
Type of device:

stereo tape recorder

Tape transport:

processor-controlled 3-motor direct drive with 1/4" or 1/2" tape width and international layering

Reel motors: 2 BLDC pancake motors with rotor angle controlled sinusoidal commutation

Capstan motor: 1 BLDC axial flux motor with rotor angle controlled sinusoidal commutation

Electric brakes controlled by tape tension control

BLDC servo drive pinch roller

Hour meter (counts only during recording, playback and spooling)

Operating position: all angles between horizontal and vertical

Tape path:

2 x 44 mm tape stabilizing rollers left and right. Tape tension scales left and right with 1 deflection roller. 14 mm capstan shaft and 25 mm pinch roller with ball bearings

Tape speed:

19.05 cm/s and 38.1 cm/s and 76.2 cm/s

Tolerance of the set speed: < 0.3%

Variable tape speed: +/- 10 % at all speeds

Variable tape speed at editing: - 95 cm/s to + 95 cm/s

Reel size:

up to a maximum of 300 mm reels (1/4" only), fastening via screw clamps

Minimum core diameter of reel: 60 mm

Wow & Flutter (weighted):

19.05 cm/s < 0.05 %

38.1 cm/s < 0.03 %

76.2 cm/s < 0.02 %

Tape slip (at every reel size):

1/4": < 0.05 %

1/2": < 0.08 %

Spooling time:

3 speeds selectable: 1 m/s (archive), 3 m/s, 10 m/s

Tape tension:

Playback and Record:

1/4": 0.8 N

1/2": 1.4 N

(measured at left reel)

Spooling:

Low and mid speed: 1.2 N

High speed: 0.6 N

(measured at the undriven reel)

Head assembly:

1/4" and 1/2":

Full track 2- gap erase head,
recording head and playback head
stereo with 2.75 mm or 5.25 mm
track width. 3 Tape guides and 1
precision bearing stabilization
roller and 1 tape lifter

Head assembly cover with
ferromagnetic shielding

Tape transport electronics:

processor-controlled, 2 sensors for
tape tension

Real-time counter via high-
resolution incremental encoder in
time format hrs / min / sec /
100/sec + autolocator function

Autostop can be switched off during
play and spooling by leader tape

Audio electronics:

one main board for record section
with two separated amplifier PCBs
for record and one oscillator-PCB.
One main board for playback section
with two separated amplifier PCBs
for playback and one PCB for
digital VU-meter driver. All PCBs
plugged on 64 pin female connector
on the mainboards

132 kHz oscillator frequency for
erase and bias for all speeds

Playback and record amplifier to
calibrate via conductive plastic
trimmers separately for each
equalization

High end headphone amplifier
separately adjustable for
headphones with an impedance of 16
- 2000 ohms

Level indication:

processor-controlled VU-meter with
100 ms response time and peak-hold
function can be activated
separately for each channel. Return
time from 0 dB to -20 dB with
active peak hold 3 sec. One digital
LED peak value display with a
response time of 5 ms at 0 dB and
one digital peak value display at +
3 dB with a response time of 5 ms.
Hold time of both peak value
displays 30 ms

Inputs:

XLR inputs electronically balanced plus RCA inputs unbalanced. To calibrate to + 6 dB input level or continuously adjustable between - 20 dB to + 12 dB by switching via level control. One master level with tandem potentiometer for both channels +/- 6 dB

Input impedance: 2 M Ω balanced, unbalanced 5 M Ω

Outputs:

XLR outputs electronically balanced plus RCA outputs unbalanced. To calibrate to + 6 dB or switchable to output level control from - 80 dB to + 12 dB.

