

SMART Board MX series interactive displays

INSTALLATION AND MAINTENANCE

FOR MODELS:

- SBID-MX265
- SBID-MX275
- SBID-MX286





Trademark notice SMART Board, smarttech, the SMART logo and all SMART taglines are trademarks or registered trademarks of SMART Technologies ULC in the U.S. and/or other $countries. \ All \ third-party \ product \ and \ company \ names \ may \ be \ trademarks \ of \ their \ respective \ owners.$ Copyright notice © 2018 SMART Technologies ULC. All rights reserved. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system or translated into any language in any form by any means without the prior written consent of SMART Technologies ULC. Information in this manual is subject to change without notice and does not represent a commitment on the part of SMART.

06-2018

This product and/or use thereof is covered by one or more of the following U.S. patents:

Important information

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 and iQ appliance 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 shipped with the SMART product could result in injury and product damage which may not be covered by the warranty.
- Do not open or disassemble the SMART product. 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 SMART product. Rather, mount the product at the appropriate height.
- To reduce the risk of fire or electric shock, do not expose the SMART product to rain or moisture.
- If the SMART product 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 SMART product 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
- Before inserting or removing the iQ appliance from the display, turn off the display using the switch at the back of the display. See Open Pluggable Slot computer (OPS) disclaimer for more information.

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 SMART product in an area with excessive levels of dust, humidity and smoke.
- Make sure an electrical socket is near the SMART product and remains easily accessible during use.

 The SMART product 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 SMART product.

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

MPORTANT

 The following are the normal operating requirements for the display, including AM module and speakers:

Model	Power requirements
SBID-MX265	100V to 240V AC, 50 Hz to 60 Hz, 115 W max
SBID-MX275	100V to 240V AC, 50 Hz to 60 Hz, 224 W max
SBID-MX286	100V to 240V AC, 50 Hz to 60 Hz, 265 W max

• For additional requirements and other information, refer to the display's specifications (see *More information* on page 9).

Federal Communication Commission interference statement

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

- 1. This device may not cause harmful interference, and
- $2. \quad \text{this device must accept any interference received, including interference that may cause undesired operation.} \\$

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:

- 1. This device may not cause harmful interference, and
- 2. 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:

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

Déclaration d'exposition aux radiations

Cet éguipement 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.

EU declaration of conformity: AM40

Hereby, SMART Technologies ULC declares that the radio equipment type OPS, AM40 is in compliance with Directive 2014/53/FU

The full text of the EU declaration of conformity is available at the following internet address: smarttech.com/compliance The frequency band and the maximum transmitted power in EU are listed below:

IMPORTANT INFORMATION

Transmitting Band (MHz)	Maximum Transmit Power EIRP (dBm)
2400–2483.5	19
5150-5350	16
5470-5725	16

Restrictions in

5350MHz is for indoor use only.

▲ CAUTION: EXPOSURE TO RADIO FREQUENCY RADIATION

 $This\ equipment\ complies\ with\ EU\ radiation\ exposure\ limits\ set\ for th\ for\ an\ uncontrolled\ environment.\ This\ equipment\ should$ be installed and operated with minimum distance 20 cm between the radiator and your body.

Contents

Important information	
Federal Communication Commission interference statement Innovation, Science and Economic Development Canada statement EU declaration of conformity: AM40	i
Chapter 1: Welcome	
About this guide About the SMART Board MX Components Related products More information	
Chapter 2: Installing the display	1
Transporting the display	13
Chapter 3: Connecting power and devices	2
Connecting the iQ appliance Connecting power	22
Connecting to a network Connecting cables for room computers, guest laptops and other input sources Connecting room control systems	23
Connector reference	
Chapter 4: Configuring the display	3
Turning on the display for the first time Connecting the display and iQ appliance to a network	
Updating system software Updating iQ system software	40
Updating the display's firmware Locking down the Settings app for iQ system software Switching the iQ system software to the Beta channel	4
Adding or removing apps from the launcher Enabling the Whiteboard Library	4
Chapter 5: Configuring connected computers	
Installing SMART software on connected computers Setting connected computers' resolutions and refresh rates	49

CONTENTS

Ch	apter 6: Maintaining the display	51
	Checking the display installation	51
	Cleaning the screen	51
	Cleaning the touch sensors	52
	Maintaining ventilation	53
	Preventing condensation	53
	Replacing the pens	53
	Turning the display off and back on	
	Resetting the display	
	Removing and transporting the display	54
Ch	apter 7: Troubleshooting	57
	Troubleshooting the display	57
	Troubleshooting the iQ system software	62
	Referring to the SMART knowledge base for additional troubleshooting information \dots	73
	Contacting your reseller for additional support	73
Αp	pendix A: Using iQ system settings	75
	Network settings	75
	Application settings	
	System settings	
Δn	pendix B: Using display settings on your SMART Board MX	79
~P	Accessing the display's settings	
	Exiting the display's settings	
	Network	
	Screen lock	
	Advanced	
	Update	
	Recovery	
	About	
Δn	pendix C: Remotely managing the display	25
~~	Connecting a computer to the display	
	Configuring the computer's serial interface settings	
	Power states	
	Commands and responses	
	Command inventory	
	Resolving issues with remote management	
Αn	pendix D: Identifying your display	93
-1-	Identify your display	
_		
Д р	pendix E: Supported resolutions	
	HDMI 1 in, HDMI 2 in and HDMI 3 in	95

CONTENTS

VGA	95
Appendix F: Hardware environmental compliance	97
Waste Electrical and Electronic Equipment and Battery regulations (WEEE and Battery	
Directives)	97
Batteries	97
More information	97

Chapter 1

Welcome

2
2
3
3
4
4
4
5
5
6
7
7
7
7
7
8
8
8
ç

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

About this guide

This guide explains how to install and maintain a SMART Board MX 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 configure the iQ appliance

- · 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 9).

About the SMART Board MX

The SMART Board MX series interactive display is the hub of your classroom or meeting room. PC-free embedded computing 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.

Features

The display includes the following features:

Feature	Description
iQ technology	The display's iQ appliance provides one-touch access to collaborative tools, including a whiteboard, wireless screen sharing and a web browser.
Touch support	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. You can use an array of gestures within applications, including panning, scaling, rotating and zooming in and out. 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
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. Up to two users can write or draw digital ink on the screen at the same time.
Audio support	The display includes integrated speakers for presenting audio from connected input sources.

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

Identifying your SMART Board MX series interactive display model

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

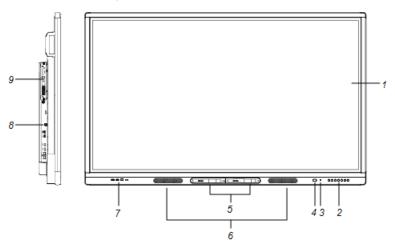
Model	Screen size (approximate)
SBID-MX265	65" (165 cm)
SBID-MX275	75" (190 cm)
SBID-MX286	86" (218 cm)

Refer to the specifications for detailed technical information for this model, including product dimensions and weights (see *More information* on page 9).

For help identifying your display, see Appendix D: Identifying your display on page 93.

Components

The display consists of the following components:



No.	Name	More information
Pictured		
1	Screen	Page 4
2	Front control panel	Page 5
3	Light sensor	page 7
4	Remote control sensor / status light	page 7
5	Pen (×2)	Page 4

No.	Name	More information
6	Speakers	Page 7
7	Front connector panel	Page 5
8	Side connector panel	page 27
9	iQ appliance	Page 4
Not pict	ıred	
10	AC and switch	page 32
11	Bottom connector panel	Page 21
12	Remote control	page 6

iQ appliance

The iQ appliance is inserted in the accessory slot on the back of the SBID-MX265, SBID-MX275 and SBID-MX286 models.

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.

Screen

The following are the dimensions for the display:

Model	Diagonal	Active touch area	Active image area
SBID-MX265	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-MX275	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-MX286	85 5/8" (218.4 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.

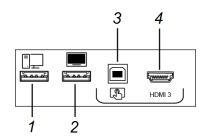


CAUTION

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

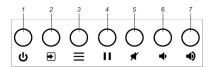
The front connector panel includes connectors for USB peripherals and a computer or other input source.



No.	Name	Procedure
1	USB Type-A connector	Connect USB drives and other devices that you want to use with the currently selected input source.
2	USB Type-A connector	Connect a USB drive to update the display's firmware.
3	USB 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 23).

Front control panel

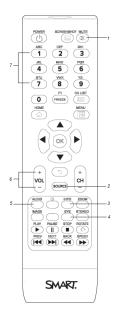
The front control panel contains the Power, Input Select, Menu, Freeze, Mute and volume control buttons.



No.	Name	SMART Board MX procedure
1	Power	Press to wake the display. Press to again enter Sleep mode.
2	Input select	Press to switch input source.

No.	Name	SMART Board MX procedure
3	Menu	Press to open the display's settings.
4	Freeze	Press to freeze and unfreeze the screen. See SMART Board MX series interactive displays user's guide (smarttech.com/kb/171284).
5	Mute	Press to mute or unmute the volume.
6	Volume decrease	Press to turn down the volume.
7	Volume increase	Press to turn up the volume.

Remote control



The table below lists the functions available for the remote control.

No.	Name	Function
1	MUTE	Mute or unmute the volume
2	SOURCE	Open the input source menu
3	INFO	Press to show the display's detected resolution and refresh rate for the current input source
4	SYS	Open the display's settings

No.	Name	Function
5	AUDIO	Change the display's audio mode
6	VOL + / VOL -	Increase or decrease volume
7	[Number buttons]	Press buttons on the number pad to customize settings
8	POWER	Wake the display. Enter Sleep mode.

