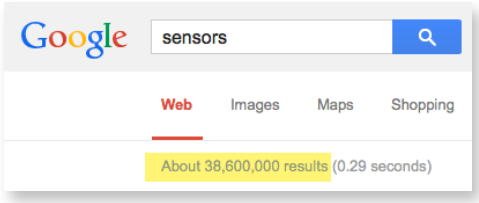
Gems™ Sensors & Controls

Simplifying the Search for the Perfect Fluid Sensor

With no time or resources to waste, get from Search to Solution quicker and more successfully.

- *Embrace Technology Alternatives*
- *Take Advantage of Expertise*
- *Start with A Vendor that Supplies More Choices*
- *Avoid Problems by Knowing Manufacturing Capabilities*
- *Source a Company with Global Reach*



More than 38 million results from a Google search for "Sensors".

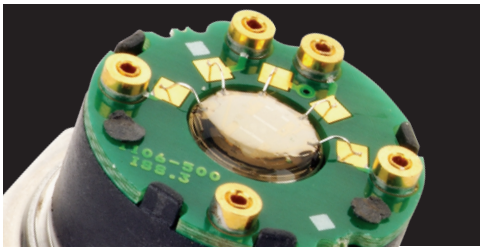
A search on Google for "sensors" delivers 38,600,000 results. Even the more specific search for "liquid level sensors" dumps 4,520,000 results in your lap. Whether you call it information overload or the Tyranny of Choice, it adds up to a daunting task as an engineer to source the ideal sensor component for a particular application.

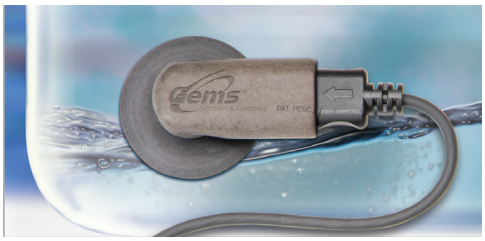
One way to simplify the search is to start with a company that has application expertise and the willingness to share it, combined with a broad portfolio of sensor product types and technologies. A conversation with a sensor application specialist can rapidly introduce the options available for a given project and, more importantly, provide clarity on the pros and cons of a specific sensor in the context of your application.

Taking this route can save time over the hit and miss results of typical internet searches. A frictionless translation of "engineering needs" to "sensor solution" is the goal of any time-constrained engineering project.

Embrace Technology Alternatives

A typical aggravation for a sourcing engineer is the single-technology manufacturer. For instance, if you consult with a company that makes only ultrasonic sensors, they will most likely recommend an ultrasonic sensor for your application, even though there may be alternatives that can do the job better in a variety of ways—size, price, accuracy, etc. It's natural for them to recommend the technology they are most familiar with, and of course they want to sell their product. But it is not necessarily the best fit for your product or company's success.





As an engineer it is beneficial to devote precious time resources to a source that can evaluate the pluses and minuses of multiple technology paths, in order to deliver the best possible solution. Plus there is a level of confidence afforded when a recommendation is made by a company without a vested interest in one particular technology. Beware of those pounding round pegs into square holes.

Gems Sensors & Controls takes a broader approach to sensor technology. Gems designs and manufactures sensors around a wide range of the most effective technologies, with the recognition that each has strengths and limitations.

Gems Sensing Technologies

Level

- Buoyancy (floats)
- Electro Optic
- Conductivity
- Piezo-Resonant
- Ultrasonic
- Capacitive
- Magnetostrictive
- Potentiometric
- Submersible Pressure
- Magnetic-Visual

Pressure

- Sputtered Thin Film
- Capacitance
- Chemical Vapor Deposition (CVD)
- Micro-machined Silicon (MMS)
- Blades Switches
- Micro Switches
- Solid-State Switches

Flow

- Piston Reed Switch
- Shuttle Reed Switch
- Paddle Reed Switch
- Turbine Hall Effect
- Paddle Wheel Hall Effect
- Thermal Dispersion

Temperature

- Thermistor

Take Advantage of Expertise

We all like to consider ourselves extremely competent in our field, yet there is almost always a specialist out there whose expertise in a specific niche exceeds our own. To simplify and streamline the task of sensor selection, take advantage of that expertise.

Gems Sensors & Controls is uniquely positioned to provide this expertise, with nearly 60 years of continuous application engineering. It's why an engineer calling one of the Gems Customer Service representatives asking for a particular type of sensor is likely to hear, "Tell me more about your application." These people spend 52 weeks a year matching sensors to specific applications. They have the experience with the media, materials, sensing technologies, environmental and size constraints, electrical and connection requirements, needed to guide a rapid distillation of thousands of potential sensing components to the best solution suited for a specific application.

