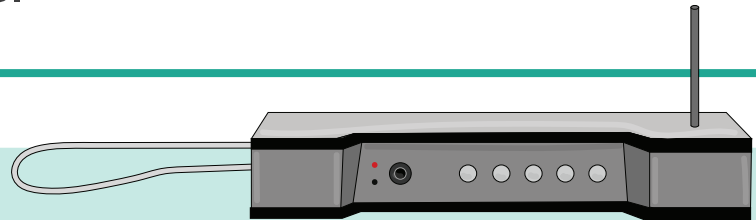


CONCEPT The theremin is an electronic musical instrument that is not physically touched by the player. It operates using sound frequencies which are made audible by the position of the player to the instrument's antennas.



BACKGROUND

The theremin, also known as thereminvox or etherophone, is widely recognized as the first electronic instrument. Sponsored by the Soviet government, Leo Theremin (Lev Sergeyevich) invented the theremin in 1919 to demonstrate proximity sensors. It is an amplified box with an antenna attached to either side. The player controls volume and pitch by moving their hand near each antenna. Inside the box are radio tubes (oscillators) which produce two sound wave frequencies above the range of hearing. Moving a hand near one antenna interrupts one of the two sound wave frequencies, and the difference causes an audible shift in pitch. This effect is known as the Heterodyne Frequency. The producible tones span a range of six octaves.

EXAMPLES

HETERODYNE FREQUENCY: Invented by Canadian engineer Reginald Fessenden, heterodyne is a signal frequency that is produced by combining two other frequencies.

VIBRATO: A musical technique applied to theremin playing which consists of subtle pulsing variations of pitch. This technique adds vocal-like expression and emphasis which allows this electronic instrument to “sing”.

OSCILLATOR: An electronic circuit that creates a signal such as a sine, square, or triangle wave. Oscillators convert direct current to an alternating current signal.