SETRA SELECT

ENGINEERED TRANSDUCERS FOR YOUR
UNIQUE PRESSURE-SENSING REQUIREMENTS

setra

Order from: **C A Briggs Company**

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THE HERITAGE.
THE PEOPLE. THE PROMISE.

Setra was founded in an age of transducer innovation. Our founders, Dr. Y.T. Li and Dr. S.Y. Lee, were Professors Emeriti of Engineering at MIT and co–developers of the Variable Capacitance Transduction Principle. Building on this heritage of innovation, Setra has designed and developed one of the most comprehensive product lines of pressure-sensing transducers in the world. You can lean on our staff of cross-trained and highly skilled engineers and technicians to solve your most unique challenges. We call it **Setra Select** because the options are all yours.

WE'LL MATCH YOUR NEEDS WITH THE RIGHT TECHNOLOGY.

Variable Capacitor Transducers

- Performance over wide temperature ranges
- Long-term stability (typically < +/- .25% FS/year)
- Low sensitivity to shock and vibration
- High signal-to-noise ratio
- Excellent linearity and repeatability
- Immunity to RFI/EMI

Thin Film Strain Gauge Transducers

- Excellent resistance to shock and vibration
- Excellent resistance to dynamic pressure changes
- Suitable for very high pressure applications (thick film version)
- Highly corrosion resistant (thick film version)
- Better raw sensing linearly; less correction required during calibration
- Low cost

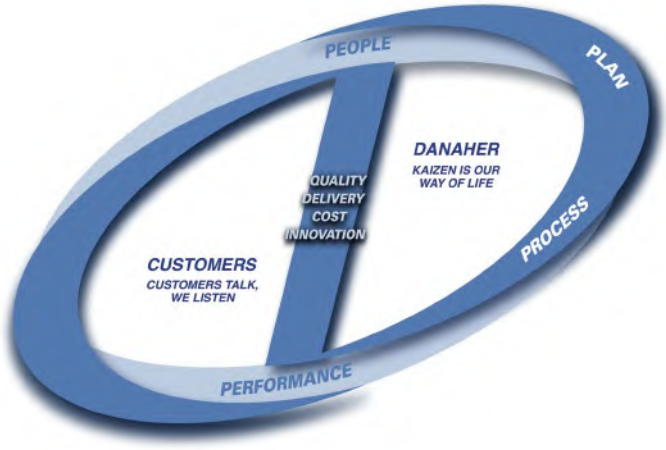
MEMS Transducers

- Very low-cost sensing element
- Highly configurable — easily packaged in multiple ways

THE DISCIPLINED BUSINESS MODEL THAT ENSURES REPEATABILITY.

Setra is part of the Danaher group of companies. Danaher is a Fortune 200, NYSE-listed, science and technology leader that designs, manufactures and markets innovative products and services to professional, medical, industrial and commercial customers. The Danaher Business System employed by Setra provides a foundation to all our 63,000 associates around the world, serving customers in more than 125 countries.

How does that trickle down to you and your custom sensing-needs? It means that not only do we have the committed engineering resources, we also have the proven R and D and manufacturing processes in place to ensure that at every step of the way quality and repeatability are absolutely guaranteed.



SO, WHAT'S CUSTOMIZABLE?

The truth is, there's little we can't alter to meet your needs.

PRESSURE PORT/FITTING

There are many ways to make a pressure connection. Call us if you can't find your preferred pressure connector among our standard offerings. We can guide you through our available options or potentially customize the pressure port(s) to your specifications.

Examples include:

- Tapered threads
- Straight threads with o-ring seals
- Tube fittings
- Sanitary fittings
- Vacuum fittings

SENSING ELEMENT

The sensing element is responsible for most of the performance aspects of a pressure transducer. Since Setra is vertically integrated for sensing element technology, we have the ability to customize our sensors to achieve a desired specification or a related feature if needed.

