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instrumentation & automation

flow

level

pressure

temperature

analysis

YOUR INDUSTRIAL SOLUTIONS GUIDE

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COMPANY PROFILE

KONTSIS Electronic Measurements Technologies and Automation Systems Limited, is a company that sells process instruments with global distributorships in Turkey and places great importance on technical support and customer relations. With years of experience and expertise, we provide our customers with the highest quality products and bring added value to the industrial sector.

Customer satisfaction is at the heart of KONTSİS business philosophy. We work with an expert team to understand our customers' needs, provide the right products and solutions, and offer after-sales support. As a result, we establish long-term partnerships with our customers by providing them with the most suitable solutions for their needs.

With global distributorships, KONTSIS offers its customers the best brands. This enables our customers to easily access leading brands' products in the industry and make their work more efficient by using the highest quality products.

Technical support and customer relations are among KONTSIS top priorities. Our expert technical team intervenes quickly and effectively in case of any problems that our customers may experience with our products. Additionally, we strive to establish long-term business relationships with our customers.

KONTSIS works to provide its customers with the highest quality products and always prioritize customer satisfaction. By offering solutions that meet the needs of the industrial sector, we will continue to add value to the industry.

Sectors we work with:
- Chemical and Petro-Chemical
- Oil & gas
- Machinery
- Water Treatment
- Cement
- Steel
- Automotive
- Defence & Aerospace
- Energy
- Marine
- Food & Beverage
- Mining
- Textile

FLOW MEASUREMENT

FLOW MEASUREMENT

Coriolis Mass Flowmeters and Density Meters

Triocorflow Coriolis Mass Flowmeters
Features & Benefits

- ▸ U and diamond shape (D-shape) tube design
- ▸ Robust, no moving parts for long life
- ▸ Custom flow connectors & installation lengths
- ▸ Compact and remote transmitter styles
- ▸ Excellent repeatability (±0.05 % of flow rate)
- ▸ High pressure option up to 345 bar

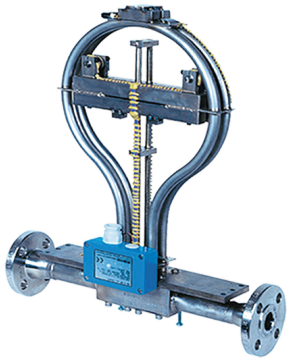
Mass Flow Sensors Main Features

- ▸ Liquid and gas flow measurement
- ▸ Real time multifunction flow/density/ temperature measurement
- ▸ Size from ¼“ up to 3”
- ▸ Flow range from 3.2 kg/h to 230.000 kg/h
- ▸ Flow Measurement accuracy down to ±0.10 %
- ▸ Density Calibration ±1.0 kg/m3
- ▸ Flow Measurement Repeatability down to ±0.05 % of rate
- ▸ Temperature Measurement accuracy ±1 °C ±0.5 % of reading
- ▸ Turndown 100:1
- ▸ Cycle time less than 10 ms (Depend on model)
- ▸ Up to 0.05 % uncertainty
- ▸ Process temperature: -60°C up to +200 °C (Depend On Model)
- ▸ Pressure Range :Up to 345 bar (Depend On Model)
- ▸ Process Connections: Various Threaded, ASME or EN flanges, Tri-Clamp
- ▸ AISI 316L Materials for wetted parts

Transmitters Main Features

- ▸ Compact and remote mount type transmitters
- ▸ Configuarable analog and digital inputs/outputs
- ▸ Exapandable I/O with modules
- ▸ Advanced diagnostics, data processing and logging (Depend On Model)
- ▸ DSP technology with adjustable filters (Depend On Model)
- ▸ HART, RS 485 / Modbus RTU, , Profibus DP, Foundation Filedbus
- ▸ Approvals: ATEX, IECEx, cCSAus,3A (Sanitary), EAC (TR, American Bureau of Shipping (ABS), RMSS (Russia Maritime Register of Shipping), OIML 137 For hydrogen custody transfer

Rheonik Coriolis Mass Flowmeters



Features & Benefits

► The Omega tube product design (allows to serve extraordinary applications)
► Heavy Wall Thickness (permits high pressure and higher temperature applications and o provides long-term stability against potential abrasion and corrosion)
► Energizing Torsion Rod (highly reliable measurement in difficult conditions, i.e. bubbles in liquid or non-homogeneous fluids with different densities)
► Stabilizing Mass Bar (reduces susceptibility to external vibration and process borne dampening conditions)

Mass Flow Sensors Main Features

► Liquid and gas flow measurement
► Real time multifunction flow/density/ temperature measurement
► Size from ¼“ up to 12”
► Flow range from 0.001 kg/min(1gr/min) to 30,000 kg/min (30 ton/min)
► Flow Measurement Uncertainty down to ±0.10 %
► Density Calibration down to ±0.0005 kg/liter
► Flow Measurement Repeatability down to ±0.05 % of rate
► Temperature Measurement better than ±1 °C
► Turndown > 100:1
► Sample rate Up to 4000 measurement cycles/sec (Depend On Model)
► Up to 0.05 % uncertainty
► Process temperature: -196°C up to +350 °C (Depend On Model)
► Pressure Range Up to 1722 bar (Depend On Model)
► Industrial design, acc to ASME and NACE Standarts
► Process Connections: Various Threaded, ASME or EN flanges, Tri-Clamp
► Exotic materials available (SS 16L/ SS 316Ti, Alloy C22-2.4602, Super Duplex – 1.4410, Tantalum, UNS R05200), Sandvik HP160 and more
► Enclosure heating for high temperature applications
► Cleaning for oxygen service

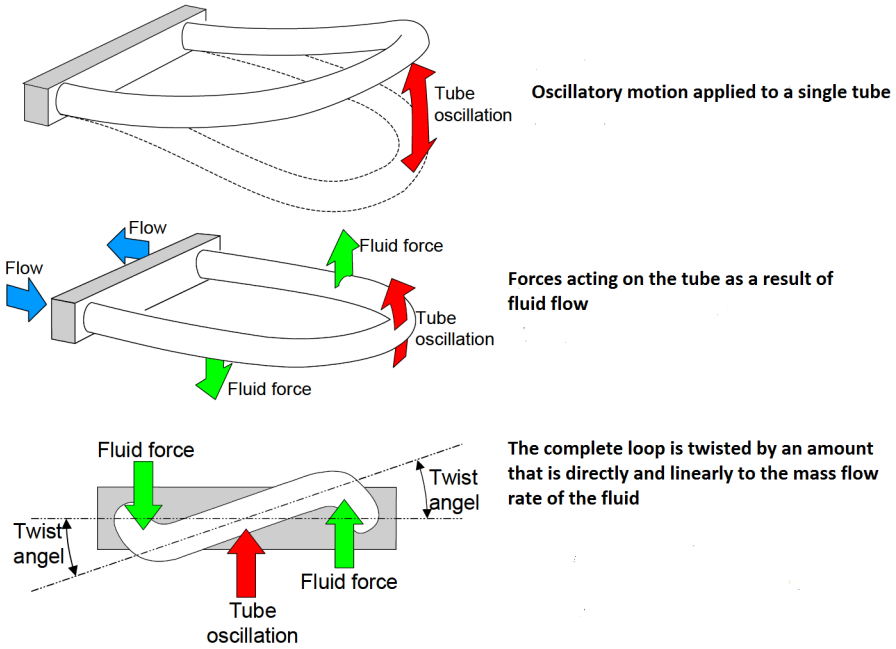
Transmitters Main features

► Compact and remote mount type transmitters
► Configuarable analog and digital inputs/outputs
► HART, RS 485 / Modbus RTU, Modbus TCP, Ethernet IP, Profinet, EtherCAT, PowerLink, Profibus DP, DeviceNet and CANopen communication protocols and more
► Partially Filled Pipe Management Function
► Batch and PID Controller
► Hardware Lock Switch for custody transfer applications
► Assurance Factor® at any time for all transmitters
► Approvals: ATEX, IECEx, MID custody transfer approval (OIML R117), American Bureau of Shipping (ABS), DNV, PED 2014/68/EU, OIML 139 For hydrogen custody transfer
Project Documentation and QA, Services offered are, but not limited to:
► Certificates of origin and conformity, mill certificates
► Data books including WPAR, WQS, NDT, test & quality plans, functional testing, calibration procedures, customized packing, FAT, ITP etc.

KONTSIS instrumentation & automation

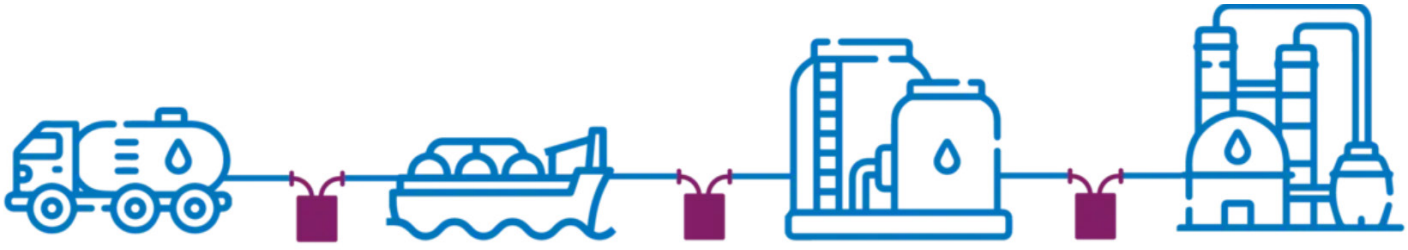
Principle of Operation Coriolis Mass Flow Meter

Each mass flow meter has two measuring tubes. The oscillating system is driven by two controlled electromagnetic excitation coils. As liquids or gases flow through the oscillating tubes, the Coriolis force is created and causes a slight deflection of the two measuring tubes from their original shape. The opposing tubes are referenced to each other and the changes in deflection are proportional to the mass flow rate. In practice, the referencing is done by attaching small pickup coils that generate sinusoidal voltages. The degree of deviation of the phase shift is directly proportional to the mass flow.

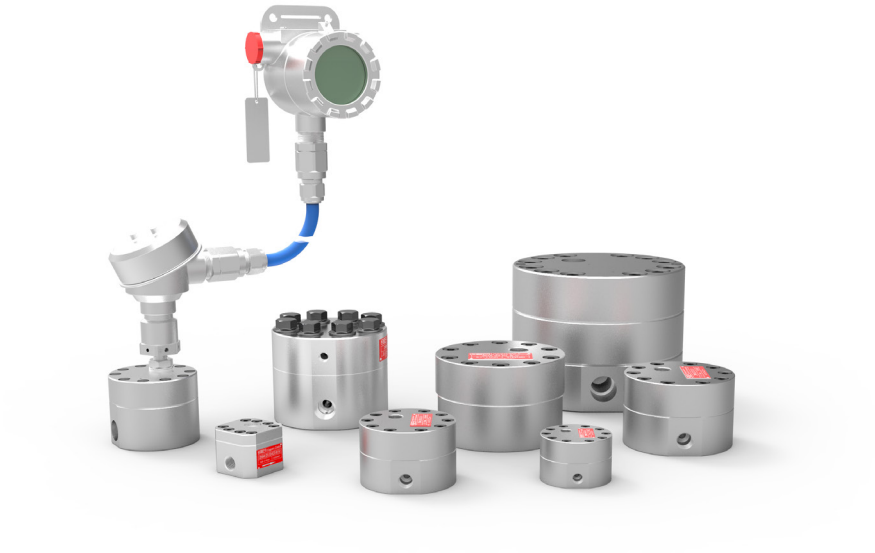


Main Applications

- ▸ Chemical Injection
- ▸ Loading & Unloading
- ▸ LACT – Lease Automatic
- ▸ Custody Transfer units
- ▸ Adhesives & coating
- ▸ H2 Filling stations
- ▸ Pipeline delivery systems
- ▸ Truck and railcar loading
- ▸ Asphalt/bitumen/Kerosene
- ▸ High pressure chemical injection
- ▸ Crude oil
- ▸ Oil/Water Separation
- ▸ Bunkering
- ▸ Fuel consumption management



Gear Flowmeters



Main Features

- ▸ Flow Range: 0.002 - 1,000 l/min
- ▸ Viscosity Range: 1 - 25,000 mm²/s
- ▸ Measuring Accuracy: Up to ±0.1 %
- ▸ Repeatability: <0.1 %
- ▸ Lineraity: ±0.5 % of actual flow (viscosity ≥ 30 mm²/s)
- ▸ Maximum Pressure: up to 1,035 bar
- ▸ Temperature Range: -40 up to +220 °C (-40 up to +428 °F)
- ▸ Maximum Pressure: up to 1050 bar
- ▸ Display/Electronic: Compact, remote
- ▸ Outputs: Freely programmable 4...20 mA and programmable frequency output
- ▸ Ex Certifications: ATEX, IECEx, CSA
- ▸ Applicable for electrostatic/ESTA applications

Materials

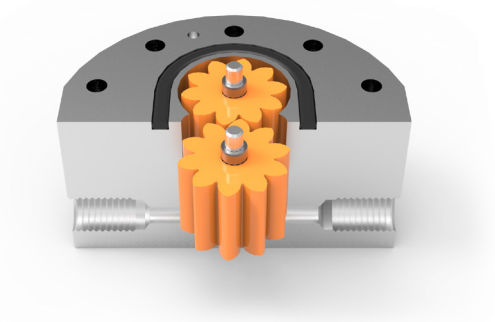
- ▸ Housing: As per DIN 1.4305 (AISI 303), 1.4404 (AISI 316L), other material on request
- ▸ Wheels: As per DIN 1.4122, 1.4501 (AISI F55), other material on request
- ▸ Bearing: Tungsten carbide Seals: FKM, PTFE, FFKM, NBR, EPDM

Operating Principle

For lubricating and non-lubricating liquids

Gear flow meters (ZHM) are positive displacement meters. Two precise gears rotate freely inside the measuring chamber. Sealed cavities are created between the gears and the housing. The measured media causes the rotation of the gears. The flowing medium is distributed evenly in the measuring chamber and causes the rotation of the gears. The gear wheels rotate freely and undamped in the media flow. Their rotational frequency is proportional to the flow rate and is measured by non-intrusive sensors (pickups) through the housing wall.

These meters are suitable for accurate measurement of different liquids with viscosities of approximately 1 to 25,000 mm²/s.



