BVM-A Series

SONY®

Broadcast and Professional Monitors

Multiformat

HR Trinitron

The BVM-A Series of digital —the widest ranging

Sony now redefines its decades of professional monitor experience with the introduction of a new family of BVM Series monitors. The BVM-A Series of digital monitors, with a number of impressive enhancements, has been designed to surpass the conventional concepts of existing high-grade CRT monitors.
Positioned as a successor to the market-acclaimed Sony BVM-D Series, the BVM-A Series – as an industry first – presents a full and consistent line of master-grade CRT monitors. The BVM-A Series monitors are offered in four different CRT sizes – the 32-inch[1] and 24-inch[2] models with 16:9 aspect ratios, and the 20-inch[3] and 14-inch[4] models with 4:3 aspect ratios. All four monitors support multi-format input, accepting a range of SD and HD signal formats, with the added capability of dual-link HD-SDI input to monitor top-quality images up to 1080/50i and 1080/60i 4:4:4 RGB[5].

[1] 29 5/8-inch viewable area measured diagonally.
[2] 21 7/8-inch viewable area measured diagonally.
[3] 19-inch viewable area measured diagonally.
[4] 13 1/8-inch viewable area measured diagonally.
[5] with appropriate option cards inserted.

monitors
master-grade monitor series

While inheriting the modular design concept from its predecessor BVM models, a thorough review of its input boards has been conducted. This has resulted in a simplified board lineup that makes input configuration easier, while also offering optimized cost-per-input value. All BVM-A Series monitors use the same optional input boards, so they can be effectively shared between monitors when the need arises*6.

The BVM-A Series also incorporates an all-new Ethernet™–based control system, allowing standard network cables and hubs to be used for easy configuration, high reliability, and high communication speed. And for monitor setup and control, the same logical menu structures and Auto Setup capabilities have been retained from its BVM predecessors, further facilitating system setup.

Designed to meet the critical needs of today and tomorrow, the BVM-A Series is the choice for any high-grade monitoring application in studio production, post-productions, telecine and broadcast operations.

*6 The BVM-A Series input boards are not compatible with other earlier BVM Series monitors.

Top Quality Monitoring

■■ A Full Line of Master-grade Monitors

The BVM-A Series of monitors comprises four models – the 32-inch BVM-A32E1WU*[1] and the 24-inch BVM-A24E1WU*[2] with a 16:9 aspect ratio, and the 20-inch BVM-A20F1U*[3] and the 14-inch BVM-A14F5U*[4] with a 4:3 aspect ratio. All four monitors have been developed in line with Sony's evaluation-grade monitor standards, providing the high resolution and wide and natural frequency response required for master monitoring applications. This consistent image quality is a significant benefit over conventional monitor product lines, which can offer lower specifications for smaller screen sizes.

*[1] 29 5/8-inch viewable area measured diagonally.
*[2] 21 7/8-inch viewable area measured diagonally.
*[3] 19-inch viewable area measured diagonally.
*[4] 13 1/8-inch viewable area measured diagonally.

■■ Flat surface HR Trinitron

To provide the highest possible picture quality, all BVM-A Series monitors are equipped with CRTs manufactured by Sony, using either SMPTE-C or EBU standard phosphors. Flat surface 16:9 aspect HR Trinitron CRTs have been exclusively designed for the BVM-A32E1WU and BVM-A24E1WU models.

■■ Faithful Color Reproduction

The BVM-A Series monitors are designed to provide most accurate phosphor chromaticity, white uniformity, and color temperature, thereby achieving extremely faithful color reproduction.

■■ Stable Color Temperature

The internal beam current feedback circuit equipped on the BVM-A Series monitors maintains a constant color temperature over a long period of time.

■■ Multi-format Signal Support

With the appropriate input boards installed, all BVM-A Series monitors support a spectrum of SD and HD signals with frequency responses ranging from 15 kHz to 45 kHz (horizontal)/48 Hz to 60 Hz (vertical). Input signals are scanned on the CRT raster at their native frequencies and native line counts, with no scan conversion processes involved.

■■ Dual-link HD-SDI

To be prepared for the fast-paced changes in video production, the BVM-A Series monitors offer dual-link HD-SDI capability, meeting the SMPTE 372M standard. Using two HD-SDI connectors in a pair, the BVM-A Series allows a variety of digital 4:4:4 HD signals to be accepted in both GBR and Y/PB/PR signal formats.

