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Xound

Tascam SX-1

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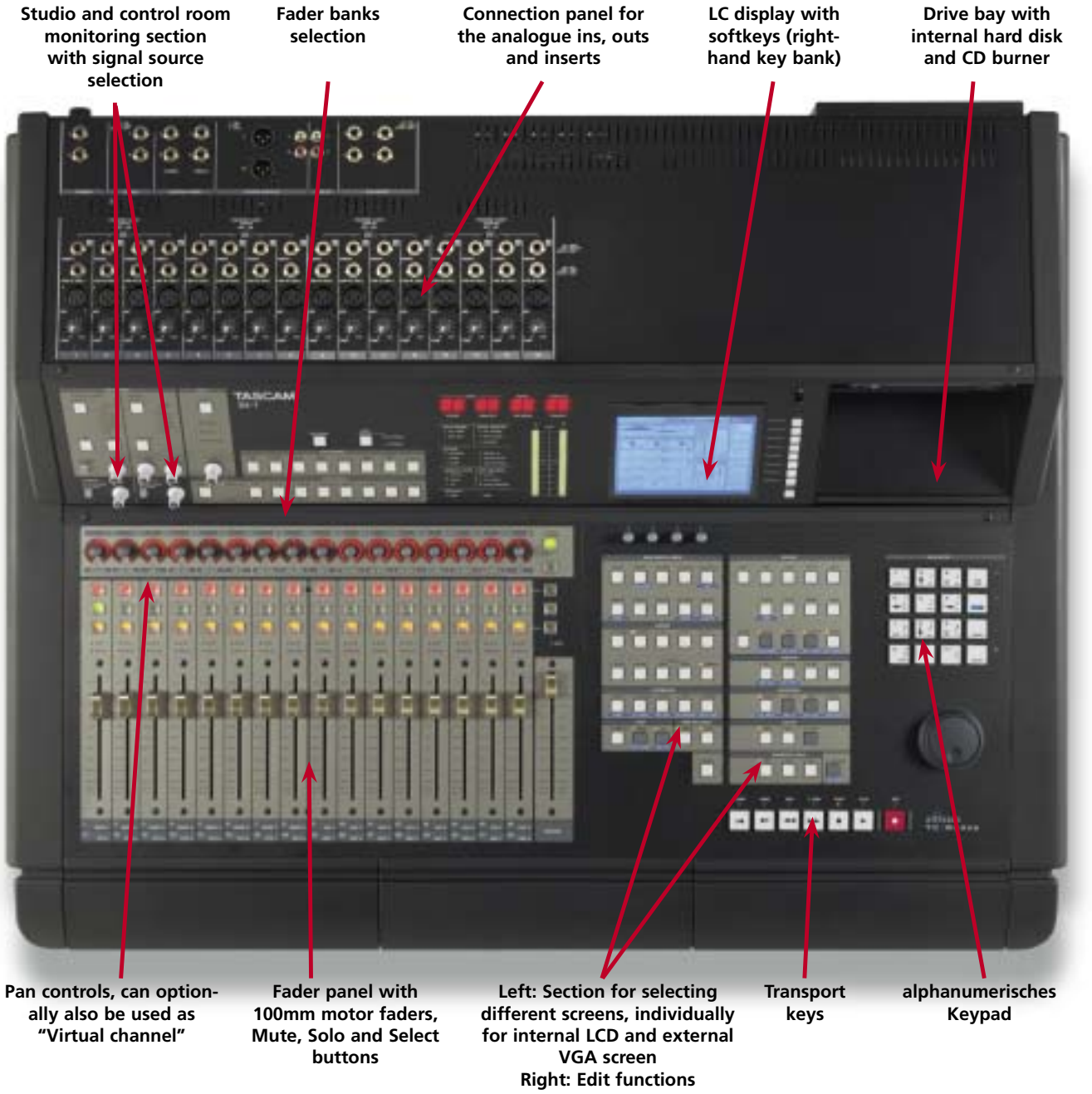
Quite a lot has been happening at Tascam over the last few years: The company has developed from former manufacturer of the legendary Portastudio (based on a 4-track tape deck) into one of the most innovative developers in the audio market – from consumer products through to professional systems. Not least thanks to the co-operation with Timeline, an acknowledged US manufacturer of professional synchronizers and audio workstations, Tascam has introduced many interesting digital audio products in the last few years. Irrespective of whether you're dealing with the "classic" MMR-8, MMP-16 dubber or the latest MX-2424 24-track recorder – all units are considered reliable "work horses" for professional use. With the SX-1, Tascam now introduces a universal workstation, which we're going to look at in a bit more detail below.



Digital Audio Workstation

Concept

The new Tascam SX-1 workstation is designed as a complete "all-in-one" digital studio and provides a fully automated 40-channel/8-bus (+6 auxes) digital mixer with EQs and dynamics, a 16-track hard disk recorder including internal HD, an automated routing matrix, onboard effects from renowned manufacturers such as Antares and TC-Works, a 128-channel MIDI sequencer, as well as all necessary hardware components (e.g. internal PC, MIDI interfaces, synchronizer, sample rate converter) and features for professional production, from recording through to the finished product. So the surround-capable (up to 5.1) SX-1 is equipped with an internal CD burner, amongst other things; the final mixes can thus be directly burned onto a data or audio CD.

