The Car Audio Forge.

VE1200.5

BEDIENUNGSANLEITUNG / OWNER'S MANUAL

VISION² SERIES

OWNER'S MANUAL

Content

SPECIFICATIONS

	VE 1200.5
Channels	5
Watt RMS @ 4 Ohm	4 x 80 + 1 x 275
Watt RMS @ 2 Ohm	4 x 140 + 1 x 450
Watt RMS @ 1 Ohm only Subwoofer Channel CH5	1 x 640
Watt MAX. @ 4 Ohm	4 x 160 + 1 x 550
Watt MAX. @ 2 Ohm	4 x 280 + 1 x 900
Watt MAX. @ 1 Ohm only Subwoofer Channel CH5	1 x 1280
Maxi Fuse*	100 A
Efficiency Factor @ 4 Ohm	54% / 80%
Damping Factor	> 400
Signal to Noise Ratio	> 100 dB
Channel Separation	> 90 dB
Harmonic Distortion (THD&N)	> 0,05 %
Operating Voltage	12 - 16 V
Input Sensitivity	> 40 kOhm
CH1 & CH2	
Variable Highpass	10 Hz - 2500 Hz
Input Gain	0,15 - 9 V
Phase Shift CH1	0 - 180
Phase Shift CH2	0 - 180
CH3 & CH4	
Variable Highpass	10 Hz - 2500 Hz
Variable Lowpass	40 Hz - 4000 Hz
Input Gain	0,15 - 9 Volt
CH5	
Variable Lowpass	35 Hz - 1000 Hz
Variable Subsonic-Filter	10 Hz - 50 Hz
Input Gain	0,15 - 6 V
Bass Boost @ 45 Hz	0 - 18 dB
Phase Shift	0 - 180
Dimensions (L x H x W) in mm	257 x 60 x 550

All specifications are subject to change without notice

* suitable for 4 / 2 Ohm Operation (1 Ohm Operation only for music playback)

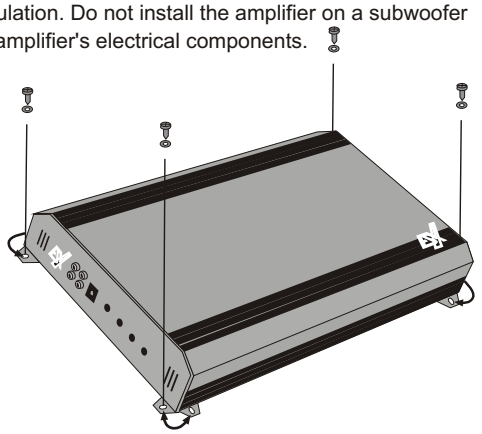
INSTALLATION
VE1200.5

General Installation Notes

The amplifier is generally mounted in the rear trunk area but can be mounted in any convenient area such as beneath a seat. Please be sure to locate this unit where you have reasonable air circulation and protection from moisture. When considering the mounting location you should minimize the length of the power and speaker leads. Minimizing both leads will yield a more reliable installation. It is also important to ensure that the heat sink fins are not against a panel or a surface, preventing air circulation. Do not install the amplifier on a subwoofer box or on vibrating parts of the vehicle, since the vibrations can cause damages to the amplifier's electrical components.

Installation of the amplifier

Mark the location for the mounting screw holes by using the amplifier as a template. Drill holes at the marked locations and firmly fasten the amplifier in place with the mounting screws supplied in the accessory kit. Before drilling or cutting any holes, investigate the layout of your automobile thoroughly: **Take care when working near the gas lines, the hydraulic lines or the electrical wiring at your car.**



Electrical Connection

Ground (GND)

This wire is the electrical ground and must be fastened securely to the vehicle chassis. The best method is to use a threading sheet metal screw since the threads cut into bare metal. Ensure that all paint or other insulation is removed around the hole area, and using self tapping screw, securely affix the bare wire ends to the vehicle chassis. Use a piece of cable which is as short as possible - use the same gauge as used for the +12V cable. Make sure that the connection is safe, a loose connection may result in amplifier noise and fault condition.

