

Crestron **CAGE2**
3-Card Expansion Cage for AV2

Installation Guide



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3-Card Expansion Cage for AV2: CAGE2

Description

Functional Description

The CAGE2 is an optional field-upgradeable card cage chassis for the Crestron® AV2 integrated control system. When installed, the CAGE2 provides three slots that accept any combination of 2-Series Y-BUS and/or CNX series plug-in control cards to expand and add versatility to the AV2. The plug-in expansion cards are secured to the CAGE2 with two thumbscrews that are attached to the faceplate of each card.

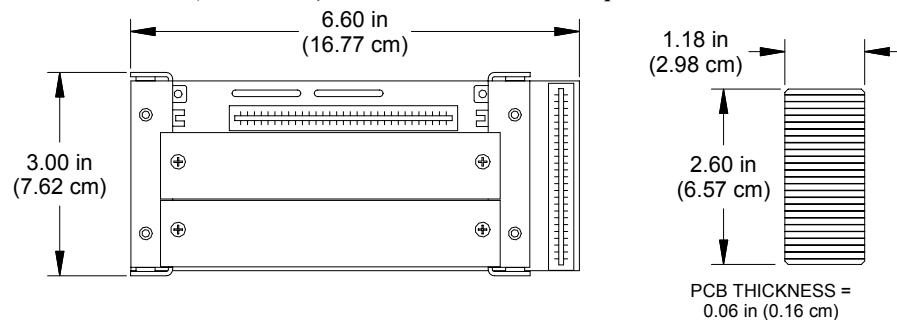
NOTE: The CAGE2 accomodates only 2-Series **Y-BUS** control cards that serve as the pipeline for IR, serial communications, and relays. Z-BUS cards provide super high-speed control card applications such as 10/100 Ethernet, USB, USBII, FireWire, disk drive arrays and more.

NOTE: Due to the different interconnect connectors, the CAGE2 and CNXCAGE are **not** interchangeable. **Do not** attempt to install a CNXCAGE into the AV2.

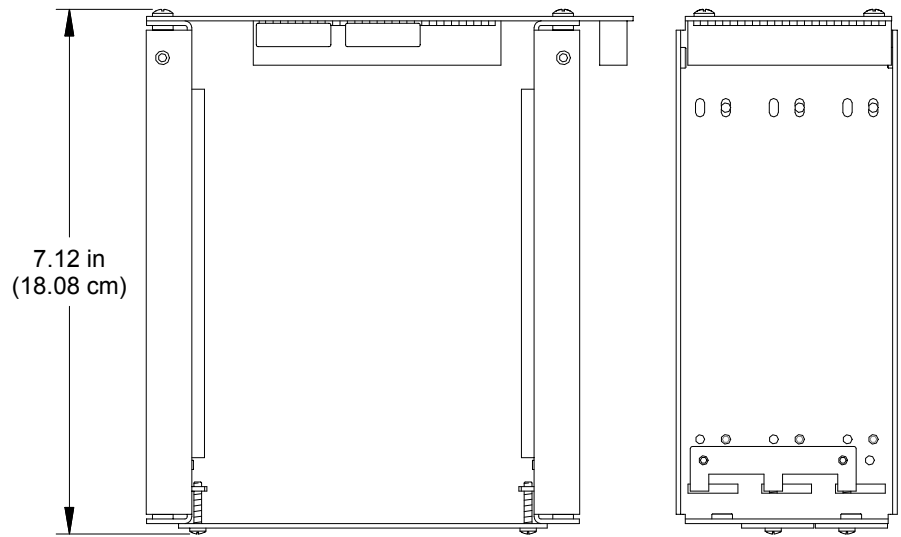
Physical Description

The CAGE2, shown below, contains three 62-pin connectors that accept the plug-in expansion cards and card guides support each side of the individual cards. A single 50-pin connector provides signal interconnect between the CAGE2 to the AV2 processor board. A double-sided printed circuit board (PCB) interconnect jumper is provided with the CAGE2. Two blank faceplates are attached to the CAGE2 when shipped. If more than one plug-in expansion card is to be utilized in the AV2, additional face-plate(s) must be removed. The expansion cards contain two thumbscrews that secure the card faceplate through the CAGE2 faceplate mounting brackets.

