

High accuracy and maximum reliability

With certified loading and
offloading solutions for
custody transfer applications







"Can I increase my profit with your certified loading/offloading solution (e.g. API, MID)?"

"Will the skid be accepted by my buyer?"

"Can you guarantee the performance of your solutions long term?"

"Sure."

Your questions answered

Certified custody transfer solutions that save you time and money.

You know what they say: only trust those who know the rules and know how to run their business successfully.

Can I increase my profit with your certified loading/offloading solution and flow metering skid (e.g. API, MID)? Yes, you can. Our highly accurate and reliable Coriolis flowmeters require minimal maintenance and recalibration and, due to the large diameters, more ships/trucks can be handled per day, increasing your loading capacity. What's more, as they are unaffected by external conditions such as pipe vibrations, the safe operation of your loading and offloading processes are ensured. Small flange-to-flange dimensions reduce the weight of the skid and cost for shipment.

Will the skid be accepted by my buyer? Our loading/offloading solutions are successfully employed worldwide, showing our skids are well accepted in the market. The high accuracy and repeatability of our measuring devices,

according to API/MID, make sure you avoid claims from your customers and third party certification provides additional safety. Certified to ISO 9001, our standardized processes guarantee the high quality of our products and services.

Can you guarantee the performance of your solutions long term? Endress+Hauser has a global network of service centers, employing highly skilled and experienced service technicians. Our innovative products and services give our customers a competitive edge in their markets. Thanks to our W@M – Life Cycle Management and its various tools you will have easy access to all your documents and calibration certificates allowing you to maintain your assets efficiently throughout their life cycle. As a single-source provider, we offer professional and transparent collaboration that will ultimately save you time and money.



“With our certified solutions you will avoid claims from your customers and increase your profit.”

Can I rely on you as a solution provider for loading/offloading? Due to our worldwide presence and wide product portfolio, we are able to concentrate global know how to find the best individual solution for each customer. As an independent, family-owned company with a financially and economically sound foundation, Endress+Hauser is ideally placed to offer a long-term partnership.

Can you deliver in time? Based on the experience of many successfully realized projects, our dedicated project team in conjunction with our selected global or local sub-suppliers, will ensure your project is implemented on time and on budget.

Can I integrate your solution in my existing plant? As, the ‘People for Process Automation’, we are actively involved in standardization committees and user organizations such as Profibus or Fieldbus Foundation. Our fieldbus laboratory allows us to test the compatibility of our own and third party devices. This coupled with our long-term collaboration and experience exchange with selected partners in the automation business ensures seamless system integration. From the first site survey right through to the FAT/SAT before final hand-over of the project, we make sure that everything works properly.



Benefits

With our loading/offloading solutions you benefit from:

- Custody transfer metering skids conform with API (American Petroleum Institute) or MID (Measuring Instrument Directive)
- Enhanced accuracy and ‘correct’ mass provided by our high-quality instrumentation
- Smooth project handling thanks to our experience and close collaboration with calibration authorities



More information on our website:
www.products.endress.com/fms

Making the most of crucial competitive advantages with innovative solutions

Things are in a constant state of change – the list of demands is ever increasing. Modern-day oil refining faces a multitude of new challenges: the crude oil is of a poorer quality, there are many different varieties of crude oil originating from very different production locations, product specifications are much tighter and the industry is subject to more stringent environmental regulations. In addition, the need for greater cost-efficiency requires tighter schedules for crude oil loading processes for transporting the oil in pipelines, ships, trains or tank trucks. The refined products are blended to meet customers' specific requirements and, in some cases, are mixed with additives. In the oil & gas industry, this generally occurs as an inline blending process when the product is being loaded into the pipeline. Furthermore, there is frequent change of ownership of the product at the loading stations. It is therefore imperative that highly accurate measured values be available at the loading stations with minimum maintenance requirements.

Challenges

- Time-consuming and labor-intensive calibration and maintenance of custody transfer applications to achieve total confidence in the measurements
- Investment in safety systems to prevent overfilling and ignition
- Seamless integration in terminal automation systems
- Contamination of the product with gases and air affect accuracy of measurement results
- Long loading times reduce turnover
- Loading times must be met in order to ensure continuous supply (e.g. raw materials to refinery)
- Accurate blending required to comply with standards and norms



Commissioning site management

We engage the right level of expertise at the right time to meet project deliverables. Our on-site resource is strongly linked and has timely access to the Endress+Hauser organization to ensure all issues on site are resolved quickly and effectively. The Site Manager coordinates interfaces with all other contractors and provides status reports on commissioning progress. All commissioning and instrumentation documentation is coordinated for a seamless transition and handover to the plant operational staff at time of startup. Time is money.

