

Technology *Art & Sound*  
Manufactured by  
**elettromedia**

powered by



# S8 DSP

Digital Interface Processor

# USER'S MANUAL

rev. 1



[hertz-audio.com](http://hertz-audio.com)

**HERTZ**  
The Sound Experience



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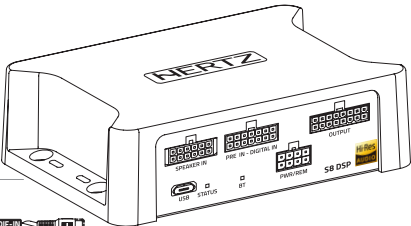
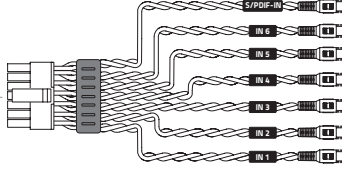
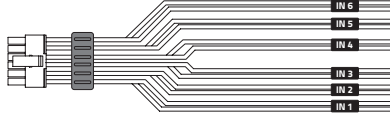

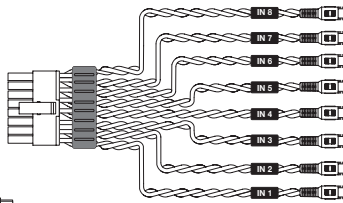


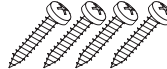





## 1. PRODUCT DESCRIPTION

S8 DSP is a digital signal processor essential to maximize the acoustic performance of your car audio system. It features 13 signal inputs, 6 Hi-Level, 6 Pre-In and 1 S/PDIF 24bit/96kHz digital coaxial and provides 8 PRE OUT analog outputs. Each input channel is equipped with a 7-band adjustable parametric equalizer, and each output with a 15-band adjustable parametric equalizer, 122-frequency steps electronic crossover, BUTTERWORTH, LINKWITZ or BESSEL with slopes from 6 to 30 dB and a digital time delay line.

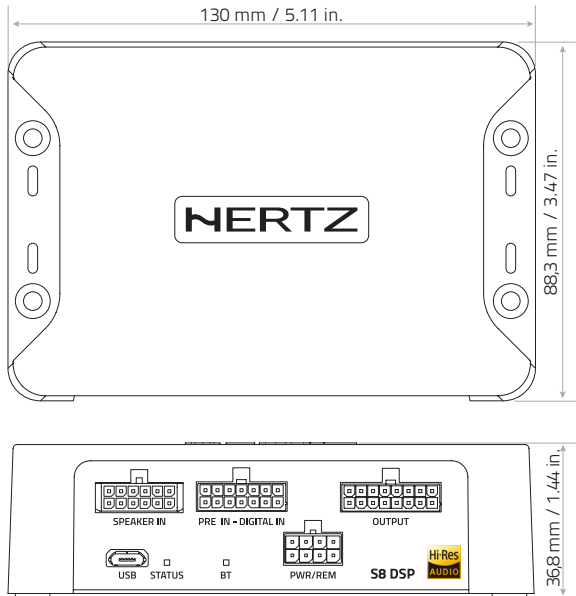
It is provided with a software to configure the product in both Windows OS and macOS versions, as well as in an APP version that can be downloaded online for both Android and Apple mobile devices.

## 2. PACKAGING CONTENTS

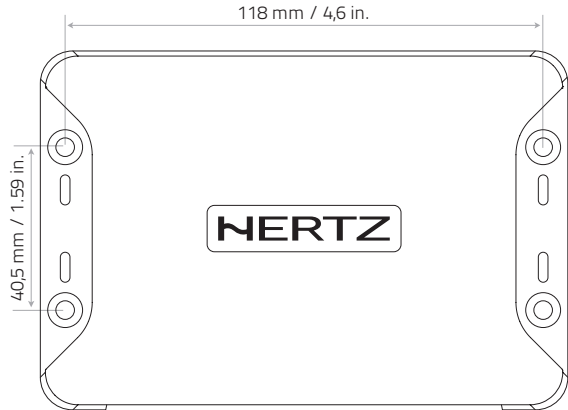
- Signal Interface Processor S8 DSP 
- Multipolar cable, Pre-IN/Digital-IN: 
- Multipolar cable, Speaker IN: 
- Multipolar cable PWR/REM: 
- Multipolar cable, Output: 
- USB cable 1.8 m: 
- 1 - Fuse 1 A: 
- 4 self-tapping, cross-head fixing screws 3,5 x 25 mm: 
- USB Memory Dongle Setup:  
S8 DSP Software (Windows)  
This User's manual (.pdf)  
Audio Test tracks 
- QSG: 
- Warranty 

## 3. S8 DSP INSTALLATION

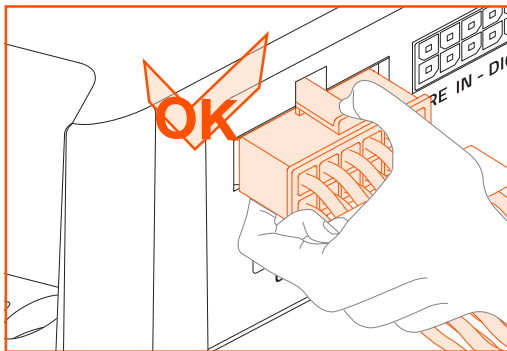
### External dimensions



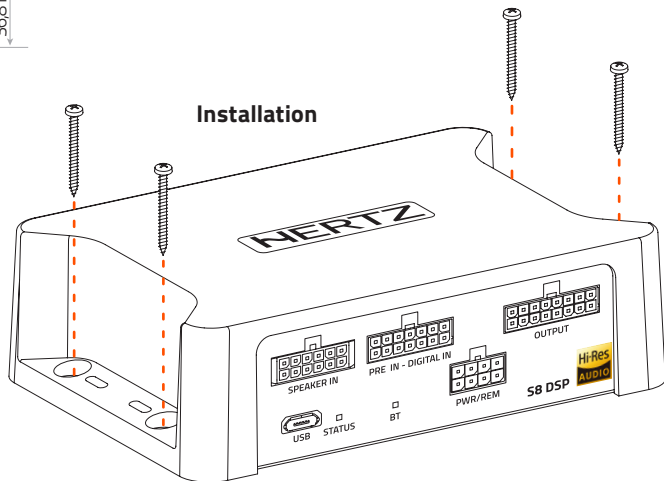
### Mounting dimensions



### WARNING for all INPUT/OUTPUT cables

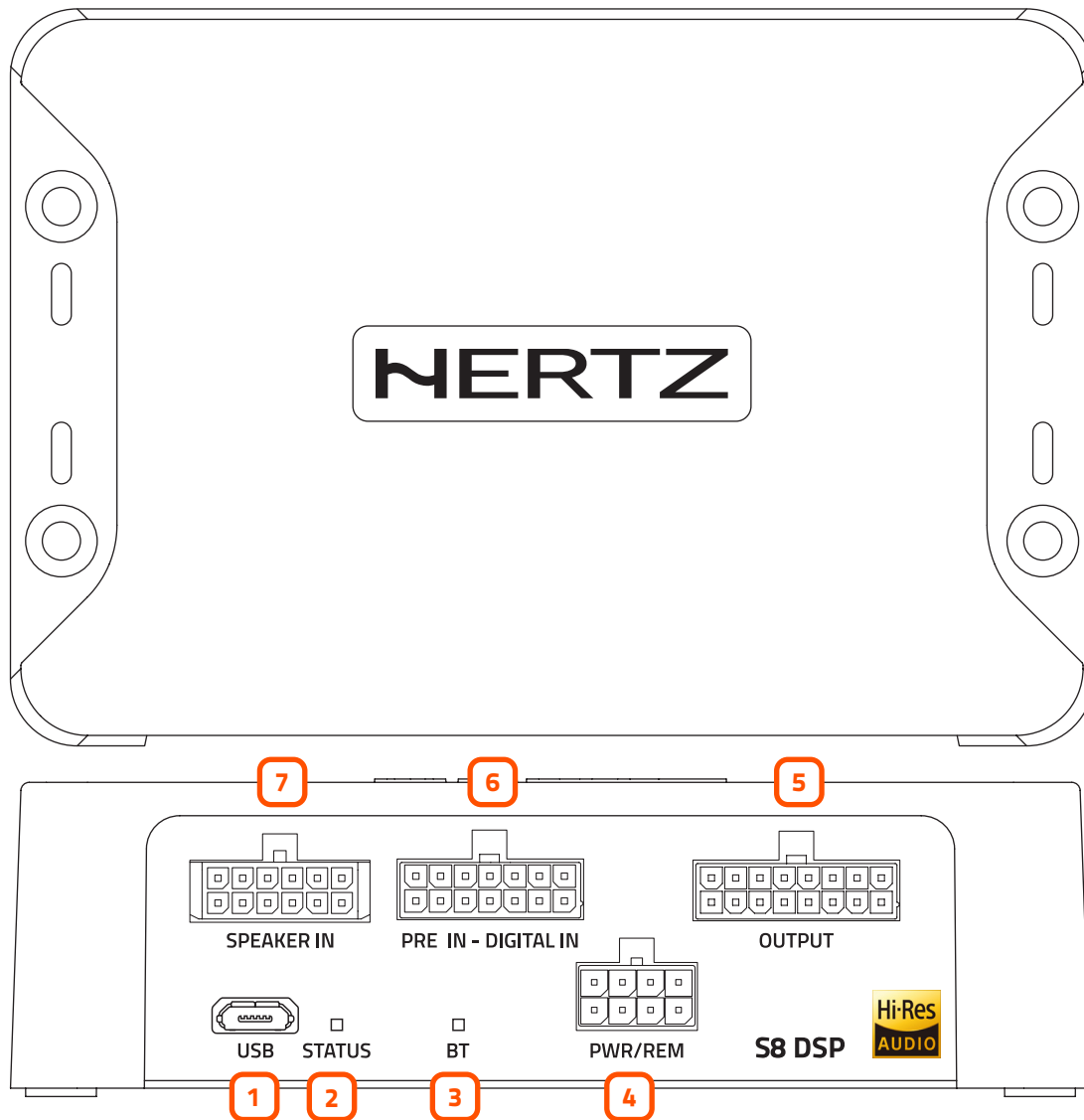


### Installation





## 4. CONNECTIONS PANEL - DESCRIPTION



### 1 USB

Connection socket (Micro USB female) to connect the processor to a PC/MAC and manage the functions via the S8 DSP software [\(see sect. 5.4\)](#). The connection standard is compatible with USB 1.1/ 2.0/3.0.

### 2 LED STATUS:

Through the LED lighting it is possible to identify the status of the processor:

**Green:** S8 DSP is on and functioning normally.

**Light green (BT LED TURNED OFF):** S8 DSP is connected to the PC/MAC via USB.

**Green/blue flashing:** S8 DSP is communicating data with the control device via software [\(see sect. 7.2 - 7.3\)](#).

**Purple:** S8 DSP is configured with DIGITAL IN input but is not detecting a digital signal [\(see sect. 8.9\)](#).

**Orange:** S8 DSP is signalling the presence of clipping on the analog input [\(see sect. 7.5.6\)](#).

**Red:** S8 DSP is reporting a malfunction or breakdown.

**White:** S8 DSP is in UPGRADE mode [\(see sect. 9.2\)](#).

### 3 LED BT:

Through the LED lighting it is possible to identify the status of the processor's bluetooth connection,

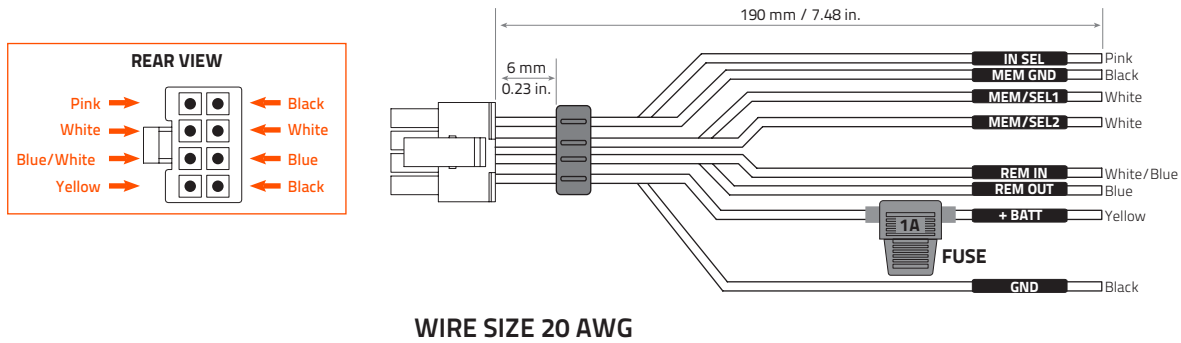
**BLU flashing:** S8 DSP is waiting to pair with a Bluetooth device [\(see sect. 7.3 - 8.1.6\)](#).

**BLUE:** S8 DSP is connected with a Bluetooth device [\(see sect. 7.3 - 8.1.6\)](#).

**Turned off:** S8 DSP is reporting a malfunction of the Bluetooth module or connected via USB.

**4 PWR/REM:**

The cable is provided to manage the power supply and the various control connections.



- **+ BATT (7÷20 VDC):** terminal for connecting the positive power supply pole to **S8 DSP**.
- **GND (Ground):** terminal to connect the processor's power supply negative pole. Connect the negative battery cable or a cable connected to the car's chassis.  
To fix the ground connection (-) correctly use a screw already available on the vehicle's chassis; remove any paint or grease residue if necessary, ensuring that there is a continuity between the negative terminal (-) of the battery and the fixing point. If possible, connect all audio components grounds to the same point as this solution is necessary to reduce the majority of parasitic noises which may arise during reproduction.
- **REM IN:** terminal to turn on the **S8 DSP** via the Remote Out output of the audio signal source. The applied voltage must be between 6 and 20 VDC. If you are using a source with BTL amplified outputs, the **S8 DSP** can turn on automatically (see section 5.1), so you will not need to connect the REM IN terminal.
- **REM OUT:** toutput terminal for the remote turn on of other devices/amplifiers connected to the **S8 DSP**. The processor takes 3 seconds to provide the REM OUT to the output, but you can manually set this delay with the software (see section . 8.2.7.2.2). This output has a current capacity of 150 mA and can drive an automotive relay.
- **IN SEL:** to switch to the selected input via the software (see section 8.2.7.1).  
This command is active by connecting the terminal to **MEM GND** (see section 5.1).
- **MEM SEL1 - MEM SEL 2:** allows the selection of the memories of the **S8 DSP** (see section. 8.10).  
This command is active by connecting the terminals to **MEM GND** (see section 5.1) according to the following table:

MEM SEL1	MEM SEL2	MEMORY SELECTION
NC	NC	A*
MEM GND	NC	B
NC	MEM GND	C
MEM GND	MEM GND	D

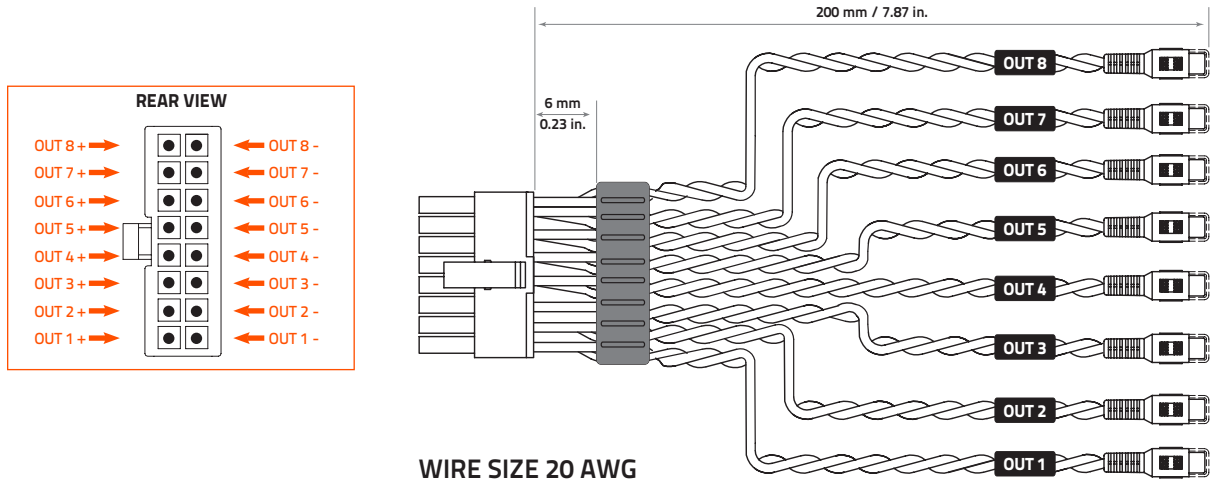
**WARNING:** the system returns to memory **A** when **MEM SEL 1**, **MEM SEL 2** terminals are disconnected from **MEM GND**, so if you want to use this function it is advisable to finalize the device or assign memory **A** as a favorite preset to the input used (see section sez.8.2.7.3.).

- **MEM GND:** ensures
  - 1 if connected to **IN SEL** (see section 5.1) to switch to the selected input through the control software (see section 8.2.7.1),
  - 2 if connected to **MEM SEL1 - MEM SEL 2** (see section. 5.1) the **S8 DSP** memories selection (see section. 8.10)

**5 OUTPUT** Low level analog signal (4 Volt RMS).

Ch1 - Ch2 - Ch3 - Ch4 - Ch5 - Ch6 - Ch7 - Ch8

The cable is provided to be connected to the RCA cables going to the system amplifiers.



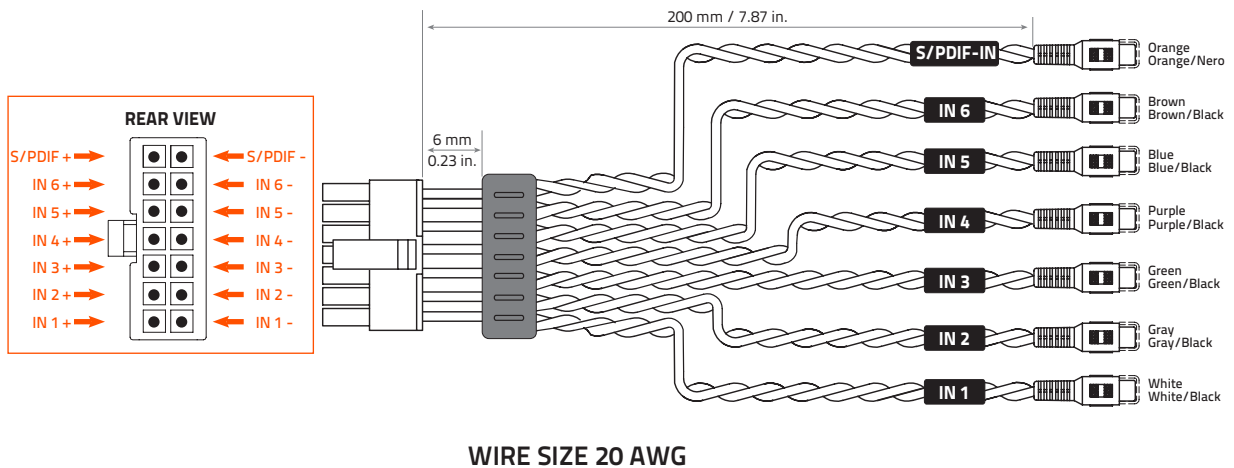
**6 PRE IN - DIGITAL IN:**

■ **PRE IN. ANALOG (RCA) low level input**  
IN1 - IN2 - IN3 - IN4 - IN5 - IN6

The cable is provided to connect the preamplified signal outputs from the analog Master source with RCA connectors. Through the software it will be possible to specialize the inputs by assigning the desired input ([see section 7.5.4 - 7.5.5 - 8.2.2](#)). Input sensitivity adjustable from 0,8 to 6 V RMS

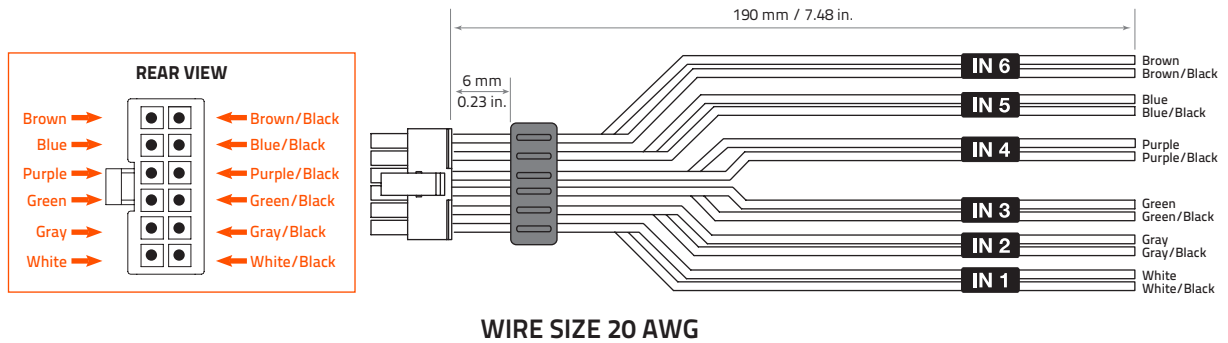
■ **DIGITAL IN. S/PDIF digital input**  
S/PDIF-IN

The cable is provided to connect the signal from your source with digital output via a specific coaxial cable for digital signals with RCA connection. **S8 DSP** accepts PCM signals at its input with a maximum sampling frequency up to 96 kHz 24 bit, therefore it is not possible to reproduce DOLBY DIGITAL (AC3) encoded multichannel signals from audio/video sources (such as the audio of a film in DVD) or DTS.



**7 SPEAKER IN** high level input:  
IN1 - IN2 - IN3 - IN4 - IN5 - IN6

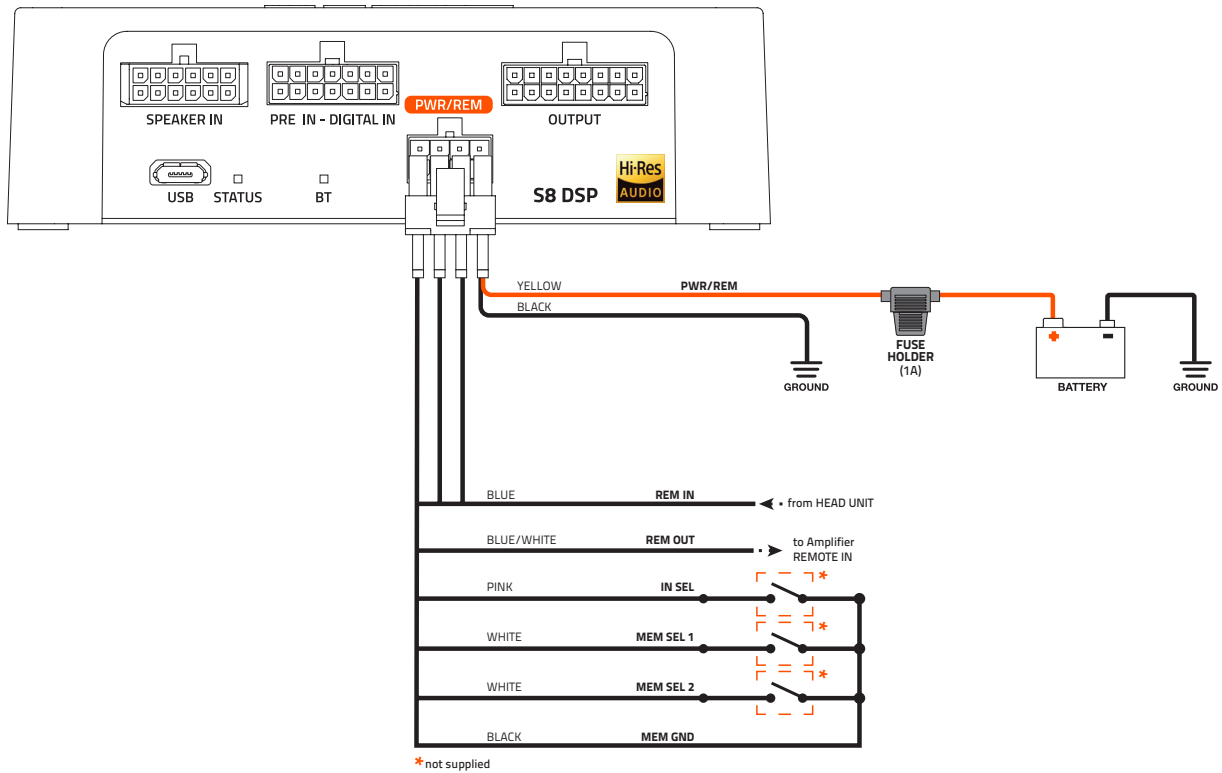
The cable is provided to be connected to the amplified signals coming from the analog Master source. Through the software it will be possible to specialize the inputs by assigning the desired input ([see sections 7.5.4 - 7.5.5 - 8.2.2](#)). Input sensitivity adjustable from 2,5 to 21 VRMS.



