Crestron C2N-TXM
XM® Satellite Radio Tuner
Operations Guide

CRESTRON®

This document was prepared and written by the Technical Documentation department at:

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Introducing XM Satellite Radio

There's a world of audio listening pleasure beyond AM and FM: **XM Satellite Radio**. Select from over 170 channels of music, news, sports, comedy, talk, and entertainment. Coast-to-coast coverage and digital quality sound, with all music channels 100% commercial free.

Questions? Visit www.xmradio.com.

How to Subscribe

Listeners can subscribe by visiting XM on the Web at www.xmradio.com or by calling XM's Listener Care at (800) 967-2346. Customers should have their Radio ID and credit card ready. The Radio ID can be found by selecting channel 0 on the radio.

A Warning Against Reverse Engineering:

It is prohibited to copy, decompile, disassemble, reverse engineer, or manipulate any technology incorporated in receivers compatible with the XM Satellite Radio system. Furthermore, the AMBE® voice compression software included in this product is protected by intellectual property rights including patent rights, copyrights, and trade secrets of Digital Voice Systems, Inc. The user of this or any other software contained in an XM Radio is explicitly prohibited from attempting to copy, decompile, reverse engineer, or disassemble the object code, or in any other way convert the object code into human-readable form. The software is licensed solely for use within this product.

General:

Hardware and required basic monthly subscription sold separately. Installation costs and other fees and taxes, including a one-time activation fee may apply. Subscription fee is consumer only. All fees and programming subject to change. Subscriptions subject to Customer Agreement available at xmradio.com. Only available in the 48 contiguous United States.

Regulatory Compliance

As of the date of manufacture, the C2N-TXM has been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling.

Federal Communications Commission (FCC) Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following conditions:
(1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Industry Canada (IC) Compliance Statement

Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Contents

XM® Satellite Radio Tuner: C2N-TXM

Introduction

The C2N-TXM is an XM Satellite Radio tuner designed by Crestron® to bring the vast offerings of XM's pure, digital quality programming to the Crestron Home®. Available throughout the continental US*, XM Satellite Radio offers over 150 channels of music, news, sports, talk, comedy, traffic, weather, and more.

Features and Functions

- XM Satellite Radio Tuner - 150+ channels of digital programming
- Controllable via touch scrren, keypad, handheld remote, PC, or PDA
- Real-time feedback and status display
- Fully navigable program guide - Displays channels, names, categories, artists, and song titles
- Onboard memory for 20 “Favorite” presets
- Receives satellite and terrestrial repeater signals - antenna included
- Digital, analog, and CAT5 balanced outputs
- Cresnet® communications
- 1/2-space rack-mountable

Touch Screen Control With True Feedback

The C2N-TXM's bidirectional Cresnet® interface affords flexibility for control of XM's many features with real-time feedback and status display provided from any two-way Crestron touch screen or Crestron e-Control®2 XPanel GUI. Listeners can easily locate and select their favorite song or program using the fully customizable touch screen program guide. Up-to-the-minute programming information can be displayed for every XM radio channel, listing channel names, categories, artists, and song titles. Up to 20 “favorite” presets can be stored in the C2N-TXM for fast recall from any touch screen, keypad, or handheld remote.

* Hardware and required basic monthly subscription sold separately. Premium Channel available at additional monthly cost. Installation costs and other fees and taxes, including a one-time activation fee may apply. Subscription fee is consumer only. All fees and programming subject to change. Subscriptions subject to Customer Agreement available at xmradio.com. Only available in the 48 contiguous United States.

Multi-Room Integration

Multiple C2N-TXM tuners can easily be installed together and in combination with Crestron's FM, AM/Weather, and TV tuners to accommodate multi-room systems of every size. All Crestron tuners are 1/2-space rack-mountable making it easy and affordable to design a multi-channel, multi-format tuner system to accommodate any number of listening zones. The C2N-TXM features digital, analog, and CAT5 balanced outputs to support seamless integration into any Crestron Home AV distribution system or home theater.

Simple Installation and Setup

The C2N-TXM receives both satellite and terrestrial repeater signals using the included compact high-gain antenna. A built-in headphone jack and remote sensitivity indicator are included to simplify setup. Signal strength can also be monitored in real-time from the unit's front panel as well as through the control system touch screen, PC, or PDA.

