

LightRaise™ 60wi

interactive projector

User's guide

SMART®

Product registration

If you register your SMART product, we'll notify you of new features and software upgrades.

Register online at smarttech.com/registration.

Keep the following information available in case you need to contact SMART Support.

Serial number:

Date of purchase:

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 US Federal Communications Commission 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.

FDA statement

Complies with FDA performance standards for laser products except for deviations pursuant to Laser Notice No. 50, dated 24 June 2007.

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This product and/or use thereof covered by one or more of the following US patents.

www.smarttech.com/patents

03/2013

Important information

Read the following warnings carefully. Failure to read the warnings below or to follow the installation instructions included with your SMART product could result in personal injury and damage to the product and may void your warranty.



WARNING

- To reduce the risk of fire or electric shock, do not expose the SMART product to rain or moisture.
- Two people are required to mount your SMART product because it may be too heavy for one person to safely manoeuvre.
- Use the appropriate hardware for your wall type as referred to in the SMART accessory kit, (part number 20-01623-20). Failure to do so could result in injury if the unit detaches from the wall.
- Ensure that any cables extending across the floor to your SMART product are properly bundled and marked to avoid a trip hazard.
- Ensure that all cabling on the wall is properly secured.
- Do not stare directly into the projector's beam of light.
- Do not puncture, crush, heat or disassemble the pen battery, expose it to fire or any liquid, short its terminals, or abuse the battery in any other way as this may cause the battery to explode or ignite, and could cause a fire or personal injury.
- Do not disassemble the touch detection module. It has been designed to safely protect the end-user in normal operation and installations.
- The Touch Detection Module is a Class 1 laser product. To avoid eye damage from laser radiation, do not turn on the system before installing the touch detection module. When installation is complete, you're unable to access the lasers and you can safely turn the system on.
- In accordance with IEC60825-1: 2007 international regulations, do not view the red laser beam directly with optical instruments such as a magnifying lens.
- The laser diodes, safely designed within the Touch Detection Module, are comprised of the following diode specifications:
 - For red laser: 650nm (Typ.), 0.35mW (Max., CW)
 - For IR laser: 808nm (Typ.), 350mW (Max., CW)
- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

IMPORTANT INFORMATION

- Keep the interactive pen and pen holder out of reach of small children as there are small parts that may pose a potential choking hazard.

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Chapter 1

About your interactive whiteboard

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The LightRaise™ 60wi interactive projector is a wall-mounted, short-throw projector that transforms any wall or dry-wipe whiteboard into an interactive surface. It's the only interactive projector that provides touch and pen-enabled input, enabling two users to simultaneously write, draw and manipulate content in SMART Notebook™ collaborative learning software using a finger or the interactive pens.

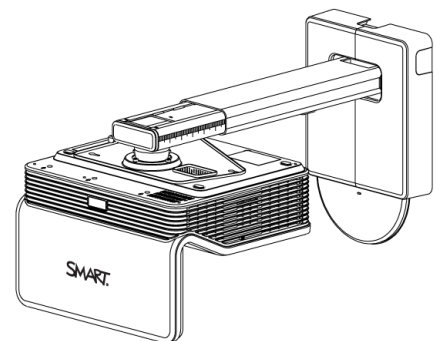
This chapter describes the features and components of your interactive projector.

Features

Interactive projector

The features of your interactive projector include the following:

- A wall-mounted projection engine that uses DLP® technology by Texas Instruments™, providing BrilliantColor™ performance and quality Gamma 2.2 correction with Bright Room, Dark Room, sRGB,



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User and SMART Presentation modes.

- Finger and pen touch interaction that enables you to tap, swipe, gesture or draw with two fingers or the interactive pens.
- Tool awareness that automatically differentiates between finger touch and pen touch on the surface. You can write with a pen and then manipulate content with your finger without changing tools.
- Dual touch interaction that enables two people to draw and manipulate content on the surface at the same time. The interactive surface can be touched simultaneously by two fingers, by two pens or by one finger and one pen.
- HD ready, wide screen, 2500 lumens, maximum resolution supported 1080p
- NTSC, NTSC 4.43, PAL, PAL-N, PAL-M and SECAM video system compatibility
- WXGA 1280 × 800 native resolution
- 16:10 native aspect ratio with support for 4:3 and 16:9 ratios with scaling
- 3400:1 contrast ratio
- 254cm (100") diagonal maximum interactive area size on a blank, vertical wall
- 0.36:1 throw-ratio
- Two built-in 10W speakers



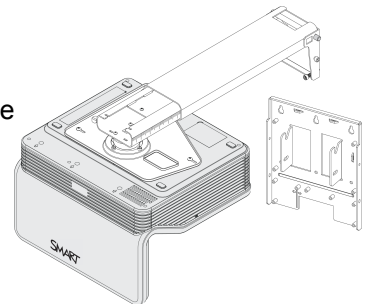
NOTE

For further details about projector features, see the *LightRaise 60wi interactive projector specifications* (smarttech.com/kb/170335).

Projector boom

The projector is mounted to the wall by attaching the ball-joint to the boom and the boom to the wall-mount plate. You can adjust the length of the boom for different image sizes. It also includes the following features:

- Image sizes from 170cm to 254cm (67" to 100") diagonal (16:10)
- Image keystone, tilt and position
- Image vibration dampening (typically induced from doors closing)
- A padlock ring to prevent removal of the projector from the boom.
- Templates and instructions for positioning the system safely.



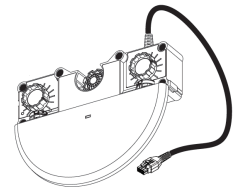
See the *SLR 60wi installation guide* (smarttech.com/kb/170259) for more information on installing and positioning the projector boom.

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Touch Detection Module (TDM)

The TDM is mounted on the wall by attaching to the wall plate and enables your system to differentiate between finger touch and pen touch. When it's installed and aligned, you can write with a pen and move objects with a finger at the same time on the interactive surface.

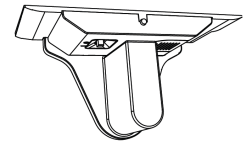


The TDM provides a range of adjustments to accommodate varying projection surface thicknesses. It also includes a conveniently placed multi-coloured status light that provides system status information feedback (see *Determining touch status* on page 55).

See the *SLR 60wi installation guide* (smarttech.com/kb/170259) for more information on installing and aligning the TDM.

Curtain Alignment Tool (CAT)

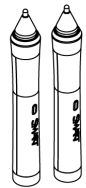
The CAT is included with your interactive projector purchase and enables you to align the system during installation.



See the *SLR 60wi installation guide* (smarttech.com/kb/170259) for more information on using the CAT to align the system.

Interactive touch and pen features

A computer vision-based SMART touch detection system tracks dual finger touch using an infrared source, as well as dual interactive and synchronised infrared pen, on any reasonably flat surface. This enables you to write or draw digital ink with the interactive pens or with your fingers—up to two at a time. Because the projector is touch aware, you can even use one pen to draw whilst simultaneously using your finger to manipulate content.



Features of the interactive pens include the following:

- Active tip switch
- Power switch
- Pen automatically turns off when not in use to prolong battery life
- One tri-coloured status light: green (operational), amber (battery charging required), red (fault)
- SoftTouch texture for improved finger grip
- USB mini-B connection for battery charging

Pen holder

Store the interactive pens in the pen holder when you're not using them and when you're charging them. The holder is also a convenient place to store the remote control.

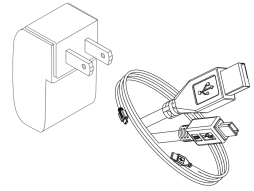


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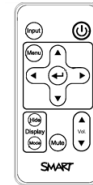
USB charger

Charge your interactive pen with the included USB charger (see *Charging the interactive pen* on page 32). A fully charged pen will operate for two days before requiring recharging.



Remote control

The projector remote control enables you to access on-screen projector menus, to change projector settings and to turn the projector on and off.



See *Using the remote control* on page 20 for more information.

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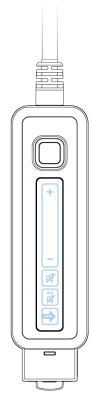
Optional accessories

These accessories aren't included with your projector, but you can order them from your [authorised SMART reseller](#).

LightRaise projector control (XCP)

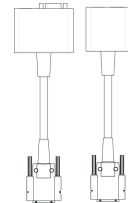
The optional XCP can be mounted on the wall beside the projected image, giving you a more convenient location to access input ports and basic operation controls of your interactive projector. You can connect a single USB cable to the SMART Connect port for an all-in-one audio, video and data connection to your computer using DisplayLink™ technology; alternatively, you can individually connect your video, audio and touch cables directly to the XCP.

See *Using the XCP* on page 35 for more information on the XCP functionality and cabling.



XCP adapters

You can connect a single USB cable to the SMART Connect port for an all-in-one audio, video and data connection to your computer. If you want to use a VGA or an HDMI™ cable, you can also purchase the appropriate adapter to connect your computer to the XCP.



Adapter	Function
VGA + USB adapter	Connects a VGA video source and has a separate USB connector for data and audio.
HDMI + USB adapter	Connects an HDMI video source and has a separate USB connector for data and audio.

Wall-mounting kit

You can purchase an optional wall-mounting kit that contains an assortment of screws and wall anchors for several different wall types.

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See the printed installation guide and mounting template that came with your LightRaise 60wi interactive projector for information on installing your projector. You can access these documents by visiting the LightRaise support page at smarttech.com/Support.

This chapter provides additional details to help you install your interactive projector.

Choosing a surface

Consider what your projection surface is when you're selecting a location for your interactive projector. You can install it so that the image falls on an existing dry-wipe board or a flat wall surface. A dry-wipe board is a flat surface that works well with your interactive projector and allows you to write smoothly in digital ink.

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Choosing a wall surface

Consider the following factors when selecting a wall surface to project your image onto:

- Select a wall that is straight and flat. All of the lines that you draw to install the interactive projector must be straight and level on a plumb wall.
- Select a white wall to maintain accurate colour of the projected image.
- Project on a smooth, semi-gloss painted surface to reduce glare from the projector, to achieve optimal touch quality and to reduce wear on the pen nib.
- Attach a dry-wipe board to the wall if you're projecting on a textured surface, such as a concrete block wall. A dry-wipe board is a flat surface that works well with your interactive projector and allows you to write smoothly in digital ink.

CAUTION

Writing on the wall with the interactive pen might cause scratches or damage the wall surface. Test the wall surface by writing on it with the pen before you install your interactive projector.

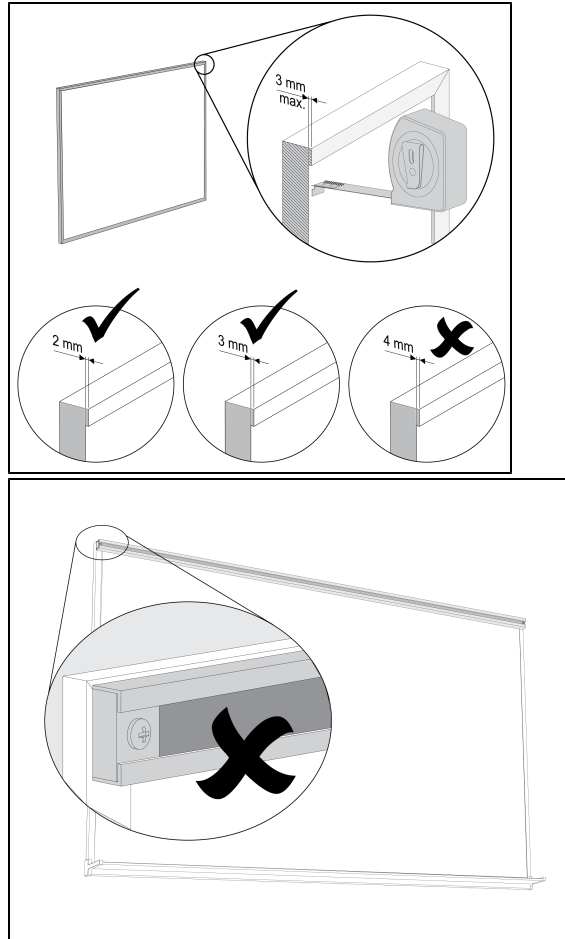
Choosing a dry-wipe board surface

Consider the following factors when selecting a dry-wipe board to project your image onto:

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- Install the dry-wipe board and the projector straight, level and plumb to the wall.
- Select a dry-wipe board with no bezel or with a bezel thickness of less than 3mm above the board surface. Bezels thicker than 3mm above the board surface disrupt finger touch performance.



IMPORTANT

Do not install map rails on any surface that you select to project your image on. You must also remove any existing map rails on the wall or dry-wipe board before you use your interactive projector.

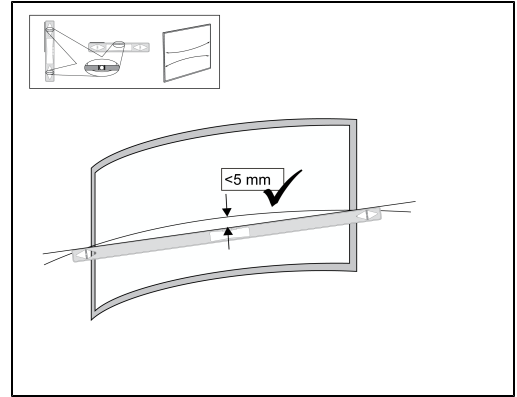
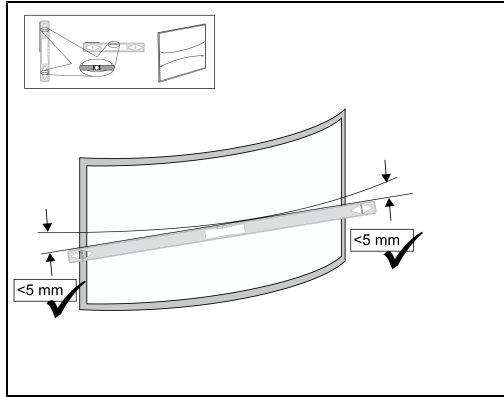
- Select a dry-wipe board that is flat. See the following procedure for more information.

