STETSOM STX2848 Digital Audio Processor User Manual

Contents

STETSOM STX2848 Digital Audio Processor

Product Information

The STX2848 is a digital audio processor that is compliant with ISO requirements. It has a 2/3 octave range from 25Hz to 16kHz and features a graphic EQ with a center frequency of 63Hz and a gain of +2.6dB. The processor has multiple inputs and outputs, including A+B audio input and OUT1 output. It also includes a high-pass filter with a cutoff frequency of 12Hz and a low-pass filter with a cutoff frequency of 107Hz. The STX2848 has an adjustable delay for OUT1 to ensure all speakers reach the listener at the same time. It also includes a limiter with adjustable attack, release, and threshold settings. The processor can be controlled using hotkeys or the encoder and includes preset GEQ and crossover options. The STX2848 is multilingual and has a sequential activation feature.

Product Usage

Before installing the STX2848, refer to the user manual for instructions. Connect the audio source to the A+B input and connect the OUT1 output to the speakers or amplifiers. Use the hotkeys or encoder to adjust settings such as graphic EQ, delay, limiter, and volume. Preset options can be selected from the main menu. The sequential activation feature can be used to control multiple products in sequence. Refer to the user manual for detailed instructions on how to use each feature of the STX2848.

Introduction

The STX2848 is a digital audio processor that offers a huge range of high precision settings and configurations to improve the performance of your audio system. It has a Digital Signal Processor (DSP) that realizes equalizations, crossover filters, alignment, gain control, phase inversion, limiter, digital routing of inputs and outputs, among other treatments. Its new exclusive sequencer feature makes it possible to configure the programmed activation and shutdown of up to 3 products from the remote activation connections (REM).

Before installing

Please read this manual carefully.

- All product connections must be made with the product turned OFF.
- Use gauges recommended in this manual to avoid the overheating of the cables to obtain maximum power.
- Keep the cables as short as possible to increase sound fidelity and avoid potential power losses.
- Route the installation cables as far away as possible from the original vehicle wiring as it may cause interference and noise in your audio system.
- Perform the installation in a firm, ventilated and dry place.
- Installation must be done by a qualified professional.

If you have questions , contact the store where the purchase or installation was made. For more information please contact our Customer Service: BR +55 18 2104-9412.

Resources

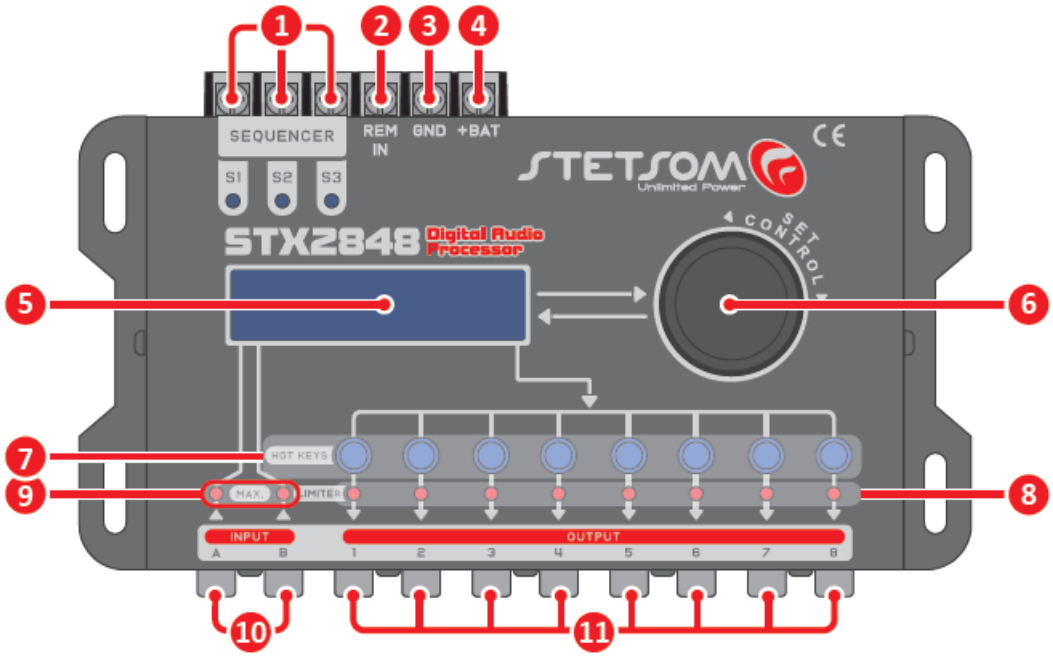
The STX2848 has 2 inputs and 8 independent outputs that allow adjustments to the audio individually for each output through several functions and features integrated into the processor:

