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"control" block and divisions

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"control" block and divisions (#p1768)

by **iampoor** » Fri Sep 05, 2014 4:54 pm

Hi!

Recently I have been playing around with some effects. Is there a block available that I could use to send a single value to a control input? That would be really handy. I havent figured out a way to do it yet, so either Im a dumbo or it doesnt exist

Also, is there any way to make a "division" block?

Example: I am using the triple tap delay block (WHich is brilliant and I love!!!!!). I wan to use 2 taps. The taps will both be controlled by a pot. I would like the second tap to be "scalable" compared to the first tap. For instance, If I set a delay of 500ms and the second tap pot is at a 1/4 turn. The second delay will be 125ms. If the first tap is at 600ms, the second tap will be 150ms etc.

Is there a way to do this, or do we need a new block?

Thanks for all your hard work Larry!

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Re: "control" block and divisions (#p1769)

by **Digital Larry** » Fri Sep 05, 2014 6:41 pm

Update, I figured out a way...
Use the Scale/Offset block, and set the "Output High" and "Output Low" both to the value you wish to send to the following block. Then you have to connect the Scale/Offset input to SOME block's output (it doesn't matter which one), or it won't generate code. You can connect it to a pot, and it won't track any motion because you set both output endpoints to the same value.

On many but perhaps not all blocks, I have set a default value for control inputs that is adjustable via the block's control panel, which:
a) Is the maximum value for that parameter when the control input is connected and the control input value is 1.0
b) Is the default setting when there is no control input connected.

The speed and width control inputs for the Sin/Cos LFO block work this way, for example.

Regarding the multi-tap delay blocks, as far as I know they all behave exactly as you are asking. Set the relative delay ratios for each tap through the control panel (which is only possible with the 3-tap and ten-tap delays)... this is the delay they will have when the control input is 1.0. Something like this:

triple-tap.png
triple-tap.png (6.99 KiB) Viewed 72 times

Tap1 will be at 100% of 602 msec without a control input or with a control input at 1.0. Similarly tap2 is at 25% of 602 msec.

Don't use the third tap if you only want two. A small amount of unused code is generated, which you can remove if it's important.

The triple-tap block includes fixed taps in the middle and at the end that do not move with a control input. Don't ask me why - I just felt like adding them. If you combine fixed taps with movable taps and feedback loops you can get some weird delay patterns going on, unlike anything I can recall hearing. This doesn't mean they're good, but you may find an application for it.

Connect all 3 control inputs to the same source, and they will all scale together. 0.0 on the control input scales down to 5% of the maximum value

set in the control panel for that tap. 5% was just an arbitrary choice I made as to the likely desirable range for such a thing. The 8-tap, MN3011, and ten-tap delays all work the same way, although in those cases they do not have individual control inputs per tap.

For the MN3011 and 8-tap delays, the control panel delay setting is the value of the delay given to the longest tap.

Thanks for your kind words and let me know if you have any other questions.

DL

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Re: "control" block and divisions (#p1968)

by **iampoor** » Thu Nov 06, 2014 11:57 pm

Hey DL, thanks for the detailed reply. Its taken forever to reply because I finally got around to doing indepth testing!

> ***Digital Larry wrote:***
> **Update, I figured out a way...**
> Use the Scale/Offset block, and set the "Output High" and "Output Low" both to the value you wish to send to the following block. Then you have to connect the Scale/Offset input to SOME block's output (it doesn't matter which one), or it won't generate code. You can connect it to a pot, and it won't track any motion because you set both output endpoints to the same value.
>
> On many but perhaps not all blocks, I have set a default value for control inputs that is adjustable via the block's control panel, which:
> a) Is the maximum value for that parameter when the control input is connected and the control input value is 1.0
> b) Is the default setting when there is no control input connected.
>
> The speed and width control inputs for the Sin/Cos LFO block work this way, for example.

Yep, works perfectly!

