Migration Guide

Original Instructions

AB QUALITY **Allen-Bradley**

PowerFlex 700S Phase II Drives to PowerFlex 755TL/TR Drives and PowerFlex 755TM Common Bus Inverters

Catalog Numbers 20D, 20G, 20J

Important User Information

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

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

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

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

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

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

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

⚠	**WARNING:** Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
⚠	**ATTENTION:** Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.

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

⚡	**SHOCK HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.
♨	**BURN HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.
⚠	**ARC FLASH HAZARD:** Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

Table of Contents

Chapter 2

Drive Configuration

Chapter 3

Communication Configuration

Appendix A

Enclosure Information

The purpose of this migration guide is to assist you in migrating a PowerFlex® 700S Phase II, frame 9…14 drive to an equivalent PowerFlex 755TL or PowerFlex 755TR drive or PowerFlex 755TM common bus inverter.

Use this migration guide to help you understand some basic migration requirements.

This migration guide provides basic guidelines for migrating to PowerFlex 755TL/TR drives and PowerFlex 755TM common bus inverters. To help you determine the proper migration solution, review additional product literature to understand the technical similarities and differences between the PowerFlex 700S Phase II and the PowerFlex 755TL/TR drive or PowerFlex 755TM common bus inverter.

Download the installation instructions, technical data, programming, and other associated publications listed <u>Additional Resources on page 10</u>.

Many sections of this migration guide direct you to additional details and information available in these publications.

> **IMPORTANT** Throughout this publication, the term PowerFlex 700S is used to describe the PowerFlex 700S with Phase II Control.
>
> Throughout this publication, the term PowerFlex 755T is used to describe the entire family of PowerFlex 755T TotalFORCE™ products including 755TL low harmonic, 755TR regenerative and 755TM common bus inverters. Where there is a notable difference, the specific suffix letters are indicated.

Overview

This publication contains these five chapters:

Chapter 1: <u>Selection Considerations on page 13</u>

This chapter provides comparisons of the specifications, features, dimensions, and power and control terminals of PowerFlex 700S drives and PowerFlex 755T products.

Chapter 2: <u>Drive Configuration on page 89</u>.

This chapter provides comparisons of the electrical configuration, control wiring, and parameters of the PowerFlex 700S and PowerFlex 755TL/TR drives. This chapter also identifies PowerFlex 700S safety functionality that can be migrated to the PowerFlex 755TL/TR drive, and outlines the different PowerFlex 700S DriveLogix™ 5730 configurations.

Chapter 3: .

This chapter identifies PowerFlex 700S communication network protocols that can be migrated to PowerFlex 755T products. This section also provides information about velocity reference/feedback scaling, how to use I/O adapters, and 16 bit-based processors.

Abbreviations

This table contains abbreviations that are used throughout this document.

Abbreviation	Description
(o)	Optional equipment
(s)	Standard, or included in base catalog number
AFE	Active Front End
AOP	Add On Profile
CBI	Common Bus Inverter
EMI	Electromagnetic Interference Filter
ESD	Electrostatic Discharge
HD	Heavy Duty Overload Rating
HIM	Human Interface Module
I/O	Input/Output
LD	Light Duty Overload Rating
LSC	Line Side Converter
MCC	Motor Control Center
MOV	Metal Oxide Varistor
ND	Normal Duty Overload Rating
PLC	Programmable Logic Controller
PWM	Pulse-width Modulated
RWR	Reflective Wave Reduction
SCCR	Short Circuit Current Rating
TAM	Torque Accuracy Module
TVSS	Transient Voltage Surge Suppressor
XLPE	Cross-linked Polyethylene

Parameter References

PowerFlex 700S parameters are referenced in the format P*xxx* [*name*], B*y*, where:

- *xxx* is the parameter number
- [*name*] is the parameter display name
- *y* is the bit number (if applicable).

In this document, PowerFlex 755T ports, parameters, and bits are referenced in the format #:x.y [name], where:

- # is the port number
- x is the parameter number
- [name] is the parameter display name
- y is the bit number (if applicable).

EXAMPLE   For example, referencing an I/O module that is installed in port 4, parameter 6 [Dig Out Invert], bit 1 (TransOut0) can be shown as 04:0006.01 [Dig Out Invert].

The leading zeroes and [name] can be omitted unless required to clarify the context.

This parameter can also be shown as 4:6.1, 4:6.01 [Dig Out Invert] or any other combination that shows the minimum port:parameter information.

General Precautions

Be aware of the following general precautions when working with this type of equipment. See the installation instructions for each bus supply for additional product-specific precautions. Applicable publication information can be found in <u>Additional Resources on page 10</u>.

⚠ **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 can result in personal injury and/or equipment change.

⚠ **ATTENTION:** This drive contains ESD (Electrostatic Discharge) sensitive parts and assemblies. Static control precautions are required when installing, testing, servicing or repairing this assembly. Component damage may result if ESD control procedures are not followed. If you are not familiar with static control procedures, reference Guarding Against Electrostatic Damage, publication <u>8000-4.5.2</u> or any other applicable ESD protection handbook.

Compatibility Quick Check

Use the following comparison table to determine if there are compatible PowerFlex 755T products available to migrate your existing PowerFlex 700S. If the existing PowerFlex 700S installation configuration does not have any of these exceptions, proceed to use the guidelines in this migration guide.

Table 1 - Comparison Quick Check Considerations

Consideration	If You Have These Existing PowerFlex 700S Configuration Exceptions	Then Follow These Recommendations for the PowerFlex 755T Migration
Minimum AC output current and power	Frames 1…6	No compatible units available at initial product release. Consider PowerFlex 755 products for these ratings.
AC Line Voltage	200…240V AC, 3 PH, AC input	No compatible units available at initial product release.
Braking Chopper IGBT	Frame 9 with optional internal brake chopper IGBT	Internal brake chopper IGBT are not available for PowerFlex 755T frames 8…12. Specify a regenerative PowerFlex 755TR drive or external third-party brake chopper module.
Integration with common AC or DC bus drive system lineup	• Bulletin 2362 with PowerFlex 700S packaged in 2100 MCC enclosures with AC or DC power and control bus. • Custom packaged common AC or DC bus PowerFlex 700S drives.	This configuration can be migrated to PowerFlex 755TM, however, this solution is not covered in this migration guide. The IP21/IP54 enclosed PowerFlex 755TM common bus inverter busbar configuration is not mechanically compatible with any existing PowerFlex 700S common DC bus configurations and may require a custom migration solution with transition cell enclosure(s).
Resolver feedback device	Optional resolver feedback module	Requires third-party option module (AMCI RD750).
SynchLink™	SynchLink fiber-optic communication protocol that is used for drive to drive to controller high-speed dedicated communication links	No compatible communications link available.
DriveLogix™ and Compact I/O™	Use of the DriveLogix controller or Compact I/O expansion capability	No compatible feature available at initial product release. Migration Solutions on page 111 of this document outlines possible migration solutions that integrate a PowerFlex 755T with a Logix controller.
Custom Packaging	IP00 open type units that are installed in non-standard enclosures.	This may require a custom migration solution. Custom migration solutions are not covered in this migration guide.
Communication Protocol	ControlNet Fiber Optic BACnet/IP HVAC Modbus RTU CANopen Interbus LonWorks Modbus/TCP Remote I/O RS485 DF1	The PowerFlex 755T product does not support these communication protocols. A custom migration solution and/or an external communication protocol converter may be required.
PowerFlex 700S Phase I	Phase I Control	This migration guide only covers PowerFlex 700S Phase II migrations.

If the existing PowerFlex 700S drive has any of the above configuration exceptions, contact an Authorized Rockwell Automation Distributor specialist, Solution Partner, Recognized System Integrator, or Rockwell Automation account manager to discuss engineered solutions for custom migrations.

Follow this link for a list of Solution Partners and Recognized System Integrators: http://www.software.rockwell.com/corporate/sp/ RASISearchResults.cfm?Programlevel=SP.

Before Migration

Follow these steps to be sure that your migration is successful.

- Upload and save the PowerFlex 700S parameters via Connected Components Workbench™, Studio 5000 Logix Designer®, or DriveExecutive™ software. If you cannot connect to the drive online, manually record the parameter values.
- Record and label all power, digital, and analog I/O control wiring.
- Upload and save any network files and programmable logic controller (PLC) programs.

General Information

See the Wiring and Grounding Guidelines for Pulse-width Modulated (PWM) AC Drives Installation Instructions, publication DRIVES-IN001, for information regarding the topics listed below.

Wire/Cable Type
- General
- Input power
- Discrete drive I/O
- Analog signal and encoder
- Communication

Power Distribution
- System configurations
- AC line voltage
- Surge protection MOVs and common mode capacitors
- AC line impedance
- PowerFlex drives used with regenerative units
- DC bus wiring guidelines

Grounding
- Safety grounds
- Noise-related grounds

Installation Practices

- Mounting
- Conduit entry
- Ground connections
- Wire routing
- Conduit
- Cable trays
- Shield termination
- Conductor termination
- Moisture

Reflected Wave

- Description
- Effects on wire types
- Length restrictions for motor protection

Motor Cable Length Tables

- PowerFlex 700S
- PowerFlex 755T

Electromagnetic Interference

- Causes and containing common mode noise
- Causes and preventing/mitigating transient interference
- Enclosure lighting
- Bearing current

Additional Resources

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

Resource	Description
PowerFlex 700S Drives with Phase II Control Technical Data, publication 20D-TD002	Provides detailed drive and option specifications, drive, fuse, and circuit breaker ratings, watts loss information, and derating guidelines.
PowerFlex 700H Adjustable Frequency AC Drive and PowerFlex 700S High Performance AC Drive Installation Instructions, publication PFLEX-IN006	Provides detailed installation instructions for handling IP20/IP21 enclosed PowerFlex 700S.
PowerFlex 700S High Performance AC Drive - Phase II Control Programming Manual, publication 20D-PM001	Provides detailed PowerFlex 700S Phase II parameter descriptions, configuration settings, startup, and fault/alarm troubleshooting.
PowerFlex 700S AC Drives Phase II Control Reference Manual, publication PFLEX-RM003	This manual provides detailed PowerFlex 700S drive with Phase II control functions and application programming examples.
DriveLogix 5730 Controller for PowerFlex 700S Drives with Phase II Control User Manual, publication 20D-UM003	This publication provides guidance on the development of projects for DriveLogix controllers.
DriveGuard® Safe Torque Off Option for PowerFlex 700S Phase II AC Drives and PowerFlex 700L Liquid-Cooled AC Drives User Manual, publication 20D-UM007	Provides information that is needed to plan, install, and configure the DriveGuard Safe Torque Off option for PowerFlex 700S and 700L AC drives.

Resource	Description
PowerFlex 700S and 700H Frames 10...14 IP00, NEMA/UL Open Power Structures Installation Instructions, publication, publication PFLEX-IN020	Provides instructions for the installation of PowerFlex 700S and 700H frames 10…14, IP00, NEMA/UL Type Open power structures in a customer supplied enclosure(s).
PowerFlex 700S and 700H Drives - Frame 9 Hardware Service Manual, publication PFLEX-TG001	Provides troubleshooting and repair information for PowerFlex 700S and 700H frame 9 AC drives.
PowerFlex 700S and 700H Drives - Frame 10 Hardware Service Manual, publication PFLEX-TG002	Provides troubleshooting and repair information for PowerFlex 700S and 700H frame 10 AC drives.
PowerFlex 700S and 700H Drives - Frame 11 Hardware Service Manual, publication PFLEX-TG003	Provides troubleshooting and repair information for PowerFlex 700S and 700H frame 11 AC drives.
PowerFlex 700S and 700H Drives - Frame 12 Hardware Service Manual, publication PFLEX-TG004	Provides troubleshooting and repair information for PowerFlex 700S and 700H frame 12 AC drives.
PowerFlex 700S and 700H Drives - Frame 13 Hardware Service Manual, publication PFLEX-TG005	Provides troubleshooting and repair information for PowerFlex 700S and 700H frame 13 AC drives.
PowerFlex 700S and 700H Drives - Frame 14 Hardware Service Manual, publication PFLEX-TG006	Provides troubleshooting and repair information for PowerFlex 700S and 700H frame 14 AC drives.
PowerFlex 750-Series Products with TotalFORCE Control Technical Data, publication 750-TD100	Provides detailed technical data, specifications, ratings, fuse/circuit breaker sizing and option information for IP20/IP54 enclosed PowerFlex 755T products.
PowerFlex 750-Series Products with TotalFORCE Control Installation Instructions, publication 750-IN100	Provides procedures for the handling, installation, and electrical wiring of IP20/IP54 enclosed PowerFlex 755T products.
PowerFlex 755TM IP00 Open Type Kits Technical Data, publication 750-TD101	Provides detailed technical data, specifications, ratings, fuse/circuit breaker sizing and option information for IP00 open type PowerFlex 755TM products.
PowerFlex Drives with TotalFORCE Control Programming Manual, publication 750-PM100	Provides detailed parameter descriptions, configuration settings, and fault/alarm troubleshooting.
PowerFlex 750-Series Products with TotalFORCE Control Hardware Service Manual, publication 750-TG100	Provides detailed troubleshooting, maintenance, component testing, and hardware service instructions for PowerFlex 750T products.
Drives in Common Bus Configurations with PowerFlex 755TM Bus Supplies Application Techniques, publication DRIVES-AT005	Provides basic information to properly wire and ground the following products in common bus applications: • PowerFlex 755TM common bus solutions • PowerFlex 750-Series AC and DC input drives • Kinetix 5700 servo drives
PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001	These publications provide detailed information on to configure, use, and troubleshoot PowerFlex 750-Series communication option modules and adapters.
PowerFlex 750-Series Drive DeviceNet Option Module User Manual, publication 750COM-UM002	
PowerFlex 20-750-CNETC Coaxial ControlNet Option Module, publication 750COM-UM003	
PowerFlex 20-750-PBUS Profibus DPV1 Option Module, publication 750COM-UM004	
PowerFlex 20-750-BNETIP BACnet/IP Option Module, publication 750COM-UM005	
PowerFlex 20-750-PNET Profinet Single Port Option Module User Manual, publication 750COM-UM006	

Resource	Description
PowerFlex 20-750-PNET2P Profinet Dual-port Option Module, publication 750COM-UM007	These publications provide detailed information on to configure, use, and troubleshoot PowerFlex 750-Series communication option modules and adapters.
PowerFlex 20-750-ENETR Dual-port EtherNet/IP Option Module User Manual, publication 750COM-UM008	
PowerFlex 750-Series Drives with TotalFORCE Control Built-in EtherNet/IP Adapter User Manual, publication 750COM-UM009	
PowerFlex 20-HIM-A6 and 20-HIM-C6S HIM (Human Interface Module) User Manual, publication 20HIM-UM001	Provides detailed information on the Human Interface Module (HIM).
PowerFlex 755TM DC Precharge Modules Unpacking and Lifting Installation Instructions, publication 750-IN103	Provides detailed set-up and operating instructions for the DC precharge module lift.
PowerFlex 750-Series Service Cart and DCPC Module Lift Installation Instructions, publication 750-IN105	Provides detailed set-up and operating instructions for the module service cart and lift extension option.
PowerFlex 755TM Power and Filter Module Storage Hardware Installation Instructions, publication 750-IN106	Provides detailed installation and usage instructions for this hardware accessory.
PowerFlex 755T Power Module Service Ramp Instructions, publication 750-IN108	Provides detailed usage instructions for the module service ramp.
PowerFlex 750-Series ATEX Option Module User Manual, publication 750-UM003	Provides information on using the 20-750-ATEX option module.
PowerFlex 755T Flux Vector Tuning Application Technique, publication 750-AT006	Provides information about adaptive features and optimizing regulator tuning.
Drives in Common Bus Configurations Application Technique, publication DRIVES-AT002	Provides detailed application techniques for the design and installation of common bus drive systems.
Wiring and Grounding for Pulse Width Modulated (PWM) AC Drives Installation Instructions, publication DRIVES-IN001	Provides detailed installation guidelines and recommendations for PWM AC drive equipment.
Industry Installation Guidelines for Pulse Width Modulated (PWM) AC Drives Application Technique, publication DRIVES-AT003	Provides basic information on enclosure systems, considerations to help protect against environmental contaminants, and power and grounding considerations for installing Pulse Width Modulated (PWM) AC drives.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Safety Guidelines for the Application, Installation, and Maintenance of Solid-State Control, publication SGI-1.1	Provides general guidelines for the application, installation, and maintenance of solid-state control.
Guarding Against Electrostatic Damage, publication 8000-4.5.2	Provides practices for guarding against Electrostatic damage (ESD)
Product Certifications website, http://www.rockwellautomation.com/global/certification/overview.page	Provides declarations of conformity, certificates, and other certification details.

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

Selection Considerations

Before proceeding with detailed migration guidelines, see to verify that you can migrate your PowerFlex® 700S drive.

To select a PowerFlex 755TL/TR drive or PowerFlex 755TM common bus inverter to replace your PowerFlex 700S AC or DC input drive, you must consider the hardware and control differences between these drives. This chapter describes some of the primary differences.

About the PowerFlex 700S AC Drive

The PowerFlex 700S, catalog code 20D..., is a high-performance AC drive available in 14 frame sizes (frames 1...14).

Two different input configurations:
- 700S standalone, 3-phase, AC input, 6-pulse drive
- 700S DC input drive (without precharge)

Ten different input voltages:
- 240V AC/325V DC (frames 1...6 only)
- 400V AC/540V DC
- 480V AC/650V DC
- 600V AC/810V DC
- 690V AC/932V DC

And four different packaging methods:
- IP00 open, frames 9...14
- IP21 Rittal packaged, frames 10...14
- IP54 Rittal packaged, frames 10...14
- IP20 2100 MCC packaged, frames 10...12

Custom enclosures and hardware builds using Bulletin 2362 and Bulletin 2100 MCC enclosures with common AC or DC bus were created by Rockwell Automation drive systems and many system integrators. Because of the many variations possible with IP00 open type equipment, this document does not cover custom engineered IP00 migrations.

PowerFlex 700S frames 9...14 drives could be specified as standalone 3-phase AC input with non-regenerative 6-pulse converter or as DC input type.

> **IMPORTANT**   PowerFlex 700S DC input drives do not have factory-installed precharge circuits. If precharge circuits were required these circuits were provided separately by the drive user. If you have concerns about your DC input common bus PowerFlex 700S drive system configurations consult an Authorized Rockwell Automation Distributor specialist, Solution Partner, Recognized System Integrator or Rockwell Automation account manager to discuss PowerFlex 700S DC input drive migration solutions.

PowerFlex 700S frames 1...6 drives do not have equivalent PowerFlex 755T ratings at the time this document was published. If you have PowerFlex 700S frame sizes 1...6, consult an Authorized Rockwell Automation Distributor specialist, Solution Partner, Recognized System Integrator or Rockwell Automation account manager to determine if there is a suitable PowerFlex 750 product that will be a satisfactory migration solution.

PowerFlex 700S Catalog Number Explanation

Position

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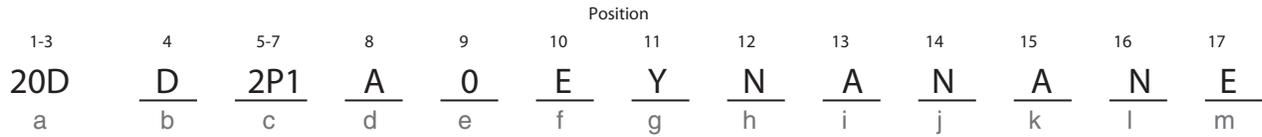
a

Drive	
Code	Type
20D	PowerFlex 700S

b

Voltage Rating			
Code	Voltage	Ph.	Prechg.
B §	240V AC	3 (6 pulse)	–
C §	400V AC	3 (6 pulse)	–
D §	480V AC	3 (6 pulse)	–
E ♣ §	600V AC	3 (6 pulse)	–
F ⌘	690V AC	3 (6 pulse)	–
H ⌘	540V DC	–	N
J ⌘	650V DC	–	N
K ⌘	810V DC	–	N
M ⌘	932V DC	–	N
N ➤	325V DC	–	Y
P ➤	540V DC	–	Y
R ➤	650V DC	–	Y
T ➤	810V DC	–	Y
W ➤	932V DC	–	Y

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

➤ Frames 5 & 6 Only.

⌘ Frames 5 & up.

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

c1

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

c2

ND Rating			
400V, 50 Hz Input			
Code	Amps	kW	Frame
2P1	2.1	0.75	1
3P5	3.5	1.5	1
5P0	5.0	2.2	1
8P7	8.7	4.0	1
011	11.5	5.5	1
015	15.4	7.5	1
022	22	11	1
030	30	15	2
037	37	18.5	2
043	43	22	3
056	56	30	3
072	72	37	3
085	85	45	4
105	105	55	5
125	125	55	5
170	170	90	6
205	205	110	6
260	260	132	6
261	261	132	9
300	300	160	9
385	385	200	10
460	460	250	10
500	500	250	10
590	590	315	11
650	650	355	11
730	730	400	11
820	820	450	12
920	920	500	12
1K0	1030	560	12
1K1	1150	630	13
1K3	1300	710	13
1K4	1450	800	13

c3

ND Rating			
480V, 60 Hz Input			
Code	Amps	Hp	Frame
2P1	2.1	1.0	1
3P4	3.4	2.0	1
5P0	5	3.0	1
8P0	8	5.0	1
011	11	7.5	1
014	14	10	1
022	22	15	1
027	27	20	2
034	34	25	2
040	40	30	3
052	52	40	3
065	65	50	3
077	77	60	4
096	96	75	5
125	125	100	5
156	156	125	6
180	180	150	6
248	248	200	6
261	261	200	9
300	300	250	9
385	385	300	10
460	460	350	10
500	500	450	10
590	590	500	11
650	650	500	11
730	730	600	11
820	820	700	12
920	920	800	12
1K0	1030	900	12
1K1	1150	1000	13
1K3	1300	1200	13
1K4	1450	1250	13

c4

ND Rating			
600V, 60 Hz Input ♣			
Code	Amps	Hp	Frame
1P7	1.7	0	1
2P7	2.7	2	1
3P9	3.9	3	1
6P1	6.1	5	1
9P0	9	7.5	1
011	11	10	1
017	17	15	1
022	22	20	2
027	27	25	2
032	32	30	3
041	41	40	3
052	52	50	3
062	62	60	4
077	77	75	5
099	99	100	5
125	125	125	6
144	144	150	6
170	170	150	9
208	208	200	9
261	261	250	10
325	325	350	10
385	385	400	10
416	416	450	10
460	460	450	11
502	502	500	11
590	590	600	11
650	650	700	12
750	750	800	12
820	820	900	12
920	920	1000	13
1K0	1030	1100	13
1K1	1180	1300	13
1K5	1500	1600	14

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

d

Enclosure	
Code	Description
A ∗	IP20/IP21, NEMA Type 1, with Conformal Coat
B §	IP20, NEMA Type 1, MCC, with Conformal Coat
H §	IP54, NEMA Type 12, Rittal, with Conformal Coat
N ✛	Open/IP00, with Conformal Coat

∗ IP20 for Frames 1…6, IP21 for Frames 9 & up.
§ Frames 10 & up only.
✛ Frames 9 & up only.

e

HIM	
Code	Operator Interface
0	Blank Cover
3	Full Numeric LCD
C	Full Numeric LCD, Door Mount ❋

❋ Frames 10 & up only.

c5

ND Rating			
690V, 50 Hz Input ♣			
Code	Amps	kW	Frame
052	52	45	5
060	60	55	5
082	82	75	5
098	98	90	5
119	119	110	6
142	142	132	6
170	170	160	9
208	208	200	9
261	261	250	10
325	325	315	10
385	385	355	10
416	416	400	10
460	460	450	11
502	502	500	11
590	590	560	11
650	650	630	12
750	750	710	12
820	820	800	12
920	920	900	13
1K0	1030	1000	13
1K1	1180	1100	13
1K5	1500	1500	14

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

f

Documentation	
Code	Documents
E	English Manual
N	No Documentation

g

Brake	
Code	w/Brake IGBT ‡
Y	Yes
N	No

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

h

Brake Resistor	
Code	w/Resistor
Y	Yes ∗
N	No

∗ Not available for Frame 3 drives or larger.

i

Emission			
Code	CE Filter ♣	CM Choke	du/dt Filter
A ❖	Yes	Yes	No
B ➤	Yes	No	No
E ✛	Yes	No	Yes
N §	No	No	No

❖ Frames 1…6 only.
➤ Frames 9 & up only.
§ For use on a high resistive ground, an ungrounded distribution system, or a B phase grounded distribution system (Frame 9 only).
♣ Note: CE Certification testing has not been performed on 600V class drives Frames 1…4.
✛ Frame 14 only.

j

Comm Slot	
Code	Version
N	None
C	DPI ControlNet (Coax)
D	DPI DeviceNet
E	DPI EtherNet/IP
1	DriveLogix ControlNet (Coax)
2	DriveLogix ControlNet Redundant (Coax)
3	DriveLogix ControlNet (Fiber)
4	DriveLogix ControlNet Redundant (Fiber)
5	DriveLogix DeviceNet (Open Conn.)
6	DriveLogix EtherNet/IP

k

Control Options ∗			
Code	Logix Expansion	Synchlink	Cassette
A	No	No	Expanded
B	No	Yes	Expanded
C	Yes	No	Expanded
D	Yes	Yes	Expanded
G ✛	N/A	No	Slim
H ✛	N/A	Yes	Slim

∗ Phase II Contol available only.
✛ Frames 1…9 only.

l

Feedback	
Code	Option
N ⌘	Standard (Incremental Encoder)
A ❖	Resolver
B ❖	Stegmann Hi-Resolution Encoder
C ❖	Multi-Device Interface
E ❖	2nd Encoder
S ❖	Safe-Off (w/2nd Encoder)
T ❖	Stegmann Hi-Res Enc. (w/2nd Encoder)
U ❖	Stegmann Hi-Res Enc. (w/Safe-Off)

⌘ One encoder interface included with base drive.
❖ Expanded cassette required.

m

Additional Config.	
Code	Description
E	Phase II Control
K	Phase II DriveLogix5730
L ✛	Phase II DriveLogix5730 with EtherNet/IP

✛ This is an embedded EtherNet/IP option that is only available with DriveLogix5730.

About the PowerFlex 755T

The PowerFlex 755T products with TotalFORCE™ control, catalog code 20G..., is available in five different power rating frame sizes (frames 8...12).

Four different input configurations:

- 755TL standalone 3 PH, AC input low harmonic non-regenerative drive
- 755TR standalone 3 PH, AC input low harmonic regenerative drive
- 755TM common bus inverter (DC input with precharge)
- 755TM common bus inverter (DC input without precharge)

Eight different input voltages;

- 400V AC/540V DC
- 480V AC/650V DC
- 600V AC/810V DC
- 690V AC/932V DC

And three different packaging methods;

- IP00 open
- IP21 Rittal
- IP54 Rittal

PowerFlex 755TM common bus inverters packaged in IP20/IP54 enclosures have power/control bus bar systems that are mechanically and electrically compatible with PowerFlex 755TM Bus Supplies and similarly enclosed PowerFlex 755-Series AC drives. A transition bay is required if connecting a 755T product to existing 755-Series drives.

IMPORTANT	To achieve PowerFlex 755T motor control regulator performance equal to or greater than the PowerFlex 700S, it is highly recommended that you select the motor voltage feedback Torque Accuracy Module (TAM), control option code (-C0).

IMPORTANT	If you have DC input PowerFlex 700S drives, it is important to understand if precharge circuits are used. See the <u>DC Input Inverter Considerations on page 21</u> for more information.

PowerFlex 755T Product Catalog Number Explanation

1…3	4	5	6	7	8…10	11	12	13	14	15	16	17	18	
20G	1	G	3	D	740	L	N	A	N	N	N	N	N	-C0-P15…
a	b	c	d	e	f1…f4	g	h	i		Positions 14…18 are not used.				Control and Power Options
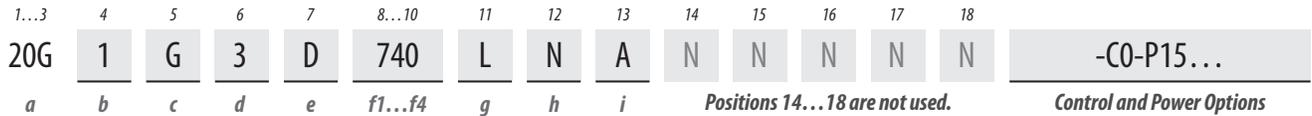
a

	Drive	
Code	Type	Frames
20G	PowerFlex 755TL Drives	8…10
	PowerFlex 755TR Drives PowerFlex 755TM Common Bus Inverters	8…12
20J	PowerFlex 755TM Bus Supplies	8…12

b

	Cooling Type	
Code	Description	Frames
1	Forced Air	8…12

c

	Input Type	
Code	Description	Frames
D	Common Bus with DC Precharge	8…12
E	Common Bus without DC Precharge	8…12
F	Regenerative and Low Harmonic AFE [1]	8…12
G	Low Harmonic AFE [2]	8…10

(1) Applies to PowerFlex 755TR drives and 755TM bus supplies.
(2) Applies to PowerFlex 755TL drives.

d

	Enclosure	
Code	Description	Frames
3	IP21, UL Type 1; Floor Mount	8…12
4	IP54, UL Type 12; Floor Mount	8…12

e

	Voltage Rating
Code	Voltage
C	400V AC; 3 PH
D	480V AC; 3 PH
E	600V AC; 3 PH
F	690V AC; 3 PH

f1

PowerFlex 755 ND Rating			
400V, 50 Hz Input			
Code	Amps	kW	Frame
302	302	160	
367	367	200	
460	460	250	
540	540	315	
585	585	315	8
650	650	355	
750	750	400	
770	770	400	
920	920	500	
1K0	1040	560	
1K1	1112	630	9
1K2	1175	710	
1K4	1465	800	
1K6	1590	850	
1K7	1715	1000	10
2K1	2156	1250	
2K8	2849	1650	11
3K5	3542	2000	12

f2

PowerFlex 755 ND Rating			
480V, 60 Hz Input			
Code	Amps	Hp	Frame
302	302	250	
361	361	300	
430	430	350	
505	505	400	
545	545	450	8
617	617	500	
710	710	600	
740	740	650	
800	800	700	
960	960	800	
1K0	1045	900	9
1K1	1135	1000	
1K3	1365	1100	
1K4	1420	1250	
1K6	1655	1500	10
2K0	2072	1800	
2K6	2738	2400	11
3K4	3404	3000	12

f3

PowerFlex 755 ND Rating			
600V, 60 Hz Input			
Code	Amps	Hp	Frame
242	242	250	
295	295	300	
355	355	350	
395	395	400	8
435	435	450	
545	545	550	
595	580	600	
690	690	700	
760	760	800	9
825	825	900	
980	980	1000	
1K1	1045	1100	
1K2	1220	1250	10
1K5	1430	1500	
2K0	1946	2000	11
2K4	2420	2500	12

f4

PowerFlex 755 ND Rating			
690V, 50 Hz Input			
Code	Amps	kW	Frame
215	215	200	
265	265	250	
330	330	315	
370	370	355	8
415	415	400	
505	505	500	
565	565	560	
650	650	630	
735	735	710	9
820	820	800	
920	920	900	
1K0	1030	1000	
1K1	1150	1100	10
1K4	1419	1400	
1K8	1865	1800	11
2K3	2318	2300	12

1...3	4	5	6	7	8...10	11	12	13	14	15	16	17	18	
20J	1	F	3	C	1K6	L	N	A	N	N	N	N	N	–C1-P16…
a	*b*	*c*	*d*	*e*	*f5…f8*	*g*	*h*	*i*		Positions 14…18 are not used.				*Control and Power Options*

f5

PowerFlex 755TM Bus Supplies ND Rating			
400V, 50 Hz Input			
Code	Amps	kW	Frame
302	324	188	
367	394	228	
460	494	286	
540	579	336	8
585	628	364	
650	698	405	
750	805	467	
770	826	479	
920	987	572	
1K0	1116	647	
1K1	1193	692	9
1K2	1261	731	
1K4	1570	910	
1K6	1697	984	
1K7	1840	1067	10
2K1	2314	1342	
2K8	3057	1772	11
3K5	3801	2204	12

f6

PowerFlex 755TM Bus Supplies ND Rating			
480V, 60 Hz Input			
Code	Amps	kW	Frame
302	311	216	
361	371	258	
430	442	307	
505	519	361	8
545	560	390	
617	635	442	
710	730	508	
740	761	529	
800	823	573	
960	987	687	
1K0	1075	748	9
1K1	1167	812	
1K3	1404	977	
1K4	1460	1016	
1K6	1702	1184	10
2K0	2131	1483	
2K6	2816	1959	11
3K4	3501	2436	12

f7

PowerFlex 755TM Bus Supplies ND Rating			
600V, 60 Hz Input			
Code	Amps	kW	Frame
242	249	217	
295	303	263	
355	365	317	8
395	406	353	
435	447	389	
545	560	487	
595	596	518	
690	710	617	
760	782	680	9
825	848	737	
980	1008	877	
1K1	1075	935	
1K2	1255	1091	10
1K5	1471	1279	
2K0	2001	1740	11
2K4	2489	2164	12

f8

PowerFlex 755TM Bus Supplies ND Rating			
690V, 50 Hz Input			
Code	Amps	kW	Frame
215	221	221	
265	272	272	
330	339	339	8
370	380	380	
415	426	426	
505	518	518	
565	580	580	
650	667	667	
735	754	754	9
820	842	842	
920	944	944	
1K0	1057	1057	
1K1	1180	1180	10
1K4	1456	1456	
1K8	1914	1914	11
2K3	2379	2379	12

1…3	4	5	6	7	8…10	11	12	13	14	15	16	17	18	
20G	1	D	3	F	2K3	M	N	D	N	N	N	N	N	-C0-C11-P15…
a	b	c	d	e	f9…f12	g	h	i						

Positions 14…18 are not used.   *Control and Power Options*

f9

PowerFlex 755TM Common Bus Inverter ND Rating

400V, 50 Hz Input

Code	Amps	kW	Frame
302	302	160	
367	367	200	
460	460	250	
540	540	315	8
585	585	315	
650	650	355	
750	750	400	
770	770	400	
920	920	500	
1K0	1040	560	
1K1	1112	630	9
1K2	1175	710	
1K4	1465	800	
1K6	1590	850	
1K7	1715	1000	10
2K1	2156	1250	
2K8	2849	1650	11
3K5	3542	2000	12

f10

PowerFlex 755TM Common Bus Inverter ND Rating

480V, 60 Hz Input

Code	Amps	Hp	Frame
302	302	250	
361	361	300	
430	430	350	
505	505	400	8
545	545	450	
617	617	500	
710	710	600	
740	740	650	
800	800	700	
960	960	800	
1K0	1045	900	9
1K1	1135	1000	
1K3	1365	1100	
1K4	1420	1250	
1K6	1655	1500	10
2K0	2072	1800	
2K6	2738	2400	11
3K4	3404	3000	12

f11

PowerFlex 755TM Common Bus Inverter ND Rating

600V, 60 Hz Input

Code	Amps	Hp	Frame
242	242	250	
295	295	300	
355	355	350	
395	395	400	8
435	435	450	
545	545	550	
595	580	600	
690	690	700	
760	760	800	9
825	825	900	
980	980	1000	
1K1	1045	1100	
1K2	1220	1250	10
1K5	1430	1500	
2K0	1946	2000	11
2K4	2420	2500	12

f12

PowerFlex 755TM Common Bus Inverter ND Rating

690V, 50 Hz Input

Code	Amps	kW	Frame
215	215	200	
265	265	250	
330	330	315	
370	370	355	8
415	415	400	
505	505	500	
565	565	560	
650	650	630	
735	735	710	9
820	820	800	
920	920	900	
1K0	1030	1000	
1K1	1150	1100	10
1K4	1419	1400	
1K8	1865	1800	11
2K3	2318	2300	12

g

Filtering and CM Cap Configuration

Code	EMC Filtering	PE-A [1]	PE-B	Reflected Wave Filtering
J	Yes	Installed	Removed	No
K	Yes	Installed	Removed	Yes
L	No	Installed	Removed	No
M	No	Installed	Removed	Yes

(1) Setting does not apply to product type 20G with input types D and E. PE-A jumpers are removed when bus conditioner for marine applications (-P51) is selected.

h

Dynamic Braking [1]	
Code	Internal Resistor	Internal Transistor
N	No	No

(1) Not available on Frames 8…12, specify Code 'N'.

i

Door-mounted HIM (Frames 8…10)

Code	Operator Interface and Control
A	No Door-mounted HIM with TotalFORCE Control
D	Enhanced LCD, Full Numeric, IP66, NEMA Type 4X/12 with TotalFORCE Control

20G Control Options Selection

Code	Option	Frames	Input Type
C0	Torque Accuracy Module	8…12	D, E, F, G
C11	Single Pod (with Control Bay) [1]	8…12	D, E
C12	Dual Pod (with Control Bay) [1]	8…12	D, E

(1) When code 'D' is selected in position 13, code C11 includes one door-mounted HIM and code C12 includes two door-mounted HIMs.

20J Control Options Selection

Code	Option	Frames	Input Type
C1	Control Transformer (Internal 240V) [1]	8…12	F

(1) This option only applies to 755TM regenerative and low harmonic bus supplies. If this option is not selected, a 240V AC, single-phase, neutral grounded external power source must be supplied by the customer.

20G Power Options Selection

Code	Option	Frames	Input Type
P15	Top Cable Exit w/wiring bay	8…12	D, E, F, G
P16	Top Cable Entry w/wiring bay	10…12	F, G
P17	Top Cable Entry no wiring bay	8…9	F, G
P46	System DC Bus (4700 Amp)	8…10	D, E
P50	DC Bus Conditioner	8…12	F, G
P51	DC Bus Conditioner – Marine Applications	8…12	F, G

20J Power Options Selection

Code	Option	Frames	Input Type
P16	Top Cable Entry w/wiring bay	10…12	F
P17	Top Cable Entry no wiring bay	8…9	F
P46	System DC Bus (4700 Amp)	8…10	F
P50	DC Bus Conditioner	8…12	F
P51	DC Bus Conditioner – Marine Applications	8…12	F

DC Input Inverter Considerations

PowerFlex 700S DC input drives are not supplied with precharging circuits. If required, you must add the precharge circuits. PowerFlex 755TM common bus inverters can be ordered with or without precharge circuits.

IMPORTANT	If you have DC input PowerFlex 700S drives it is important to understand if precharge circuits are used so you can choose the correct PowerFlex 755TM common bus inverter precharge configuration. It is the responsibility of the designer to make sure that the correct PowerFlex 755TM common bus inverter precharge configuration is chosen. If you have concerns about your DC input common bus PowerFlex 700S drive system configurations consult an Authorized Rockwell Automation Distributor specialist, Solution Partner, Recognized System Integrator or Rockwell Automation account manager to discuss PowerFlex 700S DC input drive migration solutions.

See the DC Input Electrical Cross Reference on page 51 for PowerFlex 755TM common bus inverter selection information.

⚠	**ATTENTION:** Applying a PowerFlex 755TM common bus inverter without precharge with an existing common bus inverter DC disconnect or with no method of safely precharging the DC bus capacitors in the drive may result in serious damage to the DC bus supply and PowerFlex 755TM common bus inverters.

⚠	**WARNING:** Failure to properly apply this equipment may cause dangerous over currents, possible explosion, and arc flash conditions that can lead to personal injury or death.

DC power and control circuit busbars may not be available, standard, or optional for PowerFlex 700S DC input drives and PowerFlex 755TM common bus inverters. Use the following table to identify the existence and rating of DC power and control busbars.

Table 2 - Power and Control Busbar Rating Comparison

Description	PowerFlex 700S DC Input	PowerFlex 755TM Common Bus Inverter
DC Power Busbars	—	(s) frames 8…10; 3000 A DC (s) frames 11…12; 4700 A DC (o) frames 8…10; 4700 A DC, specify power option code (-P46)
Control Power busbars	—	(s) Primary control 240V AC, 1 PH, 100 A (s) Auxiliary 24V DC, 100 A (s) User 120/240V AC, 1 PH, 100 A

The DC power busbars and control busbars within the IP21/IP54 enclosed PowerFlex 755TM common bus inverters are not mechanically or electrically compatible with the busbars in any PowerFlex 700S enclosures. A transition enclosure may be required if the new PowerFlex 755TM common bus inverters must interface electrically and mechanically with existing common bus converter/inverter power and control busbars. Contact an Authorized Rockwell Automation Distributor specialist, Solution Partner, Recognized System Integrator or Rockwell Automation account manager to discuss engineered solutions for these PowerFlex 700S migrations.

> **IMPORTANT**   When a PowerFlex 755TM common bus inverter and PowerFlex 755TM bus supply are used together, the DC bus bar ratings must match. PowerFlex 755TM 3000 A and 4700 A busbars are not compatible with each other. If any 4700 A busbars are used, then all frame 8…10 drives and bus supplies must have the 4700 A DC bus option (-P46) installed. See publication DRIVES-AT005, for detailed information regarding PowerFlex 755TM DC busbar compatibility.

AC Input Drive Power Source Considerations

PowerFlex 700S frame 9…14 AC input drives include a standard iron core AC input line reactor and are typically powered from an isolation transformer with a solid ground X0 connection. This is the recommended power source and grounding method. See the existing PowerFlex 700S AC input power source wiring diagrams to confirm the following power source electrical information:

- kVA
- primary voltage
- secondary voltage
- % impedance
- secondary winding configuration
- grounding method, solid ground X0, resistance grounded, ungrounded
- other electrical equipment powered from the secondary of the transformer

All PowerFlex 755TL/TR drives have an active front end converter with LCL filter. To ensure the PowerFlex 755TL/TR drives will operate reliably with the existing power source consider the following recommendations around power source sizing, grounding, and shared AC loads.

Power Source Sizing

PowerFlex 755TL/TR drives are suitable for use on a power source having a short circuit current rating of 100,000 Arms symmetrical amperes at 400/480/600V and 65,000A rms symmetrical amperes at 690V. The actual short circuit rating may be further limited by an interrupting capacity rating of user-supplied branch circuit fuses and circuit breaker.

The PowerFlex 755TL/TR drives must not be used on undersized or high-impedance supply systems. The supply system kVA must be equal to or greater than the drive kW, and the system impedance must be less than 10%. Operation outside these limits can cause instability resulting in PowerFlex 755TL/TR drive shutdown.

$$\text{System Impedance} = \left(\frac{\text{PowerFlex 755TL/TR kVA}}{\text{Transformer kVA}} \right) \times \text{Transformer \% Impedance}$$

You must take into account the kVA of all PowerFlex 755TL/TR drives on the distribution system and the system impedance of upstream transformers. See publication [DRIVES-IN001](#) for more information.

Other Loads Powered from the AC Power Source

Full-wave, three-phase, 6-pulse rectifiers are used by most standard AC drives that are powered from AC power sources. If 6-pulse rectifiers share the AC input source with PowerFlex 755TL/TR drives, follow these recommendations.

- Apply an appropriately-sized isolation transformer to the AC input side of the PowerFlex 755TL/TR to help isolate any unwanted harmonics that are commonly associated with 6-pulse loads.
- If an isolation transformer cannot be used, consider the following recommendations:
  - If the 6-pulse rectifiers are equipped with 3% AC line reactors, the combined 6-pulse rectifier load cannot exceed 150% of the PowerFlex 755TL/TR drive rating.
  - If the 6-pulse rectifiers are equipped with integral DC link chokes, the combined 6-pulse rectifier load cannot exceed 40% of the PowerFlex 755TL/TR drive rating.

If the PowerFlex 755TL/TR product is connected to an AC source with additional drives or devices that are equipped with active front end converters sharing that same AC input line source, it is recommended to install an appropriately sized isolation transformer between the power source and the AC input of each PowerFlex 755TL/TR drive.

Power Source Grounding

The PowerFlex 755TL/TR drive safety ground (PE terminal) must be connected to the power system ground. Ground impedance must conform to the requirements of national and local industrial safety regulations and/or electrical codes. Check the integrity of all ground connections periodically.

PowerFlex 700S AC input drives could be used with various grounding methods. PowerFlex 755TL/TR drives can be used with similar grounding methods. There are special considerations depending on the power source grounding method. A single point (PE only) grounding scheme should be used. Some applications may require alternate grounding schemes. These applications include installations with long distances between drives or drive line-ups, which could cause large potential differences between the drive or line-up grounds. See Wiring and Grounding Guidelines for Pulse-width Modulated (PWM) AC Drives, publication DRIVES-IN001, for more information.

Use Table 3 as a guide to required power conditioning options for the PowerFlex 755TL/TR drives. This table only refers to power conditioning as it applies to AC power source grounding.

Table 3 - AC Power Source Grounding Comparison

| Power Source Grounding Method	PowerFlex 755 TL/TR Drive Considerations
Wye secondary, X0 solid ground	• DC Bus Conditioner not required. • Power Filter Jumpers; PE-A/PE-A1/PE-A2, and PE-B1 jumpers installed per publication 750-IN100.
Wye secondary, X0 resistance grounded with ground fault indicator	• Specify power option code (–P50) DC Bus Conditioner. The drive is factory-shipped with the DC Bus Conditioner(s) installed within the drive enclosure. • Power filter jumpers; PE-A/PE-A1/PE-A2, and PE-B1 jumpers must be set per publication 750-IN100.
Delta secondary, ungrounded with artificial ground (zig-zag) transformer and ground fault indicator	• Specify power option code (–P50) DC Bus Conditioner. The drive is factory-shipped with the DC Bus Conditioner(s) installed within the drive enclosure. • Power filter jumpers; PE-A/PE-A1/PE-A2, and PE-B1 jumpers must be set per publication 750-IN100.

If you are using DC input common bus inverters, the power conditioning requirements for the various grounding methods depend on the bus supply converter being used. If you are using a PowerFlex 700AFE bus supply, see Drives in Common Bus Configurations application technique, publication DRIVES-AT002. If you are using a PowerFlex 755TM bus supply, refer to Drives in Common Bus Configuration with PowerFlex 755TM Bus Supplies application technique, publication DRIVES-AT005.

Recommended Grounding Scheme

For installations where the drive is within an enclosure, use a safety ground point or ground busbar to connect directly to building steel. All circuits including the AC input ground conductor must be grounded independently and directly to this point or ground busbar. Rockwell Automation recommends a wye secondary isolation transformer with a solid grounded X0 connection (Figure 1).

IMPORTANT	You must install jumper conductors or splices between the PE bus bar terminals of adjacent enclosures.

