



Screen shot of Tactilus® software

Areas of use include:

- ▶ Load application and support conditions
- ▶ Measurement of confining stresses
- ▶ Bridge abutment
- ▶ Retaining walls
- ▶ Individual foot shallow foundations
- ▶ Culverts and buried pipe structures
- ▶ Soil mixing procedures

System Specifications

Technology	Piezoresistive
Surface Pressure Range	0 - 30 PSI (0 - 2.1 kg/cm ²)
Array Size	Multiple lined sensor elements
Sensing Points	Up to 2,048 total
Total Sensing Area	Customizable to application
Scan Speed	Up to 90 Hz
Spatial Resolution	Custom from 0.37 in (9.5 mm)
Thickness	27.6 mils (0.7 mm)
Accuracy	± 10%
Repeatability	± 2%
Hysteresis	± 5%
Non-linearity	± 1.5%

Knowledge of soil-structure interaction pressure and its associated distribution are of increasing importance in engineering practice. For decades accurate and reliable measurement of soil-structure interface pressures has been an elusive goal.

Tactilus technology now delivers, for the first time, the ability to easily, quickly and relatively inexpensively evaluate both pressure magnitude and distribution between soil and structures. Valid earth pressure measurements will assist state DOTs and their contractors in developing reliable load combinations for new geotechnical/structural systems as well as those associated with traditional systems. These measurements will also be valuable for health monitoring and long-term performance evaluation.

Tactilus® Technology:

Tactilus® is a matrix based tactile surface sensor. Essentially an “electronic skin” that records and interprets pressure distribution and magnitude between any two contacting or mating surfaces and assimilates that data collected into a powerful, yet user-friendly, Windows® based tool kit. Each Tactilus® sensor is carefully assembled to exacting tolerances and individually calibrated and serialized. The architectural philosophy of Tactilus® is modular allowing for portability, easy expansion, and simultaneous data collection of up to 6 discrete sensor pads. Tactilus® employs sophisticated mathematical algorithms that intelligently separate signal from noise, and advanced electronic shielding techniques to maximize environmental immunity to noise, temperature and humidity. Our proprietary sensor design ensures the most robust sensor in the industry - an investment that will sustain thousands of uses.

“ The ability to provide real-time measurement of the pressure distribution in civil engineering applications, especially in geotechnical engineering and soil-structure interaction applications, is an intriguing idea. Tactile pressure sensors allow for such measurements that could not have been possible previously. ”

Muhannad T. Suleiman, Ph.D.
Assistant Professor,
Lehigh University