PRODUCT INFORMATION

FLOWSIC30

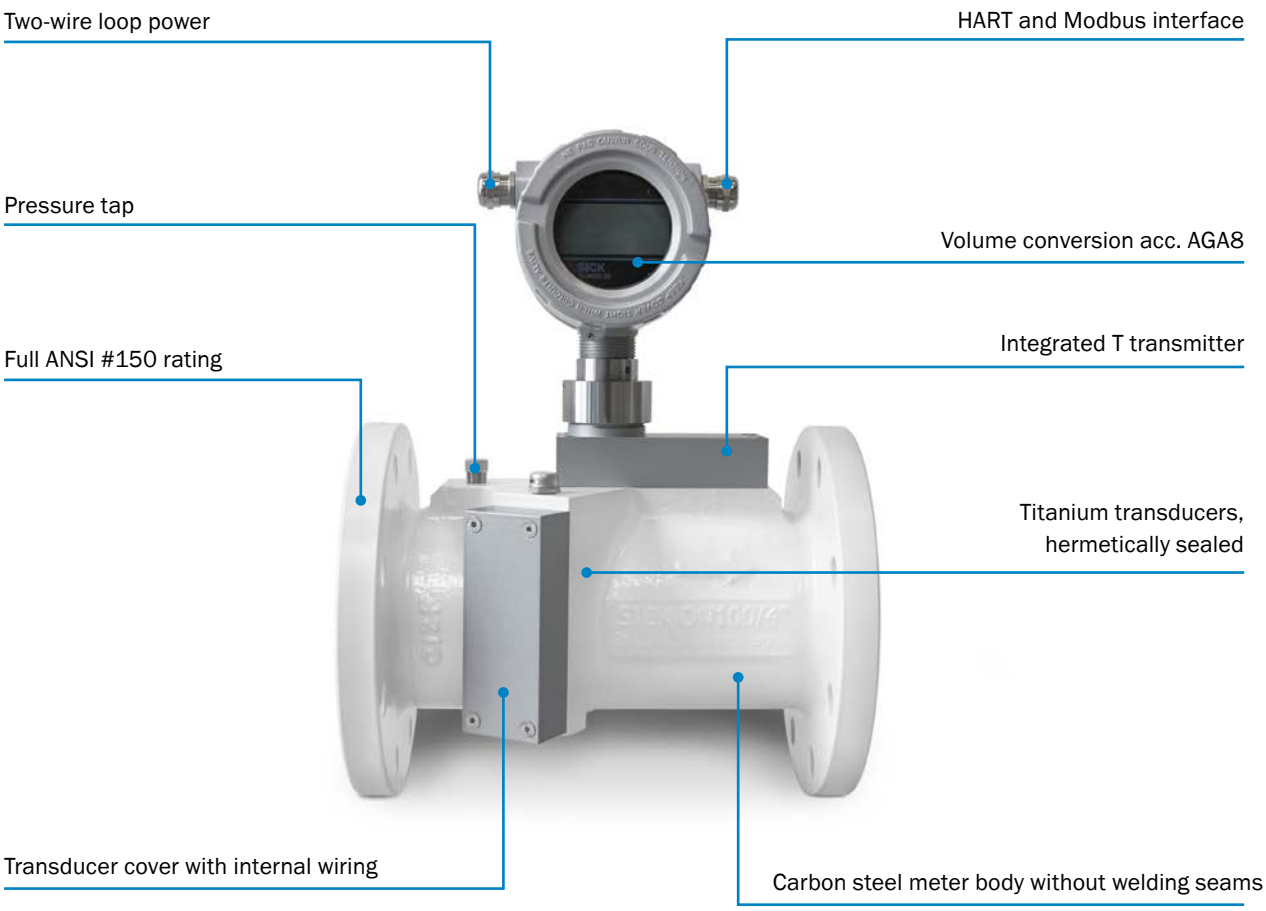
ULTRASONIC GAS FLOW METER FOR WELLHEAD APPLICATIONS

Gas flow meters

SICK
Sensor Intelligence.