Remote control sensor

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

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 U 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 the display's settings. See *Brightness and volume* on page 81.

Internal speakers

The display includes two 10 W rms integrated speakers. You can also connect external speakers (see *Connecting external speakers* on page 25).

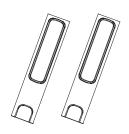
Related products

Related products 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).



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 23, 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.

Fore 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's guide	smarttech.com/kb/171284
SBID-MX165, MX175, MX186, MX265, MX275 and MX286 installation instructions	smarttech.com/kb/171274
SBID-MX265 specifications	smarttech.com/kb/171240
SBID-MX275 specifications	smarttech.com/kb/171259
SBID-MX286 specifications	smarttech.com/kb/171260
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 MX series interactive displays pages in the Support section.

Chapter 2

Installing the display

Transporting the display	11
Using transportation aides	12
Accommodating doorways, hallways and elevators	12
Dealing with cracked, chipped or shattered glass	13
Saving the original packaging	13
Installing the display on a wall	13
Choosing a location	14
Choosing a height	16
Assessing the wall	16
Selecting mounting hardware and tools	17
Selecting a wall mount	17
Mounting the display	17
Mounting multiple displays	19
Installing the display on a stand	20
Using SMART mobile stands	20
Using a third-party stand	20

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.



MARNING

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

Transporting the display

After your organization receives the display, you need to transport 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.

INSTALLING THE DISPLAY

IMPORTANT

- Transport the display at your own risk. SMART cannot accept liability for damages or injury that occur during the display's transportation.
- When transporting the display, do the following:
 - Follow local safety regulations and standards.
 - Keep the display in its original packaging.
 - 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 transport 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 on to an elevator. In these situations, SMART recommends that you 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 transport.

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.



CAUTION

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 to repack the display with as much of the original packaging as possible in case you need to transport the display again after you initially install it. This packaging was designed to provide the best possible protection against shock and vibration.



CAUTION

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



NOTE

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

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:

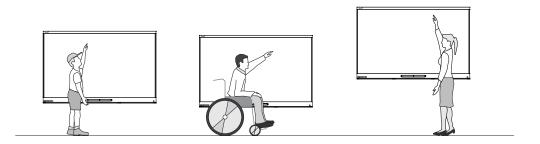
 The location allows users, including those in wheelchairs, access to the display. Refer to local regulations regarding accessibility. The location allows for multiple users to access the display at a time. The location accommodates room traffic patterns, and there are no tripping hazards. The display is not installed where it could be hit by a door or gate.
 There are no nearby 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 or are blocked by it. (You might be able to move some of these room features to accommodate the display.)
 The location is close to the following: 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) Speakers and other devices that you want to connect to the display NOTES 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. The location is not where the mains power supply enters the building.

Factor Considerations Visibility The display's screen is clearly visible to all users in the room. SMART recommends users sit within a 178° viewing area: Display 178° NOTE 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 flat panels. Lighting The location is not near bright light sources, such as windows or strong overhead lighting. Risks of light Interference include: • Reduced visibility: Light sources can cause glare on the display's screen, reducing its visibility. o 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. TIP 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. Acoustics

Factor	Considerations
Environment and ventilation	 The location meets the environmental requirements in the display's specifications (see <i>More information</i> on page 9). 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.



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 the wall can't support the weight of the display and mounting equipment, consider using a SMART wall stand to transfer some of the weight from the wall to the floor (see smarttech.com/accessories).



Refer to the display's specifications for its weight (see More information on page 9).

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

Selecting mounting hardware and tools

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

Refer to the installation instructions for the mounting hardware and tools 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* 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 support the display's weight as well as the weight of any attached accessories and can accommodate the display's dimensions.

Mounting the display

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

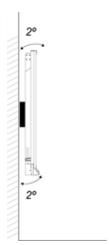
The electrical and mechanical components of a display are designed to work properly when the display is mounted in the orientation described in its installation instructions. Mounting the display in a different orientation can cause malfunctions and will void the display's warranty.

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.

INSTALLING THE DISPLAY

- Non-standard orientation can affect ventilation, creating hotpots 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.



INSTALLING THE DISPLAY

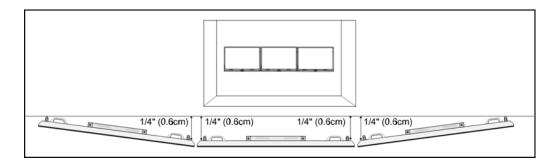
- Use the included wall mount. Optionally, use a VESA-approved mounting plate that is rated for the display's weight and size.
- If you're not using the included bolts to fasten the wall mount to the display, see the following table.

SMART Board MX265	Minimum M6 length	14 mm + x mm where x is the combined thickness of the wall mount and washer	
	Maximum M6 bolt length	18 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.	
SMART Board MX275	Minimum M8 length	18 mm + x mm where x is the combined thickness of the wall mount and washer	
	Maximum M8 bolt length	30 mm + x mm where x is the combined thickness of the wall bracket and washer	
	Fasten force	97.36–177.01 in-lb. (11–20 N·m)	
		CAUTION	
		Do not over-tighten the bolts.	
SMART Board MX286	Minimum M8 length	14 mm + x mm where x is the combined thickness of the wall mount and washer	
	Maximum M8 bolt length	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.	

Mounting multiple displays

A multiple-display configuration can include two or more displays in a variety of arrangements.

SMART recommends that you mount no more than three displays in a convex arrangement.





Different displays support multiple-display configurations to varying degrees. Consult a display's documentation before including it in a multiple-display configuration.

Although a computer can support up to 16 touch-sensitive displays, the demands on the computer and graphics card increase as you add more displays. If you want to use more than three displays, SMART recommends that you work closely with an experienced installer.

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 MX on a stand.

Chapter 3

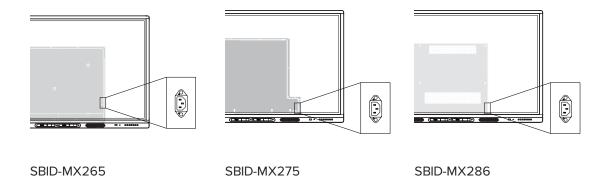
Connecting power and devices

Connecting the iQ appliance	2		
Connecting power	22		
Connecting to a network	22		
Connecting cables for room computers, guest laptops and other input sources	23		
Using recommended cables	23		
Connecting to the side connector panel	24		
Connecting to the bottom connector panel	24		
Connecting to the front connector panel	25		
Viewing a connected computer or other device's input	25		
Connecting external speakers	25		
Connecting room control systems			
Connector reference	27		
Side connector panel	27		
Bottom connector panel	28		
Front connector panel	29		
iQ appliance	29		
Other connectors	30		

Connecting the iQ appliance

For more information about installing the iQ appliance in SMART Board MX series interactive displays, see the *SBID-MX165*, *MX175*, *MX186*, *MX265*, *MX275* and *MX286* installation instructions (smarttech.com/kb/171274).

Connecting power



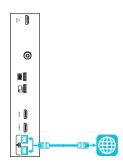
Connect the supplied power cable from the AC power inlet on the side of the display to a power outlet.



Refer to the display's specifications for power requirements and power consumption information (see *More information* on page 9).

Connecting to a network

The display requires a network connection for downloading software and firmware updates, and a number of the iQ appliance's apps require a network connection as well. 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 the display and iQ appliance to a network* on page 33.



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

IMPORTANT

Do not use the RJ45 jack on the iQ appliance to connect to a 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.



For information about configuring connected computers, see *Chapter 5: Configuring connected computers* on page 49.

Using recommended cables

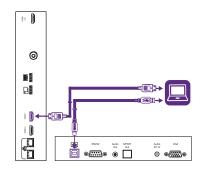
SMART recommends the following varieties of cable:

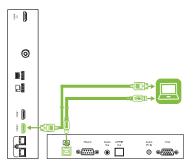
Cable type	Maximum length	Recommendation
HDMI	23' (7 m) ¹	Use only certified HDMI cables that have been tested to support the performance standard you require.
VGA	23' (7 m)	Use VGA cables with all pins in their connectors fully populated and wired.
Stereo 3.5 mm	20' (6 m)	[N/A]
USB	16' (5 m)	Use a USB 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 8.

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

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

Connecting to the side connector panel





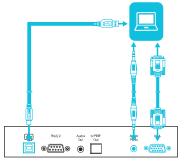
The side connector panel includes two HDMI video connectors: HDMI 1 and HDMI 2. Both connectors can accommodate an HDMI cable for video and audio, and both support HDMI 2.0.



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.

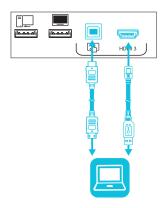


When connecting a computer to the VGA connector, use the Stereo 3.5 mm in connector for audio.

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

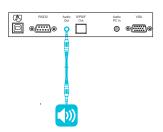
Users can tap the Input button to open the input selection menu. Tap an input source to view the computer or other device's input on the display.

For information about viewing a connecteds device's input, see the SMART Board MX series interactive display user's guide (smarttech.com/kb/171284).

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 8 for more information.

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



CONNECTING POWER AND DEVICES

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. Refer to the display's documentation to see if it works with an external 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 C: Remotely managing the display on page 85).

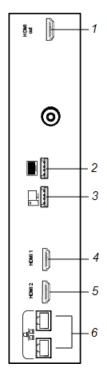


Displays are not compatible with centralized remote control systems, such as a universal remote control.

