

Wiring and Grounding for Pulse Width Modulated (PWM) AC Drives



Important User Information

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

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

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

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

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

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



WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.



ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.

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

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



SHOCK HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.



BURN HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.



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

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Notes:

This manual provides basic information to install, protect, wire, and ground pulse-width modulated (PWM) AC drives.

This manual is intended for qualified personnel who plan and design installations of PWM AC drives.

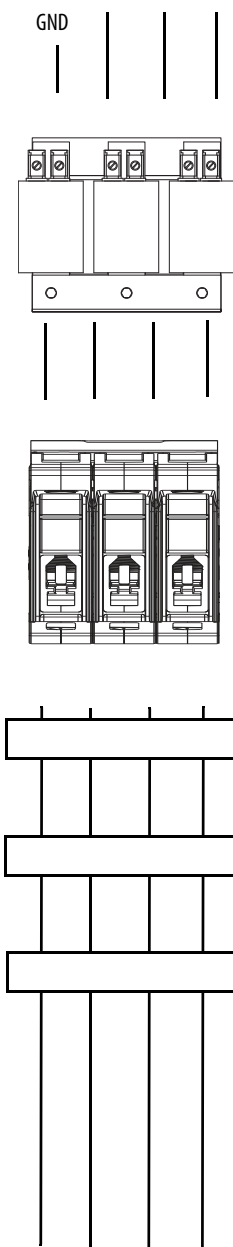
Summary of Changes

This manual contains new and updated information as indicated in the following table.

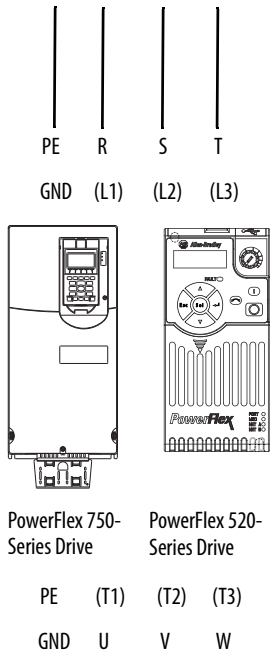
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Updated Table 12 to include information for 240V AC Line Impedance Recommendations for PowerFlex™ 753/755 Drives	43
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Line to Load Installation Guidelines

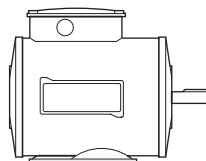
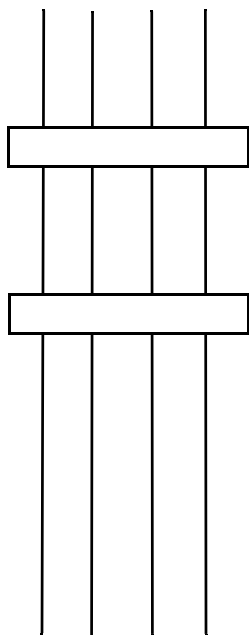
This section provides direction for how and where to find information from line to load on the successful installation and implementation of PWM drives.



Topic	PowerFlex 755T Drive Products	PowerFlex 750-Series Drives	PowerFlex 520-Series Drives	
AC supply source	Wiring and Grounding Guidelines for Pulse-width Modulated (PWM) AC Drives Installation Instructions, publication DRIVES-IN001 See Chapter 2 – System Configurations on page 29 .			
Input power conditioning	Wiring and Grounding Guidelines for Pulse-width Modulated (PWM) AC Drives Installation Instructions, publication DRIVES-IN001 See Chapter 2 – AC Line Impedance on page 32 .			
	1321 Power Conditioning Products Technical Data, publication 1321-TD001 See this publication for line reactors and isolation transformers.			
Input fusing and circuit breakers	PowerFlex 750-Series Products with TotalFORCE™ Control Installation Instructions, publication 750-IN100 See the Fuses and Circuit Breakers Ratings section.	PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001 See Chapter 4 – Fuse and Circuit Breaker Ratings.	PowerFlex 520-Series Adjustable Frequency AC Drive User Manual, publication 520-UM001 See Chapter 1 – Fuses and Circuit Breakers.	PowerFlex 527 Adjustable Frequency AC Drive User Manual, publication 520-UM002 See Chapter 1 – Fuses and Circuit Breakers.
Input power wire and cable	Wiring and Grounding Guidelines for Pulse-width Modulated (PWM) AC Drives Installation Instructions, publication DRIVES-IN001 See Chapter 1 – Input Power Cables on page 22 .			
EMC filters	PowerFlex 750-Series Products with TotalFORCE Control Installation Instructions, publication 750-IN100 See Chapter 3– Installation Requirements Related to EN 61800-3 and the EMC Directive.	PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001 See Chapter 2 – Installation Requirements Related to EN 61800-3 and the EMC Directive.	PowerFlex 520-Series Adjustable Frequency AC Drive User Manual, publication 520-UM001 See Chapter 1 – General Considerations.	PowerFlex 527 Adjustable Frequency AC Drive User Manual, publication 520-UM002 See Chapter 1 – General Considerations.
Electrical interference	Wiring and Grounding Guidelines for Pulse-width Modulated (PWM) AC Drives Installation Instructions, publication DRIVES-IN001 See Chapter 6 – How Electromechanical Switches Cause Transient Interference on page 87 .			
Grounding	Wiring and Grounding Guidelines for Pulse-width Modulated (PWM) AC Drives Installation Instructions, publication DRIVES-IN001 See Chapter 3 – Grounding on page 57 .			
	PowerFlex 750-Series Products with TotalFORCE Control Installation Instructions, publication 750-IN100 See Chapter 5 – Grounding Requirements	PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001 See Chapter 4 – Grounding Requirements.	PowerFlex 520-Series Adjustable Frequency AC Drive User Manual, publication 520-UM001 See Chapter 1 – General Grounding Requirements.	PowerFlex 527 Adjustable Frequency AC Drive User Manual, publication 520-UM002 See Chapter 1 – General Grounding Requirements.



Topic	PowerFlex 755T Drive Products	PowerFlex 750-Series Drives	PowerFlex 520-Series Drives	
Jumpers	PowerFlex 750-Series Products with TotalFORCE Control Installation Instructions, publication 750-IN100 See Chapter 5 – Power Jumper Configuration.	PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001 See Chapter 4 – Drive Power Jumper Configuration.	PowerFlex 520-Series Adjustable Frequency AC Drive User Manual, publication 520-UM001 See Chapter 1 – AC Supply Source Considerations.	PowerFlex 527 Adjustable Frequency AC Drive User Manual, publication 520-UM002 See Chapter 1 – AC Supply Source Considerations.
Mounting considerations	PowerFlex 750-Series Products with TotalFORCE Control Installation Instructions, publication 750-IN100 See Chapter 3 – Mounting Requirements, Minimum Clearances	PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001 See Chapter 2 – Minimum Clearances, Mounting Considerations.	PowerFlex 520-Series Adjustable Frequency AC Drive User Manual, publication 520-UM001 See Chapter 1 – Mounting Considerations.	PowerFlex 527 Adjustable Frequency AC Drive User Manual, publication 520-UM002 See Chapter 1 – Mounting Considerations.
Environment	Industry Installation Guidelines for Pulse-width Modulated (PWM) AC Drives Application Technique, publication DRIVES-AT003 See this publication for information for different enclosure systems and environmental/location considerations (to help protect against environmental contaminants), and power and grounding considerations.			
	PowerFlex 750-Series Products with TotalFORCE Control Installation Instructions, publication 750-IN100 See Chapter 3 – Environmental Conditions, Environmental Specifications	PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001 See Chapter 2 – Environmental Specifications.	PowerFlex 520-Series Adjustable Frequency AC Drive User Manual, publication 520-UM001 See Appendix A – Environmental Specifications.	PowerFlex 527 Adjustable Frequency AC Drive User Manual, publication 520-UM002 See Appendix A – Environmental Specifications.
Control and signal cabling	Wiring and Grounding Guidelines for Pulse-width Modulated (PWM) AC Drives Installation Instructions, publication DRIVES-IN001 See Chapter 4 – Wire Routing on page 71 .			
	PowerFlex 750-Series Products with TotalFORCE Control Installation Instructions, publication 750-IN100 See Chapter 6 – Wire I/O	PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001 See Chapter 5 – I/O Wiring.	PowerFlex 520-Series Adjustable Frequency AC Drive User Manual, publication 520-UM001 See Chapter 1 – I/O Wiring.	PowerFlex 527 Adjustable Frequency AC Drive User Manual, publication 520-UM002 See Chapter 1 – I/O Wiring.



Topic	PowerFlex 755T Drive Products	PowerFlex 750-Series Drives	PowerFlex 520-Series Drives	
Output power cabling	Wiring and Grounding Guidelines for Pulse-width Modulated (PWM) AC Drives Installation Instructions, publication DRIVES-IN001 See Chapter 1 – Motor Cables on page 23 .			
Output devices	Wiring and Grounding Guidelines for Pulse-width Modulated (PWM) AC Drives Installation Instructions, publication DRIVES-IN001 See Chapter 6 – Shielded or Armored Power Cable on page 86			
	1321 Power Conditioning Products Technical Data, publication 1321-TD001 See this publication for load reactors, RWRs, and common mode chokes/cores.			
	1204 Terminator Instructions, publication 1204-IN002 See this publication for motor terminators.			
	PowerFlex 750-Series Products with TotalFORCE Control Installation Instructions, publication 750-IN100 See Chapter 5 – Output Contactor Precautions.	PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001 See Chapter 4 – Output Contactor Precautions.	PowerFlex 520-Series Adjustable Frequency AC Drive User Manual, publication 520-UM001 See Chapter 1 – Output Disconnect.	PowerFlex 527 Adjustable Frequency AC Drive User Manual, publication 520-UM002 See Chapter 1 – Output Disconnect.
Cable length	Wiring and Grounding Guidelines for Pulse-width Modulated (PWM) AC Drives Installation Instructions, publication DRIVES-IN001 See Chapter 5 – Length Restrictions for Motor Protection on page 84 .			
Encoder	Wiring and Grounding Guidelines for Pulse-width Modulated (PWM) AC Drives Installation Instructions, publication DRIVES-IN001 See Chapter 1 – Analog Signal and Encoder Cable on page 24 .			
Motor	Wiring and Grounding Guidelines for Pulse-width Modulated (PWM) AC Drives Installation Instructions, publication DRIVES-IN001 See Appendix A – Overview on page 93 .			

Additional Resources

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

Resource	Description
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 devices or assemblies.
1321 Power Conditioning Products Technical Data, Don't Ignore the Cost of Power Line Disturbance, publication 1321-TD001	Provides technical data on Allen-Bradley® power conditioning products.
IEEE Guide for the Installation of Electrical Equipment to Minimize Electrical Noise Inputs to Controllers from External Sources, publication IEEE 518. Available from IEEE Xplore Digital Library .	Provides techniques for installing controllers and control systems so that proper operation can be achieved in the presence of electrical noise.
Recommended Practice for Powering and Grounding Electronic Equipment - IEEE Emerald Book, publication IEEE STD 1100. Available from IEEE Xplore Digital Library .	Provides the recommended practices for powering and grounding electronic equipment.
IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems, publication IEEE Std 142-1991. Available from IEEE Xplore Digital Library .	Provides recommended practices to ground power systems.
Cable Alternatives for PWM AC Drive Applications, publication IEEE Paper. No. PCIC-99-23. Available from IEEE Xplore Digital Library .	Describes an alternative solution for cables used with IGBT variable frequency drives (VFDs).
EMI Emissions of Modern PWM AC Drives. IEEE Industry Applications Magazine , Nov./Dec. 1999	Provides an understanding of EMI issues and with pre-installation and post-installation guidelines.
Electromagnetic Interference and Compatibility, Volume 3, by Donald R. J. White.	This book provides information EMI control methods and techniques.
Grounding, Bonding, and Shielding for Electronic Equipment and Facilities (Military Handbook 419).	Provides information on how to ground, bond, and shield communication electronics equipment and facilities.
Noise Reduction Techniques in Electronic Systems by Henry W. Ott.	This book provides information on controlling emissions from electronic systems, and techniques for providing electromagnetic compatibility (EMC).
Grounding for the Control of EMI by Hugh W. Denny.	This book provides grounding guidelines for the control of EMI.
EMC for Product Designers by Tim Williams.	This book provides information to help you meet the requirements of the latest EMC Directive.
National Electrical Code (ANSI/NFPA 70) Articles 250, 725-5, 725-15, 725-52 and 800-52 (www.nfpa.org)	Provides information on the installation of electrical components, signaling, and communication conductors and grounding.
Application Guide for AC Adjustable Speed Drive Systems, NEMA (www.nema.org)	Provides a NEMA application guide for AC drive systems.
IEC 60364-5-52 Selection and Erection of Electrical Equipment - Wiring systems, IEC (www.iec.ch)	IEC wiring systems.

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.

Notes:

Wire/Cable Types

AC drive installations have specific wire and cable requirements. This section includes information about the major issues for proper selection of cable, and provides recommendations to address these issues. Consider these conditions and requirements when you choose cable material and construction for your installation:

- Environment – such as moisture, temperature, and harsh or corrosive chemicals.
- Mechanical needs – such as geometry, shielding, flexibility, and crush resistance.
- Electrical characteristics – such as cable capacitance/charging current, resistance/voltage drop, current rating, and insulation. Insulation can be the most significant of these characteristics. Because drives can create voltages in excess of line voltage, the industry standard cables that were used in the past are not appropriate for variable speed drives. Drive installations benefit from cable that is different than cable used to wire contacts and push buttons.
- Safety issues – such as electrical code requirements, grounding needs, and others.

Incorrect cables can be costly and can adversely affect the performance of your installation.

General

Recommended Cable/Wire

The recommended wire and cable that is referenced in this publication can be obtained from third-party companies found in our PartnerNetwork™ Encompass™ Program.

For further information on these suppliers and their products, follow these steps to find recommended wire and cable for your drives.

1. Go to the Encompass website at <http://www.rockwellautomation.com/rockwellautomation/sales-partners/complementary-products/overview.page>.
2. Under Find an Encompass Referenced Product, click FIND NOW.
3. In the Product Category pull-down list, choose Drive - Cables.
4. Click SEARCH.

General Precautions



ATTENTION: To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged before performing any work on the drive. Measure the DC bus voltage at the +DC and –DC terminals of the power terminal block. The voltage must be zero.

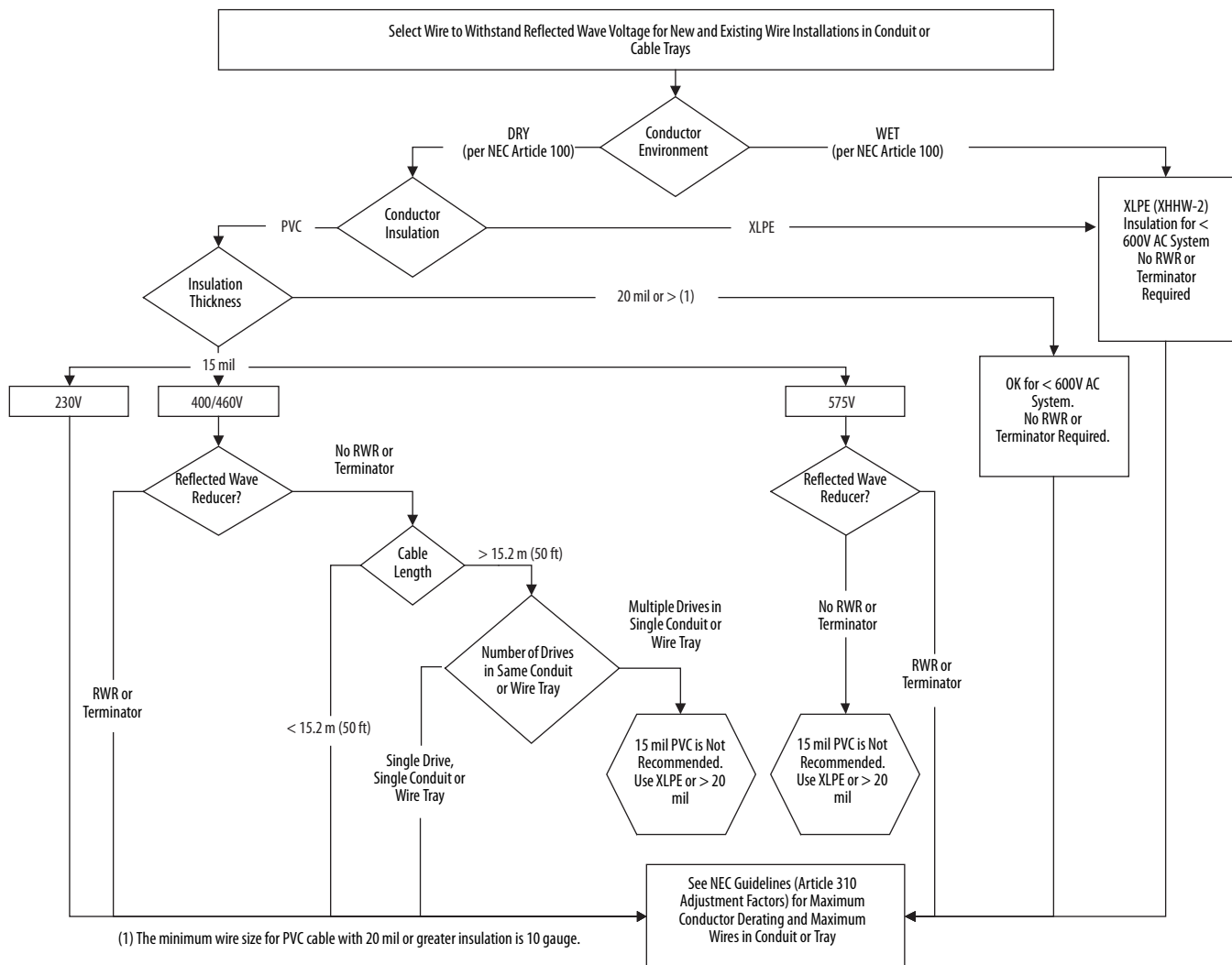
Material

Use only copper wire. The wire clamp-type terminals in Allen-Bradley® drives are made for use with copper wire. If you use aluminum wire, the connections can loosen and cause premature equipment failure.

Wire gauge requirements and recommendations are based on 75 °C (167 °F) rating. Do not reduce wire gauge when you use higher temperature wire.

Exterior Cover

Whether shielded or unshielded, the cable must meet all application requirements. Consider insulation value and resistance to moisture, contaminants, corrosive agents, and other invasive elements. Consult the cable manufacturer and [Figure 1 on page 15](#) for cable selection criteria.

Figure 1 - Wire Selection Flowchart

Temperature Rating

In general, follow these temperature ratings for installations:

- In surrounding air temperature of 50 °C (122 °F), use 90 °C (194 °F) wire (required for UL)
- In surrounding air temperature of 40 °C (104 °F), use 75 °C (167 °F) wire (required for UL)

See the user manual of the drive for other restrictions.

IMPORTANT The temperature rating of the wire affects the required gauge. Verify that your installation meets all applicable national, state, and local codes.

Gauge

Multiple factors determine the correct wire size. The user manual for each drive lists a minimum and maximum wire gauge based on the amperage rating of the drive and the physical limitations of the terminal blocks. Local or National Electrical Codes also set the required minimum gauge based on motor full load current (FLA). Follow both of these requirements.

Number of Conductors

Local or National Electrical Codes can determine the required number of conductors. Generally, these configurations are recommended:

- [Figure 2](#) shows cable with one ground conductor that is recommended for drives up to and including 200 Hp (150 kW).
- [Figure 3](#) shows cable with three ground conductors that is recommended for drives larger than 200 Hp (150 kW).

Space the ground conductors symmetrically around the power conductors. Verify that the ground conductors are rated for full drive ampacity.

Figure 2 - Cable with One Ground Conductor

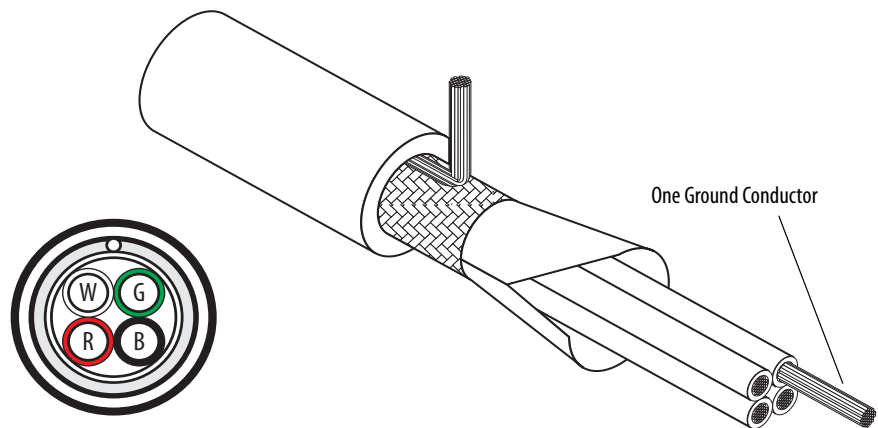
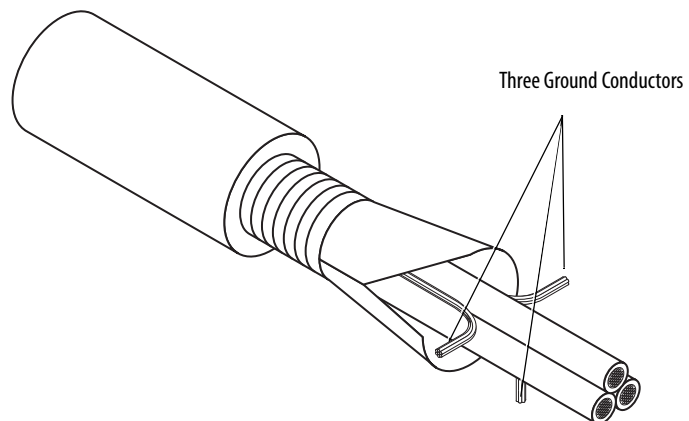


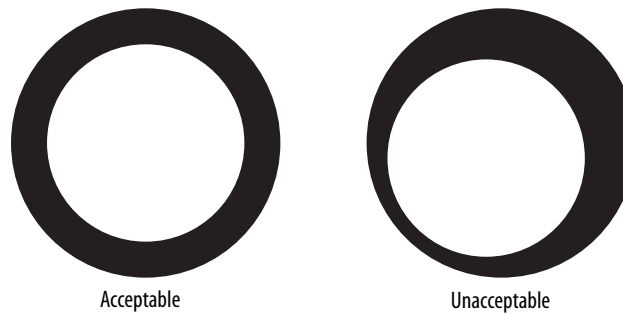
Figure 3 - Cable with Three Ground Conductors



Insulation Thickness and Concentricity

Wire must have an insulation thickness of ≥ 15 mil (0.4 mm/0.015 in.). The wire insulation must not have significant variations of concentricity around the wire.

Figure 4 - Insulation Concentricity



Geometry

The physical relationship between individual conductors is important in drive installations.

Individual conductors in conduit or cable trays have no fixed relationship and are subject to cross coupling of noise, induced voltages, excess insulation stress, and other possible interference.

Fixed geometry cable (cable that keeps the spacing and orientation of the individual conductors constant) offers significant advantages over individual loose conductors, including reduced cross-coupling noise and insulation stress. Three types of fixed geometry, multi-conductor cables are discussed in this section. See [Unshielded Cable on page 18](#), [Shielded Cable on page 19](#), and [Armored Cable on page 20](#).

Table 1 - Recommended Cable Design

Type	Max Wire Size	Where Used	Rating/Type	Description
Type 1	2 AWG	Standard installations 100 Hp or less	600V, 90 °C (194 °F) XHHW2/RHW-2	Four tinned copper conductors with cross-linked polyethylene (XLPE) insulation
Type 2	2 AWG	Standard installations 100 Hp or less with brake conductors	600V, 90 °C (194 °F) RHH/RHW-2	Four tinned copper conductors with XLPE insulation plus one shielded pair of brake conductors.
Type 3	500 MCM AWG	Standard installations 150 Hp or more	Tray-rated 600V, 90 °C (194 °F) RHH/RHW-2	Three tinned copper conductors with XLPE insulation and three bare copper grounds and polyvinyl chloride (PVC) jacket.
Type 4	500 MCM AWG	Water, caustic chemical, crush resistance	Tray-rated 600V, 90 °C (194 °F) RHH/RHW-2	Three bare copper conductors with XLPE insulation and three copper grounds on 10 AWG and smaller. Acceptable in Class I and II, Division I and II locations.
Type 5	500 MCM AWG	690V applications	Tray-rated 2000V, 90 °C (194 °F)	Three tinned copper conductors with XLPE insulation. Three bare copper grounds and PVC jacket. IMPORTANT: If terminator network or output filter is used, connector insulation must be XLPE, not PVC.

Unshielded Cable

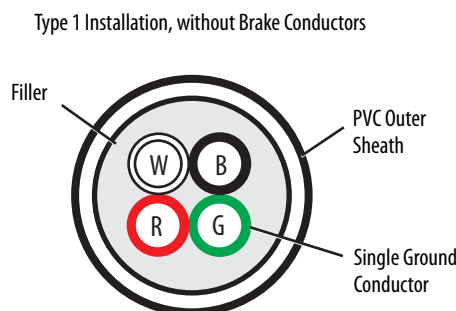
Properly designed multi-conductor cable can provide excellent performance in wet applications, significantly reduce voltage stress on wire insulation, and reduce cross coupling between drives.

Cables without shielding is acceptable for installations where electrical noise that the drive creates does not interfere with the operation of other devices, such as communication cards, photoelectric switches, weigh scales, and others. Verify that the installation does not require shielded cable to meet specific electromagnetic compatibility (EMC) standards for CE, RCM, or FCC requirements. Cable specifications depend on the installation type.

Type 1 and Type 2 Installation

Type 1 or Type 2 installations require 3-phase conductors and a fully rated individual ground conductor with or without brake leads. See [Table 1 on page 17](#) for detailed information and specifications on these installations.

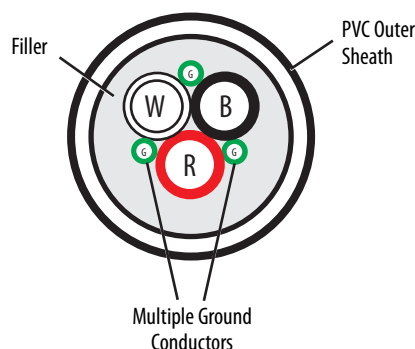
Figure 5 - Type 1 Unshielded Multi-conductor Cable without Brake Leads



Type 3 Installation

Type 3 installation requires three symmetrical ground conductors whose capacity equals the phase conductor. See [Table 1 on page 17](#) for detailed information and specifications on this installation.

Figure 6 - Type 3 Unshielded Multi-conductor Cable



Choose the outer sheathing and other mechanical characteristics to suit the installation environment. Consider the surrounding air temperature, chemical environment, flexibility, and other factors in all installation types.

Shielded Cable

Shielded cable contains the general benefits of multi-conductor cable with the added benefit of a copper-braided shield that can contain much of the noise generated by a typical AC drive. Use shielded cable for installations with sensitive equipment, such as weigh scales, capacitive proximity switches, and other devices affected by electrical noise in the distribution system.

Applications with large numbers of drives in one location, imposed EMC regulations, or a high degree of communication/networking, are also good candidates for shielded cable.

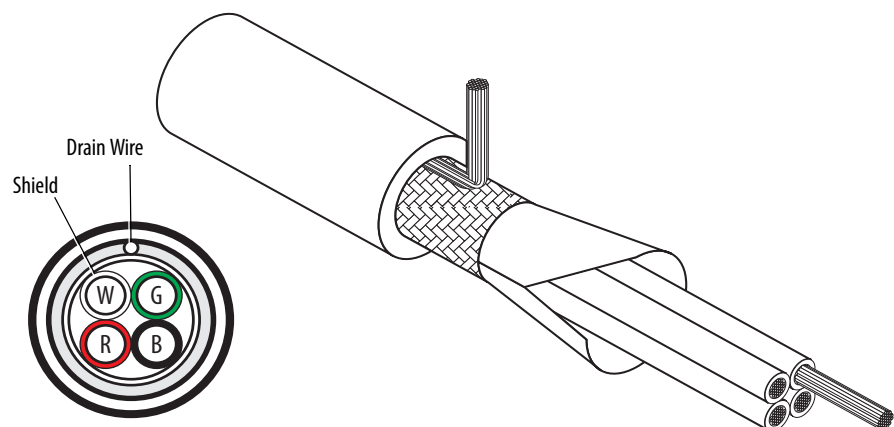
Shielded cable can also help reduce shaft voltage and induced-bearing currents for some applications. Also, the increased size of shielded cable can help extend the distance between the motor and the drive without the addition of motor protective devices, such as terminator networks. See [Chapter 5](#) for information regarding reflected wave phenomena.

Consider the general specifications dictated by the environment of the installation, including temperature, flexibility, moisture characteristics, and chemical resistance. In addition, include a braided shield specified by the cable manufacturer as having coverage of at least 75%. An additional foil shield can greatly improve noise containment.

Type 1 Installation

Shielded cable for Type 1 installations has four XLPE insulated conductors with a 100% coverage foil and an 85% coverage copper braided shield (with drain wire) surrounded by a PVC jacket. For detailed specifications and information on Type 1 installations, see [Table 1 on page 17](#).

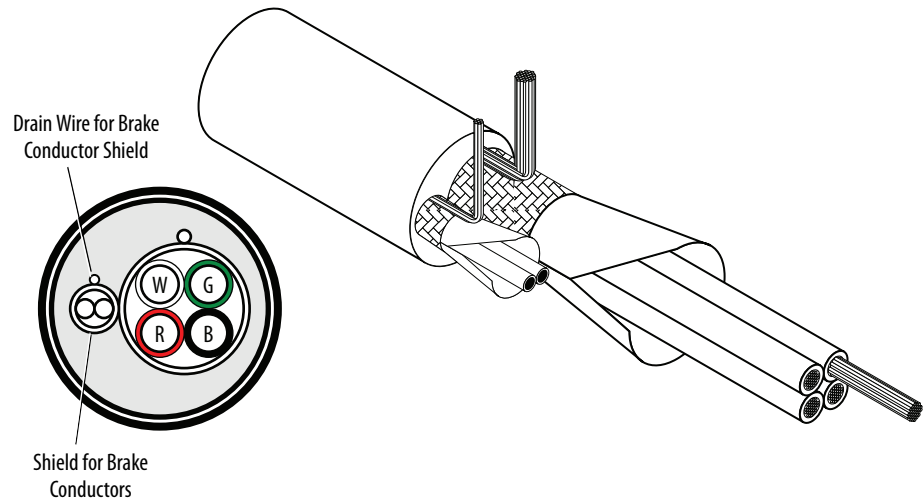
Figure 7 - Type 1 Installation — Shielded Cable with Four Conductors



Type 2 Installation

An acceptable shielded cable for Type 2 installations is essentially the same cable as Type 1, plus one shielded pair of brake conductors. For more information on Type 2 installations, see [Table 1 on page 17](#).

Figure 8 - Type 2 Installation — Shielded Cable with Brake Conductors



Type 3 Installation

These cables have 3 XLPE insulated copper conductors, 25% minimal overlap with helical copper tape, and three bare copper grounds in PVC jacket.

TIP Other types of shielded cable are available, but the selection of these types can limit the allowable cable length. Particularly, some of the newer cables twist four conductors of thermoplastic high heat-resistant nylon-coated (THHN) wire and wrap them tightly with a foil shield. This construction can greatly increase the cable charging current required and reduce the overall drive performance. Unless specified in the individual distance tables as tested with the drive, these cables are not recommended and their performance against the lead length limits supplied is not known. For more information about motor cable lead restrictions, see [Conduit on page 75](#), [Moisture on page 81](#), [Effects On Wire Types on page 83](#), and [Appendix A](#).

Armored Cable

Cable with continuous aluminum armor is often recommended in drive system applications or specific industries. Armored cable offers most of the advantages of standard shielded cable and also combines considerable mechanical strength and resistance to moisture. It can be installed in concealed and exposed manners and removes the requirement for conduit (electrical metallic tubing [EMT]) in the installation. It can also be directly buried or embedded in concrete.

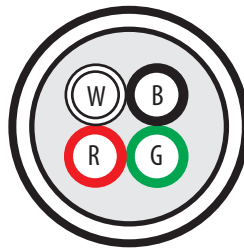
Noise containment is affected by incidental grounding of the armor to building-steel when the cable is mounted. We recommend that the armored cable has an overall PVC jacket (see [Chapter 2](#)).

Interlocked armor is acceptable for shorter cable runs, but continuous welded armor is preferred. General recommendations for ground conductors are listed here:

- Cable with one ground conductor is sufficient for drive sizes up to and including 200 Hp (150 kW).
- Cable with three ground conductors is recommended for drive sizes larger than 200 Hp (150 kW).

Space the ground conductors symmetrically around the power conductors. Verify that the ground conductors are rated for full drive ampacity.

Cable with a Single Ground Conductor



Cable with Three Ground Conductors

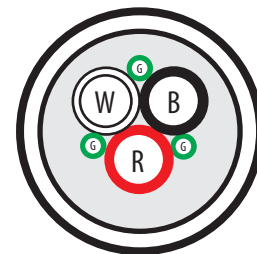
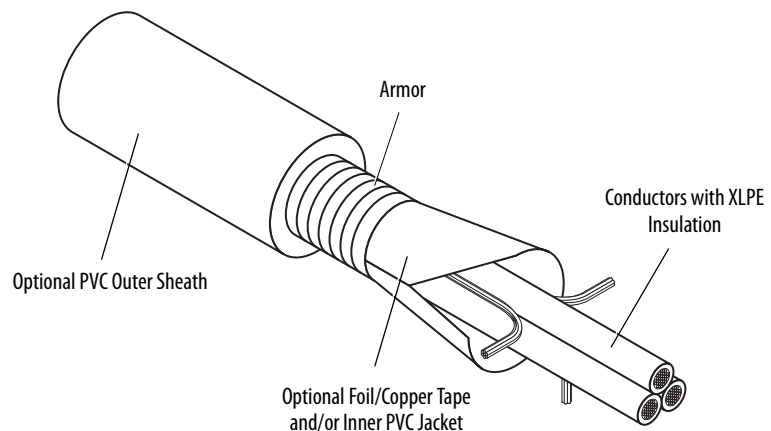


Figure 9 - Armored Cable with Three Ground Conductors



A good example of cable for Type 5 installation is Anixter 7V-5003-3G. This cable has three XLPE insulated copper conductors, 25% minimal overlap with the helical copper tape, and three bare copper grounds in PVC jacket.

IMPORTANT If a terminator network or output filter is used, the connector insulation must be XLPE, and not PVC.

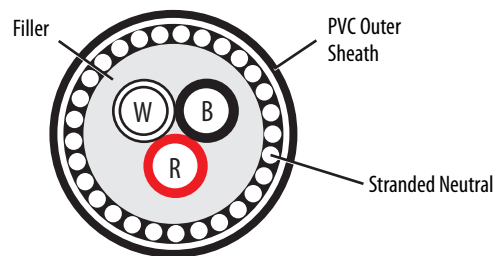
European Style Cable

Cable that is used in many installations in Europe must conform to Low Voltage Directive (LVD) 2006/95/EC. We recommend flexible cables with a bend radius of 20 times the cable diameter for movable cable, and 6 times the cable diameter for fixed installations. Use cables with a screen (shield) of 70...85% coverage. Insulation for both conductors and the outer sheath is PVC.

The number and color of individual conductors can vary, but the recommendation is for three phase conductors (customer-preferred colors) and one ground conductor (green/yellow).

Ölflex Classic 100SY, or Ölflex Classic 110CY, are examples.

Figure 10 - European Style Multi-conductor Cable



Input Power Cables

In general, the selection of cable for AC input power to a drive has no special requirements. Some installations suggest shielded cable to help prevent coupling of noise onto the cable (see [Chapter 2](#)). In some cases, shielded cable can be required to meet noise standards, such as CE for Europe, RCM for Australia/New Zealand, and others. Shielded cable can also be required if an input filter is required to meet a standard. The user manual for the drive has the requirements for meeting these types of standards. Additionally, individual industries can have required standards due to environment or experience.

For AC variable frequency drive applications that must satisfy EMC standards for CE, RCM, FCC, or others, use the same type of shielded cable that is specified for the AC motors between the drive and transformer. Check the individual user manuals or system schematics for specific additional requirements to meet EMC standards.

Motor Cables

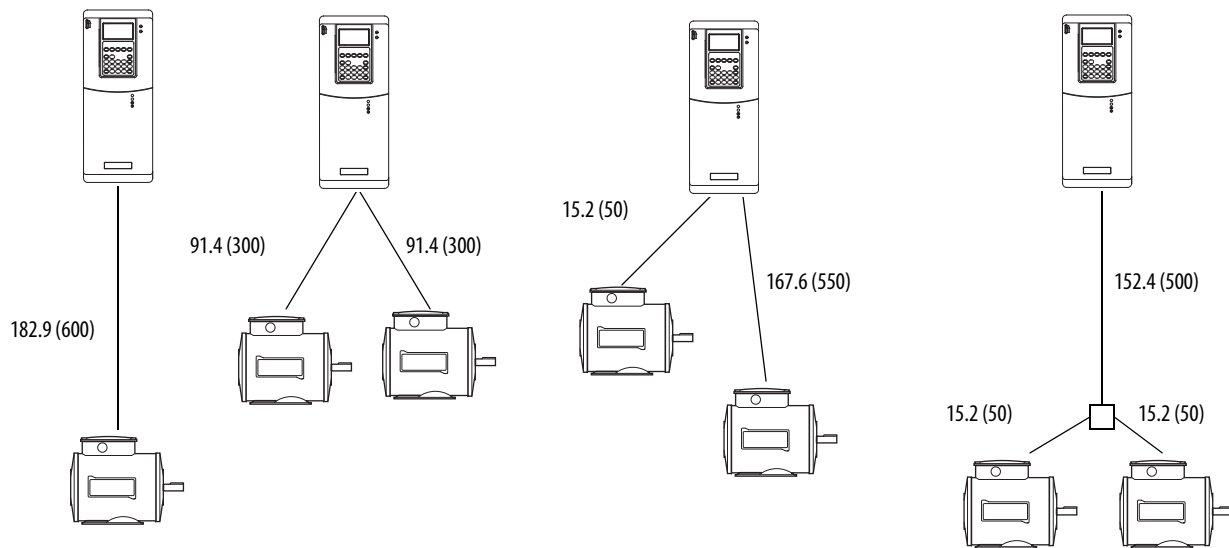
Most recommendations regarding drive cables are for issues caused by the nature of the drive output. A PWM drive creates AC motor current by sending DC voltage pulses to the motor in a specific pattern. These pulses affect the wire insulation and can be a source of electrical noise. Consider the rise time, amplitude, and frequency of these pulses when choosing a wire/cable type. Consider these factors when choosing a cable:

- The effects of the drive output once the cable is installed.
- The need for the cable to contain noise that the drive output causes.
- The amount of cable charging current available from the drive.
- Possible voltage drop (and subsequent loss of torque) for long wire runs.

Keep the motor cable lengths within the limits set in the user manual for the drive. Various issues, including cable charging current and reflected wave voltage stress, can exist. If the cable restriction is listed because of excessive coupling current, apply the methods to calculate total cable length, as shown in [Figure 11](#). If the restriction is due to voltage reflection and motor protection, see [Appendix A](#) for exact distances allowed.

Figure 11 - Motor Cable Length for Capacitive Coupling

All examples represent motor cable length of 182.9 m (600 ft)



IMPORTANT For multi-motor applications, review the installation carefully. Consult your distributor drive specialist or Rockwell Automation® when considering a multi-motor application with greater than two motors. In general, most installations have no issues. However, high-peak cable charging currents can cause drive overcurrents or ground faults.

Cable for Discrete Drive I/O

Digital I/O, such as start and stop commands, can be wired to the drive with various cabling. We recommend shielded cable to reduce cross-coupled noise from power cables. Standard individual conductors that meet the general requirements for type, temperature, gauge, and applicable codes are acceptable if they are routed away from higher voltage cables to minimize noise coupling. However, multi-conductor cable can be less expensive to install. Separate control wires from power wires by at least 0.3 m (1 ft)

Table 2 - Recommended Control Wire for Digital I/O

Type ⁽¹⁾	Wire Types	Description	Minimum Insulation Rating
Unshielded	Per US NEC or applicable national or local code	—	300V 60 °C (140 °F)
Shielded	Multi-conductor shielded cable	0.750 mm ² (18 AWG), 3-conductor, shielded.	

(1) The cable choices that are shown are for 2-channel (A and B) or 3-channel (A, B, and Z) encoders. If high resolution or other types of feedback devices are used, choose a similar cable with the correct gauge and number of conductor pairs.

Analog Signal and Encoder Cable

Always use shielded cable with copper wire. We recommend wire with an insulation rating of 300V or greater. Separate analog signal wires from power wires by at least 0.3 m (1 ft). Run encoder cables in a separate conduit. If signal cables must cross power cables, cross at right angles. Terminate the shield of the shielded cable as recommended by the manufacturer of the encoder or analog signal device.

Table 3 - Recommended Signal Wire

Signal Type/ Where Used	Wire Types	Description	Minimum Insulation Rating
Standard analog I/O	—	0.750 mm ² (18 AWG), twisted pair, 100% shield with drain ⁽¹⁾	300V, 75...90 °C (167...194 °F)
Remote pot	—	0.750 mm ² (18 AWG), 3-conductor, shielded	
Encoder/Pulse I/O < 30.5 m (100 ft)	Combined	0.196 mm ² (24 AWG), individually shielded	
Encoder/Pulse I/O 30.5...152.4 m (100...500 ft)	Signal	0.196 mm ² (24 AWG), individually shielded	
	Power	0.750 mm ² (18 AWG)	
	Combined	0.330 mm ² or 0.500 mm ²	
Encoder/Pulse I/O 152.4...259.1 m (500...850 ft)	Signal	0.196 mm ² (24 AWG), individually shielded	
	Power	0.750 mm ² (18 AWG)	
	Combined	0.750 mm ² (18 AWG), individually shielded pair	

(1) If the wires are short and contained within a cabinet that has no sensitive circuits, the use of shielded wire is not always necessary, but is recommended.

Communication

This section provides cable recommendations for these communication protocols:

- [DeviceNet Communication on page 25](#)
- [ControlNet Communication on page 26](#)
- [Ethernet Communication on page 26](#)
- [Remote I/O and Data Highway Plus \(DH+\) Communication on page 27](#)
- [Serial \(RS-232 and RS-485\) Communication on page 27](#)

DeviceNet Communication

DeviceNet cable options, topology, distances that are allowed, and techniques are specific to the DeviceNet network. For more information, see DeviceNet Media Design and Installation Guide, publication [DNET-UM072](#).

In general, the four cable types for DeviceNet media meet these criteria:

- Round (thick) cable with an outside diameter of 12.2 mm (0.48 in.); normally used for trunk lines, but can also be used for drop lines.
- Round (thin) cable with an outside diameter of 6.9 mm (0.27 in.); normally used for drop lines, but can also be used for trunk lines.
- Flat cable, normally used for trunk lines.
- KwikLink™ drop cable, used only in KwikLink systems.

Round cable contains these five wires:

- One twisted pair (red and black) for 24V DC power.
- One twisted pair (blue and white) for signal.
- One drain wire (bare).

Flat cable contains these four wires:

- One pair (red and black) for 24V DC power.
- One pair (blue and white) for signal.

Drop cable for KwikLink is a 4-wire, unshielded, gray cable.

The distance between points, installation of terminating resistors, and chosen communication rate are significant to the installation. For more information, see the DeviceNet Media Design and Installation Guide, publication [DNET-UM072](#).

ControlNet Communication

ControlNet cable options, topology, distances that are allowed, and techniques are specific to the ControlNet network. For more information, see the ControlNet Coax Media Planning and Installation Guide, publication [CNET-IN002](#).

Depending on the environment at the installation site, there are several types of RG-6 quad shield cables that can be appropriate. The standard cable that is recommended is Allen-Bradley catalog number 1786-RG6, Quad Shield coax. Country, state, or local codes, such as the U.S. NEC, govern the installation.

Installation Environment	Use This Cable Type
Light industrial	<ul style="list-style-type: none"> Standard PVC CM-CL2
Heavy industrial	<ul style="list-style-type: none"> Lay-on armored Light interlocking armor
High/Low temperature or corrosive (harsh chemicals)	<ul style="list-style-type: none"> Plenum-FEP CMP-CL2P
Festooning or flexing	<ul style="list-style-type: none"> High flex
Moisture: direct burial, with flood compound, fungus resistant	<ul style="list-style-type: none"> Flood burial

The allowable length of segments and installation of terminating resistors play a significant part in the installation. See the ControlNet Coax Media Planning and Installation Guide, publication [CNET-IN002](#), for details.

Ethernet Communication

Ethernet communication interface wiring is detailed for the type of cable, connectors, and routing. In general, Ethernet systems use shielded twisted pair (STP) cable, or unshielded twisted pair (UTP) cable, with RJ45 connectors that meet the IP67 standard and are appropriate for the environment. Use cables that meet Telecommunications Industry Association/Electronic Industries Alliance (TIA/EIA) standards at industrial temperatures.

Shielded cable is recommended when the installation includes items such as these:

- Welding
- Electrostatic processes
- Drives over 10 Hp
- Motor control centers (MCCs)
- High-power RF radiation
- Devices that carry current in excess of 100 A

Shield handling and single-point grounding, also discussed in this document, are also important for the proper operation of Ethernet installations.

There are also important distance and routing limitations published in detail.

Remote I/O and Data Highway Plus (DH+) Communication

IMPORTANT Only A-B® catalog number 1770-CD shielded twin-axial cabling is tested and approved for remote I/O and Data Highway Plus™ (DH+™) installations.

The maximum cable length depends on the communication rate.

Communication Rate	Maximum Cable Length
57.6 Kbps	3048 m (10,000 ft)
115.2 Kbps	1524 m (5000 ft)
230.4 Kbps	762 m (2500 ft)

All three connections (blue, shield, and clear) must be connected at each node.

IMPORTANT Do not connect in a star topology. Only two cables can be connected at any wiring point. Use either series or daisy chain topology at all points.

Serial (RS-232 and RS-485) Communication

Follow these recommended standard practices for serial communication wiring:

- One twisted pair and one signal common for RS-232.
- Two twisted pair, with each pair individually shielded, for RS-485.

Notes:

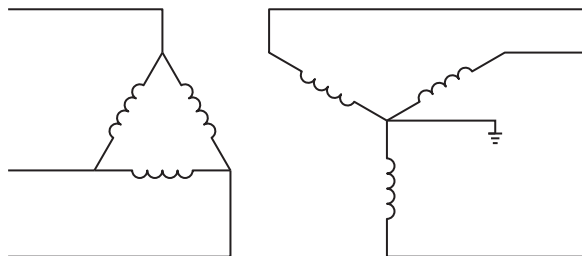
Power Distribution

This chapter discusses different power distribution schemes and factors that can affect drive performance.

System Configurations

The type of transformer and the connection configuration that supplies the drive have an important role in drive performance and safety. This section includes a brief description of some of the more common configurations and their qualities and shortcomings.

Delta/Wye with Grounded Wye Neutral

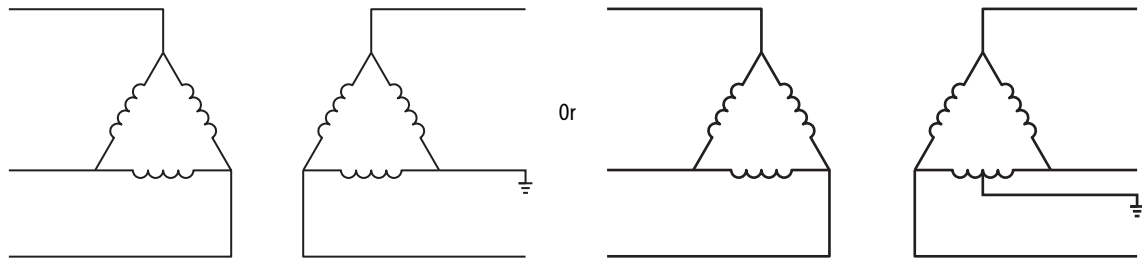


Delta/wye with grounded wye neutral is the most common type of distribution system. It provides a 30° phase shift. The grounded neutral provides a direct path for common mode current that the drive output causes (see [Chapter 3](#) and [Chapter 6](#)).

Rockwell Automation recommends the use of grounded neutral systems for these reasons:

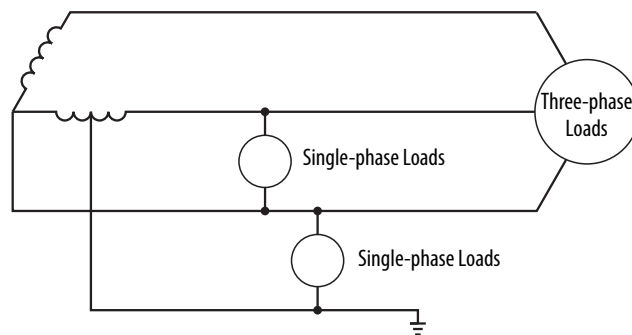
- Controlled path for common mode noise current
- Consistent line-to-ground voltage reference that minimizes insulation stress
- Accommodation for system surge protection schemes

Delta/Delta with Grounded Leg, or Four-wire Connected Secondary Delta



Delta/delta with grounded leg or four-wire connected secondary delta is a common configuration with no phase shift between input and output. The grounded center tap provides a direct path for common mode current caused by the drive output.

Three-phase Open Delta with Single-phase Center Tapped

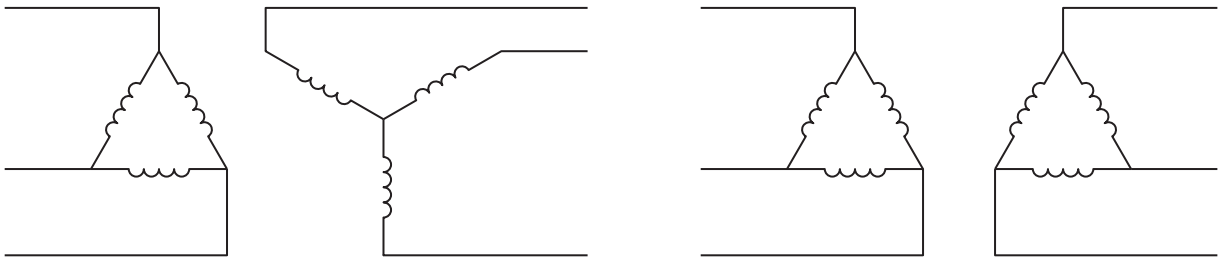


Three-phase open delta with single-phase center tapped is a configuration providing a Three-phase delta transformer with one side tapped. This tap (the neutral) is connected to earth. The configuration is called the antiphase grounded (neutral) system.

The open delta transformer connection is limited to 58% of the 240V, single-phase transformer rating. Close the delta with a third single-phase, 240V transformer to provide full rating for the two single-phase, 240V transformers.

The phase leg opposite the midpoint has an elevated voltage when compared to earth or neutral. The hottest high leg must be positively identified throughout the electrical system. Make the hottest high leg the center leg in any switch, motor control, three-phase panel board, and so on. The NEC requires orange color tape to identify this leg.

Ungrounded Secondary

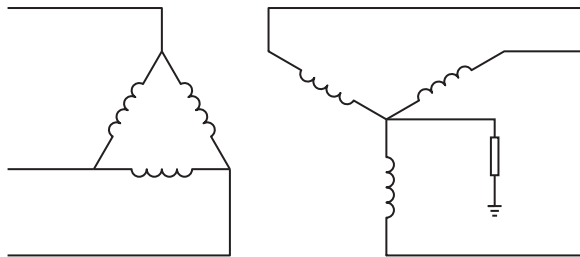


ATTENTION: Grounding the transformer secondary is essential to the safety of personnel and safe operation of the drive. Leaving the secondary floating causes dangerous high voltages between the chassis of the drive and the internal power structure components. Exceeding the voltage rating of the input metal oxide varistor (MOV) protection devices of the drive can cause a catastrophic failure. In all cases, the input power to the drive is referenced to ground.

If the system is ungrounded, other general precautions, such as a system-level ground-fault detector, or system-level line-to-ground suppressor, can be necessary. Or consider an isolation transformer with the secondary of the transformer grounded.