The SX-1's connection panel

As the SX-1 is designed as a fully autarkic system, all features of the SX-1 can be operated directly via the keys and controls on the control panel or via the integrated LCD screen. However, operation is more convenient via external VGA monitor, a standard PC mouse and keyboard – and even these components can be easily connected to the internal PC of the SX-1 without any additional hardware.

Via the SCSI port, the SX-1 supports disk formats such as BFS, FAT32, HFS and HFS+. Thus the SX-1 is both Mac and PC-compatible. For audio formats, the SX-1 can currently operate at sampling rates of up to 48 kHz with both Digidesign's SoundDesigner II and AES31/Broadcast WAV format, which means that the SX-1 is even compatible with ProTools audio files, Tascam's MX-2424 and many PC-supported workstations.

Support of standard MIDI format (SMF) also means that MIDI files can be exchanged between the SX-1 and other systems (Logic, Cubabase etc.).

As is the norm with Tascam HD recorders, the SX-1 can also be connected as master or slave to any external device. In addition to features such as Sony 9-pin, MIDI timecode and SMPTE timecode for precise transport synchronization, the internal digital "pulse clock" of the SX-1 can also be synchronized via Wordclock, Video-Sync or via the digital inputs.

AES31/Broadcast WAV format is based on the AES31/EBU Broadcast Standard. In addition to the actual audio data, this format contains timestamp information, i.e. each file contains the timecode position at which this recording was recorded in the original. Thus the original position of the recording can always be reconstructed in other projects too.

SD-II, Sounddesigner-II format: Audio format developed by Digidesign, which is now considered a standard format on Mac platforms. SD II is, amongst other things, also used in the ProTools system. In addition to the actual audio data, SD II also contains timestamp information and the data for graphic wave mode representation. Therefore a ProTools system always needs a little time to calculate the wave form representation, e.g. when using AIFF files, booting or loading. If SD II files are used, the system already has all the wave mode information and so boots more quickly.

First impression

At the very first glance, the SX-1 gives a professional impression, despite the compact design. The hardware seems very sturdy, the user interface extremely clear, which has been achieved through the graphic division of the countless switches and controls into clear sections.

Design is often a matter of taste; I personally like the design of the SX-1 very much: simple and pared down, understated rather than swanky, yet far removed from the dreary look of the first generation of Tascam Digi-Mixers.

Connections

Although the description of a unit's connection facilities is often rather dry (but it has to be done!), this description is necessary to show the versatile options and open architecture which permits the SX-1 to flexibly adapt to any desired studio environment.

Background

AIFF, Audio Interchange File Format: only contains the audio data. If you import e.g. sounds from an audio CD, these will be in AIFF format.

EBU, European Broadcast Union: amalgamation of European broadcasters such as e.g. radio/TV broadcasting industry etc.

AES, Audio Engineering Society: company dedicated to new audio standards, new formats and technologies, amongst other things. Members are, e.g. sound engineers, developers, scientists and industry.

I/O: stands for In/Out or Input/Output.

AES/EBU I/O's: interfaces in professional AES/EBU format. Two channels can be transmitted via an XLR jack or a glass fibre cable.

S/PDIF I/O's: interfaces in semi-professional format, similar to AES/EBU. Two channels can be transmitted via a phono cable or an optical glass fibre cable.

ADAT I/O: 8-channel I/O format originally developed for ADAT recorders. Today this format is used in many applications. The connection occurs via a single glass fibre cable, respectively for In and Out.

TDIF I/O: 8-channel Tascam Digital Format, was first introduced in the DA-88 (8-track digital tape recorder). Connection occurs via a multi-pin sub-D connector.

Sampling rate / Bit rate: During audio digitisation, the analogue original signal is sampled in the analogue/digital converter, i.e. the signal level is measured in many individual time steps and the values converted into a data format, so that they can be processed by the computer or digital system. How many times a second the converter takes a sample is determined by the sampling rate. For the CD standard, the sampling rate is e.g. 44.1 kHz, i.e. the converter takes a sample 44100 times a second and determines the value. How exactly this value is digitally recorded depends on the resolution, i.e. how many bits are used for sampling. The greater the value (CD standard is 16 bit), the finer the graduations and the more "real" the sound.

The connections of the SX-1 are distributed over the back and top of the unit. Located so as to be easily accessible on the top of the unit are all micro and line channel inputs as well as inserts, designed as XLR or balanced jacks, including the respective gain controls (unfortunately not storable), for adjusting the input sensitivity. 48 volt phantom power can be activated for the micro inputs in blocks of four. This supplies the necessary current to connected capacitor micros or active DI boxes, for example. Aux sends 1 to 4 are also designed as balanced jacks.

The SX-1 offers two stereo outputs for "Small" and "Large" in the control room section for the connection of playback monitors. This allows alternative playback speakers to be connected. You can switch by pressing a button on the front panel.

In addition to two separate headphone channels, the SX-1 also offers a further stereo-out as studio output; monitor boxes can be connected here for the recording studio, for example.

For the actual stereo-master-out, the SX-1 has both XLR connections and parallel phonos.

A connected master recorder, for example a DAT recorder, is likewise led back to the SX-1 for playback via phonos.

