PowerFlex 755 Drive to PowerFlex 755TS Drive

755 Catalog Number 20G
755TS Catalog Number 20G2, 20GE

Allen-Bradley
by ROCKWELL AUTOMATION

Migration Guide

Original Instructions

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.

These 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).

The following icon may appear in the text of this document.

Identifies information that is useful and can help to make a process easier to do or easier to understand.

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About This Publication

The purpose of this migration guide is to assist you in migrating a PowerFlex® 755 drive to an equivalent PowerFlex 755TS drive. Use this migration guide to help you understand some basic migration requirements. To help you determine the proper migration solution, review additional product literature to understand the technical similarities and differences between the PowerFlex 755 drive and the PowerFlex 755TS drive. This publication does not address migrating from a PowerFlex 755 frame 8...10 drive.

Download the installation instructions, technical data, programming, and other associated publications listed Additional Resources on page 7.

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

IMPORTANT	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.

Download Firmware, AOP, EDS, and Other Files

Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes from the Product Compatibility and Download Center at rok.auto/pcdc.

Parameter References

In this document, PowerFlex 755 and 755TS 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.

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
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

Integrated Architecture Tools

The Integrated Architecture tools can help you plan and configure a system, as well as migrate system architectures. For more information, go to: https://www.rockwellautomation.com/en-us/support/product/product-selection-configuration/control-systems-configuration-tools.html

Migration Services

Throughout the product lifecycle, as products mature, Rockwell Automation will be there as your partner to help you get the most out of your current equipment, to help you determine your next steps, and to help you lay out a plan for the transition to newer technology.

Whether you choose to migrate all at once or use our unique, phased approach to help minimize the costs, risks, and complexities involved with managing legacy products and systems, Rockwell Automation has the tools and the experience to guide you through the transition.

For more information, see Migration Solutions Brochure, publication MIGRAT-BR002.

Additional Resources

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

Resource	Description
PowerFlex 750-Series Drive Installation Instructions, publication 750-IN001	Provides detailed information on how to install PowerFlex 750-Series AC drives.
PowerFlex 750-Series Programming Manual, publication 750-PM001	Provides detailed information on I/O, control, and feedback options; parameters and programming; faults, alarms, and troubleshooting.
PowerFlex 750-Series AC Drives Technical Data, publication 750-TD001	Provides detailed information on: • Drive specifications • Option specifications • Fuse and circuit breaker ratings
Preventive Maintenance of Industrial Control and Drive System Equipment Service Bulletin, publication DRIVES-TD001	Provides information for preventative maintenance and periodic inspection of drive systems.
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.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
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 755TS Products with TotalFORCE® Control Installation Instructions, publication 750-IN119	Provides the basic steps to install PowerFlex 755TS drives.
PowerFlex TotalFORCE Firmware Documentation Set: PowerFlex Drives with TotalFORCE Control Programming Manual, publication 750-PM101 PowerFlex Drives with TotalFORCE Control Parameters Reference Data, publication 750-RD101 PowerFlex Drives with TotalFORCE Control Conditions Reference Data, publication 750-RD102	Provides detailed information on: Startup, control algorithms, and status indicators Parameters and programming Faults, alarms, events, and troubleshooting
PowerFlex 755TS Products with TotalFORCE Control Technical Data, publication 750-TD104	Provides detailed information on: Drive and bus supply specifications Option specifications Fuse and circuit breaker ratings
PowerFlex 750-Series AC Drives with TotalFORCE Control Quick Start, publication 750-QS100	Provides the basic steps that are required to start up the following products for the first time, for simple applications: • PowerFlex 755TL low harmonic standalone AC drive • PowerFlex 755TR regenerative standalone AC drive • PowerFlex 755TS six-pulse rectifier standalone AC drive • PowerFlex 755TS wall-mount DC common bus inverter
PowerFlex 750-Series Drive DeviceNet Option Module User Manual, publication 750COM-UM002	These publications provide detailed information on how to configure, use, and troubleshoot PowerFlex 750-Series communication option modules and adapters.
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-PNET2P Profinet Dual-port Option Module, publication 750COM-UM007	
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	
ControlNet to EtherNet/IP Migration Reference Manual, publication CNET-RM001	Provides information to migrate from an existing ControlNet network to an EtherNet/IP network.
PowerFlex 750-Series I/O, Feedback, and Power Option Modules Installation Instructions, publication 750-IN111-EN-P	Provides detailed information on PowerFlex 750-Series I/O, feedback, and power option modules.
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 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.

Resource (Continued)	Description (Continued)
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.
Guarding Against Electrostatic Damage, publication 8000-4.5.2	Provides practices for guarding against Electrostatic damage (ESD)
EtherNet/IP Network Devices User Manual, ENET-UM006	Describes how to configure and use EtherNet/IP devices to communicate on the EtherNet/IP network.
Ethernet Reference Manual, ENET-RM002	Describes basic Ethernet concepts, infrastructure components, and infrastructure features.
System Security Design Guidelines Reference Manual, SECURE-RM001	Provides guidance on how to conduct security assessments, implement Rockwell Automation products in a secure system, harden the control system, manage user access, and dispose of equipment.
UL Standards Listing for Industrial Control Products, publication CMPNTS-SR002	Assists original equipment manufacturers (OEMs) with construction of panels, to help ensure that they conform to the requirements of Underwriters Laboratories.
American Standards, Configurations, and Ratings: Introduction to Motor Circuit Design, publication IC-AT001	Provides an overview of American motor circuit design based on methods that are outlined in the NEC.
Industrial Components Preventive Maintenance, Enclosures, and Contact Ratings Specifications, publication IC-TD002	Provides a quick reference tool for Allen-Bradley industrial automation controls and assemblies.
Product Certifications website, rok.auto/certifications.	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at rok.auto/literature.

Replacement Considerations

Benefits of Migration

PowerFlex® 755TS drives delivers TotalFORCE® Technology to standard and premium six-pulse drive applications, in a familiar form factor that is designed for seamless migration from the Powerflex 755 drives. TotalFORCE Technology combines high-performance motor control, advanced self-monitoring capabilities, and a contemporary digital platform to deliver more precise and responsive AC drives. In addition to TotalFORCE Technology, PowerFlex 755TS drives enhance reliability, environmental protection, and application flexibility.

The following are benefits of migrating to the PowerFlex 755TS drive:

- High-performance motor control with precise velocity, torque, and positioning
- Adaptive Tuning technology simplifies commissioning and continually optimizes over the machine life
- Predictive diagnostics and maintenance settings to monitor drive and motor operating conditions to help analyze system health
- Lower total cost of ownership through improved efficiency and reliability
- Improved power density with higher output current
- Reduced downtime through improved reliability and predictive maintenance capabilities
- Support for extended ambient temperatures up to 60 °C (140 °F)
- Corrosive gas protection (XT), which improves reliability in environments with corrosive gases
- More secure authentication, improved communication integrity, and data confidentiality through CIP Security protocol
- Certification to leading UL61800-5-1 standards, which provide higher standards for verifying VFD equipment safety

Designed for a Simplified Migration Path

Industrial users and OEMs must mitigate risks when migrating to a next-generation platform. When migrating from PowerFlex 755 to PowerFlex 755TS drives, Rockwell Automation anticipates migration risks and complexity and offers a simplified solution for best migration results. During a migration, you must consider risks of migrating such as managing design changes to the existing panel and scheduling downtime to perform the installation and programming of the new drive.

When migrating from PowerFlex 755 to PowerFlex 755TS drives, users can expect a one-to-one migration replacement that will provide:

Table 1 - One-to-one Mitigation Replacement

Replacement Function	Benefit
Same dimensions and form factor	Maintain existing panel layout and mounting structures
Same wiring, terminal locations, and supported cable sizes	Maintain existing motor and power cabling
Comparable or reduced watt loss	Maintain existing cooling and panel density
Identical power rating	Confidence that VFD will support for your existing motor without a sizing assessment

To identify your new catalog string, follow these steps:

1. Determine if Enhanced Corrosive Gas Protection (XT) is Required
   - If enhanced corrosive gas protection (XT) is not desired, change catalog string position 4 from a '1' to '2'.
   - If enhanced corrosive gas protection (XT) is desired, change catalog string position 4 from a '1' to 'E'.
2. Change the Catalog String Position 10 'EMC Filtering' to 'J', which indicates that the drive is shipped with pre-installed common mode jumpers.

Table 2 - Migration Example

PowerFlex 755 with 'J' Jumper Selection	20G**1**1ND022**J**AONNNNN	PowerFlex 755TS with standard protection	20G**2**1ND022**J**AONNNNN
		PowerFlex 755TS with XT Corrosive Gas protection	20G**E**1ND022**J**AONNNNN
PowerFlex 755 with 'A' jumper selection	20G**1**1ND022**A**AONNNNN	PowerFlex 755TS with standard protection	20G**2**1ND022**J**AONNNNN
		PowerFlex 755TS with XT Corrosive Gas protection	20G**E**1ND022**J**AONNNNN

Considerations for Migration

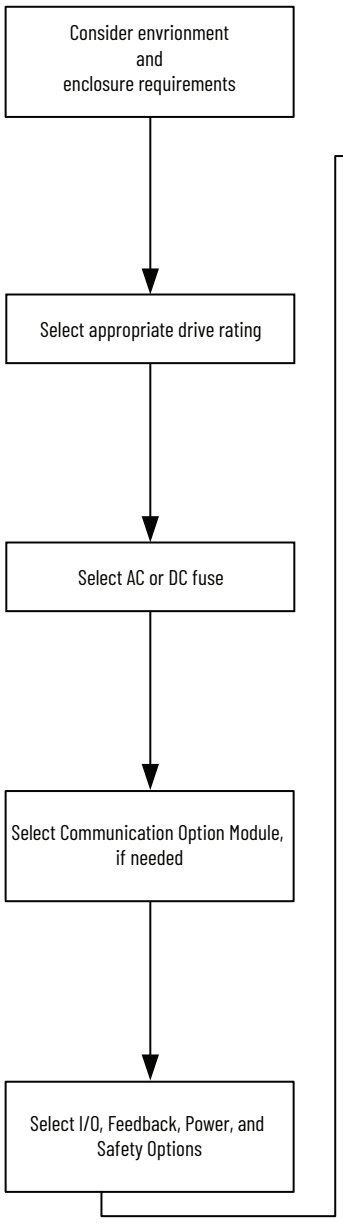
Before migration, review the following items to make sure that your direct migration from a PowerFlex 755 drive to a PowerFlex 755TS drive is supported:

PowerFlex 755 to PowerFlex 755TS Checklist

Task	Check ?
Confirm that the transformer installation does not require SCCR rating beyond 100 kA.	___
PowerFlex 755TS drives meet requirements for UL 618500-5-1, which replaces the obsolete UL 508 specifications. Review the input protection requirements for the new drive. See PowerFlex 755TS Products with TotalFORCE Control Technical Data, publication 750-TD104, for more information.	___
Confirm that the application does not require Logix-based CIP Motion instructions for permanent magnet motors.	___
Confirm that the application does not require the adjustable voltage feature, which is commonly used in magnetic stirrers and other non-motor AC loads.	___
Review option modules: • See Table 4 on page 19 for a comparison of option modules and compatible ports for PowerFlex 755TS vs. PowerFlex 755 drives • If your Powerflex 755 application used the 20-750-APS option module, select a 20-750-TAPS-XT TotalFORCE auxiliary power supply option module instead. The 20-750-APS is not compatible with PowerFlex 755TS drives. • Use the 20-750-TAPS-XT card when application boot times are critical; times are longer on PowerFlex 755TS drives. • Identify 20-COMM cards installed in your PowerFlex 755 drive and plan for migration to a 20-750 option module offering. See Table 5 on page 21 for information on option module compatibility.	___

Also use the flow chart on the following page to aid in your migration.

PowerFlex 755TS drives offer the same enclosures and ratings as PowerFlex 755 drives with the addition of an optional XT corrosive gas protection. To add XT corrosive gas protection, select catalog position 4. See Designed for a Simplified Migration Path on page 9 for details.



See Industry Installation Guidelines for PWM AC Drives Application Technique, DRIVES-AT003-EN-P, for detailed information about drive environment and enclosure options. There are a few mechanical differences for flange mount drives. See Hardware Differences on page 22 for details.

Frame sizes are the same between PowerFlex 755 and PowerFlex 755TS drives.

See the PowerFlex 750-Series Products with TotalFORCE Control Technical Data, publication 750-TD104, for details about fusing differences.

PowerFlex 755TS drives have dual port Ethernet. If you need additional communication options, see Option Module Compatibility on page 18.

Consider the following when selecting drive option modules:

- For external 24V control power, PowerFlex 755TS drives require the 20-750-TAPS auxiliary power supply.
- You must revalidate your safety application when migrating to a PowerFlex 755TS drive that includes a safety option module.

See Option Module Compatibility on page 18.

See the PowerFlex 750-Series Products with TotalFORCE Control Technical Data, publication 750-TD104-EN-P, for information about certification requirements.

