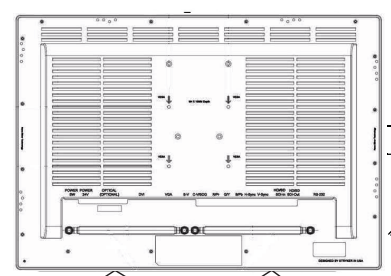
System Interconnection



VISION ELECT HDTV
(Model 240-030-960)
Video Input Signals

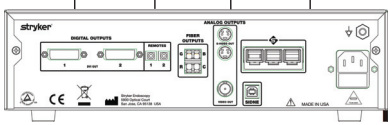
SD/HD-SDI
output

Additional Inputs:
RGBS
YPbPr
SD/HD-SDI
SOG

Signal Output:
DVI
RGBHV
S-Video
C-Video
SDI
Fiber (Optional)

Video Peripheral

eg:SDC
SIDNE
VIDEO PRINTER
DVD/VCR
etc....

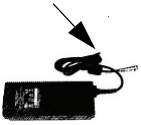


Video Sources: Camera (xx88 Series)

Power Connection

Hospital-grade
power cord

Power Supply 240-030-950
Manufacturer: JEC Korea
Model : JMW1150KA2400F07



Extension cord
Manufacturer: JEC Korea
Model : 1501047 (15Ft)
or 1501047001 (75Ft)
or 1501047002 (6Ft)
Stryker P/N: 240-030-951 (15Ft)
or 240-030-952 (75Ft)

Connect to
cart chasis

or

VISION ELECT HDTV
(Model 240-030-960)

Converter cord
Manufacturer: JEC Korea
Model : 1501055001

Manufacturer: Nortra Cables
Model : 240-030-722 (15Ft)
or 240-030-932 (75Ft)

Converter cord
Manufacturer: JEC Korea
Model : 1501055

Operating the Monitor

Front Panel Controls

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

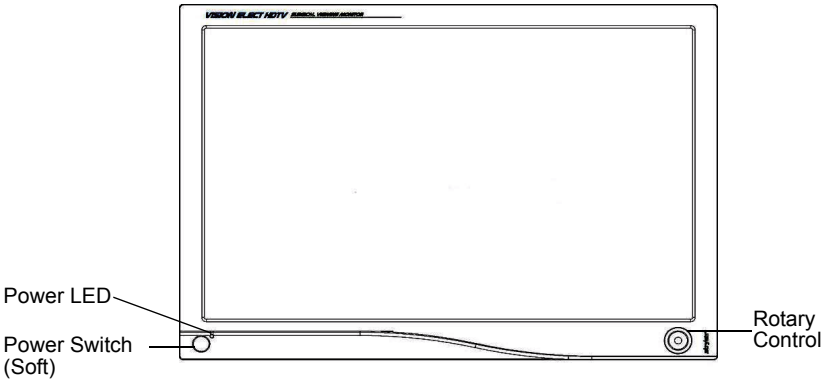


Figure 1: The VISION ELECT HDTV LCD Monitor front panel controls.

1. **Power LED:** Indicates menu current status. Displays green if monitor is powered on, blinks if monitor is in Standby mode.
2. **Power Switch (Soft):** Turns the power ON or OFF.
3. **Rotary Control (Turn Right / Left):** With the on-screen display menu activated, increases/decreases the value of the selected parameter. With the on-screen display deactivated, activates the video source selection menu.
4. **Rotary Control Switch (Push):** Accesses/selects on-screen display menu.
5. **Rotary Control Switch (Push and Hold):** Exits on-screen display menu.

Rear Panel

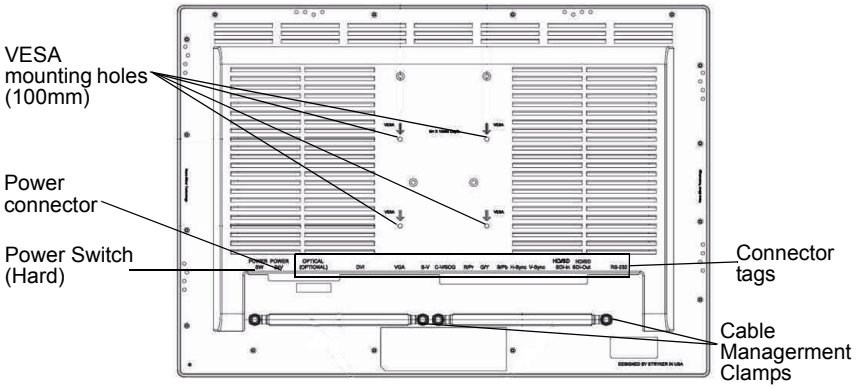
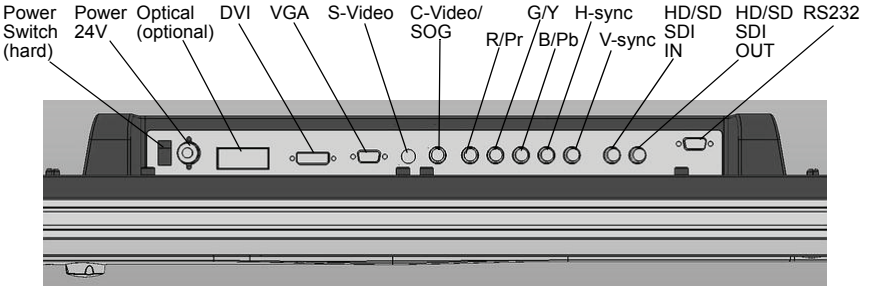