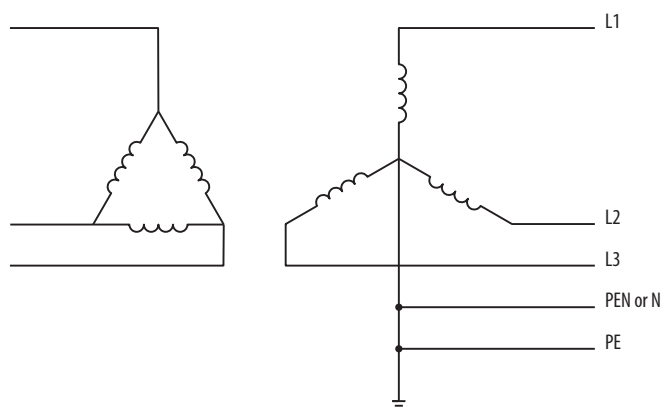
See local codes regarding safety requirements. Also see [Surge Protection MOVs and Common Mode Capacitors on page 51](#).

High-Resistance Ground



Grounding the wye secondary neutral through a resistor is an acceptable method of grounding. Under a short circuit secondary condition, any of the output phases to ground do not exceed the normal line-to-line voltage. This voltage is within the rating of the MOV input protection devices on the drive. The resistor is often used to detect ground current by monitoring the associated voltage drop. Because high frequency ground current can flow through this resistor, be sure to connect the drive motor leads by using the recommended cables and methods. In some cases, multiple drives (that can have one or more internal references to ground) on one transformer can produce a cumulative ground current that can trigger the ground fault interrupt circuit. See [Surge Protection MOVs and Common Mode Capacitors on page 51](#).

TN-S Five-wire System



TN-S five-wire distribution systems are common throughout Europe, except for the United Kingdom and Germany. Leg-to-leg voltage (commonly at 400V) powers three-phase loads. Leg-to-neutral voltage (commonly at 230V) powers single-phase loads. Neutral is a current conducting wire, and connects through a circuit breaker. The fifth wire is a separate ground wire. There is one connection between ground and neutral, typically in the distribution system. Do not make connections between ground and neutral within the system cabinets.

AC Line Voltage

In general, all Allen-Bradley® drives are tolerant to a wide range of AC line voltage. Check the individual specifications for the drives you are installing.

Incoming voltage imbalances >2% can cause large unequal currents in a drive. Use an input line reactor when line voltage imbalances are >2%.

AC Line Impedance

To help prevent excess current that can damage drives during events such as line disturbances or certain types of ground faults, provide a minimum amount of impedance in front of the drives. In many installations, this impedance comes from the supply transformer and the supply cables. In some cases, an additional transformer or reactor is recommended. If any of these conditions exist, you can add impedance (line reactor or transformer) in front of the drive:

- Installation site has switched power factor correction capacitors.
- Installation site has lightning strikes or voltage spikes in excess of 6000V peak.
- Installation site has power interruptions or voltage dips in excess of 200V AC.
- The transformer is too large in comparison to the drive. See impedance recommendations on [Table 4 on page 34](#) through [Table 11 on page 41](#).

IMPORTANT Tables [4](#) through [11](#) define the largest transformer size for each product and rating that is based on specific differences in construction, and is the preferred method to follow.

Otherwise, use one of the following more conservative methods:

- For drives **without** built-in inductors – add line impedance whenever the transformer kVA is more than 10 times larger than the drive kVA, or the percent source impedance relative to each drive is less than 0.5%.
- For drives **with** built-in inductors – add line impedance whenever the transformer kVA is more than 20 times larger than the drive kVA, or the percent source impedance relative to each drive is less than 0.25%.

To identify drives with built-in inductors, see the product-specific information in [Table 4 on page 34](#) through [Table 11 on page 41](#). The shaded rows identify products ratings without built-in inductors.

Use these equations to calculate the impedance of the drive and transformer:

Drive Impedance (in ohms)

$$Z_{\text{drive}} = \frac{V_{\text{line-line}}}{\sqrt{3} * I_{\text{input-rating}}}$$

Transformer Impedance (in ohms)

$$Z_{\text{xfrmr}} = \frac{V_{\text{line-line}}}{\sqrt{3} * I_{\text{xfrmr-rated}}} * \% \text{ Impedance}$$

Or

$$Z_{\text{xfrmr}} = \frac{(V_{\text{line-line}})^2}{\text{VA}} * \% \text{ Impedance}$$

% impedance is the nameplate impedance of the transformer.
Typical values range from 0.03 (3%) to 0.06 (6%).

Transformer Impedance (in ohms)

$$Z_{\text{xfrmr}} = \frac{V_{\text{line-line}}}{\sqrt{3} * I_{\text{xfrmr-rated}}} * \% \text{ Impedance}$$

% impedance is the nameplate impedance of the transformer.
Typical values range from 0.03 (3%) to 0.06 (6%).

EXAMPLE The drive is rated 1 Hp, 480V, 2.7 A input.
The supply transformer is rated 50,000VA (50 kVA), 5% impedance.

$$Z_{\text{drive}} = \frac{V_{\text{line-line}}}{\sqrt{3} * I_{\text{input-rating}}} = \frac{480V}{\sqrt{3} * 2.7} = 102.6 \text{ Ohms}$$

$$Z_{\text{xfmr}} = \frac{(V_{\text{line-line}})^2}{\text{VA}} * \% \text{ Impedance} = \frac{480^2}{50,000} * 0.05 = 0.2304 \text{ Ohms}$$

The percent (%) impedance has to be in per unit (5% becomes 0.05) for the formula.

$$\frac{Z_{\text{xfmr}}}{Z_{\text{drive}}} = \frac{0.2304}{102.6} = 0.00224 = 0.22\%$$

0.22% is less than 0.5%. Therefore, this transformer is too large for the drive. Consider adding a line reactor.

IMPORTANT You can group multiple drives on one reactor. However, the reactor percent impedance must be large enough when evaluated for each drive separately, not evaluated for all loads connected at once.

These recommendations are advisory and do not address all situations. Site-specific conditions must be considered to assure a quality installation.

Table 4 - AC Line Impedance Recommendations for Bulletin 160 Drives

Bulletin Number	Drive Catalog Number ⁽¹⁾	Volts	kW (Hp)	Max Supply kVA ⁽²⁾	3% Line Reactor Open Style 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps)
160	-AA02	240	0.37(0.5)	15	3R4-B	6.5	4
	-AA03	240	0.55 (0.75)	20	3R4-A	3	4
	-AA04	240	0.75 (1)	30	3R4-A	3	4
	-AA08	240	1.5 (2)	50	3R8-A	1.5	8
	-AA12	240	2.2 (3)	75	3R12-A	1.25	12
	-AA18	240	3.7 (5)	100	3R18-A	0.8	18
	-BA01	480	0.37(0.5)	15	3R2-B	20	2
	-BA02	480	0.55 (0.75)	20	3R2-A	12	2
	-BA03	480	0.75 (1)	30	3R2-A	12	2
	-BA04	480	1.5 (2)	50	3R4-B	6.5	4
	-BA06	480	2.2 (3)	75	3R8-B	3	8
	-BA10	480	3.7 (5)	100	3R18-B	1.5	18

(1) Shaded rows identify drive ratings without built-in inductors.

(2) Maximum suggested kVA supply without consideration for additional inductance.

Table 5 - AC Line Impedance Recommendations for Bulletin 1305 Drives

Bulletin Number	Drive Catalog Number ⁽¹⁾	Volts	kW (Hp)	Max Supply kVA ⁽²⁾	3% Line Reactor Open Style 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps)
1305	-AA02A	240	0.37(0.5)	15	3R4-A	3	4
	-AA03A	240	0.55 (0.75)	20	3R4-A	4	4
	-AA04A	240	0.75 (1)	30	3R8-A	1.5	8
	-AA08A	240	1.5 (2)	50	3R8-A	1.5	8
	-AA12A	240	2.2 (3)	75	3R18-A	0.8	18
	-BA01A	480	0.37 (0.5)	15	3R2-B	20	2
	-BA02A	480	0.55 (0.75)	20	3R2-B	20	2
	-BA03A	480	0.75 (1)	30	3R4-B	6.5	4
	-BA04A	480	1.5 (2)	50	3R4-B	6.5	4
	-BA06A	480	2.2 (3)	75	3R8-B	3	8
	-BA09A	480	3.7 (5)	100	3R18-B	1.5	18

(1) Shaded rows identify drive ratings without built-in inductors.

(2) Maximum suggested kVA supply without consideration for additional inductance.

Table 6 - AC Line Impedance Recommendations for PowerFlex® 4 Drives

Drive	Drive Catalog Number ⁽¹⁾	Volts	kW (Hp)	Max Supply kVA	3% Line Reactor Open Style 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps)
PowerFlex® 4	22AB1P5	240	0.2 (0.25)	15	3R2-A	12	2
	22AB2P3	240	0.4 (0.5)	25	3R4-B	6.5	4
	22AB4P5	240	0.75 (1.0)	50	3R8-B	3	8
	22AB8P0	240	1.5 (2.0)	100	3R8-A	1.5	8
	22AB012	240	2.2 (3.0)	125	3R12-A	1.25	12
	22AB017	240	3.7 (5.0)	150	3R18-A	0.8	18
	22AD1P4	480	0.4 (0.5)	15	3R2-B	20	2
	22AD2P3	480	0.75 (1.0)	30	3R4-C	9	4
	22AD4P0	480	1.5 (2.0)	50	3R4-B	6.5	4
	22AD6P0	480	2.2 (3.0)	75	3R8-C	5	8
	22AD8P7	480	3.7 (5.0)	100	3R8-B	3	8

(1) Shaded rows identify drive ratings without built-in inductors.

Table 7 - AC Line Impedance Recommendations for PowerFlex 40 Drives

Drive	Drive Catalog Number ⁽¹⁾	Volts	kW (Hp)	Max Supply kVA ⁽²⁾	3% Line Reactor Open Style 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps)
PowerFlex 40	22BB2P3	240	0.4 (0.5)	25	3R4-B	6.5	4
	22BB5P0	240	0.75 (1.0)	50	3R8-B	3	8
	22BB8P0	240	1.5 (2.0)	50	3R8-A	1.5	8
	22BB012	240	2.2 (3.0)	50	3R12-A	1.25	12
	22BB017	240	3.7 (5.0)	50	3R18-A	0.8	18
	22BB024	240	5.5 (7.5)	100	3R25-A	0.5	25
	22BB033	240	7.5 (10.0)	150	3R35-A	0.4	35
	22BD1P4	480	0.4 (0.5)	15	3R2-B	20	2
	22BD2P3	480	0.75 (1.0)	30	3R4-C	9	4
	22BD4P0	480	1.5 (2.0)	50	3R4-B	6.5	4
	22BD6P0	480	2.2 (3.0)	75	3R8-C	5	8
	22BD010	480	3.7 (5.0)	100	3R8-B	3	8
	22BD012	480	5.5 (7.5)	120	3R12-B	2.5	12
	22BD017	480	7.5 (10.0)	150	3R18-B	1.5	18
	22BD024	480	11.0 (15.0)	200	3R25-B	1.2	25
	22BE1P7	600	0.75 (1.0)	20	3R2-B	20	2
	22BE3P0	600	1.5 (2.0)	30	3R4-B	6.5	4
	22BE4P2	600	2.2 (3.0)	50	3R4-B	6.5	4
	22BE6P6	600	3.7 (5.0)	75	3R8-C	5	8
	22BE9P9	600	5.5 (7.5)	120	3R12-B	2.5	12
	22BE012	600	7.5 (10.0)	150	3R12-B	2.5	12
	22BE019	600	11.0 (15.0)	200	3R18-B	1.5	18

(1) Shaded rows identify drive ratings without built-in inductors.

(2) Maximum suggested kVA supply without consideration for additional inductance.

Table 8 - AC Line Impedance Recommendations for PowerFlex 400 Drives

Drive	Drive Catalog Number ⁽¹⁾	Volts	kW (Hp)	Max Supply kVA ⁽²⁾	3% Line Reactor Open Style 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps)
PowerFlex 400	22CB012	240	2.2 (3.0)	50	3R12-A	N/A	N/A
	22CB017	240	3.7 (5.0)	50	3R18-A	N/A	N/A
	22CB024	240	5.5 (7.5)	200	3R25-A	0.5	25
	22CB033	240	7.7 (10.0)	275	3R35-A	0.4	35
	22CB049	240	11 (15.0)	350	3R45-A	0.3	45
	22CB065	240	15 (20.0)	425	3R55-A	0.25	55
	22CB075	240	18.5 (25.0)	550	3R80-A	0.2	80
	22CB090	240	22 (30.0)	600	3R100-A	0.15	100
	22CB120	240	30 (40.0)	750	3R130-A	0.1	130
	22CB145	240	37 (50.0)	800	3R160-A	0.075	160
	22CD6P0	480	2.2 (3.0)	N/A	N/A	N/A	N/A
	22CD010	480	3.7 (5.0)	N/A	N/A	N/A	N/A
	22CD012	480	5.5 (7.5)	N/A	N/A	N/A	N/A
	22CD017	480	7.5 (10)	N/A	N/A	N/A	N/A
	22CD022	480	11 (15)	N/A	N/A	N/A	N/A
	22CD030	480	15 (20)	N/A	N/A	N/A	N/A
	22CD038	480	18.5 (25)	N/A	N/A	N/A	N/A
	22CD045	480	22 (30)	N/A	N/A	N/A	N/A
	22CD060	480	30 (40)	N/A	N/A	N/A	N/A
	22CD072	480	37 (50)	N/A	N/A	N/A	N/A
	22CD088	480	45 (60)	N/A	N/A	N/A	N/A
	22CD105	480	55 (75)	N/A	N/A	N/A	N/A
	22CD142	480	75 (100)	N/A	N/A	N/A	N/A
	22CD170	480	90 (125)	N/A	N/A	N/A	N/A
	22CD208	480	110 (150)	N/A	N/A	N/A	N/A

(1) Shaded rows identify drive ratings without built-in inductors.

(2) Maximum suggested kVA supply without consideration for additional inductance.

Table 9 - AC Line Impedance Recommendations for PowerFlex 520-Series Drives

Drive	Drive Catalog Number ⁽¹⁾	Volts	kW (Hp)	Max Supply kVA ⁽²⁾	3% Line Reactor Open Style 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps)
PowerFlex 520-Series	25BB2P5	240	0.4 (0.5)	25	3R4-B	6.5	4
	25BB5P0	240	0.75 (1.0)	50	3R8-B	3	8
	25BB8P0	240	1.5 (2.0)	50	3R8-A	1.5	8
	25BB012	240	2.2 (3.0)	50	3R12-A	1.25	12
	25BB017	240	3.7 (5.0)	50	3R18-A	0.8	18
	25BB024	240	5.5 (7.5)	100	3R25-A	0.5	25
	25BB032	240	7.5 (10.0)	150	3R35-A	0.4	35
	25BB048	240	11.0 (15.0)	150	3R55-B	0.5	55
	25BB062	240	7.5 (10.0)	150	3R80-B	0.4	80
	25BD1P4	480	0.4 (0.5)	15	3R2-B	20	2
	25BD2P3	480	0.75 (1.0)	30	3R4-C	9	4
	25BD4P0	480	1.5 (2.0)	50	3R4-B	6.5	4
	25BD6P0	480	2.2 (3.0)	75	3R8-C	5	8
	25BD010	480	3.7 (5.0)	100	3R8-B	3	8
	25BD013	480	5.5 (7.5)	120	3R12-B	2.5	12
	25BD017	480	7.5 (10.0)	150	3R18-B	1.5	18
	25BD024	480	11.0 (15.0)	200	3R25-B	1.2	25
	25BD030	480	15.0 (20.0)	200	3R35-B	0.8	35
	25BD037	480	18.5 (25.0)	500	3R45-B	0.7	45
	25BD043	480	22 (30.0)	500	3R45-B	0.7	45
	25BE0P9	600	0.40(0.5)	20	3R2-B	20	2
	25BE1P7	600	0.75 (1.0)	20	3R2-B	20	2
	25BE3P0	600	1.5 (2.0)	30	3R4-B	6.5	4
	25BE4P2	600	2.2 (3.0)	50	3R4-B	6.5	4
	25BE6P6	600	3.7 (5.0)	75	3R8-C	5	8
	25BE9P9	600	5.5 (7.5)	120	3R12-B	2.5	12
	25BE012	600	7.5 (10.0)	150	3R12-B	2.5	12
	25BE019	600	11.0 (15.0)	200	3R18-B	1.5	18
	25BE022	600	15.0 (20.0)	200	3R25-B	1.2	25
	25BE027	600	18.5 (25.0)	500	3R35-B	0.8	35
	25BE032	600	22 (30.0)	500	3R35-B	0.8	35

(1) Shaded rows identify drive ratings without built-in inductors.

(2) Maximum suggested kVA supply without consideration for additional inductance.

Table 10 - AC Line Impedance Recommendations for PowerFlex 70 Drives

Drive	Drive Catalog Number ⁽¹⁾	Volts	kW (Hp)	Max Supply kVA ⁽²⁾	3% Line Reactor Open Style 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps) ⁽³⁾
PowerFlex 70	20AB2P2	240	0.37 (0.5)	25	3R2-D	6	2
	20AB4P2	240	0.75 (1)	50	3R4-A	3	4
	20AB6P8	240	1.5 (2)	50	3R8-A	1.5	8
	20AB9P6	240	2.2 (3)	50	3R12-A	1.25	12
	20AB015	240	4.0 (5)	200	3R18-A	0.8	18
	20AB022	240	5.5 (7.5)	250	3R25-A	0.5	25
	20AB028	240	7.5 (10)	300	3R35-A	0.4	35
	20AB042	240	11 (15)	1000	3R45-A	0.3	45
	20AB054	240	15 (20)	1000	3R80-A	0.2	80
	20AB070	240	18.5 (25)	1000	3R80-A	0.2	80
	20AC1P3	400	0.37 (0.5)	30	3R2-B	20	2
	20AC2P1	400	0.75 (1)	50	3R2-B	20	2
	20AC3P4	400	1.5 (2)	50	3R4-B	6.5	4
	20AC5P0	400	2.2 (3)	75	3R4-B	6.5	4
	20AC8P0	400	4.0 (5)	100	3R8-B	3	8
	20AC011	400	5.5 (7.5)	250	3R12-B	2.5	12
	20AC015	400	7.5 (10)	250	3R18-B	1.5	18
	20AC022	400	11 (15)	300	3R25-B	1.2	25
	20AC030	400	15 (20)	400	3R35-B	0.8	35
	20AC037	400	18.5 (25)	750	3R35-B	0.8	35
	20AC043	400	22 (30)	1000	3R45-B	0.7	45
	20AC060	400	30 (40)	1000	3R55-B	0.5	55
	20AC072	400	37 (50)	1000	3R80-B	0.4	80
	20AD1P1	480	0.37 (0.5)	30	3R2-B	20	2
	20AD2P1	480	0.75 (1)	50	3R2-B	20	2
	20AD3P4	480	1.5 (2)	50	3R4-B	6.5	4
	20AD5P0	480	2.2 (3)	75	3R4-B	6.5	4
	20AD8P0	480	3.7 (5)	100	3R8-B	3	8
	20AD011	480	5.5 (7.5)	250	3R12-B	2.5	12
	20AD015	480	7.5 (10)	250	3R18-B	1.5	18
	20AD022	480	11 (15)	300	3R25-B	1.2	25
	20AD027	480	15 (20)	400	3R35-B	0.8	35
	20AD034	480	18.5 (25)	750	3R35-B	N/A	N/A
	20AD040	480	22 (30)	1000	3R45-B	N/A	N/A
	20AD052	480	30 (40)	1000	3R55-B	N/A	N/A
	20AD065	480	37 (50)	1000	3R80-B	N/A	N/A
	20AE0P9	600	0.37 (0.5)	30	3R2-B	20	2
	20AE1P7	600	0.75 (1)	50	3R2-B	20	2

Table 10 - AC Line Impedance Recommendations for PowerFlex 70 Drives (continued)

Drive	Drive Catalog Number ⁽¹⁾	Volts	kW (Hp)	Max Supply kVA ⁽²⁾	3% Line Reactor Open Style 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps) ⁽³⁾
PowerFlex 70	20AE2P7	600	1.5 (2)	50	3R4-C	9	4
	20AE3P9	600	2.2 (3)	75	3R4-C	9	4
	20AE6P1	600	4.0 (5)	100	3R8-C	5	8
	20AE9P0	600	5.5 (7.5)	250	3R8-B	3	8
	20AE011	600	7.5 (10)	250	3R12-B	2.5	12
	20AE017	600	11 (15)	300	3R18-B	1.5	18
	20AE022	600	15 (20)	400	3R25-B	1.2	25
	20AE027	600	18.5 (25)	1000	3R35-B	0.8	35
	20AE031	600	22 (30)	1000	3R35-B	0.8	35
	20AE042	600	30 (40)	1000	3R45-B	0.7	45
	20AE051	600	37 (50)	1000	3R55-B	0.5	55

(1) Shaded rows identify drive ratings without built-in inductors.

(2) Maximum suggested kVA supply without consideration for additional inductance.

(3) N/A = not available at time of printing.

Table 11 - AC Line Impedance Recommendations for PowerFlex 700/700S Drives

Drive	Drive Catalog Number	Volts	kW (Hp)	Max Supply kVA ⁽¹⁾	3% Line Reactor Open Style 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps)
PowerFlex 700/700S For PowerFlex 700S, replace 20B with 20D.	20BB2P2	240	0.37 (0.5)	100	3R2-D	6	2
	20BB4P2	240	0.75 (1)	125	3R4-A	3	4
	20BB6P8	240	1.5 (2)	200	3R8-A	1.5	8
	20BB9P6	240	2.2 (3)	300	3R12-A	1.25	12
	20BB015	240	3.7 (5)	400	3R18-A	0.8	18
	20BB022	240	5.5 (7.5)	500	3R25-A	0.5	25
	20BB028	240	7.5 (10)	750	3R35-A	0.4	35
	20BB042	240	11 (15)	1000	3R45-A	0.3	45
	20BB052	240	15 (20)	1000	3R80-A	0.2	80
	20BB070	240	18.5 (25)	1000	3R80-A	0.2	80
	20BB080	240	22 (30)	1000	3R100-A	0.15	100
	20BB104	240	30 (40)	1000	3R130-A	0.1	130
	20BB130	240	37 (50)	1000	3R130-A	0.1	130
	20BB154	240	45 (60)	1000	3R160-A	0.075	160
	20BB192	240	55 (75)	1000	3R200-A	0.055	200
	20BB260	240	75 (100)	1000	3R320-A	0.04	320
	20BC1P3	400	0.37 (5)	250	3R2-B	20	2
	20BC2P1	400	0.75 (1)	250	3R2-B	20	2
	20BC3P5	400	1.5(2)	500	3R4-B	6.5	4
	20BC5P0	400	2.2 (3)	500	3R4-B	6.5	4
	20BC8P7	400	4 (5)	500	3R8-B	3	8
	20BC011	400	5.5 (7.5)	750	3R12-B	2.5	12
	20BC015	400	7.5 (10)	1000	3R18-B	1.5	18
	20BC022	400	11 (15)	1000	3R25-B	1.2	25
	20BC030	400	15 (20)	1000	3R35-B	0.8	35
	20BC037	400	18.5(25)	1000	3R45-B	0.7	45
	20BC043	400	22 (30)	1000	3R45-B	0.7	45
	20BC056	400	30 (40)	1000	3R55-B	0.5	55
	20BC072	400	37 (50)	1000	3R80-B	0.4	80
	20BC085	400	45 (60)	1000	3R130-B	0.2	130
	20BC105	400	55 (75)	1000	3R130-B	0.2	130
	20BC125	400	55 (75)	1000	3R130-B	0.2	130
	20BC140	400	75 (100)	1000	3R160-B	0.15	160
	20BC170	400	90 (125)	1500	3R200-B	0.11	200
	20BC205	400	110 (150)	1500	3R200-B	0.11	200
	20BC260	400	132 (175)	2000	3RB320-B	0.075	320

Table 11 - AC Line Impedance Recommendations for PowerFlex 700/700S Drives (continued)

Drive	Drive Catalog Number	Volts	kW (Hp)	Max Supply kVA ⁽¹⁾	3% Line Reactor Open Style 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps)
PowerFlex 700/700S For PowerFlex 700S, replace 20B with 20D.	20BD1P1	480	0.37 (0.5)	250	3R2-B	20	2
	20BD2P1	480	0.75 (1)	250	3R2-B	20	2
	20BD3P4	480	1.5 (2)	500	3R4-B	6.5	4
	20BD5P0	480	2.2 (3)	500	3R4-B	6.5	4
	20BD8P0	480	4.0 (5)	500	3R8-B	3	8
	20BD011	480	5.5 (7.5)	750	3R12-B	2.5	12
	20BD014	480	7.5 (10)	750	3R18-B	1.5	18
	20BD022	480	11 (15)	750	3R25-B	1.2	25
	20BD027	480	15 (20)	750	3R35-B	0.8	35
	20BD034	480	18.5 (25)	1000	3R35-B	0.8	35
	20BD040	480	22 (30)	1000	3R45-B	0.7	45
	20BD052	480	30 (40)	1000	3R55-B	0.5	55
	20BD065	480	37 (50)	1000	3R80-B	0.4	80
	20BD077	480	45 (60)	1000	3R80-B	0.4	80
	20BD096	480	55 (75)	1000	3R100-B	0.3	100
	20BD125	480	75 (100)	1000	3R130-B	0.2	130
	20BD140	480	75 (100)	1000	3R160-B	0.15	160
	20BD156	480	90 (125)	1500	3R160-B	0.15	160
	20BD180	480	110 (150)	1500	3R200-B	0.11	200
	20BE0P9	600	0.37 (0.5)	250	3R2-B	20	2
	20BE1P7	600	0.75 (1)	250	3R2-B	20	2
	20BE2P7	600	1.5 (2)	500	3R4-B	6.5	4
	20BE3P9	600	2.2 (3)	500	3R4-B	6.5	4
	20BE6P1	600	4.0 (5)	500	3R8-B	3	8
	20BE9P0	600	5.5 (7.5)	750	3R8-B	3	8
	20BE011	600	7.5 (10)	750	3R12-B	2.5	12
	20BE017	600	11 (15)	750	3R25-B	1.2	25
	20BE022	600	15 (20)	750	3R25-B	1.2	25
	20BE027	600	18.5 (25)	1000	3R35-B	0.8	35
	20BE032	600	22 (30)	1000	3R35-B	0.8	35
	20BE041	600	30 (40)	1000	3R45-B	0.7	45
	20BE052	600	37 (50)	1000	3R55-B	0.5	55
	20BE062	600	45 (60)	1000	3R80-B	0.4	80
	20BE077	600	55 (75)	1000	3R80-B	0.4	80
	20BE099	600	75 (100)	1200	3R100-B	0.3	100
	20BE125	600	90 (125)	1400	3R130-B	0.2	130
	20BE144	600	110 (150)	1500	3R160-B	0.15	160

(1) Maximum suggested kVA supply without consideration for additional inductance

Table 12 - AC Line Impedance Recommendations for PowerFlex 753/755 Drives

Drive	Drive Catalog Number	Volts	kW (Hp)	Max Supply kVA ⁽¹⁾	3% Line Reactor Open Style 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps)
PowerFlex 753/755	20G_B2P2	240	0.37 (0.5)	100	1321-3R2-D	6	2
	20G_B4P2	240	0.75 (1)	125	1321-3R4-A	3	4
For PowerFlex 753, replace 20G with 20F	20G_B6P8	240	1.5 (2)	200	1321-3R8-A	1.5	8
	20G_B9P6	240	2.2 (3)	300	1321-3R12-A	1.25	12
	20G_B015	240	4 (5)	400	1321-3R18-A	0.8	18
	20G_B022	240	5.5 (7.5)	500	1321-3R25-A	0.5	25
	20G_B028	240	7.5 (10)	750	1321-3R35-A	0.4	35
	20G_B042	240	11 (15)	1000	1321-3R45-A	0.3	45
	20G_B054	240	15 (20)	1000	1321-3R55-A	0.25	55
	20G_B070	240	18.5 (25)	1000	1321-3R80-A	0.2	80
	20G_B080	240	22 (30)	1000	1321-3R80-A	0.2	80
	20G_B104	240	30 (40)	1000	1321-3R100-A	0.15	100
	20G_B130	240	37 (50)	1000	1321-3R130-A	0.10	130
	20G_B154	240	45 (60)	1000	1321-3R160-A	0.08	160
	20G_B192	240	55 (75)	1000	1321-3R200-A	0.06	200
	20G_B260	240	66 (100)	1000	1321-3RB320-A	0.04	320
	20G_B312	240	90 (125)	1500	1321-3RB320-A	0.04	320
	20G_B360	240	110 (150)	2000	1321-3RB400-A	0.03	400
	20G_B477	240	132 (200)	2500	1321-3R500-A	0.03	500

Table 12 - AC Line Impedance Recommendations for PowerFlex 753/755 Drives (continued)

Drive	Drive Catalog Number	Volts	kW (Hp)	Max Supply kVA ⁽¹⁾	3% Line Reactor Open Style 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps)
PowerFlex 753/755	20G_RC2P1	400	0.75 (1)	250	3R2-B	20	2
	20G_RC3P5	400	1.5(2)	500	3R4-B	6.5	4
For PowerFlex 753, replace 20G with 20F.	20G_RC5P0	400	2.2 (3)	500	3R4-B	6.5	4
	20G_RC8P7	400	4 (5)	500	3R8-B	3	8
	20G_RC011	400	5.5 (7.5)	750	3R12-B	2.5	12
	20G_RC015	400	7.5 (10)	1000	3R18-B	1.5	18
	20G_C2P1	400	0.75 (1)	250	3R2-B	20	2
	20G_C3P5	400	1.5(2)	500	3R4-B	6.5	4
	20G_C5P0	400	2.2 (3)	500	3R4-B	6.5	4
	20G_C8P7	400	4 (5)	500	3R8-B	3	8
	20G_C011	400	5.5 (7.5)	750	3R12-B	2.5	12
	20G_C015	400	7.5 (10)	1000	3R18-B	1.5	18
	20G_C022	400	11 (15)	1000	3R25-B	1.2	25
	20G_C030	400	15 (20)	1000	3R35-B	0.8	35
	20G_C037	400	18.5(25)	1000	3R45-B	0.7	45
	20G_C043	400	22 (30)	1000	3R45-B	0.7	45
	20G_C060	400	30 (40)	1000	3R80-B	0.4	80
	20G_C072	400	37 (50)	1000	3R80-B	0.4	80
	20G_C085	400	45 (60)	1000	3R130-B	0.2	130
	20G_C105	400	55 (75)	1000	3R130-B	0.2	130
	20G_C125	400	55 (75)	1000	3R130-B	0.2	130
	20G_C140	400	75 (100)	1000	3R160-B	0.15	160
	20G_C170	400	90 (125)	1500	3R200-B	0.11	200
	20G_C205	400	110 (150)	2000	3R200-B	0.11	200
	20G_C260	400	132 (175)	2500	3R8320-B	0.075	320
	20G_C302	400	160 (214)	2500	3R8320-B	0.075	320
	20G_C367	400	200 (268)	3000	3R8400-B	0.06	400
	20G_C456	400	250 (335)	3500	3R500-B	0.05	500
	20G_C460	400	250 (335)	3500	3R500-B	0.05	500
	20G_C567	400	315(422)	4000	3R600-B	0.04	600
	20G_C650	400	355 (476)	4500	3R750-B	0.029	750
	20G_C750	400	400 (536)	4500	3R750-B	0.029	750
	20G_C770	400	400(536)	5000	3R850-B	0.027	850
	20G_C1K0	400	500 (670)	5000	3R1000-B	0.022	1000
	20G_C1K2	400	560 (750)	5000	2 x 3R750-B	0.015	1500
	20G_C1K4	400	630 (175)	5000	2 x 3R750-B	0.015	1500
	20G_C1K5	400	850 (1070)	5000	2 x 3R850-B	0.014	1700
	20G_C1K6	400	900 (1200)	5000	2 x 3R850-B	0.014	1700
	20G_C2K1	400	1250 (1675)	5000	2 x 3R1000-B	0.011	2000
	20G_RD2P1	480	0.75 (1)	250	3R2-B	20	2
	20G_RD3P4	480	1.5(2)	500	3R4-B	6.5	4
	20G_RD5P0	480	2.2 (3)	500	3R4-B	6.5	4
	20G_RD8P0	480	4 (5)	500	3R8-B	3	8
	20G_RD011	480	5.5 (7.5)	750	3R12-B	2.5	12
	20G_RD014	480	7.5 (10)	1000	3R18-B	1.5	18
	20G_D2P1	480	0.75 (1)	250	3R2-B	20	2
	20G_D3P4	480	1.5 (2)	500	3R4-B	6.5	4

Table 12 - AC Line Impedance Recommendations for PowerFlex 753/755 Drives (continued)

Drive	Drive Catalog Number	Volts	kW (Hp)	Max Supply kVA ⁽¹⁾	3% Line Reactor Open Style 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps)
PowerFlex 753/755	20G_D5P0	480	2.2 (3)	500	3R4-B	6.5	4
	20G_D8P0	480	4.0 (5)	500	3R8-B	3	8
For PowerFlex 753, replace 20G with 20F.	20G_D011	480	5.5 (7.5)	750	3R12-B	2.5	12
	20G_D014	480	7.5 (10)	750	3R18-B	1.5	18
	20G_D022	480	11 (15)	750	3R25-B	1.2	25
	20G_D027	480	15 (20)	750	3R35-B	0.8	35
	20G_D034	480	18.5 (25)	1000	3R35-B	0.8	35
	20G_D040	480	22 (30)	1000	3R45-B	0.7	45
	20G_D052	480	30 (40)	1000	3R55-B	0.5	55
	20G_D065	480	37 (50)	1000	3R80-B	0.4	80
	20G_D077	480	45 (60)	1000	3R80-B	0.4	80
	20G_D096	480	55 (75)	1000	3R100-B	0.3	100
	20G_D125	480	75 (100)	1000	3R130-B	0.2	130
	20G_D140	480	75 (100)	1000	3R160-B	0.15	160
	20G_D156	480	90 (125)	1500	3R160-B	0.15	160
	20G_D186	480	110 (150)	1500	3R200-B	0.11	200
	20G_D248	480	150 (200)	2000	3R8320-B	0.075	320
	20G_D302	480	187(250)	2500	3R8320-B	0.075	320
	20G_D361	480	224 (300)	2500	3R8400-B	0.06	400
	20G_D415	480	260 (350)	3000	3R500-B	0.05	500
	20G_D430	480	260 (350)	3500	3R500-B	0.05	500
	20G_D485	480	298 (400)	3500	3R600-B	0.04	600
	20G_D545	480	336(450)	4000	3R600-B	0.04	600
	20G_D617	480	373 (500)	4500	3R750-B	0.029	750
	20G_D710	480	448 (600)	4500	3R750-B	0.029	750
	20G_D740	480	485 (650)	4500	3R750-B	0.029	750
	20G_D800	480	522 (700)	5000	3R850-B	0.027	850
	20G_D960	480	597 (800)	5000	3R1000-B	0.022	1000
	20G_D1K0	480	671 (900)	5000	3R1000-B	0.022	1000
	20G_D1K2	480	746 (1000)	5000	2 x 3R750-B	0.015	1500
	20G_D1K3	480	821 (1100)	5000	2 x 3R750-B	0.015	1500
	20G_D1K4	480	933 (1250)	5000	2 x 3R850-B	0.014	1700
	20G_D1K5	480	1007(1350)	5000	2 x 3R850-B	0.014	1700
	20G_D2K0	480	1082 (1750)	5000	2 x 3R1000-B	0.011	2000
	20G_E1P7	600	0.75 (1)	250	3R2-B	20	2
	20G_E2P7	600	1.5 (2)	500	3R4-B	6.5	4
	20G_E3P9	600	2.2 (3)	500	3R4-B	6.5	4
	20G_E6P1	600	4.0 (5)	500	3R8-B	3	8
	20G_E9P0	600	5.5 (7.5)	750	3R8-B	3	8
	20G_E011	600	7.5 (10)	750	3R12-B	2.5	12
	20G_E017	600	11 (15)	750	3R25-B	1.2	25
	20G_E018	600	15 (15)	750	3R25-B	1.2	25
	20G_E022	600	15 (20)	750	3R25-B	1.2	25
	20G_E023	600	18.5 (25)	1000	3R35-B	0.8	35
	20G_E024	600	18.5 (25)	1000	3R35-B	0.8	35
	20G_E027	600	18.5 (25)	1000	3R35-B	0.8	35
	20G_E028	600	18.5 (25)	1000	3R35-B	0.8	35
	20G_E032	600	22 (30)	1000	3R35-B	0.8	35

Table 12 - AC Line Impedance Recommendations for PowerFlex 753/755 Drives (continued)

Drive	Drive Catalog Number	Volts	kW (Hp)	Max Supply kVA ⁽¹⁾	3% Line Reactor Open Style 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps)
PowerFlex 753/755	20G_E033	600	22 (30)	1000	3R35-B	0.8	35
	20G_E041	600	30 (40)	1000	3R45-B	0.7	45
For PowerFlex 753, replace 20G with 20F.	20G_E042	600	30 (40)	1000	3R45-B	0.7	45
	20G_E052	600	37 (50)	1000	3R55-B	0.5	55
	20G_E053	600	37 (50)	1000	3R55-B	0.5	55
	20G_E063	600	45 (60)	1000	3R80-B	0.4	80
	20G_E077	600	55 (75)	1000	3R80-B	0.4	80
	20G_E099	600	75 (100)	1200	3R100-B	0.3	100
	20G_E125	600	90 (125)	1400	3R130-B	0.2	130
	20G_E144	600	110 (150)	1500	3R160-B	0.15	160
	20G_E192	600	150 (200)	1500	3R200-B	0.11	200
	20G_E242	600	185 (250)	2000	3RB320-B	0.075	320
	20G_E289	600	224(300)	2000	3RB320-B	0.075	320
	20G_E295	600	224(300)	2500	3RB320-B	0.075	320
	20G_E355	600	261 (350)	2500	3RB400-B	0.06	400
	20G_E395	600	298 (400)	2500	3RB400-B	0.06	400
	20G_E435	600	336 (450)	3000	3R500-B	0.05	500
	20G_E460	600	373 (500)	3000	3R500-B	0.05	500
	20G_E510	600	373 (500)	3500	3R600-B	0.04	600
	20G_E595	600	448 (600)	3500	3R600-B	0.04	600
	20G_E630	600	312(700)	4500	3R750-B	0.029	750
	20G_E760	600	597 (800)	5000	3R850-B	0.027	850
	20G_E825	600	671 (900)	5000	3R850-B	0.027	850
	20G_E900	600	709 (950)	5000	3R1000-B	0.022	1000
	20G_E980	600	746 (1000)	5000	3R1000-B	0.022	1000
	20G_E1K1	600	821 (1100)	5000	2 x 3R600-B	0.02	1200
	20G_E1K4	600	1044 (1400)	5000	2 x 3R750-B	0.015	1500
	20G_F012	690	7.5 (10)	750	3R12-B	2.5	12
	20G_F015	690	11 (15)	750	3R25-B	1.2	25
	20G_F020	690	15 (20)	750	3R25-B	1.2	25
	20G_F023	690	18.5 (25)	1000	3R25-B	1.2	25
	20G_F030	690	22 (30)	1000	3R35-B	0.8	35
	20G_F034	690	30 (40)	1000	3R35-B	0.8	35
	20G_F046	690	37 (50)	1000	3R55-B	0.5	55
	20G_F050	690	45 (60)	1000	3R55-B	0.5	55
	20G_F061	690	55 (75)	1000	3R80-B	0.4	80
	20G_F082	690	75 (100)	1200	3R100-B	0.3	100
	20G_F098	690	90 (125)	1200	3R100-B	0.3	100
	20G_F119	690	110 (150)	1400	3R130-B	0.2	130
	20G_F142	690	132 (177)	1500	3R160-B	0.15	160
	20G_F171	690	160 (215)	1500	3R200-B	0.11	200
	20G_F212	690	200(268)	2000	3RB320-B	0.075	320
	20G_F263	690	250 (335)	2000	3RB320-B	0.075	320
	20G_F265	690	250 (335)	2500	3RB320-B	0.075	320
	20G_F330	690	315 (422)	2500	3RB400-B	0.06	400
	20G_F370	690	355 (476)	2500	3RB400-B	0.06	400
	20G_F415	690	400(536)	2500	3R500-B	0.05	500
	20G_F460	690	450(604)	3000	3R500-B	0.05	500

Table 12 - AC Line Impedance Recommendations for PowerFlex 753/755 Drives (continued)

Drive	Drive Catalog Number	Volts	kW (Hp)	Max Supply kVA ⁽¹⁾	3% Line Reactor Open Style 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps)
PowerFlex 753/755 For PowerFlex 753, replace 20G with 20F.	20G_F500	690	500(670)	3000	3R500-B	0.05	500
	20G_F590	690	560 (750)	3500	3R600-B	0.04	600
	20G_F650	690	630 (845)	4500	3R750-B	0.029	750
	20G_F710	690	710 (952)	4500	3R750-B	0.029	750
	20G_F765	690	750 (1006)	5000	3R850-B	0.027	850
	20G_F795	690	800 (1073)	5000	3R850-B	0.027	850
	20G_F960	690	900 (1207)	5000	3R1000-B	0.022	1000
	20G_F1K0	690	1000(1341)	5000	3R1000-B	0.022	1000
	20G_F1K4	690	1400 (1877)	5000	2 x 3R750-B	0.015	1500

(1) Maximum suggested kVA supply without consideration for additional inductance.

Table 13 - AC Line Impedance Recommendations for Bulletin 1336 Drives

Drive	Drive Catalog Number ⁽¹⁾	Volts	kW (Hp)	Max Supply kVA ⁽²⁾⁽³⁾	3% Line Reactor Open Style, 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps) ⁽⁴⁾
1336 PLUS™ 1336 PLUS II 1336 IMPACT™ 1336 FORCE™	AQF05	240	0.37 (0.5)	25	3R4-A	3.0	4
	AQF07	240	0.56 (0.75)	25	3R4-A	3.0	4
	AQF10	240	0.75 (1)	50	3R8-A	1.5	8
	AQF15	240	1.2 (1.5)	75	3R8-A	1.5	8
	AQF20	240	1.5 (2)	100	3R12-A	1.25	12
	AQF30	240	2.2 (3)	200	3R12-A	1.25	12
	AQF50	240	3.7 (5)	275	3R25-A	0.5	25
	AQF75	240	5.5 (7.5)	300	3R25-A	0.5	25
	A7	240	5.5 (7.5)	300	3R25-A	0.5	25
	A10	240	7.5 (10)	350	3R35-A	0.4	35
	A15	240	11 (15)	600	3R45-A	0.3	45
	A20	240	15 (20)	800	3R80-A	0.2	80
	A25	240	18.5 (25)	800	3R80-A	0.2	80
	A30	240	22 (30)	950	3R80-A	0.2	80
	A40	240	30 (40)	1000	3R130-A	0.1	130
	A50	240	37 (50)	1000	3R160-A	0.075	160
	A60	240	45 (60)	1000	3R200-A	0.55	200
	A75	240	56 (75)	1000	3RB250-A	0.045	250
	A100	240	75 (100)	1000	3RB320-A	0.04	320
	A125	240	93 (125)	1000	3RB320-A	0.04	320
	BRF05	480	0.37 (0.5)	25	3R2-B	20	2
	BRF07	480	0.56 (0.75)	30	3R2-B	20	2
	BRF10	480	0.75 (1)	30	3R4-B	6.5	4
	BRF15	480	1.2 (1.5)	50	3R4-B	6.5	4
	BRF20	480	1.5 (2)	50	3R8-B	3.0	8
	BRF30	480	2.2 (3)	75	3R8-B	3.0	8
	BRF50	480	3.7 (5)	100	3R12-B	2.5	12
	BRF75	480	5.5 (7.5)	200	3R18-B	1.5	18
	BRF100	480	7.5 (10)	275	3R25-B	1.2	25
	BRF150	480	11 (15)	300	3R25-B	1.2	25
	BRF200	480	15 (20)	350	3R25-B	1.2	25
	B015	480	11 (15)	350	3R25-B	1.2	25

Table 13 - AC Line Impedance Recommendations for Bulletin 1336 Drives (continued)

Drive	Drive Catalog Number ⁽¹⁾	Volts	kW (Hp)	Max Supply kVA ⁽²⁾⁽³⁾	3% Line Reactor Open Style, 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps) ⁽⁴⁾
1336 PLUS 1336 PLUS II 1335 IMPACT 1336 FORCE	B020	480	15 (20)	425	3R35-B	0.8	35
	B025	480	18.5 (25)	550	3R35-B	0.8	35
	B030	480	22 (30)	600	3R45-B	0.7	45
	B040	480	30 (40)	750	3R55-B	0.5	55
	B050	480	37 (50)	800	3R80-B	0.4	80
	B060	480	45 (60)	900	3R80-B	0.4	80
	B075	480	56 (75)	1000	3R100-B	0.3	100
	B100	480	75 (100)	1000	3R130-B	0.2	130
	B125	480	93 (125)	1400	3R160-B	0.15	160
	B150	480	112 (150)	1500	3R200-B	0.11	N200
	B200	480	149 (200)	2000	3RB250-B	0.09	250
	B250	480	187 (250)	2500	3RB320-B	0.075	320
	B300	480	224 (300)	3000	3RB400-B	0.06	400
	B350	480	261 (350)	3500	3R500-B	0.05	500
	B400	480	298 (400)	4000	3R500-B	0.05	500
	B450	480	336 (450)	4500	3R600-B	0.04	600
	B500	480	373 (500)	5000	3R600-B	0.04	600
	B600	480	448 (600)	5000	3R750-B	0.029	750
	B700	480	(700)	5000	3R850-B	0.027	850
	B800	480	(800)	5000	3R1000-B	0.022	1000
	BP/BPR250	480	187 (250)	N/A	N/A	N/A	N/A
	BP/BPR300	480	224 (300)	N/A	N/A	N/A	N/A
	BP/BPR350	480	261 (350)	N/A	N/A	N/A	N/A
	BP/BPR400	480	298 (400)	N/A	N/A	N/A	N/A
	BP/BPR450	480	336 (450)	N/A	N/A	N/A	N/A
	BX040	480	30 (40)	N/A	N/A	N/A	N/A
	BX060	480	45 (60)	N/A	N/A	N/A	N/A
	BX150	480	112 (150)	N/A	N/A	N/A	N/A
	BX250	480	187 (250)	N/A	N/A	N/A	N/A
	CWF10	600	0.75 (1)	25	3R4-C	9	4
	CWF20	600	1.5 (2)	50	3R4-C	9	4
	CWF30	600	2.2 (3)	75	3R8-C	5	8
	CWF50	600	3.7 (5)	100	3R8-B	3	8
	CWF75	600	5.5 (7.5)	200	3R8-B	3	8
	CWF100	600	7.5 (10)	200	3R12-B	2.5	12
	CWF150	600	11 (15)	300	3R18-B	1.5	18
	CWF200	600	15 (20)	350	3R25-B	1.2	25
	C015	600	11 (15)	300	3R18-B	1.5	18
	C020	600	15 (20)	350	3R25-B	1.2	25
	C025	600	18.5 (25)	500	3R25-B	1.2	25
	C030	600	22 (30)	600	3R35-B	0.8	35
	C040	600	30 (40)	700	3R45-B	0.7	45
	C050	600	37 (50)	850	3R55-B	0.5	55
	C060	600	45 (60)	900	3R80-B	0.4	80
	C075	600	56 (75)	950	3R80-B	0.4	80
	C100	600	75 (100)	1200	3R100-B	0.3	100
	C125	600	93 (125)	1400	3R130-B	0.2	130
	C150	600	112 (150)	1500	3R160-B	0.15	160

Table 13 - AC Line Impedance Recommendations for Bulletin 1336 Drives (continued)

Drive	Drive Catalog Number ⁽¹⁾	Volts	kW (Hp)	Max Supply kVA ⁽²⁾⁽³⁾	3% Line Reactor Open Style, 1321-	Reactor Inductance (mH)	Reactor Current Rating (amps) ⁽⁴⁾
1336 PLUS 1336 PLUS II 1336 IMPACT 1336 FORCE	C200	600	149 (200)	2200	3R200-B	0.11	200
	C250	600	187 (250)	2500	3R250-B	0.09	250
	C300	600	224 (300)	3000	3R320-B	0.075	320
	C350	600	261 (350)	3000	3R400-B	0.06	400
	C400	600	298 (400)	4000	3R400-B	0.06	400
	C450	600	336 (450)	4500	3R500-B	0.05	500
	C500	600	373 (500)	5000	3R500-B	0.05	500
	C600	600	448 (600)	5000	3R600-B	0.04	600
	C650	600	(650)	5000	3R750-B	0.029	750
	C700	600	(700)	5000	3R850-B FN-1	0.027	850
	C800	600	(800)	5000	3R850-B FN-1	0.027	850
	CP/CPR350	600	261 (350)	N/A	N/A	N/A	N/A
	CP/CPR400	600	298 (400)	N/A	N/A	N/A	N/A

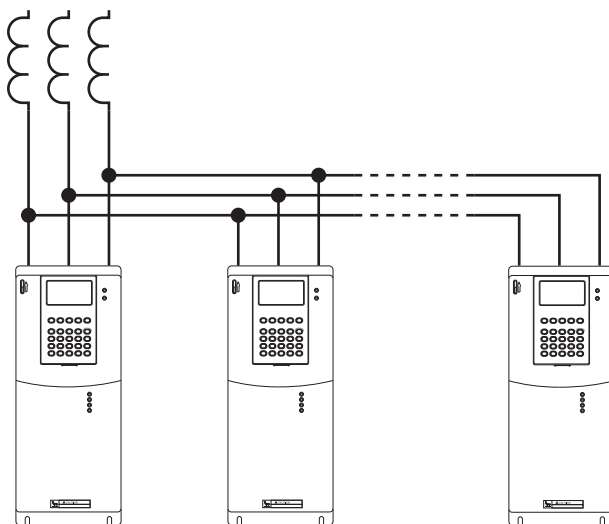
(1) Shaded rows identify drive ratings without built-in inductors.

(2) Maximum suggested kVA supply without consideration for additional inductance.

(3) 2000 kVA represents 2 MVA and greater.

(4) N/A = not available at time of printing.

Multi-drive Protection



Use a separate line reactor for each drive that shares a common power line. Individual line reactors provide filtering between each drive to provide optimum surge protection for each drive. However, if it is necessary to group multiple drives on one AC line reactor, use this process to verify that the AC line reactor provides a minimum amount of impedance:

- In general, up to five drives can be grouped on one reactor.
- Add the input currents of the drives in the group.
- Multiply that sum by 125%.

- See 1321 Power Conditioning Products Technical Data, publication [1321-TD001](#), to select a reactor with a maximum continuous current rating greater than the multiplied current.
- Use this formula to verify that the impedance of the selected reactor is more than 0.5% (0.25% for drives with internal inductors) of the smallest drive in the group. If the impedance is too small, select a reactor with a larger inductance and same amperage, or regroup the drives into smaller groups and start over.

$$Z_{\text{drive}} = \frac{V_{\text{line-line}}}{\sqrt{3} * I_{\text{input-rating}}}$$

$$Z_{\text{reactor}} = L * 2 * 3.14 * f$$

L is the inductance of the reactor in henries and f is the AC line frequency.

EXAMPLE There are five drives. Each drive is rated 1 Hp, 480V, 2.7 A. These drives do not have internal inductors.

Total current is $5 \times 2.7 \text{ A} = 13.5 \text{ A}$

125% x Total current is $125\% \times 13.5 \text{ A} = 16.9 \text{ A}$

From 1321 Power Conditioning Products Technical Data, publication [1321-TD001](#), we selected the catalog number 1321-3R12-C reactor. This reactor has a maximum continuous current rating of 18 A and an inductance of 4.2 mH (0.0042 henries).

$$Z_{\text{drive}} = \frac{V_{\text{line-line}}}{\sqrt{3} * I_{\text{input-rating}}} = \frac{480\text{V}}{\sqrt{3} * 2.7} = 102.6 \text{ Ohms}$$

$$Z_{\text{reactor}} = L * (2 * 3.14) * f = 0.0042 * 6.28 * 60 = 1.58 \text{ Ohms}$$

$$\frac{Z_{\text{reactor}}}{Z_{\text{drive}}} = \frac{1.58}{102.6} = 0.0154 = 1.54\%$$

1.54% is more than the 0.5% impedance recommended. The catalog number 1321-3R12-C reactor can be used for the five 2.7 A drives in this example.

