Installation Instructions

Original Instructions

Allen-Bradley
by ROCKWELL AUTOMATION

ControlLogix ControlNet Communication Modules

Catalog Numbers 1756-CN2, 1756-CN2K, 1756-CN2R, 1756-CN2RK, 1756-CN2RXT

This publication describes how to install the ControlLogix® ControlNet® bridge for standard media, the ControlLogix ControlNet bridge for redundant media, and the extended-temperature ControlLogix ControlNet bridge for redundant media.

The ControlNet network combines the functionality of an I/O network and a peer-to-peer network, providing high-speed performance. The ControlNet network provides deterministic, repeatable transfers of critical control data.

The catalog numbers of the conformal coated products include the designation 'K' in the last position before the series identifier.

Summary of Changes

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

Topic	Page
Updated UK and European Hazardous Location Approval	3
Updated IEC Hazardous Location Approval	3
Updated Special Conditions for Safe Use	4
Added Removal and Insertion Under Power (RIUP) Warning	4
Added information regarding how to Reset the Module	7
Added information regarding how to Troubleshoot the Module	8

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, 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.

Product Advisories

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 IEC/EN 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 help 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 non-metallic. 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 IEC/EN 60529, as applicable, for explanations of the degrees of protection provided by enclosures.

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

UK and European Hazardous Location Approval

The following applies to products marked Ⓔx, 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 EU Directive 2014/34/EU and Schedule 1 of the UKEX Regulation 2016 No. 1107. See the UKEX and EU Declaration of Conformity at rok.auto/certifications for details.
- The type of protection is <Ex ec IIC T4 Gc> Equipment protection by increased safety "e".
- Equipment protection by increased safety "e", reference certificate number UL22ATEX2818X and UL22UKEX2604X.
- 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 UKEX Regulation 2016 No. 1107 and ATEX directive 2014/34/EU.

IEC Hazardous Location Approval

The following applies to products with IECEx certification. Such products:

- 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.
- The type of protection is <Ex ec IIC T4 Gc>.
- IECEx certificate number IECEx UL 22.0063X.

Special Conditions for Safe Use

WARNING:

- This equipment is not resistant to sunlight or other sources of UV radiation.
- This equipment shall be mounted in an UKEX/ATEX/IECEx Zone 2 certified enclosure with a minimum ingress protection rating of at least IP54 (in accordance with EN/IEC 60079-0) 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.
- Transient protection shall be provided, set at a level not exceeding 140% of the peak rated voltage at the supply terminals to the equipment.
- The instructions in the user manual shall be observed.
- This equipment must be used only with UKEX/ATEX/IECEx certified Rockwell Automation backplanes.
- 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.
- The USB port is intended for temporary local programming purposes only and not intended for permanent connection. Do not use the USB port in hazardous locations.

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.

WARNING: Local programming ports, network access ports (NAP), and USB ports are intended only for temporary use and must not be connected or disconnected unless the area is nonhazardous. Do not use the USB port in hazardous locations.

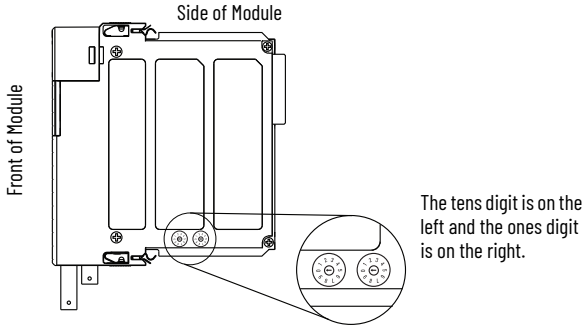
Removal and Insertion Under Power (RIUP)

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

Set the Module Network Address

Use your fingers or a small screwdriver to set the network address switches for the module. For modules in a standalone chassis, you must specify a unique ControlNet network address; for modules in a redundant chassis, you must specify the same address for the secondary module that you specified for the corresponding primary module.

