

1756 ControlLogix Redundancy Modules

Catalog Numbers 1756-RM2, 1756-RM2XT



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、移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ー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 „Literaturverweise“ genannten Dokumente zur Installation, Konfiguration und Bedienung dieser Ausrüstung sorgfältig durch, bevor Sie dieses Produkt installieren, konfigurieren, bedienen oder instandsetzen. Benutzer müssen sich mit den Anweisungen zur Installation und Verdrahtung vertraut machen und müssen die Anforderungen aller geltenden Vorschriften, Gesetze und Normen kennen.

Aktivitäten wie Installation, Einstellung, Inbetriebnahme, Verwendung, Montage, Demontage und Instandsetzung müssen durch ausreichend geschultes Personal in Übereinstimmung mit den geltenden Durchführungsvorschriften ausgeführt werden.

Wenn diese Ausrüstung in einer Weise verwendet wird, die nicht vom Hersteller angegeben wurde, kann der von der Ausrüstung bereitgestellte Schutz 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 ilave kaynaklar bölümünde yer listelenmiş dokümanları okuyun. Kullanıcılar yürürlükteki tüm yönetmelikler, yasal 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 eğitimli 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: 在安装、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 vhodné 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.

OBSE! Läs detta dokument samt dokumentet, som står listat i avsnittet Övriga resurser, om installation, konfigurerings 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.

Environment and Enclosure

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 wrist strap.
- 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.

Removal and Insertion Under Power (RIUP)



WARNING: When you insert or remove the module while backplane power is on, an electrical 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. Repeated electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance that can affect module operation.

North American Hazardous Location Approval

The following information applies when operating this equipment in hazardous locations: 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.



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.
- If this product contains batteries, they must be changed only in an area known to be nonhazardous.

Informations sur l'utilisation de cet équipement en environnements dangereux:

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.



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.
- S'assurer que l'environnement est classé non dangereux avant de changer les piles.

European Hazardous Location Approval

The following applies to products marked  II 3 G: Such modules:

- Are Equipment Group II, Equipment Category 3, and comply with the Essential Health and Safety Requirements relating to the design and construction of such equipment given in Annex II to Directive 94/9/EC. See the EC Declaration of Conformity at <http://www.rockwellautomation.com/products/certification> for details. The type of protection for the 1756-RM2, 1756-RM2XT, is "Ex nA IIC T4 Gc" according to EN 60079-15.
- Catalog numbers may be followed by a "K" to indicate a conformal coating option.
- Are intended for use in areas in which explosive atmospheres caused by gases, vapors, mists, or air are unlikely to occur, or are likely to occur only infrequently and for short periods. Such locations correspond to Zone 2 classification according to ATEX directive 1999/92/EC.
- Comply to Standards: EN 60079-0:2012, EN 60079-15:2010, reference certificate number DEMKO13 ATEX 1325026X.



ATTENTION: This equipment is not resistant to sunlight or other sources of UV radiation.



WARNING: Special Conditions for Safe Use:

- This equipment shall be mounted in an ATEX/IECEx Zone 2 certified enclosure with a minimum ingress protection rating of at least IP54 (as defined in EN/IEC60529) and used in an environment of not more than Pollution Degree 2 (as defined in EN/IEC 60664-1) when applied in Zone 2 environments. The enclosure must be accessible only by the use of a tool.
- This equipment shall be used within its specified ratings defined by Rockwell Automation.
- Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product.
- Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.
- Provision shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 140% of the rated voltage when applied in Zone 2 environments.
- This equipment must be used only with ATEX/IECEx certified Rockwell Automation backplanes.

IEC Hazardous Location Approval

The following applies to products marked IECEx:

- Such modules are intended for use in areas in which explosive atmospheres caused by gases, vapors, mists, or air are unlikely to occur, or are likely to occur only infrequently and for short periods. Such locations correspond to Zone 2 classification to IEC 60079-0.
- The type of protection for the 1756-RM2 and 1756-RM2XT is "Ex nA IIC T4 Gc" according to IEC 60079-15.
- Such modules comply to Standards IEC 60079-0:2011, IEC-60079-15:2010, reference IECEx certificate number IECEx UL 14.0008X.

