

SMART Board MX100 series interactive displays

INSTALLATION AND MAINTENANCE GUIDE

SBID-MX165 | SBID-MX175 | SBID-MX186

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This guide and other resources for SMART Board MX100 series interactive displays are available in the Support section of the SMART website ([smarttech.com/support](https://www.smarttech.com/support)). Scan this QR code to view these resources on your mobile device.

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www.smarttech.com/patents

January 5, 2022

Important information

IMPORTANT

There are critical software updates for the display that you need to install to ensure the display is fully functional and provides the best experience. Connect the display to a wired or wireless network with Internet access to automatically download and apply these updates as well as future updates.

WARNING

- Failure to follow the installation instructions included with the display could result in injury and product damage which may not be covered by the warranty.
- Do not open or disassemble the display. You risk electrical shock from the high voltage inside the casing. Opening the casing also voids the warranty.
- Do not stand (or allow children to stand) on a chair to touch the surface of the display. Rather, mount the product at the appropriate height.
- To reduce the risk of fire or electric shock, do not expose the display to rain or moisture.
- If the display requires replacement parts, make sure the service technician uses replacement parts specified by SMART Technologies or parts with the same characteristics as the original.
- Ensure that any cables that cross the floor to the display are properly bundled and marked to avoid a trip hazard.
- Do not insert objects inside the cabinet ventilation holes, because they could touch dangerous voltage points and cause electric shock, fire or product damage which may not be covered by the warranty.
- Do not place heavy objects on the power cable. Damage to the cable could cause shock, fire or product damage which may not be covered by the warranty.
- Use only extension cords and outlets that can fully accommodate the display's polarized plug.
- Use the power cable provided with the display. If a power cable is not supplied, contact your supplier. Use only power cables that match the AC voltage of the power outlet and that comply with your country's safety standards.
- If the glass is broken, do not touch the liquid crystal. To prevent injury, handle glass fragments with care when disposing of them.

- Do not move or mount the display by connecting rope or wire to its handles. The display is heavy, and failure of the rope, wire or handle could lead to injury.
- Use only VESA®-approved mounts if using a mount other than the one supplied with the display..
- Disconnect all of the display's power cables from the wall outlet and seek assistance from qualified service personnel if any of the following occur:
 - The power cable or plug is damaged
 - Liquid is spilled into the display
 - Objects fall into the display
 - The display is dropped
 - Structural damage, such as cracking, occurs
 - The display behaves unexpectedly when you follow operating instructions

CAUTION

- Turn off the display before cleaning its screen. Otherwise, you may scramble the desktop icons or inadvertently activate applications when you wipe the screen.
- Avoid setting up and using the display in an area with excessive levels of dust, humidity, and smoke.
- Make sure an electrical socket is near the display and remains easily accessible during use.
- The display should be used only with European TN and TT power distribution systems.

It is not suitable for older, IT-type power distribution systems found in some European countries. This system (IT-type) is widely used isolated from earth, in some installations in France, with impedance to earth, at 230/400V, and in Norway, with voltage limiter, neutral not distributed, at 230V line-to-line.

Contact qualified personnel if you're uncertain of the type of power system available where you're installing the display.
- The accessory slot's maximum available power is 60 W. The slot is not a limited power source. To reduce the risk of fire, make sure that accessories connecting to the slot satisfy the fire enclosure requirements of IEC 60950-1.

Important information

- You must connect the USB cable that came with the display 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 IEC 60950-1 and/or IEC 62368-1. The source computer must be CE marked and carry safety certification marks for Canada and USA. This is for operating safety and to avoid damage to the display.

IMPORTANT

- The following are the normal operating power requirements for the display, including speakers:

Model	Power requirements
SBID-MX165	100V to 240V AC, 50 Hz to 60 Hz, 100 W max
SBID-MX175	100V to 240V AC, 50 Hz to 60 Hz, 238 W max
SBID-MX186	100V to 240V AC, 50 Hz to 60 Hz, 250 W max

- For additional requirements and other information, refer to the display's specifications (see *More information* on page 15).

Federal Communication Commission interference statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- this device must accept any interference received, including interference that may cause undesired operation.

NOTE

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 instruction manual, 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.

CAUTION

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Radiation exposure statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the antenna of this device and all nearby persons. This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

Innovation, Science and Economic Development Canada statement

This device complies with RSS-247 of the Innovation, Science and Economic Development Canada Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- this device must accept any interference received, including interference that may cause undesired operation.

Radiation exposure statement

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the antenna of this device and all nearby persons. This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

Cet appareil est conforme à la norme ISED CNR-247 pour les appareils radio agréés. Son fonctionnement est soumis aux deux conditions suivantes:

- le dispositif ne doit pas produire de brouillage préjudiciable, et
- ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Déclaration d'exposition aux radiations

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps. Cet émetteur ne doit pas être co-implantés ou exploités conjointement avec une autre antenne ou émetteur.

Important information

Compliance to Malaysia specification

The SMART Technologies ULC Interactive Display SBID-MX265, SBID-MX275, and SBID-MX285 meet the Malaysian requirements as defined by the Certifying Agency, SIRIM QAS International.



United Arab Emirates – TRA registration details

Regulatory model SBID-MX065, SBID-MX065, SBID-MX075,
SBID-MX086



Contents

Important information	3
Chapter 1: Welcome	9
About this guide	9
Identifying your specific model	10
Features	10
Components	11
Accessories	14
More information	15
Chapter 2: Installing the display	16
Moving the display to the installation site	16
Installing the display on a wall	18
Installing the display on a stand	23
Chapter 3: Connecting power, cables and devices	25
Connecting power	25
Connecting to a network	26
Connecting cables for room computers, guest laptops and other input sources	27
Connecting external speakers	29
Connecting room control systems	30
Connector reference	30
Chapter 4: Configuring the display	34
Connecting to a network	34
Chapter 5: Turning on your display for the first time	37
Chapter 6: Orienting the display	39
Chapter 7: Maintaining the display	41
Checking the display installation	41
Cleaning the screen	42
Cleaning the touch sensors	42
Maintaining ventilation	43
Preventing condensation	43
Replacing the pens	43
Turning the display off and back on	44
Resetting the display	44
Removing and transporting the display	44

Updating the e ³ experience	45
Chapter 8: Troubleshooting	48
Resolving general issues	48
Resolving issues with power	49
Resolving issues with image or video quality	50
Resolving issues with audio	53
Resolving issues with touch and digital ink	54
Resolving issues with remote management	55
Resolving issues with software	56
Referring to the SMART knowledge base for additional troubleshooting information	56
Contacting your reseller for additional support	56
Chapter 9: Troubleshooting the e³ experience	58
Resolving general issues	58
Resolving issues with Whiteboard	59
Resolving issues with Browser	59
Resolving issues with Input	60
Resolving issues with EShare	61
Resolving issues with iMirror	62
Resolving issues with File Manager	62
Appendix A: Adjusting display and e³ experience settings	64
Exiting the display's settings	64
Network	64
Screen lock	65
Advanced	66
Update	68
Recovery	68
About	68
Appendix B: Remotely managing the display	70
Configuring the serial interface settings	71
Communication structure	71
Power states	74
Commands	75
Appendix C: Identifying the display	77
Appendix D: Supported resolutions	78
HDMI 1 in, HDMI 2 in and HDMI 3 in	78
VGA	78
Appendix E: Hardware environmental compliance	80
Waste Electrical and Electronic Equipment and Battery regulations (WEEE and Battery Directives)	80
Batteries	80

Contents

More information80

Chapter 1

Welcome

About this guide	9
Identifying your specific model	10
Identifying your SMART Board MX100 series interactive display model	10
Features	10
Components	11
Screen	12
Pens	12
Front connector panel	13
Front control panel	13
Remote control	13
Status light	13
Ambient light sensor	14
Internal speakers	14
Accessories	14
SBA-100 projection audio system	14
SMART Audio 400 classroom amplification system	14
USB extenders	15
More information	15

This chapter introduces the SMART Board® MX100 series interactive displays.

About this guide

This guide explains how to install and maintain a SMART Board MX100 series interactive display. It includes the following information:

- How to install the display
- How to connect power and devices
- How to turn on the display for the first time
- How to maintain the display for years of use
- How to troubleshoot issues with the display

In addition, this guide includes information on the display's settings and remote management support.

This guide is intended for those who install and maintain displays in their organizations. Other documentation and resources are available for those who use displays (see *More information* on page 15).

Identifying your specific model

SMART offers several different models of the SMART Board MX100 series interactive display.

Identifying your SMART Board MX100 series interactive display model

The following models of SMART Board MX100 series interactive display are available:

Model	Frame style	Screen size (approximate)
SBID-MX165	White	65" (165 cm)
SBID-MX175	White	75" (190 cm)
SBID-MX186	White	86" (218 cm)

Refer to the specifications for detailed technical information for this model, including product dimensions and weights (see *More information* on page 15).

For help identifying your display, see *Appendix C: Identifying the display* on page 77.

Features

The SMART Board MX100 series interactive display is the hub of your classroom or meeting room. The e³ experience provides one-touch access to collaborative tools, including a whiteboard, wireless screen sharing, and a web browser. There's no need for wires, cables or manual software and firmware updates.

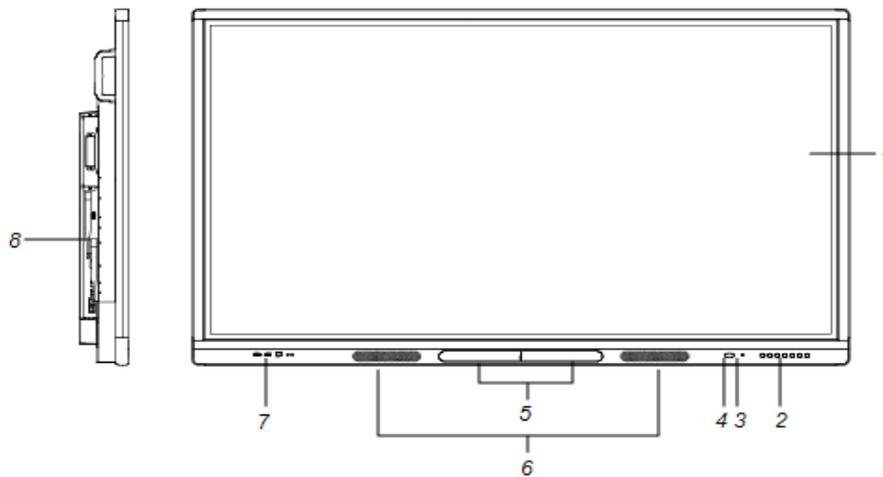
The display includes the following features:

Feature	Description
e ³ experience	The e ³ experience provides one-touch access to collaborative tools, including a whiteboard, wireless screen sharing and a web browser.

Feature	Description
Touch support	<p>You can do everything on the display that you can do at your computer—open and close applications, meet with others, create new documents or edit existing ones, visit websites, play and manipulate videos, and so on—by touching the display’s surface.</p> <p>You can use an array of gestures within applications, including panning, scaling, rotating and zooming in and out.</p> <p>The display’s support for up to 10 simultaneous touch, writing and erase points enables you and other users to interact with objects on the screen at the same time.¹</p>
Writing and drawing support	You can write over applications in digital ink using one of the supplied pens, and then erase the digital ink using your palm.
Remote control	You can use a remote control with the SMART Board MX100 series interactive display.
Audio support	The display includes integrated speakers for presenting audio from connected input sources.

Components

The display consists of the following components:



¹Requires SMART Product Drivers to be installed. Some applications might not support all touch points.

No.	Name	More information
Pictured		
1	Screen	Page 12
2	Front control panel	Page 13
3	Light sensor	Page 14
4	Remote control sensor / status light	Page 11
5	Pen (×2)	Page 12
6	Speakers	Page 14
7	Front connector panel	Page 13
8	Side connector panel	Page 31
Not pictured		
9	AC switch	Page 37
10	Bottom connector panel	Page 32
11	Remote control	Page 13

Screen

The following are the dimensions for the display:

Model	Diagonal	Active touch area	Active image area
SBID-MX165	64 1/2" (163.9 cm)	57 3/8" × 32 3/4" (145.7 cm × 83.3 cm)	56 1/4" × 31 5/8" (142.9 cm × 80.4 cm)
SBID-MX175	74 1/2" (189.3 cm)	66 1/2" × 38" (168.8 cm × 96.6 cm)	65" × 36 1/2" (165 cm × 92.8 cm)
SBID-MX186	85 5/8" (190.5 cm)	76 3/8" × 43 3/4" (194.1 cm × 111.2 cm)	74 5/8" × 42" (189.5 cm × 106.6 cm)

Pens

The display comes with two pens.