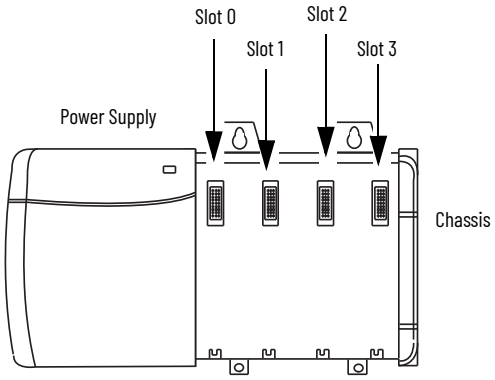


You can select an address of 01...99 for modules in a standalone chassis or 01...98 for modules in a redundant chassis. 00 is an invalid ControlNet network address, used only to Reset the Module.

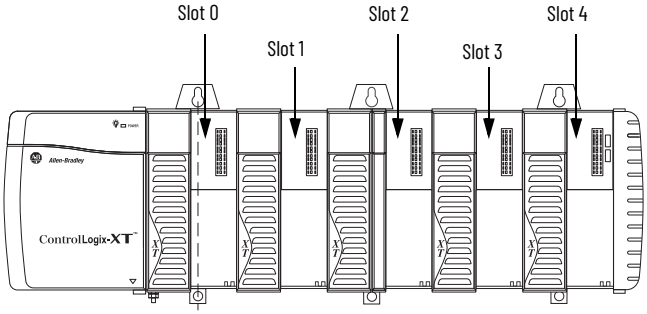
Determine Module Slot Location

These figures show chassis slot numbering. Slot 0 is the first slot and is always the leftmost slot in the rack (the first slot to the right of the power supply). You can use any size ControlLogix chassis and install the module in any slot. You can also install multiple ControlNet modules in the same chassis. You can install as many modules as your power supply is rated to accommodate.

4-slot Chassis Numbering



ControlLogix-XT™ Chassis Numbering

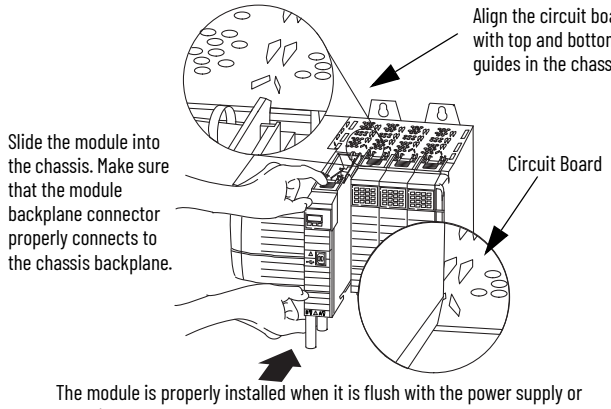


IMPORTANT If you plan to install a redundant system, you must place the primary and redundant modules in the same corresponding slot in their respective chassis. For example, if you place a 1756-CN2R module in slot 3 (from the left) in the primary chassis, you must also place a 1756-CN2R module in slot 3 in the redundant chassis.

Install the Module

WARNING: When you insert or remove the module while backplane power is on, an electric arc can occur. The arc 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 can create electrical resistance that can affect module operation.

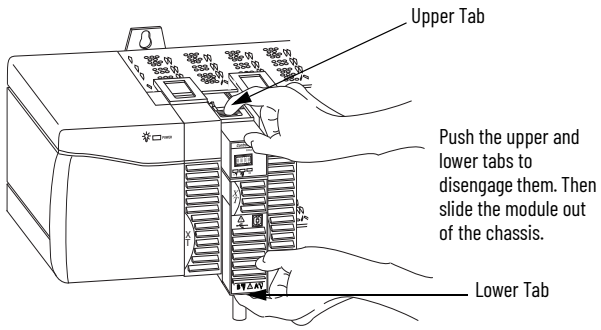
If you are replacing an existing module with an identical one, and you want to resume identical system operation, you must install the new module with the same ControlNet address in the same slot.



ATTENTION: Do not force the module into the backplane connector. If you cannot seat the module with firm pressure, check the alignment. If you force the module into the chassis, you can damage the backplane connector or the module.

