Product Information

PowerFlex 755TM IP00 Open Type Kits

Catalog Numbers 20-750-MACP-CD-F*n*M, 20-750-MACP-*x*-F*n*M, 20-750-MCPOD*n*-F8M, 20-750-MDCL*n-xx*-F8M, 20-750-MDCP*n-xx*-F8M, 20-750-MI1-*xnnnxnnnx*, 20-750-MI2-*xnnnxnnnx*, 20-750-MI3-*xnnnxnnnx*, 20-750-ML1-*xnnnxnnn*

Original Instructions

ATTENTION: 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.

注意：在安装、配置、操作和维护本产品前，请阅读本文档以及 “ 其他资源 ” 部分列出的有关设备安装、配置和操作的相应文档。除了所有适用规范、法律和标准的相关要求之外，用户还必须熟悉安装和接线说明。

安装、调整、投运、使用、组装、拆卸和维护等各项操作必须由经过适当训练的专业人员按照适用的操作规范实施。

如果未按照制造商指定的方式使用该设备，则可能会损害设备提供的保护。

ATENCIÓN: Antes de instalar, configurar, poner en funcionamiento o realizar el mantenimiento de este producto, lea este documento y los documentos listados en la sección Recursos adicionales acerca de la instalación, configuración y operación de este equipo. Los usuarios deben familiarizarse con las instrucciones de instalación y cableado y con los requisitos de todos los códigos, leyes y estándares vigentes.

El personal debidamente capacitado debe realizar las actividades relacionadas a la instalación, ajustes, puesta en servicio, uso, ensamblaje, desensamblaje y mantenimiento de conformidad con el código de práctica aplicable. Si este equipo se usa de una manera no especificada por el fabricante, la protección provista por el equipo puede resultar afectada.

ATENÇÃO: Leia este e os demais documentos sobre instalação, configuração e operação do equipamento que estão na seção Recursos adicionais antes de instalar, configurar, operar ou manter este produto. Os usuários devem se familiarizar com as instruções de instalação e fiação além das especificações para todos os códigos, leis e normas aplicáveis.

É necessário que as atividades, incluindo instalação, ajustes, colocação em serviço, utilização, montagem, desmontagem e manutenção sejam realizadas por pessoal qualificado e especializado, de acordo com o código de prática aplicável.

Caso este equipamento seja utilizado de maneira não estabelecida pelo fabricante, a proteção fornecida pelo equipamento pode ficar prejudicada.

ВНИМАНИЕ: Перед тем как устанавливать, настраивать, эксплуатировать или обслуживать данное оборудование, прочитайте этот документ и документы, перечисленные в разделе «Дополнительные ресурсы». В этих документах изложены сведения об установке, настройке и эксплуатации данного оборудования. Пользователи обязаны ознакомиться с инструкциями по установке и прокладке соединений, а также с требованиями всех применимых норм, законов и стандартов.

Все действия, включая установку, наладку, ввод в эксплуатацию, использование, сборку, разборку и техническое обслуживание, должны выполняться обученным персоналом в соответствии с применимыми нормами и правилами.

Если оборудование используется не предусмотренным производителем образом, защита оборудования может быть нарушена.

注意： 本製品を設置、構成、稼動または保守する前に、本書および本機器の設置、設定、操作についての参考資料の該当箇所に記載されている文書に目を通してください。ユーザは、すべての該当する条例、法律、規格の要件に加えて、設置および配線の手順に習熟している必要があります。

設置調整、運転の開始、使用、組立て、解体、保守を含む諸作業は、該当する実施規則に従って訓練を受けた適切な作業員が実行する必要があります。

本機器が製造メーカにより指定されていない方法で使用されている場合、機器により提供されている保護が損なわれる恐れがあります。

ACHTUNG: Lesen Sie dieses Dokument und die im Abschnitt „Weitere Informationen“aufgeführten Dokumente, die Informationen zu Installation, Konfiguration und Bedienung dieses Produkts enthalten, bevor Sie dieses Produkt installieren, konfigurieren, bedienen oder warten. Anwender müssen sich neben den Bestimmungen aller anwendbaren Vorschriften, Gesetze und Normen zusätzlich mit den Installations- und Verdrahtungsanweisungen vertraut machen.

Arbeiten im Rahmen der Installation, Anpassung, Inbetriebnahme, Verwendung, Montage, Demontage oder Instandhaltung dürfen nur durch ausreichend geschulte Mitarbeiter und in Übereinstimmung mit den anwendbaren Ausführungsvorschriften vorgenommen werden.

Wenn das Gerät in einer Weise verwendet wird, die vom Hersteller nicht vorgesehen ist, kann die Schutzfunktion beeinträchtigt sein.

ATTENTION : Lisez ce document et les documents listés dans la section Ressources complémentaires relatifs à l'installation, la configuration et le fonctionnement de cet équipement avant d'installer, configurer, utiliser ou entretenir ce produit. Les utilisateurs doivent se familiariser avec les instructions d'installation et de câblage en plus des exigences relatives aux codes, lois et normes en vigueur.

Les activités relatives à l'installation, le réglage, la mise en service, l'utilisation, l'assemblage, le démontage et l'entretien doivent être réalisées par des personnes formées selon le code de pratique en vigueur.

Si cet équipement est utilisé d'une façon qui n'a pas été définie par le fabricant, la protection fournie par l'équipement peut être compromise.

주의 : 본 제품 설치 , 설정 , 작동 또는 유지 보수하기 전에 본 문서를 포함하여 설치 , 설정 및 작동에 관한 참고 자료 섹션의 문서들을 반드시 읽고 숙지하십시오 . 사용자는 모든 관련 규정 , 법규 및 표준에서 요구하는 사항에 대해 반드시 설치 및 배선 지침을 숙지해야 합니다 .

설치 , 조정 , 가동 , 사용 , 조립 , 분해 , 유지보수 등 모든 작업은 관련 규정에 따라 적절한 교육을 받은 사용자를 통해서만 수행해야 합니다 .

본 장비를 제조사가 명시하지 않은 방법으로 사용하면 장비의 보호 기능이 손상될 수 있습니다 .

ATTENZIONE Prima di installare, configurare ed utilizzare il prodotto, o effettuare interventi di manutenzione su di esso, leggere il presente documento ed i documenti elencati nella sezione "Altre risorse", riguardanti l'installazione, la configurazione ed il funzionamento dell'apparecchiatura. Gli utenti devono leggere e comprendere le istruzioni di installazione e cablaggio, oltre ai requisiti previsti dalle leggi, codici e standard applicabili.

Le attività come installazione, regolazioni, utilizzo, assemblaggio, disassemblaggio e manutenzione devono essere svolte da personale adeguatamente addestrato, nel rispetto delle procedure previste.

Qualora l'apparecchio venga utilizzato con modalità diverse da quanto previsto dal produttore, la sua funzione di protezione potrebbe venire compromessa.

DİKKAT: Bu ürünün kurulumu, yapılandırılması, işletilmesi veya bakımı öncesinde bu dokümanı ve bu ekipmanın kurulumu, yapılandırılması ve işletimi ile ilgili İlave Kaynaklar bölümünde yer listelenmiş dokümanları okuyun. Kullanıcılar yürürlükteki tüm yönetmelikler, yasalar ve standartların gereksinimlerine ek olarak kurulum ve kablolama talimatlarını da öğrenmek zorundadır.

Kurulum, ayarlama, hizmete alma, kullanma, parçaları birleştirme, parçaları sökme ve bakım gibi aktiviteler sadece uygun eğitimleri almış kişiler tarafından yürürlükteki uygulama yönetmeliklerine uygun şekilde yapılabilir.

Bu ekipman üretici tarafından belirlenmiş amacın dışında kullanılırsa, ekipman tarafından sağlanan koruma bozulabilir.

注意事項：在安裝、設定、操作或維護本產品前，請先閱讀此文件以及列於 「其他資源」章節中有關安裝、設定與操作此設備的文件。使用者必須熟悉安裝和配線指示，並符合所有法規、法律和標準要求。

包括安裝、調整、交付使用、使用、組裝、拆卸和維護等動作都必須交由已經過適當訓練的人員進行，以符合適用的實作法規。

如果將設備用於非製造商指定的用途時，可能會造成設備所提供的保護功能受損。

POZOR: Než začnete instalovat, konfigurovat či provozovat tento výrobek nebo provádět jeho údržbu, přečtěte si tento dokument a dokumenty uvedené v části Dodatečné zdroje ohledně instalace, konfigurace a provozu tohoto zařízení. Uživatelé se musejí vedle požadavků všech relevantních vyhlášek, zákonů a norem nutně seznámit také s pokyny pro instalaci a elektrické zapojení.

Činnosti zahrnující instalaci, nastavení, uvedení do provozu, užívání, montáž, demontáž a údržbu musí vykonávat vhodně proškolený personál v souladu s příslušnými prováděcími předpisy.

