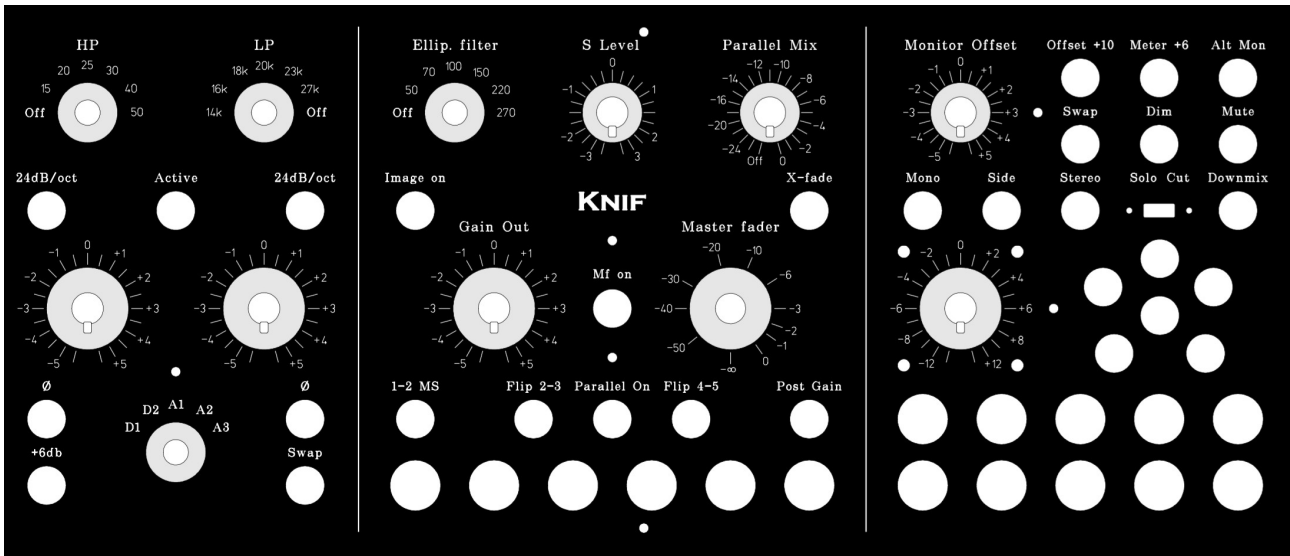


Knif Mastering controller



General features

Signal path is kept as simple as possible for highest fidelity. This means that there are no floating input or output topologies. This will not cause problems in properly executed and compact studio setups. The only minus is this: feeding an unbalanced input causes 6dB loss, and requires care that pin 3 is left unconnected in those cases. Luckily it is extremely uncommon for studio gear to have unbalanced inputs.

- Input debalancers are simple but high quality one OP amp circuits using ADA4627-1.
- MS and parallel circuits use ADA4627-1.
- Filter and Image processors use a bit more exotic topologies. They are based on simple jfet buffers.
- Output drivers from Input and Transfer paths use discrete Knif jfet OP amps.
- Monitoring section is based on high quality OP amps. ADA4627-1 and OPA2134
- Note that big buttons in the drawing are rectangular in real life.
- All connections are gold plated Neutrik XLRs.
- All rotary switches are Elma. All push buttons high quality LED-illuminated Japanese products with a very nice touch and low volume “click”
- Power supply is external.

Input

- Input impedance 10kOhms
- There is channel flip, phase switches,
- Everything active in input section can be switched Off. This means filters and gain.
- HP and LP filters can be switched between 12dB/oct and 24dB/oct
- Output impedance in 44 Ohms. Not floating.
- If AES-EBU switcher is chosen to the features, then inputs 4 and 5 control the AES-EBU feed to customers transfer DA converter and switch the Analog input for this converter. If AES-EBU switcher is not chosen, then there will be 4 Analog inputs.

Transfer

- Insert path is passive and gear switched in sees the input of the next gear in the line as long as there are no features activated. The last insert how ever will always see the gain section, and there is no way to bypass it.
- Gain section can be inserted from post 6 to between 5 and 6. This way for example a limiter can feed converters directly.
- Inserts 1&2 can be switched into MS.
- Inserts 2&3 can be swapped. NOTE: this way it is insert 3 which will be inside the MS loop and insert will be the parallel processor.
- Insert 3 can be switched for parallel operation. NOTE: when inserts 2&3 are swapped, it is insert 2 which becomes the parallel processor. Parallel operation can be either gain for the parallel or a X-fade between Parallel and Direct. In X-fade operation the 50/50 position is at 12 'clock.
- Insert 4&5 can be swapped. Nothing special here.
- Image processor is placed in the Gain section. S-level can be adjusted +/- 3dB and bass from S level reduced in level with the Elliptical filter which is 6dB/oct
- There is a DC filter in the output circuit. This is the only place in the console which is not DC coupled.
- Fader is optional. Good faders are no more manufactured, I just got the 3 last ones from Penny&Giles, so these might be gone when you read this.

Monitoring

- It is possible to build monitoring with either stereo or surround control. In Surround only one input, DAW, has Surround capability.
- Headphone output is optional and has its own volume control with Alps potentiometer.
- Main volume has a range of +/- 14dB and there is a dim -15dB switch. Customers should do a basic measurement of their typical listening volume gain, so that here at Knif we can design the gain correctly. The aim is to put the zero of Main volume to a fairly typical position, giving +14dB range for checking the purity of signal and listening to very low level program material.

- Offset volume can be “programmed” from PCB jumpers to affect any input, normally at least any of the Input section inputs. Customer can modify it later too.
- Surround version has 2 monitor outputs, the ALT Monitor just in stereo.
- Stereo version has 3 monitor outputs. Outputs 2 and 3 have level trimmers on the back panel.
- A 5ms gap delay is built to the monitoring switcher. This ensures that no two monitoring sources are connected together. Thus monitoring changes during bounces is possible without clicks.
- Metering output is taken after Monitor Offset circuit, but can also be configured pre Offset.
- There is a switch for dropping metering output by 6dB. Necessary with VU meters and high volume material.
- Monitor outputs are quasi balanced. Pin 3 is connected to ground with a small resistor.
- Monitoring sources can be any of the transfer inputs, the chosen transfer input after swap and phase, any of the insert sends, transfer output of course, 3 different monitoring section inputs including DAW Return. There are buttons for 10 choices.

AES-EBU switcher

This is extra. It reduces the amount of DA-converters in studio by routing digital signals to either Digital Input or Monitoring DAC. The switcher is built properly with AES-EBU transformers, receivers and drivers to full specifications. Outputs can drive 2 AES-EBU Inputs in parallel if needed.