**Remark:** when connecting a speaker input cable, use solderless crimped Faston terminals.

## 5. CONNECTIONS

### 5.1 POWER SUPPLY AND REMOTE TURN ON



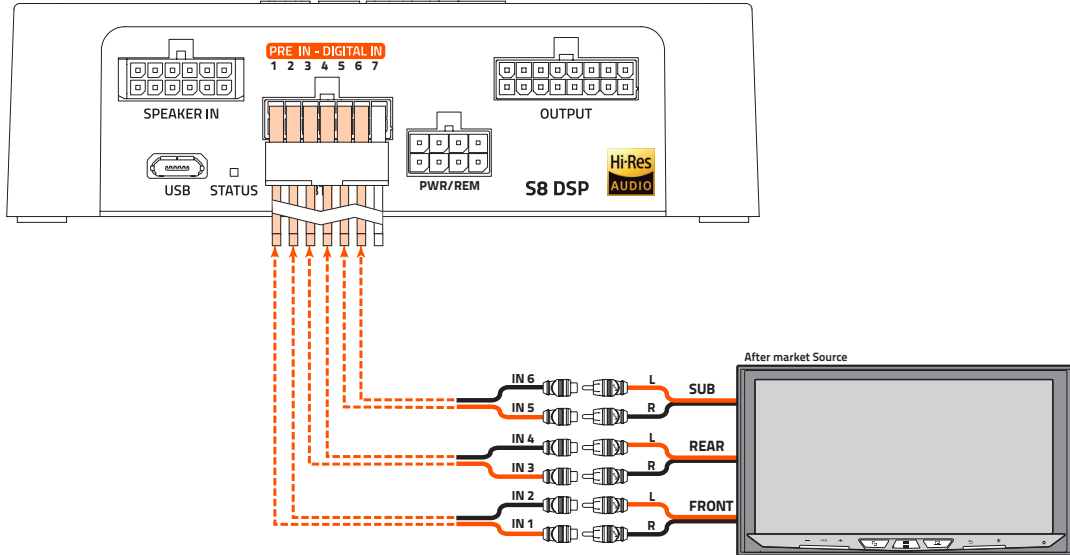
#### How to turn the S8 DSP on and off

The S8 DSP is on when the logo is lit green. It can be turned on/off using the following methods:

1. By connecting the REMOTE IN terminal with a Remote Out signal coming from an after market audio source.
2. Through the Speaker IN (IN 1 - IN 2) input. The ART™, (auto remote TURN-ON) function is activated by connecting the output (BTL) of an amplified source to the SPEAKER IN 1 - IN 2 input channel. This function can be enabled/disabled using the S8 DSP software, ([see section 8.2.7.2.1](#)).

**5.2 INPUT SIGNALS**

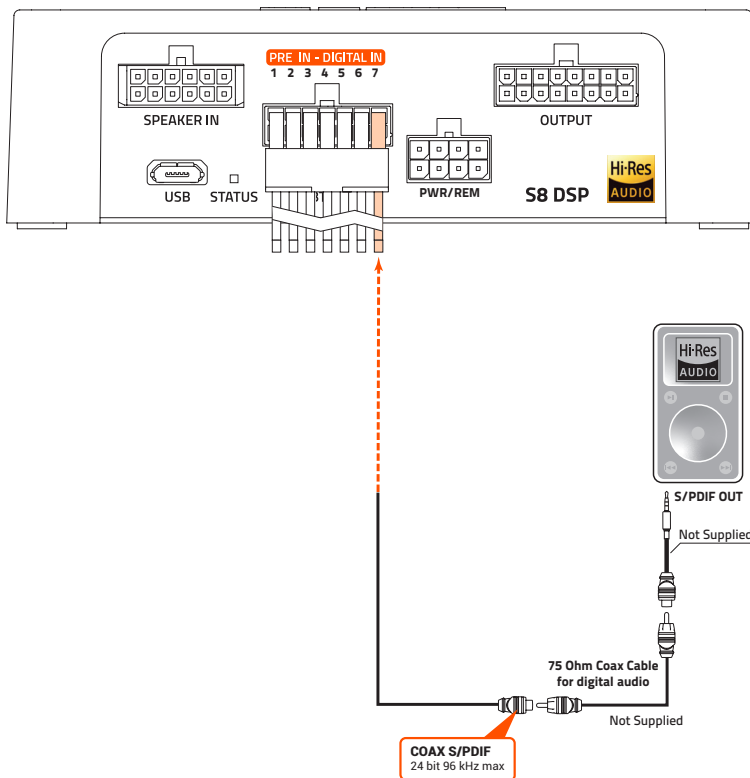
**5.2.1 PRE IN - CH1/CH6 STEREO ANALOG SIGNAL**



**How to select the PRE IN input**

1. By selecting the **ANALOG** input ([see section 8.9](#)) previously set up on (RCA) using the **S8 DSP** software ([see section 8.2.2](#)).
2. By using the **IN SEL** terminal ([see section 4.4](#)).

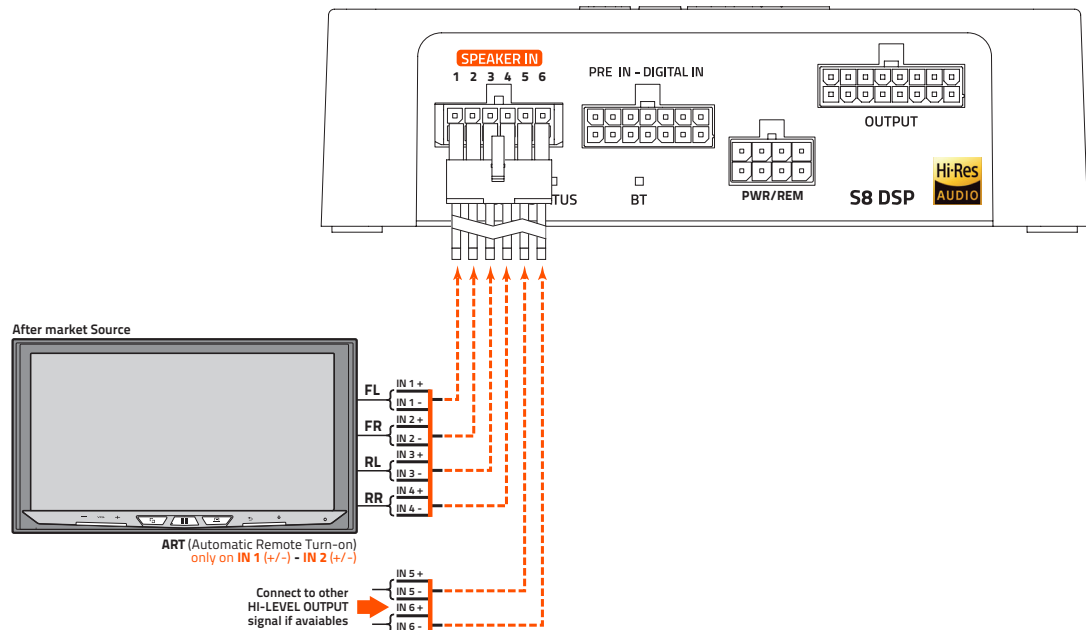
**5.2.2 DIGITAL IN - S/PDIF DIGITAL INPUT**



**How to select the DIGITAL IN input**

1. By selecting the **DIGITAL** input using the **S8 DSP** software ([see section 8.9](#)).
2. By using the **IN SEL** terminal ([see section 4.4](#)).
3. With the function **Automatic switch to digital input**, to be enabled using the **S8 DSP** software ([see section 8.2.4](#)).

### 5.2.3 SPEAKER IN - CH1/CH6 (HIGH LEVEL)



#### How to select the SPEAKER IN Input

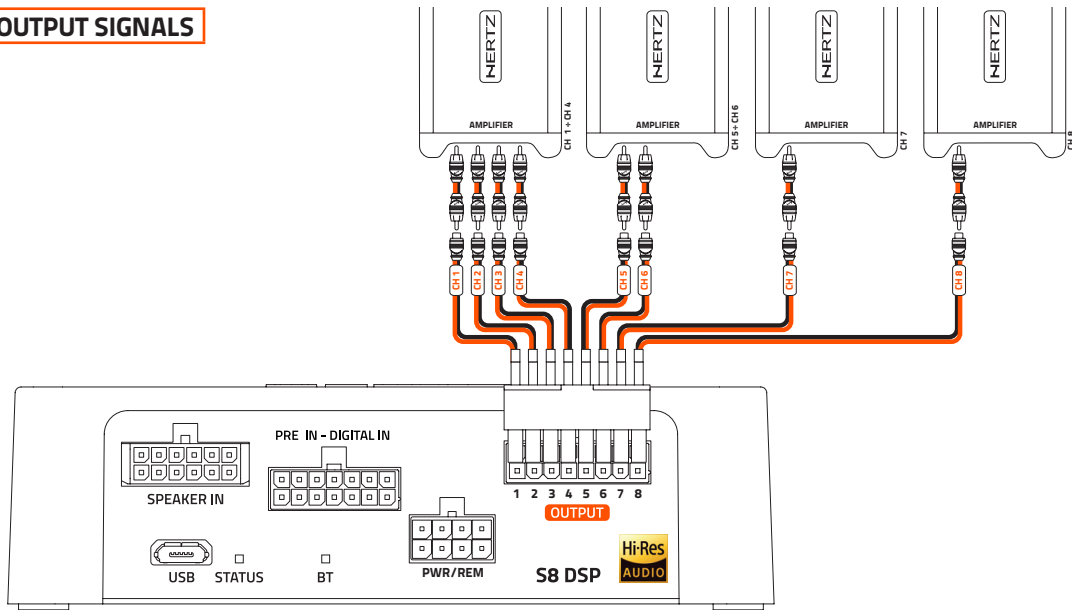
1. By selecting the ANALOG input (see section 8.9) previously set on HIGH LEVEL via the S8 DSP software (see section 8.2.2).
2. By using the IN SEL terminal (see section 4.4).

**Remark:** the CH1 CH2 channels feature the **ART™ (auto remote TURN-ON)** function, automatic on/off, through connection with the source speaker outputs (BTL). This function can be activated via software (see section 8.2.7.2.1).

**Remark:** the Speaker IN input features **USS** technology that allows the processor to work with sources equipped with the "loudspeaker load sensing" circuit.



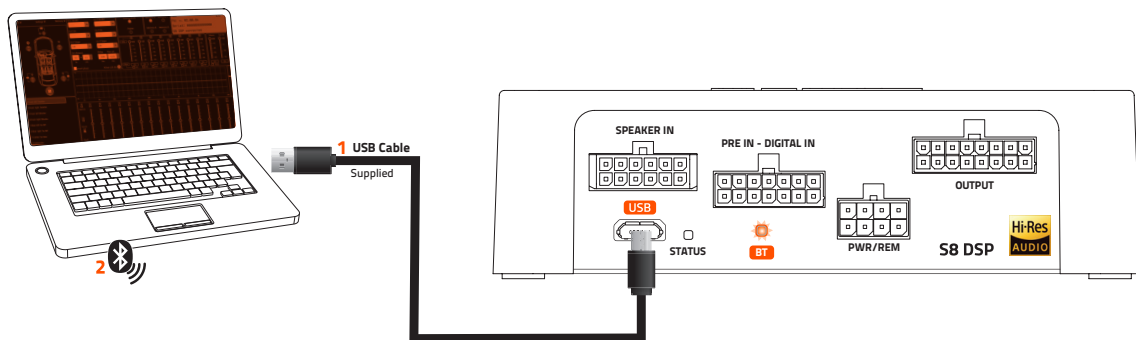
**5.3 OUTPUT SIGNALS**



**DEFAULT OUTPUT CONFIGURATION**

OUTPUT	CH NAME	FILTER	FILTER TYPE	FILTER FREQUENCY/SLOPE
CH1	Front TW Left	HI PASS	BUTTERWOORTH	3412 Hz @ 12dB
CH2	Front TW Right	HI PASS	BUTTERWOORTH	3412 Hz @ 12dB
CH3	Front WF Left	BAND PASS	BUTTERWOORTH	80 Hz @ 12dB / 3412 Hz @ 12dB
CH4	Front WF Right	BAND PASS	BUTTERWOORTH	80 Hz @ 12dB / 3412 Hz @ 12dB
CH5	Rear Left	HI PASS	BUTTERWOORTH	80 Hz @ 12dB
CH6	Rear Right	HI PASS	BUTTERWOORTH	80 Hz @ 12dB
CH7	Center	HI PASS	BUTTERWOORTH	606 Hz @ 12dB
CH8	Subwoofer	BAND PASS	BUTTERWOORTH	20 Hz @ 12dB / 80 Hz @ 12dB

**5.4 CONNECT S8 DSP TO THE PC/MAC**



**S8 DSP can be connected to PC/MAC:**

1. Using the USB cable
2. Using a Bluetooth connection.



## 6. GUIDE FOR INSTALLING S8 DSP SOFTWARE

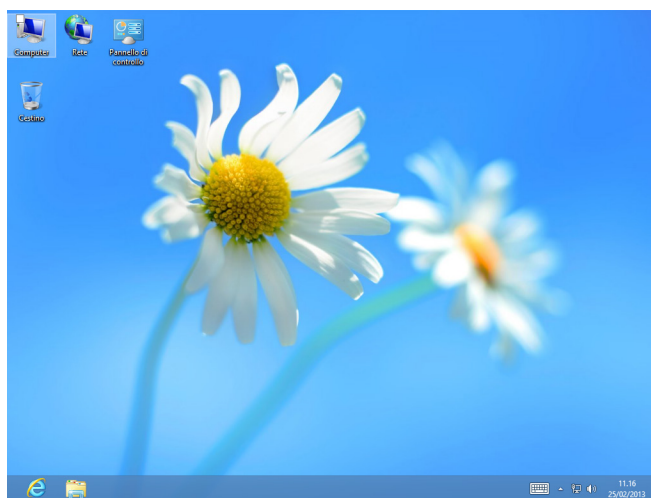
Inside the S8 DSP setup USB device, there are all the files necessary for the setup of the S8 DSP:

- Software S8 DSP (PC Windows)
- This User's Manual (.pdf)
- Audio test tracks

### 6.1 PC WINDOWS

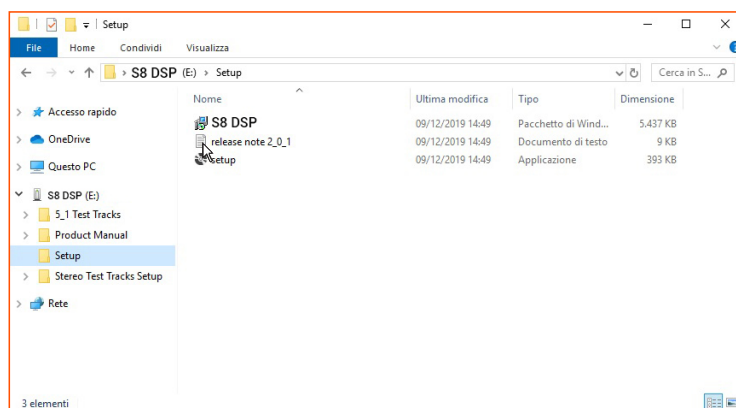
#### 6.1.1 INSTALLATION SOFTWARE

1. Insert the "S8 DSP setup" USB setup device in the specific drive on the PC you wish to use.
2. **Windows 10/11:** access **Computer** from the Windows menu.



Windows 10/11

3. **Windows 10/11:** select the "S8 DSP setup" USB device and double click on the icon **S8 DSP V.X\_X\_X**.



Windows 10/11

**Remark:** to remove any restrictions on Windows 10/11, operating system, right-click on the setup icon and select the option "Run as Administrator". Then select Yes to continue with the installation from the next window "User Account Control".

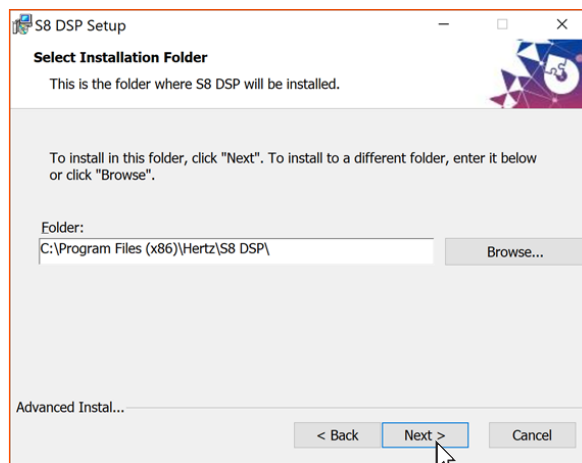


**4. Windows 10/11:** select **Next** to go on with the installation, **Cancel** to interrupt it.



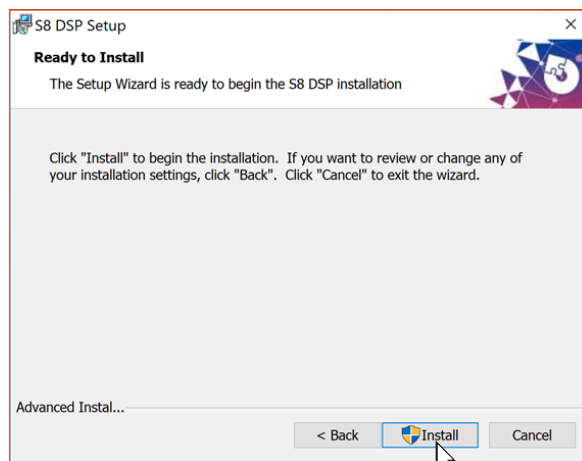
Windows 10/11

**5. Windows 10/11:** select **Next** to go on with the installation, **Cancel** to interrupt it.



Windows 10/11

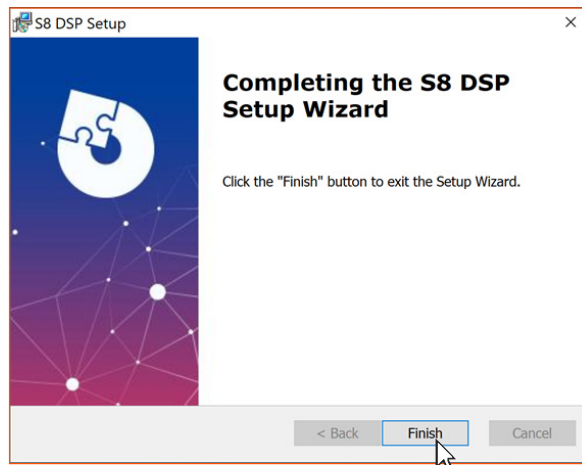
**6. Windows 10/11:** select **Install** to go on with the installation, **Cancel** to interrupt it.



Windows 10/11



**7. Windows 10/11:** follow and complete the installation procedure and select **Finish** at the end of the installation.



Windows 10/11

**6.** The PC software is now installed in your system.

### 6.1.2 SOFTWARE UNINSTALL

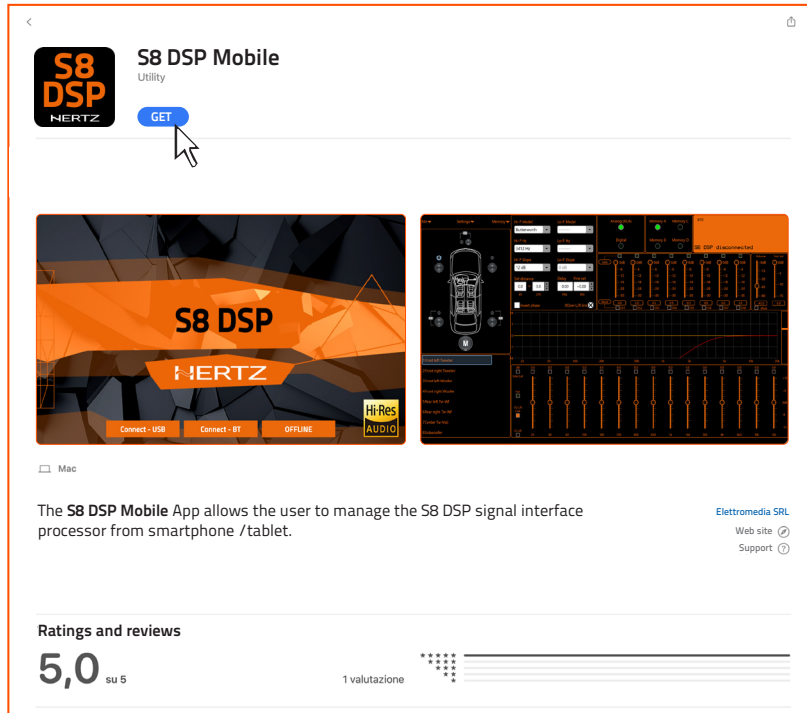
To uninstall the S8 DSP PC Software for WINDOWS you can follow the below procedure:

**Windows 10/11:** Start/Settings/App/S8 DSP/Uninstall.

**6.2 macOS**

**6.2.1 INSTALLATION macOS**

1. Search for S8 DSP on the Apple App Store then select "Get" and "Install".



MacOs



**6.3 S8 DSP APP INSTALLATION ON MOBILE DEVICES**

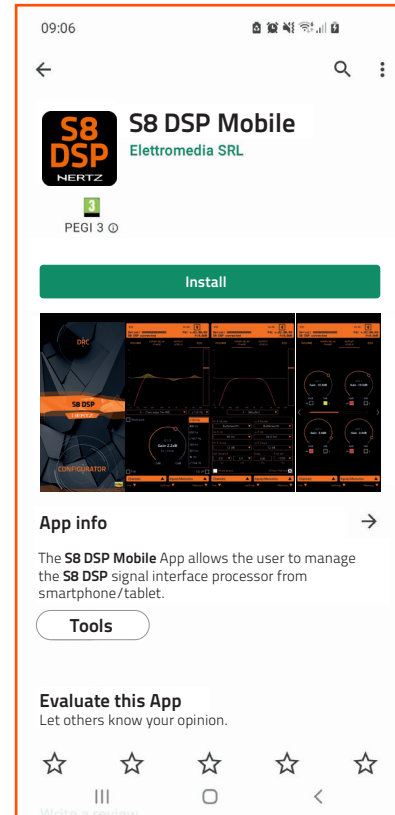
**6.3.1 ANDROID**

1. Search for **S8 DSP Mobile** on Google Play Store then select "install".

2. Scan the **QR code** printed on the giftbox to access the download web page:


Installation from **Google Play Store**

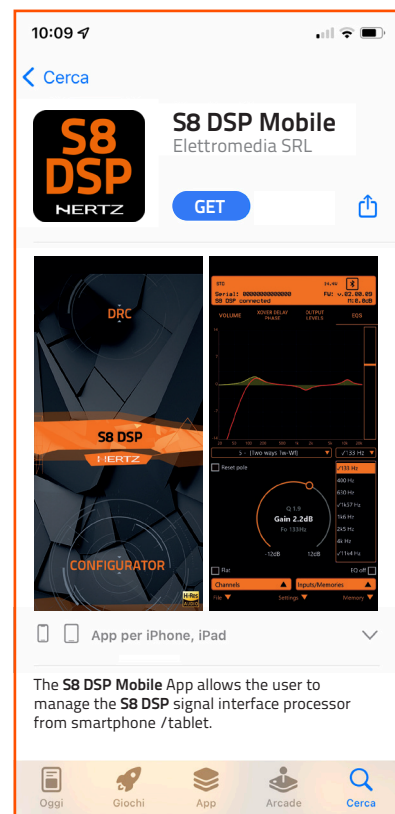
- Select  to access the Google Play Store page where the **S8 DSP Mobile** app is listed, then press "Install".
- Installation from **Hertz website**.  
Select , to access the product page, download the latest version of the **S8 DSP Mobile** app available, at the end of the download press "Install".



**6.3.2 APPLE iOS**

1. Search for **S8 DSP Mobile** on the Apple App Store then select "Get" and "Install".

2. Scan the **QR code** printed on the giftbox to access the download web page, select  to access Apple App Store page where the app **S8 DSP Mobile** is listed ,then select "Get" and "Install"

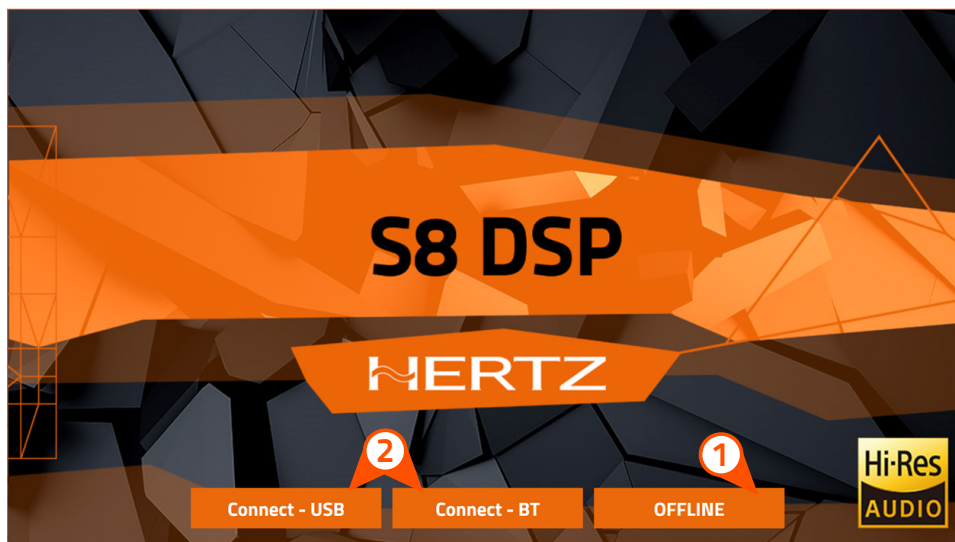


## 7. S8 DSP SET UP WITH PC/MAC

To adjust the S8 DSP functions a software is required. The processor needs to be connected to the PC/MC and turned on. After installing the software, start it by selecting the icon shown on your desktop.

