

Expert Sleepers ES-5 User Manual

Chapter 1. About

The ES-5 adds an additional eight 3.5mm outputs to the ES-3 mk3/mk4, ES-8, or ES-9 base units and functions in the same way. For use instructions, consult your base-unit manual.

Panel Width	4HP
Module Depth	49mm
D/A Conversion	24bit
Signal to Noise Ratio	113dB typical
Output Connections	8x 3.5mm (DC coupled)
Maximum Output Voltage	±10V DC
Current Draw	148mA on the +12V rail, 18mA on the -12V rail
Power Connector	Doepfer Standard
Indicators	Illuminated 3.5mm jacks indicate output voltage (+ve/–ve)

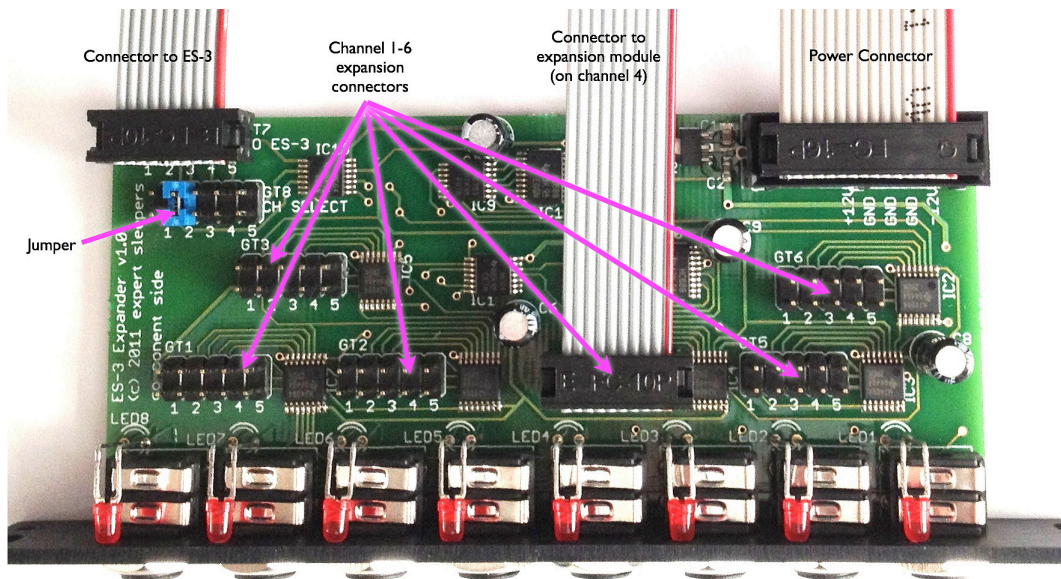
Chapter 2. Installation

Installation requires: 4hp available Eurorack spaces, and an ES-3 mk3/mk4, ES-8, or ES-9.

Installation instructions differ depending on your base unit.

- House the ES-5 in a Eurorack case of your choosing. The power connector is [Doepfer standard](#).
- Connect the power cable so "-12V" (printed on the PCB) corresponds to the red stripe on the cable (see Fig.1).

Figure 1. Fig. 1: ES-5 PCB: (L to R) to ES-3, Jumper, Ch.1-6 Expansion selectors, Connection to Expander, Power



All Units

1. Disconnect power to your Eurorack case.
2. Attach the power connector so "-12V" (printed on the PCB) corresponds to the red stripe on the power connector (see Fig.1).

Note: The red stripe must be aligned with "-12V" marked on the PCB. The power connector supplied with the ES-5 is keyed to ensure a correct fit.