Pokud se toto zařízení používá způsobem neodpovídajícím specifikaci výrobce, může být narušena ochrana, kterou toto zařízení poskytuje.

UWAGA: Przed instalacją, konfiguracją, użytkowaniem lub konserwacją tego produktu należy przeczytać niniejszy dokument oraz wszystkie dokumenty wymienione w sekcji Dodatkowe źródła omawiające instalację, konfigurację i procedury użytkowania tego urządzenia. Użytkownicy mają obowiązek zapoznać się z instrukcjami dotyczącymi instalacji oraz oprzewodowania, jak również z obowiązującymi kodeksami, prawem i normami.

Działania obejmujące instalację, regulację, przekazanie do użytkowania, użytkowanie, montaż, demontaż oraz konserwację muszą być wykonywane przez odpowiednio przeszkolony personel zgodnie z obowiązującym kodeksem postępowania.

Jeśli urządzenie jest użytkowane w sposób inny niż określony przez producenta, zabezpieczenie zapewniane przez urządzenie może zostać ograniczone.

OBS! Läs detta dokument samt dokumentet, som står listat i avsnittet Övriga resurser, om installation, konfigurering och drift av denna utrustning innan du installerar, konfigurerar eller börjar använda eller utföra underhållsarbete på produkten. Användare måste bekanta sig med instruktioner för installation och kabeldragning, förutom krav enligt gällande koder, lagar och standarder.

Åtgärder som installation, justering, service, användning, montering, demontering och underhållsarbete måste utföras av personal med lämplig utbildning enligt lämpligt bruk.

Om denna utrustning används på ett sätt som inte anges av tillverkaren kan det hända att utrustningens skyddsanordningar försätts ur funktion.

LET OP: Lees dit document en de documenten die genoemd worden in de paragraaf Aanvullende informatie over de installatie, configuratie en bediening van deze apparatuur voordat u dit product installeert, configureert, bedient of onderhoudt. Gebruikers moeten zich vertrouwd maken met de installatie en de bedradingsinstructies, naast de vereisten van alle toepasselijke regels, wetten en normen.

Activiteiten zoals het installeren, afstellen, in gebruik stellen, gebruiken, monteren, demonteren en het uitvoeren van onderhoud mogen uitsluitend worden uitgevoerd door hiervoor opgeleid personeel en in overeenstemming met de geldende praktijkregels.

Indien de apparatuur wordt gebruikt op een wijze die niet is gespecificeerd door de fabrikant, dan bestaat het gevaar dat de beveiliging van de apparatuur niet goed werkt.

Additional Resources

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

Resource	Description
PowerFlex® 755TM IP00 Open Type Kits Technical Data, publication 750-TD101 PowerFlex 750-Series Products with TotalFORCE™ Control Technical Data, publication 750-TD100	Provides detailed information on: • Kit selection • Kit ratings and specifications • Option specifications
PowerFlex 750-Series Products with TotalFORCE Control Installation Instructions, publication 750-IN100	Provides the basic steps to install PowerFlex 755TL low harmonic drives, PowerFlex 755TR regenerative drives, and PowerFlex 755TM drive systems.
PowerFlex 755TM IP00 Open Type Kits Installation Instructions, publication 750-IN101	Provides instructions to install IP00 Open Type kits in user-supplied enclosures.
PowerFlex Drives with TotalFORCE Control Programming Manual, publication 750-PM100	Provides detailed information on: • I/O, control, and feedback options • Parameters and programming • Faults, alarms, and troubleshooting
PowerFlex 750-Series Products with TotalFORCE Control Hardware Service Manual, publication 750-TG100	Provides detailed information on: • Preventive maintenance • Component testing • Hardware replacement procedures
Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001	Provides basic information to properly wire and ground PWM AC drives.
Drives in Common Bus Configurations with PowerFlex 755TM Bus Supplies Application Techniques, publication DRIVES-AT005	Provides basic information to properly wire and ground the following products in common bus applications: • PowerFlex 755TM drive system for common bus solutions • PowerFlex 750-Series AC and DC Input Drives • Kinetix® 5700 servo drives
Industry Installation Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-AT003	Provides basic information on enclosure systems, considerations to help protect against environmental contaminants, and power and grounding considerations for installing Pulse Width Modulated (PWM) AC drives.
Product Certifications website, http://www.rockwellautomation.com/global/certification/overview.page	Provides declarations of conformity, certificates, and other certification details.

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

Qualified Personnel

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

Product Safety

ATTENTION: An incorrectly applied or installed drive can result in component damage or a reduction in product life. Wiring or application errors such as under sizing the motor, incorrect or inadequate AC supply, or excessive surrounding-air temperatures may result in malfunction of the system.

ATTENTION: This drive contains electrostatic discharge (ESD) sensitive parts and assemblies. Static control precautions are required when you install, test, service, or repair this assembly. Component damage may result if ESD control procedures are not followed. If you are not familiar with static control procedures, reference Guarding Against Electrostatic Damage, publication 8000-4.5.2 or any other applicable ESD protection handbook.

Accessible Parts

ATTENTION: To avoid an electric shock hazard, the installer must provide guarding to shield exposed electrical equipment against accidental contact. Exposed electrical components that carry potentially hazardous voltages are identified in the PowerFlex 750-Series Products with TotalFORCE Control Hardware Service Manual, publication 750-TG100. When installing this equipment, consider the design and placement of guarding to help prevent personal injury or equipment damage.

Equivalent Frame Size

Throughout this publication, there are references to the equivalent frame size that kits are used with. See PowerFlex 755TM IP00 Open Type Kits Installation Instructions, publication 750-IN101, for an explanation of how frame sizes are determined.

Module Identification

This section describes modules by voltage, normal duty ratings, and catalog number. All equipment is rated IP00/Open Type and must be housed in an appropriate enclosure. See Industry Installation Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-AT003, for additional information about enclosures.

Power Modules

Voltage	Amps (normal duty)	Cat. No.		
		No Filtering	With Paralleling Inductor	With Reflected Wave Filter
400	302	20-750-MI1-C302D302	–	20-750-MI3-C302D302
480	302			
400	367	20-750-MI1-C367D361	–	20-750-MI3-C367D361
480	361			
400	460	20-750-MI1-C460D430	–	20-750-MI3-C460D430
480	430			
400	540	20-750-MI1-C540D505	20-750-MI2-C540D505	20-750-MI3-C540D505
480	505			
400	585	20-750-MI1-C585D545	20-750-MI2-C585D545	20-750-MI3-C585D545
480	545			
400	650	20-750-MI1-C650D617	20-750-MI2-C650D617	20-750-MI3-C650D617
480	617			
400	750	20-750-MI1-C750D710	20-750-MI2-C750D710	20-750-MI3-C750D710
480	710			
400	770	20-750-MI1-C770D740	20-750-MI2-C770D740	20-750-MI3-C770D740
480	740			
600	242	20-750-MI1-E242F215	–	20-750-MI3-E242F215
690	215			
600	295	20-750-MI1-E295F265	20-750-MI2-E295F265	20-750-MI3-E295F265
690	265			

Power Modules (continued)

Voltage	Amps (normal duty)	Cat. No.		
		No Filtering	With Paralleling Inductor	With Reflected Wave Filter
600	355	20-750-MI1-E355F330	20-750-MI2-E355F330	20-750-MI3-E355F330
690	330			
600	395	20-750-MI1-E395F370	20-750-MI2-E395F370	20-750-MI3-E395F370
690	370			
600	409	–	20-750-MI2E409F390	20-750-MI3-E409F390
690	390			
600	435	20-750-MI1-E435F415	20-750-MI2-E435F415	20-750-MI3-E435F415
690	415			
600	545	20-750-MI1-E545F505	20-750-MI2-E545F505	20-750-MI3-E545F505
690	505	20-750-MI1-E545F505C[1]	20-750-MI2-E545F505C[1]	20-750-MI3-E545F505C[1]

(1) Copper

LCL Filter Modules

Voltage	Amps (normal duty)	Cat. No.
400	540	20-750-ML1-C540D505
480	505	
400	770	20-750-ML1-C770D740
480	740	
400	1100	20-750-ML1-C1K1D1K0
480	1000	
400	1400	20-750-ML1-C1K4D1K3
480	1300	
600	395	20-750-ML1-E395F370
690	370	
600	545	20-750-ML1-E545F505
690	505	
600	760	20-750-ML1-E760F735
690	735	
600	980	20-750-ML1-E980F920
690	920	

DC Precharge Modules

Voltage	Amps (normal duty)	No Filtering	With DC Common Mode Core
400	887	20-750-MDCP1-CD-F8M	20-750-MDCP2-CD-F8M
480	817		
600	602	20-750-MDCP1-EF-F8M	20-750-MDCP2-EF-F8M
690	556		

DC Link/Fuse Modules

Voltage	Common Bus Inverter		Regenerative Drive/Bus Supply	
	Amps (normal duty)	Cat. No.	Amps (normal duty)	Cat. No.
400	887	20-750-MDCL1-CD-F8M	798	20-750-MDCL2-CD-F8M
480	817		735	
600	602	20-750-MDCL1-EF-F8M	542	20-750-MDCL2-EF-F8M
690	556		501	

AC Precharge Modules

Voltage	Amps (normal duty)	Cat. No.
400/480	720/663	20-750-MACP-CD-F8M
600	488	20-750-MACP-E-F8M
690	452	20-750-MACP-F-F8M
400/480	1368/1223	20-750-MACP-CD-F9M
600	878	20-750-MACP-E-F9M
690	823	20-750-MACP-F-F9M

Control Pods

Cat. No.	Equivalent Frame Size
20-750-MCPOD1-F8M	8…12
20-750-MCPOD2-F8M	8…10

Control pods can be remotely mounted.

