

# Electrodes

## Electrode Choice Is Important

Electrodes are not only the primary point of contact between the patient and the defibrillator, but in many ways they form the critical link between the AED and its ability to deliver lifesaving energy to the patient.

## HeartSine Electrodes

HeartSine® electrode technology provides an outstanding four-year shelf life without a significant increase in cost or compromise in specification.

This same technology provides good electrical performance, rapid recovery time and greatly reduced noise.

HeartSine electrodes are large and have very low impedance, both of which are critical to successful defibrillation.<sup>1,2,3</sup>

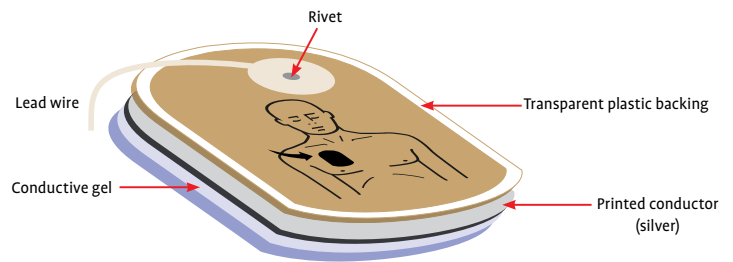
Due to both the high stability and low impedance of the electrodes it is possible to acquire additional Impedance Cardiography (ICG) information that can be utilised to provide detailed CPR feedback.

## How It Works

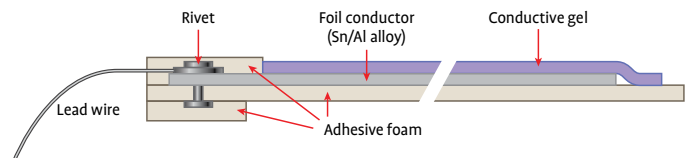
Traditional electrodes use a tin/aluminum alloy conductor with a hydrochloride gel layer. The aging mechanism involves a chemical reaction between the chloride and the aluminium, which usually limits the useful life of the electrode to up to 2.5 years.

HeartSine electrode technology is based on an entirely different structure. HeartSine electrodes are formed by printing a thick layer of silver onto a substrate. The addition of a hydrochloride gel layer initiates a chemical reaction with the silver during the manufacturing process. After approximately one week, this reaction has formed a thin layer of silver chloride, creating a stable and self-limiting layer.

This technology effectively creates a defibrillation electrode that will be stable for at least four years. In addition, the silver/chloride interface exhibits very low offset potentials and fast recovery characteristics, providing good noise and recovery performance.



HeartSine Electrode



Traditional Electrode

## A History of Innovation

Innovation in technology drives HeartSine in the design, development and manufacture of Automated External Defibrillators (AED).

The company's pedigree dates back over 50 years to the development of the world's first out-of-hospital defibrillator in the 1960s. Since then, HeartSine technologists have been at the forefront of placing lifesaving technology in the hands of users of all skill levels.

## References

1. Electrode pad size, transthoracic impedance and success of external ventricular defibrillation. Dalzell GW, Cunningham SR, Anderson J, Adgey AA. Regional Medical Cardiology Center, Royal Victoria Hospital, Belfast, Northern Ireland.
2. Predicted Trans-Thoracic Impedance and ECG-defibrillator Electrode Pad Size in Patients with Ventricular Fibrillation and Ventricular Tachycardia. G Dalzell, J Anderson, H Magee, J Adgey. Pacing and Clinical Electrophysiology 10, p874-878, 1987.
3. Transthoracic Impedance in Cardiac Arrest. J Anderson, G Dalzell, H Magee, J Adgey. European Heart Journal 8, Supplement 2, p58-62, 1987

