Installation Instructions

ControlLogix-XT ControlNet Interface Module

Catalog Number 1756-CN2RXT

ALLEN-BRADLEY • ROCKWELL SOFTWARE Rockwell Automation

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (Publication SGI-1.1 available from your local Rockwell Automation sales office or online at http://literature.rockwellautomation.com) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

WARNING 	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
ATTENTION 	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard and recognize the consequences.
SHOCK HAZARD 	Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.
BURN HAZARD 	Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.

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 60664-1), at altitudes up to 2000 m (6562 ft) without derating.

This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR 11. Without appropriate precautions, there may be difficulties with electromagnetic compatibility in residential and other environments due to conducted and radiated disturbances.

This equipment is supplied as open-type equipment. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The enclosure must have suitable flame-retardant properties to prevent or minimize the spread of flame, complying with a flame spread rating of 5VA, V2, V1, V0 (or equivalent) 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 additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

In addition to this publication, see:

- Industrial Automation Wiring and Grounding Guidelines, for additional installation requirements, Allen-Bradley publication 1770-4.1.
- NEMA Standards 250 and IEC 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure.

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.

European Hazardous Location Approval

European Zone 2 Certification
(The following applies when the product bears the Ex or EEx Marking)

This equipment is intended for use in potentially explosive atmospheres as defined by European Union Directive 94/9/EC and has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of Category 3 equipment intended for use in potentially explosive atmospheres, given in Annex II to this Directive.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-15 and EN 60079-0.

WARNING 	• This equipment must be installed in an enclosure providing at least IP54 protection when applied in Zone 2 environments. • This equipment shall be used within its specified ratings defined by Allen-Bradley. • Provision shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 40% when applied in Zone 2 environments. • This equipment must be used only with ATEX certified 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.
ATTENTION 	This equipment is not resistant to sunlight or other sources of UV radiation.

Preventing 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:

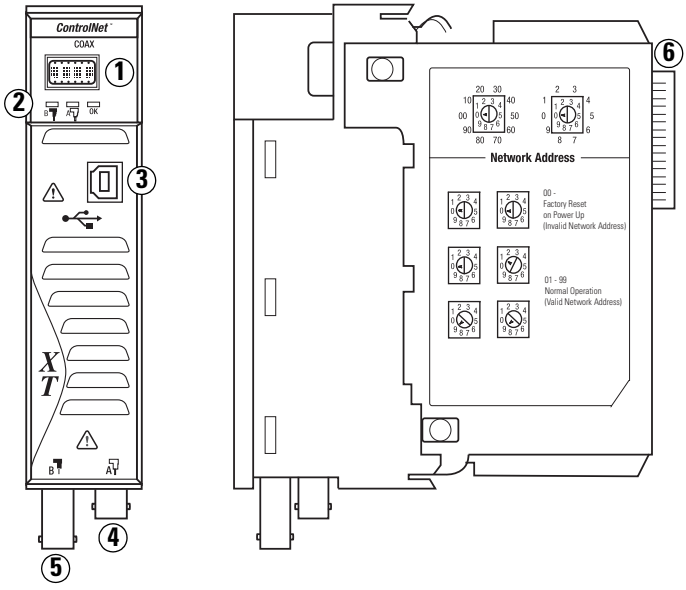
- Touch a grounded object to discharge potential static.
- Wear an approved grounding wriststrap.
- Do not touch connectors or pins on component boards.
- Do not touch circuit components inside the equipment.
- Use a static-safe workstation, if available.
- Store the equipment in appropriate static-safe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

About the ControlLogix-XT ControlNet Module

Configure and use the 1756-CN2RXT module as you would a traditional 1756-CN2R/B module. For more information about configuring and using the 1756-CN2RXT and 1756-CN2R/B modules, see the ControlNet Modules in Logix5000 Control Systems User Manual, publication CNET-UM001.

Features of the 1756-CN2RXT Module

These are the hardware features of the 1756-CN2RXT module.



