Helix DSP Mini MK2 + DSP.3S



SP are the at-sound process de are now available in versions that we want to introduce here.

he DSP range from Helix ranges from the entry-level DSP Mini to the high-end DSP Ultra machine with 12 channels and dual-core DSP. Now Helix has given the two cheapest models a revision, so that we now have the new DSP Mini MK2 and DSP.3S in front of us. Both are still very similar to their predecessors, which is also reflected in the "careful" name changes. Nevertheless, a lot has changed in terms of equipment and hardware, and of course the continuously developed software DSP PC-Tool also has new functions. Let's start with the DSP Mini MK2. The layout of 6 DSP channels and 4 inputs, which are available as RCA and high level, has remained the same. Of course, there is also an optical digital input. The Mini MK2 works with Analog Devices' ADAU1451, which is just as powerful as the much-cited 1452, only with a little less internal memory for the "only" 6 channels. The tried and tested Burr Brown PCM3168 with symmetrical inputs is used as the converter, which can also be found in various Match and Helix designs. Here one can assume that the development department can control this journeyman perfectly so that he achieves the best measured values. Both the signal-to-noise ratio and distortion have been improved by the order of 6 dB, so of course we can live with that.

The DSP.3S has gained more features in the new version. Still equipped with 8 DSP channels and 6 inputs, the .3 S now has both an optical and an electrical digital input. As usual, the electrical one is specified higher, namely with a sampling rate of 192 kHz.



The inputs can be measured in the ISA (Input Stage Analyzer) and corrected directly using the runtime and equalizer

This means that it can record the best-

resolved signals that can come from

high-end music players, for example.

that has a coax S / PDIF. The .3 S has

The ADAU1462 can process 192 kHz

been given a very competent DSP chip:

natively without being slowed down (like

the 1452) - a perfect combination. On the

converter side, what has been said for

the DSP Mini applies, Helix does not do

DSPs and also to all future DSP products.

A further innovation applies to both

any experiments here.

Inconspicuous at first glance

This is fun, especially since the DSP.3S is

likely to be the only DSP in its price range

is the change of the plug connection of the control port. Instead of the round DIN socket. a modern Molex Nano is now responsible for exchanging signals with peripherals such as a remote control. This is where the good old cable remote control or the mini-computer Director dock. And of course the new smart Conductor remote control also fits (test in C&H 2/2021). From now on, the installer is happy about the Molex that he can lead the cable away from the device with almost no space requirement, and don't worry, an adapter for the previous DIN connection is included for those wishing to upgrade. But there is one major innovation that takes place in the dark. The control interface includes

Performance of Processing Management (ACO) Frances (Percent Configuration Mana

The prioritization options for the individual sources are exemplary. Now there is also a channel-pair sensitivity adjustment with clipping display

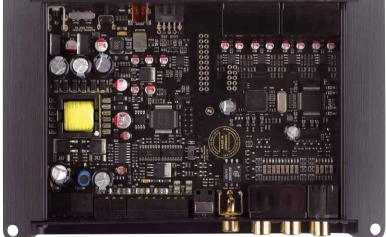
now also provides a power supply of up to 20 watts for peripheral devices. And it has also become "smarter" with regard to future applications, which is why it has now been christened SCP (Smart Control Port).

#### software

The DSP functions are of course controlled via the in-house "DSP PC Tool", which is the most extensive and powerful tool on the market. Apart from the number of channels, the DSP Mini MK2 and DSP.3S have the same features. In addition to 30 EOs per channel, time ers. Under the heading FX (Effects), algorithms for optimizing center, front and bass can be activated. First of all, the Real Center is a blessing because of its existence, here a stopgap solution like a mono sum or a wrongly polarized sum of left and right. There is a clarity expander for the center and front, which affects the mid-range reproduction, for also the mid-side EQ, with which the middle of the stage (voice) and the edges of the stage (instruments) can be influenced separately. The bass processing includes the SubXpander. There is also a dynamic bass boost that increases the bass depending on the playback volume. This helps very well, for example, in factory systems with woofers and subwoofers used to specifically influence the extent and function, with which the center of the stage (voice) and the edge of the stage (instruments) can be influenced separately. The bass subharmonics for existing frequencies. There is also a dynamic bass boost that increases the hass depending on the playback volume. This helps very well, for example, in factory there are adjustment knobs that can be used to specifically influence the extent and function, with which the center of the stage (voice) and the edge of the stage (instruments) can be influenced separately. The bass processing includes the SubXpander, which adds low tones to the music by generating subharmonics for existing frequencies. There is also a very well, for example, in factory systems with woofers and subwoofers that can withstand limited loads. For all FX functions there are adjustment knobs that can be used to specifically subwoofers with limited load capacity. For all FX functions there are adjustment knobs that can be used to specifically influence the extent and function. Very nice for factory systems adjustment knobs that can be used to specifically influence the extent and function.

