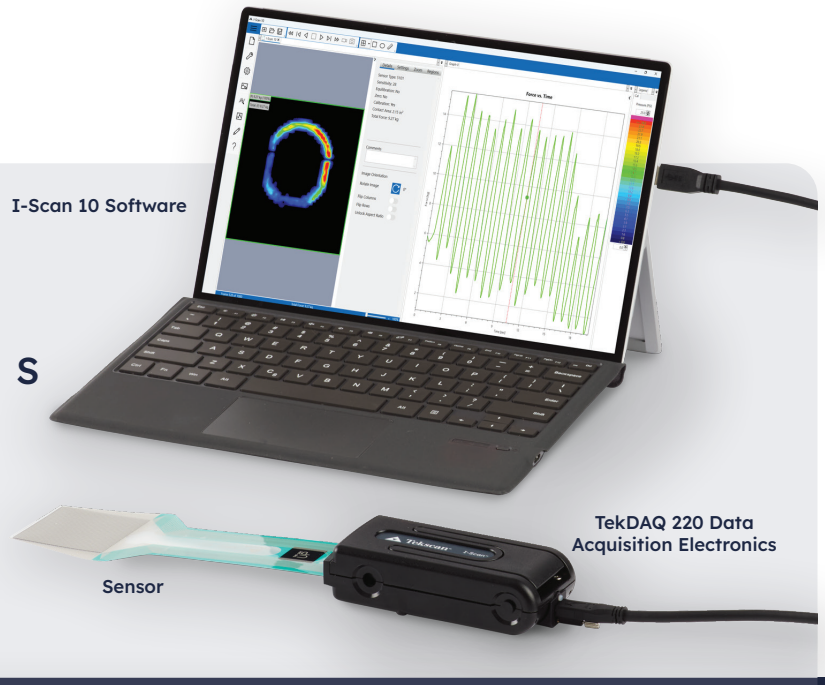
I-Scan™ System

Featuring TekDAQ 220 Electronics

I-Scan™ measures and analyzes interface pressure between two surfaces, utilizing a thin and flexible sensor. Measuring force, pressure, and temperature, this exceptionally thin tactile sensor produces minimal interference between the objects being measured, allowing the system to capture and display the true interface pressure data. Users gain vital insights from otherwise unseen surface measurement details. These insights help enhance product design, manufacturing, quality, and research.



See What Happens BETWEEN SURFACES

Capture and analyze dynamic pressure distribution and force to understand interactions that are otherwise difficult to measure.

Measure | Total force | Pressure distribution | Peak pressure | Center of force | Forces in different areas

Key Applications

Product Design

- In-depth understanding of surface behavior
- Verify forces and peak pressures between two components
- Measure external forces
- Reduce failures & associated costs

Manufacturing

- Verify calibration of machinery
- Improve repeatability of processes
- Reduce downtime & improve yields

Quality Control

- Identify potential failure modes
- Quality inspection & control
- Competitive benchmarking

Research

- Understand the physical properties of the objects being measured
- Understand the pressure distribution between two surfaces

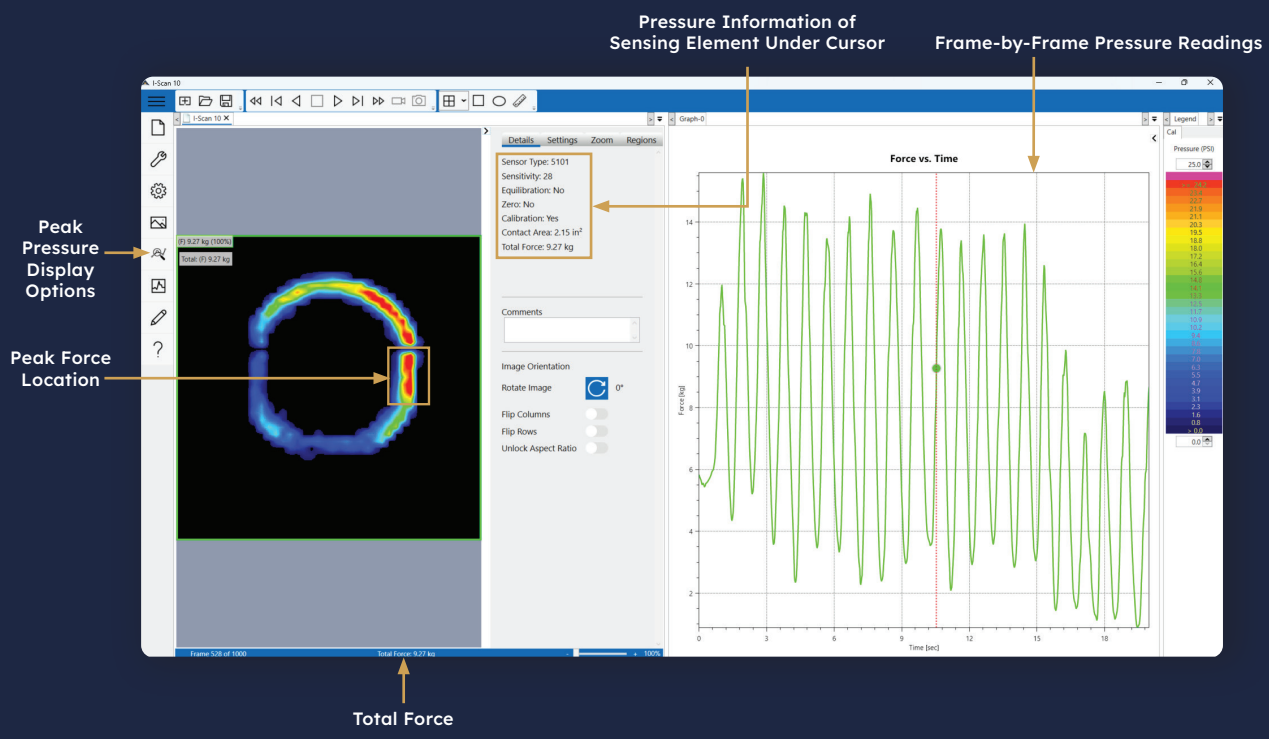
Powerful Software for Pressure Mapping and Analysis

