HELIX PSIXDSP 6 Channel High Res Amplifier User Manual

Contents

HELIX PSIXDSP 6 Channel High Res Amplifier

Specifications:

- Brand: AUDIOTEC FISCHER
- Model: P SIX DSP
- Power Supply: 12V / 24V
- Input Voltage Range:
  - Low Voltage Range: Highlevel 4 – 16 Volt, Cinch 1 – 4 Volt
  - High Voltage Range: Highlevel 8 – 32 Volt, Cinch 2 – 8 Volt

Product Usage Instructions

Hardware Configuration:
Configure the HELIX P SIX DSP ULTIMATE in the following order:

1. Adjust jumpers on the unused pin header as shown in Figure 3.
2. For Low Voltage Range Configuration (factory setting):
   - Jumper J1 should be set to Highlevel 4 – 16 Volt and Cinch 1 – 4 Volt.
3. For High Voltage Range Configuration:
   - Jumper J1 should be set to Highlevel 8 – 32 Volt and Cinch 2 – 8 Volt.

Signal Source Connection:
When using a particular input, the Remote input does not need to be connected as soon as a speaker signal is present.

Analog Signal Input:
The gain controls should be adjusted for each channel to match the signal source optimally (refer to page 8, point 8).

Digital Signal Source Connection:
If using a digital signal source in SPDIF format, connect the source to the relevant input. Ensure the input sensitivity is adjusted correctly using the Gain control.

Loudspeaker Connection:
Connect the high-level loudspeaker input of a single channel and ensure the Remote input is occupied to prevent conflicts with other channels.

Frequently Asked Questions (FAQ):

- **Q: What should I do if my factory radio does not work with a Digital input?**
  A: In such cases, the Remote input must be connected to ensure proper functionality.

Congratulations!

Dear Customer,

- Congratulations on your purchase of this innovative and high-quality HELIX product.
- Thanks to more than 30 years of experience in research and development of audio products the HELIX P SIX DSP ULTIMATE sets new standards in the range of digital amplifiers.
- We wish you many hours of enjoyment with your new HELIX P SIX DSP ULTIMATE.

Yours,
AUDIOTEC FISCHER

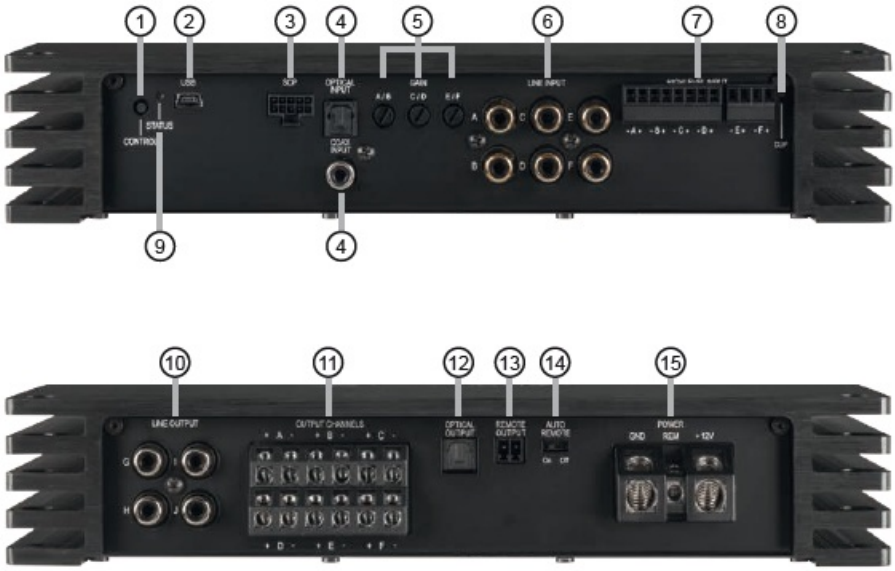
General instructions

General installation instructions for HELIX 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 HELIX dealer. Install your HELIX P SIX DSP ULTIMATE 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 ensure 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 HELIX P SIX DSP ULTIMATE amplifier
The HELIX P SIX DSP ULTIMATE amplifier may only be installed in vehicles which have a 12 / 24 Volts negative terminal connected to the chassis ground. Any other system could cause damage to the amplifier and the electrical system of the vehicle. The positive cable from the battery for the complete system should be provided with a main fuse at a distance of max. 30 cm from the battery. The value of the fuse is calculated from the maximum total current input of the car audio system. Use only suitable cables with sufficient cable crosssection for the connection of HELIX P SIX DSP ULTIMATE. The fuses may only be replaced by identically rated fuses (3 x 20 A) to avoid damage of the amplifier. 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.

Connectors and control units

1.



Control pushbutton

2. USB input
3. SCP (Smart Control Port)
4. Digital inputs (Coaxial & Optical)
5. Gain controls
6. Low level line inputs
7. Highlevel speaker inputs
8. Clipping LED
9. Status LED
10. Line outputs
11. Speaker outputs
12. Optical digital output
13. Remote outputs
14. Auto Remote switch
15. Power & Remote connector

Hardware configuration

Configure the HELIX P SIX DSP ULTIMATE 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 17). It is recommended that this unit will be installed by an authorized HELIX dealer.

