Crestron **BPC-8**
onCue™ Basic Presentation Controller
Operation & Installation Guide

CRESTRON.

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

CRESTRON®

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Regulatory Compliance

As of the date of manufacture, the BPC-8 has been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling.

$$\mathsf{C}\mathsf{E} \quad \mathbf{C}$$

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

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Contents

onCue™ Basic Presentation Controller: BPC-8

Introduction

Simple, reliable control meets extreme affordability in the onCue™ Basic Presentation Controller from Crestron®. Ideal for K-12 primary education classrooms and small meeting rooms, onCue provides a compact wall mount keypad controller (BPC-8) with eight assignable buttons for controlling a single projector, flat screen display, or source device. Crestron onCue can even be configured to control a complete room presentation system equipped with a display device, a motorized screen or lift, and a controllable source such as a DVD player.

Features and Functions

- Ultra-affordable control for a single display device
- Also allows control of source components and other devices
- Compact design mounts in a single-gang electrical box
- Affords an attractive and professional appearance
- Features large backlit buttons for easy control in any room
- Affords super-intuitive operation for any user
- Includes interchangeable button caps for flexible configuration
- Allows customizable LED button feedback behavior
- Enables user passcode protection and automatic projector shutdown
- Includes built-in IR library for simple out-of-the-box setup
- Macros enable sophisticated functionality from a single button press

(Continued on following page)

Features and Functions

(Continued)

- Supports up to 3 IR or 1 RS-232 devices[1]
- Allows advanced configuration via easy-to-use software and IR learner/programmer (sold separately)

Always Ready — Easy to Use

Stop searching for lost remotes and constantly replacing batteries just to turn on the projector. Mounted on the wall or in a lectern, onCue is always at the ready, affording straight-forward operation through large, easy-to-read backlit buttons. A selection of pre-labeled buttons provides for control of power, source selection, and volume control, and all eight buttons are interchangeable to suit the application, delivering a customizable control solution that is immediately intuitive to every user. And, every room in your facility can be set up for identical operation, so even if the display equipment varies from room to room, the user experience remains consistent.

Super Simple Installation

The onCue BPC-8 controller mounts conveniently in a single-gang electrical box or mud ring. A single 4-conductor cable[2] links the BPC-8 to its companion interface module (BPC-8-IMC included), which may be installed anywhere up to 50 feet (~15 meters) away. The tiny module typically installs at the display location, providing connectivity for up to three IR-controlled devices[1], one RS-232 controlled device[1], and a 120V power pack (included).

The BPC-8 ships with the interface module, power pack, one IR emitter probe, and a set of 13 interchangeable button caps. Just add the 4-conductor link cable[2] and you have got everything you need to control a typical projector or flat panel display.

1. If controlling multiple devices, each device must respond to a disparate command set. Controlling IR devices in combination with an RS-232 device is not recommended.
2. For connection between the BPC-8 Controller and BPC-8-IMC Interface Module, use a CBL-PWR-CTRL-P-TL-50 or equivalent 4-conductor cable (sold separately). Cresnet® Control Cable is an acceptable equivalent. Maximum length allowed is 50 ft (~15 m). Do not connect to a Cresnet network or device, or to any other network or device.

Additional IR probes, RS-232 cable, and an alternate set of buttons for controlling a source device, are also available*.

Built-In Library

Configuring onCue to control a single display device is a simple two step process. Just find your display in the list provided, and enter its designated code using the BPC-8 keypad. That is it. The buttons come pre-configured out of the box, ready for controlling your display's power, volume, mute, and source select functions.

Easy Learning and More

Your onCue system can easily graduate to a higher level of control using the optional onCue software tool and BPC-HPLIR IR Learner & Programmer (sold separately).With full access to the vast Crestron Database of IR devices, and the ability to learn IR commands from virtually any third-party IR remote, installers can easily assign any command to any button and enable control of multiple devices. The software tool also enables the entry of serial commands to support device control via 1-way RS-232*.

Macro Magic

Even better, the software tool enables the creation of sophisticated macros, allowing onCue to send multiple commands to multiple devices with a single button press. Using macros, it can be possible to simultaneously select a source, turn on the projector, and lower the projection screen with one button. Or, use one button to "click" through the available sources one by one. A single macro can consist of up to five separate commands, with the ability to define a time delay or "wait for next button press" between each one.

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*   If controlling multiple devices, each device must respond to a disparate command set. Controlling IR devices in combination with an RS-232 device is not recommended.

LED Feedback

Each button on the BPC-8 keypad controller includes a red LED to provide users with extra assurance behind every button press. Out of the box, these LEDs illuminate momentarily when the associated button is pressed. Using the software tool, the LED behavior can be customized to support toggle feedback (LED latches on and off with each successive button press), and interlock grouping. Interlock feedback is ideal for use with discrete source selection buttons, and discrete on and off buttons, to indicate the last selected source or power state.

Extra Safeguards

Additional capabilities include the options to enable passcode protection and auto-shutdown. Passcode protection prevents unauthorized use of the system by requiring the entry of a preset sequence of four button presses to enable operation. Auto-shutdown turns off the display device if no button is pressed within a preset amount of time, saving energy and preventing the premature failure of expensive projector lamps*.

Uploads at the Speed of Light

After creating your custom configuration using the onCue software tool, simply use the handheld BPC-HPLIR IR Learner & Programmer (sold separately) to upload the configuration file to the BPC-8. The handheld BPC-HPLIR provides a convenient means for uploading a single configuration to any number of onCue controllers, requiring mere seconds to transfer the file via a simple optical cable. There is no need to remove the BPC-8 from the wall or even remove its faceplate, and one configuration can be used repeatedly for any number of identically equipped rooms, affording incredibly quick and easy setup of each room without any need to carry around a laptop.