Surge Protection MOVs and Common Mode Capacitors



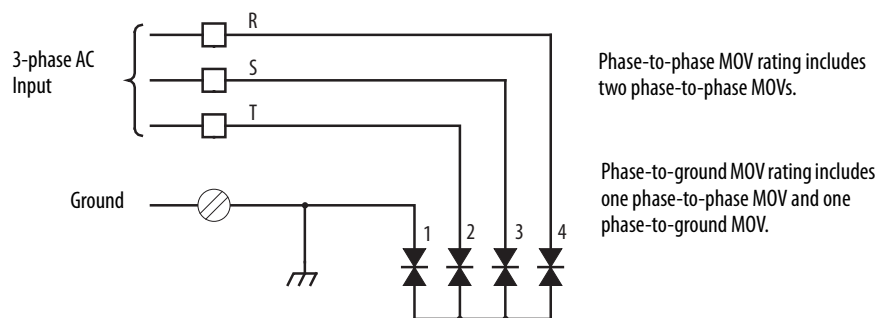
ATTENTION: When installing a drive on an ungrounded, high-resistance, or B-phase grounded distribution system, disconnect the phase-to-ground MOV circuit and the common mode capacitors from ground.

IMPORTANT In some drives, one jumper connects both the phase-to-ground MOV and the common mode capacitors to ground.

MOV Circuitry

Most drives are designed to operate on three-phase supply systems with symmetrical line voltages. To meet IEEE C62.41, these drives are equipped with MOVs that provide voltage surge protection and phase-to-phase and phase-to-ground protection. The MOV circuit is designed only for surge suppression (transient line protection), not for continuous operation.

Figure 12 - Typical MOV Configuration



With ungrounded distribution systems, the phase-to-ground MOV connection can become a continuous current path to ground. If you exceed the published phase-to-phase voltage, phase-to-ground voltage, or energy ratings, you can damage the MOV.

Suitable isolation is required for the drive when there is potential for abnormally high phase-to-ground voltages (in excess of 125% of nominal line-to-line voltage). Suitable isolation is also required when the supply ground is tied to another system or equipment that can cause the ground potential to vary with operation. We recommend an isolation transformer when this condition exists.

Common Mode Capacitors

Many drives also contain common mode capacitors that are referenced to ground. In installations with ungrounded or high resistive ground systems, the common mode capacitors can capture high frequency common mode or ground fault currents. This capture can cause bus overvoltage conditions that can cause damage or drive faults. Systems that are ungrounded or have one phase that is grounded (commonly called B-phase grounded) apply higher than normal voltage stresses directly to the common mode capacitors and can lead to shortened drive life or damage.

Use PowerFlex Drives with Regenerative Units



ATTENTION: If a regenerative unit (for example, 1336 REGEN line regeneration package) or other active front end (AFE) is used as a bus supply or brake, disconnect the common mode capacitors. See the user manual for the drive. This disconnect guards against possible equipment damage.

DC Bus Wiring Guidelines

DC bus wiring refers to connecting the DC bus of an AC drive to the DC connections on another piece of equipment. That equipment can include any or all of these items:

- Additional AC drive
- Non-regenerative DC bus supply
- Regenerative DC bus supply
- Regenerative braking module
- Dynamic braking module
- Chopper module

For more information on the types of common DC bus configurations and applications, see PowerFlex AC Drives in Common Bus Configurations, publication [DRIVES-AT002](#).

Drive Lineup

Generally, it is desirable for the drive lineup to match the machine layout. However, if there is a mix of drive frame sizes that are used in the lineup, the general system layout places the largest drives closest to the rectifier source. The rectifier source does not need to be at the end of the system lineup. Many times, it is advantageous to put the rectifier in the middle of the lineup to minimize the distances to the farthest loads. This lineup minimizes the energy that is stored in the parasitic inductance of the bus structure and lowers peak bus voltages during transient operation.

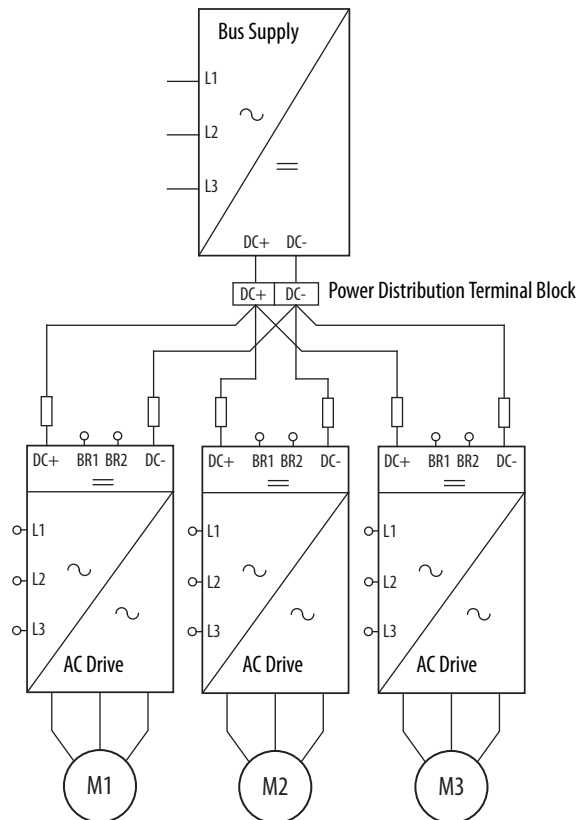
The system must be contained in one contiguous lineup. The bus cannot be interrupted to go to another cabinet for the remainder of the system drives. A contiguous lineup maintains low inductance.

DC Bus Connections

For excellent system operation, minimize the interconnection of drives to the DC bus and the inductance levels between the drives. Use a low inductance-type DC bus (for example, 0.35 $\mu\text{H}/\text{m}$ or less).

IMPORTANT Do not daisy-chain the DC bus connections. Configure the DC bus connections in a star configuration to allow for proper fusing.

Figure 13 - Star Configuration of Common Bus Connections



Bus Bar Versus Cable

Follow these recommendations for using a bus bar versus a cable:

- A DC bus bar is recommended versus a cable.
- When a DC bus bar cannot be used, follow these guidelines for DC bus cables:
 - Use twisted cable where possible, approximately one twist per inch.
 - Use cable rated for the equivalent AC voltage rating. The peak AC voltage is equivalent to the DC voltage. For example, the peak AC voltage on a 480V AC system no load is $480 \times 1.414 = 679\text{V}$ peak. The 679V peak corresponds to 679V DC at no load.

Braking Chopper

Connect the brake unit closest to the largest drive. If all drives are the same rating, then connect the brake unit closest to the drive that regenerates the most.

In general, mount brake units within 3 m (9.8 ft) of the drive. Resistors for use with chopper modules must be within 30 m (98.4 ft) of the chopper module. See the respective braking product documentation for details.

An RC snubber circuit is required when you use Allen-Bradley catalog number 1336-WA, 1336-WB, or 1336-WC brake choppers in the configurations listed here:

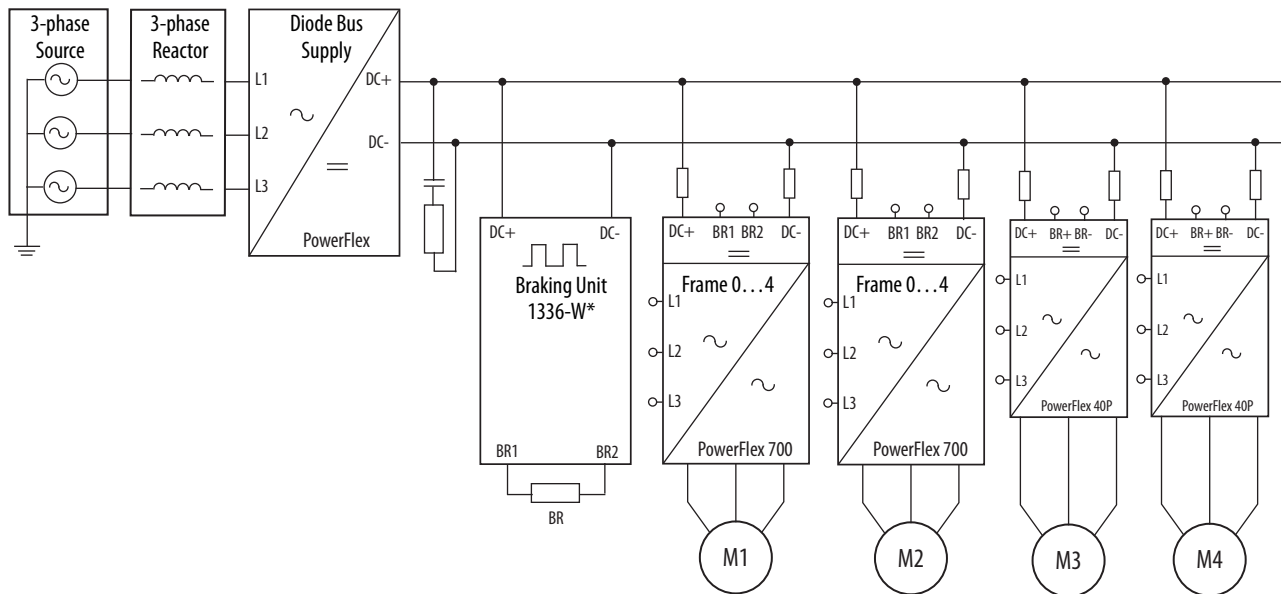
- A non-regenerative bus supply configuration that uses a PowerFlex diode bus supply.
- A shared AC/DC bus configuration that contains a PowerFlex 700/700S Frame 0...4 drive, or PowerFlex 40P drive.
- A shared DC bus (piggy back) configuration when the main drive is a PowerFlex 700/700S Frame 0...4, or PowerFlex 40P drive.

The RC snubber circuit is required to help prevent the DC bus voltage from exceeding the 1200V maximum brake chopper IGBT voltage. The 1336 brake chopper power-up delay time is 80 ms. During this time, the IGBT does not turn on. The RC snubber circuit must always be connected to the DC bus (found close to the braking chopper) to absorb the power-on voltage overshoot (see [Figure 14](#)).

The specifications for the RC snubber are described here:

- $R = 10\ \Omega$, 100 W, low inductance ($< 50\ \mu\text{H}$)
- $C = 20\ \mu\text{F}$, 2000V

Figure 14 - Configuration Example of Diode Bus Supply with PowerFlex 700 Frame 0...4, PowerFlex 40P, 1336-W Braking Chopper, and RC Snubber Circuit.



Notes:

Grounding

This chapter discusses various grounding schemes for safety and noise reduction.

An effectively grounded scheme or product is intentionally connected to earth through a ground connection or connections of sufficiently low impedance. The ground also has sufficient current-carrying capacity to help prevent the buildup of voltages that can result in undue hazard to connected equipment or to persons (as defined by the US National Electric Code NFPA70, Article 100B).

Grounding of a drive or drive system is done for two basic reasons: safety and noise containment or reduction. While the safety ground scheme and the noise current return circuit can sometimes share path and components, they are considered different circuits with different requirements.

Grounding Safety Grounds

The object of safety grounding is to make sure that all metalwork is at the same ground (or earth) potential at power frequencies. Impedance between the drive and the building scheme ground must conform to the requirements of national and local industrial safety regulations or electrical codes. These regulations and codes vary based on country, type of distribution system, and other factors. Periodically check all ground connections and verify that the connections are secure and correct.

General safety requires that all metal parts are connected to earth with separate copper wire, or wires of the appropriate gauge. Always follow any specific directions for connecting a safety ground or protective earth (PE) directly to any piece of equipment.

Structural Steel of a Building

If intentionally bonded at the service entrance, the incoming supply neutral or ground is bonded to the building ground. Structural steel of a building is typically the best representation of ground or earth. The structural steel of a building is bonded together to provide a consistent ground potential. If other means of grounding are used, such as ground rods, you must understand the voltage potential between ground rods in different areas of the installation. The type of soil, ground water level, and other environmental factors can greatly affect the voltage potential between ground points if they are not bonded to each other.

Grounding PE or Ground

The drive safety ground, PE, must be connected to scheme or earth ground. PE is the safety ground for the drive required by code. This point must be connected to adjacent structural steel of a building (girder, joist), a floor ground rod, bus bar, or building ground grid. Grounding points must comply with national and local industrial safety regulations or electrical codes. Some codes require redundant ground paths and periodic examination of connection integrity. Global drive systems require the PE ground to be connected to the transformer ground that supplies the drive system.

RFI Filter Grounding

The use of an optional radio frequency interference (RFI) filter can result in relatively high ground leakage currents. Therefore, use an RFI filter only in installations with grounded AC supply systems and RFI filters that are permanently installed and solidly grounded to the building power distribution ground. Make sure the incoming supply neutral is solidly connected to the same building power distribution ground. Some codes require redundant ground connections and periodic examination of connection integrity. See the instructions supplied with the filter.

IMPORTANT Do not use flexible cables or any plug or socket that can be accidentally disconnected.

Grounding Motors

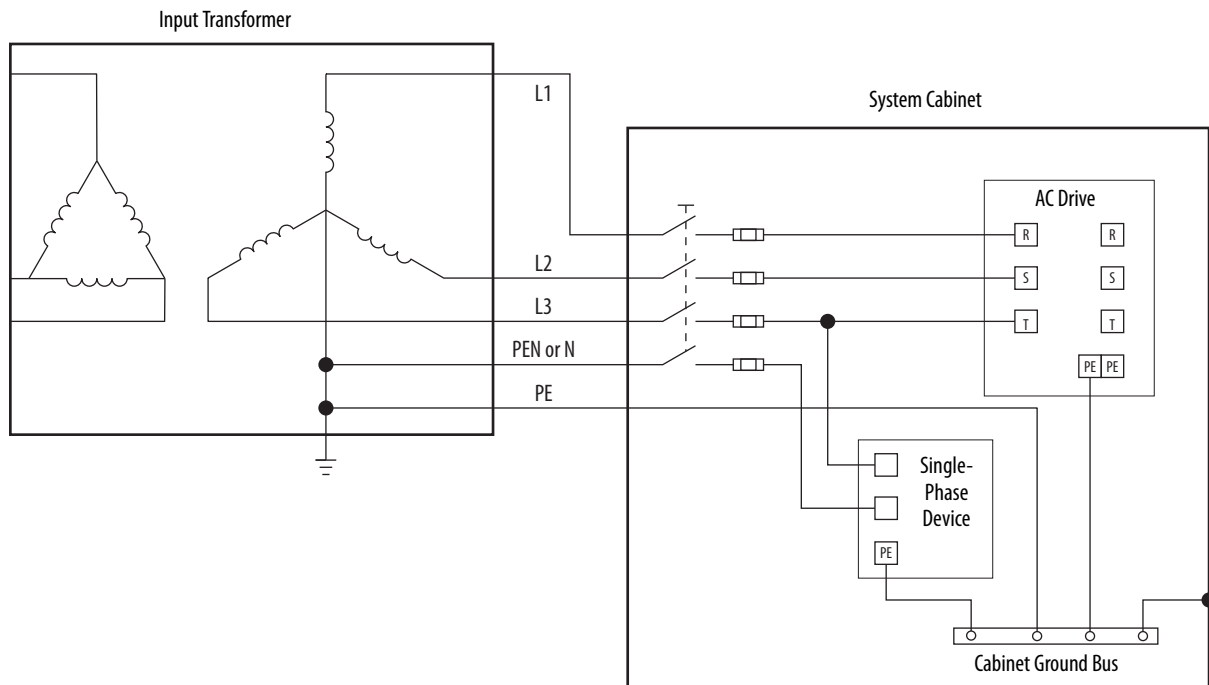
The motor frame or stator core must be connected directly to the drive PE connection with a separate ground conductor. We recommend that each motor frame is grounded to structural steel of a building at the motor. See [Cable Trays on page 76](#) for more information.

Grounding and TN-S Five-wire Systems

IMPORTANT Do not connect ground to neutral within a system cabinet if you use a TN-S Five-wire distribution system. The neutral wire is a current conducting wire. There is one connection between ground and neutral, typically in the distribution system.

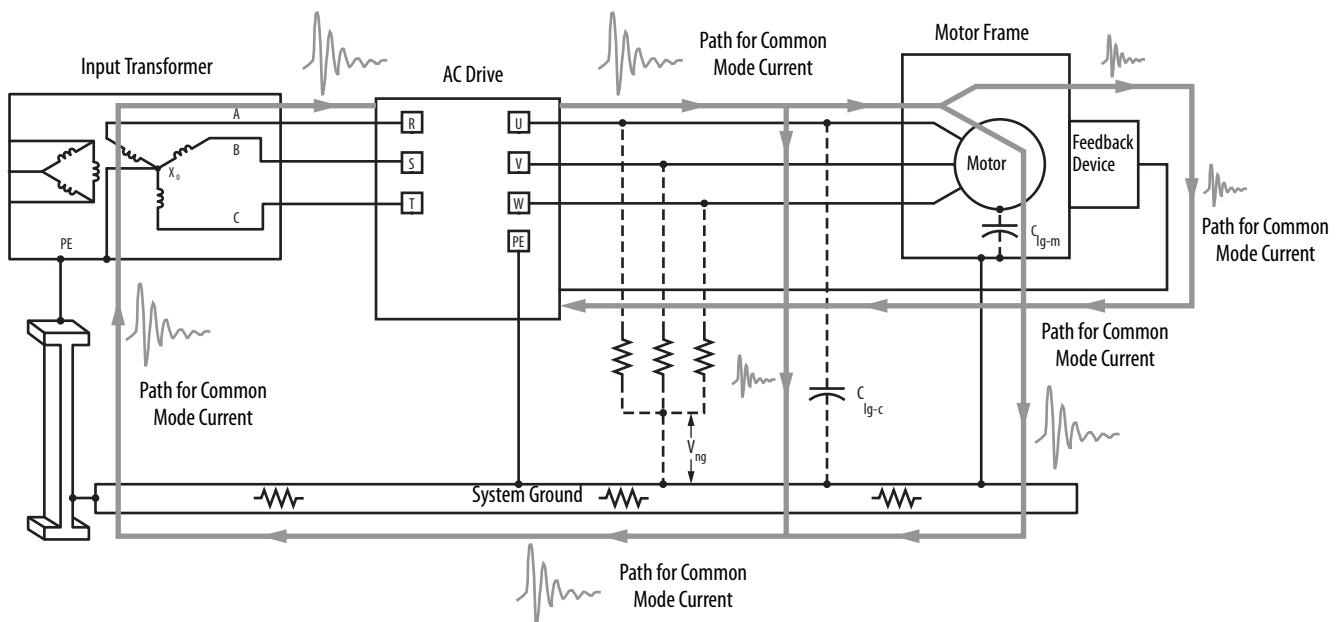
TN-S Five-wire distribution systems are common throughout Europe, except for the United Kingdom and Germany. Leg-to-leg voltage (commonly at 400V) powers three-phase loads. Leg-to-neutral voltage (commonly at 230V) powers single-phase loads.

Figure 15 - Cabinet Grounding with a TN-S Five-wire System



Noise Related Grounds

Use appropriate grounding schemes to reduce noise when installing PWM AC drives to reduce output that can produce high frequency common mode (coupled from output to ground) noise currents. These noise currents can cause sensitive equipment to malfunction if they are allowed to propagate.

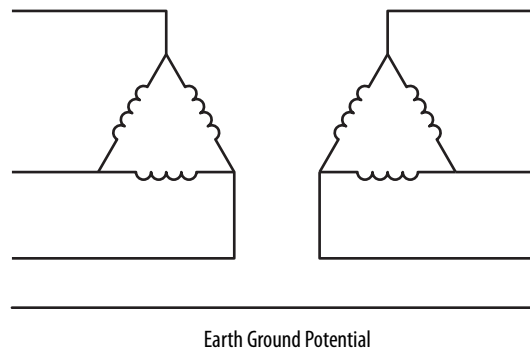


The grounding scheme can greatly affect the amount of noise and its impact on sensitive equipment. The power scheme is likely to be one of these three types:

- Ungrounded scheme
- Scheme with high-resistance ground
- Fully grounded scheme

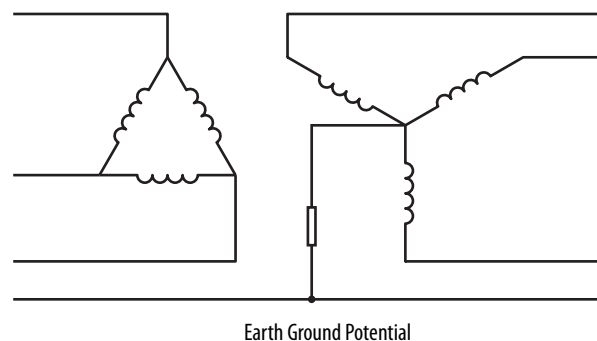
An ungrounded scheme ([Figure 16](#)) does not provide a direct path for the common mode noise current, and causes the current to seek other uncontrolled paths. An ungrounded scheme causes related noise issues.

Figure 16 - Ungrounded Scheme



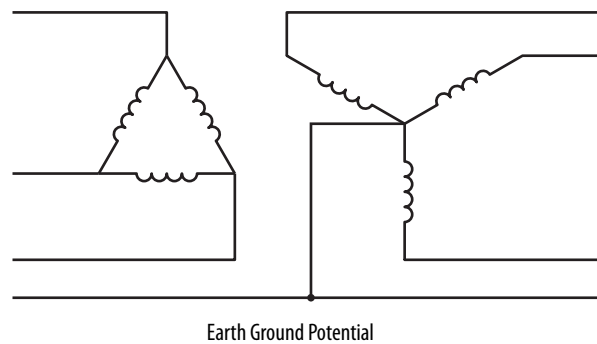
A scheme with a high-resistance ground ([Figure 17](#)) provides a direct path for common mode noise current, like a fully grounded scheme. Designers that want to minimize ground fault currents commonly choose high-resistance ground schemes.

Figure 17 - Scheme with High-Resistance Ground



A fully grounded scheme ([Figure 18](#)) provides a direct path for common mode noise currents. The use of grounded neutral systems is recommended for these reasons:

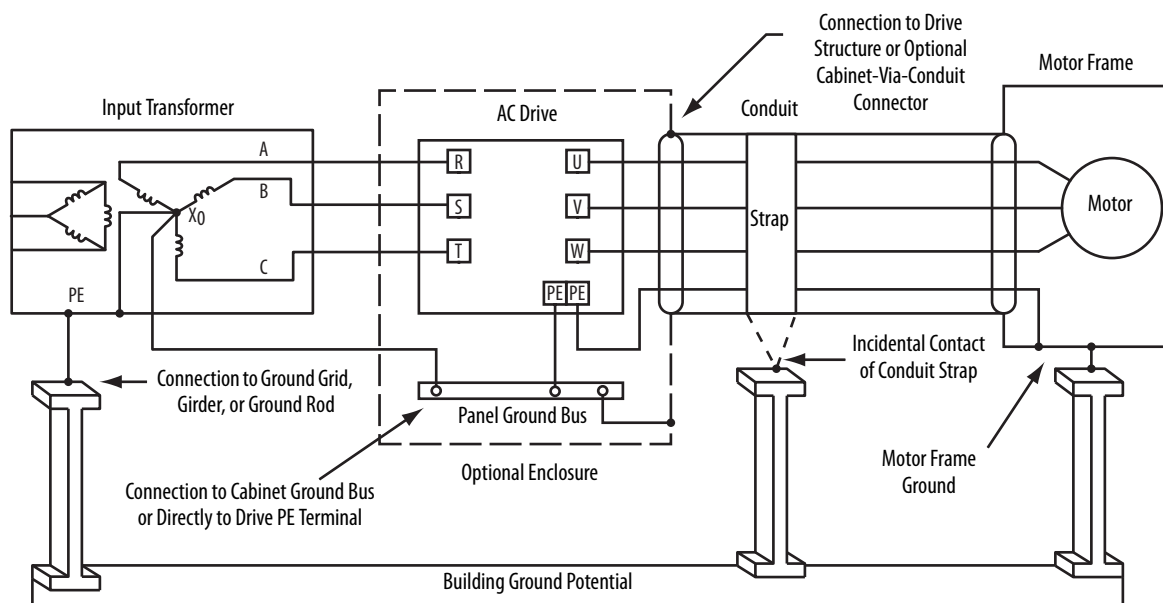
- Controlled path for common mode noise current.
- Consistent line-to-ground voltage reference that minimizes insulation stress.
- Accommodation for system surge protection schemes.

Figure 18 - Fully Grounded Scheme

The installation and grounding practices to reduce common mode noise issues can be categorized into three ratings. The scheme that is used must consider additional costs against the operating integrity of all scheme components. If no sensitive equipment is present and noise is not an issue, the added cost of shielded cable and other components is not always justified.

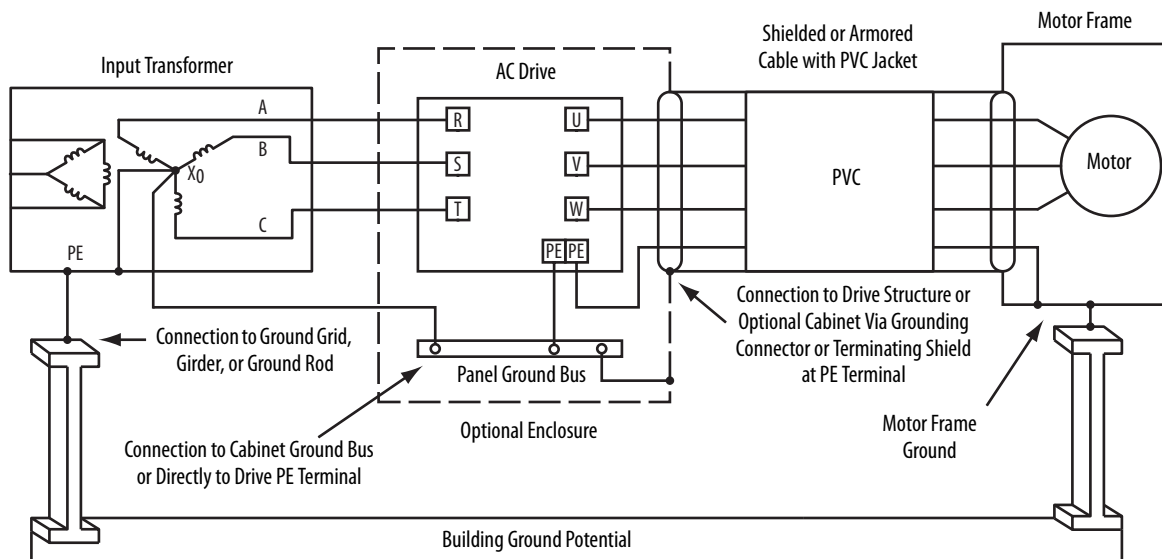
Acceptable Grounding Practices

The scheme that is shown here is an acceptable ground layout for one drive installation. However, conduit does not offer the lowest impedance path for any high frequency noise. If the conduit is mounted so that it contacts the structural steel of a building, it is likely that the structural steel offers a lower impedance path and causes noise to inhabit the ground grid.



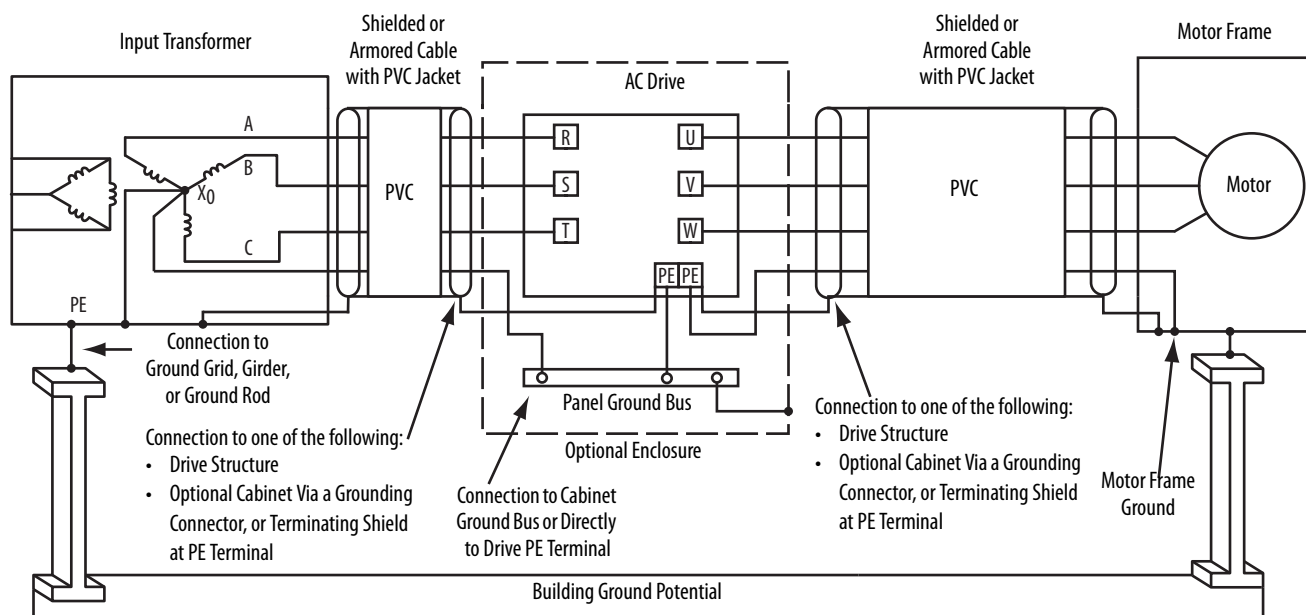
Effective Grounding Practices

This scheme replaces the conduit with shielded or armored cable that has a PVC exterior jacket. This PVC jacket helps prevent accidental contact with structural steel of a building and reduces the possibility that noise can enter the ground grid.



Optimal – Recommended Grounding Practices

The fully grounded scheme provides the best containment of common mode noise. It uses PVC jacketed, shielded cable on both the input and the output to the drive. This method also provides a contained noise path to the transformer to keep the ground grid as clean as possible.



Cable Shields

Motor and Input Cables

Shields of motor and input cables must be bonded at both ends to provide a continuous path for common mode noise current.

Control and Signal Cables

Connect the shields of control cables only at one end. Cut back and insulate the other end. Follow these guidelines when you connect shields:

- The shield for a cable from one cabinet to another must be connected at the cabinet that contains the signal source.
- The shield for a cable from a cabinet to an external device must be connected at the cabinet end, unless specified by the manufacturer of the external device.

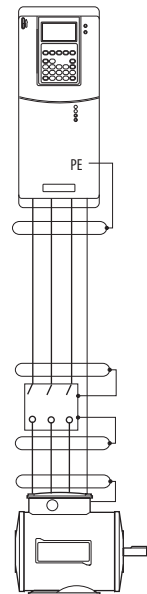
IMPORTANT Never connect a shield to the common side of a logic circuit (doing so introduces noise into the logic circuit).
Connect the shield directly to a chassis ground.

Shield Splicing

Figure 19 - Spliced Cable That Uses a Shielded Connector

If the shielded cable must be stripped, strip it back as little as possible so the continuity of the shield is not interrupted. If possible, do not splice motor power cables. Run the motor cables continuously between the drive and motor terminals. The most common reason for interrupted cable/shield is to install a disconnect switch at the motor. In these cases, the preferred method of splicing is to use fully shielded bulkhead connectors.

Single Point – Connect one safety ground point or ground bus bar directly to the structural steel of a building for cabinet installations. Ground all circuits, including the AC input ground conductor, independently and directly to this point/bar.



Isolated Inputs

If the analog inputs of the drive are from isolated devices and the output signal is not referenced to the ground, the inputs of the drive do not need to be isolated. An isolated input is recommended to reduce the possibility of induced noise if the signal from the transducer is referenced to ground and the ground potentials are varied (see [Noise Related Grounds on page 59](#)). An external isolator can be installed if the drive does not provide input isolation.

Notes:

Best Practices

This chapter discusses installation practices.

Mounting

Standard Installations

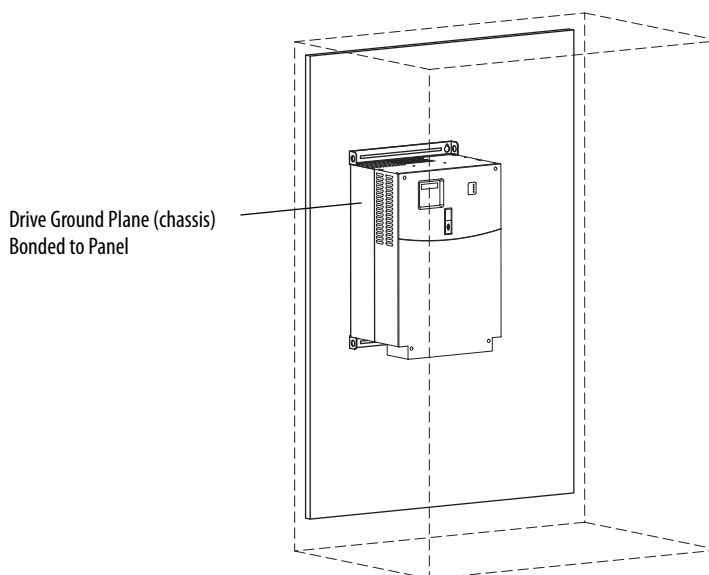
There are many criteria to determine the appropriate enclosure. Some criteria include these items:

- Environment
- EMC compatibility/compliance
- Available space
- Access/Wiring
- Safety guidelines

Grounding to the Component Mounting Panel

In the example below, the drive chassis ground plane is extended to the mounting panel. The panel is made of zinc-plated steel that helps to create a proper bond between chassis and panel.

Figure 20 - Drive Chassis Ground Plane Extended to the Panel



IMPORTANT Where TE and PE terminals are provided, ground each separately to the nearest point on the panel with flat braid.

In an industrial control cabinet, the equivalent to the copper ground layer of a printed circuit board (PCB) is the mounting panel. A panel made of zinc-plated, mild steel functions well as a ground plane. If painted, remove the paint at each mounting and grounding point.

Zinc-plated steel is recommended for its ability to bond with the drive chassis and resist corrosion. Painted panels are not recommended; it can be difficult to remove the paint, and verify that the paint has been properly removed. Also, future corrosion of the unprotected mild steel can compromise noise performance.

Plain stainless steel panels are also acceptable but are inferior to zinc-plated mild steel due to their higher ohms-per-square resistance.

Though not always applicable, a plated cabinet frame is also desirable because it makes a high frequency bond between panel and cabinet sections more reliable.

Doors

For doors 2 m (78 in.) in height, ground the door to the cabinet with two or three braided straps.

EMC seals are not normally required for industrial systems.

EMC Specific Installations

A steel enclosure is recommended to help guard against radiated noise to meet EMC standards. If the enclosure door has a viewing window, a laminated screen or a conductive optical substrate can block EMC.

Do not rely on the hinge for electrical contact between the door and the enclosure. Install a grounding wire. For doors 2 m (78 in.) in height, use two or three braided grounding straps between the door and the cabinet. EMC gaskets are not normally required for industrial systems.

Layout

Plan the cabinet layout so that drives are separated from sensitive equipment. Choose conduit entry points that allow any common mode noise to remain away from programmable logic controllers (PLCs) and other equipment that can be susceptible to noise. See [Moisture on page 81](#) for additional information.

Hardware

You can mount the drive and/or mounting panel with either bolts or welded studs.

Figure 21 - Stud Mounting of Ground Bus or Chassis to Back Panel

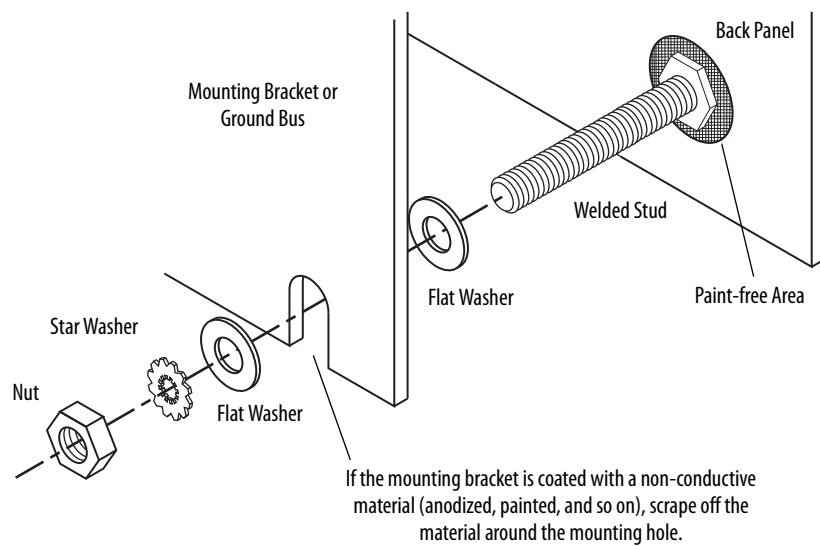
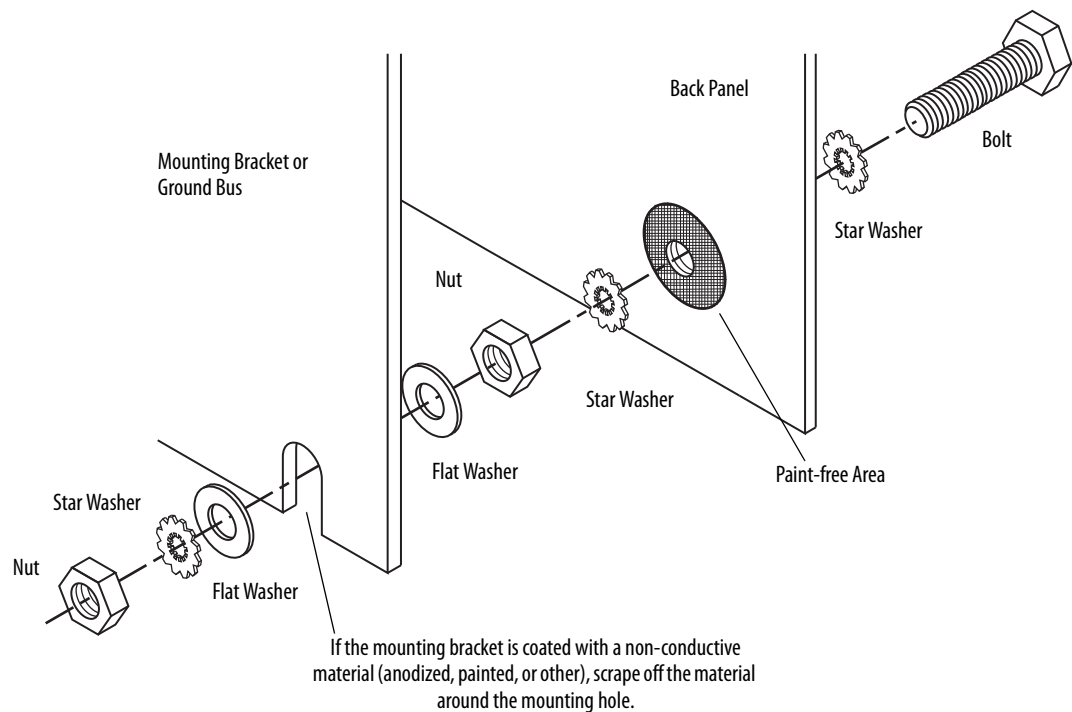


Figure 22 - Bolt Mounting of Ground Bus or Chassis to Back Panel



If the drive chassis does not lay flat before the nuts/bolts are tightened, use additional washers as shims so that the chassis does not bend when you tighten the nuts.

Conduit Entry

Entry Plates

In most cases, the conduit entry plate is a conductive material that is not painted. Make sure that the surface of the plate is clean of oil or contaminants. If the plate is painted, follow one of these steps to make a good connection:

- Use a connector that cuts through the paint and makes a high-quality connection to the plate material.
- Remove the paint around the holes down to the bare metal 1 inch in from the edge of the plate. Grind down the paint on the top and bottom surfaces. Use a high-quality joint compound when reassembling to help prevent corrosion.

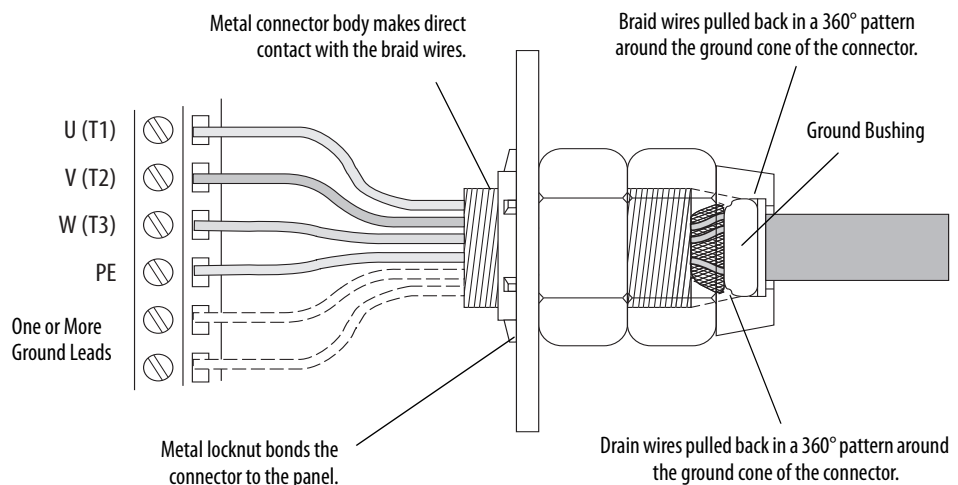
Cable Connectors/Glands

Choose cable connectors or glands that offer the best cable protection, shield termination, and ground contact. See [Shield Termination on page 77](#) for more information.

Shield Terminating Connectors

The cable connector must provide 360° contact and low transfer impedance from the shield or armor of the cable to the conduit entry plate at both the motor and the drive (or drive cabinet) for electrical bonding. SKINTOP MS-SC/MS-SCL cable grounding connectors and NPT/PG adapters from LAPPUSA are good examples of this type of shield terminating glands.

Figure 23 - Terminating the Shield with a Connector

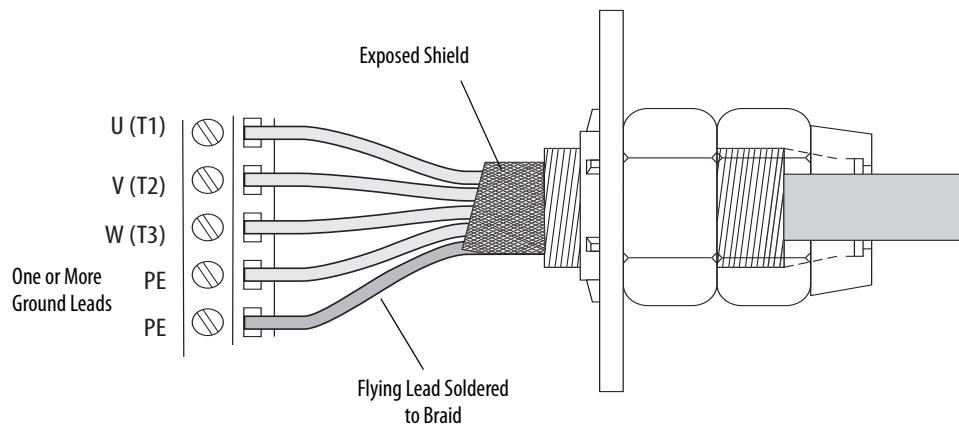


IMPORTANT Shield via connector termination is mandatory for CE-compliant installations, to meet requirements for containing radiated electromagnetic emissions.

Shield Termination Via Pigtail (lead)

If a shield terminating connector is not available, the ground conductors or shields must be terminated to the appropriate ground terminal. If necessary, use a compression fitting for ground conductors and/or shields together as they leave the cable fitting.

Figure 24 - Terminating the Shield with a Pigtail Lead



IMPORTANT Shield via pigtail termination is an acceptable industry practice for most installations to minimize stray common mode currents.

Pigtail termination is the least effective method of noise containment, and is not recommended for these conditions:

- If the cable length is greater than 1 m (3.2 ft) or extends beyond the panel
- If used in noisy areas
- If the cables are for noise-sensitive signals (for example, registration or encoder cables)
- If strain relief is required

If a pigtail is used, pull and twist the exposed shield after separation from the conductors. Solder a flying lead to the braid to extend its length.

Ground Connections

Make sure that ground conductors are properly connected to assure safe and adequate connections.

For individual ground connections, use star washers and ring lugs to make connections to mounting plates or other flat surfaces that do not provide proper compression lugs.

If a ground bus system is used in a cabinet, follow the bus bar mounting diagrams.

Figure 25 - Connections to Ground Bus

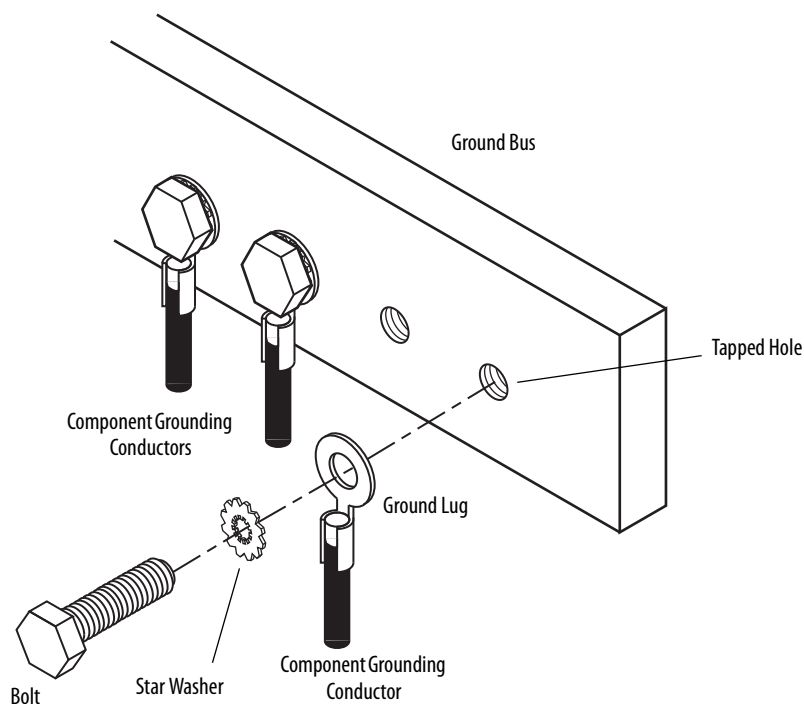
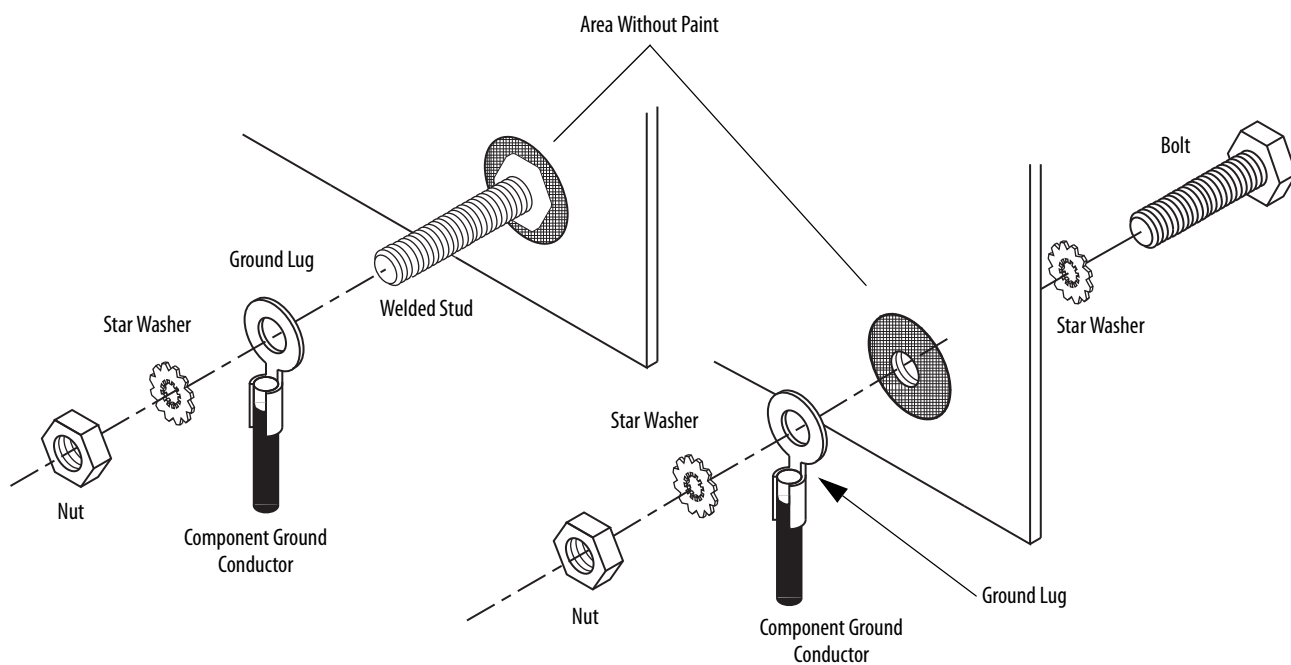
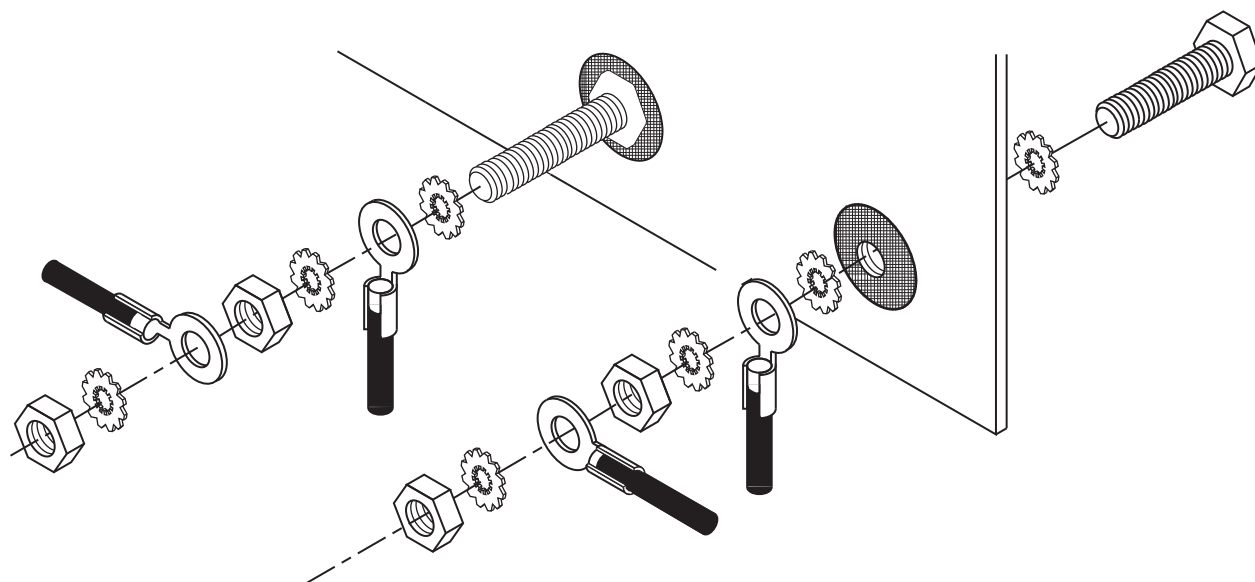


Figure 26 - Ground Connections to Enclosure Wall



Do not lay one ground lug directly on top of the other. This type of connection can become loose due to compression of the metal lugs. Sandwich the first lug between a star washer and a nut with another star washer following. After tightening the nut, sandwich the second lug between the first nut and a second nut with a captive star washer.

Figure 27 - Multiple Connections to Ground Stud or Bolts



Wire Routing

General

When routing wiring to a drive, separate high-voltage power and motor leads from I/O and signal leads. To maintain separate routes, route these wires in separate conduit or use tray dividers.