See Configuration Software and HIM Versions on page 24.

Follow the guidelines described in Before You Begin on page 24.
See Additional Resources on page 5 for other publications related to the PowerFlex 755TS drive.

See Chapter 2 on page 25 for more information.

To tune, use the startup wizard in Connected Components Workbench and Studio 5000 Logix Designer, or see PowerFlex 755T Flux Vector Tuning Application Technique, publication 750-AT006.

Catalog Number Explanations - PowerFlex 755 Drive

This section provides catalog number explanations. Note that the catalog number explanation for the PowerFlex 755 drive reflects all available frame sizes and options; some of these are not available in the PowerFlex 755TS drive.

The catalog number explanation for the PowerFlex 755 drive:

1…3	4	5	6	7	8…10	11	12	13	14	15	16	17	18	
20G	1	A	N	D	248	A	A	0	N	N	N	N	N	LD - P3 - P11…
a	*b*	*c*	*d*	*e*	*f1…f6*	*g*	*h*	*i*	*Positions 14…18 are not used.*					

a

Drive		
Code	**Type**	**Frames**
20F	PowerFlex 753	1…7
20G	PowerFlex 755	1…10
21G	PowerFlex 755 Drive with Options	8…10

b

Future Use

c

Input Type		
Code	**Description**	**Frames**
1	AC Input with Precharge, includes DC Terminals	1…5 8…10
4	DC Input with Precharge	5…10
A	AC Input with Precharge, no DC Terminals	6…8(1)

(1) The DC Bus Bar kit (20-750-DCBB1-Fx) is available for Frames 6…7 AC input drives that require DC bus terminals.

d

Enclosure		
Code	**Description**	**Frames**
R	IP20, NEMA/UL Type Open, Frame 1	1
F(1)	Flange (NEMA/UL Type 4X/12 back)	2…5
G	IP54, NEMA/UL Type 12	2…7
N(2)	IP20/IP00, NEMA/UL Type Open	2…7
B(3)	IP20, NEMA/UL Type 1, 600 mm (23.6 in.) Deep, Standard Cabinet Color (RAL 7032)	8…10
J(3)	IP54, UL Type 12, 800 mm (31.5 in.) Deep, Standard Cabinet Color (RAL 7032)	8…10
K(3)	IP54, NEMA 12, 2500 MCC Style Cabinet and Options w/MCC Power Bus, 800 mm (31.5 in.) Deep, Standard Cabinet Color (RAL 7032)	8…10
L(3)	IP20, NEMA/UL Type 1, 800 mm (31.5 in.) Deep, Standard Cabinet Color (RAL 7032)	8…10
P(3)	IP20, NEMA/UL Type 1, 2500 MCC Style Cabinet and Options w/MCC Power Bus, 800 mm (31.5 in.) Deep, Standard Cabinet Color (RAL 7032)	8…10
W(3)	IP20, NEMA/UL Type 1, 2500 MCC Style Cabinet and Options w/MCC Power Bus, 800 mm (31.5 in.) Deep, CenterLine 2100 Gray (ASA49)	8…10
Y(3)	IP54, NEMA 12, 2500 MCC Style Cabinet and Options w/MCC Power Bus, 800 mm (31.5 in.) Deep, CenterLine 2100 Gray (ASA49)	8…10
T	IP00, UL Open Type without Control POD	8…10

(1) For Frames 6…7, a user-installed flange kit (20-750-FLNG4-Fx) is available to convert a Code N drive that provides a NEMA/UL Type 4X/12 back.
(2) Frames 2…5 are IP20, Frames 6…7 are IP00.
(3) Available as a drive with options (21G).

e

Voltage Rating	
Code	**Voltage**
B	240V AC (208V AC)(1)/ 325V DC (281V DC)
C	400V AC/540V DC
D	480V AC/650V DC
E	600V AC/810V DC
F	690V AC/932V DC (not UL Listed)

(1) Drive must be programmed to obtain low (208V AC) voltage rating.

f1

ND Rating								
208V (1), 60 Hz Input								
Code	**Amps**	**kW**	**Frame**					
			Enclosure Code					
			B, J, L, T	**F**	**G**	**N**	**K, P, W, Y**	**R**
2P2	2.5	0.37	–	–	–	–	–	1
4P2	4.8	0.75						
6P8	7.8	1.5						
9P6	11	2.2						
015	15.3	4						
2P2	2.5	0.37		2	2	2		–
4P2	4.8	0.75						
6P8	7.8	1.5						
9P6	11	2.2						
015	17.5	4						
022	22	5.5						
028	32.2	7.5		3	3	3		
042	43	11						
054	60	15		4	4	4		
070	78.2	18.2		5	5	5		
080	92	22			6			
104	120	30		(2)		6		
130	150	37						
154	177	45						
192	221	55						
260	260	66			7			
312	359	90		(2)		7		
360	414	110						
477	477	132			–			

(1) Drive must be programmed to obtain low (208VAC) voltage rating.
(2) For Frames 6 and 7, a user-installed flange kit (20-750-FLNG4-Fx) is available to convert a Code N drive that provides a NEMA/UL Type 4X/12 back.

f2

ND Rating								
240V, 60 Hz Input								
Code	Amps	Hp	Frame					
			Enclosure Code					
			B, J, L, T	F	G	N	K, P, W, Y	R
2P2	2.2	0.5	–	–	–	–	–	1
4P2	4.2	1						
6P8	6.8	2						
9P6	9.6	3						
015	15.3	5						
2P2	2.2	0.5		2	2	2		–
4P2	4.2	1						
6P8	6.8	2						
9P6	9.6	3						
015	15.3	5						
022	22	7.5						
028	28	10		3	3	3		
042	42	15						
054	54	20		4	4	4		
070	70	25		5	5	5		
080	80	30			6			
104	104	40		(1)		6		
130	130	50						
154	154	60						
192	192	75						
260	260	100			7			
312	312	125		(1)		7		
360	360	150						
477	477	200			–			

(1) For Frames 6 and 7, a user-installed flange kit (20-750-FLNG4-Fx) is available to convert a Code N drive that provides a NEMA/UL Type 4X/12 back.

f3

ND Rating									
400V, 50 Hz Input									
Code	Amps	kW	Frame						
			Enclosure Code						
			B, J, L, T	F	G	N	K, P, W, Y	R	
2P1	2.1	0.75	–	2	2	2	–	1	
3P5	3.5	1.5							
5P0	5.0	2.2							
8P7	8.7	4							
011	11.5	5.5							
015	15.4	7.5							
022	22	11		3	3	3		–	
030	30	15							
037	37	18.5							
043	43	22							
060	60	30		4	4	4			
072	72	37			5				
085	85	45		5		5			
104	104	55			6				
140	140	75		(1)		6			
170	170	90							
205	205	110							
260	260	132			7	7			
302	302	160							
367	367	200							
456	456	250							
460	460	250	8	–	–	–	8(2)	–	
477	477	270	–	(1)	–	7	–		
540	540	315	8	–	–	–	8(2)		
567	567	315							
650	650	355							
750	750	400							
770	770	400							
910	910	500	9				9(2)		
1K0	1040	560							
1K1	1090	630							
1K2	1175	710							
1K4	1465	800							
1K5	1480	850							
1K6	1590	900	10				10(2)		
2K1	2150	1250							

(1) For Frames 6...7, a user-installed flange kit (20-750-FLNG4-Fx) is available to convert a Code N drive that provides a NEMA/UL Type 4X/12 back.
(2) Available as a drive with options (21G).

f4

ND Rating								
480V, 60 Hz Input								
Code	Amps	Hp	Frame					
			Enclosure Code					
			B, J, L, T	F	G	N	K, P, W, Y	R
2P1	2.1	1	–	2	2	2	–	1
3P4	3.4	2						
5P0	5.0	3						
8P0	8.0	5						
011	11	7.5						
014	14	10						
022	22	15		3	3	3		–
027	27	20						
034	34	25						
040	40	30						
052	52	40		4	4	4		
065	65	50			5			
077	77	60		5		5		
096	96	75			6			
125	125	100		(1)		6		
156	156	125						
186	186	150						
248	248	200			7	7		
302	302	250						
361	361	300						
415	415	350						
430	430	350	8	–	–	–	8(2)	–
477	477	400	–	(1)	–	7	–	
485	485	400	8	–	–	–	8(2)	
545	545	450						
617	617	500						
710	710	600						
740	740	650						
800	800	700	9				9(2)	
960	960	800						
1K0	1045	900						
1K2	1135	1000						
1K3	1365	1100						
1K4	1420	1250						
1K5	1525	1350	10				10(2)	
2K0	2070	1750						

(1) For Frames 6...7, a user-installed flange kit (20-750-FLNG4-Fx) is available to convert a Code N drive that provides a NEMA/UL Type 4X/12 back.
(2) Available as a drive with options (21G).

f5

ND Rating								
600V, 60 Hz Input								
Code	Amps	Hp	Frame					
			Enclosure Code					
			B, J, L, T	F	G	N	K, P, W, Y	R
1P7	1.7	1	–	3	3	3	–	–
2P7	2.7	2						
3P9	3.9	3						
6P1	6.1	5						
9P0	9	7.5						
011	11	10						
012(1)	12	10		–	6	6		
017	17	15		3	3	3		
018(1)	18	15		–	6	6		
022	22	20		3	3	3		
023(1)	23	20		–	6	6		
024(1)	24	20						
027	27	25		4	4	4		
028(1)	28	25		–	6	6		
032	32	30		4	4	4		
033(1)	33	30		–	6	6		
041	41	40		5	5	5		
042(1)	42	40		–	6	6		
052	52	50		5	–	5		
053(1)	53	50		(2)	6	6		
063	63	60						
077	77	75						
099	99	100						
125	125	125						
144	144	150			7	7		
192	192	200						
242	242	250						
289	289	300						
295	295	300	8	–	–	–	8(3)	
355	355	350						
395	395	400						
435	435	450						
460	460	500						
510	510	500						
595	595	600	9				9(3)	
630	630	700						
760	760	800						
825	825	900						
900	900	950						
980	980	1000						
1K1	1110	1100	10				10(3)	
1K4	1430	1400						

(1) Required for uncontrolled common DC bus applications. Optional for all AC applications.
(2) For Frames 6...7, a user-installed flange kit (20-750-FLNG4-Fx) is available to convert a Code N drive that provides a NEMA/UL Type 4X/12 back.
(3) Available as a drive with options (21G).

f6

ND Rating								
690V, 50 Hz Input (not UL Listed)								
Code	Amps	kW	Frame					
			Enclosure Code					
			B, J, L, T	F	G	N	K, P, W, Y	R
012	12	7.5	–	(1)	6	6	–	–
015	15	11						
020	20	15						
023	23	18.5						
030	30	22						
034	34	30						
046	46	37						
050	50	45						
061	61	55						
082	82	75						
098	98	90						
119	119	110						
142	142	132						
171	171	160			7	7		
212	212	200						
263	263	250						
265	265	250	8		–	–	8(2)	
330	330	315						
370	370	355						
415	415	400						
460	460	450						
500	500	500						
590	590	560	9	–			9(2)	
650	650	630						
710	710	710						
765	765	750						
795	795	800						
960	960	900						
1K0	1040	1000	10				10(2)	
1K4	1400	1400						

(1) For Frames 6...7, a user-installed flange kit (20-750-FLNG4-Fx) is available to convert a Code N drive that provides a NEMA/UL Type 4X/12 back.
(2) Available as a drive with options (21G).

g

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

h

Dynamic Braking(1)		
Code	Internal Resistor(2)	Internal Transistor(3)
A	No	Yes
N	No	No

(1) Not available on Frames 8...10, specify Code 'N'.
(2) Frames 1...2 only. Internal Resistor kits (20-750-DB1-Dx) sold separately.
(3) Standard on Frames 1...5, optional on 6...7.

i

Door Mounted HIM (Frames 8...10)	
Code	Operator Interface
0	No Door Mounted HIM
2	Enhanced LCD, Full Numeric, IP20
4	Enhanced LCD, Full Numeric, IP66 NEMA Type 4X/12

PowerFlex 755 With Options (21G) Required Selections

Code	Option	Frames	Type
LD	Light Duty	8...10	System Overload Duty Cycle(1)
ND	Normal Duty		
HD	Heavy Duty		
P3	Input Thermal-magnetic Circuit Breaker	8...10	Power Disconnect(1)
P5	Input Non-Fused Molded Case Disconnect Switch	8 Only	
P14	Wiring Only Bay	8...10	Wiring Only Bay

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

PowerFlex 755 With Options (21G) Additional Selections

Code	Option	Frames	Type
P11	Input Contactor	8 Only	Contactors(1)(2)
P12	Output Contactor		
L1	3% Input Reactor	8...9	Reactors(1)
L2	3% Output Reactor		
L3	5% Input Reactor	8 Only	
L4	5% Output Reactor		
P20	1200 A Bus	8...10	MCC Power Bus Capacity(1)
P22	2000 A Bus		
P24	3000 A Bus		
P30	UPS Control Bus, DC Input w/ Precharge only	8...10	UPS Control Bus
X1	Auxiliary Transformer (500VA available), IP20 Cabinet Only	8 Only(3)	Auxiliary Power

(1) Only one option of this type can be selected.
(2) Contactor options are not available for systems with MCC power bus.
(3) Standard on all other cabinet configurations.

