Migration Guide

PowerFlex 700 Drives to PowerFlex 750-Series Drives

Important User Information

Solid-state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication SGI-1.1 available from your local Rockwell Automation sales office or online at http://www.rockwellautomation.com/literature/) describes some important differences between solid-state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid-state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

⚠	**WARNING:** Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
⚠	**ATTENTION:** Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence
⚡	**SHOCK HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.
♨	**BURN HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.

Table of Contents

Notes:

Overview

The purpose of this publication is to assist in migrating a PowerFlex 700 drive to a PowerFlex 750-Series drive. This publication is broken into three chapters:

- **Chapter 1: Drive Selection Considerations**
  Compares the features of the PowerFlex 750-Series drives to the PowerFlex 700 drive.

- **Chapter 2: Analog Speed Follower and Preset Speed**
  The control wiring and parameters of the PowerFlex 700 drive analog speed follower are compared to the PowerFlex 753 drive (with main control board I/O) and the PowerFlex 755 drive (with optional I/O module).

- **Chapter 3: Network Communications**
  What PowerFlex 700 20-COMM network options can be migrated to the PowerFlex 750-Series drives are addressed, as well as the dedicated communications in the PowerFlex 750-Series drives.

Additional Resources

These documents contain additional information concerning related Rockwell Automation products.

Resource	Description
PowerFlex 700 AC Drives Vector Control Firmware 4.001 & Up, Frames 0…10 User Manual, publication 20B-UM002	Provides information on how to install, start-up and troubleshoot the PowerFlex 700 adjustable frequency AC drives with vector control.
PowerFlex 750-Series AC Drives Technical Data, publication 750-TD001	Provides technical data regarding the PowerFlex 750-Series adjustable frequency AC drives for a variety of industrial applications.
PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001	Provides information on how to install, start-up, and troubleshoot PowerFlex 750-Series adjustable frequency AC drives.
PowerFlex 750-Series AC Drives Programming Manual, publication 750-PM001	Provides information on how to program the PowerFlex 750-Series adjustable frequency AC drives.
PowerFlex 755 Drive Embedded EtherNet/IP Adaptor User Manual, publication 750COM-UM001	Provides network communication information for the EtherNet/IP adaptor embedded on the main control board in PowerFlex 755 drives.
PowerFlex 750-Series Drive DeviceNet Option Module User Manual, publication 750COM-UM002	Provides network communication information for the optional 20-750-DNET module that can be installed in a PowerFlex 750-Series drive.
PowerFlex 20-750-CNETC Coaxial ControlNet Option Module User Manual, publication 750COM-UM003	Provides network communication information for the optional 20-750-CNETC module that can be installed in a PowerFlex 750-Series drive.
20-Comm-E EtherNet/IP Adaptor User Manual, publication 20COMM_UM010	Provides network communication information for the optional 20-Comm-E EtherNet/IP adaptor that can be installed in a PowerFlex 750-Series drive.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing an Allen-Bradley industrial automation system.

You can view or download publications at http://www.rockwellautomation.com/literature/. To order paper copies of technical documentation, contact your local Rockwell Automation distributor or sales representative.

Notes:

Drive Selection Considerations

The differences between a PowerFlex 753 drive and PowerFlex 755 drive must be considered when selecting a PowerFlex 750-Series drive as a replacement in a PowerFlex 700 drive application.

Available Slots

The PowerFlex 750-Series drives are designed with a slot-based architecture allowing customization with available option cards. The PowerFlex 753 drive is equipped with three slots and the PowerFlex 755 drive has five slots.

Factory Installed Options

No options can be factory installed on the PowerFlex 750-Series drives. All optional accessories must be installed by the user.

Hardware Drive Enable

Digital input (DI) 6 on the PowerFlex 700 drive can be programmed for any available digital input functions including Enable. The PowerFlex 700VC has a hardware enable jumper on the main control board that can be removed to force DI 6 to act as hardware enabled with no software interpretation.

Digital Input 0 on the PowerFlex 750-Series drives can be programmed for any available digital input functions including DI Enable. A hardware enable jumper on the main control board can be removed to force DI 0 to act as hardware enabled with no software interpretation.

The following figure shows the hardware enable jumper locations.

Figure 1 - Hardware Enable Jumper Locations on PowerFlex 750-Series Drives

PowerFlex 753 Drives (All Frames)   **PowerFlex 755 Drives (Frames 2…7)**   **PowerFlex 755 Drive (Frame 8)**
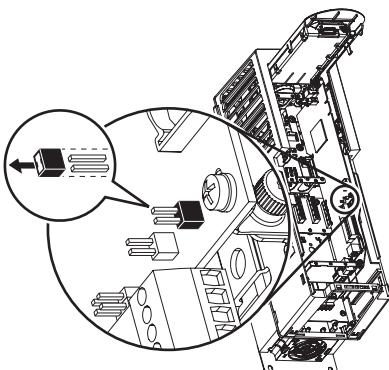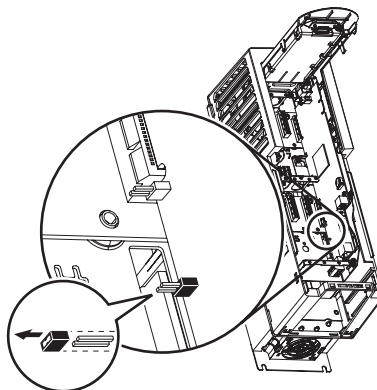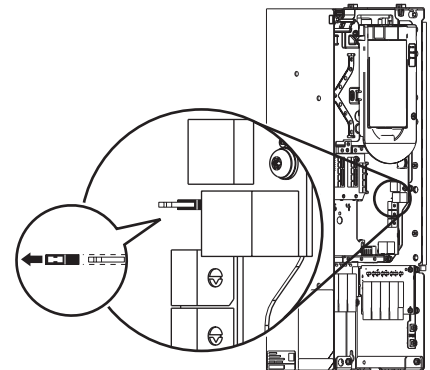
Specifications and Features

Selecting a PowerFlex 750-Series drive to replace a PowerFlex 700 drive application must consider the features and differences between the PowerFlex 753 and PowerFlex 755 drives.

Table 1 - PowerFlex Drive Comparisons

	PowerFlex Drive			
	700 Standard Cassette	**700 Vector Cassette Series B**	**753**	**755**
Input Power				
Ratings:				
200-240V	0.37-45 kW (0.5-75 Hp)	0.37-66 kW (0.5-100 Hp)	N/A	N/A
400-480V	0.37-132 kW (0.5-200 Hp)	0.37-500 kW (0.5-700 Hp)	0.75-250 kW (1-350 Hp)	0.75-450 kW (1-700 Hp)
500-600V	0.37-132 kW (0.5-150 Hp)	0.37-132 kW (0.5-150 Hp)	N/A	N/A
690V	45-135 kW (60-150 Hp)	45-132 kW (60-150 Hp)	N/A	N/A
Single phase	Yes, 50% derate	Yes, 50% derate	Yes, 50% derate	Yes, 50% derate
Input inductor	DC bus	DC bus		
Logic ride-through	0.5 seconds minimum, 2 seconds typical	0.5 seconds minimum, 2 seconds typical	0.5 seconds minimum, 2 seconds typical	0.5 seconds minimum, 2 seconds typical
Power ride-through	15 milliseconds	15 milliseconds	15 milliseconds	15 milliseconds
Transient protection	MOV	MOV	MOV	MOV
DC input terminals	Yes	Yes	Frames 2…4 standard, Frames 5…7 optional	Frames 2…4 standard, Frames 5…8 optional
Output Power				
Carrier frequency	All frames: 2-10 kHz	All frames: 2-10 kHz	Frames 2…6: 2, 4, 8 and 12 kHz Frame 7: 2, 4 and 8 kHz	Frames 2…6: 2, 4, 8 and 12 kHz Frame 7: 2, 4 and 8 kHz Frame 8: 2 and 4 kHz
Output frequency range	0-400 Hz	0-420 Hz	0-650 Hz	0-650 Hz
Efficiency	97.5% typical	97.5% typical	97.5% typical	97.5% typical
Power factor	0.98	0.98	0.98	0.98
Overload capability:				
Light duty	N/A	N/A	N/A	110%-60 s, 120%-3 s [1]
Normal duty	110%-60 s, 150%-3 s	110%-60 s, 150%-3 s	110%-60 s, 150%-3 s	110%-60 s, 150%-3 s
Heavy duty	150%-60 s, 200%-3 s	150%-60 s, 200%-3 s	150%-60 s, 180%-3 s	150%-60 s, 180%-3 s

(1)   Frame 8 only.

Table 2 - PowerFlex Drive Comparisons (continued)

	PowerFlex Drive			
	700 Standard Cassette	**700 Vector Cassette Series B**	**753**	**755**
Environmental Ratings				
Enclosure types and ambient temperature range:				
IP20, NEMA/UL Type Open	0 to 50 °C (32 to 122 °F) [1] 0 to 40 °C (32 to 104 °F) [2] 0 to 65 °C (32 to 149 °F) [3]	0 to 50 °C (32 to 122 °F) [1] 0 to 40 °C (32 to 104 °F) [2] 0 to 65 °C (32 to 149 °F) [3]	0 to 50 °C (32 to 122 °F) [5]	0 to 50 °C (32 to 122 °F) [5]
IP00, NEMA/UL Type Open	N/A	N/A	0 to 50 °C (32 to 122 °F) [6]	0 to 50 °C (32 to 122 °F) [6]
IP20, NEMA/UL Type 1 (w/hood)	N/A	N/A	0 to 40 °C (32 to 104 °F) [5]	0 to 40 °C (32 to 104 °F) [5]
IP20, NEMA/UL Type 1 (w/label)	N/A	N/A	0 to 40 °C (32 to 104 °F) [6]	0 to 40 °C (32 to 104 °F) [6]
IP20, NEMA/UL Type 1 (MCC cabinet)	N/A	N/A	N/A	0 to 40 °C (32 to 104 °F) [9]
Flange enclosure types and ambient temperature range:				
Front IP20, NEMA/UL, Type Open IP00, NEMA/UL, Type Open	N/A N/A	N/A N/A	0 to 50 °C (32 to 122 °F) [5] 0 to 40 °C (32 to 104 °F) [6]	0 to 50 °C (32 to 122 °F) [5] 0 to 40 °C (32 to 104 °F) [6]
Back/heatsink IP20, NEMA/UL, Type Open IP66, NEMA/UL, Type 4X	0 to 40 °C (32 to 104 °F) [2] N/A	0 to 40 °C (32 to 104 °F) [2] N/A	N/A 0 to 40 °C (32 to 104 °F) [7]	N/A 0 to 40 °C (32 to 104 °F) [7]
Stand-alone/wall mount IP54, NEMA/UL Type 12	N/A	N/A	0 to 40 °C (32 to 104 °F) [7]	0 to 40 °C (32 to 104 °F) [7]
Storage temperature range	-40 to 70 °C (-40 to 158 °F)	-40 to 70 °C (-40 to 158 °F)	-40 to 70 °C (-40 to 158 °F)	-40 to 70 °C (-40 to 158 °F)
Standards and Certifications				
UL	Yes	Yes	Yes	Yes
CE	Yes	Yes	Yes	Yes
CSA	Yes	Yes	Yes	Yes
C-Tick	Yes	Yes	Yes	Yes
ATEX	Yes	Yes	N/A	N/A
RINA	Yes	Yes [1]	N/A	N/A
TUV-FS	No	No	Yes	Yes
ROHS	No	No	Yes	Yes
Protection				
Motor overload	Standard	Standard	Standard	Standard
Output short circuit	Standard	Standard	Standard	Standard
Output ground fault	Standard	Standard	Standard	Standard
Under and over voltage	Standard	Standard	Standard	Standard
Dynamic braking	Internal chopper [4]	Internal chopper [4]	Internal chopper [8]	Internal chopper [8]
Common mode choke	Internal (standard)	Internal (standard) [1]	External (optional)	External (optional)

(1) Frames 0…6 only.
(2) Frames 7…10 only; applies to chassis (heatsink).
(3) Frames 7…10 only; applies to control (front of backplane).
(4) Standard on Frames 0…3 and optional on Frames 4…6.
(5) Frames 2…5 only.
(6) Frames 6 and 7 only.
(7) Frames 2…7 only.
(8) Standard on Frames 2…5 and optional on Frames 6…7.
(9) Frame 8 only.

Table 3 - PowerFlex Drive Comparisons (continued)

	PowerFlex Drive			
	700 Standard Cassette	**700 Vector Cassette Series B**	**753**	**755**
Protection (continued)				
Common mode capacitors	Standard	Standard [1]	Standard	Standard
Safety input:				
Torque-off card	N/A	N/A	Standard	Standard
Speed monitor	N/A	N/A	Optional	Optional
Hardware enable	Standard	Standard	Standard	Standard
EMC filters (internal)	Standard	Standard [1]	Standard	Standard
Drive Control Performance and Features				
Motor control type:				
Induction V/Hz	Standard	Standard	Standard	Standard
Induction sensorless vector (SVC)	Standard	Standard	Standard	Standard
Induction flux vector (FVC)	N/A	Standard with FORCE Technology	Standard with FORCE Technology	Standard with FORCE Technology
Synchronous reluctance V/Hz	Standard	Standard	Standard	Standard
Synchronous reluctance SV	N/A	N/A	Standard	Standard
Adjustable voltage mode	N/A	Standard	N/A	Standard
Operating speed range	120:1	1,000:1 [2] 120:1 [3]	1,000:1 [2] 120:1 [3]	1,000:1 [2] 120:1 [3]
Speed control regulation (% of base speed across operating speed range)	0.5% across 80:1	0.001% across 120:1 [2] 0.1% across 120:1 [3]	0.001% across 100:1 [2] 0.1% across 120:1 [3]	0.001% across 100:1 [2] 0.1% across 120:1 [3]
Speed control bandwidth (radians per second)	20	250 [2] 50 [3]	190 [2] 50 [3]	190 [2] 50 [3]
Slip compensation	Standard	Standard	Standard	Standard
Droop	N/A	Standard	Standard	Standard
Inertia adaption	N/A	N/A	N/A	Standard
Phase lock loop	N/A	N/A	N/A	Standard
Torque regulation	N/A	± 2%, 2500 rad/sec [2] ± 5%, 600 rad/sec [3]	± 2%, 2500 rad/sec [2] ± 5%, 600 rad/sec [3]	± 2%, 2500 rad/sec [2] ± 5%, 600 rad/sec [3]
Features				
Flying start	Standard	Standard [4]	Standard [5]	Standard [5]
Bus regulator	Standard [4]	Standard [4]	Standard [4]	Standard [4]
S-curve	Standard	Standard	Standard	Standard
Drive overload protection	Standard [4]	Standard [4]	Standard [4]	Standard [4]
Advanced diagnostics	Standard	Standard	Standard	Standard

(1) Frames 0…6 only.
(2) With encoder.
(3) Without encoder.
(4) Advanced.
(5) Advanced and non-advanced.

Table 4 - PowerFlex Drive Comparisons (continued)

	PowerFlex Drive			
	700 Standard Cassette	**700 Vector Cassette Series B**	**753**	**755**
Features (continued)				
Input phase loss	N/A	Standard	Standard	Standard
User sets	Standard	Standard	N/A	N/A
Preset speeds	7	7	7	7
Process control loop	Standard [2]	Standard [2]	Standard [2]	Standard [2]
Fast flux up	Standard	Standard	Standard	Standard
Fast brake to stop	N/A	Standard	Standard	Standard
Flux braking	N/A	Standard	Standard	Standard
Feedback loss switchover	N/A	N/A	Standard	Standard
Real-time clock	N/A	N/A	Standard	Standard
Battery/auxiliary power back-up [1]	N/A	N/A	Optional	Optional
Multi-motor parameters	N/A	N/A	N/A	N/A
Start on power-up	Standard	Standard	Standard	Standard
Integral position loop	N/A	Standard	Standard	Standard
PCAM planner	N/A	N/A	N/A	Standard
Electronic gearing	N/A	N/A	Standard	Standard
Speed/position profiler	N/A	Standard	N/A	Standard
Position indexer	N/A	N/A	N/A	N/A
Predictive diagnostics	N/A	N/A	Standard	Standard
Torque proving	N/A	Standard	N/A	Standard
Conformal coating	N/A	Optional	Standard	Standard
Timer/counter functions	N/A	N/A	Standard [4]	Standard [4]
Embedded control	N/A	N/A	Standard [4]	Standard [4]
Supported Feedback Devices				
Incremental encoder feedback	N/A	Optional	Optional	Optional
Pulse train input	N/A	Optional	Optional	Optional
Stegmann high-resolution	N/A	N/A	N/A	Optional
Heidenhain	N/A	N/A	N/A	Optional
SSI and BSSI linear	N/A	N/A	N/A	Optional
Resolver	N/A	N/A	N/A	N/A
User Interface				
HIM/operator interface	Optional [3]	Optional [3]	Optional [5]	Optional [5]
Languages available (number)	7	7	9 [6]	9 [6]
Remote display	Optional [3]	Optional [3]	Optional [5]	Optional [5]

(1) Battery preserves the real time clock setting when power to the drive is lost or cycled, and provides absolute time stamping in fault queues.
(2) Advanced.
(3) A3 or A6 family.
(4) DeviceLogix.
(5) A6 family only.
(6) With A6 HIM.

Table 5 - PowerFlex Drive Comparisons (continued)

	PowerFlex Drive			
	700 Standard Cassette	**700 Vector Cassette Series B**	**753**	**755**
User Interface (continued)				
HIM handheld terminal	Optional [2]	Optional [3]	Optional [3]	Optional [3]
Software configuration tools [1]	Yes	Yes	Yes	Yes
Setup tools or wizards	Yes	Yes	Yes	Yes
Communication Options				
AS-i	N/A	N/A	N/A	N/A
BACnet	Optional	Optional	N/A	N/A
CAN/Euromap	N/A	N/A	N/A	N/A
CANopen	Optional	Optional	Optional [4]	Optional [4]
CC-Link	N/A	N/A	N/A	N/A
ControlNet	Optional	Optional	Optional	Optional
DF1	Optional	Optional	Optional [4]	Optional [4]
Data highway	N/A	N/A	Optional [4]	Optional [4]
EtherNet	Optional	Optional	Optional	Optional
EtherNet or TCP/IP	N/A	N/A	N/A	N/A
EtherNet/IP	Optional	Optional	Optional	Standard
FIP I/O	N/A	N/A	N/A	N/A
Foundation fieldbus	N/A	N/A	N/A	N/A
Interbus	Optional	Optional	Optional [4]	Optional [4]
Lecon-B	N/A	N/A	N/A	N/A
LonWorks	Optional	Optional	N/A	N/A
Metasys N2	Optional	N/A	N/A	N/A
Modbus ASCII	N/A	N/A	N/A	N/A
Modbus Plus	N/A	N/A	N/A	N/A
Modbus RTU	Optional	Optional	N/A	N/A
Modbus TCP/IP	Optional	Optional	Optional	Optional
PROFIBUS DP	Optional	Optional	Optional	Optional
PROFINET	N/A	N/A	N/A	N/A
Remote I/O	Optional	Optional	Optional	Optional
SELMA 2	N/A	N/A	N/A	N/A
SERCOS	N/A	N/A	N/A	N/A
Siemens P1	Optional	N/A	N/A	N/A
Uni-Telway	N/A	N/A	N/A	N/A
USB	Optional	Optional	Optional	Optional

(1)   Tools available are RSLogix 5000 (version 16 or greater), DriveExplorer, and DriveExecutive.
(2)   A3 or A6 family.
(3)   A6 family only.
(4)   Limited parameter accessibility.

PowerFlex Drive Conversion Guide

The following table is for migrating your PowerFlex 700 drive installation to a PowerFlex 750-series drive.

**Table 6 - PowerFlex 700 Drive to PowerFlex 750-Series Drive Conversions**

NOTE: Voltage rating is 480V AC for all drives listed below.

PowerFlex 700 Drive [1]							PowerFlex 750-Series Drive Conversion [2]						
20B	**Amps**	**HP (ND)**	**Frame**	**Height (mm)**	**Width (mm)**	**Depth (mm)**	**20F/ 20G**	**Amps**	**HP (ND)**	**Frame**	**Height (mm)**	**Width (mm)**	**Depth (mm)**
1P1	1.1	0.5	0	336	110	200							
2P1	2.1	1.0	0				2P1	2.1	1	2	424.5	134.5	212
3P4	3.4	2.0	0				3P4	3.4	2	2			
5P0	5.0	3	0				5P0	5.0	3	2			
8P0	8.0	5	0				8P0	8.0	5	2			
011	11	7.5	1				011	11	7.5	2			
014	14	10	1	336	135	200	014	14	10	2			
022	22	15	1				022	22	15	2			
027	27	20	2	342.5	222	200	027	27	20	3	454	190	212
034	34	25	2				034	34	25	3			
040	40	30	3	517.5	222	200	040	40	30	3			
052	52	40	3				052	52	40	4	474	222	212
065	65	50	3				065	65	50	4			
077	77	60	4	759	220	202	077	77	60	5	555	270	212
096	96	75	5	644.5	309	275.5	096	96	75	5			
125	125	100	5				125	125	100	6	665.5	308	346.5
156	156	125	6	850 [3]	404	275.5	156	156	125	6			
180	180	150	6				186	186	150	6			
248	248	200	6				248	248	200	6			
292	292	250	7	1499	514.5	407	302	302	250	7	875	430	350
325	325	250	7				361	361	300	7			
365	365	300	8	2374	758	889	361	361	300	7			
415	415	350	8				415	415	350	7			
481	481	400	8				485	485	400	8 [4]	2453	600	800
535	535	450	8	2374	758	1016	545	545	450	8 [4]			
600	600	500	8				617	617	500	8 [4]			
730	730	600	9				740	740	650	8 [4]			
875	875	700	10	2374	1268	889							

(1) All dimensions are IP20, NEMA/UL Type 1 unless specified otherwise.
(2) All dimensions are IP20, NEMA/UL Open type unless specified otherwise.
(3) Height dimension shown for a drive mounted in a cabinet; height dimension is 976.5 mm with required junction box if not cabinet-mounted.
(4) Frame enclosure is IP20, NEMA/UL Type 1 MCC style.

