SPXOne

glove PROFESSIONAL AUDIO

CERTIFIED SOUND LEVEL LIMITER

Limit the noise, not the music

Sound level limiter-recorder and 24-bit digital audio processor in a 19" rack unit (1U). Spectral limiting in 1/3 octave bands, SMART algorithm without compression, two independent channels, analogue and AES/EBU inputs and outputs, and configuration from any web browser.



21 bands · 50 Hz – 5 kHz · SMART algorithm · 31-band GEQ · AES/EBU 48 / 96 / 192 kHz · 0.44 ms latency · OTA updates

Professional sound level limiter with sound level logging

WWW.GLOVESYSTEMS.COM/EN

FOR AUDIO PROFESSIONALS

A limiter designed by and for sound engineers

The SPXOne is inserted in the audio chain between the mixing desk or source and the amplification. It measures the sound pressure level in the room with one or two measurement microphones and controls the signal in real time so that the configured limits are never exceeded, while preserving the quality of the sound system.

112 dB
Dynamic range, A-weighted (110 dB unweighted)

0.0025 %
Typical THD + noise @ +4 dBu, 1 kHz

0.44 ms
Analogue IN-OUT latency @ 48 kHz (0.04 ms digital @ 96 kHz)

> 2 years
Of data logging and time scheduling without assistance

01

Spectral limiting in 1/3 octave bands

21 bands from 50 Hz to 5 kHz, as required by regulations. Three limiting algorithms to suit each venue and each music programme.

02

No compression, no spectral changes

The SMART algorithm holds the programmed maximum level by adjusting the volume only: it does not compress the signal, does not alter the emission spectrum and produces no abrupt level changes.

03

Two channels, two limiters

One stereo limiter that preserves the stereo image, or two independent limiters for two rooms or zones with their own music, each controlled by its own microphone.

04

Analogue and AES/EBU

Balanced XLR inputs and outputs with RF filtering and adjustable levels (+14 / +22 / +28 dBu input, +14 / +20 / +24 dBu output). AES/EBU digital audio at 48, 96 or 192 kHz.

05

32-bit processing

24-bit A/D and D/A conversion, two CPUs with FPU and 32-bit floating-point internal processing. 31-band graphic equaliser (20 Hz – 20 kHz) on each input.

06

Every tool a sound engineer needs

RTA of each input with an editable limiting curve, RTA of each microphone, 31-band GEQ, pink noise generator, automatic calibration, presets and a live mode for adjustments during a show.

AMBIENT ADAPTATION · IDEAL FOR RESTAURANTS

The music follows the crowd, with no hands on the volume

The SPXOne automatically adjusts the music level to the venue's background noise, that is, the ambience created by the audience itself. With the room nearly empty, the music plays softly; as guests arrive and the hum of conversation rises, the level goes up so the music can still be heard clearly. Always below the programmed maximum level: regulatory compliance is unchanged.

SYSTEM INTEGRATION

19" rack, 1U, all connections at the rear

Latching XLR inputs and outputs, two sensor inputs, Ethernet, Wi-Fi with external antenna and universal 100 – 240 V power supply.



One stereo source · one room

- L and R from the desk to INPUT 1 and INPUT 2; OUTPUT 1 and 2 to the room amplification.
- Both channels are limited together as a stereo pair: the stereo image is preserved.
- MIC 1 measures the room; optional MIC 2 (second point or neighbouring room).
- Analogue inputs 1 + 2, or AES/EBU with both channels on one cable.

Two mono sources · two limiters

- A different programme on each input: two rooms or zones with their own music.
- INPUT 1 → OUTPUT 1 limited by MIC 1; INPUT 2 → OUTPUT 2 by MIC 2.
- Independent attenuation and its own maximum level for each room.
- Independent calibration of the two microphones.

OLED DISPLAY

All the information on the front panel



Time and attenuation

Unit clock and limiter attenuation bar.

Audio

Sampling frequency (FS) and level of the L and R inputs.

Sound level

MIC 1 in large digits with its weighting (dBA / dBC) and MIC 2 below.

