

Accessories Required But Not Provided

Adhesive Disks (ADD200 series, see below)
Electrode Recording Gel (WPI part # **GEL100**)

Specifications

| Skin Electrodes with 2 mm Gel Capacity and 1 m Lead | | | | | | | | Discs |
|---|-------|--------------|----------------|-----------|--------|------------------|------------|----------------------------|
| | OD | Sensor Diam. | Housing Height | Pin Diam. | Shield | Ground Pin Diam. | Din Socket | Adhesive Disc (pkg of 100) |
| EL204 | 7 mm | 4 mm | 5 mm | 2 mm | - | - | - | ADD204 |
| EL204S | 7 mm | 4 mm | 5 mm | 2 mm | Yes | 2 mm | - | ADD204 |
| EL204D | 7 mm | 4 mm | 5 mm | - | - | - | 1.5 mm | ADD204 |
| EL208 | 13 mm | 8 mm | 6 mm | 2 mm | - | - | - | ADD208 |
| EL208WS | 16 mm | 8 mm | 6 mm | 2 mm | Yes | 2 mm | - | ADD208 |
| EL208D | 13 mm | 8 mm | 6 mm | - | - | - | 1.5 mm | ADD208 |
| EL208WD | 16 mm | 8 mm | 6 mm | - | - | - | 1.5 mm | ADD208 |
| EL212 | 19 mm | 12 mm | 7 mm | 2 mm | - | - | - | ADD212 |
| EL212S | 19 mm | 12 mm | 7 mm | 2 mm | Yes | 2 mm | - | ADD212 |



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Warranty

WPI (World Precision Instruments, Inc.) warrants to the original purchaser that this equipment, including its components and parts, shall be free from defects in material and workmanship for a period of 30 days from the date of receipt. WPI's obligation under this warranty shall be limited to repair or replacement, at WPI's option, of the equipment or defective components or parts upon receipt thereof f.o.b. WPI, Sarasota, Florida U.S.A. Return of a repaired instrument shall be f.o.b. Sarasota.

The above warranty is contingent upon normal usage and does not cover products which have been modified without WPI's approval or which have been subjected to unusual physical or electrical stress or on which the original identification marks have been removed or altered. The above warranty will not apply if adjustment, repair or parts replacement is required because of accident, neglect, misuse, failure of electric power, air conditioning, humidity control, or causes other than normal and ordinary usage.

To the extent that any of its equipment is furnished by a manufacturer other than WPI, the foregoing warranty shall be applicable only to the extent of the warranty furnished by such other manufacturer. This warranty will not apply to appearance terms, such as knobs, handles, dials or the like.

WPI makes no warranty of any kind, express or implied or statutory, including without limitation any warranties of merchantability and/or fitness for a particular purpose. WPI shall not be liable for any damages, whether direct, indirect, special or consequential arising from a failure of this product to operate in the manner desired by the user. WPI shall not be liable for any damage to data or property that may be caused directly or indirectly by use of this product.

Claims and Returns

Inspect all shipments upon receipt. Missing cartons or obvious damage to cartons should be noted on the delivery receipt before signing. Concealed loss or damage should be reported at once to the carrier and an inspection requested. All claims for shortage or damage must be made within ten (10) days after receipt of shipment. Claims for lost shipments must be made within thirty (30) days of receipt of invoice or other notification of shipment. Please save damaged or pilfered cartons until claim is settled. In some instances, photographic documentation may be required. Some items are time-sensitive; WPI assumes no extended warranty or any liability for use beyond the date specified on the container

Do not return any goods to us without obtaining prior approval and instructions from our Service Department. Goods returned (unauthorized) by collect freight may be refused. Goods accepted for restocking will be exchanged or credited to your WPI account. Goods returned which were ordered by customers in error are subject to a 25% restocking charge. Equipment which was built as a special order cannot be returned.

