

The supplied **POWER CABLE** is connected in the back with a shrouded connector. Be sure to align the red stripe with -12V power rail or the module or your system might be damaged. Be sure not to plug anything except modular level to the jacks (only MIDI signals to midi jacks in the Expander). The power consumption is 120mA for +12V and 30mA for -12V. The 5V rail is not used.

**1V/OCT** is a calibrated pitch input for the global oscillator pitch

**FM CV** is a bipolar FM input for global oscillator pitch with  $\pm 5V$  range

**SPREAD / PWM CV** is a CV for spread control (attenuated with the **SPREAD** pot) when saw wave is selected. When pulse is selected it modulates the pulse width. The input is bipolar with  $\pm 8V$  range

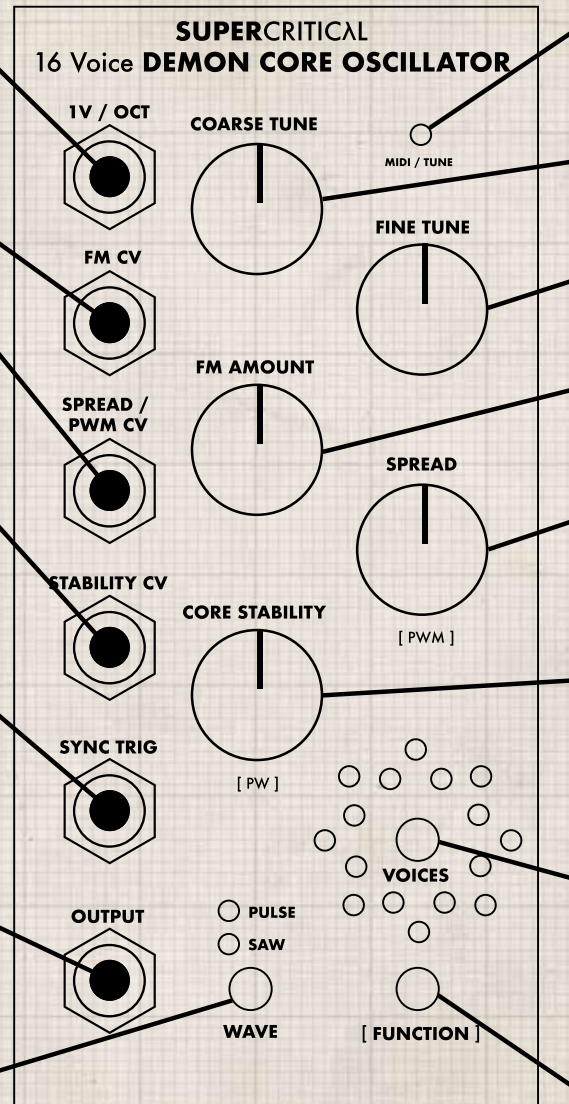
**STABILITY CV** is a CV for the core stability (attenuated with the **CORE STABILITY** control). The input is bipolar with  $\pm 8V$  range

**SYNC TRIG** is a trigger input for the time sync. When triggered all unison waves' phases sync. If the **SPREAD** control is slightly raised the phases spread over time. It works best if **STABILITY** is near off or raised just a tad. The input accepts a 5V 1ms trigger signal which exceeds +5V threshold.

**OUTPUT** is the mono output of the module. Since all sound the module makes is analog the output level might need some adjustment when adjusting the number of voices used and their tuning. 16 voices, **CORE STABILITY**, **SPREAD** off and **SYNC TRIG** is triggered causes the loudest level the module can make.

**WAVE BUTTON** chooses the waveform of the oscillator. Saw is a reverse saw wave and pulse is a variable pulse wave ranging from 0% via square to 100% pulse wave (if the module makes no sound at the output, the reason might be that it is set to pulse with 0% pulse width).

**ALL POTENTIOMETERS** work in jump mode when using alternate controls. Buttons have a short press mode with a 0,5sec "click" and in some cases, a long press mode with over 0,5sec hold. The LEDs also have a fast and slow blinking rate indicating different functions.



**MIDI/TUNE LED** indicates concert pitch when coarse and fine tune are rotated. It blinks on every C note (when there's no offset in **1V/oct**) and when fine tune is at center position for accurate tuning to A440. It also shows MIDI activity **when** expander is connected

**COARSE TUNE** adjusts the coarse tune of the oscillator over 6 octaves in half step intervals

**FINE TUNE** adjusts the fine tune of the oscillator over half step range

**FM AMOUNT** attenuates the signal fed to the **FM CV** input  
**VOICES + FM AMOUNT** controls the portamento. When expander is connected it works polyphonically as well!

**SPREAD** controls the static spread between oscillator voices  
**FN + SPREAD** attenuates the **PWM CV** input **when** pulse wave is set  
**WAVE + SPREAD** controls the offset of spread

**CORE STABILITY** controls oscillator drift in each oscillator voice. All the way down every voice's tuning is strictly accurate and all the way up it acts like a broken VCO with radical drifting.  
**FN + STABILITY** controls the pulse width offset between 0% - 100% **when** pulse wave is set  
**WAVE + STABILITY** controls the offset of stability

**VOICES BUTTON** controls the amount of voices used. The values are set between 1-2-3-4-5-6-8-10-12-16 voices and then back to single voice again. Constantly lit LEDs indicate unison depth. These voices are then allocated between unison and octave stacks. (Polyphony with expander)  
**WAVE + VOICES** control octave stack depth. When **WAVE** is pressed down the LEDs blink fast and indicate octave stack depth.

**FUNCTION BUTTON [FN]** is the shift button of the device and accesses the alternative functions for other buttons and knobs.  
**FN + WAVE + VOICES** held down 2s resets all controls to what-you-see-is-what-you-get mode. All hidden controls are reset to panel values.  
**FN + WAVE + VOICES** pressed down when powering up sets the module to its bootloader state. You can update the firmware via **FM CV** input at this point.