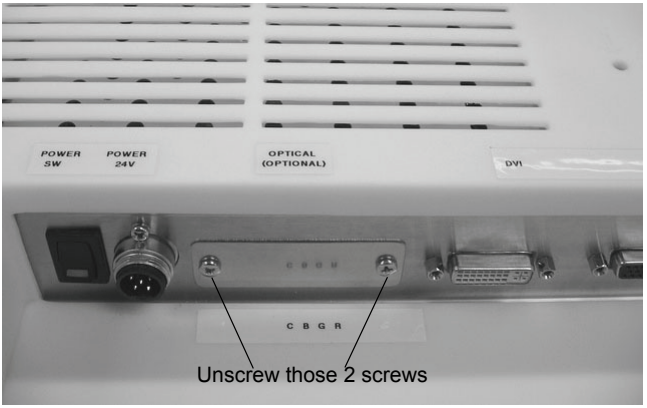
Figure 2: The VISION ELECT HDTV LCD Monitor rear panel.

1. **VESA mounting holes (100mm):** Use to mount the monitior.
2. **Power connector:** DC power connector.
3. **Power Switch (Hard):** Turns the input DC power ON or OFF.
4. **Connectors tag:** Indicate types of connectors.
5. **Cable Managerment Clamps:** Cables organizer.

Input Port Layout



Fiber Optic Module (optional) installation/ Activation



1. Turn Off the monitor by Power Switch (Hard).
2. Unscrew the two screws over the cover plate, then remove the cover plate.
3. Insert Fiber Optic Module (Stryker P/N 240-030-962) into the Fiber Optical Module slot.

CAUTION: Excessive force or miss alignment during insertion might damage the module connector.

4. Turn ON the monitor by Power Switch (Hard).
5. Turn OFF the monitor by Power Switch (Soft).
6. Press and hold the Power Switch (Soft) for 10 seconds to activate the Fiber Optic input from the Input Selection menu.

Input Selection List

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

*Greyout if module not installed

Standard On-Screen Display (OSD) Operation

The monitor provides an on-screen display to help navigate through the various monitor-adjustment menus.

1. Press the Rotary Control to activate the on-screen display (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 for a time period, the OSD automatically times out.
6. While the OSD menu is deactivated, rotate the Rotary Control to activate the input signal selection menu. The current input signal will be highlighted with a dot. Rotate the rotary control to select the preferred input signal.

Stryker Camera Preset Modes

Camera	Resolution (H x V)	Horizontal Frequency (KHz)	Vertical Frequency (Hz)
988	1024 x 768	49.09	59.90
988i	1024 x 768	41.25	50.00
1088/SDC Pro2	1024 x 768	50.03	60.00
1088i/SDC Pro2	1024 x 768	41.10	50.00
1088/1188/SDC HD	1280 x 1024	64.02	60.10
1088i/1188i/SDC HD	1280 x 1024	59.99	50.00
1188w720	1280 x 720	45.00	60.00
1188iw720	1280 x 720	37.50	50.00

