Offering High Speed Digital Processing Solutions for Your Requirements
The Compact CUBE Shape
8K Super Hi-Vision Camera

<AH-4800>

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

AH-4800

This 8K Super Hi-Vision (8K SHV) camera head has taken to the stage and will be involved in 8K broadcasting that will take place in 2016. With dimensions of 12.85cm (W) x 12.5cm (H) x 13.5cm (D) and weight of 2kg, this camera head achieves ultimate compactness. It concentrates cutting edge technology for ultimate image quality that can fit in the palm of your hand!

- 8K SHV camera head developed with a 33 megapixel image sensor
- Due to the drive circuit being integrated within the camera head, it achieves an extremely light weight of 2kg.
- Ability to combine the camera head to industry proven lenses for digital cinema makes a rich variety of visual expression possible.
- This camera head opens up new possibilities for 8K SHV video to show more realism in situations such as; live video, weather cameras, shooting underwater, and your future projects.

Main Specifications:
- Sensor: 2.5-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 the Lens)
8K Super Hi-Vision Camera System Diagram

Studio/Live

This system makes it possible for the 8K SHV to be used in the same way as an HD camera. The system transmits main and return video signals using industry standard fiber optic composite cables, and can transmit intercom signal and power. The compact 4K 12-inch viewfinder assists with focusing and guides the 8K SHV for shooting in real world situations.

Field Acquisition

This compact recorder can record RAW 8K SHV video and makes on location shooting possible. The minimum configuration of the camera head and recorder can be dispatched to any on location site.

Monitoring

The compact camera head can be advantageous for certain types of fixed-point shooting. The camera head is suitable for a wide variety of applications, including monitoring and disaster location.
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 series is dedicated to support 4K x 2K (3840 x 2160, 4096 x 2160) waveform display. It has various functions such as histogram, phase comparison of inputs, xy/uv colorimetry chart, Payload ID capture, as well as functions of existing waveform monitor.

**Features**

- Supporting 3G-SDI (LEVEL A/B) and HD-SDI (Dual/Single Link) input
- 4K link type auto detection of Square Division, Dual Link 2-sample interleave division, or Quad Link 2-sample interleave division
- Supporting ITU-R BT.2020 colorimetry
- Shooting focus assist by Dot by Dot and peaking display
- Frame capture to USB memory
- User customized flexible display layout
- Screen output to external DVI monitor
- WM-3206-A is DC 12V power input type

**Layout Samples**

![Layout Samples](image-url)
4K LCD Monitor for Shooting and R&D

12-inch 4K LCD Monitor [DM-3413]

<table>
<thead>
<tr>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.1-inch LCD panel</td>
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<tr>
<td>Panel resolution: 3840 x 2160</td>
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<tr>
<td>Color depth: 8-bit</td>
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<tr>
<td>Viewing angle: 160° (UD) and 160° (LR)</td>
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<tr>
<td>Contrast: 1000:1</td>
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<tr>
<td>Waveform, vector scope and histogram</td>
</tr>
<tr>
<td>Upconversion from HD to 4K</td>
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<tr>
<td>2-sample interleave division supported</td>
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<tr>
<td>DC power (12-16V)</td>
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</table>

Display Sample

Multi View (Picture + Status + Waveform + Vector Scope)
Overlay (Waveform + Histogram)


DM-3432

<table>
<thead>
<tr>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>32-inch LCD panel</td>
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<tr>
<td>Panel resolution: 3840 x 2160</td>
</tr>
<tr>
<td>Color depth: 10-bit</td>
</tr>
<tr>
<td>Contrast: 1000:1</td>
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<tr>
<td>3G-SDI, HDMI and DisplayPort supported</td>
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</table>

DM-3412

<table>
<thead>
<tr>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-inch LCD panel</td>
</tr>
<tr>
<td>Panel resolution: 3840 x 2160</td>
</tr>
<tr>
<td>Color depth: 10-bit</td>
</tr>
<tr>
<td>Contrast: 3500:1</td>
</tr>
<tr>
<td>3G-SDI, HDMI and DisplayPort supported</td>
</tr>
</tbody>
</table>
The GG series family is a widely used series of frame output boards for HD broadcasting. Now with the GG-167-4K, 4K/59.94p 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.

