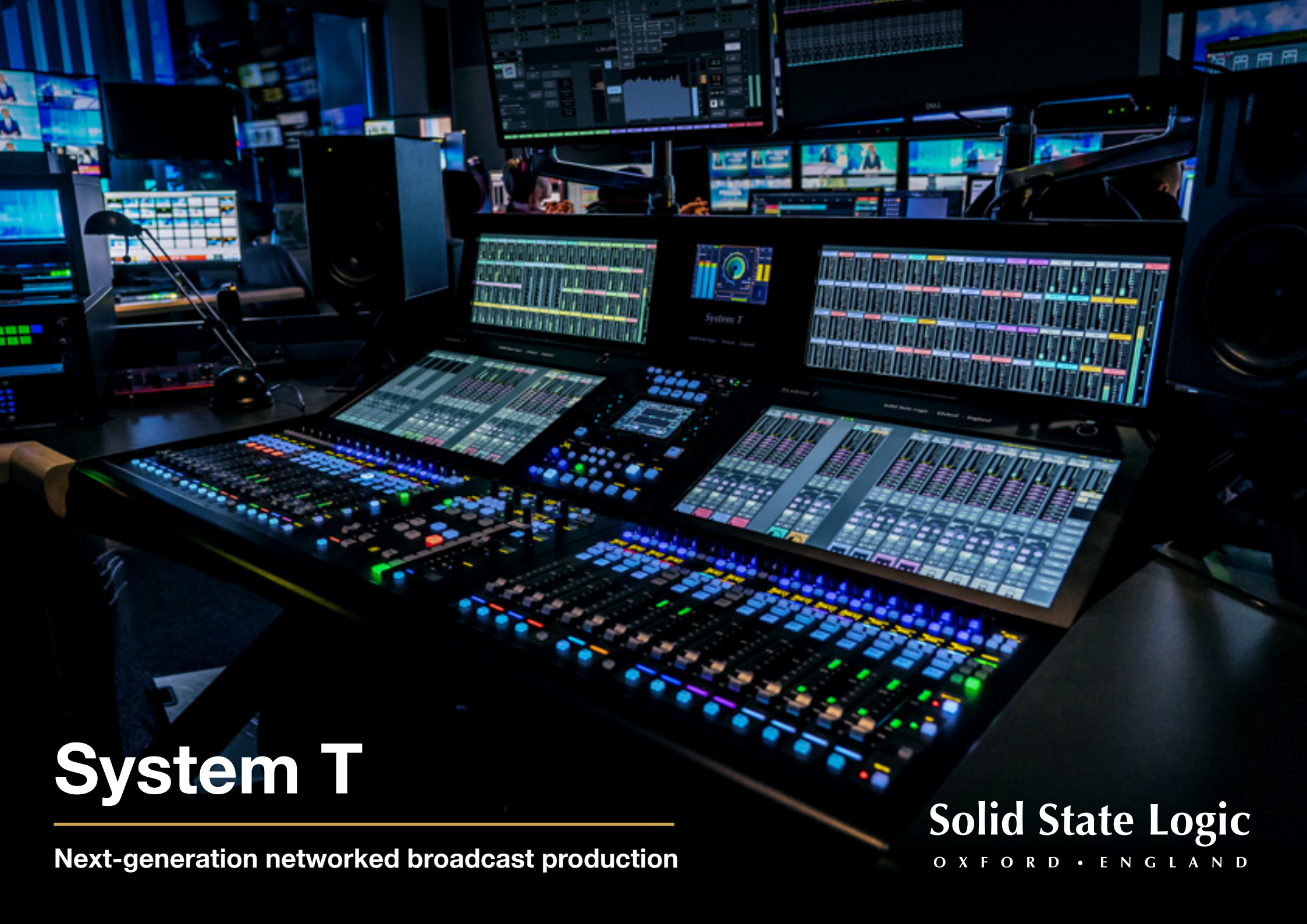


System T

Next-generation networked broadcast production

Solid State Logic

OXFORD • ENGLAND

SSL System T

System T is a new generation of dedicated broadcast audio production systems from Solid State Logic. Designed for the unique challenges of modern broadcast production, System T provides a fully networked and flexible platform that delivers in the studio whether for entertainment programming, news broadcasting and immersive music production, or for OBs covering live events and sports. For more than 50 years, SSL has been at the forefront of innovative broadcast console design and has incorporated decades of research and customer feedback into the development of System T.

> *System T is a fully networked production environment. New ways to combine multiple control interfaces, processor cores and I/O devices can be specified to create previously impossible system configurations.*

Dante AoIP-based routing and I/O

Dante delivers cost savings, true scalability, interoperability and discoverability. The Dante AoIP network integrates the AES67 and SMPTE 2110-30 audio transport standards. SSL is the only broadcast audio manufacturer to offer full routing control of the Dante network from within our consoles and control interfaces.

Exceptional audio quality

Audio quality and performance is exceptional. SSL's pristine SuperAnalogue™ foundations combine with 64-bit floating point processing and mixing to ensure unlimited audio headroom with the power to execute algorithms within a single sample. Broadcast specific path processing is augmented by an inbuilt comprehensive FX Rack.

Highly configurable technology

System T control interfaces incorporate the latest multi-gesture touch screen technology, greatly expanding the range of controls that can be quickly accessed with reduced overall size.

System T offers fixed format and modular control surfaces which are highly configurable to suit individual preferences. This makes the production system ideal for news, entertainment, multi-purpose event spaces, theatre, OB and live streaming applications.

Architectural flexibility enables channel signal flow suited to the most sophisticated users that can also be presented straightforwardly to match the skill and workflow of a full range of users.

System T Elements

The perfect balance of power and control

There are three main elements to System T: an AoIP-based routing and I/O system combining SSL's own Network I/O range with thousands of third-party Dante-enabled products and AES67 / SMPTE 2110-30 based network audio interfaces; Tempest-based rack and virtual processors that deliver the most powerful and versatile audio processing engine available today; and control interface technology that combines a range of consoles with remote hardware, software and touch screen technology.

Fully networked control interfaces

SSL has over five decades of classic audio console design legacy, with many of the hardware and software control surface paradigms taken as standard today having first appeared on an SSL console. System T takes this DNA and creates a new broadcast specific set of control interfaces, that combine hardware panels with large tablet style multi-touch screens, in a fully networked environment.

Fixed format compact S300/S400 consoles and modular large format S500/S500m consoles can be combined with remotely located computers or touch screen terminals and remote hardware panels. Up to three control interfaces can share a single processor engine simultaneously, facilitating, for example, an entertainment production, with one surface for a music mix and a second for a production mix using a single engine. Multiple engines can be connected on a redundant network and interfaces can be moved between engines. The various approaches to remote control capability enable true facility-wide control infrastructure design.

Routing and I/O

With System T, Dante AoIP network technology (with complete AES67 capability) replaces traditional TDM routing, with an ecosystem that offers a wide range of operational and commercial benefits. Dante is a licensed IP audio network technology that uses standard IT infrastructure for audio transport, routing, device discovery and control.

Dante is high-capacity, incredibly versatile and fully-scalable. A single gigabit network connection can carry 512 audio channels at 48kHz, or 256 channels at 96kHz. With 512 audio channels bi-directionally on a 1Gb connection, a single 24-port Gb switch is capable of equivalent routing capacity to a 12,288 by 12,288 TDM router. Expansion of a network is not subject to the square law growth required when expanding TDM routing systems; additional switches and capacity can be deployed without replacing core hardware.

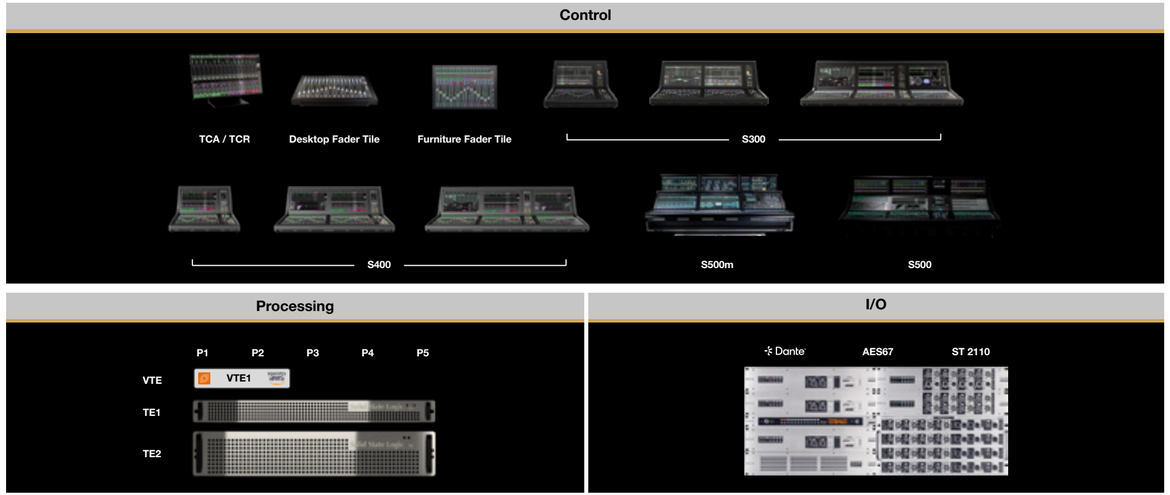
Dante offers fully interoperable system design; over 550 licensed development partners with thousands of devices commercially available, enabling you to select and combine devices from different manufacturers. The system includes AES67 and SMPTE 2110-30 audio transport capability. System T offers full routing control of the Dante network from within our consoles and control interfaces.

Routing control can be achieved from an unlimited number of devices or network terminals. Dante employs full plug and play device discovery enabling devices to be moved around the network and re-connected with settings intact. Fully redundant network topologies widely used and proven in many IT applications provide the security required for broadcast infrastructures.

Network interfaces

SSL Network I/O interfaces bring renowned SSL audio performance to Dante networks. They can be used as stand-alone solutions or used with System T to complete powerful facility wide systems. 13 different devices offer mic/line analogue, MADI, AES and SDI embed/de-embed capability wherever it is required. System T control interfaces and SSL Network I/O control software offer remote control of SSL mic/line I/O across the network.

System T can also directly control third-party devices including the Focusrite MP8R, Shure ANI22 and ANI4IN interfaces, Shure ULX-D and Axient wireless mix systems.. This includes direct control and monitoring of mic gain, phantom power, mute, battery and RF status where applicable.



