SMART Board™ 685ix Interactive Whiteboard System

Configuration and User's Guide

Extraordinary made simple™ | **SMART**™

Product Registration

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

Register online at www.smarttech.com/registration.

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

Interactive Whiteboard Serial Number:_____

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

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Patent No. US5448263; US6141000; US6320597; US6326954; US6337681; US6540366; US6741267; US6747636; US7151533; US7289113; US7499033; CA2058219; and CA2252302. Other patents pending.

12/2009

Introduction

Important Information

Read This Section First

> **NOTE**
>
> If you own a SMART product other than a SMART Board™ 685ix interactive whiteboard system, refer to the installation guide that came with your product for relevant warnings and maintenance instructions.

In this document, "SMART Board 685ix interactive whiteboard system" refers to the SMART Board 685 interactive whiteboard and its UX60 projector, accessories and optional equipment. Before you install and use the SMART Board 685ix interactive whiteboard system, read and understand the safety warnings and precautions in this user's guide, *SMART Board 600 and SBD600 Series Interactive Whiteboard Installation and User's Guide* (document 1414) and *Important Information for SMART Board 685ix Interactive Whiteboard Users* (document 137499). These safety warnings and precautions describe the safe and correct operation of the interactive whiteboard system and its accessories, helping you prevent injuries and equipment damage. You must always ensure that the interactive whiteboard system is being used correctly.

The UX60 projector included with your system is designed to work with certain SMART Board interactive whiteboard models only. Contact your authorized SMART reseller for more information.

Safety Warnings, Cautions and Important Information

⚠ WARNINGS – GENERAL

- Do not climb (or allow children to climb) on any part of your wall-mounted SMART Board interactive whiteboard system.

- Climbing on the interactive whiteboard or projector boom could result in personal injury or product damage. Do not climb on, hang from or suspend objects from the UX60 projector.

- To reduce the risk of fire or electric shock, do not expose any component of your SMART Board interactive whiteboard system to rain or moisture.

- Failure to follow the installation instructions shipped with your SMART product could result in personal injury and damage to the product.

- Make sure that an electrical socket is near your SMART product and remains easily accessible during use.

- When mounting the projector on a framed or hollow wall, you must attach both the mounting bracket and safety tether to a stud to safely support the projector's weight. If you use only drywall anchors, the drywall can fail, resulting in product damage and possible personal injury.

- Ensure that any cables extending across the floor to your SMART product are properly bundled and marked to prevent a trip hazard.

⚠ WARNINGS – PROJECTOR

- Do not stare (or allow children to stare) directly into the beam of light created by the projector. Instruct children not to look in the direction of, or stare at, this beam of light. Encourage users to keep their back to the projector when working at the interactive whiteboard. Before they turn to face the audience, users should step sideways, out of the projector's beam.

- Do not attempt to service the projector other than performing routine lamp replacement. Other than the lamp module, there are no user-serviceable parts inside the unit. Do not open or disassemble the projector as this may cause electric shock.

- This projector detects its remaining lamp life. Replace the lamp when a lamp life warning message appears. If you continue to use the projector after the replacement message appears, the lamp can shatter or burst, scattering glass throughout the projector.

- If the lamp has shattered or burst:

  – Call an [authorized SMART reseller](#) for instructions. Do not attempt to replace the lamp.

  – Do not touch the glass fragments because they can cause injury.

  – Leave and then ventilate the area where the lamp shattered or burst.

  – 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.

- When returning the projector to the wall-mounting bracket, replace all of the screws you removed when you removed the projector. Failure to do so can result in the projector falling from the boom resulting in product damage and personal injury.

⚠ CAUTIONS

- Avoid turning off the projector during the lamp ignition phase because this can lead to premature lamp failure. Before turning off the projector, keep the lamp on for a minimum of 15 minutes after turning it on to preserve the lamp life.

- When you switch the projector off, ensure that the cooling cycle is complete before disconnecting the power. Allow 90 seconds for the projector to complete the cooling cycle.

- Never operate this unit immediately after moving it from a cold location to a warm location. When the unit is exposed to such a change in temperature, moisture can condense on the lens and crucial internal parts. Allow the system to reach room temperature before operation to prevent possible damage to the unit.

- In a high altitude location where the altitude is over 6000' (1829 m), the air is thinner and cooling efficiency is reduced, so use the projector with the fan mode set to High.

- Do not block the projector's ventilation slots and openings.

- Do not place in hot locations, such as near heating equipment. Doing so could cause a malfunction and shorten the life of the projector.

- Do not set up or use the interactive whiteboard system in an area with excessive levels of dust, dirt, humidity or smoke.

- Do not scrub the surface of the mirror with the supplied cleaning cloth. Use the cloth with a light touch. Do not put cleaning solvents on the mirror or cleaning cloth.

- Cycling power to the projector repeatedly can lock or damage the interactive whiteboard system. After you turn off the system, wait at least 15 minutes for cooling before turning on the system.

- You must connect the USB cable that came with your SMART Board interactive whiteboard to a computer that has a USB compliant interface and that bears the USB logo. In addition, the USB source computer must be compliant with CSA/UL/EN 60950 and bear the CE mark and CSA and/or UL mark(s) for CAS/UL 60950. This is for operating safety and to prevent damage to the SMART Board interactive whiteboard.

- Do not add extra weight or apply pressure to the UX60 projector boom, the wall-mounted interactive whiteboard or its pen tray. SMART Technologies designed the brackets to support only the weight of the components during normal use.

- If the interactive whiteboard system requires replacement parts, make sure that the service technician uses replacement parts specified by SMART Technologies, or parts with the same characteristics as the original.

☞ **IMPORTANT**

- Turn off the SMART product before cleaning it.

- Using the UX60 projector system near a TV or radio can cause interference to the images or sound. If this happens, move the TV or radio away from the projector.

- Do not place the interactive whiteboard system near any appliance that generates a strong magnetic field.

- Do not place the interactive whiteboard system in direct sunlight.

- The screws that secure the interactive whiteboard to the wall are located directly behind the pen tray. The pen tray must be removed before you can remove the interactive whiteboard. When you secure the pen tray, you also secure the interactive whiteboard.

- The SMART Board 685ix interactive whiteboard system does not include speakers. Consult your authorized SMART reseller to determine your audio output options.

- Disconnect the product from its power source when it is not used for a long period.

Transporting the SMART Board 685ix Interactive Whiteboard System

If you need to ship any part of your SMART Board 685ix interactive whiteboard system, repack it with the original packaging. If the original packaging is no longer available, you can purchase replacement packaging from your authorized SMART reseller.

If you prefer to use your own packaging materials, make sure that you adequately protect the unit. Ship the interactive whiteboard in an upright position to deter shippers from placing heavy objects on it.

Contents

Chapter 1

About Your SMART Board 685ix Interactive Whiteboard System

The SMART Board™ 685ix interactive whiteboard system combines the wall-mounted, ultra-short-throw UX60 projector with a SMART Board 685 or SBD685 interactive whiteboard.

Topics in this chapter describe the features and accessories you can use with your SMART Board 685ix interactive whiteboard system, as well as other compatible products available from SMART.

SMART Board 685ix Interactive Whiteboard System Features

Your SMART Board 685ix interactive whiteboard system uses the UX60 WXGA (16:10) ultra-short-throw, high-offset projector. Your SMART Board 685ix interactive whiteboard system delivers high-definition, high performance interactivity that is virtually shadow-free and glare-free.

When the UX60 projector displays an image from a computer on the touch-sensitive interactive whiteboard, you can draw over the image in digital ink using a pen or your finger. This projector also supports video and audio connections from a variety of devices, including DVD and Blu-ray™ disc players, VCRs, document cameras, digital cameras and high definition sources, and can project media from these sources onto the interactive screen.

When you use SMART Notebook software with your 685ix interactive whiteboard system, you can write over any Ink Aware applications in digital ink using a pen tray pen or your finger, and then save these notes either in the application or to a SMART Notebook file for future reference and distribution.

SMART Board Interactive Whiteboard Features

SMART Board 685 and SBD685 interactive whiteboards include many features of other SMART Board interactive whiteboards, such as a resistive touch screen and a pen tray. The SB685 and SBD685 perform best with the UX60 projector because of its exceptional color performance, aspect ratio, input response and short-throw image distance.

Other features of the interactive whiteboard include:

- a SMART Pen Tray that automatically detects when you pick up a pen tray pen or the eraser

- pen tray buttons that activate Help functions and, when used with a computer, activate the on-screen keyboard and right-click functions

- a durable hard-coated, tear-proof surface that is optimized for projection and compatible with dry-erase markers, and that cleans easily with whiteboard cleaner

- a standard USB interface to connect the SMART Board interactive whiteboard to the extended control panel (ECP)

- a security device to prevent theft of the pen tray or the interactive whiteboard

Introducing SMART Board SBD600 Series Interactive Whiteboards

SMART Board interactive whiteboards are now available in two series. The SMART Board 600 series is the standard and most popular interactive whiteboard; the SMART Board SBD600 series features Dual-User mode, which enables two people to touch or write simultaneously on either side of the interactive screen in SMART Notebook software. The UX60 projector is compatible with both the SMART Board 685 and SBD685 interactive whiteboards. The wide-screen format of the UX60 projector is ideal for supporting Dual-User mode.

SMART Board SBD600 series interactive whiteboards have a unique logo on the lower right hand side of the board's bezel to distinguish them from standard SMART Board 600 series interactive whiteboards.

SBD600 series

NOTE
Due to its wide screen format, the UX60 projector is not compatible with other interactive whiteboard model sizes such as SMART Board SB640, SB660, SB680, SB690, SBD680 or SBD690 interactive whiteboards.

UX60 Projector System Features

The UX60 projector system includes an ultra-short-throw projector for use with SMART Board 685 interactive whiteboards, an extended control panel (ECP), an ECP harness cable and a sturdy support system for classroom environments. The features of the projector system include:

- A wall-mounted, high-offset UX60 projector engine that uses single chip DLP® technology by Texas Instruments®, providing BrilliantColor™ performance, High Contrast, and Gamma 2.1 correction with Bright Classroom, Dark Classroom, sRGB, User and SMART Presentation modes

- 16:10 aspect ratio

- 2000 ANSI Lumens (typical)

- PAL, PAL-N, PAL-M, SECAM, NTSC, NTSC 4.43, SDTV (480i/p and 576i/p), HDTV (720p and 1080i) video system compatibility

- Native 1280 × 800 resolution

- Apple Macintosh, iMac and VESA® RGB video format standard compatibility

- Remote management via network through an RJ45 cable

  OR

  Remote management via a serial RS-232 interface

- Self-protection timer for a hot re-strike of the projector lamp

- Protected cable routing through the projector housing, a cable cover and wire management bundle to prevent tampering and clutter

- Cleaning cloth for use on the projector lens and system mirror

- A secure mounting and installation system that includes:

  – Two projector padlock loops

  – Mounting hardware for solid masonry or framed wall installations

- Templates and instructions for positioning the system safely

Your UX60 projector's connection panel supports the following connectors:

- A 3-pin mini-DIN connector

- A 4-pin powered mini-DIN connector and 7-pin mini-DIN connector

- S-video input and associated dual-channel audio input (two RCA jacks)

- HDMI™ connector input

- Two HD-DB15 (VGA) inputs and associated audio input (3.5 mm jack) and one HD-DB15 (VGA) output and associated audio output (3.5 mm jack) with additional interface support for Component YPbPr and Component YCbCr inputs with proper adapters (not included)

- RJ45 cable for Ethernet connections

- RS-232 connector

- USB B receptacle for service access

In addition, the UX60 projector system includes a fully labeled ECP, which includes the following connection receptacles for the ECP harness cable and your source inputs:

- The ECP harness cable connection receptacles that include:

    – A DB15F receptacle for analog video input, located behind the whiteboard

    – USB A and B receptacles for whiteboard and wire management bundle connections, located behind the whiteboard

    – A composite video input (RCA jack) and associated dual-channel audio input (two RCA jacks) on the front of the ECP

    – A USB A receptacle on the front of the ECP

Standard Accessories

SMART provides the following accessories with your SMART Board 685ix interactive whiteboard system.

Standard SMART Board Interactive Whiteboard Accessories

Pen Tray Tools

The pen tray tools include four pens and an eraser. The pens have a rubberized grip area, colored to match the four colors of digital ink: black, green, red and blue. You can use dry-erase markers instead of the supplied pens, as long as they're a similar shape and don't scratch or mark the surface of the interactive whiteboard. If the pens you provide don't reflect infrared light, the pen tray sensor might not detect the presence of the pen. You can use EXPO® markers or other substitutes.

Pens from earlier interactive whiteboards weren't designed to reflect infrared light, so the pen tray might not detect them reliably. You can wrap light-colored tape around the pen to improve the reflection of infrared light and to help with tool detection.

Eraser

The eraser resembles a rectangular chalkboard eraser. You can use a substitute eraser, provided it has a similar shape, reflects infrared light and doesn't scratch or mark the surface of the interactive whiteboard.

Standard UX60 Projector Accessories

Remote Control

The remote control lets you control the system and set up your UX60 projector. Use the remote control to access menu options, system information and input selection options.

ECP Assembly

The interactive whiteboard system's ECP features controls for power, source selection, volume control and an integrated USB hub. Direct inputs supported include:
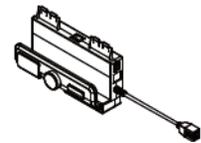
- Interactive whiteboard control interface (RJ11 6-wire jack)

- One USB hub with two USB A receptacles

- One USB B receptacle for connecting the primary computer and one USB B receptacle for connecting the secondary computer

- A composite video input (RCA jack) and associated dual-channel audio input (two RCA jacks)

ECP Harness Cable

A specialized harness cable allows input to be routed to the projector from the ECP. The harness cable includes:

- A DB15M plug for analog video input

- A composite video output (RCA plug) and associated dual-channel audio input (two RCA plugs)

- A 4-pin power-mini-DIN connector and 7-pin mini-DIN connector for ECP functions

Wire Management Bundle

The UX60 projector includes a wire management bundle for easy connection to the projector with the provided USB, HD-DB15 (VGA) connectors and audio inputs from a secondary computer, such as a laptop, or a primary computer, such as a permanently installed tower or desktop.
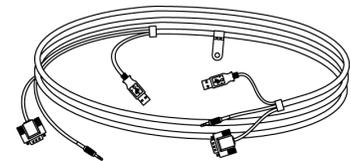
Cleaning Cloth Kit

The UX60 projector has special cleaning requirements and includes the only approved cleaning cloth for use on the projector mirror or lens.

⚠ **CAUTIONS**

- Never touch the mirror with your hands or a brush. Do not scrub the surface of the mirror with the supplied cleaning cloth. Use the cloth with a light touch. Do not put cleaning solvents on the mirror or cleaning cloth.

- Do not spray cleaners, solvents or compressed air directly on the projector.

Optional Accessories

SMART continually introduces new products and accessories to make lessons and presentations easier to give. These products allow you to deliver your message with more impact and less support time. For more information on optional accessories, contact your authorized SMART reseller.

Projection Audio System (SBA-L) for the UX60 Projector

Your interactive whiteboard system requires an audio system to deliver presentations with sound. The SBA-L system consists of a pair of 15-watt, stereo-amplified speakers specifically designed for use with the UX60 projector on SMART Board 685ix interactive whiteboard systems. You can control volume directly through the ECP and the remote control.

GoWire SMART Notebook Software Auto-launch Cable (USB-GW)

Your GoWire cable contains SMART Notebook software and launches it automatically on a guest computer, providing full access to all interactive whiteboard software tools without installing SMART Notebook software.

Active USB Extension Cables (USB-XT)

You can connect up to three 16' (5 m) active USB extension cables to extend your interactive whiteboard's USB connection to a maximum of 48' (15 m).

Cat 5 to USB Cable Extender (CAT5-XT)

Use the SMART Cat 5 to USB cable extender to extend your interactive whiteboard's USB connection up to 87' (26.5 m) using RJ45 Cat 5 cable (not included). The extender includes two 6' (1.8 m) USB cables to connect your computer and your interactive whiteboard to the extender units.

Information Control Accessories

SMART Hub VE220

The SMART Hub VE220 is a device you connect to SMART Board interactive whiteboards, SMART Board for Flat-Panel Displays interactive whiteboards, Actalyst™ interactive overlays and SMART Podium™ interactive pen displays. The SMART Hub VE220 is:

- equipped with Whiteboarding and digital ink features

- easily upgradable to the SMART Hub SE240

SMART Hub SE240

The SMART Hub SE240 is available as a stand-alone product, or as an upgrade package to the SMART Hub VE220. In addition to whiteboarding and using digital ink, with the SMART Hub SE240 you can:

- collaborate with others using SMART Bridgit™ conferencing software

- view and work with up to two computers or up to two video source inputs on your SMART products' displays

- manage sound output to an audio system (not included)

Chapter 2

Before Installing Your SMART Board 685ix Interactive Whiteboard System

Consult the SMART Board 685ix interactive whiteboard system installation documents that came with your UX60 projector for instructions on how to install your products and how to use the mounting template.

☞ **IMPORTANT**

Use the instructions in the UX60 projector box to install your interactive whiteboard, projector and ECP. The instructions in your SMART Board 685 interactive whiteboard product box do not include instructions for installing the UX60 projector or ECP.

This chapter includes requirements to consider before you install a SMART Board 685ix interactive whiteboard system. Topics covered include:

- *Environmental Requirements* on page 10

    - *Humidity* on page 10

    - *Water and Fluid Resistance* on page 10

    - *Dust and Scratching* on page 11

    - *Electrostatic Discharge (ESD)* on page 11

    - *Cables* on page 11

    - *Conducted and Radiated Emissions* on page 11

    - *Choosing a Location* on page 11

Environmental Requirements

Before installing your SMART Board 685ix interactive whiteboard system, review the following environmental requirements.

SMART Board 685ix interactive whiteboard systems can operate in a temperature range of:

- 41°F to 95°F (5°C to 35°C) from sea level to an altitude up to 6000' (0 m to 1829 m)

- 41°F to 86°F (5°C to 30°C) from 6000' to 9800' (1829 m to 2987 m).

The product can withstand storage temperatures from -4°F to 104°F (-20°C to 40°C).

> 🔺 **CAUTIONS**
> - Never operate this unit immediately after moving it from a cold location to a warm location. When the unit is exposed to such a change in temperature, moisture can condense on the lens and crucial internal parts. Allow the system to stabilize to room temperature before operation to prevent possible damage to the unit.
>
> - In a location at an altitude over 6000' (1829 m), the air is thin and cooling efficiency is reduced, so use the projector with the fan mode set to High.
>
> - Do not place in hot locations, such as near heating equipment. Doing so could cause a malfunction and shorten the life of the projector.

Humidity

SMART Board 685ix interactive whiteboard systems can operate between 30% and 70% humidity, non-condensing. Humidity above 80% can cause slight wrinkling in the sheet of the SMART Board 685ix series interactive whiteboard. The wrinkles disappear once the humidity lowers.

