Pressure measurement

Powerful instruments for process pressure, differential pressure, level and flow

Look for our link emblem inside to access more information about Endress+Hauser and our products
Endress+Hauser – from a supplier of instrumentation to a provider of complete systems

“What is Endress+Hauser’s complete product offering?”

Many of our customers ask this question. And rightly so. After all, our competence in products, solutions and services is not always appreciated. We have developed from a supplier of instrumentation to a provider of complete systems with the goal of serving our customers throughout the entire life cycle of their plants and to increase their industrial productivity. To this end, we have arranged our activities in accordance with core processes: development, production and delivery of quality products, solutions and services. Wherever level, pressure, flow, temperature, analytical and recording data are needed and systems, components and solutions are used, companies appreciate the experience of Endress+Hauser. This is one of the reasons why we are a leading global provider of measurement, control and automation solutions for process industry production and logistics.

Curious? www.us.endress.com

Endress+Hauser is a family enterprise with a staff of more than 8,000 world-wide and sales of more than $1.5 billion. Our global presence with 19 production sites in Europe, Asia and the US, as well as sales and service organizations worldwide in almost every country, ensures constant communication with our customers. This enables Endress+Hauser to consistently support the competitiveness of our customers with the highest degree of quality, safety and efficiency.

Continuous optimization of our processes and the use of innovative technology enable us to extend the frontiers of measurement, control and automation engineering and to find safe and efficient solutions for the benefit of our customers. We ensure the compatibility of our processes with the environment to save energy and resources.

All this also makes our customers confident that they will be able to rely on us in the future as ‘People for Process Automation’.
Competence in pressure measurement

Constant product quality, plant safety and economic efficiency – these are important aspects for any pressure measuring point. Whether pressure, level or flow, today pressure measurement technology is often used for measuring liquids, pastes and gases.

Application examples come from all industry sectors – from the chemical, petrochemical and energy industries to the pharmaceutical, food and environmental industries or in power plants.

The broad range of products available means that finding the ideal solution is easy. No product is suited to all application areas. Therefore measuring systems must be selected that work reliably under the conditions of a particular application and, at the same time, meet the economic situations.

Endress+Hauser has invested millions of dollars in our U.S. manufacturing capabilities. These investments include

- a new flow production facility
- a new temperature production facility
- expansion of our pressure and temperature manufacturing
- more extensive service capabilities

With our U.S. production facilities, we proudly meet the requirements of ARRA; the American Reinvestment and Recovery Act.

Endress+Hauser supports you from planning and commissioning through to the maintenance of your measuring point. In addition, we assist you in automation, asset management and the visualization of process data.

Endress+Hauser’s pressure instrumentation has a strong presence in all areas of process automation.
The application determines the correct sensor

Be it acid, sludge, gas or steam, the heart of a pressure transmitter is the sensor itself. From the initial development stage down to the production level, sensors have to meet application requirements, whatever they may be. But more than just a physical knowledge and understanding are required to be able to develop and produce the most important link to the process.

Endress+Hauser has been continuously developing and manufacturing a wide range of pressure measurement and sensory technology for 25 years. In doing so, we are always in touch with the customer so that we can understand and implement their specific needs.

This results in Endress+Hauser developing capacitive and piezo-resistive pressure sensors with metal and ceramic membranes, each presenting the optimum solution – even in demanding applications. Many of these solutions are unique to the market and demonstrate that we are on the right track with our focus on constant improvement.

Traditional silicon sensors for gauge, absolute and differential pressure

Watertight sealed Contite® measuring cell with rapid response for rapidly changing temperatures

Ceraphire® ceramic sensors for extreme conditions like harsh chemicals, abrasion and deep vacuum service

Contite and Ceraphire are registered trademarks of Endress+Hauser GmbH+Co. KG, Maulburg, Germany.
Sensor technology from Endress+Hauser

Contite®

The Contite sensor has been specially developed for hydrostatic level measurement. With its protection for the sensor and cell electronics, the Contite sensor is a convincing solution in the event of severe moisture and condensate formation. The measuring element itself is protected and hermetically sealed between the process membrane and measuring membrane. The process membrane is made of Hastelloy C and, thanks to its design, is insensitive to every kind of buildup.

