

Tailor-made field instrumentation, solutions and services

Discover your options



The Endress+Hauser Group

For over 70 years, Endress+Hauser has been a reliable partner of the process industry. We help customers around the world to sustainably improve their processes, and thus their products.



Dr. Peter Selders
CEO of the Endress+Hauser Group

Our heart beats for measurement. This passion drives us every day to support our customers in improving their products and in manufacturing them even more efficiently. In this way, we contribute to the careful use of resources and the supply of a growing world population. At the same time, we create sustainable jobs at our company, as well as at our customers and suppliers.

We are close to our customers worldwide. With a tight network of own sales centers and selected representatives, we safeguard competent support around the globe. We know our customers' applications and the special requirements of their industries. That's how, over many years, we have become what we are today: the People for Process Automation.

Production centers in Europe, Asia and the Americas ensure that we can supply our customers fast and flexibly, wherever they are. The use of innovative technologies has advanced the development of our company from the very beginning. Step by step, we have strengthened and expanded our portfolio for process measurement and analysis. Our offering today is unique in variety and depth.

Unique corporate culture As a family-owned company, we foster a strong corporate culture, characterized by responsibility and trust. We are convinced that customers, employees and shareholders will achieve the most through close and faithful collaboration. For us, profit is not the ultimate aim, but the result of good management. Profits predominantly flow back into the company – thus helping us to secure our success and our independence for the long term.

Endress+Hauser was founded in 1953 by Georg H. Endress and Ludwig Hauser. Ever since, the company has been pushing ahead with the development and use of innovative technologies, today helping to shape the industry's digital transformation.

Discover your options

Tailor-made field instrumentation, solutions and services supporting you to sustainably improve your processes and products.

All industries strive to optimize their processes to make them safe, reliable, efficient and environmentally friendly. However, each industry balances these goals differently and is subject to differing application and regulatory requirements. At Endress+Hauser, we know that the best support and industry partnerships are achieved by not only being experts in process measurement but also in your specific industry requirements. This is why we aim to continuously enhance the knowledge we have gained over the decades through daily contact with our customers. What we learn about your industry trends, applications and regulations feeds back into our innovation process resulting in new and updated field instrumentation, services and solutions tailor-made for your industry.

Field instrumentation, system components and data managers

Depending on your industry and application, field instruments are required to fulfill different demands whether it be precision, robustness, hygiene or functionality. Endress+Hauser products measure and monitor flow, level, pressure and temperature. They analyze solids, liquids and gases and visualize and record measured values. Our instruments use different measurement principles to operate reliably and accurately in any situation so that we can offer you a wide range of products for almost any requirement and specification.

Digital communication and software We also offer IIoT solutions and software tools for all industries and support the seamless integration of our field devices into many different automation systems. This guarantees you freedom of choice and the best possible functionality at optimal cost.

Solutions Dedicated solutions integrate our specialized offerings for various industry applications, including tank gauging and inventory, liquid and gas metering, and energy and analytical packages for both liquids and gases. These solutions are enhanced by our digital asset reliability capabilities, ensuring efficiency and sustainability.

Services Whether you need services to complement your own capabilities or want to optimize your processes, we are here to facilitate your needs. Endress+Hauser provides local and qualified service people across our customer base all over the world.

Browse this brochure, discover your options and get in touch with us. Our People for Process Automation will be delighted to support you in sustainably improving your processes and thus your products.



Food & Beverage



Water & Wastewater



Oil & Gas / Marine



Life Sciences



Chemical



Power & Energy



Mining, Minerals & Metals



Endress+Hauser
www.endress.com

Level

Continuous level measurement and point level detection in fluids and bulk solids

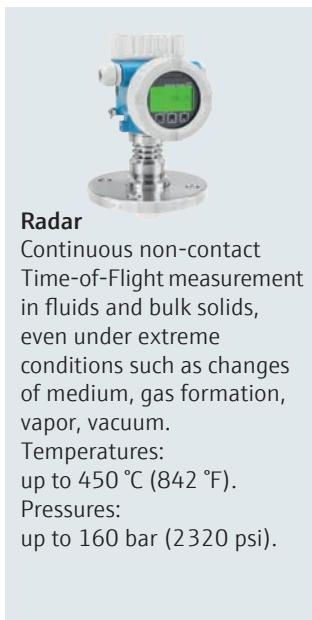
Constant product quality, plant safety and economic efficiency und digitalization – these are important aspects for any level measuring point.

Since 1953, Endress+Hauser has been manufacturing level measurement devices for industrial use in fluids and bulk solids of all kinds. As a pioneer we developed new measuring principles like vibronic, established different methods for level measurement and point level detection and constantly optimized them.

Our complete level instrument portfolio amounts to several billion variants when you consider all the combinations of order options. You find the best fitting instrument for your specific needs with our online selection tools and our sales force. All instruments have trade-specific and safety-relevant certificates and approvals.

 Level website:
www.endress.com/level

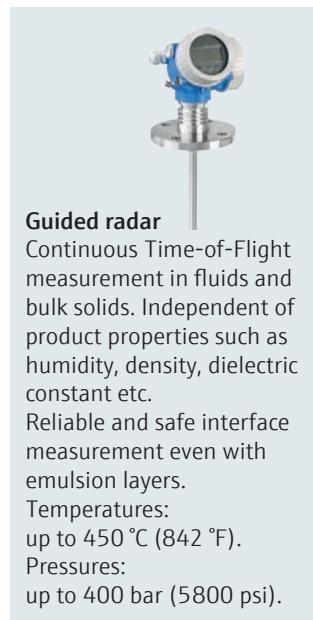


**Radar**

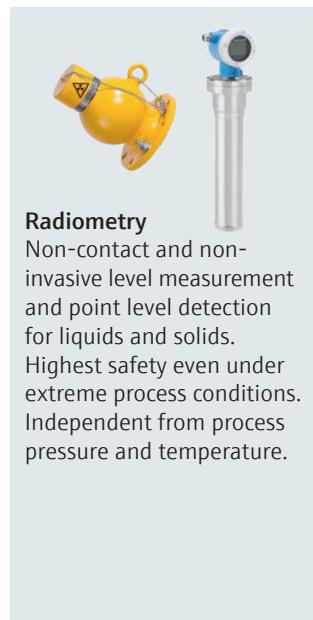
Continuous non-contact Time-of-Flight measurement in fluids and bulk solids, even under extreme conditions such as changes of medium, gas formation, vapor, vacuum. Temperatures: up to 450 °C (842 °F). Pressures: up to 160 bar (2320 psi).

**Ultrasonic**

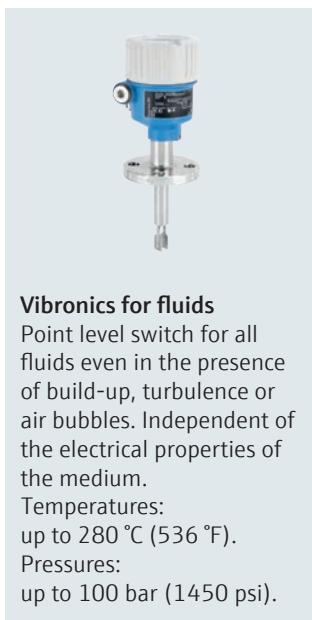
Continuous non-contact Time-of-Flight measurement in fluids and bulk solids. Independent of specific medium properties. Temperatures: up to 150 °C (302 °F). Pressures: up to 4 bar (58 psi).

