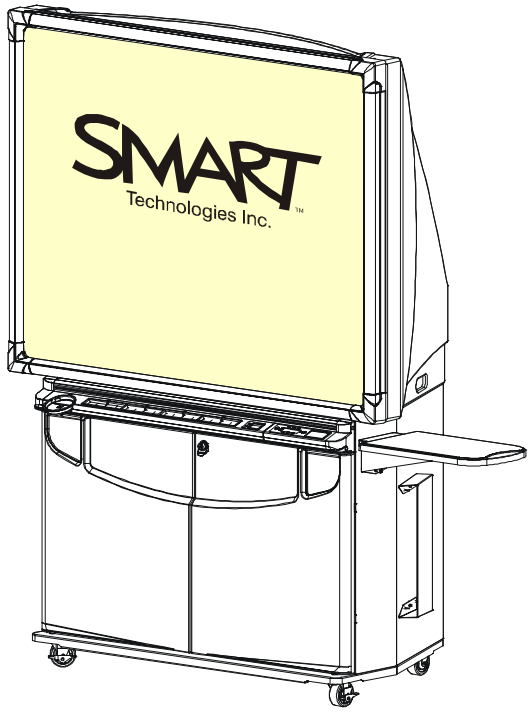
Room Control Module Installation Guide (3000i-RCM)

for the

Rear Projection SMART Board 3000i and 4000i Interactive Whiteboard



FCC Warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

U.S. Patent Nos. 5,448,263; 6,141,000; 6,326,954; 6,337,681; 6,741,267 and 6,747,636. Canadian Patent No. 2,058,219. Other U.S., Canadian and foreign patents pending.

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The Room Control Module

IMPORTANT

These instructions explain how to install the SMART Room Control Module into a *Rear Projection* SMART Board™ 3000i or 4000i interactive whiteboard. For information on programming the module for use with a 3000i or a 4000i, refer to the *Room Control Module Integration Guide for the Rear Projection SMART Board 2000i DV/DVX, 3000i and 4000i Interactive Whiteboard* (part No. 99-00359-02).

A room control system lets you connect many different devices and control them from one central screen. The SMART Room Control Module provides an interface between the *Rear Projection* SMART Board interactive whiteboard and your room control system. After you install the module and program the room control system, other computers can control the interactive whiteboard's source selection, volume and display settings.

To install the Room Control Module, you must:

- install the Room Control Module in your *Rear Projection* SMART Board interactive whiteboard (page 3)
- connect the required cables (page 4)
- update your control panel firmware, if necessary (page 14)

  NOTE: The control panel firmware in a 3000i varies according to the serial number. If you have to update your firmware (as determined in this guide), the procedure for doing so depends on the unit's current firmware version.
- program the room control system with commands that the *Rear Projection* SMART Board interactive whiteboard understands. You'll find information for doing this in the *Room Control Module Integrator's Guide for the Rear Projection SMART Board 2000i DV/DVX, 3000i and 4000i*.

NOTE: If you have a 3000i, check the last five digits of your unit's serial number. If the number is less than 05000, you won't be able to use the Room Control Module. Units with serial numbers lower than 05000 don't contain the SMART X-Port™ 20 switch, which the Room Control Module requires.

The Room Control Module option includes:

- the Room Control Module
- a custom straight-through MOD4 I²C cable with RJ11-6 (RJ12) connectors at both ends (part No. 93-199-00) and a tie wrap
- a custom I²C flash adapter cable (part No. 93-00350-00) for use only if the serial number on your 3000i is between 05000 and 05999
- an anti-static wrist strap
- the warranty document
- a 3 1/2" disk with the hex file for upgrading the control panel firmware
- this guide and the *Room Control Module Integrator's Guide* for your unit

Tools you'll need but aren't supplied include:

- a Phillips® No. 2 screwdriver
- cutting pliers or wire cutters

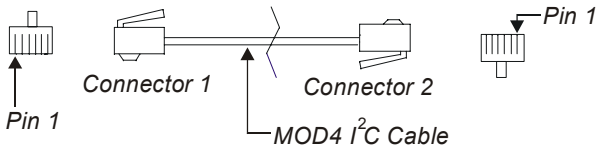
About the Custom Straight-Through MOD4 I²C Cables

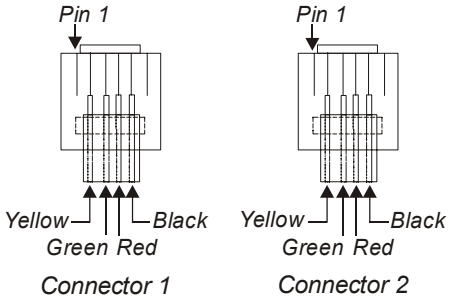
When you install the Room Control Module, you need to connect two MOD4 I²C cables as described in this guide. These cables are specific data cables, not standard telephone cables. One of the cables comes with the Room Control Module, while the other is already inside the cabinet. As you follow the installation instructions, you'll reroute the existing cable to the Room Control Module.

Both four-wire cables are custom MOD4 I²C cables that use RJ11-6 (RJ12) connectors with identical pin assignments at both ends. The pin assignments for the connectors, shown below, are vital for the cables to work correctly.

CAUTION

Don't use a standard crossover telephone cable. Using a telephone cable instead of this custom cable could damage the Room Control Module and your *Rear Projection* SMART Board interactive whiteboard.