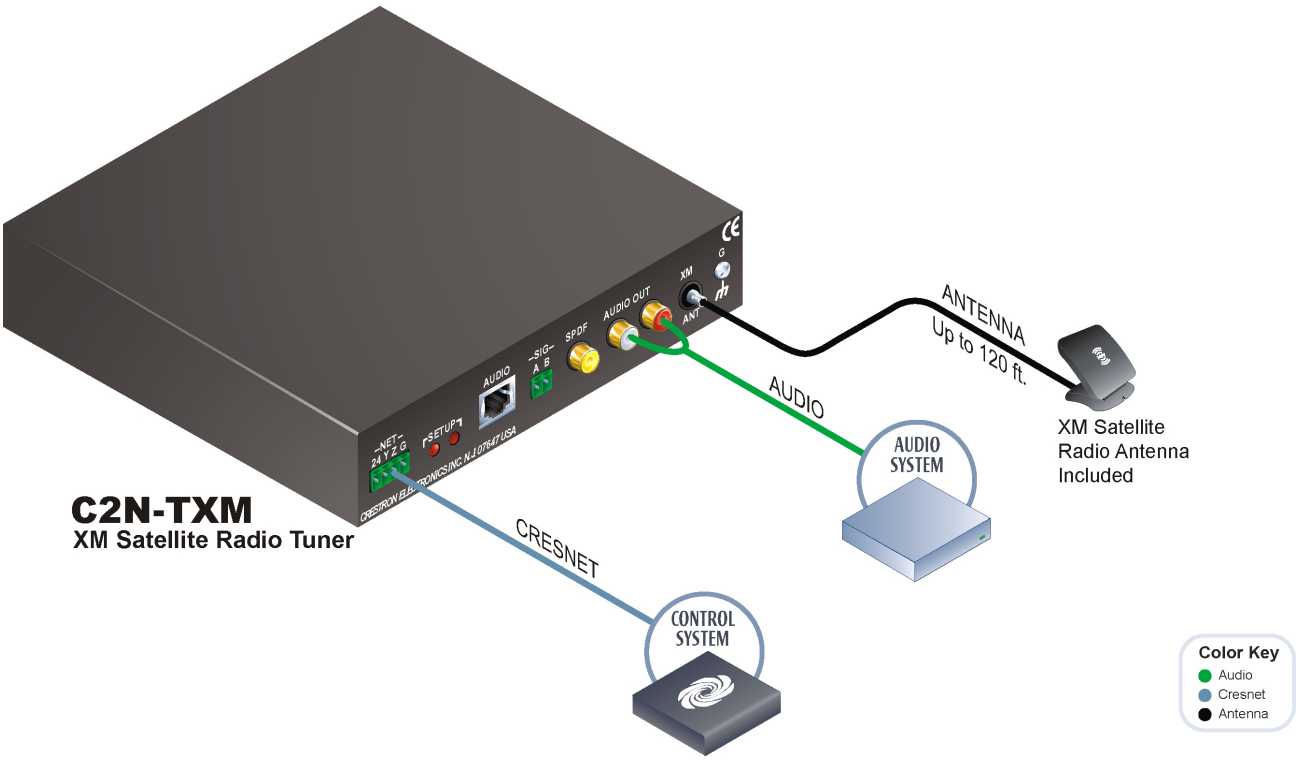
How to Subscribe

Listeners can subscribe by visiting XM on the Web at www.xmradio.com or by calling XM's Listener Care at (800) 967-2346. Customers should have their Radio ID and credit card ready; the Radio ID (eight-digit identification number assigned by XM Radio) can be found by selecting channel 0 on the radio. It is also printed on the label on the bottom of the unit, and can be viewed using Crestron Toolbox™.

Applications

The following diagram shows a C2N-TXM in a residential application.

C2N-TXM in a Residential Application



Specifications

Specifications for the C2N-TXM are listed in the following table.

C2N-TXM Specifications

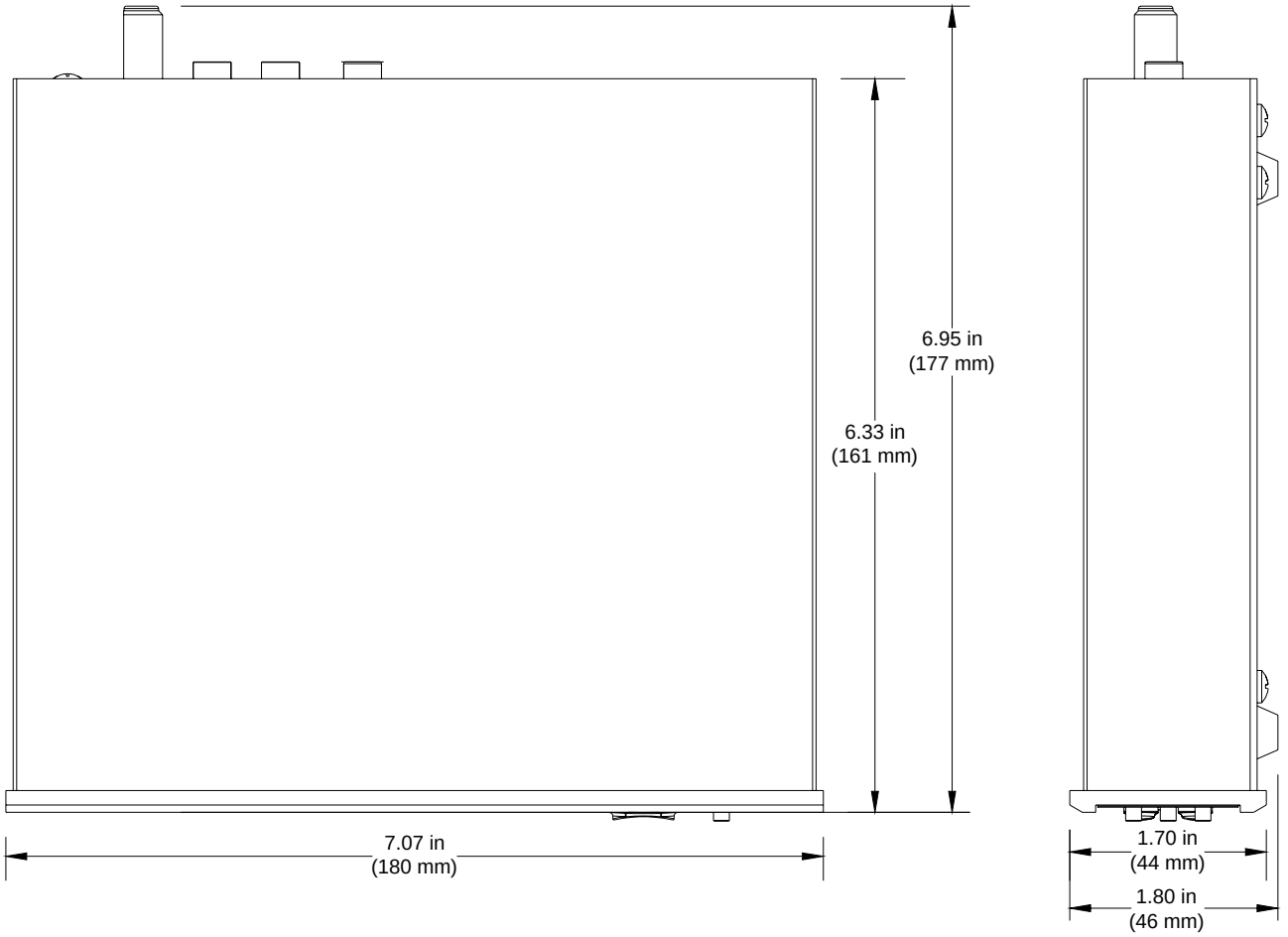
SPECIFICATION	DETAILS
Audio	
THD+N	<0.01% @1 kHz
S/N Ratio	>97 dB balanced, >95 dB unbalanced, 20 Hz-22 kHz A-weighted
Crosstalk	> -90 dB 20 Hz-22 kHz
Power Requirements	
Cresnet Power Usage	8 Watts (0.34 Amps @ 24 Volts DC)
Environmental	
Temperature	32° to 122° F (0° to 50° C)
Humidity	10% to 90% RH (non-condensing)
Enclosure	
Chassis	Steel, black matte powder coat finish
Faceplate	Extruded aluminum, black matte powder coat finish with polycarbonate label overlay
Mounting	Freestanding or 0.5U 19-inch rack-mountable (adhesive feet included, ST-RMK rack kit sold separately)
Dimensions	
Height	1.80 in (46 mm)
Width	7.07 in (180 mm)
Depth	6.95 in (177 mm)
Weight	1.9 lb (844 g)
Available Accessories	
C2N-TXM-C50	XM Antenna Extension Cable, 50 ft
SRD-ANT-1-PAK	Satellite Radio Antenna System
SRD-ANT-1LD-PAK	Satellite Radio Antenna System, Long-Distance
SRD-ANT-4-PAK	Satellite Radio Antenna System, 4-Way
SRD-ANT-8-PAK	Satellite Radio Antenna System, 8-Way
ST-RMK	Rack Mount Kit

