HELIX
®

DSP PRO
MK2

**Digitaler High-Res 10-Kanal Signalprozessor mit
96 kHz / 32 Bit Signalweg**
*Digital High-Res 10-channel signal processor
with 96 kHz / 32 Bit signal path*

Congratulations!

Dear Customer,

Congratulations on your purchase of this innovative and high-quality HELIX product.

With the HELIX DSP PRO MK2, Audiotec Fischer is setting new standards in the range of digital signal processors.

We wish you many hours of enjoyment with your new HELIX DSP PRO MK2.

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 DSP PRO MK2 in a dry location with sufficient air circulation for proper cooling of the equipment. The signal processor 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 HELIX DSP PRO MK2 signal processor

The HELIX DSP PRO MK2 signal processor may only be installed in vehicles which have a 12 Volts negative terminal connected to the chassis ground. Any other system could cause damage to the signal processor and the electrical system of the vehicle. The positive cable from the battery for the entire sound 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 draw of the car audio system.

Use only the provided connectors or the optionally available Easy Plug Cable for connection of the HELIX DSP PRO MK2. The use of other cables can result in damage of the signal processor, the head unit / radio or the connected amplifiers / 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.

Connectors and control units

① **Line Input**
RCA inputs for connecting pre-amplifier signals.

② **Coax Input**
Electrical input for digital stereo signals (SPDIF format).

③ **Optical Input**
Optical input for digital stereo signals (SPDIF format).

④ **Clipping LED**
This LED lights up red if one of the analog inputs is overdriven.

⑤ **Highlevel Input**
Highlevel speaker inputs for connecting a factory radio or an aftermarket radio without pre-amp / line outputs.

⑥ **Power Input**
Connector for the DC power supply with an additional remote in- and output. The remote output has to be used to switch on external amplifiers.

⑦ **Ground lift switch**
Can be used to define the connection between the grounding of the inputs and outputs.

⑧ **Control pushbutton**
Use this button to either switch between the setups or initiate a reset of the device.

⑨ **Status LED**
This LED indicates the operating mode of the DSP and which setup has been chosen.

⑩ **USB input**
Connects the HELIX DSP PRO MK2 to your PC.

⑪ **Control Input**
Multifunction interface for e.g. an optional remote control or other HELIX accessory.

⑫ **Line Output**
Line outputs for connecting amplifiers. Make sure that the remote output is used to turn on these devices.

① Line Input

8-channel pre-amplifier input to connect signal sources such as radios. Input sensitivity is factory-set set to 4 Volts. It is possible to vary the sensitivity of each channel between 2 and 4 Volts. inside the device.

② Coax Input

Coaxial input in SPDIF format for connecting sources with a digital audio output. The sampling rate of this input has to be in the range of 12 and 192 kHz. The input signal is automatically adapted to the internal sample rate.

In order to activate this input and to control its volume, we recommend to use an optional remote control.

Notice: This signal processor can only handle stereo input signals and no Dolby-coded digital audio stream.

Important: Before first use, the *Coax Input* has to be activated in the DSP PC-Tool software or with an optional remote control. The *Optical Input* is activated ex works.

③ Optical Input

Optical input in SPDIF format for connecting signal sources with a digital audio output. The sampling rate of this input must be between 12 and 96 kHz. The input signal is automatically adapted to the internal sample rate. In order to activate this input and to control its volume, we recommend to use an optional remote control.

Notice: This signal processor can only handle stereo input signals and no Dolby-coded digital audio stream.

Notice: In standard configuration the HELIX DSP PRO MK2 automatically activates this input if a digital audio signal is detected.

④ Clipping LED

This LED lights up red if one of the eight *Line Inputs* or *Highlevel Inputs* is overdriven. The LED has no function if the device is fed with digital input signals. If this LED lights up reduce the input sensitivity by using the internal trim potentiometers until the LED goes out (item 3 page 20; "Adjustment of the input sensitivity").

⑤ Highlevel Input

8-channel highlevel loudspeaker input to connect the signal processor directly to loudspeaker outputs of OEM / aftermarket radios or OEM amplifiers that do not have any pre-amplifier outputs. Input sensitivity is factory-set to 10 Volts for all channels.

It is possible to vary the sensitivity of each channel between 5 - 10 Volts and 10 - 20 Volts inside the device (item 3 page 20; "Adjustment of the input sensitivity").

