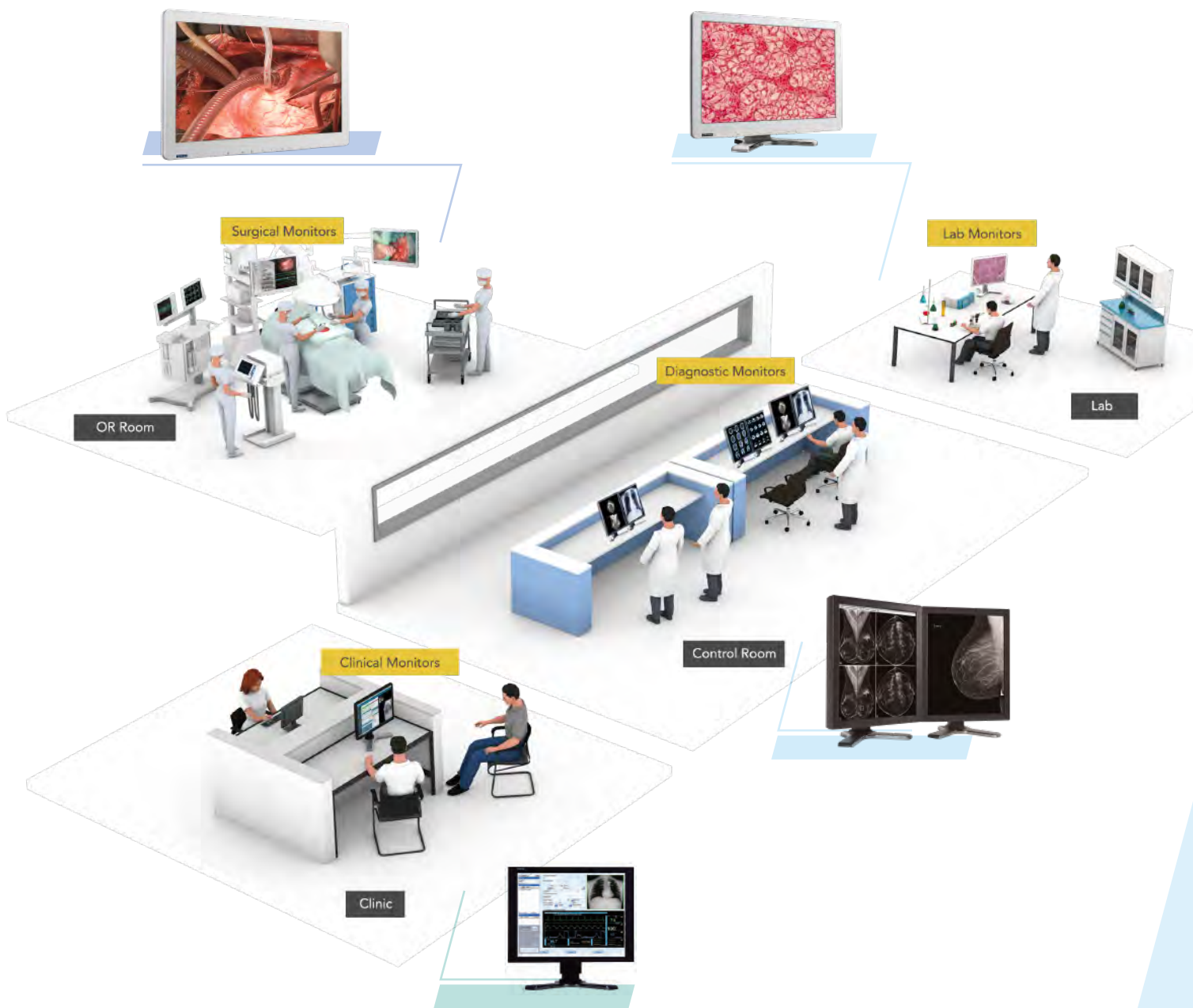


Medical-Grade Monitors

Enhancing Healthcare with
High-Resolution Imaging

- / Surgical monitors
- / Diagnostic monitors
- / Clinical monitors
- / Application Story
- / Order Information





Advantech is a leading player in the digital healthcare market, with years of trusted experience. Advantech has worked with international medical equipment manufacturers and system integrators, building the core competencies of Advantech's Medical Computing Division. We develop and manufacture various medical grade monitors for surgical, diagnostic and clinical review purpose. We deliver the state-of-the-art image quality and features which were designed specifically for the medical professionals.