Helical Flowmeters

Main Features

- ▸ Flow Range: 0.04 l/min to 400 l/min
- ▸ Viscosity Range: 1 - 1,000,000 mm²/s
- ▸ Measuring Accuracy: Up to ±0.1 %
- ▸ Repeatability: ±0.05 %
- ▸ Lineraity: Up to ±0.25 % of actual flow
- ▸ Maximum Pressure: up to 400 bar
- ▸ Temperature Range: -20 up to +150 °C (-40 up to +428 °F)
- ▸ Display/Electronic: Compact, remote
- ▸ Outputs: Freely programmable 4...20 mA and programmable frequency output
- ▸ Ex Certifications: ATEX, IECEx, CSA
- ▸ Applicable for electrostatic/ESTA applications

Materials

- ▸ Housing: As per DIN 1.4305 (AISI 303), 1.4404 (AISI 316L), other material on request
- ▸ Helicals: As per DIN 1.4122, 1.4435 (AISI 316L), other material on request
- ▸ Bearings: Tungsten carbide
- ▸ Seals: FKM, PTFE, FFKM, NBR, EPDM

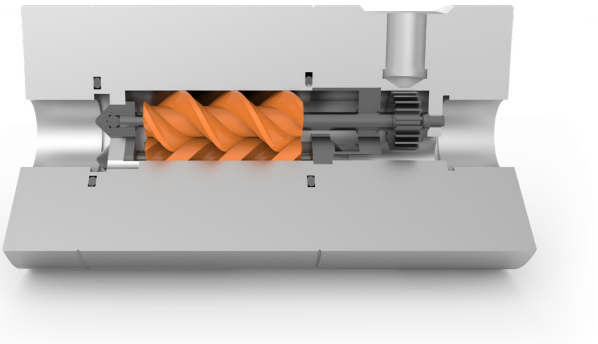
Operating Principle

For high-viscosity and abrasive media

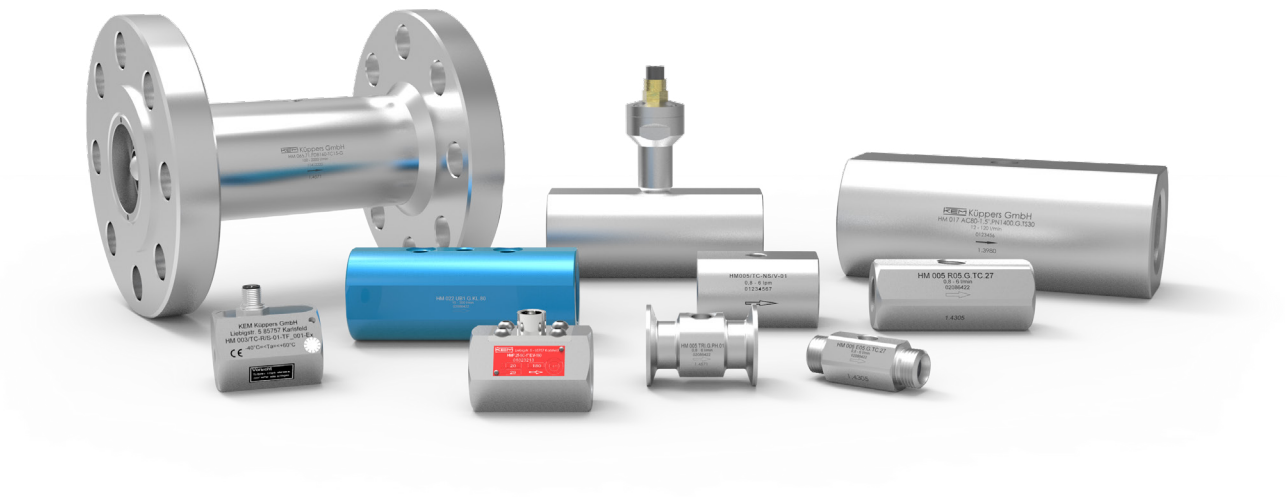
The helical flowmeter (SRZ) works according to the displacement principle. Two cycloidal helical spindles with geometrically lapped profiles that interlock with high precision lie in a cylindrical housing. This creates enclosed measuring chambers between the spindle profiles and the wall of the housing. These transport the medium being measured.

The medium is forcibly guided and flows through the measuring chamber bores in the axial direction, causing the spindles to rotate. This process is pulsation-free with minimum leakage. The rotational speed of the spindles is exactly proportional to the volume flow over a very wide range. Impulses per unit of volume are available for the analysis.

Thanks to the minimal pressure loss and low shearing, the KEM helical flowmeter is especially well suited for measuring high-viscosity media.



Turbine Flowmeters



Main Features

- ▸ Flow Range: 0.03 l/min to 48,000 l/min
- ▸ Viscosity Range: 0.8 up to 100 mm²/s
- ▸ Measuring Accuracy: Up to ±0.1 %
- ▸ Repeatability: ±0.05 %
- ▸ Lineraity: ±1 % of actual flow
- ▸ Maximum Pressure: up to 4.000 bar
- ▸ Temperature Range: -196 °Cup to +350 °C (-321 °F up to +662 °F)
- ▸ Display/Electronic: Compact, remote
- ▸ Outputs: freely programmable 4...20 mA and programmable frequency output
- ▸ Ex Certifications: ATEX, IECEx, CSA
- ▸ Applicable for electrostatic/ESTA applications

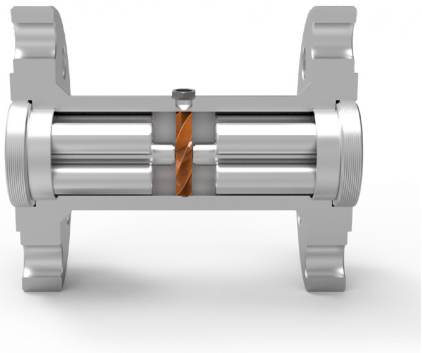
Materials

- ▸ Housing: As per DIN 1.4305 (AISI 303), 1.4404 (AISI 316L), other material on request
- ▸ Helicals: As per DIN 1.4122, 1.4435 (AISI 316L), other material on request
- ▸ Bearings: Tungsten carbide
- ▸ Seals: FKM, PTFE, FFKM, NBR, EPDM

Operating Principle:

Measure continuous and discontinuous flow rates

Turbine flow meters (HM) are volume counters operating on the Woltmann impeller counter principle. They record the flow rate in the flow-through in a pipe via the average flow velocity. The flow of the medium is directed at the turbine wheel in the axial direction and so rotated. The speed of the freely turning wheel over a wide range is directly proportional to the average flow velocity. Turbine flowmeters are used mainly for applications with lubricating and non-lubricating media. They are especially well suited for the flow rate measurement of low and medium-viscosity liquids such as water, emulsions, glycol mixtures, and light oils. Measuring cryogenic liquids is possible as well. Numerous different process connections are available thanks to the flexible design.



Evaluation Eletronics Pickups and Amplifiers

Pickups and Amplifiers

Evaluation Electronics

Accessories

Electromagnetic Flowmeters

Electromagnetic Flow Meters
Electromagnetic flow meters manage critical flow applications to improve accuracy, decrease system maintenance and meet the demands of challenging liquid conditions. This volumetric flow meter does not have any moving parts and is ideal for wastewater applications or any dirty liquid that is conductive or water-based.

Working Principle
As a conductive fluid—like water—flows through the magnetic field, a voltage is induced across the two measuring electrodes. The resulting voltage magnitude is directly proportional to the average velocity of the fluid. The induced voltage is then amplified and digitally processed to produce an accurate digital or analog signal. This signal can then be used to indicate flow rate or totalization of fluid volume, or to communicate or interface with another piece of equipment.

Main Features
- ► Flow Direction: Uni-directional and bi-directional
- ► Line Size: ¼”to 80” (Depend on Model)
- ► Measuring Accuracy: ± 0,2 %
- ► Repeatability: ± 0,1 %
- ► Liquids min. Conductivity: 5 µS/cm
- ► Flow Velocity: 0.03...12 m/s
- ► Pressure: Up to 100 bar
- ► Protection Class: IP 67/IP 68
- ► Outputs: 4 - 20 mA with ,Pulse-Fruquency
- ► Digital Outputs: (2) Open collector, (scaled pulse, flow alarm, status, or frequency output)
- ► Display: Compact or Remote w/wo
- ► Temperature Limits: -20 °C up to +180 °C (Depend on Lining material)
- ► Lining Material: Soft rubber, Hard Rubber, PFA, PTFE

Materials
- ► Tube Materials: SS 1.4301 (or better)
- ► Electrodes materials: SS 1.4571,Hastelloy® C4, Titanium, Tantalum, Platinum, Monel® and more
- ► Process Connections: Various Threaded, ASME or EN flanges with wide range sizes and material compability
- ► Interface:s RS232, RS422, RS485, ModBus RTU, Optional ModBus TCP/IP, M-Bus or HART
- ► Power Supply: 10...36V DC | 85...265V AC
- ► Approvals: WRAS, ATEX, IECEx, FM, CSA

Variable Area Flowmeters

Plastic Tube

- Measuring Ranges
- Liquids: 6.5 – 25,000 l/h
- Gases: 140 – 480,000 l/h
- Measuring Accuracy
- Liquids: 2,5%
- Gases: 2,5%
- Pressure Limits: Up to 10 bar
- Temperature Limits:-10 °C up to +90 °C
- Flow Direction: Vertically upwards
- Process Connections: DIN ISO 228: G ¼ – G 2ANSI B1.20.1: ¼“ – 2“
- Float materials: Stainless steel, PVC, PVDF, Aluminium
- Options: Contact(s)

Glass Tube

- Measuring Ranges
- Liquids: 0,1 - 25,000 l/h
- Gases: 1,0 - 480,000 l/h
- Measuring Accuracy
- Liquids: 1,6
- Gases: 2,5
- Pressure Limits: Max. 10 bar
- Temperature Limits: -10° C to +150 °C
- Flow Direction: Vertically upwards
- Float materials: Stainless steel,PVC, PVDF, Aluminium
- Process Connections: DIN ISO 228: G ¼ – G 2 ,ANSI B1.20.1: NPT ¼“ – NPT 2“
- DIN 2501: DN 10 – DN 80, ANSI B16.5: ½“ – 3“
- Options: Contact(s), Shatter protection, Ex Certifications: ATEX

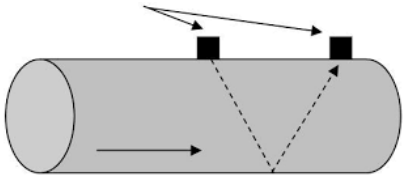
Metal Tube

- Measuring Ranges
- Liquids: 0,5 – 100.000 l/h
- Gases: 15 - 3.000.000 l/h
- Measuring Accuracy: 1,6%
- Gases: 2,0%
- Pressure Limits: max. 400 bar
- Temperature Limits:-40 °C to +350 °C
- Medium-Affected Parts: Stainless steel, PTFE, Hastelloy
- Float Materials: Stainless steel, PTFE, Hastelloy
- Flow Direction: Vertically upwards
- Process Connections: DIN ISO 228: G ¼ - G 3,ANSI B.1.20.1: NPT ¼“ - NPT 3“
- DIN EN 1092-1: DN 15 – DN 150, ANSI B 16.5: ½“ – 6“
- Options: Magnetic spring contact(s),Inductive contact(s)
- Output 4-20mA, Float damping HART®-protocol, PROFIBUS® PA-interface
- Ex Certifications: ATEX

Ultrasonic Flowmeters

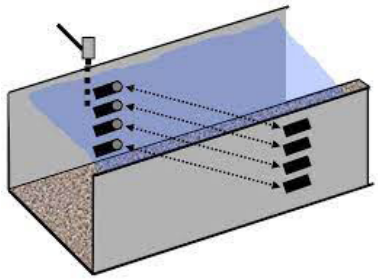
Clamp on Types

- ► Types: Portable and stationary
- ► Fluids: Liquids and gases
- ► Pipe sizes: DN10....DN6000
- ► Flow range: -30...30 m/s
- ► Clamp On Transducers: 0.5, 1, 2 MHz
- ► Process temperature for the Transducer : -70...380°C (Depend On Model)
- ► Measurement: Flowrate, fluid velocity, heat rate
- ► Totalizer: Volume, heat
- ► Inputs:2x PT100, optional 2x4..20mA (p&T)
- ► Outputs: Relay, 4...20mA, Pulse
- ► Communication interfaces: USB, RS232, RS485-Modbus,M-Bus (Meter-Bus)
- ► Approvals: ATEX, ISO 9001 / ISO60041, ISO6416, ASME PTC 18



Open Chanell Types

- ► Application Area: for filled and partially filled pipes, open channels and rivers
- ► Measurement Type: Multiple-path ultrasonic transit time difference (bidirectional)
- ► Number of acoustic paths: 4 / 8 / 12 / 16 (later upgrade possible)
- ► Number of pipes or channels: 1 to 4 (later upgrade possible)
- ► Measuring method: Multiple-path transit-time (time-of-flight)
- ► Communication interfaces: USB, RS232, RS485-Modbus,M-Bus (Meter-Bus)
- ► I/O: 4..20mA, Relays, Transistors
- ► Data Logger: Integrated
- ► Power requirements: 24 Vdc or 90-250VAC
- ► Ultrasonic transducers: 0.2, 0.5, 1 MHz
- ► Transducer Ranges: Transducer depended with 0.1 to 150 m
- ► Process temperature for the Transducer : up to +140 °C (Depend On Model)
- ► Process pressure for the Transducer: up to 10 bar (Depend On Model)
- ► Approvals: ATEX, ISO 9001 / ISO60041, ISO6416, ASME PTC 18



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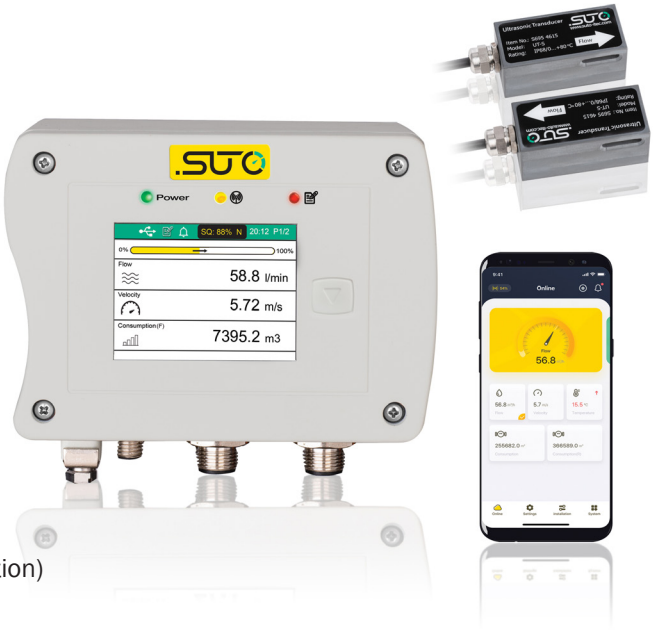
Ultrasonic Flowmeters

A transit-time clamp-on ultrasonic flowmeter is a type of flowmeter that uses ultrasonic signals to measure the flow rate of liquids in a pipe. It works by sending ultrasonic signals through the liquid from one transducer to another, which are placed on opposite sides of the pipe. The time it takes for the ultrasonic signal to travel from one transducer to the other is measured, and this time difference is used to calculate the flow rate.