1. **Setting the input voltage range (“Voltage Range”) of the analog signal inputs**
   ATTENTION: When using the analog inputs (lowlevel & highlevel) as signal input, it is mandatory to adjust the “Voltage Range” to the output voltage of the signal source before the first start up in order to avoid damage to the amplifier. At first, the “Voltage Range” of the analog in-puts has to be set inside the device. Remove the bottom plate by loosening the 10 Allen screws. Now you have access to the jumpers (see fig. 1). Each jumper sets the value range for the corresponding input channels (J1 –channel A – D and J2 – channel E – F).
   If you want to connect a conventional OEM or aftermarket radio as signal source, the jumper must be set to “Low Voltage Range” (Line 1 -4 V / Highlevel 4 – 16 V). This range is preset by default, see fig. 2. If you want to

connect a factory-installed amplifier as signal source, we recommend to determine its maximum output voltage previously with a suitable measuring device or to contact your authorized HELIX dealer. If you are not sure, we recommend to set the jumper to “High Voltage Range” (Line 2 – 8 V / Highlevel 8 -32 V) to avoid possible damage to the device. Therefore, both jumpers have to be repositioned to the factory unused multipin connector, see fig. 3.

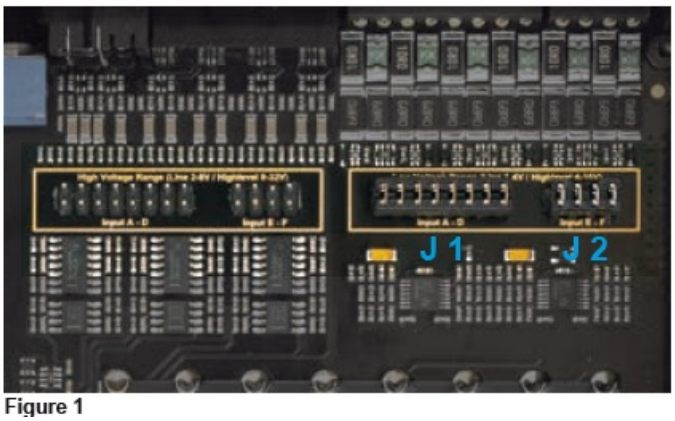


Figure 1

Overview jumper plug-in positions: Jumper 1 (J 1): Channel A – D Jumper 2 (J 2): Channel E – F

For repositioning a jumper simply pull it upwards and plug it into the desired plug position.

Make sure that the jumper is reinserted properly and all pins are fully inserted.

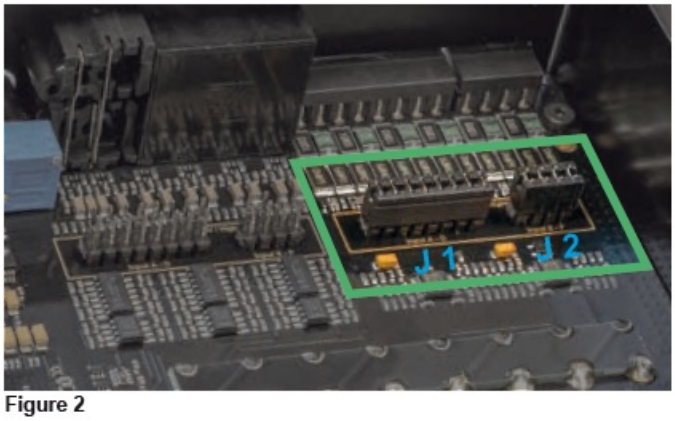


Figure 2

Low Voltage Range configuration (by default): Value range: Highlevel 4 – 16 Volts RCA / Cinch 1 – 4 Volts

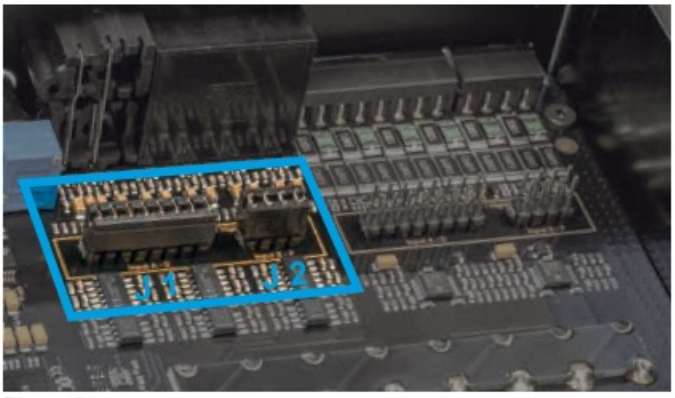


Figure 3

High Voltage Range configuration: Value range: Highlevel 8 – 32 Volts RCA / Cinch 2 – 8 Volts

After setting the jumpers to the desired plug-in positions, you can reassemble the amplifier.

2. **Connecting the pre-amplifier inputs**

   These six lowlevel line inputs can be connected to signal sources such as head units / radios using appropriate cables. Each input can be assigned to any output using the DSP PC-Tool software. Input sensitivity is factory-set to 4 Volts for all channels. But it is possible to optimally adapt the input sensitivity to the signal source (see page 22, point 8).

The automatic turn-on circuit does not work when using the pre-amplifier inputs. In this case the remote input has to be connected to activate the HELIX P SIX DSP ULTIMATE. Important: It is strictly forbidden to use the Highlevel and lowlevel Line Input of an individual channel at the same time as this may cause severe damage to the lowlevel line out-puts of your head unit / car radio. Never theless it is possible to use the Highlevel Input of one channel and the lowlevel Line Input of another channel simultaneously.