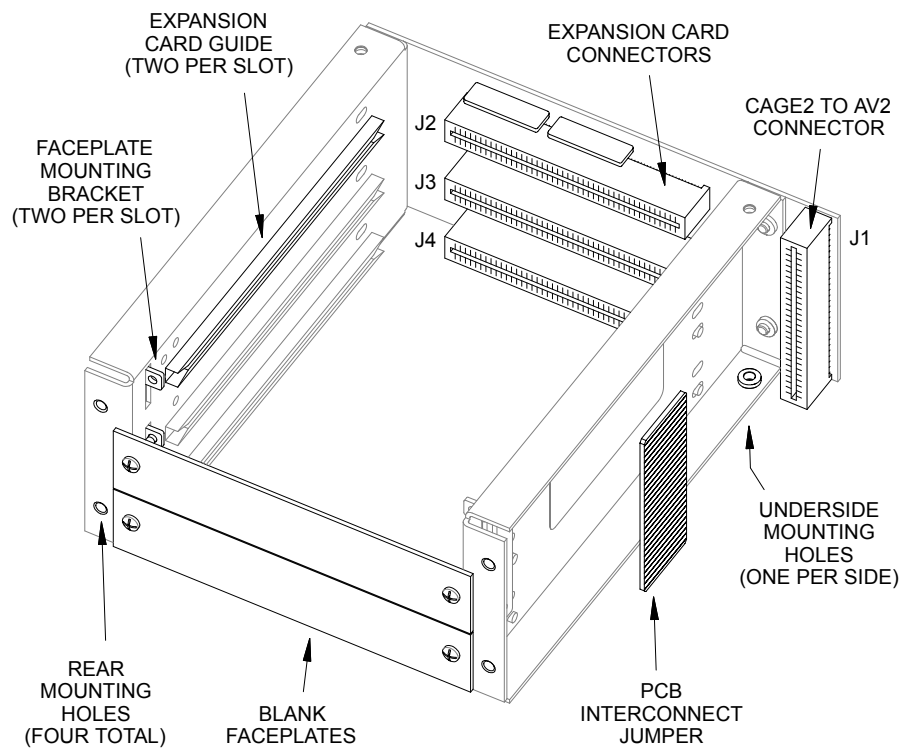
CAGE2 Rear View (As Installed) and PCB Interconnect Jumper



CAGE2 Top and Side Views



CAGE2 Reference Diagram



Leading Specifications

The table below provides a summary of leading specifications for the CAGE2. Dimensions and weight are rounded to the nearest hundredth unit.

Leading Specifications of the CAGE2

SPECIFICATION	DETAILS
SIMPL™ Windows®	Version 2.00 or later ¹
2-Series Control System Update File ²	Version 1.000.CUZ or later ³
Dimensions & Weight	Height: 3.00 in (7.62 cm) Width: 6.60 in (16.77 cm) Depth: 7.12 in (18.08 cm) Weight: 11.70 oz (0.36 kg) ⁴

- 1 The latest software versions can be obtained from the What's New page (SIMPL Windows section) or Downloads page (SIMPLWIN Library) of Crestron's website (www.crestron.com). New users are required to register in order to obtain access to the FTP site.
- 2 Crestron 2-Series control systems include the AV2, AV2 with Card Cage, CP2, CP2E, PAC2, PAC2M, PRO2, and RACK2.
- 3 Filenames for 2-Series control system update files have a CUZ extension and can be obtained from the What's New page (Control Systems Update Files section) or Downloads page (OPSYS Library) of Crestron's website.
- 4 The listed weight includes the CAGE2, two blank faceplates and PCB interconnect jumper.

Installation

The tools required for installation are a #2 Phillips tip screwdriver, a 1/4-in nut driver or wrench, and a grounding strap. Follow the procedure after this paragraph.

CAUTION: The AV2 contains electro-static discharge (ESD) sensitive devices. Perform the following procedure while wearing a grounding strap that is properly grounded or on a grounded workstation to avoid damaging the AV2.

CAUTION: To prevent stripping of screw heads, threads, or mounting holes, do **not** overtighten screws. Tighten only to the specification listed in the individual step(s).