Item	Description
1	Module status display - an alphanumeric display that indicates module status
2	Status indicators that show channel and module status
3	USB port for temporary connection
4	Channel A BNC connector
5	Channel B BNC connector
6	Backplane connector

About ControlLogix-XT Systems

The ControlLogix-XT products include control and communication system components that, when used with FLEX I/O-XT products, provide a complete control system solution that can be used in environments where temperatures range from -20...70 °C (-4...158 °F).

When used independently, the ControlLogix-XT system can withstand environments where the temperature ranges from -25...70 °C (-13...158 °F).

ControlLogix-XT with Traditional ControlLogix Components

IMPORTANT

ControlLogix-XT system components are rated for extreme environmental conditions only when used properly with other Logix-XT system components. The use of ControlLogix-XT components with traditional ControlLogix system components nullifies extreme-environment ratings.

If a ControlLogix-XT module is used with traditional ControlLogix products, that is, ControlLogix products not designed for extreme environments, the ControlLogix-XT module can withstand only the environments specified for the traditional ControlLogix version of the module. For example, if a 1756-CN2RXT module is used in a traditional 1756-A10 chassis, the 1756-CN2RXT module can withstand only the environment specified for the traditional 1756-CN2R/B module.

The ControlLogix-XT system components are designed to meet the same and greater operational and environmental requirements as traditional ControlLogix products.

When a ControlLogix-XT component is used as a replacement for a traditional ControlLogix component, the functional and environmental requirements of the traditional ControlLogix component apply.

For more information about standard ControlLogix component specifications and installation requirements, see the resources listed in the Additional Resources table on page 35.

Using the 1756-CN2RXT for Standalone or Redundant Control

You can use the 1756-CN2RXT modules either in standalone or redundant configurations.

A standalone configuration uses:

- one control chassis that contains the 1756-CN2RXT and the 1756-L63XT controller.
- one or both channels of the 1756-CN2RXT module connected to the ControlNet network.

A redundant configuration uses:

- two controller chassis called the redundant chassis pair. Each chassis of the pair must contain at least these modules:
  - 1756-L63XT controller.
  - 1756-CN2RXT ControlNet module.
  - 1756-RMXT redundancy module.
- one or both channels of the 1756-CN2RXT module connected to the ControlNet network.

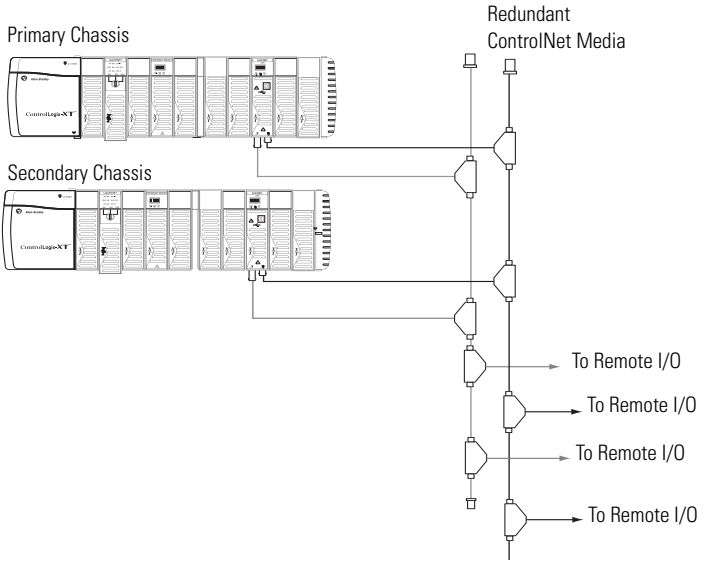
IMPORTANT

If you are using the 1756-CN2RXT in a redundant system, these hardware considerations must be made:

- Each redundant chassis of the pair must be configured with identical modules placed in identical slots. These module pairings between the two chassis are called partners.
- All partner modules in redundant chassis pairs must be at the same firmware revision.
- For ControlNet module partners, the ControlNet network address must be the same for each module of the pair.
- These modules **cannot** be used in redundant chassis pairs that contain 1756-CN2RXT modules:
  - 1756-DHRIOXT or 1756-DHRIO
  - 1756-SRM

For more information about redundancy control, refer to the ControlLogix Redundancy System User Manual, publication 1756-UM523.

