



Dear customer,

Thank you for your purchase of the OSC303MKII eurorack module.

The OSC303MKII is an updated version of our first module the OSC303 with these improvements

Complete PCB redesign in the style of the DrumDokta and VCF303 (skiff friendly).
Silver anodised, aluminium panel with sub-eloal print (printed directly into the oxide layer)
Fine and coarse tune.
Now free running.
Much louder outputs
Linear FM with attenuation
Bonus waveform, the not so triangle, triangle. (this waveform is not a true triangle generator, see the notes in the features section)

While I'm sure many of you will be using this to make "acid" style sounds, don't forget to explore using it as a source of other patch types. I'm sure you'll be pleasantly surprised with the results.

Your module comes with 12 months free technical support for the original purchaser, just drop an email to info@dinsync.info if you have any questions or problems.

Again thank you for your purchase, it's much appreciated. And don't forget to keep an eye on <http://www.dinsync.info> for the forthcoming modules.

Paul

Who reads manuals anyway?

I know right? but please take a quick read of the following.

Installation

The OSC303MKII has reverse power protection, so plugging the power cable in backwards should result in no damage to the module itself. However plugging things in backwards is never a good idea and could potentially damage other parts of your system. The protection is there in case of plugging the power cable in backwards by accident, please still take care to check the orientation of the cable when connecting it for the first time.

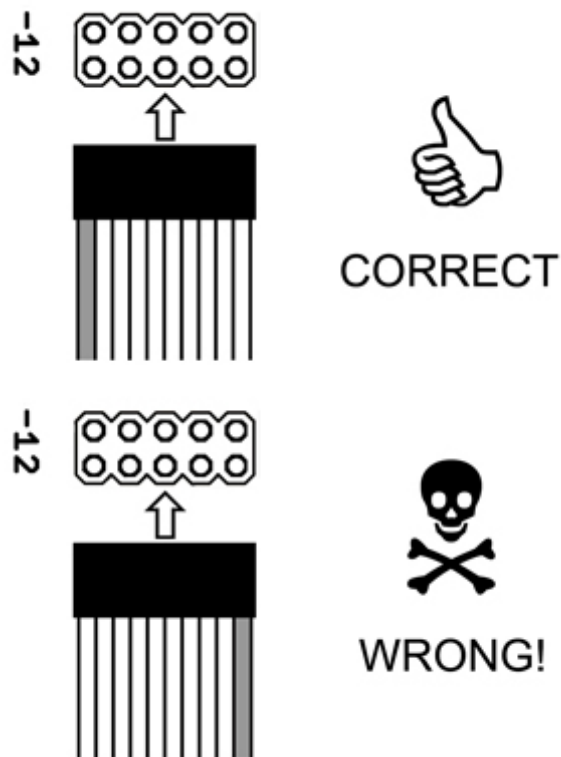


figure 1 - the correct and wrong way to connect power

Before installing please power off your modular case. Connect one end of the cable to the module as shown in **figure 1**. Connect the other end of the cable to your modular case bus board, please check your case's manual for the correct orientation. The stripe on the cable should be connected to -12. We have now started using keyed connectors on our power cables. If you have a busboard with a shrouded header please confirm that the red stripe is at -12v before powering your system. After you have connected the power you can mount the module using the included screws, the OSC303MKII requires 8HP of cabinet space.

OSC303²



FINE TUNE



COARSE TUNE



FM AMOUNT



CV IN

FM IN



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Din Sync
.Info

USAGE



FINE TUNE The fine tune adjustment will allow you to tune around half a semitone in either direction from the center position. useful for fine adjustments.



COARSE TUNE The coarse tune adjustment allows much larger tuning adjustments. The full range of the tuning is several octaves.



FM AMOUNT The FM amount knob acts as an attenuator for the FM IN jack.

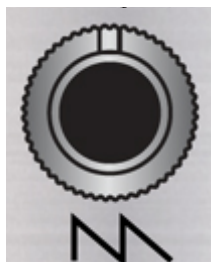


CV IN The module responds to the 1 volt octave standard. However since the oscillator is primarily intended for bass lines you may find the range is an octave or two lower than a standard oscillator. When a jack is plugged in the internal CV generator is disconnected. If a dummy jack or cable without a signal preset is plugged in the oscillator may stop or hang very low.

NOTE: Like the original OSC303 tracking under 1v becomes unstable as it approaches 0v, it has been improved but is still present. The problem is caused by the opamp in the original TB-303 circuit design.



FM IN Use this jack to insert modulation into the linear fm circuit. Audio rate modulations will produce the best results.



SAWTOOTH WAVE This jack carries the sawtooth waveform output of the module.



SQUARE WAVE This jack carries the square wave output. The signal level of the square wave is slightly lower than the sawtooth as is the case on the original TB-303.



BONUS WAVEFORM This jack carries something similar to a triangle wave (it looks more like a shark fin). It is not created with any wave folding circuit but actually is lifted from the square wave generator circuit. The upside of this is that we get a triangle like waveform at an incredibly low part count but the downside is that the amplitude of the waveform becomes lower with increased frequency. It is for these reasons that it is called the bonus waveform and must be considered as a free (or at least very cheap) extra feature. Like any triangle waveform, there are very few harmonics so perception will be lower, it does however retain some of the tone of the square wave and can be great for layering to give a nice bottom end to anything.