Connector 1			Connector 2
Blue, not used	Pin 1	Pin 1	Blue, not used
Yellow	Pin 2 ———	Pin 2	Yellow
Green	Pin 3 ———	Pin 3	Green
Red	Pin 4 ———	Pin 4	Red
Black	Pin 5 ———	Pin 5	Black
White, not used	Pin 6	Pin 6	White, not used

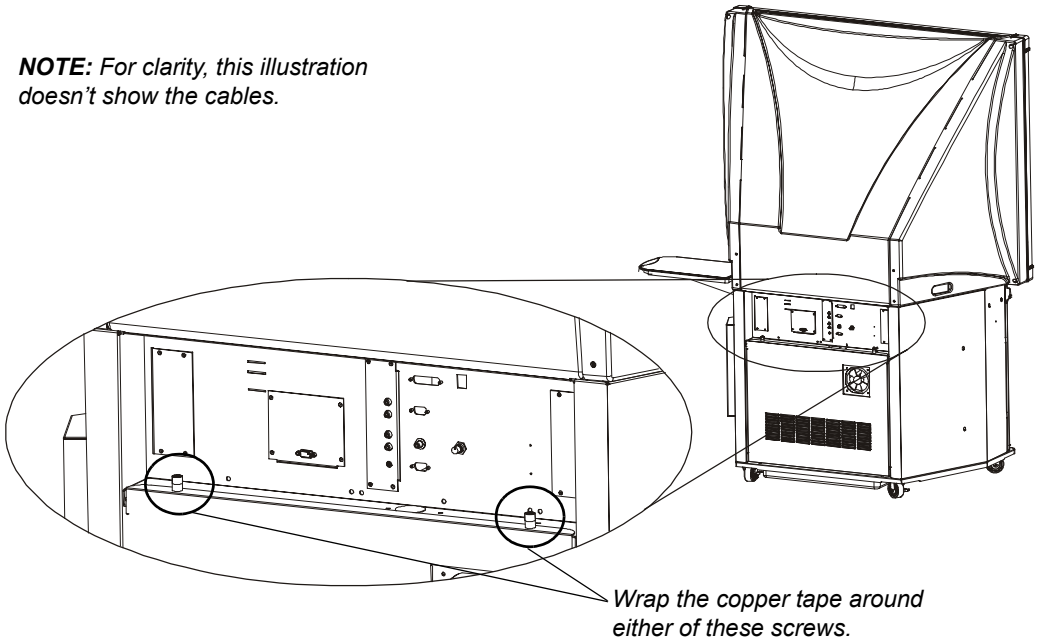
Installing the Room Control Module

CAUTION

When you install the Room Control Module, you must wear the supplied antistatic wrist strap. This wrist strap protects electronic components from damage due to electrostatic discharge.

To use this wrist strap, attach the adhesive side of the strap to your wrist. Then wrap the copper tape on the other end of the strip around either of the two screws shown below.

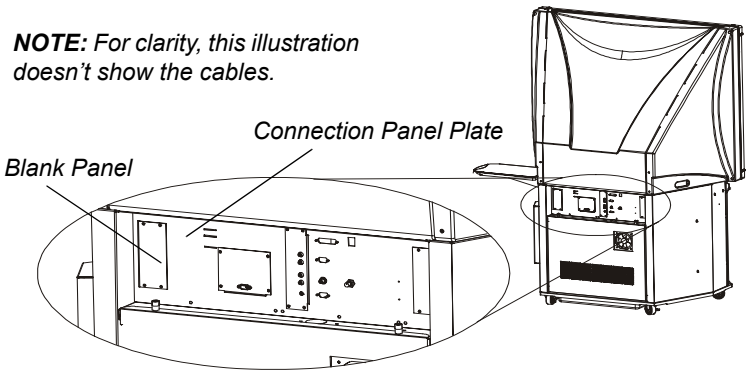
NOTE: *For clarity, this illustration doesn't show the cables.*



To remove the blank panel

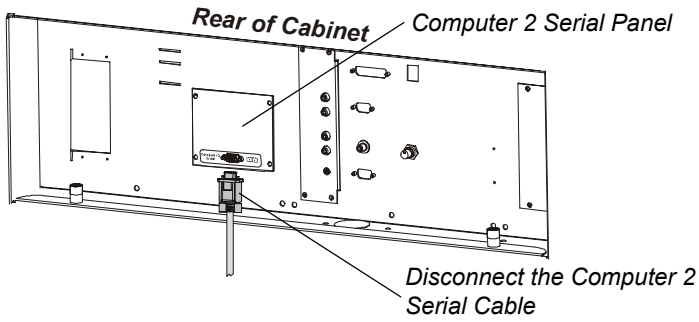
1. Shut down the computer, and put the projector into Standby mode. When it's safe to do so, unplug the cabinet from the power outlet.
2. With a Phillips No. 2 screwdriver, remove the four screws that attach the blank panel to the connection panel plate. Discard the blank panel, but keep the screws handy. You'll need them later to install the Room Control Module (page 7).