via analog Devices' latest Sigma DSP series (Center). In the right half are the controller and the Codec from Burr Brown installed

The DSP.3S has





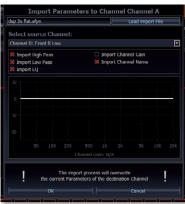
The configuration ons opportunities the acoustic Frequency response measurement are RTA still extensive become cherish the microphone bration is now even easier

The two DSPs also support the latest measurement functions of the PC tool. The well-known RTA (real-time frequency response

4/2021 <u>CAR<sub>s</sub>HiFi</u>



Unique: Automatic runtime correction with specially developed signals and algorithms



Import of individual parameters such as EQs, crossovers, gain and channel names from existing setups are now possible for inputs and outputs



with measurement signals programmed by Helix and lots of audio processing, whereby the

running time of all loudspeakers in the system is compared with a reference loudspeaker and then calculated. The software-based setting of the input sensitivity (s), which takes place

for each channel pair, is new. A weak input signal (e.g. for tweeters) can be assigned a

higher sensitivity than a stronger signal. This helps with the optimal use of the dynamics and

professionals, because setups that have already been created can be transferred in whole or

assigned to channels E and F by clicking, for example. The transmission of high-pass, low-

practical for power users. Finally, of course, the new DSPs also benefit from the numerous

diagnostic programs of some factory radios and freely configurable source management with automatic switching of sources and vehicle tones. The in-house ADEP.3 system is able to bypass the loudspeaker diagnosis of some vehicles, thus bypassing error codes or even switching off channels. Low pass, EQ, gain and name from any channel to any are possible for inputs and outputs - practical for power users. Finally, of course, the new DSPs also

benefit from the numerous integration features such as power-save mode for CAN vehicles

ADEP.3 system is able to bypass the loudspeaker diagnosis of some vehicles, thus bypassing

error codes or even switching off channels. Low pass, EO, gain and name from any channel

to any are possible for inputs and outputs - practical for power users. Finally, of course, the

new DSPs also benefit from the numerous integration features such as power-save mode

or bypass circuits for diagnostic programs of some factory radios and freely configurable

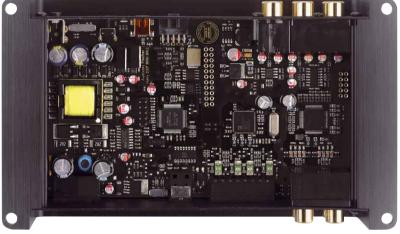
pass, EO, gain and name from any channel to any are possible for inputs and outputs -

integration features such as power-save mode for CAN vehicles or bypass circuits for

the computing depth of the DSP. The expansion of the import function, which is now also

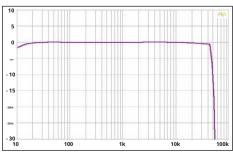
available for the inputs, is also very up-to-date. This makes life easier, especially for

Main window with crossovers and EQs, runtime, phase and channel level



Except for the smaller number In and outcorridors is the DSP Mini MK2 the DSP.3S nahe almost equaltig. Controller and converter are building blocks same, at DSP is enough minor 1451

solution with optional microphone) has been improved with a number of new features. In addition to the automatic EQ setting, there are now even more setting options for the measurement, e.g. a simplified microphone calibration. The ISA (Input Signal Analyzer), an electrical measurement function for the analog inputs, is added to the acoustic measurement of what comes out of the back. For example, if you have connected the loudspeaker lines of the vehicle to the inputs of the DSP, you can determine what signal is coming in. The DSP PC-Tool offers a frequency response measurement of all input channels, so that one