> ***Digital Larry wrote:***
> Regarding the multi-tap delay blocks, as far as I know they all behave exactly as you are asking. Set the relative delay ratios for each tap through the control panel (which is only possible with the 3-tap and ten-tap delays)... this is the delay they will have when the control input is 1.0. Something like this:
>
> triple-tap.png
>
> Tap1 will be at 100% of 602 msec without a control input or with a control input at 1.0. Similarly tap2 is at 25% of 602 msec.
>
> Don't use the third tap if you only want two. A small amount of unused code is generated, which you can remove if it's important.
>
> The triple-tap block includes fixed taps in the middle and at the end that do not move with a control input. Don't ask me why - I just felt like adding them. If you combine fixed taps with movable taps and feedback loops you can get some weird delay patterns going on, unlike anything I can recall hearing. This doesn't mean they're good, but you may find an application for it.
>
> Connect all 3 control inputs to the same source, and they will all scale together. 0.0 on the control input scales down to 5% of the maximum value set in the control panel for that tap. 5% was just an arbitrary choice I made as to the likely desirable range for such a thing. The 8-tap, MN3011, and ten-tap delays all work the same way, although in those cases they do not have individual control inputs per tap.
>
> For the MN3011 and 8-tap delays, the control panel delay setting is the value of the delay given to the longest tap.
>
> Thanks for your kind words and let me know if you have any other questions.
>
> DL

After playing around with this extensively, I realized what I would ultimatly like to do is control the delay ratio of the taps, instead of the individual delay time. IE Pot0 would control the maximum delay time, and Pot1 would control the "Tap_2 Time". Obviously this isnt currently an

option with the way the blocks are setup, so Ive been trying to find a work-around. Any ideas?

Thanks!

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Re: "control" block and divisions (#p1971)

by **Digital Larry** » Fri Nov 07, 2014 5:42 am

Off the top of my head...

Use the triple tap delay block.

Run Pot1 to tap1 time control input and set ratio to 100%.
Also run Pot1 to a volume control block (which is just a MULX) AUDIO INPUT (on the top).
Run pot2 to the volume control block's control input.
Set tap 2 to 100% ratio.
Run volume control audio output to tap2 control input.

Now tap2 will be controlled by pot1 and pot2.
Tap1 will only be controlled by Pot 1.

Please see the attachment. Creative control processing.

I noticed that in simulation anyway, pot 2 slider at 50% did not seem to be exactly halfway. The control inputs actually scale the delay time from 5% to 100% of the control panel setting. Nevertheless I think you can dial it in effectively by ear.

In retrospect, your original question seems clear. Sorry I didn't grasp it straight away.

Attachments
controllable-tap2-delay.zip (./download/file.php?id=92)
(2.07 KiB) Downloaded 5 times
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Re: "control" block and divisions (#p1986)

by **iampoor** » Wed Nov 19, 2014 4:07 am

No worries, it works perfectly!

I didnt relize tha he volume block is just a Mulx. Slowly learning more about spin assembly. Its hard to grasp at first!

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Re: "control" block and divisions (#p1988)

by **Digital Larry** » Wed Nov 19, 2014 5:07 am

> ***iampoor wrote:***
> I didnt relize tha he volume block is just a Mulx. Slowly learning more about spin assembly. Its hard to grasp at first!

No problem - some of the blocks can be used equally for audio or control signals, but this certainly is not obvious. And yes, Spin ASM is not the most intuitive thing to understand! I've been working with it for a few years and some parts of it are still a bit mysterious to me.

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Re: "control" block and divisions (#p1989)

by **iampoor** » Wed Nov 19, 2014 1:15 pm

> ***Digital Larry wrote:***
>
> > ***iampoor wrote:***
> > I didnt relize tha he volume block is just a Mulx. Slowly learning more about spin assembly. Its hard to grasp at first!
>
> No problem - some of the blocks can be used equally for audio or control signals, but this certainly is not obvious. And yes, Spin ASM is not the most intuitive thing to understand! I've been working with it for a few years and some parts of it are still a bit mysterious to me.

Hmmm, maybe a list might help? :p

Yeah, Im a terrible programmer in the first place, so understanding DSP is even harder. Im staring to grasp the basics, I think what confuses me most is just how order seems prey irrelevant

Anyways, the spin site is great! Now I just need to start understanding it.

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Re: "control" block and divisions (#p1990)

by **Digital Larry** » Wed Nov 19, 2014 1:25 pm

The mixers can be used for audio and control signals.
The Octave Fuzz block is an "ABSA" (absolute value) function that can do strange things to control signals.
The Volume control is just a "MULX" in disguise and can process both control and audio signals.

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