

**EL506 – DISPOSABLE ELECTRODES**

**NOTE:** EL506 electrodes were discontinued in December of 2018. For current offering, see other [EL500 Series electrodes](#).

The EL506 disposable, Ag/AgCl snap electrodes provide the same signal transmission as BIOPAC’s reusable electrodes, with added convenience and hygiene. Each peel-and-stick electrode is pre-gelled and designed for one time use only.

**Electrode Properties – Backing Adhesive**

EL506: moderate adhesive, low tack

Strong adhesive electrodes are best for biopotential measurements when the subject is moving. Moderate adhesive electrodes are optimal for long-term recordings. Lower tack electrodes can be repositioned and are best suited for delicate skin surfaces.

**Usage Descriptions - 500 Series Disposable Ag/AgCl electrodes:**

**EL506:** Bioimpedance, cardiac output use, dry strip electrode to establish equipotential lines on skin surface

**Skin Preparation**

For highest electrode to skin conductivity, the skin should be lightly abraded with a gentle abrasive wipe, such as BIOPAC’s ELPAD. An alcohol wipe is not recommended, to improve conductivity, as this will only serve to dry out the skin surface. Lightly abrading the top layer of the epidermis will effectively remove dead skin cells and prepare the skin site to establish a high conductivity path, once the gelled electrode is applied.

After application, the electrode can be verified for robust galvanic connection to the skin via impedance checking. BIOPAC’s EL-CHECK can be used to measure the impedance between any two applied surface electrodes. Because each electrode/electrolyte junction forms a half-cell, impedance measurements are more accurately measured at some frequency resident in the band of biopotentials. EL-CHECK operates by injecting a 3.5 uA rms constant current of 25 Hz through the electrodes undergoing impedance check. The complete series impedance loop, including both electrodes/skin junction and coupling body impedance, is reported. Ideally, the reading should be 10,000 ohms or less (approximately 5000 ohms per electrode). In practice, BIOPAC biopotential amplifiers are very tolerant of electrode/skin impedances, even higher than 50,000 ohms. However, the highest quality recordings will always be accompanied by electrode/skin impedance junctions of 10,000 ohms or less.

**Electrode Chloride Salt Content and Adhesive Backing**

Disposable Electrode Ag/AgCl	Chloride Salt %	Electrode Backing Adhesive
EL506	n/a: dry strip electrode – use any gel	Moderate, low tack

**Hydrogel (solid) electrolyte**

The chloride salt content in all hydrogel, solid electrolyte, electrodes from BIOPAC is 4%. This universal gel can be used short and long term, and is suitable for adult and infants.

**Duration**

BIOPAC does not recommend for applications running more than 24 hours.

**Irritation Factors**

Possible skin irritation can result from the gel or the adhesive on the tape backing of the electrode. To reduce the potential for skin irritation, choose an electrode which has lower electrolyte chloride content, reduced tape backing skin adhesion and electrolyte is hydrogel-based. Overall, the least impactful skin electrodes are the EL504, EL506, EL510, EL512 and EL513.

**Note:** About 2% of the population will react to any adhesives and gels put on a skin, regardless of composition or concentration. Internal body fluids are about 0.9% chloride salt. Skin sweat is typically 0.1% to 0.4% chloride salt.

Part	<i>Ag/AgCl Adhesive/Disposable Electrode Type</i>
<p><b>EL506</b>  <b>Alternative for band electrodes</b></p>	<p>This unique disposable strip electrode is designed for bioimpedance applications. The electrode is silver laminated on medical grade porous cloth, with industry-standard medical grade adhesive, medium tackiness. The silver/silver chloride (Ag/AgCl) electrode provides accurate and clear transmission of surface biopotentials and is latex free. The Ag/AgCl center, strip conductor is free of electrode gel and is designed for direct connection to the skin surface. If desired, a thin bead of electrode gel (GEL 100) can be added to the surface of the center conductor before application to the skin surface.</p> <p>Strip length: 250 mm, Conductive element width: 6.5 mm, Adhesive width: 2 x 9 mm (9 mm strip on either side of conductive strip,) Cloth backing width: 24.5 mm</p> <p><u>Advantages of the Strip Electrode:</u></p> <ul style="list-style-type: none"> <li>• Combines the convenience of standard snap (spot) electrodes with the signal to noise, equipotential and current diffusion performance of band electrodes</li> <li>• Less obtrusive than band electrodes - easier for subjects to move and breathe</li> <li>• Ergonomic advantages of snap (spot) electrodes</li> <li>• Diffuses currents similarly to band electrodes (reduces current density)</li> <li>• Provides voltage measurements through a well-defined equipotential plane</li> <li>• Adjustable size - cut the 250 mm strip to the desired size for optimal fit</li> <li>• Snap lead connection</li> <li>• Latex free</li> <li>• Peel-and-stick convenience</li> <li>• Disposable</li> </ul>