

**ENDORPHINES<sup>®</sup>**  
**COCKPIT 2 / 1U**

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# WARRANTY

1-year warranty guaranteed from the product's purchase date in case of any manufacturing errors or other functional deficiencies during runtime.

The warranty does not apply in case of:

- damage caused by misuse
- mechanical damage arising from careless treatment (dropping, vigorous shaking, mishandling, etc.)
- damage caused by liquids or powders penetrating the device
- heat damage caused by overexposure to sunlight or heating
- electric damage caused by improper connecting

The warranty covers replacement or repair, as decided by us. Please contact us via email for a return authorization before sending anything. Shipping costs of sending a module back for servicing is paid by the customer. Device complies with all EU regulations concerning RoHS lead-free manufacturing and WEEE disposal.

# VISIT US

<https://endorphin.es>

<https://youtube.com/user/TheEndorphines>

<https://facebook.com/TheEndorphines>

[https://twitter.com/endorphin\\_es](https://twitter.com/endorphin_es)

<https://www.instagram.com/endorphin.es/>

<https://www.modulargrid.net/e/modules/browser/vendor:167>

For technical requests: **[support@endorphin.es](mailto:support@endorphin.es)**

For dealer / marketing inquiries: [info@endorphin.es](mailto:info@endorphin.es)

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It is doing business as FURTH BARCELONA, S. L. (EU VAT ID: ES B66836487)

# INTRO

Cockpit 2 and Cockpit 1U is a four-channel stereo performance mixer with mutes, on-board compressor and external sidechain control voltage option (3 modes) to add dynamics to your mix. Available in 3U 6hp and 1U 24hp versions with some design differences.

The information in this manual applies to both 1U and 3U versions, every difference between each version will be explained in more detail below.

## CONNECTING THE POWER

Before installing a new module in your case, ensure your power supply has a free power header and sufficient available capacity to power the module.

Connect the module directly to the power bus-board with supplied 10-16 ribbon cable like any other eurorack module. Pair of **RED/BROWN** pins on the multicolor ribbon cable corresponds to **NEGATIVE -12 VOLTS**.

Make sure to align the power cable with the '**RED/BROWN STRIPE**' label on the module that corresponds to -12V, to the 10-pin connector and with typically a white line for the 16-pin connector on the bus board.

## TECHNICAL SPECIFICATIONS

- **COCKPIT 1U**: +12V: 40 mA; -12V: 25 mA; 42mm depth
- **COCKPIT 2 3U**: +12V: 75mA; -12V: 40mA; 38mm depth