Processor engines

Tempest processor engines deploy SSL's patented Optimal Core Processing (OCP) software using arrayed industrial PC hardware in a controlled operating environment. There are two different hardware engines available, TE2 (offering up to 800 processing paths, 2RU) and TE1 (offering up to 256 processing paths, 1RU). Paths and processing can be dynamically allocated in real time without interrupting audio. With up to 2048 inputs and 2048 outputs per engine, System T can handle any large-scale production. Tempest Engines can be deployed as mirrored redundant pairs. Near instant audio changeover happens via up to 4 Network I/O HC bridging cards, each providing 512 channels of inputs and 512 outputs.

The System T Cloud VTE1 Virtual Tempest Engine provides up to 256 processing paths, supporting stereo, 5.1 and immersive formats, all controlled via hardware or software interfaces from any location. With a fully integrated Dante Connect implementation, the Virtual Tempest Engine offers 256 inputs and 256 and outputs, with audio routing control managed directly from the UI and stored and recalled with the showfile. Across a distributed production architecture, any combination of hardware and software control interfaces can be utilised, offering a unified operator experience.

System T Cloud

Virtualised audio processing and control for large-scale broadcast

Cloud-based, or 'virtualised' audio processing presents the next significant step forward in production technology, offering increased scalability and agility, as well as substantial operational benefits to broadcasters. It is also a key component in the development of remote and distributed production models.

Solid State Logic has been working closely with key broadcasters to develop a greater understanding of production workflows which leverage cloud-based processing and virtualised control. Several Proof-of-Concept (PoC) events involving shadow and live-to-air productions have been successfully completed, highlighting the robustness of System T's virtualised DSP and ability to deliver the workflows which broadcasters need. System T offers truly scalable processing and control. Any combination of control interfaces can be used across a distributed production model, with a unified operator experience across all interfaces.

Applications

Remote Production

Produce live content from remote locations without the expense and environmental impact from sending large amounts of personnel and equipment onsite. Create more, for less.

Disaster Recovery

Emergency back-up production facilities can be built in the cloud. Reduce facility CAPEX whilst still providing the necessary redundancy for mission-critical facilities.

Additional Production Capacity

For the times when you need one more studio. Or two. Or three. Or ten. With the ability to add additional production capabilities when they are needed you can build more efficient spaces and significantly reduce CAPEX.

Virtualised audio processing

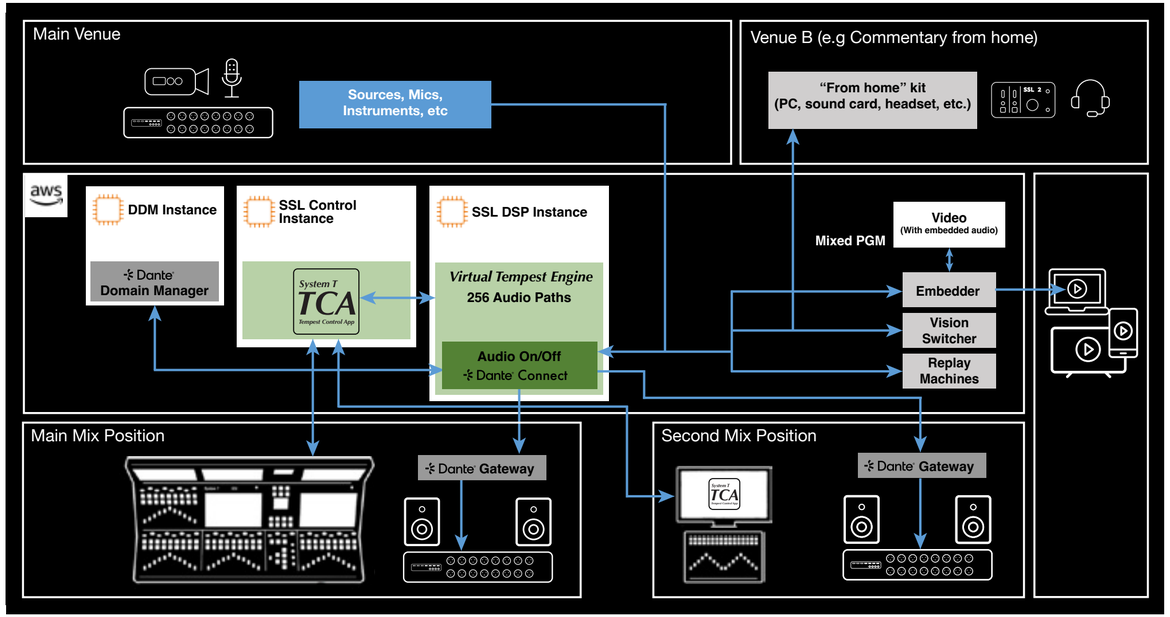
Leveraging patented x86 CPU optimal core processing (OCP) technology, SSL has virtualised the System T Tempest DSP Engine. The Virtual Tempest Engine (VTE) operates within a virtualised Linux environment optimised for low latency throughput, providing real-time and deterministic audio processing and mixing. The solution uses cloud-compatible software-defined real-time transport protocols within the DSP I/O to provide flexible connectivity. Contribution, distribution, and monitoring feeds can be served by different interfaces, facilitating the specific requirements of each task.

- AWS Cloud running instances of the Virtual Tempest DSP Engine.
- AWS Cloud running instances of the Tempest Control App.
- 256 processing paths.
- Full immersive formats up to 7.1.4 with 9.1.6 monitoring.
- Dante Connect cloud audio transport and routing.
- 256x256 Dante Connect connectivity on Virtual Tempest Engine.
- NDI conversion options.
- Hardware and/or software control positions located anywhere.
- Control positions in multiple locations simultaneously.

Distributed and decentralised production

The infographic shows an example of a distributed production model leveraging virtualised processing controlled via System T's S500 large-format console and virtualised Tempest Control App. Uniquely to System T, any combination of hardware and virtual control interfaces can be used across the system.

Sources are captured at the Main Venue using SSL Network I/O and a small interface at Venue B. Both feeds are sent to the virtualised Tempest DSP Engine running in the AWS Cloud. Control is facilitated with an instance of the Tempest Control App running in the AWS Cloud. Cloud audio transport and audio routing are handled via Dante Connect. System T's unrivalled Dante control integration handles Dante routing and control within the console showfiles. Low-latency cloud processing is controlled using any System T control surface or TCA instance at the main mix position, with further independent control positions available, as shown with a Tempest Control App with Fader Tile at a second mix position.



Advanced Broadcast Architecture

Power meets flexibility

System T offers exceptional power and flexibility with 2048 input and 2048 output connections. The TE2 Engine provides up to 800 active audio paths and the TE1 Engine provides up to 256. Paths are pooled and consumed dynamically according to user configuration, with any console configuration within pool limits possible.

Channel or bus paths can be added or reconfigured at any time without rebooting and without interruption to audio. A pool of up to 192 mono mix busses with the TE2 Engine or 128 with the TE1 Engine can be used as desired within defined maximums for each bus type. This provides up to 16 master buses, 64 stems, 32 auxes and 48 mix minus buses. Paths and buses can be freely configured in a range of formats up to 7.1.4. Path to layer configuration is via an intuitive drag and drop interface.

Path processing

Dedicated path processing provides EQs (TE2 x 800, TE1 x 256), dynamics (TE2 x 800, TE1 x 256) and delays (TE2 x 400, TE1 x 128). The primary signal path has eight process blocks that can be configured in any order using a drag and drop interface. These are preceded by the path gain trim (and input selection/conditioning on channels).

The primary path output feeds either the panning and bus routing (channels and stems) or is available as a source in the main console signal routing (buses). Two dynamics sections can be placed in each path to enable cascaded compressor/limiter configurations, or adding dynamics to the channel direct output, mix minus or track bus send. An insert send accesses additional signal processing in the System T FX Rack or external hardware via the console routing.

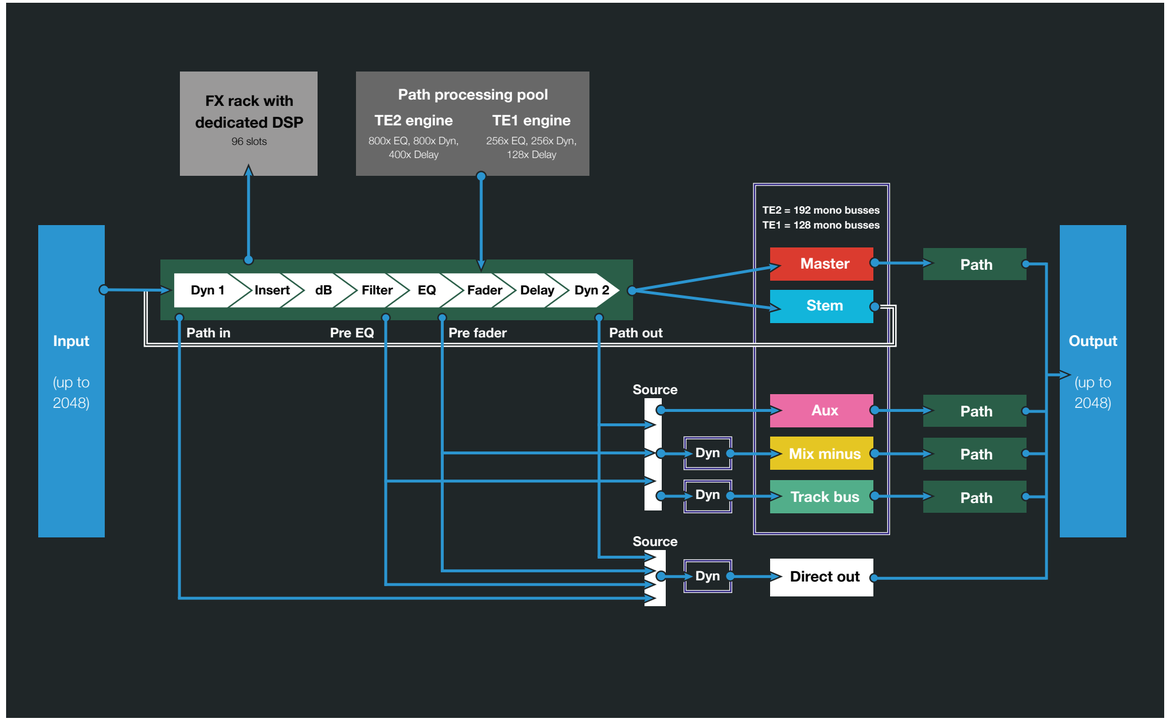
System T FX Rack

The FX Rack, which is included as standard with System T, provides 96 FX slots and features a comprehensive set of over 60 acclaimed studio quality signal processors and broadcast tools, with ultra low latency and with their own dedicated DSP pool. The selection includes loudness metering, additional tone and dynamic shaping, reverbs, room simulation, ambience processing, dialogue noise reduction, signal generation and analysis tools.