Remove the Module

If necessary, you can remove the module from the chassis as shown in this illustration featuring a ControlLogix-XT™ module.



IMPORTANT Removing power from the chassis before removing the module is only necessary if the module is in a Class I, Division 2 hazardous location.

Connect to the ControlNet Network with a Tap

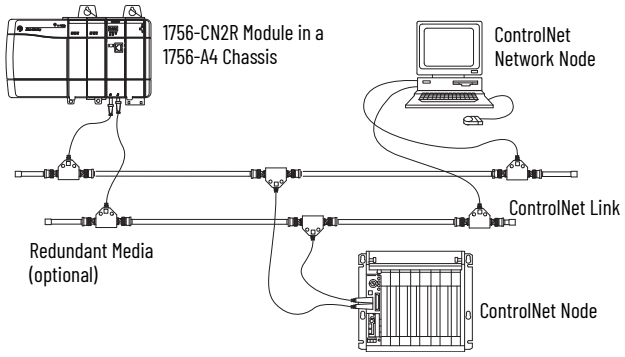
Connect the module to the ControlNet network by using a tap (1786-TPR, 1786-TPS, 1786-TPYR, 1786-TPYS, or 1786-TCT2BD1).

When connecting the module to a ControlNet network, also refer to the following documentation:

- *ControlNet Coax Tap Installation Instructions*, publication 1786-IN007
- *ControlNet Cable System Planning and Installation Manual*, publication CNET-IN002

Taps with a straight connector (1786-TPS or 1786-TPYS) are recommended because of the location of the BNC connectors on the bottom of the module.

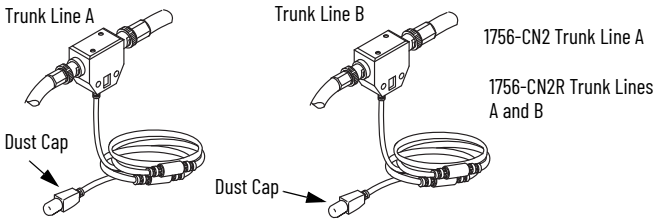
The figure shows an example ControlNet network using redundant media.



ATTENTION: The modules that are listed on page 1 of this document that end with a 'K' are shipped with port protection plugs installed to provide a layer of protection from corrosive atmospheres. Port plugs must remain installed in unused ports at all times during storage and operation for the product to meet its corrosive atmosphere rating. If temporary access is required, plugs can be removed, and should be reinserted after temporary access is complete.

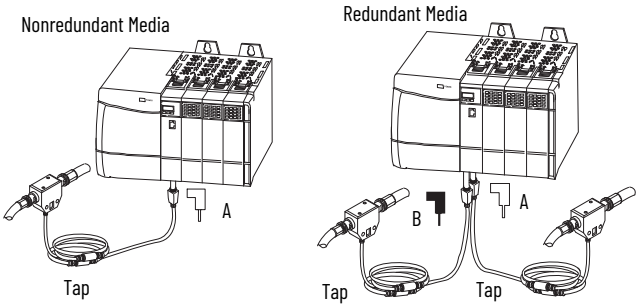
Follow these steps to connect the module to the network by using a tap.

1. Remove and save the dust caps from the ControlNet network taps.



ATTENTION: Do not allow any metal portions of the tap to contact any conductive material. If you disconnect the tap from the module, place the dust cap back on the straight or right-angle connector to help prevent the connector from accidentally contacting a metallic grounded surface.

2. Connect the straight or right-angle connector on the tap to the module BNC connector of the module.



If Your Node Supports	Connect The Connector on the Tap
Nonredundant media 1756-CN2	to the channel A connector on the module (channel B on the 1756-CN2R is not used)(1)
Redundant media	• from trunk line A to channel A on the 1756-CN2R • from trunk line B to channel B on the 1756-CN2R

(1) While both channels are active, we recommend using channel A for non-redundant media.

