SSOUNDS

PRODUCT DOCUMENTATION

DSP Network Manager User Guide

System design, acoustic prediction and amplifier control

Software version	**0.9.8**
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Platforms	macOS · Windows · Linux

1. What this software is

DSP Network Manager does two jobs that are usually done by two different tools. It **designs and predicts** a loudspeaker system in a room, and it **configures and monitors** the amplifiers that drive it. A design made in the first half can be pushed to hardware in the second.

> **THE HONESTY PRINCIPLE**
> Every number this application shows is either *measured* from a connected device or *predicted* from a model, and it always says which. Predicted values are marked as predicted. Where a figure rests on an assumption — an unrecorded cable load, an unmeasured directivity — the application says so rather than presenting the assumption as a measurement.

2. Modes

Mode	Use
Demo	Simulated amplifiers. The entire design, prediction and reporting workflow is available with no hardware present. Use this for drawing, quoting and training.
Live	Connects to amplifiers on the network. Telemetry, control and monitoring are real.

Roles are selected at sign-in: **Viewer** (read only), **Engineer** (design and control) and **Admin**. A per-installation developer code unlocks advanced tools; it is displayed once at first run and is not recoverable afterwards — record it before locking a system for an installation.

3. Designing a system

3.1 Describing the room

A venue can be created four ways, in increasing order of fidelity:

1. **Template.** 14 rooms — stadium, arena, church, theatre, conference hall, outdoor field, festival site, banquet hall, school hall, exhibition hall, fan-shaped hall, circular arena, horseshoe theatre and stadium bowl. The last four carry explicit audience polygons rather than a rectangle.
2. **Typed dimensions.** Width, depth, height, stage size, audience extent, rake.
3. **Floor plan import.** DXF or SVG, traced to a real footprint; or a scaled image to trace over.
4. **3D model import.** COLLADA, glTF/GLB, OBJ or FBX. The room's true shape and its ceiling height come out of the model. Concave rooms — L-shaped halls, stage alcoves — are preserved rather than reduced to a bounding box.

> **MATERIALS MATTER**
> Surface materials drive reverberation time, the room constant and therefore every intelligibility figure. Assign them before reading STI. An unassigned audience is treated as an audience, not as paint.

3.2 Quickstart — letting the software rig the room

Layout & Coverage → **Concert quickstart** opens a four-step interview:

Step	What it asks, and why it matters
1 — The show	Time of day, duration, target SPL, crest factor. Time of day sets the air the prediction runs in — outdoors, a night show and an afternoon show are different air and different high-frequency loss over a long throw. Duration buys thermal headroom. Target and crest together set how much cabinet the rig needs.
2 — What to place	Front-of-house side and stage side first, then each subsystem: mains, outfills, front fills, side fills, delays, subwoofers and their array type, monitors, FOH position.
3 — Your inventory	Optional. Tick the cabinets you own and how many. The plan is then built from the shelf.
4 — Review	The complete rig, the reasoning behind every decision, and an explicit list of anything that was asked for but could not be delivered.

The result is a starting point, not a finished design. Every system remains editable — position, aim, splay, gain, delay and polarity.

3.3 Reading the prediction

Overlay	Answers
SPL	Level across the audience, referenced to the operating target.
Coverage	How much of the audience is inside the target window.
Time of arrival	Where arrivals from different sources are far enough apart to comb.
Coherence	Direct sound as a share of direct plus reverberant. This is where an under-balcony problem appears: those seats lose little level and half their direct sound.
Speech (STI)	Intelligibility per IEC 60268-16, sampled on every audience tier.

The analysis bar beneath the plan shows the SPL distribution and the average frequency response across the audience. A well-tuned S Sounds system should read broadly linear through the mid and high bands, with high-frequency loss growing with throw distance. A steep downward slope indicates a rig that is under-powered at distance or aimed away from the seats.

4. Cabling and load

The **Cable Calculator** sizes a run against the load it actually drives. Select the model and the number of cabinets on the run; the impedance comes from the catalogue.

> **LOW IMPEDANCE OR DISTRIBUTED LINE**
>
> Cabinets with transformer taps can be wired either way and the answers differ by more than an order of magnitude. A CL8 is 8 Ω low-impedance and 333 Ω on a 100 V line at its 30 W rating. Set **Wiring** before

reading anything else on the page. On a distributed line the limit is the line's power budget, not the amplifier's minimum load.

Runs added to the **Wire Map** carry the load they were sized against, so the two pages always agree. A run created by hand without a recorded load is shown as *assumed* rather than *calculated*.

5. Amplifier control

The Dashboard lists every amplifier on the network with live telemetry: temperature, mains voltage, current, power, protection state and per-channel output. Channel health is scored from limiter activity, clipping, load deviation and temperature.

Processing — input routing, crossovers, parametric EQ, limiters and delay — is edited per channel and pushed to the device. A push that fails reports the failure; it does not report success.

> **NETWORK SECURITY**
> The amplifier control protocol does not authenticate connections. Any host that can reach an amplifier can change its settings. Operate the amplifier network on a physically separate switch or a dedicated VLAN with no route to a public network, and never expose it to guest Wi-Fi.

6. Reporting

The **Report** button produces a PDF for a client or a file for a crew: system schedule, positions and aims, predicted coverage and level, cable schedule, amplifier assignment and the material assumptions behind the acoustic figures. Reports state their own provenance — which numbers were predicted, from what data, and where measured data was used instead.

7. Units and conventions

Quantity	Convention
Coordinates	x = width, 0 at room centre, +x stage right. y = depth, 0 at the downstage edge, +y toward the back wall. z = height, 0 at the floor.
Aim	Vertical angle positive is *down*. Horizontal 0 is straight downstage.
Length	Metres or feet, selectable per design. Stored in metres.
Power	Datasheets quote recommended amplifier power = programme = 2 × RMS.
Max SPL	As published: pink noise at crest factor 4, driven to the recommended amplifier's clipping point, free field at 1 m.
Coverage angle	Nominal −6 dB, averaged across the pass band.

8. Support

Datasheets, manuals and directivity data for all catalogue enclosures are published at `s-soundspro.com/products`. When reporting a problem, include the software version from the sign-in screen, the platform, and the design file if the issue is reproducible.

9. Legal notice

All predicted values produced by this software — sound pressure level, coverage, speech transmission index, reverberation time, arrival time and frequency response — are the output of an acoustic model. They are design guidance. They are not a guarantee of performance, and they do not replace measurement on site. Verify a system by measurement before signing it off or operating it at level in the presence of an audience.

Loudspeaker data follows the published S Sounds datasheets current at the date of issue and is subject to change without notice. Polar and directivity data shown in this software is simulated from the enclosure's driver complement and geometry, and is labelled as such wherever it appears; it is not measured data.