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To measure the flatness of a dry-wipe board

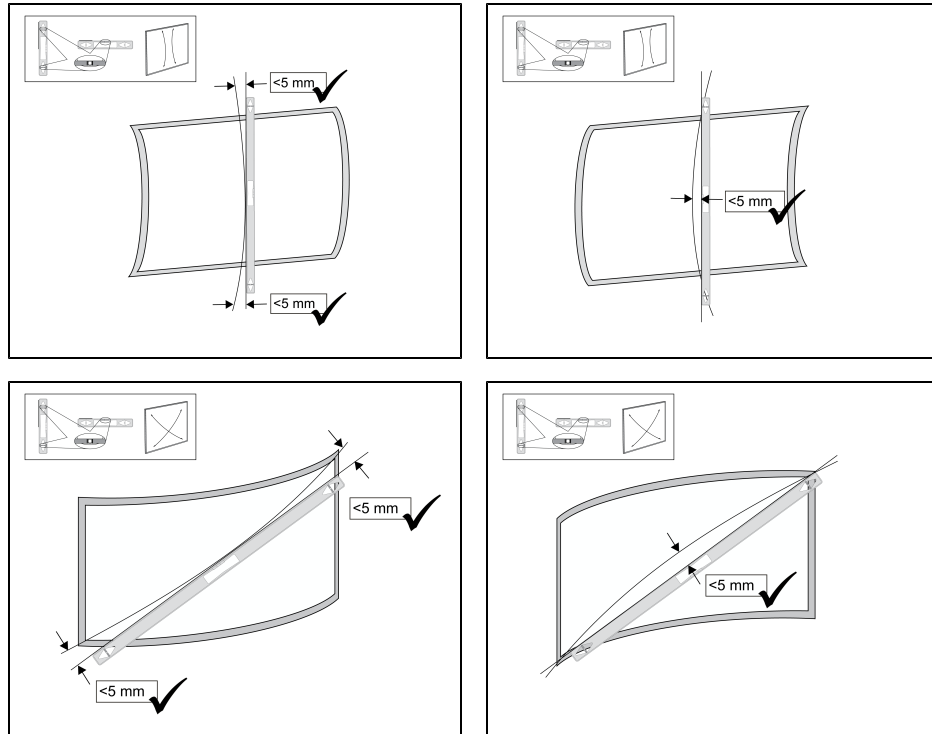
1. Place a six-foot spirit level horizontally across the dry-wipe board.
2. Locate where the level is furthest away from the board surface and then measure the distance. Measure the flatness of the surface on both sides of the dry-wipe board.



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- Repeat the above steps to measure the flatness of the board vertically and diagonally.



IMPORTANT

The overall finger touch performance is strongly influenced by the projection surface flatness.

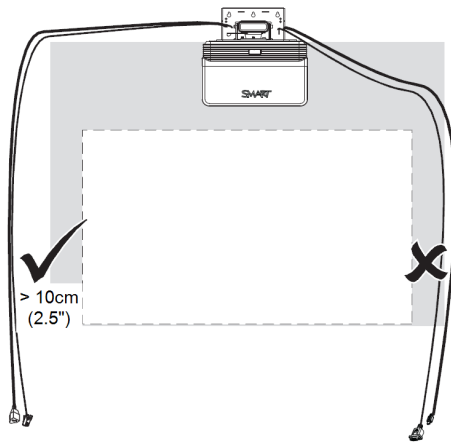
- If the distance is less than 5 mm in all directions, optimal finger touch performance will likely be achieved.
- If the distance is between 5 mm and 10 mm in any direction, good to adequate finger touch performance will likely be achieved.
- If the distance is between 10 mm and 15 mm in any direction, it is possible to achieve adequate finger touch performance. However, there could be issues completing the installation. A flatter board surface is recommended.
- If the distance is greater than 15 mm in any direction, select a flatter surface.

Surface obstructions

There should be no objects that protrude into the keep out area between the bottom of the projector mount and the projected image. Objects in this area should be moved or removed before you use your interactive projector as they can cause parts of the projected image to lose finger touch function.

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Examples of common obstructions to watch out for include:

- Cables or wires that hang into the projected image
- Screws or nails protruding from the wall or the dry-wipe board
- Wall protrusions or uneven wall surfaces
- Map rails on the wall or the dry-wipe board



NOTE

See the *SLR60wi surface evaluation guide* (smarttech.com/kb/170402) more information on how to choose a surface.

Choosing a location

SMART includes a mounting template with your interactive projector (smarttech.com/kb/170271). Using this template ensures that you can do the following:

- Determine where to install the projector in relation to the studs in the wall and the size of the projection surface.
- Mount the projector at a safe height for head space clearance, whilst maintaining enough space for airflow and installation access above the unit.

Choose a location that's far from bright light sources, such as windows and strong overhead lighting. Bright light sources can cause distracting shadows on the projection surface and can reduce the contrast of the projected image.

Select an area with sufficient clearance to accommodate your interactive projector. For best presentation alignment, mount your interactive projector in a location that's central to your audience's viewing direction.

Choosing a height

The height of your projector depends on the size of the projected image and the available space for it. If you have a dry-wipe board as the projection surface, the height of the projector depends on the width and height of the board. If the projection surface is a wall, the height of the projector depends on the width and height of available wall space. Consider the general height of your user community and ensure that they'll be able to touch all areas of the projected surface. When determining the size of the projected image, ensure that there is room to route the cables around the image and space to install the pen holder.

To determine the height of the projector mounting bracket

1. Measure the width of the available surface space.

**NOTE**

- Ensure that the available width of the projection surface is equal to or greater than the width in the table.
- If you're using a dry-wipe whiteboard as the projection surface, measure inside the frame.

2. Measure the height of the available surface space.

**NOTE**

- Ensure that the available height of the projection surface is equal to or greater than the height in the table.
- If you're using a dry-wipe board as the projection surface, measure inside the frame.

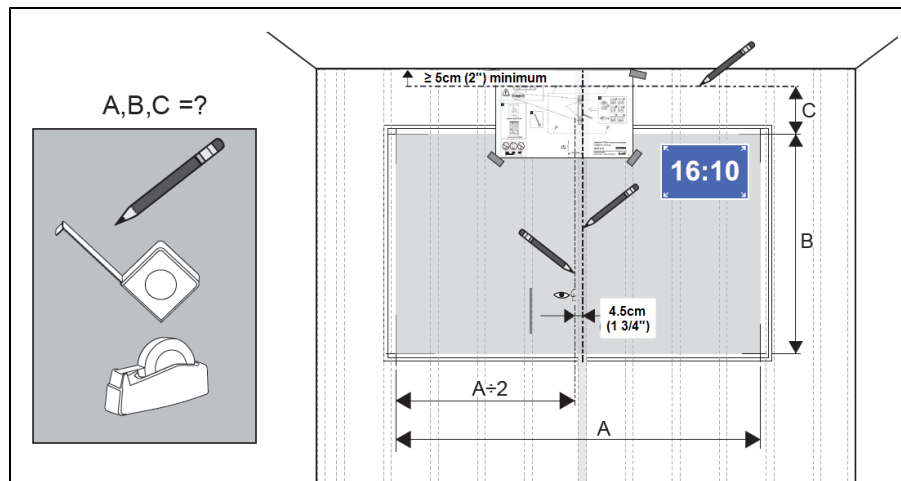
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3. Compare your measurements to the chart which appears on page 12 of the *SLR 60wi installation guide* (smarttech.com/kb/170259) and select a row in the table that is smaller than your available width and height. This determines the installation height of the projector mounting bracket from the top of the projected image.

IMPORTANT

You need at least 5cm (2") clearance space above the top mounting holes. See the *LightRaise 60wi interactive projector mounting template* (smarttech.com/kb/170271) for more information about ceiling clearances.

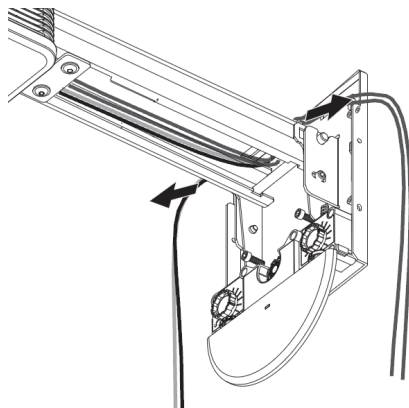


Routing the cables

Follow these instructions to route and secure the cables to the wall.

To connect the cables:

1. Route the cables through the top of the boom and down its length before you connect them to the projector.



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2. Connect all the cables to the projector and let them hang loose.



NOTE

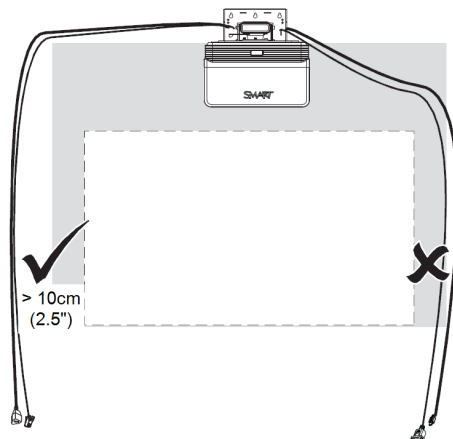
See *Projector connections* on the next page for more information.

3. Once you have connected all the cables, connect the power cable to a power socket.
4. Turn on your interactive projector so that you can see where the projected image falls
5. Align the image and make other image adjustments necessary before you route the cables around the projected image.
6. Route and secure the cables to the wall, ensuring that they don't protrude past the image surface between the bottom of the projector mount and the projected image. Objects in this area should be moved or removed before you use your interactive projector because they can cause parts of the projected image to lose finger touch function.



IMPORTANT

Leave extra space between the cables and the projected image so you can make image adjustments later.

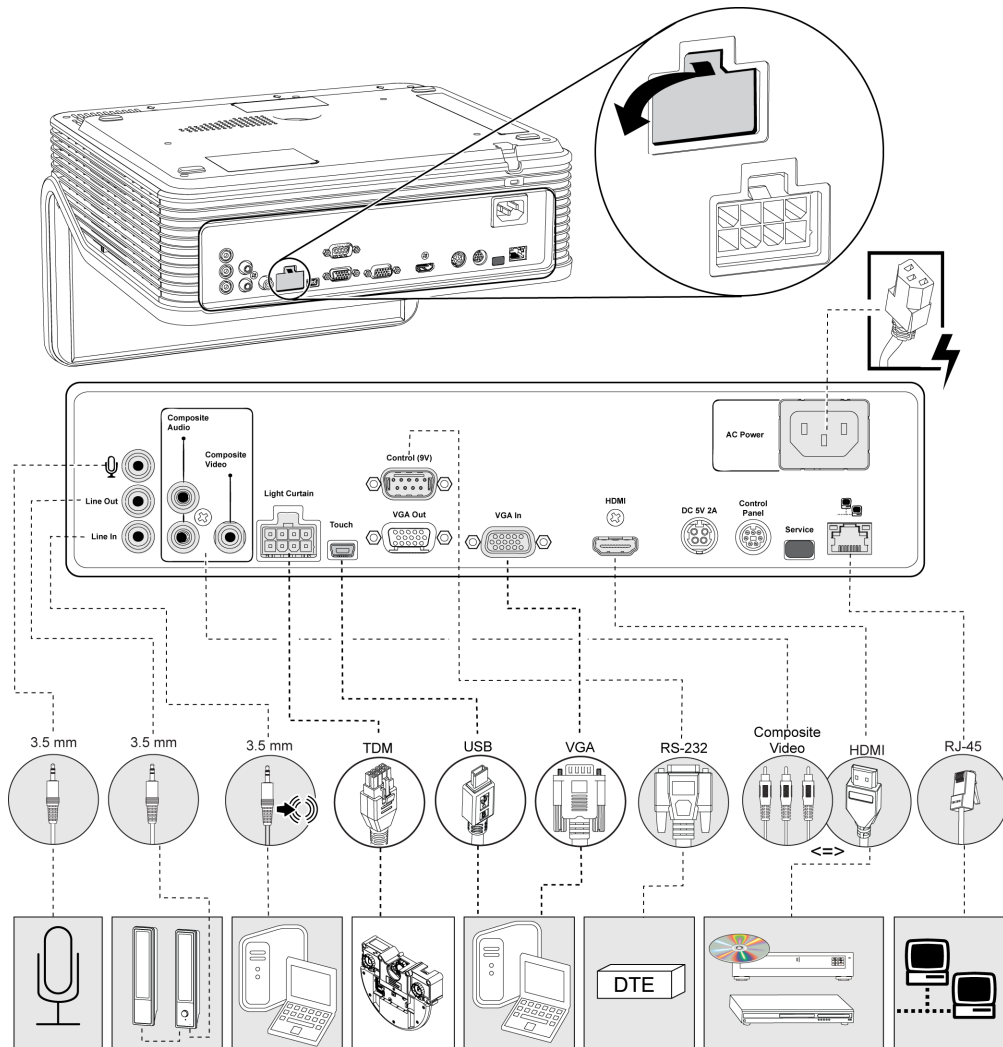


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Projector connections

The following diagram describes the connections available on the projector.



NOTES

- You can connect a variety of peripheral input devices to your projector, including DVD/Blu-ray™ players, VCRs, computers, document cameras, digital cameras and high-definition sources, as well as peripheral device outputs, such as a secondary projector or powered speakers.
- You might need to purchase third-party adapters to connect certain peripheral devices.
- Peripheral devices aren't included.

Installing SMART Notebook software

Pen and finger touch will work with any computer connected to your interactive projector, but for multitouch and full functionality, install SMART Notebook software. You can install the software from the DVD that came with your interactive projector and you can visit smarttech.com/software to download software updates.


To install SMART software

Insert the SMART software DVD that came with your interactive projector and then follow the on-screen instructions.

Aligning the interactive projector

Once you have installed SMART Notebook software, you can perform the alignment procedure. This procedure must be completed before you can use the interactive projector.

To align the interactive projector

1. Click the **SMART Board**  icon in the Windows® notification area or the Mac Menu bar and then select **SMART Settings**.

The *SMART Settings* window appears.

- If your interactive projector is connected to your computer and working, the following text appears: *The SMART Board interactive whiteboard is working properly.*
 - If your interactive projector isn't connected to your computer, the following text appears: *No SMART Boards are connected.*
2. Select **Connection Wizard**.
 3. Select **LightRaise 60wi interactive projector** from the **SMART products found** drop-down list and then click **Next**.
 4. Select **Product is being set up for the first time** and then click **Next**.
 5. Follow the on-screen instructions.

IMPORTANT

See Chapter 4 of the *SLR 60wi installation guide* (smarttech.com/kb/170259) for more information about aligning your system.

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Using your interactive projector

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This chapter describes how to use your interactive projector, use your remote control, retrieve system information, access the projector's image adjustment options and integrate your system with peripheral devices.