Category	Wiring Level	Signal Definition	Signal Examples	Minimum Spacing (in inches) between Levels in Steel Conduits (cable trays)					Spacing Notes on page 72
				1	2/3/4	5/6	7/8	9/10/11	
Power	1	AC power (600V or greater)	2.3 kV 3-phase AC lines	0	3 (9)	3 (9)	3 (18)	See spacing note 6	See spacing notes 1 , 2 , and 5
	2	AC power (less than 600V)	460V 3-phase AC lines	3 (9)	0	3 (6)	3 (12)	See spacing note 6	See spacing notes 1 , 2 , and 5
	3	AC power	AC motor						
	4	Dynamic brake cables	See spacing note 7						
Control	5	115V AC/DC logic	Relay logic/PLC I/O motor thermostat	3 (9)	3 (6)	0	3 (9)	See spacing note 6	See spacing notes 1 , 2 , and 5
		115V AC power	Power supplies, instruments						
	6	24V AC/DC logic	PLC I/O						
Signal (process)	7	Analog signals, DC supplies	Reference/Feedback signal, 5...24V DC	3 (18)	3 (12)	3 (9)	0	1 (3)	See spacing notes 2 , 3 , 4 , and 5
		Digital (low speed)	TTK						
	8	Digital (high speed)	I/O, encoder, counter-pulse tach						
Signal (comm)	9	Serial communication	RS-232, 422 to terminals/printers	See spacing note 6			1 (3)	0	
	11	Serial communication (greater than 20k total)	ControlNet, DeviceNet, remote I/O, Data Highway						

EXAMPLE Spacing relationship between 480V AC incoming power leads and 24V DC logic leads:

- 480V AC leads are Level 2; 24V AC leads are Level 6.
- For separate steel conduits, the conduits must be 76 mm (3 in.) apart.
- In a cable tray, the two groups of leads must be 152 mm (6 in.) apart.

Spacing Notes

1. Both outgoing and return current-carrying conductors are pulled in the same conduit or laid adjacent in tray.
2. These cable levels can be grouped:
 - a. Level 1: Equal to or above 601V.
 - b. Levels 2, 3, and 4 can have respective circuits pulled in the same conduit or layered in the same tray.
 - c. Levels 5 and 6 can have respective circuits pulled in the same conduit or layered in the same tray.

IMPORTANT The cable bundle must not exceed conditions of NEC 310.

- d. Levels 7 and 8 can have respective circuits pulled in the same conduit or layered in the same tray.

IMPORTANT Encoder cables that are run in a bundle can experience some EMI coupling. The circuit application dictates separate spacing.

- e. Levels 9, 10, and 11 can have respective circuits pulled in the same conduit or layered in the same tray.

IMPORTANT Communication cables that are run in a bundle can experience some amount of EMI coupling and corresponding communication faults. The application dictates separate spacing.

3. Level 7 through level 11 wires must be shielded per recommendations.
4. In cable trays, steel separators are advisable between the class groupings.
5. Conduit (if used) must be continuous and composed of magnetic steel.
6. This table lists the spacing of communication cables, levels 2...6.

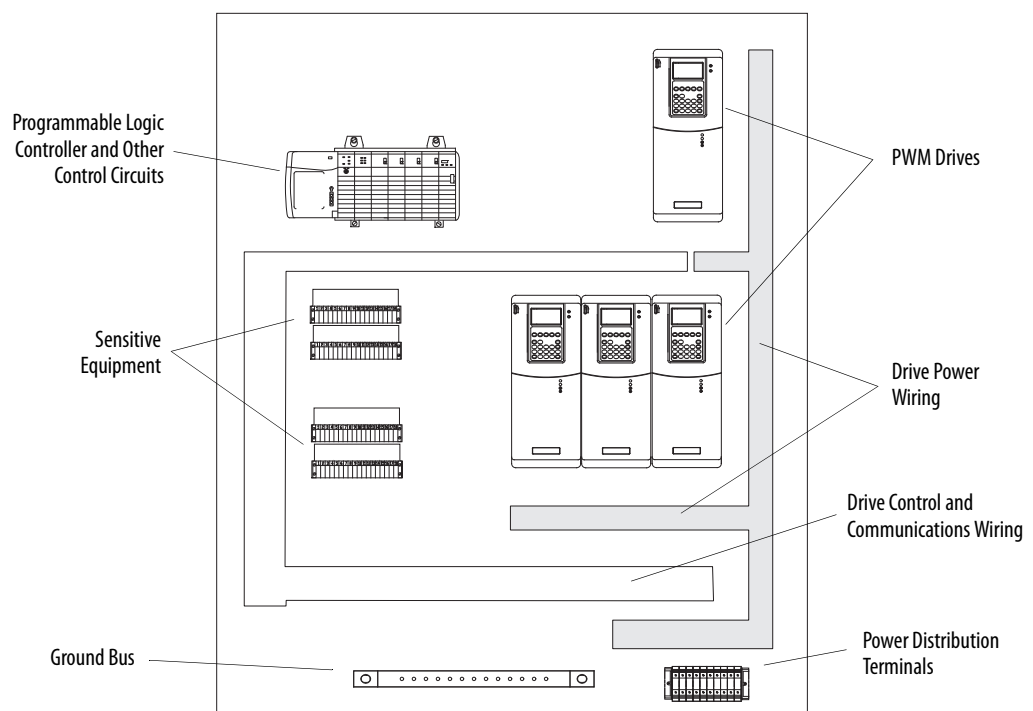
Conduit Spacing	Through Air Spacing
115V = 25.4 mm (1 in.)	115V = 50.8 mm (2 in.)
230V = 38.1 mm (1.5 in.)	230V = 101.6 mm (4 in.)
460/575V = 76.2 mm (3 in.)	460/575V = 203.2 mm (8 in.)
575V = proportional to 152.4 mm (6 in.) per 1000V	575V proportional to 304.8 mm (12 in.) per 1000V

7. If multiple brake modules are required, the first module must be mounted within 3.0 m (10 ft) of the drive. Each remaining brake module can be a maximum distance of 1.5 m (5 ft) from the previous module. Resistors must be within 30 m (100 ft) of the chopper module.

Within a Cabinet

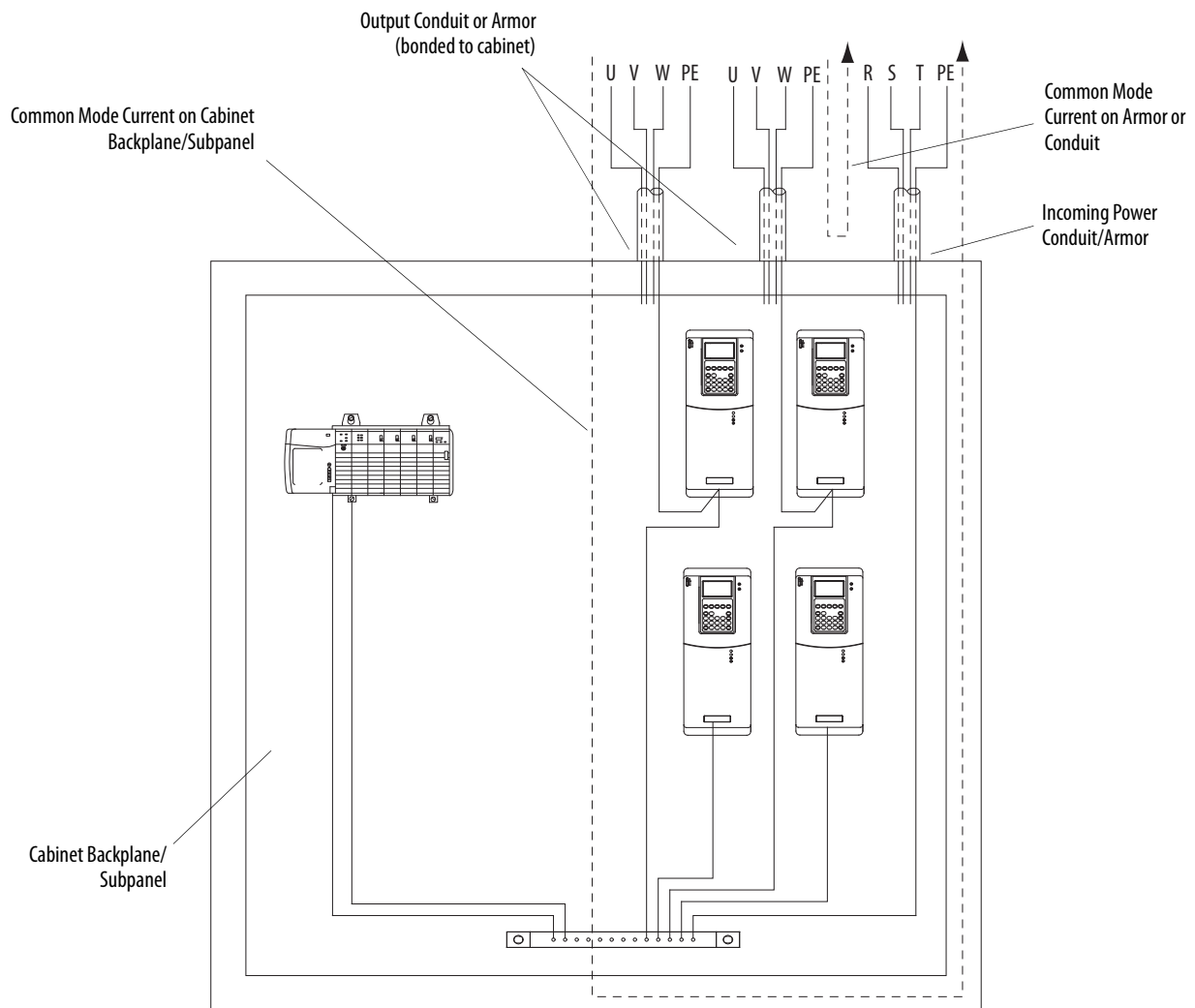
When multiple equipment is mounted in a common enclosure, group the input and output conduit/armor to one side of the cabinet as shown in [Figure 28](#). Separate any PLC or other susceptible equipment cabling to the opposite side of the enclosure to minimize the effects of drive-induced noise currents.

Figure 28 - Separating Susceptible Circuits



Common mode noise current returning on the output conduit, shielding, or armor can flow into the cabinet bond and most likely exit through the adjacent input conduit/armor bond near the cabinet top, well away from sensitive equipment (such as the PLC). Common mode current on the return ground wire from the motor flows to the copper PE bus and up the input PE ground wire, also away from sensitive equipment (See [Proper Cabinet Ground - Drives and Susceptible Equipment on page 74](#)).

If a cabinet PE ground wire is used, connect the wire from the same side of the cabinet as the conduit/armor connections. This connection keeps the common mode noise shunted away from the PLC backplane.

Figure 29 - Proper Cabinet Ground - Drives and Susceptible Equipment

Within Conduit

Do not route more than three sets of motor leads (three drives) in the same conduit. Maintain fill rates per applicable electrical codes.

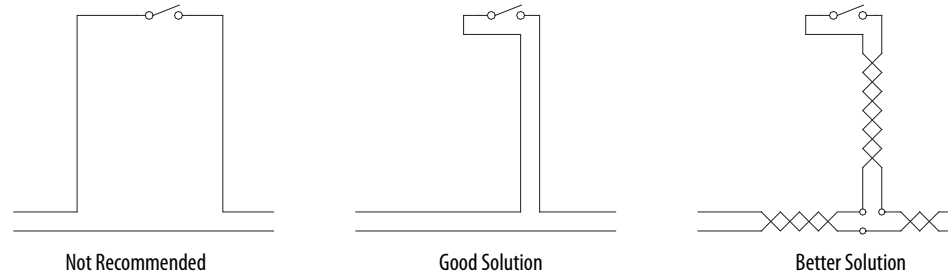
If possible, avoid running incoming power leads and motor leads in the same conduit for long runs.

IMPORTANT Do not run power or motor cables with control or communications cables in the same conduit.

Loops, Antennas, and Noise

When routing signal or communication wires, do not use routes that produce loops. Wires that form a loop can form an efficient antenna. Antennas work well in both receive and transmit modes, and these loops can be responsible for noise received into the system and noise radiated from the system. Run feed and return wires together rather than form a loop. Twist the pair together to reduce the antenna effects (see [Figure 30](#)).

Figure 30 - Avoid Loops in Wiring



Conduit

Magnetic steel conduit is preferred. This type of conduit provides excellent magnetic shielding. However, not all applications allow the use of magnetic steel conduit. Stainless steel or PVC can be required. Conduit other than magnetic steel does not provide the same level of shielding for magnetic fields induced by the motor and input power currents.

Install the conduit so it provides a continuous electrical path through the conduit itself. This path can become important in the containment of high frequency noise.

Pull the wire gently and carefully through the conduit. Do not nick the wire insulation when pulling the wires through the conduit. Insulation damage can occur when nylon coated wiring, such as thermoplastic high heat-resistant nylon-coated (THHN) or thermoplastic heat and water-resistant nylon-coated (THWN), is pulled through conduit, particularly 90° bends. Nicking can significantly reduce or remove the insulation. Do not use water-based lubricants with nylon coated wire such as THHN.

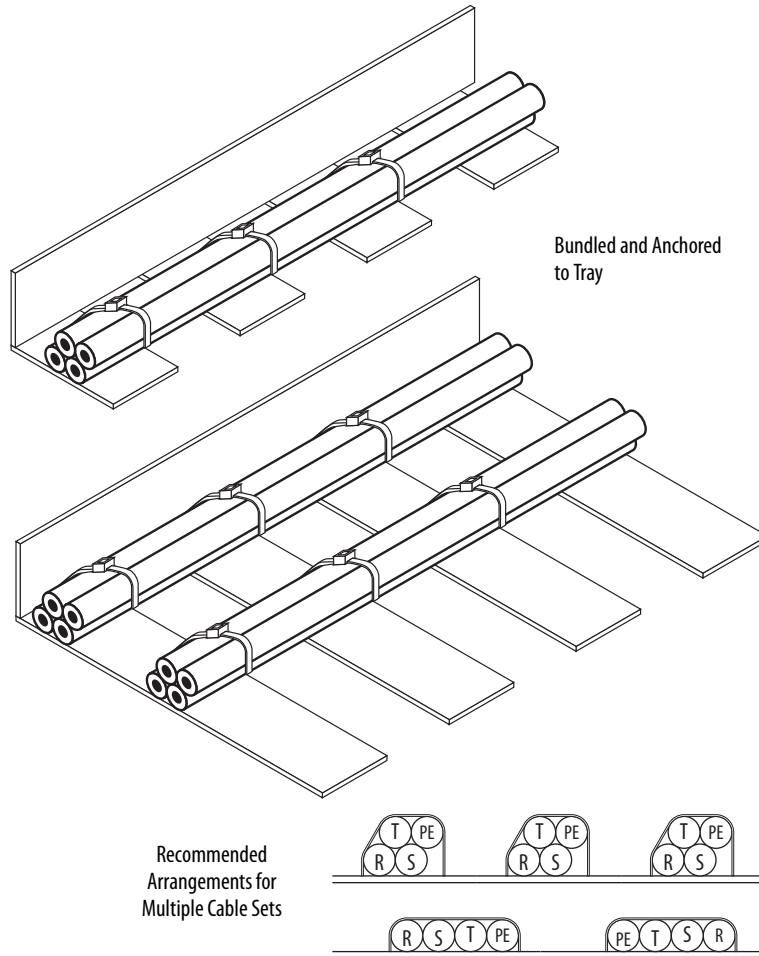
Do not route more than three sets of motor cables in one conduit. Maintain the proper fill rates per the applicable electrical codes.

Do not rely on the conduit as the ground return for a short circuit. Route a separate ground wire inside the conduit with the motor or input power wires.

Cable Trays

When laying cable in cable trays, do not randomly distribute them. Bundle the power cables for each drive together and anchored them to the tray. Keep a minimum separation of one cable width between bundles to reduce overheating and cross-coupling. Current flowing in one set of cables can induce a hazardous voltage and/or excessive noise on the cable set of another drive, even when no power is applied to the second drive.

Figure 31 - Recommended Cable Tray Practices



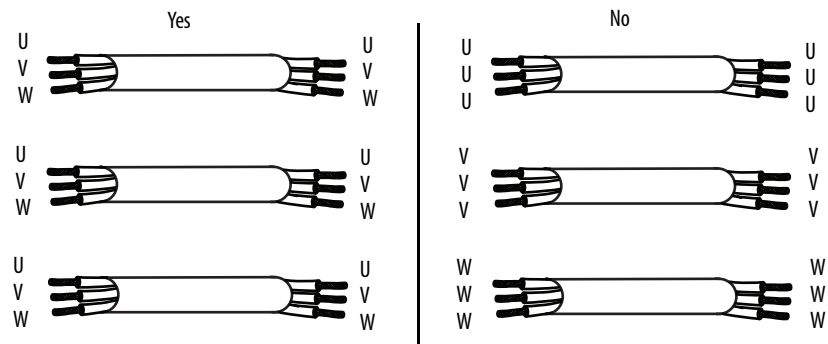
IMPORTANT Carefully arrange the geometry of multiple cable sets. Keep conductors within each group bundled. Arrange the order of the conductors to minimize the current that is induced between sets and to balance the currents. This arrangement of cable sets is critical on drives with power ratings of 200 Hp (150 kW) and higher.

Maintain separation between power and control cables. For large drives, make sure that the cable tray or conduit that contains the signal wiring is separated from the conduit or trays that contain power or motor wiring by 1 m (3.2 ft) or more.

Electromagnetic fields from power or motor currents can induce currents in the signal cables. Dividers also provide excellent separation.

Parallel Motor Cable Runs

Where there are multiple cables running between the drive and motor, be sure to allow for all three phases in each cable.



If running individual wires, combine the wires so that U, V, and W are grouped. Failure to group U, V, and W can result in hot spots in the cable.

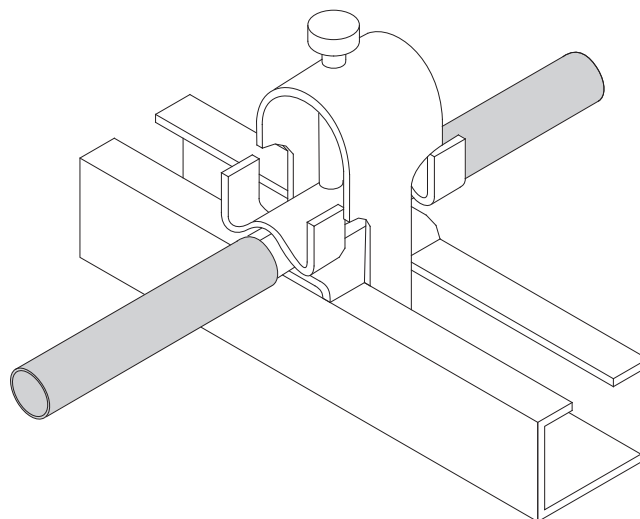
Shield Termination

See [Shield Splicing on page 63](#) to splice shielded cables. These methods are acceptable if the gland or connector does not make the shield connection to the ground. See the table associated with each type of clamp for advantages and disadvantages.

Termination Via Circular Clamp

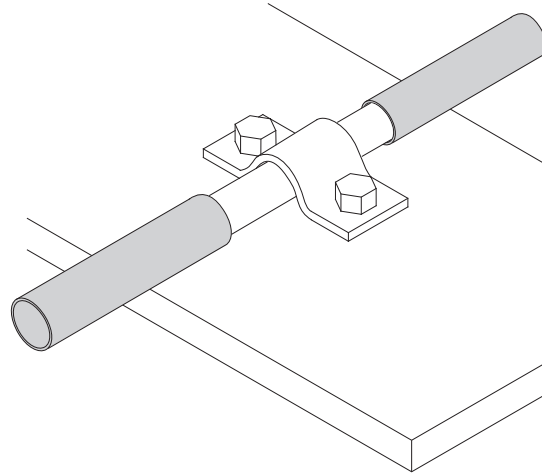
Use the circular section method to clamp the cable to the main panel closest to the shield terminal. The preferred method for grounding cable shields is clamping the circular section of 360° bonding (see [Figure 32](#)). This method has the advantage of covering a wide variety of cable diameters and drilling/mounting is not required. The disadvantages are cost and availability in all areas.

Figure 32 - Commercial Cable Clamp (heavy duty)



Plain copper saddle clamps (see [Figure 33](#)) are sold in many areas for plumbing purposes, and are effective and available in a range of sizes. They are low cost and offer good strain relief as well. You must drill mounting holes to use them.

Figure 33 - Plain Copper Saddle Clamp



Shield Termination Via Pigtail (lead)

If a shield terminating connector is not available, the ground conductors and/or shields must be terminated to the appropriate ground terminal. If necessary, use a compression fitting on the ground conductors, or shield together as they leave the cable fitting.

IMPORTANT Pigtail termination is the least effective method of noise containment.

Pigtail termination is not recommended for these conditions:

- When the cable length is greater than 1 m (3.2 ft), or extends beyond the panel
- When used in noisy areas
- When the cables are for noise sensitive signals (for example, registration or encoder cables)
- When strain relief is required

If a pigtail is used, pull and twist the exposed shield after separation from the conductors. To extend the length, solder a flying lead to the braid.

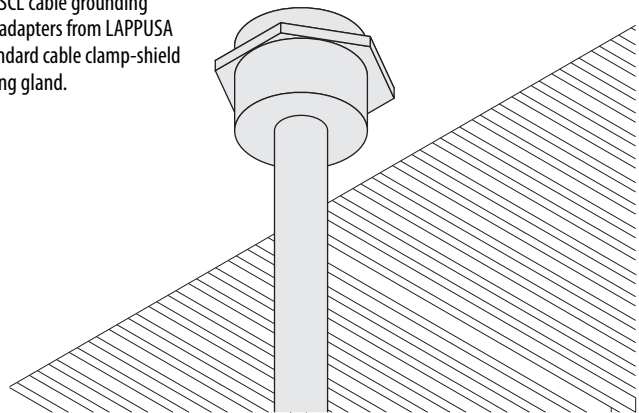
Shield Termination Via Cable Clamp

Standard Cable

Grounding cable glands are a simple and effective method for terminating shields while offering excellent strain relief. They are applicable only when entry is through a cabinet surface or bulkhead.

The cable connector must provide 360° contact and low transfer impedance from the shield or armor of the cable to the conduit entry plate at both the motor and the drive (or drive cabinet) for electrical bonding.

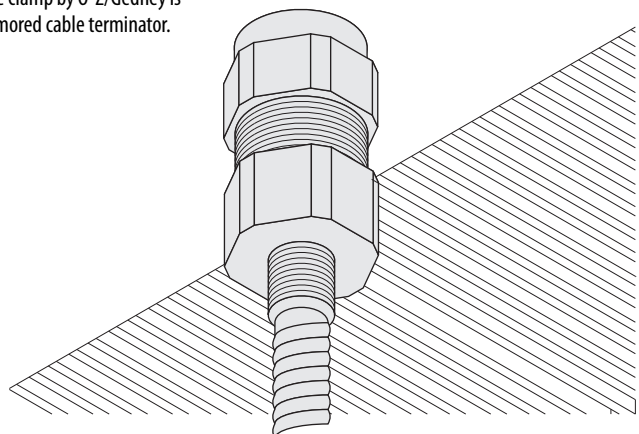
SKINTOP MS-SC/MS-SCL cable grounding connectors and NPT/PG adapters from LAPPUSA are good examples of standard cable clamp-shield terminating gland.



Armored Cable

Armored cable can be terminated in a similar manner to standard cable.

The Tek-Mate Fast-Fit cable clamp by O-Z/Gedney is a good example of an armored cable terminator.



Conductor Termination

Terminate power, motor, and control connections to the drive terminal blocks. User manuals list minimum and maximum wire gauges, tightening torque for terminals, and recommended lug types if stud connections are provided. Use a connector with three ground bushings when you use a cable with three ground conductors. Follow applicable electric codes when bending radii minimums.

Power TB

Power terminals are normally fixed (non-pull apart) and can be cage clamps, barrier strips, or studs for ring-type crimp lugs depending on the drive style and rating. Cage clamp styles can require a non-standard screwdriver. Crimp lugs require a crimping tool. On smaller sizes, a stripping gauge is sometimes provided on the drive to help with the amount of insulation to remove. Normally the three-phase input is not phase sensitive. That is, the sequence of the A, B, and C phases has no effect on the operation of the drive or the direction of motor rotation.

Control TB

Control terminal blocks are either pull-apart or fixed (non-pull apart). Terminals are either spring clamp type or barrier strip. A stripping gauge is sometimes provided on the drive to help with the amount of insulation to remove. Some control connections, such as analog input and output signals, are sensitive to polarity. Consult the applicable user manual for correct connection.

Signal TB

If an encoder or tachometer feedback is used, a separate terminal block or blocks is sometimes provided.

IMPORTANT Consult the user manual for these phase-sensitive connections. Improper wiring can lead to incorrect drive operation.

Cables that are terminated here are typically shielded and the signals being carried are more sensitive to noise. Carefully check the user manual for recommendations on shield termination. Some shields can be terminated at the terminal block, and other shields are terminated at the entry point.

Moisture

See NEC Article 100 for definitions of damp, dry, and wet locations. The U.S. NEC permits the use of heat-resistant thermoplastic wire in both dry and damp applications (Table 310-13). However, PVC insulation material is more susceptible to absorbing moisture than XLPE insulation material (XHHW-2) identified for use in wet locations. Because the PVC insulating material absorbs moisture, the corona inception voltage (CIV) insulation capability of the damp or wet THHN was found to be less than half of the same wire when dry. For this reason, certain industries where water is prevalent in the environment do not use THHN wire with IGBT drives.

Based on Rockwell Automation research, tests have determined that the cable type described here is better than loose wires in dry, damp, and wet applications and can significantly reduce capacitive coupling and common mode noise:

PVC jacketed, shielded type TC with XLPE conductor insulation designed to meet NEC code designation cross-linked polyethylene high heat-resistant water-resistant (XHHW-2) (use in wet locations per the U.S. NEC, Table 310-13).

Other cable types for wet locations include continuous welded armored cables or CLX-type cables.

Notes:

Reflected Wave

This chapter discusses the reflected wave phenomenon and its impact on drive systems.

Description

The inverter section of a drive does not produce sinusoidal voltage, but rather a series of voltage pulses created from the DC bus. These pulses travel down the motor cables to the motor. The pulses are then reflected back to the drive. The reflection is dependent on the rise time of the drive output voltage, cable characteristics, cable length, and motor impedance. If the voltage reflection is combined with another subsequent pulse, peak voltages can be at a destructive level. One IGBT drive output can have reflected wave transient voltage stresses of up to twice (2 pu, or per unit) the DC bus voltage between its own output wires. Multiple drive output wires in a conduit or wire tray increase output-wire voltage-stress between multi-drive output wires that are touching. One drive can have a (+) 2 pu stress, while another drive can simultaneously have a (-) 2 pu stress.

Effects On Wire Types

Wires with dielectric constants greater than 4 cause the voltage stress to shift to the air gap between the wires that are barely touching. This electric field can be high enough to ionize the air that surrounds the wire insulation and cause a partial discharge mechanism (corona) to occur. The electric field distribution between wires increases the possibility for corona and greater ozone production. This ozone attacks the PVC insulation and produces carbon tracking that leads to the possibility of insulation breakdown.

Based on field and internal testing, Rockwell Automation has determined conductors that are manufactured with poly-vinyl chloride (PVC) wire insulation are subject to various manufacturing inconsistencies. These inconsistencies can lead to premature insulation degradation when used with IGBT drives. Flame-retardant heat-resistant thermoplastic insulation is the type of insulation listed in the NEC code for the THHN wire designation. This type of insulation is commonly referred to as PVC. Also, the physical properties of the cable can change due to environment, installation, and operation that can lead to premature insulation degradation.

This section provides a summary of our findings:

- Due to inconsistencies in manufacturing processes or wire pulling, air voids can also occur in the THHN wire between the nylon jacket and PVC insulation. Because the dielectric constant of air is much lower than the dielectric constant of the insulating material, the transient reflected wave voltage can appear across these voids. If the corona inception voltage (CIV) for the air void is reached, ozone is produced. Ozone attacks the PVC insulation that can lead to a breakdown in cable insulation.
- Asymmetrical construction of the insulation has also been observed for some manufacturers of PVC wire. A wire with a 15 mil specification was observed to have an insulation thickness of 10 mil at some points. The smaller the insulation thickness, the less voltage the wire can withstand.
- THHN jacket material has a relatively brittle nylon that lends itself to damage (for example, nicks and cuts) when pulled through conduit on long wire runs. This issue is of even greater concern when the wire is being pulled through multiple 90° bends in the conduit. These nicks can be a starting point for CIV that can lead to insulation degradation.
- During operation, the conductor heats up and a cold-flow condition can occur with PVC insulation at points where the unsupported weight of the wire can stretch the insulation. This stretch has been observed at 90° bends where wire is dropped down to equipment from an above wireway. This cold-flow condition produces thin spots in the insulation that lowers the voltage withstand capability of the cable.
- See NEC Article 100 for definitions of damp, dry, and wet locations. The U.S. NEC permits the use of heat-resistant thermoplastic wire in both dry and damp applications (Table 310-13). However, PVC insulation material is more susceptible to absorbing moisture than XLPE insulation material (XHHN-2) identified for use in wet locations. Because the PVC insulating material absorbs moisture, the Corona Inception Voltage insulation capability of the damp or wet THHN was found to be less than half of the same wire when dry. For this reason, certain industries where water is prevalent in the environment do not use THHN wire with IGBT drives. Rockwell Automation strongly suggests the use of XLPE insulation for wet areas.

Length Restrictions for Motor Protection

To help protect the motor from reflected waves, limit the length of the motor cables from the drive to the motor. The user manual for each drive lists the lead length limitations based on drive size and the quality of the insulation system in the chosen motor.

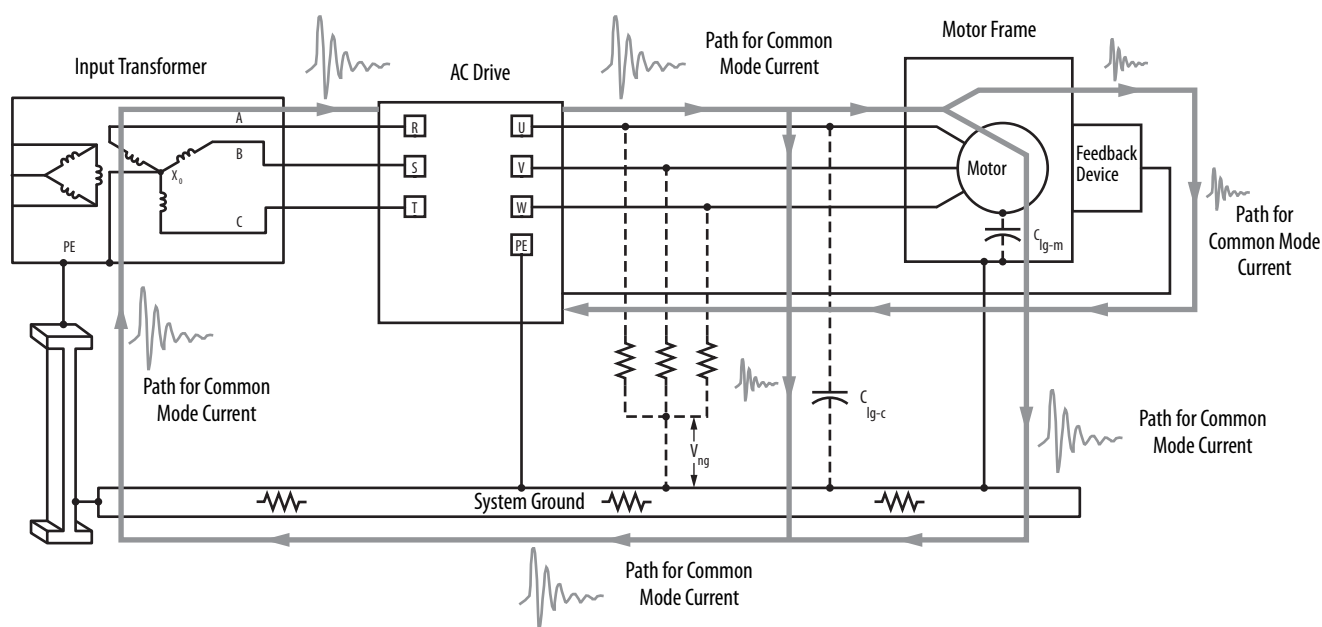
If the distance between drive and motor must exceed these limits, contact the local office or factory for analysis and advice. See [Appendix A](#) for complete tables.

Electromagnetic Interference

This chapter discusses types of electromagnetic interference and its impact on drive systems.

What Causes Common Mode Noise

Faster output dV/dt transitions of IGBT drives increase the possibility for increased common mode (CM) electrical noise. Common mode noise is a type of electrical noise induced on signals regarding ground.



Electrical noise from drive operation can interfere with adjacent sensitive electronic equipment, especially in areas where many drives are concentrated. Generating common mode currents by varying frequency inverters is similar to the common mode currents that occur with DC drives. Although, AC drives produce a much higher frequency than DC drives (250 kHz...6 MHz).

Inverters have a greater potential for exciting circuit resonance because of fast turn on switches that cause common mode currents to look for the lowest impedance path back to the inverter. The dV/dt and di/dt from the circulating ground currents can couple into the signal and logic circuits and cause improper operation and possible circuit damage. When conventional grounding techniques do not work, you must use high frequency bonding techniques. If installers do not use these techniques, motor bearing currents increase and system circuit boards have the potential to fail prematurely.

Currents in the ground system can cause problems with computer systems and distributed control systems.

Containing Common Mode Noise With Cabling

The type of cable that is used can affect the ability to contain common mode noise in a system that incorporates a drive.

Conduit

The combination of a ground conductor and conduit contains most capacitive current and returns it to the drive without polluting the ground grid. A conduit can still have unintended contact with grid ground structure due to straps, support, and so on. The AC resistance characteristics of earth are variable and unpredictable and make it difficult to know how noise current is divided between wire, conduit, or the ground grid.

Shielded or Armored Power Cable

The predominant return path for common mode noise is the shield or armor itself when you use shielded or armored power cables. Unlike conduit, the shield or armor is isolated from accidental contact with grounds by a PVC outer coating. The coating makes most noise current flow in the controlled path and little high frequency noise flows into the ground grid.

Noise current returning on the shield or safety ground wire is routed to the drive PE terminal, down to the cabinet PE ground bus, and then directly to the grounded neutral of the drive source transformer. When bonding the armor or shield to the drive PE, use a low impedance cable or strap, as opposed to the smaller gauge ground wire supplied as part of the motor cable or supplied separately. Otherwise, the higher frequencies that are associated with the common mode noise can find this cable impedance higher and look for a lower impedance path. The radiated emissions of the cable are minimal because the armor completely covers the noisy power wires. Also, the armor helps prevent EMI coupling to other signal cables that are routed in the same cable tray.

Another effective method of reducing common mode noise is to attenuate the noise before it can reach the ground grid. Install a common mode ferrite core on the output cables to reduce the amplitude of the noise to a level that makes it relatively harmless to sensitive equipment or circuits. Common mode cores are most effective when multiple drives are in a relatively small area. For more information, see 1321-M Common Mode Chokes Instructions, publication [1321-5.0](#).

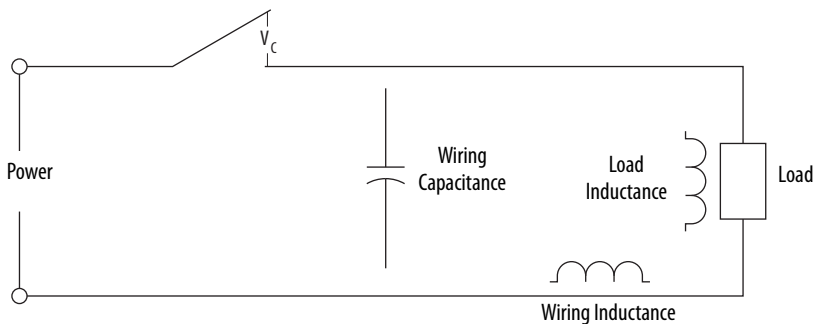
Follow these guidelines for installing common mode chokes:

- If the distance between the drive and motor, or the drive and input transformer, is greater than 22.8 m (75 ft), and
- If sensitive circuits with leads greater than 22.8 m (75 ft), such as encoders, analog or capacitive sensors, are routed in or out of the cabinet near the drive or transformer, then
- Install common mode chokes.

How Electromechanical Switches Cause Transient Interference

Electromechanical contacts cause transient interference when switching inductive loads such as relays, solenoids, motor starters, or motors. Drives, and other devices with electronic logic circuits, are susceptible to this type of interference.

Examine this circuit model for a switch controlling an inductive load. Both the load and the wiring have inductance that helps prevent the current from stopping instantly when the switch contacts open. There is also stray capacitance in the wiring.



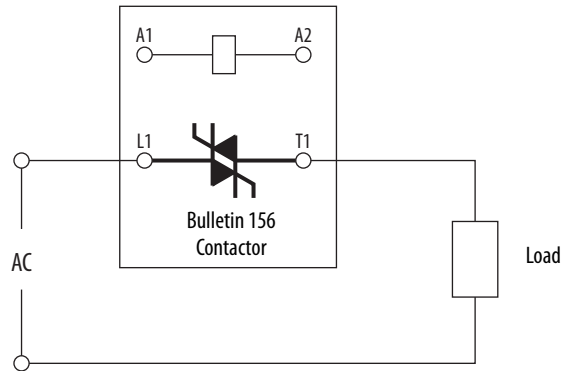
Interference occurs when the switch opens while it is carrying current. Load and cable inductance helps prevent the current from immediately stopping. The current continues to flow, and charges the capacitance in the circuit. The voltage across the switch contacts (V_C) rises, as the capacitance charges. This voltage can reach high levels. When the voltage exceeds the breakdown voltage for the space between the contacts, an arc occurs and the voltage returns to zero. Charging and arcing continues until the distance between the contacts is sufficient to provide insulation. The arcing radiates noise at energy levels and frequencies that disturb logic and communication circuits.

If the power source is periodic (like AC power), you can reduce the interference by opening the contact when the current waveform crosses zero. Opening the circuit farther from zero elevates the energy level and creates more interference.

How to Prevent or Mitigate Transient Interference from Electromechanical Switches

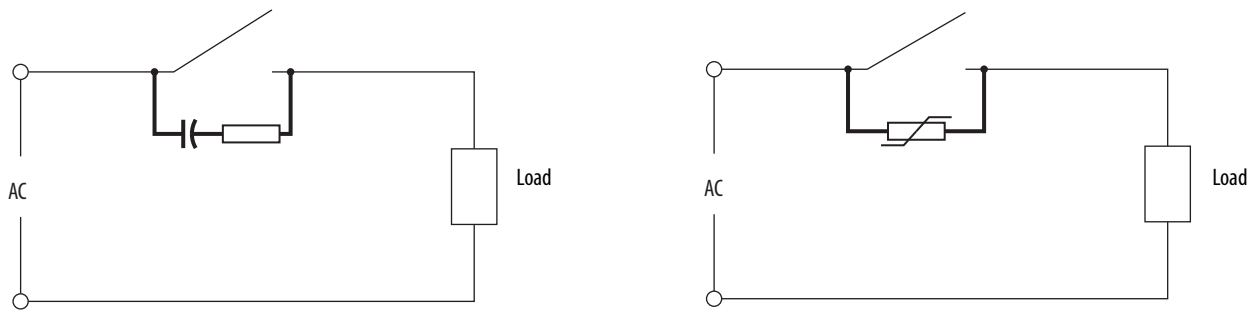
The most effective way to avoid this type of transient interference, is to use a device like an Allen-Bradley® Bulletin 156 contactor to switch inductive AC loads. These devices feature zero cross switching.

Figure 34 - Mitigate Transient Interference with a Contactor



You can put resistor-capacitor (RC) networks or voltage-dependant resistors (varistors) across contacts to mitigate transient interference. Be sure to select components that are rated to withstand the voltage, power, and frequency of switching for your application.

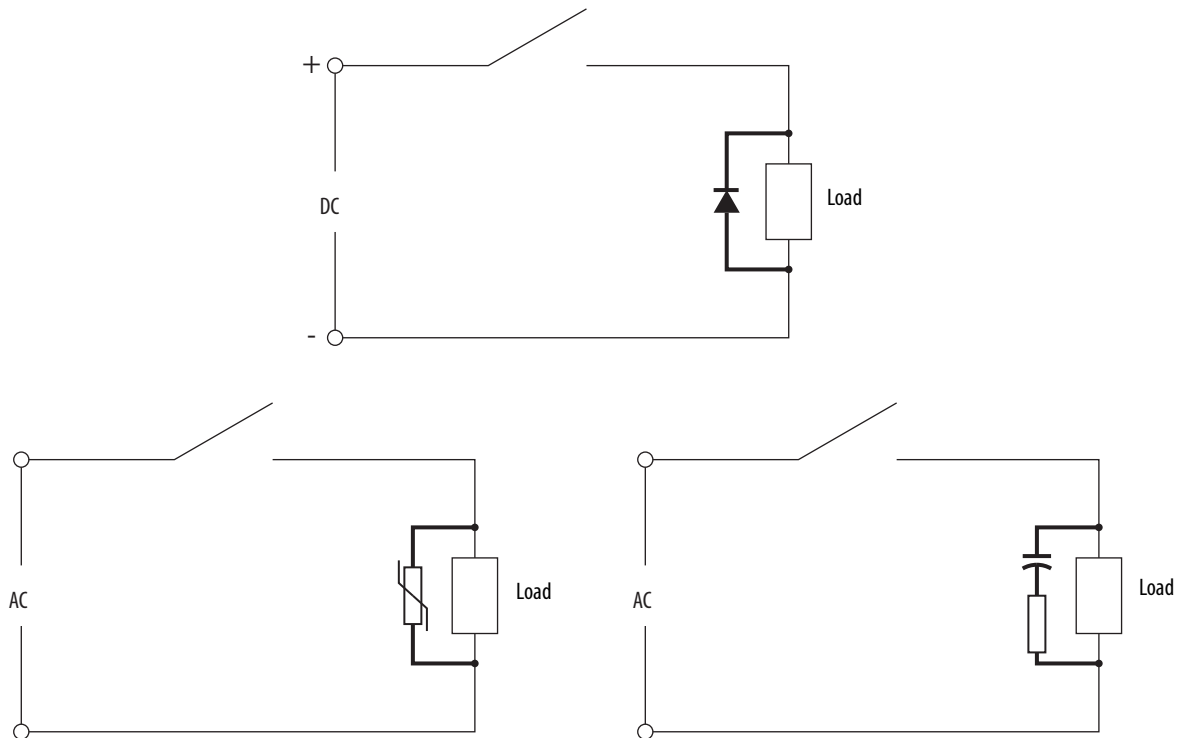
Figure 35 - Mitigate Transient Interference with a Resistor-capacitor or Varistor



A common method for mitigating transient interference is to put a diode in parallel with an inductive DC load, or a suppressor in parallel with an inductive AC load. Be sure to select components that are rated to withstand the voltage, power, and frequency of switching for your application.

IMPORTANT These methods are not effective at stopping transient interference, because they do not entirely eliminate arcing at the contacts.

Figure 36 - Mitigate Transient Interference with a Diode or Suppressor



[Table 14 on page 90](#) contains examples that illustrate methods for mitigating transient interference.

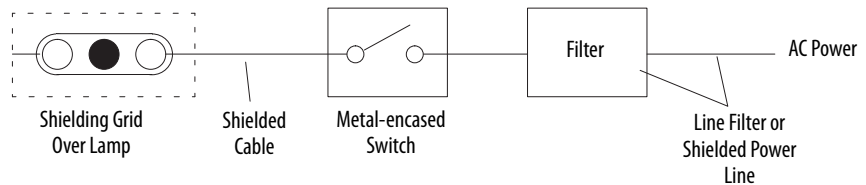
Table 14 - Examples of Transient Interference Mitigation

	<p>Example 1</p> <p>A contact output controls a DC control relay.</p> <p>The relay coil requires a suppressor (blocking diode) because it is an inductive device controlled by a dry contact.</p>
	<p>Example 2</p> <p>A DC output controls a motor starter, contacts on the starter control a motor.</p> <p>The contacts require RC networks or varistors.</p> <p>The motor requires suppressors because it is an inductive device.</p> <p>An inductive device that is controlled by a solid-state switching device (like the starter coil in this example) typically does not require a suppressor.</p>
	<p>Example 3</p> <p>An AC output controls an interposing relay, but the circuit can be opened by dry contacts. Relay contacts control a solenoid coil.</p> <p>The contacts require RC networks or varistors.</p> <p>The relay coil requires a suppressor because it is an inductive device controlled by dry contacts.</p> <p>The solenoid coil also requires a suppressor because it is an inductive device controlled by dry contacts.</p>
	<p>Example 4</p> <p>A contact output controls a pilot light with a built-in step-down transformer.</p> <p>The pilot light requires a suppressor because its transformer is an inductive device controlled by a dry contact.</p>
	<p>Example 5</p> <p>A contact output controls a relay that controls a brake solenoid.</p> <p>The contacts require RC networks or varistors.</p> <p>Both the relay and the brake solenoid require suppressors because they are both inductive devices controlled by dry contacts.</p>

Enclosure Lighting

Fluorescent lamps are also sources of EMI. If you must use fluorescent lamps inside an enclosure, follow these precautions to help guard against EMI problems:

- Install a shielding grid over the lamp
- Use shielded cable between the lamp and its switch
- Use a metal-encased switch
- Install a filter between the switch and the power line, or shield the power line cable



Bearing Current

The application of pulse-width modulated (PWM) inverters has led to significant advantages in terms of the performance, size, and efficiency of variable speed motor controls. However, the high switching rates that are used to obtain these advantages can also contribute to motor bearing damage due to bearing currents and electric discharge machining (EDM).

Bearing damage on motors that are supplied by PWM inverters is more likely to occur in applications where the coupling between the motor and load is not electrically conductive (such as belted loads), when the motor is lightly loaded, or when the motor is in an environment with ionized air.

Other factors, such as the type of grease and the type of bearings that are used, can also affect the longevity of motor bearings. Motor manufacturers that design and manufacture motors for use with variable frequency drives can offer solutions to help mitigate these potential problems.

Notes:

Motor Cable Length Restrictions

Overview

The distances that are listed in each table are valid only for specific cable constructions. The distances are not always accurate for lesser cable designs, particularly if the length restriction is due to cable charging current (indicated in the tables by shading). Consider these descriptions when choosing the cable.

IMPORTANT The motor cable length approximations are based on a minimum wire size of 12 AWG.

Cable charging current is not considered for motor cable length approximations.

Table 15 - Cable Type Descriptions

Cable Type	Description
Unshielded cable	<ul style="list-style-type: none"> Tray cable – fixed geometry without foil or braided shield but including an exterior cover Individual wires that are not routed in metallic conduit
Shielded cable	<ul style="list-style-type: none"> Individual conductors routed in metallic conduit Fixed geometry cables with foil or braided shield of at least 75% coverage Continuous weld or interlocked armored cables with no twist in the conductors (can have an optional foil shield)

IMPORTANT Certain shielded cable constructions can cause excessive cable charging currents and can interfere with proper application performance, particularly on smaller drive ratings. Shielded cables that do not maintain a fixed geometry, but rather twist the conductors and tightly wrap the bundle with a foil shield, can cause unnecessary drive tripping. Unless stated in the table, the distances that are listed are not applicable to this type of cable. Actual distances for this cable type can be considerably less.

Table 16 - Motor Type Descriptions

Motor Type	Description
Type A motor	<ul style="list-style-type: none"> No phase paper or misplaced phase paper Lower quality insulation systems Corona inception voltages between 850...1000V
Type B motor	<ul style="list-style-type: none"> Properly placed phase paper Medium quality insulation systems Corona inception voltages between 1000...1200V
1488V motor	<ul style="list-style-type: none"> Meets NEMA MG 1-1998 section 31 standard Insulation can withstand voltage spikes of 3.1 times rated motor voltage due to inverter operation
1329 R/L motor	<ul style="list-style-type: none"> AC variable speed motors are control-matched for use with Allen-Bradley® drives Motor that is designed to meet or exceed the requirements of the Federal Energy Act of 1992 Optimized for variable speed operation and include premium inverter-grade insulation systems that meet or exceed NEMA MG1 (Part 31.40.4.2)

In the tables in this section, a ‘•’ in the available options column indicates that the drive rating can be used with an Allen-Bradley® terminator (catalog numbers 1204-TFA1/1204-TFB2), and/or reflected wave reduction device with common mode choke (catalog number 1204-RWC-17), or without choke (catalog number 1204-RWR2).

Follow these guidelines for terminators and reflected wave reduction devices:

- For the terminator, the maximum cable length is 182.9 m (600 ft) for 400/480/600V drives (not 690V). The PWM frequency must be 2 kHz. Catalog number 1204-TFA1 can be used only on low Hp (5 Hp and below), while catalog number 1204-TFB2 can be used from 2...800 Hp.
- 1204 reflected wave reduction device (all motor insulation classes):
 - Catalog number 1204-RWR2-09
 - 2 kHz: 182.9 m (600 ft) at 400/480V and 121.9 m (400 ft) at 600V.
 - 4 kHz: 91.4 m (300 ft) at 400/480V and 61.0 m (200 ft) at 600V.
 - Catalog number 1204-RWC-17
 - 2 kHz: 365.8 m (1200 ft) at 400/480/600V.
 - 4 kHz: 243.8 m (800 ft) at 400/480V and 121.9 m (400 ft) at 600V.

For both devices, power dissipation in the damping resistor limits maximum cable length.

Catalog number 1321-RWR is a complete reflected wave reduction solution available for many of the PowerFlex® drives. If available, a 1321-RWR catalog number is indicated in the Reactor/RWR column. When not available, use the reactor and resistor information that is provided in the tables in this section to build a solution.

For This Cat. No.	See This Publication
1321-RWR, 1321-3Rxx	1321 Power Conditioning Products Technical Data, publication 1321-TD001
1204-RWR2	1204 Reflected Wave Reduction Device Instructions, publication 1204-5.1
1204-RWC	1204 Reflected Wave Reduction Device with Common Mode Choke Instructions, publication 1204-IN001
1204-TFxx	1204 Terminator Instructions, publication 1204-IN002

Motor Cable Length Restrictions Tables Cross-reference

Use this table to find the drive and voltage rating that you are looking for.

Drive	Voltage	Table	Page
PowerFlex 4	400	18	100
	480	19	100
PowerFlex 4M	400	20	101
	480	21	101
PowerFlex 40	400	22	102
	480	23	102
	600	24	103
PowerFlex 400	400	25	104
	480	26	105
PowerFlex 520-Series	400	27	106
	480	28	107
	600	29	108
PowerFlex 70 (standard/enhanced) PowerFlex 700 (standard/vector)	400	30	109
	480	31	111
	600	32	113
PowerFlex 700 (standard/vector)	690	33	114
PowerFlex 700H	400	34	115
	480	35	115
	600	36	116
	690	37	117
PowerFlex 700L with PowerFlex 700VC Control	400	38	117
	480	39	118
	600	40	118
	690	41	118
PowerFlex 700L with PowerFlex 700S Control	400	42	119
	480	43	119
	600	44	120
	690	45	120

Drive	Voltage	Table	Page
PowerFlex 700S	400	46	121
	480	47	122
	600	48	124
	690	49	125
PowerFlex 753 and 755 (wall mount)	400	50	127
	480	51	130
	600	52	133
	690	53	135
PowerFlex 755 (floor mount)	400	54	137
	480	55	138
	600	56	140
	690	57	141
PowerFlex 755TL low harmonic drives PowerFlex 755TR regenerative drives PowerFlex 755TM drive systems (Also referred to as PowerFlex 755T drive products.)	400	58	143
	480	59	144
	600	60	146
	690	61	147
1336 PLUS™ II 1336 IMPACT™	380...480	62	149
	600	63	151
1305 (no external devices)	480	64	152
1305 (external devices at motor)	480	65	152
160	480	66	153
160 (cable charging current)	240 and 480	67	154

Cable Charging Current Phenomenon

A drive-to-motor, 3-wire plus ground cable, consists of C_{o1} line-to-line stray distributed capacitance and C_{og} distributed line to ground cable capacitance. There also exists a motor line-to-ground capacitance, which is defined by the stator winding capacitance to the motor PE frame ground, which can be added to C_{og} . During each dv/dt transition on the drive output line-to-line pulse, a capacitive coupled cable charging current is sourced from the drive, flows through C_{o1} , and returns through another phase.

