Fredenstein
Professional Audio

Bento 10 DS
Module Carrier

Operating Manual

Fredenstein Bento 10 DS Module Carrier

The Fredenstein Bento 10 DS is the most advanced module carrier for ten Fredenstein Series 600 modules or API-500 compatible plug-in cards in 3U 19 inch rack-mount format. The Bento 10 DS features several important upgrades compared with third party products:

the color LCD Display and a rotary encoder:
to set routing and other parameters with non-volatile storage. In addition, if certain Fredenstein modules are used, like the F600A, F601A, F602, F603A/B, and the F607, all operating parameters of theses modules are displayed as well.

Universal power supply:
accepting mains voltages from 90V AC to 240V AC, 50 to 60 Hz.
Increased output currents: 6A or 600 mA per slot and +48V DC 0.25A
Monitoring of output voltages and currents.

Auxiliary Audio Inputs and Outputs

Built-in Audio Routing:
Modules can be daisy-chained by simply using the menu driven user interface on the LCD.

Built-in compatibility switches for non-conforming modules.

Compressor buss linking:
Compressor modules can be linked simply using the menu driven user interface on the LCD as well.

Multi-layer back-plane:
Increased signal integrity and lower noise floor.

Ground-lift :
In case of ground loops, the audio ground and the protective ground can be disconnected. Please use only if absolutely necessary.

Installation:

Electrical Safety Warnings:

**Do not open the enclosure, hazardous voltages are present inside!**

There are no user serviceable parts inside.

Always disconnect the mains cord before installing or removing modules!

If you need to replace the mains fuse, make sure the replacement has the same rating (3.15AT).

Please disconnect the mains from your Bento 10 DS before installing or removing modules. Make sure each installed module is well seated in the receiving connector and the module is secured by fasten the two mounting screws (size: M3).

Front View:
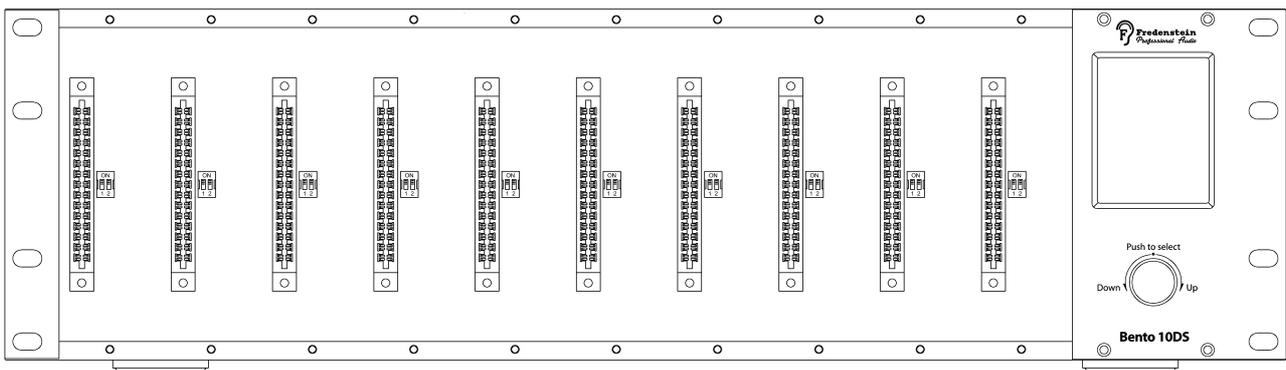
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If certain non-Fredenstein modules are used, which bridge several pins on the connector and connected the contacts on the top and button side, the double switches, located directly besides the slot connectors, can both be turned off (lower position) to avoid interference between the module and the digital interconnect. For Fredenstein modules, both need to be in the ON (upper) position. To rack-mount the unit, the four feet have to be removed by their center screws.

Operation:

After installation of the modules, connect the mains cord to the Bento 10 DS IEC socket located on the back-panel and than connect the mains cable to a <u>grounded</u> outlet. Now turn the Bento 10 DS on by operating the I/O switch (also part of the IEC socket on the back). The following screen will be displayed indicating the status and power-supply voltages and currents.

```
Status:    OK

PS1: +16.1V
|
 0    1    2   3.3A
PS2: -16.2V
|
 0    1    2   3.3A
PS3: +48.2V
Temp.:    30C

Push  Wheel
for     Menu
```
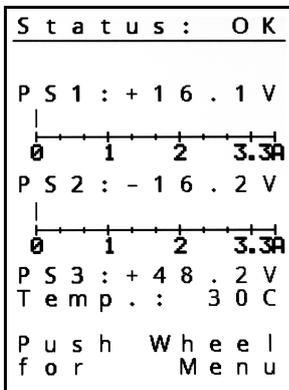
Now the Bento 10 DS is ready and will display any request from certain Fredenstein modules. The Bento 10 DS will continuously monitor the power-supplies and display the voltages and currents.

