Migration Guide

Allen-Bradley

PowerFlex 700H Drives to PowerFlex 755 Drives

Catalog Numbers 20C, 20G, 21G

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.

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.
	**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.

Chapter 3

Network Communication

Chapter 4

Safe Torque Off and Safe Speed Monitor Option Modules

Index

Overview

The purpose of this migration guide is to assist you in migrating a PowerFlex® 700H drive to a PowerFlex 755 drive. Use this migration guide to help you understand some basic migration requirements.

IMPORTANT	This migration guide provides some initial migration guidelines. You also need to review additional product literature to understand the technical similarities and differences between the 700H and 755 drives, and to help you determine the solution for your migration. Download the installation instructions, technical data, programming, and wiring manuals listed in Additional Resources on page 7 and use them to help you understand the technical similarities and differences for the migration of your 700H drive to a 755 drive. Many sections of this migrations guide direct you to refer to additional details and information available in these additional publications.

This publication contains these four chapters:

- **Chapter 1:** Drive Selection Considerations on page 9

  Compares specifications, features, dimensions, control terminals, cooling requirements, and other details of the 700H drives to the 755 drives.

- **Chapter 2:** Analog Speed Follower and Preset Speed on page 55

  Compares the control wiring and parameters of the 700H drive analog speed follower to the 755 drive (with optional I/O module).

- **Chapter 3:** Network Communication on page 63

  Describes the network communication options and the dedicated communication for the 755 drives.

- **Chapter 4:** Safe Torque Off and Safe Speed Monitor Option Modules on page 67

  Provides information about the safety options for the drives.

Migration Considerations Checklist

This migration considerations checklist includes some of the key migration requirements to consider when replacing your 700H drive with a 755 drive. This checklist is intended as a prompt to help you think about the key requirements you need to understand before you can design a migration plan. This checklist is not a step-by-step migration process.

Use this migration guide, along with the publications listed in Additional Resources on page 7, to help you understand your current 700H installation, and the technical solution for migrating to a 755 drive.

Table 1 - Migration Considerations Checklist

Topic	Considerations
Common mode capacitors and MOV jumpers (see page 10)	Verify the configuration of the common mode capacitor and MOV for the 700H drive. Make sure that the common mode capacitor and MOV configuration of the new 755 drive is compatible with your existing installation prior to commissioning the 755 drive.
Specifications and features (see page 11)	Determine the specifications and features that are required for your drive. Determine if you want to add or change specifications or features for this migration. Compare the specifications and features of the drives to help you select the 755 drive that meets your migration requirements.
Amp and horsepower ratings (see page 16)	Compare your 700H drive ratings to the 755 drive ratings. Determine which 755 drive meets your ratings requirements.
Dimensions and enclosure types (see page 20)	Verify that the 755 drive footprint will fit into the existing space, and that the 755 drive enclosure is rated for the installation environment.
Power and control terminals (see page 28 and page 40)	Determine if the 755 drive will require additional or different wiring and cabling due to differences in the terminal blocks. Determine the 755 drive option modules you will need to meet the performance and function of your migration.
Power wiring impedance (see page 39)	Frames 12…14 of the 700H drives require minimum cable lengths and/or reactors between the drive and the motors; the 755 drive does not. Determine if the 755 drive will require different motor lead quantities, termination methods, and cable lengths due to the difference in impedance requirements.
Cooling and airflow requirements (see page 52)	The 755 drive has different airflow channels than the 700H drive. Determine the differences in minimum mounting clearances and airflows needed to maintain the correct operating temperature of the 755 drive.
IP00, NEMA/UL type open power structures (see page 54)	IP00, NEMA/UL type open installations are not standard-drive solutions. These installations are engineered-drive solutions, and migration to a 755 open type solution requires a careful technical review of your existing 700H installation, and careful technical planning and design of the 755 open type solution.
Programing and parameters (see page 55)	Drive configuration options for the 700H are programmed using the option cards in the five available slots of the control board. Some of the same drive configurations for the 755 drive are programmed by the drive parameters. Determine your current 700H drive control board configurations, and determine the 755 parameters you will need to migrate to the 755 drive.
Network communication (see page 63)	Network communications can vary significantly depending on the communication option in the 700H drive, the controller type communicating to the drive, and which 755 drive model is selected. Identify your current network communication configuration and verify that the 755 drive is compatible with, or can be adapted to, your current communication network and devices.
Safety option modules (see page 67)	The 755 drive offers a safe torque off and safe speed monitor option modules. Determine the safety control system of your 700H drive, and determine how the 755 drive safety option modules can meet or exceed your current safety control system.

General Precautions

Listed here are general precautions to be aware of when working with the drives. See the installation instructions for each drive, listed in Additional Resources on page 7, for additional precautions specific to each drive.

Qualified Personnel

ATTENTION: Only qualified personnel familiar with adjustable frequency AC drives and associated machinery should plan or implement the installation, startup, and subsequent maintenance of the system. Failure to comply may result in personal injury and/or equipment damage.

Class 1 LED Product

ATTENTION: Hazard of permanent eye damage exists when using optical transmission equipment. This product emits intense light and invisible radiation. Do not look into fiber-optic ports or fiber-optic cable connectors. Remove power from the drive before disconnecting fiber-optic cables.

Additional Resources

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

Resource	Description
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, 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 700H Adjustable Frequency AC Drive Technical Data, publication 20C-TD001	Provides technical data regarding the PowerFlex 700H adjustable frequency AC drives for a variety of industrial applications.
PowerFlex 700H Adjustable Frequency AC Drive / PowerFlex 700S High Performance AC Drive, Frames 9...14 Installation Instructions, publication PFLEX-IN006	Provides drive mounting and wiring information.
PowerFlex 700H Adjustable Frequency AC Drive Programming Manual, publication 20C-PM001	Provides basic information needed to start, program, and troubleshoot the PowerFlex 700H Adjustable Frequency AC Drive.
Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001	Provides basic information needed to properly wire and ground PWM AC drives.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation® industrial system.
Product Certifications website, http://www.ab.com	Provides declarations of conformity, certificates, and other certification details.

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

Notes:

Drive Selection Considerations

Use this section to help you identify the differences and similarities between 700H drives and 755 drives that may impact the migration.

Available Slots

The 700H drives and 755 drives are designed with a slot-based architecture that allows you to customize the drive with available option cards. The 755 drive has five slots. The 700H drive has three slots. See Slot Rules for 755 Drive Option Modules on page 47 for an overview of available option modules and compatible slots for the 755 drive.

Optional Accessories

Optional accessories are not installed by the factory. Any optional accessories that you purchase for your drive application must be installed by your qualified service personal.

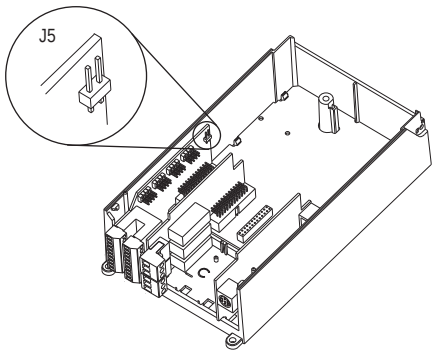
Hardware Enable

Digital input (DI) 6 on the 700H drive can be programmed for any available digital input functions including hardware enable. The 700H drive has a hardware enable jumper (J5) on the main control board that can be removed so that DI 6 acts as hardware enabled with no software interpretation.

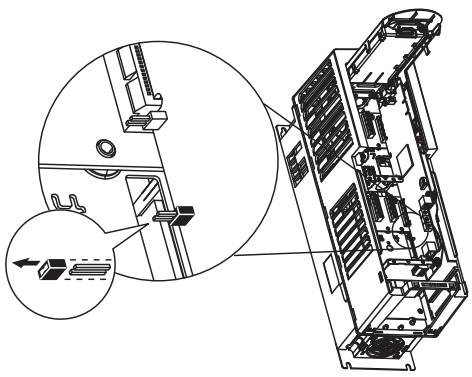
Digital input 0 on the 755 drives can be programmed for any available digital input functions, including DI enable. A hardware enable jumper on the main control board can be removed to force DI 0 to act as hardware enabled with no software interpretation.

Figure 1 - Hardware Enable Jumper Locations

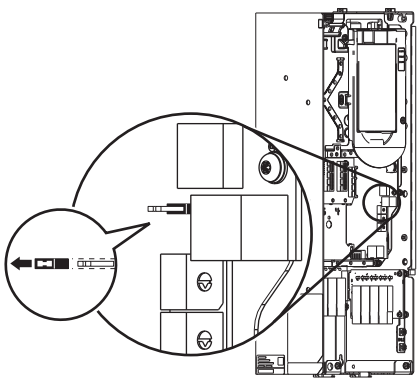
700H Drives



755 Drives (frames 6 and 7)



755 Drives (frames 8…10)



Common Mode Capacitors and MOV Jumpers

The common mode capacitor and MOV configuration of your 700H drive and the new 755 drive is an important part of your migration.

ATTENTION: You must verify the existing configuration of the common mode capacitor and MOV for the 700H drive.

You must make sure that the common mode capacitor and MOV configuration of the new 755 drive is compatible with your existing installation prior to commissioning the 755 drive.

You may need to partially disassemble the 700H drive to determine the existing common mode capacitor and MOV configuration. Refer to the PowerFlex 700H Adjustable Frequency AC Drive/PowerFlex 700S High Performance AC Drive, Frames 9...14 Installation Instructions, publication PFLEX-IN006.

See the Ungrounded, High Resistive Ground, or Grounded B Phase Delta Installations sections for the frame size of your 700H drive to determine the location of the configuration jumpers.

For the location of the 755 drive configuration jumpers, refer to PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001.

The 755 drive can be ordered with the jumper for the common mode capacitor removed or installed. See catalog position '**g**' in Table 29 on page 51.

Specifications and Features

Use this section to review and compare specifications and features to help you understand the similarities and differences between your existing 700H drive and compatible 755 drives.

Table 2 - PowerFlex Drive Comparisons

Attribute	700H Drives	755 Drives
Input Power		
Ratings		
200…240V	N/A	N/A
400V	132…1200 kW (200…1900 Hp)	55…1250 kW (75…1750 Hp)
480V	132…1200 kW (200…1900 Hp)	55…1250 kW (75…1750 Hp)
500…600V	160…2300 kW (150…2400 Hp)	75…1400 kW (60…1400 Hp)
690V	160…2300 kW (150…2400 Hp)	75…1400 kW (60…1400 Hp)
Single phase	Yes, 80% derate	Yes, 50% derate
Input inductor	Input	DC link choke
Logic ride-through	0.5 seconds minimum, 2.0 seconds typical	0.5 seconds minimum, 2.0 seconds typical
Power ride-through	15 milliseconds	15 milliseconds
Transient protection	MOV	MOV
DC input terminals	Standard	Frames 6…8 optional
Output Power		
Carrier frequency	1…6 kHz	Frame 6: 2, 4, 8, and 12 kHz Frame 7: 2, 4, and 8 kHz Frame 8…10: 2 and 4 kHz
Output frequency range	0…320 Hz	0…650 Hz
Efficiency	97.5% typical	97.5% typical
Power factor	0.98	0.98
Overload capability		
Light duty	N/A	110% - 60 s
Normal duty	110% - 60 s	110% - 60 s, 150% - 3 s
Heavy duty	150% - 2 s	150% - 60 s, 180% - 3 s

Table 3 - PowerFlex Drive Comparisons (continued)

Attribute	700H Drives (ND)	755 Drives (all ratings)
Environmental Ratings		
Enclosure types and ambient temperature range		
All enclosures	0…40 °C (32…104 °F) (3) (4) (5)	N/A
IP00, NEMA/UL Type Open	N/A	0…50 °C (32…122 °F)
IP20, NEMA/UL Type 1 (with label)	N/A	0…40 °C (32…104 °F)
IP20, NEMA/UL Type 1 (MCC cabinet)	N/A	0…40 °C (32…104 °F)
IP54, NEMA Type 12 (MCC Cabinet) (1)	N/A	0…40 °C (32…104 °F)
Flange enclosure types and ambient temperature range (2)		
Front IP00, NEMA/UL, Type Open	N/A	0…50 °C (32…122 °F)
Back/heatsink IP66, NEMA/UL, Type 4X	N/A	0…40 °C (32…104 °F)
Stand-alone/wall mount IP54, NEMA/UL Type 12	N/A	0…40 °C (32…104 °F)
Storage temperature range	-40…60 °C (-40…140 °F)	-40…70 °C (-40…158 °F)
Standards and Certifications		
UL	Yes	Yes
CE	Yes	Yes
CSA	Yes	Yes
C-Tick	N/A	Yes
ATEX	Yes	N/A
RINA	N/A	N/A
TUV-FS	Yes	Yes
RoHS	N/A	Yes
Protection		
Motor overload	Standard	Standard
Output short circuit	Standard	Standard
Output ground fault	Standard	Standard
Under and over voltage	Standard	Standard
Dynamic braking	Optional (frame 9 only)	Internal chopper (frame 6 and 7)
Common mode choke	External (optional)	External (optional)

(1) UL Type 12 applies when the MCC bus is not present. If the MCC bus is present, the cabinet rating is IP54/NEMA 12.
(2) 755 drive, frames 6 and 7.
(3) 700H drive, frame 9 HD: 0…50 °C (32…122 °F).
(4) 700H drive, frame 10, 416 A; frame 12, 1030 A; frame 14, 2250 A: 0…35 °C (32…95 °F).
(5) 700H drive, frame 12 HD, 1030 A, and frame 14 HD, 2250 A: 0…35 °C (32…95 °F).

Table 4 - PowerFlex Drive Comparisons (continued)

Attribute	700H Drives	755 Drives
Protection (continued)		
Common mode capacitors (1)	Standard	Standard
Safety input (2) (3)		
Safe torque off card	Optional (gate disable)	Optional
Safe speed monitor	N/A	Optional
Hardware enable	Standard	Standard
Electromagnetic compatibility (EMC) filters (internal)	Standard	Standard
Drive Control Performance and Features		
Motor control type		
Induction V/Hz	Standard	Standard
Induction sensorless vector (SVC)	Standard	Standard
Induction flux vector (FVC)	N/A	Standard with FORCE™ technology
Synchronous reluctance V/Hz	N/A	Standard
Synchronous reluctance SV	N/A	Standard
Permanent magnet motor	N/A	Standard
Adjustable voltage mode	N/A	Standard
Operating speed range	40:1	1,000:1 (4) 120:1 (5)
Speed control regulation (% of base speed across operating speed range)	0.5% across 40:1	0.001% across 100:1 (4) 0.1% across 120:1 (5)
Speed control bandwidth (radians per second)	N/A	190 (4) 50 (5)
Slip compensation	Standard	Standard
Droop	Standard	Standard
Inertia adaption	N/A	Standard
Phase lock loop	N/A	Standard
Torque regulation	N/A	± 2%, 2500 rad/sec ± 5%, 600 rad/sec
Features		
Flying start	Standard	Standard
Bus regulator	Standard	Standard
S-curve	Standard	Standard
Drive overload protection	Standard	Standard
Advanced diagnostics	Standard	Standard

(1) See Common Mode Capacitors and MOV Jumpers on page 10 for more information.

(2) See Safe Torque Off and Safe Speed Monitor Option Modules on page 67 for information and links to the user manuals for the safety input option modules.

(3) Record the current safety input configuration for the 700H drive to use as a reference when you configure the 755 drive safety input configuration.

(4) With encoder.

(5) Without encoder.

Table 5 - PowerFlex Drive Comparisons (continued)

Attribute	700H Drives	755 Drives
Features (continued)		
Input phase loss	Standard	Standard
User sets	Standard	N/A
Preset speeds	Seven	Seven
Process control loop	Standard	Standard
Fast flux up	Optional	Standard
Fast brake to stop	N/A	Standard
Flux braking	N/A	Standard
Feedback loss switchover	N/A	Standard
Real-time clock	N/A	Standard (1)
Battery/auxiliary power backup (1)	Optional	Optional
Multi-motor parameters	N/A	N/A
Start on powerup	Standard	Standard
Integral position loop	N/A	Standard
PCAM planner	N/A	Standard
Electronic gearing	N/A	Standard
Speed/position profiler	N/A	Standard
Position indexer	N/A	N/A
Predictive diagnostics	N/A	Standard
Torque proving	N/A	Standard
Conformal coating	N/A	Standard
Timer/counter functions	N/A	Standard (3)
Embedded control	N/A	Standard (3)
Supported Feedback Devices		
Incremental encoder feedback	N/A	Optional
Pulse train input	N/A	Optional
Stegmann high-resolution	N/A	Optional
Heidenhain	N/A	Optional
Service set identifier (SSI) and basic service set identifier (BSSI) linear	N/A	Optional
Resolver	N/A	N/A
User Interface		
Human interface module (HIM)/ operator interface	Optional (2)	Optional (4)
Languages available (number)	Seven	Nine (5)
Remote display	Optional	Optional (4)

(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) A3 or A6 family.
(3) DeviceLogix™.
(4) A6 family only.
(5) With A6 HIM.

Table 6 - PowerFlex Drive Comparisons (continued)

Attribute	700H Drives	755 Drives
User Interface (continued)		
HIM handheld terminal	Optional (2)	Optional (3)
Software configuration tools (1)	Yes	Yes
Set-up tools or wizards	Yes	Yes
Communication Options		
AS-i	N/A	N/A
BACnet	Optional	Optional
CAN/Euromap	N/A	N/A
CANopen	Optional	Optional (4)
CC-Link	N/A	N/A
ControlNet	Optional	Optional
Data highway	N/A	N/A
DeviceNet	Optional	Optional
Embedded Ethernet or TCP/IP	N/A	N/A
Embedded EtherNet/IP	Optional	Standard
FIP I/O	N/A	N/A
FOUNDATION fieldbus	N/A	N/A
Interbus	Optional	Optional (4)
Lecon-B	N/A	N/A
LonWorks	Optional	N/A
Metasys N2	Optional	N/A
Modbus ASCII	N/A	N/A
Modbus Plus	N/A	N/A
Modbus RTU	Optional	Optional (5)
Modbus TCP/IP	N/A	Optional
PROFIBUS DPV1	Optional	Optional
PROFINET	N/A	Optional
Remote I/O	Optional	Optional
SELMA 2	N/A	N/A
sercos	N/A	N/A
Siemens P1	Optional	N/A
Uni-Telway	N/A	N/A
USB	N/A	Optional

(1) Tools available are RSLogix™ 5000 (version 16 or later), DriveExplorer™, and DriveExecutive™ software.
(2) A3 or A6 family.
(3) A6 family only.
(4) Limited parameter accessibility.
(5) For HVAC communication adapter.

PowerFlex Drive Conversion Guide

Use the following tables to compare amps, kilowatts, horsepower, and dimensions for migrating your 700H drive to a 755 drive. Because of the wide variety of possible migration options, we provide these tables as an example of how you can compare your 700H drive with the different 755 drives.

IMPORTANT Dimensions are for NEMA/UL Type 1 cabinets. See Dimensions and Enclosure Types on page 20 and PowerFlex Drive Catalog Numbers on page 48 to compare your current 700H drive to the possible 755 drive configurations.

Table 7 - 700H Drive to 755 Drive Conversions (400V AC)

700H Drive (400V AC)							755 Drive Conversion (400V AC) (1)						
20C	Amps	kW (ND)	Frame	Height (mm)	Width (mm)	Depth (mm)	20G/ 21G	Amps	kW (ND)	Frame	Height (mm)	Width (mm)	Depth (mm)
							104	104	55	6	945.1	308.0	346.7
							140	140	75	6			
							170	170	90	6			
							205	205	110	6			
261	261	132	9	1150.0	480.0	363.3	260	260	132	6			
			9				260	260	132	7	1271.0	430.0	561.0
300	300	160	9				302	302	160	7			
385	385	200	10	2286.0	635.0	635.0	367	367	200	7			
460	460	250	10				456	456	250	7			
			10				460	460	250	8	2453.0	600.0	600.0
500	500	250	10				540	540	315	8			
			10				567	567	315	8			
590	590	315	11	2286.0	889.0	635.0	650	650	355	8			
650	650	355	11										
730	730	499	11				750	750	400	8			
			11				770	770	400	8			
820	820	450	12	2286.0	1270.0	635.0	910	910	500	9	2453.0	1200.0	600.0
920	920	500	12				1K0	1040	560	9			
1K0	1030	560	12				1K1	1090	630	9			
1K1	1150	630	13	2275.0	1412.0	619.2	1K2	1175	710	9			
1K3	1300	710	13				1K4	1465	800	9			
1K4	1450	800	13				1K5	1480	850	9			
							1K6	1590	900	10	2453.0	1800.0	600.0
1K7	1770	1000	14	2276.0	2800	620.0	2K1	2150	1250	10			
2K1	2150	1200	14										

(1) Frames 8, 9, and 10 are available as a drive with options (21G).

Table 8 - 700H Drive to 755 Drive Conversions (480V AC)

700H Drive (480V AC)							755 Drive Conversion (480V AC) [1]						
20C	**Amps**	**HP (ND)**	**Frame**	**Height (mm)**	**Width (mm)**	**Depth (mm)**	**20G/ 21G**	**Amps**	**HP (ND)**	**Frame**	**Height (mm)**	**Width (mm)**	**Depth (mm)**
							096	096	75	6	945.1	308.0	346.7
							125	125	100	6			
							156	156	125	6			
							186	186	150	6			
261	261	200	9	1150.0	480.0	363.3	248	248	200	6			
			9				248	248	200	7	1271.0	430.0	561.0
300	300	250	9				302	302	250	7			
385	385	300	10	2286.0	635.0	635.0	361	361	300	7			
460	460	350	10				415	415	350	7			
			10				430	430	350	8	2453.0	600.0	600.0
500	500	450	10				485	485	400	8			
			10				545	545	450	8			
590	590	500	11	2286.0	889.0	635.0	617	617	500	8			
650	650	500	11										
730	730	600	11				710	710	600	8			
			11				740	740	650	8			
820	820	700	12	2286.0	1270.0	635.0	800	800	700	9	2453.0	1200.0	600.0
920	920	800	12				960	960	800	9			
1K0	1030	900	12				1K0	1045	900	9			
1K1	1150	1000	13	2275.0	1412.0	619.2	1K2	1135	1000	9			
1K3	1300	1200	13				1K3	1365	1100	9			
1K4	1450	1250	13				1K4	1420	1250	9			
							1K5	1525	1350	10	2453.0	1800.0	600.0
1K7	1770	1500	14	2276.0	2800	620.0	2K0	2070	1750	10			
2K1	2150	1900	14										

(1) Frames 8, 9, and 10 are available as a drive with options (21G).