3. **Connecting the highlevel speaker inputs**

   The six highlevel loudspeaker inputs can be connected directly to the loudspeaker outputs of an OEM, aftermarket radio or factory installed amplifier using appropriate cables (loudspeaker cables with 1 mm² / AWG 18 max.).

   We recommend the following channel assignment if a common car radio will be connected to the amplifier:

   - Channel A = Front left
   - Channel B = Front right
   - Channel C = Rear left
   - Channel D = Rear right

     Actually it is not mandatory to use all high level speaker inputs. If only two channels will be connected we recommend to use the channels A and B. Make sure that the polarity is correct. If one or more connections have re-versed polarity it may affect the performance of the amplifier. If this input is used the remote input does not need to be connected as the amplifier will automatically turn on once a loudspeaker signal is received.

     Input sensitivity is factory-set to 16 Volts for all channels. It is possible to optimally adapt the input sensitivity to the signal source (see page 22, point 8).

     Attention: Solely use the pluggable screw-terminals for the highlevel connector which are included in delivery!

     Important: It is strictly forbidden to use the High level and lowlevel Line Input of an individual channel at the same time as this may cause severe damage to the lowlevel line outputs of your car radio.
     Never theless it is possible to use the Highlevel Input of one channel and the lowlevel Line Input of another channel simultaneously.

4. **Connecting a digital signal source in SPDIF format**

   If you have a signal source with a coaxial or optical digital output you can connect it to the amplifier using the appropriate input. The sampling rate must be between 12 and 96 kHz for the Optical Input and 12 – 192 kHz for the Coax Input. The input signal is automatically adapted to the internal sample rate.

   In standard configuration the Optical Input is activated as well as the manual activation via an optional remote control is configured. Alternatively you can activate the automatic turn-on feature in the DCM menu of the DSP PC-Tool software.

   The automatic turn-on circuit does not work when a digital input is used. Therefore it is mandatory to connect the remote input. Important: The signal of a digital audio source normally does not contain any information about the volume level. Keep in mind that this will lead to full level on the outputs of the HELIX P SIX DSP ULTIMATE and your connected amplifiers. This may cause severe damage to your speakers. We strongly recommend to use an optional remote control for adjusting the volume level of the digital signal input!

   Note: The HELIX P SIX DSP ULTIMATE can only handle uncompressed digital stereo signals in PCM format with a sample rate between 12 kHz and 96 kHz / 192 kHz and no MP3- or Dolby-coded digital audio stream!

5. **Configuration of the remote input**

   The P SIX DSP ULTIMATE will be turned on automatically if the Highlevel Input is used or if a signal is applied

to the remote input terminal. The Auto Remote switch (page 18, point 14) allows to deactivate the automatic turn-on feature of the highlevel inputs. The feature should be deactivated if there are e.g. noises while switching on / off the amplifier. On: Activation via highlevel speaker input is enabled (by default).
Off: Activation via highlevel speaker input is disabled.
Note: If the automatic turn-on function is deactivated it is mandatory to use the remote input terminal to power up the amplifier! The highlevel signal will be ignored in this case.

6. **Connection to power supply & remote Make sure to disconnect the battery before installing the HELIX P SIX DSP ULTIMATE!**
   Make sure of correct polarity.
   + 12V: Connector for the positive cable. Connect the +12 V / 24 V power cable to the positive terminal of the battery. The positive wire from the battery to the amplifier power terminals needs to have an inline fuse at a distance of no more than 12 inches (30 cm) from the battery. The value of the fuse is calculated from the maximum total current input of the whole car audio system (P SIX DSP ULTIMATE = max. 60 A RMS at 12 V RMS, max. 30 A RMS at 24 V power supply). If your power wires are short (less than 1 m / 40”) then a wire gauge of 16 mm² / AWG 6 will be sufficient. In all other cases we strongly recommend gauges of 25 -35 mm² / AWG 4 – 2!
   GND: Connector for the ground cable.
   The ground 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. The cable should have the same gauge as the +12 V / +24 V wire. Inadequate grounding causes audible interference and malfunctions.
   REM: The remote input is used to switch on the P SIX DSP ULTIMATE if the preamplifier or digital inputs are used. Additionally, this input must be assigned, if the signal source which is connected to the Highlevel Input is not activating the “automatic turn-on” function or if the amplifier shall only be activated / deactivated via a remote signal. The remote wire should be connected to the remote output / automatic antenna (aerial positive) output of the head unit / car radio. This is only activated if the head unit is switched on. Thus the amplifier is switched on and off together with the head unit.
   We do not recommend controlling the remote input via the ignition switch to avoid pop noise during turn on / off.
   Note: This input does not need to be assigned if the Highlevel Input is used. To deactivate the “automatic turn-on” function read the description in point 5 “Configuration of the remote input”.
7. **Connecting the PC & first start-up**
   The USB input enables the connection of the P SIX DSP ULTIMATE to a personal computer and its free configuration with our DSP PC-Tool software using the provided USB cable.
   Please note: It is not possible to connect any USB storage devices.
   Prior to connecting the amplifier to your PC visit our website and download the latest version of the DSP PC-Tool software.
   We strongly recommend to carefully read the DSP PC-Tool knowledge base before using the software for the first time in order to avoid any complications and failures.
   Important: Make sure that the amplifier is not connected to your computer before the software and USB driver are installed!
   In the following the most important steps how to connect and the first start-up are described:
   1. Download the latest version of the DSP PC-Tool software (available on our website **www.audiotecfischer.com**) and install it on your computer.
   2. Connect the amplifier to your computer using the USB cable that is included in delivery. If you have to

bridge longer distances please use an active USB extension cable with into grated repeater.

