DE052	Normal Duty	50	1321-3R55-C	1321-3RA55-C	1321-3R55-C	1321-3RA55-C
20DE062	Heavy Duty	50	1321-3R55-C	1321-3RA55-C	1321-3R80-C	1321-3RA80-C
20DE062	Normal Duty	60	1321-3R80-C	1321-3RA80-C	1321-3R80-C	1321-3RA80-C
20DE077	Heavy Duty	60	1321-3R80-C	1321-3RA80-C	1321-3R80-C	1321-3RA80-C
20DE077	Normal Duty	75	1321-3R80-C	1321-3RA80-C	1321-3R80-C	1321-3RA80-C
20DE099	Heavy Duty	75	1321-3R80-C	1321-3RA80-C	1321-3R80-C	1321-3RA80-C
20DE099	Normal Duty	100	1321-3R100-C	1321-3RA100-C	1321-3R100-C	1321-3RA100-C
20DE125	Heavy Duty	100	1321-3R100-C	1321-3RA100-C	1321-3R100-C	1321-3RA100-C
20DE125	Normal Duty	125	1321-3R130-C (2)	1321-3RA130-C (2)	1321-3R130-C (2)	1321-3RA130-C (2)
20DE144	Heavy Duty	125	1321-3R130-C (2)	1321-3RA130-C (2)	1321-3R130-C (2)	1321-3RA130-C (2)
20DE144	Normal Duty	150	1321-3R160-C (2)	1321-3RA160-C (2)	1321-3R160-C (2)	1321-3RA160-C (2)

(1) Input line reactors were sized based on the NEC fundamental motor amps. Output line reactors were sized based on the VFD rated output currents.
 (2) 4% impedance.

Installation Considerations

Power Wiring

By providing built in input MOVs (line to line and line to ground) for robust transient protection, ground fault and short circuit protection, electronic motor overload, built in noise filtering, patented reflected wave reduction software and others, the PowerFlex 700S design addresses many of the concerns in a typical installation. Below are other considerations that you may need to address.

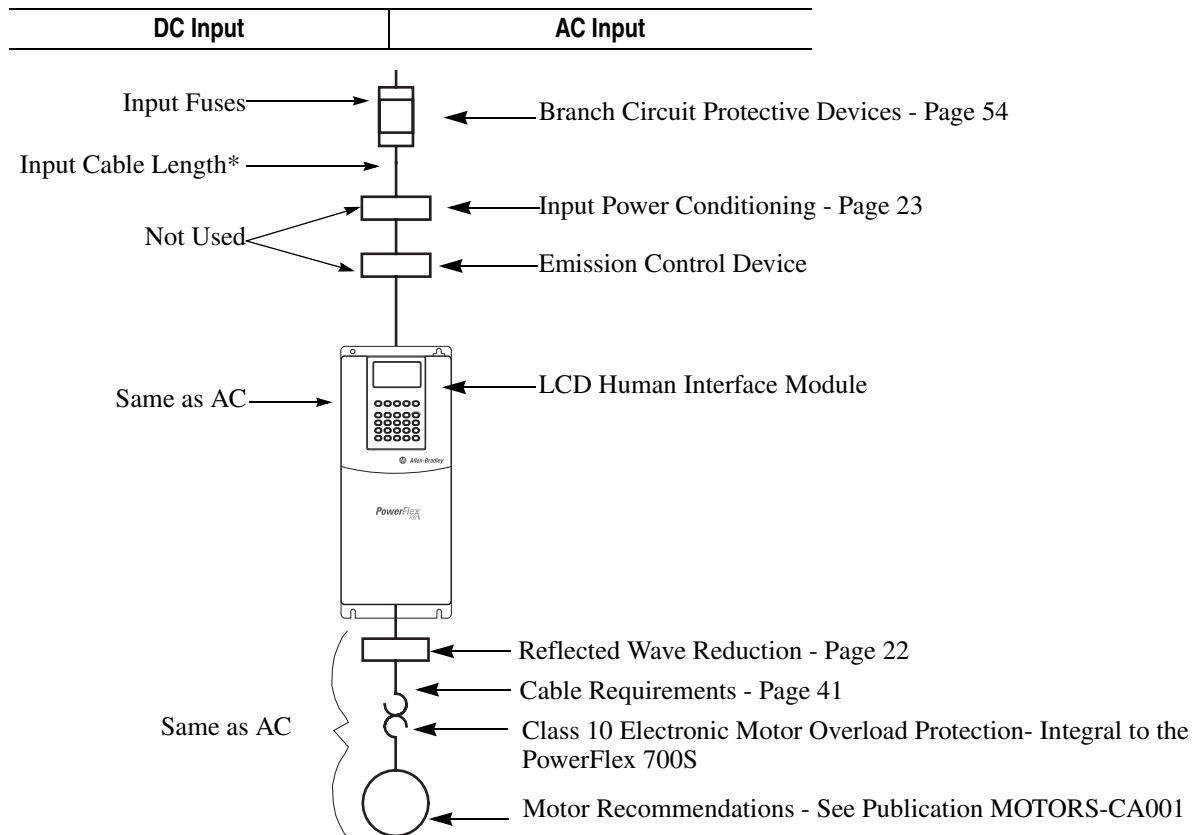
Peak Voltage Protection for Motors with Lower Insulation Systems

While the PowerFlex 700S contains the very best in reflected wave reduction techniques, some motors may have insulation systems with values well below the NEMA standards. While these motors may perform to expectations, they must be protected from the reflected wave transients that all PWM drives produce. Refer to Page 68 for cable length recommendations and Page 22 for reflected wave reduction options.

Proper Grounding and Related Noise

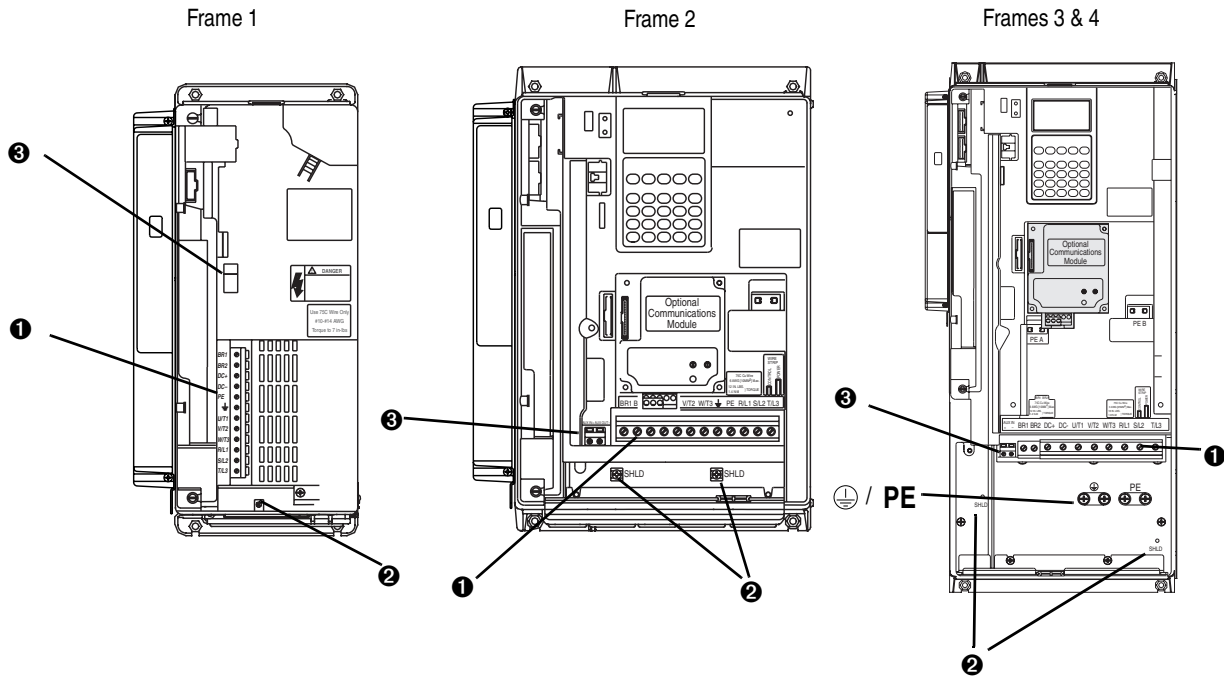
The starting point for any solid drive installation is proper grounding techniques. Most commonly observed noise problems can be easily eliminated with quality installation practices. Refer to publication DRIVES-IN001, "Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives" for complete information.

The block diagram below also provides direction on other installation issues and concerns.



* Input Cable Length is limited. See Publication 20D-UM006 for further details.

Power Terminal Block Specifications, Frames 1 - 4



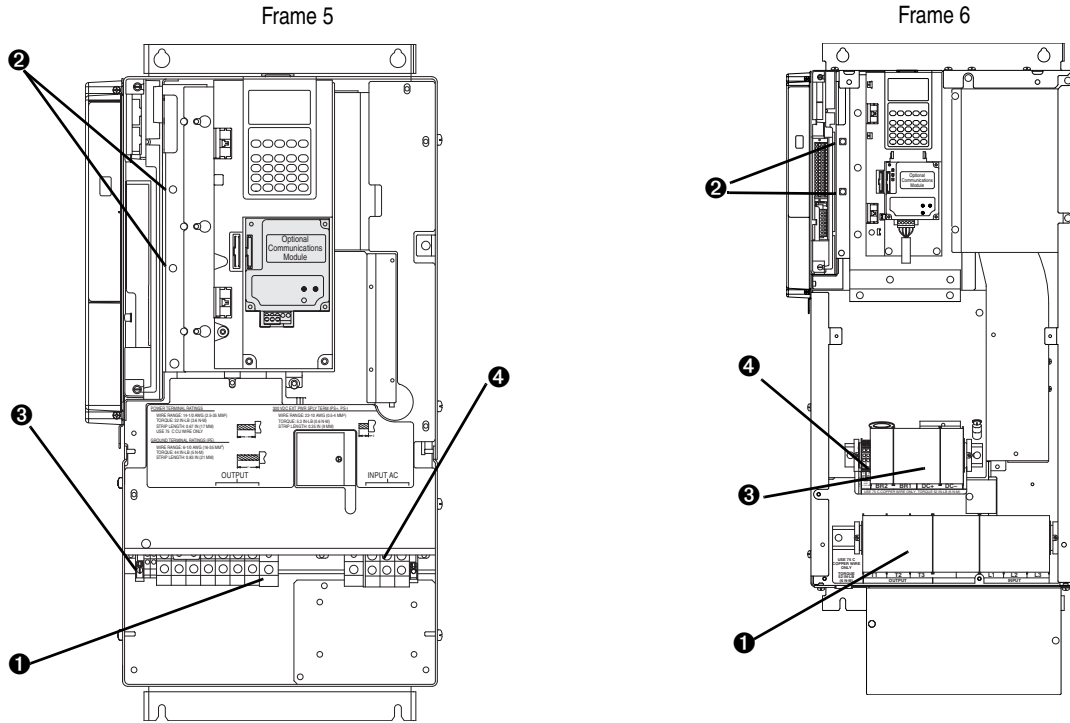
No.	Name	Frame	Description	Wire Size Range ⁽²⁾		Torque		Terminal Bolt Size ⁽³⁾
				Maximum	Minimum	Maximum	Recommended	
1	Power Terminal Block	1	Input power and motor connections	4.0 mm ² (10 AWG)	0.5 mm ² (22 AWG)	1.7 N-m (15 lb.-in.)	0.8 N-m (7 lb.-in.)	—
		2	Input power and motor connections	10.0 mm ² (6 AWG)	0.8 mm ² (18 AWG)	1.7 N-m (15 lb.-in.)	1.4 N-m (12 lb.-in.)	—
		3	Input power and motor connections	25.0 mm ² (3 AWG)	2.5 mm ² (14 AWG)	3.6 N-m (32 lb.-in.)	1.8 N-m (16 lb.-in.)	—
			BR1, BR2	10.0 mm ² (6 AWG)	0.8 mm ² (18 AWG)	1.7 N-m (15 lb.-in.)	1.4 N-m (12 lb.-in.)	—
		4	Input power and motor connections	35.0 mm ² (1/0 AWG)	10 mm ² (8 AWG)	4.0 N-m (24 lb.-in.)	4.0 N-m (24 lb.-in.)	—
2	SHLD Terminal	1-4	Terminating point for wiring shields	—	—	1.6 N-m (14 lb.-in.)	1.6 N-m (14 lb.-in.)	—
3	AUX Terminal Block	1-4	Auxiliary Control Voltage ⁽¹⁾ PS+, PS-	1.5 mm ² (16 AWG)	0.2 mm ² (24 AWG)	—	—	—

(1) External control power: UL Installation - 300V DC, ±10%, Non UL Installation - 270-600V DC, ±10%. Frame 1-6, 100 W

(2) Maximum/minimum sizes that the terminal block will accept - these are not recommendations.

(3) Apply counter torque to the nut on the other side of terminations when tightening or loosening the terminal bolt in order to avoid damage to the terminal.

Power Terminal Specifications, Frames 5 & 6



No.	Name	Frame	Description	Wire Size Range ⁽³⁾		Torque		Terminal Bolt Size ⁽⁶⁾
				Maximum	Minimum	Maximum	Recommended	
❶	Power Terminal Block	5 (75 HP) ⁽¹⁾	R, S, T, BR1, 2, DC+, DC-, U, V and W	50.0 mm ² (1/0 AWG)	2.5 mm ² (14 AWG)	See Note ⁽⁵⁾	See Note ⁽⁵⁾	—
			PE	50.0 mm ² (1/0 AWG)	4.0 mm ² (12 AWG)			—
		5 (100 HP) ⁽¹⁾	R, S, T, DC+, DC-, U, V and W	70.0 mm ² (2/0 AWG)	16.0 mm ² (6 AWG)			—
			BR1, BR2	50.0 mm ² (1/0 AWG)	2.5 mm ² (14 AWG)			—
6	Input power and motor connections	50.0 mm ² (1/0 AWG)	4.0 mm ² (12 AWG)	6 N-m (52 lb.-in.)	6 N-m (52 lb.-in.)	—		
		120.0 mm ² (4/0 AWG) ⁽⁴⁾	2.5 mm ² (14 AWG)	6 N-m (52 lb.-in.)	6 N-m (52 lb.-in.)	—		
❷	SHLD Terminal	5 & 6	Terminating point for wiring shields	—	—	1.6 N-m (14 lb.-in.)	1.6 N-m (14 lb.-in.)	—
❸	AUX Terminal Block	5 & 6	Auxiliary Control Voltage ⁽²⁾ PS+, PS-	4.0 mm ² (10 AWG)	0.5 mm ² (22 AWG)	0.6 N-m (5.3 lb.-in.)	0.6 N-m (5.3 lb.-in.)	—
❹	Fan Terminal Block (Common Bus Only)	5 & 6	User Supplied Fan Voltage 0V AC, 120V AC, 240V AC	4.0 mm ² (10 AWG)	0.5 mm ² (22 AWG)	0.6 N-m (5.3 lb.-in.)	0.6 N-m (5.3 lb.-in.)	—

(1) Not all terminals present on all drives.

(2) External control power: UL Installation - 300V DC, ±10%, Non UL Installation - 270-600V DC, ±10%. Frame 1-6, 100 W

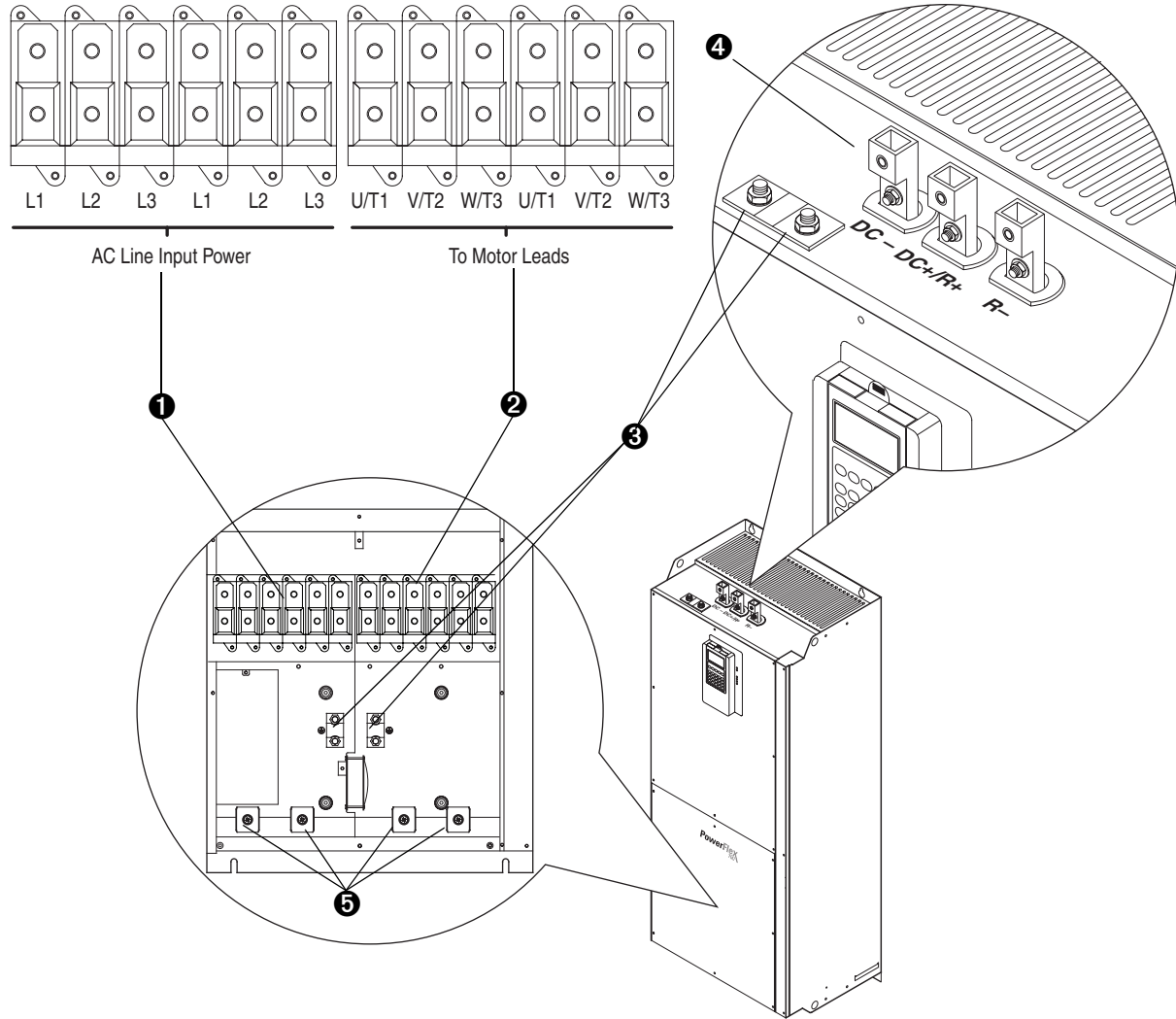
(3) Maximum/minimum sizes that the terminal block will accept - these are not recommendations.

(4) If necessary, two wires can be used in parallel to any of these terminals using two lugs.

(5) Refer to the terminal block label inside the drive.

(6) Apply counter torque to the nut on the other side of terminations when tightening or loosening the terminal bolt in order to avoid damage to the terminal.

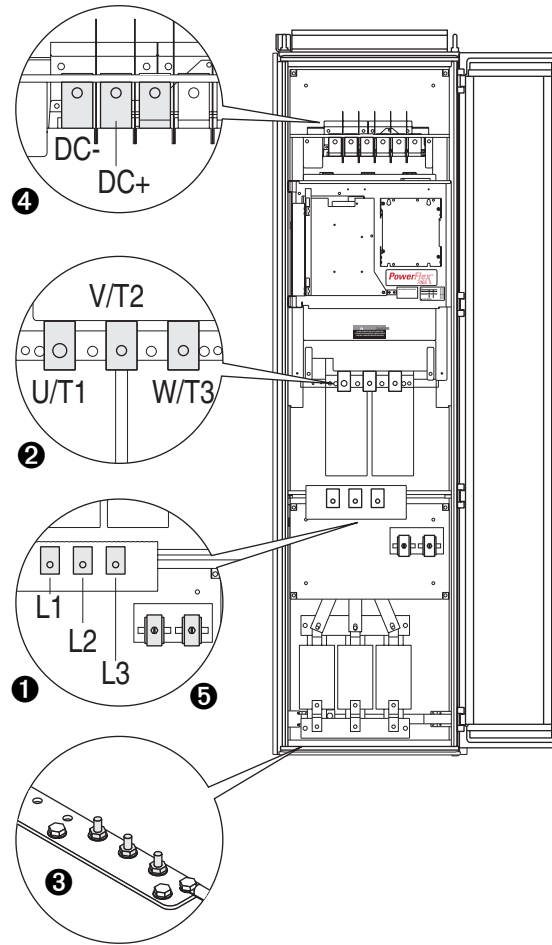
Power Terminal Block Specifications, Frame 9



No.	Name	Description	Wire Size Range ⁽³⁾		Torque
			Maximum	Minimum	Recommended
1	Input Power Terminal Block ⁽¹⁾ L1, L2, L3	Input power	185.0 mm ² (350 MCM)	95.0 mm ² (4/0 AWG)	40 N-m (354 lb.-in.)
2	Output Power Terminal Block ⁽¹⁾ U/T1, V/T2, W/T3	Motor connections	185.0 mm ² (350 MCM)	95.0 mm ² (4/0 AWG)	40 N-m (354 lb.-in.)
3	SHLD Terminal, PE, Motor Ground	Terminating point for wiring shields	95.0 mm ² (4/0 AWG)	5.0 mm ² (10 AWG)	22 N-m (195 lb.-in.)
4	DC Bus ⁽²⁾ (2 Terminals; DC-, DC+)	DC input or external brake <i>(Internal Brake option not ordered)</i>	185.0 mm ² (350 MCM)	95.0 mm ² (4/0 AWG)	40 N-m (354 lb.-in.)
	DC Bus w/Brake ⁽²⁾ (3 Terminals; DC-, DC+/R+, R-)	DC input/internal brake <i>(Internal Brake option is ordered)</i>	185.0 mm ² (350 MCM)	95.0 mm ² (4/0 AWG)	40 N-m (354 lb.-in.)
5	Cable Clamp for Shield				

(1) Do Not exceed maximum wire size. Parallel connections may be required.
 (2) DC terminal and brake lugs can be removed.
 (3) Maximum/minimum sizes that the terminal block will accept - these are not recommendations.

Power Terminal Block Specifications, Frame 10



No.	Name	Description	Wire Size Range ⁽¹⁾⁽²⁾		Torque	Terminal Bolt Size ⁽³⁾ (4)
			Maximum	Minimum	Recommended	
1	Input Power Terminal Block L1, L2, L3 ⁽³⁾	Input power	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M12
2	Output Power Terminal Block ⁽³⁾ U/T1, V/T2, W/T3	Motor connections	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M12
3	SHLD Terminal, PE, Motor Ground ⁽³⁾	Terminating point for wiring shields	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M10
4	DC Bus ⁽³⁾ (2 Terminals; DC-, DC+)	DC input or external brake	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M12
5	Cable Clamp for Shield					

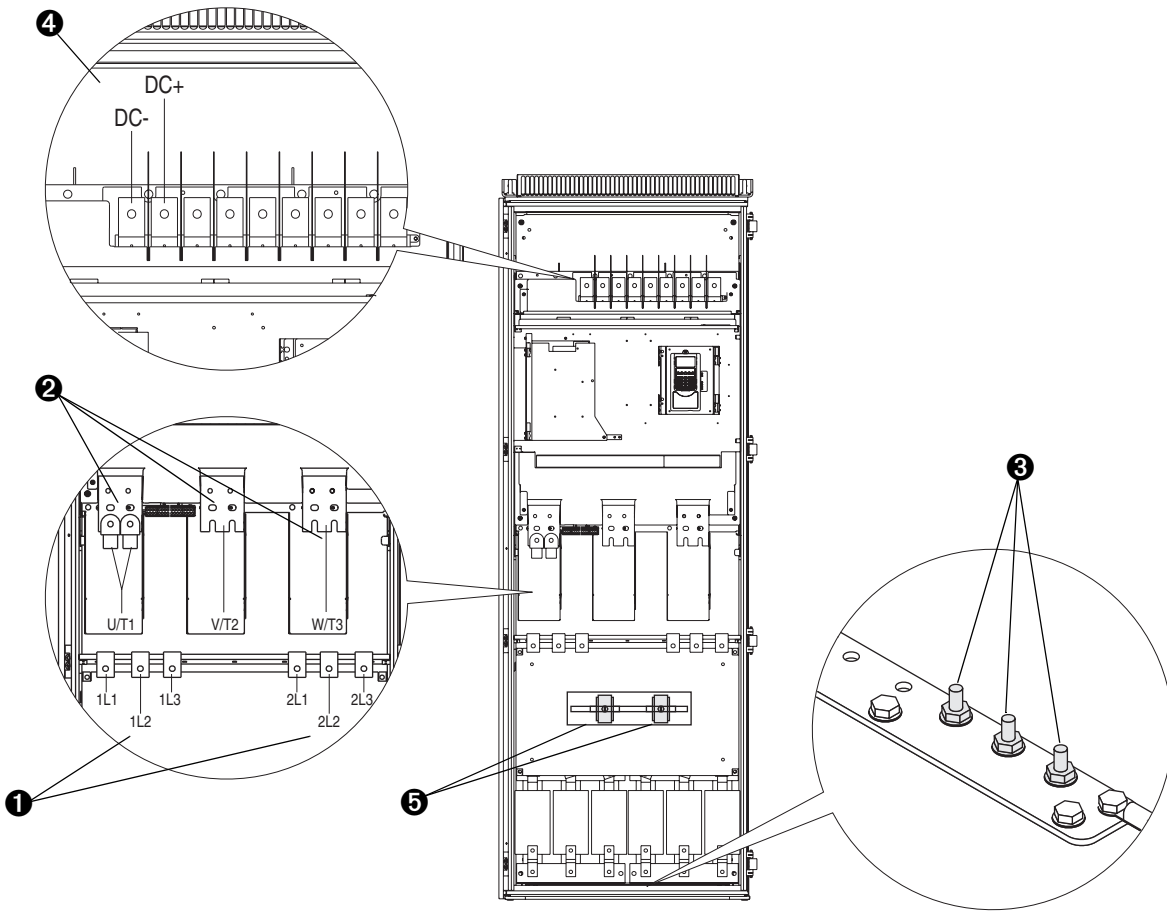
(1) Maximum/minimum sizes that the terminal block will accept - these are not recommendations.

(2) Do Not exceed maximum wire size. Parallel connections may be required.

(3) These connections are bus bar type terminations and require the use of lug type connectors.

(4) Apply counter torque to the nut on the other side of terminations when tightening or loosening the terminal bolt in order to avoid damage to the terminal.

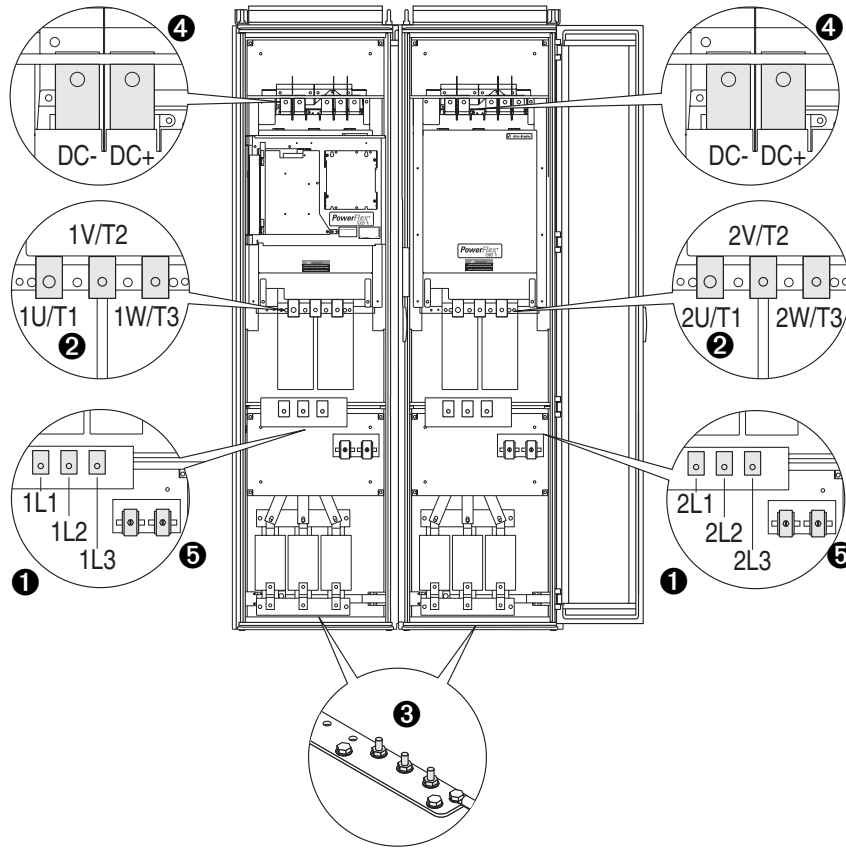
Power Terminal Specifications, Frame 11



No.	Name	Description	Wire Size Range ⁽¹⁾⁽²⁾		Torque	Terminal Bolt Size ^{(3) (4)}
			Maximum	Minimum	Recommended	
1	Input Power Terminal Block 1L1, 1L2, 1L3, 2L1, 2L2, 2L3 ⁽³⁾	AC Input power	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M12
2	Output Power Terminal Block ⁽³⁾ U/T1, V/T2, W/T3	Motor connections	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M12
3	SHLD Terminal, PE, Motor Ground ⁽³⁾	Terminating point for wiring shields	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M10
4	DC Bus ⁽³⁾ (2 Terminals; DC-, DC+)	DC input or external brake	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M12
5	Cable Clamp for Shield					

- (1) Maximum/minimum sizes that the terminal block will accept - these are not recommendations.
- (2) Do Not exceed maximum wire size. Parallel connections may be required.
- (3) These connections are bus bar type terminations and require the use of lug type connectors.
- (4) Apply counter torque to the nut on the other side of terminations when tightening or loosening the terminal bolt in order to avoid damage to the terminal.

Power Terminal Specifications, Frame 12



No.	Name	Description	Wire Size Range ⁽¹⁾⁽²⁾		Torque	Terminal Bolt Size ^{(3) (4)}
			Maximum	Minimum		
1	Input Power Terminal Block 1L1, 1L2, 1L3, 2L1, 2L2, 2L3 ⁽³⁾	Input power	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M12
2	Output Power Terminal Block ⁽³⁾ 1U/1T1, 1V/1T2, 1W/1T3, 2U/2T1, 2V/2T2, 2W/2T3	Motor connections	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M12
3	SHLD Terminal, PE, Motor Ground ⁽³⁾	Terminating point for wiring shields	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M10
4	DC Bus ⁽³⁾ (2 Terminals; DC-, DC+)	DC input or external brake	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M12
5	Cable Clamp for Shield					

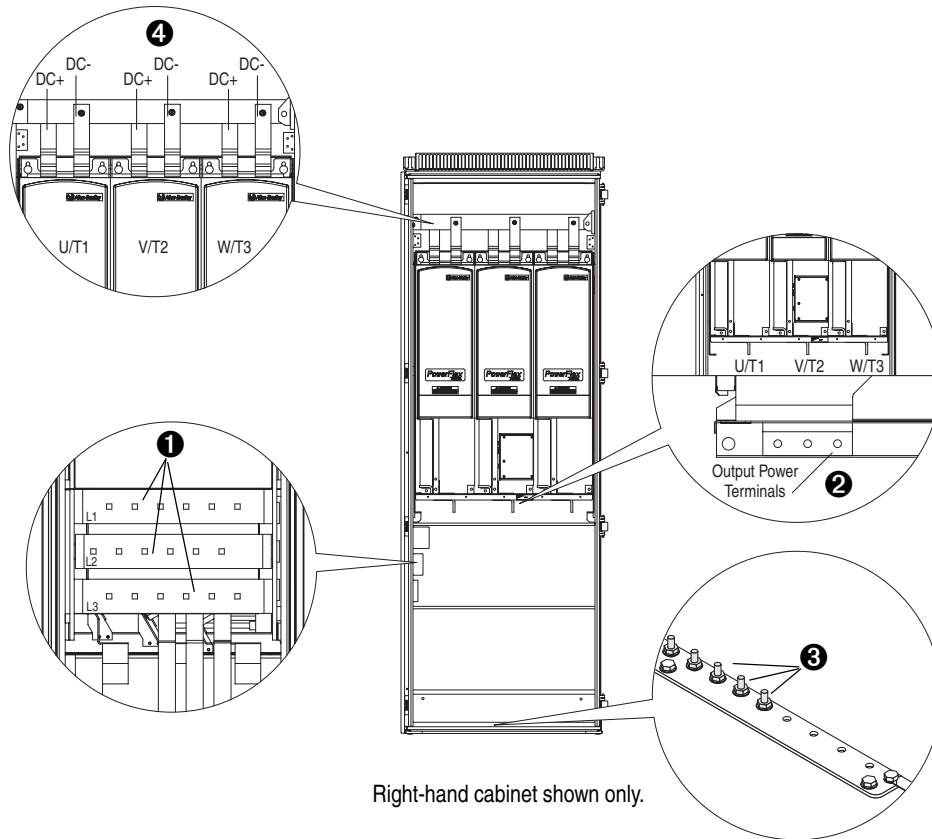
(1) Maximum/minimum sizes that the terminal block will accept - these are not recommendations.

(2) Do Not exceed maximum wire size. Parallel connections may be required.

(3) These connections are bus bar type terminations and require the use of lug type connectors.

(4) Apply counter torque to the nut on the other side of terminations when tightening or loosening the terminal bolt in order to avoid damage to the terminal.

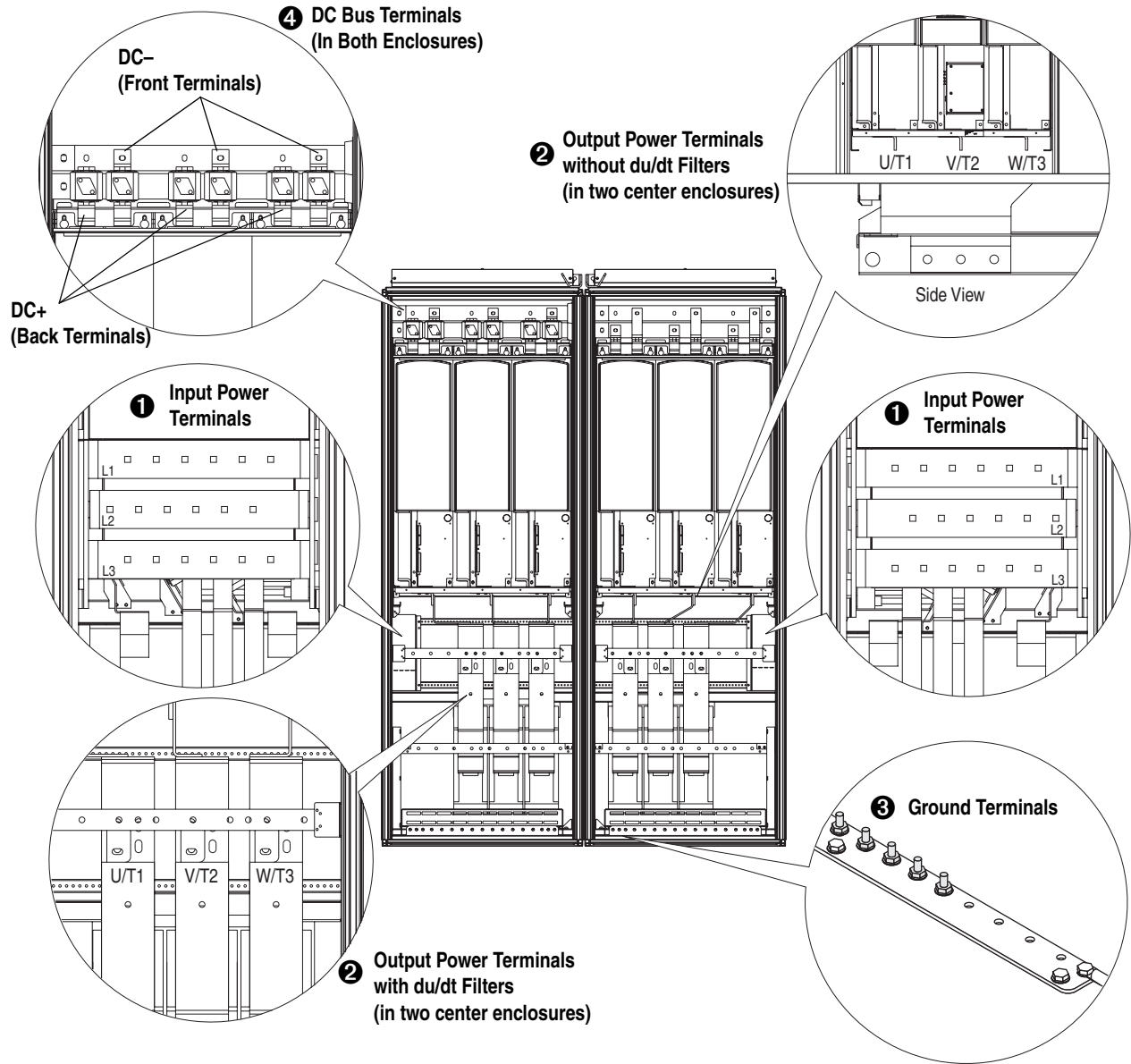
Power Terminal Specifications, Frame 13



No.	Name	Description	Wire Size Range ⁽¹⁾⁽²⁾		Torque	Terminal Bolt Size ^{(3) (4)}
			Maximum	Minimum	Recommended	
1	Input Power Terminal Block L1, L2, L3 ⁽¹⁾	Input power	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M12
2	Output Power Terminal Block ⁽³⁾ U/T1, V/T2, W/T3	Motor connections	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M12
3	SHLD Terminal, PE, Motor Ground ⁽³⁾	Terminating point for wiring shields	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M10
4	DC Bus ⁽³⁾ (3 Terminals; DC-, DC+)	DC input or external brake	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M12

(1) Maximum/minimum sizes that the terminal block will accept - these are not recommendations.
 (2) Do Not exceed maximum wire size. Parallel connections may be required.
 (3) These connections are bus bar type terminations and require the use of lug type connectors.
 (4) Apply counter torque to the nut on the other side of terminations when tightening or loosening the terminal bolt in order to avoid damage to the terminal.

Power Terminal Specifications, Frame 14 (Example of Drive Above 1500A Shown)



No.	Name	Description	Wire Size Range ⁽¹⁾⁽²⁾		Torque	Terminal Bolt Size ^{(3) (4)}
			Maximum	Minimum	Recommended	
①	Input Power Terminal Block L1, L2, L3 ⁽¹⁾	Input power	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M12
②	Output Power Terminal Block ⁽³⁾ U/T1, V/T2, W/T3	Motor connections	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M12
③	SHLD Terminal, PE, Motor Ground ⁽³⁾	Terminating point for wiring shields	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M10
④	DC Bus ⁽³⁾ (3 Terminals; DC-, DC+)	DC input or external brake	300 mm ² (600 MCM)	2.1 mm ² (14 AWG)	40 N-m (354 lb.-in.)	M12

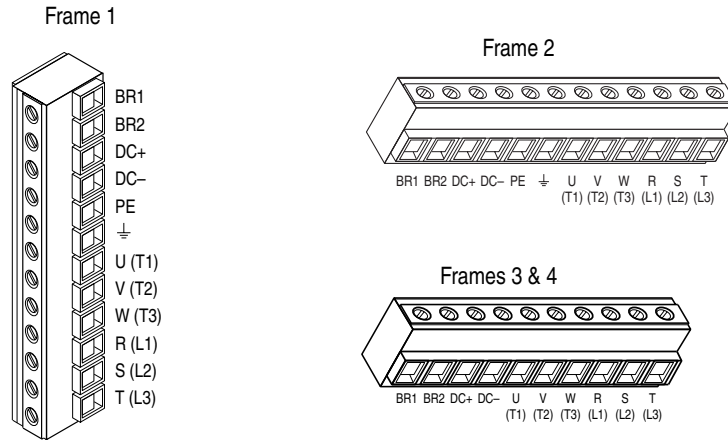
(1) Maximum/minimum sizes that the terminal block will accept - these are not recommendations.

(2) Do Not exceed maximum wire size. Parallel connections may be required.

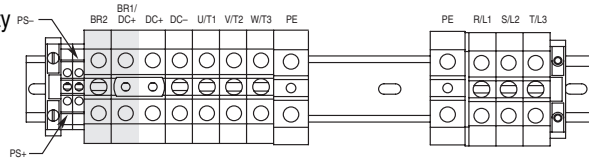
(3) These connections are bus bar type terminations and require the use of lug type connectors.

(4) Apply counter torque to the nut on the other side of terminations when tightening or loosening the terminal bolt in order to avoid damage to the terminal.

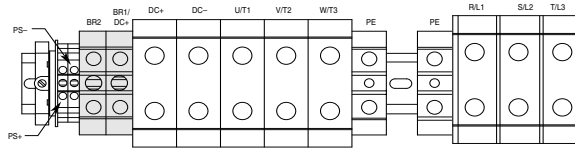
Power Terminal Blocks



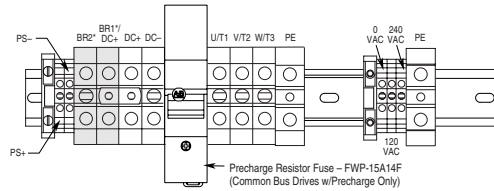
Frame 5 - 75 HP Normal Duty
480V AC Input



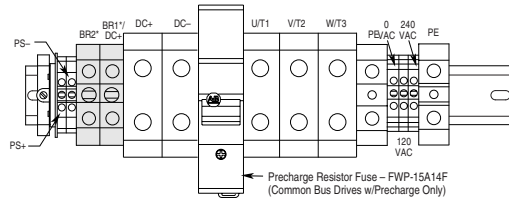
Frame 5 - 100 HP Normal Duty
480V AC Input



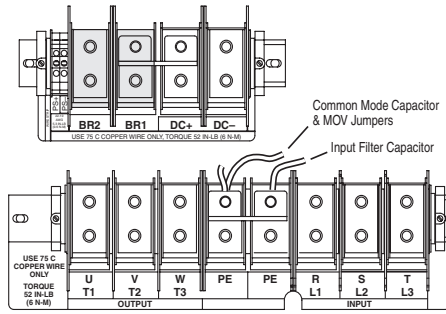
Frame 5 - 75 HP Normal Duty
650V DC Input



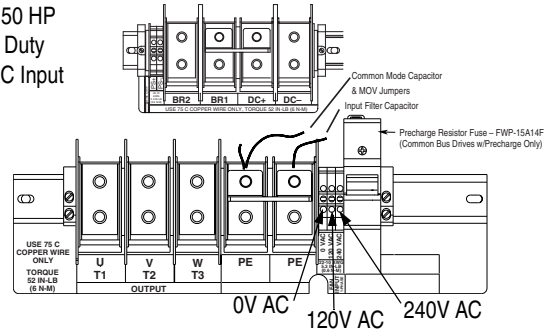
Frame 5 - 100 HP Normal Duty
650V DC Input



Frame 6 - 150 HP
Normal Duty
480V AC Input

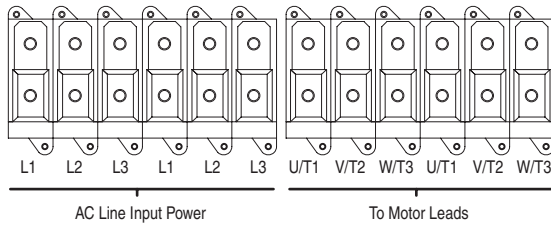


Frame 6 - 150 HP
Normal Duty
650V DC Input



Shaded terminals (BR1 & BR2) will only be present on drives ordered with the Brake Option.