Example Redundant ControlLogix-XT System



This example of a redundant ControlLogix-XT system shows the chassis components listed in this table.

This chassis	Contains these modules
Primary chassis	1756-A5XT, 1756-PBXT, 1756-L63XT, 1756-RMXT, 1756-CN2RXT
Secondary chassis	1756-A5XT, 1756-PBXT, 1756-L63XT, 1756-RMXT, 1756-CN2RXT

Before You Begin

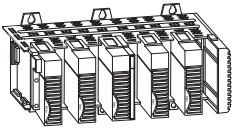
Before you install your module, complete these tasks:

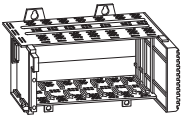
- Obtain Appropriate Parts, page 11.
- Set the Module's Network Address, page 11.
- Prepare the Chassis for Module Installation, page 13.
- Determine the Module Slot Location, page 13.

Parts

To use your ControlNet module, you need these system components.

1756-A5XT or 1756-A7LXT





1756-PBXT

1756-CN2RXT

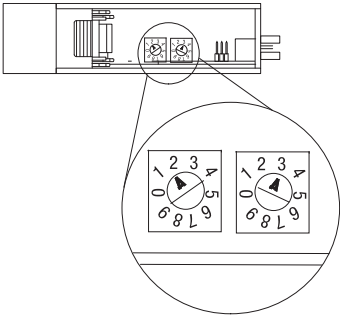
1786-TPR, 1786-TPS, 1786-TPYR, or 1786-TPYS

Set the Module's Network Address

Use a small screwdriver to set the module's network address switches. For modules in a standalone chassis, you must specify a unique ControlNet network address. You can select an address of 01...99 for modules in a standalone chassis. Address 00 is an invalid ControlNet address.

This example shows the network address switches set to 23.

Top of Module



Reset the Module to the Original Factory Settings

If you need to reset the module to its original settings and clear all keeper information, complete the following steps.

IMPORTANT The following procedure instructs you to remove power from the chassis before removing the module. This is only necessary if the module is in a Class I, Division 2 hazardous location. For more information, see Removal and Insertion Under Power (RIUP) on page 14.

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.

Prepare the Chassis for Module Installation

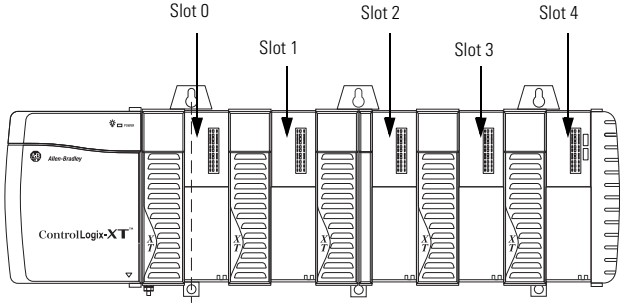
Complete these tasks using the resources listed as references before you install your ControlNet module.

Task	Resource
Install a ControlLogix-XT chassis	ControlLogix-XT Chassis, Series B Installation Instructions, publication 1756-IN637
Install a ControlLogix-XT power supply	ControlLogix-XT Power Supply Installation Instructions, publication 1756-IN639

Determine the Module Slot Location

When installing your ControlLogix-XT ControlNet Interface module, remember that you can install:

- a 1756-CN2RXT module in any open slot of the chassis.
- multiple 1756-CN2RXT modules in the same chassis.
- as many modules as your power supply can accommodate, that is, the number for which the power supply is rated.



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.

