



Hybrid TactArray

**High Performance, Flexible-Hybrid
Sensors for Complex-Surface Pressure
Distribution Mapping**

INTRODUCTION AND PRODUCT OVERVIEW

TactArray Systems capture pressure distribution between two objects in direct physical contact. By placing TactArray sensors between objects, or applying them to a flat surface, product developers and researchers can measure and visualize pressure information in their applications.

PPS's **Hybrid TactArray (HTA)** and **Conformable Hybrid TactArray (CHTA)** Systems combine a flexible printed circuit board base with a cloth upper electrode, giving stable, repeatable performance in a package more robust than a fully flexible cloth sensor, yet still able to bend and fit curved, product-integrated designs. CHTA adds laser-cut slits between elements for noticeably better conformability on complex, multi-curved surfaces, while HTA suits flatter or simply-curved, product-integrated applications. Both are built for low-to-moderate pressure ranges and operate between 5°C and 80°C.

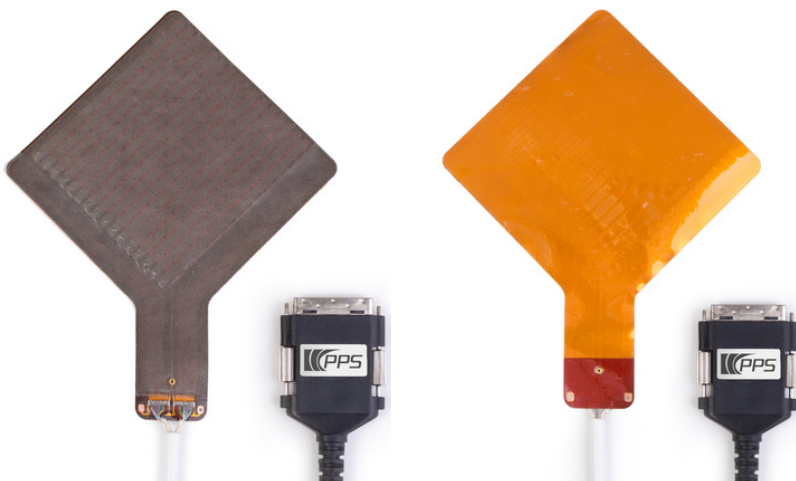


The system comprises a sensor, electronics, and Chameleon Visualization Software. The sensor's thin construction, just 0.5 mm thick, enables seamless integration into product designs and research applications, while stable capacitive sensing ensures accurate data across a range of curvatures and use cases.

Available in a wide range of size configurations, pressure ranges, and resolutions for your custom application.

KEY BENEFITS

- + High-resolution sensing across flat, simply-curved, and — with CHTA — multi-curved surfaces
- + High sensitivity and repeatability for consistent capture of accurate data
- + Improve results due to increased accuracy and reduced recalibration time
- + Provides real-time feedback during industrial processes

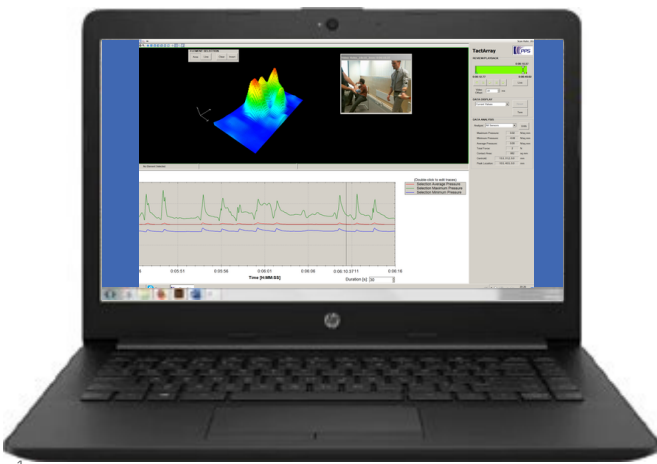


KEY FEATURES

- + High spatial resolution (2–10 mm elements, depending on design)
- + Flexible FPCB-and-cloth construction (HTA); CHTA adds laser-cut slits for improved conformability
- + Thin construction, just 0.02 in (0.5 mm) thick
- + Analog or digital output with USB or Bluetooth connection
- + Captures pressures from 3 up to 100 psi, depending on the design

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 standalone sensor, HTA is designed for flat or simply-curved surfaces, making it well suited to product-integrated applications. Its flexible circuit-and-cloth construction bends in one axis and can be rolled within a limit, providing stable, repeatable performance for low-to-moderate pressure applications.

