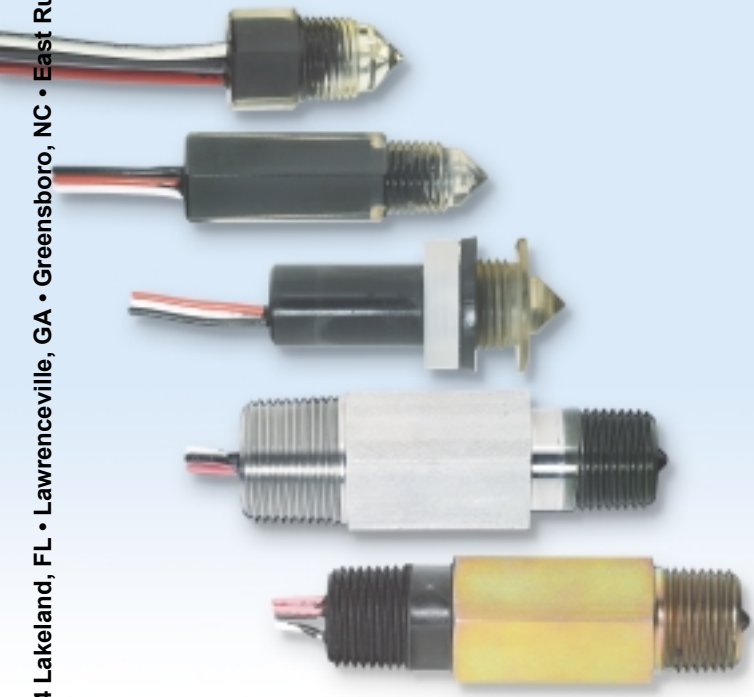




smarter products, better solutions

Sold by AA Electric 1-800-237-8274 Lakeland, FL • Lawrenceville, GA • Greensboro, NC • East Rutherford, NJ www.AAelectric.com



LIQUID

LEVEL

FLOW &

PRESSURE

SENSORS

Product Overview



smarter products, better solutions

Making your products more versatile and reliable

Our main goal at Gems Sensors is to provide sensing solutions to help you design and manufacture products that will satisfy your customers.

Gems manufactures hundreds of standard and custom products, and this overview highlights only a fraction of them. And, while our standard products are a great starting point, always remember that "off-the-shelf" is not end-of-story at Gems—we've built a reputation on custom solutions.

The Gems Sensors Advantage

Decades of application engineering provide the perspective and experience that allow us to quickly prototype, build and deliver your selection of quality level, flow and pressure sensor variations. Experience has taught us which technologies and product characteristics provide effective solutions to our customers' problems.

At Gems Sensors we strive to be a productive partner and have become a preferred supplier by offering the best of both worlds for design engineers:

- a diverse selection of standard products that can be designed into your application immediately,
- AND
- a dedicated team of design and production engineers that will develop custom solutions to fit unique design requirements.

Either way, Gems Sensors makes your design job easier and your end-products better.



Our Products

Gems engineers liquid level, flow and pressure sensors with—

- reliability
- consistent accuracy
- precise repeatability
- compatibility with a wide range of liquids
- easy installation

Technologies include:

- conductivity
- electro-optics
- magnetically actuated reed switches
- hall-effect switches
- ultrasonics
- CVD and thin film pressure sensors
- Wireless transmitters

You've got a long-distance desktop with our Messenger™!

From sensors to hardware to data delivery, you can count on our total solution approach to meet your remote monitoring requirements. Gems new Messenger™ remote monitoring products and services **monitor conditions at remote sites, gather and record data, provide status reports and alarm notification.** Messenger™ transmits site data via multiple communication methods including standard telephone lines, cellular or satellite. Our Messenger™ web-based reporting service utilizes the Internet to deliver site data directly to your computers, saving time and money.

Also available is our site polling software that automatically collects and archives data from your remote sites and delivers it to your desktop. Use it to view trends, alarm events and statistical reports.