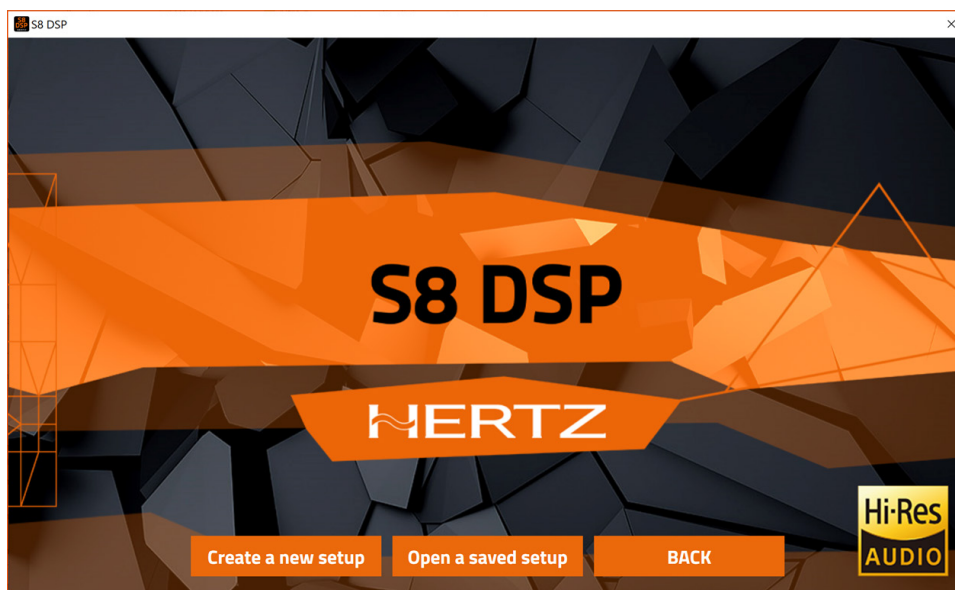
The first window is the startup page where one of the following modes needs to be selected:

- **CONNECT - USB**, connects the S8 DSP to the PC/MAC via USB;
- **CONNECT - BT**, allows the connection in bluetooth mode with the PC/MAC (if available);
- **OFFLINE**, demo mode.



### 7.1 OFFLINE MODE

In this case even if the S8 DSP processor is connected to the PC/MAC, it does not interact with the software. The **OFFLINE** mode can be used to work on the software to get familiar with the processor multiple functions without connecting the **S8 DSP** to the PC/MAC and it is possible to open a saved setup\*.s8c or simulate three different configurations: **motorcycle, car, free placement**. For the specific functions ([see section 7.5.1](#))



- Select **Create** new setup to start the software in demo mode.
- Select **Open** a saved setup to start the software with a saved setup.
- Select **BACK** to go back to the start window.

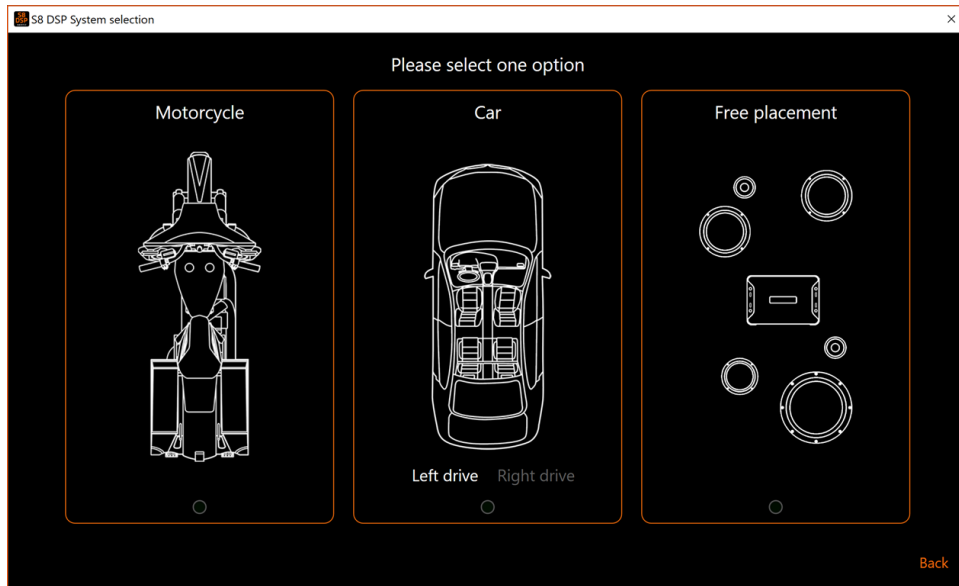




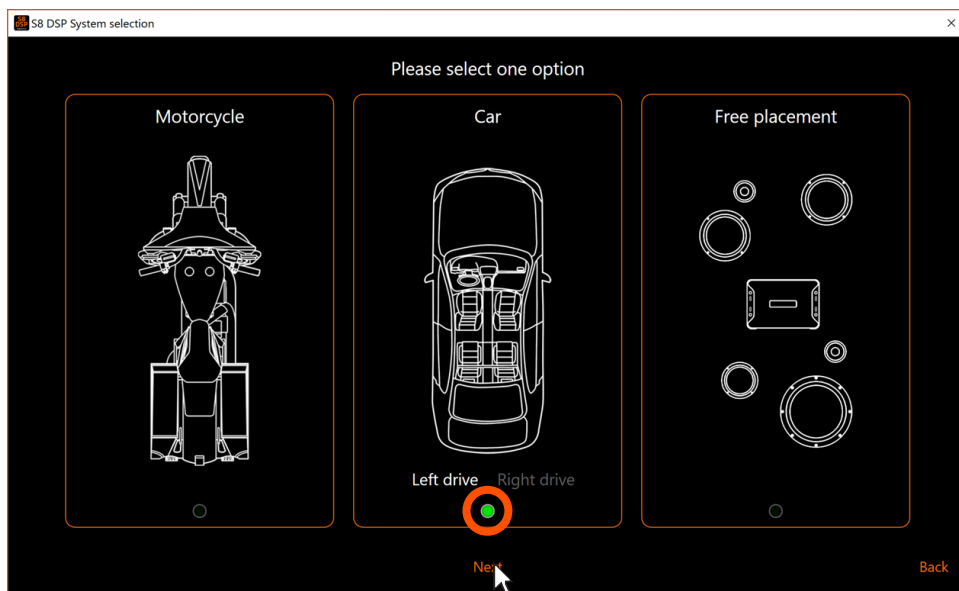
### 7.1.1. CREATE NEW SETUP

Select Create new setup, to access the **System Selection** menu where you can select one of the below options:

1. **Motorcycle:** to simulate a system installed in a motorbike.
2. **Car:** to simulate a system installed in a car.
3. **Free placement:** to simulate a system with free placement.



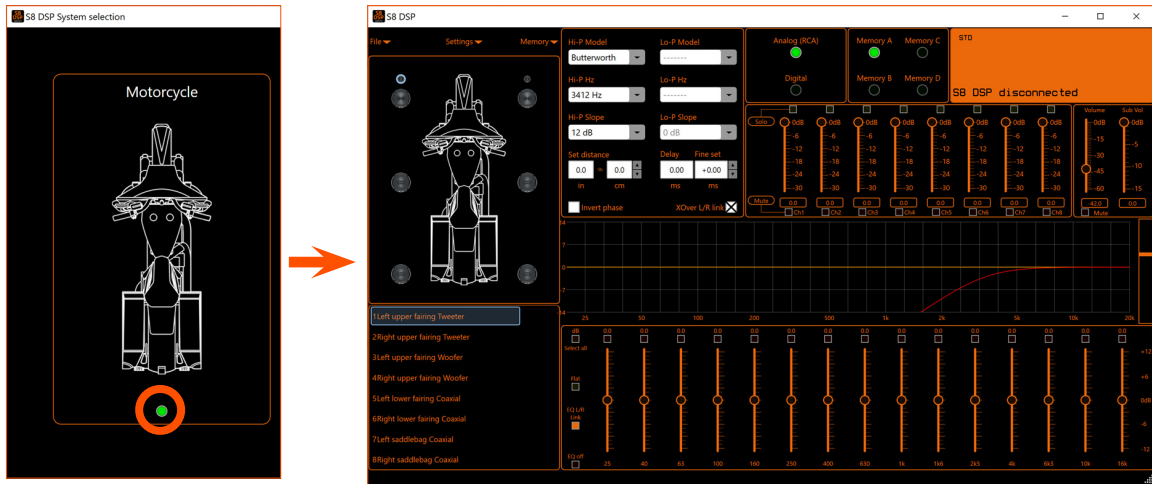
Select the desired option by clicking on the reference image.



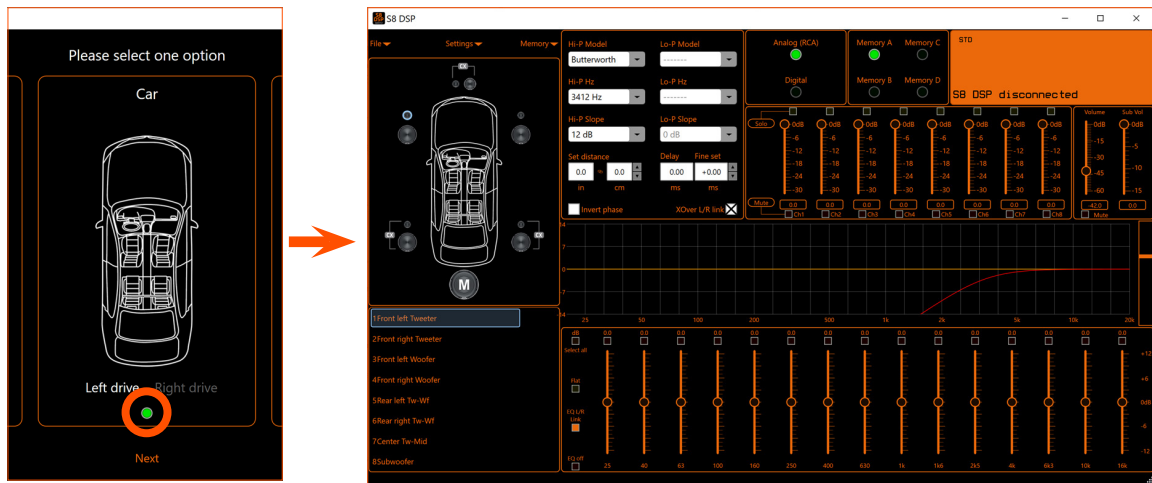
- press **Next** to access the control window
- press **Back** to go back to the main window



- How does the S8 DSP software look like when starting up in **Motorcycle OFFLINE** mode.

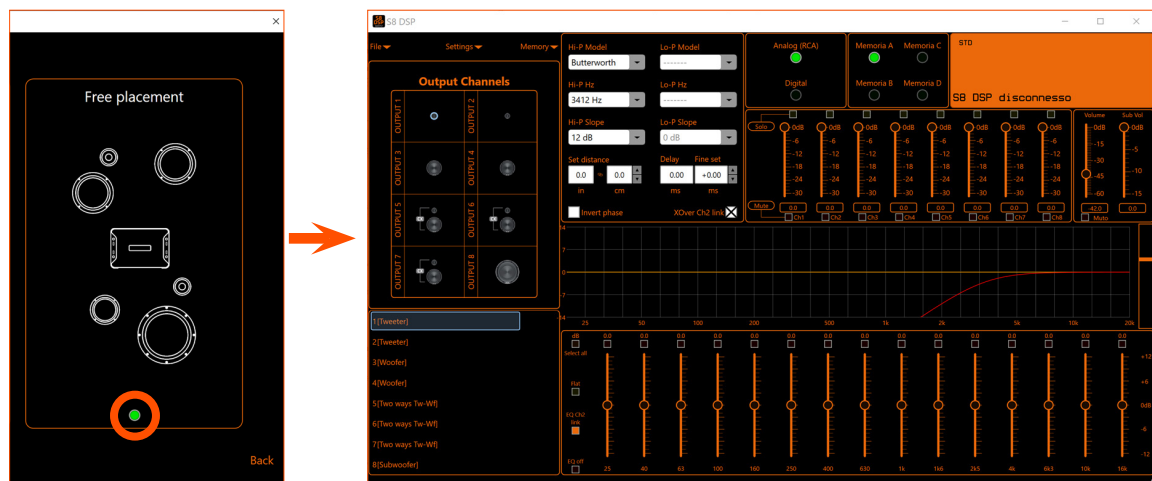


- How does the S8 DSP software look like when starting up in **Car OFFLINE** mode.



**Remark:** in the CAR option the driving side can be set up:  
**Left drive** for left-hand drive car (default).  
**Right drive** for right-hand drive car.

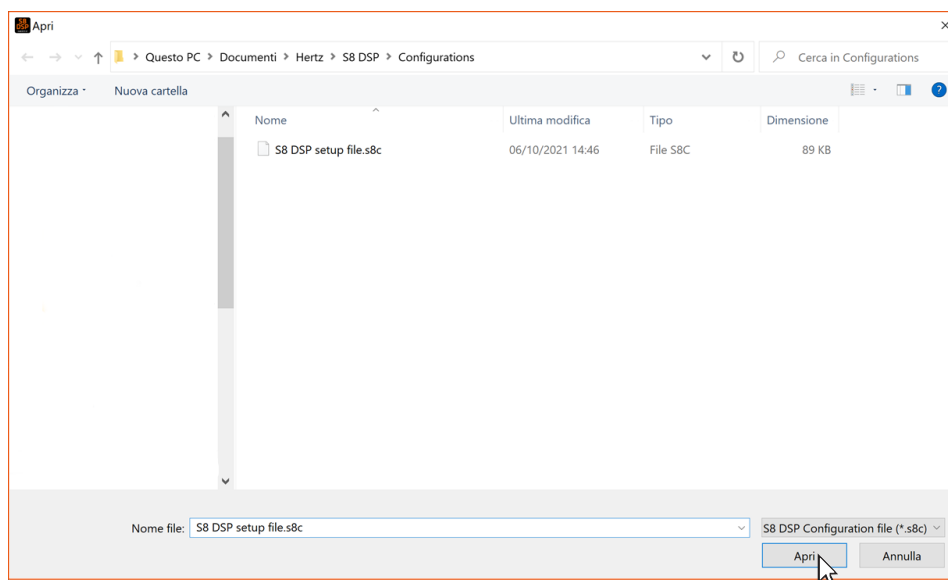
- How does the S8 DSP software look like when starting up in **Free placement OFFLINE** mode.





## 7.1.2. OPEN A SAVED SETUP

This function loads the complete configuration of the S8 DSP from a previously saved file (.“S8 DSP setup file.s8c”).



## 7.2 CONNECT USB MODE

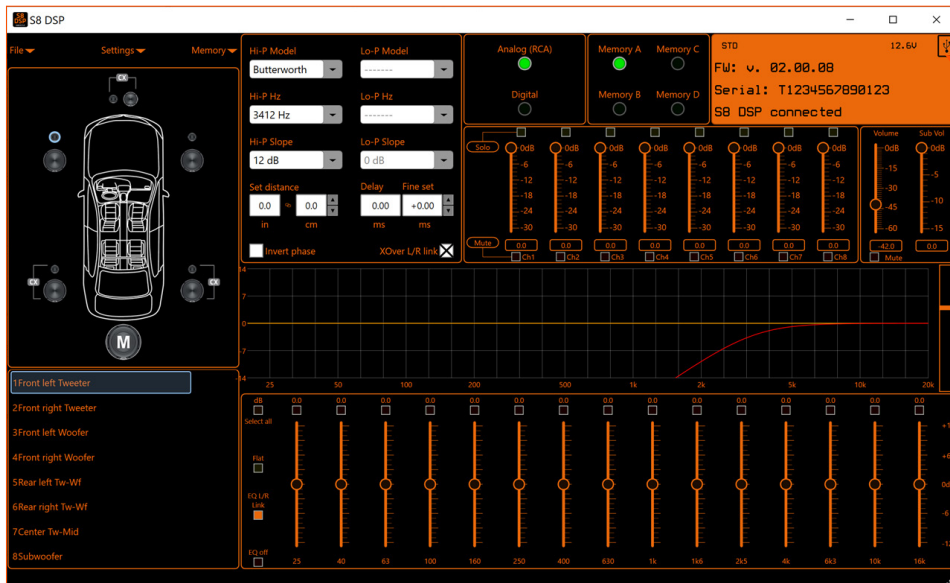
To use this function the S8 DSP processor must be turned on and connected to the PC/MAC. The connection between PC/MAC and S8 DSP can be established via USB cable or Bluetooth.

### 7.2.1 CONNECTION VIA USB CABLE

1. Start the device (green led status, BT blue led flashing)
2. Connect the USB cable between PC/MAC and S8DSP (light green led status, BT led off)
3. Wait for the PC/MAC to acknowledge and correctly configure the S8 DSP as USB serial device then press **Connect - USB**.



4. The software will start with S8 DSP connected via USB.



**Important remark**

- If S8 DSP is not detected:
- check that S8 DSP is on and correctly connected to the PC/MAC via USB cable USB (aqua green led status, BT led off)

**S8 DSP**

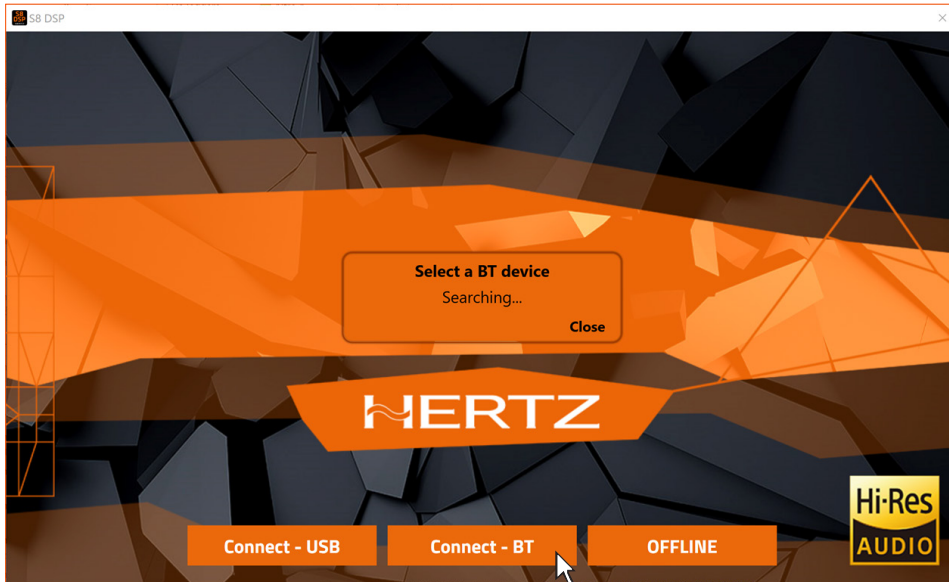
No available S8 DSP. Please check USB connection.

**Close**

- press **Close** to go back to the main window.

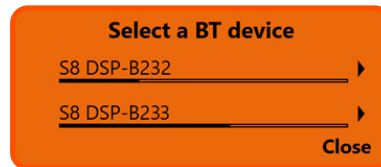
**7.3 CONNECT BT MODE**

1. Start S8 DSP (green led status, blue BT led flashing).
2. Enable the Bluetooth function on the PC/MAC.
3. Press **Connect - BT** to open the pop up **Select a BT device**, and start the search for the S8 DSP processor.



- press **Close** to stop the search.

4. **Select a BT device:** at the end of the search one or more S8 DSP will be detected,"ie.S8 DSP-XXXX" (XXXX is the identification number of the S8 DSP)



- press on the name ie. S8 DSP-XXXX to select the processor.

**Remark:** in the case of multiple processors available, it will be possible later with the **Identify** function to check if the selected S8 DSP is the one desired.

- press **Close** to stop the operation.

**Important remark**

In case no processor is detected at the end of the scan:

No BT device found. Please check that the BT hardware of your PC is enabled and the S8 DSP's BT status led is blinking.

**Close**

- check that the bluetooth interface is enabled on the PC/MAC
- check that the S8 DSP is on and not connected to the PC/MAC via USB (green led status, BT led flashing)

**WARNING:** the USB connection to the PC/MAC excludes the possibility of using the bluetooth connection.



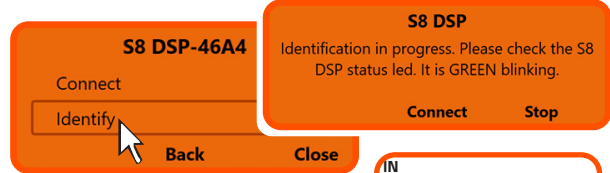
- press **Close** to stop the operation.

After selecting S8 DSP, a pop up with the processor's name will appear

- press **Connect** to go ahead with the S8 DSP direct connection.

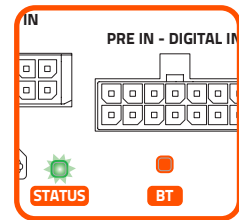


- press **Identify** to check if the processor you intend to connect to is the one you want (in the case of multiple S8 DSP previously detected).



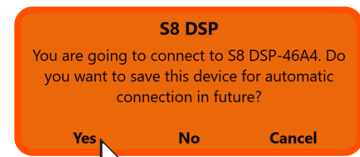
The status LED of the selected S8 DSP will start flashing green.

- press **Connect** to connect the S8 DSP.
- press **Stop** to return to the previous screen.



- press **Back** to go back to the previous window.
- press **Close** to interrupt the operation.

**Remark:** when connection for the first time the software will ask whether to connect automatically to the selected S8 DSP for any future connections, it will also avoid the PIN request, if enabled [\(see section 8.2.8\)](#)



- press **Yes** to connect S8 DSP automatically in the future and access the control software.
- press **No** not to connect S8 DSP automatically in the future and access the control software .
- press **Cancel** to cancel the operation.

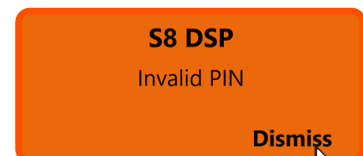
**Remark:** you can later remove the automatic connection of the S8 DSP with the function "**Bluetooth>Forget**" [\(see section 8.1.6.3\)](#).

**WARNING:** If the Bluetooth PIN has been activated previously [\(see section 8.2.8\)](#) click on the first white box on the left to enter the numbers with the PC/MAC keyboard.

- press **OK** after entering the PIN to access the control software.
- press **Cancel** to cancel the operation.



**Invalid PIN:** if the PIN entered is incorrect, the bluetooth connection operation must be repeated from the beginning.

