

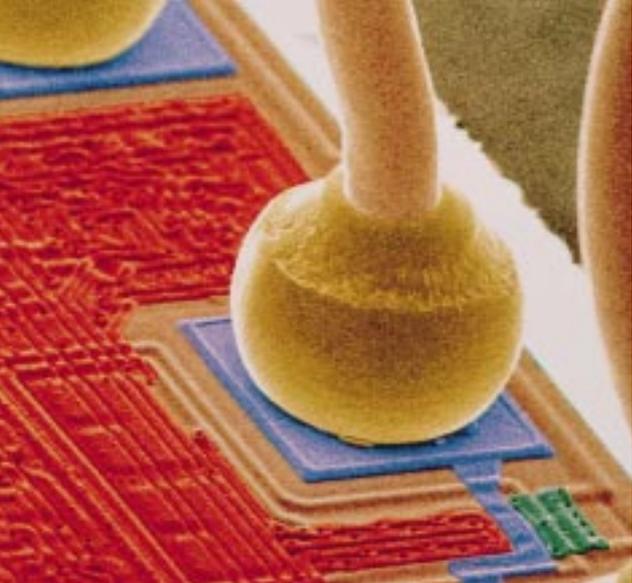


LIQUID LEVEL, FLOW AND PRESSURE SENSORS



FOR

SEMICONDUCTOR MANUFACTURING



Purity

When most people hear the word “semiconductor” they think of processing speed. When folks like us hear “semiconductor” we think of process purity. The microscopic topography of today’s silicon circuits demand the cleanest manufacturing facilities on earth. We know that, and we build liquid level, flow and pressure sensors to meet those stringent requirements. It’s because of these special requirements we have a special semiconductor sensor team at Gems. These men and women are dedicated to making your manufacturing clean and simple.

Gems Sensors Inc. offers semiconductor equipment manufacturers everything you look for in a sensing product:

EXPERIENCE. Gems has been serving the semiconductor industry for more than 20 years. From chemical handling, front-end, and inplant use, it’s likely Gems has just the right sensor to fit your requirement. If we don’t, our product development people will work with you to design a special sensor configuration to fit your exact needs.

RELIABILITY. Gems fluid sensors are built to withstand the rugged service that semiconductor equipment must endure. They’re certified to ISO 9001 standards, the international designation of quality and reliability.

PEACE OF MIND. To an OEM, the failure of any component means expensive downtime for your customers. Count on the reliability of a Gems sensor to help keep your customers’ operations running.

VARIETY. Gems offers an extensive range of level, flow and pressure sensors designed to fit almost any semiconductor requirement. We can accommodate almost any requirement for physical fit and fluid compatibility. We have models that handle extreme temperature and pressure requirements, and offer materials that can help you meet the stringent liquid purity standards of the industry.

PRODUCT AVAILABILITY. We maintain an extensive inventory of products available for immediate delivery.

TECHNICAL SUPPORT. Our global network of sales professionals and technical representatives can assist you in the selection, specification, design and service of our products.

WE MAKE WHAT WE SELL. At Gems we make what we sell, and have the product specialists and engineering staffs to back up our products. Over the years, the Gems name has come to represent the best sensing technology available — engineered and produced to the highest standards of quality.



APPLICATIONS Gems features product for more applications than you can shake a sensor at, so we can't begin to list them all. This short list should give some guidance for the typical usage of Gems sensor products in semiconductor manufacturing. We urge you to remember that our engineering capability allows us to develop specially configured sensors, so please don't hesitate to ask about a product or application not shown in this brochure.