By changing the sensitivity range, the input impedance of the highlevel inputs is shifted as well in order to guarantee a perfect operation in combination with OE radios and high-power OE amplifiers.

Attention: Solely use the pluggable screw-terminal for the highlevel connector which is included in delivery or an optional available cable harness from the HELIX accessory assortment!

Important: It is strictly forbidden to use the *Highlevel Input* and pre-amplifier inputs (*Line Input*) at the same time. This may cause severe damage to the pre-amplifier outputs of your car radio.

⑥ Power Input

This input is used for connecting the signal processor to the power supply of the vehicle and for remote in / out. If the highlevel loudspeaker inputs are used the remote input can be left unconnected. The remote output is used for turning on/off amplifiers that are connected to the *Line Outputs* of the HELIX DSP PRO MK2. Connect this remote output to the remote inputs of your amplifier/s. This is essential to avoid any interfering signals. The remote output is activated automatically as soon as the booting process of the DSP is completed. Additionally this output will be turned off during the "Power Save Mode" or a software update process.

Attention: Solely use the pluggable screw-terminal which is included in delivery!

Important: Never use a different signal than the remote output of the DSP to activate connected amplifiers!

⑦ Ground lift switch

The ground of the HELIX DSP PRO MK2 signal inputs is galvanically decoupled from the ground of the signal outputs. In many cars this setup is the best way to avoid alternator noise.

Nevertheless, there are use cases where it will

be necessary to directly connect input and output ground or to tie both grounds together via a resistor. Therefore the *Ground lift switch* has three positions:
- center position: input and output ground separated.
- left position: input and output ground tied together.
- right position: input and output ground connected via 200 Ohms resistor.

⑧ Control pushbutton

The *Control pushbutton* allows the user to switch between the two setup memory positions. To switch between the setups the button has to be pressed and held for one second. Switching is indicated by a single red flash of the *Status LED*. Pressing the button for five 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 HELIX DSP PRO MK2 will not reproduce any audio output.

⑨ Status LED

The *Status LED* indicates the current active DSP setup. Green means that setup 1 is loaded, orange means that setup 2 is loaded. A flashing red light indicates that no setup is loaded. In that case please load a new setup via the DSP PC-Tool software. If the LED starts blinking orange, the internal temperature protection is active. At first the remote output will be turned off. If the temperature still rises the signal processor will shut down until it has reached a safe temperature level again.

⑩ USB input

Connect your personal computer to the DSP PRO MK2 using the provided USB cable. The required PC software to configure this signal processor can be downloaded from the Audiotec Fischer website **www.audiotec-fischer.com**.
Please note: It is not possible to connect any USB storage devices.
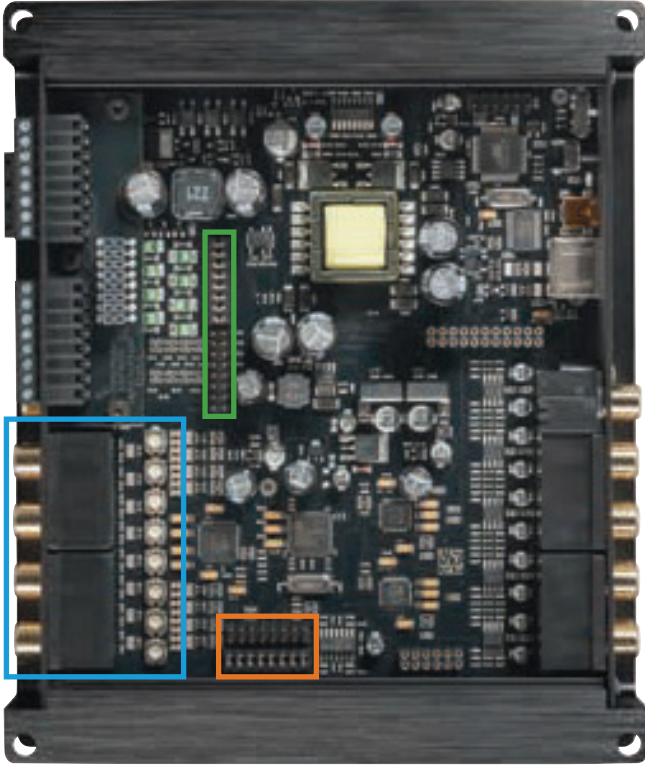
⑪ Control Input

This multi-functional input is designed for HELIX accessory products like a remote control which allows to adjust several features of the signal processor. 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.