Catalog Number Explanations - PowerFlex 755TS Drive

The catalog number explanation for the PowerFlex 755TS drive:

1...3	4	5	6	7	8...10	11	12	13	14	15	16	17	18
20G	E	A	N	D	248	A	N	2	N	N	N	N	N
A	B	C	D	E									

A

Drive		
Code	**Type**	**Frames**
20G	PowerFlex 755TS Drives	1...7

B

Corrosive Gas Protection and Cooling Type		
Code	**Description**	**Frames**
2	Standard Protection, Forced Air	1...7
E	Corrosive Gas Protection (XT), Forced Air	1...7

C

Input Type		
Code	**Description**	**Frames**
1	AC Input with Precharge, includes DC terminals	1...5
4	DC Input with Precharge	5...7
A	AC Input with Precharge, no DC terminals	6 and 7 (1)

(1) The DC Bus Bar kit (20-750-DCBB3-F*n*) is available for Frames 6 and 7 AC input drives that require DC bus terminals.

D

Enclosure		
Code	**Description**	**Frames**
R	IP20, NEMA/UL Open Type, Frame 1	1
F (1)	Flange, NEMA/UL Type 4X/12 back	2...5
G	IP54, NEMA/UL Type 12	2...5
N (2)	IP20/IP00, NEMA/UL Open Type	2...7

(1) For Frames 6...7, a user installed flange kit (20-750-FLNG4-F*n*) is available to convert a Code N drive that provides a NEMA/UL Type 4X/12 back.
(2) Frames 2...5 are IP20, Frames 6...7 are IP00.

E

Voltage Rating	
Code	**Voltage**
C	400V AC/540V DC
D	480V AC/650V DC

Catalog number positions 8...10 identify the product normal duty rating.

1...3	4	5	6	7	8...10	11	12	13	14	15	16	17	18
20G	E	A	N	D	248	A	N	2	N	N	N	N	N
					F1...F2								

F1

PowerFlex 755TS ND Drive Ratings

400V, 50 Hz Input

Code	Amps	kW	Frame (Enclosure Code)			
			F	G	N	R
2P1	2.1	0.75	2	2	2	1
3P5	3.5	1.5				
5P0	5.0	2.2				
8P7	8.7	4				
011	11.5	5.5				
015	15.4	7.5				
022	22	11				–
030	30	15	3	3	3	
037	37	18.5				
043	43	22				
060	60	30	4	4	4	
061	61	30	–	–	3	
072	72	37	4	5	4	
073	73	37	–	4	–	
085	85	45	5	5	5	
086	86	45	4	–	4	
104	104	55	5	6	5	
140	140	75	6(1)		6	
170	170	90				
205	205	110				
260	260	132		7		
302	302	160	7(1)		7	
367	367	200				
456	456	250				
477	477	270		–		

F2

PowerFlex 755TS ND Drive Ratings

480V, 60 Hz Input

Code	Amps	Hp	Frame (Enclosure Code)			
			F	G	N	R
2P1	2.1	1	2	2	2	1
3P4	3.4	2				
5P0	5.0	3				
8P0	8.0	5				
011	11	7.5				
014	14	10				
022	22	15				–
027	27	20	3	3	3	
034	34	25				
040	40	30				
052	52	40	4	4	4	
053	53	40	–	–	3	
065	65	50	4	5	4	
066	66	50	–	4	–	
077	77	60	5	5	5	
078	78	60	4	–	4	
096	96	75	5	6	5	
125	125	100	6(1)		6	
156	156	125				
186	186	150				
248	248	200		7		
302	302	250	7(1)		7	
361	361	300				
415	415	350				
477	477	400		–		

(1) For Frames 6 and 7, a field-installed flange kit (20-750-TFLNG1-Fx) is available to convert a Code N drive to provide a NEMA/UL Type 4X/12 back.

Catalog number positions 11...13 identify additional product configuration.

1...3	4	5	6	7	8...10	11	12	13	14	15	16	17	18
20G	E	A	N	D	248	A	N	2	N	N	N	N	N
						G	H	I					

G

Filtering and CM Cap Configuration			
Code	**Filtering**	**Default CM Cap Connection**	**Frames**
J	Yes	Jumper Installed	1...7

H

Dynamic Braking			
Code	**Internal Resistor (1)**	**Internal Transistor (2)**	**Frames**
A	No	Yes	1...7
N	No	No	6 and 7

(1) Frames 1...2 only. Internal Resistor kits (20-750-DB1-Dx) sold separately.
(2) Standard on Frames 1...5, optional on 6 and 7.

I

Human Interface Module (HIM)		
Code	**Operator Interface**	**Frames**
0	No HIM	1...7

Catalog number positions 14...18 are not used.

1...3	4	5	6	7	8...10	11	12	13	14	15	16	17	18
20G	E	A	N	D	248	A	N	2	N	N	N	N	N

Option Module Compatibility

This section describes the option modules that are compatible with PowerFlex 755TS drives and provides information on which slots can be used with which modules. 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 3 - PowerFlex 755TS Drive Device Port Assignments

Port	Device[1]	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.
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 ports:
	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[2]	04...06 (bottom row only)
	Communication option modules:	Valid ports:
	20-750-DNET[3]	04...06 (bottom row only)
	20-750-CNETC[3]	
	20-750-ENETR[3]	
	20-750-PBUS[4]	
	20-750-PNET, 20-750-PNET2P[5]	
	Safety option modules:	Valid ports:
	20-750-S[6]	04...08
	20-750-S1[6]	05...06 (bottom row only)
	20-750-S3[6]	04...06 (bottom row only)
	20-750-S4[6]	
	Feedback option modules	Valid ports:
	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 (only)
	Aux Power Supply	Valid ports:
	20-750-TAPS-XT	4, 5, 8, and external connection
	Peer-to-Peer	Valid ports:
	20-750-TLINK-XT	04...06 (bottom row only)
09	Application parameters	Built-in applications such as DeviceLogix™, TorqProve™, and PID.
10	Motor side inverter primary control parameters	Fixed ports for Motor Side Inverter Control Parameters
11	Motor side inverter secondary control parameters[7]	
12	Motor Side Inverter Power Parameters	Fixed port for Motor Side Inverter Power Parameters

(1) See PowerFlex 750-Series Option Modules Installation Instructions, publication 750-IN002, for latest compatibility information.
(2) Requires compatible 20-750-113x I/O module. See the PowerFlex 750-Series ATEX Option Module User Manual, publication 750-UM003-EN-P.
(3) See Knowledgebase Technote *Explicit (CIP) Messaging PowerFlex 755T* for detailed information about using explicit messaging with option modules 20-750-CNETC, 20-750-DNET, or 20-750-ENETR.
(4) Series B firmware required.
(5) 20-750-PNET or 20-750-PNET2P Series B Option Modules required. Series A firmware cannot be updated to Series B.
(6) Only one safety option module can be installed.
(7) Only present if secondary motor control enabled.

Communication Modules

The 20-750-CNETC, 20-750-DNET, and 20-750-ENETR option modules are compatible with the PowerFlex 755TS with some limitations. See Knowledgebase Technote *Explicit (CIP) Messaging PowerFlex 755T* for detailed information about using explicit messaging with these option modules

Use Table 4 to cross-reference 20-COMM-xxx communication modules to compatible PowerFlex 755TS option modules. 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.

ControlNet® is an Active Mature communication network. New installations should consider moving to EtherNet/IP™ to optimize asset utilization. Tools and skilled technicians are more widely available for EtherNet/IP and will be available for a much longer time period. For information on how to migrate ControlNet to EtherNet/IP, see the ControlNet to EtherNet/IP Migration Reference Manual, publication CNET-RM001.

Table 4 - Communication Module Cross-reference Guide

Protocol	If using a PowerFlex 755 drive and 20-COMM-xxx module...	Use this module with the PowerFlex 755TS drive
EtherNet/IP	20-COMM-E	Embedded dual-port EtherNet/IP and 20-750-ENETR. (1)
	20-COMM- ER	
ControlNet Coax	20-COMM-C	20-750-CNETC (1)
	1788-CNC/CNCR	
ControlNet Fiber	20-COMM-Q	–
	1788-CNF/CNFR	
DeviceNet	20-COMM-D 1788-DNBO	20-750-DNET(1)
HVAC Modbus RTU	20-COMM-H	–
CANopen	20-COMM-K	
Modbus/TCP	20-COMM-M	
PROFIBUS DPV1	20-COMM-P	20-750-PBUS (series B only)
ProfiNet	–	20-750-PNET (series B only)
		20-750-PNET2P (series B only)
Remote I/O	20-COMM-R	–
RS485 DF1	20-COMM-S	
USB	1203-USB	1203-USB

(1) See Knowledgebase Technote *Explicit (CIP) Messaging PowerFlex 755T* for detailed information about using explicit messaging with option modules 20-750-CNETC, 20-750-DNET, or 20-750-ENETR.

Safety Modules

PowerFlex 755TS drives support the same functional safety option modules as the PowerFlex 755 drives.

Safety Configurations

The PowerFlex 755 drive was available with several option cards to perform safety functions. The functionality of these option cards can easily be transferred to the PowerFlex 755TS drive by transferring the safety option module and wiring from the existing drive to the new drive. Safety option cards are 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. See Table 5 for additional information about the safety option modules.

PowerFlex 755TS Drive Safety Options

Like the PowerFlex 750-series AC drives, each PowerFlex 755TS drive 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 755 application. See Table 5 for additional information about the safety option modules.

Migration Solutions

Any safety option module listed in Table 5 can be used in the PowerFlex 755TS drive. If encoder feedback was used in the existing application, it will be necessary to supply a PowerFlex 750-series encoder option module to interface with the encoder.

For applications using the Safe Torque Off option module (20-750-S), there is no configuration changes required as long as the option card is installed in the same slot and the module wiring remains unchanged.

The Safe Speed Monitor option module (20-750-S1) has a number of safety functions / modes that are configured via parameters associated with the option modules. These option module parameters are identical in both the PowerFlex 755 and PowerFlex 755TS drives. Users will have to make sure that these parameter settings are duplicated from the existing drive to the new drive.

The integrated Safe Torque Off option module (20-750-S3) can be used with either hardwired safety systems or as a part of a network-based safety system with GuardLogix. Hardwired installations can be treated the same as those with Safe Torque Off option module (20-750-S). For applications using CIP safety protocol, the GuardLogix controller that owns the safety connection to the existing PowerFlex 755 drive will need to have the existing PowerFlex 755 drive removed and new PowerFlex 755TS drive added in its place. If a GuardLogix controller has a safety signature or is safety locked, these protections would have to be removed to update the configuration.

Similar to 20-750-S3 applications, those using the Integrated Safety Functions option module (20-750-S4) can also use integrated safety over EtherNet/IP or a hardware interface for safety functionality. This safety configuration data is set via the Studio 5000 Logix Designer Add-On Profile (AOP). The user must replicate the configuration settings from the existing drive to the new drive. In addition to these configuration settings for the option module, there are additional 'host configuration' parameters that control how the drive reacts to certain safety states. These parameters do not have the same number in PowerFlex 755 and PowerFlex 755TS, and they may not have the same name. See Table 5.

PowerFlex 755TS Functional Safety Options

Like the PowerFlex 750-series AC drives, the PowerFlex 755TS drive 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.

IMPORTANT When installing a safety option module in your PowerFlex 755TS drive, review all of the safety data, including system reaction time to make sure you understand any impacts to your application.

See the user manuals for information on installation, configuration and operation of the modules, as well as safety data and safety application requirements.

