Installation Instructions

Original Instructions

ControlLogix ControlNet Scanner Module

Catalog Numbers 1756-CNB, 1756-CNBK, 1756-CNBR, 1756-CNBRK

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This publication describes how to install the ControlLogix® ControlNet® scanner for standard and 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 publication contains new and updated information as indicated in the following table.

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Updated UK and European Hazardous Location Approval	3
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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.

IMPORTANT Any illustrations, charts, sample programs, and layout examples shown in this publication are intended solely for the purposes of example. Since there are many variables and requirements associated with any particular installation, Rockwell Automation does not assume responsibility or liability for actual use based upon the examples shown in this publication.

Product Advisories

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 Ex, 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.

ATTENTION: Read this document and the documents that are 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.

- 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.
- In case of malfunction or damage, no attempts at repair should be made. The module should be returned to the manufacturer for repair. Do not dismantle the module.
- This equipment is certified for use only within the surrounding air temperature range of 0...60 °C (32...140 °F). The equipment must not be used outside of this range.
- Use only a soft dry anti-static cloth to wipe down equipment. Do not use any cleaning agents.

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.

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:

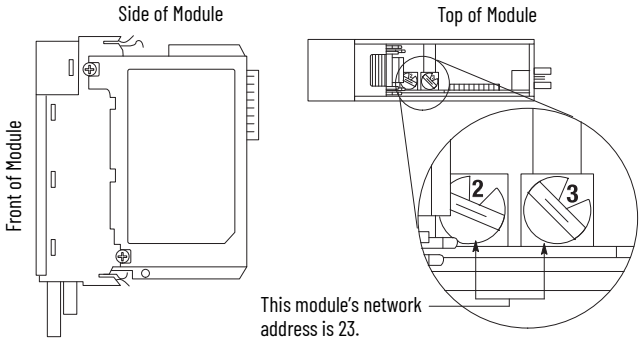
- Touch a grounded object to discharge potential static.
- Wear an approved grounding wriststrap.
- Do not touch connectors or pins on component boards.
- Do not touch circuit components inside the equipment
- Use a static-safe workstation, if available.
- Store the equipment in appropriate static-safe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

Removal and Insertion Under Power (RIUP)

WARNING: When you insert or remove the module 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 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.

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.

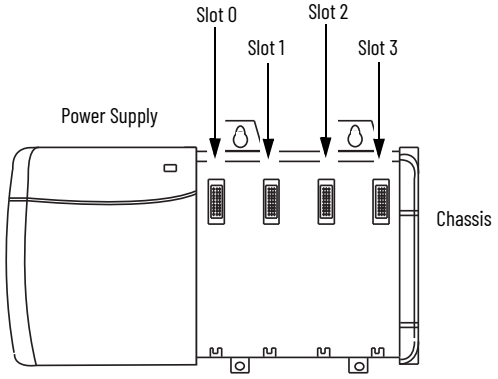


You can select an address of 01 to 99 for modules in a standalone chassis or 01...98 for modules in redundant chassis. 00 is an invalid ControlNet network address.

Determine Module Slot Location

This figure shows chassis slot numbering in a 4-slot chassis. 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 can accommodate (such as the number for which the power supply is rated).

Chassis Slot 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-CNBR module in slot 3 (from the left) in the primary chassis, you must also place a 1756-CNBR module in slot 3 in the redundant chassis.

Install the Module

You can install or remove a module while chassis power is applied.

WARNING: When you insert or remove the module 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 may create electrical resistance that can affect module operation.

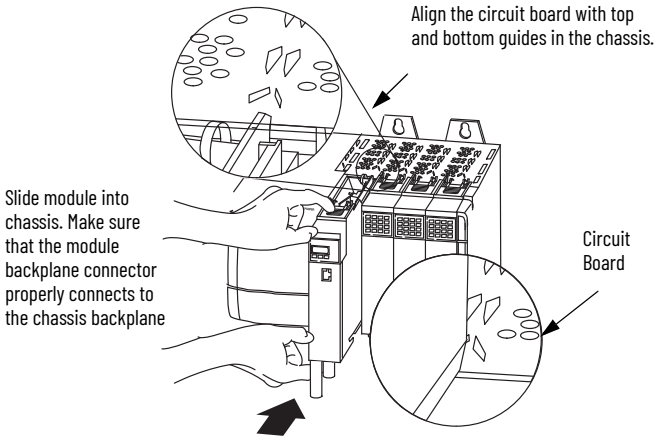
WARNING: If you connect or disconnect the communication cable with power that is applied to this module or any device on the network, an electric arc can occur. This could cause an explosion in hazardous location installations.
Be sure that power is removed or the area is nonhazardous before proceeding.