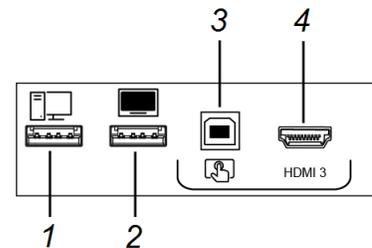
The display's bottom frame includes magnetic holders for the pens. Remove a pen from its holder and use the pen to draw digital ink.

CAUTION

When you return a pen to the magnetic holder, make sure it's centered in its holder to keep it from falling and being damaged.

Front connector panel

The front connector panel includes connectors for USB peripherals and a computer or other input source.



No.	Name	Procedure
1	USB 2.0 Type-A connector	Connect USB drives and other devices that you want to use with the currently selected input source.
2	USB 2.0 Type-A connector	Connect USB drives and other devices that you want to use with the e ³ experience.
3	USB 2.0 Type-B connector	Connect a USB cable to the display and computer to provide touch control of the computer connected to HDMI 3.
4	HDMI 3 input connector	Connect a computer or other input source to the display (see page 27).

Front control panel

The front control panel contains the Power, Input Select, Menu, Freeze, Mute and volume control buttons.

Remote control

The remote control is an alternative to the front control panel for controlling the display.

Status light

The status light blinks green and red when it registers a button being pressed on the remote control.

When the status light is red, the display is in a low power state. To wake the display, press the **Power** button on the front control panel or **POWER** on the remote control.

Ambient light sensor

The ambient light sensor can detect the room brightness and adjust the display's brightness. Make sure **Auto** is enabled in Brightness and volume in Settings. See *Brightness and volume* on page 67.

Internal speakers

The display includes two 10 W rms integrated speakers. You can also connect external speakers (see *Connecting external speakers* on page 29).

Accessories

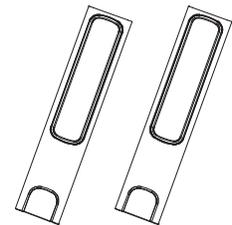
Accessories for the display include the following:

- SBA-100 projection audio system
- SMART Audio 400 classroom amplification system
- USB extenders

SBA-100 projection audio system

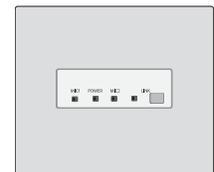
The SBA-100 projection audio system consists of two 14 W speakers and is intended for wall-mounted displays. You can control volume using the display's front control panel or the digital volume controls in a connected computer's operating system.

For more information, see the *SBA-100 projection audio system specifications* (smarttech.com/kb/171146).



SMART Audio 400 classroom amplification system

The SMART Audio 400 classroom amplification system provides high-quality audio amplification. The system comes with a teacher microphone and optional student microphone. Multiple speaker options are available, including wall- and ceiling-mounted speakers. The amplifier receives audio signals from the microphones and translates them into crystal-clear sound through the speakers.



For more information, see the *SMART Audio 400 classroom amplification system specifications* (smarttech.com/kb/171137).

NOTE

The SMART Audio 400 classroom amplification system is available only in Canada and U.S.

USB extenders

As noted in *Connecting cables for room computers, guest laptops and other input sources* on page 27, the USB connection between the display and computer should be no longer than 16' (5 m). If you need to connect a computer that is more than 16' (5 m) from the display, use one of the following USB extenders:

Extender	Specifications
USB-XT	smarttech.com/kb/119318
CAT5-XT-1100	smarttech.com/kb/170202

SMART recommends only using USB extenders with the USB connectors on the side and bottom connector panels on the display.

For more information, see:

- [Troubleshooting and extending the USB 2.0 and USB 3.0 connection to your SMART interactive display](#)
- [USB cables and connectors](#)

More information

In addition to this guide, SMART provides the following documents for the display:

Document	Link
User guide	smarttech.com/kb/171289
SBID-MX165, MX175, MX186, MX265, MX275, MX286, MX365, MX375, and MX386 installation instructions	smarttech.com/kb/171274
SBID-MX165 specifications	smarttech.com/kb/171265
SBID-MX175 specifications	smarttech.com/kb/171266
SBID-MX186 specifications	smarttech.com/kb/171267
Comparison	smarttech.com/kb/171161

These documents are available in the Support section of the SMART website (smarttech.com/support). Scan the QR code on the cover of this guide to view the SMART Board MX100 series interactive displays pages in the Support section.

Chapter 2

Installing the display

Moving the display to the installation site	16
Using transportation aides	17
Accommodating doorways, hallways, and elevators	17
Dealing with cracked, chipped, or shattered glass	18
Saving the original packaging	18
Installing the display on a wall	18
Choosing a location	19
Choosing a height	21
Assessing the wall	21
Selecting mounting hardware	22
Selecting a wall mount	22
Mounting the display	22
Installing the display on a stand	23
Using SMART mobile stands	24
Using a third-party stand	24

SMART recommends that only trained installers install the display.

This chapter is for installers. Installers should read this information along with the installation instructions included with the display before they install the display.

WARNING

Improper installation of the display can result in injury and product damage.

Moving the display to the installation site

After your organization receives the display, you need to move it to the place where you plan to install it.

On occasion, you might also need to move the display to another location after initially installing it.

! **IMPORTANT**

- Move the display at your own risk. SMART cannot accept liability for damages or injury that occur during the display's transportation.
- When moving the display:
 - Follow local safety regulations and standards.
 - Pack the display in its original packaging, including the pallet.
 - Move the display so that its top frame faces up.
 - Have at least two people move the display.

TIP

Display packaging may be labeled to indicate which side is the front. Look for "FRONT" on the packaging to help orient the box during transportation.

Using transportation aides

You can use the following aides to move the display:

- Cart
- Furniture dolly
- Mechanical lift

Accommodating doorways, hallways, and elevators

In some situations, you might need to remove the display from its packaging to move it through narrow doorways or hallways or onto an elevator. In these situations, keep the foam pieces on the bottom corners of the display. These foam pieces protect the display if you need to set it down during transportation.

You might also need to rotate the display so that its top frame faces to the side. You can do this during transportation, but when you install the display, it must be in landscape orientation (with the top frame facing up).

Dealing with cracked, chipped, or shattered glass

The display contains safety-tempered glass. Although this glass is heat-strengthened to help withstand impacts, the glass can crack, chip or shatter if struck with enough force. (Safety glass is designed to break into small pieces rather than sharp shards if it is broken.) Temperature changes can cause a minor crack or chip to become worse, possibly causing the glass to shatter. See the knowledge base article, [Shattered glass on an interactive display](#), for information about conditions that can cause the display's glass to shatter even when it's not in use.

If the display's glass is cracked or chipped, have it professionally inspected and repaired at a SMART authorized repair center. If the display's glass shatters, carefully clean up the area and have the display repaired or replaced.

WARNING

For safety and to prevent further damage, do not continue to install or use the display if its glass is cracked, chipped or shattered.

Saving the original packaging

Save the original packaging and repack the display with as much of it as possible if you ever need to move the display after installation. This packaging was designed to provide the best possible protection against shock and vibration.

NOTE

If the original packaging isn't available, you can purchase the same packaging directly from your authorized SMART reseller (smarttech.com/where).

CAUTION

Move the display only in the original packaging or replacement packaging purchased from your authorized SMART reseller. Moving the display without correct packaging can lead to product damage and voids the warranty.

Installing the display on a wall

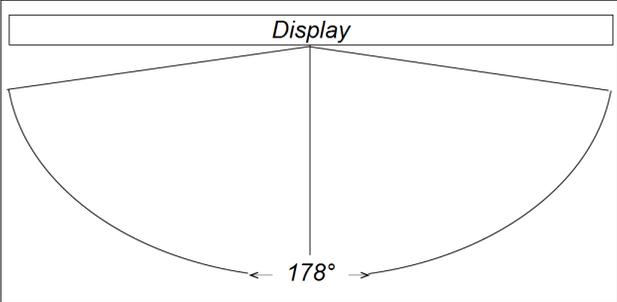
Typically, you install the display on a wall in a classroom or meeting space.

Choosing a location

A display is typically installed at the room's focal point, such as at the front of a classroom or meeting space.

Selecting an appropriate location for the display is crucial for ensuring the best possible experience with the product. Consider the following factors as you choose a location:

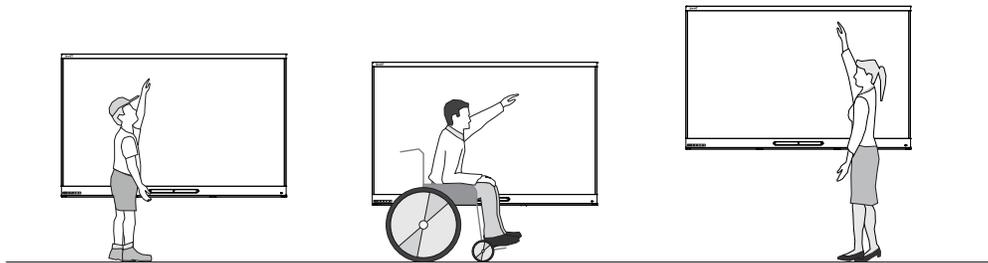
Factor	Considerations
Room setup	<ul style="list-style-type: none">• The location allows users, including those in wheelchairs, access to the display. Refer to local regulations regarding accessibility.• The location allows for multiple users to access the display at the same time.• The location accommodates room traffic patterns, and there are no tripping hazards.• The display is not installed where it could be hit by a door or gate.• There are no nearby heat sources directed at the display, such as a radiator or heat vent.• There are no nearby shelving units, desks, or other furniture that has doors or drawers that could hit the display.• Furniture, wall décor, and other room features, such as light switches and thermostats, do not block the display and are not blocked by it. (You might be able to move some of these room features to accommodate the display.)
Power and other connections	<ul style="list-style-type: none">• The location is close to:<ul style="list-style-type: none">◦ A power outlet◦ A network outlet (if you plan to use a wired network connection)◦ A room computer (if you plan to connect a room computer)◦ External audio systems and other devices that you want to connect to the display <hr/> <p>NOTES</p> <ul style="list-style-type: none">◦ If the location is not near a power outlet, consult an electrician for the power setup you need.◦ Determine if you'll need additional equipment, such as power bars, additional cables, or cable extenders. <hr/> <ul style="list-style-type: none">• The location is not where the mains power supply enters the building.

Factor	Considerations
<p>Visibility</p>	<p>The display's screen is clearly visible to all users in the room. SMART recommends users sit within a 178° viewing area:</p>  <p>NOTE</p> <p>The viewing area depends on the display's resolution and a variety of other factors. For more information, see the knowledge base article, Recommended viewing distances and viewing angles for SMART Board interactive displays.</p>
<p>Lighting</p>	<p>The location is not near bright light sources, such as windows or strong overhead lighting.</p> <p>Risks of light interference include:</p> <ul style="list-style-type: none"> ◦ Reduced visibility: Light sources can cause glare on the display's screen, reducing its visibility. ◦ Touch system interference: Many displays use infrared (IR) light as a key component of the touch system. Strong light that hits the display's screen directly can cause interference with the touch system and prevent the display from working properly. <p>TIP</p> <p>To reduce light interference, install blinds or shades on windows or skylights and install switches to dim or turn off any lights shining directly on the display's screen. Keep in mind that sunlight can come through windows at different angles at different times of the year.</p>
<p>Acoustics</p>	<p>The room has good acoustics (see Configuring your SMART Board MX or MX100 for the best audio performance).</p>

Factor	Considerations
Environment and ventilation	<ul style="list-style-type: none">• The location meets the environmental requirements in the display's specifications (see <i>More information</i> on page 15).• The display isn't subjected to strong vibrations or dust.• Ventilation systems don't blow air directly on the display.• There is adequate ventilation or air conditioning around the display so that heat can flow away from it and the mounting equipment. SMART recommends at least 2" (5 cm) of space on all sides of the display for proper airflow.• If you plan to install the display in a recessed area, there is at least 4" (10 cm) of space between the display and the recessed walls to enable ventilation and cooling.

Choosing a height

Consider the general height of the user community when you choose the height for the display.



SMART recommends that you mount the display so that its top is 6' 5" (1.9 m) from the floor.

NOTE

If participants will be sitting at a steep angle (such as in a lecture hall), you may have to adjust the installation height or angle.