Output impedance: 100 Ω balanced, unbalanced 25 Ω

Equalizing:

Playback (switchable NAB/CCIR):

19.05 cm/s: CCIR (IEC 1) 70 μ s
38.1 cm/s: CCIR (IEC 1) 35 μ s
76.2 cm/s: AES (IEC 2) 17.5 μ s

19.05 cm/s: NAB (IEC 2) 50-3180 μ s
38.1 cm/s: NAB (IEC 2) 50-3180 μ s
76.2 cm/s: CCIR (IEC 1) 35 μ s

Record:

19.05 cm/s: CCIR (IEC 1) 70 μ s
38.1 cm/s: CCIR (IEC 1) 35 μ s
76.2 cm/s: AES (IEC 2) 17.5 μ s

Frequency response (rec-repro
measured with RTM SM 900):

1/4":

19.05 cm/s: 30 Hz - 14000 Hz +/- 1 dB
19.05 cm/s: 30 Hz - 18000 Hz +/- 2 dB
38.1 cm/s: 30 Hz - 20000 Hz +/- 1 dB
38.1 cm/s: 30 Hz - 22000 Hz +/- 2 dB
76.02 cm/s: 60 Hz - 20000 Hz +/- 1 dB
76.02 cm/s: 40 Hz - 22000 Hz +/- 2 dB

1/2":

19.05 cm/s: 30 Hz - 13000 Hz +/- 1 dB
19.05 cm/s: 30 Hz - 18000 Hz +/- 2 dB
38.1 cm/s: 30 Hz - 20000 Hz +/- 1 dB
38.1 cm/s: 30 Hz - 22000 Hz +/- 2 dB
76.02 cm/s: 60 Hz - 20000 Hz +/- 1 dB
76.02 cm/s: 40 Hz - 22000 Hz +/- 2 dB

Distortion (1 kHz rec-repro
measured with RTM SM 900 valid for
all tape widths):

19.05 cm/s 250 nWb/m < 1 %
19.05 cm/s 320 nWb/m < 1 %

38.1 cm/s 320 nWb/m < 1 %
38.1 cm/s 510 nWb/m < 1 %

76.2 cm/s 320 nWb/m < 1 %
76.2 cm/s 510 nWb/m < 1 %

Signal to noise ratio repro(measured with RTM SM 900, RMS weighted):

1/4" (track width 2.75 mm):

19.05 cm/s 320 nWb/m > 63 dB

19.05 cm/s 510 nWb/m > 67 dB

38.1 cm/s 320 nWb/m > 66 dB

38.1 cm/s 510 nWb/m > 70 dB

76.2 cm/s 320 nWb/m > 67 dB

76.2 cm/s 510 nWb/m > 71 dB

1/2" (track width 5.25 mm):

19.05 cm/s 320 nWb/m > 66 dB

19.05 cm/s 510 nWb/m > 70 dB

38.1 cm/s 320 nWb/m > 70 dB

38.1 cm/s 510 nWb/m > 74 dB

76.2 cm/s 320 nWb/m > 71 dB

76.2 cm/s 510 nWb/m > 75 dB

Crosstalk:

1/4" (0.75 mm sep. track) > 62 dB at 1000 Hz

1/2" (2.00 mm sep. track) > 64 dB at 1000 Hz

Crackling disorder:

> 56 dB (at start and stop of recording for all tape width)

Erase efficiency (1kHz/510 nWb/m):

1/4":

> 84 dB at 1000 Hz, 19.05 cm/s

> 80 dB at 1000 Hz, 38.1 cm/s

> 76 dB at 1000 Hz, 76.2 cm/s

1/2":

> 82 dB at 1000 Hz, 19.05 cm/s

> 80 dB at 1000 Hz, 38.1 cm/s

> 77 dB at 1000 Hz, 76.2 cm/s

Power supply:

PSU with toroidal transformers shielded between the reel motors with 36 V DC unregulated and 12 V DC regulated and 2 x +/- 18 V precision audio power supply

Connection via IEC connector 3-pole Protection class 1

240 V / 50 Hz European standard

Power consumption:

Stand by: 23 W

Play/Record: 29/35 W

Spooling: 45 W

125 W maximum power consumption

Operating ambient conditions:

Air humidity: 30 - 80 % relative humidity (non-condensing)

Ambient temperature: 5 - 45°C

Weight and dimensions:

30 KG, 460 mm x 500 mm x 260 mm (W x H x D)