Remote (REM)

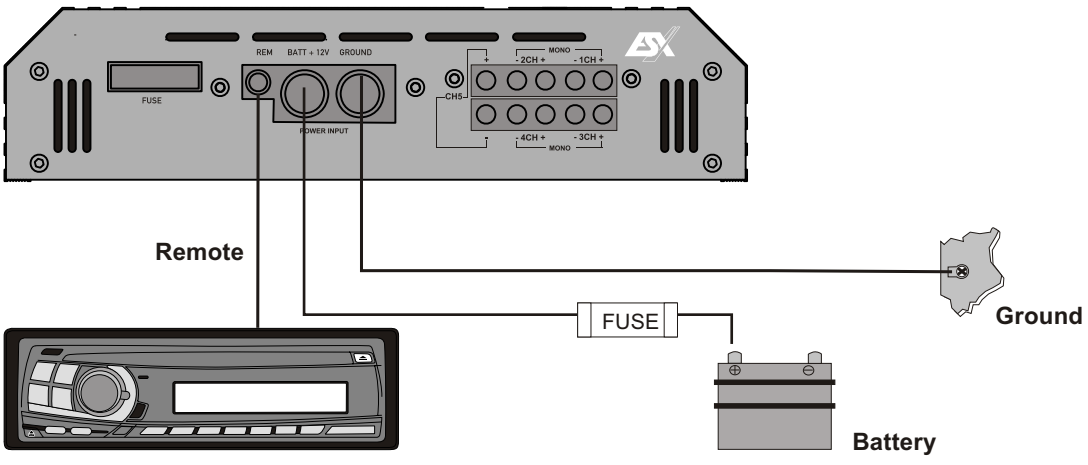
Many music sources have an output terminal for connection of the remote turn-on of the power amplifier. If a radio doesn't have a remote turn-on feature, then you can use the antenna relay wire, which activates the antenna motor. Please note, if the power antenna retracts when the radio is operating, then you cannot use the antenna relay wire to operate the remote turn-on.

Battery Connection (+12V)

This wire is usually connected directly to the positive battery terminal. Ensure that the + power supply wire is fused via an assigned fuse in line with the + power supply wire. Please use a sufficient gauge for the installed amplifiers (min 16-25 mm). This connection must be completed using spade plug with insulating sleeve. The ESX VE Vison amplifiers are optimized for a operating voltage of 12-16 Volts.

Maxi-Fuse (FUSE)

The mounted Maxi-Fuses protects the amplifier of short circuit and overload. If you have to replace the Fuses, only replace with a equivalent valued Fuse. The original installed Fuse is optimized for a 4 / 2 Ohm operation and 1 Ohm operation only for musical playback. In the 1 Ohm operation under constant load the current consumption is increased, this means you have to replace the original Fuse by a appropriate Fuse with a higher Value (Ask your retailer).



FUNCTIONS & CONTROLS FRONT-PANEL / REAR-PANEL
5-Channel Amplifer VE1200.5

F1 — **LINE OUTPUT**
Provides a full range line level (RCA) output that allows you to trigger additional amplifiers.

F2 — **INPUT GAIN (5CH / Digital Amplifier Section)**
Controls the Input Sensitivity of Channel 5 between 0,15 Volts and 6 Volts.

F3 — **BASS BOOST (5CH / Digital Amplifier Section)**
Allows you to adjust the BASS BOOST of Channel 5 from 0 up to 18 dB. Please use the Bass Boost carefully.

