

XSENSOR® X3 LX210 SENSOR SERIES

The light-weight sensor system for high-pressure applications



HIGH-PRESSURE SENSOR SERIES

A true evolution in pressure imaging

XSENSOR Technology Corporation introduces the new LX210 Sensor Series, an update to the popular LX200. The new LX210 has all of the performance characteristics customers have come to expect from XSENSOR'S high-pressure sensors, but is now available in light-weight construction that makes the LX210 thinner and more conformable than ever.

This capacitive sensor is designed for higher-pressure applications such as ingress-egress testing of automotive and aerospace seat designs, the LX210 can be integrated into production lines for QA testing. Studies show the new LX210 sensors to be highly accurate due to high repeatability, low hysteresis, and low creep characteristics. The LX210 sensor is the latest innovation in XSENSOR'S expanding line of highly-advanced pressure imaging solutions.



- Measures pressures from .07 -10.3N/cm²
- Superior image quality
- Excellent repeatability
- Low hysteresis and consistent data throughout long trials
- Increased dynamic range > 3x higher
- Less susceptible to noise
- Linear response
- High-resolution sensors with a 12.7mm pitch starting at 1,296 sensing points
- Durable, light-weight sensor that conforms well to surfaces
- Maintains calibration



XSENSOR Technology Corporation is the leading innovator of advanced pressure imaging for automotive testing solutions. Offering sensor superiority, custom solutions, and X3 technology, XSENSOR is an internationally recognized leader with products in use in over 40 countries worldwide.

XSENSOR® Technology Corporation

Innovators in Pressure Imaging

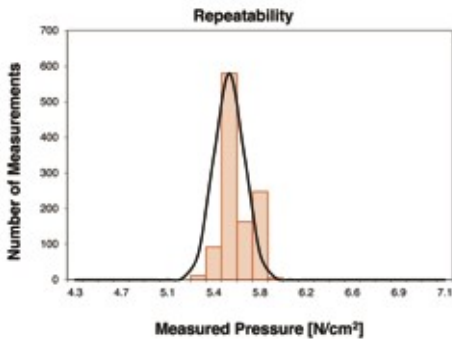
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ACCURACY

Information through consistent repeatability and limited creep and hysteresis

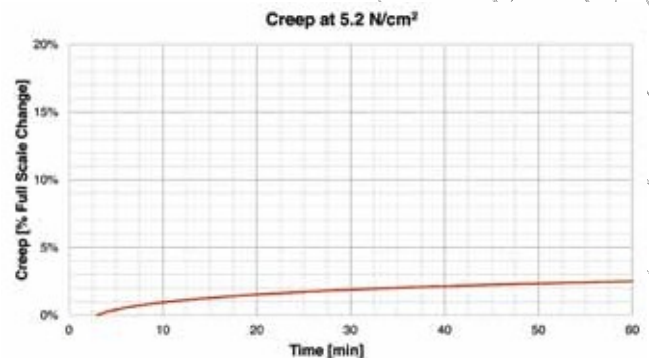


REPEATABILITY

- Provides consistent measurement when subjected to repeated load cycles
- Data collected in XSENSOR calibration chamber for the duration of over 8 sessions of 100 loading and unloading cycles
- Maximum standard deviation $\pm 0.32 \text{ N/cm}^2$ at 95% confidence interval when subjected to over 1100 measurements

LOW CREEP

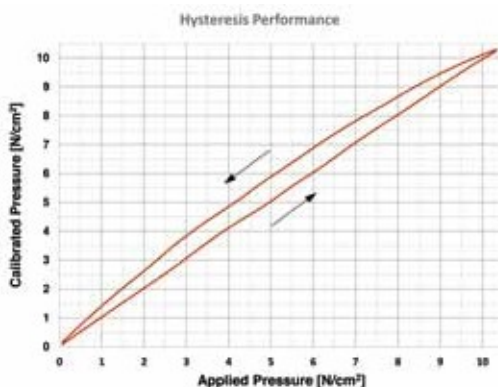
- When subjected to a constant load, provides consistent readings over long periods of time with low creep
- Data collected in an XSENSOR calibration chamber using a standard test is 1 hour load, 1 hour rest for 6 cycles
- Less than 5% full scale error at 1 hour with 5.17 N/cm^2 applied



HYSTERESIS

Data collected from $.07\text{-}10.34 \text{ N/cm}^2$ using $.07 \text{ N/cm}^2$ increments with 1 minute dwell time

- Less than 10% hysteresis error full scale



CALIBRATION STABILITY

- After 100,000 loading cycles there is only a 6% full scale or less difference in measured values in the XSENSOR calibration chamber
- Test lab results using ASTM Standard F 1566-99 Cornell Test configuration
- The sensor was subjected to 100,000 load cycles of $22.2\text{N} - 1023.1\text{N}$ (5-230 lbf). After every 10,000 cycles, the sensor was verified for accuracy in an XSENSOR calibration chamber
- Very consistent behavior provides reliable data for process-control applications
- 100,000 cycles = 10 years accelerated testing