Figure 1 - Recommended Grounding Method
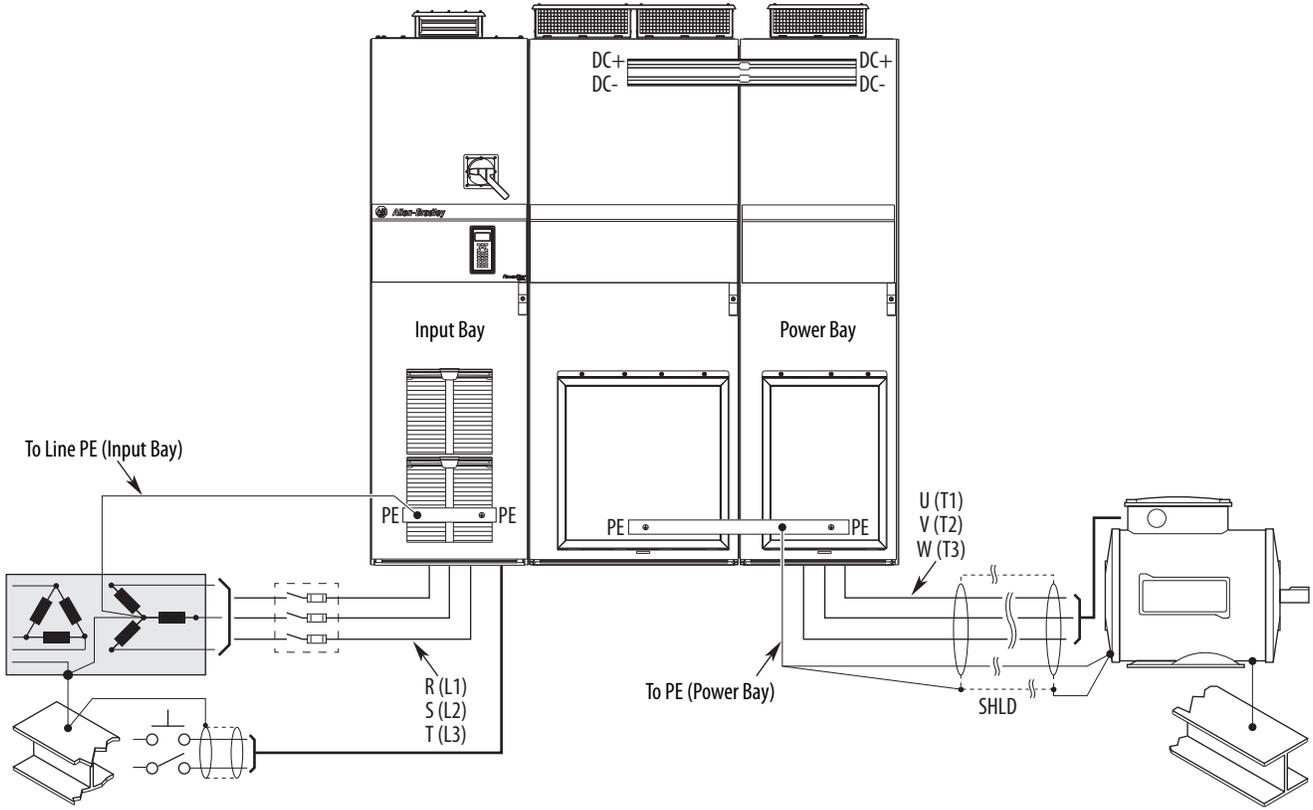
EMI Filters

The PowerFlex 755TL/TR drive standard EMI filtering is obtained by selecting catalog code (-L) or (-M) in catalog position 'g'. Additional EMI filtering can be supplied by specifying catalog code (-J) or (-K) in catalog position 'g'. The (-J) and (-K) option codes add ferrite cores to AC lines after the precharge circuits.

If option code (-J) or (-K) EMI filtering is required for EMC compliance, then CM jumper PE-B1 may need to be connected (IN). See Power Filter Jumpers on page 26 and the PowerFlex 750-Series Products with TotalFORCE Control installation instructions, publication 750-IN100, for more information about power filter jumper settings.

Power Filter Jumpers

The power filter jumper configuration of the new PowerFlex 755TL/TR, PowerFlex 755TM common bus inverters is an important part of your migration.

See PowerFlex 750-Series Products with TotalFORCE Control installation instructions, publication 750-IN100 for detailed information about the use and location of the power filter jumpers.

Figure 2 - PowerFlex 755T Power Jumpers

- PE-A, MOV on the AC precharge circuit board
- PE-A1, MOV on the TVSS module
- PE-A2, Common Mode Capacitors on the AC Common Mode Filter circuit board
- PE-B1, Common Mode Capacitors on the Line Side Power Interface circuit boards
- PE-A, PE-A1, PE-A2 not used with PowerFlex 755TM common bus inverters
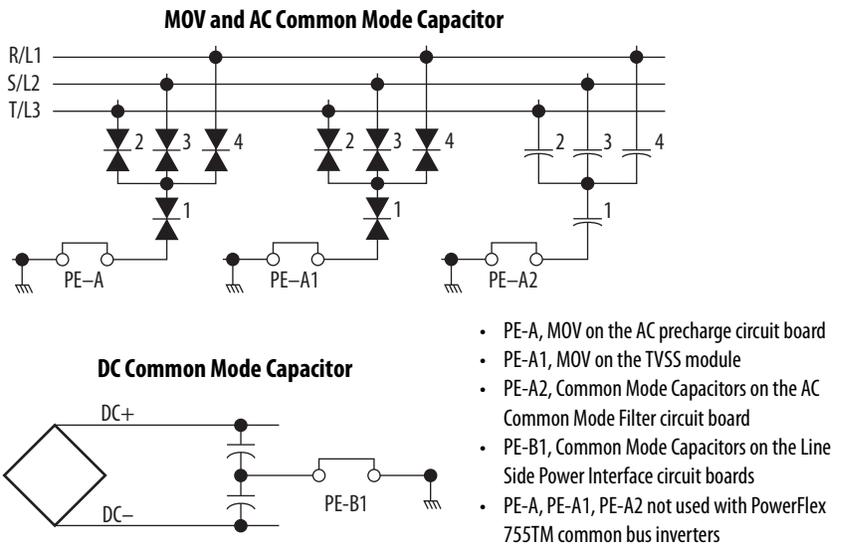
IMPORTANT	Unless equipped with power option code -P51 (Marine Bus Conditioner), the default factory settings for the power filter jumpers is; PE-A, PE-A1, PE-A2 jumpers in the connected (IN) position and the PE-B1 jumper in the disconnected (OUT) position. If necessary, reconfigure the power filter jumpers as required by the power source grounding method and EMC requirements. When the -P51 option is selected, the factory jumper settings change.

IMPORTANT	There could be multiple PE-A2 jumpers depending on the frame size of the PowerFlex 755TL/TR drive. Each LCL Filter roll-in assembly has a separate PE-A2 jumper. All PE-A2 jumpers MUST be in the same position.

IMPORTANT	There could be multiple PE-B1 jumpers depending on the frame size of the PowerFlex 755TL/TR drive or PowerFlex 755TM common bus inverter. Each IGBT power supply roll-in assembly has a separate PE-B1 jumper. All PE-B1 jumpers MUST be in the same position.

IMPORTANT	If additional EMI filtering is specified by catalog code (-J) or (-K) in position 'g' of the catalog number and EMI filtering is required for EMC compliance, then CM jumper PE-B1 may need to be connected (IN). It is important to consider the EMC requirements and grounding configuration of the power source. Certain power source grounding configurations may require removal of the PE-B1 power jumpers. Please contact an Authorized Rockwell Automation Distributor specialist, Solution Partner, Recognized System Integrator or Rockwell Automation account manager to discuss EMC, grounding and power jumper settings if your system does not match Rockwell Automation recommendations.

The general recommendation is that all connected DC input common bus inverters have their respective DC common mode (PE-B1) jumpers in the disconnected (OUT) position when powered by a PowerFlex 755TM bus supply. See the applicable sections of publication DRIVES-AT005.

Circuit Protection

Branch circuit protection must be provided in accordance with all applicable electrical codes (CEC/CSA/NEC) and any additional or equivalent local electrical installation codes.

User-supplied protective device (fuse and circuit breaker) sizing may be different between equivalent PowerFlex 700S and PowerFlex 755TL/TR drives or PowerFlex 755TM common bus inverters. Verify that the existing protective devices are suitable for use with the selected PowerFlex 755 products. It may be necessary to change the types and ratings of the existing user-supplied protective devices with the new 755T products.

See the manuals for the PowerFlex 700S and PowerFlex 755T products, publications 20D-TD002 and 750-TD100 respectively. Fuse and Circuit Breaker Ratings selection tables to compare requirements for external protective devices.

Example #1: External AC Input Branch Circuit Protection Device Compatibility Check

The following screen captures show the external circuit protection fuses that are required for a PowerFlex 700S AC input frame 10, normal euty, 480V AC, 460 A, IP21 Rittal, catalog code 'D460' and the equivalent PowerFlex 755TL/TR frame 8, normal duty, 480V AC, 505 A, catalog current code 'F/G...D505'.

The PowerFlex 700S drive did not have factory-installed DC input fusing and should have had either 600...1000 A time delay or 600...1300 A non-time delay user-supplied branch circuit fuses.

The PowerFlex 755TL/TR drives have integral 900 A high speed semiconductor fuses and may not require external branch circuit protection devices. If external branch circuit fuses are reused or required, the recommended fuse rating per the table should be 650...800 A time delay or 650...1500 A non-time delay fuses.

The existing external branch circuit protection fuses can be reused.

IMPORTANT	Figure 3 and Figure 4 are for illustrative purposes only. Do not use these for fuse selection.

Figure 3 - PowerFlex 700S, IP21 Rittal Frame 10, 460 A, Normal Duty, Catalog Code 'D460', Required External AC Input Fuses

480 Volt AC Input Frames 9…13 Drive Protection Devices

Drive Catalog Number	Frame	HP Rating		Input Ratings	Dual Element Time Delay Fuse		Non-Time Delay Fuse		Bussmann Style Semi-Conductor Fuse	Circuit Breaker[4]	Motor Circuit Protector[6]
		ND	HD	Amps	Min. [1]	Max. [3]	Min. [1]	Max. [3]		Max. [5]	Max. [5]
20DD261	9	200	-	252	350	550	350	700	170M5813	700	400
		-	150	207	275	450	275	600	170M5813	600	300
20DD300	9	250	-	290	400	650	400	900	170M5813	900	400
		-	200	247	350	550	350	700	170M5813	700	400
20DD385	10	300	-	372	500	850	500	1100	170M5813	1100	600
		-	250	302	400	650	400	900	170M5813	900	400
20DD460	10	350	-	444	600	1000	600	1300	170M8547	1300	600
		-	300	388	500	850	500	1100	170M8547	1100	600

Figure 4 - PowerFlex 755TR/TL Drive, Frame 8, 505 A, Normal Duty, Catalog Code 'F/G…D505', Integral and Recommended External AC Input Fuses

Applied Rating [1]	Frame	Cont. Output Amps	Duty	Catalog Number	Output Overload Amps		Continuous AC Input	AC Input Integral Semiconductor Fuse Size (170M Type) [2]			AC Input Protection Devices						Motor Circuit Protector [6]
											Dual Element Time Delay Fuse		Non-Time Delay Fuse		Circuit Breaker [5]		
Hp				(x = G or J)	1 min	3 s	Amps	2xLCLA mps	2xLCLA mps	1xLCLA mps	1/Phase Min [3]	Max [4]	1/Phase Min [3]	Max [4]	Min	Max	
300	8	361	Light	20x…D302	397	–	332	–	–	900	500	650	500	1000	500	900	500
250		302	Normal		332	453	278	–	–	900	400	500	400	900	400	750	400
200		248	Heavy		372	446	228	–	–	900	350	400	350	750	350	600	350
350	8	430	Light	20x…D361	473	–	396	–	–	900	600	750	600	1200	600	1000	600
300		361	Normal		397	542	332	–	–	900	500	650	500	1000	500	900	500
250		302	Heavy		453	544	278	–	–	900	400	500	400	900	400	750	400
400	8	485	Light	20x…D430	534	–	446	–	–	900	650	800	650	1500	650	1200	650
350		430	Normal		473	645	396	–	–	900	600	750	600	1200	600	1000	600
300		361	Heavy		542	650	332	–	–	900	500	650	500	1000	500	900	500
450	8	545	Light	20x…D505	600	–	501	–	–	900	700	900	700	1600	700	1350	700
400		505	Normal		556	758	465	–	–	900	650	800	650	1500	650	1200	650
350		430	Heavy		645	774	396	–	–	900	600	750	600	1200	600	1000	600

Example #2: External DC Input Branch Circuit Protection Device Compatibility Check

The following screen captures show the external circuit protection fuses required for a PowerFlex 700S DC input Frame 10, Normal Duty, 650V DC, 460 A, IP21 Rittal, catalog code 'J460' and the equivalent PowerFlex 755TM common bus inverter, frame 8, normal duty, 650V DC, 505 A, catalog current code 'D/E…D505'.

The PowerFlex 700S drive did not have factory-installed DC input fusing and should have had 900 A, non-time delay (Bussman) user-supplied branch circuit fuses.

The PowerFlex 755TM common bus inverters have integral 1400 A high speed semiconductor fuses and may not require external branch circuit protection devices. If external branch circuit fuses are required or reused, the continuous DC input current is 558A DC so the recommended fuse rating should be 700…1400 A, non-time delay fuses.

The existing external branch circuit protection fuses can be reused.

Figure 5 - PowerFlex 700S, IP21 Rittal Frame 10, 460 A, Normal Duty, Catalog Code 'J460', Required External DC Input Fuses

650 Volt DC Input Frames 9…13 Drive Protection Devices

Drive Catalog Number	Frame	HP Rating		DC Input Ratings	Fuse	Bussmann Style Fuse
		ND	HD	Amps		
20DJ261	9	200	-	294	500	170M6608
		-	150	231	500	170M6608
20DJ300	9	250	-	338	630	170M6610
		-	200	294	630	170M6610
20DJ385	10	300	-	434	700	170M6611
		-	250	338	700	170M6611
20DJ460	10	350	-	519	900	170M6613
		-	300	434	900	170M6613
20DJ500	10	450	-	564	500 (2 per phs)	170M6608
		-	350	474	500 (2 per phs)	170M6608

Figure 6 - PowerFlex 755TM Common Bus Inverter, Frame 8, 505 A, Normal Duty, Catalog Code 'D/E…D505', Integral DC Input Fuses

Applied Rating [1]	Frame	Cont. Output Amps	Duty	Catalog Number	Output Overload Amps		Continuous AC Input	AC Input Integral Semiconductor Fuse Size (170M Type) [2]			AC Input Protection Devices							Input Quantities Continuous DC Input	DC Input Integral Semiconductor Fuse Kit [7]	
											Dual Element Time Delay Fuse		Non-Time Delay Fuse		Circuit Breaker [5]		Motor Circuit Protector [6]			
Hp				(x = G or J)	1 min	3 sec	Amps	2xLCLA mps	2xLCLA mps	1xLCLA mps	1/Phase Min [3]	Max [4]	1/Phase Min [3]	Max [4]	Min	Max		Amps	Amps	Qty.
300	8	361	Light	20x…D302	397	–	332	–	–	900	500	650	500	1000	500	900	500	399	1400	2
250		302	Normal		332	453	278	–	–	900	400	500	400	900	400	750	400	333	1400	2
200		248	Heavy		372	446	228	–	–	900	350	400	350	750	350	600	350	274	1400	2
350	8	430	Light	20x…D361	473	–	396	–	–	900	600	750	600	1200	600	1000	600	475	1400	2
300		361	Normal		397	542	332	–	–	900	500	650	500	1000	500	900	500	399	1400	2
250		302	Heavy		453	544	278	–	–	900	400	500	400	900	400	750	400	333	1400	2
400	8	485	Light	20x…D430	534	–	446	–	–	900	650	800	650	1500	650	1200	650	535	1400	2
350		430	Normal		473	645	396	–	–	900	600	750	600	1000	600	1000	600	475	1400	2
300		361	Heavy		542	650	332	–	–	900	500	650	500	1000	500	900	500	399	1400	2
450	8	545	Light	20x…D505	600	–	501	–	–	900	700	900	700	1600	700	1350	700	602	1400	2
400		505	Normal		556	750	465	–	–	900	650	800	650	1500	650	1200	650	558	1400	2
350		430	Heavy		645	774	396	–	–	900	600	750	600	1200	600	1000	600	475	1400	2

Power Cables

The PowerFlex 700S IP20/IP21/IP54 enclosed drives used various AC and DC power connection methods. If you intend to reuse any of the existing AC power cables, review the installation and verify that the cables, lugs, and other cable ratings meet the requirements of the new PowerFlex 755TL/TR drives or PowerFlex 755TM common bus inverters.

PowerFlex 755TL/TR drives and PowerFlex 755TM common bus inverters with IP21/IP54 enclosures are connected to the required AC or DC power source with two hole UL Listed crimp barrel lugs that are bolted to the internal power busbars or bus stubs.

Recommended cable description;

- Three tinned copper conductors with XLPE insulation and three bare copper ground conductors.
- Minimum insulation rating 600V, 75 °C (167 °F)
- Maximum 500 MCM copper conductors, multiple parallel conductors may be required per phase.
- Shielded cable with continuous aluminum armor, copper braid/aluminum foil combination shield, and tinned copper drain wire, three drain wires per cable assembly, although not necessary, is recommended and may be required to meet some EMC standards for CE, C-Tick, or FCC.
- Armored cable with PVC jacket.

ATTENTION: National Codes and standards (NEC, VDE, CSA, BSI, and so forth) and local codes outline provisions for safely installing electrical equipment. Installation must comply with specifications regarding wire types, conductor sizes, branch circuit protection, and disconnect devices. Failure to do so may result in personal injury and/or equipment damage.

> **IMPORTANT** Refer to Wiring and Grounding Guidelines for Pulse-width Modulated (PWM) AC Drives, publication <u>DRIVES-IN001</u>, for detailed installation planning guidelines.

Other Power Circuit Considerations

If your application requires the use of AC input contactors, motor output contactors, bypass contactors, or other power circuit devices, refer to the appropriate sections of the PowerFlex 750-Series Products with TotalFORCE Control installation manual, publication <u>750-IN100</u>. It is important to ensure that interrupting the AC input and/or motor output circuits of the PowerFlex 755T product is handled correctly to prevent malfunctions, damage, and operational issues with the equipment.

Control Power

The PowerFlex 700S IP20/IP21/IP54 enclosed AC and DC input do not have a factory supplied source of 120V AC or 240V AC control power. If 120V AC or 240V AC control power was required for user installed electrical equipment an external protected 120V AC or 240V AC power supply was required. The PowerFlex 700S IP20/IP21/IP54 enclosed drives do not support control power distribution busbars.

PowerFlex 755T products include standard control busbars for primary control 240V AC 1 phase 50/60 Hz, auxiliary 24V DC busbars and User 120/240V AC. Note the following regarding control power requirements:

- Primary 240V AC control power is required.
  - PowerFlex 755TL/TR IP21/IP54 enclosed drives include standard 240V AC, 1 PH, 50/60 Hz control circuit transformer(s).
  - PowerFlex 755TM common bus inverters IP21/IP54 require an external user-supplied and protected 240V AC, 1 PH, 50/60 Hz power supply. See <u>Table 5 on page 33</u>. The PowerFlex 755TM common bus inverter cannot be supplied with an optional internal control transformer.
- 24V DC auxiliary control power is not required for basic operation of the PowerFlex 755T products. The 24V DC auxiliary control power is used to maintain logic and communication power if the 240V AC primary control power is shut down. If 24V DC auxiliary power is used, a properly sized external 24V DC power supply must be provided by the user to energize the Auxiliary 24V DC busbars. Auxiliary 24V DC power supply requirements must be calculated by the user. See <u>Specification and Features Comparison on page 35</u> for PowerFlex 755T auxiliary 24V DC power supply requirements.
- User 120/240V AC control power is not required for operation of the PowerFlex 755T products. The User 120/240V AC busbars are not used by the PowerFlex 755T products and if energized by a user-supplied power supply is available for user-installed control devices.

Connections are made to the control busbars using a 20-750-CTRLBUS-CONN1 control bus connector. Taps from the control bus connector are rated for 10 A.

External 240V AC control power requirements greater than 10 A total can be made using the Control Bus Connector, 0-750-MCTRLBUS-CONN2. This connector is rated for 100 A to match the control bus rating.

> ⚠️ **ATTENTION:** If an internal control transformer is installed, DO NOT connect external 240V AC control power. Severe damage to the PowerFlex 755T and external power supplies could occur.

> **IMPORTANT**   The PowerFlex 755T product control busbars and splice kits are not compatible with other enclosure busbar systems that may have been used with PowerFlex 700S drives. If it is necessary to connect to existing control busbars, the migration solution designer is responsible for the proper design and installation of any busbar transition equipment required.

Figure 7 - PowerFlex 755T Control Bus Configuration (Shown with External 240V AC Control Power Connector)
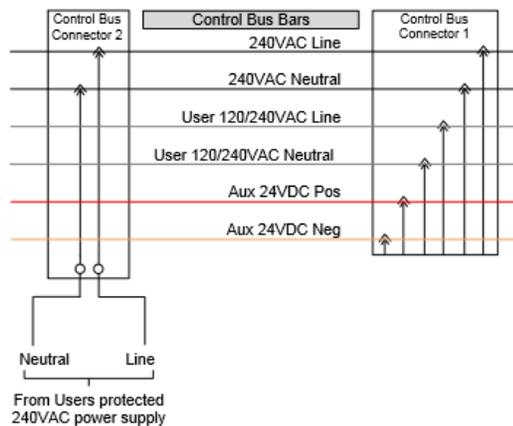
Table 4 - Standard and Optional Control Power Comparison

Description	PowerFlex 700S	PowerFlex 755TL/TR and PowerFlex 755TM Common Bus Inverter
240V AC Primary Control Power	—	(s) Primary 240V AC, 1 PH, control busbars, 100 A. (s) PowerFlex 755TL/TR (input type catalog code F and G) internal 240V AC 1phase 50/60Hz control transformer(s). (s) PowerFlex 755TM common bus inverter (input type catalog code D and E), require user-supplied 240V AC 1 phase 50/60 Hz control power. See Table 5 for 240V AC power requirements. • The PowerFlex 755T packaged product uses the primary 240V AC control busbars to supply 240V AC, 1 PH, control power to various circuits. Primary control power is required. • PowerFlex 755TM common bus inverter (DC input type catalog code D and E) cannot be specified with the optional control transformer.
24V DC Auxiliary Control Power	—	(s) Auxiliary 24V DC busbars, 100 A. • User-supplied 24V DC control power. See Specifications and Features table in this document for PowerFlex 755T 24V DC power requirements. • The PowerFlex 755T packaged product uses these busbars to supply 24V DC auxiliary power to various circuits if the 240V AC primary control power is shut off.
120/240V AC User Control Power	—	(s) User 120/240V AC control busbars, 100 A. • User-supplied 120V AC or 240V AC, 1 PH, control power. • The User 120/240V AC control power and busbars are not used by PowerFlex 755T product.

Table 5 - PowerFlex 755TM Common Bus Inverter 240V AC Control Power Requirements

Common Bus Inverter DC Input Frame	Required With DC Precharge (Input Type Code D) (Arms)		Required Without DC Precharge (Input Type Code E) (Arms)		Required for Optional Wiring Bays (Arms)	
	IP21 Enclosure	IP54 Enclosure	IP21 Enclosure	IP54 Enclosure	Entry (Power Opt Code –P16)	Exit (Power Opt Code –P15)
8	5.5	7.5	3.5	5.5	—	0.39
9	10.3	12.4	6.3	8.4	—	0.39
10	15.2	19.2	9.2	13.2	—	0.39
11	20.0	24.1	12.0	16.1	—	0.39
12	24.9	30.9	14.9	20.9	—	0.39

Note the following regarding PowerFlex 755TM common bus inverter user-supplied 240V AC primary control power:

- External user-supplied 240V AC primary control power source must be 240V AC, 50/60 Hz, 1 PH, and must have the neutral conductor grounded.

- User-supplied branch circuit protection is required to protect the 240V AC control circuit connectors and busbars.

- If the total 240V AC control power current exceeds 100 A, you must split the control bus and apply separate 240V AC control power to groups of drives.

- Calculate the required external control 240V AC control circuit current from the loading data that is shown in Table 5 on page 33.
  a. Add the current required for applicable Entry and Exit wiring bays.
  b. When selecting an external control transformer power or VA rating, multiply the total current requirement by 240V AC. Multiply this value by 1.25 to ensure the transformer can supply inrush currents.

EXAMPLE   Quantity 2 x frame 10 PowerFlex 755TM common bus inverters with precharge, IP54 enclosure with optional entry wiring bay.
– External 240V AC control current required =
  (19.2 + 0.39) x 2 = 39.2 A
– Is the total 240V AC control bus current less than 100 A? Yes.
– Calculate the VA rating of the external transformer =
  39.2 A x 240V x 1.25 = 11,760VA
A standard-size control transformer rated 12…15 kVA is an acceptable solution for this example.

Inverter Output Filtering

The PowerFlex 700S drive did not offer factory-installed inverter output filters. If filters were used, they were supplied separately or as part of an engineered system. Typically, output reactors, dv/dt, Reflective Wave Reduction (RWR), or possibly sine-wave filters were used if inverter output filtering was required to reduce reflected wave voltage at the motor terminals.

The PowerFlex 755TL/TR drive or PowerFlex TM common bus inverter can be supplied with an optional factory-installed RWR filter. The filter consists of a low-impedance iron core reactor with damping resistors. Inverter output filtering is specified by catalog code (-K) or (-M) in position 'g' of the catalog number.

It is possible to use the existing inverter output filter, however, it may be necessary to operate the drive in a certain mode or adjust certain parameters to verify the drive is tuned correctly and operates with a suitable motor control method. This is typically required if dv/dt or sine-wave filters are used. Contact an Authorized Rockwell Automation Distributor specialist, Solution Partner, Recognized System Integrator or Rockwell Automation account manager to discuss these types of inverter output filters.

Specification and Features Comparison

Table 6 - Input Power and Features

Description	PowerFlex 700S, F9…F14		PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, F8…F12	
	Cat. No. 20D…		Cat. No. 20G…	
	AC Input	**DC Input**	**755TL/TR**	**755TM CBI**
Voltage Class, nominal input voltage	400/480V AC 600/690V AC	540/648V DC 810/931V DC	400V AC 480V AC 600V AC 690V AC	540V DC 650V DC 810V DC 932V DC
Input Phases	3 PH only	—	3 PH only	—
Converter Type	6-pulse	—	active front end	—
Voltage Tolerance for drive full output power	See Voltage Tolerance derating information in publication 20D-TD002	+/- 10% of nominal	Refer to Voltage Tolerance derating information in publication 750-TD100	+/- 10% of nominal
Input Frequency Range	47…63 Hz	—	47…63 Hz	—
Displacement Power Factor	0.98	—	0.98 default, adjustable	—
Power Factor Control	—		(s)	—
Efficiency at rated amps, nominal AC line voltage	97.5%		97.0%	97.0%
Maximum Short Circuit Current Capacity (SCCR) (Actual short circuit current rating may be further limited by interrupting capacity rating of customer supplied branch circuit protection devices)	Depends on interrupting capacity of external branch circuit protective device		100 kA, 400…600V AC 65 kA, 690V AC	
Input Harmonic Filter	(s) 3…5% AC Line Reactor	—	(s) active front end with LCL filter	—
Transient Protection	Power, up to 6000Vpk per IEEE C62.41-1991 Control Circuit, showering arc transients up to 1500Vpk		Up to 2000 volts line-to-line and 4000 volts line-to-ground per IEC 61800-3 Control Circuit, meets EMC standards	
Input disconnect	Input disconnect and circuit protection devices were not included in the basic enclosed drive package.		(s) Motor Operated Circuit Breaker with shunt trip, high-speed fuses	
DC Bus precharger	(s) Controlled rectifier and resistors	Precharge circuits not included	(s) AC Contactor and resistors	(s) Contactor and resistors, Input Type catalog code (D) (s) Precharge circuits not included, Input Type catalog code (E)

Table 6 - Input Power and Features (Continued)

Description	PowerFlex 700S, F9…F14		PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, F8…F12	
	Cat. No. 20D…		Cat. No. 20G…	
	AC Input	DC Input	755TL/TR	755TM CBI
DC Bus Conditioner or Filter	—	(o) May be required, refer to publication DRIVES-AT002. Installed external to the active front end enclosure.	(s) Installed within the drive enclosure. (o) Additional units may be required depending on system grounding method. Specify power option code (-P50) for resistance or ungrounded power systems. Optional units are factory installed within drive enclosure.	May be required, refer to publication DRIVES-AT005. Installed within the PowerFlex 755TM bus supply enclosure.
Harmonic Compliance	—	—	IEEE 519	—
Control Power	(s) user-supplied control circuit power		(s) Internal 240V AC, 1 PH, 50/60 Hz control transformer	(s) user-supplied 240V AC, 1 PH, 50/60 Hz, neutral grounded, +/-10% of nominal. See Table 5.
Auxiliary 24V DC Control Power	(o) Requires Auxiliary Power Supply option board (20-24V-AUX1)		(o) user-supplied 24V DC +/-5% of nominal; Frame 8, 213 W Frame 9, 276 W Frame 10, 339 W Frame 11, 402 W Frame 12, 465 W (o) Torque Accuracy Module (TAM); All frames, add 5 W	(o) user-supplied 24V DC +/-5% of nominal; Frame 8, 157 W Frame 9, 188 W Frame 10, 220 W Frame 11, 251 W Frame 12, 283 W (o) Torque Accuracy Module (TAM); All frames, add 5 W

Table 7 - Output Power and Features

Description	PowerFlex 700S, F9…F14	PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, F8…F12
	Cat. No. 20D…	Cat. No. 20G…
400V AC Class, Normal Duty Output Ratings	IP21/IP54 Rittal: • 261…1450 A, ND • 132…800 kW, ND IP20 MCC; • 385…1030 A, ND • 200…560 kW, ND	755TL drive: • 302…2156 A, ND • 160…1250 kW, ND 755TR drive, 755TM CBI: • 302…3542 A, ND • 160…2000 kW, ND
480V AC Class, Normal Duty Output Ratings	IP21/IP54 Rittal; • 261…1450 A, ND • 200…1250 Hp, ND IP20 MCC; • 385…1030 A, ND • 300…900 Hp, ND	755TL drive: • 302…2072 ADC, ND • 250…1800 Hp, ND 755TR drive, 755TM CBI: • 302…3404 A, ND • 250…3000 Hp, ND
600V AC Class, Normal Duty Output Ratings	IP21/IP54 Rittal: 170…1500 A, ND 150…1600 Hp, ND IP20 MCC: 261…820 A, ND 250…900 Hp, ND	755TL drive: • 242…1430 A, ND • 250…1500 Hp, ND 755TR drive, 755TM CBI: • 242…2420 A, ND • 250…2500 Hp, ND
690V AC Class, Normal Duty Output Ratings	IP21/IP54 Rittal: 170…1500 A, ND 160…1500 kW, ND IP20 MCC: 261…820 A, ND 186…671 kW, ND	755TL drive: • 215…1419 A, ND • 200…1400 kW, ND 755TR drive, 755TM CBI: • 215…2318 A, ND • 200…2300 kW, ND
Nominal DC Bus Voltage	400V Class; 594V DC 480V Class; 712V DC 600V Class; 890V DC 690V Class; 1025V DC	400V Class; 580V DC 480V Class; 696V DC 600V Class; 870V DC 690V Class; 1000V DC
Output Control Method	Sine-coded PWM	Sine-coded PWM
PWM Carrier Frequency	Rated output; 2 kHz Adjustable; 4, 6, 8, 10 kHz, derating may apply, see publication 20D-TD002	Rated output; 1.33 kHz Adjustable; 2, 4 kHz, derating may apply, see publication 750-TD100
Output Voltage Range	0 to rated motor voltage	0 to rated motor voltage
Output Fundamental Frequency Range	0…400 Hz, derating may be required over 320 Hz	0…325 Hz with 1.33 kHz and 2 kHz carrier 0…590 Hz with 4 kHz carrier
Current Limit Capability	0…800% of rated input current	20…160% of rated input current
60 s Overload	ND = 110% HD = 150%	LD = 110% ND = 110% HD = 150%
3 s Overload	ND = 150% HD = 180%	LD = —— ND = 150% HD = 180%

Table 7 - Output Power and Features (Continued)

Description	PowerFlex 700S, F9…F14	PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, F8…F12
	Cat. No. 20D…	Cat. No. 20G…
Applicable Motor Types	Induction (IM) Surface Permanent Magnet (SPM)	Induction (IM) Permanent Magnet (future firmware releases)
Electronic Motor Overload	Class 10 motor overload protection according to NEC article 430 and motor over-temperature protection according to NEC article 430.126 (A)(2). UL 508C File E59272.	Class 10 motor overload protection according to NEC article 430 and motor over-temperature protection according to NEC article 430.126 (A)(2). UL61800-5-1 File E59272.
Reflected Wave Protection	Not applicable, external device	(o) factory-installed RWR type filter, specify Filtering option code (-K) or (-M)

Table 8 - Control Specifications and Features

Description	PowerFlex 700S, F9…F14	PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, F8…F12
	Cat. No. 20D…	Cat. No. 20G…
Selectable Motor Control	V/Hz Induction Motor, Field Oriented Control (with and without encoder feedback) Permanent Magnet Motor, with absolute encoder feedback	• Induction Motor, V/Hz • Induction Motor, Sensorless Vector • Induction Motor, Economizer control • Induction Motor, Flux Vector control (with and without encoder feedback)
V/Hz Speed Control	—	—
Sensorless Vector Speed Control	—	—
Flux Vector / FOC Speed Control	Speed regulation - without feedback • Not applicable Speed regulation - with feedback • 458 rad/s (73 Hz) bandwidth (motor only)	Consult Rockwell Automation. Speed regulation - without feedback • Not applicable Speed regulation - with feedback • 452 rad/sec (72 Hz) bandwidth (motor only, without Torque Accuracy Module (TAM)) • See publication 750-TD100 for complete regulator performance data.
Flux Vector / FOC Torque Control	Torque Regulation – without feedback • ±10%, 600 rad/s bandwidth Torque Regulation - with feedback • ±5%, 2500 rad/s bandwidth	Torque Regulation - without feedback and without Torque Accuracy Module (TAM) • Not applicable Torque Regulation - with feedback and optional Torque Accuracy Module (TAM); • ±2%

Table 8 - Control Specifications and Features (Continued)

Description	PowerFlex 700S, F9…F14	PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, F8…F12
	Cat. No. 20D…	Cat. No. 20G…
Feedback Devices	(s) Single Incremental Encoder, max input frequency 500 kHz (o) Second Incremental Encoder, max input frequency 500 kHz (o) Stegmann absolute encoder (o) Resolver	(o) Single or Dual Incremental Encoder, max input frequency 250 kHz (o) Universal Feedback, Stegmann, Heidenhain, SSI, Biss, Incremental (o) Resolver (third-party AMCI RD750)
Safety Devices	(o) Hardwire Safe Torque Off (STO)	(o) Hardwire, Safe Torque Off (STO) (o) Integrated CIP Safety, Safe Torque Off (STO) (o) Hardwire Safe Speed Monitor (SSM)
Torque/Brake Proving	—	(s)
Shear Pin	(s)	(s)
SynchLink™	(s)	—
Load Observer	—	(s)
Inertia Adaption	(s)	(s) Acceleration Feedback, part of Load Observer
PID Loop	(s)	(s)
Position Loop	(s)	(s)
Phase Lock Loop (PLL)	(s)	(s)
Integrated Motion	—	Not available at initial product release
Drive Application Software	(s) DriveLogix™	Not available at initial product release

Table 9 - Enclosure Features

Description	PowerFlex 700S, F9…F14	PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, F8…F12
	Cat. No. 20D…	Cat. No. 20G…
IP00, Open Chassis	Yes, refer to Installation Manual, publication PFLEX-IN020	Yes, refer to Technical Data, publication 750-TD101 and Installation Manual, publication 750-IN101
IP20, NEMA/UL Type 1 Approximate dimensions exclude fan housings, handles, and so on. Dimensions (H x D), Approx. (width varies).	2100 MCC 2286 x 635 mm (90 x 25 in.) See publication 20D-TD002 for detailed dimensional data.	—
IP21, NEMA/UL Type 1 Approximate dimensions exclude fan housings, handles, and so on. Dimensions (H x D), Approx. (width varies).	Rittal 2275 x 600 mm (89.6 x 23.6 in.) See publication 20D-TD002 for detailed dimensional data.	Rittal 2000 x 600 mm (78.7 x 23.6 in.) See publication 750-TD101 and publication 750-IN101 for detailed dimensional data.

Table 9 - Enclosure Features (Continued)

Description	PowerFlex 700S, F9…F14	PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, F8…F12
	Cat. No. 20D…	Cat. No. 20G…
IP54, NEMA/UL Type 12 Approximate dimensions exclude fan housings, handles, and so on. Dimensions (H x D), Approx. (width varies).	Rittal 2400 x 600 mm (94.5 x 23.6 in.) See publication 20D-TD002 for detailed dimensional data.	Rittal 2000 x 600 mm (78.7 x 23.6 in.) See publication 750-TD101 and publication 750-IN101 for detailed dimensional data.
Input Cable Entry	(s), IP21 Rittal, Bottom only (s), IP20 2500 MCC, Top only	(s) Bottom all frames (s) Top frames 8…9, specify power option (-P17) w/o wiring bay (o) Top, frames 10…12, specify power option (-P16) w/ wiring bay
DC Power Bus	—	PowerFlex 755TM CBI; (s) frames 8…10, 3000 A DC (s) frames 11…12, 4700 A DC (o) frames 8…10, 4700 A DC specify power option code (-P46) Near top/back, horizontal busbars, side exit
Control Power Bus	—	(s) 240V AC, 1 PH, 100 A rms (s) 24V DC Auxiliary Control Bus, 100 A DC (s) 120/240V AC, 1 PH, User Control Bus, 100 A rms Control Bus Connector taps are rated 10 A per pole.

Table 10 - Environmental Features

Description	PowerFlex 700S, Frames 9…14	PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, Frames 8…12
	Cat. No. 20D…	Cat. No. 20G…
Environmental Compliance	See Rockwell Automation website at; https://www.rockwellautomation.com/global/about-us/sustainability-ethics/product-environmental-compliance.page	
Altitude (Without Derate)	1000 m (3000 ft) See Technical Data, publication 20D-TD002 for detailed derating information.	1000 m (3000 ft) See Technical Data, publication 750-TD100 for detailed derating information.
Ambient Temperature Range (Without Derate)	0…40℃ (32…104℉), depends on voltage and rating. 0…35℃ (32…95℉), depends on voltage and rating. See Technical Data, publication 20D-TD002 for detailed temperature derating information.	-20…+40℃ (-4…+104℉), all frame ratings and enclosure types. See Technical Data, publication 750-TD100 for detailed temperature derating information.
Storage Temperature	-40…+70℃ (-40…+158℉)	-40…+70℃ (-40…+158℉)
Relative Humidity (Noncondensing)	5…95%	5…95%

Table 10 - Environmental Features (Continued)

Description	PowerFlex 700S, Frames 9…14	PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, Frames 8…12
	Cat. No. 20D…	Cat. No. 20G…
Mechanical Shock	Non-operational; 15G peak for 11 ms duration (+/-1ms), EN50178 / EN60068-2-27 Operating; not specified	Packed for shipment; Meets ATSM International standards Operating (packaged products); 10G peak for 11 ms duration (+/-1 ms), three shocks in each direction in each axis. See the Shock Events information in the Technical Data, publication 750-TD100 for detailed information about the maximum number of shock events.
Mechanical Vibration	Non-operational; not specified Operating; 2 mm (0.0787 in.) displacement, 1G peak, EN50178 / EN60068-2-6	Packed for shipment; Meets ATSM International standards Operating; 1 mm (0.040 in.) displacement, 1G peak
Sound	At 1 m (3.28 ft) Frame 9, 78 dB Frame 10, 77 dB Frame 11, no data Frame 12, no data Frame 13, 76 dB	At 2 m (6.6 ft) PowerFlex 755TL and 755TR, IP21 / IP54; • Frame 8, 79 / 78 dBA • Frame 9, 81 / 80 dBA • Frame 10, 84 / 83 dBA • Frame 11, 83 / 82 dBA • Frame 12, 84 / 83 dBA PowerFlex 755TM CBI, IP21 / IP54; • Frame 8, 76 / 75 dBA • Frame 9, 77 / 76 dBA • Frame 10, 79 / 78 dBA • Frame 11, 80 / 79 dBA • Frame 12, 81 / 80 dBA

Table 11 - Certifications and Standards Compliance

Description	PowerFlex 700S, Frames 9…14	PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, Frames 8…12
	Cat. No. 20D…	Cat. No. 20G…
UL	UL508C (c-UL-us). UL Listing only applicable up to 600V AC. NFPA 70 – US NEC NEMA 250 – Enclosures for Electrical Equipment	UL61800-5-1 (c-UL-us) only applicable up to 600V AC
CAN/CSA	CSA 22.2 No. 14-05	CSA 22.2 No. 274, Adjustable Speed Drives
CE	Marked for following European Directives: • EMC Directive (2004/108/EC) EN 61800-3:2004 Adjustable speed electrical power drive systems – Part 3: EMC requirements and specific test methods. • Low Voltage Directive (2006/95/EC) EN 50178:1997.	In conformity with the following European Directives: • EMC Directive (2014/30/EU) • Low Voltage Directive (2014/35/EU) • RoHS Directive (2011/65/EU) Standards applied: • EN 61800-3 • EN 61800-5-1 (o) Additional EMI filter available, choose catalog code (-J) for EMC filter selection.

Table 11 - Certifications and Standards Compliance

Description	PowerFlex 700S, Frames 9…14	PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, Frames 8…12
	Cat. No. 20D…	Cat. No. 20G…
IEC	Designed to meet: • IEC 61800-2 Adjustable speed electrical power drive systems - Part 2: • General requirements • IEC 61800-5-1 Adjustable speed electrical power drive systems	Atmospheric Protection: • Conformity with IEC 60721-3-3, 3C2 and 3S2, for components manufactured by Rockwell Automation. • IP54, UL Type 12 Cabinet is required to meet the 3S2 requirement
ISA	—	Atmospheric Protection: • Conformity Standard 71.04, for components manufactured by Rockwell Automation. • Class SA, SB, and SC, Severity X environmental concentrations (airborne particulates) with Class SD particles at Severity 2.
RCM, C-Tick	Australian Communications and Media Authority. In conformity with the following: • Radio communications Act: 1992 • Radio communications Standard: 2008 • Radio communications Labelling Notice: 2008 Standards applied: • EN 61800-3:2004	Australian Communications and Media Authority. In conformity with the following: • Radio communications Act: 1992 • Radio communications Standard: 2008 • Radio communications Labeling Notice: 2008 Standards applied: • EN 61800-3:2012
TUV-FS	TÜV Rheinland - Certification applies to 20D-P2-DG01 Safety Option Module when installed in a frame 9…14, 400/480V and 600/690V drives. Standards applied: • EN 61800-5-2:2007 EN 60204-1:2006 • EN ISO 13849-1:2008 EN 62061:2005 • IEC 61508 Part 1-7:1998, 2000, and 2010	TÜV and Rheinland – Certification applies to 20-750-S, 20-750-S1, and 20-750-S3 safety options when they are installed configured according to the appropriate safety manual. Standards applied; • IEC 61508 PARTS 1…7 • EN 61800-3 • EN 61800-5-1 • IEC 61800-5-2 • EN ISO 13849-1 • IEC 62061 • ISO 60204-1 • Machinery Directive (2006/42/EC)
ATEX	EC-Type-Examination Certificate TÜV 05 ATEX 7202 for directive 94/9/EC. See Appendix E in the PowerFlex 700S Drives with Phase II Control Programming Manual, publication 20D-PM001, for more information	The 20-750-ATEX module, together with the ATEX and 11-Series I/O option modules, are compliant safety devices under the ATEX directive 2014/34/EU, and satisfy requirements for use in Group II, Category 2, (GD) applications with ATEX approved motors.
China RoHS2	—	Compliant with China Restriction of Hazardous Substances Directive.
KCC	—	Korean KC registration
ODVA	— (drive)	EtherNet/IP

Table 11 - Certifications and Standards Compliance

Description	PowerFlex 700S, Frames 9…14	PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, Frames 8…12
	Cat. No. 20D…	**Cat. No. 20G…**
IEEE 519	AC input drives not compliant. DC input drives with appropriate low harmonic bus supply converter may be compliant	(s) PowerFlex 755TL/TR PowerFlex 755TM common bus inverter with appropriate PowerFlex 755TM bus supply converter.
REACH	—	Regulation (EC) No. 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)
Packaging Directive	—	In conformity with the Packaging Directive (94/62/EC and amendments 2004/12/EC and 2005/20/EC)

Table 12 - Protection Features

Description	PowerFlex 700S, Frames 9…14		PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, Frames 8…12	
	Cat. No. 20D…		**Cat. No. 20G…**	
	AC Input	**DC Input**	**755TL/TR**	**755TM CBI**
AC Input Over Voltage Trip	400/480V; 675V AC 600/690V; 889V AC	—	400/480V; 542V AC 600/690V; 780V AC	—
AC Input Under Voltage Trip Nominal value, adjustable and configurable action	400V Class; 246V AC 480V Class; 295V AC 600V Class; 369V AC 690V Class; 424V AC	—	400V Class; 348V AC 480V Class; 418V AC 600V Class; 522V AC 690V Class; 600V AC	—
DC Bus Over Voltage Trip	400/480V Class; 911V DC 600/690V Class; 1200V DC		400/480V Class; 815V DC 600/690V Class; 1172V DC	
DC Bus Under Voltage Shutdown/Fault Nominal value, adjustable and configurable action	400V Class; 348V DC 480V Class; 417V DC 600V Class; 522V DC 690V Class; 976V DC		400V Class; 453V DC 480V Class; 543V DC 600V Class; 678V DC 690V Class; 781V DC	
Heat Sink Temperature Fault	(s) over temperature		(s) over and under temperature	
Ground Fault	(s)		(s)	
Single Phase / Phase Loss Fault	(s)	—	(s)	—
Line Sync Fault	—		(s)	—
Drive Overload Fault	(s)		(s)	
IGBT Over temp Fault	(s)		(s)	
LCL Filter Over temp Fault	—		(s)	—
DC Bus Over Voltage Fault	(s)		(s)	

Table 12 - Protection Features (Continued)

Description	PowerFlex 700S, Frames 9…14		PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, Frames 8…12	
	Cat. No. 20D…		Cat. No. 20G…	
	AC Input	DC Input	755TL/TR	755TM CBI
DC Bus Under Voltage	(s)		(s)	
Fuse Blown Fault	—		(s)	
Precharge Fault	—		(s)	
AC Input Over Voltage Fault	(s)	—	(s)	—
Cooling Fan Fault/Alarm	(s)		(s)	
Transient Voltage Suppressor (TVSS) Fail Alarm	—		(s)	—
DC Bus Conditioner Fault	(o) external device		(s)	
Motor Overcurrent Fault	(s)		(s)	
Motor Overload	(s)		(s)	
Motor Overspeed	(s)		(s)	
Encoder Loss	(s)		(s)	
Motor Stalled	(s)		—	
Predictive Maintenance	—		(s)	

Table 13 - User Interface

Description	PowerFlex 700S, Frames 9…14	PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, Frames 8…12
	Cat. No. 20D…	Cat. No. 20G…
Local HIM	(o) 20-HIM-A3, 20-HIM-A5	(o) 20-HIM-A6
Remote HIM	(o) 20-HIM-C3S, 20-HIM-C5S	(o) 20-HIM-C6S
DriveExplorer™ / DriveExecutive™	(s)	—
Connected Components Workbench (CCW)	(s)	(s)
Studio 5000® / RSLogix 5000®	(o) with communication option module installed	(s)
Digital Inputs	(s) 6, 24V DC, inputs 4…6 are 24V DC or 115V AC, input 6 default is HW Enable	(o) 20-750 series 24V DC and 115V AC I/O modules; 3…6, depending on option module chosen
Digital Outputs	(s) 2, 24V DC open collector sinking (s) 1, form C relay. Relay 115V AC/24V DC, 2 A resistive or inductive.	(o) 20-750 series 24V DC and 115V AC I/O modules; 2…3, relay or transistor depending on option module chosen. Relay Normally Open, 240V AC/24V DC, 2 A resistive/general purpose inductive. Relay Normally Closed, 240V AC/24V DC, 2 A resistive. Transistor, 24V DC, 1 A max resistive.