Contite – uncompromisingly tight

- Highest degree of EMC/RFI resistance due to the metallic enclosure
- Absolutely climate-proof because of the glass feedthrough to tightly welded cell electronics
- High accuracy – even at quick and extreme temperature changes

Ceraphire® ceramic sensor

Ceramic is one of the hardest materials in the world and ensures the best material properties for the medium. Endress+Hauser capacitive ceramic sensors have membranes up to 30 times thicker than conventional sensors. Even the tiniest of deflections result in measuring signals with the highest accuracy. The property of the ultra-pure ceramic (99.9%) guarantees high resistance to corrosion, low temperature hysteresis and the best in overload resistance.

Ceraphire – the unique ceramic sensor

- Corrosion and abrasion resistance to chemicals, acids and alkaline media
- Dry sensor without fill oil / 100% vacuum-proof
- FDA listed material and USP Class VI tested
Silicon sensors

Silicon sensors with metal membrane are available for gauge pressure, absolute pressure and differential pressure measurement. As a high-performance solution for high pressure applications up to 10,150 psi (0 0 bar), these sensors meet the highest requirements and work reliably across a large temperature range.

Monel is a registered trademark of International Nickel Co., Inc.

Diaphragm seals

If measurement is to take place under extreme conditions, a variety of diaphragm seals are available for the direct mounting or with capillary extension. They can be used for media temperatures from -94°F (-70°C) up to 752°F (400°C), are insensitive to aggressive, highly viscous, crystallizing or polymerizing media and are suitable for measuring points that are difficult to access. Endress+Hauser offers the highest quality in the manufacturing process and a wide range of special materials (coating and fill fluids) for all diaphragm seals. Our experts optimize the measuring systems to ensure the maximum degree of performance and reliability.
Pressure measurement for your applications

Innovative and economic
Today, the areas of application for pressure measurement are so diverse, ranging from the food and pharmaceutical industry and water and wastewater applications to paper technology, chemical plants and power stations. Pressure sensors guarantee safety and provide crucial information on the process. Even in level and flow measurement, pressure and differential pressure measuring technology is often used. This makes pressure one of the most important measured variables in process automation, inspiring Endress+Hauser to continuously improve and drive forward the development and production of high-quality pressure measurement. With its extensive portfolio of pressure measuring instruments, Endress+Hauser can offer a pressure transmitter that combines state-of-the-art technology with high grade material for every application and every budget.

Finely-tuned product program
As one of the world’s leading providers of process measuring technology, Endress+Hauser stands for safety and application-oriented solutions in pressure measurement. High-precision pressure sensors with ceramic or metal membranes are available for ever-increasing application demands. Endress+Hauser’s wide range of diaphragm seals and accessories offers customized solutions for even the most difficult of measuring tasks. The product program provides you with a unique portfolio with cost-effective solutions to meet your needs – all from one supplier.

HART is a registered trademark of HART Communication Foundation, Austin, USA
FOUNDATION Fieldbus is a registered trademark of the Fieldbus FOUNDATION, Austin, USA
PROFIBUS is a registered trademark of the PROFIBUS User Organization, Karlsruhe, Germany.
**Water and wastewater**
The hydrostatic pressure transmitters Deltapilot S and Waterpilot reliably monitor the level in all areas of drinking water processing as well as wastewater systems and purification. The instruments can be quickly and easily installed and are unaffected by buildup and foam formation.

**Food and beverages/pharmaceuticals and biotechnology**
Hygienic installations require special process connections and protection in an environment that is cleaned intensively every day – even externally. The sensors have to continue to work without drift or measured errors even after SIP and CIP processes.

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**S - Superclass**
- 2-chamber housing
- High temperature version
- Full modularity
- Diagnosis functionalities
- SIL3

**Chemicals/petrochemicals/energy/paper and chemical pulp**
Abrasive and corrosive media make great demands on the materials and the performance of the transmitters. Here, ceramic sensors provide the solution to diverse measuring tasks where conventional instruments fail. Cerabar S and Deltabar S were developed to meet these requirements. Thanks to these products, your cost of ownership and process safety can be improved.