Dimensions

Figure 2 - PowerFlex 700 Frames 0…3 to PowerFlex 750-Series Frames 2 & 3

PowerFlex 700 Frames 0…3
(Frame 0 shown)

PowerFlex 750-Series Frames 2 & 3
(Frame 2 shown)

**PowerFlex 750-Series
2 & 3 w/NEMA 1 Kit**
(Frame 2 shown)
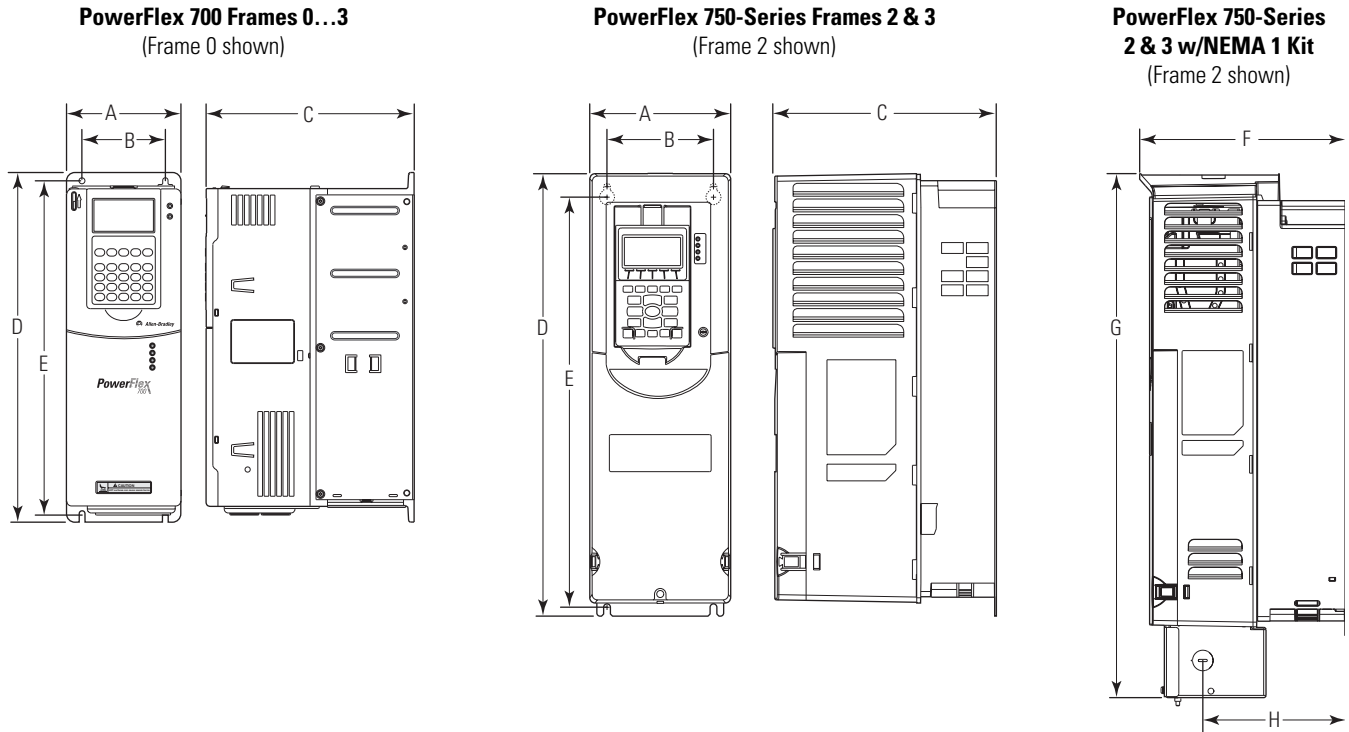
		Dimensions mm (in.)							
Drive	**Frame**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
700	0	110.0 (4.33)	80.0 (3.15)	200.0 (7.87)	336.0 (13.23)	320.0 (12.60)			
	1	135.0 (5.32)	105.0 (4.13)	200.0 (7.87)	336.0 (13.23)	320.0 (12.60)			
	2	222.0 (8.74)	192.0 (7.56)	200.0 (7.87)	342.5 (13.48)	320.0 (12.60)			
	3	222.0 (8.74)	192.0 (7.56)	200.0 (7.87)	517.5 (20.37)	500.0 (19.69)			
750-Series	2	134.5 (5.30)	100.0 (3.94)	212.0 (8.35)	424.2 (16.70)	404.2 (15.91)	222.2 (8.75)	497.1 (19.57)	38.0 (1.50)
	3	190.0 (7.48)	158.0 (6.22)	212.0 (8.35)	454.0 (17.87)	435.0 (17.13)	223.1 (8.78)	530.1 (20.87)	38.0 (1.50)

Figure 3 - PowerFlex 700 Frame 3 to PowerFlex 750-Series Frame 4

PowerFlex 700 Frame 3   **PowerFlex 750-Series Frame 4**   **PowerFlex 750-Series Frame 4 w/NEMA 1 Kit**
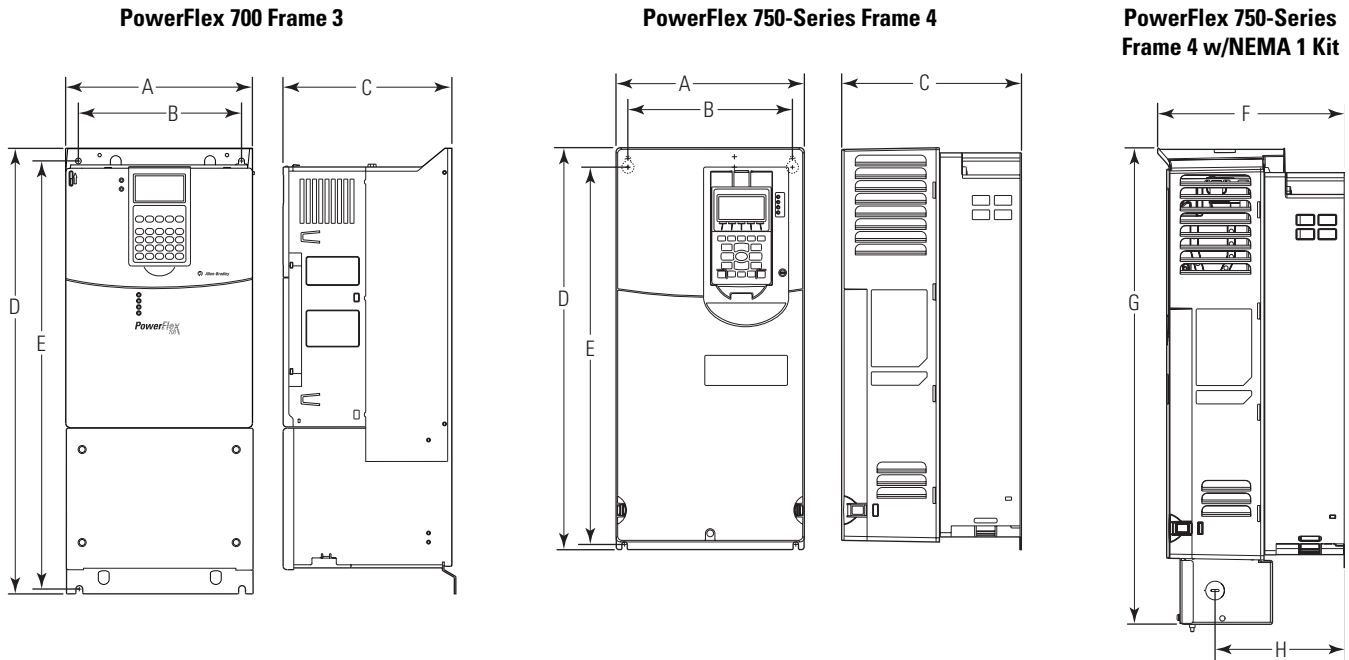
		Dimensions mm (in.)							
Drive	**Frame**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
700	3	222.0 (8.74)	192.0 (7.56)	200.0 (7.87)	517.5 (20.37)	500.0 (19.69)			
750-Series	4	222.0 (8.74)	194.0 (7.64)	212.0 (8.35)	474.0 (18.66)	455.0 (17.91)	222.7 (8.77)	564.4 (22.22)	154.7 (6.09)

Figure 4 - PowerFlex 700 Frame 4 to PowerFlex 750-Series Frame 5

PowerFlex 700 Frame 4   **PowerFlex 750-Series Frame 5**   **PowerFlex 750-Series Frame 5 w/NEMA 1 Kit**
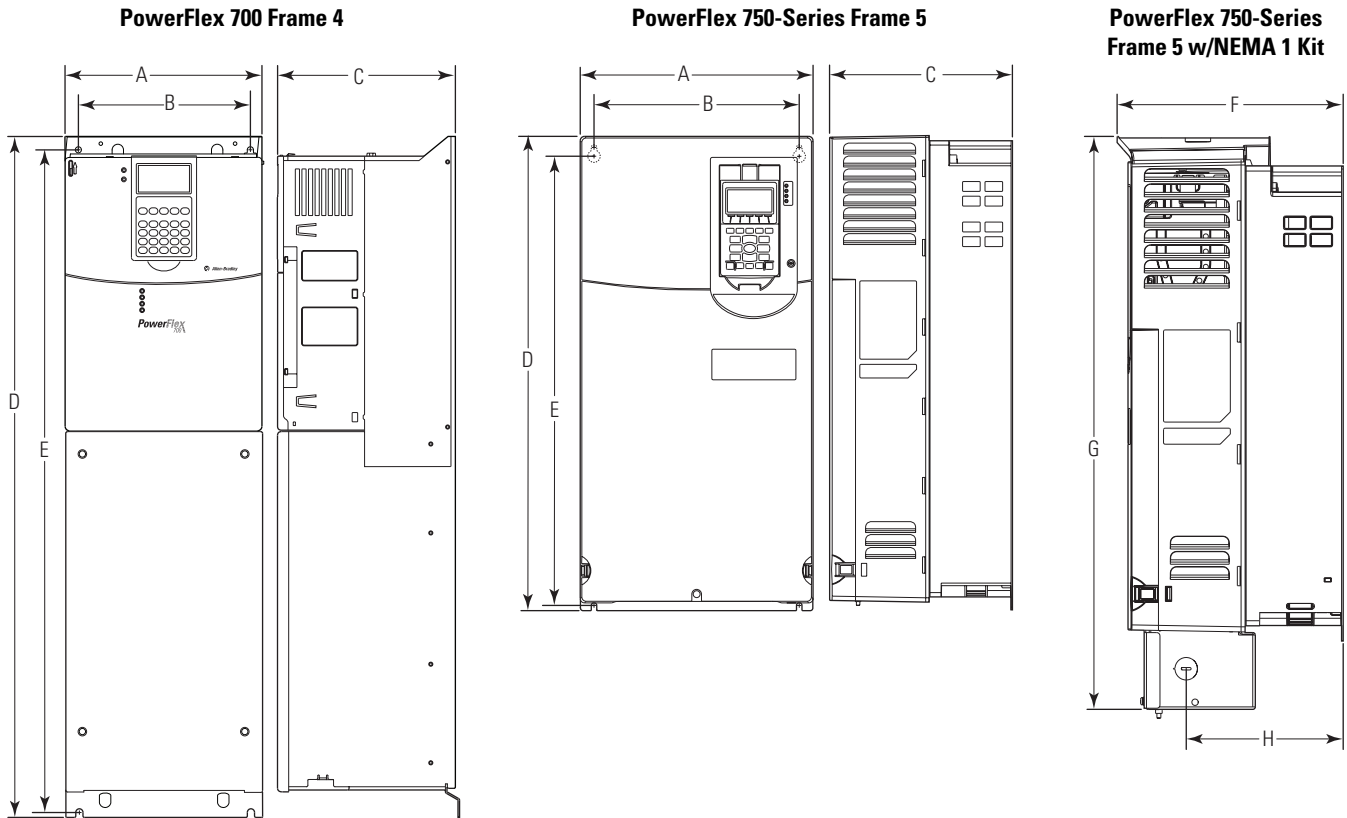
Drive	Frame	Dimensions mm (in.)							
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
700	4	220.0 (8.66)	192.0 (7.56)	201.7 (7.94)	758.8 (29.87)	738.2 (29.06)			
750-Series	5	270.0 (10.63)	238.0 (9.37)	212.0 (8.35)	550.0 (21.65)	531.0 (20.91)	222.7 (8.77)	665.4 (26.20)	155.0 (6.10)

Figure 5 - PowerFlex 700 Frame 5 to PowerFlex 753/755 Frame 5
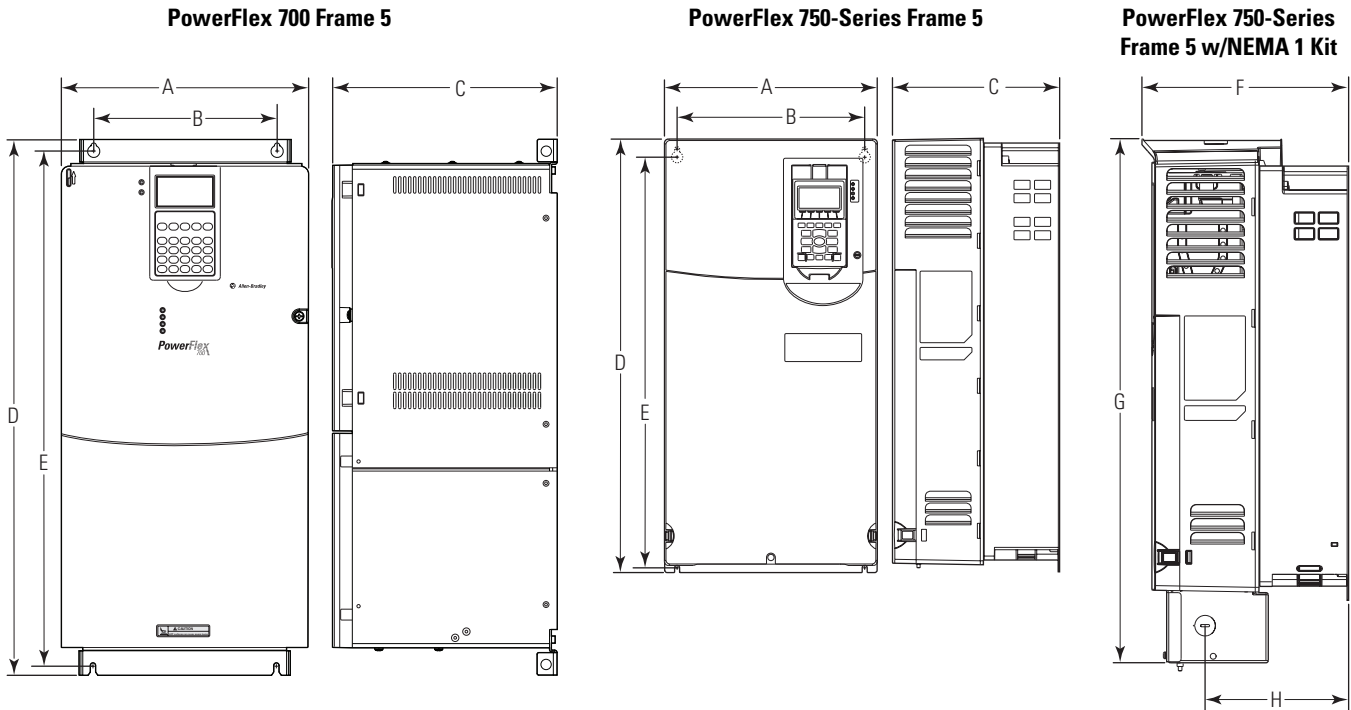
PowerFlex 700 Frame 5   **PowerFlex 750-Series Frame 5**   **PowerFlex 750-Series Frame 5 w/NEMA 1 Kit**

Drive	Frame	Dimensions mm (in.)							
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
700	5	308.9 (12.16)	225.0 (8.86)	275.4 (10.84)	644.5 (25.37)	625.0 (24.61)			
750-Series	5	270.0 (10.63)	238.0 (9.37)	212.0 (8.35)	550.0 (21.65)	531.0 (20.91)	222.7 (8.77)	665.4 (26.20)	155.0 (6.10)

Figure 6 - PowerFlex 700 Frame 5 to PowerFlex 750-Series Frame 6
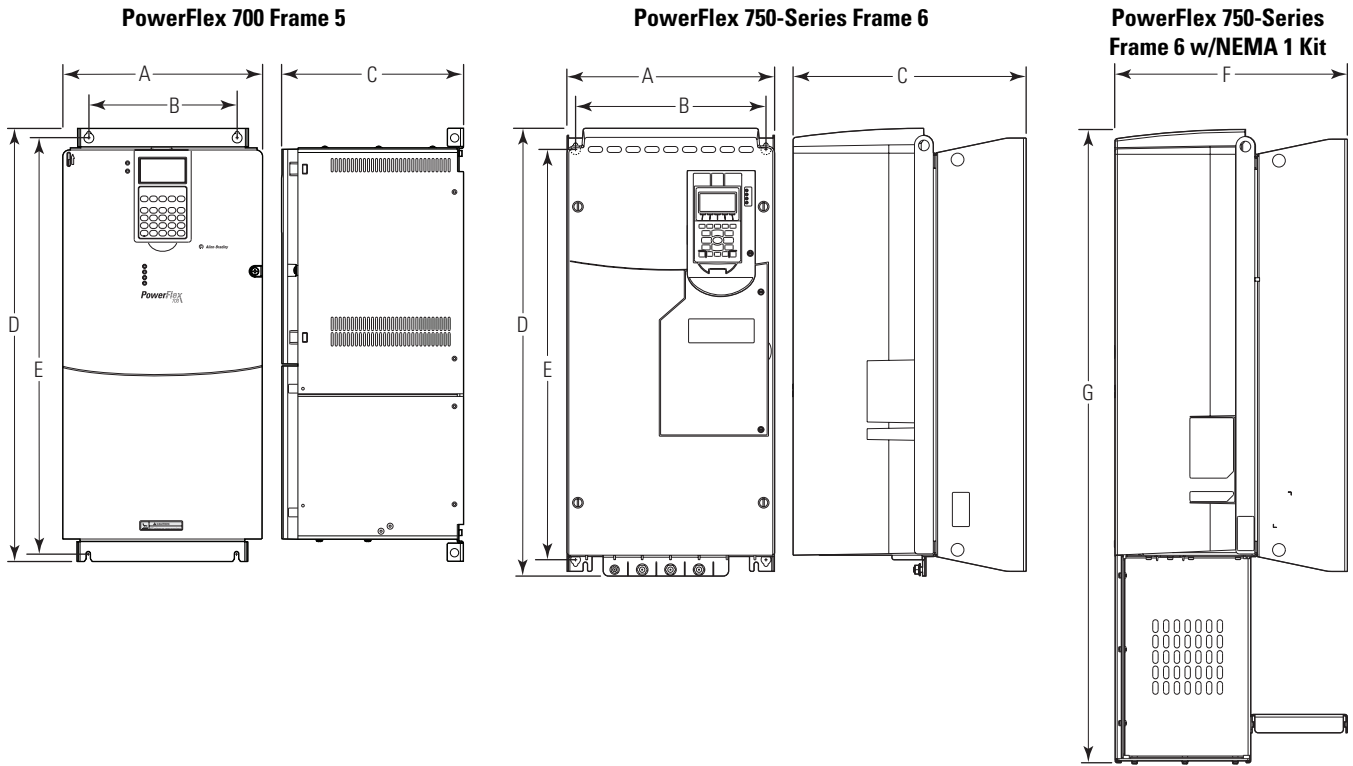
PowerFlex 700 Frame 5   **PowerFlex 750-Series Frame 6**   **PowerFlex 750-Series Frame 6 w/NEMA 1 Kit**

Drive	Frame	Dimensions mm (in.)							
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
700	5	308.9 (12.16)	225.0 (8.86)	275.4 (10.84)	644.5 (25.37)	625.0 (24.61)			
750-Series	6	308.0 (12.13)	283.0 (11.14)	346.4 (13.64)	665.5 (26.20)	609.0 (23.98)	346.7 (13.65)	945.1 (37.21)	—

