

# Holy City Audio Forum

Former Home of SpinCAD Designer

[Skip to content](#)

Search...

[Advanced search](#)

[\[ Moderator Control Panel \]](#)

## SliderLabelSpinner options and examples

Post a reply

Search this topic...

3 posts • Page **1** of **1**

- [Edit post](#) (./posting.php?mode=edit&f=42&p=2611)
- [Delete post](#) (./posting.php?mode=delete&f=42&p=2611)
- [Report this post](#) (./report.php?f=42&p=2611)
- [Information](#) (./mcp.php?i=main&mode=post\_details&f=42&p=2611&sid=d6d1dcc4501596550704606791e62b4c)
- [Reply with quote](#) (./posting.php?mode=quote&f=42&p=2611)

### SliderLabelSpinner options and examples (#p2611)

by **Digital Larry** » Sat Jan 02, 2016 10:54 am

Github code is [spcbSliderLabelSpinner.xtend](https://github.com/HolyCityAudio/SpinCAD-Builder/blob/master/com.holycityaudio.spincad/src/com/holycityaudio/spincad/generator/spcbSliderLabelSpinner.xtend) (<https://github.com/HolyCityAudio/SpinCAD-Builder/blob/master/com.holycityaudio.spincad/src/com/holycityaudio/spincad/generator/spcbSliderLabelSpinner.xtend>).

This is written in Xtend, as part of the SpinCAD Builder domain specific language (DSL). Xtend and Xtext allow creation of code generation plugins for Eclipse that expand a fairly compact code representation into a complex Java GUI application.

The alternative is to write SpinCADBlocks directly in Java, which I really don't like doing. There are still a few dozen blocks written in Java from before the development of SpinCAD Builder. Some of them contain structures that are not yet possible in SpinCAD Builder.

Anyway, my most recent invention is the spcbSliderLabelSpinner, which combines a linked JSlider, JLabel, and JSpinner to allow easy adjustment of your block's internal parameters.

Since I can't remember how to use it, I'm documenting that here.

Here's the grammar for a SliderLabelSpinner declaration:

SliderLabelSpinner:

```
'@sliderLabelSpinner' ename = ID controlName = (ID | STRING) (minVal = SPINDOUBLE maxVal = SPINDOUBLE
initVal = SPINDOUBLE multiplier = SPINDOUBLE precision = INT (option = ID)?)?
;
```

Here's the table of options:

```
«IF e.option == "lengthToTime"»
    «e.ename»Slider = new JSlider(JSlider.HORIZONTAL, (int) («e.minVal» * «e.multiplier»), (int)
(e.maxVal» * «e.multiplier»), (int) (gCB.get«e.ename»() * «e.multiplier»));
«ENDIF»
«IF e.option == "LOGFREQ"»
    «e.ename»Slider = SpinCADBlock.LogFilterSlider («e.minVal», «e.maxVal», gCB.get«e.ename»());
«ENDIF»
«IF e.option == "DBLEVEL"»
    // dB level slider goes in steps of 1 dB
    «e.ename»Slider = new JSlider(JSlider.HORIZONTAL, (int) («e.minVal»), (int) («e.maxVal»), (int) (20
* Math.log10(gCB.get«e.ename»())));
«ENDIF»
«IF e.option == "LINEAR"»
    «e.ename»Slider = new JSlider(JSlider.HORIZONTAL, (int) («e.minVal» * «e.multiplier»), (int)
(e.maxVal» * «e.multiplier»), (int) ((gCB.get«e.ename»()) * «e.multiplier»));
«ENDIF»
«IF e.option == "SINLFOFREQ"»
    «e.ename»Slider = new JSlider(JSlider.HORIZONTAL, (int) («e.minVal» * «e.multiplier»), (int)
(e.maxVal» * «e.multiplier»), (int) ((gCB.get«e.ename»()) * «e.multiplier»));
«ENDIF»
«IF e.option == "RAMPLFOFREQ"»
    «e.ename»Slider = new JSlider(JSlider.HORIZONTAL, (int) («e.minVal» * «e.multiplier»), (int)
(e.maxVal» * «e.multiplier»), (int) ((gCB.get«e.ename»()) * «e.multiplier»));
«ENDIF»
«IF e.option == "BOOSTCUT"»
    «e.ename»Slider = new JSlider(JSlider.HORIZONTAL, (int) («e.minVal» * «e.multiplier»), (int)
```

```

(«e.maxVal» * «e.multiplier»), (int) ((gCB.get«e.ename»()) * «e.multiplier»));
«ENDIF»
«ELSE»

```

For example,

```
@sliderLabelSpinner gain "Reverb Level" -24 0 -12 10 2 DBLEVEL
```

The Control will be called "Reverb Level".