⑫ Line Output

10-channel pre-amplifier output for connecting power amplifiers. The output voltage is 8 Volts max. Please make sure that you always turn on/off external amplifiers using the remote output of the signal processors *Power Input*. Never directly control the external amps by a signal from the ignition switch of your car! Additionally this output will be turned off when the "Power Save Mode" of the signal processor is active. The outputs can be assigned to any of the inputs as desired using the DSP PC-Tool software.
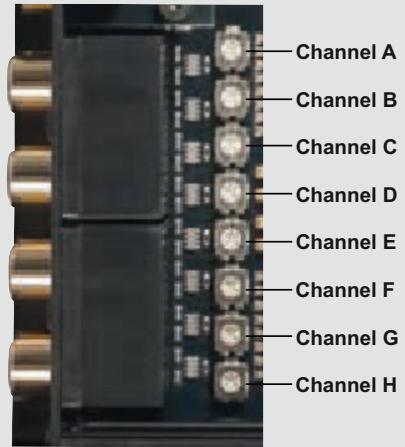
Installation

Channel assignment:

Channel A
Channel B
Channel C
Channel D
Channel E
Channel F
Channel G
Channel H

Fig. 1

Adjustment of the input sensitivity for using channel G & H as AUX inputs:

Jumper lower position*

Channel G & H: 2 V   4 V*

Jumper upper position
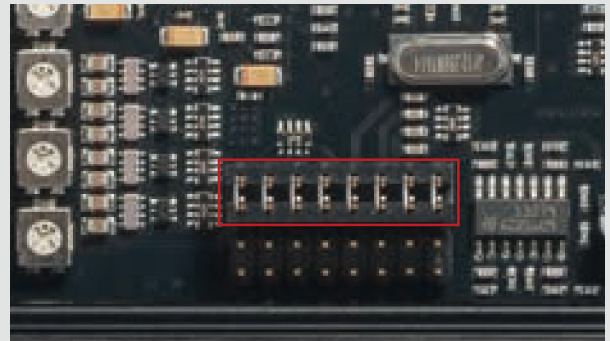
Channel G & H: 250 mV   500 mV

Fig. 3

Adjustment of the input sensitivity of the highlevel inputs:

Jumper upper position*   Jumper lower position

5 V   10 V*   **Highlevel**   10 V   20 V
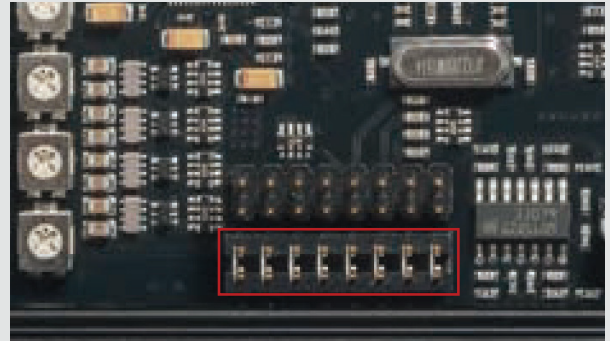
2 V   4 V*   **RCA / Cinch**   2 V   4 V

Fig. 2

* Ex factory adjustment of HELIX DSP PRO MK2

Connection of HELIX DSP PRO MK2 to the head unit / car radio:

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 15). It is recommended that the device will be installed by an authorized HELIX dealer.

1. **Connecting the pre-amplifier inputs**
   Use the correct cable (RCA / cinch cable) to connect these inputs to the pre-amplifier / lowlevel / cinch outputs of your car radio. Each input can be assigned to any output using the DSP PC-Tool software. 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 DSP PRO MK2.
   Important: It is strictly forbidden to use the *Highlevel Input* and pre-amplifier inputs (*Line Input*) at the same time. This may cause severe damage to the pre-amplifier outputs of your car radio.