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**Deltabar M**

**Cerabar S**

**Deltapilot S**

**Deltabar S**

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<table>
<thead>
<tr>
<th>Process pressure</th>
<th>Level</th>
<th>Flow</th>
<th>Hydrostatic pressure</th>
<th>Differential pressure</th>
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<tr>
<td>Pressure types</td>
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<td>Cerabar T</td>
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<td>Cerabar M</td>
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<table>
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<tr>
<th>Differential pressure</th>
<th>Gauge pressure/absolute pressure</th>
<th>Hydrostatic pressure</th>
<th>Differential pressure</th>
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<td>Level</td>
<td>Process pressure Level</td>
<td>Level</td>
<td>Differential pressure Level Flow</td>
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<td>Level</td>
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<tr>
<td>0.015 psi to 580 psi</td>
<td>0.072 psi to 10,150 psi 5 mbar to 700 bar</td>
<td>0.15 psi to 150 psi 10 mbar to 10 bar</td>
<td>0.07 psi to 580 psi 0.5 mbar to 40 bar</td>
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<td>Ceramic up to 40 bar (580 psi) Metal up to 700 bar (10,150 psi)</td>
<td>Contifte® up to 10 bar (145 psi)</td>
<td>Ceramic up to 44 psi (3 bar) Silicon up to 580 psi (40 bar) Static pressure up to 6090 psi (420 bar)</td>
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<td>Metal pressure up to 2320 psi (160 bar)</td>
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<td>4 to 20 mA HART®</td>
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<td>–40 to 536°F</td>
<td>14 to 275°F</td>
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<td>–70 to 400°F</td>
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<td>≤ 0.05% / year</td>
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<td>≤ 0.125% / 5 years</td>
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<td>¼” – 18 NPT</td>
<td>Flanges, thread, flush-mounted and hygienic connections</td>
<td>Flanges, threads, flush-mounted and hygienic connections</td>
<td>Capillary, extended diaphragm seal, completely welded, threads, hygienic connections, flush-mounted ceramic</td>
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<td>ATEX, FM, CSA, NEPSI, TIIS, IEC Ex, SIL3</td>
<td>ATEX, FM, CSA, NEPSI, TIIS, IEC Ex, WHG, 3A, EHEDG, SIL3</td>
<td>ATEX, FM, CSA, NEPSI, TIIS, IEC Ex, 3A, EHEDG, SIL3</td>
</tr>
</tbody>
</table>
Cerabar T

- Simple to mount, no calibration necessary
- Large measuring range for over-pressure and absolute pressure
- Sensors made of ceramic or stainless steel
- Versions with EEx ib
- Flush-mounted connections and materials with FDA conformity
- 4 to 20 mA
Simple, practical, reliable – Cerabar T

Cerabar T is the ideal solution for measurement tasks requiring a compact pressure transducer with a set measuring range. The instrument is quickly integrated into the process using either threaded or flush-mounted process connections. For absolute and overpressure measurement, the T program offers the robust ceramic sensor with a measuring range of up to 580 psi (40 bar) or the metal sensor up to 5800 psi (400 bar). Both versions guarantee safe functioning in gas, steam and liquid.

PMP131
Metal sensors – reliable and robust
PMP131 with a metal sensor is the perfect choice for high-pressure applications, e.g. in hydraulic systems. The compact design supports installation in the smallest of spaces in the shortest of time frames.
- Up to 4-fold overload resistance
- For hazardous areas

PMC131
Ceramic sensors – safe and sound
The PMC131 with a ceramic sensor offers stability and reliability. The sensor does not use a filling fluid, so is the ideal choice for vacuum applications.
- Corrosion-proof and abrasion-proof
- Up to 40-fold overload resistance
- Excellent linearity down to the smallest measuring range

PMP135
Hygiene matters!
Applications in hygienic processes make major demands on the material and the design. The PMP135 hygienic line combines the typical compact design with flush-mounted process connection and materials in conformity with FDA. This means you can use this device in aseptic processes without hesitation.
Waterpilot

Saltwater
Drinking water
Wastewater

- Robust housing with the smallest of probe diameters
- Highest accuracy
- Integrated temperature sensor
- Materials in conformity with drinking water directives
- Extensive measuring point accessories

FMX21

ATEX  GL  ABS  KTW  FM
Hydrostatic cable probe for the complete measuring solution

Level measurement in deep wells is a typical application for Endress+Hauser's Waterpilot. Waterpilot – that means level measurement certified for drinking water with a robust ceramic sensor and integrated temperature measurement, all combined on a diameter of just 0.87" (22 mm). As a result, the smallest of wells can be used for the application. A robust design for applications in wastewater and sludge or a design free of metal with long-term stability for usage in salt water is also available.

