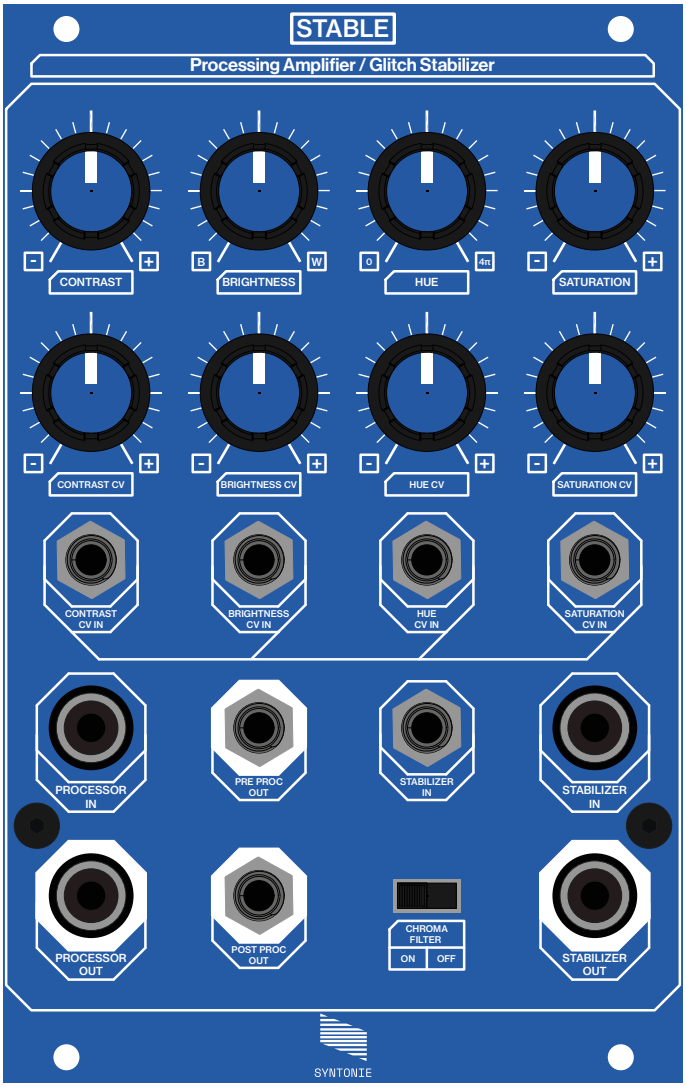
Stable

Processing Amplifier / Glitch Stabilizer¬

User documentation

SYNTONIE

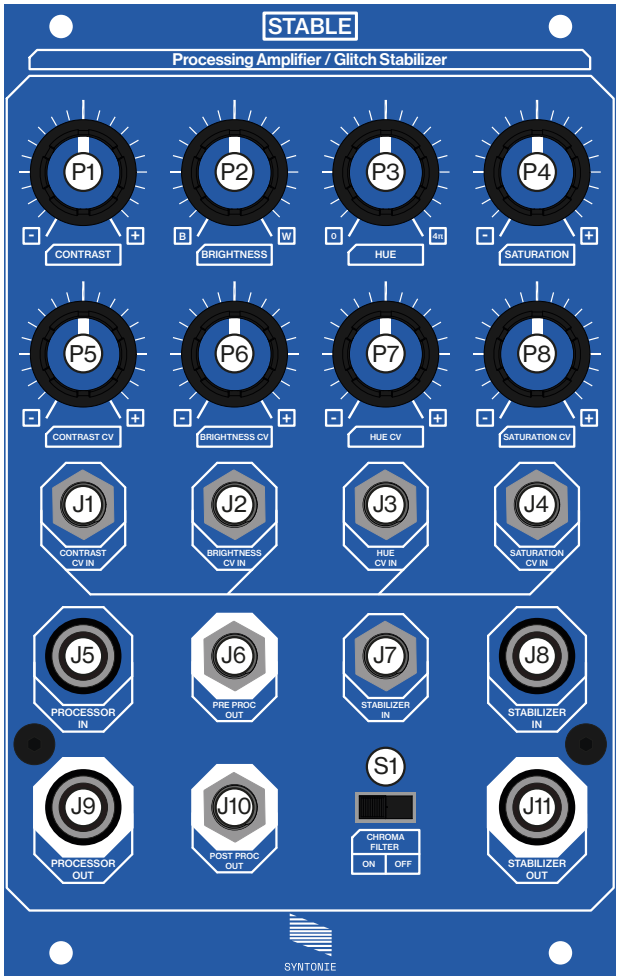


Stable is a processing amplifier with voltage control over contrast, brightness, hue and saturation, and a glitch stabilizer allowing to restore sync to a video signal, however deteriorated this signal may be, making it a versatile video processor and utility.

