AVer ClassHD - evaluation results main document

Manufacturer: AVer

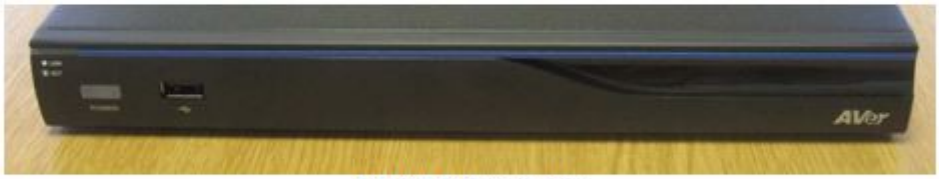
Model: ClassHD

Software Version: 00.01.02.09

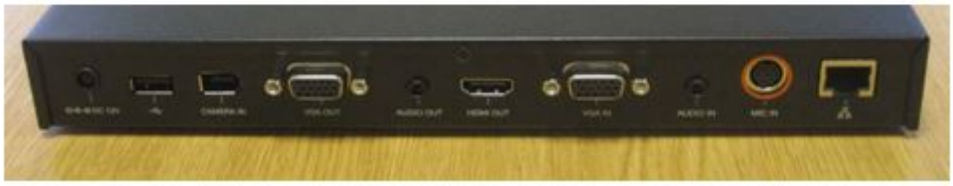
Optional Features and Modifications: None

Date of Test: 22nd – 26th July 2013

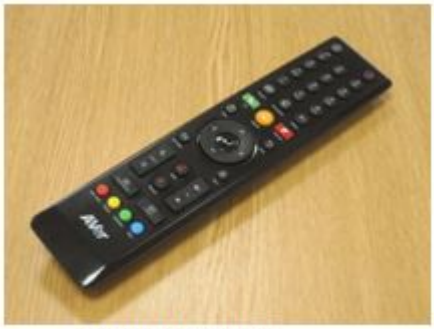
HD Camera



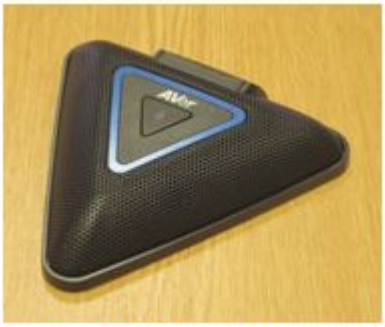
CODEC Front view



CODEC Rear view



Remote Control



Desk Microphone

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The AVer ClassHD high definition conferencing system is a cost effective entry level system designed to be installed either in a small to medium sized conference room, classroom or as part of a roll-about unit. The executive summary provides an overall summary of the product and can be found **at this link** [1].

A. SETUP PROCEDURE

Setting up the ClassHD system was straightforward. The compact CODEC can be mounted below the picture monitor(s) and the HD camera positioned above the monitor(s). A system microphone, infrared remote control and an external power supply completed the package.

The connections for basic operation were clearly illustrated on the quick installation guide and in the documentation and involved:

- Mounting the camera adjacent to the monitor(s)
- Connecting the firewire cable between the camera and the CODEC
- Connecting the supplied HDMI-HDMI and VGA-VGA cables between the CODEC and the monitor(s)
- Cabling the microphone to the CODEC

- Establishing an Ethernet IP network connection through the RJ45-RJ45 cable
- Connecting the external power unit to the CODEC

System set up was conveniently configured through the “on-screen” menus via the hand held remote control. IP address, IP Gateway, Subnet mask and Gatekeeper address were all entered through these menus.

Approximate set-up time: 15 minutes

Documentation quality: The concise Quick Installation and User Guides were all easy to follow.

B. Hardware Description

General

This compact CODEC may either be mounted within a monitor cabinet or adjacent to the monitor(s). Provided with one auto-switching 10/100/1000 Ethernet connection and capable of conferencing up to a bandwidth of 4 Mbit/s, the system can display a maximum image resolution of 720p at 30 frames/second. The ClassHD CODEC was silent in operation. One option is available: additional microphone pods.

The main HDMI video output connection carries the digital audio but separate 3.5mm analogue audio input and output connections are also provided.

The monitor outputs auto select resolution and aspect ratio, the VGA output can also be manually forced to 16:9 or 4:3 aspect ratio if required.

The ClassHD system supports seven video resolutions including:

- The basic CIF format resolution of 352 x 288 pixels.
- wCIF (512 x 288).
- w480p (848 x 480).
- High definition w720p (1280 x 720).

In addition to the traditional Picture in Picture (PIP) display format, the CODEC also supports Picture outside Picture (POP). This allows both near and far end images to be displayed simultaneously on a single picture monitor.

The PIP image only appears when the full size Far-End layout is selected and camera pan, tilt or zoom control is executed, the PIP image disappears after a period once any adjustment is completed. During the evaluation the PIP was inconsistent in its appearance and at times did not appear when camera adjustments were being made.

Full screen of the Far- End image
Near- Image Picture in Picture (PIP)

Large Near- Image, small Far- Image
Picture outside Picture (POP)

POP is particularly useful when a single large screen display device such as a plasma/LCD panel or video/data protector is used as it permits greater flexibility in the choice of image layout.