Intelligent application also means using the right accessories. The know-how behind many applications is invested in the extensive range of accessories to provide a solution for your measuring tasks.

**Electronic versions**

4 to 20 mA HART®
Optional with Pt100 for temperature measurement.

**Accessories**

1. Additional weight 0.66 lbs (300 g)
2. Suspension clamp
3. Cable gland
4. Temperature transmitter
5. Terminal box
Cerabar M

- Instrument platform with extensive variants
- 1-chamber stainless steel or aluminum housing
- Very simple operation directly on the instrument
- Aseptic connections and FDA-compliant materials
- Modular electronics and displays
Compact process pressure measurement

The Cerabar M pressure transmitter from Endress+Hauser constitutes a product suitable for many applications in the most varied industries due to the combination of different properties. Whether you intend to measure gauge or absolute pressure in liquids, steams or gases – Cerabar M will meet all of these challenges. The modular design permits maximum flexibility. The range of features offered is particularly convincing.

The stainless steel housing of Cerabar M distinguishes itself especially by its hygienic design. For aggressive ambient conditions, an more robust housing variant of aluminum is available. The compact and light instrument provides ingress protection up to IP 69K. Cerabar M can be supplied with all common and especially small, flush-mounted process connections for food and pharmaceutical applications. The function monitoring system and the unique Ceraphire® ceramic sensor make Cerabar M a pressure transmitter for any industry.

Various electronics

- Analog electronics (output 4 to 20 mA), the simplest variant and – due to short response times – suited to fast processes. Direct operation on the electronics.
- HART® electronics (output 4 to 20 mA with a superimposed HART® protocol) for additional functionalities and diagnosis functions. May also be calibrated on site without any additional aids.
- PROFIBUS® PA electronics for full integration into digital industrial bus systems. The PROFIBUS® profile permits control via other actuators, transmitters and probes of a plant.
- All of the digital electronics may be smoothly integrated into your control systems and configured via a PC and the universal FieldCare® operating program.

FieldCare is a registered trademark of Endress+Hauser Process Solutions AG, Reinach
Cerabar M – Overview

Process instrumentation

Hygienic instrumentation

Pressure ■ Level
Applications

Welcome in any industry
It is not only the wide field of possible applications which makes the Cerabar M pressure transmitter unique. Its modular design permits maximum flexibility. Electronics and display may be easily and quickly exchanged. This reduces purchase and operation costs of a measuring point significantly. If a new plant concept entails a change to another type of communication, you merely exchange the electronic insert.

A revolutionary repertoire
The versatility of the Cerabar M pressure transmitter is unique: Whether you intend to measure gauge or absolute pressure in liquids, steams or gases – Cerabar M will meet all of these challenges. An extensive, application-oriented selection of process connections, electronics and certificates as well as housings permits an operation in hazardous areas to hygienic applications. Cerabar M is thus the all-around instrument in a compact design.
Deltabar M – Overview

- Compact design
- Flexible in adaptation and installation
- Modular electronics and displays
- User-friendly software with application-specific parameter selection

Differential pressure  ■  Level  ■  Flow
Applications

The compact class of differential pressure measurement
A new design, based on years of experience, was implemented in Deltabar M. It combines flexibility, modularity and compactness. The decisive advantage is this: Deltabar M is easily integrated into any installation condition. Deltabar M users change from the high-pressure to the low-pressure side by merely moving a small switch on the main electronics. However, the compact design does not mean that accuracy, stability or the intelligence of a measurement have been compromised.

On the contrary: Deltabar M works digitally and is thus robust in regards to external influences and demonstrates high reproducibility. Electronics are modularly exchangeable, i.e. the differential pressure transmitter may be flexibly integrated into any plant or adapted in case of changes. Deltabar M can be set up on-site without any additional device or PC. This saves costs, be it in procurement, commissioning or operation. The modularity also saves future project costs.
Deltapilot M – Overview

- Contite measuring cell waterproof, climate-resistant and long-term stability
- Lowest temperature influences
- Compact design for installation on the bottom or outlet of a tank
- Rod/rope version for installation from the top
- Easy intuitive setup menus

Level

FMB50

FMB51

FMB52
Applications

Compact level measurement with the highest reproducibility
Hydrostatic is not by chance the most frequently used method for level measurement. The measuring principle is simple, robust and versatile. It can be employed in liquids, pastes as well as sludges, and thus has secured a firm place in many industries and applications.