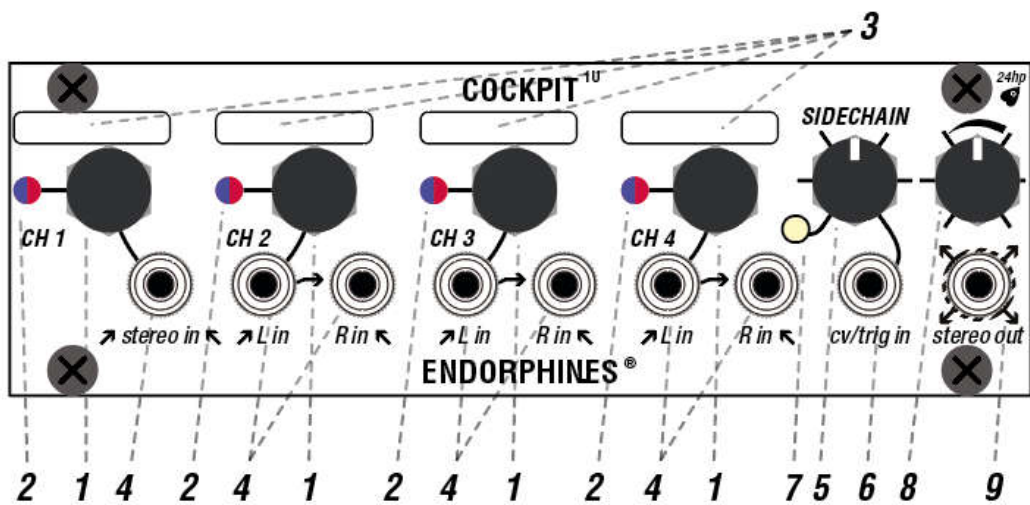
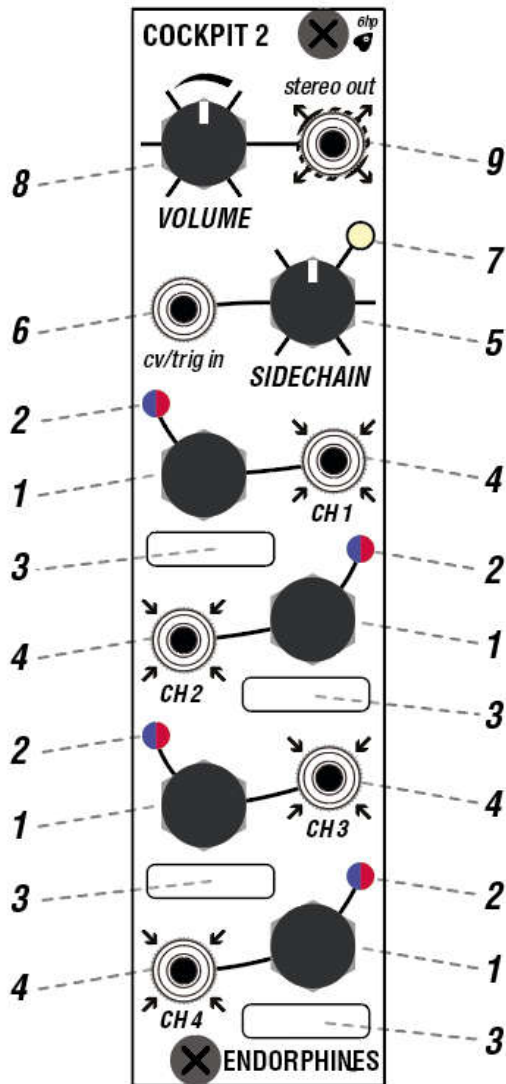
## OVERVIEW

Cockpit 2 is a stereo mixer designed with performance in mind. It can be used as either a 4 channel stereo mixer or 4 channel mono mixer, or anything in between. The user defines how the module behaves. The 3U version has 4 jumpers on the back that switch between stereo / mono functionality, while the 1U version has the first channel set to stereo with one input jack and the other 3 channels feature 2 inputs each for the L and R audio input.

The levels of each channel are controlled using 4 onboard encoders with Red / Blue LEDs that make it color-blind friendly. The same encoders can be pressed shortly to mute / unmute each of the channels.

Built-in compressor can either run on the whole mix by reducing big audio peaks or can be used along with the external sidechain input. Each channel can have a different level of sidechain configured by hold - pressing channel's encoder while turning it CW to increase the sidechain amount. This is very useful if you want to give your mix more dynamics and generally to avoid clashing frequencies between Kick and Bass for example.

# INTERFACE



1. **ROTARY ENCODERS / FADERS** are four endless encoders with detents and a push button used to adjust the volume of each channel, acts as mute buttons and set the sidechain amount per channel. Turning the encoder clockwise will make the channel's level higher and turning it counter-clockwise will attenuate the channel off to full silence. Since encoder's rotation is endless, it doesn't have a line that shows its current position to understand the level of the channel. For that reason there's a bi-colour LED (2) near each encoder knob and the brightness of the LED shows how high the level is

2. **CHANNEL BI-COLOR LED** are LEDs near each channel. When the LED is **BLUE** the channel is on. Shortly pushing the encoder knob mutes the channel. When the channel is muted, the LED color turns **RED**. The brightness of the LED remains same as it was before and indicates the volume level also in the muted state. With this feature you can also decrease or increase the level of the channel when muted, which comes in handy, if you want to mute (push encoder) a sound at full volume, change the volume to zero (by turning CCW), unmute it (push encoder) and fade it back into the mix again (by turning CW).  
→ **HINT:** *Every few seconds the position of all encoders (levels of all channels) as well some other encoder buttons enabled settings are stored into memory so after turning your modular system power off and on again you will have all the settings you had before.*

3. **CHANNEL LABEL** is a white color printed area near each channel dedicated to write with CD/DVD marker to label the channel. You may use typical 90° ethylic alcohol from supermarket to clean the written labels afterwards.