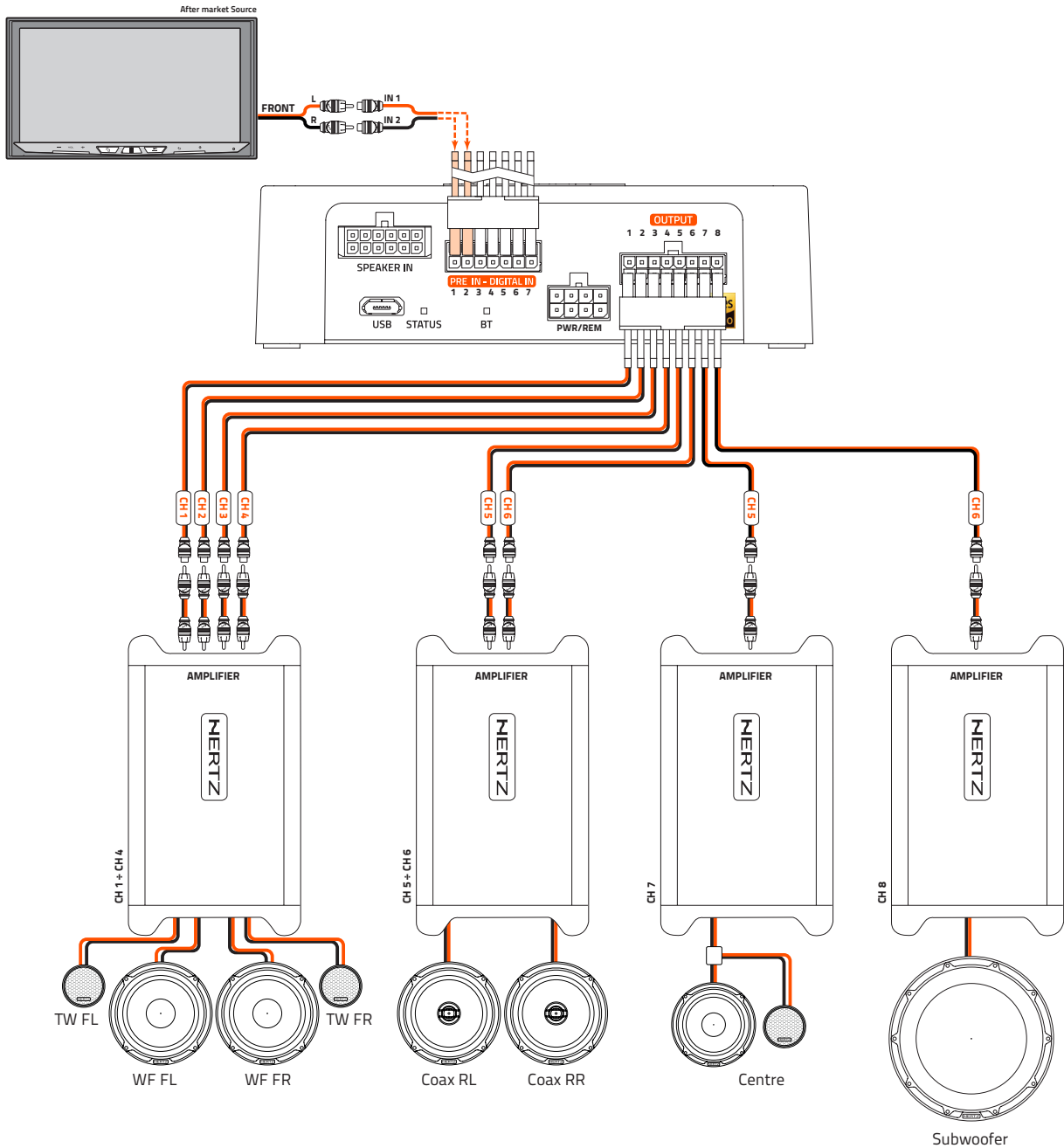


- press **Dismiss** to go back to the main window.

**WARNING:** if the pin is not available, it is still possible to connect the S8 DSP to the software via the USB connection.

**7.4 S8 DSP DEFAULT SETUP**

By default, the S8 DSP is configured as shown below:



**7.4.1 INPUTS**

Pre In

- CH1-CH2

**7.4.2 OUTPUTS**

Output (Pre Out):

- Ch1-Ch2: Front Tw (L/R)
- Ch3-Ch4: Front Wf (L/R)
- CH5-CH6: Rear Tw/Wf (L/R)
- CH7: Center Tw/Mid
- CH8: Subwoofer

Subwoofer is the sum of the 2 input channels.





**7.5 I/O CONFIGURATION WIZARD**

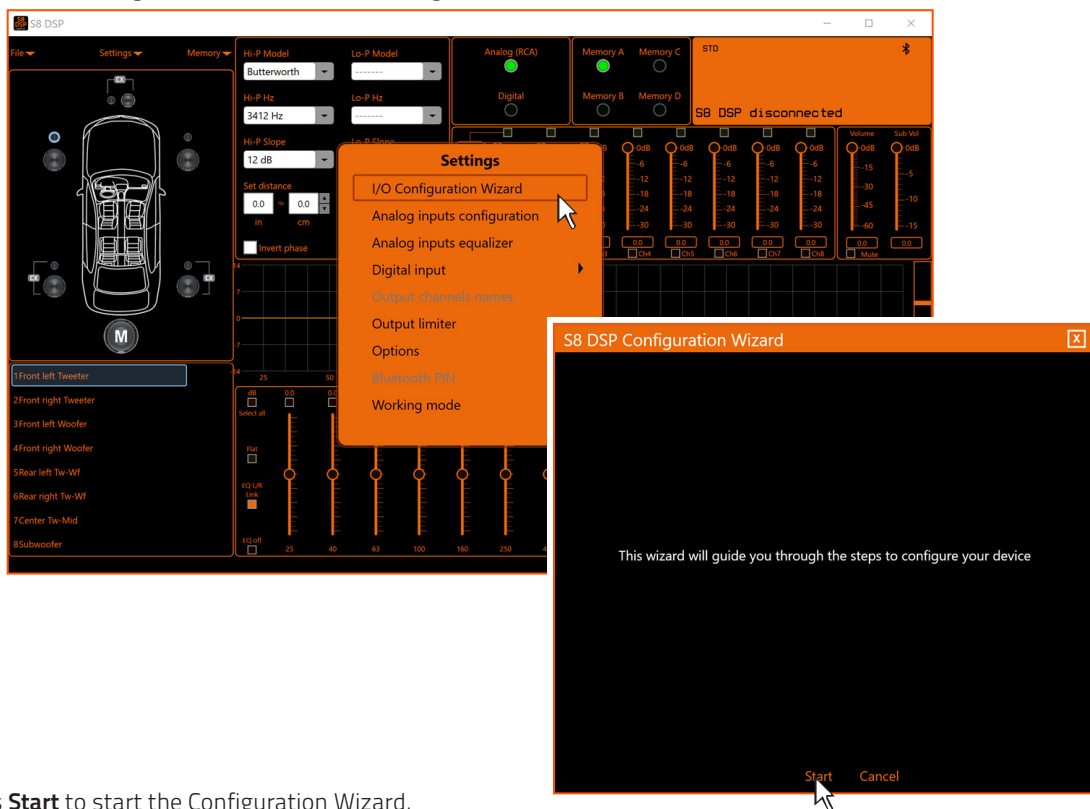
Before starting the “I/O Configuration Wizard” connect the source loudspeakers’ outputs to the **SPEAKER IN** input ([see section 5.2.3](#)) or the source **PRE OUT** outputs to the **S8 DSP PRE IN** input ([see section 5.2.1](#)).

At this point it is necessary to know in advance the system to be implemented, since later, to change these selections, you will have to run the guided procedure

In particular, the wizard will request:

- What system will S8 DSP be installed on.
- Which speakers make up the system (**E.g.:** 3-way Front or Sub stereo or 2-way Rear etc.).
- If there are passive crossovers that handle groups of speakers (**E.g.:** 3-way system with active mid-bass).
- Which type of main inputs will be used, if high level or low level.  
This selection will not prevent the use of digital sources.
- Which input/s will be assigned to each output, it is possible to configure an output system with stereo input, customized, or with reconstruction of the input signal.

- Click on the Settings menu and select I/O Configuration Wizard.



- Press **Start** to start the Configuration Wizard.
- Press **Cancel** to exit the Configuration Wizard.



### 7.5.1. SYSTEM SELECTION

It is possible to configure S8 DSP in 3 different types of system:

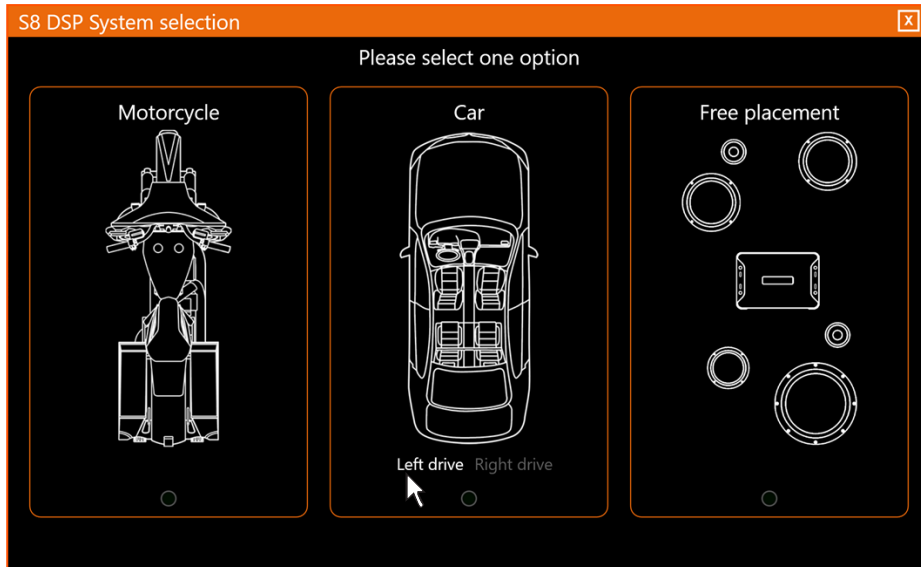
- **Motorcycle:** this option provides the ability to configure the S8 DSP for a system installed on a motorcycle.
- **Car:** this option provides the ability to configure S8 DSP for a system installed in a car.

**Remark:** in the CAR system the driving side can be selected:

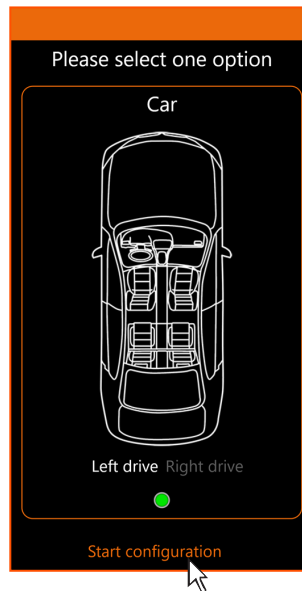
**Left drive:** left-hand drive car (default setting)

**Right drive:** right-hand drive car.

- **Free placement:** this option allows you to configure the S8 DSP for a free placement system.



- Select the desired option by clicking on the reference image.



- Press **Start Configuration** to go on with the configuration.

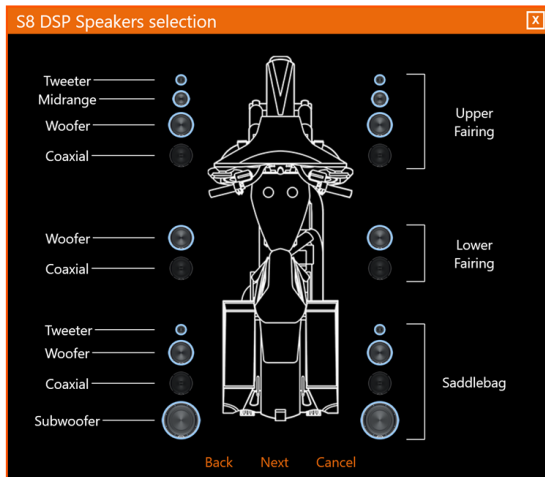


**7.5.2. SPEAKER SELECTION**

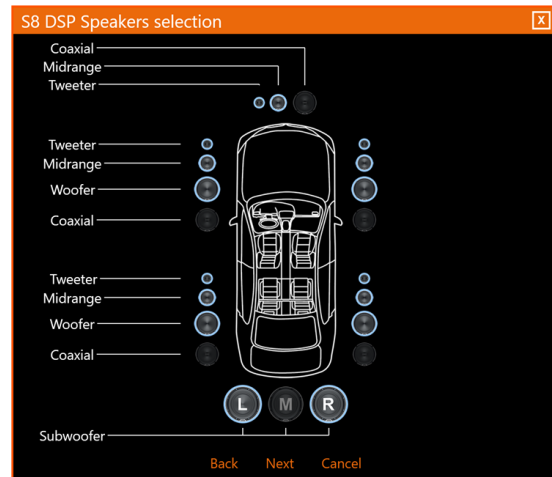
● **Motorcycle / CAR option**

In Motorcycle or Car mode, through the appropriate screen, you can select the speakers in your system, to be activated or deactivated by clicking on them. The software assumes that if you select the left tweeter, midrange, woofer or coaxial, the right ones will also be activated automatically. This choice will affect the type of dedicated crossover.

**E.g.:** if only the woofers have been activated for the rear system, only a low-pass or band-pass filter will be available within the software.



How Speaker Selection looks like in Motorcycle mode



How Speaker Selection looks like in Car mode

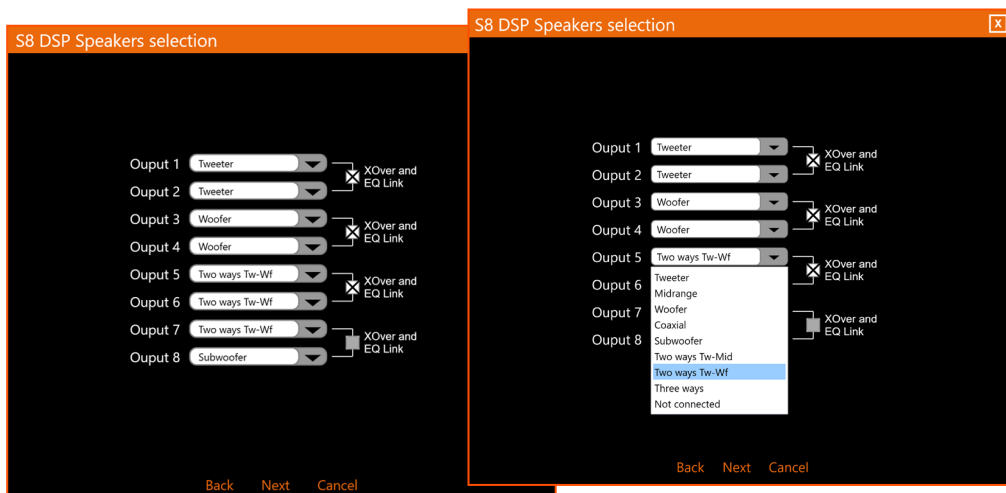
- press **Next** to continue with the configuration.
- press **Back** to go back to the previous window.
- press **Cancel** to cancel the operation.

● **Opzione Free placement**

In Free Placement mode, you can directly choose the speaker or speaker system (E.g. 2-way tweeter / woofer or 3-way tweeter/midrange/woofer), for each output.

This selection will affect the type of dedicated crossover, (E.g.: if output 1 is configured as a tweeter, only a high-pass filter will be available within the software, if output 2 is configured as a woofer only a low-pass or band-pass filter).

If you select the same type of loudspeaker or loudspeaker system for one of the 4 pairs of outputs, the software will automatically activate the "Xover and EQ Link" function (see section 8.6.1 - 8.7.7). This function can be deactivated by clicking on it.



How Speaker Selection in Free placement looks like

- press **Next** to continue with the configuration.
- press **Back** to go back to the previous window.
- press **Cancel** to cancel the operation.



**7.5.3. PASSIVE CROSSOVER SELECTION - OUTPUT CHANNELS ASSIGNMENT / OUTPUT CHANNELS NAME**

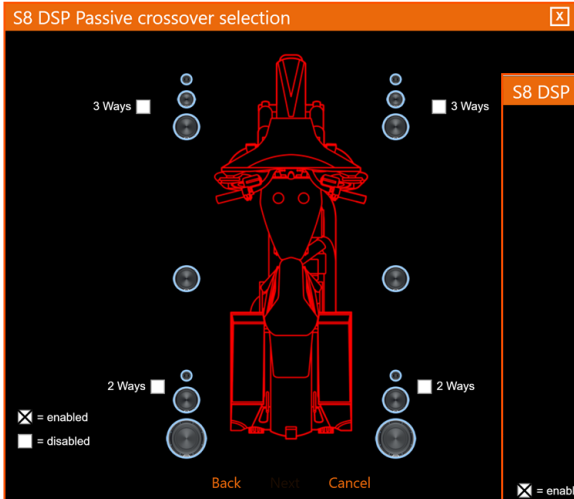
**- Passive crossover selection:**

In Motorcycle or Car mode it is possible to indicate the presence of passive crossovers by enabling the 2Ways / 3Ways options.

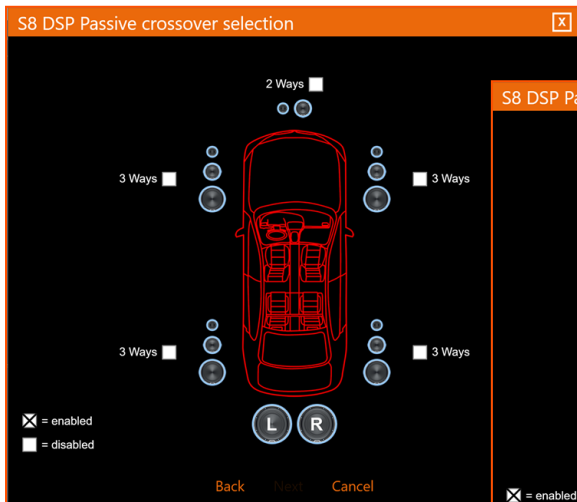
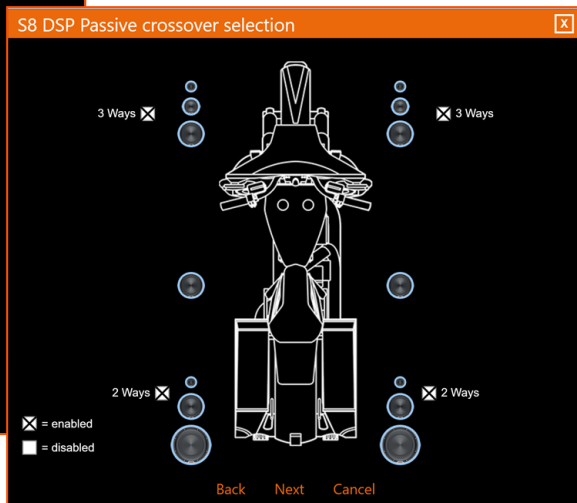
**E.g.:** the front 3-way can be operated as:

- multi-amplified (6 output channels would be needed);
- passive mid-highs + separately amplified woofer (4 output channels would be needed);
- 3-way passive (2 output channels would be needed).

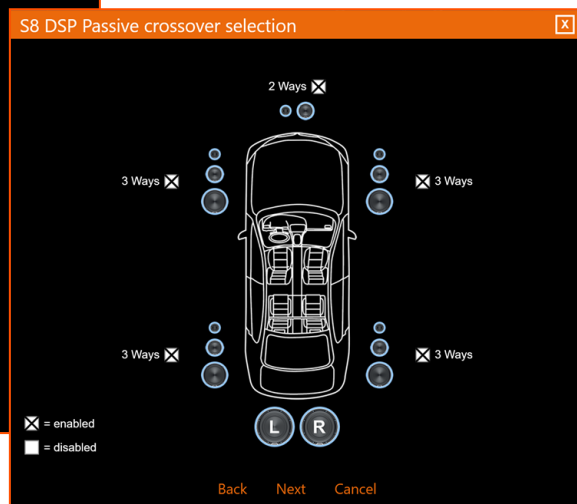
**Remark:** During the selection, the software will automatically signal the return to the limit of the 8 output channels, making the vehicle image turn from red to white and the **Next** button will appear.



*How Passive crossover Selection looks like in Motorcycle mode.*



*How Passive crossover Selection looks like in Car mode.*

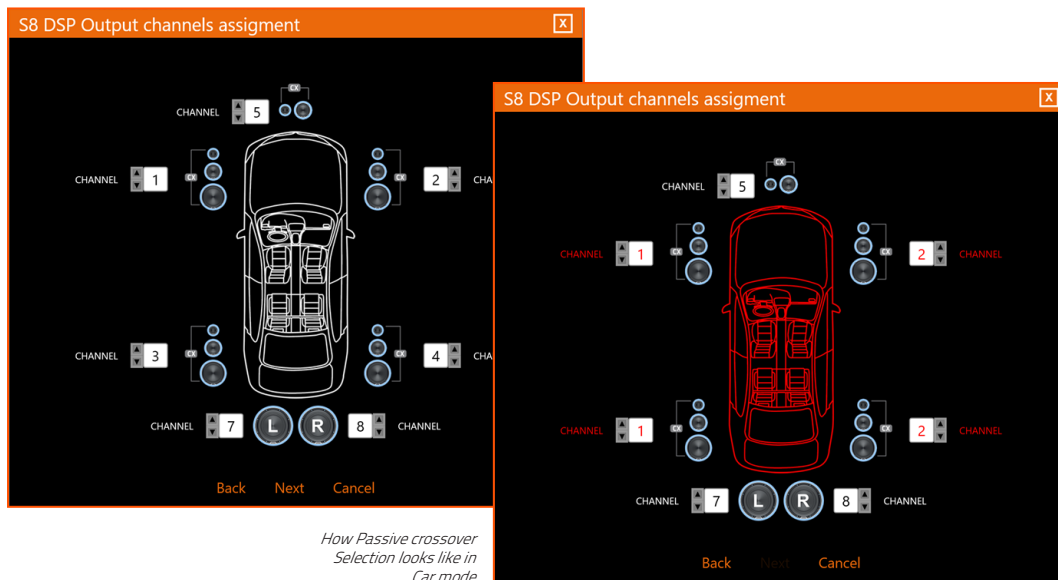
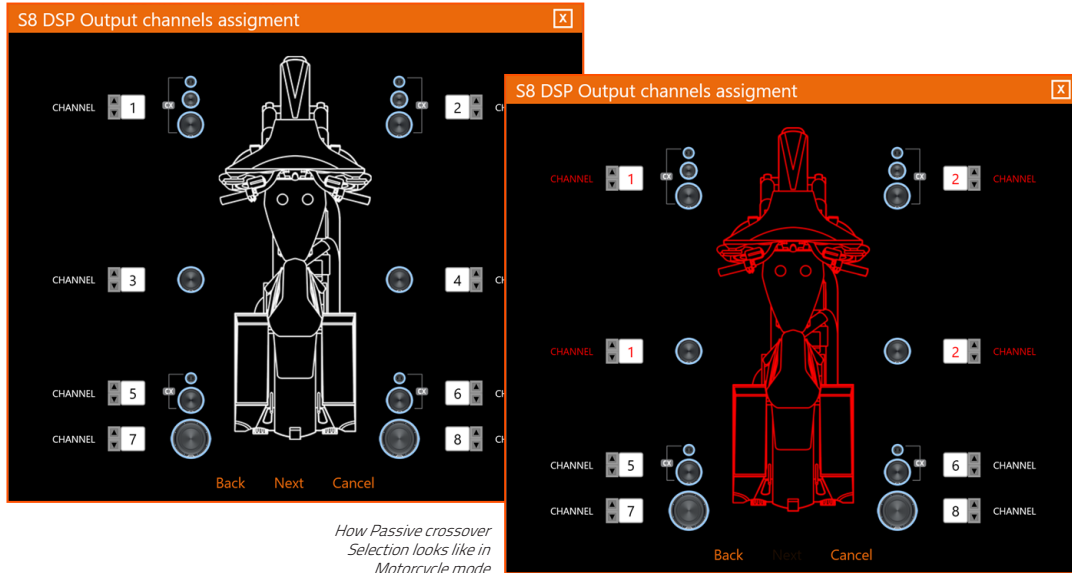


- press **Next** to continue with the configuration.
- press **Back** to go back to the previous window.
- press **Cancel** to cancel the operation.



**- Output channels assignment**

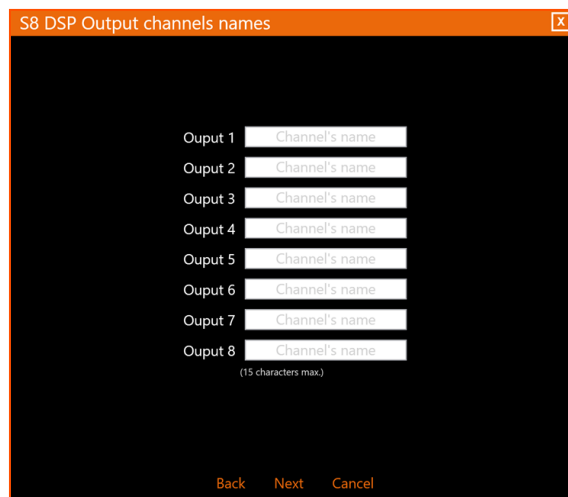
In **Motorcycle** or **Car** mode it is possible to change the order in which the outputs of the S8 DSP have been automatically assigned by the software. The software will report if in the event of an error the same output will be assigned to multiple speakers, in this case the vehicle image will turn from white to red and the **NEXT** button will disappear from the screen, until the correct assignment of the outputs.



- press **Next** to continue with the configuration.
- press **Back** to go back to the previous window.
- press **Cancel** to cancel the operation.

**- Output channels names**

In Free Placement mode it is possible to rename each output channel with a maximum of 15 characters, so as to facilitate their recognition while using the software.



- press **Next** to continue with the configuration.
- press **Back** to go back to the previous window.
- press **Cancel** to cancel the operation.

