

Crestron **CSP-LSP**  
Cresnet® Lightning Strike Protector

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Operations & Installation Guide



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



Crestron Electronics, Inc.

15 Volvo Drive

Rockleigh, NJ 07647

1-888-CRESTRON

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# Cresnet<sup>®</sup> Lightning Strike Protector: Crestron CSP-LSP

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## Introduction

The CSP-LSP is an accessory designed to protect a Crestron<sup>®</sup> control system from lightning surges and other electrical disturbances brought through the Cresnet control line. Four-stage lightning suppression provides superior protection against damage to the control system caused by lightning strikes to remote Cresnet devices and wiring, especially outdoor equipment and underground cabling. It is also effective for protection against transients picked up by indoor networks in any facility that is particularly prone to near lightning strikes.

## Features and Functions

- Sophisticated four-stage lightning suppression
- Protects control systems from surges and transients on the Cresnet network
- Recommended for all outdoor Cresnet cable runs
- Multiple Cresnet ports for easy termination
- Includes grounding strap and clamp

The CSP-LSP provides protection for a single control system and any portion of its Cresnet network. It may be located near the central equipment cabinet to protect only the control system and centralized devices, or it may be installed at the point of entry from an outdoor Cresnet cable to protect the entire indoor Cresnet network. For networks

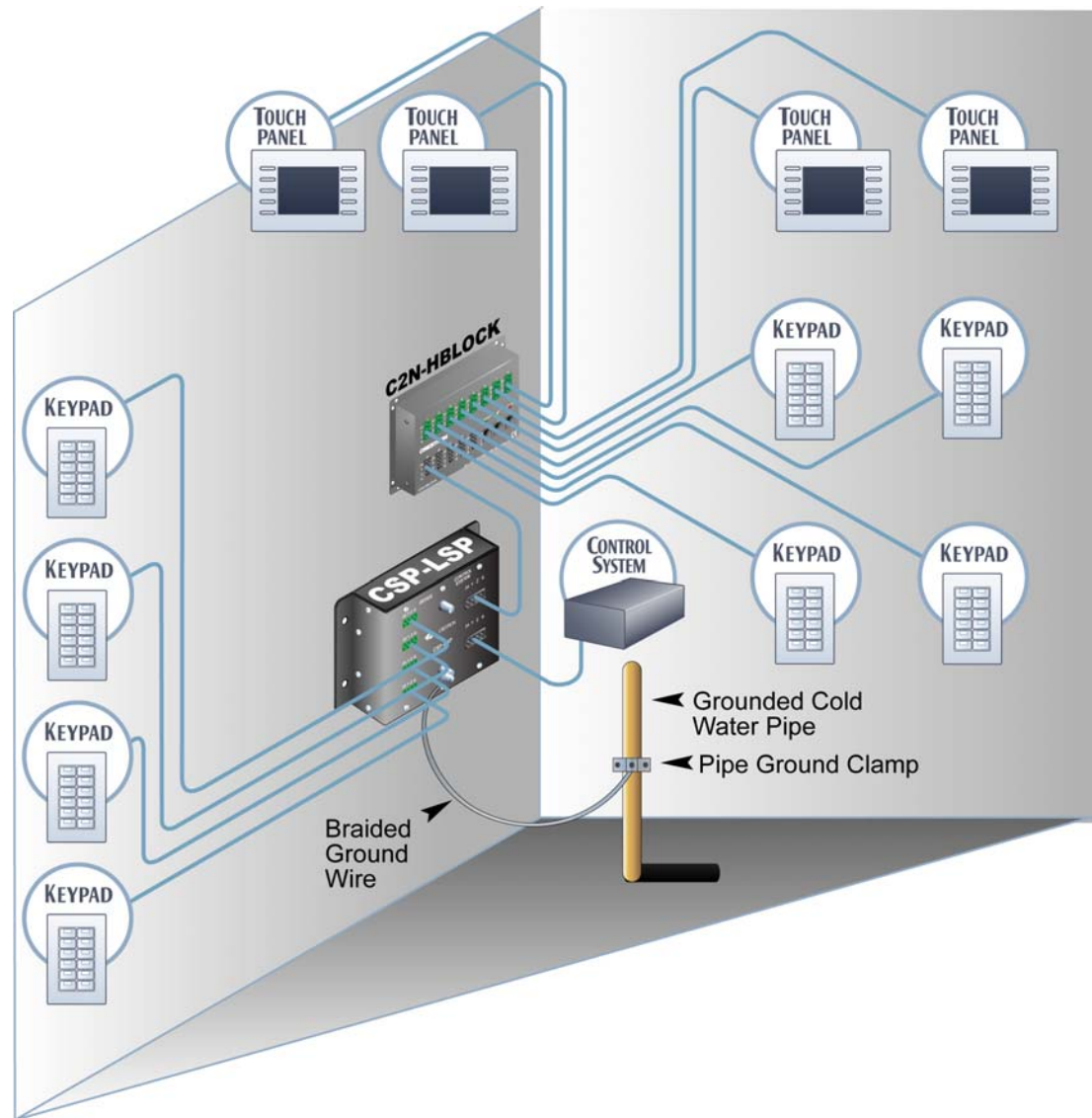
that span multiple buildings, a separate CSP-LSP can be installed in each building to protect all of the local devices within each building.