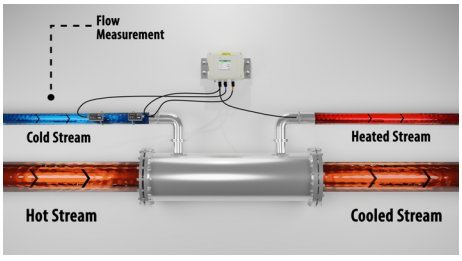
The clamp-on design means that the transducers are mounted on the outside of the pipe, making installation and maintenance relatively easy. The clamp-on design also makes it possible to measure the flow of corrosive, abrasive, or dirty liquids without the need for special piping or fluid handling systems.

Transit-time clamp-on ultrasonic flowmeters are particularly useful for measuring the flow of clean liquids, such as water or oil, in large pipes or where access to the inside of the pipe is difficult or impossible. They are commonly used in industrial and commercial applications, such as water treatment plants, HVAC systems, and oil refineries. However, they may not be suitable for fluids that contain gas bubbles or solids, as these can interfere with the ultrasonic signal and affect the accuracy of the flow measurement.



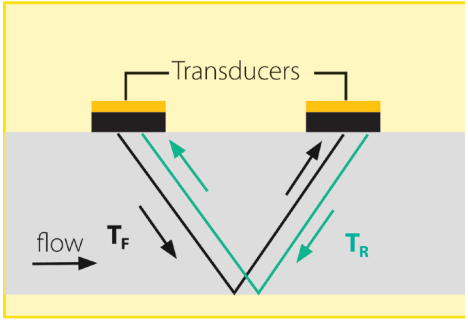
Main Features

- Measures Liquids
- Accuracy: 1.0 % o. RDG ±0.01 m/s
- Measuring range: 0 ... 12 m/s
- Repeatability: 0.5 % o.RDG
- Transducer: Ultrasonic transducer
- Sampling rate: 5 samples / sec
- Response time (t90): 0.1 sec
- Temperature Accuracy: 0.5 °C
- Measuring range: -40 ... +130 °C (Pt1000 sensor)
- Analog output: I 4 ... 20 mA (4-wire), isolated
- Scaling: 0 ... max flow, freely adjustable
- Update rate: 100 ms
- Scaling: 1 pulse per consumption unit (selectable)
- Protocol: Modbus/RTU (Standard), Modbus/TCP and PoE (Option)
- Voltage supply: 20 ... 28 VDC/150 mA @ 24 VDC



Ultrasonic Flow Meters can be used in various applications

- Cooling / Heating / Process Water
- Purified Water Measurement
- Fuel, Oils, Petroleum Products
- Water Treatment
- Food / Beverage
- HVAC / Energy System Audits
- Sanitary flow metering
- Hydraulic System Test
- Pharmaceutical Industry



Transit time principle:
T_R: time in flow direction
T_F: time in reverse flow direction

Vortex Flowmeter

A vortex flowmeter is a type of flowmeter that measures the flow rate of liquids, gases, and steam. It works by detecting the frequency of vortices generated by a fluid passing through an obstruction in a pipe.

The vortex flowmeter has a bluff body, also known as a shedder bar, placed perpendicular to the flow. When fluid flows past the bluff body, it creates alternating vortices that shed from each side of the bluff body. The frequency of the vortices is proportional to the flow velocity of the fluid. The vortex frequency is detected by a sensor located downstream of the bluff body.

The vortex flowmeter can be used for both high and low flow rates and is relatively simple to install and maintain. However, it may not be suitable for fluids with low Reynolds numbers or high viscosity, as they may not produce a distinct vortex pattern. Additionally, the vortex flowmeter may require calibration to account for variations in fluid properties or flow conditions.

Main Features

- Measures saturated steam
- Integrated temperature sensor
- Shows instant flow and consumption
- Provides a display and keys for settings
- Small pressure loss
- Robust industrial design with high-protection level
- Analog and Modbus outputs
- Wafer type—Easy to install
- No moving parts

- Accuracy: 1.5 % of reading
- Selectable units: m^3/h, m^3/min, kg/h, t/h
- epeatability: 0.5 % o.RDG
- Sensor: Vortex
- Turndown ratio: 10:1
- Selectable units consumption: m^3, kg, t
- Medium: Saturated steam
- Medium temperature: -40 ... +250 °C
- Operating pressure: 0 ... 1.6 MPa
- Analog output: 4 ... 20 mA (4-wire), isolated
- Scaling: 0 ... max flow, freely adjustable
- Update rate: Value updated ever 1 sec
- Frequency output range: 0~5000 Hz
- Protocol: Modbus/RTU
- Update rate: Value updated ever 1 sec
- Voltage supply: 24VDC

Mass Flow Meters & Controllers, Pressure Controllers

d·flux multi series Multi-Parameter Mass Flow Meter & Controller

- Flow rates up to 1400 ln/min
- Multiple pre-programmed gases (Air, O2, N2, Ar)
- More gases up to 15 can be added at any time
- Modbus & analog output, Profinet RT, EtherCAT
- Suitable up to 14 bar a and from -20 to 60 °C.
- Connection with Bluetooth for configuration and real time monitoring
- Accuracy is ± 0.5% of customer full scale and ± 1% of measured value.
- Introducing Vögtlin Automated Dynamics VADy®
- Default dynamic range 1 : 100
- 1 : 1000 dynamic with VADy® feature available

Operating Principle

The d·flux multi series uses a differential pressure measurement over a laminar flow element.
The sensors measures the pressure differential, the absolute pressure and the gas temperature. With this information the internal electronics calculates the mass flow going through the device.
A unique advantage of the laminar flowmeter is its linear relationship between flow rate and developed pressure drop. This means no «square-root» characterization is necessary to obtain linear flow measurements with a laminar flowmeter.
By adding a control valve and a PID controller, the meter becomes a mass flow controller.
You give a setpoint to initiate a repeatable, stable flow.

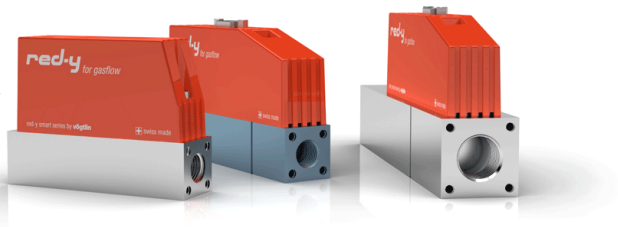
Thermal Mass Flowmeters, Mass Flow Controllers and Pressure Controllers

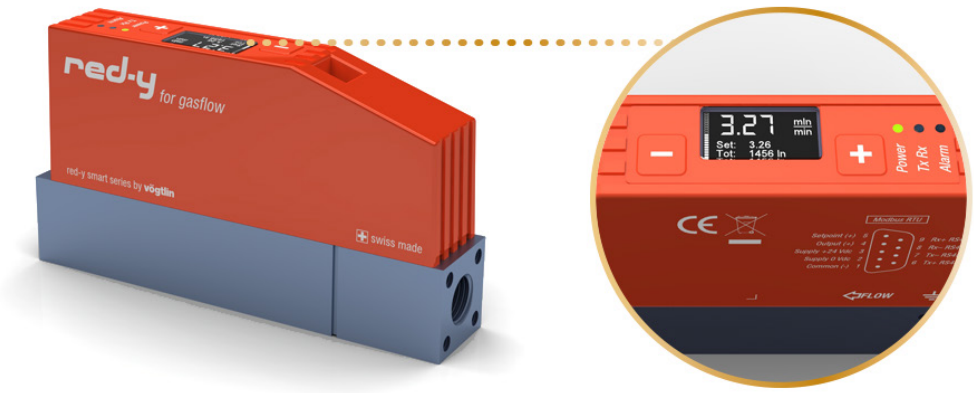
Battery Powered Digital Mass Flowmeters for Gases

- Technolgy: MEMS Sensors Technology
- Measuring ranges: 0 ... 6000 mln/min or 0 ... 450 ln/min
- Media (real gas calibration): Air, O2*, N2*, He, Ar, CO2, H2, CH4, C3H8 (other gases and gas mixtures on request)
- Connection: G1/2" or G1/4"
- Accuracy: ± 1.0% of full scale
- Turndown Ratio: 100:1
- Response Time Max. 300 msec
- Repeatability: ± 0.5% of full scale
- Power Supply: Standard AA Battery or External +8...30 Vdc power
- Operation Pressure: 0.2 – 11 Bara
- Temperature (environment/gas): 0 – 50°C
- Materials: Anodized aluminium or stainless steel electropolished
- Seals: FKM, optional EPDM (FDA)
- Output: 3 alarm contacts (Every alarm contact separately settable as high, low, window or totalizer alarm)

Smart Series Digital Mass Flowmeters And Controllers for Gases

- Technolgy: MEMS Sensors Technology
- Measuring Ranges: 0 ... 6000 mln/min or 0 ... 450 ln/min
- Media (real gas calibration): Air, O2*, N2*, He, Ar, CO2, H2, CH4, C3H8 (other gases and gas mixtures on request)
- Connection: G1/2" or G1/4"
- Accuracy: ± 0.3 % of full scale + ± 0.5% of reading(1)
- Turndown Ratio: 100:1
- Response Time: Meter ± 80ms; Controller ± 500ms
- Repeatability: ± 0.2% of full scale
- Power Supply: +18...30 Vdc power
- Output Signals Analog 0..20 mA, 4..20 mA, 0..5 V, 1..5 V, 0..10 V, 2..10 V
- Output Signals Digital RS-485; Modbus RTU (Slave); Lab View-VIs available
- Option: ProfiBus DP-V0, DP-V1
- Operation Pressure: 0.2 – 11 Bara
- Temperature (environment/gas): 0 – 50°C
- Materials: Anodized aluminium or stainless steel electropolished
- Seals: FKM, optional EPDM (FDA)





KONTSIS instrumentation & automation

Thermal Mass Flowmeters, Mass Flow Controllers and Pressure Controllers

Industrial Series Thermal Mass Flowmeters and Controllers for Gases with IP67 & Ex Protection

- ▸ Technolgy: MEMS Sensors Technology
- ▸ Measuring Ranges: 0 ... 6000 mln/min or 0 ... 450 ln/min
- ▸ Media (real gas calibration): Air, O2*, N2*, He, Ar, CO2, H2, CH4, C3H8 (other gases and gas mixtures on request)
- ▸ Connection: G1/2” or G1/4”
- ▸ Accuracy: ± 1.0% of full scale
- ▸ Turndown Ratio: 100:1
- ▸ Response Time: Meter ± 80ms; Controller ± 500ms
- ▸ Repeatability: ± 0.2% of full scale
- ▸ Power Supply: +18...30 Vdc power
- ▸ Output Signals Analog 0..20 mA, 4..20 mA, 0..5 V, 1..5 V, 0..10 V, 2..10 V
- ▸ Output Signals Digital RS-485; Modbus RTU (Slave);
- ▸ Lab View-VIs available / option: ProfiBus DP-V0, DP-V1
- ▸ Operation Pressure: 0.2 – 11 Bara
- ▸ Temperature (environment/gas): 0 – 50°C
- ▸ Materials: Stainless steel 316L
- ▸ Seals: FKM, optional EPDM (FDA)
- ▸ Ex Certifications: ATEX

Electronic Pressure Controller With Integrated Flow Measurement

- ▸ Technolgy: MEMS Sensors Technology
- ▸ Type: Back and Forward Pressure Controller
- ▸ Function: Pressure controller with flow measurement/imitation
- ▸ Flow controller with pressure measurement
- ▸ Measuring Ranges: 0... 6000 mln/min or 0... 450 ln/min
- ▸ Media (real gas calibration): Air, O2*, N2*, He, Ar, CO2, H2, CH4, C3H8 (other gases and gas mixtures on request)
- ▸ Connection: G1/2” or G1/4”
- ▸ Accuracy: ± 0.5 % of full scale
- ▸ Turndown Ratio: 100:1
- ▸ Response Time: Meter ± 80ms; Controller ± 500ms
- ▸ Repeatability: ± 0.2% of full scale
- ▸ Power Supply: +18...30 Vdc power
- ▸ Output Signals Analog 0..20 mA, 4..20 mA, 0..5 V, 1..5 V, 0..10 V, 2..10 V
- ▸ Output Signals Digital RS-485; Modbus RTU (Slave)
- ▸ Lab View-VIs available / option: ProfiBus DP-V0, DP-V1
- ▸ Operation Pressure: 0.2 – 11 Bara
- ▸ Temperature (environment/gas): 0 – 50°C
- ▸ Materials: Anodized aluminium or stainless steel electropolished
- ▸ Seals: FKM, optional EPDM (FDA)

Thermal Mass Flowmeters, Mass Flow Controllers and Pressure Controllers

OEM Version for Customer-specific Requirements

- ► Precise and fast control
- ► No open/close valves required thanks to tightly sealed control valves
- ► High repeatability
- ► Real gas calibration / Multiple gases per device
- ► High savings possible with mixed gases
- ► Independent of temperature and pressure
- ► Easy to maintain

Variable Area Flowmeters and High Precision Valves for Gases

- ► Compact and slender design
- ► Glass measuring tubes in 3 sizes
- ► Body in aluminium or stainless steel
- ► Panel mounting design (plug-in)
- ► Optional 15-turn control valve for smooth and accurate adjustment

Wide range of accessories – immediately ready for operation

Connection cables, power supplies
Optimal range of cables and power supply units for fast integration of flow meters and controllers:
Cables for communication with PC (USB), cables for analog communication, power supply (24 Vdc)

Display and control devices
Permit the operation of up to 10 flow meters and controllers with predefined process recipes.