Examples include:

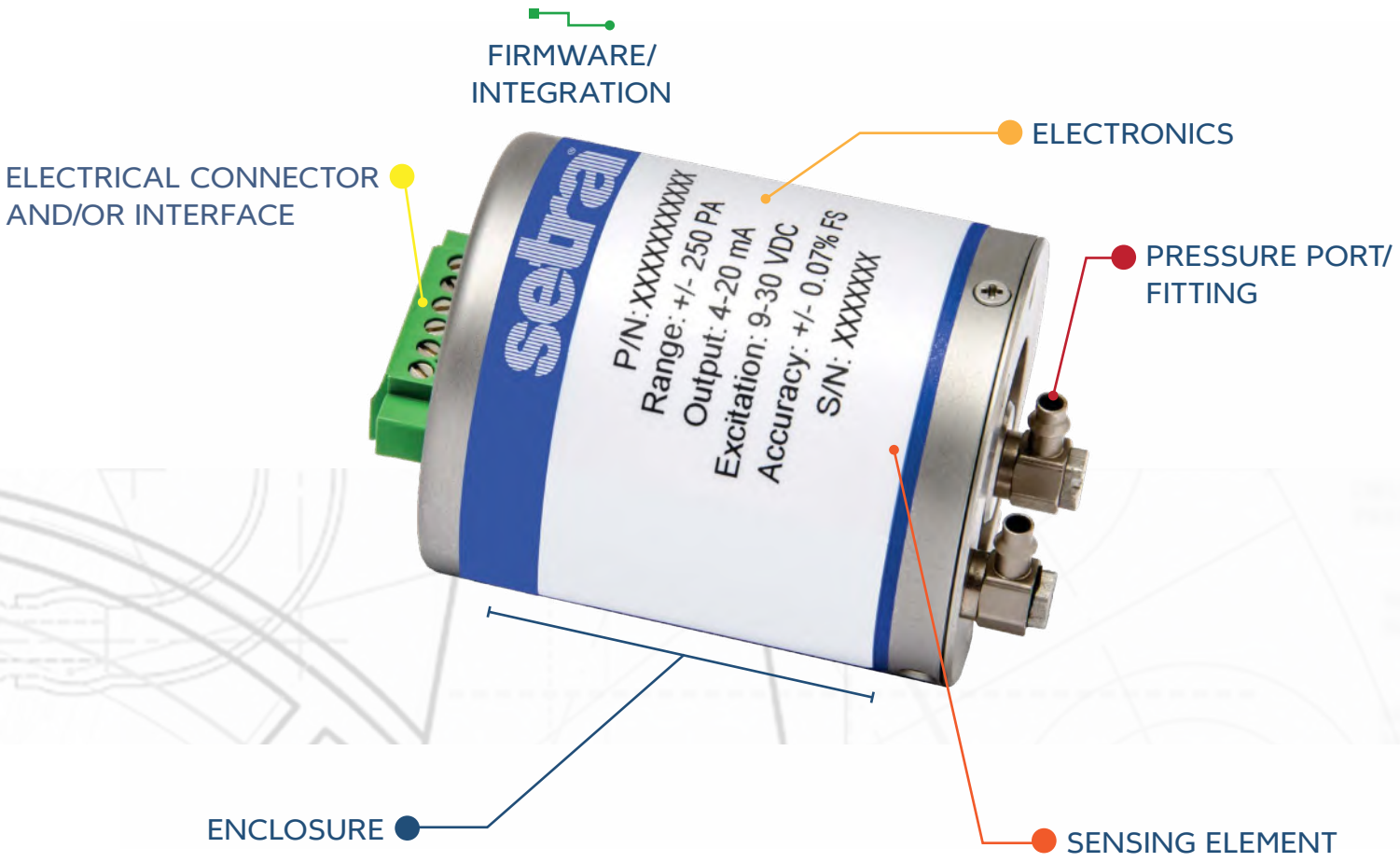
- Custom pressure range
- Improved overpressure capability (proof or burst pressure)
- Improved accuracy
- Improved thermal performance over specified temperature range

ELECTRONICS

The electronics are responsible for fundamental features and important performance aspects of a pressure transducer. Setra offers customized electronics to achieve desired excitation inputs and signal-conditioned outputs.