BVM-A Series Acceptable Signal Formats

No	System nomenclature	Samples per active line	Active lines per frame	Frame Rate fV (Hz)	Interface sampling freq (MHz)	Samples per total line	Total lines per frame	Line Frequency fH(kHz)	Standard
1	525/59.94/2:1	720	483	59.94	13.5	858	525	15.734	Rec.ITU-R BT.601
2	625/50/2:1	720	575	50	13.5	864	625	15.625	Rec.ITU-R BT.601
3	525/59.94/1:1	720	483	59.94	27	858	525	31.469	SMPTE 293M / Rec.ITU-R BT.1358
4	625/50/1:1	720	576	50	27	864	625	31.25	Rec.ITU-R BT.1358
5	1920x1080/24PsF	1920 / 1920	1080 / 1080	48 / 48/1.001	74.25 / 74.250/1.001	2750 / 2750	1125 / 1125	27 / 27/1.001	SMPTE RP 211
6*1	1920x1080/50/2:1	1920	1080	50	74.25	2640	1125	28.125	SMPTE 274M
7*2	1920x1080/60/2:1	1920 / 1920	1080 / 1080	60 / 60/1.001	74.25 / 74.250/1.001	2200 / 2200	1125 / 1125	33.75 / 33.75/1.001	SMPTE 274M
8	1920x1035/60/2:1	1920 / 1920	1035 / 1035	60 / 60/1.001	74.25 / 74.250/1.001	2200 / 2200	1125 / 1125	33.75 / 33.75/1.001	SMPTE 240M / BTA S-001B
9	1280x720/60/1:1	1280 / 1280	720 / 720	60 / 60/1.001	74.25 / 74.250/1.001	1650 / 1650	750 / 750	45 / 45/1.001	SMPTE 296M
10	1280x720/50/1:1	1280	720	50	74.25	1980	750	37.5	SMPTE 296M

*1 Also accepts 1920x1080/25PsF signals.   *2 Also accepts 1920x1080/30PsF signals.

Flexible Input Configurations

Modular slot design

The BVM-A Series uses a modular slot design, so inputs can be configured according to individual needs. Three input board slots are available on all models. Optional input boards can be installed in any board slot, and in any combination. These Option boards utilize only one slot each, so up to three cards can be installed for maximum flexibility.

Logically designed input boards

In developing the BVM-A Series, Sony conducted a thorough review of its optional input boards. The result is a more logical and flexible input capability integrated into three optional boards, allowing easier configuration and better cost-per-input value. This approach also enables all BVM-A Series monitors to share the same boards. The following chart describes the input signal types that each board* accepts.

* The BVM-A Series input boards are not compatible with other earlier BVM Series monitors.

Optional Input Boards
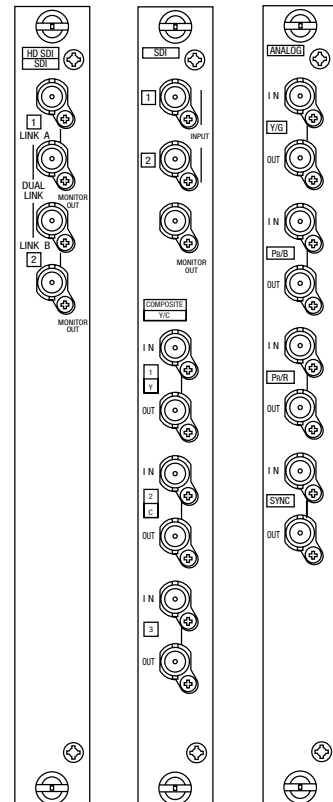
BKM-62HS   BKM-61D   BKM-68X

