MATCH
BY AUDIOTEC FISCHER

english

PP 82DSP

PLUG & PLAY

8-Channel Amplifier with integrated DSP

Congratulations!

Dear Customer,

Congratulations on your purchase of this high-quality MATCH product.

With the PP 82DSP, MATCH is setting new standards in the evolving plug & play market.

We wish you many hours of enjoyment with your new MATCH PP 82DSP.

Yours,
AUDIOTEC FISCHER

General instructions

General installation instructions for MATCH components

To prevent damage to the unit and possible injury, read this manual carefully and follow all installation instructions. This product has been checked for proper function prior to shipping and is guaranteed against manufacturing defects.

Before starting your installation, disconnect the battery's negative terminal to prevent damage to the unit, fire and/or risk of injury. For a proper performance and to ensure full warranty coverage, we strongly recommend to get this product installed by an authorized MATCH dealer.

Install your PP 82DSP in a dry location with sufficient air circulation for proper cooling of the equipment. The amplifier should be secured to a solid mounting surface using proper mounting hardware. Before mounting, carefully examine the area around and behind the proposed installation location to insure that there are no electrical cables or components, hydraulic brake lines or any part of the fuel tank located behind the mounting surface. Failure to do so may result in unpredictable damage to these components and possible costly repairs to the vehicle.

General instruction for connecting the PP 82DSP amplifier

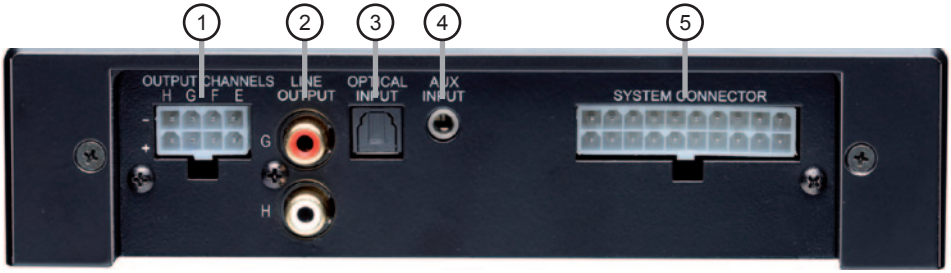
The PP 82DSP may only be installed in vehicles which have a negative ground electrical system. Any other system may cause damage to the amplifier and the electrical system of the vehicle.

Use only the provided MATCH cable for connection of the PP 82DSP. The use of other cables can result in damage of the amplifier, the head unit / radio or the connected loudspeakers!

Prior to installation, plan the wire routing to avoid any possible damage to the wire harness. All cabling should be protected against possible crushing or pinching hazards. Also avoid routing cables close to potential noise sources such as electric motors, high power accessories and other vehicle harnesses.

The fuse may only be replaced by an identically rated fuse (2 x 25 A) to avoid damage of the amplifier.

Connectors and control units



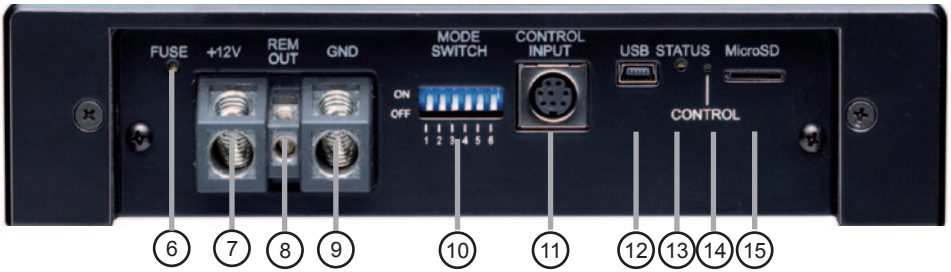
1 **Output Channels E - H**
Connector for the loudspeakers of the channels E – H. Alternatively you can directly connect a passive MATCH PP subwoofer.

2 **Line Output**
Line outputs for connecting external amplifiers. Make sure that the „Remote Output" is used to turn on these devices.