Physical Description

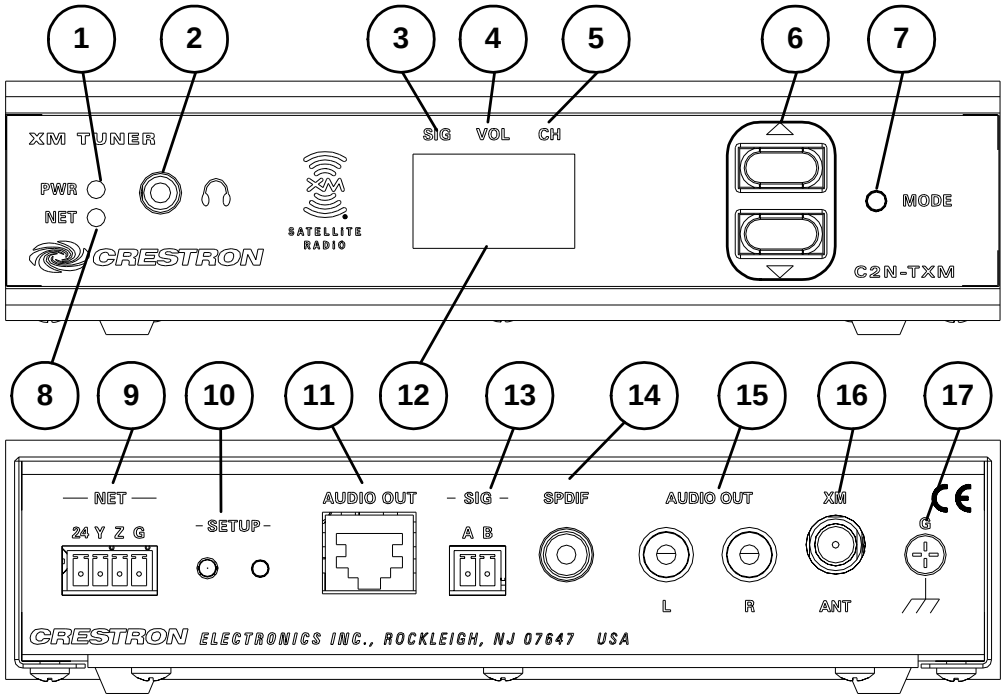
This section provides information on the connections, controls and indicators available on your C2N-TXM.