The CSP-LSP is designed for mounting to a wall or similar flat surface. Two protected **CONTROL SYSTEM** ports are provided, paralleled for easy daisy chaining to a second CSP-LSP or other Cresnet equipment. Four paralleled **DEVICE** ports accommodate the connections from one or more remote Cresnet wire runs. Two #10 ground lugs provide for termination of the grounding cable. A three foot long braided ground wire is included, complete with a copper saddle clamp for attachment to a suitable utility ground, cold water pipe, or grounding rod. A bus bar is also included for daisy chaining to a second CSP-LSP unit.

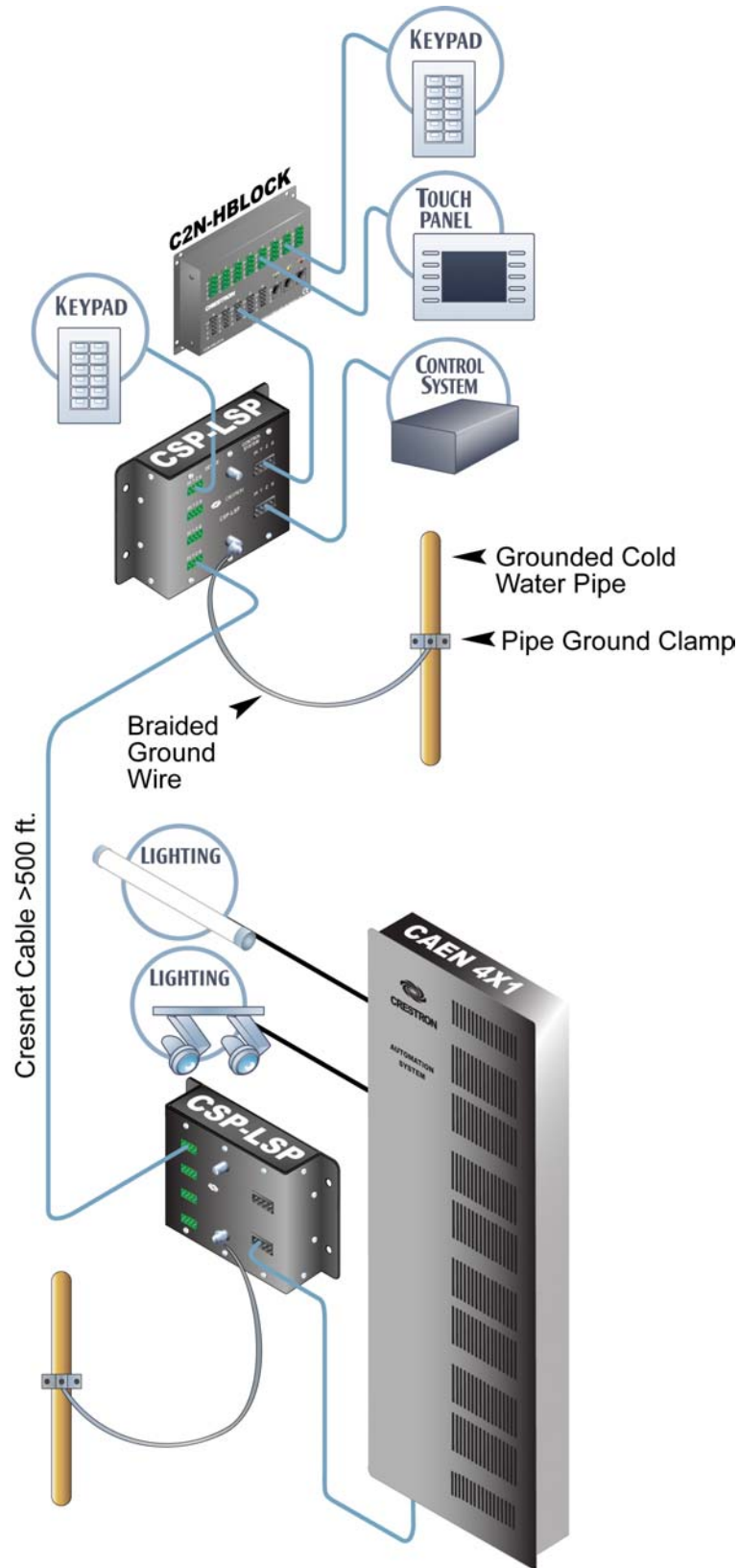
## Applications

The following diagrams show the CSP-LSP in a series of different applications.

### *CSP-LSP Application for Local Systems*

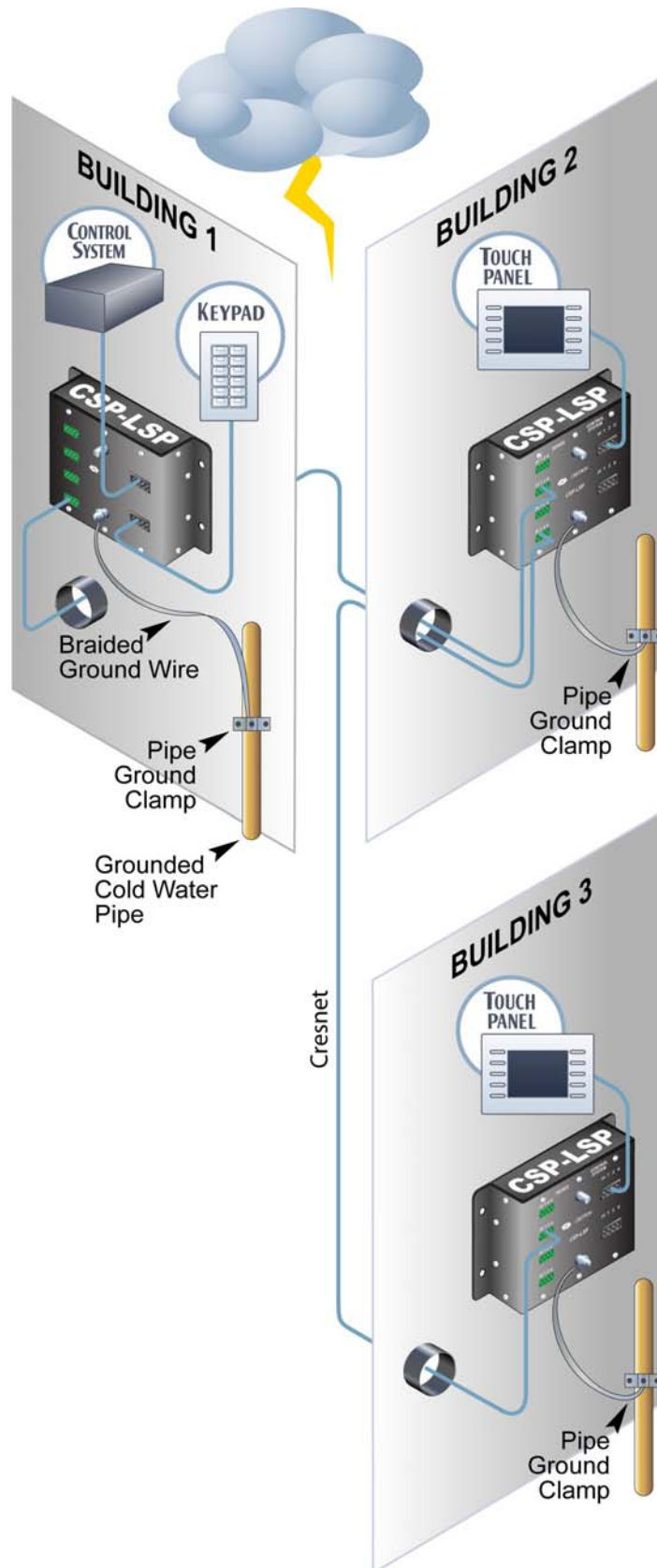


*CSP-LSP Application for Long Runs*





*CSP-LSP Application for Multiple Building Systems*



## Specifications

Specifications for the CSP-LSP are listed in the following table.