It will control the variable called "gain".

The displayed slider range will be -24 to 0, with an initial setting of -12.

The multiplier is 10. Not used for the DBLEVEL option, but still required per the grammar definition.

The precision is 2. Not used for the DBLEVEL option, but still required per the grammar definition.

The OPTION to be used to scale between the control and the internal variable is DBLEVEL.

```

«IF e.option == "DBLEVEL"»
// dB level slider goes in steps of 1 dB
«e.ename»Slider = new JSlider(JSlider.HORIZONTAL, (int)(«e.minVal»),(int) («e.maxVal»), (int) (20
* Math.log10(gCB.get«e.ename»())));
«ENDIF»

```

This code creates Java code than when executed, creates the JSlider with the mapping from the actual variable value to the JSlider's value:

**JSlider current value = 20 \* Math.log10(gCB.get«e.ename»())**

«e.ename» resolves to the variable's name, so that we call another generated function with the name **getreverb**, for example, if the controlled variable is called **reverb**.

So, we retrieve the value of the variable from its SpinCADBlock getter function, take the log10 of that, and multiply it by 20. That is the conversion formula for decimal to deciBels, as desired for a volume gain control.

If the OPTION is **lengthToTime**,

```

«IF e.option == "lengthToTime"»
«e.ename»Slider = new JSlider(JSlider.HORIZONTAL, (int)(«e.minVal» * «e.multiplier»),(int)
(«e.maxVal» * «e.multiplier»), (int) (gCB.get«e.ename»() * «e.multiplier»));
«ENDIF»

```

```

«e.ename»Slider = new JSlider(JSlider.HORIZONTAL, (int)(«e.minVal» * «e.multiplier»),(int) («e.maxVal» * «e.multiplier»), (int)
(gCB.get«e.ename»() * «e.multiplier»));

```

Example:

```
@sliderLabel delayLength 'Delay Time (ms): ' 0 32767 16384 1 0 lengthToTime
```

JSlider minimum = 0

JSlider maximum = 32767 (full length of delay RAM)

JSlider initial = 16384

... to be continued ...

Top

- [Edit post \(./posting.php?mode=edit&f=42&p=2612\)](#)
- [Delete post \(./posting.php?mode=delete&f=42&p=2612\)](#)
- [Report this post \(./report.php?f=42&p=2612\)](#)
- [Information \(./mcp.php?i=main&mode=post\\_details&f=42&p=2612&sid=d6d1dcc4501596550704606791e62b4c\)](#)
- [Reply with quote \(./posting.php?mode=quote&f=42&p=2612\)](#)

## Re: SliderLabelSpinner options and examples (#p2612)

by **Digital Larry** » Sat Jan 02, 2016 8:22 pm

Whoops, that last one was not a sliderLabelSpinner, it was just a sliderLabel. Also forgive me if this is boring or too off the wall, but it's about the only way I can focus on things well enough to figure out what I'm doing.

The sliderLabel xtendcode is [here](https://github.com/HolyCityAudio/SpinCAD-Builder/blob/master/com.holycityaudio.spincad/src/com/holycityaudio/spincad/generator/spcbSliderLabel.xtend) (<https://github.com/HolyCityAudio/SpinCAD-Builder/blob/master/com.holycityaudio.spincad/src/com/holycityaudio/spincad/generator/spcbSliderLabel.xtend>).

So let's find the scaling for lengthToTime:

```

«IF e.option == "lengthToTime"»
    «e.ename»Slider = new JSlider(JSlider.HORIZONTAL, (int) («e.minVal» * «e.multiplier»), (int)
(e.maxVal» * «e.multiplier»), (int) (gCB.get«e.ename»() * «e.multiplier»));
«ENDIF»

```

That looks like the same function as the sliderLabelSpinner.

The minVal and maxVal parameters appear to be sample lengths rather than time values. Maybe it is depending on 32768 as being 1 second? I'll admit to being a little confused at the moment.