Connector reference

Side connector panel

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

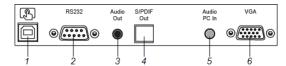


No.	Connector	Connects to	Notes	
1	HDMI 1.4 out (HDCP-compliant)	External monitor	This connector is HDCP- encrypted HDMI.	
			NOTE	
			HDMI out is an optional	
			feature. Contact your authorized SMART reseller	
			(smarttech.com/where) for	
			further ordering instructions.	

No.	Connector	Connects to	Notes
2	USB Type-A connector	USB drives and other devices	Connect a USB drive to update the display's firmware.
			If troubleshooting an issue with the display, connect a USB mouse to navigate the display's on-screen menu.
3	USB 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	HDMI12.0 in	HDMI 1 input (video and audio)	See page 23.
5	HDMI 2 2.0 in	HDMI 2 input (video and audio)	See page 23.
6	RJ45 (×2)	Network	See page 22.

Bottom connector panel

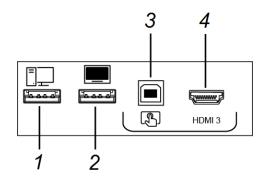
The following diagram and table present the connectors on the display's bottom connector panel: $\frac{1}{2} \left(\frac{1}{2} \right) \left(\frac{1}$



No.	Connector	Connects to	Notes
1	USB Type-B	HDMI 1, HDMI 2 or VGA input (touch)	See page 23.
2	RS-232	Room control system	See page 85.
3	Stereo 3.5 mm out	External speakers or audio system	See page 25.
4	S/PDIF out	Optical digital audio output	See page 25.
5	Stereo 3.5 mm in	VGA input (audio)	See page 23.
6	VGA in	VGA input (video)	See page 23.

Front connector panel

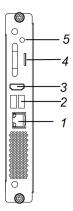
The following diagram and table present the connectors on the display's convenience panel:



No.	Name	Procedure
1	USB Type-A connector	Connect USB drives and other devices that you want to use with the currently selected input source.
2	USB Type-A connector	Connect a USB drive to update the display's firmware.
3	USB 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 23).

iQ appliance

The following diagram and table present the connectors on the iQ appliance:



CONNECTING POWER AND DEVICES

No.	Connector	Connects to	Notes
1	RJ45	[N/A]	Do not use this connector. Use the connectors on the display instead. See page 22.
2	USB Type-A (×2)	[N/A]	Do not use. See page 29.
3	HDMI out	[N/A]	Do not use. See page 27.
5	Micro SD	[N/A]	This connector is a service port.
6	LED	[N/A]	LED lights green when the iQ appliance is inserted in the accessory slot and turned on.

Other connectors

There are additional connectors on the bottom of the display (see *Mounting multiple displays* on page 19 and *Appendix C: Remotely managing the display* on page 85).

Chapter 4

Configuring the display

l urn	ing on the display for the first time	.32
	Turning on and setting up the display for the first time	.32
Con	necting the display and iQ appliance to a network	.33
	Configuring the iQ appliance's network connection	. 33
	Connecting the iQ appliance to a network	.37
	Connecting the display to a network	. 39
	Evaluating the impact of Screen Share on your network data usage	.40
Upd	ating system software	.40
Upd	ating iQ system software	. 40
	About iQ system software	41
	Applying an automatic iQ system software update manually	41
	Updating system software manually	. 41
Upd	ating the display's firmware	41
	About firmware updates	41
	Applying the display's firmware update manually	.42
	Updating system software manually	.42
Lock	ring down the Settings app for iQ system software	. 43
	Creating a new lockdown certificate	. 43
	Locking down the iQ appliance with an existing lockdown certificate	. 44
	Unlocking the iQ appliance with an existing lockdown certificate	.44
Swit	ching the iQ system software to the Beta channel	. 44
	Before switching to the Beta channel	.45
	Switching between the Beta and Stable channels	. 45
	Getting support and sending feedback	.46
Add	ing or removing apps from the launcher	47
	Selecting which apps appear in the launcher	. 47
Enab	oling the Whiteboard Library	.47

After you have mounted the display and connected power and devices, you can start it for the first time and configure the apps as described in this chapter.

Turning on the display for the first time

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

Turning on and setting up the display for the first time

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

1. Turn on the display by flicking the power switch on the back of the display.



- 2. Select your preferred language, and then tap Next.
- 3. Select your country, and then tap Next.
- 4. Select your time zone, and then tap **Next**.
- 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**.
- Select the list of applications that will appear in the launcher, and then tap Next. For more
 information about the apps, see the SMART Board MX series interactive displays user's guide
 (smarttech.com/kb/171284).
- 10. Select the apps you want to appear in the launcher, and then tap **Next**.



TIP

To change which apps appear in the launcher, see *Adding or removing apps from the launcher* on page 47.

11. Tap Finish.

The Welcome screen appears.

12. To ensure updates to the display's firmware, connect the display to a network with Internet access. See *Connecting the display to a network* on page 39.

Connecting the display and iQ appliance to a network

You can connect the display and iQ appliance to a network using a Wi-Fi connection. If the display is connected to a network using an Ethernet connection, the iQ appliance will also be connected to the network. Before you do so, your organization's network administrators need to configure the network for the display.

Configuring the iQ appliance's network connection



Configuring the network properly allows the iQ appliance to download important iQ system software and feature updates automatically.

CHAPTER 4

CONFIGURING THE DISPLAY

Network administrators need to configure the network so users can use the Screen Share app, update the system software automatically over the air and enable the iQ appliance to set the date and time automatically.

To configure the network

Add the following URLs to the network whitelist.

URL	Feature	
https://ws.kappboard.com	Automatic iQ system software update	
Block access to https://ws.kappboard.com to prevent automatic iQ system software updates		
https://*.mixpanel.com	iQ system software	
*.hockeyapp.net	iQ system software	
https://*.smarttech-prod.com	SMART Notebook® Player	
http://*.loggly.com	SMART Notebook Player	
http://*.smarttech.com	iQ system software, SMART Notebook Player, SMART amp	
https://*.smarttech.com	SMART Notebook Player	
https://www.fabric.io/	SMART Notebook Player	
https://*.classlab.com	SMART Notebook Player, SMART amp	
https://www.firebase.com/test.html	SMART Notebook Player, SMART amp	
https://*.smartamp.com	SMART Notebook Player, SMART amp	
https://*.google.com	SMART Notebook Player	
http://*.google-analytics.com	SMART Notebook Player	
https://www.gstatic.com	SMART Notebook Player	
https://*.firebaseio.com	SMART Notebook Player	
https://*.cloudfront.com	SMART Notebook Player	
https://content.googleapis.com	SMART amp	
https://gstatic.com	SMART amp	
https://*.youtube.com	SMART Notebook Player, SMART amp	
https://api.datamarket.azure.com	SMART amp	
https://updates.airsquirrels.com	Screen Share app	

- To allow mobile devices and computers to use AirPlay and Google Cast to use the Screen Share app
 - 1. Open the required TCP/UDP ports:

Protocol	Port range	Feature
TCP	80	e ³ experience system software update Outbound http
TCP	80	Outbound http
UDP	123	Network Time Protocol
TCP	3689	iTunes music sharing
TCP	5000	Audio streaming
TCP	5353	mDNS
UDP	5353	mDNS
TCP	7000	Picture sharing
TCP	7001	Video streaming
UDP	7010	Display mirroring
UDP	7011	Display mirroring
TCP	7100	Display mirroring
TCP	47000	Audio negotiation
TCP	49152–65535	Dynamic ports
UDP	49152–65535	Dynamic ports
TCP	49228	Google Cast
TCP	50259	Google Cast
UDP	54780	Google Cast
UDP	62572	Google Cast

- 2. Configure the network to allow Bonjour and mDNS (multicast).
- 3. Configure the network to allow Network Time Protocol (NTP) requests to Internet time servers.



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

To allow SMART Notebook Player to connect to the display



NOTE

The network may have been configured to allow Network Time Protocol in *To allow mobile* devices and computers to use AirPlay and Google Cast to use the Screen Share app.

Configure the network to allow Network Time Protocol (NTP) requests to Internet time servers

To allow updates to the display's firmware

Open TCP port 80.

Connecting the iQ appliance to a network

The iQ appliance can connect to a network using either Wi-Fi or use the display's Ethernet connection. Network administrators can also add a browser proxy or install a certificate.

To connect to a Wi-Fi network

1. Tap the Home button on the screen.

The launcher appears.

2. Tap Settings .

The Settings window appears.

3. Tap Wi-Fi.



NOTE

Ensure Wi-Fi is turned On.

4. Select a wireless network.

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

5. 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**.



TIP

Use the crosshairs to move the on-screen keyboard.

CONFIGURING THE DISPLAY

To connect to an Ethernet network

Connect an Ethernet cable to the RJ45 receptacle on the display.



The network must provide network settings via DHCP. If you require a static IP, use DHCP reservation on your router.

To configure a proxy

1. Tap the Home button on the screen.

The launcher appears.

2. Tap **Settings** .

The Settings window appears.

- 3. Tap Wi-Fi.
- 4. Tap and hold the network to which you're adding a proxy.

A dialog box appears.

- 5. Tap Modify network.
- 6. Select Show advanced options.
- 7. In the *Proxy* box, select **Manual**.
- 8. Enter the information in the *Proxy hostname*, *Proxy port* and *Bypass proxy* boxes.
- 9. Tap Save.

To install a certificate



№ NOTE

Certificates must be PFX format.

- 1. Copy a PFX format certificate to a USB drive.
- 2. Tap the Home button on the screen.

