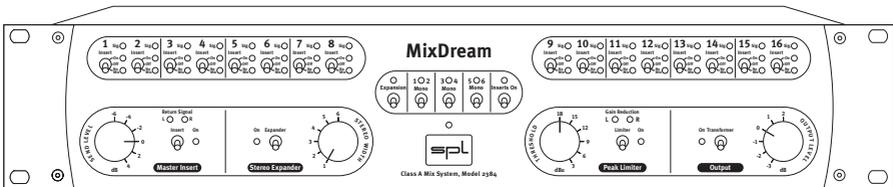# Manual

MixDream

Model 2384

Version 2.0 – 8/2006

This user's guide contains a description of the product. It in no way represents a guarantee of particular characteristics or results of use. The information in this document has been carefully compiled and verified and, unless otherwise stated or agreed upon, correctly describes the product at the time of packaging with this document.

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Contents

Introduction

The MixDream design plan provides for the integration of analog equipment in digital production environments and stereo mixdown at the analog level. This concept offers high-grade analog summing without panorama and fader controls, in turn allowing an engineer to retain the entire scope of his computer automation. One MixDream can sum up to 16 audio tracks to a stereo signal, and should the need arise for more than 16 tracks, several MixDreams may be linked together.

The MixDream discrete class A technology is based on a 60-volt rail (+/- 30V). Newly developed circuitry, based on the most modern analog components, guarantees an extremely high slew rate, a low noise level of -97 dBu (A-weighted, all channels active) and a dynamic level of over 125 dB. Thus the MixDream easily realizes the technical level of the best analog consoles.

Analog vs. Digital Summing

Nowadays, many are asking whether analog summing is better than digital summing. But perhaps the real question is whether digital summing better than analog summing? We at SPL don't know of anyone who says so. We do know that summing with the MixDream creates an amazing signal depth, precise localization and a wonderful stereo imaging. Moreover, the addition of individual instruments results in soft and pleasant transitions. These are analog summing results that we hear—and that you can expect.

However, in contrast to simple summing devices the MixDream's insert and processing capabilities clearly spotlight a factor that is most important in a quality *mix*: while quality summing is the basis of a good mix, quality processing in the mixing process has the biggest influence on sound. When engineers discuss the qualities of highly-acclaimed analog consoles, it is very often the superior analog processing potential of such consoles that is an integral part of such "shop talk".

The MixDream now allows DAW users to exploit this potential with maximum comfort and uncompromising quality, ensuring that nothing can stand in the way of the engineer's having the best of both analog and digital worlds.

MixDream Advantages—An Overview

- High-grade analog summing on just 2U rack space—no analog mixing console necessary
- Optimal integration of analog effects in DAW-environments
- No loss of computer automation
- Lower DAW processor utilization rates
- The most efficient possible re-sampling of individual tracks with latency free monitoring
- Surround capable (from up to 3 MixDream units)
- Channel capacity expandable through linked units

Special Features

Reduction of A/D conversions

Calculated with 16 units for all MixDream inserts, 14 A/D conversions can be spared in the summing process: DAW insertion of 16 analog units through A/D-D/A converters requires 32 conversions, while with the MixDream only the summed signal needs to be converted (18 conversions). Especially the critical A/D conversions are reduced to a minimum and the analog effects are summed before any (in principle not loss-free) A/D conversion has to be made at all.

The MixDream in Mastering

Multi-channel sessions can be mixed and processed in analog, something that may also be of special importance when an engineer wishes to upsample to SACD or DVD-A (please see page 24, "Discrete Mastering").

Controls for stereo summing

- Adjustable insert level
- Stereo expansion control with infinite gradation
- Adjustable analog peak limiter
- Adjustable outputs with added in/out switching of Lundahl transformers

Special Features

Processing, but you choose the mix

Each input channel is equipped with a signal-present LED and a switchable insert-loop. A three stage toggle switch per channel allows the choice of whether or not a channel should be added to the mix buss.

With the No-Mix switch control, a channel may be removed from the mix while remaining available for re-recording through its Direct Output. The No-Mix function can be particularly useful, for example, when the engineer wishes to add track compression. The compressed signal can be re-recorded to the DAW for level automation. This is also known as "bounce back" capability, and without it, compressed signals could not employ level automation, since the compressor is inserted post fader.

Common Bypass for all Inserts

All Inserts may be switched on or off globally.

Connection of Sampler, Keyboards etc.

Along with DAW audio tracks and effects machines or processors in the insert loops, samplers, keyboards and expanders may also be connected directly to the MixDream. Then the Midi tracks need only be added in the DAW project, the outputs (for example, from a keyboard) are then routed directly to the MixDream.