Thanks to the 96 kHz sampling rate, both DSPs are ideally equipped for HiRes music; it can handle a frequency range of over 40 kHz

immediately sees whether a functioning fullrange signal is present. In addition, sums of several inputs can be measured, so you can track down hidden all-pass filters that remain inconspicuous in the individual measurement. This electrical measurement of the inputs saves the installer a lot of time in troubleshooting and tuning the DSP, because the input EQs (and the input runtime) can be set at the same time as the measurement. with immediate success control. There is also the ATM (Automatic Time Measurement), which enables fully automatic runtime measurement and setting of the entire system. The advantage here is that the measurement signal is played as a sound file like a piece of music via the head unit; this is possible in all vehicles. The measurement then takes place

The entry side of the DSP.3S is different differs from that of the DSP Mini MK2 with 6 instead of 4 inputs and the electric S / PDIF input



32 <u>CAR<sub>s</sub>HiFi</u> 4/2021

#### Conclusion

The two new DSP Mini MK2 and DSP.3S are the cheapest entry into the Helix processor world. Both are equipped with HiRes computing power, ideally suited for integration into modern vehicles and benefit from the powerful DSP PC tool software, the latest version of which sets standards.

Elmar Michels



### Helix DSP Mini MK2 / DSP.3S

price sales Hotline Internet around 400/550 euros Audiotec Fischer, Schmallenberg 02972 9788 0 www.audiotec-fischer.com

## Technical specifications

Dimensions

DSP Mini MK2 177 x 104 x 40 mm DSP.3S 177 x 120 x 40 mm

**Entrances** 

- 4/6 channel high level
- 4/6 channel RCA
- 1 x digital S / PDIF (optical)
- 1 x digital S / PDIF (coaxial, only DSP.3S)
- Sensitivity 5 V (RCA), 11 V (high level)
- Outputs
   6/8 channel RCA (6 V)
- Remote out

DSP software (V 4.76 being tested)

Equalizer Entrances:

- param., 5 bands per channel Outputs:
- parametric, 30 bands per channel, +6 - -15 dB
- 20 20k Hz, 1 Hz steps, Q 0.5 - 15
- Shelf 25-10k Hz, Q 0.1-2
- All-pass filter 1st or 2nd order, f and Q adjustable

Crossovers
Outputs:

- 20-20k Hz, 1 Hz steps
- Bessel, Butterworth, Chebychev, Linkwitz, User, 6-42 dB / Oct.

Time and level

- sample rate 96 kHz, 3.5 mm steps (0.01 ms) Entrances:
- 0 5.20 ms, 512 samples Outputs:
- DSP Mini MK2: 0 531 cm (15.61 ms), 2048 samples
- DSP.3S: 0 708 cm (20.82 ms), 2048 samples
- Phase 0, 180 ° (full range), 0
   360 ° (22.5 ° steps)
- Adjustable level steps 0.1 1 dB Furnishing
- 10 setups with quick switching
- Inputs and outputs can be routed as required

- SCP control connection for programmable remote controls and accessories
- Start-stop capability up to 6 V
- Signal-dependent switching to digital or AUX inputs
- Automatic switching through of all vehicle tones
- Power-Save-Mode
- ADEP.3 error protection circuit for factory radios with speaker recognition
- Ground switch to Hum interference
- RTA real-time frequency response measurement (with optional microphone)
- FX menu with dynamic bass, center and front processing
- ISA input stage analyzer for measuring, adding up and correcting the inputs
- Time Machine to undo and restore settings
- Device monitor (control of temperature and power supply)
- ATM Automatic setting of the time correction with Special signal
- Automatic adjustment of the input sensitivity with a special signal
- Import function for data and settings from other setups

**Optional accessories** 

- Cable remote control (programmable)
- Display remote control Director with memory, USB, etc.
- Smart remote control Conductor
- WIFI Control (wireless programming)
- MTK1 measurement microphone set
- HEC HD-Audio USB interface
- HEC BT Bluetooth interface



# Helix DSP Mini MK2 / DSP.3S

"The cheapest HelixDSPs already shine with top features and are the first choice for users who need 6 or 8 channels."