

PowerFlex 700 Drives to PowerFlex 750-Series Drives



Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

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.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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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.

IMPORTANT Identifies information that is critical for successful application and understanding of the product.

Labels may also be on or inside the equipment to provide specific precautions.



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.



ARC FLASH HAZARD: Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

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Notes:

Overview

The purpose of this publication is to assist in migrating a PowerFlex® 700 drive to a PowerFlex 750-Series drive. This publication contains these 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 and preset speed 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**
Provides information on the PowerFlex 700 20-COMM network options that can be migrated to the PowerFlex 750-Series drives and the dedicated communications options available in the PowerFlex 750-Series drives.

Summary of Changes

Topic	Page
Added PowerFlex documents to the Additional Resources table.	6
Updated drive comparison tables	8...12
Added 208V, 240V, 400V, 600V, and 690V conversion guide tables	13...18
Added PowerFlex 755 drive frame 8 and 9 Power Wiring Options table	44
Updated 20-Comm carrier adapter choices	68
Added new PowerFlex 750-Series communications options table	69
Updated software versions table	69

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
PowerFlex 700 AC Drives Vector Control Firmware 4.001 and 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 700 Adjustable Frequency AC Drive - Frames 7...10 Installation Instructions, publication 20B-IN014	Explains the five basic steps needed to install and perform a basic start-up of the PowerFlex 700 AC drive.
PowerFlex 700 Adjustable Frequency AC Drive - Frames 0...6 Installation Instructions, publication 20B-IN019	Explains the five basic steps needed to install and perform a basic start-up of the PowerFlex 700 (Series A or B) AC drive.
PowerFlex 700 Adjustable Frequency AC Drive, publication 20B-TD001	Provides an overview of the PowerFlex 700 AC drive.
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 Adapter User Manual, publication 750COM-UM001	Provides network communication information for the EtherNet/IP™ adapter 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.
20-Comm-E EtherNet/IP Adapter User Manual, publication 20COMM-UM010	Provides network communication information for the optional 20-Comm-E EtherNet/IP adapter that can be installed in a PowerFlex 750-Series drive.
Product Certifications website, rok.auto/certifications	Provides declarations of conformity, certificates, and other certification details.
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/global/literature-library/overview.page>.

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 for 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 are customer installed.

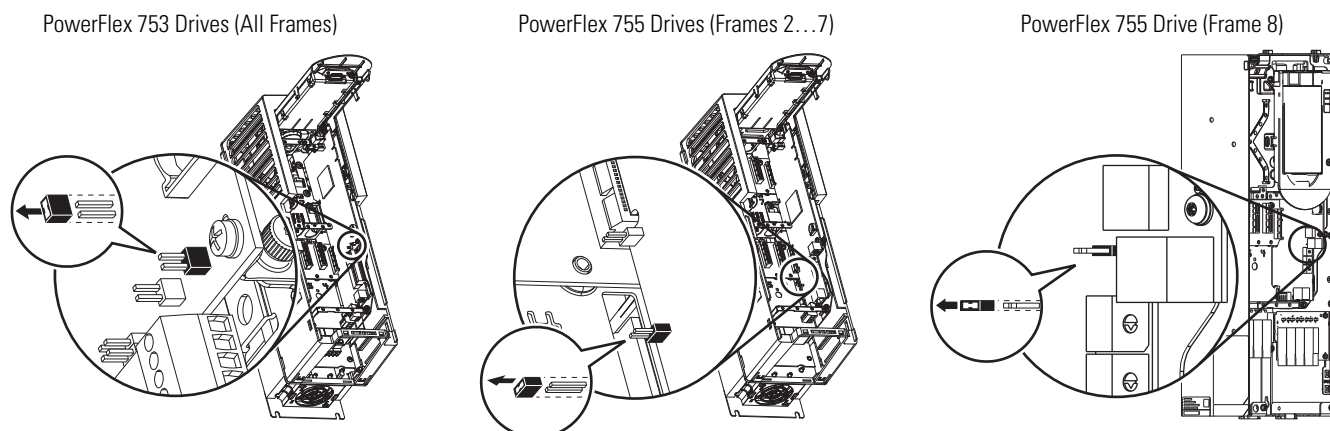
Hardware Drive Enable

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



Specifications and Features

When selecting a PowerFlex 750-Series drive to replace a PowerFlex 700 drive, you must consider the features and differences between the PowerFlex 753 and PowerFlex 755 drive. The specifications and features listed are those available for the products at the time that this migration guide was published.

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)	0.37...132 kW (0.5...200 Hp)	0.37...132 kW (0.5...200 Hp)
400...480V	0.37...132 kW (0.5...200 Hp)	0.37...500 kW (0.5...700 Hp)	0.75...270 kW (1...400 Hp)	0.75...1250 kW (1...1750 Hp)
500...600V	0.37...132 kW (0.5...150 Hp)	0.37...132 kW (0.5...150 Hp)	1...300 Hp	1...1400 Hp
690V	45...135 kW (60...150 Hp)	45...132 kW (60...150 Hp)	7.5...250 kW	7.5...1400 kW
Single phase	Yes, 50% derate	Yes, 50% derate	Yes, 50% derate	Yes, 50% derate
Input inductor	DC bus	DC bus	DC bus	DC bus
Logic ride-through	0.5 s minimum, 2 s typical	0.5 s minimum, 2 s typical	0.5 s minimum, 2 s typical	0.5 s minimum, 2 s typical
Power ride-through	15 ms	15 ms	15 ms	15 ms
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...325 Hz at 2 kHz carrier 0...590 Hz at 4kHz carrier	0...325 Hz at 2 kHz carrier 0...590 Hz at 4kHz carrier
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	—	—	—	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.

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...50 °C (32...122 °F) ⁽¹⁾ 0...40 °C (32...104 °F) ⁽²⁾ 0...65 °C (32...149 °F) ⁽³⁾	0...50 °C (32...122 °F) ⁽¹⁾ 0 to 40 °C (1...104 °F) ⁽²⁾ 0...65 °C (32...149 °F) ⁽³⁾	0...50 °C (32...122 °F) ⁽⁵⁾	0...50 °C (32...122 °F) ⁽⁵⁾
IP00, NEMA/UL Type Open	—	—	0...50 °C (32...122 °F) ⁽⁶⁾	0...50 °C (32...122 °F) ⁽⁶⁾
IP20, NEMA/UL Type 1 (w/hood)	—	—	0...40 °C (32...104 °F) ⁽⁵⁾	0...40 °C (32...104 °F) ⁽⁵⁾
IP20, NEMA/UL Type 1 (w/label)	—	—	0...40 °C (32...104 °F) ⁽⁶⁾	0...40 °C (32...104 °F) ⁽⁶⁾
IP20, NEMA/UL Type 1 (MCC cabinet)	—	—	—	0...40 °C (32...104 °F) ⁽⁹⁾
Flange enclosure types and ambient temperature range:				
<i>Front</i>				
IP20, NEMA/UL, Type Open	—	—	0...50 °C (32...122 °F) ⁽⁵⁾	0...50 °C (32...122 °F) ⁽⁵⁾
IP00, NEMA/UL, Type Open	—	—	0...40 °C (32...104 °F) ⁽⁶⁾	0...40 °C (32...104 °F) ⁽⁶⁾
<i>Back/heatsink</i>				
IP20, NEMA/UL, Type Open	0...40 °C (32...104 °F) ⁽²⁾	0...40 °C (32...104 °F) ⁽²⁾	—	—
IP66, NEMA/UL, Type 4X	—	—	0...40 °C (32...104 °F) ⁽⁷⁾	0...40 °C (32...104 °F) ⁽⁷⁾
<i>Stand-alone/wall mount</i>				
IP54, NEMA/UL Type 12	—	—	0...40 °C (32...104 °F) ⁽⁷⁾	0...40 °C (32...104 °F) ⁽⁷⁾
Storage temperature range	-40...70 °C (-40...158 °F)	-40...70 °C (-40...158 °F)	-40...70 °C (-40...158 °F)	-40...70 °C (-40...158 °F)
Standards and Certifications (See rok.auto/certifications website for the latest 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	No	No
RINA	Yes	No	No	No
TUV-FS	No	No	Yes	Yes
ROHS	Yes	Yes	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) ⁽¹¹⁾	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.

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	—	—	Standard	Standard
Speed monitor	—	—	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)	—	Standard with FORCE Technology	Standard with FORCE Technology	Standard with FORCE Technology
Synchronous reluctance V/Hz	Standard	Standard	Standard	Standard
Synchronous reluctance SV	—	—	Standard	Standard
Adjustable voltage mode	—	Standard	—	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	—	Standard	Standard	Standard
Inertia adaption	—	—	—	Standard
Phase lock loop	—	—	—	Standard
Torque regulation	—	± 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	—	Standard	Standard	Standard
User sets	Standard	Standard	—	—
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	—	Standard	Standard	Standard
Flux braking	—	Standard	Standard	Standard
Feedback loss switchover	—	—	Standard	Standard
Real-time clock	—	—	Standard	Standard
Battery/auxiliary power back-up ⁽¹⁾	—	—	Optional	Optional
Multi-motor parameters	—	—	—	—
Start on power-up	Standard	Standard	Standard	Standard
Integral position loop	—	Standard	Standard	Standard
PCAM planner	—	—	—	Standard
Electronic gearing	—	—	Standard	Standard
Speed/position profiler	—	Standard	—	Standard
Position indexer	—	—	—	—
Predictive diagnostics	—	—	Standard	Standard
Torque proving	—	Standard	—	Standard
Conformal coating	Standard	Standard	Standard	Standard
Timer/counter functions	—	—	Standard ⁽⁴⁾	Standard ⁽⁴⁾
Embedded control	—	—	Standard ⁽⁴⁾	Standard ⁽⁴⁾
Supported Feedback Devices				
Incremental encoder feedback	—	Optional	Optional	Optional
Pulse train input	—	Optional	Optional	Optional
Stegmann high-resolution	—	—	—	Optional
Heidenhain	—	—	—	Optional
SSI and BSSI linear	—	—	—	Optional
Resolver	—	—	—	—
User Interface				
HIM/operator interface	Optional ⁽³⁾	Optional ⁽³⁾	Optional ⁽⁵⁾	Optional ⁽⁵⁾
Languages available (number)	7	7	g ⁽⁶⁾	g ⁽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	—	—	—	—
BACnet	Optional	Optional	—	—
CAN/Euromap	—	—	—	—
CANopen	Optional	Optional	Optional ⁽⁴⁾	Optional ⁽⁴⁾
CC-Link	—	—	—	—
ControlNet	Optional	Optional	Optional	Optional
DF1	Optional	Optional	Optional ⁽⁴⁾	Optional ⁽⁴⁾
Data highway	—	—	Optional ⁽⁴⁾	Optional ⁽⁴⁾
EtherNet	Optional	Optional	Optional	Optional
EtherNet or TCP/IP	—	—	—	—
EtherNet/IP	Optional	Optional	Optional	Standard
FIP I/O	—	—	—	—
Foundation fieldbus	—	—	—	—
Interbus	Optional	Optional	Optional ⁽⁴⁾	Optional ⁽⁴⁾
Lecon-B	—	—	—	—
LonWorks	Optional	Optional	—	—
Metasys N2	Optional	—	—	—
Modbus ASCII	—	—	—	—
Modbus Plus	—	—	—	—
Modbus RTU	Optional	Optional	—	—
Modbus TCP/IP	Optional	Optional	Optional	Optional
PROFIBUS DP	Optional	Optional	Optional	Optional
PROFINET	—	—	Optional	Optional
Remote I/O	Optional	Optional	Optional	Optional
SELMA 2	—	—	—	—
SERCOS	—	—	—	—
Siemens P1	Optional	—	—	—
Uni-Telway	—	—	—	—
USB	Optional	Optional	Optional	Optional

(1) Available software includes: 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 tables are for migrating your PowerFlex 700 drive installation to a PowerFlex 750-series drive.

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

TIP Voltage rating is 208V AC for all the drives that are listed.

PowerFlex 700 Drive ⁽¹⁾							PowerFlex 750-Series Drive Conversion ⁽²⁾							
20B	Amps	HP (ND)	Frame	Height mm, (in.)	Width mm, (in.)	Depth mm, (in.)	20F/20G	Amps	HP (ND)	Frame	Height mm, (in.)	Width mm, (in.)	Depth mm, (in.)	
2P2	2.5	0.37	0	336 (13.22)	110 (4.33)	200 (7.87)	2P2	2.5	0.37	2	424.2 (16.7)	134.5 (5.29)	212 (8.34)	
4P2	4.8	0.75	0		135 (5.31)		4P2	4.8	0.75	2				
6P8	7.8	1.50	1				6P8	7.8	1.50	2				
9P6	11	2.20	1				9P6	11	2.20	2				
015	17.5	4	1				015	17.5	4	2				
022	25.3	5.5	1				022	25.3	5.5	2				
028	32.2	7.5	2	342.5 (13.48)	222 (8.74)	202 (7.95)	028	32.2	7.5	3	454 (17.87)	190 (7.48)		
042	48.3	11	3	517.5 (20.37)			042	48.3	11	3				
052	56	15	3				052	56	15	4	474 (18.66)	222 (8.74)		
070	78.2	18.2	4	759 (29.88)	220 (8.66)		275.5 (10.84)	070	78.2	18.2	5	555 (21.85)		270 (10.62)
080	92	22	4					080	92	22	5			
104	120	30	5	644.5 (25.37)	309 (12.16)	275.5 (10.84)	104	120	30	6	665.5 (26.2)	308 (12.12)	346.4 (13.63)	
130	130	37	5				130	130	37	6				
154	177	45	6	850 (33.46) ⁽³⁾	404 (15.9)		154	177	45	6				
192	221	55	6				192	221	55	6				
260	260	66	6				260	260	66	6				

(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 (38.4 in.) with required junction box if not cabinet-mounted.

Table 7 - PowerFlex 700 Drive to PowerFlex 750-Series Drive Conversions**TIP** Voltage rating is 240V AC for all the drives that are listed.

PowerFlex 700 Drive ⁽¹⁾							PowerFlex 750-Series Drive Conversion ⁽²⁾						
20B	Amps	HP (ND)	Frame	Height mm, (in.)	Width mm, (in.)	Depth mm, (in.)	20F/ 20G	Amps	HP (ND)	Frame	Height mm, (in.)	Width mm, (in.)	Depth mm, (in.)
2P2	2.2	0.5	0	336 (13.22)	110 (4.33)	200 (7.87)	2P2	2.2	0.5	2	424.2 (16.7)	134.5 (5.29)	212 (8.34)
4P2	4.2	1.0	0		135 (5.31)		4P2	4.2	1.0	2			
6P8	6.8	2.0	1				6P8	6.8	2.0	2			
9P6	9.6	3.0	1				9P6	9.6	3.0	2			
015	15.3	5.0	1				015	15.3	5.0	2			
022	22	7.5	1				022	22	7.5	2			
028	28	10	2	342.5 (13.48)	222 (8.74)	202 (7.95)	028	28	10	3	454 (17.87)	190 (7.48)	
042	42	15	3	517.5 (20.37)			042	42	15	3			
052	52	20	3				054	54	20	4	474 (18.66)	222 (8.74)	
070	70	25	4	759 (29.88)	220 (8.66)		070	70	25	5	555 (21.85)	270 (10.62)	
080	80	30	4				080	80	30	5			
104	104	40	5	644.5 (25.37)	309 (12.16)	275.5 (10.84)	104	104	40	6	665.5 (26.2)	308 (12.12)	346.4 (13.63)
130	130	50	5				130	130	50	6			
154	154	60	6	850 (33.46) ⁽³⁾	404 (15.9)		154	154	60	6			
192	192	75	6				192	192	75	6			
260	260	100	6				260	260	100	6			

(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 (38.4 in.) with required junction box if not cabinet-mounted.

Table 8 - PowerFlex 700 Drive to PowerFlex 750-Series Drive Conversions**TIP**

Voltage rating is 400V AC for all the drives that are listed.

PowerFlex 700 Drive ⁽¹⁾							PowerFlex 750-Series Drive Conversion ⁽²⁾						
20B	Amps	HP (ND)	Frame	Height mm, (in.)	Width mm, (in.)	Depth mm, (in.)	20F/20G	Amps	HP (ND)	Frame	Height mm, (in.)	Width mm, (in.)	Depth mm, (in.)
1P1	1.3	0.37	0	336 (13.22)	110 (4.33)	200 (7.87)							
2P1	2.1	0.75	0				2P1	2.1	0.75	2	424.2 (16.7)	134.5 (5.29)	212 (8.34)
3P5	3.5	1.5	0				3P5	3.5	1.5	2			
5P0	5.0	2.2	0				5P0	5.0	2.2	2			
8P7	8.7	4.0	0				8P7	8.7	4.0	2			
011	11.5	5.5	0				011	11.5	5.5	2			
015	15.4	7.5	1				015	15.4	7.5	2			
022	22	11	1				022	22	11	2			
030	30	15	2				030	30	15	3	454 (17.87)	190 (7.48)	
037	37	18.5	2				037	37	18.5	3			
043	43	22	3	517.5 (20.37)	222 (8.74)	043	43	22	3	474 (18.66)	222 (8.74)		
056	56	30	3			060	60	30	4				
072	72	37	3			072	72	37	4	550 (21.65)	270 (10.62)		
085	85	45	4	759 (29.88)	220 (8.66)	202 (7.95)	085	85	45			5	
105	105	55	5	644.5 (25.37)	309 (12.16)	275.5 (10.84)	105	105	55	5	665.5 (26.2)	308 (12.12)	346.5 (13.64)
125	125	55	5				140	140	75	6			
140	140	75	5				140	140	75	6			
170	170	90	6	850 (33.46) ⁽³⁾	404 (15.9)		170	170	90	6			
205	205	110	6				205	205	110	6			
260	260	132	6				260	260	132	6			
292	292	160	7	1499 (59.01)	514.5 (20.25)	407 (16)	302	302	160	7	881.5 (34.7)	430 (16.92)	349.6 (13.76)
325	325	180	7				367	367	200	7			
365	365	200	8	2374 (93.46)	758 (29.84)	889 (35)	367	367	200	7			
415	415	240	8				456	456	250	7			
481	481	280	8				477	477	270	7			
481	481	280	8				540	540	315	8 ⁽⁴⁾			
535	535	300	8				540	540	315	8 ⁽⁴⁾			
600	600	350	8				600	600	355	8 ⁽⁴⁾			
730	730	400	9			1016 (40)	750	750	400	8 ⁽⁴⁾			
875	875	500	10			1268 (49.92)	889 (35)	910	910	500	9 ⁽⁴⁾	1200 (47.24)	

(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.