WARNING: The NAP port is intended for temporary local programming purposes only and not intended for permanent connection. If you connect or disconnect the NAP cable with power that is applied to this module or any device on the network, 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.

Follow these steps to install the module.

1. Align the circuit board with top and bottom guides in the chassis.
2. Slide the module into the chassis.

   Make sure that the module backplane connector properly connects to the chassis backplane as shown.

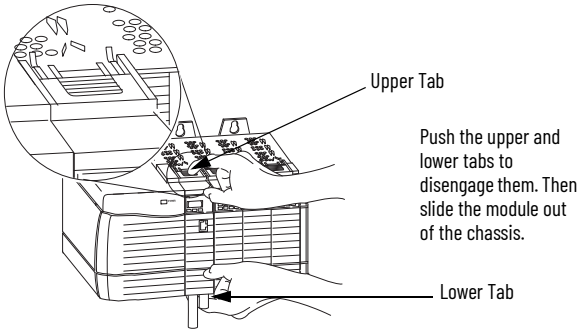


The module is properly installed when it is flush with the power supply or other installed modules.

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



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

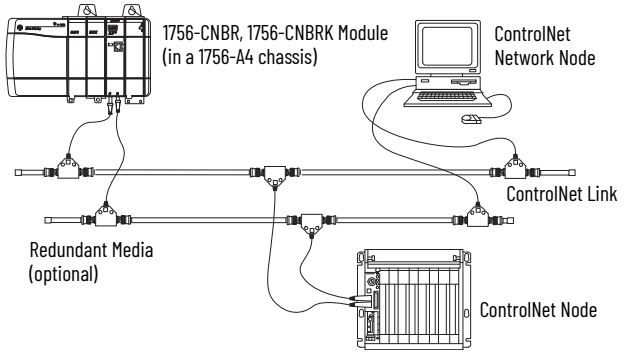
Connect the module to the ControlNet network using a tap (1786-TPR, 1786-TPS, 1786-TPYR, 1786-TPYS, or 1786-TCT2BD1) or a network access cable (1786-CP).

WARNING: If you connect or disconnect the communications cable with power that is applied to this module or any device on the network, an electric arc can occur. This could cause an explosion in hazardous location installations.

Use the 1786-CP cable for temporary connections, such as programming software. For permanent connections, use a tap.

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.

This figure shows an example ControlNet network using redundant media.



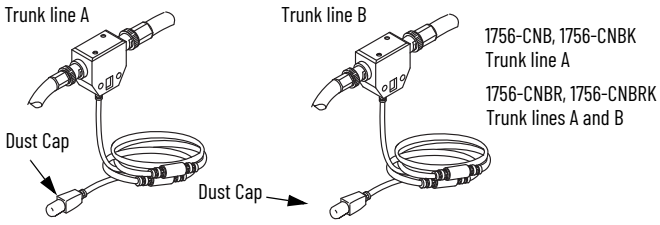
When connecting the module to a ControlNet network, also refer to the following documentation:

- *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.

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.

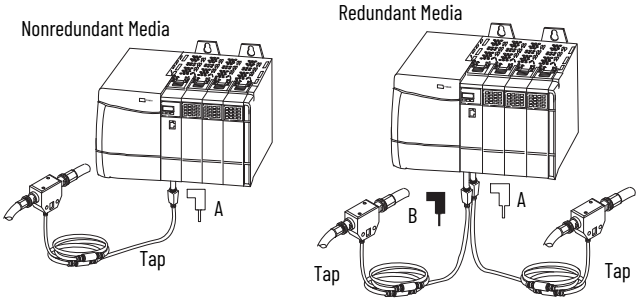


ATTENTION: Do not allow any metal portions of the tap to contact any conductive material. If you disconnect the tap from the module, place the dust cap back on the straight or right-angle connector to help prevent the connector from accidentally contacting a metallic grounded surface.