NOTE: *For clarity, this illustration doesn't show the cables.*

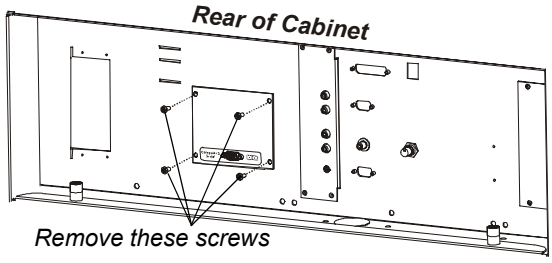


To connect the internal cable

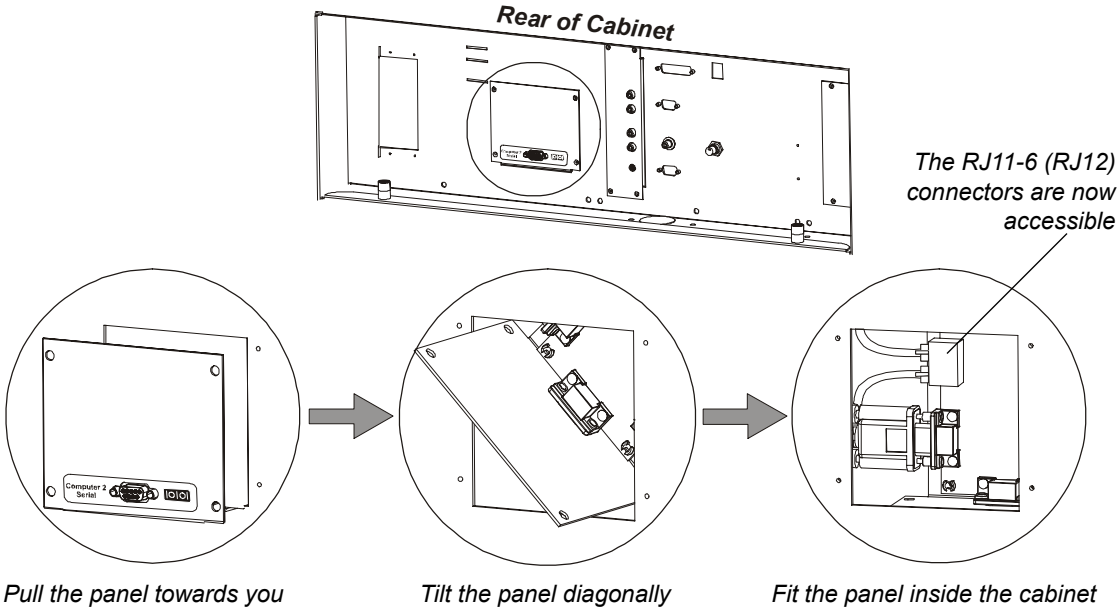
1. Disconnect the computer 2 serial cable from the computer 2 serial panel.



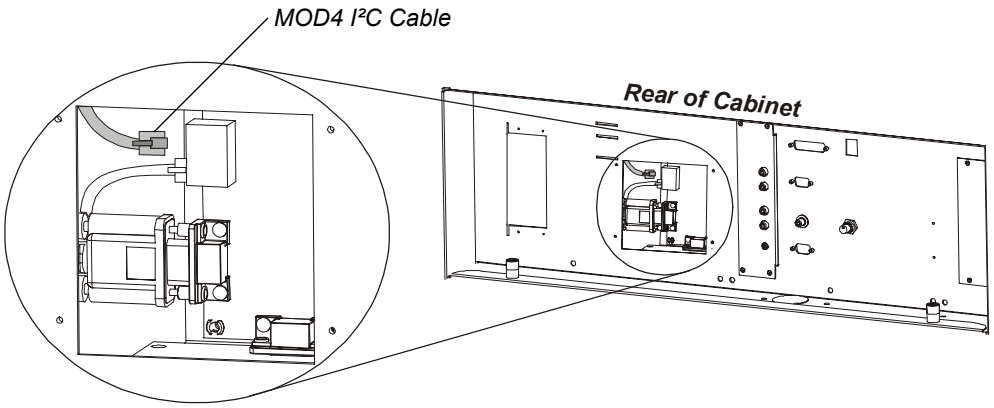
2. Remove the four screws that hold the computer 2 serial panel to the connection panel plate. Keep the screws handy, because you'll need them later (page 6).



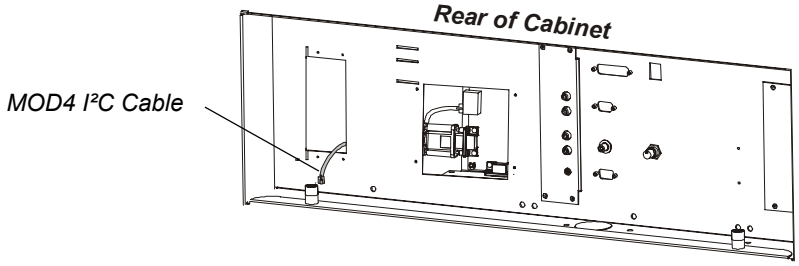
3. Turn the computer 2 serial panel around so that the side with the RJ11-6 (RJ12) connectors faces you. To do this, pull the panel towards you by approximately 1/2" (12.7 mm), tilt it diagonally, and fit it inside the cabinet. As you fit the panel inside the cabinet, flip it to make the RJ11-6 (RJ12) connectors accessible.



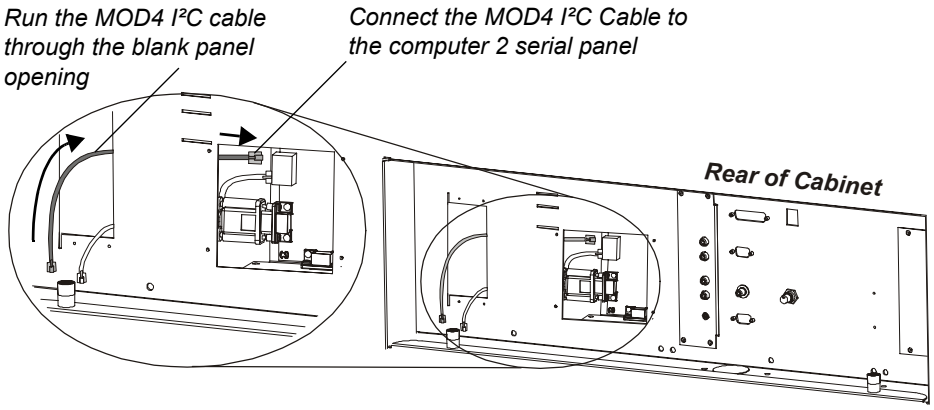
4. Disconnect the MOD4 I²C cable at the top of the computer 2 serial panel.