The launcher appears.

3. Tap Settings .

The Settings window appears.

4. Tap Wi-Fi > ... > Advanced > Install Certificates.

The USB Drive window appears.

- 5. Tap USB Drive.
- 6. Select a certificate to install.
- 7. If required, enter a password to extract the certificate.
- 8. Optionally, enter a name for the certificate in the *Certificate name* box and reason for certificate use in the *Credential use* box. Tap **OK**.

A window appears requesting that a lock screen PIN, pattern or password be set before using the certificate.

- 9. Tap **OK**.
- 10. Select a pattern, PIN or password method. Tap **OK**.

IMPORTANT

Make note of the pattern, PIN or password. The pattern, PIN or password may be required to install future certificates.

If the pattern, PIN or password is forgotten, a factory reset is required before installing more certificates.

The iQ system software confirms the certificate was installed.

Connecting the display to a network

To connect to a Wi-Fi network

1. Tap the **Menu** = button on the front control panel.

The display's settings appear.

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

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

5. 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.

Evaluating the impact of Screen Share on your network data usage

When you connect your device or computer to the display using Screen Share, the screen sharing protocol compresses the image from your device or computer. The protocol may transmit only areas of the screen that change. This can make it difficult to estimate the impact of Screen Share on a network where many users would like to screen share simultaneously.

For example, in a school where 30 teachers are using Screen Share simultaneously, 10% of teachers might be streaming video while 90% might be sharing static content with occasional updates. In such an instance, you could expect to see an additional 5 Mbps in network traffic. Use the following table to help estimate the impact of wireless Screen Share on your network.

Content being shared	Data rate transmission
Static content with minor screen movement	20 kbps
Static content with periodic scrolling or refreshes	Spikes briefly to 500–600 kbps, returns to 20 kbps
Gaming or streaming video with major screen changes	700 kb/sec-1.2 Mbps

Updating system software

Updating iQ system software

When the iQ appliance is connected to the Internet, it updates its system software automatically.

About iQ system software

When a system software update is available, the iQ appliance downloads the update in the background then waits for four hours of inactivity. When that happens, the display shows a two-minute countdown before beginning the update. The countdown can be interrupted at any time. The update begins when the countdown finishes. The display shows a blank screen for four minutes. When the update is complete, the display shows the Whiteboard and any content that was on Whiteboard before the update.

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



NOTE

You can configure your organization's network to allow or prevent automatic system software updates (see Configuring the iQ appliance's network connection on page 33).

Applying an automatic iQ system software update manually

If the iQ appliance has downloaded the system software update but hasn't yet applied the update, you can start the update process manually from Settings.

To apply an automatic iQ system software update manually

1. Tap the Home button on the screen.

The launcher appears.

2. Tap Settings .

The Settings window appears.

- 3. Scroll to Auto Update.
- 4. Under Check for Updates Now, tap Apply Update Now.

Updating system software manually

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

Updating the display's firmware

When the display is connected to the Internet, it updates its firmware automatically.

About firmware updates

When a display is connected to the Internet and an update for the display's firmware is available,

CONFIGURING THE DISPLAY

the display shows a message that an update is available.

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

Applying the display's firmware update manually

To apply a system software update

- 1. A dialog box appears on the screen asking if you want to update the display's firmware.
- 2. Tap **Update** to update the display's firmware.

OR

Tap **Cancel** to update the display's firmware at a later time.

To apply an automatic system software update manually

- 1. On the display, press the **Menu** button on the front control panel.
- 2. Tap Update.
- 3. Under *Update*, tap **Update**.

Updating system software manually

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

- 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 display's settings.
- 5. Tap Update.
- 6. Tap Check.

A dialog box appears.

7. Tap **USB**.

CONFIGURING THE DISPLAY

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.

Locking down the Settings app for iQ system software

Administrators can limit access to the iQ experience's Settings app by a lockdown certificate saved on a USB drive.



№ NOTE

This limits access to the settings for the iQ appliance. It does not limit access to the SMART Board MX interactive display's settings.

Creating a new lockdown certificate



CAUTION

If the lockdown certificate is lost while the display's Settings app is locked down, you'll have to perform a factory reset to regain access to the Settings app. See Factory Reset on page 77



TIP

Make a backup of the lockdown certificate to ensure you still have access to it in case the original is lost.

To lock down settings

- 1. Insert a USB drive into the display.
 - This is a snippet
- 2. Open the launcher.
- 3. Tap **Settings** .

- 4. Tap Security > Lock Down Settings.
- 5. Use the on-screen keyboard to enter a name for the lockdown certificate, and then tap **Create**.

The display's settings are locked down.

6. Remove the USB drive and keep it in safe place.

Locking down the iQ appliance with an existing lockdown certificate If you've already created a lockdown certificate, you can use it to lock the Settings app.

To lock down the iQ appliance with an existing lockdown certificate

1. Insert a USB drive with the lockdown certificate on it into the display.

This is a snippet

- 2. Open the launcher.
- 3. Tap Settings .
- 4. Tap Lock Down Settings.

The settings are locked down.

Unlocking the iQ appliance with an existing lockdown certificate

If you've locked down the Settings app with a lockdown certificate, you can use the lockdown certificate to unlock the Settings app.

1. Insert a USB drive with the certificate on it into the display.

This is a snippet

- 2. Open the launcher.
- 3. Tap **Settings** .
- 4. Tap Unlock Settings.

The iQ appliances's settings are available.

Switching the iQ system software to the Beta channel

The Beta channel for the iQ system software is meant for advanced users who are comfortable using pre-release software. System software releases in the Beta channel contain new features

CONFIGURING THE DISPLAY

that are still in development.

Sign up to receive Beta channel announcements at smarttech.com/SMARTBetaProgram or go to smarttech.uservoice.com to learn more about upcoming Beta releases.

MPORTANT

- You may encounter bugs or other unexpected behavior in pre-release software.
- Features previewed in the Beta channel may never appear in a Stable channel release.
- There may be frequent updates to the iQ system software.
- The user interface may change significantly as features develop.
- If you switch to the Beta channel and want to return to the Stable channel, you must perform a factory reset that erases all of the iQ system software settings.

Before switching to the Beta channel

Before switching to the Beta channel, back up important Whiteboard content using the SMART kapp® app. See the *SMART Board MX series interactive displays user's guide* (smarttech.com/kb/171284).

Switching between the Beta and Stable channels

To switch to the Beta channel

1. Tap the Home button on the screen.

The launcher appears.

2. Tap Settings .

The Settings window appears.

- 3. Tap Auto Update.
- 4. Tap Update Channel, and then select Beta Channel.

A dialog box appears asking you to confirm the switch to the beta system software releases.

The display checks for a Beta system software update.

To switch to the Stable channel

1. Tap the Home button on the screen.

The launcher appears.

2. Tap Settings 🌣.

The Settings window appears.

- 3. Tap Auto Update.
- 4. Tap Update Channel, and then select Stable Channel.

A dialog box appears asking you to confirm the switch to the Stable channel system software releases.

The display checks for a Stable channel system software update.

5. Tap Ready to apply update.

Getting support and sending feedback

SMART Support will not be able to help you resolve problems you may encounter in Beta channel releases.

SMART appreciates your willingness to use Beta channel releases and values all types of feedback.

- Report issues with Beta channel releases at smarttech.uservoice.com.
- Provide feedback to SMART about new features at smarttech.uservoice.com.
- Suggest new features to SMART at smarttech.uservoice.com.

Adding or removing apps from the launcher

You can add or remove apps from the launcher.

Selecting which apps appear in the launcher

To add or remove apps from the launcher

1. Tap the Home button on the screen.

The launcher appears.

2. Tap Settings .

The Settings window appears.

- 3. Tap Launcher.
- 4. Select the apps you want to include in the launcher.

OR

Clear the check boxes for apps you want to remove from the launcher.

Enabling the Whiteboard Library

The display saves Whiteboard sessions to the Library. The Library is disabled on some displays and must be enabled if you want to save Whiteboard sessions or continue previous sessions.

To enable the Library

1. Tap the Home button on the screen.

The launcher appears.

2. Tap Settings 🌄.

The Settings window appears.

- 3. Tap **Applications**, and then tap **Whiteboard**
- 4. Switch the *Library* option **ON**.

Chapter 5

Configuring connected computers

Installing SMART software on connected computers	49
Installing SMART Learning Suite	. 49
Installing SMART Product Drivers	.50
Setting connected computers' resolutions and refresh rates	50

Install SMART software and set the resolution and refresh rate on any computers you connect to the display.



For information about connecting computers, see Connecting cables for room computers, guest laptops and other input sources on page 23.

Installing SMART software on connected computers

To take full advantage of the SMART Board display's features, install SMART Learning Suite and SMART Product Drivers on computers you connect to the display.

Installing SMART Learning Suite

All models come with one license of SMART Learning Suite. You can download SMART Learning Suite from smarttech.com/downloads and install it on a room computer.

You can purchase additional licenses of SMART Learning Suite to install on other computers. Contact your authorized SMART reseller (smarttech.com/where) for more information.

MPORTANT

Make sure a computer meets the minimum requirements in the SMART Notebook software release notes before you install SMART Learning Suite.

Installing SMART Product Drivers

SMART Board MX series interactive displays require SMART Product Drivers 12.10 or later installed on the room computer. If you've installed SMART Learning Suite 17.1 or earlier, you'll need download a newer version of SMART Product Drivers from smarttech.com/downloads.