Water and Fluid Resistance

SMART Board 685ix interactive whiteboard systems are for indoor use only and don't meet any salt-spray or water ingress requirements. Don't pour or spray any liquids directly onto the interactive whiteboard, the UX60 projector or any of its sub-components. These liquids could get into areas where they could damage sensitive electronic components. Refer to the chapter on maintenance (beginning on page 49) for detailed instructions on cleaning your system's components.

Dust and Scratching

SMART Board 685ix interactive whiteboard systems are for use in office and
classroom environments and are not for industrial use, where heavy dust and
pollutants can cause malfunctions or impaired operation. The design is for pollution
degree 1 (P1) as per EN61558-1, which is defined as "No pollution or only dry
non-conductive pollution."

Electrostatic Discharge (ESD)

SMART Board 685ix interactive whiteboard systems meet the requirements of
EN61000-4-2 severity level 4 for direct and indirect ESD. No malfunction or damage
up to 8kV (both polarities) with a 330 ohm, 150 pF probe (air discharge). Unmated
connectors meet 4kV (both polarities) for direct (contact) discharge.

Cables

All cables you connect to the SMART Board 685ix interactive whiteboard system
should be shielded, to prevent potential accidents and degraded video and
audio quality.

Conducted and Radiated Emissions

The narrowband-radiated electric field from SMART Board 685ix interactive
whiteboard systems meets the limits for Class A performance as defined in EN55022/
CISPR 22.

Choosing a Location

Choose a location for your SMART Board 685ix interactive whiteboard system far
from bright light sources, such as windows or overhead lighting. Bright light sources
can cause distracting shadows on the interactive whiteboard and can reduce the
contrast of the projected image.

Locate a wall with a flat, regular surface and minimum clearance to accommodate
your interactive whiteboard system. Install the UX60 projector and the SMART Board
interactive whiteboard on the same flat surface. For best presentation alignment,
mount your interactive whiteboard system in a location central to your audience's
viewing direction. For mobile installation or adjustable installation options, contact
your authorized SMART reseller.

Recommended Mounting Heights

SMART includes a mounting template with each of its SMART Board 685ix
interactive whiteboard systems. If you lose this template, contact your authorized
SMART reseller. Using this template ensures that you:

• Mount the UX60 projector at a safe height for head space clearance, while
   maintaining enough space for airflow and installation access above the unit

• Position the projector at the correct height above the 685 series interactive whiteboard to align the projected image with the touch screen

Dimensions on the template recommend a distance from the floor suitable for adults of average height. Although you should consider the general height of your user community when you choose a position for the interactive whiteboard, consult your local regulations before mounting the unit. When mounting the projector on a framed wall, you must attach both the mounting bracket and safety tether to a stud to safely support the projector's weight. If you use only drywall anchors, the drywall can fail, resulting in product damage and possible personal injury.

Chapter 3

Using Your UX60 Projector

This chapter describes the components of your UX60 projector, and the connections on the projector and ECP. It also explains how to set up your remote control and adjust your projector options.

Topics covered include:

Components of the UX60 Projector

Below is a list of UX60 projector components.
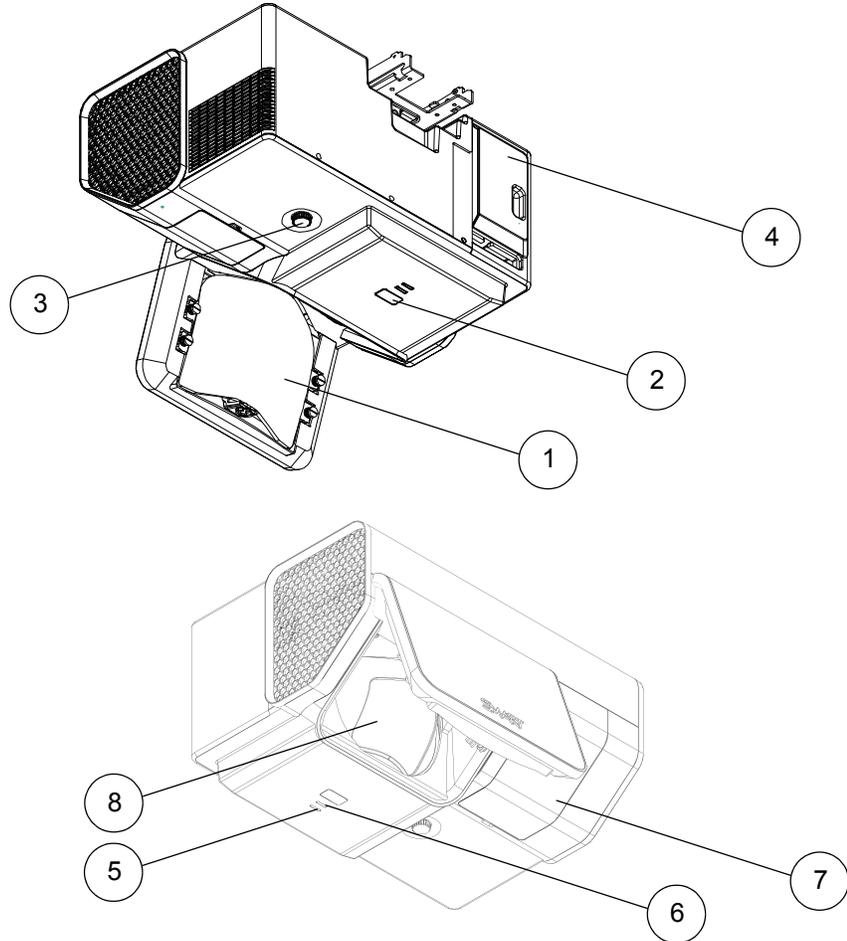
1. Image reflection mirror

2. Infrared receiver

3. Focus knob

4. Input/Output (I/O) cover

5. Diagnostic indicator LED

6. Power indicator LED

7. Lamp cover

8. Lens

UX60 Projector Connection Diagrams

The following diagram and list describe the projector's connection ports and the types of input you can connect to the projector. Remove the input/output cover on the left side of the projector to access the connection panel.
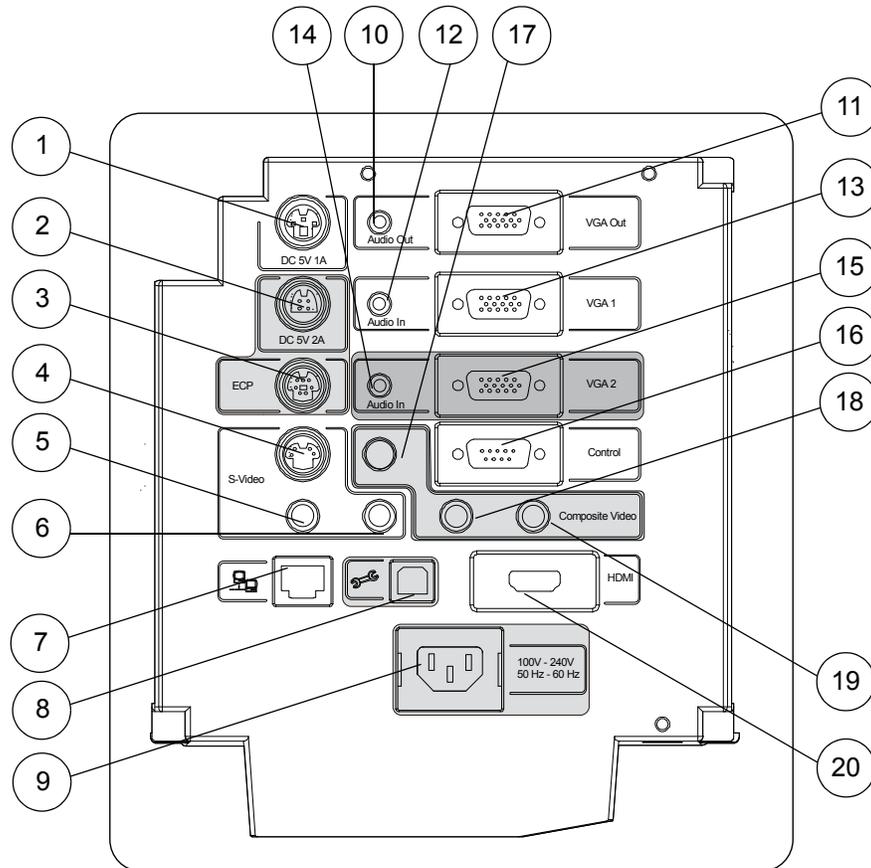
1. 3-pin mini-DIN 5V/1A connector

2. 4-pin power-mini-DIN 5V/2A connector (reserved for ECP harness cable)

3. 7-pin mini-DIN connector (reserved for ECP harness cable)

4. S-video input connector

5. RCA jack audio-left input (for S-video input connector)

6. RCA jack audio-right input (for S-video input connector)

7. RJ45 jack (for network connections)

8. USB B receptacle (reserved for service access)

9. Power inlet

10. 3.5 mm audio-output connector (for VGA Out connector)

11. HD-DB15 (VGA Out) output connector

12. 3.5 mm audio-input connector (for VGA 1 connector)

13. HD-DB15 (VGA 1) input connector (computer analog signal/component video input)

14. 3.5 mm audio-input connector (reserved for wire management bundle)

15. HD-DB15 (VGA 2) input connector (reserved for wire management bundle)

16. RS-232 connector

17. RCA jack composite video input (reserved for ECP harness cable)

18. RCA jack audio-left input (reserved for ECP harness cable)

19. RCA jack audio-right input (reserved for ECP harness cable)

20. HDMI connector input

Remote Control

Remote Control Battery

Follow this procedure to use the remote control for the first time or to replace the remote control battery.

⚠ **WARNINGS**

- Reduce the risk associated with a leaking battery in your projector's remote control:

    – Use only the specified coin-cell type battery.

    – Orient the battery's plus (+) and minus (-) 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 if the battery has a leak.

- Dispose of the exhausted battery and product components in accordance with applicable regulations.

To access or replace the remote control battery

1. Turn over the remote control.

2. Hold down the side release on the left side of the battery holder and pull the battery holder completely out of the remote control.
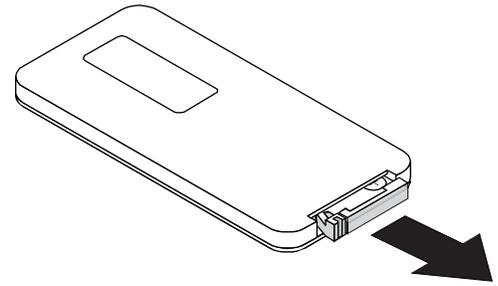
3. Insert a CR2025 coin cell battery into the battery holder.

   👉 **IMPORTANT**

   Remove the plastic sheet inside the battery holder before you insert the battery.
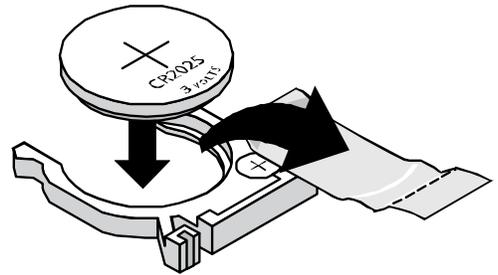
   💡 **TIP**

   Make sure the positive (+) and negative (-) signs on the battery terminals align with the correct signs on the battery holder.
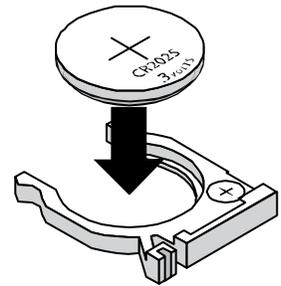
4. Re-insert the battery holder into the remote control.
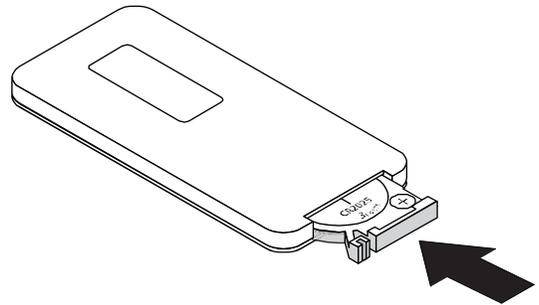
Using Your Remote Control

The UX60 projector remote control enables you to access on-screen projector menus and change projector settings. You can use the remote control's **Power** ⏻ button (or, alternatively, the ECP **Power** ⏻ button) to turn on or turn off the projector system. You can also use the remote control's **Input** button (or, alternatively, the ECP's **Input** button) to switch sources on the projector.
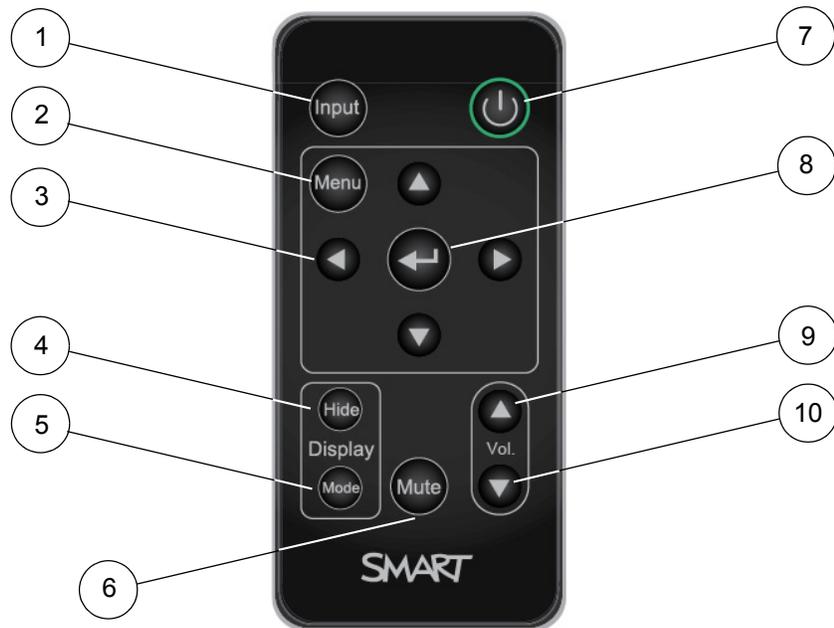
Number	Function	Description
1	Input	Select an input source
2	Menu	Show the projector menus
3	◀ (Left), ▶ (Right), ▲ (Up) and ▼ (Down) arrows	Change the menu selections and adjustments
4	Hide	Hide or display the image
5	Mode	Select a display mode
6	Mute	Control mute settings from your audio output device (not included)
7	⏻ (Power)	Turn on or turn off the projector
8	⏎ (Enter)	Accept the selected mode or option
9	▲ (Volume Up)	Increase the volume
10	▼ (Volume Down)	Decrease the volume

Adjusting Projector Settings

You can access the projector settings by pressing the remote control's **Menu** button and accessing the on-screen display. You can also access these settings by connecting a network cable to the projector, as described on page 24.

ℹ️ **NOTE**

There are no projector menu options on the ECP. Keep your remote control in a safe place, as the ECP is not meant as a substitute for the remote control.

To adjust settings using the remote control

1. Press the **Power** button 🔘 once to turn on the projector.

2. Press the **Input** button to select an input source.

3. Press the **Menu** button to display the projector menu.

   a. Press the **Left** ◀ or **Right** ▶ button to access a menu option, move between menu option settings and select number value settings.

   b. Press the **Up** ▲ or **Down** ▼ button to select the relevant menu option or adjustment.

   c. Press **Enter** ↵ to accept the selected mode or option you choose.

4. Press the **Hide** button to hide or display the source image.

5. Press the **Mode** button to cycle through display modes: Bright Classroom, Dark Classroom, sRGB, User or SMART Presentation.

6. Press the **Mute** button to temporarily mute or un-mute the audio output from your speakers (not included).

7. Press the **Up** ▲ or **Down** ▼ arrows in the volume region to adjust the volume.

8. Press the **Power** button 🔘 twice to turn off the projector.

Extended Control Panel (ECP)

Understanding Your ECP Functions

Your ECP gives you control of basic options while you're next to the interactive whiteboard system. Additionally, you can connect some peripheral device sources (or outputs) directly to the ECP, as described on page 30. You can use the ECP's **Power** 🔘 button (or, alternatively, the remote control's **Power** 🔘 button) to turn on or turn off the projector system. You can use the **Input** button (or, alternatively, the remote control's **Input** button) to switch sources on the projector.

☞ **IMPORTANT**

- The ECP is not meant as a substitute for the remote control. There are no projector menu options on the ECP, so keep your remote control in a safe place.

- Do not disconnect existing USB plugs on the ECP to connect other peripherals, because you could disconnect controls for the interactive whiteboard, host computer or wire management bundle.

ECP Connection Diagram

Front View

Rear View
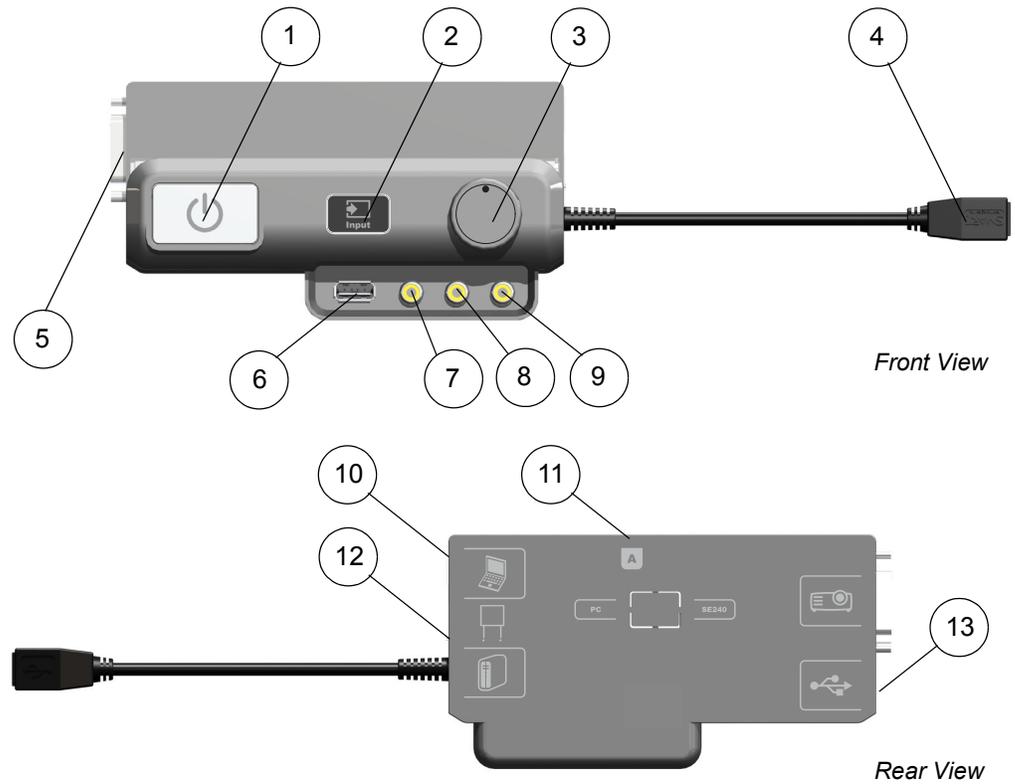
Number	Function
1	⏻ Power
2	Input
3	Volume control
4	USB B receptacle (for your primary computer)
5	DB15 socket (ECP harness cable only)
6	USB A receptacle (for USB storage devices)
7	RCA jack composite video input (for peripheral devices such as a DVD or Blu-ray disc player)

Number	Function
8	RCA jack audio-right input
9	RCA jack audio-left input
10	USB B receptacle (for secondary computers such as a laptop)
11	RJ11 6-wire jack (for serial controller connector cable)
12	USB A receptacle (SMART Board interactive whiteboard only)
13	USB A receptacle (for any USB peripheral, up to 500mA)

Chapter 4

Integrating Other Devices with Your Interactive Whiteboard System

This chapter provides info on integrating your SMART Board 685ix interactive whiteboard system with peripheral devices, precautions to follow when connecting a new device to your interactive whiteboard system and basic software installation advice.