The drive switching transition in a given phase output also sources another cable charging current path from line to ground through C_{og} . [Figure 37](#) shows the additional drive capacitive coupled current paths taken during a dv/dt transition. These additional currents can still exist whether the motor is connected or not. [Figure 38](#) shows that the capacitive coupled current spikes could exceed the normal drive rated current for a given motor load.

Figure 37 - Cable Charging Current Paths

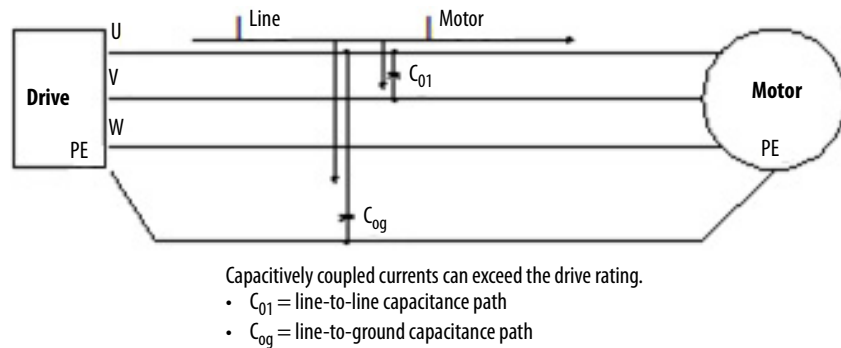
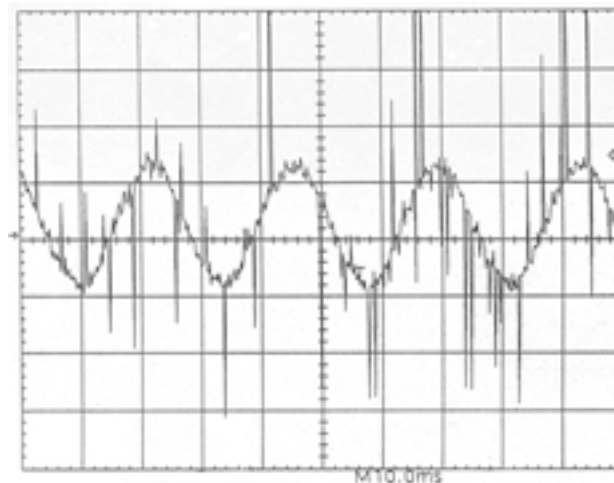


Figure 38 - Cable Charging Current Exceeding Rated Phase Current



This phenomenon exists for all drives. However, drives < 2 Hp are more susceptible to overload and overcurrent trips due to the additional charging currents. This phenomenon is exhibited to a greater degree on 480V drives than on 240V drives due to the higher output transition voltage. This phenomenon is made worse by having long leads on small Hp drives, or multiple cable loads from one small drive.

The rms current value of this charging current is made higher and can approach the drive rms overload limit by increasing the carrier frequency (the number of device switchings per second). Shielded motor cable has higher capacitance line-to-line and line-to-ground than wires in a conduit and can increase the charging current magnitude. Capacitively coupled currents can also exist between the output wires of different drives that are routed in the same conduit. To help prevent additional drive-to-drive capacitive currents resulting from tightly bundled output wires in a conduit, we recommend that no more than three drive output wires be routed in the same conduit.

General methods to mitigate this effect are reducing carrier frequency to 2 kHz, reducing cable lengths to manufacturer recommended values, and using 240V drives when possible. Over-sizing the drive Hp for a smaller motor Hp load is also effective to be sure that cable charging limits are not met. Some drive manufacturers have recommended maximum allowable cable distances for various drive and motor Hp combinations in the <2 Hp applications to mitigate the cable charge effect at the installation planning stage. Another mitigation technique is to add a 3-phase inductor on the drive output to reduce the cable charge current magnitude.

How to Read the Motor Cable Length Restrictions Tables

The motor cable length restriction tables are divided into a maximum of eight columns (depending on the drive being used) going across the top. See [Table 17](#) for a description of each column.

Table 17 - Motor Cable Length Restrictions Table Definitions

Column Heading	Description
Drive	This column is the frame size of the drive. Use the frame size in combination with the rating column to identify the drive.
Rating	This column is the rating of the drive. Use the rating in combination with the drive column to identify the drive. The Hp column refers to the Hp rating of the drive. The kW column refers to the kW of the drive. The kHz column refers to the carrier frequency of the drive. The carrier frequency can be changed via a parameter in the drive. A higher carrier frequency is typically associated with a lower motor lead length.
No Solution	Data in this column is for drives with only a wire between the drive and the motor. The column is divided into four subcolumns: 1000V, 1200V, 1488V, and 1600V. These voltages refer to the insulation rating on the windings in the selected motor. The insulation rating of the windings of the motor come from the motor manufacturer. Typically, an inverter-rated motor is 1488V, a newer non-inverter rated motor is 1200V, while an older non-inverter rated motor is 1000V.
Reactor Only	Data under this column is for drives with a reactor between the drive and the motor. In many cases, the motor lead length can be extended by adding a load reactor between the drive and the motor. The column is divided into four subcolumns: 1000V, 1200V, 1488V, and 1600V. These voltages refer to the insulation rating on the windings in the selected motor. The insulation rating of the windings of the motor come from the motor manufacturer. Typically, an inverter-rated motor is 1488V, a newer non-inverter rated motor is 1200V, while an older non-inverter rated motor is 1000V. If you have an inverter duty-rated motor, to verify that the motor has 1488V winding insulation, ask the motor manufacturer if the motor meets NEMA spec MG1 par 31 1992.

Table 17 - Motor Cable Length Restrictions Table Definitions (continued)

Column Heading	Description
Reactor and Damping Resistor or 1321-RWR	In cases where longer motor lead lengths are required, a load reactor in parallel with a damping resistor can be used to extend the motor lead length. The column is divided into four subcolumns: 1000V, 1200V, 1488V, and 1600V. These voltages refer to the insulation rating on the windings in the selected motor. The insulation rating of the windings of the motor come from the motor manufacturer. Typically, an inverter-rated motor is 1488V, a newer non-inverter rated motor is 1200V, while an older non-inverter rated motor is 1000V.
Reactor/RWR	This column gives the catalog number of the reactor based on the data from the 'Reactor and Damping Resistor or 1321-RWR' column.
Resistor	In many cases, this column is blank. No data is given if a 1321-RWR offering is available. In some cases, the 1321-RWR device does not exist. In these cases, a resistor size is recommended here. The ohms and watts of this resistor are given in the two subcolumns, 'Ohms' and 'Watts'.
Available Options	This column refers to options that can be used to extend motor lead length. The four sub columns are TFA1, TFB2, RWR2, and RWC. <ul style="list-style-type: none"> TFA1 and TFB2 refer to the motor terminators 1204-TFA1 and 1204-TFB2. See 1204 Terminator Instructions, publication 1204-5.0, for data on the motor lead length associated with these products RWR2 refers to the DVDI filter 1204-RWR2-09-B or 1204-RWR2-09-C. See 1204 Reflected Wave Reduction Device Instructions, publication 1204-5.1 for data on the motor lead length associated with this product. RWC refers to the DVDI filter 1204-RWC-17-A. See 1204 Reflected Wave Reduction Device with Common Mode Choke Installation Instructions, publication 1204-IN001A-EN-P, for data on the motor lead length associated with this product.

Example Use Case

- PowerFlex 753 and 755 wall mount drive
- 400 volt
- Frame 3
- Rating of 15 kW
- Carrier frequency (parameter 38) in the drive at 2 kHz
- Inverter duty-rated motor at 1488V insulation rating on the windings of the motor
- The motor lead length that can be used is 365.8 meters (1200 feet)

Example PowerFlex 753 and 755 Wall Mount Drives 400V Shielded/Unshielded Cable – Meters (Feet)

Drive	Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
Frame	kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
3	15	2	7.6 (25)	137.2 (450)	365.8 (1200)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP				•		
		4	7.6 (25)	91.4 (300)	152.4 (500)	213.4 (700)	18.3 (60)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	304.8 (1000)	365.8 (1200)	365.8 (1200)							
	18.5	2	7.6 (25)	137.2 (450)	365.8 (1200)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP				•		
		4	7.6 (25)	91.4 (300)	152.4 (500)	213.4 (700)	18.3 (60)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	304.8 (1000)	365.8 (1200)	365.8 (1200)							

PowerFlex 4 Drives

This section lists motor cable length restrictions, reactors, and available options for PowerFlex 4 Drives.

Table 18 - PowerFlex 4 Drives, 400V Shielded/Unshielded Cable – Meters (Feet)

Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
0.4	2/4	7.6 (25)	53.3 (175)	53.3 (175)	53.3 (175)	91.4 (300)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)				•		•	•
0.75	2/4	7.6 (25)	83.8 (275)	83.8 (275)	83.8 (275)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•	•
1.5	2/4	7.6 (25)	83.8 (275)	83.8 (275)	83.8 (275)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•	•	•	•
2.2	2/4	7.6 (25)	137.2 (450)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	1321-RWR8-DP			•	•	•	•
3.7	2/4	7.6 (25)	137.2 (450)	243.8 (800)	243.8 (800)	91.4 (300)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR12-DP			•	•	•	•

Table 19 - PowerFlex 4 Drives, 480V Shielded/Unshielded Cable – Meters (Feet)

Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
0.5	2/4	7.6 (25)	12.2 (40)	53.3 (175)	53.3 (175)	7.6 (25)	91.4 (300)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)				•		•	•
1	2/4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•	•
2	2/4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	•
3	2/4	7.6 (25)	12.2 (40)	129.5 (425)	129.5 (425)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	1321-RWR8-DP			•	•	•	•
5	2/4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	91.4 (300)	243.8 (800)	243.8 (800)	182.9 (600)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR12-DP			•	•	•	•

PowerFlex 4M Drives

This section lists motor cable length restrictions, reactors, and available options for PowerFlex 4M Drives.

Table 20 - PowerFlex 4M Drives, 400V Shielded/Unshielded Cable – Meters (Feet)

Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
0.4	2/4	7.6 (25)	53.3 (175)	53.3 (175)	53.3 (175)	91.4 (300)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)				•		•	•
0.75	2/4	7.6 (25)	83.8 (275)	83.8 (275)	83.8 (275)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•	•
1.5	2/4	7.6 (25)	83.8 (275)	83.8 (275)	83.8 (275)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•	•	•	•
2.2	2/4	7.6 (25)	137.2 (450)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	1321-RWR8-DP			•	•	•	•
3.7	2/4	7.6 (25)	137.2 (450)	243.8 (800)	243.8 (800)	91.4 (300)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR12-DP			•	•	•	•
5.5	2/4	7.6 (25)	137.2 (450)	304.8 (1000)	304.8 (1000)	91.4 (300)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-DP				•		•
7.5	2/4	7.6 (25)	137.2 (450)	365.8 (1200)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP				•		•
11	2/4	7.6 (25)	137.2 (450)	365.8 (1200)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP				•		

Table 21 - PowerFlex 4M Drives, 480V Shielded/Unshielded Cable – Meters (Feet)

Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
0.5	2/4	7.6 (25)	12.2 (40)	53.3 (175)	53.3 (175)	7.6 (25)	91.4 (300)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)				•		•	•
1	2/4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•	•
2	2/4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	•
3	2/4	7.6 (25)	12.2 (40)	129.5 (425)	129.5 (425)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	1321-RWR8-DP			•	•	•	•
5	2/4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	91.4 (300)	243.8 (800)	243.8 (800)	182.9 (600)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR12-DP			•	•	•	•
7.5	2/4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	91.4 (300)	304.8 (1000)	304.8 (1000)	182.9 (600)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-DP				•		•
10	2/4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP				•		•
15	2/4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP				•		

PowerFlex 40 Drives

This section lists motor cable length restrictions, reactors, and available options for PowerFlex 40 Drives.

Table 22 - PowerFlex 40 Drives, 400V Shielded/Unshielded Cable – Meters (Feet)

Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
0.4	2/4	7.6 (25)	53.3 (175)	53.3 (175)	53.3 (175)	91.4 (300)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)				•		•	•
0.75	2/4	7.6 (25)	83.8 (275)	83.8 (275)	83.8 (275)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•	•
1.5	2/4	7.6 (25)	83.8 (275)	83.8 (275)	83.8 (275)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•	•	•	•
2.2	2/4	7.6 (25)	137.2 (450)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	1321-RWR8-DP			•	•	•	•
4	2/4	7.6 (25)	137.2 (450)	243.8 (800)	243.8 (800)	91.4 (300)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR12-DP			•	•		•
5.5	2/4	7.6 (25)	137.2 (450)	304.8 (1000)	304.8 (1000)	91.4 (300)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-DP				•		•
7.5	2/4	7.6 (25)	137.2 (450)	365.8 (1200)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP				•		•
11	2/4	7.6 (25)	137.2 (450)	365.8 (1200)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP				•		

Table 23 - PowerFlex 40 Drives, 480V Shielded/Unshielded Cable – Meters (Feet)

Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
0.5	2/4	7.6 (25)	12.2 (40)	53.3 (175)	53.3 (175)	7.6 (25)	91.4 (300)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)				•		•	•
1	2/4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•	•
2	2/4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	•
3	2/4	7.6 (25)	12.2 (40)	129.5 (425)	129.5 (425)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	1321-RWR8-DP			•	•	•	•
5	2/4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	91.4 (300)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR12-DP			•	•		•
7.5	2/4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	91.4 (300)	304.8 (1000)	304.8 (1000)	182.9 (600)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-DP				•		•
10	2/4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP				•		•
15	2/4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP				•		

Table 24 - PowerFlex 40 Drives, 600V Shielded/Unshielded Cable – Meters (Feet)

Rating		No Solution		Reactor Only		Reactor and Damping Resistor or 1321-RWR		Reactor/RWR (see page 154)	Resistor		Available Options			
Hp	kHz	1488V	1850V	1488V	1600V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
1	2/4	42.7 (140)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)				•		•	•
2	2/4	42.7 (140)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•	•
3	2/4	42.7 (140)	152.4 (500)	152.4 (500)	152.4 (500)	182.9 (600)	182.9 (600)				•		•	•
5	2/4	42.7 (140)	152.4 (500)	152.4 (500)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR8-DP			•	•	•	•
7.5	2/4	42.7 (140)	182.9 (600)	152.4 (500)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-DP				•		•
10	2/4	42.7 (140)	182.9 (600)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP				•		•
15	2/4	42.7 (140)	182.9 (600)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP				•		

PowerFlex 400 Drives

This section lists motor cable length restrictions, reactors, and available options for PowerFlex 400 Drives.

Table 25 - PowerFlex 400 Drives, 400V Shielded/Unshielded Cable – Meters (Feet)

Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TF1	TF2	RWR2	RWC
2.2	2, 4	7.6 (25)	106.7 (350)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	1321-RWR8-DP			•	•	•	•
4	2, 4	7.6 (25)	106.7 (350)	243.8 (800)	243.8 (800)	91.4 (300)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR12-DP			•	•		•
5.5	2, 4	7.6 (25)	106.7 (350)	274.3 (900)	304.8 (1000)	91.4 (300)	274.3 (900)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-DP				•		•
7.5	2, 4	7.6 (25)	106.7 (350)	274.3 (900)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP				•		•
11	2, 4	7.6 (25)	106.7 (350)	274.3 (900)	365.8 (1200)	76.2 (250)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP				•		
15	2, 4	7.6 (25)	106.7 (350)	274.3 (900)	365.8 (1200)	76.2 (250)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP				•		
18.5	2, 4	7.6 (25)	106.7 (350)	274.3 (900)	365.8 (1200)	76.2 (250)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR45-DP				•		
22	2, 4	7.6 (25)	106.7 (350)	274.3 (900)	365.8 (1200)	76.2 (250)	213.4 (700)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR45-DP				•		
30	2, 4	7.6 (25)	106.7 (350)	274.3 (900)	365.8 (1200)	76.2 (250)	213.4 (700)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR55-DP				•		
37	2, 4	12.2 (40)	106.7 (350)	274.3 (900)	365.8 (1200)	76.2 (250)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP				•		
45	2, 4	12.2 (40)	106.7 (350)	274.3 (900)	365.8 (1200)	61.0 (200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR100-DP				•		
55	2, 4	12.2 (40)	106.7 (350)	213.4 (700)	365.8 (1200)	61.0 (200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR100-DP				•		
75	2, 4	12.2 (40)	91.4 (300)	213.4 (700)	365.8 (1200)	61.0 (200)	152.4 (500)	365.8 (1200)	365.8 (1200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR160-DP				•		
90	2, 4	18.3 (60)	91.4 (300)	213.4 (700)	304.8 (1000)	61.0 (200)	152.4 (500)	365.8 (1200)	365.8 (1200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR200-DP				•		
110	2, 4	24.4 (80)	91.4 (300)	213.4 (700)	274.3 (900)	61.0 (200)	152.4 (500)	365.8 (1200)	365.8 (1200)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR200-DP				•		
132	2, 4	24.4 (80)	91.4 (300)	182.9 (600)	274.3 (900)	61.0 (200)	152.4 (500)	365.8 (1200)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR250-DP				•		
160	2, 4	24.4 (80)	91.4 (300)	182.9 (600)	274.3 (900)	45.7 (150)	121.9 (400)	304.8 (1000)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR320-DP				•		
200	2, 4	24.4 (80)	91.4 (300)	167.6 (550)	274.3 (900)	45.7 (150)	121.9 (400)	304.8 (1000)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-3RB400-B	20	495		•		
250	2, 4	24.4 (80)	91.4 (300)	167.6 (550)	274.3 (900)	45.7 (150)	121.9 (400)	304.8 (1000)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-3R500-B	20	495		•		

Table 26 - PowerFlex 400 Drives, 480V Shielded/Unshielded Cable – Meters (Feet)

Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
3	2, 4	7.6 (25)	12.2 (40)	121.9 (400)	121.9 (400)	12.2 (40)	91.4 (300)	182.9 (600)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)	1321-RWR8-DP			•	•	•	•
5	2, 4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	12.2 (40)	91.4 (300)	243.8 (800)	243.8 (800)	152.4 (500)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR12-DP			•	•		•
7.5	2, 4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	12.2 (40)	91.4 (300)	304.8 (1000)	304.8 (1000)	152.4 (500)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-DP				•		•
10	2, 4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	12.2 (40)	91.4 (300)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP				•		•
15	2, 4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	12.2 (40)	76.2 (250)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP				•		
20	2, 4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	12.2 (40)	76.2 (250)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP				•		
25	2, 4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	12.2 (40)	76.2 (250)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR45-DP				•		
30	2, 4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	12.2 (40)	76.2 (250)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR45-DP				•		
40	2, 4	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	12.2 (40)	76.2 (250)	365.8 (1200)	365.8 (1200)	121.9 (400)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR55-DP				•		
50	2, 4	12.2 (40)	18.3 (60)	137.2 (450)	182.9 (600)	12.2 (40)	61.0 (200)	304.8 (1000)	365.8 (1200)	121.9 (400)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP				•		
60	2, 4	12.2 (40)	18.3 (60)	137.2 (450)	182.9 (600)	12.2 (40)	61.0 (200)	304.8 (1000)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR100-DP				•		
75	2, 4	12.2 (40)	18.3 (60)	137.2 (450)	182.9 (600)	12.2 (40)	61.0 (200)	304.8 (1000)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR100-DP				•		
100	2, 4	12.2 (40)	24.4 (80)	137.2 (450)	167.6 (550)	12.2 (40)	61.0 (200)	243.8 (800)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR160-DP				•		
125	2, 4	12.2 (40)	24.4 (80)	137.2 (450)	167.6 (550)	12.2 (40)	61.0 (200)	243.8 (800)	365.8 (1200)	76.2 (250)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR200-DP				•		
150	2, 4	12.2 (40)	24.4 (80)	137.2 (450)	167.6 (550)	12.2 (40)	61.0 (200)	213.4 (700)	304.8 (1000)	76.2 (250)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR200-DP				•		
200	2, 4	12.2 (40)	30.5 (100)	121.9 (400)	152.4 (500)	12.2 (40)	61.0 (200)	152.4 (500)	243.8 (800)	61.0 (200)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-RWR250-DP				•		
250	2, 4	12.2 (40)	30.5 (100)	121.9 (400)	152.4 (500)	12.2 (40)	45.7 (150)	152.4 (500)	213.4 (700)	61.0 (200)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-RWR320-DP				•		
300	2, 4	12.2 (40)	30.5 (100)	106.7 (350)	137.2 (450)	12.2 (40)	30.5 (100)	121.9 (400)	152.4 (500)	61.0 (200)	243.8 (800)	304.8 (1000)	365.8 (1200)	1321-3RB400-B	20	495		•		
350	2, 4	12.2 (40)	30.5 (100)	106.7 (350)	137.2 (450)	12.2 (40)	30.5 (100)	121.9 (400)	152.4 (500)	61.0 (200)	243.8 (800)	304.8 (1000)	365.8 (1200)	1321-3RS500-B	20	495		•		

PowerFlex 520-Series Drives

This section lists motor cable length restrictions, reactors, and available options for PowerFlex 520-Series Drives.

Table 27 - PowerFlex 520-Series Drives, 400V Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/ RWR (see page 154)	Resistor		Available Options				
Frame	Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWR	
A	0.4	2/4	7.6 (25)	35.1 (115)	35.1 (115)	35.1 (115)	61.0 (200)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)				•		•		
	0.75	2/4	7.6 (25)	35.1 (115)	35.1 (115)	35.1 (115)	61.0 (200)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•		
	1.5	2/4	7.6 (25)	83.8 (275)	83.8 (275)	83.8 (275)	61.0 (200)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•	•	•		
	2.2	2/4	7.6 (25)	83.8 (275)	83.8 (275)	83.8 (275)	61.0 (200)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	1321- RWR8-DP			•	•	•		
B	4	2/4	7.6 (25)	83.8 (275)	83.8 (275)	83.8 (275)	61.0 (200)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	1321- RWR12-DP			•	•		•	
C	5.5	2	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	61.0 (200)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321- RWR18-DP					•		•
		4	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	61.0 (200)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)							•	
	7.5	2	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	61.0 (200)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321- RWR18-DP					•		•
		4	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	61.0 (200)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)							•	
D	11	2	7.6 (25)	91.4 (300)	243.8 (800)	365.8 (1200)	61.0 (200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR25-DP					•		
		4	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	61.0 (200)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)								
	15	2	7.6 (25)	91.4 (300)	243.8 (800)	365.8 (1200)	61.0 (200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR35-DP					•		
		4	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	61.0 (200)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)								
E	18.5	2	7.6 (25)	91.4 (300)	243.8 (800)	365.8 (1200)	61.0 (200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR45-DP					•		
		4	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	61.0 (200)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)								
	22	2	7.6 (25)	91.4 (300)	243.8 (800)	365.8 (1200)	61.0 (200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR45-DP					•		
		4	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	61.0 (200)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)								

Table 28 - PowerFlex 520-Series Drives, 480V Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
Frame	Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
A	0.5	2/4	7.6 (25)	12.2 (40)	35.1 (115)	35.1 (115)	7.6 (25)	61.0 (200)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)				•		•	
	1	2/4	7.6 (25)	12.2 (40)	35.1 (115)	35.1 (115)	7.6 (25)	61.0 (200)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•	
	2	2/4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	61.0 (200)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•	•	•	
	3	2/4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	61.0 (200)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	1321-RWR8-DP			•	•	•	
B	5	2/4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	61.0 (200)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	1321-RWR12-DP			•	•		•
C	7.5	2	7.6 (25)	12.2 (40)	91.4 (300)	137.2 (450)	7.6 (25)	91.4 (300)	304.8 (1000)	304.8 (1000)	182.9 (600)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR18-DP				•		•
		4	7.6 (25)	12.2 (40)	91.4 (300)	137.2 (450)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)							•
	10	2	7.6 (25)	12.2 (40)	91.4 (300)	137.2 (450)	7.6 (25)	91.4 (300)	304.8 (1000)	304.8 (1000)	182.9 (600)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR18-DP				•		•
		4	7.6 (25)	12.2 (40)	91.4 (300)	137.2 (450)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)							•
D	15	2	7.6 (25)	12.2 (40)	91.4 (300)	137.2 (450)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP				•		
		4	7.6 (25)	12.2 (40)	91.4 (300)	137.2 (450)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)							
	20	2	7.6 (25)	12.2 (40)	91.4 (300)	137.2 (450)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP				•		
		4	7.6 (25)	12.2 (40)	91.4 (300)	137.2 (450)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)							
E	25	2	7.6 (25)	12.2 (40)	91.4 (300)	137.2 (450)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR45-DP				•		
		4	7.6 (25)	12.2 (40)	91.4 (300)	137.2 (450)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)							
	30	2	7.6 (25)	12.2 (40)	91.4 (300)	137.2 (450)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR45-DP				•		
		4	7.6 (25)	12.2 (40)	91.4 (300)	137.2 (450)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)							

Table 29 - PowerFlex 520-Series Drives, 600V Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution		Reactor Only		Reactor and Damping Resistor or 1321-RWR		Reactor/RWR (see page 154)	Resistor		Available Options			
Frame	Hp	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
A	0.5	2/4	12.2 (40)	35.1 (115)	76.2 (250)	121.9 (400)	121.9 (400)	121.9 (400)				•		•	
	1	2/4	12.2 (40)	35.1 (115)	76.2 (250)	121.9 (400)	121.9 (400)	121.9 (400)				•		•	
	2	2/4	12.2 (40)	83.8 (275)	76.2 (250)	152.4 (500)	152.4 (500)	152.4 (500)				•	•	•	
	3	2/4	12.2 (40)	83.8 (275)	76.2 (250)	152.4 (500)	152.4 (500)	152.4 (500)	1321-RWR8-EP			•	•	•	
B	5	2/4	12.2 (40)	83.8 (275)	76.2 (250)	152.4 (500)	152.4 (500)	152.4 (500)	1321-RWR8-EP			•	•		•
C	7.5	2	22.9 (75)	152.4 (500)	76.2 (250)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-EP				•		•
		4	22.9 (75)	152.4 (500)	76.2 (250)	182.9 (600)	182.9 (600)	182.9 (600)							•
	10	2	22.9 (75)	152.4 (500)	76.2 (250)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-EP				•		•
		4	22.9 (75)	152.4 (500)	76.2 (250)	182.9 (600)	182.9 (600)	182.9 (600)							•
D	15	2	30.5 (100)	152.4 (500)	76.2 (250)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-EP				•		
		4	30.5 (100)	152.4 (500)	76.2 (250)	182.9 (600)	182.9 (600)	182.9 (600)							
	20	2	30.5 (100)	152.4 (500)	76.2 (250)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-EP				•		
		4	30.5 (100)	152.4 (500)	76.2 (250)	182.9 (600)	182.9 (600)	182.9 (600)							
E	25	2	30.5 (100)	152.4 (500)	76.2 (250)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-EP				•		
		4	30.5 (100)	152.4 (500)	76.2 (250)	182.9 (600)	182.9 (600)	182.9 (600)							
	30	2	30.5 (100)	152.4 (500)	76.2 (250)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-EP				•		
		4	30.5 (100)	152.4 (500)	76.2 (250)	182.9 (600)	182.9 (600)	182.9 (600)							

PowerFlex 70 and 700 Drives

This section lists motor cable length restrictions, reactors, and available options for PowerFlex 70 and 700 Drives.

Table 30 - PowerFlex 70 (standard/enhanced) and 700 (standard/vector) Drives, 400V Shielded/Unshielded Cable – Meters (Feet)

Drive Frame	Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
			1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V		Ohms	Watts	TF1	TF2	RWR2	RWC
A	0	0.37	2	7.6 (25)	53.3 (175)	53.3 (175)	53.3 (175)	91.4 (300)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)				•	•	•	•
			4	7.6 (25)	53.3 (175)	53.3 (175)	53.3 (175)	18.3 (60)	91.4 (300)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)						•	•
		0.75	2	7.6 (25)	83.8 (275)	83.8 (275)	83.8 (275)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•	•	•	•
			4	7.6 (25)	76.2 (250)	76.2 (250)	76.2 (250)	18.3 (60)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)						•	•
		1.5	2	7.6 (25)	83.8 (275)	83.8 (275)	83.8 (275)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	•
			4	7.6 (25)	76.2 (250)	76.2 (250)	76.2 (250)	18.3 (60)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)						•	•
	B	2.2	2	7.6 (25)	137.2 (450)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	•
			4	7.6 (25)	91.4 (300)	152.4 (500)	182.9 (600)	18.3 (60)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)						•	•
		4	2	7.6 (25)	137.2 (450)	243.8 (800)	243.8 (800)	91.4 (300)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR8-DP			•	•		•
			4	7.6 (25)	91.4 (300)	152.4 (500)	213.4 (700)	18.3 (60)	91.4 (300)	243.8 (800)	243.8 (800)	182.9 (600)	243.8 (800)	243.8 (800)	1321-RWR8-DP						•
	C	5.5	2	7.6 (25)	137.2 (450)	304.8 (1000)	304.8 (1000)	91.4 (300)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-DP			•	•		•
			4	7.6 (25)	91.4 (300)	152.4 (500)	213.4 (700)	18.3 (60)	91.4 (300)	304.8 (1000)	304.8 (1000)	182.9 (600)	304.8 (1000)	304.8 (1000)	1321-RWR12-DP						•
		1	7.5	2	7.6 (25)	137.2 (450)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP				•		•
			4	7.6 (25)	91.4 (300)	152.4 (500)	213.4 (700)	18.3 (60)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	304.8 (1000)	365.8 (1200)	1321-RWR18-DP						•
	D	11	2	7.6 (25)	137.2 (450)	365.8 (1200)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP				•		
			4	7.6 (25)	91.4 (300)	152.4 (500)	213.4 (700)	18.3 (60)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	304.8 (1000)	365.8 (1200)	1321-RWR25-DP						
		2	15	2	7.6 (25)	137.2 (450)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP				•		
			4	7.6 (25)	91.4 (300)	152.4 (500)	213.4 (700)	18.3 (60)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	304.8 (1000)	365.8 (1200)	1321-RWR35-DP						
		18.5	2	7.6 (25)	137.2 (450)	365.8 (1200)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP				•		
			4	7.6 (25)	91.4 (300)	152.4 (500)	213.4 (700)	18.3 (60)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	304.8 (1000)	365.8 (1200)	1321-RWR35-DP						
		3	22	2	7.6 (25)	137.2 (450)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR45-DP				•		
			4	7.6 (25)	91.4 (300)	152.4 (500)	213.4 (700)	18.3 (60)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	304.8 (1000)	365.8 (1200)	1321-RWR45-DP						
	E	30	2	7.6 (25)	137.2 (450)	304.8 (1000)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR55-DP				•		
			4	7.6 (25)	91.4 (300)	152.4 (500)	213.4 (700)	18.3 (60)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	304.8 (1000)	365.8 (1200)	1321-RWR55-DP						
		37	2	12.2 (40)	137.2 (450)	304.8 (1000)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP				•		
			4	12.2 (40)	91.4 (300)	152.4 (500)	213.4 (700)	18.3 (60)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	304.8 (1000)	365.8 (1200)	1321-RWR80-DP						
4	45	2	12.2 (40)	137.2 (450)	304.8 (1000)	365.8 (1200)	91.4 (300)	304.8 (1000)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP				•		
		4	12.2 (40)	91.4 (300)	152.4 (500)	213.4 (700)	24.4 (80)	91.4 (300)	365.8 (1200)	365.8 (1200)	152.4 (500)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP						

Table 30 - PowerFlex 70 (standard/enhanced) and 700 (standard/vector) Drives, 400V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive Frame		Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options				
70	700	kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC	
70	5	55	2	12.2 (40)	137.2 (450)	304.8 (1000)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR100-DP				•			
			4	12.2 (40)	91.4 (300)	152.4 (500)	213.4 (700)	24.4 (80)	91.4 (300)	365.8 (1200)	365.8 (1200)	152.4 (500)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321- RWR100-DP							
		75	2	18.3 (60)	137.2 (450)	304.8 (1000)	365.8 (1200)	91.4 (300)	213.4 (700)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR130-DP				•		
			4	18.3 (60)	91.4 (300)	152.4 (500)	213.4 (700)	30.5 (100)	91.4 (300)	304.8 (1000)	365.8 (1200)	152.4 (500)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321- RWR130-DP							
		6	90	2	18.3 (60)	137.2 (450)	304.8 (1000)	365.8 (1200)	91.4 (300)	213.4 (700)	365.8 (1200)	365.8 (1200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR160-DP				•		
				4	18.3 (60)	91.4 (300)	152.4 (500)	213.4 (700)	30.5 (100)	91.4 (300)	365.8 (1200)	365.8 (1200)	121.9 (400)	243.8 (800)	365.8 (1200)	365.8 (1200)	1321- RWR160-DP						
	110		2	24.4 (80)	137.2 (450)	274.3 (900)	365.8 (1200)	76.2 (250)	198.1 (650)	365.8 (1200)	365.8 (1200)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR200-DP				•			
			4	24.4 (80)	91.4 (300)	152.4 (500)	213.4 (700)	36.6 (120)	91.4 (300)	365.8 (1200)	365.8 (1200)	121.9 (400)	213.4 (700)	365.8 (1200)	365.8 (1200)	1321- RWR200-DP							
	132		2	24.4 (80)	137.2 (450)	274.3 (900)	365.8 (1200)	61.0 (200)	182.9 (600)	365.8 (1200)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR250-DP				•			
			4	24.4 (80)	91.4 (300)	152.4 (500)	213.4 (700)	36.6 (120)	91.4 (300)	365.8 (1200)	365.8 (1200)	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)	1321- RWR250-DP							
	7	160	2	24.4 (80)	121.9 (400)	243.8 (800)	365.8 (1200)	61.0 (200)	152.4 (500)	304.8 (1000)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-3RB320- B	50	225		•			
			4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)	36.6 (120)	91.4 (300)	182.9 (600)	274.3 (900)	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)	1321-3RB320- B	50	450					
		180	2	24.4 (80)	121.9 (400)	243.8 (800)	365.8 (1200)	61.0 (200)	152.4 (500)	304.8 (1000)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-3RB320- B	50	225		•			
			4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)	36.6 (120)	91.4 (300)	182.9 (600)	274.3 (900)	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)	1321-3RB320- B	50	450					
		8	200	2	24.4 (80)	121.9 (400)	243.8 (800)	365.8 (1200)	61.0 (200)	152.4 (500)	304.8 (1000)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-3RB400- B ⁽¹⁾	20	495		•		
				4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)	36.6 (120)	91.4 (300)	182.9 (600)	228.6 (750)	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)	1321-3RB400- B ⁽¹⁾	20	990				
	240		2	24.4 (80)	121.9 (400)	243.8 (800)	365.8 (1200)	61.0 (200)	152.4 (500)	304.8 (1000)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-3R400- B ⁽¹⁾	20	495		•			
			4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)	36.6 (120)	91.4 (300)	167.6 (550)	213.4 (700)	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)	1321-3RB400- B ⁽¹⁾	20	990					
	280		2	24.4 (80)	121.9 (400)	213.4 (700)	304.8 (1000)	45.7 (150)	121.9 (400)	304.8 (1000)	365.8 (1200)	228.6 (750)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-3R500- B ⁽¹⁾	20	495		•			
			4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)	36.6 (120)	91.4 (300)	167.6 (550)	213.4 (700)	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)	1321-3R500- B ⁽¹⁾	20	990					
	300		2	24.4 (80)	121.9 (400)	213.4 (700)	259.1 (850)	45.7 (150)	121.9 (400)	304.8 (1000)	365.8 (1200)	228.6 (750)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-3R600- B ⁽¹⁾	20	495		•			
			4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)	36.6 (120)	91.4 (300)	167.6 (550)	213.4 (700)	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)	1321-3R600- B ⁽¹⁾	20	990					
	350	2	24.4 (80)	121.9 (400)	213.4 (700)	259.1 (850)	45.7 (150)	121.9 (400)	304.8 (1000)	365.8 (1200)	228.6 (750)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-3R600- B ⁽¹⁾	20	495		•				
		4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)	36.6 (120)	91.4 (300)	167.6 (550)	213.4 (700)	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)	1321-3R600- B ⁽¹⁾	20	990						
	9	400	2	24.4 (80)	91.4 (300)	152.4 (500)	213.4 (700)	36.6 (120)	91.4 (300)	304.8 (1000)	365.8 (1200)	198.1 (650)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-3R750- B ⁽²⁾	20	735		•			
			4	24.4 (80)	91.4 (300)	137.2 (450)	167.6 (550)	36.6 (120)	91.4 (300)	152.4 (500)	182.9 (600)	76.2 (250)	137.2 (450)	274.3 (900)	365.8 (1200)	1321-3R750- B ⁽²⁾	20	1470					
	10	500	2	24.4 (80)	91.4 (300)	152.4 (500)	213.4 (700)	36.6 (120)	91.4 (300)	304.8 (1000)	365.8 (1200)	198.1 (650)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-3R850- B ⁽²⁾	20	735		•			
			4	24.4 (80)	91.4 (300)	137.2 (450)	167.6 (550)	36.6 (120)	91.4 (300)	152.4 (500)	182.9 (600)	76.2 (250)	137.2 (450)	274.3 (900)	365.8 (1200)	1321-3R850- B ⁽²⁾	20	1470					

(1) Requires two parallel cables.

(2) Requires three parallel cables.

Table 31 - PowerFlex 70 (standard/enhanced) and 700 (standard/vector) Drives, 480V Shielded/Unshielded Cable – Meters (Feet)

Drive Frame		Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options					
70	700	Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TF1	TF2	RWR2	RWC		
A	0	0.5	2	7.6 (25)	12.2 (40)	53.3 (175)	53.3 (175)	7.6 (25)	91.4 (300)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)				•		•	•		
			4	7.6 (25)	12.2 (40)	53.3 (175)	53.3 (175)	7.6 (25)	12.2 (40)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)						•	•		
		1	2	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•	•		
			4	7.6 (25)	12.2 (40)	76.2 (250)	76.2 (250)	7.6 (25)	12.2 (40)	121.9 (400)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)						•	•		
		2	2	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	•	
			4	7.6 (25)	12.2 (40)	76.2 (250)	76.2 (250)	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)						•	•	
B	3	2	7.6 (25)	12.2 (40)	129.5 (425)	129.5 (425)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	•		
			4	7.6 (25)	12.2 (40)	121.9 (400)	121.9 (400)	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)						•	•		
		5	2	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	91.4 (300)	243.8 (800)	243.8 (800)	182.9 (600)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR8-DP			•	•	•	•	
			4	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	7.6 (25)	12.2 (40)	121.9 (400)	243.8 (800)	182.9 (600)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR8-DP					•	•	
C	7.5	2	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	91.4 (300)	304.8 (1000)	304.8 (1000)	182.9 (600)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-DP				•		•		
			4	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	7.6 (25)	12.2 (40)	121.9 (400)	304.8 (1000)	182.9 (600)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-DP					•		
D	1	10	2	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP				•		•	
			4	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	7.6 (25)	12.2 (40)	121.9 (400)	304.8 (1000)	182.9 (600)	304.8 (1000)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP						•	
		15	2	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP				•		
			4	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	7.6 (25)	12.2 (40)	121.9 (400)	304.8 (1000)	182.9 (600)	304.8 (1000)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP						
E	2	20	2	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP				•			
			4	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	7.6 (25)	12.2 (40)	121.9 (400)	304.8 (1000)	182.9 (600)	304.8 (1000)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP						
		25	2	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	76.2 (250)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP				•		
			4	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	7.6 (25)	12.2 (40)	121.9 (400)	274.3 (900)	152.4 (500)	304.8 (1000)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP						
	3	30	2	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	76.2 (250)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR45-DP				•		
			4	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	7.6 (25)	12.2 (40)	121.9 (400)	243.8 (800)	152.4 (500)	304.8 (1000)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR45-DP						
	40	2	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	76.2 (250)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR55-DP				•		
		4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	12.2 (40)	106.7 (350)	228.6 (750)	121.9 (400)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR55-DP						
50	2	12.2 (40)	18.3 (60)	137.2 (450)	182.9 (600)	12.2 (40)	61.0 (200)	304.8 (1000)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP				•			
	4	7.6 (25)	12.2 (40)	91.4 (300)	152.4 (500)	12.2 (40)	18.3 (60)	106.7 (350)	228.6 (750)	91.4 (300)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP							
	4	60	2	12.2 (40)	18.3 (60)	137.2 (450)	182.9 (600)	12.2 (40)	61.0 (200)	304.8 (1000)	365.8 (1200)	137.2 (450)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP				•		
			4	7.6 (25)	12.2 (40)	91.4 (300)	152.4 (500)	12.2 (40)	24.4 (80)	91.4 (300)	228.6 (750)	76.2 (250)	213.4 (700)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP					

Table 31 - PowerFlex 70 (standard/enhanced) and 700 (standard/vector) Drives, 480V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive Frame		Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
70	700	Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
70	5	75	2	12.2 (40)	18.3 (60)	137.2 (450)	182.9 (600)	12.2 (40)	61.0 (200)	274.3 (900)	365.8 (1200)	137.2 (450)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR100-DP				•		
			4	7.6 (25)	12.2 (40)	91.4 (300)	152.4 (500)	12.2 (40)	24.4 (80)	91.4 (300)	182.9 (600)	76.2 (250)	182.9 (600)	365.8 (1200)	365.8 (1200)	1321-RWR100-DP						
		100	2	12.2 (40)	24.4 (80)	137.2 (450)	182.9 (600)	12.2 (40)	61.0 (200)	243.8 (800)	365.8 (1200)	137.2 (450)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR130-DP				•		
			4	7.6 (25)	18.3 (60)	91.4 (300)	152.4 (500)	12.2 (40)	30.5 (100)	91.4 (300)	152.4 (500)	61.0 (200)	137.2 (450)	304.8 (1000)	304.8 (1000)	1321-RWR130-DP						
	6	125	2	12.2 (40)	24.4 (80)	137.2 (450)	182.9 (600)	12.2 (40)	61.0 (200)	243.8 (800)	365.8 (1200)	121.9 (400)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR160-DP				•		
			4	7.6 (25)	18.3 (60)	91.4 (300)	152.4 (500)	12.2 (40)	30.5 (100)	91.4 (300)	152.4 (500)	61.0 (200)	106.7 (350)	243.8 (800)	274.3 (900)	1321-RWR160-DP						
		150	2	12.2 (40)	24.4 (80)	137.2 (450)	182.9 (600)	12.2 (40)	61.0 (200)	243.8 (800)	304.8 (1000)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-RWR200-DP				•		
			4	7.6 (25)	24.4 (80)	91.4 (300)	152.4 (500)	12.2 (40)	30.5 (100)	91.4 (300)	152.4 (500)	45.7 (150)	76.2 (250)	243.8 (800)	274.3 (900)	1321-RWR200-DP						
		200	2	12.2 (40)	30.5 (100)	137.2 (450)	182.9 (600)	12.2 (40)	61.0 (200)	243.8 (800)	304.8 (1000)	76.2 (250)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-RWR250-DP				•		
			4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	36.6 (120)	91.4 (300)	121.9 (400)	45.7 (150)	76.2 (250)	213.4 (700)	274.3 (900)	1321-RWR250-DP						
		250	2	12.2 (40)	30.5 (100)	137.2 (450)	167.6 (550)	12.2 (40)	61.0 (200)	198.1 (650)	259.1 (850)	76.2 (250)	243.8 (800)	365.8 (1200)	365.8 (1200)	1321-3RB320-B	50	225		•		
			4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	45.7 (150)	76.2 (250)	213.4 (700)	274.3 (900)	1321-3RB320-B	50	450				
	8	300	2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	12.2 (40)	45.7 (150)	137.2 (450)	198.1 (650)	61.0 (200)	243.8 (800)	365.8 (1200)	365.8 (1200)	1321-3RB400-B ⁽¹⁾	20	495		•		
			4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	45.7 (150)	76.2 (250)	213.4 (700)	274.3 (900)	1321-3RB400-B ⁽¹⁾	20	990				
		350	2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	12.2 (40)	45.7 (150)	137.2 (450)	198.1 (650)	61.0 (200)	243.8 (800)	365.8 (1200)	365.8 (1200)	1321-3R400-B ⁽¹⁾	20	495		•		
			4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	45.7 (150)	76.2 (250)	167.6 (550)	259.1 (850)	1321-3RB400-B ⁽¹⁾	20	990				
		400	2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	12.2 (40)	45.7 (150)	137.2 (450)	182.9 (600)	61.0 (200)	213.4 (700)	365.8 (1200)	365.8 (1200)	1321-3R500-B ⁽¹⁾	20	495		•		
			4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	45.7 (150)	76.2 (250)	167.6 (550)	259.1 (850)	1321-3R500-B ⁽¹⁾	20	990				
		450	2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	12.2 (40)	45.7 (150)	137.2 (450)	182.9 (600)	61.0 (200)	213.4 (700)	365.8 (1200)	365.8 (1200)	1321-3R600-B ⁽¹⁾	20	495		•		
			4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	45.7 (150)	76.2 (250)	167.6 (550)	259.1 (850)	1321-3R600-B ⁽¹⁾	20	990				
		500	2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	12.2 (40)	45.7 (150)	121.9 (400)	152.4 (500)	61.0 (200)	182.9 (600)	304.8 (1000)	365.8 (1200)	1321-3R600-B ⁽¹⁾	20	495		•		
			4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	45.7 (150)	76.2 (250)	167.6 (550)	243.8 (800)	1321-3R600-B ⁽¹⁾	20	990				
	9	600	2	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	12.2 (40)	45.7 (150)	106.7 (350)	137.2 (450)	61.0 (200)	152.4 (500)	274.3 (900)	365.8 (1200)	1321-3R750-B ⁽²⁾	20	735		•		
			4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	45.7 (150)	61.0 (200)	152.4 (500)	213.4 (700)	1321-3R750-B ⁽²⁾	20	1470				
	10	700	2	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	12.2 (40)	45.7 (150)	106.7 (350)	137.2 (450)	61.0 (200)	152.4 (500)	274.3 (900)	365.8 (1200)	1321-3R850-B ⁽²⁾	20	735		•		
			4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	30.5 (100)	61.0 (200)	152.4 (500)	213.4 (700)	1321-3R850-B ⁽²⁾	20	1470				

(1) Requires two parallel cables.

(2) Requires three parallel cables.

Table 32 - PowerFlex 70 (standard/enhanced) and 700 (standard/vector) Drives, 600V Shielded/Unshielded Cable – Meters (Feet)

Drive Frame		Rating		No Solution		Reactor Only		1321-RWR		RWR (see page 154)	Available Options			
70	700	Hp	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	TFA1	TFB2	RWR2	RWC
A	0	1	2	42.7 (140)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)	121.9 (400)		•		•	•
			4	30.5 (100)	121.9 (400)	30.5 (100)	121.9 (400)	121.9 (400)	121.9 (400)				•	•
		2	2	42.7 (140)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)		•		•	•
			4	30.5 (100)	137.2 (450)	30.5 (100)	152.4 (500)	152.4 (500)	152.4 (500)				•	•
		3	2	42.7 (140)	152.4 (500)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)		•		•	•
			4	30.5 (100)	137.2 (450)	30.5 (100)	152.4 (500)	182.9 (600)	182.9 (600)				•	•
		5	2	42.7 (140)	152.4 (500)	152.4 (500)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR8-EP	•		•	•
			4	30.5 (100)	137.2 (450)	30.5 (100)	152.4 (500)	243.8 (800)	243.8 (800)	1321-RWR8-EP			•	•
B	0	7.5	2	42.7 (140)	152.4 (500)	152.4 (500)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-EP				•
			4	30.5 (100)	137.2 (450)	30.5 (100)	152.4 (500)	304.8 (1000)	304.8 (1000)	1321-RWR12-EP				•
		1	10	2	42.7 (140)	182.9 (600)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR12-EP			•
			4	30.5 (100)	137.2 (450)	30.5 (100)	152.4 (500)	304.8 (1000)	365.8 (1200)	1321-RWR12-EP				•
		15	2	42.7 (140)	182.9 (600)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-EP				
			4	30.5 (100)	137.2 (450)	30.5 (100)	152.4 (500)	304.8 (1000)	365.8 (1200)	1321-RWR18-EP				
		2	20	2	42.7 (140)	182.9 (600)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-EP		•	
			4	30.5 (100)	137.2 (450)	30.5 (100)	152.4 (500)	304.8 (1000)	365.8 (1200)	1321-RWR25-EP				
C	0	25	2	42.7 (140)	182.9 (600)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-EP		•		
			4	30.5 (100)	137.2 (450)	30.5 (100)	152.4 (500)	304.8 (1000)	365.8 (1200)	1321-RWR35-EP				
		3	30	2	42.7 (140)	182.9 (600)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-EP		•	
			4	30.5 (100)	137.2 (450)	36.6 (120)	152.4 (500)	304.8 (1000)	365.8 (1200)	1321-RWR35-EP				
		40	2	42.7 (140)	182.9 (600)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR45-EP		•		
			4	30.5 (100)	137.2 (450)	36.6 (120)	152.4 (500)	304.8 (1000)	365.8 (1200)	1321-RWR45-EP				
		50	2	42.7 (140)	182.9 (600)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR55-EP		•		
			4	36.6 (120)	137.2 (450)	45.7 (150)	152.4 (500)	304.8 (1000)	365.8 (1200)	1321-RWR55-EP				
D	0	50	2	42.7 (140)	182.9 (600)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR55-EP		•		
			4	36.6 (120)	137.2 (450)	45.7 (150)	152.4 (500)	304.8 (1000)	365.8 (1200)	1321-RWR55-EP				

Table 32 - PowerFlex 70 (standard/enhanced) and 700 (standard/vector) Drives, 600V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive Frame		Rating		No Solution		Reactor Only		1321-RWR		RWR (see page 154)	Available Options			
70	700	Hp	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	TFA1	TFB2	RWR2	RWC
	4	60	2	42.7 (140)	182.9 (600)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-EP		•		
			4	36.6 (120)	137.2 (450)	45.7 (150)	152.4 (500)	274.3 (900)	365.8 (1200)	1321-RWR80-EP				
	5	75	2	42.7 (140)	182.9 (600)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-EP		•		
			4	36.6 (120)	137.2 (450)	45.7 (150)	152.4 (500)	274.3 (900)	365.8 (1200)	1321-RWR80-EP				
		100	2	42.7 (140)	182.9 (600)	152.4 (500)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR100-EP		•		
			4	42.7 (140)	137.2 (450)	45.7 (150)	152.4 (500)	274.3 (900)	365.8 (1200)	1321-RWR100-EP				
	6	125	2	42.7 (140)	182.9 (600)	121.9 (400)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR130-EP		•		
			4	42.7 (140)	137.2 (450)	45.7 (150)	152.4 (500)	228.6 (750)	365.8 (1200)	1321-RWR130-EP				
		150	2	42.7 (140)	182.9 (600)	121.9 (400)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR160-EP		•		
			4	42.7 (140)	137.2 (450)	45.7 (150)	152.4 (500)	198.1 (650)	365.8 (1200)	1321-RWR160-EP				

Table 33 - PowerFlex 700 (standard/vector) Drives, 690V Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution		Reactor Only		Reactor and Damping Resistor		Reactor	Resistor		Available Options			
Frame	kW	kHz	1850V	2000V	1850V	2000V	1850V	2000V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
4	45	2	30.5 (100)	106.7 (350)	91.4 (300)	152.4 (500)	365.8 (1200)	365.8 (1200)	1321-3R80-C	50	345				
		4	24.4 (80)	76.2 (250)	36.6 (120)	121.9 (400)	213.4 (700)	274.3 (900)	1321-3R80-C	50	690				
	55	2	30.5 (100)	106.7 (350)	91.4 (300)	152.4 (500)	365.8 (1200)	365.8 (1200)	1321-3R80-C	50	345				
		4	24.4 (80)	76.2 (250)	36.6 (120)	106.7 (350)	213.4 (700)	274.3 (900)	1321-3R80-C	50	690				
5	75	2	30.5 (100)	106.7 (350)	91.4 (300)	152.4 (500)	365.8 (1200)	365.8 (1200)	1321-3R100-C	50	345				
		4	30.5 (100)	76.2 (250)	36.6 (120)	106.7 (350)	213.4 (700)	274.3 (900)	1321-3R100-C	50	690				
	90	2	30.5 (100)	106.7 (350)	91.4 (300)	152.4 (500)	365.8 (1200)	365.8 (1200)	1321-3R130-C	50	375				
		4	30.5 (100)	76.2 (250)	36.6 (120)	106.7 (350)	182.9 (600)	274.3 (900)	1321-3R130-C	50	750				
6	110	2	30.5 (100)	106.7 (350)	91.4 (300)	152.4 (500)	365.8 (1200)	365.8 (1200)	1321-3R160-C	50	375				
		4	30.5 (100)	76.2 (250)	36.6 (120)	99.1 (325)	152.4 (500)	274.3 (900)	1321-3R160-C	50	750				
	132	2	30.5 (100)	106.7 (350)	91.4 (300)	152.4 (500)	365.8 (1200)	365.8 (1200)	1321-3R200-C	50	375				
		4	30.5 (100)	76.2 (250)	36.6 (120)	83.8 (275)	152.4 (500)	274.3 (900)	1321-3R200-C	50	750				

PowerFlex 700H Drives

This section lists motor cable length restrictions, reactors, and available options for PowerFlex 700H drives.