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*   To take advantage of the auto-shutdown feature, it is required that the display device support a discrete "power off" command.

Application

The following diagram shows the BPC-8 in a typical application.

Typical Application
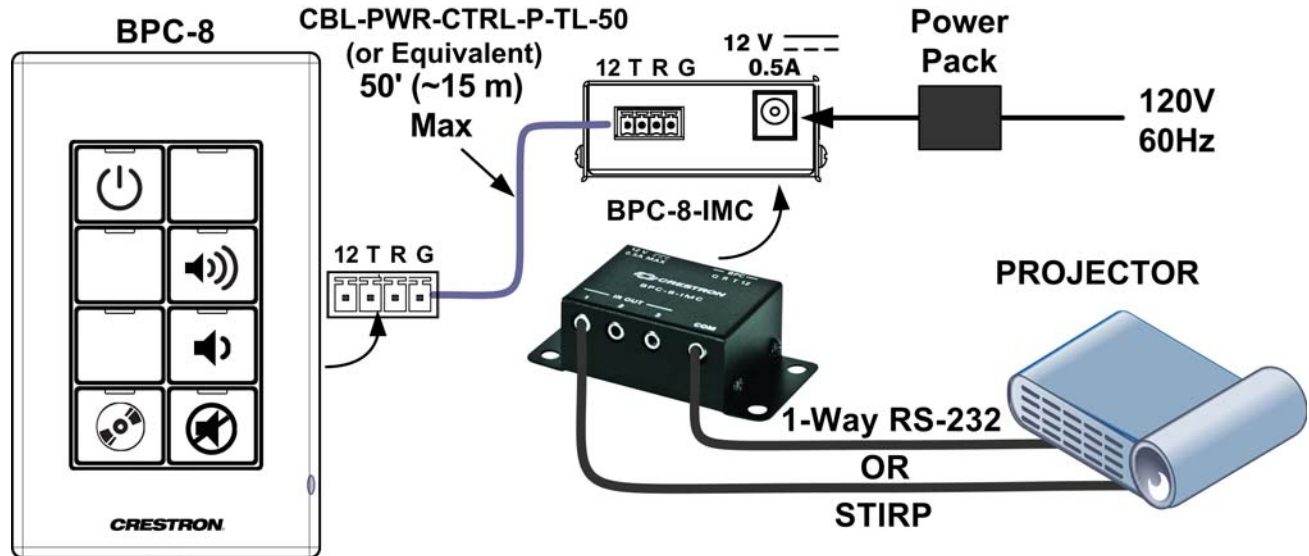
Specifications

Specifications for the BPC-8 are listed in the following table.

BPC-8 and BPC-8-IMC Specifications

SPECIFICATION	DETAILS
Communications	
RS-232	Supports 1-way device control up to 115.2k baud*, and supports 2-way computer console for firmware update
IR	Supports 1-way device control via infrared up to 455 kHz*
Optical	Receives configuration file via IR from BPC-HPLIR

(Continued on following page)

BPC-8 and BPC-8-IMC Specifications (Continued)

SPECIFICATION	DETAILS
Power Requirements Power Pack	0.5 Amps @ 12 Volts DC; 120 Volts AC, 60 Hz power pack, included; Power connection made via BPC-8-IMC Interface Module (included)

Environmental
   Temperature
   Humidity
   Heat Dissipation
	
	32° to 113° F (0° to 45° C)
	10% to 90% RH (non-condensing)
	2.5 BTU/hr

Enclosure
   BPC-8 Controller
 	
   BPC-8-IMC Interface Module
	
	Plastic, matte white, 1-gang mountable in a standard electrical box, faceplate included
	Metal with black finish, surface mount box with (2) integral mounting flanges

Dimensions
   BPC-8 Controller
   (with faceplate)
      Height
      Width
      Depth
   BPC-8-IMC Interface Module
      Height
      Width
      Depth
	
	4.77 in (122 mm)
	2.92 in (75 mm)
	1.54 in (40 mm)
	
	1.00 in (25 mm)
	3.33 in (85 mm)
	1.71 in (44 mm)

*(Continued on following page)*

BPC-8 Specifications (Continued)

SPECIFICATION	DETAILS
Weight	
BPC-8 Controller	3 oz (86 g)
BPC-8-IMC Interface Module	3 oz (86 g)
Included Accessories	
Power Pack	12VDC, 0.5A, 120VAC
STIRP	IR Emitter Probe with 3.5 mm Mini Phone Plug
Available Accessories	
BPC-HPLIR	onCue IR Learner & Programmer
BPC-8-BTNK-SRC	Source Control Button Caps for BPC-8, Set of 12
CBL-PWR-CTRL-P-TL-50	4-Conductor Link Cable for BPC-8, Plenum, 50 ft
CBL-SERIAL-DB9F-6	3.5mm TRS to DB9F RS-232 Control Cable, 6 ft
FS6-W	6.5" 2-Way Surface Mount Media Presentation Speakers, Pair, White
FSDI8-W-T	8" Drop-in Ceiling Speakers, Pair, Matte White
MP-AMP30	Media Presentation Audio Amplifier
STIRP	IR Emitter Probe with 3.5 mm Mini Phone Plug

*   If controlling multiple devices, each device must respond to a disparate command set. Controlling IR devices in combination with an RS-232 device is not recommended.