#### 4. **AUDIO INPUTS:**

→ **COCKPIT 2 / 3U version:** 4 user configurable audio inputs, can work as either stereo (TRS) or mono (TS) inputs depending on the jumper position on the back of the module.

→ **COCKPIT 1U version:** the 1st channel is a stereo (TRS) input, while channels 2/3/4 each have two separate TS inputs for the left and right. In those 2/3/4 channels left input is pre-wired (normalled) to the right input when nothing is plugged into the right jack.

5. **SIDECHAIN KNOB:** depending on which of the 3 sidechain modes is selected, it either sets the attenuation of external sidechain CV and audio or the length of internally generated DECAY envelope.

6. **SIDECHAIN CV/TRIGGER INPUT JACK:** depending on which of the 3 modes is selected, it accepts CV, triggers or audio sources.

7. **SIDECHAIN LED:** shows compressor / sidechain activity.

8. **MASTER VOLUME KNOB:** adjusts the final mix output level.

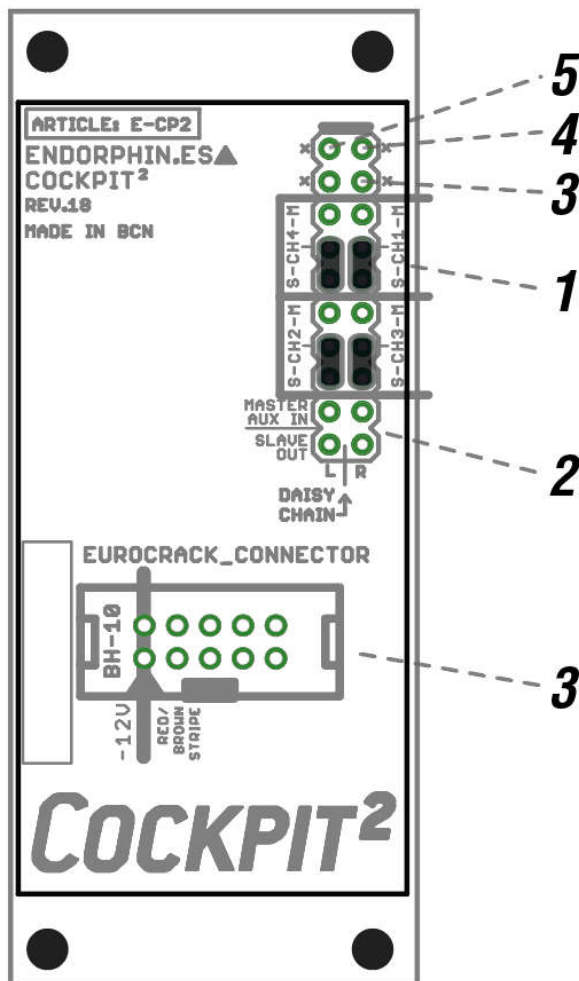
9. **STEREO OUTPUT:** final mix stereo output, with enough current to drive a wide range of headphones. We recommend using either a stereo 3.5mm TRS cable or a stereo splitter cable available at our Merch store:

<https://endorphines.myshopify.com/products/y-splitter-adapter-3-5mm-trs-stereo-to-l-r-3-5mm-ts-mono>

## REAR CONNECTIONS

Both 1U and 3U versions feature extra rear connections, that are either used for daisy chaining multiple modules together to act as one big mixer or to wire the Inputs / Outputs to either other modules or ¼ inch TRS outputs via the Intellijel Jacks IO v2 board.

→ **COCKPIT 2 / 3U:**



1. **4 MONO/STEREO JUMPERS** that set if the chosen audio input accepts Stereo or Mono sources. Each jumper may be in two positions. For example S- CH1-M. When jumper set on pins pair S-CH1, then the input of Channel 1 is a full stereo input that will accept and adjust left and right channels and output them to the left and right channel of your speakerphones. When the jumper set on CH1-M pair, Channel 1 input accepts mono signals only, ignoring the signal that may occur from the ring (right), and that left signal will appear in the left out and then exactly doubled in your right out. When no jumpers are installed, then absolutely no right signal from that channels (whenever stereo or mono plug inserted) will appear in your right outputs.
2. **DAISY CHAIN MASTER / SLAVE PINS** are pins used for daisy chaining multiple modules together to create a bigger mixer system using Dupont Female-Female cables. Those cables are not included. You may easily find them e.g. from Amazon or your local dealers. Everything connected to Master (AUX) will be mixed with the rest 4 channels. Slave out is literally the is post master volume knob audio output. For merging two Cockpit mixers together, connect the Slave (OUT) pins on Cockpit #2 to Master (AUX) pins of Cockpit #1. Cockpit #1 is a main mixer and its output will have all 8 channels from both Cockpits mixed together.
3. **GROUND PINS** – pair of ground connectors to be used for interconnecting the modules in case you need them.
4. **+10V POWER OUTPUT** – not used
5. **-10V POWER OUTPUT** – not used
6. **POWER CONNECTOR** is 10 pin typical +/-12V eurorack power connector.