Environmental Specifications

This section describes environmental specifications.

Module	Inlet Temperature[1]	Maximum Surrounding Temperature
Control pods	-20…+60 °C (-4…+140 °F)	65 °C (149 °F)
Power modules	-20…+40 °C (-4…+104 °F)	50 °C (122 °F)
	41…55 °C (106…131 °F)	65 °C (149 °F)[2]
LCL filter modules	-20…+40 °C (-4…+104 °F)	50 °C (122 °F)
	41…55 °C (106…131 °F)	65 °C (149 °F)[2]
DC precharge modules	-20…+55 °C (-4…+131 °F)	65 °C (149 °F)
	55…60 °C (131…140 °F)	65 °C (149 °F)[2]
AC precharge modules	-20…+40 °C (-4…+104 °F)	50 °C (122 °F)
	41…55 °C (106…131 °F)	65 °C (149 °F)[2]

(1) Inlet temperature represents the air immediately entering the IP00 open type module.
(2) Elevated temperature values are based on appropriate derating. See Derating Guidelines in the PowerFlex 750-Series Products with TotalFORCE Control Technical Data, publication 750-TD100.

Category	Specification
Relative humidity	5…95% non-condensing
Storage temperature	-40…+70 °C (-40…+158 °F)
Pollution degree	PowerFlex 755TM products are designed to meet Pollution Degree 2 per UL61800-5-1.

IMPORTANT Accessory kits **must not** be installed in an area where the ambient atmosphere contains volatile or corrosive gas, vapors, or dust. If a kit is to be stored, it must be stored in an area where it will not be exposed to a corrosive atmosphere.
Accessory kits **must not** be stored or installed in an environment that contains conductive pollutants.

Approximate Module Weights

This section lists the approximate maximum weights.

Power Modules

Power Module	Cat. No.	Max Module Weight, *kg (lb)*	Max Weight with Packaging, *kg (lb)*
Power module	20-750-MI1-*xnnnxnnn*	141.5 (312)	192.3 (424)
Power module with a paralleling inductor	20-750-MI2-*xnnnxnnn*		
Power module with a reflected wave filter	20-750-MI3-*xnnnxnnn*		

LCL Filter Modules

Voltage	Amps *(normal duty)*	Cat. No.	Max Module Weight, *kg (lb)*	Max Weight with Packaging, *kg (lb)*
400	540	20-750-ML1-C540D505	213.2 (470)	264 (582)
480	505			
400	770	20-750-ML1-C770D740		
480	740			
600	395	20-750-ML1-E395F370		
690	370			
600	545	20-750-ML1-E545F505		
690	505			
400	1100	20-750-ML1-C1K1D1K0	322.1 (710)	372.9 (822)
480	1000			
400	1400	20-750-ML1-C1K4D1K3		
480	1300			
600	760	20-750-ML1-E760F735		
690	735			
600	980	20-750-ML1-E980F920		
690	920			

Precharge Modules

Unit	Frame Size	Max Module Weight, *kg (lb)*	Max Weight with Packaging, *kg (lb)*
AC precharge (1)	8	40.8 (90)	71.2 (157)
AC precharge (1)	9	130.2 (287)	160.6 (354)
DC precharge (2)	All	40.8 (90)	44.0 (97)

(1) Includes AC precharge module catalog numbers: 20-750-MACP-*xx-xnx*.
(2) Includes DC precharge module catalog numbers: 20-750-MDCP1-*xx-xnx* and 20-750-MDCP2-*xx-xnx*.

Lifting

ATTENTION: Follow these precautions to guard against possible personal injury and/or equipment damage when preparing to lift, transport and install power, LCL filter, AC precharge, and DC precharge modules:
- Inspect all lifting hardware for proper attachment before lifting the module or enclosure.
- Do not allow any part of the module, enclosure, or lifting mechanism to make contact with electrically charged conductors or components.
- Do not subject the module or enclosure to high rates of acceleration or deceleration while transporting to the installation location or while lifting.
- Do not allow personnel or their limbs directly underneath the module or enclosure when it is lifted and installed.

Lift the Power and LCL Filter Modules

For detailed instructions on how to unpack and lift the power and LCL filter modules out of the shipping crates, see this publication that shipped with the modules:
- PowerFlex 755TM Power and Filter Modules Unpacking and Lifting Instructions, publication 750-IN104

Lift the AC and DC Precharge Modules

For detailed instructions on how to unpack and lift the AC and DC precharge modules out of the shipping crates, see these publications that shipped with the modules:
- PowerFlex 755TM AC Precharge Modules Unpacking and Lifting Instructions, publication 750-IN102
- PowerFlex 755TM DC Precharge Modules Unpacking and Lifting Instructions, publication 750-IN103

Recommended Equipment and Accessories

Equipment is available that is designed to help you safely handle major components. The following equipment is recommended:
- PowerFlex 750-Series Service Cart, catalog number 20-750-MCART1, publication 750-IN105
- PowerFlex 750TM Power and Filter Module Storage Hardware, catalog number 20-750-MINV-ATIP, publication 750-IN106
- PowerFlex 755T DCPC Module Lift, catalog number 20-750-MCART2, publication 750-IN107
- PowerFlex 755T Module Service Ramp, catalog number 20-750-MRAMP1, publication 750-IN108

Module Service Cart

ATTENTION: Power and LCL filter modules have a high center of gravity and a tip-over hazard exists. To guard against death, serious personal injury, or equipment damage, do not subject the module to high rates of acceleration or deceleration while transporting. Do not push or pull above the points indicated on the module.

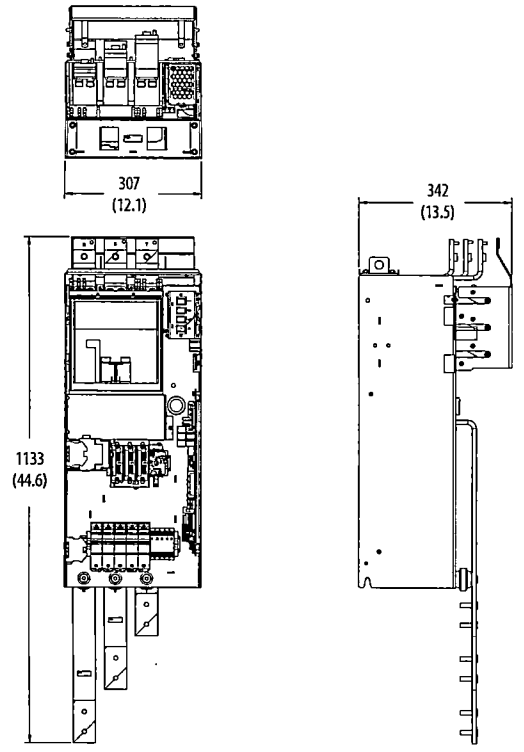
Use the module service cart (20-750-MCART1) to safely transport the power and LCL filter modules. See the PowerFlex 750-Series Service Cart Instructions, publication 750-IN105, for information on how to assemble and use the service cart. Use the DC precharge module lift (20-750-MCART2) to safely lift the DC precharge module. See the PowerFlex 755T DC Precharge Module Lift Instructions, publication 750-IN107, for information on how to use the module lift.

Module Storage Hardware

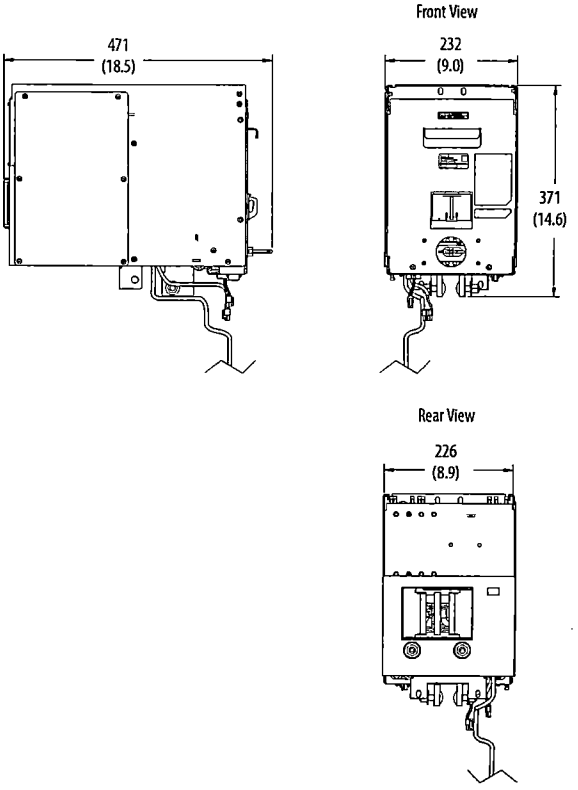
Use the power and LCL filter module storage hardware (20-750-MINV-ATIP) to stabilize these modules. See the PowerFlex 755TM Power and Filter Module Storage Hardware Instructions, publication 750-IN106.