Single Monitor Mode

In single monitor mode when not in a call the monitor displays:

	No presentation material connected	Presentation material connected
HDMI monitor	Near Image + Menu	Layout Selection + Menu

Layout Selection

- Presentation and near end images side by side POP
- Presentation image full screen
- Near image full screen

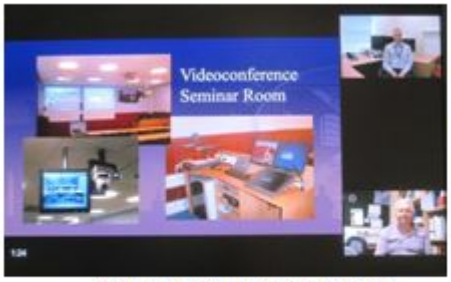
In single monitor mode in a call the monitor displays the following layout selections:

- Large far image, small near image POP
- Far and near end images side by side POP
- Large near image, small far image POP
- Full screen of the far image

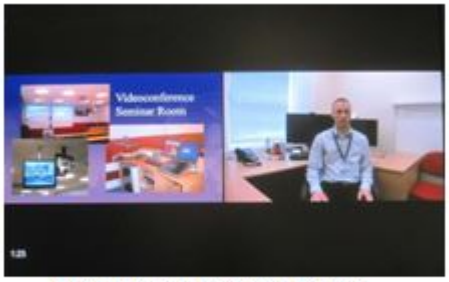
Far and Near Images Side by Side (POP)

In single monitor mode in a call when H.329 presentation material is either transmitted or received the monitor displays the following layout selections:

- Large presentation image, small near and far images POP
- Full screen of the presentation image
- Presentation and far end images side by side POP
- Large far image, small presentation and near images POP
- Large near image, small presentation and far images POP
- Full screen of the far image



Large Presentation Image
Small Near and Far Images



Presentation and Far Image
Side by Side

Dual Monitor Mode

In Dual Monitor mode and when not in a call the monitors display:

	No presentation material connected	Presentation material connected
HDMI monitor	Near Image + Menu	Layout Selection + Menu
VGA monitor	Near image	Presentation

Layout Selection

- Presentation and near end images side by side POP
- Presentation image full screen
- Near image full screen

In Dual Monitor mode in a call the monitors display:

	No presentation material transmitted or received	Presentation material transmitted or received
HDMI monitor	Layout Selection + Menu	Layout Selection + Menu
VGA monitor	Near image	Presentation

Layout Selection no presentation material transmitted or received

- Large far end image, small near image POP
- Far and near end images side by side POP
- Large near end image, small far image POP
- Full screen of the far image

Layout Selection presentation material transmitted or received

- Large presentation image, small near and far images POP
- Full screen of the presentation image
- Presentation and far end images side by side POP

- Large far image, small presentation and near images POP
- Large near image, small presentation and far images POP
- Full screen of the far image

On some HDMI input monitors the menu and presentation information at the edge of the screen may be “cropped”. To avoid this problem in single monitor mode the VGA output of the CODEC should be used. Alternatively the DVI input of the monitor could be used via an HDMI-DVI cable, to ensure that all on screen menu information and PC desktop images are fully visible.

> The PTZ (Pan Tilt and Zoom) 2-megapixel HD cameras supplied include a fixed focus, 4x Digital Zoom and an exceptionally wide horizontal viewing angle of 88 degrees. The lack of variable focus and the use of a digital rather than optical zoom impacted on the video quality of the camera. Overall the images appeared “soft” when compared to optical zoom variable focus cameras which were further softened when the digital zoom was applied.
>
> Far end camera control (FECC) is supported.

CODEC inputs include the Firewire HD camera input and a separate VGA interface for PC connection; this input supports Extended Display Identification Data (EDID). The system does not include any digital video input for presentation material.

> Dual video coding H.239 is supported, providing a second unidirectional video channel. Thus a camera image and presentation material from a PC could be transmitted simultaneously and displayed on two monitors at the remote site. When two ClassHD systems conferenced together over a 4 Mbit/s connection it was possible to transmit two simultaneous high resolution images: the main camera and presentation channels both at 720p @30fps.

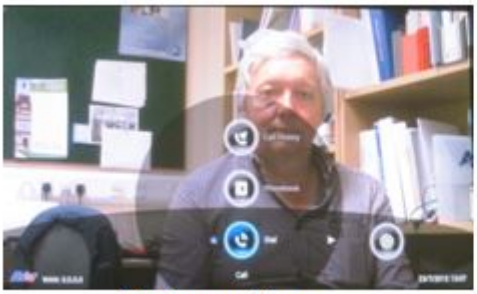
Several audio formats are supported by the ClassHD CODEC. In calls between ClassHD systems G.722.1C audio protocol was negotiated providing 14 KHz analogue audio bandwidth utilising 48 Kbit/s of connection bandwidth.