2. **Connecting the highlevel speaker inputs**
   The highlevel loudspeaker inputs can be connected directly to the loudspeaker outputs of an OEM or aftermarket radio 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 signal processor:
   Channel A = Front left
   Channel B = Front right
   Channel C = Rear left
   Channel D = Rear right
   Actually it is not mandatory to use all highlevel 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 reversed polarity it may affect the performance of the signal processor. If this input is used the remote input does not need to be connected as the signal processor will automatically turn on once a loudspeaker signal is received.

3. **Adjustment of the input sensitivity**
   Attention: It is mandatory to properly adapt the input sensitivity of the DSP PRO MK2 to the signal source in order to avoid damage to the signal processor.
   If you want to change the input sensitivity you have to open the device at first. Dismantle the side panel where the USB input is located by removing the five Phillips screws and pull out the bottom plate sideways. Now you have access to the eight trim potentiometers that allow adjusting each channel individually. The assignment of the trim pots to the respective channels is shown in figure 1 on page 19.
   Please note: The setting of the trim potentiometers affects both the lowlevel and the highlevel inputs!
   If the sensitivity range of the highlevel input may not be sufficient it is possible to change it by repositioning a jumper (see figure 2 on page 19). The sensitivity range of the two pre-amplifier inputs G and H can also be changed to connect even mobile devices with significantly lower output voltage (like smartphones) by repositioning a further jumper (see figure 3 on page 19).
   Important: To change the position of a jumper it has to be removed by pulling it straight upwards and plugged into the desired position. Make sure that the jumper is reinserted properly and all pins are fully inserted. The position of each jumper can be changed independently.
   Follow the subsequent steps to perfectly adapt the signal processors input sensitivity to your audio source by using the internal trim potentiometers:
   1. Don't connect any amplifiers to the outputs of the HELIX DSP PRO MK2 during this setup.
   2. Turn on the signal processor.
   3. Adjust the volume of your radio to approx. 90 % of the max. volume and playback an 1 kHz full scale test tone (0 dB) via CD drive.
   4. The adjustment will be easier when you connect and adjust one input channel after the other.
   5. If the *Clipping LED* already lights up, you have to reduce the input sensitivity via the respective trim potentiometer until the LED turns off.

If the potentiometer is already set to full CW position it will be necessary to change the sensitivity range by repositioning the jumper (see figure 2 on page 19). Note that this will only have an effect on the highlevel inputs!

6. Increase the input sensitivity by turning the respective potentiometer counterclockwise until the LED lights up. Now turn the potentiometer clockwise until the *Clipping LED* turns off again.

7. Repeat this process for each channel you are using.

4. Connecting a digital signal source

If you have a signal source with optical or coaxial digital output you can connect it to the signal processor using the appropriate input. In standard configuration The HELIX DSP PRO MK2 is configured to automatically activate the digital input which is activated in the software as soon as a digital audio signal is detected. The *Optical Input* is activated ex works. This function can be deactivated via the DSP PC-Tool software. Alternatively you can manually activate the digital input if you are using an optional remote control.

The automatic turn-on circuit does not work when a digital input is used. Therefore it is mandatory to connect the remote input of the *Power Input*. Please note that it is possible to connect a source to one of the digital inputs and the *Highlevel Input* or the *Line Input* at the same time.

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 DSP PRO MK2 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!

Information: The HELIX DSP PRO MK2 can only handle uncompressed digital stereo signals in PCM format with a sample rate between 12 kHz and 96 kHz / 192 kHz and no Dolby-coded signals.

5. Connection to power supply
Make sure to disconnect the battery before installing the HELIX DSP PRO MK2!
Solely use the included screw-type terminal to connect the HELIX DSP PRO MK2 to a power supply. Make sure of correct polarity. The ground wire must be connected to the vehicle chassis at a non-insulated point. Inadequate grounding causes audible interference and malfunctions.

The positive wire has to be connected to the battery's positive post or a power distribution block. Though the current draw of the HELIX DSP PRO MK2 is rather low (approx. 510 mA) we recommend a minimum wire gauge of 1 mm² / AWG18 for both power supply wires.

6. Connecting the remote input
The remote input of the *Power Input* has to be connected to the radio remote output if the signal processors pre-amplifier inputs or the digital inputs are solely used as signal inputs. We do not recommend controlling the remote input via the ignition switch to avoid pop noise during turn on/off. If the *Highlevel Input* is used this input does not need to be connected as long as the car radio has BTL output stages.

