XSENSOR® X3 LX100 SENSOR SERIES

A true evolution in pressure imaging, world-class accuracy with no compromises

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.

HIGH ACCURACY SENSOR SERIES
A true evolution in pressure imaging

XSENSOR Technology Corporation introduces an update to the most advanced and accurate interface pressure measuring sensor in their line of products. Designed as a conformable and durable sensor for measuring interface pressure values, this capacitive sensor is ideal for assessing automotive and aerospace seat designs and is capable of being integrated into production lines for QA testing. Studies show the new LX100 sensors to be highly accurate due to high repeatability, low hysteresis, and low creep characteristics. The LX100 sensor is the latest innovation in XSENSOR's expanding line of highly advanced, robust pressure imaging technology.

The new LX100 sensors possess the durability, conformability, and image detail found in XSENSOR's PX100 Series sensors. The LX100 provides a new level of accuracy and calibration stability that makes it ideal for engineering research and design, and a perfect tool for manufacturing quality control.

• **Improved Dynamic Range > 3x higher**
• **Improved Low Pressure Sensitivity**
• **Less Susceptible to Noise**
• **Better Image Quality**
• **More Linear Response**
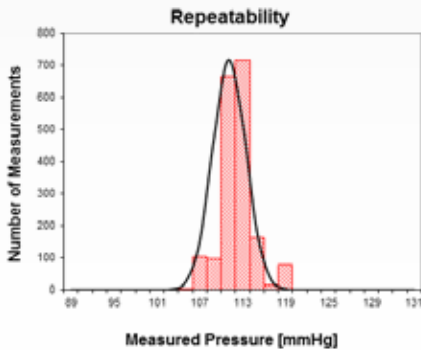
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ACCURACY
Information through consistent repeatability and limited creep and hysteresis


Repeatability

REPEATABILITY

• Provides consistent measurement when subjected to repeated load cycles

• Data collected in XSENSOR calibration chamber for the duration of over 20 sessions of 100 loading and unloading cycles

• Maximum standard deviation + 3mmHg at 95% confidence interval when subjected to over 2000 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 2hrs load, 1hr rest for 6 cycles

• Less than 5% full scale error at 2-hours with 100mmHg applied

Creep at 100 mmHg
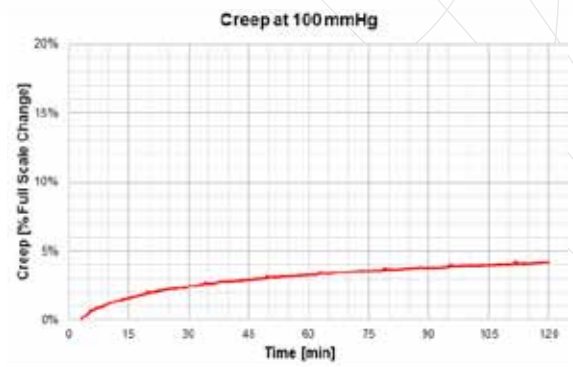
HYSTERESIS

• Data collected from 5-200mmHg increments with 10mmHg steps with 1 minute dwell time

• Less than 10% hysteresis error full scale

Hysteresis Performance
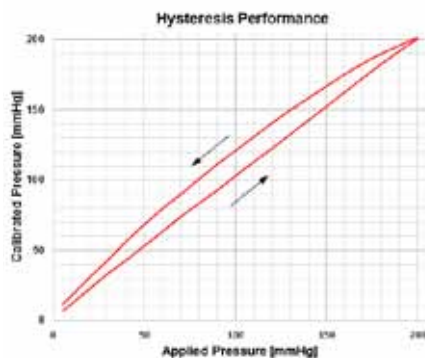
CALIBRATION STABILITY

• After 100,000 loading cycles there is only a 3% 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 22.2N - 1023.1N (5-230 lbsf). After every 10,000 cycles, the sensor was verified for accuracy in an XSENSOR calibration chamber

• Very consistent behaviour 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 LX100 sensor. In a typical analysis, accurate measurement of a given interface's true pressure is critical. The LX100 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 LX100 sensor produces excellent image quality, indistinguishable from the XSENSOR PX100 sensor.
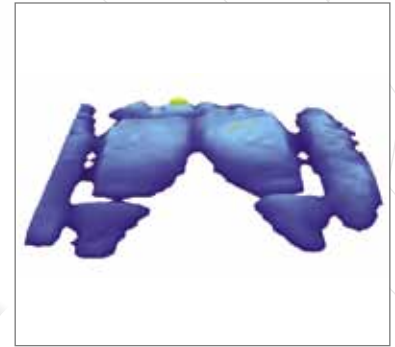
The LX100 sensor provides consistent measurement even under harsh conditions. For test engineers, the improved calibration stability leads to consistent data over thousands of cycles, which means they can lower their total cost of ownership.

Conformability and Durbility
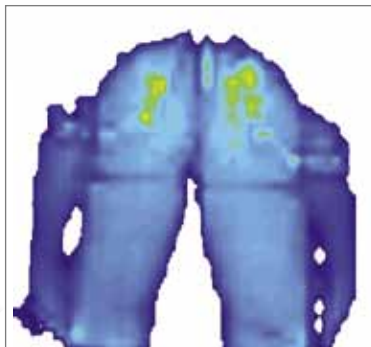
2D pressure image using the LX100

3D pressure image using the LX100

BEYOND THE LAB
The precedent for product development

The consistent nature of the LX100 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 LX100 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 LX100 sensors are available in four different sizes. See the chart on the next page for specifications.

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PERFORMANCE CHARACTERISTICS	
Pressure Range	5 – 200mmHg (.07-2.67N/cm^2), (.1-3.87 psi)
Frequency Response	33 Hz
Repeatability	+ 3% FS
Hysteresis	< 10% FS
Creep (1 hr)	± 5% FS
Calibration Stability	3% FS
Linear Error	+ 3% FS
Environmental Variation *Fullscale* 20-40° C 10-90% RH	< ± 5% FS

SPECIFICATIONS FOR LX SERIES		
Spatial Resolution	12.7 mm	0.5"
Thickness (Sensing Area, uncompressed)	0.1cm	0.040"
Thickness (Border - cabling side)	1.6mm	0.04"
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					
	LX100:36.36.02		**LX100:40.40.02**		**LX100:48.48.02**
Total Area	66cm x 66cm	26" x 26"	71.1cm x 71.1cm	28" x 28"	81.2cm x 81.2c 32" x 32"
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"
Frame Rates	45 frames/s		39 frames/s		33 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 software, **X3** PRO sensor pack(s), **X3** USB CABLE, **X3** POWER SUPPLY, and **X3** CARRY CASE.

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