Physical Description

This section provides information on the connections, controls and indicators available on your BPC-8 and BPC-8-IMC.
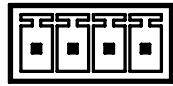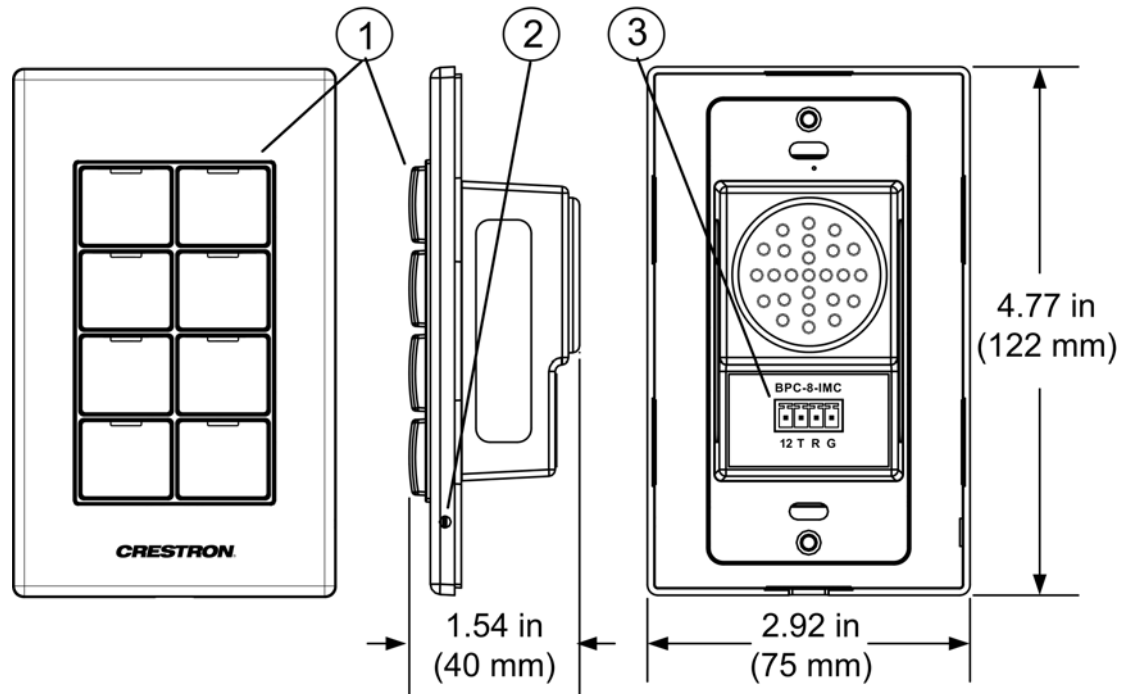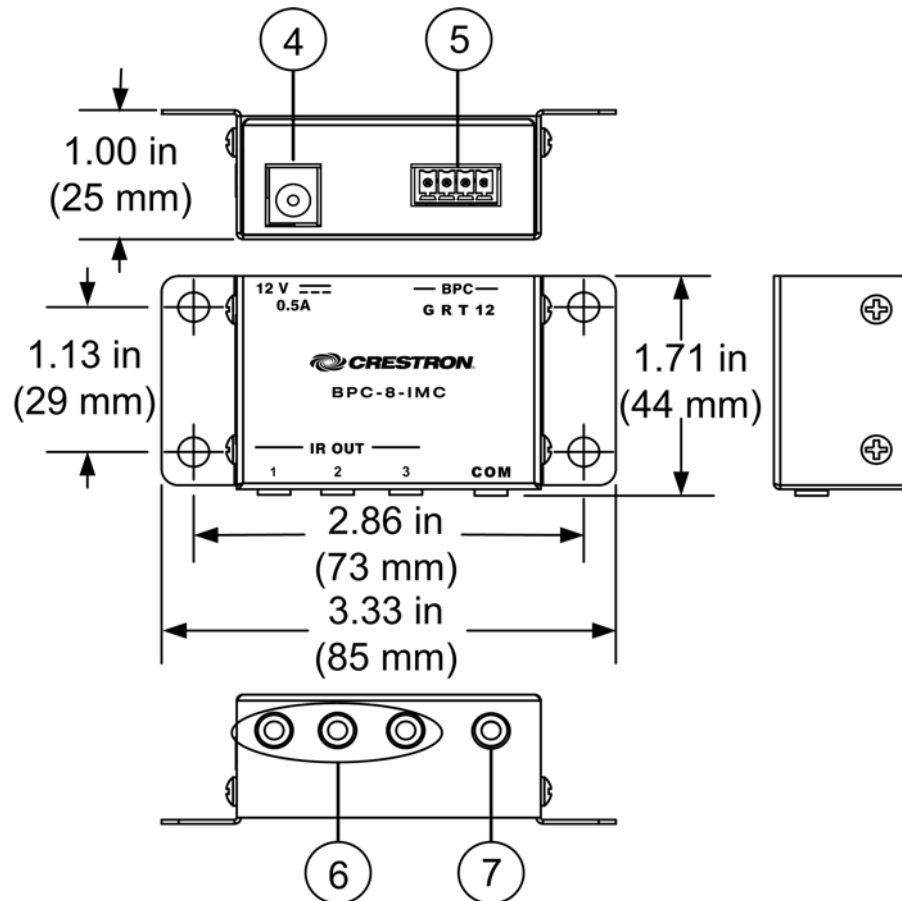
BPC-8 Physical View
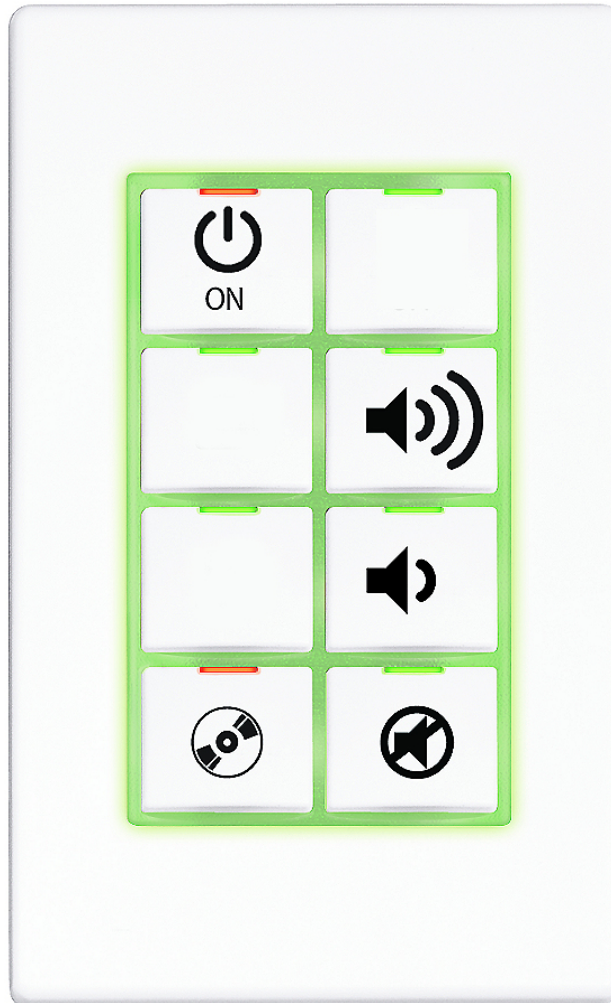
BPC-8-IMC Physical View