IMPORTANT To prevent inadvertent tap connection reversal (causing incorrect status displays which require troubleshooting), check the tap drop cable for the label indicating the attached segment prior to making the connection.

The primary and redundant partner modules in a redundant control chassis pair must be connected to the same network segment. Connect the channel of each partner to the same network segment.

3. Apply power to the module and check module status.

   For more information on module status, see Troubleshoot the Module.

Connect to the Module Via the USB Port

The communication modules include a USB port.

WARNING: Do not use the USB port in hazardous locations.

ATTENTION: The USB port is intended only for temporary local programming purposes and is not intended for permanent connection. The USB cable is not to exceed 3.0 m (9.84 ft) and must not contain hubs.

Use a USB cable to connect your computer to the USB port. The connection lets you download programs to the controllers and configure other devices, which are accessible by the module, directly from your computer. The USB port on ControlNet modules uses a Type B receptacle. The port is USB 2.0 compatible. To use the USB port you must have RSLinx® Classic software, version 2.55 or later, installed on your computer.

IMPORTANT Do not simultaneously upgrade the firmware for multiple modules at a time through a USB port. If you do, one or more of the updates can fail in the middle of the upgrade.

Reset the Module

If necessary, you can reset a module to its factory settings by following these steps.

1. Remove power from the chassis.
2. Remove the module from the chassis.
3. Reset the switches to 00.

IMPORTANT	Do not use the 00 switch setting during normal module operation.

4. Replace the module in the chassis.
5. Apply power to the chassis.
6. After the module status display reads 'Reset Complete—Change Switch Settings', remove power from the chassis.
7. Remove the module from the chassis.
8. Set the switches to their final value.
9. Replace the module in the chassis.
10. Apply power to the chassis.

Troubleshoot the Module

Reference these tables to troubleshoot your module using the OK status indicator and display messages or the network channel status indicators.

OK Status Indicator and Display

OK Status Indicator and Display

Status	Display	Description
Off	None	The module is not communicating due to a power supply fault or internal fault. Do any of the following: • Check the power supply. • Check the cable connectors. • Make sure that the module is firmly seated in the chassis. • If the indicator remains off, replace the module.
Steady Red	Reset Complete—Change Switch Settings	The module's network address is set to 00, an invalid ControlNet address. Remove the module from the chassis, and set the network address to a valid value.
	FAIL	This code is displayed when the power-up test fails. Replace the module.
	Backplane Init(1)	The module is waiting for the redundant module to complete power-up.
	Stop Service Received	A non-redundant module is placed into a redundant secondary chassis. The module was commanded to stop functioning by the redundancy module (RM2/RM/SRM). Remove the non-redundant module from the redundant secondary chassis, and then replace the non-redundant module with the redundant module.
		This could occur if a 1756-CN2 or 1756-CN2R module running Boot code is inserted into a chassis along with a 1756-SRM or 1756-RM module. For use in an enhanced redundancy system, the 1756-CN2/B or 1756-CN2/C modules are designed to interoperate with a 1756-RM or 1756-RM2 module. It should not be used with a 1756-SRM module. Insert the module into a chassis that does not contain a 1756-SRM, 1756-RM, or 1756-RM2 module, and then update the module's firmware with ControlFLASH™ software.
Flashing Red	Image update Needed	The Boot image is running. Update the module's firmware with ControlFLASH software.
	DUPLICATE NODE DETECTED	The module's network address is the same as another module's on the link. Remove the module from the chassis, and set the network address to a unique value.
	Flash in progress	A firmware update is in progress.
		If communication to the module is lost during an update, this message continues to be displayed even though the module is not able to finish the update. Remove power from the module to recover, and then perform the update again.
	TEST	The module is executing a power-up test. If the display persists for more than 45 seconds, replace the module because it has failed.
Steady Green	OK	This is normal operation. There is at least one connection to or through the module.
	INIT	The module is initializing.
	PASS	This message is displayed momentarily upon completion of a successful power-up test.
	CMPT(1)	The secondary module is compatible with its partner.
	DSNP(1)	The secondary module is disqualified with no partner. Check the corresponding slot of the primary chassis for the module type and revision.
	PwDS(1)	The module is primary with a disqualified secondary partner. Check the type and revision of the 1756-CN2/B module.
	PQgS(1)	The module is primary with a qualifying secondary partner.
	PwQS(1)	The module is primary with a qualified secondary partner.
	PwNS(1)	The module is primary with no secondary partner. Check corresponding slot of secondary chassis for correct module.
	QgS(1)	The secondary module is qualifying.
	QS(1)	The secondary module is qualified.
	A#*xx*	This message is the node address where *xx* is an address from 01...99.
	MACID SWITCH ERROR	Node address switch changed after you cycled power. Return switches to their original settings or replace the module, as this could indicate a latent hardware anomaly.
Steady Green or Flashing Green	CPU=*xx*%	This message is the CPU utilization rate where *xx* is the amount of CPU used, ranging from 0...99%. This message occurs only if the CPU utilization exceeds 80%.
	OK	The module is operating normally.
Flashing Green	OK	This is normal operation. No connections to or through the module exist.
	Invalid Network Configuration	ControlNet configuration error. Recheck the configuration. Verify that the module's network address is less than or equal to the maximum unscheduled network address (UMAX).
	NET ERR	A network cabling error exists, or there are no other active nodes on the network. Recheck your network cabling and make sure that another node on the network is active (online).
	Rev *xx.xx*	When you start the module, its major and minor revisions are disclosed causing this message to briefly appear. The display shows these revisions where the major revision appears to the left of the decimal point, and the minor revision appears to the right.