The compact design of Deltapilot M offers the solution for hydrostatic level measurements in tanks and vessels since it can be installed on the bottom or outlet. The rod and rope design facilitate the installation from the top. Even under the most difficult process conditions, the different variants of Deltapilot M may be adapted in an optimum fashion. Deltapilot M can also be mounted at a distance to the tank. In this way, the housing including the electronics and display are mounted at a location which is easily accessible. The electronics are installed in the transmitter in a modular system and guarantee very easy commissioning, reliable and flexible operation with many supporting functions and a high degree of safety.

The Contite measuring cell of Deltapilot M is hermetically protected against condensate or aggressive gases. Levels are measured with the highest reproducibility. Deltapilot M may be adapted in many ways including flush-mounted and hygienic process connections. Apart from level measurement, other information from the measuring point can be displayed, e.g. the content of a tank in gallons.
Cerabar S / Deltabar S

- Fast commissioning via the Quick Setup menu
- Unique safety concept for your process application
- Reliable data management with the HistoROM/M-DAT
- Diagnostic functionality
- High-temperature version up to 536°F (280°C) without diaphragm seal
- Housing can be rotated 380° (!) for an optimum view of the display
- Functional safety up to SIL3
Safety first

With its comprehensive safety package and the intelligent operating and device concept, the evolution of Cerabar S / Deltabar S from Endress+Hauser offers unique technological innovation in high-end pressure measurement. The multitude of improvements guarantees the user the highest degree of functionality, information and process safety.

For example, the integrated HistoROM/M-DAT data module makes it possible to record, save and display important process and device parameters. Analysis, simulation and service parameter querying can be carried out at any time using the diagnostic functions of Cerabar S / Deltabar S, ensuring optimization to the process.

Operation with concept
The 3-key operation allows for simple and reliable commissioning. All settings and interrogations can easily be carried out externally.
With the Quick Setup menu, the time and effort required to configure the device is reduced to a minimum so that the user commissions the transmitter goal quickly and reliably.
Thanks to the HistoROM/M-DAT memory, the device configuration can be reliably duplicated onto other measuring devices by simply unplugging and plugging in the module. Rapid and reliable.
Since the housing can be rotated 380° regardless of the process connection, the pressure transmitter can be adjusted to any viewing position.

High temperatures easily under control
The high-temperature versions of Cerabar S allow quick and direct installation at the process connection without the need for an additional diaphragm seal! As a result, small measuring ranges can be detected with considerably smaller process connections. This results in shorter installation times, lower costs and additional safety thanks to improved performance.

This is a unique solution worldwide, previously only systems with diaphragm seals were available for applications for such temperatures.
Cerabar S/Deltabar S – Overview

Differential pressure  •  Level  •  Flow

Housing diversity

PMC71

PMP71

FMD77

FMD78

PMD75
Applications

Over the last 25 years, our top quality, optimum user safety and innovative power have made us one of the top choice suppliers of pressure measurement technology worldwide.

This means our staff is at your side in your daily work process, partners who are always ready to listen to your needs.

This experience has resulted in the enhanced development and production of Cerabar S and Deltabar S with innovative technology suitable for all industries. All regulations are strictly observed and the appropriate certificates supplied.
Deltapilot S

- Contite sensor: waterproof, climate-proof with long-term stability
- Highest measuring accuracy and reproducibility
- Smallest of temperature effects
- Fully modular
- Optional separate mounting of housing and electronic
Hydrostatic pressure sensor water-proof and climate-proof

The Deltapilot S is used for measuring the level of water, paste and sludge. The various versions of Deltapilot S can be optimized – even under difficult process conditions. Digital electronic inserts installed directly in the probe housing or in a remote housing away from the measuring point guarantee reliable operation even if the sensor is flooded or being cleaned at the installation point. The Contite sensor is specially developed for hydrostatic level measurement and is hermetically sealed against condensation and gases. Information on level, volume and product weight is provided with the highest degree of accuracy and reproducibility.

