Smart Solutions
Embroidery ▪ Electronics ▪ Engineering

Moss-Embroidered Textile Electrodes
for Fitness & Wellness Applications

Reliable. Comfortable. Scalable.

Why Consider Moss-Embroidered Electrodes

Unlock New Possibilities in Smart Wearables

Today's fitness and wellness products demand more than just performance – they require comfort, scalability, and innovation. Conventional gel electrodes are messy, costly to assemble, and limit flexibility.

Our **moss-embroidered textile electrodes** are redefining the standard by enabling:

- **High comfort through soft, breathable textiles**
- **Long-term use without the mess of gels**
- **Reliable, stable signal acquisition or stimulation**
- **Full design freedom and scalability**

Economic Benefits:

- ✓ Reduce assembly steps and costs
- ✓ Improve product durability and washability
- ✓ Increase customer satisfaction and repeat sales
- ✓ Enable stylish and discreet wearables

state-of-the-art wearable solution

EMS wearable with moss-embroidered textile electrodes by 3E

What Makes Our Electrodes Unique

Structure and Features

Smart Construction

- 3D moss structure ensures large contact area and superior skin contact, even on uneven surfaces
- Soft, flexible, stretchable – enhancing user comfort
- Can be used dry or wet

Production Advantages

- Electrodes, traces & connection integrated in one single embroidery step
- Automated PCB integration and connection possible
- Fully textile-based – easy integration into garments, belts, bandages and cuffs, headbands, etc.

Customization & Reliability

- Tailored geometries, sizes, stretch levels, and haptics
- Add-on materials for better moisture management and skin adhesion
- Washable & durable (specific testing per product required)

Product Compatibility

- Compatible with existing EMS/TENS and monitoring/diagnostic devices
- Can be embedded directly or applied as patches/appliqués

Smarter EMS Cuffs, Belts & Suits for Performance and Recovery

Upgrade your EMS wearables with dry, washable, and reliable electrodes that eliminate the need for complex multi-layer solutions and reduce long-term costs.

Key Benefits for EMS Products

- Lower bill of materials and fewer assembly steps - electrodes, traces & connection integrated in one single embroidery step
- Improved user comfort for better experience
- Custom shapes for different muscle groups
- Moisture-control materials optional for dry/wet operation
- Anti-slip materials optional for better stimulation even during motion
- Reduced product returns and increased user satisfaction

Comfortable, Reliable Biosignal Monitoring (ECG, EMG, EEG)

Our textile electrodes enable continuous and accurate signal acquisition for diagnostics or fitness tracking – without sacrificing comfort or aesthetics.