Table 5 - PowerFlex 750-Series Safety Option Modules

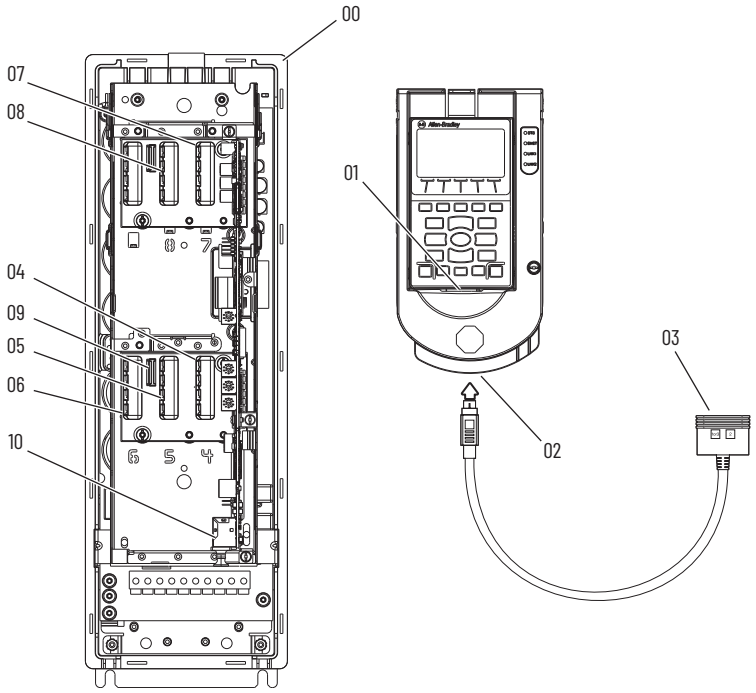
Description	Cat. No.	Publication
Hardware Safe Torque Off The S card provides hardwired safe torque off functionality with no configuration required.	20-750-S	PowerFlex 750-Series Safe Torque Off Option Module User Manual, publication 750-UM002
Hardware Safe Speed Monitor The S1 card provides hardwired safe torque off and safe monitoring functions. These safety functions are configured via parameters.	20-750-S1	PowerFlex 750-Series Safe Speed Monitor Option Module Safety Reference Manual, publication 750-RM001
Integrated Safe Torque Off The S3 card can be used for hard-wired safety providing the same functionality as the S card. The S3 card also provides integrated STO via the ENET/IP network.	20-750-S3	PowerFlex 755 Integrated Safety - Safe Torque Off Option Module User Manual, publication 750-UM004
Integrated Safety Functions The Integrated Safety Functions option module provides a networked STO (Safe Torque Off) function via an EtherNet/IP® network. It is also equipped for Integrated (drive-based) Timed SS1, Monitored SS1, and Safe Brake Control, which operate in the drive and are activated through the network safety connection.	20-750-S4	PowerFlex 755/755T Integrated Safety Functions Option Module, publication 750-UM005

Hardware Differences

PowerFlex 755TS drives are different from PowerFlex 755 drives in the following ways:

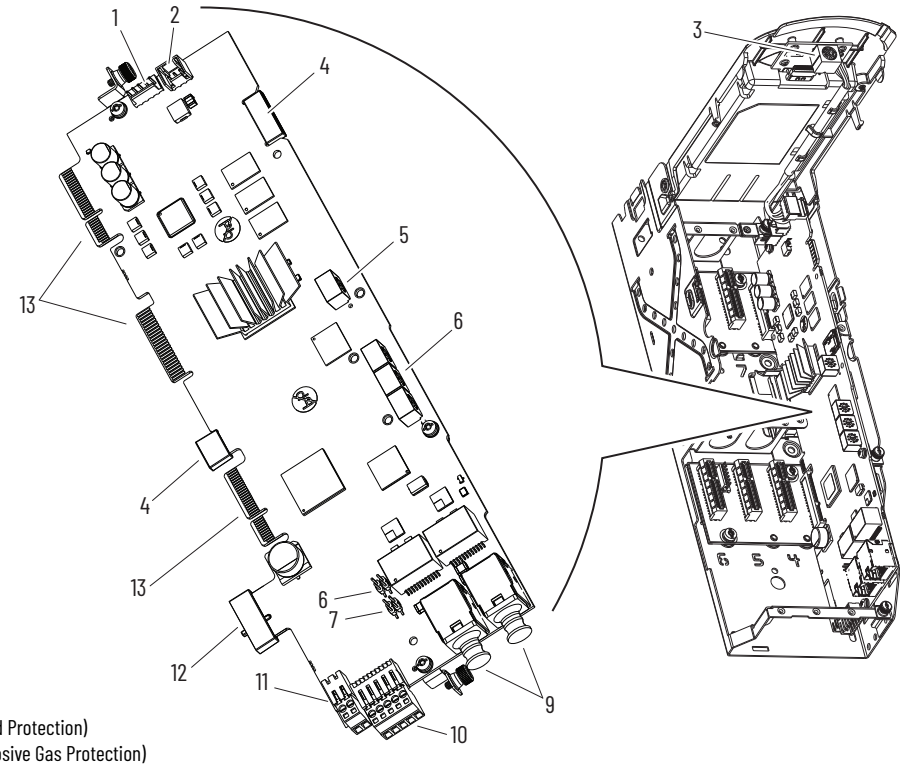
- A supercapacitor in the PowerFlex 755TS replaces the real-time clock battery used in the PowerFlex 755 drive.
- Dual-gigabit EtherNet/IP connections are provided on the PowerFlex 755TS drive (see Figure 2, PowerFlex 755TS Main Control Board, for location).
- An EMC C3 bracket, which helps meet category C3 standards for RF emissions, is included with PowerFlex 755TS frame 1...5 drives. For more information about the EMC Directive, see the PowerFlex 755TS Products with TotalFORCE Control Installation Instructions, publication 750-IN119.
- A new location for DPI Port 2 (as shown in Figure 1).

Figure 1 - Drive Device Ports



Port	Device	Description
00	Host drive	Fixed port for the drive.
01	DPI port 1	DPI Port 1 connection on the control-pod-mounted Human Interface Module (HIM).
02	DPI port 2	DPI Port 2 for handheld HIM connection, remote HIM connection, or a splitter cable.
03	DPI port 3 and DPI port 2	Splitter cable that is connected ton DPI port 2 provides an additional port (DPI port 3).
04...08	Option modules	Available ports for option modules. **IMPORTANT:** Ports 07 and 08 are available on PowerFlex 755TS Frame 2...7 drives only. PowerFlex 755TS Frame 1 drives do not support ports 07 and 08.
09	Auxiliary power supply option module	Designated port for the auxiliary power supply when connected via cable. (PowerFlex 755TS Frame 1 drives only.)
10	EtherNet/IP ports	Fixed built-in dual EtherNet/IP ports.

Figure 2 - PowerFlex 755TS Main Control Board



SK-RT-MCB1-PF755 (Standard Protection)
SK-RT-MCB1-PF755-XT (Corrosive Gas Protection)

Table 6 - PowerFlex 755TS Main Control Board Connector and Jumper Assignments

Item	Name	Description
1	HIM Connector	Terminal block connector for the HIM Cradle and DPI Port 1 cable connection.
2	Fan Connector	Power supply for internal cooling fan.
3	DPI Port 1 Connector	If a cable is not connected to the DPI port on the HIM cradle, be sure to leave the protective cover installed.
4	Protective Cap	Protective caps that are present on XT main control boards. Do not remove these caps
5	Control Selector	Rotary switch for setting the programming mode.
6	Built-in EtherNet/IP(1) Address Selectors	Rotary switches for setting lowest octet of EtherNet address (forces address to 192.168.1.xxx). See the PowerFlex Drives with TotalFORCE Control Programming Manual (firmware revision 10.*xxx* and later), publication 750-PM101 for instructions on setting the IP address.
7	ENABLE Jumper	Hardware enable jumper (P7). Remove this jumper and place it in the out (parked) position when using Digital Input 0 on TB1 as a dedicated hardware enable.
8	SAFETY Jumper	Safety enable jumper (P8). Remove this jumper and place it in the out (parked) position when using a safety option.
9	Built-in EtherNet/IP Address Connectors	EtherNet/IP network cable connections. If cables are not connected to the EtherNet/IP connectors, be sure to leave the protective covers installed.
10	TB1	I/O terminal block.
11	Terminal Block Connector	Reserved for future use.
12	TAM Connector	Used to connect the torque accuracy module (TAM) when it becomes available. Remove cap only when the module, catalog number 20-750-TSTAM-*xx*-XT, is installed.
13	Edge Connectors	Provide signal and power interconnections between the main control board, the backplane interface boards, and the power layer interface board. The XT main control circuit board has PolySi PST-576 dielectric grease applied to the edge connectors. **Important:** When handling circuit boards with grease: Do not touch or remove the grease Do not allow the grease to become contaminated If necessary, an edge connector grease applicator kit, catalog number SK-RM-GRAPP1, is available to apply new grease to edge connectors on circuit boards.

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

Configuration Software and HIM Versions

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

Older configuration software tools do not support the PowerFlex 755TS drive. 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 755TS drive parameters directly via EtherNet/IP connection from your computer to the PowerFlex 755TS drive 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 755TS parameters via Embedded or option module Ethernet communication port.

Table 7 - PowerFlex 755TS Configuration Tools

Configuration Tool	Minimum Software and Firmware Requirements (1)
DriveExplorer™ software	Not supported
DriveTools™ SP/DriveExecutive software	Not supported
CCW (Connected Components Workbench) (2) software	Version 11.000 and later
RSLogix 5000 (3)	Version 20.001 and later
Studio 5000 (3)	Version 21.003 and later
HIM (4) 20-HIM-A6/-C6S	Revision 2.008 and later

(1) The latest available versions are recommended.
(2) CCW Profile update (v15.01 or later) is required.
(3) AOP update (v15.01 or later) is required.
(4) Assisted Startup using the HIM not available.

Before You Begin

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

- Upload and save the PowerFlex 755 parameters via Connected Components Workbench™ or Studio 5000 Logix Designer 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 controller programs.

Be aware of the following general precautions when working with this type of equipment.

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 8000-4.5.2 or any other applicable ESD protection handbook.

Parameter Conversion and Drive Configuration

This chapter provides details to aid in the manual drive parameter conversion from PowerFlex® 755 drives to PowerFlex 755TS drives. Parameter tables and notes are provided to explain differences in product configuration. There are three main differences that are addressed in this chapter.

1. A new function called Dynamic Features, which affects what parameters are available.
2. To facilitate Dynamic Features, the port and parameter numbers in the PowerFlex 755TS drives are changed from those used in the PowerFlex 755 drives.
3. PowerFlex 755TS drives provide TotalFORCE® control and a new set of adaptive tuning features in the flux vector control mode. This renders the velocity loop configuration, present in PowerFlex 755 drives, incompatible with PowerFlex 755TS drives.

Dynamic Features

Dynamic features serve to reduce the overall parameter count in the drive and simplify the programming experience. Available parameters in PowerFlex 755TS drives are changed based on a user selection called Dynamic Features. These features are:

- Motor Control Mode
- Application Configuration
- Embedded Logic

Dynamic feature selections can be made using the Device Definition dialog in Connected Components Workbench™ (CCW) and in Studio 5000 Logix Designer®. The selections can also be changed by parameter using the Human Interface Module (HIM). Making a feature selection loads a new default profile to its specific port following a reset or power cycle.

Motor Control Mode

PowerFlex 755TS drives contain a dynamic feature for both a primary and (optional) secondary motor control mode. The selection is like the PowerFlex 755 parameter **0:35 [Mtr Ctrl Mode]**, except that only valid parameters for the selected control mode are presented. (Parameters that are not used in the firmware for the selected mode are not present in the respective control port). In the PowerFlex 755TS drive, select the motor control mode that corresponds to the mode used in the PowerFlex 755 drive.

If the PowerFlex 755 parameter **0:35 [Mtr Ctrl Mode]** is programmatically changed, or another control mode is needed, configure Sec MtrCtrl Mode. Typical reasons to configure a secondary control mode are:

- A need to control two different motors without changing individual motor nameplate and tuning parameters.
- A need to keep a V/Hz control mode available for basic drive troubleshooting.
- To easily control a single motor in different motor control or PsnVelTrq modes without changing multiple parameters.

Device Definition - Specify Primary and Secondary Motor Control Modes

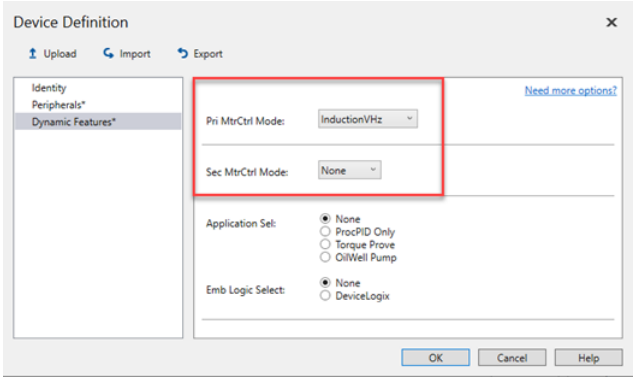


Table 8 - Motor Control Mode Parameters

PowerFlex 755 Drive Parameters				PowerFlex 755TS Drive Parameters			
Port	**No.**	**Name**	**Description**	**Port**	**No.**	**Name**	**Description**
0	35	Motor Ctrl Mode	Motor Type and motor control mode	0	65	Pri MtrCtrl Mode	Primary Motor Control Mode Changing the mode loads a new profile for motor side inverter control into port 10. To confirm a new option selection, inspect parameter **0:66 [Pri MtrCtrl Act]**.
–	–	–	–	0	67	Sec MtrCtrl Mode	Secondary Motor Control Mode Change the mode to load a new profile for motor side inverter control into port 11. To confirm a new option selection, inspect parameter **0:68 [Sec MtrCtrl Act]**.

For more information regarding secondary motor control, see PowerFlex 750-Series Products with TotalFORCE Control Reference Manual, publication 750-RM100.

For Powerflex 755TS drives, the motor control mode enumerations have changed. See the following table for comparison.