Frame 9



Terminal	Description	Notes
BR1	DC Brake (+)	Dynamic Brake Resistor Connection (+)
BR2	DC Brake (-)	Dynamic Brake Resistor Connection (-)
DC+	DC Bus (+)	DC Input Power or Dynamic Brake Chopper
DC-	DC Bus (-)	DC Input Power or Dynamic Brake Chopper
PE	PE Ground	Not present on 3 Frame drives
↓	Motor Ground	Not present on 3 Frame drives
PS+	Aux +	(1)
PS-	Aux -	(1)
U	U (T1)	To motor
V	V (T2)	To motor
W	W (T3)	To motor
R	R (L1)	AC Line Input Power
S	S (L2)	AC Line Input Power
T	T (L3)	AC Line Input Power

(1) External control power: UL Installation - 300V DC, ±10%, Non UL Installation - 270-600V DC, ±10%. Frame 1-3, 40 W, 165 mA, Frame 5, 80 W, 90 mA

Control Terminals

TB1 Terminals

Terminal	Signal	Factory Default	Description	Related Parameter
1	Analog Input 1 Comm.	(Volt)	Bipolar, differential input, +/-10V, 0-20 mA, 13 bit + sign 20k Ohm impedance at Volt; 500 Ohm impedance at mA ⁽¹⁾	800
2	Analog Input 1 (+/-)			
3	Shield	NA	Analog Input Shield	
4	Analog Input 2 Comm.	(Volt)	Bipolar, differential input, +/-10V, 0-20 mA, 13 bit + sign 20k Ohm impedance at Volt; 500 Ohm impedance at mA ⁽¹⁾	806
5	Analog Input 2 (+/-)			
6	Analog Input 3 [NTC-] Comm.	(Volt)	Differential input, 0-10V, 10 bit (for motor control mode FOC2, this is the temperature adaptation input). ⁽¹⁾	812
7	Analog Input 3 [NTC+]			
8	Shield	NA	Analog Output Shield	
9	Analog Output 1 (-)	(Volt)	Bipolar, differential output, +/-10V, 0-20 mA, 11 bit + sign 2k Ohm minimum load	832, 833
10	Analog Output 1 (+)			
11	Analog Output 2 (-)	(Volt)		
12	Analog Output 2 (+)			839, 840
13	+10V Reference	NA	Rating: 20 mA maximum load (Recommend 5k Ohm pot)	
14	Reference Common	NA		
15	-10V Reference	NA		
16	Encoder A	NA	Normal current draw per channel: 20 mA	230 - 234
17	Encoder A (Not)	NA		
18	Encoder B	NA		
19	Encoder B (Not)	NA		
20	Encoder Z	NA		
21	Encoder Z (Not)	NA		
22	Encoder Reference (+)	NA	12 or 5V DC power supply for primary encoder interface Rating: 300 mA maximum	
23	Encoder Reference (-)	NA		
24	Encoder Shield	NA	Connection point for encoder shield	

⁽¹⁾ The Analog inputs are not isolated. However, the analog inputs can be connected in series when using current mode. Note that at 20mA the voltage source must be capable of providing 10V dc at the drive terminals for one drive - 20V dc is required for two drives and 30V dc is required for three drives, etc.

TB2 Terminals

Terminal	Signal	Factory Default	Description	Related Parameter
1	24V DC Common (-)	NA	Drive supplied 24V DC logic input power Rating: 300 mA maximum load	
2	24V DC Source (+)	NA		
3	Digital Output 1		24V DC Open Collector (sinking logic) Rating: Internal Source = 150 mA max. External Source = 750 mA	846, 847
4	Digital Output 1/2 Com	NA	Common for Digital Output 1 & 2	
5	Digital Output 2		24V DC Open Collector (sinking logic) Rating: Internal Source = 150 mA max. External Source = 750 mA	851, 852
6	Relay Output 3 (NC)		Relay contact output Rating: 115V AC or 24V DC = 2 A max. Inductive/Resistive	856, 857
7	Relay Output 3 Com	NA		
8	Relay Output 3 (NO)			
9	Digital Input 1-3 Com	NA	Common for Digital Inputs 1-3	
10	Digital Input 1		High speed 12 or 24V DC ⁽¹⁾ sinking Load:15 mA at 24V DC	825
11	Digital Input 2			826
12	Digital Input 3		Load:15 mA at 24V DC sourcing	827
13	Digital Input 4-6 Com	NA	Common for Digital Inputs 4-6	
14	Digital Input 4		Load: 10 mA at 24V DC sinking/sourcing	828
15	Digital Input 5		Load: 7.5 mA at 115V AC	829
16	Digital Input 6	HW Enable	Note: The 115 VAC Digital Inputs can withstand 2 milliamps of leakage current without turning on. If an output device has a leakage current greater than 2 milliamps a burden resistor is required. A 68.1K ohm resistor with a 0.5 watt rating should be used to keep the 115 VAC output below 2 milliamps.	830

⁽¹⁾Digital Inputs 1 and 2 are configured for 12V or 24V DC via DIP switches S3-1 and S3-2, respectively. 24V DC is the default setting.

Cable Recommendations

Unshielded Cable

THHN, THWN or similar wire is acceptable for drive installation in dry environments provided adequate free air space and/or conduit fill rates limits are provided. **Do not use THHN or similarly coated wire in wet areas.** Any wire chosen must have a minimum insulation thickness of 15 Mils and should not have large variations in insulation concentricity.

Shielded Cable

Shielded cable contains all of the general benefits of multi-conductor cable with the added benefit of a copper braided shield that can contain much of the noise generated by a typical AC Drive. Strong consideration for shielded cable should be given in installations with sensitive equipment such as weigh scales, capacitive proximity switches and other devices that may be affected by electrical noise in the distribution system. Applications with large numbers of drives in a similar location, imposed EMC regulations or a high degree of communications/ networking are also good candidates for shielded cable.

Shielded cable may also help reduce shaft voltage and induced bearing currents for some applications. In addition, the increased impedance of shielded cable may help extend the distance that the motor can be located from the drive without the addition of motor protective devices such as terminator networks. Refer to “Reflected Wave” in *Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives*, publication DRIVES-IN001.

Consideration should be given to all of the general specifications dictated by the environment of the installation, including temperature, flexibility, moisture characteristics and chemical resistance. In addition, a braided shield should be included and be specified by the cable manufacturer as having coverage of at least 75%. An additional foil shield can greatly improve noise containment.

A good example of recommended cable is Belden® 295xx (xx determines gauge). This cable has four (4) XLPE insulated conductors with a 100% coverage foil and an 85% coverage copper braided shield (with drain wire) surrounded by a PVC jacket.

Other types of shielded cable are available, but the selection of these types may limit the allowable cable length. Particularly, some of the newer cables twist 4 conductors of THHN wire and wrap them tightly with a foil shield. This construction can greatly increase the cable charging current required and reduce the overall drive performance. Unless specified in the individual distance tables as tested with the drive, these cables are not recommended and their performance against the lead length limits supplied is not known.

Armored Cable

Cable with continuous aluminum armor is often recommended in drive system applications or specific industries. It offers most of the advantages of standard shielded cable and also combines considerable mechanical strength and resistance to moisture. It can be installed in concealed and exposed manners and removes the requirement for conduit (EMT) in the installation. It can also be directly buried or embedded in concrete.

Because noise containment can be affected by incidental grounding of the armor to building steel (see Chapter 2, “Wire Types,” of publication DRIVES-IN001, *Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives*) when the cable is mounted, it is recommended the armored cable have an overall PVC jacket.

Interlocked armor is acceptable for shorter cable runs, but continuous welded armor is preferred.

Best performance is achieved with 3 spaced ground conductors, but acceptable performance below 200 HP is provided via a single ground conductor.

Recommended Shielded/Armored Cable

Location	Rating/Type	Description
Standard (Option 1)	600V, 90° C (194° F) XHHW2/RHW-2 Anixter B209500-B209507, Belden 29501-29507, or equivalent	Four tinned copper conductors with XLPE insulation. Copper braid/aluminum foil combination shield and tinned copper drain wire. PVC jacket.
Standard (Option 2)	Tray rated 600V, 90° C (194° F) RHH/RHW-2 Anixter OLF-7xxxxx or equivalent	Three tinned copper conductors with XLPE insulation. 5 mil single helical copper tape (25% overlap min.) with three bare copper grounds in contact with shield. PVC jacket.
Class I & II; Division I & II	Tray rated 600V, 90° C (194° F) RHH/RHW-2 Anixter 7V-7xxxx-3G or equivalent	Three bare copper conductors with XLPE insulation and impervious corrugated continuously welded aluminum armor. Black sunlight resistant PVC jacket overall. Three copper grounds on #10 AWG and smaller.

Recommended Control Wire

Type	Wire Type(s)	Description	Insulation Rating
Digital I/O	Un-shielded	Per US NEC or applicable national or local code	300V, 60° C (140° F), Minimum
	Shielded	Multi-conductor shielded cable such as Belden 8770 (or equiv.)	
Standard Analog I/O	Belden 8760/9460 (or equiv.)	0.750 mm ² (18 AWG), twisted pair, 100% shield with drain ⁽⁵⁾ .	300V, 75-90 °C (167-194 °F)
Remote Pot	Belden 8770 (or equiv.)	0.750 mm ² (18 AWG), 3 cond., shielded	
Encoder/Pulse I/O Less 30.5 m (100 ft.)	Combined:	Belden 9730 (or equivalent) ⁽¹⁾	0.196 mm ² (24 AWG), individually shielded.
Encoder/Pulse I/O 30.5 m (100 ft.) to 152.4 m (500 ft.)	Signal:	Belden 9730/9728 (or equivalent) ⁽¹⁾	
	Power:	Belden 8790 ⁽²⁾	
	Combined:	Belden 9892 ⁽³⁾	0.330 mm ² or 0.500 mm ² ⁽³⁾
Encoder/Pulse I/O 152.4 m (500 ft.) to 259.1 m (850 ft.)	Signal:	Belden 9730/9728 (or equivalent) ⁽¹⁾	0.196 mm ² (24 AWG), individually shielded.
	Power:	Belden 8790 ⁽²⁾	
	Combined:	Belden 9773/9774 (or equivalent) ⁽⁴⁾	0.750 mm ² (18 AWG), individually shielded pair.
	Stegmann Encoder	Stegmann 6-411682-xx cables with C12 FUR connections	
Resolver	Paige 412081 (or equiv.) Twist, capacitance, inductance and resistance specifications equal to or greater than cable specified	0.750 =mm ² (18 AWG), twisted pair	300V, 80° C (176° F) minimum
SynchLink	Versalink V-System, Lucent Technologies, Specialty Fibers Technology Division 1403-CF BLK	200/230 micron HCS (Hard Clad Silica) 650 nm (Red) Data Rate 5 Mbps	
EMC Compliance	Refer to position "I" - Emission of the Catalog Number Explanation on Page 10 for details.		

(1)Belden 9730 is 3 individually shielded pairs (2 channel plus power). If 3 channel is required, use Belden 9728 (or equivalent).

(2)Belden 8790 is 1 shielded pair.

(3)Belden 9892 is 3 individually shielded pairs (3 channel), 0.33 mm² (22 AWG) plus 1 shielded pair 0.5 mm² (20 AWG) for power.

(4)Belden 9773 is 3 individually shielded pairs (2 channel plus power). If 3 channel is required, use Belden 9774 (or equivalent).

(5)If the wires are short and contained within a cabinet which has no sensitive circuits, the use of shielded wire may not be necessary, but is always recommended.

Single-Phase Input Power

The PowerFlex 700S drives are typically used with a three-phase input supply.

Frame 1-6 Drives

Single-phase operation of frame 1-6 drives is not currently rated under the UL508C listing. Rockwell Automation has verified that single-phase operation with output current derated by 50% of the three-phase ratings beginning on [page 44](#) will meet all safety requirements.

Frame 9-14 Drives

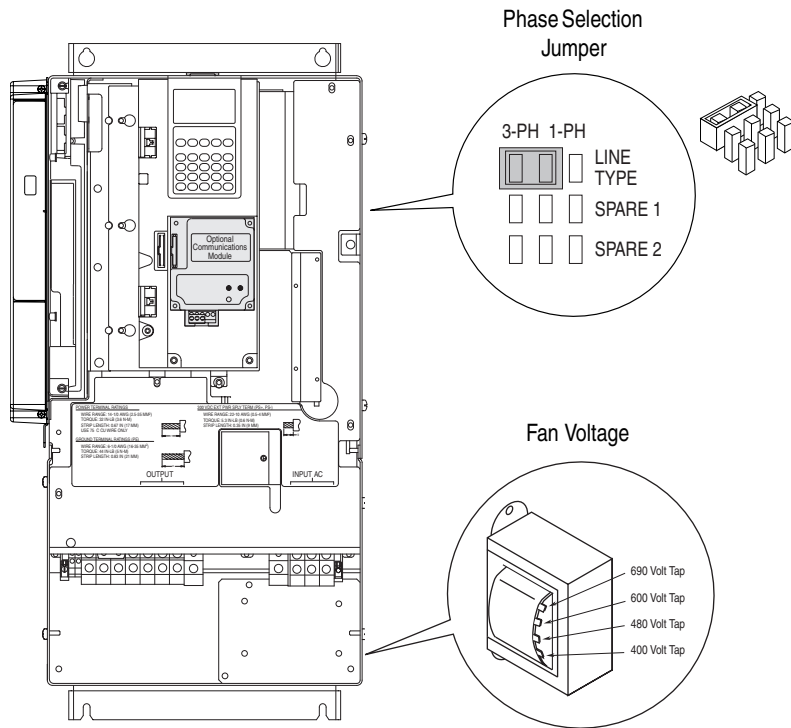
Frame 9-14 drives have been listed by UL to operate on single-phase input power with the requirement that the output current is derated by 80% of the three-phase ratings beginning on [page 44](#).

AC Input Phase Selection (Frames 5 & 6 Only)

Moving the “Line Type” jumper shown in the illustration below will select single or three-phase operation. Remove plastic guard to access jumper.

Important: Important: When selecting single-phase operation, input power must be applied to the R (L1) and S (L2) terminals only.

Frames 5 & 6 Jumper and Transformer Locations (Frame 5 shown)



Drive Power Ratings

The tables on the following pages provide drive ratings (including continuous, 1 minute and 3 seconds), PWM frequency ratings, ambient operating temperatures and watts loss information.

208 Volt AC Input Frames 1-6 Drive Ratings

Drive Catalog Number	Frame	kW Rating		PWM Freq. kHz	Temp. ⁽¹⁾ ° C	Input Ratings		Output Amps		
		ND	HD			Amps	kVA	Cont.	1 Min.	3 Sec.
20DB4P2	1	0.75	0.55	4	50	3.7	1.3	4.8	5.6	7.0
20DB6P8	1	1.5	1.1	4	50	6.8	2.4	7.8	10.4	13.8
20DB9P6	1	2.2	1.5	4	50	9.5	3.4	11	12.1	17
20DB015	1	4.0	3.0	4	50	15.7	5.7	17.5	19.3	26.3
20DB022	1	5.5	4.0	4	50	23.0	8.3	25.3	27.8	38
20DB028	2	7.5	5.5	4	50	29.6	10.7	32.2	38	50.6
20DB042	3	11	7.5	4	50	44.5	16.0	48.3	53.1	72.5
20DB052	3	15	11	4	50	51.5	18.6	56	64	86
20DB070	4	18.5	15	4	50	72	25.9	78.2	93.1	124.2
20DB080	4	22	18.5	4	50	84.7	30.5	92	117.3	156.4
20DB104	5	30	–	4	50	113	40.7	120	132	175
		–	22	4	50	84.7	30.5	92	138	175
20DB130	5	37	–	4	50	141	44.1	130	143	175
		–	30	4	50	113	35.3	104	156	175
20DB154	6	45	–	4	50	167	60.1	177	195	266
		–	37	4	50	141	50.9	150	225	300
20DB192	6	55	–	4	50	208	75.0	221	243	308
		–	45	4	50	167	60.1	177	266	308
20DB260	6	66	–	2	45	255	96.7	260	286	390
		–	55	2	50	199	71.7	205	305	410

⁽¹⁾ The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40° C.

240 Volt AC Input Frames 1 - 6 Drive Ratings

Drive Catalog Number	Frame	HP Rating		PWM Freq. kHz	Temp. ⁽¹⁾ ° C	Input Ratings		Output Amps		
		ND	HD			Amps	kVA	Cont.	1 Min.	3 Sec.
20DB4P2	1	1	0.75	4	50	3.3	1.4	4.2	4.8	6.4
20DB6P8	1	2	1.5	4	50	5.9	2.4	6.8	9	12
20DB9P6	1	3	2	4	50	8.3	3.4	9.6	10.6	14.4
20DB015	1	5	3	4	50	13.7	5.7	15.3	16.8	23
20DB022	1	7.5	5	4	50	19.9	8.3	22	24.2	33
20DB028	2	10	7.5	4	50	25.7	10.7	28	33	44
20DB042	3	15	10	4	50	38.5	16.0	42	46.2	63
20DB052	3	20	15	4	50	47.7	19.8	52	63	80
20DB070	4	25	20	4	50	64.2	26.7	70	78	105
20DB080	4	30	25	4	50	73.2	30.5	80	105	140
20DB104	5	40	–	4	50	98	40.6	104	115	175
		–	30	4	50	73	30.5	80	120	160
20DB130	5	50	–	4	50	122	50.7	130	143	175
		–	40	4	50	98	40.6	104	156	175
20DB154	6	60	–	4	50	145	60.1	154	169	231
		–	50	4	50	122	50.7	130	195	260
20DB192	6	75	–	4	50	180	74.9	192	211	288
		–	60	4	50	145	60.1	154	231	308
20DB260	6	100	–	2	45	233	96.8	260	286	390
		–	75	2	50	169	74.9	205	305	410

⁽¹⁾ The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40° C.

400 Volt AC Input Frames 1 - 6 Drive Ratings

Drive Catalog Number	Frame	kW Rating		PWM Freq.	Temp. ⁽³⁾	Input Ratings		Output Amps		
		ND	HD	kHz	° C	Amps	kVA	Cont.	1 Min.	3 Sec.
20DC2P1	1	0.75	0.55	4	50	1.8	1.3	2.1	2.4	3.2
20DC3P5	1	1.5	1.1	4	50	3.2	2.2	3.5	4.5	6.0
20DC5P0	1	2.2	1.5	4	50	4.6	3.2	5.0	5.5	7.5
20DC8P7	1	4	3.0	4	50	7.9	5.5	8.7	9.9	13.2
20DC011	1	5.5	4	4	50	10.8	7.5	11.5	13	17.4
20DC015	1	7.5	5.5	4	50	14.4	10.0	15.4	17.2	23.1
20DC022	1	11	7.5	4	50	20.6	14.3	22	24.2	33
20DC030	2	15	11	4	50	28.4	19.7	30	33	45
20DC037	2	18.5	15	4	50	35.0	24.3	37	45	60
20DC043	3	22	18.5	4	50	40.7	28.2	43	56	74
20DC056	3	30	22	4	50	53	36.7	56	64	86
20DC072	3	37	30	4	45	68.9	47.8	72	84	112
20DC085 ⁽¹⁾	4	45	-	4	50	81.4	56.4	85	94	128
		-	37	4	50	68.9	47.8	72	108	144
20DC105	5	55	-	4	50 ⁽⁴⁾	100.5	69.6	105	116	158
		-	45	4	50 ⁽⁴⁾	81.4	56.4	85	128	170
20DC125	5	55	-	4	50 ⁽⁴⁾	121.1	83.9	125	138	163
		-	45	4	50 ⁽⁴⁾	101	63.7	96	144	168
20DC140	5	75	-	4	50 ⁽⁴⁾	135.6	94	140	154	210
		-	55	4	50 ⁽⁴⁾	121	69.6	105	158	210
20DC170	6	90	-	4	50 ⁽⁴⁾	164.6	114	170	187	255
		-	75	4	50 ⁽⁴⁾	136	94	140	210	280
20DC205 ⁽²⁾	6	110	-	4	40 ⁽⁴⁾	198.5	138	205	220	289
		-	90	4	40 ⁽⁴⁾	164	114	170	255	313
20DC260	6	132	-	2	40 ⁽⁴⁾	254.7	166	260	286	390
		-	110	2	40 ⁽⁴⁾	199	138	205	308	410

(1) 20DC085 current rating is limited to 45 degrees C ambient.

(2) 20DC205 current rating is limited to 40 degrees C ambient.

(3) The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40° C.

(4) UL Type 12/IP54 (flange mount) heatsink ambient temperature rating is 40° C/ambient of unprotected drive portion (inside enclosure) is 55° C. The ambient temperature for the UL Type 12/IP54 standalone drives is 40° C.

400 Volt AC Input Frames 9 - 13 Drive Ratings

Drive Catalog Number	Frame	kW Rating		PWM Freq.	Temp.	Input Ratings	Output Amps			Watts Loss
		ND	HD	kHz	° C	Amps	Cont.	1 Min.	3 Sec.	Watts
20DC261	9	132	-	2	40	263	261	287	410	2700
		-	110	2	40	207	205	308	410	2700
20DC300	9	160	-	2	40	302	300	330	450	3100
		-	132	2	40	247	245	368	490	3100
20DC385	10	200	-	2	40	388	385	424	600	4320
		-	160	2	40	302	300	450	600	4320
20DC460	10	250	-	2	40	463	460	506	770	5335
		-	200	2	40	388	385	578	770	5335
20DC500	10	250	-	2	40	504	500	550	750	5921
		-	250	2	40	423	420	630	840	5921
20DC590	11	315	-	2	40	594	590	649	956	6620
		-	250	2	40	524	520	780	956	6620
20DC650	11	355	-	2	40	655	650	715	1062	7538
		-	315	2	40	594	590	885	1062	7538
20DC730	11	400	-	2	40	735	730	803	1095	8312
		-	355	2	40	655	650	975	1170	8312
20DC820	12	450	-	2	40	826	820	902	1230	9201
		-	400	2	40	735	730	1095	1314	9201

Drive Catalog Number	Frame	kW Rating		PWM Freq.	Temp.	Input Ratings		Output Amps			Watts Loss
		ND	HD	kHz	° C	Amps	Cont.	1 Min.	3 Sec.	Watts	
20DC920	12	500	-	2	40	927	920	1012	1380	10670	
		-	450	2	40	826	820	1230	1476	10670	
20DC1K0	12	560	-	2	40	1038	1030	1133	1555	11729	
		-	500	2	35	927	920	1370	1600	11729	
20DC1K1	13	630	-	2	40	1158	1150	1265	1620	13801	
		-	560	2	40	1038	1030	1545	1620	13801	
20DC1K3	13	710	-	2	40	1310	1300	1430	2079	15077	
		-	630	2	40	1158	1150	1725	2079	15077	
20DC1K4	13	800	-	2	40	1461	1450	1595	2175	16511	
		-	710	2	40	1209	1200	1800	2400	16511	

480 Volt AC Input Frames 1 - 6 Drive Ratings

Drive Catalog Number	Frame	HP Rating		PWM Freq.	Temp.(1)	Input Ratings		Output Amps			Watts Loss
		ND	HD	kHz	° C	Amps	kVA	Cont.	1 Min.	3 Sec.	Watts
20DD2P1	1	1	0.75	4	50	1.6	1.4	2.1	2.4	3.2	103
20DD3P4	1	2	1.5	4	50	2.6	2.2	3.4	4.5	6.0	117
20DD5P0	1	3	2	4	50	3.9	3.2	5.0	5.5	7.5	135
20DD8P0	1	5	3	4	50	6.9	5.7	8.0	8.8	12	210
20DD011	1	7.5	5	4	50	9.5	7.9	11	12.1	16.5	243
20DD014	1	10	7.5	4	50	12.5	10.4	14	16.5	22	271
20DD022	1	15	10	4	50	19.9	16.6	22	24.2	33	389
20DD027	2	20	15	4	50	24.8	20.6	27	33	44	467
20DD034	2	25	20	4	50	31.2	25.9	34	40.5	54	519
20DD040	3	30	25	4	50	36.7	30.5	40	51	68	543
20DD052	3	40	30	4	50	47.7	39.7	52	60	80	708
20DD065	3	50	40	4	50	59.6	49.6	65	78	104	767
20DD077	4	60	-	4	50	72.3	60.1	77	85	116	780
		-	50	4	50	59.6	49.6	65	98	130	780
20DD096	5	75	-	4	50(2)	90.1	74.9	96	106	144	1157
		-	60	4	50(2)	72.3	60.1	77	116	154	1157
20DD125	5	100	-	4	50(2)	117	97.6	125	138	163	1529
		-	75	4	50(2)	90.1	74.9	96	144	168	1529
20DD156	6	125	-	4	50(2)	146.5	121.7	156	172	234	1895
		-	100	4	50(2)	131	97.6	125	188	250	1895
20DD180	6	150	-	4	50(2)	169	140.5	180	198	270	2254
		-	125	4	50(2)	147	121.7	156	234	312	2254
20DD248	6	200	-	2	40(2)	232.8	188	248	273	372	-
		-	150	2	40(2)	169	140.5	180	270	360	-

- (1) The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40° C.
- (2) UL Type 12/IP54 (flange mount) heatsink ambient temperature rating is 40° C/ambient of unprotected drive portion (inside enclosure) is 55° C. The ambient temperature for the UL Type 12/IP54 standalone drives is 40° C.

480 Volt AC Input Frames 9 - 13 Drive Ratings

Drive Catalog Number	Frame	HP Rating		PWM Freq.	Temp.	Input Ratings		Output Amps			Watts Loss
		ND	HD	kHz	° C	Amps	Cont.	1 Min.	3 Sec.	Watts	
20DD261	9	200	-	2	40	252	261	287	410	2700	
		-	150	2	40	207	205	308	410	2700	
20DD300	9	250	-	2	40	290	300	330	450	3100	
		-	200	2	40	247	245	368	490	3100	
20DD385	10	300	-	2	40	372	385	424	600	4320	
		-	250	2	40	302	300	450	600	4320	

PowerFlex 700S Phase II Drive - Technical Data

Drive Catalog Number	Frame	HP Rating		PWM Freq.	Temp.	Input Ratings	Output Amps			Watts Loss
		ND	HD	kHz	°C	Amps	Cont.	1 Min.	3 Sec.	Watts
20DD460	10	350	-	2	40	444	460	506	770	5335
		-	300	2	40	388	385	578	770	5335
20DD500	10	450	-	2	40	483	500	550	750	5921
		-	350	2	40	423	420	630	840	5921
20DD590	11	500	-	2	40	570	590	649	956	6620
		-	450	2	40	524	520	780	956	6620
20DD650	11	500	-	2	40	628	650	715	1062	7538
		-	500	2	40	594	590	885	1062	7538
20DD730	11	600	-	2	40	705	730	803	1095	8312
		-	500	2	40	655	650	975	1170	8312
20DD820	12	700	-	2	40	792	820	902	1230	9201
		-	600	2	40	735	730	1095	1314	9201
20DD920	12	800	-	2	40	888	920	1012	1380	10670
		-	700	2	40	826	820	1230	1476	10670
20DD1K0	12	900	-	2	40	994	1030	1133	1555	11729
		-	800	2	35	927	920	1370	1600	11729
20DD1K1	13	1000	-	2	40	1110	1150	1265	1620	13801
		-	900	2	40	994	1030	1545	1620	13801
20DD1K3	13	1200	-	2	40	1255	1300	1430	2079	15077
		-	1000	2	40	1110	1150	1725	2079	15077
20DD1K4	13	1250	-	2	40	1400	1450	1595	2175	16511
		-	1000	2	40	1158	1200	1800	2400	16511

600 Volt AC Input Frames 1 - 6 Drive Ratings

Drive Catalog Number	Frame	HP Rating		PWM Freq.	Temp. ⁽¹⁾	Input Ratings		Output Amps		
		ND	HD	kHz	°C	Amps	kVA	Cont.	1 Min.	3 Sec.
20DE1P7	1	1	0.75	4	50	1.3	1.4	1.7	2	2.6
20DE2P7	1	2	1.5	4	50	2.1	2.1	2.7	3.6	4.8
20DE3P9	1	3	2	4	50	3.0	3.1	3.9	4.3	5.9
20DE6P1	1	5	3	4	50	5.3	5.5	6.1	6.7	9.2
20DE9P0	1	7.5	5	4	50	7.8	8.1	9	9.9	13.5
20DE011	1	10	7.5	4	50	9.9	10.2	11	13.5	18
20DE017	1	15	10	4	50	15.4	16.0	17	18.7	25.5
20DE022	2	20	15	4	50	20.2	21.0	22	25.5	34
20DE027	2	25	20	4	50	24.8	25.7	27	33	44
20DE032	3	30	25	4	50	29.4	30.5	32	40.5	54
20DE041	3	40	30	4	50	37.6	39.1	41	48	64
20DE052	3	50	40	4	50	47.7	49.6	52	61.5	82
20DE062	4	60	50	2	45	58.2	60.5	62	78	104
		75	-	2	45	72.3	75.1	77	85	116
20DE077	5	-	60	2	50 ⁽²⁾	58.2	60.5	63	94	126
		100	-	2	50 ⁽²⁾	92.9	96.6	99	109	126
20DE099	5	-	75	2	50 ⁽²⁾	72.3	75.1	77	116	138
		125	-	2	50 ⁽²⁾	117	121.6	125	138	188
20DE125	6	-	100	2	50 ⁽²⁾	93	96.6	99	149	198
		150	-	2	50 ⁽²⁾	135	140.5	144	158	216
20DE144	6	-	125	2	40 ⁽²⁾	117	121.6	125	188	250

(1) The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40° C.

(2) UL Type 12/IP54 (flange mount) heatsink ambient temperature rating is 40° C/ambient of unprotected drive portion (inside enclosure) is 55° C. The ambient temperature for the UL Type 12/IP54 standalone drives is 40° C.

600 Volt AC Input Frames 9 - 14 Drive Ratings

Drive Catalog Number	Frame	HP Rating		PWM Freq.	Temp.	Input Ratings		Output Amps			Watts Loss
		ND	HD	kHz	° C	Amps		Cont.	1 Min.	3 Sec.	Watts
20DE170	9	150	–	(2)	40	164		170	187	245	–
		–	150	(3)	40	139		144	216	245	–
20DE208	9	200	–	(3)	35	201		208	230	289	–
		–	150	(3)	40	164		170	250	289	–
20DE261	10	250	–	(3)	40	252		261	287	375	4206
		–	200	(3)	40	201		208	312	375	4206
20DE325	10	350	–	(3)	40	314		325	358	470	4751
		–	250	(3)	40	252		261	392	470	4751
20DE385	10	400	–	(3)	40	372		385	424	585	5527
		–	350	(3)	40	314		325	488	585	5527
20DE416	10	450	–	(3)	35	402		416	458	585	5622
		–	350	(3)	40	314		325	488	585	5622
20DE460	11	500	–	(3)	40	444		460	506	693	6345
		–	400	(3)	40	372		385	578	693	6345
20DE502	11	500	–	(3)	40	485		502	552	828	6925
		–	500	(3)	40	444		460	690	828	6925
20DE590	11	600	–	(3)	35	570		590	649	885	7539
		–	500	(3)	35	485		502	753	904	7539
20DE650	12	700	–	(3)	40	628		650	715	1062	9502
		–	650	(3)	40	570		590	885	1062	9502
20DE750	12	800	–	(3)	40	724		750	825	1170	10570
		–	700	(3)	40	628		650	975	1170	10570
20DE820(1)	12	900	–	(3)	35	792		820	902	1170	11082
		–	700	(3)	35	628		650	975	1170	11082
20DE920	13	1000	–	(3)	40	888		920	1012	1380	12690
		–	900	(3)	40	792		820	1230	1410	12690
20DE1K0	13	1100	–	(3)	40	994		1030	1133	1545	15907
		–	1000	(3)	40	888		920	1380	1755	15907
20DE1K1	13	1300	–	(3)	35	1139		1180	1298	1755	17306
		–	1100	(3)	35	994		1030	1463	1755	17306
20DE1K5	14	1600	–	(3)	40	1448		1500	1650	2250	22500
		–	1400	(3)	40	1255		1300	1950	2340	22500

(1) 20DE820 drives (ND) are only capable of producing 95% of starting torque under 10 Hz.
 (2) Rated PWM for 700H control 1.5kHz, Rated PWM for 700S control 2.0kHz.

690 Volt AC Input Frames 5 & 6 Drive Ratings

Drive Catalog Number	Frame	kW Rating		PWM Freq.	Temp.(1)	Input Ratings		Output Amps		
		ND	HD	kHz	° C	Amps	kVA	Cont.	1 Min.	3 Sec.
20DF052	5	45	–	4	50	46.9	59.5	52	57	78
		–	37.5	4	50	40.1	48.0	46	69	92
20DF060	5	55	–	4	50	57.7	68.9	60	66	90
		–	45	4	50	46.9	59.5	52	78	104
20DF082	5	75	–	2	50	79.0	94.4	82	90	123
		–	55	2	50	57.7	68.9	60	90	120
20DF098	5	90	–	2	40	94.7	113	98	108	127
		–	75	2	40	79.0	94.4	82	123	140
20DF119	6	110	–	2	50	115	138	119	131	179
		–	90	2	50	92.9	113	98	147	196
20DF142	6	132	–	2	50	139	165.9	142	156	213
		–	110	2	40	115	137	119	179	238

(1) UL Type 12/IP54 (flange mount) heatsink ambient temperature rating is 40° C/ambient of unprotected drive portion (inside enclosure) is 55° C. The ambient temperature for the UL Type 12/IP54 standalone drives is 40° C.

690 Volt AC Input Frames 9 - 14 Drive Ratings

Drive Catalog Number	Frame	kW Rating		PWM Freq.	Temp.	Input Ratings	Output Amps			Watts Loss
		ND	HD	kHz	° C	Amps	Cont.	1 Min.	3 Sec.	Watts
20DF170	9	160	–	2	40	171	170	187	245	–
		–	132	2	40	145	144	216	245	–
20DF208	9	200	–	2	35	210	208	230	289	–
		–	160	2	40	171	170	250	289	–
20DF261	10	250	–	2	40	263	261	287	375	4206
		–	200	2	40	210	208	312	375	4206
20DF325	10	315	–	2	40	327	325	358	470	4751
		–	250	2	40	263	261	392	470	4751
20DF385	10	355	–	2	40	388	385	424	585	5527
		–	315	2	40	327	325	488	585	5527
20DF416	10	400	–	2	35	419	416	458	585	5622
		–	315	2	40	327	325	488	585	5622
20DF460	11	450	–	2	40	463	460	506	693	6345
		–	355	2	40	388	385	578	693	6345
20DF502	11	500	–	2	40	506	502	552	828	6925
		–	400	2	40	463	460	690	828	6925
20DF590	11	560	–	2	35	594	590	649	885	7539
		–	500	2	35	506	502	753	904	7539
20DF650	12	630	–	2	40	655	650	715	1062	9502
		–	560	2	40	594	590	885	1062	9502
20DF750	12	710	–	2	40	756	750	825	1170	10570
		–	630	2	40	655	650	975	1170	10570
20DF820 ⁽¹⁾	12	800	–	2	35	826	820	902	1170	11082
		–	630	2	35	655	650	975	1170	11082
20DF920	13	900	–	2	40	927	920	1012	1380	12690
		–	800	2	40	826	820	1230	1410	12690
20DF1K0	13	1000	–	2	40	1038	1030	1133	1545	15907
		–	900	2	40	927	920	1380	1755	15907
20DF1K1	13	1100	–	2	35	1189	1180	1298	1755	17306
		–	1000	2	35	1038	1030	1463	1755	17306
20DF1K5	14	1500	–	2	40	1511	1500	1650	2250	22500
		–	1300	2	40	1310	1300	1950	2340	22500

(1) 20DF820 drives (ND) are only capable of producing 95% of starting torque under 10 Hz.

325 Volt DC Input Frames 1 - 6 Drive Ratings

Drive Catalog Number	Frame	HP Rating		PWM Freq.	Temp. ⁽³⁾	DC Input Ratings	Output Amps ⁽⁴⁾		
		ND	HD	kHz	° C	Amps	Cont.	1 Min.	3 Sec.
20DB015	1	5	3	4	45	16	15.3	16.8	23.0
20DB022	1	7.5	5	4	45	23.3	22	24.2	33
20DB028	2	10	7.5	4	45	30	28	33	44
20DB042	3	15	10	4	45	45	42	46.2	63
20DB052	3	20	15	4	45	55	52	63	80
20DB070	4	25	20	4	45	75.3	70	78	105
20DB080	4	30	25	4	45	85.8	80	105	140
20DN104 ⁽¹⁾	5	40	30	4	45	114.1	104 (80)	115 (120)	175 (160)
20DN130 ⁽¹⁾	5	50	40	4	45	142.6	130 (104)	143 (156)	175 (175)
20DN154 ⁽¹⁾	6	60	50	4	45	169	154 (130)	169 (195)	231 (260)
20DN192 ⁽¹⁾	6	75	60	4	45	210.6	192 (154)	211 (231)	288 (308)
20DN260 ⁽¹⁾⁽²⁾	6	100	75	4	50	272.1	260 (205)	286 (305)	390 (410)

- (1) Catalog number corresponds to output amps for these drives. Drive must be programmed to lower voltage to obtain higher currents shown at right.
- (2) Catalog number corresponds to drives with precharge only.
- (3) The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40° C.
- (4) Frame 5 and 6 drives have dual current ratings; one for normal duty applications, and one for heavy duty applications (in parenthesis). The drive may be operated at either rating.

540 Volt DC Input Frames 1 - 6 Drive Ratings

Drive Catalog Number	Frame	kW Rating		PWM Freq. kHz	Temp. ⁽²⁾ ° C	DC Input Ratings Amps	Output Amps		
		ND	HD				Cont.	1 Min.	3 Sec.
20DC3P5	1	1.5	1.1	4	50	3.7	3.5	4.5	6.0
20DC5P0	1	2.2	1.5	4	50	5.3	5.0	5.5	7.5
20DC8P7	1	4	3.0	4	50	9.3	8.7	9.9	13.2
20DC011	1	5.5	4	4	50	12.6	11.5	13	17.4
20DC015	1	7.5	5.5	4	50	16.8	15.4	17.2	23.1
20DC022	1	11	7.5	4	50	24	22	24.2	33
20DC030	2	15	11	4	50	33.2	30	33	45
20DC037	2	18.5	15	4	50	40.9	37	45	60
20DC043	3	22	18.5	4	50	47.5	43	56	74
20DC056	3	30	22	4	50	61.9	56	64	86
20DC072	3	37	30	4	50	80.5	72	84	112
20DC085	4	45	37	4	50	95.1	85	108	144
20DH105 ⁽¹⁾	5	55	-	4	50	120.2	105	116	158
		-	45	4	50	95.1	85	128	170
20DH125 ⁽¹⁾	5	55	-	4	50	120.2	125	138	163
		-	45	4	50	95.1	96	144	168
20DH140 ⁽¹⁾	5	75	-	4	50	159	140	154	210
		-	55	4	50	120.2	105	158	210
20DH170 ⁽¹⁾	6	90	-	4	50	192	170	187	255
		-	75	4	50	159	140	210	280
20DH205 ⁽¹⁾	6	110	-	4	40	226	205	220	289
		-	90	4	40	192	170	255	313
20DH260 ⁽¹⁾	6	132	-	2	40	298	260	286	390
		-	110	2	40	226	205	305	410

- (1) Also applies to "P" voltage class. Fuses must be applied in the (+) leg and (-) leg of the DC Common Bus.
 (2) The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40° C.

540 Volt DC Input Frames 9 - 13 Drive Ratings

Drive Catalog Number	Frame	kW Rating		PWM Freq. kHz	Temp. ° C	DC Input Ratings Amps	Output Amps			Watts Loss
		ND	HD				Cont.	1 Min.	3 Sec.	Watts
20DH261	9	132	-	2	40	307	261	287	410	1890
		-	110	2	40	241	205	308	410	1890
20DH300	9	160	-	2	40	353	300	330	450	2170
		-	132	2	40	288	245	368	490	2170
20DH385	10	200	-	2	40	453	385	424	600	3240
		-	160	2	40	353	300	450	600	3240
20DH460	10	250	-	2	40	541	460	506	770	4001
		-	200	2	40	453	385	578	770	4001
20DH500	10	250	-	2	40	589	500	550	750	4441
		-	250	2	40	494	420	630	840	4441
20DH590	11	315	-	2	40	695	590	649	956	4700
		-	250	2	40	612	520	780	956	4700
20DH650	11	355	-	2	40	765	650	715	1062	5352
		-	315	2	40	695	590	885	1062	5352
20DH730	11	400	-	2	40	859	730	803	1095	5902
		-	355	2	40	765	650	975	1170	5902
20DH820	12	450	-	2	40	965	820	902	1230	6901
		-	400	2	40	859	730	1095	1314	6901
20DH920	12	500	-	2	40	1083	920	1012	1380	8003
		-	450	2	40	965	820	1230	1476	8003
20DH1K0	12	560	-	2	40	1213	1030	1133	1555	8797
		-	500	2	35	1083	920	1370	1600	8797
20DH1K1	13	630	-	2	40	1354	1150	1265	1620	10627
		-	560	2	40	1213	1030	1545	1620	10627

PowerFlex 700S Phase II Drive - Technical Data

Drive Catalog Number	Frame	kW Rating		PWM Freq. kHz	Temp. °C	DC Input Ratings Amps	Output Amps			Watts Loss Watts
		ND	HD				Cont.	1 Min.	3 Sec.	
20DH1K3	13	710	-	2	40	1530	1300	1430	2079	11609
		-	630	2	40	1354	1150	1725	2079	11609
20DH1K4	13	800	-	2	40	1707	1450	1595	2175	12713
		-	710	2	40	1413	1200	1800	2400	12713

650 Volt DC Input Frames 1 - 6 Drive Ratings

Drive Catalog Number	Frame	HP Rating		PWM kHz	Temp.(2) °C	DC Input Ratings Amps	Output Amps		
		ND	HD				Cont.	1 Min.	3 Sec.
20DD2P1	1	1	0.75	4	50	1.9	2.1	2.4	3.2
20DD3P4	1	2	1.5	4	50	3.0	3.4	4.5	6.0
20DD5P0	1	3	2	4	50	4.5	5.0	5.5	7.5
20DD8P0	1	5	3	4	50	8.1	8.0	8.8	12
20DD011	1	7.5	5	4	50	11.1	11	12.1	16.5
20DD014	1	10	7.5	4	50	14.6	14	16.5	22
20DD022	1	15	10	4	50	23.3	22	24.2	33
20DD027	2	20	15	4	50	28.9	27	33	44
20DD034	2	25	20	4	50	36.4	34	40.5	54
20DD040	3	30	25	4	50	42.9	40	51	68
20DD052	3	40	30	4	50	55.7	52	60	80
20DD065	3	50	40	4	50	69.6	65	78	104
20DD077	4	60	50	4	50	84.5	77	97.5	130
20DJ096 (1)	5	75	-	4	50	105.3	96	106	144
		-	60	4	50	84.5	77	116	154
20DJ125 (1)	5	100	-	4	50	137.1	125	138	163
		-	75	4	50	105.3	96	144	168
20DJ140 (1)	5	100	-	4	50	137	135	148	200
		-	75	4	50	105.3	96	144	192
20DJ156 (1)	6	125	-	4	50	171	156	172	234
		-	100	4	50	137.1	125	188	250
20DJ180 (1)	6	150	-	4	50	198	180	198	270
		-	125	4	50	171.2	156	234	312
20DJ248 (1)	6	200	-	2	40	272	248	273	372
		-	150	2	40	198	180	270	360

(1) Also applies to "R" voltage class. Fuses must be applied in the (+) leg and (-) leg of the DC Common Bus.