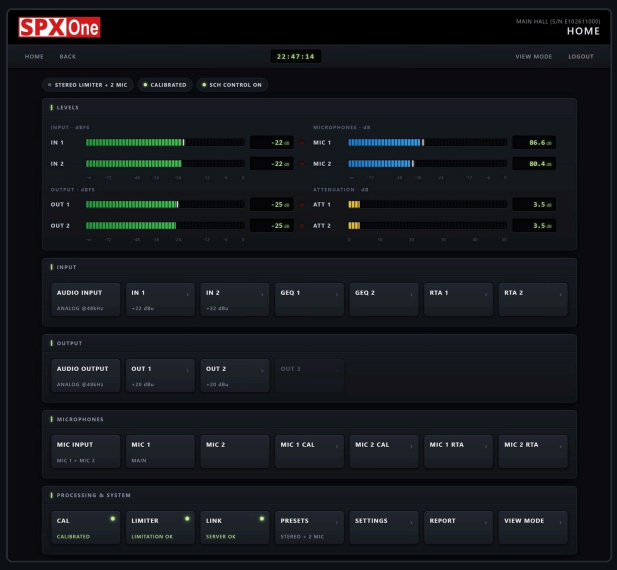
Status

Closing time of the time schedule, Ethernet, Wi-Fi and spectrum from 50 Hz to 5 kHz.

BUILT-IN WEB SERVER

Configure from any web browser

The SPXOne has a built-in web server: it is fully configured from a computer, tablet or smartphone, without installing any software, over the installation's Ethernet network or via Wi-Fi.



Home screen: input, output and microphone levels, attenuation and access to every function.



RTA of input 1: spectrum, editable limiting curve (in green), levels, limits and attenuation.



31-band, 1/3 octave graphic equaliser from 20 Hz to 20 kHz on each input.

OTA updates: always up to date

The SPXOne checks the update server when it connects and downloads new firmware in the background, without interrupting operation; the update is applied at the next restart.

- Built-in web interface with the same functions as the SPXOne Control desktop application (Windows 8 / 10 / 11).
- Reports: data in CSV, an encrypted .REG1 file that guarantees the records have not been modified (inspections) and a PDF report of the configuration.
- Weekly time scheduling with 4 time slots (including mute), 20 periods and 30 special days.
- Clock synchronised via SNTP and real-time data transmission over Ethernet and Wi-Fi to the control server.

REAL-TIME ANALYSER

Three limiting algorithms

The RTA of each input shows the 1/3 octave spectrum together with the limiting curve, the microphone levels, the limit applied in each room and the attenuation. The limiting algorithm is selected on the same screen.

SMART

Constant maximum level, no compression

Holds the programmed maximum level by adjusting the volume only. It neither compresses the signal nor alters the frequencies: the music sounds the same, just quieter when needed. The Smart Offset setting corrects the excess level caused by the dynamics of the music.

ALL SP

Broadband limiting

Attenuation is applied to the whole spectrum.

BAND 2 BAND

Band by band

Only the bands that exceed the limiting curve are attenuated; the rest of the spectrum is left untouched.

Limiting curve editable point by point, shape presets and copy between inputs · adjustable attack, release and pre-attenuation · live mode for real-time changes during a performance.

COMMISSIONING

Set up in four steps

1

Microphone offset

The built-in pink noise generator lets you match the reading of each microphone to that of a calibrated sound level meter.

2

Automatic calibration

With the room silent, the SPXOne emits pink noise and measures the relationship between the audio signal and the sound level in the room.

3

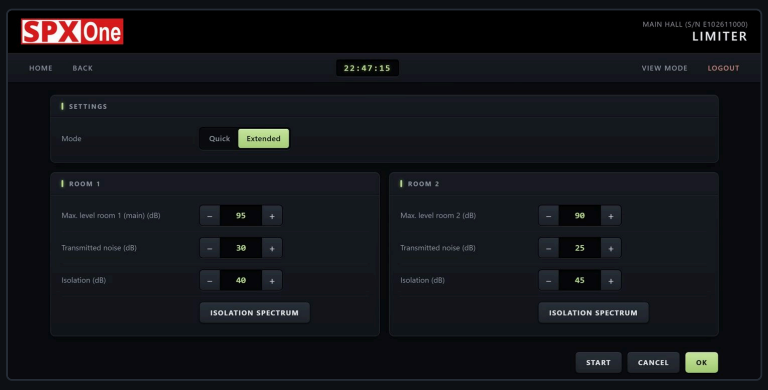
Maximum level

Quick mode (maximum level of each room) or extended mode, using the transmitted noise and the band-by-band insulation from the acoustic test.

