



E G  
L F O II

USER MANUAL



## Thank you

Thank you for purchasing EG LFO II module.

As its name implies, EG LFO is composed of an Envelope Generator and an LFO.

The envelope generator offers control over Rise time, Hold and Fall time. Two ranges of envelope are available, slow and fast. You can also modify the speed of the fast mode using the speed expander on the back of the module.

On output you will find the envelope output and an inverted copy of the envelope.

EG LFO II also features a LFO mode, speed can be controlled using rise and fall control. Two speed modes are available, LFO range in slow mode and audio range in fast mode. You can modify the speed of the fast mode using the speed expander on the back of the module.

On output you will find the LFO output and an inverted copy of the LFO.

## Summary

- 01** Introduction
- 02** Installation & power safety
- 03** Overview - Envelope Mode
- 04** Overview - LFO Mode
- 05** Overview - Backplate

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1

Unplug your rack power from the main.

2

As shown on the sketch on the right, align the red line from the power ribbon cable with the line drawn next to the power connector.

3

Check twice the alignment of the ribbon cable.

4

Set to LFO mode  
Set the speed to HIGH  
Set Rise knob to 0  
Set Fall knob to 0

5

Plug your rack power to the main and power your rack.

6

If the LEDs above the outputs light up your module is ready, if not please contact us at:  
[contact@blacknoisemodular.com](mailto:contact@blacknoisemodular.com)

### General Specifications



#### Power Consumption

+12V : 22mA  
-12V : 17mA  
+5V : 0mA



#### Panel Width

4HP



#### Module Depth

20mm - skiff friendly

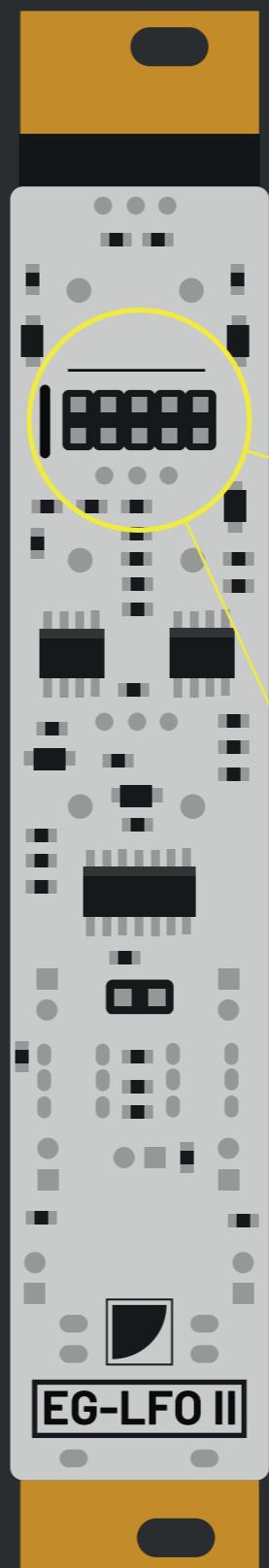
### Warranty

*BLACK NOISE warrants its products to be free of defects in materials or workmanship and to be conform with the specifications at the time of shipment for a period of two years from the date of purchase.*

*During that period any malfunctioning or damaged units will be repaired, service and calibrated into your workshop. This warranty does not cover any problems resulting from damages during shipping, incorrect installation or power supply, abusive treatment, or any other obvious user-inflicted fault.*

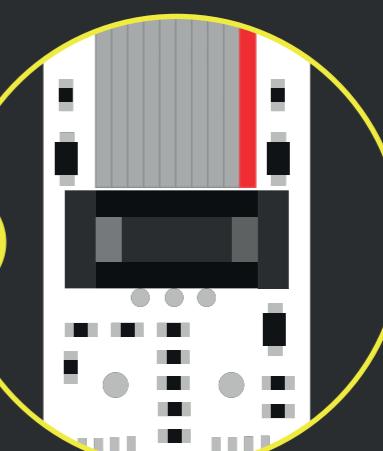
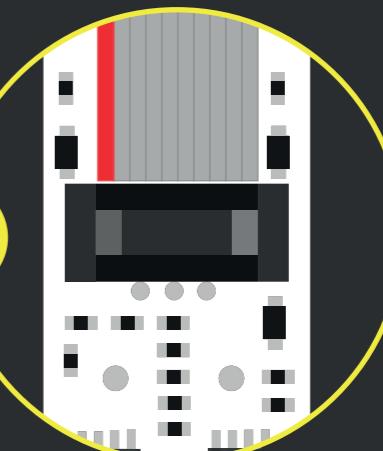
*If your product warranty is passed, it still can be serviced as long as parts are available in our workshop. We reserve the right to charge for labor, parts and transit expenses where applicable.*

