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Professional Audio and Music Production

## Solid-State-Logic Matrix Analog Console

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Matrix is a small-footprint analog mixer that offers up to 40 line inputs and uses the same SuperAnalogue™ technology as Solid State Logic's Duality. Intended to be the nexus of any studio, Matrix simultaneously communicates and controls up to four different DAWs. Its compact size and ergonomic layout makes it idea for the single engineer, producer, composer, or singer/songwriter working in small project studios. It will also find a home in ADR/Foley suites, jingle house production studios, or as the centerpiece of a sound designer's rig.

**"What Is The Matrix?--The Answer Is Out There."**

### Matrix Revealed

Conceptually, think of Matrix as two products so cleverly intertwine and interdependent that it operates as a single efficacious and powerful system. Matrix has two concurrently running modes called Analog Focus and DAW Focus.

### Analog Focus

In Analog Focus, Matrix is an analog mixer with 16 dual line input channel strips each with 100-mm motorized faders. Normally, the secondary line input would come from a recording chain output (mic pre/EQ/compressor) while the other input is for the DAW track return.

Each channel strip has a line level input control, phase flip and insert in/out switches; controls for a stereo cue/effects send bus and four effect send buses; solo and cut buttons; a stereo mix bus and separate stereo recording bus selectors plus a level control for the direct out.

Matrix has no analog processors whatsoever--intentionally. Considering the console's price point (\$25,995 MSRP), everyone's individual predilections for their favorite EQs and compressors, and more "in the box" DAW processing than ever, Matrix instead offers a large programmable virtual patchbay--a "matrix" to select and route your analog outboard gear for insertion into the Mix and Record buses and any of the 16 channel's signal paths. You also get SSL's famed Total Recall TR system to store and recall the console's entire setup.

**"Never Send A Human To Do A Machine's Job."**

## **DAW Focus**

In DAW Focus mode, all analog controls and settings remain intact except the physical faders, solo and cut controls are "hijacked" for reuse in controlling the selected DAW. DAW Focus adds additional control with assignable V-Pots and Sel (Select) Keys used for deeper access to any channel's settings. DAW applications run on any number of attendant computers networked over regular Ethernet connections and Cat-5 cables. For MIDI communications, the Matrix uses ipMIDI ([www.nerds.de](http://www.nerds.de)).

Matrix is laid out conventionally with the 16 channels starting at the left side and the Center Section taking up the remaining 1/3 right side of the console's 907mm width. To apprise you of the channels' status, a bright, LED digital scribble strip with two display rows spans across the 16 channels. The top row labels follow focus modes while the bottom row always refers to objects in DAW Focus such as the function/names of the aforementioned V-Pots.

**"The Matrix Is Everywhere."**

## **The Center Section**

The top of the center section has analog master controls for the mix, recording and stereo cue buses. Each bus has a +/-24dB gain trim pot, insert in/out, TR indicators (like most pots and switches on this board) and the  $\Sigma$  (sigma) symbol switch for mixing the pre-insert signal with the inserted processor's output. The recording bus and stereo cue have "To Mix" buttons that act as analog, stereo subgroups by routing their signals to the stereo mix bus/master level control.

There are four effect send submasters and four effect returns that'll feed the recording, mix and stereo cue buses. The default solo mode is destructive--aka Solo-In-Place but there are AFL (after fader listen) buttons for the stereo cue, effect sends and returns and a master level control.

**"Welcome To The Desert Of The Real."**

## **Monitor and Cue Controls**

Familiar to any SSL user is the Control Room Monitor section with volume level and Cut button, Dim button and

level control, Mini speaker level, a Solo Clear button and a vertical column of source switches for monitoring: mix and recording buses, two external sources and the console's DAC output.

Onboard 24-bit AD/DA converters operate at up to 176.4 kHz. There are no BNC clock jacks, but the converters will clock to any incoming digital source; otherwise, they default to 44.1 kHz.

Artist's Monitoring is a cue system that will monitor the mix bus, the monitor mix, stereo cue, and external digital or analog sources. The  $\Sigma$  feature is used again to hear any of these sources summed together, such as for learning a guitar or vocal part from a connected iPod while on mic or recording and listen to a cue mix--cool! There is also a simple Hi/Lo equalizer available for contouring the headphone mix for any kind of headphones or ear buds.

SuperCue provides latency-free monitoring during recording. During vocal overdubs, when Auto-Mon is selected and a DAW track is armed for record/playback, the stereo cue is sourced from the DAW track AND the second line input receiving the output of the vocal recording chain that is also routed to the DAW's analog input. You'll hear yourself and the DAW track at the same time. Effects sends are sourced from the stereo cue so that on punch-in, Auto-Mon mutes the track's DAW playback, allowing you to hear only yourself while retaining all effects. S-Cue, AutoMon and send source selection are controlled on the Master Channel section..