Topics covered include:

Connecting Computers and Peripheral Devices to Your UX60 Projector

You can connect a variety of peripheral devices to your UX60 projector, including DVD or Blu-ray disc players, VCRs, document cameras, digital cameras and high-definition sources, as well as peripheral device outputs, such as a secondary projector or a flat-panel display and powered speakers.

Additionally, you can externally manage projector settings by connecting a computer or room control system to the RS-232 serial interface, or by connecting an RJ45 network cable to the UX60 projector's modular cable jack. Using a computer connection, room control system, or a network connection you can select video inputs, start up or shut down the interactive whiteboard system and request information such as projector lamp usage, current settings and network addresses.

NOTES
- When connecting these devices, do not disconnect any existing connections to the ECP, SMART Board interactive whiteboard or other input devices.

- If you have peripheral devices that do not use a S-video connector, an HDMI connector or an RCA composite video jack, or if your device has an audio connection that does not use RCA jacks or 3.5 mm plugs, you might need to purchase third-party adapters.

Attaching Sources and Outputs to Your UX60 Projector

If you want to permanently connect a computer to your SMART Board interactive whiteboard system, SMART recommends that you use your own cables to connect your computer directly to the UX60 projector. Follow these instructions if you have a peripheral device to connect to your interactive whiteboard system, such as powered speakers, a network connection, or a permanently installed device using an HDMI connector, S-video connector or HD-DB15 connector. For room control and networking, connect an RJ45 cable or a DB9 serial cable to your interactive whiteboard system.

Permanently Connecting Your Peripherals to the UX60 Projector
To permanently connect your peripherals, you must first access the projector's connection panel, remove the interactive whiteboard's pen tray and pen tray bracket securing screws, and then route the cables to your projector. You must remove the SMART Board interactive whiteboard to route the cables without interference. Following installation of the cables, you must reattach the interactive whiteboard, the pen tray, and the connection panel to the projector.'

⚠️ **WARNINGS**

- Two people are required to mount your SMART Board product because it may be too heavy for one person to safely maneuver. When you lift your interactive whiteboard, you and your assistant should stand on either side of the screen, supporting its weight at the bottom corners while balancing the top with your other hands.

- There are no user-serviceable parts inside the pen tray. Only qualified personnel should disassemble the pen tray's printed circuit boards, and this procedure must be done with proper electrostatic discharge (ESD) protection.

🔺 **CAUTIONS**

- If you need to lean your interactive whiteboard against a wall before you mount it, make sure that it remains in an upright position, resting on its pen tray brackets, which are designed to sustain your interactive whiteboard's weight.
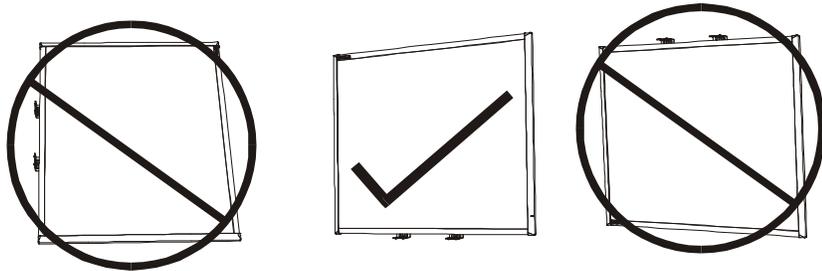
- Do not rest your interactive whiteboard on its side or on the top of its frame.

- If dust or small items prevent the pen tray buttons from being pressed or cause constant button contact, remove the obstructions carefully.

ℹ️ **NOTE**

- Measure the distance between your projector and the peripheral or input/output source you want to connect. Make sure each cable is long enough, has plenty of slack and can be placed safely in your room without presenting a tripping hazard.

To access the projector's connection panel

1. Turn off your SMART Board 685ix interactive whiteboard system.

2. Remove the two screws on both sides of the cable covers on the projector's wall-mounting bracket.
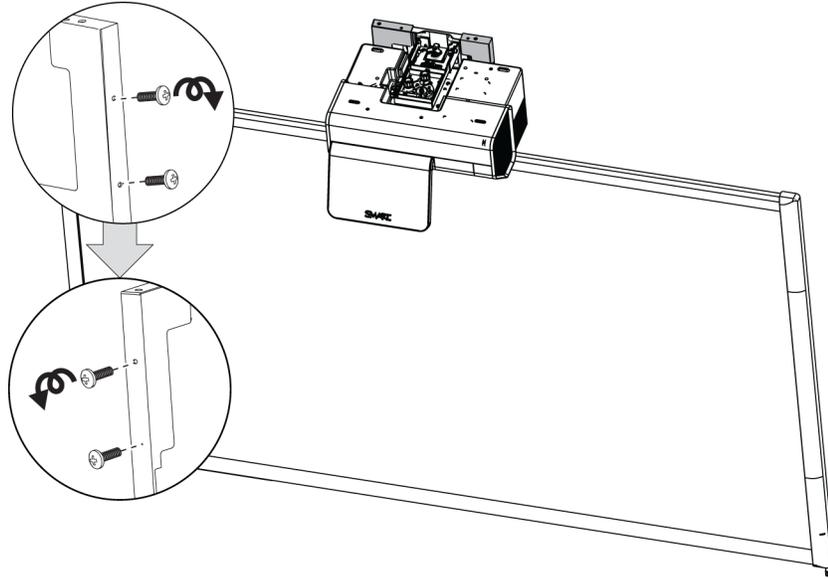
3. Remove the cable covers by gently pulling their sides away from each other.

4. Remove the input/output cover by sliding it away from the projector.
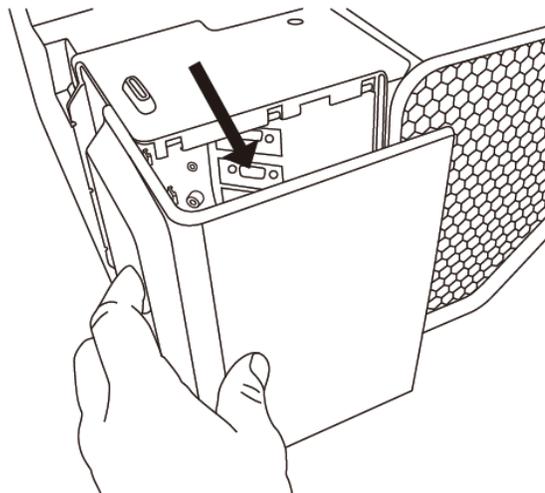
5. Release the latch on the wire management clip attached to the projector's wall-mounting bracket, beneath the projector.

To remove the interactive whiteboard's pen tray

1. Turn off your interactive whiteboard by disconnecting the USB cable to your computer or by disconnecting the expansion module's power supply, as appropriate.

2. Remove the pens and the eraser from the pen tray.

3. Reach under the pen tray and disconnect the modular cable.

4. Remove the two screws securing the pen tray to its brackets, if attached. For more information see *To lock the pen tray to the interactive whiteboard* on page 47.

5. If you secured the pen tray using a Kensington® lock or similar device, unlock and remove the lock.

6. Reach under the pen tray and pull down on the two large plastic clips. Because the ends of these clips project slightly downwards, they're easy to locate.

Plastic Clips
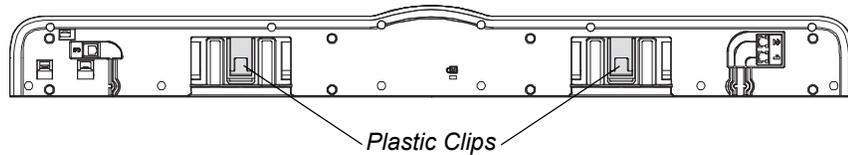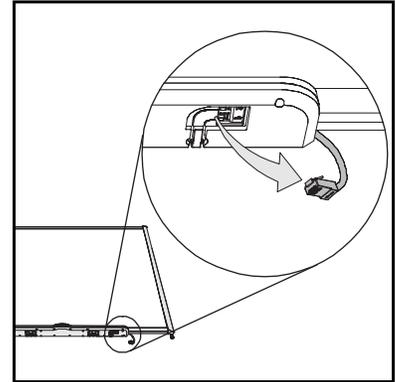
The Pen Tray from the Bottom

7. While applying downward pressure to the clips, gently slide the pen tray toward you until it detaches from the two L-shaped metal brackets.

To remove the interactive whiteboard

1. Disconnect all cables from the ECP.

2. Remove the two screws on the L-shaped metal brackets securing the bottom of the interactive whiteboard to the wall.

3. If you have attached speakers or other peripherals to the interactive whiteboard, disconnect the speakers' or peripherals' cables, and make sure any exposed or dangling cable doesn't interfere with the removal of the board.

4. With the help of another person, remove your interactive whiteboard from the two wall-mounting brackets, and either lay it on the ground or lean it up against a wall.
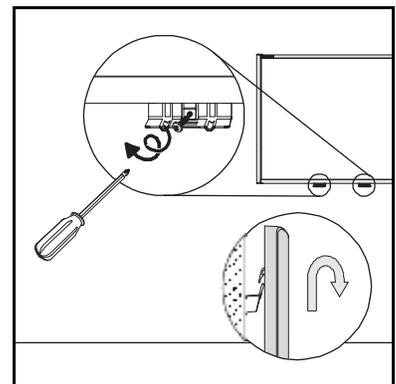
To connect cables to your UX60 projector

1. Connect your peripheral cables to the projector, at the connection panel.

   👉 **IMPORTANT**

   Don't connect any peripherals into the connectors marked in grey on the diagram on page 15, because these connectors are reserved for the ECP harness and wire management bundle.

2. Place the cables across the wire management clip. Don't close the latch on the wire management clip.

3. Pass the cables between the two wall-mounting brackets behind the interactive whiteboard. Make sure the cables don't rest on the wall-mounting brackets.

Cabling between the two wall-mounting brackets for the SMART Board 685ix interactive whiteboard system
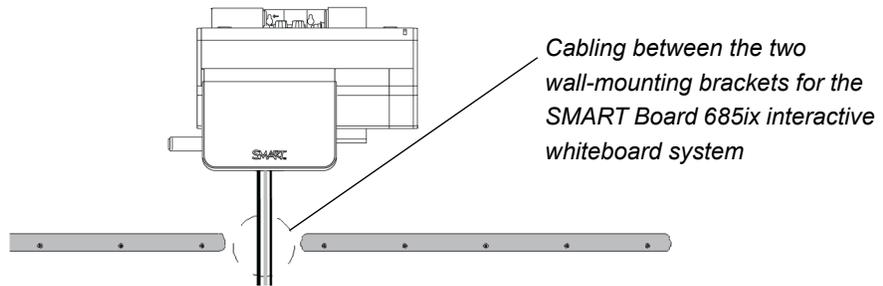
4. Space your peripheral cables equally and give the cables some slack between the wire management clip and projector. Close the latch on the wire management clip, ensuring that the cables aren't crossed.

Make sure cables aren't crossed
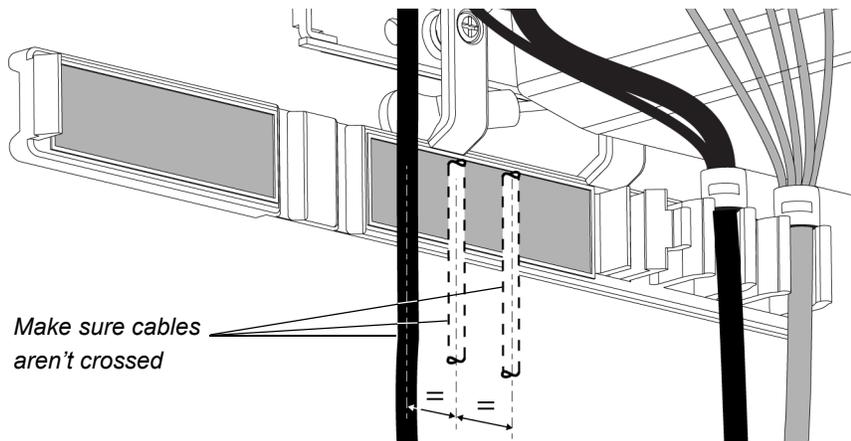
5. Connect the other end of the cables to your peripheral devices.

   👉 **IMPORTANT**

   If you are connecting RS-232 cables, connect the other end of the cables to your device or computer only after reading the serial communication procedures in *To configure your computer's serial interface* on page 72, and after completing this procedure.

6. Reposition the cable covers on the projector's wall-mounting bracket by gently pushing their sides toward each other.

7. Reattach and tighten the four screws on either side of the cable covers you removed in step 2 of the procedure on page 26.

8. Reposition the input/output cover by sliding it towards the projector.

To reattach your interactive whiteboard

1. With the help of another person, hang your interactive whiteboard on the two wall-mounting brackets.

2. Secure the L-shaped metal brackets to the wall anchors with the screws you removed in step 4 of the procedure on page 27.

   ℹ NOTE

   If you want to lock your interactive whiteboard with a security cable, see *To lock the pen tray to the interactive whiteboard* on page 47 before securing these brackets.
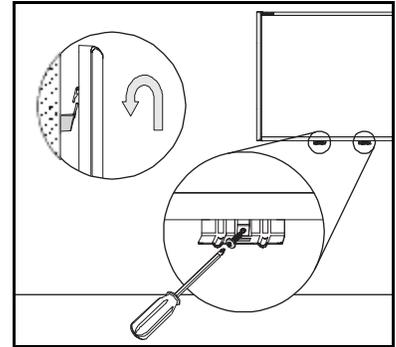
3. Align the pen tray with the two L-shaped metal brackets, and then slide it toward the wall until it rests snugly against the bottom frame of your interactive whiteboard.

   The pen tray clicks into place.

4. Optionally, attach security screws to the pen tray. For more information see *To secure the pen tray to the pen tray brackets* on page 48.
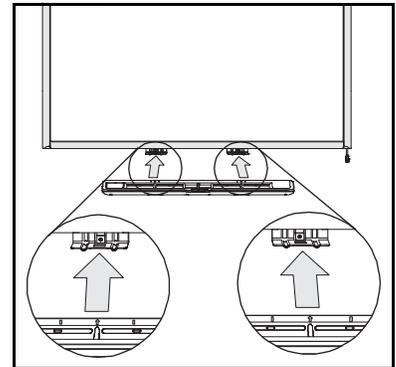
5. Route the modular I²C cable through the cable management channel under the lower-right end of the pen tray, and then connect it to receptacle 1.

6. Press the cable into the cable management channel on the bottom of the tray. This step protects the modular cable's RJ11 connector from damage if the pen tray is removed without first disconnecting the cable.

7. Place the four pens and the eraser into their respective slots in the pen tray.

8. In the unlikely event that the image alignment has been altered, adjust the image according to the procedure in *Aligning the Image After Installation* on page 42.
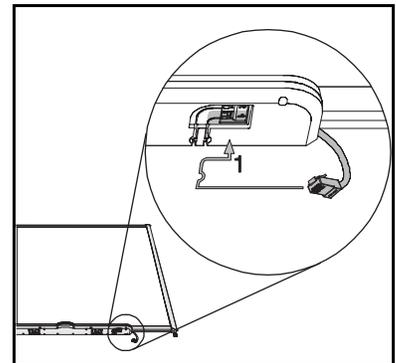
Temporarily Connecting Devices to Your Interactive Whiteboard System

Attaching Temporary Sources and Outputs to Your ECP

Follow these instructions if you have a peripheral device to connect to your interactive whiteboard system for a short time, such as a DVD player or a USB device.

> **NOTES**
>
> - Measure the distance between your projector and the peripheral you want to connect. Make sure each cable is long enough, has plenty of slack and can be placed safely in your room without presenting a tripping hazard.
>
> - Don't disconnect any existing USB cables, because some USB ports are reserved for the ECP harness, wire management bundle, and the interactive whiteboard's serial controller.
>
> - Don't connect SMART Board Audio (SBA) USB speakers to the ECP. Connect these speakers to the projector connection panel using a dual-channel (left and right) RCA plugs to 3.5 mm cable (not included).
>
> - The composite video connector and associated dual channel audio inputs on the ECP are for input only. These RCA jacks don't provide an output signal.

To attach a temporary source or output to your UX60 projector

1. If you have speakers installed, turn the volume dial on the ECP all the way down to prevent buzzing or a spark.

2. Connect your peripheral device's input cables or USB interface to the ECP.

3. Switch input sources to the peripheral by pressing the **Input** button on the ECP or remote control.

   OR

   Control your USB peripheral's output through your computer or optional SMART Hub.

   > **IMPORTANT**
   > If your USB device does not work, the device may be malfunctioning or incompatible, or the USB port may be disabled. See Appendix A: *Disabling USB Communications* on page 103.

4. Restore the volume on the ECP's volume dial.

Connecting Your Computer to the Wire Management Bundle

Your SMART Board 685ix interactive whiteboard system includes a wire management bundle specifically designed for connecting secondary computers such as a laptop.

> **NOTES**
>
> • Place your computer on a flat surface near the interactive whiteboard system.
>
> • Measure the distance between your projector and the computer you want to connect. Make sure each cable is long enough, has plenty of slack and can be placed safely in your room without presenting a tripping hazard.
>
> • If you need to place your guest or computer further away from the interactive whiteboard system, consider purchasing the extension accessories listed on page 6.

To connect your computer to the wire management bundle

1. Connect your secondary computer to the wire management bundle's HD-DB15 (VGA) input connector, 3.5 mm audio connector and USB A plug.

2. Switch the projector's input source to **VGA2** by pressing the **Input** button on the ECP or remote control.

   > **IMPORTANT**
   >
   > If you are connecting a laptop, it can experience a partial, scrolling or incorrectly displayed image. If this occurs, you need to enter your laptop's display recognition mode. Refer to your laptop's instructions for more information, or contact your laptop manufacturer's technical support department.

Video Format Compatibility

The UX60 projector has a native video format and various video format compatibility
modes. You can change image appearances for certain formats and compatibilities.

Native Video Format

The following table lists the UX60 projector's native VESA RGB video format.