**Features**
- 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
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 YCbCr and Vice Versa

Interface
• 3G/HD-SDI x4
• 2-sample interleave division (SDI x 2, 4)
• Dual Link-SDI x4
• HDMI x 1, 2, 4

Format
• RGB 4:4:4
• YCbCr 4:4:4
• YCbCr 4:2:2
• YCbCr 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

Frame rate
• 23.98fps to 60fps

OUTPUT
• Embedded Audio Supported
• Up/Down Conversion Function

• ITU-R BT.2020 supported

3G HD-SDI Dual Link HD-SDI
HDMI
Uncompressed Recorder

Uncompressed 4K Recorder for Shooting and R&D

Portable Uncompressed Recorder [HR-7510]

HR-7510

Features
- Supporting a wide variety of inputs and outputs
  - 4K 60p YC_{b}C_{r} 10-bit, 30p RGB 10-bit etc. (3G-SDI×4)
  - Canon 4K Cinema RAW/Canon 4K Half Cinema RAW
  - Canon 2K Cinema RAW (60p RGB 12-bit, 120p YC_{b}C_{r} 10-bit etc.)
- Specially supporting the EOS C500
  - Start and stop recording from the EOS C500
  - Automatic detection of the frame rate, resolution, bit depth and other parameters.
  - Switch between ITU-R BT.709 and log displays to check colors and dynamic range quickly.
- Real-time debayer of shooting picture for monitoring.
- High-speed data transfer
  - Stress-free high-speed transfer with the SAS interface. The transfer time approximately half of actual shooting time in Canon RAW 24p.
- Playback functions
  - DPX and TIFF sequential files can be transferred and played out as video.
  - Play lists function.
  - Starting and ending points can be set for each clip
  - Loop play function.

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

HR-7512-C

Features
- Uncompressed 4K (3840x2160, 4096x2160) and 8K (7680x4320) recording and playback.
- Swappable SSD is adopted allowing for multiple drive use during capture.
- Selectable between HD-SDI or DVI input/output.
- 200 minutes of recording time with 4K resolution or 12 minutes of recording time at 8K/60p (16TB SSD size).
- File transfer from eSATA port to external archiving media such as HDD and LTO.
- Small (2U), lightweight (9.5kg), and rack mountable.
- Additional power unit (PS-7512) as standard accessory is required.
**Uncompressed Recorder**

Uncompressed 4K Recorder for Shooting and R&D

Portable Uncompressed Recorder

‡

HR-7510

‡

Uncompressed 8K/4K Recorder

‡

HR-7512-C

‡

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  - 4K 60p YCBCR 10-bit, 30p RGB 10-bit etc. (3G-SDIx4)
  - Canon 4K Cinema RAW/Canon 4K Half Cinema RAW
  - Canon 2K Cinema RAW (60p RGB 12-bit, 120p YCBCR 10-bit etc.)
- Specially supporting the EOS C500
  - Start and stop recording from the EOS C500
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  - Switch between ITU-R BT.709 and log displays to check colors and dynamic range quickly.
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  - Stress-free high-speed transfer with the SAS interface.
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- Playback functions
  - DPX and TIFF sequential files can be transferred and played out as video.
  - Play lists function.
  - Starting and ending points can be set for each clip
  - Loop play function.

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**DF-3512**

DF-3512 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-3512 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
- 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
- Removable eyepiece

**With Eyepiece**

**With Eyepiece Removed**
Modular Signal Generator Supporting HDMI 2.0 and Maximum Output 8K x 4K/120p Timing Formats

DIGITAL VIDEO SIGNAL GENERATOR [VG-876]

Main Features

- Supporting the latest digital video interfaces: HDMI, V-by-One® HS, 3G-SDI and DisplayPort
- Supports timings such as 8K x 4K/30p, 4K x 2K/120p, Full HD/240p
- 8K x 4K/120p* can be supported by 4 units VG-876 synchronized with MX unit.
- Optional HDMI MOI Compliance test tools for sink testing available.
- HDMI 2.0 test functions, such as ITU-R BT.2020 Colorimetry, HDCP 2.2, 4K/6G Scrambling etc.