COST EFFICIENCY IN ULTRASONIC BASED WELLHEAD METERING

Coal bed methane is a major part of the huge unconventional gas resources worldwide and is becoming increasingly important for the world's energy supplies. Thousands of wells must be drilled to produce this gas, each with varying quality, impurities and unpredictable flow rates over lifetime. A robust wellhead meter that operates reliably under these conditions, that covers the full range of well flow rates and that lowers costs by being virtually maintenance-free can contribute significantly to the profitability of this business. Ultrasonic gas flow meters are perfectly suited for this job and SICK is a leader in the ultrasonic gas flow metering technology. With our vast experience in natural gas metering even for dirty and wet gases, we have created a customized ultrasonic gas flow meter for gas production applications. FLOWSIC30 – a meter that combines reliability and longevity for long, unmanned operation in remote locations.



8018622/2016-04
Subject to change without notice

Reliability is vital

Maintenance on wellheads is costly, especially if the wells are in remote locations. FLOWSIC30 requires virtually no maintenance since it has no moving parts and is not subject to wear. Without flow obstructions and with retracted sensor positions, the potential for scaling of the meter is minimized. The sensor pockets are enlarged so that liquids can easily drain off. This gives you the certainty of reliable and long-term stable readings without the need for regular maintenance.

Continuous readings in all conditions

With our ultrasonic gas flow meters for gas production applications, SICK has a track record of more than 10 years of field experience. We have gained vast experience from these installations worldwide and are continously improving our meters. SICK's ultrasonic sensors have proven they can overcome the challenges of contaminants, liquids and oil in the gas stream in various field installations as well as in international research projects. This know-how has been combined to create FLOWSIC30 – a meter consequently designed for wellhead metering in harsh ambient conditions.

Fast, easy and secure integration

Two major aspects drive wellhead skid design: Safety and cost. With full ANSI Class 150 design and a carbon steel meter body, FLOWSIC30 can be easily integrated into standard piping skids without restrictions. In order to lower costs, meter commissioning has been kept simple and can be completed in just a few steps. An integrated temperature transmitter, minimal power consumption of less than 65 mW and the two-wire loop power concept reduce wiring and require only a minimal RTU infrastructure – a contribution to profitable wellhead skids.

Diagnostics not only for the meter

FLOWSIC30 diagnostics permanently monitor the meter performance and generate warnings in case of findings that require detailed diagnosis by operators. With the optional RS485 interface, the powerful FLOWgate device software can be used to visualize detailed diagnostic data and to access the device event log and data archives.
In addition FLOWSIC30 is equipped with a unique liquid indication diagnosis that provides valuable information for well monitoring. The liquid indication detects relevant amounts of liquids in the gas stream and enables operators to take appropriate action. This is sensor intelligence.

Digital communication versatility

Meter readings and diagnosis results are usually routed via a Remote Terminal Unit to a DCS or SCADA.
In the standard configuration, FLOWSIC30 is fitted with a with loop-powered 4...20 mA, HART compatible interface that uses standardized commands to transfer the meter readings. Optionally, FLOWSIC30 can be ordered with an additional Modbus RS485 interface, which has become an oil and gas industry standard, to give full (remote) access with the FLOWgate software. Thanks to this communication versatility, FLOWSIC30 can be easily integrated into existing communication networks.

AGA8 volume conversion

In order to compare gas flows from different wells and balance them through different stages in the gas production process they are usually converted to standard volume by taking pressure, temperature and compressibility into consideration. FLOWSIC30 is optionally available with integrated volume conversion according to AGA report No. 8. It thus provides standard flow rate readings in accordance with common standards. The pressure signal can be read via the HART bus, and the temperature transmitter is part of the FLOWSIC30.

VERSATILE ULTRASONIC GAS FLOW METER FOR GAS PRODUCTION

Product description

Ultrasonic gas flow meter FLOWSIC30 is designed for use in natural gas production applications such as coal bed methane. The dual-path meter comes with a robust carbon steel meter body and full-titanium transducers. The ultrasonic measurement technology has no moving parts and is virtually maintenance free. The rugged design with integrated wires protects the meter from harsh ambient conditions while the large turn-down ratio typically covers all flow rates from a gas production well. FLOWSIC30 is equipped with integrated diagnostics that monitor the meter status and indicate the presence of liquids in the gas stream. With integrated temperature measurement and volume conversion according AGA 8 it provides standard flow readings and reduces installation efforts. Power consumption of only 65 mW and the two-wire loop powered concept make integration easy while HART® and Modbus communication provide versatility in data transfer.

