Product Information 2016 Vol.4
ASTRODESIGN, Inc.
Product and Technical Information

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Compact Cube Design
8K Super Hi-Vision Camera

16 Times the Resolution of HDTV, 3600 TV Lines and 33 Megapixels!

AH-4801-B

This 8K Super Hi-Vision (8K SHV) camera head will be an integral part in 8K live broadcasting starting in 2016. Boasting its compact form, the camera has dimensions of 128.5 (W) x 125 (H) x 135 (D) mm (5.0 in x 4.9 in x 5.3 in) and a weight of 2 kg (4.4 lb). AH-4801-B concentrates cutting edge technology and superior image quality that can fit in the palm of your hand!

Features

- 8K SHV camera head utilizes a 33 megapixel image sensor.
- Drive Circuit is integrated within the camera to allow for an astoundingly light weight.
- Compatible with industry proven PL Mount lenses for digital cinema. Allows for a variety of expressions through a wide range of usable lenses.
- This camera head opens up a world of possibilities showcasing extreme realism in situations such as live video, scenic shooting, underwater shooting, and any other project your heart desires!

Main Specifications

- Sensor: 1.7-inch CMOS, 33 Megapixels, 60fps
- Resolution: 7680x4320
- Imaging: Single Plate Color (Bayer Pattern)
- Lens Mount: PL Mount
- Output: 12-channel Parallel Optical Output (SNAP12)
- Dimensions: 128.5 (W) x 125 (H) x 135 (D) mm
- Weight: 2 kg (Excluding lens)
8K Super Hi-Vision Camera System Diagram

ASTRODESIGN 8K SHV camera system allows for 8K to be shot the same way as an HD camera. AH-4801-B transmits main/return video signals with industry standard fiber optic composite cables and can also provide power and an intercom signal. When shooting real world situations, users can frame and utilize our astoundingly compact and clear 4K 12-inch viewfinder.

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### Field Acquisition

HR-7516 is a compact RAW 8K SHV video recorder that can make on location 8K SHV shooting possible. The AH-4801-B paired with HR-7516 is the minimum configuration necessary to shoot and capture 8K SHV. Due to its compact size this pair can be dispatched to any on location shoot.

### Monitoring

AH-4801-B can be advantageous for various types of fixed position shooting. The camera head is suitable for a wide variety of applications such as crowd monitoring and scenic shooting.
8K Recorder/8K Cross Converter

Recording Full Spec. 8K (8K RGB 4:4:4 120p)

8K SSD Recorder [HR-7518]

Features
- Supports both Compressed (Grass Valley HQX Codec=HQX) and uncompressed formats. *1
- Full Spec. 8K (8K RGB 4:4:4 120p) can be supported by using the optional extension board.
- Interfaces supported are: U-SDI (ARIB STD-B58) x 1, 3G-SDI x 8, and 12G-SDI in future.
- 2TB SSD pack with dual slots. Dual slot allows for SSD to be swapped during recording (Some formats must use dual slot non-swappable)
- Maximum 32ch audio (compressed, 24 bits), Dual AC power supply, 2U rackmount size.

Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
<th>Video Format</th>
<th>Recording Time</th>
<th>Recording Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Format</td>
<td>8K (7680 x 4320) Dual Green 59.94p</td>
<td>8K Dual Green 59.94p</td>
<td>20 min. *3</td>
<td>40 min.</td>
</tr>
<tr>
<td></td>
<td>8K YCcyCn 4:2:0 59.94p</td>
<td>8K YCcyCn 4:2:0 59.94p</td>
<td>40 min.</td>
<td>40 min.</td>
</tr>
<tr>
<td></td>
<td>8K RGB 4:4:4 59.94p</td>
<td>8K RGB 4:4:4 59.94p</td>
<td>40 min.</td>
<td>40 min.</td>
</tr>
<tr>
<td></td>
<td>8K YCcyCn 4:2:0 119.88p</td>
<td>8K YCcyCn 4:2:0 119.88p</td>
<td>20 min.</td>
<td>20 min.</td>
</tr>
<tr>
<td>Video Input/Output</td>
<td>3G-SDI (SMPTE 424M/ST 425-1) x 8ch Supports ancillary data (Audio, TC)</td>
<td>8K Dual Green 59.94p</td>
<td>20 min. *3</td>
<td>40 min.</td>
</tr>
<tr>
<td></td>
<td>12G-SDI (SMPTE ST 2082-1) x 4ch</td>
<td>8K YCcyCn 4:2:0 59.94p</td>
<td>40 min.</td>
<td>40 min.</td>
</tr>
<tr>
<td></td>
<td>Supports ancillary data (Audio, TC)</td>
<td>8K RGB 4:4:4 119.88p</td>
<td>40 min.</td>
<td>40 min.</td>
</tr>
</tbody>
</table>