Resolution	Mode	Aspect Ratio	Refresh Rate (Hz)	Horizontal Frequency (kHz)	Pixel Clock (MHz)
1280 × 800	WXGA	16:10	60	48	83.5

Video Format Compatibility

The following table lists the UX60 projector's compatible VESA RGB video formats, by
resolution, which you can further alter by using the aspect ratio command described
on page 98. The **Match Input** command matches the projector's aspect ratio to the
input's aspect ratio, with black bands appearing along the top and bottom edge of the
screen horizontally, in letterbox format, or with black bands appearing along the left
and right edge of the screen vertically, in pillarbox format. The **Fill Screen** command
produces an image that fills the entire screen with stretching and scaling. The **16:9**
command changes the output to 16:10 for the WXGA projector by letterboxing the
image, which is recommended for use with HDTV and DVDs enhanced for
wide-screen TV.

Resolution	Mode	Aspect Ratio	Refresh Rate (Hz)	"Match Input" Appearance
720 × 400	720×400_85	9:5	85.039	Letterbox
640 × 480	VGA 60	4:3	59.94	Pillarbox
800 × 600	VGA 72	4:3	72.809	Pillarbox
800 × 600	VGA 75	4:3	75	Pillarbox
800 × 600	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

Resolution	Mode	Aspect Ratio	Refresh Rate (Hz)	"Match Input" Appearance
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	74.7	Pillarbox
1152 ×864	SXGA 75	4:3	75	Pillarbox
1280 × 768	WXGA 60	1.67:1	60	Letterbox
1280 × 960	Quad VGA 60	4:3	60	Letterbox
1280 × 960	Quad VGA 85	4:3	85.002	Letterbox
1280 × 960	SXGA3 60	5:4	60.02	Pillarbox
1280 × 1024	SXGA3 75	5:4	75.025	Pillarbox
1400 × 1050	SXGA3 85	5:4	85.024	Pillarbox
1600 × 1200	SXGA+	4:3	59.978	Pillarbox
1600 × 1200	UXGA_60	4:3	60	Pillarbox

HD and SD Signal Format Compatibility

The following table lists high definition and standard definition format signal
compatibility which can be further altered by using the aspect ratio command
described on page 98. The **Match input** command matches the projector's aspect
ratio to the input's aspect ratio, with black bands appearing along the top and bottom
edge of the screen horizontally, in letterbox format, or black bands appearing along
the left and right edge of the screen vertically, in pillarbox format. The **Fill Screen**
command produces an image that fills the entire screen with stretching and scaling.
The **16:9** command letterboxes the output image to make it compatible with the
WXGA (16:10) projector, which is recommended for use with HDTV and DVDs
enhanced for wide-screen TV.

Signal Format	Aspect Ratio	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	"Match Input" Appearance
480i (525i)	4:3	15.73	59.94	Full screen
480p (525p)	4:3	31.47	59.94	Full screen
576i (625i)	5:4	15.63	50	Pillarbox
576p (625p)	5:4	31.25	50	Pillarbox

Signal Format	Aspect Ratio	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	"Match Input" Appearance
720p (750p)	16:9	45	59.94	Letterbox
720p (750p)	16:9	37.5	50	Letterbox
1080i (1125i)	16:9	33.75	59.94	Letterbox
1080i (1125i)	16:9	28.13	50	Letterbox
1080p (1125p)	16:9	67.5	59.94	Letterbox
1080p (1125p)	16:9	56.25	50	Letterbox

Video System Signal Compatibility

The following table lists video system signal compatibility, particularly those delivered over S-Video and Composite connectors, which you can alter further by using the aspect ratio command described on page 98. The **Fill Screen** command produces an image that fills the entire screen with stretching and scaling. The **Match Input** and **16:9** commands deliver all video modes with black bands along the top and bottom edge of the screen horizontally, in letterbox format.

Video Mode	Aspect Ratio	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Color Signal (MHz)
NTSC	4:3	15.73	59.94	3.58
PAL	4:3	15.63	50	4.43
SECAM	4:3	15.63	50	4.25 or 4.41
PAL-M	4:3	15.73	59.94	3.58
PAL-N	4:3	15.63	50	3.58
PAL-60	4:3	15.73	59.94	4.43
NTSC 4.43	4:3	15.73	59.94	4.43

Connecting a SMART Hub to Your Extended Control Panel

SMART Hubs provide networking capabilities for effective meetings, and a stable platform for using your interactive whiteboard system. You can connect you UX60's projector's ECP directly to your SMART Hub, without the need for a computer. Additionally, this reduces the length of cables required to control your UX60 projector, provides additional interfaces for peripheral devices, and allows a tidier installation appearance.

After installing and connecting your SMART Hub, you'll be able to access and control its menu features by pressing the Input button on the ECP.

> **CAUTION**
>
> If you are installing your SMART Hub on the wall or as part of a support system, please refer to the installation instructions for the SMART Hub or the system before following any instructions in this guide.

Preparing Your ECP to Connect a SMART Hub

To use a SMART Hub with your UX60 projector, you must activate the ECP's SE240 mode. First, remove and cut the ECP's jumper cover. You will need a small flat screwdriver, a Phillips® screwdriver, wire cutters and a USB B to USB B cable to connect the ECP to your SMART Hub.

> **CAUTION**
>
> Always use an anti-static wrist wrap when working on the ECP.

> **IMPORTANT**
>
> Only perform this operation after installing the SMART Hub to its support system or to the wall.

To remove and cut the case on the ECP

1. Turn off the UX60 projector, and let it cool.

2. Disconnect the projector's power cable from the power outlet. Remove all cabling connected to the ECP. Remember the location of each cable.

3. Remove the two screws, used during installation, from the bottom of the ECP with the Phillips screwdriver. Hold the ECP to prevent it from falling. Keep the screws in a safe place.
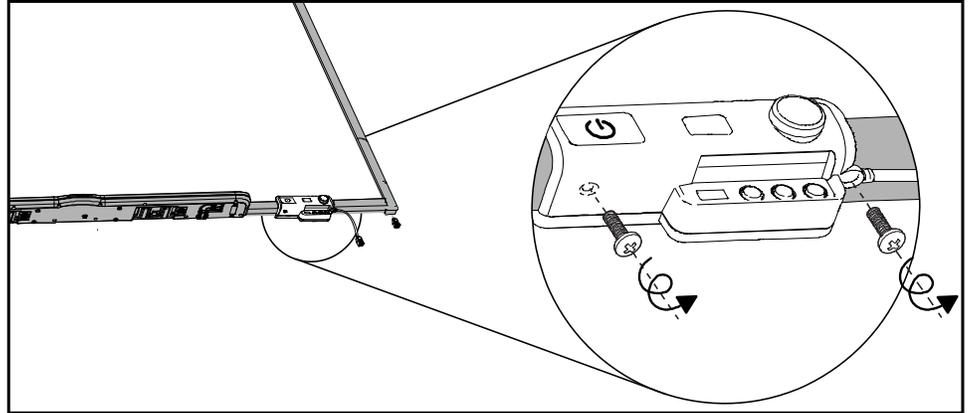
4. Locate the jumper cover on the side of the ECP that faces the wall, between the "PC" and "SE240" labels.

5. Using a pair of wire cutters, cut through the two tabs on the jumper cover and remove it from the ECP. Keep the jumper cover in a safe place.
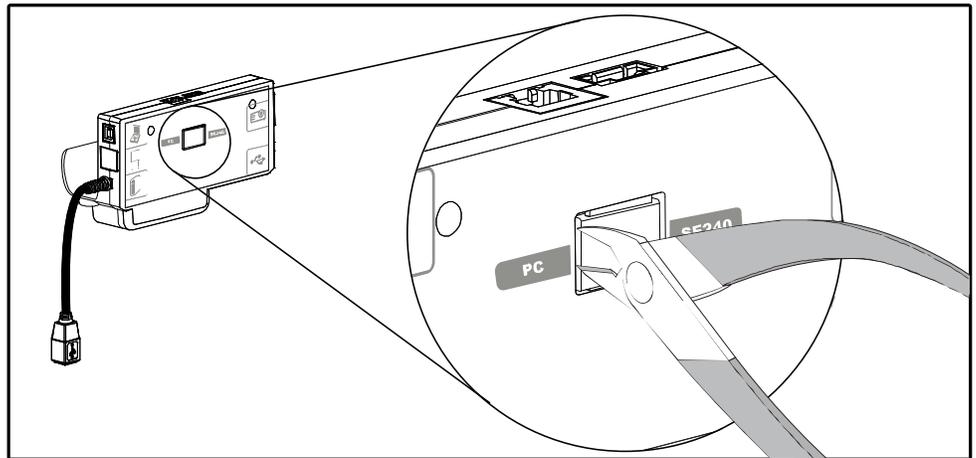
ℹ NOTE

If you need to disable the ECP's USB ports, refer to the instructions on page 103 and then return to the following set of instructions.

To prepare your ECP for SMART Hub use

1. Locate the SMART Hub DIP switch behind the jumper cover port. Using the flat-head screwdriver, set the DIP switch to SE240 mode, as listed on the label.

2. Connect an I²C cable (not included) to the ECP's modular cable connector and the SMART Board interactive whiteboard's pen tray.

3. Connect the USB cable to the ECP's computer port, located above the ECP's dangling USB B whiteboard connection.

4. Replace the ECP on the interactive whiteboard with the two screws from the previous steps.

5. Reconnect all cabling to the ECP, and reconnect the master power cable to the power outlet.

6. Connect the other end of the ECP's USB cable to the SMART Hub. Refer to *Using Your SMART Hub VE220* (document 135647) and *SMART Hub SE240 Quick Reference* (document 124621) to attach other connectors to the SMART Hub.

Installing SMART Notebook Software

A software CD for Windows® operating systems or Mac OS X operating system software is included with your SMART Board 685 interactive whiteboard. You must install the software before you can access all of your interactive whiteboard system's features. Check the SMART Support website for the latest software updates.

If SMART Board software or SMART Notebook software is already installed on your computer, take this opportunity to upgrade your software to ensure compatibility. SMART Notebook software upgrades and online Help are available at www.smarttech.com/support/software/index.asp. These pages also list the minimum hardware requirements for each software version.

Using a GoWire Cable with Your Interactive Whiteboard System

If you have a GoWire SMART Notebook Software Auto-launch Cable (USB-GW) you don't need to install SMART Notebook software on your computer. When connected to the source computer's USB receptacle, GoWire launches SMART Notebook automatically on your computer, providing full access to all interactive whiteboard software tools without installing software.

If you're using the wire management bundle to connect your computer, connect the USB A plug into the bundle's USB A receptacle. If you supply your own cable to connect your cable's the USB A plug into that USB A receptacle.

Chapter 5

Maintaining and Troubleshooting Your SMART Board 685ix Interactive Whiteboard System

This chapter provides basic maintenance and troubleshooting information for your SMART Board 685ix interactive whiteboard system, including methods for properly cleaning and preventing damage to your interactive whiteboard system. For issues not covered in this chapter, please contact your authorized SMART reseller or consult the SMART Support website.

Topics covered include:

After Installing Your SMART Board 685ix Interactive Whiteboard System

Adjusting Keystone Alignment

Keystone errors occur when the projected image isn't perpendicular to the screen. Vertical keystone errors can occur when you mount the UX60 projector and the SMART Board 685 interactive whiteboard on an uneven surface or a wall that has obstructions.

From the projector, the image path is too short along the top.

From the projector, the image path is too short along the bottom.

The image appears shorter across the top when the image path's distance from the projector to the top of the screen is shorter than the distance to the bottom of the screen. The image appears shorter across the bottom when the image path's distance from the projector to the bottom of the screen is shorter than the distance to the top of the screen.

Horizontal keystone errors can occur when you swivel the UX60 projector too far from the SMART Board 685 interactive whiteboard's vertical center, when you mount the projector and the interactive whiteboard on an uneven surface or when the interactive whiteboard is slightly closer to the projector on one side than the other.

*From the projector, the image path
is shorter along the right side.*

*From the projector, the image path
is shorter along the left side.*

The image appears shorter across the right side when the distance from the projector to the right of the screen is shorter than the distance to the left of the screen. The image appears shorter across the left side when the distance from the projector to the left of the screen is shorter than the distance to the right of the screen.

Adjust the interactive whiteboard side to side to center the projected image, as illustrated in the installation document. This eliminates many keystone errors.

⚠ **WARNING**

- Two people are required to mount your SMART Board product because it may be too heavy for one person to safely maneuver.

ℹ **NOTES**

- If you move the interactive whiteboard system to a new location, you must readjust it.

- If your projector requires service, you must adjust the replacement projector.

Focusing the Image

To focus the projected image, use the focus dial, located on the bottom of the installed UX60 projector.

ℹ **NOTE**

Ensure that you remove the plastic lens cover from the projector.

To focus and adjust the image

Turn the focus dial clockwise or counterclockwise until the image is in focus.

Focus Dial
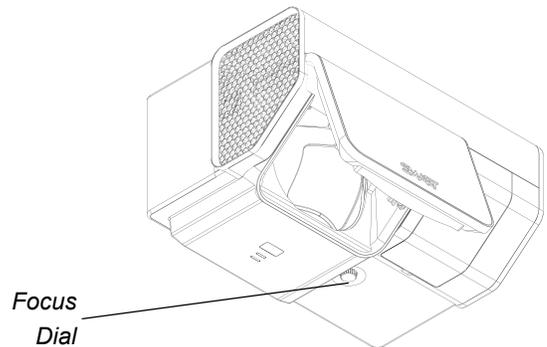
Aligning the Image After Installation

Use this procedure to obtain a rectangular image that is slightly smaller than the interactive whiteboard's screen. Follow these instructions only after you have installed the UX60 projector, and only if the image needs adjustment. You'll need a Phillips screwdriver for this procedure.

⚠ **WARNING**

If you remove the three screws supporting the adjustment module, the projector will be free to move on the wall-mounting bracket's track. Make sure that the screws are tightened.

☞ **IMPORTANT**

- Do not use the projector's on-screen menu options to make image adjustments.

- Do not touch the projector lens or mirror. This can disturb the focus or quality of image that your projector displays.

ℹ **NOTES**

- Project a computer image (set to the proper resolution) while performing the following steps.
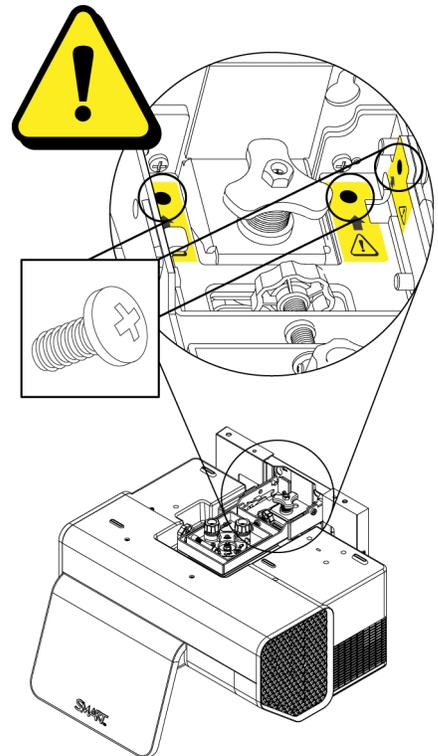
- If you don't have a computer, use the projector's default background so that you can see the full projected image clearly.

- The following diagram shows the color-coded control knobs on the top of the projector's adjustment module. Use only these control knobs to adjust the projector's image, and always unlock the locking ring to adjust the projector's image.
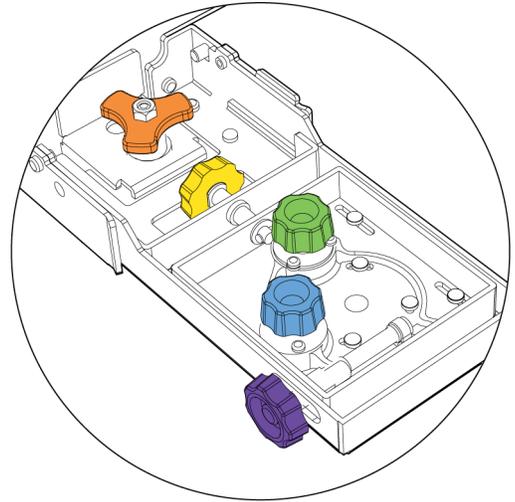
To align the image   1. Use the screwdriver to unscrew (but not remove) the locking ring screw on the top of the projector's adjustment module. This unlocks the controls to adjust the mirror.
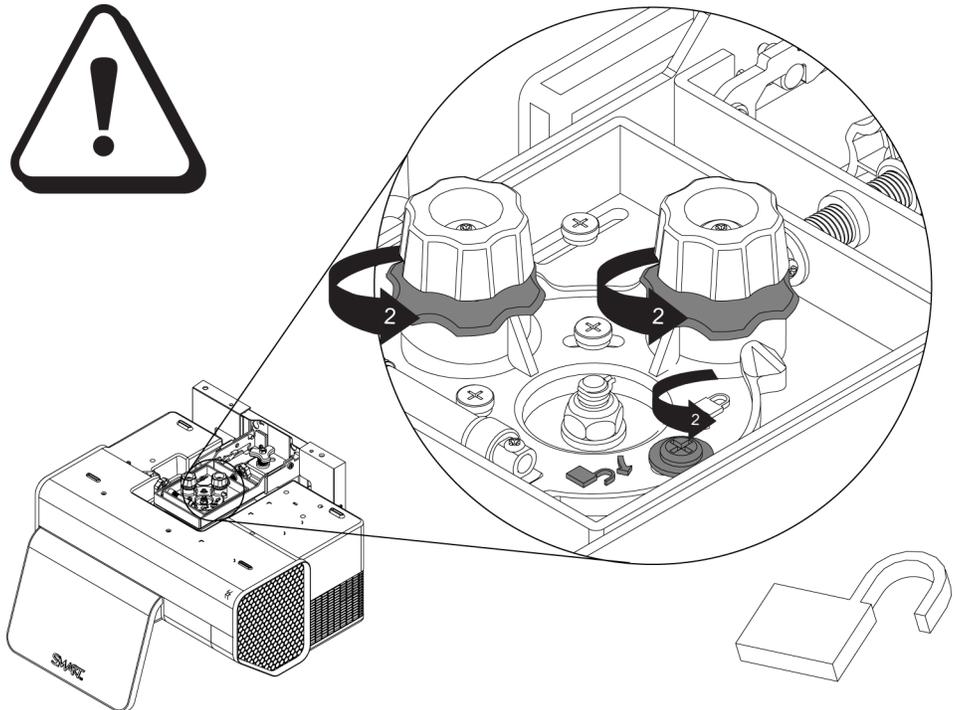
⚠ **WARNING**

When adjusting the projector's image, only loosen the locking screw next to the lock and unlock symbols (see the gray screw in the previous illustration). Never loosen other locking screws or loosen the center nut attached to the projector bolt as your projector might fall.

2. Turn the two locking collars, the ridged chrome screws under the blue and green knobs, in two complete counter-clockwise turns to adjust the knobs.

3. Adjust the projected image's horizontal keystoning.

    – Turn the purple knob clockwise if the left edge of the projected image is shorter than the right edge and the sides of the projected image slope inward toward the left.