Learn more at www.gemsremotemonitoring.com



- inventory control, equipment monitoring and process management—see it all from your desktop!
- remote data acquisition
- multimode communication protocols
- Internet, browser-based reporting



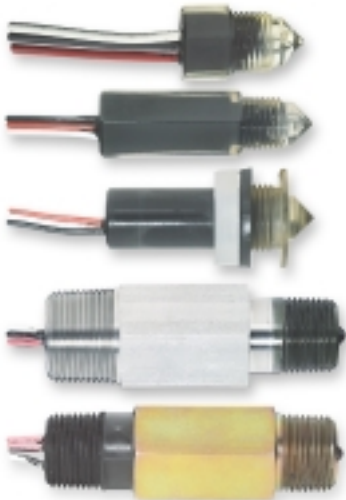
Reports on your inventories, equipment and processes can be viewed from anywhere with an Internet connection.

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SWITCHES

Electro-Optic Type

Industry's largest selection of electro-optic liquid level sensors is right here at Gems. So compact, we call them the "anyspace" sensors. Solid state-switching ensures dependability over long service life.



Typical Applications

- medical laboratory • food and beverage systems
- machine tools • pharmaceuticals • petrochemicals
- leak detection • hydraulic reservoirs

SWITCHES

Float Types

Available in a vast range of sizes, mountings and materials, Gems offers the broadest selection of float-type level switches anywhere. Using a proven reed switch design, float type switches deliver long, trouble-free service with precise repeatability. They are available in both single point and multi-point configurations. Multi-point switches monitor up to six levels with a single unit; lengths from a few inches to 10 feet.

Materials for All Fluids

- Buna N • stainless steel • brass • PVC • CPVC • polysulfone
- polypropylene • PVDF • Ryton® • Teflon®/PTFE • nylon



top or bottom mounting
single point



special purpose

includes bent stems, slosh shields, temperature sensing, siphon tubes and many others

SWITCHES

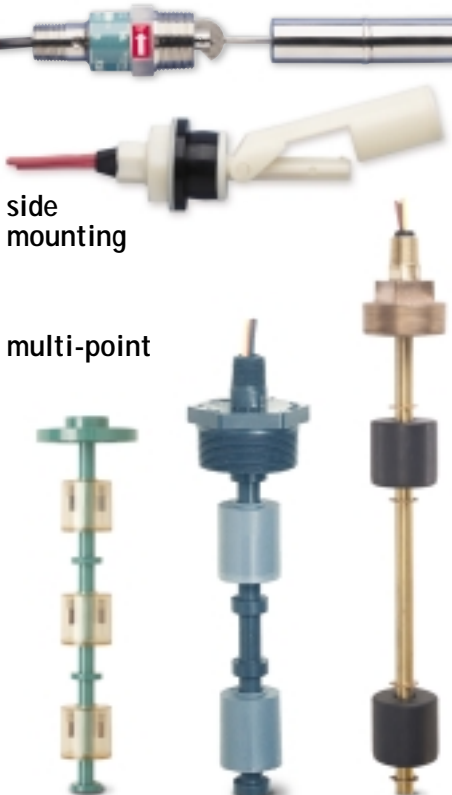
Conductance Type

The Silver Bullet™ liquid level sensor is the modern solution for nightmare fluid monitoring applications. Handles pressures to 2500 PSI and temperatures to 257°F! Features a solid state, compact uni-body design with integral electronic switching.



Typical Applications

- coolant level monitoring in radiators & expansion reservoirs
- waste water level monitoring • leak detection
- steam boilers • water level monitoring in oil separators



side mounting

multi-point

SWITCHES

High Purity Types

Gems PureSense™ sensors are designed for ultra-pure fluid applications. PTFE and PVDF resist build-up of foreign material and sticky media. These high-purity level sensors come in single, multi-point, float and electro-optic types.



Typical Applications

- semiconductor processing equipment
- pure chemical delivery systems
- wafer cleaning and etching systems

LEVEL SENSORS

SWITCHES/TRANSMITTERS

Ultrasonic Types

Gems ultrasonic switches are ideal for applications requiring solid-state level measurement such as those with ultrapure, dirty, coating, scaling or corrosive-type liquids. Available in single point, multi-point up to four actuation levels or continuous measurement to 40 feet. Made of polypropylene, PVDF, PFA.



Typical Liquids

- acids
- cooking oil
- wastewater
- slurries
- RO water
- paints
- lacquers
- brine solutions
- ink



SWITCHES

Warrick® Conductivity

These single- or multi-point sensors have no moving parts. Stainless steel electrodes can be cut to desired length. Team with Gems conductivity controls to provide alarm, pump-up or pump-down control in electrically conductive liquids.