(5) The depth can be either 600 mm or 800 mm for 20G, frame 8, 9, and 10 depending on enclosure code.

Table 9 - PowerFlex 700 Drive to PowerFlex 750-Series Drive Conversions**TIP** Voltage rating is 480V AC for all the drives that are listed.

PowerFlex 700 Drive ⁽¹⁾							PowerFlex 750-Series Drive Conversion ⁽²⁾						
20B	Amps	HP (ND)	Frame	Height mm, (in.)	Width mm, (in.)	Depth mm, (in.)	20F/20G	Amps	HP (ND)	Frame	Height mm, (in.)	Width mm, (in.)	Depth mm, (in.)
1P1	1.1	0.5	0	336 (13.22)	110 (4.33)	200 (7.87)							
2P1	2.1	1.0	0				2P1	2.1	1	2	424.5 (16.71)	134.5 (5.29)	212 (8.34)
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	0				011	11	7.5	2			
014	14	10	1	336 (13.22)	135 (5.31)	200 (7.87)	014	14	10	2	454 (17.87)	190 (7.48)	212 (8.34)
022	22	15	1				022	22	15	2			
027	27	20	2	342.5 (13.48)	222 (8.74)	200 (7.87)	027	27	20	3			
034	34	25	2				034	34	25	3			
040	40	30	3	517.5 (20.37)	222 (8.74)	200 (7.87)	040	40	30	3			
052	52	40	3				052	52	40	4	474 (18.66)	222 (8.74)	212 (8.34)
065	65	50	3				065	65	50	4			
077	77	60	4	759 (29.88)	220 (8.66)	202 (7.95)	077	77	60	5	555 (21.85)	270 (10.63)	212 (8.34)
096	96	75	5	644.5 (25.37)	309 (12.16)	275.5 (10.84)	096	96	75	5			
125	125	100	5				125	125	100	6	665.5 (26.2)	308 (12.12)	346.5 (13.64)
156	156	125	6	850 (33.46) ⁽³⁾	404 (15.9)	275.5 (10.84)	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 (59)	514.5 (20.25)	407 (16)	302	302	250	7	875 (34.44)	430 (16.92)	350 (13.77)
325	325	250	7				361	361	300	7			
365	365	300	8	2374 (93.46)	758 (29.84)	889 (35)	361	361	300	7			
415	415	350	8				415	415	350	7			
481	481	400	8				477	477	400	7			
535	535	450	8				485	485	400	8 ⁽⁴⁾			
600	600	500	8		1016 (40)		545	545	450	8 ⁽⁴⁾	2453 (96.57)	600 (23.62)	800 (31.49) ⁽⁵⁾
730	730	600	9				617	617	500	8 ⁽⁴⁾			
875	875	700	10				740	740	650	8 ⁽⁴⁾			
					1268 (49.92)	889 (35)	960	960	800	9 ⁽⁴⁾	2453 (96.57)	1200 (47.24)	800 (31.49) ⁽⁵⁾

(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.

(5) The depth can be either 600 mm or 800 mm for 20G, frame 8, 9, and 10 depending on enclosure code.

Table 10 - PowerFlex 700 Drive to PowerFlex 750-Series Drive Conversions**TIP** Voltage rating is 600V AC for all the drives that are listed.

PowerFlex 700 Drive ⁽¹⁾							PowerFlex 750-Series Drive Conversion ⁽²⁾						
20B	Amps	HP (ND)	Frame	Height mm, (in.)	Width mm, (in.)	Depth mm, (in.)	20F/20G	Amps	HP (ND)	Frame	Height mm, (in.)	Width mm, (in.)	Depth mm, (in.)
1P7	1.7	1.0	0	336 (13.22)	110 (4.33)	200 (7.87)	1P7	1.7	1	3	454 (17.87)	190 (7.48)	212 (8.34)
2P7	2.7	2.0	0				2P7	2.7	2	3			
3P9	3.9	3.0	0				3P9	3.9	3	3			
6P1	6.1	5.0	0				6P1	6.1	5	3			
9P0	9	7.5	0				9P0	9	7.5	3			
011	11	10	1				011	11	10	3			
017	17	15	1	135 (5.31)	017		17	15	3	474 (18.66)	222 (8.74)	212 (8.34)	
022	22	20	2		022		22	20	3				
027	27	25	2		027		27	25	4				
032	32	30	3		032		32	30	4				
041	41	40	3		041		41	40	5				
052	52	50	3		052		52	50	5				
062	62	60	4	759 (29.88)	220 (8.66)	202 (7.95)	063	63	60	6	665.5 (26.2)	308 (12.12)	346.5 (13.64)
077	77	75	5	644.5 (25.37)	309 (12.16)	275.5 (10.84)	077	77	75	6			
099	99	100	5				099	99	100	6			
125	125	125	6	850 (33.46) ⁽³⁾	404 (15.9)		125	125	125	6			
144	144	150	6				144	144	150	6			

(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.

Table 11 - PowerFlex 700 Drive to PowerFlex 750-Series Drive Conversions.

TIP Voltage rating is 690V AC for all the drives that are listed.

PowerFlex 700 Drive ⁽¹⁾							PowerFlex 750-Series Drive Conversion ⁽²⁾						
20B	Amps	HP (ND)	Frame	Height mm, (in.)	Width mm, (in.)	Depth mm, (in.)	20F/ 20G	Amps	HP (ND)	Frame	Height mm, (in.)	Width mm, (in.)	Depth mm, (in.)
052	52	45	5	644.5 (25.37)	309 (12.16)	275.5 (10.84)	050	50	45	6	665.5 (26.2)	308 (12.12)	346.5 (13.64)
060	60	55	5				061	61	55	6			
082	82	75	5	850 ⁽³⁾ (33.46)	404 (15.9)		082	82	75	6			
098	98	90	6				098	98	90	6			
119	119	110	6				119	119	110	6			
142	142	132	6				142	142	132	6			

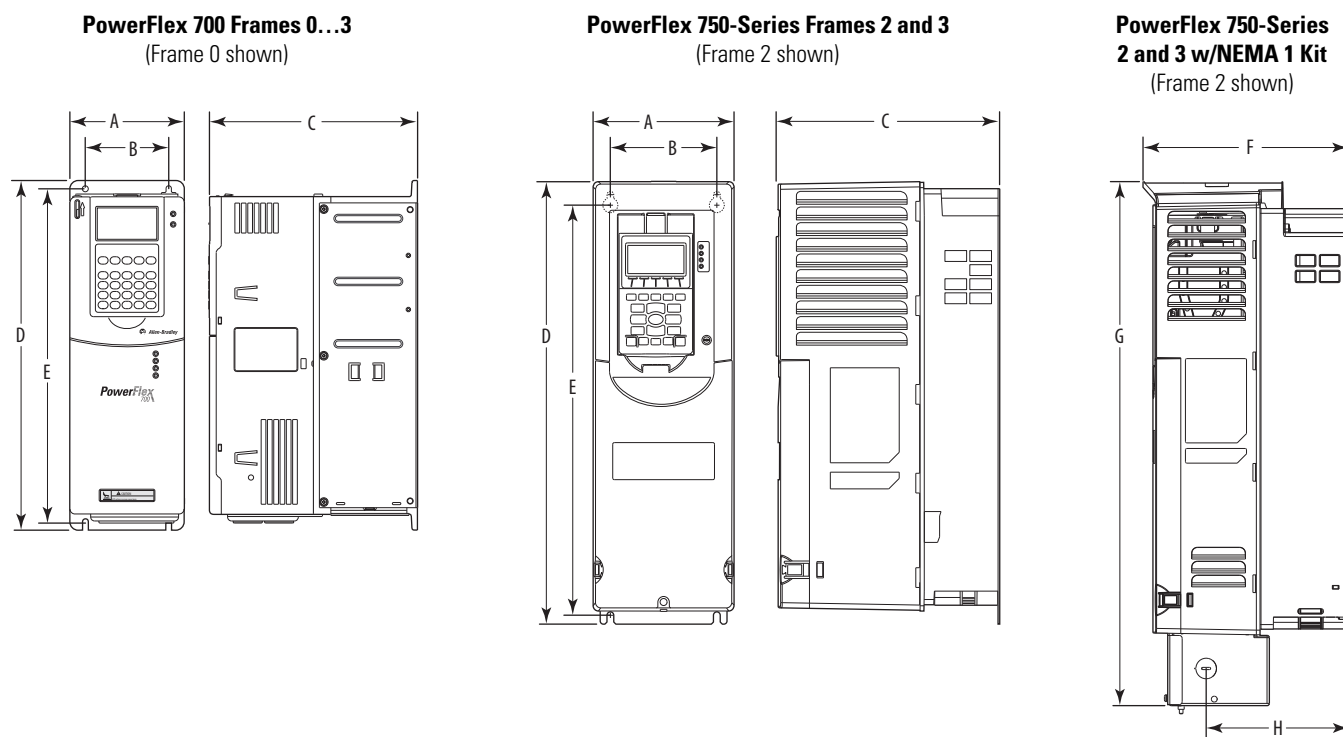
(1) All dimensions are IP20, NEMA/UL Type 1 unless specified otherwise.

(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.

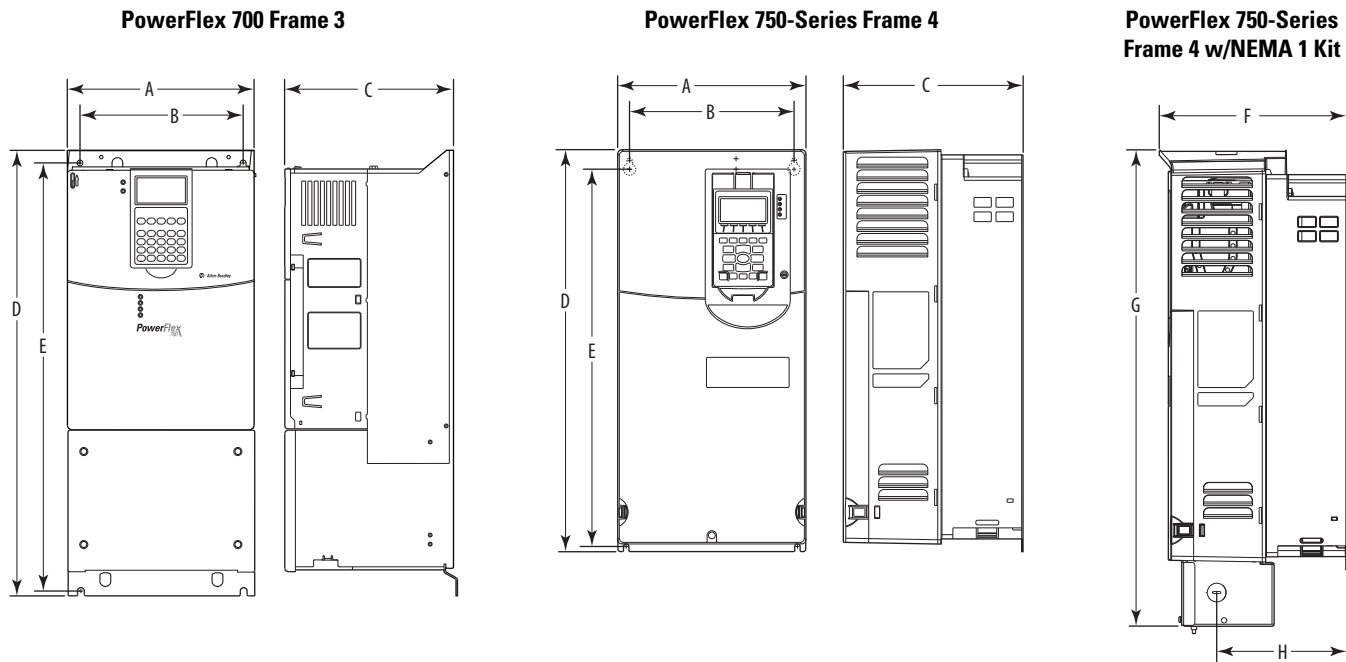
Dimensions

Figure 2 - PowerFlex 700 Frames 0...3 to PowerFlex 750-Series Frames 2 and 3



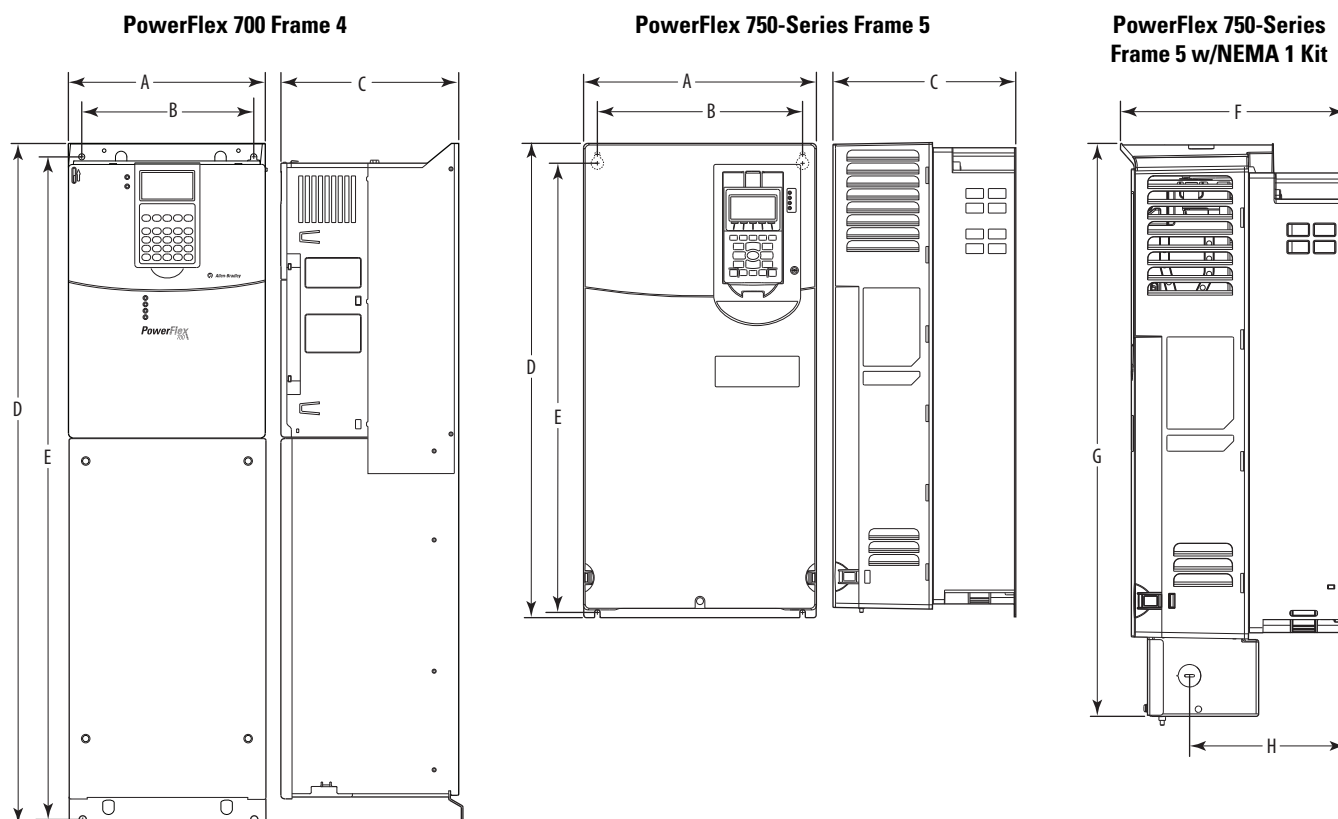
Drive	Frame	Dimensions mm (in.)							
		A	B	C	D	E	F	G	H
700	0	110.0 (4.33)	80.0 (3.15)	200.0 (7.87)	336.0 (13.23)	320.0 (12.60)			
	1	135.0 (5.32)	105.0 (4.13)	200.0 (7.87)	336.0 (13.23)	320.0 (12.60)			
	2	222.0 (8.74)	192.0 (7.56)	200.0 (7.87)	342.5 (13.48)	320.0 (12.60)			
	3	222.0 (8.74)	192.0 (7.56)	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



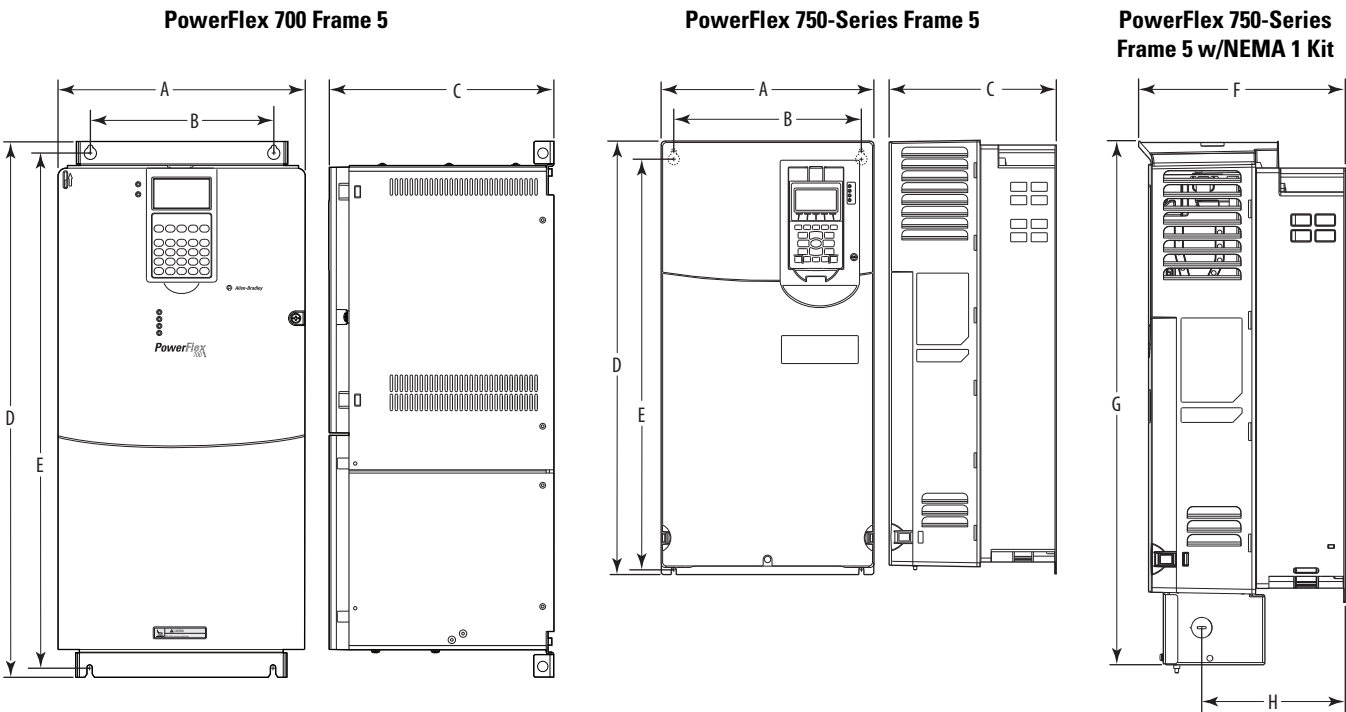
Drive	Frame	Dimensions mm (in.)							
		A	B	C	D	E	F	G	H
700	3	222.0 (8.74)	192.0 (7.56)	200.0 (7.87)	517.5 (20.37)	500.0 (19.69)			
750-Series	4	222.0 (8.74)	194.0 (7.64)	212.0 (8.35)	474.0 (18.66)	455.0 (17.91)	222.7 (8.77)	564.4 (22.22)	154.7 (6.09)