Table 9 - 700H Drive to 755 Drive Conversions (600V AC)

700H Drive (600V AC)							755 Drive Conversion (600V AC) [1]						
20C	**Amps**	**HP (ND)**	**Frame**	**Height (mm)**	**Width (mm)**	**Depth (mm)**	**20G/ 21G**	**Amps**	**HP (ND)**	**Frame**	**Height (mm)**	**Width (mm)**	**Depth (mm)**
							063	63	60	6	945.1	308.0	346.7
							077	77	75	6			
							099	99	100	6			
							125	125	125	6			
170	170	150	9	1150.0	480.0	363.3	144	144	150	6			
			9				192	192	200	7	1271.0	430.0	561.0
208	208	200	9				242	242	250	7			
261	261	250	10	2286.0	635.0	635.0	289	289	300	7			
325	325	350	10				295	295	300	8	2453.0	600.0	600.0
			10				355	355	350	8			
385	385	400	10				395	395	400	8			
			10				435	435	450	8			
416	416	450	10				460	460	500	8			
460	460	500	11	2286.0	889.0	635.0							
502	502	500	11				510	510	500	8			
			11				595	595	600	9	2453.0	1200.0	600.0
590	590	600	11				630	630	700	9			
650	650	700	12	2286.0	1270.0	635.0	760	760	800	9			
750	750	800	12				825	825	900	9			
820	820	900	12				900	900	950	9			
920	920	1000	13	2275.0	1412.0	619.2	980	980	1000	9			
1K0	1030	1100	13				1K1	1100	1100	9			
1K1	1180	1300	13				1K4	1430	1400	10	2453.0	1800.0	600.0
1K5	1500	1600	14	2276.0	2800	620.0							
1K9	1900	2000	14										

(1) Frames 8, 9, and 10 are available as a drive with options (21G).

Table 10 - 700H Drive to 755 Drive Conversions (690V AC)

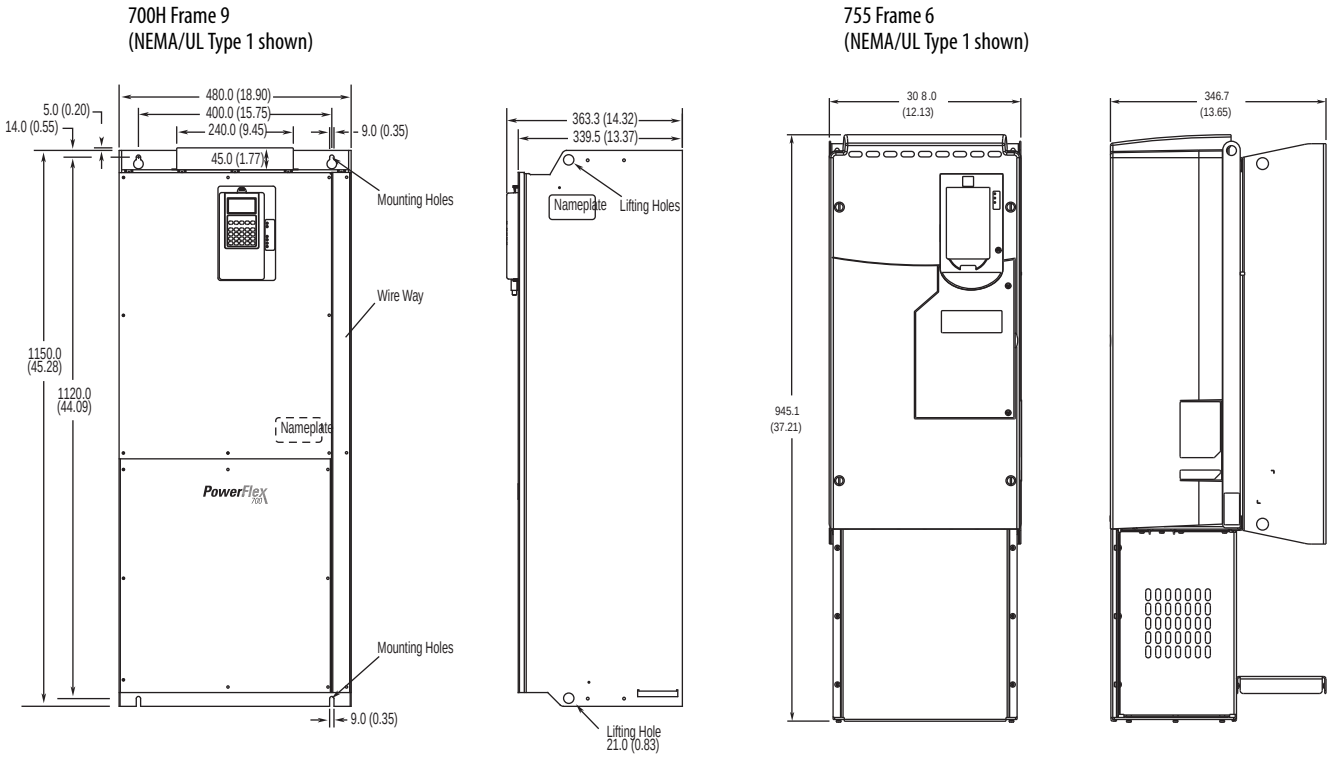
700H Drive (690V AC)							755 Drive Conversion (690V AC) [1]						
20C	**Amps**	**kW (ND)**	**Frame**	**Height (mm)**	**Width (mm)**	**Depth (mm)**	**20G/ 21G**	**Amps**	**kW (ND)**	**Frame**	**Height (mm)**	**Width (mm)**	**Depth (mm)**
							082	82	75	6	945.1	308.0	346.7
							098	98	90	6			
							119	119	110	6			
							142	142	132	6			
170	170	160	9	1150.0	480.0	363.3	171	171	160	7	1271.0	430.0	561.0
			9				212	212	200	7			
208	208	200	9										
261	261	250	10	2286.0	635.0	635.0	263	263	250	7			
							265	265	250	8	2453.0	600.0	600.0
325	325	315	10				330	330	315	8			
			10				370	370	355	8			
385	385	355	10				415	415	400	8			
416	416	400	10										
460	460	450	11	2286.0	889.0	635.0	460	460	450	8			
502	502	500	11				500	500	500	8			
			11										
590	590	560	12	2286.0	1270.0	635.0	590	590	560	9	2453.0	1200.0	600.0
650	650	630	12				650	650	630	9			
							710	710	710	9			
750	750	710	12				765	765	750	9			
							795	795	800	9			
820	820	800	12				960	960	900	9			
920	920	900	13	2275.0	1412.0	619.2							
1K0	1030	1000	13				1K0	1040	1000	10	2453.0	1800.0	600.0
1K1	1180	1100	13				1K4	1400	1400	10			
1K5	1500	1500	14	2276.0	2800	620.0							
1K9	1900	1800	14										

(1) Frames 8, 9, and 10 are available as a drive with options (21G).

Dimensions and Enclosure Types

This section compares the dimensions and enclosure types of the 700H and 755 drives.

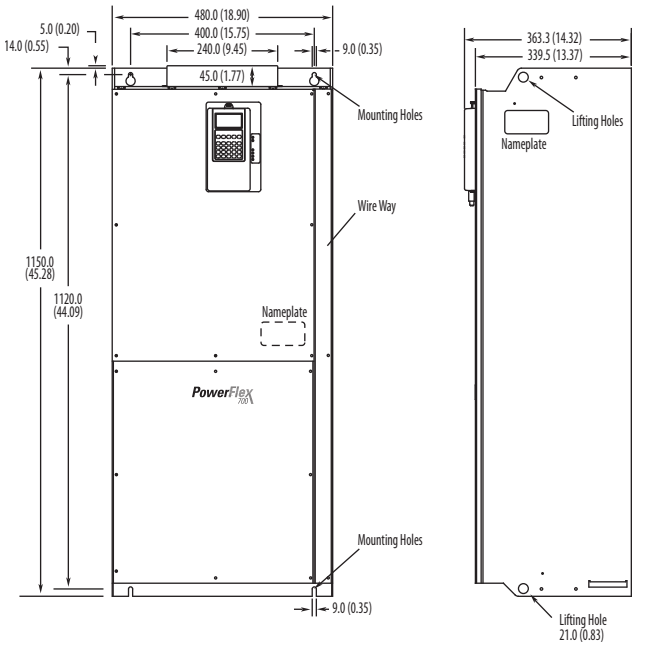
Figure 2 - 700H Frame 9 to 755 Frame 6



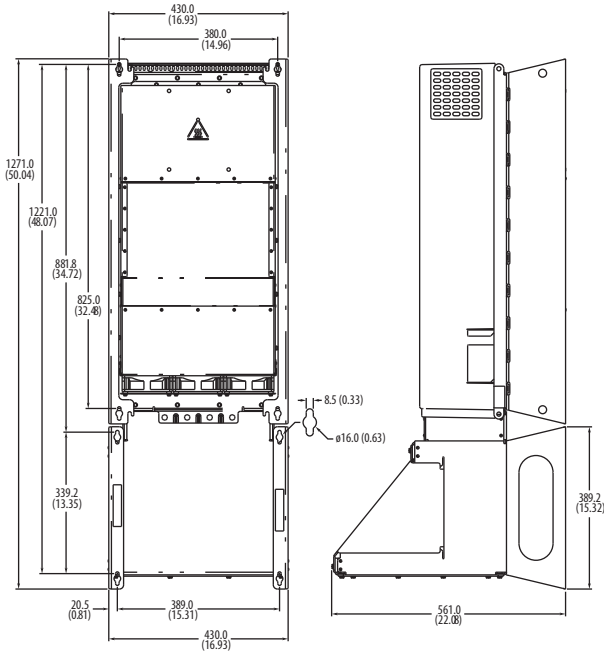
Drive	Frame	Enclosure Type	Enclosure Code	IP Rating	Dimensions, mm (in.)		
					Height	Width	Depth
700H	9	NEMA/UL Type 1	A, M	IP21	1150.0 (45.28)	480.0 (18.90)	363.3 (14.32)
755	6	NEMA/UL Type 1	N	IP00	945.1 (37.21)	308.0 (12.13)	346.7 (13.65)
		NEMA/UL Type 12	G	IP54	1298.3 (51.11)	609.4 (23.99)	464.7 (18.30)

Figure 3 - 700H Frame 9 to 755 Frame 7

700H Frame 9
(NEMA/UL Type 1 shown)



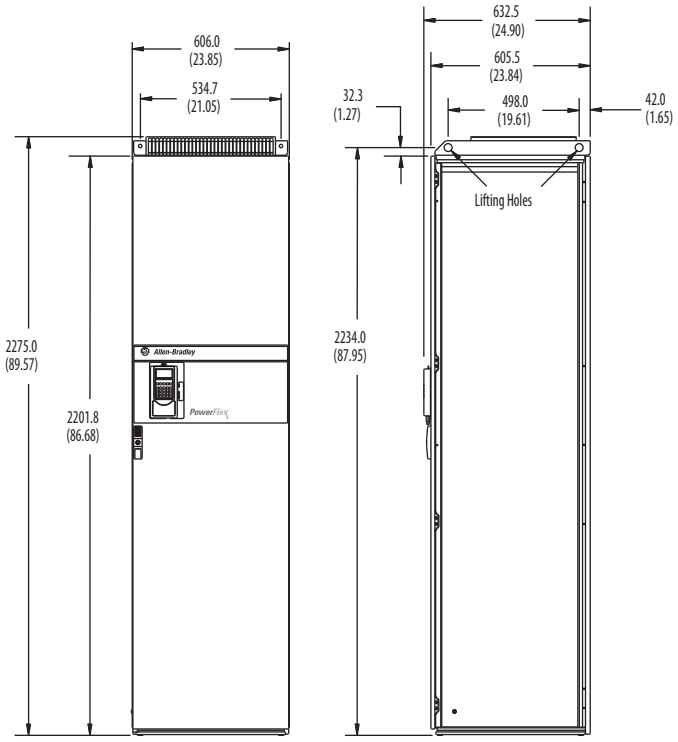
755 Frame 7
(NEMA/UL Type 1 shown)



Drive	Frame	Enclosure Type	Enclosure Code	IP Rating	Dimensions, mm (in.)		
					Height	Width	Depth
700H	9	NEMA/UL Type 1	A, M	IP21	1150.0 (45.28)	480.0 (18.90)	363.3 (14.32)
755	7	NEMA/UL Type 1	N	IP00	1271.0 (50.04)	430.0 (16.93)	561.0 (22.08)
		NEMA/UL Type 12	G	IP54	1614.0 (63.54)	609.6 (24.00)	464.8 (18.30)

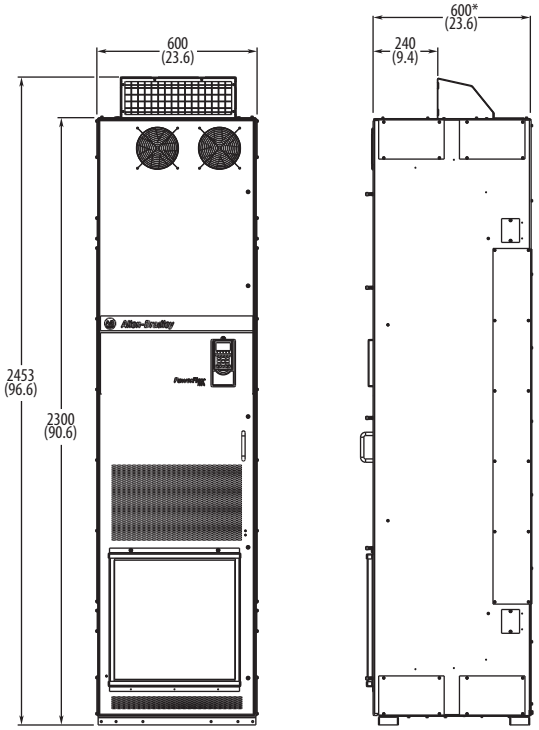
Figure 4 - 700H Frame 10 to 755 Frame 8

700H Frame 10
(NEMA/UL Type 1 shown)



755 Frame 8
(NEMA/UL Type 1 shown)

*800 (31.50) is also available.

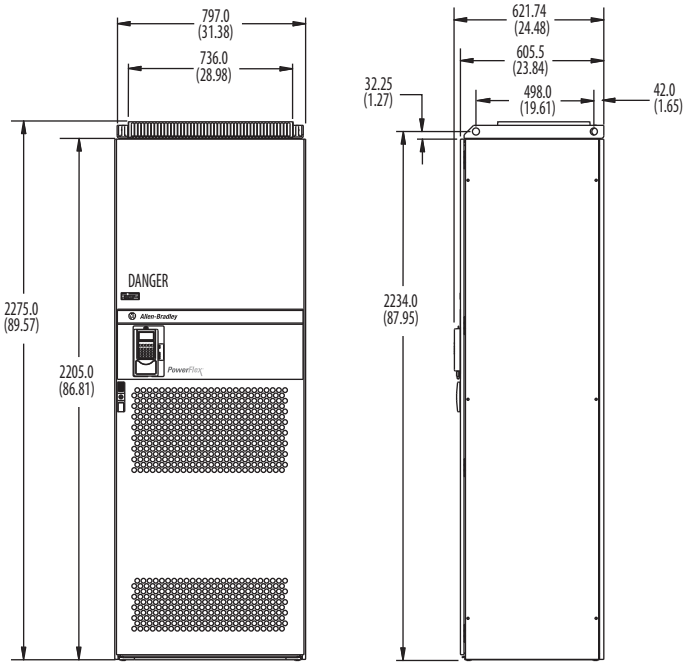


Drive	Frame	Enclosure Type	Enclosure Code	IP Rating	Dimensions, mm (in.)		
					Height	Width	Depth
700H	10	NEMA/UL Type 1	A, M	IP21	2275.0 (89.57)	606.0 (23.85)	632.5 (24.90) (2)
		NEMA/UL Type 1 MCC	B, K	IP20	2286.0 (90.00)	635.0 (25.00)	635.0 (25.00)
		NEMA/UL Type 12	H, W	IP54	2403.5 (94.60)	478.0 (19.00)	655.04 (25.80) (2)
755	8	NEMA/UL Type 1 2500 MCC	B	IP20	2453.0 (96.60)	600.0 (23.60)	600.0 (23.60)
		NEMA/UL Type 1 2500 MCC	L, P, W	IP20	2453.0 (96.60)	600.0 (23.60)	800.0 (31.50)
		NEMA/UL Type 12 2500 MCC	J, K, Y	IP54	2477.0 (97.50)	600.0 (23.60)	800.0 (31.50) 898.0 (35.40) (3)
		NEMA/UL Type 1 2500 MCC	B with P14 wiring bay	IP20	2453.0 (96.60)	1200.0 (47.20)	600.0 (23.60)
		NEMA/UL Type 1 2500 MCC	B with option bay (1)	IP20	2453.0 (96.60)	1200.0 (47.20)	600.0 (23.60)
		NEMA/UL Type 1 2500 MCC	P, W, Y with option bay (1)	IP20	2453.0 (96.60)	1200.0 (47.20)	800.0 (31.50)

(1) Frame 8 power options include a circuit breaker or disconnect switch, an input or output reactor, an input or output contactor, or MCC bus.
(2) This dimension is the depth for drives with the optional door-mounted HIM installed.
(3) This dimension is the depth for drives including the filter.

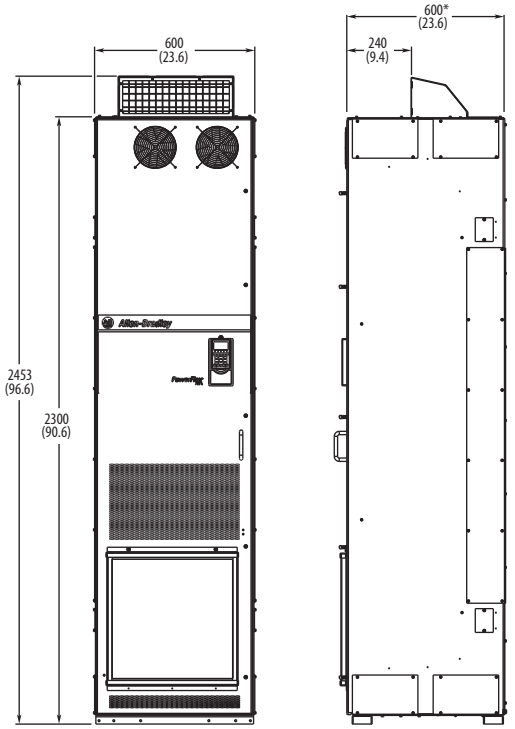
Figure 5 - 700H Frame 11 to 755 Frame 8

700H Frame 11
(NEMA/UL Type 1 shown)



755 Frame 8
(NEMA/UL Type 1 shown)

*800 (31.50) is also available.

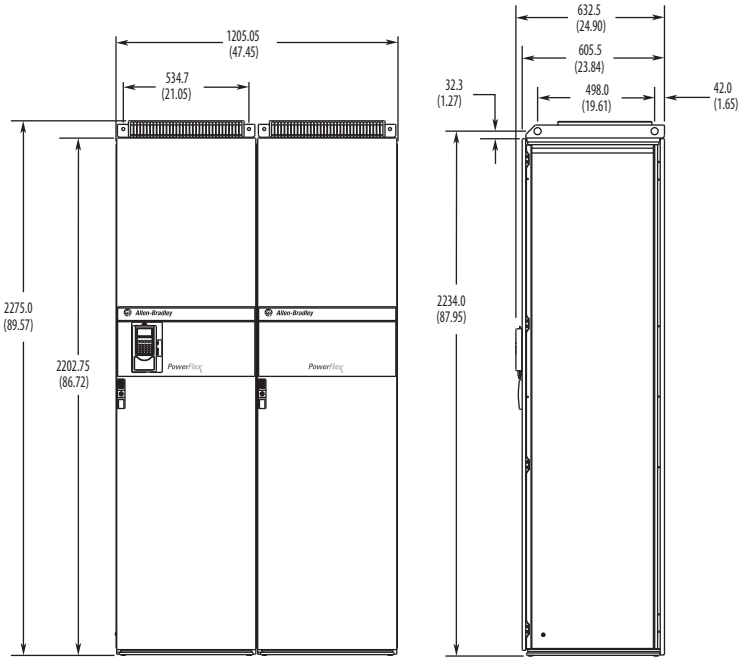


Drive	Frame	Enclosure Type	Enclosure Code	IP Rating	Dimensions, mm (in.)		
					Height	Width	Depth
700H	11	NEMA/UL Type 1	A, M	IP21	2275.0 (89.57)	797.0 (31.38)	621.74 (24.48) (2)
		NEMA/UL Type 1 MCC	B, K	IP20	2286.0 (90.00)	889.0 (35.00)	635.0 (25.00)
		NEMA/UL Type 12	H, W	IP54	2414.5 (95.00)	806.0 (31.70)	655.04 (25.80)
755	8	NEMA/UL Type 1 2500 MCC	B	IP20	2453.0 (96.60)	600.0 (23.60)	600.0 (23.60)
		NEMA/UL Type 1 2500 MCC	L, P, W	IP20	2453.0 (96.60)	600.0 (23.60)	800.0 (31.50)
		NEMA/UL Type 12 2500 MCC	J, K, Y	IP54	2477.0 (97.50)	600.0 (23.60)	800.0 (31.50) 898.0 (35.40) (3)
		NEMA/UL Type 1 2500 MCC	B with P14 wiring bay	IP20	2453.0 (96.60)	1200.0 (47.20)	600.0 (23.60)
		NEMA/UL Type 1 2500 MCC	B with option bay (1)	IP20	2453.0 (96.60)	1200.0 (47.20)	600.0 (23.60)
		NEMA/UL Type 1 2500 MCC	P, W, Y with option bay (1)	IP20	2453.0 (96.60)	1200.0 (47.20)	800.0 (31.50)

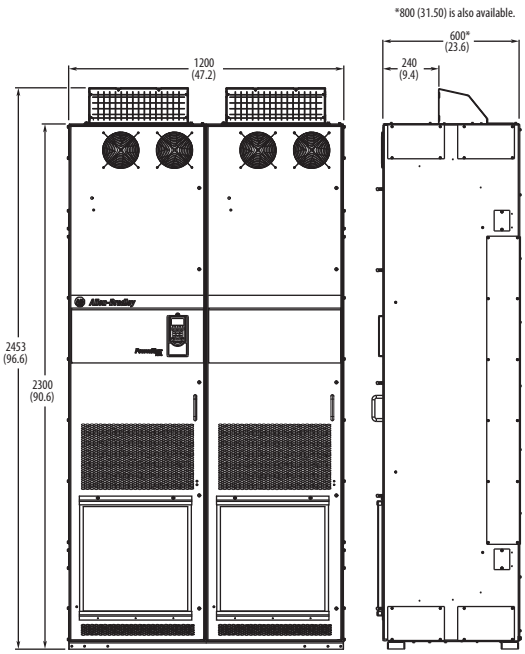
(1) Frame 8 power options include a circuit breaker or disconnect switch, an input or output reactor, an input or output contactor, or MCC bus.
(2) This dimension is the depth for drives with the optional door-mounted HIM installed.
(3) This dimension is the depth for drives including the filter.