Table 9 - Motor Control Mode Enumeration

Mode	Description	PowerFlex 755 Drive	PowerFlex 755TS Drive
Induction VHz	Selects Induction motor volts per Hertz.	0	1
Induction SV	Selects Induction motor Sensorless Vector.	1	2
Induct Econ	Selects Induction motor Economizer.	2	3
Induction FV	Selects Induction motor Flux Vector.	3	4
PM VHz	Selects permanent magnet motor volts per Hertz.	4	7
PM SV	Selects permanent magnet motor sensorless vector.	5	8
PM FV	Selects surface permanent magnet motor flux vector.	6	6
SynR VHz	Selects synchronous reluctance motor volts per Hertz.	7	9
SynR SV	Selects synchronous reluctance motor sensorless vector.	8	10
Adj VltgMode	Selects adjustable voltage control mode.	9	–

Application Configuration

This dynamic feature loads Process PID, Torque Prove, or Oil Well Pump control parameters to drive port 9. Only one set of application parameters can be active. If the PowerFlex 755 drive uses application-specific parameters, use the information in the following table to determine which selection to make in the PowerFlex 755TS drive.

Figure 3 - Device Definition - Application Selection

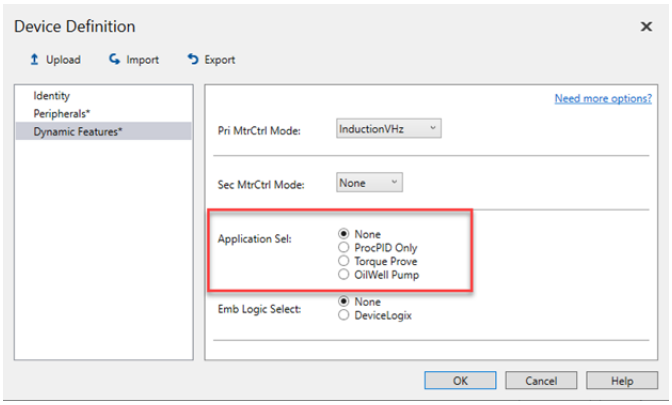


Table 10 - Application-specific Parameters

PowerFlex 755 Drive Parameters			PowerFlex 755TS Drive Parameters and Application Selection Configuration					
Port	**No.**	**Name**	**Port**	**No.**	**Name**	**ProcPID Only**	**Torque Prove**	**OilWell Pump**
0	191	DI PID Enable	9	20	DI PID Enable	x	x	
0	192	DI PID Hold	9	21	DI PID Hold	x	x	
0	193	DI PID Reset	9	22	DI PID Reset	x	x	
0	194	DI PID Invert	9	23	DI PID Invert	x	x	
0	350	Sleep Wake Mode	9	90	Sleep Wake Mode	x	x	
0	351	SleepWake RefSel	9	91	SleepWake RefSel	x	x	
0	352	Sleep Level	9	92	Sleep Level	x	x	
0	353	Sleep Time	9	93	Sleep Time	x	x	
0	354	Wake Level	9	94	Wake Level	x	x	
0	355	Wake Time	9	95	Wake Time	x	x	
0	1065	PID Cfg	9	1	PID Cfg	x	x	
0	1066	PID Control	9	2	PID Control	x	x	
0	1067	PID Ref Sel	9	25	PID Ref Sel	x	x	
0	1068	PID Ref AnlgHi	9	29	PID Ref AnlgHi	x	x	
0	1069	PID Ref AnlgLo	9	30	PID Ref AnlgLo	x	x	
0	1070	PID Setpoint	9	28	PID Setpoint	x	x	
0	1071	PID Ref Mult	9	27	PID Ref Mult	x	x	
0	1072	PID Fdbk Sel	9	35	PID Fdbk Sel	x	x	
0	1073	PID Fdbk AnlgHi	9	39	PID Fdbk AnlgHi	x	x	
0	1074	PID Fdbk AnlgLo	9	40	PID Fdbk AnlgLo	x	x	
0	1075	PID FBLoss SpSel	9	42	PID FBLoss SpSel	x	x	
0	1076	PID FBLoss TqSel	9	43	PID FBLoss TqSel	x	x	
0	1077	PID Fdbk	9	37	PID Fdbk Stpt	x	x	
0	1078	PID Fdbk Mult	9	38	PID Fdbk Mult	x	x	
0	1079	PID Output Sel	9	14	PID Output Sel	x	x	
0	1080	PID Output Mult	9	15	PID Output Mult	x	x	
0	1081	PID Upper Limit	9	7	PID Upper Limit	x	x	
0	1082	PID Lower Limit	9	8	PID Lower Limit	x	x	
0	1083	PID Deadband	9	9	PID Deadband	x	x	

Table 10 - Application-specific Parameters (Continued)

PowerFlex 755 Drive Parameters			PowerFlex 755TS Drive Parameters and Application Selection Configuration					
Port	No.	Name	Port	No.	Name	ProcPID Only	Torque Prove	OilWell Pump
0	1084	PID LP Filter BW	9	10	PID LPF BW	x	x	
0	1085	PID Preload	9	11	PID Preload	x	x	
0	1086	PID Prop Gain	9	4	PID Prop Gain	x	x	
0	1087	PID Int Time	9	5	PID Int Time	x	x	
0	1088	PID Deriv Time	9	6	PID Deriv Time	x	x	
0	1089	PID Status	9	3	PID Status	x	x	
0	1090	PID Ref Meter	9	26	PID Ref Meter	x	x	
0	1091	PID Fdbk Meter	9	36	PID Fdbk Meter	x	x	
0	1092	PID Error Meter	9	12	PID Error Meter	x	x	
0	1093	PID Output Meter	9	13	PID Output Meter	x	x	
0	1100	Trq Prove Cfg	9	50	Trq Prove Cfg		x	
0	1101	Trq Prove Setup	9	51	Trq Prove Setup		x	
0	1102	DI FloatMicroPsn	9	78	DI FloatMicroPsn		x	
0	1102	DI FloatMicroPsn	9	78	DI FloatMicroPsn		x	
0	1103	Trq Prove Status	9	52	Trq Prove Status		x	
0	1104	Trq Lmt SlewRate	9	53	Trq Lmt SlewRate		x	
0	1105	Speed Dev Band	9	54	Speed Dev Band		x	
0	1106	SpdBand Intgrtr	9	55	SpdBand Intgrtr		x	
0	1107	Brk Release Time	9	60	Brk Release Time		x	
0	1108	Brk Set Time	9	61	Brk Set Time		x	
0	1109	Brk Alarm Travel	9	62	Brk Alarm Travel		x	
0	1110	Brk Slip Count	9	63	Brk Slip Thresh		x	
0	1111	Float Tolerance	9	70	Float Tolerance		x	
0	1112	MicroPsnScalePct	9	71	MicroPsnScalePct		x	
0	1113	ZeroSpdFloatTime	9	72	ZeroSpdFloatTime		x	
0	1114	Brake Test Torq	9	64	Brake Test Torq		x	
0	1165	Rod Speed	9	143	Rod Speed			x
0	1166	Rod Torque	9	144	Rod Torque			x
0	1167	Rod Speed Cmd	9	145	Rod Speed Cmd			x
0	1168	TorqAlarm Action	9	148	TorqAlarm Action			x
0	1169	TorqAlarm Config	9	149	TorqAlarm Config			x
0	1170	TorqAlarm Dwell	9	150	TorqAlarm Dwell			x
0	1171	TorqAlarm Level	9	151	Torq Thresh High			x
0	1172	TorqAlm Timeout	9	152	TorqAlmTimeOutHi			x
0	1173	TorqAlarm TOActn	9	153	TorqAlmTOActnHi			x
0	1174	Total Gear Ratio	9	109	Total Gear Ratio			x
0	1175	Max Rod Speed	9	156	Max Rod Speed			x
0	1176	Max Rod Torque	9	157	Max Rod Torque			x
0	1177	Min Rod Speed	9	158	Min Rod Speed			x
0	1178	Motor Sheave	9	110	Motor Sheave			x
0	1179	OilWell Pump Cfg	9	100	OilWell Pump Cfg			x
0	1180	PCP Pump Sheave	9	160	PCP Pump Sheave			x
0	1181	Gearbox Limit	9	114	Gearbox Limit			x
0	1182	Gearbox Rating	9	115	Gearbox Rating			x
0	1183	Gearbox Ratio	9	116	Gearbox Ratio			x
0	1184	Gearbox Sheave	9	117	Gearbox Sheave			x
0	1187	Pump Off Config	9	101	Pump Off Config			x
0	1188	Pump Off Setup	9	102	Pump Off Setup			x
0	1189	Pump Off Action	9	105	Pump Off Action			x

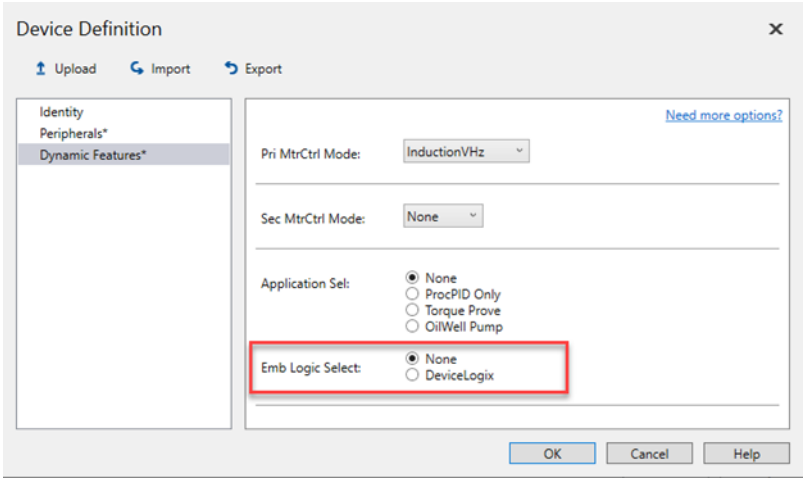
Table 10 - Application-specific Parameters (Continued)

PowerFlex 755 Drive Parameters			PowerFlex 755TS Drive Parameters and Application Selection Configuration					
Port	No.	Name	Port	No.	Name	ProcPID Only	Torque Prove	OilWell Pump
0	1190	Pump Off Control	9	103	Pump Off Control			x
0	1191	Pump Off Status	9	104	OW Pump Status			x
0	1192	Pump Cycle Store	9	111	Pump Cy Str Cmd			x
0	1192	Pump Cycle Store	9	112	Pump Cy Str Sts			x
0	1193	Set Top ofStroke	9	118	SetTopofStrk Cmd			x
–	–	–	9	119	SetTopofStrk Sts			x
0	1194	Torque Setpoint	9	120	Torque Setpoint			x
0	1195	Pump Off Level	9	106	Pump Off Level			x
0	1196	Pump Off Speed	9	107	Pump Off Speed			x
0	1197	Pump Off Time	9	108	Pump Off Time			x
0	1198	Pct Cycle Torque	9	124	Pct Cycle Torque			x
0	1199	Pct Lift Torque	9	125	Pct Lift Torque			x
0	1200	Pct Drop Torque	9	126	Pct Drop Torque			x
0	1201	Stroke Pos Count	9	129	Stroke Pos Count			x
0	1202	Stroke Per Min	9	130	Stroke Per Min			x
0	1203	Pump Off Count	9	132	Pump Off Count			x
0	1204	PumpOff SleepCnt	9	133	PumpOff SleepCnt			x
0	1205	Day Stroke Count	9	134	Day Stroke Count			x
0	1206	DI PumpOff Disbl	9	138	DI PumpOff Disbl			x

Embedded Logic Select (DLX)

This selection enables DeviceLogix™ in the PowerFlex 755TS drive, Port 9. Select **DeviceLogix** during the device definition if DeviceLogix is used in the Powerflex 755 drive.

Figure 4 - Select Emb Logic Select During Device Definition to Enable DeviceLogix



Setting **Emb Logic Select** to **DeviceLogix** also sets parameter **0:72 [Emb Logic Select]** = DLX.

Tag Binding in PowerFlex 755T Products

DeviceLogix was enhanced for all PowerFlex 755T products, including the PowerFlex 755TS drive. As a result, DeviceLogix input/output parameters that could be linked to drive parameters are no longer necessary. Instead, DeviceLogix now features tag binding. This tag-mapping capability can be used to create tags for any parameter in the drive that is needed for use in a DeviceLogix program through the Tag Editor.

Use the information in the following table to cross-reference DeviceLogix parameters when DeviceLogix is enabled in the PowerFlex 755TS drive.