**Guided radar**

Continuous Time-of-Flight measurement in fluids and bulk solids. Independent of product properties such as humidity, density, dielectric constant etc. Reliable and safe interface measurement even with emulsion layers. Temperatures: up to 450 °C (842 °F). Pressures: up to 400 bar (5800 psi).

**Radiometry**

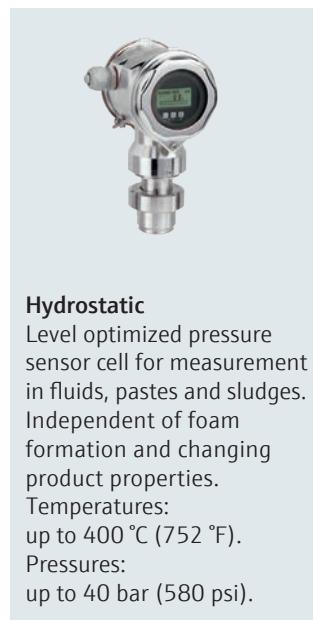
Non-contact and non-invasive level measurement and point level detection for liquids and solids. Highest safety even under extreme process conditions. Independent from process pressure and temperature.

**Vibronics for fluids**

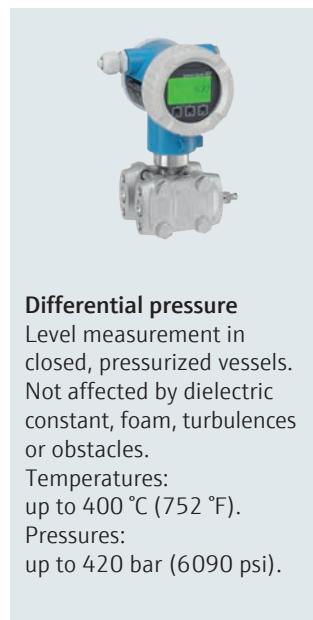
Point level switch for all fluids even in the presence of build-up, turbulence or air bubbles. Independent of the electrical properties of the medium. Temperatures: up to 280 °C (536 °F). Pressures: up to 100 bar (1450 psi).

**Vibronics for solids**

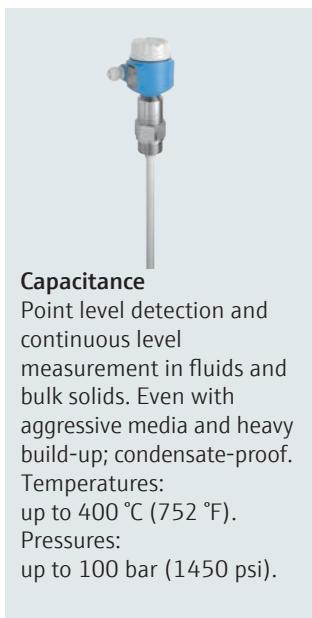
Point level detection in all kinds of bulk solids up to a maximum grain size of approx. 10 mm. Calibrationfree, maintenance-free. Temperatures: up to 280 °C (536 °F). Pressures: up to 25 bar (362 psi).

**Hydrostatic**

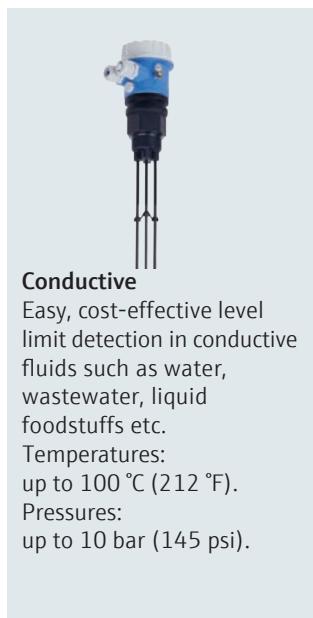
Level optimized pressure sensor cell for measurement in fluids, pastes and sludges. Independent of foam formation and changing product properties. Temperatures: up to 400 °C (752 °F). Pressures: up to 40 bar (580 psi).

**Differential pressure**

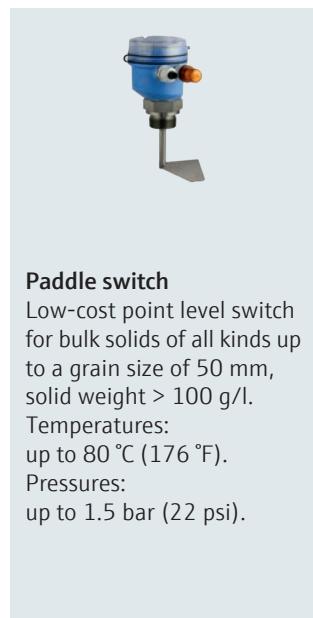
Level measurement in closed, pressurized vessels. Not affected by dielectric constant, foam, turbulences or obstacles. Temperatures: up to 400 °C (752 °F). Pressures: up to 420 bar (6090 psi).

**Capacitance**

Point level detection and continuous level measurement in fluids and bulk solids. Even with aggressive media and heavy build-up; condensate-proof. Temperatures: up to 400 °C (752 °F). Pressures: up to 100 bar (1450 psi).

**Conductive**

Easy, cost-effective level limit detection in conductive fluids such as water, wastewater, liquid foodstuffs etc. Temperatures: up to 100 °C (212 °F). Pressures: up to 10 bar (145 psi).

**Paddle switch**

Low-cost point level switch for bulk solids of all kinds up to a grain size of 50 mm, solid weight > 100 g/l. Temperatures: up to 80 °C (176 °F). Pressures: up to 1.5 bar (22 psi).

**Electromechanical level system**

Robust, mechanical system for measurement in bulk solids for applications in high vessels (up to 70 m). Unaffected by heavy dust formation. Temperatures: up to 230 °C (446 °F). Pressures: up to 3 bar (43.5 psi).

Pressure

Process and differential pressure measurement in acids, sludges, gases or vapors

Pressure is one of the most important measured variables in process automation. For Endress+Hauser this is an incentive to forge ahead with advances and improvements in the development and production of high quality pressure instrumentation. What does that mean in everyday work? Thanks to digital functions, for example, diagnostic and process information is always available in real time. Also, they enable an app-based, guided device verification including documentation, without interrupting the process.

Endress+Hauser's wide range of devices for pressure measurement enables us to offer a pressure transmitter with ultra-modern technology and high quality materials for every application and every budget.

Whether acids, sludges, gases or vapors – a pressure device is generally located where all the action is. Sensors have to satisfy the high specific requirements of the applications from the initial development phase to final finished production. It takes more than just an understanding of physics to develop and produce the most important link with the process.

For more than 40 years, Endress+Hauser has been constantly developing and manufacturing pressure measurement and sensor technology for a wide variety of applications. Many of these solutions have set the standard and are unique to the market.

 Pressure website:
www.endress.com/pressure



Pressure Transducer & Switch

Compact device with 4 to 20 mA / IO-Link output. The Cerabar / Ceraphant product families offer robust ceramic sensors for up to 40 bar (580 psi) or fully welded metal sensors for up to 400 bar (5800 psi) absolute or gauge pressure measurement.



Compact line pressure

The Cerabar PMP43 is a pressure transmitter and part of the Compact Line. The device is especially developed for hygienic applications and combines a compact design with full performance. The proven technology is suitable for the measurement and monitoring of absolute and gauge pressure in liquids and gases.



Basic pressure transmitters

Pressure transmitter with metal membrane for highly accurate measurement of liquids and gases in the process industry. Available with 4 to 20 mA/HART.



High performance pressure transmitters

These high-end pressure transmitters offer highest diagnostic capabilities and simplified use via Bluetooth®. Heartbeat Technology reduces verification efforts and improves process insights. For Temperatures up to 400 °C (752 °F) and pressures up to 700 bar (10,500 psi).



