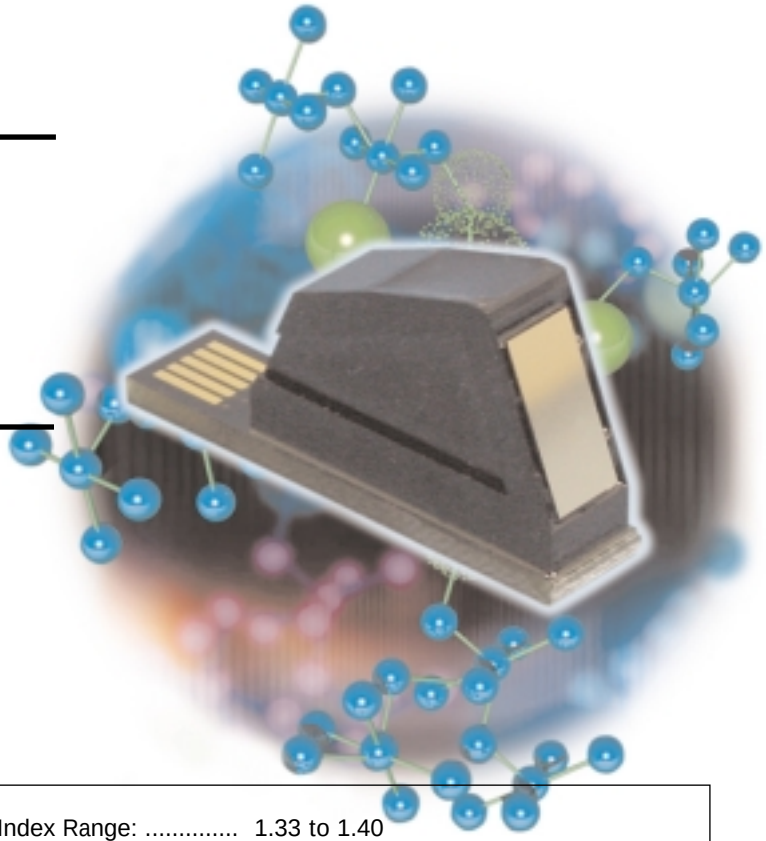
Product Bulletin

Spreeta™

TSPR2KXY Biosensor



SPREETA is a multi-channel surface plasmon resonance (SPR) based biosensor for real-time, quantitative measurement of biomolecular interactions. Spreeta operates on the principles of SPR, a powerful optical method for determining the refractive index of materials very near a gold surface. When combined with an appropriate surface chemistry and a microfluidic flow cell, Spreeta becomes a sensitive and versatile tool for the time-resolved study of detailed biomolecular interactions. This makes Spreeta an economical bio-assay platform for table-top, portable and handheld products for the measurement of concentration as well as affinity and kinetic rate constants.

SPREETA's patented approach to SPR measurements enables SPR instrumentation that is simple to design, economical to build and easy to maintain.
Texas Instruments can provide assistance with electronics, software anchoring chemistry and micro-fluidics to facilitate instrument design. A SPREETA based instrument, enables the most economical, highest performing SPR measurements of biomolecular interactions.

