

Endress+Hauser

A reliable partner for data centers



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National Business Development Manager Liza Kelso

Liza Kelso is an accomplished business development leader with a strong background in critical account management. She brings extensive experience from her role as a national business development manager at Endress+Hauser Group. In this capacity, Liza has been focused on growing and fostering new business development and strategic alliances in the semiconductor industry and the digital data storage market sector.

Throughout her career, Liza has played a pivotal role in partnership management efforts. She is well-regarded for her ability to collaborate effectively. Liza is a servant leader, prioritizing success from every angle for organizations.



Liza Kelso, LinkedIn



Powering the future: data centers and Endress+Hauser

Moving from 20 GW to 80 GW, the US power demand for data centers will quadruple by 2030.



Many hyperscale facilities and even supercomputers now require roughly five times the amount of power and cooling. Put simply, accurate measurement is imperative.

Today and tomorrow, there is and will be an ever-present need for AI and machine learning. However, these tools are increasing energy use and water consumption. For those within the data centers industry, managing these uses is key.

For data centers, accurate process measurement can help companies avoid downtime, optimize performance and drive sustainability efforts. Endress+Hauser's precise instrumentation can be integral to achieving the goals of modern data centers. Our solutions ensure every measurement is accurate, helping you manage resources effectively and sustainably.



Meeting the demands of modern data centers

What challenges do modern data centers face with increasing power demands?

As tools such as AI and machine learning continue to scale in popularity, power demands are expected to double. Now, companies must move forward with accurate, efficient and reliable instrumentation to manage the growing use of energy and cooling.

How does Endress+Hauser address the power and cooling needs of hyperscale facilities?

Here at Endress+Hauser, we can provide reliable and precise process instrumentation that provides accurate monitoring of data centers' power and cooling systems. By using our instrumentation, data centers can manage their energy and cooling systems usage more effectively.

Why is sensor accuracy important in data centers?

Sensor accuracy is crucial for maintaining optimal performance and avoiding downtime. Accurate measurements help data centers operate efficiently, ensuring all systems function correctly and sustainably.

In what ways do AI and machine learning impact resource consumption in data centers?

AI and machine learning increase energy and water consumption, so finding proper ways to measure them effectively is crucial to managing the increased usage and helping form more sustainable operations.

How does Endress+Hauser contribute to the sustainability of data centers?

Our precise instrumentation plays a crucial role in achieving sustainability goals. Our instrumentation helps provide highly accurate measurements of energy usage and cooling processes, with additional goals of reducing these usages and processes' impact on the environment.

What benefits do data center operators gain from using Endress+Hauser's instrumentation solutions?

Operators benefit from enhanced reliability, reduced operational costs and improved sustainability. Our solutions ensure that every measurement is precise, leading to better resource management and overall efficiency.

How does Endress+Hauser support integrating its solutions into existing data center infrastructure?

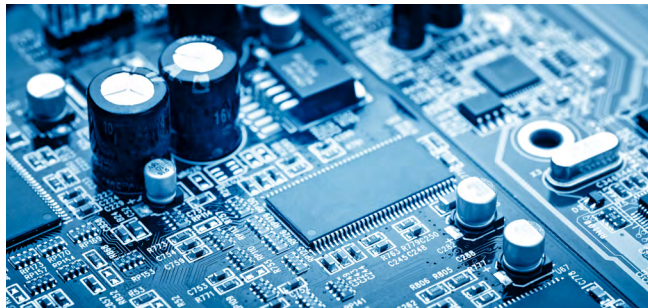
Our holistic support helps ensure our accurate and reliable instrumentation works alongside your data centers' current systems to optimize overall performance.

What makes Endress+Hauser a trusted partner for data centers?

For more than 70 years, Endress+Hauser has remained committed to providing companies with precise and reliable process instrumentation. We understand companies rely on instrumentation solutions to meet their goals and needs, which is why we strive to be a complete partner, offering instruments ranging from flow, level, pressure, temperature, liquid analysis and optical analysis, in addition to additional services and solutions needs.

Data centers and how we can help

Data centers operate in a complex landscape where precision, scalability and cost-effectiveness are critical for success. At Endress+Hauser, we recognize the unique challenges faced in data center processes.