Examples include:

- Excitation range
- Signal output
- Electromagnetic interference (EMI) performance
- Improved thermal performance over specified temperature range



ELECTRICAL CONNECTOR AND/OR INTERFACE

There are many standards for electrical connections. Many of our models can be modified to accommodate a variety of standard connectors or custom wiring pin-outs. We can guide you through our available options or potentially customize the electrical connector to your specifications.

Examples include:

- Cable-wire connections
- Wire terminals
- Military connectors
- Industrial connectors

ENCLOSURE

The enclosure serves an important function in protecting the transducer's electronics and sensing element from the operating environment (e.g. moisture ingress and EMI shielding). In most cases, Setra Application Engineers can work with you in finding a good fit for your application. For special demanding applications, Setra can make enclosure modifications to better suit the operating environment.

Examples include:

- Stainless steel
- Painted or anodized aluminum
- Plastic
- Custom labels

FIRMWARE/ INTEGRATION

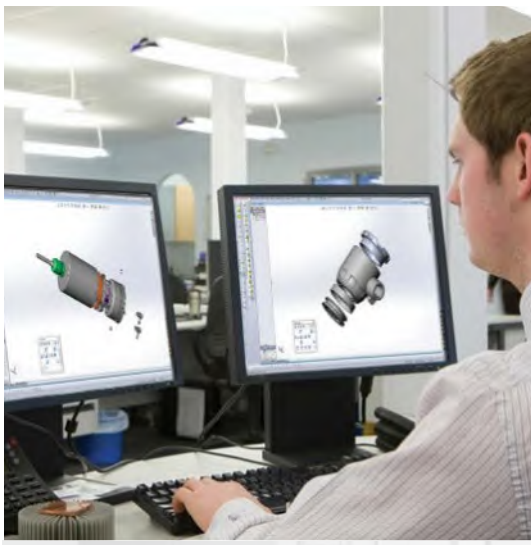
Setra can help customers create unique product features by modifying our standard firmware and customizing it according to specific customer or application requirements.

Examples include:

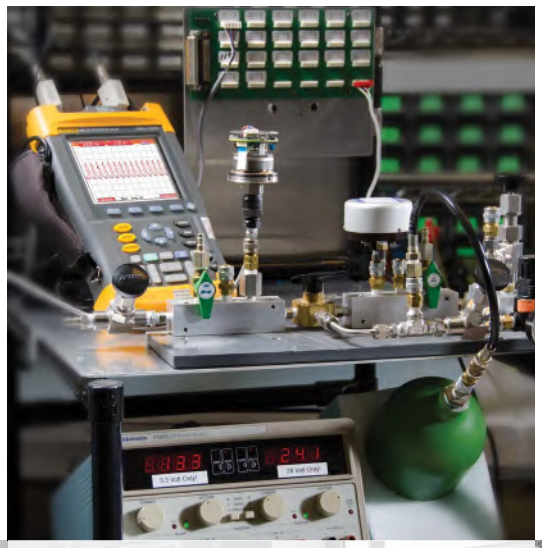
- Custom power-up splash screens with custom logos
- Integration of proprietary communication protocols
- Addition of specific product functionalities

A PROCESS YOU CAN DEPEND ON.

With Setra, you can rest assured that when everything's at stake, we'll put the right technical team members on the job. With over a dozen seasoned engineers and technicians, there will likely be nothing new to us about your problem. We will first zero in on your target specs and determine if they are achievable. Then we'll break down the problem and select the right technology platform for the application. Every aspect of your application's mechanical, electrical and environmental constraints will be considered. We will then vet such controlling variables as materials, enclosure geometries, sealing methods, and manufacturing methods. Once concept engineering is complete we move to prototyping, evaluation, and production using our regimented Danaher process model.