Approximate Dimensions

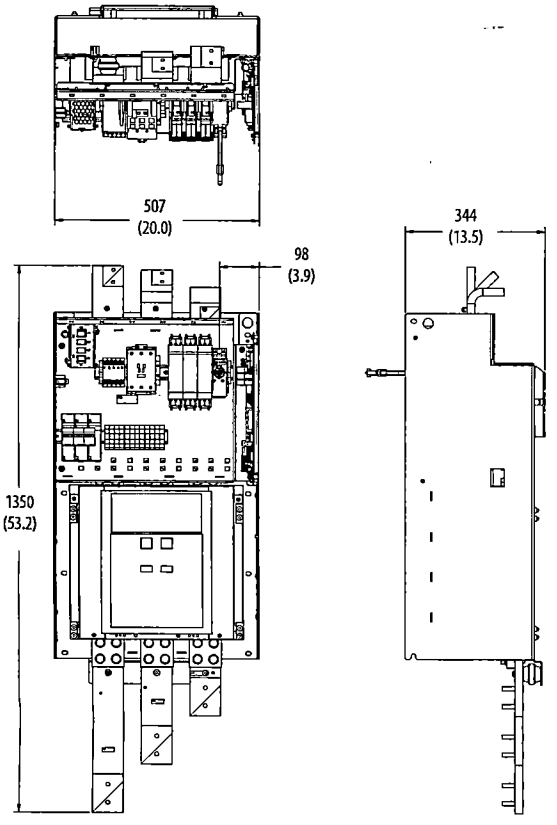
Frame 8 AC Precharge Module (Cat. No. 20-750-MACP-*xx*-F8M), *mm (in.)*



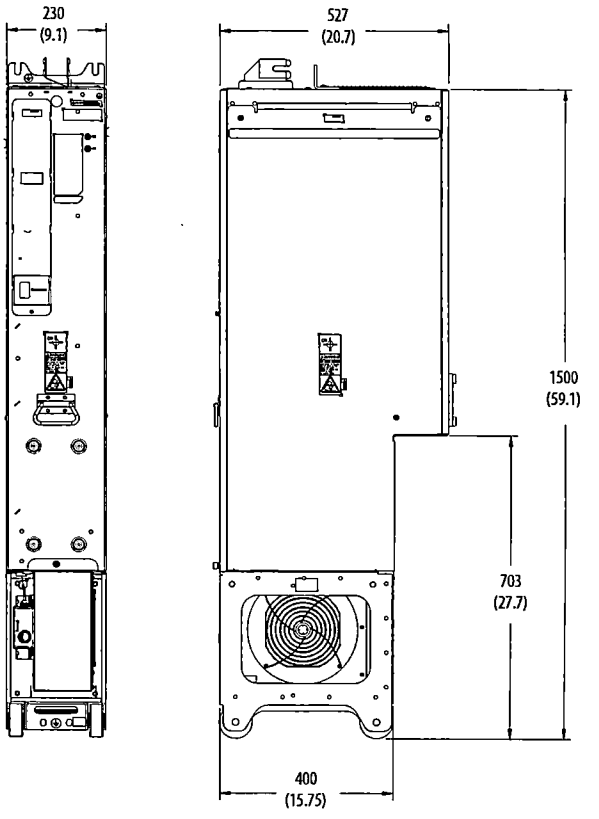
DC Precharge Module (Cat. No. 20-750-MDCP*n*-*xx*-F8M), *mm (in.)*



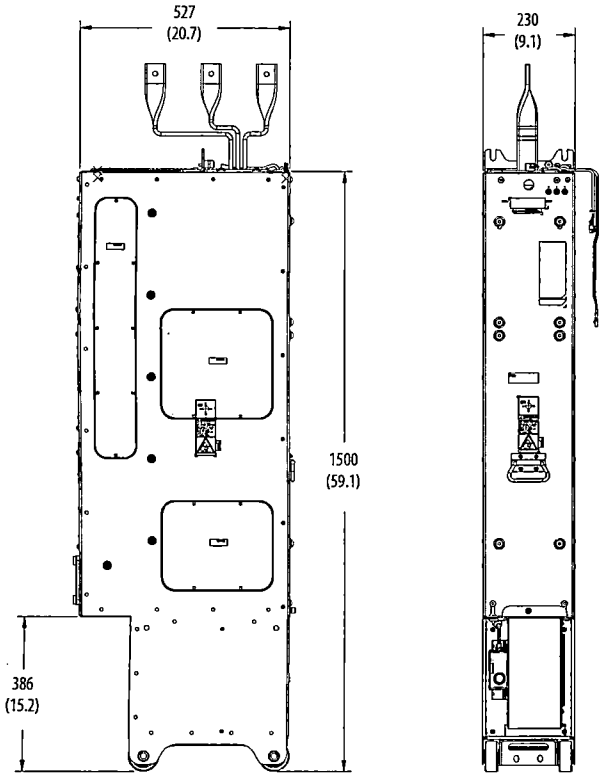
Frame 9 AC Precharge Module (Cat. No. 20-750-MACP-*xx*-F9M), *mm (in.)*



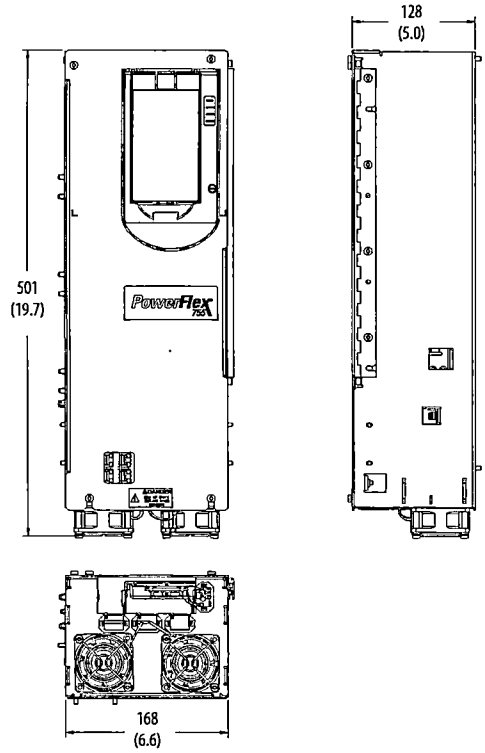
Power Module (Cat. No. 20-750-MI*n*-*nxxxnxxx*), *mm (in.)*



LCL Filter Module (Cat. No. 20-750-ML*n-nxxxnxxx*), *mm (in.)*



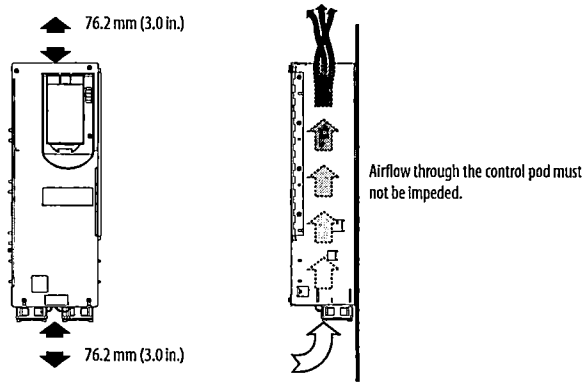
Control Pod (Cat. No. 20-750-MCPOD*n-xnx*), *mm (in.)*



Minimum Mounting Clearances

Follow these guidelines when mounting the control pod.
The control pod must be mounted in a vertical orientation as shown and must make full contact with the mounting surface.

- Do not use standoffs or spacers.
- Control pod is rated IP00, NEMA/UL Open Type.



Recommended Mounting Hardware

Use only the mounting hardware that is supplied or recommended by Rockwell Automation.

Leakage Current

These products produce leakage current in the protective earthing conductor that exceeds 3.5 mA AC and/or 10 mA DC. The minimum size of the protective earthing (grounding) conductor that is used in the application must comply with local safety regulations for high protective earthing conductor current equipment.

Overcurrent Protective Devices

- 24V DC control logic circuits must be fed from a Class 2 or Class 1 power-limited supply.
- 240V AC control power must be protected in compliance with national and local industrial safety regulations and/or electrical codes.