Figure 7 - PowerFlex 700 Frame 6 to PowerFlex 750-Series Frame 6

PowerFlex 700 Frame 6   **PowerFlex 750-Series Frame 6**   **PowerFlex 750-Series Frame 6 w/NEMA 1 Kit**
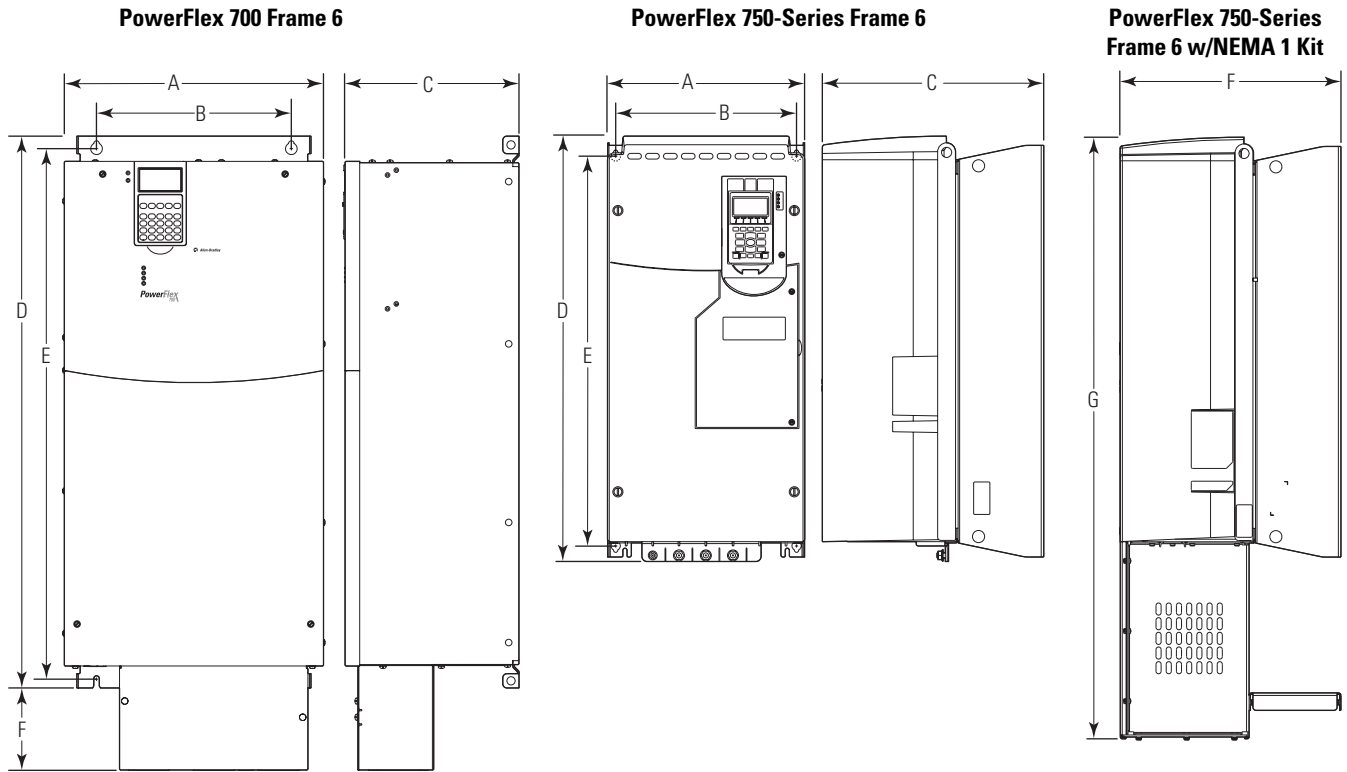
Drive	Frame	Dimensions mm (in.)							
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
700	6	403.9 (15.90)	300.0 (11.81)	275.5 (10.85)	850.0 (33.46)	825.0 (32.48)	126.3 (4.97)		
750-Series	6	308.0 (12.13)	283.0 (11.14)	346.4 (13.64)	665.5 (26.20)	609.0 (23.98)	346.7 (13.65	945.1 (37.21)	—

Figure 8 - PowerFlex 700 Frame 7 to PowerFlex 750-Series Frame 7

PowerFlex 700 Frame 7   **PowerFlex 750-Series Frame 7**   **PowerFlex 750-Series Frame 7 w/NEMA 1 Kit**
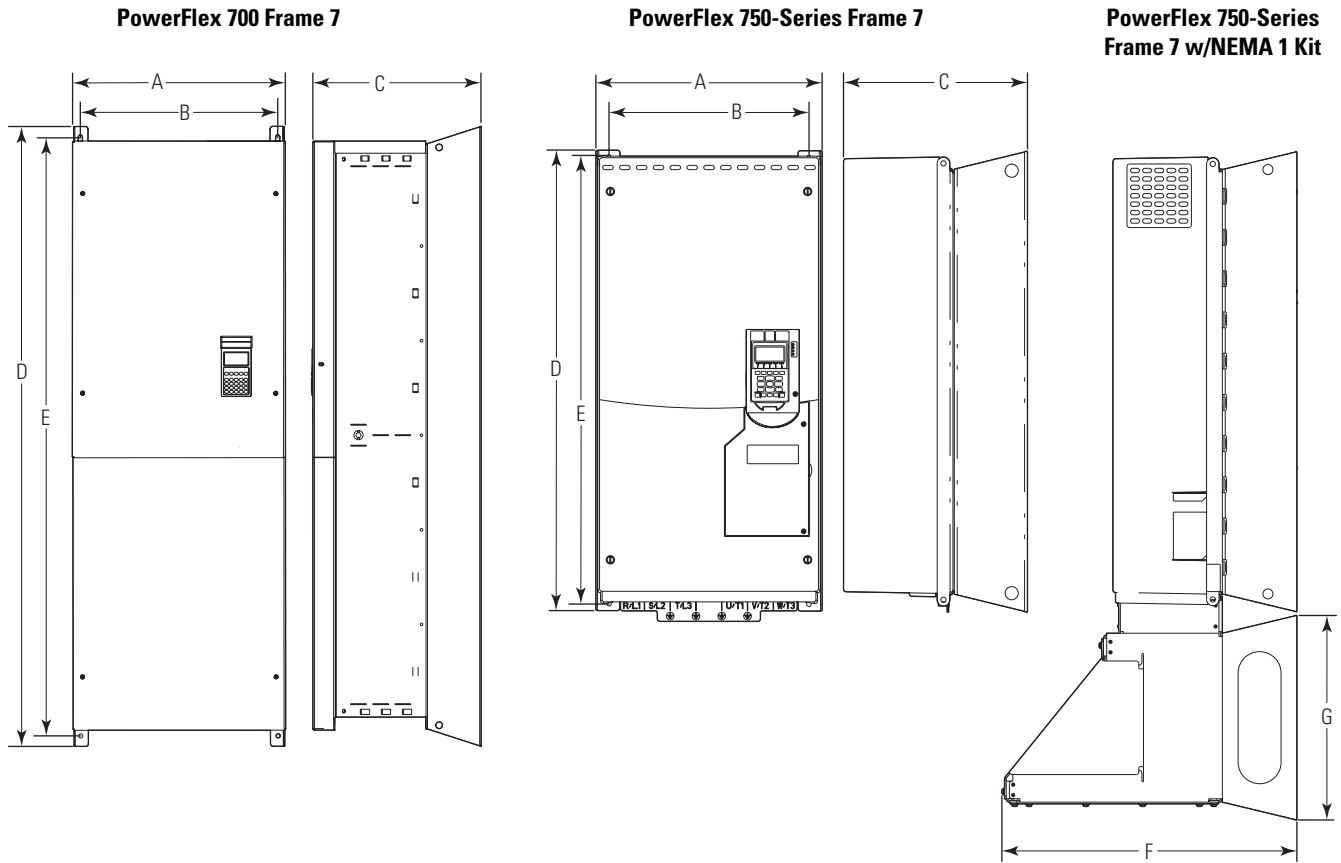
Drive	Frame	Dimensions mm (in.)							
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
700	7	514.4 (20.25)	477.3 (18.79)	406.9 (16.02)	1447.8 (57.0)	1498.6 (59.0)			
750-Series	7	430.0 (16.93)	380.0 (14.96)	349.6 (13.76)	881.5 (34.7)	838.0 (33.0)	561.0 (22.08)	389.2 (15.32)	

Figure 9 - PowerFlex 700 Frames 8 & 9 (IP00) to PowerFlex 750-Series Frame 7 (IP00)

**PowerFlex 700 Frames 8 & 9
(IP00, NEMA/UL Type Open)**

**PowerFlex 750-Series Frame 7
(IP00, NEMA/UL Type Open)**
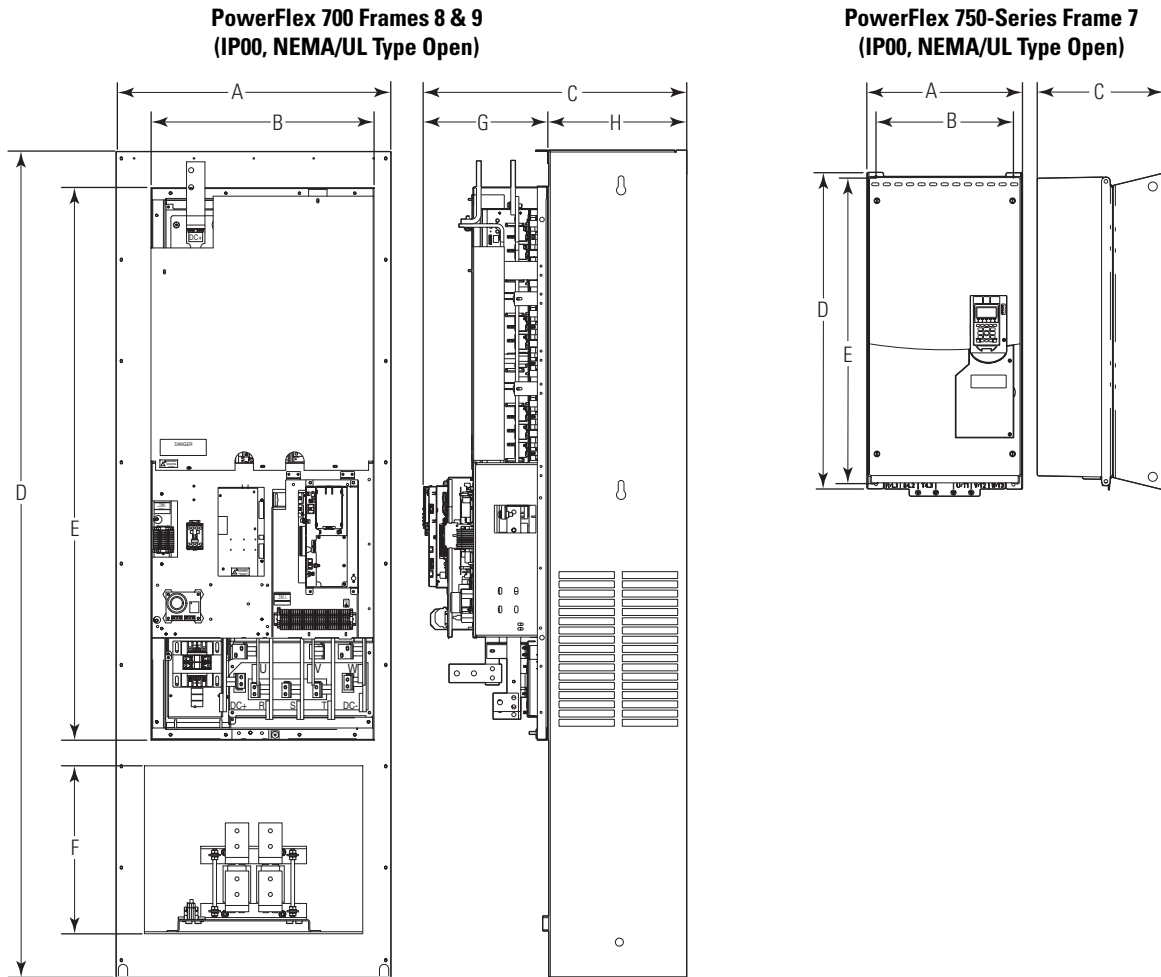
		Dimensions mm (in.)							
Drive	**Frame**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
700	8 & 9	757.7 (29.83)	614.4 (24.19)	599.4 (23.60) [1] 726.4 (28.60) [2] 781.8 (30.78) [3]	2373.9 (93.46)	1524.0 (60.0)	463.8 (18.26)	345.4 (13.6) [1] 345.4 (13.6) [2] 400.8 (15.8) [3]	599.4 (23.6) [1] 726.4 (28.6) [2] 781.8 (30.8) [3]
750-Series	7	430.0 (16.93)	380.0 (14.96)	349.6 (13.76)	881.5 (34.7)	838.0 (33.0)			

(1) For PowerFlex 700 drive catalog numbers 20B*x*365…20B*x*481.
(2) For PowerFlex 700 drive catalog numbers 20B*x*535 and 20B*x*600.
(3) For PowerFlex 700 drive catalog number 20B*x*730.

Figure 10 - PowerFlex 700 Frames 8 & 9 (IP20) to PowerFlex 750-Series Frame 7 (IP20)

PowerFlex 700 Frames 8 & 9
(IP20, NEMA/UL Type 1)

PowerFlex 750-Series Frame 7
(IP20, NEMA/UL Type 1)

Drive	Frame	Dimensions mm (in.)							
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
700	8 & 9	757.7 (29.83)	—	889.0 (35.0) [1] 1016.0 (40.0) [2]	2373.9 (93.46)				
750-Series	7	430.0 (16.93)	380.0 (14.96)	561.0 (22.08)	1271.0 (50.04)	825.0 (32.48)	339.2 (13.35)		

[1] For PowerFlex 700 drive catalog numbers 20B*x*365…20B*x*481.
[2] For PowerFlex 700 drive catalog numbers 20B*x*535…20B*x*730.

Figure 11 - PowerFlex 700 Frames 8 & 9 (IP20) to PowerFlex 755 Frame 8 (IP20)

NOTE: PowerFlex 753 Drive is not available in a Frame 8 model.

**PowerFlex 700 Frames 8 & 9
(IP20, NEMA/UL Type 1)**

**PowerFlex 755 Frame 8
(IP20, NEMA/UL Type 1)**

With 2500
MCC Cabinet
(Enclosure Code B)

With 2500
MCC Cabinet
(Enclosure Code L)

Drive	Frame	Dimensions mm (in.)							
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
700	8 & 9	757.7 (29.83)	—	889.0 (35.0) [1] 1016.0 (40.0) [2]	2373.9 (93.46)				
755	8	600.0 (23.6)	240.0 (9.4)	600.0 (23.6) [3] 800.0 (31.5) [4]	2453.0 (96.6)	2300.0 (90.6)	339.2 (13.35)		

(1) For PowerFlex 700 drive catalog numbers 20B*x*365…20B*x*481.
(2) For PowerFlex 700 drive catalog numbers 20B*x*535…20B*x*730.
(3) For 2500 MCC cabinet enclosure code B.
(4) For 2500 MCC cabinet enclosure code L.

Figure 12 - PowerFlex 700 Frame 10 (IP00) to PowerFlex 755 Frame 8 (IP20)

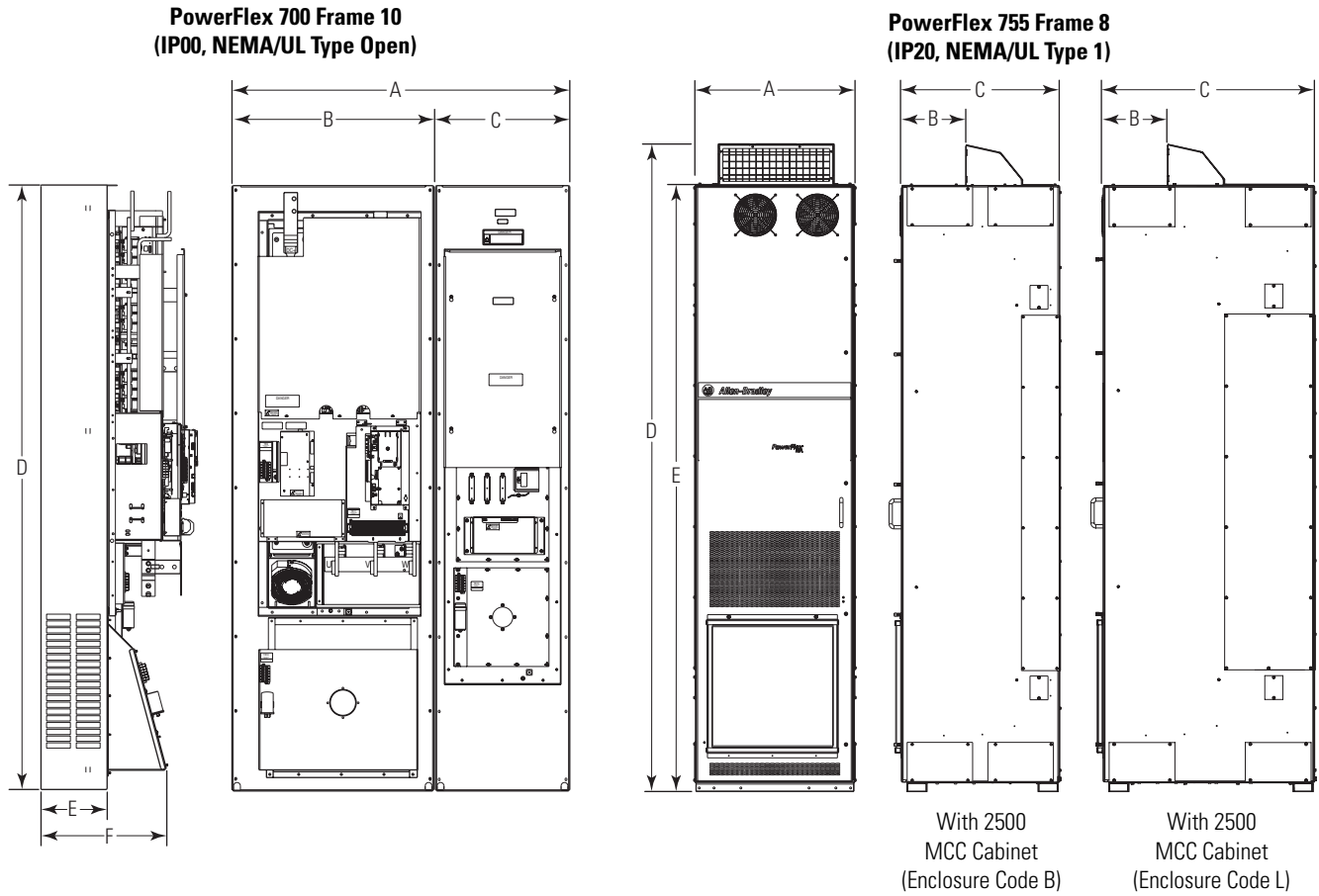**NOTE:** PowerFlex 753 Drive is not available in a Frame 8 model.

PowerFlex 700 Frame 10
(IP00, NEMA/UL Type Open)

PowerFlex 755 Frame 8
(IP20, NEMA/UL Type 1)

With 2500
MCC Cabinet
(Enclosure Code B)

With 2500
MCC Cabinet
(Enclosure Code L)

Drive	Frame	Dimensions mm (in.)							
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
700	10	1267.7 (49.91)	757.7 (29.83)	503.7 (19.83)	2275.8 (89.6)	252.7 (9.95)	475.0 (18.7)		
755	8	600.0 (23.6)	240.0 (9.4)	600.0 (23.6) [1] 800.0 (31.5) [2]	2453.0 (96.6)	2300.0 (90.6)			

(1)   For 2500 MCC cabinet enclosure code B.
(2)   For 2500 MCC cabinet enclosure code L.

Power Terminal Comparison

PowerFlex 700 Drives

Table 7 - PowerFlex 700 Drives Terminal Block Specifications

Refer to pages and for typical locations.

Location No.	Name	Frame	Description	Wire Size Range [3] Maximum	Minimum	Torque Maximum	Recommended
❶	Power Terminal Block	0 & 1	Input power and motor connections	4.0 mm² (12 AWG)	0.5 mm² (22 AWG)	1.7 N•m (15 lb.•in.)	0.8 N•m (7 lb.•in.)
		2	Input power and motor connections	10.0 mm² (8 AWG)	0.8 mm² (18 AWG)	1.7 N•m (15 lb.•in.)	1.4 N•m (12 lb.•in.)
		3	Input power and motor connections	25.0 mm² (3 AWG)	2.5 mm² (14 AWG)	3.6 N•m (32 lb.•in.)	1.8 N•m (16 lb.•in.)
			BR1, 2 terminals	10.0 mm² (8 AWG)	0.8 mm² (18 AWG)	1.7 N•m (15 lb.•in.)	1.4 N•m (12 lb.•in.)
		4	Input power and motor connections	35.0 mm² (1 AWG)	10.0 mm² (8 AWG)	4.0 N•m (35 lb.•in.)	4.0 N•m (35 lb.•in.)
		5 *75Hp, 480V 100Hp, 600V*	Input power, DC+, DC−, BR1, 2, PE, motor connections	50.0 mm² (1/0 AWG)	4.0 mm² (12 AWG)	See Note [4]	
		5 *100Hp*	Input power, DC+, DC− and motor	70.0 mm² (2/0 AWG)	10.0 mm² (8 AWG)		
			BR1, 2, PE terminals	50.0 mm² (1/0 AWG)	4.0 mm² (12 AWG)		
		6	Input power, DC+, DC−, BR1, 2, PE, motor connections	150.0 mm² (300 MCM) [4]	2.5 mm² (14 AWG)	6.0 N•m (52 lb.•in.)	6.0 N•m (52 lb.•in.)
		7	Input power, DC+, DC−, PE, motor connections	150.0 mm² (300 MCM) [4]	2.5 mm² (14 AWG)	2.7 N•m (24 lb.•in.)	2.7 N•m (24 lb.•in.)
		8 & 9	Input power, DC+, DC−, PE, motor connections	300.0 mm² (600 MCM) [4]	2.5 mm² (14 AWG)	10.0 N•m (87 lb.•in.)	10.0 N•m (87 lb.•in.)
		10	Input power, DC+, DC−, PE, motor connections	300.0 mm² (600 MCM) [4]	2.5 mm² (14 AWG)	10.0 N•m (87 lb.•in.)	10.0 N•m (87 lb.•in.)
❷	SHLD Terminal	0…6	Terminating point for wiring shields	—	—	1.6 N•m (14 lb.•in.)	1.6 N•m (14 lb.•in.)
❸	AUX Terminal Block	0…4	Auxiliary control voltage PS+, PS− [1] [2]	1.5 mm² (16 AWG)	0.2 mm² (24 AWG)	—	—
		5…6		4.0 mm² (12 AWG)	0.5 mm² (22 AWG)	0.6 N•m (5.3 lb.•in.)	0.6 N•m (5.3 lb.•in.)
		7…10		4.0 mm² (12 AWG)	0.049 mm² (30 AWG)	0.6 N•m (5.3 lb.•in.)	0.6 N•m (5.3 lb.•in.)

(1) External control power: UL Installation-300V DC, ±10%, Non UL Installation-270…600V DC, ±10% (0…3 Frame-40W, 165 mA, 5 Frame-80W, 90 mA).

