

The Mach1 M.Sc breaks the price barrier for superior performance standards conversion. Its motion compensated algorithm helps to deliver excellent results at an affordable 4-field-conversion price.

At just 1 RU size, full bi-directional conversion between composite PAL, NTSC and SECAM as well as 10-bit SDI signals is provided along with AES audio handling. Performance, size and price mean it is ideal for a wide range of applications including mobile applications, news and transmission. In addition, the clean motion portrayal of its M.Sc Motion Science standards conversion produces video that is not just good to look at, it is also compression-friendly – helping to minimize unnecessary motion artefacts in MPEG-2 bitstreams.

An ergonomically designed front panel allows rapid access to key functions, with a LCD display providing information on signal parameters. The unit is fully RollCall compatible and the Mach1 is designed to integrate up to two IQ modules. This powerful feature enables users to customize their unit according to their application or system needs.

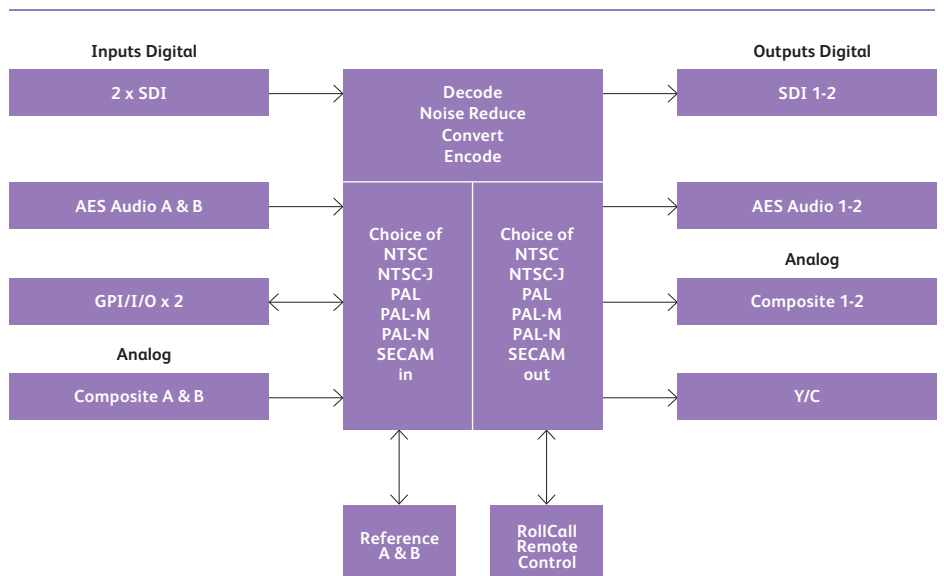
Kudos Plus Mach1 M.Sc

Motion Compensated Standards Converter



Features

- Motion compensated conversion using M.Sc motion vectors
- Aspect ratio conversion with full positional control and blanking
- Noise reduction featuring recursive and median filtering
- Linear conversion mode using 4-field, 4-line aperture
- All 10-bit data path
- 2 x SDI inputs, 2 x SDI outputs
- 2 x composite inputs and outputs, 1 x Y/C input and output
- N4.43, NTSC, NTSC-J, PAL, PAL-M, PAL-N and SECAM composite color standards
- Output genlock
- Dual AES audio inputs and outputs
- Embedded audio is extracted, delayed and reinserted
- Horizontal and vertical picture enhancement
- Flexible options for video and audio I/O
- RollCall (single session) and GPI control



Mach1 M.Sc Standards Converter

Full Product List

Base Model
Kudos Plus Mach1
(3598000)

Motion compensated standards converter featuring MSc (Motion Science) processing technology.

Kudos Plus Mach1 TX
(3598010)

Mach1 with blank front panel.

Option
Remote Control
(3598001)

The Mach1 can accommodate up to two additional modules from the IQ range. Examples are;

IQDEC04
(IQDEC0400-1)
Golden Gate Decoder, Synchronizer with Noise Reduction.

IQAAD00
(IQAAD0014-1)
4 Channel Audio ADC.