Device Power Consumption

Device	Cat. No.	240V AC Input, *Amps*	24V DC Supply, *Amps*	24V DC Aux. Supply[3], *Amps*
Power module	20-750-M*In-xnnnxnnn*	2.9	–	1.4
LCL filter module	20-750-ML*n-xnnnxnnn*	2.9	0.9[2]	–
AC precharge module	20-750-MACP-*xx-xnx*	2.0	1.1	1.1
DC precharge modules	20-750-MDCP1-*xx-xnx*	2.0	0.5[2]	–
Torque accuracy module	20-750-MTAM1-*xx*	0.2[1]	0.2[1]	–
AC precharge control board	20-750-MACPC1-*xx*	2.0	1.1	1.1
Control pod assembly	20-750-MCPOD*n-xnx*	–	5.2	5.2

(1) This value is the current load for either a 240V AC or 24V DC control power source.
(2) This control power source is provided by the connected power module.
(3) This control power source is optional. Provides auxiliary power to the control pod control circuits when main power has been removed

Multiple Disconnects

The modules identified in the preceding Device Power Consumption table can be fed by multiple power sources. For example, 480V AC line power and 240V AC control power.
Final assemblies that are supplied by multiple power sources, must be marked in compliance with national and local industrial safety regulations and/or electrical codes.

Motor Overload Protection

Electronic motor overload protection	Class 10 motor overload protection according to NEC article 430 and motor over-temperature protection according to NEC article 430.126 (A)(2). UL61800-5-1 File E59272.

Short Circuit Current Rating

Rating	Description
Maximum short circuit current rating	Suitable for use on a circuit capable of delivering not more than 100 kA rms symmetrical amperes, up to 600V maximum and 65 kA rms symmetrical amperes at 690V maximum.
Actual short circuit current rating	May be further limited by AIC rating of customer supplied branch circuit fuse/circuit breaker.

Branch Circuit Short Circuit Protection

- Branch circuit protection must be provided in accordance with the National Electric Code (NEC) and any additional local codes, or the equivalent.
- Branch circuit protection for customer supplied 240/120V AC must have an AIC rating that is equal to or greater than the product short circuit current rating.

Fuse Ratings

The tables on the following pages provide AC Line and DC Bus fuses (with blown fuse indicators) that are required to provide drive short circuit protection.

Power Modules Required Fusing

Cat. No.	Fuse Size	
	Amps/Leg	1/Leg
20-750-MI1-C*nnnnxnnn*	1400	170M6467
20-750-MI2-C*nnnnxnnn*		
20-750-MI3-C*nnnnxnnn*		
20-750-MI1-E*nnnnxnnn*	1100	170M6499
20-750-MI2-E*nnnnxnnn*		
20-750-MI3-E*nnnnxnnn*		

LCL Filter Modules Required Fusing

Cat. No.	Fuse Size	
	Amps/Leg	1/Leg
20-750-ML1-C540D505	900	170M6463
20-750-ML1-C770D740	1250	170M6466
20-750-ML1-C1K1D1K0	1800	170M6470
20-750-ML1-C1K4D1K3	2000	170M6471
20-750-ML1-E395F370	700	170M6461
20-750-ML1-E545F505	900	170M6463
20-750-ML1-E760F735	1250	170M6466
20-750-ML1-E980F920	1600	170M6469

DC Precharge Module Required Integral Fusing

Cat. No.	Voltage Class	Fuse Size	
		Amps/Leg	1/Leg
20-750-MDCP1-CD-F8M	540	1400	170M6467
20-750-MDCP2-CD-F8M	540		
20-750-MDCP1-EF-F8M	810	1100	170M6499
20-750-MDCP2-EF-F8M	810		

DC Link/Fuse Assembly Kits Required Integral Fusing

Catalog Number	Fuse Size	
	Amps/Leg	1/Leg
20-750-MDCL1-CD-F8M	1400	170M6467
20-750-MDCL2-CD-F8M		
20-750-MDCL1-EF-F8M	1100	170M6499
20-750-MDCL2-EF-F8M		

Additional Protection From Field Installed Kits

This section includes fuse ratings for field installed kits.

Power and LCL Filter Module Fan Assembly Fuses

The power and LCL filter modules (20-750-MI1, 20-750-MI2, 20-750-MI3, 20-750-ML1) include a fan assembly that contains this fuse:

- 250V 3.5 A, Cartridge Style, Time Delay

AC Precharge Module Fuses

The AC precharge modules contain a fused disconnect (FD1) switch with the fuses listed in this table.

AC Precharge Module Cat. No.	Voltage Rating	Fuse FD1	Qty.
20-750-MACP-CD-F8M	400V/480V	Class J TD - 600V, 30 A	3
20-750-MACP-E-F8M	600V	Class J TD - 600V, 30 A	3
20-750-MACP-F-F8M	690V	Class gG - 690V 32 A	3
20-750-MACP-CD-F9M	400V/480V	Class J TD - 600V 70 A	3
20-750-MACP-E-F9M	600V	Class J TD - 600V 60 A	3
20-750-MACP-F-F9M	690V	Class gG - 690V 63 A	3

The AC precharge modules contain an AC precharge control circuit board protection fuse (FH1) listed in this table.

AC Precharge Module Cat. No.	Voltage Rating	Fuse FH1	Qty.
20-750-MACP-*xx*-F8M	400V/480V600V	Class J TD 600V 1A	3
20-750-MACP-*xx*-F9M	690V	Class gG - 690V AC 1A 14 X 51 mm	3

The AC precharge modules contain 240V control power protection fuses (FH4...FH7) listed in this table.

AC Precharge Module Cat. No.	Voltage Rating	Enclosure Rating	Fuse FH4...FH7	Qty.
20-750-MACP-CD-F8M	400V/480V	IP21	Class J TD 600V 20 A	2
20-750-MACP-E-F8M	600V		Class J TD 600V 20 A	
20-750-MACP-F-F8M	690V		Class Am 690V 16 A Cartg Link	
20-750-MACP-CD-F8M	400V/480V	IP54	Class J TD 30 A 600V	2
20-750-MACP-E-F8M	600V		Class J TD 30 A 600V	
20-750-MACP-F-F8M	690V		Class Am 690V 20 A Cartg Link	
20-750-MACP-CD-F9M	400V/480V	IP21	Class J TD 30 A 600V	2
20-750-MACP-E-F9M	600V		Class J TD 30 A 600V	
20-750-MACP-F-F9M	690V		Class Am 690V 20 A Cartg Link	
20-750-MACP-CD-F9M	400V/480V	IP54	Class J TD 30 A 600V	2
20-750-MACP-E-F9M	600V		Class J TD 30 A 600V	
20-750-MACP-F-F9M	690V		Class Am 690V 20 A Cartg Link	

Connect Input and Output Power Wires

Power wiring is connected to the input and out power terminals using the bus bar assemblies, back panel and stab assemblies, or fabricated bus bars using material with the following specifications:

- Material: CDA 110 copper.
- Minimum cross section: 80.7mm² (0.125 in.²) per each 100 A of drive rating.

Power Cable Types Acceptable for 200...600 Volt Installations

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

Power Wire Recommendations

Type		Description	Min. Insulation Rating
Power(1)(2)(3)	Standard	• Three tinned copper conductors with XLPE insulation. • Maximum 500 MCM conductors. • Copper braid/aluminum foil combination shield and tinned copper drain wire, three drain wires per cable assembly. • PVC jacket.	600V 75 °C (167 °F)

(1) Control and signal wires should be separated from power wires by at least 0.3 meters (1 foot).
(2) The use of shielded wire for AC input power may not be necessary but is always recommended.
(3) See Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001

ATTENTION: To guard against damage, do not connect power cables directly to the input or output terminals on the power module, LCL filter, AC or DC precharge modules. See Leakage Current on page 6.

