





# Contents

## **1 Warnings and Cautions**

- 2 Warnings
- 2 Cautions

## **4 About Your Device**

- 4 Intended Use
- 5 Indications
- 5 Contraindications
- 6 Package Content
- 7 Device Features

## **10 Setup**

- 10 Connections
- 12 Basic Video Setup

## **13 Operation**

- 13 On-Screen Display (OSD)
- 19 Troubleshooting

## **21 Periodic Maintenance**

- 21 Cleaning
- 22 Disposal

## **23 Technical Specifications**

## **27 Symbols**



# Warnings and Cautions

Please read this manual and follow its instructions carefully. The words **warning**, **caution**, and **note** carry special meanings and should be carefully reviewed:

**Warning** The personal safety of the patient may be involved. Disregarding this information could result in personal injury.

**Caution** Special service procedures or precautions must be followed to avoid damaging the device.

**Note** Special information to make maintenance easier or important information more clear.



An exclamation mark within a triangle is intended to alert the user to the presence of important operating and maintenance instructions in this manual.



A lightning bolt within a triangle is intended to warn of the presence of hazardous voltage. Refer all service to authorized personnel.

The WiSe 19" HDTV Surgical Display has been tested under the UL 60601-1 standard and is UL listed for medical application.

The warranty is void if any of the following warnings or cautions are disregarded.

# Warnings

To avoid potential serious injury to the user and the patient and/or damage to this device, please note the following warnings:

- Read this manual thoroughly and be familiar with its contents prior to using this device.
- Federal law (United States of America) restricts this device to sale by, or on the order of, a physician.
- Carefully unpack the device and check if any damage occurred during shipment.
- This device is non-sterile and therefore should not be placed in the sterile field.
- Do not place the device or any other heavy object on the power cord. Damage to the cable can cause fire or electric shock.
- To avoid electric shock, avoid removing the bezel.
- This device should not be used adjacent to or stacked with other devices. If adjacent or stacked use is necessary, the device should be observed to verify normal operation in the configuration in which it will be used.
- Test this device prior to a surgical procedure. This device was fully tested at the factory before shipment.
- Do not attempt internal repairs or adjustments not specifically detailed in this manual. Ensure that readjustments, modifications, and/or repairs are carried out by persons authorized by Stryker Endoscopy.
- Do not put any liquid or solid object into the panel. If this occurs, unplug the device and have it checked by qualified personnel before operating it any further.
- Use appropriate caution to prevent contact with fluids if the device is being used with a power supply in patient environments.
- The use of cables and/or other accessories with this device, other than those specified, may result in increased emissions or decreased immunity of this device.

# Cautions

- Connect the device to an AC adapter connected to a hospital grade power cord ensuring the power cord is plugged into a grounded power outlet to achieve grounding reliability.
- Do not sterilize the device, as the delicate electronics cannot withstand this procedure.
- Use only the proprietary surgical display power supply for the display. Completely secure the connection between the DC power cord and the extension cord.
- Never operate the device immediately after transportation from a cold location to a warm location.

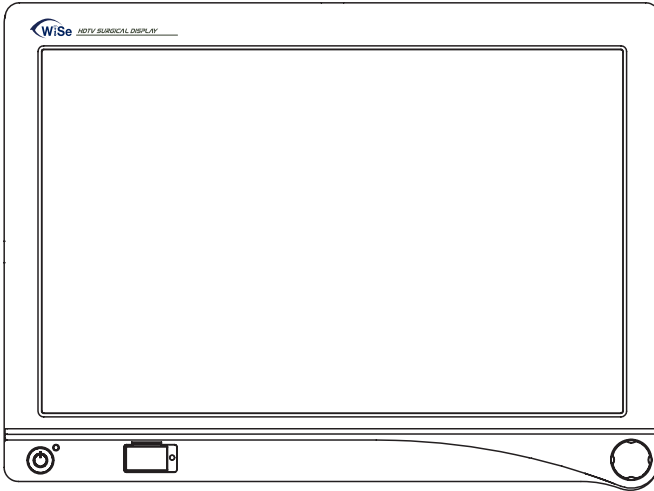
- To connect to an international power supply, use an attachment plug appropriate for the power outlet, as outlined in the "Technical Specifications" section of this manual.
- Unplug the device if it is not to be used for an extended period of time. To disconnect the cord, unscrew the plug first, then pull the cord out by the plug. Never pull the cord itself.
- Do not expose the device to moisture or apply liquid cleaners directly to the screen. Spray the cleaning solution into a soft cloth and clean gently. For further detail, refer to the "Periodic Maintenance" section of this manual.
- Allow adequate air circulation to prevent internal heat buildup. Do not place the device on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots. The device is cooled by natural convection and has no fan.
- Do not touch the patient with signal input or output connectors. Equipment with SIP/SOP connectors should either comply with IEC 60601-1 and/or IEC 60601-1-1 harmonized national standards or the combination should be evaluated for safety.
- To ensure electromagnetic compatibility, refer to the "Electromagnetic Compatibility" section of this manual. The WiSe 19" HDTV Surgical Display (0240030990) must be installed and operated according to the EMC information provided in this manual.