Input Signals by board

	System Nomenclator	Signal Format	BKM 62HS	BKM 61D	BKM 68X
Analog	525/59.94/2:1	Composite, YC (NTSC/PAL-M)		O	
		Y R-Y B-Y / GBR			O
	625/50/2:1	Composite, YC (PAL/SECAM)		O	
		Y R-Y B-Y / GBR			O
	525/59.94/1:1	Y R-Y B-Y / GBR			O
	625/50/1:1	Y R-Y B-Y / GBR			O
	1920x1080/24PsF*3	Y PB PR / GBR			O
	1920x1080/50/2:1, 25PsF*3	Y PB PR / GBR			O
	1920x1080/60/2:1, 30PsF*3	Y PB PR / GBR			O
	1920x1035/60/2:1*3	Y PB PR / GBR			O
	1280x720/60/1:1*3	Y PB PR / GBR			O
	1280x720/50/1:1	Y PB PR / GBR			O
SDI	525/59.94/2:1	Component Digital (D1)	O	O	
		Composite Digital (D2)		O	
	625/50/2:1	Component Digital (D1)	O	O	
		Composite Digital (D2)		O	
HD SDI (10 bit system only)	1920x1080/24PsF*3	4:2:2 Single Link / Y PB PR	O		
		4:4:4 Dual Link / Y PB PR / GBR	O		
	1920x1080/25PsF	4:2:2 Single Link / Y PB PR	O		
		4:4:4 Dual Link / Y PB PR / GBR	O		
	1920x1080/30PsF*3	4:2:2 Single Link / Y PB PR	O		
		4:4:4 Dual Link / Y PB PR / GBR	O		
	1920x1080/50/2:1	4:2:2Single Link / Y PB PR	O		
		4:4:4 Dual Link / Y PB PR / GBR	O		
	1920x1080/60/2:1*3	4:2:2 Single Link / Y PB PR	O		
		4:4:4 Dual Link / Y PB PR / GBR	O		
	1920x1035/60/2:1*3	4:2:2 Single Link / Y PB PR	O		
	1280x720/60/1:1*3	4:2:2 Single Link / Y PB PR	O		
	1280x720/50/1:1	4:2:2 Single Link / Y PB PR	O		
	Number of Digital Inputs		2*4	2	0
	Number of Analog Inputs		0	3	1

*3 Also compatible with 1/1.001 frame rates.
*4 The BKM-62HS automatically detects SDI and HD-SDI input signals.

Operational Convenience

New Modular Monitor Control Unit (BKM-15R)

The modular design of the BVM-A Series, in which the monitor and control panel are provided as separate units, allows for greater flexibility in system integration.
The BVM-A Series incorporates a new Monitor Control Unit – the BKM-15R – which can be attached below the monitor using the optional Attachment Kit*, or connected remotely via an Ethernet cable.

* The optional BKM-36H Attachment Kit is for the BVM-A24E1WU and the optional BKM-35H Attachment Kit is for the BVM-A20F1U. The BKM-15R does not attach to the BVM-A32E1WU. An attachment kit is not required for the BVM-A14F5U.

Ethernet-based Remote Control[*1]

A huge benefit of the BVM-A Series is its new Ethernet-based remote control system. The BVM-A Series monitors and BKM-15R[*2] Monitor Control Unit are equipped with Ethernet ports, allowing remote control of display parameters across a standard Ethernet connection.
The BVM-A Series Ethernet control system allows the connection of up to 32 nodes of monitors and BKM-15Rs. This means that with one BKM-15R, up to thirty-one monitors can be controlled.

[*1] Earlier remote control units (BKM-10R and BKM-11R) are not compatible with the BVM-A Series Ethernet control system.
[*2] The BKM-15R is not compatible with earlier BVM Series monitors.

Memory Stick® Media Slot

The optional BKM-15R has a Memory Stick™ slot to save and load monitor setup and adjustment data on Memory Stick media*. In multiple monitor systems, this allows data to be exchanged between units so that the same setup and adjustment status is easily retained.

* Accepts standard-type Memory Stick media only. Memory Stick media with high-speed transfer capability or Magic Gate copyright protection technology cannot be used.

Remote Maintenance

The BVM-A Series monitors support the SNMP protocol through their Ethernet ports, which allows maintenance information to be monitored. By using compatible remote-maintenance software, it is possible to monitor the display's status as well as upgrade software via a Local Area Network.

- Status (model name, serial number, I/P address, software version, etc.)
- Error information
- Upgrade software (ftp)

BKM-15R Monitor Control Unit

Front Panel

Rear Panel

■■ Marker Settings

The BVM-A Series monitors can display various markers, including an aspect marker, safe area marker, and center marker.