Effects are accessible via the Path inserts, or via the console routing using the Aux and Track buses for parallel time-based effects. All settings are saved in System T showfiles and scene automation.

Paths and processing options

License Options	Processing Pack 1	Processing Pack 2	Processing Pack 3	Processing Pack 4	Processing Pack 5
All path count @ 48kHz	140	256	420	600	800
All path count @ 96kHz	85	160	260	375	500
TE1	√	√			
TE2	√	√	√	√	√



Control Interfaces

System T control interfaces allow extremely flexible and adaptable configurations. The fixed-format S300/S400 consoles and modular S500/S500m large format consoles provide faders and tactile encoders, for instant channel and feature access. Any console can be combined within a single system along with additional control interfaces, providing custom solutions to fit any application or environment.

The core control elements always present in an S500 and the lighter, compact form factor S500m, are a Fader Tile, large Multi Touch Screens, a Channel Tile and a Master Tile. A console can have a range of frame layouts that present these core elements along with an optional meter bridge and can include an intelligently switched screen bay, dual fader bay, or additional channel control bays. Surfaces can be as small as 16 faders through to hundreds of faders. S500/S500m can easily be scaled to suit multi-operator layouts with individual monitoring.

S400 control surfaces include the same fader experience as the known-and-loved S500, with premium faders, a dedicated OLED display for every path, advanced level metering and status LEDs covering dynamics, automix and external control. This is all provided in a compact frame suitable for studio, OB, event space and music applications. The fixed layout S400 comes in three versions ideally suited for smaller format environments: S400-16 (16+1 faders), S400-32 (32+1 faders) and S400-48 (48+1 faders).

Like the S400, the S300 comes in three versions ideally suited for smaller format environments: S300-16 (16+1 faders), S300-32 (32+1 faders) and S300-48 (48+1 faders). The streamlined Fader Tile configuration, touch screen technology and condensed Master Section provide more than enough control for boutique broadcast applications.

Tempest Control App (TCA) brings the full feature-set of System T into a software application with direct control of Tempest Engines. This can be paired with optional hardware interfaces to provide physical controls.

Additional control interfaces including complete consoles, console bays and control surface elements are added remotely across the network to suit production requirements. A main control interface and two additional remote control interfaces can be connected to a single processor core. Multiple processor cores can be used on a single network.

S500

Multi-user control surface (example 3.5 bay configuration)

S400-16

16+1 fader fixed-format compact control surface

S400-32

32+1 fader fixed-format compact control surface

S400-48

48+1 fader fixed-format compact control surface

TCA / TCR

S500m

Mobile control surface (example 3 bay configuration)

S300-16

16+1 fader fixed-format compact control surface

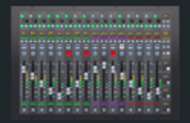
S300-32

32+1 fader fixed-format compact control surface

S300-48

48+1 fader fixed-format compact control surface

Desktop Fader Tile



Furniture Fader Tile

S500 Large Format Modular Surface

Advanced intuitive ergonomics

Each element of a System T S500 large format control surface offers a combination of traditional broadcast production workflow and new ways for operators to control their audio environment.

SSL's deep experience with control surface ergonomics has delivered an interface that unites gestural touch screen technology, hardware control and intelligently designed workflow. It accommodates a range of working styles so that mixing engineers from a range of backgrounds can immediately benefit from its advanced capabilities.

Dynamic feature design provides the ultimate in responsive console workflows. The S500 'screen group' functionality means that a console can achieve a high fader density whilst bringing any fader tile in-line with the Channel View touch screen functionality in a single button press.

Integrated KVM connectivity enables up to three external computers to be connected and displayed via the S500 touch screens. Workflow benefits include bringing other system control interfaces directly in front of the operator, while removing the need for additional computers and monitors around the console, ideal in OB vehicles and compact audio control rooms.

S500m Mobile Modular Surface

Designed for flypack and OB audio applications

Manufactured for life on the road, the S500m console delivers maximum control in a lightweight and reduced form factor. The S500m can be specified as 32 and 48 fader versions with turnkey flight case solutions, or as a larger custom specification surface with up to 96 faders.

The complexities involved in today's major sports and entertainment events means OB production still requires broadcast consoles with a high specification. The S500m provides all the flagship features of the System T S500 console, but is specifically designed to be over 25% lighter to suit OB and flypack applications where weight and portability are key concerns.

Robust and easy to transport, the S500m's unique modular functionality also lets a console be deployed with or without an extended meter bridge. This allows a complete production system to be easily transported in a purpose built rack case, providing a console stand, meter bridge shipping storage and two 8RU racks for Tempest Engines and Network I/O.

S500 / S500m Features

Elegant operational control

Each element of a System T S500 or S500m large format control surface offers a combination of traditional broadcast production workflow and new ways for operators to control their audio environment.

SSL's deep experience with control surface ergonomics has delivered an interface that unites gestural touch screen technology, hardware control and intelligently designed workflow. It accommodates a range of working styles so that mixing engineers from a range of backgrounds can immediately benefit from its advanced capabilities.

Fader tile

Each tile has 16 faders and is the same size as a main touch screen. Each tile has fifteen layers with four banks per layer giving rapid access to 960 paths via dedicated Layer & Bank buttons.

Each fader strip has a 100mm motorised fader, level meter and a collection of status LEDs covering Dynamics, De-ess mode, Dialogue Automix and Remote AFV or Production Automation control. There is a dedicated PFL Solo key plus back stop fader PFL. Additional keys for Mute, AFL and Select control path functions in conjunction with the touch screen interface. An OLED delivers instant visual feedback. Each strip features SSL's acclaimed 'Query' key that allows the user to spill the contributing elements or destinations for a selected fader/path across the control surface, providing instant feedback and mix control either from a channel- or mix-centric view. Querying a channel shows the destinations to which it is routed. Querying a mix bus shows the channels that are contributing to that mix. Querying a Stem Group shows its bus destinations and contributing channels on adjacent tiles.

Master tile

On the left is the Focus Fader, which is assigned to the selected path and works in conjunction with the Channel Tile controls. To the right is a Master fader which can be assigned and locked to any desired path. Between the faders are the controls for the console's powerful scene automation system and the switches for ten Mute Groups or User Keys.

At the top of the panel are the controls for System T's flexible monitoring system, which accommodates a wide range of options and supports two-man operation of the console with two complete monitor sections. Four additional studio monitor sections provide control over multiple studio speakers or production spaces. The five push switch encoders and their associated displays on the right hand side are freely assignable.

Integrated KVM switching

On a large format control surface, the touch screens can also be used to display and control external devices. An in-built KVM provides three external video inputs; two of these include USB connectivity.

Whether it's the overall broadcast control and monitoring system, a digital audio workstation or playout system, the intercom software or even an office computer, any software from any system in a facility can now be viewed and controlled without moving from the mixing console.

Channel tile

Designed to satisfy the preferences of a wide range of operators, the Channel Tile provides immediate hands-on control over any selected path. Featuring a 7-inch touchscreen with an array of push switch encoders and buttons, it offers rapid access to the full range of processing and configuration functionality for a single channel. It operates in parallel with the main touchscreen, Fader Tile Quick Encoders and with the Focus Fader in the Master Tile.

This panel also includes brightness controls for the console's screens and displays, four user-programmable switches with displays, the power on switch, manual redundancy switch-over and a USB port for showfile transfers.

Quick controls

The Quick Control system provides an intuitive balance of touch screen and hardware control. At the top of each strip within the Fader Tile is a set of controls consisting of a touch sensitive push-encoder and three buttons. In standard mode, these are user assigned globally to a range of level control and routing functions such as Aux sends and input gain, with each set of controls assigned to an individual fader strip.

When switched to 'follow detail' mode, these controls are assigned to specific parameters defined within the touch screen according to the currently selected channel process - with the entire row of controls within a Fader Tile assigned to the selected channel. The Quick Controls operate independently of the Channel Tile allowing two different processing elements to be edited simultaneously.

S400 Advanced Fixed-Frame Surfaces

Flagship System T Control in a Compact Surface

The S400 control surface provides the key benefits of dedicated per-fader displays and metering in a compact, cost-effective frame.

Available in standalone frames of 16+1, 32+1, or 48+1 fader versions, the S400 sits between the compact, fixed frame S300 and flagship, modular S500.

The S400-16, 32 and 48 can be combined with the complete portfolio of SSL's ground-breaking System T consoles, control interfaces, Tempest Processing Engines and Network I/O options. It can be specified as part of a larger System T installation, including as a remote surface for flypack or cloud-based systems, or in stand-alone configurations for smaller broadcast facilities or OB vehicles.monitors around the console, ideal in OB vehicles and compact audio control rooms.

Compact control surface

S400 control surfaces include the same fader experience as the known-and-loved S500, with premium faders, a dedicated OLED display for every path, advanced level metering and status LEDs covering dynamics, automix and external control. This is all provided in a compact frame suitable for studio, OB, event space and music applications.

S300 Control Surfaces

Compact control surface

The S300 is a fixed layout compact control surface that can be combined with the complete portfolio of System T control, processing and I/O options. It can be specified as part of a larger System T installation or in stand-alone configurations for smaller broadcast facilities or OB vehicles.

The System T S300 comes in three versions: S300-16 (16+1 faders), S300-32 (32+1 faders) and S300-48 (48+1 faders). It can be combined with the complete portfolio of SSL's ground-breaking System T consoles, control interfaces, Tempest Processing Engines and Network I/O options.

S300 presents the extraordinary power and versatility of System T in a streamlined console layout that remains intuitive for operators with a wide range of skill levels, running the same software as the entire range of System T control interfaces. An S300-based System T configuration offers an unrivalled balance of cost, features and performance that makes it an ideal stand-alone system for smaller broadcast installations.