How your interactive projector works

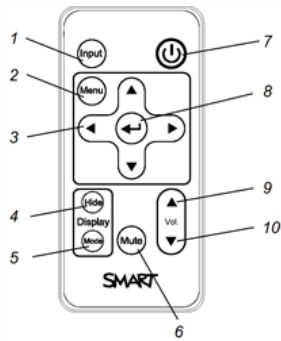
The LightRaise 60wi interactive projector is a unique finger and pen touch solution. A specially filtered infra-red camera and signal processor, embedded in your interactive projector, can track up to two fingers or two pens simultaneously. The Touch Detection Module (TDM), located immediately under the projector boom, generates a tightly controlled infra-red light beam very close to the surface. The infra-red camera detects the reflection from your finger or the glow from the active pen when you touch the surface. The system can differentiate between fingers and pens, enabling you to write with a pen and move objects with a finger at the same time. In addition, the active tip in the pen is synchronised with the TDM and for optimal writing ensures that the pen only writes when in contact with the surface. Because the interactive technology is located in the projector and the TDM, and not in a board, you can turn almost any reasonably flat surface—a common dry-wipe board or even a bare wall—into an interactive surface.


Interacting with your computer

You interact with your computer by touching the surface with your finger. You can touch the screen to open files, navigate folders and manipulate content. Each touch acts as a left-click. Right-click by touching and holding your finger to the surface for about two seconds.

Using the remote control

The projector remote control enables you to access on-screen menus and change projector settings. Use the **Power**  button on the remote control to put the projector into **Standby** mode or to turn it on. You can also use the **Input** button on the remote control to switch sources on the projector.



Number	Function	Description
1	Input	Select a video and audio input source.
2	Menu	Show or hide the projector menus.
3	◀ (Left), ▶ (Right), ▲ (Up) and ▼ (Down) arrows	Change the menu selections and adjustments.
4	Hide	Freeze, hide or display the image: <ul style="list-style-type: none"> • Press once to freeze the image. For example, you can display a question on the screen whilst you check your email. • Press again to hide the image and display a black screen. • Press again to return to the live image.
5	Mode	Select one of the following display modes: <ul style="list-style-type: none"> • SMART Presentation • Bright Room • Dark Room • sRGB • User
6	Mute	Mute audio.
7	 (Power)	Turn on the projector or put it into Standby mode.
8	↵ (Enter)	Accept the selected mode or option.
9	▲ (Volume Up)	Increase audio amplification volume.
10	▼ (Volume Down)	Decrease audio amplification volume.

Adjusting projector settings



The remote control's **Menu** button enables you to access the on-screen display (OSD) menu to adjust the projector settings.

IMPORTANT

There are no projector menu options on the XCP. Keep your remote control in a safe place, such as the pen holder, because the XCP is not a substitute for the remote control.



NOTE

Some projector settings aren't available for all video sources.

Setting	Use	Notes
Image Adjustment menu		
Display Mode	Indicates the projector's display output (Bright Classroom , Dark Classroom , sRGB White,Wall Colour , SMART Presentation and User).	The default is Bright Classroom .
Wall Colour (displays the colour's numeric value)	Adjusts projector brightness and colour temperature based on these wall colours: Colour 1: Blackboard Colour 2: Blue Colour 3: Light Green Colour 4: Pink Colour 5: Light Yellow	The default is Blackboard .  NOTE This is equivalent to a Whiteboard.
Keystone	Adjusts image keystone distortions caused by movement of the projector.	The default is 0 . The keystone can be adjusted from -15 to 15.  IMPORTANT Use this setting only after you make all physical image alignment adjustments to straighten the vertical lines of the image.
Brightness	Adjusts projector brightness from 0 to 100.	The default is 50 .

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Using your interactive projector

Setting	Use	Notes
Contrast	Adjusts the difference between the lightest and darkest parts of the image from 0 to 100.	The default is 50 .
Saturation	Adjusts the image from black and white to saturated colour from 0 to 100.	The default is 50 .
Sharpness	Adjusts projected image sharpness from 0 to 31.	The default is 16 .
Tint	Adjusts the image colour balance of red and green from 0 to 100.	The default is 50 .
Frequency	Adjusts the display data frequency of the projected image from -5 to 5 to match the frequency of your computer's graphics card.	The default is 0 . This setting applies to VGA inputs only.
Tracking	Synchronises your projector's display timing with your computer's graphics card from 0 to 63.	This setting applies to VGA inputs only.
H-Position	Moves the horizontal position of the source video left or right from 0 to 100 (relative to the projected image).	The default is 50 . This setting applies to VGA inputs only and is useful in situations where the source video is cut off. <div style="background-color: #f0f0f0; padding: 5px;"> <p> IMPORTANT</p> <ul style="list-style-type: none"> Do not adjust this setting unless advised to by SMART Support. Adjust this setting only after you make all physical image adjustments. </div>
V-Position	Moves the vertical position of the source video up or down from -5 to 5 (relative to the projected image).	The default is 0 . This setting applies to VGA inputs only and is useful in situations where the source video is cut off. <div style="background-color: #f0f0f0; padding: 5px;"> <p> IMPORTANT</p> <ul style="list-style-type: none"> Do not adjust this setting unless advised to by SMART Support. Adjust this setting only after you make all physical image adjustments. </div>

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Using your interactive projector

Setting	Use	Notes
White Peaking	Adjusts the image colour brightness while providing more vibrant colours, in increments from 0 to 10.	The default is 10 . A value closer to 0 creates a natural image and a value closer to 10 creates an enhanced brightness.
Degamma	Adjusts the colour performance of the display from 1 to 2 or from 0 to 3 depending on the display mode selected.	The default varies depending on the display mode.
Colour Adjustment	Opens a sub-menu where you can adjust the projector's Red, Green, Blue, Cyan, Magenta and Yellow colours from 0 to 100.	Each colour has a default value of 100. Colour settings are saved to the User display mode.
Basic Audio Control menu		
Line Out	Turns the audio output jack On or Off .	The default is On .
Microphone	Turns the microphone input jack On or Off .	The default is On .
Speaker	Turns the internal speaker On or Off .	The default is On .
Microphone Volume	Adjusts the projector's microphone volume amplification from 0 to 40.	The default is 20 .
Main Volume	Adjusts the volume from 0 to 40.	The default is 20 .
Mute	Turns the projector's audio output mute function On or Off .	The default is Off . If you mute the projector's audio output and then increase or decrease the volume, the volume is restored automatically. You can prevent this from happening by disabling the <i>Line Out</i> above.
Advanced	Opens the Advanced Audio sub-menu where you can enable and disable the microphone input and the speaker output for each display mode. Further details in the following rows.	
Advanced Audio sub-menu		



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Using your interactive projector

Setting	Use	Notes
VGA1 Mic	Enables or disables the microphone input jack when using the VGA1 input.	
VGA1 Speaker	Enables or disables the audio output jack when using the VGA1 input.	
HDMI Mic	Enables or disables the microphone input jack when using the HDMI input.	
HDMI Speaker	Enables or disables the audio output jack when using the HDMI input.	
Composite Mic	Enables or disables the microphone input jack when using the Composite input.	
Composite Speaker	Enables or disables the Composite input to the internal speaker.	
Microphone Boost	Boost is applied in the Off setting.	The default is On (-20 dB). Keep this setting on if your microphone is too sensitive. Change the setting to Off if you want to apply Microphone Boost.
Exit	Closes the Advanced Audio sub-menu.	
Operational Settings menu		
Control Panel	Applies power to the DIN7, DIN4 and DB9 ports for XCP control panel power.	The default is Off .
Signal Detect	Enables or disables signal searching of input connectors.	The default is On . Select On to have the projector continuously switch inputs until it finds an active video source. Select Off to manually select the input source.
Lamp Reminder	Turns the lamp replacement reminder On or Off .	The default is On . This reminder appears 100 hours before the recommended lamp replacement.
Lamp Mode	Adjusts lamp brightness to Standard or Economy .	The default is Standard , which displays a high-quality, bright image. Economy increases the lamp life by decreasing the brightness of the image.

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Using your interactive projector

Setting	Use	Notes
Closed Captioning	Turns on the closed captioning language to CC1 or CC2 for video sources that support closed captioning, or turns closed captioning Off .	The default is Off . Typically, CC1 displays US English subtitles, whilst CC2 displays other regional languages, such as French or Spanish, depending on the television channel or media setup.
Touch	Enables touch and pen interaction on either VGA1, HDMI or VGA1 & HDMI .	The default is VGA1 & HDMI . Only change this setting if you want touch and pen interaction active on only one video source (VGA or HDMI). <div style="background-color: #f0f0f0; padding: 5px;">  IMPORTANT This setting must match the current video input or there will be no touch function. </div>
Auto Power Off (minutes)	Sets the length of the auto power-off countdown timer between 1 and 240 minutes.	The default is 120 minutes. The timer begins to count down when the projector no longer receives a video signal. When the timer finishes, the projector enters Standby mode. Select 0 to turn off the timer.
Zoom	Adjusts the zoom to the centre of the image in or out from 0 to 30.	The default is 0 . Zooming in cuts off the outer edges of the source video. <div style="background-color: #f0f0f0; padding: 5px;">  IMPORTANT SMART recommends that you leave Zoom at the default setting of 0. Adjusting this setting can affect touch function. </div>
Projector ID	Displays the projector's unique ID within your organisation's network. You can set the projector ID from 0 to 999.	The default is 0 . You can refer to this number when using the network remote management feature (see <i>Remotely managing your interactive projector</i> on page 69).

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Using your interactive projector

Setting	Use	Notes
Aspect Ratio	Adjusts the image output to Fill Screen , Match Input or 16:9 .	<p>The default is Match Input.</p> <p>Fill Screen produces an image that fills the entire screen by stretching and scaling the source video to match the projector's native aspect ratio.</p> <p>Match Input scales to fill the space at the native aspect ratio. As a result, unused space could appear along the top and bottom edges of the screen (letterbox format) or along the left and right edges of the screen (pillarbox format).</p> <p>16:9 displays the source video in 16:9 aspect ratio. As a result, unused space appears along the top and bottom edges of the screen. This is recommended for use with HDTV and DVD/Blu-ray discs enhanced for wide-screen televisions.</p> <p>See <i>Video format compatibility</i> on page 39 for descriptions of each mode.</p>
Startup Screen	Opens the Startup Screen sub-menu where you can select the type of startup screen (SMART or USER), capture an image to use for your startup screen and preview the current startup screen.	<p>The default is SMART.</p> <p>This screen displays when the projector lamp is starting and a video source signal isn't displayed.</p> <p>SMART displays the default SMART logo on a blue background.</p> <p>USER displays an image that you capture or select. If no image is selected, a default image displays.</p> <p>Capture User Startup Screen closes the on-screen display menu and captures the entire projected image. The captured image is displayed the next time the Startup Screen displays. (The capture can take up to one minute, depending on the complexity of the background graphic.)</p> <p>Preview Startup Screen enables you to preview the default or captured startup screen.</p>

CHAPTER 3

Using your interactive projector

Setting	Use	Notes
Test Screen	Opens the Test Screen sub-menu where you can select the type of screen test (Display Grid , Display Multi-Square Pattern , Display Checkerboard 1 , Display Checkerboard 2 or Display Single Square). Select Exit to close the menu.	This screen enables you to quickly check display performance. Select a test type and then press ENTER on the remote control. Press ENTER again to exit the test and return to the Test Screen sub-menu. Display Grid displays a 7 × 7 Grid test screen. Display Multi-Square Pattern displays a 45 Square test screen. Display Checkerboard 1 displays a Check1 test screen. Display Checkerboard 2 displays a Check2 test screen. Display Single Square displays a Spot test screen.
Default	Opens the Default sub-menu where you can reset projector settings to their default values.	If you press ENTER on the remote control, all projector settings reset to their defaults, reversing any menu changes you made. This action is irreversible. Don't adjust this setting unless you want to reset all of the applied settings, or unless you're advised to by a SMART Support specialist (smarttech.com/contactsupport).
Network menu		
Network and VGA1 out	Activates the projector's VGA1 out and network features.	The default is Off .
Status	Displays the current network status (Connected , Disconnected or Off).	
DHCP	Displays the status of the network's Dynamic Host Control Protocol (DHCP) as On or Off .	The default is Off .
Password Reminder	Emails the network password to the email recipient.	See <i>Remotely managing your interactive projector</i> on page 69 to set up a destination email address.

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Using your interactive projector

Setting	Use	Notes
IP Address	Displays the projector's current IP address in values between 0.0.0.0 and 255.255.255.255.	To change the projector's IP address, use the RS-232 connector (see <i>Network controls</i> on page 84) or use a DHCP server to assign a dynamic IP address and then set a static IP address using the network remote management feature (see <i>Remotely managing your interactive projector</i> on page 69).
Subnet Mask	Displays the projector's subnet mask number in values between 0.0.0.0 and 255.255.255.255.	
Gateway	Displays the projector's default network gateway in values between 0.0.0.0 and 255.255.255.255.	
DNS	Displays the projector's primary domain name number in values between 0.0.0.0 and 255.255.255.255.	
MAC Address	Displays the projector's MAC address in xx-xx-xx-xx-xx-xx format.	
Group Name	Displays the projector's workgroup name as set by an administrator (maximum 16 characters).	You can set the projector's workgroup name using the remote management features (see <i>Remotely managing your interactive projector</i> on page 69).
Projector Name	Displays the projector's name as set by an administrator (maximum 16 characters).	You can set the projector's name using the remote management features (see <i>Remotely managing your interactive projector</i> on page 69).
Location	Displays the projector's location as set by an administrator (maximum 16 characters).	You can set the projector's location using the remote management features (see <i>Remotely managing your interactive projector</i> on page 69).
Contact	Displays the contact email address for projector support as set by an administrator (maximum 32 characters).	You can set the contact email address using the remote management features (see <i>Remotely managing your interactive projector</i> on page 69).
Language menu		

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Using your interactive projector

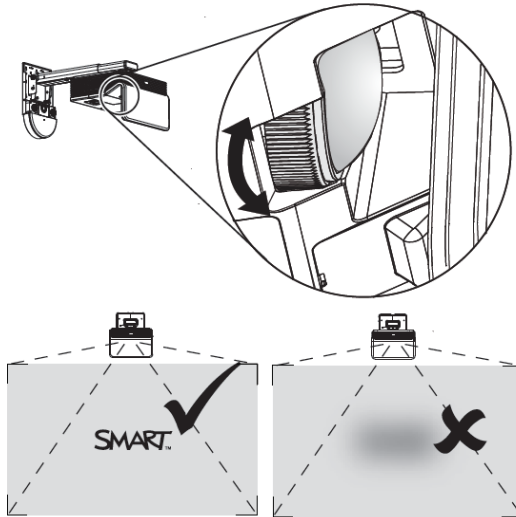
Setting	Use	Notes
Language	Selects language preference.	Projector menu support is available in English (default), Arabic, Chinese (Simplified), Chinese (Traditional), Czech, English (UK), French (France), French (Canada), German, Greek, Hungarian, Italian, Japanese, Malay, Polish, Portuguese (Brazil), Portuguese (Portugal), Russian, Slovenian, Spanish (Mexico), Spanish (Spain), Turkish and Ukranian.
Projector Information menu		
Lamp Hours	Displays the current number of lamp usage hours from 0 to 5000 hours from when it was last reset.	Always reset the lamp hours after you replace a lamp, because lamp service reminders are based on the current hours of use. See <i>Resetting the lamp hours</i> on page 50 for details on how to reset the lamp hours.
Input	Displays the current video input source (VGA-1 , HDMI or VIDEO).	
Resolution	Displays the projector's most recently detected video source signal resolution and refresh rate.	If there is no current video input source signal, this setting displays the last known source signal resolution and refresh rate.
Firmware Version	Displays the projector's digital display processor (DDP) firmware version in x.x.x.x format.	
Network Version	Displays the projector's network communications processor firmware version in x.x.x.x format.	
Touch Version	Displays the projector's touch processor firmware version in x.x.x.x. format.	
Model Number	Displays the projector's model number.	
Serial Number	Displays the projector's serial number.	