3 **Optical Input**
Optical input in SPDIF format for digital stereo signals

4 **AUX Input**
3,5 mm jack for an external audio source like a MP3-player, navigation device, etc.. This input can either be activated automatically or via an optional cable remote control.

5 **System Connector**
Connector for the MATCH cable harness. Make sure that you only use the original cable that comes with the amplifier to connect the PP 82DSP with your car radio.



6 **Fuse**
This LED will light up if the fuse inside the unit is blown.

7 **+12V**
Connector for the +12 V power cable to the positive terminal of the battery.

8 **Rem Out**
The remote output has to be used to turn on/off external amplifiers that are connected to the RCA line outputs.

9 **GND**
Connector for the ground cable (negative terminal of the battery or metal body of the vehicle).

10 **MODE Switch / DIP Switch**
Allows modifying amplifier gain and subwoofer gain as well as functionality of the optional remote control URC 2A.

11 **Control Input**
Multifunction interface for e.g. the optional remote control URC 2A or other accessory.

12 **USB Input**
Connects the PP 82DSP to your PC.

13 **Status LED**
This LED indicates the operating mode of the amplifier and the setup that has been chosen

14 **Control pushbutton**
Use this button to either switch between the setups or initiate a reset of the device.

15 **MicroSD card reader**
MicroSD card reader for uploading complete DSP setup files.

① Output channels E - H

You can directly connect a MATCH subwoofer to this output, by using four of the eight amplifier channels of the PP 82DSP. Please make sure that in this case the output signal of all these four channels is identical.
Alternatively you can configure each channel individually for other purposes via the PC tool software (e.g. center speaker or fully active configurations). For the latter case a connector with flying leads is included in delivery of the PP 82DSP.

② Line Output

The two Line Outputs A and B are floating-ground low-level outputs (max 3 Vrms) for connecting additional power amplifiers. Specially designed „Balanced Dual Audio Transformers" avoid any groundloops that may cause undesired alternator noise. Please make sure that you always turn on/off external amplifiers using the "Remote Output" of the PP 82DSP. Never directly control the external amps by a signal from the ignition switch of your car!
Important: The outputs G and H deliver the same audio signal as the speaker outputs G and H. Any changes in the setup via the PC-Tool software will always have the same effect on the speaker outputs and line outputs of the channels G and H!

③ Optical Input

Optical input in SPDIF format for connection to signal sources with a digital audio output. The sampling rate of this input must be between 6 and 192 kHz. The input signal is automatically adjusted to the internal sample rate.
In order to activate this input the optional cable remote control URC 2A is necessary.
Notice: This amplifier can only handle stereo input signals and no Dolby-coded digital audio stream.

④ AUX Input

This input automatically detects signals of external devices like MP3-players, navigation devices, etc. and switches to "AUX mode". If there is no signal for more than 2 seconds on the AUX input, the amplifier automatically switches back to the radio signal.
If the MODE switch no. 5 is set to "on" position, the automatic input detection will be deactivated. In this case it is possible to manually switch to AUX input using the optionally available remote control URC 2A.

⑤ System Connector

Please use this terminal only in combination with the cable harness that is included in the delivery of the amplifier. Never ever use any other harnesses to connect the MATCH PP 82DSP to your car radio. Caution: The use of other harnesses than the one that is supplied with the amplifier may cause severe harm to the amplifier, your car radio and your loudspeakers. In any case the warranty will be void!
Important: This connector does not allow connecting the amplifier to the car's battery. It is mandatory to use the terminals (7) and (9) which are described in the following.

⑥ Fuse

If a severe malfunction inside the amplifier will blow the internal fuses the LED lights up red.
During normal operation this LED will remain off.

⑦ +12V

Connect the +12 V power cable to the positive terminal of the battery. Recommended wire gauge: at least AWG 8 or 10 mm².

⑧ Rem Out

We strongly recommend to use this output for turning on/off additional amplifiers that are connected to the line outputs of the PP 82DSP. This is essential to avoid any undesired pop noises during DSP boot or software update process. Additionally this output will be turned off when the "Power Save Mode" (see page 17) of the amplifier is active.

