

KUDOS Plus NRS70

Digital Noise Reducer & Frame Synchronizer



The **NRS70** is a powerful frame-recursive noise reducer. Designed for use in live broadcast and post-production operations, it also provides an economical pre-processing solution in DVD authoring.

The NRS70 provides much improved performance compared with adaptive technology. It automatically eliminates almost all background noise by a combination of techniques and filters. A sophisticated motion detector seamlessly switches off the noise reduction in moving picture areas. A median filter is included to remove impulse noise, and an additional sparkle filter can be switched in constantly to provide extra noise reduction with no compromise in picture quality.

In addition to noise reduction, the NRS70 also provides multi-standard Y/C, composite and SDI timebase correction and synchronization. The composite input automatically detects PAL, NTSC, NTSC-J, PAL-N, PAL-M, N4.43 and SECAM, and is sampled and decoded using an adaptive comb filter to ensure optimum decoding performance.

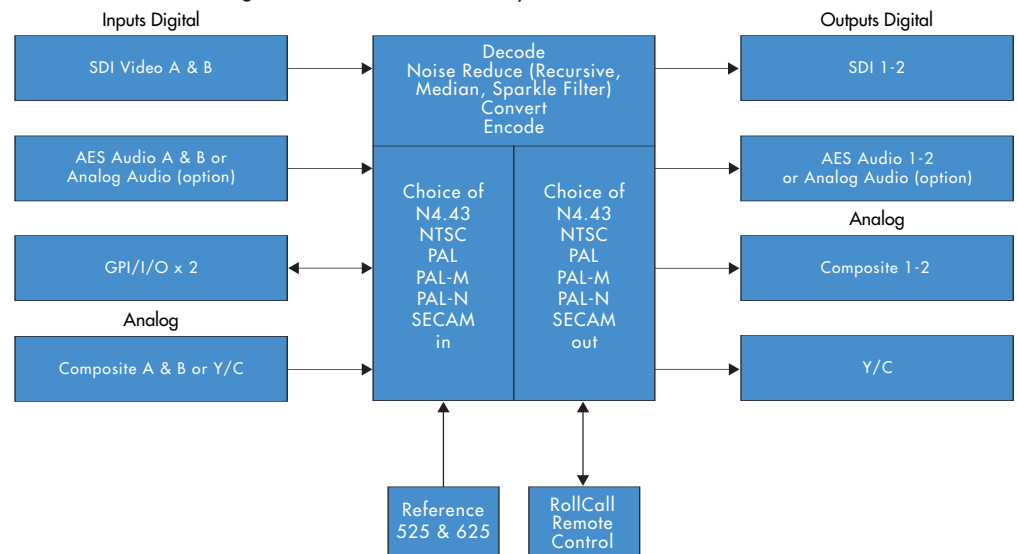
The signal correction features include RGB gamut legalizer, luminance and chrominance gain black level, NTSC hue, vertical and horizontal enhancers, Y-C horizontal timing and picture position. Rugged sync and clock recovery ensure reliable operation with unstable and noisy inputs. Signals can be output as digital component SDI or as broadcast quality composite. The 12-bit output encoder is fully genlockable to a composite reference and supports N4.43, NTSC, NTSC-J, PAL, PAL-M, PAL-N, and SECAM. The NRS70 will also operate as a transcoder between any of the available standards of the same line rate.

The NRS70 also has two separate AES inputs to enable audio embedding into any of the eight pairs of the SDI output. Individual channel routing is also provided, along with two AES outputs. Other features include freeze, pattern generation, and GPI control / audio delay flag output. Full RollCall™ remote control is available including RollTrack™ for audio delay tracking.

Features

- 4:2:2 Noise reducer with frame synchronizer
- Powerful frame recursive noise reducer with automatic noise floor measurement
- Sophisticated motion detector seamlessly switches off the noise reduction in moving picture areas
- Recursive, median and sparkle filters included with option to enable sparkle filter constantly without compromising picture quality
- Linear horizontal and vertical enhancer
- Broadcast quality 12-bit encoder
- Synchronizes up to 4 channels of audio with the noise reduced video

KUDOS PLUS NRS70 Digital Noise Reducer & Frame Synchronizer



Full Product List

Base Model
Kudos Plus NRS70
Digital Noise Reducer

Features

Signal Inputs

SDI	2 via BNC connector - SMPTE 259M – 1997 and embedded audio SMPTE 272M level A
Composite	2 via BNC connectors
Y/C	1 via 2 BNC connectors
AES/EBU Audio	2 x BNC; Unbalanced, 25-100kHz asynchronous or 48kHz synchronous to input video – SMPTE 276M – 1995
Reference (525)	1 via Loop-Through BNC connectors
Reference (625)	1 via Loop-Through BNC connectors

Signal Outputs

Composite	2 programme outputs via BNC connectors
Y/C	1 programme output via 2 x BNC connectors
Serial Digital Component (SDI)	2 outputs via BNC connectors
AES/EBU	Audio 2 x BNC; Unbalanced, 48KHz synchronous to output video