Located on the back of the device are the jacks for footswitches (e.g. punch in/out), timecode (LTC), mains jack and mains switch, and the digital connections. The internal PC has the typical computer connections: mouse, keyboard, two USB interfaces, serial and parallel ports, Ethernet, VGA jack for the additional external monitor, as well as SCSI Ultra 2/ LVD, for the connection of external devices such as hard disks, CD ROM player etc.

Besides two MIDI-In and four MIDI-Out ports – all ports run independently of one another – various BNC jacks for Wordclock (In, Out, Thru) and Video-Sync (In, Out), for example, are available here. An RS-422 interface (known to many as the Sony 9-pin) permits the direct control of external devices such as, for instance, professional video recorders, via the Sync options - a feature which is particularly interesting for post-production applications.

Also directly on board the SX-1, besides two digital I/Os in SPDIF format (phonos), are ADAT digital I/Os, including ADAT-Sync. These allow the SX-1 to be connected to ADAT-compatible devices without additional interfaces. A sampling rate converter can be activated for all digital I/Os, i.e. the connected digital signals are automatically converted into the internal format of the SX-1 (currently 44.1 or 48 kHz). If additional mixer channels are required for larger applications, an additional mixer desk such as, for example, the DM 24, can be docked on to the SX-1 via the cascade multi-pin jack.

As has been the norm for years with the professional Tascam products, the SX-1 is also equipped with three expansion slots. This means that the number of I/Os on the unit can be very flexibly extended with optional plug-in boards. For example, 8-channel boards with analogue inputs and outputs, AES/EBU or ADAT digital I/Os as well as TDIF I/O (Tascam Digital Format as in the DA-88) are currently available.

Panel

The entire control panel can be divided into different functional groups. The fader panel constitutes the largest area. The SX-1 has 16 touch-sensitive 100 mm channel faders as well as a master fader, all motorised. The fader channels each have a Select switch for channel selection, a Record switch for switching an audio or MIDI track assigned to the channel to recording readiness, as well as a combined Solo/Mute button (the Solo or Mute function is preselected centrally).

In addition, each channel is equipped with a digital panorama rotary pot; an LED ring around each controller displays the current setting. If you activate the so-called Virtual Channel mode, the 16 panorama buttons act as controllers for the channel parameters (EQs, dynamics, aux sends etc.) of the channel chosen with Select. This is extremely practical, as you have an overview of all channel settings. The 16 fader channels, also called the fader bank, can represent the various channels: mixer desk channels, hard disk recorder channels, midi channels, bus master, aux master, returns etc.. The desired fader bank can be called up with the relevant key, and it is even possible, at will, to store up to seven of your own fader bank combinations as so-called user banks. This allows you to configure your "workstation" to your own requirements, depending on the application. In the right-hand third of the SX-1 is an alpha-numeric keyboard for entering parameter values and symbols, which also serves for cursor control and confirmation of entries (Cancel, Enter, Shift etc.), as well as a large range of different function keys, partially assigned double functions via Shift. The function keys are divided into different sections for greater clarity:

Library – here you can call up one of the library menus by pressing the relevant key. Libraries exist for the most diverse areas, starting from EQ or dynamic settings, effects through to routing setups or complete mixer settings (scenes). The SX-1 is already equipped with a set of good libraries upon delivery, but of course the setup library can be extended almost without limit by your own programs.

Automation – this function block provides all necessary operator's controls for the onboard automation.

Editing – as the name suggests, this contains all the important editing functions, if you wish

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only to work via the panel without the screen, for example.

Audition – sometimes, during editing, you want to listen to the point to be edited with a certain lead-in and overhang, to enable you to judge the edit in context better. The area you want to listen to is defined using the audition function.

Auto Punch – a function with which many of you may be familiar. This feature can be used to program an automatic recording entrance and exit, with a type of practice function available for automatic punch in/out using Rehearsal. In addition, you can choose various input modes for the recorder at this point, such as "All Input" or "Auto Mon". In the latter case, the SX-1 switches to Input at the recording start point (also applies for Rehearsal mode), i.e. you hear the signal which is being recorded, while in Play mode you hear the previously recorded track.

Locate – the SX-1 has 1000 memory slots for locating defined positions. This should generally suffice. Some of the memory slots assume a special role – for example they are for loops, edit areas or reserved for punch in/out points, for instance. To store a current position, whether during play mode or "Pause", the locator is first stored in a buffer via "Capture" and copied from here to one of the many locator memories. This position can be recalled by the press of a button.

Transport functions – like a tape machine, the SX-1 is also equipped with the typical deck functions such as REC, PLAY, STOP, FFWD, REW etc., including jog/shuttle wheel. These functions are just as relevant for disk recorders and sequencers as for externally synchronized equipment.

Transport Solo – this interesting feature enables you to disengage the transport functions of the components, which normally always run simultaneously and in parallel. You could, for example, play back only the hard disk recorder, only the MIDI sequencer or only external equipment.

