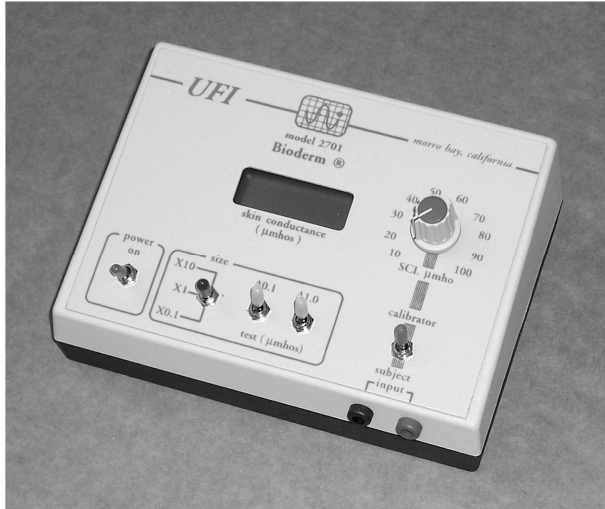


# MODEL 2701 BIODERM® SKIN CONDUCTANCE METER



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## Introduction to skin conductance measurement

The Model 2701 measures skin conductance level (SCL) by impressing a constant 0.5 volts across a body segment, typically between two fingers. A small resistor is placed in series with the body segment; the Model 2701 monitors the voltage change across that resistor.

SCL is the reciprocal of skin resistance, and is measured in microsiemens (old unit name: micromhos).

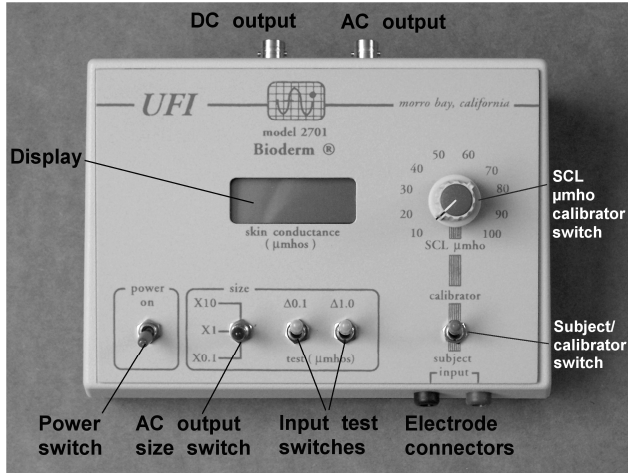
SCL amplitude depends on the following:

- density of sweat glands in the body segment measured;
- psycho-activity of the sweat glands there; and
- size of skin areas in contact with the electrodes.

Sweat gland density and psycho-activity are highest on the palms of the hands and the soles of the feet.

The Model 2701 also measures skin conductance response (SCR), SCL change with respect to time ( $\Delta$ SCL). The SCL signal is passed through a filter, and the resultant signal amplified, to derive SCR. The volar surfaces of the fingers provide the greatest response (SCR).

## Controls, connectors and display



### power switch

- Connects power supply to Model 2701; should be left in OFF position when instrument is not in use.

### subject/calibrator switch

- Use SUBJECT position to measure subject's skin conductance.
- Use CALIBRATE position along with *SCL µmho calibrator switch* and *Δµmho switches* to mark SCL reference levels and test Model 2701 linearity.

### SCL µmho calibrator switch

- Provides SCL reference levels from 10 through 100 µmhos in 100- µmho steps.
- Active only when *subject/calibrator switch* is set to CALIBRATE position.
- Accurate to  $\pm 0.5$  µmho.

### input connectors (front panel)

- Connect UFU Model 1081FG (supplied) or other SCL electrodes to these 0.080" pin jacks.

### input test (µmhos) Δ0.1 / Δ1.0 switches

- Depress left switch to change display reading by calibrated 0.1 µmhos, right switch to change reading by 1.0 µmhos.

### size switch

- Expands AC output voltage (SCR) for greater resolution, or compresses it for greater range:

Size switch position	Δ0.1 µmho =
X 0.1	50 mV
X 1	500 mV
X 10	5 V

- DC output (SCL) is **not** affected; it remains constant at 50mV/µmho.*

### Display

- Reads out subject skin conductance or calibrator conductance in µmhos.

### DC output (SCL) connector (back panel)

- BNC receptacle provides entire skin conductance signal to downstream recorder or other instrument.
- *Not* affected by *size switch*.

