Remotely managing your SMART Board™ 8070i interactive display

This document includes detailed instructions on how to set up your computer or room control system to remotely manage your SMART Board™ 8070i interactive display using an RS-232 serial interface.

Connecting your interactive display to an RS-232 system

Connect a room control system to the serial connector on the interactive display to select video inputs, turn on or turn off your interactive display and request information such as interactive display contrast, power state and current settings.

Connection diagram

Connect your RS-232 cable to the inside terminal panel for your interactive display.

Room control input

Room control output
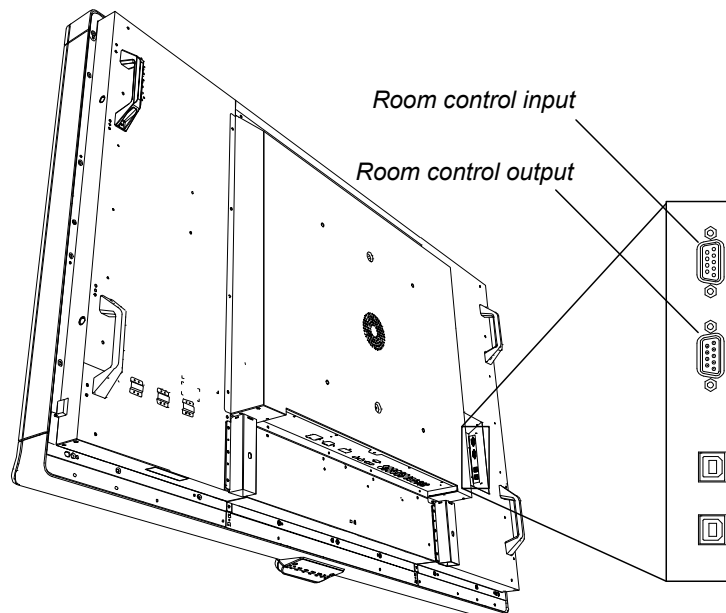
■ **To connect your interactive display to a room control system**

Connect an RS-232 cable from the serial output on your computer to the room control input.

> ☞ **IMPORTANT**
>
> Do not use a null modem cable.

■ **To connect additional interactive displays**

1. Connect an RS-232 cable from the room control output of the first interactive display to the room control input on another interactive display.

2. Continue to connect RS-232 cables from outputs on connected interactive displays to inputs on additional interactive displays.

> **ℹ NOTE**
>
> If you're connecting multiple interactive displays, your room control settings can apply to all of them or you can target specific interactive displays by including a destination address in the command line. For more information on destination addresses, see page 7.

Serial interface settings

Your interactive display operates as a data communication equipment (DCE) device using the following signal timing:

Baud rate	19200
Data length	8
Parity bit	None
Stop bit	1

> **ℹ NOTES**
>
> - Use ASCII-formatted commands.
>
> - Press ENTER after each command, and then wait for the command prompt (**>**) before you type the next command.
>
> - The room control feature of the interactive display is available when the interactive display is active or in Standby mode. It isn't available when the interactive display is in Eco-Standby mode or is turned off.

To configure your computer's serial interface

1. Turn on your interactive display.

2. Turn on your computer, and then start your serial communications program or terminal emulation program.

3. Activate local echo.

4. Connect your computer to the RS-232 cable you previously connected to the interactive display.

5. Configure your serial interface settings using the values from this table, and then press ENTER.

Baud rate	19200
Data length	8
Parity bit	None
Stop bit	1

A command prompt (**>**) appears on the following line.

> **ℹ NOTE**
>
> If no message appears or an error message appears, your serial interface configuration isn't correct. Repeat step 3.

6. Type commands to configure your settings.

Power modes

The interactive display has five distinct power modes: On, Power Save mode, Standby mode, Eco-Standby mode and off.

> **☞ IMPORTANT**
>
> Some commands are available when your interactive display is in Standby mode. No commands are enabled when the interactive display is turned off or in Eco-Standby.

RS-232 programming commands and responses

To access monitor information or adjust monitor settings using the RS-232 system, type commands after the command prompt (>), and then await the response from your interactive display.

```
EXAMPLE
>get contrast
contrast=55
```

> **ℹ NOTE**
>
> Commands aren't case-sensitive.

Interpreting the "invalid cmd" response

If you type a command that the RS-232 system doesn't recognize, you receive an invalid command response.

In the example below the user included a space in the contrast command.

```
INCORRECT

>set con trast=65

invalid cmd=set con trast=65
```

Command inventory

Your interactive display responds to the commands in the tables on the following pages. To see a list of valid commands for your interactive display's current power state, type ? and press ENTER.