- Graphic input equalizer (15 bands and equalization presets)
- Parametric input equalizer (frequency, gain, Q factor)
- Parametric equalizer per output (frequency, gain, Q factor)

- Routing between inputs and outputs
- High precision crossover with Butterworth and Linkwitz-Riley filters and attenuations up to 36 dB/8th
- High precision alignment/delay
- Phase inversion
- Limiter with Threshould, Attack and Release adjustment
- Independent gain and mute per output and master volume
- Working memory with automatic saving of settings
- Allows you to save and load the settings made by the user
- Security password to block parameter modification
- Frequency generator, frequency sweep and pink noise generator
- Screen saver with rotating text
- Outputs for remote activation with configurable sequencing.

Any updates made in this manual will be available for costormers to consult without any charge on the brand's site. It is recommended that the updated manual be consulted whenever needed. Images contained in this manual are merely illustrative and may differ from the actual product.

Overview

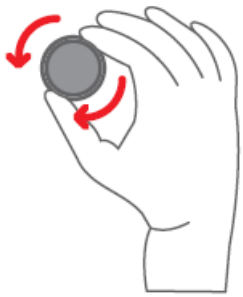


1. **SEQUENCER:** It allows sequential activation of other products through the remote activation (REM) connection. Use a cable of at least AWG 20.
2. **REM IN**: Allows automatic activation of the amplifier when turning on the radio/player. Connect to the remote output of the radio/player mininum of AWG 20.
3. **NEGATIVE POWER CONNECTOR (GND):** Connect to the negative terminal of the battery using a cable minimum of AWG 13.
4. **POSITIVE POWER CONNECTOR (+BAT):** Connect to the positive terminal of the battery using a cable minimum of AWG 13. It is recommended to use a fuse for external protection of 1A.
5. **DISPLAY LCD**: It allows visualization and interaction with the processor system.
6. **ENCODER**: Rotary control that allows interaction with the processor system functions and resources:

    1. **ENTER function**: Short press on the encoder.
    2. **RETURN function**: Long press on the encoder.
7. **HOTKEYS**: Shortcut keys for selecting output channels:
    1. **Short press**: Selects the channel for applying the parameters.
    2. **Long press**: Allows you to turn the selected output channel on or off.
    3. **HOTKEY on blue**: output channel on.
    4. **HOTKEY lit red**: output channel off.
8. **LED LIMITER**: The LEDs will light when the “LIMITER” of the channel in question is acting, they are also used as indicators of output saturation.
9. **LED MAX**: The LEDs will light indicating that the respective input signal has reached the maximum level allowed.
10. **AUDIO INPUT (INPUT)**: RCA type connectors with independent actuation (A and B). Connect to the radio/player via quality shielded RCA cables to prevent noise.
11. **AUDIO OUTPUT (OUTPUT):** RCA connectors, provide the audio processed according to the settings made on the processor.

Navigation keys
Navigation and control of the STX2848 are made via the ENCODER knob and the HOTKEYS hotkeys.

ENCODER



- **ROTATION**: Navegation, increase and decre-ase in values.
- **SHORT PRESS**: Enter, select, skip parameter.
- **LONG PRESS**: Return to the previous screen.