Within larger facilities, the S300 is a superb additional or backup console. Complete showfile compatibility between control interfaces means production can easily move between consoles and control rooms within a facility. Where processing engines are of different sizes, SSL's unique compatibility mode allows the pre-selection of channel, busses and effects resources that will be inactive on the smaller processing engine. Settings from the larger device are never lost and resources can be reassigned at any point during the show, even with audio passing.

Catering for growing facilities, it is possible to upgrade an S300 to an S400 post-install and re-deploy the existing fader tiles as additional, remote or backup user positions alongside Tempest Control App.

S400 and S300 Interfaces

Streamlined intuitive control

The S400 and S300 control surfaces present the unique power of System T in an extremely compact form, offering a simple, intuitive operational environment.

Touch-screen world

At the heart of the System T S400 and S300 consoles is an exceptionally elegant software environment, accessed and controlled using touchscreens. Channel View and Overview GUIs present a comprehensive bigger picture view of your entire system with immediate screen tap access to a Channel Detail view. System configuration, routing and surface layout are all performed using simple, intuitive screen actions. Organising even large scale showfiles is made simple and straightforward. An HDMI output and optional screen arm facilitate use of an external overview screen.

Hands-on hardware

System T's excellent screen interface combines with robust, responsive hardware. Each Fader Tile has fifteen layers with four banks per layer, giving rapid access to 960 paths via dedicated Layer & Bank buttons. Each fader strip has a 100mm motorised fader and a PFL Solo key plus back stop fader PFL. Additional keys include Mute, AFL, Select and a 'Q' key that accesses SSL's unique Super Q system. Each strip features a set of Quick Controls (a push switch encoder and three assignable keys) that work in combination with vertically correspondent aspects of the screen interface above. Colour flag LEDS visually indicate selected functions.

Slimline master section

S400 and S300 feature a powerful, condensed Master Section. In the lower right area of the console a single tile combines a Monitor Section, a Focus Fader and a set of User Keys. The Monitor Section consists of main and misc monitor encoders (with displays), accompanied by DIM, CUT, and External source selection keys. The Focus Fader is a channel strip with a fader and a full set of function keys that can be set to follow the currently-selected channel or locked to a specific function.

In the upper right is a tile containing a five inch touchscreen that provides an FX Rack meterviewer. Inbuilt Loudness, True Peak and Phasescope metering removes the need for external metering. The master section includes 21 physical user keys, providing immediate control of features most relevant for each production.

S300-16

16+1 fader control surface

S400-32

32+1 fader control surface

Tempest Control App

Taking Broadcast Audio Production to New Heights

Tempest Control App (TCA) offers an ideal solution for broadcast environments where a powerful broadcast audio mixer is required but a traditional console is not. Tempest Control App brings the full feature-set of System T into a software application with direct control of Tempest Engines. This includes direct AoIP routing control, native support for object and channel based immersive audio, inbuilt FX processing, DAW control, Dynamic Automation and much more.

Tempest Control App can be flexibly used with any of the available Tempest Engines, with scalable processing packs providing between 140 and 800 paths of processing at 48 kHz. Tempest Control App can also be used in conjunction with any other System T control interfaces: S500, S400, S300 or further instances of TCA. Tempest Control App provides a control offering for applications including remote production, news-room production, backup scenarios or anywhere where a physical control surface may not be required.

When combined with a Tempest Engine, Tempest Control App creates a standalone System T mixer in a tiny form factor. A system can be as small as a 1U TE1 Tempest Engine and Mini PC, or Tempest Control App can be run in a virtual machine on a shared server. Optional hardware means operator positions including a fader tile master tile and can be built into furniture for studio installations, or flypacks for remote applications.

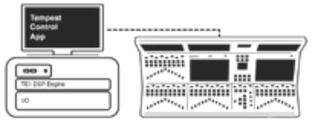
Solutions

TCA for Station Automated Audio Production

The combination of the Tempest Control App (TCA), a Tempest Engine and SSL Network I/O delivers a system that is ideally suited to Production Automation driven facilities. TCA can run on a dedicated PC or virtualised on shared server hardware, saving space and budget. System T is compatible with EVS Cerebrum, Grass Valley Ignite, Kahuna, Ross Overdrive, Sony ELC and Viz Mosart production automation systems.

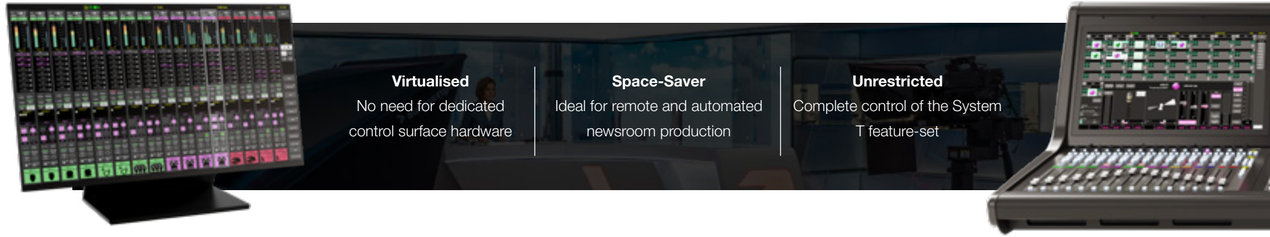
Newsroom Automation

Remote Production



TCA for Remote Flypack Production

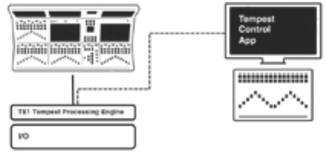
System T is inherently suited to remote production due to the distributed, IP connected building blocks of control surfaces, processing and I/O. For events requiring an on-site audio console (low-latency audio feeds), a system could consist of a TE1, local I/O, network switches and a laptop or mini-PC running TCA. A fader tile could be added if physical controls are needed onsite.



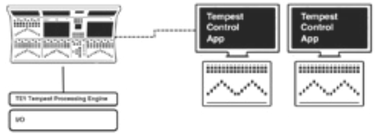
TCA for Backup

TCA can be deployed as a backup control surface for mission-critical applications, without the physical requirements of a traditional console. Utilising System T's Dormant Backup feature, TCA can take control of active audio processing in an instant, through a single button push.

Control Backup



Additional Operators



TCA for Additional Operators

TCA can be used to provide additional operator positions for scenarios requiring two or more operators. These can be configured as permanent or temporary connections, easily managed through System T's advanced remote capabilities. Fader tiles and touch screens can be connected to each instance to provide physical controls.

TCA for Offline Prep

TCA can be used as a standalone, offline application to prepare showfiles in advance or for system training and familiarisation. TCA replaces the previous T-SOLSA software package and continues to be available free-of-charge for offline and remote operation.

Offline Setup

Tempest Control Rack

Control interface in a 3U rack

The Tempest Control Rack (TCR) offers an ideal solution for broadcast environments where a powerful audio mixer is required but a traditional console is not.

Housed in only a 3U enclosure, TCR runs the complete System T control software so acts as a stand-alone control interface for a System T installation. It can be integrated with a fader tile and touch screen to provide physical controls.

TCR features dual PSUs, primary and secondary OCP network connections, primary and secondary Dante network connections, Studio Integration network connection (for Production Automation systems) and SSL network connectivity for other System T control interfaces or TCA control from any PC on the network. There are HDMI and DVI-D video outputs, plus front and rear panel USB connections for keyboard, mouse and USB storage devices.

When combined with a Tempest Engine, the Tempest Control Rack creates a exceptionally powerful stand-alone System T interface in just 4RU (TE1) or 5RU (TE2) of space. This combination is ideal for Production Automation controlled studios or can be combined with SSL Network I/O to create a 'Flypack' for remote production. Free-standing or furniture mount touchscreens are also available.

Production Automation

Integration with production/newscast automation systems

System T can be integrated with EVS Cerebrum, Grass Valley Ignite, Kahuna, Ross Overdrive, Sony ELC and Viz Mosart systems.

The SSL Broadcast Automation interface provides the production automation system with a remote controlled mixer. This mixer follows commands issued from the Automation System (or the vision mixer/switcher) and thus controls the audio mix of the production.

The Automation System works in parallel with the console's physical controls, so if the audio operator adjusts the level of a channel under automation control, the audio will change level. The fact that the level has changed will also be flagged to the automation system. The parameters available to the Automation System (fader level, on/off etc.) means that the console is likely to be pre-configured for a specific show, to set mic gains, EQs, master bus settings, etc..

This can all be simplified by the creation of projects to work with specific automated productions. Automation can be applied to anything from a single channel up to as many audio channels as the specific production automation system supports, but typically a small number of channels are controlled. The Channel faders under control can be hidden from the operator's view of the surface, so that the console can be used simultaneously by an operator and the automation system without distraction. Automation can globally be switched on/off.

Key features

- Support for EVS Cerebrum, Grass Valley Ignite, Kahuna, Ross Overdrive, Sony ELC and Viz Mosart systems
- Automation can be applied to a flexible number of console paths, including channels, stems, masters and auxes
- Channel faders under control can be hidden from the operator's view
- Automation can globally be switched on/off from the console surface

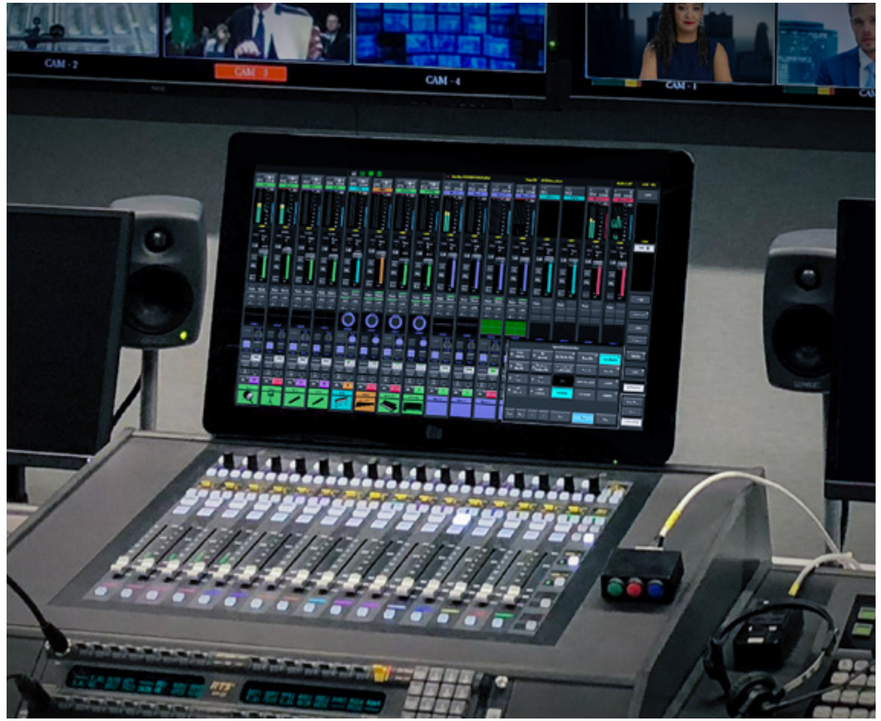
Hardware Peripherals

Additional System T control interface options

Additional System T Fader Tiles allow extremely flexible and adaptable configurations. Any System T Fader Tile and/or computer running TCA software can be combined within a single system along with main control surface(s), providing custom solutions to fit any application or environment.