IQDAA00
(IQDAA0014-1)
4 Channel Audio DAC.

Please refer to your local Snell office for all possible options.

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Technical Specification

Inputs & Outputs

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

Signal Outputs

Composite Separated Y/C Serial component	2 program outputs via BNC connectors 1 program output via 2x BNC connectors 2 x BNC connectors – SMPTE 259 M – 1997 and embedded audio SMPTE 272 M (level A)
AES/EBU audio	2 x BNC; Unbalanced, 48 KHz synchronous to output video - SMPTE 276 M -1995

Controls

Control Interface

GPI	2 via BNC connectors Closing contact Input/Output
RollCall	Via BNC connector
Remote	Snell RollCall RS485 or RS422 @ 38 kB via 9 way D connector

Front Panel Controls

Memory	8 locations
Input select	Composite A/B, SDI A/B, Y/C
Output format	525 / 625
Genlock	On/Off
Freeze	On/Off
Pattern / black	On/Off
Noise reduction	On/Off
Proc. amp	On/Off
Enhance	On/Off
Picture timing	On/Off
Audio	On/Off
Setup	
Browse	
Motion process	Motion compensation / linear

Size

Horizontal size	50% to 200% continuously variable (full range in convert mode only)
Vertical size	50% to 200% continuously variable (full range in convert mode only)

Other Controls

Luminance gain	±6 dB
Chrominance gain	±3 dB
Black level	±100 mV
NTSC hue	±30 °
Luminance noise reduce	Off, Low, Medium, High
Chrominance noise reduce	Off, Low, Medium, High
Horizontal position	± half picture width continuously variable (full range in convert mode only)
Vertical position	± half picture height continuously variable (full range in convert mode only)

Picture timing

Y/C timing	+444 ns in steps of 148 ns
Picture position/phase	+592 ns in steps of 148 ns

Audio

Source selection	Embedded / External
Source pair select	Group / Pair select for audio extraction from input SDI – up to two stereo pairs passed
Destination pair select	Group / Pair select for audio insertion to output SDI
Delay offset	-40 ms to +160 ms

Enhance

Horizontal enhancement	Off, Low, Medium, High
Vertical enhancement	Off, Low, Medium, High

Preset Controls

Pattern select	Black/100% Color Bars/75% Color Bars/Ramp/Multi-burst +114 µs
Genlock H phase	Internal/External lock
Genlock mode	On/Off
Gamut legalizer	Freeze, Black, Pattern
Default output	Store/Name
Memory	Programmable to most menu functions through user memories or delay output
GPI function	

Encoder Controls

Composite output standard	625 - PAL, PAL-N, SECAM 525 - NTSC NTSC-J, PAL-M, NTSC4.43
Genlock SC phase	+180 °
VITS insert	On/Off

Noise Reducer Controls

Y noise reduction level	Off, Low, Medium, High
C noise reduction level	Off, Low, Medium, High
Sparkle filter	On/Off
Noise measurement	Auto/Manual
Manual threshold level	Auto + 7 levels
Median filter	On/Off

Decoder Controls

Input standard	Auto / Manual - NTSC4.43, NTSC, NTSC-J, PAL, PAL-M, PAL-N, SECAM
ACC	On/Off
AGC	On/Off
NTSC hue	±30 °

Indicators

Input loss	Input Select LED
Reference loss	Genlock Select LED

Information

Feedback

Input standard	Composite and SDI standard
Audio	Embedded channel data present, AES inputs present
EDH	Present : error minute : error hour
Delay	Indication of delay of unit via GPO (high pulse)
Unit temperature	Internal temperature measurement

Additional

RollCall functions	Logging Input Loss, Reference Loss, Input Standard, EDH Errors, AES Input, Audio (Embedded Channel present)
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Specifications

Processing Delay

625 to 525	Linear mode = 70 msec MSc mode = 90 msec
525 to 625	Linear mode = 58 msec MSc mode = 75 msec
625 to 625	50 msec, 1- 39 ms (Size off)
525 to 525	42 msec, 1- 35 ms (Size off)
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	115/230 V 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.



Mach1_MSc v3