Mono Controls

To save converter channels, channels 1 & 2, 3 & 4 and 5 & 6 may be switched to Mono so that two signals can be converted by a paired D/A. In this case such signals are characteristically chosen which would receive a more central placement in the stereo mix (e.g. kick, snare, lead vocal, bass). All channel pairs must otherwise be panned hard left/right in the mix.
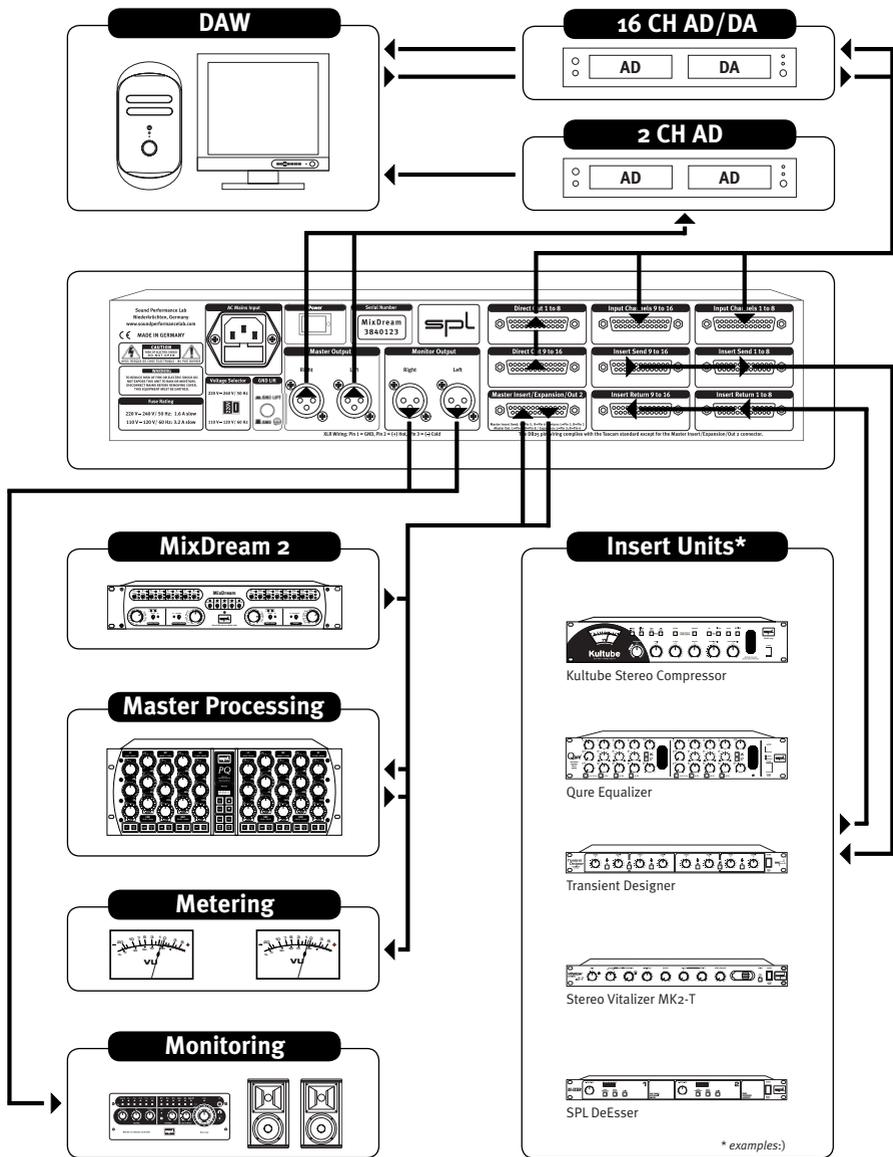
IMPORTANT: Adjust the voltage setting on the rear panel so that it corresponds to your local power conditions! Before connecting the MixDream XP or any other equipment turn off all power!

It makes good sense to think about where you place your MixDream before connecting it. It should be positioned so that you can easily reach it, but there are other considerations. Try not to place it near heat sources or in direct sunlight, and avoid exposure to excessive vibrations, dust, heat, cold or moisture. It should also be kept away from transformers, motors, power amplifiers and digital processors.

- Do not open the case. You may risk electric shock and damage to your equipment.
- Leave repairs and maintenance to a qualified service technician. Should foreign objects fall inside the case, contact your authorized dealer or support person.
- To avoid electric shock or fire hazards, do not expose your unit to rain or moisture.
- In case of lightning, unplug the unit.
- Always unplug the cable by pulling on the plug only; never pull on the cable.
- Never force a switch or knob.
- Use a soft, lint-free cloth to clean the case. Avoid cleaning agents as they may damage the unit. if necessary, use an acid-free cleaning oil instead.

MixDream

DAW

16 CH AD/DA

AD   DA

2 CH AD

AD   AD

Sound Performance Lab
Niederkirchen, Germany
www.soundperformancelab.com

MADE IN GERMANY

AC Mains Input

MixDream
3840123

SPL

Direct Out 1 to 8   Input Channels 9 to 16   Input Channels 1 to 8

Master Output   Monitor Output   Direct Out 9 to 16   Insert Send 9 to 16   Insert Send 1 to 8

Voltage Selector   GND L/R

Right   Left   Right   Left   Master Insert/Expansion/Out 2   Insert Return 9 to 16   Insert Return 1 to 8