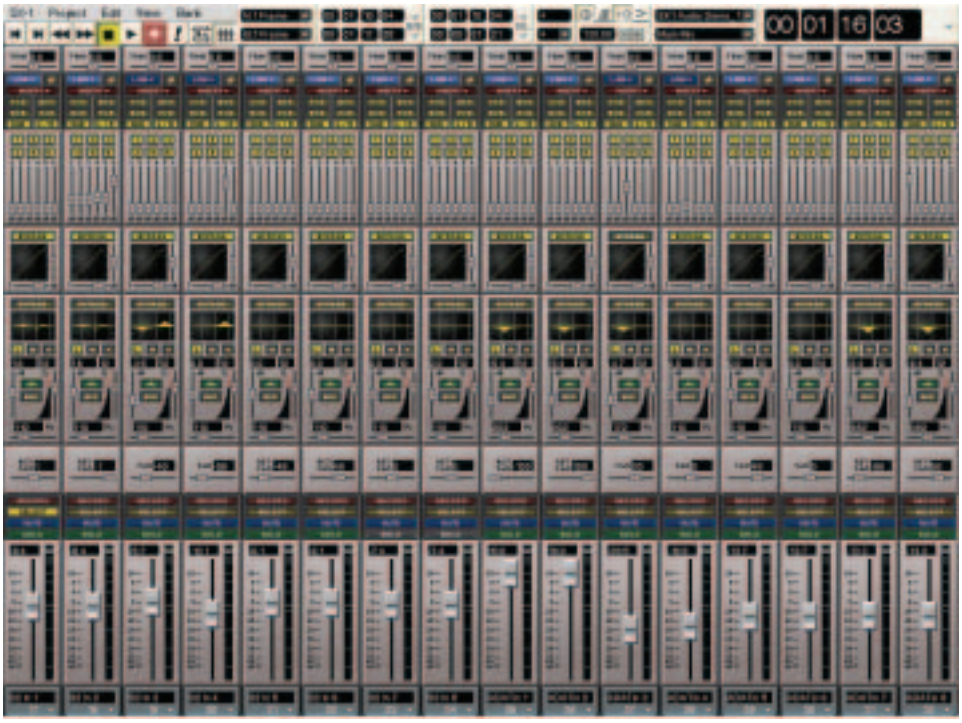
Main Display Mode – these buttons give you access to the most important main menus of the SX-1's own LCD screens or the external VGA monitor, such as Mixer, Track, Channel, Overview, Automation, Master, Effects, Routing, Settings and Project. More details on this later.

Additional panel functions

Now we come to the inclined desk level with integrated drive bay for CD burner, hard disk or exchangeable disk: first of all, on the left hand side, we find the independent operator's controls for the control room and studio monitor playback channels, as well as e.g. volume control, input select switch including display LEDs, monitor selector switch, mono key and dim function (reduction of the playback volume by the press of a button), as well as individual functions for both headphone channels (volume and signal selection). Solo mode and solo level of the mixer can also be set here. For solo modes, the SX-1 offers the options of In-Place, PFL and user-defined solo functions. Above the buttons for selecting the desired fader bank are further functions for specific call up of individual menu pages. You can also define whether both monitors, external VGA monitor or internal LCD screen, are to be synchronized or operated separately; if you wish, each monitor can display its own menus - this always provides an optimal overview with clever partitioning of the menus. A row of software keys and four rotary pots surround the screen, for operation of the LCD menu. The respective menu shows the precise functions which these operator's controls assume. In the centre is a large LED timecode display, a large-scale master level display and a number of status displays, e.g. for timecode, sampling rate, sync modes and much more. Last but not least, the shutdown button, which is used to shut down the entire system. All data are stored again at this point. To be on the safe side, this button must be kept pressed down for at least three seconds.

Mixer

The mixer of the SX-1 is designed as a 32-8-8 mixer, which means we have 32 normal inputs, eight buses and eight return channels, giving a total of 40 inputs. Once again, the mixer can be operated either directly via the control panel, via the LCD screen with its softkeys and soft controls or the external VGA monitor, including mouse and keyboard. The most convenient operation is offered by the latter, in conjunction with certain panel functions, therefore I will essentially deal with the VGA displays here. To call up the mixer desk menu of the SX-1, you can select between three different display forms:



Mixer page

Mixer – provides an overview of all channels with every mixer parameter, a complete fader bank – you select the bank that you wish to see as described above. As on the other mixer pages, you can give all the mixer desk channels names to provide a better overview.

Overview – will show 32 channels in overview, but in slimmed down form, only with faders and LED level control display.

Channel – this displays a single channel chosen with Select, in detail, and shows different modules, amongst other things with graphic curve representations for the EQs and dynamic sections, as well as graphic surround panner (if Surround is activated), library and group tables.

Control module

The control module has features such as Solo, Mute and Rec (recording readiness of the assigned audio or MIDI tracks), similar to the fader panel. From here, the channel signal can also be routed directly to the eight buses. This option is not available in Surround mode, as in this case the buses act as surround channels. Further buses available include the normal stereo bus for standard playback and an alternative cue bus with its own volume faders. Thus you can, for example, set an alternative mix for singer or musician in parallel with the stereo mix, without the need to sacrifice a send or bus. Using the Cue button on the fader panel, you can easily switch between stereo mix and cue mix; the faders of the respective mix move their positions accordingly.

Which mix is heard where is set via the playback matrix (see above). The link function allows individual channels to be linked together, which is very practical, for example, when processing stereo signals. The group masters provide a further useful device. While the link function links together real channels, the group masters only represent higher level master controllers, which can act on any slave faders.