Data centers require accurate measurements across various parameters, including liquid analysis, level, flow and temperature. Our comprehensive portfolio covers these essential aspects, ensuring precise data collection and informed decision-making. Whether it's monitoring chemical processes, managing water usage or optimizing energy consumption, our instruments provide the necessary insights.

Boosting yield rates

Our solutions are tailored to optimize your systems and processes, maximizing productivity while minimizing operational expenses (OPEX).

Endress+Hauser's products are engineered for dependable operation, reducing downtime and ensuring consistent high yield rates.

Sustainability and efficiency

We help you monitor and optimize energy and water consumption, crucial for the energy-intensive data center processes.

Our products and solutions are designed to support your sustainability initiatives, ensuring operational continuity and reducing costs.

Global support and expertise

With more than 1,000 specialists and a global service network, we provide localized support to meet your specific needs.

Our process experts partner with you to manage and optimize your maintenance processes, ensuring your operations run smoothly.

Innovative solutions

Our instruments are equipped with IIoT sensors and connectivity, providing precise control and energy efficiency.

Digital transformation

Endress+Hauser's digital solutions offer real-time data insights, helping you optimize data center processes, reduce waste and increase yield.

Our digital tools enable proactive maintenance, preventing issues before they impact production.

Why choose Endress+Hauser?

Our products are trusted in harsh conditions and clean room environments, ensuring high performance and reliability.

Global reach, local support: Benefit from our extensive global network and localized support, ensuring quick response times and expert assistance.

Commitment to excellence: We are dedicated to helping you achieve the highest standards in data center processes through innovative solutions and expert support.

Liquid analysis

Key product offering



Multi-channel transmitter CM44

- One transmitter for all Liquid Analysis parameters, applications and sensors
- Automatic sensor recognition with pre-calibrated Memosens sensors
- Allows for up to 8 Liquid Analysis sensors to be installed on one transmitter
- Heartbeat Technology helps you find the ideal balance between measuring point availability and maintenance costs
- Extensive offering of communications protocols to meet your needs, including 0/4-20mA, HART, Ethernet/IP, Modbus TCP and RS485, Profinet and more



1-channel transmitter Liquiline Compact CM72

- Two-wire device fits inside an assembly and does not require its own power supply
- No need for commissioning due to fixed configuration
- Safest data transmission, the highest measured value availability and total ease of use
- Status of the transmitter and the connected sensor are indicated with a red/green LED
- Suitable for all locations



Digital pH sensor Memosens CPF81E

- Memosens 2.0 offers extended storage of calibration and process data, enabling better trend identification and providing a future-proof basis for predictive maintenance and enhanced IIoT services
- Long time stable: Double junction provides better protection against electrode poisoning ions such as sulfides or cyanides
- Robust polymer housing protects against mechanical damage
- Optional flat membrane makes the sensor suitable for high flow rates and abrasive media
- Non-contact, inductive signal transmission ensures maximum process safety
- Maximum process uptime and extended sensor lifetime reduce operating costs



Digital pH sensor Memosens CPS11E

- Extended storage of calibration and process data, enabling better trend identification and providing a future-proof basis for predictive maintenance and enhanced IIoT services
- Low operating costs: lab calibration and quick sensor exchange in the process result in minimized process downtime and longer sensor lifetime
- Robust, low maintenance electrode: long poison diffusion path or optimized ion trap prevent poisoning of the electrode reference
- Large, dirt-repellent PTFE junction protects from soiling by the medium
- Process glass is suitable for the full pH range and pressure-stable up to 17 bar (246.5 psi) absolute: optional F-glass allows application in media containing hydrofluoric acid such as etching baths in semiconductor production
- Improved optional salt storage ensures reliable measurement in low conductivity applications such as boiler feed water
- Maximum process integrity through non-contact, inductive signal transmission

Liquid analysis

Key product offering



4-pole digital conductivity sensor CLS82E

- Broad measuring range enables monitoring across multiple conductivity levels
- It's compact design makes the sensor suitable for small pipe diameters and narrow, space-limited installation
- Quality certificate stating the individual cell constant allows precise adjustment of the measurement
- Memosens digital technology allows for extended storage of process and sensor data facilitating lab calibration and predictive maintenance



Digital low-level turbidity sensor CUS52D

- Highly accurate and reliable monitoring of your water quality – even at the lowest turbidity
- Smart verification and calibration: Absolutely safe, liquid-free, without Formazin
- Factory calibration and Memosens technology allow plug & play integration into your process
- CUS52D offers maximum process and data integrity, simple operation and allows predictive maintenance