(2) An Auxiliary Control Power Supply such as the 20-24V-AUX can be used with 400/480 and 600/690 Volt drives with Vector Control. However, consult the factory before using an auxiliary power supply in these instances. **Important:** The Auxiliary Control Power Supply must not be used with any Standard Control drive or any 200/240V PowerFlex 700 drive, Standard or Vector Control.

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

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

Table 8 - PowerFlex 700 Drives Power Terminal Block Locations (continued)

Location No.	Name	Frame	Description	Wire Size Range [1] Maximum	Minimum	Torque Maximum	Recommended
❹	I/O Terminal Block	0…6	Signal & control connections	2.5 mm² (14 AWG)	0.30 mm² (22 AWG)	0.6 N•m (5.3 lb.•in.)	0.6 N•m (5.3 lb.•in.)
		7…10		4.0 mm² (12 AWG)	0.049 mm² (30 AWG)	0.6 N•m (5.3 lb.•in.)	0.6 N•m (5.3 lb.•in.)
❺	Encoder Terminal Block	0…10	Encoder power & signal connections	0.75 mm² (18 AWG)	0.196 mm² (24 AWG)	0.6 N•m (5.3 lb.•in.)	0.6 N•m (5.3 lb.•in.)
❻	Fan Terminal Block	5…6	User supplied fan voltage	4.0 mm² (12 AWG)	0.5 mm² (22 AWG)	0.6 N•m (5.3 lb.•in.)	0.6 N•m (5.3 lb.•in.)
		7		4.0 mm² (12 AWG)	0.5 mm² (22 AWG)	0.9 N•m (8.0 lb.•in.)	0.6 N•m (5.3 lb.•in.)
		8…10		4.0 mm² (12 AWG)	0.5 mm² (22 AWG)	0.6 N•m (5.3 lb.•in.)	0.6 N•m (5.3 lb.•in.)

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

Terminal	Description	Notes
BR1 BR2	DC Brake (+) DC Brake (−)	DB Resistor Connection **Important:** Only one DB resistor can be used with Frames 0…3. Connecting an internal & external resistor could cause damage.
DC+	DC Bus (+)	DC input/brake connections
DC−	DC Bus (−)	
PE	PE Ground	
PS+	Auxiliary Control Terminal Block	see page 27
PS−		
⏚	Motor Ground	
U	U (T1)	To motor
V	V (T2)	
W	W (T3)	
R	R (L1)	AC line input power
S	S (L2)	Three-phase = R, S & T Single-phase = R & S only [1]
T	T (L3)	

(1) Frames 0…7 only.

Figure 13 - PowerFlex 700 Drive Terminal Block Locations
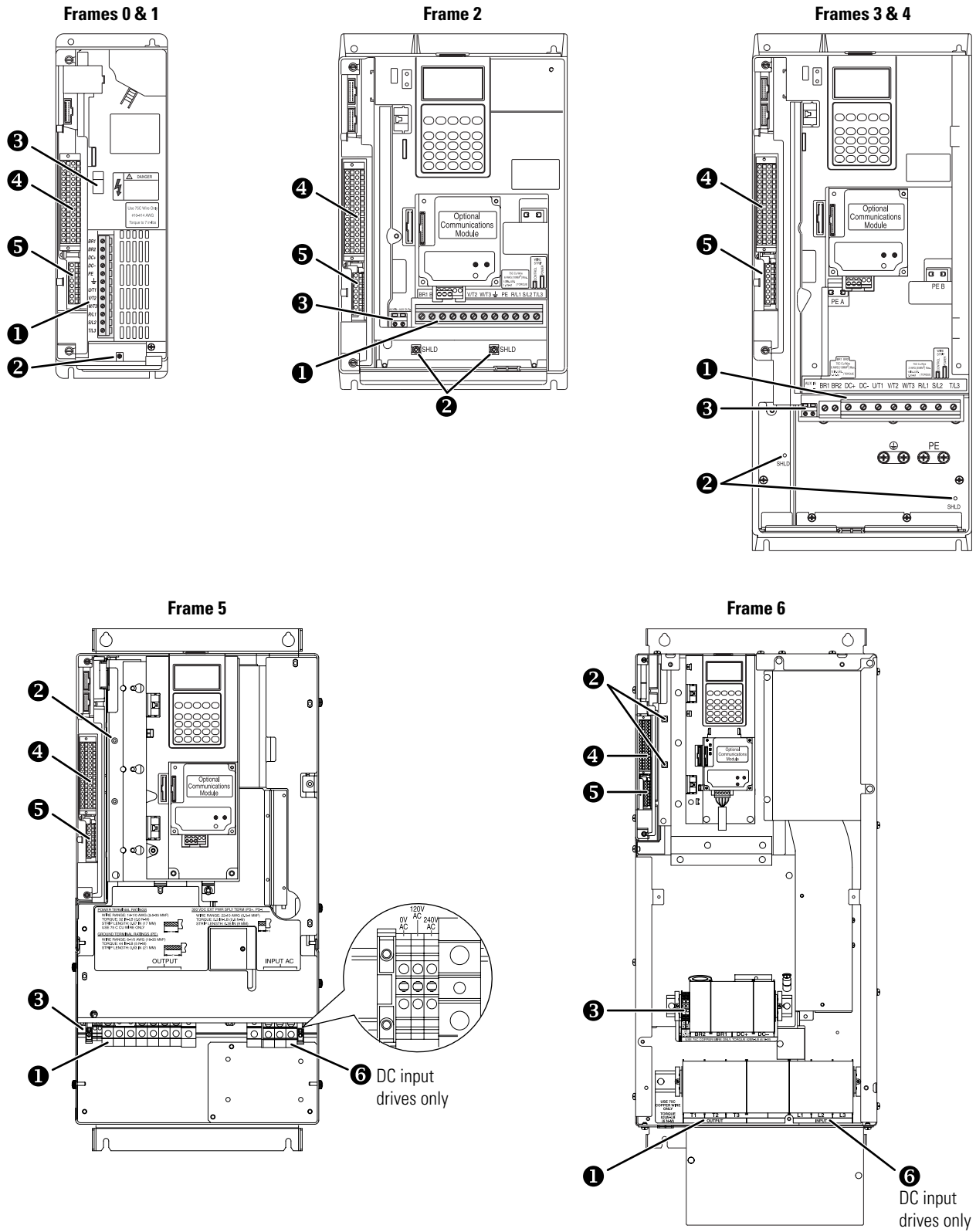
Figure 14 - PowerFlex 700 Drive Terminal Block Locations (continued)
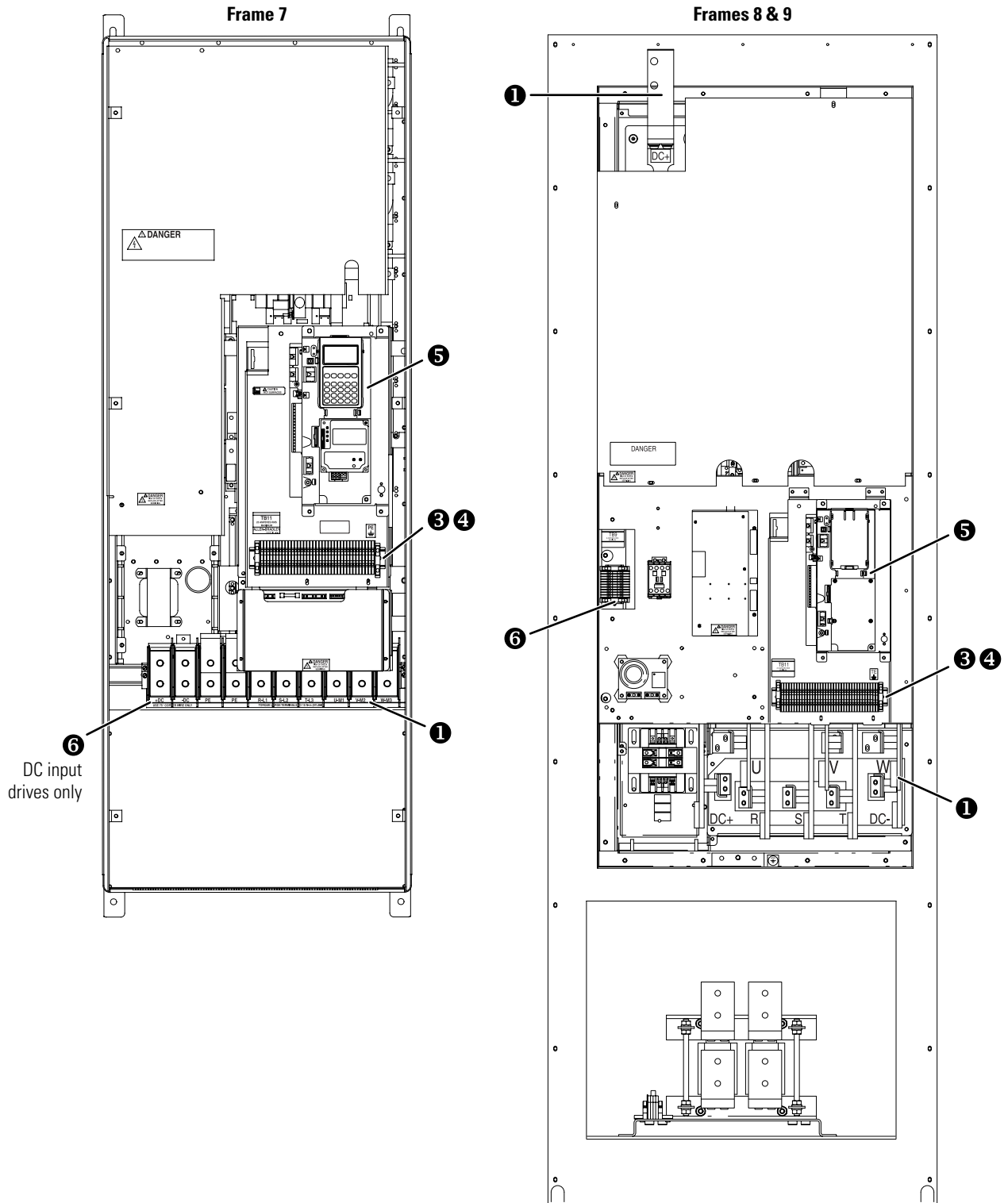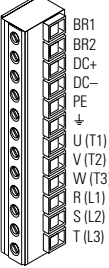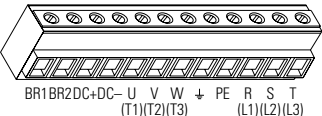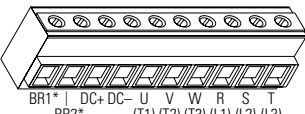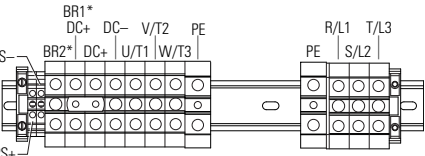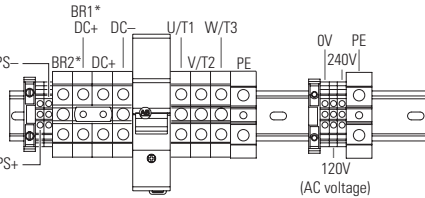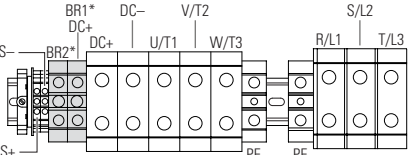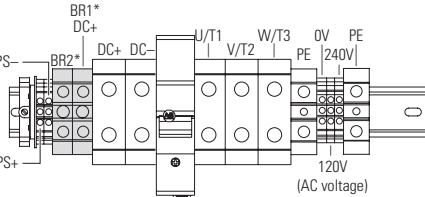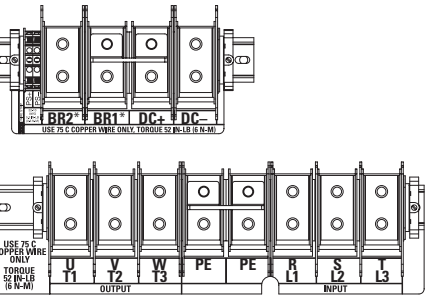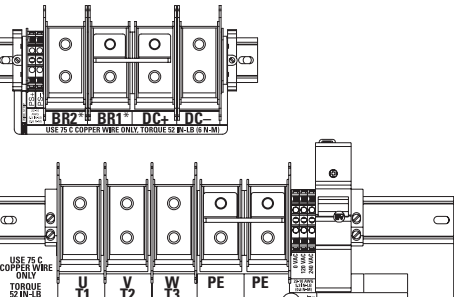
Figure 15 - PowerFlex 700 Drive Terminal Block Locations (continued)

Frame 10
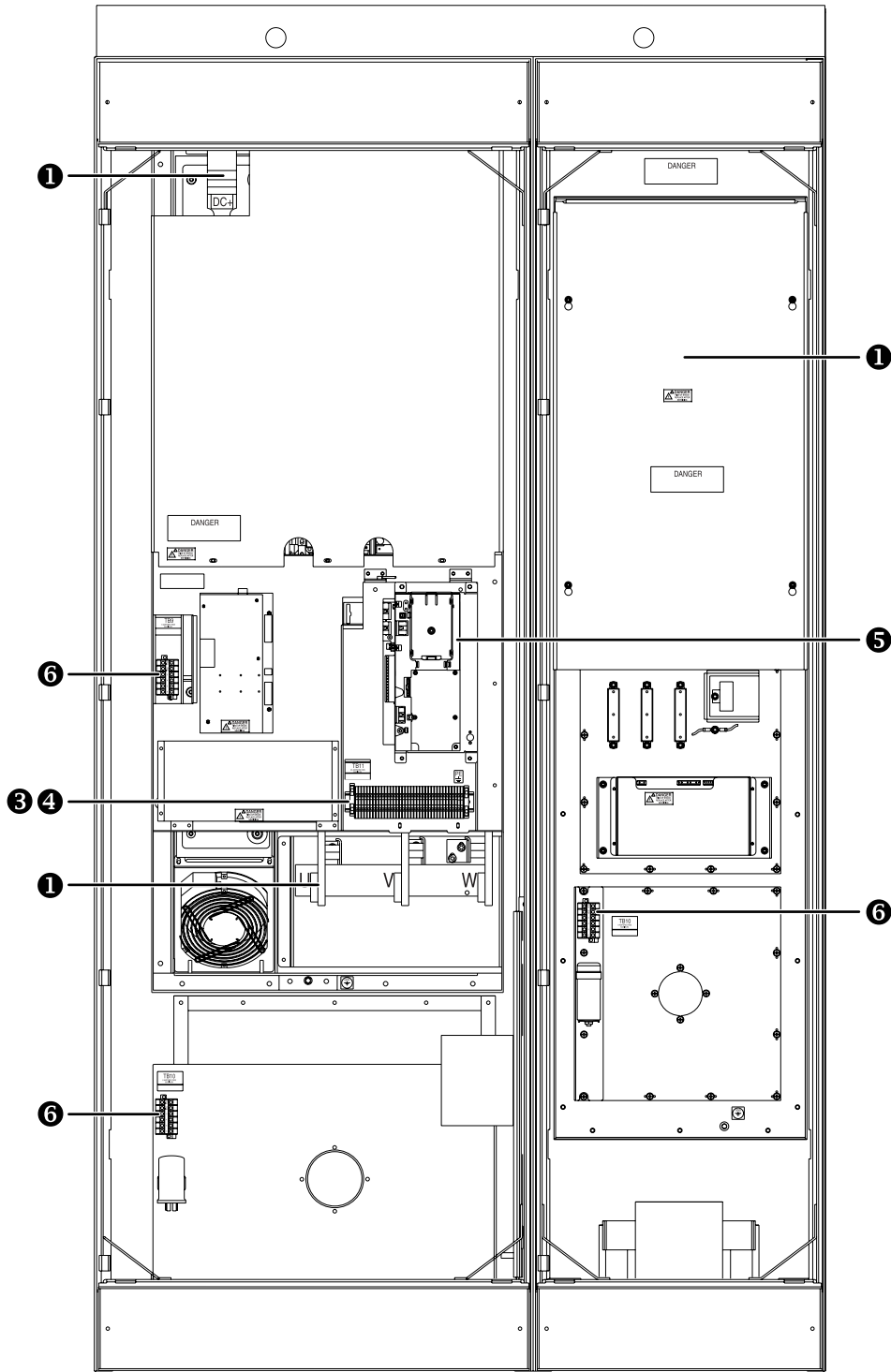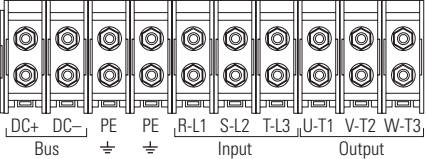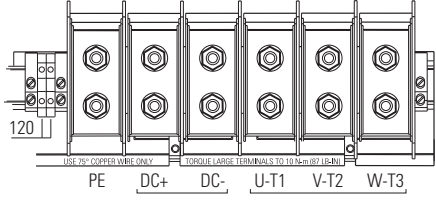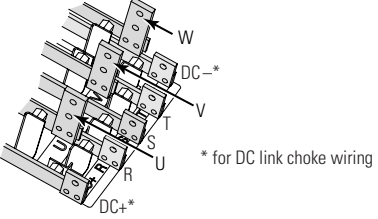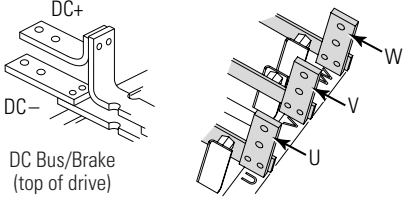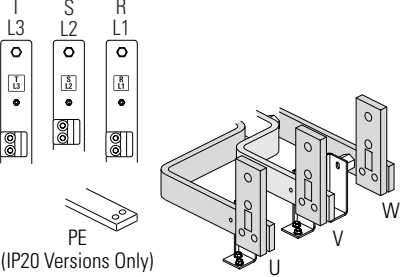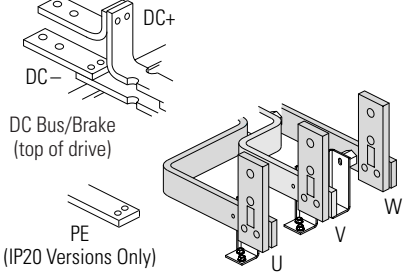
AC Input shown
DC Input Drives use the Inverter (Left) Bay only

Table 9 - PowerFlex 700 Drive Power Terminals

Frame	Terminal Block	
0 & 1		
2		
3 & 4 [1]		
	AC Input	**DC Input**
5 [1]	75 Hp, Normal Duty 	75 Hp, Normal Duty
	100 Hp, Normal Duty 	100 Hp, Normal Duty
6 [1]	125…200 Hp, Normal Duty 	125…200 Hp, Normal Duty

(1) BR1 and BR2 terminals will be present only on Frame 4…6 drives ordered with the Brake IGBT option.

Table 10 - PowerFlex 700 Drive Power Terminals (continued)

Frame	Terminal Block	
	AC Input	**DC Input**
7	DC+ DC− PE PE R-L1 S-L2 T-L3 U-T1 V-T2 W-T3 Bus ⏚ ⏚ Input Output	120 USE 75° COPPER WIRE ONLY TORQUE LARGE TERMINALS TO 10 N•m (87 LB-IN) PE DC+ DC- U-T1 V-T2 W-T3 BUS OUTPUT
8 & 9	W DC−* V T S U R DC+* * for DC link choke wiring	DC+ DC− W V U DC Bus/Brake (top of drive)
10	T L3 S L2 R L1 PE (IP20 Versions Only) W V U	DC+ DC− DC Bus/Brake (top of drive) PE (IP20 Versions Only) W V U

PowerFlex 750-Series Drives

Table 11 - PowerFlex 750-Series Frames 2…5 Power Terminal Block Specifications

| Frame | Wire Size Range[1] [2] | | Strip Length | Recommended Torque | Recommended Tool(s) |
	Maximum	Minimum			
2	4.0 mm^2 (10 AWG)	0.2 mm^2 (24 AWG)	8.0 mm (0.31 in.)	0.5 N•m (4.4 lb•in)	#1 flat screwdriver
3	16.0 mm^2 (6 AWG)	0.5 mm^2 (20 AWG)	10.0 mm (0.39 in.)	1.2 N•m (10.6 lb•in)	#2 flat screwdriver
4	25.0 mm^2 (3 AWG)	2.5 mm^2 (14 AWG)	10.0 mm (0.39 in.)	2.7 N•m (24 lb•in)	#2 Pozidrive® 492-C Phillips® 0.25 in. flat screwdriver
5	35.0 mm^2 (1 AWG)	10.0 mm^2 (8 AWG)	12.0 mm (0.5 in.)	4.0 N•m (35 lb•in)	#2 Pozidrive® 492-C Phillips® 0.25 in. flat screwdriver

(1) Maximum/minimum wire sizes that the terminal block will accept—these are not recommendations.
(2) Terminal blocks are designed to accept a single wire.