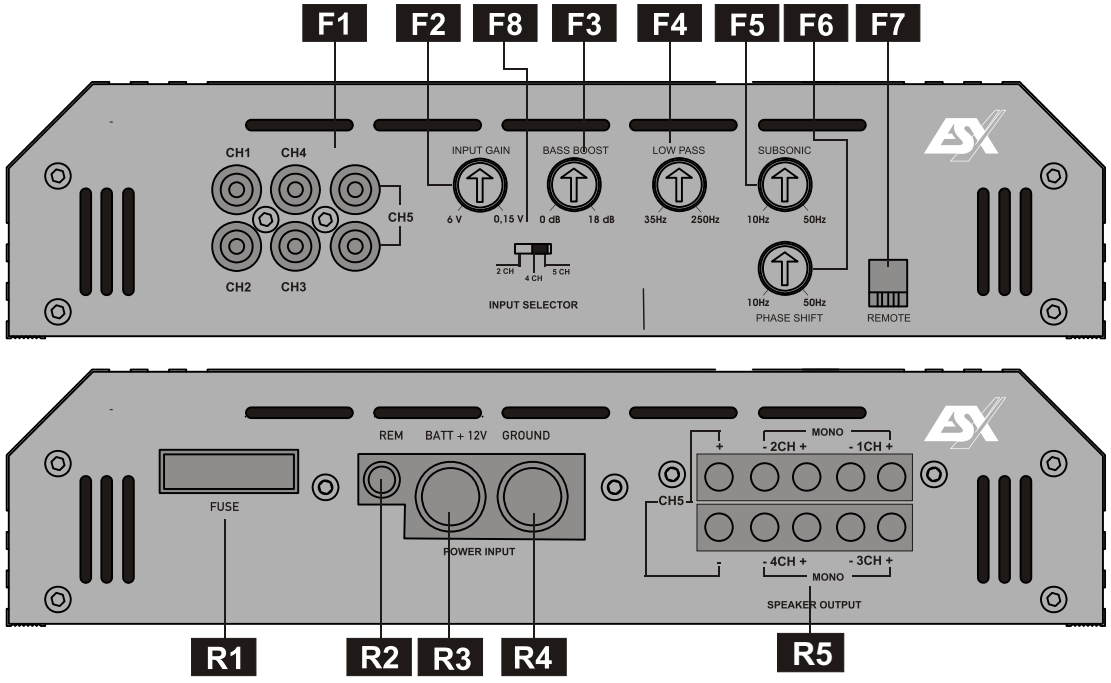
F4 — **LOW PASS (5CH / Digital Amplifier Section)**
Controls the cut-off frequency of the lowpass, that means the frequency response is limited upwards.
The cut-off frequency is continously variable from 40 Hz up to 4000 Hz.

F5 — **SUBSONIC (5CH / Digital Amplifier Section)**
Controls the lower cut-off frequency of the lowpass, that means the frequency response is limited downwards
The cut-off frequency is continously variable from 10 Hz up to 50 Hz.

F6 — **PHASE SHIFT (5CH / Digital Amplifier Section)**
Controls the Phase Shift of Channel 5 between 0 - 180 degrees.

F7 — **REMOTE**
Connection for Remote Control to adjust the Subwoofer Level from your seat.

F8 — **INPUT SELECTOR**
Allows to choose between a 2-Channel, 4-Channel, 5-Channel Inputsignal.



R1 — **FUSE**
Fuse block for the internal device protection. Attend the notes on page 11!