Focusing the image

To focus the projected image, use the focus ring located on the projector lens.

To focus and adjust the image


Rotate the focus ring right or left until the image is in focus.



Adjusting the image

Refer to these notes when adjusting the projected image as described in the included *SLR60wi* *textless installation guide* (smarttech.com/kb/170259).

- Whilst adjusting the projected image size, shape and location, disconnect your computer from the projector and then use the projector's default background, or the test image from the test menu, so that you can see the full projected image clearly. Don't use other images, which might be cropped or scaled by the projector and could result in a misleading projected image size, shape and location.
- Use the projector's ball joint lever, keystone screws and boom length mechanical adjustments to make all physical image adjustments. Don't use the projector's on-screen menu options during the projector alignment process. See smarttech.com/kb/170259 for more information.
- Be aware that as you tilt the projector up or lower its mounting boom to raise the image, the entire projected image increases or decreases in size, especially at the bottom of the projected image.

 **NOTE**

The center of the image is offset 4.45cm (1.75") to the left from the centre of the mounting bracket with a tolerance of ± 5cm (2"). See the *LightRaise 60wi interactive projector installation template* (smarttech.com/kb/170271) for more information.

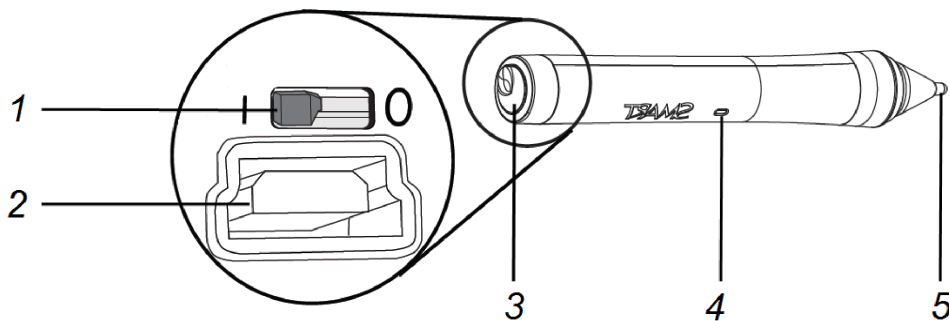
- When you move the projector forward or backward on the boom to make the image larger or smaller, you might need to tilt or turn the projector slightly to keep the image square. Loosen the ball joint lever slightly to aid in this adjustment.
- To fine-tune the image, you might need to repeat all steps described in the installation document in smaller increments.

Using your interactive pen

The interactive projector includes two interactive pens that can be used to draw or write in digital ink at the same time. You can also use one interactive pen whilst you're using your finger to touch the surface and interact with your computer. Each pen has a charging port and a status light to help you understand its status.

Interactive pen components

The following diagram and table describe the components of the interactive pens.



Component	Description
1	On/Off switch
2	USB port for charging
3	Access door
4	Status light
5	Active tip

 **NOTE**

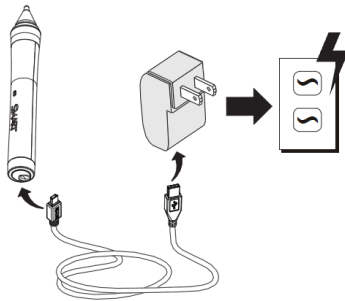
You can leave the switch **On** all the time, including when charging. The pen automatically turns off when not in use to prolong battery life.

Charging the interactive pen

The pen has a rechargeable lithium-ion battery that can charge in two hours. A fully charged pen will operate for two days before requiring recharging.

To charge your interactive pen

1. Connect the USB charging cable to the charger included and then connect it to the pen.
2. Connect the charger to a power socket.




NOTES

- You can also charge the interactive pen by connecting it to your computer with a USB cable.
- You can store the interactive pen in the pen holder during charging.
- The interactive pen doesn't write whilst it's charging.

Writing or drawing with SMART Ink™

When you connect your computer to your SMART interactive product, you can use SMART Ink to write and draw in digital ink over open applications, files, folders, websites and any other open window on your computer. SMART Ink includes SMART Ink Notes, which enables you to write in digital ink anywhere on your desktop. It also includes the SMART Ink Document Viewer, which enables you to view your PDF files and to write in digital ink over them.


To write with your finger

1. Press SMART Ink  on the toolbar with your finger.
The SMART Ink tools appear.
2. Use your finger to select a pen colour or tool.
3. Write over an open file, folder or website with your finger.

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Using your interactive projector

To write with an interactive pen

1. Press SMART Ink  on the toolbar with an interactive pen.
The SMART Ink tools appear.
2. Use the interactive pen to select a pen colour or tool.
3. Write over an open file, folder or website with the interactive pen.



NOTES

- SMART Ink remembers the last ink colour or tool that you selected. When you change the ink colour with the interactive pen, it doesn't change the ink colour that you set for finger touch.
- See the SMART Ink online Help for more information on how to use the software.

Chapter 4

Using the XCP

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XCP input connections	37
Using the XCP projector controls	38

If you purchased a LightRaise projector control (XCP), you can mount it on the wall beside your interactive surface, giving you a convenient location to connect your peripheral devices and to control basic projector operations.

You can connect a single USB cable to the SMART Connect port for an all-in-one audio, video and data connection to your computer. The XCP features built-in composite connectors, as well as a multi-pin recessed connector used to connect VGA or HDMI adapters (see *XCP adapters* on page 5).



NOTE

If you experience poor video quality when using the single USB cable to connect the XCP to your computer, you might need to switch to a VGA or HDMI cable.

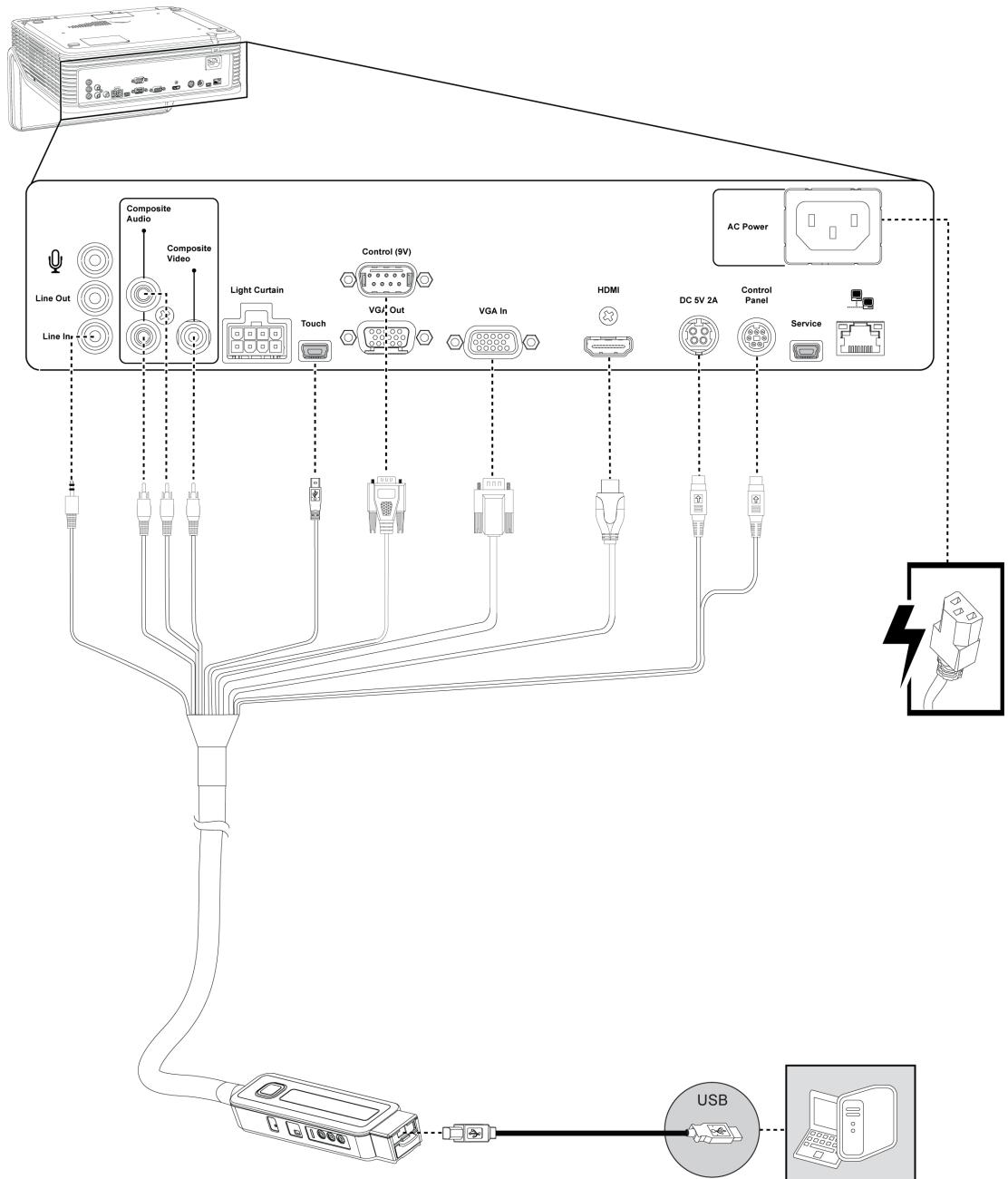


IMPORTANT

- You must enable the **Control Panel** setting in the on-screen display (OSD) menu before you can use the XCP (see *Adjusting projector settings* on page 21).
- There are no projector menu options on the XCP. Keep your remote control in a safe place, such as the pen holder, because the XCP is not a substitute for the remote control.

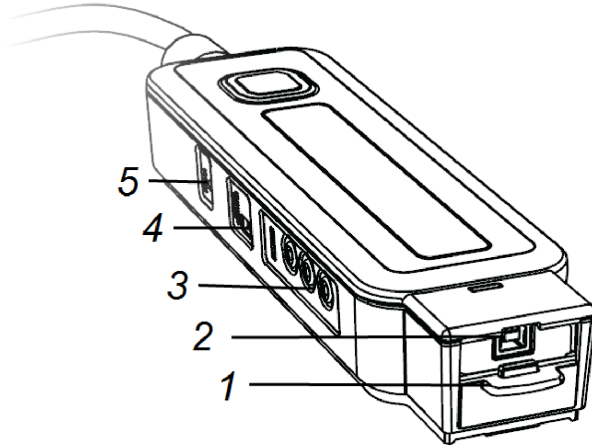
Connecting the XCP to the projector

The following diagram describes the connectors of the XCP harness cable.



XCP input connections

The following diagram and table describe the connections available from the XCP.



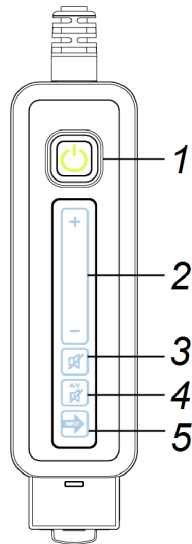
Number	Function
1	Recessed multi-pin port for connecting to your computer with the optional display connection adapters (see <i>XCP adapters</i> on page 5). In order to access the connection port, slide the connection port door up. See the <i>SLR-XCP projector control quick connect guide</i> (smarttech.com/kb/170431) for more information on how to connect the XCP adapters.
2	SMART Connect port for connecting audio, video and data to your computer with a single USB B cable.
3	RCA composite video input jack and RCA composite audio input and output jacks
4	4-pin port for third-party room control system
5	Reset button can be pressed using a small object, such as a pencil, to reset the XCP.



 **NOTE**

The XCP also has two active input status light (see *Determining XCP status* on page 58).

Using the XCP projector controls

The following diagram and table describe the basic projector controls you can access from the XCP.



Number	Control	Function
1	Power  button	Tap the Power  button to turn the projector on and off. The button illuminates to indicate the projector status (see <i>Determining projector status</i> on page 54).
2	Volume slider	Tap, tap and hold, or swipe the Volume slider to increase and decrease the volume. The slider brightens as you increase the volume.
3	Volume mute	Tap the Volume mute button to mute the audio from the built-in projector speakers. The button turns amber when activated.
4	A/V mute	Tap the A/V mute button to freeze the current image and mute the audio presented by the projector. The button turns amber when activated. Tap the button a second time to display a blank screen. Tap the button a third time to return the screen to normal.
5	Input	Tap the Input button to cycle through the supported input modes. Depending on which adapter is connected to the XCP, some of the supported input modes vary as follows: <ul style="list-style-type: none"> • If no adapter is connected, the SMART Connect or composite input modes are available. • If the optional VGA + USB adapter is connected, the VGA and composite input modes are available. • If the optional HDMI + USB adapter is connected, the HDMI and composite input modes are available.

Chapter 5

Integrating other devices

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Video format compatibility	39
HD and SD signal format compatibility	41
Connecting peripheral sources and outputs	41

This chapter provides information on integrating your LightRaise60wi interactive projector with peripheral devices.