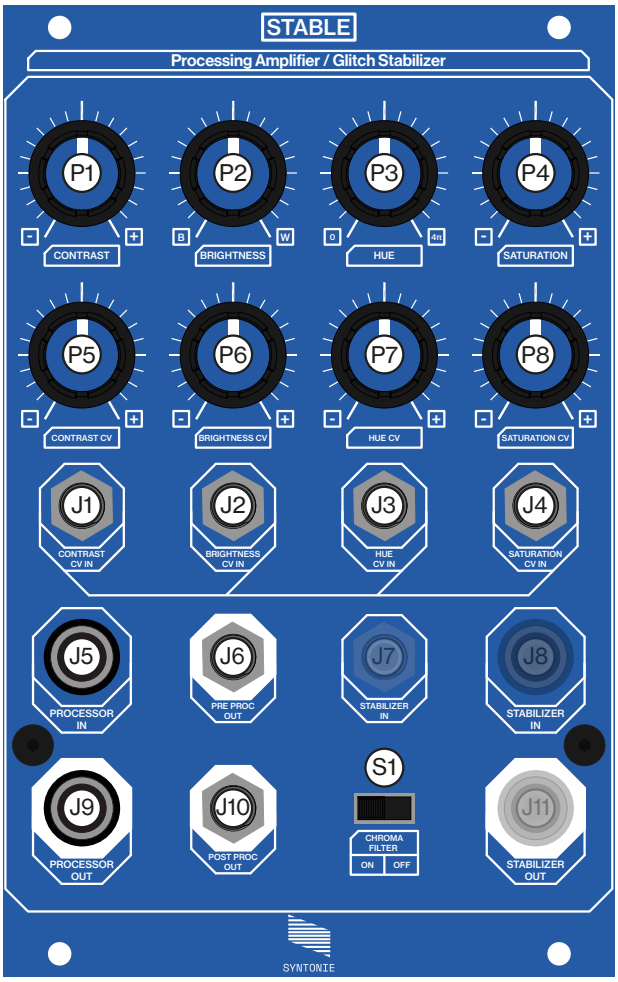
Specifications

- 16HP
- 310 mA +12V (16pin or DC)
- 0 mA -12V
- 0 mA +5V
- 42mm depth

Special thanks to: the **LZX team** for the Cadet designs which features some key elements used to develop this module, **Lorenzo Ferronato** for the documentation design.
And of course, **everyone who has supported Syntonie until now & those who will support it in the future.**



(P1) Contrast manual control
(P2) Brightness manual control
(P3) Hue manual control
(P4) Saturation manual control
(P5) Contrast CV attenuverter
(P6) Brigthness CV attenuverter
(P7) Hue CV attenuverter
(P8) Saturation CV attenuverter
(J1) Contrast CV input (jack, 0V/+1V, 100kΩ)
(J2) Brightness CV input (jack, 0V+1V, 100kΩ)
(J3) Hue CV input (jack, 0V/+1V, 100kΩ)
(J4) Saturation CV input (jack, 0V/+1V, 100kΩ)
(J5) Processor input (RCA, 2Vpp, 75Ω)
(J6) Pre-processor output (jack, 0V/+1V, 75Ω)
(J7) Stabilizer input (jack, 0V/+1V, 100kΩ)
(J8) Stabilizer input (RCA, 2Vpp, 75Ω)
(J9) Processor output (RCA, 2Vpp, 75Ω)
(J10) Post-processor output (jack, 0V/+1V, 75Ω)
(J11) Stabilizer output (RCA, 2Vpp, 75Ω)
(S1) Chroma filter bypass



Here are all the controls related to the processor section of Stable.

First, a Composite or Component Y signal is connected to the processor input RCA **(J5)**. This unprocessed signal is made available at the pre-processor output jack **(J6)**. No processing is applied (yet) beside black level restore and scaling/buffering to 1V (meaning that it is the full Composite video signal, colors included.)