C2N-TXM Physical View

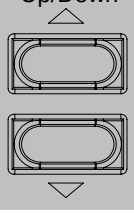
C2N-TXM Overall Dimensions



C2N-TXM Connectors, Controls & Indicators

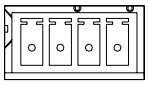
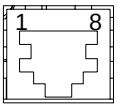
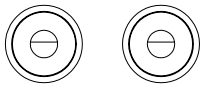
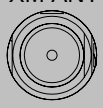


Connectors, Controls & Indicators

#	CONNECTORS[1], CONTROLS & INDICATORS	DESCRIPTION
1	PWR LED	(Green) Indicates DC power supplied from Cresnet network
2	Headphone 	(1) 3.5mm mini TRS phone jack
3	SIG LED	(Red) Indicates *Signal* mode is selected
4	VOL LED	(Red) Indicates *Volume* mode is selected
5	CH LED	(Red) Indicates *Channel* mode is selected
6	Up/Down 	(2) push buttons, adjust headphone volume, select channel, and select signal strength source (satellite or terrestrial repeater)
7	MODE	(1) pushbutton, cycles through modes
8	NET LED	Indicates communication with Cresnet system

(Continued on following page)

Connectors, Controls & Indicators (Continued)

#	CONNECTORS[1], CONTROLS & INDICATORS	DESCRIPTION
9	NET 24 Y Z G 	(1) 4-pin 3.5mm detachable terminal block; Cresnet slave port, connects to Cresnet control network; **24**: Power (24 Volts DC) **Y**: Data **Z**: Data **G**: Ground
10	SETUP (LED and button)	(1) recessed miniature push button and (1) Red LED, used for touch-settable ID (TSID) in conjunction with Crestron Toolbox software
11	AUDIO OUT (CAT5)  	(1) 8-pin RJ-45 female, shielded, CAT5 balanced audio output port; Maximum Output Level: 4 V_{rms}; Connects to CNX-BIPAD8 or any "CH" CAT5 audio port[2]
12	Display	(3) Green LED 7-segment digits; Displays signal source, signal strength, headphone volume level, and channel
13	SIG A B 	(1) 2-pin 3.5mm detachable terminal block; Connects to remote sensitivity indicator (included); Used during setup to optimize antenna position; Refer to “Sensitivity Indicator” on page 11 for details
14	SPDIF (Audio Out Digital) 	(1) RCA female, S/PDIF coaxial digital audio output
15	AUDIO OUT (Analog)  	(2) RCA female, unbalanced stereo line-level audio output; Maximum Output Level: 2 V_{rms}; Output Impedance: 100 ohms; Minimum Load: 1k ohms
16	XM ANT 	(1) SMB antenna connector (F to SMB adapter included); Impedance: 50 ohms; Connects to indoor/outdoor high-gain antenna (included); Includes 20-foot cable; extendable up to 120 feet (36 meters) using C2N-TXM-C50 (sold separately)
17	Ground 	(1) 6-32 screw, chassis ground lug

1. Interface connectors for **NET** and **SIG** ports are provided with the unit.
2. This eight-pin RJ-45 port provides connectivity to the CNX-BIPAD8 or any "CH" CAT5 audio port. This port uses CAT5 wiring and provides audio output from the C2N-TXM. Refer to the following table for connector pinouts.

PIN	WIRE COLORS (568B)	AUDIO I/O
1	WHITE/ORANGE	+ Audio Left Out
2	ORANGE	- Audio Left Out
3	WHITE/GREEN	+ Audio Right Out
4	BLUE	N/A
5	WHITE/BLUE	N/A
6	GREEN	- Audio Right Out
7	WHITE/BROWN	N/A
8	BROWN	N/A

Setup

Network Wiring

When wiring the Cresnet network, consider the following:

- Use Crestron Certified Wire.
- Use Crestron power supplies for Crestron equipment.
- Provide sufficient power to the system.

For networks with 20 or more devices, use a Cresnet Hub/Repeater (CNXHUB) to maintain signal quality.

For more details, refer to "Check Network Wiring" which starts on page 17.

CAT5 Wiring

Category 5 (CAT5) wiring is a twisted pair cable designed for Ethernet networks. These networks operate at speeds of up to 100 Megabits per second (Mbps) using the 100BASE-T standard. Crestron takes advantage of this specification for a variety of audio applications.

Crestron recommends using CresCAT-IM (or D) wire for transmitting audio signals from the **AUDIO OUT** port.

When using a Crestron wiring solution, the CresCAT-IM (or D) wire can carry audio signals up to 500 feet (152 meters) (observe distance limitations based upon power consumption for the device in use).

For more information, refer to the latest version of the Crestron CAT5 Wiring Reference Guide (Doc. 6137), which is available from the Crestron Web site (www.crestron.com/manuals).

Identity Code

The Net ID of the C2N-TXM has been factory set to **55**. The Net IDs of multiple C2N-TXM devices in the same system must be unique Net IDs are changed from a personal computer (PC) via Crestron Toolbox (refer to "Establishing Communication" on page 14).

When setting the Net ID, consider the following:

- The Net ID of each unit must match an ID code specified in the SIMPL Windows program.
- Each network device must have a unique Net ID.

For more details, refer to the Crestron Toolbox help file.

Installation

Four "feet" are preinstalled with the C2N-TXM so that if the unit is not rack mounted, the feet can provide stability when the unit is placed on a flat surface or stacked.

NOTE: No more than two C2N-TXM units should be stacked.