In addition to this flexible selection of marker types, detailed display settings of each marker are offered. For example, the brightness, horizontal position, and width of aspect markers can all be controlled, while the height and width of safe area markers can also be adjusted. What's more, users can also choose to display the title of the safe area marker, and select its position and size.

These flexible marker controls, together with the choice of many different marker selections, make the BVM-A Series the perfect all-round display device for a variety of shooting scenarios – from SD/HD video acquisition to digital cinematography.

Marker Variation

Aspect Marker	Aspect Mode	16:9, 15:9, 14:9, 13:9, 4:3, 2.39:1, 2.35:1, 1.85:1, 1.77:1, VARIABLE
	Aspect Marker Color	White, Red, Green, Blue, Yellow, Cyan, Magenta
	Aspect Blanking	Black, Gray
Safe Area/ Center Markers	Marker Mode	SHAPE A, SHAPE B, SHAPE C
	Area Size	80%, 88%, 90%, 93%, VARIABLE
	Center Marker	Short, Long
Safe Title Display		Width, Height, H Position, V Position

4 Marker Examples

Screen Size: 16:9
Aspect Mode: 2.35:1
Aspect Marker Color: White
Marker Bright: 90IRE
Width: THICK
Safe Area: SHAPE A
Area Size: 80%
Center Marker: Short
Aspect Blanking: Off

Screen Size: 16:9
Aspect Mode: 14:9
Aspect Marker Color: White
Marker Bright: 40IRE
Width: THIN
Safe Area: SHAPE B
Area Size: 80%
Center Marker: Short
Aspect Blanking: Off
Safe Title: ON

Screen Size: 16:9
Aspect Mode: 13:9
Aspect Marker Color: White
Marker Bright: 40IRE
Width: THICK
Safe Area: SHAPE C
Area Size: 80%
Center Marker: SHORT
Aspect Blanking: ON, HALF

Screen Size: 16:9
Aspect Mode: 4:3
Aspect Marker Color: Green
Marker Bright: 90IRE
Width: THICK
Safe Area: SHAPE C
Area Size: 80%
Center Marker: LONG
Aspect Blanking: ON, BLACK

Easy Setup and Adjustment

▉▉ Auto White Balance

The color temperature of BVM-A Series monitors can be automatically adjusted by the auto white balance function using the optional Sony BKM-14L* Auto Setup Probe. Probes from other manufacturers, including the Konica Minolta CA100/100 plus, DK-Technologies PM5639, THOMA TF6, and UDT Instruments SLS 9400 can also be used.

* The Sony BKM-14L is required for auto uniformity and landing adjustment. Probes other than the Sony BKM-14L require a cable to connect the color analyzer to the monitor.

▉▉ Auto Chroma/Phase/Matrix Setup

The BVM-A Series monitors automatically select the most appropriate decode matrix from one of the three matrices (ITU 601, ITU 709, or SMPTE 240M), according to the input signal. An Auto Chroma/Phase setup function is also provided, which automatically adjusts the monitor's chroma, phase and matrix using external color bars.

▉▉ Digital Uniformity

With the BVM-A Series monitors, white can be reproduced uniformly on every point of the screen, even in the peripheral area, using the digital uniformity circuit. This adjustment can be made manually or automatically, with the use of the optional BKM-14L Auto Set-up Probe.

BKM-14L Auto Setup Probe

▉▉ Beam Landing Correction

The BVM-A32E1WU and BVM-A24E1WU are capable of correcting beam landing shift that may occur as a result of terrestrial magnetic influence. This correction can be made manually*, or automatically with the use of the optional BKM-14L Auto Set-up Probe.

* Beam Landing Correction on the BVM-A20F1U and BVM-A14F5U is performed manually.

▉▉ Digital Convergence

The BVM-A32E1WU is capable of adjusting the convergence at each point of the screen, even in the peripheral area, through the digital convergence circuit.

▉▉ "+12dB Chroma Up" Button (BKM-15R)

A "CHROMA UP" button located on the BKM-15R front panel allows the Chroma Level to be boosted by +12dB. This is a convenient feature for adjusting camera white balance with a high degree of accuracy.

▉▉ "Character Off" Button (BKM-15R)

To facilitate parameter adjustments, the On-Screen Menu indication can be taken off the screen, while the Menu mode is still active. The On-Screen Menu indication can be toggled on or off simply by the press of a button on the BKM-15R front panel.