Where a design needs to wrap onto more complex, multi-curved geometries, CHTA - built on the same construction with laser-cut slits between elements - offers noticeably better conformability without compromising data quality, sitting between the fully flexible CTA and the more rigid HTA within the TactArray family.

Both HTA and CHTA integrate into systems requiring precise, repeatable measurement, from wearable device fit-testing to general-purpose R&D pressure mapping.

Example Applications:

- + **Wearable fit testing:** Confirms consistent skin contact pressure i.e. watches, backpacks.
- + **Medical wearables:** Monitors pressure against the body i.e. pressure stockings.
- + **Multi-curved mapping (CHTA):** Conforms without losing accuracy.
- + **Process monitoring:** pressure measurement on flat or simply-curved production equipment
- + **Robotics application:** simply-curved robotic end-effector tactile sensing
- + **R&D reference testing:** Supports general-purpose pressure mapping.

SYSTEM COMPONENTS

- 1 Hybrid TactArray (HTA) or Conformable Hybrid TactArray (CHTA) Sensor, chosen design
- 2 Electronics: T5000 - analog, U400 or B400 - digital

Optional accessories include a USB webcam and the API



SENSOR MODELS & METRICS

HTA and CHTA Sensors are available in square, rectangular and other geometries with varying active areas, resolutions, and array sizes (see left). Individual sensor elements in the arrays vary in size from 2x2 mm to 10x10 mm

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

Sensor Characteristics & Performance*

Pressure Range	3, 5, 7, 20, 40 psi (or custom)
Thickness	< 1 mm (< 0.04 in)
Signal-to-Noise (SNR)	≥ 300:1
Minimum Sensitivity	10 Pa (0.0015 psi)
Linearity	99.8%
Gain Non-Repeatability	0.35%
Accuracy Error	≤ 2%

Electronic Specifications

Sampling Rate	7-10 KHz, element to element
Interconnect	Bluetooth or USB
ADC Resolution	12 bit
Input Voltage / Power	5 V / 2 W
Operating Temperature	5 °C to 80 °C
Cable Length	59 in (1.5 m)

*Performance numbers are for typical system response.

CONTACT US

For sales, please complete the form: <http://pressureprofile.com/contact>
 Assembled in 5500 W Rosecrans, Ave., Hawthorne, CA 90250, United States

TACTARRAY PRODUCT LINE

	CTA — Conformable	ITA — Industrial	HTA — Hybrid	CHTA — Conformable Hybrid
Construction	Two layers of conductive cloth.	Two layers of rigid Kapton/polyimide.	One polyimide (Kapton) layer + one conductive cloth layer on top.	Same polyimide + cloth layers as HTA, with laser-cut slits added through the polyimide layer between elements.
Flexibility	Fully flexible on both axes — wraps/molds onto complex, multi- curved surfaces.	Rigid on both axes — flat or slightly curved surfaces only.	Full flexibility on one axis (from the cloth layer); the solid polyimide layer keeps the other axis rigid. Can be rolled, within a limit.	Full flexibility on one axis (same as HTA) plus partial flexibility on the second axis — the slits let the polyimide layer flex too, giving noticeably better conformability to curved/multi- curved surfaces than HTA.
Where it sits in the TactArray family	The most flexible option.	The most rigid option.	The more rigid end of the flexible range.	Middle ground between CTA and HTA — performance leans toward HTA.
Best suited for	Human-body contact, very low pressure, complex/multi- curved geometries (helmets, masks, wearables).	Extreme temperature/press- ure industrial environments (heat presses, nip rollers, metal forming).	Flat or simply- curved, product- integrated designs; low-to-moderate pressure.	Same range as HTA, but where the design needs to wrap onto more complex, multi- curved surfaces.