*Before sending your product to our workshop please contact us for RMA and details. Any unsolicited parcel will be rejected and/or returned. The postage to our workshop is on the customer. The return of your module is on us. BLACK NOISE can not take any responsibility for damages caused during transport.*



YES

NO

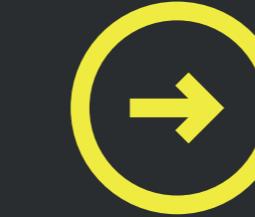
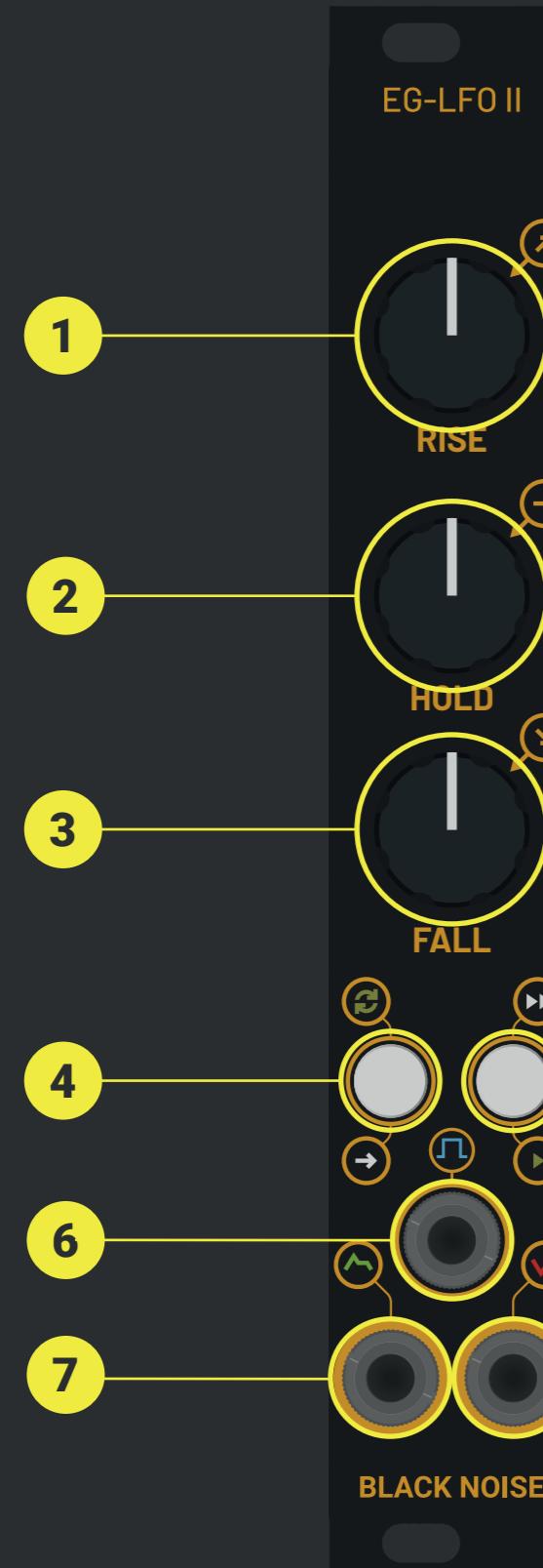




## EG-LFO II

Overview - Envelope Mode

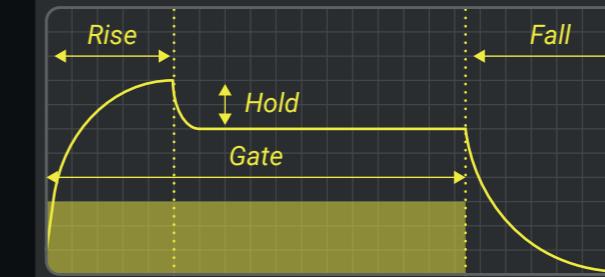
03



### Envelope Mode

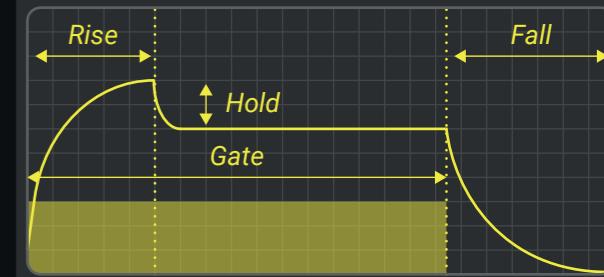
To activate envelope mode, see step 4.