**7.5.4. ANALOG INPUTS CONFIGURATIONS**

It is possible to select the type of analog input used: **RCA (PRE IN)** or **High Level (SPEAKER IN)**

This selection will set the sensitivity scale displayed in the **Sensitivity** window [\(see section 7.5.6- 8.2.2\)](#)

- **RCA** the sensitivity scale will be set with values from 0.8 to 6 Vrms
- **Hi level** the sensitivity scale will be set with values from 2.5 to 21Vrms

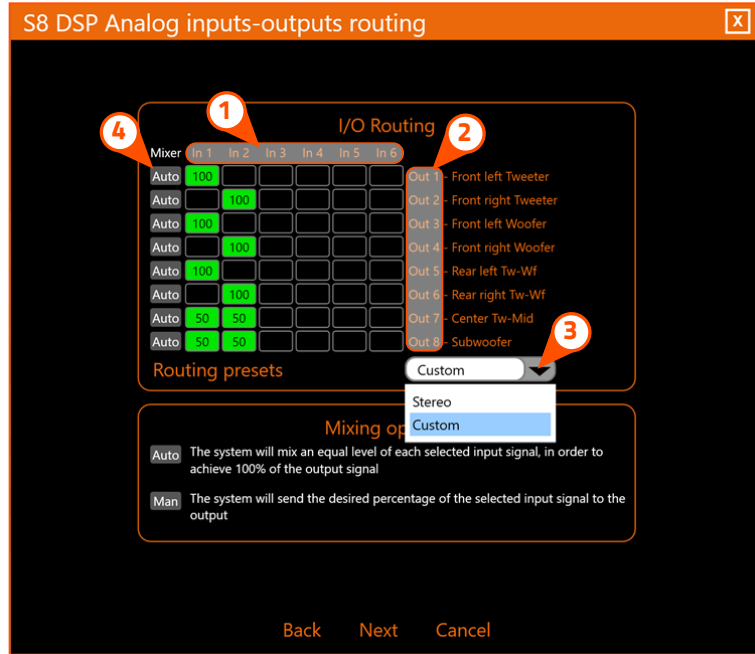
**WARNING:** the selection of the type of **RCA/Hi Level** input will affect the type of sensitivity scale displayed in the software, so it is important to make sure that there is a correspondence with the input used.



- press **Next** to continue with the configuration.
- press **Back** to go back to the previous window.
- press **Cancel** to cancel the operation.

**7.5.5 ANALOG INPUTS-OUTPUTS ROUTING**

It is a mixer in which it is possible to view and / or modify the assignment of the input signals on each output channel (this means that an input channel can be sent to one or more output channels and vice versa), and adjust the mixing percentages.

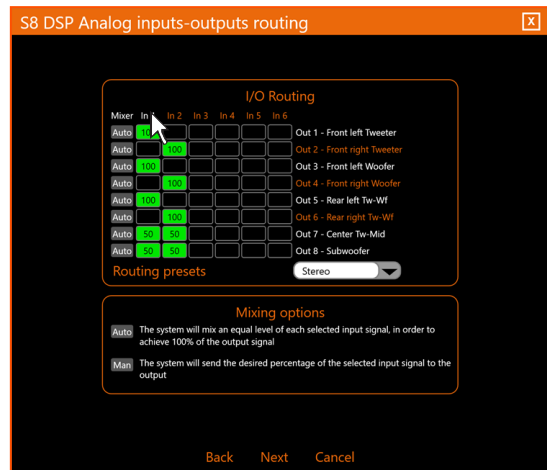


The mixer is structured as a matrix:

**1 In1-In2-In3-In4-In5-In6**

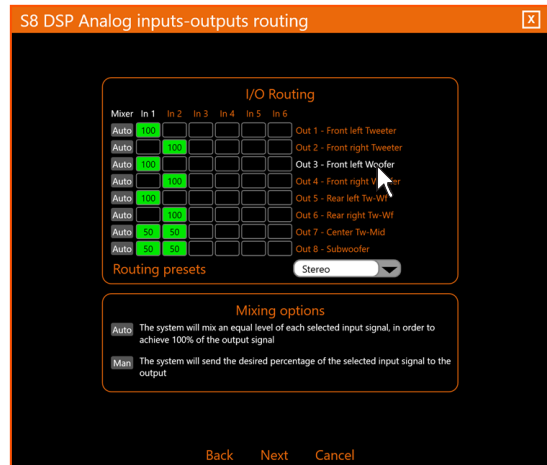
are the S8 DSP input channels

**Remark:** hovering the mouse cursor over an input channel, the associated output channels will be highlighted



**2 OUT1-OUT2-OUT3-OUT4-OUT5-OUT6-OUT7-OUT8**  
are the S8 DSP output channels.

**Remark:** hovering the mouse cursor over an output channel, the associated input channels will be highlighted.







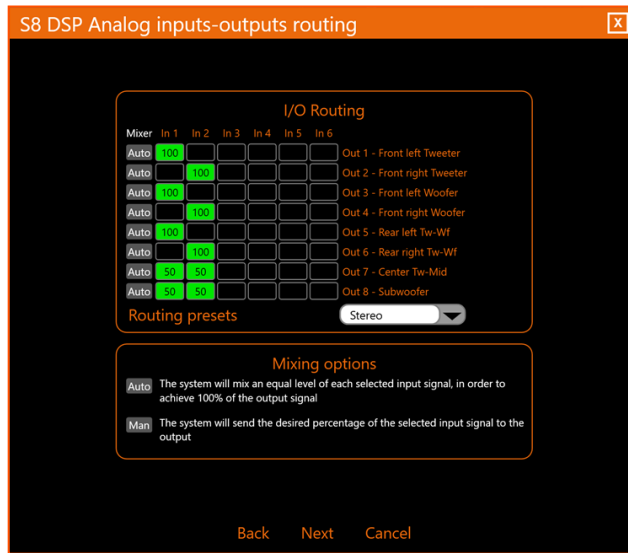
**3 ROUTING/PRESET:** it is possible to assign inputs to outputs in two ways (**STEREO**) or (**CUSTOM**).

**STEREO** (default) does not allow to operate on the mixer.

The system will be configured using the inputs In1 and In2, the assignment to the outputs is automatic and cannot be changed.

Input In1 will be assigned to the Left outputs;

The In2 input will be assigned to the Right outputs; while the mono outputs (*E.g. subwoofer or center*) will be associated with both inputs **In1-In2**.



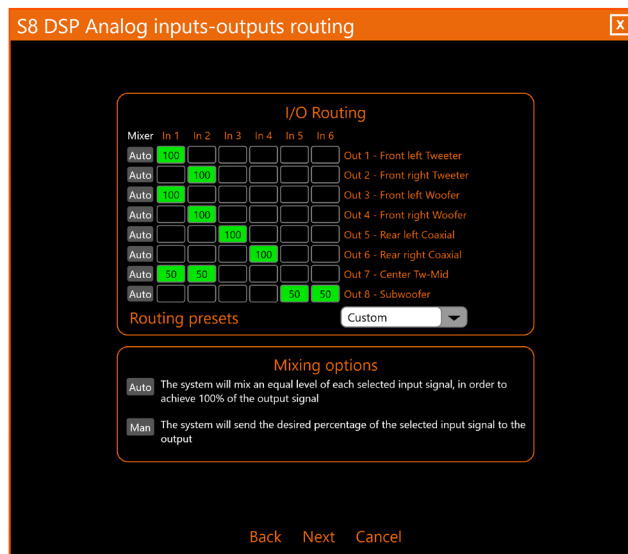
**Remark:** when operating on the mixer in Stereo mode, a pop up will appear with the warning to use the Custom option to customize the assignment of the inputs to the outputs.



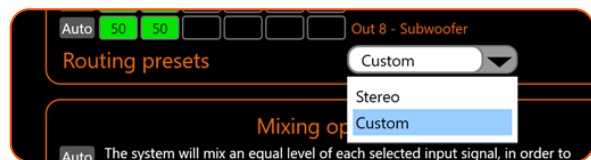
**CUSTOM** allows the user to operate on the mixer.

It is possible to use all available inputs (**IN1 / IN6**) to configure the system.

The input is assigned to the output when the box turns green and the mixing percentage will be shown inside.



**Remark:** it is possible to switch from the **Routing Preset Stereo** mode (default), to the **Routing Preset Custom** mode by selecting them using the appropriate drop-down menu.



**4 MIXER:**

It is possible to assign the mixing percentages of the inputs in two ways: **(Auto/Man)**.

It is possible to switch from the **Mixer Auto** mode (default), to the **Mixer Man** mode and vice versa clicking on the **Auto** or **Man** keys, upon clicking a warning pop up will appear on the screen.



Switching from Mixer Auto mode to Mixer Man mode

- select **"Don't ask again in this session"** to stop showing this pop up in this work session.
- press **OK** to switch mode.
- press **Cancel** to cancel the operation.

**Auto, (Default)** The software will calculate, based on the selected inputs, a percentage of equal value in order to reach 100% of the signal at the assigned output.

**E.g.** If only one input is associated with an output, the software will set it to 100% (fig 1), while if several inputs are associated with a mono output (Eg. Subwoofer or Center), the software will set them in equal percentage (50% / 50%) so that their sum is 100%. (fig 2).



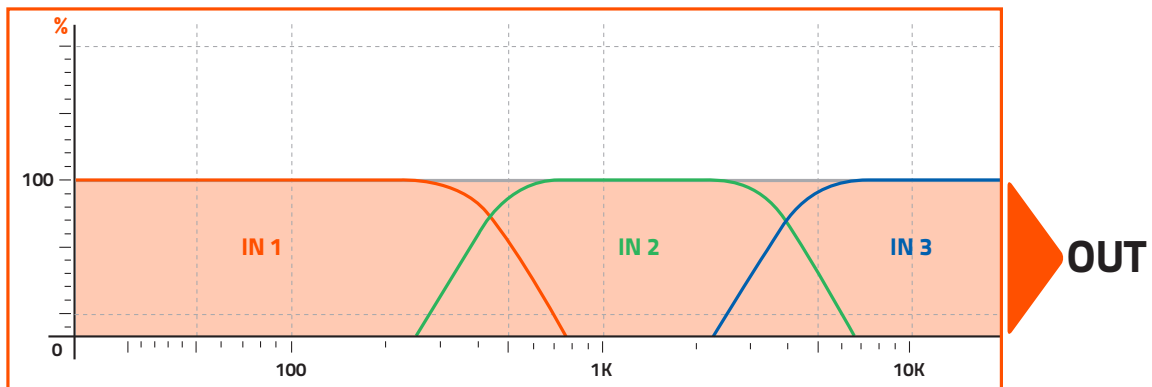
Fig. 1

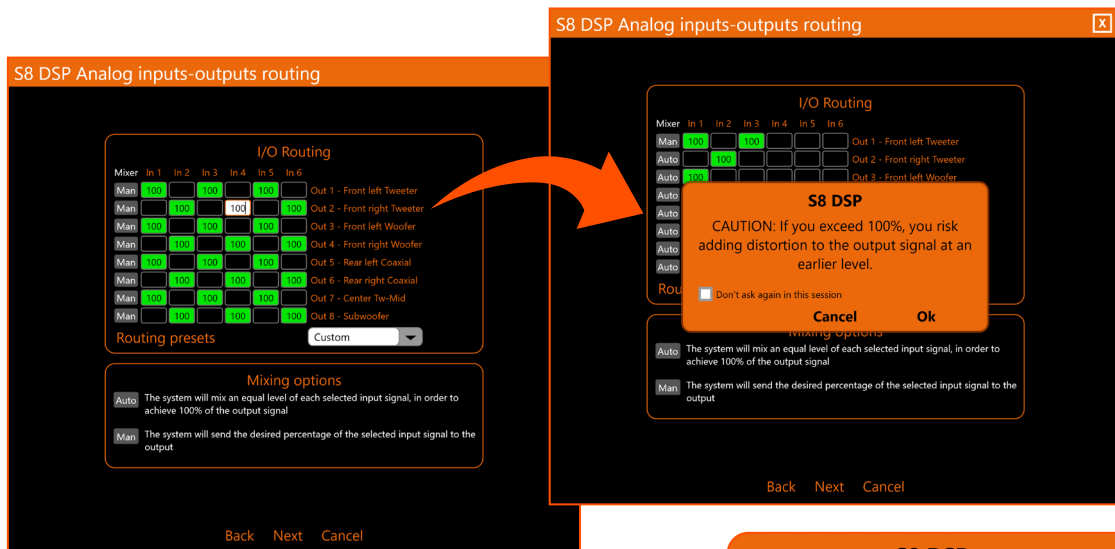


Fig. 2

**Man**, it is possible to manually operate on the mixing percentages, assigning the desired value to each input and confirming it with **← INVIO**

**E.g.** if you want to reconstruct a full range signal from a source with filtered outputs, each input can be set to 100% in order to obtain a Full range output signal without distortion.





**WARNING:** in the case of the mixer configuration in MAN mode, the software removes the control on the maximum value of the sum of the input signals. Therefore, when the 100% threshold is exceeded (risk of output distortion) a pop-up will appear to confirm the operation.

- press **OK** to switch mode.
- press **Cancel** to cancel the operation.
- select **"Don't ask again in this session"** to stop showing this pop up in this work session.

**After setting up the mixer**

- press **Next** to continue with the configuration.
- press **Back** to go back to the previous window.
- press **Cancel** to cancel the operation.

**7.5.6 INPUTS SENSITIVITY SETUP**

The calibration of the input levels is essential to adapt the sensitivity of the S8 DSP to the signal coming from the source, the sensitivity scale will vary according to the selection made previously in the Analog inputs configurations menu: [\[see section 7.5.4 - 8.2.2\]](#).

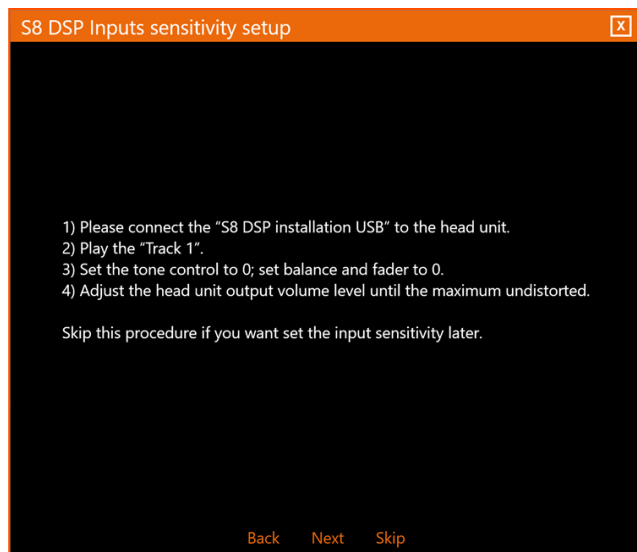
- **RCA** the sensitivity scale will be set with values from 0.8 to 6 Vrms.
- **Hi level** the sensitivity scale will be set with values from 2.5 to 21 Vrms .

Before proceeding with the calibration, follow the instructions below:

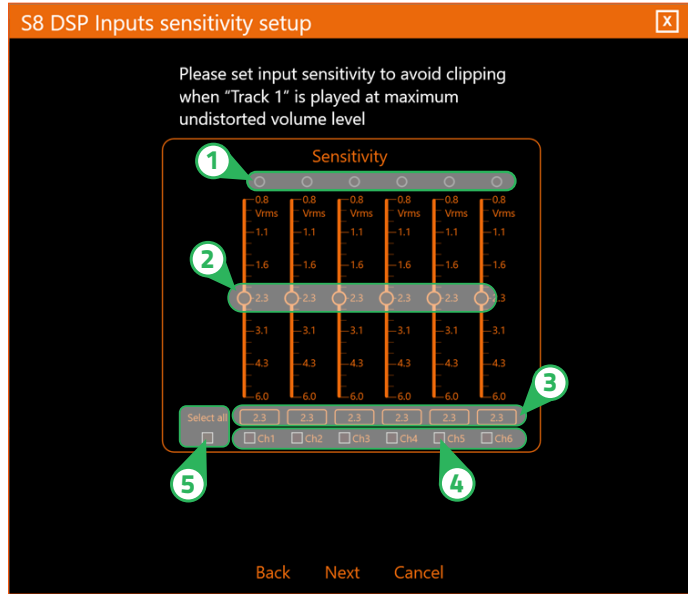
- insert the supplied USB into the source
- play track 1
- set all tone controls to 0
- set balance and fader to 0
- set the volume of the source to the maximum undistorted level

**Remarks:** if you do not have the opportunity to try the source first, bring the volume adjustment to about 80% of its maximum excursion. If the output level of the source is positioned too low, the S8 DSP may produce a background noise (puff). If during playback the S8 DSP should exhibit such noise, the calibration should be repeated

- Press **BACK** to go back to the previous window.
- Press **NEXT** to perform the inputs calibration.
- Press **SKIP** to skip the inputs calibration.



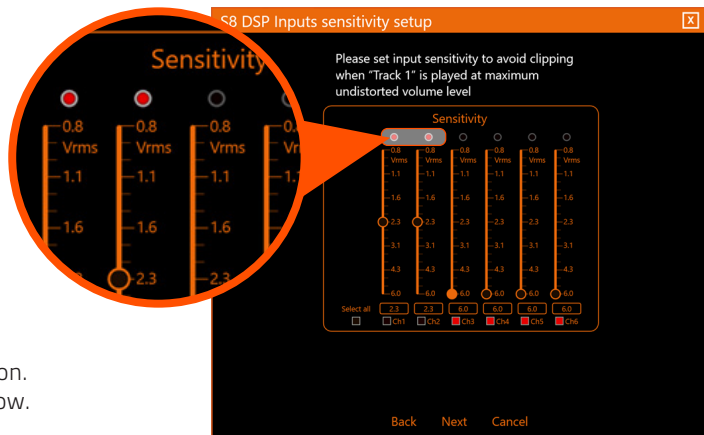
- ① Input clipping indicator. When the LED lights up, it signals the presence of clipping on the selected input.
- ② By operating on one of the sliders, it will be possible to adjust the sensitivity of each input.
- ③ Indicator of the sensitivity level of each individual input channel, referred to the position of the slider indicated above.
- ④ By clicking on the buttons it will be possible to select a group of S8 DSP inputs for which it will be possible to adjust the sensitivity levels at the same time. Click the button again to disable the function.
- ⑤ **Select all:** by clicking on the "Select all" button it will be possible to adjust all the sensitivity levels of the inputs of the S8 DSP simultaneously. By clicking again on the "Select All" button it will be possible to disable the function.



*How Input Sensitivity Setup looks like in RCA mode*

**Input sensitivity level calibration:**

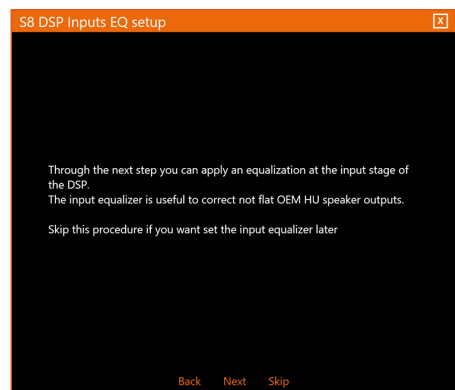
- With track 1 in progress, gradually decrease or increase the sensitivity of the first input used until the LED turns on or flashes red, then you have to go back one step (the LED turns off)
- Carry out the same operation for the other inputs used.



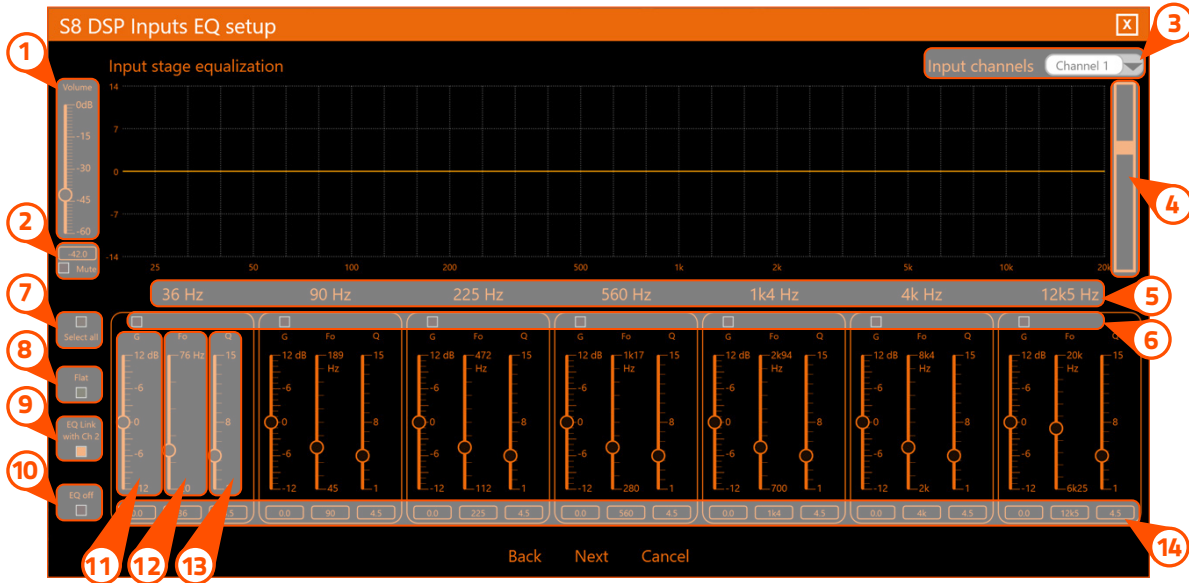
- press **Next** to continue with the configuration.
- press **Back** to go back to the previous window.
- press **Cancel** to cancel the operation.

**7.5.7 INPUTS EQ SETUP (ANALOG INPUTS EQUALIZER)**

The S8 DSP software provides an input equalizer, which can be managed by a maximum of 7 parametric equalization bands per channel, this operation is useful for correcting the outputs of OEM HU sources when they are equalized.



- Press **Back** to go back to the previous window.
- Press **NEXT** to access the inputs equalization.
- Press **SKIP** to skip the inputs equalization procedure.



- 1 **Volume:** by operating on the "Volume" slider, you can make adjustments to the overall system output level (-60 ÷ 0 dB).
- 2 **Mute:** by clicking on the "Mute" button it is possible to mute the output channels. Click the "Mute" button again to disable the function.
- 3 **Input Channel:** by clicking on the drop-down menu, you can select the input channel you intend to equalize.
- 4 In order to display the set equalization curve more clearly, using the slider it is possible to increase or decrease the vertical scale (dB).
- 5 This part of the screen indicates the frequency (HZ) of each intervention pole of the equalization referred to the position of the "Fo" slider.
- 6 By clicking on the buttons it is possible to select a group of equalization poles to which the Gain levels can be adjusted at the same time. By clicking on the button again, the function will be disabled.
- 7 **Select all:** by clicking on the "Select all" button it will be possible to adjust all the Gain levels of the equalization poles at the same time. By clicking on the "Select all" button again, the function will be disabled.
- 8 **Flat:** by clicking on the Flat button, the Gains of all poles will be returned to the 0 dB position.
- 9 **EQ Link:** when active, it applies the equalization curve of the left channel to the right channel or vice versa.
- 10 **EQ off:** by clicking on the EQ off button, the equalizer on the selected channel or 2 channels (EQ Link active) selected is deactivated to check the effect without losing the settings. By clicking on the "EQ off" button again, the function will be disabled.
- 11 **G (dB):** by operating on the "G" slider, it will be possible to make adjustments to the gain of the selected pole (Gmin +12dB ÷ Gmax -12dB).
- 12 **Fo (Hz):** by operating on the "Fo" slider, it will be possible to make adjustments to the frequency of the selected pole.
- 13 **Q:** by operating on the "Q" slider, it will be possible to make adjustments to the "Q" quality factor of the selected pole (Q: 1 ÷ 15 step min 0.1).
- 14 This part of the screen displays the values of **G (dB), Fo (Hz), Q** set for each equalization pole.

**Remarks:** A finer adjustment of these parameters can also be made using the keyboard of your PC / MAC

TAB key : allows you to select the slider, "G" "Fo" and "Q" for each equalization pole.

The successful selection is visible through the orange color of the adjustment slider.

Keys and : allow fine adjustment of the selected slider.

**WARNING:** if you proceed with the inputs equalization, S8 DSP will enable the audio outputs, the general volume will be set by default to -42dB to avoid damaging the speakers when starting calibration.



- Press **BACK** to go back to the previous window.
- Press **NEXT** to perform the inputs equalization.
- Press **SKIP** to skip the inputs equalization.

### 7.5.8 WIZARD COMPLETED

System setup is complete.



- Press **DONE**.



## 8. S8 DSP SETUP USING A PC/MAC

The software transfers the settings selected during the wizard to the processor's main memory. If you are using S8 DSP when connecting for the first time it is advisable to FINALIZE the product, to avoid losing the data stored during the calibration phase [\(see section 8.1.5\)](#).

At this point the S8 DSP has the correct basic configuration. The functions that allow the acoustic tuning of the system will be described in the following paragraphs.

