Installation Instructions

Original Instructions

Allen-Bradley
by ROCKWELL AUTOMATION

MicroLogix 1400 Programmable Controllers

Catalog numbers 1766-L32AWA, 1766-L32AWAA, 1766-L32BWA, 1766-L32BWAA, 1766-L32BXB, 1766-L32BXBA

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Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

Topic	Page
Updated template	throughout
Updated Environment and Enclosure	3
Added Table 1 in topic Connect 1762 I/O Expansion Modules	9
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Rockwell Automation

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。

包括安装、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, bediend 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.

Environment and Enclosure

ATTENTION: This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in EN/IEC 60664-1), at altitudes up to 2000 m (6562 ft) without derating.
This equipment is not intended for use in residential environments and may not provide adequate protection to radio communication services in such environments.

This equipment is supplied as open-type equipment for indoor use. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The enclosure must have suitable flame-retardant properties to prevent or minimize the spread of flame, complying with a flame spread rating of 5VA or be approved for the application if nonmetallic. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain more information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

In addition to this publication, see the following:

- Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1, for more installation requirements.
- NEMA Standard 250 and EN/IEC 60529, as applicable, for explanations of the degrees of protection provided by enclosures.

Prevent Electrostatic Discharge

ATTENTION: This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment:

- Touch a grounded object to discharge potential static.
- Wear an approved grounding wriststrap.
- Do not touch connectors or pins on component boards.
- Do not touch circuit components inside the equipment.
- Use a static-safe workstation, if available.
- Store the equipment in appropriate static-safe packaging when not in use.

North American Hazardous Location Approval

The following information applies when operating this equipment in hazardous locations.	**Informations sur l'utilisation de cet équipement en environnements dangereux.**
Products marked "CL I, DIV 2, GP A, B, C, D" are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and nonhazardous locations only. Each product is supplied with markings on the rating nameplate indicating the hazardous location temperature code. When combining products within a system, the most adverse temperature code (lowest "T" number) may be used to help determine the overall temperature code of the system. Combinations of equipment in your system are subject to investigation by the local Authority Having Jurisdiction at the time of installation.	Les produits marqués "CL I, DIV 2, GP A, B, C, D" ne conviennent qu'à une utilisation en environnements de Classe I Division 2 Groupes A, B, C, D dangereux et non dangereux. Chaque produit est livré avec des marquages sur sa plaque d'identification qui indiquent le code de température pour les environnements dangereux. Lorsque plusieurs produits sont combinés dans un système, le code de température le plus défavorable (code de température le plus faible) peut être utilisé pour déterminer le code de température global du système. Les combinaisons d'équipements dans le système sont sujettes à inspection par les autorités locales qualifiées au moment de l'installation.
WARNING: **Explosion Hazard –** • Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous. • Do not disconnect connections to this equipment unless power has been removed or the area is known to be nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product. • Substitution of components may impair suitability for Class I Division 2.	**AVERTISSEMENT:** **Risque d'explosion –** • Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher l'équipement. • Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher les connecteurs. Fixer tous les connecteurs externes reliés à cet équipement à l'aide de vis, loquets coulissants, connecteurs filetés ou autres moyens fournis avec ce produit. • La substitution de composants peut rendre cet équipement inadapté à une utilisation en environnement de Classe I Division 2.

Hazardous Location Considerations

WARNING: This equipment is suitable for use in Class I Division 2, Groups A, B, C, D or nonhazardous locations only. The following WARNING statement applies to use in hazardous locations:

- This product must be installed in an enclosure. All cables connected to the product must remain in the enclosure or be protected by conduit or other means.
- All wiring must comply with N.E.C. article 501-10(b) and/or in accordance with Section 18-1J2 of the Canadian Electrical Code, and in accordance with the authority having jurisdiction.

Use only the following communication cables in Class I Division 2 hazardous locations.

Environment Classification	Communication Cables
Class I, Division 2 Hazardous Environment	1761-CBL-AC00 Series C or later
	1761-CBL-AM00 Series C or later
	1761-CBL-AP00 Series C or later
	1761-CBL-PM02 Series C or later
	1761-CBL-HM02 Series C or later
	2707-NC9 Series C or later
	1763-NC01 Series A or later
	1747-CP3 Series

Environnements dangereux

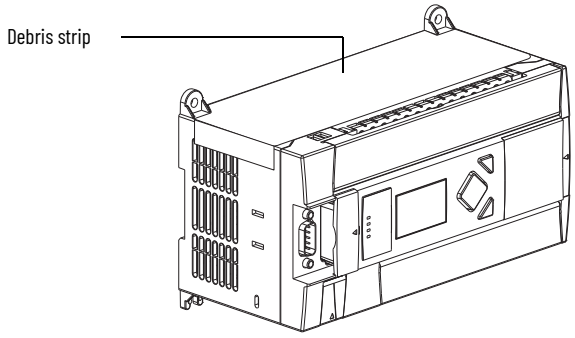
AVERTISSEMENT:
Cet équipement est conçu pour une utilisation en environnements dangereux de Classe I Division 2, Groupes A, B, C, D ou non dangereux. La mise en garde suivante s'applique à utilisation en environnements dangereux:
- Ce produit doit être installé dans une armoire. Tous les câbles connectés à l'appareil doivent rester dans l'armoire ou être protégés par une goulotte ou tout autre moyen.
- L'ensemble du câblage doit être conforme à la réglementation en vigueur dans les pays où l'appareil est installé.

Utilisez uniquement les câbles de communication suivants dans les environnements dangereux de Classe I Division 2.

Classification des environnements	Câbles de communication
Environnement dangereux de Classe I, Division 2	1761-CBL-AC00 série C ou ultérieure
	1761-CBL-AM00 série C ou ultérieure
	1761-CBL-AP00 série C ou ultérieure
	1761-CBL-PM02 série C ou ultérieure
	1761-CBL-HM02 série C ou ultérieure
	2707-NC9 série C ou ultérieure
	1763-NC01 série A ou ultérieure
	série 1747-CP3

Product Overview

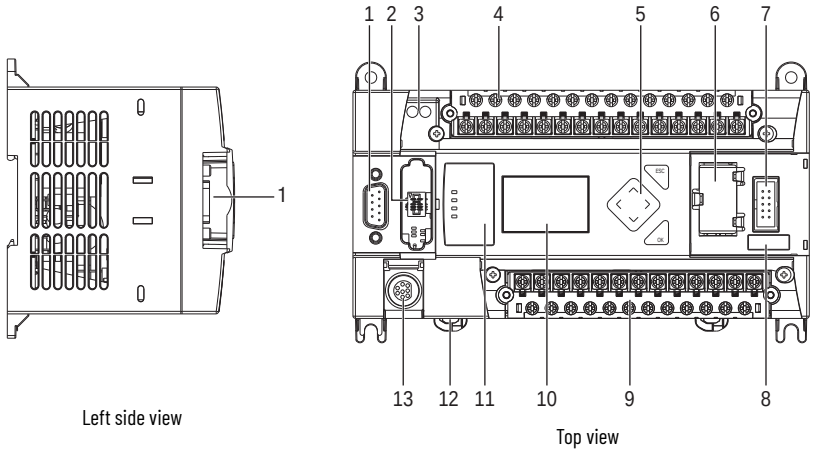
MicroLogix™ 1400 controllers are suitable for use in an industrial environment when installed in accordance with these instructions. Specifically, this equipment is intended for use in clean, dry environments (Pollution degree 2[a]) and with circuits not exceeding Over Voltage Category II[b] (IEC 60664-1)[c]. AC powered products must be connected to the secondary of an isolating transformer.



ATTENTION:
- Do not remove the protective debris strip until after the controller and all other equipment in the panel near the controller are mounted and wiring is complete. Once wiring is complete, remove the protective debris strip. Failure to remove the strip before operating can cause overheating.
- Electrostatic discharge can damage semiconductor devices inside the controller. Do not touch the connector pins or other sensitive areas.

(a) Pollution Degree 2 is an environment where, normally, only non-conductive pollution occurs except that occasionally a temporary conductivity that is caused by condensation is expected.
(b) Over Voltage Category II is the load level section of the electrical distribution system. At this level, transient voltages are controlled and do not exceed the impulse voltage capability of the product's insulation.
(c) Pollution Degree 2 and Over Voltage Category II are International Electrotechnical Commission (IEC) designations.

Figure 1 - MicroLogix 1400 Controller Overview



Left side view

Top view

Controller Description

	Description		Description
1	Comm port 2 - 9-pin D-Shell RS-232C connector	8	Battery connector
2	Memory module (see MicroLogix 1400 Memory Module Installation Instructions, publication 1766-IN010 for detailed installation instructions)	9	Output terminal block
3	User 24V (**for 1766-L32BWA and 1766-L32BWAA only**)	10	LCD display
4	Input terminal block	11	Indicator LED panel
5	LCD display keypad (ESC, OK, Up, Down, Left, Right)	12	Comm port 1 - RJ45 connector
6	Battery compartment	13	Comm port 0 - 8-pin mini DIN RS-232C/RS-485 connector
7	1762 expansion bus connector		

Controller Input and Output Description

Catalog Number	Description				
	Input Power	User Power	Embedded Discrete I/O	Embedded Analog I/O	Comm. Ports
1766-L32BWA	100/240V AC	24V DC	12 Fast 24V DC Inputs 8 Normal 24V DC Inputs 12 Relay Outputs	None	1 RS-232/RS-485[1] 1 EtherNet/IP™ 1 RS-232[2]
1766-L32AWA		None	20 120V AC Inputs 12 Relay Outputs		
1766-L32BXB	24V DC		12 Fast 24V DC Inputs 8 Normal 24V DC Inputs 6 Relay Outputs 3 Fast DC Outputs 3 Normal DC Outputs		
1766-L32BWAA	100/240V AC	24V DC	12 Fast 24V DC Inputs 8 Normal 24V DC Inputs 12 Relay Outputs	4 Voltage Inputs 2 Voltage Outputs	
1766-L32AWAA		None	20 120V AC Inputs 12 Relay Outputs		
1766-L32BXBA	24V DC		12 Fast 24V DC Inputs 8 Normal 24V DC Inputs 6 Relay Outputs 3 Fast DC Outputs 3 Normal DC Outputs		

(1) Isolated RS-232/RS-485 combo port. Same as MicroLogix 1100 Comm 0.

(2) Non-isolated RS-232. Standard D-sub connector.