Table 11 - DeviceLogix Parameters

PowerFlex 755 Drive Parameter			PowerFlex 755TS Drive Parameter (0:72 [Emb Logic Select] = DLX0		
Port	No.	Name	Port	No.	Name
14	49	DLX DigIn Sts	9	1005	DLX DigIn Sts
14	50	DLX DigOut Sts	9	1006	DLX DigOut Sts
14	51	DLX DigOut Sts2	9	1007	DLX DigOut Sts2
14	52	DLX Prog Cond	9	1004	DLX Prog Cond
14	53	DLX Operation	9	1000	DLX OperationCmd
14	53	DLX Operation	9	1001	DLX OperationSts
14	53	DLX Operation	9	1002	DLX PowerupStart
14	54	DLX Real SP1	9	1070	DLX Real SP1
14	55	DLX Real SP2	9	1071	DLX Real SP2
14	56	DLX Real SP3	9	1072	DLX Real SP3
14	57	DLX Real SP4	9	1073	DLX Real SP4
14	58	DLX Real SP5	9	1074	DLX Real SP5
14	59	DLX Real SP6	9	1075	DLX Real SP6
14	60	DLX Real SP7	9	1076	DLX Real SP7
14	61	DLX Real SP8	9	1077	DLX Real SP8
14	62	DLX Real SP9	9	1078	DLX Real SP9
14	63	DLX Real SP10	9	1079	DLX Real SP10
14	64	DLX Real SP11	9	1080	DLX Real SP11
14	65	DLX Real SP12	9	1081	DLX Real SP12
14	66	DLX Real SP13	9	1082	DLX Real SP13
14	67	DLX Real SP14	9	1083	DLX Real SP14
14	68	DLX Real SP15	9	1084	DLX Real SP15
14	69	DLX Real SP16	9	1085	DLX Real SP16
14	70	DLX DINT SP1	9	1090	DLX DINT SP1
14	71	DLX DINT SP2	9	1091	DLX DINT SP2
14	72	DLX DINT SP3	9	1092	DLX DINT SP3
14	73	DLX DINT SP4	9	1093	DLX DINT SP4
14	74	DLX DINT SP5	9	1094	DLX DINT SP5
14	75	DLX DINT SP6	9	1095	DLX DINT SP6
14	76	DLX DINT SP7	9	1096	DLX DINT SP7
14	77	DLX DINT SP8	9	1097	DLX DINT SP8
14	78	DLX Bool SP1	9	1100	DLX Bool SP1
14	79	DLX Bool SP2	9	1101	DLX Bool SP2
14	80	DLX Bool SP3	9	1102	DLX Bool SP3
14	81	DLX Bool SP4	9	1103	DLX Bool SP4
14	82	DLX Real In SP1	9	1110	DLX Real In SP1
14	83	DLX Real In SP2	9	1111	DLX Real In SP2
14	84	DLX Real In SP3	9	1112	DLX Real In SP3
14	85	DLX Real In SP4	9	1113	DLX Real In SP4

Table 11 - DeviceLogix Parameters (Continued)

PowerFlex 755 Drive Parameter			PowerFlex 755TS Drive Parameter (0:72 [Emb Logic Select] = DLX0		
Port	No.	Name	Port	No.	Name
14	86	DLX Real In SP5	9	1114	DLX Real In SP5
14	87	DLX Real In SP6	9	1115	DLX Real In SP6
14	88	DLX Real In SP7	9	1116	DLX Real In SP7
14	89	DLX Real In SP8	9	1117	DLX Real In SP8
14	90	DLX Real Out SP1	9	1120	DLX Real Out SP1
14	91	DLX Real Out SP2	9	1121	DLX Real Out SP2
14	92	DLX Real Out SP3	9	1122	DLX Real Out SP3
14	93	DLX Real Out SP4	9	1123	DLX Real Out SP4
14	94	DLX Real Out SP5	9	1124	DLX Real Out SP5
14	95	DLX Real Out SP6	9	1125	DLX Real Out SP6
14	96	DLX Real Out SP7	9	1126	DLX Real Out SP7
14	97	DLX Real Out SP8	9	1127	DLX Real Out SP8
14	98	DLX DINT In SP1	9	1130	DLX DINT In SP1
14	99	DLX DINT In SP2	9	1131	DLX DINT In SP2
14	100	DLX DINT In SP3	9	1132	DLX DINT In SP3
14	101	DLX DINT In SP4	9	1133	DLX DINT In SP4
14	102	DLX DINT Out SP1	9	1140	DLX DINT Out SP1
14	103	DLX DINT Out SP2	9	1141	DLX DINT Out SP2
14	104	DLX DINT Out SP3	9	1142	DLX DINT Out SP3
14	105	DLX DINT Out SP4	9	1143	DLX DINT Out SP4

Port and Parameter Numbers

This section contains information about embedded Ethernet, Ethernet configuration parameters, and datalinks.

Embedded Ethernet

The PowerFlex 755TS embedded Ethernet adapter is a dual-port gigabit adapter with parameters of the same name and function as the PowerFlex 755 embedded Ethernet adapter. The parameter ports and parameter numbers are different, however. In addition, the PowerFlex 755TS embedded Ethernet adapter does not support webpage, peer-to-peer, or email messaging.

Customers who are currently using peer to peer comms over Ethernet should investigate using 20-750-TLINK-XT to meet the needs of the application. Note that TLINK option module currently allows users to transfer velocity and torque references.

Ethernet Configuration Parameters

Use the information in the following table to cross-reference Ethernet configuration parameters.

Table 12 - Ethernet Configuration Parameters

PowerFlex 755 Drive Parameters			PowerFlex F755TS Drive Parameters		
Port	No.	Name	Port	No.	Name
13	36	BOOTP	0	300	Net Addr Sel
13	37	Net Addr Src	0	301	Net Addr Src
13	38	IP Addr Cfg 1	0	302	IP Addr Cfg 1
13	39	IP Addr Cfg 2	0	303	IP Addr Cfg 2
13	40	IP Addr Cfg 3	0	304	IP Addr Cfg 3

Table 12 - Ethernet Configuration Parameters (Continued)

PowerFlex 755 Drive Parameters			PowerFlex F755TS Drive Parameters		
Port	**No.**	**Name**	**Port**	**No.**	**Name**
13	41	IP Addr Cfg 4	0	305	IP Addr Cfg 4
13	42	Subnet Cfg 1	0	306	Subnet Cfg 1
13	43	Subnet Cfg 2	0	307	Subnet Cfg 2
13	44	Subnet Cfg 3	0	308	Subnet Cfg 3
13	45	Subnet Cfg 4	0	309	Subnet Cfg 4
13	46	Gateway Cfg 1	0	310	Gateway Cfg 1
13	47	Gateway Cfg 2	0	311	Gateway Cfg 2
13	48	Gateway Cfg 3	0	312	Gateway Cfg 3
13	49	Gateway Cfg 4	0	313	Gateway Cfg 4
13	50	Net Rate Cfg	0	314	Net Rate Cfg 1
13	51	Net Rate Act	0	315	Net Rate Act 1
13	52	Web Enable	-	-	not supported
13	53	Web Features	-	-	not supported
13	54	Comm Flt Action	0	360	Comm Flt Action
13	55	Idle Flt Action	0	361	Idle Flt Action
13	56	Peer Flt Action	-	-	#N/A
13	57	Msg Flt Action	0	363	Msg Flt Action
13	58	Flt Cfg Logic	0	364	Flt Cfg Logic
13	59	Flt Cfg Ref	0	365	Flt Cfg Ref
13	78	Logic Src Cfg	-	-	not supported
13	79	Ref Src Cfg	-	-	not supported
13	80	Fr Peer Timeout	-	-	not supported
13	81	Fr Peer Addr 1	-	-	not supported
13	82	Fr Peer Addr 2	-	-	not supported
13	83	Fr Peer Addr 3	-	-	not supported
13	84	Fr Peer Addr 4	-	-	not supported
13	85	Fr Peer Enable	-	-	not supported
13	86	Fr Peer Status	-	-	not supported
13	89	To Peer Period	-	-	not supported
13	90	To Peer Skip	-	-	not supported
13	91	To Peer Enable	-	-	not supported
13	54	Comm Flt Action	0	360	Comm Flt Action
13	55	Idle Flt Action	0	361	Idle Flt Action
13	57	MSG Flt Action	0	363	MSG Flt Action

Datalinks

Datalinks on the embedded Ethernet adapter function the same with PowerFlex 755TS drive as with the PowerFlex 755 drive. The parameter port and numbers associated with each datalink are different, however.

Use the information in the following table to cross-reference the embedded Ethernet datalink configuration parameters.

Table 13 - Datalinks

PowerFlex 755 Drive Datalink Parameters			PowerFlex 755TS Datalink Parameters		
Port	**No.**	**Name**	**Port**	**No.**	**Name**
13	1	DL From Net 01	0	321	DL From Net 01
13	2	DL From Net 02	0	322	DL From Net 02
13	3	DL From Net 03	0	323	DL From Net 03
13	4	DL From Net 04	0	324	DL From Net 04
13	5	DL From Net 05	0	325	DL From Net 05
13	6	DL From Net 06	0	326	DL From Net 06
13	7	DL From Net 07	0	327	DL From Net 07
13	8	DL From Net 08	0	328	DL From Net 08
13	9	DL From Net 09	0	329	DL From Net 09
13	10	DL From Net 10	0	330	DL From Net 10
13	11	DL From Net 11	0	331	DL From Net 11
13	12	DL From Net 12	0	332	DL From Net 12
13	13	DL From Net 13	0	333	DL From Net 13
13	14	DL From Net 14	0	334	DL From Net 14
13	15	DL From Net 15	0	335	DL From Net 15
13	16	DL From Net 16	0	336	DL From Net 16
13	17	DL To Net 01	0	340	DL To Net 01
13	18	DL To Net 02	0	341	DL To Net 02
13	19	DL To Net 03	0	342	DL To Net 03
13	20	DL To Net 04	0	343	DL To Net 04
13	21	DL To Net 05	0	344	DL To Net 05
13	22	DL To Net 06	0	345	DL To Net 06
13	23	DL To Net 07	0	346	DL To Net 07
13	24	DL To Net 08	0	347	DL To Net 08
13	25	DL To Net 09	0	348	DL To Net 09
13	26	DL To Net 10	0	349	DL To Net 10
13	27	DL To Net 11	0	350	DL To Net 11
13	28	DL To Net 12	0	351	DL To Net 12
13	29	DL To Net 13	0	352	DL To Net 13
13	30	DL To Net 14	0	353	DL To Net 14
13	31	DL To Net 15	0	354	DL To Net 15
13	32	DL To Net 16	0	355	DL To Net 16
13	33	Port Number	-	-	-
13	34	DLs From Net Act	0	356	DLs From Net Act
13	35	DLs To Net Act	0	357	DLs To Net Act
13	60	Flt Cfg DL 01	0	370	Flt Cfg DL 01
13	61	Flt Cfg DL 02	0	371	Flt Cfg DL 02
13	62	Flt Cfg DL 03	0	372	Flt Cfg DL 03
13	63	Flt Cfg DL 04	0	373	Flt Cfg DL 04
13	64	Flt Cfg DL 05	0	374	Flt Cfg DL 05
13	65	Flt Cfg DL 06	0	375	Flt Cfg DL 06
13	66	Flt Cfg DL 07	0	376	Flt Cfg DL 07

Table 13 - Datalinks (Continued)

PowerFlex 755 Drive Datalink Parameters			PowerFlex 755TS Datalink Parameters		
Port	**No.**	**Name**	**Port**	**No.**	**Name**
13	67	Flt Cfg DL 08	0	377	Flt Cfg DL 08
13	68	Flt Cfg DL 09	0	378	Flt Cfg DL 09
13	69	Flt Cfg DL 10	0	379	Flt Cfg DL 10
13	70	Flt Cfg DL 11	0	380	Flt Cfg DL 11
13	71	Flt Cfg DL 12	0	381	Flt Cfg DL 12
13	72	Flt Cfg DL 13	0	382	Flt Cfg DL 13
13	73	Flt Cfg DL 14	0	383	Flt Cfg DL 14
13	74	Flt Cfg DL 15	0	384	Flt Cfg DL 15
13	75	Flt Cfg DL 16	0	385	Flt Cfg DL 16
13	76	DLs Fr Peer Cfg	-	-	not supported
13	77	DLs Fr Peer Act	-	-	not supported
13	87	DLs To Peer Cfg	-	-	not supported
13	88	DLs To Peer Act	-	-	not supported

If you use a 20-COMM module with the PowerFlex 755 drive, use a 20-750 option module with the PowerFlex 755TS drive. There are a few changes when migrating to a new communication module. The main difference is that datalinks are now selected in the communication module's host parameters instead of in a drive parameter. Additionally, M-S input/output do not need to be configured; simply assign the intended parameters to a datalink in the host parameters and the card handles this function automatically.

The following 16-bit datalink parameters, used with 20-COMM modules, are not supported in the PowerFlex 755TS drive.

Table 14 - 16-bit Datalink Parameters Not Supported in PowerFlex 755TS Drive

PowerFlex755 Drive Parameters		
Port	**No.**	**Name**
0	895	Data in A1
0	896	Data in A2
0	897	Data in B1
0	898	Data in B2
0	899	Data in C1
0	900	Data in C2
0	901	Data in D1
0	902	Data in D2
0	905	Data out A1
0	906	Data out A2
0	907	Data out B1
0	908	Data out B2
0	909	Data out C1
0	910	Data out C2
0	911	Data out D1
0	912	Data out D2

Drive Configuration

The following tables provide a cross-reference of basic drive configuration parameters. These settings should be completed after setting dynamic features. Note that speed units, voltage class, and duty require a power cycle or drive reset.