⑨ GND

The ground cable should be connected to a common ground reference point (this is located where the negative terminal of the battery is grounded to the metal body of the vehicle), or to a prepared metal location on the vehicle chassis, i.e. an area which has been cleaned of all paint residues.

⑩ MODE Switches / DIP Switches

The six MODE switches allow adjusting the amplifier gain and the functionality of the optional remote control when the PC-tool software is not used for setting up the amplifier.
MODE switch nos. 1 and 2 are to adjust the overall gain of all amplifier channels including line outputs.
MODE switch nos. 3 and 4 are to adjust the gain of

the subwoofer channels
MODE switch no. 5 defines the function of the toggle switch on the remote control
MODE switch no. 6 activates/deactivates the remote control.

⑪ Control Input

This multi-functional connector is designed for MATCH accessory products like the cable remote control URC 2A. With this remote it is possible to control several features of the amplifier. It consists of two rotary controls and one toggle switch.
Note that it is necessary to activate a connected URC 2A either by setting MODE switch no.6 to "ON" position or by the appropriate command in the Device Configuration Menu" of the PC tool software.
Notice: If you activate the remote control in the PC tool software, the DIP switches no.5 and no.6 on the PP 82DSP will automatically be disengaged. To reactivate them you have to cancel this option in the PC tool software.

As long as the functions of the remote control have not been changed in the PC tool software these are defined as follows:
CONTROL I: Adjusting the volume of the AUX input – eliminates the need to adjust the volume on the external source
CONTROL II: Adjusting the subwoofer volume. Each output that has been defined as a subwoofer channel in the PC tool software will then be affected by this control.
MODE switch: Toggling between the original sound system without any DSP processing and your optimized car specific DSP sound setup for demonstration purposes. The DSP and the output channels E - H will be deactivated when the switch on the remote is pressed.
If the MODE switch no. 5 is set to „ON" position, the function of the switch on the URC 2A will change. In this case it is possible to manually activate the AUX input. The AUX input is activated when the switch on the remote is pressed.

⑫ USB Input

Connect your personal computer to the PP 82DSP using the provided USB cable. The required PC software to configure this amplifier can be downloaded from the Audiotec Fischer website. Please note: It is not possible to connect any USB storage devices.

⑬ Status LED

The status LED indicates the operation mode of the amplifier. Green means that setup 1 (af1) is loaded, orange means that setup 2 (af2) is loaded. If it lights up red constantly, the undervoltage protection is active.
A flashing red light indicates that no setup is loaded. In that case please load a new setup via the PC tool software or the internal microSD card reader.

⑭ Control pushbutton

The control pushbutton allows the user to toggle between two loaded setups „af1" and „af2".
To switch between the setups, the button has to be pressed and held for approx. 1 second. Switching is indicated by a singular red flash of the Status LED. Pressing the button for 5 seconds completely erases the internal memory. This is indicated by a constant flashing of the Status LED.
Attention: After erasing the setups from memory the PP 82DSP will not reproduce any audio output until a new setup is loaded.

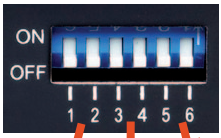
⑮ MicroSD card reader

The Micro SD card reader can be used to download firmware and software updates as well as complete DSP setup files containing all DSP settings. After having inserted the MicroSD card into the card slot of the PP 82DSP, the file will be automatically copied to the internal memory of the amplifier. While the copy is in progress, the status LED flashes red. It changes to green or orange once the process is finished. Now the microSD card can be safely removed.
Attention: Never remove the MicroSD Card while the copy process is in progress.
The PP 82DSP can manage two different setup files. They are marked with the file extensions „.af1" / „ac1" (stored in memory 1 of the amplifier) or „.af2" / „ac2" (stored in memory 2 of the amplifier). Please note: Do not store more than one "af1" or „ac1" and one "af2" or „ac2" setup file on the microSD card at a time.
With the control pushbutton you can toggle between the two setups. Alternatively you can configure in the PC tool software the mode switch function of the

optional remote control URC 2A as “setup switch” as well.
Notice: Firmware and software updates are available on our website www.audiotec-fischer.com
The PC tool software will automatically install the latest firmware on the last selected memory location if your device is not up-to-date.