Furniture Fader Tile

- Freely configurable to control a variety of different signal paths with clear, bright colour coding.
- Each tile has 16 faders with 15 layers, and four banks per layer.
- Each fader strip has a 100mm motorised fader, level meter and a collection of status LED's covering Dynamics, De-ess mode, Dialogue Automix and Remote AFV or Production Automation control.
- Dedicated PFL Solo key plus back stop fader PFL.
- Additional keys for Mute, AFL and Select, which controls a menu of tile functions in conjunction with the touch screen interface.
- Three line OLED delivers a variety of visual feedback of data.
- Multi function Quick Encoder with three switches.
- Each strip features SSL's acclaimed 'Query' key which allows the user to spill the contributing elements or destinations for a selected fader/path across the control surface providing instant feedback and mix control either from a channel- or mix-centric view.
- Querying a channel shows the destinations to which the channel is routed.
- Querying a mix bus will show the channels that are contributing to that mix.

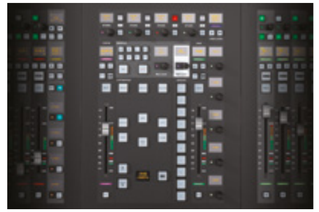


Desktop Fader Tile

- A portable, flexible and cost effective 16-fader controller providing tactile control over System T functionality alongside Tempest Control App
- Optional feet provide flat or angled positioning options
- 16x 100mm motorised faders with five layers, and four banks per layer
- Freely configurable to control a variety of different signal paths with clear, bright colour coding
- Dedicated PFL and AFL Solo keys, plus back stop fader PFL
- Bank, Layer and Quick Control page OLED located on sidebar
- Navigation and home keys located on sidebar
- Quick control encoder and 3 switches per fader
- Dedicated Query, Mute and Select keys per fader
- USB connectivity to TCA PC

Master Tile

- A Focus Fader which follows the assignment of the selected channel
- A Master Fader which can be assigned and locked to any desired path
- Dedicated scene automation controls and OLED
- Comprehensive control room monitor controls providing control over the flexible System T monitoring system
- Four additional studio monitor outputs provide control over multiple studio speakers or production spaces
- 5 push-switch encoders freely assignable as user keys
- 10 buttons switchable between Mute Groups and User Keys



Software Interface Features

Work your way

Multi-gesture touch screens, now ubiquitous and everyday, offer the means to present and control a very large range of parameters quickly, intuitively and in a compact space.

Intuitive GUI

Every aspect of the system is logically organised with a clear and intuitive GUI. Console layout management is quick and easy with a drag and drop interface. GUI layouts re-flow to give selected detail views more visual space with intuitive screen tap control. EQ, Dynamics and Processor interfaces feature quick, easy and adaptable drag and pinch control that will be instantly familiar to tablet users.

System T's multi-gesture touch screens provide intuitive crystal clear interfaces to the console's extensive functionality. Carefully considered and well organised GUIs provide comprehensive, streamlined control of the entire console environment. Operational functions can all be controlled by a combination of gestural touch and hardware control via the Fader Tile Quick Encoders and the Channel Tile. Screen group assignment provides intelligent mapping of the Channel View to the screen where you are working.

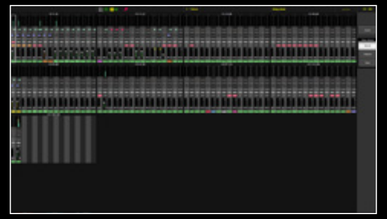
System configuration

System T software includes all setup GUIs directly on the console's touch screen. Additional channels or busses can be configured without audio interruption via the Console Configuration page. Layer Manager provides intuitive drag and drop assignment of paths to any hardware fader. Physical Dante I/O configurations can be organised, managed and easily searched and routed with SSL's unique I/O tagging and logical device I/O management and routing GUIs. Showfile management, Presets, Event Manager (GPIO and macro programming), Access Control, Scene Automation and other options all benefit from intuitive on screen graphical interfaces.

Channel view

The Channel View provides a clear and logically organised overview and interface for detailed channel information. This GUI aligns with the faders in the Fader Tile and provides touch access for all the path functions.

SSL Eyeconix displays ensure that channel identification is immediate. Double tapping individual channels opens up detailed GUIs for routing assignments, EQ, Dynamics and Panning. Uniquely, System T allows changes in path processing order and bus architecture on the fly through straightforward drag and drop actions. The Quick Encoders in the Fader Tile work in conjunction with selected Channel View functions.



Overview screen

In on-air applications, an at-a-glance view of the whole console's signal flow is essential. The Overview Screen provides this on a touchscreen that enables the operator to immediately access a channel or bus that needs attention. Selection of any channel or bus to the Focus Fader and Channel Tile is literally one press away at all times.

With meters and bright red overload indicators for every input and output, identifying such sources is easy and a single press brings the full set of path controls to hand. Colour coding enables input channels, mix buses, auxiliaries, mix minuses, main outputs and VCA groups to be readily recognised.

Automation

Automation provides detailed access to the scene automation configuration. System T allows console mix settings to be stored and recalled within scenes in a showfile, with comprehensive filter functionality allowing selection of what is stored and recalled for every scene. Scene based automation can also be used in conjunction with System T's optional timecode-based Dynamic Automation for music and post applications.

Key scene automation functionality can be driven from the Automation GUI or from associated hardware controls on the S500 Master Tile, S300 slimline Master Section, any user key or an external control system.

FX Rack

The System T FX Rack provides access to an in-built suite of effects included as standard with System T. A total of 96 FX slots are provided, with a host of processing options available including reverbs, multiband compression, all pass filter, dynamic EQ, noise reduction and many more. Effects are available in formats from mono through to 7.1.4.

Individual effect presets and entire FX Rack presets can be stored outside of showfiles, providing operators with quick and simple access to their favourite configurations across multiple shows and events.

DAW Control

Advanced DAW control for broadcast entertainment

SSL leads the way in audio production for entertainment programming with unrivalled sonic performance and feature-set, including advanced DAW control for multi-track recording, editing, plug-in control and playback.

System T DAW control makes best ergonomic use of the hardware controls within the Fader & Master Tiles and System T's superior multi-gesture touch screens. The DAW control system uses a networked HUI implementation, and is optimised for use with the industry standard Pro Tools™ but is compatible with Logic Pro™, Reaper™ and any DAW that supports HUI control.

DAW control can be configured in banks of 8 consecutive channels with a maximum of four banks providing 32 physical console faders for DAW control. The system supports control for up to four separate DAWs. There is no limit to the number of tracks in a Pro Tools session that can be accessed as tracks can be scrolled or banked on to the console faders as required using the on screen scroll and bank keys or via front panel user keys. Pro Tools Memory Locations can also be used to recall specific track layouts.

When using System T as the primary control surface in a Pro Tools mix session, configuring two bays as a 32-fader surface and banking in 32 track increments is the optimal solution. When Pro Tools is being used as a playback source together with other live console inputs, configuring a dedicated 16 Fader DAW layer on a control bay with the other console bays available to handle standard input and output channel paths provides maximum flexibility.

Hardware control is via the System T Fader Tiles with the faders, switches and encoders mapped to DAW mixer functions instead of System T processing. The faders control DAW track level and the encoders track panning and send levels. A Flip function allows the faders to set send levels. Track arming and automation modes can be set via the Q switch. Plug-in control provides hardware control over 5 plug-ins per DAW track, with 4 encoders and 4 switches available to control individual plugin parameters. The DAW popout software interface available in the Channel View on the touch screen contains buttons to assign the encoder function, setup track automation modes, offers basic transport control, plus channel scrolling and banking buttons and other useful master functions. All these functions, together with additional commands available in the HUI protocol, can be mapped to User Keys in the Master Tile as well as incorporated into Event Manager.

A DAW Channel View interface replaces the standard System T path Channel View when a layer containing DAW Channels is selected on a Fader Tile.

DAW control is available with TCA software and will use the port selected in the Setup Options Network page to communicate with a Pro Tools system on another PC or Mac. A System-T fader tile may be connected via USB, enabling the TCA PC to function as a remote 16 fader DAW controller.

Fader Tile Control

Push Switch Encoder The encoder (V-Pot) controls panning or A-E send level. The encoder switch (V-Sel) flips the send pre/post or can be used to mute.

Activates the **DAW Track Solo** function.

Used to call the DAW track to the Focus Channel or to access the Fader Detail View.

DAW Track Level or **Send Level** when Flipped.

V-Sel Status When the V-Pot is controlling a send: Blue = Pre Fader Send Red = Send Mute.

S500 only - **DAW Track Label** V-Pot value bar is displayed when the V-Pot is touched or moved. Can also be set to show Automation Mode when the Q switch is active.

DAW Track Select can be used for Track Record Arm or to set Track Automation Status.

DAW Track Mute can be used for Track Record Arm or to set Track Automation Status.

S500 only - **DAW Track Metering** for stereo tracks shows the track with the highest level.

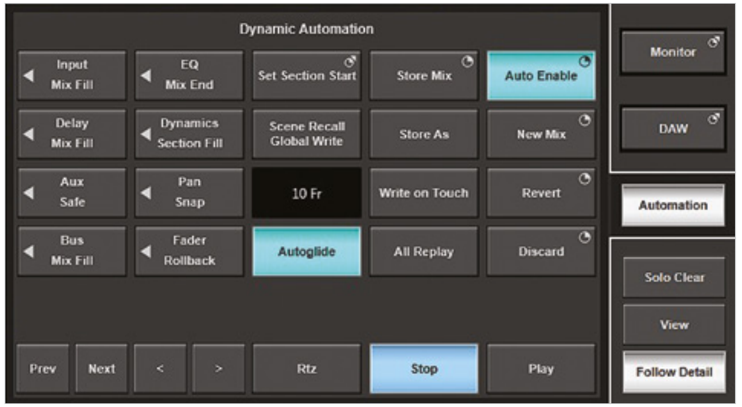
Dynamic Automation System

Dynamic automation system (DAS) software option for complex audio production

Dynamic automation has become a necessity for many major broadcast clients, for both live to air and complex television post production tasks. SSL has taken the history and heritage of its renowned Mix Automation developed for previous generation analogue and digital consoles, and updated this to match the flexible and mission-critical needs of a modern broadcast production environment.

