LYNXTechnik AG®
Broadcast Television Equipment

Broadcasting & Archiving in both SDR & HDR?
…. introducing the greenMachine HDR Series

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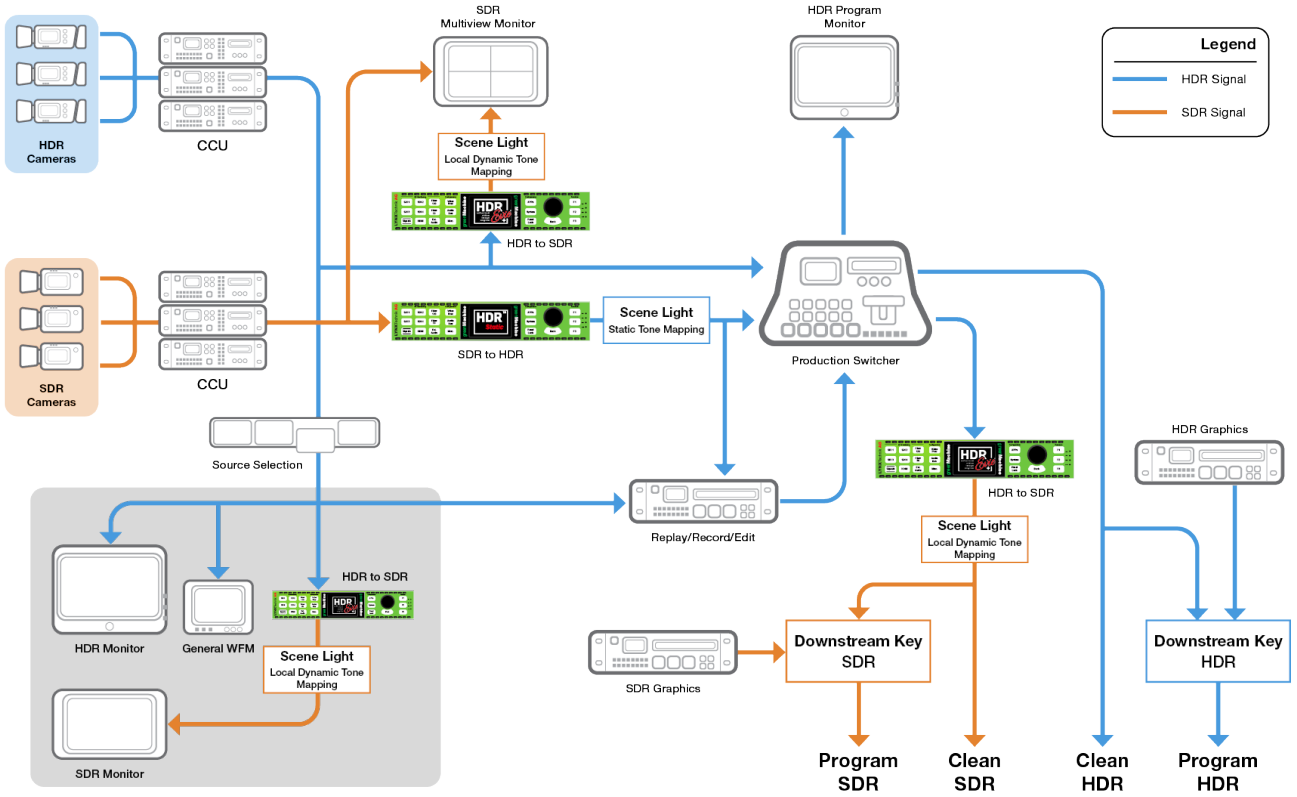
LYNX Technik's **HDR Suite of Processing Solutions (HDR Evie+, HDR Evie, HDR Static)** for the greenMachine® platform addresses the challenge that broadcasters and content creators are facing when there is a need to broadcast or archive content in both SDR and HDR. The simple solution is to have two independent production routes for SDR and HDR, but this is costly and falls short of delivering full HDR content to the customer and ultimately the subscriber / viewer. The sacrifice in quality results from HDR capable cameras being optimized for SDR lighting and coloring, which compromise the HDR output. Until HDR cameras, graphics, record & replay equipment are widespread, it is also likely there will be a mixture of SDR and HDR sources as well as monitoring and multiviewer destinations. The challenge is therefore to optimize the cameras for HDR where available, up-convert SDR cameras and sources to HDR and produce through a single path HDR workflow. The program output is provided in optimized HDR and can be converted to SDR for simultaneous broadcast. In post-production, the optimized HDR content is preserved and finally converted to SDR for delivery. A further challenge is to acquire raw content in an HDR format for subsequent post-production or archival storage, while the current production and output requirement is for SDR.

The greenMachine suite of HDR processing tools addresses the issue of the simultaneous workflows by combining optimized HDR with up-converted SDR sources into a single HDR production process, thus eliminating the expensive and time-consuming dual SDR & HDR production. At the program output, greenMachine can provide an SDR feed derived from the produced HDR output. The problem of acquisition in HDR for archive or post-production with a simultaneous SDR live production is solved by one of the real-time greenMachine Static or Dynamic HDR to SDR applications, which retain virtually all of the HDR visual impact in an SDR output fed into the HDR production workflow.



