

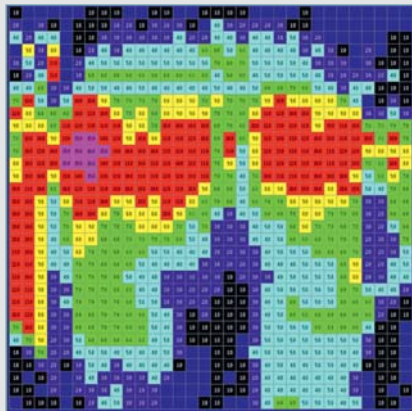
The pliance® software operates as a Windows application and allows easy data collection of pressure distribution. Data can continuously be stored in online mode and handled with a configurable SQL database. Different levels of pliance® measuring software are available.

Using novel scientific software the expert is also able to design the parameter configuration to specific needs and exchange data with colleagues via HTML protocol. Individual reports can be created by the user to allow quick and easy data analysis.

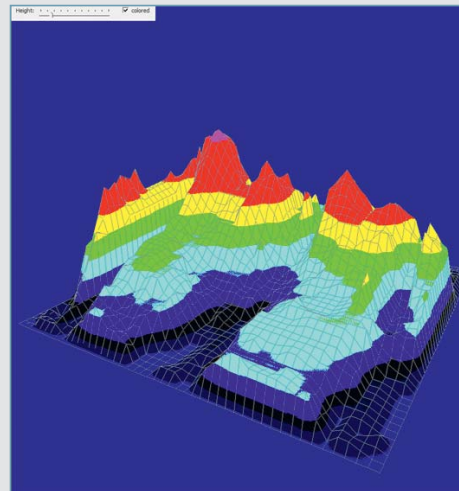
Features of the pliance® car seat system

- Conforms perfectly to the car seat and back
- Each sensor is individually calibrated
- Can be synchronised with video and other systems
- 2D, 3D display, or isobar display
- Allows manifold analysis of measurement data

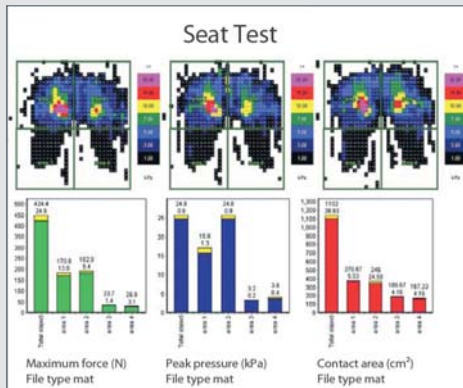
Various pliance® sensors for other applications within the car are available, e.g. for measurements of headrest, safety belt, gas and break pedal, gear stick, car door, etc.



2D display



3D display



novel report

novel gmbh (Germany) • Ismaninger Str. 51 • 81675 Munich
 tel: +49 (89) 417767-0 • fax: +49 (89) 417767-99
 e-mail: novel@novel.de • web: www.novel.de
 novel electronics inc. (USA) • 964 Grand Avenue • Saint Paul, MN 55105
 tel: +1 (651) 221-0505 • fax: +1 (651) 221-0404
 e-mail: novelinc@novelusa.com • web: www.novelusa.com
 MG Atzori Consultants Ltd (UK) • tel: +44 (115) 9622622
 e-mail: noveluk@novel.de

All systems from novel operate with high quality, calibrated sensors and provide reliable and reproducible long term measurements. pliance®, trublu® and the novel logo (colored foot) are the registered trademarks of novel gmbh © 1992-2016



Introduction

The automotive industry is one of the most important sectors in many economies worldwide. Nearly 68.5 million vehicles are produced annually. A comfortable car seat which fits well to the driver is an essential part of the car. In that context ergonomic aspects due to increasing health problems of the back as well as safety regulations must be considered.

The pliance® car seat system offers the state-of-the-art technology for pressure distribution measurement on the car seat and back. The system consists of a flexible and elastic sensor measuring mat, a multi-channel analyser, a calibration device, and a software package for Windows PC.

pliance® car seat sensor mat

As in all physical measuring systems the most important part is the sensor technology. As all novel systems the pliance® car seat system is also based on calibrated, accurate, and reliable capacitive sensors. The individual sensor elements are elastic and arranged in a matrix which conforms well to three-dimensional shapes.

The pressure transducing elements contain high-tech elastomers manufactured by novel. Restoring force, range of force, threshold, hysteresis, temperature effect, frequency response, and other characteristics such as elasticity are determined during the manufacturing process. This makes it possible to adapt the sensor characteristic to different measuring needs.

The pliance® car seat sensor mat can be used either for the seat or the back. Nevertheless, it is also possible to monitor

pliance® car seat sensor mat

the seat and the back simultaneously with two or more sensor mats. The elastic measuring mats are available in various sizes, sensor configurations, and pressure ranges.

Technical data of different pliance® car seat sensors	
dimensions (mm)	392 x 392
number of sensors (max)	256
pressure range (kPa)	2 - 60
dimensions (mm)	452 x 452
number of sensors (max)	1,024
pressure range (kPa)	2 - 60
dimensions (mm)	506 x 506
number of sensors (max)	1,024
pressure range (kPa)	2 - 100

trublu® calibration device

With the aid of the trublu® calibration device, all pliance® sensors are individually and simultaneously calibrated with homogeneous air pressure.

Calibration guarantees accurate and reproducible data collection.



trublu® calibration device

pliance® analyser



pliance®-xf analyser

The pliance® analysers vary from small portable 16 x 16 channel units to larger 64 x 32 channel units (collection up to 2,048 sensors possible) with a wide range of options, such as master-slave synchronisation of several systems, dynamic amplification control, and synchronisation of video systems.

The pliance® sensor mat is connected to the novel pliance® analyser. The pliance® analyser technology allows individual calibration curves for each sensor and individual dynamic amplification control and crosstalk suppression, resulting in very accurate and reproducible pressure values. The pliance® analyser communicates with the PC via fibre optic/USB interface, via Bluetooth®, or a removable SD card.



pliance®-fti analyser

Technical data of the pliance®-fti system	
dimensions (mm)	222 x 182 x 53
number of sensors (max)	2x 1,024 = 2,048
measurement frequency	2x 20,000 = 40,000 sensors/second
computer interface	USB
operating system	current Windows OS
sync option	fiber optic/TTL, sync in and out
power supply	external power supply