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



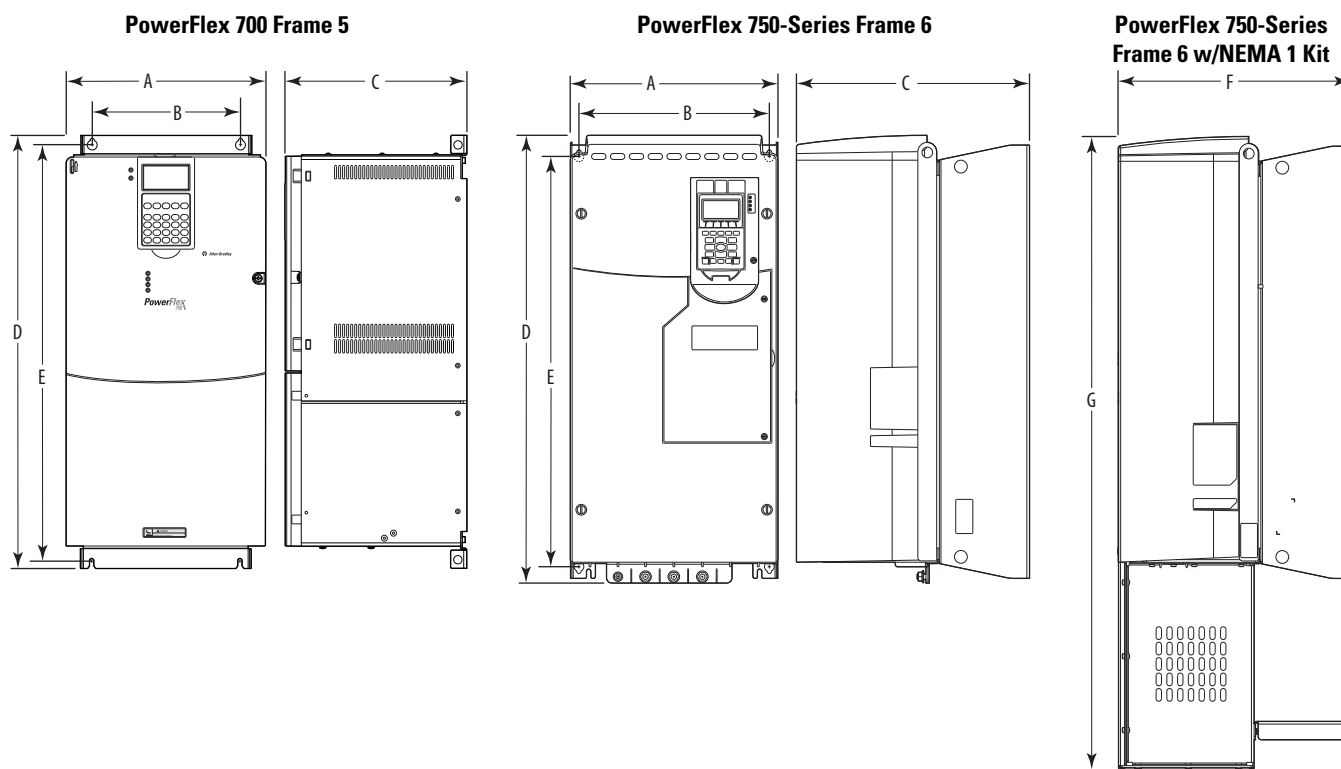
Drive	Frame	Dimensions mm (in.)							
		A	B	C	D	E	F	G	H
700	4	220.0 (8.66)	192.0 (7.56)	201.7 (7.94)	758.8 (29.87)	738.2 (29.06)			
750-Series	5	270.0 (10.63)	238.0 (9.37)	212.0 (8.35)	550.0 (21.65)	531.0 (20.91)	222.7 (8.77)	665.4 (26.20)	155.0 (6.10)

Figure 5 - PowerFlex 700 Frame 5 to PowerFlex 753/755 Frame 5



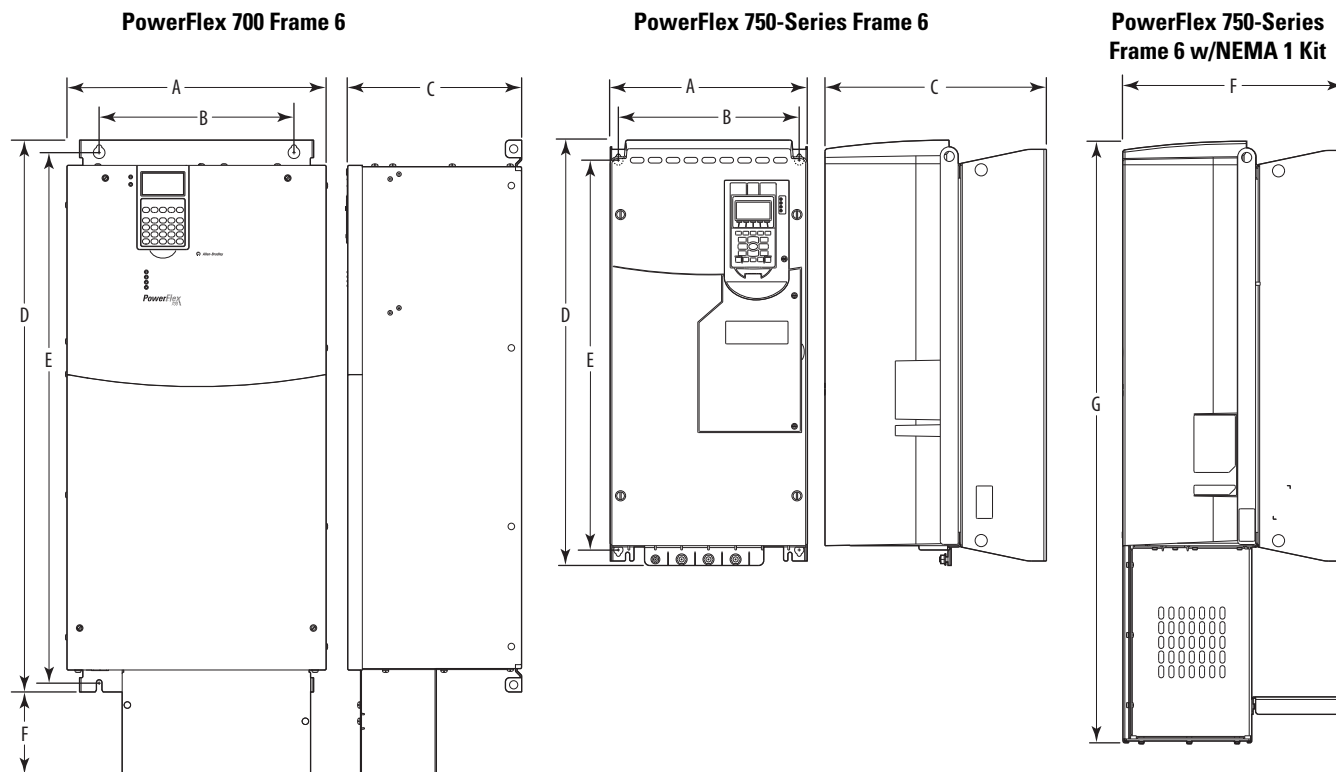
Drive	Frame	Dimensions mm (in.)							
		A	B	C	D	E	F	G	H
700	5	308.9 (12.16)	225.0 (8.86)	275.4 (10.84)	644.5 (25.37)	625.0 (24.61)			
750-Series	5	270.0 (10.63)	238.0 (9.37)	212.0 (8.35)	550.0 (21.65)	531.0 (20.91)	222.7 (8.77)	665.4 (26.20)	155.0 (6.10)

Figure 6 - PowerFlex 700 Frame 5 to PowerFlex 750-Series Frame 6



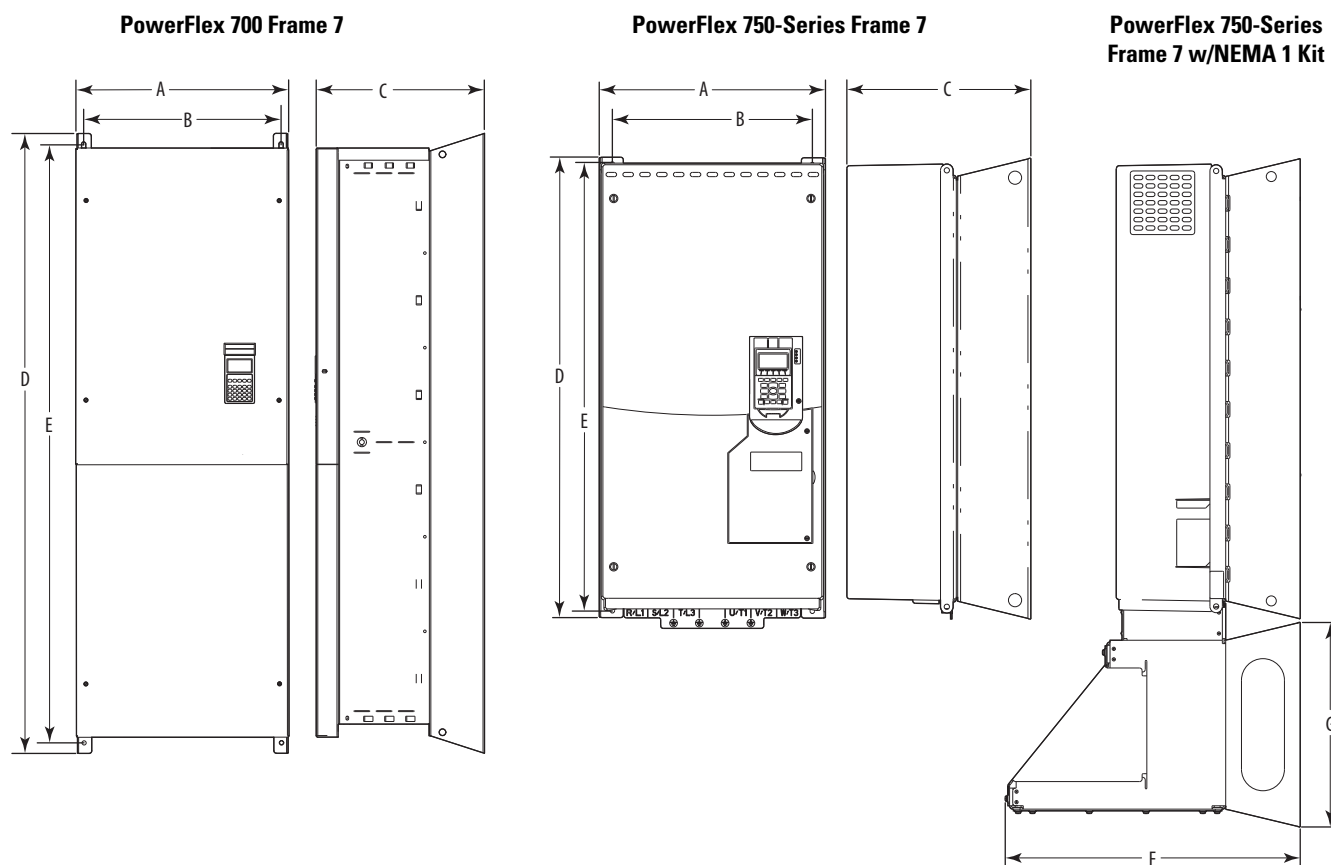
Drive	Frame	Dimensions mm (in.)							
		A	B	C	D	E	F	G	H
700	5	308.9 (12.16)	225.0 (8.86)	275.4 (10.84)	644.5 (25.37)	625.0 (24.61)			
750-Series	6	308.0 (12.13)	283.0 (11.14)	346.4 (13.64)	665.5 (26.20)	609.0 (23.98)	346.7 (13.65)	945.1 (37.21)	—

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



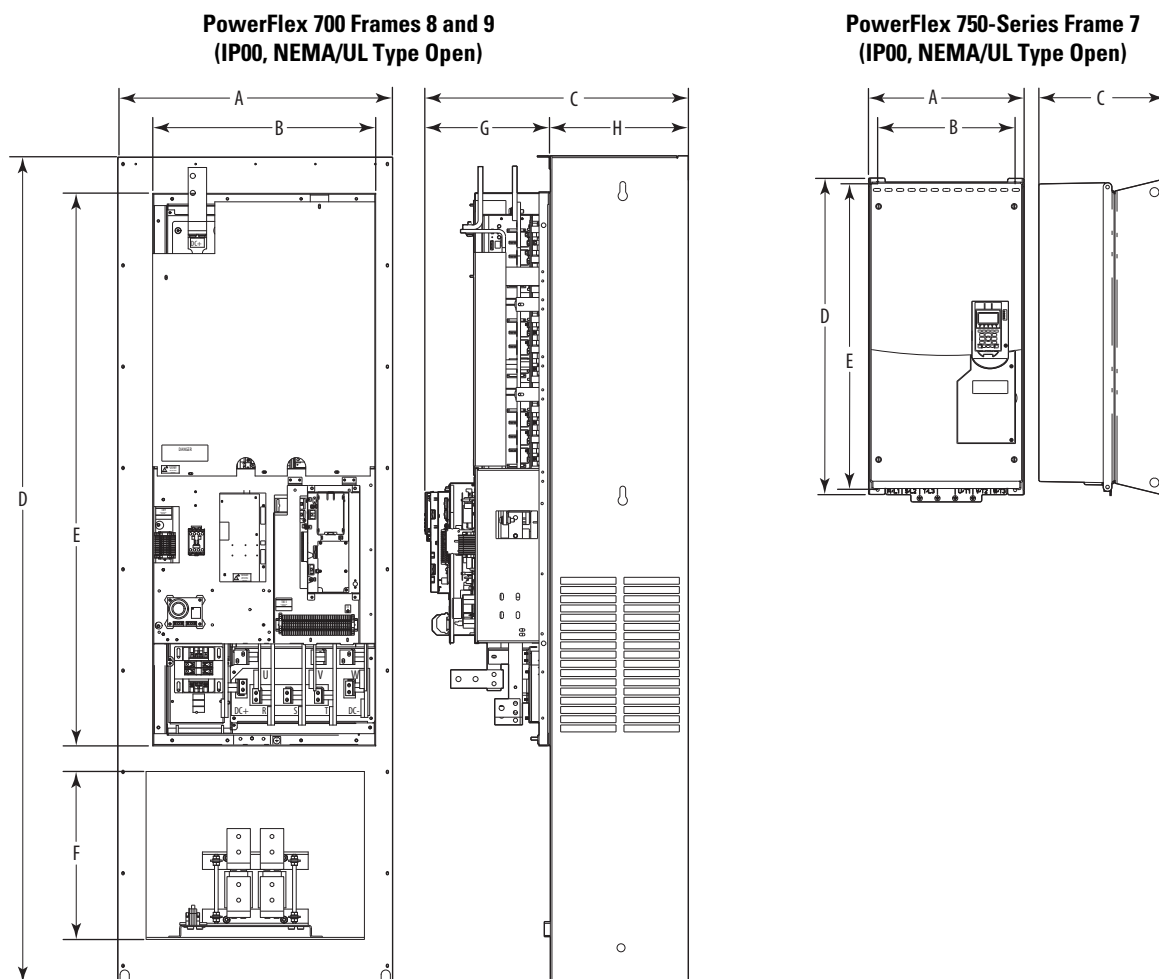
Drive	Frame	Dimensions mm (in.)							
		A	B	C	D	E	F	G	H
700	6	403.9 (15.90)	300.0 (11.81)	275.5 (10.85)	850.0 (33.46)	825.0 (32.48)	126.3 (4.97)		
750-Series	6	308.0 (12.13)	283.0 (11.14)	346.4 (13.64)	665.5 (26.20)	609.0 (23.98)	346.7 (13.65)	945.1 (37.21)	—

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



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 and 9 (IP00) to PowerFlex 750-Series Frame 7 (IP00)