Pressure

Key product offering



Differential pressure Deltabar PMD75B

- Best accuracy, reproducibility and long-term stability
- Highest safety due to gas tight feedthrough with capabilities up to SIL2/3, certified to IEC 61508
- Easy menu-guided commissioning via local display, 4 to 20mA with HART, PROFIBUS PA, FOUNDATION Fieldbus
- HistoROM data management concept for fast and easy commissioning, maintenance and diagnostics
- Cost savings with modular concept for easy replacement of sensor, display or electronics
- Overload-resistant up to 420bar/42MPa/6300psi, function-monitored
- Seamless and independent system integration



Absolute and gauge pressure Cerabar PMC21

- Easy and time-saving installation and set up within the plant due to very compact construction and customizable measuring ranges
- High reference accuracy of 0.3% together with high long-term stability and repeatability ensure a high quality of process monitoring
- High process availability even in difficult process environment due to various cleaning options and connection options

Flow

Key product offering



Proline Promag W 300 electromagnetic flowmeter (OxDN)

- Reliable measurement at constant accuracy with OxDN inlet run and no pressure loss
- Flexible engineering – sensor with fixed or lap-joint process connections
- Application fitness – EN ISO 12944 corrosion protection for underground or underwater installation
- Improved plant availability – sensor compliant with industry-specific requirements
- Full access to process and diagnostic information – numerous, freely combinable I/Os and Ethernet
- Reduced complexity and variety – freely configurable I/O functionality
- Integrated verification, monitoring and diagnostics with Heartbeat Technology



Proline Promag P 300 electromagnetic flowmeter (OxDN option available)

- Diverse applications – wide variety of wetted materials
- Energy-saving flow measurement – no pressure loss due to cross-section constriction
- Maintenance-free – no moving parts
- Full access to process and diagnostic information – numerous, freely combinable I/Os and Ethernet
- Reduced complexity and variety – freely configurable I/O functionality
- Integrated verification, monitoring and diagnostics with Heartbeat Technology



Picomag Inline electromagnetic flowmeter

- Delivered with Bluetooth® deactivated from the factory
- “Knock” quick-access function disabled to prevent unintended local changes
- US units preconfigured (gal/min, °F) and Output 1 set to 4–20 mA for volume flow; shipped with predefined display/units/output settings to simplify commissioning
- Volume flow: +/-0.8% o.r. +/-0.1% o.f.s
- Measuring range: up to 750 l/min
- Process temperature: -10 to +70 °C (14 to 158 °F)
- Maximum process pressure: 16 bar (232 psi)
- Nominal sizes available: DN25 (1") and DN50 (2")

Temperature

Key product offering



iTHERM ModuLine TM152 industrial modular thermometer

- Easy maintenance and recalibration of the thermometer (sensor can be replaced without interrupting the process)
- Dual seal technology: second process seal with failure indication offers valuable device health status information
- iTHERM QuickSens: fastest response times of 1.5 s for optimum process control
- iTHERM StrongSens: unsurpassed vibration resistance (>60g) for ultimate plant safety
- iTHERM QuickNeck: cost and time savings thanks to simple, tool-free removal for recalibration
- International certification: e.g. explosion protection in accordance with ATEX, IECEx, CSA and INMETRO; functional safety (SIL)
- iTEMP temperature transmitter with all common communication protocols and optional Bluetooth connectivity



iTEMP TMT72 temperature transmitter

- Safe operation in hazardous areas thanks to international approvals
- Reliable operation thanks to sensor and device monitoring
- Integrated Bluetooth interface for the wireless display of measured values and configuration
- Diagnostics information according to NAMUR NE 107
- Available with plug-on display TID10
- Optimization of the measurement accuracy by sensor-transmitter matching.



iTHERM SurfaceLine TM611 surface thermometer

- Non-invasive RTD/TC thermometer with high measurement performance for demanding applications
- Measurement accuracy and response time comparable with invasive measurements
- No process opening required, no leakage risk
- Increased safety for personnel, plant and the environment
- User-friendly from product selection to installation and maintenance
- Shorter development and project planning times, reduced expenses for installation, certification and inspections as well as no costs for thermowells, nozzles and flanges, weld seam inspections and pipe extensions
- iTEMP temperature transmitter with all standard communication protocols and optional Bluetooth connectivity
- International certification: e.g. explosion protection according to ATEX, IECEx, CSA and NEPSI; functional safety (SIL)