(2) The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40° C.

650 Volt DC Input Frames 9 - 13 Drive Ratings

Drive Catalog Number	Frame	HP Rating		PWM Freq. kHz	Temp. °C	DC Input Ratings Amps	Output Amps			Watts Loss Watts
		ND	HD				Cont.	1 Min.	3 Sec.	
20DJ261	9	200	-	2	40	294	261	287	410	1890
		-	150	2	40	231	205	308	410	1890
20DJ300	9	250	-	2	40	338	300	330	450	2170
		-	200	2	40	294	245	368	490	2170
20DJ385	10	300	-	2	40	434	385	424	600	3240
		-	250	2	40	338	300	450	600	3240
20DJ460	10	350	-	2	40	519	460	506	770	4001
		-	300	2	40	434	385	578	770	4001
20DJ500	10	450	-	2	40	564	500	550	750	4441
		-	350	2	40	474	420	630	840	4441
20DJ590	11	500	-	2	40	666	590	649	956	4700
		-	450	2	40	587	520	780	956	4700
20DJ650	11	500	-	2	40	733	650	715	1062	5352
		-	500	2	40	666	590	885	1062	5352

Drive Catalog Number	Frame	HP Rating		PWM Freq.	Temp.	DC Input Ratings	Output Amps			Watts Loss
		ND	HD	kHz	°C	Amps	Cont.	1 Min.	3 Sec.	Watts
20DJ730	11	600	-	2	40	824	730	803	1095	5902
		-	500	2	40	733	650	975	1170	5902
20DJ820	12	700	-	2	40	925	820	902	1230	6901
		-	600	2	40	824	730	1095	1314	6901
20DJ920	12	800	-	2	40	1038	920	1012	1380	8003
		-	700	2	40	925	820	1230	1476	8003
20DJ1K0	12	900	-	2	40	1162	1030	1133	1555	8797
		-	800	2	35	1038	920	1370	1600	8797
20DJ1K1	13	1000	-	2	40	1297	1150	1265	1620	10627
		-	900	2	40	1162	1030	1545	1620	10627
20DJ1K3	13	1200	-	2	40	1467	1300	1430	2079	11609
		-	1000	2	40	1297	1150	1725	2079	11609
20DJ1K4	13	1250	-	2	40	1636	1450	1595	2175	12713
		-	1000	2	40	1354	1200	1800	2400	12713

810 Volt DC Input Frames 1 - 6 Drive Ratings

Drive Catalog Number	Frame	HP Rating		PWM Freq.	Temp.(1)	DC Input Ratings	Output Amps		
		ND	HD	kHz	°C	Amps	Cont.	1 Min.	3 Sec.
20DE1P7	1	1	0.75	4	50	1.5	1.7	2	2.6
20DE2P7	1	2	1.5	4	50	2.4	2.7	3.6	4.8
20DE3P9	1	3	2	4	50	3.5	3.9	4.3	5.9
20DE6P1	1	5	3	4	50	6.2	6.1	6.7	9.2
20DE9P0	1	7.5	5	4	50	9.1	9	9.9	13.5
20DE011	1	10	7.5	4	50	11.5	11	13.5	18
20DE017	1	15	10	4	50	18	17	18.7	25.5
20DE022	2	20	15	4	50	23.6	22	25.5	34
20DE027	2	25	20	4	50	29	27	33	44
20DE032	3	30	25	4	50	34.3	32	40.5	54
20DE041	3	40	30	4	50	43.9	41	48	64
20DE052	3	50	40	4	50	55.7	52	61.5	82
20DE062	4	60	50	2	45	68.0	62	78	104
20DT099	5	100	-	2	50(2)	108.6	99	109	126
		-	75	2	50(2)	84.5	77	116	138
20DT144	6	150	-	2	50(2)	158	144	158	216
		-	125	2	40(2)	137.1	125	188	250

(1) The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40° C.

810 Volt DC Input Frames 9 - 14 Drive Ratings

Drive Catalog Number	Frame	HP Rating		PWM Freq.	Temp.	DC Input Ratings	Output Amps			Watts Loss
		ND	HD	kHz	°C	Amps	Cont.	1 Min.	3 Sec.	Watts
20DK170	9	150	-	2	40	192	170	187	245	-
		-	150	2	40	162	144	216	245	-
20DK208	9	200	-	2	35	235	208	230	289	-
		-	150	2	40	192	170	250	289	-
20DK261	10	250	-	2	40	294	261	287	375	3155
		-	200	2	40	235	208	312	375	3155
20DK325	10	350	-	2	40	367	325	358	470	3563
		-	250	2	40	294	261	392	470	3563
20DK385	10	400	-	2	40	434	385	424	585	4145
		-	350	2	40	367	325	488	585	4145

Drive Catalog Number	Frame	HP Rating		PWM Freq. kHz	Temp. °C	DC Input Ratings Amps	Output Amps			Watts Loss Watts
		ND	HD				Cont.	1 Min.	3 Sec.	
20DK416	10	450	–	2	35	469	416	458	585	4217
		–	350	2	40	367	325	488	585	4217
20DK460	11	500	–	2	40	519	460	506	693	4505
		–	400	2	40	434	385	578	693	4505
20DK502	11	500	–	2	40	566	502	552	828	4917
		–	500	2	40	519	460	690	828	4917
20DK590	11	600	–	2	35	666	590	649	885	5353
		–	500	2	40	566	502	753	904	5353
20DK650	12	700	–	2	40	733	650	715	1062	7127
		–	650	2	40	666	590	885	1062	7127
20DK750	12	800	–	2	40	846	750	825	1170	7928
		–	700	2	40	733	650	975	1170	7928
20DK820 (1)	12	900	–	2	35	925	820	902	1170	8312
		–	700	2	35	733	650	975	1170	8312
20DK920	13	1000	–	2	40	1038	920	1012	1380	9771
		–	900	2	40	925	820	1230	1410	9771
20DK1K0	13	1100	–	2	40	1162	1030	1133	1545	12248
		–	1000	2	40	1038	920	1380	1755	12248
20DK1K1	13	1300	–	2	35	1331	1180	1298	1755	13326
		–	1100	2	35	1162	1030	1463	1755	13326
20DK1K5	14	1600	–	2	40	1692	1500	1650	2250	17325
		–	1400	2	40	1467	1300	1950	2340	17325

(1) 20DK820 drives (ND) are only capable of producing 95% of starting torque under 10 Hz.

932Volt DC Input Frames 5 & 6 Drive Ratings

Drive Catalog Number	Frame	kW Rating		PWM Freq. kHz	Temp.(1) °C	DC Input Ratings Amps	Output Amps		
		ND	HD				Cont.	1 Min.	3 Sec.
20DW098	5	90	–	2	50(2)	92.3	98	108	127
		–	75	2	50(2)	92.3	82	123	140
20DW142	6	132	–	2	50(2)	162.2	142	156	213
		–	110	2	40(2)	134.9	119	179	238

(1) The temperature rating listed for frame size 1-4 drives is for NEMA open types only. The adhesive tape label must be removed in order to operate at this temperature, otherwise the ambient operating temperature of these drives is 40° C.

932 Volt DC Input Frames 9 - 14 Drive Ratings

Drive Catalog Number	Frame	kW Rating		PWM Freq. kHz	Temp. °C	DC Input Ratings Amps	Output Amps			Watts Loss Watts
		ND	HD				Cont.	1 Min.	3 Sec.	
20DM170	9	160	–	2	40	200	170	187	245	–
		–	132	2	40	170	144	216	245	–
20DM208	9	200	–	2	35	245	208	230	289	–
		–	160	2	40	200	170	250	289	–
20DM261	10	250	–	2	40	307	261	287	375	3155
		–	200	2	40	245	208	312	375	3155
20DM325	10	315	–	2	40	383	325	358	470	3563
		–	250	2	40	307	261	392	470	3563
20DM385	10	355	–	2	40	453	385	424	585	4145
		–	315	2	40	383	325	488	585	4145
20DM416	10	400	–	2	35	490	416	458	585	4217
		–	315	2	40	383	325	488	585	4217
20DM460	11	450	–	2	40	542	460	506	693	4505
		–	355	2	40	453	385	578	693	4505
20DM502	11	500	–	2	40	591	502	552	828	4917
		–	400	2	40	542	460	690	828	4917

Drive Catalog Number	Frame	kW Rating		PWM Freq.	Temp.	DC Input Ratings	Output Amps			Watts Loss
		ND	HD	kHz	°C	Amps	Cont.	1 Min.	3 Sec.	Watts
20DM590	11	560	–	2	35	695	590	649	885	5353
		–	500	2	35	591	502	753	904	5353
20DM650	12	630	–	2	40	765	650	715	1062	7127
		–	560	2	40	695	590	885	1062	7127
20DM750	12	710	–	2	40	883	750	825	1170	7928
		–	630	2	40	765	650	975	1170	7928
20DM820 ⁽¹⁾	12	800	–	2	35	965	820	902	1170	8312
		–	630	2	35	765	650	975	1170	8312
20DM920	13	900	–	2	40	1038	920	1012	1380	9771
		–	800	2	40	925	820	1230	1410	9771
20DM1K0	13	1000	–	2	40	1162	1030	1133	1545	12248
		–	900	2	40	1038	920	1380	1755	12248
20DM1K1	13	1100	–	2	35	1331	1180	1298	1755	13326
		–	1000	2	35	1162	1030	1463	1755	13326
20DM1K5	14	1500	–	2	40	1766	1500	1650	2250	17325
		–	1300	2	40	1530	1300	1950	2340	17325

(1) 20DM820 drives (ND) are only capable of producing 95% of starting torque under 10 Hz.

Drive Fuse & Circuit Breaker Ratings

The tables on the following pages provide recommended AC line input fuse and circuit breaker information. Tables with DC Link fuse recommendations are also provided.

Fuse Size

Fuse sizes are the recommended minimum size based on 40° C ambient, 75° C wiring and U.S. N.E.C. Other country, state or local codes may require different fuse/circuit breaker ratings.

Fuse Type

The recommend fuse type is listed below. If available current ratings do not match the tables provided, the fuse rating that exceeds the drive continuous rating should be chosen.

- IEC

BS88 (British Standard) Parts 1 & 2 ⁽¹⁾, EN60269-1, Parts 1 & 2, type go or equivalent should be used for these drives.

- UL

UL requirements specify that UL Class CC, T or J fuses must be used for all drives in this section ⁽²⁾.

(1) Typical designations include, but may not be limited to the following; Ora 1 & 2:AC, AD, BC, BD, CD, DD, ED, EFS, EF, FF, FG, GF, GG, GH

(2) Typical designations include; Type CC - KTK, FNQ-R
Type J - JK5, LPJ
Type T - JJS, JJN

208 Volt AC Input Frames 1-6 Drive Protection Devices

Drive Catalog Number	L _{Frame}	kW Rating		Input Ratings		Dual Element Time Delay Fuse		Non-Time Delay Fuse		Circuit Breaker ⁽³⁾	Motor Circuit Protector ⁽⁵⁾	140M Motor Starter with Adjustable Current Range ⁽⁶⁾⁽⁷⁾			
		ND	HD	Amps	kVA	Min. ⁽¹⁾	Max. ⁽²⁾	Min. ⁽¹⁾	Max. ⁽²⁾	Max. ⁽⁴⁾	Max. ⁽⁵⁾	Available Catalog Numbers ⁽⁸⁾			
20DB4P2	1	0.75	0.55	3.7	1.3	6	10	6	17.5	15	7	M-C2E-B63	M-D8E-B63	-	-
20DB6P8	1	1.5	1.1	6.8	2.4	10	15	10	30	30	15	M-C2E-C10	M-D8E-C10	M-F8E-C10	-
20DB9P6	1	2.2	1.5	9.5	3.4	12	20	12	40	40	15	M-C2E-C16	M-D8E-C16	M-F8E-C16	-
20DB015	1	4.0	3.0	15.7	5.7	20	35	20	70	70	30	M-C2E-C20	M-D8E-C20	M-F8E-C20	-
20DB022	1	5.5	4.0	23.0	8.3	30	50	30	100	100	30	M-C2E-C25	M-D8E-C25	M-F8E-C25	M-CMN-2500
20DB028	2	7.5	5.5	29.6	10.7	40	70	40	125	125	50	-	-	M-F8E-C32	M-CMN-4000
20DB042	3	11	7.5	44.5	16.0	60	100	60	175	175	70	-	-	M-F8E-C45	M-CMN-6300
20DB052	3	15	11	51.5	18.6	80	125	80	200	200	100	-	-	-	M-CMN-6300
20DB070	4	18.5	15	72	25.9	90	175	90	300	300	100	-	-	-	M-CMN-9000
20DB080	4	22	18.5	84.7	30.5	110	200	110	350	350	150	-	-	-	M-CMN-9000
20DB104	5	30	-	113	40.7	150	250	150	475	350	150	-	-	-	-
		-	22	84.7	30.5	125	200	125	350	300	150	-	-	-	M-CMN-9000
20DB130	5	37	-	141	44.1	175	275	175	500	375	250	-	-	-	-
		-	30	113	35.3	125	225	125	400	300	150	-	-	-	-
20DB154	6	45	-	167	60.1	225	350	225	500	500	250	-	-	-	-
		-	37	141	50.9	200	300	200	500	450	250	-	-	-	-
20DB192	6	55	-	208	75.0	300	450	300	600	600	400	-	-	-	-
		-	45	167	60.1	225	350	225	500	500	250	-	-	-	-
20DB260	6	66	-	255	96.7	300	575	300	750	750	400	-	-	-	-
		-	55	199	71.7	225	450	225	600	600	400	-	-	-	-

- (1) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.
- (2) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
- (3) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
- (4) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.
- (5) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor/drive FLA. Ratings shown are suggested. Instantaneous trip settings must be set to US NEC code. Not to exceed 1300% FLA.
- (6) Bulletin 140M with adjustable current range should have the current trip set to the minimum range that the device will not trip.
- (7) 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 systems.
- (8) The AIC ratings of the Bulletin 140M Motor Protector may vary. See publication 140M-SG001.

240 Volt AC Input Frames 1-6 Drive Protection Devices

Drive Catalog Number	L _{Frame}	HP Rating		Input Ratings		Dual Element Time Delay Fuse		Non-Time Delay Fuse		Circuit Breaker ⁽³⁾	Motor Circuit Protector ⁽⁵⁾	140M Motor Starter with Adjustable Current Range ⁽⁶⁾⁽⁷⁾			
		ND	HD	Amps	kVA	Min. ⁽¹⁾	Max. ⁽²⁾	Min. ⁽²⁾	Max. ⁽³⁾	Max. ⁽⁴⁾	Max. ⁽⁵⁾	Available Catalog Numbers ⁽⁸⁾			
20DB4P2	1	1	0.75	3.3	1.4	5	8	5	15	15	7	M-C2E-B63	M-D8E-B63	-	-
20DB6P8	1	2	1.5	5.9	2.4	10	15	10	25	25	15	M-C2E-C10	M-D8E-C10	M-F8E-C10	-
20DB9P6	1	3	2	8.3	3.4	12	20	12	35	35	15	M-C2E-C10	M-D8E-C10	M-F8E-C10	-
20DB015	1	5	3	13.7	5.7	20	30	20	60	60	30	M-C2E-C16	M-D8E-C16	M-F8E-C16	-
20DB022	1	7.5	5	19.9	8.3	25	50	25	80	80	30	M-C2E-C25	M-D8E-C25	M-F8E-C25	M-CMN-2500
20DB028	2	10	7.5	25.7	10.7	35	60	35	100	100	50	-	-	M-F8E-C32	M-CMN-4000
20DB042	3	15	10	38.5	16.0	50	90	50	150	150	50	-	-	M-F8E-C45	M-CMN-6300
20DB052	3	20	15	47.7	19.8	60	100	60	200	200	100	-	-	-	M-CMN-6300
20DB070	4	25	20	64.2	26.7	90	150	90	275	275	100	-	-	-	M-CMN-9000
20DB080	4	30	25	73.2	30.5	100	180	100	300	300	100	-	-	-	M-CMN-9000
20DB104	5	40	-	98	40.6	125	225	125	400	300	150	-	-	-	-
		-	30	73	30.5	100	175	100	300	300	100	-	-	-	M-CMN-9000
20DB130	5	50	-	122	50.7	175	275	175	500	375	250	-	-	-	-
		-	40	98	40.6	125	225	125	400	300	150	-	-	-	-
20DB154	6	60	-	145	60.1	200	300	200	600	450	250	-	-	-	-
		-	50	122	50.7	175	275	175	500	375	250	-	-	-	-
20DB192	6	75	-	180	74.9	225	400	225	600	575	250	-	-	-	-
		-	60	145	60.1	200	300	200	600	450	250	-	-	-	-
20DB260	6	100	-	233	96.8	300	575	300	750	750	400	-	-	-	-
		-	75	169	74.9	225	450	225	600	600	400	-	-	-	-

- (1) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

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- (2) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
- (3) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
- (4) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.
- (5) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor/drive FLA. Ratings shown are suggested. Instantaneous trip settings must be set to US NEC code. Not to exceed 1300% FLA.
- (6) Bulletin 140M with adjustable current range should have the current trip set to the minimum range that the device will not trip.
- (7) 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 systems.
- (8) The AIC ratings of the Bulletin 140M Motor Protector may vary. See publication 140M-SG001.

400 Volt AC Input Frames 1 - 6 Drive Protection Devices

Drive Catalog Number	Frame	kW Rating		Input Ratings		Dual Element Time Delay Fuse		Non-Time Delay Fuse		Circuit Breaker ⁽⁵⁾	Motor Circuit Protector ⁽⁷⁾	140M Motor Starter with Adjustable Current Range ⁽⁸⁾⁽⁹⁾		
		ND	HD	Amps	kVA	Min. ⁽³⁾	Max. ⁽⁴⁾	Min. ⁽⁵⁾	Max. ⁽⁶⁾	Max. ⁽⁶⁾	Max. ⁽⁸⁾	Available Catalog Numbers ⁽¹⁰⁾		
20DC2P1	1	0.75	0.55	1.8	1.3	3	6	3	8	15	3	M-C2E-B25	M-D8E-B25	-
20DC3P5	1	1.5	1.1	3.2	2.2	6	7	6	12	15	7	M-C2E-B40	M-D8E-B40	-
20DC5P0	1	2.2	1.5	4.6	3.2	6	10	6	20	20	7	M-C2E-B63	M-D8E-B63	-
20DC8P7	1	4	3.0	7.9	5.5	15	17.5	15	30	30	15	M-C2E-C10	M-D8E-C10	M-F8E-C10
20DC011	1	5.5	4	10.8	7.5	15	25	15	45	45	15	M-C2E-C16	M-D8E-C16	M-F8E-C16
20DC015	1	7.5	5.5	14.4	10.0	20	30	20	60	60	20	M-C2E-C20	M-D8E-C20	M-F8E-C20
20DC022	1	11	7.5	20.6	14.3	30	45	30	80	80	30	M-C2E-C25	M-D8E-C25	M-F8E-C25
20DC030	2	15	11	28.4	19.7	35	60	35	120	120	50	-	-	M-F8E-C32
20DC037	2	18.5	15	35.0	24.3	45	80	45	125	125	50	-	-	M-F8E-C45
20DC043	3	22	18.5	40.7	28.2	60	90	60	150	150	60	-	-	-
20DC056	3	30	22	53	36.7	70	125	70	200	200	100	-	-	-
20DC072	3	37	30	68.9	47.8	90	150	90	250	250	100	-	-	-
20DC085 ⁽¹⁾	4	45	-	81.4	56.4	110	200	110	300	300	150	-	-	-
		-	37	68.9	47.8	90	175	90	275	300	100	-	-	-
20DC105	5	55	-	100.5	69.6	125	225	125	400	300	150	-	-	-
		-	45	81.4	56.4	110	175	110	300	300	150	-	-	-
20DC125	5	55	-	121.1	83.9	150	275	150	500	375	250	-	-	-
		-	45	101	63.7	125	200	125	375	375	150	-	-	-
20DC140	5	75	-	135.6	94	200	300	200	400	400	250	-	-	-
		-	55	121	69.6	150	225	150	300	300	150	-	-	-
20DC170	6	90	-	164.6	114	250	375	250	600	500	250	-	-	-
		-	75	136	94	200	300	200	550	400	250	-	-	-
20DC205 ⁽²⁾	6	110	-	198.5	138	250	450	250	600	600	400	-	-	-
		-	90	164	114	250	375	250	600	500	250	-	-	-
20DC260	6	132	-	254.7	166	350	550	350	750	750	400	-	-	-
		-	110	199	138	250	450	250	600	600	400	-	-	-

- (1) 20DC085 current rating is limited to 45 degrees C ambient.
- (2) 20DC205 current rating is limited to 40 degrees C ambient.
- (3) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.
- (4) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
- (5) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
- (6) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.
- (7) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor/drive FLA. Ratings shown are suggested. Instantaneous trip settings must be set to US NEC code. Not to exceed 1300% FLA.
- (8) Bulletin 140M with adjustable current range should have the current trip set to the minimum range that the device will not trip.
- (9) 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 systems.
- (10) The AIC ratings of the Bulletin 140M Motor Protector may vary. See publication 140M-SG001.

400 Volt AC Input Frames 9 - 13 Drive Protection Devices

Drive Catalog Number	Frame	kW Rating		Input Ratings	Dual Element Time Delay Fuse		Non-Time Delay Fuse		Bussmann Style	Circuit Breaker ⁽⁴⁾	Motor Circuit Protector ⁽⁶⁾
		ND	HD	Amps	Min. ⁽¹⁾	Max. ⁽³⁾	Min. ⁽¹⁾	Max. ⁽³⁾	Semi-Conductor Fuse	Max. ⁽⁵⁾	Max. ⁽⁵⁾
20DC261	9	132	-	263	350	550	350	700	170M5813	700	400
		-	110	207	275	450	275	600	170M5813	600	300
20DC300	9	160	-	302	400	650	400	900	170M5813	900	400
		-	132	247	350	500	350	700	170M5813	700	400
20DC385	10	200	-	388	500	850	500	1100	170M5813	1100	600
		-	160	302	400	650	400	900	170M5813	900	400
20DC460	10	250	-	463	600	1000	600	1300	170M8547	1300	600
		-	200	388	500	850	500	1100	170M8547	1100	600
20DC500	10	250	-	504	650	1100	650	1500	170M8547	1500	700
		-	250	423	550	900	550	1200	170M8547	1200	600
20DC590	11	315	-	594	750 (1 per phs) 375 (2 per phs)	1300	750 (1 per phs) 375 (2 per phs)	1700	170M5813	1700	800
		-	250	524	700 (1 per phs) 350 (2 per phs)	1100	700 (1 per phs) 350 (2 per phs)	1500	170M5813	1500	700
20DC650	11	355	-	655	850 (1 per phs) 425 (2 per phs)	1400	850 (1 per phs) 425 (2 per phs)	1900	170M5813	1900	1000
		-	315	594	750 (1 per phs) 375 (2 per phs)	1300	750 (1 per phs) 375 (2 per phs)	1700	170M5813	1700	800
20DC730	11	400	-	735	1000 (1 per phs) 500 (2 per phs)	1600	1000 (1 per phs) 500 (2 per phs)	2100	170M5813	2100	1200
		-	355	655	850 (1 per phs) 425 (2 per phs)	1400	850 (1 per phs) 425 (2 per phs)	1900	170M5813	1900	1000
20DC820	12	450	-	826	1100 (1 per phs) 550 (2 per phs)	1800	1100 (1 per phs) 550 (2 per phs)	2400	170M8547	2400	1200
		-	400	735	1000 (1 per phs) 500 (2 per phs)	1600	1000 (1 per phs) 500 (2 per phs)	2100	170M8547	2100	1200
20DC920	12	500	-	927	1200 (1 per phs) 600 (2 per phs)	2000	1200 (1 per phs) 600 (2 per phs)	2700	170M8547	2700	1200
		-	450	826	1100 (1 per phs) 550 (2 per phs)	1800	1100 (1 per phs) 550 (2 per phs)	2400	170M8547	2400	1200
20DC1K0	12	560	-	1038	1350 (1 per phs) 700 (2 per phs)	2300	1350 (1 per phs) 700 (2 per phs)	3000	170M8547	3000	1400
		-	500	927	1200 (1 per phs) 600 (2 per phs)	2000	1200 (1 per phs) 600 (2 per phs)	2700	170M8547	2700	1200
20DC1K1	13	630	-	1158	1350 (1 per phs) 700 (2 per phs) ⁽²⁾	2300 ⁽²⁾	1350 (1 per phs) 700 (2 per phs) ⁽²⁾	3000 ⁽²⁾	170M6466 ⁽²⁾	3000	1400
		-	560	1038	1500 (1 per phs) 750 (2 per phs) ⁽²⁾	2500 ⁽²⁾	1500 (1 per phs) 750 (2 per phs) ⁽²⁾	3400 ⁽²⁾	170M6466 ⁽²⁾	3400	1500
20DC1K3	13	710	-	1310	1700 (1 per phs) 850 (2 per phs) ⁽²⁾	2900 ⁽²⁾	1700 (1 per phs) 850 (2 per phs) ⁽²⁾	3900 ⁽²⁾	170M6466 ⁽²⁾	3900	1700
		-	630	1158	1500 (1 per phs) 750 (2 per phs) ⁽²⁾	2500 ⁽²⁾	1500 (1 per phs) 750 (2 per phs) ⁽²⁾	3400 ⁽²⁾	170M6466 ⁽²⁾	3400	1500
20DC1K4	13	800	-	1461	1900 (1 per phs) 950 (2 per phs) ⁽²⁾	3000 ⁽²⁾	1900 (1 per phs) 950 (2 per phs) ⁽²⁾	4300 ⁽²⁾	170M6466 ⁽²⁾	4300	1900
		-	710	1209	1600 (1 per phs) 800 (2 per phs) ⁽²⁾	2700 ⁽²⁾	1600 (1 per phs) 800 (2 per phs) ⁽²⁾	3600 ⁽²⁾	170M6466 ⁽²⁾	3600	1600

- (1) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.
- (2) Fuses and disconnect are supplied with AC input NEMA/UL Type 1 drives.
- (3) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
- (4) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
- (5) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.
- (6) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor/drive FLA. Ratings shown are suggested. Instantaneous trip settings must be set to US NEC code. Not to exceed 1300% FLA.

480 Volt AC Input Frames 1 - 6 Drive Protection Devices

Drive Catalog Number	Frame	HP Rating		Input Ratings		Dual Element Time Delay Fuse		Non-Time Delay Fuse		Circuit Breaker ⁽³⁾	Motor Circuit Protector ⁽⁵⁾	140M Motor Starter with Adjustable Current Range ⁽⁶⁾⁽⁷⁾				
		ND	HD	Amps	kVA	Min. ⁽¹⁾	Max. ⁽²⁾	Min. ⁽³⁾	Max. ⁽⁴⁾			Max. ⁽⁴⁾	Max. ⁽⁶⁾	Available Catalog Numbers ⁽⁸⁾		
20DD2P1	1	1	0.75	1.6	1.4	3	6	3	8	15	3	M-C2E-B25	-	-	-	-
20DD3P4	1	2	1.5	2.6	2.2	4	8	4	12	15	7	M-C2E-B40	M-D8E-B40	-	-	-
20DD5P0	1	3	2	3.9	3.2	6	10	6	20	20	7	M-C2E-B63	M-D8E-B63	-	-	-
20DD8P0	1	5	3	6.9	5.7	10	15	10	30	30	15	M-C2E-C10	M-D8E-C10	M-F8E-C10	-	-
20DD011	1	7.5	5	9.5	7.9	15	20	15	40	40	15	M-C2E-C16	M-D8E-C16	M-F8E-C16	-	-
20DD014	1	10	7.5	12.5	10.4	17.5	30	17.5	50	50	20	M-C2E-C16	M-D8E-C16	M-F8E-C16	-	-
20DD022	1	15	10	19.9	16.6	25	50	25	80	80	30	M-C2E-C25	M-D8E-C25	M-F8E-C25	M-CMN-2500	-
20DD027	2	20	15	24.8	20.6	35	60	35	100	100	50	-	-	M-F8E-C32	M-CMN-4000	-
20DD034	2	25	20	31.2	25.9	40	70	40	125	125	50	-	-	M-F8E-C45	M-CMN-4000	-
20DD040	3	30	25	36.7	30.5	50	90	50	150	150	50	-	-	M-F8E-C45	M-CMN-4000	-
20DD052	3	40	30	47.7	39.7	60	110	60	200	200	70	-	-	-	M-CMN-6300	-
20DD065	3	50	40	59.6	49.6	80	125	80	250	250	100	-	-	-	M-CMN-9000	-
20DD077	4	60	-	72.3	60.1	100	170	100	300	300	100	-	-	-	M-CMN-9000	-
		-	50	59.6	49.6	80	125	80	250	250	100	-	-	-	M-CMN-9000	-
20DD096	5	75	-	90.1	74.9	125	200	125	350	350	125	-	-	-	-	-
		-	60	72.3	60.1	100	170	100	300	300	100	-	-	-	M-CMN-9000	-
20DD125	5	100	-	117	97.6	150	250	150	500	375	150	-	-	-	-	-
		-	75	90.1	74.9	125	200	125	350	350	125	-	-	-	-	-
20DD156	6	125	-	146.5	121.7	200	350	200	600	450	250	-	-	-	-	-
		-	100	131	97.6	175	250	175	500	375	250	-	-	-	-	-
20DD180	6	150	-	169	140.5	225	400	225	600	500	250	-	-	-	-	-
		-	125	147	121.7	200	350	200	600	450	250	-	-	-	-	-
20DD248	6	200	-	232.8	188	300	550	300	700	700	400	-	-	-	-	-
		-	150	169	140.5	225	400	225	600	500	250	-	-	-	-	-

- (1) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.
- (2) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
- (3) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
- (4) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.
- (5) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor/drive FLA. Ratings shown are suggested. Instantaneous trip settings must be set to US NEC code. Not to exceed 1300% FLA.
- (6) Bulletin 140M with adjustable current range should have the current trip set to the minimum range that the device will not trip.
- (7) 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 systems.
- (8) The AIC ratings of the Bulletin 140M Motor Protector may vary. See publication 140M-SG001.

480 Volt AC Input Frames 9 - 13 Drive Protection Devices

Drive Catalog Number	Frame	HP Rating		Input Ratings Amps	Dual Element Time Delay Fuse		Non-Time Delay Fuse		Bussmann Style Semi-Conductor Fuse	Circuit Breaker ⁽⁴⁾ Max. ⁽⁵⁾	Motor Circuit Protector ⁽⁶⁾ Max. ⁽⁵⁾
		ND	HD		Min. ⁽¹⁾	Max. ⁽³⁾	Min. ⁽¹⁾	Max. ⁽³⁾			
20DD261	9	200	-	252	350	550	350	700	170M5813	700	400
		-	150	207	275	450	275	600	170M5813	600	300
20DD300	9	250	-	290	400	650	400	900	170M5813	900	400
		-	200	247	350	550	350	700	170M5813	700	400
20DD385	10	300	-	372	500	850	500	1100	170M5813	1100	600
		-	250	302	400	650	400	900	170M5813	900	400
20DD460	10	350	-	444	600	1000	600	1300	170M8547	1300	600
		-	300	388	500	850	500	1100	170M8547	1100	600
20DD500	10	450	-	483	650	1000	650	1500	170M8547	1500	700
		-	350	423	550	900	550	1200	170M8547	1200	600
20DD590	11	500	-	570	750 (1 per phs) 375 (2 per phs)	1300	750 (1 per phs) 375 (2 per phs)	1700	170M5813	1700	800
		-	450	524	700 (1 per phs) 350 (2 per phs)	1100	700 (1 per phs) 350 (2 per phs)	1500	170M5813	1500	700
20DD650	11	500	-	628	800 (1 per phs) 400 (2 per phs)	1400	800 (1 per phs) 400 (2 per phs)	1900	170M5813	1900	800
		-	500	594	750 (1 per phs) 375 (2 per phs)	1300	750 (1 per phs) 375 (2 per phs)	1700	170M5813	1700	800

PowerFlex 700S Phase II Drive - Technical Data

Drive Catalog Number	Frame	HP Rating		Input Ratings		Dual Element Time Delay Fuse		Non-Time Delay Fuse		Bussmann Style	Circuit Breaker ⁽⁴⁾	Motor Circuit Protector ⁽⁶⁾
		ND	HD	Amps	kVA	Min. ⁽¹⁾	Max. ⁽³⁾	Min. ⁽¹⁾	Max. ⁽³⁾	Semi-Conductor Fuse	Max. ⁽⁵⁾	Max. ⁽⁵⁾
20DD730	11	600	-	705		900 (1 per phs) 450 (2 per phs)	1600	900 (1 per phs) 450 (2 per phs)	2100	170M5813	2100	900
		-	500	655		850 (1 per phs) 425 (2 per phs)	1400	850 (1 per phs) 425 (2 per phs)	1900	170M5813	1900	900
20DD820	12	700	-	792		1000 (1 per phs) 500 (2 per phs)	1800	1000 (1 per phs) 500 (2 per phs)	2400	170M8547	2400	1000
		-	600	735		900 (1 per phs) 475 (2 per phs)	1600	900 (1 per phs) 475 (2 per phs)	2100	170M8547	2100	1000
20DD920	12	800	-	888		1200 (1 per phs) 600 (2 per phs)	2000	1200 (1 per phs) 600 (2 per phs)	2700	170M8547	2700	1200
		-	700	826		1100 (1 per phs) 550 (2 per phs)	1800	1100 (1 per phs) 550 (2 per phs)	2400	170M8547	2400	1200
20DD1K0	12	900	-	994		1300 (1 per phs) 650 (2 per phs)	2300	1300 (1 per phs) 650 (2 per phs)	3000	170M8547	3000	1300
		-	800	927		1200 (1 per phs) 600 (2 per phs)	2000	1200 (1 per phs) 600 (2 per phs)	2700	170M8547	2700	1200
20DD1K1	13	1000	-	1110		1400 (1 per phs) 700 (2 per phs) ⁽²⁾	2500 ⁽²⁾	1400 (1 per phs) 700 (2 per phs) ⁽²⁾	3400 ⁽²⁾	170M6466 ⁽²⁾	3400	1400
		-	900	994		1300 (1 per phs) 650 (2 per phs) ⁽²⁾	2300 ⁽²⁾	1300 (1 per phs) 650 (2 per phs) ⁽²⁾	3000 ⁽²⁾	170M6466 ⁽²⁾	3000	1300
20DD1K3	13	1200	-	1255		1600 (1 per phs) 800 (2 per phs) ⁽²⁾	2900 ⁽²⁾	1600 (1 per phs) 800 (2 per phs) ⁽²⁾	3900 ⁽²⁾	170M6466 ⁽²⁾	3900	1600
		-	1000	1110		1400 (1 per phs) 700 (2 per phs) ⁽²⁾	2500 ⁽²⁾	1400 (1 per phs) 700 (2 per phs) ⁽²⁾	3400 ⁽²⁾	170M6466 ⁽²⁾	3400	1400
20DD1K4	13	1250	-	1400		1800 (1 per phs) 900 (2 per phs) ⁽²⁾	3200 ⁽²⁾	1800 (1 per phs) 900 (2 per phs) ⁽²⁾	4300 ⁽²⁾	170M6466 ⁽²⁾	4300	1800
		-	1000	1158		1500 (1 per phs) 750 (2 per phs) ⁽²⁾	2700 ⁽²⁾	1500 (1 per phs) 750 (2 per phs) ⁽²⁾	3600 ⁽²⁾	170M6466 ⁽²⁾	3600	1500

- (1) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.
(2) Fuses and disconnect are supplied with AC input NEMA/UL Type 1 drives.
(3) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
(4) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
(5) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.
(6) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor/drive FLA. Ratings shown are suggested. Instantaneous trip settings must be set to US NEC code. Not to exceed 1300% FLA.

600 Volt AC Input Frames 1 - 6 Drive Protection Devices

Drive Catalog Number	Frame	HP Rating		Input Ratings		Dual Element Time Delay Fuse		Non-Time Delay Fuse		Circuit Breaker ⁽³⁾	Motor Circuit Protector ⁽⁵⁾	140M Motor Starter with Adjustable Current Range ⁽⁶⁾⁽⁷⁾			
		ND	HD	Amps	kVA	Min. ⁽¹⁾	Max. ⁽²⁾	Min. ⁽³⁾	Max. ⁽⁴⁾	Max. ⁽⁴⁾	Max. ⁽⁶⁾	Available Catalog Numbers ⁽⁸⁾			
20DE1P7	1	1	0.75	1.3	1.4	2	4	2	6	15	3	M-C2E-B16	-	-	-
20DE2P7	1	2	1.5	2.1	2.1	3	6	3	10	15	3	M-C2E-B25	-	-	-
20DE3P9	1	3	2	3.0	3.1	6	9	6	15	15	7	M-C2E-B40	M-D8E-B40	-	-
20DE6P1	1	5	3	5.3	5.5	9	12	9	20	20	15	M-C2E-B63	M-D8E-B63	-	-
20DE9P0	1	7.5	5	7.8	8.1	10	20	10	35	30	15	M-C2E-C10	M-D8E-C10	M-F8E-C10	-
20DE011	1	10	7.5	9.9	10.2	15	25	15	40	40	15	M-C2E-C10	M-D8E-C10	M-F8E-C10	-
20DE017	1	15	10	15.4	16.0	20	40	20	60	50	20	M-C2E-C16	M-D8E-C16	M-F8E-C16	-
20DE022	2	20	15	20.2	21.0	30	50	30	80	80	30	M-C2E-C25	M-D8E-C25	M-F8E-C25	M-CMN-2500
20DE027	2	25	20	24.8	25.7	35	60	35	100	100	50	-	-	M-F8E-C25	M-CMN-2500
20DE032	3	30	25	29.4	30.5	40	70	40	125	125	50	-	-	M-F8E-C32	M-CMN-4000
20DE041	3	40	30	37.6	39.1	50	90	50	150	150	100	-	-	M-F8E-C45	M-CMN-4000
20DE052	3	50	40	47.7	49.6	60	110	60	200	200	100	-	-	-	M-CMN-6300
20DE062	4	60	50	58.2	60.5	80	125	80	225	225	100	-	-	-	M-CMN-6300
20DE077	5	75	-	72.3	75.1	90	150	90	300	300	100	-	-	-	M-CMN-9000
		-	60	58.2	60.5	90	125	90	250	250	100	-	-	-	M-CMN-6300
20DE099	5	100	-	92.9	96.6	125	200	125	375	375	150	-	-	-	-
		-	75	72.3	75.1	100	175	100	300	300	100	-	-	-	M-CMN-9000

PowerFlex 700S Phase II Drive - Technical Data

Drive Catalog Number	Frame	HP Rating		Input Ratings		Dual Element Time Delay Fuse		Non-Time Delay Fuse		Circuit Breaker ⁽³⁾	Motor Circuit Protector ⁽⁵⁾	140M Motor Starter with Adjustable Current Range ⁽⁶⁾⁽⁷⁾			
		ND	HD	Amps	kVA	Min. ⁽¹⁾	Max. ⁽²⁾	Min. ⁽³⁾	Max. ⁽⁴⁾	Max. ⁽⁴⁾	Max. ⁽⁶⁾	Available Catalog Numbers ⁽⁸⁾			
20DE125	6	125	–	117	121.6	150	250	150	375	375	250	–	–	–	–
		–	100	93	96.6	125	200	125	375	375	150	–	–	–	–
20DE144	6	150	–	135	140.5	175	300	175	400	400	250	–	–	–	–
		–	125	117	121.6	150	275	150	375	375	250	–	–	–	–

- (1) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.
(2) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
(3) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
(4) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.
(5) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor/drive FLA. Ratings shown are suggested. Instantaneous trip settings must be set to US NEC code. Not to exceed 1300% FLA.
(6) Bulletin 140M with adjustable current range should have the current trip set to the minimum range that the device will not trip.
(7) 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 systems.
(8) The AIC ratings of the Bulletin 140M Motor Protector may vary. See publication 140M-SG001.