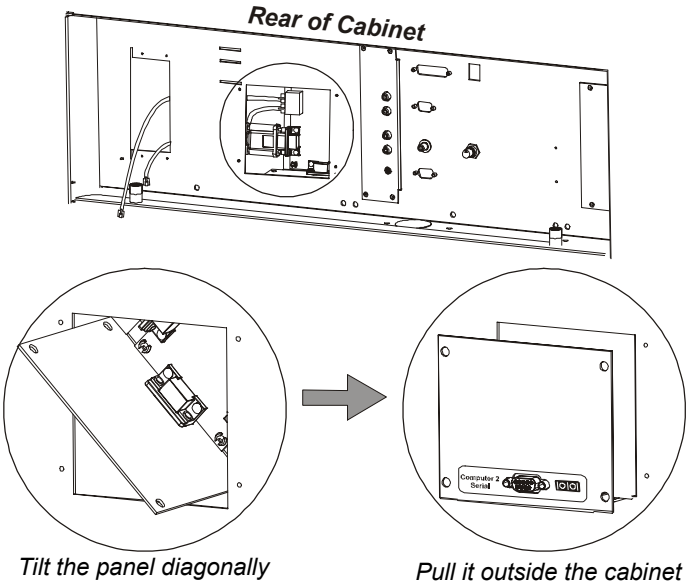
5. Route this cable behind the connection panel and out of the blank panel opening.



6. Route the MOD4 I²C cable that came with the Room Control Module through the blank panel opening and connect it to the jack on the computer 2 serial panel. This jack is the one from which you just removed the other MOD4 I²C cable.

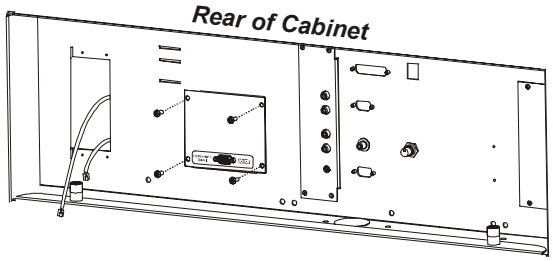


7. Return the computer 2 serial panel to its original orientation by tilting it and then pulling it outside the cabinet. As you pull the panel out, flip it so the RJ11-6 (RJ12) connectors remain inside the cabinet.



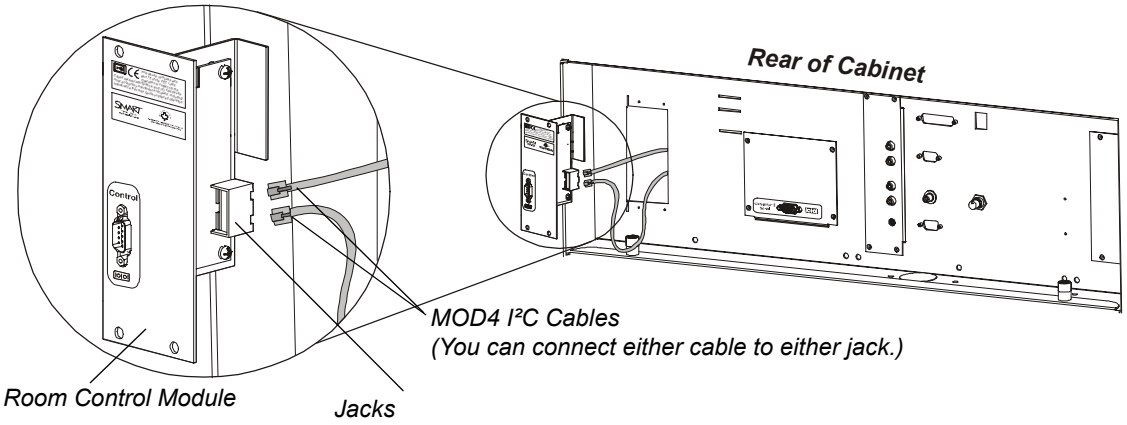
Tilt the panel diagonally *Pull it outside the cabinet*

8. Reinsert the four screws that hold the computer 2 serial panel in place. Do not over-tighten these screws.

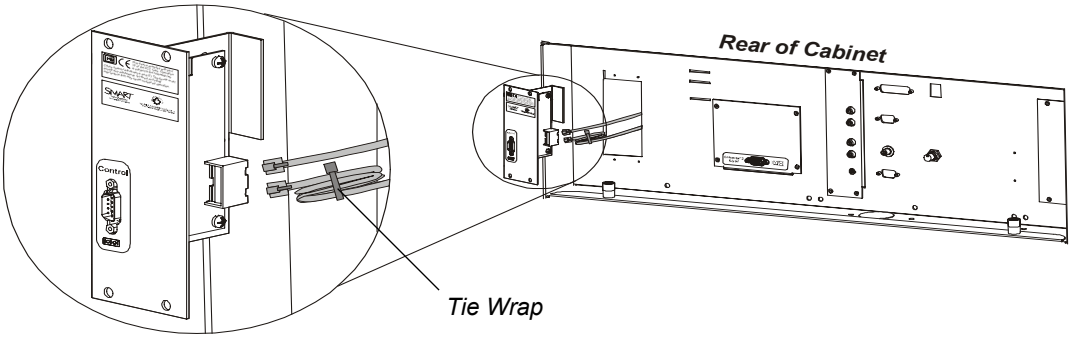


Inserting the Room Control Module

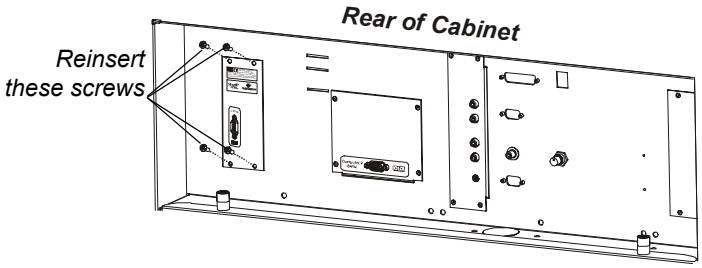
1. Connect the two MOD4 I²C cables to the RJ11-6 (RJ12) jacks on the back of the Room Control Module. You can connect either cable to either jack.