This is in the genLabelUpdater method:

```

«IF e.option == "lengthToTime"»
    «e.ename»Label.setText("«e.controlName» " + String.format("%4.«e.precision»f", (1000 *
gCB.get«e.ename»() / gCB.getSamplerate())));
«ENDIF»

```

So, that's where the adjustment per sample rate occurs. It's starting to look like the implementation was not exactly consistent. I'll have to back up and look at everything a bit more carefully.

Top

- [Edit post \(./posting.php?mode=edit&f=42&p=2727\)](#)
- [Delete post \(./posting.php?mode=delete&f=42&p=2727\)](#)
- [Report this post \(./report.php?f=42&p=2727\)](#)
- [Information \(./mcp.php?i=main&mode=post\\_details&f=42&p=2727&sid=d6d1dcc4501596550704606791e62b4c\)](#)
- [Reply with quote \(./posting.php?mode=quote&f=42&p=2727\)](#)

### **Re: SliderLabelSpinner options and examples (#p2727)**

by **Digital Larry** » Sat May 21, 2016 10:47 pm

I thought this thread sounded familiar and I'm glad I went looking for it. This part of the code is so complicated that I can't remember it if I stop working on it for any length of time.

Back at it. I want to add a slider mode that displays attack time in milliseconds, and creates coefficients for and RDX/WRLX 1-pole low pass filter. The slider value can map to milliseconds.

I have one function which manages a variable which is delay length in samples, and displays the delay time in milliseconds. The slider maps directly to the delay length - both are integers.

I have another function which manages a variable which is a filter coefficient, and displays the filter corner frequency in Hz. The slider maps directly to the frequency in Hz.

Rise time vs. bandwidth equation (<http://www.edn.com/electronics-blogs/all-aboard-/4424573/Rule-of-Thumb-1--The-bandwidth-of-a-signal-from-its-rise-time>)

We can say that the 10%-90% rise time in milliseconds = 0.35/bandwidth (kHz).

Here's the Xtend code for the slider:

```

def static genLabelUpdater(SpinSliderLabel e) {
    ...
    private void update«e.ename»Label() {
        «IF e.option != null»
            «IF e.option == "lengthToTime"»
                «e.ename»Label.setText("«e.controlName» " + String.format("%4.«e.precision»f", (1000 *
gCB.get«e.ename»() / gCB.getSamplerate())));
            «ENDIF»
            «IF e.option == "timeToFilt"»
                «e.ename»Label.setText("«e.controlName» " + String.format("%4.«e.precision»f",
(gCB.get«e.ename»())) + " ms");
            «ENDIF»
            «IF e.option == "LOGFREQ"»
                «e.ename»Label.setText("«e.controlName» " + String.format("%4.«e.precision»f",
gCB.filtToFreq(gCB.get«e.ename»())) + " Hz");
            «ENDIF»
            «IF e.option == "SINLFOFREQ"»
                «e.ename»Label.setText("«e.controlName» " + String.format("%4.«e.precision»f",
coeffToLFORate(gCB.get«e.ename»())));
            «ENDIF»
        »
    }
}

```

```
        «IF e.option == "DBLEVEL"»
            «e.ename»Label.setText("«e.controlName» " + String.format("%4.«e.precision»f dB", (20 *
Math.log10(gCB.get«e.ename»()))));
        «ENDIF»
    «ELSE»
        «e.ename»Label.setText("«e.controlName» " + String.format("%4.«e.precision»f",
gCB.get«e.ename»()));
    «ENDIF»
}
'''
}
```

Some examples from different blocks:

```
// sliderLabel variable - Label - low - high - initial - multiplier - precision - option
@sliderLabel freq Frequency 80 2500 100.0 100.0 1 LOGFREQ
@sliderLabel shelf 'Shelf Depth' -40 -3 -6 1.0 1 DBLEVEL
@sliderLabel gain 'Input Gain' -18 0 -6 1.0 1 DBLEVEL
@sliderLabel ripLow 'Rip Low' 0.001 0.015 0.01 1000.0 3
@sliderLabel kiap 'All Pass' 0.25 0.98 0.5 100.0 2
```

Top

Display posts from previous:  All posts  Sort by  Post time  Ascending  Go

Post a reply

3 posts • Page **1** of **1**

[Return to Developer's Corner](#)

Jump to:  Developer's Corner  Go

Quick-mod tools:  Lock topic  Go

### Who is online

Users browsing this forum: **Digital Larry** and 0 guests

Powered by phpBB® Forum Software © phpBB Group

**Administration Control Panel**