Assessing the wall

Be sure the wall you're installing the display on can support the weight of the display and mounting equipment. If it can't, consider using a SMART wall stand to transfer some of the weight from the wall to the floor (see [smarttech.com/accessories](https://www.smarttech.com/accessories)).

NOTE

Refer to the display's specifications for its weight (see *More information* on page 15).

In some situations, you may need to request an engineering analysis to determine if the wall can support the display.

Selecting mounting hardware

The mounting hardware required for installation varies according to the type of wall onto which the display is being mounted.

Refer to *Installation best practices for SMART products* (smarttech.com/kb/171035) for the mounting hardware required for the display.

Selecting a wall mount

It is always best to mount the display on a wall. If the wall can't support the display's weight, you can use additional hardware to transfer some of the weight to the floor.

The display includes a pre-attached wall bracket which can be used to mount the display to the wall. See the *SBID-MX165, MX175, MX186, MX265, MX275 and MX286, MX365, MX375, MX386 installation instructions* (smarttech.com/kb/171274).

Contact your authorized SMART reseller (smarttech.com/where) for information on SMART's mounting options.

If you choose a third-party option rather than one of SMART's mounting options, be sure the wall mount can accommodate the display's dimensions and support the display's weight as well as the weight of any attached accessories.

Mounting the display

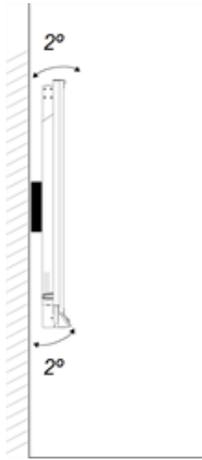
Mount the display following the included installation instructions. In addition, consider the following:

The electrical and mechanical components of a display are designed to work properly when the display is mounted in the orientation described in its installation instructions. Mounting the display in a different orientation can cause malfunctions and will void the display's warranty.

There are a number of potential hazards of mounting a display in a non-standard orientation or angle:

- Mounting a display horizontally (like a table top) can cause the glass to sag, damaging the display or interfering with the display's touch system.
- Non-standard orientation can affect ventilation, creating hotspots in equipment, premature failures and, in displays that use projectors, exploding projector bulbs.

- Mount the display vertically (90° relative to the floor plus or minus 2° for tolerance) and in landscape orientation. SMART doesn't support mounting the display at other angles or in portrait orientation.



- Use the included wall mount. Optionally, use a VESA-approved mounting plate that is rated for the display's weight and size.
- If you're not using the included bolts to fasten the wall mount to the display, see the following table.

Display	Bolt type	Minimum length	Maximum length
SBID-MX165 (Part No. 1031028)	M6	14 mm + x mm	18 mm + x mm
SBID-MX165 (Part No. 1033445)	M8	14 mm + x mm	18 mm + x mm
SBID-MX175	M8	18 mm + x mm	30 mm + x mm
SBID-MX186	M8	14 mm + x mm	30 mm + x mm

where x is the combined thickness of the wall mount and washer



- Fasten force: 97.36–177.01 in-lb. (11–20 N·m)

⚠ CAUTION

Do not over-tighten the bolts.

Installing the display on a stand

If you want to move the display from place to place or if it's not possible to install the display on a wall, you can install it on a stand.

Using SMART mobile stands

SMART mobile stands are designed for SMART interactive displays. They are height-adjustable. Some models include integrated speakers, a locking cabinet to secure equipment, and casters that swivel and lock for easy movement.

For more information about SMART mobile stands, see smarttech.com/accessories.

Using a third-party stand

For information on selecting and using a third-party stand, see [Installing your SMART Board MX100 on a stand](#).

Chapter 3

Connecting power, cables and devices

Connecting power	25
Connecting to a network	26
Connecting cables for room computers, guest laptops and other input sources	27
Using recommended cables	27
Connecting to the side connector panel	28
Connecting to the bottom connector panel	28
Connecting to the front connector panel	29
Viewing a connected computer or other device's input	29
Connecting external speakers	29
Connecting room control systems	30
Connector reference	30
Side connector panel	31
Bottom connector panel	32
Front connector panel	33
Other connectors	33

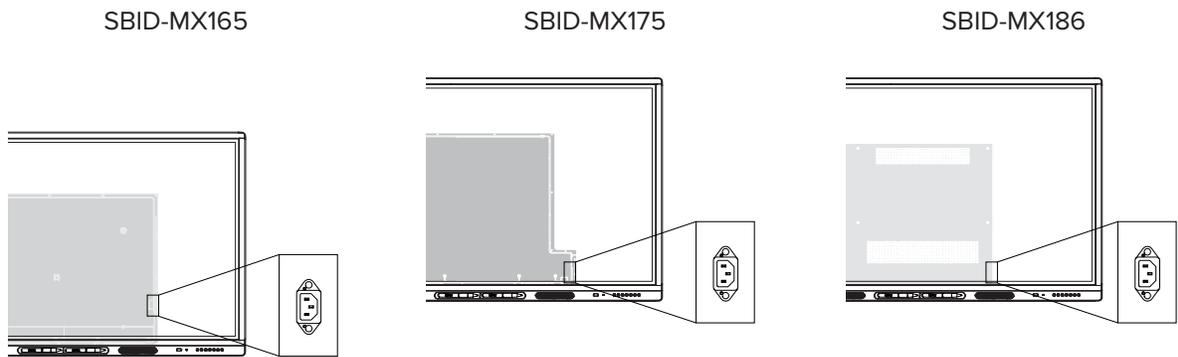
Connect the display to power after you install it but before you turn it on for the first time. You can also connect cables for room computers, guest laptops or other input sources as well as for speakers and room control systems.

By installing cables in advance, you make use of connectors that might not be accessible after the display is wall-mounted. You can then run the cables across floors or behind walls as needed.

WARNING

Ensure that any cables that cross the floor to the display are properly bundled and marked to avoid a trip hazard.

Connecting power



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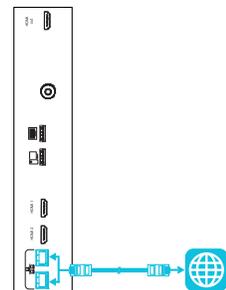
Connect the supplied power cable from the AC power inlet on the side of the display to a power outlet.

NOTE

Refer to the display's specifications for power requirements and power consumption information (see *More information* on page 15).

Connecting to a network

The display requires a network connection for downloading software and firmware updates. You can use one of the display's RJ45 jacks (pictured) to connect to a network, or you can use a Wi-Fi connection. For more information about the display's network connection and configuration, see *Connecting to a network* on page 34.



You can also connect a computer to the display's other RJ45 jack so the display and computer are connected to the same network.

Connecting cables for room computers, guest laptops and other input sources

You can connect cables to the display so that users can connect and use room computers, guest laptops or other devices, such as Blu-ray™ disc players.

NOTE

If your display is configured with firmware 2.0.6 (and later), you can configure the HDMI version for each HDMI connector as either HDMI 1.4 or HDMI 2.0. This allows you to connect HDMI 1.4 devices that are incompatible with HDMI 2.0 connectors and would otherwise appear as DVI devices, see *HDMI [connector number]-EDID version* on page 67.

Using recommended cables

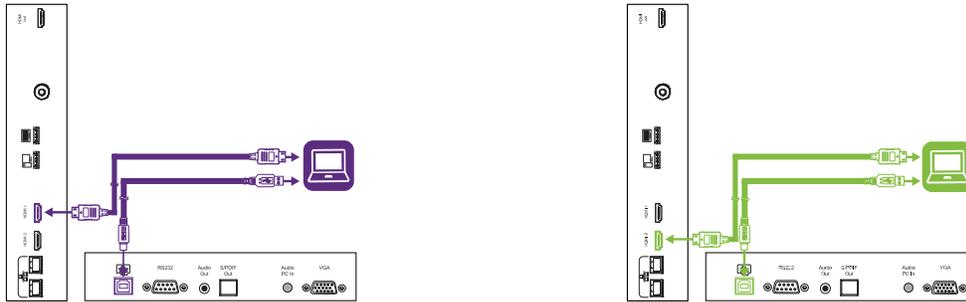
SMART recommends the following varieties of cable:

Cable type	Maximum length	Recommendation
HDMI	23' (7 m) ¹	Use only certified HDMI cables that have been tested to support the performance standard you require.
VGA	23' (7 m)	Use VGA cables with all pins in their connectors fully populated and wired.
Stereo 3.5 mm	20' (6 m)	[N/A]
USB	16' (5 m)	Use a USB extender if the distance between the computer and the display is greater than 16' (5 m). For more information, see <i>USB extenders</i> on page 15.

Using cables that exceed these maximum lengths may produce unexpected results, such as degraded picture quality or degraded USB connectivity.

¹The performance of cables longer than 23' (7 m) is highly dependent on the cable's quality.

Connecting to the side connector panel

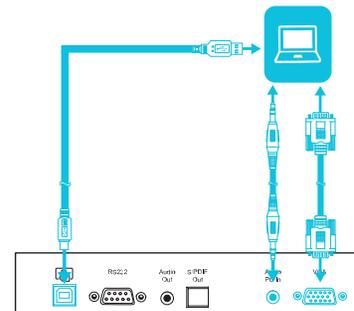


The side connector panel includes two HDMI video connectors: HDMI 1 and HDMI 2. Both connectors can accommodate an HDMI cable for video and audio, and both support HDMI 2.0.

NOTES

- The USB Type-B connector for touch control is located on the bottom connector panel. See *Connecting to the bottom connector panel* below.
- You can connect a wireless USB keyboard and mouse to the two USB Type-A connectors.

Connecting to the bottom connector panel



The bottom connector panel includes a video connector and USB connector:

- **VGA:** This connector can accommodate a VGA cable for video.
- **USB Type-B:** This connector can accommodate a USB cable for touch control for computers connected to HDMI 1, HDMI 2 or VGA.

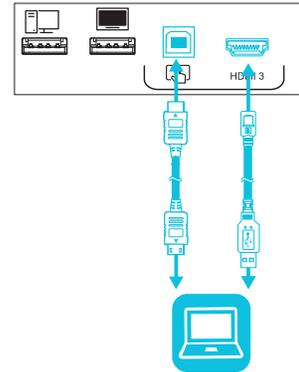
NOTE

When connecting a computer to the VGA connector, use the Stereo 3.5 mm in connector for audio.

Connecting to the front connector panel

In addition to the three sets of video connectors on the side and bottom connector panel, there is one set of computer connectors on the front control panel:

- **HDMI 3:** This set of connectors can accommodate a USB cable for touch control and an HDMI cable for video and audio. This input supports HDMI 1.4 with HDCP 1.4.
- **USB Type-B:** This connector can accommodate a USB cable for touch control for computers connected to HDMI 3.



Viewing a connected computer or other device's input

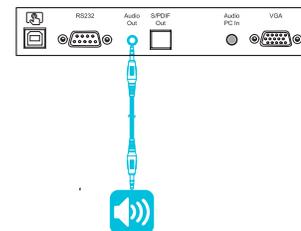
Users can use the Input app or tap the Input button to open the input selection menu. Tap an input source to view the computer or other device's input on the display.

For information about viewing a connected device's input, see the *SMART Board MX100 series interactive display user's guide* (smarttech.com/kb/171289).

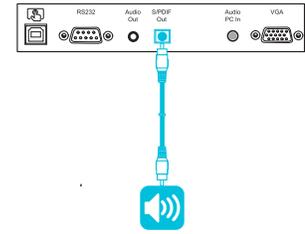
Connecting external speakers

The display includes two 10 W speakers, which are designed to provide sound at the front of a room. You can connect external active speakers if you're providing sound in a larger space. See *SMART Audio 400 classroom amplification system* on page 14 for more information.

You can connect external speakers to the display using the stereo 3.5 mm out connector (pictured).



The display also provides a Sony/Philips Digital Interface (S/PDIF) optical out connector. S/PDIF is a digital audio transmission medium. You need an audio receiver that supports S/PDIF to decode this connection to analog for use with external speakers.



Connecting room control systems

A room control system enables users to control a room's lighting, audio system and, possibly, the display. Some installations may require you to integrate the display with a room control system.

You can use the display's RS-232 connector to connect a third-party external control system to the display (see *Appendix B: Remotely managing the display* on page 70).