    – Turn the purple knob counterclockwise if the right edge of the projected image is shorter than the left edge and the sides of the projected image slope inward toward the right.
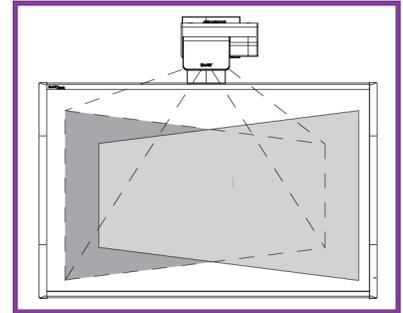
        ℹ **NOTE**

        Ignore the position of the rest of the image in relation to the interactive whiteboard during this step.

4. Adjust the projected image's vertical keystoning.

    – Turn the green knob clockwise if the bottom edge of the projected image is narrower than the top edge, and the sides of the projected image slope inward toward the bottom.

    – Turn the green knob counterclockwise if the bottom edge of the projected image is wider than the top edge, and the sides of the projected image slope outwards toward the bottom.
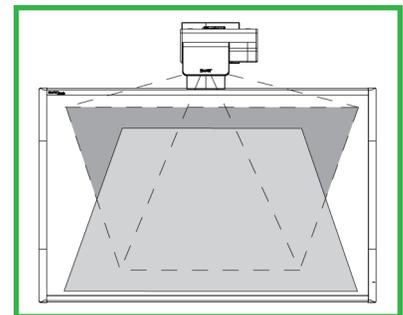
        ℹ **NOTE**

        Ignore the position of the rest of the image in relation to the interactive whiteboard during this step.

5. Adjust the projected image's horizontal alignment.

   – Turn the blue knob clockwise if the image is tilted with the right edge higher than the left, until the top and bottom edges of the projected image are horizontal.

   – Turn the blue knob counterclockwise if the image is tilted with the left edge higher than the right, until the top and bottom edges of the projected image are horizontal.
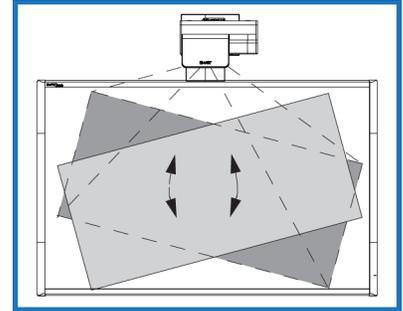
   > **NOTE**
   > Ignore the position of the rest of the image in relation to the interactive whiteboard during this step.

6. Repeat steps 2 to 4 in small increments until you have an image that is square and parallel to the board. Once you're satisfied with the image, proceed to step 6.

7. Adjust the height of the projected image.

   – Turn the orange knob clockwise if the bottom edge of the image is too low, until the image's vertical position is centered on the interactive whiteboard.

   – Turn the orange knob counterclockwise if the top edge of the image is too high, until the image's vertical position is centered on the interactive whiteboard.
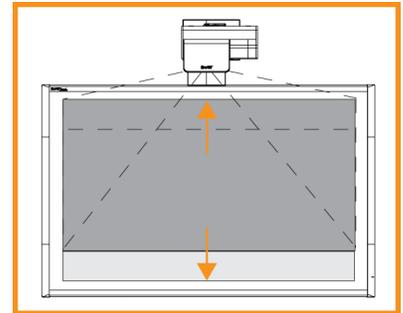
8. Adjust the scaling of the image by turning the yellow knob clockwise or counterclockwise to make the image larger or smaller on the interactive whiteboard.

9. Turn the focus dial clockwise or counterclockwise until the image is in focus.

   > **IMPORTANT**
   > You might need to re-center your interactive whiteboard. Perform step 11 only if absolutely necessary.
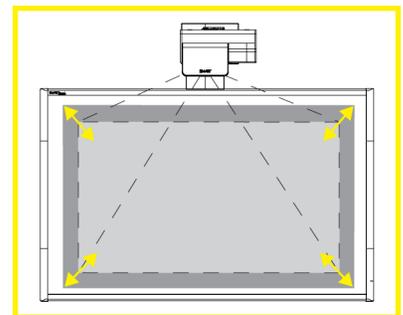
10. Use the screwdriver to tighten the locking ring screw on the top of the projector's adjustment module when you're satisfied with the projected image's location on the interactive whiteboard. This locks the controls to adjust the mirror.

11. If necessary, re-center your interactive whiteboard. See the following procedure.

To re-center your interactive whiteboard

1. Remove the pen tray and pen tray screws behind the pen tray.

2. Pull the board from side to side, while holding the bottom bezel of the interactive whiteboard, to center the board on the projected image.

3. Refer to your *SMART Board 685ix and SBD685ix Interactive Whiteboard System Textless Installation Guide* ([document 137394](#)), for instructions on drilling holes for attaching new anchors for the interactive whiteboard.

4. Attach the pen tray screws to the new anchor location, and then attach the pen tray.
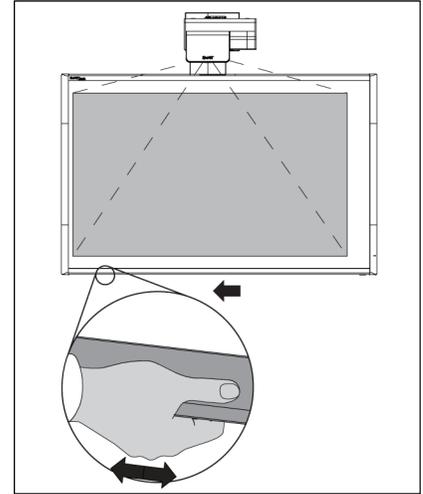
   👉 **IMPORTANT**

   If you do not secure the locking ring screw, the projector's adjustment controls can slip out of place, and you will have to repeat the image alignment procedure.

Securing the Pen Tray and Interactive Whiteboard

Because the pen tray that comes with your SMART Board interactive whiteboard is detachable, you might want to safeguard it—and the interactive whiteboard at the same time—by anchoring it with a security cable.

👉 **IMPORTANT**

Security cable locks are not designed to be a solid protection measure because the lock can be torn out. However, potential thieves might be reluctant to try to sell a product with a broken security cable lock hole, which would readily identify it as a stolen item.

On the bottom of the pen tray is a security slot that accommodates a security cable, such as a Kensington lock.

Lock Slot
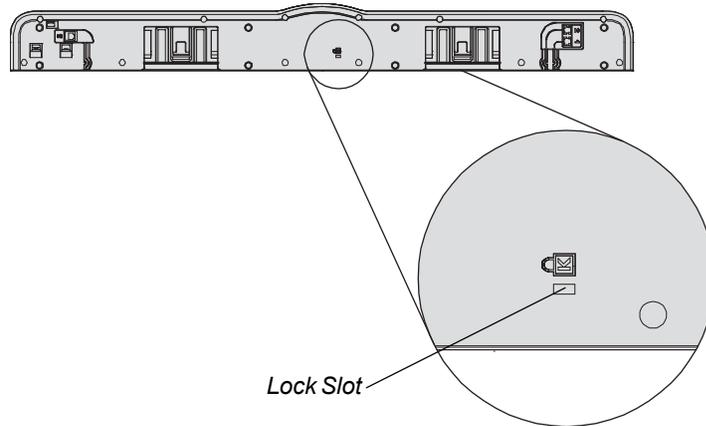
To lock the pen tray to the interactive whiteboard

1. Loop your security cable behind the pen tray brackets before you secure them to the wall. To perform this after an installation, see *To remove the interactive whiteboard's pen tray* on page 27.

2. Thread the lock end of the cable through the loop end of the cable.

3. Verify that the cable is tight enough that you can't remove the pen tray while the lock is in place, and then install the pen tray.

4. Insert the prong end of the security cable into the lock slot, and then complete the pen tray installation by securing it to the wall.

Securing the Pen Tray to the Pen Tray Brackets

Because your SMART Board interactive whiteboard's pen tray is detachable, you might want to safeguard it—and your interactive whiteboard—by locking it with two No. 8 or M4 machine screws (not included).

☞ **IMPORTANT**

Securing the pen tray can provide theft deterrence for your interactive whiteboard because the screws that secure your interactive whiteboard to the wall are located directly behind the pen tray, and must be removed to detach the pen tray. In effect, when you secure the pen tray, you're also securing your interactive whiteboard if the security cable is tight.

To secure the pen tray to the pen tray brackets

Insert two No. 8 or M4 screws (not included) into the holes shown in the following illustration.

Screw Location
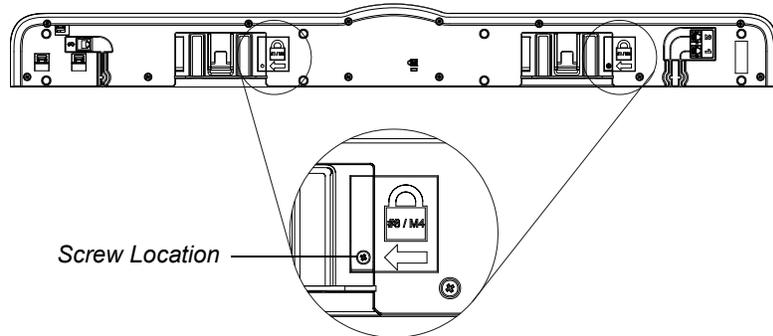
ℹ️ **NOTE**

Older units don't include this feature.

Maintaining Your SMART Board 685ix Interactive Whiteboard System

With proper care, your SMART Board interactive whiteboard will provide years of trouble-free service. For additional maintenance instructions and recommendations see your *SMART Board 600 and SBD600 Series Interactive Whiteboard Installation and User's Guide* (document 1414).

Preventing Damage to Your Interactive Whiteboard

The SMART Board 685 interactive whiteboard's surface is very durable. However, follow these procedures to prevent damage to the interactive screen and other components.

🔺 **CAUTIONS**

- Do not use sharp or pointed objects, such as ballpoint pens or pointers, as writing tools.

- Do not use abrasive erasers or harsh chemicals when cleaning.

- Do not leave adhesive tape on the writing surface for extended periods. Lifting the tape may remove the coating that provides the interactive whiteboard's dry-erase capability.

- Avoid setting up and using your interactive whiteboard in an area with excessive levels of dust, humidity or smoke.

Cleaning Your Interactive Whiteboard

Follow these tips and procedures to keep the screen surface clean.

🔺 **CAUTION**

Do not allow cleaning liquids to flow between the lower frame and the writing surface or into the pen tray recesses.

💡 **TIPS**

- Don't write on your interactive whiteboard with low-odor dry-erase markers, such as EXPO2®, because their ink can be difficult to remove. Use standard dry-erase (high-odor) markers that include a warning to use them only in well-ventilated areas.

- Erase dry-erase ink as soon as possible after use. The longer dry-erase ink is on the surface, the more difficult it is to remove.

- Shut down the computer or disconnect the USB cable connecting the interactive whiteboard to the computer. Otherwise, you could accidentally start applications or scramble desktop icons when you clean the screen.

To remove dry-erase marker ink

1. Remove excess dry-erase dust with a damp lint-free cloth.

2. If dry-erase ink remains on the surface, use a household glass cleaner, such as Windex®, or a dry-erase marker cleaner.

3. Use isopropyl alcohol for stubborn stains and ghosting.

To remove permanent marker ink

Use a cleaner, such as EXPO Dry Erase Board Doctor, to write directly over the permanent marker ink, allow the solution to dry completely and then wipe clean.

OR

Use a high-odor dry-erase marker to write directly over the permanent marker ink and wipe with a lint-free cloth while the ink is still wet. If any ink remains, spray a lint-free cloth with a glass or whiteboard cleaner and wipe the area clean.

👉 **IMPORTANT**

Do not use low-odor or non-scented dry-erase markers for this procedure, because they do not contain the appropriate solvents.

Cleaning the Pen Tray

If the infrared sensors in the bottom of the pen tray's recesses are obstructed, the sensors don't reliably detect when a pen or the eraser is removed or replaced. If an LED indicator doesn't turn on, the infrared sensor is obstructed and the affected tool won't work on the interactive whiteboard.

ℹ NOTES

- There are no user serviceable parts inside the pen tray. Only qualified personnel should disassemble the pen tray.

- If dust or a small object prevents you from pressing a button, or causes a button to stick, remove the object carefully.
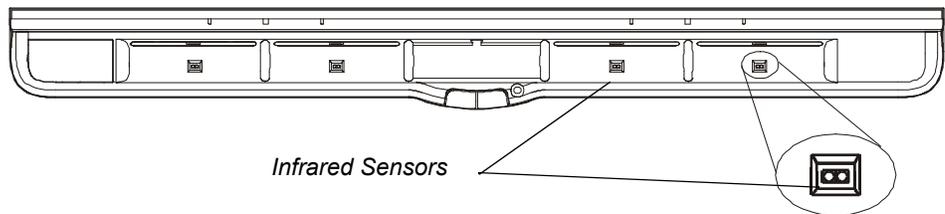
Infrared Sensors

To clean a sensor   Moisten a cotton swab with a household glass cleaner, such as Windex, and carefully clean the infrared transmitter and receiver.

Cleaning the UX60 Projector

⚠ WARNING

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

⚠ CAUTIONS

- Never touch the mirror with your hands or a brush. Do not scrub the surface of the mirror with the supplied cleaning cloth. Use the cloth with a light touch. Do not put cleaning solvents on the mirror or cleaning cloth.

- Before you clean the UX60 projector, put the system into Idle mode by pressing the power button twice on the ECP or remote control, and allow the lamp to cool for at least 30 minutes.

- Do not spray cleaners, solvents or compressed air directly on the projector.

- Do not allow liquids or commercial solvents of any kind to flow into the projector base or head. 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.

☞ **IMPORTANT**

- When cleaning the interactive whiteboard system:

    – Wipe the exterior of the projector using a lint-free cloth.

    – If necessary, use a soft cloth moistened with a mild detergent to clean the projector housing.

- Do not use abrasive cleaners, waxes or solvents.

To clean the projector's mirror

1. Use a bellows bulb or air blower bulb (commonly found in audio-visual supply stores) to blow off dust. Never touch the lens with your bare hands or a brush.

2. If wiping the mirror is unavoidable, wear protective gloves and gather the cleaning cloth into a ball.

3. Gently run the cleaning cloth across the mirror like you would a feather duster.

To clean the projector's lens

1. Use a bellows bulb or air blower bulb (commonly found in audio-visual supply stores) to blow off dust. Never touch the lens with your bare hands or a brush.

2. If wiping the lens is unavoidable, wear protective gloves and arrange the cleaning cloth into a ball.

3. Gently run the cleaning cloth across the lens from the center to the outer area, using the cleaning cloth like you would a feather duster.

Troubleshooting Your SMART Board 685ix Interactive Whiteboard System

Use the following charts to troubleshoot your SMART Board 685ix interactive whiteboard system. If you're unable to restore the system to a normal operating state, record the behavior of the warning lights, and call your authorized SMART reseller.

System Warning Lights

This section describes the three warning light regions and the patterns of the 685ix interactive whiteboard system. Refer to these tables to troubleshoot your interactive whiteboard, ECP or projector.

ECP Ready Light and System Status

The ECP's main power button also functions as a ready light.

Ready Light	Status
Off	The projector system isn't receiving power. Confirm that the projector is on, and that the power cable is connected. Confirm that your power supply is on and active. At the projector, check your power cord and the ECP's 4 pin powered-mini-DIN connection. At the ECP, check the DB25 connector. If nothing changes after you check your connectors and power supply, call your <u>authorized SMART reseller</u>.
Solid amber	The projector is receiving power but is turned off.
Flashing green	The projector is receiving power and is turning on.
Solid green	The projector is on, the ECP is receiving power and is communicating with the projector.
Flashing amber	The interactive whiteboard system is about to turn off.

Integrated Interactive Whiteboard Ready Light Status

Adding a UX60 projector and the ECP change the normal behavior of the ready light on the serial controller in the interactive whiteboard. These status lights are different from what you normally see on a SMART Board 685 interactive whiteboard, and are only valid when the interactive whiteboard system is connected to a computer source. These explanations only apply when a computer is connected to the VGA1 or VGA2 ports and the USB input and the input source is active.

Interactive Whiteboard Ready Light	Status
Off	The interactive whiteboard isn't receiving power. Confirm that the projector is on. Confirm that the interactive whiteboard's USB cable is connected to the ECP. On the projector's input/output panel, check the ECP's 4-pin powered-mini-DIN connection. If nothing changes after you check your connectors, call your <u>authorized SMART reseller</u>.

Interactive Whiteboard Ready Light	Status
Solid red	The projector is receiving power but isn't communicating with a computer. On the projector's input/output panel, check the ECP's 7-pin mini-DIN connections at the projector. Confirm that the projector input selection is set to the correct video input source (VGA1 for primary computer, VGA2 for secondary computer). Confirm that the USB connection from the computer is connected to the appropriate computer connection on the ECP or wire management bundle.
Solid green	The interactive whiteboard is on and communicating with your computer.
Flashing green	The interactive whiteboard is on and communicating with your computer, but it's in Mouse mode. Confirm that SMART software is installed on your computer.
Flashing amber	The interactive whiteboard system is turning on, is in service mode or it has detected a firmware error. On the projector's input/output panel, check the ECP's 4-pin powered-mini-DIN connection. If nothing changes after you check your connectors, call your authorized SMART reseller.

Projector Ready Lights and Projector Status

The UX60 projector's two indicator LED lights (Power and Diagnostic) are located on the boom-mounted projector. Specific light sequences convey information about the state of your projector, including warning messages and issues. The following table describes projector warning messages and issues.

> **NOTE**
>
> Contact your authorized SMART reseller if the Fan Failure Error or Color Wheel Failure Error appears.

☞ **IMPORTANT**

After you resolve your projector's issue, disconnect and then reconnect your UX60 projector's power cable to clear the indicator light sequence and reset your projector's status.

Projector Ready Lights	Projector Status
Power: Off **Diagnostic:** Off	The projector isn't receiving power. Confirm that the power cable is plugged in. Confirm that your power supply is on and active. At the projector, check your power cord and the ECP's 4 pin powered-mini-DIN connection. At the ECP, check the DB25 connector. If nothing changes after you check your connectors and power supply, call your authorized SMART reseller.
Power: Solid amber **Diagnostic:** Off	The projector is off and receiving power. Press the power button on the ECP to turn it on. This is a normal condition for the projector ready light.
Power: Flashing green **Diagnostic:** Off	The projector is in the powering (startup) power state. Wait for the projector to finish powering on. This is a normal condition for the projector ready light.
Power: Solid green **Diagnostic:** Off	The projector is in the operating (on) power state. Press the power button on the ECP twice to turn it off. This is a normal condition for the projector ready light.
Power: Flashing amber **Diagnostic:** Off	The projector is in the cooling power state. Wait for the projector to finish cooling. This is a normal condition for the projector ready light.
Power: Off **Diagnostic:** Flashing red	The projector is overheating. The projector might shut down automatically. See page 60 to troubleshoot the projector.
Power: Off **Diagnostic:** Solid red	The projector has a fan issue. The projector might shut down automatically. See page 60 to troubleshoot the projector.
Power: Off **Diagnostic:** Solid red	The projector has a color wheel issue. See page 61 to troubleshoot the projector.
Power: Solid amber **Diagnostic:** Flashing red	The projector has a lamp issue. See page 61 to troubleshoot the projector or page 62 for lamp replacement instructions.