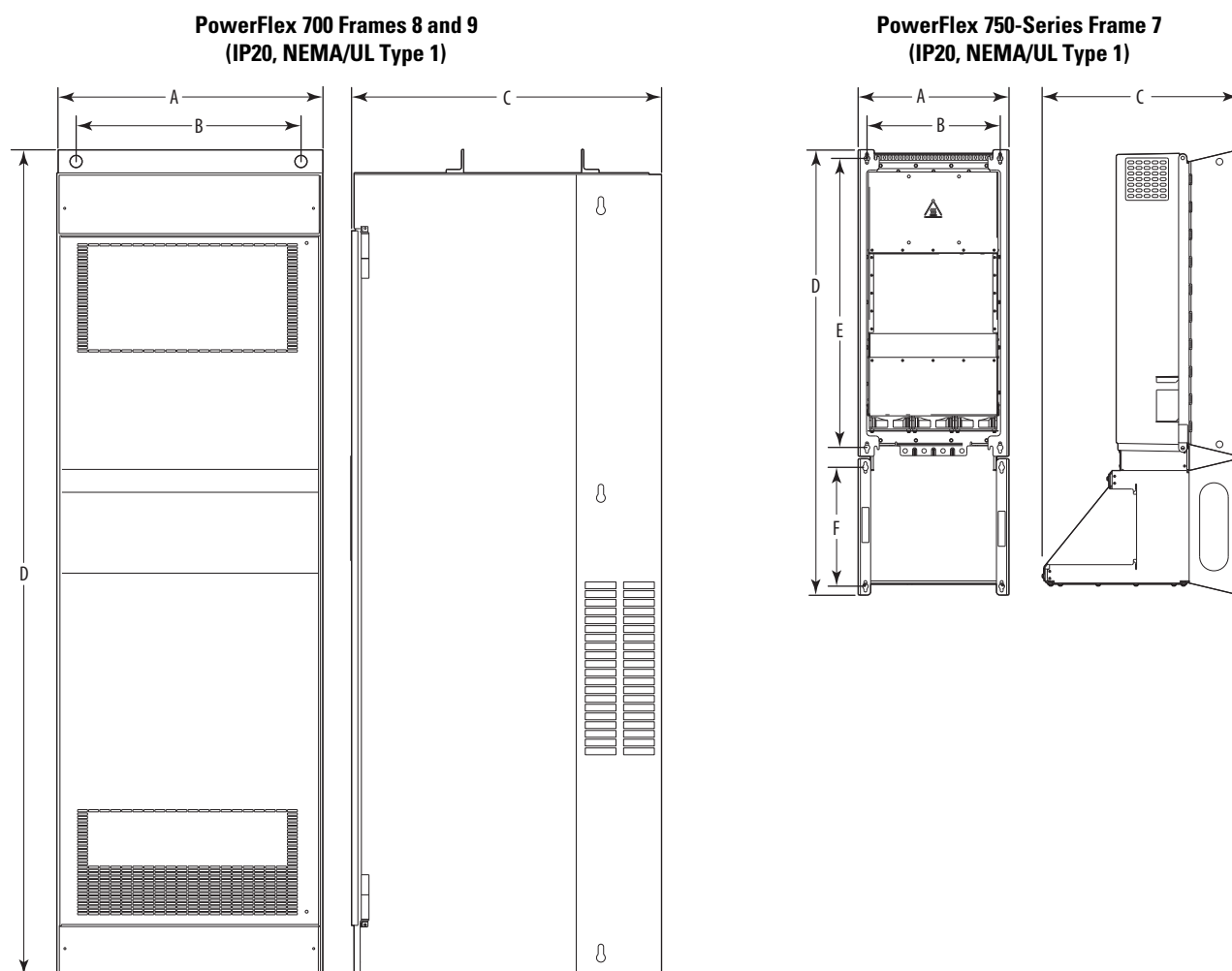
Drive	Frame	Dimensions mm (in.)							
		A	B	C	D	E	F	G	H
700	8 and 9	757.7 (29.83)	614.4 (24.19)	599.4 (23.60) ⁽¹⁾	2373.9 (93.46)	1524.0 (60.0)	463.8 (18.26)	345.4 (13.6) ⁽¹⁾	599.4 (23.6) ⁽¹⁾
				726.4 (28.60) ⁽²⁾				345.4 (13.6) ⁽²⁾	726.4 (28.6) ⁽²⁾
				781.8 (30.78) ⁽³⁾				400.8 (15.8) ⁽³⁾	781.8 (30.8) ⁽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 20Bx365...20Bx481.

(2) For PowerFlex 700 drive catalog numbers 20Bx535 and 20Bx600.

(3) For PowerFlex 700 drive catalog number 20Bx730.

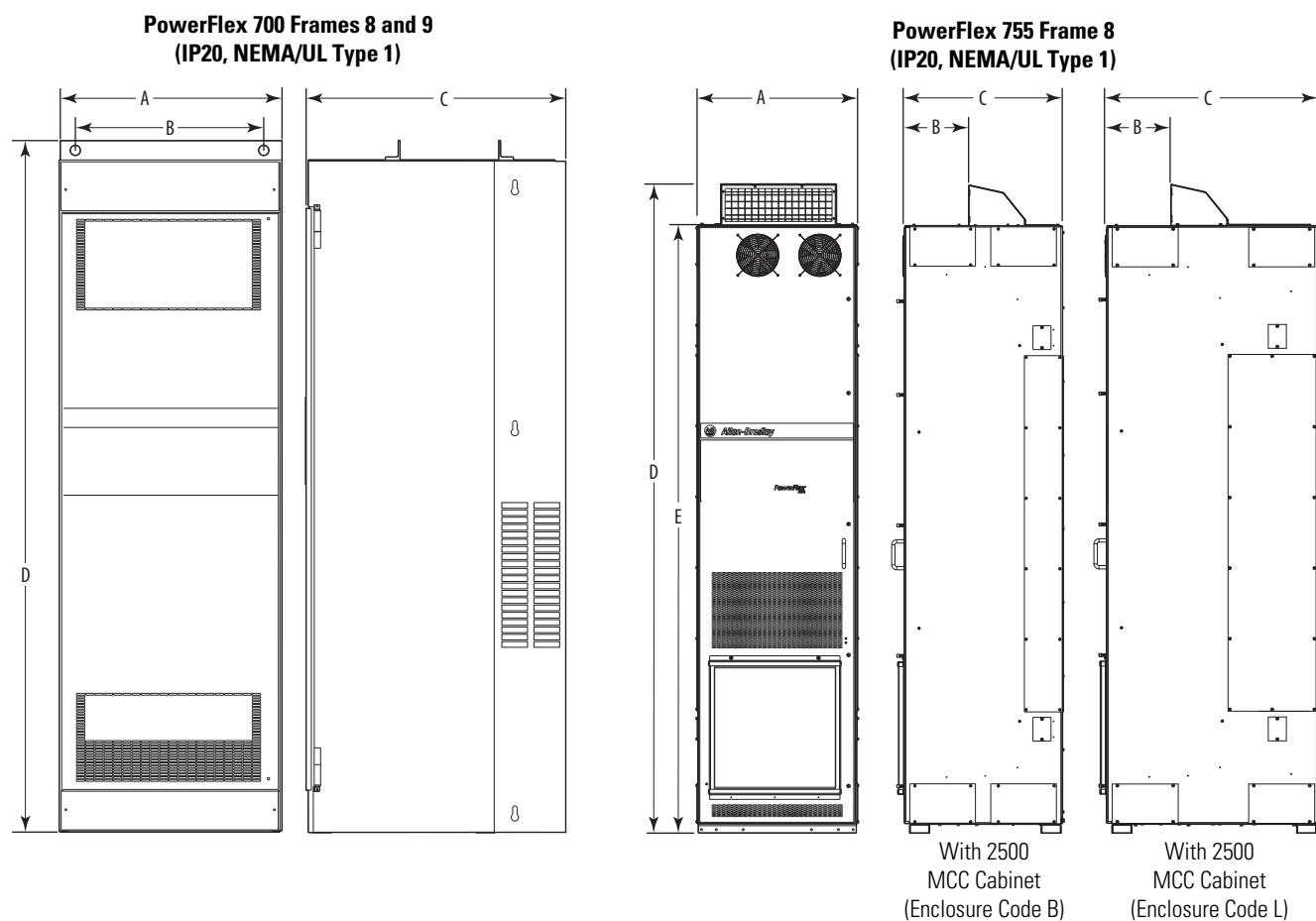
Figure 10 - PowerFlex 700 Frames 8 and 9 (IP20) to PowerFlex 750-Series Frame 7 (IP20)



Drive	Frame	Dimensions mm (in.)							
		A	B	C	D	E	F	G	H
700	8 and 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 20Bx365...20Bx481.

(2) For PowerFlex 700 drive catalog numbers 20Bx535...20Bx730.

Figure 11 - PowerFlex 700 Frames 8 and 9 (IP20) to PowerFlex 755 Frame 8 (IP20)**NOTE:** PowerFlex 753 Drive is not available in a Frame 8 model.

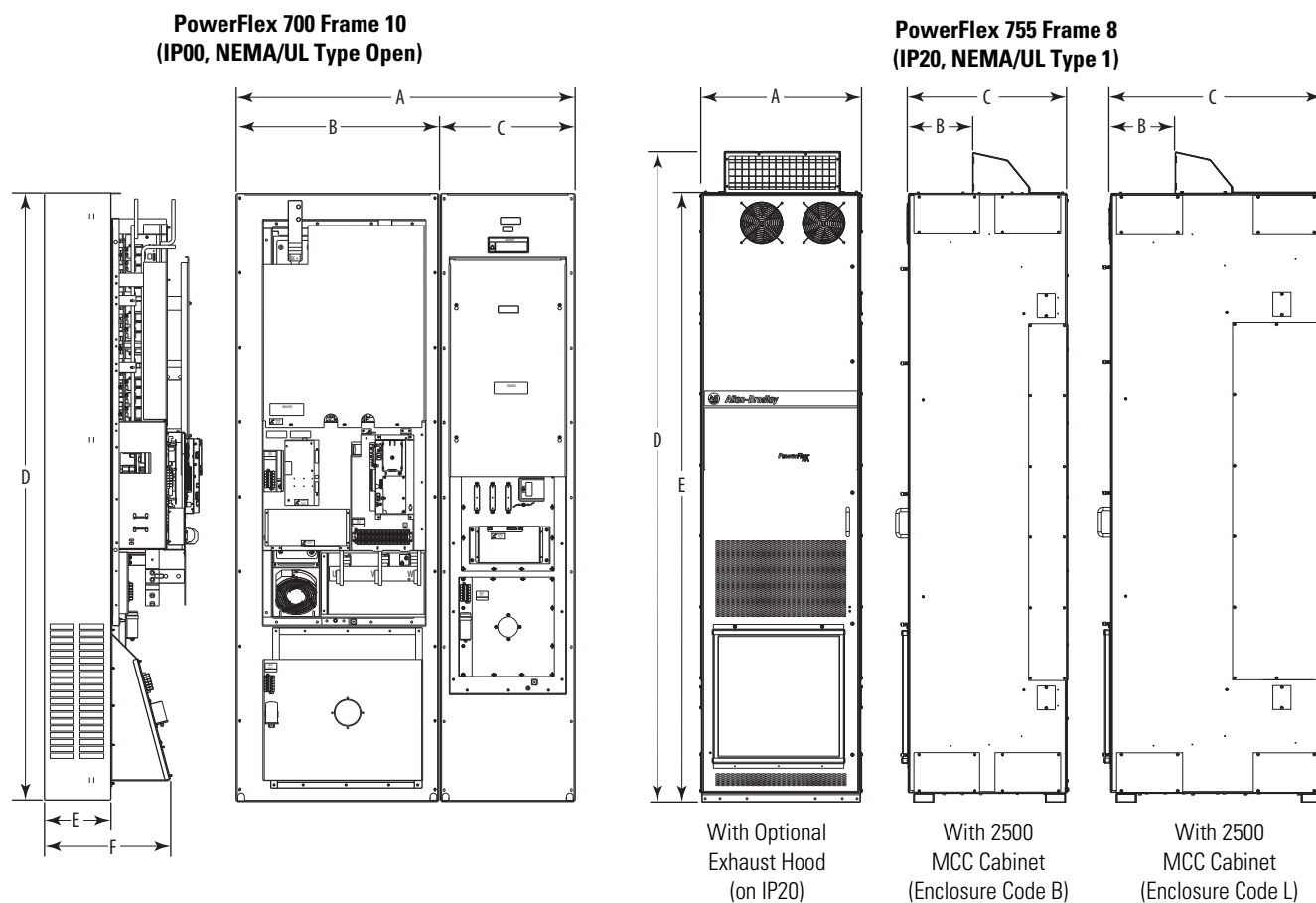
Drive	Frame	Dimensions mm (in.)							
		A	B	C	D	E	F	G	H
700	8 and 9	757.7 (29.83)	—	889.0 (35.0) ⁽¹⁾ 1016.0 (40.0) ⁽²⁾	2373.9 (93.46)				
755	8	600.0 (23.6)	240.0 (9.4)	600.0 (23.6) ⁽³⁾ 800.0 (31.5) ⁽⁴⁾	2453.0 (96.6)	2300.0 (90.6)	339.2 (13.35)		

(1) For PowerFlex 700 drive catalog numbers 20Bx365...20Bx481.

(2) For PowerFlex 700 drive catalog numbers 20Bx535...20Bx730.

(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.

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 12 - PowerFlex 700 Drives Terminal Block Specifications

Refer to pages [32](#) and [33](#) for typical locations.

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

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

(3) 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).

(4) 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.

Table 13 - PowerFlex 700 Drives Power Terminal Block Locations (continued)Refer to pages [32](#) and [33](#) for typical locations.

Location No.	Name	Frame	Description	Wire Size Range ⁽¹⁾		Torque	
				Maximum	Minimum	Maximum	Recommended
4	I/O Terminal Block	0...6	Signal and control connections	2.5 mm ² (14 AWG)	0.30 mm ² (22 AWG)	0.6 N•m (5.3 lb. •in.)	0.6 N•m (5.3 lb. •in.)
		7...10		4.0 mm ² (12 AWG)	0.049 mm ² (30 AWG)	0.6 N•m (5.3 lb. •in.)	0.6 N•m (5.3 lb. •in.)
5	Encoder Terminal Block	0...10	Encoder power and signal connections	0.75 mm ² (18 AWG)	0.196 mm ² (24 AWG)	0.6 N•m (5.3 lb. •in.)	0.6 N•m (5.3 lb. •in.)
6	Fan Terminal Block	5...6	User supplied fan voltage	4.0 mm ² (12 AWG)	0.5 mm ² (22 AWG)	0.6 N•m (5.3 lb. •in.)	0.6 N•m (5.3 lb. •in.)
		7		4.0 mm ² (12 AWG)	0.5 mm ² (22 AWG)	0.9 N•m (8.0 lb. •in.)	0.6 N•m (5.3 lb. •in.)
		8...10		4.0 mm ² (12 AWG)	0.5 mm ² (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	DC Brake (+)	DB Resistor Connection Important: Only one DB resistor can be used with Frames 0...3. Connecting an internal and external resistor could cause damage.
BR2	DC Brake (–)	
DC+	DC Bus (+)	DC input/brake connections
DC–	DC Bus (–)	
PE	PE Ground	
PS+	Auxiliary Control Terminal Block	See page 32 .
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 and T Single-phase = R and S only ⁽¹⁾
T	T (L3)	

(1) Frames 0...7 only.

Figure 13 - PowerFlex 700 Drive Terminal Block Locations

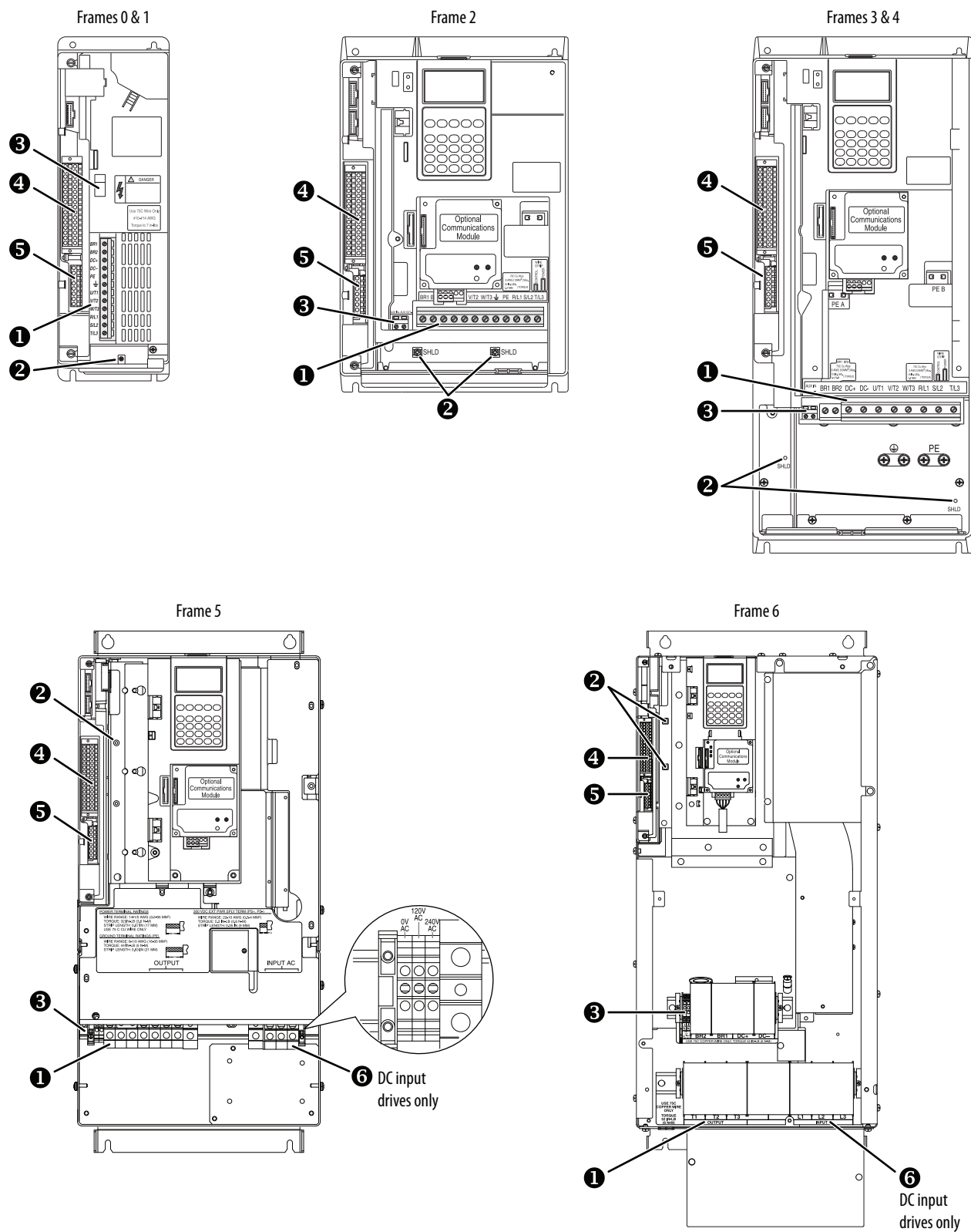


Figure 14 - PowerFlex 700 Drive Terminal Block Locations (continued)