600 Volt AC Input Frames 9 - 14 Drive Protection Devices

Drive Catalog Number	Frame	HP Rating		Input Ratings		Dual Element Time Delay Fuse		Non-Time Delay Fuse		Bussmann Style Semi-Conductor Fuse	Circuit Breaker ⁽⁵⁾	Motor Circuit Protector ⁽⁷⁾
		ND	HD	Amps		Min. ⁽²⁾	Max. ⁽⁴⁾	Min. ⁽²⁾	Max. ⁽⁴⁾	Max ⁽⁶⁾	Max. ⁽⁶⁾	
20DE170	9	150	–	164		225	375	225	500	170M3819	500	250
		–	150	139		175	300	175	500	170M3819	500	200
20DE208	9	200	–	201		275	450	275	600	170M3819	600	300
		–	150	164		225	375	225	500	170M3819	500	250
20DE261	10	250	–	252		325	575	325	775	170M5813	700	350
		–	200	201		275	450	275	600	170M5813	600	300
20DE325	10	350	–	314		400	725	400	950	170M5813	900	450
		–	250	252		325	575	325	775	170M5813	750	400
20DE385	10	400	–	372		475	850	475	1100	170M5813	1100	500
		–	350	314		400	725	400	950	170M5813	900	450
20DE416	10	450	–	402		525	900	525	1200	170M5813	1200	550
		–	350	314		400	725	400	950	170M5813	900	450
20DE460	11	500	–	444		575 (1 per phs) 300 (2 per phs)	1000	575 (1 per phs) 300 (2 per phs)	1300	170M8547	1300	600
		–	400	372		475 (1 per phs) 250 (2 per phs)	850	475 (1 per phs) 250 (2 per phs)	1100	170M8547	1100	500
20DE502	11	500	–	485		625 (1 per phs) 325 (2 per phs)	1100	625 (1 per phs) 325 (2 per phs)	1500	170M8547	1500	650
		–	500	444		575 (1 per phs) 300 (2 per phs)	1000	575 (1 per phs) 300 (2 per phs)	1300	170M8547	1300	600
20DE590	11	600	–	570		725 (1 per phs) 375(2 per phs)	1300	725 (1 per phs) 375(2 per phs)	1700	170M5813	1700	800
		–	500	485		625 (1 per phs) 325 (2 per phs)	1100	625 (1 per phs) 325 (2 per phs)	1500	170M5813	1500	700
20DE650	12	700	–	628		800 (1 per phs) 400 (2 per phs)	1400	800 (1 per phs) 400 (2 per phs)	1900	170M5813	1900	900
		–	650	570		725 (1 per phs) 375 (2 per phs)	1300	725 (1 per phs) 375 (2 per phs)	1700	170M5813	1700	800
20DE750	12	800	–	724		950 (1 per phs) 475 (2 per phs)	1600	950 (1 per phs) 475 (2 per phs)	2200	170M5813	2200	1000
		–	700	628		800 (1 per phs) 400 (2 per phs)	1400	800 (1 per phs) 400 (2 per phs)	1900	170M5813	1900	900
20DE820 ⁽¹⁾	12	900	–	792		1000 (1 per phs) 500 (2 per phs)	1800	1000 (1 per phs) 500 (2 per phs)	2400	170M5813	2400	1100
		–	700	628		800 (1 per phs) 400 (2 per phs)	1400	800 (1 per phs) 400 (2 per phs)	1900	170M5813	1900	900
20DE920	13	1000	–	888		1200 (1 per phs) 600 (2 per phs) ⁽³⁾	2000 ⁽³⁾	1200 (1 per phs) 600 (2 per phs) ⁽³⁾	2700 ⁽³⁾	170M6466 ⁽³⁾	2700	1200
		–	900	792		1000 (1 per phs) 500 (2 per phs) ⁽³⁾	1800 ⁽³⁾	1000 (1 per phs) 500 (2 per phs) ⁽³⁾	2400 ⁽³⁾	170M6466 ⁽³⁾	2400	1100

PowerFlex 700S Phase II Drive - Technical Data

Drive Catalog Number	Frame	HP Rating		Input Ratings		Dual Element Time Delay Fuse		Non-Time Delay Fuse		Bussmann Style Semi-Conductor Fuse	Circuit Breaker ⁽⁵⁾		Motor Circuit Protector ⁽⁷⁾	
		ND	HD	Amps	kVA	Min. ⁽²⁾	Max. ⁽⁴⁾	Min. ⁽²⁾	Max. ⁽⁴⁾		Max. ⁽⁶⁾	Max. ⁽⁶⁾		
20DE1K0	13	1100	–	994		1300 (1 per phs) 650 (2 per phs) ⁽³⁾	2300 (3)	1300 (1 per phs) 650 (2 per phs) ⁽³⁾	3000 (3)	170M6466 ⁽³⁾	3000	1300		
		–	1000	888		1200 (1 per phs) 600 (2 per phs) ⁽³⁾	2000 (3)	1200 (1 per phs) 600 (2 per phs) ⁽³⁾	2700 (3)	170M6466 ⁽³⁾	2700	1200		
20DE1K1	13	1300	–	1139		1500 (1 per phs) 750 (2 per phs) ⁽³⁾	2600 (3)	1500 (1 per phs) 750 (2 per phs) ⁽³⁾	3500 (3)	170M6466 ⁽³⁾	3500	1500		
		–	1100	994		1300 (1 per phs) 650 (2 per phs) ⁽³⁾	2200 (3)	1300 (1 per phs) 650 (2 per phs) ⁽³⁾	3000 (3)	170M6466 ⁽³⁾	3000	1300		
20DE1K5	14	1600	–	1448		1900 (1 per phs) 650 (3 per phs)	3300	1900 (1 per phs) 650 (3 per phs)	4500	170M6466	4500	1900		
		–	1400	1255		1600 (1 per phs) 550 (3 per phs)	2900	1600 (1 per phs) 550 (3 per phs)	3900	170M6466	3900	1700		

- (1) 20DE820 drives (ND) are only capable of producing 95% of starting torque under 10 Hz.
- (2) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.
- (3) Fuses and disconnect are supplied with AC input NEMA/UL Type 1 drives.
- (4) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
- (5) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
- (6) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.
- (7) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor/drive FLA. Ratings shown are suggested. Instantaneous trip settings must be set to US NEC code. Not to exceed 1300% FLA.

690 Volt AC Input Frames 5 & 6 Drive Protection Devices

Drive Catalog Number	Frame	kW Rating		Input Ratings		Dual Element Time Delay Fuse		Non-Time Delay Fuse		Circuit Breaker ⁽³⁾		Motor Circuit Protector ⁽⁵⁾	
		ND	HD	Amps	kVA	Min. ⁽¹⁾	Max. ⁽²⁾	Min. ⁽²⁾	Max. ⁽³⁾	Max. ⁽⁴⁾	Max. ⁽⁴⁾	Max. ⁽⁵⁾	Max. ⁽⁵⁾
20DF052	5	45	–	46.9	59.5	60	110	60	175	175	–	–	–
		–	37.5	40.1	48.0	50	90	50	150	150	–	–	–
20DF060	5	55	–	57.7	68.9	80	125	80	225	225	–	–	–
		–	45	46.9	59.5	60	110	60	175	175	–	–	–
20DF082	5	75	–	79.0	94.4	100	200	100	375	375	–	–	–
		–	55	57.7	68.9	80	125	80	225	225	–	–	–
20DF098	5	90	–	94.7	113	125	200	125	375	375	–	–	–
		–	75	79.0	94.4	100	200	100	375	375	–	–	–
20DF119	6	110	–	115	138	150	250	150	400	–	–	–	–
		–	90	92.9	113	125	200	125	375	–	–	–	–
20DF142	6	132	–	139	165.9	175	300	175	450	–	–	–	–
		–	110	115	137	150	250	150	400	–	–	–	–

- (1) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.
- (2) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
- (3) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
- (4) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.
- (5) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor/drive FLA. Ratings shown are suggested. Instantaneous trip settings must be set to US NEC code. Not to exceed 1300% FLA.

690 Volt AC Input Frames 9 - 14 Drive Protection Devices

Drive Catalog Number	Frame	kW Rating		Input Ratings	Dual Element Time Delay Fuse		Non-Time Delay Fuse		Bussmann Style Semi-Conductor Fuse	Circuit Breaker ⁽⁵⁾	Motor Circuit Protector ⁽⁷⁾
		ND	HD	Amps	Min. ⁽²⁾	Max. ⁽⁴⁾	Min. ⁽²⁾	Max. ⁽⁴⁾		Max. ⁽⁶⁾	Max. ⁽⁶⁾
20DF170	9	160	–	171	225	375	225	500	170M3819	500	250
		–	132	145	200	300	200	500	170M3819	400	200
20DF208	9	200	–	210	275	450	275	600	170M3819	600	300
		–	160	171	225	375	225	500	170M3819	500	250
20DF261	10	250	–	263	350	575	350	775	170M5813	750	350
		–	200	210	275	450	275	600	170M5813	600	300
20DF325	10	315	–	327	425	725	425	950	170M5813	900	450
		–	250	263	350	575	350	775	170M5813	750	400
20DF385	10	355	–	388	500	850	500	1100	170M5813	1100	500
		–	315	327	425	725	425	950	170M5813	900	450
20DF416	10	400	–	419	525	900	525	1200	170M5813	1200	550
		–	315	327	425	700	425	950	170M5813	900	450
20DF460	11	500	–	463	600 (1 per phs) 300 (2 per phs)	1000	600 (1 per phs) 300 (2 per phs)	1300	170M8547	1300	600
		–	400	388	500 (1 per phs) 250 (2 per phs)	850	500 (1 per phs) 250 (2 per phs)	1100	170M8547	1100	500
20DF502	11	560	–	506	650 (1 per phs) 325 (2 per phs)	1100	650 (1 per phs) 325 (2 per phs)	1500	170M8547	1500	650
		–	500	463	600 (1 per phs) 300 (2 per phs)	1000	600 (1 per phs) 300 (2 per phs)	1300	170M8547	1300	600
20DF590	11	580	–	594	750 (1 per phs) 375 (2 per phs)	1300	750 (1 per phs) 375 (2 per phs)	1700	170M5813	1700	800
		–	500	506	650 (1 per phs) 325 (2 per phs)	1100	650 (1 per phs) 325 (2 per phs)	1500	170M5813	1500	700
20DF650	12	630	–	655	850 (1 per phs) 425 (2 per phs)	1400	850 (1 per phs) 425 (2 per phs)	1900	170M5813	1900	900
		–	560	594	750 (1 per phs) 375 (2 per phs)	1300	750 (1 per phs) 375 (2 per phs)	1700	170M5813	1700	800
20DF750	12	710	–	756	950 (1 per phs) 475 (2 per phs)	1600	950 (1 per phs) 475 (2 per phs)	2200	170M5813	2200	1000
		–	630	655	850 (1 per phs) 425 (2 per phs)	1400	850 (1 per phs) 425 (2 per phs)	1900	170M5813	1900	900
20DF820 ⁽¹⁾	12	800	–	826	1100 (1 per phs) 550 (2 per phs)	1800	1100 (1 per phs) 550 (2 per phs)	2400	170M5813	2400	1100
		–	630	655	850 (1 per phs) 425 (2 per phs)	1400	850 (1 per phs) 425 (2 per phs)	1900	170M5813	1900	900
20DF920	13	900	–	927	1200 (1 per phs) 600 (2 per phs) ⁽³⁾	2000 ⁽³⁾	1200 (1 per phs) 600 (2 per phs) ⁽³⁾	2700 ⁽³⁾	170M6466 ⁽³⁾	2700	1200
		–	800	826	1100 (1 per phs) 550 (2 per phs) ⁽³⁾	1800 ⁽³⁾	1100 (1 per phs) 550 (2 per phs) ⁽³⁾	2400 ⁽³⁾	170M6466 ⁽³⁾	2400	1100
20DF1K0	13	1000	–	1038	1300 (1 per phs) 650 (2 per phs) ⁽³⁾	2300 ⁽³⁾	1300 (1 per phs) 650 (2 per phs) ⁽³⁾	3000 ⁽³⁾	170M6466 ⁽³⁾	3000	1300
		–	900	927	1200 (1 per phs) 600 (2 per phs) ⁽³⁾	2000 ⁽³⁾	1200 (1 per phs) 600 (2 per phs) ⁽³⁾	2700 ⁽³⁾	170M6466 ⁽³⁾	2700	1200
20DF1K1	13	1100	–	1189	1500 (1 per phs) 750 (2 per phs) ⁽³⁾	2600 ⁽³⁾	1500 (1 per phs) 750 (2 per phs) ⁽³⁾	3500 ⁽³⁾	170M6466 ⁽³⁾	3500	1500
		–	1000	1038	1300 (1 per phs) 650 (2 per phs) ⁽³⁾	2300 ⁽³⁾	1300 (1 per phs) 650 (2 per phs) ⁽³⁾	3000 ⁽³⁾	170M6466 ⁽³⁾	3000	1300
20DF1K5	14	1500	–	1511	1900 (1 per phs) 650 (3 per phs)	3300	1900 (1 per phs) 650 (3 per phs)	4500	170M6466	4500	1900
		–	1300	1310	1700 (1 per phs) 575 (3 per phs)	2900	1700 (1 per phs) 575 (3 per phs)	3900	170M6466	3900	1700

- (1) 20DF820 drives (ND) are only capable of producing 95% of starting torque under 10 Hz.
- (2) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.
- (3) Fuses and disconnect are supplied with AC input NEMA/UL Type 1 drives.
- (4) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
- (5) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.
- (6) Maximum allowable rating by US NEC. Exact size must be chosen for each installation.
- (7) Motor Circuit Protector - instantaneous trip circuit breaker. For US NEC minimum size is 125% of motor/drive FLA. Ratings shown are suggested. Instantaneous trip settings must be set to US NEC code. Not to exceed 1300% FLA.

325 Volt DC Input Frames 1 - 6 Drive Protection Devices

Drive Catalog Number	Frame	HP Rating		DC Input Ratings		Fuse	Non-Time Delay Fuse ⁽³⁾
		ND	HD	Amps			
20DB015	1	5	3	16		30	HSJ30
20DB022	1	7.5	5	23.3		45	HSJ45
20DB028	2	10	7.5	30		60	HSJ60
20DB042	3	15	10	45		90	HSJ90
20DB052	3	20	15	55		100	HSJ100
20DB070	4	25	20	75.3		150	HSJ150
20DB080	4	30	25	85.8		175	HSJ175
20DN104 ⁽¹⁾	5	40	30	114.1		225	HSJ225
20DN130 ⁽¹⁾	5	50	40	142.6		250	HSJ250
20DN154 ⁽¹⁾	6	60	50	169		300	HSJ300
20DN192 ⁽¹⁾	6	75	60	210.6		400	HSJ400
20DN260 ⁽¹⁾⁽²⁾	6	100	75	272.1		400	HSJ400

- (1) Catalog number corresponds to output amps for these drives. Drive must be programmed to lower voltage to obtain higher currents shown at right.
- (2) Catalog number corresponds to drives with precharge only.
- (3) The power source to Common Bus inverters must be derived from AC Voltages 600V or less, as defined in NFPA70; Art 430-18 (NEC). Battery supplies or MG sets are not included. The following devices were validated to break current of the derived power DC Bus: *Disconnects*: Allen-Bradley Bulletin No. 1494, 30 to 400 A; Bulletin No. 194, 30 to 400 A, or ABB: OESA, 600 & 800 A; OESL, all sizes. *Fuses*: Ferraz Shawmut Type HSJ, all sizes. For any other devices, please contact the factory.

540 Volt DC Input Frames 1 - 6 Drive Protection Devices

Drive Catalog Number	Frame	kW Rating		DC Input Ratings		Fuse	Non-Time Delay Fuse ⁽²⁾
		ND	HD	Amps			
20DC3P5	1	1.5	1.1	3.7		8	JKS-8
20DC5P0	1	2.2	1.5	5.3		10	JKS-10
20DC8P7	1	4	3.0	9.3		15	HSJ15
20DC011	1	5.5	4	12.6		20	HSJ20
20DC015	1	7.5	5.5	16.8		25	HSJ25
20DC022	1	11	7.5	24		40	HSJ40
20DC030	2	15	11	33.2		50	HSJ50
20DC037	2	18.5	15	40.9		70	HSJ70
20DC043	3	22	18.5	47.5		90	HSJ90
20DC056	3	30	22	61.9		100	HSJ100
20DC072	3	37	30	80.5		125	HSJ125
20DC085	4	45	37	95.1		150	HSJ150
20DH105 ⁽¹⁾	5	55	–	120.2		175	HSJ175
		–	45	95.1		175	HSJ175
20DH125 ⁽¹⁾	5	55	–	120.2		200	HSJ200
		–	45	95.1		200	HSJ200
20DH140 ⁽¹⁾	5	75	–	159		250	HSJ250
		–	55	120.2		250	HSJ250
20DH170 ⁽¹⁾	6	90	–	192		350	HSJ350
		–	75	159		350	HSJ350
20DH205 ⁽¹⁾	6	110	–	226		350	HSJ350
		–	90	192		350	HSJ350
20DH260 ⁽¹⁾	6	132	–	298		400	HSJ400
		–	110	226		400	HSJ400

- (1) Also applies to "P" voltage class. Fuses must be applied in the (+) leg and (-) leg of the DC Common Bus.
- (2) The power source to Common Bus inverters must be derived from AC voltages 600V or less, as defined in NFPA70; Art 430-18 (NEC). Battery supplies or MG sets are not included. The following devices were validated to break current of the derived power DC Bus: *Disconnects*: Allen-Bradley Bulletin No. 1494, 30 to 400 A; Bulletin No. 194, 30 to 400 A, or ABB: OESA, 600 & 800 A; OESL, all sizes. *Fuses*: Bussmann Type JKS, all sizes; Type 170M, Case Sizes 1, 2 and 3, or Ferraz Shawmut Type HSJ, all sizes. For any other devices, please contact the factory.

540 Volt DC Input Frames 9 - 14 Drive Protection Devices

Drive Catalog Number	Frame	kW Rating		DC Input Ratings		Fuse	Bussmann Style Fuse
		ND	HD	Amps			
20DH261	9	132	-	307		500	170M6608
		-	110	241		500	170M6608
20DH300	9	160	-	353		630	170M6610
		-	132	288		630	170M6610
20DH385	10	200	-	453		700	170M6611
		-	160	353		700	170M6611
20DH460	10	250	-	541		900	170M6613
		-	200	453		900	170M6613
20DH500	10	250	-	589		500 (2 per phs)	170M6608
		-	250	494		500 (2 per phs)	170M6608
20DH590	11	315	-	695		550 (2 per phs)	170M6609
		-	250	612		550 (2 per phs)	170M6609
20DH650	11	355	-	765		630 (2 per phs)	170M6610
		-	315	695		630 (2 per phs)	170M6610
20DH730	11	400	-	859		700 (2 per phs)	170M6611
		-	355	765		700 (2 per phs)	170M6611
20DH820	12	450	-	965		700 (2 per phs)	170M6611
		-	400	859		700 (2 per phs)	170M6611
20DH920	12	500	-	1083		550 (3 per phs)	170M6609
		-	450	965		550 (3 per phs)	170M6609
20DH1K0	12	560	-	1213		630 (3 per phs)	170M6610
		-	500	1083		630 (3 per phs)	170M6610
20DH1K1	13	630	-	1354		2400	170M7107
		-	560	1213		2400	170M7107
20DH1K3	13	710	-	1530		2400	170M7107
		-	630	1354		2400	170M7107
20DH1K4	13	800	-	1707		2400	170M7107
		-	710	1413		2400	170M7107

650 Volt DC Input Frames 1 - 6 Drive Protection Devices

Drive Catalog Number	Frame	HP Rating		DC Input Ratings		Fuse	Non-Time Delay Fuse ⁽²⁾
		ND	HD	Amps			
20DD2P1	1	1	0.75	1.9		6	JKS-6
20DD3P4	1	2	1.5	3.0		6	JKS-6
20DD5P0	1	3	2	4.5		10	JKS-10
20DD8P0	1	5	3	8.1		15	HSJ15
20DD011	1	7.5	5	11.1		20	HSJ20
20DD014	1	10	7.5	14.6		30	HSJ30
20DD022	1	15	10	23.3		40	HSJ40
20DD027	2	20	15	28.9		50	HSJ50
20DD034	2	25	20	36.4		60	HSJ60
20DD040	3	30	25	42.9		80	HSJ80
20DD052	3	40	30	55.7		90	HSJ90
20DD065	3	50	40	69.6		100	HSJ100
20DD077	4	60	50	84.5		150	HSJ150
20DJ096 ⁽¹⁾	5	75	-	105.3		175	HSJ175
		-	60	84.5		175	HSJ175
20DJ125 ⁽¹⁾	5	100	-	137.1		200	HSJ200
		-	75	105.3		200	HSJ200
20DJ140 ⁽¹⁾	5	100	-	137		250	HSJ250
		-	75	105.3		250	HSJ250
20DJ156 ⁽¹⁾	6	125	-	171		300	HSJ300
		-	100	137.1		300	HSJ300
20DJ180 ⁽¹⁾	6	150	-	198		400	HSJ400
		-	125	171.2		400	HSJ400
20DJ248 ⁽¹⁾	6	200	-	272		400	HSJ400
		-	150	198		400	HSJ400

⁽¹⁾ Also applies to "R" voltage class. Fuses must be applied in the (+) leg and (-) leg of the DC Common Bus.

PowerFlex 700S Phase II Drive - Technical Data

(2) The power source to Common Bus inverters must be derived from AC Voltages 600V or less, as defined in NFPA70; Art 430-18 (NEC). Battery supplies or MG sets are not included. The following devices were validated to break current of the derived power DC Bus: *Disconnects*: Allen-Bradley Bulletin No. 1494, 30 to 400 A; Bulletin No. 194, 30 to 400 A, or ABB: OESA, 600 & 800 A; OESL, all sizes. *Fuses*: Bussmann Type JKS, all sizes; Type 170M, Case Sizes 1, 2 and 3, or Ferraz Shawmut Type HSJ, all sizes. For any other devices, please contact the factory.

650 Volt DC Input Frames 9 - 13 Drive Protection Devices

Drive Catalog Number	Frame	HP Rating		DC Input Ratings		Fuse	Bussmann Style Fuse
		ND	HD	Amps			
20DJ261	9	200	-	294		500	170M6608
		-	150	231		500	170M6608
20DJ300	9	250	-	338		630	170M6610
		-	200	294		630	170M6610
20DJ385	10	300	-	434		700	170M6611
		-	250	338		700	170M6611
20DJ460	10	350	-	519		900	170M6613
		-	300	434		900	170M6613
20DJ500	10	450	-	564		500 (2 per phs)	170M6608
		-	350	474		500 (2 per phs)	170M6608
20DJ590	11	500	-	666		550 (2 per phs)	170M6609
		-	450	587		550 (2 per phs)	170M6609
20DJ650	11	500	-	733		630 (2 per phs)	170M6610
		-	500	666		630 (2 per phs)	170M6610
20DJ730	11	600	-	824		700 (2 per phs)	170M6611
		-	500	733		700 (2 per phs)	170M6611
20DJ820	12	700	-	925		700 (2 per phs)	170M6611
		-	600	824		700 (2 per phs)	170M6611
20DJ920	12	800	-	1038		550 (3 per phs)	170M6609
		-	700	925		550 (3 per phs)	170M6609
20DJ1K0	12	900	-	1162		630 (3 per phs)	170M6610
		-	800	1038		630 (3 per phs)	170M6610
20DJ1K1	13	1000	-	1297		2400	170M7107
		-	900	1162		2400	170M7107
20DJ1K3	13	1200	-	1467		2400	170M7107
		-	1000	1297		2400	170M7107
20DJ1K4	13	1250	-	1636		2400	170M7107
		-	1000	1354		2400	170M7107

810 Volt DC Input Frames 1 - 6 Drive Protection Devices

Drive Catalog Number	Frame	HP Rating		DC Input Ratings		Fuse	Non-Time Delay Fuse ⁽¹⁾
		ND	HD	Amps			
20DE1P7	1	1	0.75	1.5		3	JKS-3
20DE2P7	1	2	1.5	2.4		6	JKS-6
20DE3P9	1	3	2	3.5		6	JKS-6
20DE6P1	1	5	3	6.2		10	JKS-10
20DE9P0	1	7.5	5	9.1		15	HSJ15
20DE011	1	10	7.5	11.5		20	HSJ20
20DE017	1	15	10	18		30	HSJ30
20DE022	2	20	15	23.6		40	HSJ40
20DE027	2	25	20	29		50	HSJ50
20DE032	3	30	25	34.3		60	HSJ60
20DE041	3	40	30	43.9		70	HSJ70
20DE052	3	50	40	55.7		90	HSJ90
20DE062	4	60	50	68.0		125	HSJ125
20DT099	5	100	-	108.6		150	HSJ150
		-	75	84.5		150	HSJ150
20DT144	6	150	-	158		200	HSJ200
		-	125	137.1		200	HSJ200

(1) The power source to Common Bus inverters must be derived from AC Voltages 600V or less, as defined in NFPA70; Art 430-18 (NEC). Battery supplies or MG sets are not included. The following devices were validated to break current of the derived power DC Bus: *Disconnects*: Allen-Bradley Bulletin No. 1494, 30 to 400 A; Bulletin No. 194, 30 to 400 A, or ABB: OESA, 600 & 800 A; OESL, all sizes. *Fuses*: Bussmann Type JKS, all sizes; Type 170M, Case Sizes 1, 2 and 3, or Ferraz Shawmut Type HSJ, all sizes. For any other devices, please contact the factory.

810 Volt DC Input Frames 9 - 14 Drive Protection Devices

Drive Catalog Number	Frame	HP Rating		DC Input Ratings		Fuse	Bussmann Style Fuse
		ND	HD	Amps			
20DK170	9	150	–	192		400	170M5608
		–	150	162		400	170M5608
20DK208	9	200	–	235		450	170M5609
		–	150	192		450	170M5609
20DK261	10	250	–	294		450	170M5609
		–	200	235		450	170M5609
20DK325	10	350	–	367		550	170M6609
		–	250	294		550	170M6609
20DK385	10	400	–	434		700	170M6611
		–	350	367		700	170M6611
20DK416	10	450	–	469		800	170M6612
		–	350	367		800	170M6612
20DK460	11	500	–	519		450 (2 per phs)	170M5609
		–	400	434		450 (2 per phs)	170M5609
20DK502	11	500	–	566		500 (2 per phs)	170M6608
		–	500	519		500 (2 per phs)	170M6608
20DK590	11	600	–	666		500 (2 per phs)	170M6608
		–	500	566		500 (2 per phs)	170M6608
20DK650	12	700	–	733		500 (2 per phs)	170M6608
		–	650	666		500 (2 per phs)	170M6608
20DK750	12	800	–	846		630 (2 per phs)	170M6610
		–	700	733		630 (2 per phs)	170M6610
20DK820 (1)	12	900	–	925		630 (2 per phs)	170M6610
		–	700	733		630 (2 per phs)	170M6610
20DK920	13	1000	–	1038		2400	170M7107
		–	900	925		2400	170M7107
20DK1K0	13	1100	–	1162		2400	170M7107
		–	1000	1038		2400	170M7107
20DK1K1	13	1300	–	1331		2400	170M7107
		–	1100	1162		2400	170M7107
20DK1K5	14	1600	–	1692		–	170M8610
		–	1400	1467		–	170M8610

(1) 20DK820 drives (ND) are only capable of producing 95% of starting torque under 10 Hz.

932Volt DC Input Frames 5 & 6 Drive Protection Devices

Drive Catalog Number	Frame	kW Rating		DC Input Ratings		Fuse	Non-Time Delay Fuse(1)
		ND	HD	Amps			
20DW098	5	90	–	92.3		160	HSJ160
		–	75	92.3		160	HSJ160
20DW142	6	132	–	162.2		250	HSJ250
		–	110	134.9		250	HSJ250

(1) The power source to Common Bus inverters must be derived from AC Voltages 600V or less, as defined in NFPA70; Art 430-18 (NEC). Battery supplies or MG sets are not included. The following devices were validated to break current of the derived power DC Bus: *Disconnects*: Allen-Bradley Bulletin No. 1494, 30 to 400 A; Bulletin No. 194, 30 to 400 A, or ABB: OESA, 600 & 800 A; OESL, all sizes. *Fuses*: Bussmann Type JKS, all sizes; Type 170M, Case Sizes 1, 2 and 3, or Ferraz Shawmut Type HSJ, all sizes. For any other devices, please contact the factory.

932 Volt DC Input Frames 9 - 14 Drive Protection Devices

Drive Catalog Number	Frame	kW Rating		DC Input Ratings	Fuse	Bussmann Style Fuse
		ND	HD	Amps		
20DM170	9	160	–	200	315	170M3746
		–	132	170	315	170M3746
20DM208	9	200	–	245	400	170M5742
		–	160	200	400	170M5742
20DM261	10	250	–	307	500	170M5744
		–	200	245	500	170M5744
20DM325	10	315	–	383	630	170M5746
		–	250	307	630	170M5746
20DM385	10	355	–	453	700	170M6745
		–	315	383	700	170M6745
20DM416	10	400	–	490	700	170M6745
		–	315	383	700	170M6745
20DM460	11	450	–	542	450 (2 per phs)	170M5743
		–	355	453	450 (2 per phs)	170M5743
20DM502	11	500	–	591	500 (2 per phs)	170M5744
		–	400	542	500 (2 per phs)	170M5744
20DM590	11	560	–	695	500 (2 per phs)	170M5744
		–	500	591	500 (2 per phs)	170M5744
20DM650	12	630	–	765	550 (2 per phs)	170M5745
		–	560	695	550 (2 per phs)	170M5745
20DM750	12	710	–	883	630 (2 per phs)	170M5746
		–	630	765	630 (2 per phs)	170M5746
20DM820 ⁽¹⁾	12	800	–	965	630 (2 per phs)	170M5746
		–	630	765	630 (2 per phs)	170M5746
20DM920	13	900	–	1038	2400	170M7107
		–	800	925	2400	170M7107
20DM1K0	13	1000	–	1162	2400	170M7107
		–	900	1038	2400	170M7107
20DM1K1	13	1100	–	1331	2400	170M7107
		–	1000	1162	2400	170M7107
20DM1K5	14	1500	–	1766	–	170M8610
		–	1300	1530	–	170M8610

⁽¹⁾ 20DM820 drives (ND) are only capable of producing 95% of starting torque under 10 Hz.

Maximum Motor Cable Lengths

Important: In the following tables, A “●” in any of the latter columns will indicate that this drive rating can be used with an Allen-Bradley Terminator (1204-TFA1/1204-TFB2) and/or Reflected Wave Reduction Device with Common Mode Choke (1204-RWC-17) or without choke (1204-RWR2).

- For the Terminator, the maximum cable length is 182.9 meters (600 feet) for 400/480/600V drives (not 690V). The PWM frequency must be 2 kHz. The 1204-TFA1 can be used only on low HP (5 HP & below), while the 1204-TFB2 can be used from 2-800 HP.
- 1204 Reflected Wave Reduction Device (all motor insulation classes):
 - 1204-RWR2-09
2 kHz: 182.9m (600 ft.) at 400/480V and 121.9m (400 ft.) at 600V.
4 kHz: 91.4m (300 ft.) at 400/480V and 61.0m (200 ft.) at 600V.
 - 1204-RWC-17
2 kHz: 365.8m (1200 ft.) at 400/480/600V.
4 kHz: 243.8m (800 ft.) at 400/480V and 121.9m (400 ft.) at 600V.

For both devices, power dissipation in the damping resistor limits maximum cable length.

The 1321-RWR is a complete reflected wave reduction solution available for many of the PowerFlex drives. If available, a 1321-RWR catalog number will be indicated in the “Reactor/RWR” column. When not available, use the reactor and resistor information provided to build a solution.

For Further Information on ...	see Publication...
1321-RWR	1321-TD001...
1204-RWR2	1204-5.1
1204-RWC	1204-IN001...
1204-TFxx	1204-IN002...

400V Shielded/Unshielded Cable - Meters (Feet)

Drive			No Solution				Reactor Only				Reactor + Damping Resistor or 1321-RWR				Reactor/RWR	Resistor		Available Options				
Frame	kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC	
1	0.75	2/4	7.6 (25)	83.8 (275)	83.8 (275)	83.8 (275)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				●		●	●	
	1.5	2/4	7.6 (25)	106.9 (350)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				●	●	●	●	
	2.2	2/4	7.6 (25)	106.9 (350)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				●	●	●	●	
	4	2/4	7.6 (25)	106.9 (350)	243.8 (800)	243.8 (800)	91.4 (300)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR8-DP				●		●	
	5.5	2/4	7.6 (25)	106.9 (350)	274.3 (900)	304.8 (1000)	91.4 (300)	274.3 (900)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-DP				●		●	
	7.5	2/4	7.6 (25)	106.9 (350)	274.3 (900)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP				●		●	
	11	2/4	7.6 (25)	106.9 (350)	274.3 (900)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP				●			
2	15	2/4	7.6 (25)	106.9 (350)	274.3 (900)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP				●			
	18.5	2/4	7.6 (25)	106.9 (350)	274.3 (900)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP				●			
3	22	2/4	7.6 (25)	106.9 (350)	274.3 (900)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR45-DP				●			
	30	2/4	7.6 (25)	106.9 (350)	274.3 (900)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR55-DP				●			
	37	2/4	12.2 (40)	91.4 (300)	274.3 (900)	365.8 (1200)	76.2 (250)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP				●			

PowerFlex 700S Phase II Drive - Technical Data

Drive			No Solution				Reactor Only				Reactor + Damping Resistor or 1321-RWR				Reactor/RWR	Resistor		Available Options			
Frame	kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFB1	TFB2	RWR2	RWC
4	45	2/4	12.2 (40)	106.9 (350)	274.3 (900)	365.8 (1200)	76.2 (250)	304.8 (1000)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP				●			
5	55	2/4	12.2 (40)	106.9 (350)	274.3 (900)	365.8 (1200)	61.0 (200)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR100-DP				●			
	75	2/4	18.3 (60)	213.4 (700)	304.8 (1000)	45.7 (150)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1000)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR130-DP				●			
6	90	2/4	18.3 (60)	91.4 (300)	213.4 (700)	304.8 (1000)	45.7 (150)	213.4 (700)	365.8 (1200)	365.8 (1200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR160-DP				●			
	110	2/4	24.4 (80)	91.4 (300)	213.4 (700)	274.3 (900)	45.7 (150)	182.9 (600)	365.8 (1200)	365.8 (1200)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-RWR200-DP				●			
	132	2/4	24.4 (80)	91.4 (300)	182.9 (600)	243.8 (800)	45.7 (150)	152.4 (500)	365.8 (1200)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	1321-RWR250-DP				●			
9	132	2	24.4 (80)	91.4 (300)	182.9 (600)	243.8 (800)	45.7 (150)	152.4 (500)	365.8 (1200)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	1321-RWR320-DP				●			
	160	2	24.4 (80)	91.4 (300)	152.4 (500)	213.4 (700)	45.7 (150)	121.9 (400)	365.8 (1200)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	1321-RWR320-DP				●			
10	200	2	24.4 (80)	76.2 (250)	121.9 (400)	167.6 (550)	36.6 (120)	91.4 (300)	304.8 (1000)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	1321-3R500-B	20	495 ⁽³⁾		●			
	250	2	24.4 (80)	76.2 (250)	99.1 (325)	167.6 (550)	36.6 (120)	76.2 (250)	304.8 (1000)	365.8 (1200)	228.6 (750)	335.3 (1100)	365.8 (1200)	1321-3R500-B	20	495 ⁽³⁾		●			
11	315	2	18.3 (60)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	304.8 (1000)	365.8 (1200)	228.6 (750)	335.3 (1100)	365.8 (1200)	1321-3R600-B	20	495 ⁽³⁾		●			
	355	2	18.3 (60)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	304.8 (1000)	365.8 (1200)	228.6 (750)	274.3 (900)	365.8 (1200)	1321-3R750-B	20	495 ⁽³⁾		●			
	400	2	18.3 (60)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	304.8 (1000)	365.8 (1200)	228.6 (750)	274.3 (900)	365.8 (1200)	1321-3R750-B	20	735 ⁽⁴⁾		●			
12 ⁽¹⁾	450	2	18.3 (60)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	304.8 (1000)	365.8 (1200)	228.6 (750)	274.3 (900)	365.8 (1200)	2 x 1321-3RB400-B	40	375 ⁽⁴⁾		●			
	500	2	12.2 (40)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	304.8 (1000)	365.8 (1200)	198.1 (650)	274.3 (900)	365.8 (1200)	2 x 1321-3R500-B	40	375 ⁽⁴⁾		●			
	560	2	12.2 (40)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	304.8 (1000)	365.8 (1200)	198.1 (650)	274.3 (900)	365.8 (1200)	2 x 1321-3R500-B	20	525 ⁽⁵⁾					
13	630 ⁽²⁾	2	12.2 (40)	61.0 (200)	99.1 (325)	167.6 (550)	36.6 (120)	61.0 (200)	304.8 (1000)	365.8 (1200)	198.1 (650)	274.3 (900)	365.8 (1200)	2 x 1321-3R600-B	20	525 ⁽⁵⁾					
	710 ⁽²⁾	2	12.2 (40)	61.0 (200)	99.1 (325)	167.6 (550)	36.6 (120)	61.0 (200)	304.8 (1000)	365.8 (1200)	198.1 (650)	274.3 (900)	365.8 (1200)	2 x 1321-3R750-B	20	525 ⁽⁵⁾					
	800 ⁽²⁾	2	12.2 (40)	61.0 (200)	99.1 (325)	167.6 (550)	36.6 (120)	61.0 (200)	304.8 (1000)	365.8 (1200)	198.1 (650)	274.3 (900)	365.8 (1200)	2 x 1321-3R750-B	20	525 ⁽⁵⁾					

- (1) Frame 12 drives have dual inverters and require two output reactors. The resistor ratings are per phase values for each reactor.
- (2) Some Frame 13 drives require two output reactors to match drive amp rating. The resistor ratings are per phase values for each reactor.
- (3) Resistor specification is based on two cables per phase.
- (4) Resistor specification is based on three cables per phase.
- (5) Resistor specification is based on four cables per phase.

480V Shielded/Unshielded Cable - Meters (Feet)

Drive			No Solution				Reactor Only				Reactor + Damping Resistor or 1321-RWR				Reactor/RWR	Resistor		Available Options				
Frame	HP	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWF2	RWC	
1	1	2/4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				●		●	●	
	2	2/4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)				●	●	●	●	
	3	2/4	7.6 (25)	12.2 (40)	106.9 (350)	152.4 (500)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)				●	●	●	●	
	5	2/4	7.6 (25)	12.2 (40)	106.9 (350)	152.4 (500)	7.6 (25)	91.4 (300)	243.8 (800)	243.8 (800)	152.4 (500)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR8-DP				●	●	●	●
	7.5	2/4	7.6 (25)	12.2 (40)	106.9 (350)	152.4 (500)	7.6 (25)	91.4 (300)	304.8 (1000)	304.8 (1000)	152.4 (500)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-DP					●		●
	10	2/4	7.6 (25)	12.2 (40)	106.9 (350)	152.4 (500)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP						●	●
	15	2/4	7.6 (25)	12.2 (40)	106.9 (350)	152.4 (500)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP					●		
2	20	2/4	7.6 (25)	12.2 (40)	106.9 (350)	152.4 (500)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP					●		
	25	2/4	7.6 (25)	12.2 (40)	106.9 (350)	152.4 (500)	7.6 (25)	76.2 (250)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP					●		
3	30	2/4	7.6 (25)	12.2 (40)	106.9 (350)	152.4 (500)	7.6 (25)	76.2 (250)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR45-DP					●		
	40	2/4	7.6 (25)	12.2 (40)	106.9 (350)	152.4 (500)	7.6 (25)	76.2 (250)	365.8 (1200)	365.8 (1200)	121.9 (400)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR55-DP					●		
	50	2/4	12.2 (40)	18.3 (60)	106.9 (350)	152.4 (500)	12.2 (40)	61.0 (200)	304.8 (1000)	365.8 (1200)	121.9 (400)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP					●		
4	60	2/4	12.2 (40)	18.3 (60)	91.4 (300)	152.4 (500)	12.2 (40)	61.0 (200)	304.8 (1000)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP					●		
5	75	2/4	12.2 (40)	18.3 (60)	91.4 (300)	152.4 (500)	12.2 (40)	61.0 (200)	274.3 (900)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR100-DP					●		
	100	2/4	12.2 (40)	24.4 (80)	91.4 (300)	137.2 (450)	12.2 (40)	61.0 (200)	243.8 (800)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR130-DP					●		
6	125	2/4	12.2 (40)	24.4 (80)	91.4 (300)	137.2 (450)	12.2 (40)	61.0 (200)	243.8 (800)	365.8 (1200)	76.2 (250)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR160-DP					●		
	150	2/4	12.2 (40)	24.4 (80)	91.4 (300)	137.2 (450)	12.2 (40)	61.0 (200)	243.8 (800)	304.8 (1000)	76.2 (250)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-RWR200-DP					●		
	200	2/4	12.2 (40)	30.5 (100)	91.4 (300)	137.2 (450)	12.2 (40)	61.0 (200)	243.8 (800)	304.8 (1000)	61.0 (200)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-RWR250-DP					●		
9	200	2	12.2 (40)	30.5 (100)	91.4 (300)	152.4 (500)	12.2 (40)	45.7 (150)	152.4 (500)	228.6 (750)	61.0 (200)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-RWR320-DP					●		
	250	2	12.2 (40)	30.5 (100)	91.4 (300)	152.4 (500)	12.2 (40)	45.7 (150)	121.9 (400)	182.9 (600)	61.0 (200)	243.8 (800)	365.8 (1200)	365.8 (1200)	1321-RWR320-DP					●		
10	300	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	61.0 (200)	243.8 (800)	304.8 (1000)	365.8 (1200)	1321-3RB400-B	20	495 ⁽³⁾			●		
	350	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	61.0 (200)	243.8 (800)	304.8 (1000)	365.8 (1200)	1321-3R500-B	20	495 ⁽³⁾			●		
	450	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3R500-B	20	495 ⁽³⁾			●		
11	500	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3R750-B	20	495 ⁽³⁾			●		
	600	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3R750-B	20	735 ⁽⁴⁾			●		
12 ⁽¹⁾	700	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	182.9 (600)	304.8 (1000)	365.8 (1200)	2 x 1321-3RB400-B	40	375 ⁽⁴⁾			●		
	800	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	182.9 (600)	304.8 (1000)	365.8 (1200)	2 x 1321-3R500-B	40	375 ⁽⁴⁾			●		
	900	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	182.9 (600)	304.8 (1000)	365.8 (1200)	2 x 1321-3R500-B	20	525 ⁽⁵⁾					
13	1000 ⁽²⁾	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	152.4 (500)	304.8 (1000)	365.8 (1200)	2 x 1321-3R600-B	20	525 ⁽⁵⁾					
	1200 ⁽²⁾	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	152.4 (500)	304.8 (1000)	365.8 (1200)	2 x 1321-3R750-B	20	525 ⁽⁵⁾					
	1250 ⁽²⁾	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	152.4 (500)	304.8 (1000)	365.8 (1200)	2 x 1321-3R750-B	20	525 ⁽⁵⁾					

(1) Frame 12 drives have dual inverters and require two output reactors. The resistor ratings are per phase values for each reactor.

(2) Some Frame 13 drives require two output reactors to match drive amp rating. The resistor ratings are per phase values for each reactor.

PowerFlex 700S Phase II Drive - Technical Data

- (3) Resistor specification is based on two cables per phase.
 (4) Resistor specification is based on three cables per phase.
 (5) Resistor specification is based on four cables per phase.