#### 1 Rise



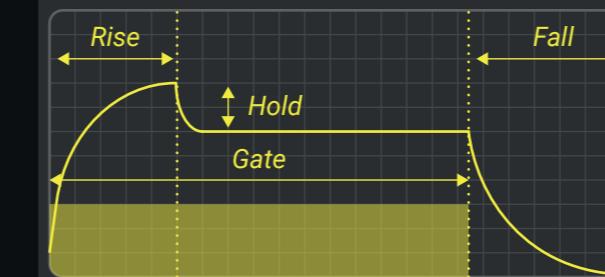
Rise controls the time it takes for the envelope to reach its maximum level.

#### 2 Hold



when the module receives a gate, the envelope remains in the hold position for the duration of the gate. Hold allows you to adjust the level of the envelope during the hold phase.

#### 3 Fall



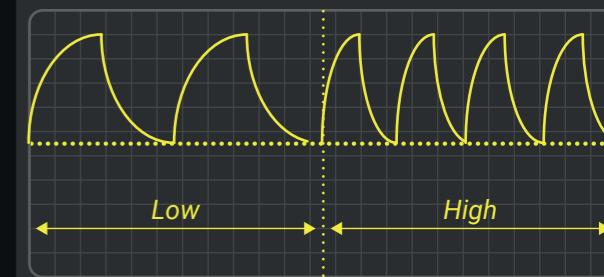
Fall controls the time it takes for the envelope to return to its initial level (0v) after the end of the trigger or the gate.

#### 4 Mode selector



The Mode selector allows you to switch between Envelope and LFO mode. When a mode is selected the mode icon is illuminated.

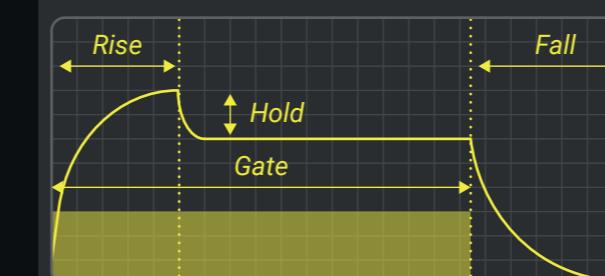
#### 5 Speed selector



The Speed selector allows you to set the speed of the envelope. For a very fast envelope select "High speed" for longer envelopes select the "Low speed" mode.

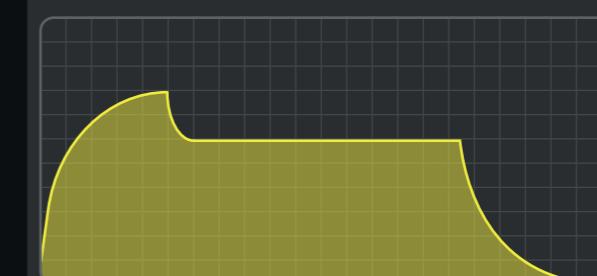
The duration of "High speed" mode can be modified using the connector on the back of the module for more information see section Overview - Backplate

#### 6 Gate Input



Gate input controls the triggering of the envelope. A trigger will trigger the Rise phase then the Fall phase. To activate Hold mode use a gate. The envelope will remain in Hold mode as long as the gate is high.

#### 7 Envelope Output



Output of the envelope.