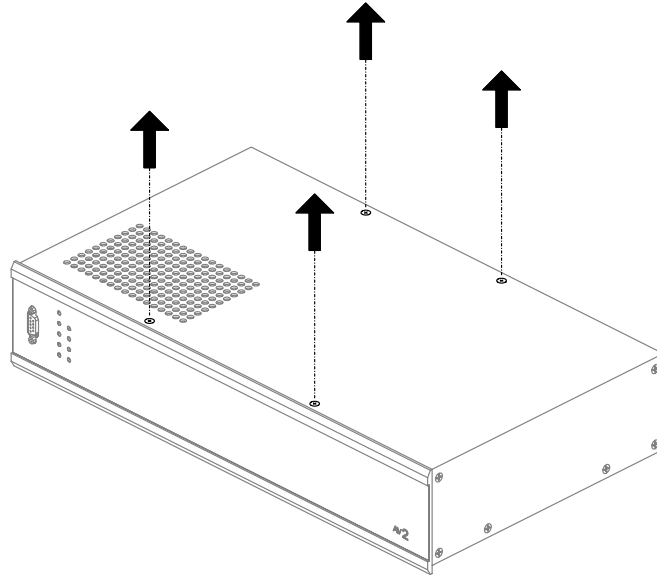
NOTE: Due to the different interconnect connectors, the CAGE2 and CNXCAGE are **not** interchangeable. **Do not** attempt to install a CNXCAGE into the AV2.

NOTE: During this installation procedure, **all** screws removed from the AV2 must be **retained** to install the CAGE2.

NOTE: It is assumed that the AV2 rack ear brackets are not attached and power has been disconnected during this installation procedure.

1. Refer to the diagram below. Using a #2 Phillips screwdriver, remove **four** cover top screws.

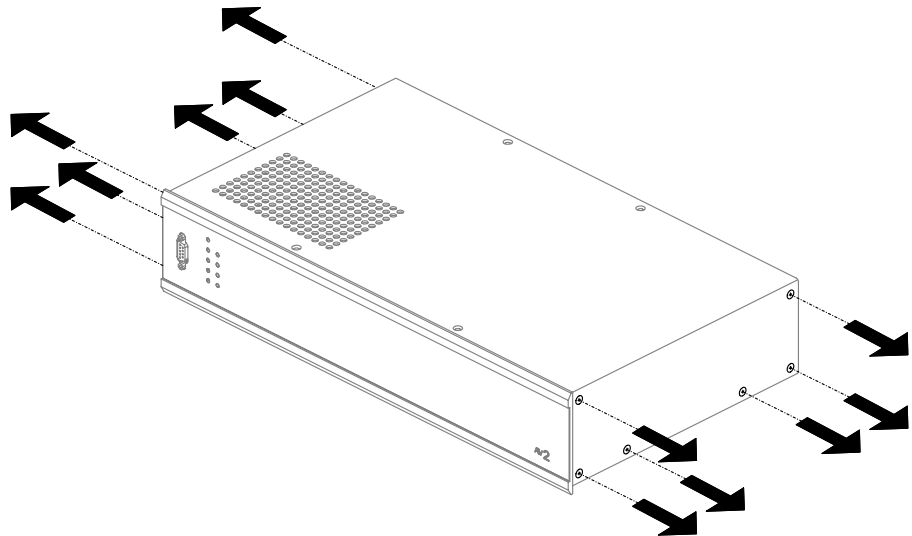
CAGE2 Installation (1 of 11) - Remove Cover Top Screws



NOTE: The AV2 cover top screws are 0.250 in long and the cover side screws are 0.375 in long. Keep the screws separate to ease reassembly.

