

Industrial TactArray

High Performance, Rigid Sensors for Higher Pressure Distribution Mapping

Introduction

INTRODUCTION AND PRODUCT OVERVIEW

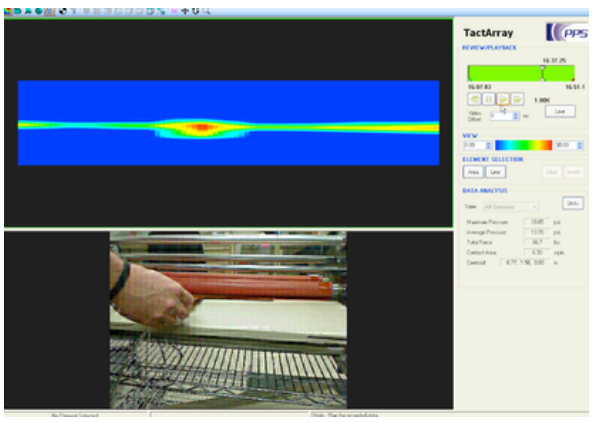
TactArray Systems capture pressure distribution between two objects in direct physical contact. By placing TactArray sensors between objects, or applying them to a flat surface, product developers and researchers can measure and visualize pressure information in their applications.

PPS's Industrial TactArray (ITA) Systems are the most durable and reliable tactile sensing solutions available, designed for applications requiring sensors capable of withstanding extreme conditions. Constructed from high-quality Kapton or Polyimide, the ITA sensor measures pressure distribution from 3psi to 300 psi, for certain designs we can configure sensitivity up to 600 psi. It operates in temperatures ranging from -40°C to 200°C.



The system comprises a flat sensor, electronics, and Chameleon Visualization Software. The sensor's ultra-thin construction, just 0.3 mm thick, enables seamless integration into various industrial applications, while its real-time thermal compensation ensures accurate data under changing temperatures.

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



KEY BENEFITS

+ High-resolution even in extreme thermal and pressure conditions.
+ 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

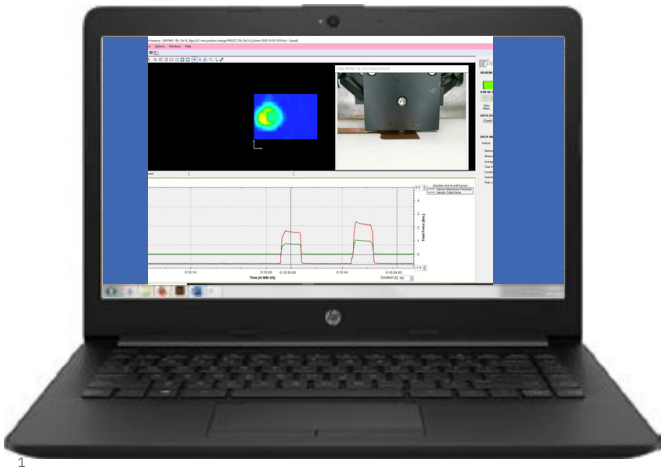
Features & Applications

KEY FEATURES

+ High spatial resolution (2 mm)
+ Rigid Polyimide or Kapton construction
+ Ultra-thin design, just 0.3 mm thick
+ Operates in extreme temperatures between -40°C and 200°C
+ Captures pressures from 3 up to 600psi depending on the design
+ Available in custom sizes to suit a wide range of industrial applications (64x64 mm to 320x320 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.



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APPLICATIONS

As a standalone sensor, the ITA is designed for flat or slightly curved surfaces, making it ideal for precise industrial applications. Its rigid, high-performance Kapton based construction ensures durability and accuracy in high-pressure and high-temperature environments, such as heat presses and nip rollers.

The ITA sensor can be seamlessly integrated into systems requiring precise measurement and optimization, including assembly line quality assurance, tooling and compression systems, and equipment testing.

For more complex industrial setups, the sensor can be customized to fit specific requirements, such as monitoring wear and load conditions in machinery, without compromising data quality or accuracy.

Example Applications:

+ **Pressure analysis between moving plates:** Enables uniform load distribution.
+ **Heat sealing jaw mapping:** Ensures consistent pressure for reliable seals.
+ **Calibrating pressure clamps:** Improves accuracy and clamp performance.
+ **Nip roller monitoring:** Ensures uniform pressure distribution.
+ **T-shirt printing:** Achieves even pressure for high-quality results.
+ **Steel plate pressing:** Optimizes pressure in metal forming.

Technical Specifications

SYSTEM COMPONENTS

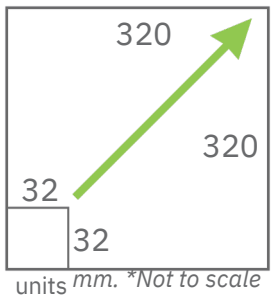
1. Industrial TactArray Sensor
2. T5000 signal conditioning electronics with USB 2.0

Optional accessories inlude a USB webcam and the API



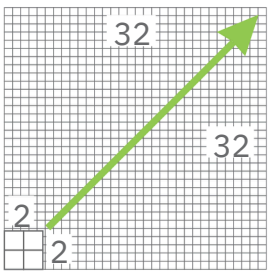
SENSOR MODELS & METRICS

Active Area Sizes



units *mm. *Not to scale*

Array Sizes



units *number of sensor elements*

ITA 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*

Full Scale Range	3-300 psi (up to 600psi)
Thickness	0.3 mm (0.012 in)
Signal-to-Noise (SNR)	667:1
Minimum Sensitivity	10 Pa (0.0015 psi)
Linearity	99.8%
Gain Non-Repeatability	0.4%
Weight	~ 1.5 lbs (650 g)

Electronic Specifications

Sampling Rate	7-10 KHz, element to element
Interconnect	USB 2.0
ADC Resolution	12 bit
Input Voltage / Power	5 V / 2 W
Operating Tempereature	-40 ˚C to 200 ˚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