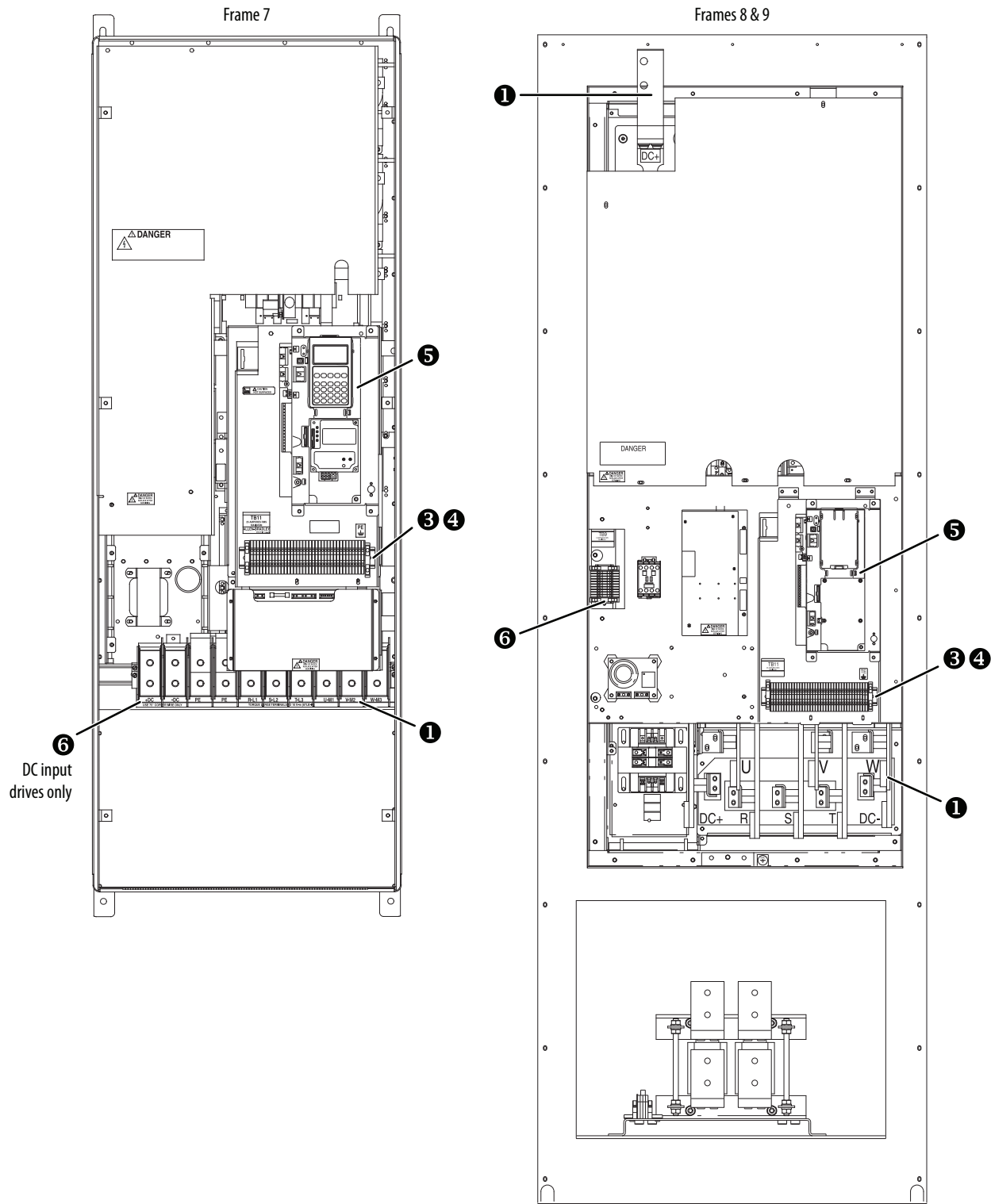
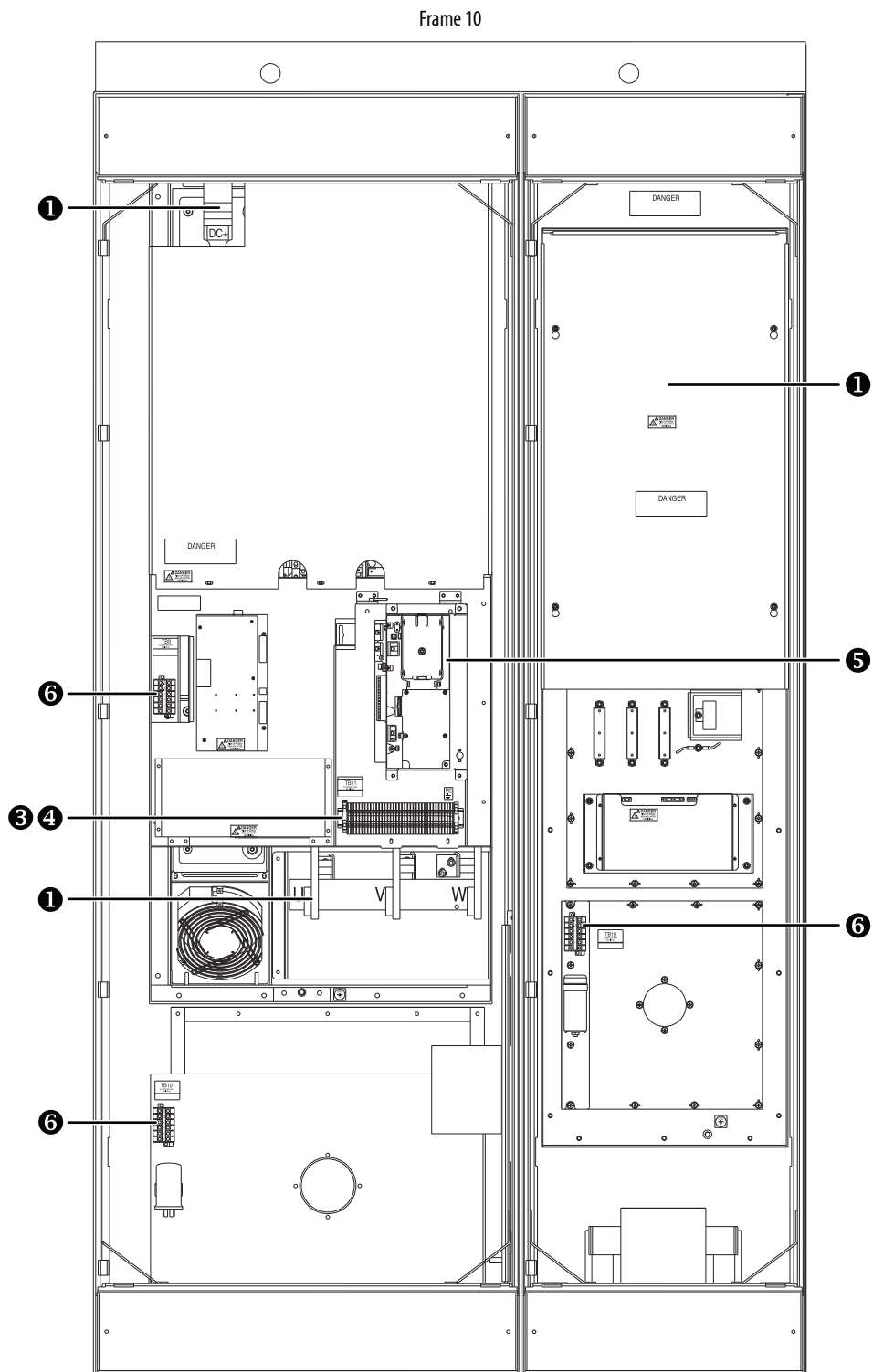
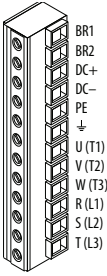
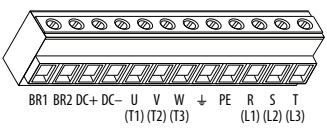
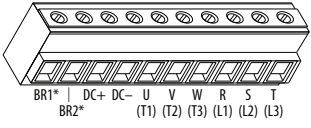
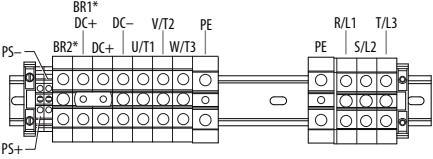
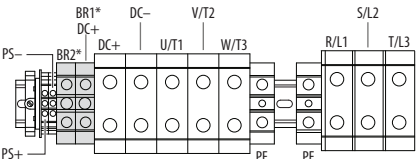
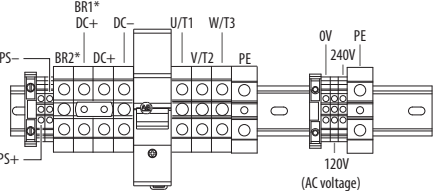
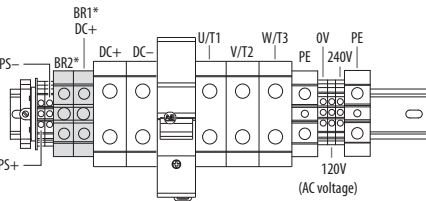
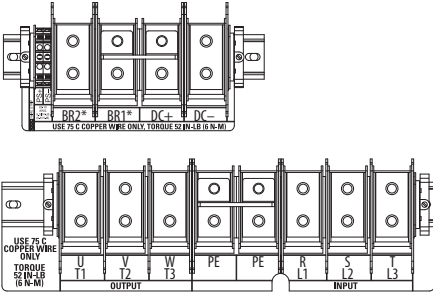
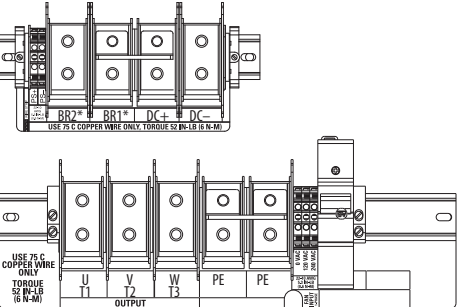


Figure 15 - PowerFlex 700 Drive Terminal Block Locations (continued)



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

Table 14 - PowerFlex 700 Drive Power Terminals

Frame	Terminal Block	
0 and 1		
2		
3 and 4 ⁽¹⁾		
5 ⁽¹⁾	AC Input 75 Hp, Normal Duty  100 Hp, Normal Duty 	DC Input 75 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 15 - PowerFlex 700 Drive Power Terminals (continued)

Frame	Terminal Block	
7	AC Input 	DC Input
	8 and 9 	
10		

PowerFlex 750-Series Drives

Table 16 - 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 Pozidriv® 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 Pozidriv® 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.

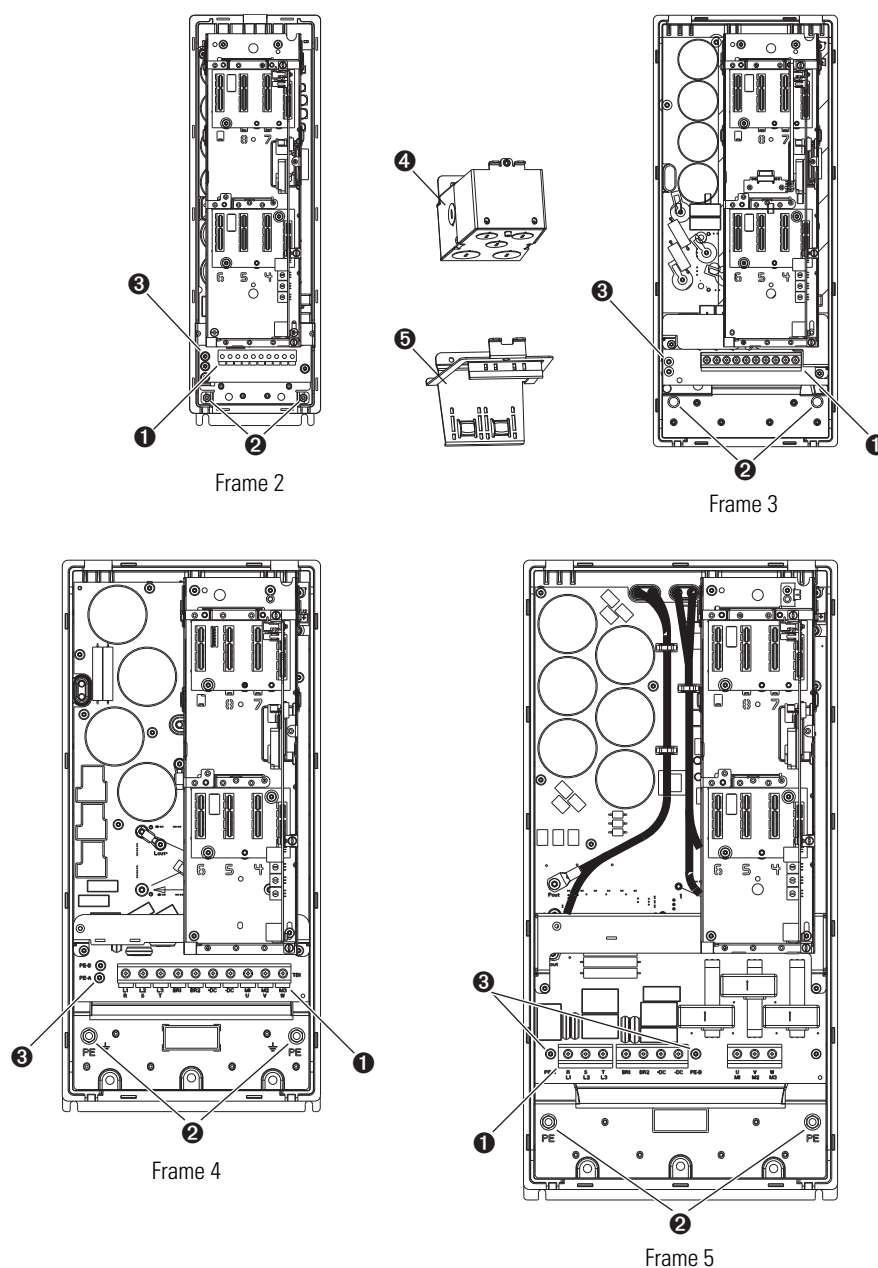
Table 17 - PowerFlex 750-Series Frames 6 and 7 Terminal Block Specifications

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 18 - PowerFlex 750-Series Frames 2...7 PE Grounding Stud Specifications

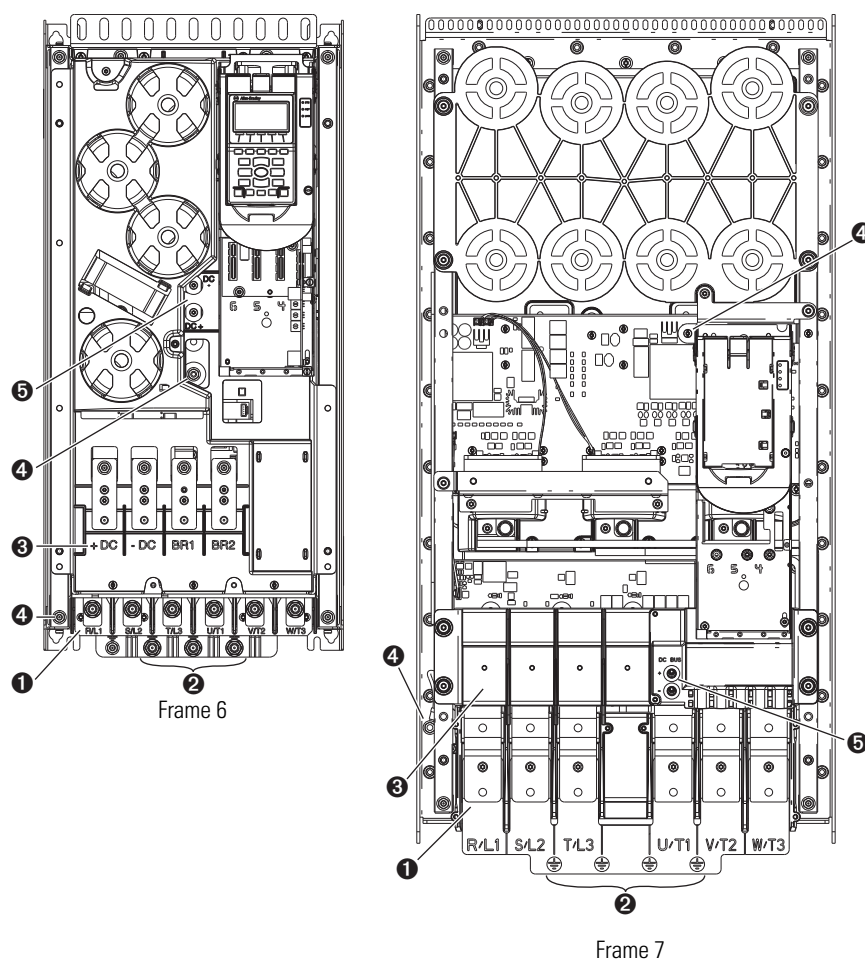
Frame	Recommended Torque	Terminal Bolt Size	Recommended Tool
2	1.36 N•m (12 lb•in)	M4	7 mm hex deep-socket
3	3.4 N•m (30 lb•in)	M6	10 mm hex deep-socket
4	3.4 N•m (30 lb•in)	M6	10 mm hex deep-socket
5	3.4 N•m (30 lb•in)	M6	10 mm hex deep-socket
6	11.3 N•m (100 lb•in)	M8	13 mm hex socket
7	11.3 N•m (100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

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



No.	Name	Description
1	Power Terminal Block	R/L1, S/L2, T/L3, BR1, BR2, +DC, -DC, U/T1, V/T2, W/T3
2	PE Grounding Studs	Terminating point to chassis ground for incoming AC line and motor shields
3	PE-A and PE-B	MOV and CMC jumper screws
4	Optional NEMA/UL Type 1 Conduit Box	Terminating point to chassis ground for incoming AC line, motor shields, and control wire shields
5	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 and 7
Typical Terminal Block Location and Termination Points (continued)



No.	Name	Description
1	Power Terminals	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3
2	PE Grounding Studs	Terminating point to chassis ground for incoming AC line and motor shield
3	DC Bus and Brake Terminals	+DC, -DC, BR1, BR2
4	PE-A and PE-B	MOV and CMC jumper wires
5	DC+ and DC-	Bus voltage test points

