FB5 – Valve Mixer – Custom Edition

USER MANUAL

This manual is also applicable to the V82 mixer.

Download and installation

Once you have received the User Area Access codes from SpaceF, log into the User Area. You will find menus to all product download pages. Enter the FB5 page.

The installation is done in two steps: installing the DSP and device files, and requesting the activation key. The activation key has to be requested using the special online form.

a. DSP installation

- Download and unzip the "DSP Activation" zip in a temporary directory.
- Copy the included Medyx05.dsp file in the /App/Dsp/ folder of your Scope installation.
- Leave the "FB5 key requester" where it is now. We will load it in Scope later.

b. Device installation

- Download and run the *.exe package[1].
- Check that the path of the install corresponds to your own installation. Otherwise, it will not install correctly (by default, the path is C:\Scope: change it so it points to your own Scope root folder).
- Click OK to install.

The package creates a "SpaceF Mixers" folder in the Scope Mixer directory, accessible from the Scope project window.

c. DSP Activation

- Restart or launch Scope so it takes into account the new DSP and devices.

Before going further, please log –on to www.spacef-devices.com with your user account. From the menu, choose "Key request" to access the form[2].

- Load the "FB5 Key Requester" device in your Scope project; a window will pop up asking for activation.
- At the bottom right of this window, click on "Import to Clipboard", and paste the key in the Key Request form (click on the Request String field, and ctrl+V).
- Check that the other information is correct (hardware and product, and your email) and send the form. Allow 1 or 2 working days to receive your activation keys.

FB5 MANUAL

1. Before we begin :

The FB5 mixer was originally made to provide a mixer with a superior sound for live applications. It resulted in the development of the Fat Valve algorithms, a rock solid midi implementation for remote controllers, and additional special switches for solo, mute and mix functions.

[1] This « *.exe » file is a self-extracting zip file. You can use zip/rar applications to unzip it instead of running it.
[2] Requesting the keys with the activation form is the only way to ensure successful registration and support for your keys.

All features (more than 1000 parameters) are controllable by midi remote controllers (except the mod to CC curve source selectors). Any equipment that is able to send Midi CC is compatible. Your CC assignments will be saved in presets and projects, and restored exactly on project reload. The midi implementation is very specific, and provides a much higher integration than usual with mixers.

Modulation is external and besides the included “Modulator” device and other Envelopes and LFOs, the FB5 can be connected to any external modulator or Modular Patches to create your own complex or custom modulators. Also, external modulators can be sent to stereo inserts, allowing you to use filter satellites

DSP USAGE

When all channels are activated, the FB5 will require a bit more than 6 DSP’s for itself due to the valve processing occurring on the 18 channels. Around 2 DSP’s can be saved by de-activating some aux and channels. Typically, the FB5 will be used on a Scope board or even larger DSP farms to really take advantage of its sonic difference.

Internally, the DSP implementation is different as it does not use a “per channel” building model, but rather parts which are loaded in various ways on your board, ensuring the best available DSP placement for the mixer’s parts and for the loaded inserts.

Even though you can de-activate the stereo channels, a few of the mono channels and the aux system to save DSP’s, you cannot deactivate the mixer as a whole. If you load it, obviously, it is to use it.

SOLO :

The Solo works as a “bypass-mute” function: when solo is selected, the sound will be heard whether or not the track is muted. Also, a “Compare Mix/Solo” button appears whenever a track is solo-ed. It allows to switch between the mix and the current soloed channels for comparison. The “Kill Solo” function is always available (it just has no effect when no channel is in solo mode).

The “bypass mute” type and the solo/mix compare allow to compare two patterns of the same loop (with mutes on the first, and solos on the seconds), and to switch between them.

Solo is available to all mixer channels except the tape and aux returns which have their own controls are independently mutable.

Solo button are never stored in any preset lists. Read below the “mix and mute” chapter for details.

MIX AND MUTES

A quick explanation is necessary. Mute shuts down a track as you expect it. No sound passes through. The mute is at the early stage of the channels, after the valve, as the valve is the input of the channel, and before the insert effects. This means that you can use the mute in “live” situation when you do not want to abruptly cut the effect tails of delays and reverb.

On its part, the “Mix” on/off button does not fully mute the channel: it mutes it only from the master output. This means that the sound will continue to go through aux channels. This very useful when you need to use the same effect (a reverb for example) with “full wet” on some channels.

The mix state is not reflected on the individual direct outputs. This allows you to use external groups/aux devices like the SpaceF MB4, and use the master as an additional group.

INSERT LOAD STATE
You will notice blue LED's next to each insert slots which can be used to bypass an effect.

What you need to know is that the insert load state does not unload any effect from the DSP's, allowing a much faster muting of the effect, and a constantly transparent DSP load for your project. It would not be welcome to have DSP overload or synch problems because of loading effects on and off.

The real advantage of the circuit is the "Load" Preset list: this preset list stores and recalls only the insert load state, and is fully controllable with Program Changes.

This means that you can actually load all effects you need for a performance, and activate only the ones you need one each songs or part of the performance, much faster than with any other method.

Please note that the Master Fx inserts Load State is also part of the "Load" preset list, and that the master Fx have a DSP engine that load them off DSP when the load state is off, or when no effect is loaded. Therefore, on the master Fx, a click might occur if DSP are reactivated.

PROGRAM CHANGES

The following preset lists are fully controllable with Program changes.