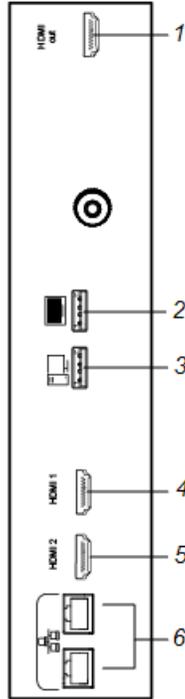
NOTE

Displays are not compatible with centralized remote control systems, such as a universal remote control.

Connector reference

Side connector panel

The following diagram and table present the connectors on the display's connector panel:

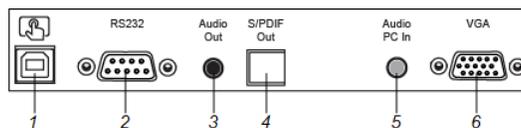


No.	Connector	Connects to	Notes
1	HDMI 1.4 out (HDCP-compliant)	External monitor	<p>This connector is HDCP-encrypted HDMI.</p> <hr/> <p>NOTE</p> <p>HDMI out is an optional feature. Contact your authorized SMART reseller (smarttech.com/where) for further ordering instructions.</p>
2	USB 2.0 Type-A connector	USB drives and other devices	<p>Connect USB drives and other devices that you want to use with the e³ experience.</p> <hr/> <p>NOTE</p> <p>If troubleshooting an issue with the display, connect a USB mouse to navigate the display's on-screen menu.</p>

No.	Connector	Connects to	Notes
3	USB 2.0 Type-A connector	USB drives and other devices	Connect USB drives and other devices that you want to use with the currently selected input source.
4	HDMI 1 2.0 in	HDMI 1 input (video and audio)	See page 27.
5	HDMI 2 2.0 in	HDMI 2 input (video and audio)	See page 27.
6	RJ45 (×2)	Network	See page 26.

Bottom connector panel

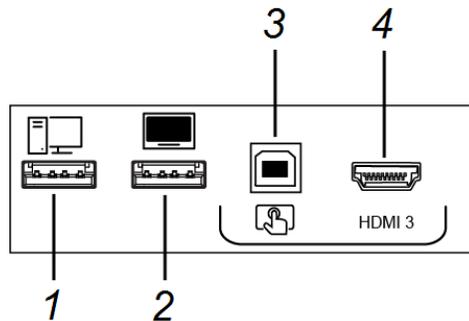
The following diagram and table present the connectors on the display's bottom connector panel:



No.	Connector	Connects to	Notes
1	USB 2.0 Type-B	HDMI 1, HDMI 2 or VGA input (touch)	See page 27.
2	RS-232	Room control system	See page 70.
3	Stereo 3.5 mm out	External speakers or audio system	See page 29.
4	S/PDIF out	Optical digital audio output	See page 29.
5	Stereo 3.5 mm in	VGA input (audio)	See page 27.
6	VGA in	VGA input (video)	See page 27.

Front connector panel

The following diagram and table present the connectors on the display's front connector panel:



No.	Name	Procedure
1	USB 2.0 Type-A connector	Connect USB drives and other devices that you want to use with the currently selected input source.
2	USB 2.0 Type-A connector	Connect USB drives and other devices that you want to use with the e ³ experience.
3	USB 2.0 Type-B connector	Connect a USB cable to the display and computer to provide touch control of the computer connected to HDMI 3.
4	HDMI 3 input connector	Connect a computer or other input source to the display (see page 27).

Other connectors

There are additional connectors on the bottom of the display (see *Installing the display on a wall* on page 18 and *Appendix B: Remotely managing the display* on page 70).

Chapter 4

Configuring the display

Connecting to a network	34
Configuring the display's network connection	34
Connecting the display to a network	35

After you have mounted the display and connected power and devices, you can start it for the first time.

Connecting to a network

You can connect the display to a network using either Wi-Fi or an Ethernet connection. Before connecting, your organization's network administrators need to configure the network for the display.

Configuring the display's network connection

Network administrators need to configure the network so users can use the EShare app and update the system software automatically over the air.

NOTE

Using a 5 GHz wireless network connection may provide a better experience with the EShare app.

To configure the network

1. Open the required TCP/UDP ports:

Protocol	Port range	Feature
TCP	80	e ³ experience system software update
TCP	56789	EShare app
TCP	25123	EShare app
TCP	8121	EShare app
TCP	8000	EShare app
TCP	8001	EShare app
UDP	48689	EShare app
UDP	25123	EShare app

2. Add the following URLs to the to the network whitelist.

URL	Feature
h1.ee-share.com	EShare app
http://api.lango-tech.cn	e ³ experience system software update
http://lango-tech.cn/	e ³ experience system software update
http://otaa.lango-tech.cn	e ³ experience system software update
http://otag.lango-tech.cn	e ³ experience system software update
http://downloads.smarttech.com	e ³ experience system software update

3. Configure the wireless network to enable broadcast service.
4. Configure the network to allow mDNS (multicast).

Connecting the display to a network

The display can connect to a network using either Wi-Fi or an Ethernet connection. Network administrators can also add a browser proxy.

To connect to a Wi-Fi network

1. On the display, tap  on the screen to open the launcher.
2. Tap **Settings**.

3. Tap **Network**.
4. Ensure *Wi-Fi* is enabled and *Ethernet* is disabled.
5. Select a wireless network.

If the Wi-Fi network is not password protected, the display connects to the network.

6. If the network requires a password, enter the Wi-Fi password and tap **Connect**.

OR

If the network requires a user name and password, enter the user name and Wi-Fi password and tap **Connect**.

To connect to an Ethernet network

1. Connect an Ethernet cable to the RJ45 receptacle on the display.
2. Tap **Settings**.
3. Tap **Network**.
4. Ensure *Ethernet* is enabled and *Wi-Fi* is disabled.

To configure a proxy for a wireless network

1. On the display, tap  on the screen to open the launcher.
2. Tap **Settings**.
3. Tap **Network**.
4. Ensure *Wi-Fi* is enabled and *Ethernet* is disabled.
5. Tap the network to which you're adding a proxy.
6. Select the **Advanced options** check box.
7. In the *Proxy* field, tap the drop-down box and select **Manual**.
8. Enter the information in the *Hostname*, *Port* and *Bypass proxy* boxes.
9. Tap **Connect**.

Chapter 5

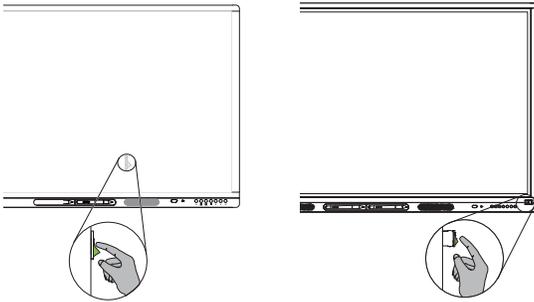
Turning on your display for the first time

Turn on the display after mounting it and connecting power and devices.

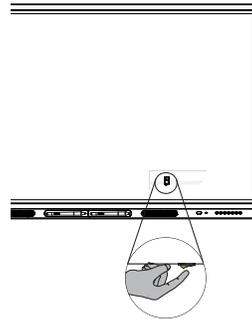
To turn on and set up the display for the first time

1. Flick the switch beside the AC power inlet to the ON (I) position.

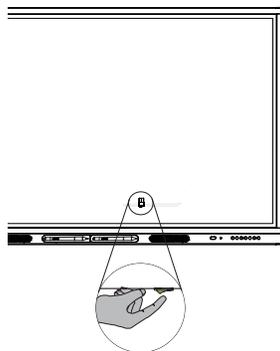
SBID-MX165



SBID-MX175



SBID-MX186



2. Select your preferred language, and then tap **Next**.
3. Select your time zone, and then tap **Next**.

4. Enter the configuration code from the configuration card, and then tap **Next**.

NOTE

The configuration code is case sensitive.

5. Set the date, and then tap **Next**.
6. Set the time, and then tap **Next**.
7. Name the display, and then tap **Next**.
8. If the display isn't using a wired network connection, select a wireless network, and then tap **Next**.
9. Tap **Finish**.

The *Welcome* screen appears.

10. On the display, tap  on the screen to open the launcher.

11. Tap .

12. Tap **Advanced > Date and time > Time zone**.

13. Select your time zone, and then tap **OK**.

Chapter 6

Orienting the display

Use SMART Settings on computers connected to the display to orient it.

If the display is connected to a computer and the pointer appears a distance from the actual contact when you touch the screen, orient the display.

NOTE

You can use your finger or a pen to orient the display.

To orient the display when connected to a computer

1. Open SMART Settings.

Operating system	Procedure
Windows® 10	<ol style="list-style-type: none">a. Select Start.b. Scroll to and select SMART Technologies > SMART Settings.
Windows 8	<ol style="list-style-type: none">a. Open the <i>Apps</i> screen.b. Scroll to and select SMART Technologies > SMART Settings.
Windows 7	Select Start > All Programs > SMART Technologies > SMART Tools > SMART Settings .
macOS	<ol style="list-style-type: none">a. Press the SMART Board icon  on the Mac menu bar.b. Press SMART Settings.

2. Tap **Orient**.
3. Tap the red targets as they appear. Hold your finger or the tip of the pen at the center of each target, and then lift the pen or finger. When you lift the pen or finger, the target moves to the next orientation point.

IMPORTANT

Hold the pen at a right angle to the screen.

4. Continue until you've pressed all the targets.

The orientation window closes.

Chapter 7

Maintaining the display

Checking the display installation	41
Cleaning the screen	42
Cleaning the touch sensors	42
Maintaining ventilation	43
Preventing condensation	43
Replacing the pens	43
Turning the display off and back on	44
Resetting the display	44
Removing and transporting the display	44
Updating the e ³ experience	45
Applying an e ³ experience system software update	46
Updating e ³ experience system software manually	46

With proper maintenance, the display will provide years of use.

Checking the display installation

Inspect the display installation frequently to ensure that the display remains securely installed.

- Check the mounting location for signs of damage or weakness that can occur over time.
- Check for loose screws, gaps, distortions, or other issues that could occur with the mounting hardware.

If you find an issue, contact a trained installer.

Cleaning the screen

Follow these instructions to clean the screen without damaging its anti-glare coating or other product components.

 **CAUTION**

- Do not use permanent or dry-erase markers on the screen. If dry-erase markers are used on the screen, remove the ink as soon as possible with a lint-free, non-abrasive cloth.
- Do not rub the screen with dense or rough material.
- Do not apply pressure to the screen.
- Do not use cleaning solutions or glass cleaners on the screen, because they can deteriorate or discolor the screen.

To clean the screen

1. Turn off any connected computers.
2. Turn off the display (see *Turning the display off and back on* on page 44).
3. Wipe the screen with a lint-free, non-abrasive cloth.

NOTE

You can also use a damp cloth with a drop of dish soap.

Cleaning the touch sensors

The display uses infrared (IR) transmitters and sensors around the display's perimeter between the screen and the frame. Dust buildup on the protective plastic can impair touch performance. Inspect these areas for dust and clean them every week.

 **CAUTION**

- Do not use compressed air to clean the sensors or borders.
 - Do not use water or cleaning agents to clean the touch sensors.
 - Do not apply too much pressure when cleaning the display because you can damage the plastic.
-

To clean the IR transmitters and sensors

1. With a clean lint-free, non-abrasive cloth, gently wipe the plastic between the screen and the frame around the perimeter of the display's screen.
2. If dirt still remains, use 50% isopropyl alcohol (IPS) to clean the protective plastic between the screen and the frame.

Maintaining ventilation

The display requires proper ventilation. Dust buildup in the ventilation holes compromises cooling and can lead to product failure.

- Clean accessible ventilation holes monthly with a dry cloth.
- Use a vacuum cleaner with a narrow hose end fitting to clear the back ventilation holes regularly. You might have to remove the display from the wall.

For more information on removing the display, see *Removing and transporting the display* on the next page.

CAUTION

Avoid setting up or using the display in an area with excessive levels of dust, humidity, or smoke.

Preventing condensation

If the display has been moved from a cold environment to a warmer one (for example, from storage to the installation site), let the display sit for a few hours to allow it to acclimate to the new temperature. Failing to do so can cause humidity to build up in the space between the front glass and the LCD.

If condensation appears under the screen after you turn on the display, select an active video source and leave the display on for 48 hours. If the condensation doesn't dissipate, contact SMART Support if the display is still under warranty.

If there is enough moisture between the layers to cause the moisture to drip and run, remove power immediately and contact SMART Support if the display is still under warranty.