The Master Channel also affects individual or global switching across the 16 channels. The channel input source; how the channel's audio is monitored; channel output source; and source for the stereo cue and effect sends are all switched here. The MC finishes with it's own motorized analog stereo mix bus fader that doubles (in DAW Focus) as the master fader in DAWs that support it.

**"You Take The Red Pill--You Stay In Wonderland."**

## DAW Control

Matrix communicates to attached DAWs in layers using interfacing data communication protocols arranged in profiles. Matrix DAW communication profiles include HUI (Human User Interface) for Pro Tools; MCU (Mackie Control Universal) for Logic 8 Pro, another MCU profile for Nuendo/Cubase and a MIDI CC (Continuous Controller) profile for controlling MIDI devices.

## Matrix Designer Chris Jenkins

Innovative and unconventional thinking, breaking with tradition and a fearless determination have always been guiding principles for Matrix designer Chris Jenkins. Originally a BBC recording engineer, Jenkins' relationship with Solid-State-Logic started back in the '70's as technical engineer for Sir Richard Bramson at London Townhouse Studios. Townhouse was a two-studio complex that incorporated concepts very different from the status quo of established London studios such as Abbey Road. At the time, SSL boards were considered newfangled and Jenkins was charged with its installation, training and subsequently, public relations under the guidance of SSL's late founder, Colin Sanders.

Away and after a couple of short independent stints, by 1981 Sanders rehired Jenkins to oversee all of SSL's installations, maintenance, tech support, and training programs. His overall company knowledge led him into sales, marketing, and product design and finally into top-level engineering where he used his formal engineering training to design the SSL 5000 Broadcast and Film consoles. He followed those with the C100 and C300 digital desks.

"The recent digital summing bus backlash came as a total surprise to me since we were already making consoles with digital summing and doing quite well," says Jenkins. He designed the AWS900 board in 2002 to have an analog front-end for recording or mixing and added a DAW controller layer for editing and mixing. His Duality followed to offer total flexibility--complete freedom to combine the best attributes of both analog summing and universal DAW control in a large-frame format.

"Matrix benefits significantly from all the clever bits we lifted from what we'd done in the past--we put as much of them in there as we could," says Jenkins. "Matrix is a good balance of what a DAW is good at and what analog is good at. I think people are going have a good time with this console."

-- *Barry Rudolph*

## "Come On. Stop Trying To Hit Me And Hit Me."

### Matrix Remote

Matrix Remote is cross-platform application that runs on the DAW computer or any other computer on the network. This intuitive software determines Matrix's operating "personality" by configuring the networked DAW's HUI, MCU and CC functionality. All configurations are saved locally and then transmitted to the console where it is also stored on a rear-panel SD memory card. Matrix Remote data can also be archived and saved along with the DAW files for recall on other Matrix consoles or dissemination over the Internet.

Once the DAW/Layer is selected in the DAW Remote app, the supplied default Profile (for that DAW) is used and renamed for modification, you'll continue by data entry over the GUI's six tabs (pages).

**Projects** is for naming recording projects and song titles to associate all TR, Channel and Insert Matrix data; **Total Recall** is for taking, setting and recalling TR snapshots; **Channels** labels the 16 channels in the scribble strip; **Insert Matrix** sets up the channel insert devices--up to six devices (outboard processors) can be chained together in preconfigured, stored and listed device chains; the **DAW** tab configures the protocol used to link Matrix to your DAW along with all Soft Key assignments; the **About** tab displays the currently installed software and firmware versions and has shortcuts to the SSL Website for updates etc.

## "Nothing. I Just Had A Little déjà vu."

### Soft Keys

Soft Keys are an important adjunct to users of the Matrix. Soft Keys can be programmed to send HUI and MCU commands plus any combinations of QWERTY keystrokes. More than 360 functions can be assigned to Soft Keys for each of the five Soft Key sets--four user-defined collections could hold the preferences for four different operators of Matrix while the SSL set is for global settings.

Each set has up to eight categories whose names are displayed on scribble strip below their eight select buttons. A second scribble strip row below shows up to eight subcategories associated with every category. Soft Key programming is also by way of the Matrix Remote.

At the bottom of the Center Section are the Transport and Utility buttons. The Transport buttons are large and rugged feeling ready for any abuse and there is a large Jog wheel that 'scrubs' DAW tracks back and forth. There are also four directional cursor keys and a Mode button.