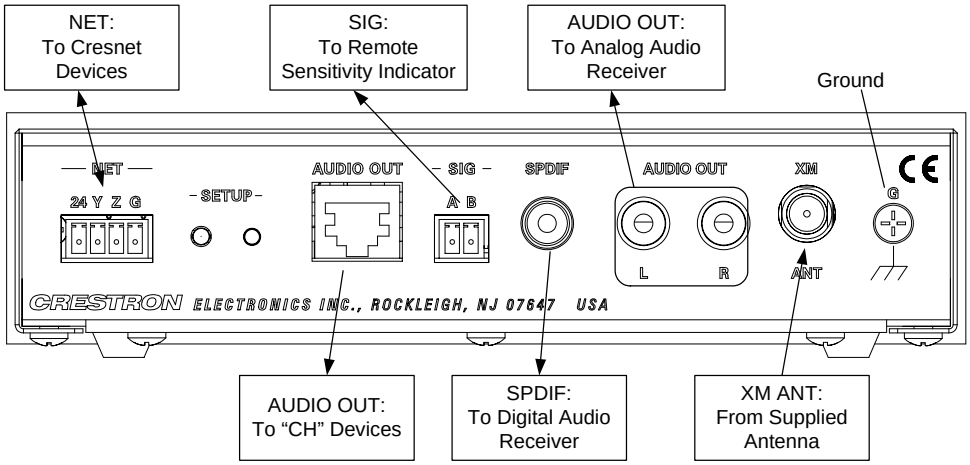
Hardware Hookup

Connect the Device

Make the necessary connections as called out in the illustration that follows this paragraph. Refer to "Network Wiring" on page 8 before attaching the 4-position terminal block connector. Apply power after all connections have been made.

When making connections to the C2N-TXM, use Crestron power supplies for Crestron equipment.

Hardware Connections for the C2N-TXM



Antenna Placement

It is important to position the supplied high-gain antenna to receive the strongest possible signal either from the satellite (preferred) or from a terrestrial repeater station. This can be done before installing the XM Tuner in your Cresnet system.

Crestron recommends placing the antenna either outside or near a window with a southern exposure. The antenna should face south if you are in the eastern half of the continental US, or south/southeast if you are in the western half of the country.

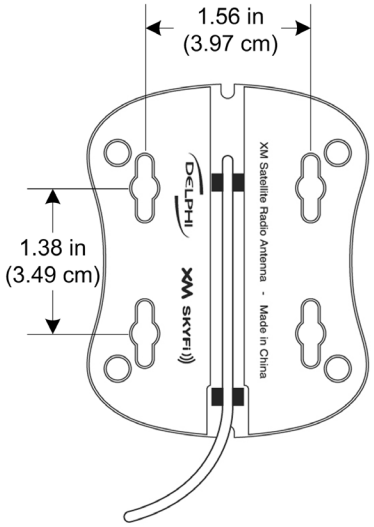
If the antenna is placed outdoors, it should be in an area where there are no obstacles within 20 to 60 degrees of elevation facing the southern sky. If the antenna is placed where obstacles such as buildings or trees are in the path to the satellite, the antenna may not receive a radio signal from the satellite. Certain areas provide satellite radio ground repeaters that retransmit satellite radio signals. Extension cables are available from Crestron.

The antenna shown below is included with the C2N-TXM.

Included XM Antenna

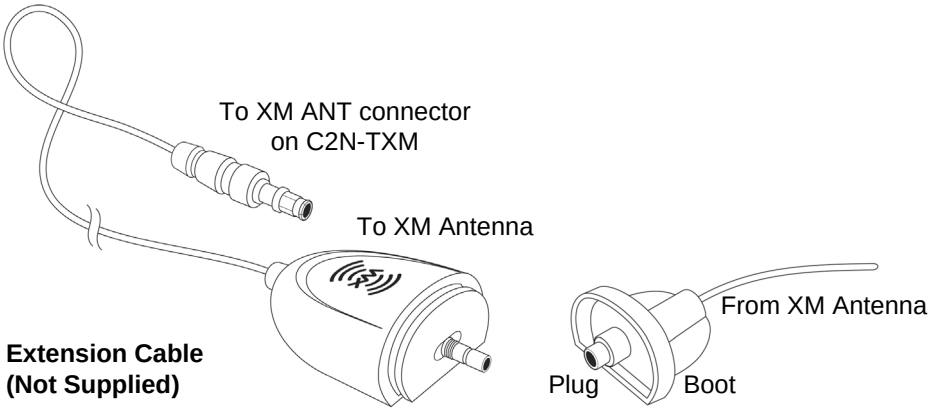
The antenna can be mounted on a horizontal or vertical surface, using screws or double-faced tape. The following figure shows the antenna mounting plate with dimensions for mounting screw locations.

XM Antenna Mounting Plate



The supplied antenna has a 20-foot cable. If needed, a 50-foot extension cable (C2N-TXM-C50) is available. Crestron recommends a maximum total length of 120 feet (36 meters). For more information, contact a Crestron customer service representative. Alternate antenna solutions are also available from third-party suppliers. One such source, Antenna Specialists, can be contacted via their Web site (www.sdarsantennas.com).

When attaching the extension cable, insert the connector from the antenna into the rubber boot supplied with the extension cable, plug it into the extension cable as shown, and cover the connection with the rubber boot. Plug the other end of the extension cable into the C2N-XM's **XM ANT** connector as shown in the following illustration.



Sensitivity Indicator

Use the included Remote Sensitivity Indicator to optimize signal reception.

NOTE: The Remote Sensitivity Indicator is supplied with six-inch leads, labeled **A** and **B**. Connect the leads to the included two-pin terminal block connector It may be necessary to extend the wires if the antenna position is not within sight of the C2N-TXM during adjustment.