PROCESING APPLICATION

TYPICAL SENSOR

DEPOSITION EQUIPMENT (CVD/PVD)

Use on cooling line around deposition chamber
Control vacuum in deposition chamber
Monitor coolant tank level
Monitor TEOS level

FS-926/FS-200 Flow Switches RFI-2500B RotorFlow® Flow Indicators
Series 2200 Pressure Transducers
LS-700 Alloy, Multi-point Level Switches
Pure Sense LS-700 Level Switches

WAFER ETCH EQUIPMENT (DRY/WET)

Coolant flow monitoring
Coolant flow monitoring
Level control of high purity chemicals

FS-200 Flow Switches
RFI-2500B Flow Indicators
LS-300TFE Alloy, Multi-point Level Switches

ION IMPLANT SYSTEMS

Coolant flow monitoring
Coolant tank level monitoring

FS-200/FS-925 Flow Switches
LS-700 Level Switches

DIFFUSION FURNACES

Coolant fluid monitoring
Coolant air monitoring

FS-10798 Adjustable Flow Switches
FS-926 Flow Switches

WAFER PREPARATION EQUIPMENT/CMP

Chilled water flow on polishers
Coolant flow to the lapping tool
Monitor DI water level
Monitor pressure on spindles
Monitor pneumatic pressure on lapping tool

RFS-2500P RotorFlow® Flow Switches
FS-4/FS-150 Flow Switches
ELS-1100 Electro-Optic Level Switches/LS-7/LS-3 Level Switches
Series 2200 Pressure Transducers
Series 2200 Pressure Transducers

RECIRCULATORS

Coolant flow monitoring
Monitor leaks on drip pans
Monitor Coolant Level

RFO-2500 RotorFlow® Flow Sensors, FS-150 Inline Flow Switches
ELS-1100 Electro-Optic Level Switches
LS-700 Level Switch/XM/XT-800 Level Transmitters

CHEMICAL DELIVERY SYSTEMS

Monitor level of aqueous chemicals
Solvent/Photoresist canister level control

LS-300 TFE, Multi-point Level Switches
LS-700 Alloy, Multi-point Level Switches

CLEANING EQUIPMENT

Leak detection
Level indication
Drain line flow confirmation

LS-3 Level Switches
LS-700 Alloy, Multi-point Level Switches/SureSite® Level Indicators
FS-200 Flow Switches

VACUUM PUMPS

Monitor discharge and inlet pressure
Monitor water coolant flow

Series 2200 Pressure Transducers
FS-150 Inline Flow Switches/RFO-2500 RotorFlow® Flow Sensors

GAS SCRUBBERS

Low level indication
Leak detection

LS-7 Level Switches
ELS-1100 Electro-Optic Level Switches

IN-PLANT

Monitor sulfuric acid in daytanks
Deionized water tank level indications
Safety shower alarm trigger
Monitor high purity solvents

SureSite® Level Indicators/LS-800 Alloy, Multi-point Level Switches
SureSite® Indicators
FS-200 Flow Switches
LS-700 Alloy, Multi-point Level Switch

For application assistance call our technical specialists toll-free at **1-877-824-2013**.

Sensors for **Ultra-Pure** In-Process Use

PureSense LS-300TFE Liquid Level Sensor

- 100% PTFE / TFM construction suitable for the highest purity etching acids, DI water, and solvents used in wet benches, CMP, and chemical delivery systems.
- Withstands harshest environments without contaminating the most sensitive media.
- Compact size offers minimal liquid displacement and wetted surface area.
- Up to 4 actuation levels per sensor.
- Available with specialized cleaning, and cleanroom packaging.
- UL/CSA recognition pending / CE certified for SEMI S2-93 requirements.

PureSense LS-1700TFE and LS-3PVDF Liquid Level Sensors

- Single point level switches suitable for leak detection of the most aggressive media.
- PVDF or PTFE/TFM construction suitable for highest purity chemicals.
- Proven, highly reliable technology.
- Economical price suitable for OEM usage.
- Specialized cleaning and packaging available.
- UL/CSA recognition pending / CE certified for SEMI S2-93 requirements.