Troubleshooting Image Issues

Computers, peripherals, source inputs and their connection cables may not be correctly set up to transmit their signals to your SMART Board interactive whiteboard system. Refer to the video compatibility chart and the following section for information on resolving these issues.

Image Projection Issues

Loss of Signal

If a visual source signal is lost or if the signal is being switched to a different device or input, the UX60 projector displays the SMART logo on a blue screen.
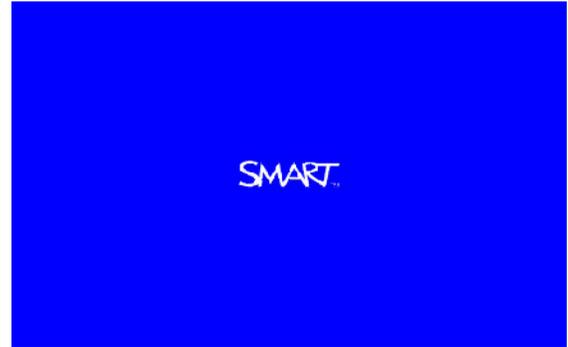
To resolve the loss of signal error

1. Wait approximately 45 seconds for the image to synchronize. Some video signals require a longer synchronization period.

2. If the image doesn't synchronize, check your cable connections to the projector, the ECP and wire management bundle.

3. Make sure that the image signal is compatible with the projector. See *Video Format Compatibility* on page 32 for a listing of compatible signals and formats.

4. If the previous steps don't resolve the issue and your projector still doesn't show a source signal, contact your authorized SMART reseller.

No Image is Projected

If the projector isn't displaying an image at all, and the ECP, interactive whiteboard, and projector power lights aren't on, troubleshoot your projector with the following instructions.

To resolve the projected image error

1. Ensure that the power cord is connected to the power outlet.

2. Ensure that your cables are correctly and securely connected as described in the installation guide.

3. Check the pins on the power cable and VGA connectors, and make sure they aren't bent or broken.

4. Make sure the projector lamp is securely installed.

5. Confirm that your projector is turned on and that the projector status lights are lit. If the projector displays unusual status lights similar to those listed on page 53, use those patterns to troubleshoot the system.

Image Compatibility Issues

Partial, Scrolling or Incorrectly Displayed Image
Use this procedure only with Windows 95, Windows 98, Windows 2000 and Windows XP operating systems on desktop computers.

> ℹ️ **NOTE**
> This procedure may vary depending on your version of Windows operating system and your system preferences.

To resolve the partial, scrolling or incorrectly displayed image

1. Select **Start** > **Control Panel**.

2. Double-press **Display**.

3. Press **Settings**.

4. Verify that your display resolution setting is lower than or equal to WXGA (1280 × 800).

> 👉 **IMPORTANT**
> If the projector is still not displaying the whole image, you will need to change the monitor display that you're using. Refer to the following procedure.

To change the monitor display

1. Press **Advanced Properties**.

2. Press **Change** on the *Monitor* tab.

3. Press **Show all devices**, and then select **Standard monitor types** from the list.

4. Select the resolution you need in the *Models* list.

5. Verify that the resolution setting of the monitor display is lower than or equal to WXGA (1280 × 800).

Your Connected Laptop or PowerBook® Computer Image Isn't Projected
Laptop and PowerBook computer settings can interfere with projector operations. Write down your setting values before adjusting them.

Some laptop computers deactivate their own screens when a second display device is in use. Every laptop computer has a different way to reactivate the display screen. Refer to your computer's manual for further details.

Unstable or Flickering Image
If the projector's image is unstable or flickering, you may have different tracking settings set on your input source. Write down your setting values before adjusting any of the settings in the following procedures.

To resolve your unstable or flickering image

1. Adjust the **Tracking** setting in the on-screen display. See page 94.

2. Change the tracking settings on your computer. Refer to your computer's manual for more information.

3. Optionally you can attempt a projector reset, as described on page 67, to adjust your tracking to the original value. This resets all values to the original factory state.

Your Image Has a Vertical Flickering Bar
If the projector's image is displaying a vertical flickering bar, you may have different frequency settings set on your input source. Write down your setting values before adjusting any of the settings in the following procedures.

To resolve your vertical flickering bar

1. Adjust the **Frequency** setting in the on-screen display. See page 94.

2. Check the display mode of your graphic card. Make sure it matches with one of the projector's compatible signals in the list starting on page 32. Refer to your computer's manual for more information.

3. Reconfigure the display mode of your graphic card to make it compatible with the projector. Refer to your computer's manual for more information.

4. Optionally, reset the projector, as described on page 67, to adjust your frequency to the original value. This resets all values to their original state.

Other Common Issues

These common error issues may occur during the life of your projector, due to normal projector wear or deliberate changes to the system made by users. These issues can also occur due to input equipment wear or other events such as power failures.

Standard Use Issues

Net Enabling and Network Communication Error
In the event of a communication error within your network, refer to the following procedure to troubleshoot the system.

To resolve a network communication error

1. Check the RJ45 cable connecting your network to the UX60 projector and make sure it is properly connected to the modular cable connection on the projector's connection panel.

2. Ensure that the LAN warning light on the projector is green. To activate the LAN, use the "vgaoutnetenable=on" RS-232 command listed on page 85 or use the "Network and VGA out" projector menu option listed on page 99. The network function will not work on the projector until one of these commands has been sent.

3. Check the IP address by pressing the **Menu** button, and then selecting the **Network Settings** menu. See page 99 for a description of the IP address field. Enter this IP address into your browser or SNMP agent.

4. If the previous steps don't resolve the issue and you still don't have network access, contact your authorized SMART reseller.

Audio Mute and Audio System Errors
A warning message appears when someone presses the Audio Mute option. However, it disappears shortly afterward, so that users can see the entire image.

The UX60 projector doesn't have integrated speakers, but you can connect an audio system to the audio output connector in the projector connection panel. In the event that no sound is coming from your audio system, refer to the following procedure.

To resolve an audio system error

1. Check your speaker's or audio system's cables and make sure they're properly connected to the 3.5 mm audio output plug on the projector's connection panel.

2. Ensure that the Audio Mute option is off. Press the **Mute** button on the projector's remote control to turn the Audio Mute on or off.

3. Check the volume knob on the ECP or the volume options on the projector's remote control, and ensure that the volume isn't set to the lowest position.

4. Ensure that your speaker or audio system is on and confirm that the volume is enabled.

5. Check that your source input, such as your computer or video device, isn't in error and ensure that its audio output is on and isn't set to the lowest volume position.

6. If the previous steps don't resolve the issue, contact your authorized SMART reseller.

Video Mute and Frozen Image Errors

A warning message appears when someone presses the Video Mute option. However, it disappears shortly afterward, so that users can see the entire projected image.

In the event that your projector has a frozen image, refer to the following procedure.

To resolve a frozen image

1. Ensure that the **Hide Display** feature on the remote control is off. Press the **Hide Display** button on the projector's remote control to hide or show the display.

2. Ensure that your source device, such as a DVD player or computer, is not in error.

3. Turn off the projector, and let it cool completely.

4. Disconnect the power cord from the power outlet. Wait a minimum of 60 seconds.

5. Reconnect the power cord.

6. Restart the projector.

Projector Error States

These are projector error states that system administrators can solve or troubleshoot on their own prior to contacting technical support. Performing an initial troubleshooting on your projector will reduce the amount of wait time during a support call.

Your Projector Doesn't Respond to Commands

If your projector doesn't respond to commands or if it starts to display code after you entered a command, follow the procedure below:

To restart an unresponsive projector

1. Turn off the projector, and wait 15 minutes for it to cool down.

2. Disconnect the power cord from the power outlet. Wait a minimum of 60 seconds.

3. Reconnect the power cord.

4. Restart the projector.

Projector Overheat

If the "Projector Overheated" indicator message appears, and your projector turns off during use, one or both of the following issues are occurring:

• Your projector has overheated internally. The projector can overheat due to blocked air vents.

• The temperature outside your projector is too high. The projector can overheat due to an ambient temperature over 55°C (131°F).

To resolve the projector overheated error

1. Wait 15 minutes for the projector to cool down.

2. If your room is too hot, change the thermostat setting.

3. Make sure nothing is blocking the air intake and exhaust.

4. Disconnect the power cord from the power outlet. Wait a minimum of 60 seconds.

5. Reconnect the power cord, and then turn on the projector.

6. If the message appears again, set the fan speed to a higher setting. See page 89.

7. If the previous steps don't resolve the issue, disconnect the power cord, and then contact your [authorized SMART reseller](#).

Fan Failure

If the "Fan Failure" indicator message appears and your projector turns off during use, one or both of the following issues are occurring:

• Your projector is overheating internally.

• One of the fans has failed.

To resolve the fan failure error

1. Follow the steps 1 to 5 of *To resolve the projector overheated error*.

2. If the lamp does not light up, turn off the projector and wait 15 minutes for the projector to cool down.

3. Disconnect the power cord, and then contact your [authorized SMART reseller.](#)

Color Wheel Failure

If the "Color Wheel Failure" error message appears, and your projector turns off during use, your projector has a color wheel issue.

To resolve the color wheel failure error

1. Wait 15 minutes for the projector to cool down.

2. Disconnect the power cord after the cooling cycle is complete.

3. Reconnect the power cord, and then turn on the projector.

4. If the previous steps don't resolve the issue, disconnect the power cord, and then contact your authorized SMART reseller.

Lamp Failure

If the "Lamp Failure" indicator message appears and the lamp turns off during use or won't turn on, one of the following issues is occurring:

• Your lamp over-heated. The projector can overheat due to blocked air vents.

• The lamp temperature is too high. The projector can overheat due to an ambient air temperature over 55°C (131°F).

• Your lamp has reached the end of its life.

• Your projector has an internal problem.

• The lamp LED on the projector is flashing red.

To resolve the lamp failure error

1. Follow the steps 1 to 5 of *To resolve the projector overheated error* on page 60.

2. If the lamp does not light up, turn off the projector and wait 15 minutes for the projector to cool down.

3. Disconnect the power cord after the cooling cycle is complete.

4. Change your lamp according to the instructions on page 62.

5. Reset the lamp hours according to the instructions on page 66.

6. If the projector image doesn't reappear or continues to display the lamp error message, contact your authorized SMART reseller.

Occasional Maintenance Instructions

This section includes maintenance instructions for infrequent tasks.

Replacing the UX60 Projector's Lamp Module

Eventually the lamp module will dim, and a message will appear reminding you to replace the lamp. Make sure you have a replacement projector lamp before proceeding with the following instructions.

⚠️ **WARNINGS**

- This projector detects its remaining lamp life. Replace the lamp when a lamp life warning message appears. If you continue to use the projector after the replacement message appears, the lamp can shatter or burst, scattering glass throughout the projector.

- If the lamp has shattered or burst:

    – Wash your hands thoroughly if you have come into contact with lamp debris.

    – Do not touch the glass fragments because they can cause injury.

    – Leave and then ventilate the area where the lamp shattered or burst.

    – Thoroughly clean the area around the projector, and discard any edible items placed in that area because they could be contaminated.

    – Call an authorized SMART reseller for instructions. Do not attempt to replace the lamp.

- Replacing the lamp in a wall-mounted projector can result in a fall or injury. Use caution when climbing a ladder, or remove the projector from the wall-mounted bracket to replace the lamp.

- Uncovering the lamp while the projector is mounted on the wall-mounting bracket can lead to product damage or personal injury from falling pieces of glass if the lamp is broken.

- When replacing the projector lamp:

  – Turn the projector off and wait 30 minutes for the lamp to cool completely (or before removing the projector from the wall-mounting bracket, if necessary).

  – Do not remove any screws other than those specified in the lamp replacement instructions.

  – Wear protective eyewear while changing the lamp. Failure to do so can cause injury or loss of eyesight if the lamp shatters or bursts.

  – Use only replacement lamps approved by SMART Technologies. Contact your authorized SMART reseller for replacement parts.

  – Never replace the lamp assembly with a previously used lamp assembly.

  – To prevent premature lamp failure or exposure to mercury, always handle the fragile lamp assembly with care. Use gloves when touching the lamp. Do not touch the lamp with your fingers.

  – Recycle or dispose of the lamp as hazardous waste, in accordance with local regulations.

You will require a Phillips screwdriver and a flat screwdriver.
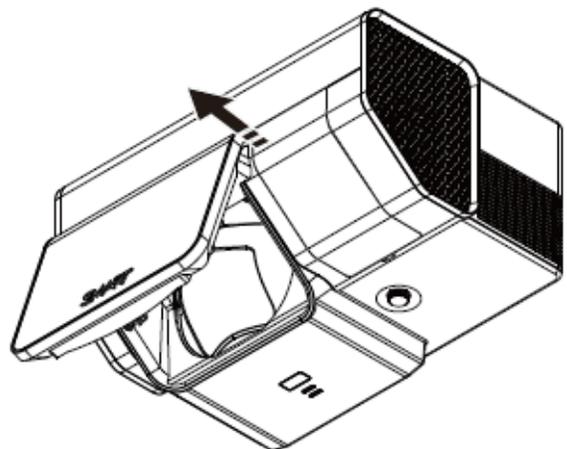

To remove the old lamp

1. Turn off the power by pressing the power button ⏻ twice on the remote control or the ECP.

2. Wait at least 30 minutes for the projector to cool down.

3. Disconnect the power cable from the wall outlet.

4. Pull the lamp cover forward and remove it from the projector. Put the lamp cover in a safe place.

   💡 **TIP**
   If the cover is difficult to remove, insert a flat screwdriver or small coin into the slot on the bottom of the lamp cover to gently pry the cover open.
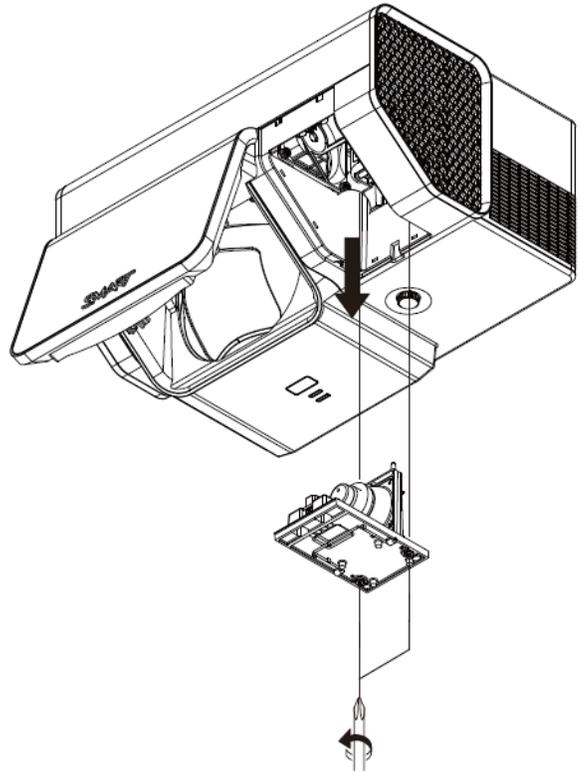
5. Use a Phillips screwdriver to loosen the two captive screws from the bottom of the lamp module.

NOTE

Captive screws can't be removed, but they must be loose. Don't try to remove the screws.

6. Use the handle on the bottom of the lamp module to slide out the lamp and remove it from the projector.

To put the new lamp module into the projector

1. Take the new lamp module out of its packaging.

2. Carefully place the new lamp module into the projector using the handle on the top of the module. When you guide the lamp module into its slot, hold it vertically, and ensure the power plug makes contact with the power receptacle on the projector by squeezing the power end of the lamp module gently against the projector.

Power Plug

3. Use the Phillips screwdriver to tighten the captive screws.

4. Carefully slide the lamp cover back onto the projector.

5. Connect the power cable to the wall outlet.

6. Confirm that the projector is operating and that the lamp module is correctly installed by pressing the power button ⏻ once on the remote control or ECP.

7. Put the old lamp in a secure container. Handle the old lamp gently until you recycle it.
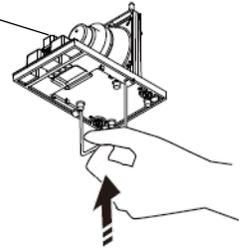
To finish the projector lamp installation

1. Once you've completed the projector lamp change, turn on the projector.

2. Access the service menu to reset the lamp hour counter. See page 66.

3. Reactivate the projector's alert e-mails and lamp warnings if they've been deactivated. See page 91 and page 97.

Slipping Projector Images

Like all mechanical systems, the UX60 projector's image may slip if it is moved often, or installed in a location prone to vibration (such as next to a heavy door).

To correct image slip

1. Make sure the installation wall is plumb, square, and doesn't move or vibrate excessively.

2. Make sure there are no obstructions behind the projector's wall mount bracket, and that it is firmly secured to the wall according to the installation instructions.

3. Ensure that the screws connecting the adjustment module to the wall bracket are securely in place.

4. Confirm that all cables are held in place, with the cable clip.

5. Realign the projector image. See *To align the image* on page 43.

6. Confirm that the two silver adjustment locks, on the green and blue adjustment knobs, are tight.

Accessing the Service Menu

To prevent tampering or unintentional change, only system administrators should access the service menu. Do not share the service menu access code with casual users of the interactive whiteboard system.

Password Retrieval Instructions

If you forget the projector password, you can retrieve the password by accessing the projector service menu directly from the projector, or optionally, from the web page's password retrieval option as described on page 91.

To access the service menu's password

1. Access the projector's service menu by pressing the following buttons quickly on the remote control: **Down**, **Up**, **Up**, **Left** and **Up**.

   🔺 **CAUTION**

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

2. Scroll down to the *Password Get* field and press **Enter** on the remote control.

   The password appears on-screen. Record the password.

3. Scroll down to the *Exit* field, and press **Enter** on the remote control to exit the projector service menu.

Lamp Hour Counter Reset Instructions

When you replace the lamp, you need to access the projector service menu and reset the lamp hour counter. To prevent accidental errors, only a system administrator should perform this procedure. Change your lamp according to the instructions on page 62.

To reset the projector's lamp hour counter

1. Access the projector's service menu by pressing the following buttons quickly on the remote control: **Down**, **Up**, **Up**, **Left** and **Up**.

   🔺 **CAUTION**

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

2. Scroll down to the *Lamp Hour Reset* field and press **Enter**.

   🔺 **CAUTION**

   Do not use the Lamp Hour Reset feature unless you have just replaced the lamp. Resetting the lamp hour counter on an old lamp might damage your projector due to lamp failure.

3. Scroll down to the *Exit* field, and press **Enter** to exit the projector service menu.

Performing a Projector Reset

At some point during troubleshooting, you may need to reset all projector settings. This option is irreversible.