3. First turn on the amplifier and then start the software. The operating software will be updated automatically to the latest version if it is not up-to-date

8. Adjustment of the input sensitivity of the. analog signal inputs

ATTENTION: It is mandatory to properly adapt the input sensitivity of the P SIX DSP ULTIMATE to the signal source in order to achieve the best possible signal quality and to avoid damage to the amplifier. It is also mandatory to adjust the “Volt-age Range” to the output voltage of your signal source (see page 19, point 1). The input sensitivity of each channel pair can be optimally adapted to the signal source using the three gain controls.

The setting of the controls affects both the lowlevel and the highlevel inputs!Input sensitivity is factory set to 16 Volts (high-level) and 4 Volts (RCA / Cinch).

This is definitely the best setting in most applications.The gain control ranges are: Low Voltage Range configuration: Highlevel: 4 – 16 Volts

RCA / Cinch: 1 – 4 Volts

High Voltage Range configuration: Highlevel: 8 – 32 Volts

RCA / Cinch: 2 – 8 Volts

If the signal source provides a lower output voltage, the input sensitivity can be smoothly increased via the controls.

If your signal source delivers a higher output voltage – for example, if a factory installed amplifier serves as signal source – the input sensitivity must be lowered via the controls and the correct configuration of the “Voltage Range” jumpers must be checked.

If you are not sure regarding the signal sources output voltage, please contact your HELIX specialist dealer.

The Clipping LED (see page 18, point 8) serves as monitoring tool.

Note: Don‘t connect any amplifiers or loudspeakers to the outputs of the HELIX P SIX DSP ULTIMATE during this setup.

For fine adjustment please proceed as follows:

1. Turn on the amplifier.
2. Adjust the volume of your radio to approx. 90 % of the max. volume and playback an appropriate test tone, e.g. pink noise (0 dB).
3. If the Clipping LED already lights up, you have to reduce the input sensitivity via the appropriate gain control (see image left side) until the LED turns off.
4. Increase the input sensitivity by turning the gain control clockwise until the Clipping LED lights up. Now turn the control counterclockwise until the Clipping LED turns off again.
5. Repeat this process for each channel pair you are using.

   Various adjustment examples of the input sensitivity can be found on page 24. For further applications please contact your HELIX specialist dealer.

9. **Configuration of the internal DSP**

The general DSP settings should be conducted with the DSP PC-Tool software before using the amplifier for

the first time. Now you are able to configure your P SIX DSP ULTIMATE with our intuitive DSP PC-Tool software. Useful hints for the correct setting can be found in our knowledge base at **www.audiotecfischer.com**.

Caution: We highly recommend to set the volume of your car radio to minimum position during first start-up. Additionally no devices should be connected to the amplifier. Especially if the P SIX DSP ULTIMATE will be used in fully active applications, a wrong setup can destroy your speakers right away.

10. **Analyzing the input signal**

    Check the input signal for factory set equalizing and all-pass filters using the Input Signal Analyzer (ISA) of the DSP PC-Tool software. Information about the ISA can be found in the extensive Knowledge Base on our website **www.audiotecfischer.com**. Caution: We highly recommend to set the volume of your car radio to minimum position during first start-up. Additionally no devices should be connected to the amplifier until general settings in the DSP PC-Tool software have been made. Especially if the P SIX DSP ULTIMATE will be used in fully active applications, a wrong setup can destroy your speakers right away.

11. **Connecting the loudspeaker outputs**

    The loudspeaker outputs can be connected directly to the wires of the loudspeakers. Never connect any of the loudspeaker cables with the chassis ground as this will damage your amplifier and your speakers. Ensure that the loudspeakers are correctly connected (in phase), i.e. plus to plus and minus to minus. Exchanging plus and minus causes a total loss of bass reproduction. The plus pole is indicated on most speakers. The impedance of the speakers of the channels A and B must not be lower than 4 Ohms. All other channels can be loaded with a minimum of 2 Ohms. The speaker outputs are not bridgeable. For subwoofer applications please use drivers with dual voice coil.

12. **Connecting the remote output**

    The remote output is used for turning on / off amplifiers that are connected to the Line Outputs or Optical Output of the HELIX P SIX DSP ULTIMATE. Therefore connect the remote output to the remote inputs of your amplifiers to switch them on and off via the P SIX DSP ULTIMATE without interfering signals. The remote output is activated automatically as soon as the booting process of the internal DSP is completed. Additionally this output will be turned off during the “Power Save Mode” or a software update process. Important: Never use a different signal than the remote output of the amplifier to activate connected amplifiers!

13. **Connecting the Line Outputs**

    The four pre-amplifier outputs (Line Output) can now be connected to the pre-amplifier /lowlevel / RCA inputs of the external amplifiers using appropriate cables (RCA / Cinch cables).

14. **Connecting the optical digital output**

    The Optical Output is an optical, digital stereo signal output in SPDIF format for connecting an additional amplifier with optical digital input. The output has a sampling rate of 96 kHz / 24 Bit and provides a volume-controlled signal.

    Note: The output provides a stereo signal only. Fader information and multichannel surround sound formats like Dolby or DTS are not supported!

15. **Sound tuning**

    Now you can create your sound setup. Information about sound tuning can be found in our extensive knowledge base at **audiotecfischer.com** or contact your local HELIX dealer.setup. Information about sound tuning can be found in our extensive knowledge base at **audiotecfischer.com** or contact your local HELIX dealer.