Flow

High-performance flowmeters for liquids, gases and steam

Consistent product quality, safety, process optimization and environmental protection – these are only a few reasons why industrial flow measurement is becoming more important all the time. Wastewater, water, beverages, mineral oil, chemicals, natural gas or steam are just some examples of fluids that have to be measured day in, day out.

For over 45 years, Endress+Hauser has been providing one of the most comprehensive product portfolios for measuring the flow of fluids, gases and steam. During this time, Endress+Hauser has achieved a top position among manufacturers of industrial flowmeters and millions of devices have been installed successfully across a wide range of industry sectors.

A significant contribution to this success has been made by the Proline product family. The latest generation of Proline flowmeters offers numerous innovations, such as WLAN or Bluetooth® as well as an outstanding operation concept via web server or touch screen. Furthermore, Proline provides a solid data management with HistoROM and offers added value for operational safety with Heartbeat Technology.

Our latest product family member, FLOWSIC, offers also in the field of ultrasonic the required accuracy for custody transfer measurement, flare gas measurement, tunnel monitoring and emission monitoring.

 Flow website:
www.endress.com/flow





Electromagnetic

Universal measuring principle for all conductive liquids. Virtually independent of pressure, density, temperature, viscosity and flow profile. Even liquids with solids can be measured, e.g., ore slurry or cellulose pulps.
 $0 \times DN$ full-bore design allows reliable measurement independent of flow profile and mounting location.
 Sizes: DN 2 to 3000 (1/2 to 120").



Coriolis

Universal measuring principle for liquids and gases. Multivariable sensors: simultaneous and direct measurement of mass flow, density, temperature and viscosity.
 Independent of the physical fluid properties.
 PremiumCal calibrations with a maximum measured error of $\pm 0.05\%$ and a measuring uncertainty of better than $\pm 0.015\%$.
 Sizes: DN 1 to 400 (1/24 to 16") [max. 4100 t/h].



Ultrasonic

Volume flow measurement of liquids and gases, regardless of electrical conductivity with either clamp-on or inline sensor types.
 Ultrasonic measurement enables cost-effective and reliable flow metering anywhere in the process: volume, corrected volume, mass flow, sound velocity. Retrievable diagnostic values. Special devices for measuring wet or dirty gases at low pressures, e.g. biogas or landfill gas.
 Sizes: DN 15 to 4000 (1/2 to 16").



Thermal

Direct mass flow measurement of gases with low process pressure up to 40 bar. Measuring principle with a high operable flow range (100:1) and an excellent low-end sensitivity. Patented bidirectional flow measurement and drift-free sensor. Short inlet runs with integrated flow conditioner.
 Negligible pressure loss.
 Sizes: DN 15 to 1500 (1/2 to 60").



Vortex

Universally applicable for the measurement of liquids, gases and steam. Extremely robust with regard to external vibrations, dirt, water hammer and temperature shocks.
 High long-term stability, no zero point drift. Efficient steam plant operation thanks to the worldwide unique measurement of dryness fraction.
 Multivariable thanks to integrated pressure and temperature compensation.
 Sizes: DN 15 to 300 (1/2 to 12").



Differential pressure (DP)

Universally applicable for liquids, gases and steam up to 420 bar (6092 psi) and 1000 °C (1832 °F). Robust primary element – completely mechanical with no moving parts.
 Transmitter can be replaced during operation, e.g. for maintenance or modernization of the measuring point without interrupting the process.
 Sizes: DN 10 to 12000 (3/8 to 480").

Temperature

Thermometers and transmitters for the process industry

Temperature is the most frequently measured variable in process engineering. For years now Endress+Hauser has been at the forefront of leading international companies in industrial temperature measurement with its own development and production centers in Europe, the USA and Asia.

Our products comply with international standards and specifications such as ATEX, FM, CSA, IEC, NEPSI, SIL, NAMUR NE 21, NE 43, NE 89, NE 107, DNV GL, 3-A, EHEDG, ASME BPE, FDA, EAC and INMETRO. They are suitable for use in all sectors of industry.

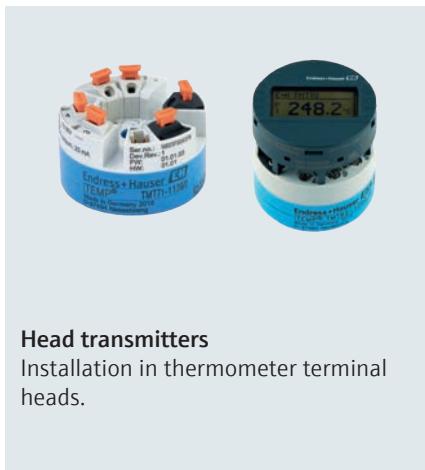
As a full-range supplier for temperature measurement, we provide a high degree of quality, reliability and safety which – compared on an international level – only few producers can offer.

To this end we operate our own DAkkS/Accredia certified and EC accredited calibration and testing laboratories for temperature measurement.

 Temperature website:
www.endress.com/temperature



Temperature transmitters Choose between head, DIN rail or field mounting among the temperature transmitters with RTD thermometer or thermocouple entry. Whether analog output 4...20 mA or HART® protocol, FOUNDATION Fieldbus™, PROFINET or PROFIBUS PA interfaces, Endress+Hauser offers you the right solution for every application. To interpret the sensor signal correctly, an exact configuration with respect to sensor and process conditions is required. Different technologies can be used to adapt this configuration and display the process value and further information.



Head transmitters

Installation in thermometer terminal heads.



DIN rail transmitters

Installation in control cabinets.



Field transmitters

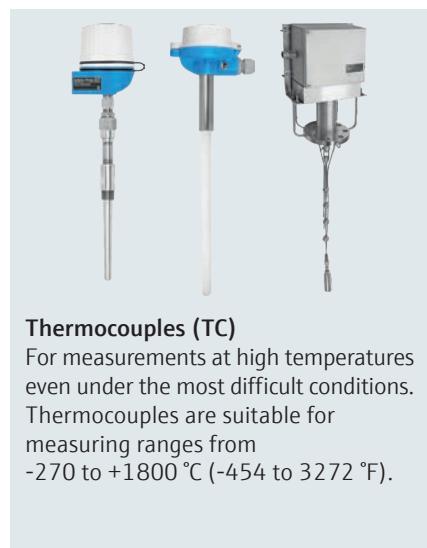
Remote installation in process area.

Thermometers Our expansive portfolio offers globally available, standardized thermometers for industrial and hygienic applications across all industries. As a full-range supplier for temperature measurement, we unite all competencies under one roof – from sensors and electronics to complete assemblies and customized solutions.



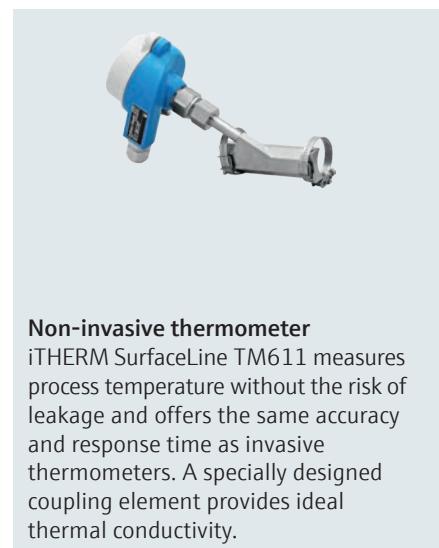
Resistance thermometers (RTD)

Modular or compact design for hygienic, industrial or heavy duty applications. Resistance thermometers are suitable for measuring ranges from -200 to +600 °C (-328 to 1112 °F).