Figure 6 - 700H Frame 12 to 755 Frame 9

700H Frame 12
(NEMA/UL Type 1 shown)



755 Frame 9
(NEMA/UL Type 1 shown)

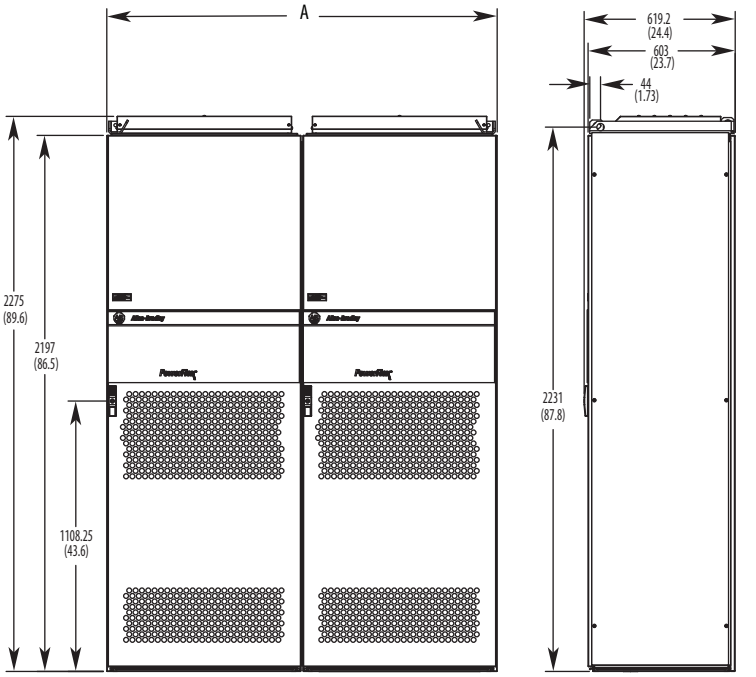


Drive	Frame	Enclosure Type	Enclosure Code	IP Rating	Dimensions, mm (in.)		
					Height	Width	Depth
700H	12	NEMA/UL Type 1	A, M	IP21	2275.0 (89.57)	1205.05 (47.45)	632.5 (24.90) (2)
		NEMA/UL Type 1 MCC	B, K	IP20	2286.0 (90.00)	1270.0 (50.00)	635.0 (25.00)
		NEMA/UL Type 12	H, W	IP54	2403.5 (94.60)	1205.05 (47.44)	655.04 (25.80)
755	9	NEMA/UL Type 1 2500 MCC	B	IP20	2453.0 (96.60)	1200.0 (47.20)	600.0 (23.60)
		NEMA/UL Type 1 2500 MCC	L, P, W	IP20	2453.0 (96.60)	1200.0 (47.20)	800.0 (31.50)
		NEMA/UL Type 12 2500 MCC	J, K, Y	IP54	2477.0 (97.50)	1200.0 (47.20)	800.0 (31.50) 898.0 (35.40) (3)
		NEMA/UL Type 1 2500 MCC	B with P14 wiring bay (1)	IP20	2453.0 (96.60)	1800.0 (70.90)	600.0 (23.60)
		NEMA/UL Type 1 2500 MCC	P, W, Y with option bay (1)	IP20	2453.0 (96.60)	1800.0 (70.90)	800.0 (31.50)

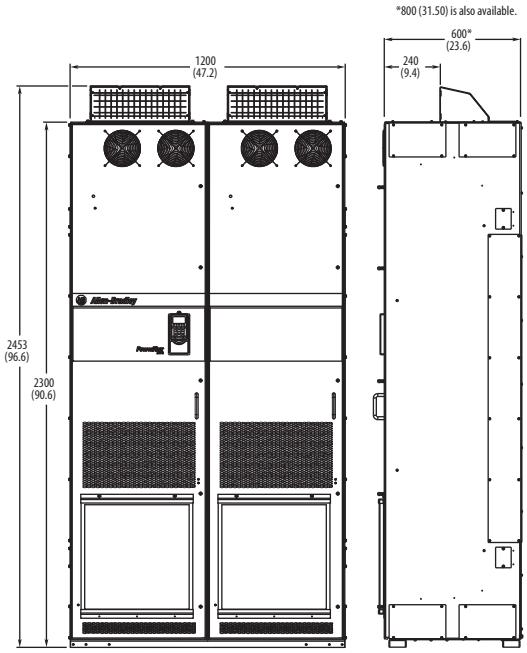
(1) Frame 9 power options include a circuit breaker, input or output reactor, or MCC bus.
(2) This dimension is the depth for drives with the optional door-mounted HIM installed.
(3) This dimension is the depth for drives including the filter.

Figure 7 - 700H Frame 13 to 755 Frame 9

700H Frame 13
(NEMA/UL Type 1 shown)



755 Frame 9
(NEMA/UL Type 1 shown)



Drive	Frame	Enclosure Type	Enclosure Code	IP Rating	Dimensions, mm (in.)		
					Height	Width	Depth
700H	13	NEMA/UL Type 1	A, M	IP21	2275.0 (89.60)	See Table 11 below for the value of A.	619.2 (24.20)
		NEMA/UL Type 12	H, W	IP54	2443.5 (104.50)		662.0 (26.06)
755	9	NEMA/UL Type 1 2500 MCC	B	IP20	2453.0 (96.60)	1200.0 (47.20)	600.0 (23.60)
		NEMA/UL Type 1 2500 MCC	L, P, W	IP20	2453.0 (96.60)	1200.0 (47.20)	800.0 (31.50)
		NEMA/UL Type 12 2500 MCC	J, K, Y	IP54	2477.0 (97.50)	1200.0 (47.20)	800.0 (31.50) 898.0 (35.40) (2)
		NEMA/UL Type 1 2500 MCC	B with P14 wiring bay (1)	IP20	2453.0 (96.60)	1800.0 (70.90)	600.0 (23.60)
		NEMA/UL Type 1 2500 MCC	P, W, Y with option bay (1)	IP20	2453.0 (96.60)	1800.0 (70.90)	800.0 (31.50)

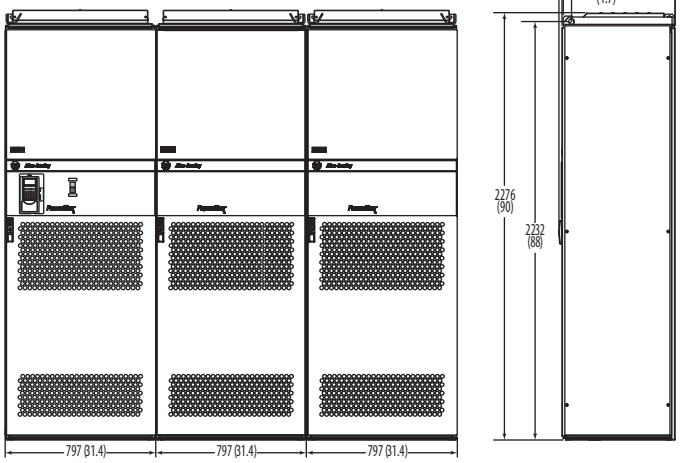
(1) Frame 9 power options include a circuit breaker, input or output reactor, or MCC bus.
(2) This dimension is the depth for drives including the filter.

Table 11 - Width Dimensions Based on Voltage Class and Amp Rating

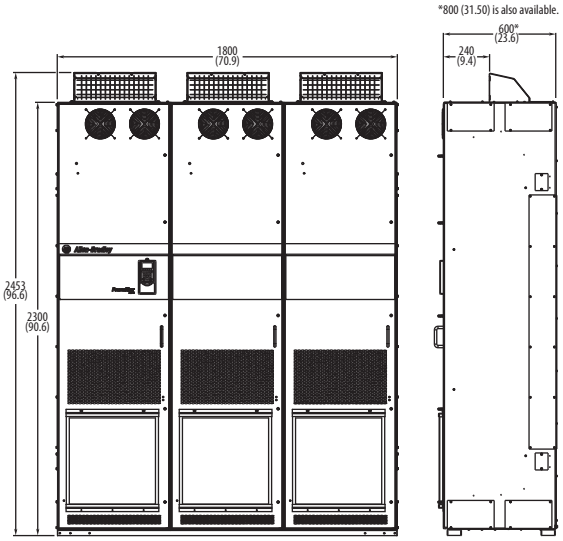
Voltage Class	Amps	Value of A (width)
400/480 AC (540/650 DC)	1150	1412.0 (56.0)
	1300	1600.0 (63.0)
	1450	
600/690 AC (810/932 DC)	920	1412.0 (56.0)
	1030	
	1180	

Figure 8 - 700H Frame 14 (1500 A) to 755 Frame 10

700H Frame 14 (1500 A)
(NEMA/UL Type 1 shown)



755 Frame 10
(NEMA/UL Type 1 shown)



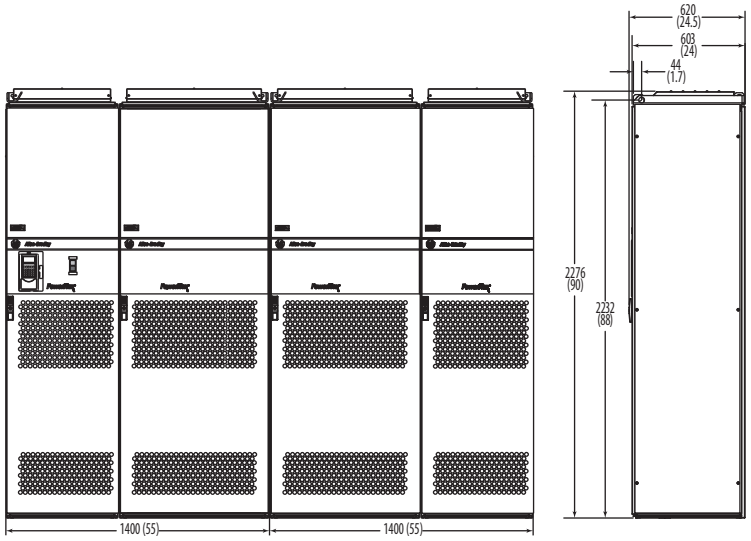
Drive	Frame	Enclosure Type	Enclosure Code	IP Rating	Dimensions, mm (in.)		
					Height	Width	Depth
700H	14	NEMA/UL Type 1	A, M	IP21	2276.0 (90.00)	2400 (94.48)	620.0 (24.50)
		NEMA/UL Type 12	H, W	IP54	2276.0 (90.00)	2400 (94.48)	662.0 (26.00)
700H (1)	14	NEMA/UL Type 1	A, M	IP21	2270.0 (89.40)	1597.0 (63.00)	620.0 (24.50)
		NEMA/UL Type 12	H, W	IP54	2276.0 (90.00)	1597.0 (63.00)	662.0 (26.00)
755	10	NEMA/UL Type 1 2500 MCC	B	IP20	2453.0 (96.60)	1800.0 (70.90)	600.0 (23.60)
		NEMA/UL Type 1 2500 MCC	L, P, W	IP20	2453.0 (96.60)	1800.0 (70.90)	800.0 (31.50)
		NEMA/UL Type 12 2500 MCC	J, K, Y (2)	IP54	2477.0 (97.50)	1800.0 (70.90)	800.0 (31.50) 898.0 (35.40) (3)
		NEMA/UL Type 1 2500 MCC	B with P14 wiring bay (2)	IP20	2453.0 (96.60)	2400 (94.48)	600.0 (23.60)

(1) DC input.
(2) Frame 10 power options include a circuit breaker and MCC bus.
(3) This dimension is the depth for drives including the filter.

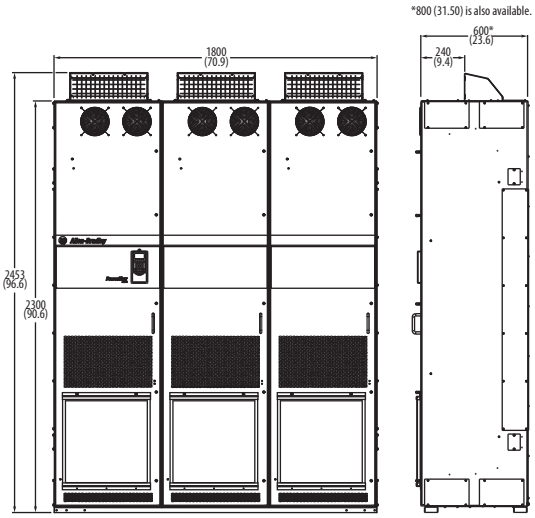
IMPORTANT You can also order an additional options bay for the 755 drive that provide contactor, reactor, and bus options (see PowerFlex 755 w/Options (21G) - Additional Selections in Table 29 on page 51). Adding the options bay will increase the overall width of the 755 drive, and may exceed the existing width of your current 700H drive.

Figure 9 - 700H Frame 14 (>1500 A) to 755 Frame 10

700H Frame 14 (above 1500 A)
(NEMA/UL Type 1 shown)



755 Frame 10
(NEMA/UL Type 1 shown)



Drive	Frame	Enclosure Type	Enclosure Code	IP Rating	Dimensions, mm (in.)		
					Height	Width	Depth
700H	14	NEMA/UL Type 1	A, M	IP21	2276.0 (90.00)	2800 (110.23)	620.0 (24.50)
		NEMA/UL Type 12	H, W	IP54	2276.0 (90.00)	2800 (110.23)	662.0 (26.00)
700H (1)	14	NEMA/UL Type 1	A, M	IP21	2270.0 (89.40)	1597.0 (63.00)	620.0 (24.50)
		NEMA/UL Type 12	H, W	IP54	2276.0 (90.00)	1597.0 (63.00)	662.0 (26.00)
755	10	NEMA/UL Type 1 2500 MCC	B	IP20	2453.0 (96.60)	1800.0 (70.90)	600.0 (23.60)
		NEMA/UL Type 1 2500 MCC	L, P, W (2)	IP20	2453.0 (96.60)	1800.0 (70.90)	800.0 (31.50)
		NEMA/UL Type 12 2500 MCC	J, K, Y (2)	IP54	2477.0 (97.50)	1800.0 (70.90)	800.0 (31.50) 898.0 (35.40) (3)
		NEMA/UL Type 1 2500 MCC	B with P14 wiring bay (2)	IP20	2453.0 (96.60)	2400 (94.48)	600.0 (23.60)

(1) DC input.
(2) Frame 10 power options include a circuit breaker and MCC bus.
(3) This dimension is the depth for drives including the filter.

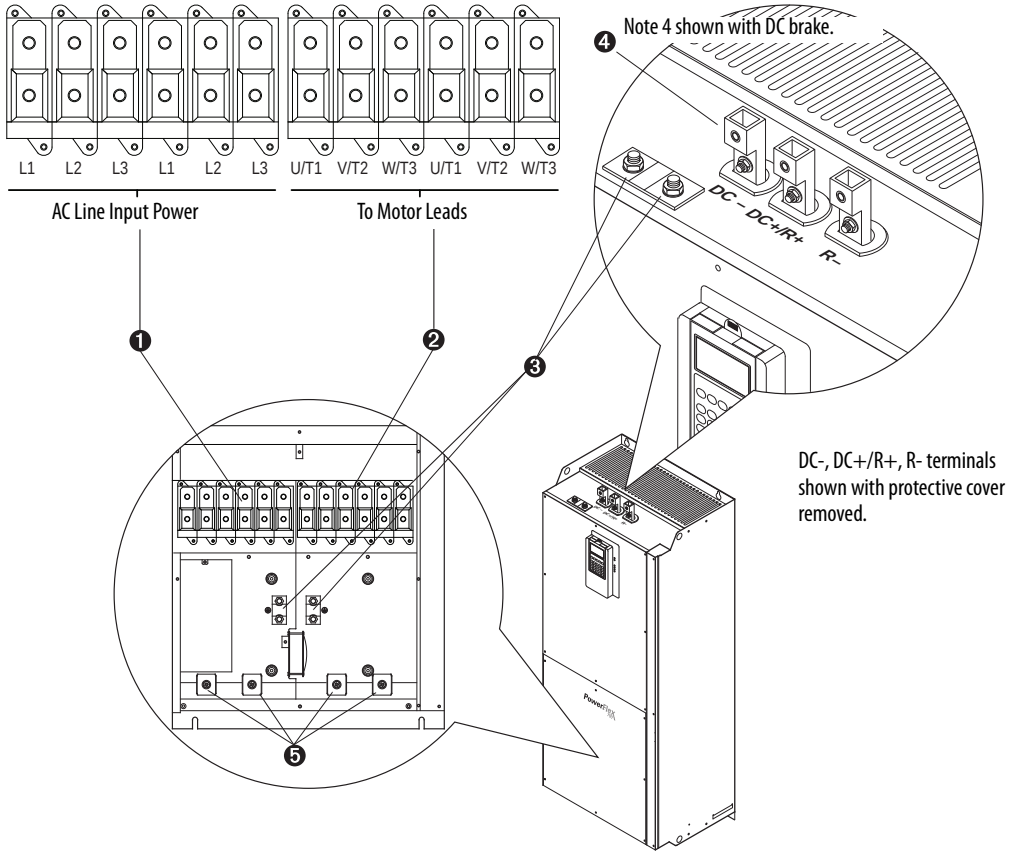
IMPORTANT You can also order an additional options bay for the 755 drive that provide contactor, reactor, and bus options (see PowerFlex 755 w/Options (21G) - Additional Selections in Table 29 on page 51). Adding the options bay will increase the overall width of the 755 drive, and may exceed the existing width of your current 700H drive.

Power Terminal Comparison

Use this section to compare the power terminal blocks of the 700H drives to the 755 drives.

700H Drives

Figure 10 - 700H Frame 9 Power Terminal Specifications



No.	Name	Description	Wire Size Range[1]		Torque
			Max	Min	Recommended
❶	Input power terminal block[2] L1, L2, L3	Input power	185.0 mm^2 (350 MCM)	95.0 mm^2 (4/0 AWG)	40 N•m (354 lb•in)
❷	Output power terminal block[2] U/T1, V/T2, W/T3	Motor connections	185.0 mm^2 (350 MCM)	95.0 mm^2 (4/0 AWG)	40 N•m (354 lb•in)
❸	SHLD terminal, PE, motor ground	Terminating point for wiring shields	95.0 mm^2 (4/0 AWG)	5.0 mm^2 (10 AWG)	22 N•m (195 lb•in)
❹	DC bus[3] (2 terminals; DC–, DC+)	DC input or external brake resistor (Internal brake option **is not** provided)[4]	185.0 mm^2 (350 MCM)	95.0 mm^2 (4/0 AWG)	40 N•m (354 lb•in)
	DC bus w/brake[3] (3 terminals; DC–, DC+/R+, R–)	DC input/internal brake (Internal brake option **is** provided)[4]	185.0 mm^2 (350 MCM)	95.0 mm^2 (4/0 AWG)	40 N•m (354 lb•in)
❺	Cable clamp for shield				

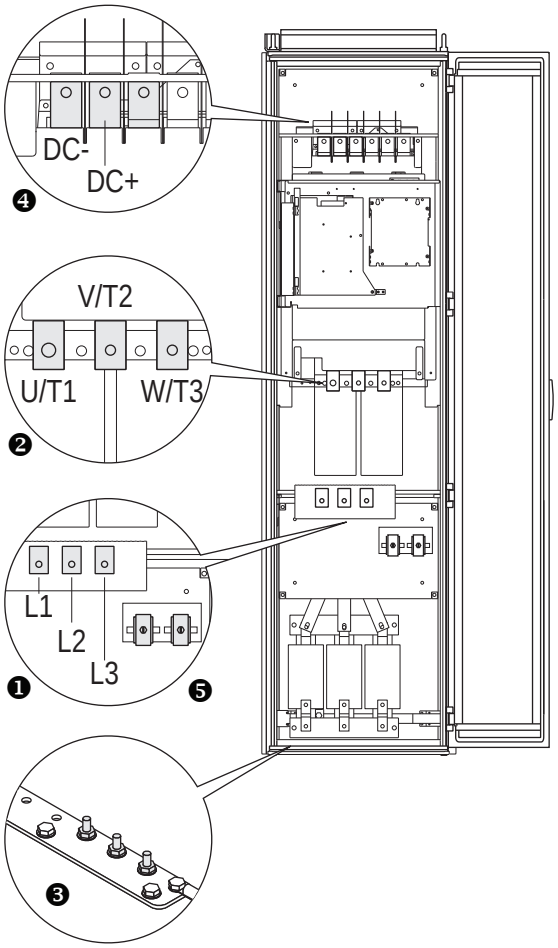
(1) Maximum/minimum sizes that the terminal block will accept–these are not recommendations.