Adjustment Procedure

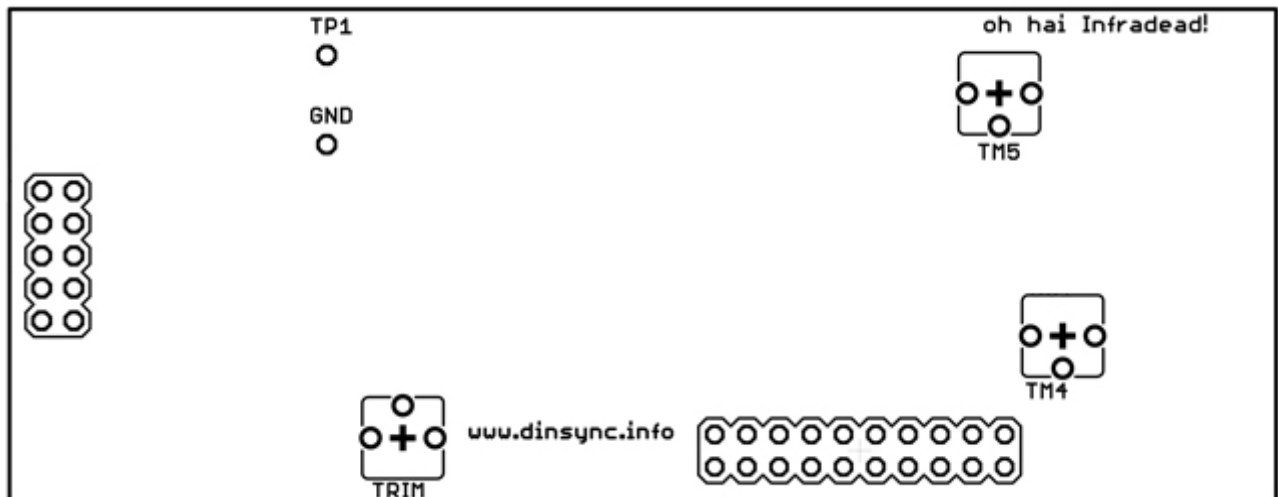
Please read all of this section before attempting to adjust the modules internal trimmers, failure to do so may kill many tiny animals but could also potentially kill your module.

This section is intended for those with the necessary skills and experience with calibration adjustments. It is provided as a complimentary supplement and should not be attempted unless you fully understand what's involved. If you misadjust your module it may become quite unusable.

In order to correctly adjust your module you will need a digital volt meter, a frequency counter (a guitar tuner will also work), lots of patience and a cup of tea (helps with the stress)

The module has been adjusted and calibrated before shipping, however like all analog devices it may need adjustment in the future or after being in transit.

Adjustment points



TRIM - this adjusts the reference voltage.

TM4 - this adjusts the oscillator base pitch.

TM5 - this adjusts the oscillator width or scale.

There is also a test point and ground on the PCB labeled **TP1** and **GND** respectively.

Adjusting the TRIM

The module creates its own reference voltage internally, this needs to be 5.33v. If the TRIM is adjusted then you will have to adjust the oscillator tuning.

- 1: First power up the module and allow to warm up for at least 20 minutes at room temperature.
- 2: Get a digital volt meter and connect the red probe to **TP1** and the black probe to **GND**.
- 3: The meter should read 5.33v, if it does then you can skip the rest of this section. If not then carefully adjust **TRIM** until you read 5.33v
- 4: ***WARNING*** The trimmer is quite sensitive and it is possible to dial in over 10v so gently does it, we aren't responsible if you decide to cook your module with more than the recommended amount of 5.33v.

Once you have adjusted the **TRIM** you can proceed to the tuning section

Tuning the Oscillator

The TB-303 was only initially intended to play 3 octaves, however there is some overlap and you will be able to get a little over 4 octaves of playable range. Because of this there is a slight scale drift across the full range.

The adjustment can be a little tricky since both **TM4** and **TM5** interact with each other, so its best only to tune when absolutely necessary. However as mentioned above, if you adjust the **TRIM** you will have to re-tune the oscillator.

- 1: First power up the module and allow to warm up for at least 20 minutes at room temperature.
- 1: Center the fine and coarse tune knobs, set fm amount to minimum.
- 2: Connect the **SAW** output to a frequency counter, guitar tuner, etc.
- 3: Apply 2.75 volts dc to **CV IN** and check the tuner, it should read somewhere around 110Hz then apply 3.75 volts dc to **CV IN** and check the tuner, it should read somewhere around 220Hz. With 4.75 volts it should be somewhere around 440Hz (+/- 5Hz).
- 4: If you need to adjust the tuning, get that cup of tea ready because it can be quite a tricky affair. In some cases it may be easier to center both **TM4** and **TM5** before starting.
- 5: Alternate between 2.75 volts dc and 3.75 volts dc to **CV IN** and adjust **TM5** until the frequency at 3.75 volts is twice that at 2.75 volts. Once this is set apply 2.75 volts and adjust **TM4** so that the tuner reads 110Hz. Check the tuning across the octaves and repeat from step 4 until you find a satisfactory tuning (remember there will always be some +/- drift across the full range)

Acknowledgements

many thanks go out to

Stephen Kwartler from <http://www.pro-modular.com> for the panel design.

Chris "Infradead" Lehfeldt for beta testing.

Specifications

Width 8 HP

Depth 42 mm (depth is measured from the rear of the faceplate to the edge of the supplied and connected power cable)

Power consumption: ~32 mA (<21mA +12, <11mA -12)