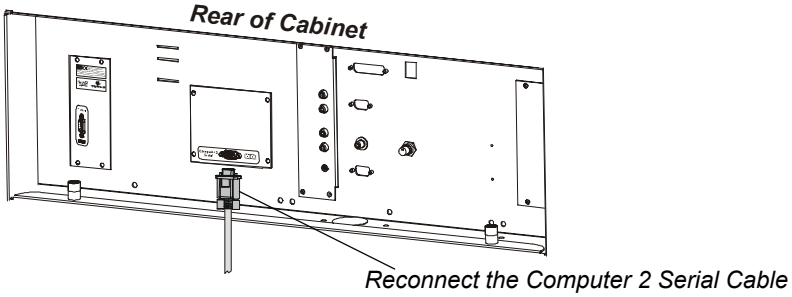
2. Bundle any excess cable, fasten it with the supplied tie wrap, and clip off any excess tie-wrap length.



3. Reinsert the four screws that hold the Room Control Module in place. (You removed these screws in step 2 on page 3.) Do not over-tighten these screws.



4. Reconnect the computer 2 serial cable.



Updating the Control Panel Firmware

If you have a 4000i or a 3000i with a serial number greater than 08000, you don't need to update the control panel firmware. However, if the 3000i's serial number is less than 08000, you may have to update this firmware.

Check the last five digits of your 3000i's serial number. You'll find the serial number labels in two places:

- on the patch panel at the rear of the cabinet
- inside the right-hand door of the cabinet

The method for updating the firmware varies depending on the serial number of your 3000i. Use Table 1 to determine the necessary tasks and the order in which you must do them.

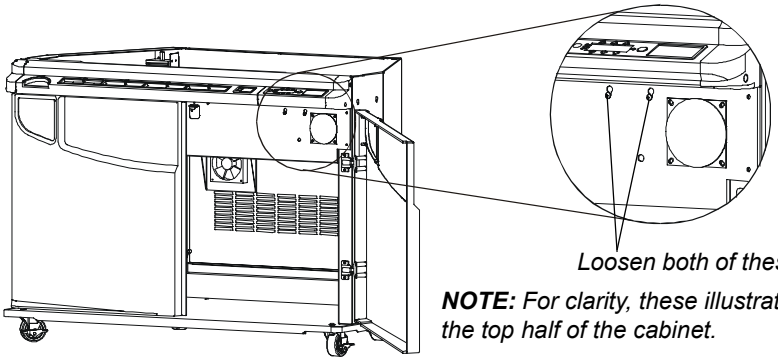
Tasks Required to Update the Control Panel Firmware	Last Five Digits of the Serial Number for Your 3000i		
	05000-05999	**06000-06999**	**07000-07999**
Connect the I²C flash adapter cable to the I²C control panel flash cable and the SC7 serial controller (page 9)	First task		
Connect the I²C control panel flash cable to the SC7 serial controller (page 11)			First task
Connect the SMART Room Control Module to a third-party room control system (page 13)	Second task	First task	Second task
Use the SMART Board Diagnostics program to determine the control panel firmware version (page 14)	Third task	Second task	Third task
If the control panel firmware version is 2.0, 2.10 or 2.11, update the firmware to version 2.12 (page 14)	Fourth task	Third task	Fourth task

Table 1: Task Order

Connecting the I²C Flash Adapter Cable (Serial No. 05000-05999)

If the last five digits of the serial number on your 3000i are between 05000 and 05999, you must insert the I²C flash adapter cable between the I²C control panel flash cable and SC7 serial controller before you attempt to update the control panel firmware.

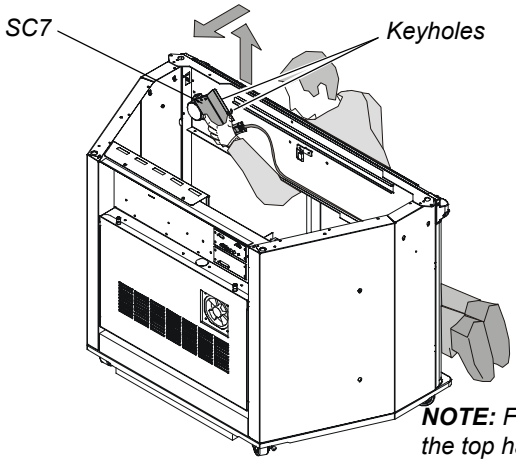
1. Open the right-hand door of the cabinet. Locate the two screws that hold the serial controller metal housing to the front panel, and then loosen them by two or three turns.



Loosen both of these screws

NOTE: *For clarity, these illustrations don't show the top half of the cabinet.*

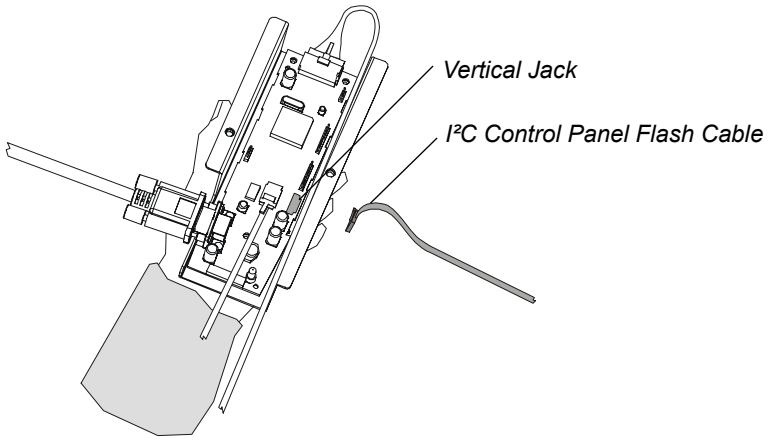
2. Reach inside the cabinet to remove the SC7 from the keyholes on the panel. To do this, lift the SC7 up and then back to free the protruding screws from the keyholes.