1. Connect the Remote Sensitivity Indicator to the **SIG** port on the back of the C2N-TXM.
2. Place the indicator near the antenna.
3. Using the following table, rotate and/or tilt the antenna to obtain the strongest possible signal.

Remote Sensitivity Indicator Operation

SIGNAL STRENGTH	LED		OPERATION
	COLOR	STATE	
No Signal	Red	On	
	Green	Off	
Weak	Red	Flashing	Flashing rate is 250 msec (1/4th sec) (Slow blink)
	Green	Off	
Marginal	Red	Off	Flashing rate is 50 msec (1/20th sec) (Fast blink)
	Green	Flashing	
Strong	Red	Off	
	Green	On	

4. When a strong signal is found, secure the antenna in position.

Programming Software

Have a question or comment about Crestron software?

Answers to frequently asked questions (FAQs) can be viewed in the Online Help section of the Crestron Web site. To post a question or view questions you have submitted to Crestron's True Blue Support, log in at www.crestron.com/support. First-time users will need to establish a user account.

Earliest Version Software Requirements for the PC

NOTE: Crestron recommends that you use the latest software to take advantage of the most recently released features. The latest software is available from the Crestron Web site (www.crestron.com/software).

Crestron provides an assortment of Windows®-based software tools to develop a customized system. Use SystemBuilder™ or SIMPL Windows to create a program to control the C2N-TXM.

Programming with SystemBuilder

SystemBuilder is a comprehensive programming environment. Appropriate for most systems, it can quickly and easily generate a complete working program including both control processor logic and touch screen graphics.

Programming with SIMPL Windows

NOTE: While SIMPL Windows can be used to program the C2N-TXM, it is recommended to use SystemBuilder for configuring a system.

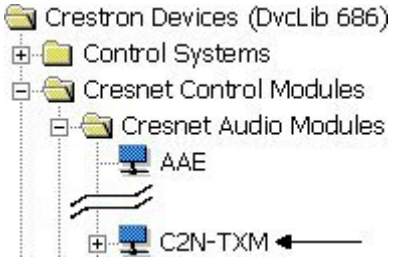
SIMPL Windows is Crestron's premier software for programming Crestron control systems. It is organized into two separate but equally important "Managers": Configuration and Program.

Configuration Manager

Configuration Manager is the view where programmers "build" a Crestron control system by selecting hardware from the *Device Library*.

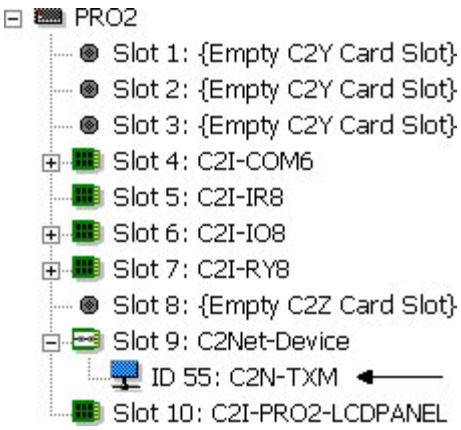
1. To incorporate the C2N-TXM into the system, drag the C2N-TXM from the Cresnet Control Modules | Cresnet Audio Modules folder of the *Device Library* and drop it in the *System Views*.

Locating the C2N-TXM in the Device Library



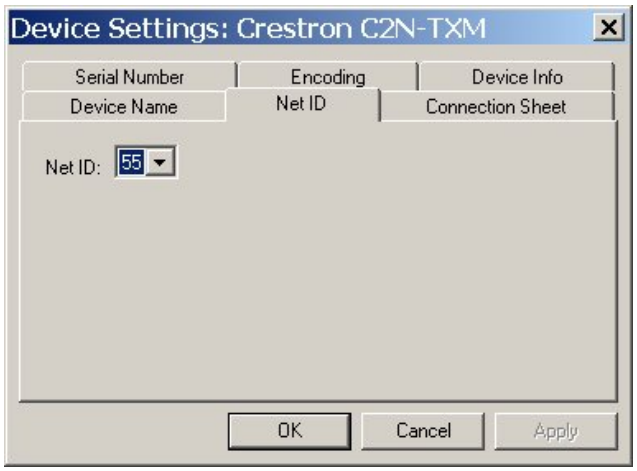
The system tree of the control system displays the device in the appropriate slot with a default Net ID as shown in the following illustration.

C2Net Device, Slot 9



2. If additional C2N-TXM devices are to be added, repeat step 1 for each device. Each C2N-TXM is assigned a different Net ID number as it is added.
3. If necessary, double click a device to open the "Device Settings" window and change the Net ID, as shown in the following illustration.

"Device Settings: Crestron C2N-TXM" Window



NOTE: The ID code specified in the SIMPL Windows program must match the Net ID of each unit. Refer to "Identity Code" on page 8.

Program Manager

Program Manager is the view where programmers "program" a Crestron control system by assigning signals to symbols.

The symbol can be viewed by double clicking on the icon or dragging it into *Detail View*. Each signal in the symbol is described in the SIMPL Windows help file (**F1**).

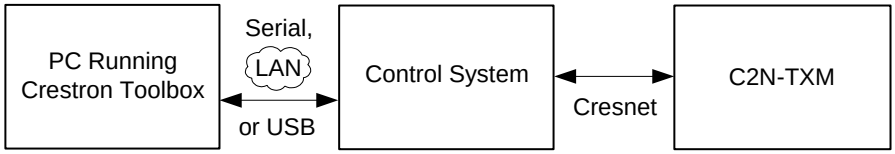
Uploading and Upgrading

Crestron recommends using the latest programming software and that each device contains the latest firmware to take advantage of the most recently released features. However, before attempting to upload or upgrade it is necessary to establish communication. Once communication has been established, files (for example, programs or firmware) can be transferred to the control system (and/or device). Finally, program checks can be performed (such as changing the device ID or creating an IP table) to ensure proper functioning.

