

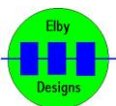


IF112 Double Deka – US VCO

Construction Guide

Revision 1.0

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Panther Series – IF112 Double Deka

Construction of the IF112 requires the assembly of 4 separate boards:-

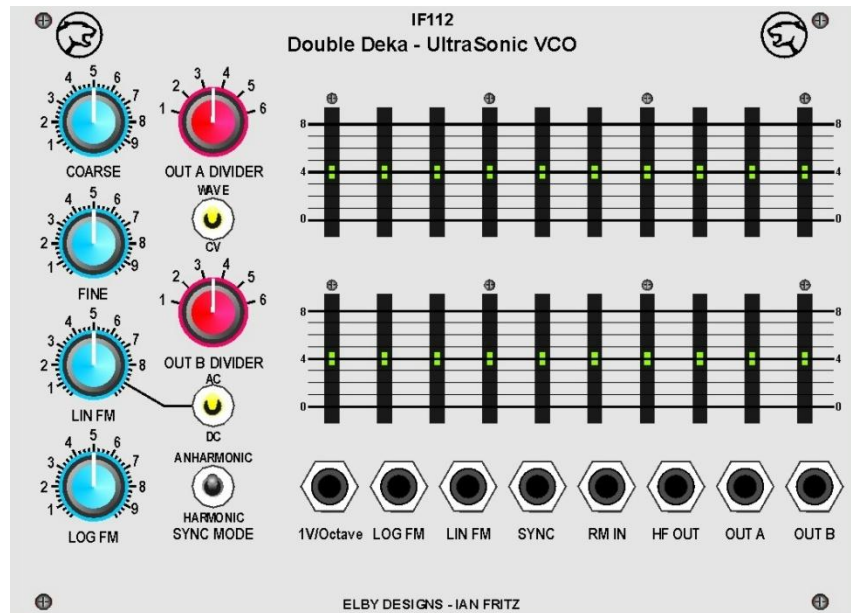
Column 1 - Panther Pot PCB (**Error! Hyperlink reference not valid.**)

Column 2 - IF112 Column 2 Support PCB (**Error! Hyperlink reference not valid.**)

Slider - IF112 Slider PCB (**Error! Hyperlink reference not valid.**)

Back Board - IF112 Main PCB (**Error! Hyperlink reference not valid.**)

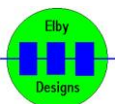
Constructors should refer to the printed Component Overlay for any specific comments regarding the board assemblies, the Bill of Materials for the current value of all components and [General Construction Notes](#) for general pcb assembly guidelines. You are advised to check all of these documents on our website to ensure you have the latest copy.



Start by assembling 8x Carrier Jack Assemblies ([3D Model](#))

IF112 Slider Board

1. Assemble all the components except the sliders and the jack/carrier boards ensuring that the diodes remain flush to the board.
2. Position all the sliders on to the board and move the sliders to near their centre position.
3. Carefully place the front panel over the sliders.
4. Flip the whole assembly over and squeeze the front panel and slider boards together to ensure that the sliders sit square to the slider board.
5. Rest the assembly on a support so that the slider shafts remain clear of your work surface and then solder the centre pin of each slider.
6. Place the jack-carrier board assemblies in to their correct locations and remount the front panel.
7. Secure the slider board in to place using the 2 x 8mm spacers and M2 bolts.
8. When tightening each screw push the spacer hard against the bolt shaft in a direction away from the slider itself. This will ensure that the spacer does not overhand the slider slot and obstruct the slider at the ends of its travel.
9. Fit nuts to all of the jacks.
10. Check that the pcb assembly is parallel to the front panel and solder a pin on the SYNC socket. Do a final alignment check and then solder the remaining jack-carrier boards in to place.
11. Re-check the alignment of the sliders from all angles to ensure that they are flush and perpendicular to the board and that the sliders travel freely.
12. Once satisfied, solder another leg on each slider and complete one final alignment check.
13. Finish by soldering all of the remaining slider legs.



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IF112 COLUMN 2 Board

1. Start by mounting J1, S3, S4 and S5 to the pcb.
2. Fit a shakeproof washer to S3 and a single nut to S1 and S2
3. Loose mount S1 & S2 to the front panel.
4. Offer up the pcb. Guiding all the panel components in to place and then secure the pcb assembly using S3, S4 & S4.
5. Solder all the components on to the pcb. Due to the design of the switches (!) the SPDT switch legs will only just reach the solder pads on the board. Solder these switches first from the bottom and then from the top to ensure a good connection.
6. Remove the assembly from the panel to aid with installation of the Slider Assembly

IF112 Main Board

1. There are 2 options for the TEMPCO. The preferred option uses an axial type PT146 or similar TEMPCO. The alternate option uses a surface-mount TEMPCO. Only one TEMPCO should be fitted. A small amount of heatsink compound can be added between the body of the TEMPCO and the IC when using the axial TEMPCO to improve thermal bonding between the ic and the TEMPCO.
2. Fit all components
3. There is a track error on the V0.5 Main board that requires 4 wire links to be added. Refer to the [PCB Overlay](#) drawing and fit wires between the points marked '1', '2', '3' and '4'. This modification is NOT required on the V0.6 version.

Final Assembly

Mount the Slider, Column 1 and Column 2 assemblies to the front panel.

Fit the 20-way IDC cable on to J101 on the Slider assembly.

Plug the main board in to the 2 support boards. Be extremely careful when plugging the main board in that the IDC connectors line up properly with their mating parts.

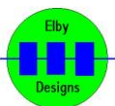
That completes the main assembly of the module. Check all pot, switch and jack nuts are secure and fit knobs to the pots and rotary switches.

CALIBRATION

To calibrate the IF112 we recommend the use of a frequency counter. Alternately you can use an oscilloscope. You will also need an accurate voltage source of 1.00V.

1. Set the 1st output slider high and the remainder low
2. Select HARMONIC SYNC MODE
3. Monitor OUT A
4. Set OUT A DIVIDER to '1'
5. Set COARSE and FINE to get an output frequency of 100Hz
6. Apply 1.00V to the 1V/Octave input
7. Note the frequency, which should be 200Hz. If it is low then adjust P105 in the clockwise direction, if the frequency is low then adjust P105 in the anti-clockwise direction*
8. Remove the 1.00V reference
9. Repeat steps (5) to (8) until an accurate octave is achieved
10. Set OUT A DIVIDER to '6'
11. Set COARSE and FINE to get an output frequency of 2000Hz
12. Apply 1.00V to the 1V/Octave input
13. Adjust P104 for an output frequency of 4000Hz
14. Repeat steps (11) to (13) until an accurate octave is achieved
15. Repeat steps (4) to (14) until accurate tuning is achieved

*Initially you can adjust P105 with between 2 and 4 full rotations. As you get closer to the ideal frequency, reduce the number of turns used.



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