

Vibration support in native gamepad APIs.

Potentially applicable APIs

[XInput](#)

Can control the intensity of vibration on two separate motors, one high frequency the other low frequency. Input is given as unsigned short, 0-65535. 0 represents no vibration and 65535 100% motor use. No duration is given. Developer must call XInputSetState again with 0 values to stop vibration, otherwise it continues vibrating indefinitely. Most gamepad wrapper interfaces that I've seen (for Unity or similar libs) seem to follow this patterns as well.

[Oculus Touch](#)

Can control frequency and amplitude of vibration, both normalized to a 0-1 range. Frequency can only be set to 0.0, 0.5, or 1.0, amplitude sounds like it scales smoothly. No duration is given. Appears to continue vibrating at set level indefinitely after being set, like XInput.

[OpenVR](#)

No intensity control. Vibration is specified in duration, given in microseconds, specified as an unsigned short. Seems like the largest duration you can specify is somewhere around 3500, after which it just start ignoring vibration requests. Once a vibration has been triggered you can't request another one for 5ms. To specify continuous vibration for more than 3 ms you have to set up a timer loop that re-emits a vibration call every 6ms or so. Can specify target "axis" (touchpad) but only supports one per Vive controller at this time.

[Steam Controller](#)

(Documentation not available without Steamworks partner account)

Extremely similar to OpenVR API (not surprising). Can vibrate either touchpad. Also includes haptics function variant which repeats an on/off pair.

(Are there other APIs that I'm not aware of that are worth examining at this point?)

APIs not being considered

[Apple's Game Controller Framework](#)

No haptics support, as far as I can tell.

[DirectInput Force Feedback](#)

Relies on hardware supplied feedback effects. Very very obsolete. Not worth implementing or investigating IMO.

Feature support matrix

	Multiple motors	Intensity control	Specify Duration*
XInput	✓	✓	
Oculus Touch		✓	
OpenVR	✓**		✓
Steam Controller	✓		✓

* All APIs can implicitly control vibration duration, this column indicates that duration is specified as part of the API call.

** OpenVR API supports multiple haptics axes, but existing hardware only has one.