2. Refer to the diagram below. Using a #2 Phillips screwdriver, remove **six** cover screws from each side of the AV2.

CAGE2 Installation (2 of 11) - Remove Cover Side Screws

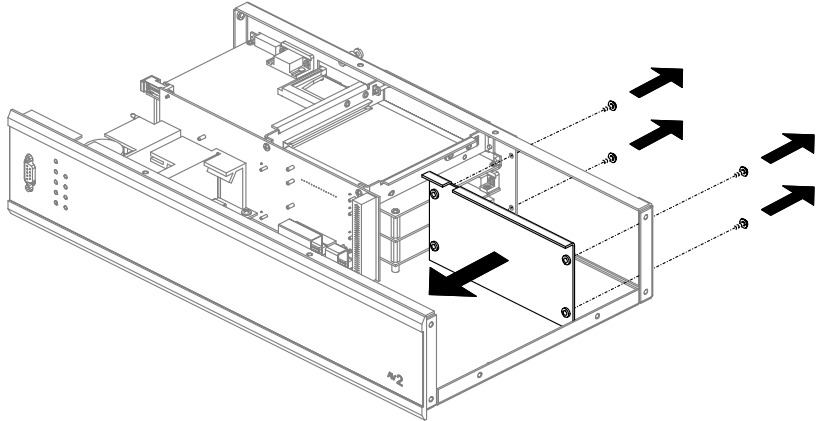


3. Lift and remove AV2 cover.

NOTE: During the next step, the four SEM (attached washer) screws must be retained to install the CAGE2. However, the blank plate will not be reused.

4. Refer to the diagram below. Use a #2 Phillips screwdriver to remove four rear-mounting SEM screws that secure the AV2 blank plate and remove the plate.

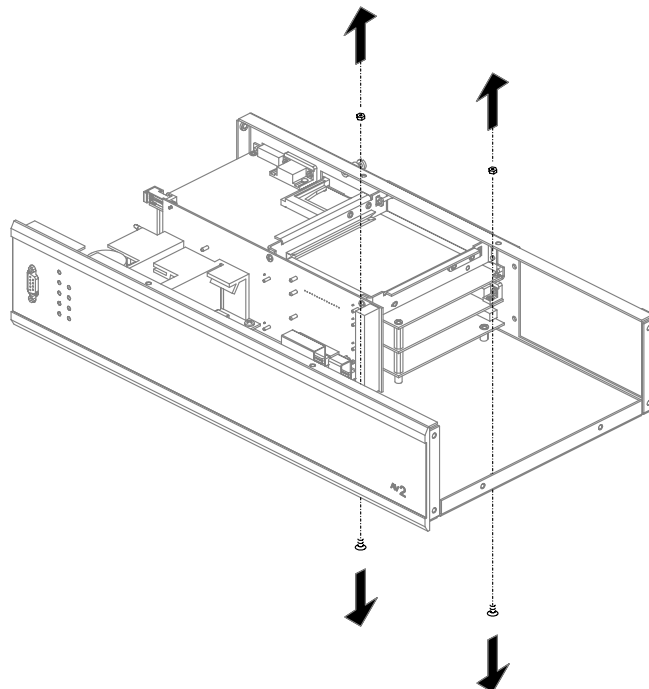
CAGE2 Installation (3 of 11) - Remove Rear-Mounting SEM Screws & AV2 Blank Plate



NOTE: During the next step, the two screws must be retained to install the CAGE2. However, the two nuts will not be reused.

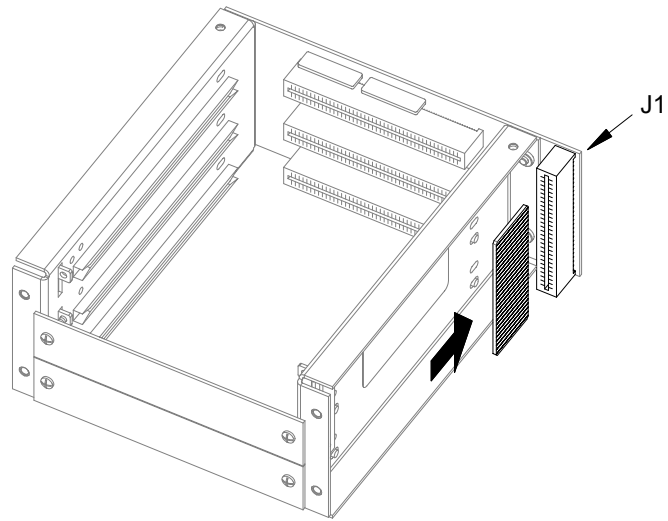
5. Refer to the diagram below. From inside the AV2, use a 1/4-in hex-driver or wrench to hold the nut of one of the bottom-mounting screws. From the underside of the AV2, use a #2 Phillips screwdriver to remove the mounting screw. Repeat for second nut and screw.