Fuse Rating
220 V~ 240 V/ 50 Hz 1.6 A slow
110 V~ 120 V/ 60 Hz 3.2 A slow

XLR Wiring: Pin 1 = GND, Pin 2 = (+) Hot, Pin 3 = (-) Cold

MixDream 2

MixDream

Insert Units*

Kultube Stereo Compressor

Master Processing

Qure Equalizer

Transient Designer

Metering

VU   VU

Stereo Vitalizer MK2-T

SPL DeEsser

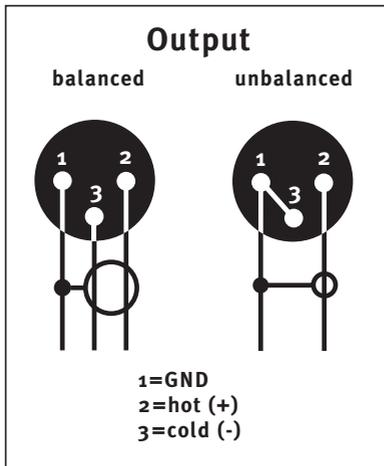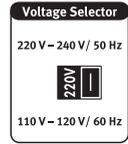**Monitoring**

examples:)

**Pin wiring of XLR outputs: 1=GND, 2=hot (+), 3=cold (-).
The pin wiring of the DB25 sockets conforms to the Tascam standard,
please see page 10 for details.**

The MixDream enclosure is EMC-safe and effectively shielded against HF interference. Nonetheless, you should carefully consider where you place the unit to avoid electrical disturbances.

IMPORTANT: Adjust the voltage setting on the rear panel so that it corresponds to your local power conditions.

The MixDream and all devices to be connected should be turned off before connections are made. Always turn volume down or mute your speakers when disconnecting or repatching audio cables to avoid damage to your speakers and ears.

The following graph shows the correct wiring for connecting unbalanced signals to the balanced XLR outputs:
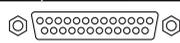

Voltage Selector
220 V – 240 V/ 50 Hz
220V
110 V – 120 V/ 60 Hz

Output

balanced   **unbalanced**

1   2   1   2
   3   3

1=GND
2=hot (+)
3=cold (-)

spl

Rear Panel/Connections
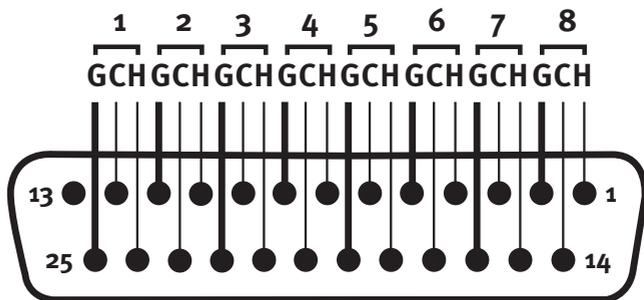
Input Channels

The MixDream has 16 balanced inputs that are connected over two DB 25 connectors (standard XLR/Jack to DB25 cables, available at any audio store). These connectors conform to the Tascam standard with pin layout as pictured below:
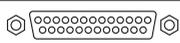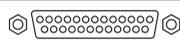

G= GROUND, C=COLD (-), H=HOT (+)

Insert Sends

Similar to the inputs, two DB 25 connectors with identical Tascam pin layout provide 16 balanced Insert Sends to which peripheral processors may be connected.
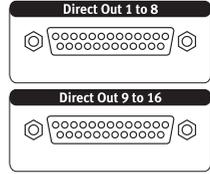
Insert Returns

The 16 balanced Insert Return channels are routed back in the MixDream over two DB25 sockets, again, with Tascam pin layout. These are the connections for outboard machine outputs.

Alternatively, Insert Returns may also be used as additional inputs (without insert function).

Direct Outs

Each MixDream channel includes a balanced direct output after the insert loop. Here processed signals may be routed through A/D converters for re-recording as a new audio track (see also "Insert/No Mix" on page 13). Here again, the DB 25 connector pin layout corresponds to the Tascam standard.
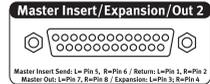

Direct Out 1 to 8

Direct Out 9 to 16

Master Insert/Expansion/Out 2

Another DB 25 socket routes the following signals:

Master Insert
Send: Left (L) = male XLR 5, Right (R) = male XLR 6
Return: L = female XLR 1, R = female XLR 2

Out 2 (additional stereo output)
L = Male XLR 7, R = male XLR 8

Expansion (linking of two or more MixDreams)
L = female XLR 3; R = female XLR 4

Master Insert/Expansion/Out 2

Master Insert Send: L= Pin 5, R=Pin 6 / Return: L=Pin 1, R=Pin 2
Master Out: L=Pin 7, R=Pin 8 / Expansion: L=Pin 3; R=Pin 4

The cable used for this application is a standard cable that has a DB-25 connector (Tascam standard) on one end and on the other end it breaks out into XLR connectors, 1-4 being female XLR connectors and 5-8 being male XLR connectors. The reason for this type of cable is that this port performs multiple functions thus saving valuable real estate on the MixDream's back panel.

Tip: The Expansion input can alternatively be used as separately switchable stereo mix input (i. e. comparison to DAW mix, reference recording from audio player etc.). Please read page 25, "Linking Several MixDreams", for further details.

Master Output

The Master Output provides a stereo mixdown for a recording device. Here as a rule you will route the stereo mix through an A/D converter for re-recording as a new DAW track.

Master Output

Right   Left
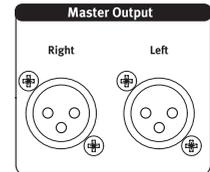
Two master output XLR connections with gold plated contacts provide two options, functioning as either an electronically balanced or transformer balanced output (please refer to the "Transformer On" section on page 19).

