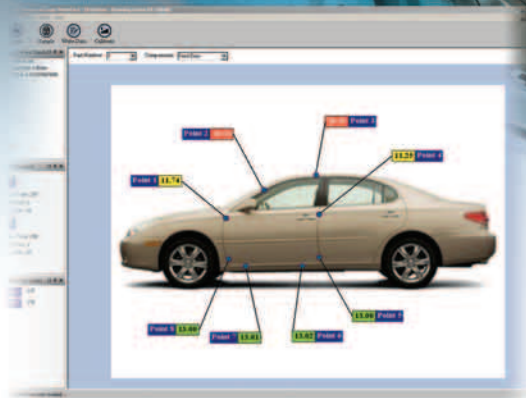
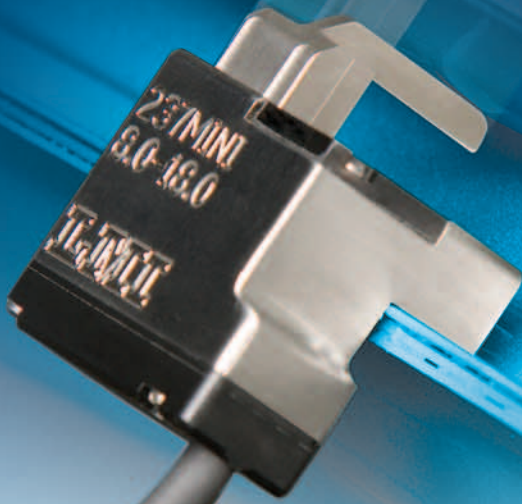


S O L I D M E A S U R E S T O C L O S E T H E G A P

PSG

Portable Seal Gap
Measurement Systems



LMI[®]

Linear Measurement Instruments, Corp.

LMI® 2300•RF Portable Seal

According to
(J.D. Power and Associates,
wind noise was the single most common consumer complaint in its widely used Initial Quality Survey in 2005. Wind noise accounted for 5.11 percent of all new-vehicle problems.¹

Other warranty concerns are water leaks and hard door closing efforts.

As a manufacturer and innovator of precision measuring systems, LMI can help you establish the competitive advantage with the LMI 2300-RF Seal Gap System.

Innovative features that benefit manufacturers:

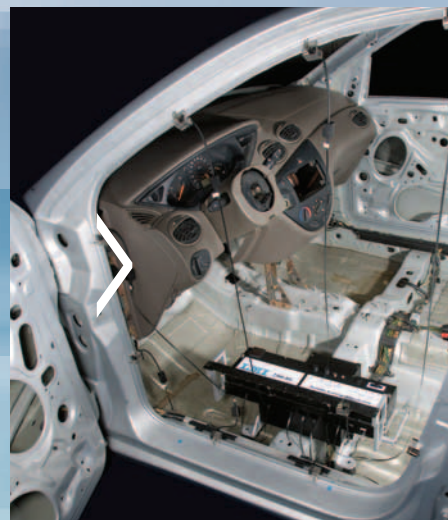
- ▶ Repeatable gauging using a wide variety of LMI tools for the doors, deck lids, and lift gates such as the LMI MINI and Ultra MINI Seal Gap Gauges. This is data that you can trust and make decisions on. Custom gauges are always possible.
- ▶ Robust construction of the gauges and hub along with solid state RF technology make the system very durable and reliable.
- ▶ Live readings placed around a graphic shows the "big picture" of the closure's seal gaps. Combine that with the red, yellow, or green color of the box and potential defects are identified immediately.
- ▶ The system is easy to use. Part files are easy to set up. Data collection is simple, by placing gauges in the opening, flushing out the closure, and pressing sample on the wireless pendant.
- ▶ Data can be exported immediately in any format using the export wizard. Data is available immediately for SPC or engineering evaluation which makes root cause analysis quicker.
- ▶ The system is flexible. The system can be used in many areas from prototype build, wind tunnel, body shop, and final assembly evaluation.

4 STEP OPERATING SEQUENCE

The patented **LMI 2300 Portable Seal Gap (PSG) System** is a compact and portable inspection gauge. Inconvenient feeler gauges, clay, calipers and thumbscrews are no longer necessary to check gaps between the door and door opening flange or deck lid and deck lid opening flange.

To inspect a vehicle, simply place the Hub inside the car, attach the 237 or 238 Seal Gap Gauge(s) to the flange. Then apply the door magnets to "flush" the door or deck lid and sample the readings. Data is stored in a convenient file format for use in your SPC program.

Comprehensive screen displays show the characteristic readings and colorfully identify whether each reading is within specification limits **GREEN**, within caution limits **YELLOW**, or out of specification limits **RED**.