Safety-related Programmable Electronic Systems



ATTENTION: Personnel responsible for the application of safety-related programmable electronic systems (PES) shall be aware of the safety requirements in the application of the system and shall be trained in using the system.

Optical Ports



ATTENTION: Under certain conditions, viewing the optical port may expose the eye to hazard. When viewed under some conditions, the optical port may expose the eye beyond the maximum permissible-exposure recommendations.

Small Form-factor Pluggable



WARNING: When you insert or remove the small form-factor pluggable (SFP) optical transceiver while power is on, an electrical 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.

Laser Radiation Ports



ATTENTION: Class 1 laser product. Laser radiation is present when the system is open and interlocks bypassed. Only trained and qualified personnel are allowed to install, replace, or service this equipment.

Before You Begin

Complete these tasks before you install the enhanced redundancy system:

- Verify that you have the components required to install your system.
- Read and understand the safety and environmental considerations explained in each component's installation instruction publication.
- Order a 1756-RMCx fiber-optic communication cable if you do not have one.

Determine the Optical Power Budget

You can determine the maximum optical-power budget in decibels (dB) for a fiber-optic link by computing the difference between the minimum transmitter-output optical power (dBm avg) and the lowest receiver sensitivity (dBm avg).

Transmitter	Min	Typical	Max	Unit
Output optical power	-15	—	-8	dBm
Wavelength	1261	—	1360	nm
Receiver	Min	Typical	Max	Unit
Receiver sensitivity	—	-38	-3	dBm avg
Receiver overload	-8	—	—	dBm avg
Input operating wavelength	1261	—	1580	nm

Install the Hardware

Follow these steps to set up and install your system's hardware components.

Install the First Chassis and Its Components

When you install an enhanced redundancy system, install one chassis, and its necessary components, at a time.

Module Placement and Partnering

Each pair of controllers and communication modules must be comprised of compatible partner modules. Two modules in the same slot are considered as compatible partners only if they contain compatible hardware and firmware and other rules that can be enforced by the module itself. The compatibility status (Compatible or Incompatible) is determined by either the module in the primary chassis or its partner in the secondary chassis.

The redundancy module pair must occupy the same slots in their respective chassis. The redundancy module pair does not consider the chassis pair to be partnered if the redundancy modules are placed in different slots, even if the partners of other modules are present in the same slot.

The redundancy module prevents certain redundancy operations, such as Qualification, if incompatible modules reside in the redundant-control chassis pair.

IMPORTANT For best performance, place the redundancy module in the chassis as close as possible to the controller.

TIP Do not apply power to the system until both chassis and their components are installed.

1. Install the chassis and power supply.
2. Install the communication modules.
3. Install a controller.
4. Install the redundancy module.

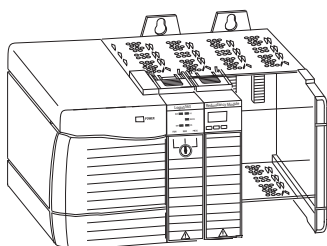
You must install one redundancy module in each chassis planned for your system. Available modules are as follows:

- 1756-RM2/A
- 1756-RM2XT

Installation Requirements

Before you install the module, be sure to note the following:

- Understand redundant systems and redundant media.
- Verify that the planned modules for each redundant chassis of the pair are identical - including firmware revisions.
- Verify that your enhanced redundancy firmware revision is compatible with your planned redundant chassis modules.
- The 1756-RM/B module offers a higher level of performance than a 1756-RM/A module. Both modules can coexist in a redundant system, but the highest system performance is achieved when the 1756-RM/B modules are used together when used in conjunction with a 1756-L7x controller.
- The 1756-RM2/A module, when used in conjunction with a 1756-L7x controller, offers higher crossload speeds than the 1756-RM/B module.



Connect the Redundancy Modules via a Fiber-optic Cable

Once the **first and second chassis and their components are installed**, you connect the redundancy modules via the 1756-RMCx fiber-optic communication cable. The cable is not included with the redundancy module. Before installation, order this fiber-optic communication cable separately.

Redundancy cables available from Rockwell Automation include the following.