TRANSMITTERS

Receivers

Your sensors know what's going on, but you're still in the dark without one of Gems receivers. Each receiver features all the calibration adjustments needed to complete a continuous level indication system.



compact level cubes and panel mounted receivers



TRANSMITTERS

Float Types

Standard lengths offer measurement from a few inches to 18 feet. Choose from a variety of materials for mountings, stems and floats that includes PVC, polypropylene, PVDF, stainless steel, brass and Buna N. Signal conditioning provides outputs of 4-20 mA, 0-5 VDC and 0-12 VDC.

standard size transmitters

Typical Applications

- utilities
- beverage industry
- medical
- pharmaceuticals
- food processing
- HVAC
- semiconductor
- OHV

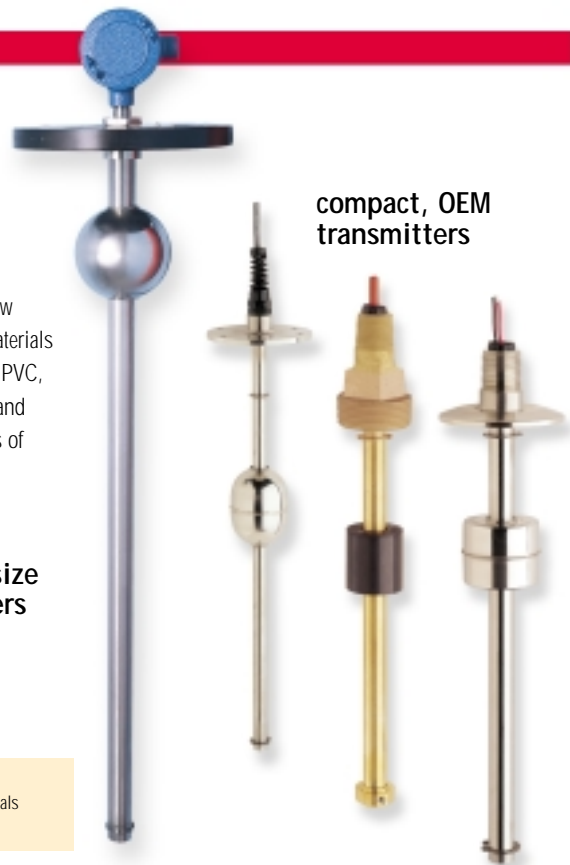
INDICATORS

DIPTAPE™ and DRUMTAPE™

Pop the cap, pull the tab—and up comes the tape to tell you exactly how much liquid remains in the tank or drum. Ideal for hazardous areas, DIPTAPE and DRUMTAPE indicators are non-electric, plus liquids and vapors remain sealed from the atmosphere. DIPTAPE indicators are designed for tanks; DRUMTAPE indicators fit 30 or 55 gallon storage drums.

DIPTAPE™ and DRUMTAPE™

in alloy, all-PVC and engineered plastic versions



compact, OEM transmitters

VISUAL LEVEL INDICATORS

SureSite®

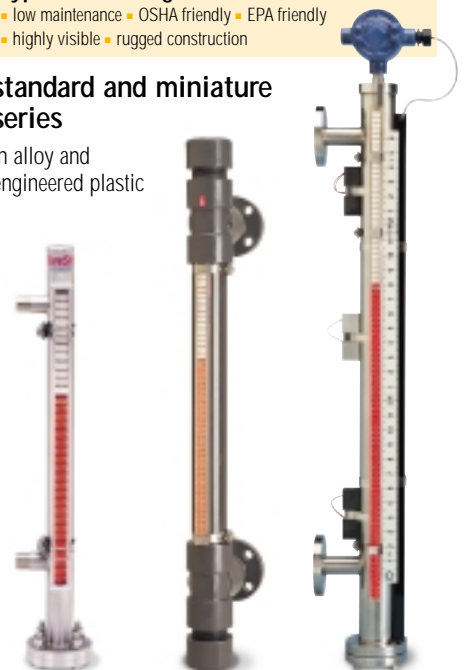
The more durable—and safer—alternative to breakable sight glasses. SureSite visual level indicators feature stainless steel, alloy or engineered plastic housings; they mount externally to top or sides of tanks to provide easy-to-read, continuous level gauging. Magnetic flags flip to change color as an internal float moves with the liquid surface. Optional switches, transmitters and scales increase control capabilities.