STEP 1
Place the RF Hub inside the vehicle

1

History of Seal Gap Measurement



- ▶ Clay is a **very time consuming** method which is subject to over slam of the door. The repeatability and accuracy are low. This technique uses manual data collection methods.
- ▶ Taper gauges, scales, and calipers are bulky and difficult to use in the small openings. The use of these types of tools is time consuming and requires the use of manual data collection methods.
These methods are not repeatable or accurate.
- ▶ A Coordinate Measuring Machine (CMM) is a **slow process** which requires specially trained personnel and is not a practical solution to continually monitor quality.
- ▶ LMI Friction Lever Blocks have been widely used throughout the industry and when coupled with a LMI 200 Series Probe and data collector have provided a fast, accurate, and repeatable method to collect Seal Gap data. However, **these tools are still subject to over slam and require diligent maintenance to function correctly.**

Gap System

- ▶ The system is expandable. It is possible to combine flush and gap and other measurements into the same data collection routine making additional correlation possible.
- ▶ The LMI Seal Gap Gauges and Seal Gap System are the industry standard widely used in Ford, Daimler Chrysler, GM, Toyota, Nissan, Honda, and more.
- ▶ Because the system is very simple, a minimum amount of training is required to use the system effectively.
- ▶ The use of the system is backed up by the outstanding service and support from LMI.




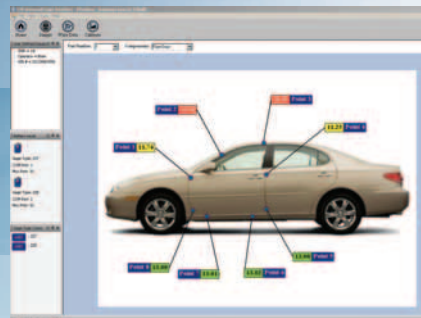
LMI 2300-RF Seal Gap System Hub



DOOR

DECK LID





STEP 2

2 Attach gauges to check points on door or deck lid flange

STEP 3

3 Close and flush door or deck lid.

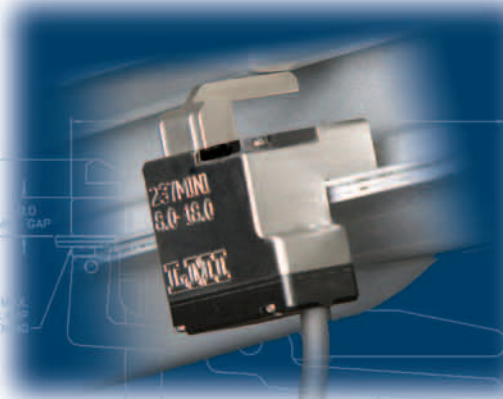
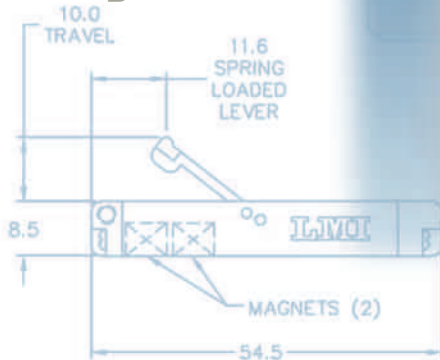
STEP 4

4 View and sample live readings on a colorful graphics screen to verify part quality

STANDARD GAUGE MODELS

Custom Gauges
Available

Precision
Efficiency
Reliability
Consistency
Quality Control



LMI 237 Mini Door Seal Gap Gauge



LMI 238 Mini Deck Lid Seal Gap Gauge



LMI 237 Door Seal Gap Gauge



LMI 238 Deck Lid Seal Gap Gauge



NEW LMI 237 Ultra Mini Seal Gap Gauge

Interested in increasing your
Initial Quality Survey (IQS) Rankings
and gaining a competitive edge?

Contact LMI for an on-site demonstration and more information
on the Portable Seal Gap Measurement System!

