

## Drum Trig Config

The drum trig config page is used to configure settings for the optional drum mux module.

“Mux” is short for multiplex, which refers to the transmission method used.

The SYNC port is able to switch to an alternate mode where bursts of multiplexed trigger pulses and accent CVs can be transmitted to one or more drum mux modules.

Each module can output up to 16 pairs of trigger pulses and accent CVs, plus three further trigger pulses for DIN SYNC output (to replicate the function of the re-purposed SYNC socket).

The principle advantage of triggering percussion sounds using the drum mux output, as opposed to connecting them via a MIDI-to-trigger interface, is that the drum mux output has a much higher transmission speed than MIDI, and uses frame-based synchronisation to ensure every trigger pulse is tightly synchronised with all other triggers on the same tick. This gives a clearly audible advantage over MIDI when as few as 4 or 5 sounds are being triggered at the same instant.

The drum trig config page looks like this:

```
D-mux config:
  dmux enable: [Off]      CV channel: 10
  frame size: 19      [trigger map...]
  [refresh plengs]    [board conf...]
```

Select the dmux enable option to switch the SYNC socket to dmux mode.

Once the dmux output is active, normal DIN SYNC devices will no longer respond to the SYNC output directly.

The CV channel option selects which channel on the CV port the drum triggers will respond to. The selected channel will no longer route note messages to the CVIO expansion, so make sure to use a channel that is not already assigned there.

The frame size sets the total number of triggers to be transmitted in each burst.

The drum mux module has 16 accent/trigger output pairs, with a further 3 trigger channels used for the DIN sync output, so the default frame size is 19.

The frame size will only need to be changed if additional modules are connected, in which case you will also need to change at least one setting on the extra modules. This is described in more detail in the Board Level Config section.

## Drum Trigger Map

The trigger map... option takes you to a sub-page like this:

Output	Note	velo	pulse	(note2)	acc
> 1 <	C 4	1	32	---	pl s
2	C 4	1	32	---	pl s
3	C 4	1	32	---	pl s
4	C 4	1	32	---	pl s
5	C 4	1	32	---	pl s
6	C 4	1	32	---	pl s
7	C 4	1	32	---	pl s
8	C 4	1	32	---	pl s
9	C 4	1	32	---	pl s
10	C 4	1	32	---	pl s

For each trigger and accent output pair, you can select which note will trigger it, choose a velocity response curve, adjust the trigger pulse length, and set an optional second trigger note.

Select the output to configure using encoder 6, then edit the values with the encoders below each column.

Any changes made on the trigger map page apply immediately. To return to the main drum trig config page, press the MENU key.

There are two velocity curve options.

Curve 1 has a higher minimum voltage, rising linearly to the maximum voltage output.

Curve 2 has a lower minimum voltage rising to a lower maximum.

These curves were designed with two typical applications in mind, others may be added in future if required.

Select the curve which best suits the attached drum sound when triggered over the full range of velocity.

The pulse length is specified in sixteenths of a millisecond (0.0625ms steps).

The default pulse length of 32 is equal to 2ms.

The maximum length of 240 gives a 15ms pulse.

Turning the length value as if to select zero will select “gate” mode, where the trigger output will act as a normal gate, with the pulse length controlled by note length.

For D-mux version 3 boards on, there is an extra setting to enable pulsed accent.

Normally the accent CV outputs jump to each new velocity level just before the trigger, and hold that level until the next note trigger.

With the acc value set to “pls”, the accent CV output will pulse on then off (0V) with the pulse length controlled by the pulse length setting .

This is useful for drum machines or percussion modules that need a single trigger input for each sound, with velocity sensitivity according to the pulse voltage.

Although the pulse lengths and pulsed accent settings are stored internally in Cirklon’s memory, these settings are also stored in the drum mux module itself.