▉▉ "Color Temp" Button (BKM-15R)

A Color Temperature button located on the BKM-15R front panel enables instant access to the manual white balance adjustment mode without using the On-Screen menu.

BKM-15R Front Panel Close-up

Other Features

- Parallel remote control function
- Built-in test signal generator for crosshatch, 100% white signal, 20% gray signal, grayscale, and PLUGE (Picture Line Up Generating Equipment)

- H/V delay function for checking the horizontal and vertical synchronization signals
- Auto and manual degaussing

8

Optional Accessories

BKM-15R
Monitor Control Unit

BKM-62HS
HD SDI/SDI
Input Adaptor

BKM-61D
SDI/Analog Multi
Input Adaptor

BKM-68X
Analog Component
Input Adaptor

BKM-14L
Auto Set-up Probe

BKM-30E20
19" EIA Standard Rack
Mount Kit
(for BVM-A20F1U
monitors)

BKM-30E14
19" EIA Standard Rack
Mount Kit
(for BVM-A14F5U
monitors)

BKM-35H
Monitor Control Unit
Attachment Kit
(for BKM-15R with 20"
monitors)

BKM-36H
Monitor Control Unit
Attachment Kit
(for BKM-15R with 24"
monitors)

MB-510
19" Rack Mount Kit
(for BKM-15R)

SMF-700
Monitor Interface Cable

Specifications

BKM-15R

	BKM-15R
GENERAL	
Power requirements	AC : 100 V to 240 V, 50/60 Hz DC : 5 V (supplied from Monitor) AC is prior to DC
Power consumption	11 W
Dimensions (W x H x D)	16 $3/4$ X 2 $3/8$ X 9 $7/8$ (inch) 424.0 X 58.8 X 247.8 (mm)
Weight	approx. 4 lb 7 oz approx. 2 kg
Operating temperature	0 to 35 °C Optimum operating range 20 to 30 °C
Storage temperature	-10 to 40 °C
Humidity	30 to 90 % (no condensation)
Input/Output	
LAN	Ethernet (10 BASE-T/100 BASE-TX), RJ-45 x1
DC 5V IN	Circle 4-pin DC Connector (male x 1)
Others	
Memory stick slot	Memory Stick/Memory Stick Duo Compatible
Dimensions Unit: inches (mm)	

16 $3/4$ (424.0)

1 $3/4$ (44.0)

19/32 (14.8)

