HeadsetMask™

Wearable Head Pressure Measurement & Mapping System

Introduction

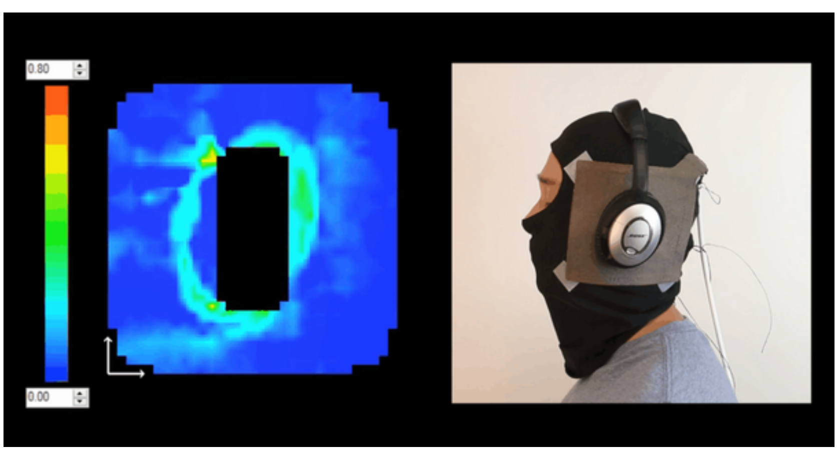
INTRODUCTION AND PRODUCT OVERVIEW

Head-mounted products are typically evaluated using wearer feedback, visual inspection, or indirect measurements. While useful, these methods do not quantify localized pressure distribution or identify specific discomfort points.

The HeadsetMask™ System transforms headgear evaluation from subjective assessment into measurable engineering data.

The system captures pressure distribution between the human head (or mannequin) and head-mounted devices in direct physical contact. By integrating a high-resolution Conformable TactArray sensor into a low-profile wearable mask, product developers and researchers can measure and visualize real-world pressure information during actual use conditions.

PPS's Conformable TactArray technology is uniquely suited to multi-curved head geometries. Constructed from soft, flexible conductive fabric, the sensor conforms naturally to complex surfaces while maintaining high performance and repeatability. It captures subtle pressure changes with high accuracy, even when wrapped around contoured regions such as the temple, ear, or temporal area.



KEY BENEFITS

+ Conforms naturally to multi-curved head geometries
+ Detects subtle pressure changes with high repeatability
+ Enables objective comparison between product designs
+ Delivers instant visual feedback during live testing
+ Identifies localized pressure peaks affecting comfort and fit

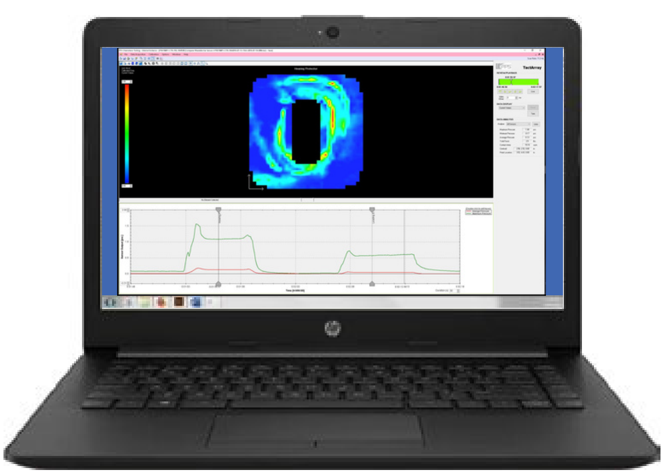
Features & Applications

KEY FEATURES

+ High spatial resolution (application dependent configuration)
+ Cloth-based conformable construction
+ Thin, flexible sensor construction
+ Full scale range selectable from 2–7 psi with high resolution
+ High repeatability (0.3% FSR) and fully calibrated linearity

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

The HeadsetMask integrates a Conformable TactArray sensor into a wearable mask platform to measure pressure at the head-device interface.

The sensor mounts to the side of the mask via Velcro pads and is positioned around the ear region. Wires are secured at the rear to maintain stability during testing.

The flexible, cloth-based sensor conforms to the curved head surface while capturing pressure distribution on live users or mannequins.

Example Applications:

+ Measuring contact pressure between over-ear headsets and the human head
+ Evaluating pressure distribution of hearing protection and ear defenders
+ Assessing side-head contact forces in communication or audio headgear

CTAs are flexible and can be molded over complex shapes

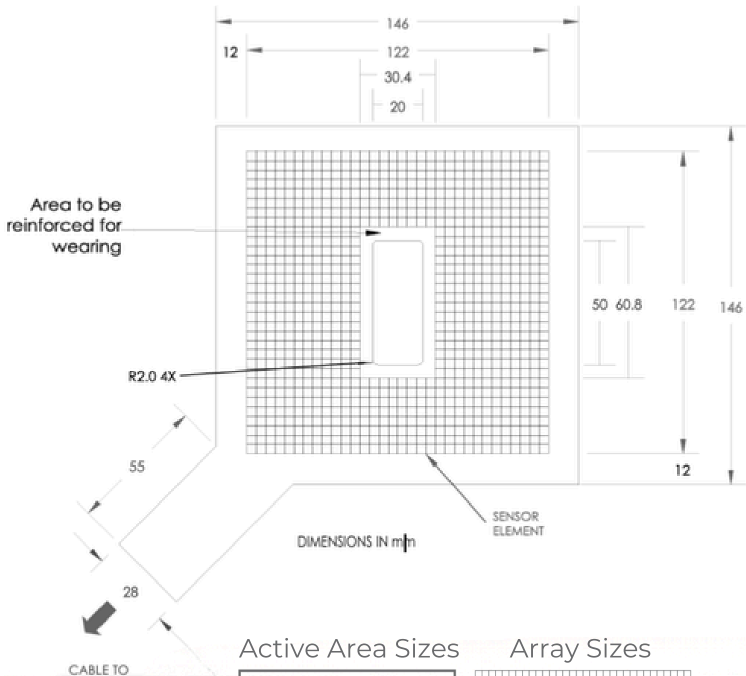
Technical Specifications

SYSTEM COMPONENTS

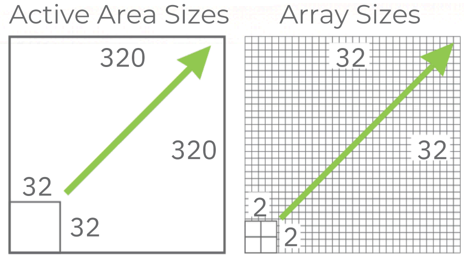
1. Hood / Mask with mounting Velcro
2. Conformable TactArray Sensor with Velcro
3. T5000 signal conditioning electronics with USB 2.0

Optional accessories inlude a USB webcam and the API

SENSOR MODELS & METRICS



Active Area Sizes | Array Sizes



*mm. *Not to scale* | units *number of sensor elements*

Sensor Characteristics & Performance*

Pressure Range	Selectable: 2, 3, 5 or 7 psi
Thickness	0.04” (1 mm)
Signal-to-Noise (SNR)	300:1
Minimum Sensitivity	0.2%
Linearity	99.8%
Gain Non-Repeatability	0.4%
Accuracy Error	< 2%

Electronic Specifications

Scan Rate	Up to 10 Hz
Interconnect ADC	USB 2.0
Input Voltage / Power	5V USB
Operating Temperature	23 °C to 27 °C (static)
Cable Length	1.5 m standard, up to 3 m

*Performance numbers are for typical system response.

CONTACT US

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