To perform a complete projector reset

1. Access the projector's service menu by pressing the following buttons quickly on the remote control: **Down**, **Up**, **Up**, **Left** and **Up**.

   ⚠ **CAUTION**

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

2. Scroll down to the *Factory Reset* field and press **Enter**.

3. Scroll down to the *Exit* field, and press **Enter** to exit the projector service menu.

Chapter 6

Remotely Managing Your SMART Board 685ix Interactive Whiteboard System

This chapter has detailed instructions on how to set up your computer or your room control system to remotely manage your SMART Board 685ix interactive whiteboard system settings. Additionally, you can add the interactive whiteboard system to your network, and you can access commands and generate reports through an RS-232 serial interface, a web browser or a Simple Network Management Protocol (SNMP) network connection.

Topics covered include:

Connecting Your Serial Interface to the UX60 Projector

Using a computer connection or room control system, you can select video inputs, start up or shut down the interactive whiteboard system and request information such as projector lamp usage, current settings and network addresses. See *Attaching Sources and Outputs to Your UX60 Projector* on page 24 for information on how to connect RS-232 cables to your computer or room control system.

Pin Configuration on the UX60 Projector RS-232 Connector

The following table provides the pin configuration on the UX60 projector. This pin configuration follows a three-wire connection, so that a straight-through male to male RS-232 serial cable connects to the female UX60 serial interface in the following arrangement.

Pin Number	Female UX60 Projector RS-232 Connector
2	Transmit
3	Receive
5	Signal Ground

Serial Interface Settings

The UX60 projector's serial interface settings can't be configured, and it acts as a Data Communication Equipment (DCE) device. 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:

Serial Interface Setting	Value
Bit Rate	19.2 kbps
Data Bits	8
Parity Bits	None
Stop Bits	1
Flow Control	None

NOTES

- Asynchronous mode is disabled by default in the UX60 projector.

- All commands should be in ASCII format. Terminate all commands with a carriage return.

- All responses from the projector are terminated with a carriage return line feed combination followed by a command prompt. Wait until you receive the command prompt indicating the system is ready for another command before proceeding.

- The room control feature of your projector is always on and active.

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 you attached to the projector in the procedure on page 28.

   Depending on your terminal emulation program, a "List?" or "Prompt?" message and a flashing command prompt cursor might appear. Do not enter projector commands yet. Instead, configure your serial interface settings using the values in the table on page 71.

3. Once you have configured your communications settings, press ENTER.

   The "List?" or "Prompt?" message and a flashing command prompt cursor on the following line appears.

   i NOTE
   If no message or an error message appears, your serial interface configuration isn't correct. Repeat step 2.

4. Type commands to configure your settings.

   i NOTES
   – To see a list of available commands, type **?** and then press ENTER.

   – When you're using a terminal emulation program, turn on your program's local echo setting if you want to see characters as you type them.

RS-232 Programming Commands

UX60 Projector Power States

The UX60 projector responds to commands only at certain power levels and times. There are four projector power states:

- Off

- Powering (startup)

- On (operating)

- Cooling (idle)

Command Inventory

The UX60 projector responds to the commands in the tables on the following pages. To see a full list of commands at any time during programming, type "CommandList" in your serial communications program and press ENTER. To see a list of valid commands in the projector's current power state, type "?" and press ENTER.

🔺 **CAUTION**

Allow at least 15 minutes after turning off the system for cooling before sending the On command. Cycling power to the projector repeatedly can lock or damage the interactive whiteboard system.

ℹ️ **NOTES**

- Commands aren't case sensitive. Type commands as they appear in the left column of the tables, with the proper value or setting in the center column.

- Check your entries carefully before entering your commands.

- Press ENTER after typing each command.

- After the projector executes a command, it generates a response.

- Some of these commands are invalid with certain sources or outside of listed value ranges, and will return the response "invalidcmd=[command]".

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

See the following example for adjusting projector brightness:

```
>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 on page 76, in a command to set an absolute value or adjustment value to a source other than the active source. You can do this while the selected source is inactive, but the source device must be connected, or you'll receive an invalid command response.

See the following programming example, where both an HDMI connector and a VGA1 input are connected:

```
>set input hdmi
input=hdmi

>set brightness vga1 =65
brightness vga1 =65

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

Powerstate and Command Listing Controls

These commands turn on or turn off the projector, request the projector's current
powerstate and provide a list of commands. The projector's powerstate determines
whether or not certain commands are available at that time. These settings are always
available, even when the projector is off.

Command	Response Field
on	powerstate=[field]
off	powerstate=[field]
off now	powerstate=[field]
get powerstate	powerstate=[field]
commandlist	[list field appears]
?	[list field appears]

Powerstate Command Description

Command	Description
on	Turns on the projector.
off	Starts the shutdown process, a 10 second countdown timer, and displays an on-screen message. A second **off** command must be sent before the countdown expires to completely turn off the projector. If the countdown expires without an additional **off** command, the projector doesn't turn off.
off now	Shuts down the projector immediately. You can't delay or cancel this command.
get powerstate	Returns the projector's current powerstate.
commandlist	Returns a complete command list.
?	Returns a list of valid commands available during the projector's current powerstate. If the powerstate changes, enter the command again to see the current list.

Powerstate Response Field Description

Field	Description
powering	The projector is turning on.
on	The projector is on.
confirm off	**Confirm off** describes command stage one of the two stage **off** sequence. It isn't a selectable powerstate.
cooling	The projector is cooling.
idle	The projector is off.

Source Selection Controls

These commands switch input sources. The source type determines which commands can be accepted.

Command	Response Field	Available When Powered Off
get input	input=[field]	yes
set input [target]	input=[field]	no

Source Selection Command Description

Command	Description
get input	Returns the projector's current input.
set input	Sets the current input to one of the selectable fields.

Source Response Field Description

Field	Description
VGA1	Switches source to the VGA 1 input connector.
VGA2	Switches source to the VGA 2 input connector. If you installed your interactive whiteboard system according to the instructions, this is the wire management bundle input.
Composite	Switches source to the Composite video connector. If you installed your interactive whiteboard system according to the instructions, this is the relay from the ECP.
S-Video	Switches source to the S-Video input connector.
HDMI	Switches source to the HDMI input port.
None	**None** describes the "get input" command response while the projector is turned off. It is not a selectable input.

General Source Controls

The following source controls apply to all input sources. HDMI connector source controls are completely described in this section. These controls are unavailable when the projector is off. You can specify custom color values for all inputs.

Source Information Commands

These commands inform you of the current source settings. See page 94 for display mode descriptions, page 96 for descriptions of the color setting commands, and page 95 for descriptions of the remaining commands.

Command	Response
get displaymode	displaymode=[current display mode setting]
get brightness	brightness=[current brightness setting]
get contrast	contrast=[current contrast setting]
get whitepeaking	whitepeaking=[current whitepeaking setting]
get degamma	degamma=[current degamma setting]
get red	red=[current red color setting]
get green	green=[current green color setting]
get blue	blue=[current blue color setting]
get cyan	cyan=[current cyan color setting]
get magenta	magenta=[current magenta color setting]
get yellow	yellow=[current yellow color setting]
get videofreeze	videofreeze=[current video freeze setting]
get videomute	videomute=[current video mute setting]

Source Control Commands

These commands control the appearance of your source. These settings are unavailable when the projector is off, or when the source is disconnected.

Command	Command Target Range	Response
set displaymode [target]	=SMART Presentation =Bright Classroom =Dark Classroom =sRGB =User	displaymode=[target]
set brightness [value]	Values between =0 and =100	brightness=[value]

Command	Command Target Range	Response
set contrast [value]	Values between =0 and =100	contrast=[value]
set whitepeaking [value]	Values between =0 and =10	whitepeaking=[value]
set degamma [value]	Values between =0 and =3	degamma=[value]
set red [value]	Values between =0 and =100	red=[value]
set green [value]	Values between =0 and =100	green=[value]
set blue [value]	Values between =0 and =100	blue=[value]
set cyan [value]	Values between =0 and =100	cyan=[value]
set magenta [value]	Values between =0 and =100	magenta=[value]
set yellow [value]	Values between =0 and =100	yellow=[value]
set videofreeze [target]	=on =off	videofreeze=[target]
set videomute [target]	=on =off	videomute=[target]

Additional VGA Source Controls

Your VGA source supports all the general source controls on page 77, as well as the commands listed in this section. These settings are unavailable when the projector is off, 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]".

VGA Source Information Commands

These commands inform you of the current VGA source settings. See page 94 for descriptions of these commands.

Command	Response
get frequency	frequency=[current frequency setting]
get tracking	tracking=[current tracking setting]
get tint	tint=[current tint setting]
get sharpness	sharpness=[current sharpness setting]
get hposition	hposition=[current horizontal position setting]
get vposition	vposition=[current vertical position setting]

VGA Source Control Commands

These commands control the appearance of your VGA source. These settings are unavailable when the projector is off, or when the VGA source is disconnected. See page 74 for setting absolute and adjustment commands.

Command	Command Target Range	Response
set frequency [value]	Values between =-5 and =5	frequency=[value]
set tracking [value]	Values between =0 and =31	tracking=[value]
set saturation [value]	Values between =0 and =100	saturation=[value]
set tint [value]	Values between =0 and =100	tint=[value]
set sharpness [value]	Values between =0 and =31	sharpness=[value]
set hposition [value]	Values between =0 and =100	hposition=[value]
set vposition [value]	Values between =-5 and =5	vposition=[value]

Additional Composite Video Source Controls

Your composite video source supports all the general source controls on page 77, as well as the commands listed in this section. These settings are unavailable when the projector is off, or when the composite video source is disconnected.

NOTE

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

Composite Video Source Information Commands

These commands inform you of the current composite video source settings. See page 96 for descriptions of these commands.

Command	Response
get saturation	saturation=[current saturation setting]
get tint	tint=[current tint setting]
get sharpness	sharpness=[current sharpness setting]

Composite Video Source Control Commands

These commands control the appearance of your composite video source. See page 74 for setting absolute and adjustment commands.

Command	Command Target Range	Response
set saturation [value]	Values between =0 and =100	saturation=[value]
set tint [value]	Values between =0 and =100	tint=[value]
set sharpness [value]	Values between =0 and =31	sharpness=[value]

Audio Output Commands

These commands control your UX60 projector's audio output to your audio system (not included). Audio output controls aren't defined by the video source. These settings are unavailable when the projector is off.

Audio Output Information Commands

These commands inform you of the current audio output settings.

Command	Response
get volume	volume=[current volume setting]
get mute	mute=[current mute setting]
get volumecontrol	volumecontrol=[current volume control setting]
get cc	cc=[current closed captioning language setting]

Audio Output Control Commands

These commands control your audio output settings. See page 74 for setting absolute and adjustment commands. See page 97 for a description of CC1 and CC2.

Command	Command Target Range	Response
set volume [value]	Values between =-20 and =20	volume=[value]
set mute [target]	=on =off	mute=[target]
set volumecontrol [target]	=on =off	volumecontrol=[target]
set cc [target]	=cc1 =cc2 =off	cc=[target]

System Controls

Allows you to switch system settings and access system information.

System Information Commands (Active)

These commands inform you of the current system settings. These commands are unavailable when the projector is off.

Command	Response
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 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 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 language	language=[current language setting]

System Information Commands (Passive)

These commands inform you of the current system settings. These commands are always available, even when the projector is off.

Command	Response
get lamphrs	lamphrs=[current lamp hours of operation]
get syshrs	syshrs=[current projector hours of operation]
get fwverddp	fwverddp=[current projector firmware version]
get fwvernet	fwvernet=[current network firmware version]

get fwvermpu	fwvermpu=[current processor firmware version]
get fwverecp	fwverecp=[current ECP firmware version]

System Information Commands (Active)

These commands control the current system settings. These commands are unavailable when the projector is off.

Command	Command Target Range	Response
set autosignal [target]	=on =off	autosignal=[current]
set lampreminder [target]	=on =off	lampreminder=[current]
set highbrightness [target]	=on =off	highbrightness=[current]
set autopoweroff [value]	Values between =0 and =180	autopoweroff=[value]
set zoom [value]	Values between =0 and =30	zoom=[value]
set projectorid [value]	Values between =0 and =99	projectorid=[value]
set aspectratio [target]	=fill =match =16:9	aspectratio=[current]
set projectionmode [target]	=front =ceiling =rear =rear ceiling	projectionmode=[current]
set startupscreen [target]	=smart =usercapture =preview	startupscreen=[current]
set groupname [description]	Enter a descriptor no more than 12 characters long.	groupname=[description]
set projectorname [description]	Enter a descriptor no more than 12 characters long.	projectorname=[description]

Command	Command Target Range	Response
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 language [target]	=Brazilian Portuguese =Czech =Danish =Dutch =English =Finnish =French =German =Greek =Iberian Portuguese =Italian =Korean =Japanese =Norwegian =Polish =Russian =Simplified Chinese =Spanish =Swedish =Traditional Chinese	language=[current]

System Information Commands (Passive)

These commands control the current system settings. These commands are always available, even when the projector is off.

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

ℹ️ **NOTE**

Sending the "restoredefaults" command reverses any menu changes you made to the UX60 projector. This procedure is irreversible.

Network Commands

These commands control your UX60 projector's network status and settings. These settings are always available, even when the projector is off.

Network Information Commands

These commands inform you of the current network settings.

Command	Response
get netstatus	netstatus=connected
	netstatus=disconnected
	netstatus=disabled
get vgaoutnetenable	vgaoutnetenable=[current]
get dhcp	dhcp=[current]
get ipaddr	ipaddr=[current]
get subnetmask	subnetmask=[current]
get gateway	gateway=[current]
get primarydns	primarydns=[current]
get macaddr	macaddr=[MAC address]

ℹ️ **NOTE**

The "get netstatus" information command displays the network interface's current connection status. The "disabled" response is returned unless the "set vgaoutnetenable=on" command is sent first.

Network Control Commands

These commands control your network settings.

Command	Command Target Range	Response
set vgaoutnetenable [target]	=on =off	vgaoutnetenable=[current]
set dhcp [target]	=on =off	dhcp=[current]
set ipaddr [target]	Values between =0.0.0.0 and =255.255.255.255	ipaddr=[current]
set subnetmask [target]	Values between =0.0.0.0 and =255.255.255.255	subnetmask=[current]
set gateway [target]	Values between =0.0.0.0 and =255.255.255.255	gateway=[current]
set primarydns [target]	Values between =0.0.0.0 and =255.255.255.255	primarydns=[current]

Simple Network Management Protocol

The UX60 projector supports a list of SNMP commands as described in the management information base (MIB) file, available for download from www2.smarttech.com/st/en-US/Support/FrontProjection/UX60MIB.

The UX60 SNMP agent supports SNMP version 1. Upload the MIB file to your SNMP management system application, and use it as described within your application's user guide.

Web Page Management

In addition to SNMP and RS232 controls, you can access advanced setup features via the projector's web page. This web page allows you to access and manage the projector from a remote location using any computer connected to your intranet.

NOTE

To access the web page, your browser must support JavaScript™. Most commonly used browsers, such as Internet Explorer® or Firefox®, support JavaScript.

Accessing Web Page Management

Before accessing the web page, you must attach the network cable according to the procedure titled *Attaching Sources and Outputs to Your UX60 Projector* on page 24. When you first connect your UX60 projector to a network, an IP address will appear on the on-screen display. You can view the IP address setting through the projector menu, by accessing the Default Settings section as described on page 90.

To use the management web page

1. Start your Internet browser.

2. Enter the IP address into the address line field, and press ENTER.

    The *SMART UX60 Projector Settings* dialog box appears.

3. Select the menu options in the left pane to access the settings on each page.

4. Select or enter your desired settings with your computer's keyboard, and then press the **Submit** or action button next to the setting you have changed.

Home Page

This menu displays basic projector information and allows you to select the on-screen display language.

Submenu Settings	Description
Language	Displays language options. Press **Submit** to apply language settings.
Projector Information	Displays current projector information.

Control Panel

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

Submenu Settings	Description
Power	Turns the projector on or puts the projector into Idle mode. Select the **Power ON** or **Power OFF** button.

Submenu Settings	Description
Restore All Projector Defaults	Submits default values to the projector settings or refreshes the current settings. Select **Submit** or **Refresh**. **ℹ NOTE** The **Submit** option is irreversible and resets all values.
Volume	Adjusts the volume of the projector.
Mute	Adjusts your mute settings to **On** or **Off**. Select the **On** to mute the sound and **Off** to turn off mute.
Volume Control	Allows the ECP to adjust the volume range. Select **On** to allow volume adjustment and select **Off** to disable the volume adjustment, if you prefer to use your audio system or speaker (not included) controls.
Closed Captioning	Adjusts your settings to **On** or **Off**. Select **On** to turn on closed captions and select **Off** to turn the feature off.
CC Language	Sets your closed captioning language to **CC1** or **CC2** mode. Typically, the CC1 language is English and the CC2 language is in Spanish, French, or another language (dependent on the television channel or media setup).
Display Mode	Adjusts the display mode to **SMART Presentation**, **Bright Classroom, Dark Classroom, sRGB** and **User** modes. See page 94 for a description of display modes.
Brightness	Adjusts projector brightness from 0 to 100.
Contrast	Adjusts projector contrast from 0 to 100. The contrast controls the difference between the lightest and darkest parts of the picture.
Frequency	Changes the display data frequency to match the frequency of your computer's graphic card. Adjusts the frequency of the projected image from -5 to 5.
Tracking	Synchronizes your display timing with your computer's graphic card.
Sharpness	Adjusts the sharpness of the image.

Submenu Settings	Description
White Peaking	Adjusts the image color brightness while providing more vibrant colors from 0 to 10. A value closer to 0 creates a natural image and a value closer to 10 enhances image brightness.
Degamma	Adjusts the color performance of the display.
Color	Custom-adjusts your red, green, blue, cyan, magenta, and yellow settings from the factory default settings.
Auto Signal Detect	Allows for signal searching of input connectors. Select **On** to scan until the first active input signal is found, or select **Off** to deactivate signal detection.
Lamp Reminder	Turns the change lamp warning message on or off. This message appears 100 hours before the recommended lamp replacement.
Lamp Mode	Adjusts lamp brightness to **Standard** or **Economy** modes. Standard mode brightens the image but lowers lamp life and Economy mode darkens the image but extends lamp life.
Auto Power Off	Sets the countdown timer. The timer begins when no signal is being sent to the projector. The projector enters idle mode when it finishes.
Zoom	Adjusts the level of zoom.
H-position (RGB input)	Moves the image left or right.
V-position (RGB input)	Moves the image up or down.

