Complete Solutions for CO_2 Flow Measurement

ACCURATE MEASUREMENT OF CARBON DIOXIDE

Flow Metering Systems

SICK
Sensor Intelligence.

CAPTURE, TRANSPORT, USE AND STORAGE OF CO_2

The amount of carbon dioxide (CO_2) released into the atmosphere has increased significantly since the beginning of the industrial age and reducing it is imperative in order to protect the environment. Carbon capture, utilization and storage (CCUS) and enhanced oil recovery (EOR) technologies play a significant role in combating climate change and can pave the way to a low-carbon future. With the development of CCUS and EOR technologies, new challenges for sensor solutions arise. SICK already offers numerous solutions for the entire gas process chain.

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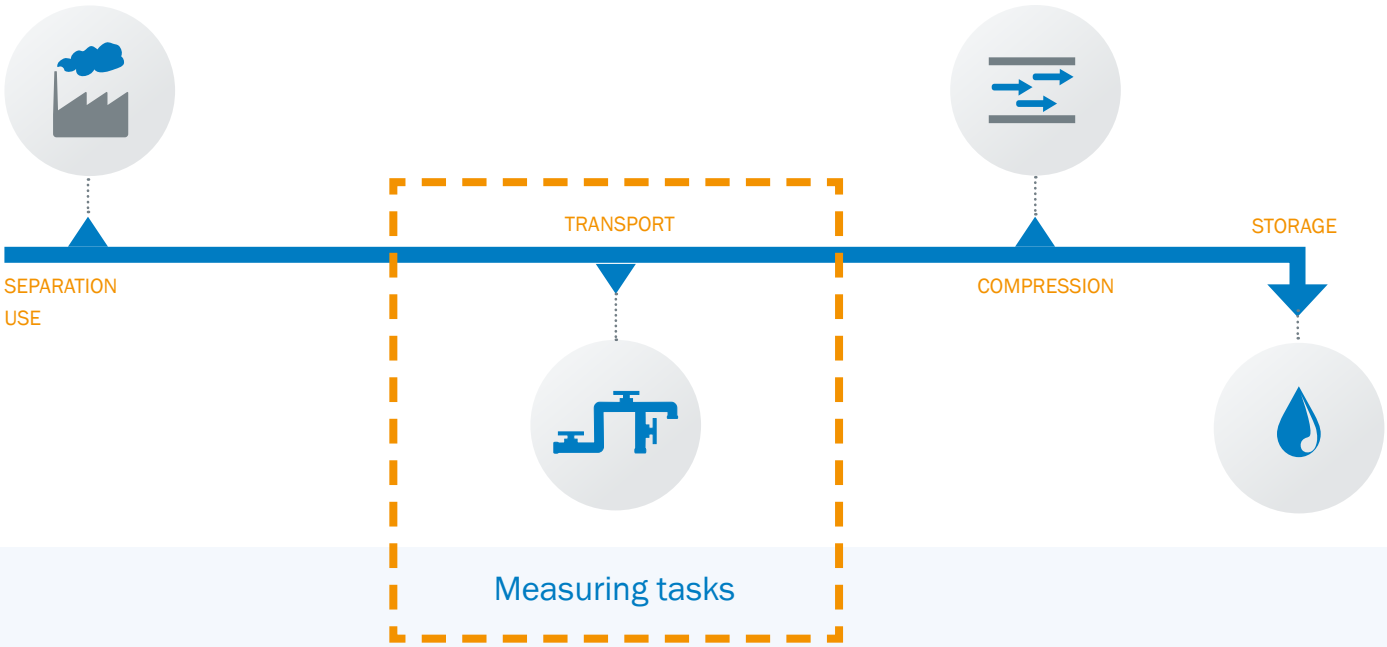
Subject to change without notice

SICK sensors solve a wide range of measuring tasks

Every day, large quantities of gas flow through lines and pipelines, often changing hands. Exact gas quantity measurement is of the utmost importance here, as even very small measurement errors could result in substantial economic loss. Before the separated gas is transported, stored or used, for example, measuring the gas quality is essential. This is because gas impurities can cause corrosion or influence conversion processes. Whether for quantity measurement, pressure measurement or temperature measurement, the measuring task for determining the gas flow are very diverse. In addition, harsh ambient conditions often prevail in demanding applications. Gas flow measuring instruments from SICK are up to almost any challenge. In compliance with valid norms and standards, they reliably measure a wide range of gases and are specifically aligned to the special requirements of the respective industry.