Fittings, filters
All flow meters and controllers are available with fittings and filters.
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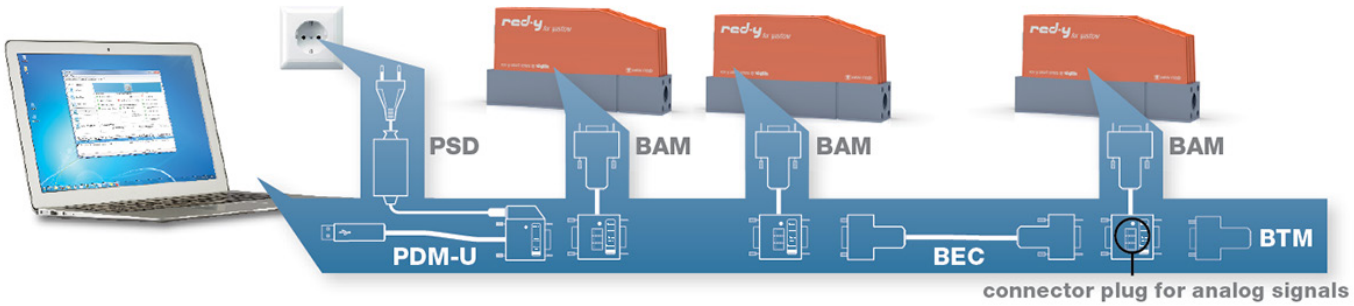


Thermal Mass Flowmeters

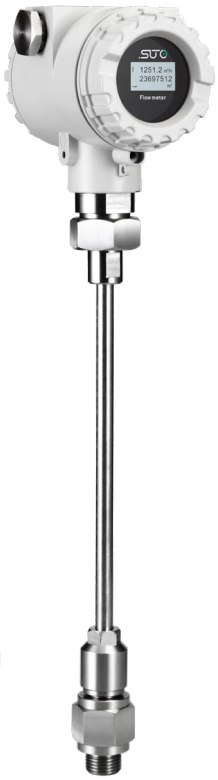
Main Features

- S415 / S418 Compact Inline Flow and Consumption Meter for Compressed Air and Gases
- Connection with Bluetooth for configuration and real time monitoring
- Inner thread: DN8, DN15, DN20, DN25
- Process connection: G inner thread (ISO 228-1)
- Pressure range: 0 ... 1.0 MPa
- Accuracy: 3% of reading (S415), 1.5% of reading (S418)
- Turndown ratio: 50:1 (S415), 100:1 (S418)
- Response time (T90): 1 sec (S415), 0.1 sec (S418)
- Ambient temperature: 0 ... +50°C
- Medium conditions: 0 ... +50°C / rH < 90% no condensation
- Power supply: 18 ... 30 VDC / 120 mA
- Output signal: Analogue 4 ... 20 mA, pulse
- Protocol: RS-485 (Modbus/RTU) - Digital M-Bus
- LED display: 4-Digit / S415: Flow / S418: Flow + Pressure (option)
- Material Process connection: aluminium alloy
- Wetted parts: aluminium alloy
- Classification: IP54
- Electrical connection: 2 x M8, 4 poles

Thermal Mass Flowmeters

Main Features

- Thermal Mass Flow Meter for Heavy Duty and Ex Applications (Insertion / Inline)
- Connection with Bluetooth for configuration and real time monitoring
- 2-directional measurement
- S451: from DN25 up to DN800
- S453: from DN15 up to DN80
- Accuracy: 1.5 % of reading ± 0.3 % FS (optional 1 % of reading)
- Repeatability: 0.25 % of reading
- Sampling rate: 10 samples / sec
- Turndown ratio: 200:1
- Response time (t90): 0.1 sec
- Selectable conditions: 20 °C 1000 mbar (ISO1217),
- 0 °C 1013 mbar (DIN1343) freely adjustable
- Analog output: 4 ... 20 mA (4-wire), isolated max. 30 VDC, 20 mA
- Scaling: 1 pulse per consumption unit (selectable)
- Protocol: Fieldbus interface: HART, Modbus, M-BUS
- Voltage supply: 15 ... 30 VDC
- Hazardous approval ATEX: II 2 G Ex d IIC T4, IECEx approval, GB Ex approval



Operating Principle

Thermal Mass Flow Meters measure heat transfer as the gas flows past a heated surface. Two platinum RTD sensors are clad in a protective sheath. The flow sensor is self-heated whilethe second sensor measures the temperature of the gas. As gas flows past the heated flow sensor the gas molecules carry heat away from the surface. The sensor drive circuit replenishes the lost energy by heating the flow sensor to maintain the desired temperature difference over the entire temperature range of the instrument.

The power required to maintain this temperature differential is proportional to the mass flow rate. The inherently non-linear signal provides excellent low flow sensitivity and high turndown capabilities. The signal is linearized to provide the output signal from the flow meter.

Aerospace
Analytical
Boilers
Chemical
Compressor Management
Custody Transfer
Digester/Bio-Gas
Environmental
Flare Gas
Food and Beverage

HVAC and Building Automation
Incinerators
Landfill/Bio-Gas
Life Science
Machinery and Equipment
Marine
Metals
Oil and Gas
Petrochemical
Pharmaceutical

Power and Energy
Process Measurement
Pulp and Paper
Refining
Research
Semiconductor
Submetering
Utilities
Wastewater Treatment
Water Treatment

Thermal Mass Flowmeters

The SUTO S401/421 is a compressed air flow meter designed for measuring the flow rate and consumption of compressed air systems. It works based on the thermal mass flow measurement principle.

The SUTO S401/421 has a built-in sensor that measures the temperature difference between two sensors placed in the air flow path. By measuring the temperature difference, the meter calculates the flow rate of the compressed air.

The SUTO S401 is a reliable and cost-effective solution for measuring compressed air flow in various industrial and commercial applications, such as automotive manufacturing, food processing, and pharmaceutical production. It can help users optimize their compressed air systems, reduce energy consumption, and minimize operating costs.

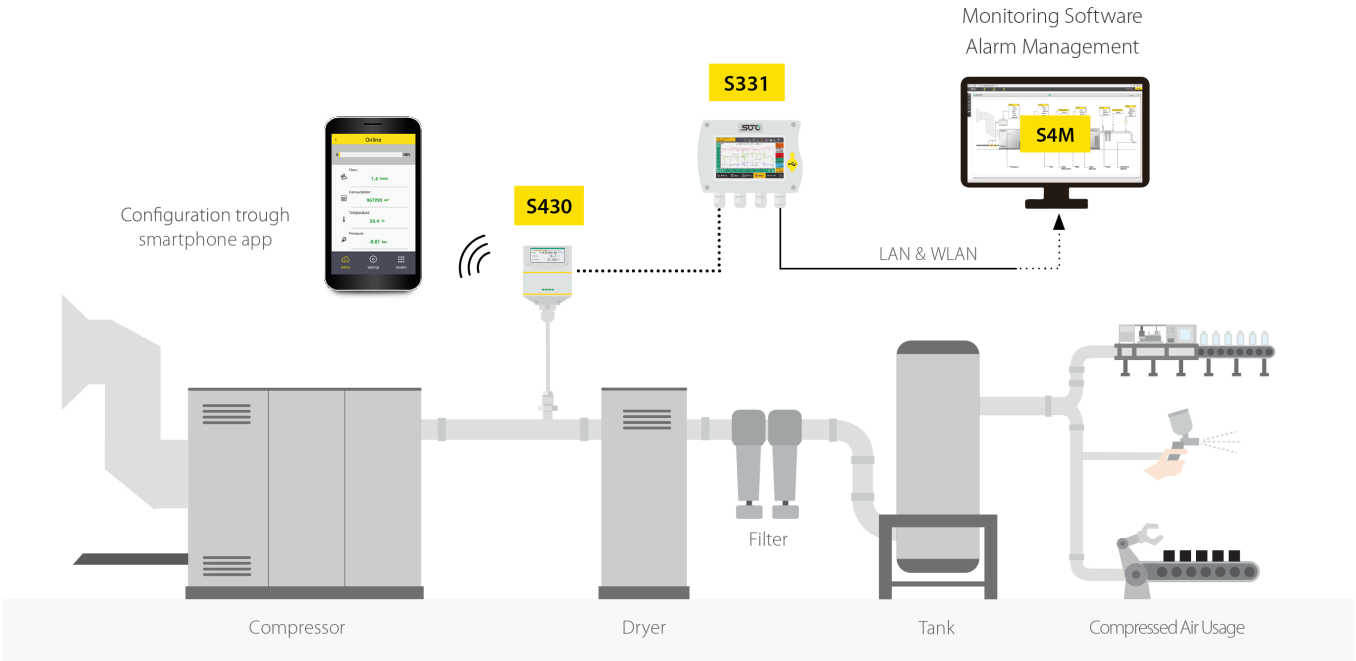
Main Features

- S401 / S421 Thermal Mass Flow Meter (Insertion / Inline)
- Connection with Bluetooth for configuration and real time monitoring
- 2-directional measurement
- S401: from DN25 up to DN800
- S421: from DN15 up to DN80
- Accuracy: 1.5 % of reading ± 0.3 % FS (optional 1 % of reading)
- Repeatability: 0.25 % of reading
- Sampling rate: 10 samples / sec
- Turndown ratio: 200:1
- Response time (t90): 0.1 sec
- Selectable conditions: 20 °C 1000 mbar (ISO1217), 0 °C 1013 mbar (DIN1343) freely adjustable
- Analog output: 4 ... 20 mA (4-wire), isolated max. 30 VDC, 20 mA
- Scaling: 1 pulse per consumption unit (selectable)
- Protocol: Modbus/RTU, Modbus/TCP
- Voltage supply: 15 ... 30 VDC

Thermal Mass Flowmeters

Main Features

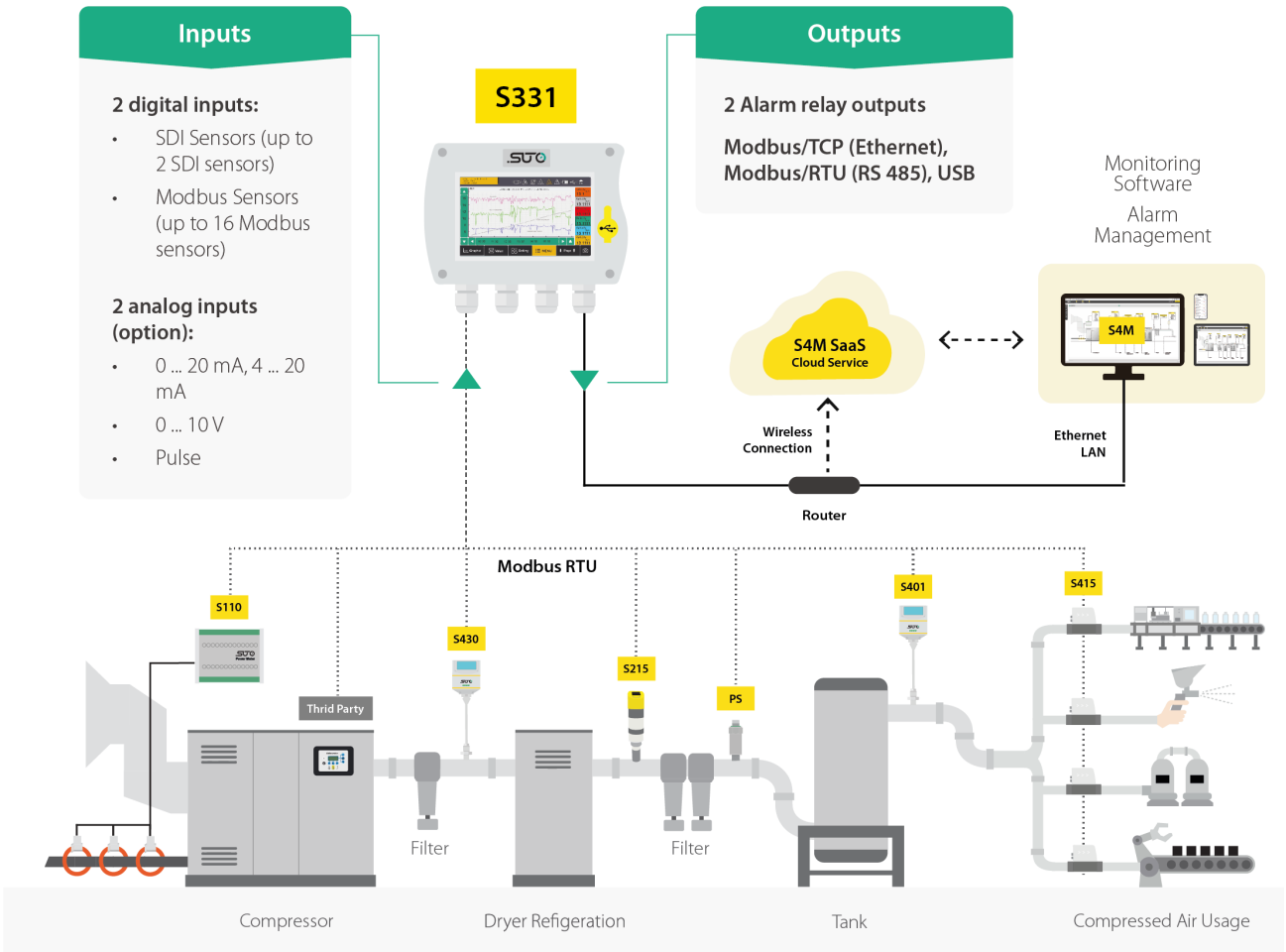
► S430 Pitot Tube Flow Meter for Wet Compressed Air
► The S430 is based on the pitot tube principle to measure the flow in your compressed air system. Properly installed (refer to instruction manual for details) the sensor can measure in wet and dirty gases as occurring, for example, at the discharge of a compressor.
► Compressor-FAD-Measurement
► Measures (Volumetric and Mass) Flow, Velocity, Consumption, Temperature and Pressure
► Tube diameters of 1.25” ... 10”.
► High temperature applications up to 230 °C
► Accuracy: 1.5 % o.r. ±0.3 % FS
► Repeatability 0.5 %
► Sampling rate: 3/sec
► Turndown ratio: 10:1
► Response time (t90): 2 sec
► Selectable conditions 20 °C 1000 mbar (ISO1217)
► 0 °C 1013 mbar (DIN1343) freely adjustable
► Analog output: 4 ... 20 mA, isolated
► Update rate: 1/sec
► Protocol: Modbus/RTU, Modbus/TCP
► Voltage supply: 24 VDC or 48 VDC (PoE)



Display and Data Logger

Main Features

► Measures, displays and records all relevant parameters like flow, dew point, pressure, temperature, power consumption and so on.
► High resolution 5” colour touch screen interface
16 x Modbus inputs (58 standard or optional 108 Channels),2 x SDI inputs (20 channels), 2 x SDI inputs (20 channels), 2 x Analog and pulse input (4 channels), Plus 10 virtual channels for calculations
► USB interface for data transfer to data stick or PC
RS-485 (Modbus/RTU, SUTO-Bus) and Ethernet (Modbus/TCP, SUTO-Bus)
AC/DC power supply
► Data logger up 100 million values (Model depended)
► Alarm monitoring with 2 relay outputs
► Integrated web server for remote monitoring
► Quick set up
► Various options for system extension



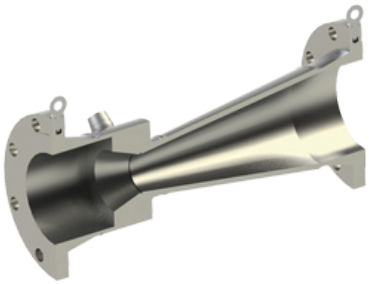
Primary Element (Pitot, Orifice, Venturi...) Flowmeters

Averaging Pitot Tubes

► Fluids: Gas, Steam and Liquids
► Pipe Sizes: up to 15 meter (Depend on model)
► Process temperature : –200 to 1240 °C
► Process pressure: 0..690 bar
► Precision: Better than 1% of the measured value, 0.5% after calibration (option)
► Installation: Weld-in, flanged or screw-in, spool piece, cutting ring stud
► Connecting to dp transmitter: Thread, oval adapter, ball valve, needle valve, Manifolds
Materials : 1.4571 (ANSI/ASME 316Ti) (standard)
► 1.4828 (309) (high temperature)
► 1.4539 (904L), Hastelloy C4, Haynes Alloy (oxidizing media), addditional materials available on request
Options:
► Integrated pressure and temperature sensors
► LSP air purging system for very dusty fluids (up to 200 g/m³)
► Flowcomputers for flow and enegry calculations
Approvals: ATEX, PED 97/23/EC, TRD, (EN 10204) 2.2 / 3.1 / 3.2, PTB, TUV

Venturi Tubes

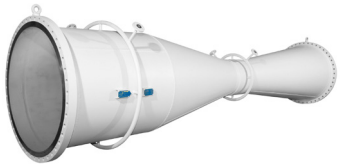
► The Venturi Tube is a differential pressure device suitable to measure flow rate in a closed conduit with the minimum permanent pressure loss.