HOTKEYS

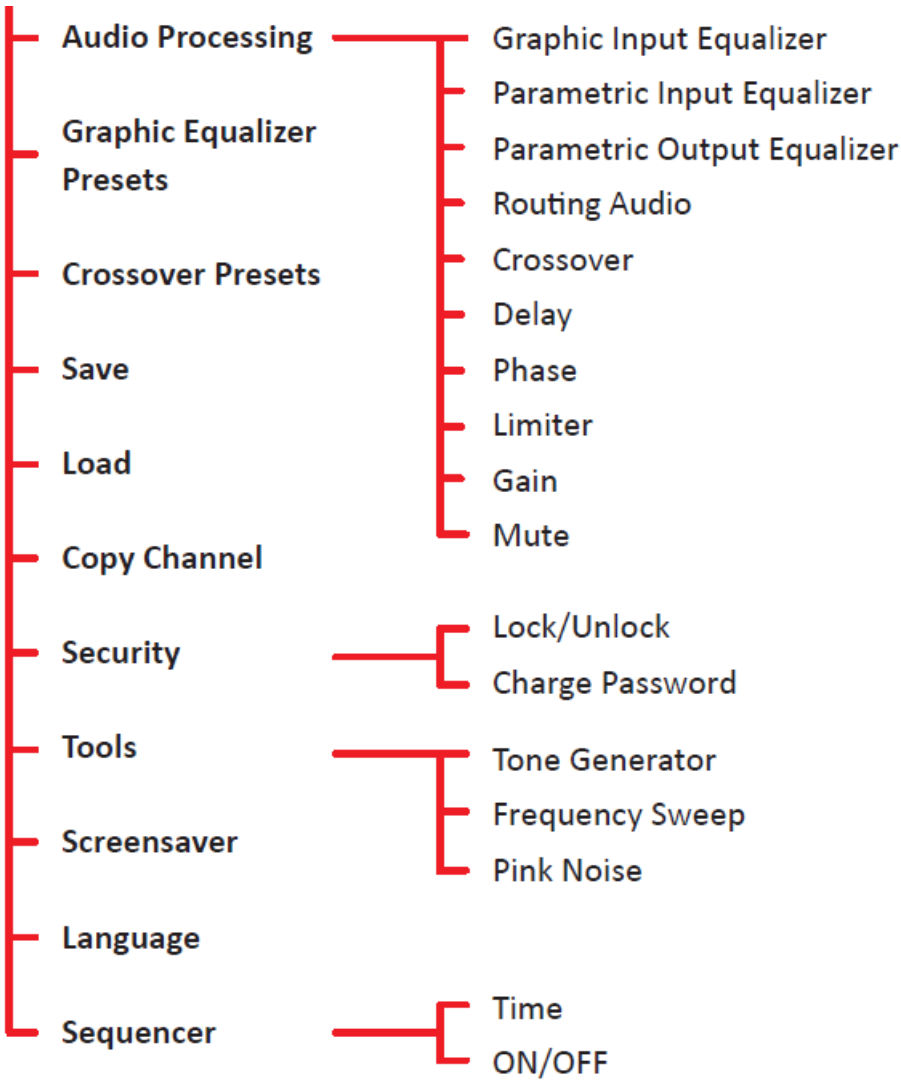
- **SHORT PRESS**: Select output channel.

- **LONG PRESS**: Output ON/OFF.

Settings map

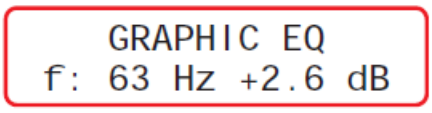
Find the desired configuration from the illustration below with all configurations and processor features:

Main Menu



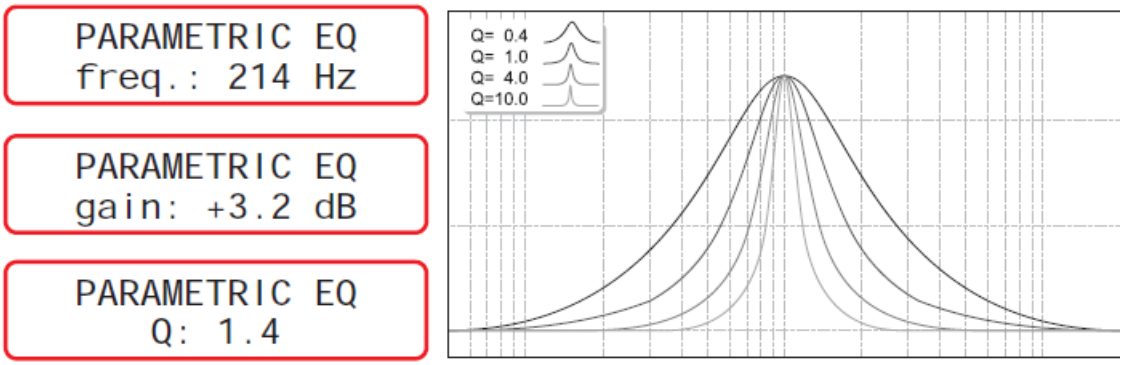
Processor features

Graphic Input Equalizer
The input graphic equalizer has 15 bands, allowing a variation of ‡ 12 dB per band, with a pitch of 0.1 dB, with frequencies equally spaced in 2/3 octave, in the range of 25Hz to 16 kHz in accordance with ISO requirements . The graphic equalizer acts on the two inputs simultaneously.