Examples for adjusting the input sensitivity:

Source	Input	Jumper positions	Position gain control
4- to 6-channel OEM radio *Up to 25 W RMS power per channel at 4 Ω or up to 50 W RMS power at 2 Ω*	Highlevel A – F	Low Voltage Range – default jumper positions (see fig. 1)	16 V (by default)Examples for adjusting the input sensitivity:For further applications please contact your HELIX specialist dealer.
OEM-Radio with additional 4- to 8-channel amplifier *> 25 W and up to 200 W RMS power per channel at 4 Ω or up to 400 Watt 2 Ω or 100 W at 8 Ω*	Highlevel A – F	High Voltage Range (see fig. 2)	Typically max. CCW position
4- to 6-channel aftermarket radio with pre-amplifier outputs *Up to 4 V RMS RCA / Cinch output voltage*	Lowlevel / Cinch A – F	Low Voltage Range – default jumper positions (see fig. 1)	Typically max. CCW position for radios with 4 V output voltage; max. CW position for radios with 1 V output voltage

Fig. 1 – Low Voltage Range configuration:

Value range: Highlevel 4 - 16 Volts
Lowlevel / Cinch 1 - 4 Volts

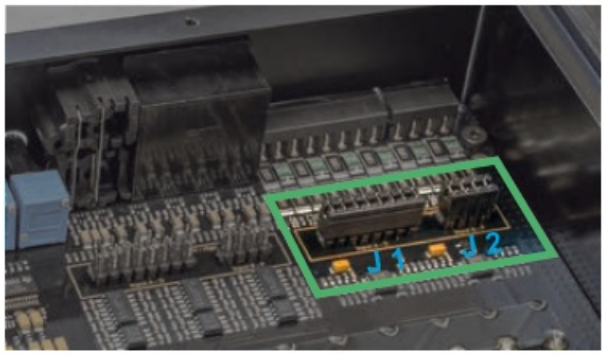
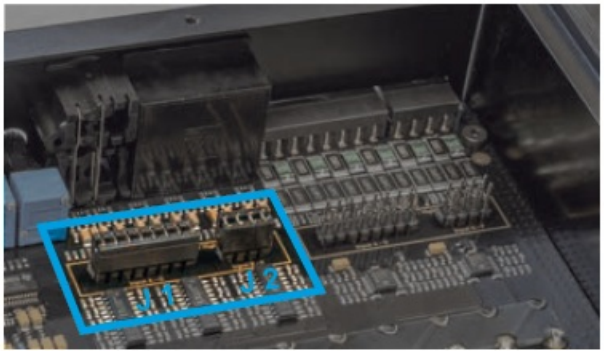


Fig. 2 – High Voltage Range configuration:

Value range: Highlevel 8 - 32 Volts
Lowlevel / Cinch 2 - 8 Volts



For further applications please contact your HELIX specialist dealer.

Additional functions

1. **Clipping LED**

   Normally the Clipping LED is off and only lights up if one of the Line or Highlevel Inputs is overdriven.

   On (red): One of the analog signal inputs is overdriven. Reduce the input sensitivity using the three gain

controls until the LED goes out. How to reduce the input sensitivity is de-scribed on page 21 point 8.

Note: The LED has no function when using one of the digital inputs.

2. **Status LED**

   The Status LED indicates the operating mode of the amplifier and of its memory.

   Green: Amplifier is ready for operation. Orange: Power Save Mode is active.

   Red: Protection Mode is active. This may have different root causes. The HELIX P SIX DSP ULTIMATE is equipped with protection circuits against over- and undervoltage as well as overheating. Please check for connecting failures such as short-circuits or other wrong connections. If the amplifier is overheated the internal temperature protection switches off the remote and signal output until it reaches a safe temperature level again.

   Red / green slow flashing: No operating soft-ware installed. Connect the amplifier to the DSP PC-Tool software and confirm the automatic update of the operating system. You will find the latest version of the DSP PC-Tool software at **www.audiotec-fischer.com**.

   Red / green fast flashing: The currently selected sound setup memory is empty. A new setup has to be loaded via the DSP PC-Tool software or switch to a memory position with existing sound setup.

3. **Control pushbutton**

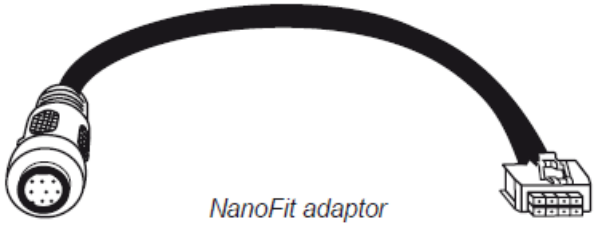
   The P SIX DSP ULTIMATE provides 10 internal memory locations for sound setups. The Control pushbutton allows the user to switch between two memory positions. These can be defined in the DSP PC-Tool. In addition a device reset can be made by pressing the button for a longer period.

   1. Setup switch: Press Control pushbutton for 1 second. The memory locations one and two are defined by default. Switching is indicated by a single red flash of the Status LED. Alternatively, the optional URC.3 remote control can be used for switching. To switch between all internal memory locations, optional accessories like the DIRECTOR display remote control or CONDUCTOR are required.
   2. Device reset: Press push button for five seconds. This completely erases the internal memory and is indicated by a continuous red glowing and constant green flashing of the Status LED.
      Attention: After erasing the setups from memory the P SIX DSP ULTIMATE will not reproduce any audio output until the device is updated via the DSP PC-Tool software.