Rear Panel/Connections
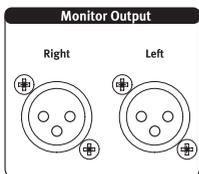
Monitor Output

The Monitor Output runs parallel with the Master Outs and provides for separate monitoring of the stereo mixdown. SPL's Monitor & Talkback Controller MTC 2381 offers all necessary control functionality for DAW monitoring at this stage.

As with the Master Output, these connections also provide the two options of functioning either as a direct balanced connection or with signal routed through transformers (refer to the "Transformer On" section on page 19).

IMPORTANT: Since Master and Monitor Outs function in parallel, using a non-balanced connection in one results in both outputs being unbalanced.

Control Elements

Metering/Signal LEDs channel 1-16

The Signal LEDs indicate a signal presence at the DB 25 inputs (channels 1-8 and 9-16). For this to function, the Insert toggle switch must be placed in the middle (OFF) position.

If the insert loop is functioning (Insert toggle switch in the ON position), then the Signal LEDs indicate input signals at the Insert Returns (DB 25 connections at Insert Returns 1-8 and 9-16).

The Signal-LEDs illuminate when a signal reaches a level of -30dB.

Insert

The Insert control is a three position toggle switch that provides for Off, On and No Mix.

Off: In this position returns are deactivated. However, despite the loop being deactivated, a signal will still be present at the mix buss, Insert Send and Direct Outs.

On: In the On position (LED indicator illuminated in orange) an insert return functions as an input.

A prerequisite to this is that the global insert switch is in its "on" position (see "Insert On" further below). The insert return signal is then routed to the mix buss and the channel's Direct Output.

No Mix: In the No Mix position (red LED indicator illuminated) an insert return signal is not routed to the mix buss, but instead to its Direct Out. This allows effects such as compression, reverberation, etc., to be returned to the A/D converter as a single track, and is particularly useful when signals are processed through external compressors and then are routed to the DAW for level automation (see also "Processing, but You Choose the Mix (Bounce Back)" on page 5). The No Mix function can, of course, be used as a mute control for individual channels.

Inserts On

The Inserts On switch globally activates and deactivates all inserts. For the beginning of a session we recommend having this switch on (orange status LED) so that you can hear the results of individual channel inserts being switched in.

Mono 1 & 2, 3 & 4, 5 & 6

All MixDream channel pairs [1/2 through 15/16] are by default panned hard left/right. This configuration is the only sensible way in which each signal contributing to the stereo sound canvas can retain its placement and automated characteristics.

However, for mono signals (such as kick, snares, lead vocals or bass that should appear in the middle of a mix), it would be a waste to use (in hard L/R panned channels) what would amount to two required converters for a mono result. In such cases, channel pairs 1 & 2, 3 & 4 as well as 5 & 6 may be switched to mono mode (red status LED), so that, for example, there might be a (mono) kick on channel 1, snare on channel 2 and bass on channel 3, etc.

IMPORTANT: Panning for such instruments in the sequencing program should place the kick hard left, the snare hard on the right, and so on.
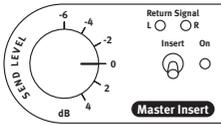
MixDream
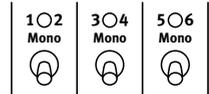
Control Elements
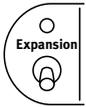
Expansion

The Expansion In is an additional stereo input which is routed through marked as two channels of the Master Insert/Expansion/Out 2 DB25 socket (see page 11 for pin configurations). Typically this stereo input would provide for linking with another MixDream unit.

Master Insert/Insert On

Summed (stereo) signals are routed directly to the master insert, but may be defeated through a toggle switch which activates a hard bypass relay (orange LED illuminated).

Master Insert/Return Signal LEDs

Return signal LEDs illuminate separately for the left and right channel when there is a return signal from a processing unit. These LEDs are activated at a signal level of -30 dB.

Master Insert/Send Level

With the Send Level control you can specify the signal level sent to an effects processor. The range extends from -20dB to +7dB, making possible an optimal adjustment and/or control over such processing. If the insert is switched off, the Send Level control can also be used to set the level for the Peak Limiter.

VERY IMPORTANT: Pay special attention to the input peak levels of an inserted device! The MixDream works on a 60 V power rail and can produce very high output levels up to +28 dB!

Simply put, this kind of output is capable of zapping some processors!

Stereo Expander

The Stereo Expander works on the principle of mixing so called "off center signals". The process involves electronically determining which parts of the stereo canvas are left and right. These L-R contents are then doubled and mixed in reverse phase to the opposite channel. The effect becomes one of producing an effect of an enlarged, grander stereo panorama.
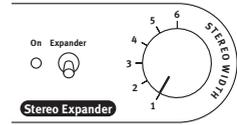
Such stereo expansion can have an even more significant application in either mixes—especially subgroup mixes—with chorus or backups such as guitars, synths, and in widened overhead miking.

Stereo Expander/Expander On

The Stereo Expander is toggled in and out of the chain by a hard bypass relay control switch (an illuminated orange status LED indicating that the expander is active).