Thermocouples (TC)

For measurements at high temperatures even under the most difficult conditions. Thermocouples are suitable for measuring ranges from -270 to +1800 °C (-454 to 3272 °F).



Non-invasive thermometer

iTHERM SurfaceLine TM611 measures process temperature without the risk of leakage and offers the same accuracy and response time as invasive thermometers. A specially designed coupling element provides ideal thermal conductivity.

Liquid analysis

Comprehensive product range for all analytical parameters

Environmental protection, consistent product quality, process optimization and safety – just a few reasons why liquid analysis is becoming increasingly important. Liquids such as water, beverages, dairy products, chemicals and pharmaceuticals have to be analyzed day in and day out. We support you in fulfilling all these measuring tasks with application know-how and cutting-edge technologies. Discover our comprehensive portfolio and choose the product best suited to your process needs.

From single measuring points composed of sensor, process connection and transmitter to fully automatic measuring systems and application-specific engineering combined with ultra-modern communication technology – all products are available from a single supplier.

The outstanding feature of these products is the innovative Memosens digital technology. With Memosens non-contact digital sensors, all calibration and operation data is stored in the sensor head, allowing offline calibration of sensors. This simplifies the maintenance process and extends sensor lifetime.

With the Memosens 2.0 sensor generation, our Liquiline transmitter and the Memobase Plus sensor and data management tool, we offer a future-proof basis for predictive maintenance and enhanced IIoT services. All you need to increase your process availability and streamline your work.

We constantly focus on research and development in close cooperation with customers, research institutes and universities to make liquid analysis as simple, reliable and safe as possible. Throughout our plants we employ state-of-the-art production technologies that feature a high level of automation. Our production philosophy, calibration concept and certification are standardized across all production facilities worldwide – so no matter where you are, you always get the same high quality, innovative devices.

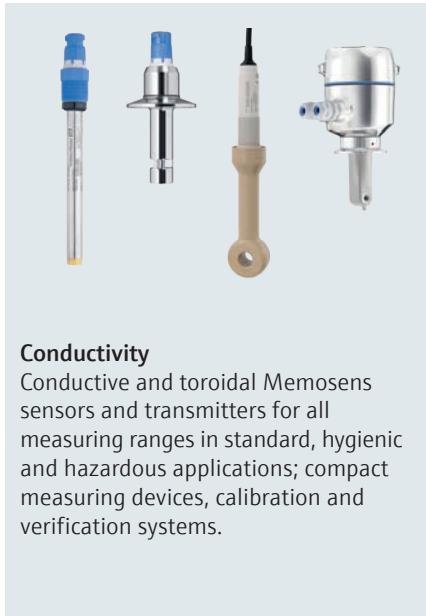
 Liquid Analysis website:
www.endress.com/analytics





pH/ORP

Glass and glass-free Memosens sensors, transmitters and assemblies for standard, hygienic and hazardous applications; fully automated measuring, cleaning and calibration systems.



Conductivity

Conductive and toroidal Memosens sensors and transmitters for all measuring ranges in standard, hygienic and hazardous applications; compact measuring devices, calibration and verification systems.



Turbidity/solids

Optical Memosens sensors and transmitters for all measuring ranges from lowest turbidity in drinking water to solids in wastewater applications; ultrasonic sludge level measurement.



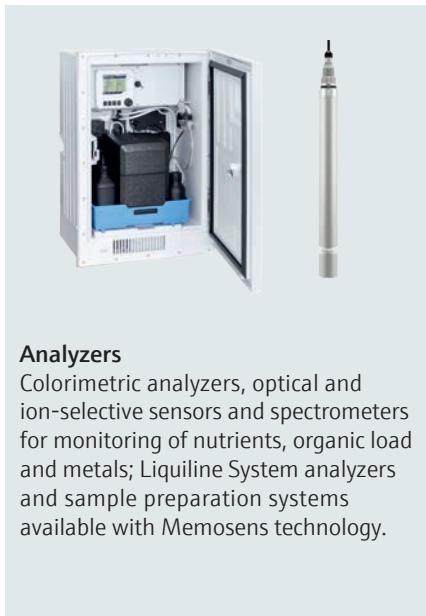
Oxygen

Amperometric and optical Memosens sensors, transmitters and assemblies for all applications, including hazardous areas, hygienic processes and trace measurement.



Disinfection

Amperometric Memosens sensors for monitoring of free or total chlorine, chlorine dioxide, free bromine or ozone in drinking and process water, wastewater, swimming pools and seawater; modular flow assembly for simultaneous measurement of up to 6 variables.



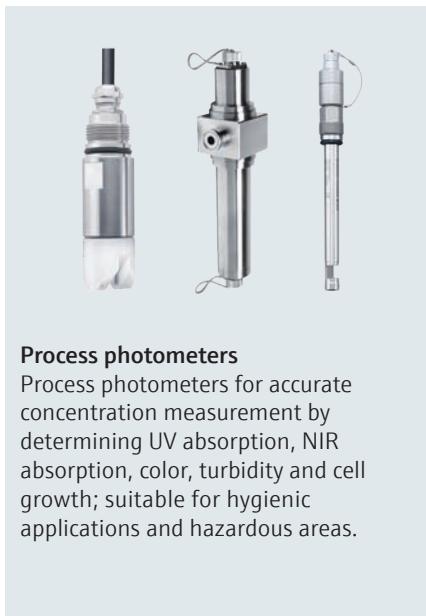
Analyzers

Colorimetric analyzers, optical and ion-selective sensors and spectrometers for monitoring of nutrients, organic load and metals; Liquiline System analyzers and sample preparation systems available with Memosens technology.



Transmitters

Liquiline transmitters featuring all common fieldbuses; suitable for all applications including hazardous areas and hygienic processes; multichannel and multiparameter devices for field or DIN rail installation.



Process photometers

Process photometers for accurate concentration measurement by determining UV absorption, NIR absorption, color, turbidity and cell growth; suitable for hygienic applications and hazardous areas.



Samplers

Portable and stationary samplers with Memosens technology for automatic sampling, defined distribution and safe preservation of liquid samples.

Optical analysis

Laser-based technologies for monitoring chemical composition and concentration in gases, liquids, particles and solids from laboratory to process applications

Optical analysis technologies provide access to real-time monitoring of critical parameters and enable process transparency.

Endress+Hauser offers a range of analyzers and probes which can be used with all phases of matter in any installation environment. These products are designed to take research and development projects from lab-to-process in record time, optimize industrial processes, ensure safety as well as regulatory compliance and more reliably monitor product quality.

With over 40 years of experience, the depth and breadth of our optical analysis offerings allow us to support multiple fields of applications across the Life Sciences, Oil & Gas, Chemical, Waste, Maritime, Traffic Automation and Food & Beverage industries.

Key extractive and in-situ technologies include tunable diode laser absorption spectroscopy (TDLAS), quenched fluorescence (QF), Raman spectroscopy and other scattered light technologies. Spectroscopic technologies have the advantages of requiring less maintenance and generating faster response times; they do not have moving parts or require complex and time-consuming sample preparation.