- **Aux Fx** insert effects (all 6 aux return effects at once)
- **Mutes:** all mix and mute functions
- **Load:** all insert load states

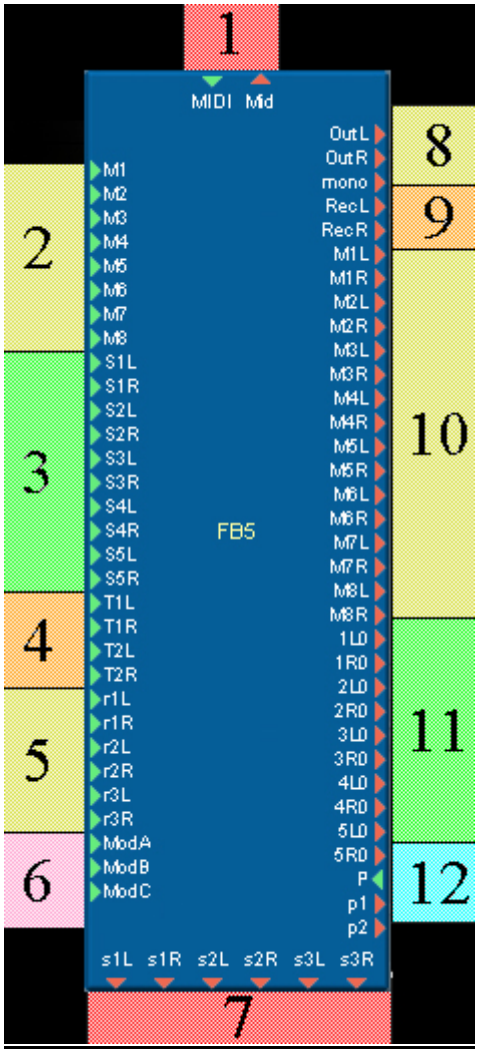
Please note that the Aux FX list retains the content of the inserts, with your own parameters. If you use it to load / unload insert effects, be advised that some effects may produce clicks (this depends on the effect themselves and can't be controlled by the mixer). Also, the Master Section FX has automatic DSP management (DSP turned off when effects are unloaded) which is different than a "bypass" function because it not only un-mute the effect, but also reactivates the DSP allocated to it.

MIDI CC Compatibility ?
You will find in this manual several references to Midi CC (Midi Control Changes). SpaceF definition of "Midi CC compatibility" is a little bit different from usual on Scope devices, due to stricter criteria.

When a device is fully midi CC compatible for SpaceF, it means that:

- Midi CCs are freely assignable by the user, allowing to conform to his own hardware controller(s)
- Midi CCs that are assigned to controls are permanent and the project survives switching the PC off. When you re-load the project, the Midi CCs will ALL be available just as you saved them, making your hardware controller(s) immediately active.
- Any functions that do not have *both* of those characteristic is not said to be Midi CC compatible according to our standards.

2. Inputs & Outputs



1.**Midi In/Out:**
Midi In: Connect a midi source for remote controller Control and Program Changes. A tip is to allocate a single "sequencer midi source" device to the remote controller.
Midi Out: connect to a sequencer or remote controller "parameter feedback" input. Any Control change assigned to a button will send the corresponding CC out of the device when activated.

2. Mono Channels inputs: Tip: you can link the volume of two pairs of mono channels using the "s" button of the mono channels. You can link the volume faders following channels: 1+2, 3+4, 5+6, 7+8. NB: link buttons as well as linked/unlinked faders retain midi CC assignments as well.

3. **Stereo channel inputs:** (L/R= left / right)

4. T1 / T2: tape channels are input channels that do not go to the auxiliary returns but directly to the master section. They include an insert slot, gain, and feedback is possible for effect returns or other loop jobs.

5. **Aux returns inputs:.** Whatever is plugged here goes to the aux insert slots. Feedback is always active on aux returns.

6. **Mod A to C:** Modulation inputs. Connect external modulator devices or modular patches. Then you can direct these modulation sources to each channel using the "Edit" page of the mixer.

7. **Aux Sends:** These are the external auxiliary sends which are used to send channels to external effects, or link several mixers together.

8. **Master Output:** Also provides a summed mono output for phase checking or other mono application.

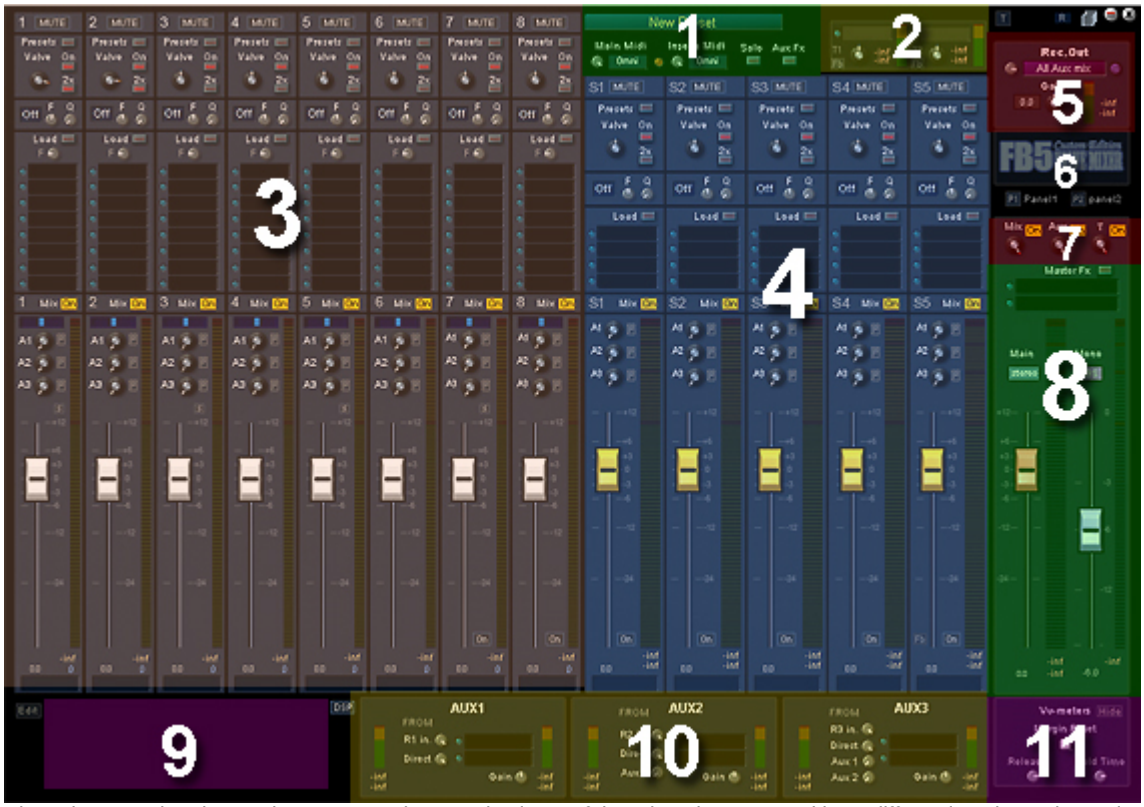
9. **Record Channel Out:** The record channel provides an individual output for various channels, including "pre" signals, and several recording methods for mono channels and pairs. Additionally, it can output the auxiliary effect individually or as a mix, or any of the master Fx individually.