**Operating
Room**



Clinic



Education



Conference/PACS



Medical Grade Monitor Applications



Surgical Monitors

From the smallest 19-inch to the largest 55-inch, Advantech PAX is assorted with the most comprehensive range of surgical display solution. With the combination of the latest and highest display technologies and the wide connectivity including SDI and single-mode fiber optic interface (**AVAS***), Advantech PAX provides the most advanced and the most elastic display solutions for OR and surgical theatre integrators. The new lineup, including the latest and the highest-end surgical monitor PAX- 300 series is opening a new chapter in the history of medical display.

***Advantech Video Archiving & Streaming**

Wide Connectivities



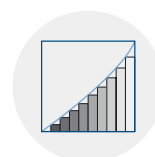
Equipped with various analog and digital interfaces, including DP 1.2, HDMI 2.0, DVI-D Dual-Link. These monitors offer high connectivity for displaying images from various sources.

Multiple Modalities



With widescreen high resolution format and multi input/output ports, PAX surgical monitors are excellent solutions for multi-tasking review in various medical applications.

DICOM Compliant



Ensuring grayscale of each monitor is compliant with DICOM Part 14 standard to provide the most accurate and consistent image quality over time.



You might be interested in AVAS Solution. What is AVAS?

Advantech Video Archiving & Streaming (AVAS) supports real-time image and video streaming, centralized control, remote teaching and consultation, and cloud-based management in order to streamline operating room workflows and improve overall efficiency.



For Streaming
AVAS 200 Series

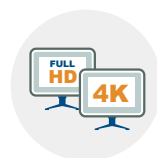


For Record & Management
AVAS 400 Series

Mobile Intraoperative Workstation
AVAS-60



Full HD/Ultra HD (4K)



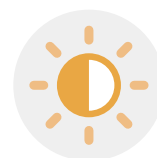
Available in a range of sizes and various performance levels, including Full HD and 4K Ultra HD resolution.

12/14-bit LUT Grayscale



The 12/14-bit LUT grayscale is considered the color of light that the human eye is most sensitive to at the JND level. The use of 12/14-bit grayscale representation enables precise imaging for increased diagnostic accuracy.

Brightness Leveling Technology



BLT is an auto-sensing luminance technology that maintains screen brightness at the pre-calibrated maximum luminance level (L_{max}) by consistently matching the just noticeable difference (JND) level for image quality.



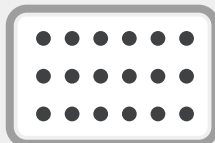
Diagnostic Monitors

Equipped with extremely high resolution LCD panel and innovative image controller rendering 14-bit DICOM LUT compliant 16,384-shade grayscale, PAX-500 Series guarantees radiologists diagnostic confidence with accurate and crisp imaging performance. Powered up with the cutting-edge technologies such as sub-division uniformity technology (SUC) and image quality enhancement technology (IQE), the high-density and high-luminance LCD guarantees high-quality crisp images with consistency throughout the 3-year warranty time.

BEFORE



AFTER



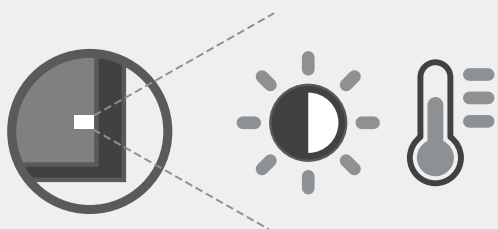
Subdivision Uniformity Control (SUC)

SUC technology allows users to subdivide the screen into multiple gray-scaled areas to achieve backlight luminance and chromaticity uniformity without sacrificing visual intensity.



Clinical Monitors

Clinical review monitors are designed for the needs of multi-tasking display services in a variety of medical imaging segments such as radiological modalities, surgical modalities, RIS, HIS, PACS, etc. Equipped with premium quality LCD panels and versatile image controller boards with a variety of connectivity, these clinical review monitors provide the users and system integrators multiple options and applications.



Built-In Front Sensor

A built-in sensor hidden behind the front bezel to measure brightness and read color temperatures for automated self-calibration to the DICOM standard, Part 14.

