

Crestron **C2N-TAMWX**  
AM/Weather Band Tuner

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Operations Guide



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# Contents

<b>AM/Weather Band Tuner: C2N-TAMWX</b>	<b>1</b>
Introduction .....	1
Features and Functions.....	1
Specifications .....	2
Physical Description.....	3
Industry Compliance .....	6
Setup.....	7
Network Wiring.....	7
Identity Code .....	7
Hardware Hookup .....	7
Installation .....	8
AMWX Tuner Example Program.....	8
Programming Software.....	8
Uploading and Upgrading .....	8
Problem Solving .....	9
Troubleshooting .....	9
Further Inquiries .....	9
Future Updates .....	9
Return and Warranty Policies.....	10
Merchandise Returns / Repair Service .....	10
CRESTRON Limited Warranty .....	10



# AM/Weather Band Tuner: C2N-TAMWX

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## Introduction

### Features and Functions

The Crestron® C2N-TAMWX is a Crestron-controlled AM/Weather Band tuner (AMWX Tuner), has a built-in AM antenna, and is designed to work only in conjunction with the C2N-TFM FM Radio Tuner (FM Tuner) or the C2N-TTVFM Television and FM Radio Tuner (TV/FM Tuner). The AMWX Tuner adds high-performance AM radio and NOAA National Weather Radio programming to your Crestron Home® whole-house audio distribution system.

The AMWX Tuner is designed to work in a 2-Series or X-Generation Crestron control system (Cresnet® system). You can use any Crestron multi-mode touchpanel to search through the stations and control tuner functions. User-programmable presets let you quickly select your favorite station. Audio output from the AMWX Tuner is supplied to the FM Tuner or TV/FM Tuner and can then be routed to a local amplifier or to a CNX-BIPAD8 for distribution to other rooms via CAT5 cabling.

#### *Functional Summary*

- Headphone connector for local monitoring of audio output during installation
- Up to ten presets for AM—five for weather band—for fast program selection
- RJ-45 connector provides link (up to 500 feet) to C2N-TFM FM Radio Tuner or C2N-TTVFM Television and FM Radio Tuner for control and audio output
- Integrated configuration lets local FM Tuner or TV/FM Tuner buttons control the AMWX Tuner

## Specifications

The following table summarizes the specifications for the C2N-TAMWX tuner.

### *Specifications of the C2N-TAMWX*

SPECIFICATION	DETAILS
Power Requirements AMWX Tuner only FM Tuner plus AMWX Tuner TV/FM Tuner plus AMWX Tuner	8.0 Watts (0.33 Amp @ 24 VDC) 16.0 Watts (0.66 Amp @ 24 VDC) 16.0 Watts (0.66 Amp @ 24 VDC)
Control System Update Files <sup>1, 2, 3</sup> 2-Series Control System CNMSX-AV/PRO CNRACKX/-DP CEN/CN-TVAV	Version 2.004.CUZ or later Version 5.12.63X.UPZ or later Version 5.12.63W.UPZ or later Version 5.12.63V.UPZ or later
C2N-TAMWX Firmware	C2N-TAMWX.v2.08.upg or later
Frequency Range	AM: 530 kHz to 1710 kHz Weather: 162.4 MHz to 162.55 MHz
Sensitivity AM (RF input level 10 dB S+N/N) WX (RF input level 10 dB S+N/N)	3.5 $\mu$ V 7 $\mu$ V
Up/Dn Frequency increments	AM: 10 kHz (US/NA), 9 kHz (Europe); WX: 25 kHz
Alternate Channel Selectivity	55 dB
IF Rejection	60 dB
Image Rejection	35 dB
Audio Output	Mono via CAT5 link to FM Tuner or TV/FM Tuner audio output ports
Audio output level @ 1 kHz <sub>RMS</sub>	1 V <sub>RMS</sub>
Output impedance	<100 Ohms single-ended
Recommended load impedance	>1 K Ohm
Ports/Connectors REMOTE WX ANT AM ANT	RJ-45 for link (up to 500 feet) to FM Tuner or TV/FM Tuner for control and audio output F-Type coaxial connector for WX antenna input <sup>4</sup> A 2-pin terminal block connector for external antenna signal (S) and ground (G)
Environmental temperature	-4° to 158°F (-20° to 70°C)
Humidity	10% to 90% RH (non-condensing)
Dimensions	Height: 12.66 in (32.16 cm) Width: 12.10 in (30.73 cm) Depth: 12.40 in (31.50 cm)
Weight	7.00 lb (3.20 kg)