*1: Only video. Audio is only Un-Compressed format.
*2: Future support
*3: In case of using two 2TB SSD Pack
*4: Converting to 4:2:2 before encoding

8K Cross Converter [SC-8209-A]

Features
- Allows for up and down conversion of HD, 4K, and 8K-DG (Dual Green) video.
- Extract 4K image of four split areas (Right Top, Right Bottom, Left Top, Left Bottom) or Center position
- Assign audio channels Down-Mix from 22.2ch to 5.1ch or 5.1ch to Stereo.
55-inch 8K LCD Monitor [DM-3814]

8K Monitor for Shooting, Medical and Industrial Applications

DM-3814

8K monitor 55-inch 60Hz IPS LCD panel with a wide view angle and high contrast. Suitable for viewing production, R&D, medical, and industrial applications. In addition to DVI, SDI input can be supported by using interface converter FC-8213.

Coming Soon

55-inch 8K 120Hz LCD Monitor [DM-3815]
U-SDI (ARIB STD-B58, 4:4:4) x 1ch and 3G-SDI (4:2:2) x 16ch input

8K Interface Converter [FC-8213]

FC-8213

<table>
<thead>
<tr>
<th>Input Signal</th>
<th>Output Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual Green UHDTV Signal with HD-SDI x 16ch</td>
<td>HD-SDI 16ch</td>
</tr>
<tr>
<td>Dual Green UHDTV Signal with 3G-SDI x 8ch</td>
<td>3G-SDI 8ch</td>
</tr>
<tr>
<td>Full Resolution UHDTV signal with 3G-SDI x 16ch</td>
<td>3G-SDI 16ch Level A/Level B</td>
</tr>
<tr>
<td></td>
<td>YCbCr 4:2:2 SDI Signal Input</td>
</tr>
<tr>
<td></td>
<td>60Hz/59.94Hz</td>
</tr>
<tr>
<td></td>
<td>60Hz/59.94Hz</td>
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<tr>
<td></td>
<td>60Hz/59.94Hz</td>
</tr>
<tr>
<td></td>
<td>1920 x 1080 60Hz/59.94Hz RGB 4:4:4 10 bits 16ch Center Quad Split Display</td>
</tr>
</tbody>
</table>
Suitable to Assist 4K Shooting, Post Production and 4K Equipment Development

4K Waveform Monitor
[WM-3206/WM-3206-A]

WM-3206/WM-3206-A

WM-3206 is a 4K (3840 x 2160 and 4096 x 2160) 17-inch waveform monitor. Many useful functions are available such as waveform, vector scope, histogram, color space, payload ID analysis etc.

Features
- Free layout
- Dual Link and 3G-SDI (Level A/B) supported
- Square Division, Dual Link 2-sample interleave division and Quad Link 2-sample interleave division supported
- Automatic formats detection (resolution, frame rate and division)
- ITU-R BT. 2020 supported
- DVI output for displayed image
- Focus assist functions, Magnify (Dot-by-Dot or x 2) and peaking with selectable color
- Image capture function

HDR OPTION

Features
- Various HDR formats can be chosen. The RGB level of each scale is displayed.
- Hybrid Log-Gamma (ARIB STD-B67), Dolby PO Curve (SMPTE ST 2084), S-Log (1, 2, 3), Canon Log (2), V-Log (L) are supported.
- IRE100% position is displayed clearly so that the HDR area can be checked easily and intuitively.
- Any section of a waveform can be magnified, in order to check details more precisely.

IRE100% position is displayed clearly so that HDR area can be checked easily and intuitively.