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

(3) DC terminal and brake lugs can be removed.

(4) Refer to Frame 9 DC Bus/Brake Connections in the PowerFlex 700H Adjustable Frequency AC Drive/PowerFlex 700S High Performance AC Drive, Frames 9...14 Installation Instructions, publication PFLEX-IN006.

Figure 11 - 700H Frame 10 Power Terminal Specifications



No.	Name	Description	Wire Size Range (1)(2)		Torque	Terminal Bolt Size (3)(4)
			Max	Min	Recommended	
❶	Input power terminal block (3) L1, L2, L3	Input power	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12
❷	Output power terminal block (3) U/T1, V/T2, W/T3	Motor connections	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12
❸	SHLD terminal, PE, motor ground (3)	Terminating point for wiring shields	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M10
❹	DC bus (3) (2 terminals; DC–, DC+)	DC input or external brake	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12
❺	Cable clamp for shield					

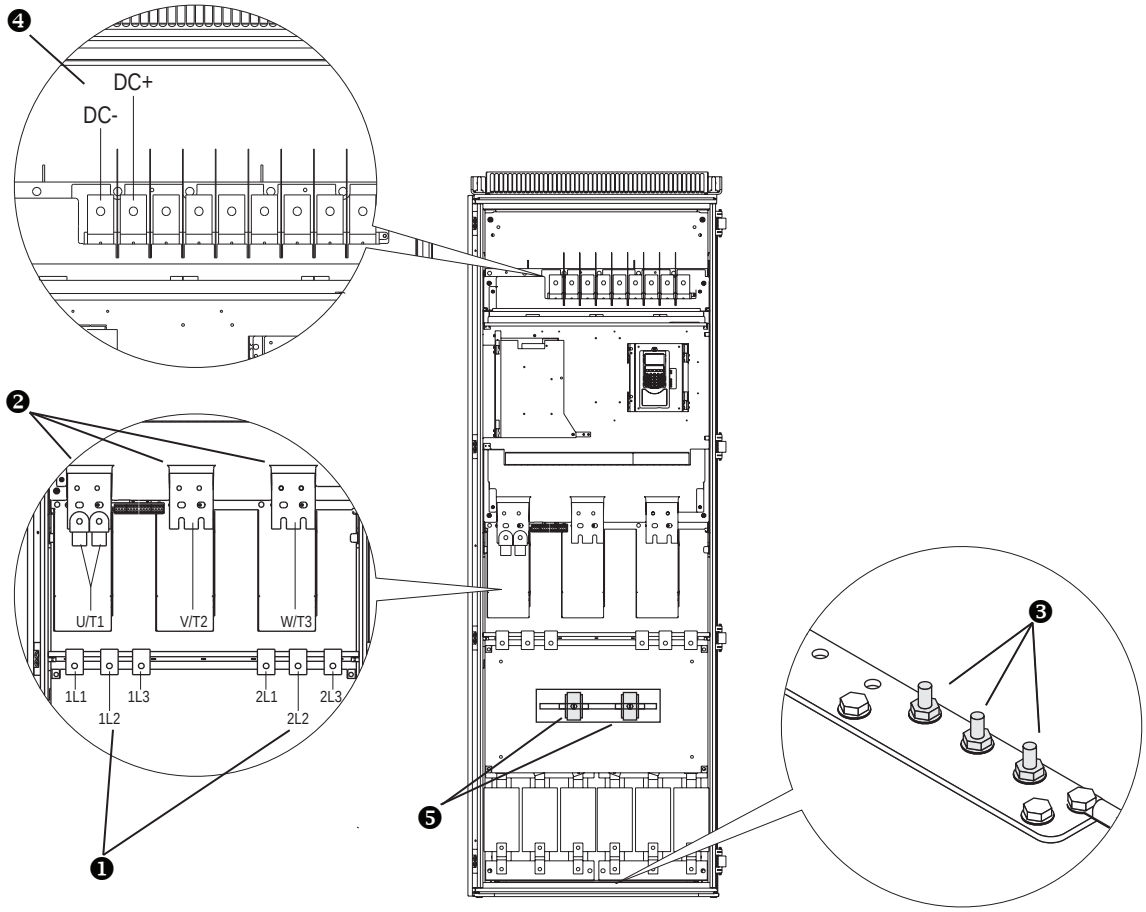
(1) Maximum/minimum sizes that the terminal block will accept–these are not recommendations.

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

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

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

Figure 12 - 700H Frame 11 Power Terminal Specifications



Note: 600V AC input, 460A and 502A frame 11 drives only have one set of input power terminals.

No.	Name	Description	Wire Size Range (1)(2)		Torque	Terminal Bolt Size (3)(4)
			Max	Min	Recommended	
❶	Input power terminal block (3) 1L1, 1L2, 1L3, 2L1, 2L2, 2L3	AC input power	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12
❷	Output power terminal block (3) U/T1, V/T2, W/T3	Motor connections	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12
❸	SHLD terminal, PE, motor ground (3)	Terminating point for wiring shields	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M10
❹	DC bus (3) (2 terminals; DC–, DC+)	DC input or external brake	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12
❺	Cable clamp for shield					

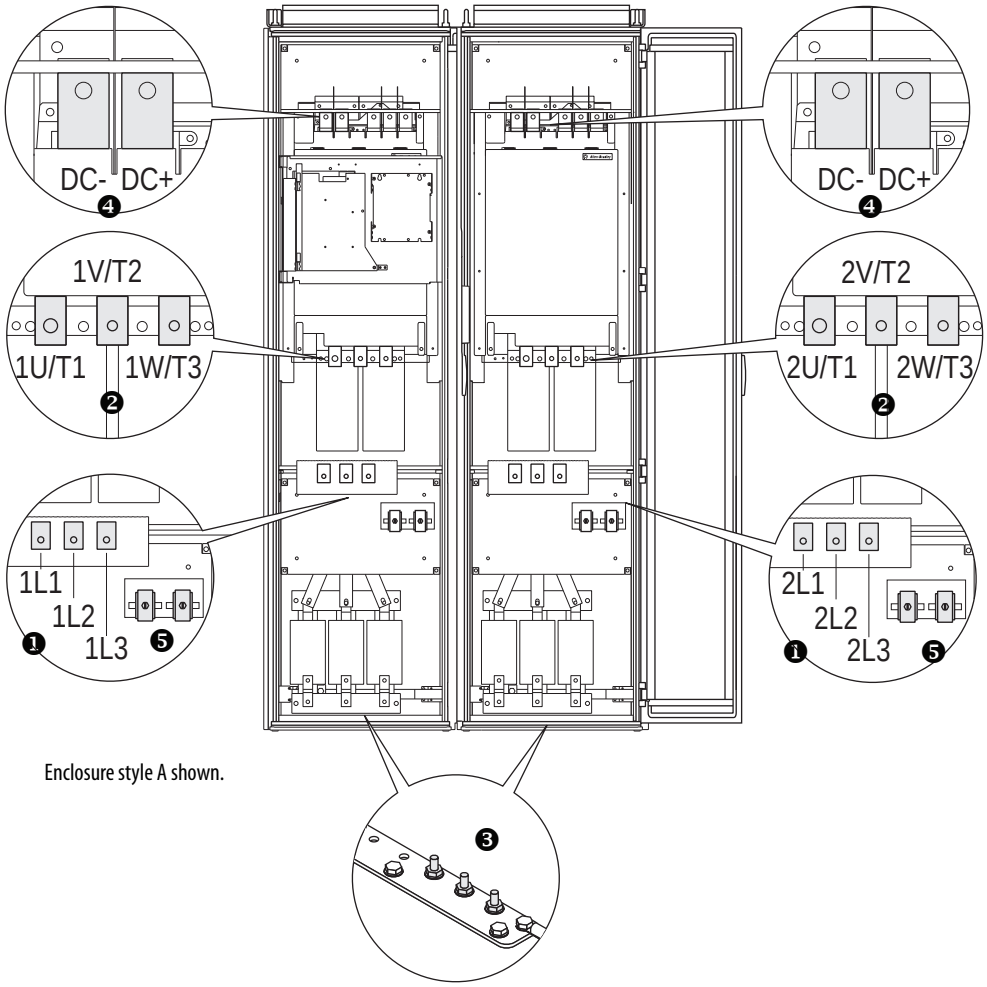
(1) Maximum/minimum sizes that the terminal block will accept–these are not recommendations.

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

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

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

Figure 13 - 700H Frame 12 Power Terminal Specifications



Enclosure style A shown.

No.	Name	Description	Wire Size Range (1)(2)		Torque	Terminal Bolt Size (3)(4)
			Max	Min	Recommended	
❶	Input power terminal block (3) 1L1, 1L2, 1L3, 2L1, 2L2, 2L3	Input power	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12
❷	Output power terminal block ((3) 1U/1T1, 1V/1T2, 1W/1T3, 2U/2T1, 2V/2T2, 2W/2T3	Motor connections	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12
❸	SHLD terminal, PE, motor ground (3)	Terminating point for wiring shields	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M10
❹	DC bus (3) (2 Terminals; DC–, DC+)	DC input or external brake	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12
❺	Cable clamp for shield					

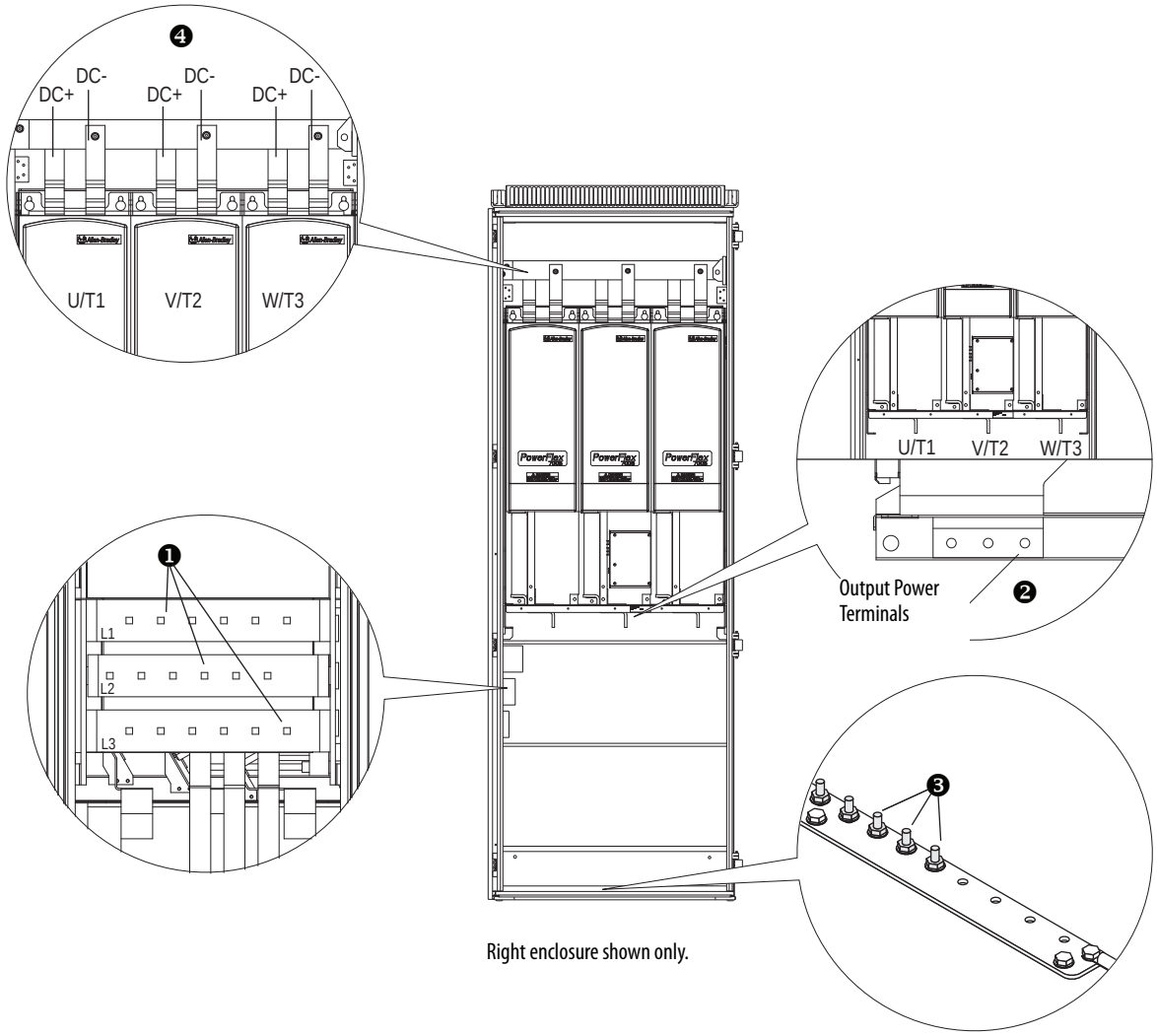
(1) Maximum/minimum sizes that the terminal block will accept–these are not recommendations.

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

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

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

Figure 14 - 700H Frame 13 Power Terminal Specifications



No.	Name	Description	Wire Size Range (1)(2)		Torque	Terminal Bolt Size (3)(4)
			Max	Min	Recommended	
❶	Input power terminal block (3) L1, L2, L3	Input power	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12
❷	Output power terminal block (3) U/T1, V/T2, W/T3	Motor connections	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12
❸	SHLD terminal, PE, motor ground (3)	Terminating point for wiring shields	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M10
❹	DC bus (3) (3 terminals; DC–, DC+)	DC input or external brake	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12

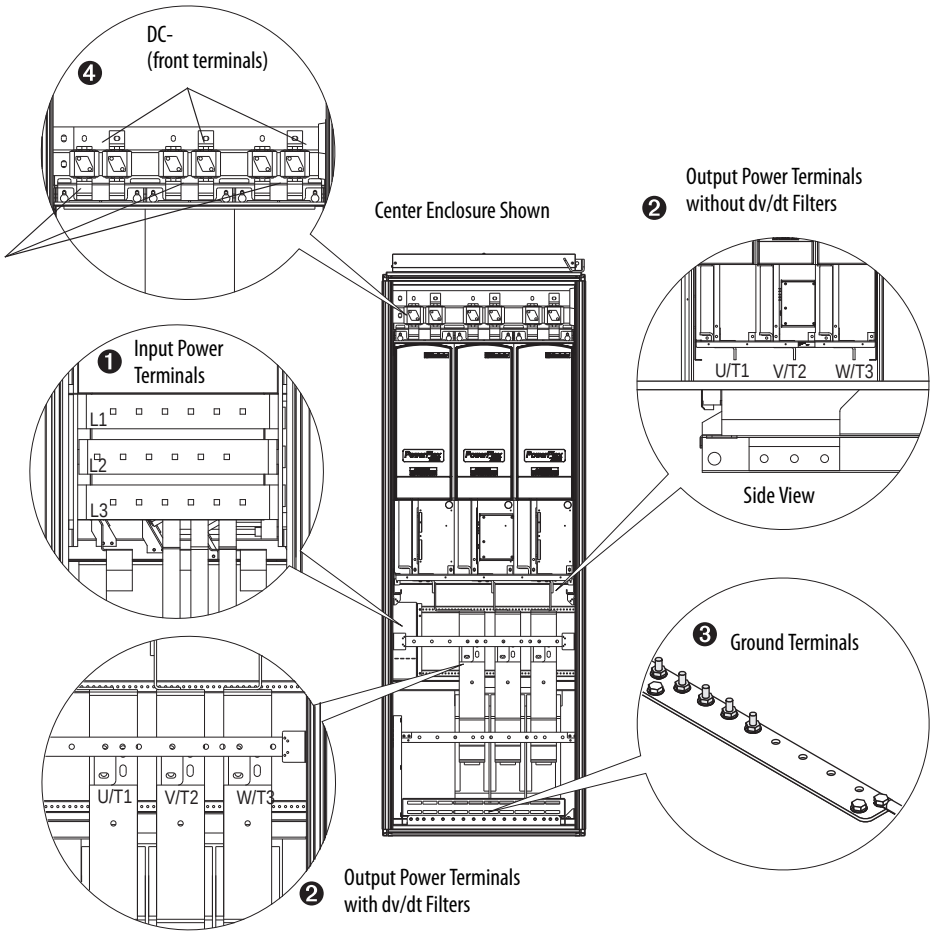
(1) Maximum/minimum sizes that the terminal block will accept–these are not recommendations.

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

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

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

Figure 15 - 700H Frame 14 Power Terminal Specifications (1500 A)



No.	Name	Description	Wire Size Range [1][2]		Torque	Terminal Bolt Size [3][4]
			Max	Min	Recommended	
❶	Input power terminal block [3] L1, L2, L3	Input power	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12
❷	Output power terminal block [3] U/T1, V/T2, W/T3	Motor connections	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12
❸	SHLD terminal, PE, motor ground [3]	Terminating point for wiring shields	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M10
❹	DC bus [3] (3 terminals; DC–, DC+)	DC input or external brake	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12

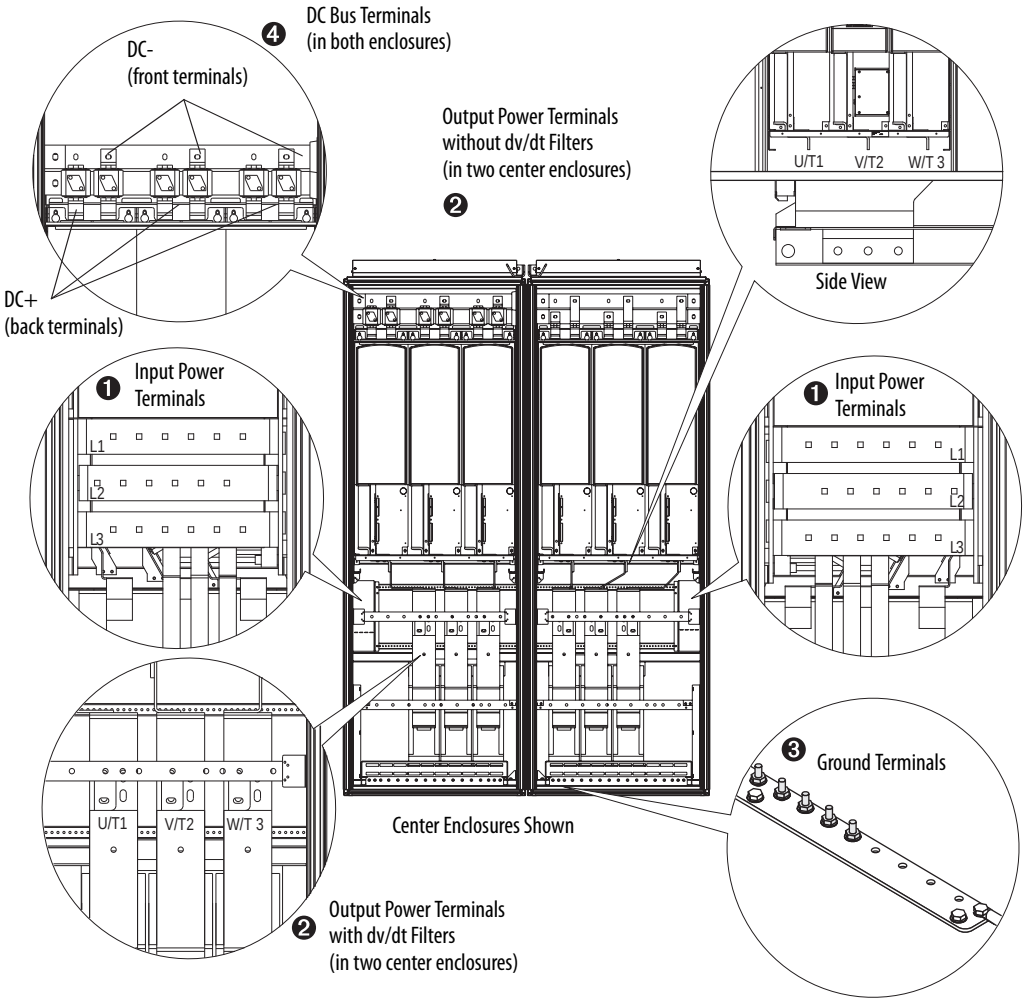
(1) Maximum/minimum sizes that the terminal block will accept–these are not recommendations.

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

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

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

Figure 16 - 700H Frame 14 Power Terminal Specifications (>1500 A)



No.	Name	Description	Wire Size Range (1)(2)		Torque	Terminal Bolt Size (3)(4)
			Max	Min	Recommended	
❶	Input power terminal block (3) L1, L2, L3	Input power	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12
❷	Output power terminal block (3) U/T1, V/T2, W/T3	Motor connections	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12
❸	SHLD terminal, PE, motor ground (3)	Terminating point for wiring shields	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M10
❹	DC bus (3) (three terminals; DC–, DC+)	DC input or external brake	300 mm^2 (600 MCM)	2.1 mm^2 (14 AWG)	40 N•m (354 lb•in)	M12

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

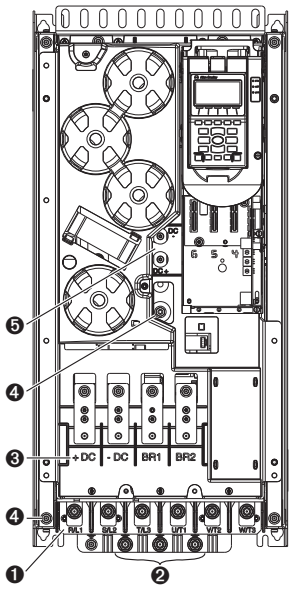
(2) **Do not** exceed maximum wire size. Parallel connections may be required.