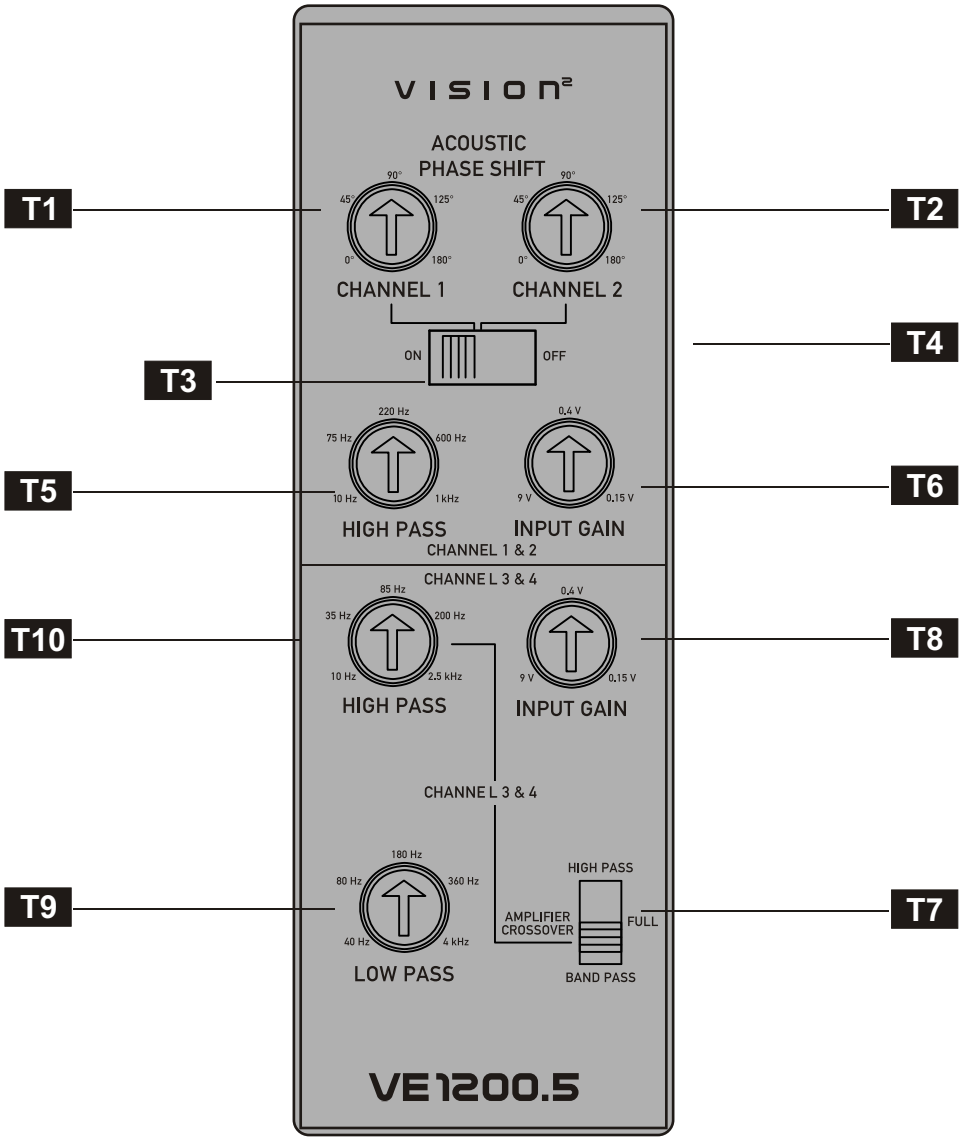
R2 — **REM**
Terminal for Remote turn on/off of the head unit. Attend the notes on page 12!

R3 — **BATT +12V**
Terminal for plus connection of the battery. Attend the notes on page 12!

R4 — **GROUND**
Terminal for ground connection (Minus terminal). Attend the notes on page 12!

R5 — **SPEAKER OUTPUT**
Terminals for loudspeakers. Attend the several examples of connections on the following pages!

FUNCTIONS & CONTROLS TOP-PANEL
5-Channel Amplifier VE1200.5



NOTE: If the amplifier's top-panel is white illuminated, the amplifier is in power mode. If the display is red illuminated, the protection mode of the amplifier is activated caused by a malfunction (See page 19)
CAUSES: Overheating, short circuit on the speakers, overload (caused by low-impedance or low-power) or damage .

FUNCTIONS & CONTROLS TOP-PANEL
5-Channel Amplifier VE1200.5

T1 — **ACOUSTIC PHASE SHIFT LEFT**
Adjust the phase modulation (acoustical center) of the Channel 1 between 0 - 180 degrees.

T2 — **ACOUSTIC PHASE SHIFT RIGHT**
Adjust the phase modulation (acoustical center) of the Channel 2 between 0 - 180 degrees.

T3 — **ON** - In this position the phase modulation is activated and can be separatly adjusted with T1 and T2 (See page 32).
OFF - In this position the phase modulation is deactivated. T1 and T2 are out of function.

T4 — **DISPLAY** – If the display lights up white, the amplifier is in operation mode.
If it lights up red the integrated protection circuit is activated.
Possible reasons: Overheating, Speaker Shorts, Overloading (etc by too low impedance or less power) or the amplifier is damaged. (See chapter Troubleshooting at page 33)

T5 — **HIGH PASS**
Allows to adjust the threshold frequency of the HIGH PASS-Filter of Channel 1/2 and the frequency response is limited downwards. The threshold frequency is continously variable from 10Hz up to 2500Hz.

T6 — **INPUT GAIN**
This controller allows to adjust the volume (input sensitivity) of Channel 1 & 2 of the input signal, variable from 0,15 up to 9 Volts.

T7 — **CROSSOVER SELECTOR**
HIGH PASS – In this position the HIGH PASS-Filter of Channel 3 & 4 is activated. This mode is required for speakers with a diameter from 8,7 cm up to 16 cm.
FULL – In this position full range signal is conducted to the speakers. It is required for speakers with an diameter about 20 cm. T9 / T10 / T11/ T12 are out of function.
BAND PASS – In this position the LOW PASS-Filter of Channel 3 & 4 is activated. This mode is required for subwoofers. By using T11 and T12 the subsonicfilter can be adjusted(See page 32).