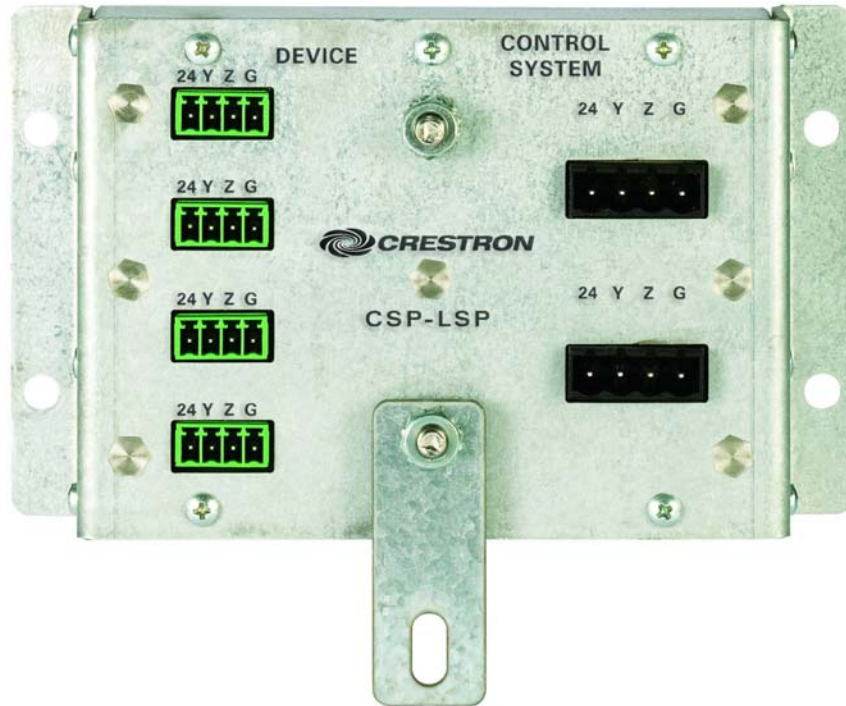
### *CSP-LSP Specifications*

<b>SPECIFICATION</b>	<b>DETAILS</b>
Protection	4-stage protection employing spark gaps, gas discharge tubes, current limiters, and transient voltage suppressors
Clamping Voltage	33 Volts
Clamping Time	< 100 Picoseconds
Environmental	
Temperature	-40° to 194°F (-40° to 90°C)
Humidity	10% to 90% RH (non-condensing)
Enclosure	Zinc plated steel surface mount box with (2) integral mounting flanges
Dimensions	
Height	1.83 in (4.65 cm)
Width	5.64 in (14.32 cm)
Depth	3.40 in (8.64 cm)
Weight	1.17 lbs (0.5 kg)