7. Configuration of the remote input
The DSP PRO MK2 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 allows to deactivate the automatic turn-on feature. The feature should be deactivated if there are e.g. noises while switching on/off the signal processor.

Note: If the automatic turn-on function is deactivated it is mandatory to use the remote input terminal to power up the signal processor! The highlevel signal will be ignored in this case.

Note: The activation of the signal processor via speaker input is activated ex works.

To deactivate the automatic turn-on feature you have to open the device and change the position of the "Auto Remote" switch. Therefore dismantle the side panel (where the USB input is located) by removing the five Phillips screws. Now you can pull out the bottom plate and get access to the switch. The switch is located near

by the jumper for adjusting the input sensitivity of the highlevel inputs (see marking in the following picture).
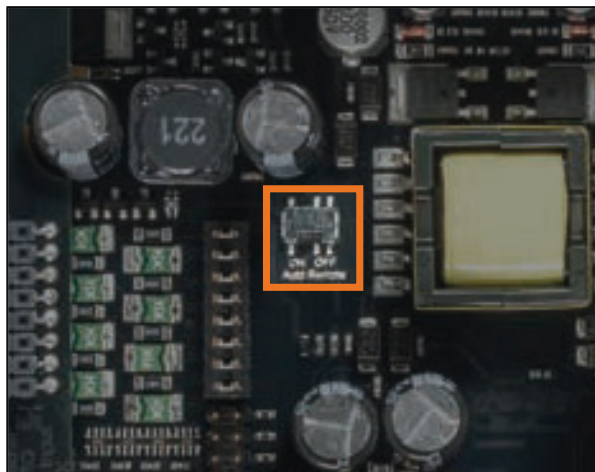
On: Activation via highlevel speaker input is enabled (ex works).

Off: Activation via highlevel speaker input is disabled.

8. **Configuration of the DSP**
   The general DSP settings should be conducted with the DSP PC-Tool software before using the signal processor for the first time.
   Ignoring this advice may result in damaging the connected amplifiers / the loudspeakers. Information about connecting the DSP PRO MK2 to a computer can be found on page 24.

9. **Connecting the remote output**
   This output (Remote out) is used to supply remote signals to the external amplifier/s. Always use this remote output signal to turn on the amplifier/s in order to avoid on/off switching noises.

Installation with "Easy Plug Cable"

To simplify installation to an OEM or aftermarket radio the HELIX DSP PRO MK2 can also be connected using the optional Easy Plug Cable (EPC 5) which will supply the signal processor with both power and loudspeaker signals of the radio. No factory wires or plugs need to be cut by using this connection method. The Easy Plug Cable uses the highlevel inputs A - D.
Connection to an OEM radio is detailed below:

1. Once the radio has been removed by using the right tools disconnect the OEM harness from the radio. Connect the vehicle cable jack connectors of the Easy Plug Cable. You may need a special ISO-adaptor depending on vehicle type. In order to verify please check the adaptor database on the Audiotec Fischer homepage **www.audiotec-fischer.com**.

2. Connect the cable plugs to the car radio.

3. Connect the highlevel plug (8-pole connector) and the power supply plug (4-pole connector) of the Easy Plug Cable to the appropriate HELIX DSP PRO MK2 inputs (*Highlevel Input* A to D and *Power Input*).

4. Please note when connecting the power supply the permanent and switched 12 Volts wires may be reversed depending on vehicle type. The HELIX DSP PRO MK2 should not be plugged into the power supply via the ignition cable as this may cause interferences. Before connecting the Easy Plug Cable to the HELIX DSP PRO MK2, verification of the permanent 12 Volts wire must be made between the blue and red wires coming from the ISO connectors of the harness with a voltmeter. The permanent 12 Volts wire will show voltage even with the vehicle ignition turned off. Once the correct wire is identified connect the red wire with jack to the corresponding blue or red wire with plug. The positive cable of the harness usually has a fuse of max. 20 A.
   Attention: The ex factory condition is that the red wires are connected. If you're uncertain of assignment ask your dealer.

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 ISO adaptor which has a dedicated recess for this.

Connection to a PC

It is possible to freely configure the HELIX DSP PRO MK2 with our DSP PC-Tool software.

The user interface is designed for easy handling of all functions and allows an individual adjustment of each of the ten DSP channels. Prior to connecting the signal processor to your PC visit our website and download the latest version of the DSP PC-Tool software.