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NO COMPROMISES

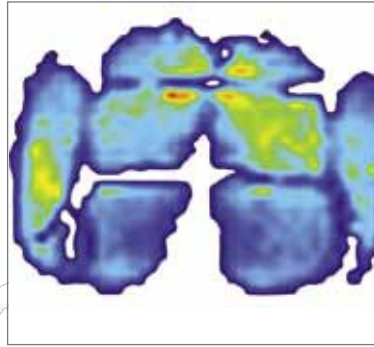
A new level of accuracy

Conformability, image quality, and durability are imperative in comfort and ingress/egress analysis, and they are all found in the LX210 sensor. In a typical analysis, accurate measurement of a given interface's true pressure is critical. The LX210 sensor provides this accuracy by conforming to the topology of the surface; it is able to minimize sensor effect while maintaining spatial integrity. Meanwhile, there is absolutely no compromise to image quality.

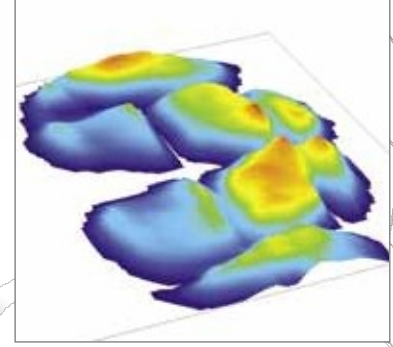
The LX210 sensor provides consistent measurement even under harsh conditions. For test engineers, the improved calibration stability leads to consistent data over thousands of cycles, which means they can lower their total cost of ownership.



Conformability and Durability



2D pressure image using the LX210



3D pressure image using the LX210



BEYOND THE LAB

The precedent for product development

The consistent nature of the LX210 sensor makes it a highly effective tool for production environments. Integrating pressure imaging as part of a quality control process on the production line allows automotive engineers to confidently verify their design and collect a wealth of process control data for later analysis and improvement.

The LX210 sensor sets a precedent for product development quality control measures by providing researchers and manufacturers with a highly accurate, real-time feedback mechanism that is consistent and reliable.

XSENSOR Technology Corporation's LX210 sensors are available in four different sizes. See the chart on the next page for specifications.



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PERFORMANCE CHARACTERISTICS

Pressure Range	0.07N/cm ² - 10.3N/cm ² (0.1-15 psi)
Frequency Response	80 Hz (3dB)
Repeatability	± 4% FS
Hysteresis	< 10% FS
Creep (1 hr)	± 3% FS @ 5.2N/cm ² (7.5 PSI), ± 6% FS @ 10.3N/cm ² (15 PSI)
Calibration Stability	6%
Linear Error	± 3% FS
Accuracy Statement	± 5% Full Scale Error on a loading cycle of 5 minutes

SPECIFICATIONS FOR LX SERIES

Spatial Resolution	12.7mm	0.5"
Border Width (cabling side)	12.7cm	5"
Border Width (non-cabling side)	7.62cm	3"
Cable	106.7cm x 5.1cm x 0.5cm	42" x 2" x 0.18"
Connector	12.1cm x 7.0cm x 0.2cm	4.76" x 2.76" x 0.09"

SPECIFICATIONS BY SENSOR

	LX210:36.36.02	LX210:40.40.02	LX210:48.48.02	LX210.40.64.02
Total Area	66cm x 66cm (26" x 26")	71.1cm x 71.1cm (28" x 28")	81.2cm x 81.2cm (32" x 32")	71.1cm x 101.6cm (28" x 40")
Sensing Area	45.7cm x 45.7cm (18" x 18")	50.8cm x 50.8cm (20" x 20")	60.9cm x 60.9cm (24" x 24")	50.8cm x 81.2cm (20" x 32")
Frame Rates	45 frames/s	39 frames/s	33 frames/s	29 frames/s

SPECIFICATIONS BY SENSOR

Ambient Temperature	10–40°C
Ambient Humidity	5–90% RH

All sensors require X3 PRO electronics, X3 PRO v6.0 or PRO v7.0 software, X3 PRO sensor pack(s), X3 USB CABLE, X3 POWER SUPPLY, and X3 CARRY CASE.

•U.K. Industrial Distributor; Interface Force Measurements Ltd • Unit 19 Wellington Business Park, Dukes Ride, Crowthorne Berkshire RG45 6LS • Phone 01344 776666 • Fax 01344 774765 • E-mail Info@interface.uk.com •



XSENSOR Technology Corporation is an A2LA accredited calibration laboratory. We are accredited to ISO/IEC 17025 for the specific calibrations listed on A2LA Certificate Number 3589.01.

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