NOTE

The 16:9 on-screen display (OSD) menu setting delivers all video modes with black bands along the top and bottom edges of the screen. The *Match Input* OSD setting might deliver video modes with black bands along the top and bottom or the left and right edges of the screen, depending on the input resolution.

Native video format

The following table lists the native VESA® RGB video format for the projector.

Resolution	Aspect ratio	Refresh rate (Hz)
1280 × 800	16:10	60

Video format compatibility

The following table lists the projector's compatible VESA RGB video formats by resolution, which the projector adjusts automatically when you use the aspect ratio commands described in *Adjusting projector settings* on page 21.

CHAPTER 5

Integrating other devices

NOTE

- Although other resolutions might work, only the resolutions listed in the table below are supported by SMART.
- The projector scales the image to fit one of the following aspect ratios:
 - Fill: The full size of the projection area is used.
 - Match Input: The aspect ratio of the input source is used.
 - 16:9: The aspect ratio 16:9 (Letterbox) is used.

Resolution	Mode	Aspect ratio	Refresh rate (Hz)	Match input appearance
640 × 480	VGA 60	4:3	59.94	Pillarbox
640 × 480	VGA 72	4:3	72.809	Pillarbox
640 × 480	VGA 75	4:3	75	Pillarbox
640 × 480	VGA 85	4:3	85.008	Pillarbox
800 × 600	SVGA 56	4:3	56.25	Pillarbox
800 × 600	SVGA 60	4:3	60.317	Pillarbox
800 × 600	SVGA 72	4:3	72.188	Pillarbox
800 × 600	SVGA 75	4:3	75	Pillarbox
800 × 600	SVGA 85	4:3	85.061	Pillarbox
832 × 624	MAC 16"	4:3	74.55	Pillarbox
1024 × 768	XGA 60	4:3	60.004	Pillarbox
1024 × 768	XGA 70	4:3	70.069	Pillarbox
1024 × 768	XGA 75	4:3	75.029	Pillarbox
1024 × 768	XGA 85	4:3	84.997	Pillarbox
1024 × 768	MAC 19"	4:3	75.02	Pillarbox
1152 × 864	SXGA 75	4:3	75	Pillarbox
1280 × 720	HD 720	16:9	60	Letterbox
1280 × 800	WXGA 60	5:3	59.81	Full screen
1280 × 1024	SXGA 60	4:3	60.02	Pillarbox
1280 × 1024	SXGA 75	4:3	75.025	Pillarbox
1280 × 1024	SXGA 85	4:3	85.024	Pillarbox
1360 × 768	1360 × 768 60	16:9	59.848	Letterbox
1600 × 1200	UXGA	4:3	60	Pillarbox

Resolution	Mode	Aspect ratio	Refresh rate (Hz)	Match input appearance
1680 X 1050	1680 x 1050 50	16:10	49.974	Full screen
1680 X 1050	1680 x 1050 60	16:10	59.954	Full screen
1920 x 1080	HD 1080	16:9	60	Letterbox

HD and SD signal format compatibility

Signal format	Aspect ratio	Match Input appearance
NTSC	4:3	
PAL	4:3	
SECAM	4:3	
480i	4:3	Pillarbox
576i	4:3	Pillarbox
720p	16:9	Letterbox
720p	16:9	Letterbox
1080i	16:9	Letterbox
1080i	16:9	Letterbox
1080p (HDMI only)	16:9	Letterbox

Connecting peripheral sources and outputs

Follow these instructions if you have a peripheral device to connect to your interactive projector, such as a DVD/Blu-ray player.

WARNING

Measure the distance between the projector and the peripheral device that you want to connect. Make sure that each cable is long enough, has plenty of slack and can be placed safely in your room without presenting a trip hazard.

To connect a peripheral source or output to your projector

1. Connect your peripheral device's input cables to the projector (see *Projector connections* on page 16) or the XCP (see *XCP input connections* on page 37).
2. Switch input sources to the peripheral device by pressing the **Input** button on the remote control or the XCP.

Chapter 6

Maintaining your interactive projector

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When cleaning the projector's accessories	45
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This chapter describes how to clean and prevent damage to your interactive projector and also how to replace parts.

Replacing the remote control battery

Follow this procedure to replace the remote control battery.



WARNING

- Reduce the risk associated with a leaking battery in the projector's remote control by following these practices:
 - Use only the specified type of coin-cell battery.
 - Orientate the battery's positive (+) and negative (–) terminals according to the markings on the remote control.
 - Remove the battery when the remote control is unused for an extended period.
 - Do not heat, disassemble, short or recharge the battery, or expose it to fire or high temperatures.
 - Avoid eye and skin contact with the battery if it has a leak.
- Dispose of the exhausted battery and product components in accordance with applicable regulations.

To replace the remote control battery

1. Hold down the side release on the left side of the battery holder and pull the battery holder completely out of the remote control.
2. Remove the old battery from the battery holder and replace it with a CR2025 coin-cell battery.

IMPORTANT

Align the positive (+) and negative (–) signs on the battery terminals with the correct signs on the battery holder.

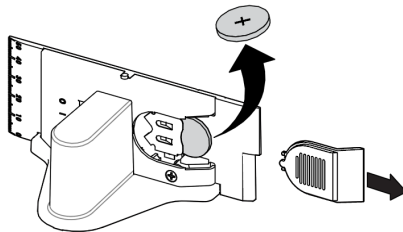
3. Insert the battery holder into the remote control.
4. Recycle or dispose of the old battery properly.

Replacing the CAT battery

Follow this procedure to replace the curtain alignment tool (CAT) battery.

To replace the CAT battery

1. Press down on the battery door by the handle of the CAT and slide it away from the tool.



2. Remove the old battery and replace it with a CR2032 coin-cell battery.

IMPORTANT

Align the positive (+) and negative (–) signs on the battery terminals with the correct signs on the battery holder.

3. Replace the battery door on the CAT.
4. Recycle or dispose of the old battery properly.

Cleaning the projector and accessories

WARNING

Cleaning a wall-mounted projector can result in a fall or injury. Use caution when climbing a ladder and consider removing the projector from its wall-mounting bracket to clean it.

CAUTION

- Never touch the mirror with your hands or a brush and do not scrub the surface of the mirror with a cleaning cloth. Instead, use a cleaning cloth to clean the mirror with a light touch and do not put any cleaning solvents on the cloth or the mirror. Do not apply pressure to the projector lens or mirror.
- Do not spray cleaners, solvents or compressed air directly on the projector. Do not use spray cleaners or solvents near any part of the projector because they can damage or stain the unit. Spraying the system could spread a chemical mist on some of the projector's components and lamp, resulting in damage and poor image quality
- Do not allow liquids or commercial solvents of any kind to flow into the projector base or head.

When cleaning the projector's exterior

- Wipe the exterior of the projector with a lint-free cloth.
- If necessary, use a soft cloth moistened with a mild detergent to clean the projector housing.

IMPORTANT

- Do not use these methods to clean the projector mirror or lens. See *When cleaning the projector's exterior* above for further details.
- Do not use abrasive cleaners, waxes or solvents.

When cleaning the projector's mirror and lens

- Use a bellows bulb or air blower bulb (commonly found in audio-visual supply stores) to blow off dust. Never touch the mirror or the lens with your bare hands or a brush.
- If wiping the mirror or the lens is unavoidable, wear protective gloves and gather the cleaning cloth into a ball. Gently run the cleaning cloth across the mirror and the lens as you would a feather duster. Don't apply any pressure to the mirror or the lens.

When cleaning the projector's accessories

- Wipe the exterior of the pens and the CAT with a light, damp cloth.

Replacing the projector lamp module

Eventually the lamp will dim and a message will appear reminding you to replace it. Make sure that you have a replacement lamp module before proceeding with the following instructions. You also need a Phillips No. 1 screwdriver to complete these procedures.



WARNING

- See [smarttech.com/compliance](https://www.smarttech.com/compliance) for the projector's material safety data sheet (MSDS) documents.
- Replace the lamp module when the projector becomes dim or displays its lamp life warning message. If you continue to use the projector after this message appears, the lamp can shatter or burst, scattering glass throughout the projector.
- If the lamp shatters or bursts, leave the room. Ventilate the area by opening windows and doors.

Next, do the following:


- Avoid touching the glass fragments because they can cause injury.
- Wash your hands thoroughly if you have come into contact with lamp debris.
- Thoroughly clean the area around the projector, and discard any edible items placed in that area because they could be contaminated.
- Call your authorised SMART reseller for instructions. Do not attempt to replace the lamp.
- Replacing the lamp module in a wall-mounted projector can result in a fall or injury. Use caution when climbing a ladder and consider removing the projector from the wall-mount bracket to replace the lamp module.
- Uncovering the lamp while the projector is mounted on the wall-mount bracket can lead to product damage or personal injury from falling pieces of glass if the lamp is broken.

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Maintaining your interactive projector

- When replacing the projector lamp module:
 - Put the projector into Standby mode and wait 30 minutes for the lamp to cool completely.
 - Do not remove any screws other than those specified in the lamp replacement instructions.
 - Wear protective eyewear whilst changing the lamp module. Failure to do so can cause injuries including loss of eyesight if the lamp shatters or bursts.
 - Use only replacement lamp modules approved by SMART Technologies. Contact your authorised SMART reseller for replacement parts.
 - Never replace the lamp module with a previously used lamp module.
 - Always handle the fragile lamp assembly with care to prevent premature lamp failure or exposure to mercury. Use gloves when touching the lamp module. Do not touch the lamp with your fingers.
 - Recycle or dispose of the lamp module as hazardous waste in accordance with local regulations.

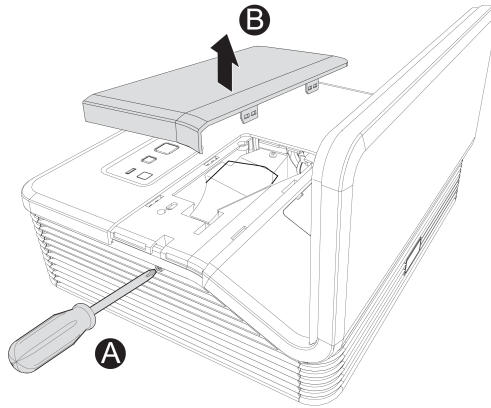
To remove the old lamp module

1. If the projector is on and its status light displays solid green, press the **Power**  button twice on the remote control to put the projector into Standby mode.
2. Wait at least 30 minutes for the projector to cool down.
3. Disconnect the power cable from the projector.

CHAPTER 6

Maintaining your interactive projector

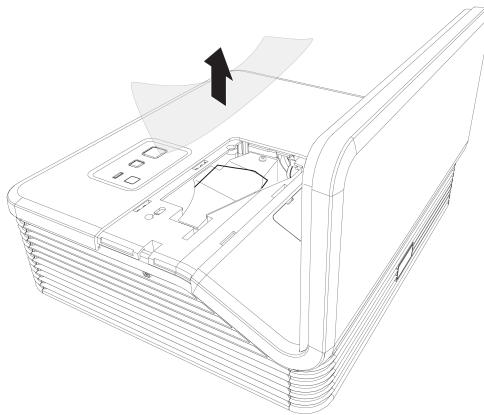
4. Use the Phillips screwdriver to loosen the captive screw on the side of the projector and then remove the lamp cover.



NOTE

Don't try to remove this screw. Captive screws can't be removed, but they must be loosened.

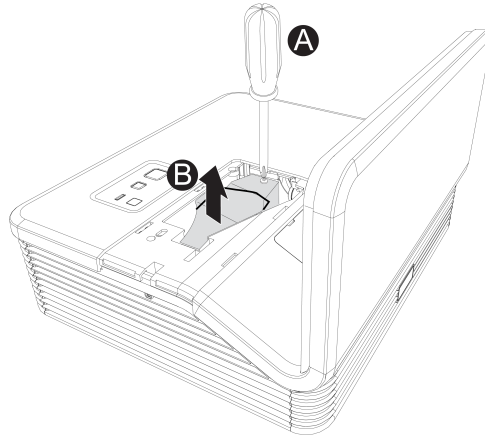
5. Remove protection film from the projector and then put it in a safe place.



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Maintaining your interactive projector

6. Use the Phillips screwdriver to loosen the captive screw on the lamp module and disconnect the lamp module's power plug. Use the handle on the lamp module to gently slide the lamp module out and remove it from the projector.



7. Put the old lamp module in a secure container and handle it gently until you recycle or dispose of it.



IMPORTANT

Recycle or dispose of the lamp module according to your local waste authority.

To put the new lamp module into the projector

1. Remove the new lamp module from its packaging.
2. Carefully place the lamp module into the projector using the handle on the top of the module, and then tighten the captive screw with the Phillips screwdriver.




CAUTION

Do not over-tighten the screws.

3. Connect the lamp module's power plug into the power port.
4. Place the lamp protection film over the slot, carefully replace the lamp cover and then tighten the captive screw.

To finish the projector lamp module installation

1. Connect the projector power cable to the wall socket and then turn on the projector.
2. Press the **Power**  button once on the remote control or XCP to confirm that the projector is operating and that the lamp module is correctly installed.
3. Adjust the projector image if necessary (see *Adjusting the image* on page 30).
4. Access the service menu to reset the lamp hours (see *Resetting the lamp hours* below).
5. Activate the projector's alert emails and lamp warnings if they've been deactivated (see *Email alerts* on page 72 and *Control panel* on page 70).

Resetting the lamp hours

Once you have replaced the lamp module, you need to access the projector service menu and reset the lamp hours. To prevent accidental errors, only a system administrator should perform this procedure.

NOTE

Always reset the lamp hours after you replace the lamp, because lamp service reminders are based on the current hours of use.

To reset the lamp hours

1. Using the remote control, press the following buttons quickly to access the service menu:
Down, Up, Up, Left, Up.

CAUTION

Do not adjust any settings in the service menu other than those listed in this guide. Changing other settings can damage or affect the operation of your projector and may invalidate your warranty.

2. Scroll down to *Lamp Hour Reset* and then press **OK**.

Both *Lamp Hour* values (Standard and Economy) reset to zero.

CAUTION

Do not reset the lamp hours unless you have just replaced the lamp module. Resetting the lamp hours on an old lamp can damage your projector as a result of lamp failure.

NOTE


You're unable to reset the Display Hour value because it's the running total of hours the projector has been in use.

CHAPTER 6

Maintaining your interactive projector

3. Press the **Menu** button on the remote control.

The *Settings* menu appears.