Table 34 - PowerFlex 700H Drives, 400V Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
Frame	kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
9	132	2	24.4 (80)	48.8 (160)	76.2 (250)	137.2 (450)	24.4 (80)	48.8 (160)	365.8 (1200)	365.8 (1200)	121.9 (400)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-RWR320-DP				•		
	160	2	24.4 (80)	48.8 (160)	76.2 (250)	137.2 (450)	24.4 (80)	48.8 (160)	365.8 (1200)	365.8 (1200)	121.9 (400)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-RWR320-DP				•		
10	200	2	24.4 (80)	48.8 (160)	76.2 (250)	121.9 (400)	24.4 (80)	48.8 (160)	365.8 (1200)	365.8 (1200)	121.9 (400)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-3R500-B	20	495 ⁽³⁾		•		
	250	2	24.4 (80)	48.8 (160)	61.0 (200)	121.9 (400)	24.4 (80)	48.8 (160)	365.8 (1200)	365.8 (1200)	121.9 (400)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-3R500-B	20	495 ⁽³⁾		•		
11	315	2	18.3 (60)	42.7 (140)	61.0 (200)	121.9 (400)	18.3 (60)	42.7 (140)	365.8 (1200)	365.8 (1200)	121.9 (400)	243.8 (800)	365.8 (1200)	365.8 (1200)	1321-3R600-B	20	495 ⁽³⁾		•		
	355	2	18.3 (60)	42.7 (140)	61.0 (200)	121.9 (400)	18.3 (60)	42.7 (140)	304.8 (1000)	365.8 (1200)	121.9 (400)	243.8 (800)	365.8 (1200)	365.8 (1200)	1321-3R750-B	20	495 ⁽³⁾		•		
	400	2	18.3 (60)	42.7 (140)	61.0 (200)	121.9 (400)	18.3 (60)	42.7 (140)	274.3 (900)	365.8 (1200)	121.9 (400)	243.8 (800)	365.8 (1200)	365.8 (1200)	1321-3R750-B	20	735 ⁽⁴⁾		•		
12 ⁽¹⁾	450	2	18.3 (60)	42.7 (140)	61.0 (200)	121.9 (400)	18.3 (60)	42.7 (140)	243.8 (800)	365.8 (1200)	121.9 (400)	243.8 (800)	365.8 (1200)	365.8 (1200)	2 x 1321-3RB400-B	40	375 ⁽⁴⁾		•		
	500	2	12.2 (40)	42.7 (140)	61.0 (200)	121.9 (400)	18.3 (60)	42.7 (140)	243.8 (800)	365.8 (1200)	121.9 (400)	243.8 (800)	365.8 (1200)	365.8 (1200)	2 x 1321-3R500-B	40	375 ⁽⁴⁾		•		
	560	2	12.2 (40)	42.7 (140)	61.0 (200)	121.9 (400)	18.3 (60)	42.7 (140)	243.8 (800)	365.8 (1200)	121.9 (400)	243.8 (800)	365.8 (1200)	365.8 (1200)	2 x 1321-3R500-B	20	525 ⁽⁵⁾				
13	630 ⁽²⁾	2	12.2 (40)	61.0 (200)	99.1 (325)	167.6 (550)	36.6 (120)	61.0 (200)	304.8 (1000)	365.8 (1200)	198.1 (650)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R600-B	20	525 ⁽⁵⁾				
	710 ⁽²⁾	2	12.2 (40)	61.0 (200)	99.1 (325)	167.6 (550)	36.6 (120)	61.0 (200)	304.8 (1000)	365.8 (1200)	198.1 (650)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R750-B	20	525 ⁽⁵⁾				
	800 ⁽²⁾	2	12.2 (40)	61.0 (200)	99.1 (325)	167.6 (550)	36.6 (120)	61.0 (200)	304.8 (1000)	365.8 (1200)	198.1 (650)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R750-B	20	525 ⁽⁵⁾				

- (1) Frame 12 drives have dual inverters and require two output reactors. The resistor ratings are per phase values for each reactor.
 (2) Some Frame 13 drives require two output reactors to match drive amp rating. The resistor ratings are per phase values for each reactor.
 (3) Resistor specification is based on two cables per phase.
 (4) Resistor specification is based on three cables per phase.
 (5) Resistor specification is based on four cables per phase.

Table 35 - PowerFlex 700H Drives, 480V Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
Frame	Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
9	200	2	12.2 (40)	24.4 (80)	42.7 (140)	76.2 (250)	12.2 (40)	24.4 (80)	106.7 (350)	152.4 (500)	61.0 (200)	167.6 (550)	304.8 (1000)	365.8 (1200)	1321-RWR320-DP				•		
	250	2	12.2 (40)	24.4 (80)	42.7 (140)	76.2 (250)	12.2 (40)	24.4 (80)	91.4 (300)	121.9 (400)	61.0 (200)	152.4 (500)	304.8 (1000)	365.8 (1200)	1321-RWR320-DP				•		
10	300	2	12.2 (40)	24.4 (80)	42.7 (140)	76.2 (250)	12.2 (40)	24.4 (80)	76.2 (250)	91.4 (300)	61.0 (200)	121.9 (400)	304.8 (1000)	365.8 (1200)	1321-3RB400-B	20	495 ⁽³⁾		•		
	350	2	12.2 (40)	24.4 (80)	42.7 (140)	76.2 (250)	12.2 (40)	24.4 (80)	76.2 (250)	91.4 (300)	61.0 (200)	121.9 (400)	304.8 (1000)	365.8 (1200)	1321-3R500-B	20	495 ⁽³⁾		•		
	450	2	12.2 (40)	24.4 (80)	36.6 (120)	61.0 (200)	12.2 (40)	24.4 (80)	61.0 (200)	91.4 (300)	61.0 (200)	121.9 (400)	274.3 (900)	365.8 (1200)	1321-3R500-B	20	495 ⁽³⁾		•		
11	500	2	12.2 (40)	24.4 (80)	36.6 (120)	61.0 (200)	12.2 (40)	24.4 (80)	61.0 (200)	91.4 (300)	61.0 (200)	121.9 (400)	243.8 (800)	365.8 (1200)	1321-3R750-B	20	495 ⁽³⁾		•		
	600	2	12.2 (40)	24.4 (80)	36.6 (120)	61.0 (200)	12.2 (40)	24.4 (80)	45.7 (150)	91.4 (300)	45.7 (150)	121.9 (400)	243.8 (800)	365.8 (1200)	1321-3R750-B	20	735 ⁽⁴⁾		•		

Table 35 - PowerFlex 700H Drives, 480V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive			No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
Frame	Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
12 ⁽¹⁾	700	2	12.2 (40)	24.4 (80)	36.6 (120)	61.0 (200)	12.2 (40)	24.4 (80)	45.7 (150)	91.4 (300)	45.7 (150)	106.7 (350)	243.8 (800)	365.8 (1200)	2 x 1321-3RB400-B	40	375 ⁽⁴⁾		•		
	800	2	12.2 (40)	24.4 (80)	36.6 (120)	61.0 (200)	12.2 (40)	24.4 (80)	45.7 (150)	91.4 (300)	45.7 (150)	106.7 (350)	243.8 (800)	365.8 (1200)	2 x 1321-3R500-B	40	375 ⁽⁴⁾		•		
	900	2	12.2 (40)	24.4 (80)	36.6 (120)	61.0 (200)	12.2 (40)	24.4 (80)	45.7 (150)	91.4 (300)	45.7 (150)	106.7 (350)	243.8 (800)	365.8 (1200)	2 x 1321-3R500-B	20	525 ⁽⁵⁾				
13	1000 ⁽²⁾	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	152.4 (500)	304.8 (1000)	365.8 (1200)	2 x 1321-3R600-B	20	525 ⁽⁵⁾				
	1200 ⁽²⁾	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	152.4 (500)	304.8 (1000)	365.8 (1200)	2 x 1321-3R750-B	20	525 ⁽⁵⁾				
	1250 ⁽²⁾	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	152.4 (500)	304.8 (1000)	365.8 (1200)	2 x 1321-3R750-B	20	525 ⁽⁵⁾				

- (1) Frame 12 drives have dual inverters and require two output reactors. The resistor ratings are per phase values for each reactor.
 (2) Some Frame 13 drives require two output reactors to match drive amp rating. The resistor ratings are per phase values for each reactor.
 (3) Resistor specification is based on two cables per phase.
 (4) Resistor specification is based on three cables per phase.
 (5) Resistor specification is based on four cables per phase.

Table 36 - PowerFlex 700H Drives, 600V Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution		Reactor Only		Reactor and Damping Resistor or 1321-RWR		Reactor/RWR (see page 154)	Resistor		Available Options			
Frame	Hp	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
9	150	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	198.1 (650)	365.8 (1200)	1321-RWR200-EP				•		
	200	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	198.1 (600)	365.8 (1200)	1321-RWR250-EP				•		
10	250	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	167.6 (550)	365.8 (1200)	1321-3RB250-B	50	315		•		
	350	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	167.6 (550)	365.8 (1200)	1321-3RB350-B	20	585 ⁽³⁾		•		
	400	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	167.6 (550)	365.8 (1200)	1321-3RB400-B	20	585 ⁽³⁾		•		
	450	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	167.6 (550)	365.8 (1200)	1321-3R500-B	20	585 ⁽³⁾		•		
11	500	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	167.6 (550)	365.8 (1200)	1321-3R500-B	20	585 ⁽³⁾		•		
	600	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	152.4 (500)	365.8 (1200)	1321-3R600-B	20	585 ⁽³⁾		•		
12 ⁽¹⁾	700	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	152.4 (500)	365.8 (1200)	2 x 1321-3RB320-B	40	300 ⁽³⁾		•		
	800	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	152.4 (500)	365.8 (1200)	2 x 1321-3RB400-C	40	480 ⁽⁴⁾		•		
	900	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	152.4 (500)	365.8 (1200)	2 x 1321-3R400-B	40	480 ⁽⁴⁾				
13 ⁽²⁾	1000	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	152.4 (500)	365.8 (1200)	2 x 1321-3R500-C	20	480 ⁽⁴⁾				
	1100	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	137.2 (450)	365.8 (1200)	2 x 1321-3R500-B	20	720 ⁽⁵⁾				
	1300	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	137.2 (450)	365.8 (1200)	2 x 1321-3R600-B	20	720 ⁽⁵⁾				

- (1) Frame 12 drives have dual inverters and require two output reactors. The resistor ratings are per phase values for each reactor.
 (2) Frame 13 drives require two output reactors to match drive amp rating. The resistor ratings are per phase values for each reactor.
 (3) Resistor specification is based on two parallel cables per phase.
 (4) Resistor specification is based on three parallel cables per phase.
 (5) Resistor specification is based on four parallel cables per phase.

Table 37 - PowerFlex 700H Drives, 690V Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution		Reactor Only		Reactor and Damping Resistor		Reactor	Resistor		Available Options			
Frame	kW	kHz	1850V	2000V	1850V	2000V	1850V	2000V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
9	160	2	7.6 (25)	30.5 (100)	7.6 (25)	30.5 (100)	121.9 (400)	137.2 (450)	1321-3RB250-C	50	480				
	200	2	7.6 (25)	30.5 (100)	7.6 (25)	30.5 (100)	121.9 (400)	137.2 (450)	1321-3RB250-C	50	480				
10	250	2	7.6 (25)	30.5 (100)	7.6 (25)	30.5 (100)	121.9 (400)	137.2 (450)	1321-3RB400-C	50	480				
	315	2	7.6 (25)	30.5 (100)	7.6 (25)	30.5 (100)	121.9 (400)	152.4 (500)	1321-3RB400-C	20	960 ⁽³⁾				
	355	2	7.6 (25)	30.5 (100)	7.6 (25)	30.5 (100)	121.9 (400)	152.4 (500)	1321-3R500-C	20	960 ⁽³⁾				
	400	2	7.6 (25)	30.5 (100)	7.6 (25)	30.5 (100)	121.9 (400)	152.4 (500)	1321-3R500-C	20	960 ⁽³⁾				
11	450	2	7.6 (25)	30.5 (100)	7.6 (25)	30.5 (100)	121.9 (400)	152.4 (500)	1321-3R750-C	20	960 ⁽³⁾				
	500	2	7.6 (25)	30.5 (100)	7.6 (25)	30.5 (100)	121.9 (400)	152.4 (500)	1321-3R750-C	20	960 ⁽³⁾				
	560	2	7.6 (25)	30.5 (100)	7.6 (25)	30.5 (100)	121.9 (400)	152.4 (500)	1321-3R850-C	20	960 ⁽³⁾				
12 ⁽¹⁾	630	2	7.6 (25)	30.5 (100)	7.6 (25)	30.5 (100)	121.9 (400)	152.4 (500)	2 x1321-3R600-C	40	480 ⁽⁴⁾				
	710	2	7.6 (25)	30.5 (100)	7.6 (25)	30.5 (100)	121.9 (400)	152.4 (500)	2 x1321-3R600-C	40	645 ⁽⁴⁾				
	800	2	7.6 (25)	30.5 (100)	7.6 (25)	30.5 (100)	121.9 (400)	152.4 (500)	2 x1321-3R750-C	40	645 ⁽⁴⁾				
13	900	2	7.6 (25)	30.5 (100)	7.6 (25)	30.5 (100)	121.9 (400)	152.4 (500)	2 x1321-3R600-C	40	645 ⁽⁴⁾				
	1000 ⁽²⁾	2	7.6 (25)	30.5 (100)	7.6 (25)	30.5 (100)	121.9 (400)	152.4 (500)	2 x1321-3R600-C	20	840 ⁽⁵⁾				
	1100 ⁽²⁾	2	7.6 (25)	30.5 (100)	7.6 (25)	30.5 (100)	121.9 (400)	152.4 (500)	2 x1321-3R750-C	20	840 ⁽⁵⁾				

- (1) Frame 12 drives have dual inverters and require two output reactors. The resistor ratings are per phase values for each reactor.
 (2) Some Frame 13 drives require two output reactors to match drive amp rating. The resistor ratings are per phase values for each reactor.
 (3) Resistor specification is based on two parallel cables per phase.
 (4) Resistor specification is based on three parallel cables per phase.
 (5) Resistor specification is based on four parallel cables per phase.

PowerFlex 700L Drives

This section lists motor cable length restrictions, reactors, and available options for PowerFlex 700L drives.

Table 38 - PowerFlex 700L Drives with 700VC Control, 400V Input Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution				Reactor Only				Reactor and Damping Resistor				Reactor	Resistor		Available Options			
Frame	kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
2	200	2	24.4 (80)	91.4 (300)	152.4 (500)	213.4 (700)	30.5 (100)	76.2 (250)	228.6 (750)	365.8 (1200)	152.4 (500)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-3R400-B ⁽¹⁾	20	495		•		
		4	24.4 (80)	91.4 (300)	121.9 (400)	152.4 (500)	18.3 (60)	76.2 (250)	137.2 (450)	182.9 (600)	76.2 (250)	137.2 (450)	274.3 (900)	365.8 (1200)	1321-3R400-B ⁽¹⁾	20	990				
3A	370	2	24.4 (80)	91.4 (300)	152.4 (500)	213.4 (700)	30.5 (100)	76.2 (250)	228.6 (750)	365.8 (1200)	152.4 (500)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-3R750-B ⁽¹⁾	20	735		•		
		4	24.4 (80)	91.4 (300)	121.9 (400)	152.4 (500)	18.3 (60)	76.2 (250)	137.2 (450)	182.9 (600)	76.2 (250)	137.2 (450)	274.3 (900)	365.8 (1200)	1321-3R750-B ⁽¹⁾	20	1470				
3B	715	2	24.4 (80)	76.2 (250)	129.5 (425)	160.0 (525)	91.4 (80)	76.2 (250)	152.4 (500)	228.6 (750)	152.4 (500)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R600-B ⁽²⁾	20	525				
		4	18.3 (60)	76.2 (250)	121.9 (400)	152.4 (500)	18.3 (60)	76.2 (250)	121.9 (400)	152.4 (500)	76.2 (250)	137.2 (450)	274.3 (900)	365.8 (1200)	2 x 1321-3R600-B ⁽²⁾	20	1050				

- (1) Requires two parallel cables.
 (2) Requires four parallel cables.

Table 39 - PowerFlex 700L Drives with 700VC Control, 480V Input Shielded/Unshielded Cable - Meters (Feet)

Drive			No Solution				Reactor Only				Reactor and Damping Resistor				Reactor		Resistor		Available Options			
Frame	Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts		TFA1	TFB2	RWR2	RWC
2	300	2	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	12.2 (40)	36.6 (120)	99.1 (325)	137.2 (450)	61.0 (200)	137.2 (450)	274.3 (900)	365.8 (1200)	1321-3R400-B ⁽¹⁾	20	495		•			
		4	7.6 (25)	24.4 (80)	83.8 (275)	114.3 (375)	7.6 (25)	24.4 (80)	83.8 (275)	114.3 (375)	30.5 (100)	61.0 (200)	152.4 (500)	213.4 (700)	1321-3R400-B ⁽¹⁾	20	990					
3A	600	2	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	12.2 (40)	36.6 (120)	99.1 (325)	137.2 (450)	61.0 (200)	137.2 (450)	274.3 (900)	365.8 (1200)	1321-3R750-B ⁽¹⁾	20	735		•			
		4	7.6 (25)	24.4 (80)	83.8 (275)	114.3 (375)	7.6 (25)	24.4 (80)	83.8 (275)	114.3 (375)	30.5 (100)	61.0 (200)	152.4 (500)	213.4 (700)	1321-3R750-B ⁽¹⁾	20	1470					
3B	1150	2	12.2 (40)	24.4 (80)	83.8 (275)	114.3 (375)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	61.0 (200)	137.2 (450)	274.3 (900)	365.8 (1200)	2 x 1321-3R600-B ⁽²⁾	20	525					
		4	7.6 (25)	24.4 (80)	83.8 (275)	114.3 (375)	7.6 (25)	24.4 (80)	83.8 (275)	114.3 (375)	30.5 (100)	61.0 (200)	152.4 (500)	213.4 (700)	2 x 1321-3R600-B ⁽²⁾	20	1050					

(1) Requires two parallel cables.

(2) Requires four parallel cables.

Table 40 - PowerFlex 700L Drives with 700VC Control, 600V Input Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution		Reactor Only		Reactor and Damping Resistor		Reactor		Resistor		Available Options			
Frame	Hp	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohms	Watts		TFA1	TFB2	RWR2	RWC
3A	465	2	24.4 (80)	106.7 (350)	24.4 (80)	365.8 (350)	182.9 (600)	365.8 (1200)	1321-3R500-B ⁽¹⁾	20	585		•			
		4	18.3 (60)	61.0 (200)	18.3 (60)	61.0 (200)	76.2 (250)	190.5 (625)	1321-3R500-B ⁽¹⁾	20	1170					
3B	870	2	18.3 (60)	91.4 (300)	18.3 (60)	91.4 (300)	152.4 (500)	274.3 (900)	1321-3R850-B ⁽²⁾	20	960					
		4	18.3 (60)	61.0 (200)	18.3 (60)	61.0 (200)	53.3 (175)	137.2 (450)	1321-3R850-B ⁽²⁾	20	1920					
3B	1275	2	18.3 (60)	83.8 (275)	18.3 (60)	83.8 (275)	137.2 (450)	274.3 (900)	2 x 1321-3R600-B ⁽³⁾	20	720					

(1) Requires two parallel cables.

(2) Requires three parallel cables.

(3) Requires four parallel cables.

Table 41 - PowerFlex 700L Drives with 700VC Control, 690V Input Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution		Reactor Only		Reactor and Damping Resistor		Reactor		Resistor		Available Options			
Frame	kW	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohms	Watts		TFA1	TFB2	RWR2	RWC
3A	355	2	24.4 (80)	45.7 (150)	24.4 (80)	45.7 (150)	228.6 (750)	304.8 (1000)	1321-3R500-C ⁽¹⁾	20	960		•			
		4	24.4 (80)	45.7 (150)	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	1321-3R500-C ⁽¹⁾	20	1920					
3B	657	2	24.4 (80)	45.7 (150)	24.4 (80)	45.7 (150)	182.9 (600)	228.6 (750)	1321-3R850-C ⁽²⁾	20	1290					
		4	24.4 (80)	45.7 (150)	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	1321-3R850-C ⁽²⁾	20	2580					
3B	980	2	24.4 (80)	45.7 (150)	24.4 (80)	45.7 (150)	182.9 (600)	228.6 (750)	2 x 1321-3R600-C ⁽³⁾	20	840					

(1) Requires two parallel cables.

(2) Requires three parallel cables.

(3) Requires four parallel cables.

Table 42 - PowerFlex 700L Drives with 700S Control, 400V Input Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution				Reactor Only				Reactor and Damping Resistor				Reactor	Resistor		Available Options			
Frame	kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
2	200	2	18.3 (60)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	274.3 (900)	335.3 (1100)	152.4 (500)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-3R400-B ⁽¹⁾	20	495		•		
		4	18.3 (60)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	274.3 (900)	335.3 (1100)	152.4 (500)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-3R400-B ⁽¹⁾	20	990				
3A	370	2	18.3 (60)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	274.3 (900)	335.3 (1100)	152.4 (500)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-3R750-B ⁽¹⁾	20	735		•		
		4	18.3 (60)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	274.3 (900)	335.3 (1100)	152.4 (500)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-3R750-B ⁽¹⁾	20	1470				
3B	715	2	12.2 (40)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	274.3 (900)	335.3 (1100)	152.4 (500)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R600-B ⁽²⁾	20	525				
		4	12.2 (40)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	274.3 (900)	335.3 (1100)	152.4 (500)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R600-B ⁽²⁾	20	1050				

(1) Requires two parallel cables.

(2) Requires four parallel cables.

Table 43 - PowerFlex 700L Drives with 700S Control, 480V Input Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution				Reactor Only				Reactor and Damping Resistor				Reactor	Resistor		Available Options			
Frame	Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
2	300	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3R400-B ⁽¹⁾	20	495		•		
		4	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3R400-B ⁽¹⁾	20	990				
3A	600	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3R750-B ⁽¹⁾	20	735		•		
		4	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3R750-B ⁽¹⁾	20	1470				
3B	1150	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	152.4 (500)	304.8 (1000)	365.8 (1200)	2 x 1321-3R600-B ⁽²⁾	20	525				
		4	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	152.4 (500)	304.8 (1000)	365.8 (1200)	2 x 1321-3R600-B ⁽²⁾	20	1050				

(1) Requires two parallel cables.

(2) Requires four parallel cables.

Table 44 - PowerFlex 700L Drives with 700S Control, 600V Input Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution		Reactor Only		Reactor and Damping Resistor		Reactor	Resistor		Available Options			
Frame	Hp	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
3A	465	2	18.3 (60)	76.2 (250)	18.3 (60)	76.2 (250)	182.9 (600)	304.8 (1000)	1321-3R500-B ⁽¹⁾	20	585		•		
		4	18.3 (60)	76.2 (250)	18.3 (60)	76.2 (250)	182.9 (600)	304.8 (1000)	1321-3R500-B ⁽¹⁾	20	1170				
3B	870	2	18.3 (60)	61.0 (200)	18.3 (60)	61.0 (200)	152.4 (500)	228.6 (750)	1321-3R850-B ⁽²⁾	20	960				
		4	18.3 (60)	61.0 (200)	18.3 (60)	61.0 (200)	152.4 (500)	228.6 (750)	1321-3R850-B ⁽²⁾	20	1920				
3B	1275	2	12.2 (40)	45.7 (150)	12.2 (40)	45.7 (150)	121.9 (400)	228.6 (750)	2 x 1321-3R600-B ⁽³⁾	20	720				

(1) Requires two parallel cables.

(2) Requires three parallel cables.

(3) Requires four parallel cables.

Table 45 - PowerFlex 700L Drives with 700S Control, 690V Input Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution		Reactor Only		Reactor and Damping Resistor		Reactor	Resistor		Available Options			
Frame	kW	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
3A	355	2	24.4 (80)	45.7 (150)	24.4 (80)	45.7 (150)	228.6 (750)	304.8 (1000)	1321-3R500-C ⁽¹⁾	20	960		•		
		4	24.4 (80)	45.7 (150)	24.4 (80)	45.7 (150)	182.9 (600)	228.6 (750)	1321-3R500-C ⁽¹⁾	20	1920				
3B	657	2	24.4 (80)	45.7 (150)	24.4 (80)	45.7 (150)	182.9 (600)	228.6 (750)	1321-3R850-C ⁽²⁾	20	1290				
		4	24.4 (80)	45.7 (150)	24.4 (80)	45.7 (150)	182.9 (600)	228.6 (750)	1321-3R850-C ⁽²⁾	20	2580				
3B	980	2	24.4 (80)	45.7 (150)	24.4 (80)	45.7 (150)	182.9 (600)	228.6 (750)	2 x 1321-3R600-C ⁽³⁾	20	840				

(1) Requires two parallel cables.

(2) Requires three parallel cables.

(3) Requires four parallel cables.

PowerFlex 700S Drives

This section lists motor cable length restrictions, reactors, and available options for PowerFlex 700S drives.

Table 46 - PowerFlex 700S Drives, 400V Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/ RWR (see page 154)	Resistor		Available Options			
Frame	kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TF1	TF2	RWR2	RWC
1	0.75	2/4	7.6 (25)	83.8 (275)	83.8 (275)	83.8 (275)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•	•	•	•
	1.5	2/4	7.6 (25)	106.7 (350)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	•
	2.2	2/4	7.6 (25)	106.7 (350)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	•
	4	2/4	7.6 (25)	106.7 (350)	243.8 (800)	243.8 (800)	91.4 (300)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR8-DP			•	•	•	•
	5.5	2/4	7.6 (25)	106.7 (350)	274.3 (900)	304.8 (1000)	91.4 (300)	274.3 (900)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-DP			•	•	•	•
	7.5	2/4	7.6 (25)	106.7 (350)	274.3 (900)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP			•	•	•	•
	11	2/4	7.6 (25)	106.7 (350)	274.3 (900)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP			•	•	•	•
2	15	2/4	7.6 (25)	106.7 (350)	274.3 (900)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP			•	•	•	•
	18.5	2/4	7.6 (25)	106.7 (350)	274.3 (900)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP			•	•	•	•
3	22	2/4	7.6 (25)	106.7 (350)	274.3 (900)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR45-DP			•	•	•	•
	30	2/4	7.6 (25)	106.7 (350)	274.3 (900)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR55-DP			•	•	•	•
	37	2/4	12.2 (40)	91.4 (300)	274.3 (900)	365.8 (1200)	76.2 (250)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP			•	•	•	•
4	45	2/4	12.2 (40)	106.7 (350)	274.3 (900)	365.8 (1200)	76.2 (250)	304.8 (1000)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP			•	•	•	•
5	55	2/4	12.2 (40)	106.7 (350)	274.3 (900)	365.8 (1200)	61.0 (200)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR100-DP			•	•	•	•
	75	2/4	18.3 (60)	91.4 (300)	213.4 (700)	304.8 (1000)	45.7 (150)	243.8 (800)	365.8 (1200)	365.8 (1200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR130-DP			•	•	•	•
6	90	2/4	18.3 (60)	91.4 (300)	213.4 (700)	304.8 (1000)	45.7 (150)	213.4 (700)	365.8 (1200)	365.8 (1200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR160-DP			•	•	•	•
	110	2/4	24.4 (80)	91.4 (300)	213.4 (700)	274.3 (900)	45.7 (150)	182.9 (600)	365.8 (1200)	365.8 (1200)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR200-DP			•	•	•	•
	132	2/4	24.4 (80)	91.4 (300)	182.9 (600)	243.8 (800)	45.7 (150)	152.4 (500)	365.8 (1200)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR250-DP			•	•	•	•
9	132	2	24.4 (80)	91.4 (300)	182.9 (600)	243.8 (800)	45.7 (150)	152.4 (500)	365.8 (1200)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR320-DP			•	•	•	•
	160	2	24.4 (80)	91.4 (300)	152.4 (500)	213.4 (700)	45.7 (150)	121.9 (400)	365.8 (1200)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR320-DP			•	•	•	•
10	200	2	24.4 (80)	76.2 (250)	121.9 (400)	182.9 (600)	36.6 (120)	91.4 (300)	304.8 (1000)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-3R500-B	20	495 ⁽³⁾	•	•	•	•
	250	2	24.4 (80)	76.2 (250)	99.1 (325)	167.6 (550)	36.6 (120)	76.2 (250)	304.8 (1000)	365.8 (1200)	228.6 (750)	335.3 (1100)	365.8 (1200)	365.8 (1200)	1321-3R500-B	20	495 ⁽³⁾	•	•	•	•

Table 46 - PowerFlex 700S Drives, 400V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive			No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/ RWR (see page 154)	Resistor		Available Options		
Frame	kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TF1	TF2	RWR2
11	315	2	18.3 (60)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	304.8 (1000)	365.8 (1200)	228.6 (750)	335.3 (1100)	365.8 (1200)	365.8 (1200)	1321-3R600-B	20	495 ⁽³⁾		•	
	355	2	18.3 (60)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	304.8 (1000)	365.8 (1200)	228.6 (750)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-3R750-B	20	495 ⁽³⁾		•	
	400	2	18.3 (60)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	304.8 (1000)	365.8 (1200)	228.6 (750)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-3R750-B	20	735 ⁽⁴⁾		•	
12 ⁽¹⁾	450	2	18.3 (60)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	304.8 (1000)	365.8 (1200)	228.6 (750)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3RB400-B	40	375 ⁽⁴⁾		•	
	500	2	12.2 (40)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	304.8 (1000)	365.8 (1200)	198.1 (650)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R500-B	40	375 ⁽⁴⁾		•	
	560	2	12.2 (40)	68.6 (225)	99.1 (325)	167.6 (550)	36.6 (120)	68.6 (225)	304.8 (1000)	365.8 (1200)	198.1 (650)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R500-B	20	525 ⁽⁵⁾			
13	630 ⁽²⁾	2	12.2 (40)	61.0 (200)	99.1 (325)	167.6 (550)	36.6 (120)	61.0 (200)	304.8 (1000)	365.8 (1200)	198.1 (650)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R600-B	20	525 ⁽⁵⁾			
	710 ⁽²⁾	2	12.2 (40)	61.0 (200)	99.1 (325)	167.6 (550)	36.6 (120)	61.0 (200)	304.8 (1000)	365.8 (1200)	198.1 (650)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R750-B	20	525 ⁽⁵⁾			
	800 ⁽²⁾	2	12.2 (40)	61.0 (200)	99.1 (325)	167.6 (550)	36.6 (120)	61.0 (200)	304.8 (1000)	365.8 (1200)	198.1 (650)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R750-B	20	525 ⁽⁵⁾			

(1) Frame 12 drives have dual inverters and require two output reactors. The resistor ratings are per phase values for each reactor.

(2) Some Frame 13 drives require two output reactors to match drive amp rating. The resistor ratings are per phase values for each reactor.

(3) Resistor specification is based on two cables per phase.

(4) Resistor specification is based on three cables per phase.

(5) Resistor specification is based on four cables per phase.

Table 47 - PowerFlex 700S Drives, 480V Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/ RWR (see page 154)	Resistor		Available Options			
Frame	Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
1	1	2/4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•	•
	2	2/4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	•
	3	2/4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	•
	5	2/4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	91.4 (300)	243.8 (800)	243.8 (800)	152.4 (500)	243.8 (800)	243.8 (800)	243.8 (800)	1321- RWR8-DP			•	•	•	•
	7.5	2/4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	91.4 (300)	304.8 (1000)	304.8 (1000)	152.4 (500)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321- RWR12-DP				•		•
	10	2/4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR18-DP				•		•
15	2/4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR25-DP				•			

Table 47 - PowerFlex 700S Drives, 480V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive			No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/ RWR (see page 154)	Resistor		Available Options			
Frame	Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TF1	TF2	RWR2	RWC
2	20	2/4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR25-DP				•		
	25	2/4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	76.2 (250)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR35-DP				•		
3	30	2/4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	76.2 (250)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR45-DP				•		
	40	2/4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	76.2 (250)	365.8 (1200)	365.8 (1200)	121.9 (400)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR55-DP				•		
	50	2/4	12.2 (40)	18.3 (60)	106.7 (350)	152.4 (500)	12.2 (40)	61.0 (200)	304.8 (1000)	365.8 (1200)	121.9 (400)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR80-DP				•		
4	60	2/4	12.2 (40)	18.3 (60)	91.4 (300)	152.4 (500)	12.2 (40)	61.0 (200)	304.8 (1000)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR80-DP				•		
5	75	2/4	12.2 (40)	18.3 (60)	91.4 (300)	152.4 (500)	12.2 (40)	61.0 (200)	274.3 (900)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR100-DP				•		
	100	2/4	12.2 (40)	24.4 (80)	91.4 (300)	137.2 (450)	12.2 (40)	61.0 (200)	243.8 (800)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321- RWR130-DP				•		
6	125	2/4	12.2 (40)	24.4 (80)	91.4 (300)	137.2 (450)	12.2 (40)	61.0 (200)	243.8 (800)	365.8 (1200)	76.2 (250)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321- RWR160-DP				•		
	150	2/4	12.2 (40)	24.4 (80)	91.4 (300)	137.2 (450)	12.2 (40)	61.0 (200)	243.8 (800)	304.8 (1000)	76.2 (250)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321- RWR200-DP				•		
	200	2/4	12.2 (40)	30.5 (100)	91.4 (300)	137.2 (450)	12.2 (40)	61.0 (200)	243.8 (800)	304.8 (1000)	61.0 (200)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321- RWR250-DP				•		
9	200	2	12.2 (40)	30.5 (100)	91.4 (300)	152.4 (500)	12.2 (40)	45.7 (150)	152.4 (500)	228.6 (750)	61.0 (200)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321- RWR320-DP				•		
	250	2	12.2 (40)	30.5 (100)	91.4 (300)	152.4 (500)	12.2 (40)	45.7 (150)	121.9 (400)	182.9 (600)	61.0 (200)	243.8 (800)	365.8 (1200)	365.8 (1200)	1321- RWR320-DP				•		
10	300	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	61.0 (200)	243.8 (800)	304.8 (1000)	365.8 (1200)	1321- 3RB400-B	20	495 ⁽³⁾		•		
	350	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	61.0 (200)	243.8 (800)	304.8 (1000)	365.8 (1200)	1321- 3R500-B	20	495 ⁽³⁾		•		
	450	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321- 3R500-B	20	495 ⁽³⁾		•		
11	500	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321- 3R750-B	20	495 ⁽³⁾		•		
	600	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321- 3R750-B	20	735 ⁽⁴⁾		•		
12 ⁽¹⁾	700	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	182.9 (600)	304.8 (1000)	365.8 (1200)	2 x 1321- 3RB400-B	40	375 ⁽⁴⁾		•		
	800	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	182.9 (600)	304.8 (1000)	365.8 (1200)	2 x 1321- 3R500-B	40	375 ⁽⁴⁾		•		
	900	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	182.9 (600)	304.8 (1000)	365.8 (1200)	2 x 1321- 3R500-B	20	525 ⁽⁵⁾				

Table 47 - PowerFlex 700S Drives, 480V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive			No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
Frame	Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
13	1000 ⁽²⁾	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	152.4 (500)	304.8 (1000)	365.8 (1200)	2 x 1321-3R600-B	20	525 ⁽⁵⁾				
	1200 ⁽²⁾	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	152.4 (500)	304.8 (1000)	365.8 (1200)	2 x 1321-3R750-B	20	525 ⁽⁵⁾				
	1250 ⁽²⁾	2	12.2 (40)	30.5 (100)	61.0 (200)	121.9 (400)	12.2 (40)	45.7 (150)	61.0 (200)	121.9 (400)	45.7 (150)	152.4 (500)	304.8 (1000)	365.8 (1200)	2 x 1321-3R750-B	20	525 ⁽⁵⁾				

- (1) Frame 12 drives have dual inverters and require two output reactors. The resistor ratings are per phase values for each reactor.
(2) Some Frame 13 drives require two output reactors to match drive amp rating. The resistor ratings are per phase values for each reactor.
(3) Resistor specification is based on two cables per phase.
(4) Resistor specification is based on three cables per phase.
(5) Resistor specification is based on four cables per phase.

Table 48 - PowerFlex 700S Drives, 600V Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution		Reactor Only		Reactor and Damping Resistor or 1321-RWR		Reactor/RWR (see page 154)	Resistor		Available Options			
Frame	Hp	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohm s	Watts	TFA1	TFB2	RWR2	RWC
1	1	2/4	24.4 (80)	121.9 (400)	24.4 (80)	182.9 (600)	182.9 (600)	182.9 (600)				•		•	•
	2	2/4	24.4 (80)	121.9 (400)	24.4 (80)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	•
	3	2/4	24.4 (80)	121.9 (400)	24.4 (80)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	•
	5	2/4	24.4 (80)	121.9 (400)	24.4 (80)	243.8 (800)	365.8 (1200)	365.8 (1200)	1321-RWR8-EP			•	•	•	•
	7.5	2/4	24.4 (80)	121.9 (400)	24.4 (80)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR8-EP				•		•
	10	2/4	24.4 (80)	121.9 (400)	24.4 (80)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR12-EP				•		•
	15	2/4	24.4 (80)	121.9 (400)	36.6 (120)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-EP				•		
2	20	2/4	24.4 (80)	121.9 (400)	36.6 (120)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-EP				•		
	25	2/4	24.4 (80)	121.9 (400)	45.7 (150)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-EP				•		
3	30	2/4	24.4 (80)	121.9 (400)	45.7 (150)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-EP				•		
	40	2/4	24.4 (80)	137.2 (450)	45.7 (150)	365.8 (1200)	304.8 (1000)	365.8 (1200)	1321-RWR45-EP				•		
	50	2/4	24.4 (80)	137.2 (450)	45.7 (150)	304.8 (1000)	304.8 (1000)	365.8 (1200)	1321-RWR55-EP				•		
4	60	2/4	24.4 (80)	137.2 (450)	45.7 (150)	304.8 (1000)	304.8 (1000)	365.8 (1200)	1321-RWR80-EP				•		
5	75	2/4	24.4 (80)	137.2 (450)	45.7 (150)	274.3 (900)	243.8 (800)	365.8 (1200)	1321-RWR80-EP				•		
	100	2/4	24.4 (80)	137.2 (450)	45.7 (150)	243.8 (800)	243.8 (800)	365.8 (1200)	1321-RWR100-EP				•		
6	125	2/4	24.4 (80)	137.2 (450)	61.0 (200)	243.8 (800)	198.1 (650)	365.8 (1200)	1321-RWR130-EP				•		
	150	2/4	24.4 (80)	137.2 (450)	61.0 (200)	243.8 (800)	198.1 (650)	365.8 (1200)	1321-RWR160-EP				•		

Table 48 - PowerFlex 700S Drives, 600V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive			No Solution		Reactor Only		Reactor and Damping Resistor or 1321-RWR		Reactor/RWR (see page 154)	Resistor		Available Options			
Frame	Hp	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
9	150	2	24.4 (80)	137.2 (450)	61.0 (200)	243.8 (800)	198.1 (650)	365.8 (1200)	1321-RWR200-EP				•		
	200	2	24.4 (80)	137.2 (450)	61.0 (200)	243.8 (800)	198.1 (650)	365.8 (1200)	1321-RWR250-EP				•		
10	250	2	24.4 (80)	137.2 (450)	61.0 (200)	198.1 (650)	167.6 (550)	365.8 (1200)	1321-3RB250-B	50	315		•		
	350	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	167.6 (550)	365.8 (1200)	1321-3RB350-B	20	585 ⁽³⁾		•		
	400	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	167.6 (550)	365.8 (1200)	1321-3RB400-B	20	585 ⁽³⁾		•		
	450	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	167.6 (550)	365.8 (1200)	1321-3R500-B	20	585 ⁽³⁾		•		
11	500	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	167.6 (550)	365.8 (1200)	1321-3R500-B	20	585 ⁽³⁾		•		
	600	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	152.4 (500)	365.8 (1200)	1321-3R600-B	20	585 ⁽³⁾		•		
12 ⁽¹⁾	700	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	152.4 (500)	365.8 (1200)	2 x 1321-3RB320-B	40	300 ⁽³⁾		•		
	800	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	152.4 (500)	365.8 (1200)	2 x 1321-3RB400-C	40	480 ⁽⁴⁾		•		
	900	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	152.4 (500)	365.8 (1200)	2 x 1321-3R400-B	40	480 ⁽⁴⁾				
13 ⁽²⁾	1000	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	152.4 (500)	365.8 (1200)	2 x 1321-3R500-C	20	480 ⁽⁴⁾				
	1100	2	24.4 (80)	91.4 (300)	53.3 (175)	137.2 (450)	137.2 (450)	365.8 (1200)	2 x 1321-3R500-B	20	720 ⁽⁵⁾				
	1300	2	24.4 (80)	91.4 (300)	53.3 (175)	137.2 (450)	137.2 (450)	365.8 (1200)	2 x 1321-3R600-B	20	720 ⁽⁵⁾				

- (1) Frame 12 drives have dual inverters and require two output reactors. The resistor ratings are per phase values for each reactor.
 (2) Frame 13 drives require two output reactors to match drive amp rating. The resistor ratings are per phase values for each reactor.
 (3) Resistor specification is based on two parallel cables per phase.
 (4) Resistor specification is based on three parallel cables per phase.
 (5) Resistor specification is based on four parallel cables per phase.

Table 49 - PowerFlex 700S Drives, 690V Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution		Reactor Only		Reactor and Damping Resistor		Reactor	Resistor		Available Options			
Frame	kW	kHz	1850V	2000V	1850V	2000V	1850V	2000V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
5	45	2/4	24.4 (80)	45.7 (150)	61.0 (200)	106.7 (350)	365.8 (1200)	365.8 (1200)	1321-3R80-C	50	375/750				
	55	2/4	24.4 (80)	45.7 (150)	61.0 (200)	106.7 (350)	365.8 (1200)	365.8 (1200)	1321-3R80-C	50	375/750				
	75	2/4	24.4 (80)	45.7 (150)	61.0 (200)	106.7 (350)	365.8 (1200)	365.8 (1200)	1321-3R100-C	50	375/750				
	90	2/4	24.4 (80)	45.7 (150)	61.0 (200)	106.7 (350)	243.8 (800)	274.3 (900)	1321-3R130-C	50	375/750				
6	110	2/4	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	243.8 (800)	274.3 (900)	1321-3R160-C	50	375/750				
	132	2/4	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	243.8 (800)	274.3 (900)	1321-3R200-C	50	375/750				
9	160	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3RB250-C	50	480				
	200	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3RB250-C	50	480				
10	250	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3RB400-C	50	480				
	315	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3RB400-C	20	960 ⁽³⁾				
	355	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3R500-C	20	960 ⁽³⁾				
	400	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3R500-C	20	960 ⁽³⁾				

Table 49 - PowerFlex 700S Drives, 690V Shielded/Unshielded Cable – Meters (Feet)

Drive			No Solution		Reactor Only		Reactor and Damping Resistor		Reactor	Resistor		Available Options			
Frame	kW	kHz	1850V	2000V	1850V	2000V	1850V	2000V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
11	450	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3R750-C	20	960 ⁽³⁾				
	500	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3R750-C	20	960 ⁽³⁾				
	560	2	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3R850-C	20	960 ⁽³⁾				
12 ⁽¹⁾	630	2	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	182.9 (600)	243.8 (800)	2 x 1321-3R600-C	40	480 ⁽⁴⁾				
	710	2	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	182.9 (600)	243.8 (800)	2 x 1321-3R600-C	40	645 ⁽⁴⁾				
	800	2	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	182.9 (600)	243.8 (800)	2 x 1321-3R750-C	40	645 ⁽⁴⁾				
13	900	2	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	182.9 (600)	243.8 (800)	2 x 1321-3R600-C	40	645 ⁽⁴⁾				
	1000 ⁽²⁾	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	182.9 (600)	243.8 (800)	2 x 1321-3R600-C	20	840 ⁽⁵⁾				
	1100 ⁽²⁾	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	182.9 (600)	243.8 (800)	2 x 1321-3R750-C	20	840 ⁽⁵⁾				

- (1) Frame 12 drives have dual inverters and require two output reactors. The resistor ratings are per phase values for each reactor.
- (2) Some Frame 13 drives require two output reactors to match drive amp rating. The resistor ratings are per phase values for each reactor.
- (3) Resistor specification is based on two parallel cables per phase.
- (4) Resistor specification is based on three parallel cables per phase.
- (5) Resistor specification is based on four parallel cables per phase.

PowerFlex 753 and 755 Wall Mount Drives

This section lists motor cable length restrictions, reactors, and available options for PowerFlex 753 and 755 wall mount drives.

Table 50 - PowerFlex 753 and 755 Wall Mount Drives, 400V Shielded/Unshielded Cable – Meters (Feet)

Drive	Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/ RWR (see page 154)	Resistor		Available Options			
Frame	kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
1	0.75	2	7.6 (25)	83.8 (275)	83.8 (275)	83.8 (275)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•	
		4	7.6 (25)	83.8 (275)	83.8 (275)	83.8 (275)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•	
	1.5	2	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	
		4	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•		•	
	2.2	2	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	
		4	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•		•	
	4.0	2	7.6 (25)	91.4 (300)	243.8 (800)	243.8 (800)	91.4 (300)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR12-DP				•	•	
		4	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)						•	
	5.5	2	7.6 (25)	91.4 (300)	274.3 (900)	304.8 (1000)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR12-DP				•		•
		4	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)						•	
	7.5	2	7.6 (25)	91.4 (300)	274.3 (900)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP				•		•
		4	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)						•	

Table 50 - PowerFlex 753 and 755 Wall Mount Drives, 400V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive	Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/ RWR (see page 154)	Resistor		Available Options			
Frame	kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
2	0.75	2	7.6 (25)	91.4 (300)	83.8 (275)	83.8 (275)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•	
		4	7.6 (25)	91.4 (300)	83.8 (275)	83.8 (275)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•	
	1.5	2	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	
		4	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•		•	
	2.2	2	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	
		4	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)				•		•	
	4.0	2	7.6 (25)	91.4 (300)	243.8 (800)	243.8 (800)	91.4 (300)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	243.8 (800)	321-RWR12-DP				•	•	
		4	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)						•	
	5.5	2	7.6 (25)	91.4 (300)	274.3 (900)	304.8 (1000)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	321-RWR12-DP				•		•
		4	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)						•	
	7.5	2	7.6 (25)	91.4 (300)	274.3 (900)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP				•		•
		4	7.6 (25)	91.4 (300)	182.9 (600)	213.4 (700)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)						•	
	11	2	7.6 (25)	91.4 (300)	274.3 (900)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP				•		
		4	7.6 (25)	91.4 (300)	182.9 (600)	213.4 (700)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)							
3	15	2	7.6 (25)	137.2 (450)	365.8 (1200)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP				•		
		4	7.6 (25)	91.4 (300)	152.4 (500)	213.4 (700)	18.3 (60)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	304.8 (1000)	365.8 (1200)	365.8 (1200)							
	18.5	2	7.6 (25)	137.2 (450)	365.8 (1200)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP				•		
		4	7.6 (25)	91.4 (300)	152.4 (500)	213.4 (700)	18.3 (60)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	304.8 (1000)	365.8 (1200)	365.8 (1200)							
	22	2	7.6 (25)	137.2 (450)	365.8 (1200)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR45-DP				•		
		4	7.6 (25)	91.4 (300)	152.4 (500)	213.4 (700)	18.3 (60)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	304.8 (1000)	365.8 (1200)	365.8 (1200)							
4	30	2	7.6 (25)	137.2 (450)	304.8 (1000)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR55-DP				•		
		4	7.6 (25)	91.4 (300)	152.4 (500)	213.4 (700)	18.3 (60)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	304.8 (1000)	365.8 (1200)	365.8 (1200)							
	37	2	12.2 (40)	137.2 (450)	304.8 (1000)	365.8 (1200)	91.4 (300)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP				•		
		4	12.2 (40)	91.4 (300)	152.4 (500)	213.4 (700)	18.3 (60)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	304.8 (1000)	365.8 (1200)	365.8 (1200)							

Table 50 - PowerFlex 753 and 755 Wall Mount Drives, 400V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive	Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/ RWR (see page 154)	Resistor		Available Options			
Frame	kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
5	45	2	12.2 (40)	137.2 (450)	304.8 (1000)	365.8 (1200)	91.4 (300)	304.8 (1000)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP				•		
		4	12.2 (40)	91.4 (300)	152.4 (500)	213.4 (700)	24.4 (80)	91.4 (300)	365.8 (1200)	365.8 (1200)	152.4 (500)	304.8 (1000)	365.8 (1200)	365.8 (1200)							
	55	2	12.2 (40)	137.2 (450)	304.8 (1000)	365.8 (1200)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR100-DP				•		
		4	12.2 (40)	91.4 (300)	152.4 (500)	213.4 (700)	24.4 (80)	91.4 (300)	365.8 (1200)	365.8 (1200)	152.4 (500)	304.8 (1000)	365.8 (1200)	365.8 (1200)							
6	75	2	18.3 (60)	137.2 (450)	304.8 (1000)	365.8 (1200)	91.4 (300)	213.4 (700)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR130-DP				•		
		4	18.3 (60)	91.4 (300)	152.4 (500)	213.4 (700)	30.5 (100)	91.4 (300)	304.8 (1000)	365.8 (1200)	152.4 (500)	304.8 (1000)	365.8 (1200)	365.8 (1200)							
	90	2	18.3 (60)	137.2 (450)	304.8 (1000)	365.8 (1200)	91.4 (300)	213.4 (700)	365.8 (1200)	365.8 (1200)	304.8 (1000)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR160-DP				•		
		4	18.3 (60)	91.4 (300)	152.4 (500)	213.4 (700)	30.5 (100)	91.4 (300)	365.8 (1200)	365.8 (1200)	121.9 (400)	243.8 (800)	365.8 (1200)	365.8 (1200)							
	110	2	24.4 (80)	137.2 (450)	274.3 (900)	365.8 (1200)	76.2 (250)	198.1 (650)	365.8 (1200)	365.8 (1200)	274.3 (900)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR200-DP				•		
		4	24.4 (80)	91.4 (300)	152.4 (500)	213.4 (700)	36.6 (120)	91.4 (300)	365.8 (1200)	365.8 (1200)	121.9 (400)	213.4 (700)	365.8 (1200)	365.8 (1200)							
7	132	2	24.4 (80)	137.2 (450)	274.3 (900)	365.8 (1200)	61.0 (200)	182.9 (600)	365.8 (1200)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR250-DP				•		
		4	24.4 (80)	91.4 (300)	152.4 (500)	213.4 (700)	36.6 (120)	91.4 (300)	365.8 (1200)	365.8 (1200)	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)							
	160	2	24.4 (80)	121.9 (400)	243.8 (800)	365.8 (1200)	61.0 (200)	152.4 (500)	304.8 (1000)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-3RB320-B	50	225		•		
		4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)	36.6 (120)	91.4 (300)	182.9 (600)	274.3 (900)	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)		50	450				
	200	2	24.4 (80)	121.9 (400)	243.8 (800)	365.8 (1200)	61.0 (200)	152.4 (500)	304.8 (1000)	365.8 (1200)	243.8 (800)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-3RB400-B ⁽¹⁾	20	495		•		
		4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)	36.6 (120)	91.4 (300)	182.9 (600)	228.6 (750)	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)		20	990				
	250	2	24.4 (80)	121.9 (400)	213.4 (700)	304.8 (1000)	45.7 (150)	121.9 (400)	304.8 (1000)	365.8 (1200)	228.6 (750)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-3R500-B ⁽¹⁾	20	495		•		
		4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)	36.6 (120)	91.4 (300)	167.6 (550)	213.4 (700)	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)		20	990		•		
	315	2	24.4 (80)	121.9 (400)	213.4 (700)	259.1 (850)	45.7 (150)	121.9 (400)	304.8 (1000)	365.8 (1200)	228.6 (750)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-3R600-B ⁽¹⁾	20	495		•		
		4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)	36.6 (120)	91.4 (300)	167.6 (550)	213.4 (700)	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)		20	990		•		

(1) Requires two parallel cables.