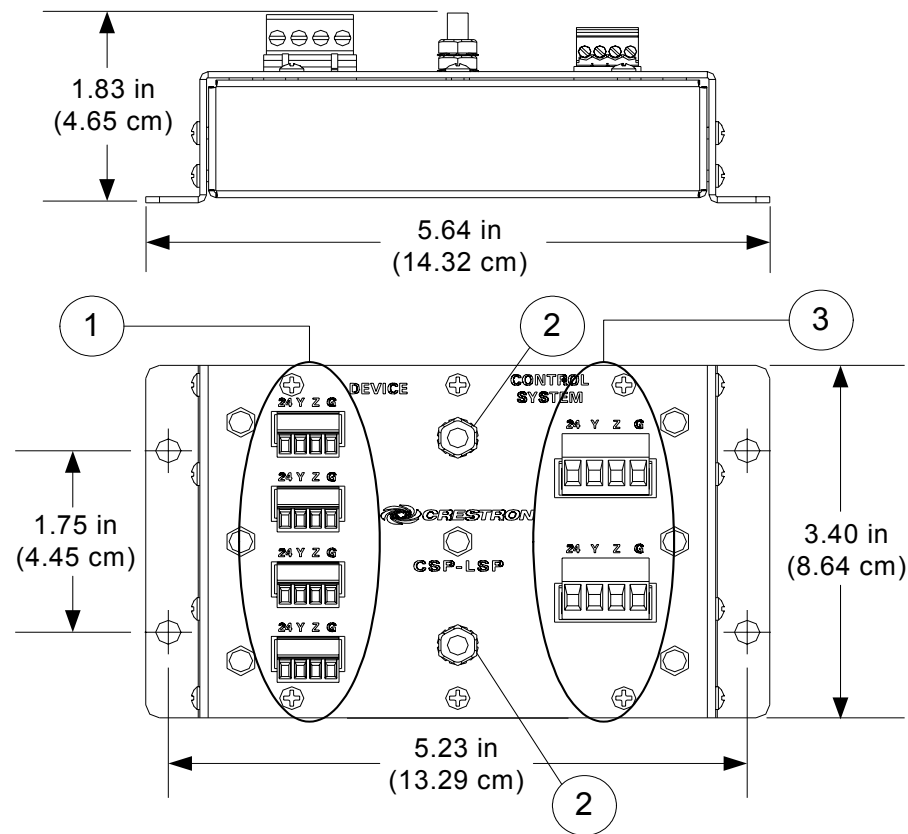
## Physical Description

This section provides information on the connections available on your CSP-LSP.

### *CSP-LSP Physical View*



***CSP-LSP Overall Dimensions***



***Connectors, Controls & Indicators***

#	CONNECTORS <sup>1</sup> , CONTROLS & INDICATORS	DESCRIPTION
1	DEVICE	(4) 4-pin 3.5mm detachable terminal blocks; Cresnet ports, paralleled, for connection to Cresnet wiring and devices that are subject to lightning strikes.

*(Continued on following page)*

*Connectors, Controls & Indicators (Continued)*

#	<b>CONNECTORS<sup>1</sup>, CONTROLS &amp; INDICATORS</b>	<b>DESCRIPTION</b>
2	GROUND	(2) 10-32 studs, chassis ground lugs <sup>2</sup> ; 3 ft flat braided grounding strap included; Ground bus bar included for daisy chaining to a second CSP-LSP unit.
3	CONTROL SYSTEM	(2) 4-pin 5mm detachable terminal blocks; Protected Cresnet ports, paralleled, for connection to control system and other protected Cresnet devices.

1. Interface connectors for **DEVICE** and **CONTROL SYSTEMS** ports are provided with the unit.
2. For maximum protection, terminate the CSP-LSP to a good earth ground (i.e. utility ground, cold water pipe, or grounding rod) using the grounding strap provided. The control system must also be grounded. It is also suggested that devices connected to the **DEVICE** ports be powered separately from those connected to the **CONTROL SYSTEM** ports. Consult the control system manuals and refer to page 13 for additional information.

## Industry Compliance

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



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**NOTE:** This device complies with part 15 of the FCC rules. Operation is subject to the following two 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.

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.
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## Setup

### Network Wiring

When wiring the network use Crestron Certified Wire.

For more details, refer to “Check Network Wiring” on page 17.

### Supplied Hardware

The hardware supplied with the CSP-LSP is listed in the following table.

#### *Supplied Hardware for the CSP-LSP*

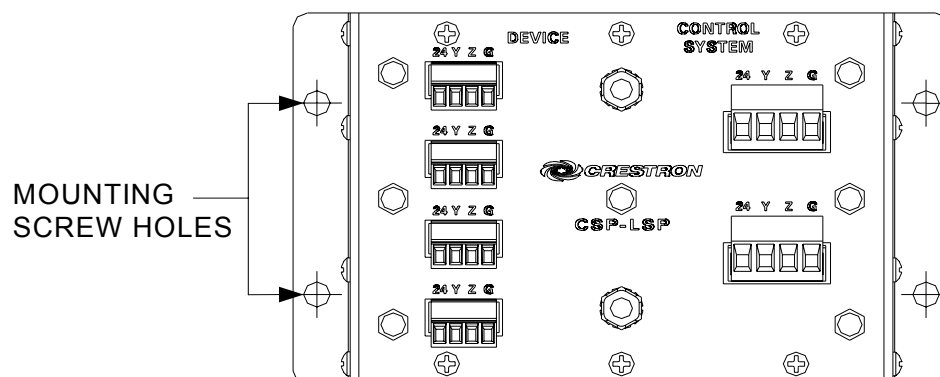
DESCRIPTION	PART NUMBER	QUANTITY
Nut, Keps, 10-32, External	2004889	4
Metal, Bracket (Grounding Bus Bar)	2019534	1
Clamp, Pipe, Grounding, #14-6 AWG (Ground Clamp)	2019803	1
Cable Assembly, Grounding, 3 feet (Braided Ground Strap)	4505505	1