CAGE2 Installation (4 of 11) - Remove Bottom-Mounting Screws & Nuts



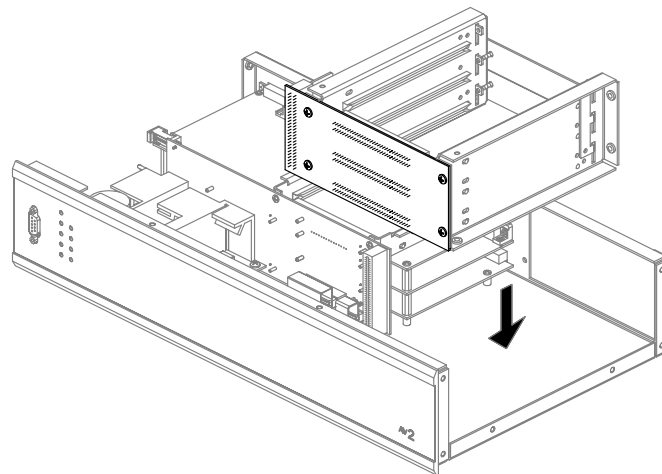
6. Refer to the diagram below. Attach either long-edge of the supplied PCB jumper to the interconnect connector (J1) on the CAGE2.

CAGE2 Installation (5 of 11) - Attach PCB Interconnect Jumper to CAGE2



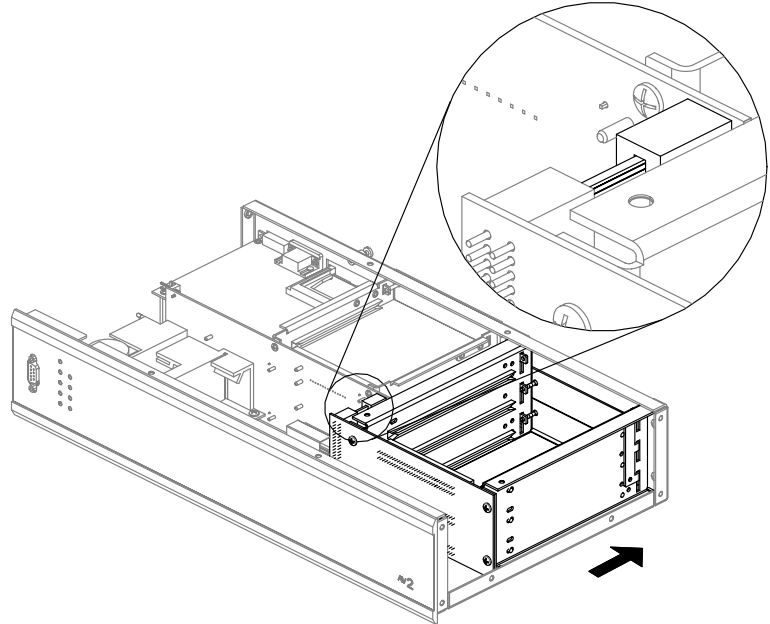
7. Refer to the diagram below. Rotate the CAGE2 assembly until the CAGE2 connector backplane is towards the AV2 front panel and position into AV2.