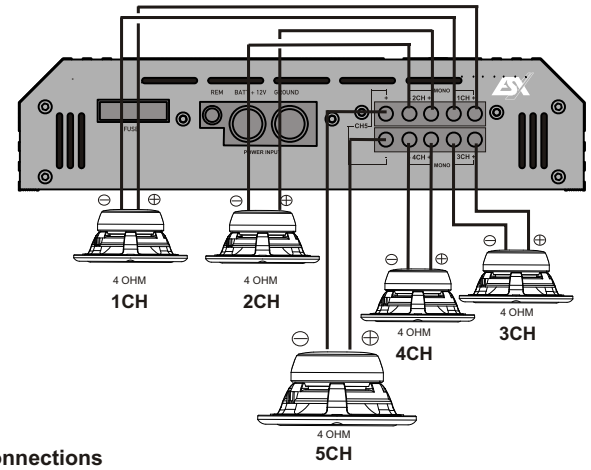
T8 — **INPUT GAIN**
This controller allows to adjust the volume (input sensitivity) of Channel 3 & 4 of the input signal if F2 is set to 4-CH-position, variable from 0,15 up to 9 Volts.

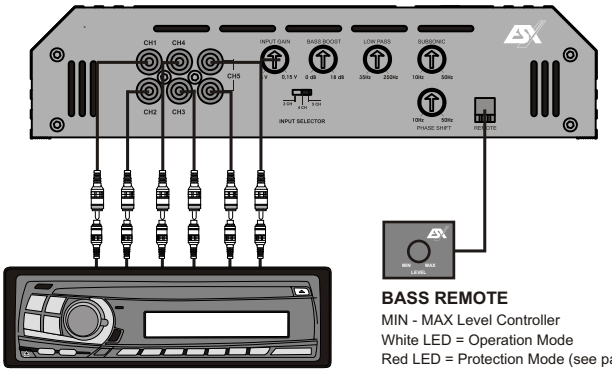
T9 — **LOW PASS**
Allows to adjust the threshold frequency of the LOW PASS-Filter and the frequency response of the Loudspeaker Signal is limited upwards. The threshold frequency is variable from 40Hz up to 4000 Hz.

T10 — **HIGH PASS / SUBSONIC**
Allows to adjust the threshold frequency of the HIGH PASS-Filter of Channel 3 & 4 and the frequency response is limited downwards. The threshold frequency is continously variable from 10Hz up to 2500Hz.
If T7 is set to BAND PASS / LOW PASS, you can adjust the subsonic frequency (See page 32).

LOUDSPEAKER WIRING & CONNECTION
5-Channel Amplifier VE1200.5

5-CHANNEL-MODE: 4 Speakers Stereo with one Subwoofer





BASS REMOTE
MIN - MAX Level Controller
White LED = Operation Mode
Red LED = Protection Mode (see page 19)

Connections

- Connect the RCA Outputs (FRONT L & R and REAR L & R) of the head unit with the RCA Inputs (CH1 & CH2 / CH3 & CH4) of the amplifier by using appropriate RCA Cables .
- Connect the Front-/Rear-Speakers and the Subwoofer with the Speaker Outputs (+ 1CH - & + 2CH - / + 3CH - & + 4CH - and + Mono -).
- The minimum final speaker impedance should not be lower on CH1/2/3/4 than 2 Ohms and on CH5 1 Ohms per Channel.

Input Gain

- Turn the INPUT GAIN-Control (T5 & T7) on 9V-Position (Channel 1 & 2 / 3 & 4) and the F2-Control on 6V-Position(Channel 5).
- Turn the the head unit volume to about 80-90% of its full setting.
- Turn the INPUT GAIN-Control (T5 & T7 & F8) counter clockwise until you hear some distortion.
- Then turn back the INPUT GAIN-Control (T5 & T7 & F8) slightly until you can here clean sound.