4. **SCP (Smart Control Port)**

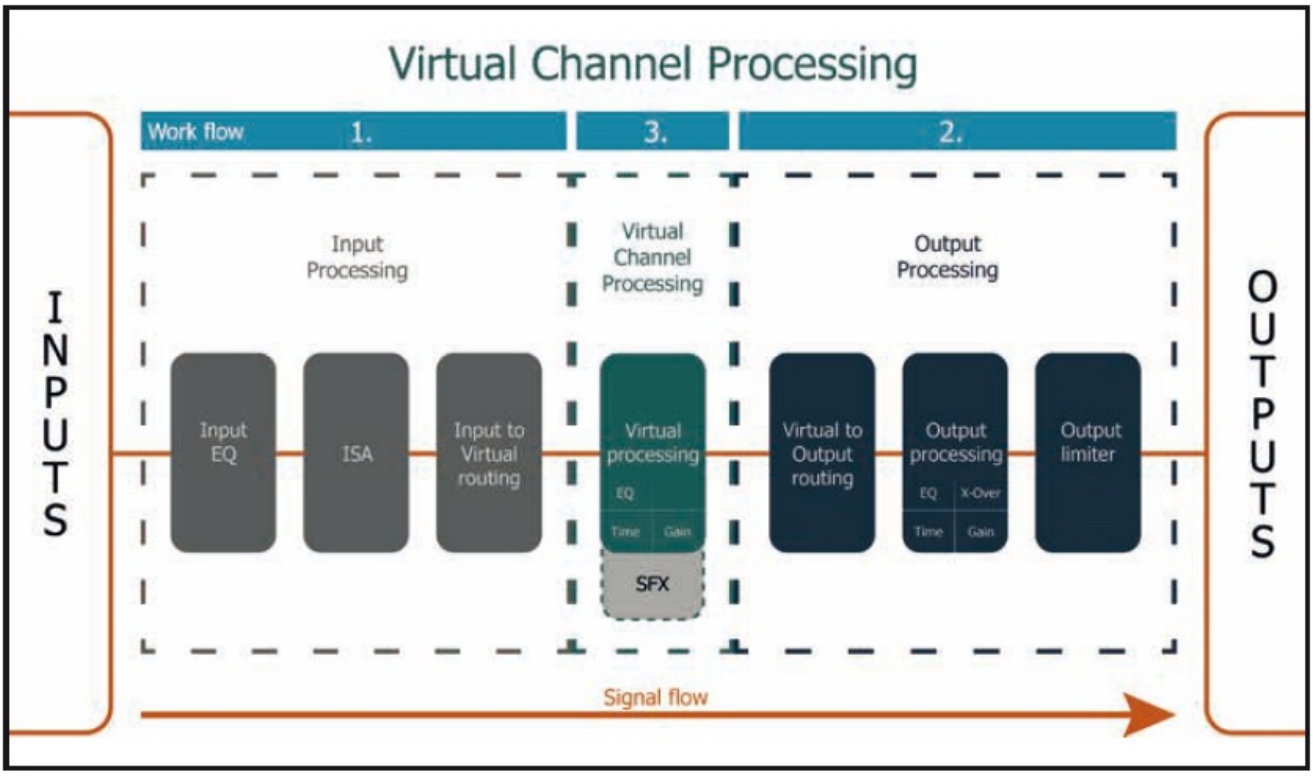
   This multifunctional input is designed for HELIX P SIX DSP ULTIMATE accessory products like a remote control which allows to adjust several features of the amplifier. Depending on the type of remote control, at first its functionality has to be defined in the “ Device Configuration Menu” of the DSP PC-Tool software.

ATTENTION: When operating the P SIX DSP ULTIMATE with 24 V supply voltage, it is not possible to connect the remote control DIRECTOR or the WIFI CONTROL. Attention: If the accessory product does not have a NanoFit connector solely use the NanoFit adaptor which is included in delivery for connection.



Virtual Channel Processing (VCP)

In addition to standard routing, the HELIX P SIX DSP ULTIMATE offers Virtual Channel Processing (VCP), a multistage signal processing concept that enables the perfect configuration of complex sound systems, opening up completely new possibilities for sound tuning.



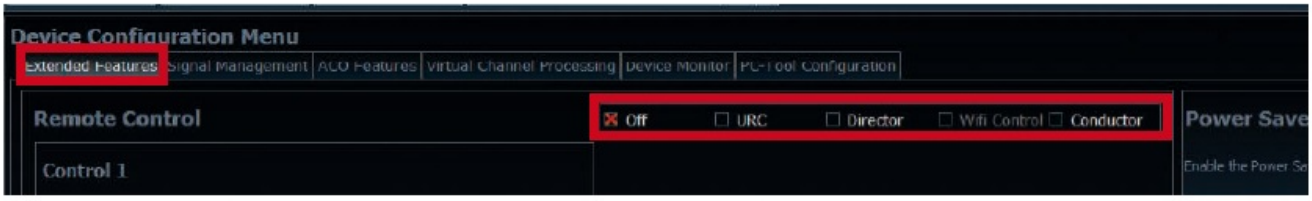
The VCP extends the previous scope of the device by an additional layer of processed channels, which is located between the inputs and outputs. A total of eight additional processed virtual channels and 12 processed output channels are available. This virtual channel layer offers several advantages, especially in complex system configurations.
The main advantages of this concept are:

- Cross-channel group equalizers that affect several output channels simultaneously
- Multi-way speaker configuration of DSP sound effects (SFX)
- Additional features such as Rear Attenuation

For further information about the VCP and its configuration, please refer to our Knowledge Base at www.audiotecfischer.com.