CAGE2 Installation (6 of 11) - Position CAGE2 Assembly into AV2



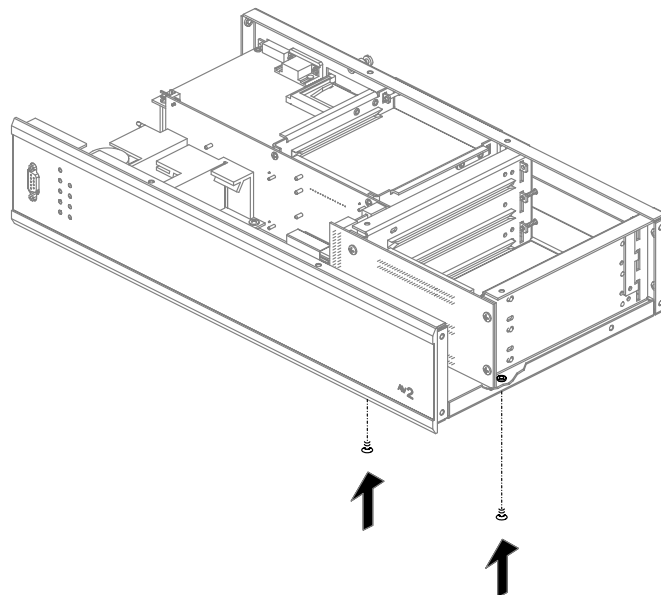
8. Refer to the diagram below. Align the PCB jumper to the AV2 processor board connector and slide the CAGE2 assembly towards rear of AV2. Make sure that PCB jumper is inserted into the AV2 connector and align the CAGE2 bottom and rear mounting holes.

CAGE2 Installation (7 of 11) - Slide CAGE2 Assembly Rearwards



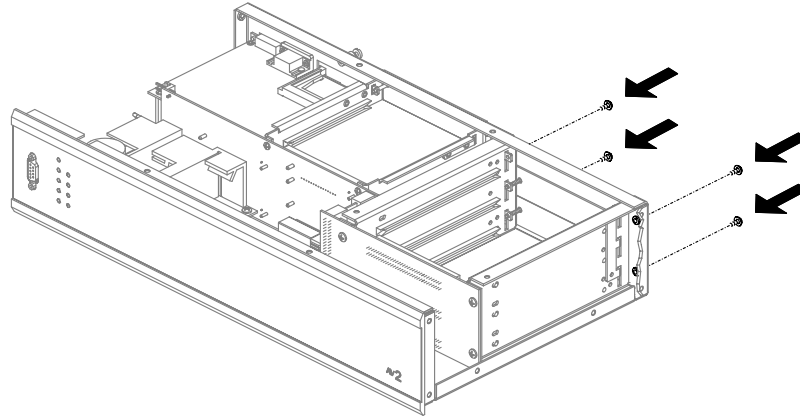
9. Refer to the diagram below. Install the two bottom-mounting screws that were removed in step 5 to **finger-tight** then, using a #2 Phillips tip screwdriver tighten the screws an additional **1/8-turn**.

CAGE2 Installation (8 of 11) - Install Bottom-Mounting Screws



10. Refer to the diagram below. Re-install the the four rear-mounting SEM (attached washer) screws that were removed in step 4 to **finger-tight** then, using a #2 Phillips tip screwdriver tighten the screws an additional **1/8-turn**.

CAGE2 Installation (9 of 11) - Re-install Rear-Mounting Screws

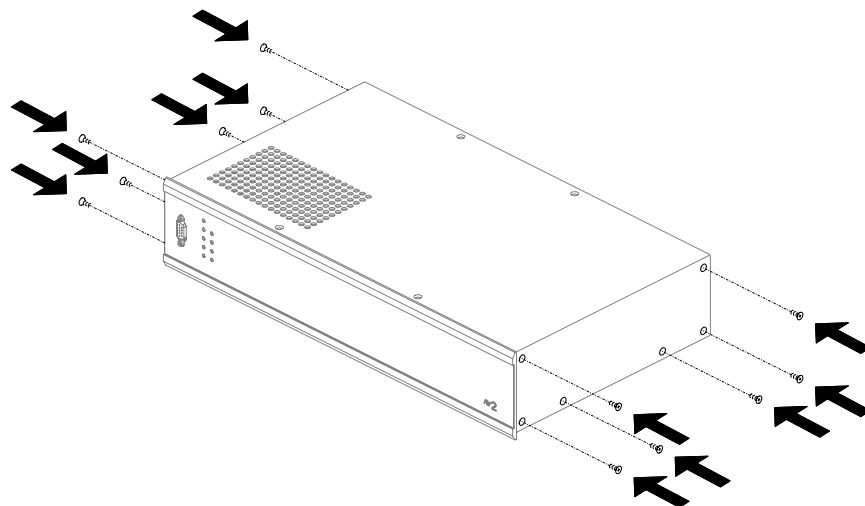


11. Position cover onto the AV2.

NOTE: The AV2 cover side screws are 0.375 in long and the cover top screws are 0.250 in long. Make sure that the correct screws are re-installed in the cover side and top, respectively.