Configuration Front-Speakers Channel 1 & 2

- When you use smaller speaker systems (8.7cm - 16cm) the Input Selector should be set on HIGH PASS-Postion,because too low frequencies can cause damages to your speakers.The cut-off frequency should be between 60Hz - 150Hz depending on the size of the installed speakers and it is continously variable from adjustable via Highpass-Control T4 from 10 Hz up to 2500.
- When Phase Shift is activated by T3-Switch (On-Position) perfect soundstaging is realisable.You can virtually move the acoustic position of the subwoofer. See page 18!

Configuration Rear-Speakers Channel 3 & 4

- When you use bigger speaker systems (20cm) the Input Selector should be set on FULL-Position (Full Range-Signal).
- When you use smaller speaker systems (8.7cm - 16cm) the Input Selector should be set on HIGH PASS-Postion,because too low frequencies can cause damages to your speakers.The cut-off frequency should be between 60Hz - 150Hz depending on the size of the installed speakers and it is continously variable from 10 Hz up to 1000 Hz via Highpass-Control T6.
- When T9 is set on BP-Position the lower and upper frequency of the Bandpass Signal is adjustable by T6 & T8. See page 18!

Configuration SubwooferChannel 5

Lowpass (Channel 5) F4

- The cut-off frequency should be between 60 Hz and 100Hz, depending on the size of the installed Speaker. The cut-off frequency is continously variable between 35 Hz -250 Hz and is adjustable by the Lowpass-Control T8. Highpass-Control T6 is out of function!

Subsonic (Channel 5) F5

- Eliminates too low frequencies. Too low frequencies can cause damages to your speaker. The cut-off frequency should be between 20 Hz and 50 Hz . The cut-off frequency is continously variable between 10 Hz and 50 Hz.

Bass Boost (Channel 5) F3

- This allows you to adjust the Bass Boost between 0 - 18 dB at 40 Hz. Please use the BASS BOOST carefully.

Phase Shift (Channel 5) F6

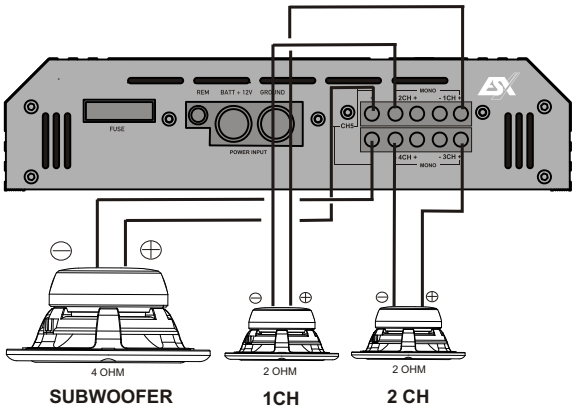
With this Control you can virtually move the built-in position of the Subwoofer. It is continously variable between 0 and 180 degrees and it is controled by F6.

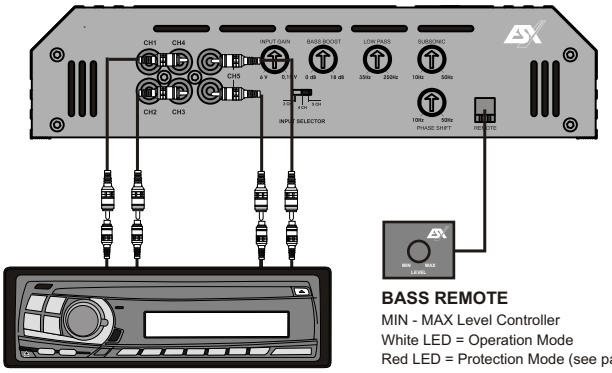
Input Selector-Schalter F8

- If there are three RCA Outputs at your head unit, you can use a third RCA to RCA cable, so you can fade the Subwoofer (Channel 5) via your head unit. The Input Selector-Switch should be set on 5CH-Position.

LOUDSPEAKER WIRING & CONNECTION
5-Channel Amplifier VE1200.5

3-CHANNEL-MODE: 2 Speakers / Stereo & 1 Subwoofer / Mono bridged





BASS REMOTE
MIN - MAX Level Controller
White LED = Operation Mode
Red LED = Protection Mode (see page 19)

Interconnect Cable Checklist
- Connect the RCA Outputs (FRONT L & R und REAR L & R) of the head unit with the RCA Inputs (CH1 & CH2 / CH3 & CH4) of the Amplifier by using appropriate RCA Cables.
- Connect the Speakers and the Subwoofer with the Speaker Outputs (+ 1CH & - 2CH / + 3CH & - 4CH and + Mono -).
- The minimum final speaker impedance should not be lower on CH1/2/3/4 than 2 Ohms and on CH5 1 Ohms per Channel.

