# I-Scan™ System

Tactile Pressure Measurement System

I-Scan™ measures and analyzes interface pressure between two surfaces, utilizing a thin and flexible sensor. Measuring both force and pressure, 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.

Versatile Tool for In-Depth Analysis of Dynamic Pressure Measurements

Sensor

Software

Data Acquisition Electronics
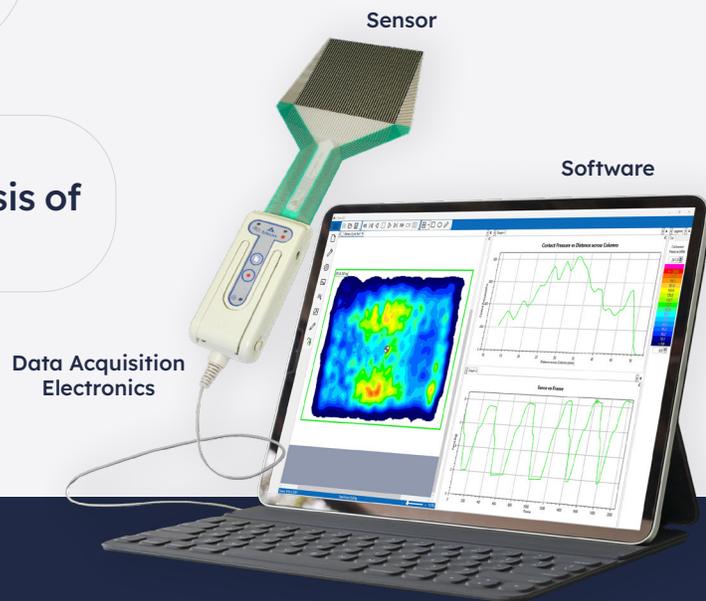
Key Benefits

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

Key Data

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

Utilization

- Test & measurement
- Research & development
- Design validation
- Machine set-up
- Quality control
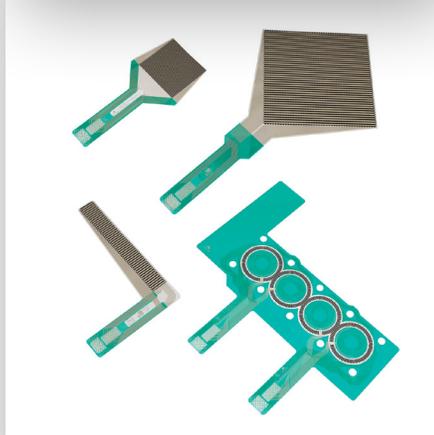
Examples from our wide range of sensor options

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 0.1 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)

Sensors can be modified or customized to suit your application

Data Acquisition Electronics

To obtain the pressure data, our electronics scan the thousands of sensing points within each sensor. The data is instantly relayed to the software on your PC. Our sensors can be scanned at up to 1,600,000 sensing elements/second.

Tethered Configurations		Wireless Configurations (Available Only For I-Scan 7)	
Evolution™ STANDARD USB Up to 100 Hz	**VersaTek™** HIGH SPEED USB Up to 20 kHz	**Wireless** VERSATEK™ WIRELESS UNIT Up to 4,600 Hz	**Datalogger** VERSATEK™ DATALOGGER UNIT Up to 20 kHz
USB, Evolution Handle	USB, VersaTek Hub, VersaTek Handle	VersaTek Handle, Wireless Unit	Datalogger Unit, VersaTek Handle
For use in standard applications.	For use in high-speed applications or for sensors with higher resolution over large areas.	Wirelessly transmit data to PC for remote data collection (up to 100m).	Collect data onto Datalogger Unit and upload to PC after data collection. For wireless use at higher speeds & noisy environments.