BPC-8 Overall Dimensions

BPC-8-IMC Overall Dimensions

Connectors, Controls & Indicators

#	CONNECTORS[1], CONTROLS & INDICATORS	DESCRIPTION
1	Hard Keys	(8) Assignable push buttons with interchangeable pre-labeled button caps, support macros
2	Optical Access Port	Provides access for optical cable from BPC-HPLIR IR Learner & Programmer

3	BPC-8-IMC
	
	12 T R G
		(1) 4-pin 3.5mm detachable terminal block;
		Connects to BPC-8-IMC Interface Module (included) via CBL-PWR-CTRL-P-TL-50 cable[2];
		  12: Power (12 Volts DC)
		  T: Data
		  R : Data
		  G: Ground

4	12 VDC 0.3A	(1) 2.5mm barrel DC power jack, 12 Volt DC power input; Power pack included

5	BPC
	
	G R T 12
		(1) 4-pin 3.5mm detachable terminal block;
		Connects to BPC-8 Controller via; CBL-PWR-CTRL-P-TL-50 cable[2]
		  G: Ground
		  R: Data
		  T: Data
		  12: Power (12 Volts DC)

6	IR OUT (1-3) 1 2 3	(3) 3.5mm mini-phone jacks, IR output ports[3]; IR output up to 455 kHz; (1) STIRP IR Emitter Probe included

(Continued on following page)

Connectors, Controls & Indicators (Continued)

#	CONNECTORS[1], CONTROLS & INDICATORS	DESCRIPTION
7	COM ◎	(1) 3.5mm TRS mini-phone jack, 1-way RS-232 control port for media device. Serial output up to 115.2k baud; Supports 2-way serial for computer console only (firmware update).

1. Interface connectors for **BPC-8-IMC** and **BPC** ports are provided with the unit.
2. For connection between the BPC-8 Controller and BPC-8-IMC Interface Module, use a CBL-PWR-CTRL-P-TL-50 or equivalent 4-conductor cable (sold separately). Cresnet Control Cable is an acceptable equivalent. Maximum length allowed is 50 ft (~15 m). Do not connect to a Cresnet network or device, or to any other network or device.
3. If controlling multiple devices, each device must respond to a disparate command set. Controlling IR devices in combination with an RS-232 device is not recommended.

Setup

Installation

The following tools/hardware are required for installation:

- Phillips screwdriver (not supplied)
- Two 1 in. pan head Phillips screws (included)
- Two 4-pin detachable terminal block connectors (included)

Use the following procedure to install the BPC-8 keypad and
BPC-8-IMC interface module (refer to the illustration on page 13).

1. Install Crestron's plenum rated CBL-PWR-CTRL-P-TL-50 cable
   (available separately) 50 ft (~15 m) maximum length, between the
   single-gang electrical box for the BPC-8 and the location of the
   BPC-8-IMC. (A 4-conductor CAT5 cable or other wire with a
   minimum wire size of 24 AWG may also be used.) Refer to the pin
   connections shown in the table on the previous page, and connect
   the supplied 4-pin detachable connectors to each end of the cable.

2. Connect the pre-installed cable to the 4-pin terminal block on the
   rear of the button assembly, and mount the BPC-8 to the
   single-gang electrical box as shown in the following diagram.

   a. Remove the faceplate by snapping it off the button assembly.
      (Use care in removing the faceplate; it holds the button support
      grid and button caps in place.)

   b. Make sure the button unit is oriented as marked with the arrow
      at the top, place it in the electrical box, and attach it using the
      supplied #6-32 x 1" screws.

   c. Return the button caps to their original positions on the button
      assembly (refer to illustration on page 8), with LED windows
      oriented upward to match each LED indicator.

   d. Install the button support grid with stabilizing tabs to the rear,
      put the faceplate in position (optical cable access port on the
      lower right), and snap it into place.

3. Mount the BPC-8-IMC on an appropriate surface at the display
   location using the supplied hook and loop tape. Connect the pre-
   installed cable to the 4-pin terminal block connector, and connect

the IR emitter probe(s) or RS-232 cable (CBL-SERIAL-DB9F-6),
sold separately, as required, to the interface module and the display
device(s).
(If necessary, refer to the display device's documentation for IR
window location.) Connect the power pack to AC power and to the
interface module.