ATTENTION: Unsupported Connection

- Do not connect the Comm 0 port on the MicroLogix 1400 controller to another MicroLogix family controller such as MicroLogix 1000, MicroLogix 1200, or MicroLogix 1500 controller using a 1761-CBL-AM00 (8-pin mini-DIN to 8-pin mini-DIN) cable or equivalent.
- This type of connection will cause damage to the RS-232/RS-485 communication port (Channel 0) of the MicroLogix 1400 controller and/or the controller itself. Communication pins used for RS-485 communications are alternately used for 24V power on the other MicroLogix controllers.

Mount the Controller

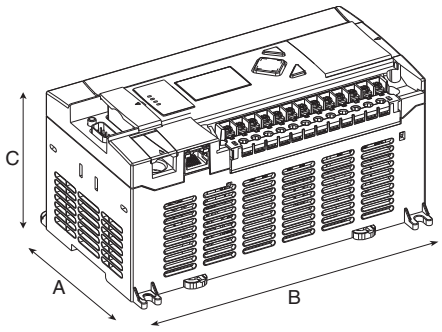
General Considerations

Most applications require installation in an industrial enclosure to reduce the effects of electrical interference and environmental exposure. Locate your controller as far as possible from power lines, load lines, and other sources of electrical noise such as hard-contact switches, relays, and AC motor drives. For more information on proper grounding guidelines, see the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

ATTENTION:
- Mount the controller horizontally only. Vertical mounting is not supported due to thermal considerations.
- Be careful of metal chips when drilling mounting holes for your controller or other equipment within the enclosure or panel. Drilled fragments that fall into the controller could cause damage. Do not drill holes above a mounted controller if the protective debris strips have been removed.

WARNING:
- Do not place the MicroLogix 1400 controller in direct sunlight. Prolonged exposure to direct sunlight could degrade the LCD display.
- The local programming terminal port is intended for temporary use only and must not be connected or disconnected unless the area is assured to be nonhazardous.

Mounting Dimensions



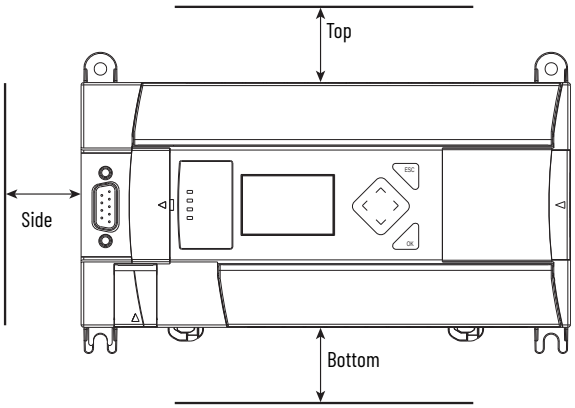
Mounting Dimensions

Dimension	Height
A	90 mm (3.5 in.)
B	180 mm (7.087 in.)
C	87 mm (3.43 in.)

Controller Spacing

The controller mounts horizontally, with the expansion I/O extending to the right of the controller. Allow 50 mm (2 in.) of space on all but the right side for adequate ventilation, as shown in Figure 2.

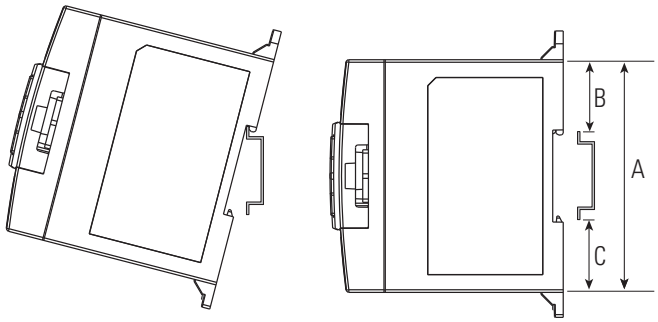
Figure 2 - Controller Spacing



DIN Rail Mounting

The maximum extension of the latch is 14 mm (0.55 in.) in the open position. Use a screwdriver to remove the controller. Mount the controller to EN50022-35x7.5 or EN50022-35x15 DIN rails. DIN rail mounting dimensions are shown in Figure 3.

Figure 3 - DIN Rail Mounting



DIN Rail Mounting Dimension

Dimension	Height
A	90 mm (3.5 in.)
B	27.5 mm (1.08 in.)
C	27.5 mm (1.08 in.)

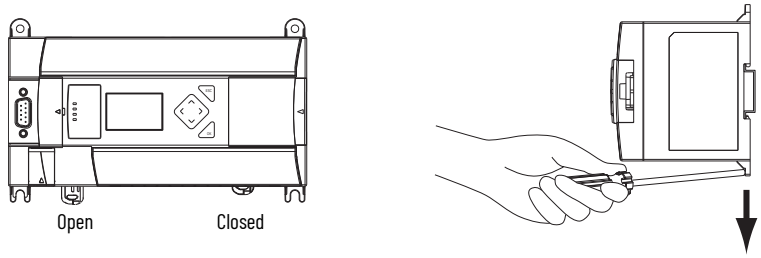
Follow these steps to install your controller on the DIN rail:

1. Mount your DIN rail. Make sure that the placement of the controller on the DIN rail meets the recommended spacing requirements (see Controller Spacing on page 6 for more information). See the mounting template inside the back cover of this document.
2. If it is open, close the DIN latch.
3. Hook the top slot over the DIN rail.
4. While pressing the controller down against the top of the rail, snap the bottom of the controller into position.
5. Leave the protective debris strip attached until you are finished wiring the controller and any other devices.

Follow these steps to remove your controller from the DIN rail:

1. Place a screwdriver in the DIN rail latch at the bottom of the controller.
2. Holding the controller, pry downward on the latch until the latch locks in the open position.
3. Repeat step 1 and step 2 for the second DIN rail latch.

Figure 4 - Remove Controller from DIN Rail

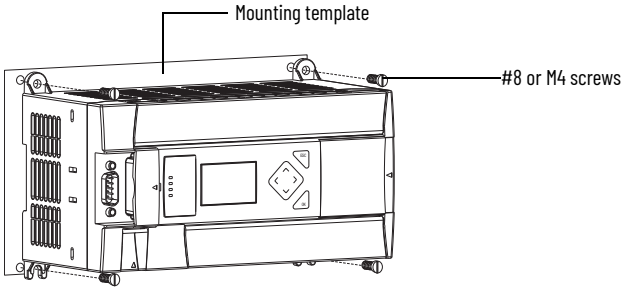


Panel Mounting

Use #8 or M4 screws to mount your controller to the panel as follows:

1. Remove the mounting template from inside the back cover of this document.
2. Secure the template to the mounting surface. Make sure that your controller is spaced properly (see Controller Spacing on page 6 for more information).
3. Drill holes through the template.
4. Remove the mounting template.
5. Mount the controller.
6. Leave the protective debris strip in place until you are finished wiring the controller and any other devices.

Figure 5 - Panel Mounting



Reconnect or Replace the Battery

The MicroLogix 1400 controller is equipped with a replaceable battery (catalog number 1747-BA). The Battery Low indicator on the LCD display of the controller shows the status of the replaceable battery. When the battery is low, the indicator is set (displayed as a solid rectangle). This means that either the battery wire connector is disconnected, or the battery may fail within 2 days if it is connected.

IMPORTANT

- The MicroLogix 1400 controller ships with the battery wire connector connected.
- Ensure that the battery wire connector is inserted into the connector port if your application needs battery power. For example, when using a real-time clock (RTC).
- Replacing the battery when the controller is powered down will lose all user application memory. Replace the battery when the controller is powered on.
- See the Guidelines for Handling Lithium Batteries Installation Instructions, publication 1747-IN515, for more information on installation, handling, usage, storage, and disposal of the battery.

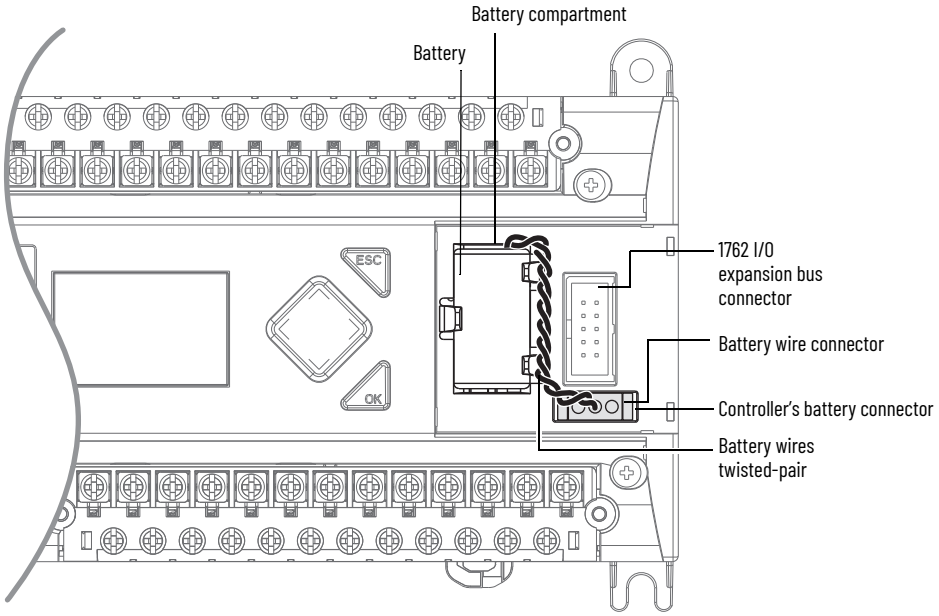
WARNING:

- When you connect or disconnect the battery an electric arc can occur. This could cause an explosion in hazardous location installations. Be sure that the area is nonhazardous before proceeding.
- For safety information on the handling of lithium batteries, including handling and disposal of leaking batteries, see Guidelines for Handling Lithium Batteries Technical Data, publication AG 5-4.

Follow these steps to connect the replaceable battery:

1. Insert the replaceable battery wire connector into the controller's battery connector.
2. Secure the battery connector wires so that it does not block the 1762 expansion bus connector as shown in Figure 6.

Figure 6 - Connect the Replaceable Battery



Connect 1762 I/O Expansion Modules

ATTENTION:
Remove the power from the system before you install or remove the expansion I/O module. If not, it can result damage to the controller.