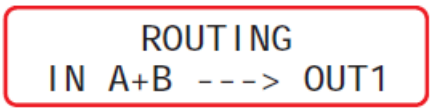


Parametric Input/Output Equalizer
The parametric equalizer allows you to choose a gain/attenuation at a specific frequency, as well as the bandwidth of that equalizer by means of the Q factor, the smaller the Q the greater the width of that equalization band, affecting to a greater extent the neighboring frequencies . The STX2848 has 9 parametric equalizers

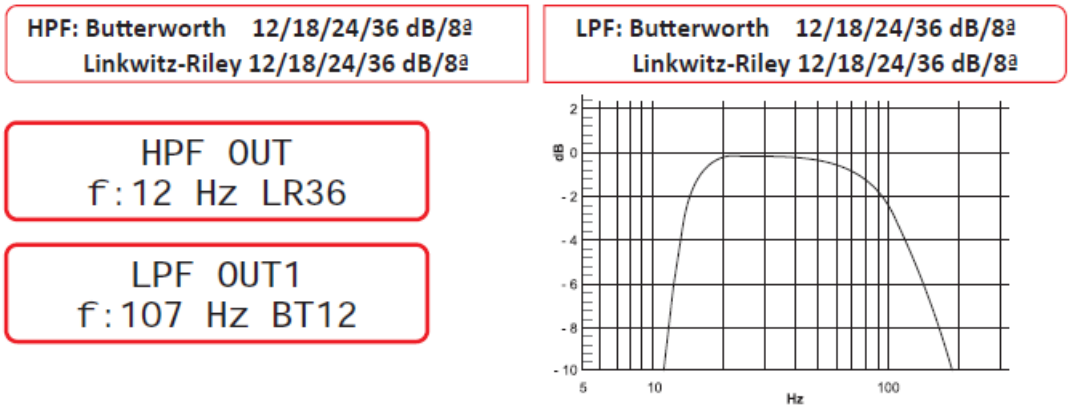
distributed as follows, 1 for the inputs and 8 for the outputs (1 for output).



Input and Output Routing
The purpose of the routing option allows you select the audio source A, B or A + B (sum) for each output. Turning the ENCODER dial moves the audio source to the selected route. To select another to the selected route. To select another channel, quickly press the corresponding HOTKEY.

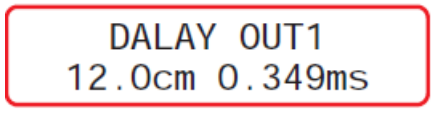


Crossover



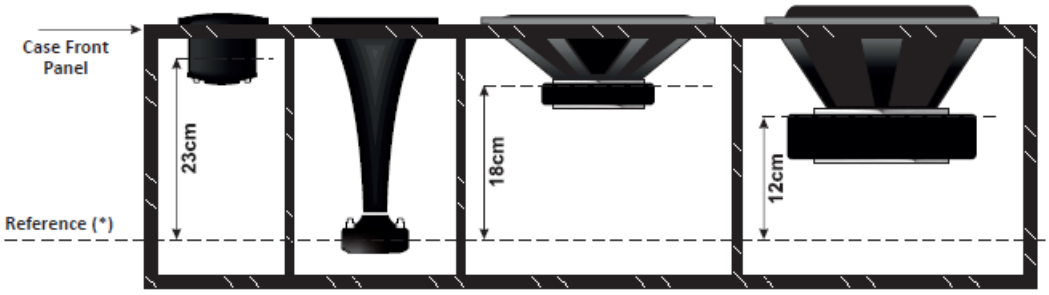
In the “CROSSOVER” menu, each short press on the ENCODER changes the parameter being edited, between output, filter type, frequency and attenuation/topology. To select another output channel for editing, short press the HOTKEY key on the corresponding output.

Balance / Delay
This function allows for the digital alignment of transducers (speakers) via the time correction performed by the DSP, and ensures that the sound from all the speakers arrives at the listener with improved audio fidelity while avoiding frequency cancellations.
The adiustment can be carried out as follows:



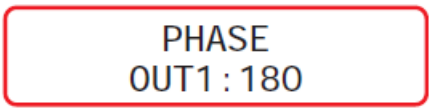
1. Identify the coil farthest from the listener or the front panel of the box. This coil will be used as a reference;
2. Measure the distance from the other coils to the reference coil. These are the distances used in configuring the

delay of each output channel.



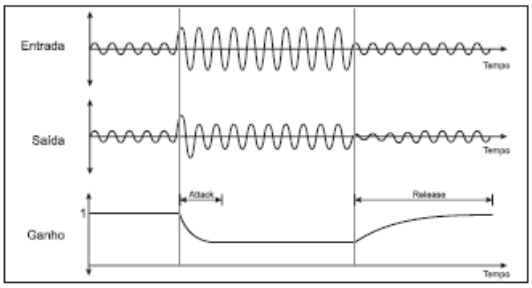
Phase

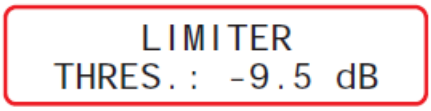
This function is used for resolving problems caused by canceling frequencies. From this screen you can reverse the phase of all outputs individually. Turning the “Encoder” dial changes the phase (0° ou 180°) of the corresponding output. To select another channel, quickly press the corresponding HOTKEY shortcut.