Grounding

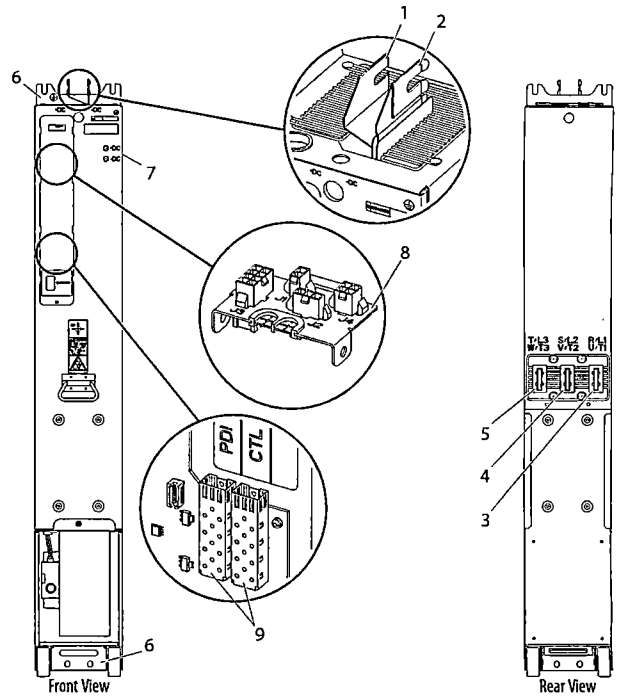
The final assembly Safety Ground-PE must be connected to system ground. Ground impedance must conform to the requirements of national and local industrial safety regulations and/or electrical codes. Periodically check the integrity of all ground connections. For more information on grounding requirements, see these publications:

- PowerFlex 755TM IP00 Open Type Kits Installation Instructions, publication 750-IN101
- Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001

Module Power and Ground Connections

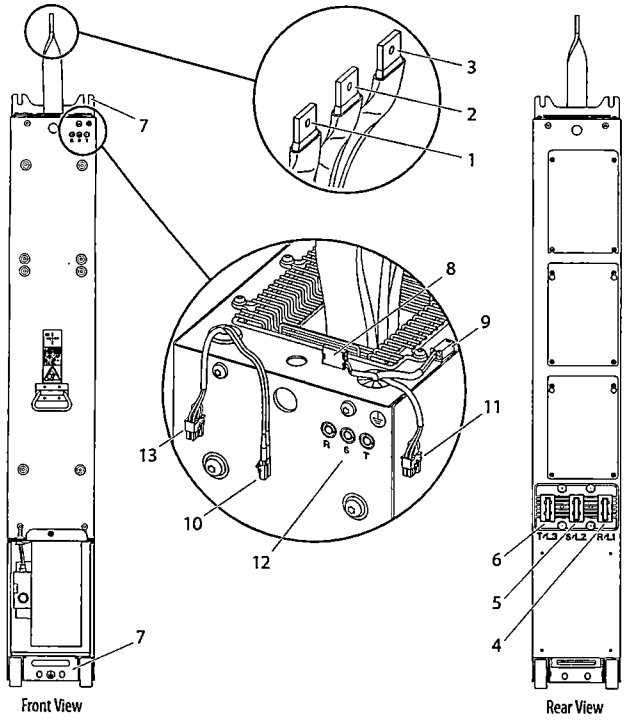
This section shows the power, ground, and control connections for the modules.

Power Structure



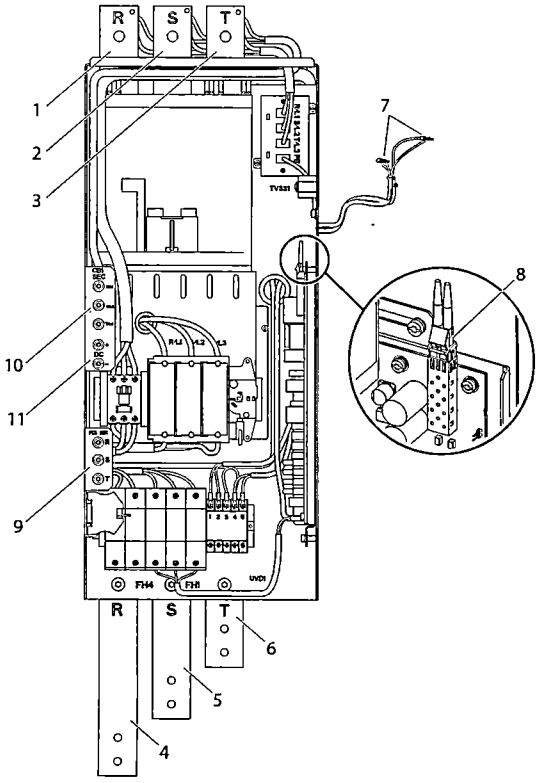
Item	Connection	Description
1	+DC	+DC bus connection from DC precharge module or DC/link fuses.
2	-DC	-DC bus connection from DC precharge module or DC/link fuses.
3	R/L1, U/T1	AC bus connection from the stab receptacle assembly.
4	S/L2, V/T2	AC bus connection from the stab receptacle assembly.
5	T/L3, W/T3	AC bus connection from the stab receptacle assembly.
6	GND	PE chassis ground connection.
7	+DC, -DC	+DC and -DC bus test points.
8	J1	DC fuse condition signal from connector P1 on the DC precharge module or DC/link fuses.
	J2	DC bus conditioner signals from connector P2 on the DC bus conditioner.
	J3	24V DC signal from connector P3 on the DC precharge module (when present).
	J4	240V AC and optional 24V DC control power supply from connector P4 on the DC precharge module (when present) or customer-supplied source.
9	CTRL	Fiber optic connection from Lx or Mx on the fiber transceiver board in the control pod.
	PDI	Fiber optic connection from the DC precharge or LCL filter module.

LCL Filter Module



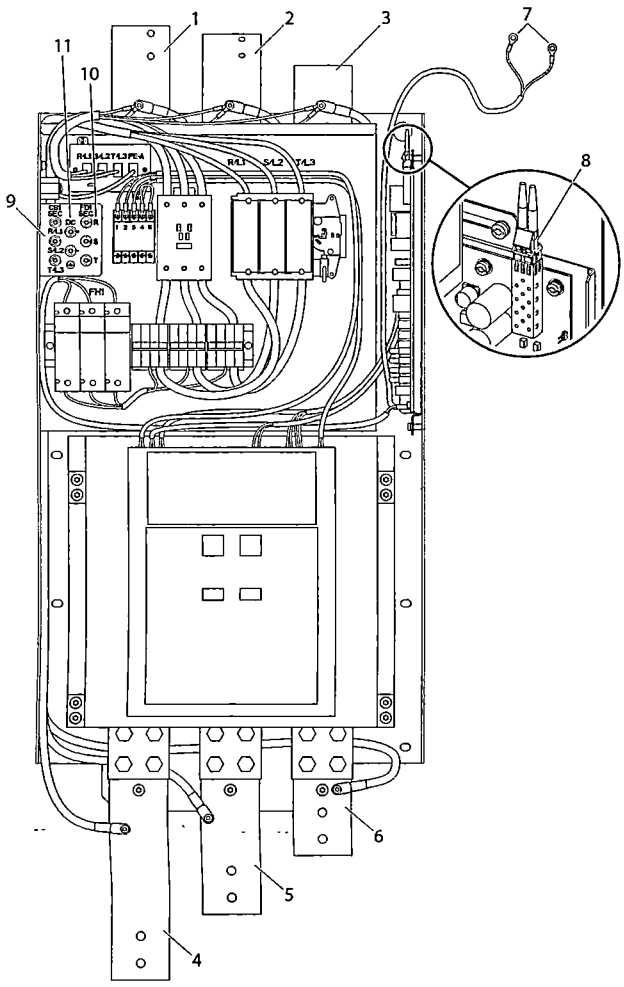
Item	Connection	Description
1	R	AC bus connection from the AC link bus bar and fuse assembly.
2	S	AC bus connection from the AC link bus bar and fuse assembly.
3	T	AC bus connection from the AC link bus bar and fuse assembly.
4	R/L1	AC bus connection to the stab receptacle assembly.
5	S/L2	AC bus connection to the stab receptacle assembly.
6	T/L3	AC bus connection to the stab receptacle assembly.
7	GND	PE chassis ground connection.
8	P1	AC fuse condition signal from connector P5 on the AC bus bar assembly fuses.
9	P2	240V AC supply from connector P4 on the control bus connector (when present) or customer-supplied source.
10	PDI	Fiber optic cable connection on the power layer interface board in the power module.
11	P3	24V DC signal connection to J3 on the power module IO panel.
12	R, S, T	AC bus test points.
13	P3	24V DC signal connection to J3 on a second power module I/O panel (larger LCL modules only).

Frame 8 AC Precharge Module



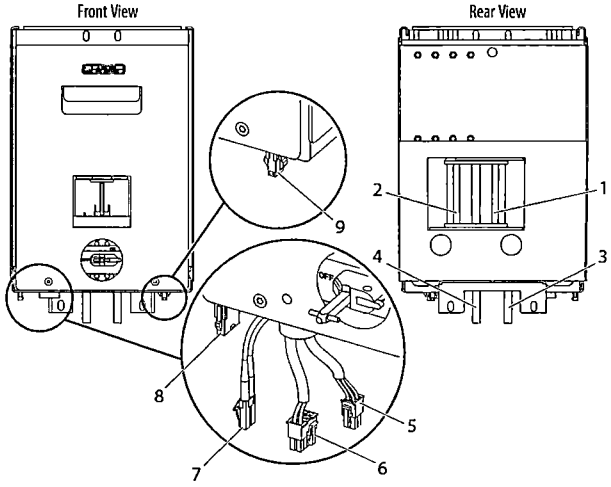
Item	Connection	Description
1	R/L1	AC output connection to the AC link bus bar and fuse assembly.
2	S/L2	AC output connection to the AC link bus bar and fuse assembly.
3	T/L3	AC output connection to the AC link bus bar and fuse assembly.
4	R/L1	AC input connection from the AC input bus bar.
5	S/L2	AC input connection from the AC input bus bar.
6	T/L3	AC input connection from the AC input bus bar.
7	P7	+DC and -DC bus connections to the AC precharge control board.
8	ACP	Fiber-optic cable connection from ACP0 on the fiber interface board in the control pod.
9	R/L1, S/L2, T/L3	AC line test point connections.
10	R/L1, S/L2, T/L3	AC bus test point connnections.
11	+DC, -DC	+DC and -DC test point connections.