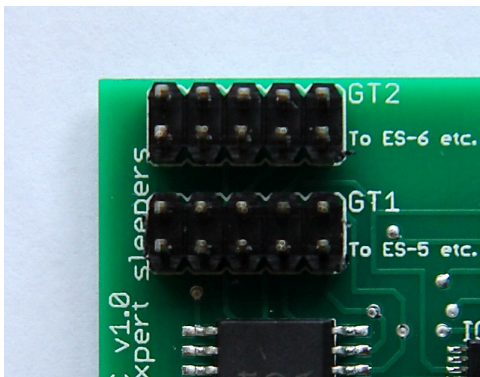
3. Connect the other end of the power cable to an available power port in your Eurorack case so "-12V" on your power supply PCB corresponds to the red stripe on the cable.

ES-3 mk3, ES-3 mk4, ES-8, ES-9

1. Disconnect power to your Eurorack case.
2. Connect power as instructed under "All Units."

3. Connect the ES-5, with the supplied 10-way cable, to the header on your units PCB (see Fig. 1 and Fig. 2).


Figure 2. Fig. 2: Expansion header on ES-3mk3/mk4, ES-8, and ES-9



4. Ensure all connectors are seated fully and correctly.
5. Secure the ES-5 in your Eurorack case with the four provided screws.
6. Reconnect power to your Eurorack case.
7. Have fun!

ES3 mk2

1. Disconnect power to your Eurorack case.
2. Connect power as instructed under "All Units."
3. Connect the ES-5, with the supplied 10-way cable, to the header on your ES-3 mk2 PCB (see Fig. 3).

 **Note:** You may find it helpful to loosen the screws that attach the PCB to the module's panel while fitting the cable.


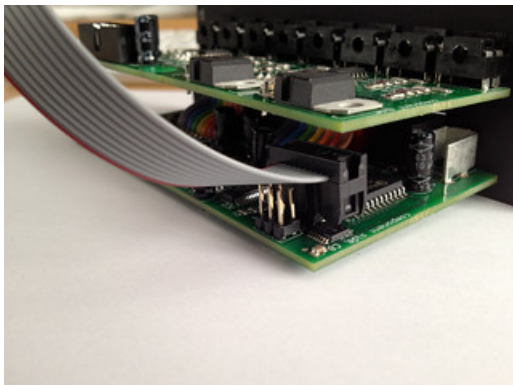
 **Note:** The six conductors on the side of the cable with the red stripe must engage with the 6-way header on the ES-3; the four unused conductors hang over the small IC at the edge of the board (see Fig. 3).

Figure 3. Fig. 3: Connecting to an ES-3 mk2. Notice the last four unused conductors on the cable are nearest the edge of the PCB



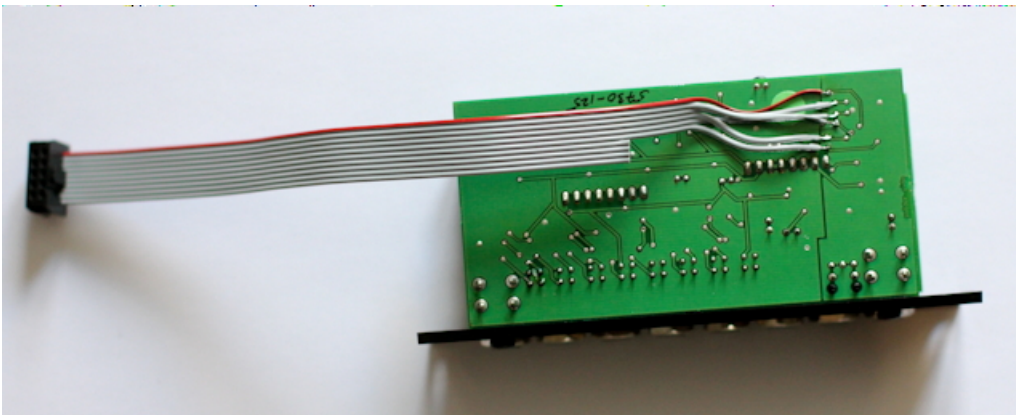
4. Ensure all connectors are seated fully and correctly.
5. Secure the ES-5 in your Eurorack case with the four provided screws.