Each HDR level is displayed in IRE (%).
Capable of Professional 4K Interfaces Conversion to 4K Consumer Products Interfaces

4K Interface Converter [SD-7073]

Interface Conversion from 3G/Dual Link/HD-SDI or HDMI to 3G/Dual Link/HD-SDI or HDMI
Format Conversion, from RGB to YCgCr and Vice Versa

Interface
• 3G/HD-SDI x4
• 2-sample interleave division (SDI x2, 4)
• Dual Link-SDI x4
• HDMI x1, 2, 4

Format
• RGB 4:4:4
• YCgCr 4:4:4
• YCgCr 4:2:2
• YCgCr 4:2:0
(HDMI Max. 4K/60p)

Frame rate
• 23.98fps to 60fps

Split

INPUT
• Color Correction of Offset, Gain and Gamma for Each R, G and B
• Simple Signal Generator

OUTPUT
• Embedded Audio Supported
• Up/Down Conversion Function

• ITU-R BT.2020 supported

Frame rate
• 23.98fps to 60fps

SD-7073

Embedded Audio Supported
Up/Down Conversion Function

ITU-R BT.2020 supported
4K-HD Extractor with Image Rotator

Small and Compact Low Latency 4K-HD Extractor with Image Rotator Function

High quality 4K image can be utilized effectively for conventional HD broadcasting with this unit. It is useful for live application thanks to its low latency, one frame.

Jointly developed with Nippon Television Network Corporation

GP-4020-A

Features

- Low latency (one frame)
- Small and compact size (1U half size)
- Stabilizer function (option)
- Image rotator function
- Versatility with any 4K camera
- Smooth rotation with easy speed adjustment
- Rotation speed and extract position can be changed easily

Selectable Five HD Outputs

- Rotation & zoom output
- HD extract output
- 4K→HD preview output

Extraction

Rotation

(4K Image)

(4K Image)

(HD Size Extracted Image)

(HD Size Rotated Image)
DF-3515 is a high resolution electronic viewfinder utilizing a Native HD OLED display (1920 x 1080) fast and precisely. Simple operation and it is able to handle critical focusing conditions. This makes the DF-3515 a perfect match for the professionals shooting locations.

**Features**

- Built-in native HD 1920 x 1080 resolution OLED display
- Supports HD-SDI multi-format input
- HDMI input supporting all HDMI enabled cameras
- Low latency
- Built-in focus-assist function
- 2x and 4x display magnification
- Yellow, red and white selectable color peaking display
- Frame, center, and active marker displays
The GG series family is a widely used series of frame output boards for HD broadcasting. Now with the GG-167-4K, 4K can be supported. These capabilities bring a wide variety of 4K video possibilities such as; PC 4K video image output, and 4K on-screen text overlays. The GG-167-4K has the capability to support not only 4K but also 8K dual-green format.

**GG-167-4K**

- High-speed data transfer with PCI Express x16 (x8 mode)
- 4K/59.94p real-time video output with four 3G-SDI output channels
- The optional I/O board for image composite of 4K video signal
- Fill and key video output at 4K/59.94p (extension in/output board required)
- Support not only 4K/59.94p output, but also other 4K signals, including 4K/24p and 4K/30p
- Support external reference input (black burst and tri-level sync)
- User friendly standard accessories, SDK and sample source code

**Features**

**GG-167-HD**

- High-speed data transfer with PCI Express x16 (x8 mode)
- Two real-time fill and key video output
- Support not only 1080/59.94i output, but also other HD signals, including 1080/24p and 1080/30p
- Support external reference input (black burst and tri-level sync)
- User friendly standard accessories, SDK and sample source code

**Features**
**Main Features**

- Supporting the latest digital video interfaces such as HDMI 2.0a DisplayPort 1.2a, V-by-One®, HS, Analog, 3G-SDI, etc.
- All video interface modules are swappable. These include HDMI 2.0a, V-by-One®, HS, DisplayPort, Analog, and iTMDS (DVI).
- Supports timings such as 8K/30p, 4K/120p, full HD/240p, and *8K/120p.
- Four video interface modules can be installed at once. All modules are swappable.
- Supports features like HDR, HDCP 2.2, Compliance test suite for HDMI 2.0a.
- Optional: ASTRODESIGN verified 4K/8K natural picture library available as test patterns.
- Maximum of four Video Interface Units installable

**HDMI 2.0a Units**

- Supports 3G-SDI, HD-SDI, and SD-SDI. Configurable Payload 4 Byte and embedded Time code.

**DisplayPort Unit (M1)**

- DisplayPort 1.2a based. Maximum 21.6 Gbps by total 4 lanes (5.4 Gbps (HBR2) per lane).
- Supports SST and MST (max.2 stream) output. *HDCP is not supported.

**SDI Unit (M5)**

- Supporting 3G-SDI, HD-SDI, and SD-SDI. Configurable Payload 4 Byte and embedded Time code.

**Analog Unit (MA)**

- VGA, Composite, Component and Analog Audio output is available.
- Supports NTSC/PAL (Composite only) output.

**iTMDS Unit (M9)**

- Supports 4K/60p by one unit, 4K/120p by 2 units. By using optional IA-1540, LVDS output will be available.