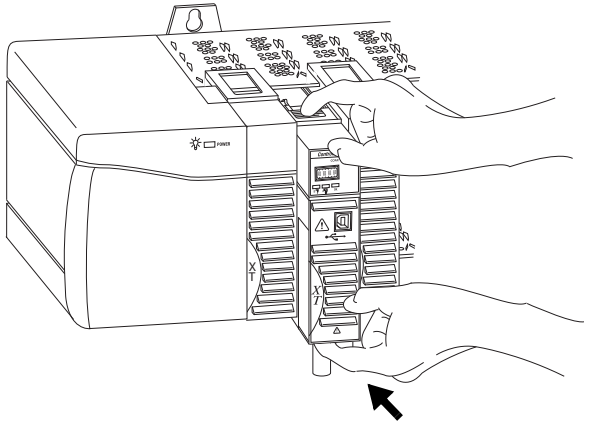
Be sure that power is removed or the area is nonhazardous before proceeding. Repeated electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance that can affect module operation.

Install the ControlNet Module

To install the module, perform this procedure.

1. Align the circuit board with top and bottom guides in the chassis.

2. Slide the module into the chassis.



3. Make sure the module backplane connector properly connects to the chassis backplane.

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.

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

Connect the Module to the Network

WARNING

If you connect or disconnect the communications cable with power applied to this module or any device on the network, 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.

Connect the module to the ControlNet network by using one of these taps:

- 1786-TPR
- 1786-TPS
- 1786-TPYR
- 1786-TPYS
- 1786-TCT2BD1

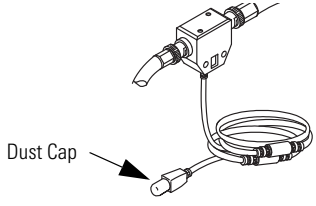
However, taps with a straight connector (catalog numbers 1786-TPS and 1786-TPYS) are recommended because the BNC connectors are located on the bottom of the module.

To connect the module to the network with a tap, perform this procedure.

1. Remove and save the dust caps from the ControlNet 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 prevent the connector from accidentally contacting a metallic grounded surface.

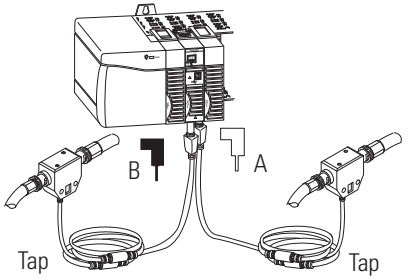


2. Attach the tap's straight or right-angle connector to the appropriate BNC connector on the module.

IMPORTANT

Avoid accidentally reversing the tap connections. Before making your connection, check the tap drop cable for the label indicating the attached segment. Accidental connection reversals produce incorrect status displays and require troubleshooting.

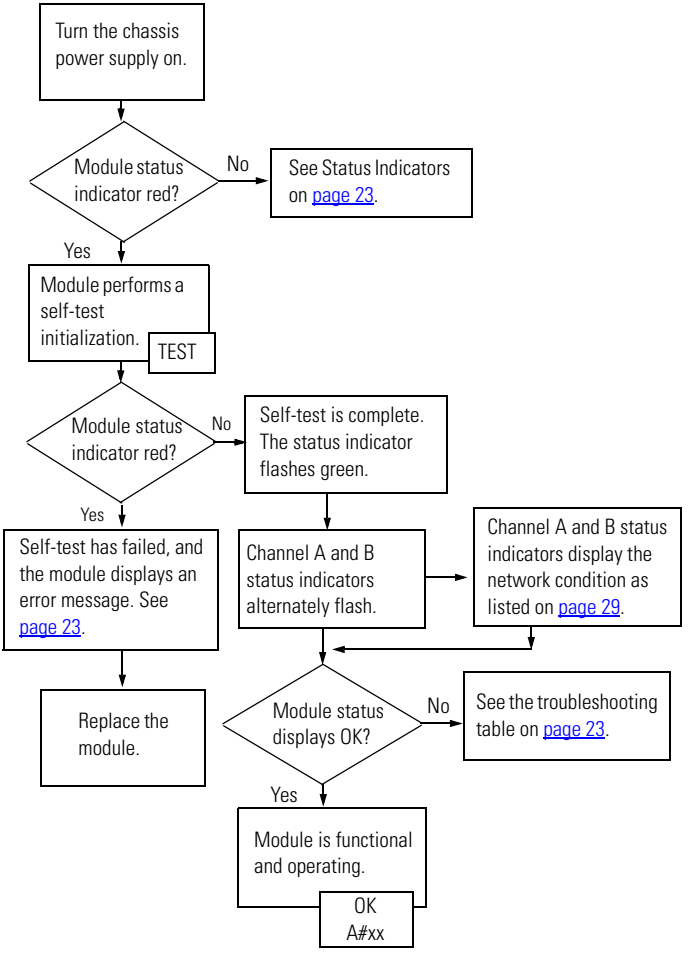
To use modules in a redundant-control chassis pair, you must connect the primary and redundant partner modules to the same network segment. If you are using redundant media, connect the channel of each partner to the same network segment.