Table 13 - User Interface (Continued)

Description	PowerFlex 700S, Frames 9…14	PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, Frames 8…12
	Cat. No. 20D…	Cat. No. 20G…
Analog Inputs	(s) 2, bipolar, differential, 13 bit + sign, 0…10V DC, +/-10V DC, or 0-20ma. (s) 1 x AI, differential, 10 bit, 0…10V DC (FOC2 temp adaption input)	(o) 20-750 series 24V DC and 115V AC I/O modules; 1…2, depending on option module chosen. Bipolar, differential, 11 bit+ sign, ±10V or 4-20 mA, isolated or non-isolated depending on option module chosen.
Analog Outputs	(s) 2, bipolar, differential, non-isolated, 11 b + sign, +/-10V DC or 0-20ma.	(o) 20-750 series 24V DC and 115V AC I/O modules; 1…2, depending on option module chose. Bipolar, non-isolated, 11 bit + sign, ±10V or 0-20 mA.
Encoder Inputs	5V DC or 12V DC, quadrature, differential with Z pulse	(o) 20-750-ENC-1 or 20-750-DENC-1, 5V DC or 12V DC, quadrature, differential with Z pulse
Internal DC Power Supply	+24V DC digital I/O, 150 mA max +/-10V DC analog I/O, 10 mA max	+24V DC digital I/O, 200 ma max per I/O module, 600 mA max total. +/-10V DC analog I/O, 5 mA max

Table 14 - Communication Features

Description	PowerFlex 700S, F9…F14	PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter, F8…F12
	Cat. No. 20D…	Cat. No. 20G…
EtherNet/IP	(o) single port (o) dual-port	(s) Embedded dual-port (o) dual-port
RS-485 HV AC	(o)	—
RS-485 DF1	(o)	—
ControlNet	(o) coax or fiber-optic	(o) coax only
DeviceNet	(o)	(o)
LonWorks	(o)	—
Modbus TCP	(o)	—
PROFINET	—	(o) single or dual-port
PROFIBUS	(o)	(o) DPV1
CANopen	(o)	—
USB	(o) 1203-USB	(o) 1203-USB
Interbus	(o)	—
Remote I/O	(o)	—

Cross Reference Guides

Use the following tables to compare output power, output current, overload capacity, and dimensions for migrating your PowerFlex 700S drive to a PowerFlex 755T product. Because of the wide variety of possible migration options, we provide these tables as an example of how you can cross-reference your PowerFlex 700S drive rating to an equivalent PowerFlex 755T product. Shaded rows in the tables indicate that, unless noted otherwise, a suitable PowerFlex 755T migration product may be available.

Follow this procedure when using the tables.

1. Find the existing PowerFlex 700S input voltage (AC or DC), voltage class, overload rating (ND or HD), and catalog number.

2. Use the row in the electrical rating cross-reference table with your PowerFlex 700S to see the catalog number and ratings of a suitable migration solution to PowerFlex 755T product.

3. Note the catalog number of the PowerFlex 755T product.

4. See the or to see if the new drive is dimensionally compatible.

Reference all applicable footnotes at the end of each section.

AC Input Electrical Cross-reference

The following four tables are used to cross-reference 6-pulse, 400/480/600/690V AC input PowerFlex 700S drives to either PowerFlex 755TL Low Harmonic or PowerFlex 755TR Regenerative AC input drives.

Although PowerFlex 755T light duty (LD) ratings are available, these ratings are not shown because there are no equivalent light duty ratings for PowerFlex 700S drives.

Use Table 15 to help decide whether you need a Low Harmonic or Regenerative PowerFlex 755T AC drive.

Table 15 - Suggested Migration Solution

Existing PowerFlex 700S Configuration	Suggested PowerFlex 755T AC Drive Solution
Separate Braking Chopper and Brake Resistor	PowerFlex 755TL drive The existing Brake Chopper and Resistor must be reused --- OR --- PowerFlex 755TR drive The existing Brake Chopper and Resistor must be removed This option is preferred due to the potential energy savings compared to wasting regenerative energy as heat in the braking resistor.
Separate Regen Unit	PowerFlex 755TR drive The existing Regen Unit must be removed
Separate DC bus supply or active front end converter	PowerFlex 755TM common bus inverter (DC input) The PowerFlex 700S DC input drive is fed from the external DC bus supply rectifier/converter. See DC Input Electrical Cross Reference on page 51.

Table 15 - Suggested Migration Solution (Continued)

Frame 14	PowerFlex 755TR drive PowerFlex 755TL drives not available in ratings this high (frame 11…12)
All other non-regenerative applications	PowerFlex 755TL drive

Table 16 - 400V AC Input Electrical Rating Cross Reference

PowerFlex 700S (20D…)						PowerFlex 755TL/TR (20G1G/F…)						
Frame Size	Catalog Number	ND O/P kW	ND O/P Amps	HD O/P kW	HD O/P Amps	Frame Size	755TL Low Harmonic Catalog Number[1]	755TR Regen / Low Harmonic Catalog Number[1]	ND O/P kW	ND O/P Amps	HD O/P kW	HD O/P Amps
F9	20DC261… 20DC300…	132 160	261 300	110 132	205 245	F8	20G1G*n*C302…	20G1F*n*C302…	160	302	132	260
F10	20DC385…	200	385	160	300	F8	20G1G*n*C367…	20G1F*n*C367…	200	367	160	302
F10	20DC460…	250	460	—	—	F8	20G1G*n*C460…	20G1F*n*C460…	250	460	200	367
F10	20DC460… 20DC500…	— 250	— 500	200 250	385 420	F8	20G1G*n*C540…	20G1F*n*C540…	315	540	250	460
						F8	20G1G*n*C585…	20G1F*n*C585…	315	585	250	472
F11	20DC590… 20DC650…	315 355	590 650	250 —	520 —	F8	20G1G*n*C650…	20G1F*n*C650…	355	650	315	540
						F8	20G1G*n*C750…	20G1F*n*C750…	400	750	315	585
F11	20DC650… 20DC730…	— 400	— 730	315 355	590 650	F8	20G1G*n*C770…	20G1F*n*C770…	400	770	355	650
F12	20DC820… 20DC920…	450 500	820 920	400 —	730 —	F9	20G1G*n*C920…	20G1F*n*C920…	500	920	400	770
F12	20DC920… 20DC1K0…	— 560	— 1030	450 500	820 920	F9	20G1G*n*C1K0…	20G1F*n*C1K0…	560	1040	500	920
F13	20DC1K1…	—	—	560	1030	F9	20G1G*n*C1K1…	20G1F*n*C1K1…	630	1112	500	1040
F13	20DC1K1…	630	1150	—	—	F9	20G1G*n*C1K2…	20G1F*n*C1K2…	710	1175	560	1090
F13	20DC1K3… 20DC1K4…	710 800	1300 1450	630 —	1150 —	F9	20G1G*n*C1K4…	20G1F*n*C1K4…	800	1465	630	1175
F13	20DC1K4…	—	—	710	1200	F10	20G1G*n*C1K6…	20G1F*n*C1K6…	850	1590	710	1465
						F10	20G1G*n*C1K7…	20G1F*n*C1K7…	1000	1715	800	1480
						F10	20G1G*n*C2K1…	20G1F*n*C2K1…	1250	2156	1000	1715
						F11	—	20G1F*n*C2K8…	1650	2849	1400	2330
						F12	—	20G1F*n*C3K5…	2000	3542	1650	3032

(1)   *<n>* In catalog number is enclosure type; catalog code 3= IP21, catalog code 4= IP54.

Table 17 - 480V AC Input Electrical Rating Cross Reference

PowerFlex 700S (20D…)						PowerFlex 755TL/TR (20G1G/F…)						
Frame Size	Catalog Number	ND O/P kW	ND O/P Amps	HD O/P kW	HD O/P Amps	Frame Size	755TL Low Harmonic Catalog Number[1]	755TR Regen / Low Harmonic Catalog Number[1]	ND O/P kW	ND O/P Amps	HD O/P kW	HD O/P Amps
F9 F9	20DD261… 20DD300…	200 250	261 300	150 200	205 245	F8	20G1GnD302…	20G1FnD302…	250	302	200	248
F10	20DD385…	—	—	250	300	F8	20G1GnD361…	20G1FnD361…	300	361	250	302
F10	20DD385…	300	385	—	—	F8	20G1GnD430…	20G1FnD430…	350	430	300	361
F10 F10	20DD460… 20DD500…	350 450	460 500	300 350	385 420	F8	20G1GnD505…	20G1FnD505…	400	505	350	430
						F8	20G1GnD545…	20G1FnD545…	450	545	350	454
F11	20DD590…	500	590	—	—	F8	20G1GnD617…	20G1FnD617…	500	617	400	485
F11 F11	20DD590… 20DD650…	— 500	— 650	450 —	520 —	F8	20G1GnD710…	20G1FnD710…	600	710	450	545
F11 F11	20DD650… 20DD730…	— 600	— 730	500 —	590 —	F8	20G1GnD740…	20G1FnD740…	650	740	500	617
F11 F12	20DD730… 20DD820…	— —	— —	500 600	650 730	F9	20G1GnD800…	20G1FnD800…	700	800	600	740
F12 F12	20DD820… 20DD920…	700 800	820 920	— —	— —	F9	20G1GnD960…	20G1FnD960…	800	960	700	800
F12 F12	20DD920… 20DD1K0…	— 900	— 1030	700 800	820 920	F9	20G1GnD1K0…	20G1FnD1K0…	900	1045	750	960
F13	20DD1K1…	—	—	900	1030	F9	20G1GnD1K1…	20G1FnD1K1…	1000	1135	800	1045
F13 F13	20DD1K1… 20DD1K3…	1000 1200	1150 1300	— —	— —	F9	20G1GnD1K3…	20G1FnD1K3…	1100	1365	900	1135
F13 F13	20DD1K3… 20DD1K4…	— —	— —	1000 1000	1150 1200	F10	20G1GnD1K4…	20G1FnD1K4…	1250	1420	1000	1365
F13	20DD1K4…	1250	1450	—	—	F10	20G1GnD1K6…	20G1FnD1K6…	1500	1655	1100	1420
						F10	20G1GnD2K0…	20G1FnD2K0…	1800	2072	1500	1655
						F11	—	20G1FnD2K6…	2400	2738	2000	2240
						F12	—	20G1FnD3K4…	3000	3404	2400	2980

(1)   <n> In catalog number is enclosure type; catalog code 3= IP21, catalog code 4= IP54.

Table 18 - 600V AC Input Electrical Rating Cross Reference

PowerFlex 700S (20D…)						PowerFlex 755TL/TR (20G1G/F…)						
Frame Size	Catalog Number	ND O/P kW	ND O/P Amps	HD O/P kW	HD O/P Amps	Frame Size	755TL Low Harmonic Catalog Number[1]	755TR Regen / Low Harmonic Catalog Number[1]	ND O/P kW	ND O/P Amps	HD O/P kW	HD O/P Amps
F9 F9	20DE170… 20DE208…	150 200	170 208	150 150	144 170	F8	20G1GnE242…	20G1FnE242…	250	242	200	192
F10	20DE261…	250	261	200	208	F8	20G1GnE295…	20G1FnE295…	300	295	250	242
F10	20DE325…	350	325	250	261	F8	20G1GnE355…	20G1FnE355…	350	355	300	295
F10 F10	20DE385… 20DE416…	400 —	385 —	350 350	325 325	F8	20G1GnE395…	20G1FnE395…	400	395	350	355
F10 F11	20DE416… 20DE460…	450 —	416 —	— 400	— 385	F8	20G1GnE435…	20G1FnE435…	450	435	400	395
F11 F11	20DE460… 20DE502…	500 500	460 502	— 	— 	F8	20G1GnE545…	20G1FnE545…	550	545	450	450
F11 F11	20DE502… 20DE590…	— 	— 	500 500	460 502	F9	20G1GnE595…	20G1FnE595…	600	580	550	545
F11 F12	20DE590… 20DE650…	600 700	590 650	— 650	— 590	F9	20G1GnE690…	20G1FnE690…	700	690	600	595
F12 F12	20DE750… 20DE820…	800 —	750 —	700 700	650 650	F9	20G1GnE760…	20G1FnE760…	800	760	700	690
F12	20DE820…	900	820	—	—	F9	20G1GnE825…	20G1FnE825…	900	825	800	760
F13	20DE920…	1000	920	900	820	F9	20G1GnE980…	20G1FnE980…	1000	980	900	825
F13	20DE1K0…	1100	1030	1000	920	F10	20G1GnE1K1…	20G1FnE1K1…	1100	1045	1000	980
F13	20DE1K1…	1300	1180	1100	1030	F10	20G1GnE1K2…	20G1FnE1K2…	1250	1220	1100	1045
						F10	20G1GnE1K5…	20G1FnE1K5…	1500	1430	1250	1220
F14	20DE1K5…	1600	1500	1400	1300	F11	—	20G1FnE2K0…	2000	1946	1800	1700
						F12	—	20G1FnE2K4…	2500	2420	2100	2070

(1)   <n> In catalog number is enclosure type; catalog code 3= IP21, catalog code 4= IP54.

Table 19 - 690V AC Input Electrical Rating Cross Reference

PowerFlex 700S (20D…)						PowerFlex 755TL/TR (20G1G/F…)						
Frame Size	Catalog Number	ND O/P kW	ND O/P Amps	HD O/P kW	HD O/P Amps	Frame Size	755TL Low Harmonic Catalog Number[1]	755TR Regen / Low Harmonic Catalog Number[1]	ND O/P kW	ND O/P Amps	HD O/P kW	HD O/P Amps
F9 F9	20DF170… 20DF208…	160 200	170 208	132 160	144 170	F8	20G1GnF215…	20G1FnF215…	200	215	160	171
F10	20DF261…	250	261	200	208	F8	20G1GnF265…	20G1FnF265…	250	265	200	215
F10	20DF325…	315	325	250	261	F8	20G1GnF330…	20G1FnF330…	315	330	250	265
F10 F10	20DF385… 20DF416…	—	—	315 315	325 325	F8	20G1GnF370…	20G1FnF370…	355	370	315	330
F10 F10	20DF385… 20DF416…	355 400	385 416	—	—	F8	20G1GnF415…	20G1FnF415…	400	415	355	370
F11 F11	20DF460… 20DF502…	450 500	460 502	355 —	385 —	F8	20G1GnF505…	20G1FnF505…	500	505	400	415
F11 F11	20DF502… 20DF590…	—	—	400 500	460 502	F9	20G1GnF565…	20G1FnF565…	560	565	500	505
F11 F12	20DF590… 20DF650…	560 630	590 650	—	—	F9	20G1GnF650…	20G1FnF650…	630	650	560	565
F12 F12 F12	20DF650… 20DF750… 20DF820…	—	—	560 630 630	590 650 650	F9	20G1GnF735…	20G1FnF735…	710	735	630	650
F12 F12	20DF750… 20DF820…	710 800	750 820	—	—	F9	20G1GnF820…	20G1FnF820…	800	820	710	735
F13	20DF920…	900	920	800	820	F9	20G1GnF920…	20G1FnF920…	900	920	800	820
F13	20DF1K0…	1000	1030	900	920	F10	20G1GnF1K0…	20G1FnF1K0…	1000	1030	900	920
F13	20DF1K1…	—	—	1000	1030	F10	20G1GnF1K1…	20G1FnF1K1…	1100	1150	1000	1030
F13	20DF1K1…	1100	1180	—	—	F10	20G1GnF1K4…	20G1FnF1K4…	1400	1419	1100	1162
F14	20DF1K5…	1500	1500	1300	1300	F11	—	20G1FnF1K8…	1800	1865	1500	1535
						F12	—	20G1FnF2K3…	2300	2318	2000	2020

(1)   <n> In catalog number is enclosure type; catalog code 3= IP21, catalog code 4= IP54.

DC Input Electrical Cross Reference

The following tables are used to cross reference 540/650/810/932V DC input PowerFlex 700S drives to DC input PowerFlex 755TM common bus inverters. Although PowerFlex 755T light duty (LD) ratings are available, these ratings are not shown in the following tables because there are no equivalent light duty ratings for PowerFlex 700S drives.

Use Table 20 to decide whether you need a PowerFlex 755TM common bus inverter with or without precharge.

Table 20 - Suggested Migration Solutions

Existing PowerFlex 700S Configuration	Suggested PowerFlex 755TM Common Bus Inverter Solution
Separate precharge circuit is not used. **IMPORTANT**: The only instance where a drive precharge is not required is; if it is never possible to energize the DC input common bus inverter onto a fully charged DC bus. The common bus inverter must NOT have a DC input disconnect and all precharging of the DC bus supply and connected common bus inverter is controlled by the DC bus supply or other separate precharge circuit.	PowerFlex 755TM common bus inverter without precharge, input catalog code (-E). **ATTENTION**: Applying a PowerFlex 755TM common bus inverter without precharge with an existing DC disconnect or with no method of safely precharging the DC bus capacitors in the drive can result in serious damage and destruction to the DC bus supply and PowerFlex 755TM common bus inverter. **WARNING**: Failure to apply this equipment may cause dangerous over currents, possible explosion, and arc flash conditions can lead to personal injury or death.
All other applications with separate drive precharge circuits	PowerFlex 755TM common bus inverter with precharge, input catalog code (-F)
AC Input Power Source	Choose a PowerFlex 755TL or PowerFlex 755TR. The PowerFlex 700S AC input uses a 6-pulse, nonregenerative converter/rectifier. See the AC Input Electrical Cross-reference on page 46.

Table 21 - 540V DC Input Electrical Rating Cross Reference

PowerFlex 700S (20D…)						PowerFlex 755TM Common Bus Inverter (20G1…)						
Frame Size	DC Input without Precharge Catalog Number	ND O/P kW	ND O/P Amps	HD O/P kW	HD O/P Amps	Frame Size	CBI with Precharge Catalog Number[1]	CBI without Precharge Catalog Number[1]	ND O/P kW	ND O/P Amps	HD O/P kW	HD O/P Amps
F9	20DH261… 20DH300…	132 160	261 300	110 132	205 245	F8	20G1D*n*C302…	20G1E*n*C302…	160	302	132	260
F10	20DH385…	200	385	160	300	F8	20G1D*n*C367…	20G1E*n*C367…	200	367	160	302
F10	20DH460…	250	460	—	—	F8	20G1D*n*C460…	20G1E*n*C460…	250	460	200	367
F10	20DH460… 20DH500…	— 250	— 500	200 250	385 420	F8	20G1D*n*C540…	20G1E*n*C540…	315	540	250	460
						F8	20G1D*n*C585…	20G1E*n*C585…	315	585	250	472
F11	20DH590… 20DH650…	315 355	590 650	250 —	520 —	F8	20G1D*n*C650…	20G1E*n*C650…	355	650	315	540
						F8	20G1D*n*C750…	20G1E*n*C750…	400	750	315	585
F11	20DH650… 20DH730	— 400	— 730	315 355	590 650	F8	20G1D*n*C770…	20G1E*n*C770…	400	770	355	650
F12	20DH820… 20DH920…	450 500	820 920	400 —	730 —	F9	20G1D*n*C920…	20G1E*n*C920…	500	920	400	770
F12	20DH920… 20DH1K0…	— 560	— 1030	450 500	820 920	F9	20G1D*n*C1K0…	20G1E*n*C1K0…	560	1040	500	920
F13	20DH1K1…	—	—	560	1030	F9	20G1D*n*C1K1…	20G1E*n*C1K1…	630	1112	500	1040
F13	20DH1K1…	630	1150	—	—	F9	20G1D*n*C1K2…	20G1E*n*C1K2…	710	1175	560	1090
F13	20DH1K3… 20DH1K4…	710 800	1300 1450	630 —	1150 —	F9	20G1D*n*C1K4…	20G1E*n*C1K4…	800	1465	630	1175
F13	20DH1K4…	—	—	710	1200	F10	20G1D*n*C1K6…	20G1E*n*C1K6…	850	1590	710	1465
						F10	20G1D*n*C1K7…	20G1E*n*C1K7…	1000	1715	800	1480
						F10	20G1D*n*C2K1…	20G1E*n*C2K1…	1250	2156	1000	1715
						F11	20G1D*n*C2K8…	20G1E*n*C2K8…	1650	2849	1400	2330
						F12	20G1D*n*C3K5…	20G1E*n*C3K5…	2000	3542	1650	3032

(1) <*n*> In catalog number is enclosure type; catalog code 3= IP21, catalog code 4= IP54.

Table 22 - 650V DC Input Electrical Rating Cross Reference

PowerFlex 700S (20D…)						PowerFlex 755TM Common Bus Inverter (20G1…)						
Frame Size	DC Input without Precharge Catalog Number	ND O/P kW	ND O/P Amps	HD O/P kW	HD O/P Amps	Frame Size	CBI with Precharge Catalog Number[1]	CBI without Precharge Catalog Number[1]	ND O/P kW	ND O/P Amps	HD O/P kW	HD O/P Amps
F9	20DJ261… 20DJ300…	200 250	261 300	150 200	205 245	F8	20G1D*n*D302…	20G1E*n*D302…	250	302	200	248
F10	20DJ385…	—	—	250	300	F8	20G1D*n*D361…	20G1E*n*D361…	300	361	250	302
F10	20DJ385…	300	385	—	—	F8	20G1D*n*D430…	20G1E*n*D430…	350	430	300	361
F10	20DJ460… 20DJ500…	350 450	460 500	300 350	385 420	F8	20G1D*n*D505…	20G1E*n*D505…	400	505	350	430
						F8	20G1D*n*D545…	20G1E*n*D545…	450	545	350	454
F11	20DJ590…	500	590	—	—	F8	20G1D*n*D617…	20G1E*n*D617…	500	617	400	485
F11	20DJ590… 20DJ650…	— 500	— 650	450 —	520 —	F8	20G1D*n*D710…	20G1E*n*D710…	600	710	450	545
F11	20DJ650… 20DJ730…	— 600	— 730	500 —	590 —	F8	20G1D*n*D740…	20G1E*n*D740…	650	740	500	617
F11 F12	20DJ730… 20DJ820…	—	—	500 600	650 730	F9	20G1D*n*D800…	20G1E*n*D800…	700	800	600	740
F12	20DJ820… 20DJ920…	700 800	820 920	—	—	F9	20G1D*n*D960…	20G1E*n*D960…	800	960	700	800
F12	20DJ920… 20DJ1K0…	— 900	— 1030	700 800	820 920	F9	20G1D*n*D1K0…	20G1E*n*D1K0…	900	1045	750	960
F13	20DJ1K1…	—	—	900	1030	F9	20G1D*n*D1K1…	20G1E*n*D1K1…	1000	1135	800	1045
F13	20DJ1K1… 20DJ1K3…	1000 1200	1150 1300	—	—	F9	20G1D*n*D1K3…	20G1E*n*D1K3…	1100	1365	900	1135
F13	20DJ1K3… 20DJ1K4…	—	—	1000 1000	1150 1200	F10	20G1D*n*D1K4…	20G1E*n*D1K4…	1250	1420	1000	1365
F13	20DJ1K4…	1250	1450	—	—	F10	20G1D*n*D1K6…	20G1E*n*D1K6…	1500	1655	1100	1420
						F10	20G1D*n*D2K0…	20G1E*n*D2K0…	1800	2072	1500	1655
						F11	20G1D*n*D2K6…	20G1E*n*D2K6…	2400	2738	2000	2240
						F12	20G1D*n*D3K4…	20G1E*n*D3K4…	3000	3404	2400	2980

(1)   <*n*> In catalog number is enclosure type; catalog code 3= IP21, catalog code 4= IP54.

Table 23 - 810V DC Input Electrical Rating Cross Reference

PowerFlex 700S (20D…)						PowerFlex 755TM Common Bus Inverter (20G1…)						
Frame Size	DC Input without Precharge Catalog Number	ND O/P kW	ND O/P Amps	HD O/P kW	HD O/P Amps	Frame Size	CBI with Precharge Catalog Number[1]	CBI without Precharge Catalog Number[1]	ND O/P kW	ND O/P Amps	HD O/P kW	HD O/P Amps
F9	20DK170… 20DK208…	150 200	170 208	150 150	144 170	F8	20G1D*n*E242…	20G1E*n*E242…	250	242	200	192
F10	20DK261…	250	261	200	208	F8	20G1D*n*E295…	20G1E*n*E295…	300	295	250	242
F10	20DK325…	350	325	250	261	F8	20G1D*n*E355…	20G1E*n*E355…	350	355	300	295
F10	20DK385… 20DK416…	400 —	385 —	350 350	325 325	F8	20G1D*n*E395…	20G1E*n*E395…	400	395	350	355
F10 F11	20DK416… 20DK460…	450 —	416 —	— 400	— 385	F8	20G1D*n*E435…	20G1E*n*E435…	450	435	400	395
F11	20DK460… 20DK502…	500 500	460 502	—	—	F8	20G1D*n*E545…	20G1E*n*E545…	550	545	450	450
F11	20DK502… 20DK590…	—	—	500 500	460 502	F9	20G1D*n*E595…	20G1E*n*E595…	600	580	550	545
F12	20DK590… 20DK650…	600 700	590 650	— 650	— 590	F9	20G1D*n*E690…	20G1E*n*E690…	700	690	600	595
F12	20DK750… 20DK820…	800 —	750 —	700 700	650 650	F9	20G1D*n*E760…	20G1E*n*E760…	800	760	700	690
F12	20DK820…	900	820	—	—	F9	20G1D*n*E825…	20G1E*n*E825…	900	825	800	760
F13	20DK920…	1000	920	900	820	F9	20G1D*n*E980…	20G1E*n*E980…	1000	980	900	825
F13	20DK1K0…	1100	1030	1000	920	F10	20G1D*n*E1K1…	20G1E*n*E1K1…	1100	1045	1000	980
F13	20DK1K1…	1300	1180	1100	1030	F10	20G1D*n*E1K2…	20G1E*n*E1K2…	1250	1220	1100	1045
						F10	20G1D*n*E1K5…	20G1E*n*E1K5…	1500	1430	1250	1220
F14	20DK1K5	1600	1500	1400	1300	F11	20G1D*n*E2K0…	20G1E*n*E2K0…	2000	1946	1800	1700
						F12	20G1D*n*E2K4…	20G1E*n*E2K4…	2500	2420	2100	2070

(1) <*n*> In catalog number is enclosure type; catalog code 3= IP21, catalog code 4= IP54.

Table 24 - 932V DC Input Electrical Rating Cross Reference

PowerFlex 700S (20D...)						PowerFlex 755TM Common Bus Inverter (20G1...)						
Frame Size	DC Input without Precharge Catalog Number	ND O/P kW	ND O/P Amps	HD O/P kW	HD O/P Amps	Frame Size	CBI with Precharge Catalog Number[1]	CBI without Precharge Catalog Number[1]	ND O/P kW	ND O/P Amps	HD O/P kW	HD O/P Amps
F9	20DM170... 20DM208...	160 200	170 208	132 160	144 170	F8	20G1DnF215...	20G1EnF215...	200	215	160	171
F10	20DM261...	250	261	200	208	F8	20G1DnF265...	20G1EnF265...	250	265	200	215
F10	20DM325...	315	325	250	261	F8	20G1DnF330...	20G1EnF330...	315	330	250	265
F10	20DM385... 20DM416...	— —	— —	315 315	325 325	F8	20G1DnF370...	20G1EnF370...	355	370	315	330
F10	20DM385... 20DM416...	355 400	385 416	— —	— —	F8	20G1DnF415...	20G1EnF415...	400	415	355	370
F11	20DM460... 20DM502...	450 500	460 502	355 —	385 —	F8	20G1DnF505...	20G1EnF505...	500	505	400	415
F11	20DM502... 20DM590...	— —	— —	400 500	460 502	F9	20G1DnF565...	20G1EnF565...	560	565	500	505
F12	20DM590... 20DM650...	560 630	590 650	— —	— —	F9	20G1DnF650...	20G1EnF650...	630	650	560	565
F12	20DM650... 20DM750... 20DM820...	— —	— —	560 630 630	590 650 650	F9	20G1DnF735...	20G1EnF735...	710	735	630	650
F12	20DM750... 20DM820...	710 800	750 820	— —	— —	F9	20G1DnF820...	20G1EnF820...	800	820	710	735
F13	20DM920...	900	920	800	820	F9	20G1DnF920...	20G1EnF920...	900	920	800	820
F13	20DM1K0...	1000	1030	900	920	F10	20G1DnF1K0...	20G1EnF1K0...	1000	1030	900	920
F13	20DM1K1...	—	—	1000	1030	F10	20G1DnF1K1...	20G1EnF1K1...	1100	1150	1000	1030
F13	20DM1K1...	1100	1180	—	—	F10	20G1DnF1K4...	20G1EnF1K4...	1400	1419	1100	1162
F14	20DM1K5...	1500	1500	1300	1300	F11	20G1DnF1K8...	20G1EnF1K8...	1800	1865	1500	1535
						F12	20G1DnF2K3...	20G1EnF2K3...	2300	2318	2000	2020

(1) *<n>* In catalog number is enclosure type; catalog code 3= IP21, catalog code 4= IP54.

AC Input Dimensional Cross Reference

Table 25 through Table 28 compare approximate dimensions of PowerFlex 700S and PowerFlex 755TL/TR drives. Shaded rows in the table indicate an acceptable cross-reference unless noted otherwise. Outline dimensional drawings are shown in Appendix A on page 121.

IMPORTANT	There are no valid AC input dimensional cross-references from PowerFlex 700S AC input 6 pulse drives to PowerFlex 755TL or PowerFlex 755TR drives. PowerFlex 755TL/TR drives all contain an integrated active front end converter that requires more panel space than the 6-pulse converters that are used in the PowerFlex 700S.

If the existing PowerFlex 700S has regeneration that is provided by a separate Regen Unit or braking chopper/resistor, these devices would be assembled in a separate enclosure that would consume floor space as well. The equivalent PowerFlex 755TL/TR drive would replace both the PowerFlex 700S drive and the associated Regen Unit or braking chopper/resistor. The overall dimensions of the PowerFlex 700S and regenerative device may be the same or larger than the equivalent PowerFlex 755TL/TR migration solution.

IMPORTANT	The PowerFlex 700S frame 9 drive is usually mounted within an enclosure, however, it can be wall-mounted per the catalog numbers shown. The equivalent PowerFlex 755TL/TR drive is supplied as a floor standing enclosure. Consider the mounting and enclosure types that are used for your PowerFlex 700S frame 9 migration solution to ensure the PowerFlex 755TL/TR enclosed drive can be installed in the available space.

Because it is impossible to predict the combinations of hardware that could be used in the existing PowerFlex 700S drive configuration the tables below only consider migration solutions based on published catalog ratings for the PowerFlex 700S drives.

Table 25 - 400V AC Input Dimension Cross Reference

PowerFlex 700S (20D...)						PowerFlex 755TL/TR (20G1G/F...)				
Frame Size	Catalog Number[1]	Enclosure Type	Width mm (in.)	Height mm (in.)	Depth mm (in.)	Frame Size	755TL/TR Catalog Number[2]	Width[3] mm (in.)	Height IP21/IP54 mm (in.)	Depth IP21/IP54 mm (in.)
F9	20DC261x... 20DC300x...	IP21	480 (18.9)	1150 (45.3)	363 (14.3)	F8	20G1ynC302...	1206 (47.5)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (28.4
F10	20DC385x...	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (5) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynC367...			
F10	20DC460x...	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynC460...			
F10	20DC460x... 20DC500x...	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynC540...			
						F8	20G1ynC585...			
F11	20DC590x... 20DC650x...	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F8	20G1ynC650...			
						F8	20G1ynC750...			
F11	20DC650x... 20DC730x...	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F8	20G1ynC770...			
F12	20DC820x... 20DC920x...	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.5)	2275 (89.6) 2286 (90) 2415 (95)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynC920...	2006 (79.0)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
F12	20DC920x... 20DC1K0x...	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.5)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynC1K0...			
F13	20DC1K1x...	IP21 Rittal IP54 Rittal	1412 (56)	2275(89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F9	20G1ynC1K1...			
F13	20DC1K1x...	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F9	20G1ynC1K2...			
F13	20DC1K3x... 20DC1K4x...	IP21 Rittal IP54 Rittal	1600 (63)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F9	20G1ynC1K4...			
F13	20DC1K4x...	IP21 Rittal IP54 Rittal	1600 (63)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynC1K6...	3206 (126.6)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
						F10	20G1ynC1K7...			
						F10	20G1ynC2K1...			
						F11	20G1ynC2K8...	3206 (126.6)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
						F12	20G1ynC3K5...	4606 (181.3)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)

(1) <x> in catalog number is PowerFlex 700S enclosure type; catalog code A = IP21 Rittal, catalog code B = IP20 MCC, catalog code H = IP54 Rittal.

(2) <n> In catalog number is PowerFlex 755T enclosure type; catalog code 3= IP21, catalog code 4= IP54.
  <y> in catalog number is PowerFlex 755T input type; catalog code D= 755TM common bus inverter with precharge, E= 755TM common bus inverter without precharge, catalog code F= 755TL, catalog code G= 755TR.

(3) Width dimension shows total width with power bay and control bay. The control bay is always 300 mm (11.8 in.). One control bay can serve two power bays if configured correctly. Optional wiring bays add to total width. If optional bays are required, refer to publication 750-TD100 for dimensions and weights.

Table 26 - 480V AC Input Dimension Cross Reference

PowerFlex 700S (20D…)						PowerFlex 755TL/TR (20G1G/F…)				
Frame Size	Catalog Number[1]	Enclosure Type	Width mm (in.)	Height mm (in.)	Depth mm (in.)	Frame Size	755TL/TR Catalog Number[2]	Width[3] mm (in.)	Height IP21/IP54 mm (in.)	Depth IP21/IP54 mm (in.)
F9	20DD261x… 20DD300x…	IP21	480 (18.9)	1150 (45.3)	363 (14.3)	F8	20G1ynD302…	1206 (47.5)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (28.4)
F10	20DD385x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynD361…			
F10	20DD385x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynD430…			
F10	20DD460x… 20DD500x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynD505…			
						F8	20G1ynD545…			
F11	20DD590x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F8	20G1ynD617…			
F11	20DD590x… 20DD650x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F8	20G1ynD710…			
F11	20DD650x… 20DD730x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F8	20G1ynD740…			
F11	20DD730x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7))	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F9	20G1ynD800…	2006 (79.0)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
F12	20DD820x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynD960…			
F12	20DD820x… 20DD920x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynD1K0…			
F12	20DD920x… 20DD1K0x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynD1K1…			
F13	20DD1K1x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F9	20G1ynD1K3…			
F13	20DD1K1x…	IP21 Rittal IP54 Rittal	1412 (56) 1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)					
F13	20DD1K3x…	IP21 Rittal IP54 Rittal	1600 (63) 1600 (63)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynD1K4…	3206 (126.6)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
F13	20DD1K3x… 20DD1K4x…	IP21 Rittal IP54 Rittal	1600 (63) 1600 (63)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynD1K6…			
F13	20DD1K4x…	IP21 Rittal IP54 Rittal	1600 (63) 1600 (63)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynD2K0…			
						F11	20G1ynD2K6…	3206 (126.6)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
						F12	20G1ynD3K4…	4606 (181.3)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)

(1)   <x> in catalog number is PowerFlex 700S enclosure type; catalog code A = IP21 Rittal, catalog code B = IP20 MCC, catalog code H = IP54 Rittal.

(2)   <n> In catalog number is PowerFlex 755T enclosure type; catalog code 3= IP21, catalog code 4= IP54.

<y> in catalog number is PowerFlex 755T input type; catalog code D= 755TM common bus inverter with precharge, E= 755TM common bus inverter without precharge, catalog code F= 755TL, catalog code G= 755TR.

(3)   Width dimension shows total width with power bay and control bay. The control bay is always 300 mm (11.8 in.). One control bay can serve two power bays if configured correctly. Optional wiring bays add to total width. If optional bays are required, refer to publication 750-TD100 for dimensions and weights.

Table 27 - 600V AC Input Dimension Cross Reference

PowerFlex 700S (20D…)						PowerFlex 755TL/TR (20G1G/F…)				
Frame Size	Catalog Number[1]	Enclosure Type	Width mm (in.)	Height mm (in.)	Depth mm (in.)	Frame Size	755TL/TR Catalog Number[2]	Width[3] mm (in.)	Height IP21/IP54 mm (in.)	Depth IP21/IP54 mm (in.)
F9	20DE170x… 20DE208x…	IP21	480 (18.9)	1150 (45.3)	363 (14.3)	F8	20G1ynE242…	1206 (47.5)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
F10	20DE261x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynE295…			
F10	20DE325x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynE355…			
F10	20DE385x… 20DE416x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynE395…			
F10	20DE416x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynE435…			
F11	20DE460x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)					
F11	20DE460x… 20DE502x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F8	20G1ynE545…			
F11	20DE502x… 20DE590x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F9	20G1ynE595…	2006 (79.0)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
F11	20DE590x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F9	20G1ynE690…			
F12	20DE650x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)					
F12	20DE750x… 20DE820x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynE760…			
F12	20DE820x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynE825…			
F13	20DE920x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F9	20G1ynE980…			
F13	20DE1K0x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynE1K1…	3206 (126.6)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
F13	20DE1K1x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynE1K2…			
						F10	20G1ynE1K5…			
F14	20DE1K5x…	IP21 Rittal IP54 Rittal	2397 (94.4) 2400 (94.4)	2276 (90) 2276 (90)	620 (24.5) 662 (26)	F11	20G1ynE2K0…	3206 (126.6)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
						F12	20G1ynE2K4…	4606 (181.3)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)

(1) <x> in catalog number is PowerFlex 700S enclosure type; catalog code A = IP21 Rittal, catalog code B = IP20 MCC, catalog code H = IP54 Rittal.

(2) <n> In catalog number is PowerFlex 755T enclosure type; catalog code 3= IP21, catalog code 4= IP54.

    <y> in catalog number is PowerFlex 755T input type; catalog code D= 755TM common bus inverter with precharge, E= 755TM common bus inverter without precharge, catalog code F= 755TL, catalog code G= 755TR.

(3) Width dimension shows total width with power bay and control bay. The control bay is always 300 mm (11.8 in.). One control bay can serve two power bays if configured correctly. Optional wiring bays add to total width. If optional bays are required, refer to publication [750-TD100](#) for dimensions and weights.

Table 28 - 690V AC Input Dimension Cross Reference

PowerFlex 700S (20D…)						PowerFlex 755TL/TR (20G1G/F…)				
Frame Size	Catalog Number[1]	Enclosure Type	Width mm (in.)	Height mm (in.)	Depth mm (in.)	Frame Size	755TL/TR Catalog Number[2]	Width[3] mm (in.)	Height IP21/IP54 mm (in.)	Depth IP21/IP54 mm (in.)
F9	20DF170x… 20DF208x…	IP21	480 (18.9)	1150 (45.3)	363 (14.3)	F8	20G1ynF215…	1206 (47.5)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
F10	20DF261x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynF265…			
F10	20DF325x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynF330…			
F10	20DF385x… 20DF416x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynF370…			
F10	20DF385x… 20DF416x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynF415…			
F11	20DF460x… 20DF502x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F8	20G1ynF505…			
F11	20DF502x… 20DF590x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F9	20G1ynF565…	2006 (79.0)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
F11	20DF590x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F9	20G1ynF650…			
F12	20DF650x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynF735…			
F12	20DF650x… 20DF750x… 20DF820x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynF820…			
F12	20DF750x… 20DF820x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynF920…			
F13	20DF920x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynF1K0…	3206 (126.6)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
F13	20DF1K0x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynF1K1…			
F13	20DF1K1x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynF1K4…			
F13	20DF1K1x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F11	20G1ynF1K8…	3206 (126.6)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
F14	20DF1K5x…	IP21 Rittal IP54 Rittal	2397 (94.4) 2400 (94.4)	2276 (90) 2276 (90)	620 (24.5) 662 (26)	F12	20G1ynF2K3…	4606 (181.3)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)

(1) <x> in catalog number is PowerFlex 700S enclosure type; catalog code A = IP21 Rittal, catalog code B = IP20 MCC, catalog code H = IP54 Rittal.

(2) <n> In catalog number is PowerFlex 755T enclosure type; catalog code 3= IP21, catalog code 4= IP54.
    <y> in catalog number is PowerFlex 755T input type; catalog code D= 755TM common bus inverter with precharge, E= 755TM common bus inverter without precharge, catalog code F= 755TL, catalog code G= 755TR.

(3) Width dimension shows total width with power bay and control bay. The control bay is always 300 mm (11.8 in.). One control bay can serve two power bays if configured correctly. Optional wiring bays add to total width. If optional bays are required, refer to publication 750-TD100 for dimensions and weights.

DC Input Dimensional Cross Reference

Table 29 through Table 32 compare approximate dimensions of DC input PowerFlex 700S drives and DC input PowerFlex 755TM common bus inverters. Shaded rows in the table indicate an acceptable cross-reference unless noted otherwise. Outline dimensional drawings are shown in Appendix A on page 121.

IMPORTANT	The PowerFlex 700S frame 9 drive is usually mounted within an enclosure, however, it can be wall-mounted per the catalog numbers shown. The equivalent PowerFlex 755TM common bus inverter is supplied as a floor standing enclosure. Consider the mounting and enclosure types that are used for your PowerFlex 700S frame 9 migration solution to ensure the PowerFlex 755TM enclosed common bus inverter can be installed in the available space.

Because it is impossible to predict the combinations of hardware that could be used in the existing PowerFlex 700S drive configuration, these tables only consider migration solutions based on published catalog ratings for the PowerFlex 700S drives.

Table 29 - 540V DC Input Dimension Cross Reference

PowerFlex 700S (20D…)						PowerFlex 755TM Common Bus Inverter (20G1D/E…)				
Frame Size	DC Input without Precharge Catalog Number[1]	Enclosure Type	Width mm (in.)	Height mm (in.)	Depth[2] mm (in.)	Frame Size	Common Bus Inverter Catalog Number[3]	Width[4] mm (in.)	Height IP21/IP54 mm (in.)	Depth IP21/IP54 mm (in.)
F9 F9	20DH261x… 20DH300x…	IP21	480 (18.9)	1150 (45.3)	363 (14.3)	F8	20G1ynC302…	700 (27.6)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
F10	20DH385x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynC367…			
F10	20DH460x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynC460…			
F10 F10	20DH460x… 20DH500x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynC540…			
						F8	20G1ynC585…			
F11 F11	20DH590x… 20DH650x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F8	20G1ynC650…			
						F8	20G1ynC750…			
F11 F11	20DH650x… 20DH730x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F8	20G1ynC770…			
F12 F12	20DH820x… 20DH920x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.5)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynC920…	900 (35.4)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
F12 F12	20DH920x… 20DH1K0x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.5)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynC1K0…			
F13	20DH1K1x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F9	20G1ynC1K1…			
F13	20DH1K1x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F9	20G1ynC1K2…			
F13 F13	20DH1K3x… 20DH1K4x…	IP21 Rittal IP54 Rittal	1600 (63)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F9	20G1ynC1K4…			
F13	20DH1K4x…	IP21 Rittal IP54 Rittal	1600 (63)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynC1K6…	1100 (43.3)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
						F10	20G1ynC1K7…			
						F10	20G1ynC2K1…			
						F11	20G1ynC2K8…	1500 (59)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)
						F12	20G1ynC3K5…	1700 (66.9)	2132 (83.9) /2291 (90.2)	676 (26.6) /721 (38.4)

(1)   <x> in catalog number is PowerFlex 700S enclosure type; catalog code A = IP21 Rittal, catalog code B = IP20 MCC, catalog code H = IP54 Rittal.

(2)   The dimensions of these PowerFlex 700S units is less than the equivalent PowerFlex 755T unit. Use judgment to ensure there is sufficient space for the migration solution.

(3)   <n> In catalog number is PowerFlex 755T enclosure type; catalog code 3= IP21, catalog code 4= IP54.

<y> in catalog number is PowerFlex 755T input type; catalog code D= 755TM common bus inverter with precharge, E= 755TM common bus inverter without precharge, catalog code F= 755TL, catalog code G= 755TR.

(4)   Width dimension shows total width with power bay and control bay. The control bay is always 300 mm (11.8 in.). One control bay can serve two power bays if configured correctly. Optional wiring bays add to total width. If optional bays are required, refer to publication 750-TD100 for dimensions and weights.