- Pay close attention to the cleaning instructions in this manual. A deviation may cause damage.
- Do not install the device near sunlight, excessive dust, mechanical vibration, or shock.
- Do not operate with the glass device screen facing downward.
- Handle the device with care. Do not strike or scratch the screen.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the device.

**Note:** This device has been tested and found to comply with the limit for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. There is no guarantee that interference will not occur in a particular installation, which can be determined by turning the device off and on. The user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving device.
- Increase the separation distance between the device.
- Connect the device to an outlet on a circuit different from that to which the other device(s) are connected.
- Consult the manufacturer or field service technician for help.

# About Your Device



The WiSe 19" HDTV Surgical Display (display) is a wide screen LCD surgical display that can support a maximum resolution of 1080p. The display supports various video inputs, including digital RGB, analog RGB, serial digital interface (SDI), component video (YPbPr/RGB), S-video, C-video, and wireless RGB.

The display features an optional WiSe HDTV Transmitter, which allows it to receive a high-definition video signal over a radio-frequency link (USA and Canada only).

## Intended Use

The WiSe 19" HDTV Surgical Display is intended for video display during surgical procedures.



# Indications

This device is indicated for the following surgical procedures:

- General surgery
- General laparoscopy
- Nasopharyngoscopy
- Ear endoscopy
- Sinuscopy
- Plastic surgery wherever a laparoscope/endoscope/arthroscope is indicated for use
- Laparoscopic cholecystectomy
- Laparoscopic hernia repair
- Laparoscopic appendectomy
- Laparoscopic pelvic lymph node dissection
- Laparoscopically assisted hysterectomy
- Laparoscopic & thorascopic anterior spinal fusion
- Anterior cruciate ligament reconstruction
- Knee arthroscopy
- Shoulder arthroscopy
- Small joint arthroscopy
- Decompression fixation
- Wedge resection
- Flexible endoscopy
- Urology
- Gynecology
- Lung biopsy
- pleural biopsy
- Dorsal sympathectomy
- Pleurodesis
- Internal mammary artery dissection for coronary artery bypass grafting where endoscopic visualization is indicated and examination of the evacuated cardiac chamber during performance of valve replacement

The indicated users of this device are as follows:

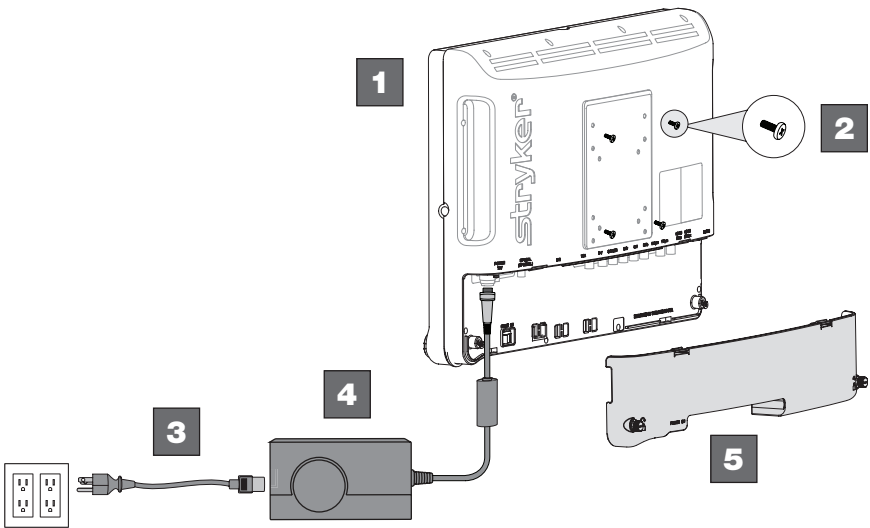
- General surgeons
- Gynecologists
- Cardiac surgeons
- Thoracic surgeons
- Plastic surgeons
- Orthopedic surgeons
- ENT surgeons
- Urologists

The display is a non-sterile, reusable device not intended for use in the sterile field. The display is intended for use by qualified physicians having complete knowledge of these surgical procedures.

# Contraindications

There are no known contraindications for this device.

# Package Content



## Package Content

- | Package Content                                       | Part Number |
|---|-------------|
| 1. WiSe 19" HDTV Surgical Display                     | 240-030-990 |
| 2. (4) M4 × 10 mm VESA screws                         | -           |
| 3. Hospital-grade AC power cord (USA and Canada only) | -           |
| 4. WiSe 19" Surgical Power Supply                     | 240-030-992 |
| 5. Cable Cover  | -           |