Automated parameters on the console are stored with mixes against MTC or LTC, and managed from within the console's file system. Touch sense faders and encoders, plus touch screen controls, provide multiple ways of writing automation data across all processing on all channel and bus paths. With the ability to record mix data during play speed and stationary timecode, or when stepping through frames or markers, DAS provides ultimate control when conforming audio for picture.

A mix is developed via multiple passes through the timeline, with each pass auto incrementing at the rollback position. Mixes stored in the Mix Pass manager can easily be recalled for printing later, or used as starting points for further mixes when working with drama, film or music. Mix data can be constantly stored in the background showfile ensuring capture throughout lengthy live performances, ideal for situations with a short turnaround for minor post show edits.



Immersive Audio

Object and Channel based immersive production for live-to-air broadcasts

Staying on the cutting edge of content is important for broadcasters. Immersive audio has become a large factor in the production of top-tier live-to-air shows, becoming expected in prestigious sports and media & entertainment programming.

The end user's ability to consume immersive content has also increased thanks to binaural playback on mobile devices, the widespread use of soundbars in domestic environments and surround sound systems with height channels deployed in event spaces.

This places a requirement on broadcasters to have the agility to produce content with immersive audio, often in parallel with day-to-day programming.

System T offers no-compromise immersive audio production, delivered through specifically designed workflows and feature sets, making it simple and efficient to produce Dolby Atmos and MPEG-H content.

System T features both object and channel-based workflows with paths (Channels and Busses) available in formats up to 7.1.4. Market leading immersive panning options include XYZ, Theta and a variety of intelligent up/down-mixing functions when 'phantom' channels or fold-downs are required.

Partnering the range of immersive channel and bus formats is dedicated immersive I/O management and a comprehensive 16-channel monitoring section (up to 9.1.6). 49 16-channel monitor inputs configured as a primary monitor input and two 24-channel preselectors, together with an immersive AFL monitor bus and a pair of 16-channel insert points for external processing and rendering engine returns, offers all the tools required in an immersive production environment.

Dedicated immersive format Effects Rack processors are available, including versions of the Bus Compressor, Multiband Compressor, Dynamic EQ, loudness measurement, true peak metering and more. A built-in ambisonics 360 Transcoder and Binaural 3D Encoder (accessed via the Effects Rack) complete System T's immersive tool kit.

Immersive audio platform of choice

System T's range of immersive audio production tools offer a straight forward, efficient, and importantly creative mixing experience for operators.

The combination of dedicated configuration, processing, monitoring and panning tools mean the incorporation of immersive/NGA content into a production schedule is easier than ever, and operators can enjoy workflows without compromise.

If you'd like to find out more about System T immersive audio capabilities, please access the System T Immersive Audio Production Technical Document here or contact an SSL broadcast expert.

Network I/O

A comprehensive range of interfaces for Dante, AES67 and SMPTE 2110 networks

A16.D16 – Versatile combination of mic/line and digital I/O

The A16.D16 provides a combination of SSL SuperAnalogue™ and AES3 digital I/O to AoIP networks. A16.D16 includes redundant network connections and PSUs. It features 16 line inputs - four of which also have switchable mic circuits, 16 line outputs and 16 digital I/O in eight AES3 pairs. There are four pairs of GPIO.

A32 – Bulk analogue line level I/O

The A32 provides 32 line inputs and 32 line outputs of SSL SuperAnalogue™ I/O to AoIP networks. A32 includes redundant network connections and PSUs.

D64 – Bulk AES to Dante conversion

The D64 provides 32 input/output pairs of AES3 digital audio I/O. Sample Rate Convertors allow seamless integration of unlocked AES sources. D64 includes redundant network connections and PSUs.

GPIO 32 – High capacity GPIO

32 pairs of GPIO connections for interfacing with System T consoles and transporting GPIO across System T networks.

SDI – SDI embedder/de-embedder

Bidirectional bridging between embedded SDI Audio, an IP network and MADI. SDI has eight SDI circuits, each capable of embedding and de-embedding, and the unit has dual Dante and triple MADI connectivity (2 x optical, 1 coax I/O). In addition to SDI-Dante bridging, SDI allows direct bridging between SDI and MADI infrastructure. Internal channel-by-channel routing enables flexible routing between all three domains. SDI includes redundant network connections and PSUs.

TCM1 – Classic MIDI and LTC connectivity

TCM1 brings MIDI and LTC hardware connections to System T, plus additional GPIO and USB connections for use with your control surface. The front panel provides MIDI IN, OUT and THRU connections, LTC IN and OUT connections, GPI and GPO connectors plus two USB ports. On the rear are redundant PSU connections and the USB connection to the control surface. The control surface connection can be extended with external USB to RJ45 extenders if required.

HC Bridge SRC – High capacity AoIP sample rate conversion device

The HC Bridge SRC provides 256 bi-directional channels of sample rate conversion for AoIP networks. HC Bridge SRC facilitates connecting audio between devices running at different sample rates or in different clock domains on Dante (48khz and 96khz), AES67 or ST 2110-30 networks, with 128 Tx and 128 Rx streams at all sample rates. The two network connections can be physically or virtually separate networks, providing control isolation between two sets of equipment where an “AoIP discovery and control firewall” is required.

HC Bridge – High capacity AoIP interfacing for Tempest processing engines

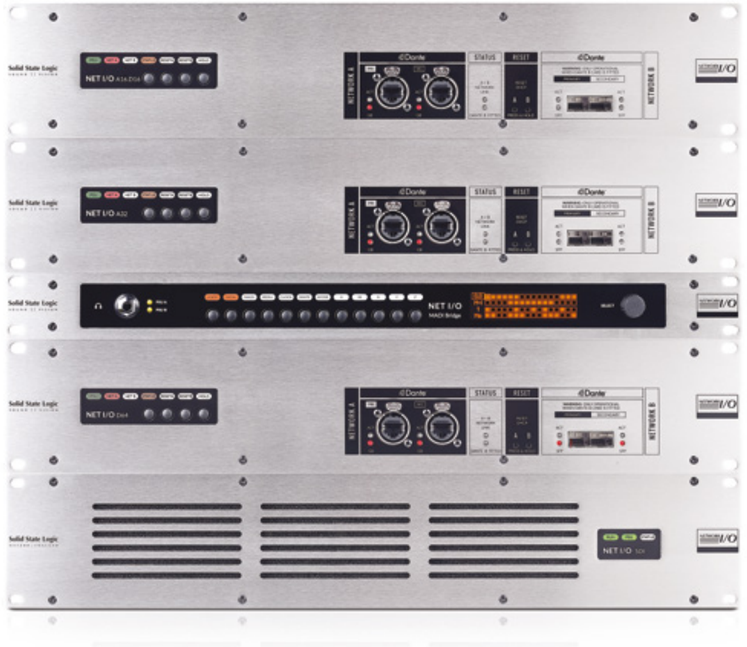
The HC Bridge and Dante HC cards are used with System T TE1 and TE2 Tempest processing engines. An HC bridge includes 2 HC cards, each HC card provides 512 Tx and 512 Rx channels at 48khz, 256 Tx and 256 Rx at 96khz, with 128 Tx and 128 Rx streams at all sample rates. Each card includes a redundant pair of SFP cages for RJ45 or fibre Dante/AoIP connectivity. Plus four SFP HC link connections, for redundant cable and redundant Tempest Engine configurations.

MADI Bridge – MADI to Dante interface with full redundancy and confidence monitoring

The MADI Bridge is a broadcast specification bridge between the MADI audio format and Dante. It is a bi-directional interface that can deliver 64 channels @ 48kHz (32 channels at 96kHz, 16 channels @ 192kHz). MADI Bridge ‘Split Mode’ enables 2 x 32 channels @ 96kHz streams to be merged to form a single 64 channel @ 48kHz stream. MADI Bridge also features bidirectional sample rate conversion between any asynchronous sample rates, from 44.1kHz to 192kHz.

MADI Bridge features redundant PSU, MADI and IP network ports and, in addition to the inbuilt clock redundancy options in Dante Controller, the MADI Bridge also includes a pair of redundant sync inputs for use as a self-redundant Dante Grand Master clock. 32bit MADI control tunnelling allows a pair of MADI Bridges to be used to pass audio and user bits (including control data) of a whole MADI stream across a network.

The MADI Bridge features a front panel headphone socket (with rotary level control) and inbuilt headphone monitor routing. Simple front panel controls route mono or stereo paths from MADI In, MADI Out, Dante In or Dante Out directly to the headphones. A front panel LCD screen provides signal present metering selectable to show four points in the signal chain: MADI In, MADI Out, Dante In and Dante Out. GPIO connections allow for transfer of tally info and switching functions across the network with the audio.



Stageboxes

Superior SSL mic/line preamp technology for your Dante audio network

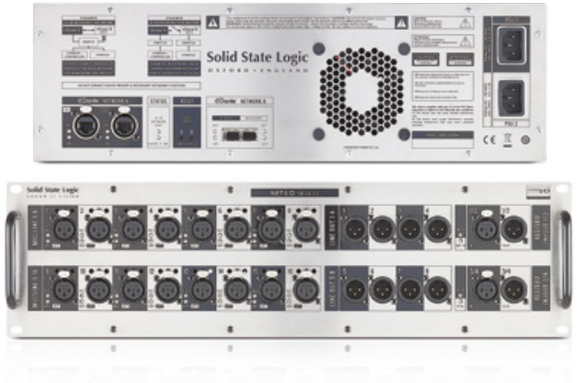
Network I/O Stageboxes make SSL's renowned SuperAnalogue™ preamp design with its superior audio performance available for a wide range of Dante network applications.