Configuration of a subwoofer remote control

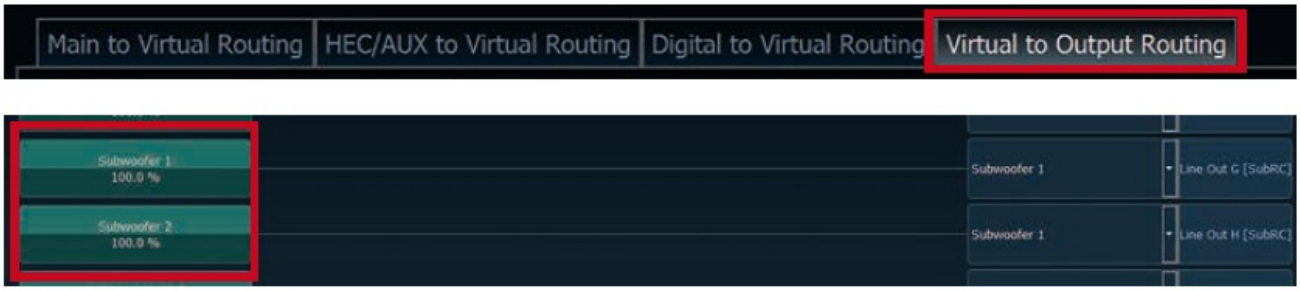
- In order to configure a subwoofer remote control, specific settings have to be made in the DSP PC-Tool. First, the appropriate remote control must be activated in the “Extended Features” tab in the DCM menu of the DSP PC-Tool software and configured, depending on the model.



- If the VCP is not activated, the subwoofer remote control of the P SIX DSP ULTIMATE is permanently assigned to the output channels E and F. In this case it does not matter which output is named “Sub-woofer” in the IO routing matrix.

- In the “Outputs” menu you can also see to which outputs the SubRC (subwoofer remote control) is tied:

- When VCP is activated, the subwoofer remote control is tied to the output channels that are supplied with one of the two virtual subwoofer signals (“Subwoofer 1” or “Subwoofer 2”) in the “Virtual to Output Routing” matrix. This can be any combination of output channels.
- In the following example these are the amplifier outputs G and H:

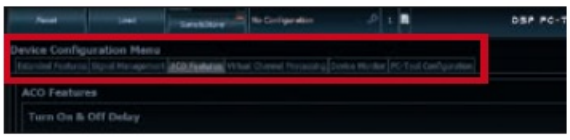


Note: Please note that an input signal must be assigned to the two virtual subwoofer signals “ Subwoofer 1” and / or “Subwoofer 2” in the other routing matrices.

- Afterwards, the subwoofer control is also displayed in the “Outputs” menu next to the name of the channel [SubRC]:

ACO platform features

- Beside the unique DSP sound effects the P SIX DSP ULTIMATE provides a bunch of new system and DSP features.
- In the DCM menu of the DSP PC-Tool software individual settings can be made for several of these system features.



Turn On & Off Delay
This function allows to determine the delay time with which the integrated DSP is switched on and off. The factory setting is 0.2 seconds. The delay time should only be modified if there are e.g. noises while switching on / off the amplifier.

URC Setup Switch Configuration
The ACO provides ten internal memory locations for sound setups instead of the common two. By using an optional URC remote control or the Control pushbutton (see page 18, point 1) it is possible to toggle between two of the ten memory locations. These two memory locations can be determined in the “URC Setup Switch

Configuration”. The memory locations one and two are preassigned by default. To switch between all internal memory locations, the optionally available remote controls DIRECTOR and CONDUCTOR are recommended.

Remote Output Configuration
This function controls if the remote output (which switches on and off the connected amplifiers) will be temporarily deactivated during a sound setup switch. This function is activated (ON) by default.

ADEP.3 Configuration
If the P SIX DSP ULTIMATE is connected to an OEM radio via the highlevel inputs it may happen that the ADEP.3 circuit has to be adapted to the diagnostic mode of the radio if the latter is equipped with a socalled “class SB” output stage”. In the “ADEP.3 SB compatibility mode & Advanced Noise Suppression” section, an adjustment should be made if there are e.g. distortions occur in the upper volume range. The compatibility mode is disabled by default.

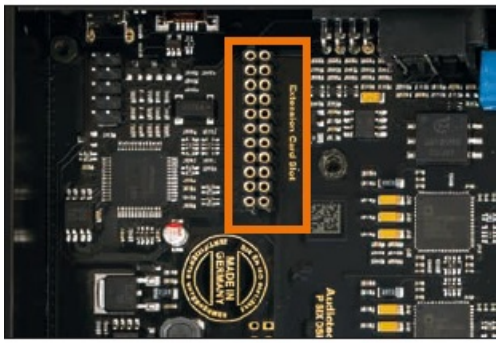
HELIX Extension Card slot (HEC slot)

- It is possible to extend the functionality of the HELIX P SIX DSP ULTIMATE by inserting an optional HELIX Extension Card (HEC) – for example a High Definition Bluetooth® Audio Streaming module, a High Resolution Audio USB soundcard etc.
- To install a HELIX Extension Card it is necessary to remove the side panel of the P SIX DSP ULTIMATE and replace it by the new side panel that comes with the HEC module.