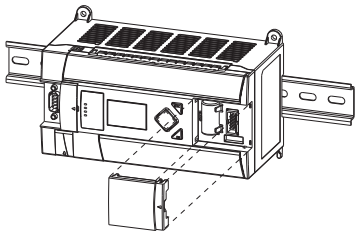
After mounting the controller, connect 1762 I/O as per steps that follow:

1. Remove the expansion port cover before you install expansion I/O modules.
2. Install any seven 1762 expansion I/O modules from Table 1. See the related Installation Instructions publication for detailed information.
3. Plug the ribbon cable connector into the bus connector.
4. Replace the expansion port cover as shown in Figure 7.

Table 1 - 1762 Expansion I/O Modules List

1762 Expansion I/O Modules	Publication Reference
1762-IA8	MicroLogix 1200 120V AC Input Module Installation Instructions, publication 1762-IN002
1762-IF2OF2	MicroLogix 1762-IF2OF2 Analog Input/Output Module Installation Instructions, publication 1762-IN005
1762-IF4	MicroLogix 1762-IF4 Analog Input Module Installation Instructions, publication 1762-IN012
1762-IQ16	MicroLogix 1762-IQ16 DC Input Module Installation Instructions, publication 1762-IN010
1762-IQ32T	MicroLogix 1762-IQ32T DC Input Module Installation Instructions, publication 1762-IN019
1762-IQ8	MicroLogix 1200 24V DC Input Module Installation Instructions, publication 1762-IN004
1762-IQ8OW6	MicroLogix 1200 DC Input/Relay Output Combination Module Installation Instructions, publication 1762-IN018
1762-IR4	MicroLogix 1200 RTD/Resistance Input Module Installation Instructions, publication 1762-IN014
1762-IT4	MicroLogix 1200 Thermocouple/mV Input Module Installation Instructions, publication 1762-IN013
1762-OA8	MicroLogix 1200 Solid-state Output Module Installation Instructions, publication 1762-IN007
1762-OB16	MicroLogix 1200 16-point Solid-state 24V DC Source Output Module Installation Instructions, publication 1762-IN011
1762-OB32T	MicroLogix 1762-OB32T Solid State 24V DC Source Output Module Installation Instructions, publication 1762-IN020
1762-OB8	MicroLogix 1200 Solid-state 24V DC Source Output Module Installation Instructions, publication 1762-IN008
1762-OV32T	MicroLogix 1762-OV32T Solid State 24V DC Sink Output Module Installation Instructions, publication 1762-IN021
1762-OW16	MicroLogix 1762-OW16 Relay Output Module Installation Instructions, publication 1762-IN009
1762-OW8	MicroLogix 1200 Relay Output Module Installation Instructions, publication 1762-IN003
1762-OX6I	MicroLogix 1200 Isolated Relay Output Module Installation Instructions, publication 1762-IN017

Figure 7 - 1762 Expansion I/O Port Cover



The MicroLogix 1400 controller is designed to support up to any seven 1762 expansion I/O modules. For detailed information on using expansion I/O, see the related installation instructions for your expansion module.

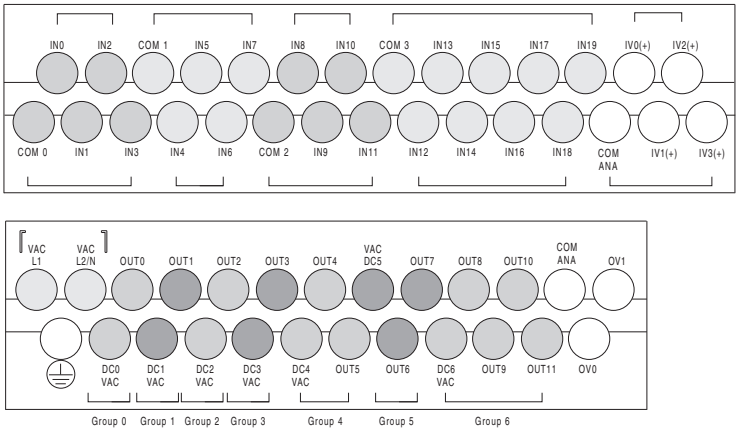
Wire the Controller

The shading in the following terminal block illustrations indicates which terminal groups are tied to which commons.

WARNING:
- When you connect or disconnect the Removable Terminal Block (RTB) with field side power applied, an electric arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.
- When used in a Class I Division 2, hazardous location, this equipment must be mounted in a suitable enclosure. All wiring must be in accordance with Class I Division 2 wiring methods of Article 501 of the National Electrical Code and/or in accordance with Section 18-1J2 of the Canadian Electrical Code, and in accordance with the authority having jurisdiction.

1766-L32BWA/L32BWAA - Terminal Block Layout

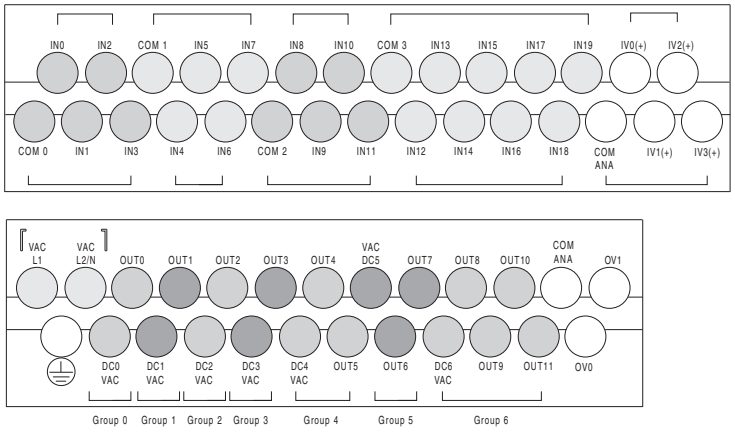
Input Terminal Block



Output Terminal Block

1766-L32AWA/L32AWAA - Terminal Block Layout

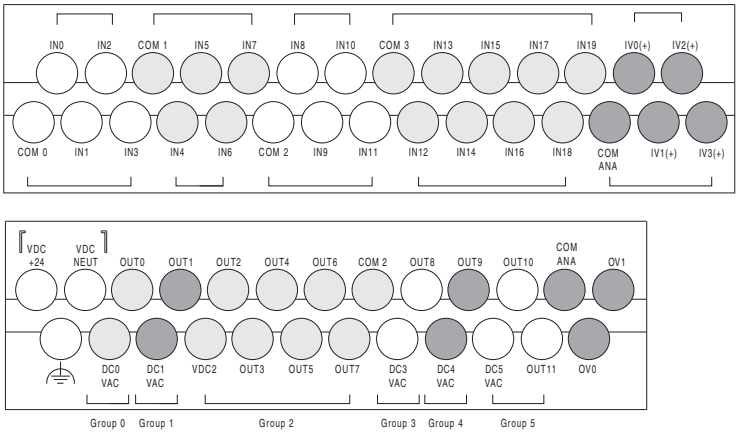
Input Terminal Block



Output Terminal Block

1766-L32BXB/L32BXBA - Terminal Block Layout

Input Terminal Block



Output Terminal Block

Wire Type		Wire Size
Solid wire	Cu-90 °C (194 °F)	0.25…2.5 mm^2 (22…14 AWG)
Stranded wire	Cu-90 °C (194 °F)	0.25…1.5 mm^2 (22…16 AWG)

Wiring torque = 0.791 N•m (7 lb•in) rated.

Output Terminal Grouping

Controller	Output Group	Description	Outputs Voltage Terminal	Output Terminal
1766-L32BWA 1766-L32BWAA	Group 0	Isolated relay output	VAC/DC0	OUT 0
	Group 1	Isolated relay output	VAC/DC1	OUT 1
	Group 2	Isolated relay output	VAC/DC2	OUT 2
	Group 3	Isolated relay output	VAC/DC3	OUT 3
	Group 4	Isolated relay output	VAC/DC4	OUT 4, OUT 5
	Group 5	Isolated relay output	VAC/DC5	OUT 6, OUT 7
	Group 6	Isolated relay output	VAC/DC6	OUT 8…11
1766-L32AWA 1766-L32AWAA	Group 0	Isolated relay output	VAC/DC0	OUT 0
	Group 1	Isolated relay output	VAC/DC1	OUT 1
	Group 2	Isolated relay output	VAC/DC2	OUT 2
	Group 3	Isolated relay output	VAC/DC3	OUT 3
	Group 4	Isolated relay output	VAC/DC4	OUT 4, OUT 5
	Group 5	Isolated relay output	VAC/DC5	OUT 6, OUT 7
	Group 6	Isolated relay output	VAC/DC6	OUT 8…11
1766-L32BXB 1766-L32BXBA	Group 0	Isolated relay output	VAC/DC0	OUT 0
	Group 1	Isolated relay output	VAC/DC1	OUT 1
	Group 2	FET output	VDC2/COM 2	OUT 2…7
	Group 3	Isolated relay output	VAC/DC3	OUT 8
	Group 4	Isolated relay output	VAC/DC4	OUT 9
	Group 5	Isolated relay output	VAC/DC5	OUT 10, OUT 11

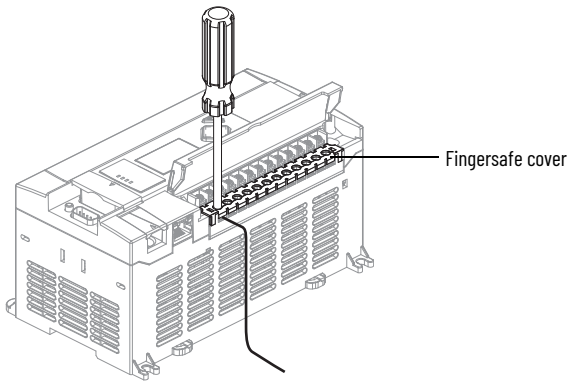
WARNING:
- If you connect or disconnect wiring while the field-side power is on, an electric arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding
- The local programming terminal port is intended for temporary use only and must not be connected or disconnected unless the area is free of ignitable concentrations of flammable gases or vapors.

Wiring Recommendation

When wiring without spade lugs, keep the fingersafe covers in place.

1. Loosen the terminal screw and route the wires through the opening in the fingersafe cover.
2. Tighten the terminal screw to make sure that the pressure plate secures the wire. Recommended torque for terminal screws is 0.791 N•m (7 lb•in).

ATTENTION:
Be careful when stripping wires. Wire fragments that fall into the controller could cause damage. Once wiring is complete, be sure that the controller is free of all metal fragments before removing the protective debris strip. Failure to remove the strip before operating can cause overheating.