> ☞ **IMPORTANT**
>
> - Type commands on a command prompt (>).
> - Review your entries carefully before pressing ENTER.
> - Do not send another command until you receive the response and the next command prompt.

Identifying current values

Find the current value for each setting. In the example below, the user wants to identify the contrast level for the interactive display.

```
EXAMPLE

>get contrast

contrast=55
```

Assigning a specific value

Assign a specific value for a setting within the command's target range. In the example below, the user wants to set the contrast level for the interactive display to 65.

```
EXAMPLE

>set contrast =65

contrast=65
```

Incrementing a value for a setting

Increase a setting by the designated amount. In the example below, the user wants to increase the contrast level for the interactive display by 5.

```
EXAMPLE
>set contrast +5
contrast=70
```

Decrementing a value for a setting

Decrease a setting the designated amount. In the example below, the user wants to decrease the contrast level for the interactive display by 15.

```
EXAMPLE
>set contrast –15
contrast=55
```

Designating video input source commands for a specific video input

When you connect multiple video inputs to your interactive display, you can have different settings for each video input. You can also specify which video input you want to get information about or assign values to.

> 👉 **IMPORTANT**
>
> You must connect the video source to your interactive display to identify a value or assign a value. The video source does not need to be active.

Identifying a value for a video input setting

Use a "get" command to identify values for a video setting. In the example below, the user wants to identify the contrast when the video input source is VGA1.

```
EXAMPLE
>get contrast vga1
contrast vga1=65
```

Assigning a value for a video input setting

Use a "set" command to assign values for a video setting. In the example below, the user wants to set the contrast to 70 when the video input source is VGA1.

EXAMPLE

```
>set contrast vga1=70

contrast vga1=70
```

Designating a target interactive display

You can connect multiple interactive displays in a daisy-chain, and then use room control commands that include a destination address to either access interactive display information or assign settings for an interactive display.

☞ **IMPORTANT**

Always include destination addresses in command lines when multiple interactive displays are connected.

To assign a monitor ID to an interactive display

1. Press the **MENU** button on the menu control panel or the remote control.

   The on-screen menu appears.

2. Press the right arrow to browse to *MULTI DISPLAY*, and then press the down arrow until you select **MONITOR ID**.

3. Press the right arrow to show the monitor ID for the interactive display.

4. Press the right or left arrow to change the monitor ID number for the interactive display.

5. Press **SET**.

Identifying destination addresses for an interactive display

The following table shows destination addresses for each monitor ID.

Monitor ID	Destination address	Monitor ID	Destination address	Monitor ID	Destination address	Monitor ID	Destination address
1	A	8	H	15	O	22	V
2	B	9	I	16	P	23	W
3	C	10	J	17	Q	24	X
4	D	11	K	18	R	25	Y
5	E	12	L	19	S	26	Z
6	F	13	M	20	T	All monitors	*
7	G	14	N	21	U		

Identifying a value for an interactive display

In the example below, the user wants to identify the video input for the interactive display with a monitor ID of 4, which is destination address D.

```
EXAMPLE

> D get input

input=HDMI
```

Designating a setting for an interactive display

In the example below the user wants to change the video input for the interactive display with a monitor ID of 4 to VGA1.

```
EXAMPLE

>D set input=vga1

input=vga1
```

Designating a setting for all interactive displays

The destination address * targets all connected interactive displays. No response line follows commands to the destination address "*".

```
EXAMPLE

* set input=vga
```

Commands and controls

The following tables contain command line options to either identify or assign system settings.

Power state commands

Use power state commands to turn on or to turn off the interactive display or to request its current power state. The interactive display power state determines whether certain commands are available at that time. Power state control settings are available even when the interactive display is off.

Identifying the power state setting

Use the following commands to identify the values for power state settings.

Command	Response	Response values
get powerstate	powerstate=[power state]	• on • standby • off
get standbymode	standbymode=[standbymode]	• normal • eco

Assigning the power state setting

Use the following commands to assign values to power state settings.

Command	Command target range	Responses
set powerstate [target]	• =on • =standby • =off	powerstate=[powerstate]
set standbymode [target]	• =normal • =eco	standbymode=[standbymode]

Video input source

Use the following commands to identify or select a video input source. You can use these commands when your interactive display is in Standby mode.

Identifying the video input source

Use the following command to identify the video input source.

