



Stretchable TactArray

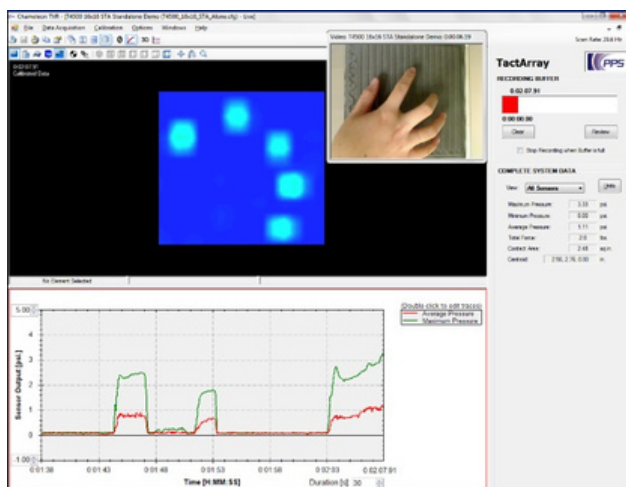
High Performance, Flexible Sensors for
Contact Pressure Distribution Mapping

INTRODUCTION AND PRODUCT OVERVIEW

Pressure Profile Systems, Inc. (PPS) TactArray Systems capture pressure distribution between two objects in direct physical contact. By placing TactArray sensors between objects, wrapping them around shapes, or applying them to a flat surface, product developers and researchers can measure and visualize pressure information in their applications.

Engineered from extremely soft and conductive silver-metalized Lycra®, the **Stretchable TactArray (STA)** sensors can stretch to 10% with negligible baseline shift.

PPS's Stretchable TactArray Systems accommodate bending, flexing, and stretching surfaces. The STA can be wrapped around simple geometries or molded to more complex shapes without compromising data quality. As a result of this flexibility, these stretchable sensors are ideal for applications in which they are embedded into objects that are going to be deformed slightly through use, such as a seat, cushion, or tight clothing.



KEY BENEFITS

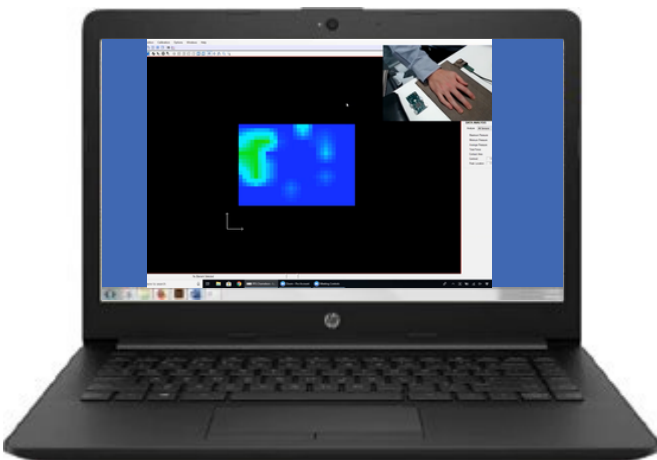
- + High sensitivity and repeatability for consistent capture of accurate data
- + Increased accuracy and reduced recalibration time
- + Provides real-time feedback during design processes

KEY FEATURES

- + Spatial resolution (10 mm)
- + Cloth- based construction
- + Stretchable up to 10% of original size
- + Captures pressures as low as 0.02 psi (140 Pa, 1.4×10^{-4} N/cm²)
- + Can be built in wide range of active areas (100 x 100 mm to 400 x 400 mm)

SOFTWARE

The Chameleon Tactile Visualization and Recording (TVR) software captures and records live data to provide both numeric and visual representation of contact pressures.



APPLICATIONS

As a flexible sensor, the STA accommodates complex curvatures, making it uniquely suited for dynamically changing surfaces. Its cloth-like, stretchable material conforms effortlessly to human skin contact and is easily integrated into wearable fabrics or medical devices.

For intricate substrates, the STA can be customized or molded onto compound surfaces without sacrificing data precision, ensuring reliable and high-resolution pressure mapping across applications demanding both adaptability and accuracy.

Example Applications:

- + **Seating and Saddle Comfort** – Maps pressure on seats and saddles to ensure balanced support and enhance comfort.
- + **Soft Surface Interaction** – Measures pressure between two flexible surfaces, accurately capturing dynamic shifts.
- + **Automotive and Aerospace Comfort** – Evaluates seating comfort by adapting to occupant movements and applied loads.
- + **Wearable Comfort in Performance Gear** – Tracks pressure across active surfaces like athletic wear, optimizing comfort and fit.

SYSTEM COMPONENTS

- ① Stretchable TactArray Sensor
- ② T5000 signal conditioning electronics with USB 2.0

Optional accessories include a USB webcam and the API



SENSOR MODELS & METRICS

STA sensors are available with active areas from as small as 100 mm up to 400 mm, length or width. Individual sensor elements in the arrays vary in size from 10x10 mm to 25x25 mm.

Please visit the PPS catalog online to view all sensor configurations and specifications, or contact us for a custom inquiry.

Sensor Characteristics & Performance*

Full Scale Range	5 or 30 psi
Thickness	3 to 6 mm (0.12 to 0.24 in)
Signal-to-Noise (SNR)	300:1
Minimum Sensitivity	0.02 psi
Linearity	99.8%
Gain Non-Repeatability	≤ 2%
Weight	~ 1.5 lbs (650 g)

Electronic Specifications

Sampling Rate	10-69 Hz USB
Interconnect	2.0
ADC Resolution	12 bit
Input Voltage / Power	5 V / 2 W
Operating Temperature	-20 °C to 50 °C
Cable Length	59 in (1.5 m)

*Performance numbers are for typical system response.

CONTACT US

For support, please complete the form: <http://pressureprofile.com/technical-support>

For sales, please complete the form: <http://pressureprofile.com/contact>

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