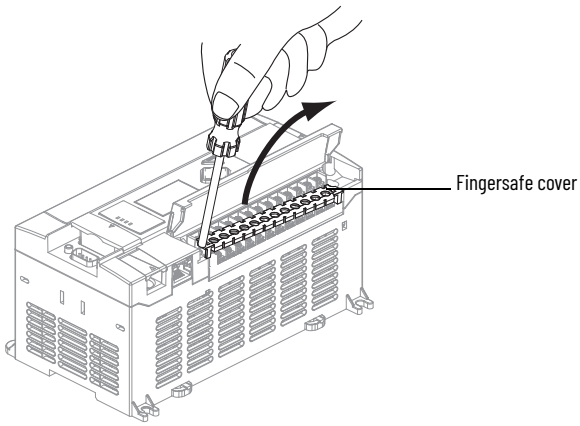
Spade Lug Recommendation

The diameter of the terminal screw head is 5.5 mm (0.220 in.). The input and output terminals of the MicroLogix 1400 controller are designed for the following spade lugs:

- The terminals accept a 6.35 mm (0.25 in.) wide spade (standard for #6 screw for up to 2.5 mm^2 [14 AWG]) or a 4 mm (metric #4) fork terminal.

When using spade lugs, use a small, flat-blade screwdriver to pry the fingersafe cover from the terminal blocks, then loosen the terminal screw.

If you must remove the fingersafe cover, insert a screwdriver into one of the square wiring holes and gently pry the cover off. If you wire the terminal block with the fingersafe cover removed, you cannot put it back on the terminal block because the wires are in the way.



Surge Suppression

ATTENTION:
Inductive load devices such as motor starters and solenoids require the use of some type of surge suppression to protect the controller output. Switching inductive loads without surge suppression can significantly reduce the life of relay contacts or damage transistor outputs. By using suppression, you also reduce the effects of voltage transients that are caused by interrupting the current to that inductive device, and prevent electrical noise from radiating into system wiring. See the MicroLogix 1400 Programmable Controllers User Manual, publication 1766-UM001, for more information on surge suppression.

Grounding the Controller

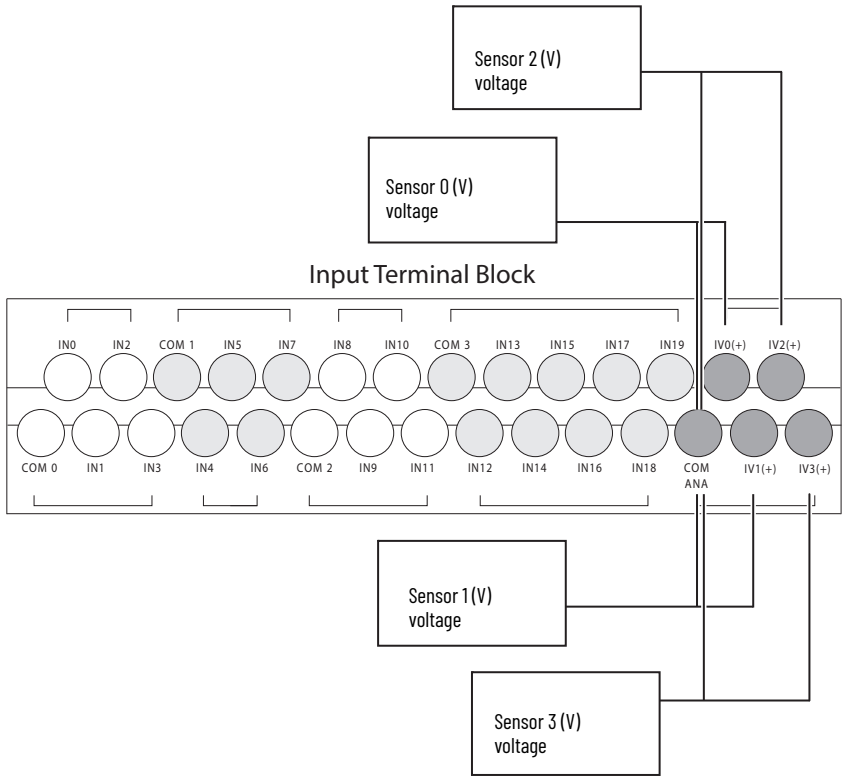
In solid-state control systems, grounding and wire routing helps limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw of the controller to the ground bus before connecting any devices. Use 2.5 mm^2 (14 AWG) wire. For AC-powered controllers, this connection must be made for safety purposes.

You must also provide an acceptable grounding path for each device in your application. For more information on proper grounding guidelines, see Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Wiring Your Analog Channels

Analog input circuits can monitor voltage signals and convert them to serial digital data as shown in the following illustration.

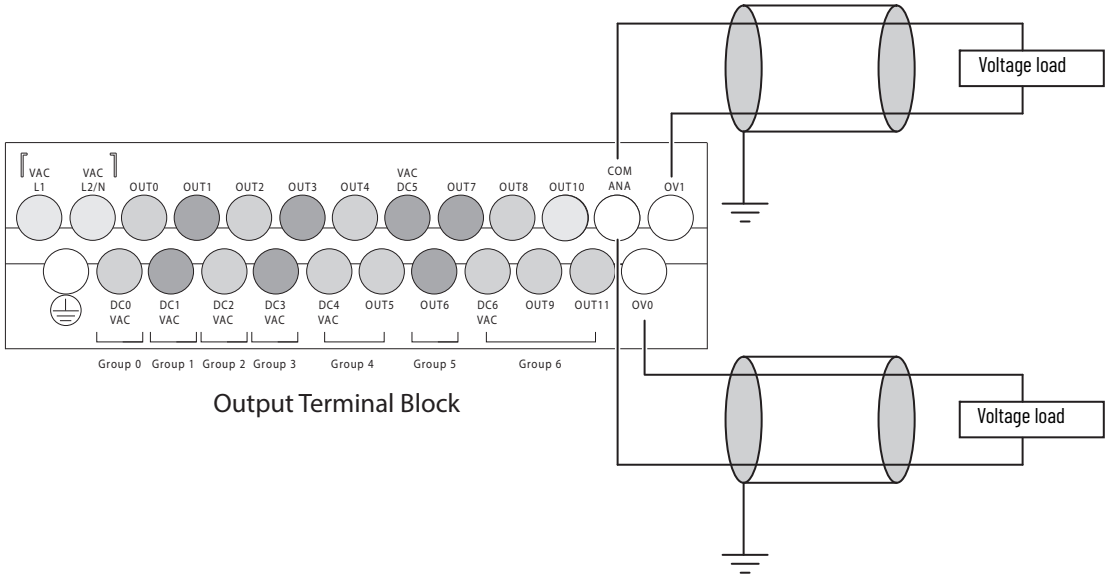
Analog Input



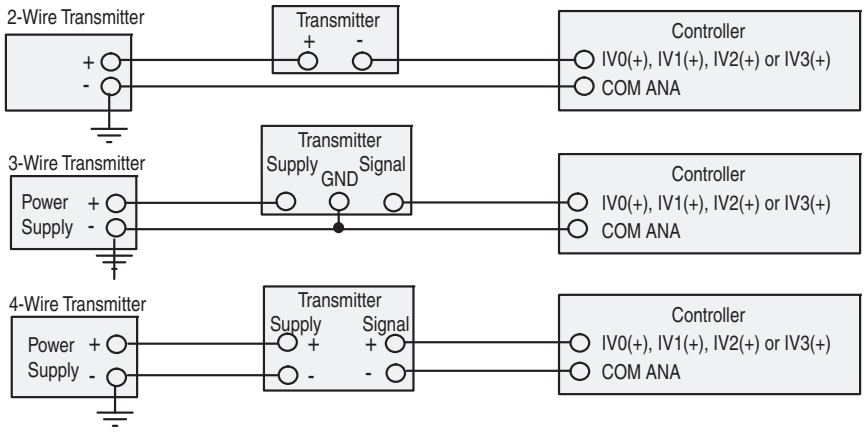
The controller does not provide loop power for analog inputs. Use a power supply that matches the transmitter specifications as shown.

The analog output can support a voltage function as shown in the following illustration.

Analog Output



Analog Input Transmitter Specifications



Minimizing Electrical Noise on Analog Channels

Inputs on analog channels employ digital high-frequency filters that significantly reduce the effects of electrical noise on input signals. However, because of the variety of applications and environments where analog controllers are installed and operated, it is impossible to make sure that input filters removes all the environmental noise.

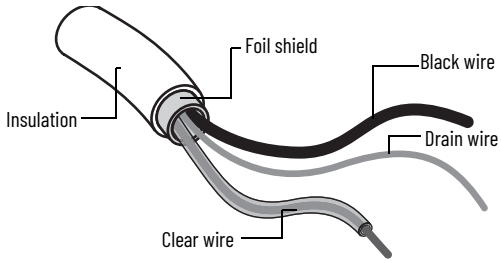
Several specific steps can be taken to help reduce the effects of environmental noise on analog signals:

- Install the MicroLogix 1400 system in a properly rated (NEMA) enclosure. Make sure that the MicroLogix 1400 system is properly grounded.
- Use Belden cable #8761 for wiring the analog channels, making sure that the drain wire and foil shield are properly earth grounded, (see Grounding Your Analog Cable topic for more information).
- Route the Belden cable separately from any AC wiring. Additional noise immunity can be obtained by routing the cables in grounded conduit.

Grounding Your Analog Cable

Use a shielded communication cable (Belden #8761). The Belden cable has two signal wires (black and clear), one drain wire, and a foil shield. The drain wire and foil shield must be grounded at one end of the cable.

IMPORTANT Do not ground the drain wire and foil shield at both ends of the cable.