4. Select  to confirm that *Lamp Hour* is reset to zero.

Chapter 7

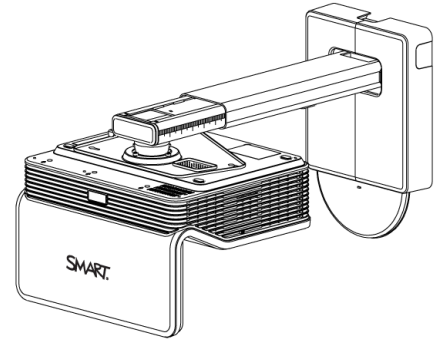
Troubleshooting your interactive projector



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This chapter describes how to troubleshoot your interactive projector.

Determining projector status

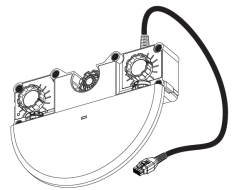
The projector has one status light and one service light. Use the table below to determine the status of the projector.




Power light 	Service light 	Projected image	Status and related troubleshooting
Normal operating states			
Flashing green	Off	None	The projector is starting up.
Solid green	Off	Correct	The projector is operating normally. If image or sound issues occur, see the remaining sections of this chapter for troubleshooting information.
Flashing amber	Off	None	The projector is entering Standby mode.
Solid amber	Off	None	The projector is in Standby mode.
Error states			
Solid green	Off	Incorrect	The video input from the computer is not connected to the projector. Select the correct video input. OR The A/V mute is activated. Try pressing the Hide button on the remote control. If you purchased an XCP, try pressing the A/V mute button. OR There's an issue with the projected image (see <i>Troubleshooting image issues</i> on page 61).
Solid amber	Flashing red	None	There's an issue with the projector lamp. See <i>The "Lamp Failure" message appears</i> section in <i>Troubleshooting projector errors</i> on page 63.
Off	Flashing red	None	The projector's operating temperature has been exceeded. See <i>The "Projector Overheated," "Fan Failure" or "Colour Wheel Failure" message appears</i> section in <i>Troubleshooting projector errors</i> on page 63.

Power light 	Service light 	Projected image	Status and related troubleshooting
Off	Solid red	None	There's an issue with the projector's fan or colour wheel. See <i>The "Projector Overheated," "Fan Failure" or "Colour Wheel Failure" message appears</i> section in <i>Troubleshooting projector errors</i> on page 63.
Off	Off	None	The projector power cable isn't properly connected. OR There's an issue with the mains power supply (for example, the circuit breaker is off).

Determining touch status



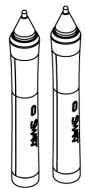
The TDM has one tri-coloured status light. Use the table below to determine the status of the TDM.

TDM status light	Touch interaction	Status and related troubleshooting
Normal operating states		
Solid green	Full control	The Touch USB is connected, and SMART Product Drivers is running.
Flashing green	Full control	The Touch USB is connected and the default operating system drivers are running. You might have single touch only, depending on your operating system. <div style="background-color: #f0f0f0; padding: 5px;"> <p> NOTE</p> <p>If you install SMART Product Drivers, you have full multitouch interactivity. You can also use the <i>Connection Wizard</i> to check the status of your projector connection and to troubleshoot your projector (see <i>Troubleshooting your SMART product with the Connection Wizard</i> on page 58).</p> </div>
Flashing amber/red	No touch	The TDM is in red laser mode which is used during alignment. Wait three minutes for the red lasers to turn off.

TDM status light	Touch interaction	Status and related troubleshooting
Error states		
Solid green or flashing green	No touch	The USB cable for touch isn't properly connected to your computer. OR Change the Touch setting in the OSD menu to match the current input (see <i>Adjusting projector settings</i> on page 21). NOTE Touch is disabled if the current input doesn't match the Touch setting in the OSD menu. This is to avoid false touches on your computer when you touch a DVD or other source image.
Solid red	No touch	Connect the Touch USB cable.
Flashing red/amber	No touch	Hardware fault. Turn the projector off and then on again. Contact smarttech.com/contactsupport if the issue continues.

Determining interactive pen status

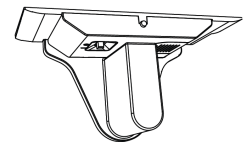
The interactive pens each have one tri-coloured status light. Use the table below to determine the status of the pens.



Pen status light	Touch interaction	Status and related troubleshooting
Normal operating states		
Solid green	Full control	Pen is charged and ready to use.
Solid amber	Full control	Pen requires charging.
Flashing amber	None	Pen is charging.
Off	None	Pen is in Sleep mode. Pick up the pen and start using it to bring it out of Sleep mode.
Off	None	The pen is turned off. Turn the switch to the On position (see <i>Interactive pen components</i> on page 31 for the location of the On/Off switch).
Error states		

Pen status light	Touch interaction	Status and related troubleshooting
Solid red	None	A pen error was detected on startup and the pen isn't operational. <ol style="list-style-type: none"> 1. Turn the pen off and then on again (see <i>Interactive pen components</i> on page 31 for the location of the switch). 2. Charge the pen with the USB charger (see <i>Charging the interactive pen</i> on page 32). 3. Contact smarttech.com/contactsupport if the issue continues.
Off	None	The pen battery is fully discharged. Charge the pen with the USB charger (see <i>Charging the interactive pen</i> on page 32).

Determining curtain alignment tool (CAT) status



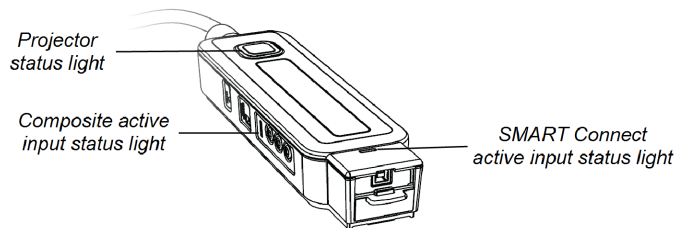
The CAT has one status light. If you're experiencing issues with the CAT, press the front side of the CAT against the surface and ensure that the status light is green. See the *SLR 60wi installation guide* (smarttech.com/kb/170259) for more information.

Use the table below to determine the status of the CAT.



CAT status light	Status and related troubleshooting
Solid green	The CAT is on, in contact with the surface and ready to use.
Off	The CAT is turned off. Turn the switch to the On position.
Off	The battery needs to be replaced (see <i>Replacing the CAT battery</i> on page 44).
Off	Your surface isn't flat enough to activate the CAT (see <i>Choosing a surface</i> on page 7).

Determining XCP status

The XCP has one projector status light and two active input lights.



Projector status light

The XCP Power button  illuminates to indicate the projector status and provides the same status information as the Power button  on the interactive projector.

See *Determining projector status* on page 54 for more information on the Power status light.

Active input status lights

The XCP has two input status lights. The status light is illuminated next to the active input.

Troubleshooting your SMART product with the Connection Wizard

SMART Product Drivers enables you to view information about your interactive projector and can help you troubleshoot your interactive projector.

To troubleshoot your SMART product with the Connection Wizard

1. Click the **SMART Board**  icon in the Windows notification area or the Mac Menu bar and then select **SMART Settings**.

The *SMART Settings* window appears.

- If your interactive projector is connected to your computer and working, the following text appears: *The SMART Board interactive whiteboard is working properly.*
- If your interactive projector isn't connected to your computer, the following text appears: *No SMART Boards are connected.*

2. Select **Connection Wizard**.

NOTE

If the *SMART Settings* window indicates your projector is working properly, see *Troubleshooting pen and finger touch issues* on the next page for more information.

3. Select **LightRaise 60wi interactive projector** from the **SMART products found** drop-down list and then click **Next**.
4. Select your troubleshooting issue from the list that appears and then click **Next**.
5. Follow the on-screen instructions.

Troubleshooting pen and finger touch issues

If you're experiencing issues with finger touch or the interactive pen, you can troubleshoot the following common issues.

Interactive pen issues

To resolve common interactive pen issues, complete the following tasks:

- Ensure that the pen's battery is charged and the switch on the base of the pen is turned on (see *Interactive pen components* on page 31 for the location of the On/Off switch).
- Ensure that the Touch USB cable is properly connected to your computer.
- Ensure that the TDM is properly connected and operational and that its status light is solid green or flashing green (see *Determining touch status* on page 55).
- If something is blocking the projected image and creating a shadow on the surface, the interactive pen doesn't work in the shadow area. When you write on the surface, ensure that your body doesn't create a shadow on the writing area.
- Ensure that the current video input corresponds with the Touch setting in the OSD menu (see *Touch* on page 25).

Finger touch issues

To resolve common finger touch issues, complete the following tasks:

NOTE

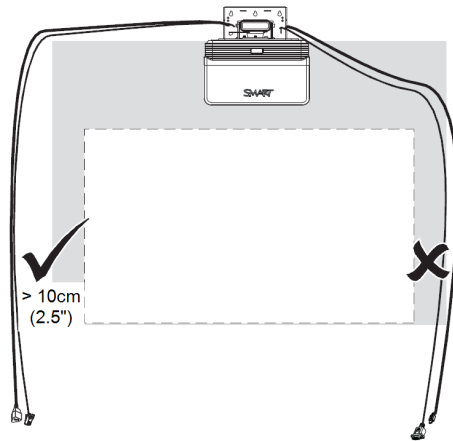
Finger touch is disabled until the alignment process is completed for the first time.

- Ensure that the current video input corresponds with the Touch setting in the OSD menu (see *Touch* on page 25) and that the TDM is connected and has a solid green or flashing green status light (see *Determining touch status* on page 55).
- Use the Connection Wizard to ensure that the Pen only setting isn't selected. This setting is selected by default until the alignment process is complete during installation.

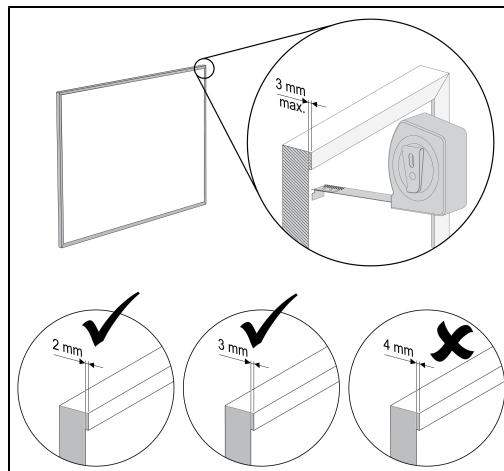
CHAPTER 7

Troubleshooting your interactive projector

- Ensure that no objects protrude into the keep out area between the bottom of the projector mount and the projected image. Objects in this area should be moved or removed before you use your interactive projector as they can cause parts of the projected image to lose finger touch function.



- Examples of common obstructions to watch out for include:
 - Cables or wires that hang into the projected image
 - Screws or nails protruding from the wall or the dry-wipe board
 - Wall protrusions or uneven wall surfaces
 - Bezels thicker than 3mm above the board surface




- Map rails on the wall or the dry-wipe board

Touch accuracy and alignment issues

If you're having issues with the accuracy or alignment of your finger touch or the interactive pen, try the following steps to resolve the issue:

- Use the *Connection Wizard* to check the status of your projector connection and to troubleshoot your projector (see *Troubleshooting your SMART product with the Connection*

Wizard on page 58).

- Click the **SMART Board** icon  and then select **Orientate** to perform an orientation.
- Ensure that the surface is flat, smooth and has no obstructions in the keep-out area around the projected image. See *Choosing a surface* on page 7 or the *SLR 60wi surface evaluation guide* (smarttech.com/kb/170402) for more information.

Troubleshooting image issues

If you're experiencing issues with the image, you can troubleshoot the following common issues.

- Ensure that the computer or other video source is on and set to display a resolution and refresh rate supported by the projector (see *Video format compatibility* on page 39). Use the projector's native resolution (1280 × 800) for the best results.
- Ensure that the video source is properly connected to the projector.
- Press the Input Select button on the remote control to switch to the correct video source.

If these tasks don't resolve the issue, refer to the following sections for additional troubleshooting information.

Loss of signal

If a video source signal is not detected, is out of range of the projector's support video modes or is being switched to a different device or input, the projector doesn't show a source signal. Instead, the projector displays the SMART logo on a blue screen or it displays the user-captured splash screen.



To resolve signal loss issues

1. Wait approximately 45 seconds for the image to synchronise. Some video signals require a longer synchronisation period.
2. If the image doesn't synchronise, check the cable connections to the projector and the XCP.
3. Ensure that the image signal is compatible with the projector (see *Video format compatibility* on page 39).
4. If there are any extension cables, switch boxes, connection wall plates or other devices in the video connection from the computer to the projector, temporarily remove them to ensure that they are not causing the video signal loss.
5. If your projector still doesn't show a source signal, contact your authorised SMART reseller.

Partial, scrolling or incorrectly displayed image

NOTE

These procedures may vary depending on your version of operating system and your system preferences.

To resolve a partial, scrolling or incorrectly displayed image

1. Select **Start > Control Panel**.
2. Double-click **Display**.
The *Display Properties* window appears.
3. Click the **Settings** tab.
4. Click **Advanced** and then click the **Monitor** tab.
5. Verify that the screen refresh rate is 60 Hz.

Unstable or flickering image

If the projector's image is unstable or flickering, the frequency or tracking settings on your input source could be different from the settings on your projector.

IMPORTANT

Write down your setting values before adjusting any of the settings in the following procedure.

To resolve your unstable or flickering image

1. Check the display mode of your computer's graphics card. Make sure that it matches one of the projector's compatible signal formats (see *Video format compatibility* on page 39). Refer to your computer's manual for more information.
2. Configure the display mode of your computer's graphics card to make it compatible with the projector. Refer to your computer's manual for more information.
3. Optionally, reset the projector as described in *Accessing the service menu* on page 66 to adjust the frequency and tracking to their original values.

IMPORTANT

This action resets all values to their defaults.

4. If the previous steps don't resolve the flickering image, replace the projector lamp (see *Replacing the projector lamp module* on page 46).

Unaligned projected image

Alignment errors occur when the projected image isn't perpendicular to the screen. Alignment errors can occur when you project your image on an uneven surface or a wall that has obstructions, or if you swivel the projector greater than 5cm (2") from its vertical centre line as indicated in the *SLR 60wi mounting template* (smarttech.com/kb/170271).