HDMI 2.0 Units

- Maximum pixel clock 600MHz (M6, M8) with HDCP 2.2 (M8 only)
- Maximum 4K/60p RGB 4:4:4 signal supported.

V-by-One® HS Unit (M2)

- Maximum 4K/120p and 8K/30p output from single module.
- Split modes for different scanning type panels supported.
- Maximum 8K/120p* capable with four M2 modules installed in one VG-876.

SDI Unit (M5)

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

DisplayPort Unit (M1)

- DisplayPort 1.1a based. Maximum 660MHz by 2 ports.

Synchronizing Unit (MX)

- MX module is necessary for 8K x 4K/120p timings by synchronizing multiple VG-876 units. One MX unit per VG-876 is necessary.

Maximum four Video Interface Units Installable:

Notes: Please contact your ASTRODESIGN representative for more details about 8K/120p timing output and non-supported timing formats on each units.
Real-time HDMI 2.0 Protocol Analysis. The Best Solution for HDMI Compliance Pre-testing

HDMI 2.0 Protocol Analyzer [VA-1842/VA-1841]

**VA-1842**

**VA-1842 Main Functions**

Real time data analysis
Quick boot-up, and displays the analysis result in real time on the 12-inch LCD (1024 x 768) display.

**HDMI 2.0 functions and HDCP2.2**
Maximum pixel clock 600MHz (4K/60p YCBCR 4:4:4) signal and HDCP 2.2 are supported.

**HDMI CTS Compliance test function**
Pre-test function is supported. MOI (Method of Implementation) will be updated accordingly as option.

**Audio and video timing monitoring**
Linear PCM audio, video timing up to 12-bit, and HDMI InfoFrame are monitored on front display.

**ITU-R BT.2020 Colorimetry**
ITU-R BT.2020 colorimetry is supported. The video data of designated line or pixel can be measured.

**SCDC (Status and Control Data Channel)**
The register data display and line monitoring function is supported.

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**Receiver Mode** (Sink Emulation)

Emulates TV or other sink devices by preloaded EDID. Able to analyze video timing, HDMI InfoFrame, HDCP, DDC, SCDC and CEC status.

**Through Mode** (Cable Emulation)

In this mode VA-1842 will be emulated as a passive cable. The unit is placed between source and sink devices and will monitor communication of DDC/CEC lines. Log of testing can be saved and analyzed. Option box is required to use this mode.

**Repeater Mode** (to be supported later)

VA-1842 is emulated as a repeater device, such as an AV amplifier. Users will be able to confirm their products performance when connecting to repeater devices.

**Generate Mode** (Source Emulation)


* VA-1841 does not support Repeater and Generate mode.

Optional Through Mode box required to use Through Mode on VA-1841 and VA-1842.

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**Other Analyzers Lineups**

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]
Automatic Error Check of HDMI/MHL Video and Protocol

HDMI/MHL Automatic Tester [VA-1840]

VA-1840

The VA-1840 is an automatic tester that can compare HDMI/MHL signal from original source with another signal via DUT. Error counting when RGB bit failure found by showing video level and location data automatically. Not only video comparison, but also DDC/CEC line check, audio and video frequency analysis functions supported. Saving inspection time and improving test accuracy drastically.

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:
  I. Real-time compare: Compare signal from original source with another signal via DUT.
  II. One shot compare: Compare internal captured signal with another signal via DUT.
  III. Previous frame compare: Compare Nth frame with (N+1)th frame.
- Utility control by Terminal command line or GUI software.
- Frame Delay setting supported.
- Frame Grabber function supported.
- HDMI/MHL signal generate mode supported.
The centerpiece of this unit is the generous 8.4-inch touch-panel monitor, which enables intuitive and accurate switching as you view a preview of the source video. We also took advantage of the touch-panel to make detailed settings intuitive to adjust, so you spend less time putting systems together and maintaining them.

Video and audio switching is just the start—well suited for monitoring large-scale signage. The MI-2100 is HDCP supported digital matrix switcher incorporating a scan converter that can also process analog audio and video signals. In all, 68 channels of input and output can be controlled. The touch-panel LCD on front enables previewing and intuitive operations with source video. Enlargement and quad display are also available as options.