 Optical Analysis website:
www.endress.com/optical





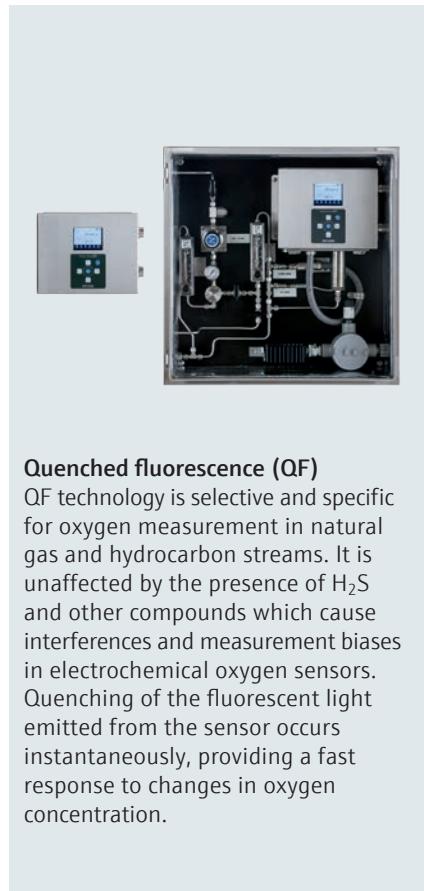
Raman spectroscopy

Raman analyzers deliver real-time, in situ chemical composition analysis of a material without needing to extract, prepare, or destroy the sample. Raman components and systems are designed to enable scalability from lab to process. Known for offering sampling flexibility, Raman Rxn analyzers pair seamlessly with our suite of fiber optic probes for use with gases, liquids, solids, or slurries in a wide range of process conditions.



Tunable diode laser absorption spectroscopy (TDLAS)

TDLAS gas analyzers are used for on-line, real-time measurement of contaminants such as moisture (H_2O), hydrogen sulfide (H_2S), carbon dioxide (CO_2), and oxygen (O_2) in process gas streams. The technology is capable of measuring percent (%) levels down to trace (sub-ppm) levels thanks to patented differential spectroscopy.



Quenched fluorescence (QF)

QF technology is selective and specific for oxygen measurement in natural gas and hydrocarbon streams. It is unaffected by the presence of H_2S and other compounds which cause interferences and measurement biases in electrochemical oxygen sensors. Quenching of the fluorescent light emitted from the sensor occurs instantaneously, providing a fast response to changes in oxygen concentration.



Emission Monitoring Solutions

To minimize emissions in a targeted manner, it is necessary to reliably analyze and monitor gas concentrations. We use innovative technologies and proven measurement principles to provide future-oriented solutions for continuous emission monitoring – even when measuring aggressive or poisonous gases, and when installing the devices in explosion-hazardous areas.



Particle measuring devices

Environmental sustainability relies on the detection and accurate measurement of dust and particle emissions. Our rugged and low-maintenance devices set new standards in particle measuring systems: With a comprehensive product portfolio for small to large measuring ranges and gas duct diameters, we offer suitable solutions even for difficult measuring tasks, such as dust measurement in wet gases.



Air quality measuring devices

Added safety – fewer backups: These are the key requirements of traffic service providers. The measurement of CO , NO , NO_2 and visibility with intelligent traffic sensors forms the basis for effective air quality measurement and control of tunnel ventilation. Our portfolio of tunnel sensors is designed for urban tunnels, overland tunnels, and tunnels in rail and subway systems.

Interface level measurement

Suitable measuring principles for your individual interface application



Your application is of prime significance because the instrument serves the application and is only selected once the general setting is known. You get the optimum interface measurement solution in relation to your process requirements from us.

Precise interface measurement is important in continuous and dynamic processes. Is the overall level constant or variable, and if so, in which range? Should the overall level be available as a measured value in addition to the interface measurement. Does emulsion occur during measurement?

The answers to such questions have a strong influence on the correct selection of instrumentation. We offer you transparency in relation to options, application limits and commissioning of the individual measuring principles.



Radiometry

Non-invasive measuring method which determines the interface layer by measuring the medium density. When using several detectors even multiphase interface layers can be measured. If the transmitter has been calibrated to the media by wet calibration, a correlation to the measurement of the interface results automatically. This non-invasive measuring method is suitable for extreme process conditions and is unaffected by build up of sticky media.



Guided radar

As the pulses impact the medium surface, only part of the sending pulse is reflected. The other part penetrates the medium. As the signal enters the lower medium with a higher dielectric constant (dc) it is reflected once more. Taking the delayed Time-of-Flight of the pulse through the upper medium into consideration the distance to the interface is determined in addition. Applications up to 450 °C (842 °F); 400 bar (5800 psi).



Multiparameter

The name of the innovation in interface measurement is FMP55 Multiparameter. This instrument combines the advantages of the capacitance and guided radar measuring principles. Emulsion layers may cause signal losses in interface detection in guided radar measurements. Only Leveflex FMP55 Multiparameter can guarantee safe measured values for both the interface and the overall level with this unique, redundant measuring system. Applications up to 200 °C (392 °F); 40 bar (580 psi).



Capacitance

Media with a small dielectric constant (dc) cause very small changes of the capacitance value. Media with a high dc produce large capacitance changes. In many interface applications, the medium with the smaller dc value is on top, e.g. in hydrocarbon on water. The upper medium merely provides a minimum contribution to the overall capacitance value – the issued level thus only refers to the water level (the interface). Applications up to 200 °C (392 °F); 100 bar (1450 psi).



Servo Technology

The density of the medium can be determined by immersing the displacer inside the product. The sensor evaluates jumps of 0.1 g/cm³ (6.24 lb/ft³) in the density measurement as a separating layer. The sensor can determine up to 3 separating layers within the tank. Thus, the sensor can reliably and at any time determine the water level inside an oil tank in order to calculate the real amount of the usable product in the tank.

Density and concentration

Quality measurement in liquids



Blending of preliminary, interim and final products, determining the exact density or concentration, monitoring quality and controlling process – all these activities constitute a reason for the density measurement of the fluid. Therefore, Endress+Hauser offers a wide variety of different methods for accurately measuring the fluid density and concentration in a simple and fast manner across industries.



Coriolis – Promass

Maximum process dependability because density, concentration, temperature and mass flow are all measured simultaneously. Approval for custody transfer applications.

No maintenance necessary. Units for density: standard density, standard volume flow and totalizing, % mass, % volume, alcohol tables (for mass and volume), target flow and carrier flow, °Brix, °Plato, °Baumé, °API, etc. Direct measurement in the pipe.



Ultrasonic and Microwave - Teqwave

Smart and flexible concentration measuring devices for different industries. Teqwave F, I, T and H can be used to measure multiple liquid parameters simultaneously by ultrasonic signals. Direct measurement and display of disturbance variables such as particles and gas bubbles. Flexible range of application: Inline version (pipes), insertion version (vessels, large pipes) and portable device versions (for various measuring points). In comparison, Teqwave MW offers real-time, maintenance-free inline measurement of total solids in various industries using microwave transmission.



Radiometric – Gammapilot

Non-invasive measurement of density changes through the pipe walls without process interruption. Suitable for abrasive and aggressive fluids as the measuring system is typically clamped onto the pipe externally. Density measurement inside a process vessel with a special arrangement of the devices possible. In addition, the rate of flow may be determined using an electromagnetic flowmeter.



Servo Technology

The density of the medium can be determined by immersing the displacer inside the product. The servo technology enables level and density measurement with just one device, with the creation of density profiles over the entire tank height.

System products and data managers

Solutions for the loop

Nowadays the requirements on measurement technology go far beyond the mere recording of measurement values. System products complete the measuring point by offering functionalities around the sensor.