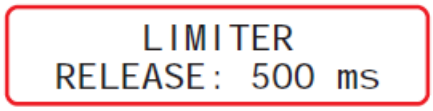


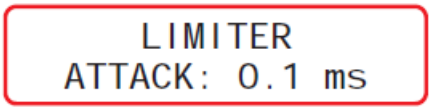
Limiter

To protect your amplifiers and speakers, the STX2848 has a limiter with an integrated “Dynamic Attack-Release” system for each of the 4 outputs. Use this function to attenuate and prevent damage to the system caused by signal peaks. The Threshold (-24 to 0dB) setting defines a threshold for the Limiter’s activation: the Limiter kicks in when this threshold is exceeded. The Attack parameter (0.1 to 100 ms) defines how fast the Limiter reacts / acts when the signal exceeds the Threshold. The Release parameter (1 to 1600 ms) controls the recovery time elapsed between the time the signal falls below the Threshold and deactivation of the Limiter. In addition to manual adjustments of Attack and Release values, it is possible to enable the “AUTO” mode, where the Attack and Release parameters are controlled in real time by the “Dynamic Attack-Release” system, providing ideal conditions for sound fidelity.



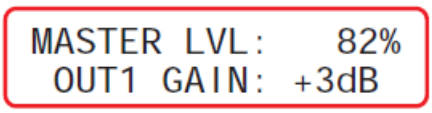






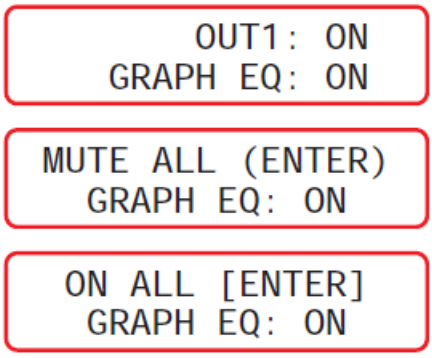
OUTPUT GAIN

This menu allows you to adjust the gains of the individual outputs within a range of -45 to +15 dB, as well as to increase the master volume from 0 to 100%.



Mute
The outputs can be switched individually on and off quickly by holding down the HOTKEY key that corresponds to the output. The LED color indicates the status of the output.

BLUE LIGHT: OUTPUT ON / RED LIGHT: OUTPUT OFF (MUTE)
In the “MUTE” screen, you can still turn off and on all the output channels simultaneously using the ENCODER go to the output field and select “ALL-ENTER” or “ALL-ENTER ON”. Then fast touch on ENCODER. You can also turn the input graphic equalizer on or off.



Graphic Equalization Presets
The STX2448 offers 12 graphic equalization presets that are selected from the “GRAPH EQ PRESETS ” in the main menu:

- FLAT
- LOUDNESS
- BASSBOOST
- MID BASS
- TREBLE BOOST
- POWERFUL
- ELECTRONIC
- ROCK
- HIP HOP
- POP
- VOCAL
- PANCADAO (Heavy Beat)

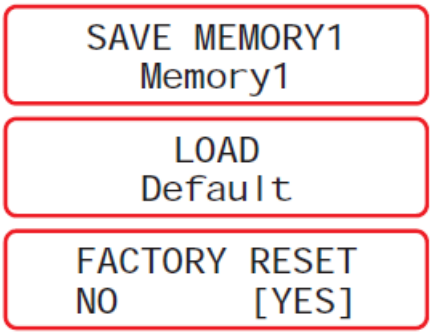
Crossover Presets
The processor offers 11 crossover presets that are selected from the “XOVER PRESETS ” in the main menu, in this way it is possible to configure the frequency cut of each output more quickly:

- SUBW1
- SUBW2
- SUBW3
- WOOFER1
- WOOFER2

- WOOFER3
- DRIVER1
- DRIVER2
- DRIVER3
- TWEETER
- FLAT

Save / Load / Factory Reset

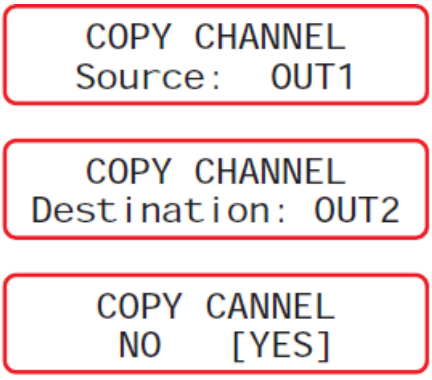
The STX2848 has four memory slots available for saving personalized settings, accessed via the “SAVE” function. Saved settings can be named with titles up to 15-characters long. Besides the memory space available to the user, there is autosave, where all parameters and settings are saved in a separate working memory. Or rather, if there is a drop in power or the product is turned off during configuration, the settings will not be lost. This function cannot be disabled. To load previously saved settings use the “LOAD” function. This function also allows the factory presents to be loaded via the “DEFAULT” memory.