To enter the setup menu, please push the wheel and the setup menu will appear.

```
Setup   Menu


Slot  Input

Comp.   Buss

Settings

Save    Conf

Recall Conf

Exit
```
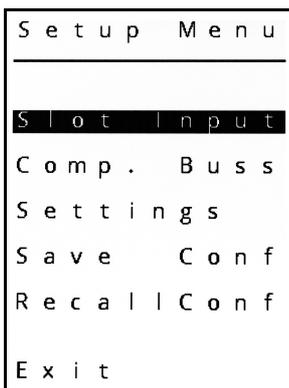
Configuration of audio linking
Configuration of compressor buss linking
Various Setting
Save Configuration
Recall Configuration

Turning the wheel left or right to scroll from one menu point to the next, the highlighted menu point will get selected when the wheel is pushed. Selecting Exit and pushing the wheel will show the Status screen again.

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```
Slot    Input
Selection

S   2   IN:   S 1
S   3   IN:   S 2
S   4   IN:   S 3
S   5   IN:   S 4
S   6   IN:   S 5
S   7   IN:   S 6
S   8   IN:   S 7
S   9   IN:   S 8
S 1 0   IN:  [S 9]

Exit
```

In the Slot Input menu the input signal for slots 2 to 9 can be selected. (Slot 1 always gets its input signal directly from the XLR connector located on the back-panel). By turning the wheel the desired slot can be selected and by pushing the wheel the value toggles between XLR for the slot input XLR connector or the output of the slot to its left. Selecting Exit will show the Setup Menu again.

```
Comp.    Buss
Connection

S 1 - S 2    >[O F F]
S 2 - S 3    > O F F
S 3 - S 4    > O F F
S 4 - S 5    > O F F
S 5 - S 6    > O F F
S 6 - S 7    > O F F
S 7 - S 8    > O F F
S 8 - S 9    > O F F
S 9 - S 1 0 > O F F

Exit
```

The Compressor Buss menu defines the links between the Pin 6 of the slot connectors. This is a standard feature and is widely supported by many 500 series module manufactures. But different manufactures and even different models from the same manufacturer can have different signals on the compressor buss. To avoid malfunctions and potential damages to modules, the compressor buss can be split into multiple segments or completely turned off. Select the adjacent slots you want to connect to the next slot to its right and push the wheel to toggle the function between off and on. As an example, the Bento 10 DS is loaded with five pairs of different compressors, same compressors adjacent to each other, then you would engage the linking between slot 1 - 2, 3 - 4, 5 - 6, 7 - 8, and 9 - 10 while slot 2 - 3, 4 - 5, 6 - 7 and 8 - 9 would be turned off. <u>If you are using different types of compressors, you must keep them on separate segments of the buss.</u>
Selecting Exit and pushing the wheel will show the Setup Menu again.

```
Settings
Menu

Grounding:
       Normal

Intensity:
            5

Auto.  Dim
        ON

Temp  Unit:
[Fahrenheit]
Exit
```

In case of severe ground loops you might engage the ground-lift to alleviate such problems. But it is always recommended to resolve the grounding problems at their source and keep the ground-lift switch disengaged (OFF). Select Lift and push the wheel to toggle between off and on.
The display brightness can be chosen by selecting Intensity and then pressing the wheel, turning the wheel left or right, you can set the desired brightness. Pushing the wheel sets this value and bring you back to function select. Selecting AutoDim ON will reduce the brightness of the display after 90 seconds of inactivity. It is recommended to use AutoDim to extend the life cycle of the LCD back-light.
The Temperature unit can be switched from Fahrenheit to Celsius.
Selecting Exit and pushing the wheel will show the Setup Menu again.

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```
        M e n u
S a v e      C o n f
_____

M e m o r y :    1 ▪

        s a v e d



E x i t
```
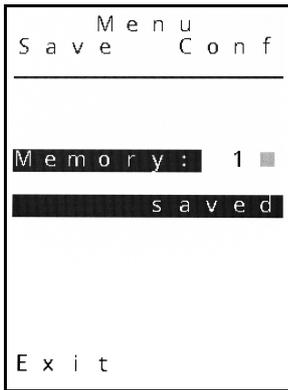
Ten different setups can be stored. By selecting Memory and push the wheel and the number of the setup is highlighted, turn the wheel to the number you want to use, then press the wheel to store the configuration. A square mark behind the number indicates that this memory location is already used, but it can be overwritten. The "saved" message appears after a successful write to the non-volatile memory. Selecting Exit and pushing the wheel will show the Setup Menu again.

```
        M e n u
R e c a l l C o n f
_____

M e m o r y :    1 ▪

     r e c a l l e d



E x i t
```
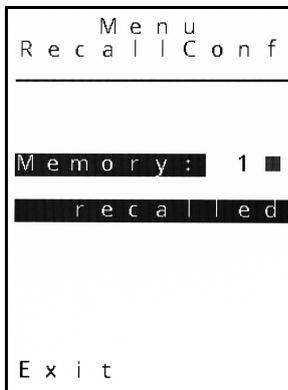
To recall stored configurations, select Memory and push the wheel and the number of the setup is highlighted, turn the wheel to the number you want to use, then press the wheel to recall this configuration. A square mark behind the number indicates that this memory location holds a valid configuration and can be   recalled. The "recalled" message appears after a successful read of the non-volatile memory. Selecting Exit and pushing the wheel will show the Setup Menu again.

