



OEM Products 2024

Reliable Measurement Technology for
Compressed Air and Gases in OEM Applications



Be smart. Measure it.

OEM Solutions for compressed air and gas measurements

Compressed air is essential for a variety of operations and applications in all industries.

Equipment manufacturers, such as dryer and compressor makers, are using flow and dew point sensors, to monitor, control and optimize their equipment and machines.

On the demand side of systems, equipment manufacturers are monitoring their machine output performance by using dedicated flow meters for compressed air and gases.

By having measurement equipment directly integrated into the machines, equipment manufacturers are enabled to ensure their performance while optimize their efficiency, cost-effectiveness and reliability.

SUTO Technology and Services



AIR AND POWER CONSUMPTION



MACHINE & SYSTEM MONITORING



PURITY MONITORING



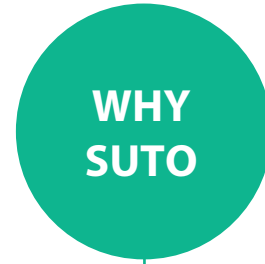
LEAKAGE MANAGEMENT



DISPLAY & LOGGER TECHNOLOGY



SUPPORT SERVICES AND CALIBRATION



OEM Experience

SUTO can look back on many years of experience working in the OEM market. We are a valued partner by delivering effective, custom-designed solutions.

Powered by Innovation

We are pioneers in compressed air measurement by rethinking traditional methods and reaching new levels of time-efficient measurement. We are constantly improving and adapting our OEM product portfolio.

Product Knowledge

Every OEM application has different requirements. SUTO is able to provide a portfolio of compressed air devices and solutions with the deep understanding of various application.

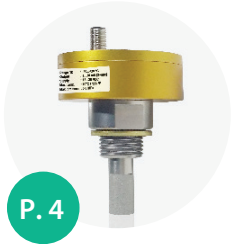
Design Driven

Our OEM customers require unique and custom-designed solutions. SUTO is able to adapt to full-scale, personalized systems, ensuring the best possible solutions provided to our OEM clients.

Products and Applications

S217 OEM Compact Dew Point Transmitter

(-60 ... +50 °C Td)



P. 4

The S217 OEM Compact Dew Point Transmitter provides reliable and long term stable dew point monitoring in medium range applications down to -60 °C Td.

S220 OEM Dew Point Transmitter

(-100 ... +20 °C Td)



P. 7

The S220 OEM Dew Point Transmitter offers a wide measurement range of -100 ... +20 °C Td, relying on innovative sensor elements for high tech applications.

S402 OEM Thermal Mass Flow Meter

(Insertion)



P. 12

The S402 OEM flow sensor offers reliable flow and consumption measurements at driers and consumers. Insertion type sensor fits to all pipe sizes.

S415 OEM Compact Thermal Mass Flow Meter

(Inline)



P. 16

The S415 OEM Thermal Mass Flow Meter measures the air and gas consumption directly at the point of use. Thanks to the compact size it can fit in any application.

S431 OEM Pitot Tube Compressor Flow Meter

(Inline)



P. 20

The S431 OEM is the perfect flow meter for quality conscious compressor makers by measuring the air delivery directly inside the compressor or at the compressor discharge.



SUTO is a leader and trusted global partner for reliable measurement and monitoring solutions for compressed air and gas systems.

Our wide range of products play a vital role in system processes of leading companies around the world.

Since our foundation in 2005, we offer our customers outstanding service and solutions and continue to innovate dependable measurement technology.



S217 OEM

Compact Dew Point Transmitter



COMPACT DESIGN

Makes it easy to fit into the application



PRECISE MEASUREMENT

Long lasting sensor accuracy



IO-LINK OPTION

Intelligent Communication Plug and Play



DEW POINT

In the range you need it



OEM SENSOR

Cost effective version



Benefits

- ✔ Small size makes it ideal for dryer installations
- ✔ Measures dew point down to -60 °C Td
- ✔ Output signals which fit your needs: 4 ... 20 mA 2-wire or 3-wire, Modbus/RTU, IO-Link
- ✔ IP65 casing provides robust protection
- ✔ High accuracy of 1 ... 2 °C Td
- ✔ Sensor withstand condensation
- ✔ M8 connection cable included or optional with M12 connector

Long term stable measurements

The SUTO dew point transmitter S217 OEM provides reliable and long-term stable dew point monitoring in demanding industrial applications. The newly developed sensor features improved signal and stability.

The measured dew point is output via the loop-powered 4 ... 20 mA signal, 3-wire 4 ... 20 mA output or through Modbus/RTU. Sensor parameters, such as analogue output scaling or physical units, can be set ex factory.

Small and compact design

Through our new sensor technology paired with a compact casing, S217 OEM can be offered at very attractive prices. This allows applications in smaller dryers and point of use dryers using a more energy-efficient dew point control.

Designed for demanding OEM applications

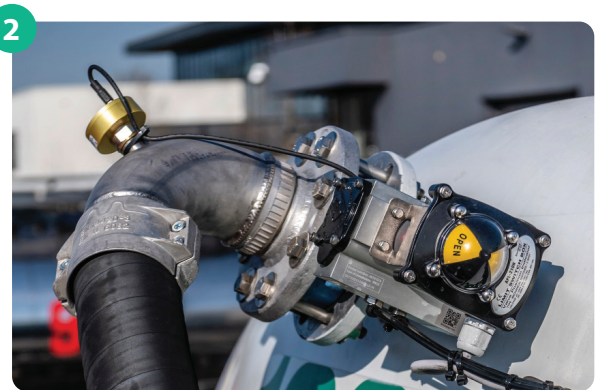


1 The S217 OEM Dew Point Transmitters help a CNC-Grinding Machine Manufacturer to keep their product and process at the highest levels of quality

Since not all customers monitor their air quality, a CNC Manufacturer contacted SUTO to find a way to monitor the incoming air quality and notify the customer when it is outside the specification.