Figure 18 - PowerFlex 755 Drive Power Terminal Bus Bar Locations

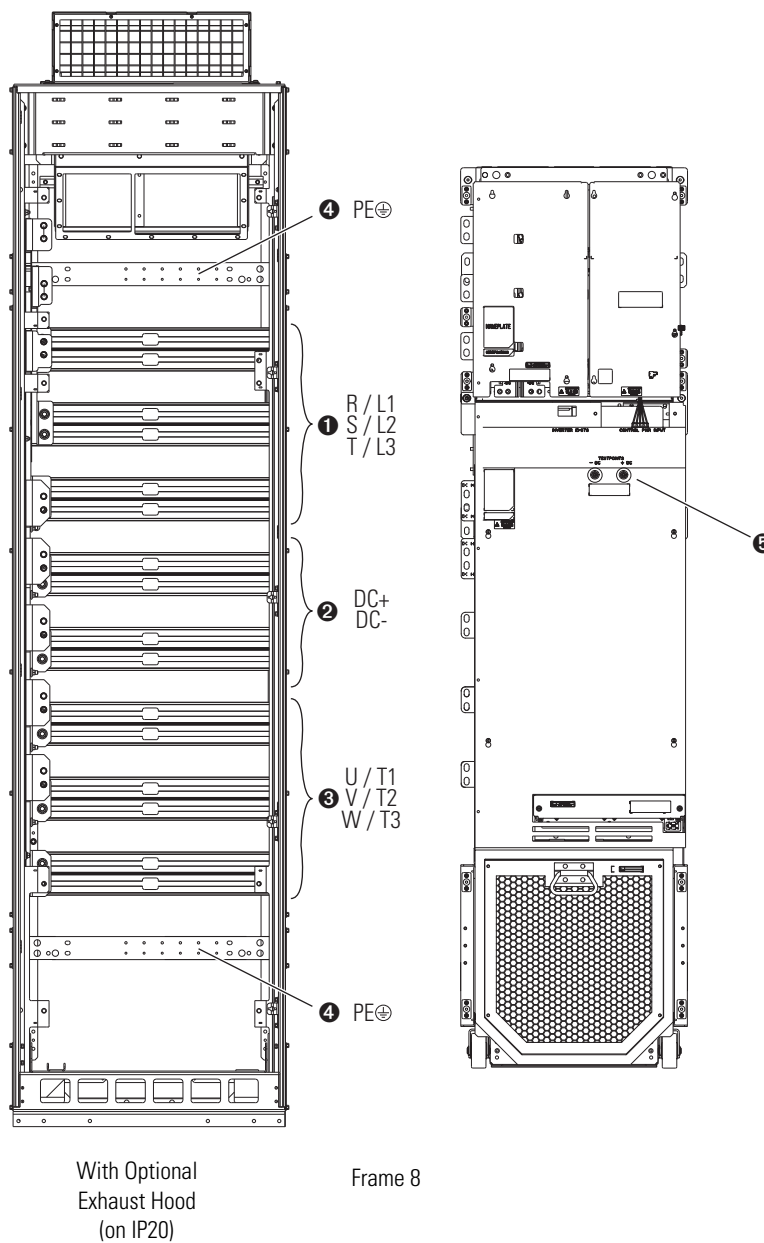
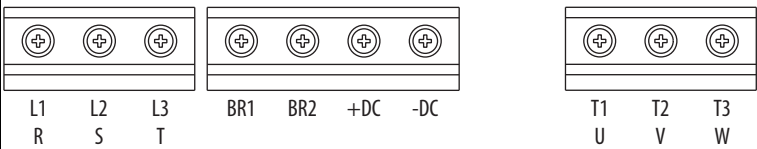
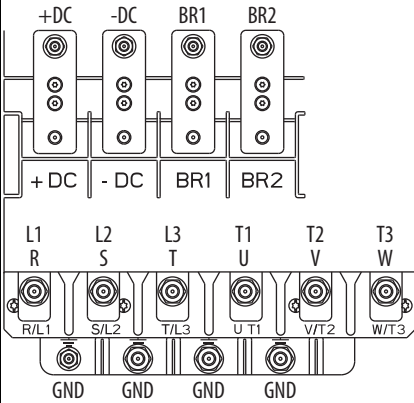
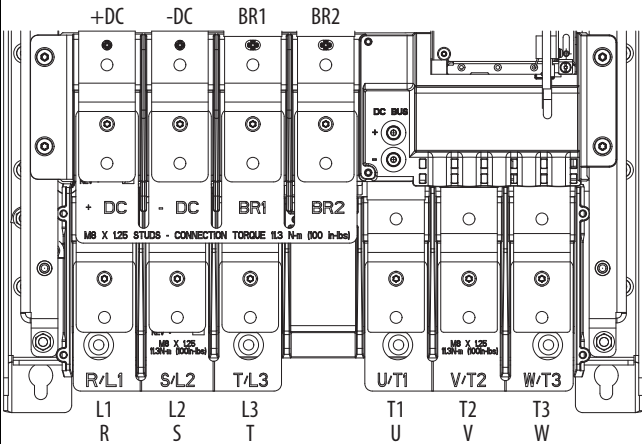


Table 19 - PowerFlex 755 Drive Frame 8 Power Terminal Locations

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

Table 20 - PowerFlex 750-Series Power Terminal Blocks

Frame	Power Terminal Blocks
2	L1L2L3BRBR+ - T1T2T3 RS12DCDCUVW
3	L1L2L3BRBR+ - T1T2T3 RS12DCDCUVW
4	R S T BR1 BR2 +DC -DC U V W L1L2L3BR1BR2+DC-DCUVT3 L1L2L3BR1BR2+DC-DCUVT3 RS12DCDCUVW

Frame	Power Terminal Blocks
5	
6 ⁽¹⁾	
7 ⁽²⁾	

- (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 [page 52](#).

Table 21 - 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 / $\perp$	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.

Table 22 - PowerFlex 755 Drive Frame 8 and 9 Power Wiring Options

				0		X	
				Adequate Spacing Available conduit plates provide adequate spacing for typical cabling.		Possible – Evaluation is Required Available conduit plates must be evaluated to determine if cabling fits.	
						Not Possible – Insufficient Spacing Conduit plates are not available for the specified configuration.	
Frame	Enclosure Rating	Enclosure Code	Cabinet Layout	Top Entry/ Top Exit	Top Entry/ Bottom Exit	Bottom Entry/ Top Exit	Bottom Entry/ Bottom Exit
8	IP20, NEMA/UL Type 1	B	600 mm drive cabinet	X		X	0
		L	800 mm drive cabinet	0		0	
		B	600 mm drive with power option bay			X	0
		L	800 mm drive with power option bay			0	
		B	600 mm drive with wiring bay				
		L	800 mm drive with wiring bay				
		B	600 mm drive with power option and wiring bays				
		L	800 mm drive with power option bay and wiring bays				
	IP54, NEMA/UL Type 12	J	800 mm drive cabinet	X	X	X	
		J	800 mm drive with power option bay	X		0	0
		J	800 mm drive with wiring bay				
		J	800 mm drive with power option bay and wiring bays				
9	IP20, NEMA/UL Type 1	B	600 mm drive cabinet	0		0	0
		L	800 mm drive cabinet				
		B	600 mm drive with power option bay			X	
		L	800 mm drive with power option bay			0	
		B	600 mm drive with wiring bay				
		L	800 mm drive with wiring bay				
		B	600 mm drive with power option and wiring bays				
		L	800 mm drive with power option bay and wiring bays				
	IP54, NEMA 12	J	800 mm drive cabinet	X	X	X	
		J	800 mm drive with power option bay	0		0	
		J	800 mm drive with wiring bay				
		J	800 mm drive with power option bay and wiring bays				

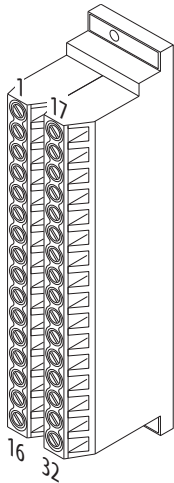
Control Terminal Comparison

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 52](#). 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

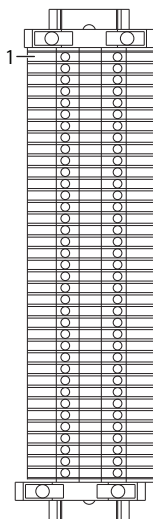
Table 23 - PowerFlex 700 Drives I/O Control Terminal Designations (Frames 0...6)



Terminal	Name	Factory Default	Description
1	Analog In 1 (-) ⁽¹⁾	⁽⁴⁾	Isolated ⁽⁵⁾ , bipolar, differential, $\pm 10\text{V}/0 \dots 20 \text{ mA}$, 11 bit and sign For $0 \dots 20 \text{ mA}$, a jumper must be installed at terminals 17 and 18 (or 19 and 20) 88 kohm input impedance when configured for volt and 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), $\pm 10\text{V}/0 \dots 20\text{mA}$, 11 bit and 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 3.32 kohm pull-up resistor
11	Digital Out 1 – N.C. ⁽²⁾	Fault	Max. Resistive Load: 240V AC/30V DC – 1200VA, 150W Max. Current: 5 A, Min. Load: 10 mA Max. Inductive Load: 240V AC/30V DC – 840VA, 105 W Max. Current: 3.5 A, 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 and 18 (or 19 and 20) will configure that analog input for current
18			
19	Current In Jumper ⁽¹⁾ – Analog In 2		
20			
21	–10V Pot Reference	—	2 kohm 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: 21 kohm
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 and 18 (or 19 and 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 24 - 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, $\pm 10\text{V}/4\ldots 20\text{ mA}$, 11 bit and sign, 88 kohm input impedance For 4...20 mA, a jumper must be installed at terminals 17 and 18 (or 19 and 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), $\pm 10\text{V}/4\ldots 20\text{ mA}$, 11 bit and 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	–	1.8 kohm 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, 150 W Max. Current: 5 A, Min. Load: 10 mA Max. Inductive Load: 240V AC/30V DC – 840VA, 105 W Max. Current: 3.5 A, Min. Load: 10 mA	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 and 18 (or 19 and 20) will configure that analog input for current	
18	Current In Jumper ⁽¹⁾ – Analog In 2			
19	Current In Jumper ⁽¹⁾ – Analog In 2			
20	Current In Jumper ⁽¹⁾ – Analog In 2			
21	–10V Pot Reference	–	2 kohm minimum load	
22	+10V Pot Reference	–		
23	HW PTC Input 2	–	See above.	
24	+24VDC ⁽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 and 18 (or 19 and 20). Drive damage may occur if jumper is not installed.

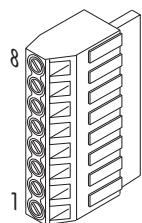
(2) Contacts in unpowered state. Any relay programmed as Fault or Alarm will energize (pick up) when power is applied to drive and deenergize (drop out) when a fault or alarm exists. Relays selected for other functions will energize only when that condition exists and will deenergize when condition is 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 25 - 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 and B are used for encoder.

PowerFlex 753 Drives Main Control Board I/O

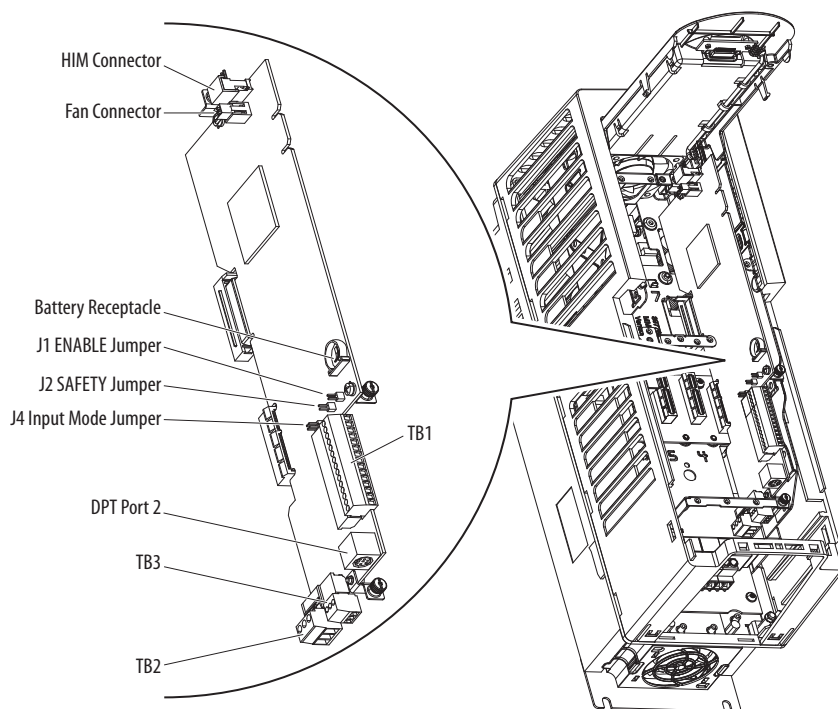


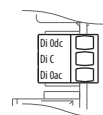
Table 26 - PowerFlex 753 Drive TB1 Terminal Designations

Terminal	Name	Description	Related Param
Ao0-	Analog Out 0 (-)	Bipolar, $\pm 10V$, 11 bit and sign, 2 kohm minimum load;	270
Ao0+	Analog Out 0 (+)	4...20 mA, 11 bit and sign, 400 ohm maximum load	
10VC	10 Volt Common	For (+) 10 Volt references;	
+10V	+10 Volt Reference	2 kohm minimum	
Ai0-	Analog Input 0 (-)	Isolated ⁽¹⁾ , bipolar, differential, $\pm 10V$, 11 bit and sign, 88 kohm 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	150
Di C	Digital Input Common	24V DC - Opto isolated	
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.

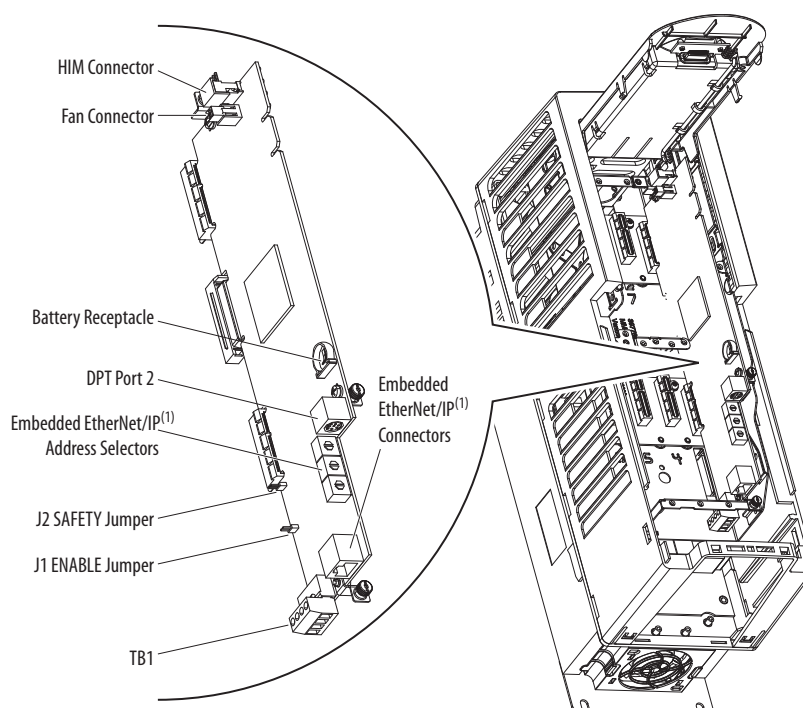
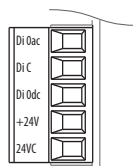
Table 27 - PowerFlex 753 Drive TB2 Terminal Designations

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 28 - 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


Table 29 - 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

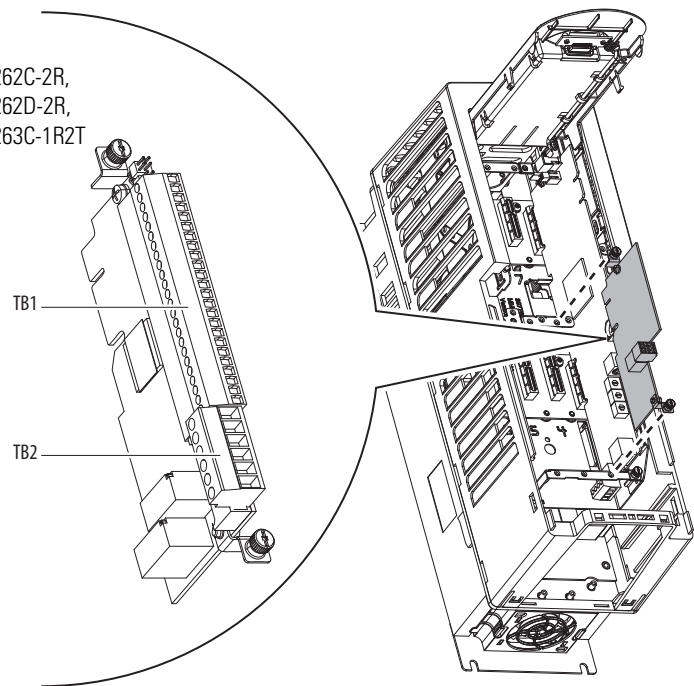
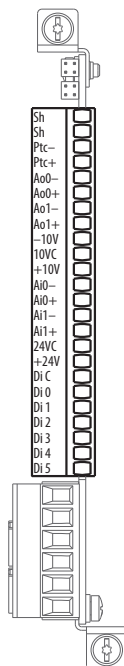
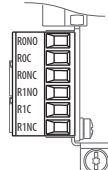


Table 30 - TB1 Control Terminal Designations


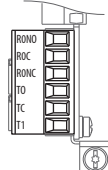
Terminal	Name	Description	Related Param.
Sh	Shield	Terminating point for wiring shields when an EMC plate or conduit box is not installed	
Ptc–	Motor PTC (–)	Motor protection device (Positive Temperature Coefficient)	40
Ptc+	Motor PTC (+)		
Ao0–	Analog Out 0 (–)	Bipolar, $\pm 10V$, 11 bit and sign, 2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

(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 31 - TB2 Terminal Designations (Cat. Nos. 20-750-2262x-2R) ⁽¹⁾


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

Table 32 - TB2 Terminal Designations (Cat. No. 20-750-2263C-1R2T) ⁽¹⁾


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

(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 33 - PowerFlex 700 Drive Catalog Number Explanation

20B	D	2P1	A	3	A	Y	N	A	E	C	0	NN	AD
<i>a</i>	<i>b</i>	<i>c1...c5</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>	<i>i</i>	<i>j</i>	<i>k</i>	<i>l</i>	<i>m</i>	<i>n</i>

<i>a</i>	
Drive	
Code	Type
20B	PowerFlex 700

<i>b</i>				
Voltage Rating				
Code	Voltage	Ph.	Prechg.	Frames
B	240V AC	3	-	0...6
C	400V AC	3	-	0...6
D	480V AC	3	-	0...6
E	600V AC	3	-	0...6
F	690V AC	3	-	5...6
H	540V DC	-	N	5...6
J	650V DC	-	N	5...6
N	325V DC	-	Y	5...6
P	540V DC	-	Y	5...9(1)
R	650V DC	-	Y	5...9(1)
T	810V DC	-	Y	5...6
W	932V DC	-	Y	5...6

(1) Frame size 7, 8, 9, and 10 are no longer available for sale.