Setting connected computers' resolutions and refresh rates

The following table presents the recommend resolutions and refresh rates for the display's input sources:

Input source	Resolution	Refresh rate
HDMI 1 and HDMI 2	3840 × 2160	60 Hz
HDMI 3 (with	1920 × 1080	60 Hz
VGA	1920 × 1080	60 Hz

If possible, set connected computers to these resolutions and refresh rates. See the connected computers' operating system documentation for instructions.

For more information, see Appendix E: Supported resolutions on page 95.

Chapter 6

Maintaining the display

Checking the display installation	5
Cleaning the screen	5
Cleaning the touch sensors	52
Maintaining ventilation	53
Preventing condensation	53
Replacing the pens	
Turning the display off and back on	53
Resetting the display	54
Removing and transporting the display	

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

Checking the display installation

Inspect the display installation frequently to ensure that it 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.

MAINTAINING THE DISPLAY

• 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 the facing page).
- 3. Wipe the screen with a lint-free, non-abrasive cloth.



Alternatively, you can 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 colder environment to a warmer environment (for example, from storage to the installation site), let the display sit for a few hours so that it can 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 MX series interactive displays user's guide (smarttech.com/kb/171284).

MAINTAINING THE DISPLAY

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 U on the front control panel for two seconds.

To turn the display back on

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

Resetting the display

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

To perform a factory reset, see *Restore factory settings* on page 82. 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 and iQ appliance reset.

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.

A 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 U 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. Remove the iQ appliance from the accessory slot.
- 6. 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.

7. Remove the mounting brackets.

To transport the display

See Transporting the display on page 11.

Chapter 7

Troubleshooting

Troubleshooting the display	57
Resolving general issues	58
Resolving issues with power	58
Resolving issues with image or video quality	59
Resolving issues with audio	61
Resolving issues with touch and digital ink	62
Troubleshooting the iQ system software	62
Resolving general issues	63
Resolving issues with SMART Notebook Player	64
Resolving issues with Browser	65
Resolving issues with Screen Share	65
Resolving issues with Android mobile devices	66
Resolving issues with Apple devices	67
Resolving issues with Chrome browser and Chromebook	68
Resolving issues with Windows computers	70
Advanced troubleshooting for Screen Share	72
Referring to the SMART knowledge base for additional troubleshooting information	73
Contacting your reseller for additional support	73
Locating the display's serial number	73
Locating the iQ appliance serial number	73

This chapter explains how to troubleshoot issues with the display and its software.

Troubleshooting the display

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

- Power
- Video
- Image quality

TROUBLESHOOTING

- Audio
- Touch and digital ink

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.

Resolving issues with power

Issue	Solutions
The display doesn't turn on and its power light isn't lit.	 Make sure the power cable is securely fastened to the power outlet and the display.
	NOTE 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.
	 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.	Press the Power button to wake the display.
	NOTE The status light is red when the display is in a low power state.
	 If the status light is solid green, see Resolving issues with image or video quality on the facing page. Restart the display. See Turning the display off and back on on page 53.
The display doesn't turn on when you use a connected computer's mouse or keyboard.	 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 Referring to the SMART knowledge base for additional troubleshooting information on page 73.

Resolving issues with image or video quality

Issue	Solutions
You're experiencing the following or similar issues with image quality: There are lines or snow on the screen. The image is flickering or flashing.	 Set the connected computer's resolution and refresh rates to values that the display supports. See Setting connected computers' resolutions and refresh rates on page 50. Open the on-screen display menu. If it appears correctly, the issue is with the video input. Restart the display. See Turning the display off and back on on page 53. 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 and extender or goes through a wall socket, try connecting the display and computer directly.
You're experiencing the following or similar issues with video: The video is distorted. There is visual noise. The image is dim.	 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. See Setting connected computers' resolutions and refresh rates on page 50. Restart the display and any connected computers. See Turning the display off and back on on page 53. 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 and 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 the iQ appliance is securely installed in the accessory slot and its power light is on. Make sure your computer's video driver is up to date.
There are bright spots on the screen. NOTE It is normal for some areas of the screen to be slightly brighter than other, but these variations should be minor.	 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 and extender or goes through a wall socket, try connecting the display and computer directly.

TROUBLESHOOTING

Issue	Solutions
Colors don't appear correctly.	 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 and extender or goes through a wall socket, try connecting the display and computer directly. Perform a factory reset. See Factory Reset on page 77. 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.	 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 and extender or goes through a wall socket, try connecting the display and computer directly.
The image doesn't fill the entire screen.	Adjust the connected computers' video settings, particularly underscan or overscan. See your computer's operating system documentation.
A persistent image appears on the display.	See Image persistence or burn in on LCD displays.
The display is on, but nothing shows on the screen.	 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 Turning the display off and back on on page 53. 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.
A computer is connected to the display, but only a "No Signal" message appears on the screen.	 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.

Issue	Solutions
No image appears on a device you've connected to the display's HDMI OUT connector.	See Using a secondary display.
The image from a device connected to the VGA port is cut-off or not centered.	 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.
You're experiencing other issues with video or image quality, or the previous solutions don't resolve the issue.	See Referring to the SMART knowledge base for additional troubleshooting information on page 73.

Resolving issues with audio

Issue	Solutions
You're experiencing the following or similar issues with audio: No sound is coming from the speakers. Sound is coming from the speakers, but the volume is low. The sound is distorted or muffled.	 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. NOTES 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 Connecting external speakers on page 25. 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. OR 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.
A whine or buzzing sound is coming from the back of the display.	 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.
You're experiencing other issues with audio, or the previous solutions don't resolve the issue.	See Referring to the SMART knowledge base for additional troubleshooting information on page 73.

Resolving issues with touch and digital ink

Issue	Solutions
You're experiencing the following or similar issues with touch and digital ink: • When users touch or write on the screen, the pointer or digital ink appears in the wrong place. • Touch control and digital ink are intermittent. • The display only responds to touch on part of the screen. • Digital ink disappears as you write.	 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. See Turning the display off and back on on page 53. 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 MX series interactive display pen. Use a known working pen from another SMART Board MX series interactive display to check if the issue is being caused by the pen. Clean the optical touch sensors. See Chapter 6: Maintaining the display on page 51. Make sure SMART Product Drivers and SMART Ink are installed and running on any connected computers. Update the firmware. Confirm with the installers that the computer is connected to the display with only a single cable. 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.	 Make sure you are using a SMART Board MX 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.	 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.	 Make sure you're using Microsoft Office 2013 or later. Reinstall or update SMART Product Drivers and SMART Ink. Refer to the SMART Ink user's guide (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.	See Referring to the SMART knowledge base for additional troubleshooting information on page 73.

Troubleshooting the iQ system software

This section explains how to troubleshoot the display's software.

This section explains how to troubleshoot the iQ system software.

Resolving general issues

Issue	Solutions
An app or feature is missing or not available.	 The iQ system software may not include that feature or app. See the iQ system software release notes. The app may be disabled in the iQ system software's Settings app. Select OPS in the input source menu to display the iQ experience. See XREF.
The iQ apps and features do not appear when the display is turned on.	 Wait for several minutes after turning on the display or switching the input source to the iQ appliance (OPS in the input source menu). This startup delay may be longer immediately after upgrading the iQ system software. The iQ appliance has stopped responding during startup or after a system software update. Turn off the display, unplug the power cable and wait at least 30 seconds before reconnecting the power cable and turning the display back on.
There is no output from the HDMI video out connector.	 Make sure the device is connected to the HDMI-out connector on the display, not on the iQ appliance. The connected HDMI sync device (for example, a display, video splitter, video extender or video capture system) may not support High-Bandwidth Digital Content Protection (HDCP) or may not support HDCP version 2.2. Make sure the sync device can receive and display HDMI content that is protected by HDCP 2.2. For more information, see SMART Board interactive flat panels and High-bandwidth Digital Content Protection (HDCP).
When updating the iQ system software with a USB drive, the update doesn't start.	 The installed iQ system software version may be the same as or newer than the version on the USB drive. Compare the version number of the current iQ system software with the version number of the upgrade file on the USB drive. Follow the installation instructions provided on SMART's website when updating the iQ system software. TIPS Make sure the USB drive is FAT formatted. Make sure the file has not been renamed or unzipped. The file should be copied to the USB drive unmodified. Make sure the file is located in the root folder on the USB drive.
You can't write or draw digital ink on an acetate in the SMART Notebook Player or Whiteboard app.	Currently, only the Browser and Screen Share apps support acetates.
When the acetate is open in the Whiteboard app, you can't connect the SMART kapp app to your display.	Close the acetate in the Whiteboard app before using the SMART kapp app to connect to the display.

Issue	Solutions
When turning on the display for the first time, a configuration code is required.	 Make sure the iQ appliance is properly installed. a. Turn off the display by flicking the power switch on the back of the display. b. Disconnect the power cable from the outlet. c. Remove the iQ appliance from the accessory slot. d. Insert the iQ appliance into the accessory slot. e. Connect the power cable to the outlet. f. Turn on the display by flicking the power switch on the back of the display.