600V Shielded/Unshielded Cable - Meters (Feet)

Drive			No Solution		Reactor Only		Reactor + Damping Resistor or 1321-RWR		Reactor/RWR	Resistor		Available Options			
Frame	HP	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
1	1	2/4	30.5 (100)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)				●		●	●
	2	2/4	30.5 (100)	152.4 (500)	121.9 (400)	152.4 (500)	152.4 (500)	152.4 (500)				●	●	●	●
	3	2/4	30.5 (100)	152.4 (500)	121.9 (400)	182.9 (600)	182.9 (600)	182.9 (600)				●	●	●	●
	5	2/4	30.5 (100)	152.4 (500)	121.9 (400)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR8-EP			●	●	●	●
	7.5	2/4	30.5 (100)	152.4 (500)	121.9 (400)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR8-EP						●
	10	2/4	30.5 (100)	152.4 (500)	121.9 (400)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR12-EP						●
	15	2/4	30.5 (100)	152.4 (500)	121.9 (400)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-EP						●
2	20	2/4	30.5 (100)	152.4 (500)	121.9 (400)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-EP					●	
	25	2/4	30.5 (100)	152.4 (500)	121.9 (400)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-EP					●	
3	30	2/4	30.5 (100)	152.4 (500)	121.9 (400)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-EP					●	
	40	2/4	30.5 (100)	152.4 (500)	121.9 (400)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR45-EP					●	
	50	2/4	36.6 (120)	152.4 (500)	121.9 (400)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR55-EP					●	
4	60	2/4	36.6 (120)	152.4 (500)	121.9 (400)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-EP					●	
5	75	2/4	36.6 (120)	152.4 (500)	121.9 (400)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-EP					●	
	100	2/4	42.7 (140)	152.4 (500)	121.9 (400)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR100-EP					●	
6	125	2/4	42.7 (140)	152.4 (500)	121.9 (400)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR130-EP					●	
	150	2/4	42.7 (140)	152.4 (500)	121.9 (400)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR160-EP					●	
9	150	2	42.7 (140)	152.4 (500)	61.0 (200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR200-EP					●	
	200	2	42.7 (140)	152.4 (500)	61.0 (200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR250-EP					●	
10	250	2	42.7 (140)	152.4 (500)	61.0 (200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-3RB250-B	50	315			●	
	350	2	42.7 (140)	152.4 (500)	61.0 (200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-3RB350-B	20	585 ⁽³⁾			●	
	400	2	42.7 (140)	152.4 (500)	61.0 (200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-3RB400-B	20	585 ⁽³⁾			●	
	450	2	42.7 (140)	152.4 (500)	61.0 (200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-3R500-B	20	585 ⁽³⁾			●	
11	500	2	42.7 (140)	152.4 (500)	61.0 (200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-3R500-B	20	585 ⁽³⁾			●	
	600	2	42.7 (140)	152.4 (500)	61.0 (200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-3R600-B	20	585 ⁽³⁾			●	
12 ⁽¹⁾	700	2	42.7 (140)	152.4 (500)	61.0 (200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	2 X 1321-3RB320-B	40	300 ⁽³⁾			●	
	800	2	42.7 (140)	152.4 (500)	61.0 (200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	2 X 1321-3RB400-C	40	480 ⁽⁴⁾			●	
	900	2	42.7 (140)	152.4 (500)	61.0 (200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	2 X 1321-3R400-B	40	480 ⁽⁴⁾				
13	1000	2	42.7 (140)	152.4 (500)	61.0 (200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-3R1000-C	20	960 ⁽⁴⁾				
	1100	2	42.7 (140)	152.4 (500)	61.0 (200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-3R1000-B	10	1440 ⁽⁵⁾				
	1300 ⁽²⁾	2	42.7 (140)	152.4 (500)	61.0 (200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	2 X 1321-3R600-B	20	720 ⁽⁵⁾				

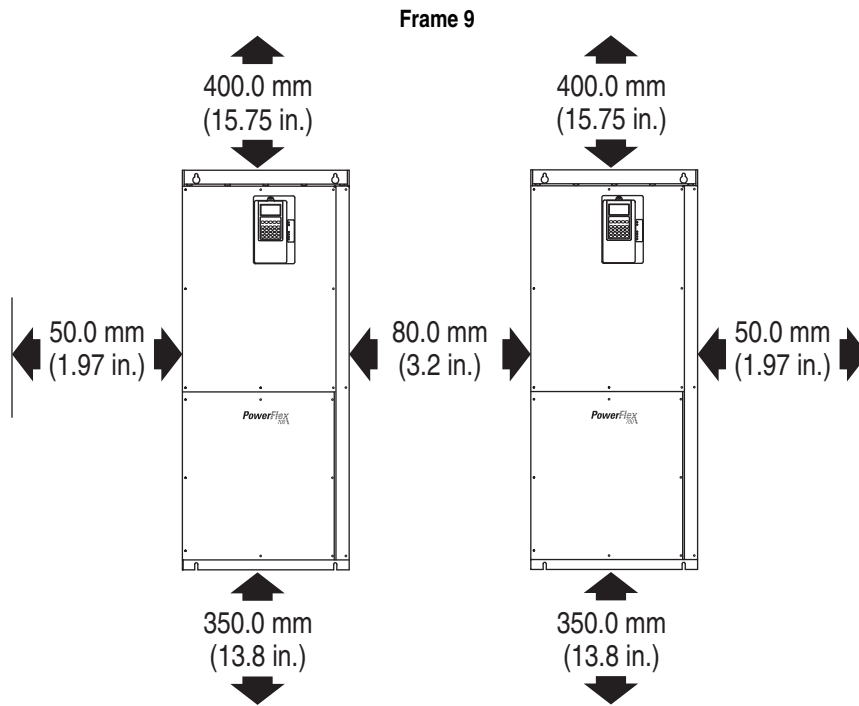
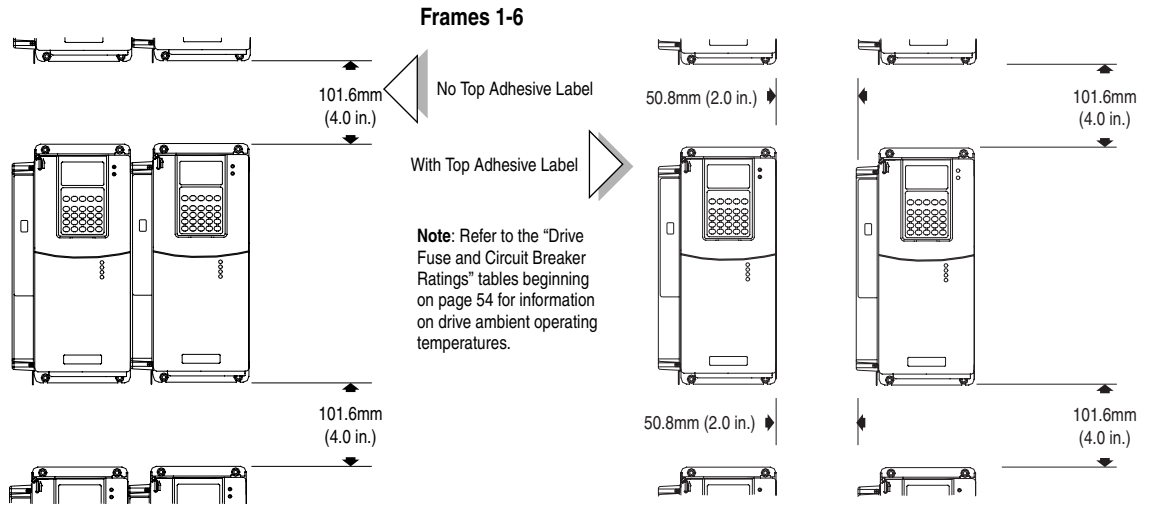
- (1) Frame 12 drives have dual inverters and require two output reactors. The resistor ratings are per phase values for each reactor.
 (2) Some Frame 13 drives require two output reactors to match drive amp rating. The resistor ratings are per phase values for each reactor.
 (3) Resistor specification is based on two cables per phase.
 (4) Resistor specification is based on three cables per phase.
 (5) Resistor specification is based on four cables per phase.

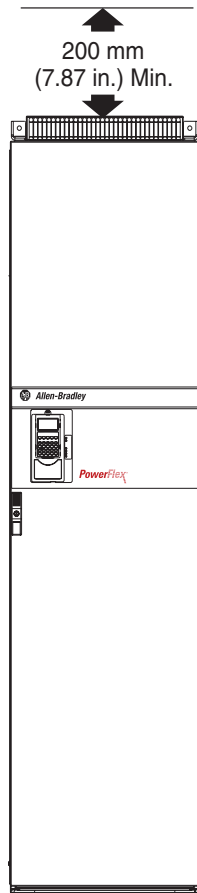
690V Shielded/Unshielded Cable - Meters (Feet)

Drive			No Solution		Reactor Only		Reactor + Damping Resistor		Reactor	Resistor		Available Options			
Frame	kW	kHz	1850V	2000V	1850V	2000V	1850V	2000V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
5	45	2/4	30.5 (100)	76.2 (250)	91.4 (300)	152.4 (500)	365.8 (1200)	365.8 (1200)	1321-3R80-C	50	345/690				
	55	2/4	30.5 (100)	76.2 (250)	91.4 (300)	152.4 (500)	365.8 (1200)	365.8 (1200)	1321-3R80-C	50	345/690				
	75	2/4	30.5 (100)	76.2 (250)	91.4 (300)	152.4 (500)	365.8 (1200)	365.8 (1200)	1321-3R100-C	50	345/690				
	90	2/4	30.5 (100)	76.2 (250)	91.4 (300)	152.4 (500)	365.8 (1200)	365.8 (1200)	1321-3R130-C	50	375/750				
6	110	2/4	30.5 (100)	76.2 (250)	91.4 (300)	152.4 (500)	365.8 (1200)	365.8 (1200)	1321-3R160-C	50	375/750				
	132	2/4	30.5 (100)	76.2 (250)	91.4 (300)	152.4 (500)	365.8 (1200)	365.8 (1200)	1321-3R200-C	50	375/750				
9	160	2	30.5 (100)	68.6 (225)	91.4 (300)	152.4 (500)	274.3 (900)	365.8 (1200)	1321-3RB250-C	50	480				
	200	2	30.5 (100)	68.6 (225)	91.4 (300)	152.4 (500)	274.3 (900)	365.8 (1200)	1321-3RB250-C	50	480				
10	250	2	30.5 (100)	68.6 (225)	76.2 (250)	121.9 (400)	274.3 (900)	365.8 (1200)	1321-3RB320-C	50	480				
	315	2	30.5 (100)	68.6 (225)	76.2 (250)	121.9 (400)	274.3 (900)	365.8 (1200)	1321-3RB400-C	20	945 ⁽³⁾				
	355	2	30.5 (100)	68.6 (225)	76.2 (250)	121.9 (400)	274.3 (900)	365.8 (1200)	1321-3R500-C	20	945 ⁽³⁾				
	400	2	30.5 (100)	68.6 (225)	76.2 (250)	121.9 (400)	243.8 (800)	304.8 (1000)	1321-3R500-C	20	945 ⁽³⁾				
11	450	2	30.5 (100)	68.6 (225)	76.2 (250)	121.9 (400)	243.8 (800)	304.8 (1000)	1321-3R600-C	20	945 ⁽³⁾				
	500	2	30.5 (100)	68.6 (225)	76.2 (250)	121.9 (400)	243.8 (800)	304.8 (1000)	1321-3R600-C	20	945 ⁽³⁾				
	560	2	30.5 (100)	68.6 (225)	61.0 (200)	91.4 (300)	243.8 (800)	304.8 (1000)	1321-3R750-C	20	945 ⁽³⁾				
12 ⁽¹⁾	630	2	30.5 (100)	68.6 (225)	61.0 (200)	91.4 (300)	243.8 (800)	304.8 (1000)	2 X 1321-3RB400-C	40	480 ⁽³⁾				
	710	2	30.5 (100)	68.6 (225)	61.0 (200)	91.4 (300)	243.8 (800)	304.8 (1000)	2 X 1321-3R500-C	40	645 ⁽⁴⁾				
	800	2	30.5 (100)	68.6 (225)	61.0 (200)	91.4 (300)	243.8 (800)	304.8 (1000)	2 X 1321-3R500-C	40	645 ⁽⁴⁾				
13	900 ⁽²⁾	2	30.5 (100)	68.6 (225)	61.0 (200)	91.4 (300)	243.8 (800)	304.8 (1000)	2 X 1321-3R600-C	40	645 ⁽⁴⁾				
	1000 ⁽²⁾	2	30.5 (100)	68.6 (225)	48.8 (160)	91.4 (300)	243.8 (800)	304.8 (1000)	2 X 1321-3R600-C	20	840 ⁽⁵⁾				
	1100 ⁽²⁾	2	30.5 (100)	68.6 (225)	48.8 (160)	91.4 (300)	243.8 (800)	304.8 (1000)	2 X 1321-3R750-C	20	840 ⁽⁵⁾				

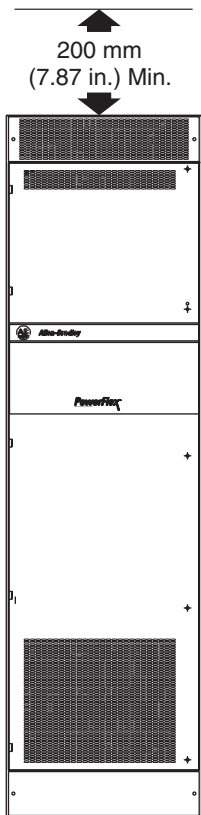
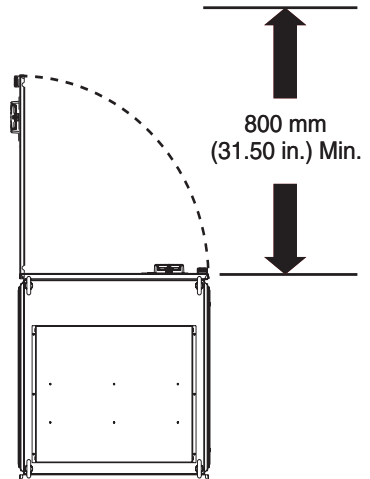
- (1) Frame 12 drives have dual inverters and require two output reactors. The resistor ratings are per phase values for each reactor.
- (2) Some Frame 13 drives require two output reactors to match drive amp rating. The resistor ratings are per phase values for each reactor.
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Minimum Mounting Clearances

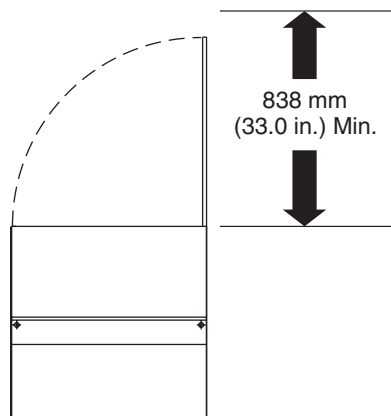




Frames 10 - 14 (NEMA/UL Type 1 - IP21 Enclosure
(Frame 10 shown))



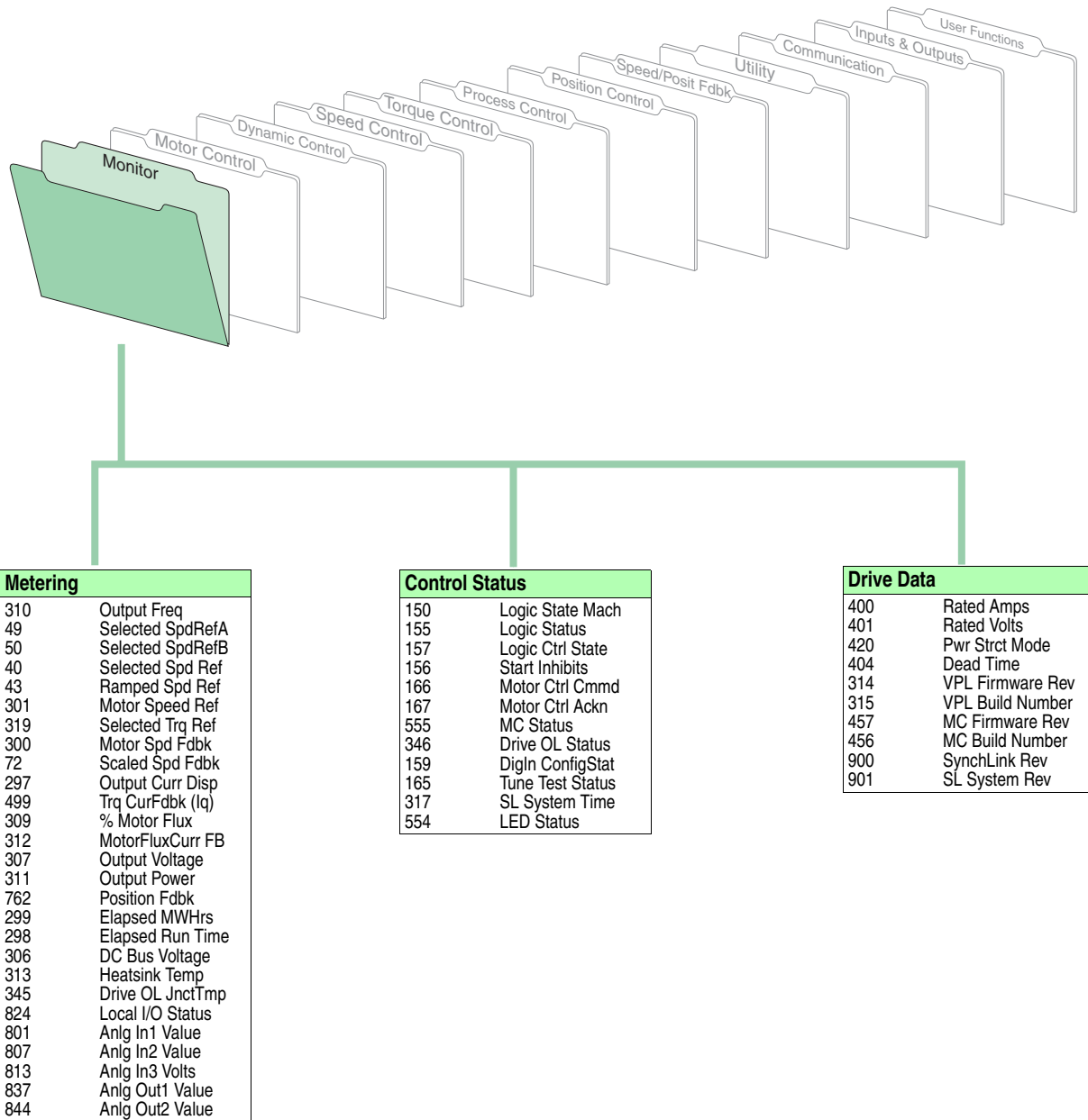
Frames 10 - 12 (NEMA/UL Type 1 - IP20 MCC Enclosure
(Frame 10 shown))

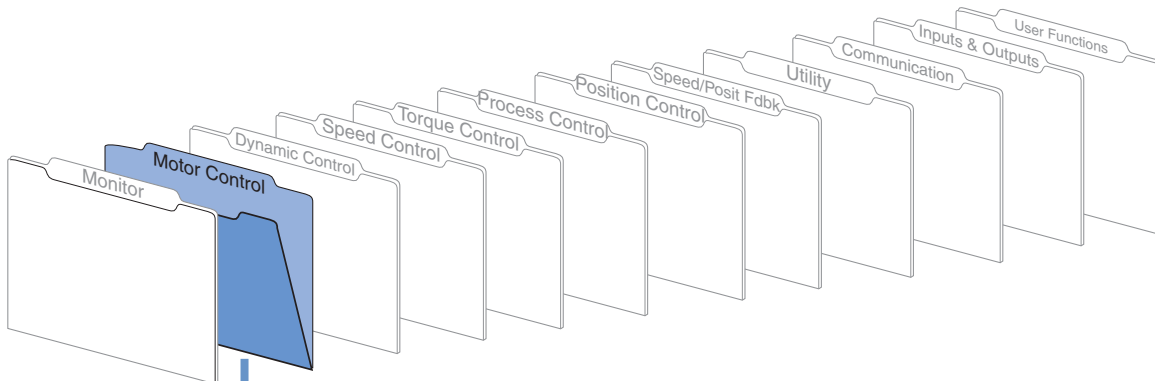


Parameter Cross Reference

How Parameters are Organized

DriveExecutive programming software displays parameters in “Linear List” or “File Group Parameter” format. Viewing the parameters in “File Group Parameter” format simplifies programming by grouping parameters that are used for similar functions. There are twelve files. Each file is divided into multiple groups of parameters.





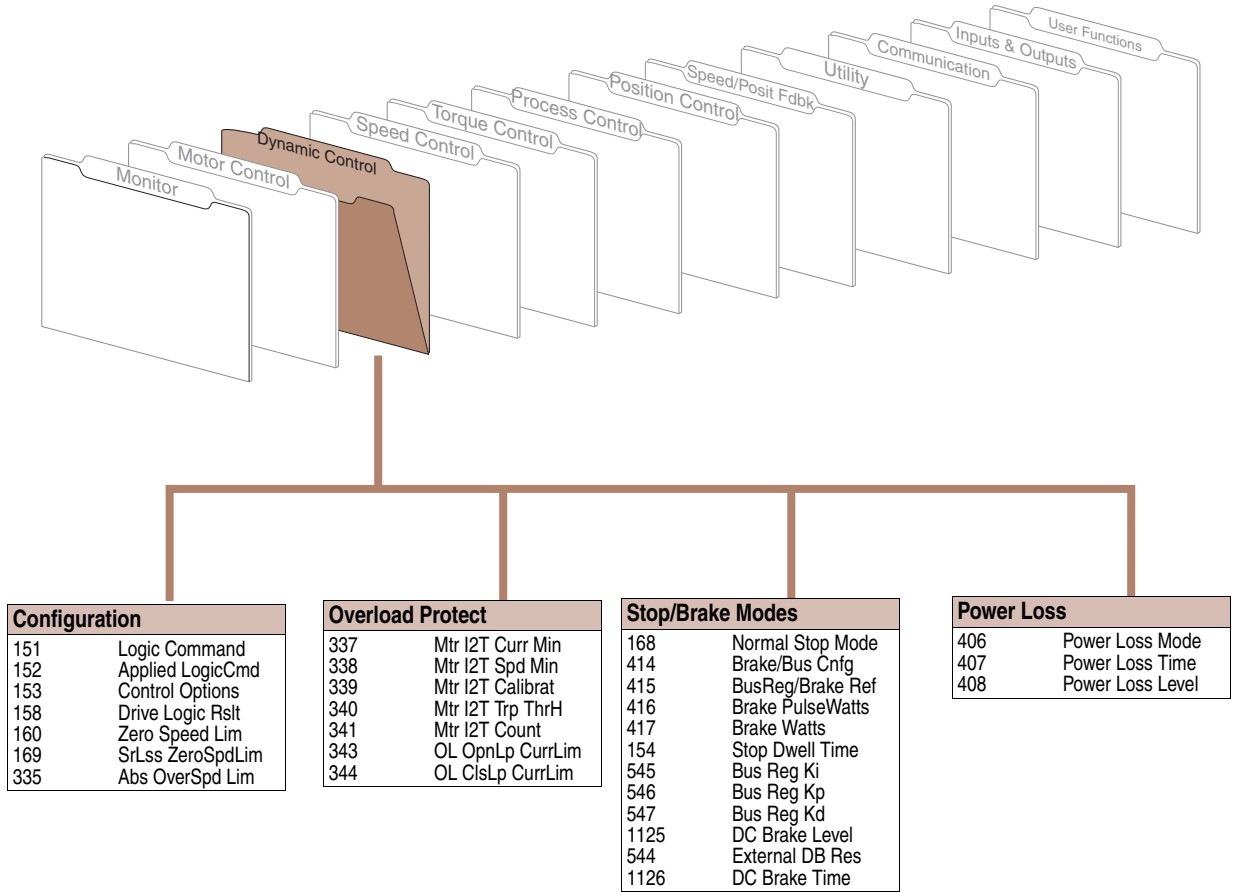
Motor Data	
1	Motor NP Volts
2	Motor NP FLA
3	Motor NP Hertz
4	Motor NP RPM
5	Motor NP Power
6	Mtr NP Pwr Units
336	Motor OL Factor
7	Motor Poles
9	Total Inertia

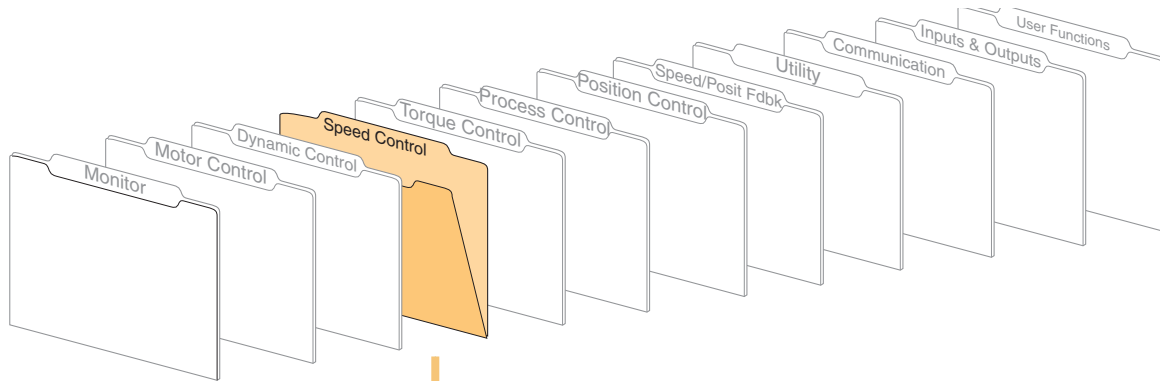
Monitoring	
525	Slip Ratio
526	Stator Frequency
434	Mtr Vds Base
435	Mtr Vqs Base
441	Vds Fdbk Filt
442	Vqs Fdbk Filt
497	Vqs Command
498	Vds Command
495	Iqs Command
496	Ids Command
499	Trq CurFdbk (Iq)
489	Fix CurFdbk (Id)

Drive Config	
485	Motor Ctrl Mode
402	PWM Frequency
403	Voltage Class
405	Dead Time Comp
409	Line Undervolts
410	PreChrg TimeOut
411	PreChrg Control
510	FVC Mode Config
511	FVC2 Mode Config
512	PMag Mode Cnfg
513	V/Hz Mode Config
514	Test Mode Config
515	FVC Tune Config
516	FVC2 Tune Config
517	PMag Tune Config
505	PM TestWait Time
506	PM Test Idc Ramp
507	PM Test FreqRamp
508	PM Test Freq Ref
509	PM Test I Ref
424	Flux Ratio Ref

Tuning	
423	Iqs Rate Limit
453	Iu Offset
454	Iw Offset
425	Flux Rate Limit
426	Flux Satur Coef
443	Flux Reg P Gain1
470	Flux Reg P Gain2
444	Flux Reg I Gain
533	SlewRateTimeLimit
500	Bus Util Limit
501	Torque En Dly
437	Vqs Max
438	Vds Max
439	Vqs Min
440	Vds Min
469	FVC CEMF Comp
449	SrLss Reg I Gain
450	SrLss Reg P Gain
447	Slip Reg P Gain
448	Slip Reg I Gain
446	Slip Gain Min
445	Slip Gain Max
552	Slip Preload Val
553	Slip Slew Rate
472	PreCharge Delay
431	Test Current Ref
432	Test Freq Ref
433	Test Freq Rate
477	Est Theta Delay
428	IReg IGain Fctr
537	SrLssAngleStblty
538	SrLss VoltStblty
539	SrLss StbltyFilt
54	Inertia TrqLpfBW
551	CurrFdbk AdjTime

Autotune Results	
421	Iqs Integ Freq
422	Iqs Reg P Gain
429	Ids Integ Freq
430	Ids Reg P Gain
486	Rated Slip Freq
487	Motor NTC Coef
488	Flux Current
490	StatorInductance
491	StatorResistance
492	Leak Inductance
493	Leak Indc Satur1
494	Leak Indc Satur2
502	Rotor Resistance
503	Current Reg BW
504	PM AbsEncd Offst
427	PM Mtr CEMF Comp
520	PM Q Inductance
521	PM D Inductance
522	PM Stator Resist
523	PM Mtr CEMF Coef

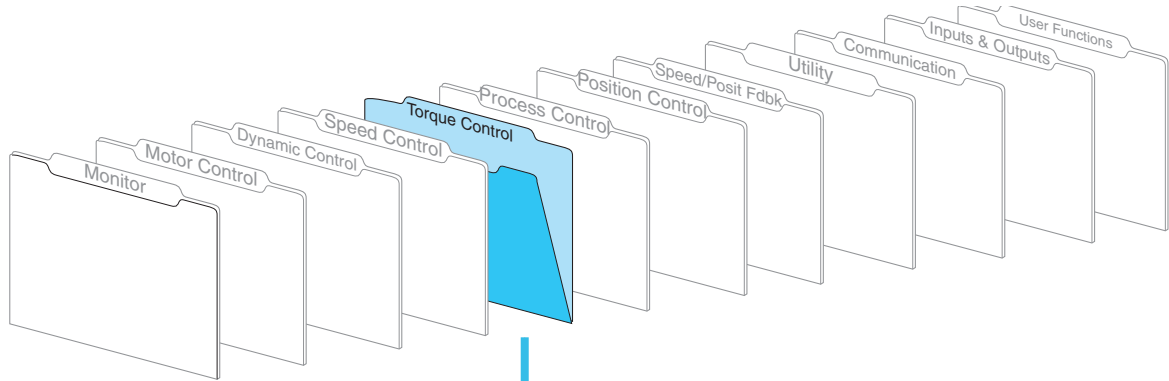




Reference	
27	Speed Ref A Sel
28	Speed Ref B Sel
10	Speed Ref 1
11	Spd Ref1 Divide
12	Speed Ref 2
13	Spd Ref2 Multi
14	Preset Speed 1
15	Preset Speed 2
16	Preset Speed 3
17	Preset Speed 4
18	Preset Speed 5
19	Preset Speed 6
20	Preset Speed 7
29	Jog Speed 1
39	Jog Speed 2
40	Selected Spd Ref
30	Min Spd Ref Lim
31	Max Spd Ref Lim
41	Limited Spd Ref
32	Accel Time 1
33	Decel Time 1
34	S Curve Time
43	Ramped Spd Ref
53	Drive Ramp Rslt
45	Delayed Spd Ref
61	Virt Encoder EPR
62	Virt Encdr Posit
63	Virt Encdr Dlyed
37	Spd Ref Bypass
35	SpdRef Filt Gain
36	SpdRef Filt BW
38	Speed Ref Scale
46	Scaled Spd Ref
21	Speed Trim 1
47	SpdRef + SpdTrm1
56	Inertia SpeedRef
9	Total Inertia
57	InertiaAccelGain
58	InertiaDecelGain
60	DeltaSpeedScale
55	Speed Comp
59	Inertia Trq Add
64	FricComp Spd Ref
65	FricComp Setup
1160	VirtEncPositFast
66	FricComp Stick
67	FricComp Slip
68	FricComp Rated
69	FricComp Trq Add

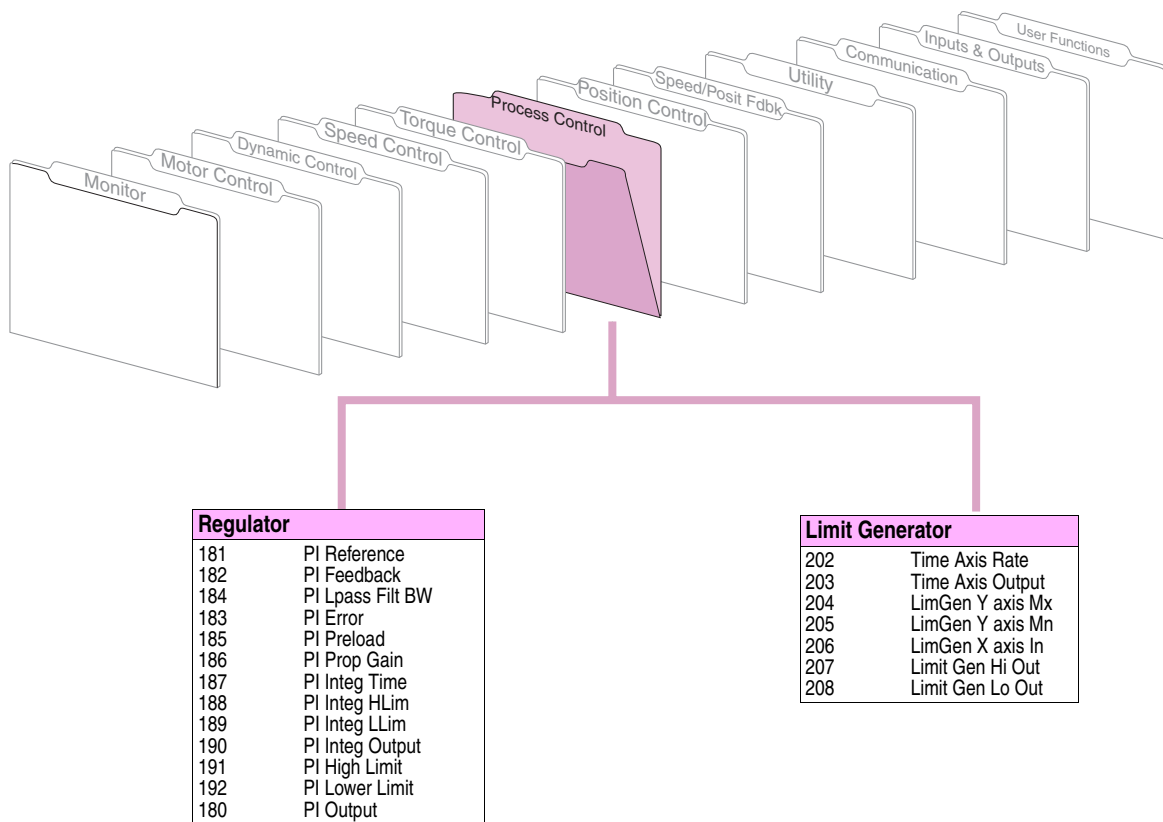
Regulator	
48	Spd Ref Bypass2
23	Speed Trim 3
24	SpdTrim 3 Scale
22	Speed Trim 2
25	STrim2 Filt Gain
26	SpdTrim2 Filt BW
74	Atune Spd Ref
75	Rev Speed Lim
76	Fwd Speed Lim
301	Motor Speed Ref
300	Motor Spd Fdbk
93	SRegFB Filt Gain
94	SReg FB Filt BW
71	Filtered SpdFdbk
100	Speed Error
89	Spd Err Filt BW
84	SpdReg AntiBckup
85	Servo Lock Gain
87	SReg Trq Preset
9	Total Inertia
90	Spd Reg BW
97	Act Spd Reg BW
91	Spd Reg Damping
81	Spd Reg P Gain
82	Spd Reg I Gain
92	SpdReg P Gain Mx
86	Spd Reg Droop
101	SpdReg Integ Out
106	SrLss Spd Reg BW
104	SrLss Spd Reg Kp
105	SrLss Spd Reg Ki
102	Spd Reg Pos Lim
103	Spd Reg Neg Lim
95	SRegOut FiltGain
96	SReg Out Filt BW
302	Spd Reg PI Out

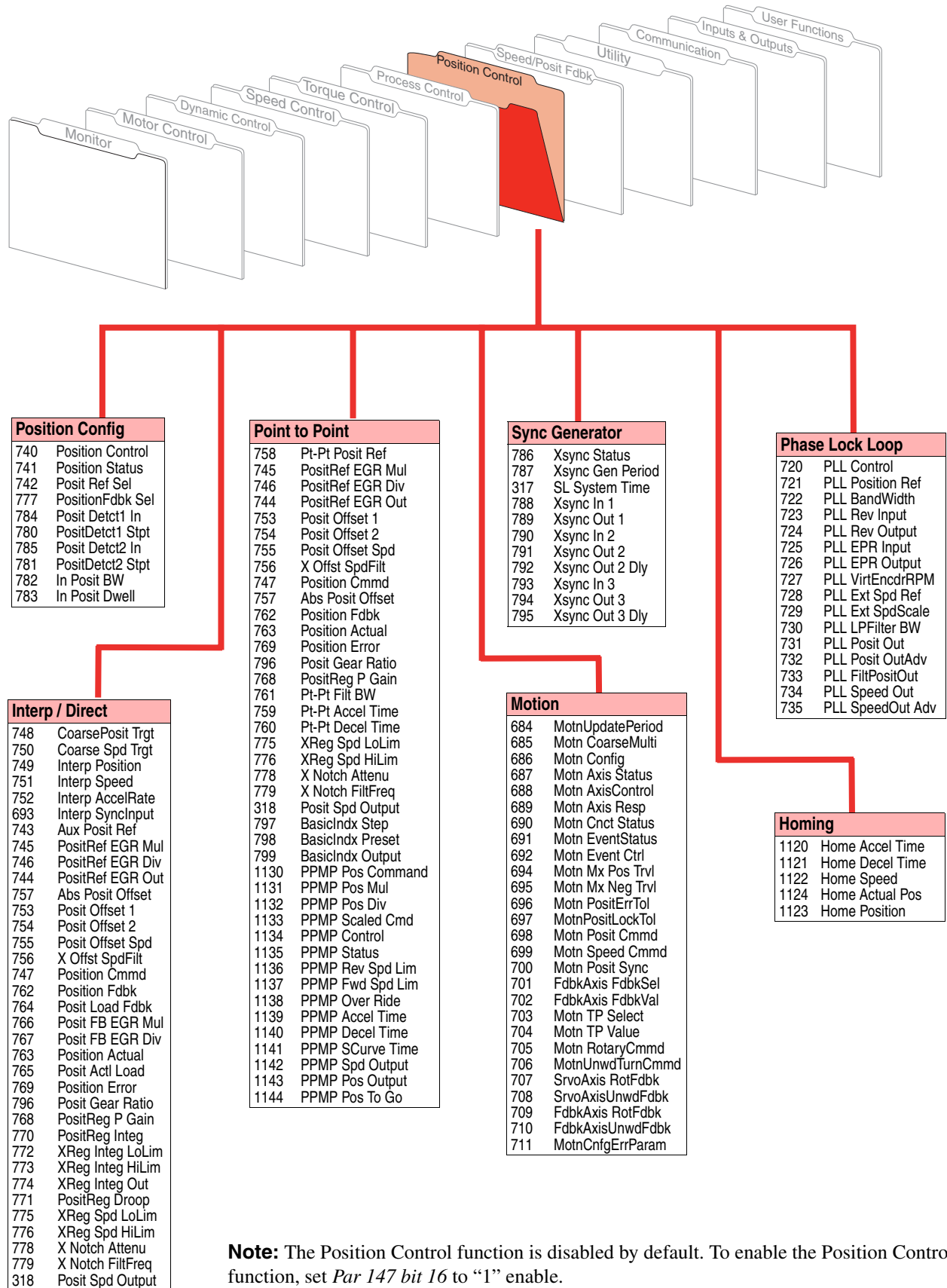
Setpoint Monitor	
171	Set Speed Lim
172	Setpt 1 Data
173	Setpt1 TripPoint
174	Setpt 1 Limit
175	Setpt 2 Data
176	Setpt2 TripPoint
177	Setpt 2 Limit

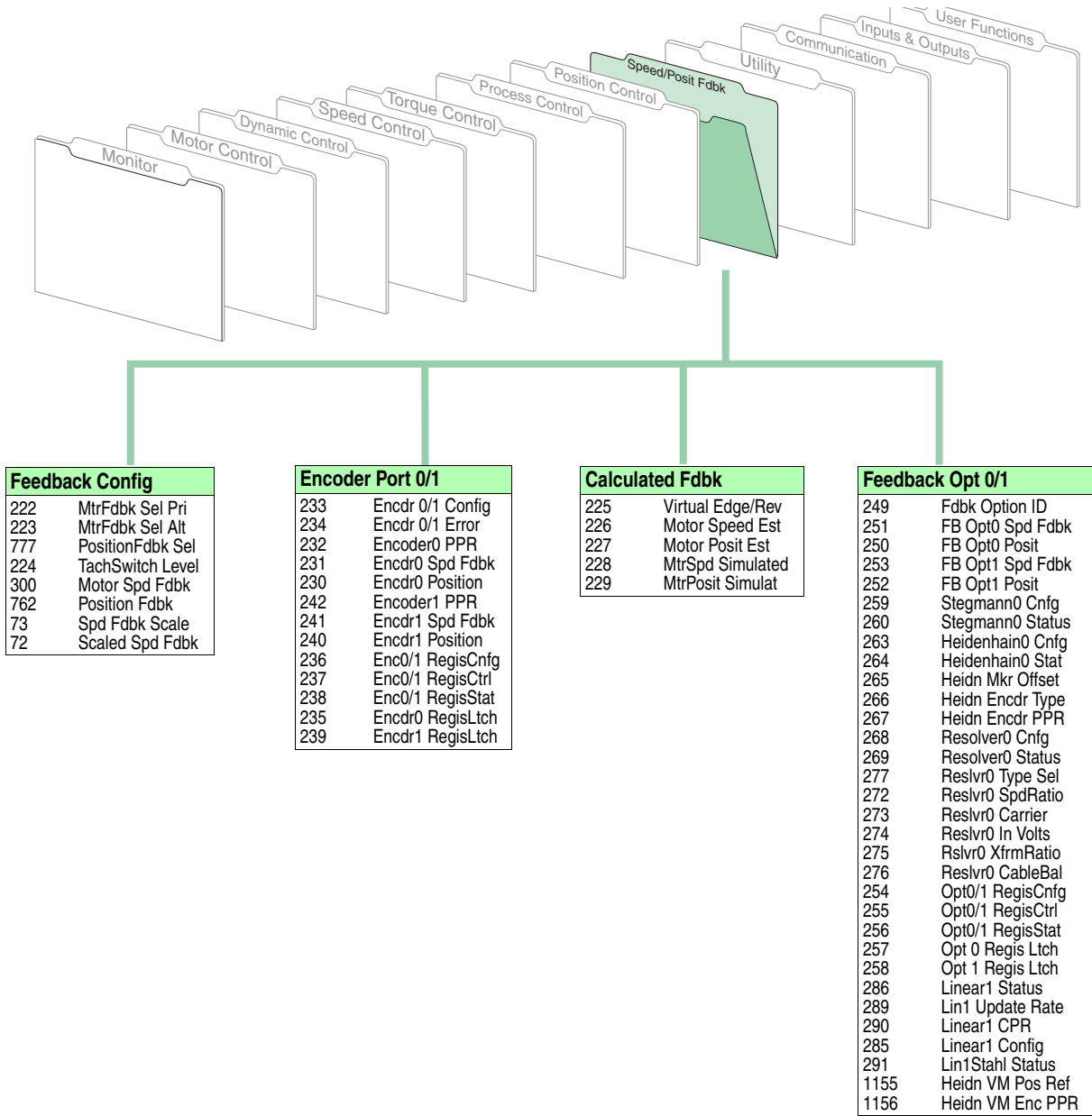


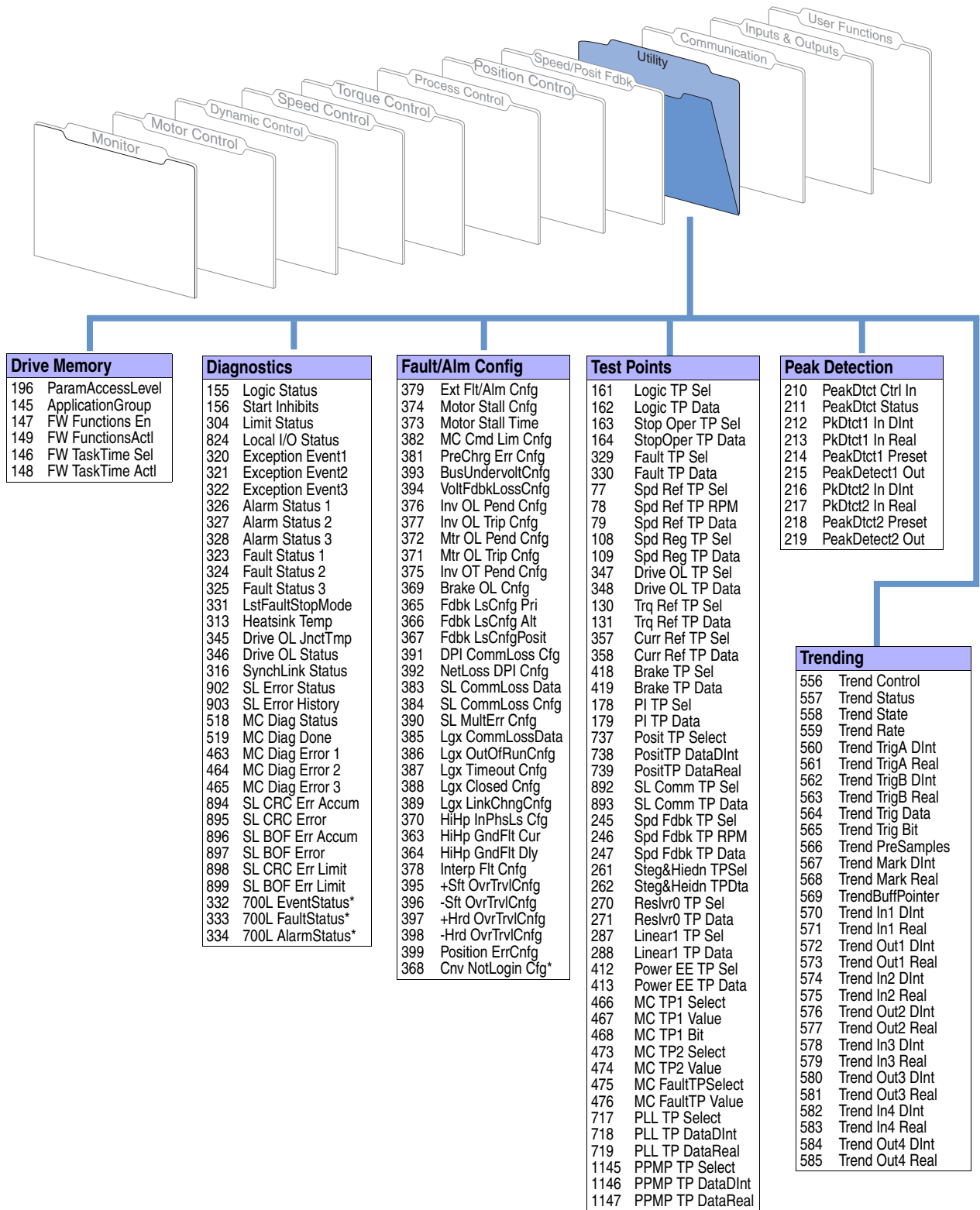
Torque	
110	Speed/TorqueMode
302	Spd Reg PI Out
59	Inertia Trq Add
69	FricComp Trq Add
111	Torque Ref 1
112	Torque Ref1 Div
113	Torque Ref 2
114	Torque Ref2 Mult
115	Torque Trim
119	SLAT ErrorSetpnt
120	SLAT Dwell Time
319	Selected Trq Ref
116	Torque Step
129	Atune Trq Ref
117	NotchAttenuation
118	Notch Filt Freq
415	BusReg/Brake Ref
401	Rated Volts
306	DC Bus Voltage
300	Motor Spd Fdbk
127	Mtring Power Lim
128	Regen Power Lim
353	Iq Actual Lim
125	Torque Pos Limit
126	Torque Neg Limit
123	Trq PosLim Actl
124	Trq NegLim Actl
303	Motor Torque Ref
132	Inert Adapt Sel
133	Inert Adapt BW
134	Inert Adapt Gain
221	Load Estimate

Current	
303	Motor Torque Ref
309	% Motor Flux
359	Motor Flux Est
360	Min Flux
361	Flx LpassFilt BW
350	Iq Actual Ref
351	Iq Ref Trim
308	Output Current
343	OL OpnLp CurrLim
356	Mtr Current Lim
362	Current Lmt Gain
352	Is Actual Lim
488	Flux Current
312	MotorFluxCurr FB
345	Drive OL JnctTmp
313	Heatsink Temp
346	Drive OL Status
344	OL ClsLp CurrLim
353	Iq Actual Lim
354	Iq Rate Limit
355	Iq Ref Limited
305	Mtr Trq Curr Ref

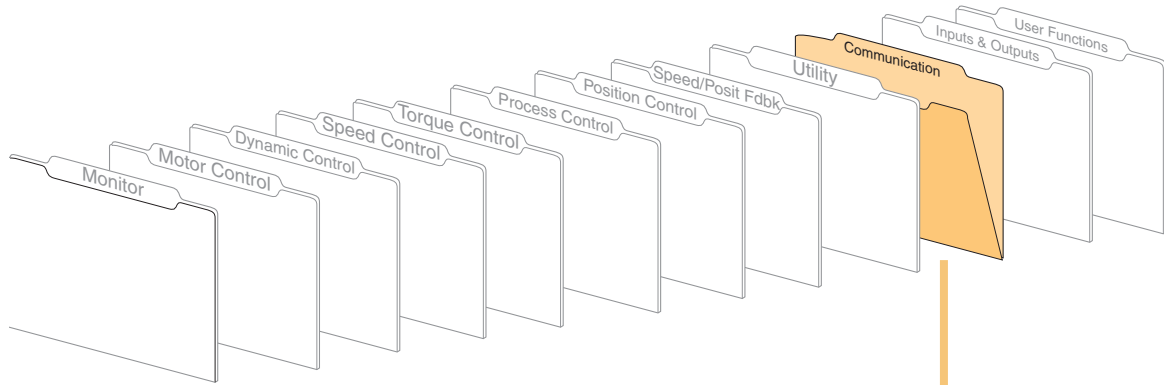








*Note: This parameter is used by PowerFlex 700L drives only.