Frame 9 AC Precharge Module



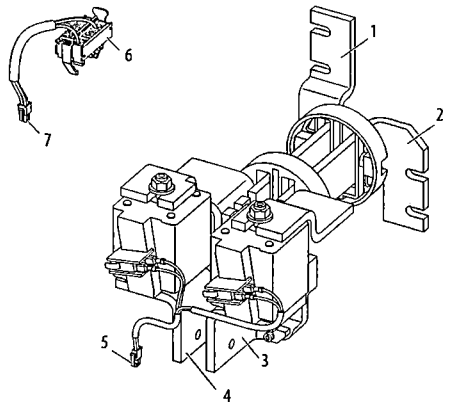
Item	Connection	Description
1	R/L1	AC output connection to the AC link bus bar and fuse assembly.
2	S/L2	AC output connection to the AC link bus bar and fuse assembly.
3	T/L3	AC output connection to the AC link bus bar and fuse assembly.
4	R/L1	AC input connection from the AC input bus bar.
5	S/L2	AC input connection from the AC input bus bar.
6	T/L3	AC input connection from the AC input bus bar.
7	P7	+DC and -DC bus connections to the AC precharge control board.
8	ACP	Fiber optic cable connection to ACP0 on the fiber interface board in the control pod.
9	R/L1, S/L2, T/L3	AC bus test point connections.
10	R/L1, S/L2, T/L3	AC line test point connections.
11	+DC, -DC	+DC and -DC test point connections.

DC Precharge Modules



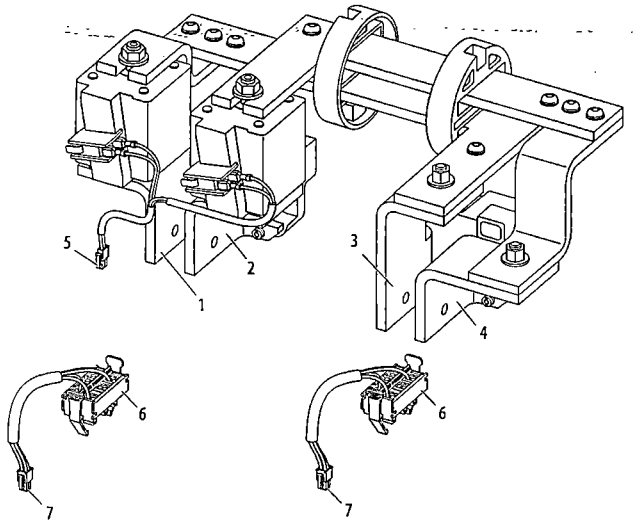
Item	Connection	Description
1	+DC	+DC bus connection from stab receptacle assembly.
2	-DC	-DC bus connection from stab receptacle assembly.
3	+DC	+DC bus connection to power module +DC bus terminal.
4	-DC	-DC bus connection to power module -DC bus terminal.
5	P4	240V AC and optional 24V DC control power supply to connector J4 on the power module I/O panel.
6	P3	24V DC signal to connector J3 on the power module.
7	DCP	Fiber-optic cable connection to PDI on the power layer interface board in the power module.
8	J13	240V AC and optional 24V control power supply from control bus connection or customer-supplied source.
9	J12	240V AC power supply to connector P1 on the IP54 roof fan (if present).

Power Bay DC Link/Fuse and Control Bus Connector



Item	Connection	Description
1	+DC	+DC bus connection from +DC bus bar.
2	-DC	-DC bus connection from -DC bus bar.
3	-DC	-DC bus connection to power module -DC terminal.
4	+DC	+DC bus connection to power module +DC terminal.
5	P1	DC fuse condition signal to connector J1 on the power module I/O panel.
6	–	To control bus assembly (cat. no. 20-750-MCBUS1-*xx*-FxM, 20-750-MCBUS1-*xx*-FxxM)
7	P4	240V AC and optional 24V DC control power supply to connector J4 on the power module I/O panel.

Frame 8 Regenerative Drive DC Link

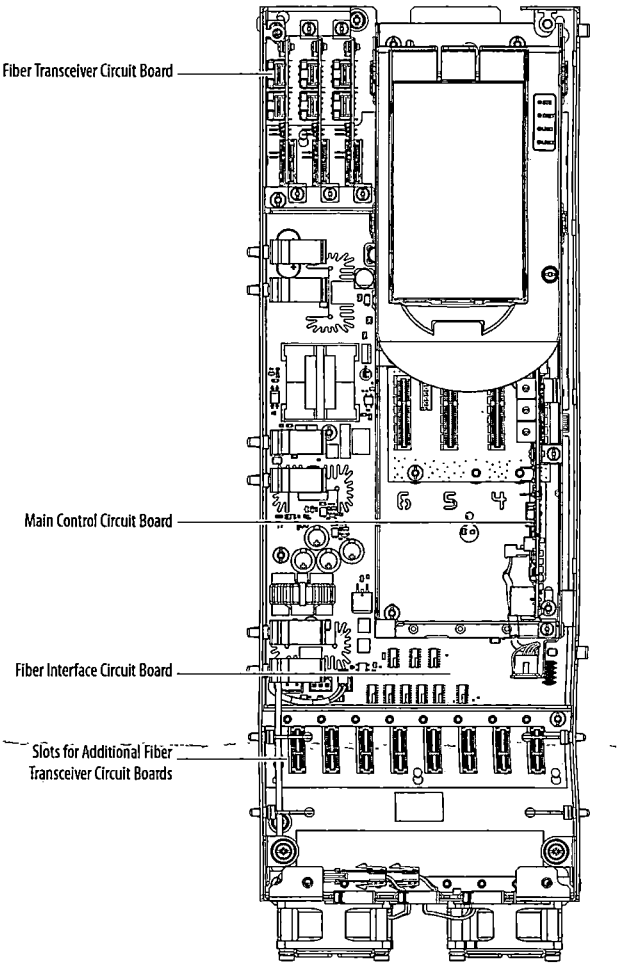


Item	Connection	Description
1	+DC	+DC bus connection from power module +DC terminal.
2	-DC	-DC bus connection from power module -DC terminal.
3	+DC	+DC bus connection to power module +DC terminal.
4	-DC	-DC bus connection to power module -DC terminal.
5	P1	DC fuse condition signal to connector J1 on the power module I/O panel.
6	–	To control bus assembly (cat. no. 20-750-MCBUS1-*xx*-FxM, 20-750-MCBUS1-*xx*-FxxM).
7	P4	240V AC and optional 24V DC control power supply to connector J4 on the power module I/O panel.

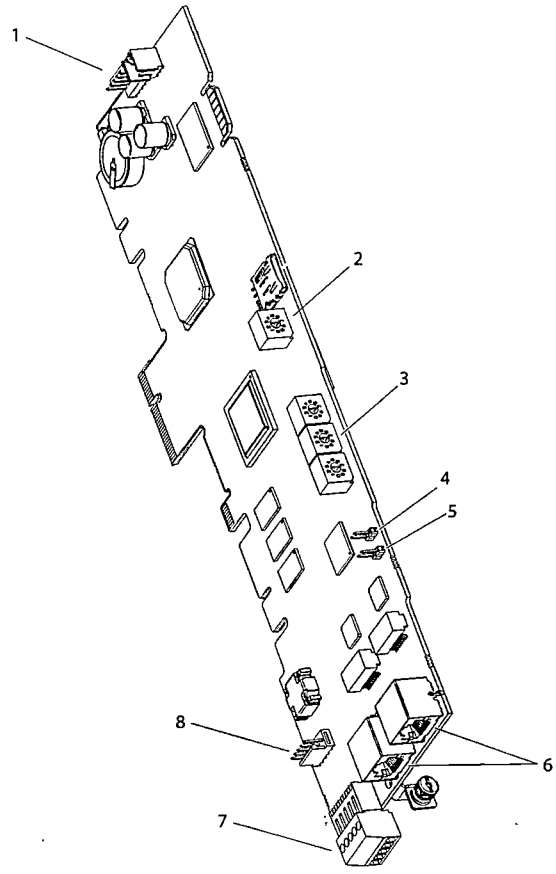
Control Pod Connections

Connections for the main control, fiber-optic interface, and fiber-optic transceiver circuit boards are identified in these illustrations and tables.