The Utility buttons decrease mousing around the DAW screen with buttons for: Bank which cycles through DAW tracks 16 at a time; Channel cycles one track at a time; modifier keys for Shift, Ctrl, Opt/Alt and Apple/Alt; plus Esc and Enter keys. Lastly, two rows of five transport Utility buttons with (Pro Tools specific) names like: Previous, Next, Last for Marker locations; +/- Nudge; and Loop. The actions of these controls follow the currently selected DAW's HUI or MCU implementation and are also governed by the Profile settings in the Matrix Remote.

## "You Take The Blue Pill And The Story Ends."

### Mixing On The Matrix

Starting a 32-channel mix on the Matrix begins by deciding which DAW channels you'd like in front of you on the motor faders and which you'd like on the stereo cue mixer now sourced from the second 16 line inputs. I put all

## Hooking Up The Matrix

To maximize its potential by fully integrating Matrix into an existing studio requires up to 17, 8-channel DB25 cables. You'll need two sets (10 total) of connections for channels 1-8 (5) and another (5) for 9-16 each consisting set of: 8 line inputs for mic amps, keyboards; 8 device sends; 8 device returns; 8 DAW returns; and 8 channel outs. The Master Section requires an 8-channel DB25 cable each for: external to monitor inputs 1 and 2; main, mini and headphone sends; record, mix and follow monitor main outputs; record, mix and cue Insert sends; record, mix and cue Insert returns; cue stereo and effect sends 1-4; and stereo effects returns 1-4.

Connect all your outboard to TT/DB25 patch bays so that you can leave 'permanent' patch cables connecting your gear to the appropriate device sends and returns jacks. That way you can use your gear separately from the Matrix at any time.

You'll also need: an XLR connector for the mini speakers, XLRs for AES/EBU monitor in and AES/EBU stereo bus output plus a pair of Toslink spigots for S/PDIF digital I/O. There is also a 3.5mm jack for iPod connection and a 1/4-inch for stereo headphones.

### Computer Interfacing

A standard RJ45 Ethernet crossover cable is supplied to connect the Matrix to your DAW computer. If multiple computers and/or Internet connectivity is required, Matrix behaves as a network appliance with an IP address and can be configured and used with any router or switch. You'll also need to connect a USB cable from Matrix to your computer and, if you own a SSL X-Logic Rack, connect its DB9 cable to the Matrix.

-- *Barry Rudolph*

vocals, signature guitar tracks, solos and drum elements on the faders as I wanted to further process them using the attached SSL X-Logic rack. The X-Logic's settings are also captured and stored along with the Matrix's TR data.

The stereo cue faders are at unity when fully CW and I used these for DAW effect returns and instrument tracks that require little or no gain riding such as tambourines, shakers and "one-time only" events that I could set and forget.

That would then leave the four analog stereo effect returns a Lexicon 480L. As needed, I would then switch effect send sources using the Master Channel to either post fader or post stereo cue--there are LEDs that keep you informed which is which. You can only access two of the four sends at a time so I would then set up the 480L with two mono sends--one for each stereo machine.

The V-Pots, located just above the channel faders, are easy to assign to automate effect send faders in Pro Tools. The Plug-in mode allows PT plug-in parameters to be spread out over only four V-Pots with the scribble strip showing the parameters and settings. In DAWs with MCU profiles (like Logic), the entire 16 V-Pots and scribble strip are available. This is much better than setting a plug-in's compressor threshold with a mouse! Parameter values and resolution are identical to those seen on the PT GUI.

For most of the automation moves, I used the DAW Focus mode where I could quickly bank across all the faders in Pro Tools making a tweak here and there. The scribble strip updates with the track names in PT as you bank around so make sure you keep the name short! I found the collection of default Pro Tools Soft Keys and the Transport very helpful necessitating less computer keyboard inputs.

Automating Matrix's 16 channel faders is possible by adding MIDI faders in Pro Tools and assigning them to

control the Matrix's. I would just bank to the MIDI faders in the PT and make tweaks to the mix hearing my inserted analog processing.

Programming insert chains is super easy and I liked that I could quickly try different combinations of the same processors. For example, I saved a chain consisting of an SSL EQ followed by the SSL Dynamics module and another chain using the same processors but in reversed order. Wish I had about six full X-Logic Racks!

**"What Are You Waiting For? You're Faster Than This."**

## Matrix Reality

Matrix overflows with more capabilities and features than I can fit here. It is an infinitely malleable controller surface for any DAW and an excellent sounding analog mixer/summing system all designed to take square aim at the current and future workflow needs of the modern music producer.

Much more at: [www.solidstatelogic.com/music/Matrix/index.asp](http://www.solidstatelogic.com/music/Matrix/index.asp)

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