The projector image can slip if the projector is moved often or installed in a location prone to vibration, such as next to a heavy door. Follow these precautions to help prevent the image from becoming unaligned:

- Ensure that the installation wall is plumb and square and doesn't move or vibrate excessively.
- Ensure that there are no obstructions behind the projector's wall-mounting bracket and that the bracket is firmly secured to the wall according to the installation instructions.
- Ensure that the projection surface is flat and smooth.

Troubleshooting projector errors

System administrators can resolve the following projector errors on their own prior to contacting SMART Support. Performing initial troubleshooting on your projector will reduce the time of a support call.

Your projector stops responding

If your projector stops responding, perform the following procedure.

To restart an unresponsive projector

1. Put the projector into Standby mode and then wait 30 minutes for it to cool down.
2. Disconnect the power cable from the power socket and then wait at least 60 seconds.
3. Connect the power cable and then turn on the projector.

The "Projector Overheated," "Fan Failure" or "Colour Wheel Failure" message appears

If the "Projector Overheated," "Fan Failure" or "Colour Wheel Failure" message appears and the projector stops projecting an image, one of the following issues is occurring:

- The temperature outside the projector is too high.
- One of the fans has failed.
- The projector has a colour wheel issue.

To resolve the “Projector Overheated,” “Fan Failure” or “Colour Wheel Failure” error

1. Put the projector into Standby mode and then wait 30 minutes for it to cool down.
2. If your room is hot, lower the temperature if possible.
3. Ensure that nothing is blocking the projector’s air intake and exhaust.
4. Disconnect the power cable from the power socket and then wait at least 60 seconds.
5. Connect the power cable and then turn on the projector.
6. Check that the fans are running, and if necessary adjust the fan speed using the service menu.
7. If the previous steps don’t resolve the issue or if the issue occurs more than once, put the projector into Standby mode, disconnect the power cable, and then contact your authorised SMART reseller.

The “Lamp Failure” message appears

If the “Lamp Failure” message appears, one of the following issues is occurring:

- The lamp is overheating, likely due to blocked air vents.
- The lamp has reached the end of its life.
- The projector has an internal problem.

To resolve the “Lamp Failure” error

1. Restart the projector (see *Your projector stops responding* on the previous page).
2. Check the *Lamp Hours* setting in the OSD menu (see *Adjusting projector settings* on page 21). If the lamp has more than 2000 hours of use, it might be near the end of its life.
3. Replace your lamp module as described in *Replacing the projector lamp module* on page 46.
4. If replacing the lamp module doesn’t resolve the issue, put the projector into Standby mode, disconnect the power cable, and then contact your authorised SMART reseller.

The projector Power and Service lights are off

If the projector Power and Service lights are both off, one of the following issues is occurring:

- There was a power outage or a power surge.
- A circuit breaker or a safety switch was tripped.
- The projector isn’t connected to the power source.
- The projector has an internal problem.

To resolve the unlit projector Power and Service lights issue

1. Check the power source and then make sure that all cables are connected.
2. Confirm that the projector is connected to an active power socket.
3. Make sure that the pins on the connectors aren't broken or bent.
4. Reconnect the power cable and then turn on the projector.
5. If the previous steps don't resolve the issue, disconnect the power cable and then contact your authorised SMART reseller.

Troubleshooting audio issues

If the audio isn't working, you can troubleshoot the following common issues.

Microphone volume issues

If you're having issues with the microphone volume, check the Microphone Boost setting in the OSD menu.

To increase the volume of your microphone

Turn the Microphone Boost setting **Off**.

To decrease the volume of your microphone

Turn the Microphone Boost setting **On**.

Speaker static

You might experience static noise from your speakers if the microphone cable is routed too close to the other cables.

Static noise can be caused by other video and audio source devices and their connection cables. Isolate these devices and test to see whether they are the cause of static noise

Troubleshooting XCP issues

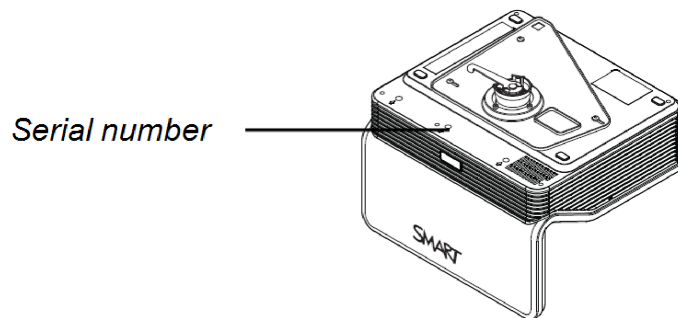
If you're experiencing issues with the XCP, you can troubleshoot the following common issues.

Issue	Related troubleshooting
There's no video signal when you're using a USB cable.	<ul style="list-style-type: none"> • Ensure that the DisplayLink drivers are installed on your computer. • Ensure that the XCP is properly connected to the projector (see <i>Connecting the XCP to the projector</i> on page 36). • Ensure that the USB cable isn't damaged.

Issue	Related troubleshooting
The XCP doesn't respond to touch inputs.	<ul style="list-style-type: none"> • Ensure that all cable connections are secure. • Disconnect and connect all of the cables.
The XCP doesn't respond to input selection.	<ul style="list-style-type: none"> • Ensure that all input cable connections are secure. • Disconnect and connect all of the cables.

Locating the serial number

The serial number identifies your projector and helps SMART support to troubleshoot issues. The serial number is on top of the projector in the location shown below:



Accessing the service menu

CAUTION

- To prevent tampering or unintentional changes, only system administrators should access the service menu. Do not share the service menu access code with casual users of your interactive projector.
- Do not adjust any settings in the service menu other than those listed in this guide. Changing other settings can damage or affect the operation of your projector and may invalidate your warranty.

Retrieving your password

If you forget the projector's password, you can retrieve it by accessing the projector service menu directly from the projector or from the password settings menu on your projector's webpage (see *Password settings* on page 73).

To retrieve your password from the service menu

1. Using the remote control, press the following buttons quickly to access the service menu:
Down, Up, Up, Left, Up.
2. Scroll to *Password Get* and then press **Enter** on the remote control.
The password appears on the screen.
3. Write down the password.
4. Scroll to *Exit* and then press **Enter** on the remote control to exit the projector service menu.

Resetting the projector

At some point during troubleshooting, you might need to reset all projector settings.



IMPORTANT

This action is irreversible.

To reset all projector settings

1. Using the remote control, press the following buttons quickly to access the service menu:
Down, Up, Up, Left, Up.
2. Scroll to *Factory Reset* and then press **Enter** on the remote control.
3. Scroll to *Exit* and then press **Enter** on the remote control to exit the projector service menu.

Chapter 8

Remotely managing your interactive projector

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This chapter describes how to manage your interactive projector from a remote location.

Accessing webpage management

Before you can access the remote management webpage, you must connect a network cable to your projector and enable the network functions in the on-screen display (OSD) menu (see *Adjusting projector settings* on page 21).



NOTE

You can view the projector's IP address by accessing the projector's Network Settings menu (see *Network settings* on page 71).

To use the management webpage

1. Start your Internet browser.
2. Type the projector's network IP address in the address bar and then press ENTER.
The *LightRaise Projector Settings* window appears.
3. Select the menu options in the left pane to access the settings on each page.
4. Modify settings using your computer's mouse and keyboard and then click **Submit** or another action button next to each setting you change.

Home

The Home menu displays basic projector information and enables you to select the OSD language.




NOTE

You can view basic projector information but you're unable to change it (with the exception of the OSD language) from the Home menu.

Submenu setting	Description
Language	Displays language options
Projector Information	Displays current projector information


Control panel

This menu enables you to manage the projector audio and video status, alerts and appearances using an Internet browser.

Submenu setting	Description
Power	Turns the projector on or puts it into Standby mode. Select the Power ON or Power OFF button.
Restore All Projector Defaults	Returns projector settings to default values or refreshes the current settings. Select Submit or Refresh .  IMPORTANT The Submit option is irreversible, resets all values and turns off network communication features.
Closed Captioning	Turns off the closed captioning feature or sets the closed captioning language to CC1 or CC2 . Typically, CC1 displays US English subtitles, whilst CC2 displays other regional languages, such as French or Spanish, depending on television channel or media setup.
Auto Signal Detect	Enables or disables signal searching of input connectors. <ul style="list-style-type: none"> • Select On to have the projector continuously switch inputs until it finds an active video source. • Select Off to maintain signal detection in one input.
Lamp Reminder	Select On to show or Off to hide the lamp replacement reminder when it appears. This reminder appears 100 hours before the recommended lamp replacement.
Lamp Mode	Adjusts lamp brightness to Standard or Economy . Standard displays a high-quality, bright image. Economy increases the lamp life by decreasing the brightness of the image.

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Submenu setting	Description
Auto Power Off	Sets the length of the auto power off countdown timer between 1 and 240 minutes. The timer begins to count down when the projector no longer receives a video signal. The timer finishes when the projector enters Standby mode. Select 0 to turn off the timer.
High Speed Fan	Adjusts the speed of the projector's fan. Select Normal or High .  NOTE Use the High setting when the projector's temperature is high or the altitude is above 1800m (6000').
VGA1	Assigns an alternative name to your VGA 1 input, which appears when you select the VGA 1 input.
HDMI	Assigns an alternative name to your HDMI input, which appears when you select the HDMI input.
Composite	Assigns an alternative name to your Composite video input, which appears when you select the Composite video input.
Emergency Alert	Turns the on-screen alert broadcast message on or off. When enabled, this message displays over the current projected image.
Alarm Message	Displays an on-screen emergency notification message (maximum 60 characters).



Network settings

This menu allows you to use or not use Dynamic Host Control Protocol (DHCP) and to set the network-related addresses and names when DHCP is not used.

Submenu setting	Description
DHCP	Determines whether the projector's IP address and other network settings are dynamically assigned by a DHCP server or manually set. <ul style="list-style-type: none">• On allows the network's DHCP server to assign a dynamic IP address to the projector.• Off allows you to manually set the projector's IP address and other network settings.
IP Address	Displays or allows you to set the projector's IP address in values between 0.0.0.0 and 255.255.255.255.
Subnet Mask	Displays or allows you to set the projector's subnet mask number in values between 0.0.0.0 and 255.255.255.255.
Gateway	Displays or allows you to set the projector's default network gateway in values between 0.0.0.0 and 255.255.255.255.
DNS	Displays or allows you to set the projector's IP address for your network's primary domain name server in values between 0.0.0.0 and 255.255.255.255.

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Submenu setting	Description
Group Name	Displays or allows you to set the projector's workgroup name (maximum 12 characters).
Projector Name	Displays or allows you to set the projector's name (maximum 12 characters).
Location	Displays or allows you to set the projector's location (maximum 16 characters).
Contact	Displays or allows you to set the contact name or number for projector support (maximum 16 characters).
SNMP	Turns the Simple Network Management Protocol (SNMP) agent on or off.
Read-Only Community	Sets a password that is required for each SNMP get request to the device.  NOTE The default password for Read-Only Community is Public .
Read/Write Community	Sets a password that is required for each SNMP set request to the device.  NOTE The default for Read/Write Community is Public .
Trap Destination Address	Displays or allows you to set the IP address of your network's SNMP TRAP manager in values between 0.0.0.0 and 255.255.255.255. The trap destination address is the IP address of the computer assigned to handle unsolicited data generated by SNMP TRAP events generated by the projector, such as power state changes, projector failure modes, a lamp needing to be replaced or other issues.


Email alerts

This menu enables you to enter your preferred address for receiving email alerts and adjust related settings.

Submenu setting	Description
Email Alert	Selects Enable to turn on or Disable to turn off the Email Alert function.
To	Displays or allows you to set the email address of the email alert recipient.
CC	Displays or allows you to set the email address of the email alert "copy to" recipient.
From	Displays or allows you to set the email address of the user who sends the email alert.

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Submenu setting	Description
Subject	Displays or allows you to set the email alert subject.
Outgoing SMTP server	Displays or allows you to set the Simple Mail Transfer Protocol (SMTP) server that you use on your network.
Username	Displays or allows you to set the SMTP server user name.
Password	Displays or allows you to set the SMTP server password.
Alert Condition	<p>Sends email alerts whenever Lamp Warning, Low Lamp Life, Temperature Warning and Fan Lock conditions occur. Select the settings that you want and then click Submit.</p> <p> NOTE</p> <p>The projector sends an alert email (SMART Alert) to your email address. Click Email Alert Test to confirm that your email address and SMTP server settings are correct by sending a test email (SMART Alert-Test Mail).</p> <p>If the settings are not correct, the email alert messages aren't sent or received successfully and no warning or notification messages are available to advise of this state.</p>

Password settings

This menu provides a security function that allows an administrator to manage projector use and enable the Administrator Password function.

Submenu setting	Description
Password	When the password function is enabled, the administrator password is required to access Web Management. Select Disable to allow remote web management of the projector without requiring a password.



NOTES

- The first time you enable the password settings, the default password value is four numbers, for example, 1234.
- The maximum allowable password length is four numbers or letters.
- If you forget the projector password, refer to *Accessing the service menu* on page 66 to set the projector setting to factory defaults.

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Simple Network Management Protocol (SNMP)

Your interactive projector supports a list of SNMP commands as described in the management information base (MIB) file. You can download this file by browsing to smarttech.com/software and clicking the MIB files link in the *Hardware* section for the LightRaise interactive projector. The SNMP agent supports SNMP version 1. Upload the MIB file to your SNMP management system application and then use it as described in your application's user guide.

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By connecting a computer or room control system to the DB9 room control serial interface of your interactive projector, you can select video inputs, start or shut down your interactive projector and request information such as projector lamp use, current settings and network addresses.

This chapter documents the projector programming commands.

Serial interface settings

The projector communicates over an RS232 interface and the wiring is as per the RS232 standard on pins 2,3, and 5.



IMPORTANT

There is a 9V signal active on Pin9 when the control panel power is turned on in the on-screen display (OSD) menu and should never be wired to use anything other than SMART approved control panels.

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The serial interface of the projector acts as a Data Communications Equipment (DCE) device and its settings can't be configured. You must configure your computer's serial communication program (such as Microsoft® HyperTerminal) or your room control system's serial communication settings with the following values:

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

NOTES

- Asynchronous mode is disabled by default in the projector.
- Remote echo is not enabled on the serial connection.
- All commands should be in ASCII format. Terminate all commands with a carriage return.
- All responses from the projector are terminated with a command prompt. Wait until you receive the command prompt indicating that the system is ready for another command before you proceed.
- The room control feature of the projector is always on.