Gas composition measurement

Measuring the gas composition shows exactly which gases the gas stream contains and in what quantities.

Volume measurement

The quantity measurement indicates the amount of gas that has flowed through the line. It takes place in the gas flow meter, which then outputs the measured values to the flow computer.

Pressure measurement

Monitoring the pressure in the pipeline and responding to changes is important because gas pressure and gas volume are interdependent.

Temperature measurement

Temperature monitoring is just as important as pressure measurement, as gas expands or contracts due to temperature changes.

Flow calculation

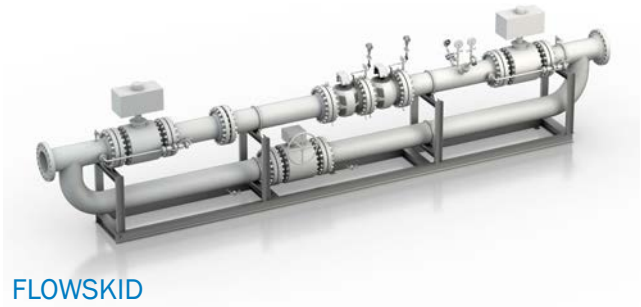
The values for composition, quantity, temperature and pressure serve as variables for the calculation of the calibrated gas flow rate.

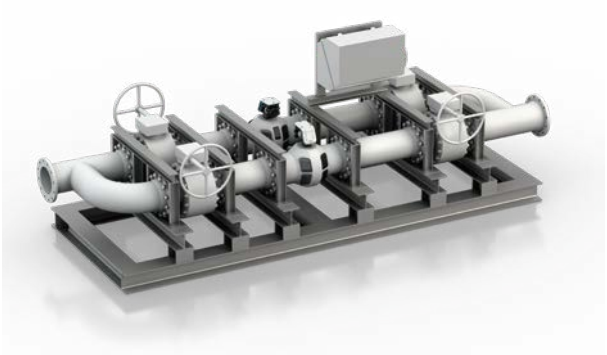
Supervisory system

The monitoring system provides an overview of all measurement activities. It records the data of the measuring components and transmits them to the main plant control system.

COMPLETE SOLUTIONS FOR GAS FLOW MEASUREMENT

With the FLOWSKID and FLOWRUN flow metering systems, SICK offers complete turnkey solutions for gas flow measurement. The systems can be flexibly configured and provide highly accurate measurement data. The heart of the metering skids is a FLOWSIC600 or FLOWSIC600-XT gas flow meter, which makes the systems very reliable. The metering skids can be expanded to include gas analyzers, gas chromatographs and flow computers and thus individually adapted to application requirements.





FLOWSKID

Reliable complete solution for fiscal measurements.

➜ www.sick.com/flowskid

GAS FLOW METERS: FLOWSIC600

Gas flow meters for custody transfer and process applications.

➜ www.sick.com/flowsic600

GAS FLOW METER: FLOWSIC600-XT

Perfect combination: Can be installed in all custody transfer applications and connected to all common flow computers.

➜ www.sick.com/flowsic600-xt

GAS FLOW MEASURING INSTRUMENT: FLOWSIC100 Flare-XT

Reliable gas flow measurement in flare gas systems, in extraction systems for oil and natural gas, refineries and chemical plants.

➜ www.sick.com/flowsic100_flare-xt

EXTRACTIVE GAS ANALYZERS:

Customized gas analysis for process and emission monitoring.