Check from time to time for software updates. You will find the software and the respective user manual on **www.audiotec-fischer.com**.

We strongly recommend to carefully read the user manual (Sound Tuning Magazine) before using the software for the first time in order to avoid any complications and failures.

Important: Make sure that the signal processor 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.audiotec-fischer.com**) and install it on your computer.

2. Connect the signal processor 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 integrated repeater and no passive extension.

3. Turn on the signal processor and start the software after the Status LED lights up green. The operating software will be updated automatically to the latest version if it is not up-to-date.

4. Now you are able to configure your HELIX DSP PRO MK2 with our intuitive DSP PC-Tool software. Nevertheless, interesting and useful hints can be found e.g. in our "Sound Tuning Magazine", which can be downloaded for free from our website.

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 signal processor until general settings in the DSP PC-Tool software have been made. Especially if the DSP PRO MK2 will be used in fully active applications, a wrong setup can destroy your speakers right away.

① Load and save

② Main menu

③ Channel configuration

④ Highpass filter

⑤ Lowpass filter

⑥ Time alignment

⑦ Output level

⑧ Frequency graph

⑨ Range of frequency graphs

⑩ Equalizer

⑪ EQ fine adjustment

# HELIX Extension Card slot (HEC slot)

It is possible to extend the functionality of the HELIX DSP PRO MK2 by inserting an optional HELIX Extension Card (HEC) - for example a *Bluetooth®* Audio Streaming module, an additional optical digital input, an AUX input or an USB audio input.
To install a HELIX Extension Card it is necessary to remove the side panel of the DSP PRO MK2 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 signal processor, the head unit / car radio or other connected devices!

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

1. First disconnect <u>all</u> cables from the device.
2. Dismantle the side panel where the USB input is located by removing the five Phillips screws.
3. Pull out the bottom plate sideways.
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.
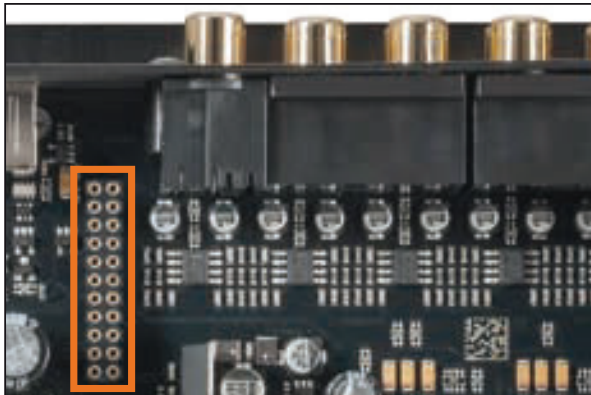
6. Make sure that the HEC module is installed properly and all pins are fully inserted into the socket.
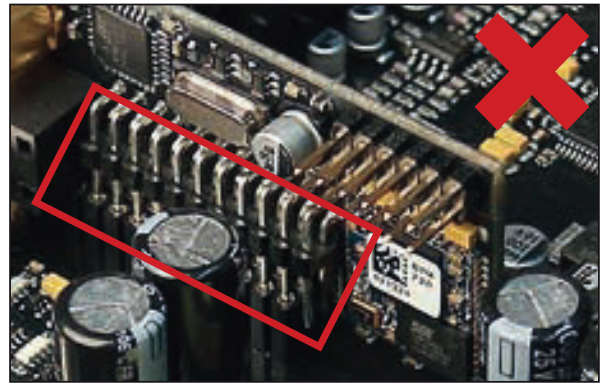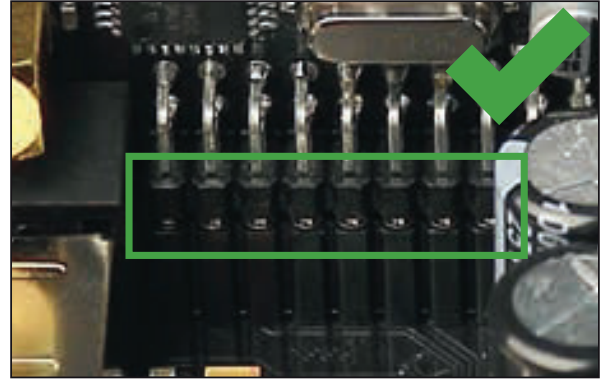
7. Reinsert the bottom plate and fix the new side panel which is delivered with the HEC module with the five Phillips screws.
8. Bolt the HEC module to the side panel. Precise mounting information will be found in the instruction manual of the respective HEC module.
9. Reconnect all cables to the device.
10. Turn on the signal processor. 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.

