

Crestron **CSP-RS232I**

RS-232 Isolator

Operations & Installation Guide



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RS-232 Isolator: CSP-RS232I

Introduction

The CSP-RS232I is an accessory designed to protect a Crestron® control system's COM ports from lightning surges and other electrical disturbances brought through the RS-232 control line. By electrically isolating any distant, outdoor device such as a pool & spa controller or irrigation system, the CSP-RS232I can prevent damage to the control system in the event of a near lightning strike, ground-loop, or short from a high voltage line.

Features and Functions

- Recommended for lengthy or outdoor RS-232 cable runs
- Protects control systems from lightning strikes and electrical disturbances
- Supports RS-232* from 300 to 115.2k baud
- Passes RX, TX, RTS, and CTS signals
- 4.5 Kilovolt RMS galvanic isolation

* RS-422 and RS-485 are not supported.

Specifications

Specifications for the CSP-RS232I are listed in the following table.

CSP-RS232I Specifications

SPECIFICATION	DETAILS
Isolation	4.5 Kilovolts _{RMS} for 1 minute
Supported Protocol	RS-232
Power Requirements	May be powered by Cresnet [®] , or a dedicated 12 or 24 Volt power supply
12VDC	0.5 Amps @ 12 Volts DC from PW-1205 or PW-1210RU power supply (sold separately)
Cresnet Power Usage (24VDC)	1 Watt (0.04 Amp @ 24 Volts DC)
Enclosure	Steel, surface mount box with (2) integral mounting flanges, printed label
Environmental	
Temperature	32° to 158°F (0° to 70°C)
Humidity	10% to 90% RH (non-condensing)
Heat Dissipation	3 BTU/Hr
Dimensions	
Height	1.34 in (3.40 cm)
Width	4.52 in (11.48 cm)
Depth	3.76 in (9.55 cm)
Weight	9.1 oz (257 g)
Available Accessories	
PW-1205	12 Volt Power Pack
PW-1210RU	12 Volt Power Pack; International Version, 230V
CNSP-XX	Custom Serial Interface Cable

Physical Description

This section provides information on the connections, controls and indicators available on your CSP-RS232I.

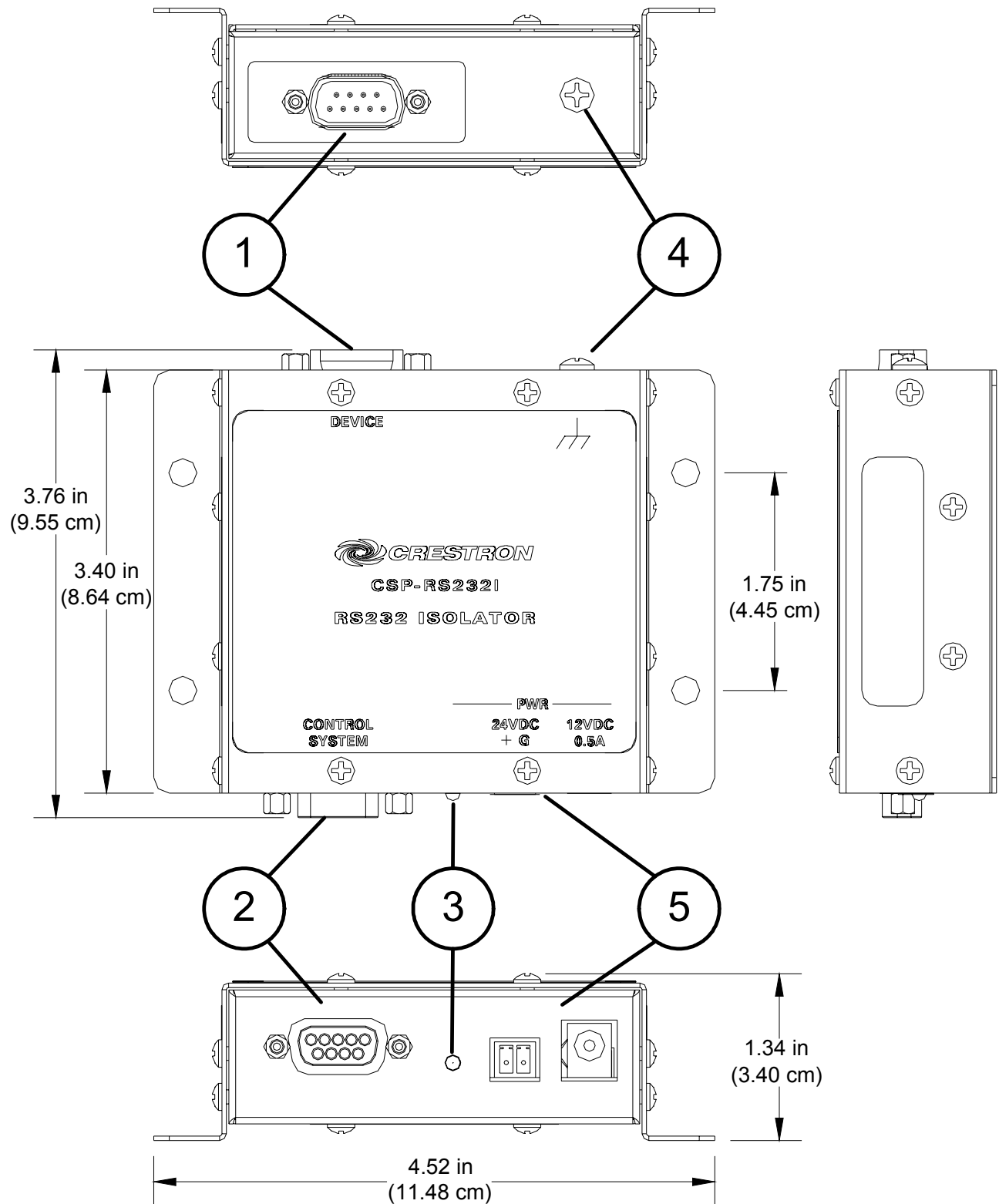
CSP-RS232I Physical View (Top)