<i>c1</i>				
ND Rating				
208/240V, 60 Hz Input				
Code	208V Amps	240V Amps	Hp	Frame
2P2	2.5	2.2	0.5	0
4P2	4.8	4.2	1.0	0
6P8	7.8	6.8	2.0	1
9P6	11	9.6	3.0	1
015	17.5	15.3	5.0	1
022	25.3	22	7.5	1
028	32.2	28	10	2
042	48.3	42	15	3
052	56	52	20	3
070	78.2	70	25	4
080	92	80	30	4
104	120	104	40	5
130	130	130	50	5
154	177	154	60	6
192	221	192	75	6
260	260	260	100	6

<i>c2</i>			
ND Rating			
400V, 50 Hz Input			
Code	Amps	kW	Frame
1P3	1.3	0.37	0
2P1	2.1	0.75	0
3P5	3.5	1.5	0
5P0	5.0	2.2	0
8P7	8.7	4.0	0
011	11.5	5.5	0
015	15.4	7.5	1
022	22	11	1
030	30	15	2
037	37	18.5	2
043	43	22	3
056	56	30	3
072	72	37	3
085	85	45	4
105	105	55	5
125	125	55	5
140	140	75	5
170	170	90	6
205	205	110	6
260	260	132	6
292	292	160	7 (1)
325	325	180	7 (1)
365	365	200	8 (1)
415	415	240	8 (1)
481	481	280	8 (1)
535	535	300	8 (1)
600	600	350	8 (1)
730	730	400	9 (1)
875	875	500	10 (1)

(1) This model is no longer available for sale.

<i>c3</i>			
ND Rating			
480V, 60 Hz Input			
Code	Amps	Hp	Frame
1P1	1.1	0.5	0
2P1	2.1	1.0	0
3P4	3.4	2.0	0
5P0	5.0	3.0	0
8P0	8.0	5.0	0
011	11	7.5	0
014	14	10	1
022	22	15	1
027	27	20	2
034	34	25	2
040	40	30	3
052	52	40	3
065	65	50	3
077	77	60	4
096	96	75	5
125	125	100	5
156	156	125	6
180	180	150	6
248	248	200	6
292	292	250	7 (1)
325	325	250	7 (1)
365	365	300	8 (1)
415	415	350	8 (1)
481	481	400	8 (1)
535	535	450	8 (1)
600	600	500	8 (1)
730	730	600	9 (1)
875	875	700	10 (1)

(1) This model is no longer available for sale.

<i>c4</i>			
ND Rating			
600V, 60 Hz Input			
Code	Amps	Hp	Frame
1P7	1.7	1.0	0
2P7	2.7	2.0	0
3P9	3.9	3.0	0
6P1	6.1	5.0	0
9P0	9.0	7.5	0
011	11	10	1
017	17	15	1
022	22	20	2
027	27	25	2
032	32	30	3
041	41	40	3
052	52	50	3
062	62	60	4
077	77	75	5
099	99	100	5
125	125	125	6
144	144	150	6

Table 34 - PowerFlex 700 Drive Catalog Number Explanation (continued)

20B

D

2P1

A

3

A

Y

N

A

E

C

0

NN

AD

a

b

c1...c5

d

e

f

g

h

i

j

k

l

m

n

c5

ND Rating

690V, 50 Hz Input

Code

Amps

kW

Frame

052

52

45

5

060

60

55

5

082

82

75

5

098

98

90

6

119

119

110

6

142

142

132

6

d

Enclosure

Code

Enclosure

A

IP20, NEMA/UL Type 1

F ☒

Open/Flange Mount
Front: IP00, NEMA/UL Type Open
Back/Heatsink: IP54, NEMA Type 12

G ☒

Stand-Alone/Wall Mount
IP54, NEMA/UL Type 12

☒ Only available for Frame 5 & Frame 6 drives, 400...690V.

e

HIM

Code

Operator Interface

0

Blank Cover

3

LCD Display, Full Numeric Keypad

J ☒

Remote (Panel Mount), IP66, NEMA/UL Type 12 Full
Numeric LCD HIM

K ☒

Remote (Panel Mount), IP66, NEMA/UL Type 12 Prog. Only
LCD HIM

☒ Available with Frames 5...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

w/Brake IGBT ‡

Y

Yes

N

No

‡ Brake IGBT is standard on Frames 0-3, optional on Frames 4-6.

h

Internal Braking Resistor

Code

w/Resistor

Y

Yes ★

N

No

★ Not available for Frame 3 drives or larger.

i

Emission

Code

CE Filter §

CM Choke

A

Yes

Yes

B #

Yes

No

N

No

No

§ Note: 600V class drives below 77 Amps (Frames 0-4) are declared to meet the Low Voltage Directive. It is the responsibility of the user to determine compliance to the EMC directive.

Only available for 208...240V Frame 0-3 drives.

j

Comm Slot

Code

Network Type

C

ControlNet (Coax)

D

DeviceNet

E

EtherNet/IP

N

None

k

Control & I/O

Code

Control

I/O Volts

A

Standard

24V DC/AC

B

Standard

115V AC

C

Vector Δ

24V DC

D

Vector Δ

115V AC

N

Standard

None

Δ Vector Control Option utilizes DPI Only.

l

Feedback

Code

Type

0

None

1

Encoder, 12V/5V

m

Future Use

n

Special Firmware (Frames 0...6 Only)

Code

Type

AD ☒

60 Hz Maximum

AE ☒

Cascading Fan/Pump Control

AX ☒

82 Hz Maximum

BA ☒

Pump Off (for pump jack)

☒ Must be used with Vector Control option C or D (Position k). Positions m-n are only required when custom firmware is supplied.

Notes:

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 ± 10 V DC source, 0-10 V DC source, or 4-20 mA source with the onboard analog inputs on the PowerFlex 753 drive or with an optional I/O module.

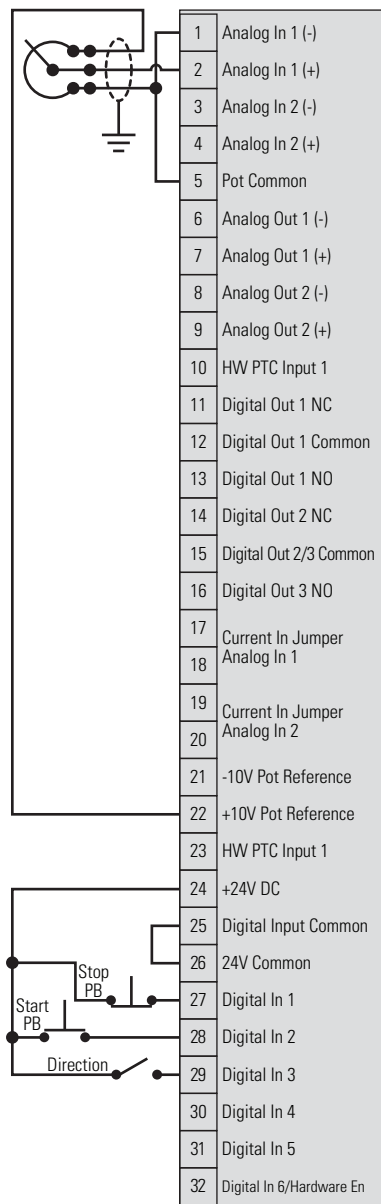
There are three common examples with the PowerFlex 700 drive using different speed-reference inputs along with hardwired Start/Stop/Direction control and the equivalent PowerFlex 750-Series configurations.

Three-wire Control with Analog Speed Reference

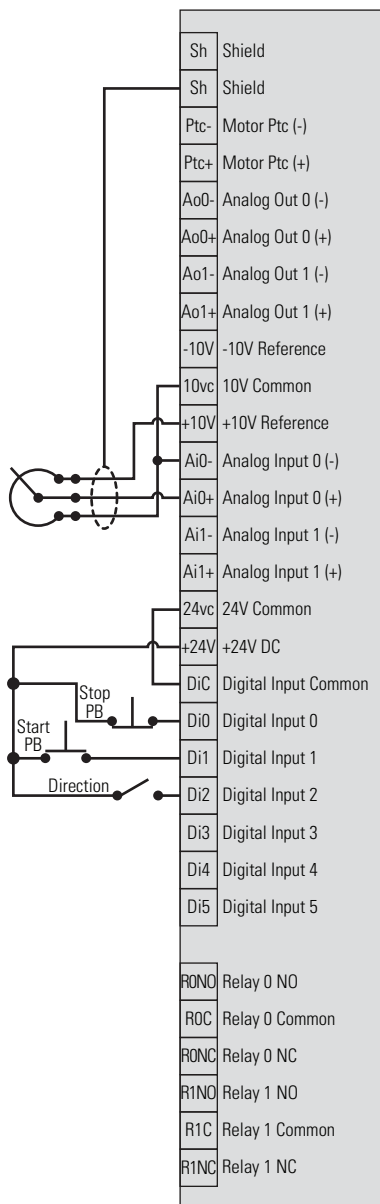
The three-wire control method is Start/Stop/Direction. The digital control inputs use the drive's internal 24 V DC supply, and the analog speed follower reference uses a 10 K Ω potentiometer wired to the drive's internal 10 V DC power supply.

Figure 19 - Wiring Examples

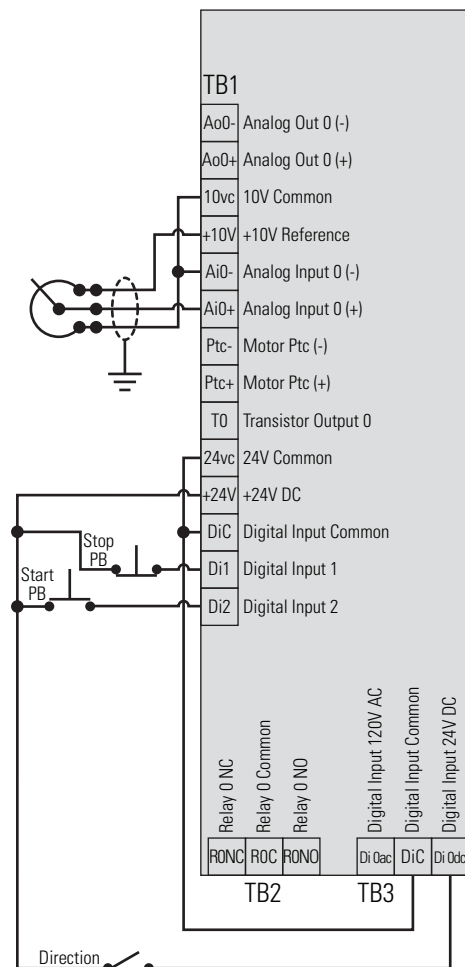
**PowerFlex 700 Drive Main Control Cassette
Vector Control with 24V DC I/O**



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



**PowerFlex 753 Drives
with Main Control Board I/O Module**



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 35 - 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		
No.	Name	Value
41	Motor NP Volts	460
42	Motor NP Amps	1.6
43	Motor NP Hertz	60
44	Motor NP rpm	1785
45	Motor NP Power	1
46	Motor NP Power Units	0-Hp
53	Motor Cntl Sel	0-Sensrls Vect
79	Speed Units	0-Hz
81	Minimum Speed	0.0
82	Maximum Speed	60.0
90	Speed Ref A Sel	1-Analog In 1
91	Speed Ref A Hi	Max Speed (P82)
92	Speed Ref A Lo	0.0
140	Accel Time 1	10.0
141	Decel Time 1	10.0
322	Analog In 1 Hi	10.0
323	Analog In 1 Lo	0.0
361	Digital Input 1	4-Stop-CF
362	Digital Input 2	5-Start
363	Digital Input 3	6-Forward/Reverse

PowerFlex 753 Drive Parameters		
No.	Name	Value
25	Motor NP Volts	460
26	Motor NP Amps	1.6
27	Motor NP Hertz	60
28	Motor NP rpm	1785
30	Motor NP Power	1
29	Motor NP Power Units	0-Hp
35	Motor Ctrl Mode	1-Induction SV
300	Speed Units	0-Hz
522 ⁽¹⁾	Min Fwd Speed	0.0
523 ⁽¹⁾	Min Rev Speed	0.0
520 ⁽¹⁾	Max Fwd Speed	Motor NP Hz/rpm x 1
521 ⁽¹⁾	Max Rev Speed	Motor NP Hz/rpm x -1
545	Spd Ref A Sel	Port 0 (P260)
547	Spd Ref A AnlgHi	Max Fwd Spd (P520)
548	Spd Ref A AnlgLo	0.0
535	Accel Time 1	10.0
537	Decel Time 1	10.0
261	Anlg In0 Hi	10.0
262	Anlg In0 Lo	0.0
158	DI Stop	Port 0 (P220) Input 1
161	DI Start	Port 0 (P220) Input 2
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 36 - 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		
No.	Name	Value
41	Motor NP Volts	460
42	Motor NP Amps	1.6
43	Motor NP Hertz	60
44	Motor NP rpm	1785
45	Motor NP Power	1
46	Motor NP Power Units	0-Hp
53	Motor Cntl Sel	0-Sensrls Vect
79	Speed Units	0-Hz
81	Minimum Speed	0.0
82	Maximum Speed	60.0
90	Speed Ref A Sel	1-Analog In 1
91	Speed Ref A Hi	Max Speed (P82)
92	Speed Ref A Lo	0.0
140	Accel Time 1	10.0
141	Decel Time 1	10.0
322	Analog In 1 Hi	10.0
323	Analog In 1 Lo	0.0
361	Digital Input 1	4-Stop-CF
362	Digital Input 2	5-Start
363	Digital Input 3	6-Forward/Reverse

PowerFlex 750-Series Drive Parameters ⁽¹⁾		
No.	Name	Value
25	Motor NP Volts	460
26	Motor NP Amps	1.6
27	Motor NP Hertz	60
28	Motor NP rpm	1785
30	Motor NP Power	1
29	Motor NP Power Units	0-Hp
35	Motor Ctrl Mode	1-Induction SV
300	Speed Units	0-Hz
522 ⁽²⁾	Min Fwd Speed	0.0
523 ⁽²⁾	Min Rev Speed	0.0
520 ⁽²⁾	Max Fwd Speed	Motor NP Hz/rpm x 1
521 ⁽²⁾	Max Rev Speed	Motor NP Hz/rpm x -1
545	Spd Ref A Sel	Port 4 (P50)
547	Spd Ref A AnlgHi	Max Fwd Spd (P520)
548	Spd Ref A AnlgLo	0.0
535	Accel Time 1	10.0
537	Decel Time 1	10.0
	I/O Module Anlg	
51	In0 Hi	10.0
	I/O Module Anlg	
52	In0 Lo	0.0
158	DI Stop ⁽¹⁾	Port 4 (P220) Input 0
161	DI Start ⁽¹⁾	Port 4 (P220) Input 1
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

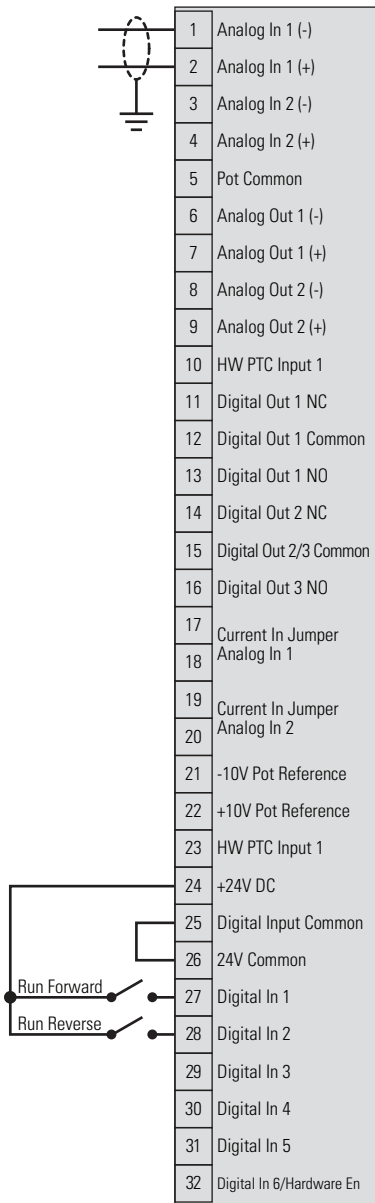
For best possible settings, perform an auto-tune (Rotate Tune) on the connected motor to pair the motor to the drive.

Two-wire Control with Analog Input Speed Reference

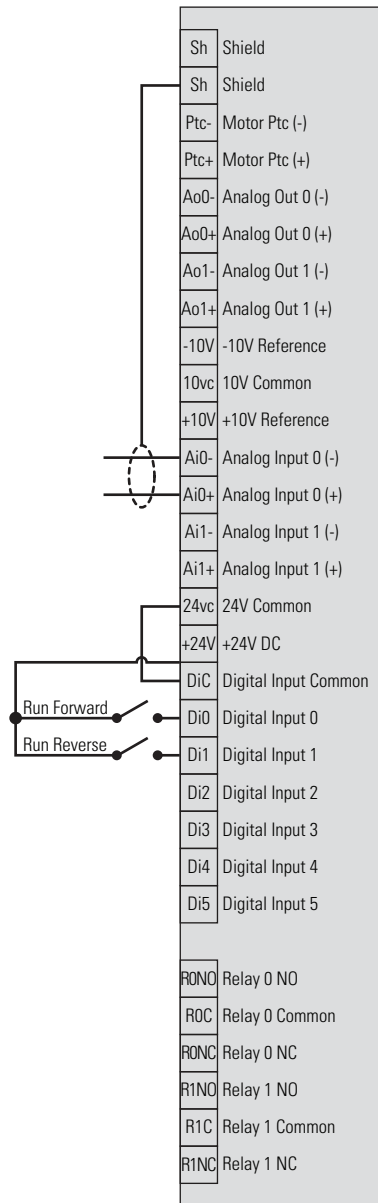
The two-wire control method is Run Fwd/Run Rev. The digital control inputs use the drive's internal 24V DC supply, and the analog input speed comes from a 0...10V or 4...20 mA external reference.