OSD Function Description

Item	Function Description	Range
Specialty		
Color Temperature *	Choose between color temperatures for Standard, Arth, Lap, PACS, or Norm	
Red	Red balance	-128 to 128
Green	Green balance	-128 to 128
Blue	Blue balance	-128 to 128
Gamma	Gamma value	0.1 to 2.5, S0, S1, S2
Setting		
Brightness	Increase or decrease the brightness	0-100
Contrast	Increase or decrease the contrast	0-100
Phase**	Increase or decrease the Phase level	0-100
Chroma**	Increase or decrease the Chroma level	0-100
Image Sharpness	Set image sharpness	1-10
Video Sharpness**	Increase or decrease the video sharpness	0-100
Image Effect		
Scale Mode	Choose scale mode between Fill All, V-Fill, H-Fill, One To One or Fill To Aspect	
Freeze Frame	Enable or Disable freeze frame	
Zoom/Pan	Enable zoom-in and pan function	
PIP	Enable PIP (Picture In Picture) function	
POP	Enable POP (Picture On Picture) function	
PBP	Enable PBP (Picture By Picture) function	
Advanced		
OSD Control	Control OSD Menu Position, Background, and Timeout	
Screen Control***	Control and adjust Horizontal, Vertical, Frequency, Phase	
DPMS	Choose DPMS (Display Power Management Signaling)	ON, OFF, 60min, 90min, 120min
Auto Source Select	Adjust Auto Source Select between on and off	
Restore Factory Settings	Set to factory default	
Key lock	Set to Key lock mode	
Information		
User Name Entry	Enter custom username display for boot-up display	
Serial Number	Display monitor serial number	
Runtime	Display current run time of monitor	
Input Format	Display current input format	

Actual on-screen display values may vary with updated versions of the firmware and user setting.
* Color Temperature RGB adjustment is avilable only for Standard, Arth and Lap settings.
* PACS and Norm selection only available under SOG input.
** Only available under SDI, S or C video input.
*** Only available under VGA input.

Cleaning the Monitor

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

Cleaning display plastic area

No specific liquid or chemical is necessary for cleaning the VISION ELECT HDTV (model 240-030-960) LCD monitor. Use only non-abrasive cloths and cleaning solutions to clean similar equipment used in hospitals.

1. Clean 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.
2. Apply alcohol to glass surfaces with soft cotton applicator to aid in cleaning and drying without leaving spots or streaks.
3. Dry thoroughly with soft towel or gauze surgical sponge.

Acceptable cleaning agents for bezel cleaning include:

- Cidex (2.4% glutaraldehyde solution)
- 0.5% Chlorhexidine in 70% isopropyl alcohol

Cleaning display filter area

Cleaning 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

Troubleshooting

Before returning your LCD monitor for service, consult the troubleshooting list below

Problem	Current Status	Remedy
No Picture	LED ON	Using the OSD, adjust the brightness and contrast to maximum, or reset them to their default settings.
	LED OFF	Check the power switch at the front and the back of monitor.
		Check if the AC power cord is properly connected to the AC adapter.
	LED Blinking	Check if the video signal cable is properly connected at the back of the monitor.
		Check if power of the video signal source system is ON.
Abnormal Picture	Oversized, undersized display, missing display, or center shift	Using the Screen Menu, adjust the PHASE, FREQUENCY, HORIZONTAL, and VERTICAL setting with non-standard video signal timing.
		Wait a few seconds after initial sync of video signals or power cycle the monitor.

Technical Specifications

Display

LCD Monitor Panel	25.54 inches (a-Si TFT Active matrix LCD)
Synchronization	2.5 - 5.0 Vpp separated sync
Pixel Pitch	0.2865(W) x 0.2865(H)
Response Time	<25ms Typ
View Angle	+/-89° (L/R) × +/-89° (U/D)
Display Colors	16 million colors
Native Resolution	1920 dots × 1200 dots
Input Signal	1 x DVI 1 x VGA 1 x HD/SD-SDI 1 x C-Video/SOG 1 x S-Video 1 x Component (Y/G, Pb/B, Pr/R, H/CS, VS) 1 x Optical (optional)
Maximum Pixel Clock	170MHz

Electrical

Power Adapter	AC 100-240V; DC 24V
Power Consumption	150W (max)
Current	Direct

Dimensions

Dimensions (W × H × D)	616.4 x 428.8 x 121.2mm
Weight	19.62 lbs
VESA Mounting Interface	VESA 100 x 100mm

Operating Conditions

Operating Temperature	41 to 90°F (5 to 32.2°C)
Relative Humidity	10 to 60%
Atmospheric Pressure Range	500 to 1060 hPa
Electrical Input Rating	24V DC 6.25A

Transport & Storage Conditions

Storage	-4 to 140°F (-20 to 60°C)
Relative Humidity Range	10 to 85%
Atmospheric Pressure Range	500 to 1060 hPa

Classification and Approvals

⎓	: Direct Current
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	: UL approval mark according to the safety standard for Medical equipment

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

Warning **This equipment is not suitable for use in the presence of a FLAMMABLE ANESTHETIC MIXTURE WITH AIR, or WITH OXYGEN OR NITROUS OXIDE.**

This monitor is intended for use on Health Care Facilities model 240-030-960.

No user serviceable parts inside. Ask qualified personnel before accessing internal components.