HDR STATIC, HDR Evie (Enhanced Video Image Engine) and **HDR Evie+** processing applications run on the now familiar and award-winning LYNX Technik greenMachine hardware platform. These industry leading **format conversion solutions** ensure facilities can, for example, use a single greenMachine titan hardware module to up-convert four (4) independent 3G SDR sources (e.g. SDR-only cameras, graphics, replays, external feeds, archives, etc.) to HDR in a variety of formats, and feed directly into the HDR production workflow. This conversion ensures that HDR content is delivered direct from the optimized HDR cameras without compromise. Once the content is ready for delivery / broadcast / streaming to clients and subscribers/viewers, greenMachine can down-convert one of the HDR program output feeds to SDR, ensuring media facilities can deliver content to both HDR-capable screens and to viewers who are still watching content in SDR.

As the names would suggest, the greenMachine HDR solutions offer various levels of sophistication; all can be used to independently process four (4) channels of 3G-SDI, or a single 12G-SDI 4K/UHD channel.

The **HDR STATIC** with its scene-by-scene timeframe is ideal for HDR to SDR conversion in controlled lighting environments such as studios. It can also be used for conversion to HDR from SDR cameras, graphics, replay, external feeds etc. It will also convert between all HDR formats where dissimilar cameras are in use or the program output demands this type of static conversion.

The **HDR Evie** (2019 NAB 'Product of the Year' and TVB Europe 'IBC Best in Show' awards) adds **dynamic** frame-by-frame HDR to SDR processing for uncontrolled light environments. Tests have revealed that upwards of 80-90% of the perceived HDR content is retained.

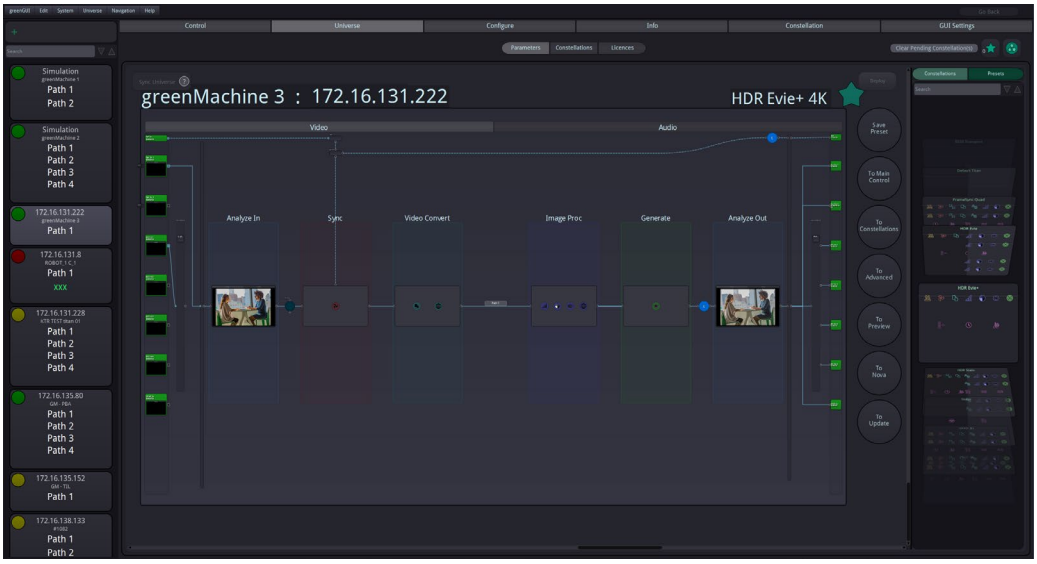
HDR Evie+ takes things to a new level by the use of unique, industry leading **dynamic *segmented*** frame-by-frame algorithms that use sectional dynamic tone mapping that allows adjustment of each segment (144 segments/frame) of the 3G or 4K HDR content all in real-time. Using optimized HDR captured or produced program content, **HDR Evie+** converts to SDR and retains exceptional detail in darker areas and preserves detail in bright areas that would be burned out by more basic HDR to SDR converters. Once configured, the process is totally automatic, analyzing and converting the

incoming HDR image in 144 segments every frame; it requires no changes of the aperture of the camera or other operator intervention.

The ***segmented dynamic conversion*** by greenMachine **HDR Evie+** is especially suited to demanding and unpredictable content, with fast moving subjects and high contrast conditions typically found in live sports and news broadcasts.

HDR Evie+ is the obvious choice to convert HDR to SDR for production, or HDR-produced program outputs to SDR for delivery to the viewer.

The entire range of LYNX Technik's **greenMachine HDR < > SDR processing solutions** support a range of open standards for conversion, tone mapping, and color gamut, including HLG, PQ, SDR, and SLog3. Rec709, Rec 2020, and camera standards by Panasonic, Sony, Arri, ACES, DCI-P3, RED and BMD.



As with all processing tools running on the greenMachine platform, user access to configuration and control is via the intuitive and heavily graphics based **greenGUI**, which is **free to download**. Users can run it in simulation mode without greenMachine hardware connected, which helps to explore the myriad of adjustments and capabilities available. It goes without saying that greenMachine is fully SNMPv2 compatible.

HDR Evie+ is the most recent addition to LYNX Technik's HDR line-up for its award-winning greenMachine® platform. **HDR Evie+** is an enhanced version of **HDR Evie**, which was officially launched at NAB 2019 and was recognized as a "2019 Product of the Year."

For more information or to book a demo, please visit: www.green-machine.com.