- The latest versions can be obtained from the Downloads | Software Updates section of the Crestron website ([www.crestron.com](http://www.crestron.com)). Refer to following NOTE.
- Crestron 2-Series control systems include the AV2 and PRO2. Consult the latest Crestron Product Catalog for a complete list of 2-Series control systems.
- Filenames for CNX and ST-CP update files have a UPZ extension. Files on the website may be .zip or self-extracting .exe files containing the .cuz or .upz file. All can be obtained from the Downloads section of the Crestron website. To avoid program problems, make sure you are using the update file with the correct suffix letter (e.g., S, V, W, X)
- Use a high-gain TV antenna for reception of weather channels (not supplied).

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**NOTE:** Crestron software and any files on the website are for Authorized Crestron dealers and Crestron Authorized Independent Programmers (CAIP) only. New users may be required to register to obtain access to certain areas of the site (including the FTP site).

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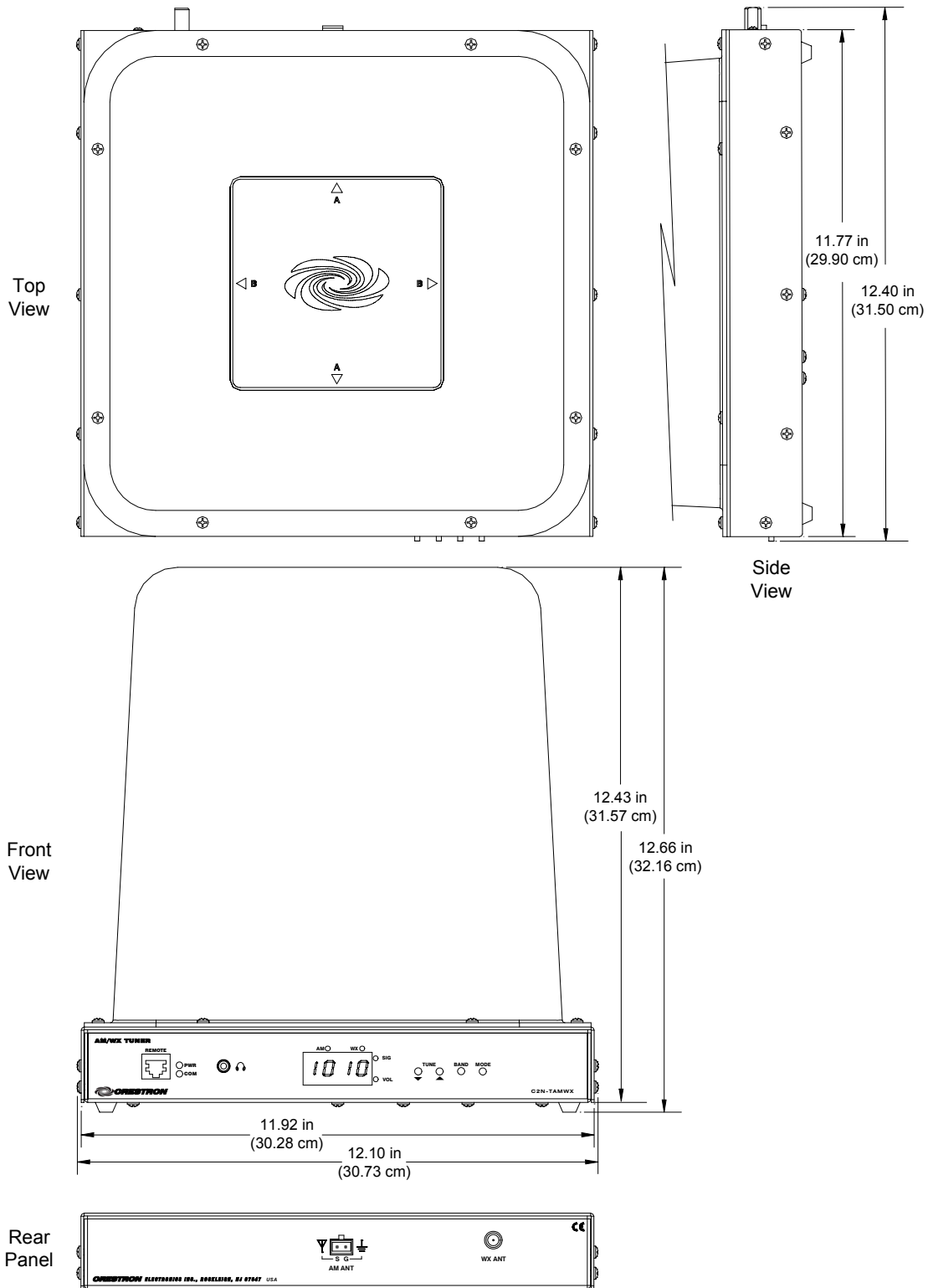
## Physical Description

