

Ultra-slow Motion: A New Tool For Live Broadcasters

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I-movix

One of the recent additions to the creative toolkit for live broadcasters is ultra-slow motion. This is not to be confused with the traditional kind of slow motion that has been part of live coverage for decades, especially in sports. Today's ultra-slow motion shots are produced using very high speed cameras from a lineage of devices originally developed for scientific and industrial use. While conventional broadcast cameras and slow motion systems have been limited to around 180 fps, the new breed of ultra-slow motion cameras and systems can shoot at thousands of frames per second, giving a completely different window onto the action, and the stresses and strains of competitors and their equipment during a sporting event. However, these cameras were not designed for broadcast use, and don't

offer many of the features essential for the broadcast environment. This is why they are integrated into systems that provide all the required inputs and outputs, together with the kind of control surfaces and user interface that make them usable by any television crew.

Apart from the camera itself, an I-MOVIX ultra-slow motion system typically comprises a Central Control Unit (CCU) connected to the camera by a SMPTE 311 hybrid cable. Attached to the CCU is an operational control panel and sometimes a jog/shuttle panel. The CCU provides control of the slow-motion instant replay, camera control, and data interface between the camera and the slow-motion server – the next part of the system. The Operational Control Panel (OCP) provides a real broadcast-quality colour matrix and control of frame-rate choice, while a slow-motion remote allows the user to select a video sequence and instantly replay it with an HD-SDI output for live broadcast or storage on the slow-motion server. The system allows directors and camera operators to shoot at frame rates going from 25 to 2,700 fps in full HD (1080i) or up to 5,800 fps in 720p (200 times slower than live



Slow-motion's natural home is action sport

action) with instant replay at native HD resolution and image quality. Dual outputs allowing simultaneous shooting and recording, and other broadcast-integrated features include the segmentation of the camera memory, speed ramping within a replay, the dual output of live action and replay sequences, and integration of both live- and replay-view on the viewfinder. The system used in the replay mode is compatible with the industry standard servers, using one channel only on these servers. The CCU is connected to the camera via a long-distance SMPTE optical fibre transmission cable, and to the slow-motion remote control and the OCP with Ethernet cables. The CCU provides a live HD-SDI 1.5 Gb/s output, and sends an HD-SDI 1.5 Gb/s output to the industry standard slow-motion server, from which the replays are played. The image quality from the latest generation of ultra-slow motion cameras is now comparable with the best HD broadcast cameras, so the SprintCam system produces dual output, allowing the director to use real-time pictures from the system as well as ultra-slow replay sequences. Using the system in this dual role allows the crew to operate more

efficiently, without having to dedicate a camera solely to getting the ultra-slow shots. Great flexibility is a major advantage of this kind of ultra-slow motion system, allowing directors and camera operators to adapt to different conditions and use the system for a wide range of applications. In practice the choice of frame rates to shoot at is determined by a number of factors including the speed of the action – there is no need to shoot 3000fps if 1500fps delivers results that are just as good, and some sports include much faster movements than others. That said, many directors take a creative view of ultra-slow motion as a tool and use it to shoot subjects that do not contain fast action, such as weightlifting or rowing, and there are surprisingly fresh views and insights to be gained this way. Another key factor is the available light levels; there is some latitude for compensation using the camera's gain controls, but as a basic rule, higher frame rates require higher light levels. Using wide apertures for maximum light intake means that depth of field can be restricted, but this can be an advantage, helping to concentrate the viewer's attention on the key action.

SeeSense Launches With Unique Toshiba HD Camera Solution

The company

New company SeeSense has launched, headed by Nigel Paine, specialising in the sale of C and CS mount lenses (SEE) and miniature camera systems (SENSE). The formation of SeeSense followed the birth of Jana and Nigel's son Patrick. Wanting him to be brought up in a close family structure they decided to move to Jana's home town in Slovakia. Toshiba I.C.S. in Switzerland offered to make SeeSense an official distributor to develop their camera sales in Central and Eastern Europe and beyond.

The camera

Unique to SeeSense, the IK-HR1P has a CS lens mount in place of the standard C-mount. It is based on the Toshiba IK-HR1S HD-SDI single CMOS camera. This conversion, while difficult to achieve, has been accomplished maintaining the outstanding image quality of this miniature HD camera.

Why IK-HR1P?

The HD Toshiba IK-HR1S, IK-HR1D and IK-HR2D cameras are disadvantaged because there are only a limited number of wide angle C-mount lenses of correct optical quality to suit the camera. The conversion to CS-mount allows access to a wider range of lenses including new wide aperture megapixel varifocals. This improves low light performance, making it closer to that of the Toshiba IK-HD1 3-CCD HD camera.

An adaptor is included to allow use of C-mount lenses. A camera CS upgrade service is available for owners of the standard camera.

The SeeSense IK-HR1P is ideally suited to most broadcast POV miniature camera applications.



SeeSense Toshiba HR1P-euro

'STORM' Range of 3G Integrated Multi-viewer TFTs

The new 'STORM' range of 3G capable broadcast LCD monitors have been launched to meet the high quality demands of this HD format. The 1920 x 1080P @ 50/60Hz HD format (3G) is now becoming popular within the broadcast/post production environment; however, 95% of existing monitors cannot display this format. This range of professional broadcast LCD's which includes integrated multi-viewer (MV) LCD's brings video quality to a new level by offering a complete package of the world's highest quality video processing algorithms for deinterlacing, scaling, image enhancement and frame rate conversion. The integrated MV 'STORM' range offers a choice of 17" 24" 32" 42" 46" & 55" LCDs with optional 4, 8, 12 and 16, 3G inputs. Not only does the Integrated MV Range of LCD's offer the highest video performance, they are the most cost effective MV solution

in the market with pricing (which includes the monitor) below external MV alternatives. Software for 'user design layout' of the video tiles and 'global control' of gallery stack applications is included. The products are ideal for displaying left and right images from 3D work flow without the necessity of investing in two single monitors. Zero pixel defect is guaranteed with two-year warranty as standard with further three years option.



Frontniche's Storm range is 3G capable