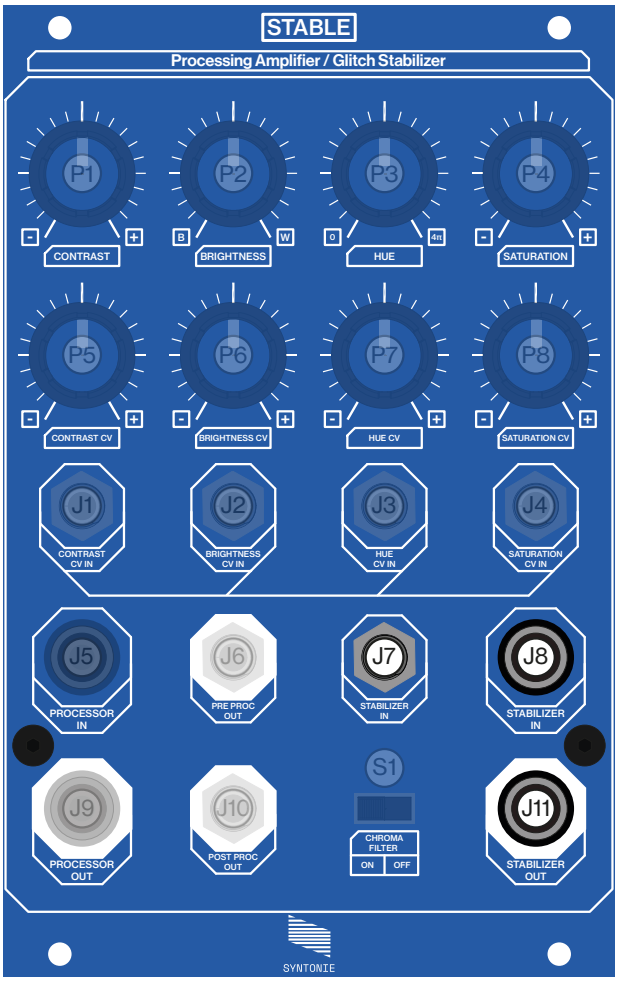
When using Stable to process a Composite video signal, the chroma filter **(S1)** must be turned on, in order to have the saturation control nulling the colors completely. When using it with a Component Y signal, it must be turned off to avoid unwanted filtering, which is more noticeable with HD formats.

Contrast **(P1, P5, J1)** controls the amplitude of the black and white content, with a gain ranging from of 2 to -2 (invert).
Brightness **(P2, P6, J2)** controls the offset of the black and white content, going from black level to white level.
Hue **(P3, P7, J3)** controls the color shift, up to 4π/360°, resulting in a full hue cycle in NTSC and around half a hue cycle in PAL.
Saturation **(P4, P8, J4)** controls the amount of color, with a gain ranging from of 5 to -5 (invert).

The resulting signal is availabe at the processor output RCA **(J9)**, as well as the post-processor output jack **(J10)**.

Note 1: When processing a Component Y signal, since it doesn't contain any color information, hue and saturation will act as a kind of enhancer/emboss filter, with hue defining the frequency and saturation the amount of enhancing/filtering happening.

Note 2: J4 is normalized to J3, J3 is normalized to J2, and J2 is normalized to J1, meaning that the signal plugged into J1 will be distributed to J2, J3 and J4, until another signal is plugged into them, which breaks the normalization.



Here are the controls related to the stabilizer section of Stable.