Specifications

General Specifications

Attribute	1766-L32AWA 1766-L32AWAA	1766-L32BWA 1766-L32BWAA	1766-L32BXB 1766-L32BXBA
Dimensions H x W x D	90 x 180 x 87 mm (3.5 x 7.087 x 3.43 in.)		
Shipping weight	0.9 kg (2.0 lbs)		
Number of I/O	24 inputs (20 digital and 4 analog) and 14 outputs (12 digital and 2 analog)		
Power supply voltage	100...240V AC @ 47...63 Hz		24V DC Class 2 SELV
Heat dissipation	See MicroLogix 1400 Programmable Controllers User Manual, publication 1766-UM001		
Power supply inrush current	120V AC: 25 A for 8 ms 240V AC: 40 A for 4 ms		24V DC: 15 A for 20 ms
Power consumption	100 VA	120 VA	50 W 7.5 W (with no 1762 expansion I/O)
24V DC sensor power	None	24V DC @ 250 mA 400 µF max	None

General Specifications (Continued)

Attribute	1766-L32AWA 1766-L32AWAA	1766-L32BWA 1766-L32BWAA	1766-L32BXB 1766-L32BXBA
Input circuit type	Digital: 120V AC Analog: 0...10V DC	Digital: 24V DC sink/source (standard and high-speed) Analog: 0...10V DC	Digital: 24V DC sink/source (standard and high-speed) Analog: 0...10V DC
Output circuit type	Relay		Relay/FET
Relay life - Electrical	2 x 10^5 operations min (2.5 A, 250V AC/30V DC)		
Enclosure type rating	None (open-style)		
Wire size	0.25...2.5 mm^2 (22...14 AWG) solid or stranded copper wire rated @ 90 °C (194 °F) or greater		
Wiring category(1)	2 - on signal ports 2 - on power ports 3 - on communications ports		
Terminal screw torque	0.79 N•m (7.0 lb•in) rated		
Pilot duty rating	R300, C300		
Expansion bus	Supports up to seven 1762 modules, up to a maximum of 5V, 1500 mA (1300 mA for Series C only), and 24V, 1500 mA (1300 mA for Series C only).		
North American temp code	T3C		

(1) Use this Conductor Category information for planning conductor routing. See Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Digital Input Specifications

Attribute	1766-L32AWA 1766-L32AWAA	1766-L32BWA, 1766-L32BWAA, 1766-L32BXB, 1766-L32BXBA	
		Inputs 0...11 (12 high-speed DC inputs)	Inputs 12 and higher (8 standard DC inputs)
On-state voltage range	79...132V AC	4.5...24V DC, Class 2 (4.5...26.4V DC @ 60 °C/140 °F) (4.5...30V DC @ 30 °C/86 °F)	10...24V DC, Class 2 (10...26.4V DC @ 60 °C/140 °F) (10...30V DC @ 30 °C/86 °F)
Off-state voltage range	0...20V AC	0...1.5V DC	0...5V DC
Operating frequency	47...63 Hz	0 Hz...100 kHz	0 Hz...1 kHz (scan time dependent)
On-state current Min Nom Max	 5.0 mA @ 79V AC 12 mA @ 120V AC 16.0 mA @ 132V AC	 7.1 mA @ 4.5V DC 9.9 mA @ 24V DC 10.5 mA @ 30V DC	 3.2 mA @ 10V DC 5.3 mA @ 24V DC 5.5 mA @ 30V DC
Off-state leakage current, max	2.5 mA	0.2 mA	1.5 mA
Nominal impedance	12 kΩ @ 50 Hz 10 kΩ @ 60 Hz	2.4 kΩ	4.5 kΩ
Inrush current, max @ 120V AC	250 mA		

Analog Input Specifications

Attribute	1766-L32AWAA, 1766-L32BWAA, 1766-L32BXBA
Voltage input range	0...10.0V DC - 1 LSB
Type of data	12-bit unsigned integer
Input coding (0...10V DC - 1 LSB)	0...4,095
Voltage input impedance	>199 kΩ
Input resolution	12 bit
Non-linearity	±1.0% of full scale
Overall accuracy -20...+60 °C (-4...+140 °F)	±1.0% of full scale
Voltage input overvoltage protection	10.5V DC
Field wiring to logic isolation	Non-isolated with internal logic

Analog Output Specifications

Attribute	1766-L32AWAA, 1766-L32BWAA, 1766-L32BXBA
Number of outputs	2 single-ended
Voltage output range	0...10V DC - 1 LSB
Type of data	12 bit unsigned integer
Step response	2.5 ms @ 95%
Load range Voltage output	1 KΩ
Output resolution	12 bit

Analog Output Specifications (Continued)

Attribute	1766-L32AWAA, 1766-L32BWAA, 1766-L32BXBA
Analog output setting time, max	3 ms
Overall Accuracy -20...+60 °C (-4...+140 °F)	±1.0% of full scale
Electrical isolation	Non-isolated with internal logic
Cable length	30 m (98 ft) shielded cable

Relay and FET Outputs

Attribute		1766-L32AWA, 1766-L32AWAA, 1766-L32BWA, 1766-L32BWAA	1766-L32BXB, 1766-L32BXBA
Maximum controlled load		1440 VA	1080 VA
Maximum Continuous Current:			
Current per channel and group common		2.5 A per channel 8 A max channel 8...11 common	2.5 A per channel
Current per controller	at 150V max	28 A or a total of per-point loads, whichever is less	
	at 240V max	20 A or a total of per-point loads, whichever is less	

Relay Outputs

Attribute	1766-L32AWA, 1766-L32AWAA, 1766-L32BWA, 1766-L32BWAA, 1766-L32BXB, 1766-L32BXBA
Turn On Time/Turn Off Time, max	10 ms[1]
Load current, max	10 mA

(1) Scan time dependent.

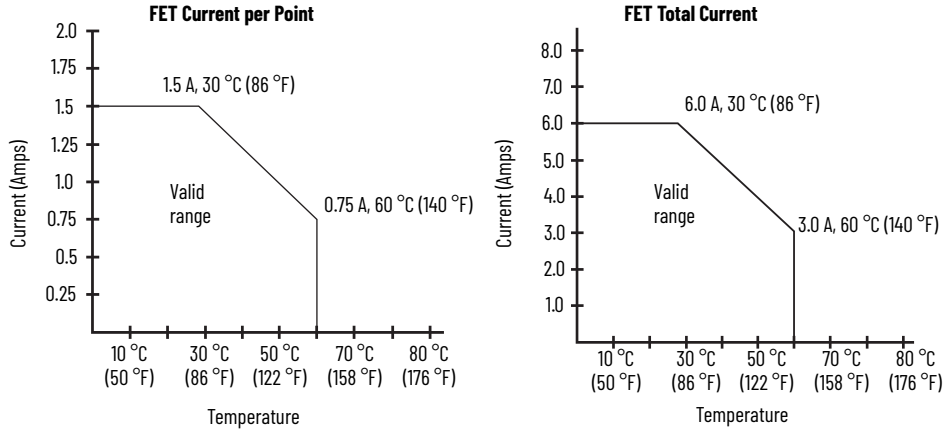
Maximum Volts	Amperes		Amperes Continuous	Voltamperes	
	Make	Break		Make	Break
240V AC	7.5 A	0.75 A	2.5 A	1800 VA	180 VA
120V AC	15.0 A	1.5 A	2.5 A	1800 VA	180 VA
250V DC	0.11 A		1.0 A	28 VA	
125V DC	0.22 A		1.0 A	28 VA	

1766-L32BXB, 1766-L32BXBA FET Output

Attribute	General Operation	High-speed Operation[1] (Output 2, 3, and 4 Only)
Power supply voltage	24V DC (-15%, 10%) Class 2	
On-state voltage drop: At max load current At max surge current	 1V DC 2.5V DC	 Not Applicable Not Applicable
Current rating per point: Max load Min load Max leakage	 See Figure 8 on page 17 1.0 mA 1.0 mA	 100 mA 20 mA 1.0 mA
Surge current per point: Peak current Max surge duration Max rate of repetition @ 30 °C (86 °F) Max rate of repetition @ 60 °C (140 °F)	 4.0 A 10 ms Once every second Once every 2 seconds	 Not Applicable Not Applicable Not Applicable Not Applicable
Turn-On Time (maximum)	11 µs	28 ns (250 ns for Series C only)
Turn-Off Time (maximum)	89 µs	2.3 µs (3.5 µs for Series C only)

(1) Output 2, 3, and 4 are designed to provide increased functionality over the other FET outputs. Output 2, 3, and 4 may be used like the other FET transistor outputs, but in addition, within a limited current range, they may be operated at a higher speed. Output 2, 3, and 4 also provide a pulse train output (PTO) or pulse-width modulation output (PWM) function.

Figure 8 - Maximum Output Current (Temperature Dependent)



Working Voltage

Working Voltage for 1766-L32AWA, 1766-L32AWAA

Attribute	Recommendation
Power supply input to backplane isolation	Verified by one of the following dielectric tests: • 1836V AC for 1 second • 2596V DC for 1 second
	265V AC Working Voltage (IEC Class 2 reinforced insulation)
Input group to backplane isolation	Verified by one of the following dielectric tests: • 1517V AC for 1 second • 2145V DC for 1 second
	132V AC Working Voltage (IEC Class 2 reinforced insulation)
Input group to input group isolation	Verified by one of the following dielectric tests: • 1517V AC for 1 second • 2145V DC for 1 second
	132V AC Working Voltage (basic insulation)
Output group to backplane isolation	Verified by one of the following dielectric tests: • 1836V AC for 1 second • 2596V DC for 1 second
	265V AC Working Voltage (IEC Class 2 reinforced insulation)
Output group to output group isolation	Verified by one of the following dielectric tests: • 1836V AC for 1 second • 2596V DC for 1 second
	265V AC Working Voltage (basic insulation), 150V AC Working Voltage (IEC Class 2 reinforced insulation)

Working Voltage for 1766-L32BWA, 1766-L32BWAA

Attribute	Recommendation
Power supply input to backplane isolation	Verified by one of the following dielectric tests: • 1836V AC for 1 second • 2596V DC for 1 second
	265V AC Working Voltage (IEC Class 2 reinforced insulation)
Input group to backplane isolation and input group to input group isolation	Verified by one of the following dielectric tests: • 1100V AC for 1 second • 1697V DC for 1 second
	75V DC Working Voltage (IEC Class 2 reinforced insulation)
Output group to backplane Isolation	Verified by one of the following dielectric tests: • 1836V AC for 1 second • 2596V DC for 1 second
	265V AC Working Voltage (IEC Class 2 reinforced insulation).
Output group to output group isolation	Verified by one of the following dielectric tests: • 1836V AC for 1 second • 2596V DC for 1 second
	265V AC Working Voltage (basic insulation), 150V Working Voltage (IEC Class 2 reinforced insulation)