Typical Advantages

- low maintenance
- OSHA friendly
- EPA friendly
- highly visible
- rugged construction

standard and miniature series

in alloy and engineered plastic



SWITCHES

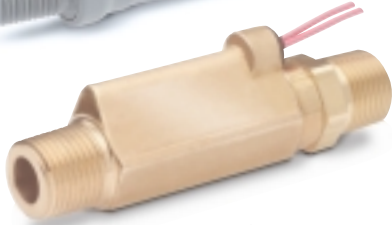
Piston Type

Highly reliable and precision calibrated for liquids or gases. Fixed setpoints range from a low 50 cc/min to 1.5 GPM; adjustable version features setting of 0.5 to 20 GPM. Special capability versions offer viscosity compensation, and high pressure handling to 1,500 PSIG. Brass, plastic or stainless steel bodies.



Typical Applications

- laser heads • high-speed spindles • conveyors • robotics
- presses • regulators • distilling • water purification



instrument quality, piston actuated

SENSORS/INDICATORS

Electronic Types

These highly visible, paddle wheel designs offer visual indication, flow rate sensing and switching. The visual indication is combined with a choice of either pulsed DC output 0-10V DC analog or adjustable 1 Amp switched output. Available with brass, stainless steel or hydrolytically-stable polypropylene housings. Line sizes: 1/4" to 1". Adjustable settings: 0.1 to 60 GPM.



RotorFlow® sensors



FT-110 TurboFlow® sensor



SWITCHES

Paddle Type

Flow/No-Flow detection for pipes with 1-1/4" diameter and up. Paddles are cut to length for desired actuation setting (from 1-1/4" to 5-1/2"). Unique, patented cam design assures low pressure drop and does not require bellows, seals or mechanical linkages.

cut-to-length paddle switches for large pipes



Typical Applications

- compressors • heat exchangers • turbines • engines
- chillers • regulators

Typical Applications

- semiconductor processing equipment • lasers and welders
- X-ray and other high-power tubes • water injection systems
- chemical metering equipment • chillers and heat exchangers

SWITCHES

Shuttle Type

For monitoring water and oil in line sizes 1/2" to 3". Accurate with 1% repeatability and low-pressure drop. Plastic, bronze or stainless steel housings. Fixed settings from 0.5 to 100 GPM; adjustable settings from 0.75 to 15 GPM.

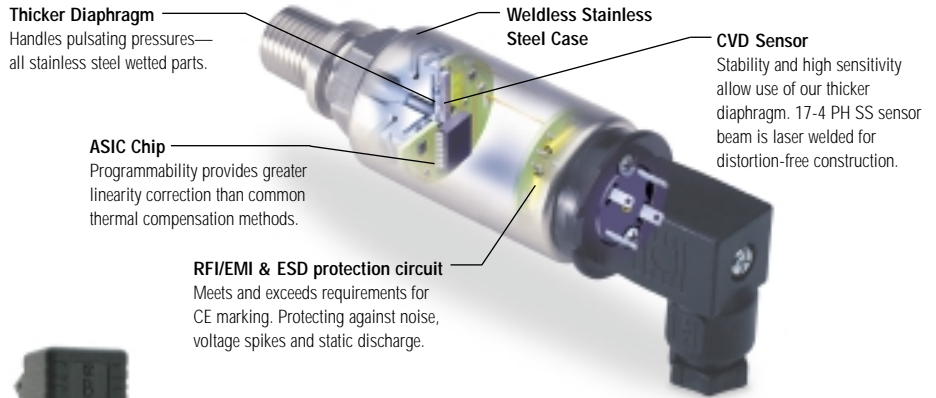


PRESSURE SENSORS

TRANSDUCERS

Psibar® CVD Types

Gems high-performance pressure transducers and transmitters are based on a solid, proven technology. Our Chemical Vapor Deposition (CVD) instruments provide an effective method of overcoming the often severe limitations of other low-cost pressure measuring products. A state-of-the-art ASIC chip in each transducer provides greater linearity correction than traditional thermal compensation methods.