4

Smart Offset

Fine adjustment of the excess level caused by musical dynamics. Then the audio connections are sealed.



Limiter in extended mode: maximum level, transmitted noise and insulation of each room.

In extended mode, the limiter takes into account the maximum level allowed in the receiving room and the sound insulation spectrum in bands from 50 Hz to 5 kHz (20 – 110 dB), normally obtained from the venue's insulation test. This makes the most of the level the insulation allows, without exceeding the limit in the adjoining dwelling.

VIEW MODE

Full-screen sound level

This is the first screen when you connect to the SPXOne. It needs no password and allows no changes, so it can be left permanently open on a tablet or on a screen in the venue.



Mode 1: large SPL reading with status (NORMAL, WARNING or OVER LIMIT), applied limit, level meter, LEQ and attenuation.

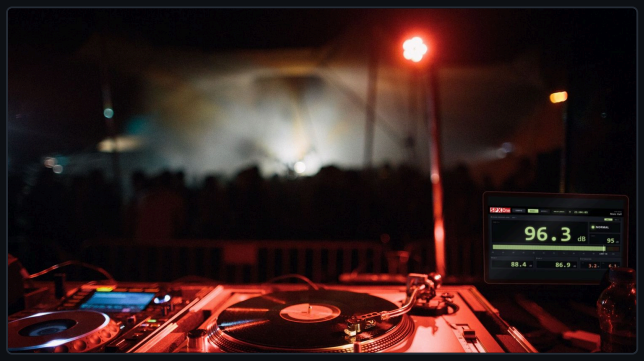


Mode 2: emission spectrum, input levels in dBFS and SPL versus the limit over the last minute.

SPXONE IN ACTION

From the DJ booth to the main stage

With view mode on a tablet, whoever is in charge of the sound sees the level, the limit and the attenuation at all times, and can adjust the mix before the limiter steps in.



From the booth: the DJ sees the sound level, the limit and the attenuation on a tablet (Mode 1).



From FOH: view mode (Mode 2) alongside the rest of the engineer's instruments.

CERTIFICATION

Compliant with noise regulations

Castilla y León
Castilla y León Noise Act 5/2009

Andalusia
Technical Instruction 6 of Decree 50/2025

Barcelona
Barcelona Environment Bylaw (2011)

Other regions and municipalities
Regional regulations and municipal bylaws

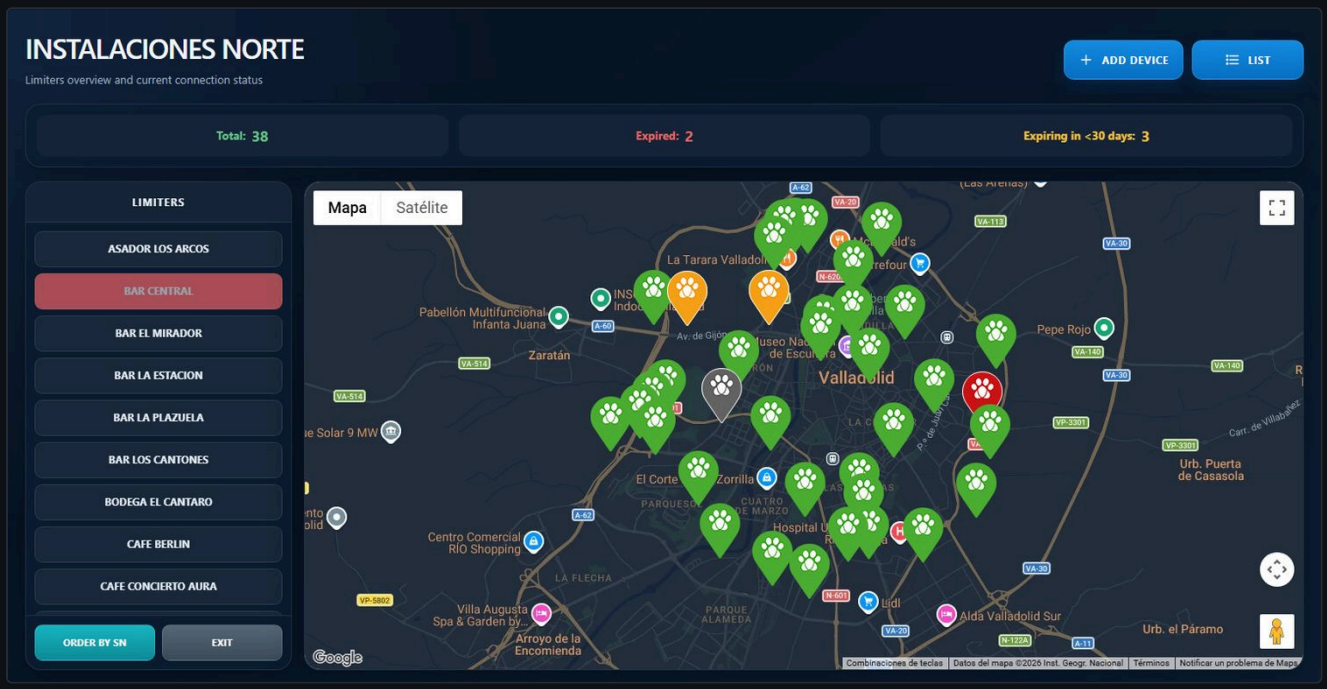
Lisbon
Regulamento dos Horários de Funcionamento