Working Voltage for 1766-L16BXB, 1766-L16BXBA

Attribute	Recommendation
Input group to backplane isolation and input group to input group isolation	Verified by one of the following dielectric tests: • 1100V AC for 1 second • 1697V DC for 1 second
	75V DC Working Voltage (IEC Class 2 reinforced insulation)
FET output group to backplane isolation	Verified by one of the following dielectric tests: • 1100V AC for 1 second • 1697V DC for 1 second
	75V DC Working Voltage (IEC Class 2 reinforced insulation)
Relay output group to backplane isolation	Verified by one of the following dielectric tests: • 1836V AC for 1 second • 2596V DC for 1 second
	265V AC Working Voltage (IEC Class 2 reinforced insulation)
Relay output group to relay output group and FET output group isolation	Verified by one of the following dielectric tests: • 1836V AC for 1 second • 2596V DC for 1 second
	265V AC Working Voltage (basic insulation), 150V Working Voltage (IEC Class 2 reinforced insulation)

Environmental Specifications

Attribute	1766-L32AWA 1766-L32AWAA	1766-L32BWA 1766-L32BWAA	1766-L32BXB 1766-L32BXBA
Temperature, operating	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): -20 °C < Ta < +65 °C (-4 °F< Ta < +149 °F)		
Temperature, nonoperating	IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock): -40...+85 °C (-40...+185 °F)		
Relative humidity	IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5...95% non-condensing		
Vibration	IEC 60068-2-6 (Test Fc, Operating): 5 g @ 10...500 Hz		
Shock, operating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): Panel mount - 30 g		
Shock, nonoperating	IEC 60068-2-27 (Test Ea, Unpackaged Shock): Panel mount - 30 g DIN mount - 40 g		
Emissions	IEC 61000-6-4		
ESD immunity	IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges		
Radiated RF immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80...6000 MHz		
EFT/B immunity	IEC 61000-4-4: ±2 kV @ 5 kHz on power ports ±2 kV @ 5 kHz on signal ports ±1 kV @ 5 kHz on communications ports		
Surge transient immunity	IEC 61000-4-5: ±2 kV line-line(DM) and ±4 kV line-earth(CM) on AC power ports ±1 kV line-line(DM) and ±2 kV line-earth(CM) on signal ports ±1 kV line-earth(CM) on shielded ports ±2 kV line-earth(CM) on communications ports		
Conducted RF immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz		
Voltage variation	IEC 61000-4-11: 30% dips for 1 period at 0° and 180° on AC supply ports 60% dips for 5 and 50 periods on AC supply ports ±10% fluctuations for 15 min on AC supply ports >95% interruptions for 250 periods on AC supply ports 40% dip for 100 ms on DC supply ports 30% dip for 10 ms on DC supply ports 100% dip for 50 ms on DC supply ports ±20% fluctuations for 15 min on DC supply ports 5 s interruptions on DC supply ports		

Certifications

Certification (when product is marked)[1]	Value
c-UL-us	UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E334470.
CE	European Union 2014/30/EU EMC Directive, compliant with: EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B) European Union 2014/35/EU LVD, compliant with: EN 61131-2; Programmable Controllers (Clause 11) European Union 2011/65/EU RoHS, compliant with: EN IEC 63000; Technical documentation
RCM	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3
Morocco	Arrêté ministériel n° 6404-15 du 1 er muharram 1437 Arrêté ministériel n° 6404-15 du 29 ramadan 1436
UKCA	2016 No. 1091 – Electromagnetic Compatibility Regulations 2016 No. 1101 – Electrical Equipment (Safety) Regulations 2012 No. 3032 – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations

(1) See the Product Certification link at rok.auto/certifications for Declaration of Conformity, Certificates, and other certification details.

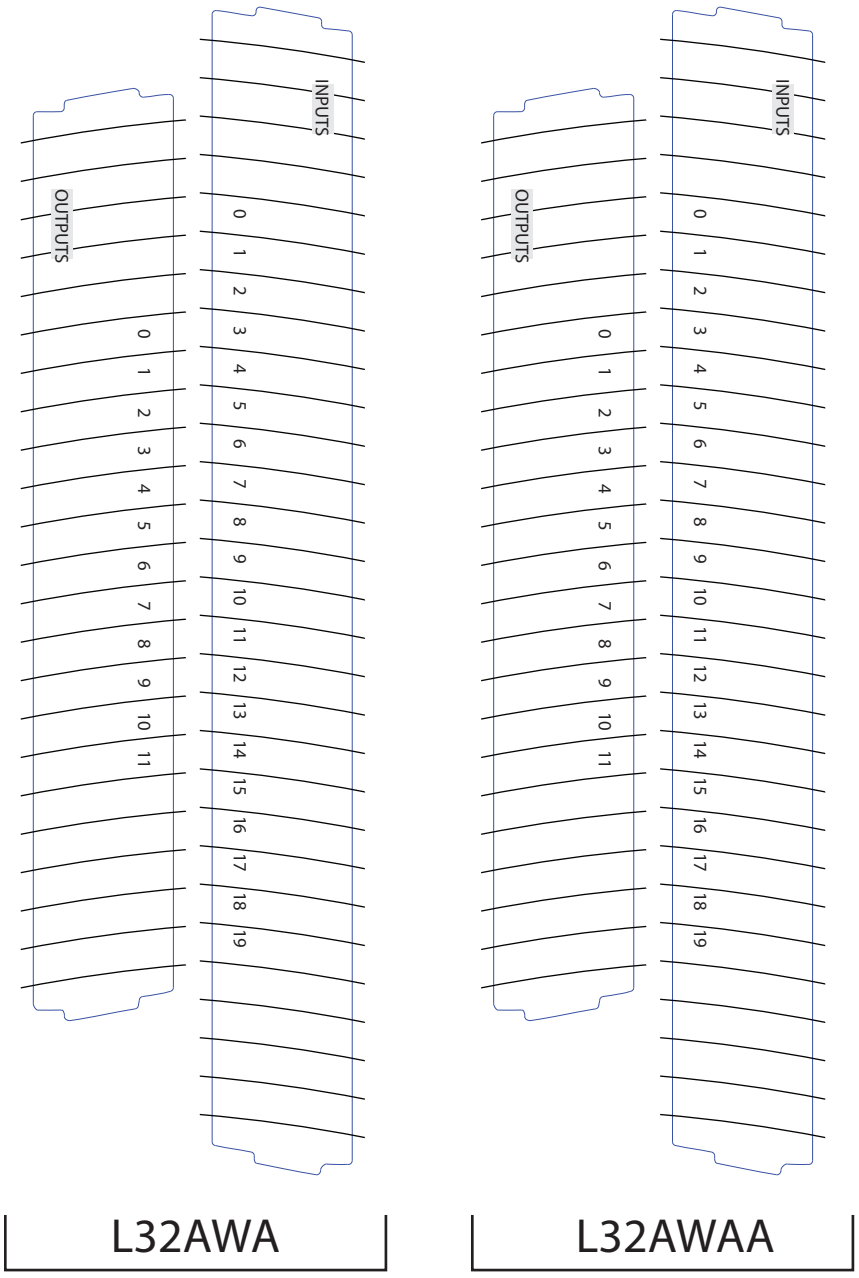
Additional Resources

For more information on the products that are described in this publication, use these resources. You can view or download publications at rok.auto/literature.

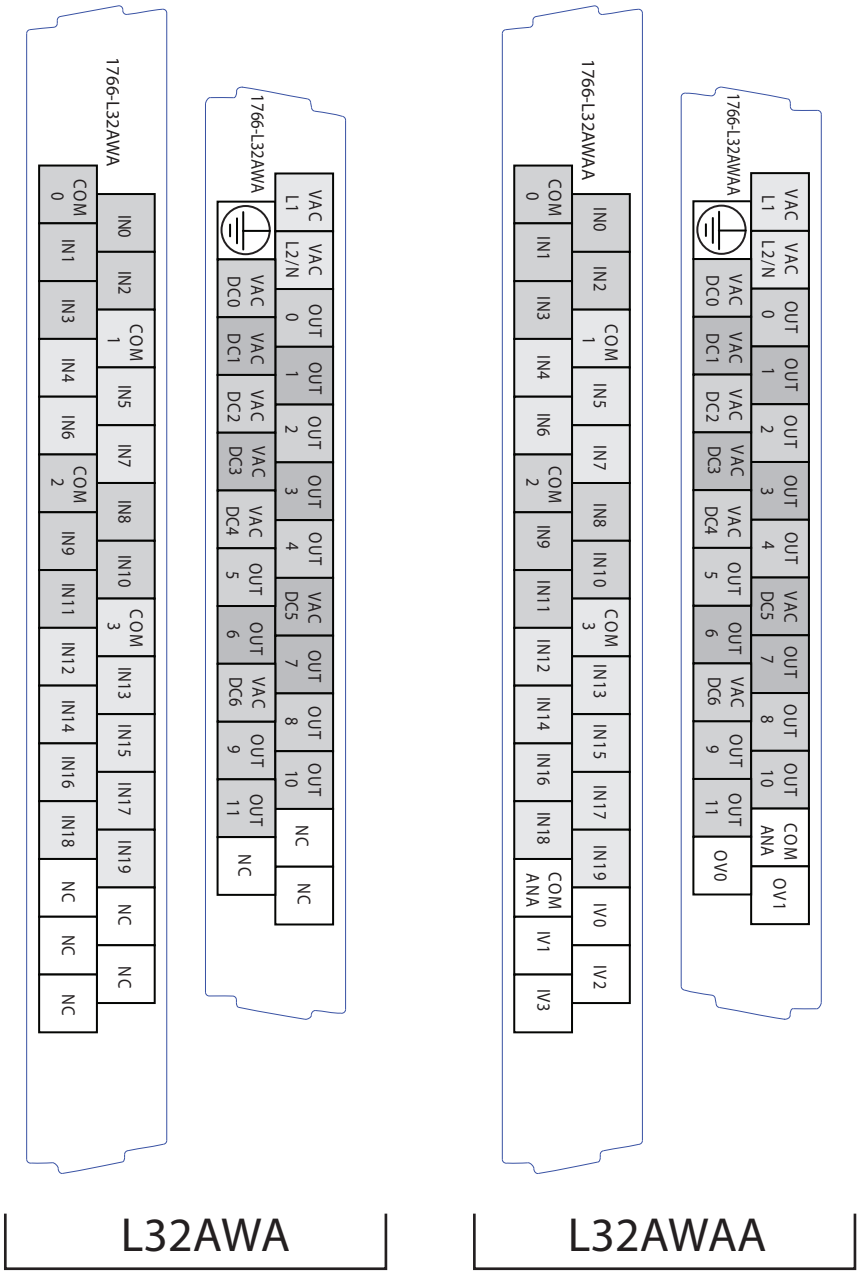
Resource	Description
MicroLogix 1400 Programmable Controllers User Manual, publication 1766-UM001	Describes how to install, configure, and troubleshoot your 1766 controller and 1762 expansion I/O system.
MicroLogix 1400 Programmable Controllers Reference Manual, publication 1766-RM001	Provides the procedures that you use to program and troubleshoot your controller.
MicroLogix 1200 120V AC Input Module Installation Instructions, publication 1762-IN002	Provides the installation, wiring, and specification information for 1762 expansion I/O modules.
MicroLogix 1762-IF2OF2 Analog Input/Output Module Installation Instructions, publication 1762-IN005	
MicroLogix 1762-IF4 Analog Input Module Installation Instructions, publication 1762-IN012	
MicroLogix 1762-IQ16 DC Input Module Installation Instructions, publication 1762-IN010	
MicroLogix 1762-IQ32T DC Input Module Installation Instructions, publication 1762-IN019	
MicroLogix 1200 24V DC Input Module Installation Instructions, publication 1762-IN004	
MicroLogix 1200 DC Input/Relay Output Combination Module Installation Instructions, publication 1762-IN018	
MicroLogix 1200 RTD/Resistance Input Module Installation Instructions, publication 1762-IN014	
MicroLogix 1200 Thermocouple/mV Input Module Installation Instructions, publication 1762-IN013	
MicroLogix 1200 Solid-state Output Module Installation Instructions, publication 1762-IN007	
MicroLogix 1200 16-point Solid-state 24V DC Source Output Module Installation Instructions, publication 1762-IN011	
MicroLogix 1762-OB32T Solid State 24V DC Source Output Module Installation Instructions, publication 1762-IN020	
MicroLogix 1200 Solid-state 24V DC Source Output Module Installation Instructions, publication 1762-IN008	
MicroLogix 1762-OV32T Solid State 24V DC Sink Output Module Installation Instructions, publication 1762-IN021	
MicroLogix 1762-OW16 Relay Output Module Installation Instructions, publication 1762-IN009	
MicroLogix 1200 Relay Output Module Installation Instructions, publication 1762-IN003	
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, rok.auto/certifications	Provides declarations of conformity, certificates, and other certification details.