Replacing the pens

To prevent damage to the display's anti-glare coating, replace a pen if its nib becomes worn. You can purchase replacement pens from the Store for SMART Parts (see smarttech.com/Support/PartsStore).

Turning the display off and back on

In most situations, you can put the display to sleep when not using it following the instructions in the *SMART Board MX100 series interactive displays user's guide* (smarttech.com/kb/171289).

In some situations, such as when you need to transport the display or clean its screen, you need to turn the display off for a period of time. You can turn it back on after.

To turn the display off

1. Press and hold the **Power** button on the front control panel for two seconds.

To turn the display back on

Press the **Power** button on the front control panel.

Resetting the display

You can reset the display using the switch on the back of the panel.

To perform a factory reset, see *Recovery* on page 68. A factory reset returns all options to their default values.

To reset the display

1. Flick the switch to the OFF (O) position.
2. Flick the switch to the ON (I) position.

The display resets.

Removing and transporting the display

If the display is wall mounted, you might need to remove it from its current location and transport it to another location on occasion.

To remove the display safely, use two or more trained installers.

 **WARNING**

- Do not attempt to move the display by yourself. The display is very heavy.
 - Do not move the display by connecting a rope or wire to the handles on the back. The display can fall and cause injury and product damage.
-

 **IMPORTANT**

Follow any documentation included with the third-party mounting hardware.

To remove the display

1. Turn off connected computers.
2. Turn off the display by pressing and holding the **Power** button on the front control panel for two seconds.
3. Flick the switch on the back of the display to the OFF (O) position.
4. Remove all accessible cables, connectors and antennae.
5. Lift the display from its mounting location and insert it into its original shipping box.

 **WARNING**

Do not place the display on a sloping or unstable cart, stand or table. The display could fall, resulting in injury and severe product damage.

 **CAUTION**

Do not leave the display face up, face down or upside down for an extended period. This could cause permanent damage to the screen.

6. Remove the mounting brackets.

To transport the display

See *Moving the display to the installation site* on page 16.

Updating the e³ experience

The display checks for e³ experience system software updates automatically, provided the display's date and time are set correctly (see *Date and time* on page 66) and the display is connected to the internet. The display notifies you when an e³ experience system software update is available.

- Tap **Update** to update the e³ experience system software.
- Tap **Ignore** to skip that specific e³ experience system software. The display won't apply that update ever if you check for updates manually.
- Tap **Cancel** to update the e³ experience system software at a later time.

The display applies the e³ experience system software update automatically if no options are selected after a short time

When the update is installing, touch, the front control panel and remote control will not respond.

Applying an e³ experience system software update

To apply a system software update

1. A dialog box appears on the screen asking if you want to update the e³ experience system software.
2. Tap **Update** to update the e³ experience system software.

OR

Tap **Cancel** to update the e³ experience system software later.

To apply a system software update from Settings

1. On the display, tap the Home button  on the screen to open the launcher.
2. Tap **Settings**.
3. Tap **Update**.
4. Under *Update*, tap **Update**.

Updating e³ experience system software manually

You can download system software updates at smarttech.com/downloads and update your display using a USB drive.

NOTE

This will erase all content on your display. Use a USB drive to copy any files you want to keep.

1. Go to smarttech.com/downloads and download the update file for your size of display.
2. Copy the .zip file to a USB drive.

3. Insert the USB drive into the display USB.



4. Press **Menu**  on the front control panel to open the e³ experience system software settings.

5. Tap **Update**.

6. Tap **Check**.

A dialog box appears.

7. Tap **USB**.

8. The upgrading software screen appears.

If the update includes an upgrade to the touch firmware, don't touch the screen during an update.

9. Using the switch on the back of the display, turn off the display.
10. Wait 10 seconds.
11. Using the switch on the back of the display, turn on the display.

Chapter 8

Troubleshooting

Resolving general issues	48
Resolving issues with power	49
Resolving issues with image or video quality	50
Resolving issues with audio	53
Resolving issues with touch and digital ink	54
Resolving issues with remote management	55
Resolving issues with software	56
Referring to the SMART knowledge base for additional troubleshooting information	56
Contacting your reseller for additional support	56
Finding the display's serial number	57

The following information helps you resolve a variety of common issues with the display, including issues with:

- Power
- Video
- Image quality
- Audio
- Touch and digital ink
- Remote management
- Software

Resolving general issues

Issue	Solutions
You've forgotten the lock screen password.	Contact SMART Support .
You forgot the Settings security password.	Contact SMART Support .

Issue	Solutions
The display can't connect to a 5 GHz wireless network.	The wireless network may be operating on bands that the display doesn't support. Contact your network administrator.
The pen is broken.	Contact SMART Support .
You need to identify the display.	See <i>Appendix C: Identifying the display</i> on page 77.
An app is missing or not available.	The app might not be included with the SMART Board MX100 series interactive display. See <i>SMART Board MX100 series interactive displays user's guide</i> (smarttech.com/kb/171288).

Resolving issues with power

Issue	Solutions
The display doesn't turn on and its power light isn't lit.	<ul style="list-style-type: none"> Make sure the power cable is securely fastened to the power outlet and the display. <hr/> <p>NOTE</p> <p>If the power cable is plugged into a power bar, make sure the power bar is securely fastened to the power outlet and turned on.</p> <hr/> <ul style="list-style-type: none"> Make sure the switch on the back of the display is in the ON (I) position. Make sure the power outlet is working by testing it with a different device. Make sure the power cable is working by testing it with a different device.
The display turns on but nothing shows on the screen.	<ul style="list-style-type: none"> Press the Power button to wake the display. <hr/> <p>NOTE</p> <p>The status light is red when the display is in a low power state.</p> <hr/> <ul style="list-style-type: none"> If the status light is solid green, see <i>Resolving issues with image or video quality</i> on the next page. Restart the display. See <i>Turning the display off and back on</i> on page 44.
The display doesn't turn on when you use a connected computer's mouse or keyboard.	<ul style="list-style-type: none"> Make sure the computer is on. If the status light is red, press the display's Power button to wake the display.
You're experiencing other issues with power, or the previous solutions don't resolve the issue.	See <i>Referring to the SMART knowledge base for additional troubleshooting information</i> on page 56.

Resolving issues with image or video quality

Issue	Solutions
<p>You're experiencing the following or similar issues with image quality:</p> <ul style="list-style-type: none">• There are lines or snow on the screen.• The image is flickering or flashing.	<ul style="list-style-type: none">• Make sure the display's firmware is updated to 1.8.7 or later. The display may not work properly if the display's firmware is not updated. See <i>Updating the e³ experience</i> on page 45.
<p>You're experiencing the following or similar issues with video:</p> <ul style="list-style-type: none">• The video is distorted.• There is visual noise.• The image is dim.	<ul style="list-style-type: none">• Make sure any connected computers are on and not in Standby mode.• Set the connected computers' resolution and refresh rate to values that the display supports. <i>See Appendix D: Supported resolutions on page 78.</i>• Restart the display and any connected computers. <i>See Turning the display off and back on on page 44.</i>• Make sure the cable is not longer than the maximum specified in the display's specifications.• Make sure the cable is securely connected to the video connectors on the display and the computer.• If the video connection uses an extender or goes through a wall socket, try connecting the display and computer directly.• Replace the video cable to determine if the issue is with the cable.• Make sure your computer's video driver is up to date.
<p>There are bright spots on the screen.</p> <hr/> <p>NOTE</p> <p>It is normal for some areas of the screen to be slightly brighter than other, but these variations should be minor.</p>	<ul style="list-style-type: none">• Open the on-screen display menu. If it appears correctly, the issue is with the video input.• Take a photograph of the screen that shows the variation in brightness and send it to SMART support. If SMART support determines that the issue is with the screen and the display is under warranty, you may be eligible for a replacement.• Make sure the cable is not longer than the maximum specified in the display's specifications.• Make sure the cable is securely connected to the video connectors on the display and the computer.• If the video connection uses an extender or goes through a wall socket, try connecting the display and computer directly.

Issue	Solutions
Colors don't appear correctly.	<ul style="list-style-type: none"> • Minor differences in colors across displays are common. This issue is not unique to SMART products. • If you're using a VGA video input, use a different cable or connect a different source to see if the issue is with the cable or input source. • Make sure the cable is not longer than the maximum specified in the display's specifications. • Make sure the cable is securely connected to the video connectors on the display and the computer. • If the video connection uses an extender or goes through a wall socket, try connecting the display and computer directly. • Perform a factory reset. See <i>Recovery</i> on page 68. • Take a photograph of the screen that shows the issue with color and send it to SMART support. If SMART support determines that the issue is with the screen and the display is under warranty, you may be eligible for a replacement.
The image is cut off or shifted to the left or right.	<ul style="list-style-type: none"> • Adjust the connected computers' video settings, particularly zoom, crop, underscan and overscan. See the computer's operating system documentation. • If the computer's desktop is entirely black, change it to gray or a different color. • If the computer's desktop is extended across multiple screens, duplicate the desktop across the screens or use the display as the only screen. • Make sure the cable is not longer than the maximum specified in the display's specifications. • Make sure the cable is securely connected to the video connectors on the display and the computer. • If the video connection uses an extender or goes through a wall socket, try connecting the display and computer directly.
The image doesn't fill the entire screen.	<p>Adjust the connected computers' video settings, particularly underscan or overscan. See your computer's operating system documentation.</p>
A persistent image appears on the display.	<p>See Image persistence or burn in on LCD displays.</p>
The display is on, but nothing shows on the screen.	<ul style="list-style-type: none"> • Make sure any connected computers are on and not in Standby mode. • Make sure the screen is working by pressing Input  on the front control panel and selecting the correct input source for your device. • Restart the display and any connected computers. See <i>Turning the display off and back on</i> on page 44. • Replace the video cable connecting the computer to the display to determine if the issue is with the cable. • If the video source is HDCP-protected, make sure it's connected to an HDMI port that supports a compatible version of HDCP. The HDMI 3 port supports only HDCP 1.4. Be sure to connect devices that use HDCP 2.2 to the HDMI 1 or HDMI 2 port.

Issue	Solutions
<p>A computer is connected to the display, but only a “No Signal” message appears on the screen.</p>	<ul style="list-style-type: none"> • Connect the computer to one of the display’s video input connectors. <hr/> <p>NOTE</p> <p>In the input source menu, video input connectors that have a device connected are blue.</p> <hr/> <ul style="list-style-type: none"> • Make sure the computer is the currently selected input. • Make sure the connected computer’s video connector is configured to output a supported video signal. See No video display output from a laptop. • If you’re using two connected video cables, use one longer cable or move the computer so it’s within a single cable length of the display. Make sure the cable length is within the maximum length specified in the display’s specifications. • The computer is using a video resolution or refresh rate that the display doesn’t support. Set the computer to a supported resolution and refresh rate. See <i>Appendix D: Supported resolutions</i> on page 78. • Make sure the computer hasn’t entered Sleep mode. Press a key on your computer’s keyboard to wake it up.
<p>If an AM50 iQ appliance with an Intel Compute Card is installed in the display and a “No Signal” message appears on a blue screen.</p>	<p>Make sure the Windows operating system on the Intel Compute Card hasn’t entered Sleep mode. Tap the display’s screen to wake up the operating system.</p>
<p>No image or a low resolution image appears on a device you’ve connected to the display’s HDMI OUT connector.</p>	<p>The SMART Board MX100 series interactive display supports only HDCP-protected HDMI output. If a device you connect to the display’s HDMI out port doesn’t support HDCP-protection, no image or a low resolution image will appear on the device.</p>
<p>The image from a device connected to the VGA port is cut-off or not centered.</p>	<ul style="list-style-type: none"> • Make sure the computer’s background is not a dark or solid-black image. • Switch to a different video input source, then switch back to the VGA input.
<p>You’re experiencing other issues with video or image quality, or the previous solutions don’t resolve the issue.</p>	<p>See <i>Referring to the SMART knowledge base for additional troubleshooting information</i> on page 56.</p>