We offer a Site Acceptance Test (SAT) to ensure reliable hand over of the system within the scheduled time frame.

Calibration service Custody transfer is all about throughput - but what about quality? The quality of measurement or pipeline contents during production and/or custody transfer is often underestimated. How can you ensure compliance with regulatory and industry requirements, whilst maintaining a 'balanced' calibration and maintenance regime? We ensure that all loading and offloading systems for liquids in custody transfer applications are approved in accordance with the MID and comply with the requirements of the American Petroleum Institute (API) – so you don't have to get bogged down with complex approval processes and are ensured of smooth commissioning and reliable loading right from the start!

Full service offering From highly specific tasks such as complete maintenance packages, our service support is structured to give you what you need, when you need it and as much as you need. Your local Endress+Hauser regional service support center will ensure that you get the best service right from the word go. Whatever your requirements, our highly qualified staff are no more than a phone call away. Being fully supported by 'best-in-class' tools and facilities is your guarantee that our standard of service is maintained wherever you are.

Our extensive service portfolio offers you real added value:

- Commissioning site management: Getting your plant up and running on time and on budget
- Calibration service: Loading systems with MID approval and API compatibility
- Complete service offering: Your competent service partner whatever your requirements

The more varied your requirements, the more Endress+Hauser solutions can offer you. Developed and designed by qualified employees using cost-effective, standardized processes, our loading solutions will seamlessly integrate into existing tank automation systems/SCADA/DCS.

A single-source supplier with sole responsibility for all your needs – from state-of-the-art, highly accurate technology, which will keep maintenance and recalibration requirements to a minimum, through to efficient certification processes.



For customer support and services go to:

www.products.endress.com/services

We know how

Your partner throughout the project execution phase.

Project management at Endress+Hauser focuses on individual customer needs and we contribute to ensuring that your project is completed with a minimum risk, on time and on budget. As your partner we cover all aspects of the project – from design, engineering and commissioning right through to information management. Our dedicated project managers are integrated in the customer project management team and participate throughout the whole process from project start up meeting until project handover meeting according to internal documented processes or with customer process and organization. The bottom line for you is time and cost savings with the added benefits of improved transparency and security. With Endress+Hauser all your needs are covered with just one competent partner.

Our engineering expertise ensures that we design the optimal automation solution for your requirements. With state-of-the-art engineering tools we execute the individual planning and design of the application and offer a flexible choice of appropriate system components. Our recommendations are based on techniques and solutions that have successfully proven themselves in numerous automation projects. We permanently strive to find efficient and sustainable solutions to meet the most diverse requirements.

Procurement for us simply means: the right product at the right price in the right place. We attach great importance to an efficient material management and procurement process – not only for our Endress+Hauser product range but third party products also. Our goal is to achieve a sustainable supply chain and optimize your project costs.



Managing import and export logistics represents a huge challenge. Today, with increasing globalization, project business can become increasingly complex. It involves not only producers and consumers but many other intermediaries too and hence it requires special knowledge and skills for management of project import/export transactions. Our import/export management capabilities and know-how play a critical role in facilitating and realizing the exporting ventures within your projects.

Service At Endress+Hauser we pride ourselves in providing high quality global service and sales support for our products and solutions – we even extend our service support to third party products! For us, customer satisfaction is key. As one of the largest process automation network of service experts, we'll help you to create new opportunities to maximize your return on investment and to reduce your operating risks, improving your sustainable plant productivity.

Quality management plays a major role at Endress+Hauser. Our internally standardized project management methodology provides clear guidelines and ensures that all projects are realized according to uniform rules. This guarantees a common understanding, collaboration and optimized integration in the customer project management team.

We know in advance what to expect thanks to our many years of experience managing projects in the loading/offloading industry. Anyone involved in the planning, modernization, fitting, management or maintenance of plants on a global scale will be fully aware of the problem areas. Our experience ranges from planning the system to successful implementation. Customers all over the world are happy to place their trust in us to guide them through this entire process.



Consistently delivering high quality – from the terminal to the end-user

Engineering, design and installation of truck loading and offloading stations for power plants in Saudi Arabia.

The customer: Saudi Electricity is a power plant operator in Saudi Arabia that aims to provide its customers with a reliable power supply whilst simultaneously ensuring optimum use of available resources.

“In the old days, we had to let the trucks wait for ½ hour to check if there was water or dirt in it. However, with the new flowmeters, it saves us time, saves us money.”

Ayman Al-Shareef, Senior Distribution Engineer,
Saudi Electricity Co.

Endress+Hauser was to reduce the amount of diesel lost during transportation from the terminals to the power plant and to guarantee consistently high quality loading (no contamination by water and air). The solution provider was also tasked with reducing the long offloading time of approx. 30 minutes and ensuring seamless integration into the existing SCADA system.

