

Canon

XLH1

**CONNECTIVITY
INPUTS & OUTPUTS**

XLH1

Aside from providing the user with complete control over the image, the Canon XL H1 also provides complete creative freedom when it comes to inputs and outputs. In a professional shooting environment, whether it's a multi-camera broadcast situation, a feature film, or a run-and-gun documentary, this camera delivers all the options needed to flow seamlessly with existing workflows and expectations.

A series of four terminals located in the rear of the camera, on the shoulder pad, give industry-standard connectivity to the XL H1. These four inputs set the XL H1 apart from any other comparable camera, and place the XL H1 in a class of its own.

1. **TC-IN/TC-OUT:** Can receive or send out the SMPTE-standard LTC timing signal. This means that you can share time code with an external device (such as a DAT recorder for dual-system sound) or from camera to camera.

For "Time Code In", simply connect the device generating the desired time code and allow the synchronization to stabilize. This usually takes about 10 seconds. Once this is done, the cable connecting the two devices can be removed and the time code synch will be maintained as long as the camera is not turned "Off" or switched into "VCR/Play" mode. The synch will also be lost if you change the FRAME RATE. In SD mode ("Standard Definition") at 24F, you will not be able to import time code at all.

For "Time Code Out", you must go into the menu and activate the T. CODE OUT option on the SIGNAL SETUP page. Then, you can hook up another device to receive the time code that is being generated by the camera (or that has been imported from yet another device in the chain).

When sharing time code, only the FREE RUN mode will be useful; it is the only mode that runs continuously, regardless of whether or not the operator has pressed "Record". This FREE RUN option is found in the menu, within the TIMECODE sub-heading on the CAMERA SETUP page.

Note: No matter what frame rates that the XL H1 is set to, in 60i mode the Time Code signals are always 29.97DF and in 50i mode (optional) is always 25.

2. **GENLOCK:** Short for "Generator Lock", Genlock is a signal sent from an external source (such as a sync generator, switcher or other camera) that ensures the seamless interaction between images by making sure that the different video signals are all being "generated" with the same timing, in sync with one another. This is an absolute must in a "live" broadcast environment, for example, when images must be edited on the fly without visibly "jumping".

Each video signal has its own vertical and horizontal phase values (its own unique "timing", when the scan-lines are actually being "drawn" across the screen). The

Genlock reference can be as simple as another video signal, which will “teach” its timing to the new signal and thus synchronize the two so that the video images are being drawn exactly in unison. Thus, there will be no “bump” or “stutter” during transitions when intercutting or overlapping images from multiple camera sources.

Activate this feature by going into the EXT. SYNC option on the SIGNAL SETUP page of the menu. Select either “Genlock” or “Genlock + TC”, depending on your specific input situation. Use the GENLCK ADJST option (on the same menu page) to match the phase of your reference signal. .

- 3. HD/SD SDI:** The Serial Digital Interface (SDI) terminal of the XL H1 is able to deliver full resolution uncompressed HD/SD SDI at a 4:2:2 color space.

This terminal is also capable of transmitting the lower bit-rate SD signal from the camera even when the XL H1 is set for HD or recording HD to tape.

What’s more, since the signal is transmitted via coaxial cable, you can run 100 meters without worrying about any lost data, which is ideal for situations when the camera may be up in a crane, or traveling during a long walk around shot.

When using the SDI terminal to output a signal, make sure that the SDI OUTPUT is set to “On” in the SIGNAL SETUP page of the menu. Also, when outputting the HD signal, set the SDI SPEC to “Auto”.

COMPONENT OUT: Located in the very rear of the camera (beneath the XLR inputs), this terminal separately transmits the three component video signals to your destination deck or monitor, to ensure the highest possible color and luminance fidelity. On the SIGNAL SETUP page of the menu, the COMP OUT option allows you to select whether you want to output at 480i or 1080i/480i. If you’re outputting an HD signal to a standard definition monitor, for example, you will need to select 480i in order to make the down conversion.

XLR (CH 1/3, CH 2/4): The professional standard for audio input. The Canon XL H1 offers two balanced XLR terminals built into the camera, with the option of adding two additional XLR inputs by using the MA-300 adaptor, which can be attached via the “Advanced Accessory Shoe” on top of the handle. Please see the section regarding CAMERA BODY (AUDIO CONTROLS) for more information about the XL H1’s sound-recording capabilities and for a description of the audio options located directly above the XLR jacks.

IEEE1394: Standard IEEE1394 digital input/output that accepts a 4-pin connector cable. This terminal can be used to transport HD or SD digital video as well as control signals to and from the XL H1, and is used most frequently either for capture onto a portable hard-drive or laptop, or for ingesting your footage from an onboard tape transport into your

editing system. This terminal is also used to control the XL H1 from Canon's Console Image Control and Storage Software.

For tape playback (when the camera is in VCR/PLAY mode), there is an "HD DOWNCONV" option on the SIGNAL SETUP page of the menu, in case you want to output a tape recorded in HD to SD.

THE ANALOG COMPARTMENT: To the left of the battery is a compartment that contains all the standard analog inputs/outputs for sound and picture, including S-Video, BNC, and RCA terminals. All of these video ports will transmit a down-converted signal when the camera is in HD mode, and all signals originating in 16x9 (whether SD or HD) will appear "squeezed" on a 4x3 monitor. The audio RCA jacks allow input/output for up to four channels of audio.

ONBOARD VIDEO RECORDING: The onboard deck takes a HDV cassette, onto which you can record in HDV HD format or standard definition (4x3 or 16x9). When recording SD (Standard Definition) you can use a miniDV cassette.

THE MEMORY CARD: Below the right-hand zoom handle is the small cover for the memory card. This card can be used to capture stills and to record the meta-data that contains all the camera settings. Photos taken with the XL H1 will always be sent to the Memory card, even if the camera is set to "video mode", but the color space of the photos will change depending on whether the photo mode is set for video or card. When shooting in "video mode" the photo, along with the time code and the metadata of the image set-up is also saved. Additionally, the MEMORY card can store up to 20 "Custom Presets", and will allow you to share presets between multiple cameras.