Control Pod Circuit Board Locations

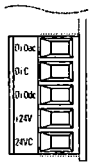


Main Control Board Details

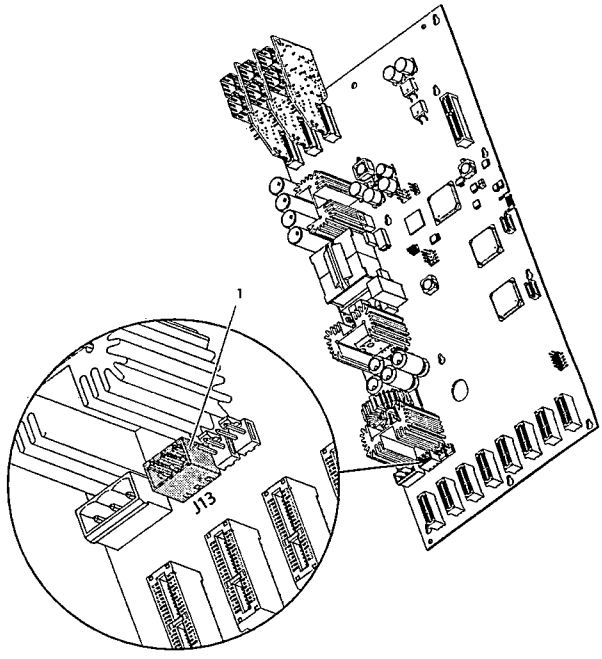


Item	Name	Description
1	HIM Connector	DPI Port 1 (HIM Cradle) connection.
2	Control Selector	Rotary switch for setting the programming mode.
3	Embedded EtherNet/IP Address Selectors	Rotary switches for setting lowest octet of EtherNet address (forces address to 192.168.1.xxx). See the PowerFlex Drives with TotalFORCE Control Programming Manual, publication 750-PM100 for instructions on setting the IP address.
4	SAFETY Jumper	Safety enable jumper. Removed when safety option is installed.
5	ENABLE Jumper	Hardware enable jumper. TB1 becomes an Enable when this jumper is removed.
6	Embedded EtherNet/IP Connectors	Network cable connections.
7	TB1	I/O terminal block.
8	DPI Port 2	Cable connection for handheld and remote HIM options.

Main Control Board TB1 I/O Terminal Designations

Fixed I/O	Terminal	Name	Description
	Di 0ac	Digital input 0 120V AC (132V AC max)	Connections for AC power supply. High state: 100...132V AC Low state: 0...30V AC
	Di C	Digital input common	Digital input common.
	Di 0dc	Digital input 0 24V DC (30V DC max)	Connections for DC power supply. High state: 20...24V DC Low state: 0...5V DC
	+24V	+24 volt power	Connections for drive supplied 24V power. 150 mA maximum.
	24VC	24 volt common	

Fiber Interface Board Details



No.	Name	Description
1	Connector J13	Connection for terminal block P13 - optional external 24V DC power supply.

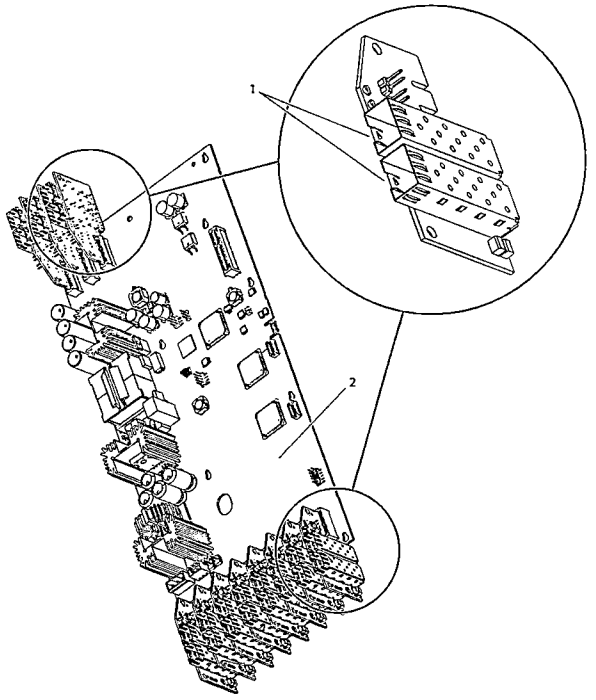
Optional External Power Supply

An external power source supplies control power to the drive when the drive is not energized. Connect an optional external 24V power supply to terminal block P13.

External Power Supply Connections

Power Block	Terminal	Name	Description
	AP+	+24 volt auxiliary power	Connections for an optional, auxiliary power supply: 24V DC ±10%, 5 A, PELV (Protective Extra Low Voltage) or SELV (Safety Extra Low Voltage).
	AP–	Auxiliary power common	
	Sh	Shield	Terminating point for wire shields.

Fiber Transceiver Board Details



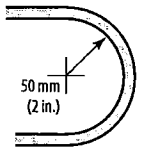
Item	Name	Description
1	ACP0	Fiber transceiver port for fiber-optic connection with AC precharge control board.
	ACP1 TAM	Fiber transceiver port for fiber-optic connection with torque accuracy module.
	L0...L9	Fiber transceiver port for fiber-optic connection with power modules used as line side converters.
	M0...M9	Fiber transceiver port for fiber-optic connection with power modules used as motor side inverters.
2	–	Fiber interface board.

Control Pod Fiber-optic Connections

ATTENTION: Hazard of permanent eye damage exists when using optical transmission equipment. This product emits intense light and invisible radiation. Do not look into module ports or fiber-optic cable connectors.

To install the fiber-optic connector in the transceiver, remove the transceiver cartridge from the cage, insert the fiber-optic connector into the transceiver until an audible 'click' is heard, and insert the transceiver cartridge into the cage.

IMPORTANT Minimum inside bend radius for fiber-optic cable is 50 mm (2 in.). Any bends with a shorter inside radius can permanently damage the fiber-optic cable. Signal attenuation increases as inside bend radius is decreased.



Fiber-optic Cable Kits

We recommend using these fiber-optic kits.

Catalog Number	Length, *mm (in.)*
20-750-MFOC-1K5	1500 (59)
20-750-MFOC-2K0	2000 (79)
20-750-MFOC-2K2	2200 (87)
20-750-MFOC-3K2	3200 (126)
20-750-MFOC-4K0	4000 (157)
20-750-MFOC-5K4	5400 (213)
20-750-MFOC-6K0	6000 (236)
20-750-MFOC-6K8	6800 (268)

This section lists the number of fiber-optic cable kits used for each installation.

Fiber-optic Cable Kit Usage by Length

Frame	Cable Length Usage, *mm (in.)*							
	1500 (59)	*2000 (79)*	*2200 (87)*	*3200 (126)*	*4000 (157)*	*5400 (213)*	*6000 (236)*	*6800 (268)*
Regenerative and Low Harmonic Drives								
8			2					
9			1	3				
10			1	1	3	1		
11			1	1	3	2		
12			1	1	2	3	3	
AC Precharge Module - Regenerative and Low Harmonic Drives								
8	1							
9		1						
10	1							
11	1							
12	1							
Torque Accuracy Module - Regenerative and Low Harmonic Drives								
8				1				
9					1			
10						1		
11							1	
12								1
Common Bus Inverter								
8			1	1[1]				
9			2	2[1]				
10			3	2[1]	1[1]			
11			2	2	2[1]			
12			3	2	3[1]			
Torque Accuracy Module - Common Bus Inverter								
8			1	1[1]				
9				1 or 2[1]				
10				1 or 2[1]				
11					1 or 2[1]			
12					1 or 2[1]			

Fiber-optic Cable Kit Usage by Length (continued)

Frame	Cable Length Usage, *mm (in.)*							
	1500 (59)	*2000 (79)*	*2200 (87)*	*3200 (126)*	*4000 (157)*	*5400 (213)*	*6000 (236)*	*6800 (268)*
Regenerative Bus Supply								
8			1					
9			1	1				
10			1	1	1			
11			1	1	2			
12			1	1	2	1		
AC Precharge Module - Regenerative Bus Supply								
8	1							
9		1						
10	1							
11	1							
12	1							

(1) Only used when a second control pod is installed in the same control bay as the first control pod.

Fiber Optic Cables Included with Modules

Module	Length, *mm (in.)*
LCL filter module to power module (converter)	1300 (51)
DC precharge module to power module (inverter)	840 (33)

Fiber-optic cables can be independently sourced, as long as they meet this criteria.

Category	Specification
Type	Duplex multimode LC-LC
Fiber type	62.5/125 micrometer
Number of fibers	2
Core diameter	62.5 ± 2.0 micrometers
Outer jacket	PVC - polyvinyl chloride
Operating temperature	-55…+85 °C (-67…+185 °F)
Strain relief boots	Straight
Agency	NEC/(UL): OFNR IEEE: 802.3Z

Rockwell Automation Support

Use the following resources to access support information.

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

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PN-342783

Publication 750-PC101A-EN-P - December 2016

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