**Synchronizing Unit (MX)**

- MX module is necessary for 8K/120p timings by synchronizing multiple VG-876 units. One MX units per VG-876 is necessary. *REF IN is not supported.

*Notes: 8K/120p is capable with 4 units synchronized via MX module.

Please contact your ASTRODESIGN representative for more details about 8K/120p timing output and non-supported timing formats on each units.
The Best Solution for HDMI MOI Testing and HDCP 2.2 Compliance Pre-testing.
VA-1842 offers real-time HDMI 2.0a Protocol Analysis

**VA-1842 Main functions**

- **Real-time data analysis**
  Quick boot-up and analysis clearly displayed in real time on the VA-1842’s 12-inch LCD display. Logging of test data archived on USB memory.

- **HDMI 2.0a functions and HDCP 2.2**
  Maximum pixel clock 600MHz (4K/60p YCbCr 4:4:4) signal and HDCP 2.2 are supported.

- **HDMI 2.0a MOI (Method of Implementation) test function**
  Supports HDMI 2.0a MOI test items such as HDR, BT.2020, 6G, YC bCr 4:2:0 and HDCP 2.2 Pre-test function. *Optional license required.

- **Audio and Video timing monitoring**
  Linear PCM audio, video timing (up to 12 bits), and HDMI InfoFrame information is viewable on the front display. Now supporting: Dynamic Range Mastering InfoFrame for HDR analysis.

- **Various kinds of analysis functions**
  Video Data Analysis includes ITU-R BT.2020 color gamut, SCDC, Lip-sync, DDC line monitoring, CEC line monitoring, and frame capture.

**Other Analyzer Products**

- HDMI 300MHz Protocol Analyzer [VA-1838]
- MHL 1.1 Protocol Analyzer [VA-1836]
- DisplayPort 1.1a Protocol Analyzer [VA-1835]
- GVIF Protocol Analyzer [VA-1839]

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**Receiver Mode (Sink Emulation)**

VA-1842 has the ability to emulate TV or other sink devices via preloaded EDID data. Able to analyze: video timing, HDMI InfoFrame, HDCP version and status, DDC line, CEC line, and Video data.

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*** Through Mode (Cable Emulation)**

VA-1842 can be used to emulate a passive cable. VA-1842 can be placed between source and sink monitoring DDC and CEC line. Test logs can be saved and viewed for later analysis.

* Optional Through Box VA-1841-1 is required to use the Through Mode.

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**Repeater Mode**

VA-1842 can be used to emulate a repeater device an AV amplifier. Users will be able to confirm their products performance when connecting to repeater devices.

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**Generate Mode (Source Emulation)**

VA-1842 can be used as a simple signal generator. Capable of generating standard timings of EIA CEA-861-F specification. Maximum output of 4K/60p YCbCr 4:4:4 timings.
Protocol Analyzer

Portable Handheld HDMI 2.0 Analyzer
Designed for Field Use

HDMI Tester [VA-1844]

Features

- Portable HDMI 2.0a protocol analyzer with 7-inch touch screen powered by battery or AC power
- Small size: 269 (W) x 182 (H) x 41 (D) mm (10.6 in x 7.2 in x 1.6 in)
- Lightweight: Approx. 1.25 kg (2.76 lb)
- Synchronization of two units for “Through Mode 2” test environment (see below).
- Protocol analysis of 4K/60p 4:4:4 (Max pixel clock 600MHz) able to analyze and display image.
- Capable of HDMI 2.0a signal generation.

VA-1844

Receiver Mode (Sink Emulation)
Display timing data, HDCP 1.4/2.2 status, SCDC status, InfoFrame/packet data, EDID setting (GUI/HEX) via touch screen display. Log data can be saved to USB drive.

Generate Mode (Source Emulation)

Through Mode - 1 (Cable Emulation)
Placed between source and sink devices to monitor communication of the DDC/CEC line. Save and share log data for debugging and further analysis.

Through Mode - 2 (Two Units Synchronization Mode)
Place one unit between source and Repeater (Input), place another unit between Repeater (Output) and Sink. By using the optional Synchronization Mode, users are able to save a single log of DDC and CEC line from both source and sink simultaneously.
"8K Super Hi-Vision (SHV)" is next generation video technology that offers an overpowering sense of realism and strong visual impact. ASTRODESIGN has been working on 8K SHV technology since its first stages, resulting in the development of the variety of SHV equipment that is being used today.