Masks & Owners	
670	Logic Mask
671	Start Mask
672	Jog Mask
673	Direction Mask
674	Fault Clr Mask
677	Stop Owner
678	Start Owner
679	Jog Owner
680	Direction Owner
681	Fault Clr Owner

DPI Data Links	
650	DPI In Data Type
651	DPI Data In A1
652	DPI Data In A2
653	DPI Data In B1
654	DPI Data In B2
655	DPI Data In C1
656	DPI Data In C2
657	DPI Data In D1
658	DPI Data In D2
659	DPI Out Data Type
660	DPI Data Out A1
661	DPI Data Out A2
662	DPI Data Out B1
663	DPI Data Out B2
664	DPI Data Out C1
665	DPI Data Out C2
666	DPI Data Out D1
667	DPI Data Out D2

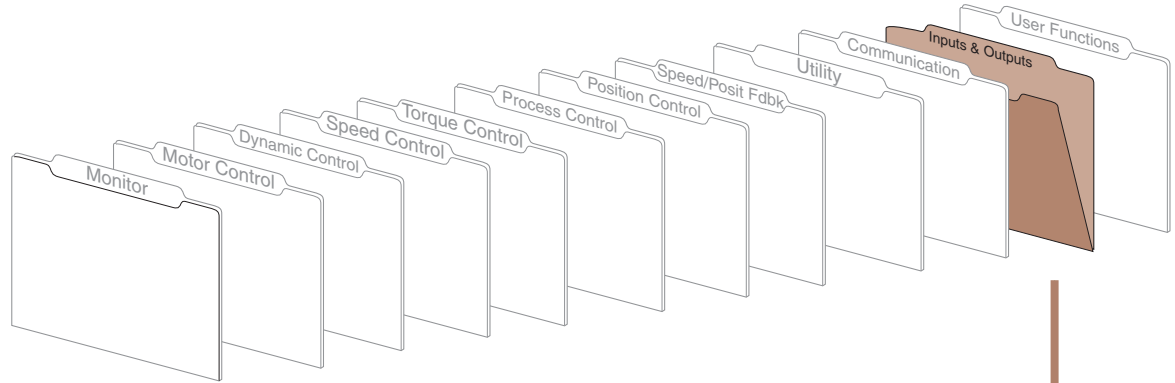
DriveLogix I/O	
600	Lgx Comm Format
601	From DL Data Type
602	FromDriveLogix00
603	FromDriveLogix01
604	FromDriveLogix02
605	FromDriveLogix03
606	FromDriveLogix04
607	FromDriveLogix05
608	FromDriveLogix06
609	FromDriveLogix07
610	FromDriveLogix08
611	FromDriveLogix09
612	FromDriveLogix10
613	FromDriveLogix11
614	FromDriveLogix12
615	FromDriveLogix13
616	FromDriveLogix14
617	FromDriveLogix15
618	FromDriveLogix16
619	FromDriveLogix17
620	FromDriveLogix18
621	FromDriveLogix19
622	FromDriveLogix20
625	To DL Data Type
626	To DriveLogix00
627	To DriveLogix01
628	To DriveLogix02
629	To DriveLogix03
630	To DriveLogix04
631	To DriveLogix05
632	To DriveLogix06
633	To DriveLogix07
634	To DriveLogix08
635	To DriveLogix09
636	To DriveLogix10
637	To DriveLogix11
638	To DriveLogix12
639	To DriveLogix13
640	To DriveLogix14
641	To DriveLogix15
642	To DriveLogix16
643	To DriveLogix17
644	To DriveLogix18
645	To DriveLogix19
646	To DriveLogix20

SynchLink Config	
904	SL Node Cnfg
905	SL Rx CommFormat
906	SL Rx DirectSel0
907	SL Rx DirectSel1
908	SL Rx DirectSel2
909	SL Rx DirectSel3
910	SL Tx CommFormat
911	SL Tx DirectSel0
912	SL Tx DirectSel1
913	SL Tx DirectSel2
914	SL Tx DirectSel3
915	SL Rcv Events
916	SL Clr Events
917	SL Rx P0 Regis
918	SL Rx P1 Regis
921	SL Real2DInt In
922	SL Real2DInt Out
923	SL Mult Base
924	SL Mult A In
925	SL Mult B In
926	SL Mult Out
927	SL Mult State

SynchLink Input	
928	Rx Dir Data Type
929	SL Dir Data Rx00
930	SL Dir Data Rx01
931	SL Dir Data Rx02
932	SL Dir Data Rx03
933	Rx Buf Data Type
934	SL Buf Data Rx00
935	SL Buf Data Rx01
936	SL Buf Data Rx02
937	SL Buf Data Rx03
938	SL Buf Data Rx04
939	SL Buf Data Rx05
940	SL Buf Data Rx06
941	SL Buf Data Rx07
942	SL Buf Data Rx08
943	SL Buf Data Rx09
944	SL Buf Data Rx10
945	SL Buf Data Rx11
946	SL Buf Data Rx12
947	SL Buf Data Rx13
948	SL Buf Data Rx14
949	SL Buf Data Rx15
950	SL Buf Data Rx16
951	SL Buf Data Rx17

SynchLink Output	
964	Tx Dir Data Type
965	SL Dir Data Tx00
966	SL Dir Data Tx01
967	SL Dir Data Tx02
968	SL Dir Data Tx03
969	Tx Buf Data Type
970	SL Buf Data Tx00
971	SL Buf Data Tx01
972	SL Buf Data Tx02
973	SL Buf Data Tx03
974	SL Buf Data Tx04
975	SL Buf Data Tx05
976	SL Buf Data Tx06
977	SL Buf Data Tx07
978	SL Buf Data Tx08
979	SL Buf Data Tx09
980	SL Buf Data Tx10
981	SL Buf Data Tx11
982	SL Buf Data Tx12
983	SL Buf Data Tx13
984	SL Buf Data Tx14
985	SL Buf Data Tx15
986	SL Buf Data Tx16
987	SL Buf Data Tx17

Security	
714	Port Mask Act
669	Write Mask
712	Write Mask Act
670	Logic Mask
713	Logic Mask Act



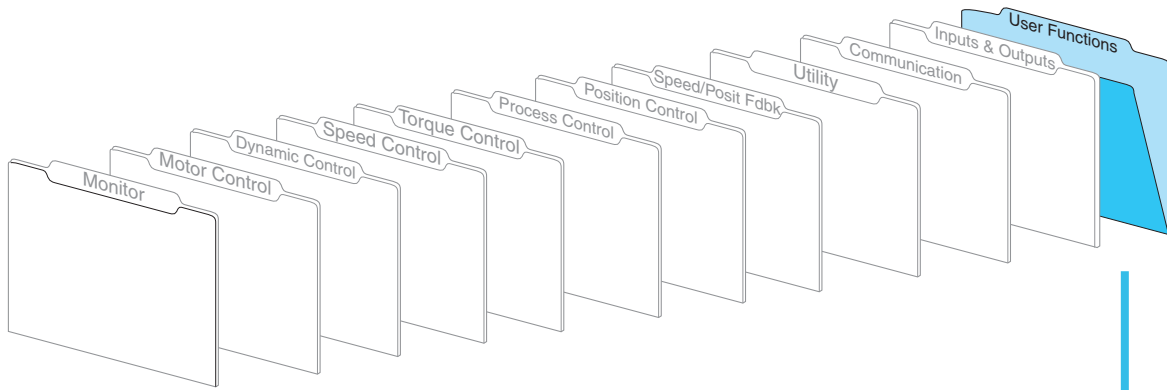
Analog Inputs	
821	Analog I/O Units
803	Anlg In1 Offset
801	Anlg In1 Value
802	Anlg In1 Scale
804	AI 1 Filt Gain
805	Anlg In1 Filt BW
800	Anlg In1 Data
1093	Anlg In1LossCnfg
809	Anlg In2 Offset
807	Anlg In2 Value
808	Anlg In2 Scale
810	AI 2 Filt Gain
811	Anlg In2 Filt BW
806	Anlg In2 Data
1094	Anlg In2LossCnfg
815	Anlg In3 Offset
813	Anlg In3 Value
814	Anlg In3 Scale
816	AI 3 Filt Gain
817	Anlg In3 Filt BW
812	Anlg In3 Data
1095	Anlg In3LossCnfg

Analog Outputs	
821	Analog I/O Units
831	Anlg Out1 Sel
832	Anlg Out1 DInt
833	Anlg Out1 Real
834	Anlg Out1 Offset
835	Anlg Out1 Scale
836	Anlg Out1 Zero
837	Anlg Out1 Value
838	Anlg Out2 Sel
839	Anlg Out2 DInt
840	Anlg Out2 Real
841	Anlg Out2 Offset
842	Anlg Out2 Scale
843	Anlg Out2 Zero
844	Anlg Out2 Value

Digital Inputs	
823	Dign Debounce
825	Dig In1 Sel
826	Dig In2 Sel
827	Dig In3 Sel
828	Dig In4 Sel
829	Dig In5 Sel
830	Dig In6 Sel
824	Local I/O Status

Digital Outputs	
845	Dig Out1 Sel
846	Dig Out1 Data
847	Dig Out1 Bit
848	Dig Out1 On Time
849	Dig Out1 OffTime
850	Dig Out2 Sel
851	Dig Out2 Data
852	Dig Out2 Bit
853	Dig Out2 On Time
854	Dig Out2 OffTime
855	Rly Out3 Sel
856	Rly Out3 Data
857	Rly Out3 Bit
858	Rly Out3 On Time
859	Rly Out3 OffTime
824	Local I/O Status

BitSwap Control	
860	BitSwap 1A Data
861	BitSwap 1A Bit
862	BitSwap 1B Data
863	BitSwap 1B Bit
864	BitSwap 1 Result
865	BitSwap 2A Data
866	BitSwap 2A Bit
867	BitSwap 2B Data
868	BitSwap 2B Bit
869	BitSwap 2 Result
870	BitSwap 3A Data
871	BitSwap 3A Bit
872	BitSwap 3B Data
873	BitSwap 3B Bit
874	BitSwap 3 Result
875	BitSwap 4A Data
876	BitSwap 4A Bit
877	BitSwap 4B Data
878	BitSwap 4B Bit
879	BitSwap 4 Result
880	BitSwap 5A Data
881	BitSwap 5A Bit
882	BitSwap 5B Data
883	BitSwap 5B Bit
884	BitSwap 5 Result
885	BitSwap 6A Data
886	BitSwap 6A Bit
887	BitSwap 6B Data
888	BitSwap 6B Bit
889	BitSwap 6 Result



Param & Config	
1000	UserFunct Enable
1001	UserFunct Actual
1002	UserData DInt 01
1003	UserData DInt 02
1004	UserData DInt 03
1005	UserData DInt 04
1006	UserData DInt 05
1007	UserData DInt 06
1008	UserData DInt 07
1009	UserData DInt 08
1010	UserData DInt 09
1011	UserData DInt 10
1012	UserData Real 01
1013	UserData Real 02
1014	UserData Real 03
1015	UserData Real 04
1016	UserData Real 05
1017	UserData Real 06
1018	UserData Real 07
1019	UserData Real 08
1020	UserData Real 09
1021	UserData Real 10

Select Switches	
1022	Sel Switch Ctrl
1023	Swch Real 1 NC
1024	Swch Real 1 NO
1025	Swch Real 1 Out
1026	Swch DInt 1 NC
1027	Swch DInt 1 NO
1028	Swch DInt 1 Out
1029	Sel Swch In00
1030	Sel Swch In01
1031	Sel Swch In02
1032	Sel Swch In03
1033	Sel Swch In04
1034	Sel Swch In05
1035	Sel Swch In06
1036	Sel Swch In07
1037	Sel Swch In08
1038	Sel Swch In09
1039	Sel Swch In10
1040	Sel Swch In11
1041	Sel Swch In12
1042	Sel Swch In13
1043	Sel Swch In14
1044	Sel Swch In15
1045	SelSwch RealOut
1046	SelSwch DIntOut

Math & Logic	
1047	DInt2Real1 In
1048	DInt2Real1 Scale
1049	DInt2Real1Result
1150	DInt2Real2 In
1151	DInt2Real2 Scale
1152	DInt2Real2Result
1050	Real2DInt In
1051	Real2DInt Scale
1052	Real2DInt Result
1053	MulDiv 1 Input
1054	MulDiv 1 Mul
1055	MulDiv 1 Div
1056	MulDiv 1 Result
1057	MulDiv 2 Input
1058	MulDiv 2 Mul
1059	MulDiv 2 Div
1060	MulDiv 2 Result
1061	Logic Config
1062	Logic/Cmpr State
1063	Logic 1A Data
1064	Logic 1A Bit
1065	Logic 1B Data
1066	Logic 1B Bit
1067	Logic 2A Data
1068	Logic 2A Bit
1069	Logic 2B Data
1070	Logic 2B Bit
1071	Compare 1A
1072	Compare 1B
1073	Compare 2A
1074	Compare 2B
1096	AddSub 1 Input
1097	AddSub 1 Add
1098	AddSub 1 Subtrct
1099	AddSub 1 Result
1100	AddSub 2 Input
1101	AddSub 2 Add
1102	AddSub 2 Subtrct
1103	AddSub 2 Result
1104	AddSub 3 Input
1105	AddSub 3 Add
1106	AddSub 3 Subtrct
1107	AddSub 3 Result

Timers	
1108	DelTmr1 TrigData
1109	DelTmr1 Trig Bit
1110	DelayTimer1PrSet
1111	DelayTimer1Accu
1112	DelayTimer1Stats
1113	DelTmr2 TrigData
1114	DelTmr2 Trig Bit
1115	DelayTimer2PrSet
1116	DelayTimer2Accu
1117	DelayTimer2Stats

Electronic Gear Ratio	
1161	EGR Config
1162	EGR Mul
1163	EGR Div
1164	EGR Pos Input
1165	EGR Pos Output
1166	EGR Pos Preset

Frame to AC Drive Rating Cross Reference

Frame	208		240		400V		480V		600V		690V	
	ND kW	HD kW	ND HP	HD HP	ND kW	HD kW	ND HP	HD HP	ND HP	HD HP	ND kW	HD kW
1	0.75	0.55	1.0	0.75	0.75	0.55	1	0.75	1	0.75	-	-
	1.5	1.1	2.0	1.5	1.5	1.1	2	1.5	2	1.5	-	-
	2.2	1.5	3.0	2.0	2.2	1.5	3	2	3	2	-	-
	4.0	3.0	5.0	3.0	4.0	3.0	5	3	5	3	-	-
	5.5	4.0	7.5	5.0	5.5	4.0	7.5	5	7.5	5	-	-
	-	-	-	-	7.5	5.5	10	7.5	10	7.5	-	-
2	7.5	5.5	10	7.5	15	11	20	15	20	15	-	-
	-	-	-	-	18.5	15	25	20	25	20	-	-
3	11	7.5	15	10	22	18.5	30	25	30	25	-	-
	15	11	20	15	30	22	40	30	40	30	-	-
	-	-	-	-	37	30	50	40	50	40	-	-
4	18.5	15	25	20	45	37	60	50	60	50	-	-
	22	18.5	30	25	-	-	-	-	-	-	-	-
5	30	22	40	30	55	45	75	60	75	60	45	37.5
	37	30	50	40	55	45	100	75	100	75	55	45
	-	-	-	-	-	-	-	-	-	-	75	55
	-	-	-	-	-	-	-	-	-	-	90	75
6	45	37	60	50	75	55	125	100	125	100	110	90
	55	45	75	60	90	75	150	125	150	125	132	110
	66	55	100	75	110	90	200	150	-	-	-	-
	-	-	-	-	132	110	-	-	-	-	-	-
9	-	-	-	-	132	110	200	150	150	150	160	132
	-	-	-	-	160	132	250	200	200	150	200	160
10	-	-	-	-	200	160	300	250	250	200	250	200
	-	-	-	-	250	200	350	300	350	250	315	250
	-	-	-	-	250	250	450	350	400	350	355	315
	-	-	-	-	-	-	-	-	450	350	400	315
11	-	-	-	-	315	250	500	450	500	400	450	355
	-	-	-	-	355	315	500	500	500	500	500	400
	-	-	-	-	400	355	600	500	600	500	560	500
12	-	-	-	-	450	400	700	600	700	650	630	560
	-	-	-	-	500	450	800	700	800	700	710	630
	-	-	-	-	560	500	900	800	900	700	800	630
13	-	-	-	-	630	560	1000	900	1000	900	900	800
	-	-	-	-	710	630	1200	1000	1100	1000	1000	900
	-	-	-	-	800	710	1250	1000	1300	1100	1100	1000
14	-	-	-	-	-	-	-	-	1600	1400	1500	1300

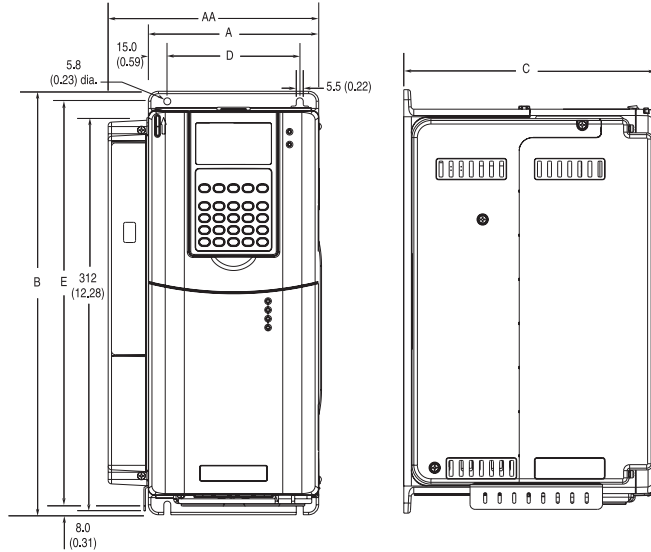
Frame to DC Drive Rating Cross Reference

Frame	325V		540V		650V		810V		932V	
	ND HP	HD HP	ND kW	HD kW	ND HP	HD HP	ND HP	HD HP	ND kW	HD kW
1	5.0	3.0	1.5	1.1	1.0	0.75	1.0	0.75	–	–
	7.5	5.0	2.2	1.5	2.0	1.5	2.0	1.5	–	–
	–	–	4.0	3.0	3.0	2.0	3.0	2.0	–	–
	–	–	5.5	4.0	5.0	3.0	5.0	3.0	–	–
	–	–	7.5	5.5	7.5	5.0	7.5	5.0	–	–
	–	–	11.0	7.5	10.0	7.5	10.0	7.5	–	–
	–	–	–	–	15	10	15	10	–	–
2	10	7.5	15	11	20	15	20	15	–	–
	–	–	18.5	15	25	20	25	20	–	–
3	15	10	22	18.5	30	25	30	25	–	–
	20	15	20	22	40	30	40	30	–	–
	–	–	37	30	50	40	50	40	–	–
4	25	20	45	37	60	50	60	50	–	–
	30	25	–	–	–	–	–	–	–	–
5	40	30	55	45	75	60	100	75	90	75
	50	40	55	45	100	75	–	–	–	–
	–	–	75	55	100	75	–	–	–	–
6	60	50	90	75	125	100	150	125	132	110
	75	60	110	90	150	125	–	–	–	–
	100	75	132	110	200	150	–	–	–	–
9	–	–	132	110	200	150	150	150	160	132
	–	–	160	132	250	200	200	150	200	160
10	–	–	200	160	300	250	250	200	250	200
	–	–	250	200	350	300	350	250	315	250
	–	–	250	250	450	350	400	350	355	315
	–	–	–	–	–	–	450	350	400	315
11	–	–	315	250	500	450	500	400	450	355
	–	–	355	315	500	500	500	500	500	400
	–	–	400	355	600	500	600	500	560	500
12	–	–	450	400	700	600	700	650	630	560
	–	–	500	450	800	700	800	700	710	630
	–	–	560	500	900	800	900	700	800	630
13	–	–	630	560	1000	900	1000	900	1000	900
	–	–	710	630	1200	1000	1100	1000	1100	1000
	–	–	800	710	1250	1000	1300	1100	1300	1100
14	–	–	–	–	–	–	1600	1400	1500	1300

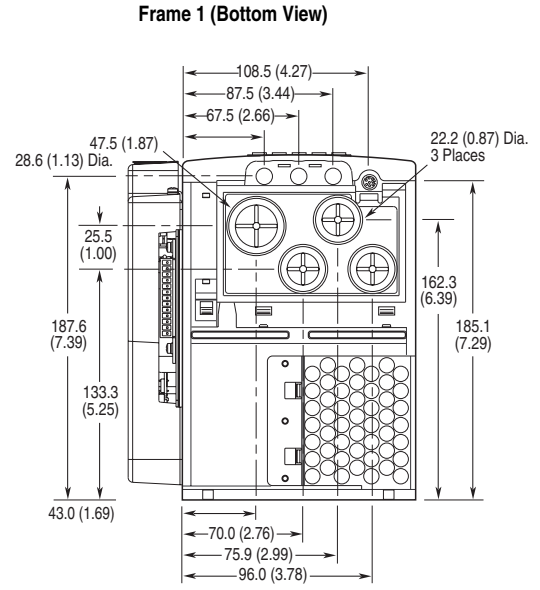
Approximate Dimensions

PowerFlex 700S Frame 1-3 Dimensions (Frame 1 Shown)

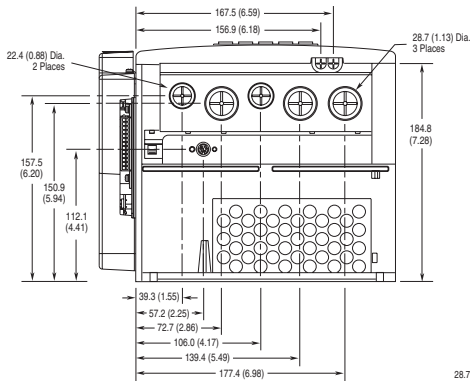
Dimensions are in millimeters and (inches)



Frame 2 (Bottom View)

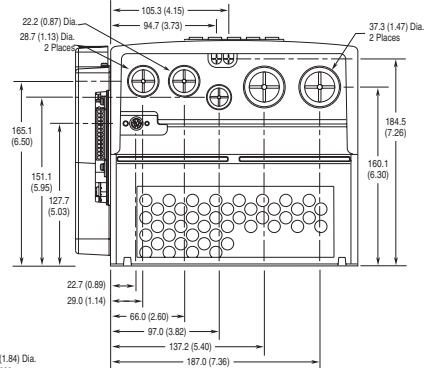


Frame 1 (Bottom View)

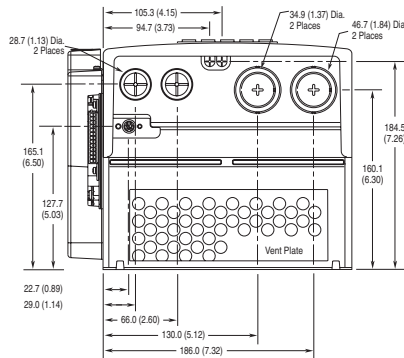


Frame 2 (Bottom View)

Frame 3 - All Drives except 50 HP, 480V (37 kW, 400V)



Frame 3 - 50 HP, 480V (37 kW, 400V) Normal Duty Drive



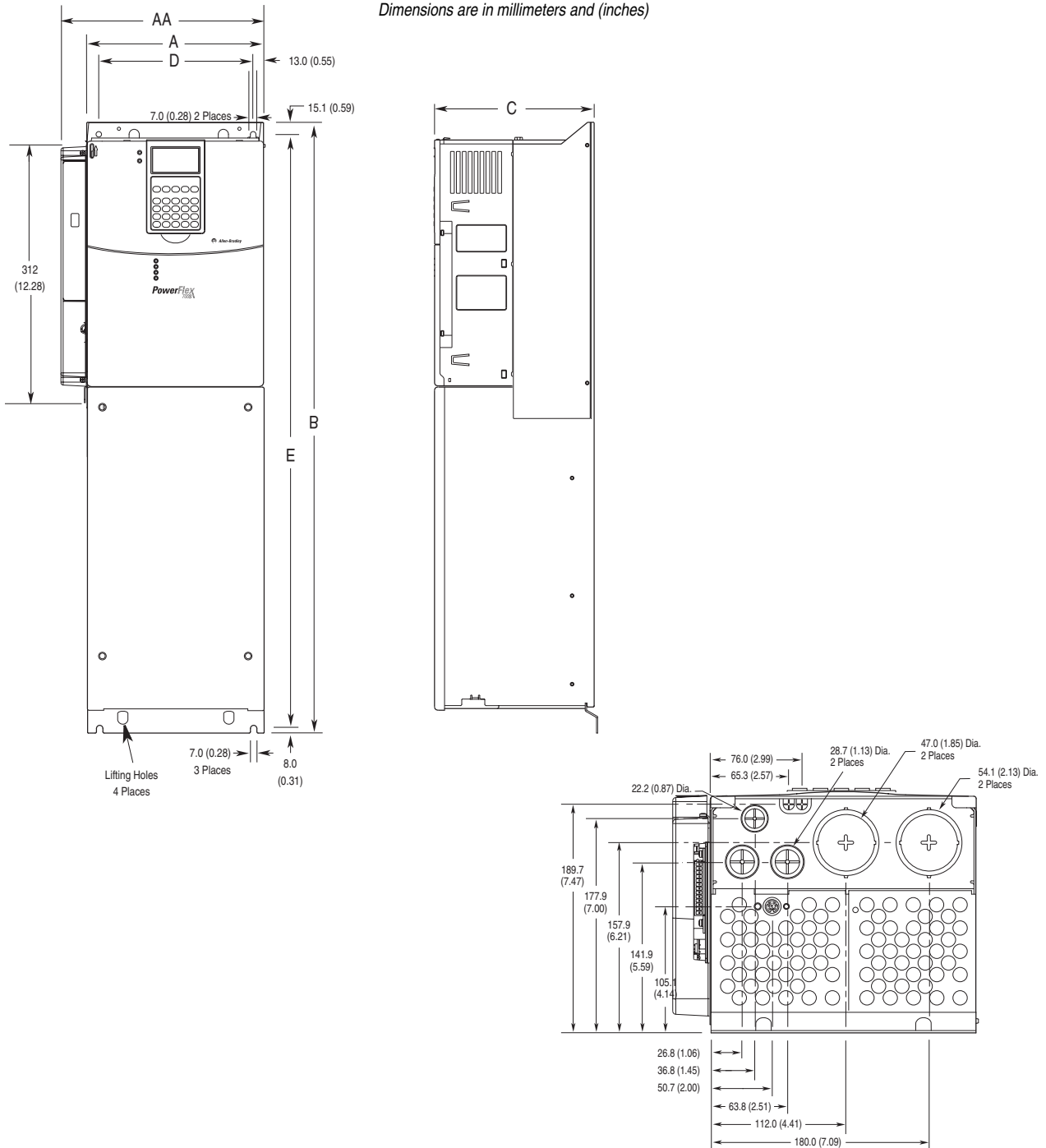
Frame(1)	Slim A (Max.)	Expanded AA	B	C (Max.)	D	E	Weight (2) kg (lbs.)	
							Drive	Drive & Packaging
1	135.0 (5.31)	166.9 (6.57)	336.0 (13.23)	200.0 (7.87)	105.0 (4.13)	320.0 (12.60)	7.03 (15.5)	9.98 (22)
2	222.0 (8.74)	253.9 (9.99)	342.5 (13.48)	200.0 (7.87)	192.0 (7.56)	320.0 (12.60)	12.52 (27.6)	15.20 (33.5)
3	222.0 (8.74)	253.9 (9.99)	517.5 (20.37)	200.0 (7.87)	192.0 (7.56)	500.0 (19.69)	18.55 (40.9)	22.68 (50)

(1) Refer to the table on page 87 for frame information.

(2) Weights include HIM, DriveLogix controller with ControlNet daughtercard, Hi-Resolution Encoder Option, and 20-COMM-C ControlNet adapter.

PowerFlex 700S Frame 4

Dimensions are in millimeters and (inches)

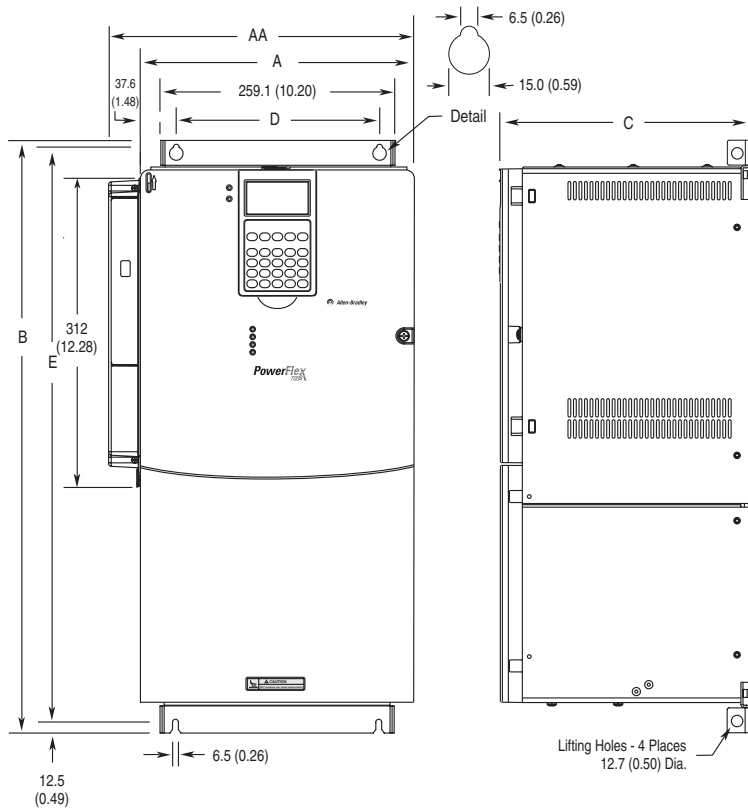


Frame ⁽¹⁾	Slim A (Max.)	Expanded AA	B	C (Max.)	D	E	Weight ⁽²⁾ kg (lbs.)	
							Drive	Drive & Packaging
4	220.0 (8.66)	251.9 (9.92)	758.8 (29.87)	201.7 (7.94)	192.0 (7.56)	738.2 (29.06)	24.49 (54.0)	29.03 (64.0)

(1)Refer to the table on page 87 for frame information.

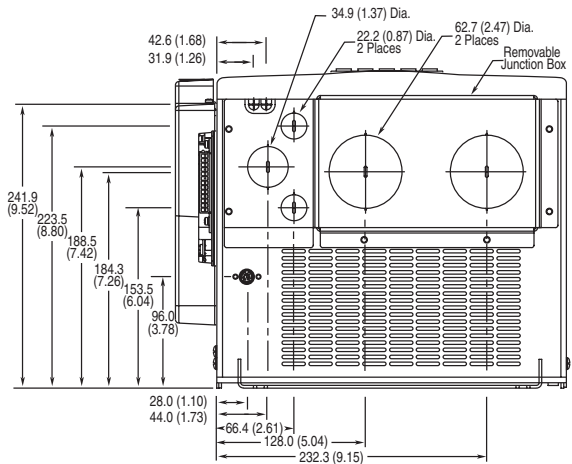
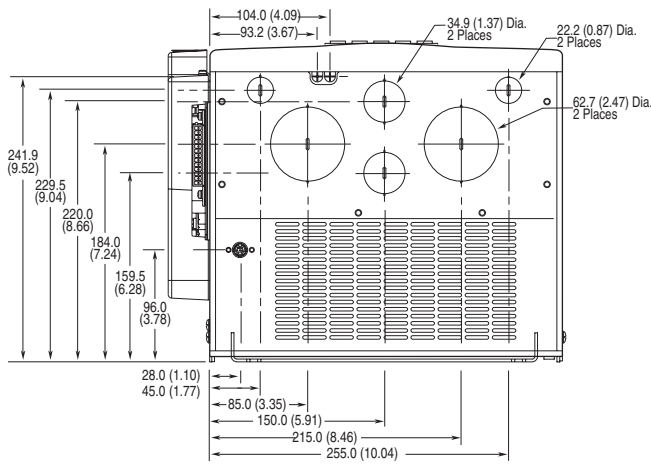
(2)Weights include HIM, DriveLogix controller with ControlNet daughtercard, Hi-Resolution Encoder Option, and 20-COMM-C ControlNet adapter.

PowerFlex 700S Frame 5



Frame 5 - 75 HP, 480V (55 kW, 400V) Normal Duty Drive

Frame 5 - 100 HP, 480V (55 kW, 400V) Normal Duty Drive



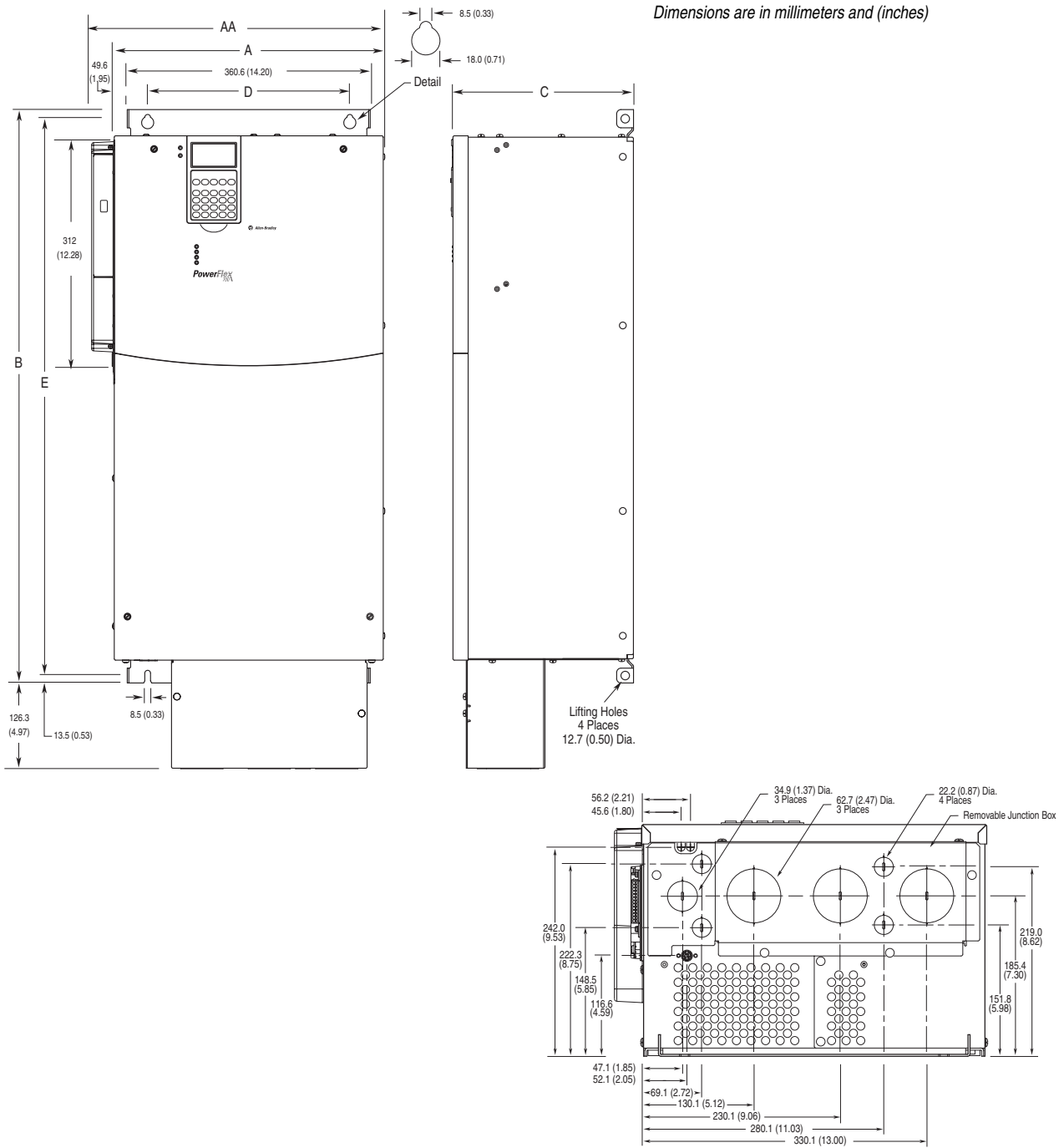
Frame(1)	Slim A (Max.)	Expanded AA	B	C (Max.)	D	E	Weight (3) kg (lbs.)	
							Drive	Drive & Packaging
5	308.0 (12.16)	339.9 (13.38)	644.5 (25.37)(2)	275.4 (10.84)	225.0 (8.86)	625.0 (24.61)	37.19 (82.0)	42.18 (93.0)

(1) Refer to the table on page 87 for frame information.

(2) When using the supplied junction box (100 HP drives Only), add an additional 45.1 mm (1.78 in.) to this dimension.

(3) Weights include HIM, DriveLogix controller with ControlNet daughtercard, Hi-Resolution Encoder Option, and 20-COMM-C ControlNet adapter.

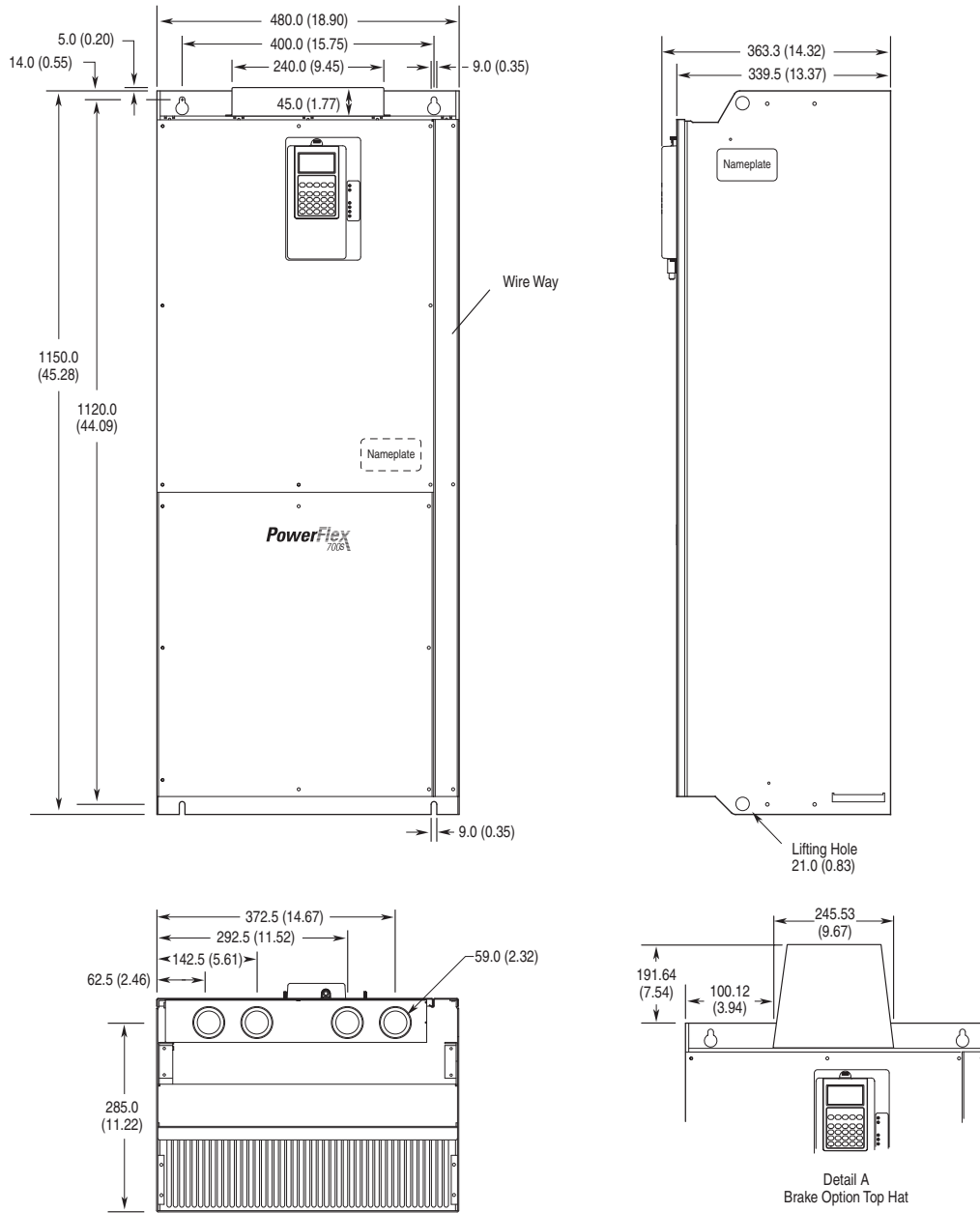
PowerFlex 700S Frame 6



Frame ⁽¹⁾	Slim	Expanded	B	C (Max.)	D	E	Approx. Weight ⁽²⁾ kg (lbs.)
	A (Max.)	AA					Drive
6	403.9 (15.90)	435.8 (17.16)	850.0 (33.46)	275.5 (10.85)	300.0 (11.81)	825.0 (32.48)	71.44 (157.5) ⁽³⁾

(1) Refer to the table on page 87 for frame information.
 (2) Weights include HIM and Standard I/O.
 (3) Add an additional 3.6 kg (8.00 lbs.) for 200 HP drives.