The insert function allows the user to loop external or internal processors into the signal path. The precise definition of the signal flow occurs in the Routing menu. Likewise, the sequence of EQ and dynamics can also be changed within the signal chain by the press of a button. Each channel is equipped with a full parametric 3-band EQ. All bands are identical, with a gain of +15 dB in the range of 20 Hz to 20 kHz with adjustable quality and individually selectable characteristic curve (parametric Bell Curve, Notch, Low Pass, High Pass, Low Shelf and High Shelf). Even if the EQ is only designed with three bands, you get results in most cases thanks to the flexibility of the individual bands. If you want to undertake more extreme editing, two EQs can also be used at the same time – this poses no problem with the internal routing capabilities of the SX-1. In the dynamic section of a channel, you can choose between three different "devices": compressor, expander or gate. These are also universally usable thanks to the many parameters and, above all, highly effective. If you wish to access preselected settings, the library provides an excellent archive of presets, both for EQs and dynamics. If you run the SX-1 in Surround mode (three different modes can be selected: 5.1, Quadro and LCRS), the channel display is amplified by an additional 360° surround panning window, including sub-channel monitoring (this refers to the sub-channel, the "1" in 5.1 format). This graphic representation shows the surround space as a rectangular field and the current pan position as a point. Using the faders on the right and beneath the graphic (X and Y axis), the signal can now be positioned in space - the extreme positions can be limited beforehand. Panning is even easier if you move the point directly with the mouse. In respect of routing, the SX-1 sets brand new standards. Here, everything really can be linked to everything - all that's missing is the integration of coffee machine and answering machine. Often, compact digital mixer desks or workstations are so self-contained that there's hardly any means of intervening in the system's signal flow. On top of this, the systems usually have too few connection facilities for the integration of external devices.

Convenient routing and insert features are generally reserved for expensive digital consoles around the several hundred thousand Euro mark. With digital cross bars and extensive I/O interfaces, these "big" mixers offer the familiar flexibility of the classic patchbay of a professional analogue studio mixer desk. The Routing menu on the VGA monitor of the SX-1 shows various "index cards" as sub-menus for Panel, Mixer, HDR, Effects, Insert, Mixer Bypass, Loopback, MIDI and Library. The individual index cards each show a type of table with the existing components and are distinguished from each other by the connections that can be selected: thus, for example, Panel provides all analogue inputs and outputs, all digital I/Os and the three expansion slots, while the Mixer submenu offers, for example, routing capabilities for input channels, aux returns, direct outs, buses and mixer bypass and loopback. The SX-1 can be bypassed with Mixer Bypass, i.e. any input, for example a micro input, could be directly linked to any output of the SX-1 in this way. Loop back operates in a similar manner, but it allows an output to be directly routed to an input. The paths for inputs and outputs of the internal effects are defined on the Effects page. Irrespective of whether you wish to loop in internal components or external devices, this is possible at almost any point of the SX-1 via the insert card. The HDR routing is really easy. Here the inputs and outputs of the hard disk recorder can be assigned to any addresses. MIDI plays a sepa-

Panel menu

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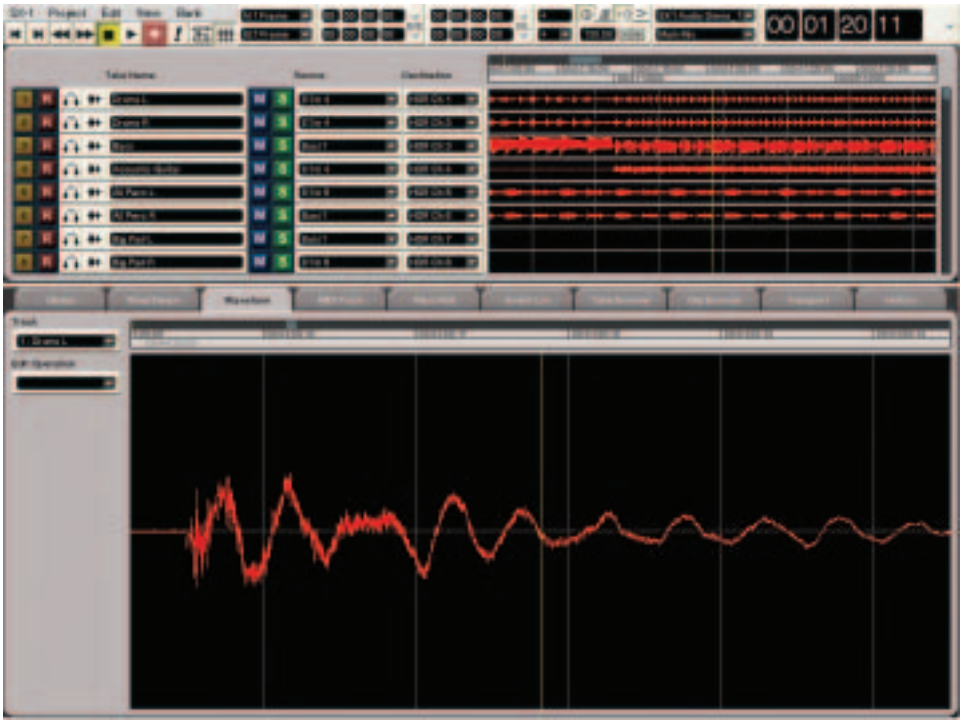
rate role in routing, enabling management of the 16 MIDI channels for the in and out ports. In addition, all of the above-mentioned inputs and outputs, sends, insert points etc. - irrespective of whether actually present as a jack or virtually present within the SX-1 - can be linked together via the routing matrix. Operation is easy. If you want to define a mixer input for channel 1, for instance, you select the relevant input from the pulldown menu in the Routing menu for mixer channel 1, for example any mic/line input, an effect return, an HDR output, or whatever you want to hear via the channel. When programming the routing, I noticed that the SX-1 doesn't give out any warning, if for example, a link already exists to one of the desired addresses. You need to take a little care here, because in some circumstances an old link could inadvertently be automatically removed and replaced with the new one. All routings can be saved as a routing setup, stored in a library and thus be recalled at any time, according to project. Via the SX-1 automation, it is even possible to automate changeover between routing settings, i.e. I can, in the middle of playback mode, and even during recording, change to another routing via automation - without even hearing a transition (crackling or signal interruption). This means that all resources, whether SX-1-internal or external devices, can be used far more effectively – and here Tascam has really succeeded in hitting the mark.