Can it be done? If the answer's yes (and it usually is), we move to platform choice and vetting of engineering options.



STEP 2: PROTOTYPE

Next, our Design Engineers engage with our manufacturing team and collaborate on producing a functional prototype using in-house, standard manufacturing approaches wherever possible.

STEP 3: EVALUATION

After in-house testing, the prototype is sent to you for evaluation and feedback. You send it back and iterations are made until you are fully comfortable that production models of the prototype will drop in perfectly.

STEP 4: PRODUCTION

Documentation is finalized and production associates are trained in preparation for manufacturing a pilot run and first production order.

MAKING THE CASE.

Setra has solved custom transducer problems in nearly every corner of the world. Here are a few case studies to give you an idea of some typical challenges and how we resolved them.

MEDICAL

Challenge

Plasma sterilizers use vaporized hydrogen peroxide and vacuum pressure to sterilize intricate, temperature- and moisture-sensitive, medical equipment. Our customer needed accurate and stable vacuum measurement for a perfected sterilization cycle, and assurance of decomposition of the hydrogen peroxide into water and oxygen for safe release to the environment.

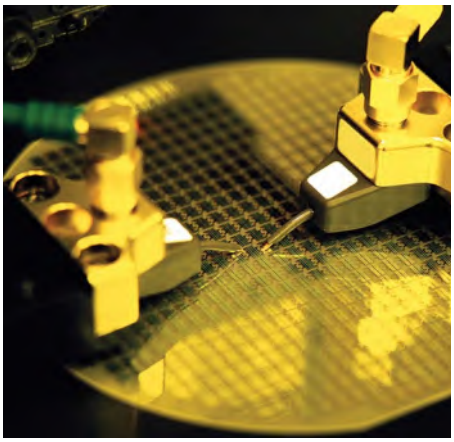
Setra Solution

Setra customized the internal sensor geometry and Inconel-wetted surfaces within one of our welded vacuum sensor models. The welded Inconel construction provided compatibility with the aggressive-process gas and the customized geometry eliminated the stabilizing constituents of the hydrogen peroxide from collecting in the sensor. The result was longer life and substantially better long-term stability than the 316 stainless steel sensors used previously.

SEMICONDUCTOR

Challenge

Semiconductor processing equipment manufacturers need their sensor suppliers to provide solutions that help them deal with many increasingly complex challenges, such as smaller geometries, new and unique materials delivery and larger wafers. In one example, a supplier of cutting-edge, epitaxial-deposition equipment required a sensor with non-standard pressure ranges, higher accuracy and increased flow rates for its next generation process.



Setra Solution

Setra re-engineered one of our industry leading, ultra-high-purity pressure transducers and reduced the lowest full-scale range by 20%. We revised our test protocol to yield 1% total error accuracy and added high-flow, integrated gas-stick fittings to satisfy the new application.

HVAC

Challenge

Variable Air Volume (VAV) HVAC systems are critical for ensuring that supply air temperature within rooms is managed succinctly for maximum occupant comfort and energy efficiency. Our customer needed an extremely accurate and reliable sensor that could be produced in mass quantities and easily integrated with their next-generation building automation system.

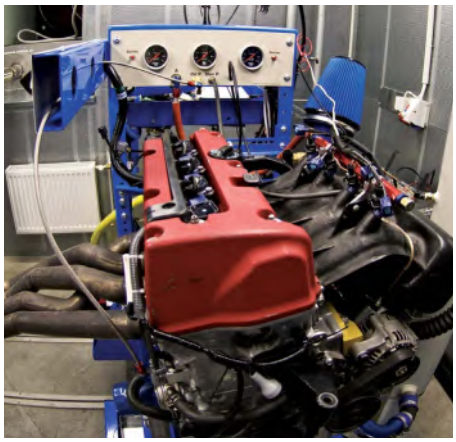
Setra Solution

Setra provided a solution with a customized pressure range along with a special electrical interface for compatibility with the customer's controller. The new solution helped the customer minimize the effects of various field failures and replacement costs associated with their previous sensor. Setra's technology for VAV also provided an advantage over inexpensive air-flow sensors that often became contaminated by debris.