Table 30 - 650V DC Input Dimension Cross Reference

PowerFlex 700S (20D…)						PowerFlex 755TM Common Bus Inverter (20G1D/E…)				
Frame Size	DC Input without Precharge Catalog Number[1]	Enclosure Type	Width mm (in.)	Height mm (in.)	Depth[2] mm (in.)	Frame Size	Common Bus Inverter Catalog Number[3]	Width[4] mm (in.)	Height IP21/IP54 mm (in.)	Depth IP21/IP54 mm (in.)
F9 F9	20DJ261x… 20DJ300x…	IP21	480 (18.9)	1150 (45.3)	363 (14.3)	F8	20G1ynD302…	700 (27.6)	2132 (83.9)/ 2291 (90.2)	676 (26.6)/ 721 (38.4)
F10	20DJ385x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynD361…			
F10	20DJ385x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynD430…			
F10 F10	20DJ460x… 20DJ500x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynD505…			
						F8	20G1ynD545…			
F11	20DJ590x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F8	20G1ynD617…			
F11 F11	20DJ590x… 20DJ650x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F8	20G1ynD710…			
F11 F11	20DJ650x… 20DJ730x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F8	20G1ynD740…			
F11	20DJ730x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F9	20G1ynD800…	900 (35.4)	2132 (83.9)/ 2291 (90.2)	676 (26.6)/ 721 (38.4)
F12	20DJ820x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)					
F12 F12	20DJ820x… 20DJ920x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynD960…			
F12 F12	20DJ920x… 20DJ1K0x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynD1K0…			
F13	20DJ1K1x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F9	20G1ynD1K1…			
F13 F13	20DJ1K1x… 20DJ1K3x…	IP21 Rittal IP54 Rittal IP21 Rittal IP54 Rittal	1412 (56) 1412 (56) 1600 (63) 1600 (63)	2275 (89.6) 2444 (104.5) 2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1) 619 (24.4) 662 (26.1)	F9	20G1ynD1K3…			
F13 F13	20DJ1K3x… 20DJ1K4x…	IP21 Rittal IP54 Rittal	1600 (63) 1600 (63)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynD1K4…	1100 (43.3)	2132 (83.9)/ 2291 (90.2)	676 (26.6)/ 721 (38.4)
F13	20DJ1K4x…	IP21 Rittal IP54 Rittal	1600 (63) 1600 (63)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynD1K6…			
						F10	20G1ynD2K0…			
						F11	20G1ynD2K6…	1500 (59)	2132 (83.9)/ 2291 (90.2)	676 (26.6)/ 721 (38.4)
						F12	20G1ynD3K4…	1700 (66.9)	2132 (83.9)/ 2291 (90.2)	676 (26.6)/ 721 (38.4)

(1)   <x> in catalog number is PowerFlex 700S enclosure type; catalog code A = IP21 Rittal, catalog code B = IP20 MCC, catalog code H = IP54 Rittal.

(2)   The dimensions of these PowerFlex 700S units is less than the equivalent PowerFlex 755T unit. Use judgment to ensure there is sufficient space for the migration solution.

(3)   <n> In catalog number is PowerFlex 755T enclosure type; catalog code 3= IP21, catalog code 4= IP54.

   <y> in catalog number is PowerFlex 755T input type; catalog code D= 755TM common bus inverter with precharge, E= 755TM common bus inverter without precharge, catalog code F= 755TL, catalog code G= 755TR.

(4)   Width dimension shows total width with power bay and control bay. The control bay is always 300 mm (11.8 in.). One control bay can serve two power bays if configured correctly. Optional wiring bays add to total width. If optional bays are required, refer to publication 750-TD100 for dimensions and weights.

Table 31 - 810V DC Input Dimension Cross Reference

PowerFlex 700S (20D…)						PowerFlex 755TM Common Bus Inverter (20G1D/E…)				
Frame Size	DC Input without Precharge Catalog Number[1]	Enclosure Type	Width mm (in.)	Height mm (in.)	Depth[2] mm (in.)	Frame Size	Common Bus Inverter Catalog Number[3]	Width[4] mm (in.)	Height IP21/IP54 mm (in.)	Depth IP21/IP54 mm (in.)
F9 F9	20DK170x… 20DK208x…	IP21	480 (18.9)	1150 (45.3)	363 (14.3)	F8	20G1ynE242…	700 (27.6)	2132 (83.9)/ 2291 (90.2)	676 (26.6)/ 721 (38.4)
F10	20DK261x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynE295…			
F10	20DK325x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynE355…			
F10 F10	20DK385x… 20DK416x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynE395…			
F10	20DK416x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynE435…			
F11	20DK460x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)					
F11 F11	20DK460x… 20DK502x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F8	20G1ynE545…			
F11 F11	20DK502x… 20DK590x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F9	20G1ynE595…	900 (35.4)	2132 (83.9)/ 2291 (90.2)	676 (26.6)/ 721 (38.4)
F11	20DK590x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F9	20G1ynE690…			
F12	20DK650x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynE760…			
F12 F12	20DK750x… 20DK820x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynE825…			
F12	20DK820x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynE980…			
F13	20DK920x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynE1K1…	1100 (43.3)	2132 (83.9)/ 2291 (90.2)	676 (26.6)/ 721 (38.4)
F13	20DK1K0x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynE1K2…			
F13	20DK1K1x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynE1K5…			
F14	20DK1K5x…	IP21 Rittal IP54 Rittal	1597 (63) 1597 (63)	2270 (89.4) 2276 (90)	620 (24.5) 662 (26)	F11	20G1ynE2K0…	1500 (59)	2132 (83.9)/ 2291 (90.2)	676 (26.6)/ 721 (38.4)
						F12	20G1ynE2K4…	1700 (66.9)	2132 (83.9)/ 2291 (90.2)	676 (26.6)/ 721 (38.4)

(1)   <x> in catalog number is PowerFlex 700S enclosure type; catalog code A = IP21 Rittal, catalog code B = IP20 MCC, catalog code H = IP54 Rittal.

(2)   The dimensions of these PowerFlex 700S units is less than the equivalent PowerFlex 755T unit. Use judgment to ensure there is sufficient space for the migration solution.

(3)   <n> In catalog number is PowerFlex 755T enclosure type; catalog code 3= IP21, catalog code 4= IP54.

    <y> in catalog number is PowerFlex 755T input type; catalog code D= 755TM common bus inverter with precharge, E= 755TM common bus inverter without precharge, catalog code F= 755TL, catalog code G= 755TR.

(4)   Width dimension shows total width with power bay and control bay. The control bay is always 300 mm (11.8 in.). One control bay can serve two power bays if configured correctly. Optional wiring bays add to total width. If optional bays are required, refer to publication 750-TD100 for dimensions and weights.

Table 32 - 932V DC Input Dimension Cross Reference

PowerFlex 700S (20D…)						PowerFlex 755TM Common Bus Inverter (20G1D/E…)				
Frame Size	DC Input without Precharge Catalog Number[1]	Enclosure Type	Width mm (in.)	Height mm (in.)	Depth[2] mm (in.)	Frame Size	Common Bus Inverter Catalog Number[3]	Width[4] mm (in.)	Height IP21/IP54 mm (in.)	Depth IP21/IP54 mm (in.)
F9 F9	20DM170x… 20DM208x	IP21	480 (18.9)	1150 (45.3)	363 (14.3)	F8	20G1ynF215…	700 (27.6)	2132 (83.9)/ 2291 (90.2)	676 (26.6)/ 721 (38.4)
F10	20DM261x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynF265…			
F10	20DM325x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynF330…			
F10 F10	20DM385x… 20DM416x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynF370…			
F10 F10	20DM385x… 20DM416x…	IP21 Rittal IP20 MCC IP54 Rittal	597 (23.5) 635 (25) 606 (24)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (25) 635 (25) 655 (25.8)	F8	20G1ynF415…			
F11 F11	20DM460x… 20DM502x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F8	20G1ynF505…			
F11 F11	20DM502x… 20DM590x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F9	20G1ynF565…	900 (35.4)	2132 (83.9)/ 2291 (90.2)	676 (26.6)/ 721 (38.4)
F11	20DM590x…	IP21 Rittal IP20 MCC IP54 Rittal	797 (31.4) 889 (35) 806 (31.7)	2275 (89.6) 2286 (90) 2415 (95)	622 (24.5) 635 (25) 655 (25.8)	F9	20G1ynF650…			
F12	20DM650x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynF735…			
F12 F12 F12	20DM650x… 20DM750x… 20DM820x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynF735…			
F12 F12	20DM750x… 20DM820x…	IP21 Rittal IP20 MCC IP54 Rittal	1196 (47) 1270 (50) 1205 (47.4)	2275 (89.6) 2286 (90) 2404 (94.6)	633 (24.9) 635 (25) 655 (25.8)	F9	20G1ynF820…			
F13	20DM920x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F9	20G1ynF920…			
F13	20DM1K0x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynF1K0…	1100 (43.3)	2132 (83.9)/ 2291 (90.2)	676 (26.6)/ 721 (38.4)
F13	20DM1K1x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynF1K1…			
F13	20DM1K1x…	IP21 Rittal IP54 Rittal	1412 (56)	2275 (89.6) 2444 (104.5)	619 (24.4) 662 (26.1)	F10	20G1ynF1K4…			
F14	20DM1K5x…	IP21 Rittal IP54 Rittal	1597 (63) 1597 (63)	2270 (89.4) 2276 (90)	620 (24.5) 662 (26)	F11	20G1ynF1K8…	1500 (59)	2132 (83.9)/ 2291 (90.2)	676 (26.6)/ 721 (38.4)
						F12	20G1ynF2K3…	1700 (66.9)	2132 (83.9)/ 2291 (90.2)	676 (26.6)/ 721 (38.4)

(1) <x> in catalog number is PowerFlex 700S enclosure type; catalog code A = IP21 Rittal, catalog code B = IP20 MCC, catalog code H = IP54 Rittal.

(2) The dimensions of these PowerFlex 700S units is less than the equivalent PowerFlex 755T unit. Use judgment to Confirm there is sufficient space for the migration solution.

(3) <n> In catalog number is PowerFlex 755T enclosure type; catalog code 3= IP21, catalog code 4= IP54.
<y> in catalog number is PowerFlex 755T input type; catalog code D= 755TM common bus inverter with precharge, E= 755TM common bus inverter without precharge, catalog code F= 755TL, catalog code G= 755TR.

(4) Width dimension shows total width with power bay and control bay. The control bay is always 300 mm (11.8 in.). One control bay can serve two power bays if configured correctly. Optional wiring bays add to total width. If optional bays are required, refer to publication 750-TD100 for dimensions and weights.

Device Ports and Main Control Board I/O

The PowerFlex 700S drive had some provision to add I/O and communication option modules. The PowerFlex 755T products have many optional I/O and communication modules.

PowerFlex 700S Device Ports and Main Control Board

The PowerFlex 700S main control board has fixed I/O module configurations that you cannot modify. There are a number of cable connection points that allow various HIM and communication DPI™ connections.

Figure 8 - PowerFlex 700S Device Connector Locations and Assignments

The HIM panel opens to allow access to the DPI interface board on back side of panel. To open the panel, remove the screws on left side of the HIM panel and swing open.

Back View

To drive control (Main Control board on 700S, DPI Interface board on 700H).
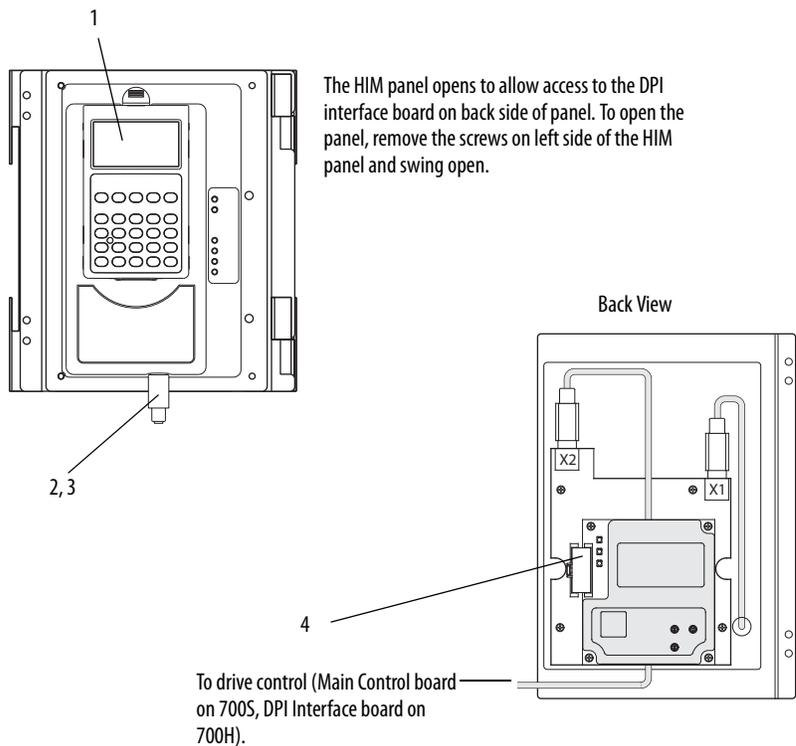
No.	Connector	Description
1	DPI Port 1	HIM connection when installed in the drive.
2	DPI Port 2	Cable connection for handheld and remote options.
3	DPI Port 3 or 2	Splitter cable that is connected to DPI Port 2 provides additional port.
4	DPI Port 5	Cable connection for communications adapter.

DPI Port 4 is not available.

Figure 9 - PowerFlex 700S Main Control Board Switch and Jumper Locations

SWITCH S1

RUN   PROG   REMOTE

Down   Up   Center

JUMPER P22

4 3 / 2 1 = HW Enable

4 3 / 2 1 = No HW Enable

SWITCH S5

SIDE VIEW   FRONT TOP VIEW

Up = Open = Off ↑

Down = Closed = On ↓

1 2

JUMPER P13

16 / 15 = Gate Enabled

16 / 15 = Gate Disabled

SWITCH S2

SIDE VIEW   FRONT TOP VIEW

Up = Open = Off ↑

Down = Closed = On ↓

1 2   3 4

SWITCH S3

SIDE VIEW   FRONT TOP VIEW

Up = Open = Off ↑

Down = Closed = On ↓

1 2

SWITCH S4

SIDE VIEW   FRONT TOP VIEW

Up = Open = Off ↑

Down = Closed = On ↓

1 2

Table 33 - PowerFlex 700S Main Control Board Switch and Jumper Assignment

Function	Default	Switch	Open	Closed	Notes
HW Enable Jumper (P22)	pins 2-4 HW Enbl	SHUNT Jumper	pins 2-4 HW Enbl	pins 1-3 No Enbl	No Jmpr = HW Enbl.
Gate Enable Jumper (P13)	Jumper on pins 15-16	SHUNT Jumper	No Jmpr	Jumper on pins 15-16	No Jmpr = Gate disable or Safe-Off/Second Encoder board is present[1]
Analog Input 1	Voltage	S5-2	Voltage	Current	Change with Power Off
Analog Input 2	Voltage	S5-1	Voltage	Current	Change with Power Off
Digital Inputs 4-6 Voltage	24V DC	S4-1, S4-2	115V AC	24V DC	Change with Power Off
Digital Input 1 Voltage	24V DC	S3-1	24V DC	12V DC	Change with Power Off
Digital Input 2 Voltage	24V DC	S3-2	24V DC	12V DC	Change with Power Off
Encoder Supply Voltage	12V DC	S2-4	12V DC	5V DC	Change with Power Off
Encoder Signal A Voltage	12V DC	S2-1	12V DC	5V DC	Typically, set all switches the same
Encoder Signal B Voltage	12V DC	S2-2	12V DC	5V DC	
Encoder Signal Z Voltage	12V DC	S2-3	12V DC	5V DC	

Function	Switch	Down	Up	Center	Notes
DriveLogix Processor	S1	RUN	PROG	REMOTE	Processor Mode

(1) See publication 20D-UM007, DriveGuard® Safe Torque Off Option for PowerFlex 700S Phase II AC Drives and PowerFlex 700L Liquid-Cooled AC Drives, for more information on the Safe Torque Off Option board, or publication, 20D-IN009 Installation Instructions - Second Encoder Option Card for PowerFlex 700S Drives with Phase II Control, for more information on the Second Encoder Option board.

Figure 10 - PowerFlex 700S Main Control Board I/O Connector Locations

Control
Cassette

TB1 Terminals

TB2 Terminals
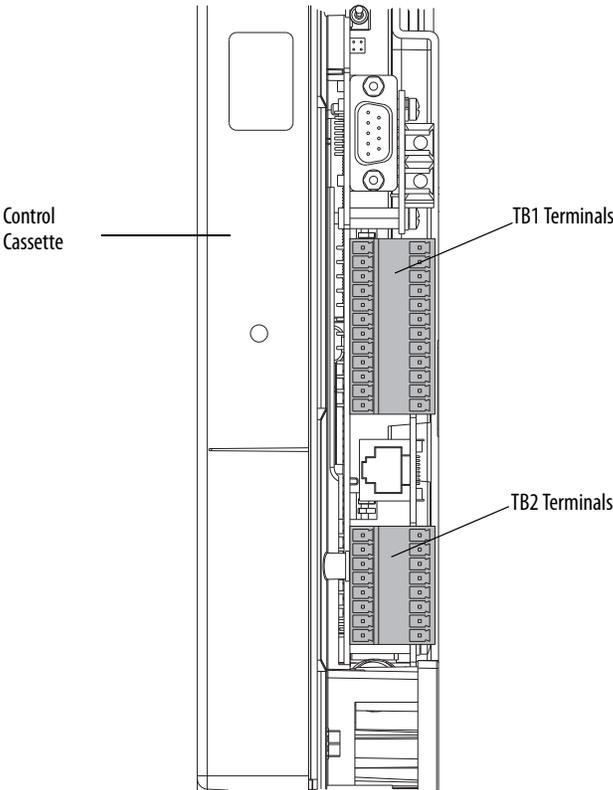
Table 34 - PowerFlex 700S Main Control Board I/O Connections

Connector	Description
TB1	Analog I/O and Encoder Signals
TB2	Digital I/O

See publication PFLEX-IN006 for I/O connector wiring and analog configuration jumpers.

See Hardware Enable Circuits on page 74 for information on using Hardware Enable.

The PowerFlex 700S could be equipped with several communication and feedback options. Not all devices that are shown in Table 35 have equivalent PowerFlex 755T devices. See Specification and Features Comparison on page 35, Drive Configuration on page 89, and Communication Configuration on page 113 for more information about compatible PowerFlex 755T devices.

Table 35 - PowerFlex 700S Drive Options Assignment

Port	Device	Description
DPI 5	20-COMM-E[1], 20-COMM-ER[1] 1788-ENBT[2], 20D-DL2-ENET0[3]	EtherNet/IP
	20-COMM-C 1788-CNC/CNCR[2]	ControlNet
	20-COMM-Q 1788-CNF/CNFR[2]	ControlNet Fiber
	20-COMM-D 1788-DNB0[2]	DeviceNet
	20-COMM-H	HVAC
	20-COMM-K	CANopen
	20-COMM-M	Modbus/TCP
	20-COMM-P	PROFIBUS DP
	20-COMM-R[4]	Remote I/O
	20-COMM-S	RS-485 DF1
0	20D-P2-SLB0	SynchLink
	20D-DL2-LEB0[5]	Logix Expansion DriveLogix™ 5730
	20D-MDI-C2[5][6]	Multi-Device Interface
	20D-P2-DG01[5][6]	DriveGuard Safe Torque Off with 2nd Encoder
	20D-P2-ENC0[5][6]	2nd Encoder
	20D-RES-A1[5][6]	Resolver
	20D-STEG-B1[5][6]	Stegmann High Resolution Hiperface Encoder
	Catalog code L (-T)[5][6][7]	Stegmann High Res Enc with 2nd Encoder
	Catalog code L (-U)[5][6][7]	Stegmann High Res Enc with DriveGuard Safe Torque Off
—	20-24V-AUX1	Auxiliary Control Power Supply

(1) Frame 9 requires Expanded Cassette, frames 10…14 have standard Expanded Cassette.
(2) Requires DriveLogix option.
(3) Requires DriveLogix 5730 option.
(4) This item has End of Life status.
(5) Requires Expanded Cassette.
(6) Only one optional feedback module can be installed.
(7) Factory-installed option only.

IMPORTANT   If the existing PowerFlex 700S system uses any of the available analog I/O, encoder input, safety modules, or Logix digital I/O you will need to supply and configure appropriate PowerFlex 750 I/O option modules for the replacement PowerFlex 755T product. See Chapter 2 for more details.

PowerFlex 755T Product Device Ports and Main Control Board

Connectors, embedded devices, and installed option modules such as I/O and communication adapters have unique port number assignments. Connectors and embedded devices have fixed port numbers that cannot be changed. Option modules are assigned a port number when installed.

Table 36 - PowerFlex 755T Device Port Assignment

Port	Device	Description
00	Host main control board	Fixed port for the main control board and embedded dual port EtherNet.
01	20-HIM-A6 20-HIM-C6S	Fixed port at HIM cradle connector. Splitter cable connector provides Port 01 when HIM cradle connect is not used.
02	DPI port	8-pin round mini-DIN connector for handheld/remote HIM, 1203-USB, or splitter cable connections.
03	Splitter cable	Connects to DPI port 02. Provides port 02 and port 03.
04…08	I/O option modules	Valid port(s)
	20-750-1132C-2R (24V DC)	04…08
	20-750-1133C-1R2T (24V DC)	
	20-750-1132D-2R (120V AC)	
	20-750-2262C-2R (24V DC)	
	20-750-2263C-1R2T (24V DC)	
	20-750-2262D-2R (120V AC)	
	20-750-ATEX[1]	04…06 (bottom row only)
	Communication option modules	
	20-750-DNET	04…06 (bottom row only)
	20-750-CNETC	
	20-750-ENETR	
	20-750-PNET	
	20-750-PNET2P	
	Safety option modules	
	20-750-S[2]	04…08
	20-750-S1[2]	04…06 (bottom row only)
	20-750-S3[2]	04…06 (bottom row only)
	Feedback option modules	
	20-750-ENC-1	04…08
	20-750-DENC-1	04…08 04…06 (bottom row only), when used with 20-750-S1
	20-750-UFB-1	04…06 (bottom row only)
	AMCI RD750	04…05
09	Application parameters	Built-in applications; TorqProve™, PID, and so on.

Table 36 - PowerFlex 755T Device Port Assignment (Continued)

10	Motor side inverter primary control parameters	Fixed ports for Motor Side Inverter Control Parameters
11	Motor side inverter secondary control parameters	
12	Motor Side Inverter Power Parameters	Fixed port for Motor Side Inverter Power Parameters
13	Line side converter control parameters	Fixed port for the Line Side Converter Control parameters
14	Line side converter power parameters	Fixed port for the Line Side Converter Power parameters

(1)   Requires compatible 20-750-113x I/O module. See the PowerFlex 750-Series ATEX Option Module user manual, publication 750-UM003.

(2)   Only one safety option module can be installed.

Figure 11 - PowerFlex 755T Main Control Board I/O and Jumper Locations
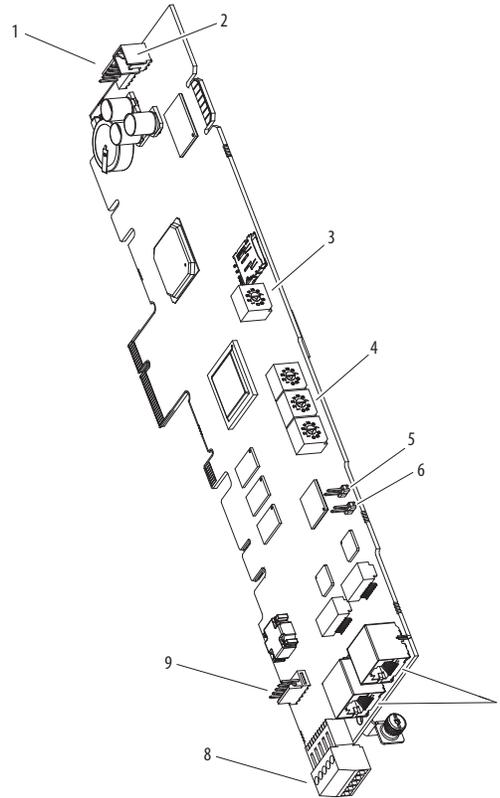
Table 37 - Main Control Board Details

Item	Name	Description
1	HIM Connector	DPI Port 01 (HIM Cradle) connection.
2	Fan Connector	Power supply for internal cooling fan.
3	Control Selector	Rotary switch for setting the programming mode.
4	Embedded EtherNet/IP[1] Address Selectors	Rotary switches for setting lowest octet of EtherNet/IP address (forces address to 192.168.1.*xxx*). See publication 750-PM100 for instructions on setting the IP address.
5	SAFETY Jumper	Safety enable jumper. Removed when safety option is installed. Safety option modules do not function with line side converter, so this jumper must be installed if this is a line side converter hardware configuration.
6	ENABLE Jumper	Hardware enable jumper. TB1 becomes an Enable when this jumper is removed. See Hardware Enable Circuits on page 74 for more information.
7	Built-in EtherNet/IP[1] Connectors	Network cable connections.
8	TB1	I/O terminal block.
9	DPI Port 2	DPI Port 02, cable connection to 8-pin round mini-DIN chassis-mounted connector. Mini-DIN connector that is used for handheld/remote HIM option and 1203-USB connections.

(1) See the PowerFlex 750-Series Drives with TotalFORCE Control Built-in EtherNet/IP Adapter User Manual, publication 750COM-UM009 for detailed configuration information.

Hardware Enable Circuits

The PowerFlex 700S drive digital input Di 6 can be programmed for any available digital input functions, including hardware enable. The PowerFlex 700S drive has a hardware enable jumper (P22) on the main control board. See Figure 9 to identify jumper (P22). By default, hardware enable is not used, jumper (P22) is closed (connected to pins 1…3), and Di 6 can be configured for other uses. If hardware enable is used, jumper (P22) is open (connected to pins 2…4), requiring a hardware enable contact wired to Di 6. Parameter P830 [Dig In6 Sel] is not available when HW Enable is enabled (jumper (P22) is open, on pins 2-4).

Table 38 - P22 Switch and Jumper Settings

Function	Default	Switch	Open	Closed	Notes
HW Enable Jumper (P22)	Pins 2…4 HW Enbl	SHUNT Jumper	pins 2…4 HW Enbl	pins 1…3 No Enbl	No Jmpr = HW Enbl

The PowerFlex 755T Main Control Board Port 0, Digital input Di 0 can be configured for any available digital input functions, including DI ENABLE. See Figure 11 to identify the ENABLE jumper (J7). By default hardware enable is not used and jumper (ENABLE) is installed. If hardware enable is used, ENABLE jumper (J7) is removed.

- If the Main Control Board Port 0, Di 0 will be used for the hardware enable input, verify that parameter 0:103 [DI M Enable] is set = 0:100.00 [Digital In Sts].

- If it is desired to use the same Port 0, Di 0 input for the line side converter enable, 0:105 [DI L Enable] is set = 0:100.00 [Digital In Sts]. This setting is not applicable to PowerFlex 755TM common bus inverters.

> **TIP** If desired, a digital input on an installed I/O option module can be assigned to the hardware ENABLE input by setting 0:103 [DI M Enable] and/or 0:105 [DI L Enable] = to the Port and digital input status parameter and bit on the I/O option module that will be used as the hardware ENABLE.

Customer Power Terminal Comparison

This section compares customer power terminals of the PowerFlex 700S frames 9…14 drives and PowerFlex 755TL/TR drives and PowerFlex 755TM common bus inverters frames 8…12.

PowerFlex 700S Customer Power Terminal Locations and Specifications

Figure 12 - Terminal Locations and Power Terminal Block

DC-, DC+/R+, R- terminals shown with protective cover removed.
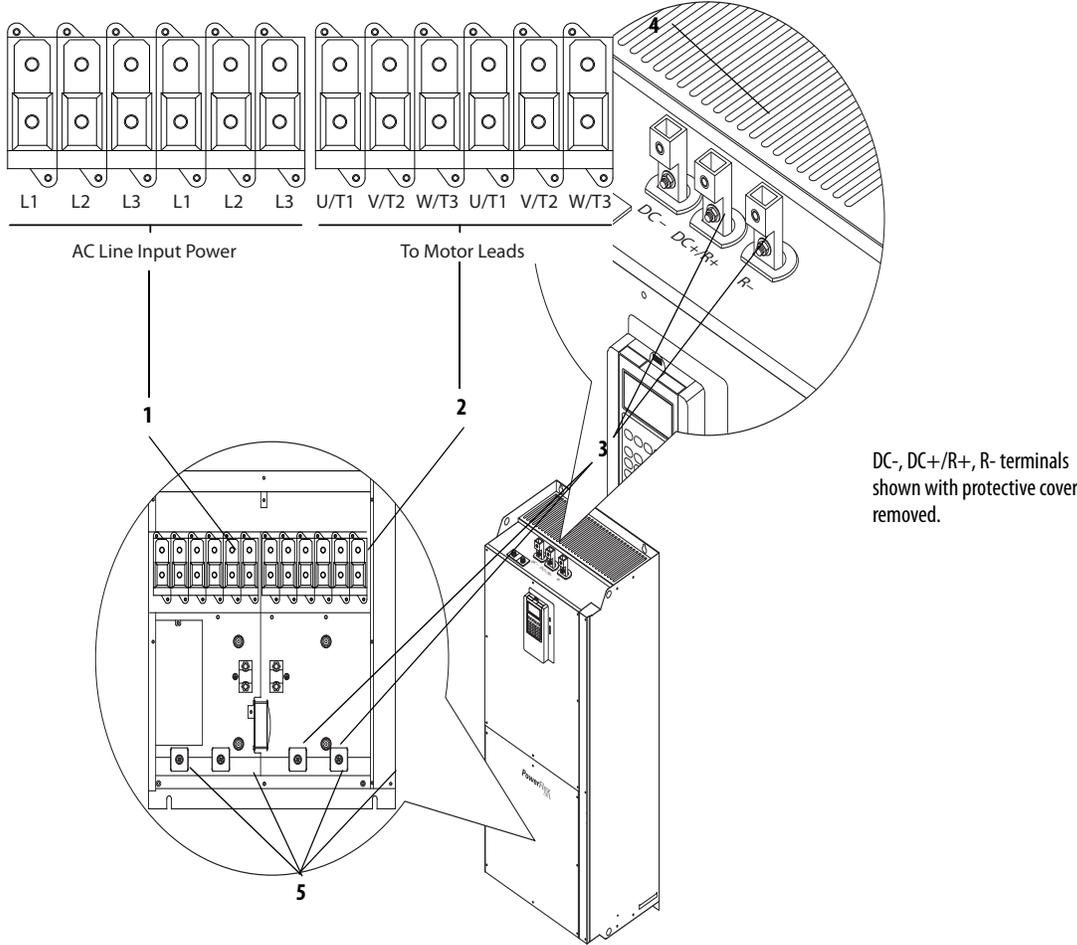
Table 39 - PowerFlex 700S Frame 9 Power Terminal Specifications

No.	Name	Description	Wire Size Range [3]		Torque
			Maximum	**Minimum**	**Recommended**
1	Input Power Terminal Block [1] L1, L2, L3	Input power	185.0 mm^2 (350 MCM)	95.0 mm^2 (4/0 AWG)	40 N•m (354 lb•in)
2	Output Power Terminal Block [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)
3	SHLD Terminal, PE, Motor Ground	Terminating point for wiring shields	95.0 mm^2 (4/0 AWG)	5.0 mm2 (10 AWG)	22 N•m (195 lb•in)
4	DC Bus [2] (2 Terminals; DC−, DC+)	DC input or external brake resistor	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	185.0 mm^2 (350 MCM)	95.0 mm^2 (4/0 AWG)	40 N•m (354 lb•in)
5	Cable Clamp for Shield				

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

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

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

Figure 13 - PowerFlex 700S Frame 10 Power Terminal Locations
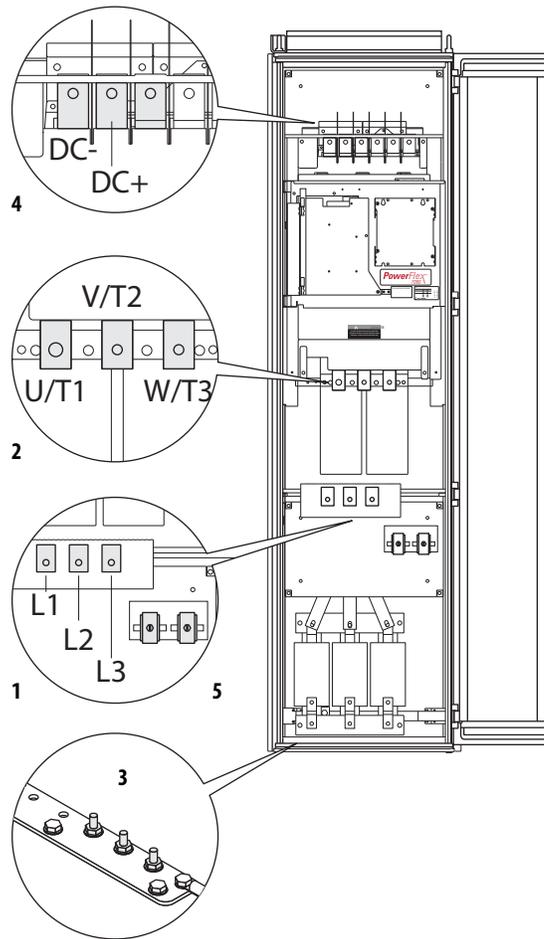

Table 40 - PowerFlex 700S Frame 10 Power Terminal Specifications

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

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

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

(3)   These connections are Busbar 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 to avoid damage to the terminal.

**Figure 14 - PowerFlex 700S Frame 11 Power Terminal Locations**
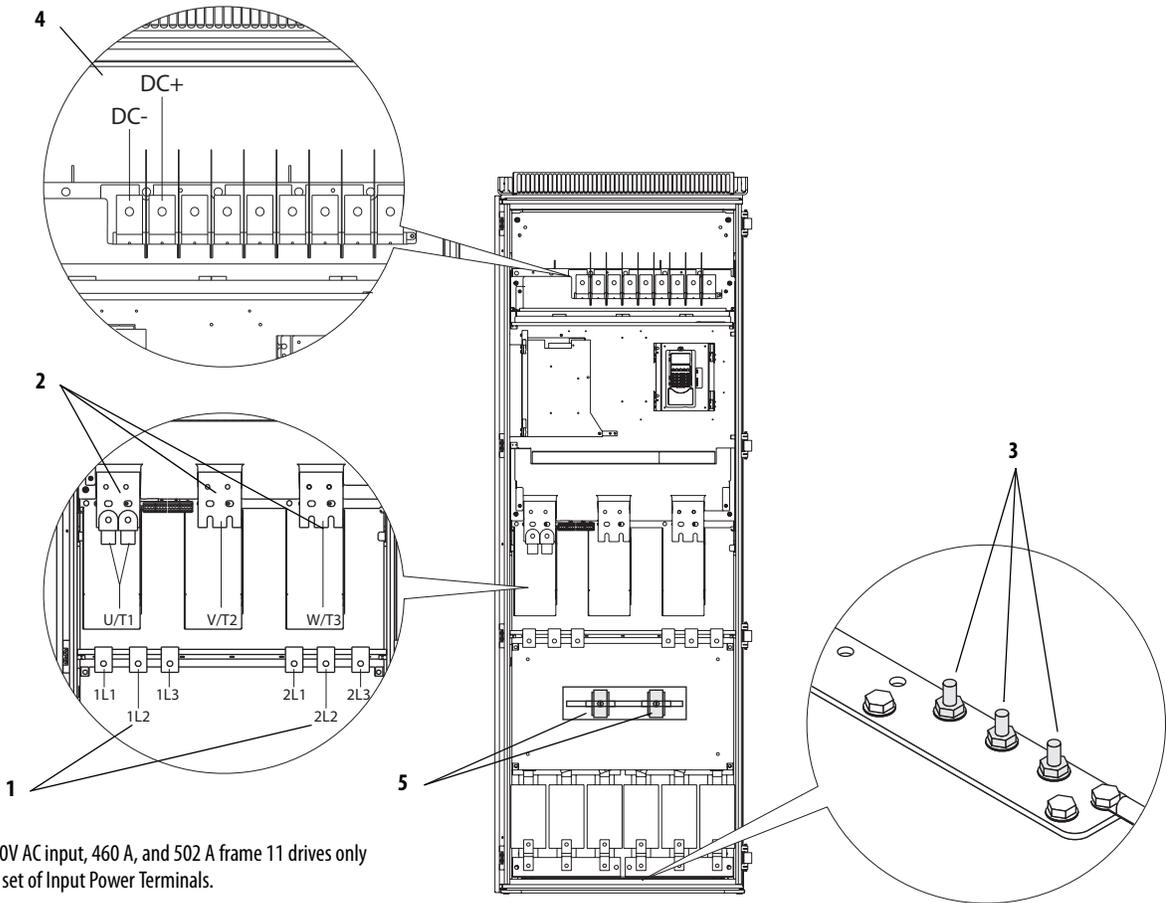
Note: 600V AC input, 460 A, and 502 A frame 11 drives only have one set of Input Power Terminals.

Table 41 - PowerFlex 700S Frame 11 Power Terminal Specifications

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

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

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

(3) These connections are Busbar 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 to avoid damage to the terminal.

Figure 15 - PowerFlex 700S Frame 12 Power Terminal Locations

Enclosure Style A Shown
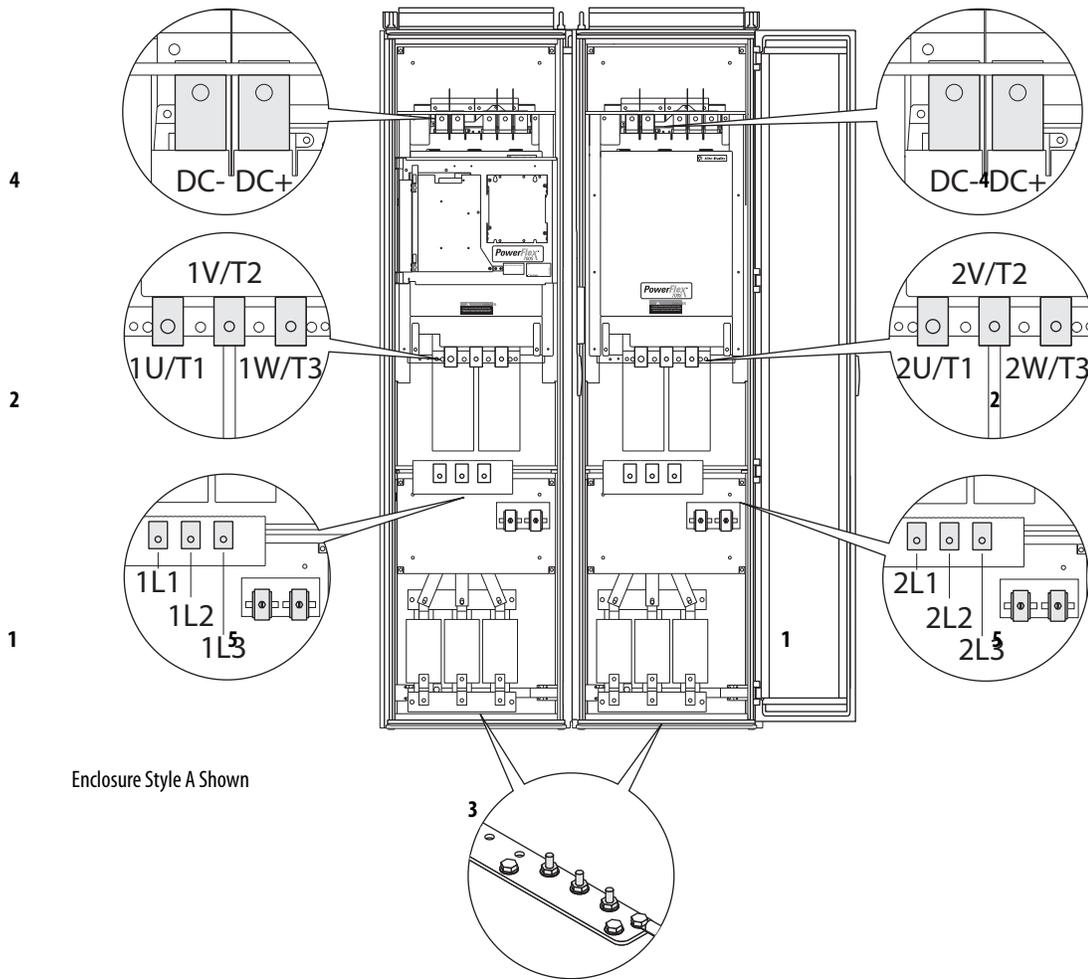
Table 42 - PowerFlex 700S Frame 12 Power Terminal Specifications

No.	Name	Description	Wire Size Range [1][2]		Torque	Terminal Bolt Size [3][4]
			Maximum	**Minimum**	**Recommended**	
1	Input Power Terminal Block[3] 1L1, 1L2, 1L3, 2L1, 2L2, 2L3	Input power	300 mm² (600 MCM)	2.1 mm² (14 AWG)	40 N•m (354 lb•in)	M12
2	Output Power Terminal Block[3] 1U/1T1, 1V/1T2, 1W/1T3, 2U/2T1, 2V/2T2, 2W/2T3	Motor connections	300 mm² (600 MCM)	2.1 mm² (14 AWG)	40 N•m (354 lb•in)	M12
3	SHLD Terminal, PE, Motor Ground[3]	Terminating point for wiring shields	300 mm² (600 MCM)	2.1 mm² (14 AWG)	40 N•m (354 lb•in)	M10
4	DC Bus[3] (2 Terminals; DC−, DC+)	DC input or external brake	300 mm² (600 MCM)	2.1 mm² (14 AWG)	40 N•m (354 lb•in)	M12
5	Cable Clamp for Shield					

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

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

(3) These connections are Busbar 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 to avoid damage to the terminal.

Figure 16 - PowerFlex 700S Frame 13 Power Terminal Locations
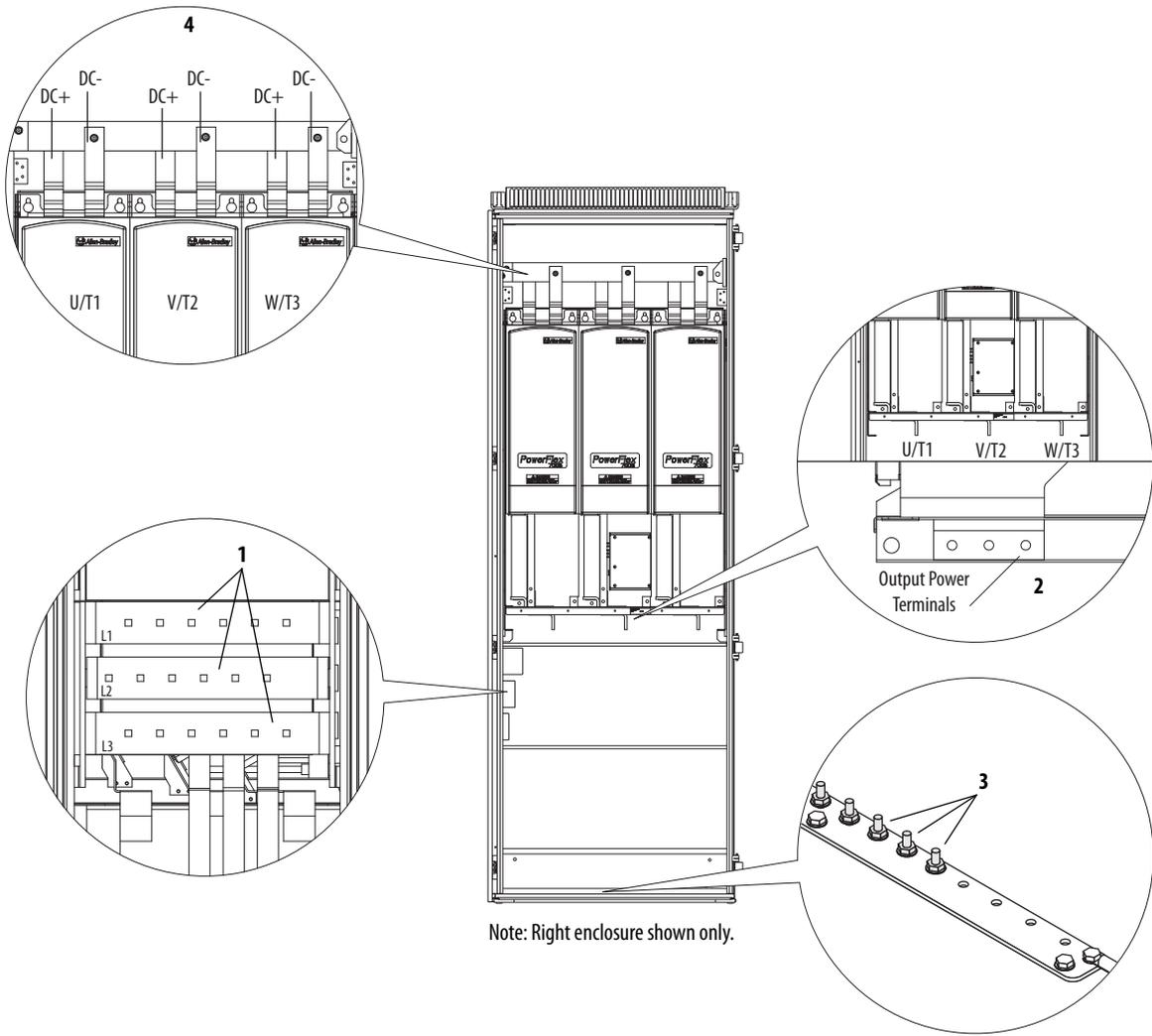
Note: Right enclosure shown only.