Important: Car-specific setups of other MATCH amplifiers (e.g. PP 50DSP / PP 52DSP) can not be used for the PP 82DSP!
But it is possible to upload “.afp“-files of a PP50 DSP to the PP 82DSP via the PC tool software. This is only a compatibility mode and all adjustments should be checked carefully after using a PP50 DSP afp-file.

MODE Switches



Switch no. 1	Switch no. 2	Amplifier overall gain
OFF	OFF	0 dB
ON	OFF	- 4 dB
OFF	ON	+ 2 dB
ON	ON	- 2 dB

Affects all eight output channels!

Switch no. 3	Switch no. 4	Subwoofer gain
OFF	OFF	0 dB
ON	OFF	- 4 dB
OFF	ON	+ 2 dB
ON	ON	- 2 dB

Only affects subwoofer channels!

Switch no. 6	remote control URC 2A
OFF	remote control deactivated
ON	remote control activated

Switch no. 5	Mode switch URC 2A
OFF	Mode switch on remote control bypasses MATCH sound optimization if pressed
ON	Mode switch on tremote control activates AUX input if pressed

MODE Switch no. 5 has no function if remote control is deactivated via MODE switch no.6

Please note:
It is possible to deactivate / reactivate both Mode switches no.5 and 6 via the PC-tool software.

Unique Features of the PP 82DSP

Power Save Mode

The Power Save Mode is incorporated in the basic setup. It allows to significantly reduce the power consumption of the PP 82DSP (or any additional connected amplifier) once there's no input signal for more than 60 seconds. Please note that in many up-to-date cars with "CAN" or any other internal bus structures it may happen that the radio (and therefore the PP 82DSP as well) remains "invisibly" turned on for up to 45 min. after leaving the car!

Once the "Power Save Mode is active the output stages of the PP 82DSP and its "Remote Output" will be turned off, thus reducing current draw to less than 250 mA. The amp will turn again to full operation within 2 sec. if a music signal is applied.

It is possible to either modify the turn-off time of 60 sec. or completely deactivate the "Power Save made" via the PC-tool

Class HD and P³S power supply technology

For the first time the PP 82DSP combines the advantages of a Class H technology with the principle of a class D amplifier. The result is an unsurpassed efficiency, which easily outperforms any conventional class D amplifier.

The new P³S power supply technology controls the internal supply voltage for the output stages as a function of the amplitude of the input signal. Thus the average power dissipation of the amplifier is dramatically reduced.

Like all other MATCH amplifiers the PP 82DSP is perfectly prepared for cars with start-/stop feature.

Please note:

Nevertheless the PP 82DSP has an undervoltage protection. If the supply voltage drops below 9.6 volts for more than 5 seconds the amplifier goes to "Protect mode" (Status LED lights up red) in order to avoid any further discharge of the car's battery.

Installation

The MATCH PP 82DSP must be connected to the head unit (radio) as follows:
Caution: Carrying out the following steps will require special tools and technical knowledge. In order to avoid connection mistakes and/or damage, ask your dealer for assistance if you have any questions and follow all instructions in this manual (see page 13).

1. After removing the radio from the dash using appropriate tools, disconnect the vehicle harness from the radio. Next, connect the vehicle harness to the male connector of the MATCH cable harness, **see fig. 3 (1)**
Depending on your car an additional car-specific adaptor may be required.
A list of all cars and the respective adaptors can be found on www.audiotec-fischer.com.

2. Connect the female connector of the MATCH cable harness or the car-specific adaptor to the radio, **see fig. 3 (2)**.

3. In case of the PP 82DSP the included MATCH cable harness cannot and must not be used for the power supply. Always directly connect the massive screw terminals of this amplifier to your car's battery using appropriate wires (AWG 8 / 10 mm² or better). Never use the power leads of the car radio itself! Though the PP 82DSP only has a limited average power consumption, it may draw very high currents (up to 50A) for the fraction of a second due to its dynamically controlled internal power supply.
Important: You may risk a severe damage of your car radio and other electronic components inside your vehicle or even a cable fire if you use the car radio harness for the power supply of the PP 82DSP!
Make sure to disconnect the battery before installing the PP 82DSP!