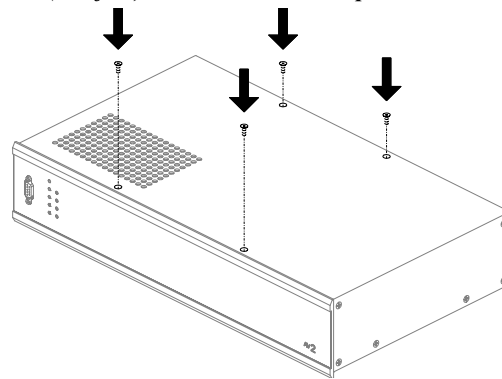
12. Refer to the diagram below. Re-install the **six** cover screws that were removed from each side of the AV2 in step 2 to **finger-tight** then, using a #2 Phillips tip screwdriver tighten the screws an additional **1/8-turn**.

CAGE2 Installation (10 of 11) - Re-install Cover Side Screws



13. Refer to the diagram on the next page. Re-install the **four** cover screws that were removed from the top of the AV2 in step 1 to **finger-tight** then, using a #2 Phillips tip screwdriver tighten the screws an additional **1/8-turn**.

CAGE2 Installation (11 of 11) - Re-install Cover Top Screws



14. Refer to the installation and operation guide supplied with the expansion card for card installation instructions. If more than one plug-in expansion card is to be utilized in the AV2, additional face-plate(s) of the CAGE2 must be removed.

SIMPL Windows Programming

SIMPL (Symbol Intensive Master Programming Language) is an easy-to-use programming language that is completely integrated and compatible with all Crestron system hardware. The objects that are used in SIMPL are called symbols. SIMPL Windows offers drag and drop functionality in a familiar Windows® environment.

SIMPL Windows is Crestron's software for programming Crestron control systems. It provides a well-designed graphical environment with a number of workspaces (i.e., windows) in which a programmer can select, configure, program, test, and monitor a Crestron control system.

NOTE: Crestron 2-Series control processors require SIMPL Windows version 2.00 or later. The latest software versions can be obtained from the What's New page (SIMPL Windows section) or Downloads page (SIMPLWIN Library) of Crestron's website (www.crestron.com). New users are required to register in order to obtain access to the FTP site.

NOTE: The following table assumes that the reader has knowledge of SIMPL Windows. If not, refer to the extensive help information provided with the software.

To create a program with an AV2 equipped with an optional CAGE2 card cage, in the Configuration Manager of SIMPL Windows, refer to the table below for initial configuration information.

Configure AV2 With Card Cage

DEVICE LIBRARY	SYMBOL REQUIRED	DROP WHERE	ADDITIONAL SETUP
Control Systems	AV2 With Card Cage	System Views	Refer to the documentation supplied with the AV2 for additional setup information.
Plug-in Control Cards, Cards (2-Series Y Bus) or Cards (CNX Series)	Desired expansion card	AV2 With Card Cage, C2Y Card Slot	Refer to the documentation supplied with the specific expansion card for additional setup information.

Problem Solving

Troubleshooting

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

CAGE2 Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Expansion card(s) do not function properly.	PCB interconnect jumper not installed	Follow installation procedures in this guide.
	PCB interconnect jumper defective.	Replace PCB interconnect jumper.
	CAGE2 interconnect connector J1 pin(s) or AV2 backplane connector damaged.	Inspect connector pins. If damaged, contact Crestron customer service.
	Expansion card defective.	Refer to "Troubleshooting" section of the Operations & Installation Guide supplied with the expansion card. *

* The appropriate document can be obtained from the Products page (PRODUCT MANUALS section, hardware section) or Downloads page (MANUAL Library) of Crestron's website (www.crestron.com). New users are required to register in order to obtain access to the FTP site.

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) for a listing of Crestron worldwide offices.

You can also log onto the online help section of the Crestron website (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 adds improvements to the CAGE2, 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 (www.crestron.com) periodically for manual update availability and its relevance. Updates are available from the Download | Product Manuals section and 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 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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Specifications subject to
change without notice.