### Installation

#### Wall Mounting

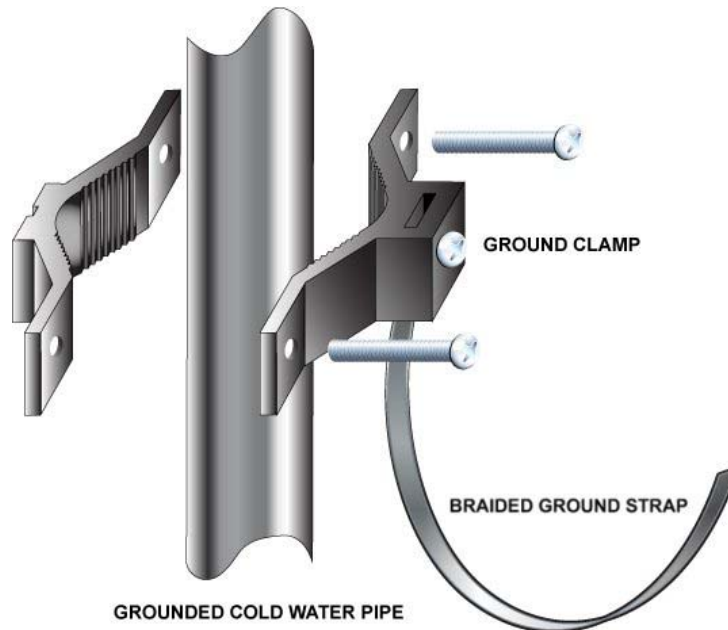
Four mounting screw holes on the CSP-LSP allows the unit to be mounted on a wall or flat surface. The size and type of screw is dependant on the type of mounting surface. Hardware for mounting the unit is not included. Refer to the illustration below.

#### *CSP-LSP Installation*

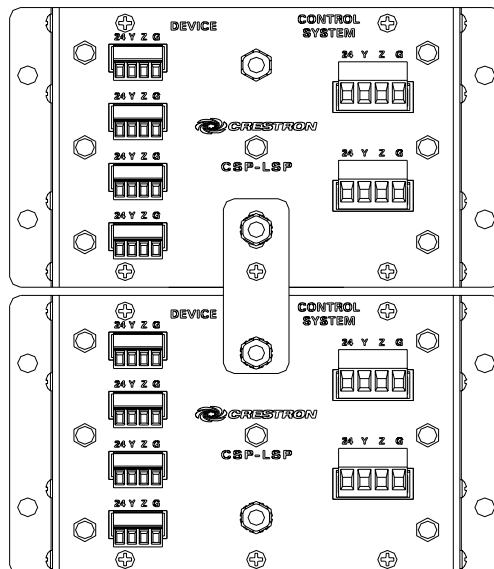


**Ground  
Clamp**

Necessary grounding hardware is provided with your CSP-LSP. Refer to the image below when installing the braided ground strap (4505505) and ground clamp (2019803) to a grounded cold water pipe.

***CSP-LSP Ground Clamp Orientation*****Daisy  
Chaining**

Daisy chain up to two CSP-LSP units together using the provided grounding bus bar (2019534). Secure the grounding bar between two of the provided keps nuts (2004889) onto the grounding stud. Refer to the image below for proper orientation.

