



THE ART OF SYNC

nanosyncs HD
MULTISTANDARD SYNC ENGINE



New HD Standards

With the introduction of high definition video standards synchronisation of digital audio and video signals is becoming an even more exacting and complex task than it has been already. The new Nanosyncs HD Multi Standard Sync Engine is an intricate electronic gearbox which locks PAL, NTSC or slow PAL, progressive or interlaced HD Trilevelsyncs and digital audio reference signals together in any required combination.

Clock Quality

The improved DDS audio clock synthesiser combined with a new, ultra high frequency analog PLL design results in lowest clock jitter and minimal phase drift. Word clock jitter is < 8 ps RMS within the audio spectrum (20 Hz – 20 kHz). Jittery, interrupted or lost input signals do not affect the stability of the video and audio reference outputs. The unlock and relock procedures are processed smoothly and ensure that all output signals deliver stable reference signals in all operation conditions. A Nanosyncs HD Multi Standard Sync Engine inserted in your synchronisation chain guarantees continuous, steady sync signals.



video syncs

Six video outputs can be individually routed to output SD standard video sync or the HD Trilevelsync reference signal.

genlocked video

The internal SD and HD video generators can be genlocked to external standard definition video syncs as well as to HD Trilevelsync signals with frame rates at 24, 48, 25, 50, 30, 60 Hz including the respective -0.1% pull down values. The generated output standards are selected independent of the incoming video reference format which allows genlocking different video standards together.

integrated audio synchroniser

All audio clocks can be resolved to the video section as well as to external word clock or free running LTC time code signals. A MIDI device class compliant USB port serves to feed a digital audio workstation with MTC, and forms together with the locked audio clock signals a complete DAW synchronisation solution. The integrated LTC generator can be controlled with MMC (midi machine control) or be slaved to MTC from a host computer to provide a video phase locked time code output.

up to date

The firmware of the unit can be updated using the USB port to implement upcoming standards in the new domain of high definition video and audio.

multiple audio clocks

Eight word clock outputs can be configured to output base sample rates 44, 1/48, 0 kHz including the respective +/- 0.1% and 4% pull factors. Applied x2 or x4 multipliers produce accordingly 88.2 / 96.0 or 176.4 / 192.0 kHz. The two AES/EBU reference outputs and a SPDIF output can be configured to base (x1) or double (x2) sample rates.



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Specifications

USB

USB 2.0, class compliant midi device
plug and play under windows XP or Mac OSX
MTC, MMC and Rosendahl SYSEX for firmware updates

video input

BNC, 75 ohms terminated
accepts SD Bilevel syncs and HD Trilevel syncs

word clock input

BNC female, 75 ohms terminated
1,5 – 5 Vpp, 40 – 200 kHz

time code

LTC input, RCA/ Cinch 10k ohms
-40 to +20 dBu
LTC output, RCA/ Cinch 600 ohms, 1 Vpp

SPDIF output

RCA 75 ohms, 0.5 Vpp, IEC 985

AES/EBU outputs

2 x XLR 3-pin male, transformer balanced
110 ohms, 3.5 Vpp, AES-3 (Fs x1 or Fs x2)

word clock outputs

8 x BNC 75 ohms, 3.5 Vpp @ 75 ohms
outputs 1-6: multipliers Fs x1, Fs x2, Fs x4
outputs 7-8: multipliers Fs x1, Fs x2, Fs x4
Fs x256 (super clock)

video outputs

6 x BNC 75 ohms, AC-coupled
SD Bilevelsync, 300 mV sync, 300 mV burst
HD Trilevelsync, +/- 300 mV sync high/low

audio clock synthesiser

Fs x1, Fs x2, Fs x4, Fs x256 from sample frequencies
42.336, 44.056, 44.100, 44.144, 45.937 kHz
46.080, 47.952, 48.000, 48.048, 50.000 kHz
lock range to external LTC is +/- 10% of nominal speed
lock range to external word clock is 40 – 200 kHz
random jitter amplitude < 180 ps in all operation modes
clock jitter < 8 ps RMS within the audio spectrum (20 Hz – 20 kHz)

internal time base

temperature compensated VCXO
+/- 0.5 ppm @ ambient temperature
15 – 30 Celsius

video sync generators

standard definition:

525/29.97 NTSC, 625/25 PAL
625/24 slow PAL

high definition:

1080psf23.98, 1080psf24, 1080i50,
1080i59.94, 1080i60
1080p23.98, 1080p24, 1080p25, 1080p29.97
1080p30
1080p50, 1080p59.94, 1080p60
720p50, 720p59.94, 720p60

power supply

internal linear regulated power supply
230 VAC/50 Hz or 115 VAC/60 Hz, 10 W
internal switchable

dimensions

19", 1U rackmount, 442 x 120 mm, 2.5 kg