Resolving issues with SMART Notebook Player

Issue	Solutions
There is an issue with SMART Notebook Player.	 Make sure the iQ system software is connected to a network and the network is configured properly. See Connecting the display and iQ appliance to a network on page 33.
The display's name doesn't appear in the list of available devices.	 Restart the display. See Turning the display off and back on on page 53. Make sure the iQ system software and computer are set to the correct date and time.
You can't download SMART Notebook Player to your mobile device.	 If you're using an iPhone, download the app from the Apple App Store. Notebook Player is currently unavailable for Android devices.
You can't sign in to Notebook Player.	Use the Google or Microsoft account email associated with your SMART account to sign in.
No SMART Notebook files appear in the mobile app.	Share a SMART Notebook file with the display to make it visible in the Notebook Player app. See the SMART Board MX series interactive displays user's guide (smarttech.com/kb/171284) and your computer's documentation.
The mobile device or Notebook Player is no longer connected to the display.	The iQ system sofware or the mobile device can't connect to the Internet. Check the settings for the iQ system software and the mobile device and try connecting again.
The app can't generate a pairing code The Notebook Player mobile app can't be used to remotely control the SMART Notebook file on the display	Restarting the display can resolve this issue. See <i>Turning the display off and back on</i> on page 53.

Resolving issues with Browser

Issue	Solutions
There is an issue with Browser.	Make sure the iQ system software is connected to a network and the network is configured properly to allow an Internet connection.
	See Connecting the display and iQ appliance to a network on page 33.
	 If Browser can't visit secure (https) websites, ensure the iQ system software's date and time are correct.
	Contact the system administrator.

Resolving issues with Screen Share



TIP

In some instances, restarting the Screen Share app and its discovery services resolves issues with the app.

- 1. On the display, open the launcher.
- 2. Tap Settings 🌣.
- 3. Scroll to Applications > Screen Share.
- 4. Tap Reset.

Resolving issues with Android mobile devices

Issue	Solutions
The display's name doesn't appear in the list of available devices.	 Make sure your mobile device is connected to the same network as the display. Not all Android devices can initiate Screen Share from the notification drawer. Download the Google Home app from Google Play™ to use Screen Share. If your display is using a wired network connection, try connecting it to a wireless network.
	Wired and wireless networks don't often share the same network subnet. Connecting the display to a wireless network might help the connection between the display and a mobile device or computer that's connected wirelessly.
	 On your mobile device, turn Airplane mode on and then off again. Restart your Android mobile device.
	Restarting your Android device can clear network address information that your device had cached. Restarting the device can also reinitialize audio and video encoders that might have stopped working properly.
	 Restart the display. See <i>Turning the display off and back on</i> on page 53. If you've restarted your display and still don't see the display's name in the list of devices, wait several minutes and then try to connect to the display again. Ensure you have the latest operating software on your Android device. Make sure no system updates are pending for your Android device. See the device's user guide for more information.
The display's name appears in the list of available devices but you can't connect to it.	 Open the Screen Share app. a. On the display, open the launcher. b. Tap Screen Share .
The video is choppy or the audio and video are not in sync.	 If the network is slow or congested, Screen Share is affected. Contact the network administrator. Your mobile device could be connected to a different access point than your display, which can increase latency. Turn Airplane mode on and then off on your mobile device to try to connect to a closer access point. Your mobile device may not be optimized for sharing its screen and is limited to lower quality performance. Try connecting with a different mobile device. Ensure you have the latest operating software on your Android device. Make sure no system updates are pending for your Android device. See the device's user guide for more information.
The video has no audio.	 Make sure the volume on your Android device is turned up and the display is not muted. Turn up the volume on the display. See Front control panel on page 5. Restart your mobile device. Make sure you have the latest operating software on your Android mobile device.

Issue	Solutions
The issues persist even after you've restarted your Android mobile device and ensured it is on the same network as the display.	Contact your system administrator. The network may need to be configured to allow Screen Share and other iQ features.
	The system administrator should also make sure that device-to-device communication is not intentionally blocked.
	See Configuring the iQ appliance's network connection on page 33.

Resolving issues with Apple devices

Issue	Solutions
The display's name doesn't appear in the list of available devices.	 Make sure your mobile device or computer is on the same network as the display. If your display is using a wired network connection, try connecting it to a wireless network.
	Wired and wireless networks don't often share the same network subnet. Connecting the display to a wireless network might help the connection between the display and a mobile device or computer that's connected wirelessly.
	 On your mobile device, turn Airplane mode on and then off on your mobile device. Restart your mobile device.
	Restarting your mobile device can clear network address information that your mobile device had cached. Restarting the mobile device can also reinitialize audio and video encoders that might have stopped working properly.
	On your computer, turn Wi-Fi off and then back on, or disconnect and then reconnect the Ethernet cable.
	Restart your computer.
	Restarting your computer can clear network address information that your computer had cached. Restarting the computer can also reinitialize audio and video encoders that might have stopped working properly.
	 Restart your display. See Turning the display off and back on on page 53. If you've restarted your display and still don't see the display's name in the list of devices, wait several minutes and then try to connect to the display again. Make sure your computer or device has the latest operating system software.
The display's name appears in the list of available devices but you can't connect to it.	Open the Screen Share app. a. On the display, open the launcher. b. Tap Screen Share

Issue	Solutions
The video is choppy or the audio and video are not in sync.	 If the network is slow or congested, Screen Share is affected. Contact the network administrator. The display and the mobile device or computer could be connected to different wireless access points, which can increase latency. On the mobile device, turn Airplane mode on and back off to try to connect to a closer access point. On the computer, disconnect and then reconnect the Ethernet cable or turn Wi-Fi off and then back on to try to connect to a closer access point. Reduce your computer's display resolution to 1920 ×1080 or lower. Make sure your computer or device has the latest operating system software.
The video has no audio.	 Make sure the volume on your iOS device is turned up and the display is not muted. Turn up the volume on the display. See Front control panel on page 5. Make sure the Ring/Silent switch isn't set to silent on your mobile device.
The issues persist even after you've restarted your Mac computer or iOS mobile device and ensured they are on the same network as the display.	Contact your system administrator. The network may need to be configured to allow Screen Share and other iQ features. The system administrator should also make sure that device-to-device communication is not intentionally blocked. See Configuring the iQ appliance's network connection on page 33.

Resolving issues with Chrome™ browser and Chromebook™

Issue	Solutions
The display's name doesn't appear in the list of available devices.	 Make sure your computer is on the same network as the display. If your display is using a wired network connection, try connecting it to a wireless network.
	Wired and wireless networks don't often share the same network subnet. Connecting the display to a wireless network might help the connection between the display and a mobile device or computer that's connected wirelessly.
	 On your computer, turn Wi-Fi off and then back on, or disconnect and then reconnect the Ethernet cable. Restart your computer.
	NOTE Restarting your computer can clear network address information that your computer had cached. Restarting the computer can also reinitialize audio and video encoders that might have stopped working properly.
	 For more information about the Google Cast browser extension, see Casting a tab or entire desktop. Restart your display. See Turning the display off and back on on page 53. If you've restarted your display and still don't see the display's name in the list of devices, wait several minutes and try to connect to the display again.

Issue	Solutions
The display's name appears in the list of available devices but you're unable to connect to it.	Open the Screen Share app. a. On the display, open the launcher. b. Tap Screen Share
The video is choppy or the audio and video are not in sync.	 If the network is slow or congested, Screen Share is affected. Contact the network administrator. Not all devices are designed for video encoding for Screen Sharing, so video streaming might not behave as expected. Screen Share has not been optimized for performance with Chromebooks. For best results, limit usage to static content. The display and the computer might be connected to different wireless access points, which can increase latency. On the computer, disconnect and then reconnect the Ethernet cable or turn Wi-Fi off and then back on to try to connect to a closer access point.
Parts of the image do not display correctly when sharing streaming video to the display.	If sharing content from a Chrome browser tab, share the entire desktop. See the SMART Board MX series interactive displays user's guide (smarttech.com/kb/171284).
The issues persist even after you've restarted your computer or mobile device and ensured they are on the same network as the display.	Contact your system administrator. The network may need to be configured to allow Screen Share and other iQ features. The system administrator should also make sure that device-to-device communication is not intentionally blocked. See Configuring the iQ appliance's network connection on page 33.

Resolving issues with Windows computers

Issue	Solutions
The display's name doesn't appear in the list of available devices.	 Make sure your computer is on the same network as the display. If your display is using a wired network connection, try connecting it to a wireless network.
	Wired and wireless networks don't often share the same network subnet. Connecting the display to a wireless network might help the connection between the display and a mobile device or computer that's connected wirelessly.
	 On your computer, turn Wi-Fi off and then back on, or disconnect and then reconnect the Ethernet cable. For a computer using Windows 10, make sure Airplane mode is turned off. Restart your computer.
	NOTE Restarting your computer can clear network address information that your computer had cached. Restarting the computer can also reinitialize audio and video encoders that might have stopped working properly.
	 Restart your display. See Turning the display off and back on on page 53. If you've restarted your display and still don't see the display's name in the list of devices, wait several minutes and try to connect to the display again. Make sure the operating system on your computer is up to date. If you've restarted your display and still don't see the display's name in the list of devices, wait several minutes and then try to connect to the display again. A Mac computer, Apple mobile device or Android mobile device is sharing content with the display. Disconnect the computer or mobile device.
The display's name appears in the list of available devices but you can't connect to it.	Open the Screen Share app. a. On the display, open the launcher. b. Tap Screen Share
The video is choppy or the audio and video are not in sync.	 If the network is slow or congested, Screen Share is affected. Contact the network administrator. The Wi-Fi signal could be weak. Contact your administrator. Your device could be connected to a different access point than your display, which can increase latency. Turn Airplane mode on and then off on your computer to try to connecting to a closer access point. Reduce your computer's resolution to 1920 × 1080 or lower. If you've restarted your display and still don't see the display's name in the list of devices, wait several minutes and then try to connect to the display again. Make sure the operating system on your computer is up to date. If you're using AirParrot software, make sure AirParrot is up to date. If you're using Chrome browser, make sure the browser is version 52 or later and is up to date. If you're using Miracast, move the computer closer to the display or to the side of the display where the iQ appliance is installed.