For trunkline	Attach the connector to
A	Channel A on the 1756-CN2RXT module
B	Channel B on the 1756-CN2RXT module

Apply Power and Check Status

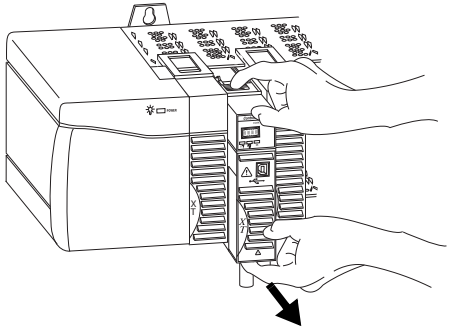
If not yet applied, apply power to the chassis power supply. Use this flowchart as a reference to determine module status after power is applied.



Remove the Module

To remove the module, perform this procedure.

1. Push on the upper and lower tabs to disengage them.
2. Slide the module out of the chassis.



IMPORTANT If you are removing and 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.

Install the EDS File

The EDS file can be uploaded directly from the module. This feature lets you register the EDS file for your module from within RSLinx software by following the steps listed below.

1. Open RSLinx software, version 2.55 or later, and browse for the module.

2. Right-click the module and select Upload EDS file from device.

   The Upload EDS wizard opens.

3. Complete the EDS wizard to register the EDS file.

The EDS file can also be downloaded from www.ab.com/networks/eds.html and installed with the RSLinx EDS Hardware Installation Tool.

Configure RSLinx Software to Use the USB Port

The ControlNet interface module has a USB device port that uses a Type B receptacle. The port is USB 1.1-compatible and runs at 12 Mbps. To use the USB port of the 1756-CN2RXT, you must have RSLinx software, version 2.55 or later, installed on your workstation. Use a USB cable to connect your workstation to the USB port. With this connection, you can download programs to controllers and configure other devices, which are accessible by the module, directly from your workstation.

WARNING

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

A Samtec Inc. RSP-119350 USB cable is required to maintain hazardous location certifications.

WARNING

The 1756-CN2RXT modules, series B, have an industrial Type B USB port. The port has the same electrical characteristics as other Type B ports, but a higher cable pull-out rating.

For typical applications in nonhazardous environments, you may use any high-quality USB cable. If used in a hazardous location, a Samtec Inc. RSP-119350 USB cable is required to meet the 15-Newton pull test for hazardous environments.

ATTENTION

The USB cable is not to exceed 3.0 m (9.84 ft) and must not contain hubs.

Set Up the USB Driver

To configure RSLinx software to use a USB port, first set up a USB driver by performing this procedure.

1. Connect your 1756-CN2RXT module to your workstation by installing a USB cable in your module's USB port.

   The workstation monitor displays the Found New Hardware Wizard dialog box.

2. Click Install the software automatically (Recommended) and click Next.

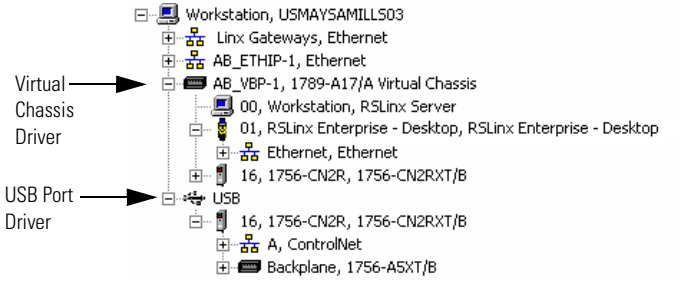
   The software is installed.