Lossless Video over-IP Solution at the Erasmus University Hospital Rotterdam, The Netherlands

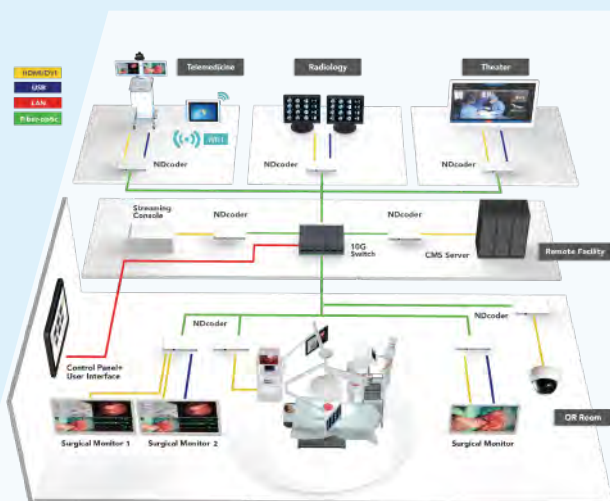
Digitizing the Hospital

The Erasmus University Hospital in Rotterdam is the largest and most prestigious hospital in the Netherlands. A completely new building containing 26 new operating rooms were being planned alongside modern and upgraded facilities for other areas of the large complex. The hospital decided to modernize the workflow and reduce the amount of paper, posters and other analog systems that were previously in use. The goal was to have a comprehensive, digital, smart and integrated way of working for the staff in the new operating rooms. For this to be realized, an innovative technology was needed: FHD video from operating tools would not only have to be streamed with no latency or lossless image quality to any surgical display but should also be capable of switching those video sources seamlessly. These copious requirements were successfully solved by Advantech, INTER and SigmaXG by Technolution with an exemplary co-creation solution.



The OR of the Future

By Co-working together with INTER, who is specialized with multimedia video-over-IP streaming software, a complete solution could be offered to the hospital. The AVAS NDcoders that encode and decode the video streams up until 4K resolution were created together with SigmaXG and is based on the technology of Technolution were directly integrated into the Advantech PAX surgical displays. This not only saves energy and space, but also reduces the complexity of the system and facilitates the installation. The surgical displays of Advantech realize an accurate image representation of the source with no latency, simplifying and improving the quality of work for the doctors and staff in the operating room. Additionally, several all-in-one computers were used to control and interact with staff in and outside the operating room. This enables an infection-free operating process. The door movement counting together with an intercom and multimedia system that integrates external streaming, the IoT hospital is now reality. The OR-flow dashboard by INTER additionally allows staff to prepare with a meeting before an operation and add different applications into the workflow while keeping track of tasks during the operation. Recording and streaming sessions is also realized by the software by INTER.



System

The Erasmus University Hospital in Rotterdam is the largest and most prestigious hospital in the Netherlands. A completely new building containing 26 new operating rooms were being planned alongside modern and upgraded facilities for other areas of the large complex. The hospital decided to modernize the workflow and reduce the amount of paper, posters and other analog systems that were previously in use. The goal was to have a comprehensive, digital, smart and integrated way of working for the staff in the new operating rooms. For this to be realized, an innovative technology was needed: FHD video from operating tools would not only have to be streamed with no latency or lossless image quality to any surgical display but should also be capable of switching those video sources seamlessly. These copious requirements were successfully solved by Advantech, INTER and SigmaXG by Technolution with an exemplary co-creation solution.

Summary of the Benefits

- Near-Zero Latency Video Streaming
- Smart Navigation Functionality with Mouse-Thru and Touch-Thru
- Surgical-Grade Image/ Video Quality
- Up until 4K UHD lossless streaming (in this example FHD is being used)
- Increased efficiency in the OR
- Integrated multimedia and app-integration solution by INTER
- Integrated NDcoder into the surgical screens
- Medical Grade Quality