If you want to restore all of the STX2848 factory settings, simultaneously hold down the HOTKEY shortcut keys for outputs 1, 2 and 3 while turning on the device. This procedure will erase all internal settings and saves.

Copy Channel

This function allows you to copy all audio settings from one output channel to another. The copied functions are: parametric output equalizer, routing, crossover, alignment, phase inversion, limiter, gain and mute.

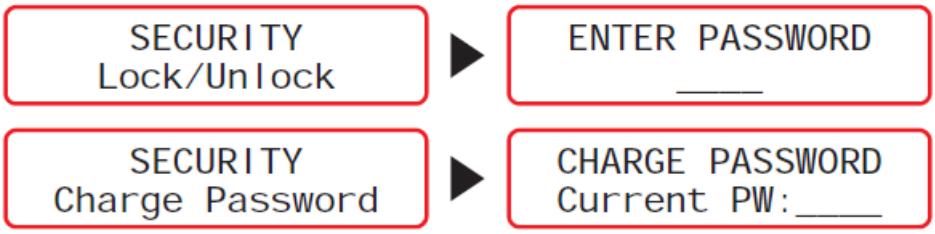


1. Select an SOURCE output channel using the HOTKEY hotkeys or by turning the ENCODER, fasten ENCODER;
2. Select a DESTINATION output channel using the HOTKEY shortcut keys or by turning the ENCODER, fasten ENCODER;

3. A confirmation message will appear. If confirmed, as output channels from ORIGIN to the DESTINATION output channel, overwriting as the DESTINATION output channel.

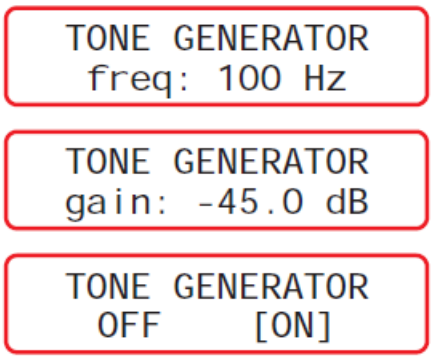
Security
This function locks the ability to edit settings, including blocking the save and load settings. Via the “SECURITY” menu you can lock or unlock (“LOCK/UNLOCK”) and change the password (“CHANGE PASSWORD”). The function on/off the output channels is not blocked

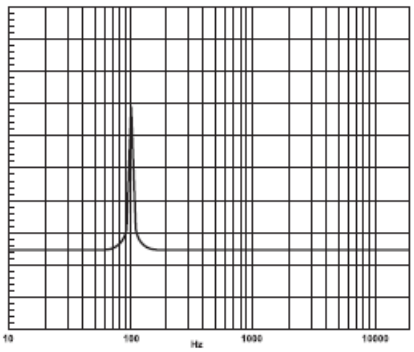
Default password: STET (all caps)



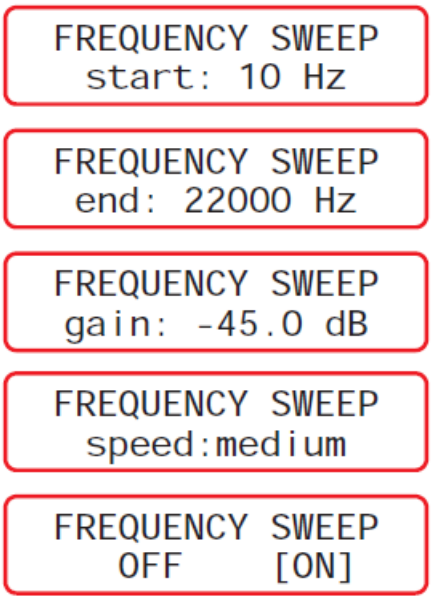
Tools
The audio processor has tools to aid in the regulation of your sound system, TONE GENERATOR, FREQUENCY SWEEP and PINK NOISE GENERATOR. These tools are signal sources for all outputs, that is, during their use as inputs.