Command	Response	Response values
get input	input=[current]	• VGA • RGB/HV • DVI • Video1 • Video2 • S_Video • DVD/HD1 • DVD/HD2 • DisplayPort • HDMI1 • HDMI2

Setting the video input source

Use the following command to set the video input source.

Command	Command target range	Response
set input [target]	=VGA =RGB/HV =DVI =Video1 =Video2 =S_Video =DVD/HD1 =DVD/HD2 =DisplayPort =HDMI1 =HDMI2	input=[current]

Video source commands

Use video source control commands to control video input settings to all video inputs, including HDMI™ inputs.

Identifying video source control settings

Use the following commands to identify the video source settings.

☞ **IMPORTANT**

Turn on your interactive display to access this information. The information is not available when your interactive display is in Standby mode or turned off.

Command	Response	Response values
get displaymode	displaymode =[current]	- sRGB - highbright - standard - cinema - ISF_day - ISF_night - ambient1 - ambient2
get brightness	brightness=[current]	0–100
get contrast	contrast=[current]	0–100
get clock	clock =[current]	current clock
get clockphase	clockphase =[current]	current clock phase
get blacklevel	blacklevel =[current]	0–100
get saturation	saturation =[current]	0–100

Command	Response	Response values
get tint	tint =[current]	0–100
get sharpness	sharpness =[current]	0–100
get colortemp	colortemp =[current]	2600–10000
get gamma	gamma=[current]	- native 2.2 2.4 - s - dicomsim - programmable
get red	red=[current]	0–100
get green	green=[current]	0–100
get blue	blue=[current]	0–100
get cyan	cyan =[current]	0–100
get magenta	magenta =[current]	0–100
get yellow	yellow =[current]	0–100

Assigning video source control settings

Use the following commands to control the appearance of your video source. For more information on setting absolute and adjustment values, see page 5.

☞ **IMPORTANT**

The following information is not available when your interactive display is in Standby mode or turned off.

Command	Command target range	Response
set displaymode [target]	=sRGB =highbright =standard =cinema =ISF_day =ISF_night =ambient1 =ambient2	displaymode =[current]
set brightness [target]	+ value - value =0–100	brightness=[current]

Command	Command target range	Response
set contrast [target]	• + value • - value • =0–100	contrast=[current]
set clock [target]	• + value • - value • =minimum–maximum (varies by OSD settings)	clock =[current]
set clockphase [target]	• + value • - value • =minimum–maximum (varies by OSD settings)	clockphase =[current]
set blacklevel [target]	• + value • - value • =0–100	blacklevel =[current]
set saturation [target]	• + value • - value • =0–100	saturation =[current]
set tint [target]	• + value • - value • =0–100	tint =[current]
set sharpness [target]	• + value • - value • =0–100	sharpness =[current]
set colortemp [target]	• + value • - value • =2600–10000	colortemp =[current]
set gamma [target]	• =native • =2.2 • =2.4 • =s • =dicomsim • =programmable	gamma=[current]
set red [target]	• + value • - value • =0–100	red=[current]
set green [target]	• + value • - value • =0–100	green=[current]

Command	Command target range	Response
set blue [target]	• + value • - value • =0–100	blue=[current]
set cyan [target]	• + value • - value • =0–100	cyan =[current]
set magenta [target]	• + value • - value • =0–100	magenta =[current]
set yellow [target]	• + value • - value • =0–100	yellow =[current]

Audio output commands

Use the following commands to control your interactive display audio output to your audio system.

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i NOTE

Audio output commands aren't defined by the video source.

Identifying audio output control settings

Use the following commands to identify the audio output settings.

☞ IMPORTANT

The folowinginformation is not available when your interactive display is in Standby mode or is turned off.

Command	Response	Response values
get volume	volume=[current]	• 0–100
get mute	mute=[current]	• on • off
get cc	cc=[current]	• cc1 • cc2 • cc3 • cc4 • tt1 • tt1 • tt3 • tt4 • off

Assigning audio output control settings

Use the following commands to control your audio output settings. For more information on setting absolute and adjustment values, see page 5.

> ☞ **IMPORTANT**
>
> The following settings are not available when your interactive display is in Standby mode or is turned off.

Command	Command target range	Response
set volume [target]	• + value • - value • =0–100	volume=[current]
set mute [target]	• =on • =off	mute=[current]
set cc [target]	• =cc1 • =cc2 • =cc3 • =cc4 • =tt1 • =tt1 • =tt3 • =tt4 • =off	cc=[current]

System information commands

System information commands enable you to control system settings. For more information on setting absolute and adjustment values, see page 5.