	Model	PAX-319	PAX-324	PAX-327	PAX-332	PAX-355
Display	Screen Size	19"	24"	27"	32"	55"
	Aspect Ratio	5:4	16:10	16:9	16:9	16:9
	Resolution (HxV, pixels)	1280x1024	1920 x 1200	3840 x 2160*1	3840 x 2160*1	3840 x 2160
	Brightness (Typ.)	330 cd/ m ²	900 cd/m2	800 cd/m2	800 cd/m2	800 cd/m2
	Displayable colors	16.7M (8bit)	1.07B (10bit)	1.07B (10bit)	1.07B (10bit)	1.07B (10bit)
	Viewing Angle (HxV)	178°x178°	178°x178°	178°x178°	178°x178°	178°x178°
	Panel type	IPS	IPS like	AHVA	AHVA	AHVA
	Response time (Typ.)	18ms	14ms (gray to gray)	16ms (gray to gray)	16ms (gray to gray)	16ms (gray to gray)
	Contrast Ratio (Typ.)	900:1	1000:1	1000:1	1000:1	1000:1
	Touch Screen	P-CAP (Optional)	P-CAP (Optional)	P-CAP (Optional)	P-CAP (Optional)	P-CAP (Optional)
	Protection Screen	-	AR-coated Glass	AR-coated Glass	AR-coated Glass	AR-coated Glass
	Grayscale performance	14-bit LUT	14-bit LUT	14-bit LUT	14-bit LUT	14-bit LUT
	DICOM	DICOM Part 14 GSDF Compliant	DICOM Part 14 GSDF Compliant	DICOM Part 14 GSDF Compliant	DICOM Part 14 GSDF Compliant	DICOM Part 14 GSDF Compliant
Signals	Input port (default)	1xDisplayPort, 1xHDMI, 2xDVI-D, 1x3G-SDI (BNC), 1xS-video, 1xVideo (BNC), 1xRS232C Jack (service port)	1xDisplayPort, 1xHDMI, 2xDVI-D, 1x3G-SDI (BNC), 1xS-video, 1xVideo (BNC), 1xRS232C Jack (service port)	1xDisplayPort, 1xHDMI, 1xDVI-D, 1xRS232C Jack (service port)	1xDisplayPort, 1xHDMI, 1xDVI-D, 1xRGB	1xDisplayPort, 1xHDMI, 1xDVI-D, 1xRS232C Jack (service port)
	Input port (optional)	1xRGB , 1xAudio	RGB x1, Audio x1, SFP+ x1	4x3G SDI or 1x12G SDI, SFP+ x1	4x3G SDI, SFP+ x1	1x 4K(HD, 3G, 6G) SDI(BNC)
	Output port	2xDVI-D, 1x3G-SDI (BNC) 1x S-video 1xVideo (BNC)	2xDVI-D, 1x3G-SDI (BNC) 1x S-video 1xVideo (BNC)	1xHDMI, 1xDVI-D	1xHDMI 1xDVI-D 1xDisplayport MST	1xDisplayport MST 1xAudio
	Output port (optional)	1x Audio	1x Audio	4x3G SDI or 1x12G SDI	4x3G SDI or 1x12G SDI	-
USB	Version	2.0	2.0	2.0	2.0	3.0
	Ports	upstream x1 downstream x2	Upstream x1 (Optional, For Touch)	Upstream x1 (Optional, For Touch)	Upstream x1 (Optional, For Touch)	upstream x1 downstream x2
Power	Power Supply	DC 12V 5.25A (Max.)	DC 24 V 4.16 A (Max.)	DC24V 6.25A(MAX)	DC 24V 10.41A Max.	100V-240V AC 50/60Hz
Environment	Temperature (Operation)	0-40 ° C	0-40 ° C	0-40 ° C	0-40 ° C	0-40 ° C
	Humidity	Max 90%	Max 90%	Max 90%	Max 90%	Max 90%
	Pressure (Operation)	500 hPa to 1013 hPa	500 hPa to 1013 hPa	500 hPa to 1013 hPa	501 hPa to 1013 hPa	501 hPa to 1013 hPa
	Dimension w/stand (HxWxV, mm)	449 x 220 x 413.3	-	-	-	-
	Dimension w/o stand (HxWxV, mm)	449 x 84.3 x 347	578.13 x 68 x 402.78	663.83 x 73.55 x 418.11	768.99x 79.55 x 484.03	1279.0x 75.0 x 747.4
	Weight (w/ stand)	6.8 Kg	-	-	-	-
	Weight (w/o stand)	3.8 Kg	7.2-7.85kg	8.9 -10.4 kg	12.9 kg	55.0 Kg
	IP rating	-	IP65 (Front) / IPX2 (Top)	IP65 (Front) / IPX2 (Top)	IP65 (Front) / IPX2 (Top)	IP65 (Front)
Certification	VESA	100 x 100	100 x 100 75 x 75	100 x 100 75 x 75	100 x 100 75 x 75	600 x 400
	Medical Grade	CE MDD 93/42/EEC (EN60601-1; EN60601-1-2), CCC, RoHS II	CE MDD 93/42/EEC (EN60601-1; EN60601-1-2), CCC, RoHS II	CE MDD 93/42/EEC (EN60601-1; EN60601-1-2), RoHS II	CE MDD 93/42/EEC (EN60601-1; EN60601-1-2), RoHS II	CE MDD 93/42/EEC (EN60601-1; EN60601-1-2), RoHS II

