

# HS-4000

## 4-Track Audio Recorder



The HS-4000 is Tascam's studio solution for professional recording and playback based on solid-state media. The HS-4000 includes SMPTE timecode and all connections required by professionals including RS-422 serial control. Also true to Tascam tradition, audio is top-quality throughout with up to 96 kHz / 24-bit recording formats available.

Audio files are created on secure CompactFlash media in Broadcast WAV format, and since a pair of CF card slots is available, data mirroring or extended recording times are possible. A remote control available as an option allows flash start operation from a separate room over RJ-45 connection.

The HS-4000 is the ideal solid-state recorder for professionals, with the instant access, ease-of-use and sound quality recording, broadcast and post production studios demand.

### Main Features

- High-quality 4-track audio recorder for professional broadcast and recording applications
- Two operation modes:
  - Timeline mode: Use the unit like a tape recorder
  - Take mode: Record/play separate audio takes, use playlists and flash start
- Ideal replacement for current DAT, MD, MO or other recorders
- Fast boot time
- Dual Deck mode operates as two separate stereo recorders
- Easy to read and operate through TFT colour touch screen interface
- Dual CompactFlash slot with UDMA support
- Mirroring and continuous recording between two CFs
- Uses broadcast wave format (BWF) with mark function
- Sample rates: 96/88.2/48.048/48/47.952/44.1 kHz at 16/24-bit resolution
- Pre-recording up to 5 seconds (audio is captured before the record button is actually pressed)
- Flash start with optional flash start controller [RC-HS20PD](#) or [RC-SS20](#)
- Locate marker function (auto/manual)
- Online function with dedicated outputs for pre-listening and on-air playback
- Confidence monitoring

- Editing functions (divide, combine, erase)
- Projects can be exported in AES31 format
- Auto Cue, Auto Ready, Incremental Play and Repeat
- Playlist function
- Jog/Shuttle function
- 2U rack-mount size

### Inputs and Outputs

- Balanced analogue inputs and outputs (XLR)
- Additional balanced monitor output (XLR)
- AES/EBU input, main output and monitor output
- Parallel control port
- RS-422 serial control port
- RS-232C serial control port
- SMPTE Timecode input/output as standard
- Word sync input/output (BNC)
- Video sync input (BNC)
- Gigabit Ethernet connection for data transfer, remote control or remote monitoring
- Remote connector for optional flash start controller
- USB connector for data exchange with external storage devices
- Computer keyboard (PS/2) connector for easy naming of files and folders

### Specifications

**General**

Recording media	CompactFlash (CF) card
File system	FAT32 (4 GB or more) FAT16 (2 GB or less)
File format	BWF (monophonic, polyphonic)
Number of channels	4 channels (excluding playlist dual mode) 2 stereo mix channels × 2 (dual playlist mode)
Quantization bit rate	16-bit, 24-bit
Sampling frequency	44.1/47.952/48/48.048/88.2/96 kHz (47.952/48.048 kHz: 48kHz±0.1% pull-down/pull-up)
Clock reference	INTERNAL, WORD IN, VIDEO IN, DIGITAL IN (1–2)
Time code frame rate	23.976, 24, 25, 29.97DF, 29.97NDF, 30DF, 30NDF

**Analogue audio inputs and outputs**

The error for nominal and maximum levels is ±1 dB for all input and output jacks except the PHONES jack

ANALOG IN (LINE) jacks (1–4)	XLR–3–31 (1: GND, 2: HOT, 3: COLD)
Input impedance	4.3 kΩ
Nominal input level	+4 dBu (1.23 Vrms) ±1 dB –20 dBu (0.0775 Vrms) ±1 dB (selectable) (+6 dBu when Digital Ref. Level is set to –9 dB)
Maximum input level (selectable)	+15dBu (4.36Vrms) +18dBu (6.16Vrms) +20dBu (7.75Vrms) +22dBu (9.76Vrms) +24dBu (12.3Vrms) –6dBu (0.388Vrms) –4dBu (0.489Vrms) –2dBu (0.616Vrms) 0dBu (0.775Vrms)
ANALOG OUT (LINE) connectors (1–4)	XLR–3–32 (1: GND, 2: HOT, 3: COLD)
Output impedance	100 Ω or less
Nominal output level	+4 dBu (1.23 Vrms) ±1 dB –20 dBu (0.0775 Vrms) ±dB (selectable) (+6 dBu when Digital Ref. Level is set to –9 dB)
Maximum output level (selectable)	+15dBu (4.36Vrms) +18dBu (6.16Vrms) +20dBu (7.75Vrms) +22dBu (9.76Vrms) +24dBu (12.3Vrms) –6dBu (0.388Vrms) –4dBu (0.489Vrms) –2dBu (0.616Vrms) 0dBu (0.775Vrms)
ANALOG OUT (MONITOR) jacks (L/R)	XLR–3–32(1: GND, 2: HOT, 3: COLD)
Output impedance	100 Ω
Nominal output level	+6 dBu (1.55 Vrms) (Digital Ref. Level= when set to –9 dB) +4 dBu (1.23 Vrms) (Digital Ref. Level= when not set to –9 dB)
Maximum output level (selectable)	+15dBu (4.36Vrms) +18dBu (6.16Vrms) +20dBu (7.75Vrms) +22dBu (9.76Vrms) +24dBu (12.3Vrms)
PHONES jack	standard 6.3-mm (1/4") stereo jack
Maximum output power	45 mW + 45 mW or more (THD+N 0.1% or less, into 32 Ω)