➜ www.sick.com/gms800

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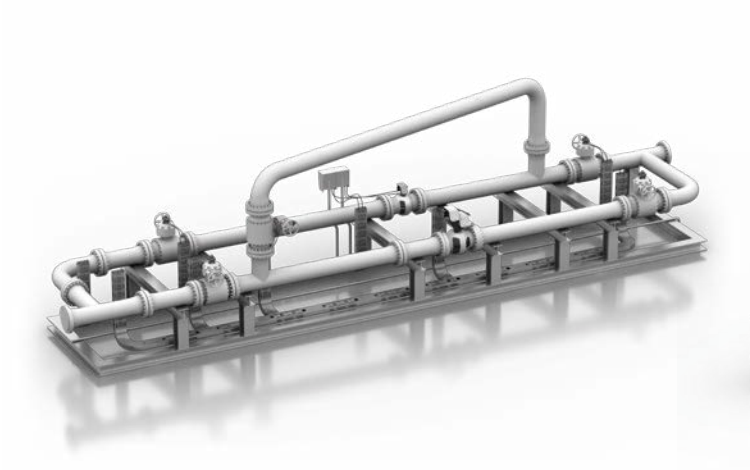
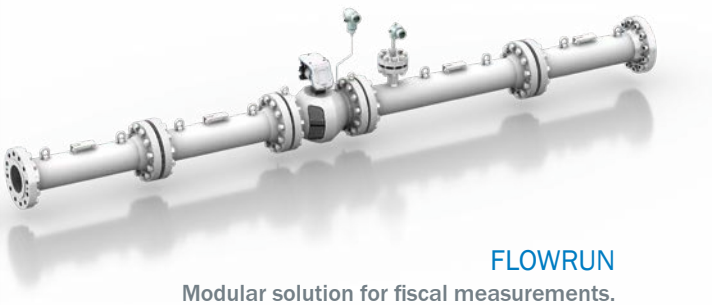
FLOW METERING SYSTEMS:

MINIMAL MEASUREMENT UNCERTAINTY.
PRECISE MEASUREMENT.
INDIVIDUAL EXPANSION POSSIBLE.

→ www.sick.com/flow-metering-systems





FLOWRUN
Modular solution for fiscal measurements.

→ www.sick.com/flowrun

Supervisory system:
Customized control unit.

→ www.sick.com/flowskid

DIGITAL FLOW SOLUTION: Flow-X
The optimal flow computer for gas measurements with gas flow meters and ultrasonic gas flow meters.

→ www.sick.com/flow-x

Shelter Solutions:
Space and protection for measurement and analysis technology.

