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Scale/Offset control documentation

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Scale/Offset control documentation (#p1910)

by **the_boris** » Tue Oct 28, 2014 12:26 pm

I'm looking for some general documentation on scale/offset. Is there a post for this already?

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Re: Scale/Offset control documentation (#p1911)

by **Digital Larry** » Tue Oct 28, 2014 2:50 pm

Probably not. Even if there were I don't mind going over it.

The scale/offset control block is set up to "mostly" allow easy mapping of the 0.0 to 1.0 range of the control pots to smaller ranges, or to flip the control, so that the value goes down when the pot goes clockwise.

To do this, set:

Input Low = 0.0
Input High = 1.0

this corresponds to the input control going from 0.0 to 1.0, which the control knobs do naturally.

Then, set the Output Low to the value of the parameter you'd like when the pot is all the way at the left. Similarly, for Output High, set the value you'd like to send out when the input pot is all the way to the right.

For example, I might connect a pot control directly to a filter or LFO. As I move the pot over its range, I make a mental note of the position where I'd like it to be at the minimum (this becomes Output Low), and another note where I'd like it to be the maximum (this becomes Output High, which is often all the way up).

The actual Scale and Offset values are shown at the bottom and will turn red in the event that your settings are outside of the acceptable range.

For more general notes about the SOF instruction itself, I'd suggest reading about it over at the Spin Semiconductor Knowledge base. SOF is really one of the most powerful instructions available. Let me know if you have a more specific question about it and I'll try to answer.

Thanks,

DL

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Re: Scale/Offset control documentation (#p1973)

by **Digital Larry** » Mon Nov 10, 2014 6:22 am

Here's another explanation I e-mailed to someone.

Scale/offset maps to the SOF command in Spin ASM.

The easiest way to think of the Scale/Offset block is to leave input low and input high at 0.0 and 1.0 respectively. The idea then is:

When Input low = 0.0, Output low = "x"
When Input high = 1.0, Output high = "y"

Suppose x = 0.0 and y = 1.0. You didn't change anything.
Suppose x = 0.0 and y = -1.0. You inverted the signal around 0. (180 degree phase shift for audio)
Suppose x = 1.0 and y = 0.0 You inverted the signal around 1.0 (flipped the control direction)

Now then suppose you connect this between a pot and a volume control.

x = 0.25, then when pot is at 0, volume is 12 dB down. (0.25 = -12 dB)
y = 1.0, when pot is at 1.0, volume is 0 dB down.

So it is used to put audio and control signals into different ranges and spreads. It depends on what block you are controlling. For example, connect a pot directly to a filter. Move the pot until the filter sound is where you'd like it to be when pot is at 0.0. This becomes output low. Similarly for output high. Now put the scale.offset block between the pot and filter control input and you now have adjusted the control range to your liking.

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