Deployment Advantages

1. Streamlines installation and adjustment
   (1) Preview sources on the touch-panel display
       With an efficient touch-panel interface, the unit enables checking source video when adjusting source video, or source previewing before monitors are set up, eliminating the need for other preview monitors or adjustment computers.
   (2) Plentiful test patterns
       Built-in test patterns make it easy to identify any problems that may occur along the transmission channel and to check connections with other devices.
   (3) EDID emulation
       EDID of monitors for which display has been checked can be emulated, minimizing connection issues.

2. Significantly reduces need for other peripherals
   Systems with conventional digital switches require peripherals such as interface converters, frame synchronizer, or signal converters to ensure compatibility with the switch interfaces. The MI-2100 significantly reduces the need for installation space, rack wiring, and ongoing electricity consumption.

3. Streamlines maintenance
   (1) Built-in clock
       Checking the system in routine maintenance is easier and more accurate, thanks to time information in the operating logs.
   (2) File-based management of operating parameters
       Operating parameters can be saved or configured via Ethernet or on USB flash drives.

4. Enables flexible system construction
   (1) Remote interfaces: Ethernet, RS-232C/422, parallel remote port
   (2) External clock interface
       A master sync signal (8B, 1080i @59.94/60) can be supplied to control output video syncing.
'8K Super Hi-Vision (SHV)' is a next generation video technology that offers an overpowering sense of realism with strong visual impact. ASTRODESIGN has been working on 8K SHV technology from the initial stages of its development and as a result have developed various related equipment that is being used today.

Japan Broadcasting Corporation (NHK) has conducted R&D on the UHDTV television format, which is called Super Hi-Vision in Japan. 8K SHV boasts a resolution of 7680 x 4320 — 16 times more pixels than the current HDTV format. Viewers experience this massive resolution at 60fps in progressive video. The feeling of immersion is impressive, and objects have a much more natural sense of depth.

Since this advanced video format was first introduced, ASTRODESIGN has collaborated with NHK to develop a range of UHDTV products. Intensive R&D is currently underway targeting test broadcasts in 2016, which has led to a steady stream of the new equipment and technologies needed to bring viewers this exceptional content.

AH-4800  
8K SHV Camera

Single CMOS super compact cube shaped 8K SHV camera.

AC-4802  
8K SHV CCU

CCU for the 8K SHV camera head. This unit provides DG-SHV output support for 8K, 4K, and HD outputs with monitoring functions.

HR-7516  
8K SHV RAW Recorder

This is a RAW recorder for the AH-4800, 8K SHV camera. With our proprietary RAW format, longer 8K RAW data can be recorded with a compact design unit.

AT-4803  
8K SHV Optical Transmission Device Head Adapter

This camera head adapter is used for transmitting video signals from the 8K SHV camera head to a CCU via fiber optic camera cable over long distances. It can receive and transmit: audio, tally light, intercom, microphone, lens control, and video return signals in addition to supplying power to the camera head.

AR-4804  
8K SHV Optical Transmission Device CCU Adapter

This CCU adapter is used for receiving optical signals from the AT-4803 and transmits signals to a CCU.

For Further Details ➪ Go to P2
**Real-time High-speed Processing and Correction**

In addition to the 8K SHV color grading function, this unit offers highly flexible outline correction, image sensor flaw correction, geometric distortion correction, chromatic aberration correction, and many other adjustments in real time. Utilized in both recorded and live 8K SHV videos, there is a spectrum of image correction and enhancements at your disposal to make video content more exciting. Besides the main SHV8K output, this unit can extract and down-convert to 4K (via 3G-SDI) and HD (via HD-SDI) in order for gradation checks. This unit is also equipped with an output for waveform monitors.

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**SC-8202**

8K SHV Trimming Down Converter

HD trimming from 8K SHV with touch panel operation

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**SC-8206**

8K SHV Signal Processor

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

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**SC-8207**

8K SHV Down Converter

Down converting or trimming from DG-SHV to 4K/HD.