Table 51 - PowerFlex 753 and 755 Wall Mount Drives, 480V Shielded/Unshielded Cable – Meters (Feet)

Drive	Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options				
Frame	Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC	
1	1.0	2	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•		
		4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	12.2 (40)	121.9 (400)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•		
	2.0	2	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•		
		4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)				•		•		
	3.0	2	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•		
		4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)				•		•		
	5.0	2	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	91.4 (300)	243.8 (800)	243.8 (800)	152.4 (500)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR8-DP				•	•		
		4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)						•		
	7.5	2	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	91.4 (300)	304.8 (1000)	304.8 (1000)	152.4 (500)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-DP					•		•
		4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)							•	
	10	2	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP					•		•
		4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)							•	

Table 51 - PowerFlex 753 and 755 Wall Mount Drives, 480V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive	Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
Frame	Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
2	1.0	2	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	91.4 (300)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•	
		4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	12.2 (40)	121.9 (400)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)	152.4 (500)				•		•	
	2.0	2	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	
		4	7.6 (25)	12.2 (40)	83.8 (275)	83.8 (275)	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)				•		•	
	3.0	2	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	91.4 (300)	182.9 (600)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	
		4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)				•		•	
	5.0	2	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	91.4 (300)	243.8 (800)	243.8 (800)	152.4 (500)	243.8 (800)	243.8 (800)	243.8 (800)	1321-RWR8-DP				•	•	
		4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)						•	
	7.5	2	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	91.4 (300)	304.8 (1000)	304.8 (1000)	152.4 (500)	304.8 (1000)	304.8 (1000)	304.8 (1000)	1321-RWR12-DP				•		•
		4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)						•	
	10	2	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-DP				•		•
		4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)						•	
	15	2	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-DP				•		
		4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	152.4 (500)	182.9 (600)	182.9 (600)	182.9 (600)							
3	20	2	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	91.4 (300)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP				•		
		4	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	7.6 (25)	12.2 (40)	121.9 (400)	304.8 (1000)	182.9 (600)	304.8 (1000)	365.8 (1200)	365.8 (1200)							
	25	2	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	76.2 (250)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-DP				•		
		4	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	7.6 (25)	12.2 (40)	121.9 (400)	274.3 (900)	152.4 (500)	304.8 (1000)	365.8 (1200)	365.8 (1200)							
	30	2	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	76.2 (250)	365.8 (1200)	365.8 (1200)	182.9 (600)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR45-DP				•		
		4	7.6 (25)	12.2 (40)	121.9 (400)	182.9 (600)	7.6 (25)	12.2 (40)	121.9 (400)	243.8 (800)	152.4 (500)	304.8 (1000)	365.8 (1200)	365.8 (1200)							
4	40	2	7.6 (25)	12.2 (40)	137.2 (450)	182.9 (600)	7.6 (25)	76.2 (250)	365.8 (1200)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR55-DP				•		
		4	7.6 (25)	12.2 (40)	106.7 (350)	152.4 (500)	7.6 (25)	12.2 (40)	106.7 (350)	228.6 (750)	121.9 (400)	243.8 (800)	365.8 (1200)	365.8 (1200)							
	50	2	12.2 (40)	18.3 (60)	137.2 (450)	182.9 (600)	12.2 (40)	61.0 (200)	304.8 (1000)	365.8 (1200)	152.4 (500)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP				•		
		4	7.6 (25)	12.2 (40)	91.4 (300)	152.4 (500)	12.2 (40)	18.3 (60)	106.7 (350)	228.6 (750)	91.4 (300)	243.8 (800)	365.8 (1200)	365.8 (1200)							

Table 51 - PowerFlex 753 and 755 Wall Mount Drives, 480V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive	Rating		No Solution				Reactor Only				Reactor and Damping Resistor or 1321-RWR				Reactor/RWR (see page 154)	Resistor		Available Options			
Frame	Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
5	60	2	12.2 (40)	18.3 (60)	137.2 (450)	182.9 (600)	12.2 (40)	61.0 (200)	304.8 (1000)	365.8 (1200)	137.2 (450)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR80-DP				•		
		4	7.6 (25)	12.2 (40)	91.4 (300)	152.4 (500)	12.2 (40)	24.4 (80)	91.4 (300)	228.6 (750)	76.2 (250)	213.4 (700)	365.8 (1200)	365.8 (1200)							
	75	2	12.2 (40)	18.3 (60)	137.2 (450)	182.9 (600)	12.2 (40)	61.0 (200)	274.3 (900)	365.8 (1200)	137.2 (450)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR100-DP				•		
		4	7.6 (25)	12.2 (40)	91.4 (300)	152.4 (500)	12.2 (40)	24.4 (80)	91.4 (300)	182.9 (600)	76.2 (250)	182.9 (600)	365.8 (1200)	365.8 (1200)							
6	100	2	12.2 (40)	24.4 (80)	137.2 (450)	182.9 (600)	12.2 (40)	61.0 (200)	243.8 (800)	365.8 (1200)	137.2 (450)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR130-DP				•		
		4	7.6 (25)	18.3 (60)	91.4 (300)	152.4 (500)	12.2 (40)	30.5 (100)	91.4 (300)	152.4 (500)	61.0 (200)	137.2 (450)	304.8 (1000)	365.8 (1200)							
	125	2	12.2 (40)	24.4 (80)	137.2 (450)	182.9 (600)	12.2 (40)	61.0 (200)	243.8 (800)	365.8 (1200)	121.9 (400)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR160-DP				•		
		4	7.6 (25)	18.3 (60)	91.4 (300)	152.4 (500)	12.2 (40)	30.5 (100)	91.4 (300)	152.4 (500)	61.0 (200)	137.2 (450)	304.8 (1000)	365.8 (1200)							
	150	2	12.2 (40)	24.4 (80)	137.2 (450)	182.9 (600)	12.2 (40)	61.0 (200)	243.8 (800)	304.8 (1000)	91.4 (300)	274.3 (900)	365.8 (1200)	365.8 (1200)	1321-RWR200-DP				•		
		4	7.6 (25)	24.4 (80)	91.4 (300)	152.4 (500)	12.2 (40)	30.5 (100)	91.4 (300)	152.4 (500)	61.0 (200)	137.2 (450)	304.8 (1000)	365.8 (1200)							
7	200	2	12.2 (40)	30.5 (100)	137.2 (450)	167.6 (550)	12.2 (40)	61.0 (200)	198.1 (650)	259.1 (850)	76.2 (250)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-RWR250-DP				•		
		4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)							
	250	2	12.2 (40)	30.5 (100)	137.2 (450)	167.6 (550)	12.2 (40)	61.0 (200)	198.1 (650)	259.1 (850)	76.2 (250)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3RB320-B	50	225		•		
		4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)		50	450				
	300	2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	12.2 (40)	45.7 (150)	137.2 (450)	182.9 (600)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3RB400-B	20	495 ⁽¹⁾		•		
		4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)		20	990 ⁽¹⁾				
	350	2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	12.2 (40)	45.7 (150)	137.2 (450)	182.9 (600)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3RB400-B	20	495 ⁽¹⁾		•		
		4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)		20	990 ⁽¹⁾				
	400	2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	12.2 (40)	45.7 (150)	137.2 (450)	182.9 (600)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3R500-B	20	495 ⁽¹⁾		•		
		4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)		20	990 ⁽¹⁾				

(1) Resistor specification is based on two parallel cables per phase.

Table 52 - PowerFlex 753 and 755 Wall Mount Drives, 600V Shielded/Unshielded Cable – Meters (Feet)

Drive	Rating		No Solution		Reactor Only		Reactor and Damping Resistor or 1321-RWR		Reactor/RWR (see page 154)	Resistor		Available Options			
Frame	HP	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
3	1.0	2	24.4 (80)	121.9 (400)	24.4 (80)	182.9 (600)	182.9 (600)	182.9 (600)				•		•	•
		4	24.4 (80)	121.9 (400)	24.4 (80)	121.9 (400)	182.9 (600)	182.9 (600)				•		•	•
	2.0	2	24.4 (80)	121.9 (400)	24.4 (80)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	•
		4	24.4 (80)	121.9 (400)	24.4 (80)	121.9 (400)	182.9 (600)	182.9 (600)				•		•	•
	3.0	2	24.4 (80)	121.9 (400)	24.4 (80)	182.9 (600)	182.9 (600)	182.9 (600)				•	•	•	•
		4	24.4 (80)	121.9 (400)	24.4 (80)	121.9 (400)	182.9 (600)	182.9 (600)				•		•	•
	5.0	2	24.4 (80)	121.9 (400)	24.4 (80)	243.8 (800)	365.8 (1200)	365.8 (1200)	1321-RWR8-EP			•	•	•	•
		4	24.4 (80)	121.9 (400)	24.4 (80)	121.9 (400)	365.8 (1200)	365.8 (1200)				•		•	•
	7.5	2	24.4 (80)	121.9 (400)	24.4 (80)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-RWR12-EP				•		•
		4	24.4 (80)	121.9 (400)	24.4 (80)	121.9 (400)	365.8 (1200)	365.8 (1200)							•
	10	2	24.4 (80)	121.9 (400)	24.4 (80)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR12-EP				•		
		4	24.4 (80)	121.9 (400)	24.4 (80)	121.9 (400)	365.8 (1200)	365.8 (1200)							
	15	2	24.4 (80)	121.9 (400)	36.6 (120)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-EP				•		
		4	24.4 (80)	121.9 (400)	36.6 (120)	121.9 (400)	365.8 (1200)	365.8 (1200)							
	20	2	24.4 (80)	121.9 (400)	36.6 (120)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-EP				•		
		4	24.4 (80)	121.9 (400)	36.6 (120)	121.9 (400)	365.8 (1200)	365.8 (1200)							
4	25	2	24.4 (80)	121.9 (400)	45.7 (150)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-EP				•		
		4	24.4 (80)	121.9 (400)	45.7 (150)	106.7 (350)	365.8 (1200)	365.8 (1200)							
	30	2	24.4 (80)	121.9 (400)	45.7 (150)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-EP				•		
		4	24.4 (80)	121.9 (400)	45.7 (150)	106.7 (350)	365.8 (1200)	365.8 (1200)							
5	40	2	24.4 (80)	137.2 (450)	45.7 (150)	365.8 (1200)	304.8 (1000)	365.8 (1200)	1321-RWR45-EP				•		
		4	24.4 (80)	106.7 (350)	45.7 (150)	106.7 (350)	304.8 (1000)	365.8 (1200)							
	50	2	24.4 (80)	137.2 (450)	45.7 (150)	304.8 (1000)	304.8 (1000)	365.8 (1200)	1321-RWR55-EP				•		
		4	24.4 (80)	106.7 (350)	45.7 (150)	91.4 (300)	304.8 (1000)	365.8 (1200)							

Table 52 - PowerFlex 753 and 755 Wall Mount Drives, 600V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive	Rating		No Solution		Reactor Only		Reactor and Damping Resistor or 1321-RWR		Reactor/RWR (see page 154)	Resistor		Available Options			
Frame	HP	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
6	10	2	24.4 (80)	121.9 (400)	24.4 (80)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR12-EP				•		
		4	24.4 (80)	121.9 (400)	24.4 (80)	106.7 (350)	365.8 (1200)	365.8 (1200)							
	15	2	24.4 (80)	121.9 (400)	36.6 (120)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR18-EP				•		
		4	24.4 (80)	121.9 (400)	36.6 (120)	106.7 (350)	365.8 (1200)	365.8 (1200)							
	20	2	24.4 (80)	121.9 (400)	36.6 (120)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR25-EP				•		
		4	24.4 (80)	121.9 (400)	36.6 (120)	106.7 (350)	365.8 (1200)	365.8 (1200)							
	25	2	24.4 (80)	121.9 (400)	45.7 (150)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-EP				•		
		4	24.4 (80)	121.9 (400)	45.7 (150)	106.7 (350)	365.8 (1200)	365.8 (1200)							
	30	2	24.4 (80)	121.9 (400)	45.7 (150)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-RWR35-EP				•		
		4	24.4 (80)	121.9 (400)	45.7 (150)	106.7 (350)	365.8 (1200)	365.8 (1200)							
	40	2	24.4 (80)	137.2 (450)	45.7 (150)	365.8 (1200)	304.8 (1000)	365.8 (1200)	1321-RWR45-EP				•		
		4	24.4 (80)	106.7 (350)	45.7 (150)	106.7 (350)	304.8 (1000)	365.8 (1200)							
	50	2	24.4 (80)	137.2 (450)	45.7 (150)	304.8 (1000)	304.8 (1000)	365.8 (1200)	1321-RWR55-EP				•		
		4	24.4 (80)	106.7 (350)	45.7 (150)	91.4 (300)	304.8 (1000)	365.8 (1200)							
	60	2	24.4 (80)	137.2 (450)	45.7 (150)	304.8 (1000)	304.8 (1000)	365.8 (1200)	1321-RWR80-EP				•		
		4	24.4 (80)	106.7 (350)	45.7 (150)	91.4 (300)	304.8 (1000)	365.8 (1200)							
	75	2	24.4 (80)	137.2 (450)	45.7 (150)	274.3 (900)	243.8 (800)	365.8 (1200)	1321-RWR80-EP				•		
		4	24.4 (80)	106.7 (350)	45.7 (150)	91.4 (300)	243.8 (800)	365.8 (1200)							
	100	2	24.4 (80)	137.2 (450)	45.7 (150)	243.8 (800)	243.8 (800)	365.8 (1200)	1321-RWR100-EP				•		
		4	24.4 (80)	106.7 (350)	45.7 (150)	91.4 (300)	243.8 (800)	365.8 (1200)							
	125	2	24.4 (80)	137.2 (450)	61.0 (200)	243.8 (800)	198.1 (650)	365.8 (1200)	1321-RWR130-EP				•		
		4	24.4 (80)	106.7 (350)	61.0 (200)	121.9 (400)	152.4 (500)	274.3 (900)							
	150	2	24.4 (80)	137.2 (450)	61.0 (200)	243.8 (800)	198.1 (650)	365.8 (1200)	1321-RWR160-EP				•		
		4	24.4 (80)	106.7 (350)	61.0 (200)	121.9 (400)	152.4 (500)	274.3 (900)							

Table 52 - PowerFlex 753 and 755 Wall Mount Drives, 600V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive	Rating		No Solution		Reactor Only		Reactor and Damping Resistor or 1321-RWR		Reactor/RWR (see page 154)	Resistor		Available Options			
Frame	HP	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
7	200	2	24.4 (80)	137.2 (450)	61.0 (200)	243.8 (800)	167.6 (550)	365.8 (1200)	1321-RWR200-EP				•		
		4	24.4 (80)	106.7 (350)	61.0 (200)	121.9 (400)	121.9 (400)	198.1 (650)							
	250	2	24.4 (80)	137.2 (450)	61.0 (200)	198.1 (650)	167.6 (550)	365.8 (1200)	1321-RWR250-EP				•		
		4	24.4 (80)	106.7 (350)	61.0 (200)	121.9 (400)	121.9 (400)	198.1 (650)							
	300	2	24.4 (80)	137.2 (450)	61.0 (200)	152.4 (500)	167.6 (550)	365.8 (1200)	1321-3RB350-B	50	315		•		
		4	24.4 (80)	106.7 (350)	61.0 (200)	121.9 (400)	121.9 (400)	198.1 (650)		50	630				

Table 53 - PowerFlex 753 and 755 Wall Mount Drives, 690V Shielded/Unshielded Cable – Meters (Feet)

Drive	Rating		No Solution		Reactor Only		Reactor and Damping Resistor		Reactor	Resistor		Available Options			
Frame	kW	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
6	7.5	2	24.4 (80)	36.6 (120)	30.5 (100)	45.7 (150)	365.8 (1200)	365.8 (1200)	1321-3R18-C	50	375				
		4	24.4 (80)	36.6 (120)	30.5 (100)	45.7 (150)	365.8 (1200)	365.8 (1200)		50	750				
	11	2	24.4 (80)	36.6 (120)	30.5 (100)	45.7 (150)	365.8 (1200)	365.8 (1200)	1321-3R25-C	50	375				
		4	24.4 (80)	36.6 (120)	30.5 (100)	45.7 (150)	365.8 (1200)	365.8 (1200)		50	750				
	15	2	24.4 (80)	36.6 (120)	30.5 (100)	45.7 (150)	365.8 (1200)	365.8 (1200)	1321-3R35-C	50	375				
		4	24.4 (80)	36.6 (120)	30.5 (100)	45.7 (150)	365.8 (1200)	365.8 (1200)		50	750				
	18.5	2	24.4 (80)	36.6 (120)	30.5 (100)	45.7 (150)	365.8 (1200)	365.8 (1200)	1321-3R35-C	50	375				
		4	24.4 (80)	36.6 (120)	30.5 (100)	45.7 (150)	365.8 (1200)	365.8 (1200)		50	750				
	22	2	24.4 (80)	36.6 (120)	30.5 (100)	45.7 (150)	365.8 (1200)	365.8 (1200)	1321-3R45-C	50	375				
		4	24.4 (80)	36.6 (120)	30.5 (100)	45.7 (150)	365.8 (1200)	365.8 (1200)		50	750				
	30	2	24.4 (80)	36.6 (120)	45.7 (150)	76.2 (250)	365.8 (1200)	365.8 (1200)	1321-3R45-C	50	375				
		4	24.4 (80)	36.6 (120)	45.7 (150)	61.0 (200)	365.8 (1200)	365.8 (1200)		50	750				
	37	2	24.4 (80)	45.7 (150)	61.0 (200)	106.7 (350)	365.8 (1200)	365.8 (1200)	1321-3R55-C	50	375				
		4	24.4 (80)	45.7 (150)	61.0 (200)	76.2 (250)	304.8 (1000)	365.8 (1200)		50	750				
	45	2	24.4 (80)	45.7 (150)	61.0 (200)	106.7 (350)	365.8 (1200)	365.8 (1200)	1321-3R80-C	50	375				
		4	24.4 (80)	45.7 (150)	61.0 (200)	76.2 (250)	304.8 (1000)	365.8 (1200)		50	750				
	55	2	24.4 (80)	45.7 (150)	61.0 (200)	106.7 (350)	365.8 (1200)	365.8 (1200)	1321-3R80-C	50	375				
		4	24.4 (80)	45.7 (150)	61.0 (200)	76.2 (250)	304.8 (1000)	365.8 (1200)		50	750				

Table 53 - PowerFlex 753 and 755 Wall Mount Drives, 690V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive	Rating		No Solution		Reactor Only		Reactor and Damping Resistor		Reactor	Resistor		Available Options			
Frame	kW	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
6	75	2	24.4 (80)	45.7 (150)	61.0 (200)	106.7 (350)	365.8 (1200)	365.8 (1200)	1321-3R100-C	50	375				
		4	24.4 (80)	45.7 (150)	61.0 (200)	76.2 (250)	304.8 (1000)	365.8 (1200)		50	750				
	90	2	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	243.8 (800)	274.3 (900)	1321-3R130-C	50	375				
		4	24.4 (80)	45.7 (150)	76.2 (250)	106.7 (350)	182.9 (600)	213.4 (700)		50	750				
	110	2	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	243.8 (800)	274.3 (900)	1321-3R160-C	50	375				
		4	24.4 (80)	45.7 (150)	76.2 (250)	106.7 (350)	182.9 (600)	213.4 (700)		50	750				
	132	2	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	243.8 (800)	274.3 (900)	1321-3R200-C	50	375				
		4	24.4 (80)	45.7 (150)	76.2 (250)	106.7 (350)	182.9 (600)	213.4 (700)		50	750				
	160	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3R200-C	50	375				
		4	24.4 (80)	45.7 (150)	91.4 (300)	106.7 (350)	152.4 (500)	182.9 (600)		50	750				
	200	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3RB250-C	50	480				
		4	24.4 (80)	45.7 (150)	91.4 (300)	106.7 (350)	152.4 (500)	182.9 (600)		50	960				
7	250	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3RB320-C	50	480				
		4	24.4 (80)	45.7 (150)	91.4 (300)	106.7 (350)	152.4 (500)	182.9 (600)		50	960				

PowerFlex 755 Floor Mount Drives

This section lists motor cable length restrictions, reactors, and available options for PowerFlex 755 floor mount drives.

Table 54 - PowerFlex 755 Floor Mount Drives, 400V Shielded/Unshielded Cable – Meters (Feet)

Drive	Rating		No Solution				Reactor Only				Reactor and Damping Resistor				Reactor	Resistor		Available Options				
Frame	kW	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC	
8	250	2	24.4 (80)	121.9 (400)	213.4 (700)	304.8 (1000)	45.7 (150)	121.9 (400)	304.8 (1000)	365.8 (1200)	228.6 (750)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-3R500-B	20	495 ⁽²⁾		•			
		4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)	36.6 (120)	91.4 (300)	167.6 (550)	213.4 (700)	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)		20	990 ⁽²⁾		•			
	315	2	24.4 (80)	121.9 (400)	213.4 (700)	259.1 (850)	45.7 (150)	121.9 (400)	304.8 (1000)	365.8 (1200)	228.6 (750)	365.8 (1200)	365.8 (1200)	365.8 (1200)	1321-3R600-B	20	495 ⁽²⁾		•			
		4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)	36.6 (120)	91.4 (300)	167.6 (550)	213.4 (700)	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)		20	990 ⁽²⁾		•			
	355	2	24.4 (80)	121.9 (400)	213.4 (700)	259.1 (850)	45.7 (150)	121.9 (400)	304.8 (1000)	365.8 (1200)	228.6 (750)	304.8 (1000)	365.8 (1200)	365.8 (1200)	1321-3R750-B	20	495 ⁽²⁾		•			
		4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)	36.6 (120)	91.4 (300)	167.6 (550)	213.4 (700)	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)		20	990 ⁽²⁾		•			
	400	2	24.4 (80)	91.4 (300)	152.4 (500)	213.4 (700)	36.6 (120)	91.4 (300)	304.8 (1000)	365.8 (1200)	198.1 (650)	274.3 (900)	304.8 (1000)	365.8 (1200)	1321-3R850-B	20	735 ⁽³⁾		•			
		4	24.4 (80)	91.4 (300)	137.2 (450)	167.6 (550)	36.6 (120)	91.4 (300)	152.4 (500)	182.9 (600)	76.2 (250)	137.2 (450)	274.3 (900)	365.8 (1200)		20	1470 ⁽³⁾		•			
	9 ⁽¹⁾	500	2	24.4 (80)	76.2 (250)	152.4 (500)	213.4 (700)	61.0 (200)	152.4 (500)	304.8 (1000)	365.8 (1200)	213.4 (700)	304.8 (1000)	365.8 (1200)	365.8 (1200)	2 x 1321-3R500-B	40	375 ⁽³⁾		•		
			4	24.4 (80)	61.0 (200)	106.7 (350)	137.2 (450)	36.6 (120)	91.4 (300)	182.9 (600)	274.3 (900)	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)		40	750 ⁽³⁾				
		560	2	24.4 (80)	61.0 (200)	152.4 (500)	182.9 (600)	61.0 (200)	152.4 (500)	304.8 (1000)	365.8 (1200)	182.9 (600)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R600-B	20	525 ⁽⁴⁾		•		
			4	24.4 (80)	61.0 (200)	106.7 (350)	137.2 (450)	36.6 (120)	91.4 (300)	182.9 (600)	274.3 (900)	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)		20	1050 ⁽⁴⁾				
630		2	24.4 (80)	61.0 (200)	152.4 (500)	182.9 (600)	61.0 (200)	152.4 (500)	304.8 (1000)	365.8 (1200)	182.9 (600)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R600-B	20	525 ⁽⁴⁾		•			
		4	24.4 (80)	61.0 (200)	106.7 (350)	137.2 (450)	36.6 (120)	91.4 (300)	182.9 (600)	274.3 (900)	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)		20	1050 ⁽⁴⁾					
710		2	24.4 (80)	61.0 (200)	152.4 (500)	182.9 (600)	61.0 (200)	152.4 (500)	304.8 (1000)	365.8 (1200)	182.9 (600)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R600-B	20	525 ⁽⁴⁾		•			
		4	24.4 (80)	61.0 (200)	106.7 (350)	137.2 (450)	36.6 (120)	91.4 (300)	182.9 (600)	274.3 (900)	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)		20	1050 ⁽⁴⁾					
800		2	24.4 (80)	61.0 (200)	152.4 (500)	182.9 (600)	61.0 (200)	152.4 (500)	304.8 (1000)	365.8 (1200)	182.9 (600)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R750-B	20	525 ⁽⁴⁾		•			
		4	24.4 (80)	61.0 (200)	106.7 (350)	137.2 (450)	36.6 (120)	91.4 (300)	182.9 (600)	274.3 (900)	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)		20	1050 ⁽⁴⁾					
850		2	24.4 (80)	61.0 (200)	152.4 (500)	182.9 (600)	61.0 (200)	152.4 (500)	304.8 (1000)	365.8 (1200)	182.9 (600)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R750-B	20	525 ⁽⁴⁾		•			
		4	24.4 (80)	61.0 (200)	106.7 (350)	137.2 (450)	36.6 (120)	91.4 (300)	182.9 (600)	274.3 (900)	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)		20	1050 ⁽⁴⁾					
10 ⁽¹⁾	900	2	24.4 (80)	45.7 (150)	121.9 (400)	182.9 (600)	61.0 (200)	152.4 (500)	304.8 (1000)	365.8 (1200)	182.9 (600)	274.3 (900)	365.8 (1200)	365.8 (1200)	2 x 1321-3R850-B	20	600 ⁽⁵⁾		•			
		4	24.4 (80)	45.7 (150)	91.4 (300)	137.2 (450)	36.6 (120)	91.4 (300)	182.9 (600)	274.3 (900)	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)		20	1200 ⁽⁵⁾					
	1250	2	24.4 (80)	45.7 (150)	106.7 (350)	152.4 (500)	61.0 (200)	121.9 (400)	304.8 (1000)	365.8 (1200)	152.4 (500)	274.3 (900)	365.8 (1200)	365.8 (1200)	3 x 1321-3R750-B	30	500 ⁽⁶⁾		•			
		4	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	36.6 (120)	91.4 (300)	152.4 (500)	213.4 (700)	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)		30	1000 ⁽⁶⁾					

- (1) Frame 9 and Frame 10 drives require two or three parallel reactors to match drive amp rating. The resistor ratings are per phase values for each reactor.
 (2) Resistor specification is based on two parallel cables per phase.
 (3) Resistor specification is based on three parallel cables per phase.
 (4) Resistor specification is based on four parallel cables per phase.
 (5) Resistor specification is based on five parallel cables per phase.
 (6) Resistor specification is based on six parallel cables per phase.

Table 55 - PowerFlex 755 Floor Mount Drives, 480V Shielded/Unshielded Cable – Meters (Feet)

Drive	Rating		No Solution				Reactor Only				Reactor and Damping Resistor				Reactor	Resistor		Available Options			
Frame	Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
8	350	2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	12.2 (40)	45.7 (150)	137.2 (450)	182.9 (600)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3R500-B	20	495 ⁽²⁾		•		
		4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)		20	990 ⁽²⁾		•		
	400	2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	12.2 (40)	45.7 (150)	137.2 (450)	182.9 (600)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3R500-B	20	495 ⁽²⁾		•		
		4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)		20	990 ⁽²⁾		•		
	450	2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	12.2 (40)	45.7 (150)	137.2 (450)	182.9 (600)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3R600-B	20	495 ⁽²⁾		•		
		4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)		20	990 ⁽²⁾		•		
	500	2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	12.2 (40)	45.7 (150)	121.9 (400)	182.9 (600)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3R750-B	20	495 ⁽²⁾		•		
		4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)	12.2 (40)	30.5 (100)	91.4 (300)	121.9 (400)	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)		20	990 ⁽²⁾		•		
	600	2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	12.2 (40)	45.7 (150)	91.4 (300)	121.9 (400)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3R750-B	20	735 ⁽³⁾		•		
		4	7.6 (25)	24.4 (80)	61.0 (200)	91.4 (300)	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)		20	1470 ⁽³⁾		•		
	650	2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	12.2 (40)	45.7 (150)	91.4 (300)	121.9 (400)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	1321-3R850-B	20	735 ⁽³⁾		•		
		4	7.6 (25)	24.4 (80)	61.0 (200)	91.4 (300)	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)		20	1470 ⁽³⁾		•		

Table 55 - PowerFlex 755 Floor Mount Drives, 480V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive	Rating		No Solution				Reactor Only				Reactor and Damping Resistor				Reactor	Resistor		Available Options			
Frame	Hp	kHz	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	1000V	1200V	1488V	1600V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
9⁽¹⁾	700	2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	12.2 (40)	45.7 (150)	91.4 (300)	121.9 (400)	61.0 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	2 x 1321-3RB500-B	40	375 ⁽³⁾		•		
		4	7.6 (25)	24.4 (80)	61.0 (200)	91.4 (300)	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)		40	750 ⁽³⁾				
	800	2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	12.2 (40)	45.7 (150)	91.4 (300)	121.9 (400)	61.0 (200)	182.9 (600)	304.8 (1000)	365.8 (1200)	2 x 1321-3R600-B	40	375 ⁽⁴⁾		•		
		4	7.6 (25)	24.4 (80)	61.0 (200)	91.4 (300)	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	45.7 (150)	121.9 (400)	243.8 (800)	304.8 (1000)		40	750 ⁽⁴⁾				
	900	2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	12.2 (40)	45.7 (150)	91.4 (300)	121.9 (400)	61.0 (200)	182.9 (600)	304.8 (1000)	365.8 (1200)	2 x 1321-3R600-B	20	525 ⁽⁴⁾				
		4	7.6 (25)	24.4 (80)	61.0 (200)	91.4 (300)	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	45.7 (150)	121.9 (400)	243.8 (800)	304.8 (1000)		20	1050 ⁽⁴⁾				
	1000	2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	12.2 (40)	45.7 (150)	91.4 (300)	121.9 (400)	61.0 (200)	182.9 (600)	304.8 (1000)	365.8 (1200)	2 x 1321-3R750-B	20	525 ⁽⁴⁾				
		4	7.6 (25)	24.4 (80)	61.0 (200)	91.4 (300)	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	45.7 (150)	121.9 (400)	243.8 (800)	304.8 (1000)		20	1050 ⁽⁴⁾				
	1100	2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	12.2 (40)	45.7 (150)	91.4 (300)	121.9 (400)	61.0 (200)	182.9 (600)	304.8 (1000)	365.8 (1200)	2 x 1321-3R750-B	20	525 ⁽⁴⁾				
		4	7.6 (25)	24.4 (80)	61.0 (200)	91.4 (300)	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	45.7 (150)	121.9 (400)	243.8 (800)	304.8 (1000)		20	1050 ⁽⁴⁾				
	1250	2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	12.2 (40)	45.7 (150)	91.4 (300)	121.9 (400)	61.0 (200)	182.9 (600)	304.8 (1000)	365.8 (1200)	2 x 1321-3R850-B	20	600 ⁽⁵⁾				
		4	7.6 (25)	24.4 (80)	61.0 (200)	91.4 (300)	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	45.7 (150)	121.9 (400)	243.8 (800)	304.8 (1000)		20	1200 ⁽⁵⁾				
10⁽¹⁾	1350	2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	12.2 (40)	45.7 (150)	91.4 (300)	121.9 (400)	61.0 (200)	152.4 (500)	304.8 (1000)	365.8 (1200)	2 x 1321-3R850-B	20	600 ⁽⁵⁾				
		4	7.6 (25)	24.4 (80)	45.7 (150)	76.2 (250)	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	45.7 (150)	121.9 (400)	243.8 (800)	304.8 (1000)		20	1200 ⁽⁵⁾				
	1750	2	12.2 (40)	30.5 (100)	76.2 (250)	91.4 (300)	12.2 (40)	45.7 (150)	91.4 (300)	121.9 (400)	45.7 (150)	137.2 (450)	304.8 (1000)	365.8 (1200)	3 x 1321-3R850-B	30	500 ⁽⁶⁾				
		4	7.6 (25)	24.4 (80)	45.7 (150)	76.2 (250)	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	30.5 (100)	106.7 (350)	213.4 (700)	304.8 (1000)		30	1000 ⁽⁶⁾				

(1) Frame 9 and Frame 10 drives require two or three parallel reactors to match drive amp rating. The resistor ratings are per phase values for each reactor.

(2) Resistor specification is based on two parallel cables per phase.

(3) Resistor specification is based on three parallel cables per phase.

(4) Resistor specification is based on four parallel cables per phase.

(5) Resistor specification is based on five parallel cables per phase.

(6) Resistor specification is based on six parallel cables per phase.

Table 56 - PowerFlex 755 Floor Mount Drives, 600V Shielded/Unshielded Cable – Meters (Feet)

Drive	Rating		No Solution		Reactor Only		Reactor and Damping Resistor		Reactor	Resistor		Available Options			
Frame	Hp	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
8	300	2	24.4 (80)	137.2 (450)	61.0 (200)	152.4 (500)	167.6 (550)	365.8 (1200)	1321-3RB400-B	50	315		•		
		4	24.4 (80)	106.7 (350)	61.0 (200)	121.9 (400)	121.9 (400)	198.1 (650)		50	630				
	350	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	167.6 (550)	365.8 (1200)	1321-3RB400-B	20	585 ⁽²⁾		•		
		4	24.4 (80)	91.4 (300)	61.0 (200)	121.9 (400)	121.9 (400)	213.4 (700)		20	1170 ⁽²⁾				
	400	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	167.6 (550)	365.8 (1200)	1321-3R500-B	20	585 ⁽²⁾		•		
		4	24.4 (80)	91.4 (300)	61.0 (200)	121.9 (400)	121.9 (400)	213.4 (700)		20	1170 ⁽²⁾				
	450	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	167.6 (550)	365.8 (1200)	1321-3R500-B	20	585 ⁽²⁾		•		
		4	24.4 (80)	91.4 (300)	61.0 (200)	121.9 (400)	121.9 (400)	213.4 (700)		20	1170 ⁽²⁾				
	500	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	167.6 (550)	365.8 (1200)	1321-3R600-B	20	585 ⁽²⁾		•		
		4	24.4 (80)	91.4 (300)	61.0 (200)	121.9 (400)	121.9 (400)	213.4 (700)		20	1170 ⁽²⁾				
9	600	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	152.4 (500)	365.8 (1200)	1321-3R750-B	20	585 ⁽²⁾		•		
		4	24.4 (80)	91.4 (300)	61.0 (200)	121.9 (400)	121.9 (400)	213.4 (700)		20	1170 ⁽²⁾				
	700	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	152.4 (500)	365.8 (1200)	1321-3R850-B	20	960 ⁽³⁾		•		
		4	24.4 (80)	91.4 (300)	61.0 (200)	121.9 (400)	121.9 (400)	213.4 (700)		20	1920 ⁽³⁾				
	800	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	152.4 (500)	365.8 (1200)	1321-3R850-B	20	960 ⁽³⁾		•		
		4	24.4 (80)	91.4 (300)	61.0 (200)	121.9 (400)	121.9 (400)	213.4 (700)		20	1920 ⁽³⁾				
	900 ⁽¹⁾	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	152.4 (500)	365.8 (1200)	2 X 1321-3R500-B	40	480 ⁽³⁾				
		4	24.4 (80)	91.4 (300)	61.0 (200)	121.9 (400)	121.9 (400)	213.4 (700)		40	960 ⁽³⁾				
	950 ⁽¹⁾	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	152.4 (500)	365.8 (1200)	2 X 1321-3R500-B	40	480 ⁽³⁾				
		4	24.4 (80)	91.4 (300)	61.0 (200)	121.9 (400)	121.9 (400)	213.4 (700)		40	960 ⁽³⁾				
	1000 ⁽¹⁾	2	24.4 (80)	91.4 (300)	61.0 (200)	152.4 (500)	152.4 (500)	365.8 (1200)	2 X 1321-3R600-B	40	480 ⁽³⁾				
		4	24.4 (80)	91.4 (300)	61.0 (200)	121.9 (400)	121.9 (400)	213.4 (700)		40	960 ⁽³⁾				
10	1100 ⁽¹⁾	2	24.4 (80)	91.4 (300)	53.3 (175)	137.2 (450)	137.2 (450)	365.8 (1200)	2 x 1321-3R750-B	20	720 ⁽⁴⁾				
		4	24.4 (80)	53.3 (175)	53.3 (175)	106.7 (350)	106.7 (350)	213.4 (700)		20	1440 ⁽⁴⁾				
	1400 ⁽¹⁾	2	24.4 (80)	91.4 (300)	53.3 (175)	137.2 (450)	137.2 (450)	365.8 (1200)	2 x 1321-3R850-B	20	960 ⁽⁵⁾				
		4	24.4 (80)	53.3 (175)	53.3 (175)	106.7 (350)	106.7 (350)	213.4 (700)		20	1920 ⁽⁵⁾				

- (1) Some Frame 9 and all Frame 10 drives require two reactors to match drive amp rating. The resistor ratings are per phase values for each reactor.
 (2) Resistor specification is based on two parallel cables per phase.
 (3) Resistor specification is based on three parallel cables per phase.
 (4) Resistor specification is based on four parallel cables per phase.
 (5) Resistor specification is based on five parallel cables per phase.

Table 57 - PowerFlex 755 Floor Mount Drives, 690V Shielded/Unshielded Cable – Meters (Feet)

Drive	Rating		No Solution		Reactor Only		Reactor and Damping Resistor		Reactor	Resistor		Available Options			
Frame	kW	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
8	250	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3RB400-C	50	480				
		4	24.4 (80)	45.7 (150)	91.4 (300)	106.7 (350)	152.4 (500)	182.9 (600)		50	960				
	315	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3RB400-C	50	480				
		4	24.4 (80)	45.7 (150)	91.4 (300)	106.7 (350)	152.4 (500)	182.9 (600)		50	960				
	355	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3R500-C	20	960 ⁽²⁾				
		4	24.4 (80)	45.7 (150)	91.4 (300)	106.7 (350)	152.4 (500)	182.9 (600)		20	1920 ⁽²⁾				
	400	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3R500-C	20	960 ⁽²⁾				
		4	24.4 (80)	45.7 (150)	91.4 (300)	106.7 (350)	152.4 (500)	182.9 (600)		20	1920 ⁽²⁾				
	450	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3R500-C	20	960 ⁽²⁾				
		4	24.4 (80)	45.7 (150)	91.4 (300)	106.7 (350)	152.4 (500)	182.9 (600)		20	1920 ⁽²⁾				
	500	2	24.4 (80)	45.7 (150)	91.4 (300)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3R600-C	20	960 ⁽²⁾				
		4	24.4 (80)	45.7 (150)	91.4 (300)	106.7 (350)	152.4 (500)	182.9 (600)		20	1920 ⁽²⁾				

Table 57 - PowerFlex 755 Floor Mount Drives, 690V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive	Rating		No Solution		Reactor Only		Reactor and Damping Resistor		Reactor	Resistor		Available Options			
Frame	kW	kHz	1488V	1850V	1488V	1850V	1488V	1850V	Cat. No.	Ohms	Watts	TFA1	TFB2	RWR2	RWC
9	560	2	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3R750-C	20	960 ⁽²⁾				
		4	24.4 (80)	45.7 (150)	76.2 (250)	91.4 (300)	152.4 (500)	182.9 (600)		20	1920 ⁽²⁾				
	630	2	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3R750-C	20	960 ⁽²⁾				
		4	24.4 (80)	45.7 (150)	76.2 (250)	91.4 (300)	152.4 (500)	182.9 (600)		20	1920 ⁽²⁾				
	710	2	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	182.9 (600)	243.8 (800)	1321-3R850-C	20	1290 ⁽³⁾				
		4	24.4 (80)	45.7 (150)	76.2 (250)	91.4 (300)	152.4 (500)	182.9 (600)		20	2580 ⁽³⁾				
	750 ⁽¹⁾	2	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	182.9 (600)	243.8 (800)	2 x 1321-3R500-C	40	645 ⁽³⁾				
		4	24.4 (80)	45.7 (150)	76.2 (250)	91.4 (300)	152.4 (500)	182.9 (600)		40	1290 ⁽³⁾				
	800 ⁽¹⁾	2	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	182.9 (600)	243.8 (800)	2 x 1321-3R500-C	40	645 ⁽³⁾				
		4	24.4 (80)	45.7 (150)	76.2 (250)	91.4 (300)	152.4 (500)	182.9 (600)		40	1290 ⁽³⁾				
	900 ⁽¹⁾	2	24.4 (80)	45.7 (150)	76.2 (250)	121.9 (400)	182.9 (600)	243.8 (800)	2 x 1321-3R600-C	40	645 ⁽³⁾				
		4	24.4 (80)	45.7 (150)	76.2 (250)	91.4 (300)	152.4 (500)	182.9 (600)		40	1290 ⁽³⁾				
10	1000 ⁽¹⁾	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	182.9 (600)	243.8 (800)	2 x 1321-3R600-C	20	840 ⁽⁴⁾				
		4	24.4 (80)	45.7 (150)	61.0 (200)	76.2 (250)	152.4 (500)	182.9 (600)		20	1680 ⁽⁴⁾				
	1400 ⁽¹⁾	2	24.4 (80)	45.7 (150)	61.0 (200)	91.4 (300)	182.9 (600)	243.8 (800)	2 x 1321-3R750-C	20	840 ⁽⁴⁾				
		4	24.4 (80)	45.7 (150)	61.0 (200)	76.2 (250)	152.4 (500)	182.9 (600)		20	1680 ⁽⁴⁾				

(1) Some Frame 9 and all Frame 10 drives require two reactors to match drive amp rating. The resistor ratings are per phase values for each reactor.

(2) Resistor specification is based on two parallel cables per phase.

(3) Resistor specification is based on three parallel cables per phase.

(4) Resistor specification is based on four parallel cables per phase.

PowerFlex 755T Drive Products

PowerFlex 755TL low harmonic drives PowerFlex 755TR regenerative drives, and PowerFlex 755TM drive systems (also referred to as 755T drive products).

This section lists motor cable length restrictions, reactors, and available options for PowerFlex 755T drive products.

Table 58 - PowerFlex 755T Drive Products, 400V Shielded/Unshielded Cable – Meters (Feet)

Drive			Inverter Switching kHz	No Solution					Inverter Switching kHz	With Reactor and Damping Resistor (included in roll-in)				
Frame	kW	Amps		1000V	1200V	1488V	1600V	IGBT Power Structure Cat. No.		1000V	1200V	1488V	1600V	IGBT Power Structure Cat. No.
8	160	302	1.33, 2	24.4 (80)	121.9 (400)	213.4 (700)	304.8 (1000)	20-750-MI1-C302D302	1.33, 2	228.6 (750)	365.8 (1200)	365.8 (1200)	365.8 (1200)	20-750-MI3-C302D302
			4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)		4	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)	
8	200	367	1.33, 2	24.4 (80)	121.9 (400)	213.4 (700)	304.8 (1000)	20-750-MI1-C367D361	1.33, 2	228.6 (750)	365.8 (1200)	365.8 (1200)	365.8 (1200)	20-750-MI3-C367D361
			4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)		4	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)	
8	250	460	1.33, 2	24.4 (80)	121.9 (400)	213.4 (700)	304.8 (1000)	20-750-MI1-C460D430	1.33, 2	228.6 (750)	365.8 (1200)	365.8 (1200)	365.8 (1200)	20-750-MI3-C460D430
			4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)		4	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)	
8	315	540	1.33, 2	24.4 (80)	121.9 (400)	213.4 (700)	259.1 (850)	20-750-MI1-C540D505	1.33, 2	228.6 (750)	365.8 (1200)	365.8 (1200)	365.8 (1200)	20-750-MI3-C540D505
			4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)		4	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)	
8	315	585	1.33, 2	24.4 (80)	121.9 (400)	213.4 (700)	259.1 (850)	20-750-MI1-C585D545	1.33, 2	228.6 (750)	365.8 (1200)	365.8 (1200)	365.8 (1200)	20-750-MI3-C585D545
			4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)		4	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)	
8	355	650	1.33, 2	24.4 (80)	121.9 (400)	213.4 (700)	259.1 (850)	20-750-MI1-C650D617	1.33, 2	228.6 (750)	304.8 (1000)	365.8 (1200)	365.8 (1200)	20-750-MI3-C650D617
			4	24.4 (80)	91.4 (300)	152.4 (500)	182.9 (600)		4	91.4 (300)	182.9 (600)	304.8 (1000)	365.8 (1200)	
8	400	750	1.33, 2	24.4 (80)	91.4 (300)	152.4 (500)	213.4 (700)	20-750-MI1-C750D710	1.33, 2	198.1 (650)	274.3 (900)	304.8 (1000)	365.8 (1200)	20-750-MI3-C750D710
			4	24.4 (80)	91.4 (300)	137.2 (450)	167.6 (550)		4	76.2 (250)	137.2 (450)	274.8 (902)	365.8 (1200)	
8	400	770	1.33, 2	24.4 (80)	91.4 (300)	152.4 (500)	213.4 (700)	20-750-MI1-C750D710	1.33, 2	198.1 (650)	274.3 (900)	304.8 (1000)	365.8 (1200)	20-750-MI3-C770D740
			4	24.4 (80)	91.4 (300)	137.2 (450)	167.6 (550)		4	76.2 (250)	137.2 (450)	274.8 (902)	365.8 (1200)	
9	500	920	1.33, 2	24.4 (80)	76.2 (250)	152.4 (500)	213.4 (700)	20-750-MI2-C460D430	1.33, 2	213.4 (700)	304.8 (1000)	365.8 (1200)	365.8 (1200)	20-750-MI3-C460D430
			4	24.4 (80)	61.0 (200)	106.7 (350)	137.2 (450)		4	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)	
9	560	1040	1.33, 2	24.4 (80)	61.0 (200)	152.4 (500)	182.9 (600)	20-750-MI2-C540D485	1.33, 2	182.9 (600)	274.3 (900)	365.8 (1200)	365.8 (1200)	20-750-MI3-C540D485
			4	24.4 (80)	61.0 (200)	106.7 (350)	137.2 (450)		4	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)	
9	630	1112	1.33, 2	24.4 (80)	61.0 (200)	152.4 (500)	182.9 (600)	20-750-MI2-C567D545	1.33, 2	182.9 (600)	274.3 (900)	365.8 (1200)	365.8 (1200)	20-750-MI3-C567D545
			4	24.4 (80)	61.0 (200)	106.7 (350)	137.2 (450)		4	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)	

Table 58 - PowerFlex 755T Drive Products, 400V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive			Inverter Switching kHz	No Solution					Inverter Switching kHz	With Reactor and Damping Resistor (included in roll-in)				
Frame	kW	Amps		1000V	1200V	1488V	1600V	IGBT Power Structure Cat. No.		1000V	1200V	1488V	1600V	IGBT Power Structure Cat. No.
9	710	1175	1.33, 2	24.4 (80)	61.0 (200)	152.4 (500)	182.9 (600)	20-750-MI2-C750D710	1.33, 2	182.9 (600)	274.3 (900)	365.8 (1200)	365.8 (1200)	20-750-MI3-C750D710
			4	24.4 (80)	61.0 (200)	106.7 (350)	137.2 (450)		4	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)	
9	800	1465	1.33, 2	24.4 (80)	61.0 (200)	152.4 (500)	182.9 (600)	20-750-MI2-C770D740	1.33, 2	182.9 (600)	274.3 (900)	365.8 (1200)	365.8 (1200)	20-750-MI3-C770D740
			4	24.4 (80)	61.0 (200)	106.7 (350)	137.2 (450)		4	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)	
10	850	1590	1.33, 2	24.4 (80)	61.0 (200)	152.4 (500)	182.9 (600)	20-750-MI2-C650D617	1.33, 2	182.9 (600)	274.3 (900)	365.8 (1200)	365.8 (1200)	20-750-MI3-C650D617
			4	24.4 (80)	61.0 (200)	106.7 (350)	137.2 (450)		4	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)	
10	1000	1715	1.33, 2	24.4 (80)	45.7 (150)	121.9 (400)	182.9 (600)	20-750-MI2-C770D740	1.33, 2	182.9 (600)	274.3 (900)	365.8 (1200)	365.8 (1200)	20-750-MI3-C770D740
			4	24.4 (80)	45.7 (150)	91.4 (300)	137.2 (450)		4	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)	
10	1250	2156	1.33, 2	24.4 (80)	45.7 (150)	91.4 (300)	137.2 (450)	20-750-MI2-C750D710	1.33, 2	152.4 (500)	274.3 (900)	365.8 (1200)	365.8 (1200)	20-750-MI3-C750D710
			4	24.4 (80)	45.7 (150)	106.7 (350)	152.4 (500)		4	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)	
11	1650	2849	1.33, 2	24.4 (80)	45.7 (150)	91.4 (300)	137.2 (450)	20-750-MI2-C770D740	1.33, 2	152.4 (500)	274.3 (900)	365.8 (1200)	365.8 (1200)	20-750-MI3-C770D740
			4	24.4 (80)	45.7 (150)	106.7 (350)	152.4 (500)		4	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)	
12	2000	3542	1.33, 2	24.4 (80)	45.7 (150)	91.4 (300)	137.2 (450)	20-750-MI2-C770D740	1.33, 2	152.4 (500)	274.3 (900)	365.8 (1200)	365.8 (1200)	20-750-MI3-C770D740
			4	24.4 (80)	45.7 (150)	106.7 (350)	152.4 (500)		4	91.4 (300)	182.9 (600)	365.8 (1200)	365.8 (1200)	

Table 59 - PowerFlex 755T Drive Products, 480V Shielded/Unshielded Cable – Meters (Feet)

Drive			Inverter Switching kHz	No Solution					Inverter Switching kHz	With Reactor and Damping Resistor (included in roll-in)				
Frame	Hp	Amps		1000V	1200V	1488V	1600V	IGBT Power Structure Cat. No.		1000V	1200V	1488V	1600V	IGBT Power Structure Cat. No.
8	250	302	1.33, 2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	20-750-MI1-C302D302	1.33, 2	61 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	20-750-MI3-C302D302
			4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)		4	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)	
8	300	361	1.33, 2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	20-750-MI1-C367D361	1.33, 2	61 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	20-750-MI3-C367D361
			4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)		4	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)	
8	350	430	1.33, 2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	20-750-MI1-C460D430	1.33, 2	61 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	20-750-MI3-C460D430
			4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)		4	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)	
8	400	505	1.33, 2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	20-750-MI1-C540D505	1.33, 2	61 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	20-750-MI3-C540D505
			4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)		4	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)	