At a glance

- Reliable and continuous readings
- Hermetically sealed full-titanium transducers
- Loop-powered two-wire transmitter with digital HART® interface
- Turndown ratio ≥ 80:1
- ANSI Class 150 carbon steel meter body without welds
- Rugged design with integrated wires
- Smart meter diagnostics
- Integrated temperature transmitter as a standard

Your benefits

- High uptime of wells – Minimized meter scaling and long-term stable readings
- High field reliability and continuous readings – Titanium transducers and 30 years of experience in ultrasonic gas flow metering
- Reduced maintenance – Smart meter diagnostics allow for long unmanned operation
- A meter for well lifetime – Turn-down ratio ≥ 80:1 covers all well flow rates
- Long service-life – Rugged meter design with integrated wires
- Fast, easy and secure integration into wellhead skids
- Low installation effort – Loop-powered two-wire concept requires minimal RTU infrastructure
- Easy remote monitoring – User-friendly device software

Additional information

→ www.sick.com/FLOWSIC30

For more information, simply visit the above link to obtain direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

8018622/2016-04
Subject to change without notice

Fields of application

- Natural gas production
- Wellhead metering of coal-seam gas / coal-bed methane

Detailed technical data

The exact device specifications and performance data of the product may deviate from the information provided here, and depend on the application in which the product is being used and the relevant customer specifications.

System

Measured values	Gas volume s. c., gas volume a. c., error volume a. c., error volume s. c., volumetric flow s. c., volumetric flow, a. c., gas temperature, sound velocity
Number of measuring paths	2
Measurement principle	Ultrasonic transit time difference measurement
Measuring medium	Coal seam gas, natural gas, methane
Measuring ranges	
Volumetric flow, a. c.	20 ... 1,600 m³/h
Repeatability	≤ 0.5 % of the measured value
Uncertainty of measurement	
Volumetric flow, a. c.:	≤ ± 1.5 % In the range from 100 ... 1,600 m³/h
	≤ ± 3 % In the range from 20 ... 100 m³/h
	Factory adjusted at ambient air and ambient pressure Verified with pipe configurations acc. OIML R-137:2012 Annex B (mild)
Diagnostics functions	Integrated device diagnosis Liquid indication
Gas temperature	
	–10 °C ... +80 °C
Operating pressure	0 bar (g) ... 19.6 bar (g)
Nominal pipe size	
	DN100 / 4 inch, schedule STD
Ambient temperature	
	–25 °C ... +60 °C
Storage temperature	–25 °C ... +70 °C
Ambient humidity	≤ 95 % Relative humidity
Ex-approvals	
IECEx	Ex d e ia [ia] IIA T4 Gb
ATEX	II 2G Ex d e ia [ia] IIA T4 Gb
Enclosure rating	
	IP 66 / IP 67
Analog outputs	1 output: 4 ... 20 mA
Interfaces	RS-485 (option), externally powered
Bus protocol	HART® compatible Modbus ASCII / RTU (option)
Dimensions (W x H x D)	300 mm x 375 mm x 229 mm (for details see dimensional drawings)
Weight	28 kg
Material	Meter body: carbon steel (ASTM A350 LF2 or ASTM A352 Gr. LCC)
Electrical connection	
Voltage	16 ... 30 V DC

	Via AO loop, 2-wire-concept
Power consumption	< 65 mW
Process connections	Connection flanges: 4″ ANSI B16.5, Class 150 RF

Volume correction

Accuracy	
	≤ ± 0.5 % Depending on the uncertainty of pressure measurement
Correction method	PTZ or TZ
Compressibility	AGA 8 Gross method 1 AGA 8 Gross method 2

Integrated temperature sensor

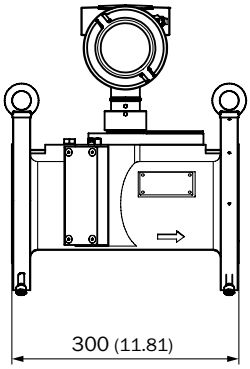
Description	Digital sensor, mounted into thermowell
Measuring ranges	
Temperature	–10 … +80 °C
Uncertainty of measurement	
	≤ ± 0.3 % Of the measured value in K

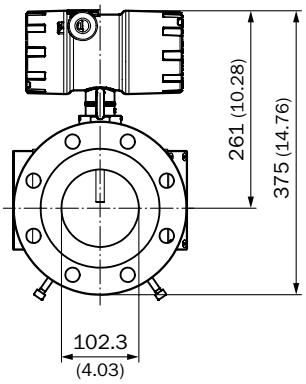
Ordering information

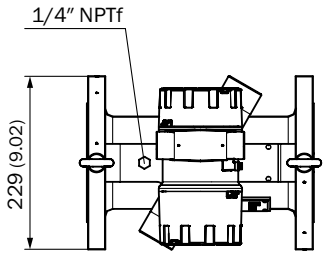
Our regional sales organization will help you to select the optimum device configuration.