Error Messages:

If one of the power fails due to either a defect or an overload condition caused by a faulty module inserted in the Bento 10 DS, the status will be updated to Error and find out, which one caused the problem. The faulty voltages or currents will change their color from green to red.
Bento 10 DS supports Fredenstein digital link between the modules and the display. In case there is a malfunction on this interconnect, the display will show "Bus Trouble". Please also remove the modules one by one to see which one caused the problem.

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Rear View:
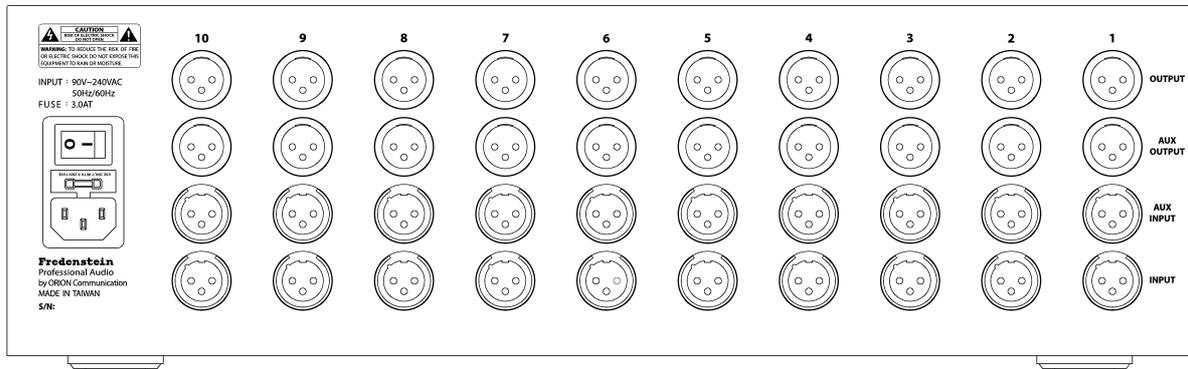
Specifications:

Input Voltage: 90V AC to 240V AC, 50 to 60 Hz
Output Voltages: +16V DC 3.0A
                    -16V DC 3.0A
                    +48V DC 0.25A
Power Consumption: max. 120W

Dimension (WxHxD):480mm x 140mm x 190mm
Weight: 4.5kg(NW) ; 6.0kg(GW)

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Fredenstein Bento 10 DS Module Connector Pin Description

Solder Side

Pin Number	Signal
Pin 1	Frame Ground
Pin 2	Main Out +
Pin 3	AUX Out +
Pin 4	Main Out -
Pin 5	Audio Ground
Pin 6	Compressor Buss
Pin 7	AUX Out -
Pin 8	Main In -
Pin 9	AUX In -
Pin 10	Main In +
Pin 11	AUX In +
Pin 12	+16V Supply
Pin 13	Supply Ground
Pin 14	-16V Supply
Pin 15	+48V Supply

Component Side

Pin 1	Frame Ground
Pin 2	Main Out +
Pin 3	Digital Interconnect 1
Pin 4	Main Out -
Pin 5	Audio Ground
Pin 6	Compressor Buss
Pin 7	Digital Interconnect 2
Pin 8	Main In -
Pin 9	Digital Interconnect 3
Pin 10	Main In +
Pin 11	NC
Pin 12	+16V Supply

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Pin 13	Supply Ground
Pin 14	-16V Supply
Pin 15	+48V Supply

NC = Not-Connected