10. **Mono channel direct outputs:** The direct outs are post-fader and pan, therefore mono channels are panned in the mix and converted in stereo. Use the direct outputs for stereo recording, effects, or external groups and aux devices.

11. **Stereo channels direct outputs.**

12. **Remote panels in/outs:** Connect between devices to control showing/hiding of devices' panels.
P (green): is an input pad that receive commands to open/close its surface.
P1, P2 (red): sends the command to open a panel. They must be connected to a green "P" pad of another device.

Tip: the P1/P2 buttons are found above the master section. You can rename the panel names by clicking on the text and typing the name of the other device.



The colours on the picture above are not the actual colours of the mixer, but are used here differentiate the main sections of the mixer. Also 3 inserts are present on the master section instead of 2 as pictured.

1. Global Midi parameters, Solo and Aux Fx presets, Preset name.

2. Tape channels returns

3. Mono Channels

4. Stereo Channels

5. Record channel selector (remote controllable knob or drop down list).

6. Remote panel show/hide buttons

7. Pre Master section : “Mix”, Aux and Tape levels, each with an on/off button (mute).

8. Master Fx and Gain section. The master Fx include a preset list. The Master section also includes a mono summer for quick phase check.

9. Edit parameters. The “edit” button opens pages for editing the modulation source and gains, assigning controllers to the filter selectors, and more.

10. 3 auxiliary effects that can be cross-faded. Aux 1 can be sent to aux 2 and Aux 2 can be sent to Aux 3. Aux 1 can also be sent to Aux 3. This is used either like a workstation effect section, or for live performances where one effect will be temporarily sent to (an)other effect(s).

11. VU meter controls. As usual on SpaceF mixers, a single “VU Margin Reset” is common to all margin meters of the whole mixer. Also a “show/hide” VU’s functions is present, to accelerate the Scope graphical interface when needed (a lot of VU’s at the same time can slow down the Scope graphics).

GLOBAL PARAMETERS

1. **Preset name label:** Shows the current preset. If the preset is being modified, a "*" sign will appear after the name (except the default preset, where the default name will just vanish).

2. **Kill Solo and Solo/Mix compare:** They are located here, at the centre top of the device, because it is the most easily accessible. The "Solo/Mix" compare button appears only when a channel is actually in solo mode. This is handy at late hours of the night to know immediately that there is a solo button active somewhere. The kill solo button is always visible and has no effect when no channel is in solo mode.

3. **Main Midi Channel:** is the midi channel for surface controls such as buttons and faders. Also outputs midi CCs on that channel (when a CC is assigned to a surface control).
Insert midi channel: is the midi channel for controlling the insert effects controls. Also outputs midi CCs on that channel (when a CC is assigned to a surface control).

Tips: the "main" and "insert" midi channel can be the same or different. When different midi channels are selected, the device is able to store 240 midi Control Changes. When the midi channels are the same, 240 CC are still available, but the surface and inserts controls will be linked together.

4. **Midi Preset lists:** the 3 preset lists located here are the ones which can be controlled with program changes and which correspond to mixing functions.

Sub-Preset lists :

As usual with SpaceF devices, you will find sub-preset list in addition to the main preset list.
Sub-preset list recall only small parts of the device, whereas the main list recalls every parameter.

On the FB5, in addition to the usual preset lists for **Aux** and **Master Fx**, you will find sub-presets the **Rec. Channel insert**, and for playing live.

- **Mutes:** this recalls the mutes and Mix on/off button
- **Insert Load State:** recalls the state of the insert, without unloading the effect from its insert slot, and without turning the insert slot DSP on/off (this is required to avoid loud clicks and longer preset loading time)
- **Aux Fx:** The Aux Fx preset list is also controllable by program changes, allowing to change effects between 2 songs. However, please note that the loading/unloading of Fx from inserts might cause clicks, therefore, test your preset changes, and turn the master volume down when changing (alternatively, you can just press the "Aux on/off" button of the master section to turn off any signal coming from the 3 aux inserts).