Table 12 - PowerFlex 750-Series Frames 6 & 7 Terminal Block Specifications

Frame	Maximum Lug Width	Recommended Torque	Terminal Bolt Size	Recommended Tool
6	34.6 mm (1.36 in.)	11.3 N•m (100 lb•in)	M8 x 1.25	13 mm hex socket
7	43.5 mm (1.71 in.)	11.3 N•m (100 lb•in)	M8 x 1.25	13 mm hex socket

Table 13 - PowerFlex 750-Series Frames 2…7 PE Grounding Stud Specifications

Frame	Recommended Torque	Terminal Bolt Size	Recommended Tool
2	1.36 N•m (12 lb•in)	M4	7 mm hex deep-socket
3	3.4 N•m (30 lb•in)	M6	10 mm hex deep-socket
4	3.4 N•m (30 lb•in)	M6	10 mm hex deep-socket
5	3.4 N•m (30 lb•in)	M6	10 mm hex deep-socket
6	11.3 N•m (100 lb•in)	M8	13 mm hex socket
7	11.3 N•m (100 lb•in)	M8	13 mm hex socket

Figure 16 - PowerFlex 750-Series Frames 2…5
Typical Terminal Block Location and Termination Points

Frame 2

Frame 3

Frame 4

Frame 5
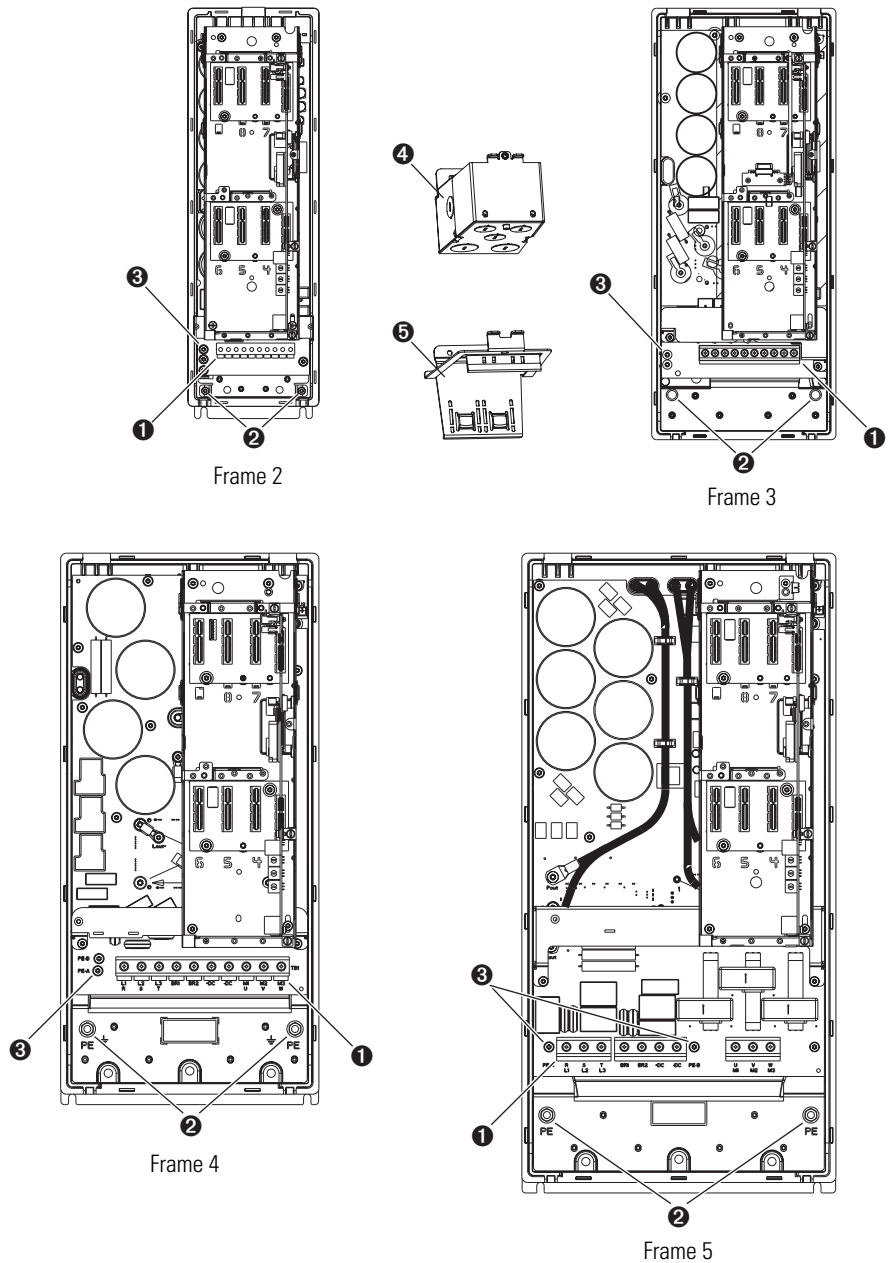
No.	Name	Description
❶	Power Terminal Block	R/L1, S/L2, T/L3, BR1, BR2, +DC, -DC, U/T1, V/T2, W/T3
❷	PE Grounding Studs	Terminating point to chassis ground for incoming AC line and motor shields
❸	PE-A and PE-B	MOV and CMC jumper screws
❹	Optional NEMA/UL Type 1 Conduit Box	Terminating point to chassis ground for incoming AC line, motor shields, and control wire shields
❺	Optional EMC Plate	Terminating point to chassis ground for incoming AC line, motor shields, and control wire shields

Figure 17 - PowerFlex 750-Series Frames 6 & 7
Typical Terminal Block Location and Termination Points (continued)

Frame 6

Frame 7
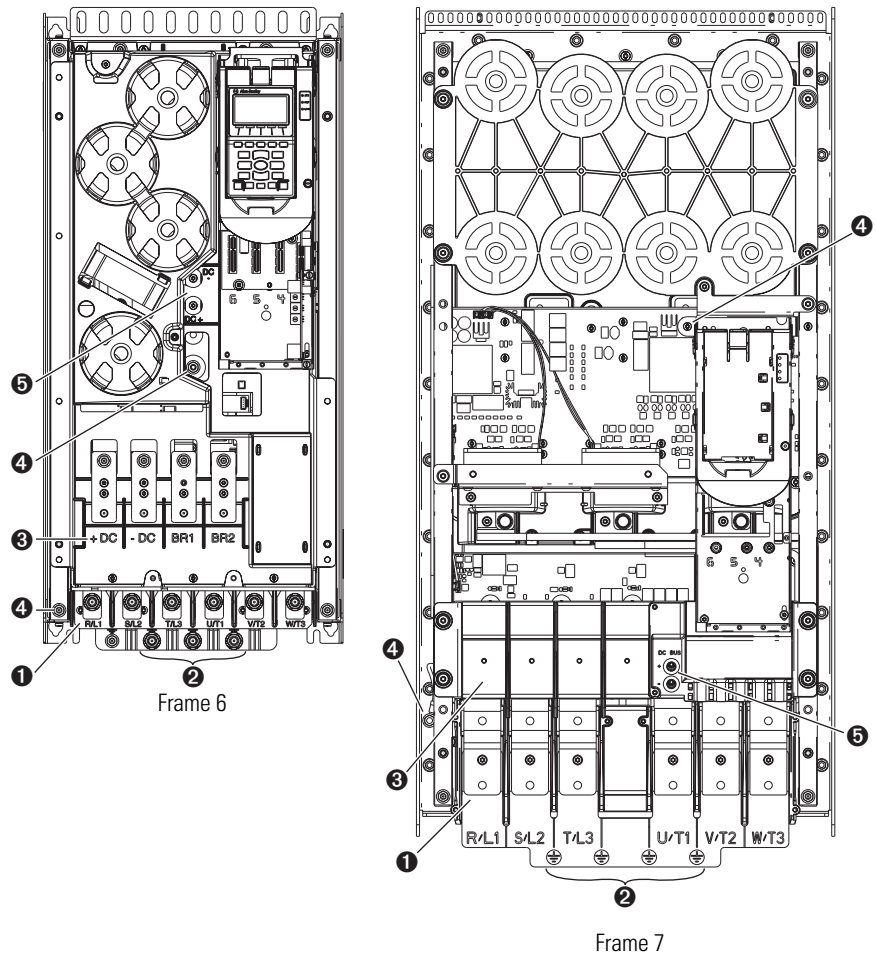
No.	Name	Description
❶	Power Terminals	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3
❷	PE Grounding Studs	Terminating point to chassis ground for incoming AC line and motor shield
❸	DC Bus and Brake Terminals	+DC, -DC, BR1, BR2
❹	PE-A and PE-B	MOV and CMC jumper wires
❺	DC+ and DC-	Bus voltage test points
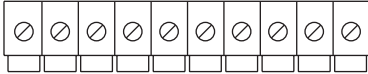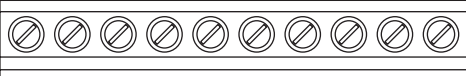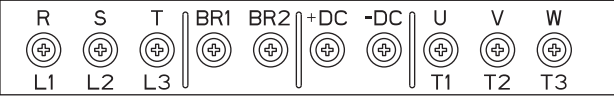
Figure 18 - PowerFlex 755 Drive Power Terminal Bus Bar Locations
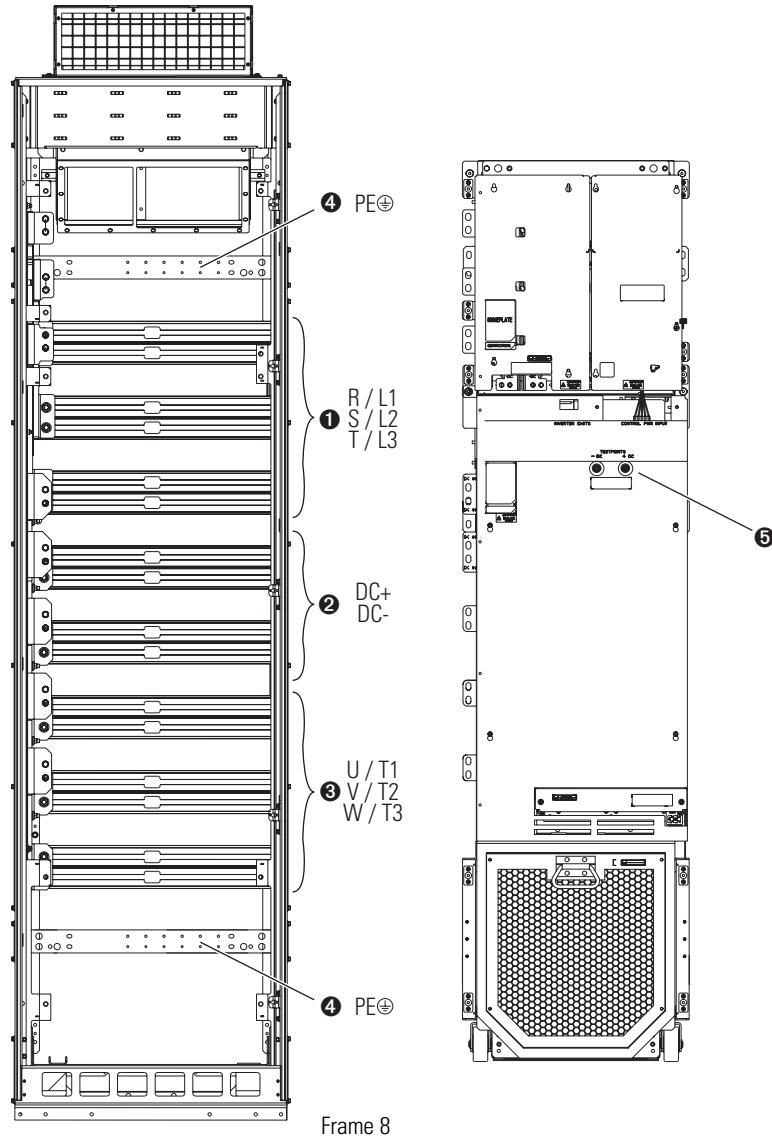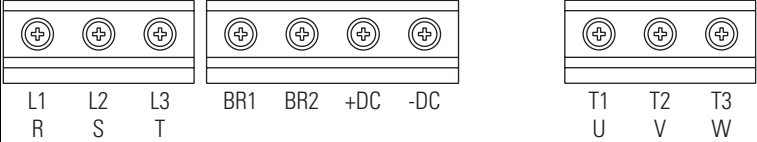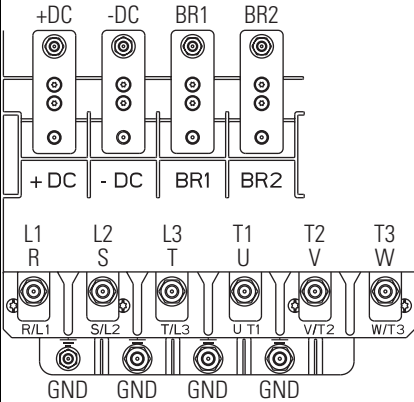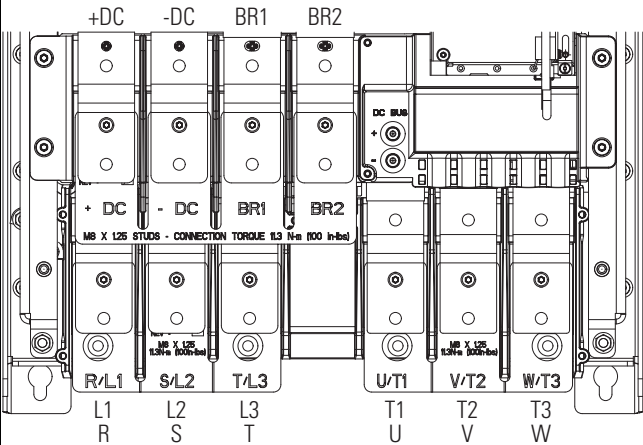
Frame 8

Table 14 - PowerFlex 755 Drive Frame 8 Power Terminal Locations

No.	Name	Description
❶	Power Bus	R/L1, S/L2, T/L3
❷	DC Bus	DC+, DC- (requires field installed kit 20-750-BUS1-F8)
❸	Power Bus	U/T1, V/T2, W/T3
❹	PE Grounding Bar	Terminating point to chassis ground for incoming AC line and motor shield
❺	DC+ and DC-	Bus voltage test points

Figure 19 - PowerFlex 750-Series Power Terminal Blocks

Frame	Power Terminal Blocks
2	 L1 L2 L3 BR BR + - T1 T2 T3 R S T 1 2 DC DC U V W
3	 L1 L2 L3 BR BR + - T1 T2 T3 R S T 1 2 DC DC U V W
4	 L1 L2 L3 BR1 BR2 +DC -DC T1 T2 T3 R S T U V W

Frame	Power Terminal Blocks
5	L1/R L2/S L3/T BR1 BR2 +DC -DC T1/U T2/V T3/W
6 [1]	+DC -DC BR1 BR2 ... L1/R L2/S L3/T T1/U T2/V T3/W ... GND GND GND GND
7 [2]	+DC -DC BR1 BR2 ... R/L1 S/L2 T/L3 U/T1 V/T2 W/T3 ... L1/R L2/S L3/T T1/U T2/V T3/W

(1) DC Bus Terminals are optional on Frame 6 and 7 drives: catalog number position 5.
(2) Dynamic Brake Resistor Terminals are optional on Frame 6 and 7 drives: catalog number position 12.
   Refer to Catalog Number Explanation on .

Figure 20 - PowerFlex 750-Series Frames 2…7 Power Terminal Block Designations

Terminal	Description	Notes
+DC	DC Bus (+)	DC Input Power or Dynamic Brake Chopper
-DC	DC Bus (−)	DC Input Power or Dynamic Brake Chopper
BR1	DC Brake (+)	Dynamic Brake Resistor Connection (+)
BR2	DC Brake (−)	Dynamic Brake Resistor Connection (−)
U	U (T1)	Motor Connections [1]
V	V (T2)	
W	W (T3)	
R	R (L1)	AC Line Input Power
S	S (L2)	
T	T (L3)	
PE / ⏚	PE Ground	Terminating point to chassis ground for incoming AC line and motor shield.

(1) **Important:** Motors with NEMA MG1 Part 31.40.4.2 inverter grade insulation systems are recommended. If you intend to connect a motor that is not rated inverter grade, refer to Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication **DRIVES-IN001**, for recommendations.

Figure 21 - PowerFlex 755 Drive Frame 8 Power Wiring Options

Cable Option	Wire Entry/Exit Location	IP20, NEMA/UL Type 1 Drive (2500 MCC Style Cabinet) 600 mm (23.6 in.) Deep Drive Bay	800 mm (31.5 in.) Deep Drive Bay	IP20, NEMA/UL Type 1 Drive and Cabinet Options (2500 MCC Style Cabinet) 600 or 800 mm Deep Drive Bay w/600 mm Wide Wiring Only Bay	600 or 800 mm Deep Drive Bay w/600 mm Cabinet Options Bay
Armored Cable with Conduit Hubs	Top Entry, Bottom Exit		✓	✓	✓
	Bottom Entry, Bottom Exit		✓	✓	
	Top Entry,Top Exit		✓	✓	
Shielded Cable with Conduit Hubs	Top Entry, Bottom Exit	✓	✓	✓	✓
	Bottom Entry, Bottom Exit		✓	✓	
	Top Entry,Top Exit		✓	✓	✓ [2]
Shielded Cable without Conduit Hubs [1]	Bottom Entry, Bottom Exit	✓	✓	✓	

(1) Other configurations with shielded cable are possible but using conduit hubs is recommended.
(2) This wiring configuration is possible when there are no ouput options in the option bay and the motor connections are wired from the drive bay.

Control Terminal Comparison

Input/Output

The PowerFlex 700 drive has standard I/O embedded on the main control board. The voltage of this I/O can be determined by the catalog string position 'k'. See PowerFlex Drive Catalog Numbers on page 46. The PowerFlex 755 drive contains one digital input on the main control board and uses the optional 750-Series I/O Modules for additional I/O. The PowerFlex 753 contains some I/O resident to the main control board and also uses optional I/O.

PowerFlex 700 Drives I/O Cassette Terminals
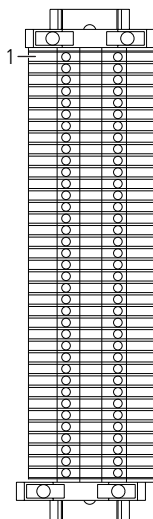
Table 15 - PowerFlex 700 Drives I/O Control Terminal Designations (Frames 0…6)
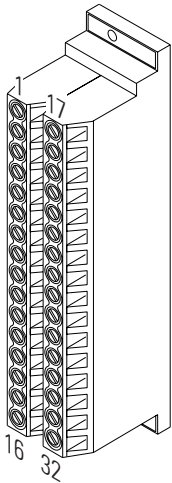
Terminal	Name	Factory Default	Description
1	Analog In 1 (–)[1]	[4]	Isolated[5], bipolar, differential, ±10V/0-20 mA, 11 bit & sign. For 0-20 mA, a jumper must be installed at terminals 17 & 18 (or 19 & 20). 88 k ohm input impedance when configured for volt & 95.3 ohm for current
2	Analog In 1 (+)[1]		
3	Analog In 2 (–)[1]		
4	Analog In 2 (+)[1]		
5	Pot Common	–	For (+) and (–) 10V pot references
6	Analog Out 1 (–)	[4]	Single-ended bipolar (current output is not bipolar), ±10V/0-20mA, 11 bit & sign, Voltage mode - limit current to 5 mA. Current mode - max. load is 400 ohms
7	Analog Out 1 (+)		
8	Analog Out 2 (–)		
9	Analog Out 2 (+)		
10	HW PTC Input 1	–	1.8k ohm PTC, Internal 3.32k ohm pull-up resistor
11	Digital Out 1 – N.C.[2]	Fault	Max. Resistive Load: 240V AC/30V DC – 1200VA, 150W. Max. Current: 5A, Min. Load: 10 mA. Max. Inductive Load: 240V AC/30V DC – 840VA, 105W. Max. Current: 3.5A, Min. Load: 10 mA
12	Digital Out 1 Common		
13	Digital Out 1 – N.O.[2]	NOT Fault	
14	Digital Out 2 – N.C.[2]	NOT Run	
15	Digital Out 2/3 Com.		
16	Digital Out 3 – N.O.[2]	Run	
17	Current In Jumper[1] – Analog In 1		Placing a jumper across terminals 17 & 18 (or 19 & 20) will configure that analog input for current
18			
19	Current In Jumper[1] – Analog In 2		
20			
21	–10V Pot Reference	–	2k ohm minimum load
22	+10V Pot Reference	–	
23	HW PTC Input 2	–	See above
24	+24V DC[6]	–	Drive supplied logic input power [6]
25	Digital In Common	–	
26	24V Common[6]	–	Common for internal power supply
27	Digital In 1[3]	Stop - CF	115V AC, 50/60 Hz - Opto isolated. Low State: less than 30V AC. High State: greater than 100V AC, 5.7 mA. 24V DC - Opto isolated. Low State: less than 5V DC. High State: greater than 20V DC, 10 mA DC Digital Input Impedance: 21k ohm
28	Digital In 2[3]	Start	
29	Digital In 3[3]	Auto/Man.	
30	Digital In 4[3]	Speed Sel 1	
31	Digital In 5[3]	Speed Sel 2	
32	Digital In 6/Hardware Enable[3]	Speed Sel 3	

(1) **Important:** 0-20 mA operation requires a jumper at terminals 17 & 18 (or 19 & 20). Drive damage may occur if jumper is not installed.

(2) Contacts in unpowered state. Any relay programmed as Fault or Alarm will energize (pick up) when power is applied to drive and deenergize (drop out) when a fault or alarm exists. Relays selected for other functions will energize only when that condition exists and will deenergize when condition is removed.

(3) A 10 k Ohm, 2 W burden resistor must be installed on each digital input when using a triac-type device. The resistor is installed between each digital input and neutral/common.

(4) These inputs/outputs are dependant on a number of parameters. For more information, see Chapter 3, Programming and Parameters, in the PowerFlex 700 AC Drives User Manual, publication 20B-UM002.

(5) Differential Isolation - External source must be maintained at less than 160V with respect to PE. Input provides high common mode immunity.

(6) 150 mA maximum Load. Not present on 115V versions.