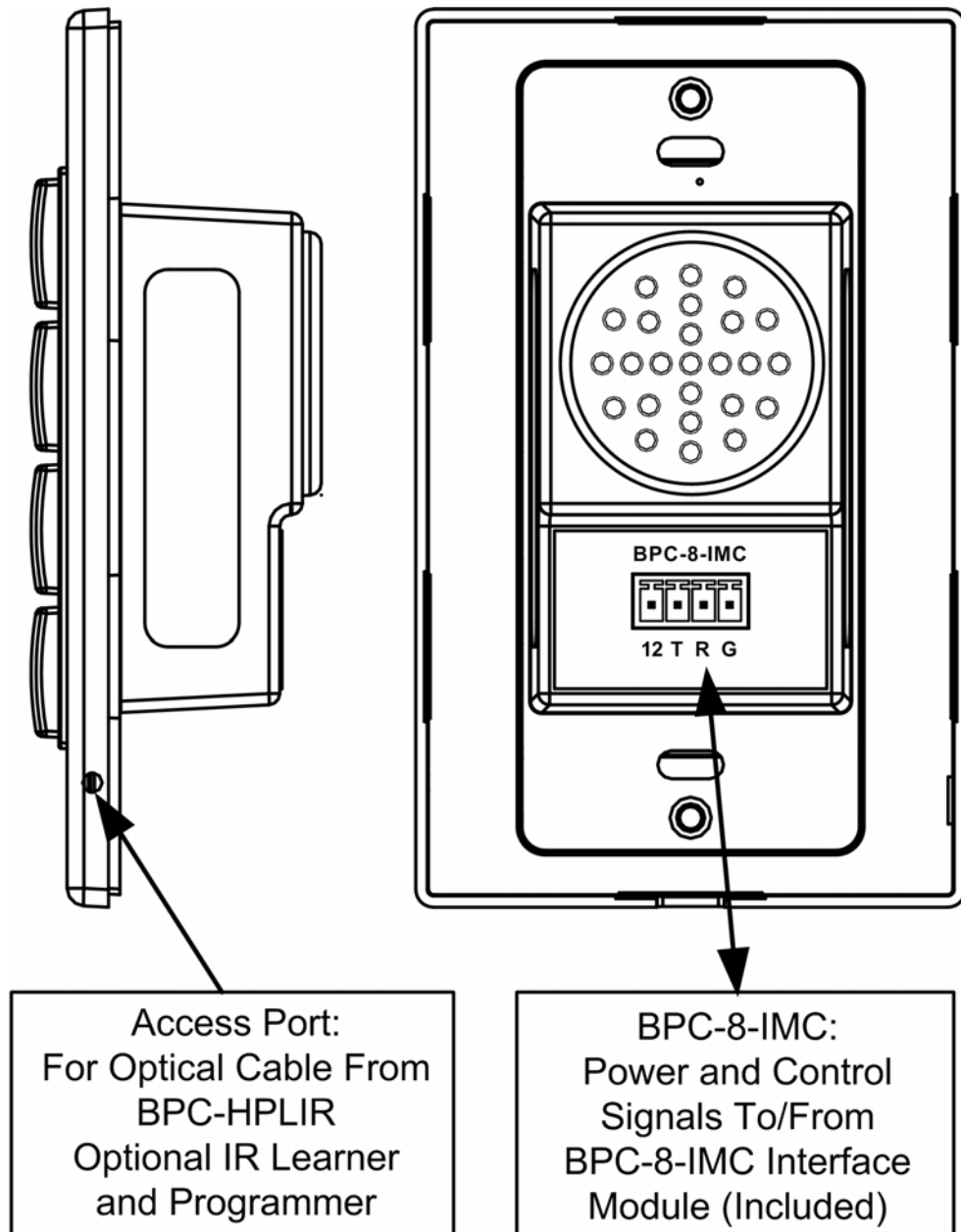*BPC-8 Installation*
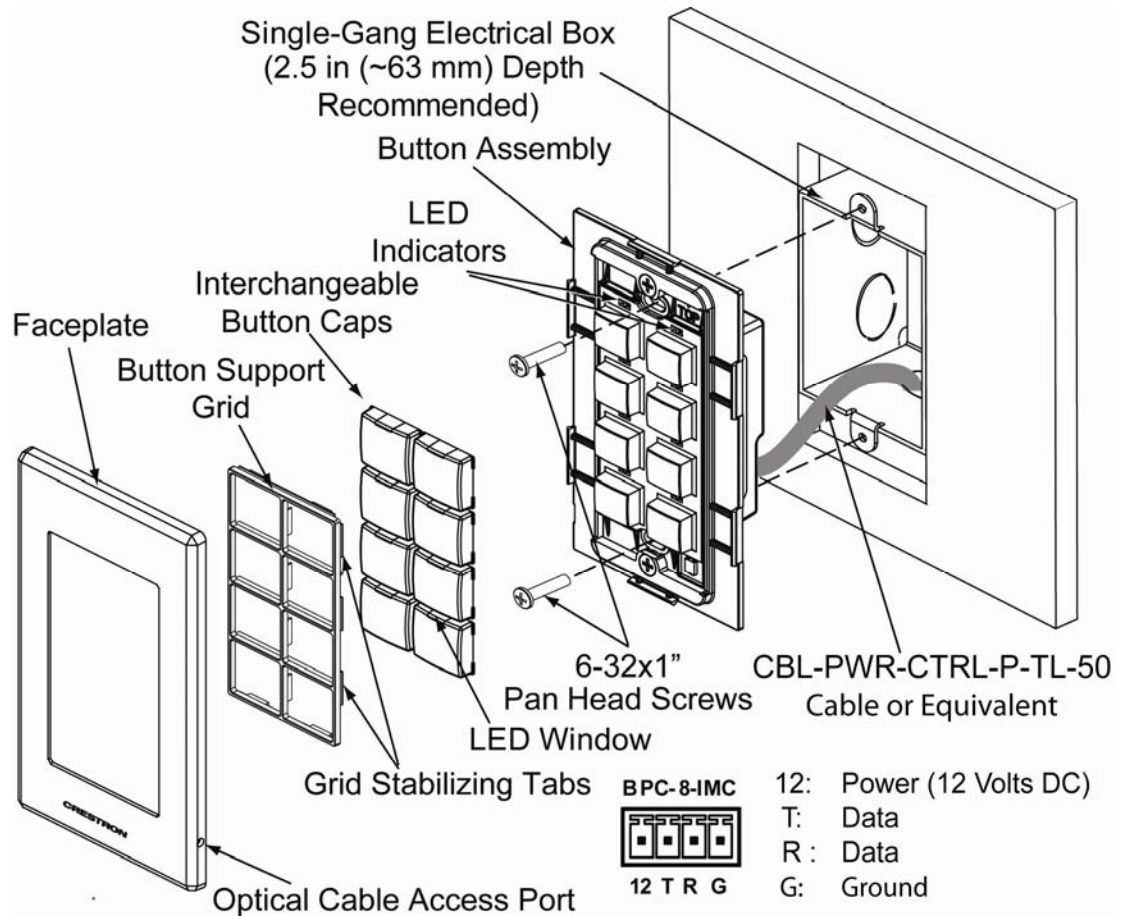
Hardware Hookup