Designed for use on any Broadcast studio floor, venue or recording room, SSL Network I/O Stageboxes allow easy deployment of Mic Pres and Speaker feeds where needed. The plug and play features of Network I/O allow devices to easily be moved, even between locations and retain routing and settings if required. All units can be remote controlled via System T broadcast consoles and control interfaces, SSL Live consoles, and the SSL Remote Stagebox Application.

There are four different models available; SB 8.8, SB 16.12, SB i16 and SB 32.24. All four stageboxes can operate at 48kHz or 96kHz sample rates and include on-board gain compensated splits as Tx signals on the network. For example the SB8.8 could include eight Dante Tx signals with an adjusted mic signal and eight that include gain compensation from an installation point of the operator's choosing.

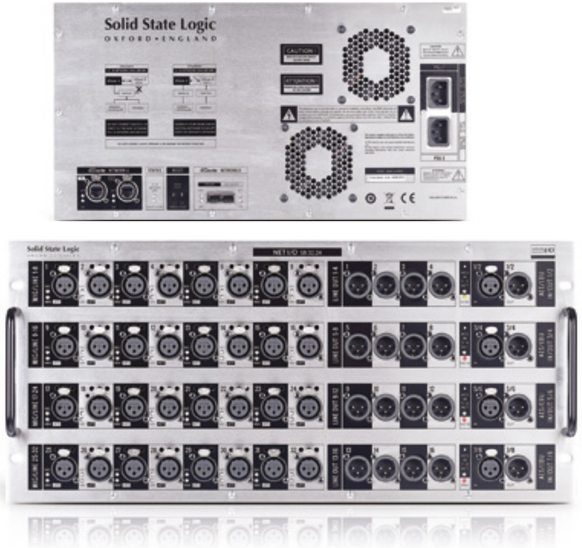
SB 8.8 & SB i16

These 2RU units offer slightly different configurations but share identical features. The SB 8.8 offers eight mic/line inputs and eight line level outputs. SB i16 offers sixteen mic/line inputs. Both models feature a pair of redundant RJ45 Dante network connections, a pair of network extension connections, four input, four output GPIO connectivity and redundant PSUs. They have individual signal present, phantom power and local attention LEDs to provide intuitive front panel feedback. They feature inbuilt limiters and SSL's innovative AutoPad system that automatically applies a pad according to gain setting. The AutoPad is applied if the gain is set at a low value that would require a pad to achieve, making the entire possible mic gain range available at all times.



SB 16.12

SB 16.12 is a 3U ruggedised enclosure featuring dual redundant power supplies, 16 mic/line inputs, 8 analogue line outputs and 4 digital inputs and outputs on two AES3 input/output pairs. It has a pair of redundant RJ45 Dante network connections in addition to a user configurable SFP port that can be fitted with RJ45 or optical connectors. These can be used for network extension or to provide gain-compensated split outputs running at a different sample rate or clock domain to the main network. It has individual signal present, clip and phantom power LEDs as well as global indication of PSU, Network A and B and Hardware status.



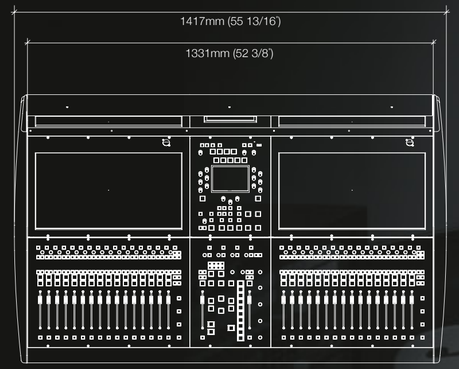
SB 32.24

SB 32.24 is a 5U ruggedised enclosure featuring dual redundant power supplies, 32 mic/line inputs, 16 analogue line outputs and 8 digital inputs and outputs on four AES3 input/output pairs. It has a pair of redundant RJ45 Dante network connections in addition to a user configurable SFP port that can be fitted with RJ45 or optical connectors. These can be used for network extension or to provide gain-compensated split outputs running at a different sample rate or clock domain to the main network. It has individual signal present, clip and phantom power LEDs as well as global indication of PSU, Network A and B and Hardware status.

S500 Specifications

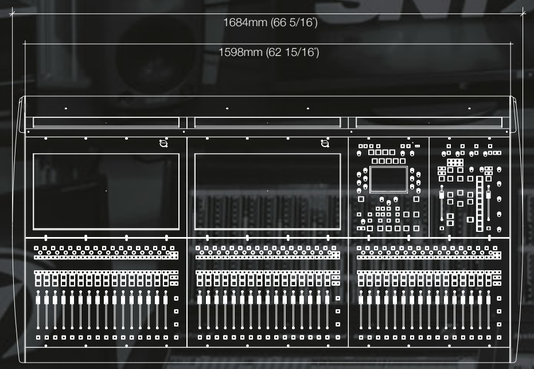
S500 large-format modular surface

Example 2.5 bay configuration



- Scalable, modular control surface available in a range of frame sizes and bay configurations
- 16 to 384 faders
- Remote stand-alone frames of 16 to 96 faders
- 60 fader layouts per tile, 15 layers of four banks providing 960 addressable paths per fader tile

Example 3 bay configuration



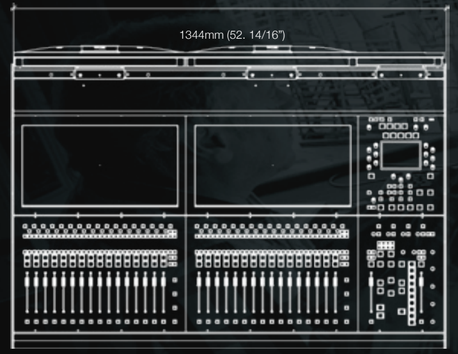
- 100mm touch sense faders with OLED channel display
- 1 to 6 multi-gesture touch screens with graphical user interface for control of all console parameters and configuration
- Integral KVM with switched touchscreen control for up to three external connections, two with touch control via USB

- On screen channel and bus signal metering for mono, stereo, LCR, 4.0, 5.1, 7.1, 5.1.2, 5.1.4, 7.1.2 ,7.1.4 and 4.0.4.
- On tile LED channel and bus signal metering
- On screen and on tile automix gain sharing metering
- On screen and on tile dynamics reduction metering
- 19 master section user soft keys
- 4 individual studio monitor outputs with dedicated level control encoders, cut and talkback keys
- Dedicated control room main monitor level encoder with Dim, Cut, LR reverse, L polarity invert, PFL to main, Main/Alt flip keys
- Dedicated hardware Monitor Ext 1 and Ext 2 keys, with soft keys for each 1-24 Ext source selector
- Monitor Misc level encoder for Dim, Alt Monitor, PFL Monitor out, AFL and PFL Bus level control
- Hardware Scene Automation controls
- Master section Main fader assignable to any bus or channel path
- Master section Focus fader can be locked to any bus or channel path
- Fanless control surface with internal redundant power supplies
- Per bay/tile individual power switches
- Optional RTW audio metering integration
- Optional meterbridge with configurable meter layouts, up to 65 formatted path meters per bay

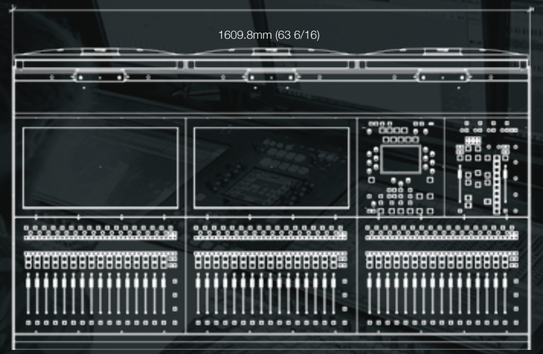
S500m Specifications

S500m mobile surface

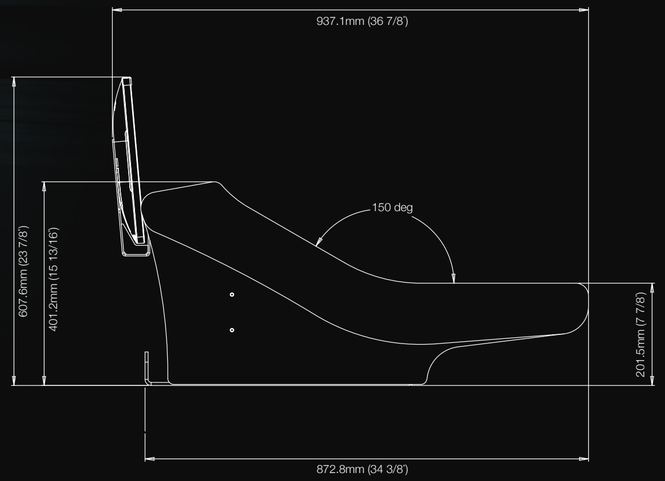
2.5 bay configuration



3 bay configuration



- Optional meter bridge with configurable meter layouts, up to 65 formatted path meters per bay.
- Removable meter bridge for transportability without feature compromise
- Ability to mount screens on arms at side for alternate layout
- Ability to feed meter bridge video into other screens (e.g. multiviewers) – HDMI on ruggedised Neutrik connectors
- Tabletop mounted (or used on top of rack flight case)
- Reinforced base plate with handles on the rear for lifting
- OB vehicle fixings (on the base plate)
- Integral KVM with switched touchscreen control for up to three external connections, 2 with touch control via USB

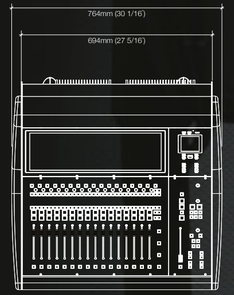


S500m offers the same core feature set as S500.