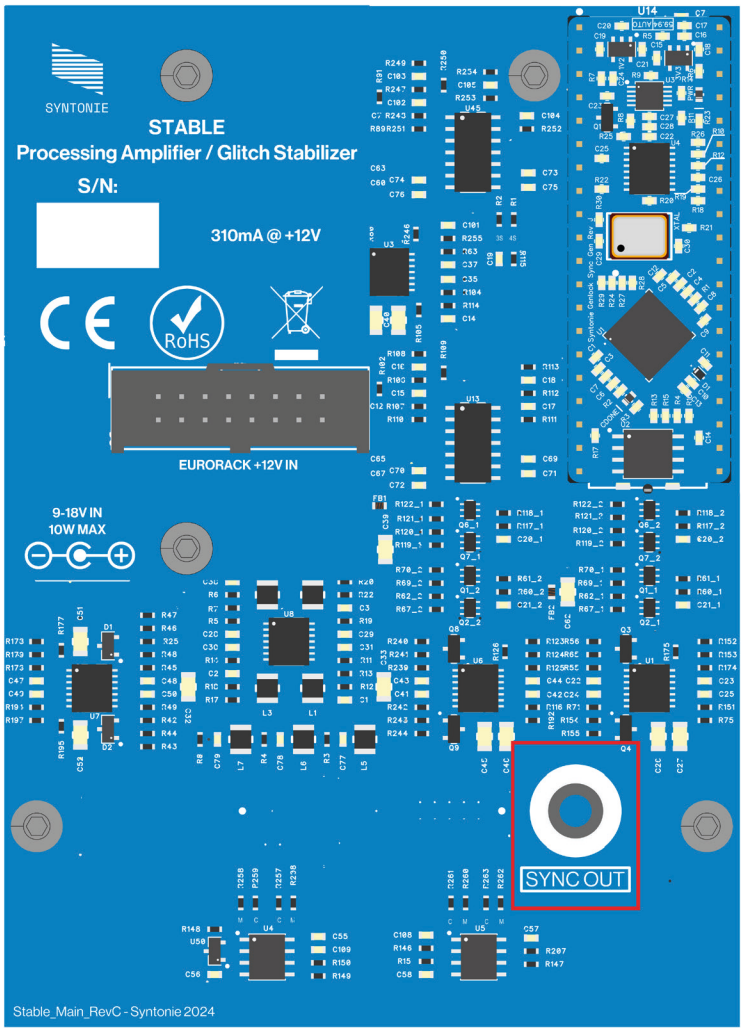
For the stabilizer to works, a clean and stable video signal needs to be connected to the processor input RCA first **(J5)**.

Then the processor output RCA **(J9)** is connected to a glitch device input (ie: **CBV001**), and the output of the glitch device is connected back to the stabilizer input RCA **(J8)**. A stable, in-spec signal is now available at the stabilizer output RCA **(J11)**.

It is also possible to use any eurorack video module to process the signal over jack. To do so, either the pre-processor output jack **(J6)** or the post-processor output jack **(J10)** is connected to the processing module input (ie: **Isohélie**), and the output of the processing module is connected back to the stabilizer input jack **(J7)**. Once again, a stable, in-spec signal is now available at the stabilizer output RCA **(J11)**, allowing to process Composite over jack with a great variety of modules.

Note 1: the stabilizer input RCA **(J8)** is normalized to the stabilizer input jack **(J7)**, meaning that the RCA input will be disconnected once a jack is inserted in J7.

Note 2: audio eurorack modules can also be used when processing the signal over jacks, however bandwidth will be limited (resulting in blur) and some level mismatch may occurs, though all inputs on Stable are overvoltage protected.