Table 15 - Drive Configuration Parameters

PowerFlex 755 Drive Parmeter			PowerFlex Drive 755TS Parameter		
Port	No.	Name	Port	No.	Name
0	300	Speed Units	0	46	Velocity Units
0	301	Access Level	0	30	Access Level
0	302	Language	0	31	Language
0	305	Voltage Class	0	33	Voltage Class Cfg
0	306	Duty Rating	0	35	Duty Rating Cfg
0	308	Direction Mode	10	930	Direction Mode
0	309	SpdTrqPsn Mode A	10	30	PsnVelTrq Mode A
0	324	Logic Mask	0	41	Logic Mask
0	325	Auto Mask	0	42	Auto Mask
0	326	Manual Cmd Mask	0	43	Manual Cmd Mask
0	370	Stop Mode A	10	110	Mtr Stop Mode A
0	372	Bus Reg Mode A	10	116	Bus Reg Mode A

Motor Data

Table 16 - Common Motor Configuration Parameters

PowerFlex 755 Drive Parmeter			PowerFlex Drive 755TS Parameter		
Port	No.	Name	Port	No.	Name
0	25	Motor NP Volts	10	400	Motor NP Volts
0	26	Motor NP FLA	10	401	Motor NP Amps
0	27	Motor NP Hertz	10	402	Motor NP Hertz
0	28	Motor NP RPM	10	403	Motor NP RPM
0	29	Mtr NP Pwr Units	10	405	Mtr NP Pwr Units
0	30	Motor NP Power	10	406	Motor NP Power
0	31	Motor Poles	10	407	Motor Poles

Speed Control and Velocity

Table 17 - Common Speed and Velocity Control Parameters

PowerFlex 755 Drive Parmeter			PowerFlex Drive 755TS Parameter		
Port	**No.**	**Name**	**Port**	**No.**	**Name**
0	520	Max Fwd Speed	10	1989	Vel Limit Pos
0	521	Max Rev Speed	10	1899	Vel Limit Neg
0	522	Min Fwd Speed	10	1900	Vel Low Lim Pos
0	523	Min Rev Speed	10	1901	Vel Low Lim Neg
0	535	Accel Time 1	10	1915	VRef Accel Time1
0	537	Decel Time 1	10	1917	VRef Decel Time1
0	540	S Curve Accel	10	1919	VRef Accel Jerk
0	541	S Curve Decel	10	1920	VRef Decel Jerk
0	545	Speed Ref A Sel	10	1800	VRef A Sel
0	546	Spd Ref A Stpt	10	1801	VRef A Stpt
0	547/552	Spd Ref A AnIgHi/Spd Ref B AnIgHi	10	1802/1809	VRef A AnIgHi/VRef B AnIgHi
0	548/553	Spd Ref A AnIgLo/Spd Ref B AnIgLo	10	1803/1810	VRef A AnIgLo/VRef B AnIgLo
0	549/554	SpdRef A Mult/Spd Ref B Mult	10	1804/1811	VRef A Mult/VRef B Mult
0	571...577	Preset Speed 1...7	10	1814...1820	Preset Speed 1...7
0	556	Jog Speed 1	10	1894	Jog Speed 1
0	592	Selected Spd Ref	10	1892	VRef Selected
0	597	Final Speed Ref	10	1933	VRef Final
0	620	Droop RPM at FLA	10	1961	Droop RPM at FLA

Digital Input Parameters

Table 18 - Common Digital Input Parameters

PowerFlex 755 Drive Parmeter			PowerFlex Drive 755TS Parameter		
Port	**No.**	**Name**	**Port**	**No.**	**Name**
0	150	Digital In Cfg	0	101	Digital In Cfg
0	155	DI Enable	0	103	DI M Enable
0	156	DI Clear Fault	0	114	DI Clear Fault
0	157	DI Aux Fault	0	115	DI Aux Fault
0	158	DI Stop	0	108	DI M Stop
0	161	DI Start	0	117	DI M Start
0	162	DI Fwd Reverse	0	130	DI M Fwd Reverse
0	163	DI Run	0	120	DI M Run
0	164	DI Run Forward	0	–	No equivalent. Use Run + FWD/Reverse with the FWD/ Reverse input off.
0	165	DI Run Reverse	0	–	No equivalent. Use Reverse with the FWD/Reverse input on.
0	166	DI Jog 1	0	124	DI M Jog 1
0	167	DI Jog 1 Forward	0	–	No equivalent. Use Jog + FWD/Reverse with the FWD/ Reverse input off.
0	168	DI Jog 1 Reverse	0	–	No equivalent. Use Jog + FWD/Reverse with the FWD/ Reverse input on.
0	172	DI Manual Ctrl	0	132	DI M Manual Ctrl
0	173	DI Speed Sel 0	0	140	DI M Speed Sel 0
0	174	DI Speed Sel 1	0	141	DI M Speed Sel 1
0	175	DI Speed Sel 2	0	142	DI M Speed Sel 2
0	176	DI HOA Start	0	108	DI M Stop
0	181	DI SpTqPs Sel 0	0	160	DI M SpTqPs Sel0
0	182	DI SpTqPs Sel 1	0	161	DI M SpTqPs Sel1
0	220	Digital In Sts	0	100	Digital In Sts

Display, Status, Fault/Alarm, and Setup

Table 19 - Common Used Drive Measurement Parameters

PowerFlex 755 Drive Parmeter			PowerFlex Drive 755TS Parameter		
Port	**No.**	**Name**	**Port**	**No.**	**Name**
0	1	Output Freq	10	1	Output Frequency
0	2	Commanded SpdRef	10	1914	VRef Commanded
0	3	Mtr Vel Fdbk	10	1044	Motor Vel Fb
0	4	Commanded Trq	10	2073	Trq Commanded
0	7	Output Current	10	3	Output Current
0	8	Output Voltage	10	2	Output Voltage
0	11	DC Bus Volts	0	3	DC Bus Volts

Diagnostics

Table 20 - Common Diagnostic Parameters

PowerFlex 755 Drive Parmeter			PowerFlex Drive 755TS Parameter		
Port	**No.**	**Name**	**Port**	**No.**	**Name**
0	933	Start Inhibits	10	351	M Start Inhibits
0	935	Drive Status 1	10	354	Motor Side Sts 1
0	–	–	10	355	Motor Side Sts 2
0	952	Fault Status A	10	461	Fault Status A
0	953	Fault Status B	10	462	Fault Status B
0	959	Alarm Status A	10	465	Alarm Status A
0	960	Alarm Status B	10	466	Alarm Status B
0	961	Type 2 Alarms	10	467	Type 2 Alarms

Communication

Table 21 - Common Command Source Parameters

PowerFlex 755 Drive Parmeter			PowerFlex Drive 755TS Parameter		
Port	**No.**	**Name**	**Port**	**No.**	**Name**
0	919	Stop Owner	0	260	Stop Owner
0	920	Start Owner	0	261	Start Owner
0	921	Jog Owner	0	262	Jog Owner
0	922	Direction Owner	0	263	Dir Owner
0	923	Clear Flt Owner	0	264	Clear Flt Owner

Drive Option Modules

Supported option modules are listed in Chapter 1 on page 18. The programming of option module functions does not change when installed in a PowerFlex 755TS drive, only the drive parameter references used by the module.

Flux Vector Configuration

Due to differences in units and control loop relationships, do not apply tuning configurations from the PowerFlex 755 drive to the PowerFlex 755TS drive for flux vector motor control modes. The PowerFlex 755TS is designed to provide high-performance adaptive control. It is highly recommended to tune the PowerFlex 755TS drive according to the PowerFlex 755T Flux Vector Tuning Application Technique, publication 750-AT006-EN-P. The tables in this section are for reference only.

Velocity Control - FVC ONLY

Table 22 - Common Velocity Control Parameters

PowerFlex PF755 Drive Parameter				PowerFlex F755TS Drive Parameter			
Port	No.	Name	Units	Port	No.	Name	Units
0	76	Total Inertia	Sec	10	–	Testpoint 44 (1)	Sec
0	126	Pri Vel FdbkFltr		10	1001	Vel Fb Taps	Taps
0	635	Spd Options Ctrl		10	1950	Vel Ctrl Options	
0	636	Speed Reg BW	R/S	10	906	System BW (2)	Hz
0	637	SReg FB Gltr Sel		–	–		
0	638	SReg FB GltrGain		10	1004/1005	C/U Vel Fb LPF Gain	
0	639	SReg FB Fltr BW	R/S	10	1002/1003	C/U Vel Fb LPF BW	Hz
0	644	Spd Err Filt BW	R/S	–	–	(3)	
0	645	Speed Reg Kp		10	1955/1956	c/u VReg Kp	Hz
0	647	Speed Reg Ki	/sec	10	1957/1958	c/u VReg Ki	Hz
0	648	Alt Speed Reg BW	R/S	–	–	No equivalent.	
0	649	Alt Speed Reg Kp		–	–	No equivalent.	
0	653	Spd Loop Damping		10	907	System Damping	
0	655	Spd Reg Pos Lim	pct	10	1965	Accel Lim Pos	R/s2
0	656	Spd Reg Neg Lim	pct	10	1966	Accel Limit Neg	R/s2
0	657	SReg OutFltr Sel		–	–	No equivalent.	
0	658	SReg OutFltrGain		10	2153	Trq LLF Gain (4)	
0	659	SReg OutFltr BW	R/S	10	2152	Trq LLF BW (4)	Hz
0	660	VReg Output	pct	10	1969	VReg Output	R/s2

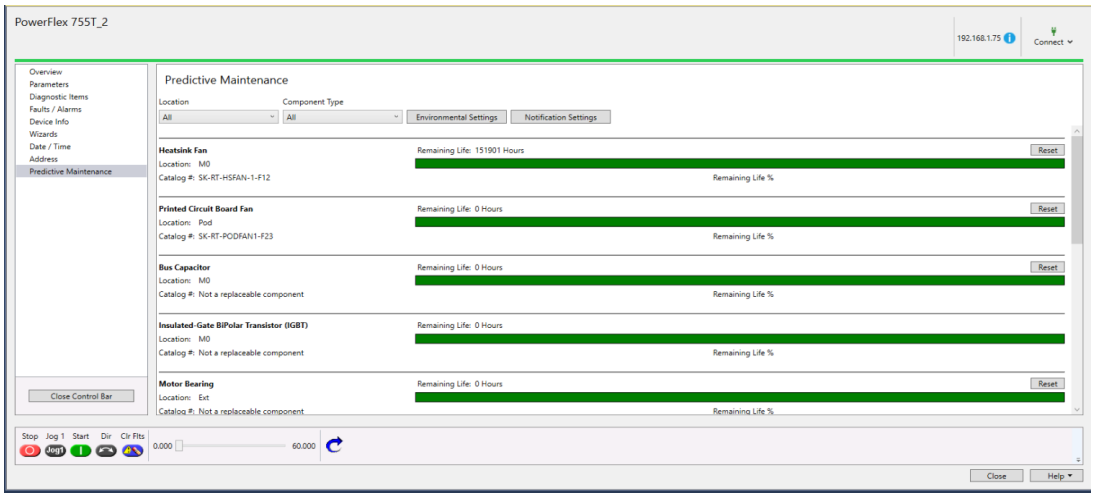
(1) Testpoint 44 displays Kj, the torque scalar. This represents system inertia in seconds when a load inertia tune is completed and motor inertia is entered correctly. (This value is affected by **10:900 [Motor Inertia]** and **10:901 [Load Ratio]**). Test point values are listed in the PowerFlex Drives with TotalFORCE Control Parameters Reference Data, publication 750-RD101-EN-P.
(2) System BW is used for single knob tuning and affects additional parameters. See the PowerFlex 755T Flux Vector Tuning Application Technique, publication 750-AT006-EN-P, for more information.
(3) This filter is discontinued.
(4) Not a direct equivalent. When used correctly, this filter can produce a similar function to the PowerFlex 755 drive's speed regulator output lead lag filter. It should only be used with Load Observer and Trq LPF disabled and the PowerFlex 755T drive manually tuned using user values.

Predictive Maintenance Feature

PowerFlex 750-Series Products with TotalFORCE® Control contain algorithms for predictive maintenance that are used to improve the uptime of machines, processes, and facilities. These algorithms monitor the lifespan of certain components and display the remaining life.

These algorithms can be used to alert personnel when the components are nearing the end of their lifespan so the components can be replaced before they fail. For details on predictive maintenance, see PowerFlex Drives with TotalFORCE Control Programming Manual, publication 750-PM101.

Figure 5 - Predictive Maintenance Page



DataLinks

The following parameters related to DataLinks cannot be used with the PowerFlex 755TS drive.