Table 16 - PowerFlex 700 Drives I/O Control Terminal Designations (Frames 7…10)

Terminal	Name	Factory Default	Description	Related Param.
1	Analog In 1 (–)[1]	[3]	Isolated[4], bipolar, differential, ±10V/4-20mA, 11 bit & sign, 88k ohm input impedance. For 4-20 mA, a jumper must be installed at terminals 17 & 18 (or 19 & 20)	320-327
2	Analog In 1 (+)[1]			
3	Analog In 2 (–)[1]			
4	Analog In 2 (+)[1]			
5	Pot Common	–	For (+) and (–) 10V pot references.	
6	Analog Out 1 (–)	[3]	Bipolar (current output is not bipolar), ±10V/4-20 mA, 11 bit & sign, voltage mode - limit current to 5 mA. Current mode - max. load resistance is 400 ohms	340-347
7	Analog Out 1 (+)			
8	Analog Out 2 (–)			
9	Analog Out 2 (+)			
10	HW PTC Input 1	–	1.8k ohm PTC, Internal 3.32 k ohm pull-up resistor	238 259
11	Digital Out 1 – N.C.[2]	Fault	Max. Resistive Load: 240V AC/30V DC – 1200VA, 150W Max. Current: 5A, Min. Load: 10mA Max. Inductive Load: 240V AC/30V DC – 840VA, 105W Max. Current: 3.5A, Min. Load: 10mA	380-391
12	Digital Out 1 Common			
13	Digital Out 1 – N.O.[2]	NOT Fault		
14	Digital Out 2 – N.C.[2]	NOT Run		
15	Digital Out 2/3 Com.			
16	Digital Out 3 – N.O.[2]	Run		
17	Current In Jumper[1] – Analog In 1		Placing a jumper across terminals 17 & 18 (or 19 & 20) will configure that analog input for current	
18				
19	Current In Jumper[1] – Analog In 2			
20				
21	–10V Pot Reference	–	2k ohm minimum load	
22	+10V Pot Reference	–		
23	HW PTC Input 2	–	See above	
24	+24V DC[5]	–	Drive supplied logic input power [5]	
25	Digital In Common	–		
26	24V Common[5]	–	Common for internal power supply	
27	Digital In 1	Stop - CF	115V AC, 50/60 Hz - Opto isolated Low State: less than 30V AC High State: greater than 100V AC 24V DC - Opto isolated Low State: less than 5V DC High State: greater than 20V DC 11.2 mA DC	361-366
28	Digital In 2	Start		
29	Digital In 3	Auto/Man.		
30	Digital In 4	Speed Sel 1		
31	Digital In 5	Speed Sel 2		
32	Digital In 6/ Hardware Enable	Speed Sel 3		
33	Digital Out 4 – N.C.	Fault	Dedicated fault output - Not user configurable Relay will energize (pick up) when power is applied to drive and deenergize (drop out) when a fault exists See Terminals 11-16 for specs	
34	Digital Out 4 Common			
35	Digital Out 4 – N.O.	NOT Fault		
PS+	Aux. Control Power (+)		[6]	
PS-	Aux. Control Power (–)		[6]	
PE	PE Ground		PE Ground	
PE	PE Ground		PE Ground	

(1) **Important:** 0-20 mA operation requires a jumper at terminals 17 & 18 (or 19 & 20). Drive damage may occur if jumper is not installed.

(2) Contacts in unpowered state. Any relay programmed as Fault or Alarm will energize (pick up) when power is applied to drive and deenergize (drop out) when a fault or alarm exists. Relays selected for other functions will energize only when that condition exists and will deenergize when condition is removed.

(3) These inputs/outputs are dependant on a number of parameters. For more information, see Chapter 3, Programming and Parameters, in the PowerFlex 700 AC Drives User Manual, publication 20B-UM002.

(4) Differential Isolation - External source must be maintained at less than 160V with respect to PE. Input provides high common mode immunity.

(5) 150 mA maximum Load. Not present on 115V versions.

(6) For more information, see the Auxiliary Control Power Supply section of the PowerFlex 700 Adjustable Frequency AC Drive - Frames 7…10 Installation Instructions, publication 20B-IN014.

Table 17 - PowerFlex 700 Drive Encoder Terminal Designations (all Frames)
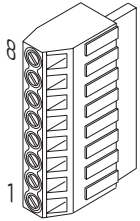
Terminal	Name	Description
8	+12V[1] DC Power	Internal power source 250 mA
7	+12V[1] DC Return (Common)	
6	Encoder Z (NOT)	Pulse, marker or registration input[2]
5	Encoder Z	
4	Encoder B (NOT)	Quadrature B input
3	Encoder B	
2	Encoder A (NOT)	Single channel or quadrature A input
1	Encoder A	

(1) Jumper-selectable +5/12V is available on PowerFlex 700 Drive ENC-1 encoder boards.

(2) Z channel can be used as a pulse input while A & B are used for encoder.

PowerFlex 753 Drives Main Control Board I/O
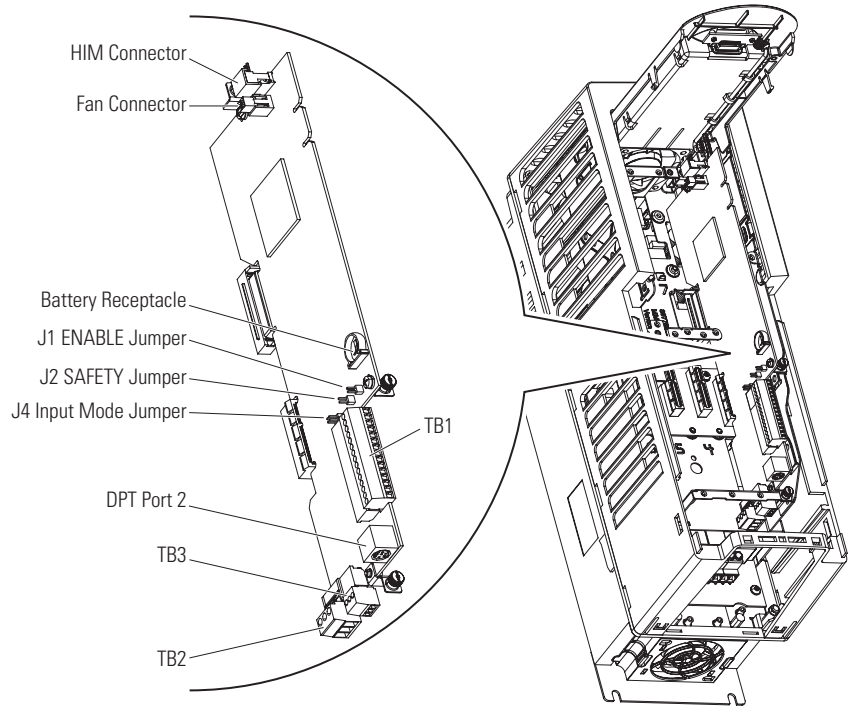
Table 18 - PowerFlex 753 Drive TB1 Terminal Designations

Terminal	Name	Description	Related Param
Ao0–	Analog Out 0 (–)	Bipolar, ±10V, 11 bit & sign, 2 k ohm minimum load;	270
Ao0+	Analog Out 0 (+)	4-20 mA, 11 bit & sign, 400 ohm maximum load	
10VC	10 Volt Common	For (+) 10 Volt references;	
+10V	+10 Volt Reference	2 k ohm minimum	
Ai0–	Analog Input 0 (–)	Isolated [1], bipolar, differential, ±10V, 11 bit & sign, 88 k ohm input impedance	255
Ai0+	Analog Input 0 (+)		
Ptc–	Motor PTC (–)	Motor protection device	250
Ptc+	Motor PTC (+)	(Positive Temperature Coefficient)	
T0	Transistor Output 0	Open drain output, 48V DC 250 mA maximum load	
24VC	24 Volt Common	Drive supplied logic input power;	
+24V	+24 Volt DC	150 mA maximum	
Di C	Digital Input Common	24V DC - Opto isolated	150
Di 1	Digital Input 1	Low State: less than 5V DC	
Di 2	Digital Input 2	High State: greater than 20V DC	
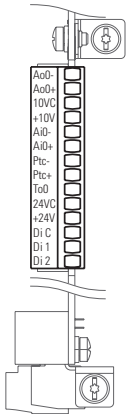
(1)   Differential Isolation—external source must be maintained at less than 160V with respect to PE. Input provides high common mode immunity.

Table 19 - PowerFlex 753 Drive TB2 Terminal Designations

Terminal	Name	Description
R0NC	Relay 0 N.C.	Output Relay 0 normally closed contact
R0C	Relay 0 Common	Output Relay 0 common
R0NO	Relay 0 N.O.	Output Relay 0 normally open contact
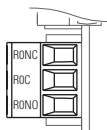
Table 20 - PowerFlex 753 Drive TB3 Terminal Designations
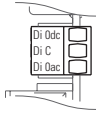
Terminal	Name	Description
Di 0dc	Digital Input 24V DC	Connections for DC power supply
Di C	Digital Input Common	Digital input common
Di 0ac	Digital Input 120V AC	Connections for AC power supply

PowerFlex 755 Drives Main Control Board I/O

HIM Connector
Fan Connector
Battery Receptacle
DPT Port 2
Embedded EtherNet/IP[1] Address Selectors
J2 SAFETY Jumper
J1 ENABLE Jumper
TB1
Embedded EtherNet/IP[1] Connectors
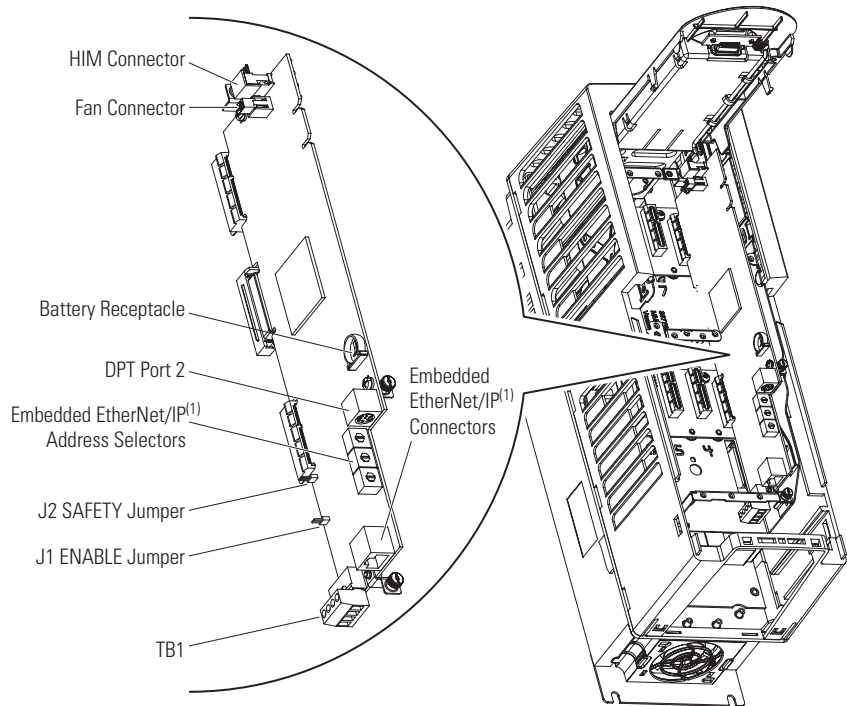
Table 21 - PowerFlex 755 Drive TB1 Terminal Designations
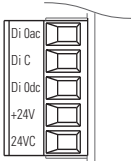
Terminal	Name	Description
Di 0ac	Digital Input 120V AC	Connections for AC power supply
Di C	Digital Input Common	Digital input common
Di 0dc	Digital Input 24V DC	Connections for DC power supply
+24V	+24 Volt Power	Connections for drive supplied 24V power
24VC	24 Volt Common	
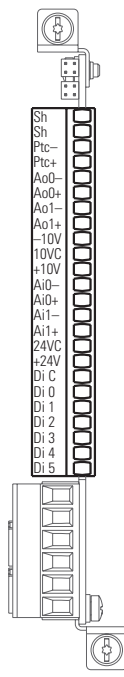
PowerFlex 750-Series Option Module

See the "Option Module Installation" section of the PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001, for more information about optional I/O modules.

Cat. Nos.
20-750-2262C-2R,
20-750-2262D-2R,
20-750-2263C-1R2T

TB1

TB2
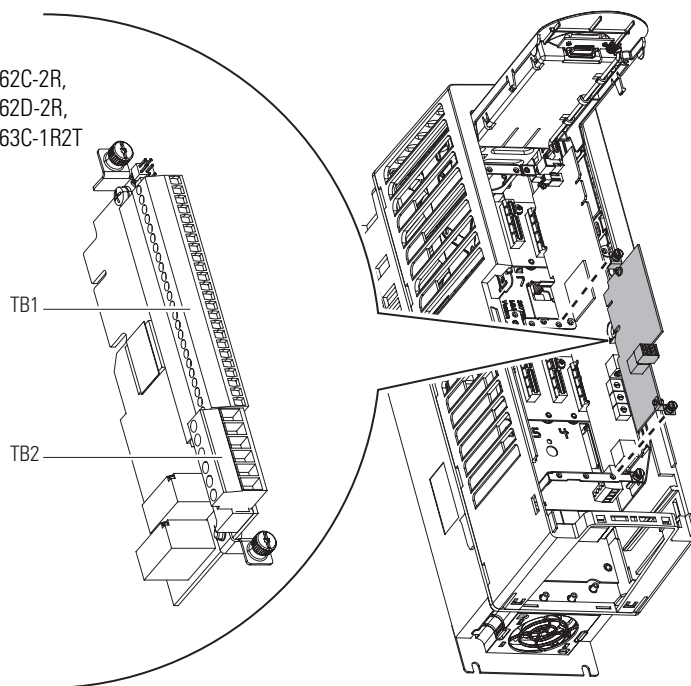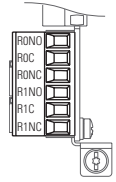
Table 22 - TB1 Control Terminal Designations

Terminal	Name	Description	Related Param.
Sh	Shield	Terminating point for wiring shields when an EMC plate or conduit box is not installed	
Sh			
Ptc–	Motor PTC (–)	Motor protection device (Positive Temperature Coefficient)	40
Ptc+	Motor PTC (+)		
Ao0–	Analog Out 0 (–)	Bipolar, ±10V, 11 bit & sign, 2 k ohm minimum load; 4-20 mA, 11 bit & sign, 400 ohm maximum load	75
Ao0+	Analog Out 0 (+)		
Ao1–	Analog Out 1 (–)		85
Ao1+	Analog Out 1 (+)		
–10V	–10 Volt Reference	2k ohm minimum	
10VC	10 Volt Common	For (–) and (+) 10 Volt references	
+10V	+10 Volt Reference	2k ohm minimum	
Ai0–	Analog Input 0 (–)	Isolated [2], bipolar, differential, ±10V, 11 bit & sign, 88k ohm input impedance	50, 70
Ai0+	Analog Input 0 (+)		
Ai1–	Analog Input 1 (–)		60, 70
Ai1+	Analog Input 1 (+)		
24VC	24 Volt Common	Drive supplied logic input power 200 mA max	
+24V	+24 Volt DC		
Di C	Digital Input Common	Common for Digital Inputs 0…5	
Di 0	Digital Input 0 [1]	24V DC - Opto isolated Low State: less than 5V DC High State: greater than 20V DC 11.2 mA DC 115V AC, 50/60 Hz - Opto isolated Low State: less than 30V AC High State: greater than 100V AC	1
Di 1	Digital Input 1 [1]		
Di 2	Digital Input 2 [1]		
Di 3	Digital Input 3 [1]		
Di 4	Digital Input 4 [1]		
Di 5	Digital Input 5 [1]		
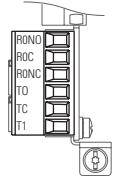
(1) Digital Inputs are either 24 Volts DC (2262C) or 115 Volts AC (2262D) based on module catalog number. Ensure applied voltage is correct for I/O module.

(2) Differential Isolation—external source must be maintained at less than 160V with respect to PE. Input provides high common mode immunity.

Table 23 - TB2 Terminal Designations (Cat. Nos. 20-750-2262*x*-2R) [1]

Terminal	Name	Description	Related Param.
R0NO	Relay 0 N.O.	Relay contact output Rating: 240V AC or 24V DC = 2 A max. Inductive/Resistive	10
R0C	Relay 0 Common		
R0NC	Relay 0 N.C.		
R1NO	Relay 1 N.O.		20
R1C	Relay 1 Common		
R1NC	Relay 1 N.C.		

Table 24 - TB2 Terminal Designations (Cat. No. 20-750-2263C-1R2T) [1]

Terminal	Name	Description	Related Param.
R0NO	Relay 0 N.O.	Relay contact output Rating: 240V AC or 24V DC = 2 A max. Inductive/Resistive	10
R0C	Relay 0 Common		
R0NC	Relay 0 N.C.		
T0	Transistor Output 0	Transistor output Rating: 24V DC = 1 A max. Resistive	20
TC	Transistor Output Common		
T1	Transistor Output 1		30

(1) -2R suffix signifies two relays and -1R2T signifies one relay and two transistor outputs.

PowerFlex Drive Catalog Numbers

The following tables explain how each PowerFlex drive can be ordered to better identify what PowerFlex 700 drive you own and to which 750-Series drive you might migrate.

Table 25 - PowerFlex 700 Drive Catalog Number Explanation

Position

1 - 3	4	5 - 7	8	9	10	11	12	13	14	15	16	17 - 18	19 - 20
20B	D	2P1	A	3	A	Y	N	A	R	C	0	NN	AD
a	b	c	d	e	f	g	h	i	j	k	l	m	n

a
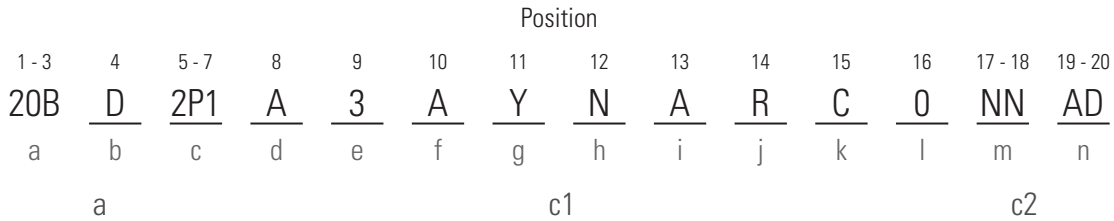
Drive	
Code	**Type**
20B	PowerFlex 700

b

Voltage Rating			
Code	**Voltage**	**Phase**	**Prechrg.**
B	240V AC	3	—
C	400V AC	3	—
D	480V AC	3	—
E	600V AC	3	—
F	690V AC [1]	3	—
H	540V DC [1]	—	No
J	650V DC [1]	—	No
N	325V DC [1]	—	Yes
P	540V DC [1]	—	Yes
R	650V DC [1]	—	Yes
T	810V DC [1]	—	Yes
W	932V DC [1]	—	Yes

(1) Only available for Frame 5 and Frame 6 drives.

c1

ND Rating			
208/240V, 60 Hz Input			
Code	**208V Amps**	**240V Amps**	**Hp**
2P2	2.5	2.2	0.5
4P2	4.8	4.2	1
6P8	7.8	6.8	2
9P6	11	9.6	3
015	17.5	15.3	5
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**
1P3	1.3	0.37
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
140	140	75
170	170	90
205	205	110
260	260	132

Table 4a- PowerFlex 700 Drive Catalog Number Explanation (continued)

Position

1 - 3	4	5 - 7	8	9	10	11	12	13	14	15	16	17 - 18	19 - 20
20B	D	2P1	A	3	A	Y	N	A	R	C	0	NN	AD
a	b	c	d	e	f	g	h	i	j	k	l	m	n

c3
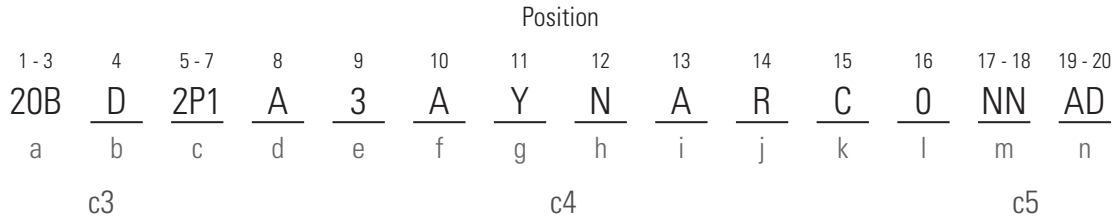
ND Rating		
480V, 60 Hz Input		
Code	**Amps**	**Hp**
1P1	1.1	0.5
2P1	2.1	1
3P4	3.4	2
5P0	5.0	3
8P0	8.0	5
011	11	7.5
014	14	10
022	22	15
027	27	20
034	34	25
040	40	30
052	52	40
065	65	50
077	77	60
096	96	75
125	125	100
156	156	125
180	180	150
248	248	200

c4

ND Rating		
600V, 60 Hz Input		
Code	**Amps**	**Hp**
1P7	1.7	1
2P7	2.7	2
3P9	3.9	3
6P1	6.1	5
9P0	9.0	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

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

d

Enclosure	
Code	**Description**
A	IP20, NEMA/UL Type 1
F [1]	Open/Flange mount Front: IP00, NEMA/UL Type Open Back/Heatsink: IP54, NEMA Type 12
N [2]	Open/Flange mount Front: IP00, NEMA/UL Type Open Back/Heatsink: IP54, NEMA 12
G [1]	Stand-alone/Wall mount IP54, NEMA/UL Type 12
J	IP00, NEMA/UL Type Open with conformal coat
M [3]	IP20, NEMA/UL Type 1 with conformal coat
U [4]	Roll-in Front: IP00, NEMA/UL Type Open Back/Heatsink: IP54, NEMA 12
V [4]	Roll-in with conformal coat Front: IP00, NEMA/UL Type Open Back/Heatsink: IP54, NEMA 12

(1) Only available for Frame 5 and Frame 6 drives, 400V…690V.
(2) Only available for Frames 7…10 drives.
(3) Only available with vector control option.
(4) Only available for Frame 8 and Frame 9 drives.