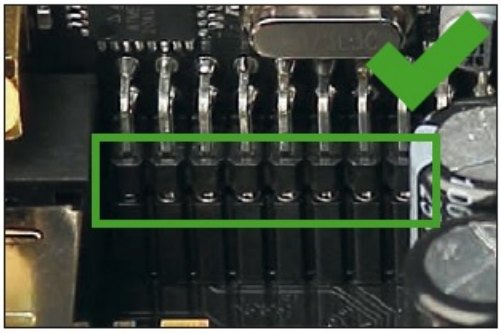
Attention: Install the HEC module only in the designated device and its specific slot. Using the HEC module in other devices or slots can result in damage of the HEC module, the amplifier, the head unit / car radio or other connected devices!

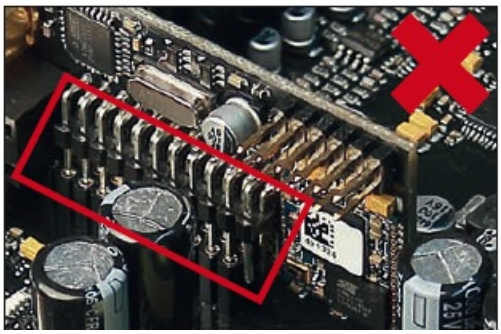
Read in the following the steps how to install a HEC module:

1. First disconnect all cables from the device.
2. Remove the bottom plate by loosening the 10 Allen screws.
3. Then dismantle the side panel where the Line Inputs are located by removing the two Allen screws and the three Phillips screws.
4. Prepare the module for installing it into the device. Any further mounting information will be found in the instruction manual of the respective HEC module.
5. Insert the HEC module into the specific slot of the device which is marked in the following picture.



6. Make sure that the HEC module is installed properly and all pins are fully inserted into the socket.





7. Fix the new side panel which is delivered with the Extension Card using the Allen screws and the Phillips screws. Then mount the base plate again.
8. Bolt the HEC module to the side panel. Precise mounting information will be found in the instruction manual of the respective HEC module.
9. Reconnect all cables to the device.
10. Turn on the amplifier. The HEC module is automatically detected by the device and the Status LED of the HEC module lights up green.
11. Now you are able to configure the HEC module in the DSP PC-Tool software.

Technical Data

Power RMS ≤ 1% THD+N

- @ 4 Ohms……..Channel A – F: 6 x 120 Watts
- @ 2 Ohms……..Channel C – F: 4 x 230 Watts
  Max. output power per channel*……. Channel A – F: up to 145 Watts RMS @ 4 Ohms
- Channel C – F: up to 285 Watts RMS @ 2 Ohms
- Amplifier technology……Ultra HD Class D
- Inputs…… 6 x RCA / Cinch 6 x Highlevel speaker intput 1 x Optical SPDIF (12 – 96 kHz) 1 x Coaxial SPDIF (12 – 192 kHz) 1 x Remote In
- Input sensitivity…… RCA / Cinch: 1 V – 4 V or 4 V – 8 V
- Highlevel: 4 V- 16 V or 8 V – 32 V
- Input impedance…… RCA / Cinch: 13 kOhms
- Highlevel: 9 – 33 Ohms with ADEP.3
- Outputs…… 6 x Speaker output 4 x RCA / Cinch 1 x Optical SPDIF (96 kHz) 2 x Remote Out
- Output voltage RCA / Cinch……3 Volts
- Frequency range……10 Hz – 44,000 Hz
- DSP resolution……64 Bit

- DSP power……2 x 295 MHz (2.4 billion MAC operationes/sec.)
- Sampling rate……..96 kHz
  DSP type……2 x Audio signal processor
- Signal converters…… A/D: BurrBrown
- D/A: BurrBrown
- Signal-to-noise ratio (A-weighted)…… Digital input: 108dB
- Analog input: 102 dB
- Distortion (THD)……..< 0.004 %
- Damping factor……> 100
- Operating voltage……..10.5 – 32 Volts (max. 5 sec. down to 6 Volts)
- Power rating……DC 12 / 24 V 65 A max.
- Idle current……1350 mA
- Max. remote output current……..500 mA
- Fuse……3 x 20 A LP-Mini-fuse (APS)
- Additional features…… HEC Slot, ADEP.3 circuit, Smart Control Port, 32 Bit CoProcessor, Auto Remote switch
- Dimensions (H x W x D)……50 x 260 x 190 mm / 1.97 x 10.24 x 7.48”

In typical multi-channel applications (2- / 3-way system + rear + subwoofer)

Warranty Disclaimer

- The warranty service is based on the statutory regulations. Defects and damage caused by overload or improper handling are excluded from the warranty service. Any return can only take place following prior consultation, in the original packaging together with a detailed description of the error and a valid proof of purchase.
- Technical modifications, misprints and errors excepted! We accept no liability for damage to the vehicle or device defects caused by the incorrect operation of the device. This product has been issued a CE marking. This means that the device is certified for use in vehicles within the European Union (EU).

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Made in Germany

Documents / Resources

	HELIX PSIXDSP 6 Channel High Res Amplifier [pdf] User Manual PSIXDSP 6 Channel High Res Amplifier, PSIXDSP, 6 Channel High Res Amplifier, High Res Amplifier, Res Amplifier, Amplifier

References

- High-End Car Hifi & Audio - Made in Germany | Audiotec Fischer
- High-End Car Hifi & Audio - Made in Germany | Audiotec Fischer
- User Manual

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