***CSP-LSP Daisy Chaining***



## Hardware Hookup

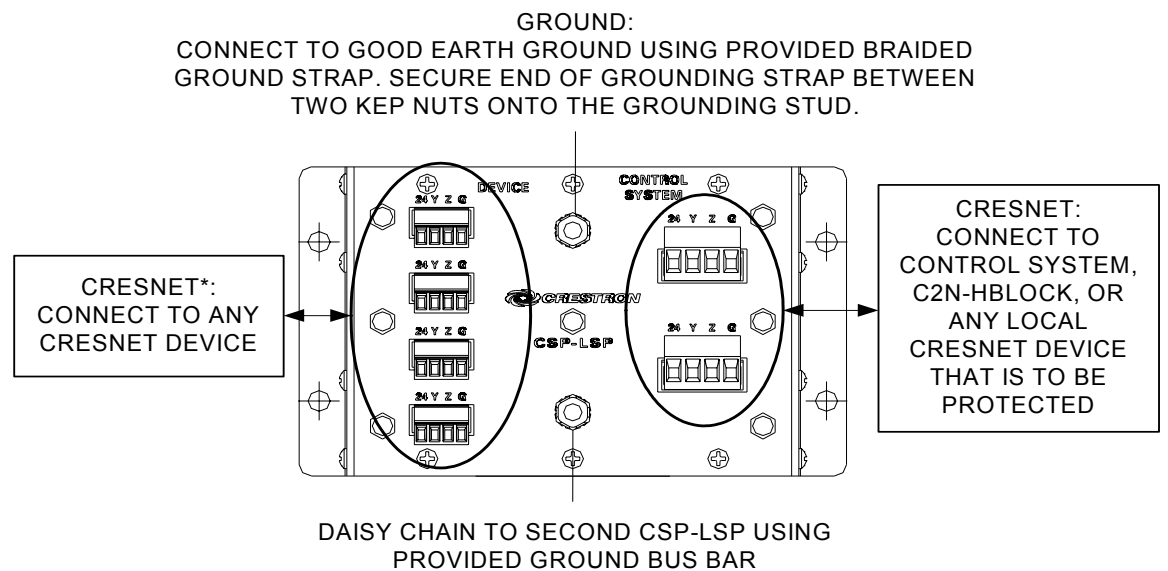
The CSP-LSP can be connected locally to protect a nearby control system and Cresnet devices. The CSP-LSP can also be connected to remote Cresnet devices or another CSP-LSP to provide protection to Cresnet devices that are connected with substantially longer wire runs.

Make the necessary connections as called out in the illustrations below and on the next page. Refer to “Network Wiring” on page 11 when attaching the 4-position terminal block connectors. Be sure to carefully review each hardware connection diagram before proceeding.

**Local Connections**

Local connections refer to connections made from the CSP-LSP to Cresnet devices which do not include wire runs exceeding 500 feet or wire runs situated outdoors, including underground wire runs. Cresnet devices at these local distance are referred to as local Cresnet devices.

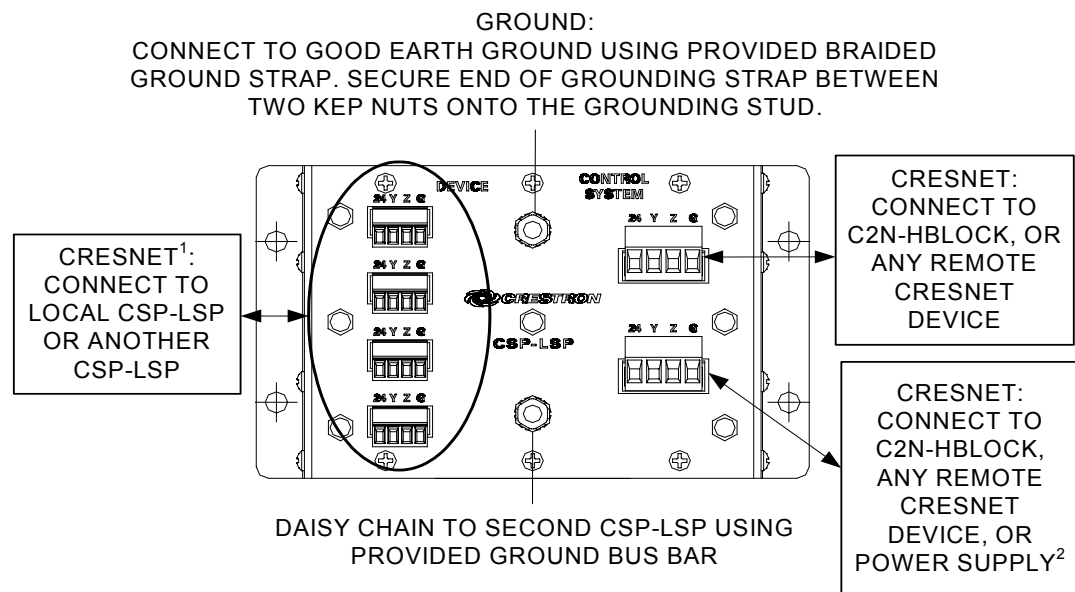
### Local Hardware Connections for the CSP-LSP



\* When making a connection to a remote Cresnet device or remote CSP-LSP, only connect the data and ground wires.