MONO CHANNELS[3]:

1. **Mute button:** Mute is "pre-fader".
2. **Solo button:** Solo is "Pre-fader and "bypass mute" (you will hear the sound independently of its mute state, meaning that you can solo and edit a sound even if you are running complex mute group patterns).
3. **FAT Valve circuit:** it is the same as the FAT Inserts from SpaceF-devices, except that the FATs are included in the mixer. The **Preset list** button saves/restore settings of the valve+filter ("4") and can be exchanged between channels. This is actually handy when linking two mono channels, when you want the same valve and pre-filter settings to be applied. The valve control is the amount of fatness added to the sound. The *2 button just doubles this amount (more exactly, by approximately 1.8).
4. **Valve filter LP/HP/BP:** Very useful on any sound and in any case allows to save a band of your parametric Eqs. All pre-filters (mono and stereo) can be modulated using the modulation source and gain found on the Edit / Mod page (see infra).
5. **Inserts and Satellite filter section:** The **"F"** parameter is the common offset for satellite/RD filters and is independent from the pre-filter cut-off and modulation. The **"load"** button allows you to preload effects as you need. However, please note that those effects will be loaded with their default settings and that your own settings will not be saved in this preset list: there is a preset list because it allows you to save a huge amount of time by loading a suite of effects at once, instead of loading each 8 effects one by one, which can be a very stressful activity when you have something else to do. To save settings of insert effects, use the insert preset list.
6. **Mono Insert slots:** Compatible with regular mono effects, and also with SpaceF satellites and RD filters. When using Satellites/RD filters, the slots can receive modulation (see the edit/mod pages for more info) and the individual offset of each filter is set with their own settings. Using the "F" rotary knob (see "5" above) you can modulate them all at once.
7. **Mix On-Off:** indicates whether the sound goes to the master section: when Off, the sound continues to go to the aux and to the individual direct outs. It continues to go to the Aux because it allows more creativity by letting you hear the aux effects only (while "mute" does not allow this) and because it allows to use the Master section as an extra group when using devices like the MB4 "4 groups" device.
8. **Pan control:** simple pan fader. The numerical value of the pan is located under the VU meter (see "15"), and can be edited by typing a number (-64 to +64). The pan is the most simple cross fade volumetric pan. It is very light and if you need more complex pan controls, you can always load a pan insert in the insert slots.
9. **Auxiliary Send Section:** the aux send control will be highlighted as soon as its value is superior to 1. Even though it can be surprising aesthetically, it has been proven to allow a much faster search for active auxiliary sends, much more rapidly than looking for the needle position.
10. **"S" stereo link:** this button is present on every "even" mono channel (2,4,6,8) and links the volume, and only the volume, to the preceding mono channel. When a channel is linked, the fader disappears and a "linked" graphic is shown. You can "dualize" the following channels: 1+2, 3+4, 5+6, 7+8. Also, the link button is fully compatible with midi CC and will be retained in your projects/midi presets and is directly available next time you load the project.
11. **Volume fader:** Made to be visible from quite far and under heavy lighting (the whole mixer has been tested under heavy lighting including direct sunlight and powerful spotlights and the main controls are always visible).

[3] More parameters for mono and stereo channels can be found in the Edit Mod and Edit CC pages (see *infra*).

12. **Channel DSP On/Off:** loads the channel off DSP. On SpaceF mixers, internal connections are never disconnected, to have a steady placement of the audio flow even when you load channels on and off. However, it is advised to use DSP features at the beginning of the project. If you use a lot of DSP on/off during the same session, is it a good idea to save and reload the project with your final DSP setting, to let Scope reload the whole project in a logical and clean way.
13. **dB indicator:** shows the absolute gain added or subtracted by the volume fader. You can type a value in this field.
14. **Margin meter:** shows the absolute headroom available for this channel, and the maximum peak reached by the audio source. For example, if the meter shows "-12 dB" it means that you are 12dB far from clipping, and that you can add 12dB before the sound reaches clipping point.
15. **Pan Value indicator:** shows the value of the pan from –64 (full left) to +64 (full right). You can type in a value in here.
16. **Channel Label:** you can type a name for the channel here.

NB: to change the valve filter type, either click and drag the display, or assign a controller to the relevant control in the Edit Mod page.

A word about the VU meters.

Each mono and stereo VU-meter includes 84 LED's, which is the exact number of LED's needed to show 1dB increments from –12 to 0 dB. The orange LED's show –12, -6 and –3 dB. The red LED's show –1 and –0.6 dB. As you see, there is no clipping indicator on the VU: the clip indicator is on the margin meter, when it shows 0 dB.

They are helpful to have a quick look at your sound waves especially if it is dynamic. while the margin meter only shows the max value of the sound since it has been played, and does not give any indication about dynamics. With those VU's, you have a little bit more information than usual, at a cost of 0 DSP/resources as it is just a modification of the LED's colours.

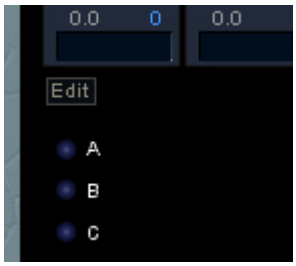
At the bottom right of the Mixer, you will find the common VU parameters. You can hide them to save some graphical resources, reset all margin meters at once – very handy with a hardware controller button – and set the release time of the VU decay and of the peak hold function.
NB: you cannot have infinite peak hold: this function is already available with the margin meters, which are all infinite peak hold functions.