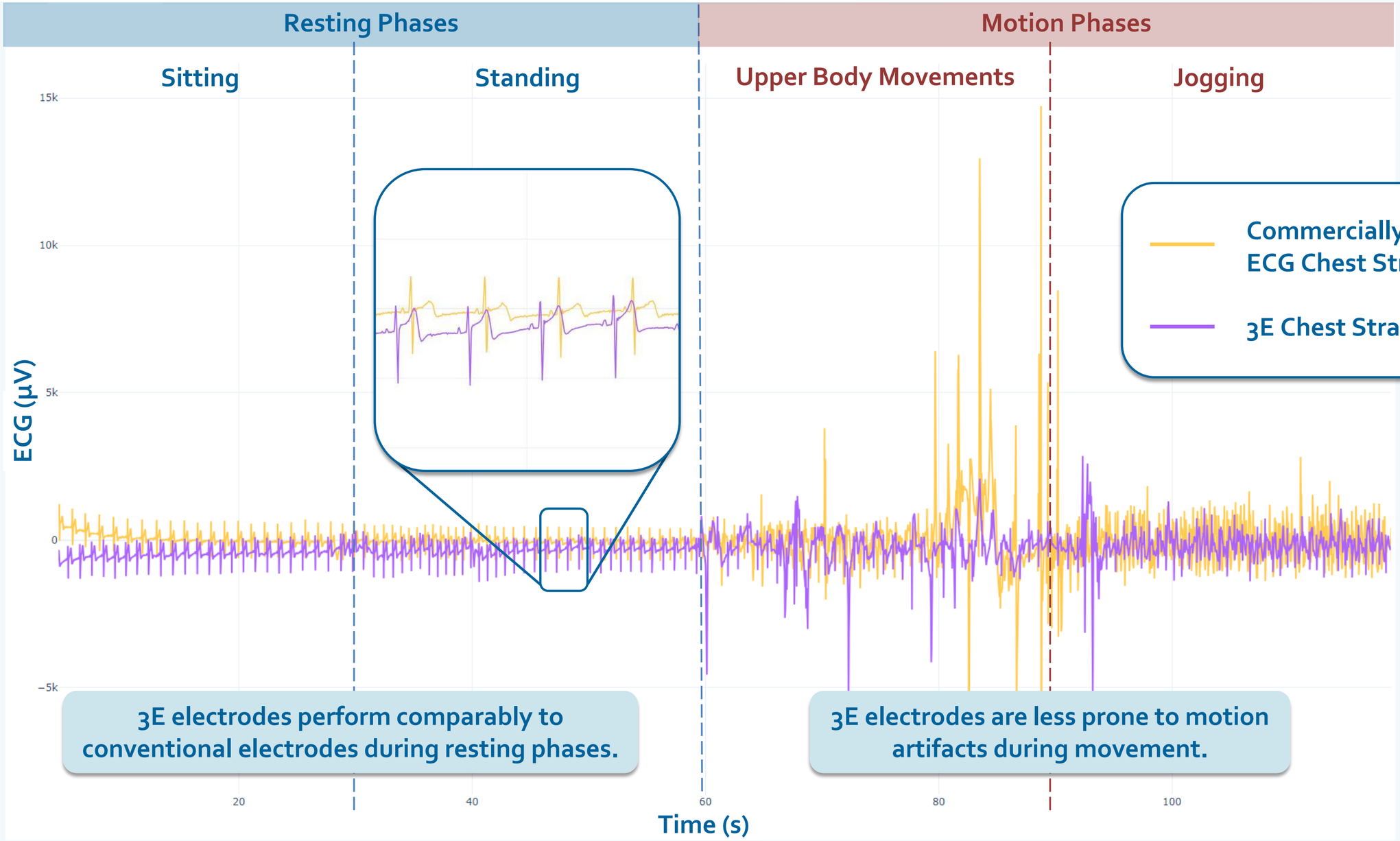
Ideal for

- ECG chest straps
- EMG sleeves or bands
- EEG headbands for sleep or focus
- Combined diagnostic + EMS wearables

Advantages

- No sticky pads – ideal for repeat and long-term use
- Suitable for home or clinical settings
- Easy integration into underwear, compression wear, or headgear

Comparison to State-of-The-Art Electrodes – ECG Monitoring with Polar H10 Device



How We Can Collaborate

COLLABORATION ROADMAP

SPEED UP	**Start Immediately with Our Development Kits**	Our development kits allow you to test moss-embroidered electrodes in your own setup. Ideal for early-stage proof-of-concept, signal testing, and functional validation.
FIT	**Custom Electrodes for Your Product Design**	We design and produce electrodes tailored to your specific use case. You define the shape, size, texture, stretch level, and placement – we deliver a textile solution that fits seamlessly into your product.
TEST	**Application-Focused Evaluation**	Together, we define test parameters based on your product needs – biosignal quality, skin contact, or washability – and ensure that the solution meets your requirements.
OPTIMIZE	**Co-Development & Prototyping**	Together, we optimize material combinations, production settings, and textile design to improve performance, comfort, and cost-efficiency.
SCALE	**From Prototype to Production**	We can produce initial batches in-house to help you move quickly to first sales. For larger volumes, we connect you with trusted manufacturing partners in our network – or help you set up your own production line using ZSK embroidery technology

Let's Turn Your Product Vision Into Reality

Smart Solutions
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Lead the Next Wave of Wearable Fitness & Wellness

Your Goal:

Whether you are designing a new product or want to upgrade an existing one - we provide development support and production-ready solutions.

Our Know-How:

Product Development

Electrical, Mechanical, and Textile Engineering

Embroidery Technology

Product Idea & Consulting

Concept Development

Product Design

Prototyping

Product Development

Testing

Upscaling & Production

Our Service:

- All-round **product development**, **prototyping,** and **consulting** for **Smart Textiles** and **E-Textiles**

- Customized **workshops** & **trainings**
  - Electrical Engineering
  - Product Development
  - E-Textiles Production
  - Embroidery Machine Operation

Interested?
Let's talk about your use case.

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