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

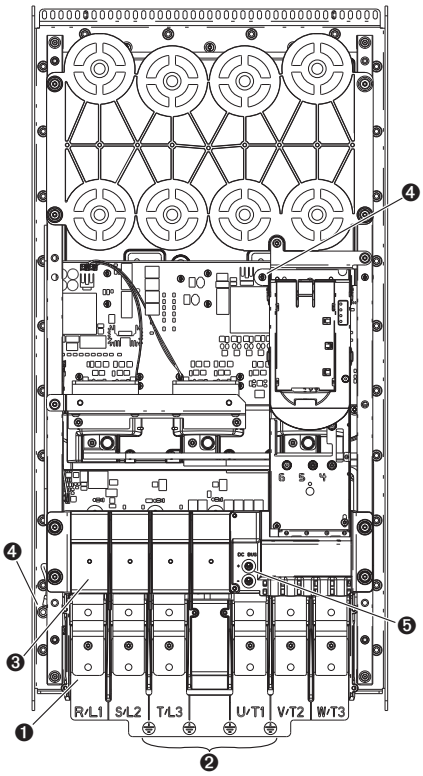
(4) Apply counter torque to the nut on the other side of terminations when tightening or loosening the terminal bolt in order to avoid damage to the terminal.

755 Drives

Figure 17 - 755 Frames 6 and 7 Power Terminal Specifications



Frame 6



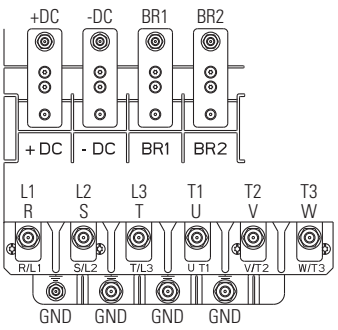
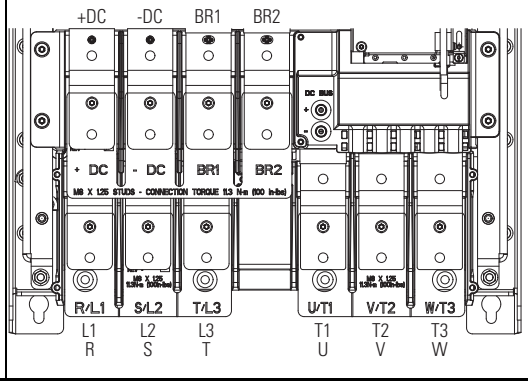
Frame 7

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 (optional dynamic brake)	+DC, -DC, BR1, BR2
❹	PE-A and PE-B	MOV and CMC jumper wires
❺	DC+ and DC-	Bus voltage test points

Frame	Max 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

Frame	Recommended Torque for PE Grounding Stud	Terminal Bolt Size	Recommended Tool
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 18 - Optional 755 Frames 6 and 7 Power Terminal Specifications

Frame	Optional DC and Dynamic Brake Resistor Power Terminal Blocks
6 (1) (2)	
7 (1)	

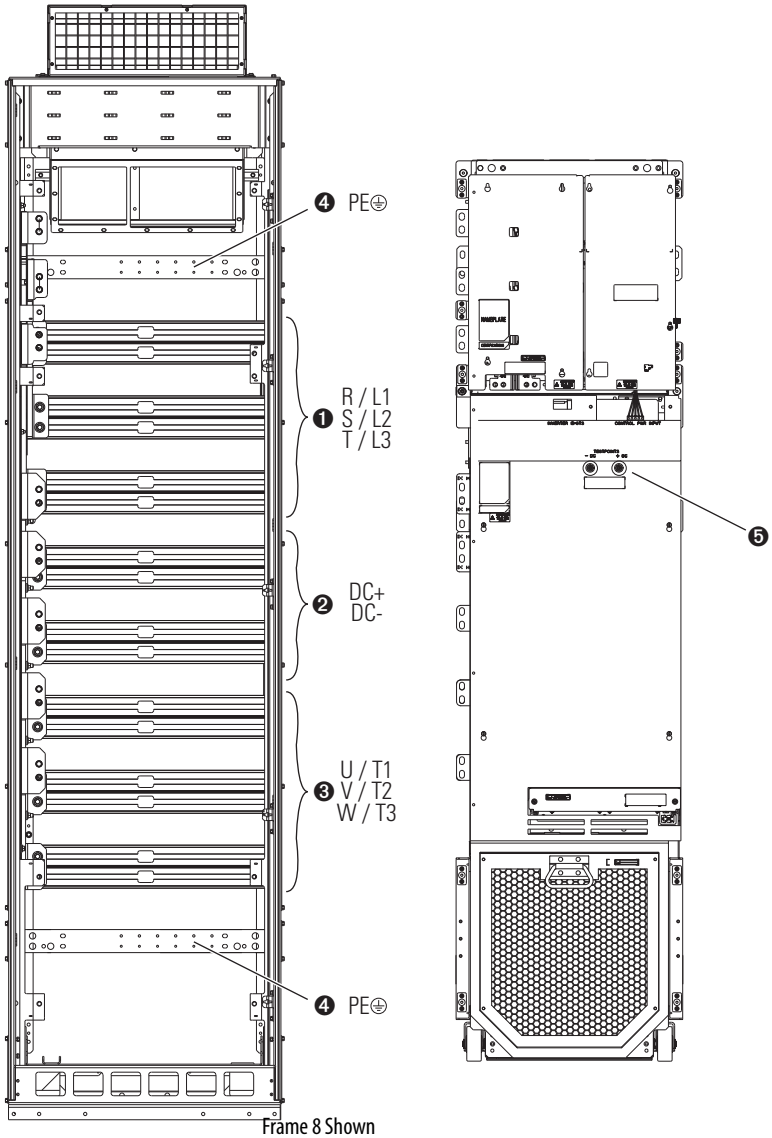
(1) DC bus terminals are optional on Frame 6 and 7 drives: catalog number position 5. Dynamic brake resistor terminals are optional on Frame 6 and 7 drives: catalog number position 12.
Refer to Catalog Number Explanation on page 48.

(2) If the use of two conductors is desired, an AC terminal extension kit (20-750-ACTE-F6) is available for Frame 6 drives.

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 19 - 755 Frames 8…10 Bus Bar Locations, AC Input Drives



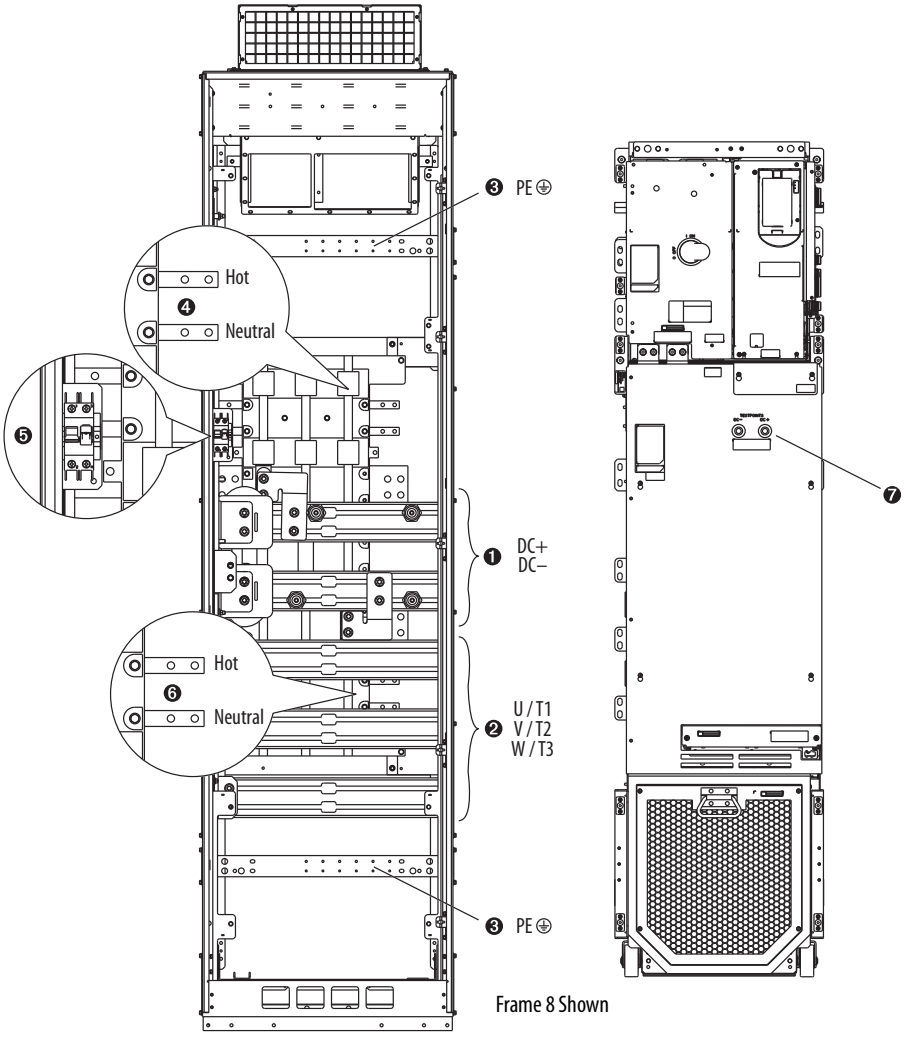
Frame 8 Shown

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

IMPORTANT The 755 input and output bus bar terminals are located in the rear of the drive enclosure (the 700H terminals are in the front of the drive). To access the 755 bus bars, remove the drive assembly from the cabinet. Refer to the procedures for releasing the drive assembly from the cabinet, disconnecting the wiring, and using the roll-out cart in the PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001.

You can also order an optional wiring bay for the 755 drive that allows you to wire the drive without removing the drive assembly from the cabinet (see option P14 in Table 29 on page 51). Adding the optional wiring bay will increase the overall width of the 755 drive, and may exceed the existing footprint of your current 700H drive.

Figure 20 - 755 Frames 8…10 Bus Bar and AC Power Rail Locations, Common DC Input Drives



No.	Name	Description
❶	DC power bus	DC+, DC-
❷	Power bus	U/T1, V/T2, W/T3
❸	PE grounding bar	Terminating point to chassis ground for incoming AC line and motor shield.
❹	Control rail	120V AC control power supply connections. Top rail is hot.
❺	Control power circuit breaker	120V AC control power supply circuit breaker.
❻	UPS rail	120V AC uninterrupted power supply (UPS) connections. Top rail is hot.
❼	DC+ and DC-	Bus voltage test points

IMPORTANT The 755 input and output bus bar terminals are located in the rear of the drive enclosure (the 700H terminals are in the front of the drive). To access the 755 bus bars, remove the drive assembly from the cabinet. Refer to the procedures for releasing the drive assembly from the cabinet, disconnecting the wiring, and using the roll-out cart in the PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001.

You can also order an optional wiring bay for the 755 drive that allows you to wire the drive without removing the drive assembly from the cabinet (see option P14 in Table 29 on page 51). Adding the optional wiring bay will increase the overall width of the 755 drive, and may exceed the existing footprint of your current 700H drive.

Table 12 - 755 Frames 8…10 Power Wiring Options

Cable Option	Wire Entry/Exit Location	IP20, NEMA/UL Type 1 Drive (2500 MCC Style Cabinet)		IP20, NEMA/UL Type 1 Drive and Cabinet Options (2500 MCC Style Cabinet)	
		600 mm (23.6 in.) deep drive bay	800 mm (31.5 in.) deep drive bay	600 or 800 mm deep drive bay with 600 mm wide wiring-only bay	600 or 800 mm deep drive bay with 600 mm cabinet options bay
Armored cable with conduit hubs	Top entry, bottom exit		X	X	X
	Bottom entry, bottom exit		X	X	
	Top entry, top exit		X	X	
Shielded cable with conduit hubs	Top entry, bottom exit	X	X	X	X
	Bottom entry, bottom exit		X	X	
	Top entry, top exit		X	X	X(1)
Shielded cable without conduit hubs(2)	Bottom entry, bottom exit	X	X	X	

(1) This wiring configuration is possible when there are no output options in the option bay and the motor connections are wired from the drive bay.

(2) Other configurations with shielded cable are possible, but using conduit hubs is recommended.

IMPORTANT Carefully review and compare your existing 700H wiring with the 755 wiring described in Enclosure Options, NEMA/UL Type 1 Enclosure - 2500 MCC Style Cabinet (Approximate Dimensions, and Power and Control Wiring sections) in the PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001.

Power Wiring Impedance Considerations

For 700H drives, frames 12...14, the minimum cable length for parallel motor cables from the drive to the point where the cables connect is 5 m (16.4 ft). The parallel cables are joined at the motor end (not the drive end). Or, a reactor can be installed on the output of each power module with a minimum of 5 uH prior to joining the parallel cables at the motor end.

The 755 drive does not require the same cabling configuration to meet impedance and inductance requirements.

Refer to the Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001, for minimum inductance on installations where dv/dt filters are not installed.

IMPORTANT The difference in power wiring and cabling requirements between the 700H and 755 drives can affect motor lead quantity, termination methods, and cable lengths.

Carefully review and compare your existing 700H wiring with the 755 wiring described in the PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001.

Control Terminal Comparison

Use this section to compare the control terminal blocks of the 700H drive to the 755 drive.

Input/Output

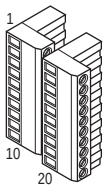
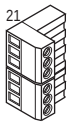
Inputs and outputs on the 700H drive are user-selected options. See catalog description in Table 27 on page 49, position **k**.

The 755 drive contains one digital input on the main control board and uses the optional 750-Series I/O modules for additional I/O. See 755 Drive I/O Option Modules on page 45 for information about optional I/O modules.

See the following pages for control terminal descriptions.

700H Drives I/O Terminal Blocks

Figure 21 - 700H Drives I/O Terminal Designations

	No.	Signal	Factory Default	Description	Related Parameters
	1	Analog input 1 (–) (1)	(2)	Isolated (3), bipolar, differential, 9 bit and sign, 88 kΩ input impedance. A jumper (page 42) selects: 0…10V, ±10V, 4…20mA. Default: 0…10V (Ri =200k), 4…20mA (Ri=100 Ω).	320…327
	2	Analog input 1 (+) (1)			
	3	Analog input 2 (–) (1)			
	4	Analog input 2 (+) (1)			
	5	–10V pot reference	–	2 kΩ min, 10 mA max load, 1% accuracy.	
	6	Pot common (GND)		For (+) and (–) 10V pot references.	
	7	+10V pot reference	–	2 kΩ min, 10mA max load, 1% accuracy.	
	8	Analog output 1 (+)	(2)	Bipolar (current out is not bipolar), 9 bit and sign, 2 kΩ min load. A jumper (see page 42) selects: 0…10V, ±10V, 4…20mA.	340…347
	9	Analog output Common			
	10	Analog output 2 (+)			
	11	Digital input 1	Stop - CF	**115V AC, 50/60 Hz** - Opto isolated Low state: less than 30V AC High state: greater than 40V AC or (4) **24V DC** - Opto isolated (250V) Low state: less than 5V DC High state: greater than 20V DC 11.2 mA DC **Enable**: Digital input 6 is jumper selectable for hardware enable. on-time: < 16.7ms, off-time < 1ms	361…366
	12	Digital input 2	Start		
	13	Digital input 3	Auto/Man		
	14	Digital input 4	Speed Sel 1		
	15	Digital input 5	Speed Sel 2		
	16	Digital input 6/hardware enable, see pg. page 42	Speed Sel 3		
	17 18	Digital input common		Allows source or sink operation. Terminals 17/18 and 19 can also be used to provide back-up power to DPI and control devices.	
	19	+24V DC (5)	–	Drive supplied logic input power.	
	20	24V common (5)	–	Common for internal power supply.	
	21	Digital output 1 – N.C. (6)	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
	22	Digital output 1 common			
	23	Digital output 1 – N.O. (6)	NOT Fault		
	24	Digital output 2 – N.C. (6)	NOT Run		
	25	Digital output 2/3 com.			
	26	Digital output 3 – N.O. (6)	Run		

(1) **Important:** Input must be configured with a jumper. Drive damage may occur if jumper is not installed properly. Refer to page 42.

(2) These inputs/outputs are dependant on a number of parameters (see Related Parameters column in table).

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

(4) I/O selections include a 115V AC or 24V DC option. See catalog description in Table 27 on page 49, position **k**.

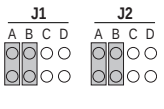
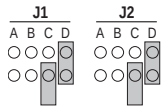
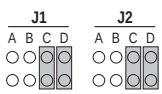
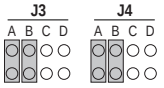
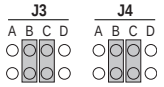
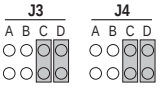
(5) 150mA maximum load. Not present on 115V versions. Can be used to provide control power from an external 24V source when main power is not applied. Refer to page 42.

(6) Contacts in un-powered state. Any relay programmed as fault or alarm will energize (pick up) when power is applied to drive and de-energize (drop out) when a fault or alarm exists. Relays selected for other functions will energize only when that condition exists and will de-energize when condition is removed.

700H Drives Analog I/O Jumper Configuration

IMPORTANT Analog I/O must be configured through programming, as well as the jumpers shown below. Refer to PowerFlex 700H Adjustable Frequency AC Drive Programming Manual, publication 20C-PM001.

Table 13 - Analog I/O Jumper Configuration

Signal	Jumper	Setting		
Analog inputs	J1 (analog in 1) J2 (analog in 2)	0…20 mA	0…10V	±10V
				
Analog outputs	J3 (analog out 1) J4 (analog out 2)	0…20 mA	0…10V	±10V
				

700H Control Circuit Board Designations

The 700H control circuit board allows for a variety of I/O boards to be installed depending upon your application. Each option I/O circuit board is described in Table 14 on page 42.

Figure 22 - 700H Control Circuit Board

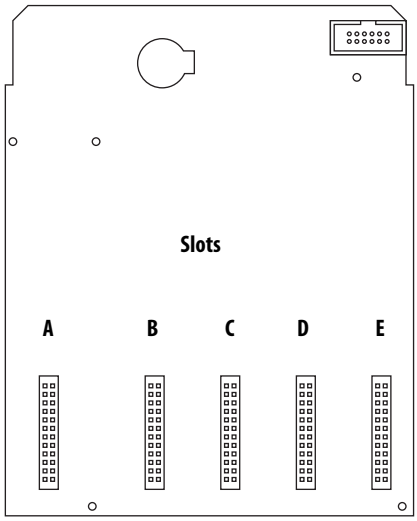


Table 14 - Control Board Slot Designations

Slot	Used for Circuit Board . . .	Part No.
A	24V DC digital input (six) with analog I/O	20C-DA1-A
	115V AC digital input (six) with analog I/O	20C-DA1-B
B	24/115V AC digital output (three)	20C-DO1
	24V DC digital gate disable option(1)	20C-DG1
C	Not used	–
D	Not used	–
E	DPI option board	20C-DPI1

(1) Refer to PowerFlex 700H Adjustable Frequency AC Drive / PowerFlex 700S High Performance AC Drive, Frames 9...14 Installation Instructions, publication PFLEX-IN006, for more information on installing and configuring the gate disable option board.

IMPORTANT The boards identified in Table 14 on page 42 can only be installed in the designated slot. Boards and slots are not interchangeable.

755 Drive Main Control Board (frames 6 and 7)

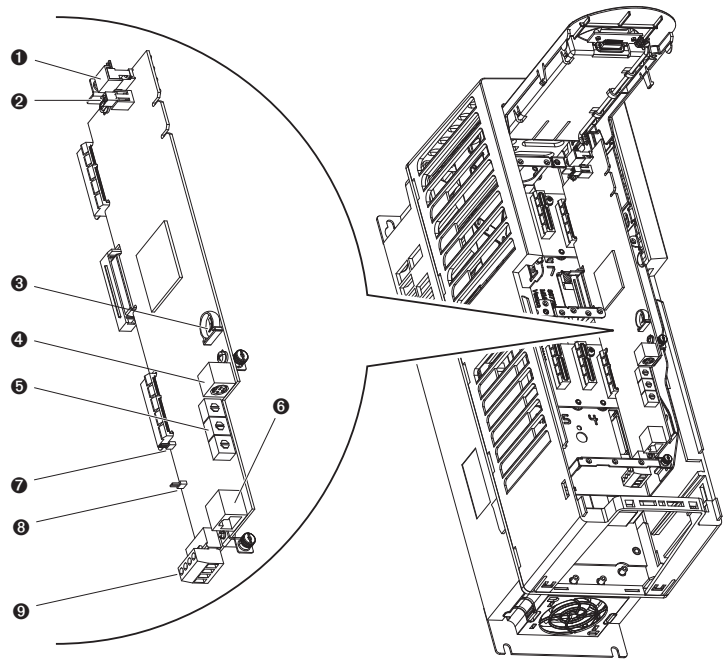


Table 15 - Control Board Details

No.	Name	Description
❶	HIM Connector	DPI Port 1 (HIM Cradle) connection.
❷	Fan Connector	Power supply for internal cooling fan (Frames 2 & 3).
❸	 Battery Receptacle	User installed CR1220 lithium coin cell battery provides power to the Real Time Clock (Optional, not supplied). Preserves the Real Time Clock setting in the event power to the drive is lost or cycled.
❹	DPI Port 2	Cable connection for handheld and remote HIM options.
❺	Embedded EtherNet/IP(1) Address Selectors	Rotary switches for setting lowest octet of EtherNet address (forces address to 192.168.1.xxx). Refer to the Programming Manual, publication 750-PM001 for instructions on setting the IP address.
❻	Embedded EtherNet/IP(1) Connector	Network cable connection.
❼	SAFETY Jumper	Safety enable jumper. Removed when safety option is installed.
❽	ENABLE Jumper	Hardware enable jumper. TB1 becomes an Enable when this jumper is removed.
❾	TB1	I/O terminal block.

(1) Refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001.