TEST & MEASUREMENT

Challenge

Test and measurement air-flow applications commonly require sensors with ultra-low, pressure-measurement capability. Our customer, an air-flow system manufacturer, required a sensor that would fit in a tight enclosure while also measuring a very low differential pressure drop across the filter in order to ensure that each of their products met a standard air-flow resistance.



Setra Solution

Setra modified one of our AccuSense transducers to not only fit precisely in the machine envelope, but to also address their uniquely low pressure-measurement requirement. We developed a special differential pressure range with a customized circuit to accurately measure the performance of their filter. A custom mounting bracket and connector were also designed so the customer could quickly transition from the previous sensor.

FOOD PROCESSING

Challenge

During food processing, sensors often measure the liquid within tanks to ensure recipe consistency batch over batch. Transducers must be robust enough to last through the harsh cooking process and have sanitary qualities. In one case, our customer needed a uniquely robust unit to withstand a rigorous and frequent high-pressure cleaning process. Additionally, the customer needed fast installation and easy maintenance to keep production moving.

Setra Solution

Setra repackaged and reconfigured one of our high-overpressure, variable-capacitance, flush-mount sanitary sensors in a new industrial housing to satisfy the requirement. The repackaging and redesign of the sensor helped the customer improve their installation process dramatically and provided greater sensor stability, overpressure capability, and resistance to thermal shock.

CLIMATE CONTROL

Challenge

Healthcare providers and pharmaceutical manufacturers often need to ensure contaminant-free environments by monitoring very low differential pressures between spaces. In these cases, the integrity of the ventilation control system is critical. Our customer required a flush-mount design and a large LCD touch-screen display to monitor the dynamic parameters of a critical space and to provide instant visual/audible alarming, and communicating with a building management system.

Setra Solution

Setra customized our Room Pressure Monitor (displaying pressure, humidity and temperature sensing) with a new circuit board, modified the firmware, and added functions to display valve alarms. We also added analog inputs to support external pressure transducers and to switch pressure-alarm setpoints. A condition banner also displays free-form messages to provide information to personnel outside the critical space.

QUALITY IS BUILT IN.

Setra is an ISO 9001-2008 certified manufacturer with robust and mature processes at work to continually optimize team performance. From ideation and design, to validation and test, to volume production, quality is built in.

At each stage in Setra's production process there are built-in verifications to ensure that the products being supplied to our customers are of the highest quality. The Setra team has created numerous innovative manufacturing techniques and tools to catch, track and prevent future failures from occurring. Any newly discovered issues learned from the field, engineering labs, validation testing and even from the production line are reviewed on a regular basis and corrective actions are implemented quickly and efficiently to exceed our customers' expectations.

WHEN THE TRANSDUCER IS YOUR PROBLEM, SEND YOUR PROBLEM TO US.

Not every transducer problem can be solved with a standard solution. If your pressure-sensing application requires modification only an expert could comprehend and solve, try **Setra Select** .

Whether you've been questioning how to:

- Sense extremely low or vacuum pressures
- Handle unusually harsh environments
- Eliminate oil-filled sensors
- Waterproof your sensors
- Handle wide temperature swings
- Handle barometric or differential pressure
- Convert from a manual to an automated process
- Private label to your requirements

SETRA HAS THE ANSWERS.

To get started call **267-673-8117**

Visit us at **www.CABriggs.com**

With **Setra Select** You Get Options for:

Measuring very low-pressure differentials under high-static line pressures

Measuring very low vacuum pressures

Low hysteresis, high repeatability, and superior linearity

Absolute pressure measurement

Extremely high signal-to-noise ratio

Long-term stability

Shock, vibration, dust, humidity, liquid, and EMI protection

Wide temperature compensation

High overpressure capability

Connections / connectivity

Direct-application engineering support