Input Gain
- Turn the INPUT GAIN-Control (T5 & T7) on 9V-Position (Channel 1 & 2 / 3 & 4) and the F2-Control on 6V-Position(Channel 5).
- Turn the the head unit volume to about 80-90% of its full setting.
- Turn the INPUT GAIN-Control (T5 & T7 & F8) counter clockwise until you hear some distortion.
- Then turn back the INPUT GAIN-Control (T5 & T7 & F8) slightly until you can here clean sound.

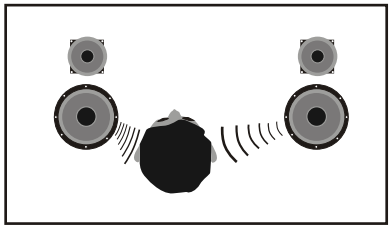
Configuration Speakers Channel 1 & 2
- When you use bigger speaker systems (20cm) the Input Selector should be set on FULL-Position (Full Range-Signal).
- When you use smaller speaker systems (8.7cm - 16cm) the Input Selector should be set on HIGH PASS-Postion,because too low frequencies can cause damages to your speakers.The cut-off frequency should be between 60Hz - 150Hz depending on the size of the installed speakers and it is continously variable from 10 Hz up to 2500 Hz via Highpass-Control T6.
- When T9 is set on BP-Position the ower and upper frequency of the Bandpass Signal is adjustable by T6 & T8. See page 18!

Configuration Channel 5
Please see the previous page.

SPECIAL FEATURES
VE1200.5

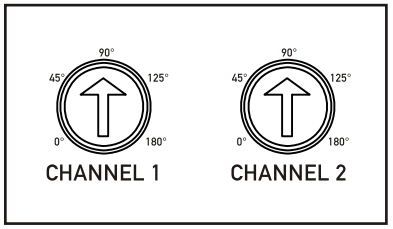
Acoustic Phase Shift

The ESX-VISION VE Series Amplifiers have an integrated channel separated Phaseshift Control.
By controlling the phase, perfect soundstaging is realisable.



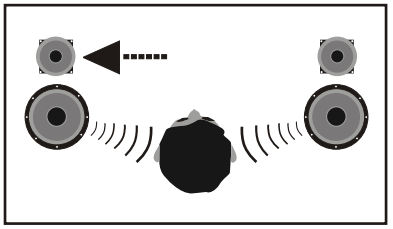
Conventionally Systems without Acoustic Phase Shift

In vehicles the listener is located in principle outside the acoustical center. The stereo sound seemed to diffused and unnatural. The sound doesn't seem to be well-defined because the distance between the listener and speakers is much shorter on the left side.



Acoustic Phase Shift (APS) of ESX

With the Phase Shift Control of the ESX VISION VE Series the stage's acoustical center can be adjusted. It is continously variable between 0 - 180 degrees.

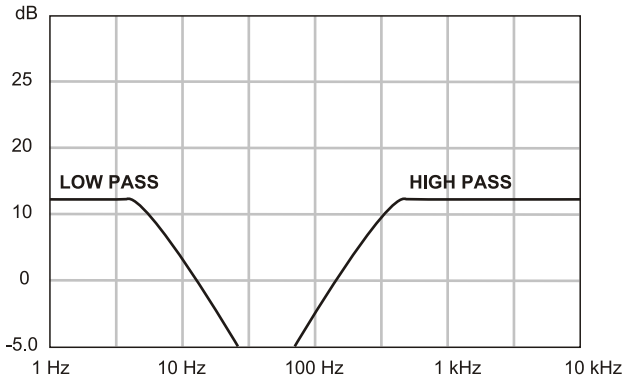


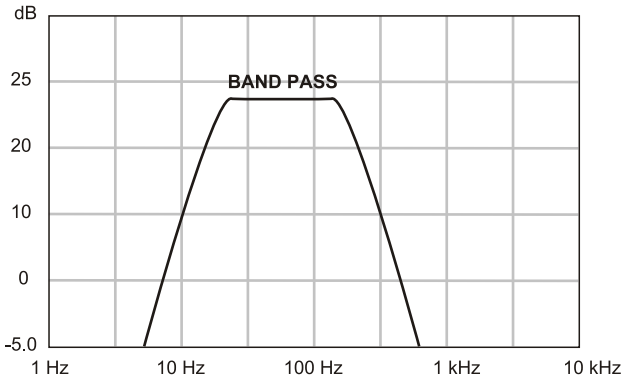
Car Audio Systems with Acoustic Phase Shift