Japan Broadcasting Corporation (NHK) has been conducting R&D on the UHDTV television format, which is called Super Hi-Vision in Japan. 8K SHV boasts a resolution of 7680x4320 or 16 times the pixels of the current HD format. Viewers will view this video at 60fps in progressive video format. The feeling of immersion is impressive, with objects being displayed with a far more natural sense of depth. ASTRODESIGN has been collaborating with NHK since the advent of SHV leading to the development of many necessary pieces of equipment to the SHV catalog. Intensive R&D work is targeting test broadcasts in 2016, leading to a steady stream of new innovative equipment and technologies that is necessary to bring this new format to the world.

8K Super Hi-Vision

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[ 8K SHV products shown here were jointly developed by ASTRODESIGN and NHK. ]

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For Further Details ➡ Go to P2, 3
SR-8422
8K SHV Highlight Recorder

**6GB/s Transfer Rate 8K SHV Recorder and Player**

Can conduct uncompressed video recording with no noise SSD storage media platform at a 6GB/s transfer rate with random access and slow motion play as desired, all while maintaining the ability to edit the recorded highlight.

When combined with 8K SHV camera or 8K SHV switcher, you will have the ability to perform live 8K SHV editing in shooting environments such as live sports production.

HR-7512-C
Uncompressed 8K/4K Recorder

For Further Details ➡ Go to P16

SC-8202
8K SHV Trimming Down Converter

HD trimming from 8K SHV with touch panel operation

VP-8408
8K SHV Signal Processor

Converting 8K-DG full resolution 8K for optical transmission a display such as Sharp 8K LCD or JVC projector, correcting gamma, color space, aperture, etc.

SC-8215
NEW
8K SHV Converter

Up-convert 8K-DG video to Full resolution 8K (YCbCr 4:2:2 10 bits) or Down-convert as well.
8K-DG IN/OUT, 3G-SDI x 8ch
Full resolution 8K IN/OUT, 3G-SDI x 16ch

SC-8206
8K SHV Signal Processor

8K-DG color adjustment of gamma correction, linear matrix, aperture correction, etc.

SC-8209-A
8K SHV Cross Converter

VP-8208
8K SHV Color Space Converter

8K-DG color conversion of gamma correction, linear matrix and aperture correction

VP-8409
8K SHV Scan Converter

Up-converting from 8K-DG and full HD to full resolution 8K to output 16/36 multi screen display

VT-7006
"Pacific Sea in Japan" 8K Uncompressed Contents

Recording time: 3 mins 42s

SC-8202
8K SHV Trimdown Down Converter

Converting 8K-DG HD-SDI x 16 signal to 8K SHV optical

VT-8414
8K SHV Optical Receiver

Converting 8K SHV optical 8K-DG to HD-SDI x 16

VT-8415
8K SHV Optical to HDMI Converter

Full resolution 8K optical to HDMI (16 lines)

SC-8209-A
8K SHV Cross Converter

Converting 8K-DG HD-SDI x 16 multi screen display to 8K SHV optical

SC-8209-A
8K SHV Cross Converter

Converting 8K-DG HD-SDI x 16 multi screen display to 8K SHV optical

For Further Details ➡ Go to P4

*8K-DG = 8K Dual Green*
UHDTV 4K features four times the resolution of full HD. 4K UHD technologies from ASTRODESIGN provide a high sense of image depth and offer impressive rendering performance. It is used in a wide variety of applications.

**WM-3206**
4K Waveform Monitor

**DM-3413**
4K LCD Monitor Series

**VT-7002**
4K Uncompressed Video Content

**HR-7510**
Portable Uncompressed 4K/2K SSD Recorder

**DM-3412**
4K LCD Monitor Series

**VT-7003**
4K Uncompressed Video Content

**GG-167-4K**
4K Frame Memory Board

**VT-7002**
Recording time
VT-7002: Approx. 4 min. 40 sec.
VT-7003-1 (The Ogasawara Islands): Approx. 5 min. 28 sec.
VT-7003-2 (Fish in the seas of the Ogasawara Islands): Approx. 5 min. 9 sec.
VT-7003-3 (Offshore marine life of the Ogasawara Islands): Approx. 5 min. 46 sec.
VT-7003-4 (The island of Chichijima): Approx. 4 min. 35 sec.