Establishing Communication

Use Crestron Toolbox for communicating with the C2N-TXM; refer to the Crestron Toolbox help file for details. There is a single method of communication: indirect communication.

Indirect Communication



C2N-TXM connects to the rol system via Cresnet:

1. Establish communication between the PC and the control system as described in the latest version of the 2-Series Control Systems Reference Guide (Doc. 6256).
2. Use the Address Book in Crestron Toolbox to create an entry for the C2N-TXM using the expected communication protocol (indirect). Select the Cresnet ID of the C2N-TXM and the address book entry of the control system that is connected to the C2N-TXM.
3. Display the C2N-TXM's "System Info" window (click the icon); communications are confirmed when the device information is displayed.

Programs and Firmware

Program or firmware files may be distributed from programmers to installers or from Crestron to dealers. Firmware upgrades are available from the Crestron Web site as new features are developed after product releases. One has the option to upload programs via the programming software or to upload and upgrade via the Crestron Toolbox. For details on uploading and upgrading, refer to the SIMPL Windows help file or the Crestron Toolbox help file.

SIMPL Windows

If a SIMPL Windows program is provided, it can be uploaded to the control system using SIMPL Windows or Crestron Toolbox.

Firmware

Check the Crestron Web site to find the latest firmware. (New users may be required to register to obtain access to certain areas of the site, including the FTP site.)

Upgrade C2N-TXM firmware via Crestron Toolbox.

1. Establish communication with the C2N-TXM and display the "System Info" window.
2. Select **Functions | Firmware…** to upgrade the C2N-TXM firmware.

Program Checks

Using Crestron Toolbox, display the network device tree (**Tools | Network Device Tree View**) to show all network devices connected to the control system. Right-click on the C2N-TXM to display actions that can be performed on the C2N-TXM.

Operation

Activation

When first installed, the XM Tuner is not activated and has limited channel availability. To activate, either contact XM Radio on their Web site (www.xmradio.com) or call (800) 967-2346. When activating, you must have the Radio ID number which has been assigned to the C2N-TXM. The Radio ID number is located on the bottom of the C2N-TXM.

Operating Modes

The C2N-TXM operates in one of three modes; *Channel*, *Volume*, and *Signal*.

To switch between modes, press and release the **MODE** button. The **CH**, **VOL**, or **SIG** LED will light to indicate the *Channel*, *Volume* or *Signal* mode.

Channel Mode

Use *Channel* mode to browse through channels in the XM lineup. Use the ▲ and ▼ push buttons to change channels.

- To move up the channel lineup, press ▲.
- To move down the channel lineup, press ▼.

Volume Mode

Use *Volume* mode to adjust the headphone volume. Use the ▲ and ▼ push buttons to change the headphone volume.

- To raise the headphone volume, press ▲.
- To lower the headphone volume, press ▼.

Signal Mode

Use *Signal* mode to view satellite and repeater signal strength. Use the ▲ and ▼ push buttons to change the headphone volume.

To switch between satellite and repeater signal strength, press ▲ or ▼.

Problem Solving

Troubleshooting

The following table provides corrective action for possible trouble situations. If further assistance is required, please contact a Crestron customer service representative.

C2N-TXM Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
PWR LED does not illuminate.	Wrong power supply.	Use a Crestron power supply.
	C2N-TXM is not receiving power.	Verify that the cable plugged into the **NET** port is secure.
NET LED does not illuminate.	Improper Net ID.	Verify that the C2N-TXM Net ID matches Net ID in the SIMPL Windows program.
	Loose network connection.	Verify that the cable plugged into the **NET** port is secure.
Receiving only XM channels 0 and 1 and, at most, five other channels that change every four hours or so.	The XM Tuner is not activated.	Activate the XM Tuner as described in "Activation" on page 16.
Cannot tune a channel.	Unauthorized to receive that channel, or the channel is blocked.	Contact XM Radio on their Web site (www.xmradio.com) or call (800) 967-2346.
Display goes off and there is no audio.	XM Radio connection needs to be reestablished every 24 hours. (Affects only those radios that are left on all the time.)	1. Manually cycle power to the C2N-TXM once every 24 hours. 2. Add logic to the control system program to cycle power once every 24 hours.

Check Network Wiring

Use the Right Wire

To ensure optimum performance over the full range of your installation topology, use Crestron Certified Wire only. Failure to do so may incur additional charges if support is required to identify performance deficiencies because of using improper wire.

Calculate Power

CAUTION: Use only Crestron power supplies for Crestron equipment. Failure to do so could cause equipment damage or void the Crestron warranty.

CAUTION: Provide sufficient power to the system. Insufficient power can lead to unpredictable results or damage to the equipment. Use the Crestron Power Calculator to help calculate how much power is needed for the system (www.crestron.com/calculators).