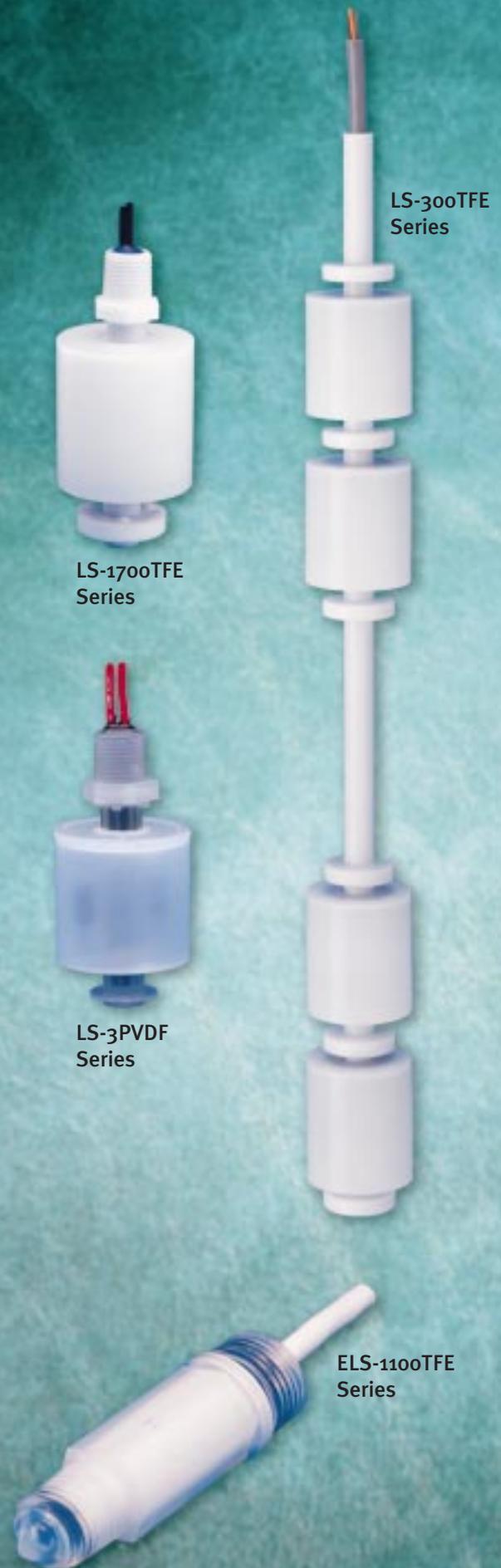
PureSense ELS-1100TFE Electro-Optic Liquid Level Sensor

- Optical liquid level sensor features no moving parts for minimal particle generation.
- Teflon PFA-440HP construction suitable for highest purity media.
- Ideal for usage as a high level alarm, or as a leak detection sensor.
- Specialized cleaning and handling available.
- UL recognized for SEMI S2-93 requirements.



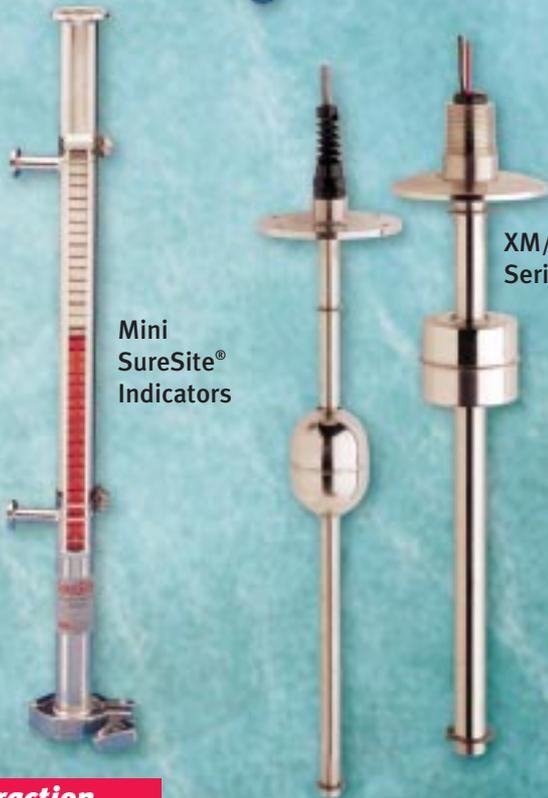
For more information about
our ultra-pure sensors
request bulletin #427.