Resolving issues with audio

Issue	Solutions
<p>You're experiencing the following or similar issues with audio:</p> <ul style="list-style-type: none">• No sound is coming from the speakers.• Sound is coming from the speakers, but the volume is low.• The sound is distorted or muffled.	<ul style="list-style-type: none">• Turn up the computer's volume.• If you're using external speakers, make sure the speakers are turned on.• Make sure the cables connecting the display to the computer are securely fastened. <hr/> <p>NOTES</p> <ul style="list-style-type: none">◦ The display's stereo 3.5 mm in connector works with the VGA input.◦ Connecting an audio cable to the display's stereo 3.5 mm out connector disables the internal speakers.◦ If you're using the display's S/PDIF out connector to connect a sound bar or receiver for external speakers, See <i>SMART Board MX100 series interactive displays user's guide</i> (smarttech.com/kb/171288). <hr/> <ul style="list-style-type: none">• Adjust the volume on the display and the connected computer, and make sure both are not muted.• Make sure the display is set as the default audio device for the connected computer. See the connected computer's operating system documentation.• If you're using the display's integrated speakers, set the volume for the computer and any running applications to 80%, and then adjust the display's volume. <p>OR</p> <p>If you're using external speakers, set the volume for the computer, any running applications and the display to 80%, and then adjust the speakers' volume.</p> <ul style="list-style-type: none">• If you're connecting a computer to the VGA connector, make sure an analog audio cable is also connected from your computer's audio output to the display's analog audio input.
<p>A whine or buzzing sound is coming from the back of the display.</p>	<ul style="list-style-type: none">• All displays emit some electrical noise. Such sounds may be more noticeable with some displays than with others. However, if you hear noise from the front of the display, contact SMART Support.• Make sure all devices are connected to the same power outlet or power bar.• If the computer is connected to the display with analog audio cables (for example, 3.5 mm audio cable with the VGA video input), make sure you are using high-quality cables with electromagnetic interference (EMI) protection. Make sure audio cables don't run alongside power cables.• Use a digital HDMI connection for video and audio. Audio hum is far less common with digital connections than it is with analog.
<p>You're experiencing other issues with audio, or the previous solutions don't resolve the issue.</p>	<p>See <i>Referring to the SMART knowledge base for additional troubleshooting information</i> on page 56.</p>

Resolving issues with touch and digital ink

Issue	Solutions
<p>You're experiencing the following or similar issues with touch and digital ink:</p> <ul style="list-style-type: none">• When users touch or write on the screen, the pointer or digital ink appears in the wrong place.• Touch is not working or is not accurate.• Touch control and digital ink are intermittent.• The display only responds to touch on part of the screen.• Digital ink disappears as you write.	<ul style="list-style-type: none">• If you're using two pens, make sure they're at least 2" (5 cm) apart.• Make sure you are not holding the pen near its tip, and that the pen is at a right angle (90°) to the screen.• Restart the display. <i>See Turning the display off and back on on page 44.</i>• If touch interactivity is slow, close some open applications on the computer.• Make sure the pen nib is not worn. Replacement pens are available from the Store for SMART Parts (see smarttech.com/Support/PartsStore).• Make sure you are using a SMART Board MX100 series interactive display pen.• Use a known working pen from another SMART Board MX100 series interactive display to check if the issue is being caused by the pen.• Clean the optical touch sensors. <i>See Cleaning the touch sensors on page 42.</i>• Make sure SMART Product Drivers and SMART Ink are installed and running on any connected computers, and orient your display. <i>See Chapter 6: Orienting the display on page 39.</i>• If touch is not accurate, make sure the computer's image occupies the entire screen area, with no black borders. If there are black borders, adjust the overscan or underscan settings on your computer's video settings, so that the image fills the screen.• Open SMART Product Drivers and orient the display. This will set up a non-native touch system orientation for your computer.• Update the firmware.• Confirm with the installers that the computer is connected to the display with only a single cable.• If touch interactivity is slow, close some open applications on the computer.• If touch is not accurate, make sure the computer's image occupies the entire screen area, with no black borders. If there are black borders, adjust the overscan or underscan settings on your computer's video settings, so that the image fills the screen.• Open SMART Product Drivers and orient the display. This will set up a non-native touch system orientation for your computer.• Make sure the USB cable is securely fastened to both your computer and the display.• Make sure the USB cable is not longer than the maximum specified in the display's specifications.• Use a USB 2.0 cable and make sure it's connected to the correct USB connector that's associated with the video input source. <i>See Connecting cables for room computers, guest laptops and other input sources on page 27.</i>• Make sure the latest version of SMART Product Drivers is installed on your computer. SMART Board MX100 series interactive displays require SMART Product Drivers 12.10 or later. <i>See smarttech.com/downloads.</i>• Remove any USB cable extenders. For best results, use a USB cable that's no longer than 16' (5 m).

Issue	Solutions
	<ul style="list-style-type: none"> Remove any external infrared light sources such as sunlight, incandescent or arc lights, desk lamps and infrared audio devices or move the display to another location in the room. Remove the display from the wall, calibrate it and confirm if this resolves the issue. If it does, check the wall and wall mount for issues.
The display responds to touch but not to writing with a pen.	<ul style="list-style-type: none"> Make sure you are using a SMART Board MX100 series interactive display pen. Make sure the pen nib is not worn. A worn pen nib might be interpreted as a finger touch. Replacement pens are available from the Store for SMART Parts (see smarttech.com/Support/PartsStore). Reinstall or update SMART Product Drivers.
The display doesn't respond to touch at all.	<ul style="list-style-type: none"> A red X appearing on the SMART Product Drivers icon in your Windows task bar or Mac menu bar indicates that no display is connected. If a red X appears, open SMART Settings and use the connection wizard for assistance. Make sure any connected computers have detected the display's USB connection and installed drivers. On Windows computers, open Device Manager and make sure there is no red X or yellow explanation mark (!) over the display's icon. On Mac computers, open System Information and ensure there are no error messages in the display's row.
You can't write or draw in Microsoft® Office.	<ul style="list-style-type: none"> Make sure you're using Microsoft Office 2013 or later. Reinstall or update SMART Product Drivers and SMART Ink. Refer to the <i>SMART Ink user's guide</i> (smarttech.com/kb/171190) for more information about inking in Microsoft applications.
You're experiencing other issues with touch and digital ink, or the previous solutions don't resolve the issue.	<p>See <i>Referring to the SMART knowledge base for additional troubleshooting information</i> on the next page.</p>

Resolving issues with remote management

Issue	Solutions
You're experiencing general issues with remote management.	<ul style="list-style-type: none"> Make sure all the cable connections are secure. Be aware that some commands work only when the display is on. See <i>Configuring the serial interface settings</i> on page 71. Restart the display and the remote management system. See <i>Turning the display off and back on</i> on page 44. Configure the serial interface settings. See <i>Configuring the serial interface settings</i> on page 71.
Using the command <code>set powerstate=on</code> doesn't turn on the display	<ul style="list-style-type: none"> Add spaces around the operator symbol (=). Ensure Power on RS232 is enabled in the display's on-screen settings menu (☰). If the display's firmware is version 1.9.2 or earlier, disable Power saving mode in the display's on-screen settings menu. See <i>Power saving mode</i> on page 67.

Issue	Solutions
<ul style="list-style-type: none">The display doesn't respond to a control commandCommands are not followed by a command prompt that indicates the display is ready to receive the next command.	<ul style="list-style-type: none">The display is in a Power Saving mode in which the RS-232 control system is not yet operating. Ensure the display is in a power state in which the RS-232 control system is ready to receive commands. Ensure Power on RS232 is enabled in the display's on-screen settings menu (☰). If the display's firmware is version 1.9.2 or earlier, disable Power saving mode in the display's on-screen settings menu.The display's firmware has not been updated to version 1.8.4 or later. Check the firmware version in the display's on-screen settings menu. See <i>MX system version</i> on page 69. To update the display's firmware to version 1.8.4 or later, see <i>Updating the e³ experience</i> on page 45.Commands might have been incorrectly terminated with a carriage return (0x0d) and a line feed (0x0a). Terminate commands with only a carriage return (0x0d).
You're experiencing other issues with remote management, or the previous solutions don't resolve the issue.	See <i>Referring to the SMART knowledge base for additional troubleshooting information</i> below.

Resolving issues with software

For information on resolving issues with SMART software, see the following pages in the Support section of the SMART website:

- [Troubleshooting SMART Notebook 18](#)
- [Troubleshooting SMART Learning Suite Online](#)
- [Troubleshooting SMART Ink 5](#)
- [Troubleshooting SMART Product Drivers 12](#)

Referring to the SMART knowledge base for additional troubleshooting information

Refer to the SMART knowledge base for additional troubleshooting information:

community.smarttech.com/s/topic/0TO0P000000Xt62WAC/mx100-series

Contacting your reseller for additional support

If an issue you're experiencing with the display persists or isn't covered in this guide or the knowledge base, contact your authorized SMART reseller (smarttech.com/where).

Your reseller might ask you for the serial number for the display.

Finding the display's serial number

The display's serial number is located in the following places:

- On the bottom frame
- On the back of the display
- In the display and e³ experience's settings, under *About*.

NOTE

You can access the display's settings using the **Menu**  button on the front control panel.

Chapter 9

Troubleshooting the e³ experience

Resolving general issues	58
Resolving issues with Whiteboard	59
Resolving issues with Browser	59
Resolving issues with Input	60
Resolving issues with EShare	61
Resolving issues with iMirror	62
Resolving issues with File Manager	62

This appendix explains how to troubleshoot the e³ experience.

Resolving general issues

Issue	Solutions
You've forgotten the lock screen password.	Contact SMART Support .
You forgot the Settings security password.	Contact SMART Support .
The display can't connect to a 5 GHz wireless network.	The wireless network may be operating on bands that the display doesn't support. Contact your network administrator.
The pen is broken.	Contact SMART Support .
You need to identify the display.	See <i>Appendix C: Identifying the display</i> on page 77.
An app is missing or not available.	The app might not be included with the SMART Board MX100 series interactive display. See <i>SMART Board MX100 series interactive displays user's guide</i> (smarttech.com/kb/171288).

Resolving issues with Whiteboard

Issue	Solutions
The pen isn't working correctly.	<ul style="list-style-type: none">• Select the pen tool before drawing. See <i>SMART Board MX100 series interactive displays user's guide</i> (smarttech.com/kb/171288).• The Whiteboard app doesn't support writing with two pens. Use SMART software like SMART Notebook to draw with two pens.• The pen nib is worn. Replacement pens are available from the Store for SMART Parts (see smarttech.com/Support/PartsStore).
A previously shared image isn't available anymore.	Whiteboards are only available for one week after sharing.
You can't set an image as the background.	Make sure the image's resolution is 1920 × 1080.
The display can't open a saved Whiteboard.	Whiteboards are saved in .zip format. The .zip file the display is trying to open might not be a saved Whiteboard.
The display can't open a SMART Notebook file.	The Whiteboard app on SMART Board MX100 series interactive displays don't support SMART Notebook files. Use SMART Notebook software on the connected computer to open SMART Notebook file.

Resolving issues with Browser

Issue	Solutions
Browser isn't working correctly.	<ul style="list-style-type: none">• Make sure the display is connected to a network, the network is configured properly, and the network is connected to the Internet. See <i>Connecting to a network</i> on page 34.• Make sure Ethernet or Wi-Fi is enabled in Settings under Network. See <i>Network</i> on page 64.• If Browser can't visit secure (https) websites, ensure the display's date and time are correct. See <i>Date and time</i> on page 66.• Browser doesn't support Flash or Java applets.• Contact your network administrator.
You can't find your downloads.	<ul style="list-style-type: none">• Check the Downloads folder in File Manager.• The display's storage might be full. Delete files or move them to a USB drive for backup.
There is an issue with audio.	<ul style="list-style-type: none">• Make sure the volume isn't muted. See <i>Front control panel</i> on page 13.• Turn up the volume. See <i>Front control panel</i> on page 13.• See <i>Resolving issues with audio</i> on page 53.

Resolving issues with Input

Issue	Solutions
<p>There is an issue with the image. No signal appears on the screen.</p>	<ul style="list-style-type: none">• See <i>Resolving issues with image or video quality</i> on page 50 for more information.• Connect the computer to one of the display's video input connectors. <hr/> <p>NOTE</p> <p>In the input source menu, video input connectors that have a device connected are blue.</p> <ul style="list-style-type: none">• If you're using two connected video cables, use one longer cable or move the computer so it's within a single cable length of the display. Make sure the cable length is within the maximum length specified in the display's specifications.• The computer is using a video resolution or refresh rate that the display doesn't support. Set the computer to a supported resolution and refresh rate. See <i>Appendix D: Supported resolutions</i> on page 78.• Make sure the computer hasn't entered Sleep mode. Press a key on your computer's keyboard to wake it up.
<p>There is an issue with touch. Touch is not working or is not accurate</p>	<ul style="list-style-type: none">• If touch interactivity is slow, close some open applications on the computer.• If touch is not accurate, make sure the computer's image occupies the entire screen area, with no black borders. If there are black borders, adjust the overscan or underscan settings on your computer's video settings, so that the image fills the screen.• Open SMART Product Drivers and orient the display. This will set up a non-native touch system orientation for your computer.• Make sure the USB cable is securely fastened to both your computer and the display.• Make sure the USB cable is not longer than the maximum specified in the display's specifications.• Use a USB 2.0 cable and make sure it's connected to the correct USB connector that's associated with the video input source. See <i>Connecting cables for room computers, guest laptops and other input sources</i> on page 27.• Make sure the latest version of SMART Product Drivers is installed on your computer. SMART Board MX100 series interactive displays require SMART Product Drivers 12.10 or later. See smarttech.com/downloads.• Remove any USB cable extenders. For best results, use a USB cable that's no longer than 16' (5 m).