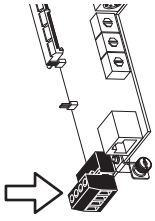
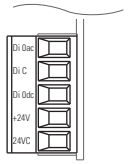


Table 16 - TB1 I/O Terminal Designations

Fixed I/O	Terminal	Name	Description
	Di 0ac	Digital Input 0 (120V AC)	Connections for AC power supply.
	Di C	Digital Input Common	Digital input common
	Di 0dc	Digital Input 0 (24V DC)	Connections for DC power supply.
	+24V	+24 Volt Power	Connections for drive supplied 24V power. 150 mA maximum
	24VC	24 Volt Common	

755 Drive Main Control Board (frames 8…10)

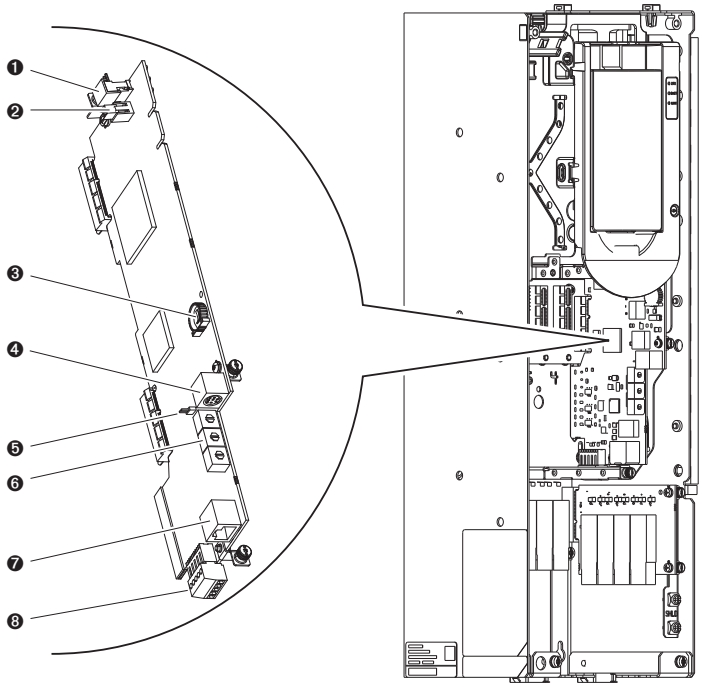


Table 17 - Control Board Details

No.	Name	Description
❶	HIM Connector	DPI Port 1 (HIM Cradle) connection.
❷	Fan Connector	Power supply for internal cooling fan.
❸	Battery Receptacle 	User installed CR1220 lithium coin cell battery provides power to the Real Time Clock (Optional, not supplied). Preserves the Real Time Clock setting in the event power to the drive is lost or cycled.
❹	DPI Port 2	Cable connection for handheld and remote HIM options.
❺	ENABLE Jumper	Hardware enable jumper. Removed when a hardware enable configuration is utilized.
❻	Embedded EtherNet/IP(1) Address Selectors	Rotary switches for setting lowest octet of EtherNet address (forces address to 192.168.1.xxx). Refer to the Programming Manual, publication 750-PM001 for instructions on setting the IP address.
❼	Embedded EtherNet/IP(1) Connector	Network cable connection.
❽	TB1	I/O terminal block.

(1) Refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001.

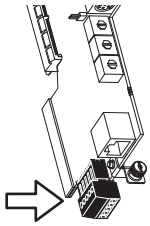
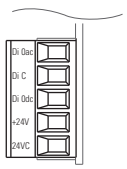


Table 18 - TB1 I/O Terminal Designations

Fixed I/O	Terminal	Name	Description
	Di 0ac	Digital Input 0 (120V AC)	Connections for AC power supply.
	Di C	Digital Input Common	Digital input common
	Di 0dc	Digital Input 0 (24V DC)	Connections for DC power supply.
	+24V	+24 Volt Power	Connections for drive supplied 24V power. 150 mA maximum
	24VC	24 Volt Common	

755 Drive I/O Option Modules

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.

Table 19 - Input Mode Jumpers

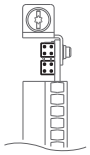
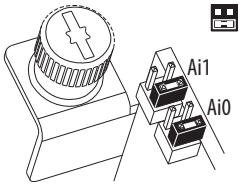
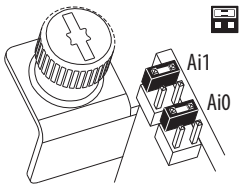
Jumper Position	Voltage Mode	Current Mode
		

Figure 23 - Optional I/O Modules

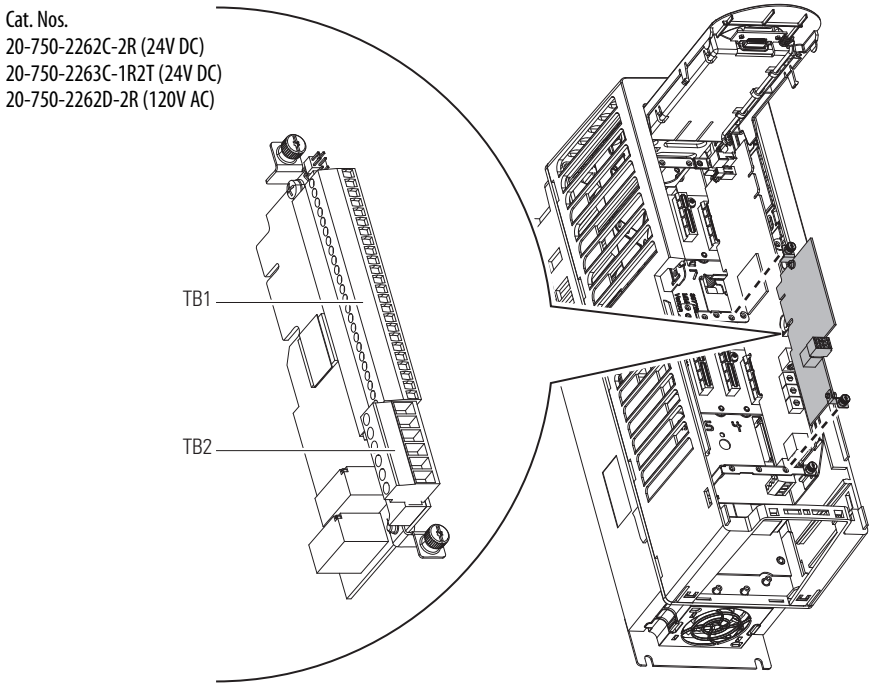
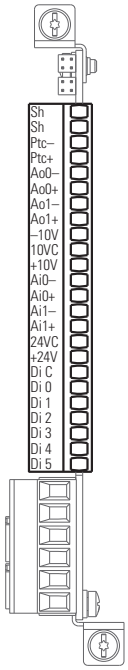


Table 20 - Optional I/O Module Descriptions

Optional I/O Cat. No.	Description
20-750-2262C-2R	24V DC, two relay outputs
20-750-2263C-1R2T	24V DC, one relay and two transistor outputs
20-750-2262D-2R	115V AC, two relay outputs

See Slot Rules for 755 Drive Option Modules on page 47 for an overview of addition option modules and valid port assignments.

Table 21 - TB1 Control Terminal Designations (optional)

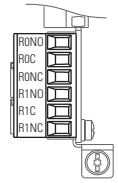


Terminal	Name	Description	Related Param.
Sh	Shield	Terminating point for wiring shields when an EMC plate or conduit box is not installed	
Sh			
Ptc–	Motor PTC (–)	Motor protection device (positive temperature coefficient)	40 on port *x*
Ptc+	Motor PTC (+)		
Ao0–	Analog out 0 (–)	Bipolar, ±10V, 11 bit and sign, 2 kΩ min load; 4…20 mA, 11 bit and sign, 400 Ω max load	75 on port
Ao0+	Analog out 0 (+)		
Ao1–	Analog out 1 (–)		85
		Ω	
		For (–) and (+) 10V references	
+10V	+10V reference	2 kΩ min	
Ai0–	Analog input 0 (–)	Isolated [1], bipolar, differential, ±10V, 11 bit and sign, 88 kΩ input impedance	50, 70 on port
Ai0+	Analog input 0 (+)		
Ai1–	Analog input 1 (–)		60, 70
		Drive supplied logic input power 200 mA max	
+24V	+24V DC		
Di C	Digital input common	Common for digital inputs 0…5	
Di 0	Digital input 0 [2]	**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** Low state: less than 30V AC High state: greater than 100V AC	1 on port
Di 1	Digital input 1 [2]		
Di 2	Digital input 2 [2]		
Di 3	Digital input 3 [2]		
Di 4	Digital input 4 [2]		
Di 5	Digital input 5 [2]		

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

(2) Digital inputs are either 24V DC (2262C) or 115V AC (2262D) based on module catalog number. Verify that the applied voltage is correct for the I/O module.

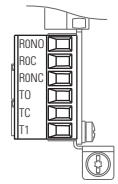
Table 22 - TB2 Terminal Designations (two relay outputs, optional)



20-750-2262 -2R

Terminal	Name	Description	Related Param.
R0NO	Relay 0 N.O.	Relay normally open contact output: 240V AC, 24V DC, 2 A max General purpose (inductive)/resistive	10, 100, 101, 105, 106 on Port *x*
R0C	Relay 0 common		
R0NC	Relay 0 N.C.		
R1NO	Relay 1 N.O.	Relay normally closed contact output: 240V AC, 24V DC, 2 A max Resistive only	20, 110, 111, 115, 116 on Port *x*
R1C	Relay 1 common		
R1NC	Relay 1 N.C.		

Table 23 - TB2 Terminal Designations (1 relay and 2 transistor outputs, optional)



20-750-2263C-1R2T

Terminal	Name	Description	Related Param.
R0NO	Relay 0 N.O.	Relay normally open contact output: 240V AC, 24V DC, 2 A max General purpose (inductive)/resistive Relay normally closed contact output: 240V AC, 24V DC, 2 A max Resistive only	10, 100, 101, 105, 106 on Port *x*
R0C	Relay 0 common		
R0NC	Relay 0 N.C.		
T0	Transistor output 0	Transistor output Rating: 24V DC = 1 A max; 24V DC = 0.4 A Max for U.L. applications Resistive	20 on Port *x*
TC	Transistor output common		
T1	Transistor output 1		30 on Port *x*

Slot Rules for 755 Drive Option Modules

Table 24 on page 47 and Table 25 on page 47 describe the slot rules and valid ports for the 755 drive option modules. Refer to PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001, for details on drive device ports and option module.

Table 24 - Stand Alone or Premier Integration Modes

Supported Module	Cat. No.	Valid Port/Ports
24V DC, two relay outputs	20-750-2262C-2R	Any port
24V DC, one relay and two transistor outputs	20-750-2263C-1R2T	
115V AC, two relay outputs	20-750-2262D-2R	
Safe torque off	20-750-S	
Safe speed monitor	20-750-S1	Ports 4, 5, or 6 (bottom row); must be installed with a dual encoder (20-750-DENC-1) or universal feedback board (20-750-UFB) also in the bottom row.
Auxiliary power supply	20-750-APS	The Auxiliary Power Supply option module may be installed in any option port. Due to its size, the module will extend over and block an adjacent port. Therefore, installation in port 8 is recommended.
ControlNet communication modules	20-750-CNET	Ports 4, 5, or 6 (bottom row)
DeviceNet communication modules	20-750-DNET	
20-COMM carrier	20-750-20COMM	Installing the 20-750-20COMM option module in port 6 is recommended. Installing the module into port 4 or port 5 will make the adjacent left port inaccessible to other option modules, and may interfere with network cable connections.
Single encoder feedback modules	20-750-ENC-1	Any port
Dual encoder feedback modules	20-750-DENC-1	
Universal feedback board	20-750-UFB-1	Ports 4, 5, or 6 (bottom row)

Table 25 - Integrated Motion Mode

IMPORTANT I/O modules (20-750-2262C-2R, 20-750-2263C-1R2T, 20-750-2262D-2R) are **not** supported in Integrated Motion mode.

Supported Module	Cat. No.	Valid Port/Ports
Two feedback options		
Single incremental encoder	20-750-ENC-1	Ports 4…8
Dual incremental encoder	20-750-DENC-1	
Universal feedback	20-750-UFB-1	Ports 4 …6
Two feedback options and one safe torque off option		
Single incremental encoder	20-750-ENC-1	Ports 4 and 5
Dual incremental encoder	20-750-DENC-1	
Universal feedback	20-750-UFB-1	
Safe torque off	20-750-S	Port 6
Two feedback options and one safe speed monitor option		
Single Incremental Encoder	20-750-ENC-1	Ports 4 and 5
Dual Incremental Encoder	20-750-DENC	
Universal Feedback	20-750-UFB-1	
Safe Speed Monitor	20-750-S	Port 6

PowerFlex Drive Catalog Numbers

Use the catalog number explanation tables to compare your existing 700H drive configuration to the available configuration options for the 755 drives.

Table 26 - 700H Drive Catalog Number Explanation

Position											
1-3	4	5-7	8	9	10	11	12	13	14	15	16
20C	D	261	A	3	A	Y	N	B	N	N	0
a	b	c	d	e	f	g	h	i	j	k	l

a

Drive	
Code	Type
20C	PowerFlex 700H

b

Voltage Rating		
Code	Voltage	Ph.
C	400V AC	3
D	480V AC	3
E	600V AC	3
F	690V AC	3

c1

Rating		
400V, 50Hz Input		
Code	Amps - ND (HD)	kW - ND (HD)
261	261 (205)	132 (110)
300	300 (245)	160 (132)
385	385 (300)	200 (160)
460	460 (385)	250 (200)
500	500 (420)	250 (250)
590	590 (520)	315 (250)
650	650 (590)	355 (315)
730	730 (650)	400 (355)
820	820 (730)	450 (400)
920	920 (820)	500 (450)
1K0	1030 (920)	560 (500)
1K1	1150 (1030)	630 (560)
1K3	1300 (1150)	710 (630)
1K4	1450 (1200)	800 (710)
1K7	1770 (1600)	1000 (900)
2K1	2150 (1940)	1200 (1100)

c2

Rating		
480V, 60Hz Input		
Code	Amps - ND (HD)	Hp - ND (HD)
261	261 (205)	200 (150)
300	300 (245)	250 (200)
385	385 (300)	300 (250)
460	460 (385)	350 (300)
500	500 (420)	450 (350)
590	590 (520)	500 (450)
650	650 (590)	500 (500)
730	730 (650)	600 (500)
820	820 (730)	700 (600)
920	920 (820)	800 (700)
1K0	1030 (920)	900 (800)
1K1	1150 (1030)	1000 (900)
1K3	1300 (1150)	1100 (1000)
1K4	1450 (1200)	1250 (1000)
1K7	1770 (1600)	1500 (1400)
2K1	2150 (1940)	1900 (1700)

c3

Rating		
600V, 60Hz Input		
Code	Amps - ND (HD)	Hp - ND (HD)
170	170 (144)	150 (150)
208	208 (170)	200 (150)
261	261 (208)	250 (200)
325	325 (261)	350 (250)
385	385 (325)	400 (350)
416	416 (325)	450 (350)
460	460 (385)	500 (400)
502	502 (460)	500 (500)
590	590 (502)	600 (500)
650	650 (590)	700 (650)
750	750 (650)	800 (700)
820	820 (750)	900 (700)
920	920 (820)	1000 (900)
1K0	1030 (920)	1100 (1000)
1K1	1180 (1030)	1300 (1100)
1K5	1500 (1300)	1600 (1400)
1K9	1900 (1500)	2000 (1600)
2K2	2250 (1900)	2400 (2000)

c4

Rating		
690V, 50Hz Input		
Code	Amps - ND (HD)	kW - ND (HD)
170	170 (144)	160 (132)
208	208 (170)	200 (160)
261	261 (208)	250 (200)
325	325 (261)	315 (250)
385	385 (325)	355 (315)
416	416 (325)	400 (315)
460	460 (385)	450 (355)
502	502 (460)	500 (450)
590	590 (502)	560 (500)
650	650 (590)	630 (560)
750	750 (650)	710 (630)
820	820 (750)	800 (630)
920	920 (820)	900 (800)
1K0	1030 (920)	1000 (900)
1K1	1180 (1030)	1100 (1000)
1K5	1500 (1300)	1500 (1300)
1K9	1900 (1500)	1900 (1500)
2K2	2250 (1900)	2300 (1900)

d

Enclosure	
Code	Enclosure
A	IP21, NEMA Type 1 (Frame 9) Rittal Enclosure (Frames 10 & Up)
B	IP20, NEMA Type 1, MCC §
H	IP54, NEMA Type 12, Rittal §
K	IP20, NEMA Type 1, MCC with Conformal Coat §
M	IP21, NEMA Type 1 (Frame 9) Rittal Enclosure (Frames 10 & Up) with Conformal Coat
W	IP54, NEMA Type 12, Rittal with Conformal Coat §

§ Frame 10 & up only.

e

HIM	
Code	Operator Interface
0	Blank Cover
3	Full Numeric LCD, Drive Mounted
C	Full Numeric LCD, Door Mount ∗

∗ IP21, NEMA Type 1 Frame 10 & up only.

Table 27 - 700H Drive Catalog Number Explanation (continued)

f

Documentation	
Code	Type
A	Manual

g

Brake	
Code	w/Brake IGBT ❄
Y	Yes
N	No

❄ Brake IGBT is available on Frame 9 drives only.

h

Brake Resistor	
Code	w/Resistor
N	No

i

Emission			
Code	CE Filter	CM Choke	dv/dt Filter
B	Yes	No	No
N ‡	No	No	No
E ♣	Yes	No	Yes

‡ For use on ungrounded or resistive grounded distribution systems (Frame 9 drives only).

♣ Output dv/dt filter is only available on Frame 14 drives.

j

Comm Slot	
Code	Version
N	None

k

I/O	
Code	I/O Volts
A	24V DC
B	115V AC
G	24V DC with Safe-Off
N	None

l

Feedback	
Code	Type
0	None

IMPORTANT The 700H drive has dual ratings of 400/480V and 600/690V which require a parameter change to adapt the drive to a specific voltage.

The 755 drive does not have a dual rating, it uses a hardware change to adapt the drive to the specific voltage class.

Table 28 - 755 Drive Catalog Number Explanation

1…3	4	5	6	7	8…10	11	12	13	14	15	16	17	18	
20G	1	A	N	D	248	A	A	0	N	N	N	N	N	- LD - P3 - P11…
a	*b*	*c*	*d*	*e*	*f1…f4*	*g*	*h*							*Cabinet Options (21G)*

a

Drive	
Code	Type
20F	PowerFlex 753
20G	PowerFlex 755
21G	PowerFlex 755 Drive with Options

b

Future Use

c

Input Type ★		
Code	Description	Frames
1	AC & DC Input w/Precharge	1…5, 8…10
4	DC Input w/Precharge	5…10
A	AC Input w/Precharge, no DC Terminals	6…8

★ Frames 1…4, Code 1 provides the functionality of DC input with precharge. Frames 5 & larger, Code 4 is required for DC input with precharge. The DC Bus Bar kit (20-750-DCBB1-Fx) is available for Frames 6…7 AC input drives requiring DC bus terminals.

d

Enclosure		
Code	Description	Frames
R	IP20, NEMA/UL Type Open, Frame 1	1
F §	Flange (NEMA/UL Type 4X/12 back)	2…5
G	IP54, NEMA/UL Type 12	2…7
N ‡	IP20/IP00, NEMA/UL Type Open	2…7
B	IP20, NEMA/UL Type 1, 600 mm (23.6 in.) Deep, Standard Cabinet Color (RAL 7032)	8…10
J	IP54, NEMA Type 12, 800 mm (31.5 in.) Deep, Standard Cabinet Color (RAL 7032)	8…10
K Δ	IP54, NEMA Type 12, 2500 MCC Style Cabinet & Options w/MCC Power Bus, 800 mm (31.5 in.) Deep, Standard Cabinet Color (RAL 7032)	8…10
L	IP20, NEMA/UL Type 1, 800 mm (31.5 in.) Deep, Standard Cabinet Color (RAL 7032)	8…10
P Δ	IP20, NEMA/UL Type 1, 2500 MCC Style Cabinet & Options w/MCC Power Bus, 800 mm (31.5 in.) Deep, Standard Cabinet Color (RAL 7032)	8…10
W Δ	IP20, NEMA/UL Type 1, 2500 MCC Style Cabinet & Options w/MCC Power Bus, 800 mm (31.5 in.) Deep, CenterLine 2100 Gray (ASA49)	8…10
Y Δ	IP54, NEMA Type 12, 2500 MCC Style Cabinet & Options w/MCC Power Bus, 800 mm (31.5 in.) Deep, CenterLine 2100 Gray (ASA49)	8…10
T	IP00, UL Open Type without Control POD	8…10

§ For Frames 6…7 a User Installed Flange Kit is available to convert a Code N drive that provides a NEMA/UL Type 4X/12 back.

‡ Frames 2…5 are IP20, Frames 6…7 are IP00.

Δ Available as a drive with options (21G).

e

Voltage Rating	
Code	Voltage
C	400V AC/540V DC
D	480V AC/650V DC
E	600V AC/725V DC
F	690V AC/932V DC (not UL listed)

f1

ND Rating									
400V, 50 Hz Input									
Code	Amps	kW	Frame						
			Enclosure Code						
			B, J, L, T	F	G	N	K, P, W, Y	R	
2P1	2.1	0.75	–	2	2	2	–	1	
3P5	3.5	1.5							
5P0	5.0	2.2							
8P7	8.7	4							
011	11.5	5.5							
015	15.4	7.5							
022	22	11		3	3	3		–	
030	30	15							
037	37	18.5							
043	43	22							
060	60	30		4	4	4			
072	72	37			5				
085	85	45		5		5			
104	104	55			6				
140	140	75		§		6			
170	170	90							
205	205	110			7				
260	260	132							
302	302	160				7			
367	367	200							
456	456	250							–
460	460	250	8	–	–	–	8 Δ		
540	540	315							
567	567	315							
650	650	355							
750	750	400							
770	770	400							
910	910	500	9				9 Δ		
1K0	1040	560							
1K1	1090	630							
1K2	1175	710							
1K4	1465	800							
1K5	1480	850							
1K6	1590	900	10				10 Δ		
2K1	2150	1250							

§ For Frames 6…7 a User Installed Flange Kit is available to convert a Code N drive that provides a NEMA/UL Type 4X/12 back.