The C2N-TAMWX is housed in a black enclosure with labeling on the front and rear panels. The built-in antenna is located in the top housing. The front of the unit includes six LEDs that indicate the unit's status, all local controls, plus the connector for the interface to the FM Tuner or TV/FM Tuner. Connections for external antennas are located on the rear panel. Four rubber feet on the bottom of the unit provide stability and prevent slippage. Refer to the figures below and on the following page.

### *C2N-TAMWX Physical View*



*C2N-TAMWX Overall Dimensions*

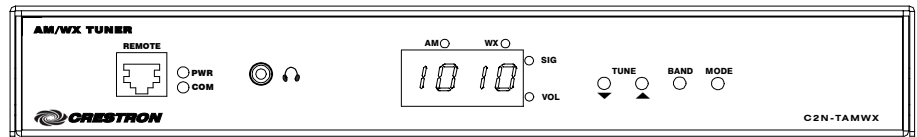




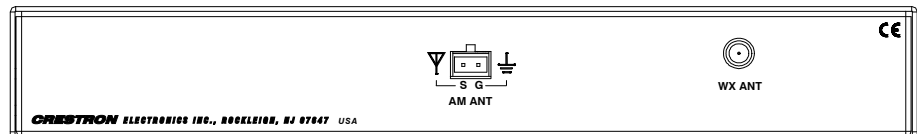
**C2N-TAMWX Ports**

The interface connection to the FM Tuner or the TV/FM Tuner and the headphone jack are located on the front panel; connections for external antennas are located on the rear panel. Refer to the illustrations and descriptions, which follow.

**C2N-TAMWX Front Panel**



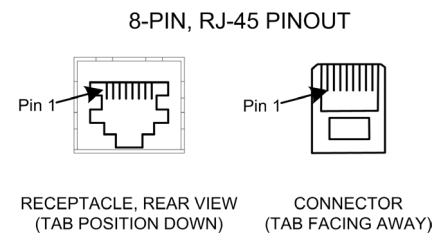
**C2N-TAMWX Rear Panel**



**REMOTE (RJ-45)**

The RJ-45 **REMOTE** port on the front of the unit provides noise free CAT5 interface (up to 500 feet of straight-thru cable) to the companion FM Tuner or TV/FM Tuner. Wiring for the connector is shown in the following diagrams.

PIN #	SIGNAL
1	+24V
2	+24V
3	COM+
4	Audio+
5	Audio-
6	COM-
7	Ground
8	Ground



**NOTE:** This connector is to be used only to provide interface to Crestron products specifically designed to work with this unit. It cannot be used for connections to Cresnet or Crestron audio distribution devices.

**AM ANT**

This 2-pin (S, G) terminal block connector is used to connect an optional external long wire or dipole AM antenna.

**WX ANT**

This Type F coaxial connector is for an external high-gain TV antenna cable (not supplied) or for a fabricated cable for reception of weather band stations.

**(Headphone)**

This mini-phone jack on the front panel of the AMWX Tuner permits the use of headphones to monitor the audio signal during installation and locating of antennas for best AM and weather band reception. The volume mode, selected by the MODE

switch, allows adjustment of the volume to the headphones only. Note that plugging in headphones does not interrupt the unit's other audio output.

### ***Front Panel Controls and Indicators***

Six LED indicators, a five-digit display, and four pushbutton switches are located on the front panel of the AMWX Tuner. Refer to the illustration on page 5 and the descriptions that follow. The front panel controls are used during initial setup and positioning of the unit. During normal operation, control of the unit is handled via the FM Tuner or TV/FM Tuner local controls or via touchpanel controls.