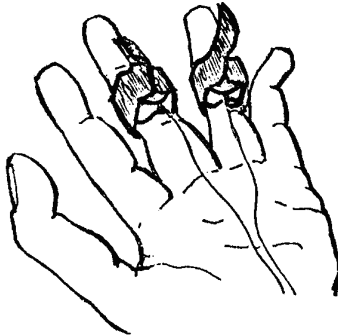
### AC output (SCR) connector (back panel)

- BNC receptacle provides just the variable component of skin conductance signal to downstream recorder or other instrument.
- *Size switch* affects signal resolution in millivolts per  $\Delta 0.1 \mu\text{mho}$ .

### Using the Model 2701 Bioderm®

#### To measure subject SCL and SCR:

- Lightly abrade skin at just one of the two locations where electrodes are to be placed:



- apply UFI 1090 BioGel® or other electrode gel to contact surfaces of UFI Model 1081FG silver/silver-chloride electrode pair (supplied);
- use Velcro™ straps to attach electrodes to volar surfaces of two fingers on subject's non-dominant hand as shown in diagram above;
- straps should be tight enough to prevent electrode movement but still allow blood to circulate freely;
- turn *power switch* to ON position, set *subject/calibrator switch* to SUBJECT position;
- *display* indicates skin conductance in micromhos ( $\mu\text{mhos}$ ; new unit name: microsiemens,  $\mu\text{S}$ );
- adjust sensitivity (mV per  $\Delta 0.1 \mu\text{mho}$ ) of AC output (SCR) with *size switch* if desired;
- press one of the *input test ( $\mu\text{mho}$ ) switches* at any time to check instrument response;
- **when subject testing is finished, be sure to clean all electrode gel from electrode cavities; store electrodes absolutely dry.**

#### To calibrate the Model 2701:

- turn *power switch* to ON position, set *subject/calibrator switch* to CALIBRATOR position;
- *display* indicates SCL value selected by *SCL  $\mu\text{mho}$  calibrator switch* to accuracy of  $\pm 0.5 \mu\text{mho}$ ;
- rotate *SCL  $\mu\text{mho}$  calibrator switch* through entire range of 10-100  $\mu\text{mho}$  -- *display* should indicate each selected SCL value correctly;

- if any displayed value does not match switch value, replace the Model 2701 battery with fresh 9V cell;
- press *test Δ0.1 μmho switch* -- display should change by 0.1 μmho. AC output (SCR) should be as follows:

Size switch position	AC (SCR) output
X 0.1	50 mV
X 1	500 mV
X 10	5 V

- press *test Δ1.0 μmho switch* -- display should change by 1 μmho. AC output (SCR) should be as follows:

Size switch position	AC (SCR) output
X 0.1	500 mV
X 1	5 V
X 10	Out of range

### Warranty and repair

All UFI instruments are warranted against defects in materials and workmanship to the original purchaser for a period of one year from the date of original purchase. This warranty is void if our inspection shows the equipment has been tampered with; or installed at variance with factory-designated procedures; or has been subjected to negligence, misuse, or accident beyond normal usage; or has had the serial number altered, defaced, or removed.

No third party, including any dealer or agent, is authorized to assume any liability for UFI. Direct questions regarding warranty to:

Customer Service Department, UFI  
 545 Main Street, Suite C-2  
 Morro Bay, CA 93442  
 Email: [ufi@ufiservingscience.com](mailto:ufi@ufiservingscience.com)

When corresponding or communicating with UFI concerning your equipment, please include the model and serial numbers.

UFI instruments and transducers are subject to continuous improvement. We reserve the right to modify any design or specification without notice and without incurring any obligation.

### ALL UFI TRANSDUCERS AND ELECTRODES ARE COVERED BY OUR EXCLUSIVE "LIFELINE® WARRANTY" AS FOLLOWS:

If your UFI transducer, electrode, or electrode tester ceases to operate--regardless whether the cause is accidental, intentional, or whatever---**return it to us**. We will repair it or replace it with a new one for a minimal handling charge, as listed below:

Model 1010, 1020, 1020EC, 1020FC, 1110	\$25.00
Model 1030, 1040, 1070, 1081FT	\$50.00
Model 1081 & 1081SNP	\$11.00
Model 1089 MK II & MK III	\$65.00
Model 1130, 1131, 1132	\$35.00

Prices subject to change

10-11-10