The stainless steel housing and clamp connection facilitate applications in the food industry and in life sciences. Deltapilot S supports qualification processes with required certificates, approvals, calibration protocols and test certificates.
Deltapilot S – Overview

Separated version

Compact version

Version with flanges

FMB70
Apart from high accuracy you need processes without any contamination for your sensitive media. This requirement – combined with process safety – is a challenging task for process engineering. The instrumentation employed must be easily cleaned from outside and may not permit any product residue in the process. The sensors have to work smoothly without any drift and measuring error even after SIP and CIP procedures and ensure process safety. For decades, Endress+Hauser has been offering you a wide range of hygienic instrumentation for the requirements of the food and pharmaceutical industry. Deltapilot S, for hydrostatic pressure measurement, with the unique Contite measuring cell has been the first choice for sophisticated applications for years.

**Process connections**

1. Tri-clamp
2. Universal connection
3. DRD
4. Thread
5. Flange
Deltatop

- Customized pre-mounting and configuration
- Complete solution for every measuring point
- Orifice plate versions from 3/8" to 40" (DN 10 to DN 1000)
- Pitot tubes from 2" to 36' (DN 50 to DN 12000)
- Quick commissioning with the Quick Setup menu
- Diagnostics functions
The tailored solution for your flow measurement

Deltatop compact instrumentation
In the Deltatop concept, the primary device, manifold block and differential pressure transmitter Deltabar S are already assembled and optimized on the basis of customer data. Deltatop offers minimum static pressure loss and the best accuracy of the differential pressure and sensor.

Deltatop separate instrumentation
The Deltatop concept follows customer needs based on separate instrumentation. If the application conditions do not allow compact instrumentation or if existing impulse piping will continue to be used, this is the optimum solution for modular flow measurement.

Accessories
Thanks to our comprehensive portfolio of accessories and assemblies in various materials and versions, your measuring point can be completely equipped.

1. Block and bleed valves
2. ASME manifold
3. ASME manifold
4. Pitot tubes
5. Condensate chamber
6. Annular chamber orifice with corner taps

We are pleased to help you in designing your measuring point.
We deliver excellence in Testing & Calibration

Calibration

Endress+Hauser performs a NIST traceable calibration on all of our industrial grade process pressure transmitters during the production and assembly process. Documentation is provided with each pressure transmitter in the form of a final inspection report which assures the best possible accuracy and traceability for your application.

Our Field Calibration Laboratory service trailers are NIST traceable and A2LA accredited. Our service technicians can drive on to your site and perform in-place calibration of flow, pressure, temperature and analytical instruments in accordance with ISO17025. Documentation is provided for each instrument.

For more information please ask your local Endress+Hauser representative or log on to: www.us.endress.com/calibration

Test Center

The Endress+Hauser Test Center (internationally accredited test center: DATECH, FM, CSA) has three laboratories for device safety, application technology and electromagnetic compatibility. The various test units make it possible to ensure and improve the reliability and quality of Endress+Hauser devices under realistic test conditions. In addition, the devices for new applications can be tested in advance in parallel with development.

In the various ‘durability tests’, they are exposed to extreme conditions as can be expected in real applications. These include dust tests (explosion protection), abrasion and friction tests, climate tests (heat and cold), mechanical load tests and spray water leak tests. In addition to a fully automated tank test plant with a capacity of 1575 gallons (6000 liters), used to simulate the most difficult applications, the Endress+Hauser Test Center also has an accredited EMC laboratory.

Apart from carrying out tests on Endress+Hauser devices in parallel with development, the Test Center also trains service staff and customers. Customer-specific application problems are analyzed, tests to simulate new applications are run and device approvals are carried out.
Keeping up with the challenges of Training

Endress+Hauser understands that our customers are doing more with less so we offer instrumentation schools which are designed to teach technicians how to: read a P&ID, wiring, installation, commissioning, and troubleshooting process control loops. These schools are designed to address real world instrumentation issues with an emphasis on theory and technology that can be applied to all instrumentation.