1-877-824-2013





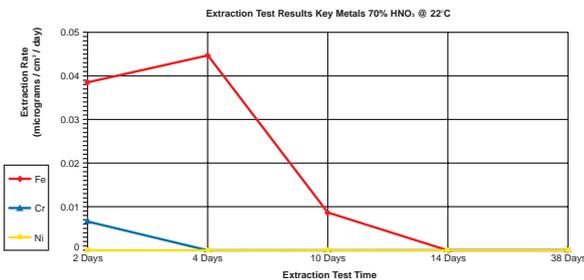
LS-700 Series



XM/XT-800 Series

Mini SureSite® Indicators

extraction testing



Gems has conducted extensive extraction testing to allay any concerns regarding leaching of trace metals from the metal shaft inside the stem of our LS-300TFE. The sensors were immersed in high purity acid for as long as 38 days. The results, illustrated below, show negligible amounts of elements extracted; the possibility of media contamination is remote.

PureSense LS-700 Liquid Level Sensor

- Electropolished stainless steel liquid level sensor ideal for high purity solvents, photoresists, pyrophoric compounds, and specialized CVD chemicals.
- Compact design suitable for level sensing in the smallest canisters and shallow tanks.
- Unlimited flexibility for specialized tank mountings such as VCR style, and flanges.
- Specialized cleaning and handling available.
- UL/CSA recognized / CE certified for SEMI S2-93 requirements.

PureSense XM/XT-800 Continuous Liquid Level Transmitters

- Electropolished stainless steel liquid level transmitters suitable for inventory control of solvents, photoresists, and specialized CVD chemicals.
- Ideal for OEM applications that require batching control, or accurate inventory measurements.
- Available with a variety of analog outputs, and mounting options.

PureSense Mini SureSite® Visual Liquid Level Indicators

- Stainless Steel construction with slim 1.25" diameter housing design ideal for tanks mounted in tight spaces.
- Ideal for high purity solvent tanks, DI water tanks, and other chemicals requiring stainless steel.
- Brightly colored indicator is readable from great distances.
- Versions available with electropolishing, external level transmitters, or point switches.
- Specialized cleaning and handling available.
- Designs suitable for OEM equipment.
- UL recognized / FM approved for SEMI S2-93 requirements.

Special Handling and Packaging Capabilities Meet Your Most Stringent Cleanliness Needs!

The growing need for contamination reduction in the semiconductor manufacturing process demands components be produced under stringent clean conditions.

At Gems, we have instituted the special handling, cleaning, and clean room packaging that you would expect from the leader in the ultrapure fluid sensing market. You benefit with reduced cleaning costs and peace of mind that the sensors you use are built for your highest purity requirements!

Products are not shown actual size or in proportion relative to one another.

Sensors For *Critical Cooling* and Auxiliary

FS-380/FS-927 Liquid Flow Switches

- Sensors ideal for low coolant flow protection of valuable semiconductor processing equipment.
- Ultra-Compact, rugged alloy designs at an economical price.
- Wide temperature capabilities.
- UL recognized/CE certified for SEMI S2-93 requirements.

RotorFlow® RF-2500 Flow Sensors

- Fail-Safe flow sensors for protection of loss of liquid flow on critical cooling loops.
- Suitable for use with perfluorinated coolants, DI water, and Glycols.
- Versions available with wide temperature capabilities (-40°C to +150° C).
- Available with continuous outputs, adjustable switch outputs, or visual indication only.
- UL/CSA recognized / CE certified for SEMI S2-93 requirements.

FS-500 Flow Switch

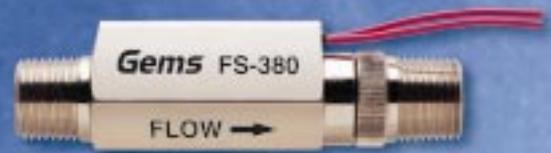
- Flow sensor ideal for liquid flow monitoring in chillers and gas scrubbing equipment.
- Economically priced for high volume OEM usage.
- Polypropylene / Stainless steel construction offers excellent chemical compatibility.
- 1/4 turn locking top is removable for easy cleaning.
- UL/CSA recognized / CE certified for SEMI S2-93 requirements.