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

If Your Node Supports	Connect The Connector on the Tap
Non-redundant media 1756-CNB, 1756-CNBK	to the channel A connector on the module (channel B on the 1756-CNBR, 1756-CNBRK is not used)(1)
Redundant media	• from trunk line A to channel A on the 1756-CNBR, 1756-CNBRK • from trunk line B to channel B on the 1756-CNBR, 1756-CNBRK

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



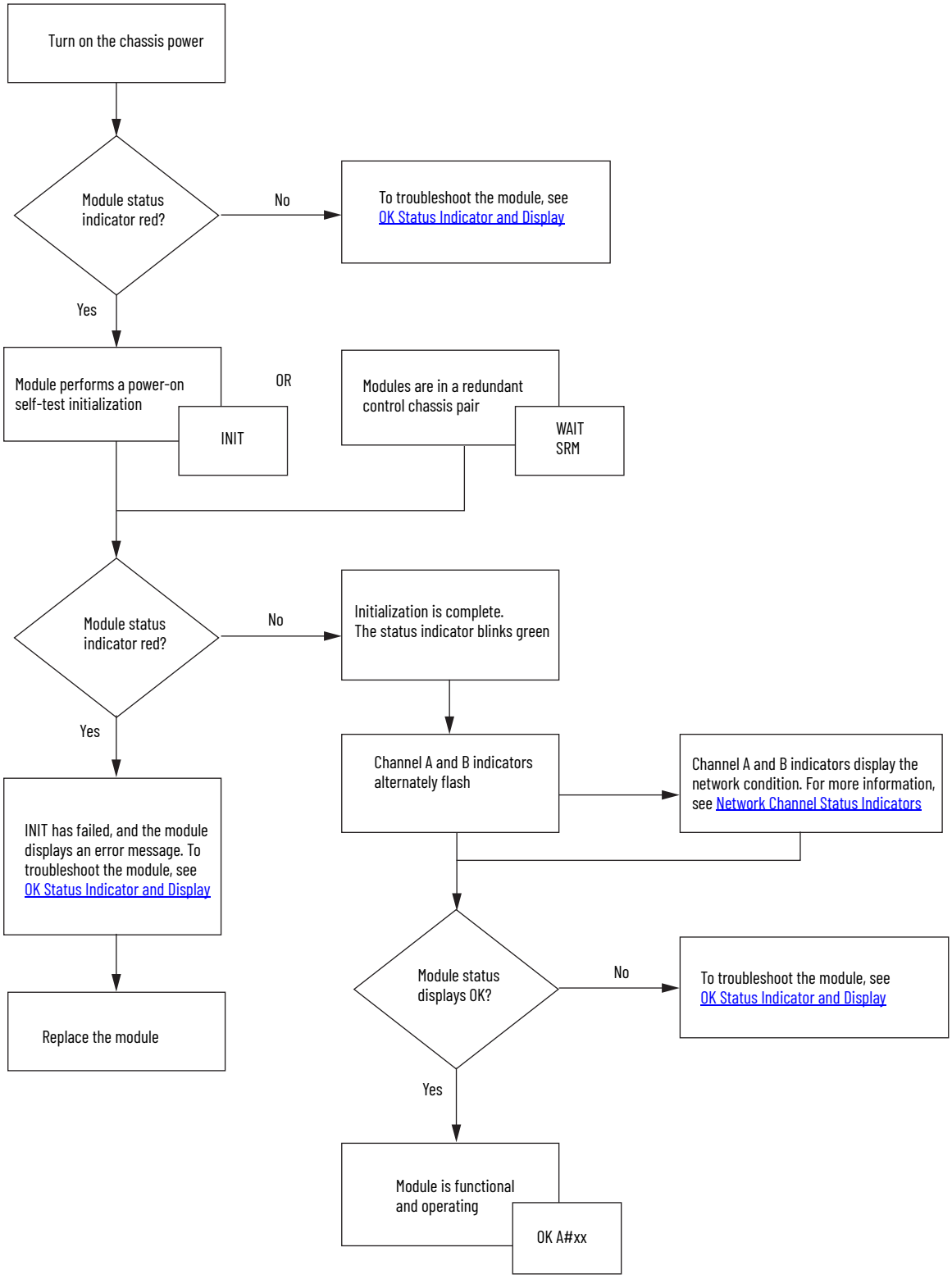
IMPORTANT To prevent inadvertent tap connection reversal (causing incorrect status displays and requiring troubleshooting), check the tap drop cable for the label indicating the attached segment before making the connection.