Stereo Expander/Stereo Width

The Stereo Width control determines the amount of phase-inverted signals added. As you might guess, in addition to its widening the stereo image, the expander will also increase a signal's overall level. In such cases, you can correct levels with the output control.

Control Elements

Peak Limiter

The MixDream's analog Peak Limiter protects subsequent A/D converter stages from clipping. This limiter is based on a discrete transistor circuitry with a musically optimized curve. Complex program peaks can be transparently reduced by 6 dB from their normal signal level—making a truly "fat" mix possible.

Peak Limiter Design Concept

In contrast to compressors, the MixDream limiter attenuates peaks through an analog saturation effect similar to what occurs in tube processors or analog tape machines. This limiter reacts so swiftly that it can counter any problematic peak. However, its soft-knee curve characteristics (similar to a soft-knee compressor's) simultaneously guarantee its function to be completely transparent.

This design principle, as with any other, makes it worthwhile for you as an engineer to be aware of the circumstances in which to employ such a limiter. Signals that have narrow dynamic ranges and those with fewer overtones are not effectively controlled by limiting. In fact, in such cases it is often highly recommendable to use simple volume controls to provide a degree of dB headroom while retaining whatever limited dynamic differences the signal may have.

So, where does the MixDream Limiter work most effectively? It does so superbly with dynamic and/or summed signals such as Drums, Synths, and so on. Similarly, its judicious "over use" can at time provide you with interesting, useful effects, such as in results you can obtain in an exaggerated application with guitar or organ.
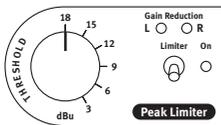
Limiter On

As with the Stereo Expander, the Pek Limiter is toggled in and out of the chain by a hard bypass relay control switch (an illuminated orange status LED indicates that the expander is active).

Peak Limiter/Gain Reduction LEDs

As their name implies, the Gain Reduction LEDs independently show whether and how much level reduction is taking place for L-R channels. As a rule—and to keep limiting as transparent as possible—these should illuminate for only a short duration, as continuous operation indicates the likelihood of too much limiting. Precise measurement and control of limiting can be done through subsequent A/D converter PPM indicators. Switching the limiter in and out of the chain will provide a comparison of PPM values and with it, how much limiting is being done.

(Note: The MixDream does not include PPM metering because such indicators are standard with most professional converters. In any case, different converters may produce varied analog results which are difficult to second guess before a signal reaches them.)

Limiter/Threshold

The Threshold control determines the point at which the limiter curve takes effect, and is adjustable between Off (=ca. 26 dB) and -3dB. Turning the knob clockwise increases the amount that quieter signals are processed.

Put simply another way, turning this knob to the right increases limiting intensity.
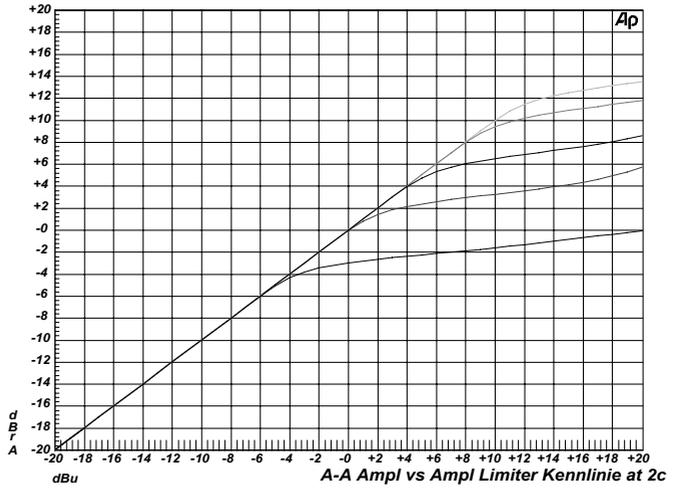
TIP: Once you've found the correct threshold and output for a given converter, it is simpler thereafter to rely on the Send Level control to drive the Peak Limiter rather than continuously juggling both the Threshold and Output controls.

MixDream

Control Elements

Limiter Curve

A-A Ampl vs Ampl Limiter Kennlinie at 2c

Sine Wave

Limiter wave at 2c
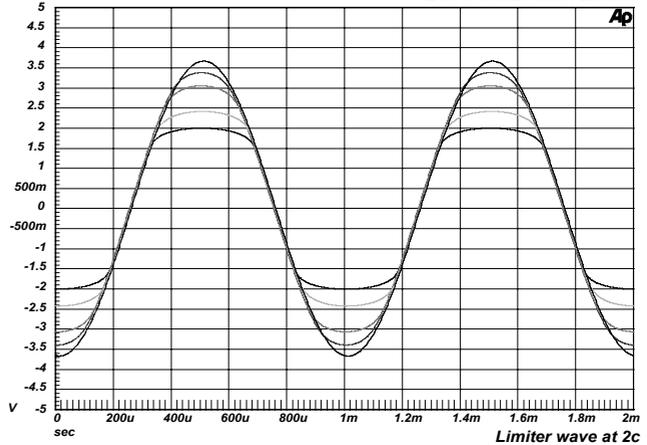
MixDream

Output

The Output section is composed of the Output Level control and the Transformer On switch.
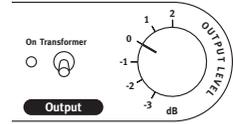
Output Level

The Output Level control regulates the overall MixDream output. Its range extends from -19 dB to plus 9 dB. This level controls both the Master Output (see page 11) and the Monitor Output (see page 12).