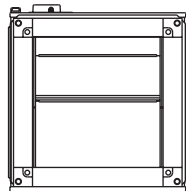
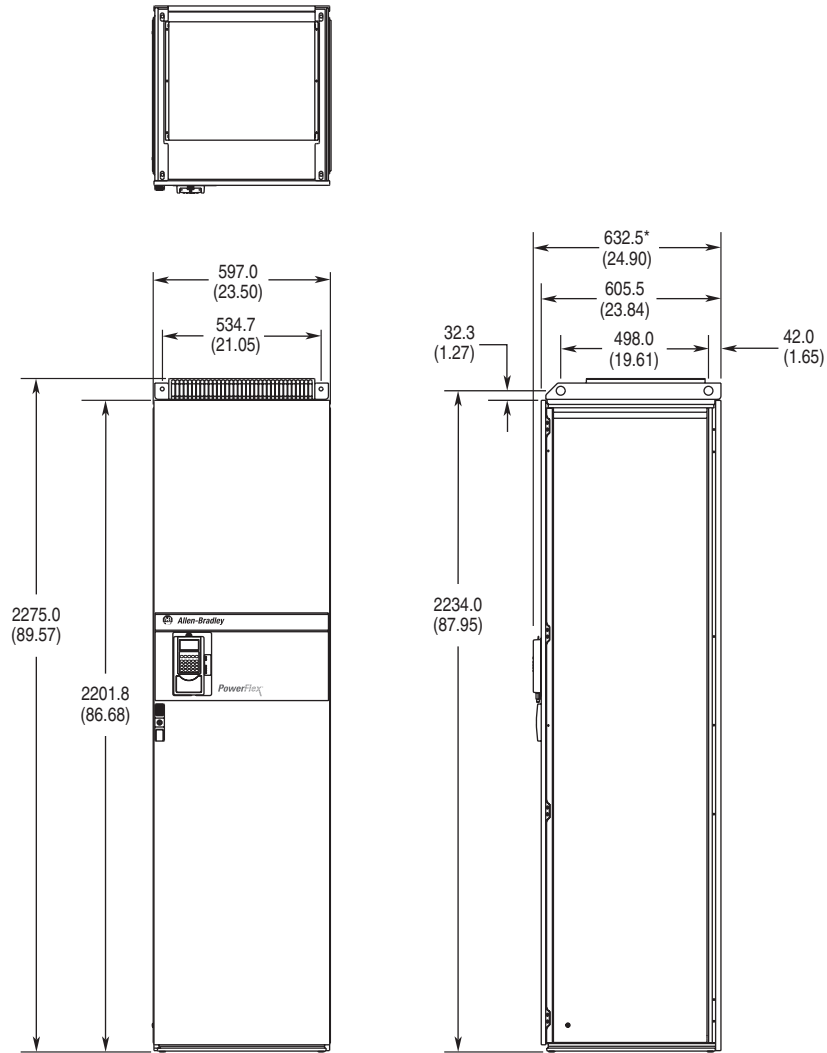
PowerFlex 700S Frame 9 Dimensions



Dimensions are in millimeters and (inches).

Type	Weight kg (lbs.)
400V/480V AC, 261 Amp Drive & Enclosure	143 (315)
400V/480V AC, 300 Amp Drive & Enclosure	151 (333)
540/650V DC, 261 Amp Drive & Enclosure	109 (240)
540/650V DC, 300 Amp Drive & Enclosure	117 (257)
600/690V AC Drive & Enclosure	143 (315)
810/932V DC Drive & Enclosure	109 (240)

PowerFlex 700S Frame 10 Dimensions, NEMA 1 IP21, Enclosure Code "A"



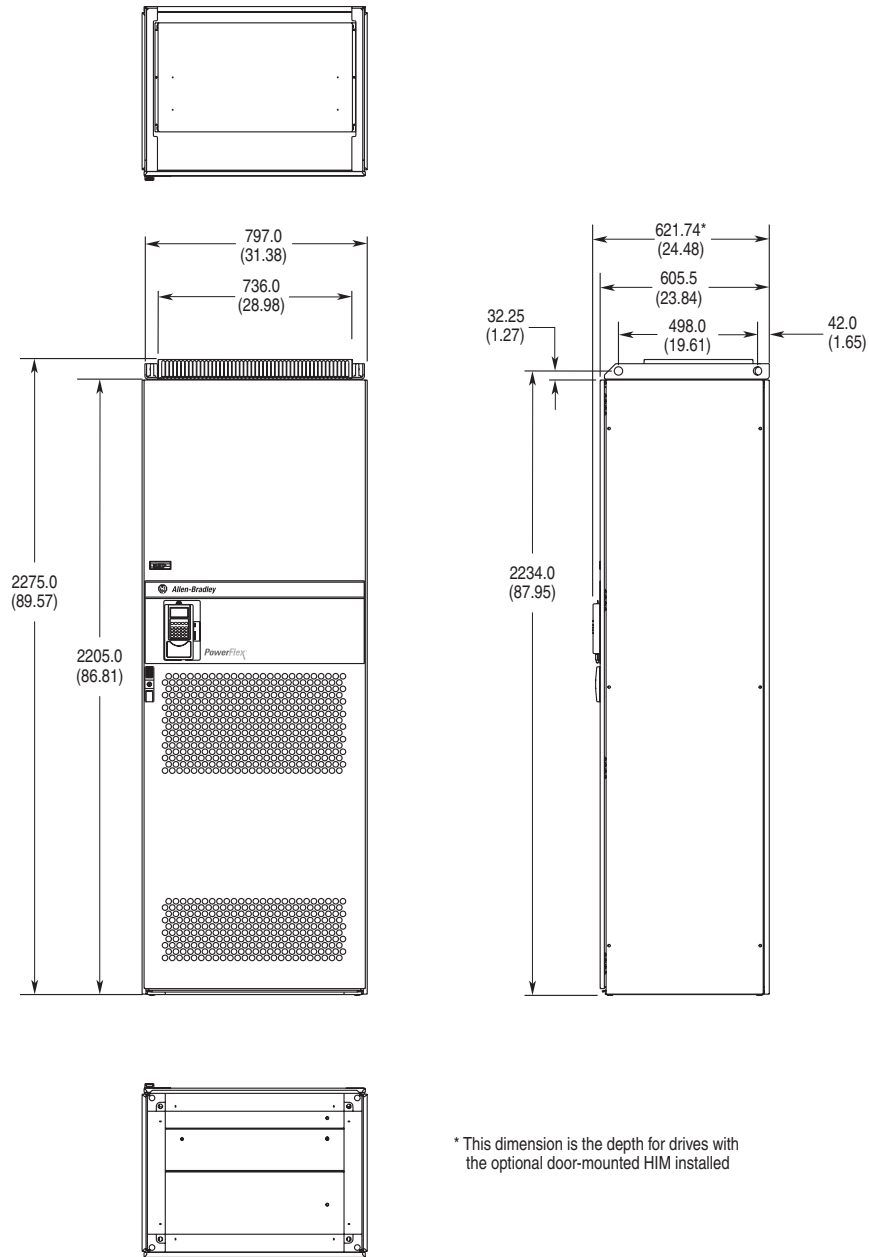
* This dimension is the depth for drives with the optional door-mounted HIM installed

Dimensions are in millimeters and (inches).

Note: Refer to the *PowerFlex 700H and 700S Frame 9-14 Drives Installation Instructions*, publication PFLEX-IN006 ..., for additional Frame 10 enclosure style dimensions.

Voltage Class	Drive Rating Amps	Approx. Weight kg (lbs.) Drive & Enclosure (AC Input)	Approx. Weight kg (lbs.) Drive & Enclosure (DC Input)
400/480V AC (540/650V DC)	385	432 (952)	317 (699)
	460	432 (952)	317 (699)
	520	432 (952)	317 (699)
600/690V AC (810/932V DC)	261	370 (816)	317 (699)
	325	401 (884)	317 (699)
	385	401 (884)	317 (699)
	416	401 (884)	317 (699)

PowerFlex 700S Frame 11 Dimensions, NEMA 1 IP21, Enclosure Code "A"

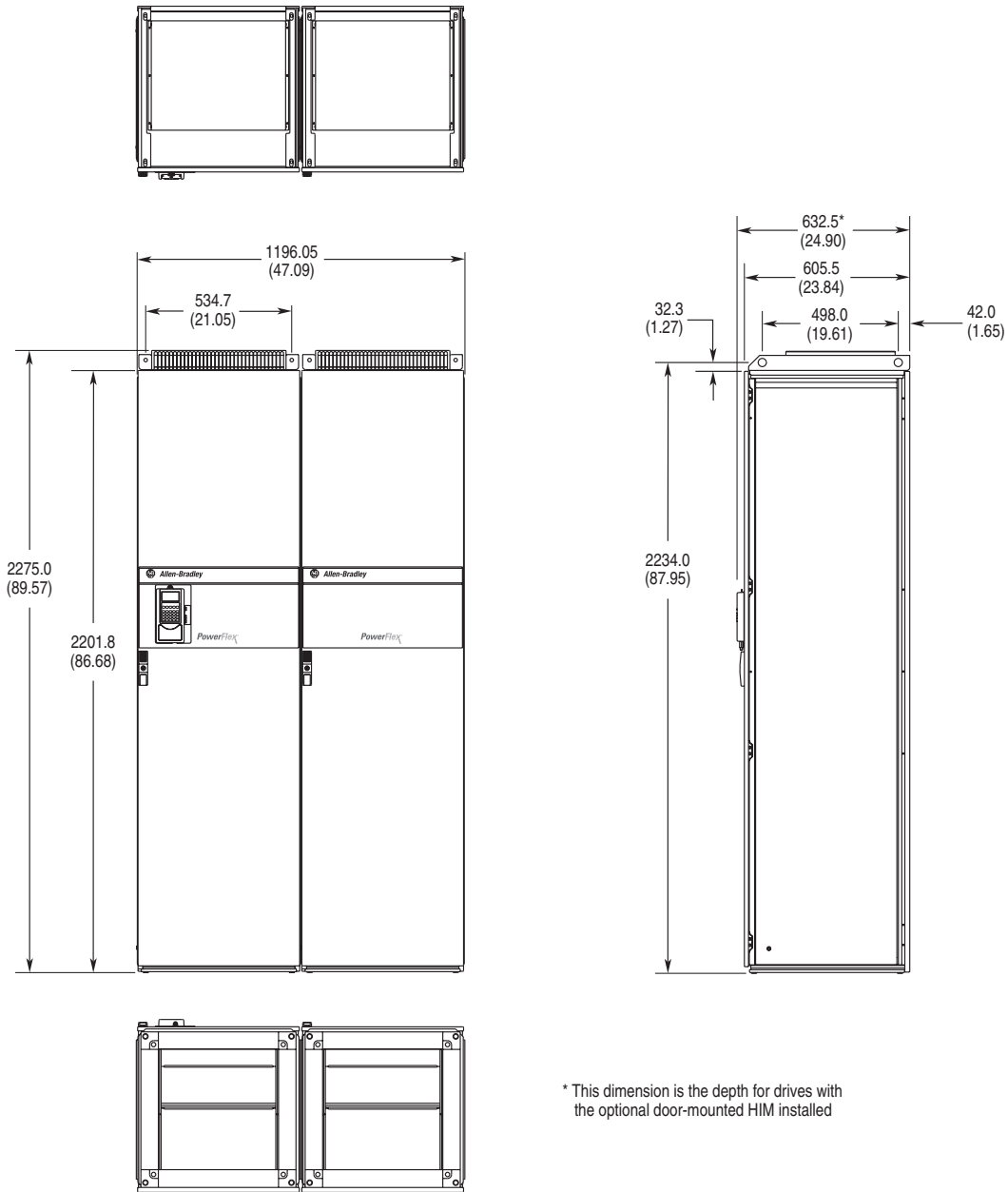


Dimensions are in millimeters and (inches).

Note: Refer to the *PowerFlex 700H and 700S Frame 9-14 Drives Installation Instructions*, publication PFLEX-IN006 ..., for additional Frame 11 enclosure style dimensions.

Voltage Class	Drive Rating Amps	Approx. Weight kg (lbs.) Drive & Enclosure (AC Input)	Approx. Weight kg (lbs.) Drive & Enclosure (DC Input)
400/480V AC (540/650V DC)	590	614 (1354)	446 (983)
	650	614 (1354)	446 (983)
	730	614 (1354)	446 (983)
600/690V AC (810/932V DC)	460	561 (1237)	446 (983)
	502	561 (1237)	446 (983)
	590	676 (1490)	446 (983)

PowerFlex 700S Frame 12 Dimensions, NEMA 1 IP21, Enclosure Code “A”



* This dimension is the depth for drives with the optional door-mounted HIM installed

Dimensions are in millimeters and (inches).

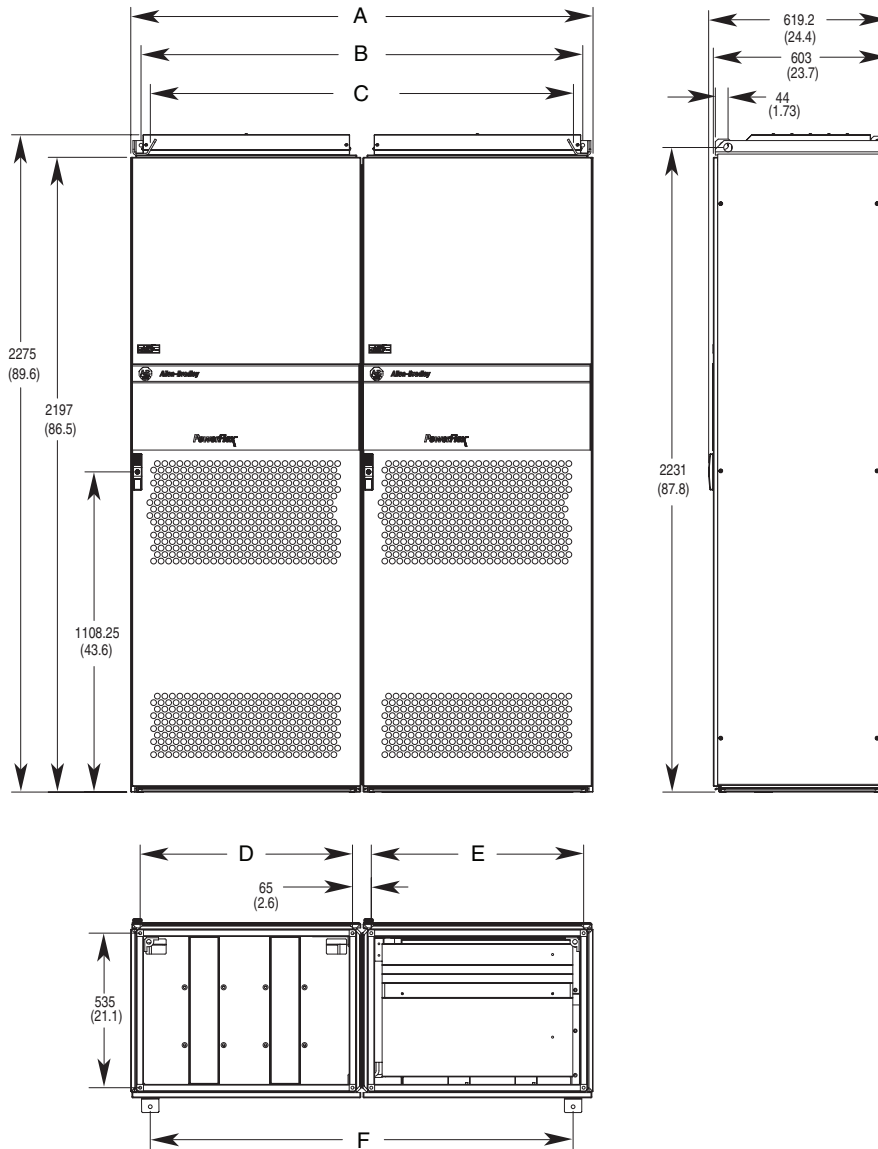
Note: Refer to the *PowerFlex 700H and 700S Frame 9-14 Drives Installation Instructions*, publication PFLEX-IN006 ..., for additional Frame 12 enclosure style dimensions.

Voltage Class	Drive Rating Amps	Approx. Weight kg (lbs.) Drive & Enclosure (AC Input)	Approx. Weight kg (lbs.) Drive & Enclosure (DC Input)
400/480V AC (540/650V DC)	820	864 (1906)	634 (1398)
	920	864 (1906)	634 (1398)
	1030	864 (1906)	634 (1398)
600/690V AC (810/932V DC)	650	802 (1768)	634 (1398)
	750	802 (1768)	634 (1398)
	820	802 (1768)	634 (1398)

PowerFlex 700S Frame 13 - Dimensions

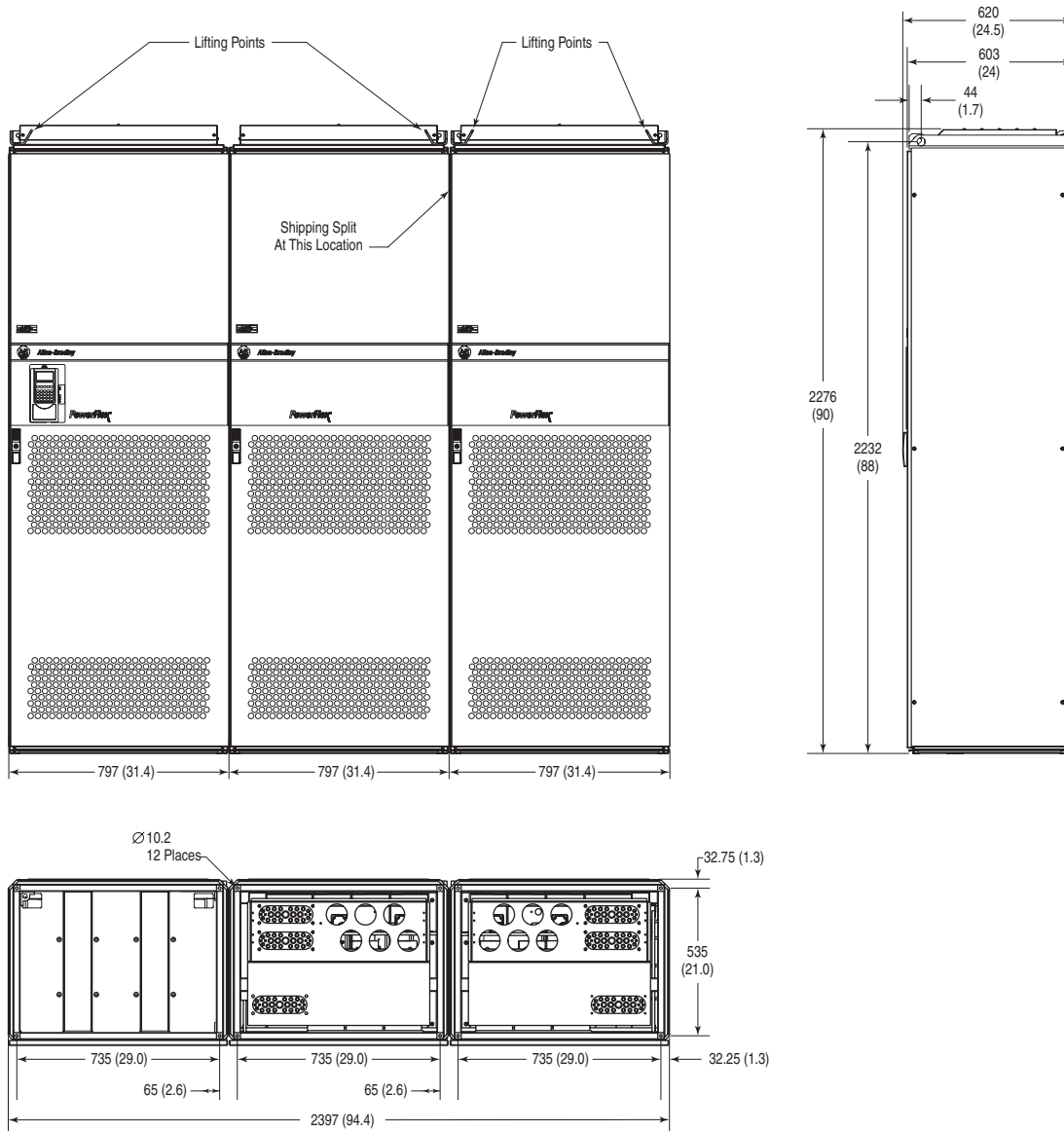
Voltage Class	Amps	A	B	C	D	E	F
400/480V AC (540/650V DC)	1150	1412 (56)	1329 (52)	1264 (50)	535 (21)	735 (29)	1264 (58)
	1300	1600 (63)	1529 (60)	1464 (58)	735 (29)	735 (29)	1464 (58)
	1450						
600/690V AC (810/932V DC)	920	1412 (56)	1329 (52)	1264 (50)	535 (21)	735 (29)	1264 (50)
	1030						
	1180						

Dimensions are in mm and (in.)



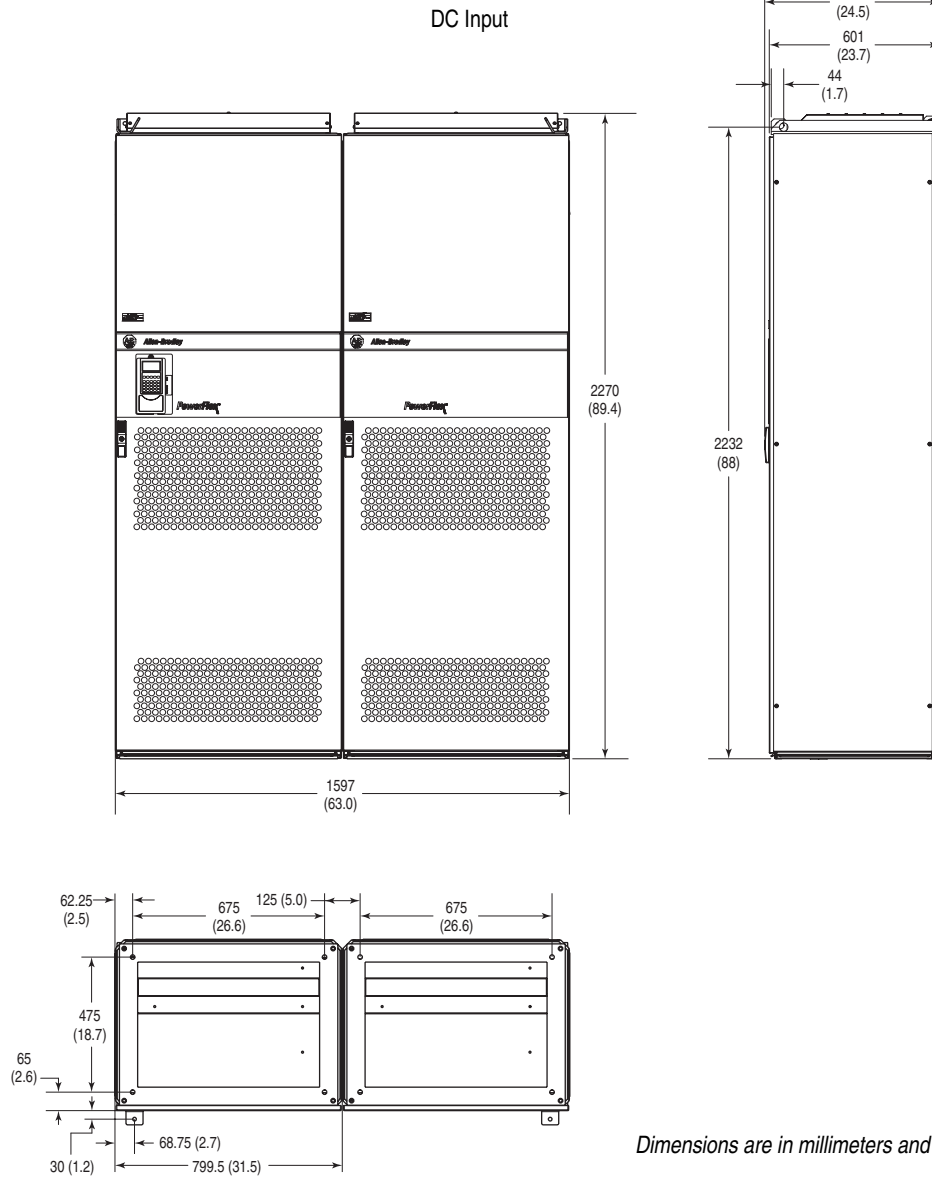
Voltage Class	Drive Rating Amps	Approx. Weight kg (lbs.) Drive & Enclosure (AC Input)	Approx. Weight kg (lbs.) Drive & Enclosure (DC Input)
400/480V AC (540/650V DC)	1150	1248 (2751)	600 (1323)
	1300	1400 (3086)	600 (1323)
	1450	1400 (3086)	600 (1323)
600/690V AC (810/932V DC)	920	1248 (2751)	600 (1323)
	1030	1248 (2751)	600 (1323)
	1180	1248 (2751)	600 (1323)

PowerFlex 700S Frame 14, 1500A (NEMA/UL Type 1 - IP 21) - Dimensions



Dimensions are in millimeters and (inches).

PowerFlex 700S Frame 14, DC Input (NEMA/UL Type 1 - IP 21) - Dimensions



Dimensions are in millimeters and (inches).

DC Input Frame 14 Drive and Standard Rittal Enclosure (NEMA/UL Type 1 - IP21) Weights

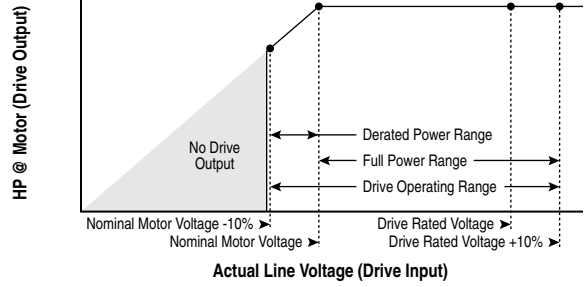
Voltage Class	Drive Rating Amps	Drive & Enclosure Weight kg (lbs.)	Drive, Enclosure & Packaging Weight kg (lbs.)
400/480V AC (540/650V DC)	1770	1330 (2866)	1450 (3130)
	2150	1330 (2866)	1450 (3130)
	2700	1330 (2866)	1450 (3130)
600/690V AC (810/932V DC)	1500	1220 (2690)	1340 (2954)
	1900	1330 (2866)	1450 (3130)
	2250	1330 (2866)	1450 (3130)

Input Voltage Range/Tolerance

Drive Rating	Nominal Line Voltage	Nominal Motor Voltage	Drive Full Power Range	Drive Operating Range
200-240	200	200†	200-264	180-264
	208	208	208-264	
	240	230	230-264	
380-400	380	380†	380-528	342-528
	400	400	400-528	
	480	460	460-528	
500-600 (Frames 1-4 Only)	600	575†	575-660	432-660
500-690 (Frames 5 & 6 Only)	600	575†	575-660	475-759
	690	690	690-759	475-759

Drive Full Power Range = Nominal Motor Voltage to Drive Rated Voltage + 10%.
Rated current is available across the entire Drive Full Power Range

Drive Operating Range = Lowest† Nominal Motor Voltage - 10% to Drive Rated Voltage + 10%.
Drive Output is linearly derated when Actual Line Voltage is less than the Nominal Motor Voltage

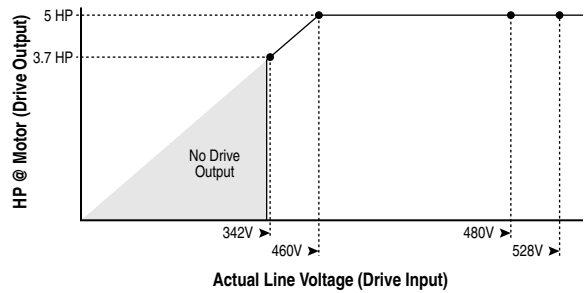


Example:

Calculate the maximum power of a 5 HP, 460V motor connected to a 480V rated drive supplied with 342V Actual Line Voltage input.

- $\text{Actual Line Voltage} / \text{Nominal Motor Voltage} = 74.3\%$
- $74.3\% \times 5 \text{ HP} = 3.7 \text{ HP}$
- $74.3\% \times 60 \text{ Hz} = 44.6 \text{ Hz}$

At 342V Actual Line Voltage, the maximum power the 5 HP, 460V motor can produce is 3.7 HP at 44.6 Hz.



Derating Guidelines

Altitude Derating

Frame	Type	Derate
All	Altitude	
	Efficiency (typical)	

Carrier Derating Curves

Frame	Voltage	ND Rating	Enclosure	Frequency (1)	Derate
1	400V	11 kW	∞ Open ∞ NEMA/UL Type1 ∞ IP20	6-10kHz	
	460V	15 HP	∞ Open ∞ NEMA/UL Type1 ∞ IP20	6-10kHz	
2	400V	15kW	∞ Open ∞ NEMA/UL Type1 ∞ IP20	8-10kHz	
	460V	20 HP	∞ Open ∞ NEMA/UL Type1 ∞ IP20	10 kHz	
		25 HP	∞ Open ∞ NEMA/UL Type1 ∞ IP20	6-10 kHz	

(1) Consult the factory for further derate information at other frequencies.

PowerFlex 700S Phase II Drive - Technical Data

Frame	Voltage	ND Rating	Enclosure	Frequency (1)	Derate
3	400V	18.5 kW	∞ Open ∞ NEMA/UL Type1 ∞ IP20	6-10 kHz	
		30 kW	∞ Open ∞ NEMA/UL Type1 ∞ IP20	6-10 kHz	
		37 kW	∞ Open ∞ NEMA/UL Type1 ∞ IP20	4-10 kHz	
460V	40 HP	∞ Open ∞ NEMA/UL Type1 ∞ IP20	6-10 kHz		
		50 HP	∞ Open ∞ NEMA/UL Type1 ∞ IP20	6-10 kHz	

(1) Consult the factory for further derate information at other frequencies.

PowerFlex 700S Phase II Drive - Technical Data

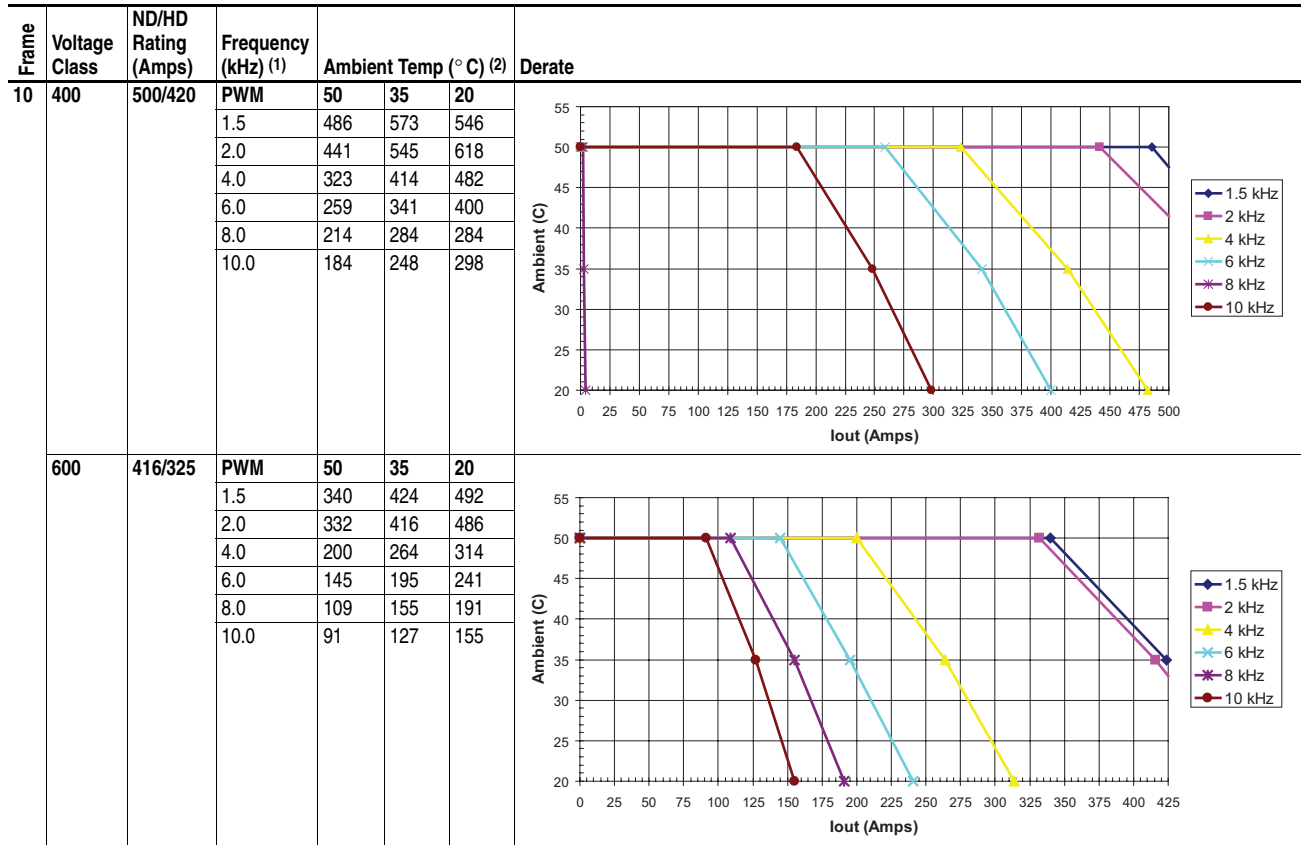
Frame	Voltage	ND Rating	Enclosure	Frequency (1)	Derate
5	460V	100 HP	∞ Open ∞ NEMA/UL Type1 ∞ IP20	6-8 kHz	<p>The graph shows the maximum surrounding air temperature in degrees Celsius on the y-axis (ranging from 15 to 50) against the percentage of output full load amps (FLA) on the x-axis (ranging from 40 to 100). Two lines represent different frequencies: 6 kHz (green line) and 8 kHz (blue line). Both lines start at 50°C for 40% to 85% FLA. At 85% FLA, the 6 kHz line begins to derate, reaching approximately 40°C at 95% FLA and 20°C at 100% FLA. The 8 kHz line begins to derate at 90% FLA, reaching approximately 30°C at 95% FLA and 20°C at 100% FLA.</p>

(1) Consult the factory for further derate information at other frequencies.

Frame	Voltage Class	ND/HD Rating (Amps)	Frequency (kHz) (1)	Ambient Temp (°C) (2)			Derate
				50	35	20	
9	400	300/245	PWM	50	35	20	<p>This graph plots ambient temperature in degrees Celsius (y-axis, 20-55) against output current in amps (x-axis, 0-320). It shows derate curves for frequencies: 1.5 kHz (blue diamonds), 2 kHz (magenta squares), 4 kHz (yellow triangles), 6 kHz (cyan crosses), 8 kHz (purple asterisks), and 10 kHz (red circles). The 10 kHz curve is the most restrictive, starting derate at 120A and 50°C, reaching 20°C at 200A. The 1.5 kHz curve is the least restrictive, starting derate at 240A and 50°C, reaching 20°C at 300A.</p>
			1.5	256	335	354	
			2.0	245	325	341	
			4.0	207	258	295	
			6.0	175	223	256	
			8.0	150	193	225	
			10.0	128	170	200	
9	600	208/170	PWM	50	35	20	<p>This graph plots ambient temperature in degrees Celsius (y-axis, 20-55) against output current in amps (x-axis, 0-220). It shows derate curves for frequencies: 1.5 kHz (blue diamonds), 2 kHz (magenta squares), 4 kHz (yellow triangles), 6 kHz (cyan crosses), 8 kHz (purple asterisks), and 10 kHz (red circles). The 10 kHz curve is the most restrictive, starting derate at 40A and 50°C, reaching 20°C at 60A. The 1.5 kHz curve is the least restrictive, starting derate at 180A and 50°C, reaching 20°C at 210A.</p>
			1.5	194	223	249	
			2.0	180	208	233	
			4.0	83	104	124	
			6.0	60	78	94	
			10.0	39	51	62	

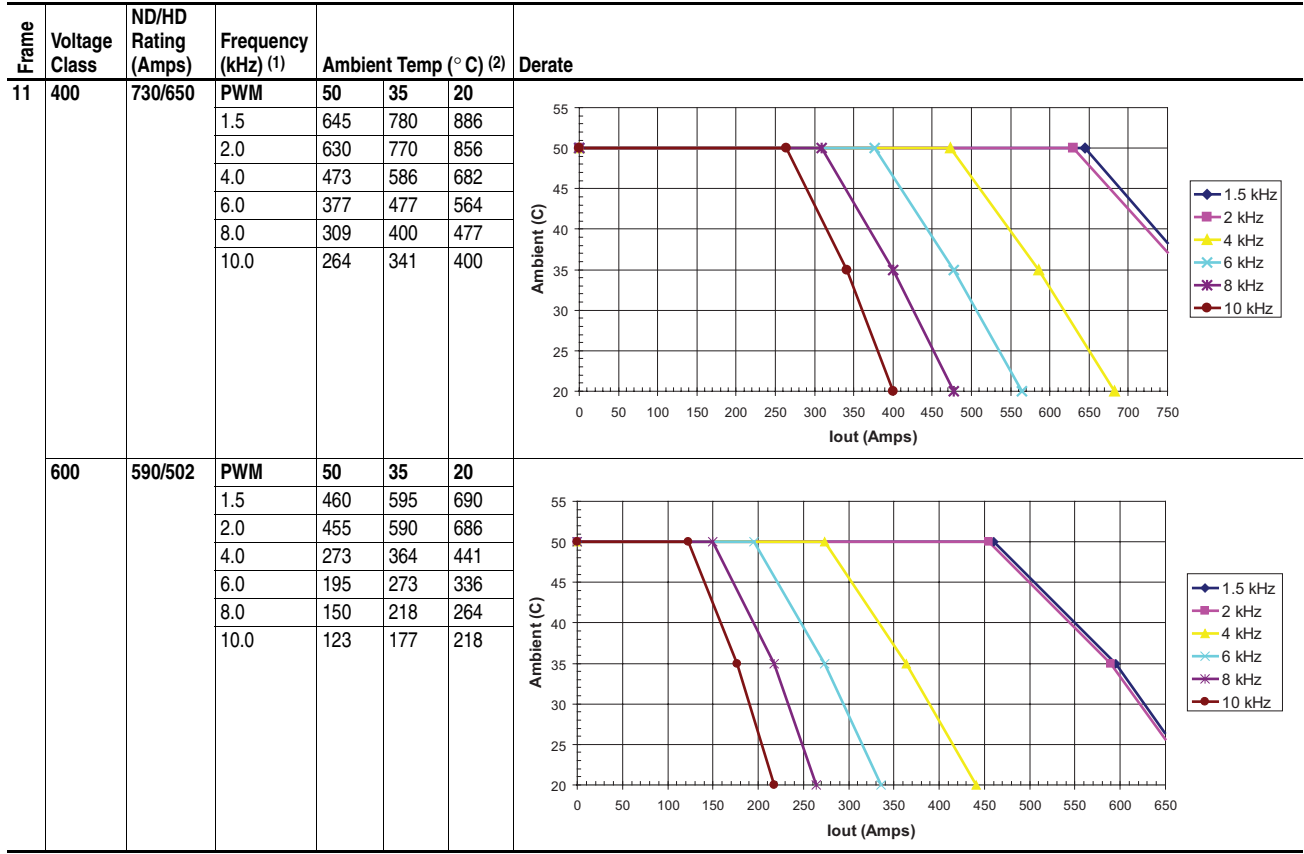
(1) Not all frequencies can be run on all drives.

(2) Rated ambient temperature is 40/40 °C (ND/HD) for 400V class drives and 35/40 °C (ND/HD) for 600V class drives.



(1) Not all frequencies can be run on all drives.
 (2) Rated ambient temperature is 40/40 °C (ND/HD) for 400V class drives and 35/40 °C (ND/HD) for 600V class drives.

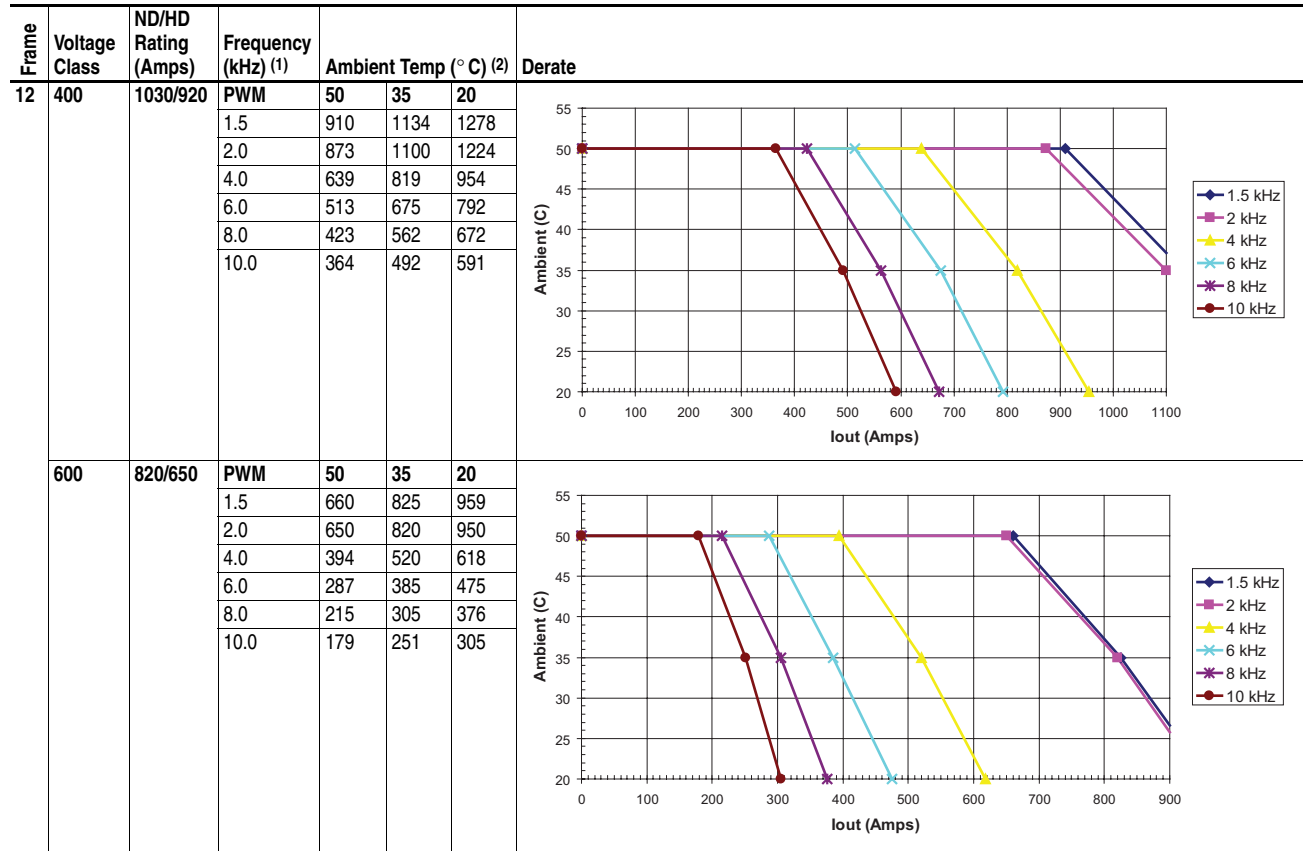
PowerFlex 700S Phase II Drive - Technical Data



(1) Not all frequencies can be run on all drives.

