| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/FloatControl.Type.html) | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-files/index-1.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | --- | --- | | | ***Java™ Platform***  ***Standard Ed. 6*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [**PREV CLASS**](http://docs.google.com/javax/sound/sampled/FloatControl.html)   [**NEXT CLASS**](http://docs.google.com/javax/sound/sampled/Line.html) | [**FRAMES**](http://docs.google.com/index.html?javax/sound/sampled/FloatControl.Type.html)    [**NO FRAMES**](http://docs.google.com/FloatControl.Type.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | [FIELD](#3znysh7) | [CONSTR](#2et92p0) | [METHOD](#3dy6vkm) | DETAIL: [FIELD](#4d34og8) | [CONSTR](#z337ya) | METHOD |

## **javax.sound.sampled**

Class FloatControl.Type

[java.lang.Object](http://docs.google.com/java/lang/Object.html)  
 [javax.sound.sampled.Control.Type](http://docs.google.com/javax/sound/sampled/Control.Type.html)  
 **javax.sound.sampled.FloatControl.Type**

**Enclosing class:**[FloatControl](http://docs.google.com/javax/sound/sampled/FloatControl.html)

public static class **FloatControl.Type**extends [Control.Type](http://docs.google.com/javax/sound/sampled/Control.Type.html)

An instance of the FloatControl.Type inner class identifies one kind of float control. Static instances are provided for the common types.

**Since:** 1.3

| **Field Summary** | |
| --- | --- |
| static [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) | [**AUX\_RETURN**](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#AUX_RETURN)            Represents a control for the auxiliary return gain on a line. |
| static [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) | [**AUX\_SEND**](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#AUX_SEND)            Represents a control for the auxiliary send gain on a line. |
| static [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) | [**BALANCE**](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#BALANCE)            Represents a control for the relative balance of a stereo signal between two stereo speakers. |
| static [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) | [**MASTER\_GAIN**](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#MASTER_GAIN)            Represents a control for the overall gain on a line. |
| static [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) | [**PAN**](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#PAN)            Represents a control for the relative pan (left-right positioning) of the signal. |
| static [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) | [**REVERB\_RETURN**](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#REVERB_RETURN)            Represents a control for the post-reverb gain on a line. |
| static [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) | [**REVERB\_SEND**](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#REVERB_SEND)            Represents a control for the pre-reverb gain on a line. |
| static [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) | [**SAMPLE\_RATE**](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#SAMPLE_RATE)            Represents a control that changes the sample rate of audio playback. |
| static [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) | [**VOLUME**](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#VOLUME)            Represents a control for the volume on a line. |

| **Constructor Summary** | |
| --- | --- |
| protected | [**FloatControl.Type**](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#FloatControl.Type(java.lang.String))([String](http://docs.google.com/java/lang/String.html) name)            Constructs a new float control type. |

| **Method Summary** | |
| --- | --- |

| **Methods inherited from class javax.sound.sampled.**[**Control.Type**](http://docs.google.com/javax/sound/sampled/Control.Type.html) |
| --- |
| [equals](http://docs.google.com/javax/sound/sampled/Control.Type.html#equals(java.lang.Object)), [hashCode](http://docs.google.com/javax/sound/sampled/Control.Type.html#hashCode()), [toString](http://docs.google.com/javax/sound/sampled/Control.Type.html#toString()) |

| **Methods inherited from class java.lang.**[**Object**](http://docs.google.com/java/lang/Object.html) |
| --- |
| [clone](http://docs.google.com/java/lang/Object.html#clone()), [finalize](http://docs.google.com/java/lang/Object.html#finalize()), [getClass](http://docs.google.com/java/lang/Object.html#getClass()), [notify](http://docs.google.com/java/lang/Object.html#notify()), [notifyAll](http://docs.google.com/java/lang/Object.html#notifyAll()), [wait](http://docs.google.com/java/lang/Object.html#wait()), [wait](http://docs.google.com/java/lang/Object.html#wait(long)), [wait](http://docs.google.com/java/lang/Object.html#wait(long,%20int)) |

| **Field Detail** |
| --- |

### MASTER\_GAIN

public static final [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) **MASTER\_GAIN**

Represents a control for the overall gain on a line.

Gain is a quantity in decibels (dB) that is added to the intrinsic decibel level of the audio signal--that is, the level of the signal before it is altered by the gain control. A positive gain amplifies (boosts) the signal's volume, and a negative gain attenuates (cuts) it. The gain setting defaults to a value of 0.0 dB, meaning the signal's loudness is unaffected. Note that gain measures dB, not amplitude. The relationship between a gain in decibels and the corresponding linear amplitude multiplier is:

linearScalar = pow(10.0, gainDB/20.0)

The FloatControl class has methods to impose a maximum and minimum allowable value for gain. However, because an audio signal might already be at a high amplitude, the maximum setting does not guarantee that the signal will be undistorted when the gain is applied to it (unless the maximum is zero or negative). To avoid numeric overflow from excessively large gain settings, a gain control can implement clipping, meaning that the signal's amplitude will be limited to the maximum value representable by its audio format, instead of wrapping around.