Caution **For disposal of waste product, follow the requirement of the local code.**

This product is considered electronic equipment. It must not be disposed of as unsorted municipal waste, and must be collected separately. Please contact the manufacturer or other authorized disposal company to decommission your equipment.

Electromagnetic Compatibility

Like other electrical medical equipment, the VISION ELECT HDTV (model 240-030-960) monitor requires special precautions to ensure electromagnetic compatibility with other electrical medical devices. To ensure electromagnetic compatibility (EMC), the VISION ELECT HDTV (model 240-030-960) monitor must be installed and operated according to the EMC information provided in this manual.

Note — The VISION ELECT HDTV (model 240-030-960) monitor has been designed and tested to comply with IEC 60601-1-2:2003 requirements for EMC with other devices.

Caution — **The VISION ELECT HDTV (model 240-030-960) monitor may be interfered with by other equipment, including portable and mobile RF communication equipment, even if such equipment meets the applicable emissions requirements.**

Warning

Using cables or accessories other than those provided with the VISION ELECT HDTV (model 240-030-960) monitor, may result in increased electromagnetic emissions or decreased immunity to such emissions.

Warning

If the VISION ELECT HDTV (model 240-030-960) monitor is used adjacent to or stacked with other equipment, observe and verify normal operation of the VISION ELECT HDTV (model 240-030-960) monitor 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 VISION ELECT HDTV (model 240-030-960) monitor

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.

Manufacturer's declaration - electromagnetic emissions		
VISION ELECT HDTV (model 240-030-960) monitor is intended for use in the electromagnetic environment specified below. The customer or the user of VISION ELECT HDTV (model 240-030-960) monitor should assure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic Environment - guidance**
RF emissions CISPR11	Group 1	The VISION ELECT HDTV (model 240-030-960) monitor must emit electromagnetic energy in order to perform its intended function. Nearby electronic equipment may be affected.
RF emissions CISPR11	Class B	VISION ELECT HDTV (model 240-030-960) monitor is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC61000-3-2	Class D	
Voltage Fluctuations/ flicker emissions IEC61000-3-3	Complies	

Manufacturer's declaration - electromagnetic immunity			
VISION ELECT HDTV (model 240-030-960) monitor is intended for use in the electromagnetic environment specified below. The customer or the user of VISION ELECT HDTV (model 240-030-960) monitor should assure 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 for power supply lines 1kV for input/output lines	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.
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.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC61000-4-11	<5% Ut (>95% dip in Ut) for 0.5 cycle 40% Ut (60% dip in Ut) for 5 cycles 70% Ut (30% dip in Ut) for 25 cycles <5% Ut (>95% dip in Ut) for 5 sec.	<5% Ut (>95% dip in Ut) for 0.5 cycle 40% Ut (60% dip in Ut) for 5 cycles 70% Ut (30% dip in Ut) for 25 cycles <5% Ut (>95% dip in Ut) for 5 sec.	Mains power quality should be that of a typical commercial or hospital environment. If the user of VISION ELECT HDTV (model 240-030-960) image intensifier requires continued operation during power mains interruptions, it is recommended that VISION ELECT HDTV (model 240-030-960) image intensifier be powered from an uninterruptible power supply or a battery.
NOTE: **Ut** is the A.C. mains voltage prior to application of the test level.			

Manufacturer's declaration - electromagnetic immunity			
VISION ELECT HDTV (model 240-030-960) monitor is intended for use in the electromagnetic environment specified below. The customer or the user of VISION ELECT HDTV (model 240-030-960) monitor should ensure that it is used in such an environment.			
Immunity Test	**IEC 60601 Test Level**	**Compliance Level**	**Electromagnetic Environment: Guidance**
			Portable and mobile RF communications equipment should be used no closer to any part of the VISION ELECT HDTV (model 240-030-960) monitor system, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 V	Recommended Separation Distance $d = 1.17\sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80MHz to 2.5 GHz	3 V/m	
			$d = 1.17\sqrt{P}$ 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:
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 VISION ELECT HDTV (model 240-030-960) monitor system is used exceeds the applicable RF compliance level above, the VISION ELECT HDTV (model 240-030-960) monitor system should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the VISION ELECT HDTV (model 240-030-960) monitor unit. (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 VISION ELECT HDTV (model 240-030-960) **monitor System**

The VISION ELECT HDTV (model 240-030-960) monitor system is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The user of the VISION ELECT HDTV (model 240-030-960) monitor system can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the VISION ELECT HDTV (model 240-030-960) monitor system 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 MHz to 800 MHz** $d = 1.17\sqrt{P}$	**800 MHz to 2.5 GHz** $d = 2.33\sqrt{P}$
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.

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