**WARNING:** avoid changing the parameters of the S8 DSP by exploring the functions and, take the time to familiarize yourself with the possibilities offered by this software. Adjustments made via the S8 DSP software have an immediate effect on the signal and can, if not carefully done, damage your system's speakers.

**Remember to make adjustments with a general volume that does not pose a danger to the system speakers.**

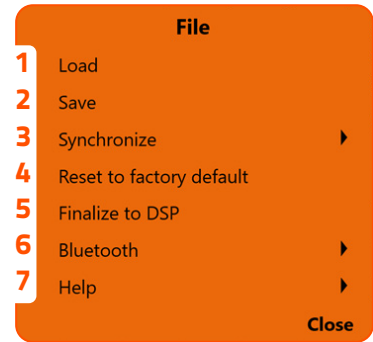
The screenshot shows the S8 DSP software interface with the following numbered callouts:

- 1:** Window title 'S8 DSP'
- 2:** 'File' menu
- 3:** 'Settings' menu
- 4:** Speaker layout diagram showing front, rear, and subwoofer positions.
- 5:** Speaker list on the left side, including '1 Front left Tweeter' through '8 Subwoofer'.
- 6:** Filter settings for Hi-P and Lo-P models, including Butterworth filter type, frequencies, and slopes.
- 7:** Frequency response graph showing a curve across a frequency range from 25 to 20k Hz.
- 8:** Volume and Sub Volume sliders for individual channels.
- 9:** Analog (RCA) and Digital input selection buttons.
- 10:** Memory A, B, C, and D selection buttons.
- 11:** System information panel showing FW version (02.00.08), Serial number (T1234567890123), and 'S8 DSP connected' status.

**8.1 MAIN MENU "FILE"**

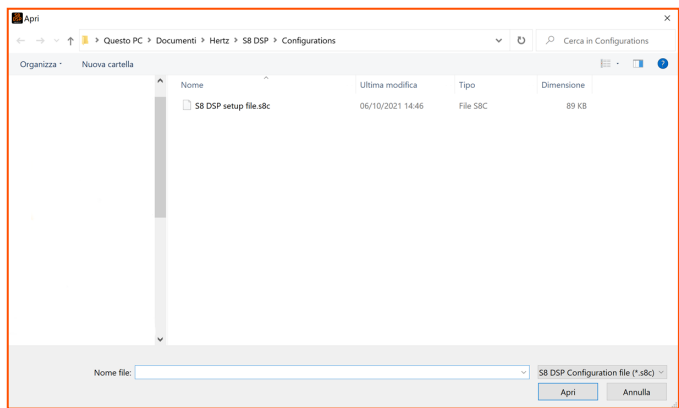
**1**

By clicking on the relevant button a drop-down menu opens up with the items shown in the figure.



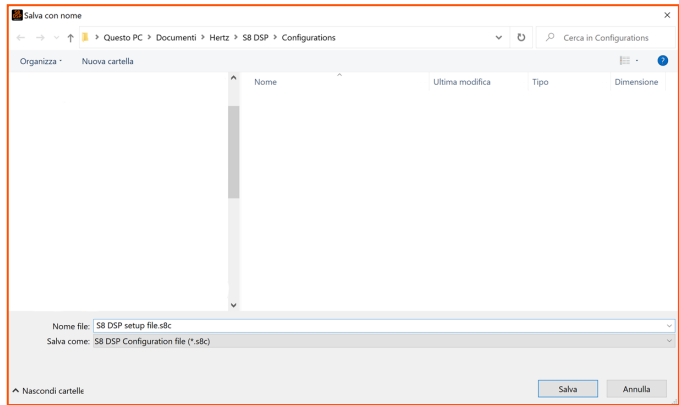
**1. Load**

this function loads the complete configuration of the S8 DSP from a previously saved file (E.g. "S8 DSP setup file.s8c"). This function is available in both **CONNECT** and **OFFLINE** mode. In **CONNECT** mode this function has the purpose of being able to reload all the settings previously saved. This function is useful in case you want to recover all the settings made previously, to install another S8 DSP with the same settings, in order to try out different acoustic settings.



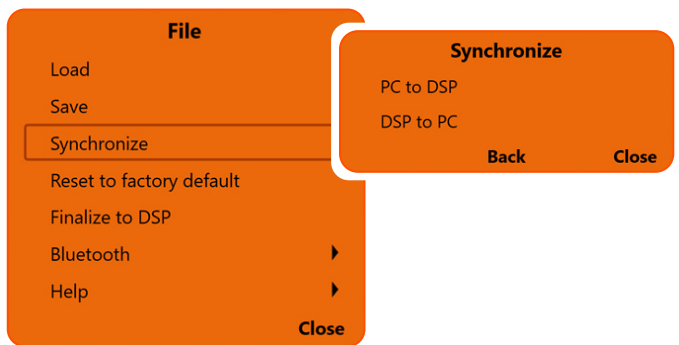
**2. Save**

this function saves the complete configuration of the S8 DSP in a file (E.g. "S8 DSP setup file.s8c"), which can be reloaded later in the S8 DSP using the "Load" function. This function is available in both **CONNECT** and **OFFLINE** mode.



**3. Synchronize, PC/MAC to DSP or DSP to PC/MAC**

these functions synchronize the PC/MAC with the S8 DSP.



- Press **PC/MAC to DSP** to load the settings made so far in the memory of the S8 DSP.
- Press **DSP to PC/MAC** to load the settings in the memory of the S8 DSP on the Control software.
- Press **BACK** to go back to the "File" menu.
- Press **CLOSE** to cancel the operation.

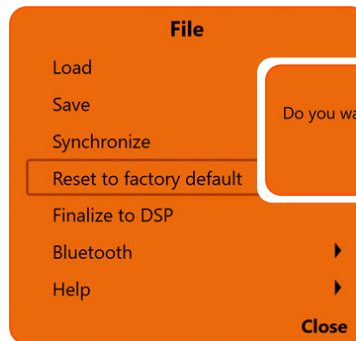


**4. Reset to factory default**

this function performs a total reset of the S8 DSP returning the product to its original conditions, deleting all the data previously saved in the processor.

Press **YES** to perform the factory default reset.  
Press **No** to interrupt the operation.

**WARNING:** the reset restores the system currently used to the default conditions [\(see section 7.4\)](#).



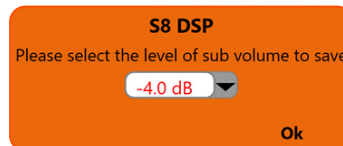
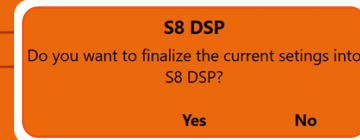
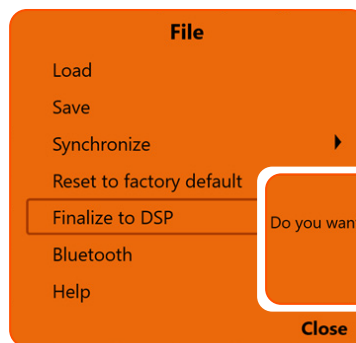
**5. Finalize to DSP**

this function allows you to load all the parameters set during system calibration into the internal memory of the S8 DSP. This operation allows the S8 DSP to work without being connected to the PC / MAC.

When Finalize to DSP is run, the software warns that the data in the S8 DSP will be overwritten:

- click YES to load the data set within the S8 DSP, overwriting, if present, any data that was previously saved
- click **NO** to interrupt the operation.

**Remarks:** if the Master Volume and Sub Vol levels are not set to 0dB, you will be prompted for the level at which the processor will be finalized.



- Click on the drop-down menu to set the desired level.
- Press **OK** to proceed with finalizing the data on the device.

- When finalization is complete, press **Close** to return to the main screen.

**WARNING:** always run **Finalize to DSP** before disconnecting the product from your PC / MAC or whenever you exit the software after system configuration changes have been made. If this is not done, all entered data will be lost.





**6. Bluetooth**

This function is used to connect, disconnect, or remove the automatic connection of the S8 DSP to the PC / MAC software.

This function is active if:

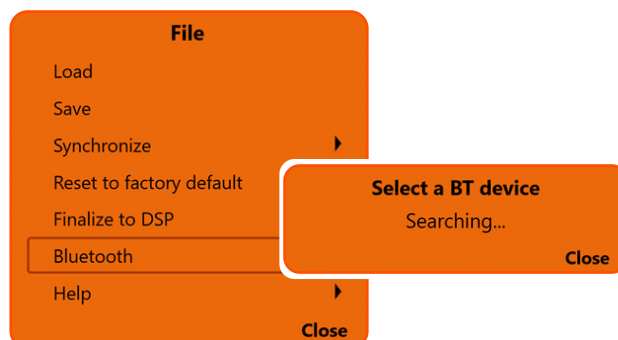
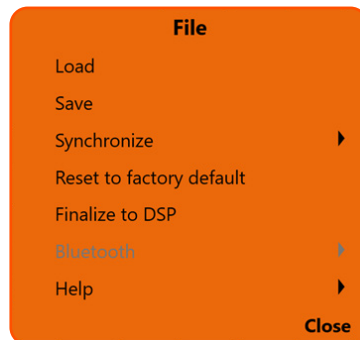
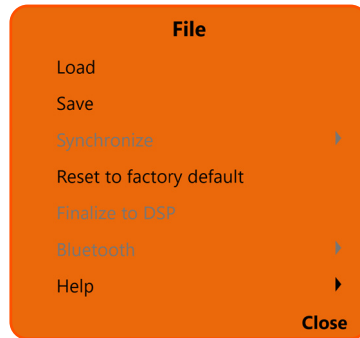
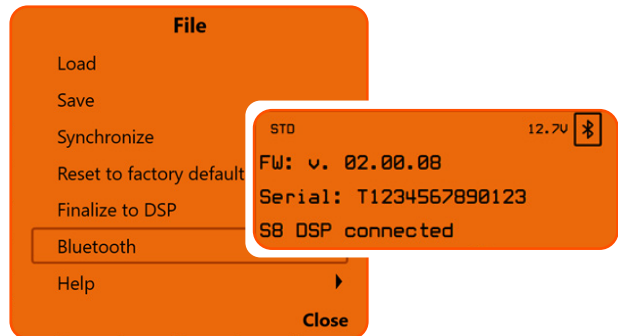
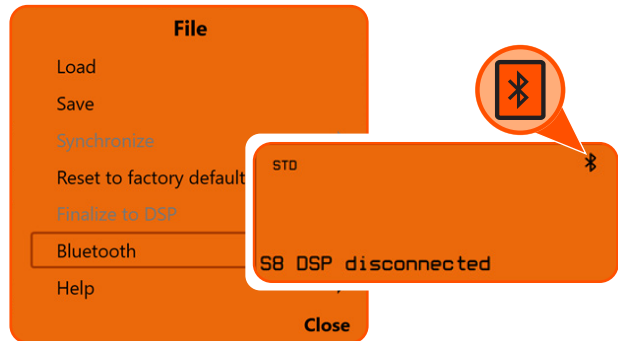
1. one or more S8 DSPs turned on nearby are detected (the BT symbol will appear at the top right of the screen "Device Info" [\(see section 8.11\)](#))
2. S8 DSP is already connected to the software via Bluetooth connection.

**WARNING:** the Bluetooth function is disabled:  
 - if no S8 DSP is detected nearby.  
 - if the BT interface of the PC / MAC is not active.

- if S8 DSP is connected to PC / MAC via USB.

**6.1 S8 DSP connection to PC/MAC via Bluetooth connection.**

1. Press **Bluetooth** to start the search for the S8 DSPs turned on nearby

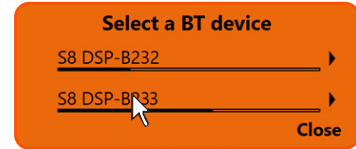
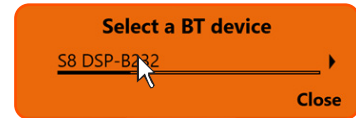


**2. Select a BT Device:** at the end of the scan, one or more S8 DSPs will be detected, "E.g. S8 DSP-XXXX" (XXXX is the identification number of the S8 DSP)

- click on the name **E.g. S8 DSP-XXXX** to select the processor.

**Remark:** in the case of more processors available it will be possible later with the Identify function to check if the selected S8 DSP is the one you want.

- press **Close** to interrupt the operation.



After selecting S8 DSP, a pop up will appear with the name of the processor.

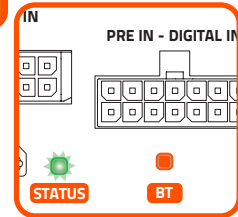
- press **Connect** to proceed with the direct connection of the S8 DSP. The status LED of the selected S8 DSP will start flashing green.



- press **Identify** to check if the processor you intend to connect to is the one you want (in the case of multiple S8 DSPs detected).



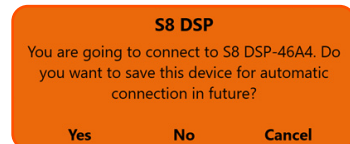
- press **Connect** to proceed with the S8 DSP connection.
- press **Stop** to go back to the previous window.



- press **Back** to go back to the previous window.
- press **Close** to interrupt the operation.

**Remark:** when connecting for the first time the software will ask whether to connect automatically to the S8 DSP selected for any future connections, it will also avoid the PIN, if enabled (see section.8.2.8).

- press **Yes** to connect S8 DSP automatically in the future.
- press **No** not to connect S8 DSP automatically in the future.
- press **Cancel** to cancel the operation.



**Remark:** you can later remove the automatic connection of the S8 DSP with the function "Bluetooth>Forget" (see section.8.1.6.3).

**WARNING:** If the Bluetooth PIN has been activated previously (see section 8.2.8) click on the first white box on the left to enter the numbers with the PC / MAC keyboard

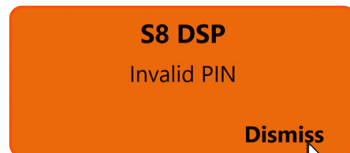


- press **OK** after entering the PIN to access the control software .
- press **Cancel** to cancel.



**Invalid PIN:** if the PIN entered is incorrect, the bluetooth connection operation must be repeated from the beginning.

- press **Dismiss** to return to the main screen.



**WARNING:** if the pin is not available, it is still possible to connect the S8 DSP to the software via the USB connection.



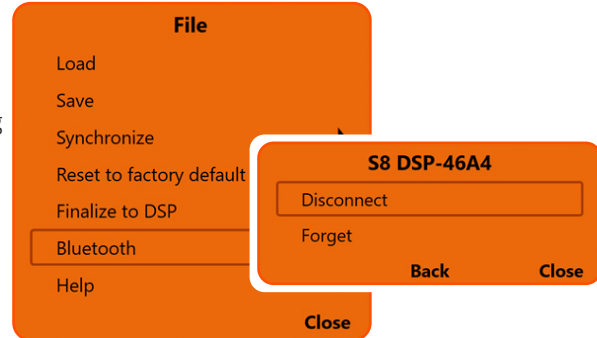
If the PIN entered is correct, you will be asked how to connect to the software.



- Press **Stay offline** to suspend the connection and continue working on the software with the S8 DSP not connected.
- Press **DSP to PC/MAC** to load the settings stored in the S8 DSP memory onto the software.
- Press **PC/MAC to DSP** to load the settings made so far on the software into the memory of the S8 DSP.

**6.2 Disconnect the Bluetooth connection between S8 DSP and PC/MAC**

To disconnect S8 DSP already connected to the software via Bluetooth connection, while maintaining the auto connection, use the function **Bluetooth>Disconnect**



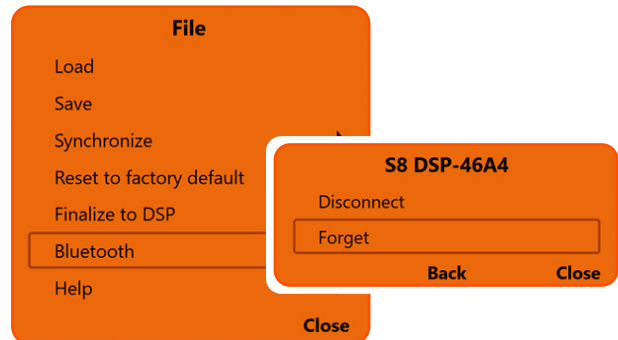
- press **Disconnect** to disconnect the S8 DSP.
- press **Back** to go back to the file menu.
- press **Close** to cancel the operation and return to the main screen.



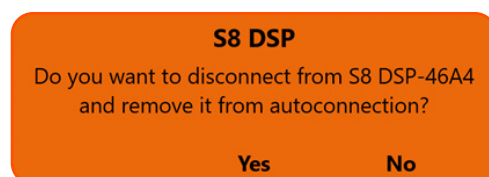
- press **YES** to confirm the disconnection.
- press **NO** to go back to the previous window.

**6.3 Disconnect and remove the Bluetooth auto connection between S8 DSP and PC/MAC**

To disconnect and remove the auto connection of the S8 DSP already connected to the software via Bluetooth connection, use the function **Bluetooth>Forget**



- press **Forget** to proceed with the disconnection and removal of the auto connection.
- press **Back** to go back to the file menu.
- press **Close** to cancel the operation and return to the main screen.

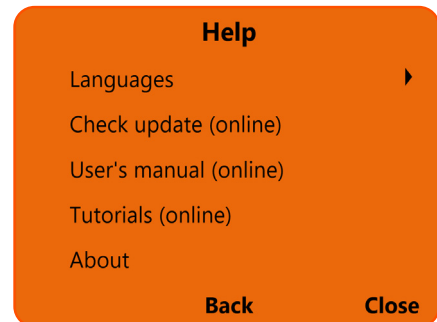


- press **Yes** to confirm the disconnection and removal of the auto connection.
- press **NO** to go back to the previous window.



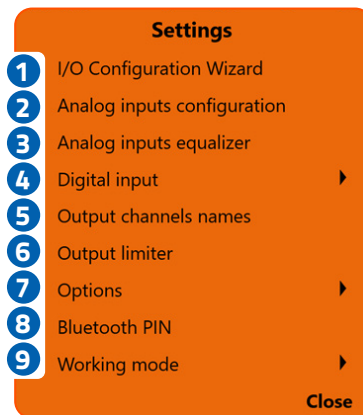
**7. Help**

**Languages:** to change the language, select the desired item from the menu, among the available ones.  
**Check Update (online):** this function checks the presence of S8 DSP software / firmware updates by connecting to the "hertz-audio.com" site ([see section 9.2](#)). In order to perform this operation, the PC must have an active internet connection.  
**User's manual (online):** the internet browser on the PC will open and the search will automatically start in the **HERTZ download area**, to consult the product manual. In order to perform this operation, the PC must have an active internet connection.  
**Tutorials (online):** a link is activated on youtube, to consult audio / video information relating to the product. In order to perform this operation, the PC must have an active internet connection.  
**About:** shows information about the S8 DSP software in use.



**8.2 MAIN MENU "SETTINGS" 2**

Cliccando sul relativo pulsante si apre un menù a tendina con le voci mostrate in figura:



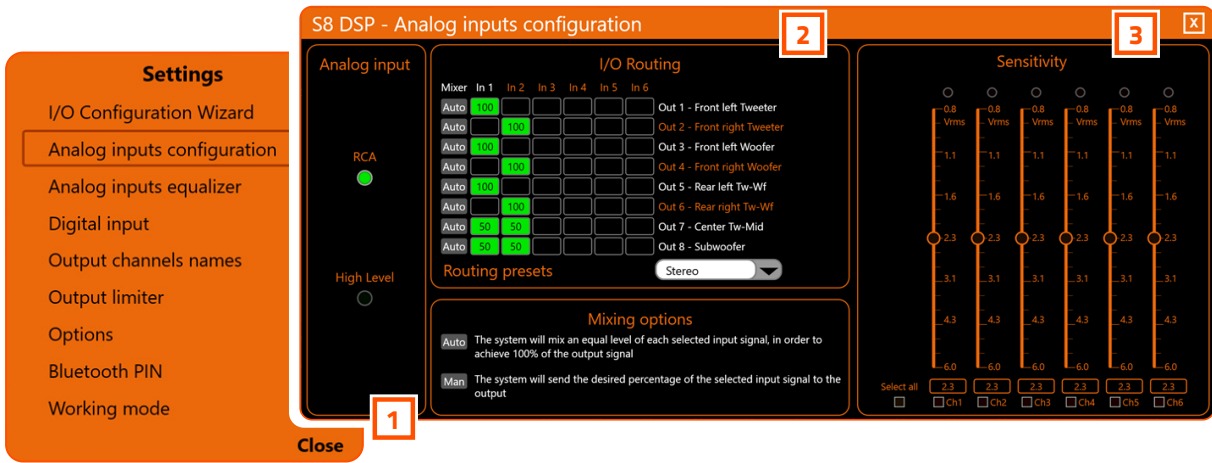
**1 I/O Configuration Wizard**

It is possible to start the wizard for setting the S8 DSP ([see section 7.5](#)).



- press **Start** to start the wizard.
- press **Cancel** to interrupt the operation and return to the main screen.

**2 Analog inputs configurations**



**1 Analog Input**

It is possible to select the type of analog input used: RCA (PRE IN) or High Level (SPEAKER IN) [\(see section. 7.5.4\).](#)

**2 I/O Routing**

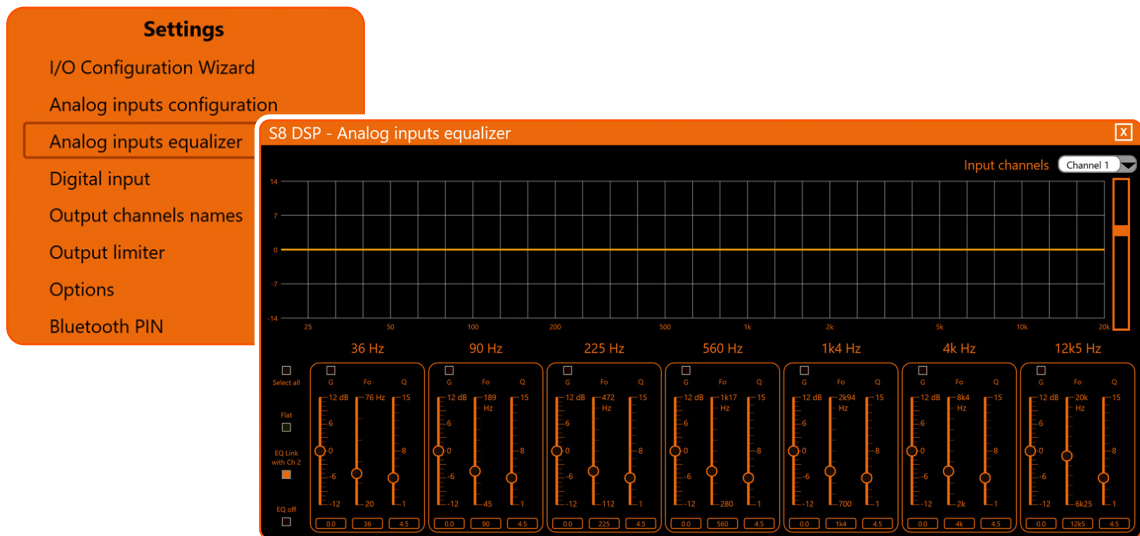
It is possible to change the assignment of the input channels on each output channel and adjust the mixing percentage [\(see section. 7.5.5\).](#)

**3 Sensitivity**

It is possible to calibrate the correct sensitivity of the S8 DSP inputs to adapt them to the signal coming from the source. [\(see section 7.5.6\).](#) The sensitivity scale will vary according to the type of analog input selected: RCA (0.8 - 6 Vrms) or Hi level (2.5 - 21 Vrms).

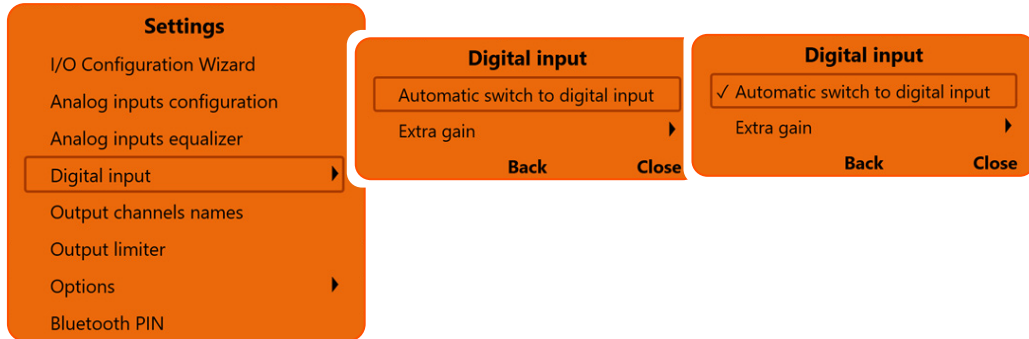
**3 Analog input equalizer**

The S8 DSP software provides an input equalizer, which can be managed by a maximum of 7 parametric equalization poles per channel, this operation is useful for correcting the outputs of OEM HU sources when they are equalized. [\(see section. 7.5.7\).](#)



**4 Digital Input**

Digital input functions

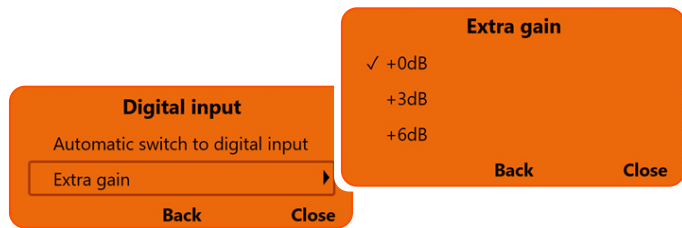


▪ **Automatic switch to digital input:**

by activating this function it is possible to select the optical digital input automatically when the digital audio signal is detected.