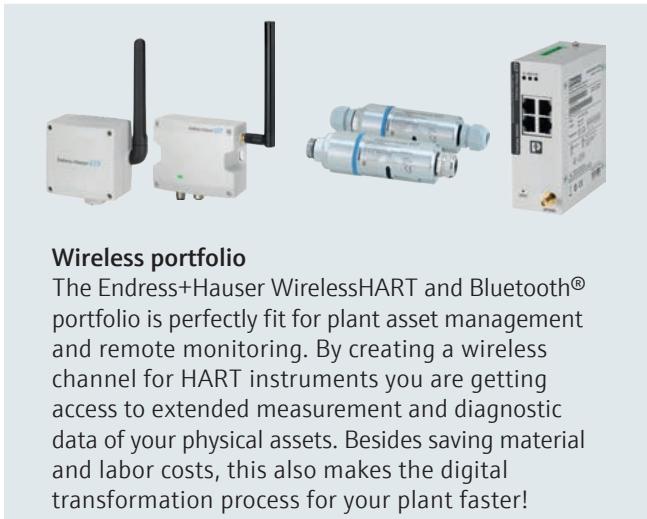
Thus the measuring devices are to be supplied with power and to be protected against overvoltage, the measurement value is to be visualized or processed, limit values have to be monitored as well as the data has to be tamper-proof archived. These tasks are covered by the system products and data managers from Endress+Hauser.

 System products and data managers website
www.endress.com/systemproducts

Benefits

- Increased digitalization
- Easy installation and user friendly setup and operation
- Real-time plant information on-site
- Increased plant availability due to proactive diagnostics and protection of the measurement devices
- Flexibility in application based on various housing versions, all important communication protocols and worldwide approvals
- Safe and tamper-proof data handling
- Complete portfolio around the measurement point from one supplier





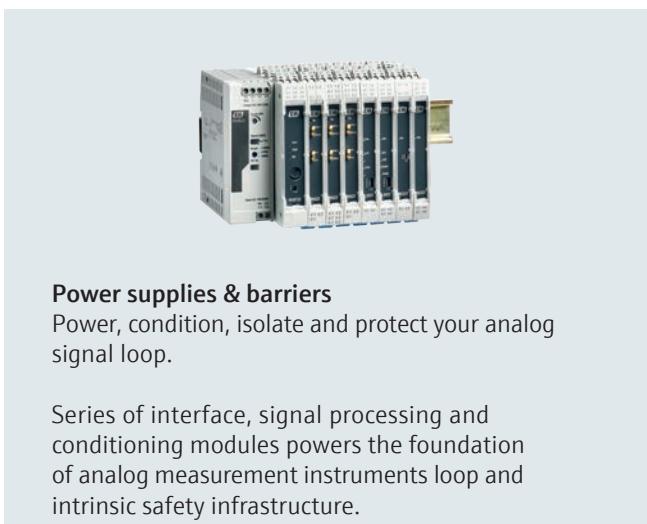
Wireless portfolio

The Endress+Hauser WirelessHART and Bluetooth® portfolio is perfectly fit for plant asset management and remote monitoring. By creating a wireless channel for HART instruments you are getting access to extended measurement and diagnostic data of your physical assets. Besides saving material and labor costs, this also makes the digital transformation process for your plant faster!



Fieldgates

Gateways with Ethernet interface to HART, HART over PROFIBUS, PROFIBUS, and IO-Link protocols allow plant access to device parameters. Applications include monitoring, device diagnostics and Plant Asset Management.



Power supplies & barriers

Power, condition, isolate and protect your analog signal loop.

Series of interface, signal processing and conditioning modules powers the foundation of analog measurement instruments loop and intrinsic safety infrastructure.



Process indicators & control units

Loop powered indicators are powered via the current measuring loop. They improve the process overview, since measured values are indicated where they are needed.

Process indicators with control unit combine several functionalities in one device like an active barrier, transmitter and relay. Fieldbus indicators display the values that are communicated by PROFIBUS PA or FOUNDATION Fieldbus devices.



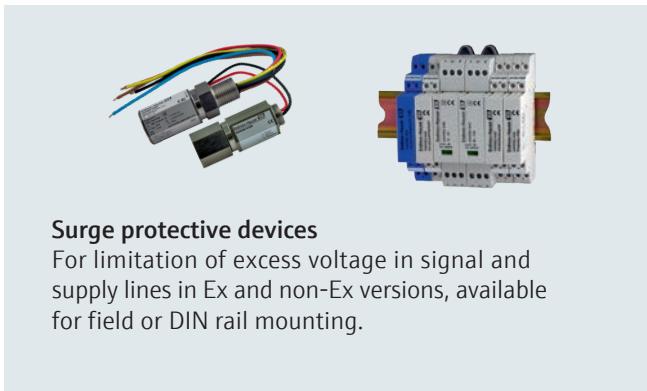
Process transmitters and limit switches

With quick setup and simple on-site operation via three keys, LC display for limit values as well as bargraph and pluggable screw terminals.



Data managers

Endress+Hauser data managers are designed for industries with high regulatory requirements. They ensure secure, compliant and convenient access to sensor data and process information at all times. The devices offer comprehensive connectivity and enable seamless integration into system architectures, meeting the highest data security and compliance requirements. State-of-the-art software products for data analysis, archiving and report generation complete the portfolio.



Surge protective devices

For limitation of excess voltage in signal and supply lines in Ex and non-Ex versions, available for field or DIN rail mounting.

Digital communication and software

Optimum integration of field measurement technology into your system world

Endress+Hauser is a pioneer of fieldbus technology and works actively in various technology organizations and standardization committees. We continuously strive to simplify these technologies in order for our customers to retrieve the optimal benefits.

We support the seamless integration of our field devices into the automation systems of many manufacturers. This guarantees our customers freedom of choice and the best possible functionality at optimal cost.

Apart from all relevant measuring and system technologies, we also offer appropriate software tools for all branches of industry. Our comprehensive portfolio spans a range of software solutions

- for asset management improving plant availability and maintenance efficiency,
- for inventory management optimizing your inventories and supply chain,
- for device calibration and configuration through to condition monitoring by providing valuable asset information over the entire life cycle,
- for energy management and monitoring to reduce costs.

 Software website:
www.endress.com/software



FOUNDATION

EtherNet/IP

 **ethernet-apis™**
advanced physical layer

 **PROFI[®]
IBUS**

 **HART**
COMMUNICATION PROTOCOL

WirelessHART

 **Modbus**

 **IO-Link**

 **PROFI[®]
NET**

Fieldbus technology

Endress+Hauser is a leading supplier of fieldbus and Ethernet instrumentation. Practically all of our instruments can be equipped with a HART®, PROFIBUS® or FOUNDATION Fieldbus interface, selected ones with a serial MODBUS, IO-Link, PROFINET or EtherNet/IP interface. With Ethernet-APL, Ethernet-based devices can also be installed in process plants with explosion hazardous areas including intrinsic safety. As intelligent instruments, fieldbus and Ethernet-based devices carry additional information from the field, e.g. instrument status, maintenance and diagnostics. They save operational costs by increasing plant availability and are significantly cheaper to install and commission.

WirelessHART

For applications where accessibility or installation costs rule out the use of a fieldbus as communication medium, WirelessHART offers an economical solution.



Measurement and industrial communication technologies

www.endress.com/field-instruments-overview/measurement-technologies



FieldCare

FieldCare is a state-of-the-art configuration software for configuration out of a central location. There is no need to spend a lot of time in the field anymore. You can either remotely access your devices from your maintenance station or prepare the configuration changes in advance and transfer them point-to-point fast and easily.

