

## Touch the Future of Haptics Today

Electro-Mechanical Polymer (EMP) actuators are the world's thinnest actuators. Novasentis EMP actuators vibrate, deform and emit sound and balance high strain and force. They are ultralight, flexible, and customizable and offer many unique and superior properties, adding value to novel devices.

The EMP Haptics Developer Kit provides designers, researchers, and product engineers with an easy to use system that demonstrates the haptic capabilities of revolutionary EMP actuators. The users can feel the power – and see the benefits – of next-generation haptic technology. Today.

The Novasentis EMP actuators included in the EMP Haptics Developer Kit are ultrathin and are easily bonded to different surfaces to generate localized, high definition vibrations across a wide band of frequencies.

The Novasentis EMP actuator is micro-deformable under digital control, allowing for touch feedback to be generated only in the precise area the user touches, directly under the finger. These actuators are thinner than other haptic solutions and increase the functionality of smart devices. They are commercially available and cost-competitive with other actuator technologies.

Novasentis EMPs animate mobile devices and enriches user experience with:

- Better haptics
- Reassuring touch confirmation
- Sound effects
- Clean design
- More intuitive, realistic sensations
- Innovative functions
- Increased typing productivity
- Cool and fun factor!

Please note that these actuators are for Haptic and Audio evaluation purposes only. Please email [info@novasentis.com](mailto:info@novasentis.com) for more information.

Don't wait for your competitors to launch new products with Novasentis EMP actuators. Get the EMP Haptics Developer Kit—Lead the revolution before it happens.



### EMP HAPTICS DEVELOPER KIT



### Novel Novasentis Electro-Mechanical Polymer (EMP) Actuators

#### Benefits of EMP Actuators

Ultrathin, < 120 microns

Feather-light, < 0.001g

Localized HD Haptics Performance, 0-250Hz

Acoustics Frequency Range, 100-20kHz

Flexible to Fit any Kind of Surface

Fast Response Time, < 5 ms

Operating Voltage, < 150V

Low Power Consumption

High Reliability



NOVASENTIS

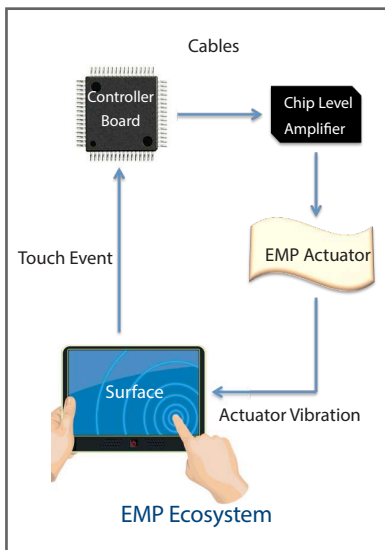
## The Novasentis EMP Haptics Developer Kit

The EMP Haptics Developer Kit is your ramp to understand the haptic capabilities of Novasentis EMP technology. The kit can help you learn how these actuators can add a new dimension to your products. The kit includes three (3) EMP Peel and Stick actuators in two sizes, including one (1) 10 x 10 mm and two (2) 12 x 12 mm actuators. It also includes one (1) framed and bonded 12 x 12 mm actuator. The peel and stick actuators are designed to be bonded to various recommended surfaces, and the framed and bonded actuator is used to demonstrate the actuator's high-definition vibrations over a wide band of frequencies.

Novasentis EMP Actuator Features:

- Thickness <120 microns
- Peel and Stick capability allows bonding to various surfaces
- Framed and Bonded actuator demonstrates effects and vibrations possible
- Flexible print circuit (FPC) to make electrical connection to actuator

The EMP Haptics Developer Kit includes an EMP driver and also comes with one (1) programmable controller board with shield.



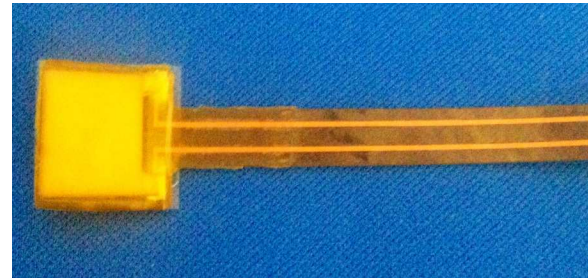
When bonded onto a particular surface and connected into the EMP ecosystem shown on the left, Novasentis EMP actuators provide precise tactile feedback to user's finger when touched.

Each EMP Haptics Developer Kit includes 5 hours of telephone, email, or video Skype consulting services related to setup and operation during the 90-day period beginning on delivery. The detailed user guide provides with specific instructions for using Novasentis EMP actuators.

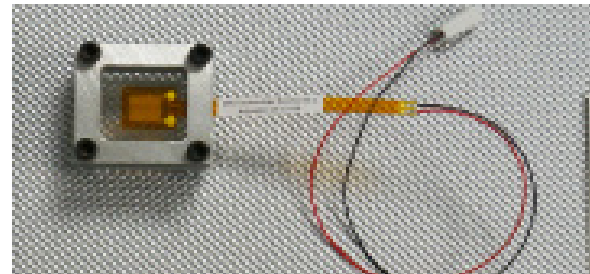
Provided exclusively to selected customers under a non-disclosure agreement. For more information email us at [info@novasentis.com](mailto:info@novasentis.com).

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Three (3) EMP Peel & Stick Actuators in two sizes including: one (1) 10 x 10 mm and two (2) 12 x 12 mm



One (1) Framed and Bonded EMP Actuator



One (1) Programmable Controller Board with Shield



**All Inquiries are Welcome**  
SPS engineers and staff welcome the opportunity to answer your questions, hear your feedback, and speak with you about the latest developments.

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**novasentis.com**

Your partner for innovative solutions using Electro-Mechanical Polymer Technologies

Attachment A