Track window

The Track menu is equally important for the hard disk recorder and for the MIDI sequencer. At the top of the Track menu are the transport functions, identical to the features on the SX-1 panel. Next to these are the settings and displays for all important recorder data, such as timing, song tempo, positions, locator for editing, loops etc. Depending on the operating mode, the user can select between different timing modes, whether as SMPTE timecode, in bars and beats, as simple time in hours minutes and seconds or in feet, frames and samples for film sound recordings. A grid can be activated for selection and editing. Here, Grid represents the grid for selection and operations, while Nudge specifies the steps effected by the +/- buttons on the keyboard during editing. An individual grid can be set for each of these features; the range of diverse options provided by the various timing modes extends from the individual sample through precise note values to time sections of any length. Roughly two thirds of the menu page is taken up by the actual track window, which shows eight tracks, audio or MIDI, in overview. You can use the scroll function to scroll to further tracks if you are using more than eight. You can also scroll the window along the time axis or zoom into the track. Audio recordings are represented by a small wave form, while recorded MIDI tracks show the individual MIDI events as graphic elements.



Track-Fenster mit Waveform-Editor

Each track has features that are already familiar from the mixer (Solo, Mute, Record, Select, Input Monitoring etc.). In addition, each track has two pull-down menus for selecting the input source and the required output. If you wish to create a new project or extend an existing one, additional tracks, whether audio (max. 16 tracks) or MIDI (max. 128 tracks), can be generated. In total, a project can contain up to 999 so-called virtual audio tracks. 16 of these tracks can be listened to at the same time. As a rule, MIDI and audio tracks are rigidly linked, but the track types can be moved in relation to one other through special offsets, if for example something changes in the arrangement. The bottom third of the track display again contains various index cards as submenus for the various edit functions. While audio or MIDI basic settings defined under Global, from song tempo through MIDI-Sync to audio resolution, are preset with 24 or 16 bit (both can be used in a project at the same time!), the time/tempo page provides access for setting tempo or timing changes.

The MIDI track menu page is primarily reserved for transposition and quantization features, and Piano Roll calls up a MIDI editor. The extensive audio editing functions of the SX-1 are made accessible via the waveform editor. For monitoring individual events, the SX-1 offers both a history list and an event list editor at this point; all events are listed here in a tabular structure, and can be edited. For managing all generated audio or MIDI recordings, special browser functions are available for clips and takes (clips are individual audio clips; takes consist of individual clips). Thus recordings can also be easily imported into a current session from other projects.

Audio editing

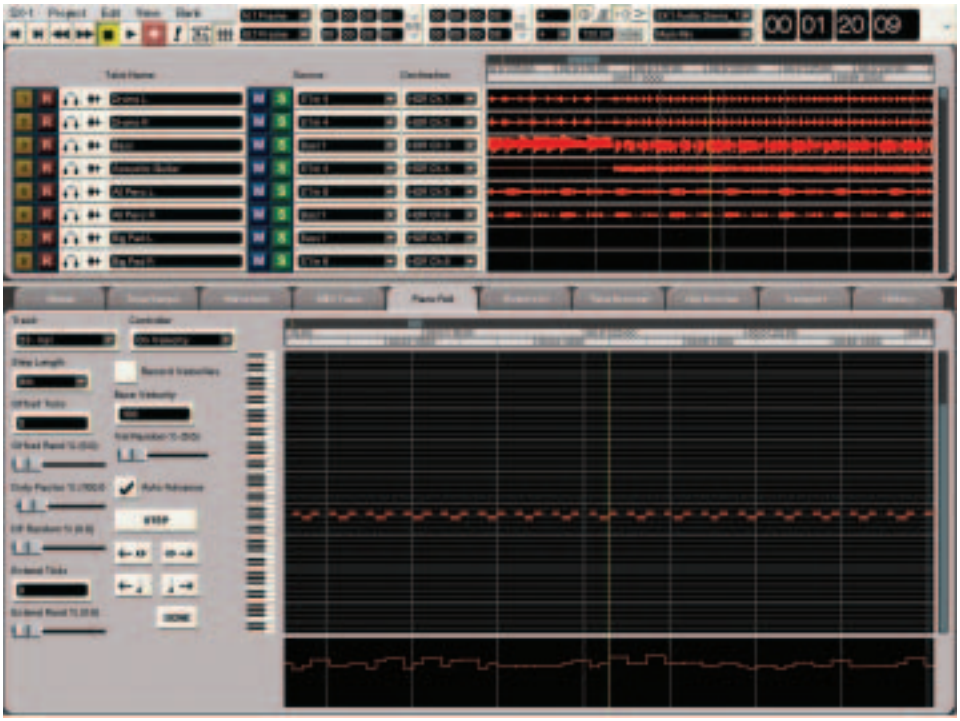
Simple audio editing can occur directly in the track window, but more convenient and extensive options are offered by the large waveform representation in the waveform editor, where various edit tools are generally available for selection, as with the MIDI tracks:

- **Region Select,** for marking an area,
- **Event Select,** for direct selection of a clip,
- **Pencil Tool,** for painting controller data,

- Curve Tool, for drawing curves.
Any audio or MIDI-edit step - no matter how extensive - can be reset or reconstructed with countless undo and redo steps. By way of basic edit functions, the SX-1 offers features such as copying or cutting a marked section and pasting it at a defined point- here various options are available depending on whether the insert point is to be overwritten or moved to the right, for example. In addition, marked sections can be divided, trimmed, pasted backwards, fades can be included, editing carried out by level, where the software automatically searches for the highest possible level with Normalize, and much more.
So that the edits, like punch-in and out, cannot be heard, the SX-1 – like other systems – also works with cross fades. The length of these cross fades can be set and then applies for all edits, which is sometimes a bit tricky, for example when editing classical music. You wish you had the option of entering individual cross fades here.

MIDI sequencer

The recording of MIDI events can occur live, as with the recorder. It is also possible - all non-keyboarders will be pleased - to enter MIDI recordings step by step.
Quantization functions, Transpose etc. are preset via the MIDI track menus. However, these parameters are non-destructive, i.e. you can change all settings again, even after recording. Also very interesting for non-keyboarders are the quantization options of a MIDI sequencer. The SX-1 has plenty of these on offer. In addition to quantization of the most diverse note values including note position, length, velocity, random functions etc., the SX-1 also offers an efficient swing function, which can be used to produce a swinging groove out of a rigidly recorded quaver feeling.
MIDI editing is similar to audio editing. Once again, the track window is responsible for the outline, while the Piano Roll editor goes into detail. Handling is very easy: you mark a MIDI event or section and then select the desired operation. The operations include, for example, Note Trimming (velocity, length, positions, crescendo), Transpose, Quantize, Cut, Copy, Paste and much more, with random operators and logic functions also available (linked to conditions).
Most of the operations can be directly graphically edited in the editor with the mouse. The management of the MIDI controller does not occur from the editor, but via the above-mentioned Mixer menus. If the MIDI faders are activated within the fader bank, then instead of the audio parameters the Mixer menus display a representation of the realtime MIDI controllers. You can compose your own set-ups for the controller being used, according to project.



Track window with Piano-Roll editor

Effects

The internal effects of the SX-1 are managed as so-called quadrants. I.e. there are 4 independent effect slots – configurable at will via the routing – which are occupied by the existing internal effects. Tascam has created an open plug-in platform for this.
In addition to Tascam effects, such as e.g. Exciter, Chorus, Delay, Flanger, Pitch-Shifter, DeEsser, Guitar-Compressor, Soft-Knee-Compressor and Distortion, the SX-1 currently offers a number of ANTARES effects (Speaker Modeler, Mic Modeler) as well as the TC SC-1 Reverb. Control of the effect parameters can either occur via the SX-1 controller or, as is usually more convenient, via graphic representations on the VGA monitor. All effect parameters can be fully automated. As a starting package the SX-1 is supplied with an extensive effect library, which can be amplified with self-edited effects.

Automation

The automation of the SX-1 is very extensive. There is hardly a single parameter or a complete setting of the SX-1 that cannot be automated. The features extend from simple saving and recall of scenes (complete SX-1 mixer setting) and routing setups as a type of snapshot automation, through to dynamic automation of all mixer and effect parameters as well as MIDI controllers. The SX-1 automation offers six different automation modes which can be individually set for each automated controller, as well as three different global automation modes as basic settings, which apply for all controllers:
If a controller mode is on Auto, then the global settings apply, such as Global Write for writing new automation data, as soon as you touch a fader, for example.
- Trim, for retrospective trimming of a previously recorded automation path.
- Init Edit, this notes the exact original starting value, before a new path is programmed.
If the automation modes are individually set for a controller, as well as Auto you can choose Write, Trim, as above, but in this case they only apply for this controller.
- Static, does not write any dynamic automation, but only a static update of a parameter.
- Safe, pure playback function of the automation.