Because this control is post-limiter, it can also function in the dual capacities of a gain make up and/or as a fine tuning output control for subsequent A/D converters connected to the Master Output.

Transformer On

MixDream stereo outputs can be routed through either electronically balanced connections or high quality Lundahl transformers (refer to Master Output, page 11, and Monitor Output, page 12). An illuminated orange LED status indicates that the Lundahl transformers are active. The Lundahl transformers we employ are painstakingly manufactured, and, where the process and optimal performance requires it, are hand finished. These transformers share tonal qualities with other analog components such as vacuum tubes, and which "good old vintage tube devices", with their warm, silky, fat sound have almost always outfitted with transformer couplings. Therefore, we at SPL prize the application of transformers in conjunction with the "tube sound" every bit as much as the tubes themselves.

We feel that sonically these transformers produce a somewhat nobler, more refined sound—upper frequencies sound more transparent, silky and are more present, but without artificially emphasizing the fundamental frequency range. Our offering you this choice provides what we feel are two viable professional tonal options—including the more neutral sound of electronically balanced outputs (with their indisputably superior transient response that in some projects is what you'll want to hear).

MixDream

Applications and Modes of Operation

In use, the MixDream requires almost no departures from an engineer's usual working mode, so that all his trusted DAW features and familiar working routines remain available while the MixDream seamlessly expands his aural mixing palette. The following are a few tips for typical applications.

Simply Summing Up

This, of course, is the most basic way in which you can benefit from an analog summing device. In the process each individual DAW track is transferred through D/A converters for summing in the MixDream. It goes without saying that only identical high quality converters can be recommended.

With mono signals one should use inputs 1-6, as these channels may be switched to mono mode. In the DAW such signals must be panned hard left or right if you want to confine them to single D/A converter (thereby avoiding the waste of having to use a D/A pair for one mono track). Because a production often consists of more than 16 tracks, mono tracks like vocals, drums, synths, guitars etc. may be routed through a common D/A output. By switching out the analog inserts, channels can be used as though they had not left the DAW (except for summing). Such a capability means that—and particularly in track arranging—you can recall any of your automated DAW settings.

Summing with Master Insert, Stereo Expander and Peak Limiter

When you have completed project and wish to mix it down to CD or other mastering medium, then is the time to apply the MixDream's powerful mastering functions. The Master Insert is most useful in cases where a combination of compression and/or equalization are needed, as here you can control signal levels, the Insert Send level being the effects processor level control. ⋯⟩

IMPORTANT: In the above cases you may find it necessary to reduce levels substantially to prevent processor clipping. In particular, tube processors produce widely varying sonic results at different drive levels. Using the Insert in-out toggle switch, you can quickly ascertain whether your settings (and results) are correct.

The Stereo Expander can also add even greater width and depth to your mix—as the panorama and width won by analog summing can be undergo broadening effects from the "classic" to the "astounding".

As a final link in the chain, the analog Peak Limiter can play a decisive roll in protecting the following A/D converter from overs. On the one hand this limiter avoids clipping from peaks, and on the other, it may allow for a generally higher loudness level. The degree to which this may be applied depends greatly on track characteristics. If the track has overall a narrower dynamic range, then less limiting to avoid distortion is both sensible and highly advisable. In tracks with large dynamic peaks such as those from percussion, you can achieve up to a 6 dB overall loudness boost.

Summing with Single Channel Inserts

Using these individual channel inserts effectively means that you are realizing the MixDream's full potential. As the name implies, you can employ a complete spectrum of analog processors (EQ, compression, gates, etc.) to each individual channel. But to be as simple and effective as possible, you must also coordinate this processing and MixDream assignments in the most logical way. One example we have mentioned is the use of channels 1-6 mono switching capabilities, a more specific case of which might be an SPL Transient Designer for kick drum and snare on channels 1-2, compression for bass on channel 3 and compressor/EQ on a channel 4 vocal (in the last case, you see that chained processing is possible for individual channels). ⋯⋯⋗

Applications and Modes of Operation

You may leave such processors in a standard hookup of your choice, toggling them into the mix whenever you need them. Within the DAW you can then take advantage of software flexibility, routing each output to a specific insert in your MixDream hookup. During further mixing such processing proceeds hand in hand – with both the MixDream and DAW—so that if activating an insert EQ results in levels that are too loud, the channel volume may be lowered in the originating DAW project.

You can, of course, also connect reverb and multi-effect processors to the MixDream inserts, routing desired DAW signals to corresponding outs via aux sends. At the same time, you can employ the No Mix function as mute for monitoring individual tracks as solo. In such applications your Direct Outs become very important, as a typical DAW aux send will be pre-insert (that is, the reverb portion of heavily compressed drum set signals would not be compressed.). In such case a channel's direct out would be routed back through the A/D converter. The converter channel must be set to monitor mode in the DAW in order to use it as an aux send. Now the send levels can also be processed with the DAW's automation features. This procedure retains both the convenience of digital control and the superior analog sound you desire.