3. Click Finish to set up your USB driver.

4. To view your 1756-CN2RXT module in RSLinx software, click the RSWho button.

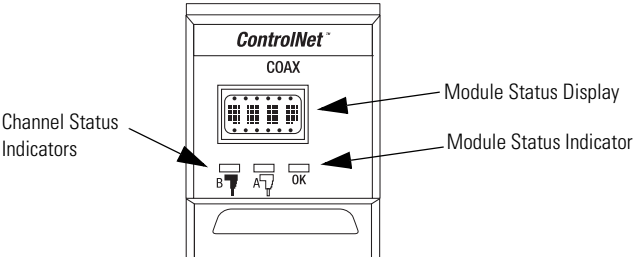
   The RSLinx Workstation organizer appears.



   Your 1756-CN2RXT module appears under two different drivers, a virtual chassis and the USB port. You can use either driver to browse through to your ControlNet module.

Status Indicators

The ControlLogix-XT ControlNet module has these status indicators.



Module Status Indicator and Display

The Module Status indicator and Module Status display provide diagnostic information. Use this table to interpret the Module Status Indicator and Display.

OK Indicator	Display	Cause	Recommended Action
Off	None	The module is not communicating due to a power supply fault or internal fault.	1. Check the power supply. 2. Check the cable connectors. 3. Make sure the module is firmly seated in the chassis. 4. If the indicator remains off, replace the module.

OK Indicator	Display	Cause	Recommended Action
Red	Reset Complete-Change Switch Settings	Module's network address is set to 00, an invalid ControlNet address.	1. Remove power from the chassis. 2. Remove the module from the chassis. 3. Set the switches to their final value. See page page 11. 4. Replace the module in the chassis. 5. Apply power to the chassis.
	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.	None required.
	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 (RM/SRM).	1. Remove the non-redundant module from the redundant secondary chassis 2. Replace the non-redundant module with the redundant module.
		This could occur if a 1756-CN2RXT module running Boot code is inserted into a chassis along with a 1756-SRM or 1756-RM module. For redundant control, the 1756-CN2RXT module is to be used with a 1756-RM module. It should not be used with a 1756-SRM module.	1. Insert the module into a chassis that does not contain a 1756-SRM or 1756-RM module. 2. Update the module's firmware using ControlFlash software.

OK Indicator	Display	Cause	Recommended Action
Flashing red	Image update Needed	Boot image running. Main firmware image needs to be updated.	Update the module's firmware by using the ControlFlash utility.
	DUPLICATE NODE DETECTED	The module's network address is the same as another module's on the link.	1. Remove power from the chassis. 2. Remove the module from the chassis. 3. Set the switches to their final value. See page 11. 4. Replace the module in the chassis. 5. Apply power to the chassis.
	Flash in progress	Flash update is in progress.	No action is required.
		If communication to the module is lost during a Flash Update, this message will continue to be displayed even though the module will not be able to finish the update.	You must remove power from the module to recover, and then flash again.
	TEST	Module is executing a power-up test.	No action is required. If the display persists for more than 45 seconds, replace the module because it has failed.

OK Indicator	Display	Cause	Recommended Action
Solid green	OK	This is normal operation.	There is at least one connection to or through the module. No action is required.
	INIT	Module is initializing.	No action is required.
	PASS	This message is displayed momentarily upon completion of a successful power-up test.	No action is required.
	CMPT(1)	The secondary module is compatible with its partner.	No action is required.
	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-CN2RXT module.
	PQgS(1)	The module is primary with a qualifying secondary partner.	Redundant system status. No action is required.
	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.	Redundant system status. No action is required.
	QS(1)	The secondary module is qualified.	
	A#*XX*	This message is the node address where *XX* is an address from 01...99.	No action is required.
	MACID SWITCH ERROR	Node address switch changed after you cycled power.	No action is required, but we recommend that you either return switches to their original settings or replace the module, since this could indicate a latent hardware anomaly.