STEREO CHANNELS

1. **Mute button:** Mute is “pre-fader”.
2. **Solo button:** Solo is “Pre-fader and “bypass mute” (you will hear the sound independently of its mute state, meaning that you can solo and edit a sound even if you are running complex mute group patterns).
3. **FAT Valve circuit:** it is the same as the FAT Inserts from SpaceF-devices, except that the FATs are included in the mixer. The **Preset list** button saves/restore settings of the valve+filter (“4”) and can be exchanged between channels. This is actually handy when linking two mono channels, when you want the same valve and pre-filter settings to be applied. The valve control is the amount of fatness added to the sound. The *2 button just doubles this amount (more exactly, by approximately 1.8).
4. **Valve filter LP/HP/BP:** Very useful on any sound and in any case allows to save a band of your parametric Eqs. All pre-filters (mono and stereo) can be modulated using the modulation source and gain found on the Edit / Mod page (see infra).
5. **Stereo Insert effects:** You can load stereo effects in the insert slots. The **“load”** button is the same as for the mono channels. Contrary to mono channels, you cannot load directly Satellite or RD filters: you can do it, and modulate them, by using a special insert slot provided by SpaceF and by using the *Mod to CC* parameters (see “Mod to CC” pages).
6. **Mix On-Off:** indicates whether the sound goes to the master section: when Off, the sound continues to go to the aux and to the individual direct outs. It continues to go to the Aux because it allows more creativity by letting hear the aux effects only (while “mute” does not allow this) and because it allows you to use the Master section as an extra group when using devices like the MB4 “4 groups” device.
7. **Auxiliary Send Section:** the aux send control will be highlighted as soon as its value is superior to 1. Even though it can be surprising aesthetically, it has been proven to allow a much faster search for active auxiliary sends, much more rapidly than looking for the needle position.
8. **Volume fader:** Stereo Faders are yellow, while mono faders are white.
9. **Channel DSP On/Off:** loads the channel off DSP. On SpaceF mixers, internal connections are never disconnected, to have a steady placement of the audio flow even when you load channels on and off. However, it is advised to use DSP features at the beginning of the project. If you use a lot of DSP on/off during the same session, is it a good idea to save and reload the project with your final Dsp setting, to let Scope load the whole project in a logical and clean way.
10. **dB indicator:** shows the absolute gain added or subtracted by the volume fader. You can type a value in this field.
11. **Margin meter:** shows the absolute headroom available for this channel, and the maximum peak reached by the audio source. For example, if the meter shows “-12 dB” it means that you are 12dB far from clipping, and that you can add 12dB before the sound reaches clipping point. .
12. **Channel Label:** you can type a name for the channel here.

Stereo Channel 5 includes a “Feedback” button located just under the Aux Sends. It allows… feedback on this channel. An application mainly to be able to create an effect loop and apply all channels parameters to this loop (valve, filters, inserts). Typically, it is used with delays to create “dub” tape effects with your own tools.

Additional channel parameters:



At the bottom left of the mixer, you will find a button labelled “Edit”. It gives access to 2 additional pages for channel parameters.

Page 1 – Mod : you will find the parameters to control modulation sources and gains. Additionally, you will find controls to assign a Midi CC to remote control the filter selector of each channels.

Page 2 – CC : gives access to a tool to convert incoming modulation into Midi CC to be sent to inserts. Additionally, you will find indicators for the filter frequency.

MOD EDIT

Full view of the Edit-Mod section. 1 is for the mono channels, and 2 for stereo channels.

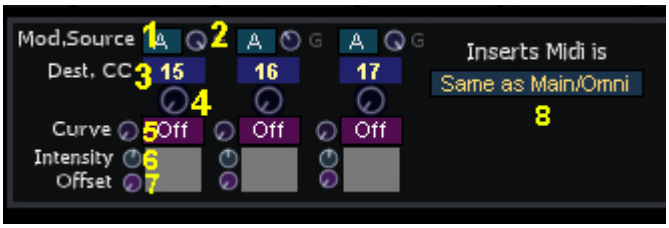
1. **Modulation LED’s:** Those LED’s appear on all pages and are general VU meters for the incoming modulation. It just shows that a modulation is actually received by the mixer and can be sent to filters. Modulation inputs are the Mod A to C of the mixer (see page 5, #6).
2. **Mod source selector:** Either *click and drag* the display, or use the control to change the modulation source. Each source and its reverse are available. The control is small, but is there mainly to be able to assign a Midi CC for using a hardware controller.
3. **VF:** Send the modulation to the “valve filter”. This control is available only on mono channels, because modulation can be sent to the valve filter, and also to the insert slots. When you want to use the valve filter as a static filter, then you don’t want it to be modulated. Modulation is always sent to all insert slots. To cut modulation you either put the insert “F” to zero, or use the internal controls of the filters[4]. To make it easier, use modulation on the satellites/RD inserts, and keep the valve filter as the static one.
4. **Modulation gain:** Sets the amount of modulation sent to the filter. Full left is Off (0 modulation).
5. **Modulation source selector** of the stereo channels. On stereo channels, modulation is sent to the valve filter only. To send it to inserted effects and filters, you must use the Mod toCC parameters.
6. **Modulation gain** for stereo channels’ filters.
7. **Assign a Midi CC** to the controls to make the valve filter selector available to hardware remote controllers.

[4] If you use the BlackBox filters, choose the “EC” versions (echo version) which a modulation input gain. Non “EC” filters were designed for synths, and may or may not include a modulation input gain. All satellites (EC / Non-EC / and RD filters) are fully compatible with the insert anyway, but some may have more or less included functions.

Mod to CC

SpaceF mixers include 2 midi channels by default, one for the main surface controls and another for the inserted effects only: this midi implementation is not only used for controlling inserted effects with 119 additional CC if needed, but are also used to convert incoming modulation into midi control changes that will be sent to mono or stereo inserts. Of course, you can do it with external devices, but it is easier to use on board functions. Knowing that there are different Mod to CC methods and devices available from various developers, only 3 CC outputs are provided inside the mixer, which is generally enough for everyday use. Moreover, this limitation to 3 CC outputs has been retained to save resources when used: a lot of Midi CC modulated at the same on the same device might bring a huge slow down to the Scope system due to the extremely high number of Midi CC information.
Do not misunderstand: you can assign an unlimited number of Midi CC to your project and it will be fine, but it is when they are "moving" at the same time that it is resource consuming. The maximum number of Midi CC moving at the same time on the whole project depends on your system performance.