9

Specifications

		BVM-A32E1WU	BVM-A24E1WU
GENERAL			
	Signal format	15.625 kHz to 45 kHz (For more details, please refer to the Acceptable Formats table.)	
	Type	Display unit	
	Power requirements	100 V to 240 V AC ± 10%, 50/60Hz	
	Power consumption (with Option board; Max.)	apprpx. 235 W (Max.)	210 W (Max.)
	Dimensions (W x H x D)	31 3/8 x 21 7/8 x 26 (inch) 794.0 X 555.4 X 694.0 (mm)	22 3/8 x 17 1/4 x 23 1/8 (inch) 565.5 X 436.8 X 587.3 (mm)
	Weight	approx. 211 lb 10 oz approx. 96 kg	approx. 116 lb 14 oz approx 53 kg
CRT	CRT type	32-inch HR Trinitron (flat surface, 16:9 aspect)	24-inch HR Trinitron (flat surface, 16:9 aspect)
	AG pitch	0.32~0.36mm, 90 ° deflection, Ø29.1 mm in-line gun	0.25~0.28 mm, 90 ° deflection, Ø29.1 mm in-line gun
	Visual screen (Viewable area, measured diagonally) W x H (Diagonal)	4:3 19 3/8 x 14 5/8 inch , (24 1/4 inch) 4:3 491.3 x 368.5 mm, (614.1 mm) 16:9 25 7/8 x 14 5/8 inch , (29 5/8 inch) 16:9 655.2 x 368.5 mm, (751.7 mm)	4:3 22 3/8 x 17 1/4 inch , (17 7/8 inch) 4:3 361.6 x 271.2 mm, (452 mm) 16:9 19 x 10 3/4 inch , (21 7/8 inch) 16:9 482.1 x 271.2 mm, (553.1 mm)
	Phosphor	SMPTE-C/EBU	SMPTE-C/EBU
Input / Output			
	Video	Refer to "Input Signals by board" chart on page 5	
Control	LAN	Eithernet (10 BASE-T/100 BASE-TX), RJ-45 x1	
	Parallel remote	D-sub 9-pin x 1 (Short to ground)	
	Option	RS-232C serial interface, Mini DIN 8-pin x 1	
	DC 5V IN	Circle 4-pin DC Connector (female x 1)	
Video signal performance			
	Differential gain (DG)	Within 5% for luminance from 0 to 70 cd/m2	Within 5% for luminance from 0 to 100 cd/m2
	Differential phase (DP)	Within 5° for luminance from 0 to 70 cd/m2	Within 5° for luminance from 0 to 100 cd/m2
	Frequency response	48 Hz to 30 MHz +1dB/-3 dB	
	DC restoration	Back porch type, back porch level: within 1% of peak luminance, 10 to 90% APL	
Synchronization			
Retrace time	Horizontal	under 3.77 μ sec	
	Vertical	under 650 μ sec	
Raster and picture performance			
	Normal scan	5% over scan of the effective picture area	
	Under scan	3% under scan of the effective picture area	
	Linearity	Less than 1% within circle centered on the screen with a diameter equal to the vertical height, 2% at any other point	Less than 0.5% within circle centered on the screen with a diameter equal to the vertical height, 1% at any other point
	Color temperature	D65 / D93 / D61 / USER1-5 (User adjustable)	
	Convergence	Less than 0.5mm within circle centered on the screen with a diameter equal to the vertical height, 0.8 mm at any other point	Less than 0.4mm within circle centered on the screen with a diameter equal to the vertical height, 0.7 mm at any other point
	Preset brightness	70 cd/m2 (when a 1.0 Vp-p 100% white signal is input)	100 cd/m2 (when a 1.0 Vp-p 100% white signal is input)
	Stability of raster size	1% of picture height (at 70 cd/m2 peak luminescence, 10 to 90 % APL)	1% of picture height (at 100 cd/m2 peak luminescence, 10 to 90 % APL)
Scan delay	Horizontal	Approx. 2/9 line	
	Vertical	Approx. 1/2 field	
	Resolution (Center)	16:9: 1000 TV lines, 4:3 1000 TV lines	
Operating conditions			
	Operating temperature	0 to 35 °C, Optimum operating range 20 to 30 °C	
	Storage temperature	-10 to 40 °C	
	Humidity	30 to 90 % (no condensation)	
Others			
	Supplied accessories	AC cable, AC plug holder, Fuse, Operation manual	
Dimensions Unit: mm (inches)			

Dimensions diagrams:
BVM-A32E1WU: 313/8 (794.0), 26 (694), 11/8 (28), 21 (531.4), 217/8 (555.4), 283/8 (719.9), 31/32 (24), 31/8 (76.4), 201/8 (510)

BVM-A24E1WU: 223/8 (565.5), 21/4 (55), 231/8 (587.3), 9 (225.6), 171/4 (436.8), 111/8 (279.5), 31/2 (86.4), 35/8 (89), 175/8 (446.6), 13/16 (Ø30), 5/8 (15.5), 181/8 (460)