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.

Check Module Status

Apply power to the module and check module status, referencing this flowchart.



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 status indicator remains off, replace the module.
Steady Red	Msg scrolls(1)	The module's network address is set to 00, an invalid ControlNet address, or 99, an invalid ControlNet address if you are using enhanced redundancy control. See the footnote at the end of the table. Remove the module from the chassis, and set the network address to a valid value.
	BPA# ERR	The module has detected a different slot address from that latched in when the module was started. Excessive noise on the backplane causes this error. Replace the chassis or module.
	BPRX ERR	Too many CRC errors are being generated by the multicast backplane receiver, so the backplane multicast receivers have been shut off. Replace the module.
	BPIC ERR	Hardware within the module has faulted. Replace the module.
	CNIC ERR	
	DUPL NODE	For enhanced redundancy systems, this may be a temporary condition during chassis switchover. Otherwise, the module's network address is the same as another module's on the link. For enhanced redundancy systems only, wait 10 seconds. If the condition persists, remove the module from the chassis, and set the switches to a unique address.
	RACK ERR	The module cannot read the backplane EEPROM, or the rack/slot address is incorrect. Replace the chassis.
	STOP	The 1756-CNB module was commanded to stop functioning by the redundancy module. This occurs when a non-redundancy-compliant 1756-CNB module is placed into a redundant secondary chassis. Remove the nonredundancy-compliant 1756-CNB module from the redundant secondary chassis and replace it with a redundant 1756-CNBR module.
	WAIT RM(2) or WAIT SRM(2)	The 1756-CNB/E module is waiting for the redundancy module to be started.
Flashing Red	BOOT	The module has invalid firmware. Update the module's firmware with ControlFLASH™ software.
	ROM UPDT	A firmware update is in progress.
	SNGL KPR!	The module has detected that it has been connected to a ControlNet single-keeper network, version 1.0 or 1.25. Update the firmware of module at node address 01 and reschedule the network.
Steady Green	OK	Normal operation is occurring. At least one connection has been made to or through the module.
	INIT	The module is initializing.
	BW >MAX	The module is receiving too much network traffic and connections are timing out. The network bandwidth has been exceeded. No action is required because this is a temporary condition. If this happens frequently, add another module and split the traffic between them.
	CMPT(2)	The secondary 1756-CNB/E module is compatible with its partner.
	DSNP(2)	The 1756-CNB/E module is disqualified without a partner. Check corresponding slot of primary chassis for type and revision of module.
	PwDS(2)	The 1756-CNB/E module is primary with a disqualified secondary partner. Check the type and revision of the module.
	PwQg(2)	The 1756-CNB/E module is primary with a qualifying secondary partner.
	PwQS(2)	The 1756-CNB/E module is primary with a qualified secondary partner.
	PwNS(2)	The 1756-CNB/E module is primary with no secondary partner. Check the corresponding slot of the secondary chassis for the correct module.
	Qfng(2)	The secondary 1756-CNB/E module is qualifying.
	QS(2)	The secondary 1756-CNB/E module is qualified.
	SW ERR	The node address switch changed after the module was started. We recommend that you either return the switches to their original settings or replace the module, since this condition could indicate a latent hardware anomaly.
Flashing Green	CNFG ERR	The ControlNet network was configured incorrectly. Recheck the ControlNet network configuration.
	NET ERR	A network cabling error exists, or no other active nodes exist on the network. Recheck your network cabling and make sure that another node on the network is active (online).
	OK	Normal operation is occurring. No connections have been made to or through the module.

OK Status Indicator and Display (Continued)