Fiber-optic Cable Length

Fiber Cable Cat. No.	Length
1756-RMC1	1 m (3.28 ft)
1756-RMC3	3 m (9.84 ft)
1756-RMC10	10 m (32.81 ft)

The cable connection is made at the bottom of the module in a downward orientation. There is enough space between the transmit and receive connectors so you can use the LC connector coupler. Using this coupler keeps the fiber-optic cable from bending so you can connect and disconnect the cable without removing the module from the chassis.



ATTENTION: Consider these points when connecting the fiber-optic cable:

- The redundancy module communication cable contains optical fibers. Avoid making sharp bends in the cable. Install the cable in a location where it will not be cut, run over, abraded, or otherwise damaged.
- The redundancy module contains a single-mode transmitter. Connecting this module to a multi-mode port causes damage any multi-mode devices.
- Under certain conditions, viewing the optical port can expose the eye to hazard. When viewed under some conditions, the optical port can expose the eye beyond the maximum permissible-exposure recommendations.
- Media redundancy is achieved by installing modules with redundant ports and installing a redundant fiber cable system. If a cable failure occurs, or cable is degraded, the system uses the redundant network.
- When using a redundant system, route the two trunk cables (A and B) so that damage to one cable will not damage the other cable. This reduces the risk of both cables being damaged at the same time.
- Redundant cabling can tolerate one or more faults on a single channel. If a fault occurs on both channels, the network operation is unpredictable.

Connect the Fiber-optic Communication Cable to Redundant Channels

Follow this procedure to install the communication cable to redundant channels for the 1756-RM2/A module.

IMPORTANT The redundancy module communication cable contains optical fibers. Avoid making sharp bends in the cable. Install the cable in a location where it cannot be cut, run over, abraded, or otherwise damaged.

1. Remove the black protective plug on the first redundancy module in the redundant chassis pair.
2. Remove the protective caps from the cable.
3. Plug the cable connectors into the first redundancy module.
The ends must be inserted opposite each other.
4. If redundant fiber-crossload cable is required, install the second fiber cable into the remaining port.
5. Verify that the first end of the fiber cable plugs into the CH1 port on the first chassis and that the matching end plugs into the matching CH1 port on the second chassis.

Connect the Fiber-optic Communication Cable to Single Channels

Follow this procedure to install the communication cable.

IMPORTANT The redundancy module communication cable contains optical fibers. Avoid making sharp bends in the cable. Install the cable in a location where it cannot be cut, run over, abraded, or otherwise damaged.

1. Remove the black protective plug on the first redundancy module in the redundant chassis pair.
2. Remove the protective caps from the cable.
3. Plug the cable connector into the first redundancy module.
4. Plug the remaining cable-connector end to the second redundancy module.

Specifications

Attribute	1756-RM2/A	1756-RM2XT
Connector type	LC-type (fiber-optic)	
Cable type	8.5/125 μ m single-mode fiber-optic cable	
Channels	1 (transmit and receive fiber)	
Length, max	10 km (10,000 m, 10,936.13 yd)	
Transmission	1000 Mbps	
Wavelength	1310 nm	
SFP transceiver	Transceiver Rockwell Automation PN-91972 Connector/cable: LC duplex connector, 1000BASE-LX-compliant	
Temperature, operating	0...60 °C (32...140 °F)	-25...70 °C (-13...158 °F)
Power from system backplane	1.16 A at 5.1V DC 3.4 mA at 24V DC	1.16 A at 5.1V DC 3.4 mA at 24V DC

Additional Resources

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

Resource	Description
1756 Communication Modules Specifications Technical Data, publication 1756-TD003	Describes Ethernet communication module specifications.
ControlLogix Enhanced Redundancy System User Manual, publication 1756-UM535	Provides design, installation, configuration, programming, monitoring, and troubleshooting information about the ControlLogix® Enhanced Redundancy System.
ControlLogix Chassis and Power Supplies Installation Instructions, publication 1756-IN005	Provides information on installing ControlLogix Chassis and Power Supply systems.
ControlNet Modules Installation Instructions, publication CNET-IN005	Provides information on installation of ControlNet Communication Modules, using redundant media and setting up USB drivers.
EtherNet/IP Modules Installation Instructions, publication ENET-IN002	Provides installation, configuration, and USB communication information for EtherNet/IP Modules.
ControlLogix System User Manual, publication 1756-UM001	Provides instructions for installation and use of ControlLogix Systems, application design and other general information for these systems.

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

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