| BVM-A32E1WU | BVM-A24E1WU | BVM-A20F1U | BVM-A14F5U |

	BVM-A20F1U	**BVM-A14F5U**
GENERAL		
Signal format	15.625 kHz to 45 kHz (For more details, please refer to the Acceptable Formats table.)	
Type	Display unit	Stand-alone monitor
Power requirements	100 V to 240 V AC ± 10%, 50/60Hz	
Power consumption (with Option board; Max.)	200 W (Max.)	170 W (Max.)
Dimensions (W x H x D)	17 3/8 x 16 3/8 x 22 1/2 (inch) 444 X 414 X 570 (mm)	19 x 11 1/8 x 22 1/2 (inch) 482 X 280 X 571 (mm)
Weight	approx. 88 lb 3 oz approx 40 kg	approx. 57 lb 5 oz approx. 26 kg
CRT CRT type	20-inch HR Trinitron	14-inch HR Trinitron
AG pitch	0.30 mm, 90 ° deflection, Ø30.6 mm in-line gun	0.25 mm, 90 ° deflection, Ø29.4 mm in-line gun
Visual screen (Viewable area, measured diagonally) diagonally)	4:3 15 1/4 x 11 1/2 inch , (19 inch) 4:3 386 x 291 mm, (482 mm) 16:9 15 1/4 x 8 5/8 inch , (17 1/2 inch) 16:9 386 x 218 mm, (443 mm)	4:3 10 5/8 x 8 inch , (13 1/8 inch) 4:3 267.5 x 200.6 mm, (331.6 mm) 16:9 10 5/8 x 6 inch , (12 1/8 inch) 16:9 267.5 x 150.5 mm, (306.9 mm)
Phosphor	SMPTE-C/EBU	SMPTE-C/EBU
Input / Output		
Video	Refer to "Input Signals by board" chart on page 5	
Control LAN	Eithernet (10 BASE-T/100 BASE-TX), RJ-45 x1	
Parallel remote	D-sub 9-pin x 1 (Short to ground)	
Option	RS-232C serial interface, Mini DIN 8-pin x 1	
DC 5V IN	Circle 4-pin DC Connector (female x 1)	–
Video signal performance		
Differential gain (DG)	Within 5% for luminance from 0 to 100 cd/m²	
Differential phase (DP)	Within 5° for luminance from 0 to 100 cd/m²	
Frequency response	48 Hz to 30 MHz +1dB/-3 dB	
DC restoration	Back porch type, back porch level: within 1% of peak luminance, 10 to 90% APL	
Synchronization		
Retrace time Horizontal	under 3.77 μ sec	
Vertical	under 650 μ sec	
Raster and picture performance		
Normal scan	5% over scan of the effective picture area	
Under scan	3% under scan of the effective picture area	
Linearity	Less than 0.5% within circle centered on the screen with a diameter equal to the vertical height, 1% at any other point	
Color temperature	D65 / D93 / D61 / USER1-5 (User adjustable)	
Convergence	Less than 0.4mm within circle centered on the screen with a diameter equal to the vertical height, 0.7 mm at any other point	
Preset brightness	100 cd/m² (when a 1.0 Vp-p 100% white signal is input)	
Stability of raster size	1% of picture height (at 100 cd/m² peak luminescence, 10 to 90 % APL)	
Scan delay Horizontal	Approx. 2/9 line	
Vertical	Approx. 1/2 field	
Resolution (Center)	16:9: 700 TV lines, 4:3 900 TV lines	16:9: 600 TV lines, 4:3 800 TV lines
Operating conditions		
Operating temperature	0 to 35 °C, Optimum operating range 20 to 30 °C	
Storage temperature	-10 to 40 °C	
Humidity	30 to 90 % (no condensation)	
Others		
Supplied accessories	4:3 mask, FUSE, AC cable, AC plug holder, Tally label, Operation manual	
Dimensions Unit: mm (inches)		
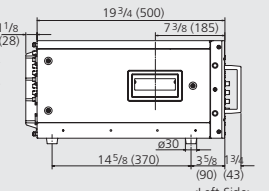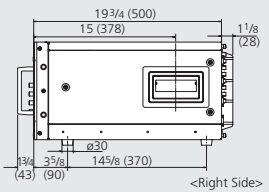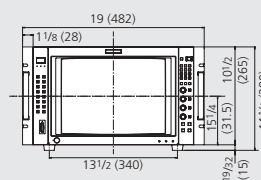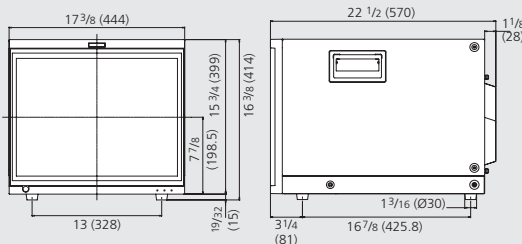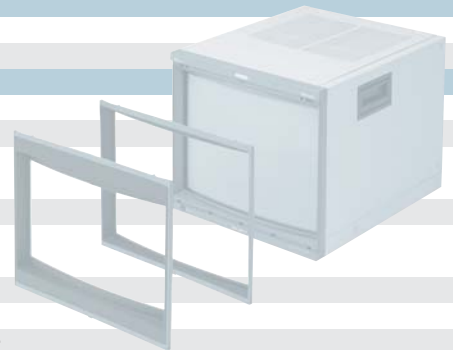
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