#### 8 Inverted envelope Output



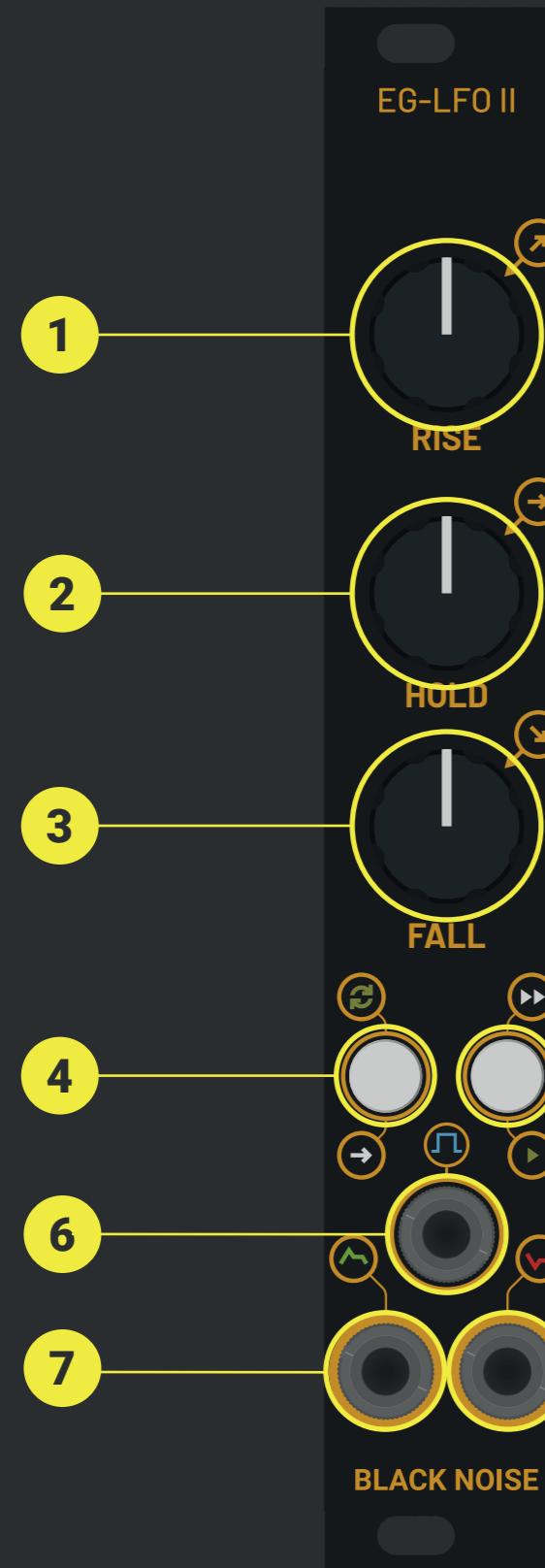
Inverted copy of the envelope output.



## EG-LFO II

Overview - LFO Mode

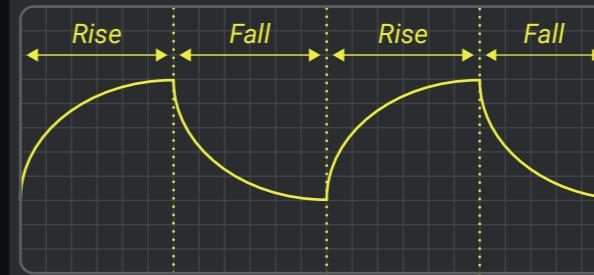
04



### LFO Mode

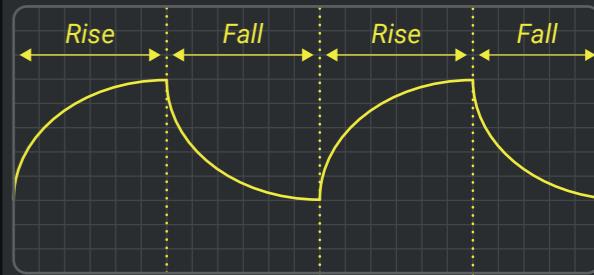
To activate LFO mode, see step 4.

#### 1 Rise



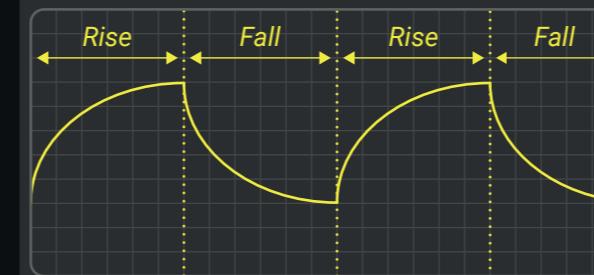
Rise controls the time it takes for the LFO to reach its maximum level.

#### 2 Hold



In LFO mode the Hold phase will not be triggered, so it has no effect on the LFO.