6. Reconnect power to your Eurorack case.
7. Have fun!

ES-3 mk1

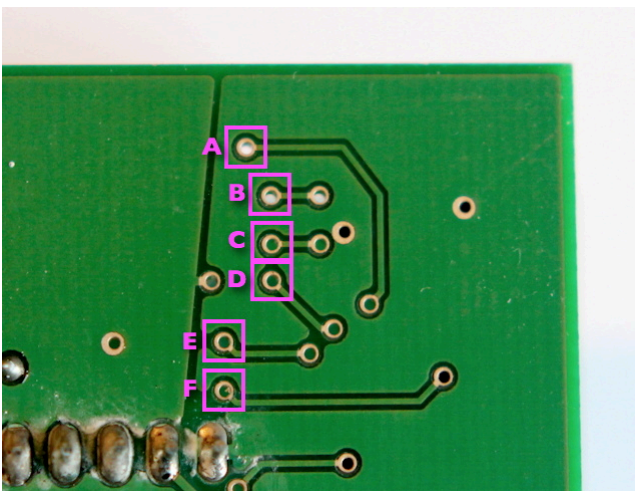
Note: The ES-3 mk1 lacks the expansion headers of mk2 and later. However, it is fairly simple to solder the equivalent connections. The suggested solution is to use the 10-way ribbon cable provided with the ES-5 to solder one end to the ES-3 PCB, leaving the other end with the usual connector for the ES-5 as shown in Fig. 4.

1. Disconnect power to your Eurorack case.
 2. Remove your ES-3 mk1 from your Eurorack case.
 3. Modify the supplied 10-way ribbon cable to match Fig. 4 as detailed in further steps.
- Figure 4. Fig. 4: Modded 10-way on ES-3 mk1.



Note: Only six of the cable's ten conductors need to be soldered to the ES-3. The other four can be discarded. !!Note orientation of red stripe!!

Figure 5. Fig. 5: Unmodified ES-3 mk1 PCB.



Note: The highlighted areas are vias (connections from one side of the PCB to the other) and are the easiest points to make the connections.

4. Solder the connections as shown in Fig. 6. In this scheme, the conductors match up to the pads in Fig. 5 as follows:

- 1-A
- 2-D
- 3-B
- 4-E
- 5-C
- 6-F


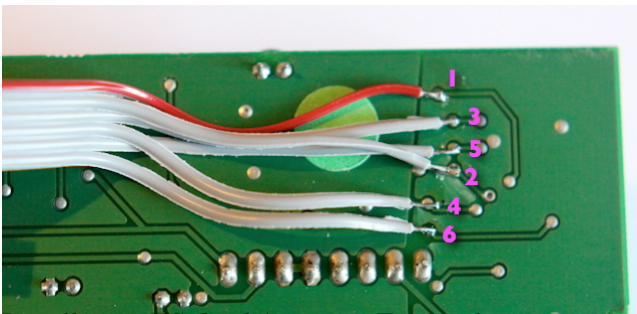

 **Note:** The numbers 1-6 correspond to the conductors of the ribbon cable, starting from the red edge as number "1" and the letters A-F correspond to the vias as shown in Fig. 5.

Figure 6. Fig. 6: Numbers correspond to the conductors of the ribbon cable, starting from the red edge as number "1"



5. Install your ES-3 mk1 to your Eurorack case.
6. Attach the ES-5 power connector so "-12V" (printed on the PCB) corresponds to the red stripe on the power connector (see Fig.1).

 **Note:** The red stripe must be aligned with "-12V" marked on the PCB. The power connector supplied with the ES-5 is keyed to ensure a correct fit.

7. Connect the other end of the power cable to an available power port in your Eurorack case so "-12V" on your power supply PCB corresponds to the red stripe on the cable.
8. Connect the ES-5, with the modded 10-way cable, to the "Connector to ES-3" header on your units PCB (see Fig. 1).
9. Ensure all connectors are seated fully and correctly.
10. Secure the ES-5 in your Eurorack case with the four provided screws.
11. Reconnect power to your Eurorack case.
12. Have fun!