OK Indicator	Display	Cause	Recommended Action
Solid 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%.	No action is required.
	OK	Module is operating normally.	No action is required.
Flashing green	OK	This is normal operation.	No connections to or through the module exist. No action is required.
	Invalid Network Configuration	ControlNet configuration error.	Recheck 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 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 to the right.	No action is required.

OK Indicator	Display	Cause	Recommended Action
Any	Keeper: Unconfigured	The network configuration data maintained in flash memory by the keeper object has been erased or corrupted.	Perform any of these steps: · Use RSNetWorx software to download or update the keeper object in the module. · See Reset the Module to the Original Factory Settings, on page 12.
	Keeper: Unconfigured (data format changed)	The network configuration data maintained in flash memory by the keeper object is in a format incompatible with the current revision of firmware.	Perform any of these steps: · Use RSNetWorx software to download or update the keeper object in the module. · See Reset the Module to the Original Factory Settings, on page 12.
	Keeper: Unconfigured (slot changed)	After the keeper object's network-configuration data was downloaded, the module was moved to a different spot in the chassis.	Perform any of these steps: · Return the module to the proper slot. · Use RSNetWorx software to download or update the keeper object in the module. · See Reset the Module to the Original Factory Settings, on page 12.
	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.	Perform any of these steps: · Return the network address switches to their original setting. · Use RSNetWorx software to download or update the keeper object in the module. · See Reset the Module to the Original Factory Settings, on page 12.

OK Indicator	Display	Cause	Recommended Action
Any (cont.)	Keeper: Signature Mismatch	The network configuration data maintained in flash memory by the keeper object does not match the current network configuration. There is a valid master keeper on the network.	Use RSNetWorx software to download or update the keeper object in the module, or see Reset the Module to the Original Factory Settings, on page 12.
	Keeper: None Valid on Network	The network configuration data maintained in flash memory by the keeper object does not match the current network configuration, and there is no valid master keeper on the network.	Use RSNetWorx software to download or update the keeper object in the module. **Important:** The Reset the Module to the Original Factory Settings procedure on page 12 will not work because there is no valid master keeper from which to crossload data.

(1) Messages are for redundant control.

Channel Status Indicators

The ControlNet channel status indicators appear in one of these states:

- Steady - status indicator is on continuously in the defined state.
- Alternating - while viewed together, the two indicators simultaneously alternate between the two defined states. The two indicators are always in opposite states, out of phase.
- Flashing - when each status indicator is viewed apart from the other, each status indicator alternates between the two defined states. If both indicators are flashing, they must flash together, in phase.

ControlNet Indicator States (A AND B)

State	Cause	Action
Off	There is no power.	No action is required, or apply power.
Steady red	Unit has faulted.	Cycle power or reset unit. If fault persists, contact a Rockwell Automation representative or distributor.
Alternating red/green	A self-test is being conducted.	No action is required.
Alternating red/off	Node has been configured incorrectly.	Check network address and other ControlNet configuration parameters.

ControlNet Channel Troubleshooting (A OR B)

State	Cause	Action
Off	Channel has been disabled.	Program network for redundant media, if required.
Steady green	This is normal operation.	No action is required.
Flashing green/off	Temporary errors exist.	None; unit will self-correct.
	Node is not configured to go online.	Make sure the configuration manager node (keeper) is present and working, and the selected address is not 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.