Your benefits

- One tool to access all field devices regardless of FDT, FDI or EDD technology
- All major communication protocols supported
- Fast commissioning and device replacement
- Open for 3rd party drivers and hardware
- Performs device configuration management when combined with life cycle management
- Diagnosis of devices according to NAMUR NE 107



Field Xpert

Field Xpert* is an industrial Tablet PC for mobile device configuration in hazardous and non-hazardous areas. It allows efficient configuration of Endress+Hauser and third-party devices using common protocols and direct communication with Bluetooth® and Wi-Fi technology. Everything comes out of the box, which makes the Field Xpert unique. The Field Xpert is always up-to-date regarding DTM files and software applications. In combination with our IIoT offering and the connection to the Netilion cloud, the Field Xpert is the best solution for Plant Asset Management. The well-known OS Windows allows also the installation of 3rd party software.

* Field Xpert SMT50 (non-ex),
Field Xpert SMT70B (Ex certified)



Field Data Manager

Field Data Manager (FDM) is a software package offering central data management and visualization of stored data. This allows complete documentation of the data from a measuring point, e.g.:

- Measurement values
- Diagnostics events
- Protocols

Your benefits

- Secure management and visualization of historical process data
- Automatic services for easy data handling
- Visualization of instantaneous values



SupplyCare

SupplyCare is a web-based information system for remote monitoring of tank and silo inventory at multiple site locations. Current measurement values of on-site assets can be accessed via fieldgates company-wide in the Intranet or worldwide via public telephone networks and the Internet. SupplyCare software for the collection and processing of data can either be installed on your premises or hosted by Endress+Hauser. Conventional web browsers allow information to be called up by authorized materials administration and logistics personnel – at any time and from any workplace and on the go. Secure access via the Internet can be provided for external partners and service providers. As an alternative or supplementary option, measured data can be integrated into existing systems at logistics, enterprise and management levels.

Unlock knowledge with Netilion, your ecosystem for asset management and process insights

We make your field data accessible and turn them into valuable knowledge – no matter the industry.

To make the right decisions, you need the right knowledge. Netilion makes this possible and supports you in optimizing your processes and making fact-based decisions quickly.

Asset lifecycle management & diagnostics

Netilion provides access to comprehensive device and activity information throughout the entire product lifecycle. From production to commissioning, from calibration to maintenance and replacement, you can keep track of your entire installed base, identify operational risks such as obsolescence, facilitate information exchange, and monitor the health and performance of your assets. With Netilion, Endress+Hauser supports you in analyzing your installed base, producing compliance reports, and managing routines such as calibration and remote support.

Application insights

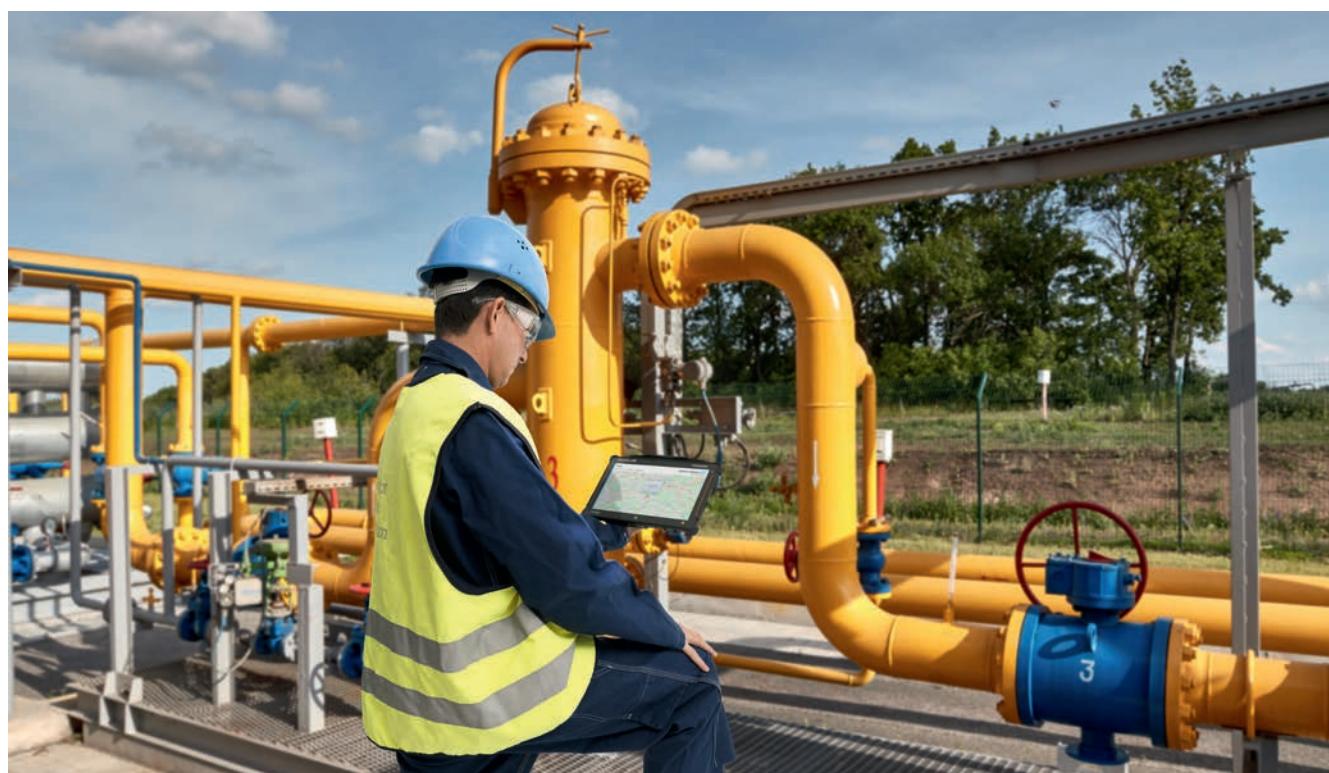
With our process monitoring framework, you can track all critical parameters of your processes and identify deviations, helping you optimize production efficiency and quality. Whether you need to cover a remote area or a plant utility such as water or power supply, we connect your assets to our Netilion ecosystem, giving you full and reliable access.

Security and privacy

Your facility's information is valuable and needs protection. Netilion allows you to access data digitally because it meets internationally recognized standards of cloud-platform security. It's a safe harbor for your data.

Best user experience

Every tool's benefits stand or fall with its usability. When developing Netilion, we always aim to make it easy to use. Netilion is based on the latest internet technologies. The initial registration of an asset, or even an entire order, can be accomplished in a few minutes and does not require any on-site installations. Regardless of the device manufacturer and communication protocol, all your data is just a few taps away.