**Remote Connections**

Remote connections refer to connections made from the locally connected CSP-LSP to Cresnet devices connected by wire runs exceeding 500 feet or wire runs situated outdoors, including wire runs underground. Cresnet devices at these distant locations are referred to as remote Cresnet devices. A CSP-LSP can be connected at a remote location to provide additional protection to a unit or a series of remote Cresnet devices.

**Remote Hardware Connections for the CSP-LSP**

<sup>1</sup> Connect only the data and ground wires. Devices connected to these CSP-LSP units must be provided with a separate power supply if required.

<sup>2</sup> Remote Cresnet devices must be powered by a separate power supply either individually or by supplying power to the Cresnet network via one of the **CONTROL SYSTEM** ports.

When making connections to the CSP-LSP, the included braided ground strap cannot be extended.

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**NOTE:** Do not daisy chain more than two CSP-LSP units in one application.

**NOTE:** Ensure the unit is properly grounded using the provided grounding strap.

**NOTE:** A CNPWS-75 Cresnet power supply may be used to power remote Cresnet devices.

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## Operation

The CSP-LSP can be connected either locally or remotely, while up to two CSP-LSP devices may be daisy chained together in either connection configuration.

### Local CSP-LSP Operation

Locally, one of the **CONTROL SYSTEM** ports must be connected to the control system. The other **CONTROL SYSTEM** port provides maximum protection for another Cresnet device or if multiple local devices exist, should be connected to a C2N-HBLOCK, which can distribute protection for up to 15 Cresnet peripherals.

The **DEVICE** ports can also offer some protection locally or are designed to carry data and ground to remote Cresnet devices or another CSP-LSP.

When connecting the CSP-LSP unit in a local connection configuration, only one of the grounding studs needs to be connected. The second grounding stud may be left unconnected.

### Remote CSP-LSP Operation

One **DEVICE** port delivers data and ground to the remote CSP-LSP. These signals can be carried to yet another remote CSP-LSP via one of the other **DEVICE** ports.

At the remote location, one **CONTROL SYSTEM** port should be connected to a power supply so that all remote Cresnet devices can be properly powered. The other **CONTROL SYSTEM** port provides maximum protection for another Cresnet device or if multiple local devices exist, should be connected to a C2N-HBLOCK, which can distribute protection for up to 15 Cresnet peripherals.

When connecting the CSP-LSP unit in a remote connection configuration, only one of the grounding studs needs to be connected. The second grounding stud may be left unconnected.

## Daisy Chaining

Up to two CSP-LSP units can be daisy chained when a C2N-HBLOCK is not a practical option. Daisy chaining two CSP-LSP units provide up to four protected **CONTROL SYSTEM** ports.

When CSP-LSP units are being daisy-chained together, connect both of the available grounding studs to a good earth ground using the grounding straps provided with each unit.

## 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.

#### *CSP-LSP Troubleshooting*

<b>TROUBLE</b>	<b>POSSIBLE CAUSE(S)</b>	<b>CORRECTIVE ACTION</b>
Device appears to be charred and branch of connected Cresnet units are not functioning.	Device has failed due to lightning strike or power surge.	Replace CSP-LSP.

### Check Network Wiring

#### *Use the Right Wire*

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

#### *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.

## 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 the Crestron corporate headquarters at 1-888-CRESTRON [1-888-273-7876]. For assistance in your local time zone, refer to the Crestron website ([www.crestron.com/offices](http://www.crestron.com/offices)) for a listing of Crestron worldwide offices.

You can also log onto the online help section of the Crestron website ([www.crestron.com/onlinehelp](http://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 CSP-LSP, 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 website periodically for manual update availability and its relevance. Updates 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 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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**Crestron Electronics, Inc.**  
15 Volvo Drive Rockleigh, NJ 07647  
Tel: 888.CRESTRON  
Fax: 201.767.7576  
[www.crestron.com](http://www.crestron.com)

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Specifications subject to  
change without notice.