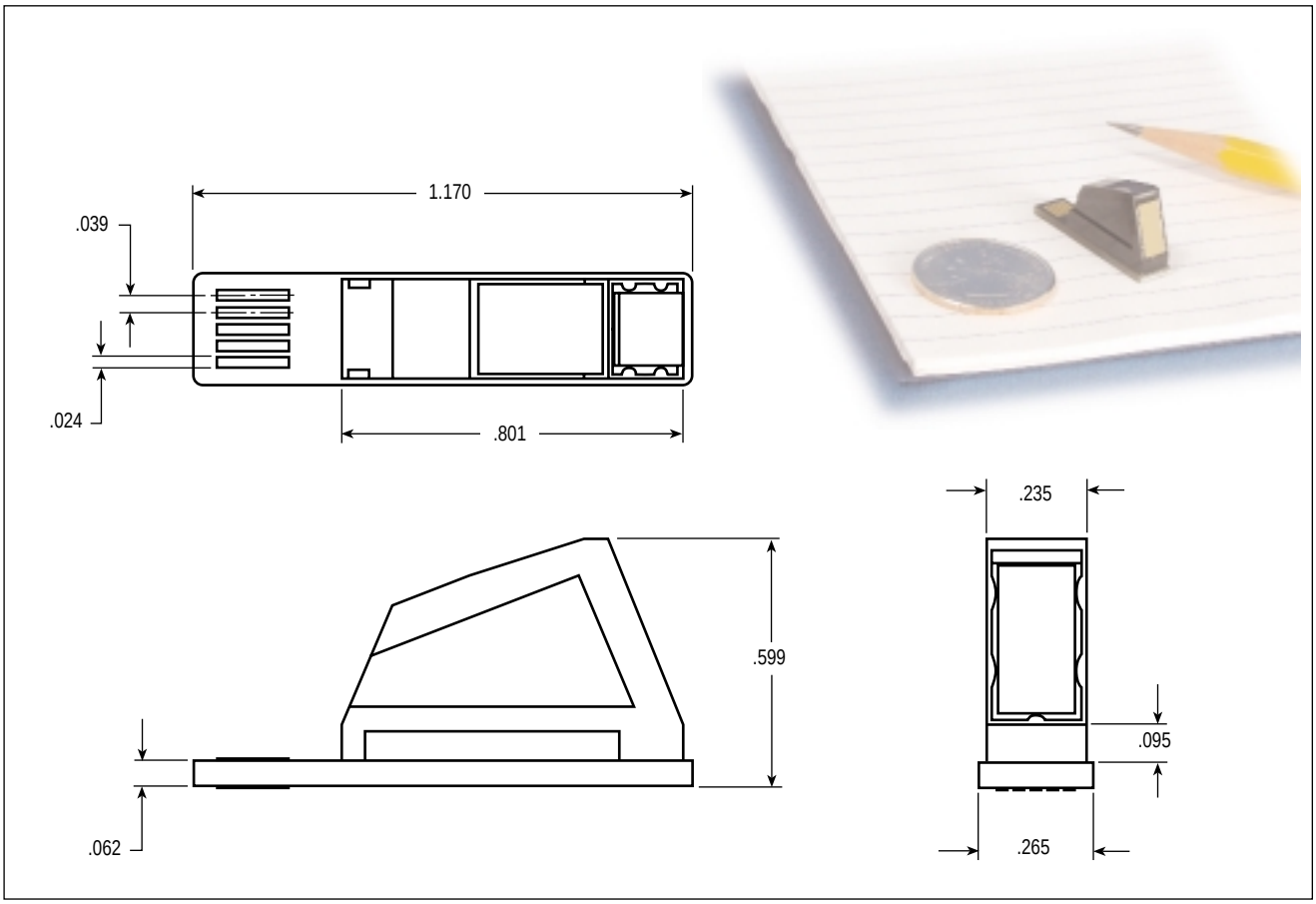
Refractive Index Range:	1.33 to 1.40
Baseline Noise:	$3x10^{-7}$ RIU
Drift:**	$<1x10^{-6}$ RIU/min
Flow Cell Volume:	20-100nL
Electrical Connection:	10 pin card edge connection
Operating Voltage:	5Vdc
Input Current:	<100mA when LED's in use; <5mA when LED off
Sensor Dimensions:	Length: 3 cm Width: 0.7 cm Height: 1.5 cm
Operating Temp. Range:	$0^{o}C$ to $65^{o}C$
Other Features:	Customized software/hardware designs Memory chip to enable "smart sensor" functions

* Baseline noise is one component of sensitivity. The others are flow cell volume, capacity of the surface chemistry, binding strength of the ligand with the analyte and the size of the analyte. For a full description, see the Spreeta application note: "Spreeta Sensitivity Notes" at www.spreeta.com

** Actual Drift is a function of instrument design.

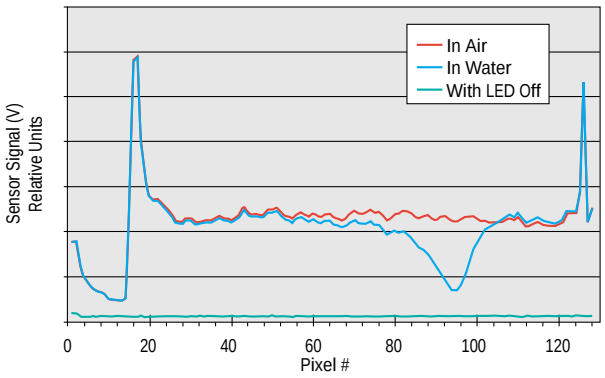
Potential markets that can be served by SPREETA based instruments:

- Life Science R&D
- Drug discovery
- Point of Care Diagnostics
- Environmental Testing
- Bio Defense
- Industrial Process Control
- Food Safety



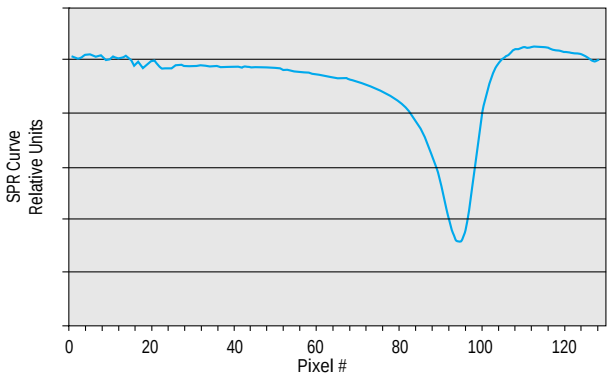
Typical Response Curves

Typical Sensor Response



Sensor Initialization Conditions: A plot of light intensity vs. pixel number, for a typical single channel Spreeta (Part Number TSPR2K11) when the sensor is operated with the LED off (green line), with air on the surface (red line) and with water on the surface (blue line).

Typical SPR Curve in Pure Water



Processed Sensor Signal: A plot of light intensity vs. pixel number, for a typical single channel Spreeta Part Number TSPR2K11) following proper initialization. Here, the water resonance takes place at approximately pixel #93.

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