► Dimensions: Venturi by bar stock: 2”-10” / Venturi by welded plate: up to 48”
► Flow Calculation Main Reference code: ISO 5167 ASME MFC-3M / Other standards: ANSI 2630 /AGA-3/API Ch.14 (1992)/Miller-Spinks-Shell Engineering Handbook

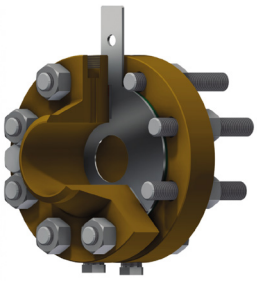
Material

► All material requested by the customer / Material Specifications: : RF-RJ Connections according to International Standards (ANSI/ASME/UNI/DIN/API)
► Accuracy:+/- 0.25%
► Rangeability : 1 ÷ 4.5
► Repeatability:(+/- 0.1%)
► Max PPL (5-15)% of full scale differential pressure
► Straight Lengths Requirements: as Specified In ISO 5167 International Code
► Flow Meter can be supplied with all suitable accessories (valves / manifold / condensing pot / transmitter / fitting /tubing)



Orifice Plate Assembly

► The Orifice Plate is a differential pressure device suitable to measure the flow rate in a
closed conduit (it is an affordable device for general applications)
► Range: 2”÷40”
► Types: Square Edge / Quadrant / Conical Entrance / Segmental/ Restriction, Eccentric Plates
► Material: As per Customer’s requirements / Main material Reference: ASTM-ASME Code
► Flow Calculation Main Reference code: ISO 5167/ASME MFC-3M; ASME PTC 19.5
► Type of Plate All / Main Connections: RF-RJ Connections according to International Standards (ANSI/ASME/UNI/DIN/API)



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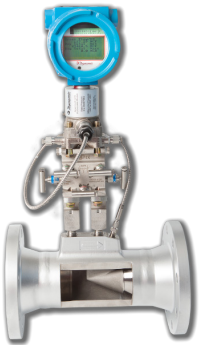
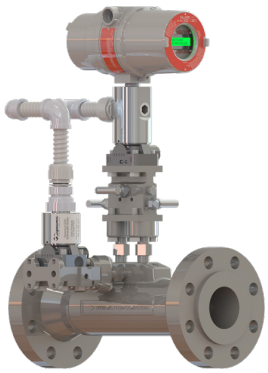
Flow Computers

Main Features

► Measurement: Liquid & Gas Measurement
► Application Area:,Well Head Measurement, Net Oil Measurement, Custody & Control, Fuel Monitoring, Well Optimization, Steam Flow Measurement, Test Separators, Compressor Skids, Pipelines, LACT Units, Well Injection...
► Number of Trains: Up to 4 meter run
► Combined Primary Elements: Multivariable Tranmitters, Orifice, Turbine, Ultrasonic,Cone,Coriolis, Venturi,Wedge, MagMeter, Vortex, Averaging pitot tubes...
► Processor: 32 Bit
► Power Supply: 7-24 V DC @ 0.3 WATT
► Protection: NEMA 7, 4X Class 1 Div. 1Group B, C and D Housing
► Display: 8 Lines, 16 Characters 64x128 Pixels – Plasma
► PID Control: Yes
► Analog Input: 4x 4-20mA (or 0-5Vdc) inputs (expandable to 9 inputs) Resolution 24 bits
► Pulse/Frequency Input: 3x Low and high Square,Sin waves inputs
► Digital/Switch Input: Four inputs (4 mutual contacts software selectable)
► RTD Input: Direct connection to flow computer
► Digital/Switch/Pulse Output: Four outputs (4 mutual contacts software selectable)
► Comunications: (2) RS-485, (1) RS-232, (1) Printer Output
► Analog Output: 4 x configurable analog output
► Reports/Storage: Daily, hourly, Weekly, Monthly, Alerts Against Operator Errors, Software Generated Chart Recordings
► Communication with a Gas Chromatograph: Yes
► Communication Options: GSM Radio, Satellite, Serial Modbus, TCP/IP Encapsulated Modbus, Zigbee Radio, Bluetooth, Satellite, Foundation Fieldbus
► Standarts: API, ISO, AGA (AGA3, AGA7, AGA8,)(API 20.1, API 2565, ISO5167), Steam NBS, NIST24, ASTM1550A / B, ASTM1550B...
► Approvals: ATEX, IECEx, FM, CSA, NMI (Acc to API)





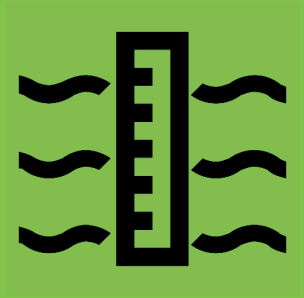




Flow Switches

Main Features

- Types: Vane actuated, Paddle Type, Termal dispersion and capacitive
- Application Area : Liquids,Gas and interface (Model depended)
- Process temperature: up to +450 °C (Depend On Model)
- Process pressure: up to 413 bar (Depend On Model)
- Design: Industrial, acc to ASME and NACE Standarts
- Process Connections: Various Threaded, ASME or EN flanges
- Approvals: ATEX, IECEx, FM, EAC, Marine (Lloyd's Register of Shipping (LRS), SIL-2

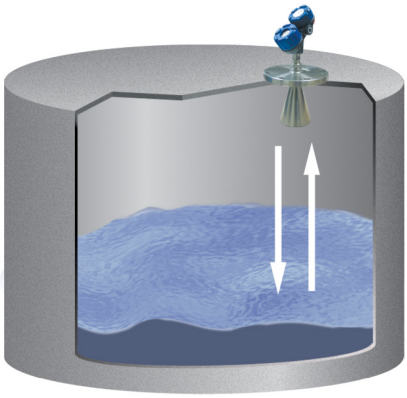
LEVEL MEASUREMENT



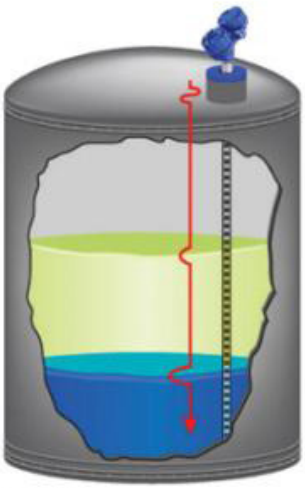
Non-Contact Radar Level Transmitters

Main Features

- Application Area : Liquids, Sluries, Solids continious level measurement
- Fruquncey Ranges: 6 GHz, 10 GHz, 26 GHz, 80 GHz
- Range: Up to 100 Meter (Depend on Model)
- Accuracy: ±1 mm (Depend on measuring distance and antenna size)
- Temaperature Range: -60 up to 200 °C
- Pressure Range: Up to 100 Bar
- Output: 4-20 mA HART, Profibus PA, Foundation Filedbus
- Antenna Options: Horn, Drop, Lens with wide range material compability
- Display: With / Without
- Design: Industrial, acc to ASME, PED and NACE Standarts
- Connection Size And Materials: Various Threaded, ASME or EN flanges with wide range sizes and material compability
- Housing: Aluminium or SS
- Gaskets: FKM/FPM, EPDM, Kalrez® 6375
- Approvals: ATEX, IECEx, FM,CSA, EHDG, EAC,FDA, SIL-2
- Standarts: NAMUR recommendations NE 21,NE 43, NE 53 and NE107



Guided Wave (TDR) Radar Level Transmitters



Main Features

- ► Application Areas : Liquids, Sluries, Solids, Steam, interface level measurement
- ► Range: Up to 30 Meter (Depend on Model and Probe Type)
- ► Accuracy: ±0.1 % of probe length or ±2,5 mm
- ► Temaperature Range: -196 to +450 °C (Depend On probe type)
- ► Probe Types: Rod, Single Cable, Twin Cable, Coaxial rod
- ► Design: Industrial, acc to ASME, PED and NACE Standarts
- ► Probe Materials: 316/316L Hastelloy® C, Monel®
- ► Process Seals: TFE, Ceramic, Inconel, PTFE, FKM/FPM, EPDM, Kalrez® 6375
- ► Pressure Range: -1 to 430 Bar
- ► Output: 4-20 mA
- ► Communication Protocols: HART, Profibus, Foundation Fieldbus™, Profibus PA
- ► Display: Remote or compact with/without display
- ► Connection Size And Materials: Various Threaded, ASME or EN flanges with wide range sizes and material compability
- ► Housing: Aluminium or SS

Approvals: ATEX, IECEx, FM, EAC, Marine (Lloyd's Register of Shipping (LRS), SIL-2/3

RF Admittance/Capacitance Level Transmitters

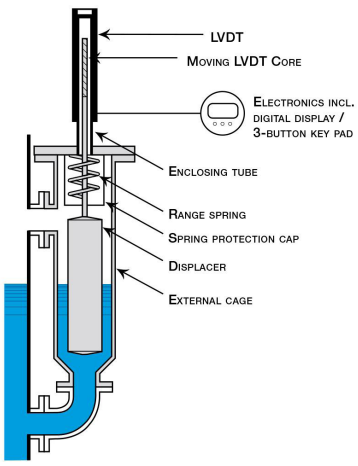
Main Features

- Application Area : Liquids, slurries,interface and granules measurement
- Range: Up to 244 Meter
- Probe Types: Over 125 probe types for a wide array of applications, flex, rigid
- Process Connection: NPT, BSP, JIS, ANSI, DIN, Tri-Clamp
- Main Wetted Parts: 316L, PVDF, TFE, FEP, PFA, Hastelloy C, Monel and more.
- Accuracy: ±0.25 % FS
- Temaperature Range: -106°C to 815°C (Probe Depended)
- Pressure Range: Up to 690 Bar
- Technology: Rf Admittance with patented Cote-Shield Technology
- Output: 4-20 mA HART
- Operating Voltage: 13 - 30 VDC
- Display: Compact Or Remote Mounted with LCD Screen and Pushbuttons
- Housing: Diecast Aluminium
- Approvals: FM, FMc, IECEx ATEX, FDA

Displacer Type Level Transmitters

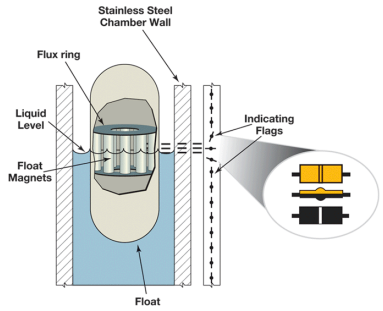
Main Features

- Operation functions : Liquid, interface level and density measurement
- Span: from 356 mm up to 3048 mm - others on request
- Accuracy: ± 0,5 % of full span
- Mounting: Top, cage side/bottom and cage side/side designs
- Design: Industrial, acc to ASME, PED and NACE Standarts
- Temperature Range: -196 °C up to 445 °C
- Pressure Range: -1... 355 barg
- Density measurement: from 0,23 kg/dm3 up to 2,20 kg/dm3
- Display: 2-line x 8-character LCD
- Transmitter: Integral or remote
- Output: 4-20 mA HART, Foundation Fieldbus
- Cage materials: CS or 316/316L (other materials at request)
- Wetted parts: Spring Inconel® (other materials at request)
- Displacer: 316/316L
- Process Connections: From 1 1/2" to 6" Various Threaded ASME or EN flanges
- Approvals: ATEX, IECEx, FM, EAC, Marine (Lloyd's Register of Shipping (LRS), SIL-2/3



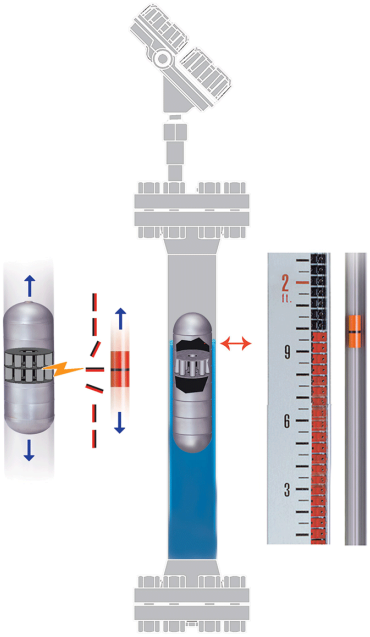
KONTSIS instrumentation & automation

Magnetic Level Indicators and Transmitters



Main Features

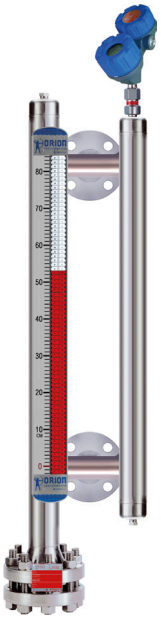
► Application Area : Liquids, Liquid interface
► Range: Up to 10 meter (Depend on chamber and process conditions)
► Visual indication: up to 60 meter
► Conbined Transmitters: Magnetorestrictive, Red Chain, GWR (TDR)
► Combined Switches: Reed switch, DPDT microswitch
► Mounting: Top, cage side/bottom and cage side/side designs
► Process pressures: -1 to 310 bar
► Process Temperatures: -196 to +538 °C
► Total level specific gravities: as low as 0.25
► Design: Industrial Single and dual chamber, acc to ASME, PED and NACE Standarts
► Chamber Diameters: 2”, 2 ½”, or 3” (Others on on request)
► Process connection sizes :1⁄2" to 6"