**VT-7005**
4K Uncompressed Video Content

**HD-1678**
HDTV/4K DSK

**SD-7073**
4K Interface Converter

**HR-7512-C**
Uncompressed 8K/4K SSD Recorder

**VT-7005-1** (Island Sunset): Approx. 3 min. 33 sec. (Number of frames: 12,810)
VT-7005-2 (Managaha): Approx. 3 min. 25 sec. (Number of frames: 12,316)
VT-7005-3 (Summer Vacation): Approx. 1 min. 58 sec. (Number of frames: 7,096)
VT-7005-4 (Fire Dance): Approx. 3 min. 38 sec. (Number of frames: 13,082)

For Information About 4K Research and Development, Production Evaluation, and Manufacturing, Go to P17
Programmable Video Signal Generators

VG-870B · VG-871B
Programmable Video Signal Generator

Choose From Several Standards-Compliant Interface Units

Features

- HDMI 300MHz pixel clock (VM-1823)
- DisplayPort/eDP, V-by-One® HS, HDMI, 3G-SDI, and more
- 4K/60p YCbCr 4:2:0 option (VM-1823)
- Full HD frame rate x4 (240Hz)
- Full HD frame rate x2 (120Hz)
- Uncompressed 10 bits playback

Interface Units

- PC Analog Unit > VM-1811
- BNC, D-sub 15-pin, D-connector, S-Video, VBS, SCART x2CH, audio L/R
- SDI Unit > VM-1821
- MDR 26-pin x2CH (4 lanes each)
- HDMI x2CH (Single/Double Link), up to 16-bit/330MHz output

HDMI 300MHz pixel clock (VM-1812)
- BNC, D-sub 15-pin, D-connector, S-Video, VBS, SDI x2CH, audio L/R
- SDI Unit > VM-1821
- MDR 26-pin x2CH (4 lanes each)
- HDMI x2CH (Single/Double Link), up to 16-bit/330MHz output

<Features>

- 8K (7680 x 4320) and 4K (3840 x 2160) with WCG (Wide Color Gamut) of ITU-R BT.2020 (Rec.2020) compliant (12 bits).
- 2K (1920 x 1080) with ITU-R BT.709 (Rec.709) compliant (10 bits)
- 10 images for each three kinds of resolutions

Copyright: Institute of Image Information & TV Engineers" Association of Radio Industries & Businesses
*Source: Institute of Image Information & TV Engineers

The VA-1840 is an automatic tester that can compare HDMI/MHL signal from original source with another signal via DUT.

Features

- Defective bit detect with color and coordinates info, audio frequency/level, HDCP, CEC, DDC, EDID analysis.
- Two input and output ports of HDMI (1.4b) and MHL (2.0).
- Three comparison modes of Real-time compare, One shot compare and Previous frame compare.
- Utility control by Terminal command line or GUI software.
- Frame Grabber function, HDMI/MHL signal generate mode supported.

Protocol Analyzers

VA-1842

600MHz HDMI 2.0a Protocol Analyzer

VA-1838

300MHz HDMI Protocol Analyzer

VA-1835

DisplayPort Analyzer

VA-1836

MHL Protocol Analyzer

VA-1839

GVIF Protocol Analyzer

VA-1842 600MHz HDMI 2.0a Protocol Analyzer

Analyzing and generating HDMI 2.0a standards-compliant signal of maximum pixel clock 600MHz (4K/60p RGB 4:4:4) with HDCP 2.2 HDMI 2.0a based functions like ITU-R BT.2020 (Rec.2020) Colorimetry analysis and SCDC (Status and Control Data Channel) monitoring are supported.

VA-1838 300MHz HDMI

For testing and measuring HDMI functionality like HDCP, CEC, ARC, 3D and Lip-Sync analysis. Maximum pixel clock of 4K/60p 4:2:0 timing format supported.

VA-1835 (DisplayPort 1.1a)

Real-time protocol analysis of DisplayPort devices, supports AUX line monitoring function.

VA-1836 (MHL 1.1)

Real-time protocol analysis of MHL devices. Supports CBUS and VBUS monitoring function.

VA-1839 (GVIF)

Protocol analyzer used to analyze *GVIF (Gigabit Video Interface) and HDCP test functions.

*GVIF is a trademark of SONY Corporation.
HDTV peripheral development environments for studios or on-location sites, broadcast vans, and HDTV production sites.

VC-7063 • VC-7063-1
Stereo Composer (VC-7063-1: with 3D Keyer)

3D Compositing, Separation and Format/Interface Conversion. Features to Meet Needs in Shooting, Editing and Master Control Rooms

3D composer compatible with 3G/HD-SDI and HDMI. Two source signals can be combined into a single 3D signal for output in Side by Side format or others. Separation of composite images into left- and right-eye output is also possible, and the unit offers 3G/SDI/HDMI interface and format conversion.