Porto
Regulamento da Movida do Porto

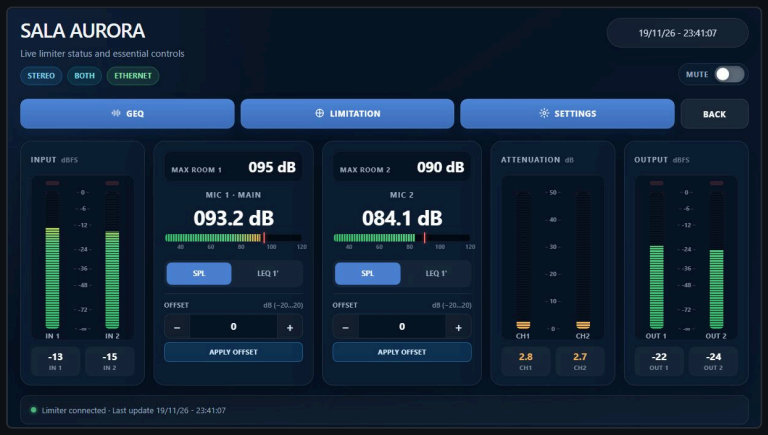
CONTROL WEB

Remote monitoring and configuration of your installations

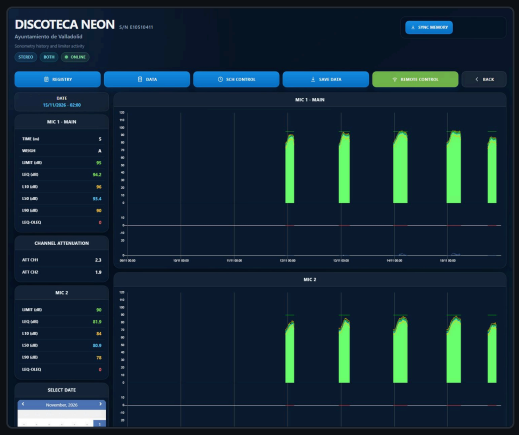
SPXOne units linked to the server transmit their data in real time to the Control WEB platform. Municipalities, installers and venue owners see all their limiters on a map, with the connection status of each venue, the list of units and expiry warnings. Control WEB also lets you change the configuration of each limiter remotely, even if the unit is not connected at that moment.



Map of an installer's limiters, with their status and expiry warnings.



Live remote control: inputs, outputs, each microphone against its maximum level and the attenuation on each channel.



A full week at a venue with two microphones: one session for each opening day, each microphone against its limit, and the Leq, L10, L50, L90 and attenuation values.