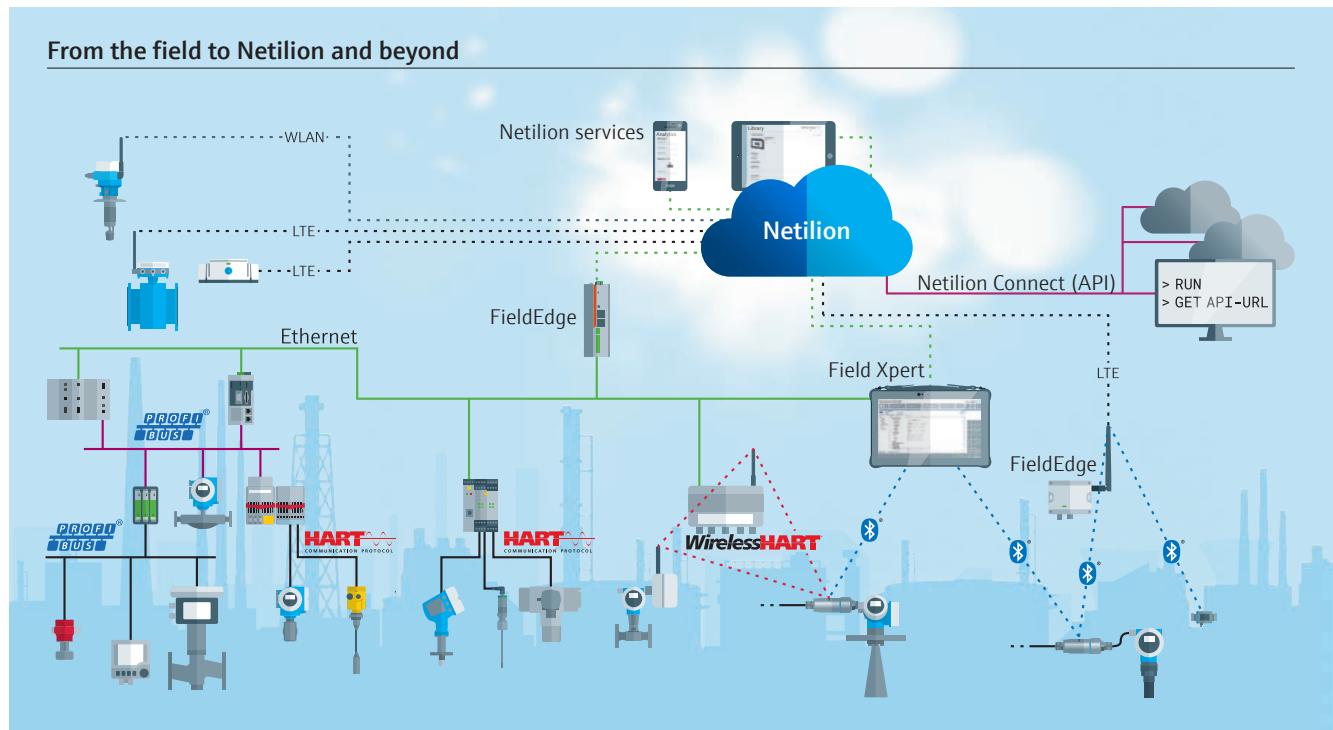
Retrieve asset data and process values through Netilion

Then, integrate them into the system of your choice using Netilion Connect. We designed Netilion Services to trace and use all kinds of data from the field. Increasing data access enhances your knowledge of your installation and ease operations.

Netilion Connect integrates data and knowledge into your infrastructure and target systems. Netilion can help you by transferring collected data into your own systems. You can do this with the aid of the API that Netilion Connect provides.



 Netilion
www.endress.com/field-instruments-overview/netilion-iiot



Netilion, Endress+Hauser's IIoT ecosystem

Process solutions tailored for optimal plant performance

Dedicated to improving your productivity and efficiency while lowering your costs

At Endress+Hauser we understand the unique challenges of your industry. Combining our portfolio and technologies with expert consulting and requirements analysis, design and engineering capabilities, and seamless data integration to your systems, we partner with you to provide the optimal industrial process solutions for unlocking the highest levels of performance of your plant. Endress+Hauser offers plant-wide process solutions focused to your applications needs:

- Optimize your transfer and storage facilities with our 'Zero Loss' quantitative measurement approach
- Meet your quality and compliance monitoring constraints with our 'Clean' approach
- Maximize your assets via operational digital enhancements with a 'Lean' process management approach.

 Our process solutions:
www.endress.com/en/process-solutions





Is it your goal to improve loading and offloading operations?

Our transfer and storage applications focus on unaccounted losses and support the supply chain. This “Zero-Loss” quantitative approach, targets the movements of products, “In, Through & Out” of the facilities.



You need to maintain your quality while complying with international regulations?

Applications around “Quality & Compliance” allow our customers to verify product composition or physical properties of liquids, gases, and solids for the process industry. This “Clean” qualitative method, enables product compliance with customer requirements.



Do you want to save time and money by improving specific business operations?

Our Operational Digital Enhancements applications strive to improve efficiency by applying digital transformation. Automation and automated workflows are key to exploring enhancements in operational efficiency. This is a “Lean” approach.

Services

Committed to improving plant performance for your success

By your side, with total commitment, today and into the future, Endress+Hauser will help you both meet and surpass your specific industry challenges. It is what drives us; it is what defines us. As the globalized, 24/7 economy in which you compete brings unprecedented margin pressure, we deliver the incremental OPEX reductions and plant availability gains to make the difference.

As new regulations to protect people and the environment demand rethinking of processes, we help you comply while remaining competitive. Moreover, we are here to ensure that relentless technological progress does not become a threat but an opportunity. With Endress+Hauser Services, you give yourself every chance of success.



Reduce Opex

Every organization that wants to stay competitive has to strive to increase its profit. When it comes to process industries, reducing operational costs is crucial and always in focus of Endress+Hauser service people.



Increase plant availability

Digitization is a core aspect in the effort to achieve efficient and resource-saving operation. With Endress+Hauser you can keep your process reliable and running at maximum capacity.



Remain compliant

In a globalized world, the number and complexity of rules, regulations and laws increases. We can help optimize important operational management tasks while working in compliance with the rules.



Access technical expertise

It is increasingly challenging to recruit and retain talented employees with technical know-how around process measurements. With new digital channels, we enable you to access knowledge and expertise remotely to save you time and cost.



Project and commissioning services

With comprehensive project management, engineering, project site, and commissioning services, we ensure the efficient and timely completion of your projects. Whether addressing instrumentation, automation solutions, or field networks, our expert team leverages cutting-edge engineering tools and provides on-site support to deliver a seamless transition to operations as well as benefits into the long term.

- Ensure flawless operations by confirming measuring point performance at the system level, minimizing future malfunction risks, and avoiding false starts.
- Save time, effort, and costs through the expert guidance of qualified service technicians providing on-site commissioning support, reducing burden on your staff while accelerating setup and start-up.

Support and education services

We offer comprehensive support and training services to optimize your plant's availability and performance, reduce outages, and minimize disruption. Our expert team is dedicated to helping you solve issues, improve uptime, and develop the knowledge and skillset of your workforce.

- Reduce asset downtime with guided service operations, remote diagnostics, and troubleshooting support from dedicated experts, along with proactive alerts. Additionally, access our knowledge-based platform to autonomously resolve issues.
- Access fully customized training programs, including theoretical courses and hands-on sessions, with experienced instructors to increase your knowledge.

Maintenance services

We provide in-depth services to ensure the reliability, compliance, and performance of your measurement instrumentation. Our expertise includes repair, calibration, and maintenance services, tailored to meet your specific process requirements.

- Increase reliability of your assets and decrease malfunction risk with efficient diagnostics and quick access to technical expertise.
- Ensure high performance and compliance of your quality-critical instruments through timely, traceable, and cost-effective calibration services with metrology-trained engineers and ISO 17025 accreditation.
- Prevent safety, environmental, and quality risks with rigorous diagnostic testing and tailored maintenance plans to increase your plant availability while reducing operational costs.

Performance optimization services

With managed and consultancy services, Endress+Hauser is your trusted partner to improve the management of maintenance tasks throughout the lifecycle of your installed base.

- Optimize process efficiency thanks to our process experts bringing in-depth analysis and recommendations for your long-term asset management strategy.
- Improve your Operational Equipment Efficiency and focus on your core competence by entrusting us with the day-to-day management of your installed base and related maintenance activities.

Eco-friendly produced and printed on paper from sustainable forestry.

www.addresses.endress.com

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