Materials of construction

Chamber: Metal alloys (variable and depend on process conditions)
Rail & window :316 stainless steel (Reveal™) rail or alumimium with polycarbonate window
Floats: 316 SS and Titanium (exotic alloys available); varies depending on process conditions
► Connection Size And Materials: Various Threaded, ASME or EN flanges with wide range sizes and material compability
► Housing: Aluminium or SS
► Output: 4-20 mA
► Communication Protocols: HART, Profibus, Foundation Fieldbus™, Profibus PA, (Depend on transmitter)
► Display: Remote or compact with/without display (Depend on transmitter)
► Approvals: ATEX, IECEx, FM, EAC, Marine (Lloyd's Register of Shipping (LRS), SIL-2/3



Magnetorestrictive Level Transmitters

Main Features

- ► Measuring parameters: Total Level, Interface Level, Temperature measurement (5 sensors over active range)
- ► Measuring Range: Up to 15 meter
- ► Design: Industrial, acc to ASME and NACE Standarts
- ► Probe Types: 316 SS, Hastelloy®, Monel® Rigid, Ultraflex PVDV
- ► Float Materials: 316L, Hastelloy®, Titanium, PVDF
- ► Process Connections: Adjustable NPT fittings, Various Threaded, ASME or EN flanges, Tri-Clamp
- ► Accuracy: 0.01% FS or less than 1 mm
- ► Operating Voltage: 14 - 30 VDC
- ► Display: With /Without (Integral or remote)
- ► Output Signal: 1 or 2 x 4-20 mA HART (Depend on Model)
- ► Digital Signal: Modbus RTU, Foundation Fieldbus
- ► Temperature Range: -196 °C to +450 °C (Depend on probe and material selection)
- ► Pressure Range: -1 up to 207 bar (Depend on probe and material selection)
- ► Float Overpressure: Up to 48,9 bar (Depend on temperature)
- ► Enclosure Rating: IP66, IP67, NEMA 4-4X
- ► Approvals: ATEX, IECEx, FM, EAC, Marine (Lloyd's Register of Shipping (LRS), SIL-2

KONTSİS instrumentation & automation

Water Cut Monitor/Transmitter

Main Features

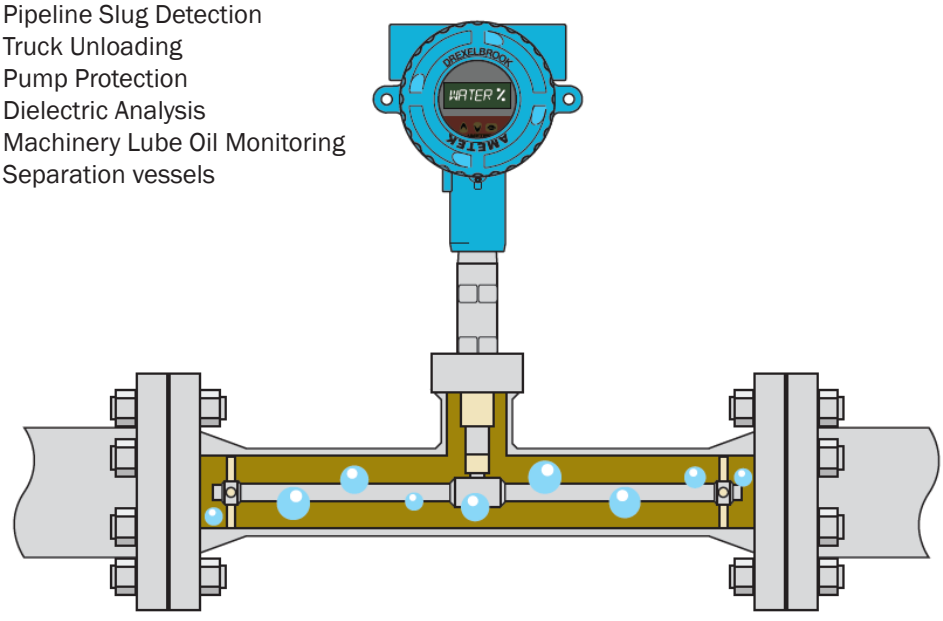
- ► Proven and patented cote shield capacitive technology
- ► 0.03% water content accuracy
- ► Temperature and density compensation
- ► Probe can handle temperature up to 232 °C and pressure up to 103 bar
- ► Pipe insertion design and Spool probe options (2", 3", and 4" sizes)
- ► 2-wire 4-20 mA HART communication interface
- ► Built-in display/keypad and free HARTWIN software
- ► 11 water cut ranges built-in one unit (0-80%)
- ► Measurement capability up 0-50% in light oil and 0-80% in heavy oil
- ► IS and Xproof/Flameproof approvals
- ► FM, FMc, ATEX, IECEx approvals

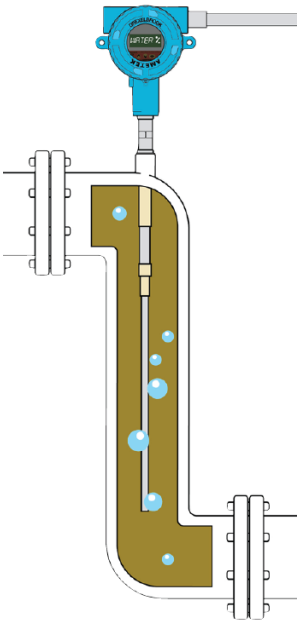
Benefits

- ► Reliable and consistent BS&W measurement
- ► Dielectic analysis
- ► Patented Cote Shield Technology ignore the caoatings
- ► Easy installation and serviceability
- ► Reliable performance in hazardous locations

Applications

- ► Automatic Well Testing (AWT)
- ► Lease Automatic Custody Transfer (LACT)
- ► Crude oil metering skids
- ► Basic Sediment and Water (BS & W)
- ► Separation Vessels
- ► Pipeline Slug Detection
- ► Truck Unloading
- ► Pump Protection
- ► Dielectric Analysis
- ► Machinery Lube Oil Monitoring
- ► Separation vessels





Ultrasonic Level Transmitters

Main Features

- ► Application Area : Liquids, slurries, flow measurement
- ► Range: Up to 10 m
- ► Type : Compact or remote (Depend on model)
- ► Analog Outputs: 4-20 mA HART
- ► Digital Outputs: Up to 8 relays for with remote control units
- ► Digital Communcations: Modbus RTU, Profibus PA
- ► Cable length: up to 100 meter (Option)
- ► Process Connection: BSP,NPT or with compressin flanges
- ► Approvals: ATEX, IECEx, FM, SIL-2

Hydrostatic Submersible Level Transmitters

Main Features

- ► Measuring Range: up to 21 bar (210 meter)
- ► Over Pressure: 3 x FS
- ► Accuracy: 0.25% FS
- ► Type: Submersible or line/tank mounted
- ► Cable Length: up to 300 m
- ► Cable Matarial: PU and Teflon
- ► Power Supply: 9-30 Vdc
- ► Output: 4-20 mA or 0-10 Vdc or 0-5 Vdc
- ► Ingress Protection: IP 68
- ► Wetted Materials: 316L, Hastelloy C276
- ► Temperature Compensation: Yes
- ► Seals: Viton, Neoprene, Delrin
- ► Accessories: Nut, Cable support bracket,Conduit adapter

KONTSİS instrumentation & automation

LEVEL MEASUREMENT

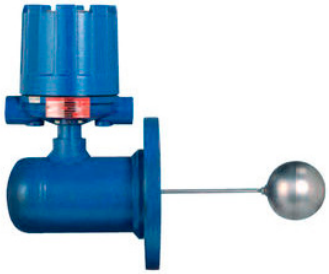
RF Admittance/Capacitance Level Switches

Main Features

- ► Technology: Rf Admittance with patented Cote-Shield Technology
- ► Application Area : Liquids, slurries,interface, Solilds and granules measurement
- ► Auto Calibration: As standart
- ► Modes Of Operation: High and Low Level (With Jumper)
- ► Self Test/Auto Verify: Depend on model (All Intellipoints models)
- ► Power Supply: 19-250 VAC, 18-200 VDC
- ► Output: 1/3 SPDT-DPDT Relay or 8-16 mA with failsafe
- ► Type: Compact or Remote
- ► Probe Length: Up to 10 meter
- ► Process Connection: Various Threaded, ASME or EN flanges, Tri-Clamp
- ► Tempaerture Range: Up to 1093 (Depend on probe type)
- ► Pressure: -1 to 690 Bar (Depend on probe type)
- ► Main Wetted Parts: 316L, PVDF, TFE, FEP, PFA, Hastelloy C and more
- ► Indıcator: Green and Red LED's
- ► Time Delay: 0-60 s
- ► Housing: Powder-Coated aluminum with two cable entries
- ► Ingress Protection: IP66 NEMA 4X
- ► Approvals: ATEX , IECEx ,FM, FMc, FDA, SIL-2/3 (Model depended)

Displacer Type Level Switches

- ► Application Area : Liquids,interface,
- ► Mounting: Top, side, Extarnal cage
- ► Choice of switch mechanism: SPDT, DPDT ◦ Hermetically sealed, Pneumatic
- ► Signal output: Single, dual or triple SPDT or DPDT contacts or single pneumatic
- ► Process temperature: up to +540 °C (Depend On Model)
- ► Process pressure: up to 154 bar (Depend On Model)
- ► Design: Industrial, acc to ASME and NACE Standarts
- ► Process Connections: Various Threaded, ASME or EN flanges, Tri-Clamp
- ► Approvals: ATEX, IECEx, FM, EAC, Marine (Lloyd's Register of Shipping (LRS), SIL-2



Open Channel Flow Measurement Flow Velocity & Level Meter

Main Features

► Measured Values: Avarage surface velocity, Level
► Calculating Value: Flow or discharge automatcially
► Surface Velocity Radar Type: K-band 24.125 GHz Doppler radar
► Measurement Dircetion: Incoming and outgoing
► Level Radar Type: W-band 77-81 GHz FMCW radar
► Detection Distance: 15 m / 30 m for level
► Speed Range: 0,02 m/s to 15 m/s
► Speed Resolution : 0,001 m/s
► Speed Accuracy: 1%
► Level Resolution: 0,5 mm
► Level Accuracy: +/-3 mm
► IP Rating: IP68 for both level and velocity sensor
► Power Input:9 to 27 VDC
► Power Consumption: <6,5 W (typical 5,2 W)
► Serail Communication: RS-485 half-duplex ,RS-232,SDI-12 Interface, CAN Bus
► Analog Ouput: 2x 4-20 mA
► Certificates: EN 50293:2000, EN 61000-6-2, EN 61000-6-4:2007
► Software: Free PC software for paremeter configuration and data recording
► Options: Smart Obersever Datalogger
► Options: Cloud Base HydroView software both for PC and mobile device
► Options: HydroCam camera for visual inspection of monitoring site
► Options: Solarpanel, Camera, Datalogger

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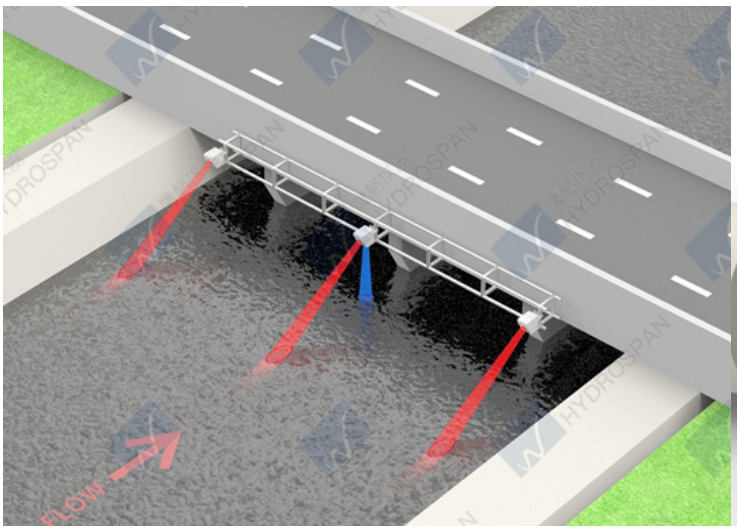
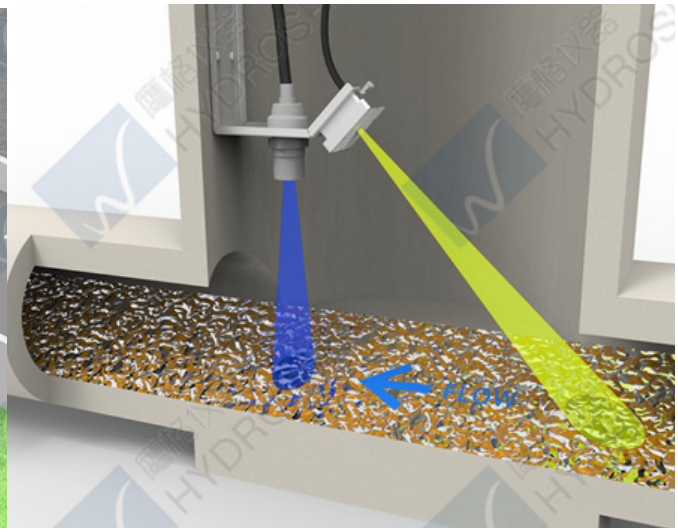
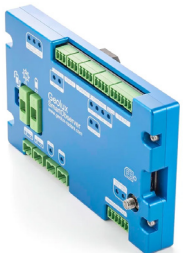
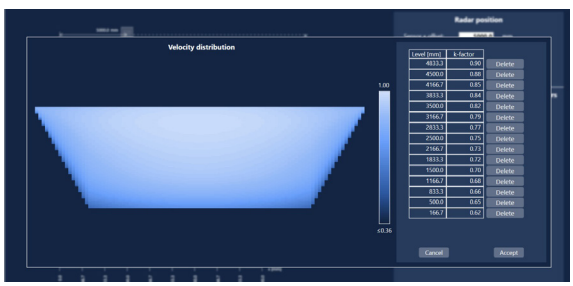
Open Channel Flow Measurement Flow Velocity & Level Meter