"In these days of shortened 'to-market' timelines it is simply counterproductive to ignore resources that can help you reach development milestones quicker."

Backing up the Customer Service team are Product Specialists, professionals with very specialized knowledge who enter the conversation when a standard sensor is not the final answer or when some modification or special attribute is needed. The Gems Engineering group can develop new sensors, customize existing sensors, and when appropriate, design complete assemblies that simplify the manufacturing of the customer's finished products.

Engineers are notorious for not wanting to ask for help—wanting to solve problems on your own is almost a prerequisite to becoming an engineer. In these days of shortened "to-market" timelines, however, it is simply counterproductive to ignore resources that can help you reach development milestones quicker. Bringing a company such as Gems into the conversation early on will simplify the selection of sensors, and avoid the costly problems of a perfectly good sensor shoehorned into the wrong application.

Gems Expertise in Action

These are just a few examples of the typical assistance Gems provides customers in finding real-world working solutions to fluid sensing problems.

Application:	Power Generator	Semi-conductor Manufacturing Equipment	Ice Maker	Bus	Tote Tanks
Fluid:	Coolant	Coolant	Water	Hydraulic Oil	Various
Existing Sensor:	Float Type	Vortex flow meter	Temperature sensor to determine liquid level	Capacitive Type	Ultrasonic
Issue:	Float stem breakage; clogs seizing float	Fluid turbulence causing false flow signals	Inadequate accuracy	Inconsistent performance due to oil's low dialectric	Tanks are different sizes, causing accuracy problems due to sensor's deadband.
Gems Solution:	Solid-state capacitive sensor with no moving parts	RotorFlow™ (Hall-Effect) flow sensor—eliminated false signals due to turbulence and splashing	Proximity switch with customized design	Customized stainless steel electro-optic sensor	Submersible pressure transducer provided the accuracy needed

Start With a Vendor That Provides More Choices

Selecting a sensor, even from a reputable source, is never easy if choices are slim. Easing your task of finding the right sensor will be expedited by starting with a source that can show you the pros and cons of different technology options as they apply to your application.

Many engineers like to begin with a company's website, and that can be a good way to familiarize yourself with the options they offer. With a broad range of fluid sensing technologies and lots of information to download on each product, however, it can quickly become overwhelming. That's when it's time to get in touch with someone who can point you in the right direction, whether you prefer to submit a contact form or pick up the phone.

Within each of Gems' primary sensing categories - Level, Flow, and Pressure - there are dozens of product series and hundreds of unique sensors. A Gems representative can make the difference in pinpointing the specific sensors and customizations that make sense for a particular application.

Avoid Problems By Knowing Manufacturing Capabilities

Knowing about a potential sensor vendor's manufacturing credentials can avoid the quality control and fulfillment problems that can cause disasters downstream. Sensor malfunctions can damage expensive equipment when coolant runs dry, or lead to hazardous spills if a high level alarm fails. Selecting from a source with the right certifications and internal process controls goes a long way to ensure that your sensor choice will be the reliable one.

Gems holds stringent ISO 9001 and ISO 13485 quality registrations, and additionally implements strict design controls and management processes throughout all aspects of its business. These include:

- Design control & documentation
- Risk Management
- Process Yield / Defect Analysis
- Statistical Process Control (SPC)
- Formal Corrective / Preventive Action
- Training and Certification Programs
- Material Traceability Systems

Source a Company with Global Reach

Is the sensor being sourced going into a product that will be deployed internationally? Do the components need electrical safety certifications from multiple agencies? Will attributes such as port thread types or electrical termination vary depending on the country into which it will be sold? Will your product be manufactured in various plants around the world? If the answer to any of these questions is "Yes", you should narrow your sensor selection search to companies that have global capabilities and reach.

Gems Sensors & Controls maintains manufacturing facilities in the United States, Asia and Europe. It manufactures variations of its sensors that are at home any place on the globe. And, as necessary, sensors from Gems carry important agency approvals including CSA or UL-recognition and CE Marking.

With representatives, distributors and customer service around the globe, Gems speaks your language, too. This global reach simplifies logistics and after sales service. While it may not specifically change the process by which you select a sensor, it certainly impacts with whom you should select a sensor.

Simplifying the search for the perfect fluid sensor has been a 60-year mission at Gems Sensors & Controls. We are confident that when a fluid sensor is the topic, Gems is the easiest and most successful path to a solution. We encourage you to make Gems the starting point of your next sensor search.

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