Table 43 - PowerFlex 700S Frame 13 Power Terminal Specifications

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

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

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

(3) These connections are busbar 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 17 - PowerFlex 700S Frame 14 Power Terminal Locations
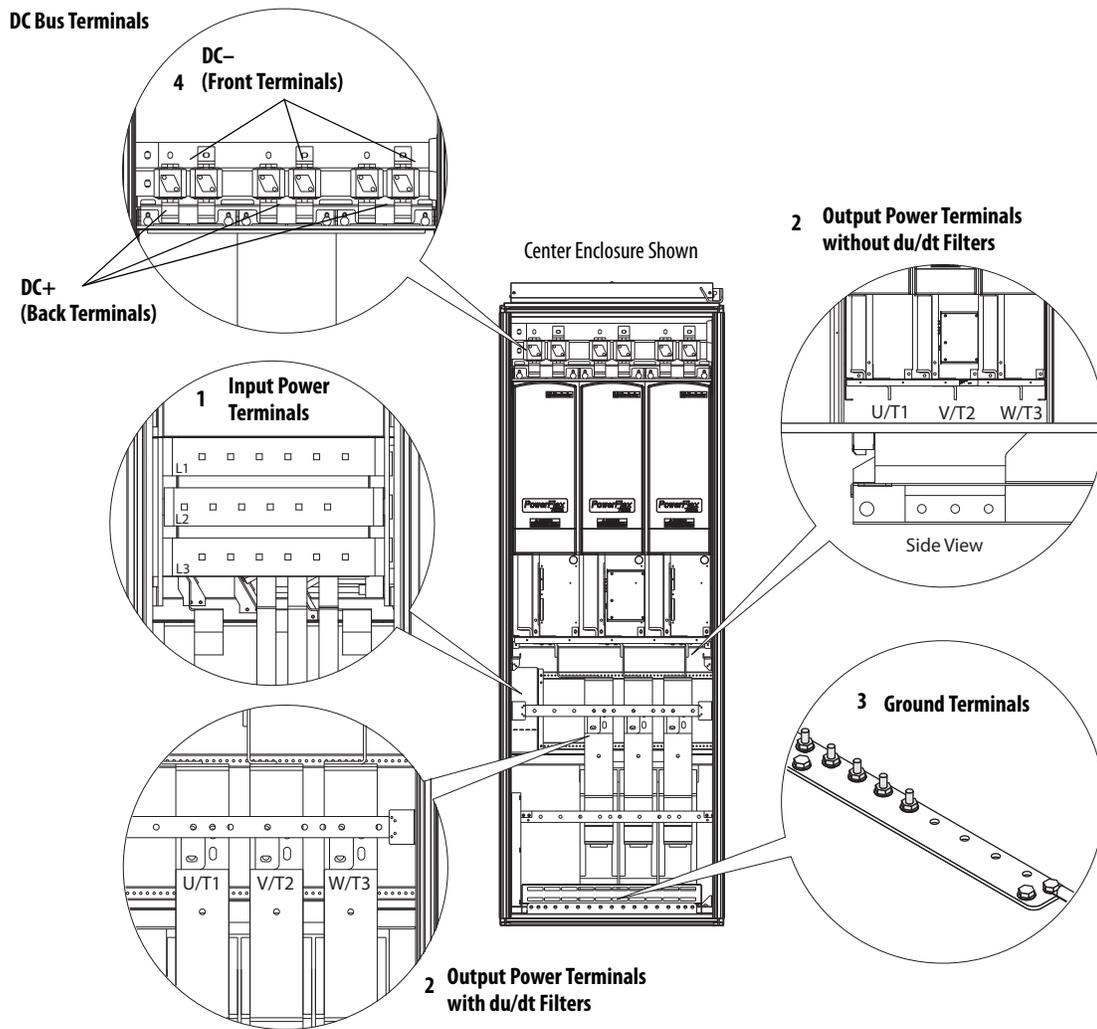
Table 44 - PowerFlex 700S Frame 14 Power Terminal Specifications

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

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

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

(3)   These connections are Busbar 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.

PowerFlex 755T Customer Power Terminal Locations and Specifications

Customer Power Connections

AC line input power and output motor connections are made by using customer-supplied barrel lugs that are either crimp or mechanical type. Barrel lugs that are used to make the power cable connections to busbars must have the dimensions in the following graphic.

Figure 18 - UL-listed Barrel Lug Dimensions
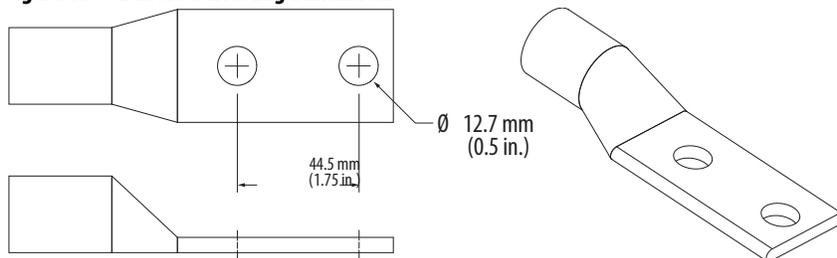
Use the vendor-recommended tooling to fasten crimp type terminals to cabling. Torque mechanical type terminals according to vendor instructions.

L-Bracket Connections

Power cable connections in entry and exit wire bay are made using L-brackets. The M10 hardware that is required to fasten the L-brackets to the extruded busbar is provided. Wires with appropriate barrel lugs can be bolted to both sides of the L-brackets if necessary. Up to four conductors can be attached to each L-bracket. Attach the conductors to the L-brackets using M12 or 0.5 in. diameter bolts, nuts, and washers. Belleville spring washers, or equivalent, are recommended. Keep the L-bracket connections at least 51 mm (2 in.) away from the ends of the extruded busbar.
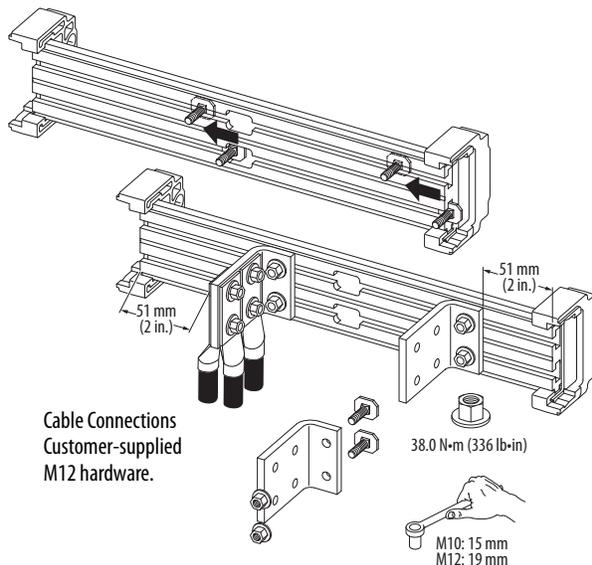
Busbar Connections

AC line input power and output motor cables with appropriate barrel lugs are connected directly to busbars and use the fastening hardware provided. Keep the wire connections at least 51 mm (2 in.) away from the ends of the extruded busbar. Clamp kits, SK-RM-GRNDCLMP-*nn*, are available for making connections to the PE ground bar.

Figure 19 - Busbar Connections

51 mm (2 in.)

51 mm (2 in.)

38.0 N•m (336 lb•in)

M10: 15 mm
M12: 19 mm

Frame 8 Cable Connections
Customer-supplied M12 hardware.

Ground Clamp
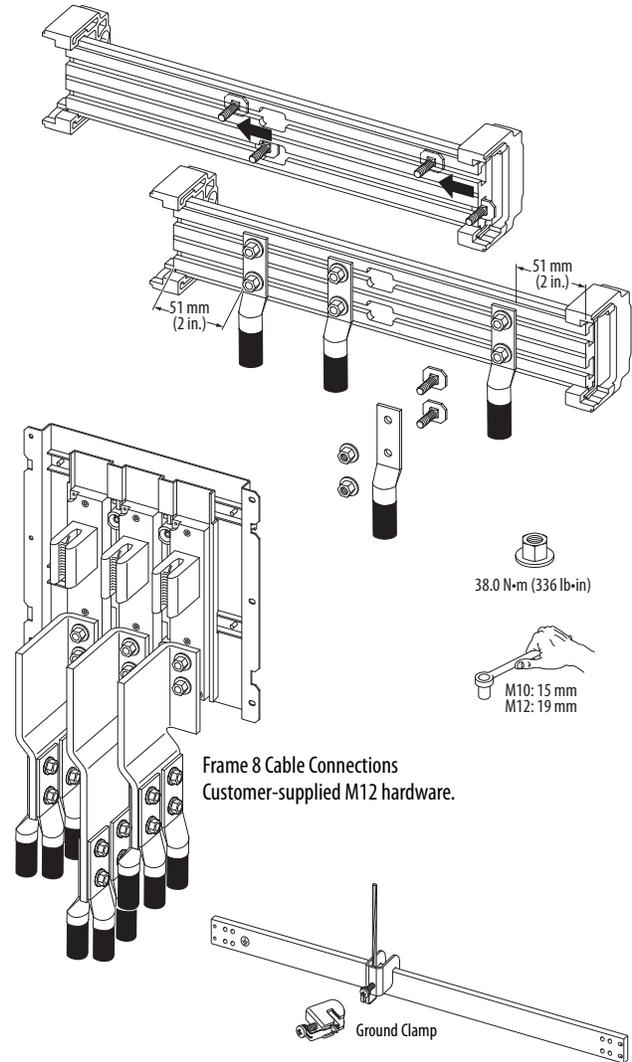
Additional Power Terminal L-Brackets

PowerFlex 755T entry and exit wire bays come equipped with L-brackets. If an application requires additional L-brackets, kit number 20-750-MLBRKT-F8M is available. Each kit contains three L-brackets and mounting hardware.

Figure 20 - L-Bracket Approximate Dimensions
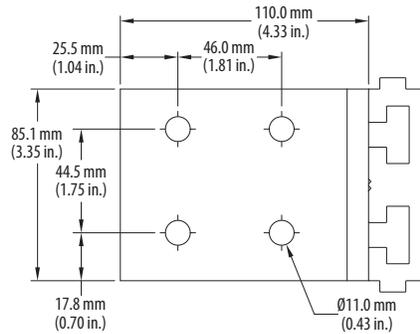
When using mechanical barrel lugs, which may be large, be sure to maintain adequate spacing to adjacent wires, terminals, and other parts.

Figure 21 - Typical Barrel Lug Connection to L-Bracket Options

Left Side   Right Side   Both Sides - Up to four lugs.
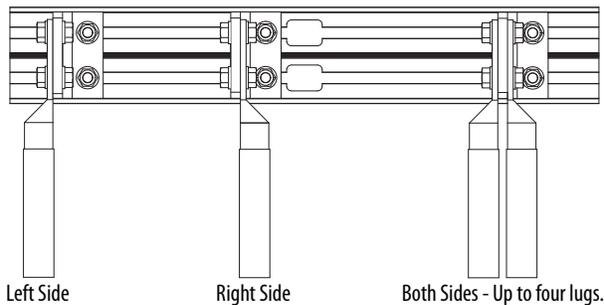
IMPORTANT	PowerFlex 755T products may require multiple conductors in parallel. Wire size and number of conductors must be determined by the customer based on drive rated current, local codes, operating conditions, and specific application needs. When using multiple conductors per phase, symmetrical spacing of the input and output power cabling over the span of the busbar for each phase is required.
	When using multiple conductors per phase, wires must be arranged so that each conduit, bundle, or cable contains equal numbers of conductors from all three phases.

Figure 22 - PowerFlex 755TL/TR Frame 8…9 Drive Power Terminal Locations
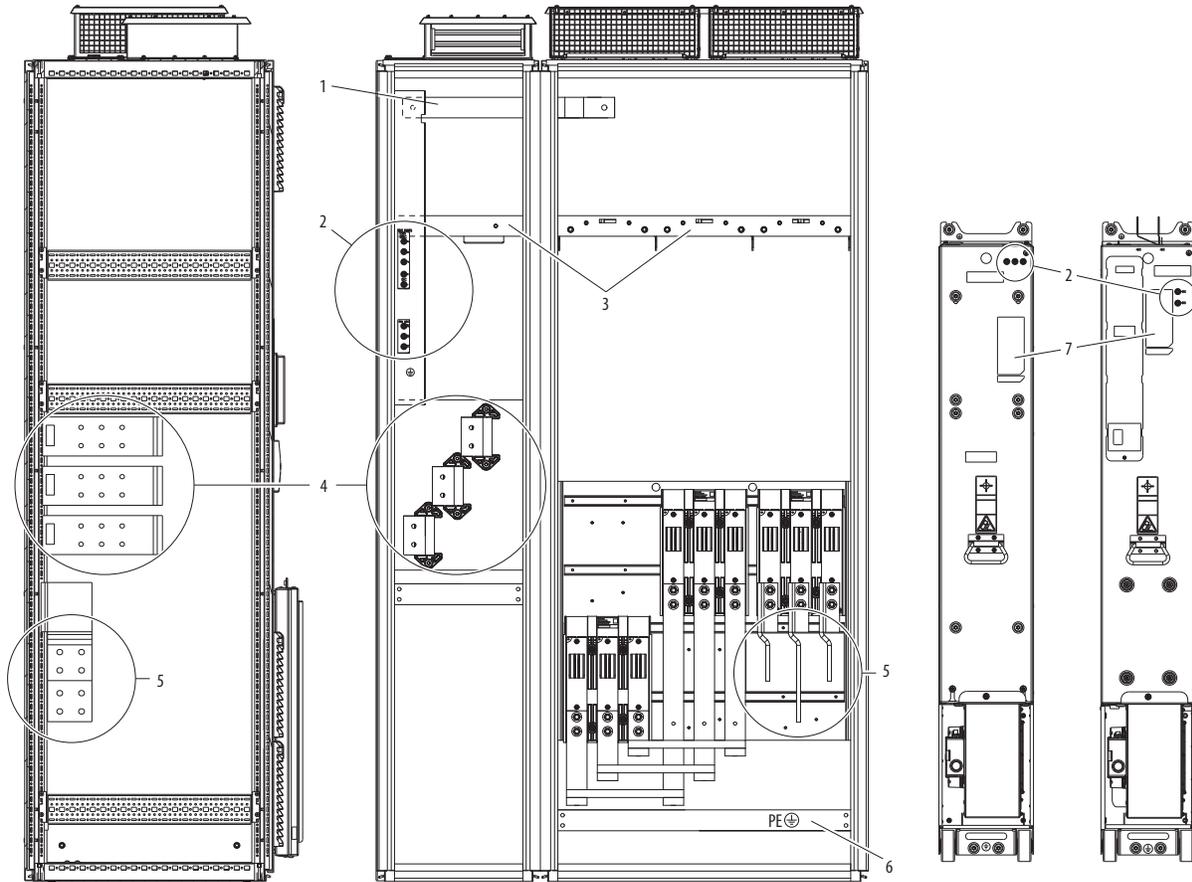
Frame 8 drive shown.

| Item	Name	Description
1	AC Link	Connects AC circuit breaker to LCL fuse assembly
2	Testpoints	DC+, DC- and R/L1, S/L2, T/L3 voltage testpoint sockets
3	Control Bus	120/240V and 24V AC control power supply connections
4	Power Bus	R/L1, S/L2, T/L3 AC line input power connections
5	Power Bus	U/T1, V/T2, W/T3 motor connections
6	PE Grounding Bar	Terminating point to chassis ground for incoming AC line and motor shield. PE ground bar clamps, kit number SK-RM-GRNDCLMP-*nn*, are available.
7	Nameplate	Power module and LCL filter module nameplate locations
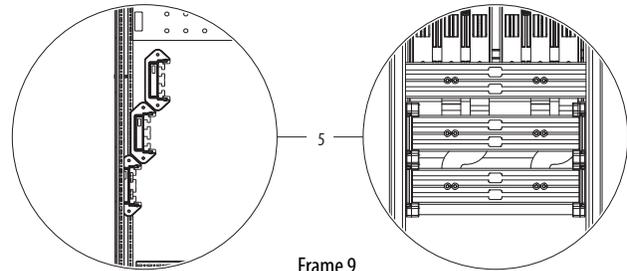
Frame 9

Figure 23 - PowerFlex 755TL/TR Frame 10, PowerFlex 755TR Frame 11…12 Drive Power Terminal Locations
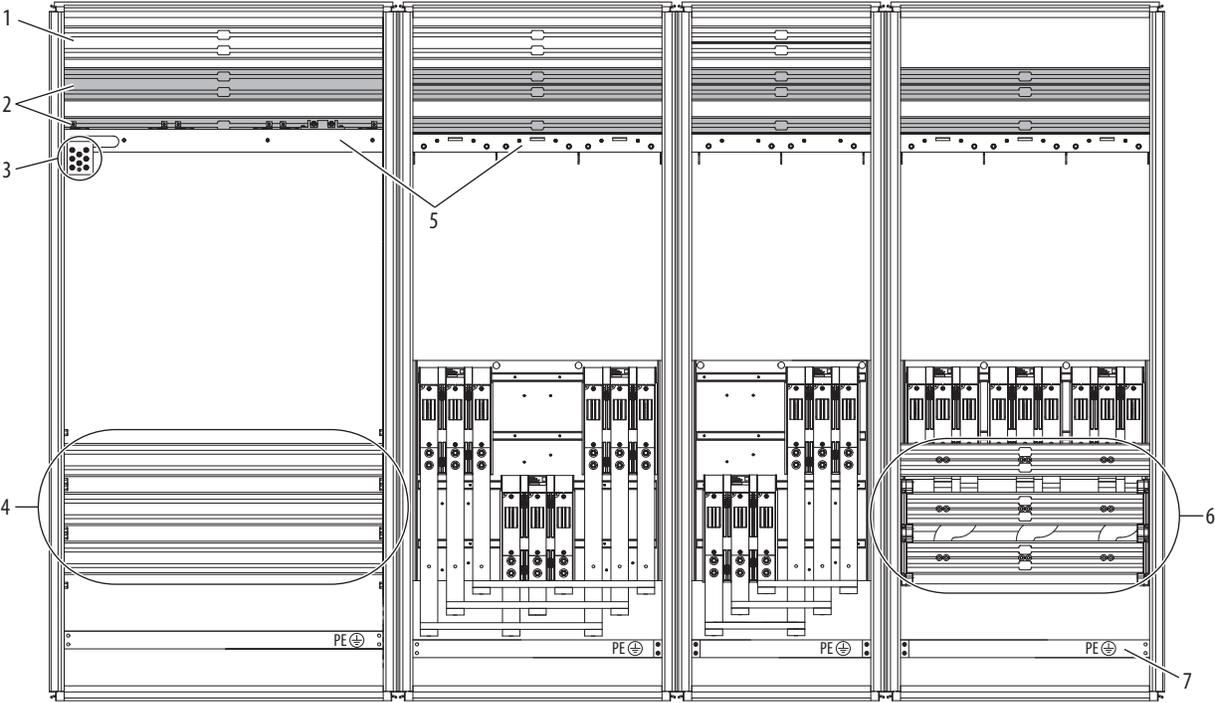
Frame 10 drive shown. Layout is typical for Frames 10 through 12.
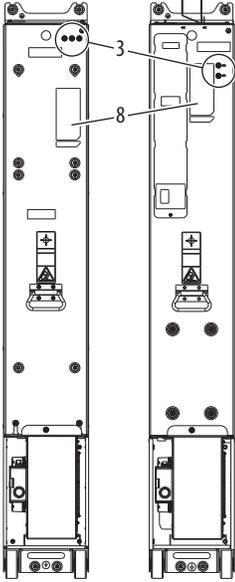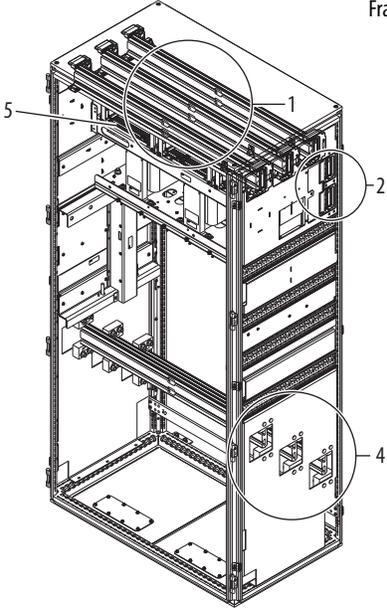
Item	Name	Description
1	AC Bus	AC power supply
2	DC Bus	DC+, DC-
3	Testpoints	DC+, DC- and R/L1, S/L2, T/L3 voltage testpoint sockets
4	Power Bus	R/L1, S/L2, T/L3 AC line input power connections

Item	Name	Description
5	Control Bus	120/240V and 24V AC control power supply connections
6	Power Bus	U/T1, V/T2, W/T3 motor connections
7	PE Grounding Bar	Terminating point to chassis ground for incoming AC line and motor shield. PE ground bar clamps, kit number SK-RM-GRNDCLMP-*nn*, are available.
8	Nameplate	Power module and LCL filter module nameplate locations

Figure 24 - PowerFlex 755TM Common Bus Inverter Frame 8…12 Drive Power Terminal Locations

Frames 8…12 Common Bus Inverters   Optional Entry and Exit Wire Bays

Frame 8   Frame 10 (Layout is typical for Frames 9 through 12.)

400 mm (15.7 in.)   800 mm (31.5 in.)

Item	Name	Description
1	DC bus	DC power supply
2	Control bus	Control power supply
3	Power bus	U/T1, V/T2, W/T3 motor connections
4	PE grounding bar	Terminating point to chassis ground for incoming AC line and motor shield. PE ground bar clamps, kit number SK-RM-GRNDCLMP-*nn*, are available.
5	Testpoints	DC+, DC- and R/L1, S/L2, T/L3 voltage testpoint sockets
6	Nameplate	Power module and LCL filter module nameplate locations

Item	Name	Description
1	DC bus	DC power supply
2	Control bus	Control power supply
3	Power bus	U/T1, V/T2, W/T3 motor connections
4	PE grounding bar	Terminating point to chassis ground for incoming AC line and motor shield. PE ground bar clamps, kit number SK-RM-GRNDCLMP-*nn*, are available.

Control Terminal Comparison

Use this section to compare the control terminal blocks of the PowerFlex 700S to the PowerFlex 755T products.

PowerFlex 700S Standard I/O

Digital and Analog I/O and a single Encoder input on the PowerFlex 700S are provided as standard on the main control board.

Table 45 - PowerFlex 700S TB1 Control Terminals
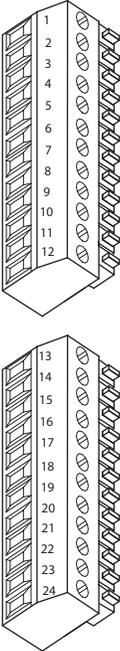
Terminal	Signal	Factory Default	Description	Related Parameter
1	Analog Input 1 Comm.	(Volt)	Bipolar, differential input, +/-10V, 0-20 mA, 13 bit + sign 20 kΩ impedance at Volt; 500 Ω impedance at mA[1]	800
2	Analog Input 1 (+/-)			
3	Shield	NA	Analog Input shield	
4	Analog Input 2 Comm.	(Volt)	Bipolar, differential input, +/-10V, 0-20 mA, 13 bit + sign 20 kΩ impedance at Volt; 500 Ω impedance at mA	806
5	Analog Input 2 (+/-)			
6	Analog Input 3 [NTC-] Comm.	(Volt)	Differential input, 0-10V, 10 bit (for motor control mode FVC2, this is the temperature adaptation input).	812
7	Analog Input 3 [NTC+]			
8	Shield	NA	Analog Output shield	
9	Analog Output 1 (-)	(Volt)	Bipolar, differential output, +/-10V, 0-20 mA, 11 bit + sign 2 kΩ minimum load	832, 833
10	Analog Output 1 (+)			
11	Analog Output 2 (-)	(Volt)		839, 840
12	Analog Output 2 (+)			
13	+10V Reference	NA	Rating: 20 mA maximum load (Recommend 5 kΩ pot)	
14	Reference Common	NA		
15	-10V Reference	NA		
16	Encoder A	NA	Normal current draw per channel: 20 mA	230…233
17	Encoder A (Not)	NA		
18	Encoder B	NA		
19	Encoder B (Not)	NA		
20	Encoder Z	NA		
21	Encoder Z (Not)	NA		
22	Encoder Reference (+)	NA	12 or 5V DC power supply for primary encoder interface Rating: 300 mA maximum	
23	Encoder Reference (-)	NA		
24	Encoder Shield	NA	Connection point for encoder shield	

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

Table 46 - PowerFlex 700S TB2 Control Terminals

	Terminal	Signal	Factory Default	Description	Related Parameter
	1	24V DC Common (-)	NA	Drive supplied 24V DC logic input power Rating: 300 mA maximum load	
	2	24V DC Source (+)	NA		
	3	Digital Output 1		24V DC Open Collector (sinking logic) Rating: Internal Source = 150 mA max. External Source = 750 mA	816, 847
	4	Digital Output 1/2 Com	NA	Common for Digital Output 1 & 2	
	5	Digital Output 2		24V DC Open Collector (sinking logic) Rating: Internal Source = 150 mA max. External Source = 750 mA	851, 852
	6	Relay Output 3 (NC)		Relay contact output Rating: 115V AC or 24V DC = 2 A max. Inductive/Resistive	856, 857
	7	Relay Output 3 Com	NA		
	8	Relay Output 3 (NO)			
	9	Digital Input 1-3 Com	NA	Common for Digital Inputs 1-3	
	10	Digital Input 1		High speed 12V or 24V DC[1], sinking Load:15 mA at 24V DC	825
	11	Digital Input 2			826
	12	Digital Input 3		Load:15 mA at 24V DC sourcing	827
	13	Digital Input 4-6 Com	NA	Common for Digital Inputs 4-6	
	14	Digital Input 4		Load: 10 mA at 24V DC sinking/sourcing Load: 7.5 mA at 115V AC **Note**: The 115V AC Digital Inputs can withstand 2 mA of leakage current without turning on. If an output device has a leakage current greater than 2 mA, a burden resistor is required. A 68.1 KΩ resistor with a 0.5 W rating should be used to keep the 115V AC output below 2 mA.	828
	15	Digital Input 5			829
	16	Digital Input 6	HW Enable		830

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

PowerFlex 755T I/O Option Modules

The PowerFlex 755T product main control board has one digital input that is typically used for hardware ENABLE. Optional 750-Series I/O modules must be added if additional digital and analog I/O is required.

Refer to the PowerFlex 750-Series Products with TotalFORCE Control installation instructions, publication 750-IN100, for detailed information about option modules.

Chapter 2 Control Devices shows an example of using a 20-750-2263C-1R2T, 24V DC I/O module to emulate a typical hardware control function used with a PowerFlex 700S drive.

Drive Configuration

Overview

The PowerFlex® 700S drive could be equipped with various I/O, feedback, and control options. Most of the available I/O and feedback options have equivalent PowerFlex 755T devices as indicated in the following table.

> **IMPORTANT** To achieve PowerFlex 755T motor control regulator performance equal to or greater than the PowerFlex 700S, it is highly recommended that you select the motor voltage feedback Torque Accuracy Module (TAM), control option code (-C0).

Table 47 - Feedback and I/O Comparison

Device or Function	PowerFlex 700S	PowerFlex 755T
Digital and Analog I/O	(s) 6 x digital input 3 x digital output 2 x analog input 2 x analog output	(o) 20-750-2263C-1R2T[1]
Encoder	(s) single channel incremental encoder	(o) 20-750-ENC-1 or 20-750-DENC-1[2]
SynchLink™	(o) 20D-P2-SLB0	—
Logix Expansion DriveLogix™ 5730	(o) 20D-DL2-LEB0	—
DriveLogix Compact I/O™	(o) additional config option codes (-K or –L), Compact I/O and cables	(o) 20-750-11/22 series I/O
Multi-Device Interface	(o) 20D-MDI-C2	(o) 20-750-UFB-1[3]
DriveGuard® Safe Torque Off with 2nd Encoder	(o) 20D-P2-DG01	(o) 20-750-S or 20-750-S3 and 20-750-DENC-1[2]
2nd Encoder	(o) 20D-P2-ENC0	(o) 20-750-ENC-1 or 20-750-DENC-1[2]
Resolver	(o) 20D-RES-A1	(o) Third-party, AMCI RD750
Stegmann High Res Hiperface Encoder	(o) 20D-STEG-B1	(o) 20-750-UFB-1[3]
Stegmann Enc w/ 2nd Encoder	(o) Feedback option code (-T)	(o) 20-750-UFB-1[3] plus 20-750-DENC-1[2]
Stegmann Enc w/ DriveGuard Safe Torque Off	(o) Feedback option code (-U)	(o) 20-750-UFB-1[3] plus 20-750-S/-S3
Auxiliary Control Power Supply	(o) 20-24V-AUX1	(s)
Motor Voltage Feedback	(s)	(o) Torque Accuracy Module (TAM), specify control option code (-C0)

(1) Other PowerFlex 755T I/O options are available if matching analog and digital I/O not required.
(2) See Table 48 on page 90 to see if your existing incremental encoder can be used with the 20-750-ENC-1 and 20-750-DENC-1 modules.
(3) See Table 49 on page 90 to see if your existing encoder can be used with the 20-750-UFB module.

Table 48 - PowerFlex 755 Incremental Encoder Compatibility

Consideration	Description
Input	Differential or Single Ended operation, Constant Current Sink operation ~10 mA
	5V DC minimum to 15V DC maximum sourcing 10 mA minimum high state voltage of 3.5V DC maximum low state voltage of 0.4V DC
Maximum Cable Length	30 m (100 ft) @ 5V, 183 m (600 ft) @ 12V
Maximum Input Frequency	250 Hz

Table 49 - PowerFlex 755 Universal Feedback Module Encoder Compatibility

Encoder on Channel 1 \ Encoder on Channel 0	None	EnDat SC	Hiperface SC	BiSS SC	SSI SC	EnDat FD ChX	EnDat FD ChY	BiSS FD ChX	BiSS FD ChY	SSI FD ChX	SSI FD ChY	SinCos only	Incmtl A B Z	Incmtl SC	LinTempo ChX	LinTempo ChY	LinStahN ChX	LinStahl ChY	Lin SSI ChX	Lin SSI ChY
None	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
EnDat SC	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Hiperface SC	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
BiSS SC	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
SSI SC	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
EnDat FD ChX	C	C	C	C	C	N	N	N	C	N	C	C	C	C	N	C	N	C	N	C
EnDat FD ChY	C	C	C	C	C	N	N	C	N	C	N	C	C	C	C	N	C	N	C	N
BiSS FD ChX	C	C	C	C	C	N	C	N	N	N	C	C	C	C	N	C	N	C	N	C
BiSS FD ChY	C	C	C	C	C	C	N	N	N	C	N	C	C	C	C	N	C	N	C	N
SSI FD ChX	C	C	C	C	C	N	C	N	N	N	C	C	C	C	N	C	N	C	N	C
SSI FD ChY	C	C	C	C	C	C	N	C	C	N	N	C	C	C	C	N	C	N	C	N
SinCos only	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Incmtl A B Z	C	C	C	C	C	C	C	C	C	C	C	C	N	C	C	C	C	C	C	C
Incmtl SC	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
LinTempo ChX	C	C	C	C	C	N	C	N	C	N	C	C	C	C	N	C	N	C	N	C
LinTempo ChY	C	C	C	C	C	C	N	C	N	C	N	C	C	C	C	N	C	N	C	N
LinStahl ChX	C	C	C	C	C	N	C	N	C	N	C	C	C	C	N	C	N	C	N	C
LinStahl ChY	C	C	C	C	C	C	N	C	N	C	N	C	C	C	C	N	C	N	C	N
Lin SSI ChX	C	C	C	C	C	N	C	N	C	N	C	C	C	C	N	C	N	C	N	C
Lin SSI ChY	C	C	C	C	C	C	N	C	N	C	N	C	C	C	C	N	C	N	C	N

C	Compatible
N	Not compatible

Table 50 - Supported Encoders

Consideration	Heidenhain (EnDat)	SSI	Stegmann (Hiperface)	BiSS	Stahl (Linear)	Temposonics (Linear)
Encoder Voltage Supply	5V @ 250 mA	10.5V @ 250 mA	10.5V @ 250 mA	10.5V @ 250 mA	External Supplied 24V	External Supplied 24V
High-Resolution Signal	Sine/Cosine 1V P-P	Sine/Cosine 1V P-P	Sine/Cosine 1V P-P	Sine/Cosine 1V P-P	—	—
Maximum Cable Length	100 m(328 ft)	100 m (328 ft)	90 m (328 ft)	100 m (328 ft)	100 m (328 ft)	100 m (328 ft)
Update Rate[1]	102.4 µs	102.4 µs	102.4 µs	102.4 µs	0.5/1.0/1.5/2.0 ms	0.5/1.0/1.5/2.0 ms
Maximum Input Frequency	163.8 kHz	163.8 kHz	163.8 kHz	163.8 kHz	—	—

(1) The Universal Feedback Encoder Option Module will acquire the position with the update rates displayed.

See Specification and Features Comparison on page 35 and Communication Configuration on page 113 for more information about compatible PowerFlex 755T communication protocols and devices.

See the PowerFlex 750-Series Products with TotalFORCE Control Installation Instructions, publication 750-IN100, for details of I/O and feedback option module terminal wiring and specifications

Configuration Software and HIM Versions

There are several tools available for configuring PowerFlex 755T parameters. You must use a compatible human interface module (HIM) or configuration software package to migrate to the new PowerFlex 755T products.

The PowerFlex 755T product uses similar HIM and configuration software packages as the PowerFlex 700S, but you must know the software version of each drive to know if the available software packages are compatible with the new PowerFlex 755T product.

Older configuration software tools do not support the PowerFlex 755T product. You must use the latest available versions of software configuration tools such as Studio 5000 Logix Designer application, RSLogix 5000® software, or Connected Components Workbench™ (CCW) software for full featured configuration capabilities.

- CCW can be used to configure PowerFlex 755T product parameters directly via EtherNet/IP connection from your computer to the PowerFlex 755T product Embedded or option module Ethernet communication port.
- If your computer is connected to Logix controller EtherNet/IP architecture that supports drive Add-On-Profiles (AOP), you can use RSLogix™ or Studio 5000® to configure PowerFlex 755T parameters via Embedded or option module Ethernet communication port.
- If you wish to make a direct connection from your computer USB port to the PowerFlex 755T product DPI port, you will require an external 1203-USB communication protocol converter and appropriate connection cables to configure PowerFlex 755T product parameters.

Table 51 - PowerFlex 755T Configuration Tools

Configuration Tool	PowerFlex 755T
DriveExplorer™ software	Not supported
DriveTools™ SP/DriveExecutive software	Not supported
Connected Components Workbench[(1)] software	V 10.000 and later
RSLogix 5000 Drive AOP	V 20.001 and later V 1.0 PowerFlex 755T and later
Studio 5000 Drive AOP	V 21.003 and later V 1.0 PowerFlex 755T and later
HIM[(2)]	20-HIM-A6/-C6S

(1)   Separate installer update is required to use PowerFlex 755T with CCW V10.

(2)   Assisted Startup using the HIM not available at initial release.

Parameter Comparison

Use Table 52 through Table 58 to cross-reference commonly used and modified PowerFlex 700S parameters with equivalent parameters in the PowerFlex 755TL/TR drive and PowerFlex 755TM common bus inverter.

Parameter Scaling

The PowerFlex 700S uses per unit (pu) values for most internal parameter values and some parameters that are accessed by the user. Most parameters are presented to the user in scaled engineering units (rpm, amps, and so on). However, others like P10 [Speed Ref 1] and P111 [Torque Ref 1] and presented in PU.

The PowerFlex 755T product uses floating point engineering units for all parameter values. Confirm that Logix tags that reference PowerFlex 700S PU parameters are properly scaled for use with the PowerFlex 755T product.

PowerFlex 700S Parameter Assignment

The PowerFlex 700S uses linear parameter numbering and direct or 'linkable' parameter assignments for most user parameters, so the port number is not specified or is internally referenced to fixed port locations, like the HIM (ports 1, 2) and DPI communication (port 5).

PowerFlex 755T Parameter Assignment

The PowerFlex 755T product uses indirect parameter numbers to create parameter assignments or to select data sources and destinations. The maximum value for indirect parameter assignments is 159999.15.

The left most one or two digits are the port number, the right most four digits are the parameter number and, if applicable, the two digits after the decimal point are the bit number. This port, parameter, bit format is how internal values of assignable parameter values are handled. Parameter selections or assignments can be calculated using this formula:

Parameter Value $= (10{,}000 \times$ Port Number $+$ Parameter Number $).$bit

For example, parameter 0:120 [DI M Run] will be assigned to an I/O option module in port 4 using a run contact that is wired to digital input 1 (port 4, parameter 1 [Dig In Sts], bit-1). In this example, parameter 0:120 [DI M Run] would be set = (10000*4 + 1).01 = 40001.01.

IMPORTANT	The parameters in Table 52 through Table 58 do not represent an exhaustive list. Many applications may require modification of other parameters that are not shown in the following table. Review all parameters to verify that the new bus supply will operate satisfactorily as a migration solution.

IMPORTANT	The parameter comparisons in Table 52 through Table 58 relate similar parameter functions. However, data type, units, and scaling may be different between the old and new parameters. This is especially true for DataLink parameters that are produced/consumed by a Logix controller or PLC. Most parameters within the PowerFlex 755T product, including DataLinks, are real type. However, PowerFlex 700S parameters are integer type with scaling factors applied.

TIP	The PowerFlex 700S uses only RPM as velocity units, the PowerFlex 755T can use either Hz or RPM depending on parameter 0:P46 [Velocity Units]. It is HIGHLY recommended that PowerFlex 755T parameter 0:46 be set to 1='RPM' to match the velocity units that are used by the PowerFlex 700S. Ensure that applicable parameter units scaling are considered when designing the PowerFlex 755T migration solution.

Table 52 - Line Side Converter Parameters

PowerFlex 700S			PowerFlex 755T		
Parameter	**Display Name**	**Read /Write**	**Port:Parameter.Bit**	**Display Name**	**Read /Write**
The PowerFlex 700S does not have an active front end converter, so there are no equivalent parameters			13:2	AC Line Voltage	RO
			13:6	AC Line Current	RO
			13:18	DC Bus Current	RO
			13:25	Rated Volts	RO
			13:26	Rated Amps	RO
			13:30	Nom Line Freq	RW
			13:32	AC Line kVA A	RW
			13:34	AC Line Imped% A	RW
			0:63	LS Start Mode (default for 755TL/TR is (0) 'FLW MSideInv')	RW
			0:64	LS Manual Ctrl (If 0:63 = (2) 'Conv Logic', you can control converter IGBT modulation logic, only applies to 755TL/TR)	RW
			13:45	DC Bus Ref Sel	RW
			13:48	DC BusRef Preset (only used if 13:45 is set to 1 'Manual'	RW
			13:54	Volt Reg C/U Sel	RW
			13:57	u Volt Reg Kp (only used if 13:54 is set to 1 'User Entered'	RW
			13:59	u Volt Reg Ki (only used if 13:54 is set to 1 'User Entered'	RW
			13:105	Motor Power Lmt	RW
			13:104	Regen Power Lmt	RW
			13:100	Current Limit	RW
			13:225	Line Side Sts 1	RO
			14:1100	ACP0 Status	RO
			13:258	Alarm Status A	RO
			13:259	Alarm Status B	RO
			13:235	L Start Inhibits	RO
			13:240	Fault Status A	RO
			13:241	Fault Status B	RO

Table 53 - Motor Side Inverter Control Parameters

PowerFlex 700S			PowerFlex 755T		
Parameter, Bit	**Display Name**	**Read /Write**	**Port:Parameter.Bit**	**Display Name**	**Read /Write**
P1	Motor NP Volts	RW	10:400	Motor NP Volts	RW
P2	Motor NP FLA	RW	10:401	Motor NP Amps	RW
P3	Motor NP Hertz	RW	10:402	Motor NP Hertz	RW
P4	Motor NP RPM	RW	10:403	Motor NP RPM	RW
P5	Motor NP Power	RW	10:406	Motor NP Power	RW
P6	Mtr NP Pwr Units	RW	10:405	Mtr NP Pwr Units	RW
P7	Motor Poles	RW	10:407	Motor Poles	RW
P9	Total Inertia	RW	10:900	Motor Inertia (only for Flux Vector control)	RW
			10:901	Load Ratio = Load Inertia / Motor Inertia (Total Inertia = Motor Inertia * (1 + Load Ratio)	RW
P10	Speed Ref 1	RW	10:1801	VRef A Stpt	RW
P14…20	Preset Speed 1…7	RW	10:1814…1820	Preset Speed 1…7	RW
P27	Speed Ref A Sel	RW	10:1800	VRef A Sel	RW
P29	Jog Speed 1	RW	10:1894	Jog Speed 1	RW
P30	Min Spd Ref Lim	RW	10:1900 10:1901	Vel Low Lim Pos Vel Low Lim Neg	RW
P31	Max Spd Ref Lim	RW	10:1898 10:1899	Vel Limit Pos Vel Limit Neg	RW
P32	Accel Time 1	RW	10:1915	VRef Accel Time1	RW
P33	Decel Time 1	RW	10:1917	VRef Decel Time1	RW
P34	S Curve Time	RW	10:1919 10:1920	VRef Accel Jerk VRef Decel Jerk	RW
P40	Selected Spd Ref	RO	10:1892	VRef Selected	RO
P72	Scaled Spd Fdbk (filtered for display)	RO	10:1044	Motor Vel Fb (filtered for display)	RO
P81	Spd Reg P Gain	RW	10:1956	u VReg Kp	RW
P82	Spd Ref I Gain	RW	10:1958	u VReg Ki	RW
P86	Spd Reg Droop	RW	10:1961	Droop RPM at FLA	RW
P90	Spd Reg BW	RW	10:906	System BW	RW
P91	Spd Reg Damping	RW	10:907	System Damping	RW
P110	Speed/Torque Mode	RW	10:30	PsnVelTrq Mode A	RW
P111	Torque Ref 1	RW	10:2000	Trq Ref A Sel	RW
			10:2001	Trq Ref A Stpt	RW
P118	Notch Filt Freq	RW	10:2159	Trq NF 1 Freq	RW
P125	Torque Pos Limit	RW	10:2083	Torque Limit Pos	RW
P126	Torque Neg Limit	RW	10:2084	Torque Limit Neg	RW
P153, B0	Control Options	RW	10:930	Direction Mode	RW

Table 53 - Motor Side Inverter Control Parameters (Continued)

PowerFlex 700S			PowerFlex 755T		
Parameter, Bit	Display Name	Read /Write	Port:Parameter.Bit	Display Name	Read /Write
P155	Logic Status	RO	10:354 10:355 13:225	Motor Side Sts 1 (motor side) Motor Side Sts 2 (motor side) Line Side Sts 1 (Line side)	RO
P156	Start Inhibits	RO	10:351	M Start Inhibits	RO
P168	Normal Stop Mode	RW	10:110	Mtr Stop Mode A	RW
P196	Param Access Level	RW	0:30	Access Level	RW
P222	Mtr Fdbk Sel Pri	RW	10:1000	Pri Vel Fb Sel	RW
P223	Mtr Fdbk Sel Alt	RW	10:1006	Alt Vel Fb Sel	RW

Table 54 - Encoder Feedback

PowerFlex 700S			PowerFlex 755T (With 20-750-ENC-1 or 20-750-DENC-2 Encoder Module)		
Parameter, Bit	Display Name	Read /Write	Port:Parameter.Bit[1]	Display Name	Read /Write
P232	Encoder0 PPR	RW	x:2	Encoder PPR (Enc 0 PPR)	RW
P230	Encdr0 Position	RO	x:4	Encoder Feedback (Enc 0 FB)	RO
P233	Encdr 0/1 Config	RW	x:1	Encoder Cfg (Enc 0 Cfg)	RW
			x:11	Enc 1 Cfg	
P240	Encdr1 Position	RO	x:14	Enc 1 FB	RW
P242	Encoder1 PPR	RW	x:12	Enc 1 PPR	RW
P231	Encdr0 Spd Fdbk	RO	10:1040	Pri Vel Feedback	RO
P233 B10, B11, B12 B26, B27, B28	Encdr 0/1 Config Encoder 0 FIR Filter Encoder 1 FIR Filter	RW	10:1001	Vel Fb Taps	RW
P233, B0,B1,B2,B3 B16,B17,B18,B19	Encdr 0/1 Config Encoder 0 Input Filter Encoder 1 Input Filter	RW	10:1002 10:1003	cVel Fb LPF BW uVel Fb LPF BW	RW
P241	Encdr1 Spd Fdbk	RO	10:1041	Alt Vel Feedback	RO

(1)   'x' in the Port:Parameter.Bit column is the physical port where the I/O module is installed.