Empowering data center customers in the OEM and system integrator space

Challenges OEMs & system integrators face and Endress+Hauser's support

Challenges:

Pressure to deliver smarter, faster and more cost-effective solutions

Our support:

We recognize the importance of stock availability and fast turnaround, which is why we offer an instrumentation stocking program designed to help our OEM and system integrator partners respond quickly to customer needs, ensuring efficient, scalable systems that manage energy and cooling with precision and speed.

Need for precise system performance and reduced downtime

Our sensors deliver reliable, accurate measurements across flow, level, pressure, temperature and liquid analysis, ensuring optimal system operation.

Managing increased resource consumption from advanced computing workloads

Our instrumentation enables effective monitoring of energy and water usage, helping collaborators optimize cooling loops and water treatment systems.

Meeting sustainability goals and reducing environmental impact

We help OEMs and system integrators improve water quality, minimize waste and enhance cooling efficiency to support ESG initiatives.

Integrating instrumentation into complex or existing infrastructure

We offer engineering consultation and commissioning support to ensure seamless integration and long-term reliability.

Delivering consistent performance across global deployments

Our global presence and trusted expertise ensure consistent instrumentation performance and support across regions.

Reducing commissioning time and operational costs

Our pre-calibrated, dependable instrumentation helps collaborators accelerate deployment timelines and improve cost efficiency.

Performance optimization services

Enhance your maintenance and calibration processes sustainably.

Partner with Endress+Hauser process experts to manage and optimize your maintenance activities across your installed base, improving your Operational Equipment Efficiency (OEE).

How we can help

We collaborate with you to find the optimal balance between increasing performance, mitigating risks and reducing costs, ultimately enhancing production outputs and delivering superior business results.

- **Expert personnel:** Our team of qualified professionals with metrology and measurement technology expertise will manage, plan, schedule, execute and record maintenance activities for all your critical instruments
- **Proven process knowledge:** We ensure the availability and reliability of your installations
- **Safety and compliance focus:** We prioritize mitigating safety and compliance risks
- **Performance commitment:** We are dedicated to improving operations and reducing operational expenses

Benefits

- **Improve process efficiency:** Our experts provide in-depth analysis and recommendations to optimize your maintenance processes and long-term asset management strategy
- **Save costs and mitigate risks:** Leveraging global expertise and sensor data, we identify options to reduce operational costs and ensure compliance with defined requirements
- **Focus on core competence:** Endress+Hauser manages your day-to-day maintenance processes, continuously striving for improvements to boost your productivity and efficiency

Digital services for data centers

Unlock the power of digitalization with Netilion

Our cloud-based platform, Netilion, provides seamless access to digital data and analytics, empowering you to optimize your processes and eliminate risks.

Collaborate effortlessly with your trusted advisor to transform data into actionable insights and enhance process efficiency.

Optimize your operations

Digital Commissioning app: Manage projects with full visibility. Gain real-time insights into work progress, issues and completion status.

Asset management: Maintain a comprehensive analytical view of your installed base, ensuring you stay informed about asset information and status.

Comprehensive support and connectivity

Service Portal: Access on-demand knowledge articles and connect with our tech support team for expert assistance.

Remote connectivity: Stay connected to your devices to improve performance and reduce downtime with our remote support services.



Efficient reporting and verification

Calibration and maintenance reports: Receive digital delivery of certificates with summarized information for ease of use.

Heartbeat Technology verification: Perform comprehensive functional performance assessments remotely or on-site.

A reliable partner

At Endress+Hauser, we manufacture flow, level, pressure, temperature, liquid analysis and optical analysis products, and have a complete network of sales and service representatives to support products wherever they're installed.

New features transform us.endress.com into a powerful and intelligent cooperation platform that directly connects you to us and our extensive network of sales representatives. Your personalized space allows you to perform operations

within minutes. Manage transactions, purchase products, order spare parts, download documentation and access your contacts – whether at the office, in the field or while on the move – simply with **My Endress+Hauser**.



Register for a My Endress+Hauser account today



Find the representative partner closest to you



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