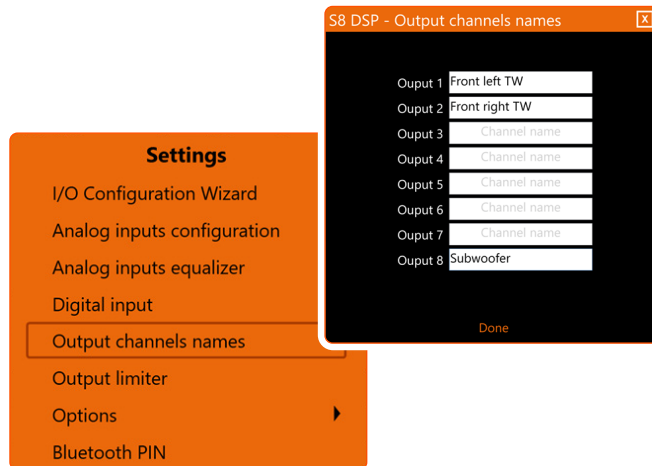
▪ **Extra gain:**

it is possible to set the gain of the optical digital input to +0dB (default), +3dB, +6dB.



**5 Output channel names**

It is possible to name each output channel with a maximum of 15 characters.

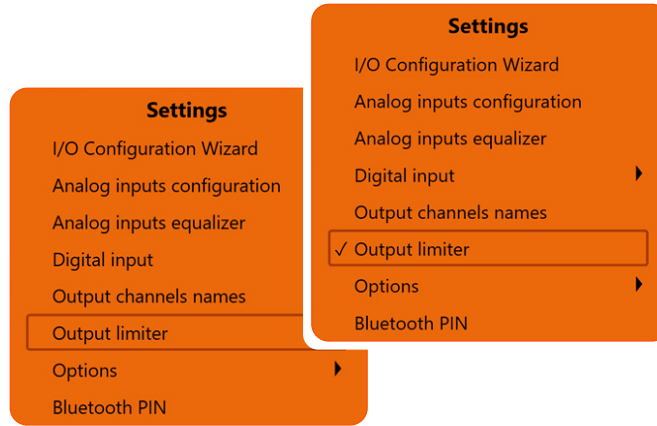


**Remark:** this function is only available if you have selected **Free placement** as the system mode.



**6 Output Limiter**

By activating this function it will be possible to enable the signal limiter on the S8 DSP output. This function is essential to compensate for transient clipping phenomena, which lead to saturation of the outputs. The function is disabled by default. It is possible to activate this function by clicking on Output limiter (a check mark V will appear).

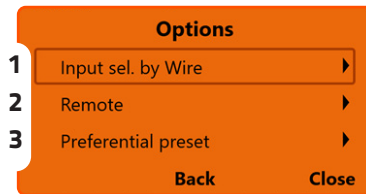


Clicking again on **Output Limiter** the function will be disabled.

**7 Options**

It is possible to select:

- 1. Input sel by wire**
- 2. Remote**
- 3. Preferential preset**

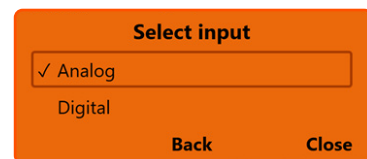
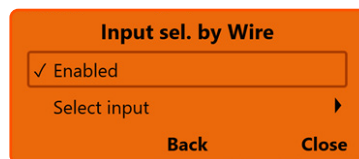
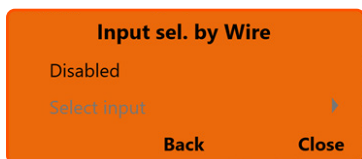


- press **Back** to go back to the settings menu.
- press **Close** to cancel the operation and return to the main window.

**1. Input sel. By Wire**

it is possible to switch to a selected input (Analog or Digital) by connecting the IN SEL terminal to the MEM GND terminal ([see section 5.1](#))

**Remark:** removing the connection between the IN SEL terminal and the MEM GND terminal will restore the previously active input.



- **Disabled:** the function is not active
- **Enabled:** the function is enabled
- **Select input:** it is possible to select the selected input when switching

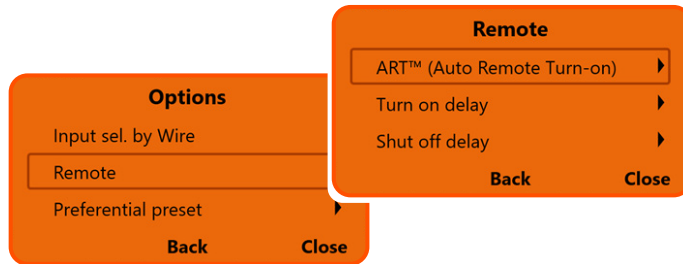
- press **Back** to go back to the Options menu.
- press **Close** to go back to the main window.





**2. Remote**

It is possible to manage the ART function (Auto Remote Turn-On) and the turn on and off settings of the S8 DSP.

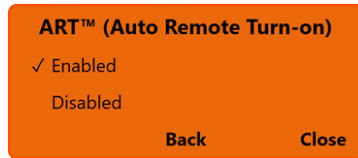
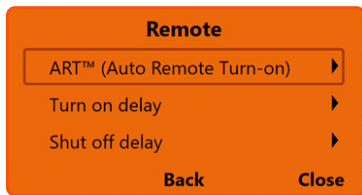


- **ART (Auto Remote Turn-on)**
- **Turn on delay**
- **Shut of delay**

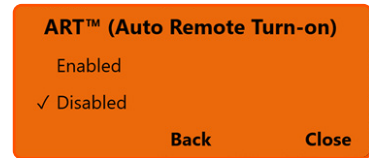
- press **Back** to go back to the settings menu.
- press **Close** to interrupt the operation and go back to the main window.

● **ART (Auto remote turn-on)**

It provides the ability to turn on S8 DSP through the amplified output (BTL) of a source connected to the SPEAKER IN Ch1-Ch2 inputs. [\(see section 5.2.3\)](#)



- select **Enabled** to enable the function

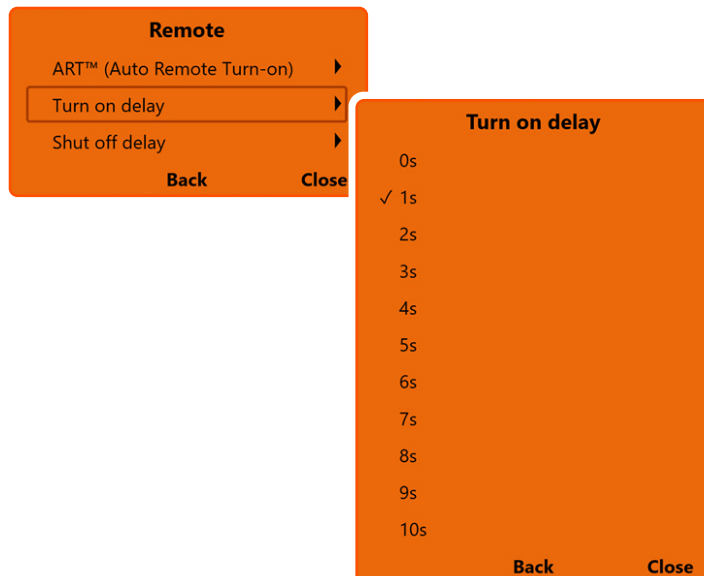


- select **Disabled** to disable the function

- press **Back** to go back to the Remote menu.
- press **Close** to go back to the main window.

● **Turn on delay**

it is the delay between switching on the device and the activation of the audio output. Each amplifier has its own delay in the start-up phase before being operational. By setting Turn On delay to a value equal to or greater than the longest of these delays, you will have a synchronized start of the audio of the entire system.

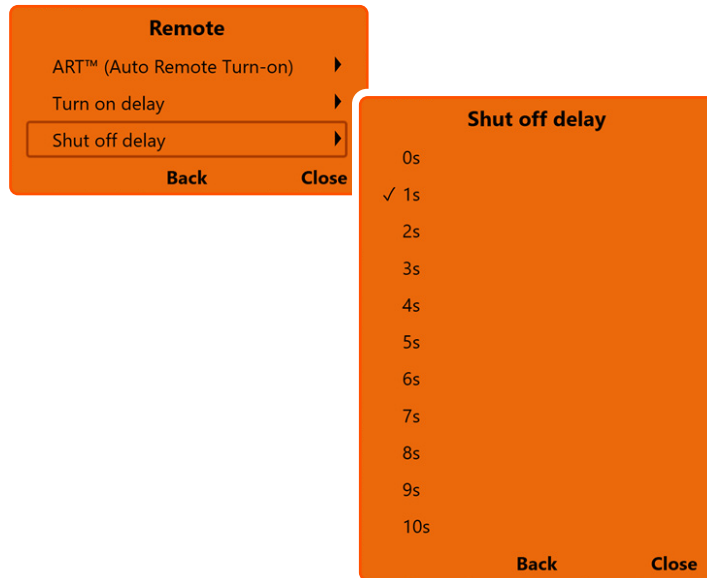


- press **Back** to go back to the Remote menu.
- press **Close** to go back to the main window.



● **Shut off delay**

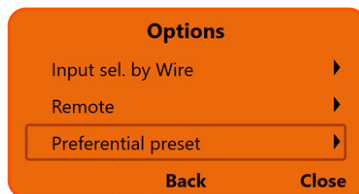
it is the delay between the deactivation of the REMOTE OUT signal towards the amplifiers and the switching off of the S8 DSP. It is generally not necessary to act on this parameter but it can be useful if you have amplifiers that produce a "Bump" when turned off.



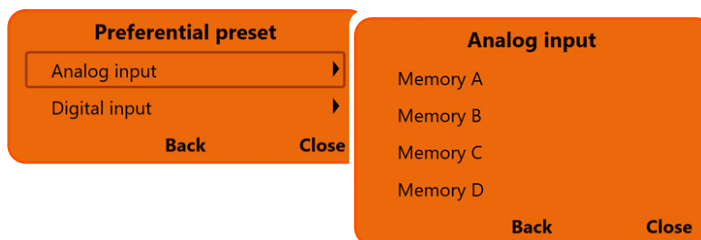
- press **Back** to go back to the Remote menu.
- press **Close** to go back to the main window.

**3. Preferential preset**

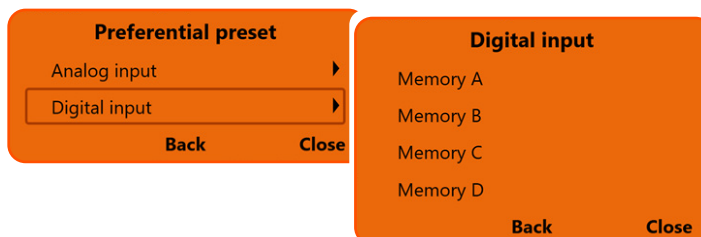
It provides the ability to associate a memory to the available inputs [\(see section 8.2\)](#).



Select **Analog** Input to associate a memory from A to D to the Analog input.



Select **Digital** Input to associate a memory from A to D to the Digital input.



- press **Back** to go back to the previous menu.
- press **Close** to go back to the main window.

**8 Bluetooth PIN**

It provides the ability to manage the PIN for the connection between S8 DSP and the PC/MAC.

By selecting **No** on the Enabled drop-down menu, the 6-digit pin request for the bluetooth connection is disabled.

By selecting **Yes** on the Enabled drop-down menu, the 6-digit pin request for the bluetooth connection is enabled.

**Pin replacement**

To replace the PIN (000000 default), click on the first white box on the left (the box turns green) then enter the numbers chosen for the PIN.

**Remark:** to make the change effective, you will need to finalize the setup on the S8 DSP ([see section.8.1.5](#))

- **press Later** to subsequently finalize the new setup (the software will keep the changes made in the bluetooth menu in memory).
- **press Now** to immediately finalize the new setup.
- **press Cancel** to interrupt the operation and return to the main menu (the software will not store in the memory if changes have been made in the bluetooth menu).

**WARNING:** the Bluetooth PIN function is not available in OFF LINE mode.



**9 Working Mode**

The image shows a sequence of three screenshots from the S8 DSP software interface. The first screenshot is the 'Settings' menu with 'Working mode' highlighted. The second screenshot is a 'Working mode' dialog box where 'Standard mode' is selected with a checkmark. The third screenshot is another 'Working mode' dialog box where 'Expert mode' is selected with a checkmark. Both dialog boxes have 'Back' and 'Close' buttons.

- **Standard mode:** simplified procedure with some constraints that facilitate the use of the software ([see section.8.6](#)).
  - **Expert mode:** there are no restrictions on the functions to use the software ([see section.8.6](#)).
- press **Back** to go back to the Settings menu.
  - press **Close** to go back to the main window.



**8.3 MAIN MENU "MEMORY"**

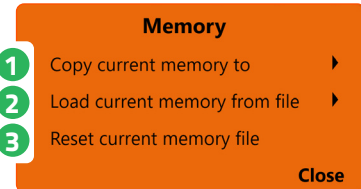
**3**

The S8 DSP manages the system configuration by working by default on memory A, giving the ability to save and recall four memories (A, B, C, D). [\(see section.8.10\)](#)

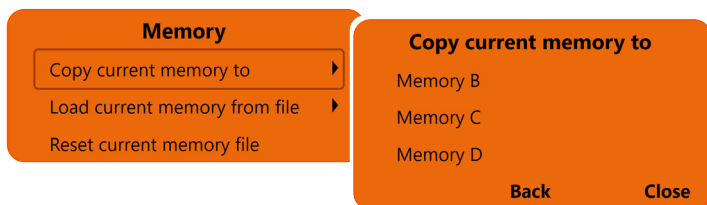
In the memories the following data will be stored:

- the filter, time delay and phase settings for each channel;
- the equalization settings for each output channel;
- the output levels of the individual channels.

By pressing the MEMORY key on the main menu line, you can access operations that can be performed between the memories themselves:

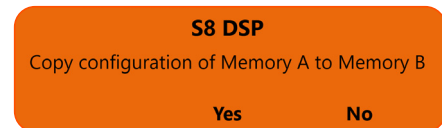


**1 Copy current memory to:**  
allows you to copy the content from one memory to another.



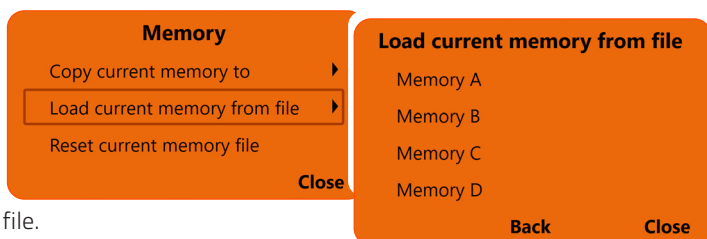
- select the memory on which to copy the current setting.

- press **Yes** to confirm.
- press **No** to cancel.



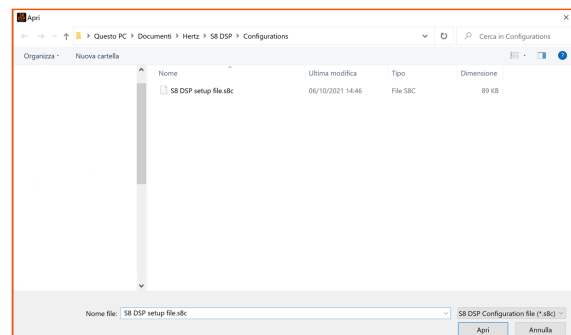
- press **Back** to go back to the **Memory** menu.
- press **Close** to go back to the main window.

**2 Load current memory from file:**  
It loads a specific memory by taking it from a previously saved setup file (**Eg "S8 DSP setup file.s8c"**), placing it in the memory you are working on.



- select the memory available in the setup file.

- press **Back** to go back to the **Memory** menu.
- press **Close** to go back to the main window.

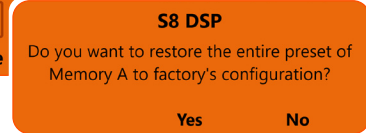
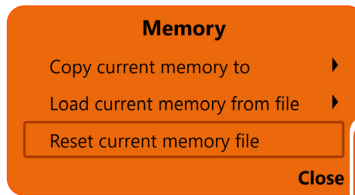


**3 Reset current memory file:**

It restores the crossover, equalization and volume levels of the standard outputs, those that would be proposed at the end of the configuration procedure.

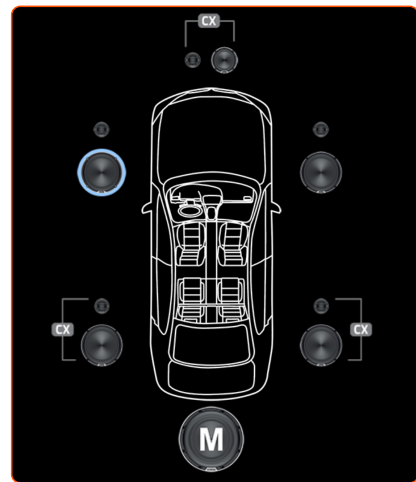
- press **Yes** to confirm.
- press **No** to cancel.

- press **Back** to go back to the **Memory** menu.
- press **Close** to go back to the main window.



**8.4 CHANNEL MAP** 4

In this window you can view both the type and composition of the system, you can click directly on the speaker or group of speakers to view or set the parameters of the single channel. Once selected, the speaker/s will appear highlighted.



**8.5 CHANNEL LIST** 5

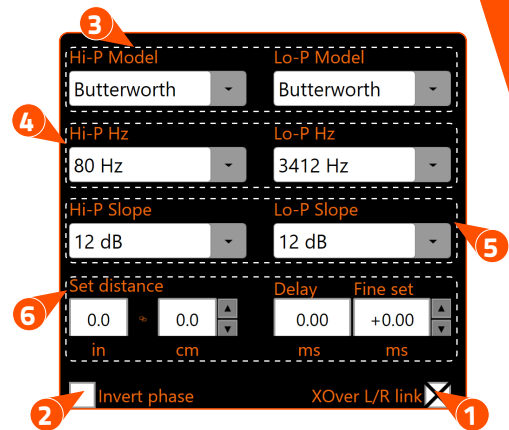
In this window you can view both the type and composition of the system, you can click directly on the description of the speaker or group of speakers to view or set the parameters of the single channel. Once selected, the speaker/s will appear highlighted.

- If the **MUTE** on the channel is active, the message "**m**" will appear
- If the **SOLO** function is active, the message "**s**" will appear
- If there are time delays on the channel, the message "**fds**" will appear
- If phase inversion has been activated on the channel, the word "**±**" will appear.



**8.6 CROSSOVER SETTINGS** 6

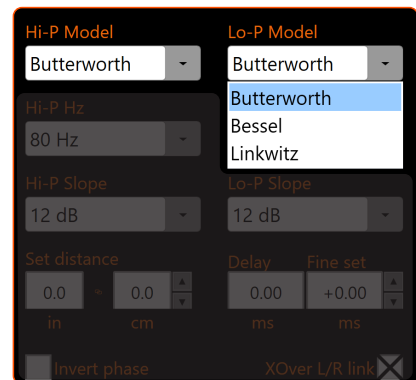
S8 DSP manages 8 crossovers, one for each output channel. Each filter allows you to adjust all the parameters relating to the channel highlighted in the **Channel List**.



**1 Xover L/R Link:**  
with the option enabled, the changes applied to one of the channels (right or left) will automatically be made to the other as well. Xover L/R Link affects all Crossover Settings except Set Distance (Delay).

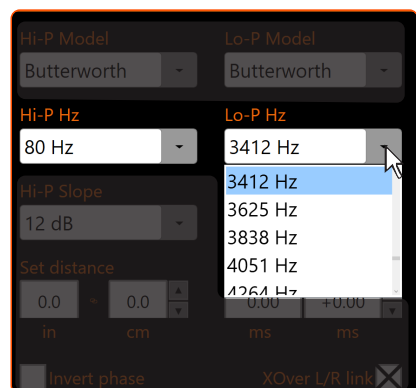
**2 Invert Phase:**  
it allows you to invert the phase of the selected channel by 180°. This function can be useful for solving phase alignment problems between the various filtered channels.

**3 Filter Model:**  
**Hi-P Model / Lo-P Model**  
- By clicking on the drop-down menus you can select the type of filter/s applicable to the selected output channel:  
- **Butterworth**  
- **Bessel**  
- **Linkwitz**



When starting the software, S8 DSP proposes Butterworth as a standard filter model. By changing the model in Linkwitz or Bessel, the change will be made only to the channel (mono) or channels (stereo - Xover Link activated) concerned.

**4 Cut Frequency:**  
By clicking on the drop-down menus you can select the desired cut-off frequency of the filter (s) applied to the selected output channel.  
**Hi-P Hz 20 ÷ 20480: filtro High-Pass**  
**Lo-P Hz 20 ÷ 20480: filtro Low-Pas**



**5 Filter Slope:**

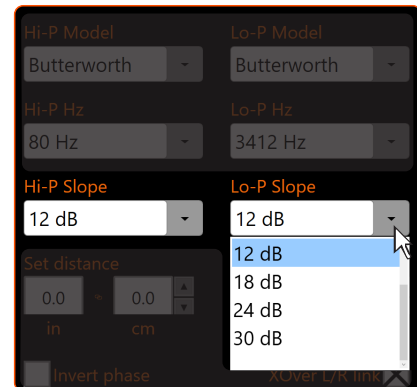
By clicking on the drop-down menus you can select the slope of the filter/sl applied to the selected output channel.

**- Hi-P Slope:**

- 0/6/12/18/24/30 dB/Oct. (Butterworth)
- 0/6/12/18/24/30 dB/Oct. (Bessel)
- 0/12/24 dB/Oct. (Linkwitz)

**- Lo-P Slope:**

- 0/6/12/18/24/30 dB/Oct. (Butterworth).
- 0/6/12/18/24/30 dB/Oct. (Bessel).
- 0/12/24 dB/Oct. (Linkwitz).



When starting the software, the S8 DSP proposes Butterworth with a standard slope of 12 dB/Oct. By changing the filter slope, the change will only be made to the channel you are working on.

**E.g.:** if you are adjusting the Front Woofer, the change will affect only this channel (right and left if they are linked).

In **STANDARD** mode [\(see section 8.2.9\)](#):

Depending on the speaker or speaker system selected during configuration, a suitable type of filter will be available.

**E.g.:** for the Front Woofer both Hi-P and Lo-P Models will be available, for the Front Tw only Hi-P Model will be available, etc. An optimized cut-off frequency is set by default to avoid speaker breakdown and limits on selectable frequencies will be applied.

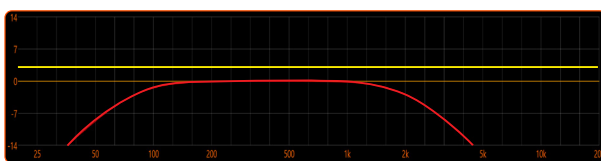
In **EXPERT** mode [\(see section 8.2.9\)](#):

Any loudspeaker or speaker system you select has any type of filter and cut-of frequencies available.

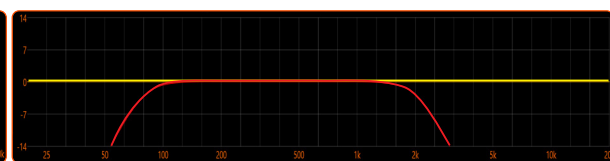
**Remark:** with the slope set to 0dB the filter is disabled.

**WARNING:** in **EXPERT** mode, due attention must be paid to filter adjustment. Loudspeakers have mechanical limits which must not be exceeded and which could lead to their breaking.

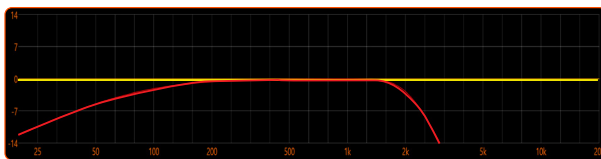
The response of the crossover filter for the selected channel is graphically displayed by a red curve, as in the examples below.