Issue	Solutions
There is an issue with audio	<ul style="list-style-type: none"> • See <i>Resolving issues with audio</i> on page 53. • Make sure the computer isn't muted. • Turn up the computer's volume. • Turn up the display's volume. See <i>Front control panel</i> on page 13. • Make sure the display isn't muted. See <i>Front control panel</i> on page 13. • Make sure the default audio output device setting on your computer is set to SMART Board MX. • If you're connecting a computer to the VGA connector, make sure an analog audio cable is also connected from your computer's audio output to the display's analog audio input.

Resolving issues with EShare

Issue	Solutions
The display's name doesn't appear in the list of available devices.	<ul style="list-style-type: none"> • Make sure your computer or device is on the same network as the display. • Make sure the network is configured properly. See <i>Configuring the display's network connection</i> on page 34.
Your device or computer can't connect to the display.	<ul style="list-style-type: none"> • Make sure your computer or device is on the same network as the display. • Make sure the network is configured properly. See <i>Configuring the display's network connection</i> on page 34. • Make sure your computer or device is on the same subnet as the display. Contact your network administrator. • Connect your device or computer to the display's Wi-Fi hotspot. <ol style="list-style-type: none"> a. Connect an RJ45 cable to the display. b. Turn on the display's Wi-Fi hotspot. See <i>Appendix A: Adjusting display and e³ experience settings</i> on page 64 c. Connect your computer or device to the display's Wi-Fi hotspot d. Open the EShare app on your computer or device. • Download the EShare app onto your device. See <i>SMART Board MX100 series interactive displays user's guide</i> (smarttech.com/kb/171289).
Audio isn't working correctly.	<ul style="list-style-type: none"> • See <i>SMART Board MX100 series interactive displays installation and maintenance guide</i> (smarttech.com/kb/171288). • Make sure your device isn't muted. • Turn up the device's volume. • Turn up the display's volume. See <i>Front control panel</i> on page 13.

Issue	Solutions
<p>The EShare app on the display is not activated.</p> <hr/> <p>NOTE</p> <p><i>Unactivated</i> appears in the lower right corner of the screen when the app is open.</p>	<ul style="list-style-type: none"> Make sure the display is connected to a network that has Internet access. <ol style="list-style-type: none"> Restart the display. See <i>SMART Board MX100 series interactive displays installation and maintenance guide</i> (smarttech.com/kb/171288). Open the EShare app. Make sure the network can contact the activation network.
<p>You can't control the display from your computer.</p>	<p>That feature is only available for iOS and Android devices.</p>

Resolving issues with iMirror

Issue	Solutions
<p>Your device can't connect to the display.</p>	<ul style="list-style-type: none"> Make sure your computer or device is on the same network as the display. Make sure the network is configured properly. See <i>Configuring the display's network connection</i> on page 34. Make sure your computer or device is on the same subnet as the display. Contact your network administrator. The iMirror app is available only for Apple devices.
<p>You can't share video.</p>	<p>Some video content is copyrighted and cannot be streamed.</p>
<p>You can't change the display's name.</p>	<ul style="list-style-type: none"> Change the display's name in the EShare app's settings. See <i>SMART Board MX100 series interactive displays user's guide</i> (smarttech.com/kb/171289).
<p>Audio isn't working correctly.</p>	<ul style="list-style-type: none"> See <i>SMART Board MX100 series interactive displays installation and maintenance guide</i> (smarttech.com/kb/171288). Make sure your Apple device isn't muted. Turn up the volume on your device. Turn up the display's volume. See <i>Front control panel</i> on page 13.
<p>The iMirror app is not activated.</p>	<ul style="list-style-type: none"> Make sure the display is connected to a network that has Internet access. <ol style="list-style-type: none"> Restart the display. See <i>SMART Board MX100 series interactive displays installation and maintenance guide</i> (smarttech.com/kb/171288). Open the iMirror app. Make sure the network can contact the activation network.

Resolving issues with File Manager

Issue	Solutions
<p>File Manager isn't working correctly.</p>	<ul style="list-style-type: none"> Some file formats, such as PDF, are not supported.

Issue	Solutions
There is an issue with the USB drive	<ul style="list-style-type: none">• Connect to the USB port for the display. See <i>Front connector panel</i> on page 13.• Make sure the USB drive is FAT formatted.• Make sure the USB drive isn't encrypted or partitioned.• The USB drive is full. Delete files before copying more files onto it.
You can't recover deleted files	Recovery of deleted files is not supported.

Appendix A

Adjusting display and e³ experience settings

Exiting the display's settings	64
Network	64
Screen lock	65
Advanced	66
Update	68
Recovery	68
About	68

You can access the display and e³ experience's settings using the **Menu**  button on the front control panel or using the Settings icon  in the launcher.

Exiting the display's settings

To exit the display's settings

Tap **Exit**

OR

press the **Menu**  button on the front control panel

Network

Option	Values	Function	Notes
▶ Ethernet			
• Ethernet	Enable Disable	Enables or disables connecting to a network with the wired RJ45 jacks	Enabling Ethernet disables Wi-Fi.

Appendix A
Adjusting display and e³ experience settings

Option	Values	Function	Notes
<ul style="list-style-type: none"> Get IP address automatically 	Enable Disable	The display automatically acquires an IP address from a DHCP server on your network	Enabling Wi-Fi hotspot allows you to connect your mobile device to the display using Wi-Fi for screen sharing.
<ul style="list-style-type: none"> Static IP address 	Enable Disable	Enter a static IP address	Use the on-screen keyboard or connect a USB keyboard to the Display USB Type-A connector on the front connector panel to enter information.
<ul style="list-style-type: none"> Wi-Fi 	Enable Disable	Enables or disables connecting to a network wirelessly	Turn on Wi-Fi to discover networks. Enabling Wi-Fi disables Ethernet.
▶ Wi-Fi hotspot			
<ul style="list-style-type: none"> Wi-Fi hotspot 	Enable Disable	Enables or disables the Wi-Fi hotspot	The lock screen appears after the display wakes up from sleep.
<ul style="list-style-type: none"> Set up Wi-Fi hotspot 	[N/A]	Sets the network name, security, password and access point frequency	Use the on-screen keyboard or connect a USB keyboard to the Display USB Type-A connector on the front connector panel to enter information.
<ul style="list-style-type: none"> Network status 	[N/A]	Shows information about the display's current network connection	[N/A]

Screen lock

Option	Values	Function	Notes
▶ Lock screen mode			
<ul style="list-style-type: none"> Lock screen mode 	Enable Disable	Turns lock screen on or off	[N/A]
<ul style="list-style-type: none"> Image 	[N/A]	Select a custom image for the lock screen	<ul style="list-style-type: none"> Supports .png, .jpg, .bmp files Save the wallpaper file to a USB drive and insert it into the USB port. See <i>Front connector panel</i> on page 13.
<ul style="list-style-type: none"> Disable 	[N/A]	Turns off the custom image for the lock screen	[N/A]
<ul style="list-style-type: none"> Lock screen password 	Enable Disable	Set a PIN to unlock the lock screen	[N/A]
<ul style="list-style-type: none"> Settings security 	Enable Disable	Set a PIN to access certain settings	When Settings security is enabled, only Advanced and About settings are available. To access the other settings, tap the setting and enter the PIN.

Advanced

Option	Values	Function	Notes
▶ Display			
<ul style="list-style-type: none"> HDMI out 	480p 1080p 4K	Select the output resolution	Ensure the device that receives the display's HDMI out signal matches the selected output resolution. For best results, make sure all devices from source to sync, use the same resolution settings.
<ul style="list-style-type: none"> Sleep 	15 minutes 30 minutes 45 minutes 60 minutes Always on	Sets the period of inactivity before the display's screen turns off	This occurs when the e ³ experience is selected as the input source.
▶ Date and time			
<ul style="list-style-type: none"> Automatically Set date and time 	On Off	Sets the display's date and time automatically	This is based on your region and time-zone settings. The display connects to network time servers on the Internet to accomplish this.
<ul style="list-style-type: none"> Date 	[N/A]	Sets the display's date	Disable Automatically Set date and time to set the date manually.
<ul style="list-style-type: none"> Date format 	YYYY/MM/DD MM/DD/YYYY DD/MM/YYYY	Sets how the date appears	[N/A]
<ul style="list-style-type: none"> Time 	[N/A]	Sets the display's time	Disable Automatically Set date and time to set the time manually.
<ul style="list-style-type: none"> Time format 	12 hr 24 hr	Sets how the time appears	[N/A]
<ul style="list-style-type: none"> Time zone 	[N/A]	Sets the display's time zone	[N/A]
▶ Language and input method			
<ul style="list-style-type: none"> Language 	[Languages]	Sets the language for the display	[N/A]
<ul style="list-style-type: none"> Input method 	Sogou Keyboard Android keyboard (ASOP) [Simplified Chinese]	Sets the on-screen keyboard option	[N/A]

Appendix A
Adjusting display and e³ experience settings

Option	Values	Function	Notes
▶ Brightness and volume			
• Auto	[N/A]	Adjusts the display's brightness automatically	The ambient light sensor can detect the room brightness and adjust the display's screen brightness
• Manual	[N/A]	Sets the display's brightness	Disable Auto to set the brightness manually
• Volume	[N/A]	Sets the display's volume	[N/A]
▶ OTA			
• OTA server	[OTA servers]	Sets which server the display connects to for updates NOTE The display must be connected to the Internet to check for system software updates.	Default is Auto .
• Automatically check for updates	Enable Disable	Enables or disables checking and downloading updates for the display's firmware	Enabled by default. If this is disabled, manually check for updates in <i>Update</i> on the next page.
• Power saving mode	Enable Disable	Enables or disables power saving mode	Enabled by default. When enabled, power saving mode activates after 90 minutes of inactivity. Enabling Power saving mode makes RS-232 control of the display unavailable until the display is turned on using the power button on the front control panel .
• Default input	HDMI1 HDMI2 HDMI3 VGA SMART MX e ³	Select a default input when the display is turned on.	SMART MX e ³ is enabled by default.
• Use default touch settings	Enabled Disabled	Sets the number of touch points.	Default is Enabled. Select Enabled to use 10 touch points. Select Disabled to use 20 touch points.
• Power on RS232	Enabled Disabled	When enabled, RS-232 can be used to turn on the display from low power state (soft off).	Default is Disabled.
• HDMI [connector number]-EDID version	Default EDID 1.4 EDID 2.0	Sets the HDMI-EDID version of the display's active HDMI connector to Default, EDID 1.4 or EDID 2.0. NOTE Default is selected by default.	When Default is selected, the display automatically detects a connected device's HDMI-EDID version and switches the display's HDMI connector between EDID 1.4 and 2.0. This feature might not work consistently for older or non-compliant EDID 1.4 devices.

Update

Option	Values	Function	Notes
<ul style="list-style-type: none"> Firmware version 	[N/A]	Shows technical information about the display's scalar firmware.	To see the e ³ experience system software's version use the About option (see <i>About</i> below).
<ul style="list-style-type: none"> Update 	[N/A]	Checks for updates to the system software	<p>If an update is available, the text changes to Apply update now.</p> <hr/> <p>NOTE</p> <p>The display must be connected to the Internet to check for system software updates. Check the display's network settings.</p> <p>To check the network settings, see <i>Network</i> on page 64.</p>

Recovery

Option	Values	Function	Notes
<ul style="list-style-type: none"> Restore user settings 	[N/A]	Resets any options the user may have changed	[N/A]
<ul style="list-style-type: none"> Restore factory settings 	[N/A]	Resets all options to their default values	Only administrators should reset the display.