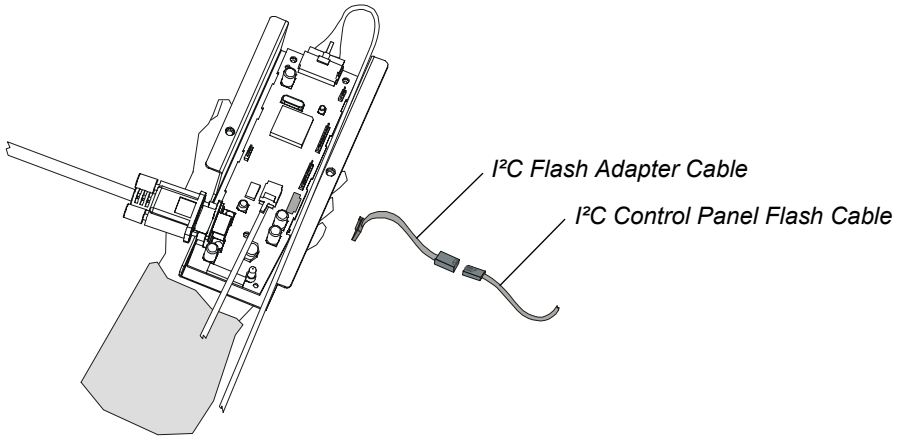
NOTE: *For clarity, these illustrations don't show the top half of the cabinet.*

3. With the cables still connected, carefully lower the serial controller through the opening in the front panel.

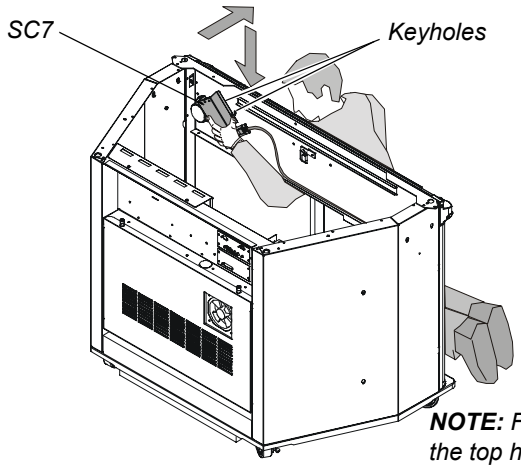
4. Disconnect the I²C control panel flash cable from the vertical jack on the serial controller.



5. Connect the cable that you just removed to the female end of the I²C flash adapter cable. Then connect the male end of the I²C flash adapter cable to the vertical jack on the serial controller.



6. Reach inside the cabinet and return the SC7 to the inside of the front panel. To do this, put the screws back into the keyholes on the front panel, and then press the SC7 down.

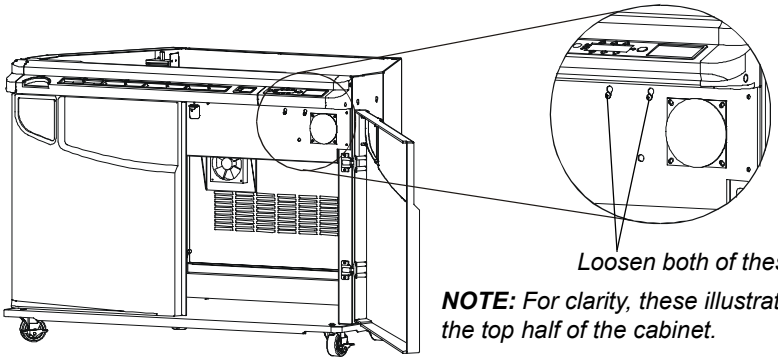


NOTE: *For clarity, these illustrations don't show the top half of the cabinet.*

Connecting the I²C Control Panel Flash Cable (Serial No. 07000-07999)

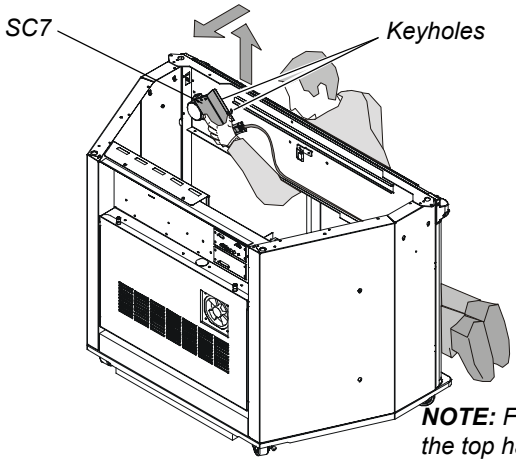
If the last five digits of the serial number on your 3000i are between 07000 and 07999, you must connect the I²C control panel flash cable to the SC7 serial controller before you can update the control panel firmware.

1. Open the right-hand door of the cabinet. Locate the two screws that attach the serial controller metal housing to the front panel, and then loosen them by two or three turns.



NOTE: *For clarity, these illustrations don't show the top half of the cabinet.*

2. Reach inside the cabinet to remove the SC7 from the keyholes on the panel. To do this, lift the SC7 up and then back to free the protruding screws from the keyholes.