## Part Number

## Optional Accessories

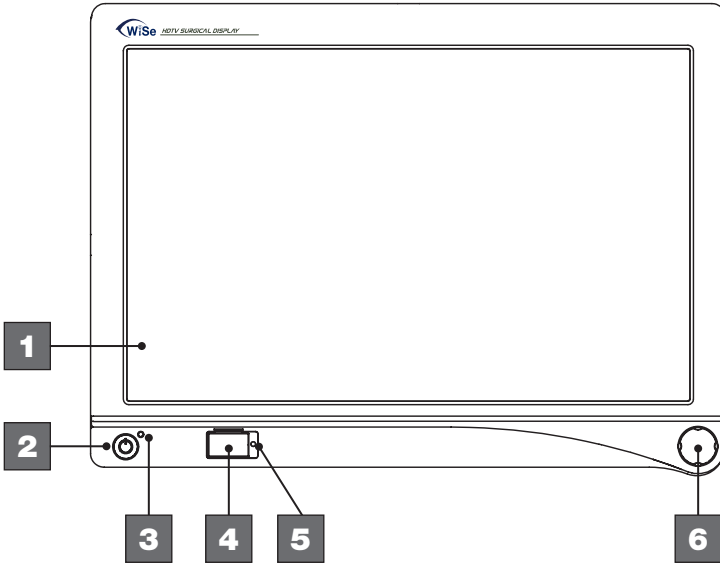
- | Optional Accessories                               | Part Number |
|--|-------------|
| WiSe HDTV Transmitter (USA and Canada only)        | 240-030-971 |
| 15-ft. (5 pin) DC extension cable                  | 240-030-951 |
| 75-ft. (5 pin) DC extension cable                  | 240-030-952 |
| WiSe 19" Display Cover                             | 240-030-991 |
| Hospital-grade AC power cord (USA and Canada only) | 105-033-001 |

## Part Number

# Device Features

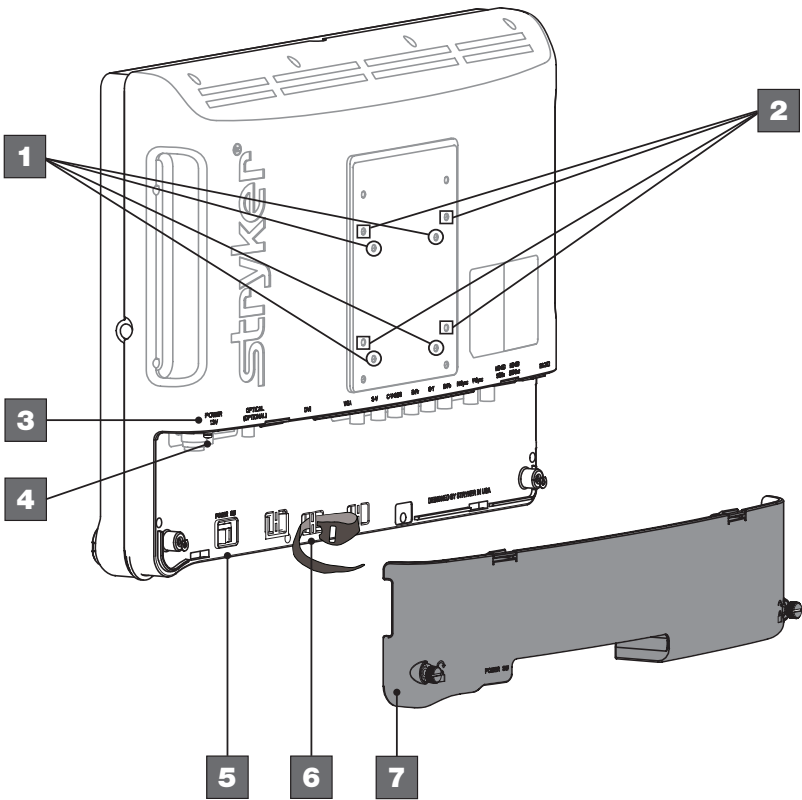
## Front panel

Operate the display using the rotary control located on the front panel. A list of the display controls and their functions is provided below.



- |                               |   |
|-------------------------------|---|
| 1. <b>Display Screen</b>      | Shows video image.  |
| 2. <b>Power switch (soft)</b> | Powers the display ON and OFF.  |
| 3. <b>Power LED</b>           | Indicates current status. Shines green if the display is powered on or is in screen saver mode; blinks red if the display is in standby mode; blinks amber if over voltage. |
| 4. <b>Token slot</b>          | Token insertion site used to establish a wireless connection with the transmitter (optional for USA and Canada only).   |
| 5. <b>Token LED</b>           | Provides feedback when linking the display and transmitter (optional for USA and Canada only).  |
| 6. <b>Rotary control</b>      | Accesses the on-screen display and navigates through its functions.   |

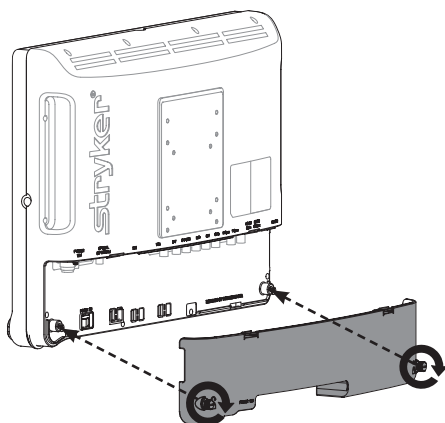
## Rear panel



- |  |   |
|--|---|
| 1. <b>VESA mounting holes (75 mm)</b>    | Provide access points for mounting the display. |
| 2. <b>VESA mounting holes (100 mm)</b>   | Provide access points for mounting the display. |
| 3. <b>Connector labels</b>               | Indicate the types of video connectors.         |
| 4. <b>Power connector</b>                | Connects to the 13V DC power supply.            |
| 5. <b>Power switch (hard)</b>            | Powers the input DC power ON and OFF.           |
| 6. <b>Cable-management Velcro Straps</b> | Organize cables (3 straps included).            |
| 7. <b>Cable-management cover</b>         | Covers cables.                                  |