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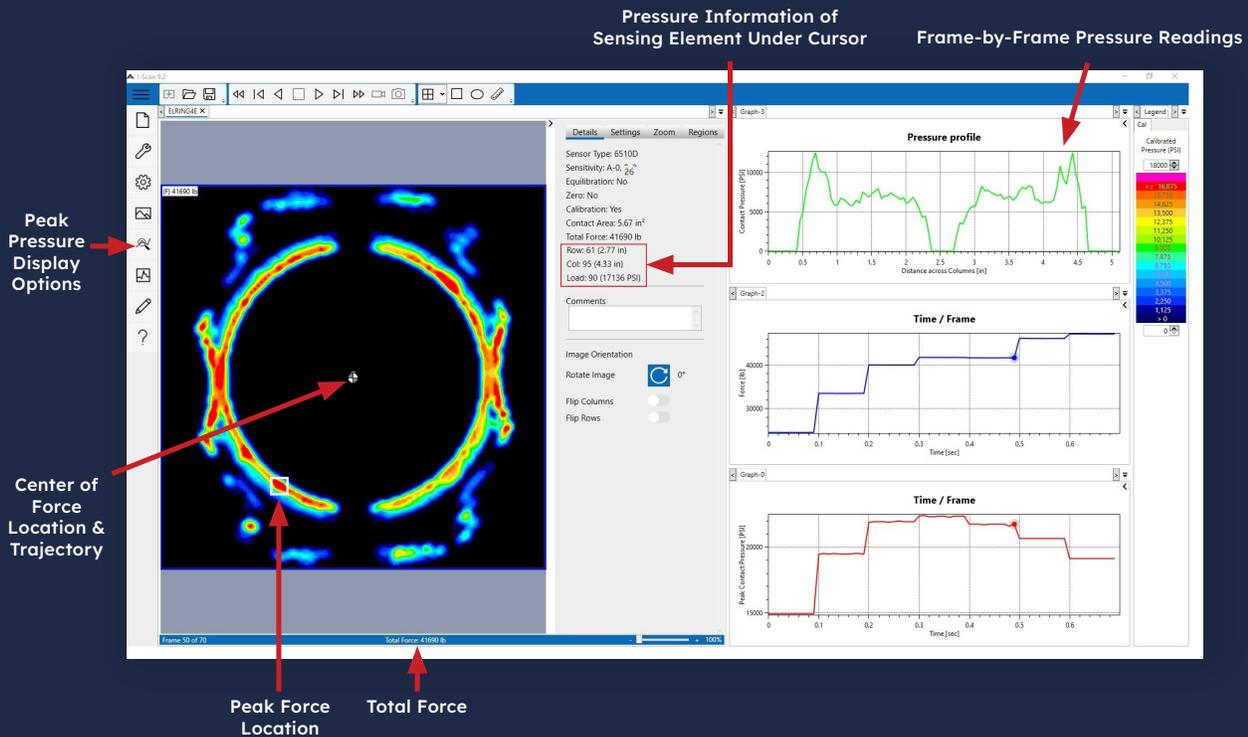# Software

I-Scan provides the tools for more comprehensive and higher quality analysis than ordinary pressure sensing technologies. The software displays the pressure distribution data, in multiple formats, for superior analysis. Data and imagery of the pressure distribution are shown in real-time with the ability to record, play back, and save FSX movies. The user has the option to create and customize graphs from the corresponding movie data or export as an ASCII file for use with other programs.

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

Pressure Information of Sensing Element Under Cursor

Frame-by-Frame Pressure Readings

Peak Pressure Display Options

Center of Force Location & Trajectory

Peak Force Location

Total Force

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.
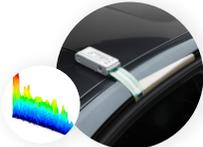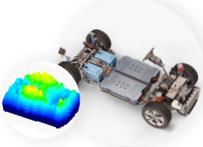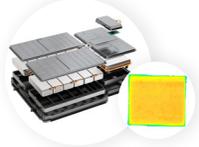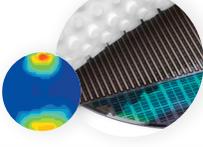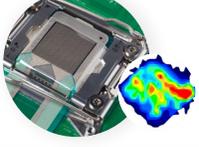
API (Application Program Interface):

Enables a user, with programming knowledge, to write programs that directly access real-time sensor data.

- **Pressure Mapping Software Development Kit (SDK):** Includes libraries to access the following functionality:

  Get Data - Communicate with Tekscan data acquisition electronics

  Record Data - Control acquisition parameters for saving data

  Read Data - Read data from previously saved files

- **Data Reader Toolkit (DRT)**: A subset of the SDK library that can read data from previously saved files.

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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**		Brake Pads
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.

Seamless I-Scan Integration

Works with the **I-Scan 9.5 platform** for easy adoption.

Add Temperature Mapping functionality to I-Scan.

Explore the Possibilities

Tekscan™

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Call Today for a Demonstration!