OK Status Indicator and Display (Continued)

Status	Display	Description
Any	Keeper: Unconfigured	The network configuration data that is maintained in memory by the keeper object has been erased or corrupted. Do any of the following: • Use RSNetWorx™ software to download or update the keeper object in the module. • Reset the module to the original factory settings.
	Keeper: Unconfigured (data format changed)	The network configuration data maintained in memory by the keeper object is in a format incompatible with the current revision of firmware. Do any of the following: • Use RSNetWorx software to download or update the keeper object in the module. • Reset the module to the original factory settings.
	Keeper: Unconfigured (slot changed)	After the keeper object's network-configuration data was downloaded, the module was moved to a different spot in the rack. Do any of the following: • Return the module to the proper slot. • Use RSNetWorx software to download or update the keeper object in the module. • Reset the module to the original factory settings.
	Keeper: Unconfigured (net address changed)	The network address switches on the module have been changed since the keeper object's network-configuration data was downloaded. Do any of the following: • Return the network address switches to their original setting. • Use RSNetWorx software to download or update the keeper object in the module. • Reset the module to the original factory settings.
	Keeper: Signature Mismatch	The network configuration data that is maintained in memory by the keeper object does not match the current network configuration. There is a valid active keeper on the network. Do any of the following: • Use RSNetWorx software to download or update the keeper object in the module. • Reset the module to the original factory settings.
	Keeper: None Valid on Network	The network configuration data that is maintained in memory by the keeper object does not match the current network configuration, and there is no valid active keeper on the network. Use RSNetWorx software to download or update the keeper object in the module. **Important:** Reinstalling the module does not work. There is no valid active keeper from which to crossload data.

(1) ControlLogix enhanced redundancy systems only.

Network Channel Status Indicators

Network Channel Status Indicators A and B

Status	Description
Off	There is no power.
Steady Red	Unit has faulted. Cycle power or reset unit. If the fault persists, contact a Rockwell Automation representative or distributor.
Alternating Red/Green	A self-test is being conducted.
Alternating Red/Off	Node has been configured incorrectly. Check network address and other ControlNet configuration parameters.

Network Channel Status Indicators A or B

Status	Description
Off	Channel has been disabled. Program the network for redundant media, if necessary.
Steady Green	This is normal operation.
Flashing Green/Off	Temporary errors exist. The unit self-corrects.
	Node is not configured to go online. Make sure the configuration manager node (keeper) is present and working, and the selected address isn't greater than the maximum unscheduled node address (UMAX).(1)
Flashing Red/Off	A media fault exists. Check media for broken cables, loose connectors, or missing terminators.
	No other nodes are present on the network. Add other nodes to the network.