#### **PWR (Power)**

This green LED illuminates when power is supplied to the C2N-TAMWX.

#### **COM**

This yellow LED illuminates when communication between the control system and the AMWX Tuner is established (the unit is polled on the network). Illumination indicates that the program currently loaded has a network device defined at the same ID as the C2N-TFM or C2N-TTVFM. The LED flashes or remains on when communication with the processor occurs.

#### **BAND Switch**

Use the **BAND** switch to select between the AM and WX (weather) bands. The corresponding red LEDs (**AM**, **WX**) illuminate as each band is selected, and the five-digit display shows the appropriate values.

#### **MODE Switch, ▲▼ (Up/Down) Tune Buttons, and Display**

Use the **MODE** switch to select between the signal, volume, and tune modes. Corresponding red LEDs (**SIG** and **VOL**) illuminate in the signal and volume modes. In the tune mode, the **BAND** switch selects between the AM and WX bands. In each mode, the five-digit display shows the appropriate values.

In the AM band, with the signal mode selected, the up/down buttons are used to select the antenna source; the display shows a letter indicating the choice plus a two-digit relative signal strength (00 – 99): **A** = internal loop A, **B** = internal loop B, **A•** = internal loop A plus external AM antenna, **B•** = internal loop B plus external AM antenna.

In the weather band, with signal mode selected, the display shows **E** plus the relative signal strength (00 – 99); the up/down buttons are not used.

In the volume mode, the up/down buttons select ten volume levels (0 through 9) for the signal (mono) supplied to the headphone jack.

In the tune mode, the up/down buttons let you sequence through the band frequencies in 10 kHz increments. (The frequency scan and step rate can be changed via the program from 10 kHz to 9 kHz, the rate needed in European radios.)

## **Industry Compliance**

As of the date of manufacture, the C2N-TAMWX has been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling (N11785).



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

## Setup

### Network Wiring

**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. Please use the Crestron Power Calculator to help calculate how much power is needed for the system.  
([http://www.crestron.com/dealer-tech\\_resources/power\\_calculator.asp](http://www.crestron.com/dealer-tech_resources/power_calculator.asp))

**NOTE:** When installing network wiring, refer to the latest revision of the wiring diagram(s) appropriate for your specific system configuration, available from the Downloads | Product Manuals | Wiring Diagrams section of the Crestron website ([www.crestron.com](http://www.crestron.com)).

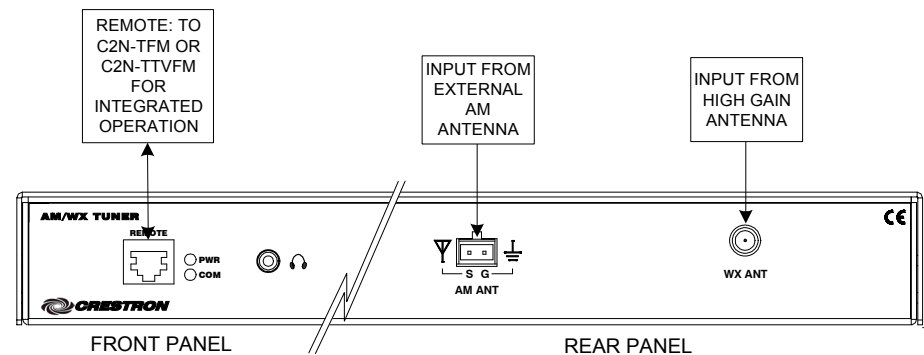
### Identity Code

The AMWX Tuner is not a standalone Cresnet device; it functions only in conjunction with the FM Tuner or the TV/FM Tuner, and does not have a unique identity code. Refer to the latest version of the appropriate Operations Guide: Doc. 6233 (FM Tuner) or Doc. 6266 (TV/FM Tuner) for information on communicating with and uploading firmware to the AMWX Tuner.

### Hardware Hookup

Refer to the hookup diagram below. Complete the connections in any order.