Connect the +12V power cable to the positive terminal of the battery. The positive wire from the battery to the PP 82DSP power terminals needs to have an inline fuse (50 A) at a distance of **no more than 12 inches (30 cm) from the battery**. If your power wires are short (less than 1 m / 40") then a wire gauge of 6 mm² / AWG 10 will be sufficient. In all other cases we strongly recommend gauges of 10 - 16 mm² / AWG 6 – 8! The ground cable (same gauge as the +12V wire) should be connected to a common ground reference point (this is located where the negative terminal of the battery is grounded to the metal body of the vehicle), or to a prepared metal location on the vehicle chassis, i.e. an area which has been cleaned of all paint residues.

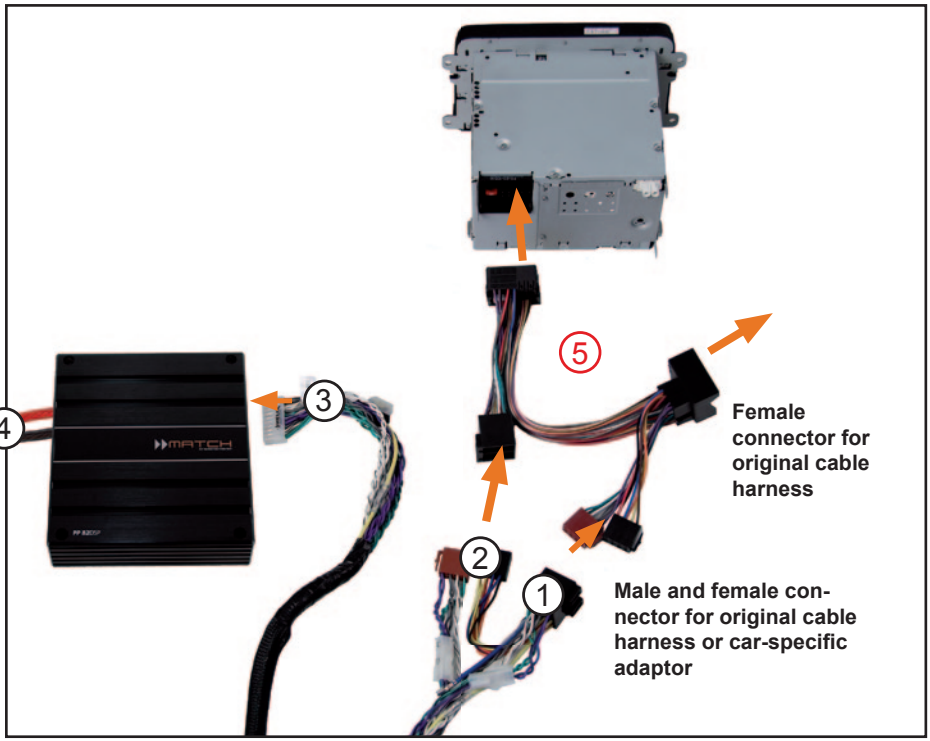
4. Connect the MATCH harness to the MATCH PP 82DSP, see **fig. 3 (3).**

Optimizing the amplifier gain setting:
Turn on the car radio and the volume up gradually. Maximum volume has been reached when loudspeaker distortion becomes audible. To increase volume range of the radio use the MODE switches nos. 1 and 2 (refer to page 17) to reduce the overall gain of the PP 82DSP. If your radio is at maximum volume without any distortion being audible, you can use the MODE switches to increase the amplifier overall gain by +2 dB. Be careful when using this function.

Caution:
The PP 82DSP amplifier has a significantly higher power output than the car radio itself. Most of the OE speakers in the car will not be able to handle this extra power permanently. As long as you do not replace the original speakers by loudspeakers with higher power handling please be very careful when you crank up the volume. If you hear strong distortion, please reduce the volume to an appropriate level in order to avoid damaging your speakers.
Note: Audiotec Fischer is not responsible for any damages to OE speakers that are used in combination with the PP 82DSP!