Door Labels

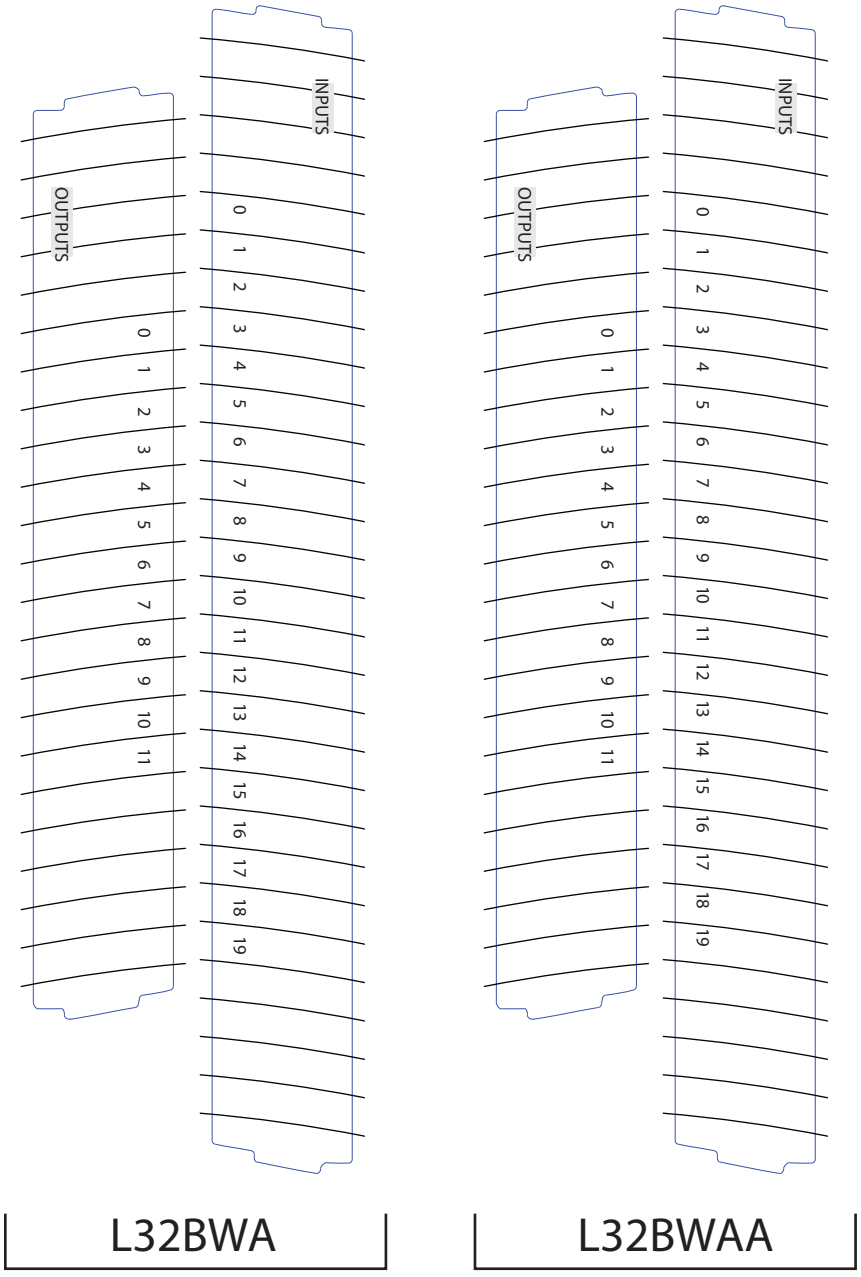
1766-L32AWA, 1766-L32AWAA



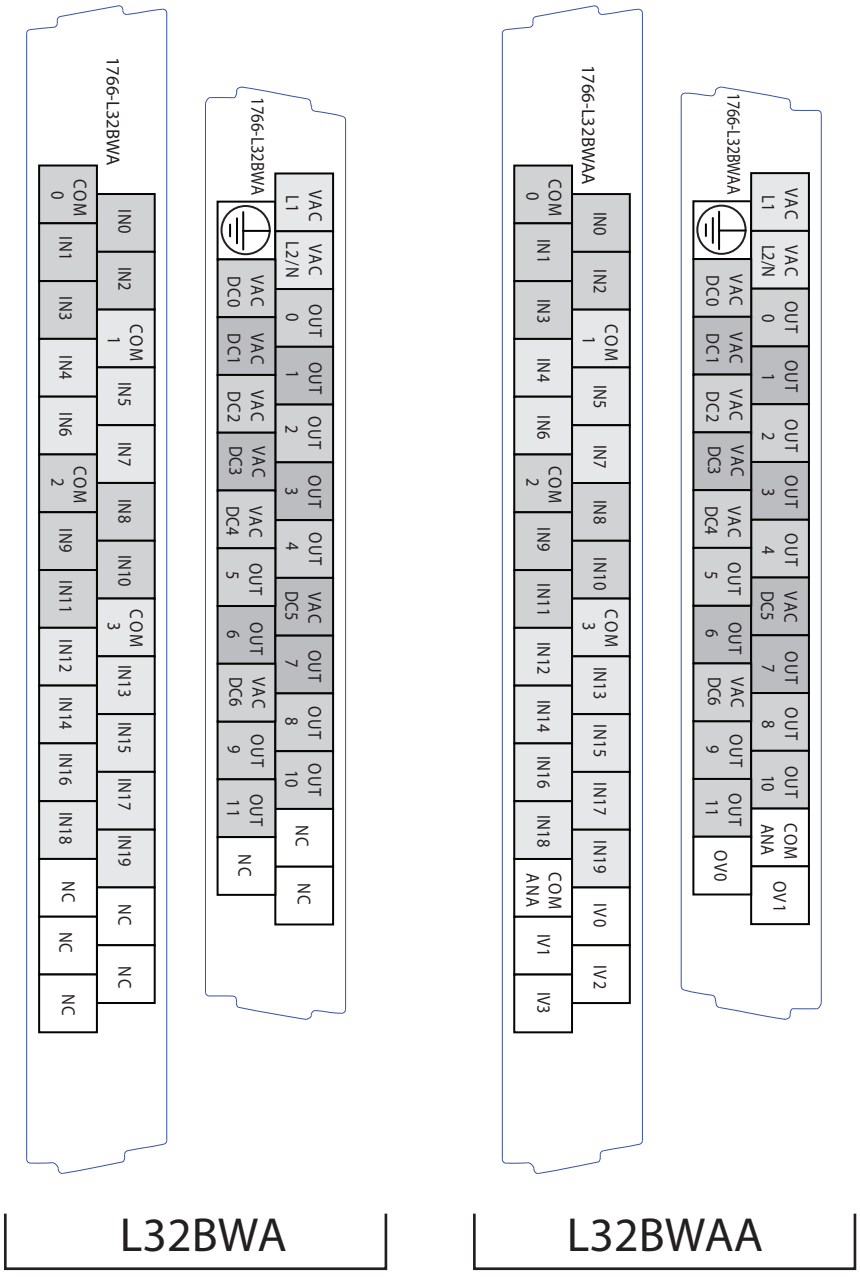
1766-L32AWA, 1766-L32AWAA



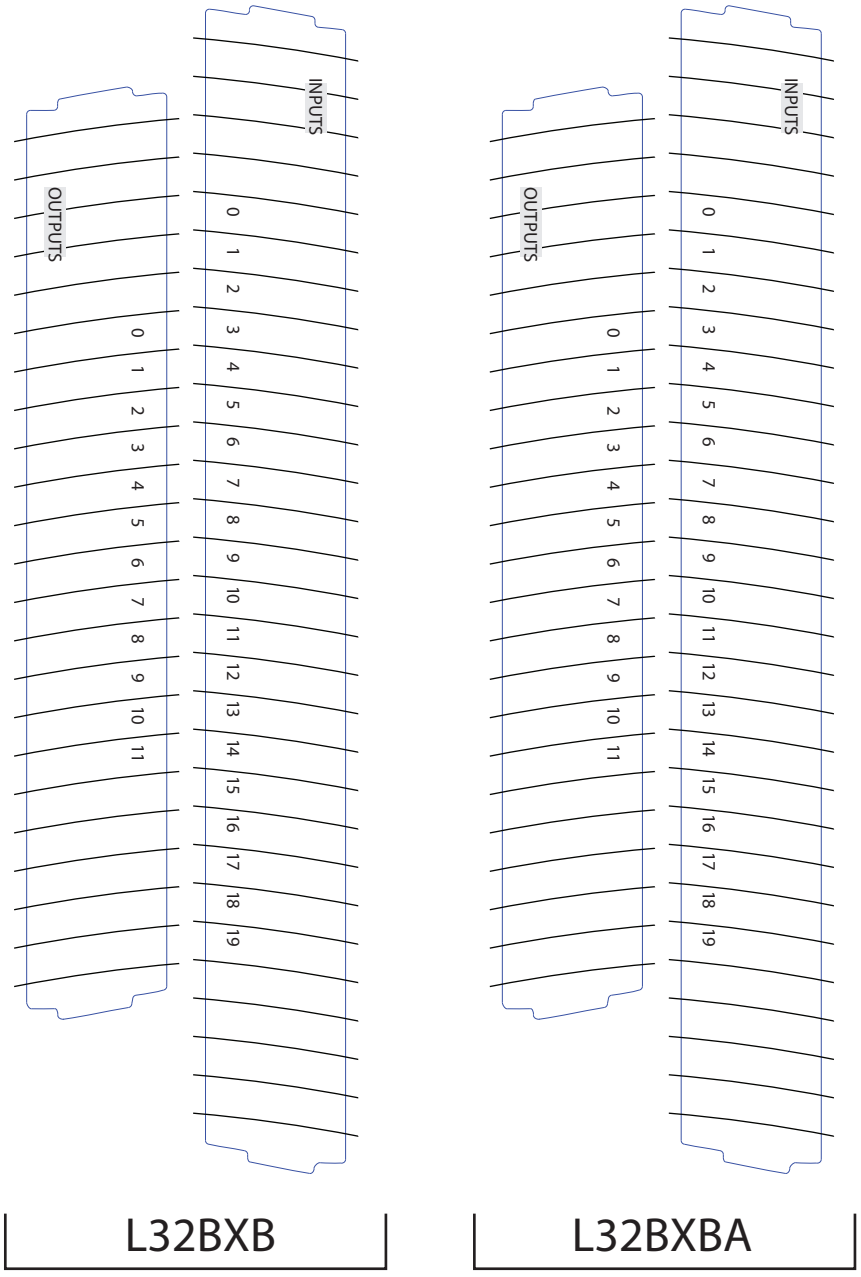
1766-L32BWA, 1766-L32BWAA



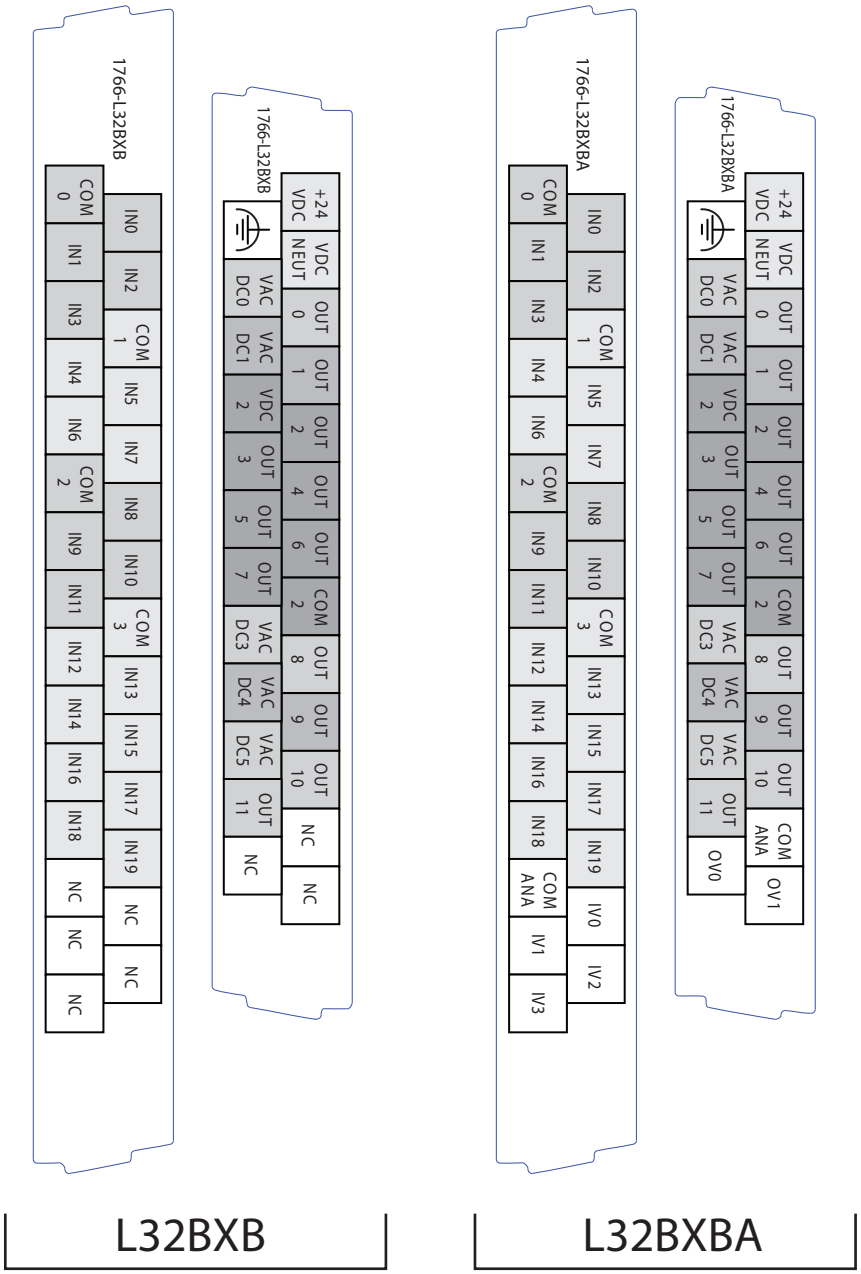
1766-L32BWA, 1766-L32BWAA



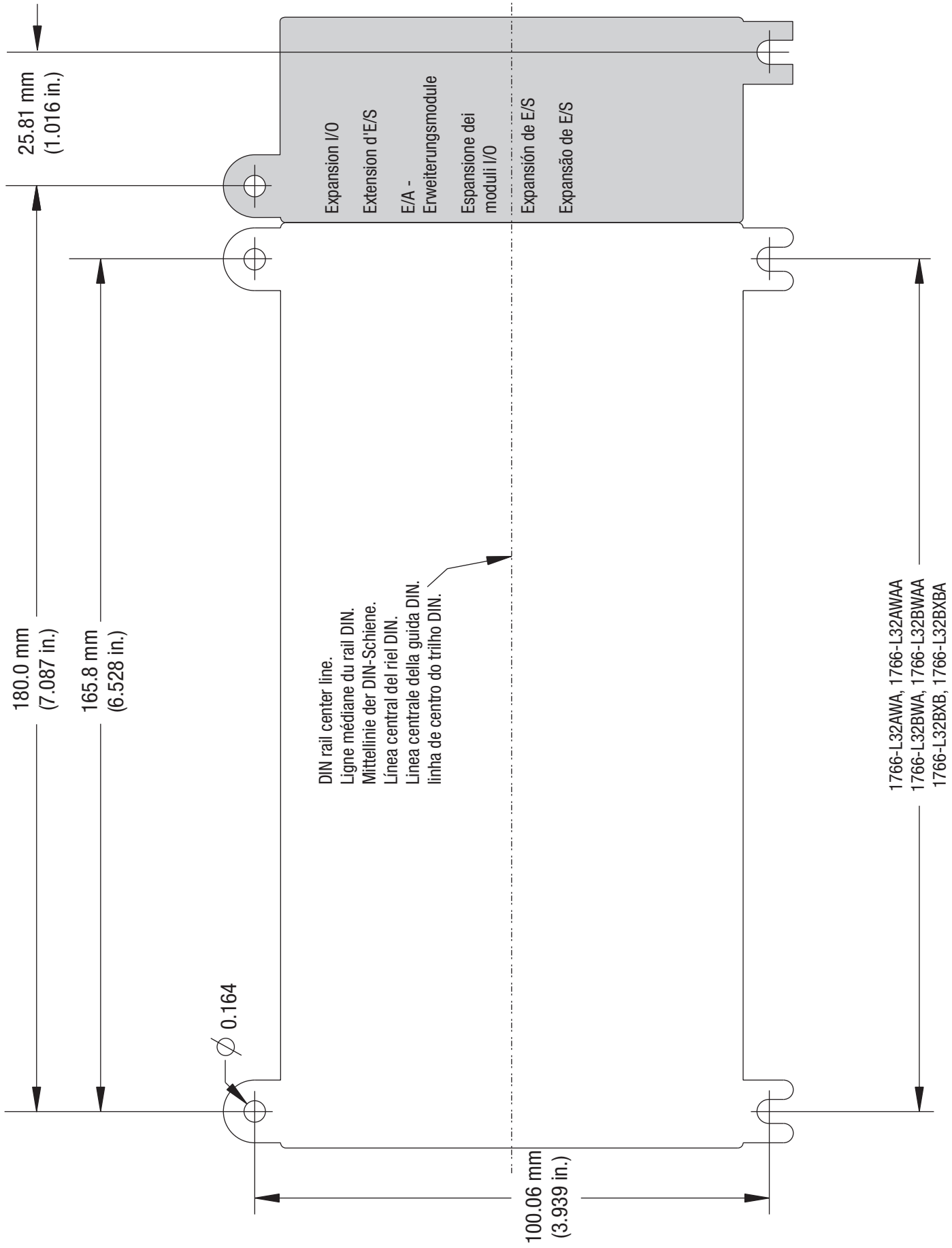
1766-L32BXB, 1766-L32BXBA



1766-L32BXB, 1766-L32BXBA



Mounting Template



Notes:

Rockwell Automation Support

Use these resources to access support information.

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

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Waste Electrical and Electronic Equipment (WEEE)

At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental compliance information on its website at rok.auto/pec.

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