Δ Available as a drive with options (21G).

f2

ND Rating									
480V, 60 Hz Input									
Code	Amps	Hp	Frame						
			Enclosure Code						
			B, J, L, T	F	G	N	K, P, W, Y	R	
2P1	2.1	1	–	2	2	2	–	1	
3P4	3.4	2							
5P0	5.0	3							
8P0	8.0	5							
011	11	7.5							
014	14	10							
022	22	15		3	3	3		–	
027	27	20							
034	34	25							
040	40	30							
052	52	40		4	4	4			
065	65	50			5				
077	77	60		5		5			
096	96	75			6				
125	125	100		§		6			
156	156	125							
186	186	150			7				
248	248	200							
302	302	250				7			
361	361	300							
415	415	350							–
430	430	350	8	–	–	–	8 Δ		
485	485	400							
545	545	450							
617	617	500							
710	710	600							
740	740	650							
800	800	700	9				9 Δ		
960	960	800							
1K0	1045	900							
1K2	1135	1000							
1K3	1365	1100							
1K4	1420	1250							
1K5	1525	1350	10				10 Δ		
2K0	2070	1750							

§ For Frames 6…7 a User Installed Flange Kit is available to convert a Code N drive that provides a NEMA/UL Type 4X/12 back.

Δ Available as a drive with options (21G).

Table 29 - 755 Drive Catalog Number Explanation (continued)

f3

ND Rating								
600V, 60 Hz Input								
Code	Amps	Hp	Frame					
			Enclosure Code					
			B, J, L, T	F	G	N	K, P, W, Y	R
1P7	1.7	1	–	3	3	3	–	–
2P7	2.7	2						
3P9	3.9	3						
6P1	6.1	5						
9P0	9	7.5						
011	11	10						
017	17	15						
022	22	20						
027	27	25		4	4	4		
032	32	30						
041	41	40		5	5	5		
052	52	50						
063	63	60		–	6	6		
077	77	75						
099	99	100						
125	125	125						
144	144	150						
192	192	200			7	7		
242	242	250						
289	289	300						
295	295	300	8		–	–	8 △	
355	355	350						
395	395	400						
435	435	450						
460	460	500						
510	510	500						
595	595	600	9				9 △	
630	630	700						
760	760	800						
825	825	900						
900	900	950						
980	980	1000						
1K1	1110	1100	10				10 △	
1K4	1430	1400						

△ Available as a drive with options (21G).

f4

ND Rating								
690V, 60 Hz Input (not UL listed)								
Code	Amps	kW	Frame					
			Enclosure Code					
			B, J, L, T	F	G	N	K, P, W, Y	R
012	12	7.5	–	–	6	6	–	–
015	15	11						
020	20	15						
023	23	18.5						
030	30	22						
034	34	30						
046	46	37						
050	50	45						
061	61	55						
082	82	75						
098	98	90						
119	119	110						
142	142	132						
171	171	160			7	7		
212	212	200						
263	263	250						
265	265	250	8		–	–	8 △	
330	330	315						
370	370	355						
415	415	400						
460	460	450						
500	500	500						
590	590	560	9				9 △	
650	650	630						
710	710	710						
765	765	750						
795	795	800						
960	960	900						
1K0	1040	1000	10				10 △	
1K4	1400	1400						

△ Available as a drive with options (21G).

g

Filtering and CM Cap Configuration ◆		
Code	Filtering	Default CM Cap Connection
A	Yes	Jumper Removed
J	Yes	Jumper Installed

◆ 480V drives must select code "A." Jumpers are included for field reconfiguration as desired.

h

Dynamic Braking &		
Code	Internal Resistor ♠	Internal Transistor ▽
A	No	Yes
N	No	No

♠ Frames 1...2 only.

▽ Standard on Frames 1...5, optional on 6...7.

& Not available on Frames 8...10, specify Code "N."

PowerFlex 755 w/Options (21G) - Required Selections

Code	Option	Type	Frames
LD	Light Duty	System Overload Duty Cycle ★	8...10
ND	Normal Duty		
HD	Heavy Duty		
P3	Input Thermal Magnetic Circuit Breaker	Power Disconnect or Wiring Only Bay ★	8...10
P5	Input Non-Fused Molded Case Disconnect Switch		
P14	Wiring Only Bay		

★ Only one option of this type may be selected.

PowerFlex 755 w/Options (21G) - Additional Selections

Code	Option	Type	Frames
P11	Input Contactor	Contactors ★ §	8
P12	Output Contactor		
L1	3% Input Reactor	Reactors ★	8...10
L2	3% Output Reactor		
L3	5% Input Reactor		8
L4	5% Output Reactor		
P20	1200 Amp Bus	MCC Power Bus Capacity ★	8...10
P22	2000 Amp Bus		
P24	3000 Amp Bus		
P30	UPS Control Bus, DC Input w/Precharge only	UPS Control Bus	8...10

★ Only one option of this type may be selected.

§ Contactor options are not available for systems with MCC power bus.

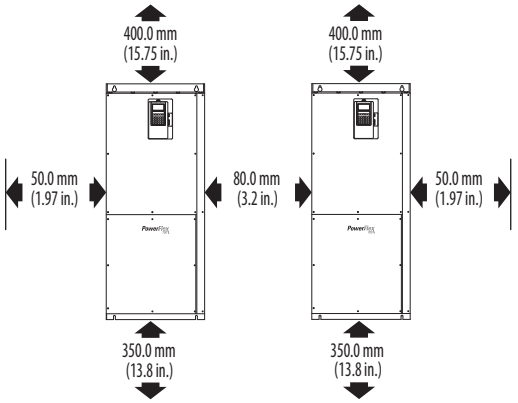
IMPORTANT The 700H drive has dual ratings of 400/480V and 600/690V which require a parameter change to adapt the drive to a specific voltage. The 755 drive does not have a dual rating, it uses a hardware change to adapt the drive to the specific voltage class.

Cooling and Airflow Requirements

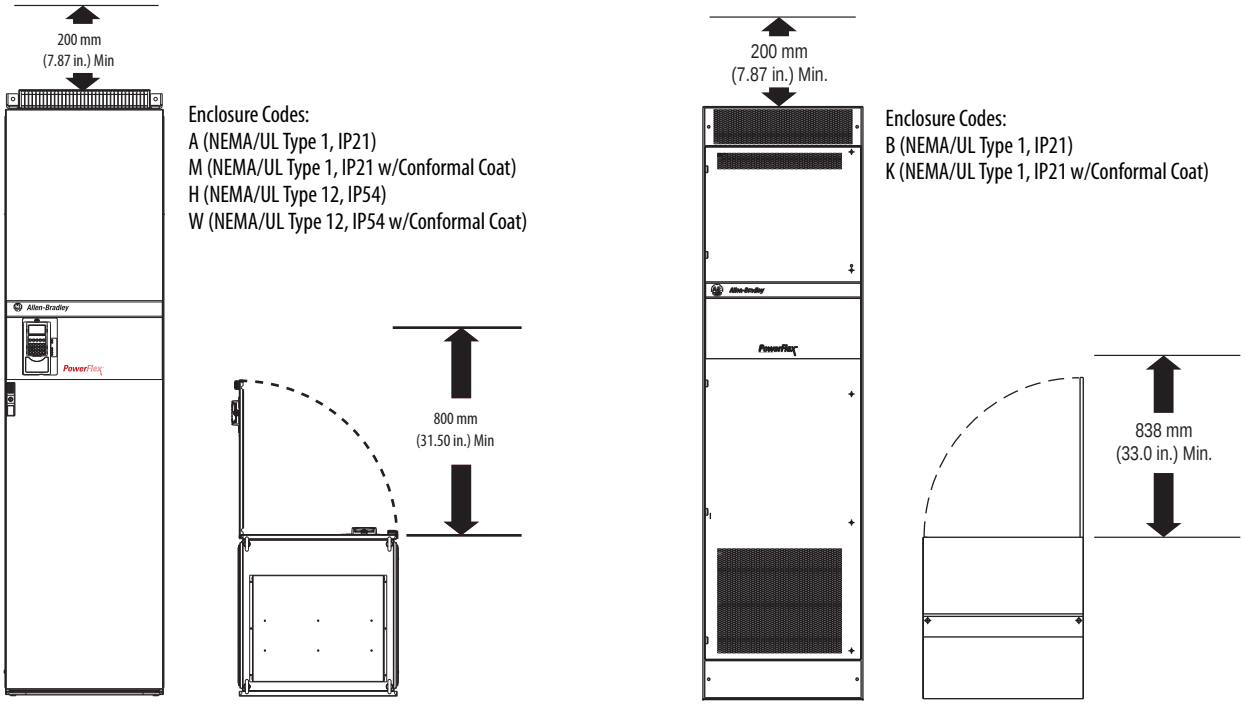
Mounting clearances and airflow may be different for the PowerFlex 700H drive and the 755 drives. This section provides a general overview of the different mounting clearances and airflow requirements to consider when selecting a 755 drive.

PowerFlex 700H Drives Minimum Mounting Clearances

The mounting clearances for the 700H drives let cooling exhaust exit the drive from the top. The airflow pathways may be different for the 755 drives.



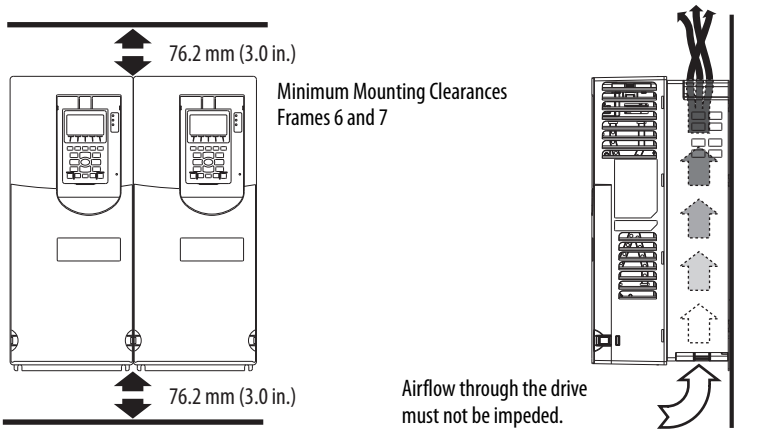
Frame 9 Shown



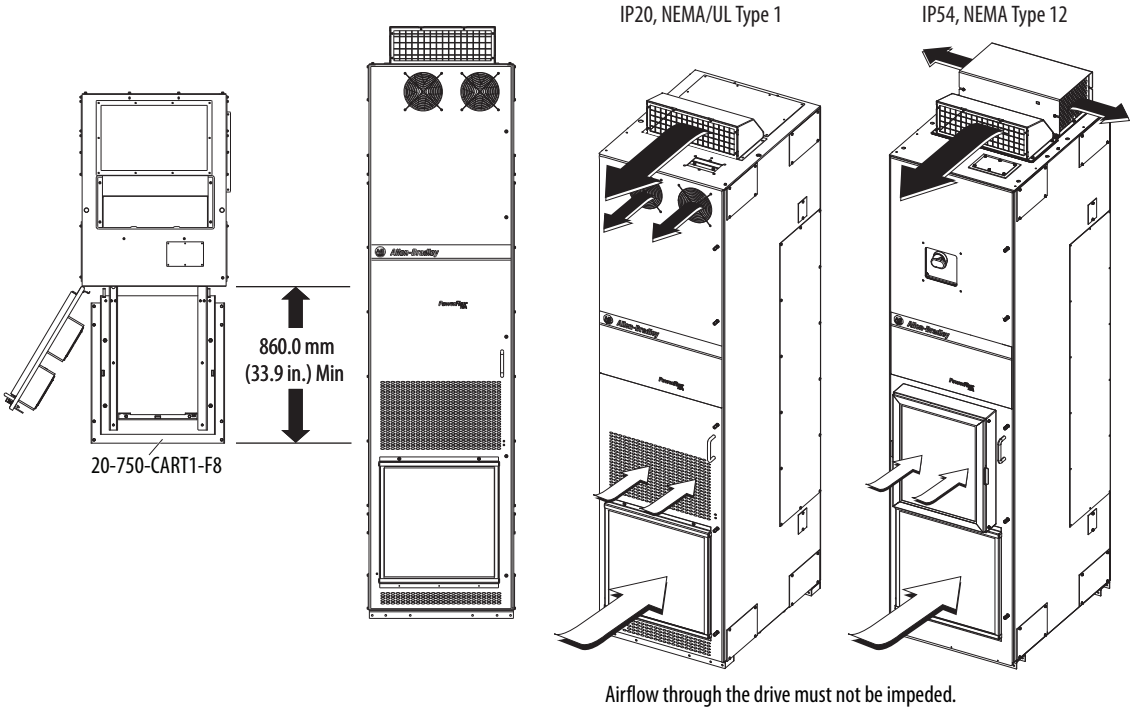
Frame 10 Shown

PowerFlex 755 Drives Minimum Mounting Clearances

Be sure the space where the 755 drive will be installed provides adequate airflow through the drive and exhaust pathways. Refer to the PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001, for minimum clearances, maximum surrounding air temperature, and environmental specifications.



Minimum Mounting Clearances Drive Cabinets



IP00, NEMA/UL Type Open Power Structures

There are many possible different engineered solutions for the IP00, NEMA/UL Type Open power structure installations. Contact your local Rockwell Automation representative, systems integrator, or engineering integrator if you are interested in migrating your 700H open type drive to a 755 open type or standard drive.

ATTENTION: Only qualified personnel familiar with adjustable frequency AC drives and associated machinery should plan or implement the installation, startup, and subsequent maintenance of the system. Failure to comply may result in personal injury and/or equipment damage.

IMPORTANT IP00, NEMA/UL type open installations are not standard-drive solutions. These installations are engineered-drive solutions, and migration to a 755 open type solution requires a careful technical review of your existing 700H installation, and careful technical planning and design of the 755 open type solution.

The installation instructions below provide technical information for installing the 700H and 755 open type drives in a customer-supplied enclosure. Review these instructions for technical specifications and information that can help you engineer a solution for your IP00, NEMA/UL Type Open migration.

- PowerFlex 700S and 700H Frames 10...14 IP00, NEMA/UL Open Power Structures Installation Instructions, publication PFLEX-IN020.
- PowerFlex 755 IP00, NEMA/UL Open Type Drive Frames 8...10 Installation Instructions, publication 750-IN020.

Analog Speed Follower and Preset Speed

Drive Configuration

The 700H is typically controlled by digital I/O, analog speed follower, and a preset speed module, or possibly via a communication network.

The information in this chapter covers the hard-wired stand-alone configurations of analog speed follower and preset speed.

Drive configuration options for the 700H are programmed using the option cards in the five available slots of the control board (see 700H Control Circuit Board Designations on page 42). Some of the same drive configurations for the 755 drive are programmed by the drive parameters.

Determine your current 700H drive control board configurations, and determine the 755 parameters you will need to migrate to the 755 drive. Refer to these programming manuals to help you understand and identify the different drive configuration and programming options:

- PowerFlex 750-Series AC Drives Programming Manual, publication 750-PM001
- PowerFlex 700H Adjustable Frequency AC Drive Programming Manual, publication 20C-PM001

Analog Speed Follower

The 755 drive can be configured to use an analog source as a speed reference. The default configuration is port 1, but the drive can be configured to follow a ±10V DC source, 0...10V DC source, or 4...20 mA source with an optional analog I/O module. See 755 Drive I/O Option Modules on page 45.

This section provides three common examples with the 700H drive using different speed-reference inputs along with hard-wired start/stop/direction control, and the equivalent 755 drive configurations.

Programming the Drives with the Human Interface Module (HIM)

The HIM is used to program the drive parameters. Refer to these programming manuals for details on how to use the HIM and for a full list of programming parameters:

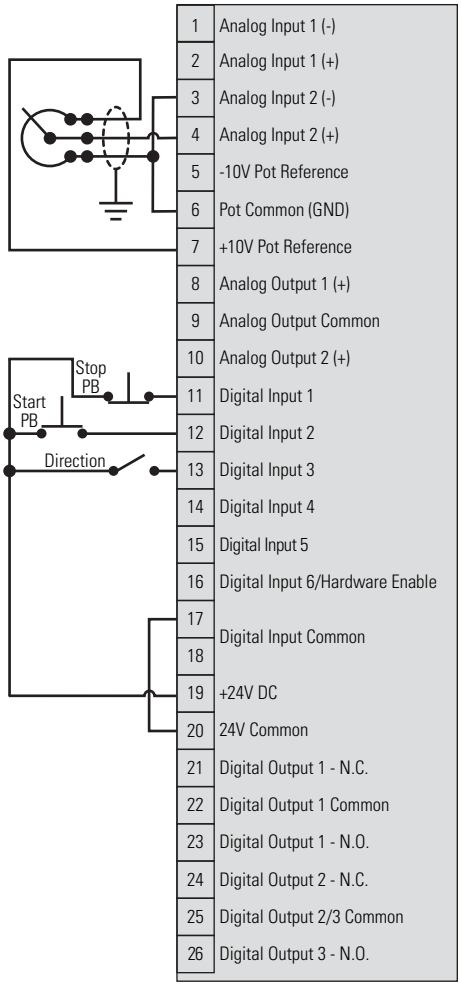
- PowerFlex 750-Series AC Drives Programming Manual, publication 750-PM001
- PowerFlex 700H Adjustable Frequency AC Drive Programming Manual, publication 20C-PM001

Three-wire Control with Analog Speed Reference Examples

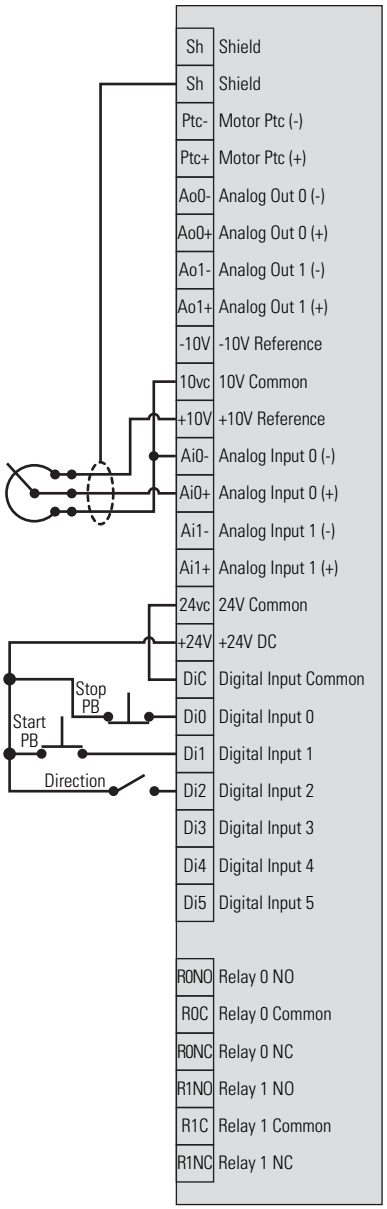
The 3-wire control method is start/stop/direction. The digital control inputs use the internal 24V DC supply of the drive, and the analog speed follower reference uses a 10 kΩ potentiometer wired to the internal 10V DC power supply of the drive.

For an example of the analog speed reference, see Two-wire Control with Analog Input Speed Reference Examples on page 58.

700H Drive Main Control Cassette
Standard Control with 24V DC I/O



755 Drives
with Optional 24V DC I/O Module (slot 4)



This 755 drive speed reference example uses port 0, except where port 4 is indicated in Table 30 on page 57.

Three-wire Control Parameter Comparison

The following minimum parameters are required to configure the 755 drive motor attributes for the 3-wire with analog speed reference control method. See Programming the Drives with the Human Interface Module (HIM) on page 55 for links to the programming manuals that include a complete set of parameters and programming options.

IMPORTANT Shaded table cells indicate factory default settings. Verify these settings if the drive is not new, or the parameters were not set to factory defaults.

Table 30 - 700H to 755 Drive I/O Comparison (using optional I/O module in slot 4)

700H Drive Parameters			755 Drive Parameters (2)		
No.	**Name**	**Value**	**No.**	**Name**	**Value**
41	Motor NP Volts	Application specific	25	Motor NP Volts	Application specific
42	Motor NP FLA	Application specific	26	Motor NP Amps	Application specific
43	Motor NP Hertz	Application specific	27	Motor NP Hertz	Application specific
44	Motor NP RPM	Application specific	28	Motor NP RPM	Application specific
45	Motor NP Power	Application specific	30	Motor NP Power	Application specific
46	Mtr NP Pwr Units	Application specific	29	Mtr NP Pwr Units	Application specific
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	Speed Ref A Sel	2 – Analog In 2	545	Spd Ref A Sel	**Port 4** (P50) (1)
91	Speed Ref A Hi	Max Speed (P82) (1)	547	Spd Ref A AnlgHi	Max Fwd Spd (P520) (1)
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
142	Decel Time 1	10.0	537	Decel Time 1	10.0
322	Analog In1 Hi	10.0	51	Anlg In0 Hi	**Port 4** 10.0
323	Analog In1 Lo	0.0	52	Anlg In0 Lo	0.0
361	Digital In1 Sel	4 – Stop-CF	158	DI Stop (2)	**Port 4** (P1) Input 0 (1)
362	Digital In2 Sel	5 – Start	161	DI Start (2)	**Port 4** (P1) Input 1 (1)
363	Digital In3 Sel	6 – Fwd/Reverse	162	DI Fwd Reverse (2)	**Port 4** (P1) Input 2 (1)

(1) The **P** in the parentheses is an abbreviation for parameter.
(2) The optional I/O module is installed in slot 4.
(3) The 755 drives offer parameters for speed direction (forward and reverse) that are not available in the 700H drives.