Status	Display	Description
Steady Green or Off	SO_1[2]	Old primary switchover phase 1 is in progress. If the display shows this message for more than 3 seconds, then the 1756-CNB/E module failed during the transition from one redundancy phase to another. Replace one or both redundancy modules.
	SO_2[2]	Old primary switchover phase 2 is in progress. If the display shows this message for more than 3 seconds, then the 1756-CNB/E module failed during the transition from one redundancy phase to another. Replace one or both redundancy modules.
	SO_3[2]	Old primary switchover phase 3 is in progress. If the display shows this message for more than 3 seconds, then the 1756-CNB/E module failed during the transition from one redundancy phase to another. Replace one or both redundancy modules.
	SN_1[2]	New primary switchover phase 1 is in progress. If the display shows this message for more than 3 seconds, then the 1756-CNB/E module failed during the transition from one redundancy phase to another. Replace one or both redundancy modules.
	SN_2[2]	New primary switchover phase 2 is in progress. If the display shows this message for more than 3 seconds, then the 1756-CNB/E module failed during the transition from one redundancy phase to another. Replace one or both redundancy modules.
	SN_3[2]	New primary switchover phase 3 is in progress. If the display shows this message for more than 3 seconds, then the 1756-CNB/E module failed during the transition from one redundancy phase to another. Replace one or both redundancy modules.
	?Cpt[2]	The 1756-CNB/E module has not determined if it is compatible. If the display shows this message for more than 3 seconds, then the 1756-CNB/E module failed during the transition from one redundancy phase to another. Replace one or both redundancy modules.
	!Cpt[2]	The 1756-CNB/E module has determined that it is not compatible. Replace the 1756-CNB/E module with one of the correct type and revision.

(1) If switches are set to 00, the display scrolls 'FAULT: ADDRESS SWITCHES = 00, ILLEGAL'.
If switches are set to 99 in a redundant chassis pair, the display scrolls 'FAULT: ADDRESS SWITCHES = 99, ILLEGAL IN REDUNDANT SYSTEM'.
(2) ControlLogix redundancy systems only.

Network Channel Status Indicators

Network Channel Status Indicators A and B

Status	Description
Off	There is no power.
Steady red	The module has faulted. Cycle power to the module. If the fault persists, contact your Rockwell Automation representative or distributor.
Alternating red/green	The module is undergoing a self-test.
Alternating red/off	A node was configured incorrectly, or a duplicate ControlNet node address exists. Check the node address and other ControlNet module configuration parameters.

Network Channel Status Indicators A or B

Status	Description
Off	A channel has been disabled. Program the network for redundant media, if necessary.
Steady green	Normal operation is occurring.
Flashing green/off	Temporary network errors exist. Check media for broken cables, loose connectors, and missing terminators. If the condition persists, see the *ControlNet Coax Media Planning and Installation Guide*, publication CNET-IN002.
	The node is not configured to go online. Make sure that the network keeper is present and working, and that the selected address is less than or equal to the UMAX[1].
Flashing red/off	Media has faulted. Check media for broken cables, loose connectors, and missing terminators. If the condition persists, see the *ControlNet Coax Media Planning and Installation Guide*, publication CNET-IN002.
	No other nodes are present on the network. Add other nodes to the network.
Flashing red/green	An incorrect node address exists. Change the node address so that it is less than or equal to the UMAX[1]. Then, stop and restart the 1784-PCIC and 1784-PCICS cards in RSLinx® software.
	The ControlNet network was configured incorrectly. Reconfigure the ControlNet network so that the UMAX[1] is greater than or equal to the node address.

(1) UMAX is the highest node address on a ControlNet network that can transmit data.

Reset the Module

To reset a module to its factory settings, complete 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.

Specifications

Attribute	1756-CNB, 1756-CNBK	1756-CNBR, 1756-CNBRK
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 °C≤Ta≤+60 °C (+32 °F≤Ta≤+140 °F)	
Temperature, surrounding air, max	60 °C (140 °F)	
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	
Voltage and current ratings	Backplane: 5.1V DC, 970 mA 24V DC, 1.7 mA	
Isolation voltage	30V (continuous), Basic Insulation Type, ControlNet Channel to Backplane Tested according to UL/IEC 61010-1 and 61010-2-201	30V (continuous), Basic Insulation Type, ControlNet A/B to Backplane, and ControlNet A to ControlNet B Tested according to UL/IEC 61010-1 and 61010-2-201
Temperature code	T4	

(1) Only applicable to modules that end with a 'K'.
(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.

Additional Resources

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

Resource	Description
ControlNet Network Configuration User Manual, publication CNET-UM001	Provides information on how to use ControlNet communication modules.
ControlNet Coax Media Planning and Installation Guide, publication CNET-IN002	Describes the required components of a ControlNet coax media system.
ControlNet Fiber Media Planning and Installation Guide, publication CNET-IN001	Provides basic information for fiber cable planning and installation.
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.

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

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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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