Should you suddenly need to listen to another recording or do an additional take during mixdown, the Inserts On toggle offers a quick, efficient way of temporarily defeating all external processing. In such cases, you only need to reset the mono switches. Otherwise your entire processor routing remains in the background for a quick return to previous work.

Summing of Subgroups

A typical production environment will often have more than the 16 channels of a single MixDream. There are several possible solutions to this:

1. Well, you could buy additional MixDreams (which we confess would make us happy—and we're sure would not disappoint you), or:
2. Sum your grouped tracks with the MixDream itself.

For example, if you've done a chorus backup in 16 solo tracks, you can adjust your panning in the DAW, then route this to the MixDream for an analog summing in stereo, which can in turn profit directly from the MixDream Master Inserts, Stereo Expander, and Limiter. Having a pro EQ ready for the Master Inserts means just about every possibility is covered.

We strongly recommend initially processing spatial and loud-ness-related characteristics with the Stereo Expander and Peak Limiter in the subgroups (including tracks with such as guitar overdubs, drums/percussion, keyboards, and so on). You can apply more extreme settings with subgroups than in stereo mixes, achieve more differentiated processing and avoid unnecessary affects to other groups. In our experience, the above procedure can yield a much improved sonic quality over a simple 16:2 summing (especially of digitally summed subgroups)—and also leaves many doors open for creative audio work:

Through extreme limiter adjustments you can turn an innocuous sequencer loop into a heavy duty techno beat, while more severe stereo expander settings can move an organ sound far outside the normal stereo image, and so on. A further advantage is that your DAW must only play back a few stereo files and thus is faced with less track processing. Of course, you keep your original 16 tracks for possible further work, but these are muted when listening to the results of your current MixDream summing.

Applications and Modes of Operation

Bounce-Back function

When you have your DAW, 16 A/D-D/A converters, MixDream and processor hardware set up you can do repeat takes with individual or multiple tracks—what is nowadays often referred to as "Bounce Back". This procedure plays an important role if you wish first to process a track in analog (for example, drum kit compression), but later on wish to apply the results in further DAW automation.

In such work you are well advised to avoid latency problems by routing the complete mix to a stereo out while simultaneously routing the signal to be processed to yet another stereo out. You then can hear everything in the correct time frame and can thereby be sure of correct processing results.

For the processing of the signal itself, two possibilities suggest themselves:

1. Over the corresponding channel's Direct Out
2. Over the Master Output. Here you must be careful to toggle your No Mix switch to avoid having the entire mix included with the recording.

Inserted processors may be routed as DAW inserts via the Direct Outs. At the same time, the output signal must be time adjusted so that in the DAW it is also mixed without latency problems. In this case, be sure to toggle the Insert switch to No Mix.

Discrete Mastering

Normally a studio mastering engineer requires that a stereo file be made available for his or her work. But in such a mixdown, any problems (for example, significant variations in volume among instrumental subgroups) will mean equally significant limitations to your final mastering options.

Instead, however, if one masters from a discrete mix with four or eight stereo subgroups, each of these can be adjusted just as easily and quickly in the mastering process—to the extent that even individual groups can be tweaked with different processing.

Your final result is clearly better and the time needed, minimal—especially since it is less likely that a new mix will be called for.

Your MixDream is predestined for such applications, as we've planned its superior sound quality for just such occasions. Moreover, input channels can be used in mastering as input toggles to select different contributing tracks. Finally, different D/A converters may be compared so that you can be sure of selecting those most suitable for your present project.

Linking Several MixDreams

An expansion connector provides for a second MixDream input should 16 channels not suffice. This second MixDream's master output—as well as it's Insert Sends—may be used. In such cases, it is important that you set the Insert Level of the second MixDream to 0 dB to avoid a global difference between the two.

If more than three MixDreams are to be summed, we recommend to employ a further MixDream as master—otherwise the signals from the first MixDream (as the worst example) would unnecessarily be summed in each following unit.

If you wish to keep the channels with mono switch, use channels 7 to 16 at the master unit for connection of slave units. The respective Insert switches must be set to the Off position.

