

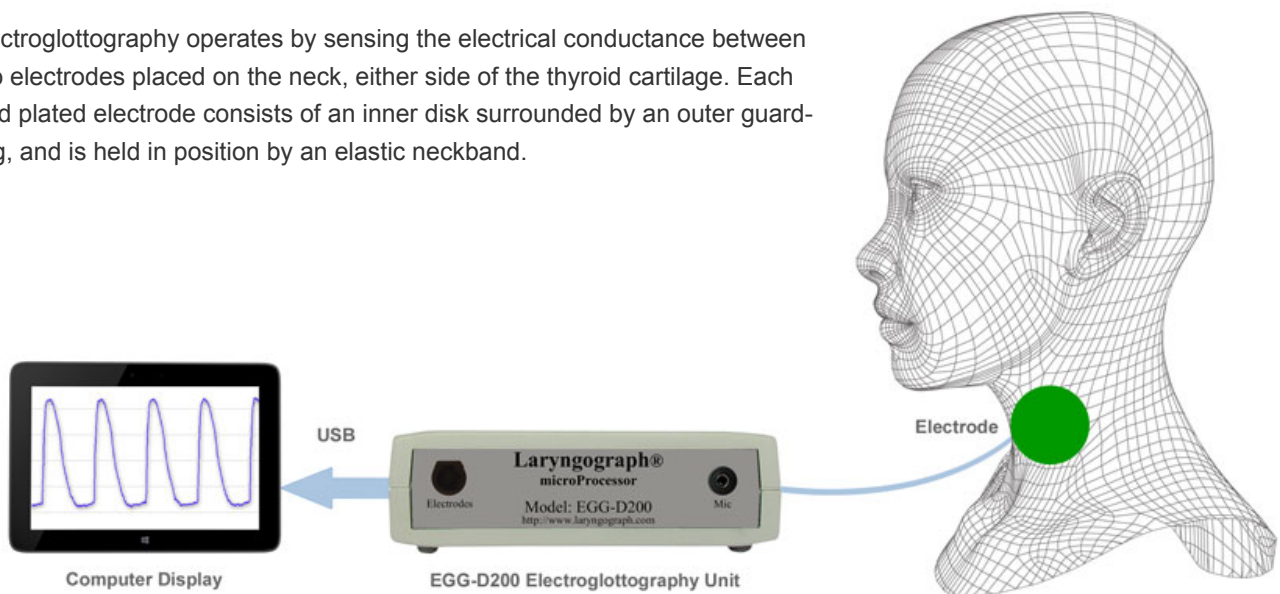
# EGG-D200 Electroglottography System



Electroglottography (EGG) is a non-invasive technique of monitoring vocal fold vibration by sensing the electrical conductance between two electrodes placed on the neck. The EGG-D200 is a portable electroglottography system that provides qualitative and quantitative information on vocal fold vibration.

## How electroglottography works

Electroglottography operates by sensing the electrical conductance between two electrodes placed on the neck, either side of the thyroid cartilage. Each gold plated electrode consists of an inner disk surrounded by an outer guarding, and is held in position by an elastic neckband.



On application of a constant voltage, the electroglottograph measures the varying electrical conductance between the electrodes in terms of the current flowing between them. Its output waveform  $L_x$  (larynx excitation) depicts this current flow as a function of time, which will be at a maximum when the vocal folds are in contact and at a minimum when they are apart.

## Compatible software

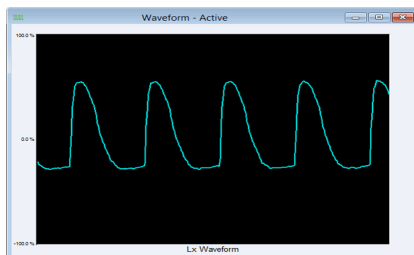
The EGG-D200 is compatible with icSpeech Professional Edition, which supports the following EGG parameters:

Parameter	Description
Lx waveform	Unfiltered Lx signal
Lx intensity	Low pass filtered Lx envelope
Fx frequency	Fundamental frequency of excitation derived from the Lx waveform
Closed quotient	Percentage of each glottal cycle during which the vocal folds are closed
Jitter factor	Percentage frequency variation of vocal fold vibration over 10 glottal cycles
Shimmer factor	Percentage amplitude variation of vocal fold vibration over 10 glottal cycles



The Fx frequency derived from the Lx waveform is extremely reliable, as the waveform is unaffected by vocal tract resonance and environmental noise.

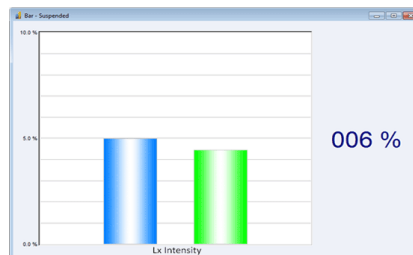
There are a number of ways in which these parameters can be displayed. All displays can be synchronously viewed in real-time for biofeedback, recorded for off-line assessment or printed for hard copy.



### Waveform display

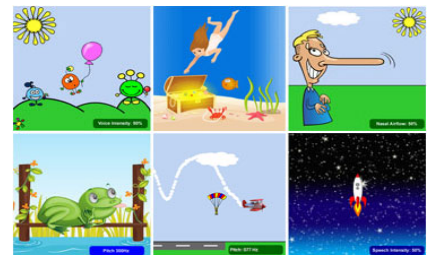
The real-time waveform shows the four main features of the glottal cycle:

- I. Closing Phase - a steep rising edge
- II. Maximum Closure - a maximum peak
- III. Opening Phase - a shallow falling edge
- IV. Open Phase - a trough.



### Bar display

The real-time Bar is a useful biofeedback tool that provides a clear and simple display reflecting the selected EGG parameter. This allows the speaker to monitor their voice, make corrections, and instantly see the result. Real-time Bar is particularly useful when working with sustained sounds.



### Games

icSpeech Professional Edition contains six interactive speech therapy games. Each game features adjustable targets, rewards and can be controlled by the EGG parameters.

## Recording and analysis

Recordings enable precise, repeatable measurements to be performed on the recorded EGG data. Measurements are made on the waveform display by positioning cursors over areas of interest. The data can also be exported to a comma-separated values (CSV) file for further manipulation.