To configure your computer's serial interface

1. Turn on your computer and then start your serial communications program or terminal emulation program.
2. Connect your computer to the serial connection cable that you previously connected to the interactive projector.
3. Configure your serial interface settings using the values from the table in the previous section and then press ENTER.

An "invalid cmd= ? for help" message appears, and the > character appears as a command prompt on the following line.

NOTE

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

4. Type commands to configure your settings.

**NOTES**

- To see a list of commands available in the current operating mode, type ? and then press ENTER.
- If you're using a terminal emulation program, turn on your program's local echo setting to see characters as you type them.

Command inventory

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

**IMPORTANT**

- When entering commands, ensure that there is a 10 millisecond delay between characters for reliable operation.
- Type commands exactly as they appear in the left column of the tables, with the proper value or setting in the centre column.

**NOTES**

- Send a command only after the projector sends a command prompt.
- Commands aren't case sensitive.
- Check your entries carefully before entering your commands.
- Press ENTER after typing each command.
- After the projector executes a Command, it generates a response.
- In standby mode, only the "Power on" message is available.

Value-based command methods

Absolute values and adjustment values

You can use the command's target range to set an absolute value for a command or cause an adjustment to be made to the current value. To create an adjustment command, add a plus (+) or minus (-) symbol instead of the equal symbol (=) before the value change you want to enter.

All absolute values that you enter must be within the command target range and all adjustment values must equal a number within the command target range.

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See the following examples for adjusting projector brightness of the current source.

```
>get brightness  
brightness=55
```

```
>set brightness=65  
brightness=65
```

```
>set brightness+5  
brightness=70
```

```
>set brightness-15  
brightness=55
```

Video source specification values

You can use the source input field described in *Source selection controls* on page 80 in a command to set an absolute value or adjustment value to a source other than the active source. You can do this whilst the selected source is inactive, but the source device must be connected or you will receive an invalid command response.

The operational parameters are:

- **VGA1**
- **Composite**
- **HDMI**

See the following examples for adjusting projector brightness of VGA1, regardless whether it's the current source:

```
>set brightness vga1=65  
brightness vga1=65
```

```
>set brightness vga1-7  
brightness vga1=58
```

Power state controls

These commands put the projector in and out of Standby mode and request the projector's current power state. The projector's power state determines whether certain commands are available at that time. These settings are available even when the projector is in Standby mode.

Command	Response
on	powerstate=[field]
off	powerstate=[field]
off now	powerstate=[field]
get powerstate	powerstate=[field]

The following table describes the power state commands.

Command	Description
on	Turns on the projector.
off	Starts the shutdown process. A dialogue box appears on the projected image with the message, "Press Power Button to Turn off Projector." You must send a second Off command within 10 seconds to put the projector into Standby mode.
off now	Shuts down the projector immediately after going through a cooling state. You can't delay or cancel this command.
get powerstate	Indicates the projector's current power state.

The following table describes the power state fields.

Field	Description
Powering	The projector is turning on.
On	The projector is on.
Cooling	The projector is cooling.
Confirm off	Confirm off is a non-selectable power state that is returned during stage one of the two-button Off sequence.
Idle	The projector is off but still receiving power (Standby mode).

Source selection controls

You can use source selection controls to switch input sources. The source type selected determines which commands can be accepted.

The following commands inform you of the current source selection settings:

Command	Response	Available in Standby mode
get input	input=[current selected projector source input]	Yes
get videoinputs	videoinputs=[list of available projector source inputs]	Yes

The following command controls the source selection settings.

Command	Command target range	Response
set input [target]	=VGA1 =Composite =HDMI =Next =None	input=[target]

The following table describes the source selection response fields.

Field	Description
VGA1	Switches source to the VGA 1 input connector.
Composite	Switches source to the Composite video connector.
HDMI	Switches source to the HDMI input port.
Next	Switches the input to the next possible source.
None	A non-selectable value that appears when you enter a "get input" command whilst the projector is in Standby mode.

General source controls

The following source controls apply to all input sources. These controls are unavailable when the projector is in Standby mode. You can specify custom colour values for all inputs.

These commands inform you of the current source settings.

Command	Response
get displaymode	displaymode=[current display mode setting]
get brightness	brightness=[current brightness setting]

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Command	Response
get contrast	contrast=[current contrast setting]
get saturation	saturation=[current saturation setting]
get tint	tint=[current tint setting]
get sharpness	sharpness=[current sharpness setting]
get whitepeaking	whitepeaking=[current whitepeaking setting]
get degamma	degamma=[current degamma setting]
get red	red=[current red colour setting]
get green	green=[current green colour setting]
get blue	blue=[current blue colour setting]
get cyan	cyan=[current cyan colour setting]
get magenta	magenta=[current magenta colour setting]
get yellow	yellow=[current yellow colour setting]
get videofreeze	videofreeze=[current video freeze setting]
get videomute	videomute=[current video mute setting]
get displayhide	displayhide=[current state of the Hide button on the remote control]

These commands control the appearance of your source. These settings are unavailable when the projector is in Standby mode or when the source is disconnected. See *Value-based command methods* on page 77 for setting absolute and adjustment commands.

Command	Command target range	Response
set displaymode [target]	=SMART Presentation =Bright Classroom =Dark Classroom =sRGB =White Board =Wall Colour =User	displaymode=[target]
set brightness [value]	=0 to =100	brightness=[value]
set contrast [value]	=0 to =100	contrast=[value]
set saturation [value]	=0 to =100	saturation=[value]
set tint [value]	=0 to =100	tint=[value]
set sharpness [value]	=0 to =31	sharpness=[value]
set whitepeaking [value]	=0 to =10	whitepeaking=[value]
set degamma [value]	=0 to =3	degamma=[value]
set red [value]	=0 to =100	red=[value]
set green [value]	=0 to =100	green=[value]

Command	Command target range	Response
set blue [value]	=0 to =100	blue=[value]
set cyan [value]	=0 to =100	cyan=[value]
set magenta [value]	=0 to =100	magenta=[value]
set yellow [value]	=0 to =100	yellow=[value]
set videofreeze [target]	=on =off	videofreeze=[target]
set videomute [target]	=on =off	videomute=[target]
set displayhide [target]	=normal =frozen =muted =next	displayhide=[target]

Additional VGA source controls

Your VGA source supports all the general source controls described in *General source controls* on page 80, as well as the commands listed in this section. These settings are unavailable when the projector is in Standby mode or when the VGA sources are disconnected.



NOTE

Some of these commands are invalid with HDMI input and Composite video sources, and will return the response "invalidcmd=[command]".

These commands inform you of the current VGA source settings.

Command	Response
get frequency	frequency=[current frequency offset setting]
get tracking	tracking=[current tracking offset setting]

These commands control the appearance of your VGA source. These settings are unavailable when the projector is in Standby mode or when the VGA source is disconnected. See *Value-based command methods* on page 77 for setting absolute and adjustment commands.

Command	Command target range	Response
set frequency [value]	=-5 to =5	frequency=[value]
set tracking [value]	=0 to =63	tracking=[value]

Audio controls

These commands control your projector's internal audio amplifier, which affects sound passed through the projector to your external audio system (not included). Audio output controls aren't defined by the video source. These settings are unavailable when the projector is in Standby mode.

These commands inform you of the current audio output settings.

Command	Response
get volume	volume=[current volume setting]
get micvolume	micvolume=[current microphone volume setting]
get mute	mute=[current mute setting]
get volumecontrol	volumecontrol=[current volume control setting]
get cc	cc=[current closed caption setting]
get lineoutenable	lineoutenable=[current state of line out]
get micenable	micenable=[current state of microphone]
get speakerenable	speakerenable=[current state of the built-in speakers]
get micboostenable	micboostenable=[current state of the microphone boost]

These commands control your projector's audio amplifier settings. See *Value-based command methods* on page 77 for setting absolute and adjustment commands.

Command	Command target range	Response
set volume [target]	=0 to =40	volume=[value]
set micvolume [target]	=0 to =40	micvolume=[target]
set mute [target]	=on =off	mute=[target]
set volumecontrol [target]	=on =off	volumecontrol=[target]
set cc [target]	=cc1 =cc2	cc=[target]
set lineoutenable [target]	=on =off	lineoutenable=[target]
set micenable [target]	=on =off	micenable=[target]
set speakerenable [target]	=on =off	speakerenable=[target]
set microboostenable	=on =off	microboostenable=[target]

 **NOTE**

Typically, **cc1** displays US English subtitles, whilst **cc2** displays other regional languages, such as French or Spanish, depending on television channel or media setup.

Network controls

These commands control your projector's network status and settings. These settings are located in the OSD menu and are available even when the projector is in Standby mode. You must locally set the network commands to on for the network abilities to work

These commands inform you of the current network settings.

Command	Response
get netstatus	netstatus=connected netstatus=disconnected netstatus=disabled
get network	network=[current VGA and network outputs status]
get dhcp	dhcp=[current DHCP status]
get ipaddr	ipaddr=[current IP address]
get subnetmask	subnetmask=[current subnet mask number]
get gateway	gateway=[current network gateway]
get primarydns	primarydns=[current primary domain server]
get macaddr	macaddr=[current MAC address]

These commands control your network settings.

Command	Command target range	Response
set network [target]	=on =off	network=[current]
set dhcp [target]	=on =off	dhcp=[current]
set ipaddr [target]	=0.0.0.0 to =255.255.255.255	ipaddr=[current]
set subnetmask [target]	=0.0.0.0 to =255.255.255.255	subnetmask=[current]
set gateway [target]	=0.0.0.0 to =255.255.255.255	gateway=[current]
set primarydns [target]	=0.0.0.0 to =255.255.255.255	primarydns=[current]

System controls

These commands enable you to switch system settings and access system information.

These commands inform you of the current system settings. These commands are unavailable when the projector is in Standby mode.

Command	Response
get cppower	cppower=[current XCP power setting]
get autosignal	autosignal=[current auto signal detection setting]
get lampreminder	lampreminder=[current lamp reminder setting]
get highbrightness	highbrightness=[current lamp brightness setting]
get autopoweroff	autopoweroff=[current auto power off setting]
get zoom	zoom=[current zoom setting]
get projectorid	projectorid=[current projector ID number]
get hposition	hposition=[current horizontal position offset setting]
get vposition	vposition=[current vertical position offset setting]
get aspectratio	aspectratio=[current projector aspect ratio]
get projectionmode	projectionmode=[current projection mode]
get startupscreen	startupscreen=[current startup screen setting]
get resolution	resolution=[current input resolution]
get language	language=[current language setting]
get groupname	groupname=[current projector group name]
get projectorname	projectorname=[current projector name]
get locationinfo	locationinfo=[current projector location]
get contactinfo	contactinfo=[current support contact information]
get modelnum	modelnum=[current model number]
get serialnum	serialnum=[serial number]
get emergencyalertmsg	emergencyalertmsg=[current emergency alert message]
get emergencyalert	emergencyalert=[current emergency alert setting]

These commands inform you of the current system settings. These commands are available even when the projector is in Standby mode.

Command	Response
get lamphrs	lamphrs=[current lamp hours of operation]
get syshrs	syshrs=[current projector hours of operation]
get fwvertouch	fwvertouch=[current touch detection module firmware]
get fwverddp	fwverddp=[current projector firmware version]

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Command	Response
get fwvemet	fwvemet=[current network firmware version]
get fwvempu	fwvempu=[current processor firmware version]
get signaldetected	signaldetected=[true or false]

These commands control the current system settings. These commands are unavailable when the projector is in Standby mode. See *Value-based command methods* on page 77 for setting absolute and adjustment commands.

Command	Command target range	Response
set cppower [target]	=on =off	cppower=[target]
set autosignal [target]	=on =off	autosignal=[target]
set lampreminder [target]	=on =off	lampreminder=[target]
set highbrightness [target]	=on =off	highbrightness=[target]
set autopoweroff [value]	=0 to =240	autopoweroff=[value]
set zoom [value]	=0 to =30	zoom=[value]
set projectorid [value]	=0 to =99	projectorid=[value]
set hposition [value]	=0 to =100	hposition=[value]
set vposition [value]	=-5 to =5	vposition=[value]
set aspectratio [target]	=fill =match =16:9	aspectratio=[target]
set projectionmode [target]	=front =ceiling =rear =rear ceiling	projectionmode=[target]
set startupscreen [target]	=smart =usercapture =preview	startupscreen=[target]

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Command	Command target range	Response
set language [target]	=English =Arabic =Czech =German =Greek =English (UK) =Spanish (Spain) =Spanish (Mexico) =French (France) =French (Canada) =Hungarian =Italian =Japan =Malay =Polish =Portuguese (Brazil) =Portuguese (Portugal) =Russian =Slovenian =Turkish =Ukrainian =Chinese (Simplified)	language=[target]
set groupname [description]	Enter a descriptor no more than 12 characters long.	groupname=[description]
set projectormame [description]	Enter a descriptor no more than 12 characters long.	projectormame=[description]
set locationinfo [description]	Enter a descriptor no more than 16 characters long.	locationinfo=[description]
set contactinfo [description]	Enter a descriptor no more than 16 characters long.	contactinfo=[description]
set emergencyalertmsg [description]	Enter a descriptor no more than 60 characters long	emergencyalertmsg=[description]
set emergencyalert [target]	=on =off	emergencyalert=[target]

These commands control the current system settings. These commands are available when the projector is in Standby mode and when it is on.

Command	Command target range	Response
set restoredefaults	[none]	restoredefaults=done
set lamphrs [target]	=0	lamphrs=0

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NOTE

The **Network** and **VGA Out** settings features are off by default. Select **On** to activate these features.

Appendix A

Hardware environmental compliance

SMART Technologies supports global efforts to ensure that electronic equipment is manufactured, sold and disposed of in a safe and environmentally friendly manner.

Waste Electrical and Electronic Equipment and Battery regulations (WEEE and Battery Directives)

Electrical and electronic equipment and batteries contain substances that can be harmful to the environment and to human health. The crossed-out wheelie-bin symbol indicates that products should be disposed of via an appropriate recycling facility and not as regular waste.



Batteries

The pen contains a lithium ion battery. The remote and the CAT contain a lithium CR2025 coin cell battery. The CAT contains a lithium CR2032 coin cell battery. Recycle or dispose of batteries properly.

Perchlorate material

Contains perchlorate material. Special handling may apply. See dtsc.ca.gov/hazardouswaste/perchlorate.

Mercury

The lamp in this product contains mercury and must be recycled or disposed in accordance with local, regional and national legislation.



More information

See smarttech.com/compliance for more information.

SMART Technologies

smarttech.com/support

smarttech.com/contactsupport