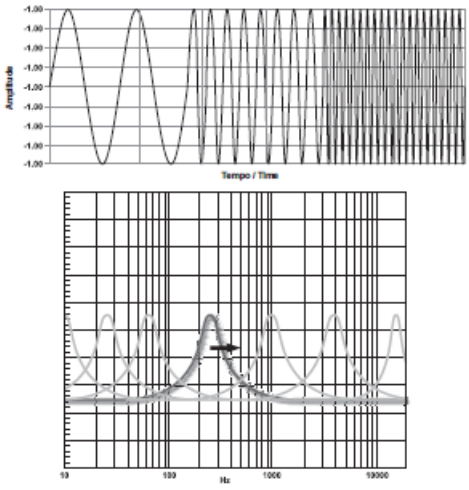
Tone Generator: Generate a specific frequency with gain control. Each press on the ENCODER parameter is edited between frequency, gain and ON/OFF. With the generator on it is still possible to change the frequency and gain in real time, and even modify other audio parameters of the processor.





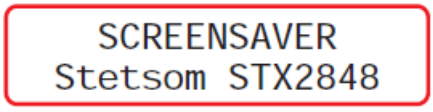
Frequency Sweep: Allows you to perform a frequency scan, with the option of selecting the initial and final frequency, gain, scanning speed and ON/OFF. When activating the sweep enters a continuous cycle, to close it simply press any of the HOTKEYS or move the ENCODER.



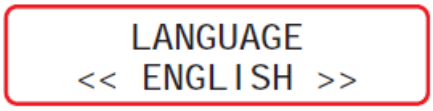


Pink Noise: Allows to generate a signal that maintains the same magnitude for the entire frequency range, generally used to calibrate audio systems in order to obtain flat response and due alignment between the tracks. Each press on the ENCODER parameter in editing is changed between gain and ON/OFF. With the pink noise on it is still possible to change the gain of noise in real time, and even modify other audio parameters of the processor.

Screensaver
The audio processor has a screensaver function, which allows the user to define a 15-character scrolling text



Language
You can select from the following operating languages: English, Spanish and Portuguese



Sequencer
This feature allows you to activate several products sequentially. The sequencer has three outputs (S1, S2 and S3) that are activated and deactivated sequentially according to the input signal of the remote input (REM IN). The activation interval between each output can be configured from 0s to 4s. When the configured time is 0s, the three outputs will be enabled and disabled at the same time, after 3s of the absence of the remote signal at the input (REM IN). To connect the remote signals, use cables of at least 20 AWG. It is possible to turn ON/OFF each sequencer output independently. When the output is turned off, it will not trigger when the processor is turned on again.

MAIN MENU
Sequencer

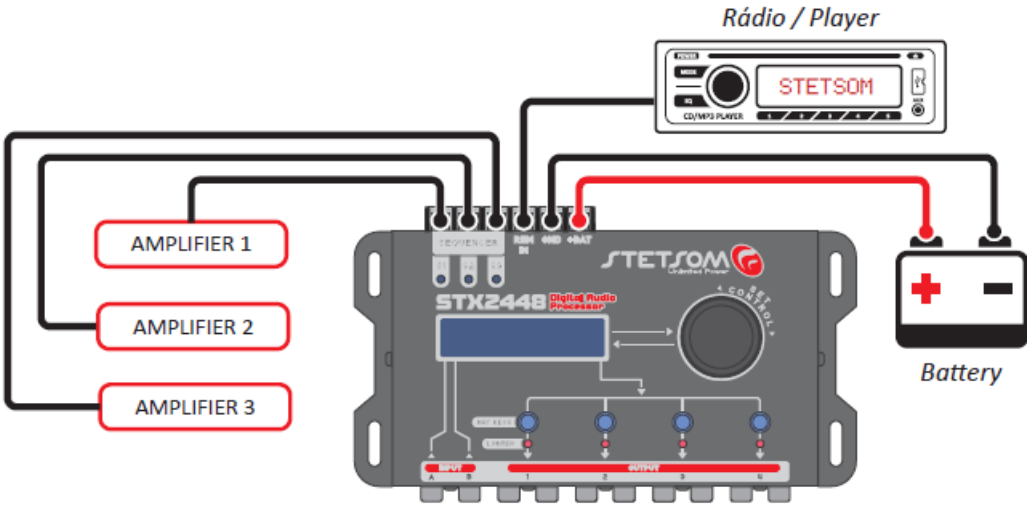
SEQUENCER
Time

SEQUENCER
Time : 2.0 s

SEQUENCER
ON/OFF

SEQUENCER
S1: ON

Example of installing the “SEQUENCER” feature:



Technical specifications

Number of Channels:	Input: **2** / Output: **8**
Graphic Equalizer:	**15 Bands** (gain ±12dB)
Graphic Equalization Presets:	**12**
Parametric Equalizer:	**1 Input + 1 per Output** (gain ±12dB, Fator Q 0.4 ~ 10.0)
Crossover with Variable Frequency:	**Butterworth: 12/18/24/36dB/8ª** **Linkwitz-Riley: 12/18/24/36dB/8ª**
Crossover Presets:	**11**
Routing between Inputs and Outputs:	**A, B or A+B**
Alignment:	**0ms ~ 8ms** (275cm)
Phase Inversion:	**0° ~ 180°**
Limiter:	**Threshold: -24dB ~ 0dB / Attack: 0.1ms ~ 100.0ms** **and Release: 1ms ~ 1600ms** (manual/automatic)
Master Level and Gain:	**0% ~ 100% (Gain -45dB ~ +15dB per output)**
Memory Positions Save/Load:	**Autosave + 4 slots**
Safety:	**Password with 4 digits**
Frequency Generator:	**10Hz ~ 22kHz, Level -60dB ~ 0dB**
Frequency Sweep:	**Freq. initial and final 10Hz ~ 22kHz** (Level -60dB ~ 0dB and Speed control)
Pink Noise Generator:	**10Hz ~ 22kHz** and **Level -60dB ~ 0dB**
Screensaver:	**Editable text with 15 characters**
Languages:	**Portuguese, English and Spanish**
Latency:	**1,08ms**
Input Impedance:	**10 kΩ**
Output Impedance:	**47 Ω**
Max. Input and Output Voltage:	**5,6 Vpp** (+8,2 dBu)
Max. Output current (**SEQUENCER**):	**180 mA** per output
Saturation Indicator:	**1** per input + **1** per outpu (linked to the **Limiter**)
Signal-to-noise ratio:	**>90dB**
Total Harmonic Distortion (T.H.D):	**<0,01%**
Channel Separation:	**>80dB**
Frequency Response:	**10Hz ~ 22,5kHz @ -1dB**
Power supply:	**10V ~ 15V DC**
Max. Current Consumption:	**450mA @ 12,6V DC**
Dimensions (W x H x D):	**37 x 200 x 101 mm**
Weight:	**460g**

Warranty Term

STETSOM, through its network of Authorized Technical Assistance Providers, guarantees technical assistance to the purchaser of their products. The repairs of any defects duly established as being of the manufacturer will be done without cost for replacement components or parts and repair labor. The repairs will be done by the Authorized Technical Assistance Provider specially designated by STETSOM. CONSULT THE LIST OF AUTHORIZED TECHNICAL ASSISTANCE PROVIDERS ON OUR WEBSITE: : **www.stetsom.com.br/en/assistencias-tecnica** If you do not locate technical assistance in your city, please contact us at: BR +55 18 2104-9412

WARRANTY CONDITIONS:
Our warranty is 1 (one) year against manufacturing defects. Its validity starts on the date of the Sale to the FINAL Consumer. To claim the benefits of this warranty, you must present one of the following documents: the Final Consumer's SALE NOTE or this completed CERTIFICATE

SITUATIONS THAT VOID THE WARRANTY:

1. 1 year after the issuance of the invoice of sale to the consumer or 1 year after the certificate of warranty is filled out (dated and stamped by the retailer or installer) or 1 year from date of manufacture.
2. Violation of seals, alteration or removal of the product's serial or lot number.
3. If the product suffers misuse or careless accidents involving: Water, Fire or Fall, or is installed in conditions contrary to the guidelines contained in the installation manual that accompanies the product.
4. Damages and changes in the circuit or adaptation of non-original parts.
5. If you use installation techniques contrary to those given in the manual.

QUESTIONS AND ADVICE: STETSOM offers Customer Services to answer questions and give advice about their products and services. Please contact us through the channels: Phone: BR +55 18 2104-9412 / E-mail: suporte@stetsom.com.br Site: www.stetsom.com

STETSOM INDUSTRIA ELETRÔNICA LTDA. Rua Mariano Arenales Benito, 645-1 – Distrito Industrial Presidente Prudente – São Paulo – Brasil – CEP: 19043-130

- **MODEL**: STX2848
- **Voltage Supply**: 9V – 16V DC
- **Current Range**: 0.4A – 0.5A

EU Declaration of Conformity (DoC):
www.stetsom.com.br/certifications/STX2848_CE-DoC_2014-30-EU.pdf

MADE IN BRAZIL
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Documents / Resources

	STETSOM STX2848 Digital Audio Processor [pdf] User Manual STX2848, STX2848 Digital Audio Processor, Digital Audio Processor, Audio Processor

References

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