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**SC-8209-A**

8K SHV Cross Converter

Cross converting between DG-SHV and 4K/HD with 4K trimming available

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**8K SHV CG Up Converter**

Up converting from 4K character signal to 8K

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*DG-SHV = Dual Green 8K*
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.

**Real-time 4K Video Output**
QFHD (3840 x 2160) camera system for high-resolution shooting

- High-resolution 8.9-megapixel CMOS image sensor
- Processor unit that produces 4K (3840 x 2160)/59.94p material in real time
- Up to 100 m cable connection between the head and processor unit
- Reference input (HD-SDI)
- Proprietary controller
- Micro Four Thirds lens mount

**Features**

- 16-bit RGB 4:4:4 TIFF files with sequential files
- Noise free clear videos shot in native 4K with Canon EOS C500
- Ideal to use as an evaluation tool for; display colors, brightness, gradation reproduction, and encoding quality.

*The number of display colors is valid only for 10-bit data at the MSB side of the 16-bit TIFF file.

**Recording time**
VT-7002 - Approx. 4 min. 40 sec.
VT-7003
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.

For Information About 4K Research and Development, Production Evaluation, and Manufacturing, ➡ Go to P17
Programmable Signal Generators, Protocol Analyzers, Automatic Testing Systems

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 4:2:0 option (VM-1823)
- Full HD frame rate x4 (240Hz)
- Full HD frame rate x2 (120Hz)
- Uncompressed 10-bit playback

**<Interface Units>**
- **<PC Analog Unit>** VM-1811
  - BNC, D-sub 15-pin, D-terminal, S-Video, VHS, SCART x2CH, audio L/R
- **<TV Encoder Unit>** VM-1812
  - BNC, D-sub 15-pin, D-terminal, S-Video, VBS
- **<HDMI Unit>** VM-1820
  - 300MHz HDMI Protocol Analyzer
- **<4K Unit>** VM-1824
  - HDMI x2CH, audio input (coax), HEAC
- **<4K Signal Generator>** VM-1825
  - 3G-SDI x2CH, HD-SDI x4CH (Dual Link x2), SD-SDI x4CH
- **<MDR>** VM-1821
  - MDR 26-pin x2CH (4 lanes each)
- **<4K DisplayPort/eDP Unit>** VM-1826
  - DisplayPort 1.1a x2CH, control signal, four power supply lines, external power supply input

**Protocol Analyzers**

**VA-1840 600 MHz HDMI 2.0 Protocol Analyzer**

**VA-1841 600 MHz HDMI 2.0 Protocol Analyzer**

**VA-1838 300MHz HDMI Protocol Analyzer**

**VA-1831 200MHz HDMI Protocol Analyzer**

**VA-1835 DisplayPort Analyzer**

**VA-1836 MHL Protocol Analyzer**

**VA-1839 GMF Protocol Analyzer**

**VA-1841 600 MHz HDMI 2.0 Protocol Analyzer**

Analyzing and generating HDMI 2.0 standards, signal of maximum pixel clock 600MHz (4K/60p RGB 4:4:4) with HDCP 2.2.

HDMI 2.0 based functions like ITU-R BT.2020 Colorimetry analysis and SCDC (Status and Control Data Channel) monitoring are supported.

**VA-1841 (600MHz HDMI 2.0)**

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

**VA-1838 (300MHz HDMI)**

For testing and measuring HDMI functionality. Ready for 3D and ARC testing as well as HDCP/CEC/EDID analysis. Supports 4K standard formats (including 4K/60p 4:2:0)

**For Further Details ➤ Go to P12**

**For Further Details ➤ Go to P12**

**Automatic Testing System**

**VA-1840 HDMI/MHL Automatic Tester**

**VA-1835 (DisplayPort 1.1a)**

Ideal for devices that send and receive via DisplayPort. Real-time protocol analysis. Incoming video can be checked on the LCD monitor and audio by speakers. Effective in both software and hardware debugging.

**VA-1836 (MHL 1.1)**

It analyzes MHL protocol in real time. CBUS and VBUS monitoring function is supported.