General Specifications - 1756-CN2RXT

Attribute	Value
ControlNet connectors	2 BNC connectors
Number of ControlNet nodes, max	99
ControlNet communication rate	5 MB
USB port	USB 1.1
USB Device	USB, series B, receptacle
USB cable for USB port, recommended	Samtec cable, P/N RSP-199350
Connections supported, max	131 Note that 3 of the 131 connections are always reserved for redundant control. Therefore, 128 connections are available for standard use.
Weight, approx.	0.293 kg (0.64 lb)
North American temperature code	T4A
IEC temperature code	T4
Slot width	1
Enclosure type rating	None (open-style)
Power consumption, max	6.6 W
Power dissipation, max	22.5 BTU/hr
Backplane current @ 5.1V DC	1.3 A @ 5.1V dc
Backplane current @ 24V DC	3 mA @ 24V dc
Isolation voltage	30V (continuous), Basic Insulation Type Type tested at 853V AC for 60 s, ControlNet to system and ControlNet port to ControlNet port
Wiring category[1]	2 - on communication ports

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

Environmental Specifications - 1756-CN2RXT

Attribute	Value
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)	-25…70 °C (-13…158 °F)
Temperature, Nonoperating IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock)	-40…85 °C (-40…185 °F)
Relative Humidity IEC 60068-2-30 (Test Db, Unpackaged Damp Heat)	5…95% noncondensing
Vibration IEC 60068-2-6 (Test Fc, Operating)	2 g @ 10…500 Hz
Operating Shock IEC 60068-2-27 (Test Ea, Unpackaged Shock)	30 g
Shock, Non-operating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	50 g
Emissions CISPR 11	Group 1, Class A
ESD Immunity IEC 61000-4-2	• 6 kV contact discharges • 8 kV air discharges

Attribute	Value
Radiated RF Immunity IEC 61000-4-3	• 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz • 10V/m with 200 Hz 50% Pulse 100% AM at 900 MHz • 10V/m with 200 Hz 50% Pulse 100% AM at 1890 MHz • 3V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz
EFT/B Immunity IEC 61000-4-4	±2 kV at 5 kHz on ControlNet ports
Surge Transient Immunity IEC 61000-4-5	±1 kV line-earth(CM) on communications ports
Conducted RF Immunity IEC 61000-4-6	10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz

Certifications - 1756-CN2RXT

Certification[1] [2]	Value
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584. UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E194810.
CE	European Union 2004/108/EC EMC Directive, compliant with: • EN 61326-1; Meas./Control/Lab., Industrial Requirements • EN 61000-6-2; Industrial Immunity • EN 61000-6-4; Industrial Emissions • EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: • EN 60079-15; Potentially Explosive Atmospheres, Protection "n" (II 3 G Ex nA IIC T4 X) • EN 60079-0; General Requirements (Zone 2)
CI	ControlNet Int'l conformance tested to ControlNet specifications

(1) When the product is marked.

(2) See the Product Certification link at http://www.ab.com for Declarations of Conformity, Certificates, and other certification details.

Additional Resources

These documents contain additional information concerning related Rockwell Automation products.

Resource	Description
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Contains general guidelines for installing a Rockwell Automation industrial automation system.
ControlNet Modules in Logix5000 Control Systems User Manual, publication CNET-UM001	Contains information on how to use ControlNet modules with various Logix5000 controllers.
ControlLogix-XT Chassis Installation Instructions, publication 1756-IN637	Contains information on how to install a ControlLogix-XT chassis.
ControlLogix Power Supplies Installation Instructions, publication 1756-IN639	Contains information on how to install the ControlLogix-XT power supply.
ControlNet Coax Taps Installation Instructions, publication 1786-IN007	Contains information on how to install ControlNet coaxial taps.
ControlNet Fiber Media Planning and Installation Guide, publication CNET-IN001	Contains procedures and specifications for the installation of ControlNet fiber media components.
ControlNet Coax Media Planning and Installation Guide, publication CNET-IN002	Contains general guidelines for the installation of ControlNet coax media.

You can download publications at http://literature.rockwellautomation.com. To order paper copies of technical documentation, contact your local sales office or Rockwell Automation distributor.

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At http://support.rockwellautomation.com, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit http://support.rockwellautomation.com.

Installation Assistance

If you experience a problem within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your product up and running.

United States	1.440.646.3434 Monday – Friday, 8 a.m. – 5 p.m. EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor in order to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

www.rockwellautomation.com

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