→ **COCKPIT 1U version:**



1. **AUX IN:** accepts audio input from other Mix Bus compatible modules and is basically another stereo input to be mixed with the rest 4 channels.



2. **MIX OUT** is post master volume knob audio output, compatible with other Mix Bus modules.
3. **STEREO BALANCED LINE OUT** is 6 pin connector for the Intellijel Jacks IO v2 board. Let's you route the final post master volume knob output straight to the TRS jacks on the Intellijel cases.
4. **POWER CONNECTOR** is 10 pin typical +/-12V eurorack power connector.

## COMPRESSOR MODES

The built in compressor features 3 different modes of dynamic processing of audio signals.

To switch different modes, hold press all 4 encoders for longer than 1 second until you see the **SIDECHAIN LED** (7) blink either 1, 2 or 3 times showing the selected mode. On every startup that LED blinks same amount of times reminding the selected mode. Selected mode automatically saves after a few seconds of idle Cockpit use.

1. **DUCKING WITH CV:** The input of the COCKPIT accepts unipolar CV from 0 to approximately +5V. Everything that goes above +5V is being saturated, and everything that is below zero will be cut off. The **SIDECHAIN KNOB** adjusts the level of ducking. Adjust it to the desired pumping level/intensity. The blue LED near that knob shows the amplitude of the input signal and lights up when the ducking level increases. TIPP: When no plug is inserted into the sidechain jack, the sum of all four channels is sent to the sidechain input of the ducking compressor. That connection may seem a bit experimental (since the channel generates a CV envelope from the full mix and it may sound more like amplitude modulation), however at some point it may bring interesting results.
2. **DUCKING WITH AUDIO:** The sidechain input is amplified by approx. 10 times with an envelope follower at the input. Now you may simply input a sound source (a kick or snare drum for instance – at a consumer line level – approx. 1Vpp) and the CV will be extracted from that audio source and applied to the channels you assigned to the ducking by pressing-and-holding the encoder for over one second (just as you did in the CV in mode described above). Tipp: If the ducking effect seems too hefty, it may be that the audio you want to use is too 'hot' – attenuating may help.
3. **DUCKING WITH TRIGGERS:** The sidechain input accepts triggers in standard modular level (everything that is higher approx. 1V is recognized as *on* and

lower than 250mV as *off*). Every trigger generates an internal RELEASE envelope (falling ramp). That envelope has instant (zero) attack and the decay time is defined by the sidechain knob. Time of decay varies from 10ms to 10 seconds and at full CCW knob position there is no effect applied. This mode works great if you don't have an extra envelope in your system, but also because you can control the sidechain release time independently from your audio and cv sources, giving you more control over the dynamics.

## CREDITS

### ENDORPHIN.ES® – COCKPIT 2 / 1U

Module idea, hardware design, direction and manual by Andreas Zhukovsky

Programming Bsvi with extra fixes by Kouik03

Manual proofreading, beta testing and demo videos by Wisdom Water

Endorphin.es are made in Barcelona, Spain

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## COMPLIANCE

### FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Changes / modifications not approved by ENDORPHIN.ES (doing business as Furth Barcelona, S.L.) could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

### CE

This device meets the requirements of the following standards:

EMC: 2014/30/EU

EN55032:2015; EN55103-2:2009 (EN55024); EN61000-3-2; EN61000-3-3

Low Voltage: 2014/35/EU EN 60065:2002+A1:2006+A11:2008+A2:2010+A12:2011

RoHS2: 2011/65/EU

WEEE: 2012/19/EU