#### 3 Fall



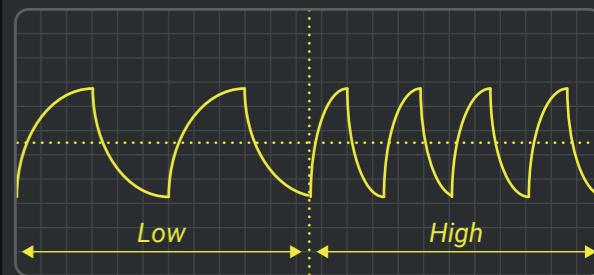
Fall controls the time it takes for the LFO to return to its initial level after the end of the Rise phase.

#### 4 Mode selector



The Mode selector allows you to switch between Envelope and LFO mode. When a mode is selected the mode icon is illuminated.

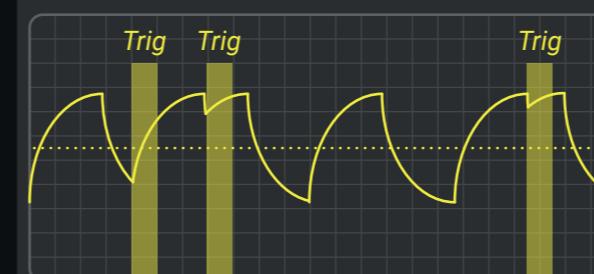
#### 5 Speed selector



The Speed selector allows you to set the speed of the LFO. For a audio rate LFO select "High speed" for slower LFO select the "Low speed" mode.

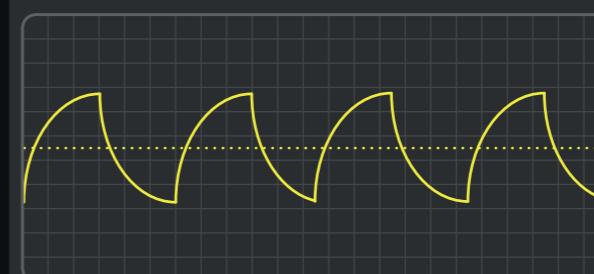
The duration of "High speed" mode can be modified using the connector on the back of the module for more information see section Overview - Backplate

#### 6 Gate Input



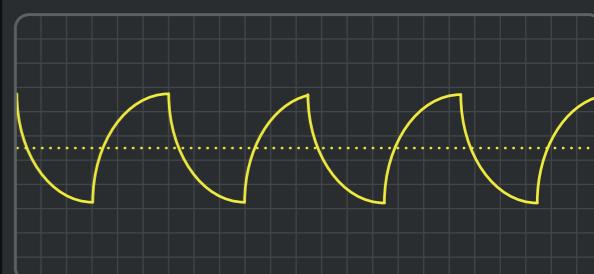
If a trig is sent during the LFO Fall phase, the LFO will retrigger and a Rise phase will be triggered from the current LFO state.

