FACTORY OPTIC SYNCRO-LINK

FRAME-LOCKED ZERO-DELAY METADATA FOR VIRTUAL PRODUCTION

ZERO DELAY SHUTTER-SYNCED
LIVE STREAMING OF METADATA OVER ETHERNET

What is "ZERO DELAY" and why do I want/need it?

With virtual productions using live action cameras for AR, Simulcam, VR and XR, you need perfect sync between the virtual camera and the live action camera. Accurate metadata from the camera system needs to be streamed to the virtual system with minimal delay. With modern lenses (such as the Fujinon *Premista* Series Full-Frame Zoom lenses with Zeiss eXtended Data) now supporting direct metadata connections, it is easier than ever to stream high accuracy metadata in perfect sync with the image capture, without relying on the camera body or camera tracking system to transport the lens metadata. Using the same video genlock provided to the camera, the **SYNCRO-LINK MARK-ZERO,** synchronized to the camera shutter, always samples the metadata at the same time that the camera shutter is opened. This provides live action camera metadata with the highest accuracy with respect to frame timing and latency.

CONCEPT - TO - REALITY TECHNOLOGY DESIGN

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Memory Card: MicroSD Slot · **Dimensions:** 145mm x 108mm x 28mm / 5.7" x 4.25" x 1.1" (including connectors)
Weight: 0.3 kg / 0.7 lbs

Connections:		
SYNC (BNC) · **Analog Input**	SMPTE ST 274, ST 296, NTSC & PAL 　Input Impedance: 75 Ω 　Supported Standards 　　Bi-level/Black Burst: NTSC 480i/29.97, PAL 576i/25 　　Tri-Level: 60, 59.94, 50, 48, 47.95, 30, 29.97, 25, 24, 　　23.98, in P, PsF or Interlaced for 1080 or 720 *Note: 4K/UHD cameras typically will genlock to HD sync rates*	
LTC (BNC) · **Analog timecode Input**	SMPTE 12M 　Input Impedance: 10 kΩ 　Signal Voltage: 2Vp-p	
RS-232 (DE-9M) · **Serial data**	DTE D-SUB 　with DC power on Ring Indicator (pin 9)	
8-28VDC (Optional) · **Power Input**	8 - 28VDC Input, 4W max 　Reverse polarity protected	
PoE (RJ-45) · **Network data and power**	Isolated Power Supply (1.5kV isolation) 　IEEE 802.3af PoE 　10/100 Mbit Ethernet 　4W max	

The **SYNCRO-LINK MARK-ZERO** can connect to lenses with the Cooke /i data interface, which provides all typical lens values (focus distance, T stop, focal length, entrance pupil position, depth of field with near and far focus, and hyperfocal distance), as well as the Fujinon *Premista* zoom lenses and Zeiss *Supreme* prime lenses (which support Zeiss eXtended Data), and can also provide lens distortion and shading/vignetting data. All metadata is sampled at the same rate as the incoming SYNC, up to 60 times per second*****. Metadata output, as calibrated by the lens manufacturer, has the advantage of not requiring user lens calibration. And, there is no need to add lens encoders or rely upon lens motors to provide position. Live streaming of lens data to *Unreal Engine*, *Unity* or *any* server for virtual production is accomplished over Ethernet******. Once sampling has occurred, packets are transmitted out of the **SYNCRO-LINK** without delay. **SYNCRO-LINK** uses a MicroSD card for recording of metadata for post-production, if needed.

*Higher frame rates up to 120 fps are possible with internal sync doubling, contact The Factory for more information
**Wi-Fi transport is easily implemented, but may add latency

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