The I-Scan Software transforms sensor data into intuitive, real-time pressure maps and analysis tools, helping users visualize surface interactions, quantify performance, compare results, and identify changes that may otherwise go undetected.

I-Scan Version 10 Software Features

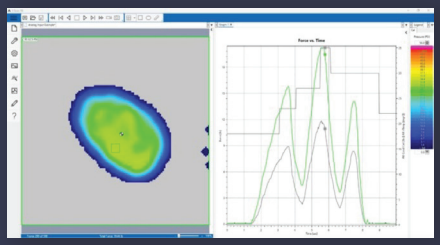
- Real-time display of pressure sensor data in 2D & 3D
- Graphing & data analysis (pressure, force, & area)
- View data as an integrated Microsoft Excel table
- View and compare multiple test results simultaneously
- Display peak pressures & center of force
- Export data and graphs to ASCII

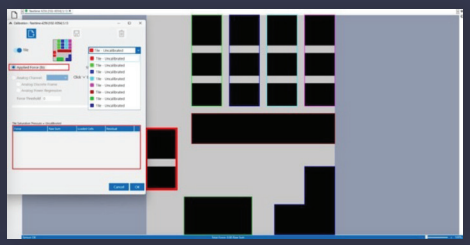
Analysis Tools



Multi-Axis Graphing

Pressure and analog data, or pressure and temperature data can be graphed on multiple y-axes allowing for improved data visualization.





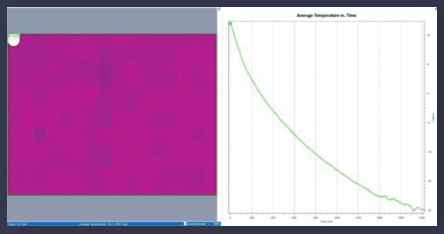
Multi-Tile Calibration

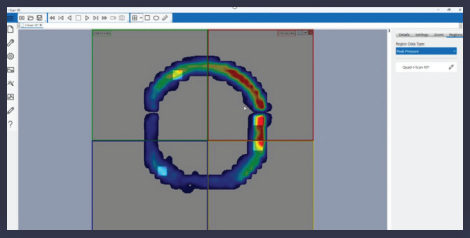
For sensors that have multiple sensing areas shown in the software in a virtual map, such as grip sensors, each sensing area can now be calibrated and equilibrated independently in I-Scan 10 software.

Temperature Mapping Improvements

Temperature mapping calibration files can be "tared" to quickly reset a T800 temperature sensor to a known, nominal temperature.

Temperature mapping data can now be collected at sub-zero temperatures (-50°C – 0°C).





Usability Enhancements

Panes – also known as subdivisions within the UI, can now show relevant Analysis features in the real-time or recording window, such as peak force (quantitative value and location).

Panes can also be used to automatically cover the entire recording window.

Related Products & Options

Different software packages and optional add-ons are available.

External Triggering and Synchronization:

The Tekscan system can be configured as a master or slave with this feature.

- Simultaneously start the data recording of multiple devices or trigger to remotely start a recording
- Synchronize the acquisition of Tekscan pressure data with a third-party product, such as a video recording or EMG

Analog Input:

Collect data from any -10 to 10 V analog sensor (load cells, thermocouples, encoders, etc.) to compare with Tekscan data.

Data Reader Toolkit (DRT):

For users with programming experience, the Data Reader Toolkit provides programmatic access to previously saved I-Scan data files for offline analysis, custom processing, and integration into user-developed applications.

Industrial-Grade Data Acquisition Electronics

TekDAQ 220 rapidly scans sensor data and relays it to the I-Scan 10 software for real-time visualization and analysis. Designed for demanding test environments, its industrial-grade electronics provide enhanced ESD protection and improved resistance to electrical noise.