Note - Cars equipped with MOST bus:
In cars equipped with MOST bus structure it is mandatory to unplug the fiber-optic cable from the original radio connector and insert it into the radio connector of the MATCH cable harness, which has a dedicated recess for this.

Abb. 3 Connection of the amplifier to the car radio



1. The ISO female connector will either be plugged into the vehicle harness that has been disconnected from the car radio or a car-specific adaptor.
2. The ISO male connector will either be plugged into the car radio or into a car-specific adaptor.
3. The 20-pole connector will be plugged into the MATCH PP 82DSP amplifier.
4. The power supply terminal has to be connected directly with the battery - use only adequate cables and fuse the +12V wire close to the battery.
5. **Optional:** car-specific adaptor – such an adaptor may be required if the ISO connectors of the provided PP 82DSP cable harness does not fit into your car radio.

Connection to a PC

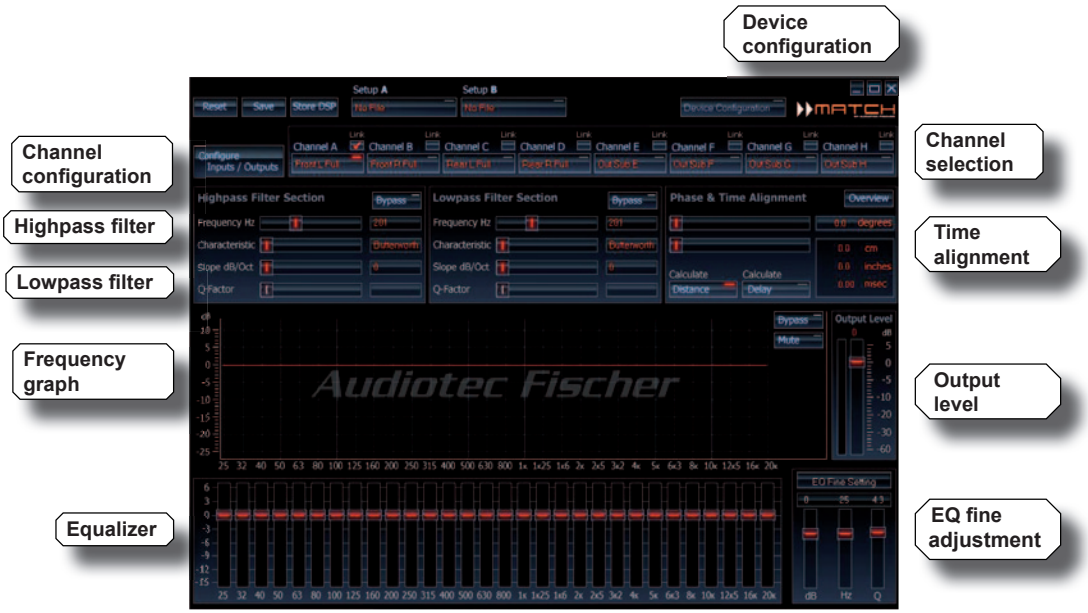
It is possible to freely configure the PP 82DSP with our DSP PC-tool software. The user interface is designed for easy handling of all functions and allows to individually adjust all eight DSP channels.

Prior to connecting the amplifier to your PC, visit our website and download the latest version of the PC-tool software. Check from time to time for software updates in order so that your amplifier is always up-to-date.
You will find the software and the respective user manual on www.audiotec-fischer.com.
We strongly recommend to carefully read the user manual before using the software for the first time in order to avoid any complications and failures.
Make sure that the amplifier is not connected to your computer before the software and USB driver is installed!