TRANSDUCERS

Sputtered Thin Film Types

Sputtered, or thin film, technology provides years of worry-free measurements under demanding real-world conditions. Sputtered metallic strain gauge sensors have terrific thermal properties and superior stability specifications. Ideal for harsh applications demanding long-term service where precise laboratory-type measurements are required.

4000 Series



1200/1600 Series

- 4X full-scale proof pressure
- typical 0.5% full-scale accuracy

2200/2600 Series

- 2X full-scale proof pressure
- typical 0.25% full-scale accuracy

6000 Series

- 5 to 1 turndown
- typical 0.15% full-scale accuracy

Typical Applications

- load weighing systems and load moment indicating
- compressors and dispensing equipment
- lube oil pressure equipment
- wafer manufacturing
- piping steam pressures
- factory automated equipment

SWITCHES

Piston/Diaphragm Types

Gems offers a choice of pressure switches, from compact cylindrical models for OEM use, to larger enclosed units for rugged process applications. A piston/diaphragm design, incorporating the high proof pressure of piston technology allows these switches to operate with the sensitivity and accuracy of a diaphragm design. Repeatability ranges from 0.2 percent to 2 percent of the highest set point. Enclosures include aluminum, stainless steel, baked-on enamel coating, reinforced plastic and zinc-plated steel. All are NEMA4 or NEMA4X certified.

Typical Applications

- filtering process of coolants in the machine tool industry
- redundant systems with existing monitors
- transmissions of off-highway vehicles



SOLID STATE

Intrinsically Safe Relays and Controls

Render any non-voltage-producing sensor, switch or conductivity electrode intrinsically safe with these relays and barriers from Gems. They amplify sensor load-handling capabilities in a wide range of AC and DC control switching applications. They are designed for easy installation in standard circuit boxes in non-hazardous areas. The amount of energy they send to sensors and switches within hazardous areas is insufficient to cause ignition of a specific hazardous atmospheric mixture in its most ignitable concentration.

In addition to safety, they offer great economy by reducing your need for costly explosion-proof sensors, switches, controls and housings. Solid-state reliability assures consistent performance, and with a completely encapsulated construction they are impervious to dust, moisture or foreign material. Select from a broad choice of SAFE-PAK® and Warrick models.

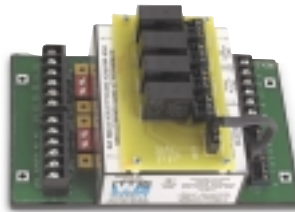


SAFE-PAK®
relays & Zener
barriers



Warrick®
Series
17/27/37
conductivity
level control

Warrick®
Series 47
4-channel
relay alarm
panel
control



Typical Applications

- hazardous atmospheres
- pumps
- waste treatment/sewage
- CP industry
- refineries
- fuel storage areas

SOLID STATE

Non-Intrinsically Safe Relays and Conductivity Level Controls

These relays boost your sensor's load handling ability in non-hazardous locations with the reliability and advantages inherent in solid-state controls. Available with plug-in bases, open board or threaded terminals.

Warrick®
Series 16M/26M



Typical Applications

- single-level service
- differential service
- point level
- alarms
- valve control
- pump control
- low-water cutoff

ELECTRICAL

Standard and Custom Warrick® Panels

Gems Sensors manufactures both custom and standard control panels, bearing the safety mark of UL or CSA, for use in hazardous (UL 913) and non-hazardous (UL 508A) locations. We offer a complete selection of controls including electromechanical and solid-state relays, timers, alternators, motor starters, transformers, alarms, indicator lights and more.



single- and
multi-function
control panels



RA-431
alarm panel



Model 2800
moisture
detector



DMS-470/570 Series

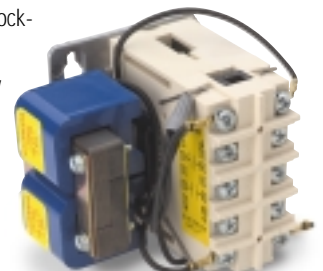
Typical Applications

- submersible pumps
- oil/water separator controls
- high or low alarms
- leak detection

ELECTROMECHANICAL

Warrick® Series 1 Controls

Offering two- or three-pole output contacts with 16 amp rating, these versatile controls can be configured for single-level service, differential control, low water cutoff (with manual reset or lock-out capability) control and many other functions.



Typical Applications

- on/off control
- pump control
- boiler level control
- boiler LLCO
- general purpose

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