Technical Specs

	TekDAQ 220
Scan Speed	• Up to 100 Hz. • Digital pressure resolution: 8 bit
Communication to PC	• Compatible with all USB versions, 12 Mbps • Compatible with USB-A and USB-C connection
Power	Source: Host PC's USB Bus Consumption: 200mA, 1W
Length of Provided Cable in (mm)	118.11 (3,000) (USB-C – USB-C)
Overall Weight & Dimensions LxWxH in (mm), Lbs (kg)	• 5.43x2.25x1.32 (137.9x57.2x33.5) • 0.40 (0.18)
Operating Conditions	Temperature: PoPF (PoPC) 14 to 131 (-10 to 55)* Humidity: % 0 to 90 (non condensing)

* Prolonged use at high temperatures should be avoided

Additional Configurations**

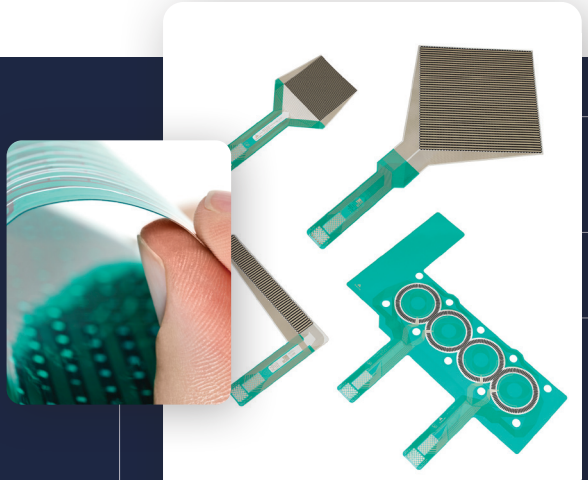
VersaTek™ Tethered (USB)	• Up to 20 kHz • High-Speed Applications • Multiple Handles or Sensors with Multiple Tabs (up to 8)
VersaTek™ Wireless	• Up to 4,600 Hz • Applications where the object is in motion
VersaTek™ Datalogger	• Up to 20 kHz • Wireless High-Speed • Noisy Environments

** Only compatible with I-Scan 7 Software

Thin, Flexible Sensors

Over 200 flexible, thin film sensors are available in different sizes, shapes, resolutions, temperature ratings, and pressure ranges (up to 25,000 psi or 1,700 bar).

- **High spatial resolution:**
  - Up to 248 sensing elements/cm² (1,600 sensing elements/in²)
  - Sensing elements with as narrow as 0.6 mm (0.02 in) spacing
- Sensing area ranging from 3 mm x 3 mm (.12 in. x .12 in.) to up to 1,734 mm x 1,768 mm (68 in. x 69 in.)
- Optional high-temp sensors can withstand up to 200°C (392°F)



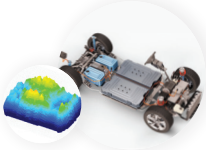
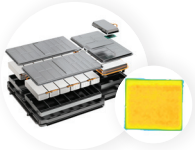
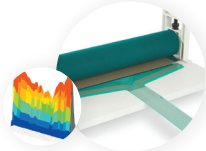
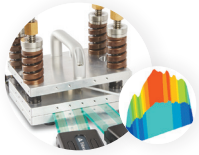
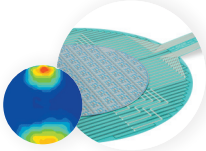
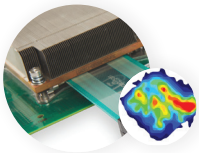
Examples from our wide range of sensor options

Sensors can be modified or customized to suit your application

Applications

Different options for data acquisition electronics, software add-ons, and standard and custom sensors make the I-Scan system extremely versatile, creating endless possibilities for applications. Here are just a few examples of common and unique applications:

- Gaskets and Fasteners
- Packaging and Sealing
- Wafer and Lens Polishing
- Door seals
- Hose clamps and crimps
- Fuel cell stack assembly
- Nip and pinch rollers
- Impact and Crash Testing
- Battery Cycle Testing
- Robotics

Door Seal		**Automotive**		Wheel Hub
R&D/Housing Durability		**Battery**		Manufacturing/ Quality Control
Roller Nip Profile		**Printing & Packaging**		Packaging & Sealing Jaws
Wafer Polishing		**Electronic Component Assembly**		Semiconductor

Expand Your Insights with
Temperature Mapping

Tekscan now offers a **thin-film temperature mapping solution** integrated with **I-Scan™**, enabling precise thermal analysis even in areas where thermal cameras can't reach.

Measure Where Infrared Fails

Capture temperature in moving components, enclosed spaces, reflective surfaces, and multi-layer materials, including inside sealed machinery and rotating rollers.

Correlate Pressure & Temperature

Pair with an **I-Scan pressure sensor** to uncover critical relationships affecting product performance.

Comprehensive Data Insights

Gain high-resolution, real-time temperature distribution across surfaces.

Streamline Data Collection

Replace multiple thermocouples with a **single, trimmable sensor** featuring 130 sensing points.

Temperature mapping data can now be collected at sub-zero temperatures (-50°C – 0°C).

Add Temperature Mapping functionality to I-Scan. **Explore the Possibilities**

Tekscan™

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