Table 55 - Display, Status, Fault/Alarm, and Setup

PowerFlex 700S			PowerFlex 755T		
Parameter	Display Name	Read /Write	Port:Parameter.Bit	Display Name	Read /Write
P297	Output Curr Disp	RO	10:3	Output Current	RO
P300	Motor Spd Fdbk	RO	10:1042	Vel Fb Active	RO
P301	Motor Speed Ref	RO	10:1933	VRef Final	RO
P303	Motor Torque Ref	RO	10:2087	Trq Ref Limited	RO
P306	DC Bus Volt	RO	0:3	DC Bus Volts	RO
P307	Output Voltage	RO	10:2	Output Voltage	RO
P308	Output Current	RO	10:3	Output Current	RO

Table 55 - Display, Status, Fault/Alarm, and Setup (Continued)

PowerFlex 700S			PowerFlex 755T		
Parameter	Display Name	Read /Write	Port:Parameter.Bit	Display Name	Read /Write
P310	Output Freq	RO	10:1	Output Frequency	RO
P323	Fault Status 1	RO	10:461 13:240	Fault Status A (motor side) Fault Status A (line side)	RW RO
P324	Fault Status 2	RO	10:462 13:241	Fault Status B (motor side) Fault Status B (line side)	RW RO
P325	Fault Status 3	RO			
P326	Alarm Status 1	RO	10:465 13:258	Alarm Status A (motor side) Alarm Status A (line side)	RW RO
P327	Alarm Status 2	RO	10:466 13:259	Alarm Status B (motor side) Alarm Status B (line side)	RW RO
P328	Alarm Status 3	RO	10:467 13:260	Type 2 Alarms (line side) Type 2 Alarms (motor side)	RW RO
P403	Voltage Class	RW	0:33	Voltage Class Cfg	RW
—			0:35	Duty Rating Cfg	RW
—	Default units are RPM only		0:46	Velocity Units	RW
P414	Brake/Bus Cnfg	RW	10:116	Bus Reg Mode A	RW
P485	Motor Ctrl Mode	RW	0:65	Pri MtrCtrl Mode (applies to Port 10)	RW
P670	Logic Mask	RW	0:41	Logic Mask Cfg	RW
P671	Start Mask	RW	0:42	Auto Mask	RW
P672	Jog Mask	RW	0:43	Manual Cmd Mask	RW
P673	Direction Mask	RW	—		
P674	Fault Clr Mask	RW	—		
P677	Stop Owner	RO	0:260	Stop Owner	RO
P678	Start Owner	RO	0:261	Start Owner	RO
P679	Jog Owner	RO	0:262	Jog Owner	RO
P680	Direction Owner	RO	0:263	Dir Owner	RO
P681	Fault Clr Owner	RO	0:264	Clear Flt Owner	RO

Table 56 - Analog I/O

PowerFlex 700S			PowerFlex 755T (With 2263C-1R2T I/O Module)		
Parameter	Display Name	Read /Write	Port:Parameter.Bit[1]	Display Name	Read /Write
P821	Analog I/O Units (See also, Main Control Board, HW switch S5)	RW	x:45	Anlg In Type (See also, module jumpers)	RO
			x:70	Anlg Out Type	RW
P800	Anlg In1 Data	RO	x:50	Anlg In0 Value	RO
P801	Anlg In1 Value	RO	x:54	Anlg In0 Raw Val	RO

Table 56 - Analog I/O (Continued)

PowerFlex 700S			PowerFlex 755T (With 2263C-1R2T I/O Module)		
Parameter	**Display Name**	**Read /Write**	**Port:Parameter.Bit**[1]	**Display Name**	**Read /Write**
P802	Anlg In1 Scale	RW	x:51 x:52 10:1802/1809 10:1803/1810 10:1804/1811 10:2002/2009 10:2003/2010 10:2004/2011	Anlg In0 Hi Anlg In0 Lo Examples, analog scaling is applied to reference source; VRefA/B AnlgHi VRefA/B AnlgLo VRefA/B Mult Trq RefA/B AnlgHi Trq RefA/B AnlgLo Trq RefA/B Mult	RW RW
P803	Anlg In1 Offset	RW	—		
P1093	Anlg In1 Loss Cnfg	RW	x:53	Anlg In0 LssActn	RW
P806	Anlg In2 Data	RO	x:60	Anlg In1 Value	RO
P807	Anlg In2 Value	RO	x:64	Anlg In1 Raw Val	RO
P808	Anlg In2 Scale	RW	x:61 x:62 10:1802/1809 10:1803/1810 10:1804/1811 10:2002/2009 10:2003/2010 10:2004/2011	Anlg In1 Hi Anlg In1 Lo Examples, analog scaling is applied to reference source; VRefA/B AnlgHi VRefA/B AnlgLo VRefA/B Mult Trq RefA/B AnlgHi Trq RefA/B AnlgLo Trq RefA/B Mult	RW RW
P809	Anlg In2 Offset	RW	—		
P1094	Anlg In2 Loss Cnfg	RW	x:63	Anlg In1 LssActn	RW
P812	Anlg In3 Data	RO	y:50	Anlg In0 Value	RO
P813	Anlg In3 Value	RO	y:54	Anlg In0 Raw Val	RO
P814	Anlg In3 Scale	RW	y:51 y:52 10:1802/1809 10:1803/1810 10:1804/1811 10:2002/2009 10:2003/2010 10:2004/2011	Anlg In0Hi Anlg In0Lo Examples, analog scaling is applied to reference source; VRefA/B AnlgHi VRefA/B AnlgLo VRefA/B Mult Trq RefA/B AnlgHi Trq RefA/B AnlgLo Trq RefA/B Mult	RW RW
P815	Anlg In3 Offset	RW	—		
P1095	Anlg In3 Loss Cnfg	RW	y:53	Anlg In0 LssActn	RW
P831	Anlg Out1 Sel	RW	x:75	Anlg Out0 Sel	RW
P838	Analog Out 2 Sel		x:85	Anlg Out1 Sel	RW
P835	Anlg Out1 Scale		x:78 x:79 x:80 x:81	Anlg Out0 DataHi Anlg Out0 DataLo Anlg Out0 Hi Anlg Out0 Lo	RW

Table 56 - Analog I/O (Continued)

PowerFlex 700S			PowerFlex 755T (With 2263C-1R2T I/O Module)		
Parameter	Display Name	Read /Write	Port:Parameter.Bit[1]	Display Name	Read /Write
P842	Anlg Out2 Scale		x:88 x:89 x:90 x:91	Anlg Out1 DataHi Anlg Out1 DataLo Anlg Out1 Hi Anlg Out1 Lo	RW
P837	Anlg Out1 Value	RO	x:82	Anlg Out0 Val	RO
P844	Anlg Out2 Value	RO	x:92	Anlg Out1 Val	RO

(1) x = physical port location of I/O module
     y = physical port location of I/O module

Table 57 - Digital I/O

PowerFlex 700S			PowerFlex 755T (With 2263C-1R2T I/O Module)		
Parameter	Display Name	Read /Write	Port:Parameter.Bit[1]	Display Name	Read /Write
P825…P830	Digital Inx Sel	RW	0:103…191	Digital Input parameter assignment	RW
P845, P846	Digital Out1 Sel, Dig Out1 Data	RW	x:20	TO0 Sel	RW
P850, P851	Digital Out2 Sel, Dig Out2 Data	RW	x:30	TO1 Sel	RW
P855, P856	Rly Out3 Sel, Rly Out3 Data	RW	x:10	RO0 Sel	RW

(1) x = physical port location of I/O module

Table 58 - Communication

PowerFlex 700S 20-COMM-E EtherNet			PowerFlex 755T Embedded EtherNet		
Port 5, P4…P7	IP Addr Cfg 1, 2, 3, 4	RW	0:302…305	IP Addr Cfg 1, 2, 3, 4	RW
Port 5, P8…P11	Subnet Cfg 1, 2, 3, 4	RW	0:306…309	Subnet Cfg 1, 2, 3, 4	RW
P650	DPI In DataType	RW	—		
P651…P658	DPI Data In	RO	0:321…336	DL From Net 01…16 (Embedded EtherNet)	RW
P659	DPI Out DataType	RW	—		
P660…P667	DPI Data Out	RW	0:340…355	DL To Net 01…16 (Embedded EtherNet)	RW

Standalone Drive Configuration

The PowerFlex 700S drive is typically used as part of a high-performance drive system that is controlled by a PLC or automation controller with the PowerFlex 700S drives connected on a communication network. To obtain the highest performance, the PowerFlex 700S was configured for flux vector motor control with motor encoder feedback.

Chapter 3 covers communication configurations in more detail.

This section covers a basic standalone application where the drive is controlled by digital I/O and analog speed reference with encoder feedback.

The PowerFlex 700S has standard digital and analog I/O and encoder inputs on the main control board as shown on . Applications that use the PowerFlex 700S DriveLogix expansion and associated optional I/O are not covered in this migration guide.

Review your current PowerFlex 700S drive digital and analog I/O configurations, and determine the required PowerFlex 755T I/O option modules and associated parameters you will need to configure to build a functional PowerFlex 755T product migration solution. See these programming manuals to help you understand and identify the different drive configuration and programming options:

- PowerFlex Drive with TotalFORCE Control Programming Manual, publication 750-PM100
- PowerFlex 700S AC Drive with Phase II Control Programming Manual, publication 20D-PM001

Example, Three-wire Control with Analog Speed Reference and Encoder Feedback

This section provides a common example of the PowerFlex 700S drive using a potentiometer analog speed reference along with hard-wired start/stop/ direction control, and the equivalent PowerFlex 755T product configuration.

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 reference uses a 10,000 Ohm potentiometer that is wired to the internal 10V DC power supply of the drive. The encoder device uses the internal 12V DC supply of the drive.

For this example, the PowerFlex 750-Series single encoder option is shown in slot/port 5 and the I/O option module is shown in slot/port 4. These option modules can be installed in any valid slot/port.

Figure 25 - Typical I/O and Encoder Wiring

PowerFlex 700S Control Cassette

PowerFlex 755T with 24C DC I/O (Port 4)
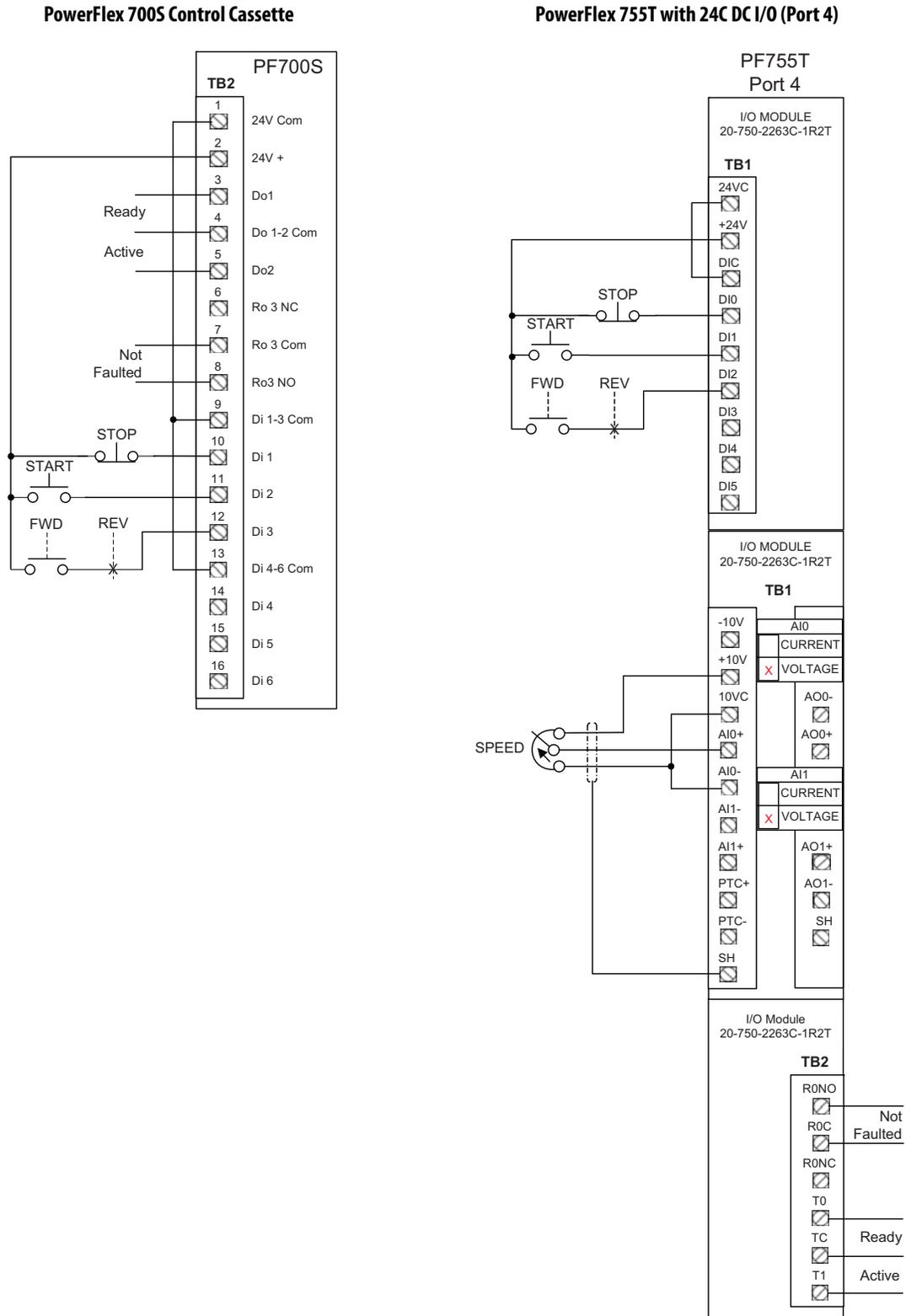
Figure 26 - Typical I/O and Encoder Wiring

PowerFlex 700S Control Cassette

PowerFlex 755T with Single Encoder (Port 5)
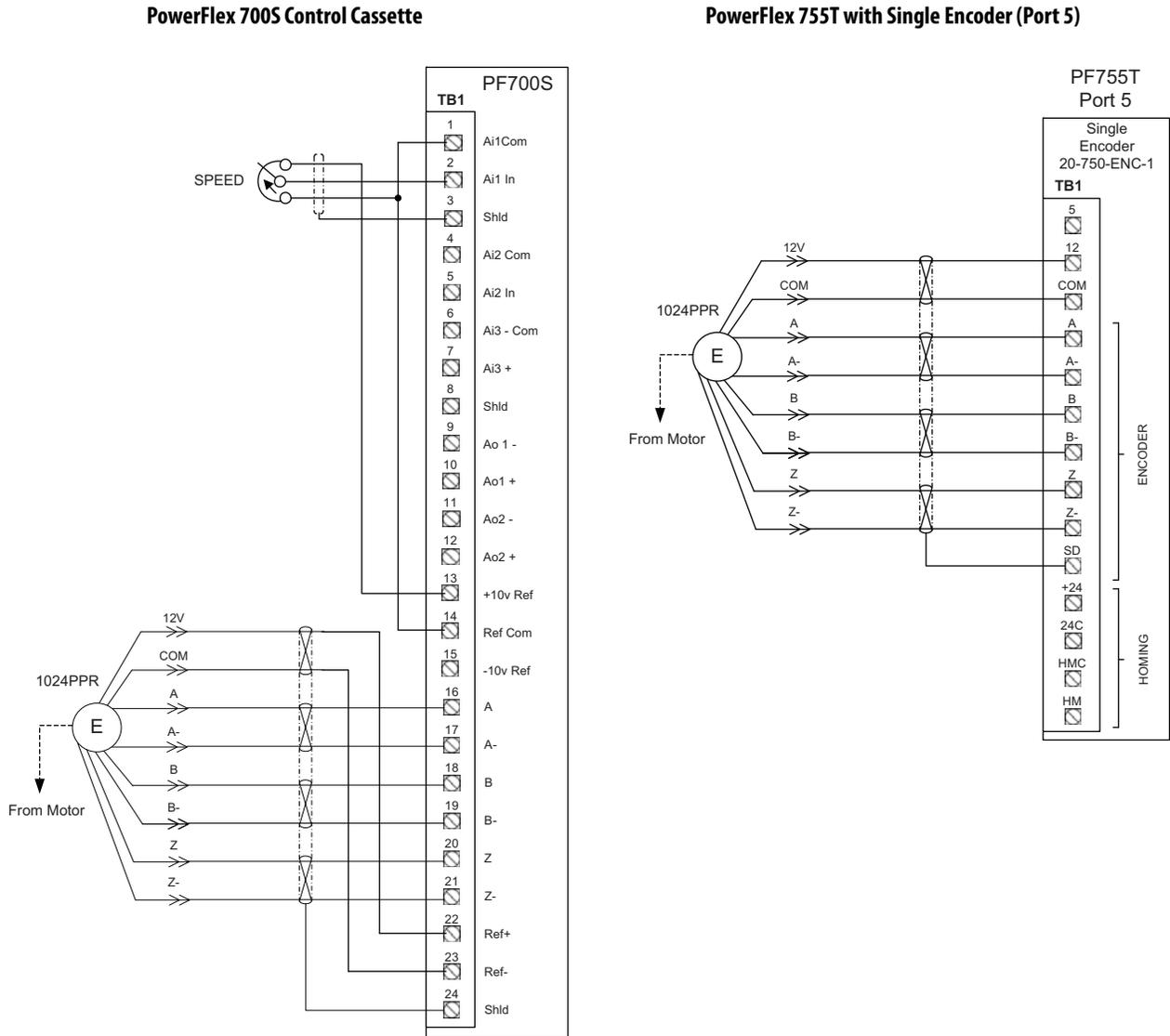
Typical Three-wire Control with Encoder Parameter Comparison

Table 59 - Line Side Converter Parameters

PowerFlex 700S			PowerFlex 755T		
Parameter, Bit	Display Name	Value	Port:Parameter.Bit	Display Name	Value
The PowerFlex 700S does not have an active front end converter, so there are no equivalent parameters.			13:30	Nom Line Freq	Application Specific
			13:32	AC Line kVA A	Application Specific
			13:34	AC Line Imped% A	Application Specific
			0:63	LS Start Mode	0 ='FLW MSideInv'
			13:45	DC Bus Ref Sel	0 ='Auto'
			13:54	Volt Reg C/U Sel	0 ='Calculated'

Table 60 - Motor Side Inverter Control Parameters

PowerFlex 700S			PowerFlex 755T		
Parameter, Bit	Display Name	Value	Port:Parameter.Bit	Display Name	Value
P1	Motor NP Volts	Application Specific	10:400	Motor NP Volts	Application Specific
P2	Motor NP FLA	Application Specific	10:401	Motor NP Amps	Application Specific
P3	Motor NP Hertz	Application Specific	10:402	Motor NP Hertz	Application Specific
P4	Motor NP RPM	Application Specific	10:403	Motor NP RPM	Application Specific
P5	Motor NP Power	Application Specific	10:406	Motor NP Power	Application Specific
P6	Mtr NP Pwr Units	Application Specific	10:405	Mtr NP Pwr Units	Application Specific
P7	Motor Poles	Application Specific	10:407	Motor Poles	Application Specific
P10	Speed Ref 1	800 ='Anlg In 1 Data'	10:1801	VRef A Stpt	0 =Default, not used
P27	Speed Ref A Sel	1='Spd Ref 1'	10:1800	VRef A Sel	40050 ='4:50 [Anlg In0 Value]'
			10:1802	VRef A AnlgHi	Motor NP RPM
			10:1803	VRef A AnlgLo	0
P30	Min Spd Ref Lim	0	10:1900	Vel Low Lim Pos	0
			10:1901	Vel Low Lim Neg	0
P31	Max Spd Ref Lim	Motor NP RPM	10:1898	Vel Limit Pos	Motor NP RPM
			10:1899	Vel Limit Neg	(-) Motor NP RPM
P32	Accel Time 1	10.0	10:1915	VRef Accel Time1	10.0
P33	Decel Time 1	10.0	10:1917	VRef Decel Time1	10.0
P34	S Curve Time	0.5	10:1919	VRef Accel Jerk	5.0
			10:1920	VRef Decel Jerk	5.0
P90	Spd Reg BW	Application Specific	10:906	System BW	Application Specific
P91	Spd Reg Damping	Application Specific	10:907	System Damping	Application Specific
P81	Spd Reg P Gain	Application Specific	10:1956	u VReg Kp	Application Specific
P82	Spd Ref I Gain	Application Specific	10:1958	u VReg Ki	Application Specific

Table 60 - Motor Side Inverter Control Parameters (Continued)

PowerFlex 700S			PowerFlex 755T		
Parameter, Bit	Display Name	Value	Port:Parameter.Bit	Display Name	Value
P86	Spd Reg Droop	Application Specific	10:1961	Droop RPM at FLA	Application Specific
P110	Speed/Torque Mode	1 ='Speed Reg'	10:30	PsnVelTrq Mode A	1 ='Speed Reg'
P153, B0	Control Options	0 =NOT 'Bipolar SRef'	10:930	Direction Mode	0 ='Unipolar'
P168	Normal Stop Mode	0 ='Ramp Stop'	10:110	Mtr Stop Mode A	1 ='Ramp'
P222	Mtr Fdbk Sel Pri	0 ='Encoder0'	10:1000	Pri Vel Fb Sel	50005 ='5:4 [Encoder Feedback]'
P403	Voltage Class	Application Specific	0:33	Voltage Class Cfg	Application Specific
—			0:35	Duty Rating Cfg	Application Specific
—	Default units are RPM only		0:46	Velocity Units	1 ='RPM'
P414	Brake/Bus Cnfg	Application Specific	10:116	Bus Reg Mode A	Application Specific
P485	Motor Ctrl Mode	0 ='FOC'	0:65	Pri MtrCtrl Mode (applies to Port 10)	4 ='Induction FV'

Table 61 - Encoder Feedback

PowerFlex 700S			PowerFlex 755T[1]		
Parameter, Bit	Display Name	Value	Port:Parameter.Bit	Display Name	Value
P232	Encoder0 PPR	1024	5:2	Encoder PPR (Enc 0 PPR)	1024
P233	Encdr 0/1 Config	Application Specific	5:1	Encoder Cfg	Application Specific

(1)   With 20-750-ENC-1 Single Encoder Module, Port 5.

Table 62 - Analog I/O

PowerFlex 700S			PowerFlex 755T[1]		
Parameter, Bit	Display Name	Value	Port:Parameter.Bit	Display Name	Value
P802	Anlg In1 Scale	0.1	4:51	Anlg In0 Hi	+10.000
P803	Anlg In1 Offset	0.0	4:52	Anlg In0 Lo	0.000
P821, B0	Analog I/O Units (Main Control Board, Switch S5-2 set to 'open')	0 ='Voltage'	4:45	Anlog In Type (Module Ai0 jumper set to 'voltage')	0 ='Voltage Mode'
P1093	Anlg In1 Loss Cnfg	0 ='Disabled'	4:53	Anlg In0 LssActn	0 ='Ignore'

(1)   With 2263C-1R2T I/O Module, Port 4.

Table 63 - Digital I/O

PowerFlex 700S			PowerFlex 755T		
Parameter, Bit	**Display Name**	**Value**	**Port:Parameter.Bit**	**Display Name**	**Value**
P825	Digital In1 Sel	14 ='Normal Stop'	0:108	DI M Stop	40001.00 =4:1, B0 [Dig In Sts, Input0]
P826	Digital In2 Sel	5 ='Start'	0:117	DI M Start	40001.01 =4:1, B1 [Dig In Sts, Input1]
P827	Digital In3 Sel	6 ='Reverse'	0:130	DI M Fwd Reverse	40001.02 =4:1, B2 [Dig In Sts, Input2]
P845	Digital Out1 Sel	3 ='Ready'	4:20	T00 Sel	100354.00 =10:354.00 [Motor Side Sts 1, Ready]
P850	Digital Out2 Sel	8 ='Active'	4:30	T01 Sel	100354.01 =10:354.01 [Motor Side Sts 1, Active]
P855	Rly Out3 Sel	1 ='Not Fault'	4:10	R00 Sel	100354.07 =10:354.07 [Motor Side Sts 1, Faulted]
			4:6.0	Dig Out Invert	1 ='Relay Out0 Output Inverted'

PowerFlex 755TL/TR Drive Control

The PowerFlex 755TL/TR drives exclude any standard or optional door-mounted operator devices. Precharge normally occurs when the input disconnect, FD1, is closed. When precharge is completed the AC input MCB circuit breaker, CB1, is closed automatically. If 0:63 [LS Start Mode] is set to '0'='FLW MSideInv' the line side converter IGBT modulation will start automatically when the drive is started and is active in any motor control power output mode (jog, run, stopping, and so on). When the drive is stopped, line side converter IGBT modulation is stopped after the time delay set in 13:43 [LSC TurnOffDelay] expires (default = 5.0 seconds). When line side converter IGBT modulation is stopped the line side converter transistors are disabled, however, diode rectifiers in the line side converter IGBT power devices are active. In this case, there will DC bus voltage available even when line side converter IGBT modulation is stopped.

The following wiring diagrams show typical power and control power connections to a frame 8 PowerFlex 755TL low harmonic drive with control options; Torque Accuracy Module (control option catalog code -C0) and RWR output filter (filter catalog code –M). The user-supplied 24V DC auxiliary control power is shown connected, but the drive will function without this power supply. The PowerFlex 755TR regenerative drive has the same power and control connections.

Figure 27 - PowerFlex 755TL Drive, Sample Frame 8 Wiring Diagram
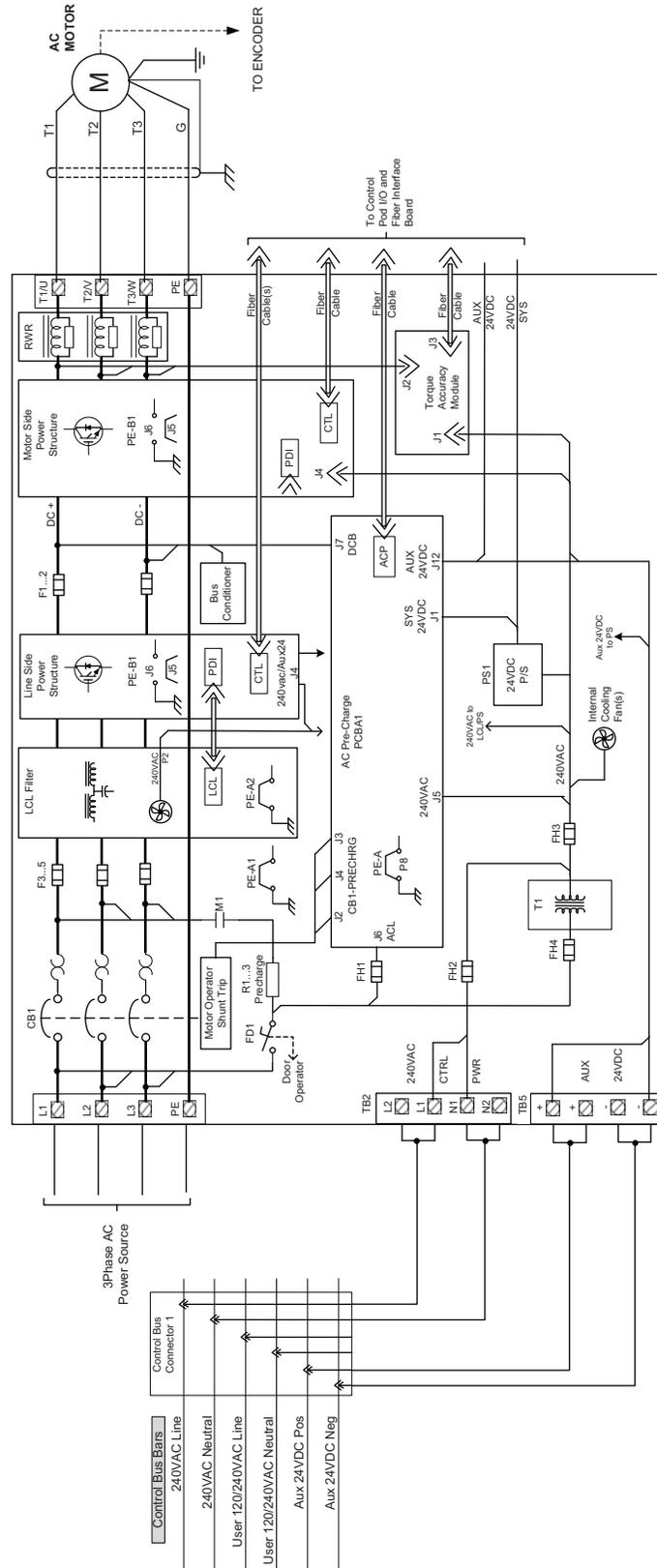
Figure 27 shows optional equipment installed; Torque Accuracy Module (TAM), and motor side inverter RWR output filter.

Figure 28 - PowerFlex 755TL Drive Control Pod

PowerFlex 755TL, Frame 8...10
Control Pod
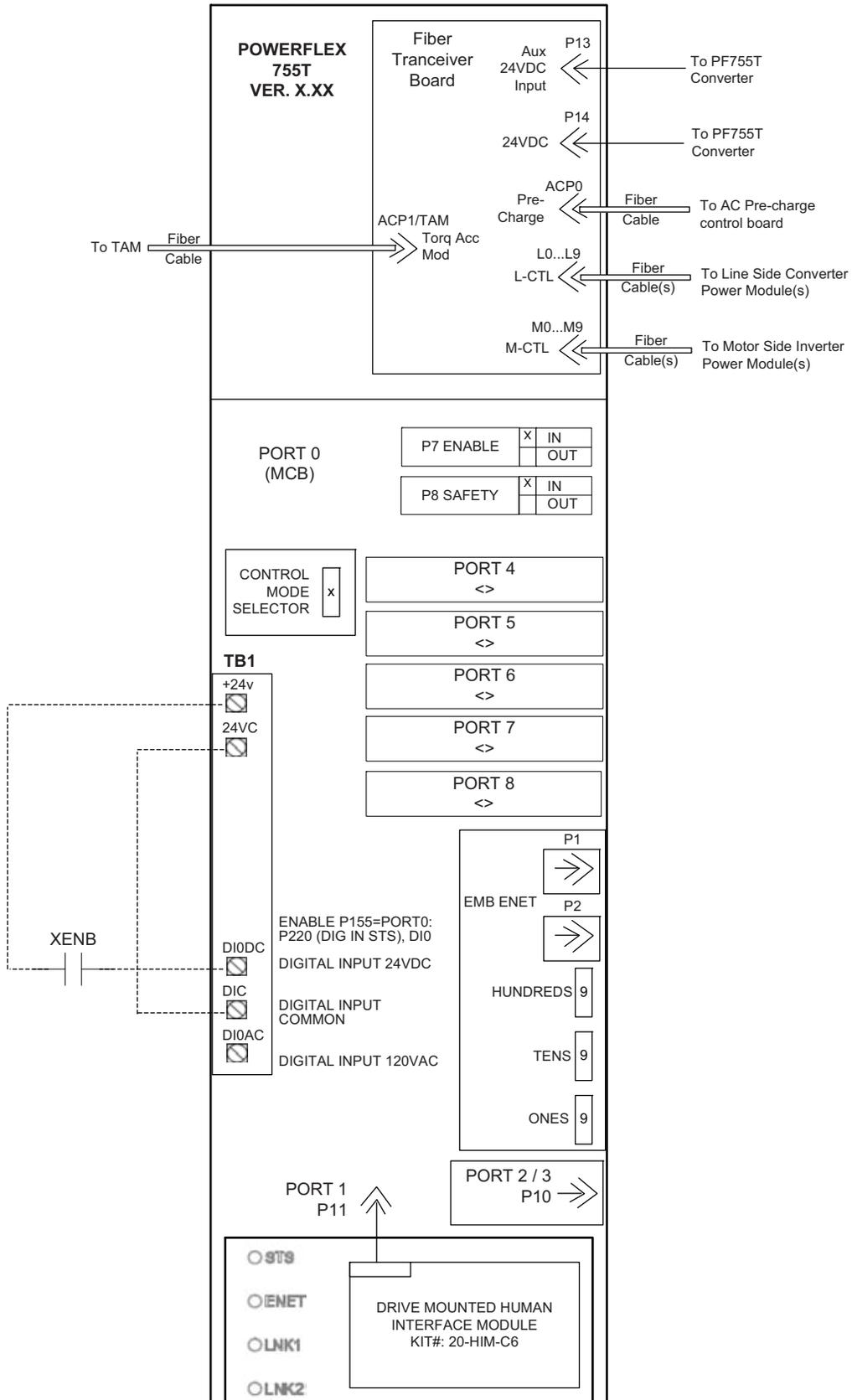
The 20-750-2263C-1R2T I/O module terminals and related parameter table are from publication [750-IN100](), and are shown here for reference only.

Table 64 - TB1 Terminal Designations
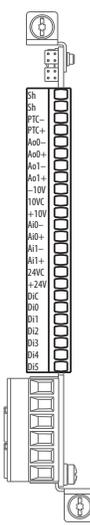
	Terminal	Name	Description	Related Param [4]
	Sh	Shield	Terminating point for wire shields when an EMC plate or conduit box is not installed.	
	Sh			
	Ptc−	Motor PTC (−)	Motor protection device (Positive Temperature Coefficient).	40 on Port *nn*
	Ptc+	Motor PTC (+)		
	Ao0−	Analog Out 0 (−)	Bipolar, ±10V, 11-bit & sign, 2 kΩ minimum load. 4-20 mA, 11-bit & sign, 400 Ω maximum load.	75 on Port *nn*
	Ao0+	Analog Out 0 (+)		
	Ao1−	Analog Out 1 (−)		85 on Port *nn*
	Ao1+	Analog Out 1 (+)		
	−10V	−10V Reference	2 kΩ minimum.	
	10VC	10V Common	For (−) and (+) 10V references.	
	+10V	+10V Reference	2 kΩ minimum.	
	Ai0−	Analog Input 0 (−)	Isolated[2], bipolar, differential, 11-bit & sign. Voltage Mode: ±10V @ 88 kΩ input impedance. Current Mode: 0-20 mA @ 93 Ω input impedance.	50, 70 on Port *nn*
	Ai0+	Analog Input 0 (+)		
	Ai1−	Analog Input 1 (−)		60, 70 on Port *nn*
	Ai1+	Analog Input 1 (+)		
	24VC	24V Common	Drive supplied logic input power. 200 mA max. per I/O module 600 mA max per drive	
	+24V	+24V DC		
	Di C	Digital Input Common	Common for Digital Inputs 0…5	
	Di 0	Digital Input 0 [1]	24V DC (30V DC Max.) - Opto isolated High State: 20…24V DC 11.2 mA DC Low State: 0…5V DC 120V AC (132V AC Max.) 50/60 Hz [3] - Opto isolated High State: 100…132V AC Low State: 0…30V AC	1 on Port *nn*
	Di 1	Digital Input 1 [1]		
	Di 2	Digital Input 2 [1]		
	Di 3	Digital Input 3 [1]		
	Di 4	Digital Input 4 [1]		
	Di 5	Digital Input 5 [1]		

(1) Digital Inputs are either 24V DC (2262C) or 120V AC (2262D) based on module catalog number. Ensure applied voltage is correct for I/O module.

(2) Differential Isolation - External source must be maintained at less than 160V regarding PE. Input provides high common mode immunity.

(3) For CE compliance, use shielded cable. Cable length should not exceed 30 m (98 ft).

(4) I/O Module parameters will also have a Port designation.

Table 65 - TB2 Terminal Designations (1 Relay and 2 Transistor Outputs: 1R2T)

Relay Out	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 *nn*
	R0C	Relay 0 Common		
	R0NC	Relay 0 N.C.	Relay Normally Closed contact output: 240V AC, 24V DC, 2 A max. Resistive Only	

	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 *nn*

	TC	Transistor Output Common		
	T1	Transistor Output 1		30 on Port *nn*

Safety Configurations

The PowerFlex 700S drive was available with an optional hardware Safe Torque Off / 2nd Encoder module. The functionality of this option can easily be obtained with the PowerFlex 755T product by using one of the available Safe Torque Off option modules. If the optional 20-750-S3 Safe Torque Off module is installed, the PowerFlex 755T can be used with Integrated Safety over EtherNet/IP.

PowerFlex 700S Safety Options

The PowerFlex 700S DriveGuard® Safe Torque Off with 2nd Encoder option module, catalog 20D-P2-DG01, provides hardware Safe Torque Off functionality and the facility to connect a second encoder. The DriveGuard option requires an Expanded Cassette.

The DriveGuard 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 functional safety.

Details of installation, wiring, and safety performance levels are found in the DriveGuard Safe Torque Off Option for PowerFlex 700S Phase II AC Drives and PowerFlex 700L Liquid-Cooled AC Drives User Manual, publication 20D-UM007.

PowerFlex 755T Safety Options

Like the PowerFlex 750-series AC drives, the PowerFlex 755T can be equipped with one safety option module. The safety option module is just one component in a safety control system. Components in the migration solution must be chosen and applied appropriately to achieve the same or higher level of functional safety that was available with the existing PowerFlex 700S with DriveGuard Safe Torque Off.

Details of installation, wiring, and safety performance levels for each of the PowerFlex 750-series safety options can be found in Table 66.

Table 66 - PowerFlex 750-Series Safety Option Modules

Description	Cat. No.	Publication
Hardware Safe Torque Off	20-750-S	PowerFlex 750-Series Safe Torque Off Option Module User Manual, publication 750-UM002
Hardware Safe Speed Monitor	20-750-S1	PowerFlex 750-Series Safe Speed Monitor Option Module Safety Reference Manual, publication 750-RM001
Integrated Safe Torque Off	20-750-S3	PowerFlex 755 Integrated Safety - Safe Torque Off Option Module User Manual, publication 750-UM004

Migration Solutions

Either the hardware Safe Torque Off (20-750-S) or integrated Safe Torque Off (20-750-S3) PowerFlex 750-series safety options can be used to migrate the functionality of the PowerFlex 700S DriveGuard Safe Torque Off module.

The PowerFlex 750-series Safe Torque Off option modules exclude encoder inputs. If the second encoder part of the PowerFlex 700S DriveGuard Safe Torque Off module is used, it will be necessary to supply a PowerFlex 750-series encoder option module to interface with the second encoder.

The PowerFlex 700S DriveGuard Safe Torque Off requires using the DriveGuard safety module feedback monitoring contact to achieve the published safety level and category. The PowerFlex 750-series safety modules do not use or require safety module feedback monitoring to achieve the published safety level and category.

The integrated Safe Torque Off option module (20-750-S3) uses integrated safety over EtherNet/IP or a hardware interface for Safe Torque Off functionality.

See Actuator Subsystems – Stop Cat. 0 or 1 via a PowerFlex Drive with Integrated Safe Torque Off Safety Function Application Technique, publication SAFETY-AT141, that describes using the PowerFlex 750-Series integrated Safe Torque Off option module.

PowerFlex 700S DriveLogix 5730 Configurations

The PowerFlex 700S Phase II drive could be equipped with an optional DriveLogix 5730 processor, catalog 20D-DL2-LEB0. The DriveLogix 5730 Logix Expansion board requires the expanded cassette.

DriveLogix offers embedded Logix control for application programmability and control of auxiliary functions in the PowerFlex 700S. DriveLogix is programmed using Studio/RSLogix 5000. It is a fully functional CompactLogix™ controller. It can be programmed using a Ladder Diagram, Function Block Diagram, Sequential Function Chart, or Structured Text. It is only an option for the PowerFlex 700S and is not available in any other current drive product. More information on DriveLogix can be found in the DriveLogix 5730 Controller for PowerFlex 700S Drives with Phase II Control User Manual, publication 20D-UM003.

As previously mentioned, the initial release of PowerFlex 755T firmware excludes the DeviceLogix™ application. DeviceLogix is an embedded control technology in some Rockwell Automation products that can control outputs and manage status information onboard a device. In the PowerFlex 755, DeviceLogix is used to provide additional control capability at the drive level based on application needs. A Function Block Diagram or Ladder Logic program can be configured to control drive functions and physical and networked I/O. DeviceLogix is programmed using Connected Components Workbench (CCW). More information on DeviceLogix is found in the DeviceLogix System User Manual, publication RA-UM003.

Migration Solutions

It will be necessary use an external automation controller, such as a CompactLogix or ControlLogix®, and translate your PowerFlex 700S DriveLogix application software to operate within the automation controller. A communication network is required to communicate between the PowerFlex 755T and the automation controller.

Notes:

Communication Configuration

A PowerFlex® 700S drive with a communication option module can usually be migrated to a PowerFlex 755T product with embedded EtherNet/IP or compatible communication module. The process to migrate can vary significantly depending on the communication option in the PowerFlex 700S drive and the controller type communicating with the drive.

IMPORTANT   Refer to the respective communication adapter user manuals. The manuals provide important configuration, installation, wiring, and programming processes required for proper operation.

This section describes the PowerFlex 700S network options that are compatible with PowerFlex 755T products. 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 PowerFlex 755T products, and determine the correct communication option for your drive migration.

In some cases, it is necessary to re-map and translate reference, status, control and DataLink registers if 16-bit based processors such as PLC-5®, SLC™, or certain MicroLogix™ controllers are communicating with the drive.

Use Table 67 to cross-reference the existing PowerFlex 700S communication module to a compatible PowerFlex 750-series communication module. If your existing communication protocol does not have a compatible PowerFlex 750-series communication module, contact an authorized Rockwell Automation Distributor specialist, Solution Partner, Recognized System Integrator or Rockwell Automation account manager to discuss engineered solutions for custom migrations.

Table 67 - Communication Protocol Adapter Cross-reference Guide

Protocol	PowerFlex 700S Communication Adapters	PowerFlex 750-series Communication Modules	
EtherNet/IP	20-COMM-E, 20-COMM-ER, 1788-ENBT, 20D-DL2-ENET0	Embedded dual-port EtherNet/IP 20-750-ENETR dual port	User Manual, publication 750COM-UM009 User Manual, publication, 750COM-UM008
ControlNet Coax	20-COMM-C 1788-CNC/CNCR	20-750-CNETC	User Manual, publication, 750COM-UM003
ControlNet Fiber	20-COMM-Q 1788-CNF/CNFR	—[1]	—
DeviceNet	20-COMM-D 1788-DNB0	20-750-DNET	User Manual, publication, 750COM-UM002
HVAC Modbus RTU	20-COMM-H	—[1]	
CANopen	20-COMM-K	—[1]	
Modbus/TCP	20-COMM-M	—[1]	
PROFIBUS DPV1	20-COMM-P	20-750-PBUS	User Manual, publication, 750COM-UM004
ProfiNet	—	20-750-PNET 20-750-PNET2P	User Manual, publication, 750COM-UM006 750COM-UM007
Remote I/O	20-COMM-R[2]	—[1]	
RS485 DF1	20-COMM-S	—[1]	
USB	1203-USB	1203-USB	

(1)   Future product releases may permit the use of selected 20-COMM-x communication adapters.

(2)   This item has End-of-Life status.

PowerFlex 755T 20-COMM-*x* Network Adapter Compatibility

At initial release, 20-COMM-*x* adapters cannot be used with PowerFlex 755T products.

Scaling of Reference and Feedback

The PowerFlex 700S drive parameters for network 'SpeedReference' and 'SpeedFeedback' data using a 20-COMM-E communication adapter are scaled for 32767 = 1.0 PU. A Logix value of 32767 written to network DPI Port 5 'SpeedReference' 32-bit integer pre-defined output DataLink will equate to a parameter P40 [Selected Spd Ref] internal value of 1.0 PU, which is displayed in RPM where 1.0 PU = P4 [Motor NP RPM].

The PowerFlex 755T network speed 'Reference' and 'Feedback' data using the Embedded Ethernet or 20-750-ENTR option module are in engineering units and are dependent on 0:46 [Velocity Units]. A Logix value of 60.2 written to the network 'Reference' 32-bit real pre-defined output DataLink will equate to a parameter 0:1892 [VRef Selected] value of 60.2 Hz or 60.2 rpm depending on the setting of parameter 0:46 [Velocity Units]. It is highly recommended that 0:46 be set to 1='RPM' to match the velocity units used by the PowerFlex 700S.

PowerFlex 700S DPI Communications

The PowerFlex 700S supports 16/32-bit integer [INT/DINT] and floating point [REAL] DataLinks, which can be selected on the Logix module definition screen (for details, see the communication adapter documentation). The PowerFlex 700S with 20-COMM-x communication option module supports 8 Input and 8 Output 32-bit DataLinks. When using Logix V16 and later PowerFlex 700S internal/communication parameter values and Logix DataLink tags automatically have the same data type and scaling factor as the PowerFlex 700S internal values.

shows the Module Definition dialog box for a PowerFlex 700S with 20-COMM-E Ethernet/IP adapter using one 32-bit DINT parameter (A1) and two 32-bit REAL parameters (A2 and B1) on the Input, as well as two 32-bit REAL parameters (A1 and A2) on the Output.

Figure 29 - Module Definition
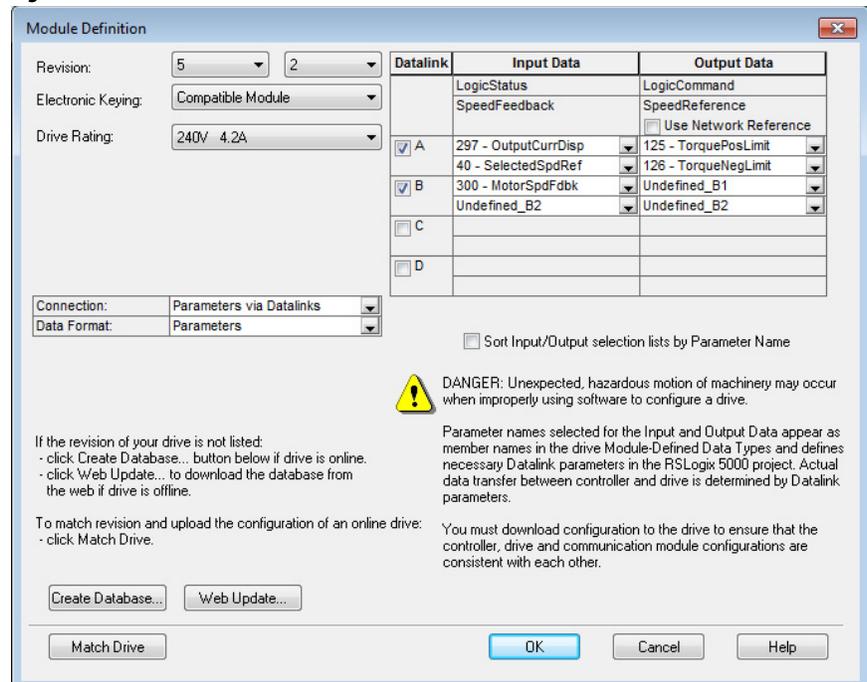
PowerFlex 755T Communications

The PowerFlex 755T product supports 16 input and 16 output 16/32-bit integer [INT/DINT] and floating point [REAL] DataLinks when using Embedded EtherNet or 20-750-ENETR communication option module. When using Logix V16 and later PowerFlex 755T parameters and Logix DataLink tags automatically have the same data type and scaling factor. Figure 30 and Figure 31 show similar 32-bit DataLinks when using a PowerFlex 755T product with Embedded EtherNet communication.

Figure 30 - Connection Formats - Inputs
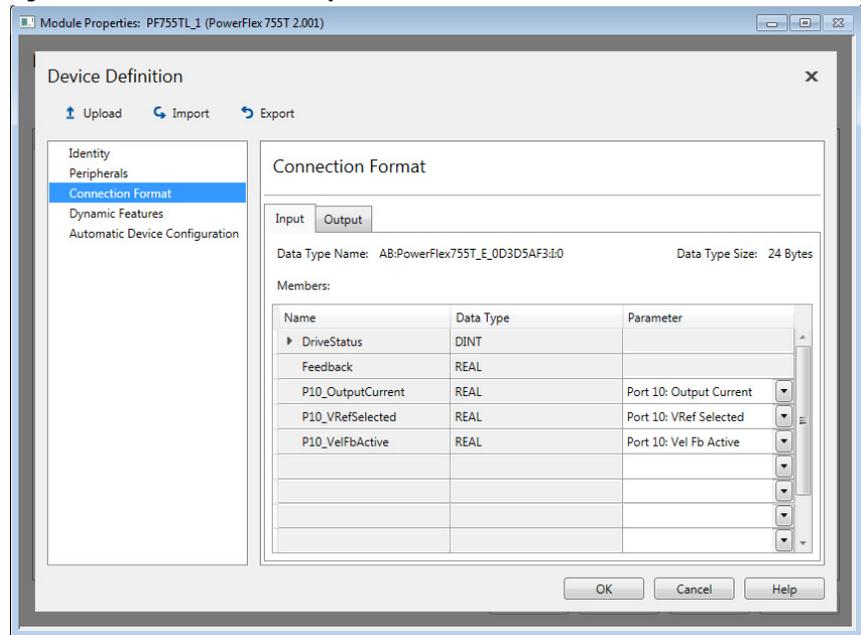
Figure 31 - Connection Formats - Outputs
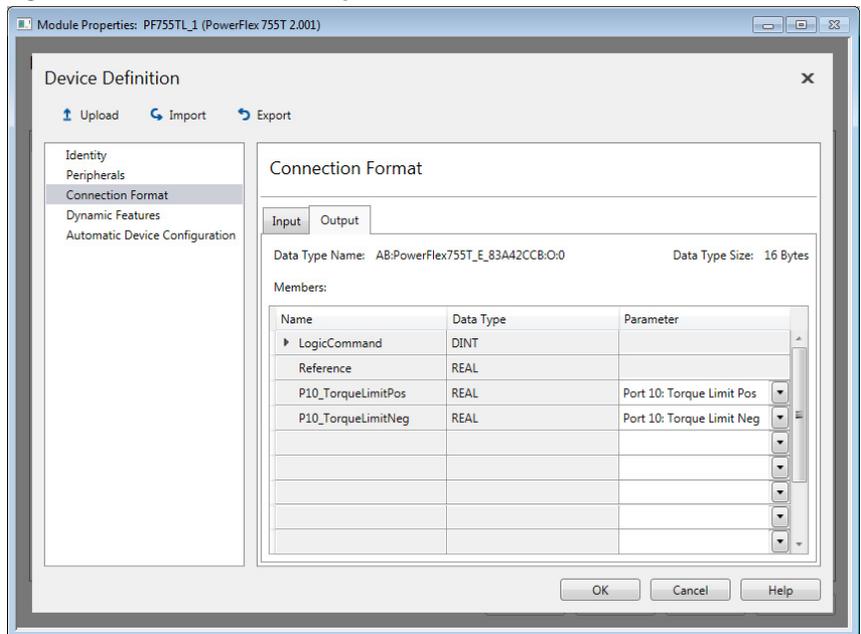
Logic Command Word Comparison

Table 68 shows the motor side inverter communication Logic Command Word comparison that applies to the Logix Add-On-Profile (AOP). The Logic Command Word functions are pre-defined by the AOP and associated tags are automatically assigned in the Logix project.