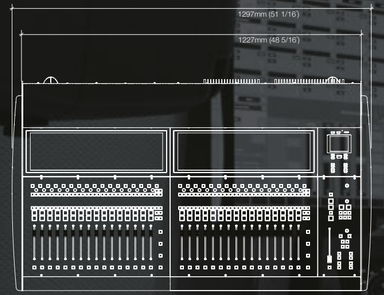
S400 Specifications

S400-16, S400-32 and S400-48 compact control surfaces

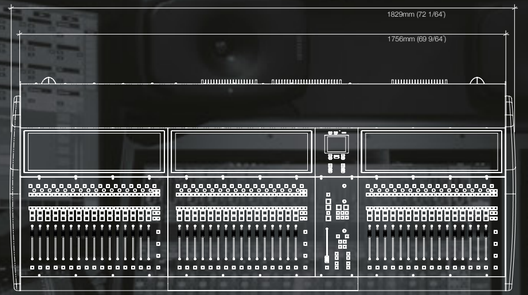
S400-16



S400-32

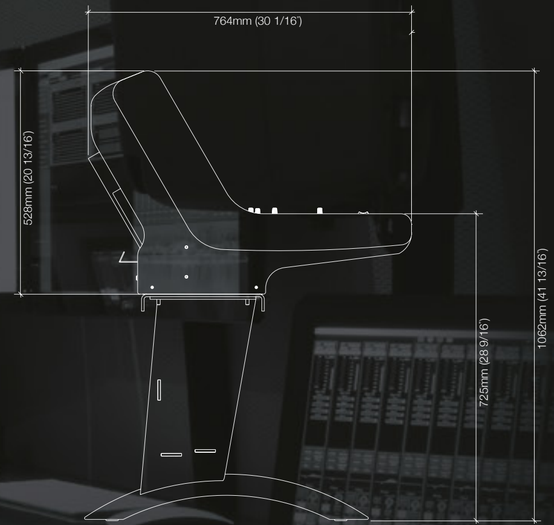


S400-48



S400 is a fixed layout control surface that is available in 16+1, 32+1 and 48+1 fader configurations.

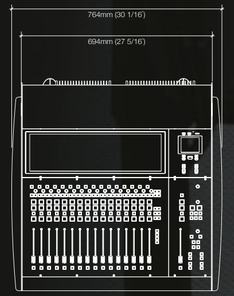
- 17, 33 or 49 faders
- Standalone frames of 16+1, 32+1 or 48+1 faders
- 60 fader layouts per tile, 15 layers of 4 banks providing 960 addressable paths per fader tile
- 100mm touch sense faders with OLED channel display
- 1-3 multi-gesture touch screens with graphical user interface for control of all console parameters and configuration
- On tile LED channel and bus signal metering
- On screen channel and bus signal metering for mono, stereo, LCR, 4.0, 5.1, 7.1, 5.1.2, 5.1.4, 7.1.2 ,7.1.4 and 4.0.4.
- On screen and on tile automix gain sharing metering
- On screen and on tile dynamics reduction metering
- 21 master section user soft keys
- 4 studio monitor outputs with assignable level control encoder, cut and talkback keys
- Dedicated control room main monitor level encoder with Dim, Cut, PFL to main, Main/Alt flip keys
- Dedicated hardware Monitor Ext 1 and Ext 2 keys, with soft keys for each 1-24 Ext source selector
- Monitor Misc level encoder for Dim, Alt Monitor, PFL Monitor out, AFL and PFL Bus level control
- Master section Focus fader can be locked to any bus or channel path
- Fanless control surface with internal redundant power supplies
- Per bay/tile individual power switches
- Inbuilt screen for Loudness, True Peak and Phase metering



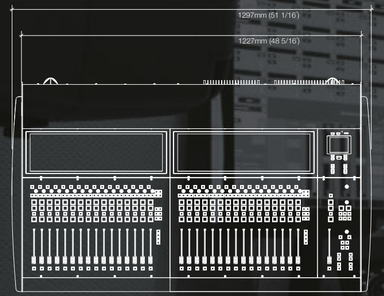
S300 Specifications

S300-16, S300-32 and S300-48 compact control surfaces

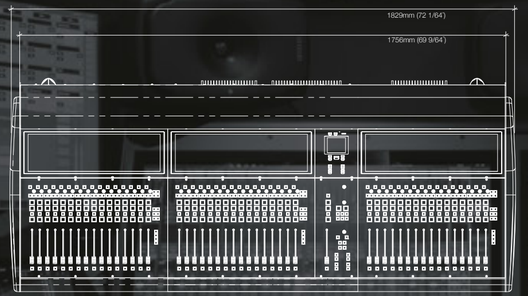
S300-16



S300-32

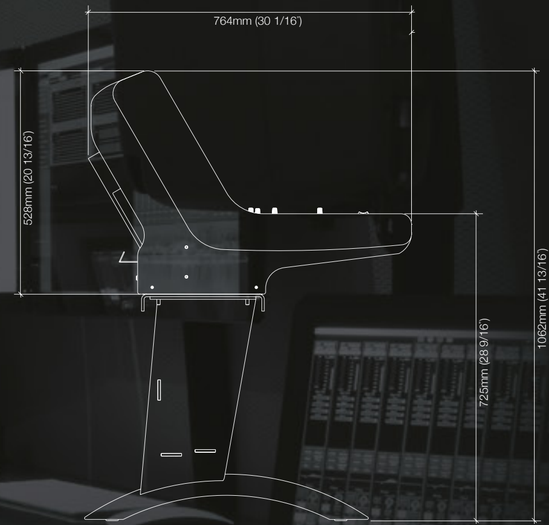


S300-48



S300 is a fixed layout control surface that is available in 16+1, 32+1 and 48+1 fader configurations.

- 17, 33 or 49 faders
- Standalone frames of 16+1, 32+1 or 48+1 faders, remote frames of 16+1 or 32+1
- 60 fader layouts per tile, 15 layers of 4 banks providing 960 addressable paths per fader tile
- 100mm touch sense faders
- 1-3 multi-gesture touch screens with graphical user interface for control of all console parameters and configuration
- On screen channel and bus signal metering for mono, stereo, LCR, 4.0, 5.1, 7.1, 5.1.2, 5.1.4, 7.1.2 ,7.1.4 and 4.0.4.
- On screen channel and bus signal metering
- On screen Automix gain sharing metering
- On screen dynamics reduction metering
- 21 master section user soft keys
- 4 studio monitor outputs with assignable level control encoder, cut and talkback keys
- Dedicated control room main monitor level encoder with Dim, Cut, PFL to main, Main/Alt flip keys
- Dedicated hardware Monitor Ext 1 and Ext 2 keys, with soft keys for each 1-24 Ext source selector
- Monitor Misc level encoder for Dim, Alt Monitor, PFL Monitor out, AFL and PFL Bus level control
- Master section Focus fader can be locked to any bus or channel path
- Optional fanless control surface with internal redundant power supplies
- Per bay/tile individual power switches
- Inbuilt screen for Loudness, True Peak and Phase metering



General Specifications

Control software

- 32 multiple and nested VCA groups
    - Moving or VCA style options
    - Multiple additive group mode (Live console mode)
- Unlimited number of Audio-Follow-Video events with total time envelope of 20s encompassing delay, rise, hold and fall times
- Path/Mic Live and On Air Transmission modes for four studio outputs and two control rooms speaker sets with global controls
- Fader control of all variable parameters
- Unlimited programmable events triggers for GPIOs, console functions, scene automation triggers, fader open/closed and ipMIDI PGM change messages with programmable logic using a GUI
- Scene Automation system with fade/switch times, store and recall filters for all parameters with per scene per path granularity
- Online/offline remote control software with 2 online remote slots per console
- DAW control for up to four DAWs including panning, sends, plug-in and automation control

Routing and interfaces

- Native AoIP: AES67, Dante, SMPTE 2110-30
- Console software automatically discovers and can immediately route audio between any Dante product including all third-party equipment
- Redundant Dante AoIP connections, SMPTE 2022-7
- 48kHz and 96khz operation (other sample rates and SRC capability available across I/O range)
- Networked Mic/Line in, Line in, Line out, AES3, 3G SDI, HD-SDI, MADI, GPIO, MIDI and LTC interfaces
- Synchronisation options across processing and I/O hardware; Tri-Level, Black and Burst, PTPv1, PTPv2, AES3, MADI - high availability of multi-redundant options with auto changeover
- Routing from third-party IP routing control system with Dante API (Lawo VSM, BFE KSC, EVS Cerebrum)
- Production Automation control from EVS Cerebrum, Grass Valley Ignite, Kahuna, Ross Overdrive, Sony ELC, Vizrt Viz Mosart
- ipMIDI connectivity
- EMBER+
- SNMP v3
- TSL UMD v5

Signal processing

- Flexible channel and bus architecture with up to 800 processing paths
- Dedicated Aux, Mix-Minus, Track, Stem (Group) and Master buses
- Add channels and buses or change path formats without interrupting audio
- Full processing on all channels and bus types:
    - Digital trim
    - High and low pass filters with 12/18/24dB per octave slope
    - 4 band EQ with different modes per band: shelving, constant Q, legacy & notch
    - 2 dynamics sections each with compressor/limiter and gate/expander
        - Dynamics sections include de-esser mode
        - Ducker mode for the gate/expander
        - Independent peak/RMS sensing for the compressor/limiter and gate/expander
        - Each dynamics section has a key input with separate gate/expander and compressor/limiter sidechain filters
        - 4xFs oversampled true peak look ahead brick wall limiter
        - 32 compressor and 32 gate link busses
- Insert point
- Delay from 1 sample up to 3 seconds, configurable in sample, time or distance formats
- Direct Output feedpoint switchable between post all, post fader, pre EQ or post trim
- 2nd fader gain that can be controlled from AFV, Production Automation, Automix or manually
- Assignable processing order including ability to move dynamics into Mix Minus, Track Bus or Channel Direct Output send
- 64-bit floating point processing and mixing
- Mono, stereo, LCR, 4.0, 5.1, 7.1, 5.1.2, 5.1.4, 7.1.2, 7.1.4 and 4.0.4 path formats for any input channel and all busses
- Integrated additional Effects Processing engine (including reverb, multiband compression, all pass filter, de-esser, dynamic EQ, single ended noise reduction)
- A/B input on all channels
- Recorder and rehearsal loop on all channels and stem busses
- 2 AFL buses: AFL 1 up to 7.1.4, AFL 2 stereo
- Solo in place
- 16 Channel Monitor Section (up to 9.1.6) with two sets of 16 channel Monitor outputs plus two sets of stereo nearfield outputs
    - Additional Stereo PFL Monitor Output
    - Dual 16 Channel Monitor Insert points
    - 49 16 Channel Monitor Inputs
    - Independent Level and Delay compensation for the main monitor outputs
    - Dual monitor section mode - up to 7.1.2 and 5.1 simultaneously
- Loudness Metering according to EBU R128, ATSC A/85, ARIB TRB-32 (or any user entered parameters) for up to 282 paths with no loss of channel or bus processing

	TE2 engine	TE1 engine
Path pool	Up to 800	Up to 256
Path processing pool	800 Dyn, 800 EQ, 400 Delay	256 Dyn, 256 EQ, 128 Delay
Inputs & outputs	Up to 2048	Up to 1024

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