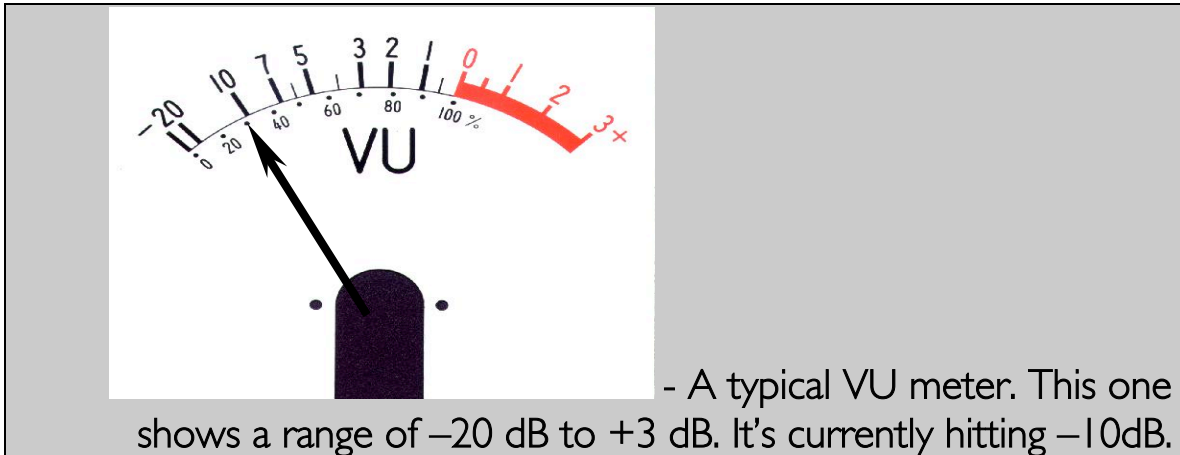


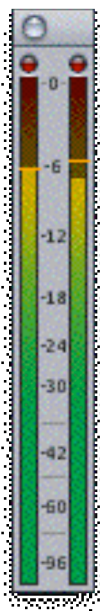
## Meters

It's important to keep track of the amplitude of a signal anywhere in the signal path. You need to know if you're underworking or overworking an input or output. Meters are visual aids that tell you about the signal levels in the studio. Meters warn you when you're overloading a circuit by going 'into the red'.

*VU meters* are analog. VU is short for 'volume unit'. VU meters are physical, so they respond to changes in the audio level in much the same way as our ears; with a non-linear, slightly delayed response to the change. It's a slightly 'mushy' display.

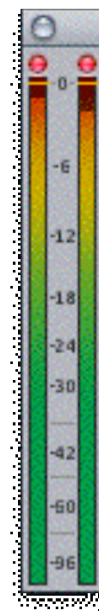


*Digital meters*, because they use LEDs or computer displays, react more quickly than VU meters. One great feature of digital metering is an option to 'remember' and display the highest peaks in the signal. This option is called *Peak Hold*.



Digital meters in an audio program.

On the left, the audio is reaching about  $-6$  dB. On the right, the audio is hitting  $0$  dBfs, and clipping.



In analog systems, 0dB represents the ideal signal level of the piece of gear. Any signal above 0dB will overwork the system, and therefore start adding subtle distortion. Any signal below 0dB will underwork the system, and may start exposing the noise floor! The 'ideal' level of 0dB is called '*unity gain*', which means that the system is working at its most effective levels.

The same cannot be said about digital systems, where 0dB is the absolute highest possible level. It's actually called 0dBfs, meaning 'full scale'. Any signal level above 0dBfs is flat out clipped.

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