Figure 20 - Wiring Examples

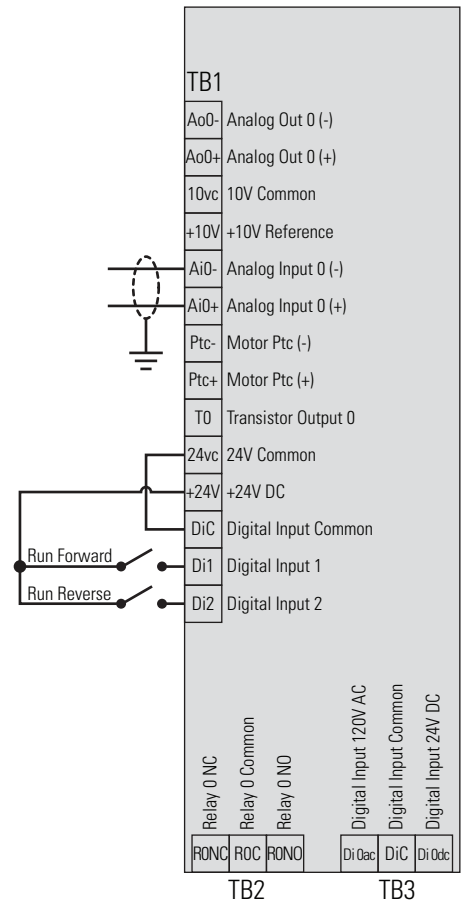
**PowerFlex 700 Drive Main Control Cassette
Vector Control with 24V DC I/O**



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



**PowerFlex 753 Drives
with Main Control Board I/O Module**



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 37 - 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		
No.	Name	Value
41	Motor NP Volts	460
42	Motor NP Amps	1.6
43	Motor NP Hertz	60
44	Motor NP rpm	1785
45	Motor NP Power Mtr NP Power	1
46	Motor NP Power Units	0-Hp
53	Motor Cntl Sel	0-Sensrls Vect
79	Speed Units	0-Hz
81	Minimum Speed	0.0
82	Maximum Speed	60.0
90	Speed Ref A Sel	1-Analog In 1
91	Speed Ref A Hi	Max Speed (P82)
92	Speed Ref A Lo	0.0
140	Accel Time 1	10.0
141	Decel Time 1	10.0
322	Analog In 1 Hi	10.0
323	Analog In 1 Lo	0.0
361	Digital Input 1	8-Run Forward
362	Digital Input 2	9-Run Reverse

PowerFlex 753 Drive Parameters		
No.	Name	Value
25	Motor NP Volts	460
26	Motor NP Amps	1.6
27	Motor NP Hertz	60
28	Motor NP rpm	1785
30	Motor NP Power Mtr NP Pwr	1
29	Units	0-Hp
35	Motor Ctrl Mode	1-Induction SV
300	Speed Units	0-Hz
522 ⁽¹⁾	Min Fwd Speed	0.0
523 ⁽¹⁾	Min Rev Speed	0.0
520 ⁽¹⁾	Max Fwd Speed	Motor NP Hz/rpm x 1
521 ⁽¹⁾	Max Rev Speed	Motor NP Hz/rpm x -1
545	Spd Ref A Sel Spd Ref A	Port 0 (P260)
547	AnlgHi Spd Ref A	Max Fwd Spd (P520)
548	AnlgLo	0.0
535	Accel Time 1	10.0
537	Decel Time 1	10.0
261	Anlg In0 Hi	10.0
262	Anlg In0 Lo	0.0
164	DI Run Forward	Port 0 (P220) Input 1
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 38 - 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		
No.	Name	Value
41	Motor NP Volts	460
42	Motor NP Amps	1.6
43	Motor NP Hertz	60
44	Motor NP rpm	1785
45	Motor NP Power	1
46	Motor NP Power Units	0-Hp
49	Motor Poles	4
79	Speed Units	0-Hz
81	Minimum Speed	0.0
82	Maximum Speed	60.0
90	Speed Ref A Sel	1-Analog In 1
91	Speed Ref A Hi	Max Speed (P82)
92	Speed Ref A Lo	0.0
140	Accel Time 1	10.0
141	Decel Time 1	10.0
322	Analog In 1 Hi	10.0
323	Analog In 1 Lo	0.0
361	Digital Input 1	8-Run Forward
362	Digital Input 2	9-Run Reverse

PowerFlex 750-Series Drive Parameters ⁽¹⁾		
No.	Name	Value
25	Motor NP Volts	460
26	Motor NP Amps	1.6
27	Motor NP Hertz	60
28	Motor NP rpm	1785
30	Motor NP Power	1
29	Motor NP Power Units	0-Hp
31	Motor Ctrl Mode	1-Induction SV
300	Speed Units	0-Hz
522 ⁽²⁾	Min Fwd Speed	0.0
523 ⁽²⁾	Min Rev Speed	0.0
520 ⁽²⁾	Max Fwd Speed	Motor NP Hz/rpm x 1
521 ⁽²⁾	Max Rev Speed	Motor NP Hz/rpm x -1
545	Spd Ref A Sel Spd Ref A	Port 4 (P50)
547	AnlgHi Spd Ref A	Max Fwd Spd (P520)
548	AnlgLo	0.0
535	Accel Time 1	10.0
537	Decel Time 1 I/O Module Anlg	10.0
51	In0 Hi I/O Module Anlg	10.0
52	In0 Lo	0.0
164	DI Run Forward ⁽¹⁾	Port 4 (P1) Input 0
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

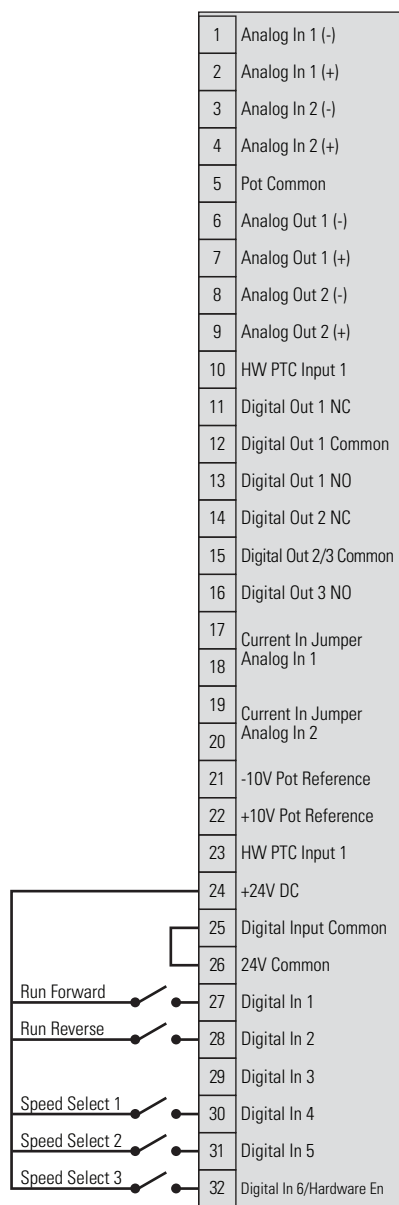
For best possible settings, perform an auto-tune (Rotate Tune) on the connected motor to pair the motor to the drive.

Two-wire Control with Preset Speeds

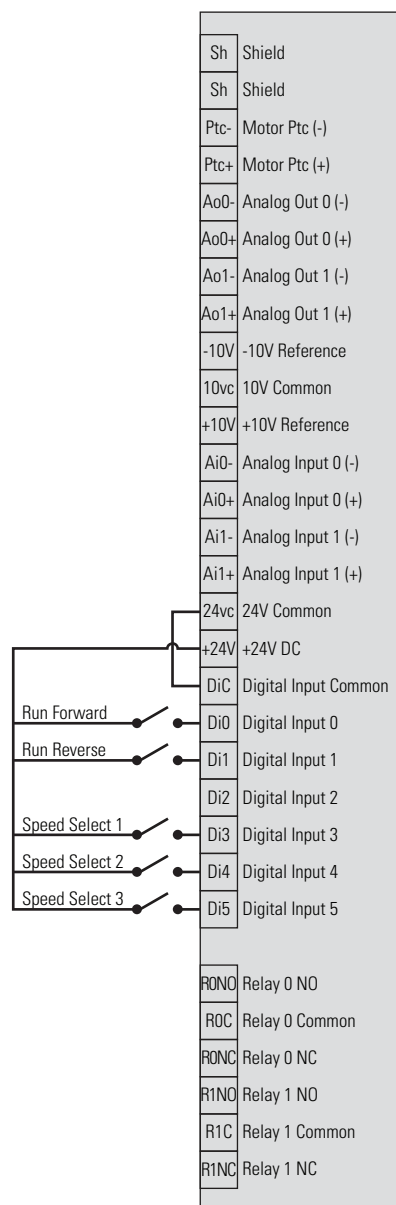
The two-wire control method is Run Fwd/Run Rev with Preset Preference. The digital control inputs use the drive's internal 24V DC supply, and the speed reference is determined by the three speed-select digital inputs.

Figure 21 - Wiring Examples

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



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



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 39 - 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		
No.	Name	Value
41	Motor NP Volts	460
42	Motor NP Amps	1.6
43	Motor NP Hertz	60
44	Motor NP rpm	1785
45	Motor NP Power Mtr NP Power	1
46	Motor NP Power Units	0-Hp
53	Motor Cntl Sel	0-Sensrls Vect
79	Speed Units	0-Hz
81	Minimum Speed	0.0
82	Maximum Speed	60.0
90 ⁽¹⁾	Speed Ref A Sel	Analog In 2
93 ⁽¹⁾	Speed Ref B Sel	Preset Speed 1
91 ⁽¹⁾	Speed Ref A Hi	Max Speed (P82)
92 ⁽¹⁾	Speed Ref A Lo	0.0
101	Preset Speed 1	5 Hz/150 rpm
102	Preset Speed 2	10 Hz/300 rpm
103	Preset Speed 3	20 Hz/600 rpm
104	Preset Speed 4	30 Hz/900 rpm
105	Preset Speed 5	40 Hz/1200 rpm
106	Preset Speed 6	50 Hz/1500 rpm
107	Preset Speed 7	60 Hz/1800 rpm
140	Accel Time 1	10.0
141	Decel Time 1	10.0
322	Analog In 1 Hi	10.0
323	Analog In 1 Lo	0.0
361	Digital Input 1	8-Run Forward
362	Digital Input 2	9-Run Reverse
364	Digital Input 4	15-Speed Sel 1
365	Digital Input 5	16-Speed Sel 2
366	Digital Input 6	17-Speed Sel 3

PowerFlex 750-Series Drive Parameters ⁽²⁾		
No.	Name	Value
25	Motor NP Volts	460
26	Motor NP Amps	1.6
27	Motor NP Hertz	60
28	Motor NP rpm	1785
30	Motor NP Power Mtr NP Pwr	1
29	Units	0-Hp
35	Motor Ctrl Mode	1-Induction SV
300	Speed Units	0-Hz
522 ⁽³⁾	Min Fwd Speed	0.0
523 ⁽³⁾	Min Rev Speed	0.0
520 ⁽³⁾	Max Fwd Speed	Motor NP Hz/rpm x 1
521 ⁽³⁾	Max Rev Speed	Motor NP Hz/rpm x -1
545 ⁽¹⁾	Spd Ref A Sel	Port 0 Ref
550 ⁽¹⁾	Spd Ref B Sel	Speed Ref B Stpt
547 ⁽¹⁾	Spd Ref A AnlgHi	Max Fwd Spd (P520)
548 ⁽¹⁾	Spd Ref A AnlgLo	0.0
571	Preset Speed 1	1/12 x (P27 or P28)
572	Preset Speed 2	1/6 x (P27 or P28)
573	Preset Speed 3	1/3 x (P27 or P28)
574	Preset Speed 4	1/2 x (P27 or P28)
575	Preset Speed 5	2/3 x (P27 or P28)
576	Preset Speed 6	5/6 x (P27 or P28)
577	Preset Speed 7	(P27 or P28)
535	Accel Time 1	10.0
537	Decel Time 1	10.0
261	Anlg In0 Hi	10.0
262	Anlg In0 Lo	0.0
164	DI Run Forward	Port 0 (P220) Input 1
165	DI Run Reverse	Port 0 (P220) Input 2
173	DI Speed Sel 0	Port 0 (P220) Input 3
174	DI Speed Sel 1	Port 0 (P220) Input 4
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 40 - 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.

Notes:

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.

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

Most legacy communication adapters (20-COMM) can be used with the PowerFlex 755 drives (with these restrictions):

- **Frame 1** - We recommend that you install catalog number 20-750-20COMM-F1 communication carrier card in port 4. Port 5 is not accessible when this module is installed.
- **Frames 2 and larger** - We recommend that you install catalog number 20-750-20COMM communication carrier card in port 6. If you use port 4 or 5, the adjacent left port is inaccessible to other option modules and can interfere with network cable connections. For details, contact Rockwell Automation technical support.

Table 41 - Compatible 20-COMM Adapters

Adapter Cat. No.	Type	Accesses Ports 0...6 for I/O Connections (implicit and Explicit Messaging)	Accesses Ports 7 and Higher (I/O, Explicit Messaging)	Supports Drive Add-on Profiles	Supports Asian Languages ⁽⁶⁾
20-COMM-B	BACnet MS/TP	Not compatible			
20-COMM-C	ControlNet (Coax)	Revision 3.001 ⁽⁴⁾	Revision 3.001 ⁽⁴⁾	See footnote ⁽⁵⁾	Revision 3.001 ⁽⁴⁾
20-COMM-D	DeviceNet	See footnote ⁽²⁾	Not compatible		
20-COMM-E	EtherNet/IP	Revision 4.001 ⁽⁴⁾	Revision 4.001 ⁽⁴⁾	See footnote ⁽⁵⁾	Revision 4.001 ⁽⁴⁾
20-COMM-H	RS-485 HVAC	Revision 2.009 ⁽³⁾⁽⁴⁾	Not compatible		
20-COMM-K	CANopen	Revision 1.001 ⁽⁴⁾			
20-COMM-L	LonWorks	Revision 1.007 ⁽⁴⁾			
20-COMM-M	Modbus/TCP	Revision 2.001 ⁽⁴⁾	Revision 2.001 ⁽⁴⁾	Not compatible	Revision 2.001 ⁽⁴⁾
20-COMM-P	PROFIBUS DP	Revision 1.006 ⁽⁴⁾	Revision 1.006 ⁽⁴⁾		Not compatible
20-COMM-Q	ControlNet (Fiber)	Revision 3.001 ⁽⁴⁾	Revision 3.001 ⁽⁴⁾	See footnote ⁽⁵⁾	Revision 3.001 ⁽⁴⁾
20-COMM-R ⁽¹⁾	Remote I/O	See footnote	Not compatible		
20-COMM-S	RS-485 DF1	See footnote			

(1) This product is [discontinued](#).

(2) Controller must be able to read/write 32-bit floating point (REAL) values.

(3) Supports all three modes of operation (RTU, P1, and N2).

(4) Requires this adapter firmware revision or higher.

(5) Requires firmware revision 1.05 or later of the drive Add-on Profiles for Studio 5000 Logix Designer® application.

(6) Chinese, Japanese, and Korean languages are supported at the time of publication.

PowerFlex 750-Series Communication Options

The PowerFlex 750-Series drives communication option modules are provided in [Table 42](#). The 750-Series option modules offer more advanced features than the 20-COMM adapters. 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](#).

Table 42 - 750-Series Communication options

Catalog Number	Description
20-750-BNETIP	BACnet/IP option module
20-750-CNET	Coaxial ControlNet option module
20-750-DNET	DeviceNet option module
20-750-ENETR	Dual-port EtherNet I/P option module
20-750-PBUS	PROFIBUS DPV1 option module
20-750-PNET	Single-port Profinet I/O option module
20-750-PNET2P	Dual-port Profinet I/O option module

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 43 - PowerFlex 750-Series Drives and Provided Software Versions

PowerFlex Drive Model	Drive Explorer Version	DriveTools SP Version	RSLogix 5000 Version (with integrated drive profiles)	Connected Components Workbench Version
753	6.02	5.02	17 or higher	1.02.00 (and higher)
755 (before version 2)	6.01	5.01	16 or higher	1.02.00 (and higher)
755 (version 2 and higher)	6.02	5.02	17 or higher	1.02.00 (and higher)

Velocity Reference/Feedback

The PowerFlex 700 Drive velocity reference and feedback data is represented as scaled values, or a value of 32,767 equates to parameter 55 (Maximum Freq) setting and a value of 0 equates 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 equals 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 adaptor. Input I/O is status data that is produced by the adaptor 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 (PLC-5)

The PowerFlex 750-Series drives are 32 bit-based whereas the PLC-5® 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

Use the following resources to access support information.

Technical Support Center	Knowledgebase Articles, How-to Videos, FAQs, Chat, User Forums, and Product Notification Updates.	https://rockwellautomation.custhelp.com/
Local Technical Support Phone Numbers	Locate the phone number for your country.	http://www.rockwellautomation.com/global/support/get-support-now.page
Direct Dial Codes	Find the Direct Dial Code for your product. Use the code to route your call directly to a technical support engineer.	http://www.rockwellautomation.com/global/support/direct-dial.page
Literature Library	Installation Instructions, Manuals, Brochures, and Technical Data.	http://www.rockwellautomation.com/global/literature-library/overview.page
Product Compatibility and Download Center (PCDC)	Get help determining how products interact, check features and capabilities, and find associated firmware.	http://www.rockwellautomation.com/global/support/pcdc.page

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