- "Start" is a momentary command, that is, a transition from '0' to '1' performs the start function. A '1' to '0' transition of the "Start" command has no effect on operation and does NOT perform a stop function.

- The "Run" command is a maintained function. A '0' to '1' transition of the "Run" command performs the run function. A '1' to '0' transition of the "Run" command performs a stop function.

- The "NormalStop" or "Stop" command must transition from '0' to '1' to perform a stop function. The "Start" and "Run" commands are inhibited if the "NormalStop" or "Stop" command is '1'. The "Start" or "Run" commands must transition from '0' to '1' after a stop command in order to perform the start or run functions.

- PowerFlex 755TL/TR drives and PowerFlex 755TM common bus inverters do not have a line side converter Logic Command Word. To manually control the PowerFlex 755TL/TR line side converter, you must set 0:63 [LS Start Mode] = (0) 'Conv Logic'. To control the line side converter via communication link from the Logix controller, assign parameter 0:64 [LS Manual Ctrl] to an Output DataLink.

    Alternatively, the line side converter can be controlled manually by Digital I/O parameters; 0:105 [DI L Enable], 0:112 [DI L Stop], 0:119 [DI L Start] and 0:123 [DI L Run].

Table 68 - Motor Side Inverter Logic Command Word Comparison

PowerFlex 700S Drive :O.LogicCommand_ "TagName"	Command Description	PowerFlex 755TL/TR Drive and PowerFlex 755TM Common Bus Inverter :O.LogicCommand_ "TagName"	Command Description
Bit 0 "NormalStop"	0 = Not Normal Stop 1 = Normal Stop	Bit 0 "Stop"	0 = Not Stop 1 = Stop
Bit 1 "Start"	0 = Not Start 1= Start	Bit 1 "Start"	0 = Not Start 1= Start
Bit 2 "Jog1"	0 = Not Jog 1 1 = Jog using P29 [Jog Speed 1]	Bit 2 "Jog1"	0 = Not Jog 1 1 = Jog using 10:1894 [Jog Speed 1]
Bit 3 "ClearFault"	0 = Not Clear Fault 1 = Clear Fault	Bit 3 "ClearFaults"	0 = Not Clear Fault 1 = Clear Fault
Bit 4 "UniPolFwd" Bit 5 "UniPolRev"	00 = No Command 01 = Forward command 10 = Reverse command 11 = Hold Direction	Bit 4 "Forward" Bit 5 "Reverse"	00 = No Command 01 = Forward command 10 = Reverse command 11 = Hold Direction
Bit 6 Reserved	Not used	Bit 6 "Manual"	0 = Not Manual 1 = Manual
		Bit 7 Reserved	Not used
Bit 7 "Jog2"	0 = Not Jog 2 1 = Jog using P39 [Jog Speed 2]	Bit 19 "Jog2"	0 = Not Jog 2 1 = Jog using 10:1895 [Jog Speed 2]
Bit 8 "CurLimStop"	0 = Not Current Limit Stop 1 = Current Limit Stop	Bit 17 "CLimitStop"	0 = Not Current Limit Stop 1 = Current Limit Stop
Bit 9 "CoastStop"	0 = Not Coast Stop 1 = Coast Stop	Bit 16 "CoastStop"	0 = Not Coast Stop 1 = Coast Stop
		Bit 8 "AccelTime1" Bit 9 "AccelTime2"	00 = No Command 01 = Use 10:1915 [VRef Accel Time1] 10 = Use 10:1916 [VRef Accel Time2] 11 = Use Present Time
Bit 10 Reserved	Not used	Bit 10 "DecelTime1" Bit 11 "DecelTime2"	00 = No Command 01 = Use 10:1917 [VRef Decel Time1] 10 = Use 10:1918 [VRef Decel Time2] 11 = Use Present Time
Bit 11 Reserved	Not used		
Bit 12 "SpdRefSel1" Bit 13 "SpdRefSel2" Bit 14 "SpdRefSel3"	000 = Use P27 [Speed Ref A Sel] 001 = Use P28 [Speed Ref B Sel] 010 = Use P15 [Preset Speed 2] 011 = Use P16 [Preset Speed 3] 100 = Use P17 [Preset Speed 4] 101 = Use P18 [Preset Speed 5] 110 = Use P19 [Preset Speed 6] 111 = Use P20 [Preset Speed 7]	Bit 12 "SpdRefSel0" Bit 13 "SpdRefSel1" Bit 14 "SpdRefSel2"	000 = No Command 001 = Use 10:1800 [VRef A Sel] 010 = Use 10:1807 [VRef B Sel] 011 = Use 10:1816 [Preset Speed 3] 100 = Use 10:1817 [Preset Speed 4] 101 = Use 10:1818 [Preset Speed 5] 110 = Use 10:1819 [Preset Speed 6] 111 = Use 10:1820 [Preset Speed 7]
Bit 15 Reserved	Not used	Bit 15 Reserved	Not used
		Bit 18 "Run"	0 = Not Run 1 = Run
		Bit 20…31 Reserved	Not used

DataLink Handling Comparison

DataLink examples using a Logix controller with Logix V16 and later firmware. Sample numerical data is interpreted as shown in Table 69.

Table 69 - DataLink Handling Comparison

Example Data	Drive Type and Comm Option	DataLink; Parameter Information	Parameter Value in PowerFlex	Tag Value in Logix[1] [2]
Output Amps	PowerFlex 700S; 20-COMM-E/ER	Input DataLink A1; P297 [Output Curr Disp], type 'DINT', units 'Amps', scale '10'	Internal value; 12897 P297 displayed as; = 12897 / 10 = 1289.7	12897
	PowerFlex 755T; Embedded Ethernet	Input DataLink 01; 10:3 [Output Current], type 'REAL', units 'Amps'	458.9	458.9
Motoring Torque Limit	PowerFlex 700S; 20-COMM-E/ER	Output DataLink A1; P125 [Torque Pos Limit], type 'REAL', units 'PU'	2.0	2.0
	PowerFlex 755T; Embedded Ethernet	Output DataLink 01; 10:2083 [Torque Limit Pos], type 'REAL', units '%'	200.0	200.0
Regen Torque Limit	PowerFlex 700S; 20-COMM-E/ER	Output DataLink A2; P126 [Torque Neg Limit], type 'REAL', units 'PU'	-2.0	-2.0
	PowerFlex 755T; Embedded Ethernet	Output DataLink 02; 10:2084 [Torque Limit Neg], type 'REAL', units '%'	-200.0	-200.0
Network Speed Reference	PowerFlex 700S; 20-COMM-E/ER	Pre-defined Output DataLink; DPI Port 5, Tag 'SpeedReference', Type 'DINT'	Internal value; = 16809 / 32767 = 0.513 Comm value; 16809	16809
	PowerFlex 755T; Embedded Ethernet	Pre-defined Output DataLink; 0:211 [Emb Enet Ref], Tag 'Reference', Type 'REAL'	1460.2	1460.2
Selected Speed Reference	PowerFlex 700S; 20-COMM-E/ER	Input DataLink A2; P40 [Selected Spd Ref], Type 'REAL', units 'RPM'	Internal value; 0.513 P40 displayed as; = 0.513 * P4 [Motor NP RPM]	0.513
	PowerFlex 755T; Embedded Ethernet	Input DataLink 02; 0:1892 [VRef Selected], Type 'REAL', units[3] 'RPM'	1460.2	1460.2
Network Speed Feedback	PowerFlex 700S; 20-COMM-E/ER	Pre-defined Input DataLink; DPI Port 5, Tag 'SpeedFeedback', Type 'DINT'	Internal value; 0.6578 Comm value; = 0.6578 x 32767 = 21554	21554
	PowerFlex 755T; Embedded Ethernet	Pre-defined Input DataLink; Tag 'Feedback', Type 'REAL'	935.7	935.7
Active Speed Feedback	PowerFlex 700S; 20-COMM-E/ER	Input DataLink B1; P300 [Motor Spd Fdbk] Type 'REAL', units 'RPM'	Internal value; 0.6578 P300 displayed as; = 0.6578 * P4 [Motor NP RPM]	0.6578
	PowerFlex 755T; Embedded Ethernet	Input DataLink 03; 10:1042 [Vel Fb Active] Type 'REAL', units[3] 'RPM'	935.7	935.7

(1) When using Logix V16 and later, DataLink scaling is automatically applied such that Logix values match PowerFlex internal values.

(2) When using Logix V15 and earlier or 16-bit processors, DataLink scaling may need to be done in application programs. See the 16 Bit-based Processor section in this document for more information.

(3) PowerFlex 755T velocity units depend on the setting of parameter 0:46 [Velocity Units]. It is highly recommended that parameter 0:46 be to 1='RPM' to match the PowerFlex 700S velocity units of 'RPM'. The above examples assume P46 = 1 'RPM'.

16-bit Processors

The PowerFlex 755T products are 32-bit, whereas the PLC-5, SLC 500, and MicroLogix 1100/1400 processor modules are 16-bit. Any application that uses a 16-bit based processor with a PowerFlex 755T product Embedded EtherNet/IP or communication option module must include a review to determine the types of data that are passed, and if the 16-bit based processor can process the data.

For information on how to use a PLC-5, SLC 500, or MicroLogix 1100/1400 controller, see Controller Examples for EtherNet/IP Network Communications with PowerFlex 750-Series Drives, publication 750COM-AT001.

For 16-bit processors, the data requires manipulation to set a speed reference above 32767 or below -32767. See PowerFlex 700S AC Drives Phase II Control reference manual, publication PFLEX-RM003.

Enclosure Information

Dimensions and Enclosure Types

Enclosure and dimensional information based on the compatible migration solutions are shown in the cross-reference tables.

The enclosure dimensions for both AC Input and DC Input PowerFlex 700S frame 9…13 drives are the same, however, there are differences in weight between AC and DC input types. See the PowerFlex 700S Drives with Phase II Control Technical Data, publication 20D-TD002, for enclosure weight data.

IMPORTANT	The PowerFlex 700S frame 9 drive is usually mounted within an enclosure, however, it can be wall-mounted per the catalog numbers shown. The equivalent PowerFlex 755T product is supplied as a floor standing enclosure. Consider the mounting and enclosure types that are used for your PowerFlex 700S frame 9 migration solution to ensure the PowerFlex 755T enclosed product can be installed in the available space.

AC Input Dimensions

Figure 32 - AC and DC Input Frame 9 PowerFlex 700S
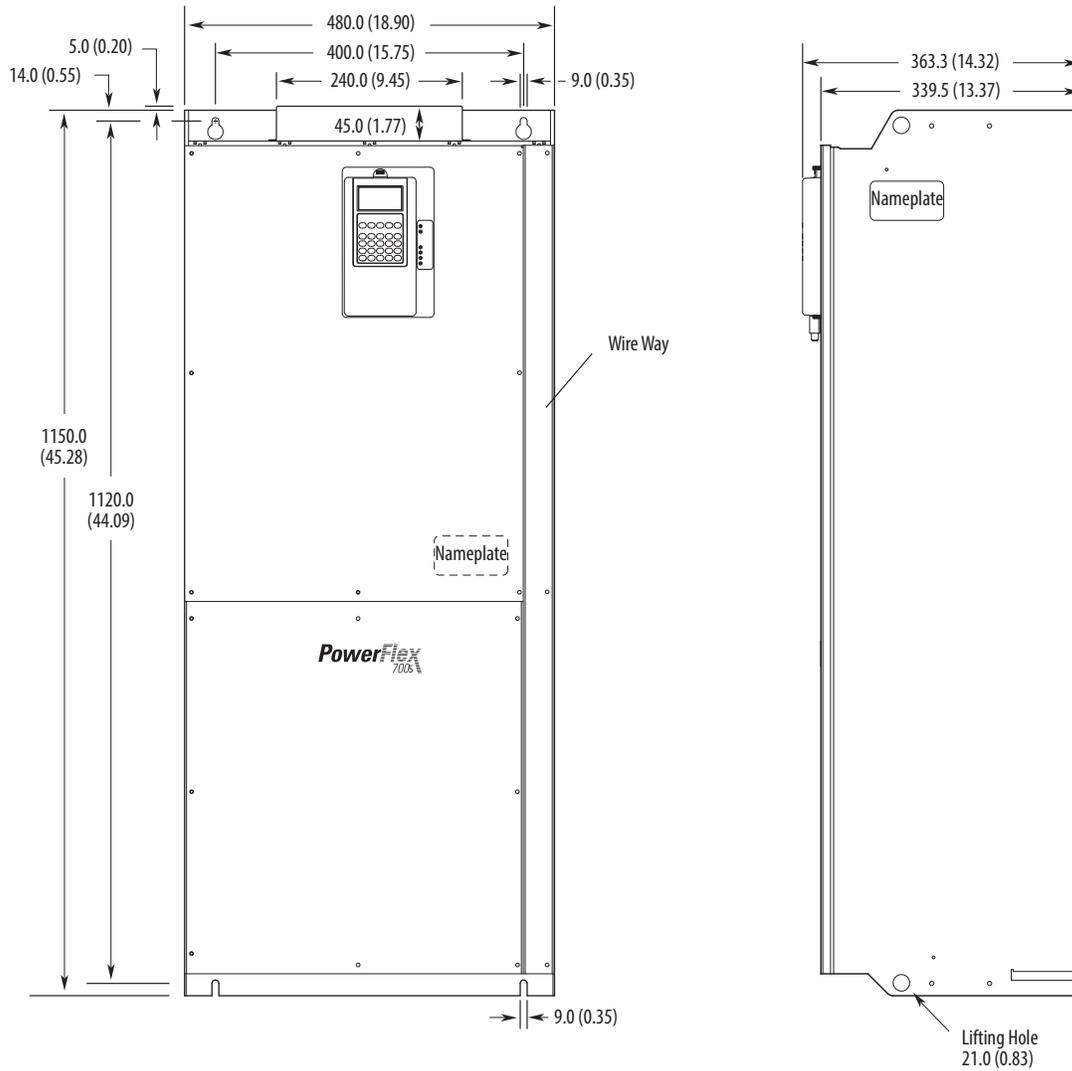
Figure 33 - AC and DC Input Frame 10 PowerFlex 700S

IP54 Rittal

IP20 MCC
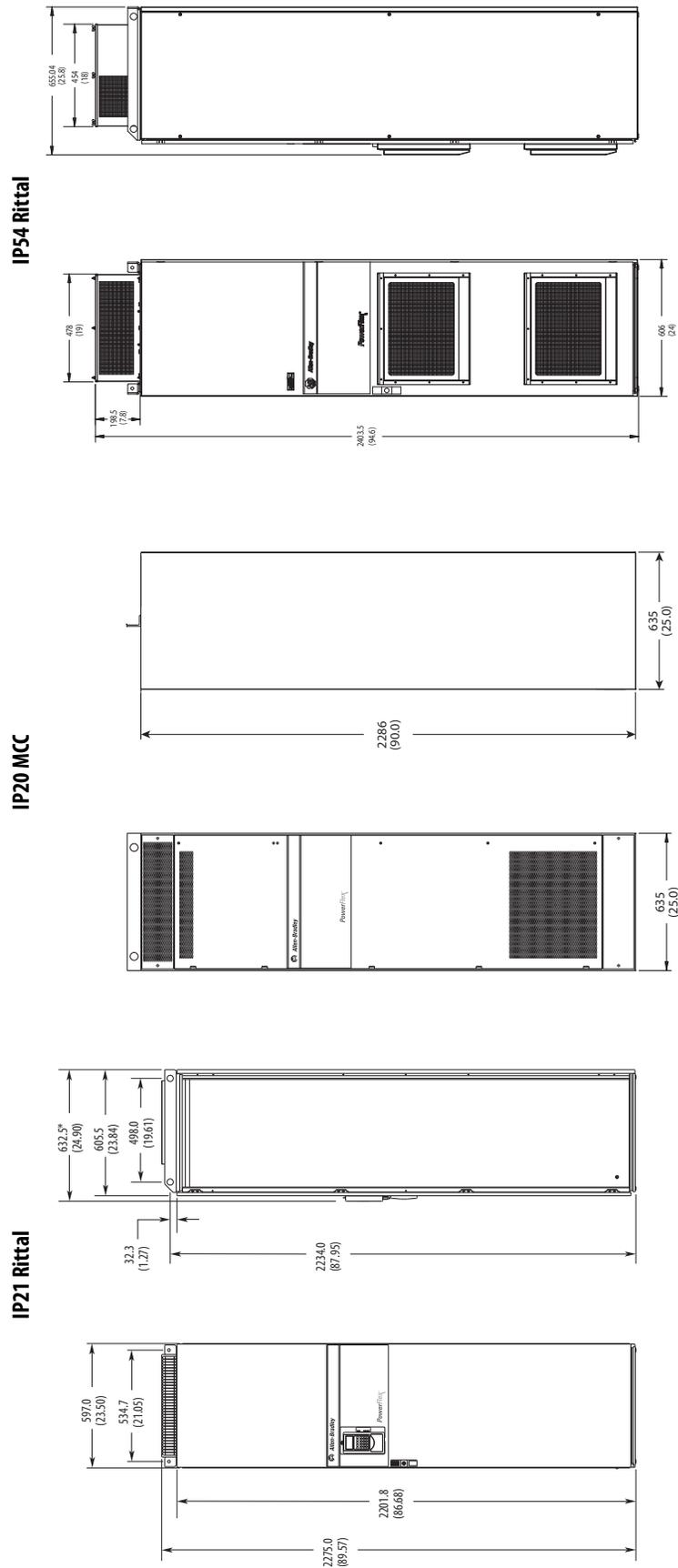
IP21 Rittal

Figure 34 - AC and DC Input Frame 11 PowerFlex 700S

IP54 Rittal

655.04 (25.8)
454 (18.0)

678 (26.7)
806 (31.7)
23 (0.9)
2414.5 (95.0)

IP20 MCC

635 (25.0)
2286 (90.0)
889 (35.0)

IP21 Rittal

621.74* (24.48)
605.5 (23.84)
498.0 (19.61)
32.25 (1.27)
2234.0 (87.95)

797.0 (31.38)
736.0 (28.98)
2205.0 (86.81)
2275.0 (89.57)
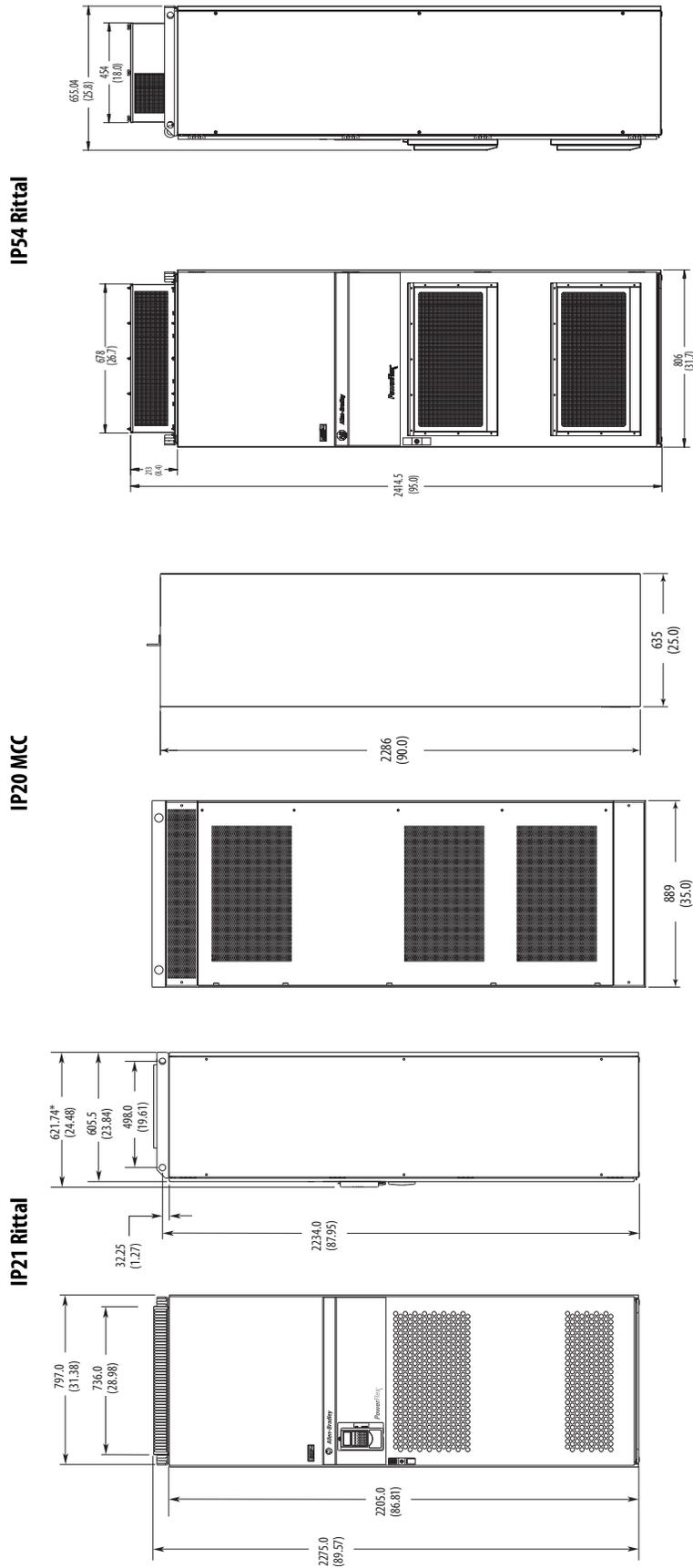
Figure 35 - AC and DC Input Frame 12 PowerFlex 700S

IP54 Rittal

IP20 MCC
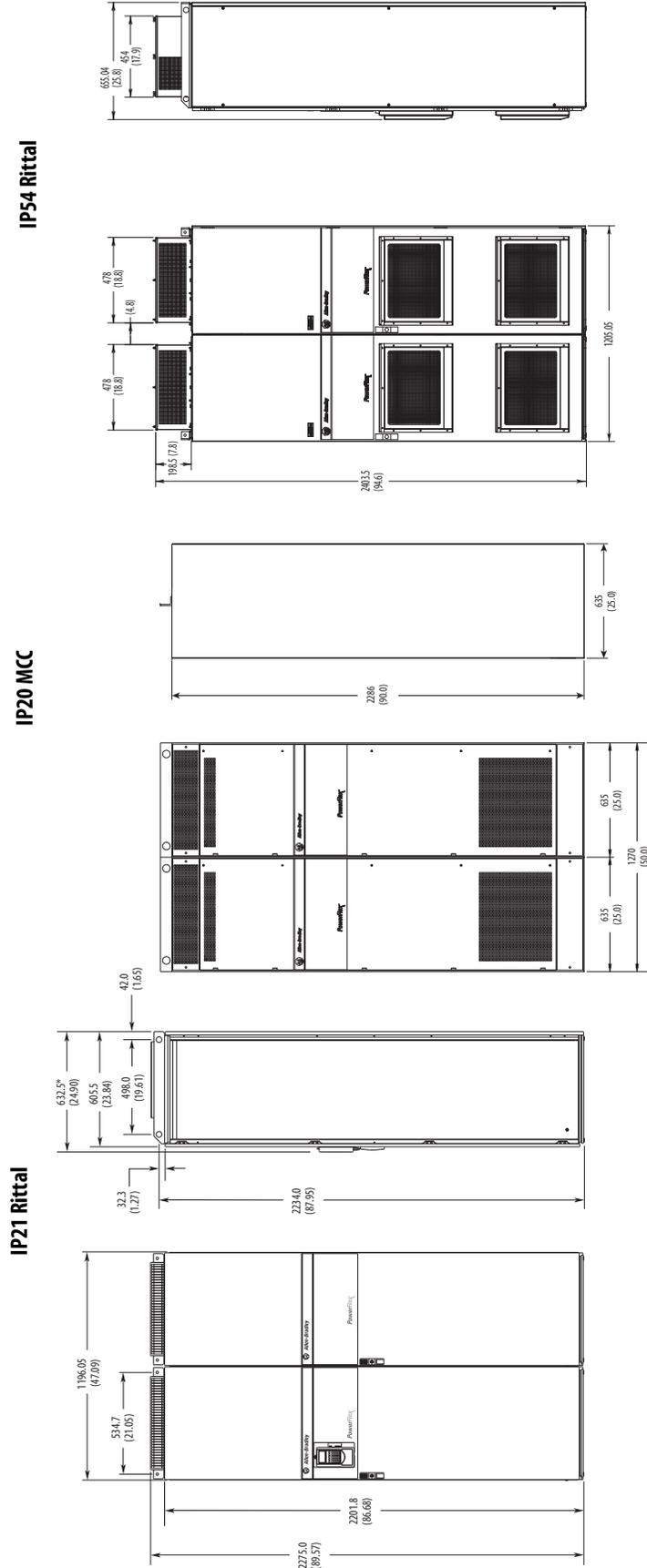
IP21 Rittal

Figure 36 - AC and DC Input Frame 13 PowerFlex 700S, IP21 Rittal

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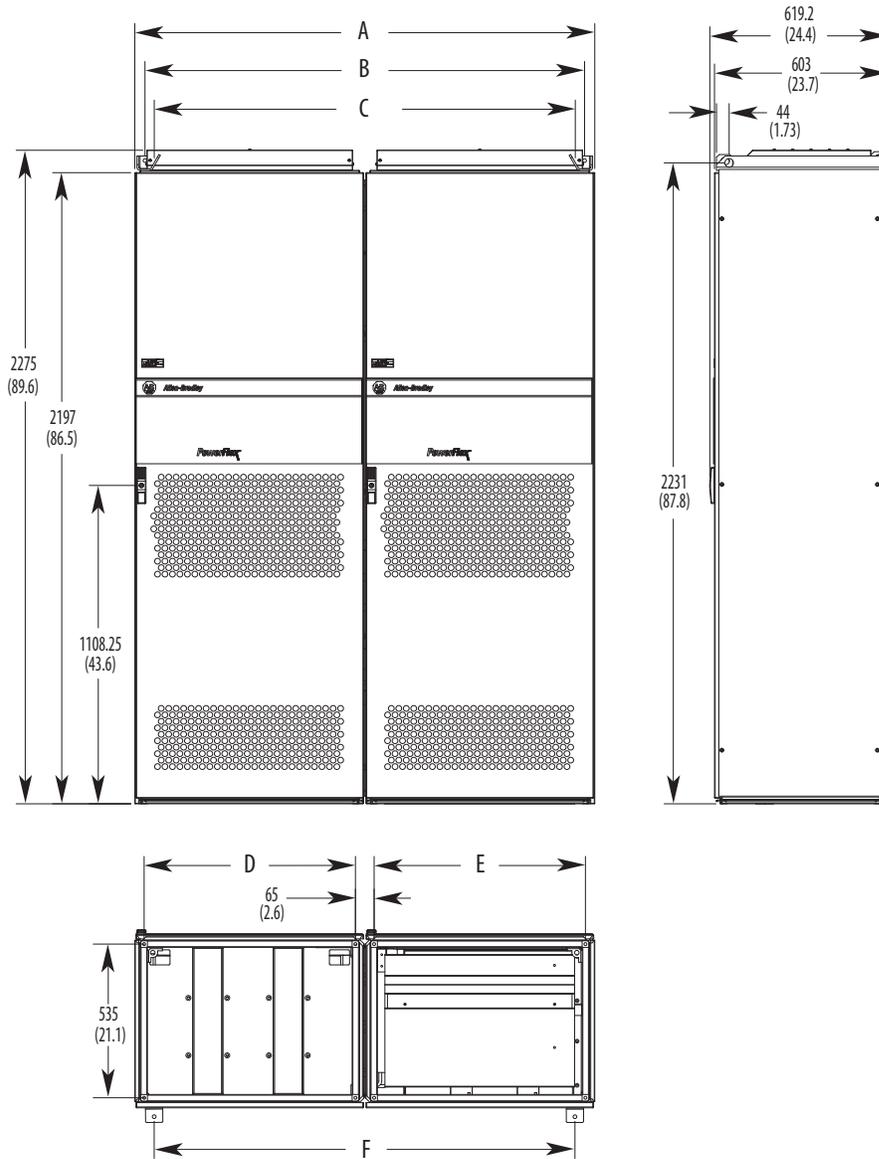
Voltage Class	Amps	A	B	C	D	E	F
400/480V AC (540/650V DC)	1150	1412 (56)	1329 (52)	1264 (50)	535 (21)	735 (29)	1264 (58)
	1300	1600 (63)	1529 (60)	1464 (58)	735 (29)	735 (29)	1464 (58)
	1450						
600/690V AC (810/932V DC)	920	1412 (56)	1329 (52)	1264 (50)	535 (21)	735 (29)	1264 (50)
	1030						
	1180						

Figure 37 - AC and DC Input Frame 13 PowerFlex 700S, IP54 Rittal

Dimensions are in millimeters and (inches).
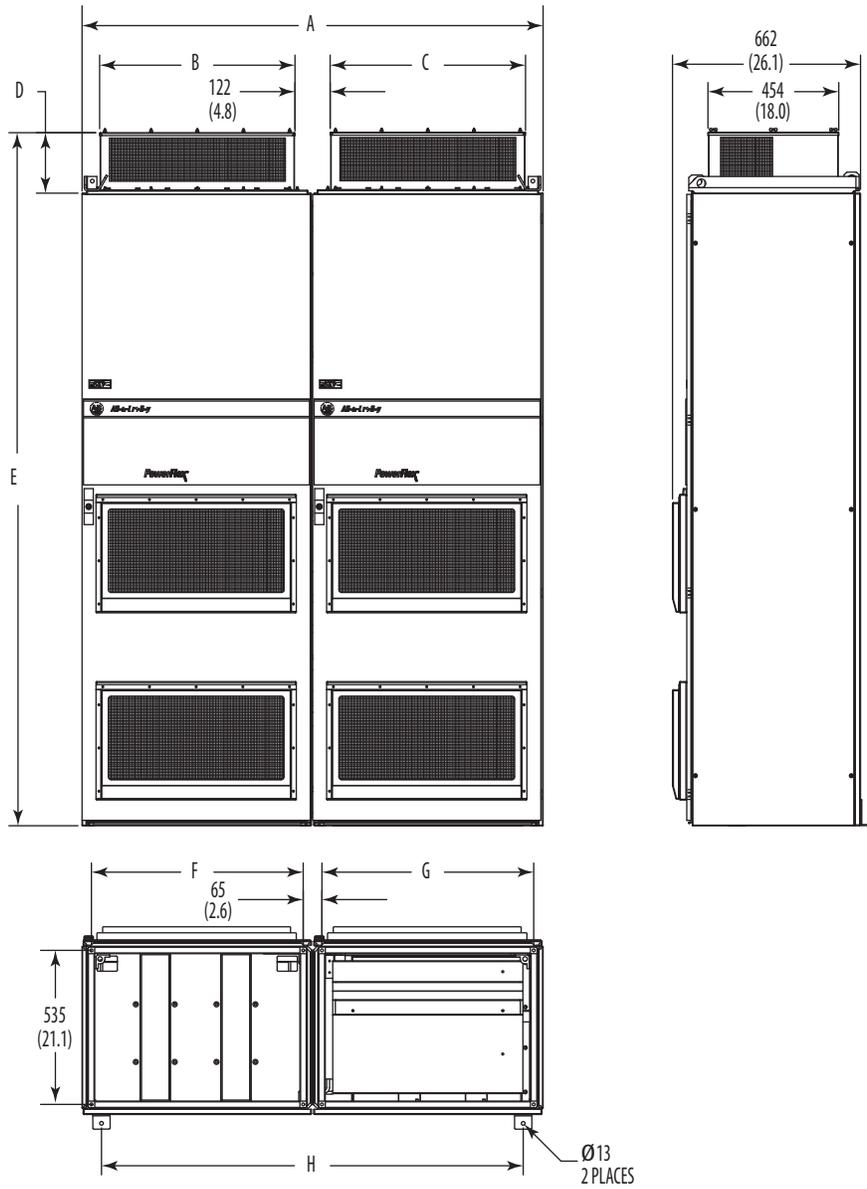
Voltage Class	Amps	A	B	C	D	E
400/480V AC (540/650V DC)	1150	1412 (56)	478 (18.8)	678 (26.7)	1 @ 242 (9.5) 1 @ 213 (8.4)	2443.5 (104.5) max.
	1300	1600 (63)	678 (26.7)	678 (26.7)	2 @ 242 (9.5)	2443.5 (104.5)
	1450					
600/690V AC (810/932V DC)	920	1412 (56)	478 (18.8)	678 (26.7)	1 @ 242 (9.5) 1 @ 213 (8.4)	2443.5 (104.5) max.
	1030					
	1180					

Figure 38 - AC Input Frame 14 PowerFlex 700S, IP21 Rittal

IP21 Rittal

IP54 Rittal
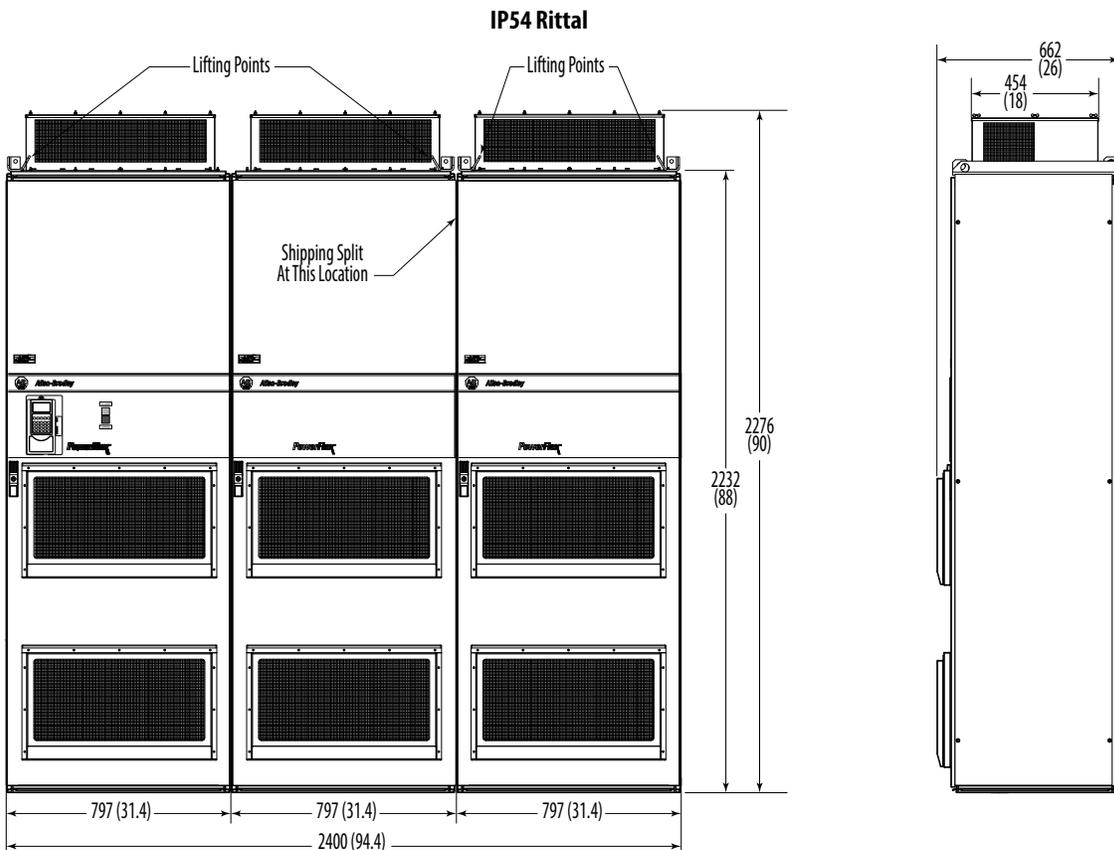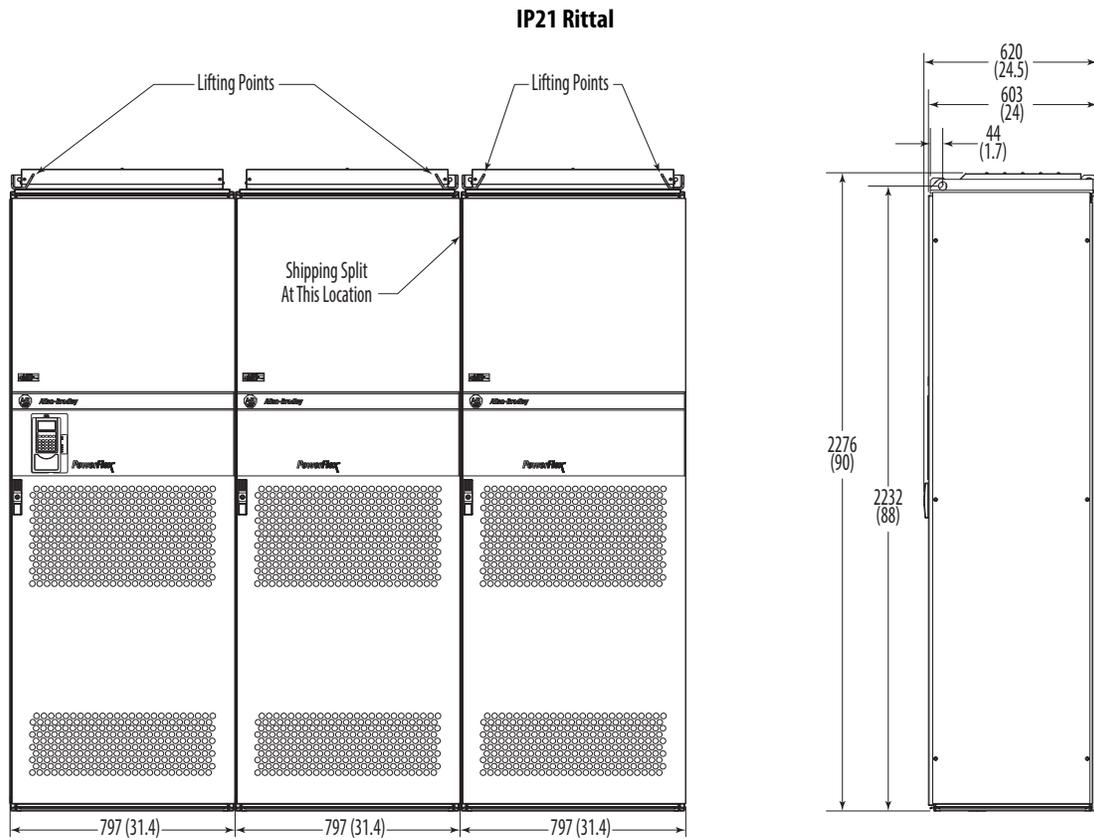
Figure 39 - Frame 8 PowerFlex 755TL/TR

Input Power Cables - Top Entry

312
(12.3)

128
(5.0)

301
(11.9)

90
(3.5)

IP54, UL Type 12
721
(28.4)

IP21, UL Type 1
676
(26.6)

Signal Cables - Top Entry
Dimensions same as bottom.

48
(1.9)

Input Bay

Power Bay

Allen-Bradley

IP54, UL Type 12
2291
(90.2)

IP21, UL Type 1
2132
(83.9)

1407
(55.4)

400
(15.7)

800
(31.5)

1206
(47.5)

Signal Cables - Bottom Entry

Mounting Holes

200
(7.9)

45
(1.8)

709
(27.9)

535
(21.1)

451
(17.8)

153
(6.0)

Input Power Cables - Bottom Entry

0 (0)

335 (13.2)

400 (15.7)

49
(1.9)

867.5 (34.2)

967.5 (38.1)

1067.5 (42.0)

1135 (44.7)

105
(4.1)

150
(5.9)

36
(1.4)

Motor Cables - Bottom Exit
(Plate is marked with recommended gland or conduit hole pattern.)

Figure 40 - Frame 9 PowerFlex 755TL/TR
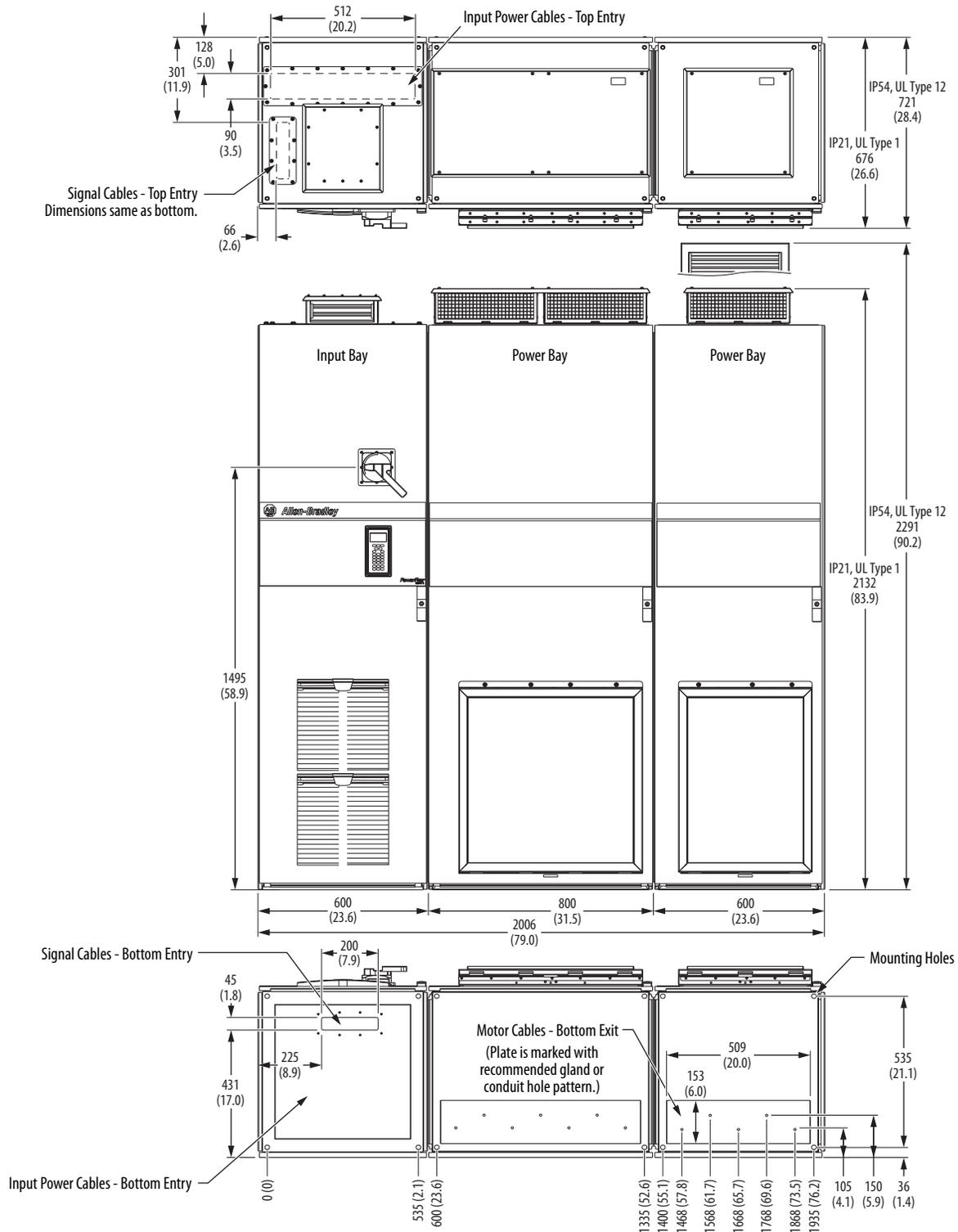
Figure 41 - Frame 10 PowerFlex 755TL/TR

473
(18.6)

45
(1.8)

726
(28.6)

200
(7.9)

Control Cables - Top Entry

IP54, UL Type 12
721
(28.4)

IP21, UL Type 1
676
(26.6)

Input Bay

Power Bay

Power Bay

Power Bay

Allen-Bradley

1481
(58.3)

IP54, UL Type 12
2291
(90.2)

IP21, UL Type 1
2132
(83.9)

1000
(39.4)

800
(31.5)

600
(23.6)

800
(31.5)

3206
(126.6)

45
(1.8)

200
(7.9)

230
(9.1)

200
(7.9)

186
(7.3)

450
(17.7)

Signal Cables - Bottom Entry

Mounting Holes

709
(27.9)

153
(6.0)

535
(21.1)

0 (0)

1000 (39.4)

935 (36.8)

1000 (39.4)

1735 (68.3)

1800 (70.9)

2335 (91.9)

2400 (94.5)

2468 (97.2)

2564 (100.9)

2668 (105.0)

2768 (109.0)

2872 (113.1)

2964 (116.7)

3072 (120.9)

3135 (123.4)

105
(4.1)

150
(5.9)

36
(1.4)

Input Power Cables - Bottom Entry

Motor Cables - Bottom Exit
(Plate is marked with recommended
gland or conduit hole pattern.)