Control Interface

GPI I/O	2 via BNC connectors Closing contact Input/Output
RollCall	Via BNC connector
Remote	S&W RollCall RS485 or RS422 @ 38 kB via 9 way D connector

Front Panel Controls

Input Select	Composite A/B/C, SDI A, Y/C
Audio	
Y Gain	
C Gain	
Black Level	
Hue	
Noise Reduction	On/Off
Noise Reduce Level	Y Noise Reduction Level Off / Low / Medium / High C Noise Reduction Level Off / Low / Medium / High
Recursive Threshold	Auto + 7 manual levels
Enhance	On/Off
Memories	8 locations
Genlock	On/Off
Browse	
Setup	

Audio Controls

Gain L & R	Separate L & R controls for each embedder ± 6dB in 0.25dB steps
Invert L & R	Separate L & R controls for each embedder On/Off
Mute L & R	Separate L & R controls for each embedder On/Off
Disable	Separate controls for each embedder On/Off

Default Output	Separate controls for each embedder Tone, Silence, Disable 1 – 160 ms
Audio delay	
Tone Setup	
Amplitude	-30dBFS to 0dBFS in 1dB steps
Frequency	100Hz to 10kHz in 100Hz steps
Right Channel Ident	Pulse interruption every ~2s

Indicators

	Input Loss Reference Loss
Information Readback	
Audio	Embedded channel data present, AES inputs present present : error minute : error hour
EDH	
Delay	
Software Version	
Serial Number	
Unit temperature	OK, Near Limit, and Overheating

Additional RollCall Functions

Logging	Reference, Input, Output Standard, EDH, AES Inputs, Set up to 10 unit destinations for Input Loss, Input restore or Delay information
RollTrack	

System Parameters

Internal Processing	4:2:2 with 10 bit or greater data paths
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Encoder

Composite Encoding	12 bit
Y Frequency Response	5.5 MHz ± 0.05 dB
U/I/Db & V/Q/Dr	
Frequency Response	1.3 MHz <-3 dB, 4.0MHz <-20dB
Differential Gain	Better than 0.2%
Differential Phase	Better than 0.2°
SCH Phase	0 ± 2°
Composite Output	
Return Loss	Better than 35 dB to 5.8 MHz
Free run frequency error	< 10ppm
Genlock SC jitter	< 0.5 deg

Decoder

	Composite C input with Golden Gate Technology (see TBS180 for Composite A & B inputs)
Standards	PAL, NTSC, NTSC-J, PALM, PALN, N443, SECAM
Y Frequency Response	5.75MHz ±0.1dB
Signal/Noise Ratio	Better than -65dB (Weighted, Ramp)
2T Pulse-Shape	Better than 0.5%
K- rating PbPr	
Frequency Response	1.5MHz -3dB
Y non-linearity	Better than 0.5%
Differential Gain	Better than 0.5%
Differential Phase	Less than 0.5° (5 step modulated staircase)

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Company policy is one of continuous product improvement. Specifications are therefore subject to change without notice.

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Encoder Controls

Composite Output Standard	625 – PAL, PALN, SECAM 525 – NTSC, NTSC-J, PAL-M, N443
Minimum Blanking	On/Off for 625 and 525 outputs
PAL-I Blanking	On/Off for PAL output
VITS insert	On/Off for 625 and 525 outputs
Pass Vertical	Data On/Off
SECAM Bottles	On/Off
SECAM Notch	On/Off
SECAM Carrier	On/Off
SECAM Chroma	Prefilter On/Off

Decoder Controls

Input Standard	Auto / Manual PAL, NTSC, NTSC-J, PALM, PALN, N443, SECAM
ACC	On/Off
AGC	On/Off
NTSC	Hue ± 30°
VBI Pass	Selectable pass or blank for each vertical interval line

Noise Reducer Controls

Y Noise Reduction	Level Off/Low/Medium/High
C Noise Reduction	Level Off/Low/Medium/High
Sparkle Filter	On/Off
Median Filter	On/Off
Recursive Threshold Level	Auto + 8 manual levels
Split Screen	Off, Left-Right, Top-Bottom
Logging	Reference Loss, Input Loss, Input & Output Standard, Decoder lock

Specifications

Return Loss: Inputs	better than 35 dB to 5.0 MHz
Return Loss: Outputs	better than 30 dB to 5.0 MHz
Return Loss SDI Inputs	better than 15 dB at 270 MHz
Return Loss SDI Outputs	better than 15 dB at 270 MHz

Power

Mains Supply	115/230V 60/50 Hz 1.2 A
Power Consumption	140 W max

Mechanical

Temperature Range	0° to 40° C operating
Cooling	Axial fan
Case Type	1 RU Rack Mounting
Dimensions	Overall 483 x 440 x 45 mm (w x d x h) Depth from mounting face (including unmated connectors) 415 mm
Weight	9.75 kg

EMC Environment

This unit is intended for use in the commercial and light industrial environment E2.



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