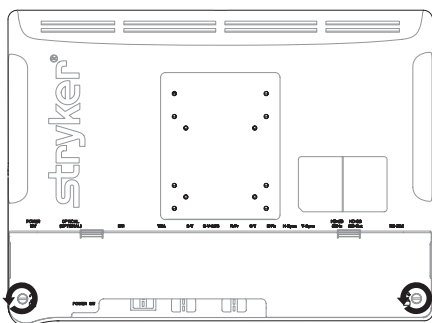
## Cable Cover

### Installing the Cable Cover



1. Align the left and right hinges of the cable cover onto the bottom rear of the display.
2. Snap on the top section of the cable cover to the aligning clips.
3. With your fingers, turn the thumbscrews clockwise to tighten and lock the cable cover onto the display.

### Uninstalling the Cable Cover



1. With your fingers, turn the thumbscrews counter clockwise to loosen.
2. Once the thumbscrews are completely loosened, pinch the left and right clips and pull the cable cover towards you.
3. Remove the cable cover off the left and right hinges.

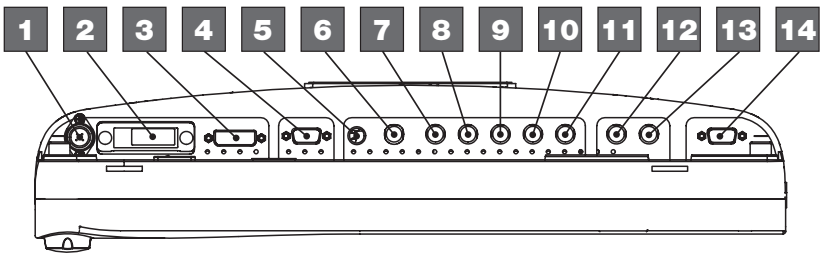
# Setup

Stryker Endoscopy considers instructional training, or inservice, an integral part of this device. Your local Stryker Endoscopy sales representative will perform at least one inservice at your convenience to help set up your device and instruct you and your staff on its operation and maintenance. To schedule an inservice, contact your local Stryker Endoscopy representative after your device has arrived.

## Connections

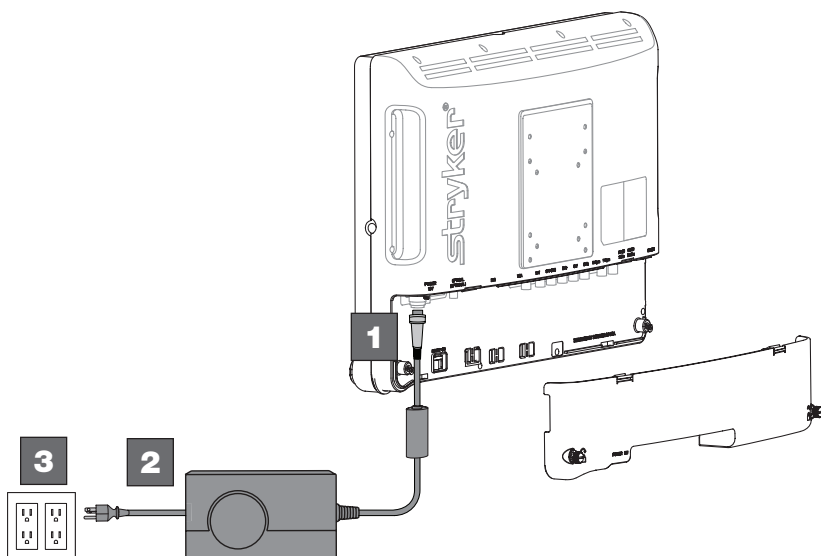
### Connection Ports

Video input signals are connected to the rear of the display, as illustrated below:



- |                   |                   |
|-------------------|-------------------|
| 1. Power 13V      | 8. G/Y            |
| 2. Non-Functional | 9. B/Pb           |
| 3. DVI            | 10. H-sync        |
| 4. VGA            | 11. V-sync        |
| 5. S-Video        | 12. HD/SD SDI IN  |
| 6. C-Video/SOG    | 13. HD/SD SDI OUT |
| 7. R/Pr           | 14. RS232         |

## Connecting the WiSe 19" Surgical Display Power Supply



1. Connect the power supply to the 13V input on the display.
2. Connect the power cord to the power supply.
3. Connect the AC power, using the supplied hospital-grade power cord.
4. (Optional, not shown) Connect an extension cord between the power supply and display.
5. Install cable cover.





# Operation

Operate the display using the rotary control located on the front panel. A list of the display controls and their functions is provided below.

## On-Screen Display (OSD)

### Accessing the On-Screen Display

To access the OSD, use the **Rotary Control** as outlined below:

- **Turn Right/Left** — With the on-screen display menu activated, turning increases/decreases the value of the selected parameter. With the on-screen display deactivated, turning activates the video source selection menu.
- **Push** — Accesses/selects on-screen display menu.
- **Push and Hold** — Exits on-screen display menu.