Make the necessary connections as called out in the illustrations that
follow this paragraph. Apply power after all connections have been
made. When making connections to the BPC-8 and BPC-8-IMC, note the
following:

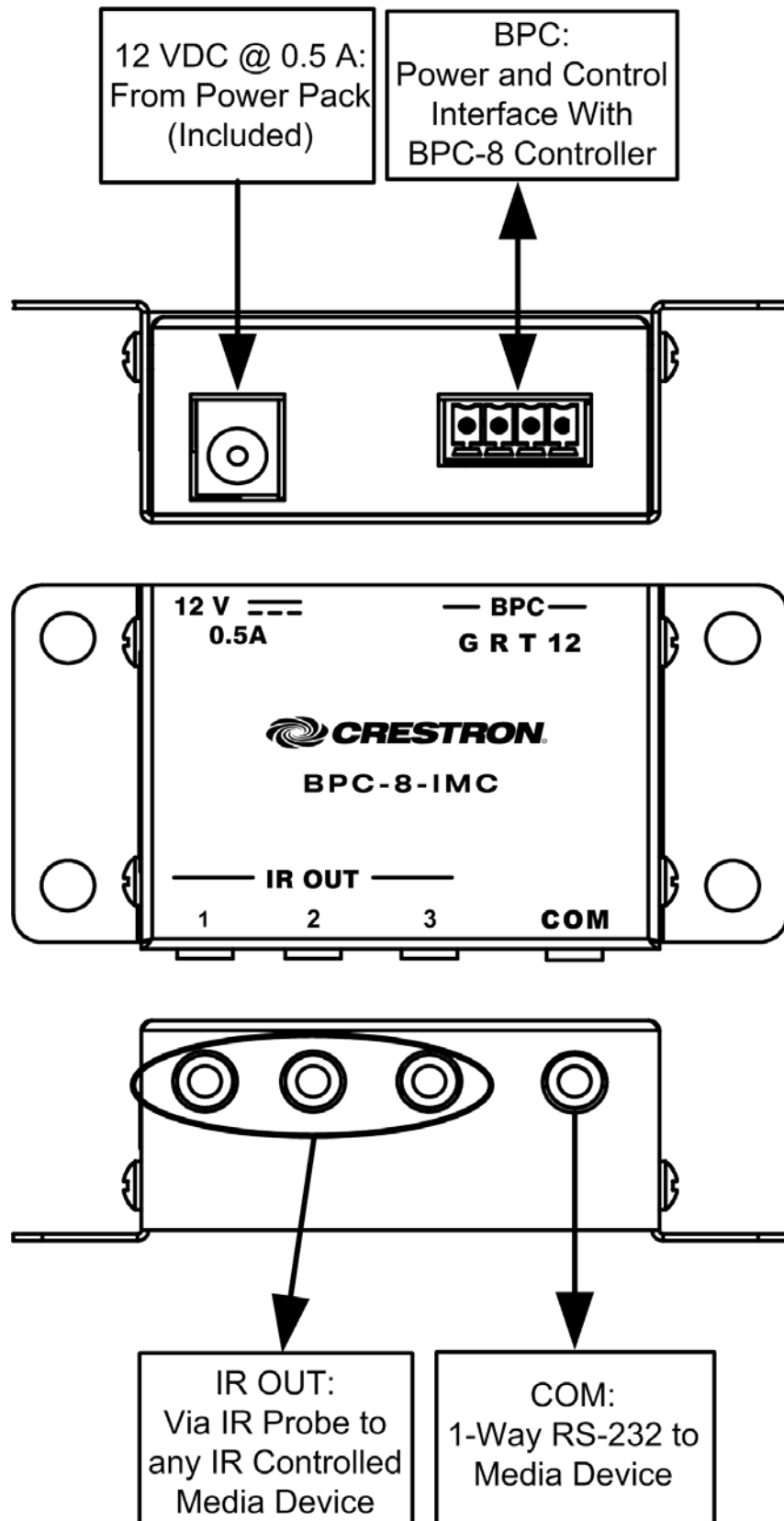**CAUTION:** Miswiring will result in product damage.

- The 4-pin detachable connectors should not be connected to a
  Cresnet network or any Cresnet device.

- Use a 4-conducter cable such as CBL-PWR-CTRL-P-TL-50 or equivalent (minimum 24 AWG) up to 50 ft (~15 m) maximum.