Figure 42 - Frame 11 PowerFlex 755TR
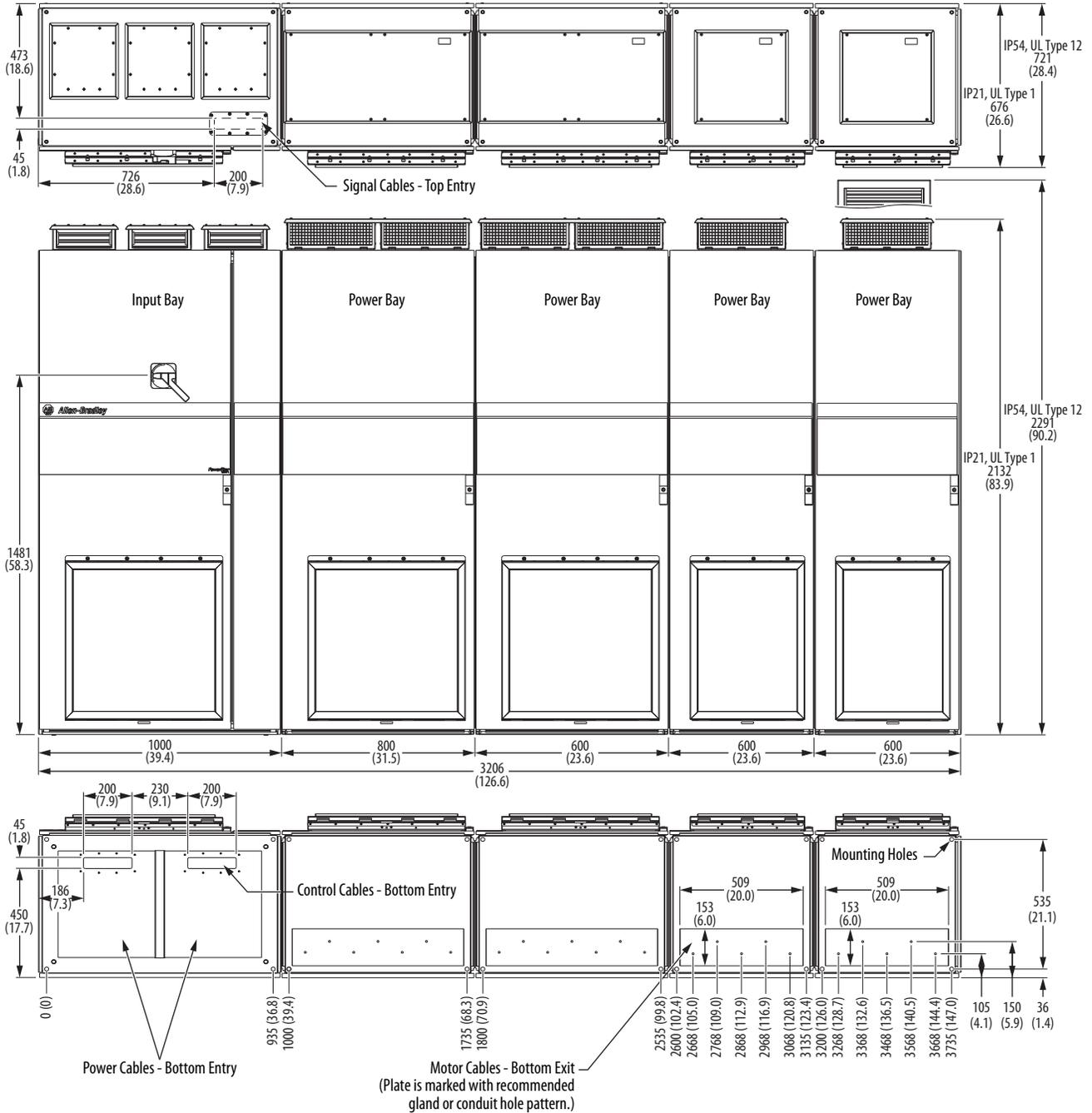
Figure 43 - Frame 12 PowerFlex 755TR
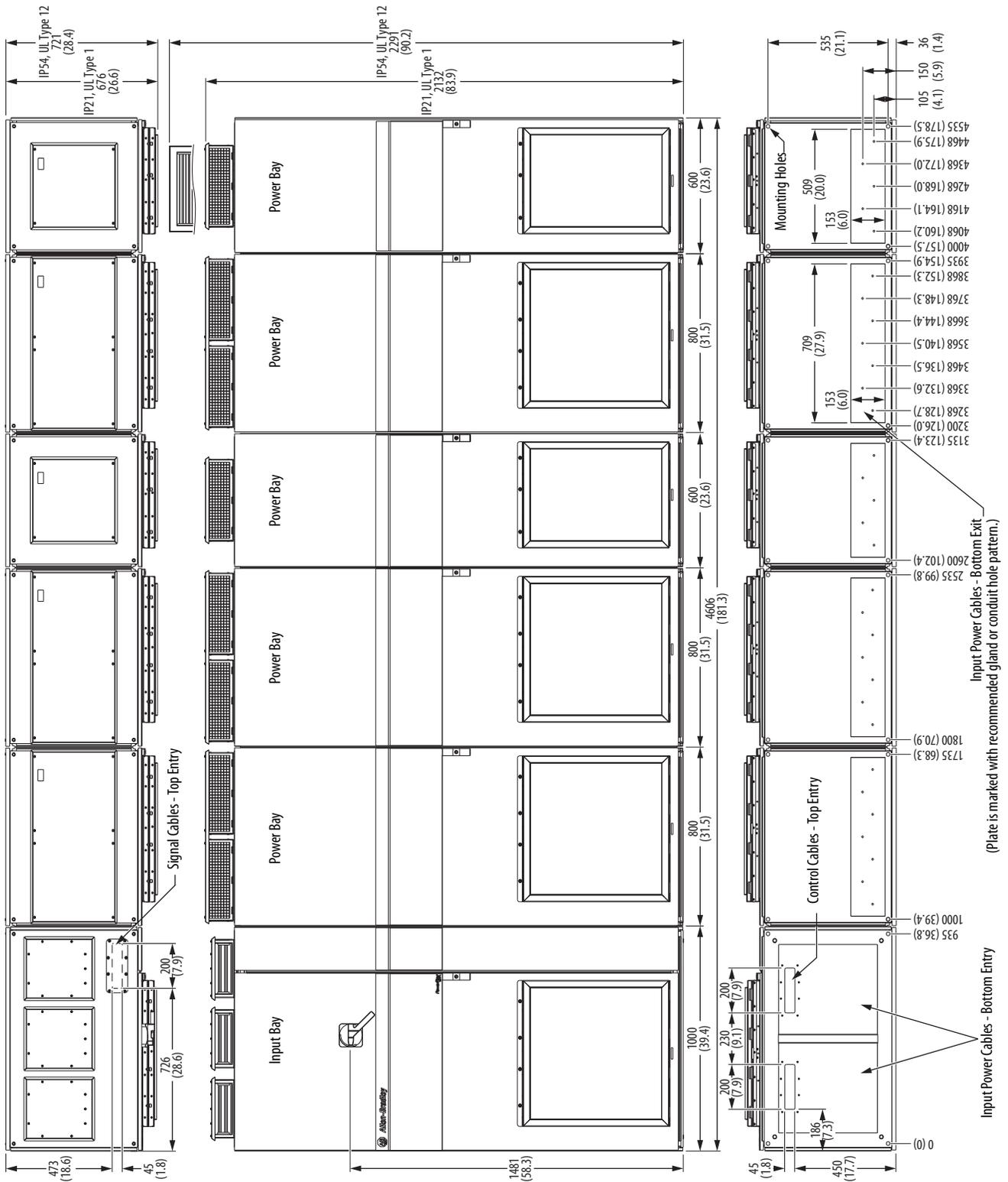
DC Input Dimensions

DC input frames 9...13 PowerFlex 700S drives have the same dimensions as AC input frames.

Figure 44 - DC Input Frame 14 PowerFlex 700S

DC Input

620 (24.5)
601 (23.7)
44 (1.7)

2270 (89.4)

2232 (88)

1597 (63.0)

62.25 (2.5)
675 (26.6)
125 (5.0)
675 (26.6)
475 (18.7)
65 (2.6)
68.75 (2.7)
30 (1.2)
799.5 (31.5)
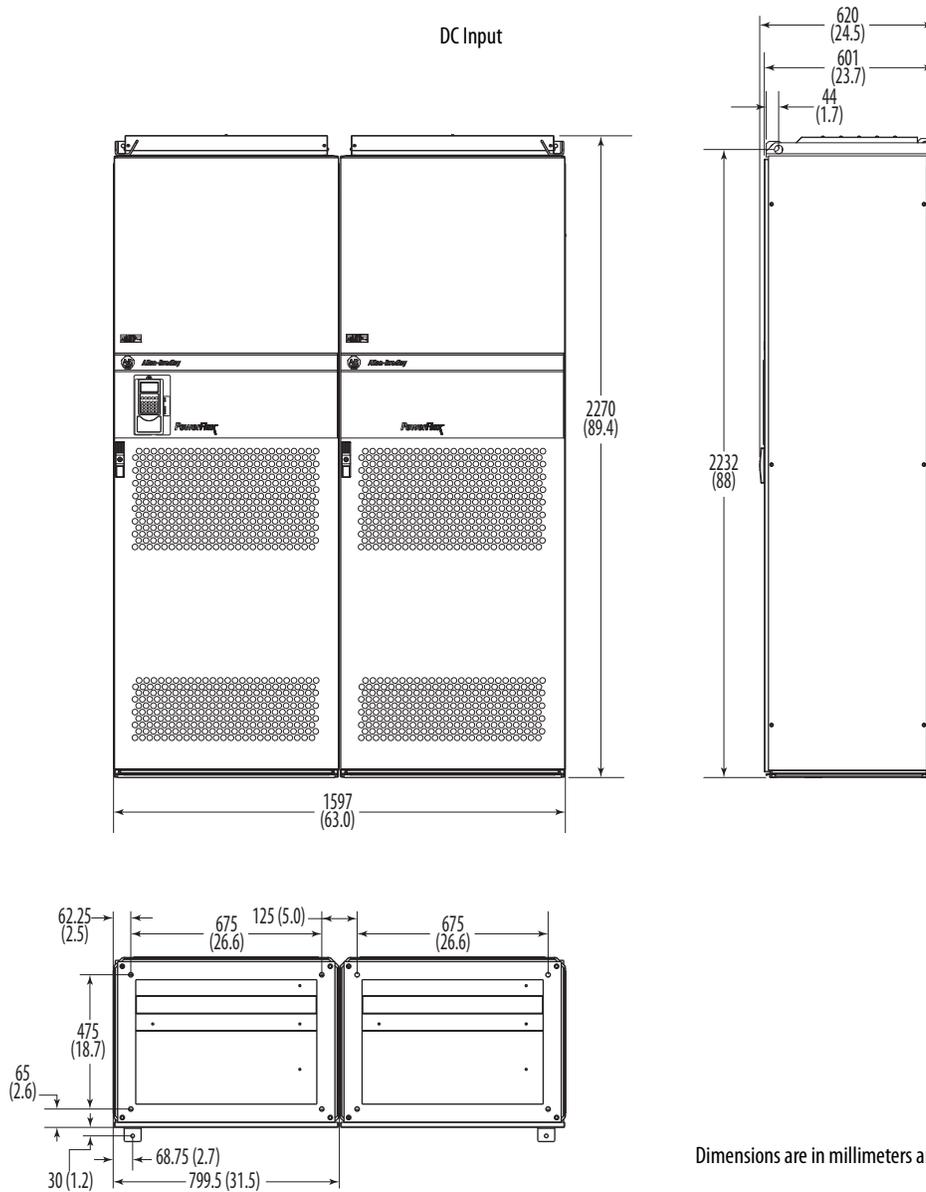
Dimensions are in millimeters and (inches).

Figure 45 - DC Input PowerFlex 755TM Common Bus Inverter Frames 8 and 9

Frame 8

Frame 9

IP54, UL Type 12
721
(28.4)

IP21, UL Type 1
676
(26.6)

IP54, UL Type 12
721
(28.4)

IP21, UL Type 1
676
(26.6)

IP54, UL Type 12
2291
(90.2)

IP21, UL Type 1
2132
(83.9)

IP54, UL Type 12
2291
(90.2)

IP21, UL Type 1
2132
(83.9)

700
(27.6)

900
(35.4)

535
(21.1)

535
(21.1)

65 (2.6)
0 (0)
235 (9.3)
300 (11.8)
368 (14.5)
464 (18.3)
568 (22.4)
635 (25.0)
105 (4.1)
150 (5.9)
36 (1.4)

65 (2.6)
0 (0)
235 (9.3)
300 (11.8)
368 (14.5)
468 (18.4)
568 (22.4)
668 (26.3)
768 (30.2)
835 (32.9)
105 (4.1)
150 (5.9)
36 (1.4)

Figure 46 - DC Input Frame 10 PowerFlex 755TM Common Bus Inverter
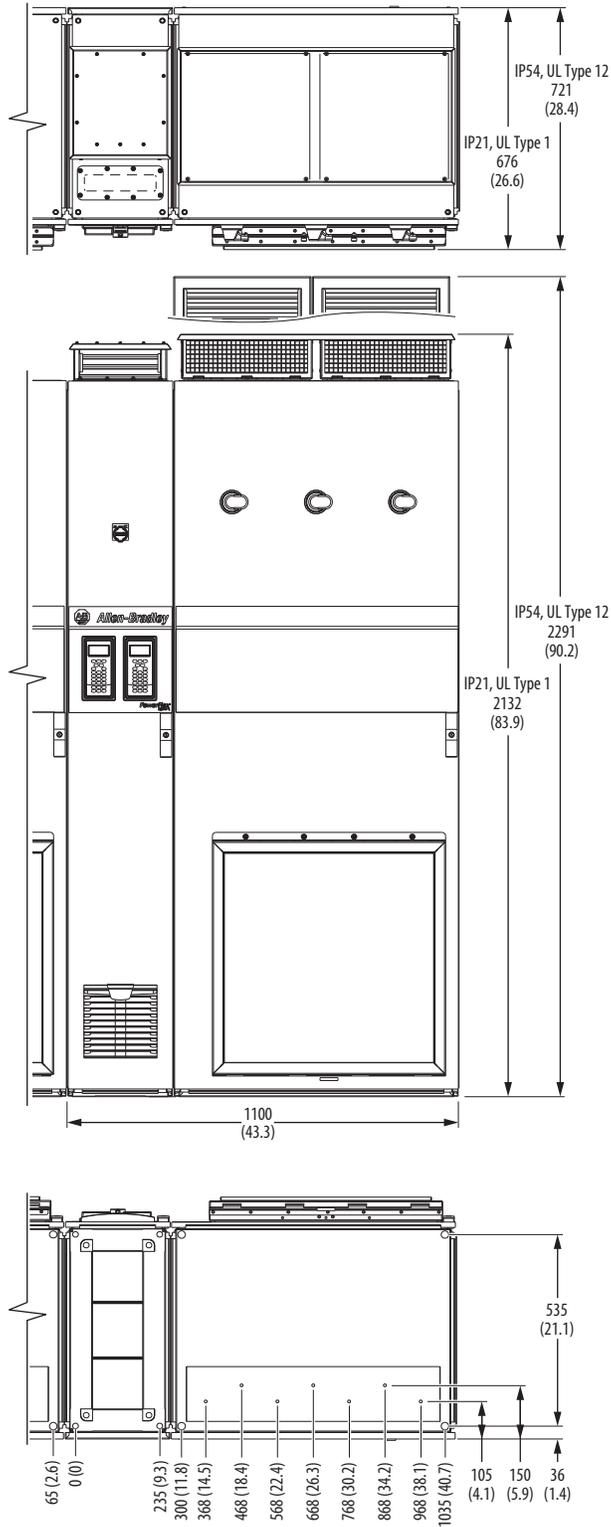
Figure 47 - DC Input Frame 11 PowerFlex 755TM Common Bus Inverter
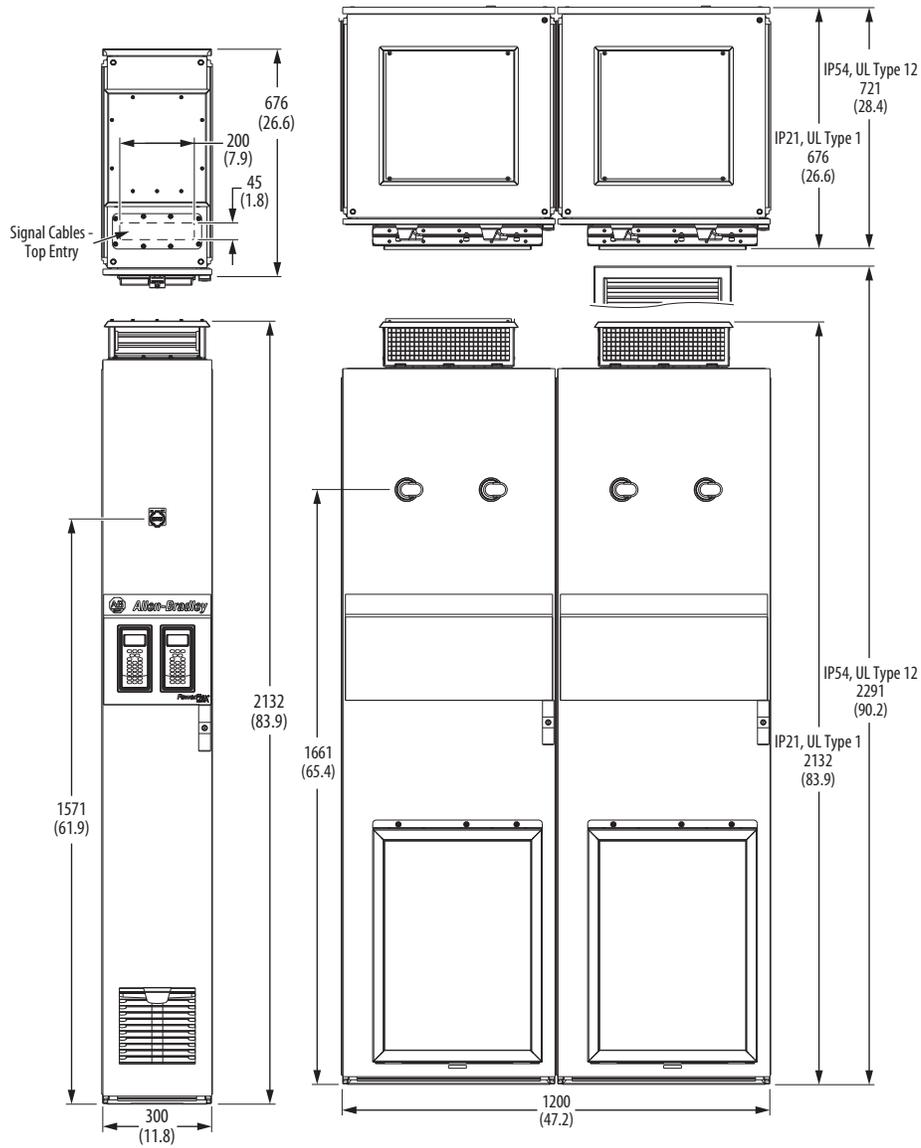
Figure 48 - DC Input Frame 12 PowerFlex 755TM Common Bus Inverter
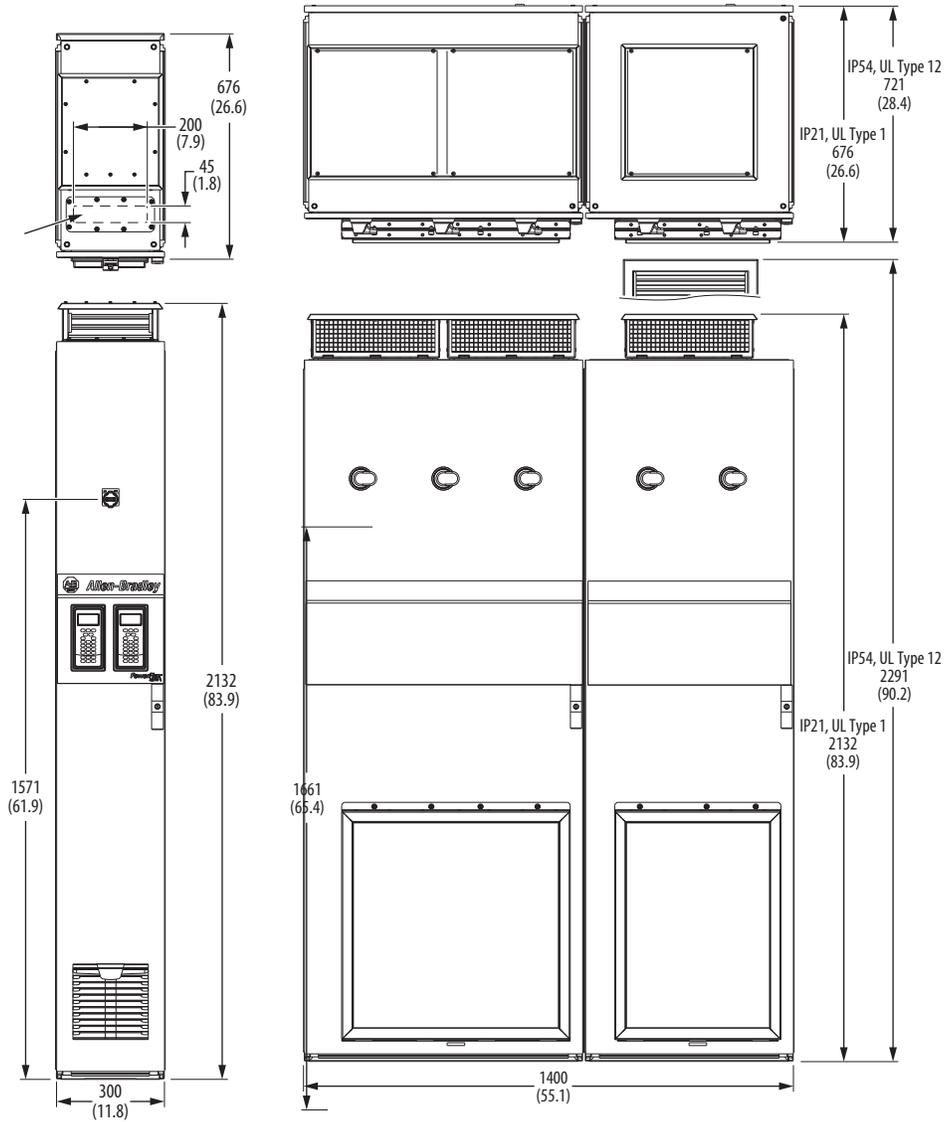
PowerFlex 755T Product Equipment Handling Options

This section lists options that are recommended to handle, transport, and store major product components.

Module Service Cart

The PowerFlex 750-Series service cart is designed to handle and transport LCL filter modules and power modules. The service cart has an adjustable curb height of 0...254 mm (0...10 in.) and curb offset/reach of 0...203 mm (0...8.0 in.).
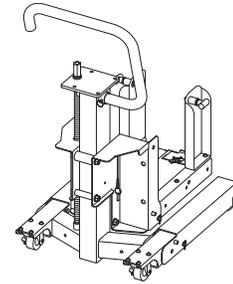
Cat. No. 20-750-MCART1

DC Precharge Module Service Lift

The PowerFlex 755T DC precharge module service lift allows you to remove and install DC precharge modules. It is used in conjunction with the 20-750-MCART1 module service cart.
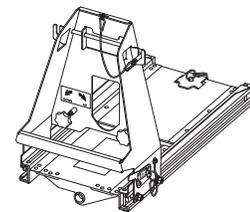
Cat. No. 20-750-MCART2

Power Module Service Ramp

The PowerFlex 755T power module service ramp allows you to remove and install power modules, catalog numbers 20-750-MI1-*xnnxnn*, 20-750-MI2-*xnnxnn*, and 20-750-MI3-*xnnxnn,* from the cabinet.
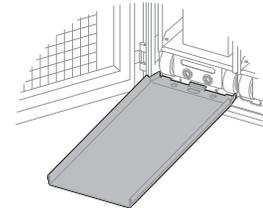
Cat. No. 20-750-MRAMP1

Power and Filter Module Storage Hardware

Power and LCL filter module storage hardware is designed to help stabilize modules during storage.
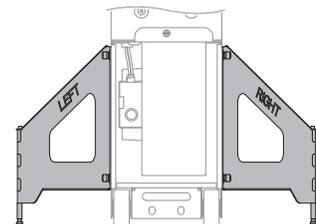
Cat. No. 20-750-MINV-ATIP

Cooling and Airflow Comparison

This section describes cooling and airflow requirements for the PowerFlex 700S and PowerFlex 755T products. Compare the requirements for the existing PowerFlex 700S drive to the equivalent cross reference PowerFlex 755T product to ensure the location chosen can support the requirements of the PowerFlex 755T migration solution.

PowerFlex 700S Installation Requirements

Refer to the PowerFlex 700H/S High Power Installation manual, publication PFLEX-IN006, for detailed environmental specifications for the PowerFlex 700S frame 9...14 drives.

**Figure 49 - PowerFlex 700S Frame 9 IP21 Enclosure, Minimum Clearances**

400.0 mm
(15.75 in.)

400.0 mm
(15.75 in.)

50.0 mm
(1.97 in.)

80.0 mm
(3.2 in.)

50.0 mm
(1.97 in.)

350.0 mm
(13.8 in.)

350.0 mm
(13.8 in.)
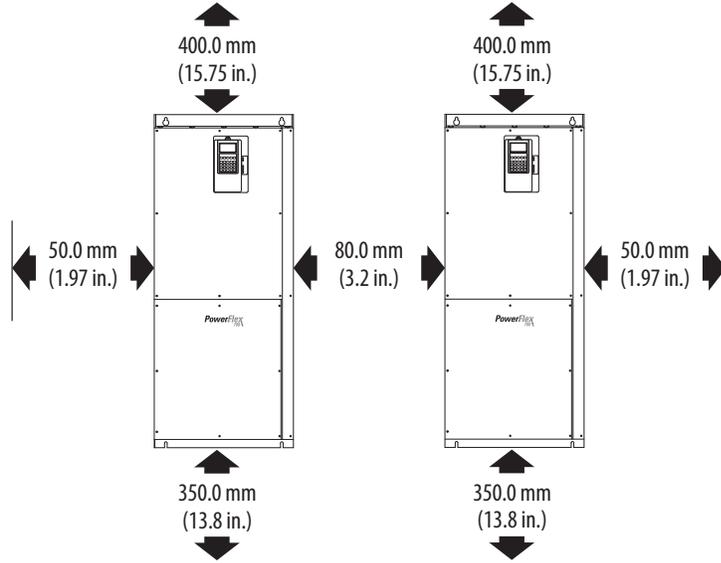
Figure 50 - PowerFlex 700S Frame 10…14 IP21 Rittal Enclosure, Minimum Clearances

200 mm
(7.87 in.) Min.

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

800 mm
(31.50 in.) Min.
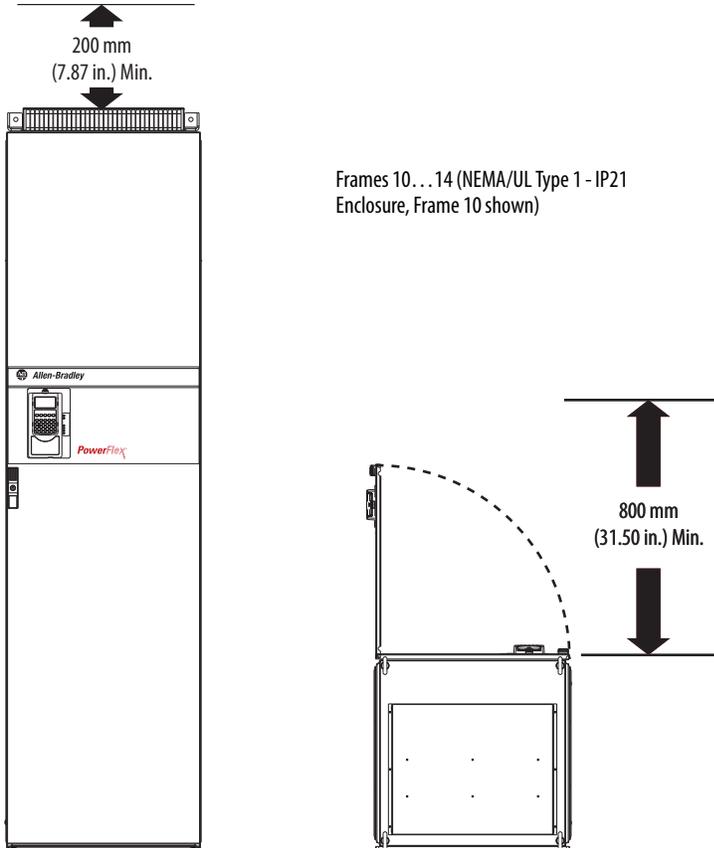
Figure 51 - PowerFlex 700S Frame 10…12 IP20 MCC Enclosure, Minimum Clearances
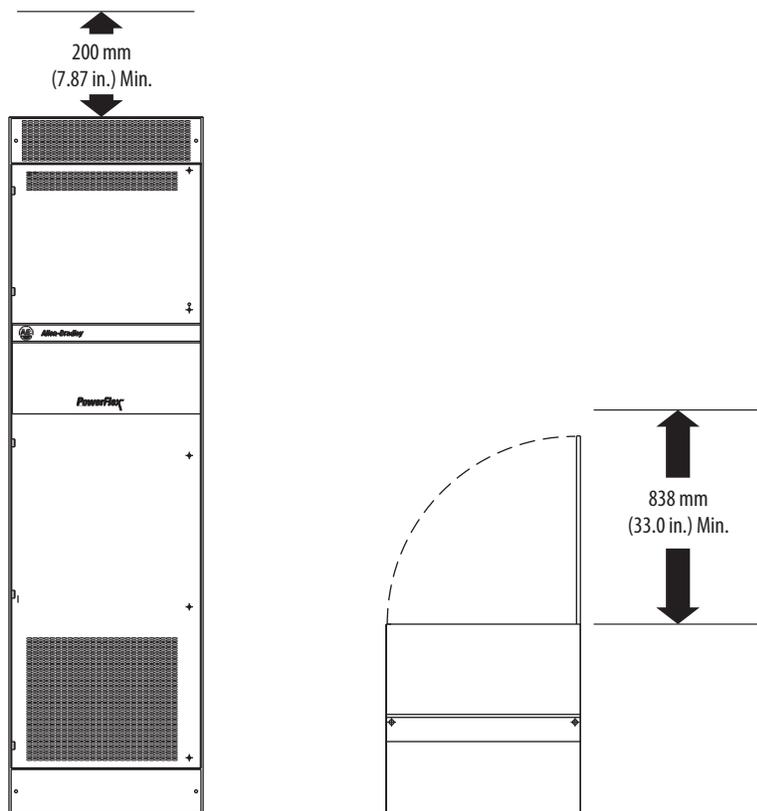
PowerFlex 755T Product Installation Requirements

Environmental Conditions

- Elevation above sea level without derating must be less than 1000 m (3250 ft).
- Ambient air temperature without derating must be between -20…+40 °C (-4…+104 °F).
- Relative humidity must be less than 95%, noncondensing.
- The product must be installed indoors; there must be no dripping water or other fluids in the room.
- Cooling air must be clean without significant concentrations of sand, corrosive or conductive dust (defined by IEC 721-1 as being less than 0.2 mg/m^3 of dust), or explosive gas.
- Free from significant vibration.

Table 70 - Environmental Specifications

Ambient temperature	IP21, UL Type 1: -20…+40 °C (-4…+104 °F) frames 8…12, all ratings IP54, UL Type 12: -20…+40 °C (-4…+104 °F) frames 8…12, all ratings
	Ambient temperature of 50 °C (122 °F) or 55 °C (134 °F) with derating.
Storage temperature	-40…+70 °C (-40…+158 °F)
Relative humidity	5…95% noncondensing
Atmospheric protection	Harsh environment is defined as a copper or silver reactivity level greater than 1000 angstroms per 30 days exposure. No condensation allowed. Maximum allowable humidity is 60% in the presence of corrosive gases. See ISA-71.04-2013 for details on how to measure reactivity levels on copper and silver test coupons.

Table 71 - Airflow Requirements

Frame	755TL and 755TR Drives		755TM Bus Supplies		755TM Common Bus Inverter	
	CFM (ft^3/min)	**CMS** (m^3/sec)	**CFM** (ft^3/min)	**CMS** (m^3/sec)	**CFM** (ft^3/min)	**CMS** (m^3/sec)
8	2375	1.12	1675	0.79	975	0.46
9	3775	1.78	2375	1.12	1675	0.79
10	6500	3.07	4400	2.08	2375	1.12
11	7900	3.73	5100	2.41	3075	1.45
12	10,000	4.72	6500	3.07	3775	1.78

Mounting Requirements

- Install the product upright on a flat and level surface.
- Verify that the product cabinet is square, vertical, and stable.
- Verify that the filter and debris screens are installed.
- Protect the cooling fan by avoiding dust or metallic particles.
- Do not expose to a corrosive atmosphere.
- Protect from moisture and direct sunlight.
- The product must be anchored on a level floor. See outline dimension drawings for the anchor point sizes and locations.

Minimum Clearances

Specified vertical clearance requirements are intended to be from the product to the closest object that can restrict airflow through the cabinet. The product must be mounted in a vertical orientation as shown and must make full contact with the mounting surface. Inlet air temperature must not exceed the product specification.See Table 10 on page 40.

Figure 52 - Minimum Overhead Clearances
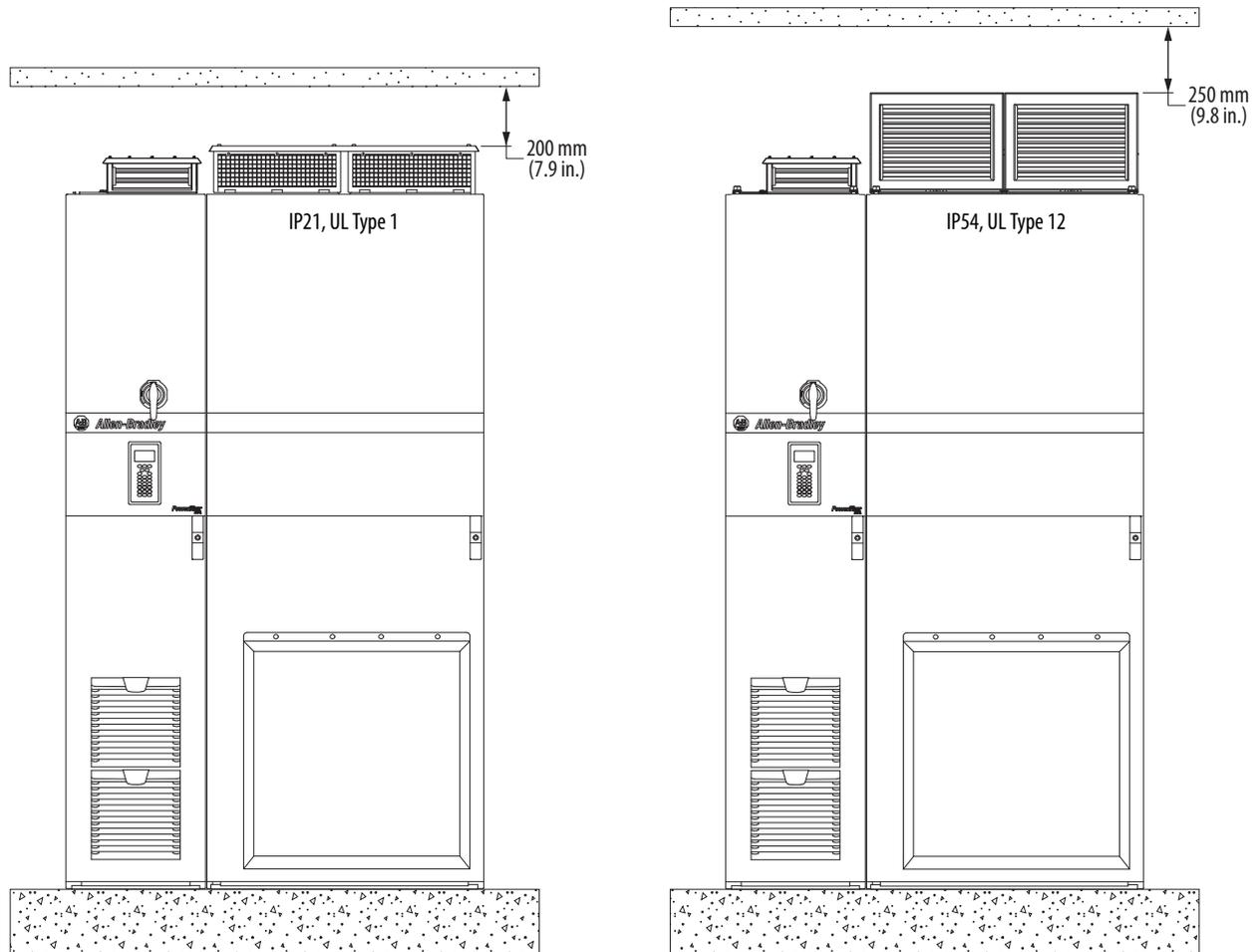
PowerFlex 755T products can be mounted on a service pad or platform. The platform height and enclosure setback measurements that are indicated in Figure 53 are the maximum that is allowed for by the PowerFlex 750-Series service cart (20-750-MCART1). The platform height measurement is also an installation limit per NEC requirements for the disconnect switch.

Figure 53 - Mounting Clearances for IGBT Access and Disconnect Switch Height

Side View

Side View

Maximum Enclosure Setback

203 mm
(8 in.)

Maximum Platform or   254 mm
Plinth System Height   (10 in.)

No clearance is required between the back of the enclosure and a wall.

Minimum Aisle Width

914 mm
(36 in.)

Side View

Top View

20-750-MCART1

152 mm
(6 in.)
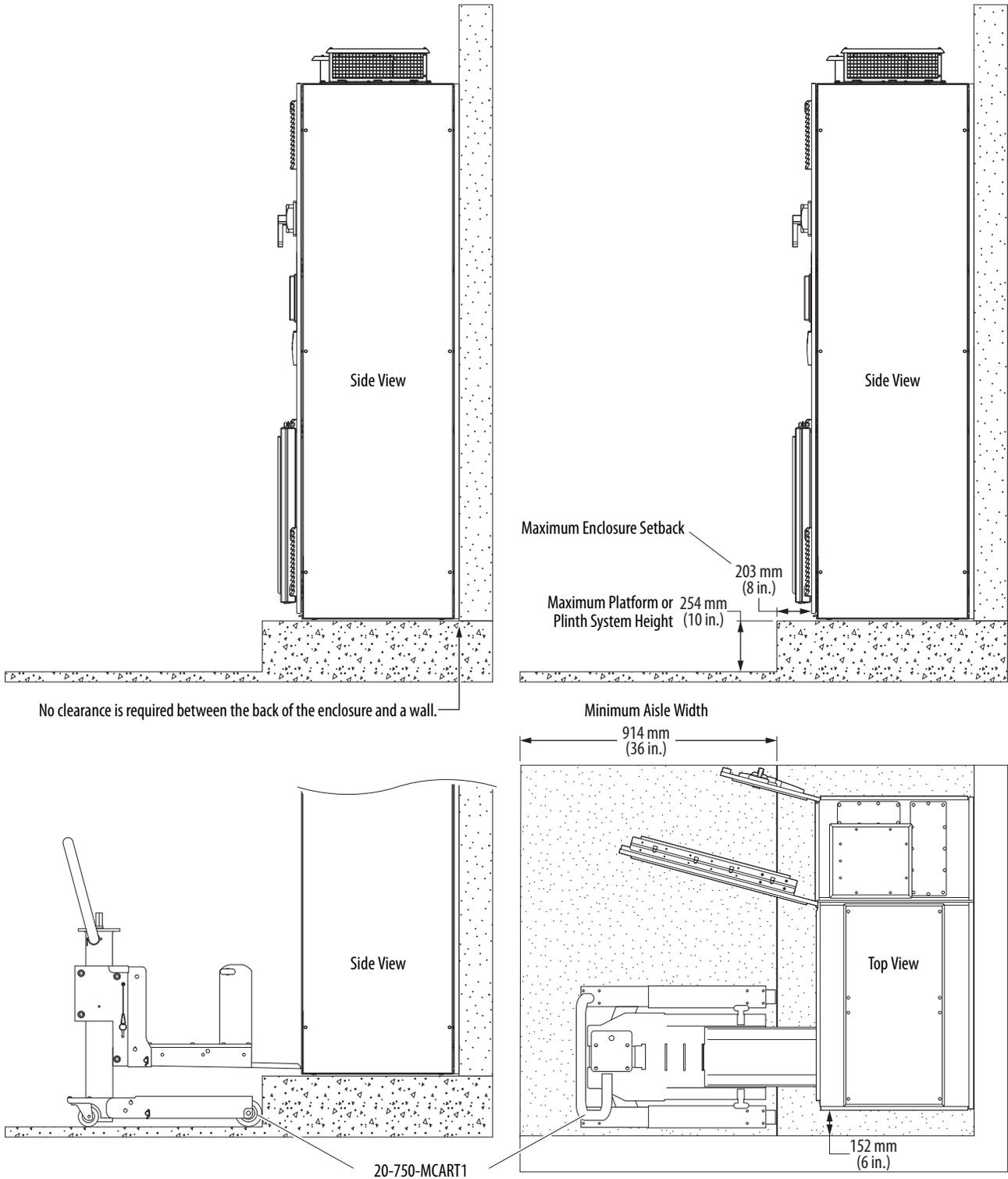
Airflow through the enclosure must not be impeded. Regular inspection and replacement of the filter media is required to maintain proper cooling. See the PowerFlex 750-Series Products with TotalFORCE Control Hardware Service Manual, publication [750-TG100](#) for filter media maintenance schedules.

Figure 54 - Airflow Clearances
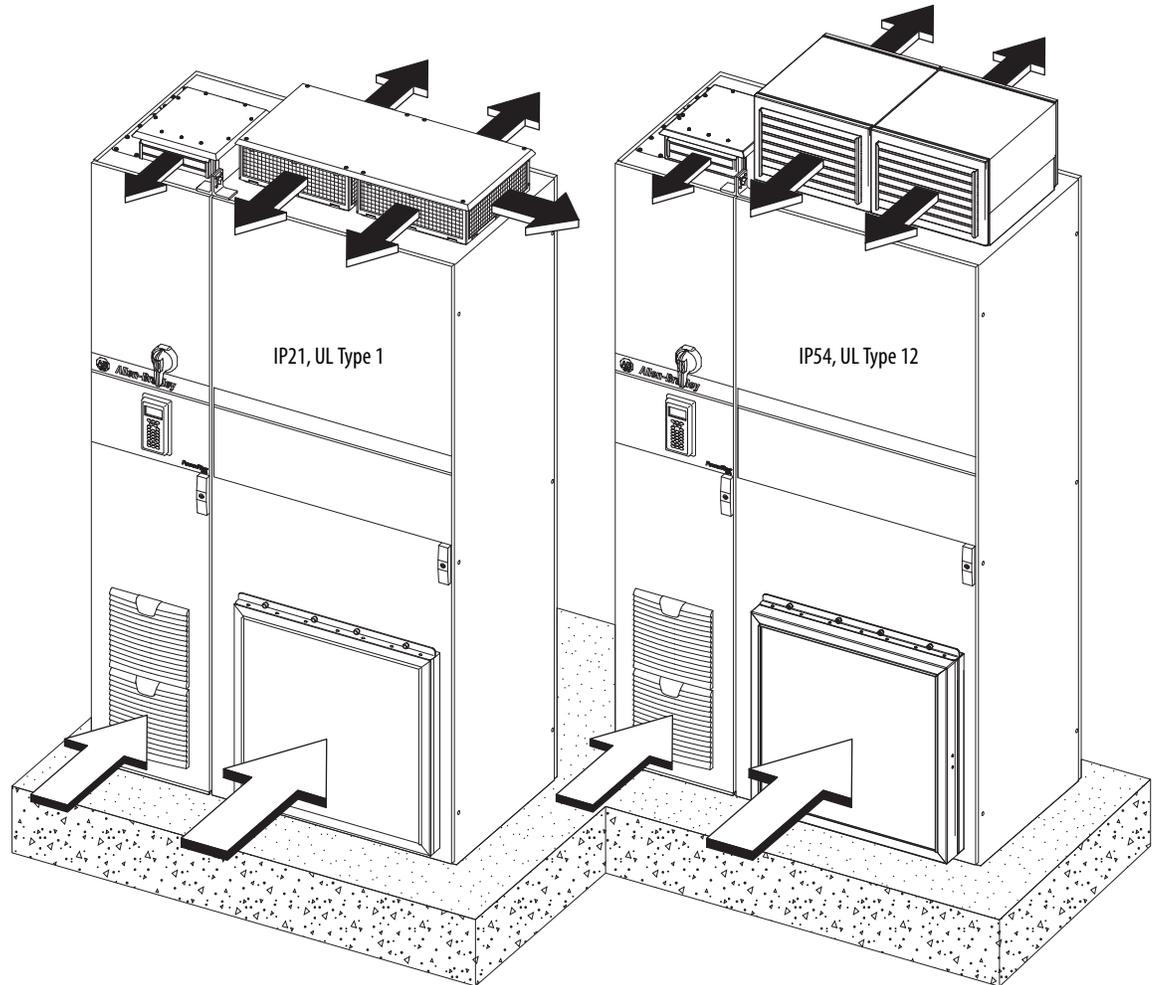
IP00 Open Type Power Structures

There are many possible engineered solutions for the IP00 Type Open power structure installations. Contact an Authorized Rockwell Automation Distributor specialist, Solution Partner, Recognized System Integrator or Rockwell Automation account manager if you are interested in migrating your PowerFlex 700S open type bus supply converter to a PowerFlex 755T open type products.

Follow this link for a list of Solution Partners and Recognized System Integrators:

http://www.software.rockwell.com/corporate/sp/ RASISearchResults.cfm?Programlevel=SP

> ⚠ **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 type open installations are not standard solutions. These installations are engineered solutions and migration to a PowerFlex 755T open type solution requires a careful technical review of your existing PowerFlex 700S installation as well as careful technical planning and design of the PowerFlex 755T open type solution.

The installation instructions below provide technical information for installing the PowerFlex 700 high power and PowerFlex 755TM open type products in a customer-supplied enclosure. Review these instructions for technical specifications and information that can help you engineer a solution for your IP00 Type Open migration.

- PowerFlex 700H and 700S Open Power Structure, Frames 10…14 Installation Instructions, publication PFLEX-IN020
- PowerFlex 755TM IP00 Open Type Kits Installation Instructions, publications 750-IN101, 750-IN102, and 750-IN103
- PowerFlex 755TM IP00 Open Type Kits Technical Data, publication 750-TD101.

Rockwell Automation Support

Use the following resources to access support information.

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

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