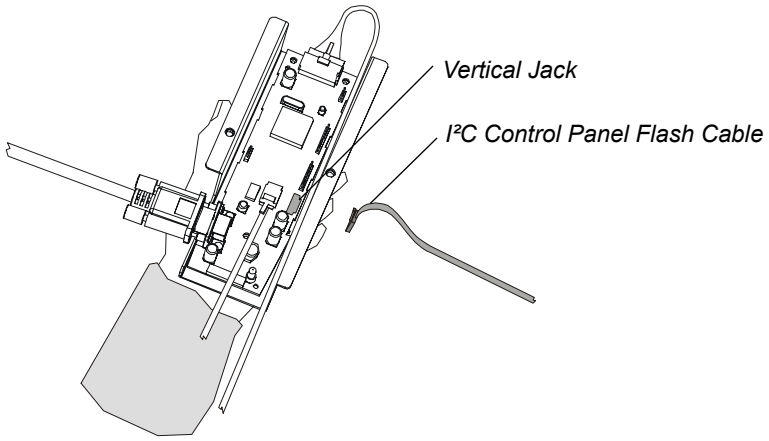
NOTE: *For clarity, these illustrations don't show the top half of the cabinet.*

3. With the cables still connected, carefully lower the serial controller through the opening in the front panel.

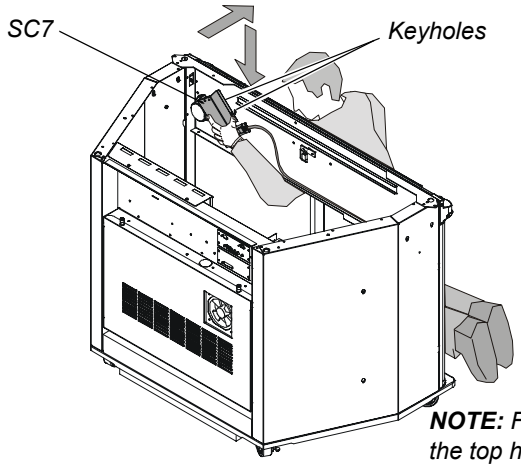
   You'll notice that the I²C control panel flash cable is bundled with the DB9 serial cable.

4. Using cutting pliers or wire cutters, cut the tie wraps as required to free the control panel flash cable.

5. Connect this cable to the vertical jack on the serial controller.



6. Reach inside the cabinet and return the SC7 to the inside of the front panel. To do this, put the screws back into the keyholes on the front panel, and then press the SC7 down.

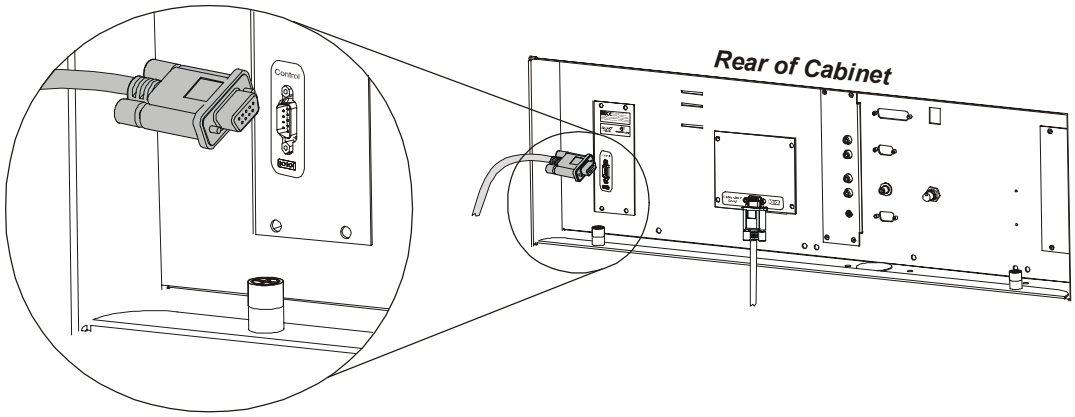


NOTE: *For clarity, these illustrations don't show the top half of the cabinet.*

Connecting to a Third-Party Room-Control System

1. Plug in the 3000i power cable, turn on the computer and the projector.
2. Connect the DB9F end of a DB9F/custom cable to the **Control** port on the Room Control Module. SMART Technologies doesn't supply this cable; it's usually supplied by the third-party room control vendor.

   NOTE: Do not use an off-the-shelf DB9 null-modem cable to connect the SMART Room Control Module to a third-party room-control system, as the pin assignment of such a cable will cause the system to malfunction.



Ensure that the RS-232 cable that you use has the following pin assignment:

At the Third-Party Room Control System End Custom Connector	Data Cable	At SMART Room Control Module End DB9F	
RxD	◄———	3	RxD (from the third-party room control system)
TxD	———►	2	TxD (from the third-party room control system)
Signal Ground	———	5	Signal Ground

Table 2: Pin Assignment of the Cable

Port on the SMART Room Control Module	
2	RxD (TxD from the third-party room controller)
3	TxD (RxD from the third-party room controller)
5	Signal Ground
7	RTS
8	CTS

Table 3: Pin Assignment of the DB9 Port on the Room Control Module

3. Connect the other end of the cable to the third-party room-control system.

Updating the Control Panel Firmware

If the control panel card in your 3000i uses firmware version 2.0, 2.10 or 2.11, you'll need to update the firmware to version 2.12. The software for upgrading your firmware is included with the Room Control Module.

If the serial number of your 3000i is less than 08000, use the WBDiag program to update your firmware.

NOTE: The update procedure takes between 20 and 30 minutes. If you use a laptop computer to complete the following steps, make sure it's connected to a continuous power source. We also recommend that you do not disturb the upgrade process by working on the computer during the download.