Unique Features of the HELIX DSP PRO MK2

96 kHz sampling rate
The HELIX DSP PRO MK2 allows to handle all signals with the doubled sampling rate of 96 kHz. Thus the audio bandwidth is no longer limited to usual values like 22 kHz but allows an extended frequency response to more than 40 kHz. Doubling the sampling rate requires significantly higher DSP power as the number of possible arithmetic operations is halved. Only the implementation of the latest DSP chip generation allows raising the sampling rate to 96 kHz and adding new features plus additional channels at the same time.

Signal converters with a native resolution of 32 Bit
The HELIX DSP PRO MK2 uses high-class AD and DA converters of the latest generation with a native resolution of 32 Bit instead of the common 24 Bit. The result is an unprecedented precision in signal conversion that especially optimizes the sound quality at lower signal levels.

Smart highlevel input
The latest generation of OE car radios incorporates sophisticated possibilities of diagnosing the connected speakers. If a common signal processor will be hooked up failure messages and loss of specific features (e.g. fader function) quite often appears - but not with the DSP PRO MK2.
The new ADEP circuit (Advanced Diagnostics Error Protection) avoids all these problems without loading the speaker outputs of the OE radio during high volumes unnecessarily.

Start-Stop capability
The switched power supply of the HELIX DSP PRO MK2 assures a constant internal supply voltage even if the battery's voltage drops to 6 Volts during engine crank.

Power Save Mode
The Power Save Mode is incorporated in the basic setup. It allows to significantly reduce the power consumption of the amplifiers that are connected to the HELIX DSP PRO MK2 once there's no input signal present 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 remains "invisibly" turned on for up to 45 min. even after locking and leaving the car! Once the "Power Save Mode" is active the remote output and therefore the connected amplifiers will be turned off. The HELIX DSP PRO MK2 will reactivate the remote output within a second 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 Mode" via the DSP PC-Tool software.

Automatic Digital Signal Detection
Switching from analog input to one of the digital inputs is done automatically as soon as a signal is detected on the *Optical Input* or *Coax Input*. This feature can be deactivated in the DSP PC-Tool software. Alternatively you can use an optional remote control for manual switching between analog and digital inputs.

Technical Data

Inputs	8 x RCA / Cinch
	8 x Highlevel speaker input
	1 x Optical SPDIF (12 - 96 kHz)
	1 x Coax SPDIF (12 - 192 kHz)
	1 x Remote In
Input sensitivity	RCA / Cinch 2 - 4 Volts
	Highlevel 5 - 10 or 10 - 20 Volts
Outputs	10 x RCA / Cinch
	1 x Remote Out
Output voltage	8 Volts
Frequency response	10 Hz - 44,000 Hz
DSP resolution	64 Bit
DSP power	295 MHz (1.2 billion MAC operations/second)
Sampling rate	96 kHz
DSP type	Audio signal processor
Signal converters	A/D: Asahi Kasei 32 Bit
	D/A: Asahi Kasei 32 Bit
Signal-to-noise ratio digital input	116 dB (A-weighted)
Signal-to-noise ratio analog input	110 dB (A-weighted)
Total harmonic distortion (THD+N) digital input	< 0.0005 %
Total harmonic distortion (THD+N) analog input	< 0.001 %
IM distortion (IMD) digital input	< 0.002 %
IM distortion (IMD) analog input	< 0.004 %
Crosstalk	> 90 dB
Operating voltage	9.6 - 18 Volts (max. 5 sec. down to 6 Volts)
Current draw	510 mA
Max. remote output current	500 mA
Additional features	HEC slot, Ground lift switch, Control Input, ADEP circuit, Auto Remote switch
Dimensions (H x W x D)	40 x 177 x 150 mm / 1.58 x 6.97 x 5.91"

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. This product is tagged with a CE-Certifikation mark. Thereby these devices are certified for the use in vehicles within the European Community (EC).

AUDIOTEC
FISCHER

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