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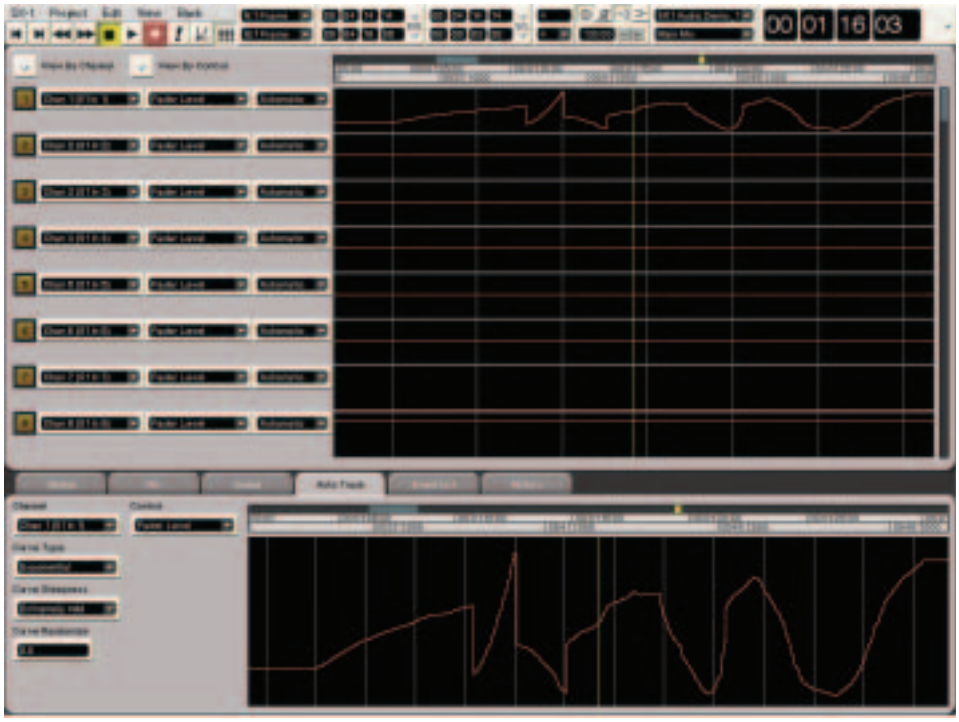

Automation window

- Off, the automation for this controller is off.

In general, the SX-1 operator's controls are very easy to handle when writing the automation data. Operation is very simple: If, for example, you wish to enter a fader movement, you simply take hold of the touch-sensitive fader and the automation goes into recording automatically. If you release the fader, it springs back into its original position and executes the pre-programmed moves. You can set how quickly the transitions between old and new data are to occur. In order to achieve a similar entrance and exit with the other, non touch-sensitive controllers, an extra so-called touch key has been integrated into the SX-1 panel, which has a similar function to that of the fader sensors. The automation has something for curve freaks too. The automation window of the VGA monitor contains a display similar to the track window. Each of the eight tracks now shows one channel and an associated controller, displayed as a curve. Depending on which overview is required, eight different channels can be represented with identical controllers or one channel with different controllers, for example.

If you want to go into more detail, you will again find in the bottom third of the automation window a large controller editor for direct intervention with the mouse. To simplify a mixdown as much as possible, the SX-1 has been equipped with a special "Create Mix" function. A current mix (stereo or surround) can thus be played to the hard disk as a mixdown at any time, irrespective of whether you only require an intermediate mix (e.g. putting together various choral tracks) or a final mix. The mix can then be re-imported into a project or burnt to CD.

Backup

The subject of backup is very important in HD recording systems, because if the hard disk crashes then you've lost everything. It is therefore advisable to make regular backups. As in a project you generally have to deal with lots of individual files, which – if you are also using files from other projects – can be distributed over the entire hard disk, you need a clever system which will hunt out the sounds used one by one and pack them in a closed folder, before saving to CD or DVD. The SX-1 has such a system. Only in this way can you ensure that you have all necessary files and that they are complete. ■

X-C Conclusion

The strength of the SX-1 lies in the "All-in-one" concept, that is, the integration of HD recorder, mixer, router, MIDI sequencer, automation, master recorder, playback matrix etc. The interplay of all components and many innovative functions (e.g. automated routing) is perfectly engineered. Of course, there are pure audio editing systems which offer even more complex edit features, and the MIDI features of the SX-1 do not achieve the complexity of the special MIDI sequencer, like Logic or Cubase, for instance. However, the interesting thing about the SX-1 is that with just one unit and a couple of additional active monitor boxes, you can put together a complete professional studio in the minimum space. And yet the SX-1, due to its open architecture, does not in any way represent an isolated solution. Whether in respect of hardware, thanks to the many I/O routing and sync options, or in respect of software, thanks to the compatibility of data and file formats – the SX-1 permits adaptation to almost any conceivable studio environment.

According to Tascam, the SX-1 software engineers are already working on the next update, which in addition to many features for optimising the handling will also provide additional effects, such as e.g. time stretching.

The SX-1 worked very stably and reliably throughout the entire test phase – even in relation to the signal processing there's nothing to grumble about. The SX-1 sounds very good, which is noticeable particularly at the more extreme mixer settings or when using the effects.

At a price of approximately 9900 EUR, many might recoil initially, but if you were to put together a comparable setup with individual units – without the optimised interplay of the individual components – you will hardly come away better off.

Guideline price approx.: **9900 EUR**

Manufacturer's website: **www.tascam.de www.tascam-europe.com**