To determine your firmware version

1. Click the **SMART Board** icon in the system tray and select **Control Panel** to open the *SMART Board Control Panel*.
2. Click the **Log** button on the *Boards* tab to open the *Status Log* window.
3. Click the **SMART Board Diagnostics** button to open the *SMART Board Diagnostics* window.
4. Select **View > Wonderbar** to see the Wonderbar buttons.
5. Click the **FW Ver** button.

   The firmware version appears in the log file. If the firmware version is 2.0, 2.10 or 2.11, update the firmware as explained below.

   If the firmware version is 2.12 or higher, there's no need to update the control panel firmware. Close the SMART *Board Diagnostics* window and the *Status Log* window.

To update the control panel firmware to 2.12

1. Disconnect the port in the *SMART Board Control Panel*. To do this, click the **SMART Board** icon and select **Control Panel** to open the *SMART Board Control Panel*. On the *Boards* tab, select the port for your interactive whiteboard and click the **Disconnect** button.
2. Open the WBDiag program, which is in the SMART Board Software folder.
3. Use the WBDiag program to open the port: select the **COM** port for your interactive whiteboard and then click the **Open Port** button.
4. Copy the hex file from the supplied diskette to the hard drive of the laptop or internal computer. The hex file is also available from www.smarttech.com/support/firmware.

   CAUTION

   Do not click the button or the **Download Firmware** command on the **Board** menu, because that will replace your serial controller firmware with the firmware intended for the control panel. Doing this will render your system inoperable.

5. Select **Wonderbar > Download Firmware**.

   The *Open* dialog box appears.

6. Browse to the hex file and open it.

   This begins the download process, which will take approximately 20 to 30 minutes. If you use a laptop computer, make sure it's connected to a continuous power source. We also recommend that you do not disturb this process by working on the computer during the download.

   During the download, a series of messages appear. At the end of the download, you will see:

   ```
   ATTEMPTING TO PROGRAM THE FIRMWARE ON THE WONDERBAR
   010.808      -> WONDERBAR IN BOOTLOADER CODE
   011.058      -> WONDERBAR BOOTLOADER VERSION:      3.11
   016.088      ->          (0x00, 0x00, 0x00, 0x00) - ERROR FLAG SET:0x0002
   ..................................................................................................
   ..................................................................................................
   ..................................................................................................
   DOWNLOAD SUCCESS!
   ```

7. To check the downloaded version, select **Wonderbar > Hardware Info**.

   You should see the following values:
   WONDERBAR F/W VERSION: 2.12
   WONDERBAR CHECKSUM: F721h

   NOTE: If you were to download a version other than 2.12 from our website, the values for the control panel version and checksum would differ from those shown above.

8. Select **File > Exit**.

   After you've updated the firmware, reestablish the connection to the serial port.

To reconnect the serial port

1. In the *SMART Board Control Panel*, click the **Connect** button.

   The *Select COM Port* dialog box opens.

2. Under **Manual**, select the COM port from the list and click the **Select** button.

   OR

   Click the **Detect SMART Hardware** button.

   The system searches for the interactive whiteboard until the correct COM port is located.

Customer Support

Contacting SMART Technical Support

SMART's Technical Support team welcomes your call. However, you may first want to contact your local reseller if you experience any difficulties with your *Rear Projection* SMART Board 3000i or 4000i interactive whiteboard, as they may be able to solve the problem without delay.

All SMART products include free telephone, fax and e-mail support.

Telephone: 1.866.518.6791 (toll-free in Canada/U.S.) or +1.403.228.5940 (all other countries)
(Available 7 a.m. – 6 p.m. Mountain time from Monday to Friday)

Fax: +1.403.806.1256

E-mail: support@smarttech.com

Website: www.smarttech.com/support

When you phone Technical Support, it will be helpful if you have access to your unit during the call. The support representative may ask you for the following information:

- the serial number of the unit, which you'll find on the patch panel at the rear of the cabinet and inside the right-hand door of the cabinet
- the version of the software that's causing the problem and the version of your computer's operating system (if applicable)

General Inquiries

Main Switchboard: 1.888.42.SMART (toll-free in Canada/U.S.) or
+1.403.245.0333 (all other countries)

Fax: +1.403.228.2500

E-mail: info@smarttech.com

Address: SMART Technologies Inc.
Suite 300, 1207 – 11th Avenue SW
Calgary, AB CANADA T3C 0M5

Returning Defective Merchandise

Your *Rear Projection* SMART Board interactive whiteboard is covered by a two-year limited equipment warranty. To return defective merchandise, call SMART Technical Support. You will receive the appropriate Return of Merchandise authorization and instructions for transporting your unit to an authorized service center.

Warranty Shipping Charges

You are responsible for transporting the *Rear Projection* SMART Board interactive whiteboard to the service center, and SMART pays return shipping via ground service on any product that's returned for service within the warranty period. If you request a *rush order*, any associated charges are billed to you. Read the warranty that was included with your *Rear Projection* SMART Board interactive whiteboard for details.

NOTE: After the warranty period, you are responsible for transporting the product to and from the service center.

Sending Feedback

You can help us improve our documentation by e-mailing your comments to TechnicalDocumentation@smarttech.com.

Obtaining More Information on the 4000i

Visit www.smarttech.com/support to:

- download PDF versions of our user guides, installation instructions and more
- read technical bulletins, FAQs and tips
- troubleshoot a problem
- explore our resource centers to learn about conferencing and room control systems

SMART Technologies Inc.
Suite 300, 1207 – 11th Avenue SW
Calgary, AB CANADA T3C 0M5
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Support Fax: +1.403.806.1256
support@smarttech.com www.smarttech.com

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