By changing the Phase you can virtually move your speakers to the left side and the signal arrives later, for instance on the left ear of the listener and the acoustical center stage is recovered. The sound characteristics will be played acoustical correct.

Band Pass - Function (Subsonicfilter)

By using the HIGH PASS / SUBSONIC controller you are able to adjust the lower threshold frequency of the subwoofer signal. The upper threshold frequency is adjusted by the LOWPASS Controller. Both filters together generate an spectrum which is called BAND PASS-SIGNAL. Now the frequency signal looks figurative like a trapeze which harmonize very well with an subwoofer enclosure and disturbing frequencies in the lowpass-range are limited.





TROUBLE SHOOTING

System does not turn on
1. Check all fuses.
2. Check all connections.
3. Measure the +12 volt and remote turn on voltages at the amplifier terminals. If these are non existent or too low, take voltage measurements at fuse holders, distribution blocks, the head unit's +12 volt and remote leads to localize the problem.

Noise problems
1. Check the speaker wiring
2. Speakers are damaged

No Signal at Channels
1. Set Balance and Fader from head unit on Zero-Position
2. Check wiring (Amplifier, Speakers)
3. Speakers are damaged

Hiss or white noise
1. Speakers are overload
2. High levels of white noise usually occurs when amplifier level controls are turned up too high.
3. Another major problem that can cause excessive hiss, is a noisy head unit - unplug the amplifier input RCA cables, and if the hiss level reduces, the source unit is at fault.

No Stereo-Sound or Low Output
1. Check speaker wiring (- and +)

Amplifier Protect-Mode (the Display lights up red)
1. Speaker cabels are shorted
2. Inadequate cooling - relocate or remount to provide better natural airflow. Driving high power levels into low impedances -back off on the volume control, and/or make sure you are not loading the amplifier with less than the recommended loudspeaker impedance.
3. Make sure that the battery voltage, as measured at the amplifier's +12 volt and ground terminals, is 11 volts or more.

Electrical Interferences
The inside of an automobile is a very hostile electrical environment. The multitude of electrical systems, such as the ignition system, alternator, fuel pumps, air conditioners to mention just a few, create radiated electrical fields, as well as noise on the +12 volt supply and ground. Remember to isolate the problem - first unplug amplifier input RCA cables, if the noise is still present, check the speaker leads, if not, plug the RCA's back, and investigate the source driving the amplifier, one component at a time.

A ticking or whine that changes with engine RPM:
1. This problem could be caused by radiation pickup of RCA cables too near to a fuel pump or a distributor, for instance, - relocate cables.
2. Check that the head unit ground is connected straight to the vehicle chassis, and does not use factory wiring for ground.
3. Try to supply the head unit with a clean +12 volt supply directly from the battery +, instead of using a supply from the in dash Wiring/fusebox. This type of noise can be more difficult to pinpoint, but is usually caused by some kind of instability, causing oscillations in the system.

A constant whine:
1. Check all connections, especially for good grounds.
2. Make sure that no speaker leads are shorting to exposed metal on the vehicle chassis.
3. RCA cables are notorious for their problematic nature, so check that these are good, in particular the shield connections.

Caution!
In your amplifier are protection circuits integrated. Short Circuit Protection engaged: The amplifier will turn off and try to come back immediately. The amplifier will cycle like this indefinitely, with "blips" of sound each time. If this is the case, check your speakers and wiring for low impedance and short circuits.Thermal Protection engaged: The amplifier will turn off and several minutes later will come back on. In this case, ensure that there is nothing blocking the normal convective airflow of the amplifier. If the display is still lighting up red, the amplifier is damaged.

The Car Audio Forge.

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