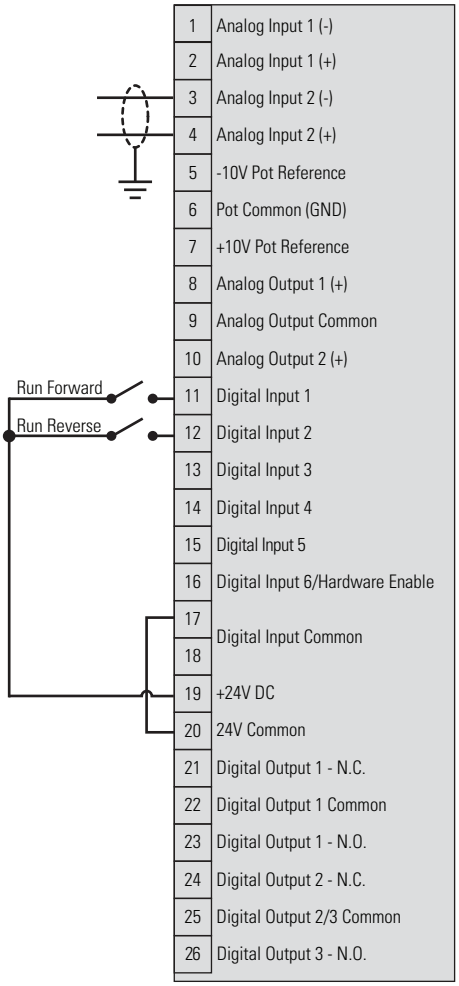
TIP For the best possible settings, perform an auto-tune (Rotate Tune) on the connected motor to pair the motor to the drive.

This 755 drive speed reference example uses port 0, except where port 4 is indicated.

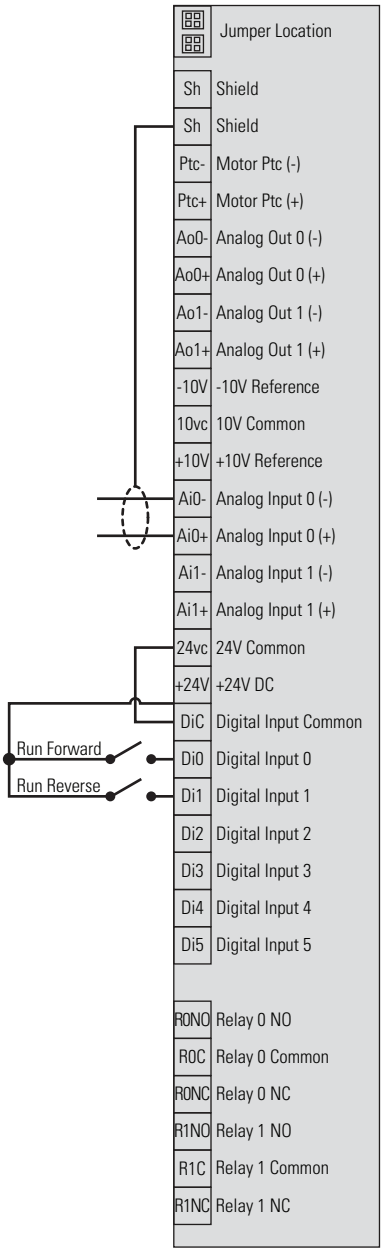
Two-wire Control with Analog Input Speed Reference Examples

The 2-wire control method is run forward/run reverse. The digital control inputs use the internal 24V DC supply of the drive, and the analog input speed comes from a 0...10V or 4...20 mA external reference that you set with a jumper.

700H Drive Main Control Cassette
Standard Control with 24V DC I/O



755 Drives
with Optional 24V DC I/O Module (slot 4)



This 755 drive speed reference example uses port 0, except where port 4 is indicated in Table 31 on page 59.

Two-wire Control Parameter Comparison

The following minimum parameters are required to configure the 755 drive motor attributes for the 2-wire with analog speed reference control method. See Programming the Drives with the Human Interface Module (HIM) on page 55 for links to the programming manuals that include a complete set of parameters and programming options.

IMPORTANT Shaded table cells indicate factory default settings. Verify these settings if the drive is not new, or the parameters were not set to factory defaults.

Table 31 - 700H to 755 Drive I/O Comparison (using optional I/O module in slot 4)

700H Drive Parameters		
No.	**Name**	**Value**
41	Motor NP Volts	Application specific
42	Motor NP FLA	Application specific
43	Motor NP Hertz	Application specific
44	Motor NP RPM	Application specific
45	Motor NP Power	Application specific
46	[Mtr NP Pwr Units	Application specific
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) (1)
92	Speed Ref A Lo	0.0
140	Accel Time 1	10.0
142	Decel Time 1	10.0
325	Analog In2 Hi	10.0
326	Analog In2 Lo	0.0
361	Digital In1 Sel	8 – Run Forward
362	Digital In2 Sel	9 – Run Reverse

755 Drive Parameters (2)		
No.	**Name**	**Value**
25	Motor NP Volts	Application specific
26	Motor NP Amps	Application specific
27	Motor NP Hertz	Application specific
28	Motor NP RPM	Application specific
30	Motor NP Power	Application specific
29	[Mtr NP Pwr Units	Application specific
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	Spd Ref A Sel	**Port 4** (P50) (1)
547	Spd Ref A AnlgHi	Max Fwd Spd (P520) (1)
548	Spd Ref A AnlgLo	0.0
535	Accel Time 1	10.0
537	Decel Time 1	10.0
51	Anlg In0 Hi	10.0
52	Anlg In0 Lo	0.0
164	DI Run Forward (2)	**Port 4** (P1) Input 0 (1)
165	DI Run Reverse (2)	**Port 4** (P1) Input 1 (1)

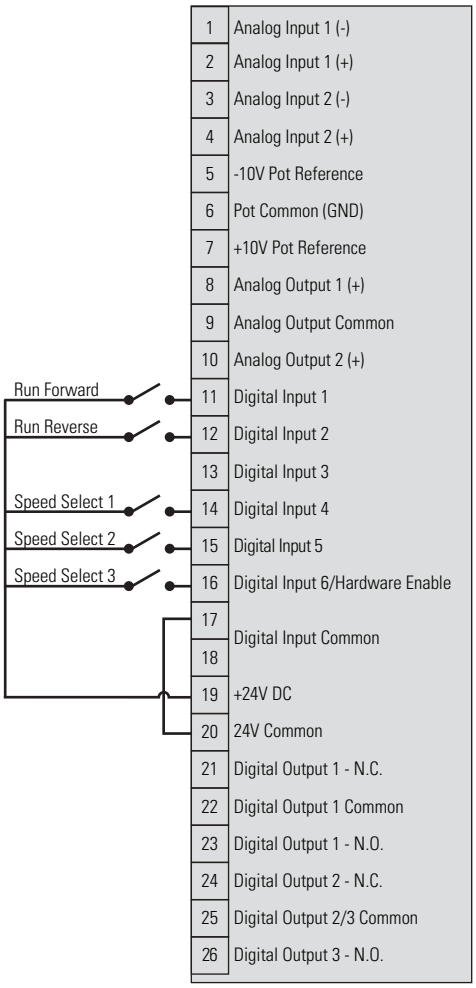
(1) The **P** in the parentheses is an abbreviation for parameter.
(2) The optional I/O module is installed in slot 4.
(3) The 755 drives offer parameters for speed direction (forward and reverse) that are not available in the 700H drives.

TIP For the best possible settings, perform an auto-tune (Rotate Tune) on the connected motor to pair the motor to the drive. This 755 drive speed reference example uses port 0, except where port 4 is indicated.

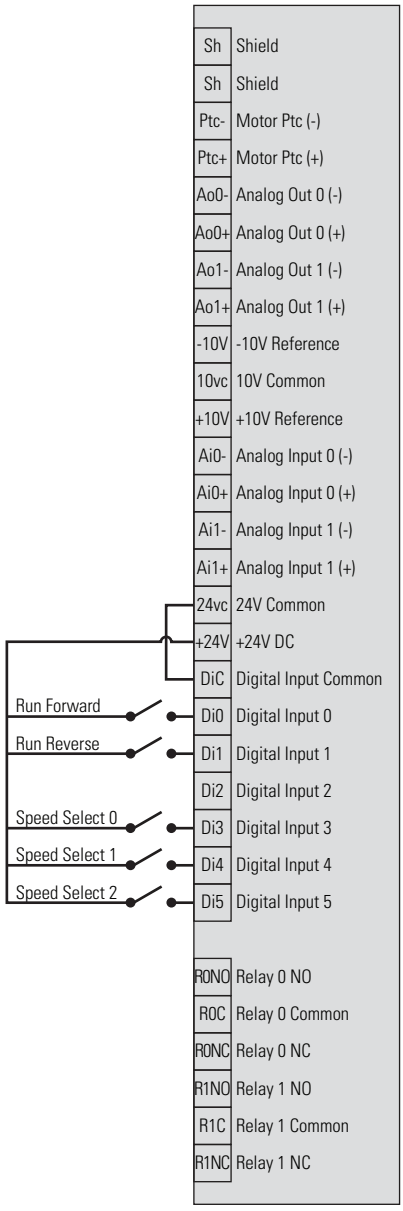
Two-wire Control with Preset Speeds Examples

The 2-wire control method is run forward/run reverse with preset preference. The digital control inputs use the internal 24V DC supply of the drive, and the speed reference is determined by the three speed-select digital inputs.

700H Drive Main Control Cassette
Standard Control with 24V DC I/O



755 Drives
with Optional 24V DC I/O Module (slot 4)



This 755 drive speed reference example uses port 0, except where port 4 is indicated in Table on page 61.

Two-wire Control Parameter Comparison

The following minimum parameters are required to configure the 755 drive motor attributes for the 2-wire with analog speed reference control method. See Programming the Drives with the Human Interface Module (HIM) on page 55 for links to the programming manuals that include a complete set of parameters and programming options.

IMPORTANT Shaded table cells indicate factory default settings. Verify these settings if the drive is not new, or the parameters were not set to factory defaults.

Table 32 - 700H to 755 Drive I/O Comparison (with optional I/O module in slot 4)

700H Drive Parameters			755 Drive Parameters [3]		
No.	**Name**	**Value**	**No.**	**Name**	**Value**
41	Motor NP Volts	Application specific	25	Motor NP Volts	Application specific
42	Motor NP FLA	Application specific	26	Motor NP Amps	Application specific
43	Motor NP Hertz	Application specific	27	Motor NP Hertz	Application specific
44	Motor NP RPM	Application specific	28	Motor NP RPM	Application specific
45	Motor NP Power	Application specific	30	Motor NP Power	Application specific
46	Mtr NP Pwr Units	Application specific	29	Mtr NP Pwr Units	Application specific
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 [4]	Min Fwd Speed	0.0
			523 [4]	Min Rev Speed	0.0
82	Maximum Speed	60.0	520 [4]	Max Fwd Speed	Motor NP Hz/rpm x 1
			521 [4]	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 (P571)
93 [1]	Speed Ref B Sel	Preset Speed 1	550 [1]	Spd Ref B Sel	Port 0 Speed Ref B Stpt
91 [1]	Speed Ref A Hi	Max Speed (P82) [2]	547 [1]	Spd Ref A AnlgHi	Max Fwd Spd (P520) [2]
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) [2]
102	Preset Speed 2	10 Hz/300 rpm	572	Preset Speed 2	1/6 x (P27 or P28) [2]
103	Preset Speed 3	20 Hz/600 rpm	573	Preset Speed 3	1/3 x (P27 or P28) [2]
104	Preset Speed 4	30 Hz/900 rpm	574	Preset Speed 4	1/2 x (P27 or P28) [2]
105	Preset Speed 5	40 Hz/1200 rpm	575	Preset Speed 5	2/3 x (P27 or P28) [2]
106	Preset Speed 6	50 Hz/1500 rpm	576	Preset Speed 6	5/6 x (P27 or P28) [2]
107	Preset Speed 7	60 Hz/1800 rpm	577	Preset Speed 7	(P27 or P28) [2]
140	Accel Time 1	10.0	535	Accel Time 1	10.0
142	Decel Time 1	10.0	537	Decel Time 1	10.0
322	Analog In1 Hi	10.0	51	Anlg In0 Hi	10.0
323	Analog In1 Lo	0.0	52	Anlg In0 Lo	0.0
361	Digital In1 Sel	8 – Run Forward	164	DI Run Forward	**Port 4** (P1) Input 0 [2]

Table 32 - 700H to 755 Drive I/O Comparison (with optional I/O module in slot 4) (continued)

700H Drive Parameters			755 Drive Parameters [3]		
No.	**Name**	**Value**	**No.**	**Name**	**Value**
362	Digital In2 Sel	9 – Run Reverse	165	DI Run Reverse	**Port 4** (P1) Input 1 [2]
364	Digital In4 Sel	15 – Speed Sel 1	173	DI Speed Sel 0	**Port 4** (P1) Input 3 [2]
365	Digital In5 Sel	16 – Speed Sel 2	174	DI Speed Sel 1	**Port 4** (P1) Input 4 [2]
366	Digital In6 Sel	17 – Speed Sel 3	175	DI Speed Sel 2	**Port 4** (P1) Input 5 [2]

(1) These default selections will vary between PowerFlex drive models and applications. Set these parameters to your specific application needs.
(2) The **P** in the parentheses is an abbreviation for parameter.
(3) The optional I/O module is installed in slot 4.
(4) The 755 drives offer parameters for speed direction (forward and reverse) that are not available in the 700H drives.

TIP For the best possible settings, perform an auto-tune (Rotate Tune) on the connected motor to pair the motor to the drive. This 755 drive speed reference example uses port 0, except where port 4 is indicated.

Preset Speeds

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

Table 33 - PowerFlex Drives Digital Input (DI) Preset Speeds

700H Drive Preset Speeds				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 755 drive, which impacts how a 700H drive is migrated.

Network Communication

Overview

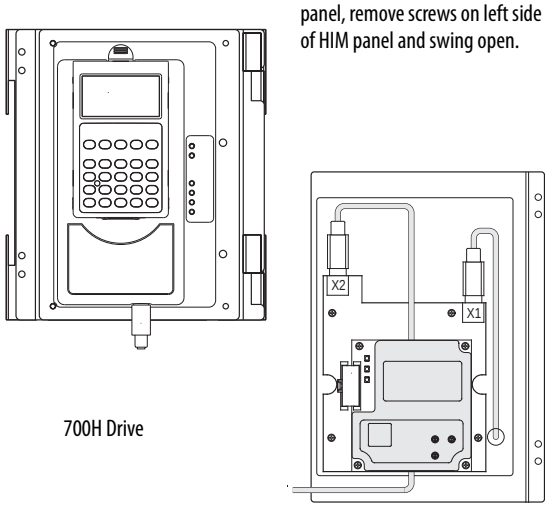
A 700H drive with a communication option card can be replaced with a 755 drive communication option card. The process to migrate can vary significantly depending on the communication option in the 700H drive, the controller type communicating to the drive, and which 755 drive model is selected.

This section describes the network options that are compatible with the 755 drives, and introduces the dedicated communication types for the 755 drives.

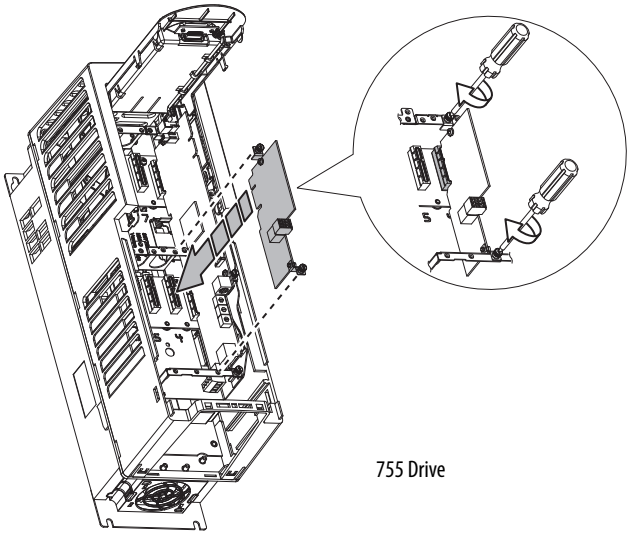
Because of the wide variety of networks, processors, and drive options available, use this section to understand the types of network communication that are available for the 755 drives, and determine the correct communication option for your drive migration.

Communication Option Locations

The figures below show the location for the 700H and 755 drive communication option adapters.



700H Drive



755 Drive

20-COMM Carrier Adapters

The following table provides the 20-COMM adapters that can be used with the 755 drives.

Table 34 - 20-COMM Adapters Compatible with the 755 Drives

Adapter Type	Accesses Ports 2, 3, and 6 for I/O Connections (implicit and explicit messaging)	Accesses Port 7…14 Devices	Supports Drive Add-on Profiles	Supports Asian Languages (5)
20-COMM-B BACnet MS/TP	No			
20-COMM-C ControlNet (Coax)	✓ (1)	✓ v3.001 (3)	✓ (4)	✓ v3.001 (3)
20-COMM-D DeviceNet		No		
20-COMM-E EtherNet/IP		✓ v4.001 (3)	✓ (4)	✓ v4.001 (3)
20-COMM-H RS-485 HVAC	✓ v2.009 (2)	No		
20-COMM-K CANopen	✓ v1.001 (3)			
20-COMM-L LonWorks	✓ v1.007 (3)			
20-COMM-M Modbus/TCP	✓ (1)	✓ v2.001 (3)	No	✓ v2.001 (3)
20-COMM-Q ControlNet (Fiber)	✓ (1)	✓ v3.001 (3)	✓ (4)	✓ v3.001 (3)
20-COMM-R Remote I/O		No		
20-COMM-S RS-485 DF1				

(1) Controller must be capable of reading/writing 32-bit floating point (REAL) values.
(2) Supports all three modes of operation (RTU, P1, N2).
(3) Requires this adapter firmware version or higher.
(4) Requires firmware version v1.05 or higher of the drive Add On Profiles for RSLogix 5000 version v16 or higher.
(5) Chinese, Japanese, and Korean languages are supported at the time of publication.

755 Drives Communication Options

These communication options provide enhanced features beyond what 20-COMM adapters provide. For additional information, refer to the user manuals in the following table.

Communication Option	User Manual
Coaxial ControlNet option module	PowerFlex 20-750-CNETC Coaxial ControlNet Option Module User Manual, publication 750COM-UM003
Dual-port EtherNet/IP option module	PowerFlex 20-750-ENETR Dual-Port EtherNet/IP Option Module User Manual, publication 750COM-UM008
PROFIBUS DPV1 option module	PowerFlex 20-750-PBUS Profibus DPV1 Option Module User Manual, publication 750COM-UM004
PROFINET single port option module	PowerFlex 20-750-PNET Profinet Single Port Option Module User Manual, publication 750COM-UM006
DeviceNet option module	PowerFlex 750-Series Drive DeviceNet Option Module User Manual, publication 750COM-UM002

755 Embedded EtherNet/IP Adapter

The 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 755 drives use the same software packages as the 700H drives, but knowing the software versions of each drive is essential to an effective migration. See the following table.

Drive Software Tool	PowerFlex 755 version 1.*xx*	PowerFlex 755 version 2.*xx*	PowerFlex 755 version 6.*xx*
DriveExplorer software	version 6.01.00 (and later)	version 6.02.00 (and later)	version 6.04.00 (and later)
DriveTools SP/DriveExecutive software	version 5.01.00 (and later)	version 5.02.00 (and later)	version 5.05.00 (and later)
DeviceLogix 5000 add-on profiles	version 2.01.00 (and later)	version 2.02.00 (and later)	version 4.02.00 (and later)
Connected Components Workbench software	version 1.02.00 (and later)	version 1.02.00 (and later)	version 1.02.00 (and later)

Velocity Reference/Feedback

The 700H 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 755 drive velocity reference and feedback data are in engineering units and are dependent on P300 [Speed Units]. A reference of 30.0 equals either 30 Hz or 30.0 rpm.

Using the I/O

The terms input and output (as in I/O) are defined from the perspective of the controller:

- Output is data that is produced by the controller and sent to the adapter.
- Input is data that is produced by the adapter and sent to the controller.

The I/O image varies greatly depending on the communication adaptor. Refer to the respective I/O adaptor user manual for details about the adapter.

16 Bit-based Processors (PLC-5 processor module)

The 755 drives are 32 bit-based, whereas the PLC-5® processor module is 16 bit-based. Any application that uses a PLC-5 processor with a 755 drive must include a review to determine the types of data that are passed, and if the PLC-5 processor can process the data.

Refer to the Rockwell Automation Support Center Knowledgebase online document, Using 20-COMM with PowerFlex 755 and 753 with a 16-bit Controller, publication 65712, for details.

TIP You must have or create a log-in account to access the Rockwell Automation Support Center Knowledgebase.

https://rockwellautomation.custhelp.com/

Safe Torque Off and Safe Speed Monitor Option Modules

700H Drives Safety Option Module

This section provides links to publications that describe the safety option modules for 700H drives.

Safe Torque Off Option Module

The safe torque off option is just one component in a safety control system. Components in the system must be chosen and applied appropriately to achieve the desired level of operational safety. For detailed information on applying this option, refer to the PowerFlex 700H AC Drive Safe Torque Off Option User Manual, publication 20C-UM001.

755 Drives Safety Option Modules

This section provides links to publications that describe the safety option modules for 755 drives.

Safe Torque Off Option Module

The safe torque off option is just one component in a safety control system. Components in the system must be chosen and applied appropriately to achieve the desired level of operational safety. For detailed information on applying this option, refer to the PowerFlex 750-Series Safe Torque Off User Manual, publication 750-UM002.

Safe Speed Monitor Option Module

The safe speed monitor option is just one component in a safety control system. Components in the system must be chosen and applied appropriately to achieve the desired level of operational safety. For detailed information on applying this option, refer to the Safe Speed Monitor Option Module for PowerFlex 750-Series AC Drives Safety Reference Manual, publication 750-RM001.

Notes:

Numerics

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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, 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. You can also visit our Knowledgebase at http://www.rockwellautomation.com/knowledgebase for FAQs, technical information, support chat and forums, software updates, and to sign up for product notification updates.

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.

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Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

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