### Operating On-Screen Display

The device OSD helps navigate through various device menus.

1. Press the **Rotary Control** to activate the OSD menu.
2. Rotate the **Rotary Control** to move up or down through the menu. The parameter will be highlighted when selected.
3. Press the **Rotary Control** to enter the next level OSD.
4. Rotate the **Rotary Control** to increase or decrease the value of the selected parameter, or to make a selection on different options.
5. To exit the OSD menu screen from the second — or third — level OSD menu, select the Exit option. To completely exit the OSD, press and hold the **Rotary Control**. If no keys are pressed, the OSD will automatically exit after the factory-set predetermined time (the time is customizable).
6. While the OSD menu is deactivated, rotate the Rotary Control to activate the input signal selection menu. The current input signal will be indicated by a dot. Rotate the Rotary Control to select the preferred input signal.

### Input Selection List

- Digital RGB
- Analog RGB
- S-Video
- Component (Y/Pb/Pr)
- HD/SD-SDI
- SOG
- RGBS
- C-Video
- Wireless RGB
- Exit

## OSD Menus

### Speciality

Menu Item	Description	Range
<b>Color Temperature*</b>	Chooses between color temperatures for Standard, Arth, Lap, PACS, or Norm	—
<b>Red</b>	Red balance	-128 – 127
<b>Green</b>	Green balance	-128 – 127
<b>Blue</b>	Blue balance	-128 – 127
<b>Gamma</b>	Gamma value	0.1 – 2.5, S0, S1, S2

### Setting

Menu Item	Description	Range
<b>Brightness</b>	Increases or decreases the brightness	0 – 100
<b>Contrast</b>	Increases or decreases the contrast	0 – 100
<b>Phase**</b>	Increases or decreases the Phase level	0 – 100
<b>Chroma**</b>	Increases or decreases the Chroma level	0 – 100
<b>Image Sharpness</b>	Sets image sharpness	1 – 10
<b>Video Sharpness**</b>	Increases or decreases the video sharpness	0 – 100

\* Color Temperature RGB adjustment is available only for Standard, Arth, and Lap settings. PACS and Norm adjustments are only available under SOG input.

\*\* Only available under SDI-, S-, or C-video input.

## Image Effect

Menu Item	Description
Scale Mode	Chooses scale mode between Fill All, V-Fill, H-Fill, One-To-One, or Fill-Aspect
Freeze Frame	Enables or disables freeze frame
PIP	Enables PIP (picture in picture) function
POP	Enables POP (picture on picture) function
PBP	Enables PBP (picture by picture) function

## Advanced

Menu Item	Description
Key Lock	Sets to key lock mode
Auto Source Select	Adjusts Auto Source Select between on and off
DPMS	Chooses DPMS (display power management signaling) OFF, 30, 60, 90, or 120min
OSD Control	Controls OSD Menu Position, Background, and Time out
Restore Factory Settings	Sets to factory default
Screen Control***	Controls and adjusts Horizontal, Vertical, Frequency, and Phase

\*\*\* Only available under analog inputs under certain respective inputs.

## Wireless Module (for the USA and Canada only)

Status	Description
RX MAC: XXXXXXXXX RX SW: vXX.XX.XX	Receiver
TX MAC: XXXXXXXXX TX SW: vXX.XX.XX SIGNAL: Excellent, Good, Poor REGIONLAL SETTING: XXXXXXXXX CHANNEL XXXX MHz	Transmitter

## Information

Menu Item	Description
<b>User Name Entry</b>	Enters custom user name display for boot-up display
<b>Serial Number</b>	Displays device serial number
<b>Runtime</b>	Displays current device total run time
<b>Input Format</b>	Displays current input format

**Note:** Actual on-screen display values may vary with updated versions of the firmware and user settings.

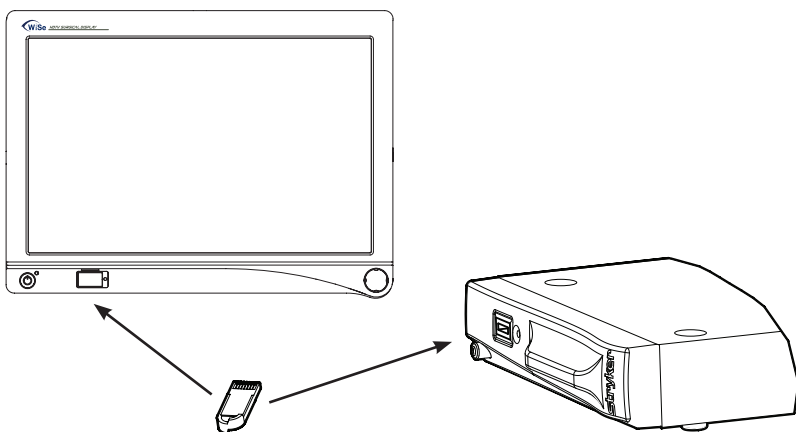
## Linking Transmitter to Auxiliary Display (for USA and Canada Only)

### Temporary Linking

**Caution** Equipment that employs RF communications may affect the normal function of the transmitter. When choosing a location for the transmitter, consult the “Electromagnetic Compatibility” section of this manual to ensure proper function.