**Digital audio inputs and outputs**

DIGITAL INPUT connector (1/2)	XLR–3–31
Minimum/maximum input signal voltage range	200 mVpp to 10 Vpp
Input impedance	110 Ω ±20%
Format	AES3-2003/IEC60958-4(AES/EBU) IEC60958-3(S/PDIF)
Supported sampling frequencies	44.1/47.952/48/48.048/88.2/96 kHz (single/double) Note: When SRC is ON, the receivable range is 32–192 kHz.
DIGITAL OUTPUT connector (1/2)	XLR–3–32
Output voltage	2–5 Vpp
Output impedance	110 Ω ±20%
Format	IEC60958–4 (AES3–2003, AES/EBU)
Supported sampling frequencies	44.1/47.952/48/48.048/88.2/96 kHz (single/double)

**Control inputs and outputs**

RS-422	D-sub 9-pin
RS-232C	D-sub 9-pin
PARALLEL	D-sub 25-pin
TIME CODE IN	XLR-3-31
Signal voltage amplitude	0.5–10 Vpp
Input impedance	10 k $\Omega$
Format	SMPTE 12M-1999 compliant
TIME CODE OUT	XLR-3-32
Signal voltage amplitude	2 Vpp
Output impedance	100 $\Omega$
Format	SMPTE 12M-1999 compliant
WORD/VIDEO IN	BNC, Includes switch for enabling termination
Input voltage	5V TTL equivalent (WORD IN)
Signal voltage amplitude	1 Vpp (VIDEO IN)
Input impedance	75 $\Omega$ $\pm$ 10%
Allowable frequency deviation of external synchronization	$\pm$ 100 ppm
Input frequency (WORD)	44.1/47.952/48/48.048/88.2/96 kHz
Input signal (VIDEO)	24/25/29.97/30 Frame (NTSC/PAL Black burst, HDTV Tri-Level)
WORD/VIDEO THRU/OUT	BNC, OUT/THRU switch included (OUT is only for WORD OUT)
Signal voltage amplitude	5V TTL equivalent
Output impedance	75 $\Omega$ or less
Output frequency (WORD)	44.1/47.952/48/48.048/88.2/96 kHz (47.952/48.048 kHz: 48k $\pm$ 0.1% pull-down/pull-up)
Frequency stability	$\pm$ 10 ppm or less (Ta = 20° C)
ETHERNET	RJ45
KEYBOARD	Mini-DIN (PS/2)
USB	USB A-type 4-pin
Protocol	USB2.0 HIGH SPEED (480 Mbps) compliant
REMOTE	ETHERCON (CAT6 compatible)
Power supply voltage	13 V/41 V
Signal	LVDS serial
Transmission contents	LCD display data, asynchronous serial transmission control signals, port control signals

**Audio performance**

Frequency response, ANALOG IN to ANALOG OUT	20 Hz – 20 kHz: $\pm$ 0.5 dB (Fs = 44.1/48 kHz, JEITA, recording and playback) 20 Hz – 40 kHz: +0.5 dB/-2 dB (Fs = 88.2/96 kHz, JEITA, recording and playback)
Distortion, ANALOG IN to ANALOG OUT	0.005% or less (JEITA, recording and playback)
S/N ratio, ANALOG IN to ANALOG OUT	100 dB or less (JEITA, recording and playback)

**Power supply and other specifications**

Power	AC 100-240 V, 50–60 Hz
Power consumption	25 W
External dimensions (W x H x D)	483 mm x 94 mm x 317 mm
Weight	5.1 kg
Operating temperature range	5–35 °C

Design and specifications subject to change without notice.

Last modified: 2015-02-12 12:33:12 UTC