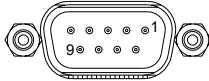
CSP-RS232I Physical View (Bottom)



CSP-RS232I Overall Dimensions

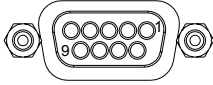



Connectors, Controls & Indicators

#	CONNECTORS ¹ , CONTROLS & INDICATORS	DESCRIPTION																						
1	<p>DEVICE</p> 	<p>(1) DB9 male, isolated bidirectional RS-232 pass-thru port; Passes RX, TX, RTS, and CTS signals; Supports up to 115.2k baud</p> <table border="1" data-bbox="862 646 1466 1318"> <thead> <tr> <th data-bbox="862 646 987 695">PIN</th> <th data-bbox="987 646 1466 695">DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td data-bbox="862 695 987 743">1</td> <td data-bbox="987 695 1466 743">No Connection</td> </tr> <tr> <td data-bbox="862 743 987 827">2</td> <td data-bbox="987 743 1466 827">RX; Input from device's TX output</td> </tr> <tr> <td data-bbox="862 827 987 911">3</td> <td data-bbox="987 827 1466 911">TX; Output from device's RX input</td> </tr> <tr> <td data-bbox="862 911 987 959">4</td> <td data-bbox="987 911 1466 959">No Connection</td> </tr> <tr> <td data-bbox="862 959 987 1008">5</td> <td data-bbox="987 959 1466 1008">Isolated Signal Ground</td> </tr> <tr> <td data-bbox="862 1008 987 1056">6</td> <td data-bbox="987 1008 1466 1056">No Connection</td> </tr> <tr> <td data-bbox="862 1056 987 1140">7</td> <td data-bbox="987 1056 1466 1140">RTS; Output from device's CTS input</td> </tr> <tr> <td data-bbox="862 1140 987 1224">8</td> <td data-bbox="987 1140 1466 1224">CTS; Input from device's RTS input</td> </tr> <tr> <td data-bbox="862 1224 987 1272">9</td> <td data-bbox="987 1224 1466 1272">No Connection</td> </tr> <tr> <td data-bbox="862 1272 987 1318">Shell</td> <td data-bbox="987 1272 1466 1318">No Connection</td> </tr> </tbody> </table>	PIN	DESCRIPTION	1	No Connection	2	RX; Input from device's TX output	3	TX; Output from device's RX input	4	No Connection	5	Isolated Signal Ground	6	No Connection	7	RTS; Output from device's CTS input	8	CTS; Input from device's RTS input	9	No Connection	Shell	No Connection
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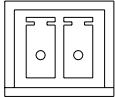
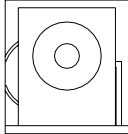
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Connectors, Controls & Indicators (Continued)

#	CONNECTORS ¹ , CONTROLS & INDICATORS	DESCRIPTION																						
2	CONTROL SYSTEM 	(1) DB9 female; Connection to any Crestron COM port (supports RS-232 only); 6 ft (1.83 m) interface cable included <table border="1" data-bbox="857 667 1442 1339"> <thead> <tr> <th>PIN</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>No Connection</td> </tr> <tr> <td>2</td> <td>RX; Output to control system's RX input</td> </tr> <tr> <td>3</td> <td>TX; Input to control system's TX output</td> </tr> <tr> <td>4</td> <td>No Connection</td> </tr> <tr> <td>5</td> <td>Signal Ground</td> </tr> <tr> <td>6</td> <td>No Connection</td> </tr> <tr> <td>7</td> <td>RTS; Input to control system's RTS output</td> </tr> <tr> <td>8</td> <td>CTS; Output to control system's CTS input</td> </tr> <tr> <td>9</td> <td>No Connection</td> </tr> <tr> <td>Shell</td> <td>Ground</td> </tr> </tbody> </table>	PIN	DESCRIPTION	1	No Connection	2	RX; Output to control system's RX input	3	TX; Input to control system's TX output	4	No Connection	5	Signal Ground	6	No Connection	7	RTS; Input to control system's RTS output	8	CTS; Output to control system's CTS input	9	No Connection	Shell	Ground
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Shell	Ground																							
3	PWR LED	(1) green LED, indicates 12 or 24 Volt DC power supplied to unit																						
4	GROUND 	(1) 6-32 screw, chassis ground lug;																						