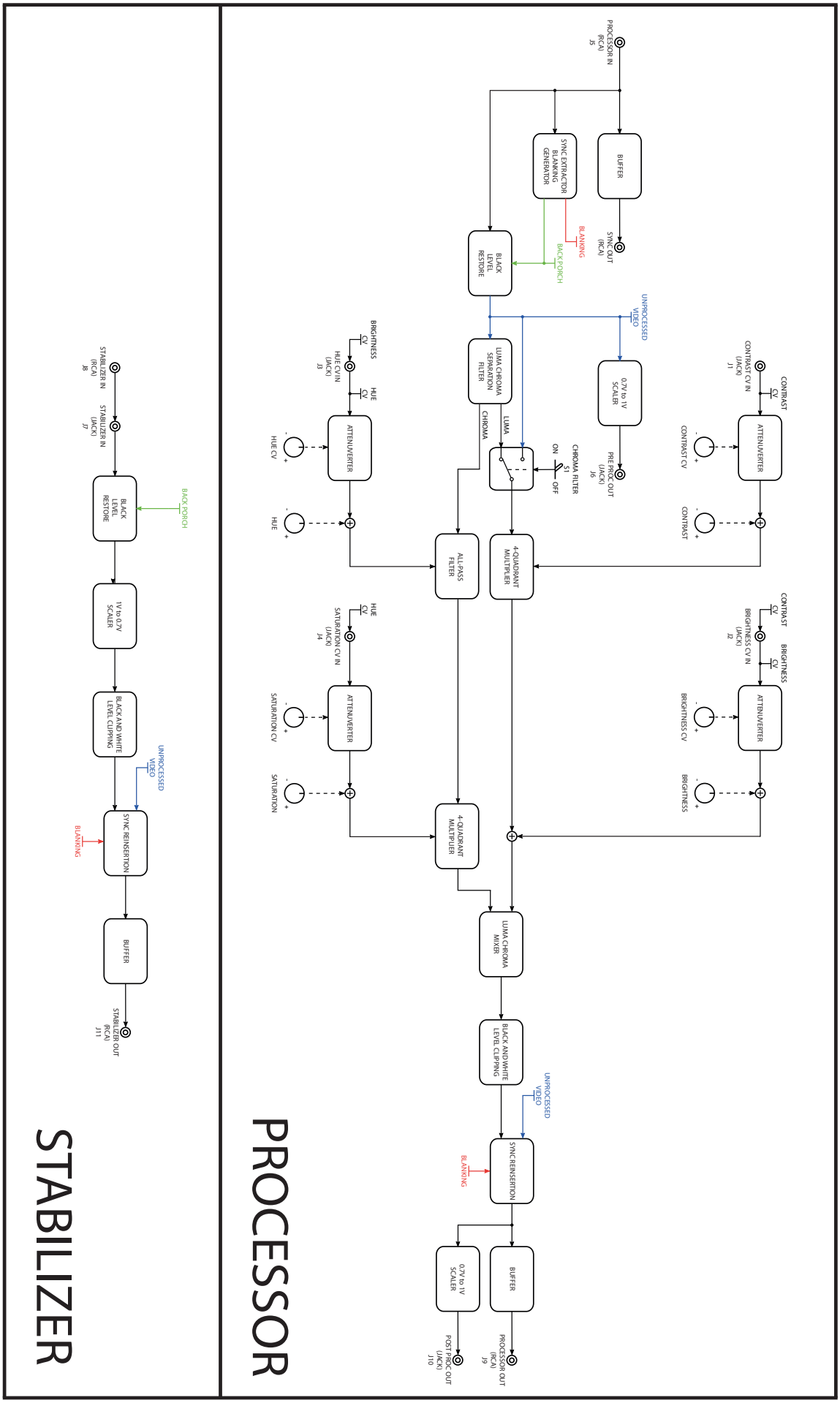
Stable features a sync output at the back of the module, in order to synchronize signal generators (ie: **Rampes**). To do so, simply connect the sync output from Stable to the sync input of the generator module with an RCA cable.

In the case where Stable is used as a video input decoder, the sync output of Stable is connected to the sync input of the RGB encoder/sync generator (ie: **VU007B**).

Stable detects the format of the external video and automatically switches to it, here are the supported formats:

- 288p50
- 240p59.94
- 576i50 (PAL)
- 480i59.94 (NTSC)
- 576p50
- 480p59.94
- 720p50
- 720p59.94
- 720p60
- 1080i50
- 1080i59.94
- 1080i60
- 1080p23.98
- 1080p24
- 1080p25
- 1080p29.97
- 1080p30

Note: Component supports all the format listed above, Composite only supports PAL and NTSC (and eventually 288p50/240p59.94 depending on the receiving device).


PROCESSOR
PROCESSOR IN (RCA) J5
SYNC EXTRACTOR BLANKING GENERATOR
BUFFER
SYNC OUT (RCA)
BLANKING
BACK PORCH
BLACK LEVEL RESTORE
UNPROCESSED VIDEO
LUMA CHROMA SEPARATION FILTER
0.7V to 1V SCALER
PRE PROC OUT (JACK) J6
LUMA
CHROMA
CHROMA FILTER
ON
OFF
S1
CONTRAST CV IN (JACK) J1
CONTRAST
CV
ATTENUVERTER
CONTRAST CV
BRIGHTNESS CV IN (JACK) J2
BRIGHTNESS
HUE CV IN (JACK) J3
HUE
HUE CV
SATURATION CV IN (JACK) J4
SATURATION CV
ALL-PASS FILTER
4-QUADRANT MULTIPLIER
LUMA CHROMA MIXER
BLACK AND WHITE LEVEL CLIPPING
SYNC REINSERTION
POST PROC OUT (JACK) J10
PROCESSOR OUT (RCA) J9
STABILIZER
STABILIZER IN (RCA) J8
STABILIZER IN (JACK) J7
1V to 0.7V SCALER
STABILIZER OUT (RCA) J11

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