

Helix DSP Mini MK2 + DSP.3S - 6- and 8-channel sound processors reissued

# DSP upgrade at Helix

► The 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.

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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. This is fun, especially since the DSP.3S is likely to be the only DSP in its price range that has a coax S/PDIF. The .3S has been given a very competent DSP chip: The ADAU1462 can process 192 kHz 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 any experiments here. A further innovation applies to both DSPs and also to all future DSP products. Inconspicuous at first glance

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



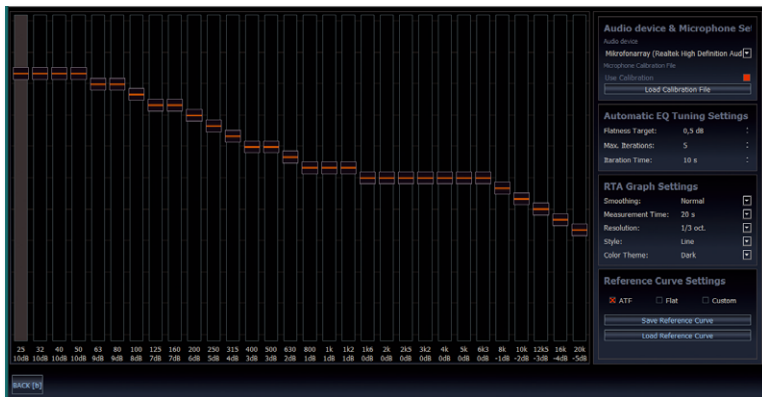
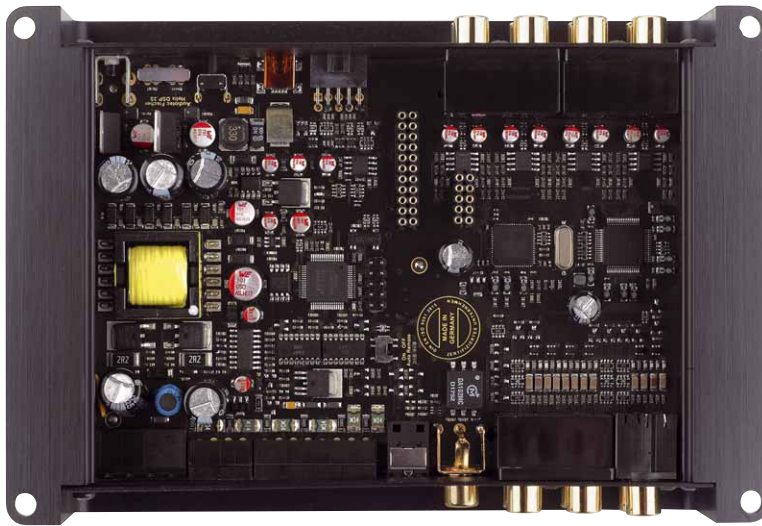
The prioritization options for the individual sources are exemplary. Now there is also a channel-pair sensitivity adjustment with clipping display

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 EQs per channel, time correction of both the inputs and the outputs and of course freely programmable crossovers. 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 center channel signal is calculated using real audio processing. So the Real Center is not 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 example with voices. The front can also be "pulled apart" to widen the stage image. There is 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, which adds low tones to the music by generating subharmonics for existing frequencies. 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 that can withstand limited loads. For all FX functions 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 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 that can withstand limited loads. For all FX functions 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 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 that can withstand limited loads. For all FX functions there are adjustment knobs that can be used to specifically influence the extent and function.

The DSP.3S has via analog Devices' latest Sigma DSP series (Center). In the right half are the controller and the Codec from Burr Brown installed



The configuration opportunities for the acoustic frequency response measurement are RTA still extensive become cherish the microphone calibration 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





#### 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

RECOMMENDATION

Sound processor

**CAR & HiFi** 4/2021

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

price	around 400/550 euros
sales	Audiotec Fischer, Schmalleberg
Hotline	02972 9788 0
Internet	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

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

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