Full view of the "CC" page. 1 is the Mod to CC parameters. 2 is the display of the valve filters frequencies (you can type a value here). It is intentionally that those values are "hidden" from the main surface: we believe that you would do a better job by listening to the sound rather than trusting some numerical values. We also think that it might be interesting (or required) to have access to those indicators, and that's why they have been added anyway.



1. **Modulation Source Selector:** as with the Mod Edit, includes all 3 modulation inputs and their reverse.
2. **Modulation gain:** this is the amount of modulation sent on this midi CC
3. **Midi CC destination:** the modulation is converted into this CC number. Type a number to change the destination CC.
4. **Midi CC output indicator:** a basic VU meter for the modulation, that looks like a poti that you move. It is actually how the destination parameter will react once it is assigned to this CC.
5. **Curve Selector:** You can change the shape of the incoming modulation. Put it Off when not in use: it will save resources by not converting modulation into CC messages. On the curves, you can select various shapes such as Exponential and its reverse, Logarithmic and its reverse, and linear (no changes to original modulation shape).
6. **Intensity:** changes the curve slope, or how fast it goes from the minimum to maximum values. Use this control to fine tune the reaction of the destination parameters.
7. **Offset:** sets the minimal value of the Modulation, and also allows to fine tune the reaction of the destination parameter.

The functions explained above (5 to 7) also mean that you can use the same modulation source on all of the three Mod to CC, and still heavily modify their shape individually.

8. You must manually select the midi channel of the Midi CC. It is really easy: insert's midi

channels is either the same as the main channel, or another one. You can also choose a totally different midi channel, and the CC will be outputted to the selected midi channel: by connecting a device to the midi out of the mixer, you will be able to control 3 parameters from the mixer itself.

TAPE CHANNELS

Tape channels are not regular channels like the mono and stereo channels: the main difference is that they do not have auxiliary sends and were designed as ultra light extra channels that can be used for plugging another mixer or a wave source (when Wave source is not your main working tool).
Contrary to "real" live mixers, our Tape Channels include an insert slot and a feedback parameter. The insert slot can be used to insert a channel insert (like the FAT CS4 channel insert) and the feedback can be used to create an effect loop (see the last paragraph of page 10 for example of applications using feedback).

1. **Tape channels show/hide:** Allows you to hide the tape channels.
2. **Stereo Insert slot.**
3. **"Fb" feedback button:** turns green when active.
4. **VU meter and margin meter**
5. **12dB Gain control.**

AUXILIARY EFFECTS SYSTEM

Full view of the auxiliary effects.

The FB5 uses 3 auxiliary effect sends, with pre/post fader ability. The rationale for 3 aux sends is first the limited number of channels of the mixer (8 mono + 5 stereo), and the high number of insert effects and filters on individual channels. Secondly, the higher DSP use of aux with pre/post ability. Thirdly , being part of a modular mixing system, the auxiliary section can easily be extended with additional "post" auxiliary effects that can be called directly from the mixer itself and integrated just as they were inside of the mixer. The only difference will be a few more connections from the direct outputs of the mixer to the additional aux effects. SpaceF-Devices proposes an external 3 aux that allow to extend the aux system to 6 (3 pro/post, and 3 post only with its own midi channel). Other devices allow to add groups and auxiliary effects (MB4 and derivatives).

The Auxiliary effects are crossfadable, meaning that you can send aux 1 to aux 2 and aux 3, and send Aux 2 to aux 3. For example, you could load a chorus on Aux 1, a Delay on Aux 2, and a reverb on Aux 3, and have chorus and also chorus + delay, and chorus + delay + reverb, or chorus+ delay only, or delay + reverb only, using only 3 auxiliary effects. By using both the Aux sends and the Aux cross fades, you can have play with a mixture of any of the three effects you have loaded, or their sum.

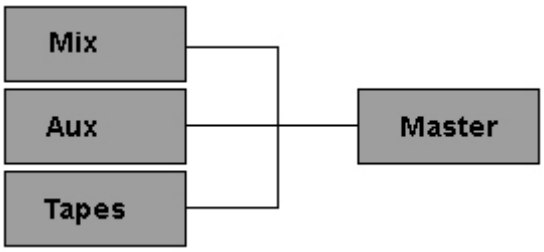
You can save a preset for your auxiliary effects using the Aux Fx preset list.

You can load off DSP the Auxiliary Send and Pre/Post features using the DSP page (see infra).

Hereunder, we use Aux 3 for the example as it has the most parameters.

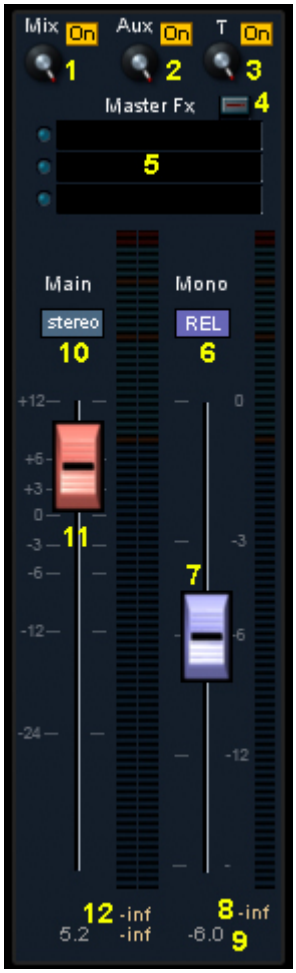
1. **"From" Parameters:** understand it as "where does the signal comes from" . They are input gain for various sources of the aux signal. Source may come from external aux inputs (r1 to r3 inputs), or "direct" from the mixer (ie, directly from the Aux Sends). A source can be the other Aux effects: as it is a chain (Aux 1 to Aux 2 to Aux 3), Aux1 has no "From Aux" inputs, and Aux2 only has "From Aux1" input. Also, it is the guarantee to save resources and to easily understand what is going on in the aux section. NB: all "from" parameters go to the 2 insert slots.
2. **R3 in:** correspond to the R inputs of the mixer. The R inputs are used either to chain several mixer aux systems in one, where effects will be loaded on the last mixer of the chain, or to get the signal from external effect returns.
3. **Direct:** is the signal that comes directly from the Channel aux sends, when you do not use an external effect on this Aux.
4. **From Aux 1 and Aux 2:** allows to route the signal from an Aux to another. The signal is taken from the Aux output (*i.e.*, after the insert slots).
5. **Insert load state:** Like other load state LED's, it can be used to bypass an effect.
6. **2 insert slots:** In general, the second insert slot is used to shape the sound of the first slot (for example, an Eq after a reverb or delay). Of course, you can chain two effects as usual.
7. Gain of the Aux output.
8. VU meters and margin meters.