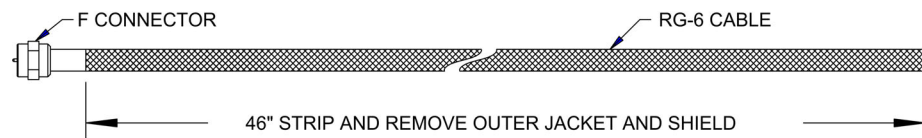
#### *Cresnet System Hookup Connections for C2N-TAMWX*



## Installation

Place the AMWX Tuner in the highest possible location, such as an attic, for best reception. (Do not place in shielded area or close to sources of interference such as fluorescent lights, power cables, motors, etc.) Up to 500 feet of straight-thru CAT5 cabling can be used for noise free interface between the AMWX Tuner and the FM Tuner or TV/FM Tuner. Use headphones to monitor the audio signal during installation, turning the AMWX Tuner as necessary for best AM reception. You may wish to use an optional external long wire or dipole AM antenna in addition to the built in antenna. However, this is recommended only in fringe reception areas. An external antenna can increase a distant signal, but will reduce the radio's directivity. A high-gain TV antenna cable (not supplied) or a fabricated cable (refer to the following figure) is required for reception of weather band stations. Adjust the antenna's direction to obtain the best weather station reception.

### *Fabricated Cable for Weather Channel*



## Internal Antenna Calibration

After placing the AMWX Tuner in position, disconnect the CAT5 cable to remove power, press and hold the **BAND** and **MODE** buttons simultaneously, and reconnect the CAT5 cable to supply power to the radio. The display will show **Auto** and then rapidly show a series of alphanumeric characters as the radio calibrates the antenna and memorizes the best selections of the A and B loops. If the AMWX Tuner is repositioned to improve the reception of a particular station, perform the antenna calibration again to adjust the antenna settings for the other stations.

## AMWX Tuner Example Program

The AMWX Tuner is operated only through the FM Tuner or the TV/FM Tuner. Therefore, the example program for the FM Tuner or the TV/FM Tuner also demonstrates the various features of the AMWX Tuner. Download the example program from the Crestron FTP site, <ftp://ftp.crestron.com/Examples>, (search for C2N-TFM.Basic Example.zip or C2N-TTVFM.Basic Example.zip).

## Programming Software

Programming instructions for the AMWX Tuner are included with the instructions for programming the FM Tuner or the TV/FM Tuner. Refer to the appropriate Operations Guide: Doc. 6233 (FM Tuner) or Doc. 6266 (TV/FM Tuner).

## Uploading and Upgrading

Uploading and upgrading instructions for the AMWX Tuner are included with the instructions for uploading firmware for the FM Tuner or the TV/FM Tuner. Refer to the appropriate Operations Guide: Doc. 6233 (FM Tuner) or Doc. 6266 (TV/FM Tuner).

## 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-TAMWX Troubleshooting*

TROUBLE	PROBABLE CAUSE(S)	CORRECTIVE ACTION
Green PWR LED does not illuminate.	Wrong power supply.	Use a Crestron power supply.
	C2N-TAMWX is not receiving power.	Verify that cable plugged into REMOTE port is secure, and that the cable pinout is correct.
Yellow COM LED does not illuminate.	Improper Net ID.	Verify that the C2N-TFM or C2N-TTVFM Net ID matches Net ID in the software program.
	Loose network connection.	Verify that cable plugged into the C2N-TFM or C2N-TTVFM NET port is secure, and that the cable pinout is correct.
Search functions do not work properly.	Station signal strength is too low.	Check antenna placement for good signal strength.

### Further Inquiries

If, after reviewing this Operations Guide for the C2N-TAMWX, you cannot locate specific information or have questions, please take advantage of Crestron's award winning customer service team in your area. Dial one of the following numbers.

- In the US and Canada, call Crestron's corporate headquarters at 1-888-CRESTRON [1-888-273-7876].
- In Europe, call Crestron International at +32-15-50-99-50.
- In Asia, call Crestron Asia at +852-2341-2016.
- In Latin America, call Crestron Latin America at +5255-5093-2160.
- In Australia and New Zealand, call Crestron Pacific at +613-9480-2999.

You can also log onto the online help section of the Crestron website ([www.crestron.com](http://www.crestron.com)) 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-TAMWX, additional information and programming examples 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 website ([www.crestron.com](http://www.crestron.com)) periodically for manual update availability and its relevance. Updates are available from the Downloads | Product Manuals section and are identified as an “Addendum” in the Download column.

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## 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 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 supercedes all previous warranties.

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**Operations Guide – DOC. 6267**  
**05.04**

Specifications subject to  
change without notice.