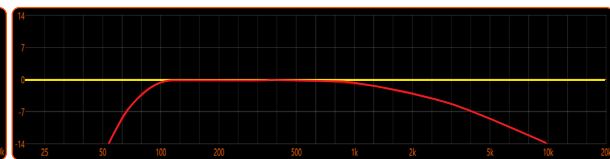
Crossover frequency 80 Hz @ 12dB Oct  
Hi-pass - 2000 Hz @ 12 dB Oct Low-pass



Crossover frequency 80 Hz @ 24 dB Oct.  
Hi-pass 2000 Hz @ 24 dB Oct. Low-pass



Crossover frequency 80 Hz @ 6 dB Oct.  
Hi-pass 2000 Hz @ 24 dB Oct. Low-pass.



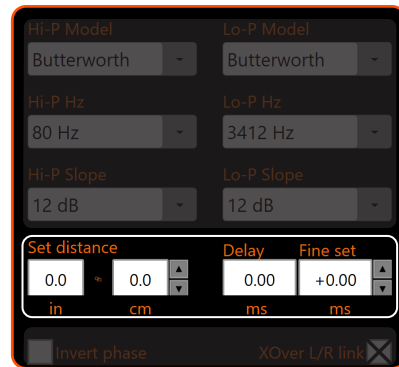
Crossover frequency 80 Hz @ 24 dB Oct.  
Hi-pass 2000 Hz @ 6 dB Oct. Low-pass.

**6 SET DISTANCE & DELAY:**

This setting is based on an automatic system that allows you to calculate the time it takes for the sound of the speaker to reach the ear.

**Preliminary Remarks**

sound moves through the air at a speed of 343 m/sec (1,125 ft / sec.) at a temperature of 20 ° C (68 ° F). If you know the distance of the sound emission point, it is therefore possible to calculate the time it takes for the sound to reach the ear. If you set the distances of the various speakers, the automatic system of the S8 DSP transforms them into time (ms-milliseconds). It does not assign the delay (0.0 ms) to the farthest speaker (usually the Subwoofer) and assigns increasing delays as the position of the other speakers approaches, so that all emission points can reach the listening point at the same time.



**Fine set and phase delay**

The assignment of the delay based on the distance calculation is theoretical. In practice, small variations must be made due to small distance measurement errors, due to the resonances of the listening environment, and mainly, due to the speaker phase problem. Two loudspeakers that reproduce two zones of neighbouring frequencies (*Eg Woofer and Midrange*), in the crossing zone will reproduce the same frequencies at the same time, at an attenuated level. Due to the different nature of the loudspeakers, these will present a phase diversity which, for a small frequency range, behaves like a time delay

By operating on "Fine set" it is also possible to partially correct **Phase Delay** problems.

By operating on the "Fine set" buttons it is possible to change the delay time set automatically. The delay that is varied is added to (+ x.xx) or reduced from (-x.xx) the value of the delay shown in the "Delay" window, which does not change the value shown which is the one assigned automatically. Assigning a positive value (+ x.xx) with the "Fine set" means increasing the delay of that speaker and therefore moving it away from the listening point. Similarly, assigning a negative value (-x.xx) means decreasing the speaker delay and therefore bringing it closer to the listening point.

To allow you to evaluate how much the "fine set" has changed manually, both values are shown. To have the resulting delay value, physically applied to the output, it is necessary to calculate the algebraic sum of the values shown in the "Delay" and "Fine set" boxes. The negative value (decreasing delay) cannot be assigned to the farthest loudspeaker but only to the others others as they are already all delayed with respect to it. If you try to give a negative value to the farthest speaker, an alert message will appear (Fig. 1).



(Fig.1)

By operating on the "fine set" the word "fds" will light up on the corresponding channel of the "Channel Map" (Fig.2).



(Fig.2)

**SET DISTANCE**

It allows the user to set the distance between the speaker concerned and the listening point. Choose cm (centimeters) or in (inches). The "Set Distance" boxes can be set with the cursor using the buttons.

**DELAY ms**

It displays the time in ms (milliseconds) calculated based on the distance.

**FINE SET ms**

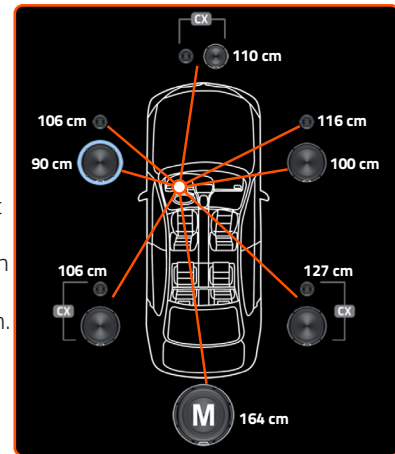
It displays the time in ms (milliseconds) calculated based on the distance. The S8 DSP's time delay calculation system also allows manual fine-tuning. The "Fine set" box can be set with the cursor using the buttons.



**Example:**

setting of time delays on a car (Fig.3).

1. Select the system listening point. To locate the listening point, choose an ideal point positioned in the center of the listener's head (driver or passenger). For the front and rear center points, choose an intermediate point between the two listeners.
2. Measure the distance of each speaker or group of speakers with respect to the listening point in a straight line (as the crow flies). For the single loudspeaker, choose the center of the mobile membrane as the emission point. For speaker groups, choose an intermediate point between them. Subsequently, fine tuning can be performed by selecting the Fine Set unction.
3. Select the channel related to the speaker under consideration on the Channel Map and enter the related distance value in the Set Distance box in the Crossover Settings menu.
4. Repeat point 3 for each channel.
5. Once all the time delay settings have been made, start music playback and adjust the Fine Set box. By moving the values to positive or negative (except the subwoofer because it is the farthest speaker) you can find the optimal time alignment to have a correct acoustic scene. It is advisable to listen to different types of musical tracks (percussion, melodic, etc.) for a more correct evaluation of the coherence (spatial stability) of the various musical instruments
6. Once the time alignment procedure has been completed, it is possible to intervene on the output equalizer (see section 8.7) to optimize the system response according to the level alignment at the various frequencies.

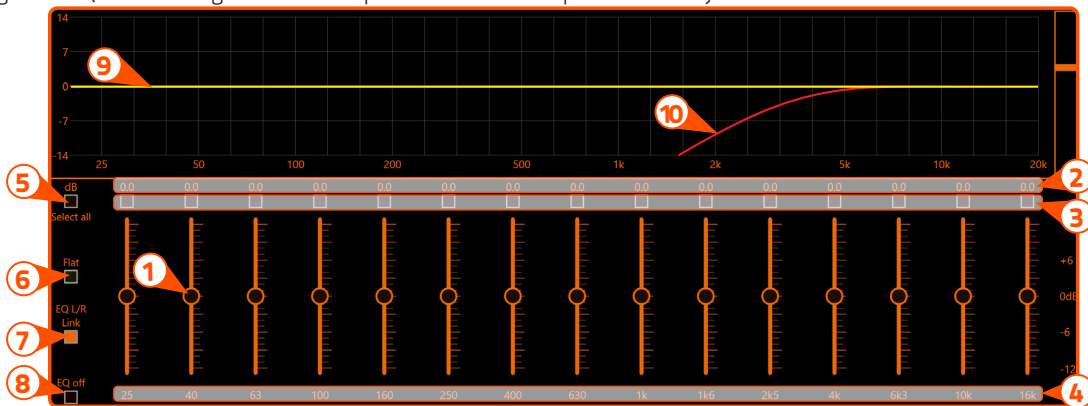


(Fig.3)

**Remark:** the measurements for the previous operations can also be carried out instrumentally by means of a spectrum analyzer equipped with a special microphone. The result must in any case be evaluated and optimized with listening tests.

**8.7 OUTPUT EQUALIZER** 7

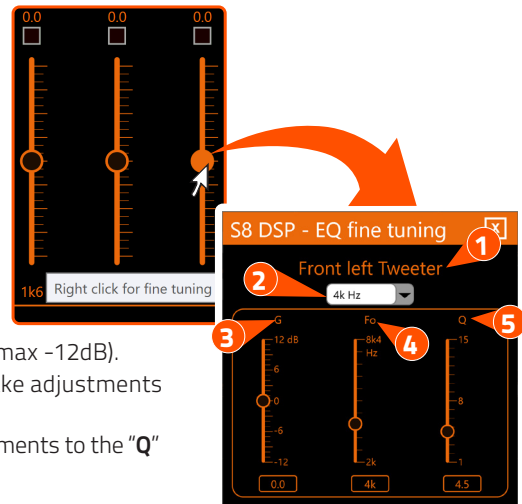
The S8 DSP software provides an output equalizer, which can be managed by up to 15 equalization bands for each channel. Through the EQ Fine Tuning function it is possible to make a parametric adjustment for each band.



- 1 **Equalization bands:** by operating the sliders it will be possible to adjust the gain of the selected band ( $G_{min} + 12dB \div G_{max} - 12dB$ ), by double clicking on the slider it is possible to restore the gain to 0dB.
- 2 **dB:** this part of the screen displays the Gain (dB) values set for each equalization band.
- 3 By clicking on the buttons it is possible to select a group of equalization bands for which the Gain levels can be adjusted at the same time. By clicking on the button again, the function will be disabled.
- 4 **Hz:** in this part of the screen the frequency values  $F_0$  (Hz) set for each equalization band are displayed.
- 5 **Select all:** by clicking on the "Select all" button it will be possible to adjust all the Gain levels of the equalization bands at the same time. By clicking on the "Select all" button again, the function will be disabled.
- 6 **Flat:** by clicking on the Flat button, the gains of all bands will be returned to the 0 dB position.
- 7 **EQ L/R Link:** when active, it applies the equalization curve of the left channel to the right channel or vice versa.
- 8 **EQ off:** by clicking on the EQ off button, the equalizer on the selected channel or 2 channels (EQ Link active) is disabled to check the effect without losing the settings. By clicking on the "EQ off" button again, the function will be disabled.
- 9 It is the equalization curve that will be applied to the output signal.
- 10 It is the electrical response curve of the output signal subjected to filtering (XOVER) and equalization.

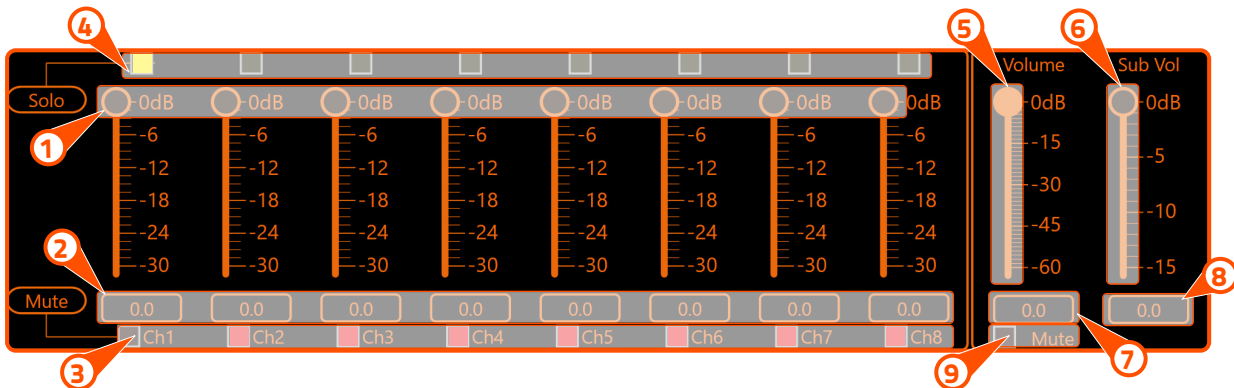
**EQ Fine Tuning** parametric adjustment. It is possible to change the parameters of each equalizer band clicking with the right mouse button on the slider, after that **"fine tuning"** will appear next to it, then click with the left button on the wording to open the **"EQ Fine Tuning"** menu.

- 1 in this part of the screen the name of the output channel being equalized is displayed.
- 2 in this drop-down menu, by selecting the frequency, it is possible to change the band (s) of the equalizer on which to intervene.
- 3 **G (dB)**: by operating the **"G"** slider, it will be possible to make adjustments to the gain of the selected band (Gmin +12dB ÷ Gmax -12dB).
- 4 **Fo (Hz)**: By operating on the **"Fo"** slider, it will be possible to make adjustments to the frequency of the selected band.
- 5 **Q**: By operating on the **"Q"** slider, it will be possible to make adjustments to the **"Q"** quality factor of the selected band (Q: 1 ÷ 15 step min 0.1).



## 8.8 OUTPUT LEVEL 8

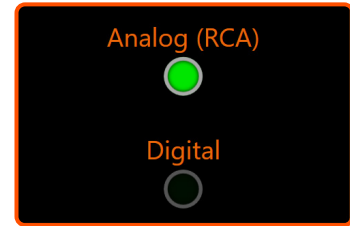
This section shows the settings relating to the output levels of the S8 DSP active channels on the screen.



- 1 By operating on one of the sliders belonging to the output channels, it will be possible to adjust the output level (-30 ÷ 0 dB) for each channel.
- 2 This part of the screen shows the output level of each individual channel (-30 ÷ 0 dB), referring to the position of the output channels slider.
- 3 By clicking on the **"Mute"** button it will be possible to mute the output channels referred to it. By clicking on the **"Mute"** button again, the mute function will be deactivated.
- 4 By clicking on the **"Solo"** button it will be possible to mute the output channels excluding the activated one. By manually clicking on the **"Solo"** button this function will be disabled.
- 5 By operating on the **"Volume"** slider, it will be possible to make adjustments to the overall system output level (-60 ÷ 0 dB).
- 6 By acting on the **"Sub Volume"** slider it will be possible to adjust the subwoofer output level (-15 ÷ 0 dB), if present in the system.
- 7 This part of the screen indicates the general output level of the system (-60 ÷ 0 dB).
- 8 This part of the screen indicates the subwoofer output level (-15 ÷ 0 dB).
- 9 By clicking on the **"Mute"** button it will be possible to mute the general output.

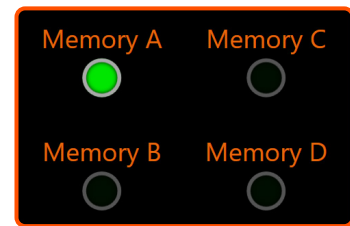
**8.9 SELECT INPUT** 9

The window will show and give the possibility to select the active input source when connecting with the PC/MAC.



**8.10 MEMORY** 10

The S8 DSP manages the system configuration by working by default on memory A, but provides the ability to save and recall four memories (A, B, C, D).



**8.11 DEVICE INFO** 11

This window shows:

- if you are using the software in STANDARD or EXPERT mode ([see section. 8.2.9](#))
- if the ART function is activated ([see section. 8.2.7.2](#))
- if the LIMITER function is activated ([see section. 8.2.6](#))
- the battery voltage
- the connection mode to the PC/MAC: USB or BT ([see section. 7.2 - 7.3](#))
- the device Firmware version
- the device Serial Number
- if S8 DSP is connected to the PC/MAC
- the Input clipping indicator (**CLIP**)





## 9. TROUBLESHOOTING

### 1. S8 DSP operating problems

If, when calibrating the system with S8 DSP connected to a PC/MAC there are operating problems, try disconnecting the PC/MAC power supply cable. With the PC/MAC working on battery power you avoid a possible voltage difference in the USB ground between the processor and the ground (PC).

### 2. Connection lost between S8 DSP and PC/MAC

If, while calibrating the system with the PC/MAC connected to S8 DSP, the processor is turned off and back on again, the connection is lost and the software cannot finalize the adjustments that were set. To avoid losing the settings, proceed as follows:

- a- Save the setup to a file on the PC/MAC using the FILE/SAVE function.
- b- Exit the software.
- c- Turn S8 DSP on.
- d- Launch the software again.
- e- Load the setup file again that was saved using the FILE/LOAD function

### 3. S8 DSP does not respond

If, while calibrating the system with the PC/MAC connected to S8 DSP, the processor does not respond to the commands, proceed as follows:

- a- turn S8 DSP off:
  - by disconnecting the Remote IN, or
  - by briefly disconnecting the power supply cable;
- b- Save the setup to a file on the PC using the FILE/SAVE function;
- c- Exit the software;
- d- Turn the S8 DSP on;
- e- Launch the software again;
- f- Load the setup file again that was saved using the FILE/LOAD function

### 4. Settings not stored

In order to successfully complete the S8 DSP setup and not lose the settings performed, remember to store the selected settings. Select File from the main software menu via the PC and then choose Finalize to S8 DSP.

## 9.1 BACKGROUND NOISE

### Loud whistle / background hiss.

In case a loud whistle / background hiss can be heard, it may be necessary to repeat the input sensitivity setup and / or to rectify the output levels adjustment. For more information, [\(see sections. 7.5.6 - 8.8\)](#).



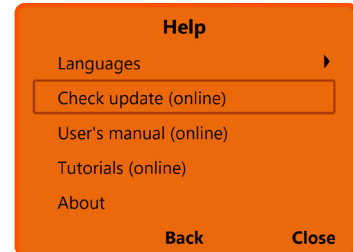
**9.2 FIRMWARE UPGRADE**

If there are product UPGRADES available online, proceed as follows:

- Save the previous setup (if you wish to consult it in OFFLINE mode);

1. Start the S8 DSP software

2. Access the "Help" menu and select "Check updates"



3. When selecting "Check updates", if there are updates available, the following window will appear:

- press **Yes** to open the internet browser on the PC/MAC where the search for the **HERTZ download area** will automatically start.
- press **No** to cancel the operation.



**WARNING:** it is necessary to download the files manually from the website.



The method of accessing the software may differ from the one described below. Refer to the instructions on the website

4. Once the relevant page is open, click on the appropriate product **LINK**.

5. Locate the most updated file named "**Hertz\_S8\_DSP\_xx\_xx\_xx.dsp**" and click on the specific symbol to start the download. When prompted, save the file on your PC.

**WARNING:** S8 DSP Firmware update procedure may be delicate. It is extremely important that it is performed under the best possible conditions. If the operation is started and prematurely interrupted (**E.g.: PC locked up, accidental disconnection of the USB cable during update**), our After Sales Service might need to be contacted to reprogram the S8 DSP.

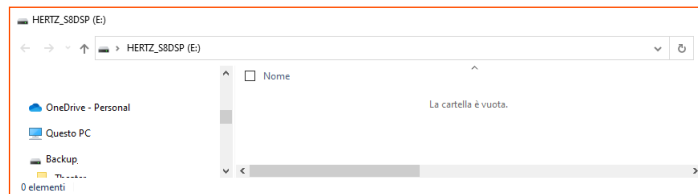
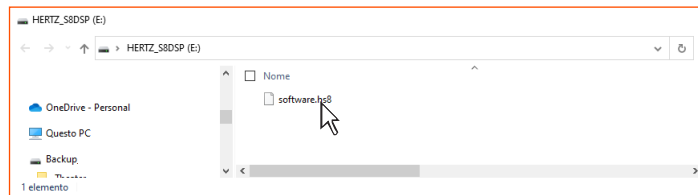


6. To perform the update:

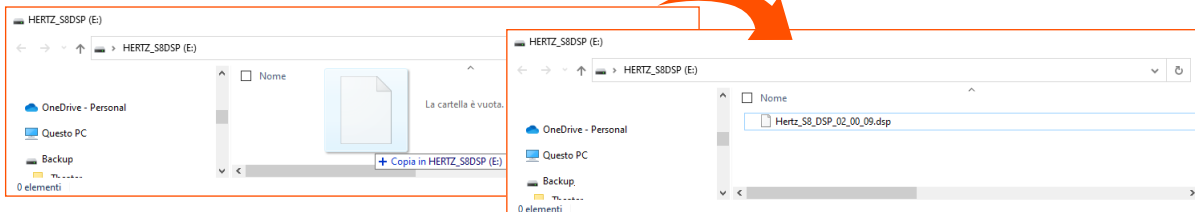
- Turn S8 DSP off (led status off);
- Connect the USB cable from PC/MAC to S8 DSP (white color led status);
- S8 DSP will be acknowledged by PC/MAC as a USB mass storage device "HERTZS8DSP (X :)" with a file name "**software.hs8**" inside;



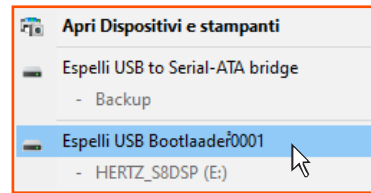
- Cancel the file "**software.hs8**";



- Copy the "**Hertz\_S8\_DSP\_xx\_xx\_xx.dsp**" file previously downloaded to the PC/MAC into the empty folder. Wait for the transfer to complete.

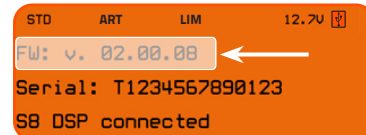


- close the window, perform a "safe removal of hardware and eject media" to eject the USB device "HERTZS8DSP (X :)";
- disconnect the USB from the processor



## 7. Turn S8 DSP on

- Start the PC/MAC software and connect the processor ([see section.7.2 - 7.3](#))
- Check that the firmware version (**FW: v. Xx.xx.xx**) on the "Device Info" window corresponds to the one previously downloaded and copied into the processor ("**Hertz\_S8\_DSP\_xx\_xx\_xx.dsp**").



## 10. TECHNICAL SPECIFICATIONS

### POWER SUPPLY

Nominal Power supply voltage / fuse:	7 ÷ 20 VDC 1A
Pulse operating voltage:	5 ÷ 24 VDC
Idling current:	0.34 A
OFF current (ART™= OFF):	<80 µA
OFF current (ART™= ON):	<80 µA
Remote IN:	6 ÷ 20 VDC (10 mA)
Remote OUT:	4 ÷ 20 VDC (150 mA)
ART - Automatic Remote Turn on/off from OUTPUT BTL speakers (Selectable):	1.5 ÷ 7 VDC

### SIGNAL STAGE

Distortion - THD @ 1 kHz, 1 VRMS Output:	0.004 %
Bandwidth @ -3 dB:	10 Hz ÷ 40 kHz
S/N ratio @ A weighted, 4 V Output, 1 V Master Input:	100 dBA
S/N ratio @ A weighted, 4 V Output, 1 V Digital IN Input:	112 dBA
Channel Separation @ 1 kHz:	97 dBA
Input sensitivity Pre-In:	0.8 ÷ 6 VRMS
Input sensitivity Speaker-In:	2.5 ÷ 21 VRMS
Input Impedance:	10 kΩ (Pre IN/AUX) 4,7 Ω (Speaker IN)
Max output Level 0,1%THD:	4 V

### INPUTS STAGE

Low level (Pre):	Ch1 ÷ Ch6 Input/Output Matrix Routing
Hi-Level:	Ch1 ÷ Ch6
Digital IN:	1 x Optical S/PDIF; Max 96 kHz / 24 bit; Extra Gain +3 dB, +6 dB

### OUTPUT STAGE

Low level (Pre Out):	Ch1 ÷ Ch8;
Output Equalizer	15 poles Parametric EQ: ±12 dB; 20 ÷ 20 kHz

### CONNECTION

From / to personal computer:	1 x micro USB
Bluetooth data connectivity (no audio):	BT 5.0 (BLE)

### CROSSOVER

Filter type:	Full / Hi-Pass / Low-Pass / Band Pass
Filter mode and slope:	Linkwitz @ 12 / 24 dB Butterworth @ 6 / 12 / 18 / 24 / 30 dB Bessel @ 6 / 12 / 18 / 24 / 30 dB
Crossover frequencies:	20 ÷ 20 k Hz (120 step)
Phase control:	0° / 180°

### EQUALIZER (20 HZ ÷ 20 kHz)

Inputs:	Parametric EQ: +12 dB ÷ -12 dB; 7 poles (for each input channel)
Outputs:	Parametric EQ: +12 dB ÷ -12 dB; 15 poles (for each output channel)

### GENERAL

Memory Preset:	4 x Preset
Memory Preset selection:	Through the Control Software or by wire

### TIME ALIGNMENT

Distance:	0 ÷ 471,5 cm / 0 ÷ 185.5 in.
Delay:	0 ÷ 13,58 cm
Step:	0,02 ms, 0,7 cm / 0.27 in.

### GENERAL REQUIREMENTS

PC connections:	1 x USB 1,1 / 2,0 / 3,0 Compatible or Bluetooth 5.0 BLE
Software / PC requirements:	Microsoft Windows (32/64 bit): Windows 8 (USB Only) Windows 10 (USB and BT BLE) Mac Os: 10.13 High Sierra or later
Minimum mobile device requirements:	Android OS 7 or later, iOS 12 or later
Video Resolution with screen resize	min. 1024 x 600
Ambient operating temperature range	0° C to 55° C / (32° F to 131° F)

### SIZE / WEIGHT

Max size W x H x D (mm/inch):	130 x 37 x 88,3 / 5.12 x 1.45 x 3.48
Weight (kg/lb):	0,66 / 1.45



Tutte le specifiche riportate sono soggette a cambiamento senza preavviso

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**HERTZ**  
The Sound Experience

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