#### 7 LFO Output

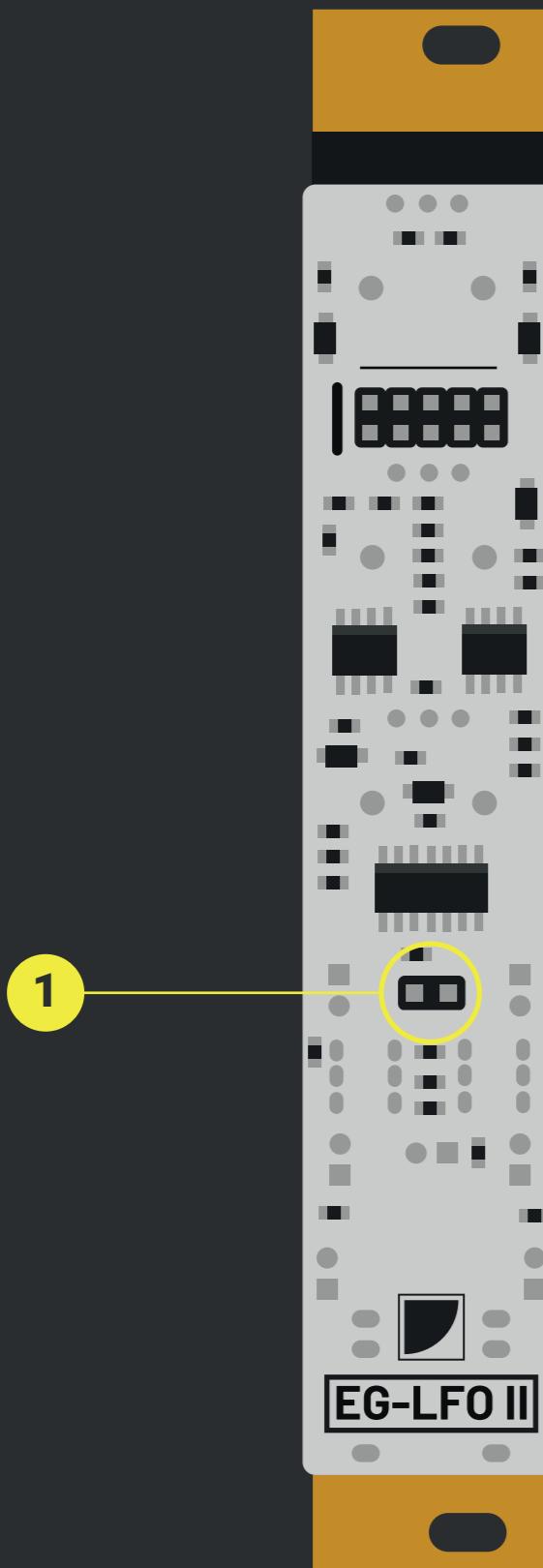


Output of the LFO.

#### 8 Inverted LFO Output



Inverted copy of the LFO output.



### Speed Expander

#### 1 Speed Expander

As shown in step 5 "Speed Selector" of the Overview-Envelope & Overview-LFO sections, the speed of the "High Speed" setting can be modified.

The range of the "High Speed" mode and "Low Speed" mode are regulated by capacitors.

By modifying the capacity of these capacitors it's possible to speed up or slow down the LFO or the envelope.

The connectors shown in the illustration allow you to add one of multiples capacitors to the module to slow down the LFO and/or the envelope.

To select the type of capacitor and its value, please follow the following instructions.

#### 2 Capacitor Type

There are several types of capacitors (Film, ceramic, electrolytic etc.) but they can be divided into two categories, polarized capacitors and non-polarized capacitors.

The speed expander requires non-polarized capacitors. As explained earlier to slow down your LFO or Envelope you will need large capacitors. The easiest large capacitors to find are electrolytic capacitors, unfortunately they are polarized capacitors. However there is a workaround for using EG-LFO II with polarized capacitors.

Depending on your capacitors, consult the dedicated section.

#### 3 Un-Polarised Capacitors

As stated before un-polarized capacitors can be connected in either direction. Simply connect one of the capacitor tabs to one of the Speed Expander pins and the other tab to the other pin.

Regarding the type of capacitors we recommend ceramic capacitors because they are easy to find and cheap. However, the tolerance on their capacitance can be high. If you want an accurate capacitance value we recommend using film capacitors.

To increase the capacitance without changing the value of your components you can connect several capacitors in series, the total capacitance will then be equivalent to the addition of the capacitors ( $C_{total} = C_a + C_b + \dots$ )

Do not use capacitors lower than 16V. For total capacitance we recommend between 10n and 10 $\mu$  for best results.

##### Un-Polarised Capacitors



Film Capacitor



Ceramic Capacitor

#### 4 Polarised Capacitors

On electrolytic capacitors the cathode (or negative side, the "-" side) is indicated by a white band on the component. The "-" sign can also be printed on this white band.

As shown in the diagram it is possible to use two polarized capacitors with EG LFO II. Simply connect the anode of each capacitor to one of the Speed Expander pins (there is no particular orientation) and connect the cathodes of the two capacitors together.

As the capacitors are connected in series the total capacitance applied to the Speed expanders will be equal to the addition of the value of the two capacitors ( $C_{total} = C_a + C_b$ ).

Do not use capacitors lower than 16V. For total capacitance we recommend between 1 $\mu$  and 10 $\mu$  for best results.

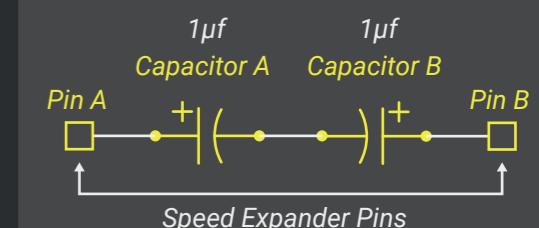
##### Electrolytic Capacitor



symbol  
⊖ → | + ⊕

⊖ ⊕

##### Wiring



$$1\mu f + 1\mu f = 2\mu f$$

Capacitance Value =  $C_A + C_B$