Hardware Connections for the BPC-8

Access Port:
For Optical Cable From
BPC-HPLIR
Optional IR Learner
and Programmer

BPC-8-IMC:
Power and Control
Signals To/From
BPC-8-IMC Interface
Module (Included)

*Hardware Connections for the BPC-8-IMC*

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, projects or firmware) can be transferred to the device.

Establishing Communication

Use Crestron Toolbox™ for communicating with the BPC-8. Refer to the Crestron Toolbox help file for details. There is a single method of communication: direct serial communication.

Direct Serial Communication

| PC Running Crestron Toolbox | ← Serial RS-232 → CBL-SERIAL-DB9F-6 | BPC-8-IMC | ← 4-Wire → 24 AWG | BPC-8 |
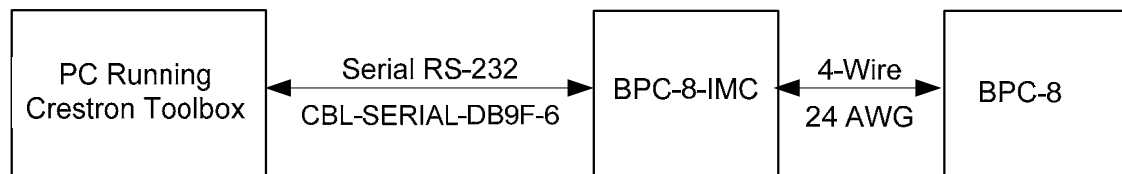
The **RS-232** port on the BPC-8-IMC connects to the serial port on the PC via a serial cable (Crestron CBL-SERIAL-DB9F-6 or equivalent):

1. Use the Address Book in Crestron Toolbox to create an entry using the expected serial communication protocol (RS-232, auto-detect baud rate, no parity, 8 data bits, 1 stop bit, XON/XOFF disabled, RTS/CTS disabled).

2. Display the BPC-8-IMCs "System Info" window (click the ⓘ icon); communications are confirmed when the device information is displayed.

Firmware

Firmware files may be distributed 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 and upgrade via the Crestron Toolbox. For details on uploading and upgrading, refer to the Crestron Toolbox help file.

Upgrade BPC-8 firmware via Crestron Toolbox. Proceed as follows:

1. Reset power to the BPC-8. Do not press any button on the BPC-8.
2. Establish communication with the BPC-8 as described on the previous page.
3. Download the appropriate .puf file from the Crestron Web site to your PC.
4. Double-click the .puf file. The Toolbox Address Book will open.
5. From the list in the Address Book, select the BPC-8, and then click **OK**. A device list is displayed that allows upgrading of the BPC-8 only.
6. Click **Update**.
7. After the process is complete, click **Recheck** to verify the upgrade.
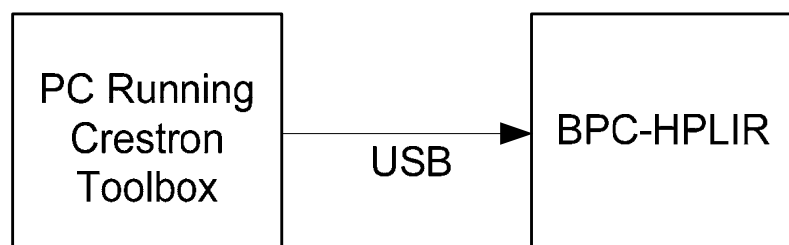
Configuration Files

These configuration files are developed on a PC running the onCue BPC-8 software configuration tool. More information on the onCue product and instructions for downloading the onCue BPC-8 Tool can be found at the onCue Web site (www.crestron.com/onCue).

The files are first uploaded to the handheld IR Learner & Programmer, BPC-HPLIR (sold separately). The BPC-HPLIR is then used to upload the files to the BPC-8 via the supplied optical cable. (Refer to the following diagrams.) Using this method, the user can add control for any device that uses an IR remote including projectors, displays, and DVD players. The onCue BPC-8 Tool also allows for control of projectors via an RS-232 connection.

For more information, refer to the latest version of the BPC-HPLIR Operations Guide, (Doc.7109), which is available from the Crestron Web site (www.crestron.com/manuals).

Develop Configuration Files

Upload Configuration Files
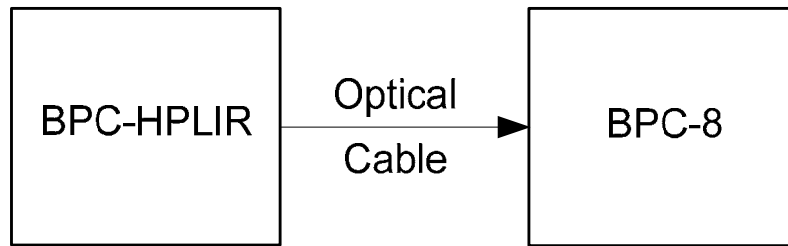
Button Caps

Configuration files developed for the BPC-8 will typically require that the button caps be changed/rearranged on the unit. The following figures illustrate the pre-installed button caps, the five additional button caps supplied with the BPC-8, and the twelve button caps in the Accessory Kit (sold separately).
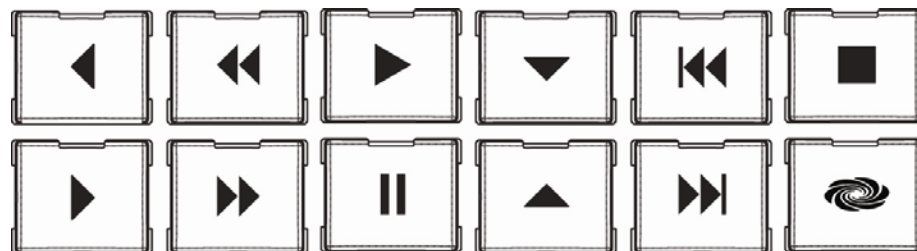
Installed Button Caps

 (plus three blanks)

Supplied Button Caps

Accessory Kit
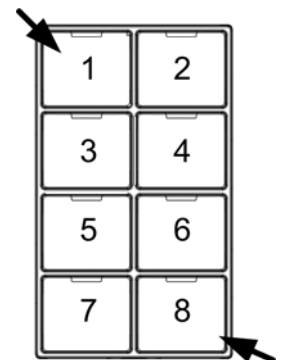
Operation

Basic Control

The BPC-8 is shipped with buttons pre-configured to control power, volume, mute, and source select functions for a variety of display devices. Programs for these devices are already stored in the BPC-8 memory. Refer to the "Appendix: Supported Devices" on page 24 for a list of the devices and their codes.