Block Diagram
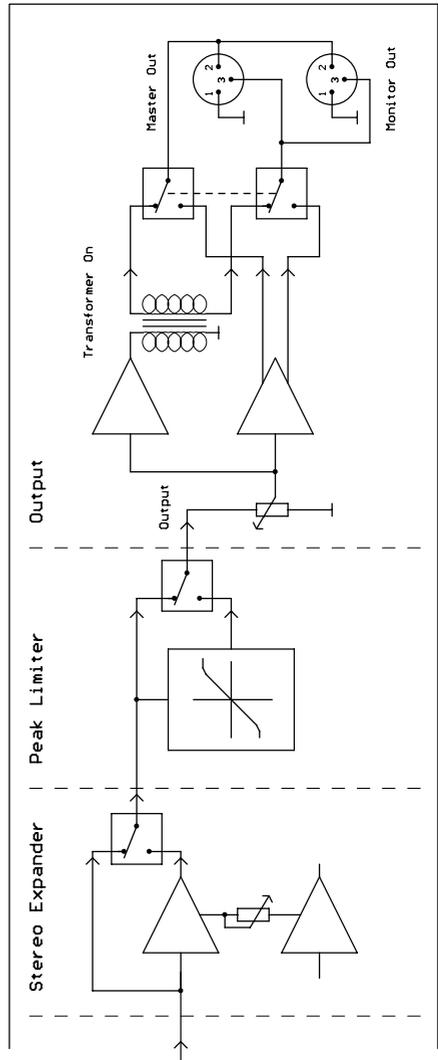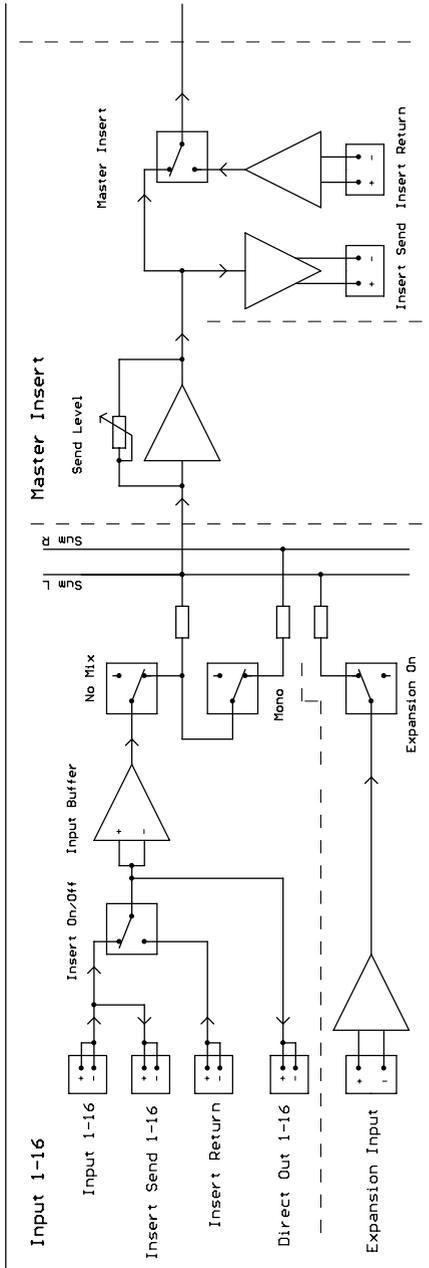
No effort or expense was spared here. We don't know of anyone who makes good coffee with great beans and bad water, and we don't know of anyone who makes great sounding audio equipment with mediocre power supplies. The best parts cannot give you a sound without dependable power.

The MixDream is equipped with a lavishly dimensioned internal power supply transformer (77 VA), which is capable of providing adequate current regardless of any demands you can put on it, even when running the MixDream pedal to the metal.

The MixDream's power transformer is also heavily shielded to minimize hum, and the DC buss is the result of a completely new circuitry, here including a discrete +/-30V regulator whose noise level borders on the immeasurable. Extremely fast rectifier diodes and 26.000 microFarrad capacitors insure that there is enough available current at all times and for every imaginable peak. Additional 470 nF/250 V MKP stabilizing condensers are present to insure further that any conceivable peak loads will not affect your mix.

All MixDream relays are supplied by their own separate (12 V) power transformer windings. Likewise all LEDs have their own independent 5 V supply. Thus these devices cannot influence any of audio signal through the power supply.

The MixDream power is provided by the included standard IEC three-pole (computer) cable. The power chain (cable connections and transformer) conform to appropriate VDE, UL and CSA standards. Fuses are rated at 800 mA for 230 V and 1.6 A at 115 V operation.

AC Mains Input

spl
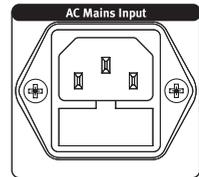
Specifications

Freq. Response:	‹1Hz-220 kHz (+/- 3dB)
THD+N Ratio:	-104 dB
(20Hz-22kHz, Input +10dBu, all channels active)	
Noise Level:	-97 dBu
(20Hz-22kHz, A-weigted, all channels active)	
Max Input Level:	+28 dBu (@1kHz)
Max Output Level:	+28dBu
(@1kHz/THD+N -95 dBu)	
Dynamic Range:	125 dB
(20Hz-22kHz, A-weigted, all channels active)	
Crosstalk L/R:	97 dB@1 kHz
CMRR:	‹70 dB
(@1kHz, +10 dBu input level)	
Input Impedance:	10 kOhm
(for Input 1-16, Expansion, Insert Return)	
Output Impedance:	82 Ohm
(for Master/Monitor Out w/o transformer, insert send)	
Output Impedance:	65 Ohm
(for Master/Monitor Out with transformer)	
Power consumption:	75 W

Dimensions and Weight

Dimensions (W x H x D):	Standard EIA housing, 19-inch/2 U 482 x 88 x 237 mm/ ca. 19 x 3.5 x 9.5 in
Weight:	6,6 kg/14.52 lb

SPL products are guaranteed for a period of two years against faults in materials or workmanship from date of factory delivery, tubes are guaranteed for a period of three months.

For full sales and guarantee terms and in any service case please contact your local supplier.

Direct support by SPL requires product registration. Please fill in the gaurantee card legibly in blockletters and send it to SPL or use our online registration on www.soundperformancelab.com (woldwide) or www.spl-usa.com (USA).