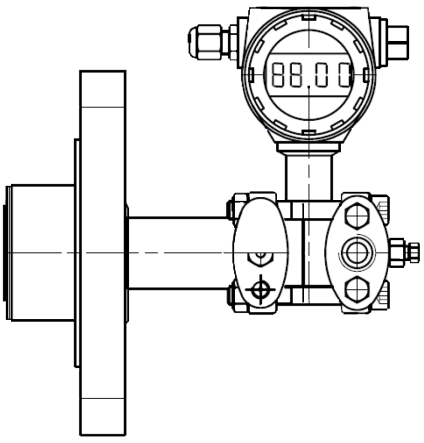




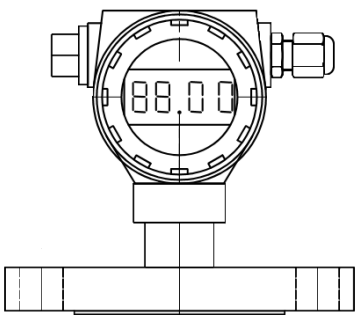




PRESSURE & TEMPERATURE MEASUREMENT

Smart Pressure Transmmitters

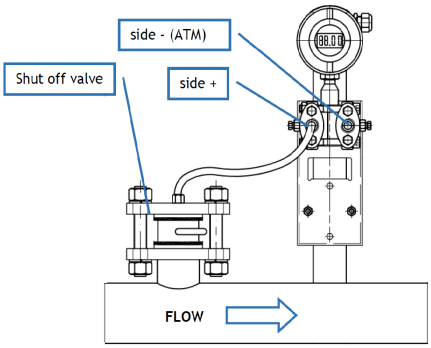
Supply	12.5 ÷ 30 Vdc
Output signal	4 – 20mA , 2 wires / Digital using HART® or FIELDBUS® protocol
Measuring range	From 0 ÷ 0,35 bar to 0 ÷ 1000 bar
Measuring element	Piezoresistive
Filling fluid	Silicone oil
Electrical connections	2 x 1/2” NPT or M20x1.5
Diaphragm material	Ceramic, INOX AISI 316 / SS AISI 316 Titanium,,Hastelloy C 276, PTFE / PTFE Coating
Max load	550 Ohm @ 24 Vdc
Total accuracy	<0.07% FS (0 ÷ 80°C), <0.2% FS (0 ÷ -40°C)
Response time	< 256 ms (Standard Hart®)
Zero thermal drift	< ± 0,1%/10°C
Span thermal drift	< ± 0,1%/10°C of Nominal Range
Damping	0 ÷ 60 s (minimum response time 0.1 s)
Long term stability	< ± 0.1 % FS/year
Process temperature	-40 ÷ +85°C (with finned arm: up to 130°C; with syphon: up to 235°C; with capillary: up to 283°C)
Ambient / Storage temperature	-40 ÷ +85°C / -40 ÷ +90°C
LCD display reading	-10 ÷ +65°C
Housing	Die cast aluminum alloy EN AW-6082 finished with epoxy resin / SS AISI 316
Ingress protection degree	IP66 suitable for tropical climate operation as defined by DIN 50015
Relative Humidity	0 ÷ 100% R.H.
Process connections	ANSI / API / DIN / JIS Flanged RF, FF, RTJ, Screwed
Self test	In case of malfunction the output is forced to fail-safe state 3.85 mA / 21 mA

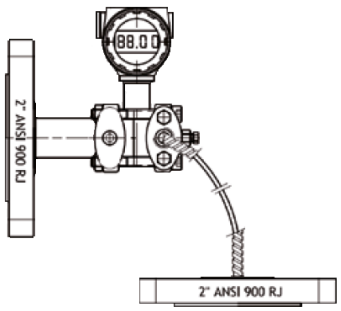


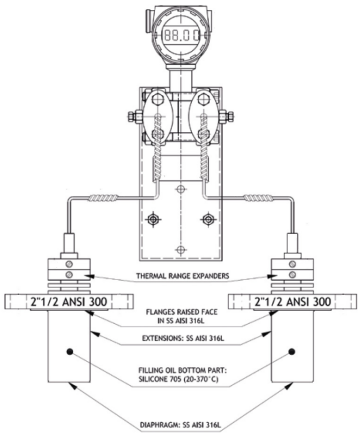


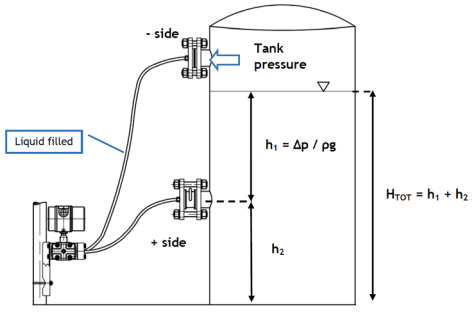
Smart Differential Pressure Transmiters

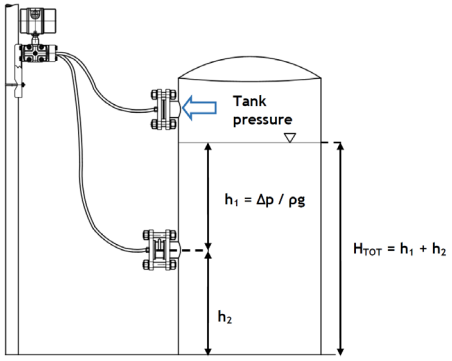
Supply	12.5 ÷ 30 Vdc
Output signal	4 – 20mA , 2 wires / Digital using HART® or FIELDBUS® protocol
Measuring range	From 0 ÷ 18 mbar to 0 ÷ 10 bar
Measuring element	Piezoresistive
Filling fluid	Silicone oil
Max load	550 Ohm @ 24 Vdc
Total accuracy	< ± 0.1% FS including hysteresis
Max static pressure (18-50 mbar)	50 bar on either side
Max static pressure (350-10000 mbar)	400 bar on either side
Response time	< 256 ms (Standard Hart®)
Zero thermal drift	< ± 0,1%/10°C
Span thermal drift	< ± 0,1%/10°C of Nominal Range
Damping	0 ÷ 60 s (minimum response time 0.1 s)
Long term stability	< ± 0.1 % FS/year
Process temperature	-40 ÷ +85°C (with capillary: up to 283°C)
Ambient / Storage temperature	-40 ÷ +85°C / -40 ÷ +90°C
Relative Humidity	0 ÷ 100% R.H.
Process connections	2 x 1/4" NPT-F (Standard) or 2 x 1/2" NPT-F
Self test	In case of malfunction the output is forced to fail-safe state 3.85 mA / 21 mA





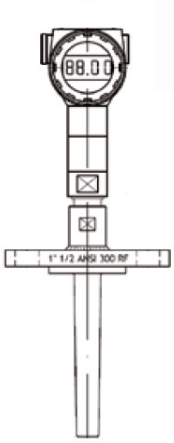


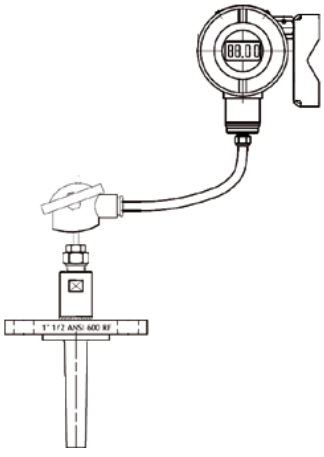




Smart Temperature Transmitters

Supply	12.5 ÷ 30 Vdc
Output signal	4 – 20mA , 2 wires / Digital using HART® or FIELDBUS® protocol
Class	DIN A, DIN B, 1/4 DIN, 1/10 DIN, etc.
Measuring range	-200 up to 650°C
Max load	550 Ohm @ 24 Vdc
Total accuracy	εDGT + εPT100 including hysteresis
Digital accuracy (εDGT)	< ± 0.1% FS / 100°C
Thermoelement accuracy (εPT100)	Tolerance classes for PT100 thermocouples (IEC751)
Response time	< 256 ms (Standard Hart®)
Zero thermal drift	< ± 0,1%/10°C
Span thermal drift	< ± 0,1%/10°C of Nominal Range
Damping	0 ÷ 60 s (minimum response time 0.1 s)
Long term stability	< ± 0.1 % FS/year
Process temperature	-40 ÷ +85°C (with capillary: up to 283°C)
Ambient / Storage temperature	-40 ÷ +85°C / -40 ÷ +90°C
Electrical connections	2x1/2" NPT or M20x1,5
Relative Humidity	0 ÷ 100% R.H.





Pressure, DP & Temperature Switches

SMART level, pressure & temperature switches are microprocessor-based instruments with an ON/OFF output signal. It is possible to locally configure the instruments (zero and span) by means of 2 push buttons and to display the data on the display. Thermal drift is compensated using the temperature signal generated by a PTC thermistor integrated in the sensor itself. Based on these readings the microprocessor shows the measurement on the display and command an ON/OFF signal output contact, depending on a set threshold.

Measurement Range

► For Temparature Switches:-200 to 600 °C
► Accuracy: Basically 0.1% FS (Depend on class of the sensors DIN A, DIN B, 1/3 DIN, 1/5, DIN,1/10 DIN)
► For Pressure Switches: 0,023 to 101 bar
► Accuracy: up to <0.07 %FS
► For DP Pressure Switches: -1..10 bar
► Accuracy:<0.1%FS
► Power supply: 24 ÷ 30 Vdc
► Output signal: Relay SPDT output: 8A @ 250V
► Signal Description: Direct/Reverse with Set-1 and Set-2 adustment
► Process Connection: 1/4" or 1/2" NPT for DP swicthes and various threaded, ASME or EN flanges with wide range sizes for temparature and pressure swicthes





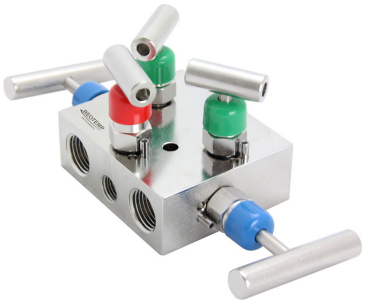


Accessories







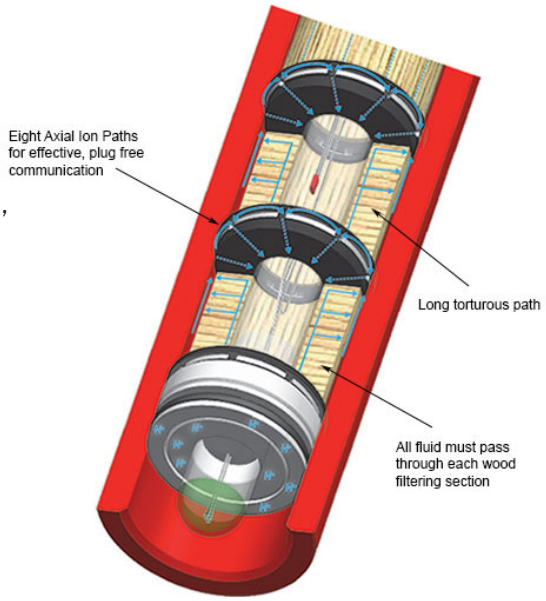


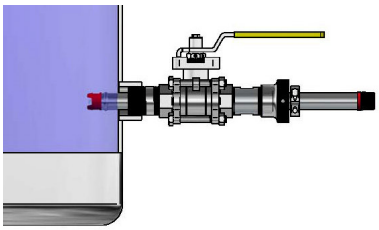

ANALYTICS

pH/ORP / Conductivity Sensors and Analayzers

Main Features

- ▸ Technology: Axial Ion Path
- ▸ Installation: In-line, Hot Tap, Submersible
- ▸ Measurement Range:0-14 Ph, -1500/+1500 mV
- ▸ Temperature Range: -20 up to 130°C (Other ranges on request)
- ▸ Pressure Range: In-line sensor installation up to 2,500 PSIG (172 Bar)
- ▸ Temperature Compensation: PT100 RTD,PT1000 RTD
- ▸ Sensor Body Material: Kynar PVDF, PEEK, CPVC,316L,Tantalium, Titanium,
- ▸ Sensor O-Ring Materials: Viton® ExtremeTM ETP-600S,EPDM, FFKM
- ▸ Options: Jet Cleaner, Brusher, junction box, High Pressure Hot Tap, Ball valve Assembly, compression fittings





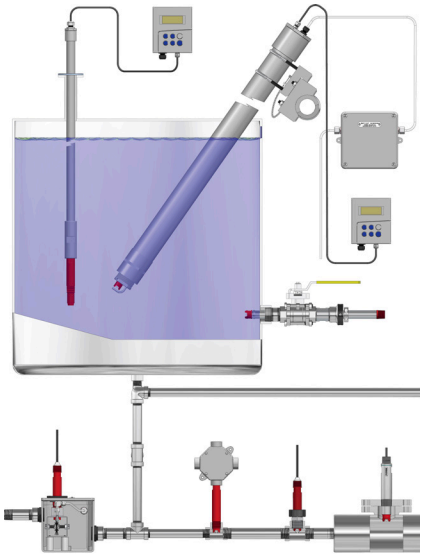
Conductivity Sensors

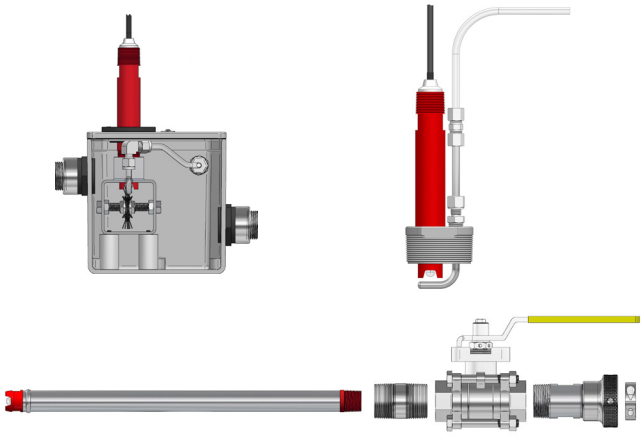
Main Features

- ▸ Technology: Two & Four Electrode Sensors
- ▸ Measurement Range: 0 up to 20.000 MicroSiemens
- ▸ Temperature Range: -20 up to 205°C (Other ranges on request)
- ▸ Pressure Range: In-line sensor installation up to 500 PSIG (35 Bar)
- ▸ Temperature Compensation: PT100 RTD,PT1000 RTD
- ▸ Sensor Body Material: Kynar PVDF, PEEK, CPVC,316L,Tantalium, Titanium,
- ▸ Sensor O-Ring Materials: Viton® ExtremeTM ETP-600S,EPDM, FFKM
- ▸ Options: Jet Cleaner, Brusher, junction box, High Pressure Hot Tap, ball valve Assembly, compression fittings