The Endress+Hauser sponsored Instrumentation Schools are conducted at six sites:

- **Greenwood (Indianapolis), IN**
  Endress+Hauser Inc.
  2350 Endress Place
  Greenwood, IN  46143

- **La Porte (Houston), TX**
  Endress+Hauser Calibration and Service Center
  10057 Porter Road, Suite 100
  La Porte, TX  77571

- **Memphis, Tennessee**
  TriNova partnership facility
  4771 S. Mendenhall Road
  Memphis, TN  38141

- **Mobile, Alabama**
  TriNova partnership facility
  4485 Laughlin Drive South
  Mobile, AL  36693

- **Matthews (Charlotte), North Carolina**
  Carotek partnership facility
  700 Sam Newell Road
  Matthews, NC  28106

- **Vega Alta, Puerto Rico**
  Engineered Parts & Services partnership facility
  Highway #2, Km 30.8, Espinosa Industrial Park
  Vega Alta, PR  00692

  **NOTE:** Schools at EPS are conducted in Spanish. English schools available to large groups.

- **Customized On-Site Training**
  If you would like to consider having this type of maintenance training conducted for a group at your facility, please call 800-642-8737. We'll be happy to discuss your individual requirements and provide an estimate of the cost.

To learn more ask your local Endress+Hauser representative or log on to www.us.endress.com/training
Applicator
Selection and Sizing Tool for your Planning Processes

Time is money
The challenges in instrumentation engineering of a plant are numerous. Planners must obtain an overview of the whole project right from the start, they have to combine application and instrumentation to arrive at safe decisions. This is equally true for product selection, calculation and the administration of different projects. Calculations are complex and the variety of products cannot be mastered. Safe calculations and sizing of measuring points become time-consuming cost generators.

Applicator provides planning reliability, fast and flexibly
The Applicator software of Endress+Hauser is a convenient selection and sizing tool for planning processes. Using the entered application parameters, e.g., from measuring point specifications, Applicator determines a selection of suitable products and solutions. Supplemented by sizing functions and a module for project administration Applicator will alleviate your daily engineering work. Applicator has been steadily developed for many years and proves its worth every day in the most varied applications of our customers.

Take the easy way
Just work with this clear Applicator desktop and straightforward module structure. Selection, calculation or administration, regardless of where you intend to enter a project, Applicator provides an open door for you to start anywhere. And if you want to proceed from one module to another one, this is accomplished by a mere click and there is nothing to prevent a smooth exchange of data.

Applicator provides you:
- Planning reliability
- Time savings
- Safe project data
- Flexibility in work processes

The fast way to your Applicator
Applicator from Endress+Hauser may be used free of charge both via the Internet and on CD. You can easily order CD version online.

www.us.endress.com/applicator
Worldwide service close to you

Wherever you are situated, your local Endress+Hauser organization or regional customer support office will provide the exact performance you need, be it commissioning, repairs, on-site support, training or maintenance and calibration services.

As one of the largest networks of service experts in process automation, it is our desire to help you discover new opportunities and potentials for maximum benefit and minimum operating risk. We see ourselves as your trusted partner in this task, providing the right advice and recommendations to ensure constant reduction of costs and risks.

Endress+Hauser Service: Global, competent, reliable

At a glance

- Commissioning and installation
- Project management
- Preventive maintenance
- Maintenance contracts
- Spare parts service
- Repair service
- Training
- Helpdesk
- Online documentation
- Calibration services

www.us.endress.com/servicesportfolio
Pressure measurement of Endress+Hauser

1987
First industrial used ceramic sensor

1990
First self-monitoring differential pressure transmitter

1995
Launch of modular concept for pressure and differential pressure

1999
Launch of universal Cerabar M

2000

2004
Cerabar S / Deltabar S Evolution with unique safety concept

2005

2006
Deltapilot S Evolution

2009
M-Platform – the compact class

ISO 9001 Certified

USA
Endress+Hauser, Inc.
2350 Endress Place
Greenwood, IN 46143
Tel: 317-535-7138
Sales: 888-ENDRESS
Service: 800-642-8738
Fax: 317-535-8498
inquiry@us.endress.com
www.us.endress.com

Canada
Endress+Hauser Canada
1075 Sutton Drive
Burlington, ON L7L 5Z8
Tel: 905-681-9292
800-668-3109
Fax: 905-681-9444
www.ca.endress.com

Mexico
Endress+Hauser México S.A. de C.V.
Fernando Montes de Oca 21 Edificio A Piso 3
Fracc. Industrial San Nicolás
54030 Tlalnepantla de Baz
Estado de México
México
Tel: +52 55 5321 2080
Fax: +52 55 5321 2099
eh.mexico@mx.endress.com
www.mx.endress.com

International
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visit: www.endress.com/worldwide

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People for Process Automation