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**CUT THE CABLE
& GO WIRELESS**

LMI[®]

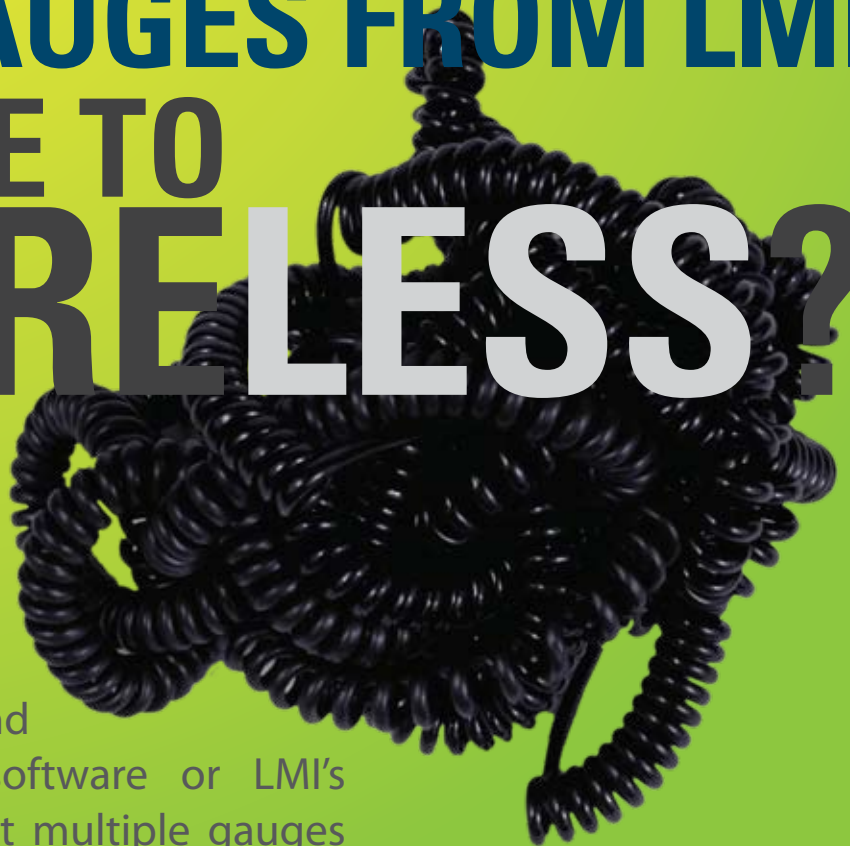


WIRELESS



New **WIRELESS GAUGES FROM LMI** **ISN'T IT TIME TO** **GO WIRELESS?**

No more coiled cables! Just press the send button and the data is sent to a PC. Simply plug in a receiver base to a computer USB port and your LMI gauge is now a wireless data collection system. Send data direct to your SPC-DAQ software or LMI's Universal Gauge Interface. Connect multiple gauges to a single base and roam free without cables.



LMI[®]



NEW! ALL WIRELESS GAUGES!

200 Series Probe



TP Series TruPosition



241-BW Series
Flush and Gap



241 Series Flush and Gap



237/238 Series Seal Gap



Gauge Features:

- ▶ LED status lights
- ▶ Audio transducer for operator feedback
- ▶ No external antenna
- ▶ Send button
- ▶ Gauges configured and setup with simple software utility

Long Battery Life:

GAUGE	ESTIMATED SAMPLES OR HOURS	BATTERY TYPE
200 Series Probe	200,000+ Samples	CR2
241 Series Flush and Gap	100,000+ Samples	Rechargeable
241-BW Series Flush and Gap	100,000+ Samples	Rechargeable
TP Series TruPosition	100,000+ Samples	Rechargeable
237/238 Series Seal Gap	8 Hours Continuous 100% Duty Cycle	Rechargeable

Wireless Base Features:

- ▶ USB connection
- ▶ Connects to multiple gauges
- ▶ Range: 133 feet maximum, direct line of sight
- ▶ Frequency: 2.4 GHz ISM Band (Industrial, Scientific & Medical)
- ▶ Configured by an easy-to-use software utility
- ▶ Seamless integration into LMI's UGI software
- ▶ Data sent to the PC consists of ASCII strings that are accepted by virtually all SPC-DAQ software



LMI Universal Gauge Interface (UGI)

For the ultimate in data collection, LMI offers the Universal Gauge Interface (UGI) software package. UGI is a comprehensive software package to develop your check routine and analyze part quality. The screen displays each measurement around a graphic that colorfully identifies whether each reading is within specification limits **GREEN**, within caution limits **YELLOW**, or out of specification limits **RED**.



Software Features

- ▶ NEW charting capability: Histogram, Xbar-R
- ▶ Easy-to-use interface: part files are easy to set up and data collection is simple
- ▶ Graphic interface: import and customize a drawing or a photo of your part
- ▶ Instantaneous part quality notification (Pass/Fail)
- ▶ Password protection to insure file integrity and control changes
- ▶ Standard data exports available as well as an Export Wizard to customize your data export format
- ▶ Trace labels (operator, part#, shift, etc...): an unlimited number of user configurable inputs
- ▶ Calculations: a variety of standard calculations and functions are available to determine MIN/MAX, Rate Of Change, TIR, parallelism, perpendicularity, etc.

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