About

Option	Values	Function	Notes
<ul style="list-style-type: none"> Name 	[N/A]	Select a name for your display	[N/A]
<ul style="list-style-type: none"> RAM 	[N/A]	Shows how much RAM is installed in the display	This is working memory available to the e ³ experience apps, such as the Whiteboard and Browser.
<ul style="list-style-type: none"> Local storage 	[N/A]	Shows how much storage memory is available and how much is currently in use	This is storage memory available to the e ³ experience app like the whiteboard and browser.
<ul style="list-style-type: none"> Resolution 	[N/A]	Shows the display's current screen resolution	[N/A]

Appendix A
Adjusting display and e³ experience settings

Option	Values	Function	Notes
• Android	[N/A]	Shows the current version of the Android operating system on the display	[N/A]
• MX system version	[N/A]	Shows the current version of the display's firmware and e ³ experience	[N/A]
• Touch kit	[N/A]	Shows the current version of the touch system firmware	[N/A]
• HDMI-out	[N/A]	Shows the current version of the HDMI-out system firmware	[N/A]
• MAC address	[N/A]	Shows the network's MAC address	[N/A]
• Serial number	[N/A]	Shows the display's serial number	[N/A]
• License	[N/A]	Shows third-party component licenses	[N/A]
• User agreement	[N/A]	Shows the SMART EULA	[N/A]

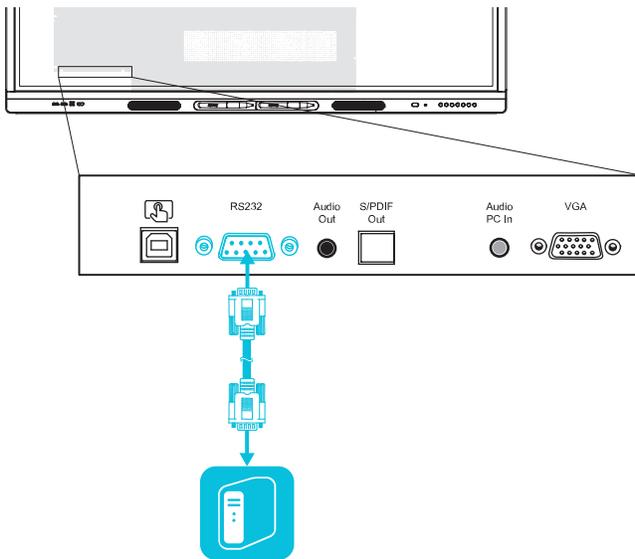
Appendix B

Remotely managing the display

Configuring the serial interface settings	71
Communication structure	71
Power states	74
Commands	75

You can connect a control system or terminal emulation program on your computer to the display's room control input and remotely select video inputs, change power and sleep states, and get information about the display's current settings, such as current input source, contrast and power state.

Connect an RS-232 cable from the control system or the computer's serial port to the RS-232 connector on the bottom of the display.



! IMPORTANT

Use only a standard RS-232 cable. Do not use a null modem cable. Null modem cables typically have ends of the same type.

Configuring the serial interface settings

Configure the control system or computer's serial interface before sending commands to the display.

To configure the serial interface settings

1. Turn on the display.
2. Turn on the control system or computer, and access the serial data communications settings.
3. If using a terminal emulation program on a computer, activate local echo.
4. Configure the serial interface settings using the following values, and then press **ENTER**.

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

When a command prompt (>) is received by your control system or terminal emulation program, the display can accept commands. If the command prompt isn't received, send a carriage return character (0x0d) to the display (press **ENTER** on your keyboard if you're using a terminal emulation program on your computer).

NOTE

If no message or an error message is received in the control system or terminal emulation program, the serial interface isn't configured correctly. Repeat steps 3 and 4.

Communication structure

Communication consist of a command argument, property affected, operator symbol, a value to apply, and a terminating carriage return character (0x0d).

IMPORTANT

When manually entering commands into a terminal emulation program, commands must be terminated with only a carriage return character (0x0d). If you terminate a command with both a carriage return character (0x0d) and a line feed (0x0a), the command may not be processed and the command prompt that indicates readiness to receive the next command may not be received.

NOTES

- The display won't respond to RS-232 commands when it is in a low power state (soft off). Disable Power saving mode to prevent the display from entering a low power state. See *Power saving mode* on page 67.
- When you first turn on the display, the RS-232 connector operates in a special diagnostics mode instead of control mode, and the display won't respond to control commands. In addition, the connected control system or terminal emulation program might receive unexpected data characters.

Program a connected control system to ignore the unexpected data characters and only send commands after it receives the command prompt (>).

If you haven't disabled Power saving mode, you'll see the unexpected characters every time you turn on the display.

CORRECT

```
>set input=HDMI1
```

INCORRECT

```
>set HDMI1
```

To use the room control system to get information about the display or to adjust display settings, send commands after receiving a command prompt (>), and then wait for the display's response before sending another command.

CORRECT

```
>get volume  
volume=55  
>
```

If you send a command that the room control system doesn't recognize, you receive an invalid command response.

The example contains an extra space in the volume command.

INCORRECT

```
>set vol ume=65  
invalid cmd=set vol ume=65  
>
```

NOTES

- Use ASCII formatted commands.
 - Commands aren't case-sensitive.
 - When manually entering commands into a terminal emulation program, review each entry carefully before you press ENTER to send a carriage return (0x0d) to terminate the command.
 - Don't send another command until you receive the response and the next command prompt.
-

To identify the current value of a setting

Use a get command.

This example shows how to get the display's current volume setting:

```
>get volume  
volume=55  
>
```

To assign a value to a setting

Use a set command.

This example sets the volume to 65:

```
>set volume=65  
volume=65  
>
```

To increase or decrease the value of a setting

Use the `set` command to increase or decrease the value by a designated number.

This example increases the volume by 5:

```
>set volume+5  
volume=70  
>
```

This example decreases the volume by 15:

```
>set volume-15  
volume=55  
>
```

Power states

The display has the following power states:

Power state	Description
ON	The display is in normal operating mode.
READY	The screen is off, but the display is ready to turn on when: <ul style="list-style-type: none">• A user presses the Power button on the front control panel.• A user presses the Power button on the remote control.• You send the <code>set powerstate=on</code> command. <hr/> <p>TIP</p> <p>If the <code>set powerstate</code> command returns an “invalid command” message, add spaces around the operator symbol (=).</p> <hr/>
SOFT OFF (low power state)	The screen is in a low power state (soft off) and won't respond to RS-232 commands. Disable Power saving mode to prevent the display from entering a low power state. See <i>Power saving mode</i> on page 67. The display turns on when: <ul style="list-style-type: none">• A user presses the Power button on the front control panel.• A user presses the Power button on the remote control.
UPDATEON	The display is updating firmware. Do not turn off the display.
UPDATEREADY	The display is updating firmware while the screen is off. Do not turn off the display.

With the exception of `get powerstate` and `set powerstate`, commands are available only when the display is in ON power state.

Commands

Get command	Set command	Response
<code>get powerstate</code>	<p><code>set powerstate[Value]</code> Where [Value] is one of the following:</p> <ul style="list-style-type: none"> • = on • = ready <hr/> <p>NOTES</p> <ul style="list-style-type: none"> • If the command returns an “invalid command” message, add spaces around the operator symbol (=). • The screen is in a low power state and doesn’t respond to any RS-232 commands. Disable Power saving mode to prevent the display from entering SOFT OFF. See <i>Power saving mode</i> on page 67. • If the display is in UPDATEON or UPDATEREADY state, it might not change power states after it receives the command. 	<p><code>powerstate=[Value]</code> Where [Value] is one of the following:</p> <ul style="list-style-type: none"> • ON • READY • UPDATEON • UPDATEREADY
<code>get input</code>	<p><code>set input[Value]</code> Where [Value] is one of the following:</p> <ul style="list-style-type: none"> • =OPS • =OPSCC • =HDMI1 • =HDMI2 • =HDMI3 • =VGA 	<p><code>input=[Value]</code> Where [Value] is one of the following:</p> <ul style="list-style-type: none"> • =OPS • =OPSCC • =HDMI1 • =HDMI2 • =HDMI3 • =VGA • =ANDROID <hr/> <p>NOTES</p> <ul style="list-style-type: none"> • =OPSCC is only available if you install an AM50 iQ appliance and compute card. • =ANDROID is the display’s settings.

Get command	Set command	Response
get brightness	set brightness[Value] Where [Value] is one of the following: <ul style="list-style-type: none"> • +[Value] • -[Value] • =[5-100] 	brightness=[Value] Where [Value] is a number between 5 and 100 <hr/> NOTE Enabling Auto Brightness overrides any brightness values set manually.
get volume	set volume[Value] Where [Value] is one of the following: <ul style="list-style-type: none"> • +[Value] • -[Value] • =[0-100] 	volume=[Value] Where [Value] is a number between 0 and 100
get mute	set mute[Value] Where [Value] is one of the following: <ul style="list-style-type: none"> • =on • =off 	mute=[Value] Where [Value] is one of the following: <ul style="list-style-type: none"> • on • off
get fwversion	fwversion=[Value] Where [Value] is the firmware version.	
get serialnum	serialnum=[Value] Where [Value] is the display's serial number. <hr/> NOTE If multiple displays are connected, the response includes the serial numbers for all displays, separated by commas.	
get partnum	partnum=[Value] Where [Value] is the part number, including the revision.	
get videofreeze <hr/> NOTE This command is only available in e ³ experience system software 1.8.7 or later.	set videofreeze=[Value] Where [Value] is one of the following: <ul style="list-style-type: none"> • =on • =off <hr/> NOTE This command is only available in e ³ experience system software 1.8.7 or later.	videofreeze=[Value] Where [Value] is one of the following: <ul style="list-style-type: none"> • on • off <hr/> NOTE This command is only available in e ³ experience system software 1.8.7 or later.

Appendix C

Identifying the display

To identify your display

1. Press **Input**  on the front control panel.

A list of input sources appears.

2. If the input source includes *OPS*, the display is a SMART Board MX200 series interactive display. The display has an iQ appliance installed.

If the input source includes *Compute Card*, the display is a SMART Board MX300 series interactive display. The display has an iQ appliance and Intel Compute Card installed.

If the input source list includes *SMART MX e³*, the display is a SMART Board MX100 series interactive display. The display includes the e³ experience.

Appendix D

Supported resolutions

HDMI 1 in, HDMI 2 in and HDMI 3 in

Resolution	Input source aspect ratio	Mode	Refresh rate
3840 × 2160	16:9	UHD / 2160p	59.94 Hz / 60 Hz 50 Hz 29.97 Hz / 30 Hz 25 Hz 23.98 Hz / 24 Hz
1920 × 1080	16:9	FHD / 1080p	59.94 Hz / 60 Hz 50 Hz 29.97 Hz / 30 Hz 25 Hz 23.98 Hz / 24 Hz
1360 × 768	16:9	[N/A]	60.015 Hz
1280 × 720	16:9	HD / 720p	59.94 Hz / 60 Hz 50 Hz 29.97 Hz / 30 Hz 25 Hz 23.98 Hz / 24 Hz
720 × 480	16:9	480p (DVD Player)	60 Hz

VGA

Resolution	Input source aspect ratio	Mode	Refresh rate
1920 × 1080	16:9	[N/A]	60.000 Hz
1600 × 1200	4:3	[N/A]	60.000 Hz
1360 × 768	16:9	[N/A]	60.015 Hz
1280 × 1024	5:4	SXGA 60	60.020 Hz

Appendix D
Supported resolutions

Resolution	Input source aspect ratio	Mode	Refresh rate
1024 × 768	4:3	XGA 60	60.004 Hz
		XGA 70	70.069 Hz
		XGA 75	75.029 Hz
800 × 600	4:3	SVGA 60	60.317 Hz
		SVGA 72	72.188 Hz
		SVGA 75	75.000 Hz
640 × 480	4:3	VGA 60	59.940 Hz

Appendix E

Hardware environmental compliance

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

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

Electrical and electronic equipment and batteries contain substances that can be harmful to the environment and to human health. The crossed-out wheeled bin symbol indicates that products should be disposed of in the appropriate recycling stream and not as regular waste. See smarttech.com/compliance for more information.



Batteries

The remote control contains alkaline batteries. Recycle or dispose of batteries properly.

Perchlorate material

The Appliance Module battery contains perchlorate material. Special handling may apply. See dtsc.ca.gov/hazardouswaste/perchlorate.

More information

See smarttech.com/compliance for more information.

SMART TECHNOLOGIES

smarttech.com/support

smarttech.com/contactsupport

smarttech.com/kb/171288