Issue	Solutions
When using Miracast, you can't add or connect to the display.	 If you can't add the display, wait for it to become ready and then try again. If that doesn't work, restart your computer and the display. See Turning the display off and back on on page 53. Miracast works only when Wi-Fi is enabled on the display, even if the display uses an Ethernet connection to the network. However, the display doesn't need to be connected to a wireless network. If your Windows 8.1 computer won't connect to the display, try removing and then adding it again. a. On your computer, swipe in from the right edge of the screen, and then tap Settings > Change PC settings. OR With a mouse, point to the lower-right corner of the screen, move the pointer up and click Settings > Change PC settings. b. Click PC and Devices > Devices. c. Select the display, and then click Remove Device. d. On your computer, swipe in from the right edge of the screen, and then tap Devices. OR With a mouse, point to the lower-right corner of the screen, move the pointer up and click Devices. e. Click Project > Add a wireless display f. Select the display in the list of devices found, and follow the on-screen instructions. If you're using Miracast, move the computer closer to the display or to the side of the display where the iQ appliance is installed.
When using Miracast, the text on your screen is fuzzy or images stutter.	 NOTE Projecting video or games to the display might not work well. If you're using Miracast, move the computer closer to the display or to the side of the display where the iQ appliance is installed. Decrease the screen resolution on your Windows 8.1 and 10 computer. a. On your computer, swipe in from the right edge of the screen, and then tap Search. OR With a mouse, point to the lower-right corner of the screen, move the pointer up and click Search. b. Type Screen resolution in the search box and select Display settings. c. Use the Resolution slider to choose a smaller screen resolution.
When using Miracast, audio plays on the computer rather than display.	 Disconnect the display and then reconnect. Check that the display is selected as the default audio device. a. On your computer, swipe in from the right edge of the screen, and then tap Search. OR With a mouse, point to the lower-right corner of the screen, move the pointer up and click Search. b. Enter Sound in the search box and click Sound. c. Click Playback, and make sure the display is selected as the default device.

Issue	Solutions
The issues persist even after you've restarted your computer and ensured it is on the same network as the display.	Contact your system administrator. The network may need to be configured to allow Screen Share and other iQ features.
	The system administrator should also make sure that device-to-device communication is not intentionally blocked.
	See Configuring the iQ appliance's network connection on page 33.

Advanced troubleshooting for Screen Share

Issue	Solutions
Mobile devices and computers can't find the display.	 Organizations often block a number of network ports. Ask the administrator to allow TCP ports 7000, 8008, 8009, 47000, 7100, 49228, 50259 UDP ports 62572 and 54780 If using Google Cast, UDP port 1900 If using Windows computer or a Mac computer, UDP port 5353. See To allow mobile devices and computers to use AirPlay and Google Cast to use the Screen Share app on page 36 for more information. The display's casting ID may not have propagated yet through the network or may be cached on the network when it's not actually available. Wait several minutes and attempt to connect again.
Screen Share is not working for Windows computers.	 There might be an issue with the Windows firewall. Windows 7 operating system: See Allow a program to communicate through Windows Firewall. Windows 8 operating system: See Windows Firewall from start to finish. Your antivirus product might be blocking access. See the antivirus product's help for more information.
Screen Share is not working for Mac computers.	 There might be an issue with the Mac firewall. See OS X: About the application firewall. Your antivirus product might be blocking access. See the antivirus product's help for more information. The network must be configured to run Bonjour and mDNS, and Multicast must be enabled. Ensure your device and display are on the same VLAN or subnet.
AirPlay is not displaying on an iOS mobile device.	 Ensure the iOS device is on the same network as the display. Try connecting the display with a wired network connection. See Get help with AirPlay and AirPlay Mirroring on your iPhone, iPad, or iPod touch.

Issue	Solutions
Screen Share is not working on Android devices.	 Ensure your Android device is on the same network as the display. Casting the screen is available on mobile devices running Android 4.4.2 or later. Turn off the device's Power Saving mode. If you've downloaded the Google Cast app, see Cast your Android screen from the Chrome Cast app. Your antivirus product might be blocking access. See the antivirus product's help for more information. Your network consists of multiple access points connected to a single wireless LAN controller (WLC). See Chrome Cast Deployment Guide, Release 7.6. See Chrome Cast mDNS Service in order to Cast Screen Configuration on WLC.
Screen Share app closes unexpectedly or the video stops playing on the display.	 If your display is connected to a 2.4 GHz network, connect your display to a 5 GHz network. Select a less congested Wi-Fi channel.

Referring to the SMART knowledge base for additional troubleshooting information

Refer to the SMART knowledge base for additional troubleshooting information not included in this guide:

community.smarttech.com

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 or the iQ appliance.

Locating 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

Locating the iQ appliance serial number

The iQ appliance's serial number is located on the iQ appliance.



You need to remove the iQ appliance from the display to locate the serial number.

Appendix A

Using iQ system settings

Network settings	75
Application settings	75
System settings	76

You can access the iQ appliance's settings using the icon in the launcher.

Network settings

Option	Values	Function	Notes
• Wi-Fi	[N/A]	Shows which wireless network the display is connected to.	Turn on Wi-Fi to discover networks.
▶ Status			
• Wi-Fi	[N/A]	Shows information about the wireless network the display is connected to.	[N/A]
• Ethernet	[N/A]	Shows information about the network the display is connected to.	[N/A]
 Bluetooth 	[N/A]	Shows information about the display's Bluetooth	[N/A]

Application settings

Option	Values	Function	Notes
• Launcher	[Apps]	Select which apps appear in the launcher.	See page 47 for more information.
SMART Whiteboard			
Whiteboard Storage	[N/A]	[N/A]	[N/A]
• Library	On Off	Enables or disables saving whiteboard sessions	[N/A]

Option	Values	Function	Notes
 Save Whiteboards in Library 	For 1 week For 1 Month Indefinitely	Sets how long the whiteboard sessions are saved	[N/A]
Mobile App	[N/A]	[N/A]	[N/A]
Saving Whiteboards	On Off	Enables or disables the Capture function in the SMART kapp app	If this is off, the QR code is not visible. The SMART kapp app is unable to connect to the display and your mobile device is unable to save snapshots of the display in the app.
Sharing Whiteboards	On Off	Enables or disables the Invite function on the SMART kapp app	If this is off, you're unable to invite people to your session.
Screen Share			
• Reset	[N/A]	Closes and restarts Screen Share app and its discovery services	You can restart Screen Share as a troubleshooting step if a mobile device or computer can't find or connect to the display.

System settings

Option	Values	Function	Notes
Date & Time			
Automatic Date & Time	On Off	Sets the display's date and time automatically	Configure the network to allow Network Time Protocol (NTP) requests to Internet time servers. See page 33.
• Date	[N/A]	Sets the display's date	Disable Automatic date & time to set the date manually.
• Time	[N/A]	Sets the display's time	Disable Automatic date & time to set the time manually.
• 24 Hour Time	On Off	Shows the display's time using the 24-hour clock	[N/A]
Time Zone	[N/A]	Sets the display's time zone	[N/A]
• Language	[Languages]	Sets the language for the settings menu	To select a different language for the on-screen display menu, see [XREF].
 Country 	[Countries]	Sets the display's country	[N/A]
Diagnostics			
 Touch Calibration Wizard 	[N/A]	[N/A]	This feature is not available for the display.

USING IQ SYSTEM SETTINGS

Option	Values	Function	Notes
Factory Reset	[N/A]	Resets all options to their default values	Only administrators should reset the display.
Save Log File	[N/A]	Copy diagnostic logs to a USB drive	[N/A]
 Improve the Experience 	On Off	Sends usage statistics and error reports to SMART	[N/A]
► Security			
Lock Down Settings	[N/A]	Lock down the display's settings using a certificate on a USB drive.	See Locking down the Settings app for iQ system software on page 43 for more information.
• Install certificates	[N/A]	Install certificates to connect to a network	[N/A]
• Clean up	[N/A]	[N/A]	[N/A]
Clean Up Policy	Disabled Manually reset with the Clean Up button in the launcher 1 hour 2 hours 3 hours 1day	Sets how often the display cleans up	[N/A]
 Clean Up the whiteboard 	[N/A]	Saves the Whiteboard session to the Library and erases the Whiteboard	[N/A]
Clean Up the browser	[N/A]	Closes the browser tabs and clears the history, cache and cookies	[N/A]
 Clean Up other applications 	[N/A]	Closes open applications	[N/A]
► Auto Update			
Updates Channel	Stable Channel Beta Channel	Sets which system software updates the display receives	When switching from the Beta Channel to the Stable Channel, a factory reset occurs. See page 77 for more information about factory reset. For more information about the Beta Channel, see Switching the iQ system software to the Beta channel on page 44

USING IQ SYSTEM SETTINGS

Option	Values	Function	Notes
 Checkfor Updates Now 	[N/A]	Checks for updates to the system software	If an update is available, the text changes to Apply update
		NOTE The display must be connected to the Internet to check for system software updates.	now.
About			
Board Name	[N/A]	Select a name for your display	[N/A]
• Help	[N/A]	Shows the SMART support site	[N/A]
Send Feedback	[N/A]	Send feedback to SMART about the display experience	[N/A]
Board Details	[N/A]	[N/A]	[N/A]
Build Number	[N/A]	Shows the iQappliance's serial number	To find the display's serial number, on the bottom frame or on the back of the display.
Serial Number	[N/A]	Shows the display's serial number	[N/A]
• Firmware Details	[N/A]	[N/A]	[N/A]
 Touch controller version 	[N/A]	[N/A]	[N/A]
 Scaler version 	[N/A]	[N/A]	[N/A]
• Legal Information	[N/A]	[N/A]	[N/A]
 End User License Agreement 	[N/A]	Shows the SMART end user license agreement	[N/A]
Open Source Licenses	[N/A]	Shows the open source licenses	[N/A]
 SMART Intellectual Property 	[N/A]	Shows the SMART intellectual property information	[N/A]