MASTER SECTION



As you can see from the figure above, the mix (mono/stereo channels mix), the Aux mix and the Tape mix are three different sections of the mixer, that are all directed to the Master section. As you will see from the description below, you can turn off each of the three sections, and mix them with various volumes, before reaching the final stage.

The levels are very useful when looking for the perfect mix/aux balance, where instead of intervening on all aux returns individually, you can edit the overall aux level. The ability to mute each of those sections is the quickest way to solo the aux, mix or tape returns, and to check their individual signal.



1. **Mix:** On/Off button
2. **Aux:** On/Off button
3. **Tape:** On/Off button
4. **Preset list:** for the Master Fx
5. **Master Fx section:** there are only 3 master inserts. In fact, those are made for “pre-master ” effect such as limiters, compressors, Fats and Eqs. For real mastering jobs, we advise using either a full channel of the mixer during a “after recording” session , or an external insert rack or device.
6. **Mono Mode:** sets how the gain of the mono channel will be edited: either ABS (absolute) or REL (Relative). “Relative” means that the mono signal will be dependent on the main stereo master: when you move the main stereo fader, the level of the mono signal changes accordingly. In Absolute mode, the level of the mono channel is independent from the stereo master gain.
7. **Mono Channel level:** the mono channel is a sum of the stereo channel. For an equivalent gain on both mono and stereo channel, the mono channel has to be lowered by 6 dB. This is why the centre of the mono channel is exactly –6dB.
8. **Mono Channel margin meter**
9. **Mono channel gain display:** You can type a value here. –6.0 dB must be the value used when monitoring summed up stereo channels.
10. **Stereo/Mono switch:** allows you to switch between the normal stereo master out, and the mono channel, to listen to the mono summing.
11. **Main Stereo Gain (Master Out):** in general, you leave the fader at its 0dB position while the gain is set by the individual channels or the PA system. Of course, it depends on your mix levels, and it is not a problem to change the gain of the master out.
12. **Stereo margin meter and stereo gain display.** You can type a value in the gain display.

The Record Channel

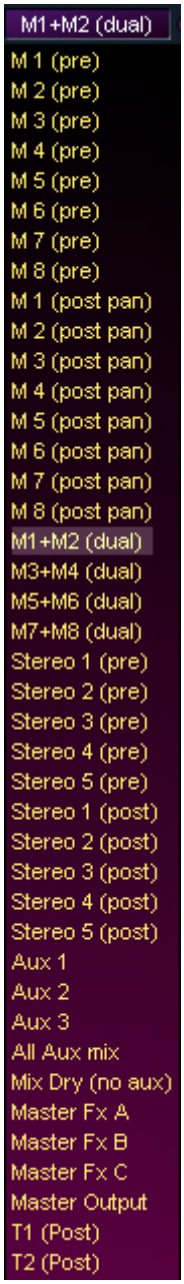
The Rec channel provides an easy way to record any channel of the mixer, and even “pre” signals (inputs) without ever disconnecting cables in your project. It saves time, and clicks, and was made for this very purpose. It also gives several methods of recording mono channels and linked mono pairs, as well as offering a direct output for each aux return section, all aux mix, each Master Fx and various intermediate signals which are normally not accessible through regular outputs.

The interest of the Rec Channel is to permanently connect it to a stereo asio or wave destination.

It can also be used to provide individual monitoring for individual channels.

1. **Channel List:** shows the currently selected channel. Click on the list or on the purple button to show the full list of channels (see below for a picture of the list open). The grey rotary control at the left of the list display is there to be assigned to a hardware controller rotary controller or fader.
2. **Rec channel insert:** this is normally used to insert analyser inserts (phase analysis, spectral meters…) and the preset is there to allow you to recall your insert set-up whenever needed.
3. **Rec Gain:** allows you to modify the level of the recorded channel without influencing the level of the source in the mix. 0.0 dB gain means that the signal level is the same as the source channel level.
4. **Rec Pre/Post insert :** By default, the Record output is after the insert. By clicking on the “P” button, the record output is taken just before the insert. This was mainly added for “dead end” analysers which sometimes do not provide an output “thru” channel.
5. **VU meter:** the VU meter shows whatever goes to the Rec outputs whether pre or post.

On next page, you will find all channels available to the Rec out and more details about the options for recording mono channels.



This is what you see when you open the record list.

As you can see, all channels are available, with an indication of whether the signal is pre or post. “Pre” is the signal at the input, before the valve, filters and other channel settings.