Table 59 - PowerFlex 755T Drive Products, 480V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive			Inverter Switching kHz	No Solution					Inverter Switching kHz	With Reactor and Damping Resistor (included in roll-in)				
Frame	Hp	Amps		1000V	1200V	1488V	1600V	IGBT Power Structure Cat. No.		1000V	1200V	1488V	1600V	IGBT Power Structure Cat. No.
8	450	545	1.33, 2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	20-750-MI1-C585D545	1.33, 2	61 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	20-750-MI3-C585D545
			4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)		4	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)	
8	500	617	1.33, 2	12.2 (40)	30.5 (100)	106.7 (350)	152.4 (500)	20-750-MI1-C650D617	1.33, 2	61 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	20-750-MI3-C650D617
			4	7.6 (25)	24.4 (80)	91.4 (300)	121.9 (400)		4	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)	
8	600	710	1.33, 2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	20-750-MI1-C750D710	1.33, 2	61 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	20-750-MI3-C750D710
			4	7.6 (25)	24.4 (80)	61.0 (200)	91.4 (300)		4	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)	
8	650	740	1.33, 2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	20-750-MI1-C750D710	1.33, 2	61 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	20-750-MI3-C770D740
			4	7.6 (25)	24.4 (80)	61.0 (200)	91.4 (300)		4	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)	
9	700	800	1.33, 2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	20-750-MI2-C460D430	1.33, 2	61 (200)	213.4 (700)	304.8 (1000)	365.8 (1200)	20-750-MI3-C460D430
			4	7.6 (25)	24.4 (80)	61.0 (200)	91.4 (300)		4	45.7 (150)	137.2 (450)	243.8 (800)	304.8 (1000)	
9	800	960	1.33, 2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	20-750-MI2-C540D485	1.33, 2	61 (200)	182.9 (600)	304.8 (1000)	365.8 (1200)	20-750-MI3-C540D485
			4	7.6 (25)	24.4 (80)	61.0 (200)	91.4 (300)		4	45.7 (150)	121.9 (400)	243.8 (800)	304.8 (1000)	
9	900	1045	1.33, 2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	20-750-MI2-C567D545	1.33, 2	61 (200)	182.9 (600)	304.8 (1000)	365.8 (1200)	20-750-MI3-C567D545
			4	7.6 (25)	24.4 (80)	61.0 (200)	91.4 (300)		4	45.7 (150)	121.9 (400)	243.8 (800)	304.8 (1000)	
9	1000	1135	1.33, 2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	20-750-MI2-C750D710	1.33, 2	61 (200)	182.9 (600)	304.8 (1000)	365.8 (1200)	20-750-MI3-C750D710
			4	7.6 (25)	24.4 (80)	61.0 (200)	91.4 (300)		4	45.7 (150)	121.9 (400)	243.8 (800)	304.8 (1000)	
9	1100	1365	1.33, 2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	20-750-MI2-C770D740	1.33, 2	61 (200)	182.9 (600)	304.8 (1000)	365.8 (1200)	20-750-MI3-C770D740
			4	7.6 (25)	24.4 (80)	61.0 (200)	91.4 (300)		4	45.7 (150)	121.9 (400)	243.8 (800)	304.8 (1000)	
10	1250	1420	1.33, 2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	20-750-MI2-C650D617	1.33, 2	61 (200)	182.9 (600)	304.8 (1000)	365.8 (1200)	20-750-MI3-C650D617
			4	7.6 (25)	24.4 (80)	61.0 (200)	91.4 (300)		4	45.7 (150)	121.9 (400)	243.8 (800)	304.8 (1000)	
10	1500	1655	1.33, 2	12.2 (40)	30.5 (100)	76.2 (250)	106.7 (350)	20-750-MI2-C770D740	1.33, 2	61 (200)	152.4 (500)	304.8 (1000)	365.8 (1200)	20-750-MI3-C770D740
			4	7.6 (25)	24.4 (80)	45.7 (150)	76.2 (250)		4	45.7 (150)	121.9 (400)	243.8 (800)	304.8 (1000)	
10	1800	2072	1.33, 2	12.2 (40)	30.5 (100)	76.2 (250)	91.4 (300)	20-750-MI2-C750D710	1.33, 2	61 (200)	137.2 (450)	304.8 (1000)	365.8 (1200)	20-750-MI3-C750D710
			4	7.6 (25)	24.4 (80)	45.7 (150)	76.2 (250)		4	45.7 (150)	106.7 (350)	243.8 (800)	304.8 (1000)	

Table 59 - PowerFlex 755T Drive Products, 480V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive			Inverter Switching kHz	No Solution					Inverter Switching kHz	With Reactor and Damping Resistor (included in roll-in)				
Frame	Hp	Amps		1000V	1200V	1488V	1600V	IGBT Power Structure Cat. No.		1000V	1200V	1488V	1600V	IGBT Power Structure Cat. No.
11	2400	2738	1.33, 2	12.2 (40)	30.5 (100)	76.2 (250)	91.4 (300)	20-750-MI2-C770D740	1.33, 2	61 (200)	137.2 (450)	304.8 (1000)	365.8 (1200)	20-750-MI3-C770D740
			4	7.6 (25)	24.4 (80)	45.7 (150)	76.2 (250)		4	45.7 (150)	106.7 (350)	243.8 (800)	304.8 (1000)	
12	3000	3404	1.33, 2	12.2 (40)	30.5 (100)	76.2 (250)	91.4 (300)	20-750-MI2-C770D740	1.33, 2	61 (200)	137.2 (450)	304.8 (1000)	365.8 (1200)	20-750-MI3-C770D740
			4	7.6 (25)	24.4 (80)	45.7 (150)	76.2 (250)		4	45.7 (150)	106.7 (350)	243.8 (800)	304.8 (1000)	

Table 60 - PowerFlex 755T Drive Products, 600V Shielded/Unshielded Cable – Meters (Feet)

Drive			Inverter Switching kHz	No Solution			Inverter Switching kHz	With Reactor and Damping Resistor (included in roll-in)		
Frame	Hp	Amps		1488V	1850V	IGBT Power Structure Cat. No.		1488V	1850V	IGBT Power Structure Cat. No.
8	250	242	1.33, 2	24.4 (80)	137.2 (450)	20-750-MI1-E242F215	1.33, 2	167.6 (550)	365.8 (1200)	20-750-MI3-E242F215
			4	24.4 (80)	106.7 (350)		4	121.9 (400)	198.1 (650)	
8	300	295	1.33, 2	24.4 (80)	137.2 (450)	20-750-MI1-E295F265	1.33, 2	167.6 (550)	365.8 (1200)	20-750-MI3-E295F265
			4	24.4 (80)	106.7 (350)		4	121.9 (400)	198.1 (650)	
8	350	355	1.33, 2	24.4 (80)	91.4 (300)	20-750-MI1-E355F330	1.33, 2	167.6 (550)	365.8 (1200)	20-750-MI3-E355F330
			4	24.4 (80)	91.4 (300)		4	121.9 (400)	213.4 (700)	
8	400	395	1.33, 2	24.4 (80)	91.4 (300)	20-750-MI1-E385F385	1.33, 2	167.6 (550)	365.8 (1200)	20-750-MI3-E385F385
			4	24.4 (80)	91.4 (300)		4	121.9 (400)	213.4 (700)	
8	450	435	1.33, 2	24.4 (80)	91.4 (300)	20-750-MI1-E435F415	1.33, 2	167.6 (550)	365.8 (1200)	20-750-MI3-E435F415
			4	24.4 (80)	91.4 (300)		4	121.9 (400)	213.4 (700)	
8	550	545	1.33, 2	24.4 (80)	91.4 (300)	20-750-MI1-E543F500	1.33, 2	167.6 (550)	365.8 (1200)	20-750-MI3-E543F500
			4	24.4 (80)	91.4 (300)		4	121.9 (400)	213.4 (700)	
9	600	580	1.33, 2	24.4 (80)	91.4 (300)	20-750-MI2-E385F385	1.33, 2	152.4 (500)	365.8 (1200)	20-750-MI3-E385F385
			4	24.4 (80)	91.4 (300)		4	121.9 (400)	213.4 (700)	
9	700	690	1.33, 2	24.4 (80)	91.4 (300)	20-750-MI2-E385F385	1.33, 2	152.4 (500)	365.8 (1200)	20-750-MI3-E385F385
			4	24.4 (80)	91.4 (300)		4	121.9 (400)	213.4 (700)	
9	800	760	1.33, 2	24.4 (80)	91.4 (300)	20-750-MI2-E385F385	1.33, 2	152.4 (500)	365.8 (1200)	20-750-MI3-E385F385
			4	24.4 (80)	91.4 (300)		4	121.9 (400)	213.4 (700)	

Table 60 - PowerFlex 755T Drive Products, 600V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive			Inverter Switching kHz	No Solution			Inverter Switching kHz	With Reactor and Damping Resistor (included in roll-in)		
Frame	Hp	Amps		1488V	1850V	IGBT Power Structure Cat. No.		1488V	1850V	IGBT Power Structure Cat. No.
9	900	825	1.33, 2	24.4 (80)	91.4 (300)	20-750-MI2-E543F500	1.33, 2	152.4 (500)	365.8 (1200)	20-750-MI3-E543F500
			4	24.4 (80)	91.4 (300)		4	121.9 (400)	213.4 (700)	
9	1000	980	1.33, 2	24.4 (80)	91.4 (300)	20-750-MI2-E543F500	1.33, 2	152.4 (500)	365.8 (1200)	20-750-MI3-E543F500
			4	24.4 (80)	91.4 (300)		4	121.9 (400)	213.4 (700)	
10	1100	1045	1.33, 2	24.4 (80)	91.4 (300)	20-750-MI2-E543F500	1.33, 2	137.2 (450)	365.8 (1200)	20-750-MI3-E543F500
			4	24.4 (80)	53.3 (175)		4	106.7 (350)	213.4 (700)	
10	1250	1220	1.33, 2	24.4 (80)	91.4 (300)	20-750-MI2-E543F500	1.33, 2	137.2 (450)	365.8 (1200)	20-750-MI3-E543F500
			4	24.4 (80)	91.4 (300)		4	106.7 (350)	213.4 (700)	
10	1500	1430	1.33, 2	24.4 (80)	91.4 (300)	20-750-MI2-E543F500	1.33, 2	137.2 (450)	365.8 (1200)	20-750-MI3-E543F500
			4	24.4 (80)	53.3 (175)		4	106.7 (350)	213.4 (700)	
11	2000	1946	1.33, 2	24.4 (80)	91.4 (300)	20-750-MI2-E543F500	1.33, 2	137.2 (450)	365.8 (1200)	20-750-MI3-E543F500
			4	24.4 (80)	91.4 (300)		4	106.7 (350)	213.4 (700)	
12	2500	2420	1.33, 2	24.4 (80)	91.4 (300)	20-750-MI2-E543F500	1.33, 2	137.2 (450)	365.8 (1200)	20-750-MI3-E543F500
			4	24.4 (80)	91.4 (300)		4	106.7 (350)	213.4 (700)	

Table 61 - PowerFlex 755T Drive Products, 690V Shielded/Unshielded Cable – Meters (Feet)

Drive			Inverter Switching kHz	No Solution			Inverter Switching kHz	With Reactor and Damping Resistor (included in roll-in)		
Frame	kW	Amps		1488V	1850V	IGBT Power Structure Cat. No.		1488V	1850V	IGBT Power Structure Cat. No.
8	200	215	1.33, 2	24.4 (80)	45.7 (150)	20-750-MI1-E242F215	1.33, 2	182.9 (600)	243.8 (800)	20-750-MI3-E242F215
			4	24.4 (80)	45.7 (150)		4	152.4 (500)	182.9 (600)	
8	250	265	1.33, 2	24.4 (80)	45.7 (150)	20-750-MI1-E295F265	1.33, 2	182.9 (600)	243.8 (800)	20-750-MI3-E295F265
			4	24.4 (80)	45.7 (150)		4	152.4 (500)	182.9 (600)	
8	315	330	1.33, 2	24.4 (80)	45.7 (150)	20-750-MI1-E355F330	1.33, 2	182.9 (600)	243.8 (800)	20-750-MI3-E355F330
			4	24.4 (80)	45.7 (150)		4	152.4 (500)	182.9 (600)	
8	355	370	1.33, 2	24.4 (80)	45.7 (150)	20-750-MI1-E385F385	1.33, 2	182.9 (600)	243.8 (800)	20-750-MI3-E385F385
			4	24.4 (80)	45.7 (150)		4	152.4 (500)	182.9 (600)	

Table 61 - PowerFlex 755T Drive Products, 690V Shielded/Unshielded Cable – Meters (Feet) (continued)

Drive			Inverter Switching kHz	No Solution			Inverter Switching kHz	With Reactor and Damping Resistor (included in roll-in)		
Frame	kW	Amps		1488V	1850V	IGBT Power Structure Cat. No.		1488V	1850V	IGBT Power Structure Cat. No.
8	400	415	1.33, 2	24.4 (80)	45.7 (150)	20-750-MI1-E435F415	1.33, 2	182.9 (600)	243.8 (800)	20-750-MI3-E435F415
			4	24.4 (80)	45.7 (150)		4	152.4 (500)	182.9 (600)	
8	500	505	1.33, 2	24.4 (80)	45.7 (150)	20-750-MI1-E543F500	1.33, 2	182.9 (600)	243.8 (800)	20-750-MI3-E543F500
			4	24.4 (80)	45.7 (150)		4	152.4 (500)	182.9 (600)	
9	560	565	1.33, 2	24.4 (80)	45.7 (150)	20-750-MI2-E385F385	1.33, 2	182.9 (600)	243.8 (800)	20-750-MI3-E385F385
			4	24.4 (80)	45.7 (150)		4	152.4 (500)	182.9 (600)	
9	630	650	1.33, 2	24.4 (80)	45.7 (150)	20-750-MI2-E385F385	1.33, 2	182.9 (600)	243.8 (800)	20-750-MI3-E385F385
			4	24.4 (80)	45.7 (150)		4	152.4 (500)	182.9 (600)	
9	710	735	1.33, 2	24.4 (80)	45.7 (150)	20-750-MI2-E385F385	1.33, 2	182.9 (600)	243.8 (800)	20-750-MI3-E385F385
			4	24.4 (80)	45.7 (150)		4	152.4 (500)	182.9 (600)	
9	800	820	1.33, 2	24.4 (80)	45.7 (150)	20-750-MI2-E543F500	1.33, 2	182.9 (600)	243.8 (800)	20-750-MI3-E543F500
			4	24.4 (80)	45.7 (150)		4	152.4 (500)	182.9 (600)	
9	900	920	1.33, 2	24.4 (80)	45.7 (150)	20-750-MI2-E543F500	1.33, 2	182.9 (600)	243.8 (800)	20-750-MI3-E543F500
			4	24.4 (80)	45.7 (150)		4	152.4 (500)	182.9 (600)	
10	1000	1030	1.33, 2	24.4 (80)	45.7 (150)	20-750-MI2-E543F500	1.33, 2	182.9 (600)	243.8 (800)	20-750-MI3-E543F500
			4	24.4 (80)	45.7 (150)		4	152.4 (500)	182.9 (600)	
10	1100	1150	1.33, 2	24.4 (80)	45.7 (150)	20-750-MI2-E543F500	1.33, 2	182.9 (600)	243.8 (800)	20-750-MI3-E543F500
			4	24.4 (80)	45.7 (150)		4	152.4 (500)	182.9 (600)	
10	1400	1419	1.33, 2	24.4 (80)	45.7 (150)	20-750-MI2-E543F500	1.33, 2	182.9 (600)	243.8 (800)	20-750-MI3-E543F500
			4	24.4 (80)	45.7 (150)		4	152.4 (500)	182.9 (600)	
11	1800	1865	1.33, 2	24.4 (80)	45.7 (150)	20-750-MI2-E543F500	1.33, 2	182.9 (600)	243.8 (800)	20-750-MI3-E543F500
			4	24.4 (80)	45.7 (150)		4	152.4 (500)	182.9 (600)	
12	2300	2318	1.33, 2	24.4 (80)	45.7 (150)	20-750-MI2-E543F500	1.33, 2	182.9 (600)	243.8 (800)	20-750-MI3-E543F500
			4	24.4 (80)	45.7 (150)		4	152.4 (500)	182.9 (600)	

1336 PLUS II and 1336 IMPACT Drives

To increase the distance between the 1336 PLUS II and 1336 IMPACT drives and the motor, some device (RWR or terminator) must be added to the system. Shaded distances are restricted by cable capacitance charging current.

Table 62 - 1336 PLUS II/1336 IMPACT Drives, 380...480V – Meters (Feet)

Drive Frame	Drive kW (Hp)	Motor kW (Hp)	No External Devices ⁽¹⁾				With 1204-TFB2 Terminator ⁽¹⁾			With 1204-TFA1 Terminator ⁽¹⁾					Reactor at Drive ⁽¹⁾⁽⁴⁾	
			Motor				Motor			Motor					Motor	
			A	B	1329	1329R/L (1600V)	A or B		1329	A		B		1329	A	B or 1329
			Any Cable	Any Cable	Any Cable	Any Cable ⁽²⁾	Shield ⁽³⁾	Unshield	Any Cable	Shield ⁽³⁾	Unshield	Shield ⁽³⁾	Unshield	Any Cable	Any Cable	Any Cable
A1	0.37 (0.5)	0.37 (0.5)	12.2 (40)	33.5 (110)	91.4 (300)	91.4 (300)	Use 1204-TFA1			30.5 (100)	61.0 (200)	30.5 (100)	61.0 (200)	91.4 (300)	22.9 (75)	182.9 (600)
	0.75 (1)	0.75 (1)	12.2 (40)	33.5 (110)	91.4 (300)	91.4 (300)				30.5 (100)	30.5 (100)	30.5 (100)	30.5 (100)	91.4 (300)	22.9 (75)	182.9 (600)
		0.37 (0.5)	12.2 (40)	33.5 (110)	91.4 (300)	91.4 (300)				30.5 (100)	61.0 (200)	30.5 (100)	61.0 (200)	91.4 (300)	22.9 (75)	182.9 (600)
	1.2 (1.5)	1.2 (1.5)	12.2 (40)	33.5 (110)	91.4 (300)	91.4 (300)				30.5 (100)	30.5 (100)	61.0 (200)	61.0 (200)	91.4 (300)	22.9 (75)	182.9 (600)
		0.75 (1)	12.2 (40)	33.5 (110)	91.4 (300)	91.4 (300)				30.5 (100)	30.5 (100)	61.0 (200)	61.0 (200)	91.4 (300)	22.9 (75)	182.9 (600)
		0.37 (0.5)	12.2 (40)	33.5 (110)	114.3 (375)	121.9 (400)				30.5 (100)	30.5 (100)	61.0 (200)	61.0 (200)	121.9 (400)	22.9 (75)	182.9 (600)

Table 62 - 1336 PLUS II/1336 IMPACT Drives, 380...480V – Meters (Feet) (continued)

Drive Frame	Drive kW (Hp)	Motor kW (Hp)	No External Devices ⁽¹⁾				With 1204-TFB2 Terminator ⁽¹⁾			With 1204-TFA1 Terminator ⁽¹⁾					Reactor at Drive ⁽¹⁾⁽⁴⁾	
			Motor				Motor			Motor					Motor	
			A	B	1329	1329R/L (1600V)	A or B		1329	A		B		1329	A	B or 1329
			Any Cable	Any Cable	Any Cable	Any Cable ⁽²⁾	Shield ⁽³⁾	Unshield	Any Cable	Shield ⁽³⁾	Unshield	Shield ⁽³⁾	Unshield	Any Cable	Any Cable	Any Cable
A2	1.5 (2)	1.5 (2)	7.6 (25)	12.2 (40)	91.4 (300)	91.4 (300)	91.4 (300)	91.4 (300)	91.4 (300)	30.5 (100)	30.5 (100)	91.4 (300)	61.0 (200)	91.4 (300)	22.9 (75)	182.9 (600)
		1.2 (1.5)	7.6 (25)	12.2 (40)	114.3 (375)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	30.5 (100)	30.5 (100)	91.4 (300)	61.0 (200)	182.9 (600)	22.9 (75)	182.9 (600)
		0.75 (1)	7.6 (25)	12.2 (40)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	30.5 (100)	30.5 (100)	91.4 (300)	61.0 (200)	182.9 (600)	22.9 (75)	182.9 (600)
		0.37 (0.5)	7.6 (25)	12.2 (40)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	30.5 (100)	30.5 (100)	91.4 (300)	61.0 (200)	182.9 (600)	22.9 (75)	182.9 (600)
	2.2 (3)	2.2 (3)	7.6 (25)	12.2 (40)	91.4 (300)	91.4 (300)	182.9 (600)	182.9 (600)	182.9 (600)	Use 1204-TFB2					22.9 (75)	182.9 (600)
		1.5 (2)	7.6 (25)	12.2 (40)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	22.9 (75)						182.9 (600)	
		0.75 (1)	7.6 (25)	12.2 (40)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	22.9 (75)						182.9 (600)	
		0.37 (0.5)	7.6 (25)	12.2 (40)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	22.9 (75)						182.9 (600)	
	A3	3.7 (5)	3.7 (5)	7.6 (25)	12.2 (40)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	22.9 (75)	182.9 (600)
			2.2 (3)	7.6 (25)	12.2 (40)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	22.9 (75)	182.9 (600)		
1.5 (2)			7.6 (25)	12.2 (40)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	22.9 (75)	182.9 (600)				
0.75 (1)			7.6 (25)	12.2 (40)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	22.9 (75)	182.9 (600)				
0.37 (0.5)			7.6 (25)	12.2 (40)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	22.9 (75)	182.9 (600)					
A4	5.5...15 (7.5...20)	5.5...15 (7.5...20)	7.6 (25)	12.2 (40)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	24.4 (80)	182.9 (600)				
B	11...22 (15...30)	11...22 (15...30)	7.6 (25)	12.2 (40)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	24.4 (80)	182.9 (600)				
C	30...45 (X40...X60)	30...45 (40...60)	7.6 (25)	12.2 (40)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	76.2 (250)	182.9 (600)				
D	45...112 (60...X150)	45...112 (60...150)	12.2 (40)	30.5 (100)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	61.0 (200)	91.4 (300)				
E	112...187 (150...250)	112...187 (150...250)	12.2 (40)	53.3 (175)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)			
F	187...336 (250...450)	187...336 (250...450)	18.3 (60)	53.3 (175)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)			
G	187...448 (X250...600)	187...448 (250...600)	18.3 (60)	53.3 (175)	114.3 (375)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)			

(1) Values that are shown are for nominal input voltage, drive carrier frequency of 2 kHz or as shown and surrounding air temperature at the motor of 40 °C (104 °F). Consult factory regarding operation at carrier frequencies above 2 kHz. Multiply values by 0.85 for high line conditions. For input voltages of 380, 400V or 415V AC, multiply the table values by 1.25, 1.20 or 1.15, respectively.

(2) These distance restrictions are due to charging of cable capacitance and can vary from application to application.

(3) Includes wire in conduit.

(4) A 3% reactor reduces motor and cable stress but can cause a degradation of motor waveform quality. Reactors must have a turn-turn insulation rating of 2100V or higher.

Table 63 - 1336 PLUS II/IMPACT Drives, 600V – Meters (Feet)

Drive Frame	Drive kW (Hp)	Motor kW (Hp)	No External Devices ⁽¹⁾			With 1204-TFB2 Terminator ⁽¹⁾			With 1204-TFA1 Terminator ⁽¹⁾			Reactor at Drive ⁽¹⁾⁽³⁾		
			Motor (NR = not recommended)			Motor (NR = not recommended)			Motor (NR = not recommended)			Motor		
			A	B	1329R/L ⁽²⁾	A	B	1329R/L ⁽²⁾	A	B	1329R/L ⁽²⁾	A	B	1329R/L ⁽²⁾
			Any Cable	Any Cable	Any Cable	Any Cable	Any Cable	Any Cable	Any Cable	Any Cable	Any Cable	Any Cable	Any Cable	Any Cable
A4	0.75 (1)	0.75 (1)	NR	NR	N/A	NR	182.9 (600)	335.3 (1100)	NR	61.0 (200)	182.9 (600)	Not Recommended		
		0.37 (0.5)	NR	NR	N/A	NR	182.9 (600)	335.3 (1100)	NR	61.0 (200)	182.9 (600)			
	1.5 (2)	1.5 (2)	NR	NR	N/A	NR	182.9 (600)	335.3 (1100)	NR	61.0 (200)	182.9 (600)			
		1.2 (1.5)	NR	NR	N/A	NR	182.9 (600)	335.3 (1100)	NR	61.0 (200)	182.9 (600)			
		0.75 (1)	NR	NR	182.9 (600)	NR	182.9 (600)	335.3 (1100)	NR	61.0 (200)	182.9 (600)			
		0.37 (0.5)	NR	NR	182.9 (600)	NR	182.9 (600)	335.3 (1100)	NR	61.0 (200)	182.9 (600)			
	2.2 (3)	2.2 (3)	NR	NR	N/A	NR	182.9 (600)	335.3 (1100)	NR	61.0 (200)	182.9 (600)			
		1.5 (2)	NR	NR	N/A	NR	182.9 (600)	335.3 (1100)	NR	61.0 (200)	182.9 (600)			
		0.75 (1)	NR	NR	182.9 (600)	NR	182.9 (600)	335.3 (1100)	NR	61.0 (200)	182.9 (600)			
		0.37 (0.5)	NR	NR	182.9 (600)	NR	182.9 (600)	335.3 (1100)	NR	61.0 (200)	182.9 (600)			
	3.7 (5)	3.7 (5)	NR	NR	N/A	NR	182.9 (600)	335.3 (1100)	NR	61.0 (200)	182.9 (600)			
		2.2 (3)	NR	NR	N/A	NR	182.9 (600)	335.3 (1100)	NR	61.0 (200)	182.9 (600)			
		1.5 (2)	NR	NR	182.9 (600)	NR	182.9 (600)	335.3 (1100)	NR	61.0 (200)	182.9 (600)			
		0.75 (1)	NR	NR	182.9 (600)	NR	182.9 (600)	335.3 (1100)	NR	61.0 (200)	182.9 (600)			
		0.37 (0.5)	NR	NR	182.9 (600)	NR	182.9 (600)	335.3 (1100)	NR	61.0 (200)	182.9 (600)			
	5.5...15 (7.5...20)	5.5...15 (7.5...20)	NR	9.1 (30)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	NR	61.0 (200)	182.9 (600)	30.5 (100)	91.4 (300)	182.9 (600)
C	18.5...45 (25...60)	18.5...45 (25...60)	NR	9.1 (30)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	NR	61.0 (200)	182.9 (600)	30.5 (100)	91.4 (300)	182.9 (600)
D	56...93 (75...125)	56...93 (75...125)	NR	9.1 (30)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	NR	61.0 (200)	182.9 (600)	61.0 (200)	91.4 (300)	182.9 (600)
E	112...224 (150...X300)	112...224 (150...X300)	NR	9.1 (30)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	NR	61.0 (200)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)
F	261...298 (350...400)	261...298 (350...400)	NR	9.1 (30)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	NR	61.0 (200)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)
G	224...448 (300...600)	224...448 (300...600)	NR	9.1 (30)	182.9 (600)	91.4 (300)	182.9 (600)	182.9 (600)	NR	61.0 (200)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)

(1) Values that are shown are for nominal input voltage and drive carrier frequency of 2 kHz. Consult factory regarding operation at carrier frequencies above 2 kHz.

(2) When used on 600V systems, 1329R/L motors have a corona inception voltage rating of approximately 1850V.

(3) A 3% reactor reduces motor and cable stress but can cause a degradation of motor waveform quality. Reactors must have a turn-turn insulation rating of 2100V or higher.

1305 Drives

This section lists motor cable data for 1305 drives.

Table 64 - 1305 Drives, 480V, No External Devices at Motor – Meters (Feet)

Drive Hp (480V)	Motor Hp (480V)	(480V) Using a Motor with Insulation V _{p-p}			
		Type A	Type B	1329R/L	
		Any Cable	Any Cable	Shielded Cable	Unshielded Cable
Maximum Carrier Frequency		4 kHz	4 kHz	2 kHz	2 kHz
High-line Derate Multiplier		0.85	0.85	0.55	0.55
5	5	9.1 (30)	30.5 (100)	121.9 (400)	121.9 (400)
	3	9.1 (30)	30.5 (100)	121.9 (400)	121.9 (400)
	2	9.1 (30)	30.5 (100)	121.9 (400)	121.9 (400)
	1	9.1 (30)	30.5 (100)	121.9 (400)	121.9 (400)
	0.5	9.1 (30)	30.5 (100)	121.9 (400)	121.9 (400)
3	3	9.1 (30)	30.5 (100)	91.4 (300)	121.9 (400)
	2	9.1 (30)	30.5 (100)	121.9 (400)	121.9 (400)
	1	9.1 (30)	30.5 (100)	121.9 (400)	121.9 (400)
	0.5	9.1 (30)	30.5 (100)	121.9 (400)	121.9 (400)
2	2	9.1 (30)	30.5 (100)	76.2 (250)	121.9 (400)
	1	9.1 (30)	30.5 (100)	121.9 (400)	121.9 (400)
	0.5	9.1 (30)	30.5 (100)	121.9 (400)	121.9 (400)
1	1	9.1 (30)	30.5 (100)	68.6 (225)	121.9 (400)
	0.5	9.1 (30)	30.5 (100)	121.9 (400)	121.9 (400)
0.5	0.5	9.1 (30)	30.5 (100)	45.7 (150)	106.7 (350)

Table 65 - 1305 Drive, 480V with Devices at Motor – Meters (Feet)

Drive Hp (460V)	Motor Hp (460V)	Reactor at the Drive ⁽¹⁾			With 1204-TFB2 Terminator		With 1204-TFA1 Terminator			
		Using a Motor with Insulation V _{p,p}			Using a Motor with Insulation V _{p,p} (NR = not recommended)		Using a Motor with Insulation V _{p,p} (NR = not recommended)			
		Type A	Type B or 1329R/L		Type A or Type B		Type A		Type B	
		Any Cable	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
Maximum Carrier Frequency		2 kHz	2 kHz	2 kHz	2 kHz	2 kHz	2 kHz	2 kHz	2 kHz	2 kHz
High-line Derating Multiplier		0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
5	5	15.2 (50)	182.9 (600)	182.9 (600)	NR	NR	91.4 (300)	61.0 (200)	91.4 (300)	121.9 (400)
	3	15.2 (50)	182.9 (600)	182.9 (600)	91.4 (300)	121.9 (400)	99.1 (325)	61.0 (200)	152.4 (500)	121.9 (400)
	2	15.2 (50)	182.9 (600)	182.9 (600)	121.9 (400)	182.9 (600)	99.1 (325)	61.0 (200)	182.9 (600)	121.9 (400)
	1	15.2 (50)	182.9 (600)	182.9 (600)	121.9 (400)	182.9 (600)	99.1 (325)	61.0 (200)	182.9 (600)	121.9 (400)
	0.5	15.2 (50)	182.9 (600)	182.9 (600)	182.9 (600)	182.9 (600)	99.1 (325)	61.0 (200)	182.9 (600)	121.9 (400)
3	3	15.2 (50)	91.4 (300)	182.9 (600)	NR	NR	91.4 (300)	61.0 (200)	91.4 (300)	121.9 (400)
	2	15.2 (50)	182.9 (600)	182.9 (600)	91.4 (300)	121.9 (400)	99.1 (325)	61.0 (200)	152.4 (500)	121.9 (400)
	1	15.2 (50)	182.9 (600)	182.9 (600)	91.4 (300)	182.9 (600)	99.1 (325)	61.0 (200)	182.9 (600)	121.9 (400)
	0.5	15.2 (50)	182.9 (600)	182.9 (600)	121.9 (400)	182.9 (600)	99.1 (325)	61.0 (200)	182.9 (600)	121.9 (400)
2	2	15.2 (50)	76.2 (250)	167.6 (550)	NR	NR	91.4 (300)	61.0 (200)	91.4 (300)	121.9 (400)
	1	15.2 (50)	182.9 (600)	182.9 (600)	61.0 (200)	61.0 (200)	99.1 (325)	61.0 (200)	121.9 (400)	121.9 (400)
	0.5	15.2 (50)	182.9 (600)	182.9 (600)	91.4 (300)	121.9 (400)	99.1 (325)	61.0 (200)	152.4 (500)	121.9 (400)

Table 65 - 1305 Drive, 480V with Devices at Motor – Meters (Feet) (continued)

Drive Hp (460V)	Motor Hp (460V)	Reactor at the Drive ⁽¹⁾			With 1204-TFB2 Terminator		With 1204-TFA1 Terminator			
		Using a Motor with Insulation V _{p.p}			Using a Motor with Insulation V _{p.p} (NR = not recommended)		Using a Motor with Insulation V _{p.p} (NR = not recommended)			
		Type A	Type B or 1329R/L		Type A or Type B		Type A		Type B	
		Any Cable	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
Maximum Carrier Frequency		2 kHz	2 kHz	2 kHz	2 kHz	2 kHz	2 kHz	2 kHz	2 kHz	2 kHz
High-line Derating Multiplier		0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
1	1	15.2 (50)	68.6 (225)	152.4 (500)	NR	NR	45.7 (150)	61.0 (200)	45.7 (150)	76.2 (250)
	0.5	15.2 (50)	182.9 (600)	182.9 (600)	NR	NR	76.2 (250)	61.0 (200)	76.2 (250)	121.9 (400)
0.5	0.5	15.2 (50)	45.7 (150)	106.7 (350)	NR	NR	NR	NR	NR	NR

(1) **IMPORTANT:** A 3% reactor reduces motor stress but can cause a degradation of motor waveform quality. Reactors must have a turn-to-turn insulating rating of 2100V or higher. Reactors are not recommended for lightly loaded applications because over voltage trips can result at low output frequencies.

160 Drives

This section lists motor cable data for 160 drives.

Table 66 - 160 Drives, 480V – Meters (Feet)

380...460V Ratings	Motor Insulation Rating - Volts _{p-p}	Motor Cable Only		RWR at Drive		Reactor at Motor	
		Shielded	Unshielded	Shielded	Unshielded	Shielded	Unshielded
4.0 kW (5 Hp)	1000	13.7 (45)	6.1 (20)	160.0 (525)	182.9 (600)	99.1 (325)	91.4 (300)
	1200	27.4 (90)	12.2 (40)	160.0 (525)	182.9 (600)	160.0 (525)	129.5 (425)
	1600	160.0 (525)	144.8 (475)	160.0 (525)	182.9 (600)	160.0 (525)	182.9 (600)
2.2 kW (3 Hp)	1000	12.2 (40)	12.2 (40)	160.0 (525)	182.9 (600)	68.6 (225)	76.2 (250)
	1200	27.4 (90)	18.3 (60)	160.0 (525)	182.9 (600)	99.1 (325)	129.5 (425)
	1600	160.0 (525)	152.4 (500)	160.0 (525)	182.9 (600)	160.0 (525)	182.9 (600)
1.5 kW (2 Hp)	1000	12.2 (40)	12.2 (40)	129.5 (425)	182.9 (600)	99.1 (325)	91.4 (300)
	1200	27.4 (90)	18.3 (60)	129.5 (425)	182.9 (600)	129.5 (425)	137.2 (450)
	1600	152.4 (500)	152.4 (500)	129.5 (425)	182.9 (600)	164.6 (540)	182.9 (600)
0.75 kW (1 Hp)	1000	16.8 (55)	12.2 (40)	99.1 (325)	182.9 (600)	99.1 (325)	106.7 (350)
	1200	38.1 (125)	18.3 (60)	99.1 (325)	182.9 (600)	152.4 (500)	137.2 (450)
	1600	152.4 (500)	152.4 (500)	99.1 (325)	182.9 (600)	152.4 (500)	182.9 (600)
0.55 kW (0.75 Hp)	1000	13.7 (45)	12.2 (40)	91.4 (300)	182.9 (600)	91.4 (300)	91.4 (300)
	1200	38.1 (125)	18.3 (60)	91.4 (300)	182.9 (600)	152.4 (500)	152.4 (500)
	1600	152.4 (500)	152.4 (500)	91.4 (300)	182.9 (600)	152.4 (500)	182.9 (600)
0.37 kW (0.5 Hp)	1000	13.7 (45)	27.4 (90)	91.4 (300)	129.5 (425)	91.4 (300)	129.5 (425)
	1200	38.1 (125)	54.9 (180)	91.4 (300)	129.5 (425)	152.4 (500)	152.4 (500)
	1600	152.4 (500)	152.4 (500)	91.4 (300)	129.5 (425)	152.4 (500)	152.4 (500)

Table 67 - 160 Drive, 240V and 480V – Cable Charging Current – Meters (Feet)

480V Ratings	kHz	Motor Cable Only		RWR at Drive (NR = not recommended)		Reactor at Motor	
		Shielded ⁽¹⁾	Unshielded	Shielded ⁽¹⁾	Unshielded	Shielded ⁽¹⁾	Unshielded
4.0 kW (5 Hp)	2	106.7 (350)	182.9 (600)	91.4 (300)	182.9 (600)	121.9 (400)	182.9 (600)
	4	129.5 (425)	182.9 (600)	106.7 (350)	182.9 (600)	137.2 (450)	182.9 (600)
	8	144.8 (475)	152.4 (500)	NR	NR	137.2 (450)	152.4 (500)
2.2 kW (3 Hp)	2	109.7 (360)	182.9 (600)	85.3 (280)	182.9 (600)	121.9 (400)	182.9 (600)
	4	114.3 (375)	182.9 (600)	83.8 (275)	182.9 (600)	121.9 (400)	182.9 (600)
	8	121.9 (400)	152.4 (500)	NR	NR	121.9 (400)	152.4 (500)
1.5 kW (2 Hp)	2	91.4 (300)	167.6 (550)	83.8 (275)	182.9 (600)	91.4 (300)	182.9 (600)
	4	91.4 (300)	167.6 (550)	83.8 (275)	182.9 (600)	91.4 (300)	152.4 (500)
	8	99.1 (325)	152.4 (500)	NR	NR	106.7 (350)	152.4 (500)
0.75 kW (1 Hp)	2	61.0 (200)	114.3 (375)	61.0 (200)	129.5 (425)	68.6 (225)	121.9 (400)
	4	68.6 (225)	114.3 (375)	61.0 (200)	129.5 (425)	68.6 (225)	114.3 (375)
	8	76.2 (250)	114.3 (375)	NR	NR	68.6 (225)	121.9 (400)
0.55 kW (0.75 Hp)	2	54.9 (180)	106.7 (350)	54.9 (180)	114.3 (375)	54.9 (180)	106.7 (350)
	4	54.9 (180)	106.7 (350)	54.9 (180)	114.3 (375)	54.9 (180)	106.7 (350)
	8	54.9 (180)	106.7 (350)	NR	NR	54.9 (180)	106.7 (350)
0.37 kW (0.5 Hp)	2	30.5 (100)	99.1 (325)	30.5 (100)	106.7 (350)	30.5 (100)	91.4 (300)
	4	30.5 (100)	99.1 (325)	30.5 (100)	106.7 (350)	30.5 (100)	106.7 (350)
	8	30.5 (100)	99.1 (325)	NR		30.5 (100)	106.7 (350)
240V Ratings		No Reactor		RWR at Drive		Reactor at Motor	
0.37...4.0 kW (0.5...5 Hp) 2...8 kHz		Shielded ⁽¹⁾	Unshielded	Shielded ⁽¹⁾	Unshielded	Shielded ⁽¹⁾	Unshielded
		160.0 (525)	182.9 (600)	NR	NR	160.0 (525)	182.9 (600)

(1) When you use shielded cable at lightly loaded conditions, cable length recommendations for drives rated 0.75 kW (1 Hp) and below are 61 m (200 ft).

Reflected Wave Reduction Guidelines (for catalog number 1321-RWR)

Follow these guidelines for catalog number 1321-RWR reflected wave reduction solution:

- [Figure 39](#) shows wiring for single inverter drives (PowerFlex 70 Frames A...E; PowerFlex 700 Frames 0...6; PowerFlex 700H Frames 9...11; and PowerFlex 700S Frames 1...11 and 13).

[Figure 40](#) describes dual inverter drives (PowerFlex 700H/700S Frame 12).

[Figure 41](#) is for single inverter drives that require parallel reactors because the drive amp rating exceeds the rating of the largest available reactor (PowerFlex 700S Frame 13).

- Configurations that are shown in [Figure 39](#) and [Figure 41](#) can be used for single inverter drives with single or parallel cables, and single-motor or multi-motor applications.
- The configuration that is shown in [Figure 40](#) is used with dual inverter drives with single or parallel cables, and single-motor or multi-motor applications.

- Filter (RWR or L-R) must be connected at drive output terminals, less than 7.6 m (25 ft) from the drive.
- See the lead length tables for output reactor and resistor selection. The resistor specification is based on the number of parallel cables used.
- For PowerFlex 700H and 700S Frame 12 drives and some PowerFlex 700S Frame 13 drives, two reactors are required. In this case, the resistor ohms and watts ratings are values per phase for each reactor (see lead length tables for output reactor selection).
- Resistor must be connected to reactor with 150 °C (302 °F) wire. Select wire gauge based on rated resistor power from the lead length tables.
- Recommended cables include XLPE, EPR, and Hypalon.
- Maximum total cable distance for resistor wires is 6.1 m (20 ft) or 3 m (9.8 ft) per side.

Figure 39 - Filter Wiring for Single Inverter Drive

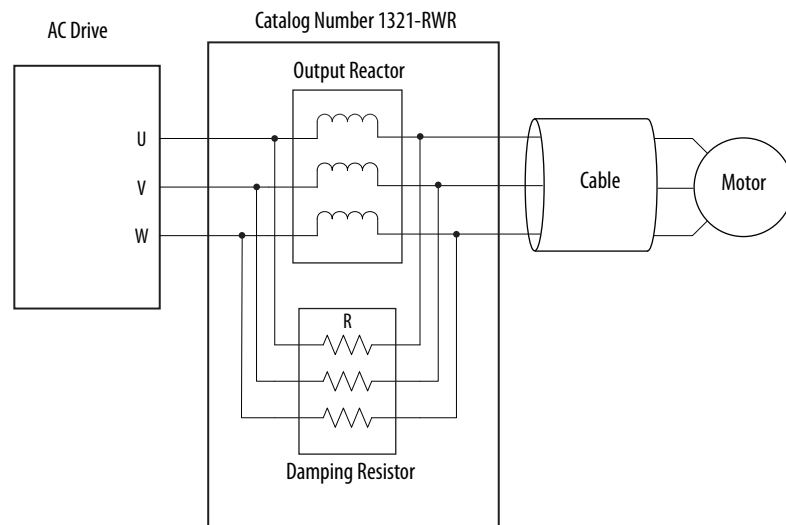


Figure 40 - Filter Wiring for Dual Inverter Frame 12 Drive

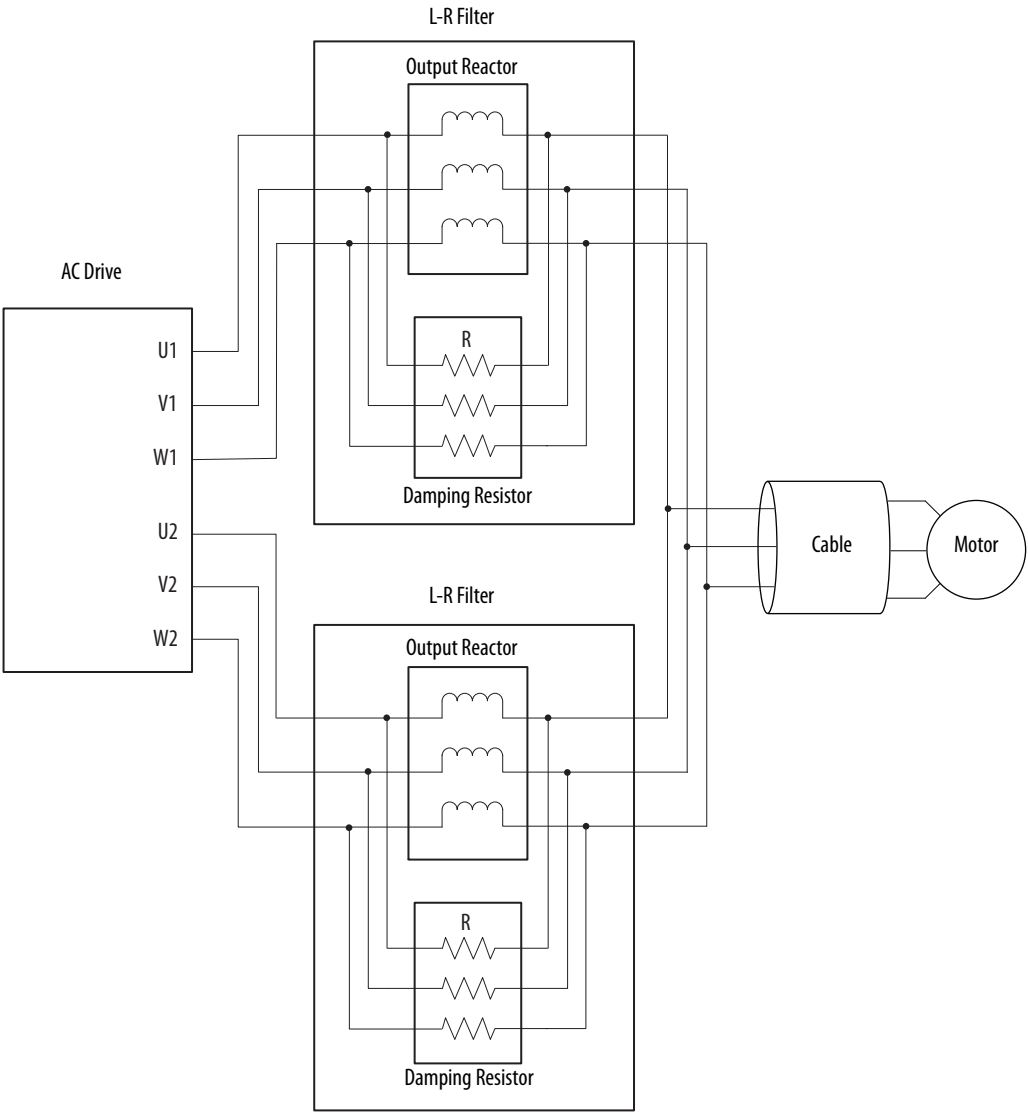
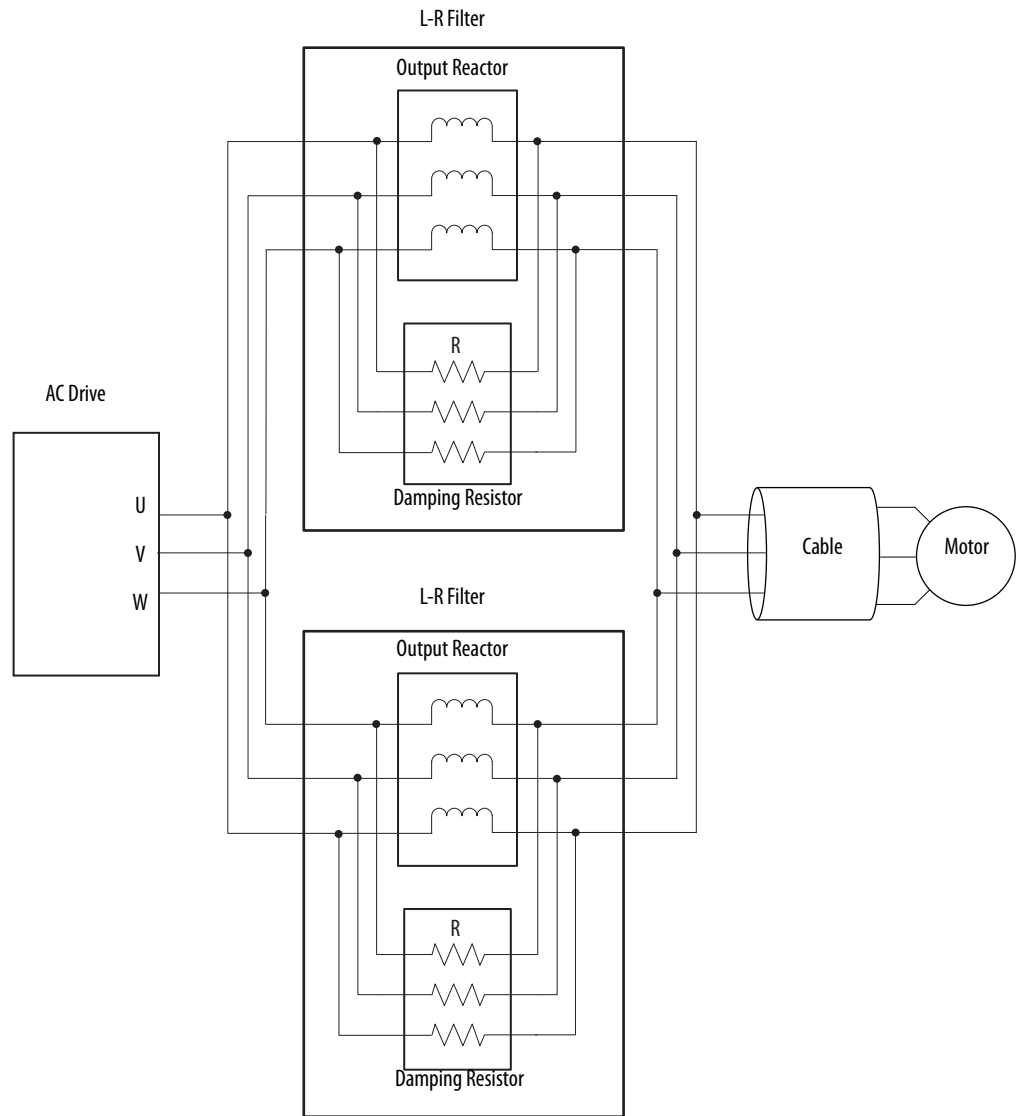


Figure 41 - Filter Wiring for Single Inverter Frame 13 Drive with Parallel Reactors



Notes:

Ambient Air	Air around any equipment cabinet. See surrounding air for more detail.
Armored	A fixed geometry cable that has a protective sheath of continuous metal.
Capacitive Coupling	Current or voltage that is induced on one circuit by another because of their close physical proximity. For drive installations it is generally seen in two areas: <ul style="list-style-type: none"> • Coupling between motor leads of two drives, such that the operating drive induces voltage onto the motor leads (and thus the motor) of a non-operating drive. • Coupling between the conductors or shields of motor leads that creates a requirement for more current than the motor itself demands.
CIV (Corona Inception Voltage)	The amplitude of voltage on a motor or other electrical winding that produces corona (ionization of air to ozone). CIV is increased by adding phase paper, placing windings in the proper pattern and reducing or eliminating air bubbles (voids) in the varnish applied.
Common Mode Core	A ferrite bead or core that can be used to pass control, communications or motor leads through to attenuate high frequency noise. Catalog number/part number 1321-Mxxx.
Common Mode Noise	Electrical noise, typically high frequency, that is imposed on the ground grid, carriers in an electrical system.
Conduit	Conductive ferrous electrical metal tubing used to contain and protect individual wires.
Damp	Wet locations per U.S. NEC or local code.
Discrete	Individual, hard-wired inputs or outputs, typically used for control of the drive (start, stop, and so on).
Dry	Dry locations per Per NEC Article 100 or local code.
dV/dt	The rate of change of voltage over time.
EIA	Electronic Industries Alliance
Fill Rates	The maximum number of conductors allowed in a conduit, as determined by local, state or national electrical code.
Fixed Geometry	Cable whose construction fixes the physical position of each conductor within the overall coating, usually with filler material that prevents individual conductors from moving.
IGBT	Insulated gate bi-polar transistor. The typical power semi conductor device used in most PWM AC drives today.
mil	0.001 inches

MOV	Metal oxide varistor
NEC	United States National Electric Code NFPA70
Peak Cable Charging Current	<p>The current required to charge capacitance in motor cable. This capacitance has various components:</p> <ul style="list-style-type: none">• conductor to shield or conduit• conductor to conductor• motor stator to motor frame
PVC	Polyvinyl chloride (typically thermoplastic)
RC Network	An electric circuit composed of resistors and capacitors driven by a voltage or current source. RC circuits can be used to filter a signal by blocking certain frequencies and passing others.
RC Snubber Circuit	Resistor-capacitor snubber circuit
RWR	Reflected waver reducer, an RL network mounted at or near the drive, used to reduce the amplitude and rise time of the reflected wave pulses. Catalog number 1204-RWR2-09-B or 1204-RWR2-09-C.
Shielded	Cable containing a foil or braided metal shield surrounding the conductors. Usually found in multi-conductor cable. Use a shield coverage of at least 75%.
Signal	Individual hard wired analog inputs or outputs, typically used to issue reference commands or process information to or from the drive.
STP Cable	Shielded twisted-pair cable.
Surrounding Air Temperature	The temperature of the air around the drive. If the drive is free standing or wall mounted, the surrounding air temperature is room temperature. If the drive is mounted inside another cabinet, the surrounding air temperature is the interior temperature of that cabinet.
Terminator	A resistor–capacitor (RC) network mounted at or near the motor, used to reduce the amplitude and rise time of the reflected wave pulses. Catalog number 1204-TFxx.
THHN	Thermoplastic high heat-resistant nylon-coated. A U.S. designation for a specific insulation material, temperature rating, and condition of use (suitable for dry and damp locations) for electrical wire and cable.
THWN	Thermoplastic heat and water-resistant nylon-coated. A U.S. designation for a specific insulation material, temperature rating, and condition of use (wet locations) for electrical wire and cable.
TIA	Telecommunications Industry Association

Unshielded Cable containing no braided or foil sheath surrounding the conductors. Can be multi-conductor cable or individual conductors.

UTP Unshielded twisted-pair cable.

Wet Locations with moisture present – See [Damp](#).

XHHW-2 Cross-linked polyethylene high heat-resistant water-resistant. A U.S. designation for a specific insulation material, temperature rating, and condition of use (wet locations) for electrical wire and cable.

XLPE Cross-linked polyethylene.

UL Underwriters Laboratories

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