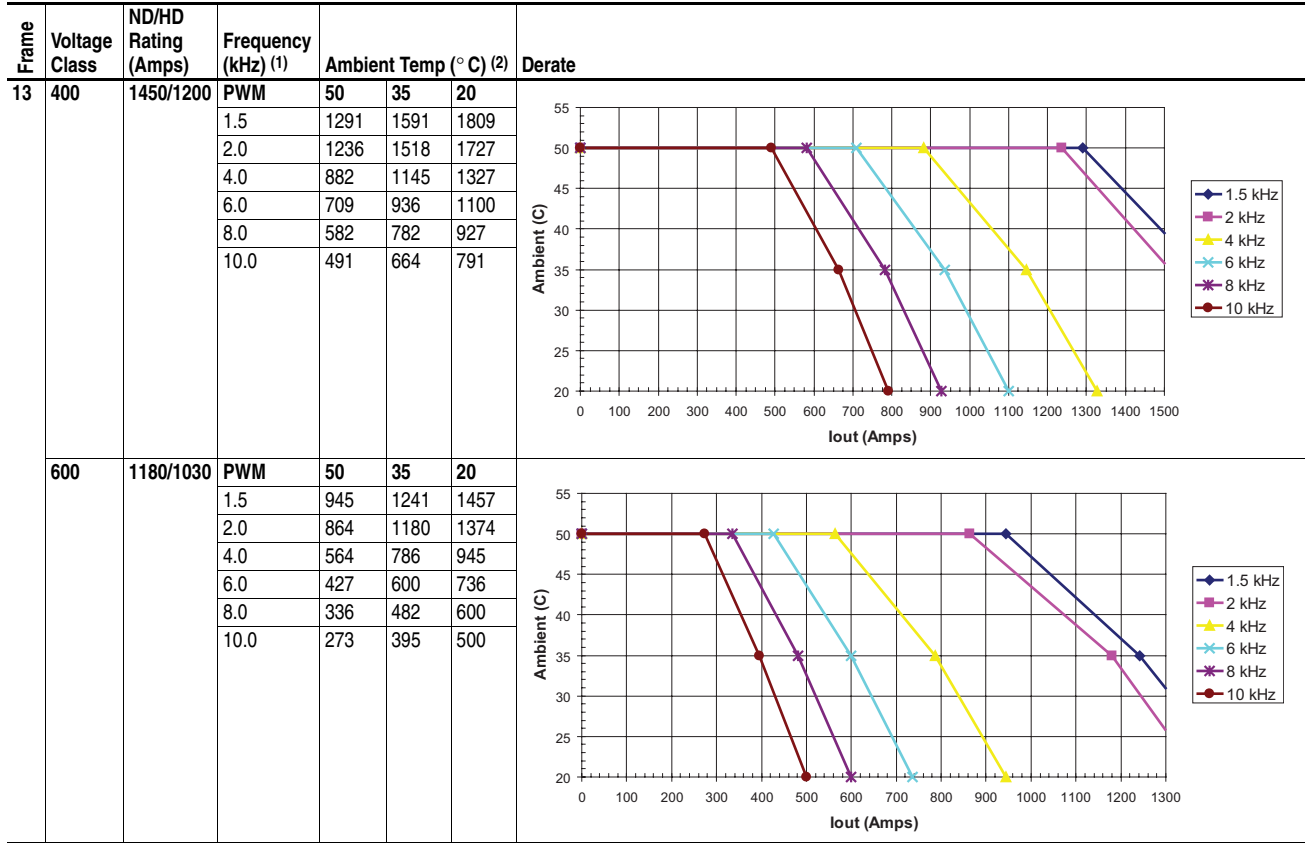
(2) Rated ambient temperature is 40/40 °C (ND/HD) for 400V class drives and 35/35 °C (ND/HD) for 600V class drives.

PowerFlex 700S Phase II Drive - Technical Data



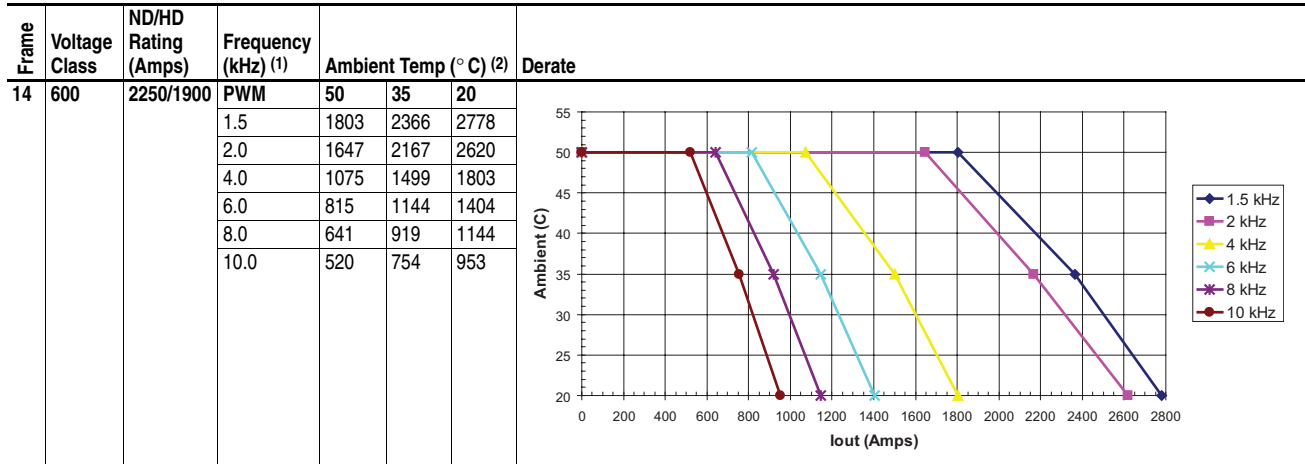
(1) Not all frequencies can be run on all drives.
 (2) Rated ambient temperature is 40/35 °C (ND/HD) for 400V class drives and 35/35 °C (ND/HD) for 600V class drives.

PowerFlex 700S Phase II Drive - Technical Data



(1) Not all frequencies can be run on all drives.

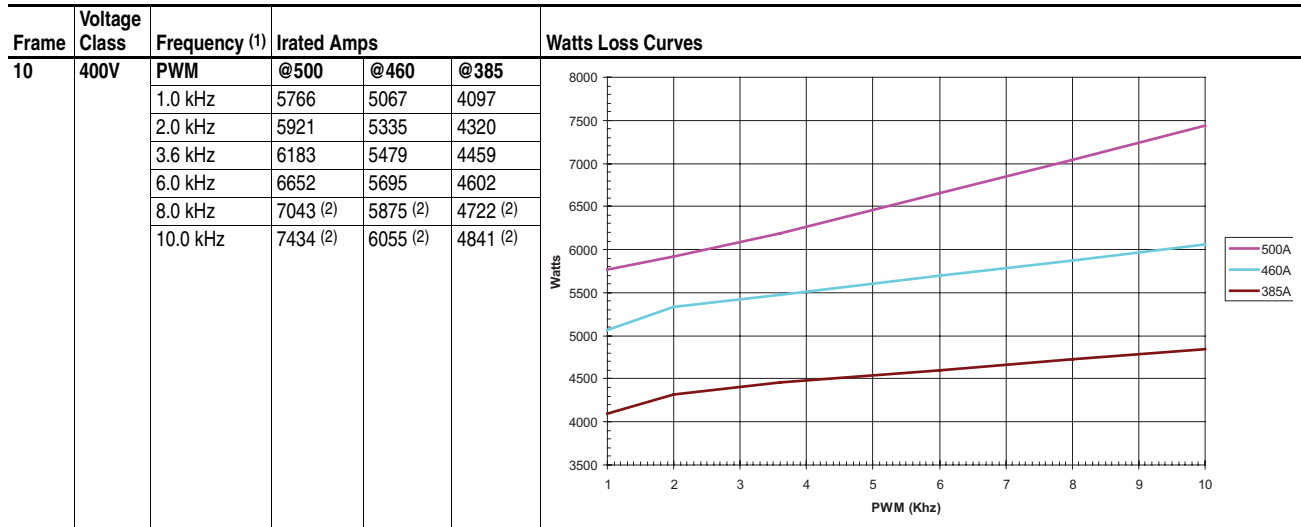
(2) Rated ambient temperature is 40/40 °C (ND/HD) for 400V class drive and 35/35 °C (ND/HD) for 600V class drive.



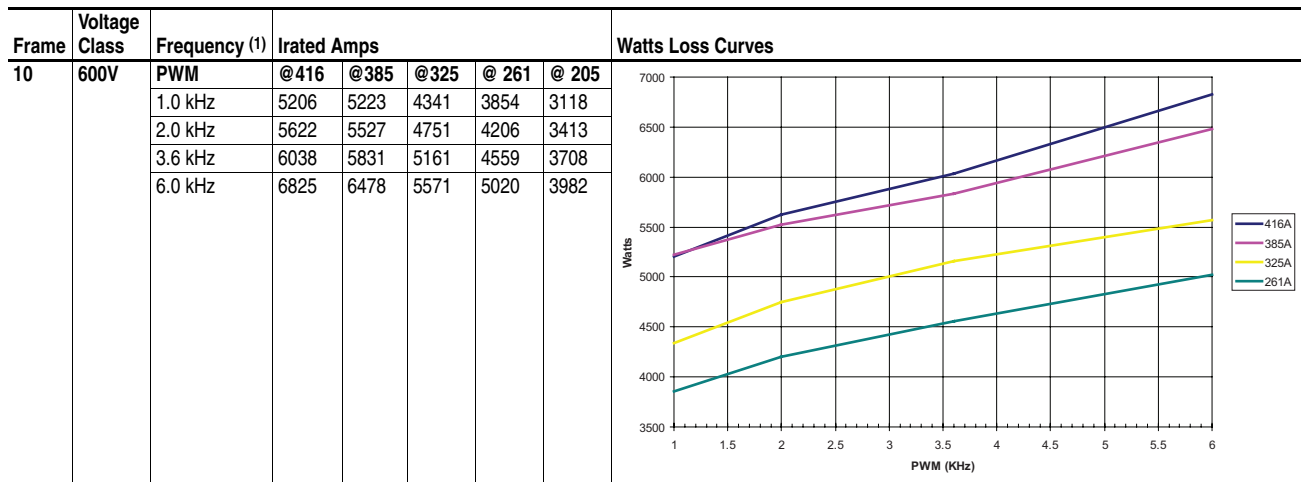
(1) Not all frequencies can be run on all drives.

(2) Rated ambient temperature is 30/30 °C (ND/HD).

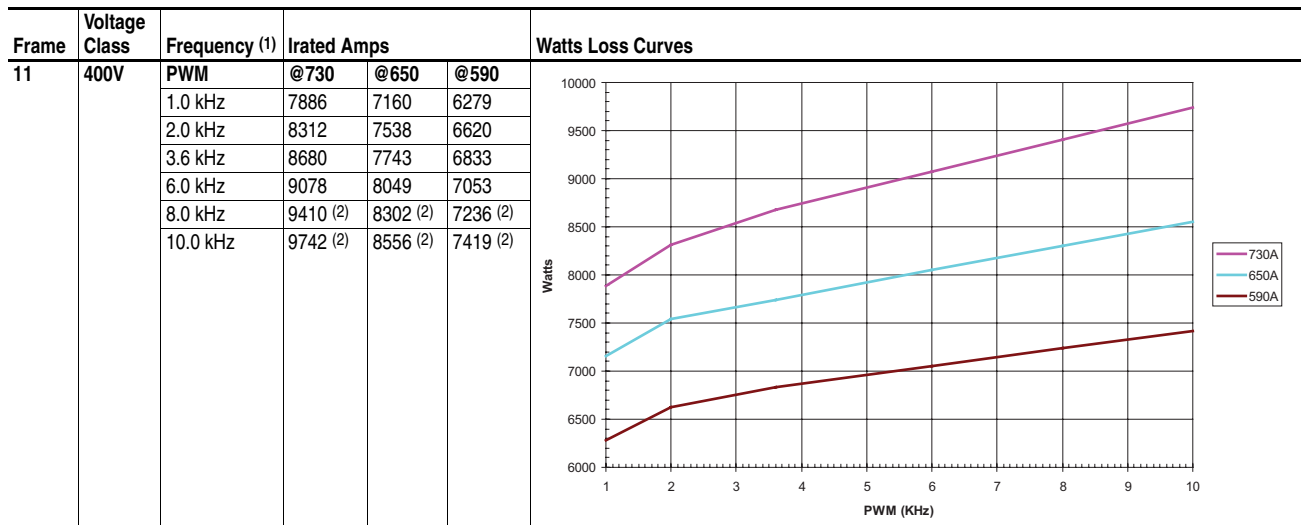
Watts Loss - Frames 10 - 14



(1) Consult the factory for further derate information at other frequencies.
 (2) Value calculated from slope.

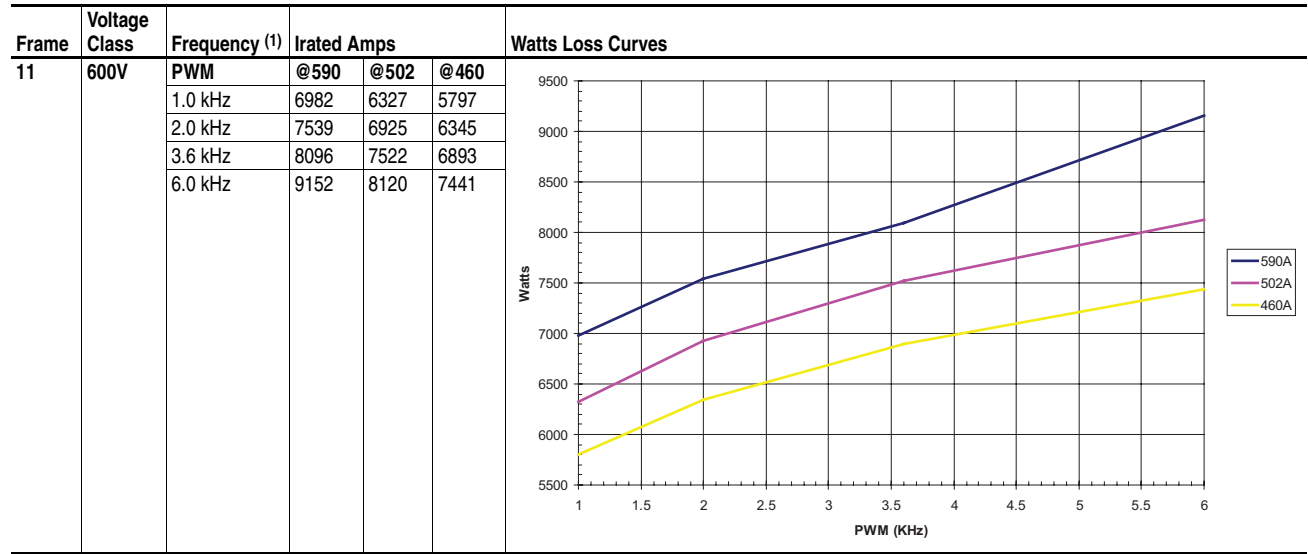


(1) Consult the factory for further derate information at other frequencies.

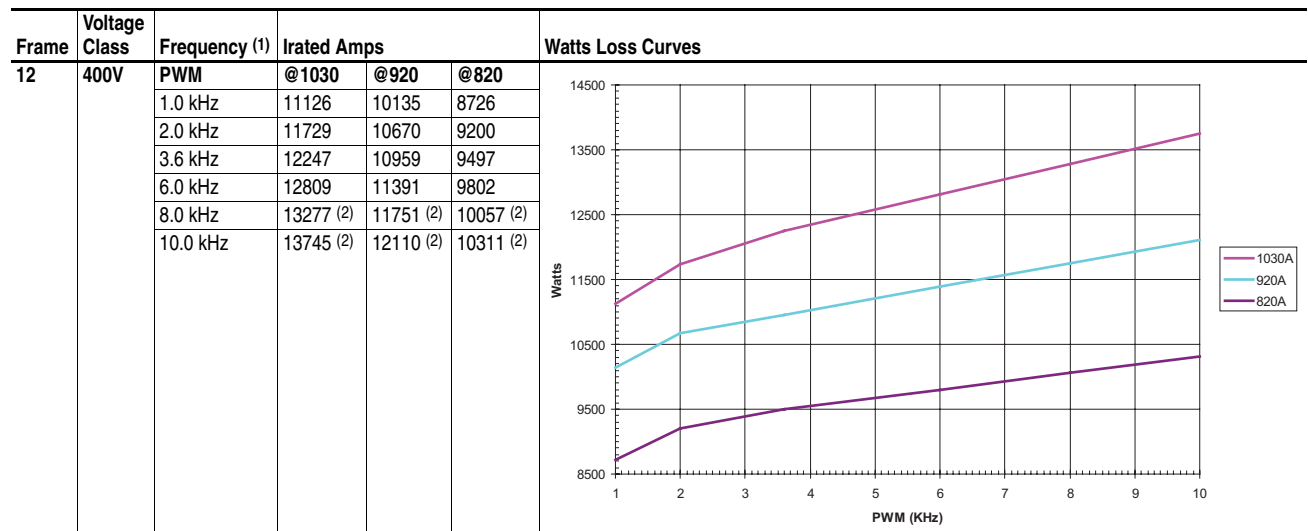


PowerFlex 700S Phase II Drive - Technical Data

- (1) Consult the factory for further derate information at other frequencies.
- (2) Value calculated from slope.

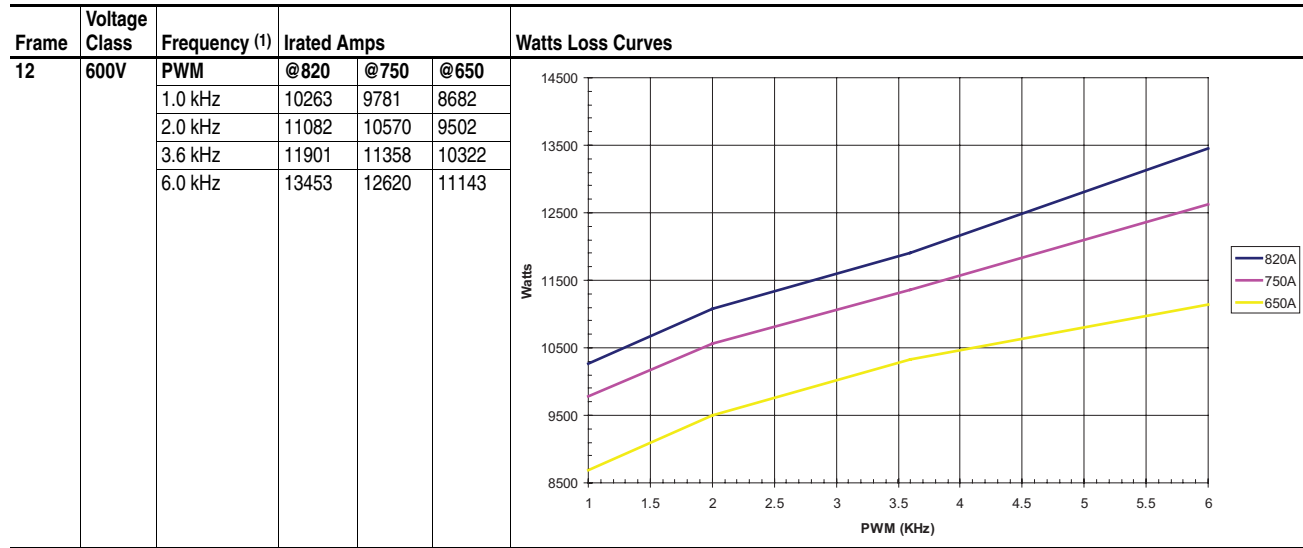


- (1) Consult the factory for further derate information at other frequencies.

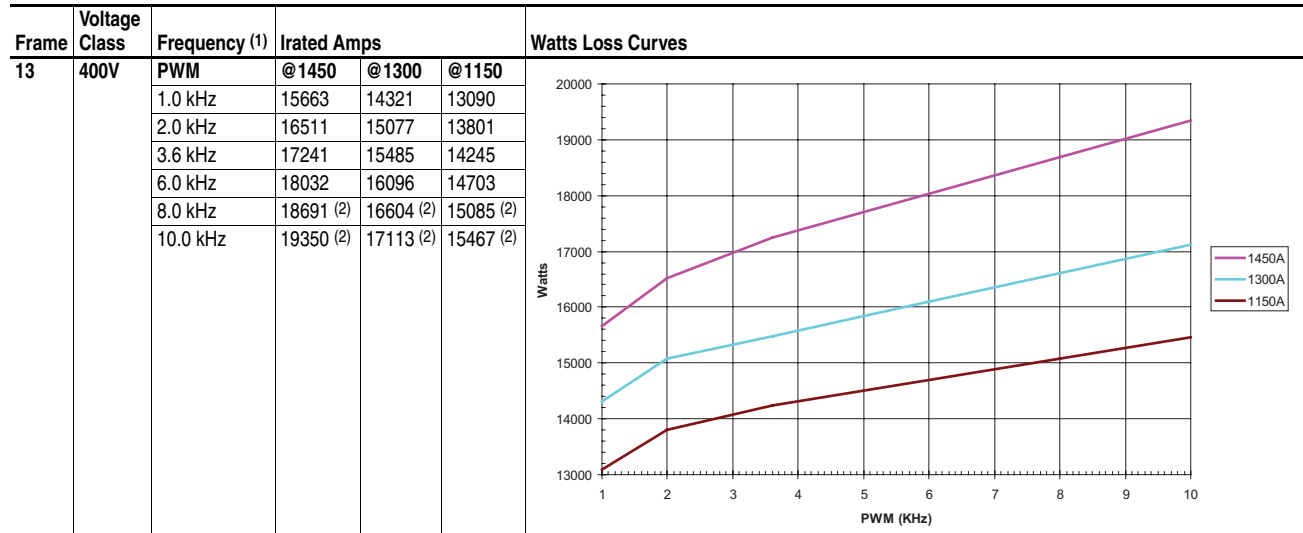


- (1) Consult the factory for further derate information at other frequencies.
- (2) Value calculated from slope.

PowerFlex 700S Phase II Drive - Technical Data



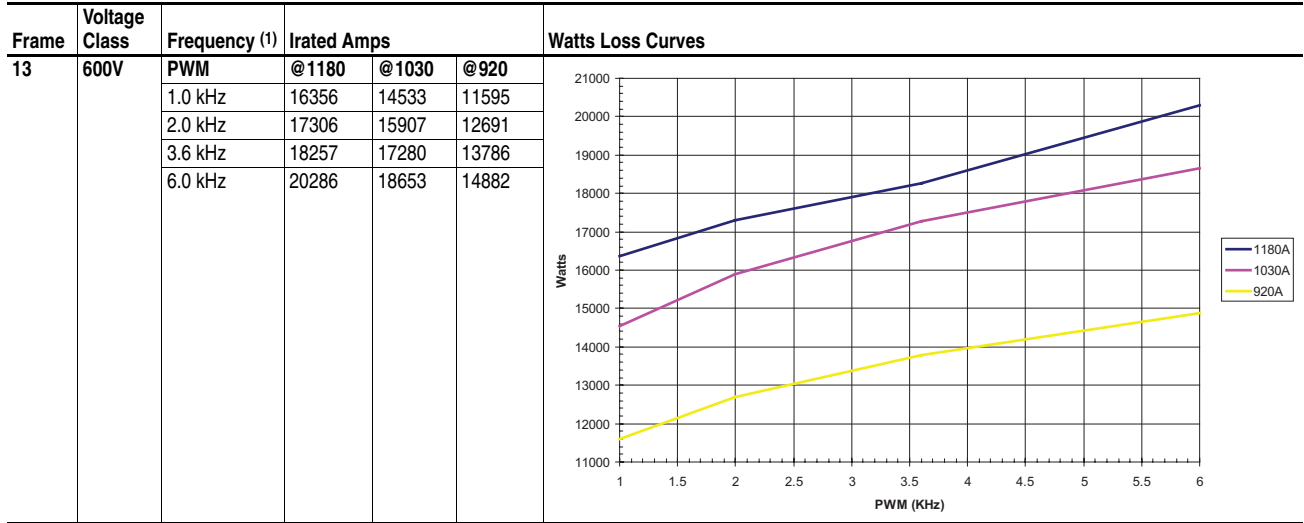
(1) Consult the factory for further derate information at other frequencies.



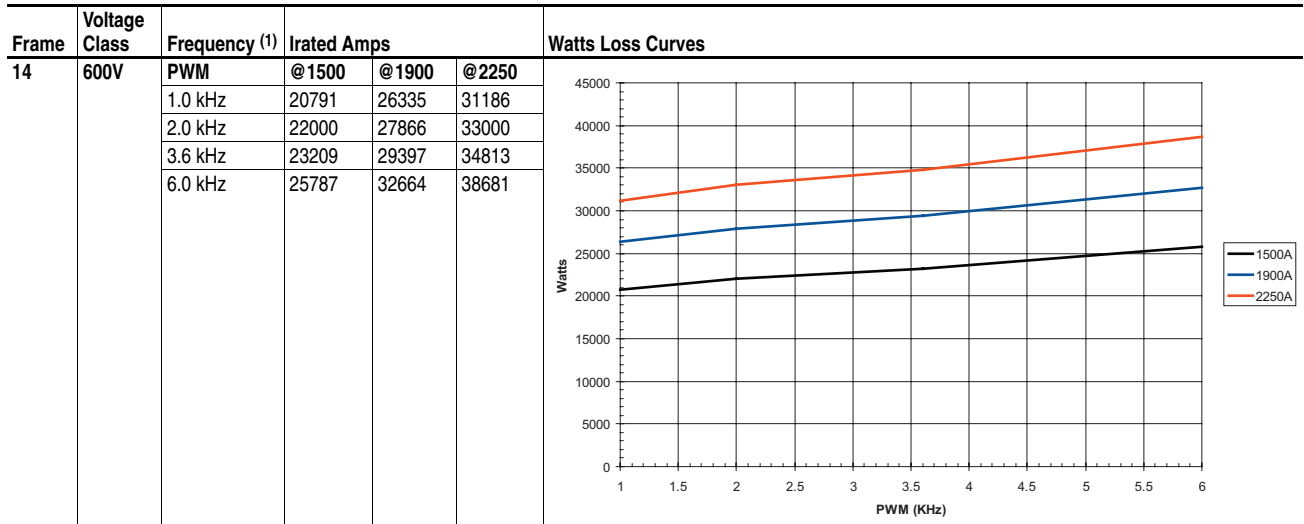
(1) Consult the factory for further derate information at other frequencies.

(2) Value calculated from slope.

PowerFlex 700S Phase II Drive - Technical Data



(1) Consult the factory for further derate information at other frequencies.













(1) Consult the factory for further derate information at other frequencies.

Specifications

Category	Specification										
	Frames 1-6 (690V Drive frames 5 & 6 only)						Frames 9 & up				
Protection	200-208V	240V	380/400V	480V	600V (frames 0-4)	600V/690V (frames 5&6)	380/400V	480V	500V	600V	690V
	AC Input Overvoltage Trip:	300VAC	300VAC	600VAC	600VAC	863VAC	863VAC	675VAC	675V AC	675V AC	889VAC
Bus Overvoltage Trip:	405VDC	405VDC	810VDC	810VDC	1164VDC	1164VDC	911VDC	911VDC	911VDC	1200VDC	1200VDC
Bus Undervoltage Trip:	Adjustable						Adjustable				
Nominal Bus Voltage:	281VDC	324VDC	540VDC	648VDC	810VDC	931VDC	540VDC	648VDC	645VDC	810VDC	931VDC
Heat Sink Thermistor:	Monitored by microprocessor overtemp trip						Monitored by microprocessor overtemp trip				
Drive Overcurrent Trip	Calculated value, 105% of motor rated to 200% of drive rated 105% of 3 sec. rating (158%-210%) 143% of 3 sec rating (215%-287%)						Calculated value, 105% of motor rated to 200% of drive rated 360% of rated Heavy Duty current (typical) —				
Software Current Limit:											
Hardware Current Limit:											
Instantaneous Current Limit:	143% of 3 sec rating (215%-287%)						—				
Line Transients:	Up to 6000 volts peak per IEEE C62.41-1991						up to 6000 volts peak per IEEE C62.41-1991				
Control Logic Noise Immunity:	Showering arc transients up to 1500V peak						Showering arc transients up to 1500V peak				
Power Ride-Thru:	15 milliseconds at full load						15 milliseconds at full load				
Logic Control Ride-Thru	0.25 sec., drive not running						0.25 seconds, drive not running				
Ground Fault Trip:	Phase-to-ground on drive output						Phase-to-ground on drive output				
Short Circuit Trip:	Phase-to-phase on drive output						Phase-to-phase on drive output				

PowerFlex 700S Phase II Drive - Technical Data

Category	Specification	
	Frames 1-6 (690V Drive frames 5 & 6 only)	Frames 9 & up
Agency Certification	<p>The drive is designed to meet applicable requirements of the following codes/standards:</p> <p>IEC 61800-2 Adjustable speed electrical power drive systems - General requirements</p> <p>IEC 61800-5-1 Adjustable speed electrical power drive systems - Safety requirements</p> <p>NFPA 70 – US National Electric Code</p> <p>NEMA 250 – Enclosures for Electrical Equipment</p>	<p>The drive is designed to meet applicable requirements of the following codes/standards:</p> <p>IEC 61800-2 Adjustable speed electrical power drive systems - General requirements</p> <p>IEC 61800-5-1 Adjustable speed electrical power drive systems - Safety requirements</p> <p>NFPA 70 - US National Electrical Code</p>
	UL and cUL Listed to UL508C and CAN/CSA - 22.2 No. 14-95	UL and cUL Listed to UL508C and CAN/CSA - 22.2 No. 14-95
	<p>Marked for all applicable European Directives</p> <p>EMC Directive (89/336/EEC)</p> <p>Emissions</p> <p>EN 61800-3 Adjustable Speed electrical power drive systems Part 3</p> <p>Immunity</p> <p>EN 61800-3 Second Environment, Restricted Distribution</p> <p>Low Voltage Directive (73/23/EEC)</p> <p>EN 50178 Electronic Equipment for use in Power Installations</p>	<p>Marked for all applicable European Directives</p> <p>EMC Directive (89/336/EEC)</p> <p>Emissions</p> <p>EN 61800-3 Adjustable Speed electrical power drive systems Part 3</p> <p>Low Voltage Directive (73/23/EEC)</p> <p>EN 50178 Electronic Equipment for use in Power Installations</p>
	NA	Certified to AS, EN61800-3: 1996 with A11: 2000
	Certified to ATEX directive 94/9/EC. Group II Category (2) GD Applications with ATEX Approved Motors. Refer to publication 20D-UM006, <i>PowerFlex 700S Drives with Phase II Control User Manual</i> , for more information.	Certified to ATEX directive 94/9/EC. Group II Category (2) GD Applications with ATEX Approved Motors. Refer to publication 20D-UM006, <i>PowerFlex 700S Drives with Phase II Control User Manual</i> , for more information.
     	<p>TUV Rheinland (applies to frames 1 - 6, 200/400V, and frames 5 & 6, 690V only)</p> <p>TUV Functional Safety Report only for frames 1 - 4, 600V (no FS mark on the label)</p>	TUV functional safety report only (no FS mark on the label)

PowerFlex 700S Phase II Drive - Technical Data

Category	Specification																																				
	Frames 1-6 (690V Drive - frames 5 & 6 only)	Frames 9 & up																																			
Environment	Altitude:	1000m (3300 ft.) max. without derating	1000m (3300 ft.) max. without derating																																		
	Surrounding Air Temperature without Derating:		Based on the drive rating. Refer to the <i>PowerFlex 700S/H High Power Drives Installation Frame 9-13</i> manual, publication PFLEX-IN006....																																		
	Open Type:	0 to 50° C (32 to 122° F)	Note: Frames 9 & 10 are rated 0 to 40° C (32 to 104° F) surrounding air.																																		
	IP20:	0 to 50° C (32 to 122° F)																																			
	NEMA/UL Type 1:	0 to 40° C (32 to 104° F)																																			
	IP56, NEMA/UL Type 4X:	0 to 40° C (32 to 104° F)																																			
	Storage Temperature (all const.):	-40 to 70° C (-40 to 158° F)	-40 to 70° C (-40 to 158° F)																																		
	Relative Humidity:	5 to 95% non-condensing	5 to 95% non-condensing																																		
Shock:	10G peak for 11 ms duration (±1.0 ms)	15G peak for 11ms duration (±1.0 ms)																																			
Vibration:	0.152 mm (0.006 in.) displacement, 1G peak, 5.5 Hz	2 mm (0.0787 in.) displacement, 1G peak EN50178 / EN60068-2-6																																			
Sound:	<table border="1"> <thead> <tr> <th>Frame</th> <th>Fan Speed</th> <th>Sound Level</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>30 CFM</td> <td>59 dB</td> </tr> <tr> <td>2</td> <td>50 CFM</td> <td>57 dB</td> </tr> <tr> <td>3</td> <td>120 CFM</td> <td>61 dB</td> </tr> <tr> <td>4</td> <td>190 CFM</td> <td>59 dB</td> </tr> <tr> <td>5</td> <td>200 CFM</td> <td>71 dB</td> </tr> <tr> <td>6</td> <td>300 CFM</td> <td>72 dB</td> </tr> </tbody> </table>	Frame	Fan Speed	Sound Level	1	30 CFM	59 dB	2	50 CFM	57 dB	3	120 CFM	61 dB	4	190 CFM	59 dB	5	200 CFM	71 dB	6	300 CFM	72 dB	<table border="1"> <thead> <tr> <th>Frame</th> <th>Sound Level</th> <th>Back-ground Noise Level</th> </tr> </thead> <tbody> <tr> <td>9</td> <td>78</td> <td>49</td> </tr> <tr> <td>10</td> <td>77</td> <td>49</td> </tr> <tr> <td>13</td> <td>76</td> <td>46</td> </tr> </tbody> </table>	Frame	Sound Level	Back-ground Noise Level	9	78	49	10	77	49	13	76	46	Note: Sound pressure level is measured at 2 meters.	Note: Sound pressure level is measured at 1 meter. All devices measured are 400V IP21 and in power up mode.
Frame	Fan Speed	Sound Level																																			
1	30 CFM	59 dB																																			
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Frame	Sound Level	Back-ground Noise Level																																			
9	78	49																																			
10	77	49																																			
13	76	46																																			
Atmosphere:	Important: Drive must not be installed in an area where the ambient atmosphere contains volatile or corrosive gas, vapors or dust. If the drive is not going to be installed for a period of time, it must be stored in an area where it will not be exposed to a corrosive atmosphere.																																				
Electrical	AC Input Voltage Tolerance:	See Input Voltage Range/Tolerance on page 101 for Full Power and Operating Range	See Input Voltage Range/Tolerance on page 101 for Full Power and Operating Range																																		
	Frequency Tolerance:	47-63 Hz	47-63 Hz.																																		
	Input Phases:	Three-phase input provides full rating for all drives. Single-phase operation provides 50% of rated current.	Three-phase input provides full rating for all drives. Single-phase operation provides 50% of rated current.																																		
	DC Input Voltage Tolerance:	±10% of Nominal Bus Voltage (above)	±10% of Nominal Bus Voltage (above)																																		
	Displacement Power Factor:	0.98 across speed range	0.98 across speed range																																		
	Efficiency:	97.5% at rated amps, nominal line volts.	97.5% at rated amps, nominal line volts.																																		
	Max. Short Circuit Current Rating: Using Recommended Fuse or Circuit Breaker Type:	Maximum short circuit current rating to match specified fuse/circuit breaker capability. ≤200,000 Amps	≤200,000 Amps																																		
Maximum Drive to Motor Power Ratio:	The drive to motor rating cannot exceed a 2:1 ratio	The drive to motor rating cannot exceed a 2:1 ratio																																			

PowerFlex 700S Phase II Drive - Technical Data

Category	Specification		
	Frames 1-6 (690V Drive frames 5 & 6 only)	Frames 9 & up	
Control	Method Induction Motor: Brushless Motor:	Sine coded PWM with programmable carrier frequency, Indirect Self-Organized, Field-Oriented Control, Current-regulated. Ratings apply to all drives. Refer to the <i>PowerFlex 700S Phase II Control Reference Manual</i> , publication PFLEX-RM003..., for derating guidelines. The drive can be supplied as 6 pulse or 12 pulse in a configured package.	
	Carrier Frequency	Drive rating: 4 kHz Settings: 2, 4, 6, 8, 10 kHz (6 kHz is for V/Hz operation only)	
	Output Voltage Range:	0 to rated motor voltage	
	Output Frequency Range:	0 – 400 Hz Note: For output frequencies above 320 - 400 Hz consult the factory.	
	Speed Control	Speed regulation - without feedback 0.1% of base speed across 120:1 speed range 120:1 operating range 50 rad/sec bandwidth	Speed regulation - without feedback 0.1% of base speed across 120:1 speed range 120:1 operating range 50 rad/sec bandwidth
		Speed regulation - with feedback 0.001% of base speed across 120:1 speed range 1000:1 operating range 744 rad/sec bandwidth	Speed regulation - with feedback 0.001% of base speed across 120:1 speed range 1000:1 operating range 300 rad/sec bandwidth
	Torque Regulation	Torque Regulation - without feedback $\pm 5\%$, 600 rad/sec bandwidth	Torque Regulation - without feedback $\pm 10\%$, 600 rad/sec bandwidth
		Torque Regulation - with feedback $\pm 2\%$, 2500 rad/sec bandwidth	Torque Regulation - with feedback $\pm 5\%$, 2500 rad/sec bandwidth
	Selectable Motor Control:	Field Oriented Control with and without a feedback device and permanent magnet motor control	
	Stop Modes:	Multiple programmable stop modes including – Ramp, Coast and Current Limit	
	Accel/Decel	Independently programmable accel and decel times adjustable from 0 to 6553.5 in 0.1 second increments.	
	S-Curve Time	Adjustable from 0.5 to 4.0 seconds	
	Intermittent Overload:	110% Overload capability for up to 1 minute 150% Overload capability for up to 3 seconds	
	Current Limit Capability:	Independent Motoring and Regenerative Power Limits programmable to 800% of rated output current.	
Electronic Motor Overload Protection	Class 10 protection with speed sensitive response. Investigated by U.L. to comply with N.E.C. Article 430 U.L. File E59272, volume 12.		

Category	Specification	Frames 1-6 (690V Drive frames 5 & 6 only)		Frames 9 & up						
Feedback	Encoder Inputs (2):	Dual Channel Plus Marker, Isolated with differential transmitter Output (Line Drive) Incremental, Dual Channel Quadrature type								
	Encoder PPR Rating:	Encoder PPR ratings are limited to the values specified in the table below: PPR Rating Values:								
		n =	2 ⁿ =	x	mod 75	mod 125	mod 225	mod 375	mod 625	mod 1125
		0	1		75	125	225	375	625	1125
		1	2		150	250	450	750	1250	2250
		2	4		300	500	900	1500	2500	4500
		3	8		600	1000	1800	3000	5000	9000
		4	16		1200	2000	3600	6000	10000	18000
		5	32		2400	4000	7200	12000	20000	--
		6	64	--	--	--	--	--	--	--
	7	128	--	--	--	--	--	--	--	
	8	256	--	--	--	--	--	--	--	
	9	512	--	--	--	--	--	--	--	
	10	1024	--	--	--	--	--	--	--	
	11	2048	--	--	--	--	--	--	--	
	12	4096	--	--	--	--	--	--	--	
	13	8192	--	--	--	--	--	--	--	
	14	16384	--	--	--	--	--	--	--	
	Encoder Voltage Supply:	5V DC or 12 V DC 320 mA/channel 5V DC minimum high state voltage of 3.0 VDC, maximum low voltage state of 0.4V DC. 12 V DC minimum high state voltage of 7.0V DC, maximum low state voltage of 0.4V DC				5V DC or 12 V DC 320 mA/channel 5V DC minimum high state voltage of 3.0 VDC, maximum low voltage state of 0.4V DC. 12 V DC minimum high state voltage of 7V DC, maximum low state voltage of 0.4V DC				
	Maximum Input Frequency:	400 kHz				500 kHz				
	Stegmann Option:									
	Encoder Voltage Supply:	11.5V DC @ 130 mA				11.5V DC @ 130 mA				
	Hi-Resolution Feedback:	Sine/Cosine 1V P-P Offset 2.5				Sine/Cosine 1V P-P Offset 2.5				
	Maximum Cable Length:	182 m (600 ft.)				182 m (600 ft.)				
	RS-485 Interface:	Hi-Resolution Feedback Option card obtains the following information via the Hiperface RS-485 interface shortly after power-up: Address, Command Number, Mode, Number of turns, Number of Sine/Cos cycles, Checksum				Hi-Resolution Feedback Option card obtains the following information via the Hiperface RS-485 interface shortly after power-up: Address, Command Number, Mode, Number of turns, Number of Sine/Cos cycles, Checksum				
	Customer-I/O Plug (P1) - Hi Res:	Allen-Bradley PN: S94262912 Weidmuller PN: BL3.50/90/12BK				Allen-Bradley PN: S94262912 Weidmuller PN: BL3.50/90/12BK				
	Resolver Option:									
	Excitation Frequency:	2400 Hz				2400 Hz				
	Excitation Voltage:	4.25-26 Vrms				4.25-26 Vrms				
	Operating Frequency Range:	1 - 10 kHz				1 - 10 kHz				
	Resolver Feedback Voltage:	2V ± 300 mV				2V ± 300 mV				
	Maximum Cable Length:	304.8 meters (1000 ft.)				304.8 meters (1000 ft.)				
DriveLogix	User Available MemoryBase:	1.5 megabytes (CompactFlash™ for non-volatile storage also available)				1.5 megabytes (CompactFlash™ for non-volatile storage also available)				
	Battery:	1769-BA 0.59g lithium				1769-BA 0.59g lithium				
	Serial Cable:	1761-CBLPM02 to 1761-NET-AIC 1761-CBLPA00 to 1761-NET-AIC 1756-CP3 directly to controller 1747-CP3 directly to controller category 3 (2)				1761-CBLPM02 to 1761-NET-AIC 1761-CBLPA00 to 1761-NET-AIC 1756-CP3 directly to controller 1747-CP3 directly to controller category 3 (2)				
	Compact I/O Connection:	Up to (16) modules				Up to (16) modules				
	Cable:	20D-DL2-CL3 20D-DL2-CR3				20D-DL2-CL3 20D-DL2-CR3				

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