The transmitter functions in the 4.9 – 5.9 GHz spectrum. As necessary, remove or reconfigure other wireless devices from the environment, such as cordless phones and 802.11a/n routers to make channels available for the transmitter and display.

To link the display to the transmitter and thereby enable wireless communication, any blue WiSe HDTV Transmitter token will suffice.



1. Power on the transmitter and auxiliary display. The token LED shines amber as the units perform startup functions.
2. Insert the token into the token slot on the transmitter. The token LED continues to shine amber as it writes the data.
3. When the token LED turns green, remove the token from the transmitter.
4. Within 2 minutes, insert the token into the token slot on the auxiliary display. An audible tone will sound from the transmitter and the token LED will change from amber to green when the display and transmitter have been linked.

5. Remove the token from the token slot on the auxiliary display.
6. By repeating steps 4 and 5, as many as two additional auxiliary displays may be linked. All linking must be done within two minutes.
7. Store the token in the transmitter token slot when not in use.

**Note:** If multiple transmitters are within 100 feet of each other, for example, in adjacent operating rooms, link each transmitter to its respective display(s) one set at a time. Wait 15 seconds before linking the next transmitter/display set.

## Permanent Linking

Please contact your Stryker rep in order to permanently link the display(s) with a specific transmitter, as deemed appropriate. A permanent link may be desirable in certain cases. Once the display(s)/transmitter set has been permanently linked, the set will automatically link when powered on. Display(s)/transmitter sets that have been set to permanent link mode should be kept in the same operating room.

To return the display(s)/transmitter set to default linking mode please follow the instructions below using a blue WiSe Linking Token.

1. Power on the display(s) and transmitter.
2. Insert the blue token into the transmitter and remove it when the token LED turns green.
3. Insert the blue token into each display, one at a time, and remove the token when the token LED turns green.
4. Power off all devices.
5. Power on all devices.

Now the system can be linked as described in the default linking mode procedure.

# Troubleshooting

Before returning your display for service, consult the troubleshooting list below:

## Display

Problem	Current Status	Remedy
No picture	Power LED on	Using the OSD Menu, adjust the brightness and contrast to maximum, or reset them to their default settings.
	Power LED off	Ensure the power switch at the front and rear of the display are set to ON.
		Check if the AC power cord is properly connected to the AC adapter and outlet.
	Power LED blinking	Check if the video signal cable is properly connected at the back of the display.
Check if power of the video signal source system is ON.		
Abnormal picture	Oversized, undersized, or missing display; or center shift.	Using the Screen Control Menu, adjust the Phase, Frequency, Horizontal, and settings in order to correct the display image.
		Wait a few seconds after initial sync of video signals, or power cycle the display.
OSD Menu error message	“Video format not supported”	Ensure that an acceptable video source is connected. Refer to the "Technical Specifications" section of this manual for a list of acceptable video formats.

## Optional Transmitter (for the USA and Canada Only)

Problem	Current Status	Remedy
Wireless link not established within 2 minutes (with optional WiSe HDTV transmitter).	“Wireless RGB No Signal”	Cycle the hard power switch at the rear of the display. Cycle the hard power switch at the front of the transmitter.
Wireless link established with some but not all displays (with optional WiSe HDTV transmitter).	“Wireless RGB No Signal”	Cycle the hard power switch on the affected display only. Re-insert the token into the display.
Transmitter token LED blinks amber	No channels available for WiSe System	Remove or reconfigure other wireless devices from the environment, such as cordless phones and 802.11 a/n routers, to make channels available for the display and transmitter.



# Periodic Maintenance

**Caution** Do not expose the display to moisture or apply liquid cleaners directly to the display screen. Spray the cleaning solution into a soft cloth and clean the screen gently.

## Cleaning

1. Disconnect the display from the power supply before cleaning.
2. Clean the plastic areas of the display with a dry, soft cloth, or a soft cloth lightly moistened with mild detergent solution. Do not use any type of solvent, such as alcohol or benzine, which might damage the finish. Recommended cleaning agents for bezel cleaning based on testing include:
  - Cidex (2.4% glutaraldehyde solution)
  - 0.5% Chlorhexidine in 70% isopropyl alcohol
3. Clean the display screen with a dry, soft cloth, or soft cloth lightly moistened with warm water. Other acceptable cleaning agents are listed below:
  - 70% isopropyl alcohol
  - Cidex (2.4% glutaraldehyde solution)
  - 0.5% Chlorhexidine in 70% isopropyl alcohol
4. Dry thoroughly with a soft towel or gauze surgical sponge.

Before using a cleaning agent not listed, ensure that the respective agent is validated in order to assure durability of the cleanability of the device. To validate the agent, a cleaning process repeated 104 times needs to be conducted with the respective cleaning agent. This cleaning process includes using the prospective cleaning agent, moistening a cloth or sponge, and wiping the front and sides of the console.

A visual check incorporating the following is used to ensure compatibility:

- The device should still function appropriately
- The device finish should not discolor or scratch
- The device finish should not dissolve or rub off
- The device labeling should still be legible

These validation steps need to be performed in order to validate any and all cleaning agents outside of those listed.