**Features**
- Various conversion formats
- Side by Side, Top and Bottom, Line by Line, Field Sequential, Checker, Frame Packing (HDMI only), Anamlyph, Side by Side copy (VC-7063-1), and more
- Interface conversion
- Conversion between 3G/HD-SDI and HDMI
- Format conversion
- Upconverts 720 signals to 1080 or vice versa
- Image alignment
- Source images can be moved up, down, left, or right
- Mirroring
- Independent vertical or horizontal flipping of left- and right-eye source images
- Color correction
- Independent brightness, contrast, chroma, and offset/gain/gamma adjustment (for R, G, and B) of left- and right-eye source images
- Frame synchronization
- Synchronization with an external signal such as a reference signal (tri-level or BB), or an internal clock signal
- Scaling
- Output video can be scaled to a desired size
- Marker display
- Markers can be displayed for left- and right-eye source images separately
- Audio re-embedding (VC-7063 only)
  - Embedded SDI or HDMI audio signals can be replaced with audio in AES input, and each signal is sent out through the respective interface
- Audio delay (VC-7063 only)
  - Audio and video output timing can be adjusted as needed
- Alarm output port (VC-7063-1 only)
  - Supports alarm control via GPO
- 3D keyer (VC-7063-1 only)
  - Fill/key signals in a pass-through (2D) state from the master control room can be forced into side-by-side display (3D) in case of emergency news or natural disaster updates that occur during 3D broadcasts.

HD-1678
HDTV/4K DSK

**Powerful 1U DSK**

DSK (Inserter) and USK (Combiner) that has two LINE inputs and eight SUPER (Fill and key) inputs.

**Features**
- 3G-SDI and SDI supported
- DSK and USK mode can be selected separately
- Two line outputs can be synchronized to independent reference signals
- Emergency through line input
- AVDL (Automatic Variable Delay Line) ±1H pull-in range with 6.7μs delay between line input and output
- SMPTE/TGA file in SD card can be used as super
- SNMP trap for checking status
- Two remote controller interfaces
- Redundant power
- 4K supported (one line input and two super inputs)
- Useful super functions
- Unsynchronized supers supported
- Selectable external/internal key
- Key gain/clip
- Edge generator
- Position alignment
- Cut and fade with four patterns
- Take grouping
- Variable super modes, NAM, addition, combiner linear and priority

SD-1655A
3G-SDI Compatible Repeater

**Extends or Splits 3G/HD-SDI Connections to the Maximum 100 m Length**

**Features**
- SDI Lock status LED
- Extends 3G/HD-SDI connections to up to 100 m, SD-SDI up to 300 m (5C-FB equivalent)
- Extremely compact, 12V DC input

SD-1670 • SD-1671
3G-SDI/Dual Link SDI Converter

**Converts Between 3G-SDI and Dual Link SDI**

**Features**
- 3G-SDI (SMpte 425M compliant)
- Supports Dual Link SDI (SMpte 372M compliant)
- Two Dual Link or Single Link sources can be selected
- Can be manually configured to support signals without a payload ID
- Compact, 12V DC input

SG-7811
3G-SDI and HDTV/SDTV Sync Generator

**Compact (1U Half-size), DC Input**

A sync signal generator compatible with 3G-SDI.

**Features**
- Generates tri-level or black burst sync signals for three channels (two outputs each)
- Can produce tri-level sync output for HDTV use, BB output for SDTV, signals with 10-field ID (also used for reference BB output) for 59.94/24p syncing, or 3G-SDI signal output
- Genlock
- In external reference mode, enables independent phase adjustment of three channels of output (scope of adjustment: ±1 frame)
- Two outputs per channel for sync generated; output phase adjustment supported
- Embedded audio supported—audio on/off and pattern-based amplitude/frequency adjustment for each channel (no audio output when 1280 x 720p (30/29.79/25/24/23.94) is selected)
- Embedded Time code, on/off in ancillary data (no time code output when 1280 x 720p (60/59.94/50) is selected)
- User patterns can be uploaded via USB
New Concept in Studio Monitoring

Broadcast studios are often crowded with picture monitors, UMDs, and a waveform monitors. For a neater arrangement, ASTRODESIGN combines these systems into a single unit. Deployment of an ASTRODESIGN system saves space around the control board, while the generous 17-inch LCD provides a better view for checking. By supplying signals from the “headless” version of this product (HW-7069) to a master monitor, engineers can check images with the same color reproduction as actual broadcasts, supporting camera adjustment.