PC audio input and stereo audio outputs are both available via industry standard 3.5mm mini jack connectors. The main HDMI output carries the digital stereo output. The 3.5mm mini jack audio input may be selected as an external microphone input, in this case the microphone pod is deselected. While the documentation implies that this input may also be used for presentation audio from a PC or laptop, we were unable to transmit this audio during a presentation or to hear it locally.

Encryption is provided at all connection speeds through Advanced Encryption Standard (AES) with a 128 bit session key.

C. SYSTEM OPERATION

The system may be operated locally from the infra-red remote control, integrated with a room control system via Telnet or a WebTool from a PC or Laptop. The on-screen menus are logical and easy to follow. The system may also be configured and controlled via a WebTool web browser interface from a network connected PC. For security this remote web connection is password protected.



On Screen Menu

Remote Control

The remote control includes a comprehensive selection of single operation control buttons. Two of the four colour coded buttons on the remote control are currently redundant on the ClassHD – AVer Point and Snapshot.

An H.239 connection is initiated and terminated on the remote control via a single presentation button:

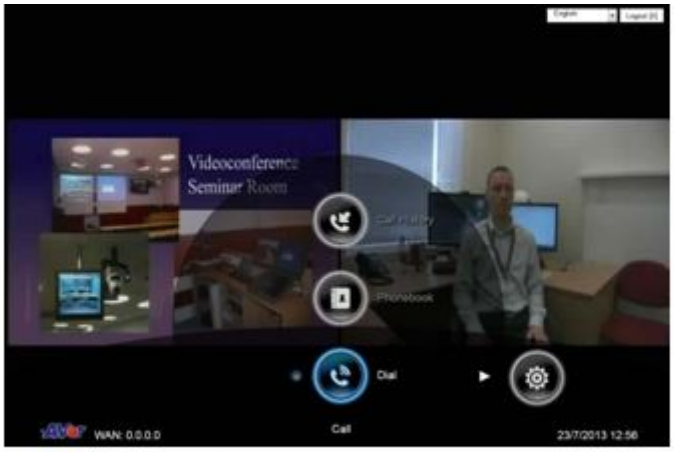
- Pressing this button for a short period selects the PC presentation source and opens an H.239 connection
- Pressing the button again for a short period closes the H.239 connection

The camera occupies one channel and the source connected to the VGA input the second channel, normally a PC or Laptop. At the remote site these two images may either be viewed on two separate monitors or using POP displayed on a single screen.

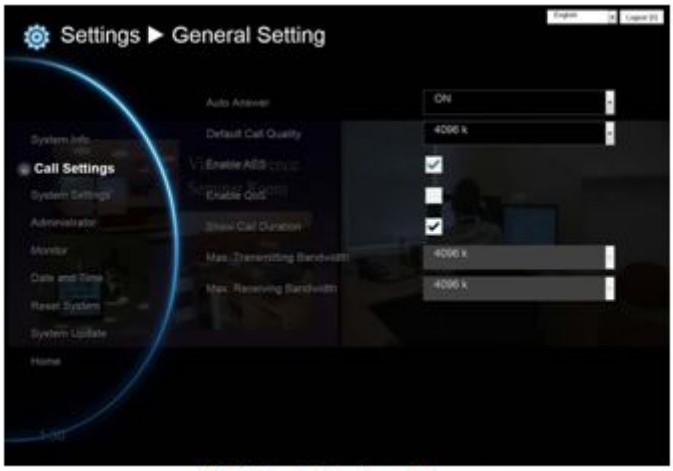
The system takes a significant period to boot up from cold (~80 seconds). When not in a call the system automatically goes into screen saver mode after a user-definable period of time. An incoming call or a remote control button press will return the system to active mode. The system may also be set to auto power off after a user-definable period of time. In this case the system may only be powered up from the remote control or CODEC.

The Stats menu accessed via the “Information” button on the remote control displays call status data including connection speed, compression protocols, packet loss and frame rate.

The system may also be configured, controlled and monitored via a password protected WebTool within a web browser from a network connected PC. This facility provides configuration, control and limited monitoring facilities, including Snapshots of CODEC main video output. Call statistics are not available from the WebTool. The WebTool menu structure is identical to that available on the CODEC which makes it intuitive to use. However, while a call could be initiated from the WebTool, there is no facility available to hang up the call.

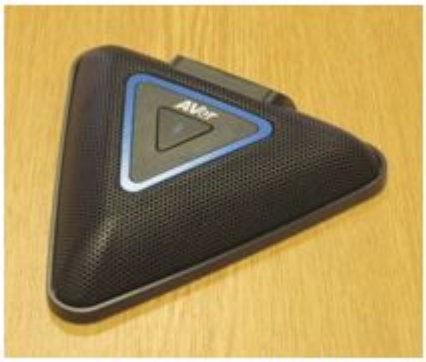


WebTool Menu including video snapshots of main monitor video



WebTool Settings Menu

The ClassHD system includes a microphone pod with an in built mute button, the button is illuminated red when muted. Multiple microphone pods may also be connected to the CODEC via a daisy chain connection to the first microphone pod.



AVer Desk Microphone

Links
[1] https://community.ja.net/library/advisory-services/executive-summary-aver-classhd