- Map of limiters with their status
- List of venues and search by serial number
- Totals, expired units and units about to expire
- Remote configuration, even with the limiter disconnected

SPXONE

Technical specifications

LIMITING FUNCTION

Type	Spectral, 1/3 octave
Frequency range	21 bands from 50 Hz to 5 kHz, as required by regulations
Setting	Maximum level allowed in the venue / sound insulation + maximum level in the adjoining dwelling
Limiting algorithms	SMART (volume adjustment without compression or spectral change), ALL SP (whole spectrum) and BAND 2 BAND (band by band)
Ambient adaptation	Automatic adjustment of the music level to the venue's background noise (occupancy and audience conversation), always below the programmed maximum level
Control	Independent on both channels (dual limiter function)
Graphic EQ	31 bands, 1/3 octave, 20 Hz – 20 kHz
Number of channels	2 independent (control of 2 different acoustic signals)

DATA LOGGER

Number of sensors	2
Weighting	A / C
Frequency range	50 Hz – 20 kHz
Measuring range	40 – 120 dB
Parameters	Leq, L10, L50, L90 and OutLeq
Measuring interval	2, 3, 5, 6 and 10 minutes
Capacity	> 2 years

TIME SCHEDULING

Weekly schedule	4 time slots, including mute
Periods	20, with variable mute time
Special days	30, with variable mute time and operating exceptions
Capacity	> 2 years without assistance

AUDIO INPUTS

Number	2 analogue line inputs / 1 digital input (AES/EBU); 2 sensor inputs
Connectors	2 × female XLR (1 selectable analogue / AES); 2 × female XLR for the sensors
Type	Electronically balanced, with RF filter
Impedance	> 20 kΩ, balanced, line to line
Input level	Electronically adjustable: +14, +22, +28 dBu
Maximum input level	> +28 dBu, balanced, < 1 % THD
CMRR	> 52 dB @ 1 kHz

AUDIO OUTPUTS

Number	2 analogue line outputs / 1 digital output (AES/EBU)
Connectors	2 × male XLR (1 selectable analogue / AES)
Type	Electronically balanced, with RF filter
Impedance	120 Ω, balanced, line to line
Output level	Electronically adjustable: +14, +20, +24 dBu
Maximum output level	+24 dBu, balanced, < 1 % THD

A/D AND D/A CONVERSION

A/D converters	24 bit, SPX conversion system
A/D dynamic range	112 dB A-weighted, 110 dB unweighted, 22 kHz BW
D/A converter	24 bit
D/A dynamic range	112 dB A-weighted, 110 dB unweighted, 22 kHz BW

SYSTEM PERFORMANCE

Number of CPUs	2, with FPU
Internal processing	32-bit floating point
Sampling frequency	48 kHz (analogue) – 48 / 96 / 192 kHz (digital). Inputs and outputs always run at the same frequency
Dynamic range	112 dB A-weighted, 110 dB unweighted
THD + noise	0.0025 % typical @ +4 dBu, 1 kHz, 0 dB input gain
Frequency response	20 Hz – 20 kHz, +0 / −0.5 dB
Crosstalk between channels	< −95 dB, −105 dB typical @ 20 Hz – 20 kHz, +4 dBu
Latency (analogue IN-OUT)	0.44 ms @ 48 kHz
Latency (digital IN-OUT)	0.04 ms @ 96 kHz
Temperature range	0 – 65 °C

CONFIGURATION AND COMMUNICATION

Configuration	Multi-device: SPXOne Control application (Windows 8 / 10 / 11) and built-in web server
Ports	RJ-45 Ethernet; 2.4 GHz Wi-Fi IEEE 802.11 b/g/n with external antenna
Security	Digital key in the unit + application licence; configuration password
System clock	Automatic time update (SNTP)
Firmware	OTA updates: automatic background download, applied at the next restart
Data transmission	Real time, over Ethernet and Wi-Fi, TCP/IP protocol

POWER SUPPLY

Voltage	100 – 240 V AC, 50 / 60 Hz
Consumption	10 W
Inlet	IEC 60320 C14 with switch and fuse holder

PHYSICAL CHARACTERISTICS

Dimensions	484 × 45 × 170 mm (19" rack, 1U)
Unit weight	2.2 kg
Packed weight	4.0 kg

AUDIO CONFIGURATIONS

P1	Stereo analog IN – stereo analog OUT
P3	Stereo digital IN – stereo digital OUT
P4	Stereo digital IN – stereo digital OUT + mono analogue monitor (L+R)

Specifications subject to change without notice.

MORE INFORMATION, MANUALS AND CERTIFICATES

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