Table 4b- PowerFlex 700 Drive Catalog Number Explanation (continued)

Position

1 - 3	4	5 - 7	8	9	10	11	12	13	14	15	16	17 - 18	19 - 20
20B	D	2P1	A	3	A	Y	N	A	R	C	0	NN	AD
a	b	c	d	e	f	g	h	i	j	k	l	m	n

e

HIM

Code	Operator Interface
0	Blank cover
3	Full numeric LCD
5	Prog. only LCD
J [1]	Remote (panel mount) IP66, NEMA/UL Type 12 Full numeric LCD HIM
K [1]	Remote (panel mount) IP66, NEMA/UL Type 12 Prog. only LCD HIM

(1) Only available with Frame 5 and Frame 6 stand-alone IP54 drives (enclosure code "G").

f

Documentation

Code	Type
A	Manual
N	No manual
Q	No shipping package (internal use only)

g

Brake

Code	With Brake IGBT [1]
Y	Yes
N	No

(1) Brake IGBT is:
- standard on Frame 0…3 drives
- optional on Frame 4…6 drives
- not available on Frame 7…10 drives

h

Internal Braking Resistor

Code	With Resistor [1]
Y	Yes
N	No

(1) Not available for Frame 3 drives or higher.

i

Emission [1]

Code	CE Filter [2]	CM Choke
A	Yes	Yes
B [3]	Yes	No
N	No	No

(1) Refer to "Internal EMC Filter" in publication [20B-UM002](20B-UM002) for details on selecting this option.
(2) 600V class drives below 77 Amps (Frames 0…4) are declared to meet the Low Voltage directive. The user is responsible for determining compliance to the EMC directive. Frames 7…10 400/480V AC drives (voltage rating codes "C" and "D") meet CE certification requirements when installed per recommendations.
(3) Only available for 208…240V Frame 0…3 drives.

j

Communication Slot

Code	Network Type
B	BACnet MS/TP
C	ControlNet (Coax)
D	DeviceNet
E	EtherNet/IP
R	Remote I/O
S	RS485 DF1
N	None

k

Emission

Code	Control	I/O Volts
A	Standard	24V DC/AC
B	Standard	115V AC
C	Vector [1]	24V DC
D	Vector [1]	115V AC
N	Standard	None

(1) Vector control options uses DPI only. Frame 7…10 drives only accept vector control.

l

Feedback

Code	Type
0	None
1	Encoder 12V/5V

m

For Future Use

Code	Type
NN	None

n

Special Firmware [1]

Code	Type
AD [2]	60 Hz maximum
AE [2]	Cascading fan/pump control
AX [2]	82 Hz maximum
BA [2]	Pump off (for pump jack)

(1) Only available for Frame 0…6 drives.
(2) Must be used with vector control option "C" or "D" (position "k"). Positions "m" and "n" are only required when custom firmware is supplied.

Table 26 - PowerFlex 750-Series Drive Catalog Number Explanation

Position

1 - 3	4	5	6	7	8 - 10	11	12	13	14	15	16	17	18	
20F	1	1	N	D	248	A	A	0	N	N	N	N	N	- LD - P3 - P11...
a	b	c	d	e	f	g	h	i	j	k	l	m	n	21G Cabinet Options

a

Drive

Code	Type
20F	PowerFlex 753
20G	PowerFlex 755
21G	PowerFlex 755 w/cabinet options

b

For Future Use

Code	Type
1	None

c

Input Type [1]

Code	Description	Frames
1	AC & DC input w/precharge	2…5
4	DC input w/precharge	5…7
A	AC input w/precharge, no DC terminals	6…8

(1) For Frames 2…4, code 1 also provides the functionality of DC common bus with precharge.
For Frames 5 and larger, code 4 is required for DC common bus with precharge.
The optional DC busbar kit (20-750-DCBB1-Fx) is available for Frames 6 and 7 AC input drives requiring DC bus terminals.

d

Enclosure

Code	Description	Frames
B	IP20, NEMA/UL Type 1, 2500 MCC cabinet, 600 mm (23.6 in.) deep	8
F [1]	Flange, NEMA/UL Type 4X/12 back	2…5
G	IP54, NEMA/UL Type 12	2…7
L	IP20, NEMA/UL Type 1, 2500 MCC cabinet, 800 mm (31.5 in.) deep	8
N [2]	IP20/IP100, NEMA/UL Type Open	
P [3]	IP20, NEMA/UL Type 1, 2500 MCC cabinet and optional bay w/MCC power bus, 800 mm (31.5 in.) deep	8

(1) For Frame 6 and Frame 7 drives, a user-installed flange kit is available to convert a code N drive that provides a NEMA/UL Type 4X back.
(2) Frames 2…5 drives are IP20; Frame 6 and Frame 7 drives are IP00.
(3) Available as 21G, a drive with cabinet options. MCC power bus is not UL listed.

e

Voltage Rating

Code	Voltage	Phase	Prechrg.
C	400V AC	3	—
D	480V AC	3	—

NOTE: Positions f1 and f2 are on the next page.

g

Filtering and CM Cap Configuration

Code	Filtering	Default CM Cap Connection
A [1]	Yes	Jumper removed
J [1]	Yes	Jumper installed

(1) Jumpers are included for field configuration as desired.

h

Dynamic Braking

Code	Internal Resistor [1]	Internal Transistor [2]
A	No	Yes
B	Yes	Yes
N	No	No

(1) Available only for Frame 2 drive.
(2) Standard on Frame 2…5 drives, optional on Frame 6…7 drives.

21G Cabinet Options (required)

Code	Option	Type
LD	Light duty	System overload duty cycle [1]
ND	Normal duty	
HD	Heavy duty	
P3	Input thermal-magnetic circuit breaker	Power disconnect or wiring only bay [1]
P5	Input non-fused, molded case disconnect switch	
P14	Wiring only bay	

(1) Only one option of this type may be selected.

21G Cabinet Options (additional)

Code	Option	Type
P11	Input contactor	Contactors [1][2]
P12	Output contactor	
L1	3% input reactor	Reactors [1]
L2	3% output reactor	
L3	5% input reactor	
L4	5% output reactor	
P20	1250 amp bus	MCC power bus capacity [1]
P22	2000 amp bus	
P24	3200 amp bus	

(1) Only one option of this type may be selected.
(2) Contactor options are not available for systems with MCC power bus.

Table 5a- PowerFlex 750-Series Drive Catalog Number Explanation (continued)

Position

1 - 3	4	5	6	7	8 - 10	11	12	13	14	15	16	17	18	
20F	1	1	N	D	248	A	A	0	N	N	N	N	N	- LD - P3 - P11...
a	b	c	d	e	f	g	h	i	j	k	l	m	n	21G Cabinet Options

f1 (position f) — f2 (position n)

f1 — ND Rating — 400V, 50 Hz Input

Code	Amps	kW	B	F	G	L	N	P
2P1	2.1	0.75						
3P5	3.5	1.5						
5P0	5.0	2.2						
8P7	8.7	4.0		2	2		2	
011	11.5	5.5						
015	15.4	7.5						
022	22	11						
030	30	15						
037	37	18.5		3	3		3	
043	43	22						
060	60	30	—	4	4	—	4	—
072	72	37			5		4	
085	85	45		5			5	
104	104	55			6		5	
140	140	75					6	
170	170	90					6	
205	205	110		(1)				
260	260	132						
302	302	160			7		7	
367	367	200						
456	456	250						
460	460	250						
540	540	315						
567	567	315	8	—	—	8	—	8 [2]
650	650	355						
750	750	400						
770	770	400						

(1) For Frame 6 & 7 drives: a user-installed flange kit is available to convert a code N drive that provides a NEMA/UL Type 4X/12 back.

(2) Available as a drive with cabinet options (21G). MCC power bus is not UL listed.

f2 — ND Rating — 480V, 60 Hz Input

Code	Amps	Hp	B	F	G	L	N	P
2P1	2.1	1						
3P4	3.4	2						
5P0	5.0	3						
8P0	8.0	5		2	2		2	
011	11	7.5						
014	14	10						
022	22	15						
027	27	20						
034	34	25		3	3		3	
040	40	30						
052	52	40	—	4	4	—	4	—
065	65	50			5		4	
077	77	60		5			5	
096	96	75			5		5	
125	125	100			6			
156	156	125					6	
186	186	150					6	
248	248	200		(1)				
302	302	250			7		7	
361	361	300					7	
415	415	350						
430	430	350						
485	485	400						
545	545	450	8	—	—	8	—	8 [2]
617	617	500						
710	710	600						
740	740	650						

(1) For Frame 6 & 7 drives: a user-installed flange kit is available to convert a code N drive that provides a NEMA/UL Type 4X/12 back.

(2) Available as a drive with cabinet options (21G). MCC power bus is not UL listed.

Analog Speed Follower and Preset Speed

Drive Configuration

The PowerFlex 700 drive will be an Analog Speed Follower, a Preset Speed module, or possibly controlled via a communication network.

The information in this Chapter covers the hardwire stand-alone configurations of Analog Speed Follower and Preset Speed.

Analog Speed Follower

The PowerFlex 750-Series drive can be configured so an analog source is its speed reference. The default configuration is selected to be Port 1 but the drive can be configured to follow a +/- 10V DC source, 0-10V DC source, or 4-20 mA source with the onboard analog inputs on the PowerFlex 753 drive or with an optional I/O module.

There are three common examples with the PowerFlex 700 drive using different speed-reference inputs along with hardwired Start/Stop/Direction control and the equivalent PowerFlex 750-Series configurations.

Three-wire Control with Analog Speed Reference

The three-wire control method is Start/Stop/Direction. The digital control inputs use the drive's internal 24V DC supply, and the analog speed follower reference uses a 10K Ω potentiometer wired to the drive's internal 10V DC power supply.

Figure 22 - Wiring Examples

PowerFlex 700 Drive Main Control Cassette Vector Control with 24V DC I/O

1	Analog In 1 (-)
2	Analog In 1 (+)
3	Analog In 2 (-)
4	Analog In 2 (+)
5	Pot Common
6	Analog Out 1 (-)
7	Analog Out 1 (+)
8	Analog Out 2 (-)
9	Analog Out 2 (+)
10	HW PTC Input 1
11	Digital Out 1 NC
12	Digital Out 1 Common
13	Digital Out 1 NO
14	Digital Out 2 NC
15	Digital Out 2/3 Common
16	Digital Out 3 NO
17	Current In Jumper Analog In 1
18	
19	Current In Jumper Analog In 2
20	
21	-10V Pot Reference
22	+10V Pot Reference
23	HW PTC Input 1
24	+24V DC
25	Digital Input Common
26	24V Common
27	Digital In 1
28	Digital In 2
29	Digital In 3
30	Digital In 4
31	Digital In 5
32	Digital In 6/Hardware En

Stop PB
Start PB
Direction

PowerFlex 750-Series Drives with Optional 24V DC I/O Module

Sh	Shield
Sh	Shield
Ptc-	Motor Ptc (-)
Ptc+	Motor Ptc (+)
Ao0-	Analog Out 0 (-)
Ao0+	Analog Out 0 (+)
Ao1-	Analog Out 1 (-)
Ao1+	Analog Out 1 (+)
-10V	-10V Reference
10vc	10V Common
+10V	+10V Reference
Ai0-	Analog Input 0 (-)
Ai0+	Analog Input 0 (+)
Ai1-	Analog Input 1 (-)
Ai1+	Analog Input 1 (+)
24vc	24V Common
+24V	+24V DC
DiC	Digital Input Common
Di0	Digital Input 0
Di1	Digital Input 1
Di2	Digital Input 2
Di3	Digital Input 3
Di4	Digital Input 4
Di5	Digital Input 5
R0NO	Relay 0 NO
R0C	Relay 0 Common
R0NC	Relay 0 NC
R1NO	Relay 1 NO
R1C	Relay 1 Common
R1NC	Relay 1 NC

Stop PB
Start PB
Direction

PowerFlex 753 Drives with Main Control Board I/O Module

TB1

Ao0-	Analog Out 0 (-)
Ao0+	Analog Out 0 (+)
10vc	10V Common
+10V	+10V Reference
Ai0-	Analog Input 0 (-)
Ai0+	Analog Input 0 (+)
Ptc-	Motor Ptc (-)
Ptc+	Motor Ptc (+)
T0	Transistor Output 0
24vc	24V Common
+24V	+24V DC
DiC	Digital Input Common
Di1	Digital Input 1
Di2	Digital Input 2

Stop PB
Start PB
Direction

Relay 0 NC	Relay 0 Common	Relay 0 NO		Digital Input 120V AC	Digital Input Common	Digital Input 24V DC
R0NC	R0C	R0NO		Di 0ac	DiC	Di 0dc
	TB2				TB3	

Three-wire Control Parameter Comparison

The following minimum parameters are required to configure the PowerFlex 750-Series drive motor attributes for the three-wire with analog speed reference control method.

Table 27 - PowerFlex 700 to PowerFlex 753 Drive (using Main Control Board I/O)

IMPORTANT	Shaded table cells indicate factory-set default settings. Please verify these settings if the drive is not new or a "set to factory defaults" was never performed.

PowerFlex 700 Drive Parameters			PowerFlex 753 Drive Parameters		
No.	**Name**	**Value**	**No.**	**Name**	**Value**
41	Motor NP Volts	460	25	Motor NP Volts	460
42	Motor NP Amps	1.6	26	Motor NP Amps	1.6
43	Motor NP Hertz	60	27	Motor NP Hertz	60
44	Motor NP rpm	1785	28	Motor NP rpm	1785
45	Motor NP Power	1	30	Motor NP Power	1
46	Motor NP Power Units	0-Hp	29	Motor NP Power Units	0-Hp
53	Motor Cntl Sel	0-Sensrls Vect	35	Motor Ctrl Mode	1-Induction SV
79	Speed Units	0-Hz	300	Speed Units	0-Hz
81	Minimum Speed	0.0	522 [1]	Min Fwd Speed	0.0
			523 [1]	Min Rev Speed	0.0
82	Maximum Speed	60.0	520 [1]	Max Fwd Speed	Motor NP Hz/rpm x 1
			521 [1]	Max Rev Speed	Motor NP Hz/rpm x -1
90	Speed Ref A Sel	1-Analog In 1	545	Spd Ref A Sel	Port 0 (P260)
91	Speed Ref A Hi	Max Speed (P82)	547	Spd Ref A AnlgHi	Max Fwd Spd (P520)
92	Speed Ref A Lo	0.0	548	Spd Ref A AnlgLo	0.0
140	Accel Time 1	10.0	535	Accel Time 1	10.0
141	Decel Time 1	10.0	537	Decel Time 1	10.0
322	Analog In 1 Hi	10.0	261	Anlg In0 Hi	10.0
323	Analog In 1 Lo	0.0	262	Anlg In0 Lo	0.0
361	Digital Input 1	4-Stop-CF	158	DI Stop	Port 0 (P220) Input 1
362	Digital Input 2	5-Start	161	DI Start	Port 0 (P220) Input 2
363	Digital Input 3	6-Forward/Reverse	162	DI Fwd Reverse	Port 0 (P220) Input 0

(1)   The PowerFlex 753 drive offers parameters for speed direction (forward and reverse) that are not available in the PowerFlex 700 series.

"P" in all parentheses is an abbreviation for Parameter.

TIP	For best possible settings, perform an auto-tune (Rotate Tune) on the connected motor to pair the motor to the drive.

Table 28 - PowerFlex 700 to PowerFlex 750-Series Drive (using optional I/O module)

IMPORTANT	Shaded table cells indicate factory-set default settings. Please verify these settings if the drive is not new or a "set to factory defaults" was never performed.

PowerFlex 700 Drive Parameters			PowerFlex 750-Series Drive Parameters [1]		
No.	**Name**	**Value**	**No.**	**Name**	**Value**
41	Motor NP Volts	460	25	Motor NP Volts	460
42	Motor NP Amps	1.6	26	Motor NP Amps	1.6
43	Motor NP Hertz	60	27	Motor NP Hertz	60
44	Motor NP rpm	1785	28	Motor NP rpm	1785
45	Motor NP Power	1	30	Motor NP Power	1
46	Motor NP Power Units	0-Hp	29	Motor NP Power Units	0-Hp
53	Motor Cntl Sel	0-Sensrls Vect	35	Motor Ctrl Mode	1-Induction SV
79	Speed Units	0-Hz	300	Speed Units	0-Hz
81	Minimum Speed	0.0	522 [2]	Min Fwd Speed	0.0
			523 [2]	Min Rev Speed	0.0
82	Maximum Speed	60.0	520 [2]	Max Fwd Speed	Motor NP Hz/rpm x 1
			521 [2]	Max Rev Speed	Motor NP Hz/rpm x -1
90	Speed Ref A Sel	1-Analog In 1	545	Spd Ref A Sel	Port 4 (P50)
91	Speed Ref A Hi	Max Speed (P82)	547	Spd Ref A AnlgHi	Max Fwd Spd (P520)
92	Speed Ref A Lo	0.0	548	Spd Ref A AnlgLo	0.0
140	Accel Time 1	10.0	535	Accel Time 1	10.0
141	Decel Time 1	10.0	537	Decel Time 1	10.0
				I/O Module Anlg	
322	Analog In 1 Hi	10.0	51	In0 Hi	10.0
				I/O Module Anlg	
323	Analog In 1 Lo	0.0	52	In0 Lo	0.0
361	Digital Input 1	4-Stop-CF	158	DI Stop [1]	Port 4 (P220) Input 0
362	Digital Input 2	5-Start	161	DI Start [1]	Port 4 (P220) Input 1
363	Digital Input 3	6-Forward/Reverse	162	DI Fwd Reverse [1]	Port 4 (P220) Input 2

(1) The optional I/O module is installed in slot 4.
(2) The PowerFlex 750-Series drive offers parameters for speed direction (forward and reverse) that are not available in the PowerFlex 700 series.

"P" in all parentheses is an abbreviation for Parameter.

TIP	For best possible settings, perform an auto-tune (Rotate Tune) on the connected motor to pair the motor to the drive.

Two-wire Control with Analog Input Speed Reference

The two-wire control method is Run Fwd/Run Rev. The digital control inputs use the drive's internal 24V DC supply, and the analog input speed comes from a 0…10V or 4…20 mA external reference.

Figure 23 - Wiring Examples

PowerFlex 700 Drive Main Control Cassette Vector Control with 24V DC I/O

1	Analog In 1 (-)
2	Analog In 1 (+)
3	Analog In 2 (-)
4	Analog In 2 (+)
5	Pot Common
6	Analog Out 1 (-)
7	Analog Out 1 (+)
8	Analog Out 2 (-)
9	Analog Out 2 (+)
10	HW PTC Input 1
11	Digital Out 1 NC
12	Digital Out 1 Common
13	Digital Out 1 NO
14	Digital Out 2 NC
15	Digital Out 2/3 Common
16	Digital Out 3 NO
17	Current In Jumper Analog In 1
18	
19	Current In Jumper Analog In 2
20	
21	-10V Pot Reference
22	+10V Pot Reference
23	HW PTC Input 1
24	+24V DC
25	Digital Input Common
26	24V Common
27	Digital In 1
28	Digital In 2
29	Digital In 3
30	Digital In 4
31	Digital In 5
32	Digital In 6/Hardware En

Run Forward — 27
Run Reverse — 28

PowerFlex 750-Series Drives with Optional 24V DC I/O Module

Sh	Shield
Sh	Shield
Ptc-	Motor Ptc (-)
Ptc+	Motor Ptc (+)
Ao0-	Analog Out 0 (-)
Ao0+	Analog Out 0 (+)
Ao1-	Analog Out 1 (-)
Ao1+	Analog Out 1 (+)
-10V	-10V Reference
10vc	10V Common
+10V	+10V Reference
Ai0-	Analog Input 0 (-)
Ai0+	Analog Input 0 (+)
Ai1-	Analog Input 1 (-)
Ai1+	Analog Input 1 (+)
24vc	24V Common
+24V	+24V DC
DiC	Digital Input Common
Di0	Digital Input 0
Di1	Digital Input 1
Di2	Digital Input 2
Di3	Digital Input 3
Di4	Digital Input 4
Di5	Digital Input 5
R0NO	Relay 0 NO
R0C	Relay 0 Common
R0NC	Relay 0 NC
R1NO	Relay 1 NO
R1C	Relay 1 Common
R1NC	Relay 1 NC

Run Forward — Di0
Run Reverse — Di1

PowerFlex 753 Drives with Main Control Board I/O Module

TB1

Ao0-	Analog Out 0 (-)
Ao0+	Analog Out 0 (+)
10vc	10V Common
+10V	+10V Reference
Ai0-	Analog Input 0 (-)
Ai0+	Analog Input 0 (+)
Ptc-	Motor Ptc (-)
Ptc+	Motor Ptc (+)
T0	Transistor Output 0
24vc	24V Common
+24V	+24V DC
DiC	Digital Input Common
Di1	Digital Input 1
Di2	Digital Input 2

Run Forward — Di1
Run Reverse — Di2

R0NC	R0C	R0NO		Di 0ac	DiC	Di 0dc
Relay 0 NC	Relay 0 Common	Relay 0 NO		Digital Input 120V AC	Digital Input Common	Digital Input 24V DC

TB2   TB3

Two-wire Control Parameter Comparison

The following minimum parameters are required to configure the PowerFlex 750-Series drive motor attributes for the two-wire with analog speed reference control method.

Table 29 - PowerFlex 700 to PowerFlex 753 Drive (using Main Control Board I/O)

	IMPORTANT	Shaded table cells indicate factory-set default settings. Please verify these settings if the drive is not new or a "set to factory defaults" was never performed.