NOTE: If your presentation device is not listed in the Appendix, use the BPC-HPLIR IR Learner & Programmer (available separately) to develop a program for the device. (For more information, refer to the latest version of the BPC-HPLIR Operations Guide (Doc. 7109), which is available from the Crestron Web site.

To select a display device, place the BPC-8 in *Installer* mode, and then enter the designated code for the device. Codes are entered using the BPC-8 buttons corresponding to the numbering arrangement shown below.

With the BPC-8 connected to the BPC-8-IMC, and power applied, verify the green LEDs are on, and then do the following:

1. Press the top left and the bottom right buttons (buttons 1 and 8) at <u>exactly</u> the same time and hold for 10 seconds. The back light LEDs (green) blink twice to confirm entry into *Installer* mode. (If the buttons do not blink, the buttons were not pressed at exactly the same time.).

2. Enter the code for the desired device. The back light LEDs blink three times to confirm the device's program has been entered, and the unit exits *Installer* mode.

    If an invalid code is entered, button 2's feedback LED (red) will blink rapidly for three seconds, and the unit will wait for another code to be entered.

3. Press the BPC-8 power button (button 1) to verify operation. Verify the display's power state changes. If it does not, return to

Installer mode (step 1), enter the next available code for the device (if any) and repeat step 2.

The BPC-8 will exit *Installer* mode in the following instances:

- If the top left and bottom right buttons are simultaneously held down for two seconds (backlight blinks twice to confirm exit).

- After a 5-minute timeout (backlight blinks twice to confirm exit).

- After a valid configuration is entered (backlight blinks three times to confirm exit).

Advanced Control

The BPC-8 is also capable of accepting custom configuration files which provide a great deal of flexibility for more complex installations. Creating these files is an easy 4-step process:

1. Use the Crestron Toolbox onCue BPC-8 Tool to create your custom configuration.
2. Upload the configuration to the BPC-HPLIR.
3. Connect the BPC-HPLIR fiber cable to the port on the bottom right of the BPC-8.
4. Press the **TRANSFER** button on the BPC-HPLIR.

This method allows the user to add control for any device that uses an IR remote, including projectors, displays, and DVD players. The onCue Tool also allows for control of projectors via an RS-232 connection. (Requires 4-Conductor Link Cable, CBL-SERIAL-DB9F-6, or equivalent, sold separately.)

More information on the onCue product and instructions for downloading the onCue BPC-8 Tool can be found at the onCue Web site (www.crestron.com/onCue).

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.

BPC-8 Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
BPC-8 does not function.	Unit is locked (green backlight flashes twice per second when any button is pressed.	Unlock the unit or reset the password using the configuration tool.
	Faulty connection between the BPC-8 and the BPC-8-IMC.	Check the 4-wire cable connections between the BPC-8 and the BPC-8-IMC.
	BPC-8-IMC is not receiving power.	Verify connections between the power pack, AC power source, and the BPC-8-IMC.
BPC-8 does not control display device.	Faulty connection between the BPC-8-IMC and the display device.	Check the RS-232 or STIRP cable connections between the BPC-8-IMC and the display device.

(Continued on following page)

BPC-8 Troubleshooting (Continued)

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
BPC-8 does not control display device. (Continued)	Incorrect device code entered.	Place the BPC-8 in *Installer* mode. Enter appropriate device code. (If more than one code is available for the device, try an alternate number.
	Faulty connection between the BPC-8 and the BPC-8-IMC.	Check the 4-wire cable connections between the BPC-8 and the BPC-8-IMC.
Device control is unreliable.	Serial and IR ports are being used at the same time.	In rare cases, commands sent to control the IR device may inadvertently affect the device connected serially. For this reason, it is not recommended to use IR and RS-232 at the same time.
Unable to enter *Installer* mode.	Buttons 1 and 8 not pressed at exactly the same time.	Try to enter *Installer* mode again, pressing buttons 1 and 8 at exactly the same time.
Attempt to upgrade firmware via .puf file unsuccessful.	BPC-8 power was not reset before attempting to upgrade.	Cycle power to the BPC-8, do not press any buttons on the unit, and then retry upgrade.

Reference Documents

The latest version of all documents mentioned within the guide can be obtained from the Crestron Web site (www.crestron.com/manuals). This link will provide a list of product manuals arranged in alphabetical order by model number.

List of Related Reference Documents

DOCUMENT TITLE
BPC-HPLIR Operations 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].

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 BPC-8, 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.

Appendix: Supported Devices

The following table lists manufacturers, product type and designated codes for display devices currently supported by the BPC-8.

BPC-8 Supported Devices

MANUFACTURER	PRODUCT	CODE
Acer	Projector	112
BenQ	Projector	118, 121
DELL	Projector	113
Epson	Projector	117, 122, 123
InFocus	Projector	114
Mitsubishi	Projector	124, 125
NEC	Projector	126
Optoma	Projector	115
Sony	Projector	127

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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