Features

- Display video feeds and waveforms for up to four channels on a single screen
- Use of a single monitor eliminates inherent color discrepancies among multiple monitors, streamlining camera color adjustment
- Fewer pieces of equipment to bring on location, simplified setup
- Consolidation of four waveform monitors in a single unit offers excellent cost-performance
- Linked to CCUs and switches
- Can be remotely controlled, in conjunction with CCUs and switches
- Saves space by combining camera iris display, source signal identification, and tallies on the same screen
- Enables 3D and 4K video monitoring
- Enables monitoring of up to two channels of 3D video, and supports adjustment of cameras on rigs
- Can also be used as a waveform monitor for 4K images, thanks to support for four channels of Dual Link input

Waveform Monitors

- 6-inch Monitor WM-3014
- 8-inch 3D-ready 3G-SDI Monitor WM-3209A/-B/-L
- 5-inch Widescreen LCD Monitor DM-3105
- 5-inch Screen, HD/SD-SDI x2, Composite x1 DC Battery Power (Optional)

All Needed Features, Distilled into Compact Monitors

Features

- Waveform display
  - GBRY parade display, enlarged waveforms, synthesized composite display, and simultaneous display of two waveforms.
  - Vectorscope display
  - Scans the entire image or selected areas for differences in color; simultaneous display of two signals.
  - Ancillary display
  - Audio control packets can be checked, as can time codes, subtitles, broadcaster control codes, and other data.
  - Status display
  - Source signal status can be displayed. For Dual Link input, Link A and B data can be displayed together.
  - Audio level meter display
  - Audio vector display
  - Multi-layout
  - Multiple viewing modes can be combined on a single screen.
  - Out-of-phase display
  - Phase of source and sync signals can be compared, and the differences is shown visually in numerical values or 2D coordinate display of delay time, lines, or samples.
  - Y-difference display
  - Clearly discernible convergence point in 3D video monitoring.
  - Parallax marker
  - A parallax marker in 3D video monitoring indicates the extent of parallax in various units: pixels, %, cm, and in.
  - Saving stills
  - Freeze playback to save still images to internal memory. Comparing source video to the stills makes adjustment easier.
  - Anaglyph display
  - Source video can be viewed in 3D by wearing anaglyph glasses in 3D video monitoring.
  - Wipe
  - Using a wipe display effect in 3D video monitoring makes it easier to check for horizontal or vertical misalignment or color discrepancies.

For Further Details ➡ Go to P9
**Corporate Profile**

**Company Name**  
ASTRODESIGN, Inc.

**Established**  
February 15, 1977

**Capital**  
72 Million Yen

**President and CEO**  
Shigeaki Suzuki

**Officers**  
- Senior Vice President: Minoru Hosaka
- Vice President: Tsutomu Mihara
- Auditor: Yoichi Takahashi
- Executive Officer: Yoichi Kosaka, Junji Maeda

**Employees**  
155

**Business**  
Drawing on expertise in high-speed digital signal processing, ASTRODESIGN, Inc. develops manufactures, and sells imaging and video equipment, software, HDTV studio equipment, digital broadcast equipment, and display testing in addition to sales of communication, control, and testing modules and systems.

**Company History**

- **1977**: Established in Tokyo, specializing the design and development of electronic equipment
- **1979**: Developed the world's first programmable video signal generator
- **1985**: Invited to participate in joint HDTV development with NHK
- **1986**: In response to growth, relocated to a new facility in Kawasaki
- **1987**: Kansai office opened in Osaka, serving Western Japan
- **1990**: Capital increased to 72 million yen
- **1993**: Kawasaki Technology Center opened in Kawasaki (merged into head office in 2007)
- **1996**: ISO 9001 certified (registration no.: JET-0056)
- **1998**: Tottori R&D Center opened in Tottori
- **1999**: ISO 14001 certified (registration no.: E99-102)
- **2002**: Merger with affiliate NPS, head office relocated to Meguro-ku, Tokyo
- **2005**: UHDTV processor jointly developed with NHK for Expo 2005 in Aichi
- **2007**: Head office relocated to Ota-ku, Tokyo; consolidation of three Tokyo offices
- **2010**: Expanded 4K product lines (including cameras and recorders) in anticipation of UHDTV market growth
- **2012**: Subsidiary ASTRODESIGN, Inc. established in Silicon Valley, California

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**Showroom**

Product demonstrations are given at the head office showroom.

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