PowerFlex 700 Drive Parameters			PowerFlex 753 Drive Parameters		
No.	**Name**	**Value**	**No.**	**Name**	**Value**
41	Motor NP Volts	460	25	Motor NP Volts	460
42	Motor NP Amps	1.6	26	Motor NP Amps	1.6
43	Motor NP Hertz	60	27	Motor NP Hertz	60
44	Motor NP rpm	1785	28	Motor NP rpm	1785
45	Motor NP Power Mtr NP Power	1	30	Motor NP Power Mtr NP Pwr	1
46	Motor NP Power Units	0-Hp	29	Units	0-Hp
53	Motor Cntl Sel	0-Sensrls Vect	35	Motor Ctrl Mode	1-Induction SV
79	Speed Units	0-Hz	300	Speed Units	0-Hz
81	Minimum Speed	0.0	522 [1]	Min Fwd Speed	0.0
			523 [1]	Min Rev Speed	0.0
82	Maximum Speed	60.0	520 [1]	Max Fwd Speed	Motor NP Hz/rpm x 1
			521 [1]	Max Rev Speed	Motor NP Hz/rpm x -1
90	Speed Ref A Sel	1-Analog In 1	545	Spd Ref A Sel Spd Ref A	Port 0 (P260)
91	Speed Ref A Hi	Max Speed (P82)	547	AnlgHi Spd Ref A	Max Fwd Spd (P520)
92	Speed Ref A Lo	0.0	548	AnlgLo	0.0
140	Accel Time 1	10.0	535	Accel Time 1	10.0
141	Decel Time 1	10.0	537	Decel Time 1	10.0
322	Analog In 1 Hi	10.0	261	Anlg In0 Hi	10.0
323	Analog In 1 Lo	0.0	262	Anlg In0 Lo	0.0
361	Digital Input 1	8-Run Forward	164	DI Run Forward	Port 0 (P220) Input 1
362	Digital Input 2	9-Run Reverse	165	DI Run Reverse	Port 0 (P220) Input 2

(1)   The PowerFlex 753 drive offers parameters for speed direction (forward and reverse) that are not available in the PowerFlex 700 series.

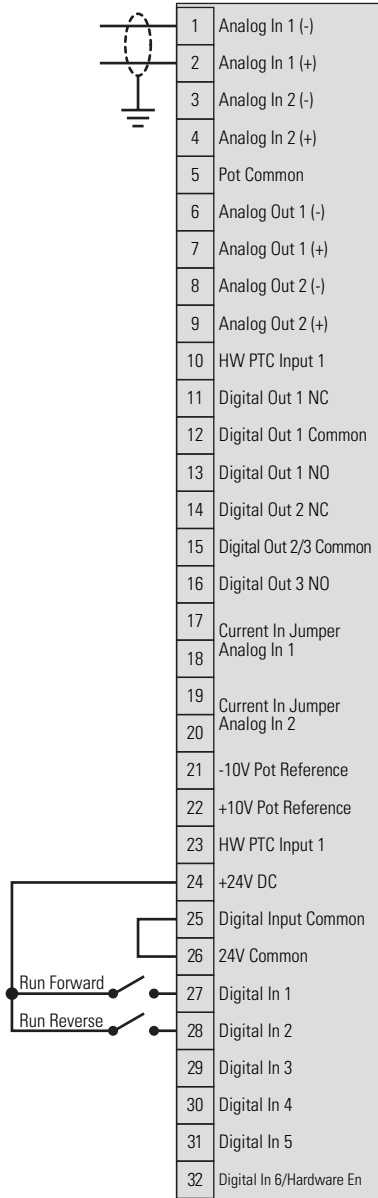"P" in all parentheses is an abbreviation for Parameter.

	TIP	For best possible settings, perform an auto-tune (Rotate Tune) on the connected motor to pair the motor to the drive.

Table 30 - PowerFlex 700 to PowerFlex 750-Series Drive (using optional I/O module)

IMPORTANT	Shaded table cells indicate factory-set default settings. Please verify these settings if the drive is not new or a "set to factory defaults" was never performed.

PowerFlex 700 Drive Parameters			PowerFlex 750-Series Drive Parameters [1]		
No.	**Name**	**Value**	**No.**	**Name**	**Value**
41	Motor NP Volts	460	25	Motor NP Volts	460
42	Motor NP Amps	1.6	26	Motor NP Amps	1.6
43	Motor NP Hertz	60	27	Motor NP Hertz	60
44	Motor NP rpm	1785	28	Motor NP rpm	1785
45	Motor NP Power	1	30	Motor NP Power	1
46	Motor NP Power Units	0-Hp	29	Motor NP Power Units	0-Hp
49	Motor Poles	4	31	Motor Ctrl Mode	1-Induction SV
79	Speed Units	0-Hz	300	Speed Units	0-Hz
81	Minimum Speed	0.0	522 [2]	Min Fwd Speed	0.0
			523 [2]	Min Rev Speed	0.0
82	Maximum Speed	60.0	520 [2]	Max Fwd Speed	Motor NP Hz/rpm x 1
			521 [2]	Max Rev Speed	Motor NP Hz/rpm x -1
90	Speed Ref A Sel	1-Analog In 1	545	Spd Ref A Sel	Port 4 (P50)
				Spd Ref A	
91	Speed Ref A Hi	Max Speed (P82)	547	AnlgHi	Max Fwd Spd (P520)
				Spd Ref A	
92	Speed Ref A Lo	0.0	548	AnlgLo	0.0
140	Accel Time 1	10.0	535	Accel Time 1	10.0
141	Decel Time 1	10.0	537	Decel Time 1	10.0
				I/O Module Anlg	
322	Analog In 1 Hi	10.0	51	In0 Hi	10.0
				I/O Module Anlg	
323	Analog In 1 Lo	0.0	52	In0 Lo	0.0
361	Digital Input 1	8-Run Forward	164	DI Run Forward [1]	Port 4 (P1) Input 0
362	Digital Input 2	9-Run Reverse	165	DI Run Reverse [1]	Port 4 (P1) Input 1

(1)   The optional I/O module is installed in slot 4.
(2)   The PowerFlex 750-Series drive offers parameters for speed direction (forward and reverse) that are not available in the PowerFlex 700 series.

"P" in all parentheses is an abbreviation for Parameter.

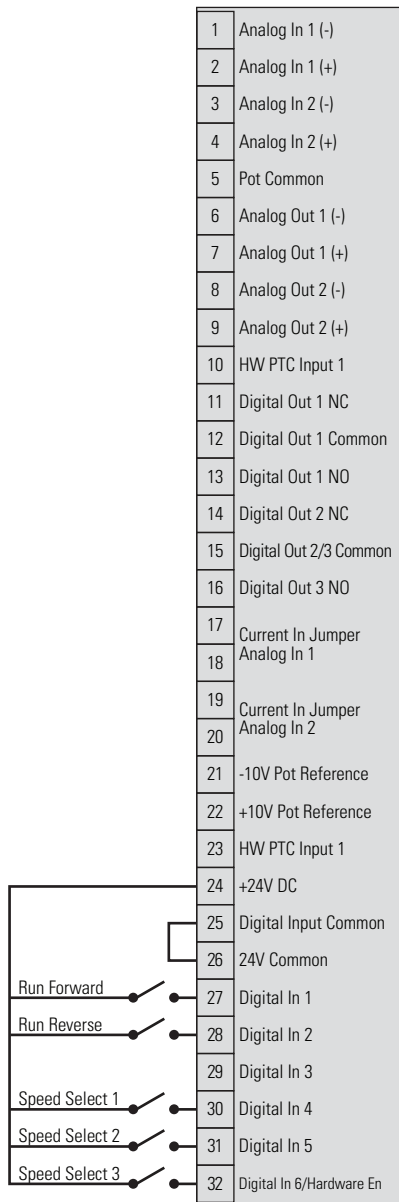| TIP	For best possible settings, perform an auto-tune (Rotate Tune) on the connected motor to pair the motor to the drive.

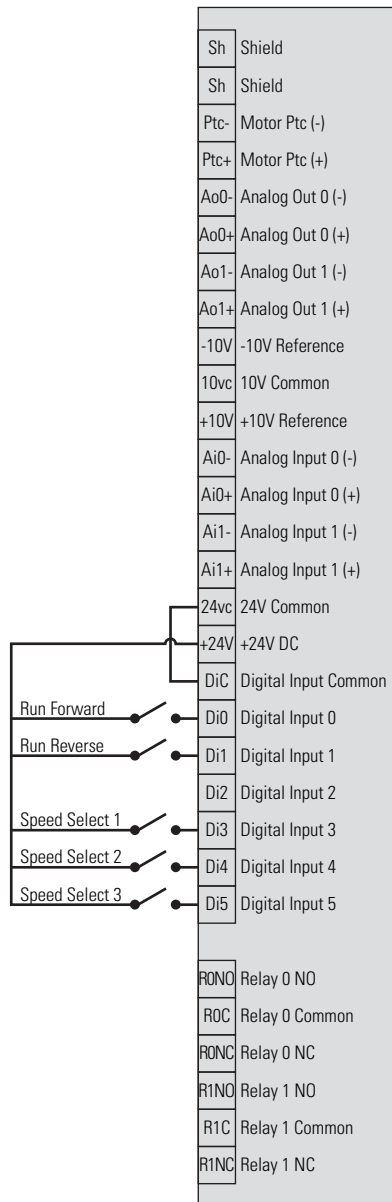## Two-wire Control with Preset Speeds

The two-wire control method is Run Fwd/Run Rev with Preset Preference. The digital control inputs use the drive's internal 24V DC supply, and the speed reference is determined by the three speed-select digital inputs.

Figure 24 - Wiring Examples

PowerFlex 700 Drive Main Control Cassette
Vector Control with 24V DC I/O

1	Analog In 1 (-)
2	Analog In 1 (+)
3	Analog In 2 (-)
4	Analog In 2 (+)
5	Pot Common
6	Analog Out 1 (-)
7	Analog Out 1 (+)
8	Analog Out 2 (-)
9	Analog Out 2 (+)
10	HW PTC Input 1
11	Digital Out 1 NC
12	Digital Out 1 Common
13	Digital Out 1 NO
14	Digital Out 2 NC
15	Digital Out 2/3 Common
16	Digital Out 3 NO
17 / 18	Current In Jumper Analog In 1
19 / 20	Current In Jumper Analog In 2
21	-10V Pot Reference
22	+10V Pot Reference
23	HW PTC Input 1
24	+24V DC
25	Digital Input Common
26	24V Common
27	Digital In 1
28	Digital In 2
29	Digital In 3
30	Digital In 4
31	Digital In 5
32	Digital In 6/Hardware En

Run Forward — 27
Run Reverse — 28
Speed Select 1 — 30
Speed Select 2 — 31
Speed Select 3 — 32

PowerFlex 750-Series Drives
with Optional 24V DC I/O Module

Sh	Shield
Sh	Shield
Ptc-	Motor Ptc (-)
Ptc+	Motor Ptc (+)
Ao0-	Analog Out 0 (-)
Ao0+	Analog Out 0 (+)
Ao1-	Analog Out 1 (-)
Ao1+	Analog Out 1 (+)
-10V	-10V Reference
10vc	10V Common
+10V	+10V Reference
Ai0-	Analog Input 0 (-)
Ai0+	Analog Input 0 (+)
Ai1-	Analog Input 1 (-)
Ai1+	Analog Input 1 (+)
24vc	24V Common
+24V	+24V DC
DiC	Digital Input Common
Di0	Digital Input 0
Di1	Digital Input 1
Di2	Digital Input 2
Di3	Digital Input 3
Di4	Digital Input 4
Di5	Digital Input 5
R0NO	Relay 0 NO
R0C	Relay 0 Common
R0NC	Relay 0 NC
R1NO	Relay 1 NO
R1C	Relay 1 Common
R1NC	Relay 1 NC

Run Forward — Di0
Run Reverse — Di1
Speed Select 1 — Di3
Speed Select 2 — Di4
Speed Select 3 — Di5

Two-wire Control Parameter Comparison

The following minimum parameters are required to configure the PowerFlex 750-Series drive motor attributes for the two-wire with analog speed reference control method.

Table 31 - PowerFlex 700 to PowerFlex 750-Series Drive (with optional I/O module)

IMPORTANT	Shaded table cells indicate factory-set default settings. Please verify these settings if the drive is not new or a "set to factory defaults" was never performed.

PowerFlex 700 Drive Parameters			PowerFlex 750-Series Drive Parameters [2]		
No.	Name	Value	No.	Name	Value
41	Motor NP Volts	460	25	Motor NP Volts	460
42	Motor NP Amps	1.6	26	Motor NP Amps	1.6
43	Motor NP Hertz	60	27	Motor NP Hertz	60
44	Motor NP rpm	1785	28	Motor NP rpm	1785
45	Motor NP Power Mtr NP Power	1	30	Motor NP Power Mtr NP Pwr	1
46	Motor NP Power Units	0-Hp	29	Units	0-Hp
53	Motor Cntl Sel	0-Sensrls Vect	35	Motor Ctrl Mode	1-Induction SV
79	Speed Units	0-Hz	300	Speed Units	0-Hz
81	Minimum Speed	0.0	522 [3]	Min Fwd Speed	0.0
			523 [3]	Min Rev Speed	0.0
82	Maximum Speed	60.0	520 [3]	Max Fwd Speed	Motor NP Hz/rpm x 1
			521 [3]	Max Rev Speed	Motor NP Hz/rpm x -1
90 [1]	Speed Ref A Sel	Analog In 2	545 [1]	Spd Ref A Sel	Port 0 Ref
93 [1]	Speed Ref B Sel	Preset Speed 1	550 [1]	Spd Ref B Sel	Speed Ref B Stpt
91 [1]	Speed Ref A Hi	Max Speed (P82)	547 [1]	Spd Ref A AnlgHi	Max Fwd Spd (P520)
92 [1]	Speed Ref A Lo	0.0	548 [1]	Spd Ref A AnlgLo	0.0
101	Preset Speed 1	5 Hz/150 rpm	571	Preset Speed 1	1/12 x (P27 or P28)
102	Preset Speed 2	10 Hz/300 rpm	572	Preset Speed 2	1/6 x (P27 or P28)
103	Preset Speed 3	20 Hz/600 rpm	573	Preset Speed 3	1/3 x (P27 or P28)
104	Preset Speed 4	30 Hz/900 rpm	574	Preset Speed 4	1/2 x (P27 or P28)
105	Preset Speed 5	40 Hz/1200 rpm	575	Preset Speed 5	2/3 x (P27 or P28)
106	Preset Speed 6	50 Hz/1500 rpm	576	Preset Speed 6	5/6 x (P27 or P28)
107	Preset Speed 7	60 Hz/1800 rpm	577	Preset Speed 7	(P27 or P28)
140	Accel Time 1	10.0	535	Accel Time 1	10.0
141	Decel Time 1	10.0	537	Decel Time 1	10.0
322	Analog In 1 Hi	10.0	261	Anlg In0 Hi	10.0
323	Analog In 1 Lo	0.0	262	Anlg In0 Lo	0.0
361	Digital Input 1	8-Run Forward	164	DI Run Forward	Port 0 (P220) Input 1
362	Digital Input 2	9-Run Reverse	165	DI Run Reverse	Port 0 (P220) Input 2
364	Digital Input 4	15-Speed Sel 1	173	DI Speed Sel 0	Port 0 (P220) Input 3
365	Digital Input 5	16-Speed Sel 2	174	DI Speed Sel 1	Port 0 (P220) Input 4
366	Digital Input 6	17-Speed Sel 3	175	DI Speed Sel 2	Port 0 (P220) Input 5

(1) These default selections will vary between PowerFlex drive models and applications. Set these parameters to your specific application needs.

(2) The optional I/O module is installed in slot 4.

(3) The PowerFlex 750-Series drive offers parameters for speed direction (forward and reverse) that are not available in the PowerFlex 700 series.

"P" in all parentheses is an abbreviation for Parameter.

TIP	For best possible settings, perform an auto-tune (Rotate Tune) on the connected motor to pair the motor to the drive.

Preset Speeds

The following tables depict the binary pattern for the drive speed-select digital inputs.

Table 32 - PowerFlex Drives Digital Input (DI) Preset Speeds

PowerFlex 700 Drive Preset Speeds				PowerFlex 755 Drive Preset Speeds			
1	**2**	**3**	**Auto Reference Source**	**DI Speed Sel 2**	**DI Speed Sel 1**	**DI Speed Sel 0**	**Auto Reference Source**
0	0	0	Reference A	0	0	0	Reference A
0	0	1	Reference B	0	0	1	Reference A
0	1	0	Preset Speed 2	0	1	0	Reference B
0	1	1	Preset Speed 3	0	1	1	Preset Speed 3
1	0	0	Preset Speed 4	1	0	0	Preset Speed 4
1	0	1	Preset Speed 5	1	0	1	Preset Speed 5
1	1	0	Preset Speed 6	1	1	0	Preset Speed 6
1	1	1	Preset Speed 7	1	1	1	Preset Speed 7

IMPORTANT	Speed-select input functionality changed with the PowerFlex 755 drive, which impacts how a PowerFlex 700 drive is migrated.

Network Communications

Overview

A PowerFlex 700 drive with a communication option card can be replaced with a PowerFlex 750-Series drive. The process to migrate can vary significantly depending upon the communication option in the PowerFlex 700 drive, the controller type communicating to the drive, and which PowerFlex 750-Series drive model is selected.

This section will show what PowerFlex 700 20-COMM network options can be migrated to the PowerFlex 750-Series drives, and introduce the dedicated communications that are in the PowerFlex 750-Series drives. Because of the wide variety of networks, processors, and drive options to consider, only migration guidelines will be covered instead of step-by-step procedures.

20-COMM Carrier Adapters

The following table details what 20-COMM adapters can be used with the PowerFlex 750-Series drives.

Table 33 - 20-COMM Adapters Compatible with the PowerFlex 750-Series Drives

20-COMM-*x* Adapter Type	Can It Access Ports 2, 3, & 6 for I/O Connections?[1]	Can It Access Ports 7…14 Devices?	Does It Support Drive Add-on Profiles?	Does It Support Asian Languages?[9]
B BACnet MS/TP	No	No	No	No
C ControlNet (Coax)	Yes [2]	Yes [4]	Yes [8]	Yes [4]
D DeviceNet	Yes [2]	Yes [5]	No	No
E EtherNet/IP	Yes [2]	Yes [6]	Yes [8]	Yes [6]
H RS-485 HVAC	Yes [3]	No	No	No
I Interbus	Yes [2]	No	No	No
K CANopen	Yes [2]	No	No	No
L LonWorks	No	No	No	No
M Modbus/TCP	Yes [2]	Yes [7]	No	Yes [7]
P Profibus DP	Yes [2]	No	No	No
Q ControlNet (Fiber)	Yes [2]	Yes [4]	Yes [8]	Yes [4]
R Remote I/O	Yes [2]	Yes [5]	No	No
S RS-485 DF1	Yes [2]	No	No	No

(1)   Ports for implicit and explicit messaging.
(2)   Controller must be capable of reading/writing 32-bit floating point (REAL) values.
(3)   Only works with Modbus RTU mode.
(4)   Requires firmware version 3.001 or higher.
(5)   Requires firmware version 2.005 or higher.
(6)   Requires firmware version 4.001 or higher.
(7)   Requires firmware version 2.001 or higher.
(8)   Requires firmware version 1.05 or higher for add-on profiles and version 16 or higher for RSLogix 5000.
(9)   Chinese, Japanese, and Korean languages are currently supported.

PowerFlex 750-Series Communication Options

Communication options currently available for the PowerFlex 750-Series drives are ControlNet and DeviceNet, both which will network the drive with enhanced features beyond what 20-COMM adapters provide. For additional information, see the PowerFlex 750-Series Drive DeviceNet Option Module User Manual, publication 750COM-UM002, and the PowerFlex 20-750-CNETC Coaxial ControlNet Option Module User Manual, publication 750COM-UM003.

PowerFlex 755 Embedded EtherNet/IP Adapter

The PowerFlex 755 drive not only supports a full array of communication options but also has a standard embedded EtherNet/IP adapter. For complete information, refer to the Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001.

Software Versions

The PowerFlex 750-Series drives use the same software packages as the PowerFlex 700 drives but knowing the software versions of each drive is essential to an effective migration. See the table below.

Table 34 - PowerFlex 750-Series Drives and Provided Software Versions

PowerFlex Drive Model	Drive Explorer Version	DriveTools SP Version	RSLogix 5000 Version (with integrated drive profiles)
753	6.02	5.02	17 or higher
755 (before version 2)	6.01	5.01	16 or higher
755 (version 2 and higher)	6.02	5.02	17 or higher

Velocity Reference/Feedback

The PowerFlex 700 Drive velocity reference and feedback data is represented as scaled values, or a value of 32,767 will equate to parameter 55 [Maximum Freq] setting and a value of 0 will equate to 0 Hz.

The PowerFlex 750-Series reference and feedback data are in engineering units and are dependent on P300 [Speed Units]. A reference of 30.0 will either equal 30 Hz or 30.0 rpm.

Using the I/O

The terms input and output are defined from the controller's point of view. Therefore, output I/O is data that is produced by the controller and consumed by the adapter. Input I/O is status data that is produced by the adapter and consumed as input by the controller.   The I/O image will vary greatly dependent of the communications adaptor and thus user should consult the "Using the I/O" section of the respective I/O adaptor user manual.

16 Bit-based Processors (PLC5)

The PowerFlex 750-Series drives are 32 bit-based whereas the PLC5 is 16 bit. Any application that may use a PLC5 with a PowerFlex 750-Series drives should include a review to determine what data will be passed and if the PLC5 can handle this data.

Refer to Rockwell Knowledgebase online document 65712, Using 20-COMM with PowerFlex 755 and 753 with a 16-bit controller, for further information.

TIP	You must have or create an account with registered log-in information to access this online Rockwell Automation database.

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At http://www.rockwellautomation.com/support/, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit http://www.rockwellautomation.com/support/.

Installation Assistance

If you experience a problem within the first 24 hours of installation, review the information that is contained in this manual. You can contact Customer Support for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the Worldwide Locator at http://www.rockwellautomation.com/support/americas/phone_en.html, or contact your local Rockwell Automation representative.

New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

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