# Disposal



This product contains electrical waste or electronic equipment. It must not be disposed of as unsorted municipal waste and must be collected separately in accordance with applicable national or institutional related policies relating to obsolete electronic equipment.

Dispose of any system accessories according to normal institutional practice relating to potentially contaminated items.

# Technical Specifications

## Display

LCD Display Panel	18.95" (481.33 mm) Diagonal (a-Si TFT active matrix LCD)
Synchronization	2.5 – 5.0 Vpp separated sync
Pixel Pitch	0.2835 (H) × 0.2835 (V) mm
Response Time	< 5 ms Typ
Viewing Angle	Right/Left 80 (Typ) Up 75 (Typ), Down 85 (Typ)
Display Colors	16.7 million colors
Native Resolution	1440 (H) lines × 900 (V) lines
Input Signal	1 DVI, 1 VGA, 1 HD/SD-SDI, 1 C-Video/SOG, 1 S-Video, 1 Component (Y/G, Pb/B, Pr/R, H, VS), 1 Wireless
Maximum Pixel Clock	160 MHz

## Electrical

Power Adapter	100 – 240 VAC; 13 VDC
Power Consumption	90 W (max)
Current	Direct

## Current/Voltage Rating

Please ensure the respective power cord complies with applicable local regulations and standards.

110V +/- 10V power outlets	Select a power supply cord that is UL Listed and C.S.A Certified, type SJT or SVT, 3 – conductor, 18AWG, terminated in a molded on hospital grade plug cap rated 110V +/- 10V, 15A, with a minimum length of six feet.
220V +/- 20V power outlets	Select a power supply cord that is internationally harmonized and marked "<HAR>", 3 – conductor, 0.75 mm <sup>2</sup> minimum wire, rated 220V +/- 20V, 10A with a PVC insulated jacket. The cord must have a molded on plug cap rated 220V +/-20V, 10A. The cord and plug cap must be suitable for medical use.

## Dimensions

Dimensions (W × H × D)	462.3 × 340.8 × 106.7 mm 18.2 × 13.4 × 4.2 in
Weight (approximate)	5.8 kg; 12.79 lbs.
VESA Mounting Interface	VESA 100 × 100 mm VESA 75 × 75 mm

## Operating Conditions

Operating Temperature	41 – 104°F (5 – 40°C)
Relative Humidity	30 – 95%
Electrical Input Rating	13V DC 6.92A

## Transport & Storage Conditions

Storage	-0.4 – 140°F (-18 – 60°C)
Relative Humidity Range	10 – 85%

## Classification and Approvals

Class I Equipment

Medical equipment with respect to electric shock, fire, and mechanical hazards only in accordance with UL 60601-1 and CAN/CSA C22.2 No. 601.1.

IPX1 Water Ingress Protection

Continuous Operation

## Compliance

Medical Safety Standards	IEC 60601-1:1988 + A1:1991 + A2:1995 CAN/CSA C22.2 No 601.1-M90 UL 60601-1:2003 AS/NZS 3200.1.0:1998 CSA 22.2.601.1.1:2002
Medical EMC Standard	IEC 60601-1-2:2007
FCC Regulations	FCC Part 15 Class B FCC Identifier: QVXAMM190WTDSW
IC Regulations	IC: 7680A-AMN12100 (WiSe 19" and 26" HDTV Surgical Display)

**Note:** Please contact your local Stryker Endoscopy sales representative for information on changes and new products.

## Electromagnetic Compatibility

Like other electrical medical equipment, the WiSe™ 19" HDTV Surgical Display requires special precautions to ensure electromagnetic compatibility with other electrical medical devices. To ensure electromagnetic compatibility (EMC), the display must be installed and operated according to the EMC information provided in this manual. The display has been designed and tested to comply with IEC 60601-1-2:2001 requirements for EMC with other devices.



Warning

When this device is connected with other electrical equipment, leakage currents may be additive. To minimize total leakage current per patient, ensure that all systems are installed according to the requirements of IEC 60601-1-1.

Caution


Portable and mobile RF communications equipment may affect the normal function of the display.  
Do not use cables or accessories other than those provided with the display, as this may result in increased electromagnetic emissions or decreased immunity to such emissions.  
If the display is used adjacent to or stacked with other equipment, observe and verify normal operation of the display in the configuration in which it will be used prior to using it in a surgical procedure. Consult the tables below for guidance in placing the display.