LS-10 Leak Detection Level Switch

- Ideal design for liquid leak detection in drip pans underneath pumps and other heat exchanger equipment.
- Sensor will actuate with approximately 1/4" of liquid present.
- Construction suitable for many types of liquids.
- UL recognized/CE certified for SEMI S2-93 requirements.



FS-927
Series



FS-380
Series



RotorFlow®
RF-2500
Series



FS-500
Series



LS-10
Series

LS-700 and LS-300 Liquid Level Switches

- Multi-point level switches offer minimal tank intrusion for liquid level control. Available in alloy and engineered plastic constructions for wide chemical compatibility.
- Suitable for uses in coolant tanks, gas scrubbers, and DI water filtration systems.
- Versions available with wide temperature capabilities
- UL/CSA recognized—CE certified for SEMI S2-93 requirements.

XM/XT-800 Continuous Liquid Level Transmitters

- Liquid level transmitters ideal for monitoring expensive perfluorinated coolants in heat exchangers.
- Wide temperature capabilities.
- Available with a variety of signal outputs.

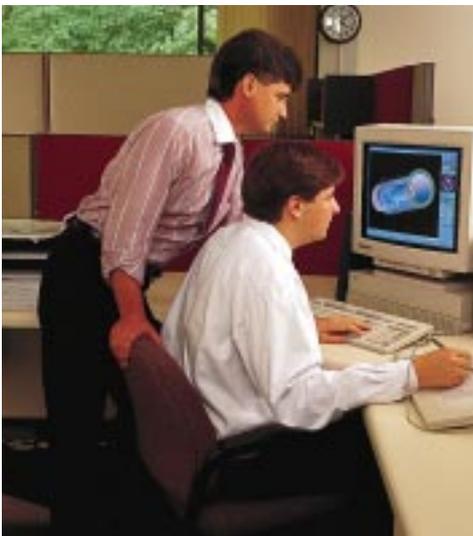
Series 2200/2600 Pressure Transducers

- Stainless steel pressure transducers are ideal for monitoring CVD chamber pressure, vacuum pump pressure, and pneumatic pressure on CMP equipment.
- Highly stable output, accurate to .25% of full scale.
- Excellent overvoltage protection.
- CE certified for SEMI S2-93 requirements.



GEMS: THE FLUID SENSOR PEOPLE

Gems is the preferred fluid sensor supplier to OEMs in hundreds of different industries, for one very important reason: we provide exceptional service to our customers. We bring an innovative design, application and problem-solving approach to meeting your needs. We believe the



sensor should fit the application, not the other way around. So if we don't have what you're looking for, we'll make it—be it a simple change in cable length or a custom connector or an all-new prototype.

*We're determined to become your preferred sensor supplier. To discuss your requirements or to place an order, call the nearest Gems sales representative listed on the back of this brochure. To talk about your specific requirements, call a Gems application specialist toll-free at **1-877-824-2013**.*



In semicon
manufacturing
you don't
need parts – you
need a partner!

The Gems philosophy is to provide solutions, not sell parts off the shelf. Here's a quick recap as to why you can be secure in partnering with Gems Sensors Inc.

- Broadest line of liquid level, flow and pressure sensors for semicon manufacturing
- Specialized cleaning, handling and packaging
- Highest quality fluorocarbon materials
- Rapid engineering and prototypes
- Direct global sales/engineering force
- 25 years experience with semicon industries

Our Semiconductor Specialists are ready to discuss your sensor requirements, so don't hesitate to give us a call. Gems sales offices are worldwide, with manufacturing facilities in Europe and the USA, so you'll always find a Gems representative close by.



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Gems Sales Offices

Call **Toll Free** to be connected to the U.S. office nearest to you



New from Gems...



FS-380

Inline Flow Switch with Stainless Steel Tube Connections – Perfect for semiconductor or laser cooling equipment.

International Sales Offices

UNITED KINGDOM –
European Manufacturing
Tel: (44) 1256-320244
Fax: (44) 1256-810929

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