**VA-1839 (GMF)**

Protocol analyzer used to analyze *GVIF (Gigabit Video Interface) and HDCP test functions.* *GVIF is a trademark of Sony Corporation.*

**<Features>**
- Video Timing Measurement, Picture Display
  - Video timing measurement and picture display function. Audio signal measurement and output is also supported.
- Signal Generate function
  - Generate video and audio signals, HDCP ON/OFF function supported.

**<Features>**
- Receiver mode (Sink Emulation)
  - Emulates televisions, for analysis of protocols and device operation.
  - Enables a range of protocol and video timing analysis. EDID can be duplicated and edited to emulate a variety of televisions and other sink devices.
  - Though mode (Cable Emulation)
  - Emulates pass-through operation, for analysis of protocols and device operation.
  - Checks direct communication between a mobile and sink device. Logging supported.
  - VA-1841 and 1842 requires optional Through Mode box.
- Repeater mode (Repeater Emulation)
  - Emulates as a repeater device, such as an AV amplifier.
  - Users will be able to confirm their products performance when connecting to repeater devices.
  - Generate mode
  - Generates standards signals and be used as an HDMI 4K signal generator (VA-1838 and VA-1842 only). Satisfies growing needs in evaluation of uncompressed 4K devices.
  - Notes: VA-1841 does not support Repeater and Generate mode.

Uncompressed 8, 10, 12-bit and 4:2:0 8-bit 4K Images (VG-870/876 Option)

This option is available exclusively for VG-870/876 signal generators. It enables display of uncompressed 4K images and patterns (such as 4K monoscopes) that are ideal in testing 4K monitors or panels.

**<Features>**
- Includes twenty natural scenes and three 4K test patterns (two monoscopes and a circular zone plate)
- 4K output formats: DCT, DCI 16:9, and OFHD
- 8, 10, and 12-bit and 4:2:0 8-bit color depth options.
- High-quality 4K natural scenes for evaluation of resolution, gradation, texture, color, and solidity.
- Easy operation by calling images number stored on a CF card, in a format compatible with the signal generator (VGD format)

*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)

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

**SD-1655A**
3G-SDI Compatible Repeater

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**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
  - Interface 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.

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**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
- BMP/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
  - Unsyncronized 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

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**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 59.94i/24p syncing, or 3G-SDI signal output
- Genlock
- In external reference mode, enables independent phase adjustment of three channels of output (scope of adjustment: within 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 1280x720p (30/29.79/25/24/23.94) is selected)
- Embedded Time code, on/off in ancillary data (no time code output when 1280x720p (60/59.94/50) is selected)
- User patterns can be uploaded via USB

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**Extensions 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

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**SD-1670 · SD-1671**
3G-SDI/Dual Link SDI Converter

**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

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**SD-1655A**
3G-SDI Compatible Repeater

**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

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**SD-1670 · SD-1671**
3G-SDI/Dual Link SDI Converter

**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

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**SD-1655A**
3G-SDI Compatible Repeater

**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
Waveform Monitors, Rasterizers

WM-3207A - HW-7069
Multi-waveform Studio Monitor (17-inch)/
Multi-rasterizer

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

DF-3512
Native HD (1920x1080) Electronic Viewfinder

For Further Details ➡ Go to P9

Waveform Monitors

6-inch Monitor WM-3014

8-inch 3D-ready 3G-SDI Monitor WM-3209A/-B/-L

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,
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.

Waveform Monitors, Rasterizers

Professional
LCD Monitors

Native HD
Electronic Viewfinder

DM-3105
5-inch Widescreen LCD Monitor

5-inch Screen, HD/SD-SDI x 2, Composite x 1
DC Battery Power (Optional)
**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 develops, manufactures, and sells imaging and video equipment, software, HDTV studio equipment, digital broadcast equipment, display testing and measurement equipment, in addition to sales of communication, control, and testing modules and systems.

**Company History**

- **1977**  
  Established in Tokyo, specializing in 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 in Meguro-ku, Tokyo
- **2005**  
  UHDTV processor jointly developed with NHK for Expo 2005 in Aichi
- **2007**  
  Head office relocated in 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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**Tottori R&D Center**

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**Showroom**

Product demonstrations are given at the head office showroom.

**Newsletter Subscriptions**

Monthly email newsletter to introduce new technology, products and trade show events.  
To subscribe, sign up at the following address.  

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