Guidance and Manufacturer's Declaration: Electromagnetic Emissions		
The WiSe™ 19" HDTV Surgical Display is intended for use in the electromagnetic environment specified below. The customer or the user of the WiSe™ 19" HDTV Surgical Display should ensure it is used in such an environment.		
Emissions test	Compliance	Electromagnetic Environment - guidance
RF emissions CISPR 11	Group 1	The WiSe™ 19" HDTV Surgical Display uses RF energy only for its internal function; therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The WiSe™ 19" HDTV Surgical Display is suitable for use in all establishments other than domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes, provided the following warning is heeded: Warning: This system is intended for use by health care professionals only. This system may cause radio interference or may disrupt the operation of nearby equipment. It may be necessary to take mitigation measures, such as reorienting or relocating the system or shielding the location.
Harmonic emissions IEC61000-3-2	Class D	
Voltage Fluctuations/ flicker emissions IEC61000-3-3	Complies	

Guidance and Manufacturer's Declaration — Electromagnetic Immunity			
The WiSe™ 19" HDTV Surgical Display is intended for use in the electromagnetic environment specified below. The customer or the user of the WiSe™ 19" HDTV Surgical Display should ensure that it is used in such an environment.			
Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment-- Guidance
Electrostatic Discharge (ESD) IEC61000-4-2	6kV contact 8kV air	6kV contact 8kV air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC61000-4-4	2kV for power supply lines 1kV for input/output lines	2kV line to ground 1kV line to line	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC61000-4-5	1kV differential mode 2kV common mode	1kV differential mode 2kV common mode	Mains power quality should be that of a typical commercial or hospital environment
Voltage dips, short interruptions and voltage variations on power supply input lines  IEC61000-4-11	<ul style="list-style-type: none"> <li>• &lt;5% Ut (&gt;95% dip in Ut) for 0.5 cycle</li> <li>• 40% Ut (60% dip in Ut) for 5 cycles</li> <li>• 70% Ut (30% dip in Ut) for 25 cycles</li> <li>• &lt;5% Ut (&gt;95% dip in Ut) for 5 sec.</li> </ul>	<ul style="list-style-type: none"> <li>• &lt;5% Ut (&gt;95% dip in Ut) for 0.5 cycle</li> <li>• 40% Ut (60% dip in Ut) for 5 cycles</li> <li>• 70% Ut (30% dip in Ut) for 25 cycles</li> <li>• &lt;5% Ut (&gt;95% dip in Ut) for 5 sec</li> </ul>	Mains power quality should be that of a typical commercial or hospital environment. If the user of the transmitter requires continued operation during power mains interruptions, it is recommended that the Wireless Transmitter be powered from an uninterruptible power supply or a battery.
Power frequency (50/60Hz) magnetic field  IEC 61000-4-8	3.0 A/m	3.0 A/m	Power-frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
<b>Note:</b> Ut is the AC mains voltage prior to application of the test level.			

**Guidance and Manufacturer's Declaration: Electromagnetic Immunity**

The WiSe™ 19" HDTV Surgical Display is intended for use in the electromagnetic environment specified below. The customer or the user of the WiSe™ 19" HDTV Surgical Display should ensure that it is used in such an environment.

Immunity Test	IEC 60601 Test level	Compliance Level	Electromagnetic Environment - Guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 V	Portable and mobile RF communications equipment should be used no closer to any part of the WiSe™ 19" HDTV Surgical Display, including its cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended Separation Distance:  $d = 1.17\sqrt{P}$  $d = 1.17\sqrt{P}$ 80 MHz to 800 MHz $d = 2.33\sqrt{P}$ 800 MHz to 2.5 GHz  where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey (a), should be less than the compliance level in each frequency range(b). Interference may occur in the vicinity of equipment marked with the following symbol:  
Radiated RF IEC 61000-4-3	3 V/m 80MHz to 2.5 GHz	3 V/m	

NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.  
 NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

- (a) Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast, cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the WiSe™ 19" HDTV Surgical Display is used exceeds the applicable RF compliance level above, the display and transmitter should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the WiSe™ 19" HDTV Surgical Display.
- (b) Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

**Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and the WiSe™ 19" HDTV Surgical Display**

The WiSe™ 19" HDTV Surgical Display is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The user of the WiSe™ 19" HDTV Surgical Display can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the WiSe™ 19" HDTV Surgical Display as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power (W) of transmitter	Separation distance (m) according to frequency of transmitter		
	150 kHz to 80 MHz $d = 1.17\sqrt{P}$	80 kHz to 800 MHz $d = 1.17\sqrt{P}$	800 kHz to 2.5 GHz $d = 1.17\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.74
1	1.17	1.17	2.33
10	3.70	3.70	7.37
100	11.70	11.70	23.30

For transmitters rated at a maximum output power not listed above, the recommended separation distance (d) in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

Note 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.  
 Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

# Symbols

The following symbols appear on the product, its labeling, or the product packaging. Each symbol carries a special definition, as defined below:



Direct Current



Do Not Get Device Wet



Maximum Stacking



Wireless Transmission



Tested to comply with FCC Class B standards



Operating Humidity Ratings



Medical Equipment is in accordance with UL 60601-1 and CAN/CSA C22.2 No. 601.1 in regards to electric shock, fire hazards, and mechanical hazards.



Industrial Canada



No Servicable Parts



Japan PSE Mark Denan



Efficiency Level



For Indoor Use Only



DC Power Control Switch



This Side Up



Fragile



Degrees of protection against the ingress of water



Operating Temperature Ratings



This symbol indicates that this product is compliant to applicable standards and is suitable for the Australian market.



Made in Korea



Refer to Instructions



UL Functional Safety Recognized Component



This product contains waste electrical or electronic equipment. It must not be disposed of as unsorted municipal waste and must be collected separately.





**stryker**<sup>®</sup>



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