



ODAX
TECHNOLOGIES INC

WELCOME • RESEARCH SERIES

ODAX EDA Research Sensor Kit

Research-grade precision electrodermal activity / galvanic skin response analog sensing.

LOW LEAKAGE

GUARDED INPUT

ANALOG OUTPUT

This guide applies to both kit variants

ODAX EDA Research Sensor Kit – Black

ODAX-EDA-RK1-100-BLK-R1

ODAX EDA Research Sensor Kit – White

ODAX-EDA-RK1-100-WHT-R1

Built around the ODAX EDA Research Sensor Board

ODAX-EDA-RB1-100-ASM-R1

A documented analog path

The board at the center of your kit

ODAX EDA Research Sensor Board – Precision Electrodermal Activity / GSR Analog Output Sensor

Also listed as *ODAX EDA Research Sensor Board* or *ODAX EDA Research Board*.

ODAX-EDA-RB1-100-ASM-R1

Designed for accurate, repeatable acquisition

- **Small-current integrity:** low-leakage LMP7721 TIA core and a guarded sensitive-node layout.
- **Controlled excitation:** buffered reference and excitation rails with nominal 0.5 V differential excitation.
- **ADC-ready output:** buffered, zero-based, ground-referenced V_{OUT} for a high-impedance ADC or DAQ input ($\geq 100\text{ k}\Omega$).
- **Positive response:** higher conductance produces higher V_{OUT} , supporting direct conductance-trend analysis.

Included skin-contact interface

Your kit includes electrode leads and reusable, version-matched hook-and-loop contact straps with Ag/AgCl skin-contact surfaces.

Black **ODAX EDA Contact Strap – Black**

ODAX-EDA-T1-100-BLK-R1

White **ODAX EDA Contact Strap – White**

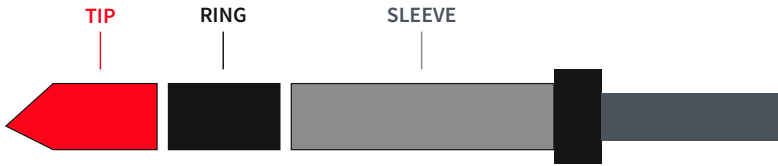
ODAX-EDA-T1-100-WHT-R1

■ Standard 3.9 mm / 4.0 mm lead snaps ■ Stud-to-contact resistance $< 0.1\ \Omega$ ■ Secure, reusable finger fit

Contact quality matters. Use two adjacent fingers of the same hand, comfortable consistent pressure, and minimal cable movement. Clean, dry skin first; contact gel is optional and can improve stability on dry skin.

One plug. Three electrical contacts.

This 3.5 mm TRS connector is not a stereo audio connection. It carries sensor power and signal. Do not connect it to headphones or audio equipment.



TIP = V_{OUT} / SIGNAL

Zero-based, ground-referenced EDA/GSR output. Connect only to a high-impedance ADC/DAQ input ($\geq 100 \text{ k}\Omega$). Never drive this contact from another source.

NOMINAL USEFUL RANGE: 0–2.5 V

RING = V_{CC} / POWER

Use a clean battery-powered or properly isolated low-noise supply while electrodes touch skin. When powering at 5 V with a 3.3 V-only ADC, add reviewed input scaling or protection.

3.0–5.0 V DC (3.3 V TYP.)

SLEEVE = GND / COMMON REFERENCE

Join sensor ground to the ADC/DAQ ground. Do not intentionally connect either skin electrode to ground.

Quick start

1. With power off, wire the TRS contacts exactly as shown.
2. Snap the leads onto the contacts; place contacts on two adjacent fingers.
3. Apply isolated 3–5 V power and allow the signal to settle.
4. Acquire V_{OUT} ; record the setup and all processing settings.

From voltage to skin resistance

NOMINAL QUICK-CONVERSION EQUATION

$$R_{skin} \approx \frac{0.500 \text{ V} (6.667)(82.5 \text{ k}\Omega)}{V_{OUT}} - 40.0 \text{ k}\Omega$$

Use only for positive, unclipped V_{OUT} . For calibrated or publication-quality absolute data, use measured board and ADC constants. Then $G_{\mu S} = 1000/R_{k\Omega}$.

R_{skin}	Conductance	Nominal V_{OUT}
2.00 M Ω	0.500 μS	0.135 V
1.00 M Ω	1.000 μS	0.264 V
600 k Ω	1.667 μS	0.430 V
220 k Ω	4.545 μS	1.058 V
100 k Ω	10.00 μS	1.964 V
70 k Ω	14.29 μS	2.500 V

SATURATION REGION: ABOUT 70 k Ω AND BELOW

At 70 k Ω , the nominal output is 2.5 V near full scale – expected only in very wet, highly conductive conditions. Below it, V_{OUT} may clip; exact resistance cannot be recovered from clipped samples.

Reveal dry-range detail in processing. High resistance compresses voltage differences near zero. For visualization, use a nonlinear log, power, or exponential mapping (for example, normalized x^γ , $0 < \gamma < 1$). Preserve raw samples and document the transform.

Circuit board datasheet

www.odaxtechnologies.com/datasheets/ODAX-EDA-RB1-R1.pdf

Research use only; not a medical device. Use battery power or verified isolation while worn – never a mains-referenced setup. Not for diagnosis or safety-critical use. Avoid broken or irritated skin; stop if discomfort occurs.