To install the software follow the next steps:

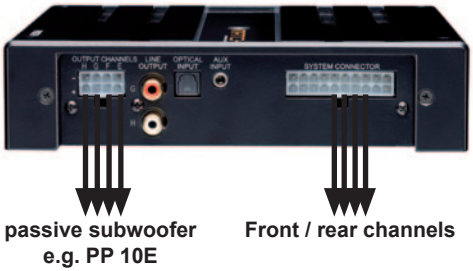
1. Download the PC-tool software from the website www.audiotec-fischer.com
2. Install the software on your computer. During that process the required USB driver will be automatically installed as well.
3. After the software installation processed is completed you can now connect the amplifier to your PC using the provided USB cable.
4. Turn the amplifier on and then start the software. If the firmware of the amplifier is not the latest version it will automatically be updated on the currently selected memory position.
5. You are now ready to configure the PP 82DSP according to your demands.

ATF DSP PC-Tool



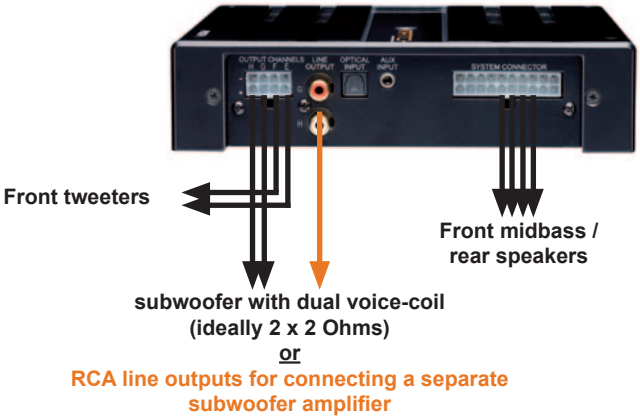
Configuration examples

Front / Rear passive system plus subwoofer



This is a classical 5-channel setup, where 4 of the 8 amplifier channels are used to drive a MATCH subwoofer. We strongly recommend to use this configuration only in combination with our subs PP 10E-D or PP 8E-Q. The versions PP 7E-D and PP 7S-D may not be able to handle the full amount of amplifier power.

Front 2-way full active system / Rear passive system plus subwoofer



This 7-channel configuration is recommended for highest quality in combination where the typical passive crossover for the front midbass/tweeter is eliminated and those speakers are driven by separate amplifier channels. The PC tool software offers a wide range of highpass/lowpass filters for precise crossover design.

Technical Data

Output power RMS / max:

- All channels @ 4 Ohms: .....8 x 55 / 110 Watts
- All channels @ 2 Ohms: .....4 x 70 / 140 Watts

Frequency range .....20 Hz - 22.000 Hz
Number of input channels.....4 x highlevel, 1 x Aux, 1 x SPDIF optical input
DSP resolution.....56 Bit
DSP processing power.....172 MIPS
Total harmonic distortion (THD).....< 0,03%
Signal-to-noise ratio.....> 103 dB
Damping factor .....> 50
Input impedance.....30 Ohms
Undervoltage detection.....9,6 Volts (max. 5 sec. down to 6 Volts)
Dimensions (H x W x D) .....44 x 185 x 164 mm / 1,73 x 7,28 x 6,46“
Additional features.....HD technology with dynamically controlled power supply, ready for start-/ stop, 56 bit digital signal processing, internal memory for 2 different sound setups, USB input, AUX input, optical input, input for optional remote control, stereo line outputs with balanced output transformers (floating ground).

Warranty Disclaimer

The limited warranty comply with legal regulations. Failures or damages caused by overload or improper use are not covered by the warranty.
Please return the defective product only with a valid proof of purchase and a detailed malfunction description.
Technical specifications are subject to change! Errors are reserved!

For damages on the vehicle and the device, caused by handling errors of the device, we can’t assume liability.
All MATCH amplifiers are tagged with a E-Certification number and also a CE-Certification mark. Thereby these devices are ceritified for a use inside vehicles inside the European Union (EU).

AUDIOTEC
FISCHER

Audiotec Fischer GmbH
Gewerbegebiet Lake II · Hünegräben 26 · D-57392 Schmallenberg
Tel.: +49 2972 9788 0 · Fax: +49 2972 9788 88
E-mail: match@audiotec-fischer.com · Internet: www.audiotec-fischer.com