When calculating the length of wire for a particular Cresnet run, the wire gauge and the Cresnet power usage of each network unit to be connected must be taken into

consideration. Use Crestron Certified Wire only. If Cresnet units are to be daisy chained on the run, the Cresnet power usage of each network unit to be daisy chained must be added together to determine the Cresnet power usage of the entire chain. If the unit is run from a Crestron system power supply network port, the Cresnet power usage of that unit is the Cresnet power usage of the entire run. The wire gauge and the Cresnet power usage of the run should be used in the following equation to calculate the cable length value on the equation's left side.

Cable Length Equation

$$L < \frac{40{,}000}{R \times P}$$

Where: L = Length of run (or chain) in feet
R = 6 Ohms (Crestron Certified Wire: 18 AWG (0.75 mm^2))
or 1.6 Ohms (Cresnet HP: 12 AWG (4 mm^2))
P = Cresnet power usage of entire run (or chain)

Make sure the cable length value is less than the value calculated on the right side of the equation. For example, a Cresnet run using 18 AWG Crestron Certified Wire and drawing 20 watts should not have a length of run more than 333 feet (101 meters). If Cresnet HP is used for the same run, its length could extend to 1250 feet (381 meters).

NOTE: All Crestron certified Cresnet wiring must consist of two twisted pairs. One twisted pair is the +24V conductor and the GND conductor and the other twisted pair is the Y conductor and the Z conductor.

Strip and Tin Wire

When daisy chaining Cresnet units, strip the ends of the wires carefully to avoid nicking the conductors. Twist together the ends of the wires that share a pin on the network connector and tin the twisted connection. Apply solder only to the ends of the twisted wires. Avoid tinning too far up the wires or the end becomes brittle. Insert the tinned connection into the Cresnet connector and tighten the retaining screw. Repeat the procedure for the other three conductors.

Add Hubs

Use of a Cresnet Hub/Repeater (CNXHUB) is advised whenever the number of Cresnet devices on a network exceeds 20 or when the combined total length of Cresnet cable exceeds 3000 feet (914 meters).

Reference Documents

The latest version of all documents mentioned within the guide can be obtained from the Crestron Web site (www.crestron.com/manuals).

List of Related Reference Documents

DOCUMENT TITLE
2-Series Control Systems Reference Guide
CAT5 Wiring Reference Guide

Further Inquiries

If you cannot locate specific information or have questions after reviewing this guide, please take advantage of Crestron's award winning customer service team by calling Crestron at 1-888-CRESTRON [1-888-273-7876]. For assistance in your region, please refer to the Crestron Web site (www.crestron.com) for a listing of Crestron worldwide offices.

You can also log onto the online help section of the Crestron Web site (www.crestron.com/onlinehelp) to ask questions about Crestron products. First-time users will need to establish a user account to fully benefit from all available features.

Future Updates

As Crestron improves functions, adds new features and extends the capabilities of the C2N-TXM, additional information may be made available as manual updates. These updates are solely electronic and serve as intermediary supplements prior to the release of a complete technical documentation revision.

Check the Crestron Web site periodically for manual update availability and its relevance. Updates are identified as an "Addendum" in the Download column.

Return and Warranty Policies

Merchandise Returns / Repair Service

1. No merchandise may be returned for credit, exchange or service without prior authorization from CRESTRON. To obtain warranty service for CRESTRON products, contact an authorized CRESTRON dealer. Only authorized CRESTRON dealers may contact the factory and request an RMA (Return Merchandise Authorization) number. Enclose a note specifying the nature of the problem, name and phone number of contact person, RMA number and return address.
2. Products may be returned for credit, exchange or service with a CRESTRON Return Merchandise Authorization (RMA) number. Authorized returns must be shipped freight prepaid to CRESTRON, 6 Volvo Drive, Rockleigh, N.J. or its authorized subsidiaries, with RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. CRESTRON reserves the right in its sole and absolute discretion to charge a 15% restocking fee plus shipping costs on any products returned with an RMA.
3. Return freight charges following repair of items under warranty shall be paid by CRESTRON, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.

CRESTRON Limited Warranty

CRESTRON ELECTRONICS, Inc. warrants its products to be free from manufacturing defects in materials and workmanship under normal use for a period of three (3) years from the date of purchase from CRESTRON, with the following exceptions: disk drives and any other moving or rotating mechanical parts, pan/tilt heads and power supplies are covered for a period of one (1) year; touchscreen display and overlay components are covered for 90 days; batteries and incandescent lamps are not covered.

This warranty extends to products purchased directly from CRESTRON or an authorized CRESTRON dealer. Purchasers should inquire of the dealer regarding the nature and extent of the dealer's warranty, if any.

CRESTRON shall not be liable to honor the terms of this warranty if the product has been used in any application other than that for which it was intended or if it has been subjected to misuse, accidental damage, modification or improper installation procedures. Furthermore, this warranty does not cover any product that has had the serial number altered, defaced or removed.

This warranty shall be the sole and exclusive remedy to the original purchaser. In no event shall CRESTRON be liable for incidental or consequential damages of any kind (property or economic damages inclusive) arising from the sale or use of this equipment. CRESTRON is not liable for any claim made by a third party or made by the purchaser for a third party.

CRESTRON shall, at its option, repair or replace any product found defective, without charge for parts or labor. Repaired or replaced equipment and parts supplied under this warranty shall be covered only by the unexpired portion of the warranty.

Except as expressly set forth in this warranty, CRESTRON makes no other warranties, expressed or implied, nor authorizes any other party to offer any warranty, including any implied warranties of merchantability or fitness for a particular purpose. Any implied warranties that may be imposed by law are limited to the terms of this limited warranty. This warranty statement supersedes all previous warranties.

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