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Connectors, Controls & Indicators (Continued)

#	CONNECTORS ¹ , CONTROLS & INDICATORS	DESCRIPTION
5	PWR ² 24VDC 24VDC + G 	(1) 2-pin 3.5mm detachable terminal block; 24 Volt DC power input; May be connected to Cresnet or dedicated power supply (not included)
	PWR ² 12VDC 12VDC 0.5A 	(1) 2.5mm barrel DC power jack; 12 Volt DC power input; (PW-1205 or PW-1210RU power supply sold separately)

1. Interface connector for **PWR/24VDC** port is provided with the unit.
2. The CSP-RS232I can be powered via the **24 VDC** port or the **12 VDC** port. Be sure to use a Creston approved power supply as another may cause damage.

Industry Compliance

As of the date of manufacture, the CSP-RS232I has been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling.



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

Installation

The CSP-RS232I can be mounted in a rack or to any surface using the integral mounting flanges. Mounting hardware is not provided.

NOTE: For optimum performance, mount the CSP-RS232I as close to the control system as possible.

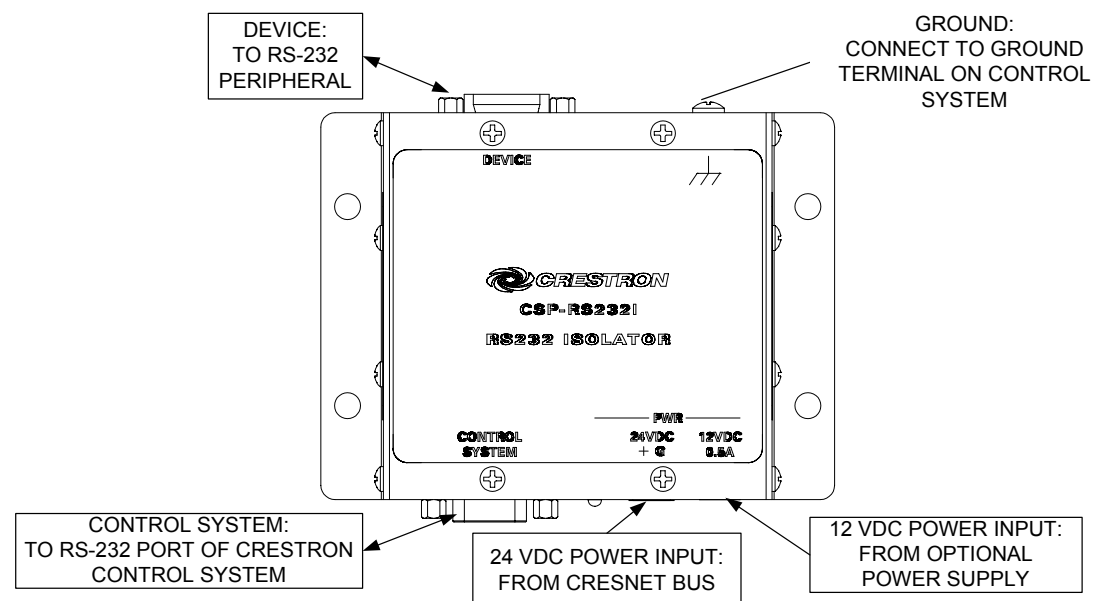
Hardware Hookup

Make the necessary connections as called out in the illustration that follows this paragraph. Apply power after all connections have been made.

When making connections to the CSP-RS232I, note the following:

- Use Crestron power supplies for Crestron equipment.
- Power can be supplied to either the 12 VDC port or the 24 VDC port.
- Use the included RS-232 cable to connect the CSP-RS232I to the control system.

Hardware Connections for the CSP-RS232I



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-RS232I Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Device does not function.	Device is not receiving power.	Verify that power is connected to the 12 VDC port or the 24 VDC port.
	Device is not receiving sufficient power.	Use the Crestron Power Calculator to help calculate how much power is needed for the system.
PWR LED does not illuminate.	Device is not receiving power.	Connect power to the 12 VDC port or the 24 VDC port.
Peripheral device is not functioning.	Peripheral device is not communicating with control system.	Verify connections from control system to CSP-RS232I and connections from CSP-RS232I to peripheral device.
Loss of functionality due to electrostatic discharge.	Improper grounding.	Check that all ground connections have been made properly.

Power Requirements

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

CAUTION: If using 24 VDC power from a Cresnet network to power the CSP-RS232I, sufficient power must be provided. 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 (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 home-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)
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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. If Cresnet HP is used for the same run, its length could extend to 1250 feet.

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) for a listing of Crestron worldwide offices.

You can also log onto the online help section of the Crestron website (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-RS232I, 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.

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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Specifications subject to
change without notice.