Table 23 - Datalink-related Parameters (PowerFlex 755 Drive Only)

Parameter Number	Parameter Name
895 896	Data in A1 Data in A2
897 898	Data in B1 Data in B2
899 900	Data in C1 Data in C2
901 902	Data in D1 Data in D2
905 906	Data out A1 Data out A2
907 908	Data out B1 Data out B2
909 910	Data out C1 Data out C2
911 912	Data out D1 Data out D2

PowerFlex 755TS DeviceLogix

This section describes how to transfer a DeviceLogix file from a PowerFlex 755 drive to any PowerFlex 755T product. The procedure can be done while online or offline with drive. The DLX code can be transferred from one drive to another, but the tags will not transfer and will have to be done manually, as parameters have changed.

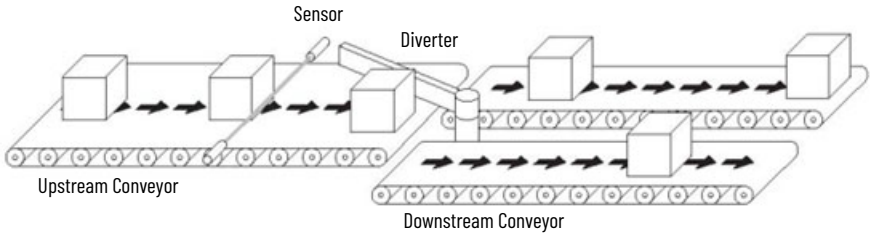
The DLX code can be transferred by a simple copy/paste of the logic from the old editor to the new editor or by Import/Export. This example shows how to Import/Export a simple conveyor part counter project. Copy and pasting is done by choosing **Select All** in the **Edit** menu, then copying and pasting into the new project.

Launch the DeviceLogix Editor Tool

DeviceLogix editor can be launched from Connected Components Workbench (CCW) or Studio 5000 Logix Designer. In this example, CCW is used. To launch DeviceLogix in the PowerFlex 755T drives, see the PowerFlex 755T Reference Manual, publication 750-RM100, and the PowerFlex Programming manual, publication 750-PM101.

Part Counter Project

This example uses a PowerFlex 755 drive that has a DeviceLogix program in Ladder. The program simulates a parts counter that moves a diverter after a certain number of parts have crossed the photo eye. The program uses one Digital Input and one Relay Output and a few lines of code.



Program Overview

Type	Name	Description
Inputs	Part Present Sensor	Identifies if part is present
Output	Diverter Actuator	Control diverter actuator to direct flow of parts

PowerFlex 755 DeviceLogix Parameters

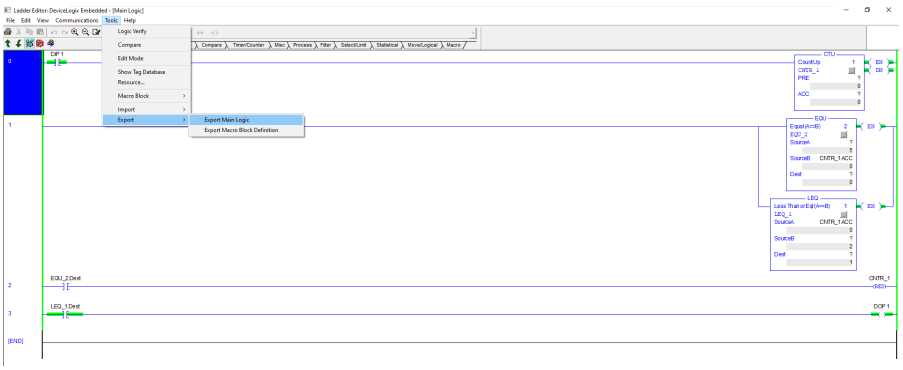
Port: Parameter	Name	Value	Description
7:10	R00 Sel	Port 14: DLX DigOut Sts2.DLX DOPSts0	Relay Output on I/O module in Port 7
14:33	DLX DIP1	Port 7: Dig In Status.Input 1	Part Present Sensor input (I/O module in Port 7)

PowerFlex 755TS DeviceLogix Parameters

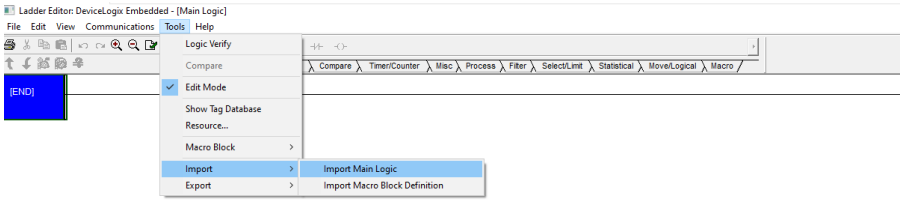
Port: Parameter	Name	Value	Description
7:10	R00 Sel	Port 9: DLX Bool SP1. Bit 0	Relay Output on I/O module in Port 7

Export File From PowerFlex 755 Drive and Import Into PowerFlex 755TS Drive

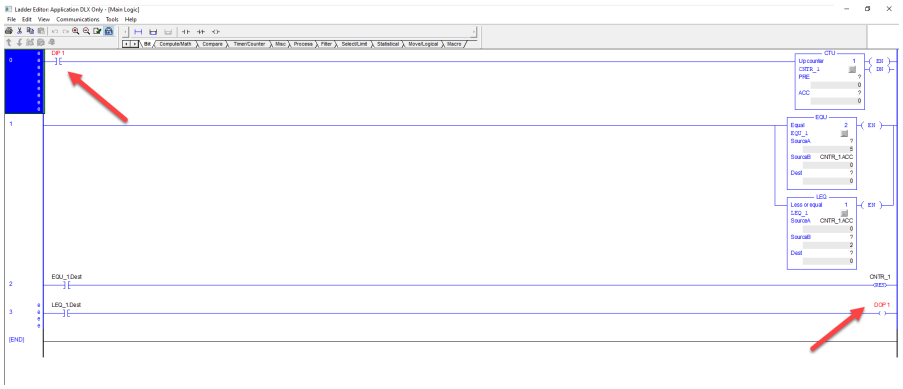
1. In the PowerFlex 755 drive, open the DLX editor by clicking **Launch Editor** (Launch Editor)in the DeviceLogix tab. Once the editor is open, select Export Main Logic by clicking **Tools** > **Export** > **Export Main Logic**. Name the file and save. (The file format is .dlr.)



2. In the PowerFlex 755TS drive, open the DLX editor by clicking **Launch Editor** (Launch Editor) in the DeviceLogix tab. Once the editor is open, select **Edit mode (** Edit **)** in the toolbar. Edit mode can also be selected from the Tools menu. Select **Import Main Logic** by clicking **Tools** > **Import** > **Import Main Logic**. Locate and open the file you saved in the previous step.



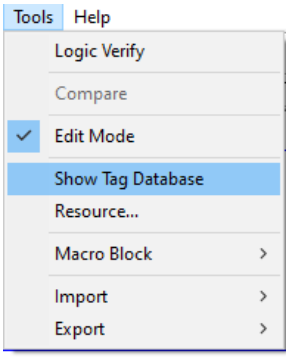
After the program is imported you will notice the errors in the program. These errors are related to the tags that did not transfer.



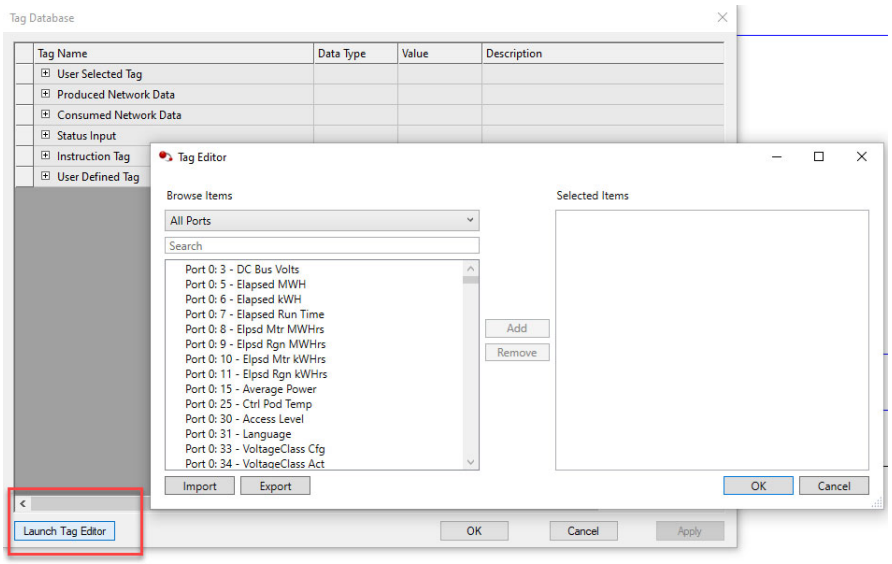
DeviceLogix Tag Database

The DeviceLogix Tag Database is used to map tags/parameters from the I/O module. The Tag Database is also used to map scratchpad and drive parameters. You need to launch the Tag Editor to create a new tag for DIP1 digital input and the DOP1 digital output.

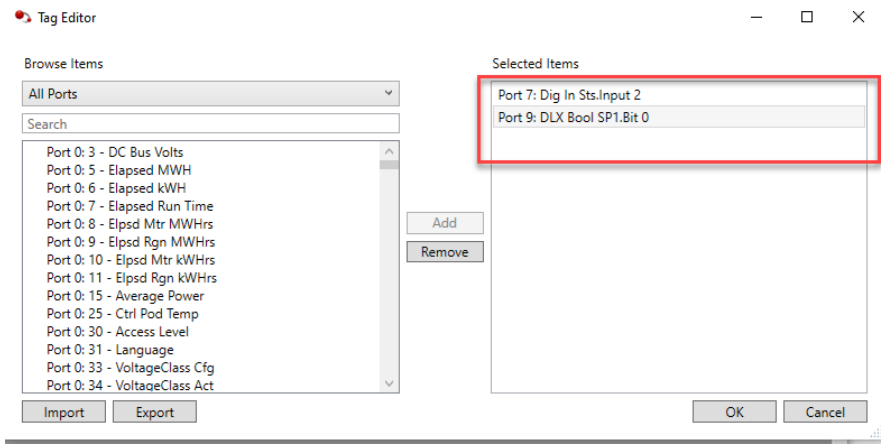
1. Click **Tools** > **Show Tag Database.**



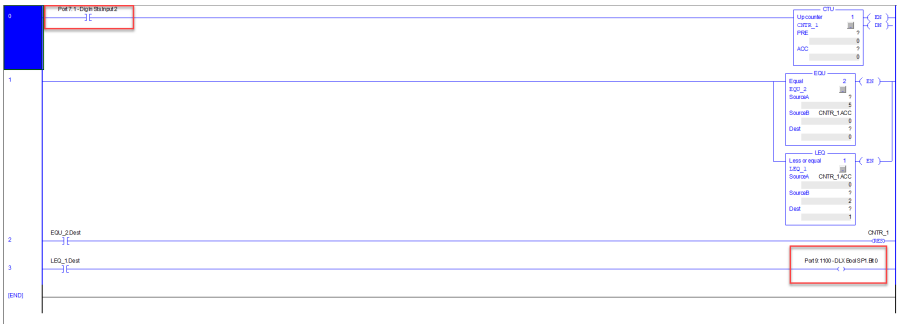
2. Click **Launch Tag Editor**.



3. Select the **Port7:1 [Dig in Sts] bit 2** for to create a tag for the digital input. Select **Port 9:1100 [DLX Bool SP1] bit 0** for the relay output.



4. Replace the DIP 1 and DOP 1 with the tags you just created.



Download and Enable Logic

1. When the code is completed, click

in the task bar to verify the logic. After the verification, a window appears with the result. The message-log window displays any errors.
2. If there are no errors, click in the taskbar to exit edit mode.
3. To download the logic, click in the taskbar. A confirmation window opens.
4. Click Yes.
5. To enable the logic, click in the taskbar. The logic is executed in the drive. Close the Device Logix editor.

Notes:

Rockwell Automation Support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, Knowledgebase, and product notification updates.	rok.auto/support
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Technical Documentation Center	Quickly access and download technical specifications, installation instructions, and user manuals.	rok.auto/techdocs
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	rok.auto/pcdc

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Waste Electrical and Electronic Equipment (WEEE)

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Rockwell Otomasyon Ticaret A.Ş. Kar Plaza İş Merkezi E Blok Kat:6 34752, İçerenköy, İstanbul, Tel: +90 (216) 5698400 EEE Yönetmeliğine Uygundur

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AMERICAS: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000
EUROPE/MIDDLE EAST/AFRICA: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2663 0600
ASIA PACIFIC: Rockwell Automation SEA Pte Ltd, 2 Corporation Road, #04-05, Main Lobby, Corporation Place, Singapore 618494, Tel: (65) 6510 6608
UNITED KINGDOM: Rockwell Automation Ltd., Pitfield, Kiln Farm, Milton Keynes, MK11 3DR, United Kingdom, Tel: (44)(1908) 838-800

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