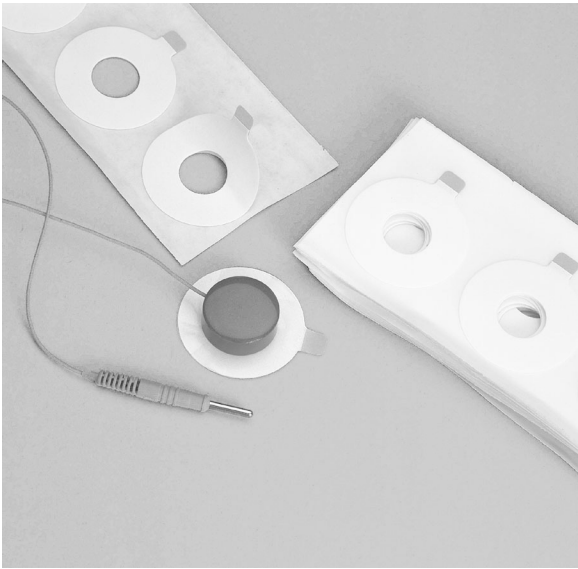
Repairs

Contact our Service Department for assistance in the repair of apparatus. Do not return goods until instructions have been received. Returned items must be securely packed to prevent further damage in transit. The Customer is responsible for paying shipping expenses, including adequate insurance on all items returned for repairs. Identification of the item(s) by model number, name, as well as complete description of the difficulties experienced should be written on the repair purchase order and on a tag attached to the item.

Warning: This equipment is not designed or intended for use on humans.



BetterSkin™ Electrodes



Caution: These electrodes could become permanently poisoned or destroyed following exposure to the conditions listed below. Take care to prevent the electrodes from coming into contact with these substances:

- metal ions including bromide, mercury, iodine, zinc, tin, sulfides or other organo-metallic compounds often found in chemical disinfectants; even very small amounts of these ions are damaging.
- abrasive cleaners
- abrasive clays such as found in some EEG pastes

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Introduction

WPI's new BetterSkin electrodes are high quality Ag/AgCl reusable surface-mounted electrodes designed to be used for the acquisition of all biopotentials. Each electrode is fabricated using an optimum quality sintered Ag/AgCl pellet encased within a strong epoxy housing designed to have an extended lifetime. The result is a superior electrode that provides accurate and clear transmission of even the smallest surface biopotentials. In comparison to standard “stamped” metal electrodes and Ag/AgCl disposable electrodes, WPI's BetterSkin electrodes provide increased stability, lower noise and lower offset voltage during surface biopotential recording. These features are particularly important during measurement of very small potential signals, such as EMG or EEG recording.

Applications

Four BetterSkin electrode sizes are currently offered:

| Electrode Size | Application |
|----------------|---|
| 7mm | For use where close spacing between biopotential recording sites is required |
| 13 mm | General purpose electrodes and appropriate for most applications |
| 16 mm | |
| 19 mm | Large size electrodes designed for optimal surface skin contact for use during long-term biopotential recording |

Cables/Connectors

Three different connector and cable combinations are available:

- 2 mm pin with 1 meter unshielded cable;
- 2 mm pin with 1 meter shielded cable (shielding is connected to an additional 2 mm grounding pin)
- 1.5 mm DIN safety socket with 1 meter unshielded cable (the 1.5 mm DIN safety socket will fit WPI's DBA digital biological amplifier and most modern input design bioamplifiers).

Instructions For Use

Electrode conditioning

For EEG and EMG, or during measurements of very small potential signals, preconditioning could reduce the drift and offset of the electrodes. To achieve these stable potentials, presoak the electrodes in a chloride containing electrolyte for several hours, minimally 3 hours.

Skin and Electrode Preparation

(See Accessories Required But Not Provided Section)

- Prepare the skin by cleansing and drying the areas where the electrodes will be attached. Typically 70% alcohol is used for this purpose. Be sure to dry the skin.
- Ensure that the surfaces of the electrode and the adhesive disk are clean and dry.
- Attach the adhesive disk to the electrode by peeling off the adhesive backing on one side of the disk. Take care to center the disk on the electrode.
- Carefully fill the electrode cavity with recording gel ensuring that no bubbles have formed.

- Peel off the remaining adhesive backing from the disk.
- Press the filled electrode firmly onto the prepared area of skin. Press the outer edges of the disk to the skin to ensure adhesion.
- After use: *immediately* remove the adhesive disk and electrode from the skin and clean out the gel using saline or deionized or distilled water.

Maintenance

Darkening

Silver Chloride is light sensitive. Exposure to light will cause darkening of the outer surface of the electrode. This will not adversely affect the performance of the electrode.

Cleaning

Cleaning should be performed with non-abrasive cleaners. Sterilization, if required, should be performed using chemical disinfectants (see Caution statement). Typically, disinfection is performed by soaking the electrode in 70% alcohol or Cidex for 15 minutes. Bleach (*e.g.*, Clorox) can also be used. The American Society of Electroneurodiagnostic Technologists have published a method describing the use of bleach for disinfection (*Am. J. EEG Technol.* [1995] **35**: 3-36).

Storage

After use, blot dry and store in a darkened environment, *e.g.*, a drawer, cabinet or light-filtering box.