The solution

- Use of an air eliminator to remove any air introduced.
- Use of a Coriolis flowmeter to determine the quality of the oil (to detect contamination by water by measuring density).
- Optimized pump control for the loading and offloading process in the skid.
- Integration of the entire loading skid into the existing SCADA system.

The challenge: Saudi Electricity operates fossilfuel power plants that run on diesel. The company buys the diesel in tank loads from Saudi Aramco. Other distribution terminals are delivered via pipelines. One of the challenges facing

The products installed

36 offloading and 4 loading skids including engineering, construction and commissioning. Skids consisting of:

- Pumps
- Air eliminators
- Gate valves
- Inspection glasses
- Differential indicating switch
- Digital control valves
- Batch controller
- Coriolis devices

Advantages

- Irregularities detected immediately (by online/real-time density measurement).
- Reduced offloading time due to real-time density measurement and well-chosen pumps.
- Time savings as there is one main contact person for the project.
- Offloading skids delivered on time and within the agreed specifications.
- Standardized skid design.



For more detailed information on the solution delivered, please visit:

www.products.endress.com/loading-offloading



Watch our video and see for yourself what our customer says!







Achieving improved cost-efficiency with the correct loading solution

Custody transfer ship loading solution for bioethanol for Bio Fuel S.A in Zimnicea, Romania.



“We use Endress+Hauser flowmeters for loading bioethanol in freight cars and tanks, as well as for measuring the daily flow recorded by our bioethanol distillery.”

Corneliu Caragea, Instrumentation Engineer
SC Bio Fuel Energy SRL

The customer: Romania-based Bio Fuel S.A. is one of the largest bioethanol producers in Europe. Located directly on the river Danube, the company exports its bioethanol via freight ships down the river – and to do this it requires loading solutions that are suitable for custody transfer.

The challenge: In the past, the Bio Fuel S.A. exported the bioethanol via rail. This proved to be an expensive option. Loading using freight ships offers major advantages: they can carry more, are not as costly as transporting via rail and involve fewer export formalities. The new loading solution must offer a loading capacity of 300 m³/h and accuracy of 0.5 % and must be approved for custody transfer in accordance with the MID (Measuring Instrument Directive) which enables the Bio Fuel S.A. to export within the EU.

The solution

- Coriolis flowmeter guarantees high level of accuracy of the loading solution as customs and tax law apply to the loading and offloading of bioethanol.
- Dosing of loading quantities by means of a pneumatic shutoff valve and a batch controller.
- Measured data is recorded and documented using an MID-certified computer and printer, that are connected to a batch controller.
- System delivered in individual components – cost-efficient installation and wiring on-site by the customer.
- Loading skid was certified by metrological institute on-site.

The products installed

- Coriolis flowmeter
- Ball valves
- Sight glass
- Point level switch
- Batch controller
- Temperature transmitter
- Computer and printer

Advantages

- Cost savings achieved by new method of transport (water).
- Transporting by ship is more efficient due to higher loading capacities.
- Reliable measurement with greater accuracy thanks to measuring devices without moving parts.
- MID-certified measuring system means there is no need for additional quantity checks (scales).



For more detailed information on the solution delivered, please visit:

www.products.endress.com/loading-offloading



Watch our video and see for yourself what our customer says!



In good hands

A single point of contact for all your needs.

You know what they say: Only trust those who know the rules and know how to run their business. Operators, contractors and engineers need answers to their specific requirements. Make sure to get the answer that is perfect for your process – by choosing a partner with 60 years of experience and unrivaled expertise.

To allow you to concentrate on your core business, Endress+Hauser's dedicated loading/offloading project group will ensure compliance with all your local custody transfer requirements such as API and MID. We're committed to supporting you throughout to help you solve any issues in this process and offer clearly defined responsibilities right from the start.

At Endress+Hauser, our partnerships last throughout the entire life cycle of your plant - our support continues beyond the signing of the site acceptance test.

We have established service structures and useful tools such as our web-based tools from our W@M – Life Cycle Management portfolio that provide easy access to device information. They enable us to support you during the complete lifetime of the loading/offloading metering skid and help you to service, maintain and optimize your installed base cost-effectively.



For mobile access to your device information, we offer the Endress+Hauser Operations app. It offers fast access to device-specific documentation such as operating instructions, technical information, order code, availability, spare parts, successor products for old devices and general product information. Simply enter the serial number or scan the data matrix code on the device to download the information. Better still, you can share the information and documents with your colleagues by email.



Scan the QR-Code to download the Endress+Hauser Operations app and get mobile access to information about your installed Endress+Hauser instruments – wherever you are, whenever you need it.





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