Submenu Settings	Description
Aspect Ratio	Adjusts aspect ratios between **Fill Screen**, **Match Input**, and **16:9**. • **Fill Screen** produces an image that fills the entire screen with stretching and scaling. • **Match input** matches the projector's aspect ratio to the input's aspect ratio, with black bands appearing along the top and bottom edge of the screen horizontally, in letterbox format, or black bands appearing along the left and right edge of the screen vertically, in pillarbox format. • **16:9** changes the output to 16:10 for the WXGA projector by letterboxing the image, which is recommended for use with HDTV and DVDs enhanced for wide-screen TV. **i NOTE** See *Video Format Compatibility* on page 32 for appearance descriptions in each mode.
Startup Screen	Selects the type of start up screen to **SMART** or **User**. Once you change this setting, the on-screen display menu closes and captures the on-screen image. The new setting takes effect the next time the on-screen display opens. The SMART screen is the default startup screen and the User screen uses the saved picture from the Capture User Startup Screen function.
High Speed Fan	Adjusts the speed of the projector's fan. Select **HIGH** to set the projector's fan to high speed. Select **NORMAL** to use the normal fan speed. **i NOTE** Use the High setting when the projector's temperature is high or the altitude is above 6000 ft (1829 m).
Projection Mode	Selects the projection mode (**Front**, **Ceiling**, **Rear** or **Rear Ceiling**). **i NOTE** SMART recommends that you never change this setting from the **Ceiling** projection mode.

Submenu Settings	Description
Source	Selects the input source (**VGA-1**, **VGA-2**, **Composite** or **S-Video**).

Network Settings

This menu allows you to enable or disable DHCP and set the network related addresses and names.

Submenu Settings	Description
DHCP	Turns the network's Dynamic Host Control Protocol **On** or **Off**. • **DHCP On** automatically assigns the DHCP server's IP address to the projector. • **DHCP Off** allows you to assign an IP address manually.
IP Address	Displays your IP address in x.x.x.x format.
Subnet Mask	Displays your subnet mask in x.x.x.x format.
Gateway	Displays your default projector network gateway in x.x.x.x format.
DNS	Displays your domain name in x.x.x.x format.
Group Name	Displays your projector's group name (maximum 12 characters).
Projector Name	Displays your projector name (maximum 12 characters).
Location	Displays your projector's location (maximum 16 characters).
Contact	Displays your projector's contact information (maximum 16 characters).
SNMP Enable	Enables or disables the SNMP's MIB function.
Read-Only Community	This option is a password sent with each SNMP Get-Request and allows access to the device. **NOTE** The default for Read-Only Community is public.

Submenu Settings	Description
Read/Write Community	This option is a password sent with each SNMP Set-Request and allows access to the device. **ℹ NOTE** The default for Read/Write Community is private.
Trap Destination Address	Defines the projector's Trap Destination Address.

E-mail Alerts

This menu allows you to enter your preferred address for receiving e-mail alerts and adjust related settings.

Submenu Settings	Description
E-mail Alert	Select **Enable** or **Disable** to turn on or turn off the E-mail Alert function.
To	Defines the e-mail address of the e-mail alert recipient.
CC	Defines the e-mail address of the e-mail alert "copy to" recipient.
From	Defines the e-mail address of the user who sends the e-mail alert.
Outgoing SMTP server	Defines the SMTP server.
Username	Defines the SMTP server user name.
Password	Defines the SMTP server password.
Alert Condition	Provides e-mail alerts whenever **Lamp warning**, **Low lamp life**, **Color wheel break**, **Fan lock** and **Temperature warning** conditions occur. Select the settings you want and then press **Submit**. **ℹ NOTE** The projector sends an alert e-mail (SMART Alert) to your e-mail address. Press the E-mail Alert Test to confirm your e-mail address by sending a test e-mail (SMART Alert-Test Mail).

Password Settings

This menu provides a security function allowing an administrator to manage usage for the projector and allows you to enable the Administrator Password function.

Submenu Settings	Description
Password	Access Web Management for the first-time by pressing the **Enable** button and entering a password. When the password function is enabled, the administrator password is required to access Web Management. Select **Disable** to turn the projector on without a password.

🛈 **NOTES**

- The first time the password settings are used, the default value for the password is four digits (1234).

- If you forget your password, please refer to the *Password Retrieval Instructions* on page 65.

Chapter 7

UX60 Projector Menu Commands

This chapter describes ways to change your projector settings if you want to customize your UX60 projector's output. These procedures are intended for experienced users, information technology administrators and facility managers that require access to advanced features. SMART Technologies has optimized the UX60 projector for best performance out of the box.

Topics in this chapter include:

Source Image Adjustment

Display Mode Presets

SMART has provided a variety of display mode presets for users to easily change during a lesson or presentation. Display Mode presets allow you to project images from various sources with consistent color performance. You can access these settings by pressing the remote control's **Mode** button in the Display region or the ECP's **Input** button, and by accessing the network browser or the serial interface.

- **SMART Presentation** is recommended for color fidelity.

- **Bright Classroom** and **Dark Classroom** are recommended for locations with those conditions.

- **sRGB** provides standardized accurate color.

- **User** mode allows you to apply your own settings, as described below.

VGA Source Settings

You can adjust these settings only when you're displaying a VGA source image. All modified settings register to the **User** display mode.

VGA Settings Menu	Description
Display Mode	Displays your projector's display mode. See page 94 for a description of the display mode presets.
Brightness	Adjusts the projected image brightness from 0 to 100. Press the left arrow to reduce or the right arrow button to increase the brightness.
Contrast	Adjusts the projected image contrast from 0 to 100. Press the left arrow to reduce or the right arrow button to increase the contrast.
Frequency	Changes the projector's display data frequency to match the frequency of your computer's graphic card. You can adjust the frequency of the projector's image input from 0 to 32.
Tracking	Synchronizes your display timing with your computer's graphic card.
H-position	Adjusts the horizontal position of the projected image from 0 to 100. Press the left arrow button on the remote control to move image left and press the right arrow button to move the image right.

VGA Settings Menu	Description
V-position	Adjusts the vertical position of the projected image. Press the left arrow button on the remote control to move image down and press the right arrow button to move the image up.
White Peaking	Adjusts the image color brightness while providing more vibrant white shades from 0 to 10. A setting closer to 0 creates a natural image, while a setting closer to 10 creates a enhanced brightness.
Degamma	Adjusts the color performance of the display.
Color	See *Custom Source Image Adjustments* on page 96.

HDMI Input Source Settings

You can adjust these settings only when you're displaying an HDMI input source image. All modified settings register to the **User** display mode.

HDMI Input Settings Menu	Description
Display Mode	Displays your projector's display mode. See page 94 for a description of the display mode presets.
Brightness	Adjusts projector brightness from 0 to 100. Press the left arrow to reduce or the right arrow button to increase the brightness.
Contrast	Adjusts projector contrast from 0 to 100. Press the left arrow to reduce or the right arrow button to increase the contrast.
White Peaking	Adjusts the image color brightness while providing more vibrant colors from 0 to 10. A value closer to 0 creates a natural image and a value closer to 10 creates a enhanced brightness.
Degamma	Adjusts the color performance of the display.
Color	See *Custom Source Image Adjustments* on page 96.

Video Source Settings

You can adjust these settings only when you're displaying a video source image. All modified settings register to the **User** display mode.

Video Settings Menu	Description
Display Mode	See page 94 for a description of the display mode presets.
Brightness	Adjusts projector brightness from 0 to 100. Press the left arrow to reduce or the right arrow button to increase the brightness.
Contrast	Adjusts the projector contrast from 0 to 100. Press the left arrow to reduce or the right arrow button to increase the contrast.
Saturation	Adjusts the image from black and white to saturated color from 0 to 100. Press the left arrow button on the remote control to decrease or press the right arrow button to increase the saturation.
Sharpness	Adjusts projected image sharpness, from 0 to 32. Press the left arrow button on the remote control to decrease or press the right arrow button to increase sharpness.
Tint	Adjusts the image color balance of red and green from 0 to 100. Press the left arrow button on the remote control to increase the amount of green in an image and press the right arrow button to increase the amount of red.
White Peaking	Adjusts the image color brightness while providing more vibrant colors, in increments from 0 to 10. A value closer to 0 creates a natural image and a value closer to 10 creates a enhanced brightness.
Degamma	Adjusts the color performance of the display.
Color	See *Custom Source Image Adjustments* in the following section.

Custom Source Image Adjustments

You can adjust the six-segment color wheel on the UX60 projector to provide custom color and luminance output.

The six color wheel segments are Red, Green, Blue, Cyan, Magenta and Yellow. All color wheel values range from 0 to 100, with the initial setting at 100. All adjustments to the color wheel settings register to the **User** display mode.

Audio Settings Adjustment

These settings apply to all connected audio sources.

Audio Settings Menu	Description
Volume	Adjusts the volume from 0 to 100. Press the left arrow button on the remote control to decrease or right arrow button to increase volume.
Mute	**On** mutes the projector's audio output. **Off** turns off mute.
Disable Volume Control	**On** disables the projector's volume control and the volume control knob located on the ECP. **Off** enables the volume control and volume control knob.
Closed Captioning	**On** turns on closed captioning. **Off** turns off closed captioning.
Closed Captioning Language	**CC1** displays American English subtitles. **CC2** displays other regional languages, depending on availability.

Default Settings Adjustment

These are the UX60 projector's default settings. You can adjust them when the projector is on.

Default Settings Menu	Description
Auto Signal Detect	**On** enables the projector to continuously switch between inputs until an active video source is found. **Off** disables this option.
Lamp Reminder	**On** turns on the lamp replacement reminder. **Off** turns off the lamp replacement reminder.
Lamp Mode	**Standard** displays a high-quality, bright image. **Economy** increases the lamp life by decreasing the brightness of the image.
Auto Power Off	The auto power off timer begins to count down when the projector no longer receives a video signal. Press the left and right buttons to select a time between 1 and 180 minutes. Selecting 0 turns off the timer.
Zoom	Zooms in to the center of the image. Press the left arrow button on the remote control to zoom out and press the right arrow button to zoom in.

Default Settings Menu	Description
Projector ID	Describes the projector's unique ID number within your organization's network. Using the network menu, you can adjust the projector ID number.
Aspect Ratio	Adjusts aspect ratios between **Fill Screen**, **Match Input**, and **16:9**. • **Fill Screen** produces an image that fills the entire screen with stretching and scaling. • **Match input** matches the projector's aspect ratio to the input's aspect ratio, with black bands appearing along the top and bottom edge of the screen horizontally, in letterbox format, or black bands appearing along the left and right edge of the screen vertically, in pillarbox format. • **16:9** changes the output to 16:10 for the WXGA projector by letterboxing the image, which is recommended for use with HDTV and DVDs enhanced for wide-screen TV. **NOTE** See *Video Format Compatibility* on page 32 for appearance descriptions in each mode.
Startup Screen	Press **Enter** to access the startup screen menu. You can reset or change the startup screen's projected image.
Set to Default?	Press **Enter** to access the reset menu. This resets the projector to the factory state. **NOTE** This option is irreversible and resets all values.

Startup Screen Submenu

You can replace the standard SMART logo and slogan startup screen with an image representing your school, class, or organization.

Startup Screen Submenu	Description
Startup Screen	The image name is *SMART* for the default configuration, or *User* for the image you capture with the UX60 projector's image capture utility.

Startup Screen Submenu	Description
Capture User Startup Screen	Press **Enter** on the remote control to perform an image screen capture. The entire projected interactive whiteboard image is captured and stored for reuse. ℹ **NOTE** The capture can take up to one minute, depending on the complexity of the graphic.
Preview Startup Screen	Press **Enter** to preview the default or captured startup screen.
Exit	Returns to the Default Settings menu.

Network Settings Adjustments

This is the UX60 projector's network settings menu, and you can adjust the network and VGA output options when the projector is on. You can adjust all other options via the network connection.

Network Settings Menu	Description
Network and VGA Out	The VGA out and Network settings features are **Off** by Default. Select **On** to activate these features.
Status	Displays the projector's network status.
DHCP	Displays the status of your network's Dynamic Host Configuration Protocol.
Password Reminder	Select this option to e-mail your projector's password reminder to the mail recipient. You must first enter an e-mail address destination to receive the message. See page 91 for instructions on setting up an e-mail address destination.
IP Address	Displays your projector's IP address.
Subnet Mask	Displays your projector's subnet mask.
Gateway	Displays your projector's network gateway.
DNS	Displays your projector's DNS name.
MAC Address	Displays your projector's MAC address.
Group Name	Displays your projector's workgroup name, as given by an administrator.

Network Settings Menu	Description
Projector Name	Displays your projector's name, as given by an administrator.
Location	Displays your projector's location, as given by an administrator.
Contact	Displays your projector's contact name or number for support, as given by an administrator.

Language Preference Setting

Select your language preference in the list. You can also adjust this setting from the projector's network menu, or via the serial interface connection commands.

Language Preference	
Brazilian Portuguese	Italian
Czech	Japanese
Danish	Korean
Dutch	Norwegian
English	Polish
Finnish	Russian
French	Simplified Chinese
German	Spanish
Greek	Swedish
Iberian Portuguese	Traditional Chinese

Information Panel

This is the UX60 projector's information panel. This screen has no adjustable options. Some options are adjustable via the remote control, ECP, network connection or the serial communication interface, others can only be adjusted from the projector's service menu, and most options are not adjustable at all.

Information Panel	Description
Lamp Hours	Displays the amount of usage hours on the lamp. ⚠ **WARNING** Always reset the Lamp Hours from the service menu after you exchange a lamp. Lamp service reminders are based on the current hours of use. To see the lamp hour reset procedure, see page 66.
Input	Displays the current input source.
Resolution	Displays the projector's current resolution settings.

Information Panel	Description
Firmware Version	Displays the projector's firmware version. **NOTE** This field isn't editable.
MPU Version	Displays the projector microprocessor's firmware version. **NOTE** This field isn't editable.
Network Version	Displays the projector network card's version. **NOTE** This field isn't editable.
Model Number	Displays your projector's model number. **NOTE** This field isn't editable.
Serial Number	Displays your projector's serial number. **NOTE** This field isn't editable.

Appendix A

Disabling USB Communications

Disabling the ECP's USB Port

In some situations, you may need to disable the ECP's front USB port. Disabling the USB port prevents users from using or saving documents to USB storage devices using the ECP's front USB receptacle. The other USB receptacles will not be deactivated, as they're required for the interactive whiteboard and computer connections to function. Follow these instructions to disable this feature.

IMPORTANT

- Do not perform this operation if you are unfamiliar with using jumper switches.

- Always use an anti-static wrist wrap when working on the ECP.

You will need a pair of needle-nose pliers for this procedure.

To remove the USB jumper switch

1. Remove and cut the case on the ECP (see page 35).

2. Locate the USB jumper behind the jumper cover port.

3. Using the needle-nose pliers, pull the jumper from the two connection posts, and place the jumper back onto a single post.

👉 **IMPORTANT**

Do not discard the jumper as this will make the USB deactivation difficult to reverse.
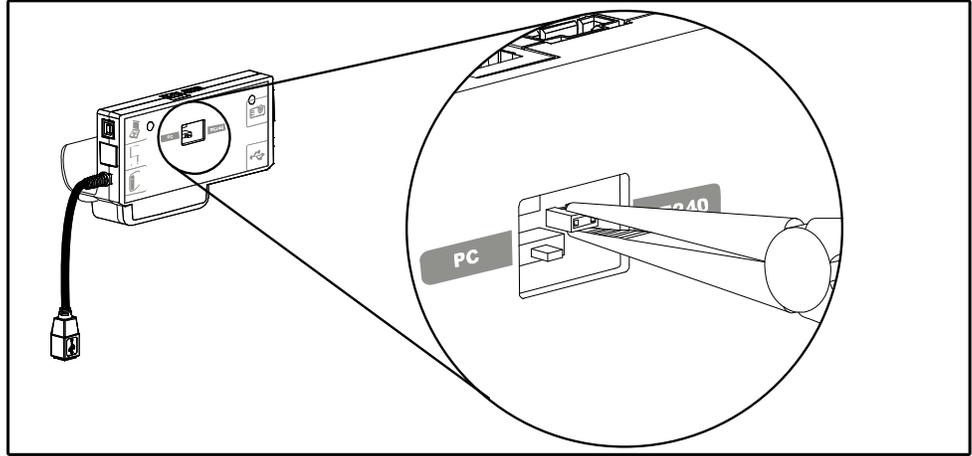
4. Insert the USB jumper cover into the USB A port on the front of the ECP.

5. If you're preparing to attach a SMART Hub to your UX60 projector, see page 36. If not, continue with these instructions.

6. Replace the ECP on the interactive whiteboard with the two screws from the previous steps.

7. Reconnect all cabling to the ECP, and reconnect the master power cable to the power outlet.

Appendix B
Customer Support

Online Information and Support

Visit www.smarttech.com/support to view and download user's guides, how-to and troubleshooting articles, software and more.

Training

Visit www.smarttech.com/trainingcenter for training materials and information about our training services.

Technical Support

If you experience difficulty with your SMART product, please contact your local reseller before contacting SMART Technical Support. Your local reseller can resolve most issues without delay.

> **NOTE**
> To locate your local reseller, visit www.smarttech.com/where.

All SMART products include online, telephone, fax and e-mail support:

Online	www.smarttech.com/contactsupport
Telephone	+1.403.228.5940 or Toll Free 1.866.518.6791 (U.S./Canada) (Monday to Friday, 5 a.m. – 6 p.m. Mountain Time)
Fax	+1.403.806.1256
E-mail	support@smarttech.com

Shipping and Repair Status

Contact SMART's Return of Merchandise Authorization (RMA) group, Option 4, +1.866.518.6791, for shipping damage, missing part and repair status issues.

General Inquiries

Address   SMART Technologies
            3636 Research Road NW
            Calgary, AB T2L 1Y1
            CANADA

Switchboard +1.403.245.0333 or
            Toll Free 1.888.42.SMART (U.S./Canada)

Fax   +1.403.228.2500

E-mail   info@smarttech.com

Warranty

Product warranty is governed by the terms and conditions of SMART's "Limited Equipment Warranty" that shipped with the SMART product at the time of purchase.

Registration

To help us serve you, register online at www.smarttech.com/registration.

Appendix C
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 Regulations (WEEE Directive)

Waste Electrical and Electronic Equipment regulations apply to all electrical and electronic equipment sold within the European Union.

When you dispose of any electrical or electronic equipment, including SMART Technologies products, we strongly encourage you to properly recycle the electronic product when it has reached end of its life. If you require further information, please contact your reseller or SMART Technologies for information on which recycling agency to contact.

Restriction of Certain Hazardous Substances (RoHS Directive)

This product meets the requirements of the European Union's Restriction of Certain Hazardous Substances (RoHS) Directive 2002/95/EC.

Consequently, this product also complies with other regulations that have arisen in various geographical areas, and that reference the European Union's RoHS directive.

Batteries

Batteries are regulated in many countries. Check with your reseller to find out how to recycle used batteries.

Packaging

Many countries have regulations restricting the use of certain heavy metals in product packaging. The packaging used by SMART Technologies to ship products complies with applicable packaging laws.

China's Electronic Information Products Regulations

China regulates products that are classified as EIP (Electronic Information Products). SMART Technologies products fall under this classification and meet the requirements for China's EIP regulations.

U.S. *Consumer Product Safety Improvement Act*

The United States has enacted the *Consumer Product Safety Improvement Act* which limits the lead (Pb) content in products. SMART Technologies is committed to complying with this initiative.

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