These comments apply to gain controls in general, not just master gain controls. A line can have more than one gain control. For example, a mixer (which is itself a line) might have a master gain control, an auxiliary return control, a reverb return control, and, on each of its source lines, an individual aux send and reverb send.

**See Also:**[AUX\_SEND](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#AUX_SEND), [AUX\_RETURN](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#AUX_RETURN), [REVERB\_SEND](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#REVERB_SEND), [REVERB\_RETURN](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#REVERB_RETURN), [VOLUME](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#VOLUME)

### AUX\_SEND

public static final [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) **AUX\_SEND**

Represents a control for the auxiliary send gain on a line.

**See Also:**[MASTER\_GAIN](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#MASTER_GAIN), [AUX\_RETURN](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#AUX_RETURN)

### AUX\_RETURN

public static final [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) **AUX\_RETURN**

Represents a control for the auxiliary return gain on a line.

**See Also:**[MASTER\_GAIN](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#MASTER_GAIN), [AUX\_SEND](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#AUX_SEND)

### REVERB\_SEND

public static final [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) **REVERB\_SEND**

Represents a control for the pre-reverb gain on a line. This control may be used to affect how much of a line's signal is directed to a mixer's internal reverberation unit.

**See Also:**[MASTER\_GAIN](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#MASTER_GAIN), [REVERB\_RETURN](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#REVERB_RETURN), [EnumControl.Type.REVERB](http://docs.google.com/javax/sound/sampled/EnumControl.Type.html#REVERB)

### REVERB\_RETURN

public static final [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) **REVERB\_RETURN**

Represents a control for the post-reverb gain on a line. This control may be used to control the relative amplitude of the signal returned from an internal reverberation unit.

**See Also:**[MASTER\_GAIN](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#MASTER_GAIN), [REVERB\_SEND](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#REVERB_SEND)

### VOLUME

public static final [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) **VOLUME**

Represents a control for the volume on a line.

### PAN

public static final [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) **PAN**

Represents a control for the relative pan (left-right positioning) of the signal. The signal may be mono; the pan setting affects how it is distributed by the mixer in a stereo mix. The valid range of values is -1.0 (left channel only) to 1.0 (right channel only). The default is 0.0 (centered).

**See Also:**[BALANCE](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#BALANCE)

### BALANCE

public static final [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) **BALANCE**

Represents a control for the relative balance of a stereo signal between two stereo speakers. The valid range of values is -1.0 (left channel only) to 1.0 (right channel only). The default is 0.0 (centered).

**See Also:**[PAN](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html#PAN)

### SAMPLE\_RATE

public static final [FloatControl.Type](http://docs.google.com/javax/sound/sampled/FloatControl.Type.html) **SAMPLE\_RATE**

Represents a control that changes the sample rate of audio playback. The net effect of changing the sample rate depends on the relationship between the media's natural rate and the rate that is set via this control. The natural rate is the sample rate that is specified in the data line's AudioFormat object. For example, if the natural rate of the media is 11025 samples per second and the sample rate is set to 22050 samples per second, the media will play back at twice the normal speed.

Changing the sample rate with this control does not affect the data line's audio format. Also note that whenever you change a sound's sample rate, a change in the sound's pitch results. For example, doubling the sample rate has the effect of doubling the frequencies in the sound's spectrum, which raises the pitch by an octave.

| **Constructor Detail** |
| --- |

### FloatControl.Type

protected **FloatControl.Type**([String](http://docs.google.com/java/lang/String.html) name)

Constructs a new float control type.

**Parameters:**name - the name of the new float control type

| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/FloatControl.Type.html) | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-files/index-1.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | --- | --- | | | ***Java™ Platform***  ***Standard Ed. 6*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [**PREV CLASS**](http://docs.google.com/javax/sound/sampled/FloatControl.html)   [**NEXT CLASS**](http://docs.google.com/javax/sound/sampled/Line.html) | [**FRAMES**](http://docs.google.com/index.html?javax/sound/sampled/FloatControl.Type.html)    [**NO FRAMES**](http://docs.google.com/FloatControl.Type.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
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[Submit a bug or feature](http://bugs.sun.com/services/bugreport/index.jsp)

For further API reference and developer documentation, see [Java SE Developer Documentation](http://docs.google.com/webnotes/devdocs-vs-specs.html). That documentation contains more detailed, developer-targeted descriptions, with conceptual overviews, definitions of terms, workarounds, and working code examples.

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