Identifying system information settings

Use the following commands to identify the system information settings.

> ☞ **IMPORTANT**
>
> Some of these commands are not available when your interactive display is in Standby mode. Refer to the following table for more information.

Command	Available in Standby mode	Response	Response values
get inputdetect	no	inputdetect =[current]	• first • last • video • custom • off
get autopoweroff	no	autopoweroff =[current]	0–24
get zoom	no	zoom=[current]	100–300
get monitorid	no	monitorid =[current]	1–100
get hposition	no	hposition =[current]	current horizontal position
get vposition	no	vposition =[current]	current vertical position
get aspectratio	no	aspectratio=[current]	• real • normal • full • wide • dynamic • zoom
get resolution	no	resolution=[current]	current resolution
get fwvernet	yes	fwvernet =[current]	firmware version number
get fwvermpu	yes	fwvermpu =[current]	firmware version number
get fwverscr	yes	fwverscr =[current]	firmware version number
get fwvericp	yes	fwvericp=[current]	firmware version number
get language	no	language=[current]	• English • German • French • Italian • Spanish • Swedish • Russian • Japanese
get modelnum	no	modelnum=[current]	model number

Command	Available in Standby mode	Response	Response values
get serialnum	no	serialnum=[current]	serial number
get videofreeze	no	videofreeze =[current]	• on • off
get videomute	no	videomute =[current]	• on • off
get emergencyalertmsg	no	emergencyalertmsg =[current]	user string
get emergencyalert	no	emergencyalert=[current]	• on • off
get tempsensor1	no	tempsensor1=[current]	temperature in °C
get tempsensor2	no	tempsensor2=[current]	temperature in °C
get tempsensor3	no	tempsensor3=[current]	temperature in °C
get schedulestate	yes	schedulestate=[current]	• on • off

Assigning system information settings

Use the following commands to set system data. For more information on setting absolute and adjustment values, see page 5.

☞ **IMPORTANT**

Some of these commands are not available when your interactive display is in Standby mode. Refer to the table below.

Command	Command target range	Response	Available in Standby mode
set inputdetect [target]	• =first • =last • =video • =custom • =off	inputdetect =[current]	no
set autopoweroff [target]	• + val • - val • =0–24	autopoweroff =[current]	no
set zoom [target]	• + val • - val • =0–24	zoom=[current]	no

Command	Command target range	Response	Available in Standby mode
set monitorid [target]	• + val • - val • =1–100	monitorid =[current]	no
set hposition [target]	• + val • - val • =minimum to maximum (varies by OSD settings)	hposition =[current]	no
set vposition [target]	• + val • - val • =min–max	vposition =[current]	no
set aspectratio [target]	• real • normal • full • wide • dynamic • zoom	aspectratio=[current]	no
set factoryreset	=yes	factoryreset =[current]	yes
set language [target]	• English • German • French • Italian • Spanish • Swedish • Russian • Japanese	language=[current]	no
set videofreeze [target]	• =on • =off	videofreeze =[current]	no
set videomute [target]	• =on • =off	videomute=[current]	no
set emergencyalertmsg [target]		emergencyalertmsg =[current]	no
set emergencyalert [target]	• =on • =off	emergencyalert=[current]	no
?		list of commands available in the current power state	

Service information

Use the following commands when servicing the interactive display.

Accessing service information data

Use the following commands to access service information values.

☞ **IMPORTANT**

Some of these commands are not available when your interactive display is in Standby mode.
Refer to the table below.

Command	Available in Standby mode	Response	Response values
get displayhour	yes	displayhour =[current]	0–20000
get totalhours	yes	totalhours =[current]	0–20000
get testpattern	no	testpattern =[current]	• 0–100 • on • off • freerun • sync
get failurelog	yes	failurelog =[current]	• normal • power • fan • inverter • temperature
get highspeedfan	no	highspeedfan =[current]	• high • normal
get fancontrol	yes	fancontrol =[current]	• on • auto
get statereporting	yes	statereporting =[current]	• on • off

Assigning service information settings

Use the following commands to set system information.

☞ **IMPORTANT**

Some of these commands are not available when your interactive display is in Standby mode.
Refer to the following table for more information.

Command	Command target range	Response	Available in Standby mode
set testpattern [target]	• =0–100 • =freerun • =sync • =on • =off	testpattern =[current]	no
set highspeedfan [target]	• =high • =normal	highspeedfan =[current]	no
set fancontrol [target]	• =on • =auto	fancontrol =[current]	yes
set statereporting [target]	• =on • =off	statereporting =[current]	yes

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