8018622/2016-04

Dimensional drawings (Dimensions in mm (inch))

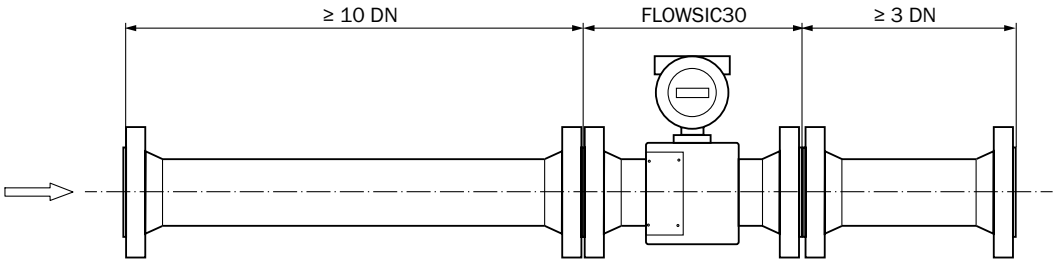






Instruction for installation

FLOWSIC30 integration for unidirectional use

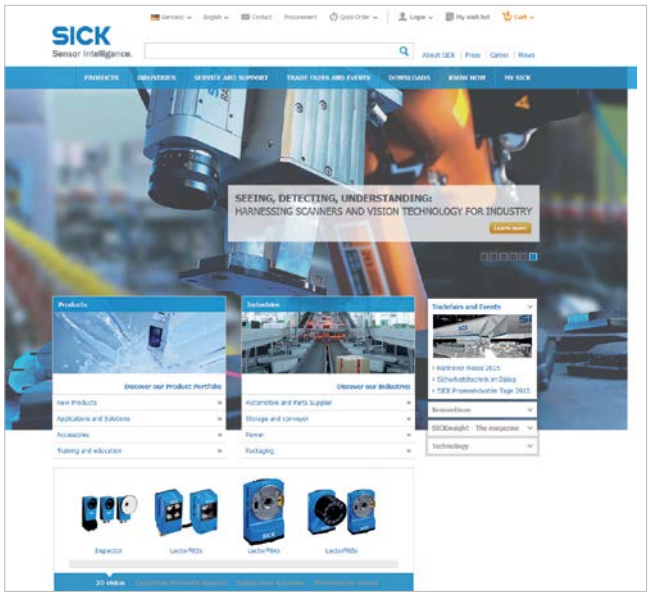


8018622/2016-04
Subject to change without notice

8018622/2016-04
Subject to change without notice

REGISTER AT WWW.SICK.COM TODAY AND ENJOY ALL THE BENEFITS

- Select products, accessories, documentation and software quickly and easily.
- Create, save and share personalized wish lists.
- View the net price and date of delivery for every product.
- Requests for quotation, ordering and delivery tracking made easy.
- Overview of all quotations and orders.
- Direct ordering: submit even very complex orders in moments.
- View the status of quotations and orders at any time. Receive e-mail notifications of status changes.
- Easily repeat previous orders.
- Conveniently export quotations and orders to work with your systems.



SERVICES FOR MACHINES AND SYSTEMS: SICK LifeTime Services

Our comprehensive and versatile LifeTime Services are the perfect addition to the comprehensive range of products from SICK. The services range from product-independent consulting to traditional product services.

Consulting and design
Safe and professional

Product and system support
Reliable, fast and on-site

Verification and optimization
Safe and regularly inspected

Upgrade and retrofits
Easy, safe and economical

Training and education
Practical, focused and professional

8018622/2016-04 · Pre USmod en44

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With almost 7,000 employees and over 50 subsidiaries and equity investments as well as numerous representative offices worldwide, we are always close to our 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.

We have extensive experience in various industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our 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 us a reliable supplier and development partner.

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

For us, that is "Sensor Intelligence."

Worldwide presence:

Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, 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 additional representatives → www.sick.com

SICK AG | Waldkirch | Germany | www.sick.com

SICK
Sensor Intelligence.