About mono channels: recording mono channels has always been considered by SpaceF as one of the most boring aspect of mixing when you have to select the right wave channel, disconnect and reconnect cables, and sometimes do it again because you didn’t pay enough attention to this or that setting. The Rec channel was made to get rid of these requirements. As the Rec channel is two channels (Rec Out left and Right) there are different ways to record mono channels.
M (pre): the selected mono channel is directed to both Rec out (left and right). The advantage is big on your recording software side, because you do not have to care anymore whether you are recording the source from a left or right source/destination. Whichever is selected (left or right) the same mono signal is recorded. One thing less to think about when recording.
M (post pan): Post pan is a stereo signal because of panning. Therefore, use this to convert a mono channel into a stereo track.
M+M (dual): records a pair of mono channels on each left and right Rec output. It can be used to record 2 mono channels at once, or to record a stereo-linked pair of mono channels.

Other channels:

Stereo channel pre/post is self-explanatory and doesn’t call for any special remarks. You record the input or the output as you wish.
Aux 1/2/3: record whatever comes from the aux return individual outputs (post gain).
All Aux Mix: Records the mix of the 3 auxiliary return. It is the same signal as the one found on the master section Aux On/Off source. It is useful to record or monitor the auxiliary effects on a single track of your recording application (allowing post production levelling if necessary).
Mix Dry (no aux): record the mix, without any auxiliary effect. It is the same signal as the one found on the master section Mix On/Off source.
Master Fx A/B/C: records the outputs of each master Fx. This is handy when you mix with some pre-mastering effects but prefer not to record them and keep fine tunings for later on.
Master Output: yes, you can also direct the master output to the Rec channels.
T1/T2 post: allows to select tape channels individually. To record “pre”, just deactivate the Tape inserts (if any). This limitation is due to the limited functions of each tape channels, and the easiness to access the pre signal by deactivating 1 insert load led only. Again, this is to save resources by not adding internal circuitry when a function is already available directly on the mixer without too much manipulations.

External device integration

Just between the master and Rec channel sections, you will find two button labelled P1 and P2. They can open other compatible devices. In general, opening/hiding devices remotely is done with hardware controllers by assigning a button to the “close” button of the device surface.

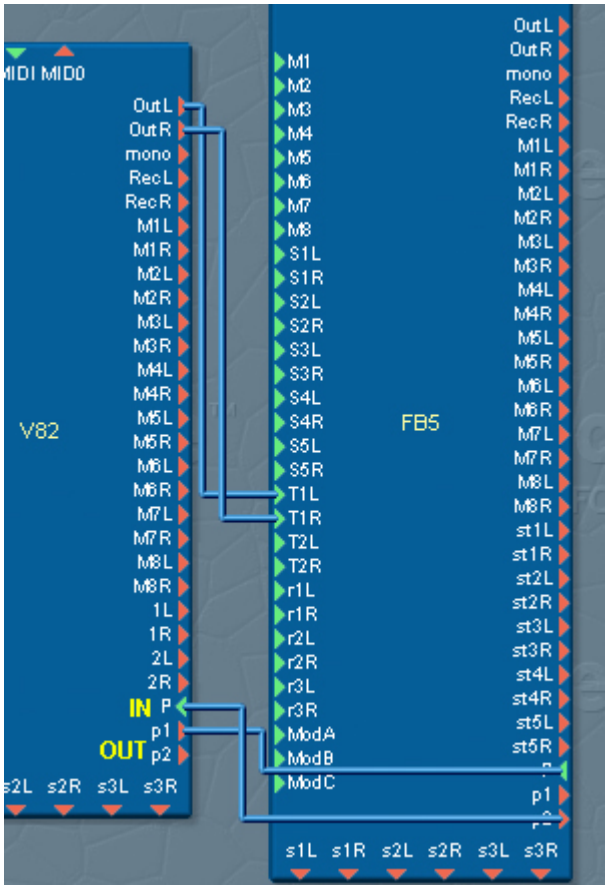
But if you run out of hardware controls, or don’t have one, you can use those buttons to open/close other compatible devices, and even type a name for that device.

Example of devices to be connected here are SpaceF modulators, other mixers, additional aux or group sections, and other devices that are yet to be made. Most SpaceF devices in the future will include such controls.

The advantage is that it will react just as if the device was integrated inside the mixer – saving the need to make connections yourself – and it provides additional midi channels as those devices are external.

1. **P1/P2:** buttons that send a value that opens other devices.
2. **User editable text:** These dots are in fact a text that the user can modify. Click on the dots (or empty space next to the P1/P2 buttons if you deleted the characters) and type a name.

Example of connections:



Here is an example of a FB5 and a V82 connected together.

IN: the green pads are inputs. The green P is the input that allows another device to open/close the other surface.

OUT: these are the outputs for P1 and P2 buttons.

You can connect as many devices as you wish, and even interconnect several of them if you want 1 device to open several others.

Here, the FB5 can open/close the V82, and the V82 can open/close the FB5.

DSP OPTIONS

In addition to the DSP On/Off function of the individual channels, you will find more DSP options by clicking on the “DSP” button at the left of the Aux section.

Aux 1 to 3 main on/off: deactivates the Aux Sends and Aux Pre/Post functions. The auxiliary returns are still available (to load them off DSP, remove any insert effect from the aux returns).

Solo: deactivates the DSP of the main functions of the aux. Solo feature is usually still available even when solo is turned off: because internal connections are never disconnected, and the DSP off acts like “freeze”. The difference is that you can have more “clicks” when pressing the solo buttons while they are turned off DSP.

Rec Channels: turns off the Rec channel.

The V82 mixer.

The V82 mixer is exactly the same as the FB5 with the following differences:

- only 2 stereo channels instead of 5, with feedback on channel S2.
- no tape channels
- only 2 master Fx.

The V82 provide a lighter mixer than the FB5 and can be used when you want to mix mainly mono source.

Last word.

This is the end of the FB5 manual. You know almost everything. Check the www.spacef-devices.com website from time to time as videos are planned to be made for Mod to CC examples, as well as other aspects of the mixer.

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