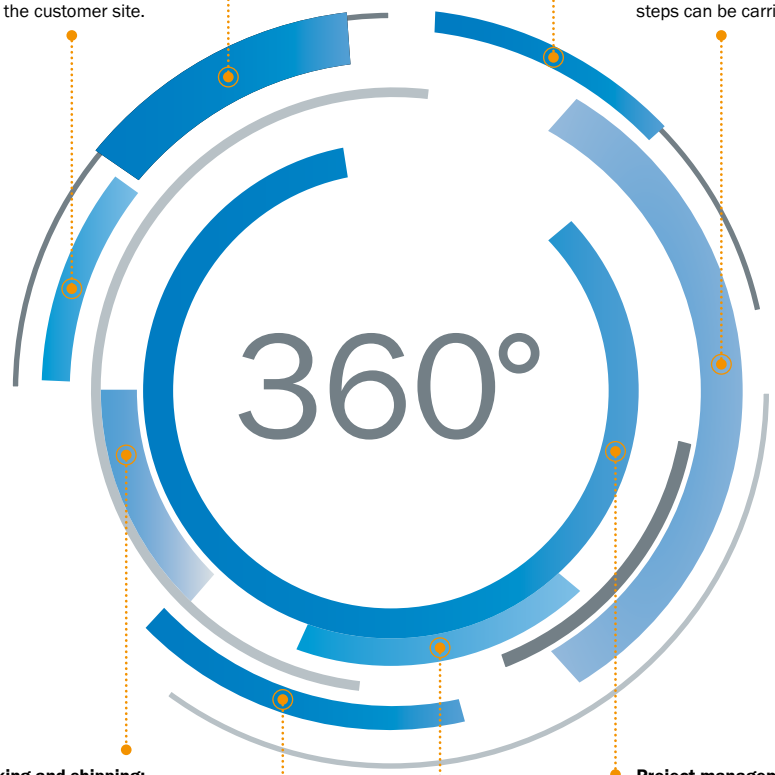
→ www.sick.com/sheltersolutions

SICK has many years of experience in all areas of the gas flow measurement industry. For gas measurement applications, the system supplier provides you with numerous complete solutions tailored precisely to the respective requirements. From the concept to the analyzer to the gas flow meter: SICK offers you everything from a single source all over the world.

Other solutions for CCUS applications:
→ **www.sick.com/ccus**

MODULARITY FOR OPTIMAL SYSTEMS

SICK takes a solution-oriented 360° approach to provide customers with gas measurement solutions tailored to their individual requirements. Our customers benefit from detailed personal consultation and flexible service throughout the entire project – from project planning to lifetime maintenance. One-stop shopping means improved schedules, lower costs and reduced risk.



Training and SICK LifeTime Services:
Should any issues arise during the life cycle of the installed system, our dedicated experts provide timely technical support. In addition, SICK provides comprehensive service training, instructing operators in the diagnosis and maintenance of all system components.

FEED consultation:
FEED stands for "front end engineering and design." The first step is crucial for trouble-free operation. Our capable experts offer valuable advice on the initial system concept, taking into account all process-related challenges.

Commissioning:
After installation, SICK provides support during commissioning to ensure smooth operation of the system. This includes identifying potential difficulties that may arise due to the particular conditions at the customer site.

Design and development:
The design is finalized down to the last detail, taking care to optimize production costs. This step requires a great deal of experience and must be carried out with due care, as it determines whether the following steps can be carried out as planned.

Packing and shipping:
SICK packages the system according to customer requirements. Everything is documented photographically and then sent directly to the customer.

Project management:
SICK project management works closely with the project management of the customer to ensure that the project runs smoothly and that the customer is informed of all events with transparency.

Calibration and integrated tests (factory acceptance/site acceptance):
After calibration, the system is certified for custody transfer and meets the requirements for low measurement uncertainty. The customer can now test the performance of the system during factory acceptance/site acceptance.

Manufacturing:
With SICK as a partner from the very beginning, all the threads come together successfully in this phase. The project is on schedule and meets the strict quality standards of our customers as well as international regulations such as ISO, DIN, ANSI and ASME certifications.

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WORKING WITH SICK IN A DIGITAL WORLD

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- Digital Service Catalog ➜ cloud.sick.com
- SICK AppPool ➜ apppool.cloud.sick.com

SERVICES FOR MACHINES AND SYSTEMS: SICK LifeTime Services

The sophisticated and versatile LifeTime Services perfectly complement the comprehensive SICK product range. Services range from product-independent consulting to traditional product services.

Consulting and design
Secure and professional

Product and system support
Reliable, fast, and on-site

Verification and optimization
Safe and regularly tested

Upgrade and retrofits
Simple, safe, and economical

Training and education
Practical, focused, and professional

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SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 10,400 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, SICK is always close to its customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents, and preventing damage to the environment.

SICK has extensive experience in various industries and understands their processes and requirements. With intelligent sensors, SICK delivers exactly what the customers need. In application centers in Europe, Asia, and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes SICK a reliable supplier and development partner.

Comprehensive services round out the offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

That is "Sensor Intelligence."

Worldwide presence:

Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Hong Kong, India, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Romania, Russia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, USA, Vietnam.

Detailed addresses and further locations → www.sick.com

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Sensor Intelligence.