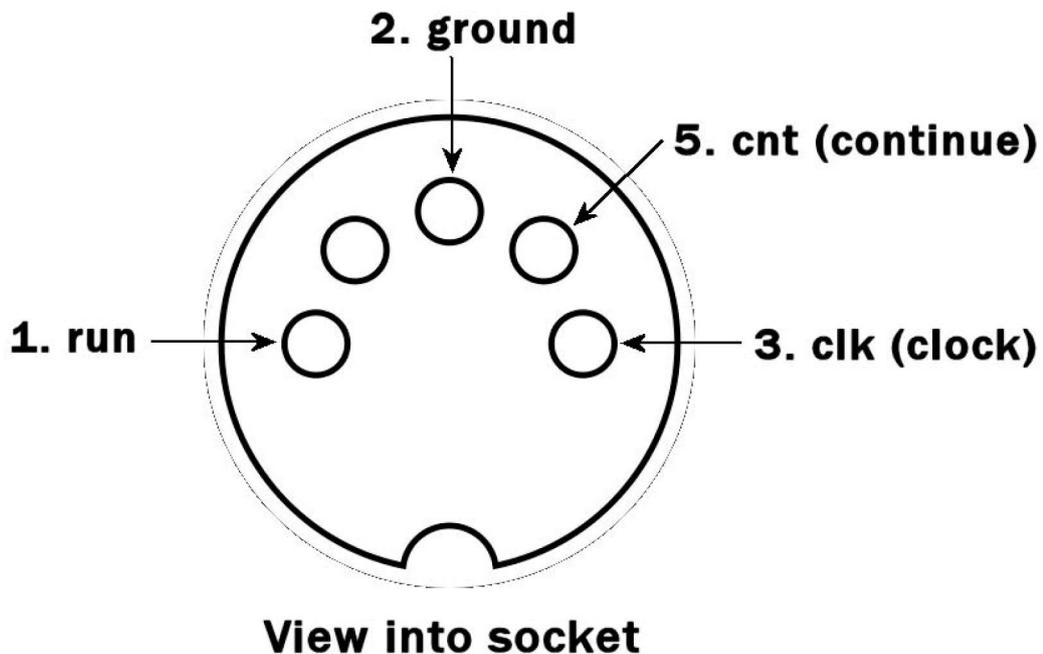
As you adjust the pulse length values, a message is sent to the drum mux module to update its internal setting.

This may briefly disturb the transmission of the normal trigger pulse bursts.

## DIN SYNC Output

Scrolling to the end of the default trigger map settings, you’ll see outputs 17, 18 and 19 mapped to special non-note values of D-run, D-cnt and D-clk.

These last three outputs are the signal pins of the SYNC OUT port on the dmux module:



With their default mapping to the D- values, the sync output will transmit DIN SYNC following the MIDI clock on the CV port.

Make sure mclk send is enabled for the CV port in MIDI port config.

If you don't need DIN SYNC, these three outputs may be used as extra trigger outputs when mapped to notes, however they will not respond to velocity.

The D- options are found at the end of the note range, after G X (G 10)

## Refresh Pulse Lengths

Although any new pulse length or accent setting for an output is sent to the drum mux module as it is changed, if any settings are changed in Cirklon when the drum mux module is not connected or powered up, or a different drum mux configuration is loaded from card or sysex, the settings may become mismatched.

The refresh plengs function will force an update of all stored values according to the current settings held in Cirklon's memory to ensure that all settings in the module are as shown in the menu.

It is strongly recommended that you run this function after loading a different drum mux configuration.

## Board Config

The board config page is used to configure the unique settings for each drum mux module in a multiple module setup.

The options here send configuration commands that all connected modules will respond to, so it is important to only connect the unit to be configured while using this page:

```
Board Level Config:
frame start pos:    1    trig count:    16
DIN aux enable:[on ]    [send to board]
```

Note that the drum mux output is purely one-way - there is no way for the current settings to be read back from a module.

The most recently used settings will always appear in the config page, even if you have connected a different module.

In order to use multiple modules, the "frame size" (on the main drum trig config page) must first be increased to match the total number of trigger outputs, up to a maximum of 48. Each drum mux module must then have its frame start pos value set to determine the unique range of triggers it will respond to.

Let's look at adding a second drum mux module, where the first module has the default frame start pos = 1, trig count = 16 and DIN output enabled.

The default frame size of 19 is made up of the 16 accent/trigger pairs plus the 3 triggers used for the DIN output on the first module.

The frame start pos for the second board should therefore be 20.

You would set the value to 20 on the board config page, then use the [send to board] option to update its configuration.

You may choose to use fewer than the maximum 16 of the trigger outputs using the trig count option.

You can choose whether to output DIN SYNC from the second module by setting the DIN aux enable option.

This option must be enabled to use the DIN output either for DIN SYNC, or for extra note-triggered outputs.

The output numbers for the 3 pins of the DIN output will always follow the last normal trigger output set with the trig count value.

For example, if trig count is set to 8 with DIN aux enable on, the three DIN pins will be triggers 9, 10 and 11 for that module – the 3.5mm trigger and accent outputs 9 to 16 will be inactive.

Assuming both modules will use all 16 outputs and send DIN SYNC, the total frame size should be set to 38.

The first module will respond to trigger numbers 1 to 19, the second to trigger numbers 20 to 38.

The additional trigger settings will become accessible on the trigger map page as soon as the frame size is increased.

Once configured with the correct frame start pos, each board will respond to pulse length adjustments according to its own trigger number range.

The pulse length values are edited with all modules connected.