*1: Also have FHD models *1: Also have FHD models



	Model	PAX-519	PAX-520	PAX-521	PAX-531
Display	Screen Size	19"	20.1"	21.3"	31"
	Aspect Ratio	5:4	4:3	4:3	17 : 9
	Resolution (HxV, pixels)	1280x1024	1600x1200	2560x2048	4096 x 2160
	Brightness (Typ.)	1,300 (cd/ m ²)	1,000 (cd/ m ²)	1,200 (cd/ m ²)	850 (cd/ m ²)
	Displayable colors	16.7M (8bit)	16.7M (8bit)	10bit	1.07B (10bit)
	Viewing Angle (HxV)	178°x178°	178°x178°	178°x178°	178°x178°
	Panel type	ADS	ASV	IPS like	IPS
	Response time (Typ.)	14ms (Gray To Gray)	30ms (Tr +Tf)	25ms (Tr +Tf)	14ms (Gray To Gray)
	Contrast Ratio (Typ.)	1200 : 1	1000 : 1	1,200 : 1	1000 : 1
	Touch Screen	-	-	-	-
	Protection Screen	-	-	-	-
	Grayscale performance	14-bit LUT	14-bit LUT	14-bit LUT	14-bit LUT
	DICOM	DICOM Part 14 GSDF Compliant	DICOM Part 14 GSDF Compliant	DICOM Part 14 GSDF Compliant	DICOM Part 14 GSDF Compliant
Signals	Input port (default)	1xDisplayPort, 1xHDMI, 2xDVI-D, 1x3G-SDI (BNC), 1xS-video, 1xVideo (BNC), 1xRS232C Jack (service port)	1xHDMI, 1xDVI-D, 1xRGB, 1xS-Video, 1xVideo (BNC)	1xDisplayPort, 1xHDMI, 1xDVI-D,	1xDisplayPort, 1xHDMI(2.0), 2xHDMI(1.4), 1xRGB, 1xAudio
	Input port (optional)	-	-	-	-
	Output port (default)	DVI-D x2, 3G-SDI (BNC) x1, S-video x1, Video (BNC) x1	Video (BNC) x1	-	1xDisplayport MST, 1xAudio
	Output port (optional)	-	-	-	-
USB	Version	2.0	2.0	3.0	3.0
	Ports	upstream x1, downstream x2	upstream x1, downstream x2	upstream x1, downstream x2	upstream x1, downstream x2
Power	Power Supply	DC 12V, 5.25A (Max.)	DC12V 7A (Max.)	DC24V 6.25A (Max)	100V-240V AC, 50/60Hz
Environment	Temperature (Operation)	0~40 ° C	0~40 ° C	0~40 ° C	0~40 ° C
	Humidity	Max 90%	Max 90%	Max 90%	Max 90%
	Pressure (Operation)	500 hPa to 1013 hPa	500 hPa to 1013 hPa	500 hPa to 1013 hPa	500 hPa to 1013 hPa
	Dimension w/stand (HxWxV, mm)	449x 220 x 413.3	347 x 220 x 514	392 x 220 x 507	791.4 x 220 x 513.8
	Dimension w/o stand (HxWxV, mm)	449 x 84.3 x 347	347x 84.3 x 449	392x 100x 487	791.4 x 128.5 x 490
	Weight (w/ stand)	7.1Kg	9.5 Kg	9.4-10.3 kg	14.22 Kg
	Weight (w/o stand)	4.1kg	4.2 Kg	6.4-7.3 kg	11.22 Kg
	IP rating	-	-	-	-
Certification					
	Medical Grade	CE MDD 93/42/EEC (EN60601-1; EN60601-1-2), CCC, RoHS II	CE MDD 93/42/EEC (EN60601-1; EN60601-1-2), CCC, RoHS II	CE MDD 93/42/EEC (EN60601-1; EN60601-1-2), CCC, RoHS II	CE MDD 93/42/EEC (EN60601-1; EN60601-1-2), CCC, RoHS II