Chapter B

Using display settings on your SMART Board MX

Accessing the display's settings	79
Exiting the display's settings	79
Network	80
Screen lock	80
Advanced	8
Update	82
Recovery	82
About	83

Accessing the display's settings

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

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.
 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.
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.
• 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			
• Wi-Fi hotspot	Enable Disable	Enables or disables the Wi-Fi hotspot	The lock screen appears after the display wakes up from sleep.
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.
Network status	[N/A]	Shows information about the display's current network connection	[N/A]

Screen lock

Option	Values	Function	Notes
Lock screen mode			
• Lock screen mode	Enable Disable	Turns lock screen on or off	[N/A]
• Image	[N/A]	Select a custom image for the lock screen	 Supports .png, .jpg, .bmp files Save the wallpaper file to a USB drive and insert it into the USB port. See Front connector panel on page 5.
• Disable	[N/A]	Turns off the custom image for the lock screen	[N/A]

Option	Values	Function	Notes
Lock screen password	Enable Disable	Set a PIN to unlock the lock screen	[N/A]
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			
Wallipaper	[N/A]	Sets the background image on the display	 Only .png, .jpg, .bmp files are supported Save the wallpaper file to a USB drive and insert it into the USB port. See Front connector panel on page 5.
• Launcher	[Apps]	Select which apps appear in the launcher.	[N/A]
Home screen	[Apps]	Select three apps to appear on the home screen	Tap the app you want to remove from the home screen. Then select the app you want to appear on the home screen instead.
• HDMI out	480p 1080p 4K	Select the output resolution	Ensure the device that is receiving the display's HDMI out signal matches the selected output resolution.
• Sleep	15 minutes 30 minutes 45 minutes 60 minutes Always on	When a time interval is selected, the display's screen will turn off even if the connected computer or device is still on.	If the iQ experience is selected, the display's screen will not turn off when a time interval is selected.
▶ Brightness and volume			
• Auto	[N/A]	Automatically sets the display's brightness based on the room's brightness.	The ambient light sensor can detect the room brightness and adjust the display's screen brightness
• Manual	[N/A]	Sets the display's brightness level	Disable Auto to set the brightness manually
• Volume	[N/A]	Sets the display's volume level	[N/A]

Option	Values	Function	Notes
OTA sever	[OTA servers]	Sets which server the display connects to for updates	Default is Auto .
	NOTE The display must be connected to the Internet to check for system software updates.		
Power saving mode	Enable Disable	Turns on or turns off 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.

Update

Option	Values	Function	Notes
Firmware version	[N/A]	Shows technical information about the display's scalar firmware.	To see the firmware version use the About option (see <i>About</i> on the facing page.
• Update	[N/A]	Checks for updates to the system software	If an update is available, the text changes to Apply update now.
		to the Internet system softwar the display's ne To check the ne	NOTE The display must be connected to the Internet to check for system software updates. Check the display's network settings.
			To check the network settings, see <i>Network</i> on page 80.

Recovery

Option	Values	Function	Notes
Restore user settings	[N/A]	Resets any options the user may have changed	[N/A]
Restore factory settings	[N/A]	Resets all options to their default values	Only administrators should reset the display.

About

Option	Values	Function	Notes
• Name	[N/A]	Select a name for your display	This name is different from the display name set in the iQ system software.
• RAM	[N/A]	Shows how much RAM is installed in the display	[N/A]
• Local storage	[N/A]	Shows how much storage memory is available and how much is currently in use	[N/A]
• Resolution	[N/A]	Shows the display's current screen resolution	[N/A]
• Android	[N/A]	Shows the current version of the Android operating system on the display	[N/A]
• SMART Board MX series system version	[N/A]	Shows the current version of the display's scalar firmware	[N/A]
• Touch kit	[N/A]	Shows the current version of the touch system firmware	[N/A]
• MAC address	[N/A]	Shows the network's MAC address	[N/A]
• License	[N/A]	Shows licenses	[N/A]

Chapter C

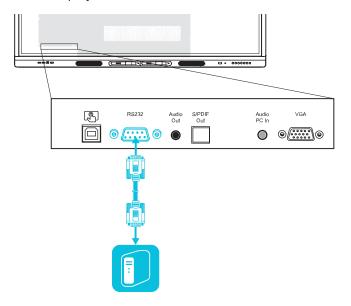
Remotely managing the display

Connecting a computer to the display	86
Configuring the computer's serial interface settings	86
Power states	87
Commands and responses	88
Command inventory	89
Power state	90
Input	90
Brightness	90
Volume	91
Mute	91
Firmware version	91
Serial number	91
Part number	91
Resolving issues with remote management	92

You can connect a computer to the room control input on the display to 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.

Connecting a computer to the display

Connect an RS-232 cable from 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 computer's serial interface settings

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

To configure the computer's serial interface

- 1. Turn on the display.
- 2. Turn on the computer, and then start the serial communications program or terminal emulation program.
- 3. 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

A command prompt (>) appears on the following line, and the display can now accept commands from the computer. If the command prompt (>) doesn't appear, press **Enter** on your keyboard.



If no message appears or an error message appears, the serial interface isn't configured correctly. Repeat steps 3 and 4.

Power states

The display has six power states:

Power state	Description
ON	The display is in normal operating mode.
READY	 A user presses the Power button on the front control panel. A user presses the Power button on the remote control. You send the set powerstate=on command.
STANDBY	The screen is off, and the display is in a low power state. The display enters READY state when: • A user presses the Power button on the front control panel. • A user presses the Power button on the remote control. • You send the set powerstate=on command.
POWERSAVE	The screen is off, and the display is a very low power state. The display enters ON state when: • A user presses the Power button on the front control panel. • A user presses the Power button on the remote control. • You send the set powerstate=on command.

Power state	Description
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 and responses

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

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

If you type 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.
- You can use the BACKSPACE key when typing commands.
- Review each entry carefully before you press ENTER.
- Don't send another command until you receive the response and the next command prompt.

REMOTELY MANAGING THE DISPLAY

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
>
```

Command inventory

Power state

Get command	Set command	Response
get powerstate	set powerstate[Value] Where [Value] is one of the following: • =on • =ready • =standby • =powersave NOTE If the display is in UPDATEON or	powerstate=[Value] Where [Value] is one of the following: on ready standby powersave updateon updateready
	UPDATEREADY state, it might not change power states after receiving the command.	

Input

Get command	Set command	Response	
get input	<pre>set input[Value] Where [Value] is one of the following:</pre>	<pre>input=[Value] Where [Value] is one of the following:</pre>	
	=ops=hdmi1=hdmi2=hdmi3=vga	 =ops =hdmi1 =hdmi2 =hdmi3 =vga =android NOTE =android is the display's settings.	

Brightness

Get command	et command Set command	
get brightness	<pre>set brightness[Value] Where [Value] is one of the following: +[Value] -[Value] =[5-100]</pre>	brightness=[Value] Where [Value] is a number between 5 and 100 NOTE Enabling Auto Brightness overrides any brightness values set manually.

Volume

Get command	Set command	Response
get volume	<pre>set volume[Value] Where [Value] is one of the following: +[Value] -[Value] =[0-100]</pre>	volume=[Value] Where [Value] is a number between 0 and 100

Mute

Get command	Set command	Response	
get mute	set mute[Value] Where [Value] is one of the following:	<pre>mute=[Value] Where [Value] is one of the following:</pre>	
	=on=off	onoff	

Firmware version

Get command	Response
get fwversion	fwversion=[Value] Where [Value] is the firmware version.

Serial number

Get command	Response	
get serialnum	serialnum=[Value] Where [Value] is the display's serial number.	
	NOTE If multiple displays are connected, the response includes the serial numbers for all displays, separated by commas.	

Part number

Get command	Response
get partnum	partnum=[Value]
	Where [Value] is the part number, including the revision.

Resolving issues with remote management

The following table presents common issues with remote management and explains how to resolve them.

Chapter D

Identifying your display

Identify your display

To identify your display

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

A list of input sources appears.

2. If the input source list doesn't include SMART MX e³, the display is a SMART Board MX series interactive display. The display has an iQ appliance installed.

If the input source list includes SMART MX e^3 , the display is a SMART Board MX100 series interactive display. The display includes the e^3 experience.

Chapter E

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		60.000 Hz
1360 × 768	16:9		60.015 Hz

CHAPTERE

SUPPORTED RESOLUTIONS

Resolution	Input source aspect ratio	Mode	Refresh rate
1280 × 1024	5:4	SXGA 60	60.020 Hz
1024 × 768	4:3	XGA 60 XGA 70 XGA 75	60.004 Hz 70.069 Hz 75.029 Hz
800 × 600	4:3	SVGA 60 SVGA 72 SVGA 75	60.317 Hz 72.188 Hz 75.000 Hz
640 × 480	4:3	VGA 60	59.940 Hz

Chapter F

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. The iQ appliance module contains a CR2032 coin cell. Recycle or dispose of batteries properly.

More information

See smarttech.com/compliance for more information.