(1) The configuration manager node (keeper) is the node responsible for distributing ControlNet configuration data to all nodes on the network.

Specifications

Attribute	1756-CN2, 1756-CN2K	1756-CN2R, 1756-CN2RK	1756-CN2RXT
Backplane current	1.1 A at 5.1V DC	1.3 A at 5.1V DC	1.3 A at 5.1V DC
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)	0...60 °C (32...140 °F)	0...60 °C (32...140 °F)	-25...+70 °C (-13...+158 °F)
Isolation voltage	30V (continuous), Basic Insulation Type, ControlNet to Backplane, USB to Backplane, and USB to ControlNet	30V (continuous), Basic Insulation Type, ControlNet A/B to Backplane, ControlNet A to ControlNet B, USB to ControlNet A/B, and USB to Backplane. Type tested at 500V AC for 60 s.	
Voltage and current ratings	5.1V DC, 1.1 A	5.1V DC, 1.3 A	
Corrosive Atmosphere[1] • ASTM B845-97 Method H Accelerated Test (20-Day Exposure)	Severity Level G3[2] per ANSI/ISA 71.04-2013, Airborne Contaminants—Gases Severity Level CX[2][3] per IEC 60721-3-3:2019, Chemically Active Substances		
Temperature code	T4		
Temperature, surrounding air (maximum)	60 °C (140 °F)		70 °C (158 °F)
Enclosure type rating	None (open style)		
Wiring category[4]	1- on ControlNet ports 3 - on USB ports	1- on ControlNet ports 3 - on USB ports	1- on ControlNet ports 3 - on USB ports

(1) Only applicable to modules that end with a 'K and 'XT'.
(2) Port Plugs must remain installed in unused ports at all times during storage and operation for the product to meet its corrosive atmosphere rating.
(3) Up to 9.6 microns per year, corrosion rate of copper.
(4) Use this conductor category information for planning the conductor routing as described in the system level installation manual. See Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Additional Resources

Resource	Description
1756 ControlLogix Communication Modules Specifications Technical Data, publication 1756-TD003	Provides technical specifications for ControlLogix communication modules.
ControlNet Media System Components List, publication AG-PA002	Lists catalog numbers and specifications for the components that comprise the ControlNet media system.
ControlLogix System User Manual, publication 1756-UM001	Provides information on system architecture, configuring secure communication, and diagnostics.
ControlNet Repeaters Product Information, publication 1786-PC001	Provides instructions for installing a repeater adapter.
ControlNet Modules in Logix 5000 Control Systems User Manual, publication CNET-UM001	Describes how your Logix 5000™ controller communicates with different devices on the ControlNet network.
ControlNet IP67 Tap and Cable Assembly Kit Installation Instructions, publication 1786-IN017	Provides Installation instructions for a tap with an IP67 rating.
ControlNet Fiber Media Planning and Installation Guide, publication CNET-IN001	Describes the media that comprises a fiber cable system.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for wiring an Allen-Bradley® automation system.
Product Certifications website, rok.auto/certifications	Provides declarations of conformity, certificates, and other certification details.

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

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

Documentation Feedback

Your comments help us serve your documentation needs better. If you have any suggestions on how to improve our content, complete the form at rok.auto/docfeedback.

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.

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

Connect with us.

rockwellautomation.com — expanding **human possibility**®

AMERICAS: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
EUROPE/MIDDLE EAST/AFRICA: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
ASIA PACIFIC: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846
UNITED KINGDOM: Rockwell Automation Ltd. Pitfield, Kiln Farm Milton Keynes, MK11 3DR, United Kingdom, Tel: (44)(1908) 838-800, Fax: (44)(1908) 261-917

Publication 1756-IN074C-EN-P - April 2023 | Supersedes Publication 1756-IN074B-EN-P - April 2021 PN-684008