Analayzers

- ▸ 24VDC input power (loop power design) or 220VAC
- ▸ Single or Dual 4-20mA analog outputs (HART and Foundation Feildbus optional)
- ▸ Intrinsic Safety Hazardous area approvals for FM/CSA/ATEX/IECEx





Process Oxygen Analyzers

Main Features

- ► Optical quench luminesence technology
- ► Trace (ppm) to % level Oxygen measurement in gas & liquid applications
- ► Measurement accuracy, drift and lifetime not affected by presence of H2S, CO2, SO2 and H2
- ► Auto-Calibration & Remote Validation
- ► Rugged Field Enclosure - Local Display & HMI
- ► Pressure Compensated Measurement: Ambient (on-board) pressure sensor
- ► 4-20 mA active (loop powered input) for optional in-line pressure transmitter
- ► RTD Input- Pt100 or Pt1000 4-wire
- ► Works with BOSx FlexSense I, FlexSense II and SafeTap fiber optic oxygen sensors
- ► OXYvisor PC software for configuration, set-up, diagnostics and trending
- ► Approvals: IECEx, ATEX, IIC cULus (NRTL)

Typpical Applications - Gas Phase (g)

- ► O2 in hydrocarbon streams, Vapor recovery units (VRU's)
- ► Gas plant inlets, Booster / compressor stations
- ► Custody transfer points, Transmission and distribution
- ► Trace O2 detection in nitrogen headers, Biogas oxygen detection (moisture and H2S)
- ► Pure ethylene and propylene production, O2 in nitrogen tank blanketing
- ► Trace to % level oxygen in syngas gas

Typical Applications - Liquid Phase (l)

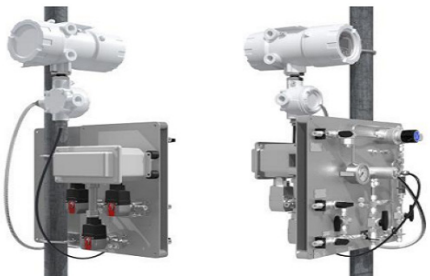
- ► ppb dissolved O2 for water-flood injection, Produced water dissolved O2
- ► Oxygen in methanol and ethanol, Oxygen in oil separation

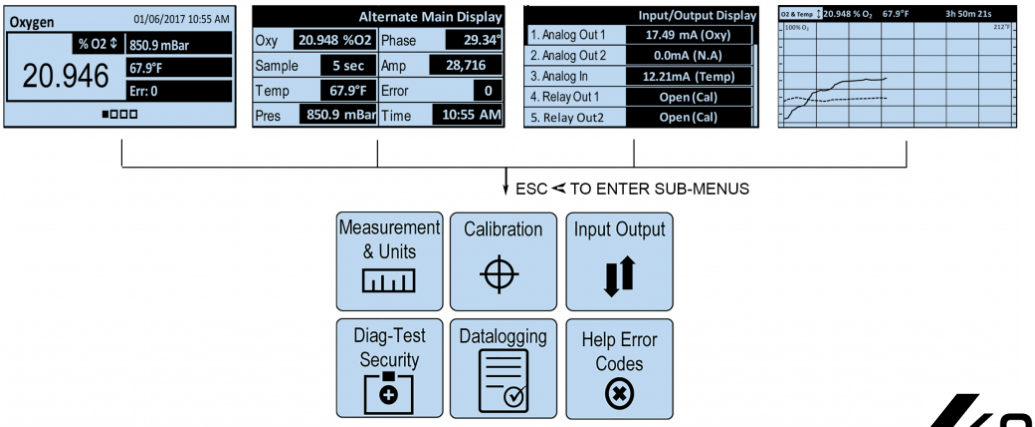
Programable Inputs / Outputs

- ► Analog mA Outputs/Inputs
- ► Digital RS485 Modbus
- ► Digital Inputs/Outputs

FIBER OPTIC OPTICAL O2 SENSORS

- ► BOS3(Gas) - 0.5 to 300 ppm
- ► BOS1(Gas) - 0 to 5% O2
- ► BOS1(Liquid) - 0 /2.0 mg/L (ppm)
- ► BOS2 (Gas) - 0 to 25%
- ► BOS2 (Liquid) - 0/45 mg/L (ppm)





KONTSIS instrumentation & automation

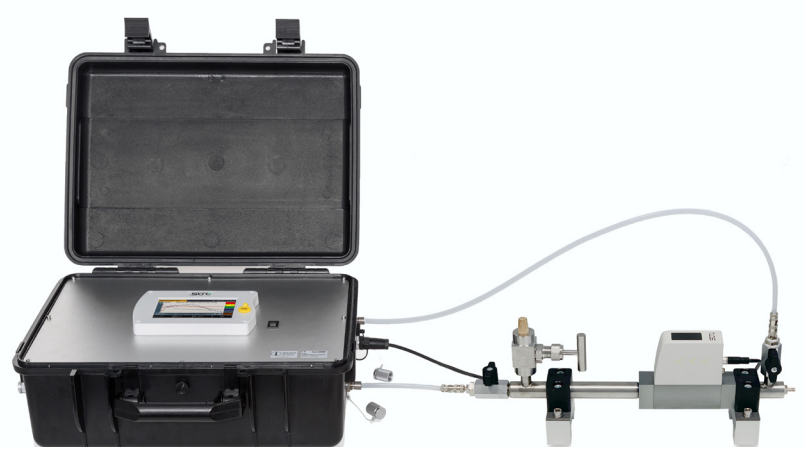
COMPRESSED AIR QUALITY AND PURITY INSTRUMENTS

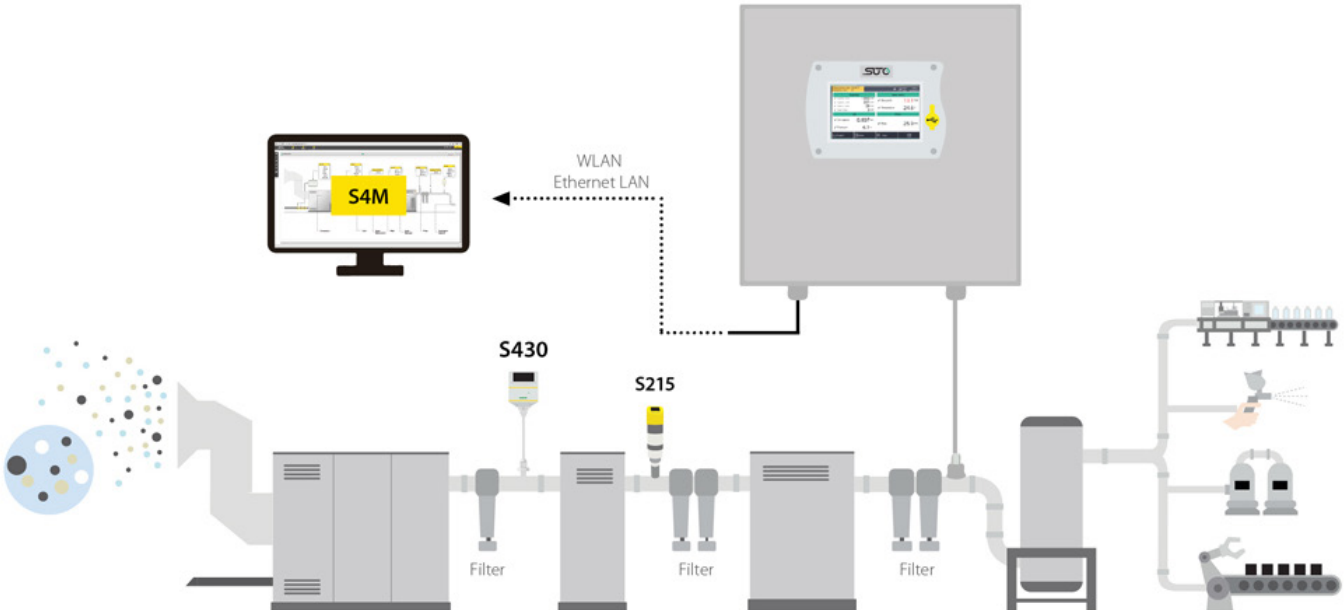
Compressed Air Purity Analyzer for Quality Measurements

The Compressed Air Purity Analyzer for quality measurements provides a compressed air monitoring solution that is modular and time-efficient to use. The S600/S601 offers 8573 ISO quality standard results with portability as an addition. This device can measure dew point/humidity, particle counts, temperature, pressure, and oil vapor with high accuracy.

Main Features

- 4-in-1 measuring device
- High resolution 5” colour touch screen interface
- Software-guided measurements
- Particle concentration measurements according to ISO 8573 standards
- Dew point measurements with multiple sensor technology according to ISO 8573 standards
- Oil vapor measurements with high precision
- Pressure measurement
- Integrated data logger
- Portable design with 45 x 38,1 x 19,05 cm inches in size
- Dew point measurement from -100... +20 °C Td
- Particle measurement from 0.1 < d ≤ 0.5 µm, 0.5 < d ≤ 1.0 µm, 1.0 < d ≤ 5.0 µm
- Oil vapor measurement from 0.003... 10.000 mg/m³





KONTSIS instrumentation & automation

Oil Vapor Sensor for Compressed Air Quality Measurements

The oil vapor sensor S120 monitors oil contents of compressed air and gases permanently. The simple installation and the outstanding performance makes S120 the ideal choice when residual oil contents needs to be measured and monitored.

Main Features

- ► Measures residual oil (oil vapor) contents in compressed air and other gases
- ► Compact Design
- ► Optional integrated dew point sensor
- ► Can be used for permanent or in portable applications
- ► Measures down to 0.003 mg/m³ (Resolution 0.001 mg/m³)
- ► Easy connection through sampling hose and quick-connector
- ► Output signals: 4 ... 20 mA, RS-485 / Modbus/RTU, Relay switch (NO)
- ► PID sensor for highest accuracy
- ► Service and alarm indication through LED
- ► Connectable to SUTO displays and data loggers as well as third parties displays and control units

Laser Particle Counter for Compressed Air Quality Measurements

The S130 / S132 is a new generation laser particle counter optimized for applications in compressed air or compressed gases. With quality in mind and with the knowledge of customer needs, this instrument is designed for continuous operation 24hours, 7 days a week. In an alternative version, all models are also available for measurements under ambient conditions by means of an internal vacuum pump.

Main Features

- ► Easy connection to compressed air through 6 mm quick-connector
- ► Can be used as portable as well as stationary instrument
- ► Particle sizes from 0.1 < d ≤ 5.0 µm (depending on model)
- ► Optional integrated 5” touch screen with data logger
- ► Measures according to ISO 8573-4
- ► Output signals: -RS-485, Modbus/RTU, -Relay switch (NO)
- ► Connectable to SUTO displays and data loggers as well as third parties displays and control units

Dew Point Transmitters / Sensors for Compressed Air and Gases

Main Features

► For high tech applications with a measurement range of -100 ... +20 °C Td.
► Dual Sensor System for high precision over the whole range.
► Compact size makes them ideal for dryer installations.
► Optional display for on-site values.
► Display can be rotated by 340 ° to fit your needs
► IP65 casing provides robust protection.
► Accuracy:
Dew point +/- 1 °C Td
Temperature +/- 0.3 °C
Pressure 0.5 % FS
► Process connection: G 1/2”
► Operating conditions: -30 ... +70 °C
► Operating Pressure: -0.1 ... 35.0 MPa (depend on model and accesories)
► Output Signal: 4 ... 20 mA 2-wire + SDI, 4 ... 20 mA 3-wire + SDI, 4 ... 20 mA 3-wire + Modbus/RTU
► Supply Voltage 15 ... 30 VDC

Portable Dew Point Meter

Main Features

► The S520 portable dew point meter offers users a single hand held unit to perform on site measurements in compressed air systems.
► Measures dew point, temperature and pressure in one device
► Measurement according to ISO 8573-1
► Optional smart features: End value prediction, camera and measurement snapshot
► Wireless printer for on-site reporting, perfect for audits
► Unique Measuring chamber with parking function as standard included
► Integrated pressure sensor
► Touch screen for easy operation

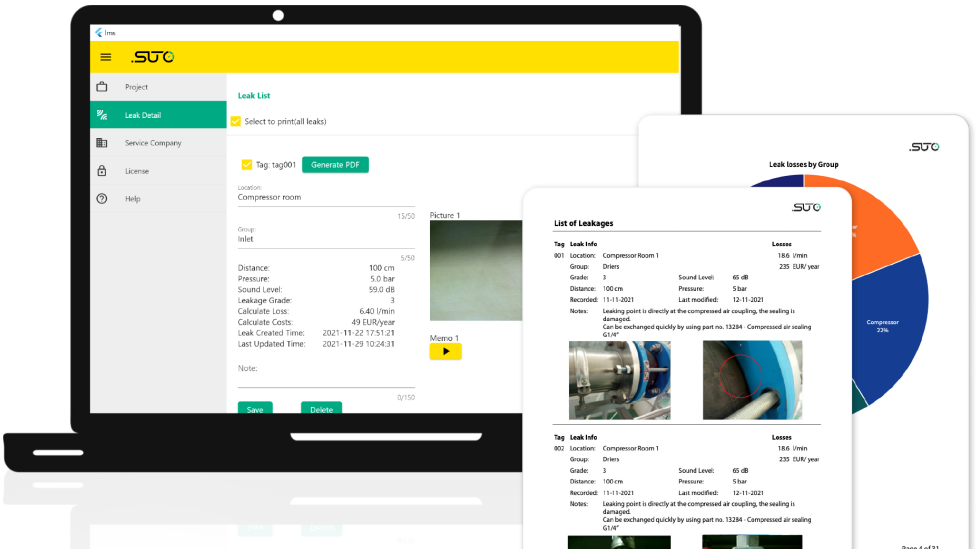
Opt. A -100 ... +20 °C Td
Opt. B -50 ... +50 °C Td

Leak Detection for Compressed Air and Gases

Ultrasonic Leak Detector fnds leaks in the compressed air system is the first step into energy saving. The leaking compressed air causes immense electrical costs, as your compressors are running more than they would actually need to run.

Main Features

- Finds leaks in the compressed air or gas system easily even from distance
- High resolution 3.5” color touch screen, easing operations in leak detection
- Almost unlimited memory for leak records
- Wireless connection with headset
- Built-in camera to take photo of leak locations
- Voice recorder for voice memos
- Laser pointer to pinpoint leak locations
- Records leak information for statistics and repair
- Calculates air loss in l/min, m3/h or cfm and in the local currency
- Integrated noise reduction technology



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