	Model	PAX-119	PDC-W210	PDC-W240	PDC-WP240
Display	Screen Size	19"	21.5"	23.8"	23.8"
	Aspect Ratio	5:4	16:9	16:9	16:9
	Resolution (HxV, pixels)	1280x1024	1920x1080	1920x1080	1920x1080
	Brightness (Typ.)	330 cd/ m ²	250 cd/ m ²	250 cd/ m ²	250 cd/ m ²
	Displayable colors	16.7M (8bit)	16.7M (6bit+FRC)	16.7M (6bit+FRC)	16.7M (6bit+FRC)
	Viewing Angle (HxV)	178°x178°	178°x178°	178°x178°	178°x178°
	Panel type	IPS	IPS	IPS	IPS
	Response time (Typ.)	18ms (Typ)	25ms (Tr +Tf)	25ms (Tr +Tf)	25ms (Tr +Tf)
	Contrast Ratio (Typ.)	900:1	1000:1	1000:1	1000:1
	Touch Screen	P-CAP (Optional)	P-CAP (Optional)	P-CAP (Optional)	P-CAP (Optional)
	Protection Screen	-	-	-	-
	Grayscale performance	14-bit LUT	-	-	-
	DICOM	DICOM Part 14 GSDF Compliant	DICOM Part 14 GSDF Compliant	DICOM Part 14 GSDF Compliant	DICOM Part 14 GSDF Compliant
Signals	Input port (default)	1xDisplayPort, 1xHDMI, 2xDVI-D, 1x3G-SDI (BNC), 1xS-video, 1xVideo (BNC), 1xRS232C Jack (service port)	1xDisplayPort, 1xHDMI,1xDVI-D, 1XRGB	1xDisplayPort, 1xHDMI,1xDVI-D, 1XRGB	1xDisplayPort, 1xHDMI,1xDVI-D, 1XRGB
	Input port (optional)	-	-	-	-
	Output port (default)	2xDVI-D, 1x3G-SDI (BNC), 1x S-video, 1xVideo (BNC)	1x Audio	1x Audio	1x Audio
	Output port (optional)	-	-	-	-
USB	Version	2.0	2.0	2.0	2.0
	Ports	upstream x1, downstream x2	Upstream x1 (Optional, For Touch)	upstream x1, downstream x2	upstream x1, downstream x2
Power	Power Supply	DC 12V, 5.25A (Max.)	DC 12V, 5A (Max.)	DC 12V, 5A (Max.)	100 ~ 240 VAC, 1.3/0.7A max. @ 50-60Hz
Environment	Temperature (Operation)	0~40 ° C	0~40 ° C	0~40 ° C	0~40 ° C
	Humidity	Max 90%	Max 95%	Max 95%	Max 95%
	Pressure (Operation)	500 hPa to 1013 hPa	-	-	-
	Dimension w/stand (HxWxV, mm)	449x 220 x 413.3	-	-	-
	Dimension w/o stand (HxWxV, mm)	449 x 84.3 x 347	360 x 550 x 63.66	386 x583 x 66	386 x583 x 66
	Weight (w/ stand)	6.8Kg	-	-	-
	Weight (w/o stand)	3.8kg	5.5KG	7.2kg	7.5kg
	IP rating	-	IP54	IP54	IP54
	VESA	100 x 100 mm	100 x 100 mm/ 75 x 75 mm	100 x 100 mm/ 75 x 75 mm	100 x 100 mm 75 x 75 mm
Certification	Medical Grade	CE MDD 93/42/EEC (EN60601-1; EN60601-1-2), CCC, RoHS II	FCC, CE, EN/IEC60601-1	FCC, CE, EN/IEC60601-1	FCC, CE, EN/IEC60601-1

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