SUTO worked with them to design in a Dew Point Monitoring System at the compressed air inlet on their CNC grinding machines.

With the S217 OEM the Dew Point Monitoring System constantly measures the humidity levels of the compressed air and has two predetermined alarms set by the CNC manufacturer and provides reliable processes.



2 A build in S217 OEM Dew Point Transmitter helped to prevent condensation in a silo trailer and thus the growth of bacteria or germs

The silo trailer was equipped with a high-quality air dryer to improve the air quality in the silo trailer. An essential part of the system is the measurement and storage of data on the relative humidity and the pressure dew point.

The clean, dry air that is blown into the silo and the moist air that is blown out of the silo is monitored by two S217 OEM dew point sensors connected to the SUTO S331 data logger.

By implementing SUTO's cutting-edge solution, the company was able to achieve a permanent removal of moisture from the silo trailer, which led to high efficiency and safety.

Technical Data

General Specifications

Measurement range (model depending)	Dew point	-60 ... +20 °C Td
	Temperature	-20 ... +50 °C Td -30 ... +70 °C
Dew point sensor	Polymer	
Temperature sensor	NTC	
Pressure sensor	N/A	
Accuracy	Dew point	±2 °C Td
	Temperature	0.3 °C
Operating Pressure	-0.1 ... 5.0 MPa	
Operating Temperature (Medium)	-30 ... +70 °C	
Measured gases (Medium)	Non-corrosive gases	
Response Time t90 (@ 4 l/min)	-40 °C Td -> -20 °C Td	= 20 sec
	0 °C Td -> -40 °C Td	= 120 sec
Ambient Temperature	-20 ... +50 °C	
Ambient Humidity	0 ... 100 %rH	
Supply Voltage	12 ... 30 VDC	

Stated accuracy under following conditions:

- Ambient temperature 23 °C ±3 °C
- Process temperature 23 °C ±3 °C
- Ambient humidity < 95 %, no condensation

Current consumption (model depending)	30 mA @ 24 VDC 3-Wire, Modbus/RTU
	20 mA @ 24 VDC 2-Wire
Output signals (model depending)	4 ... 20 mA 3-Wire
	4 ... 20 mA 2-Wire
	Modbus/RTU IO-Link (please inquire)
Electrical connection	Cable, 1.8 m, open end wire, M8 connector, 4 poles
Process connection	G 1/2" thread (ISO 228/1) Stainless steel 1.4301 (SUS 304)
Casing material	Aluminum alloy
Classification	IP65
EMC	IEC 61326-1
Approval	-
Sensor protection	Sinter filter
Transport Temperature	-30 ... +70 °C
Storage Temperature	-20 ... +50 °C
Weight	198 g

Ordering

Please use the following table to assist in placing your order with our sales staff.

S217 OEM Compact Dew Point Transmitter

Order No.	Description
S699 2176	S217 OEM Dew point sensor, -60 ... +20 °C Td, 4 ... 20 mA (2-wire), G1/2" thread, 5.0 MPa, M8 connector, incl. 1.8 m cable open ends
S699 2173	S217 OEM Dew point sensor, -20 ... +50 °C Td, 4 ... 20 mA (2-wire), G1/2" thread, 5.0 MPa, M8 connector, incl. 1.8 m cable open ends
S699 2177	S217 OEM Dew point sensor, -60 ... +20 °C Td, 4 ... 20 mA (3-wire), G1/2" thread, 5.0 MPa, M8 connector, incl. 1.8 m cable open ends
S699 2174	S217 OEM Dew point sensor, -20 ... +50 °C Td, 4 ... 20 mA (3-wire), G1/2" thread, 5.0 MPa, M8 connector, incl. 1.8 m cable open ends
S699 2178	S217 OEM Dew point sensor, -60 ... +20 °C Td, Modbus/RTU, G1/2" thread, 5.0 MPa, M8 connector, incl. 1.8 m cable open ends
S699 2179	S217 OEM Dew point sensor, -20 ... +50 °C Td, Modbus/RTU, G1/2" thread, 5.0 MPa, M8 connector, incl. 1.8 m cable open ends
S699 2180	S217 OEM Dew point sensor, -60 ... +20 °C Td, IO-Link, G1/2" thread, 5.0 MPa, M12 connector, incl. M12 plug
S699 2181	S217 OEM Dew point sensor, -20 ... +50 °C Td, IO-Link, G1/2" thread, 5.0 MPa, M12 connector, incl. M12 plug

Custom range

A1390 S217, customized measuring range (please specify your range and scaling request)

High pressure option

A1391 S217, high pressure option 35 MPa (350 bar)

S217 OEM Accessories

A699 3491	Measuring chamber for easy installation in compressed air system up to 15 bar
A699 3493	Measuring chamber bypass type (in and out 6 mm hose connection)



S220 OEM

Dew Point Transmitter

-100 ... +20 °C Td



COMPACT DESIGN

Makes it easy to fit into the application



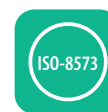
PRECISE MEASUREMENT

± 2 °C Td Accuracy



PRESSURE SENSOR

integrated as option



AIR QUALITY

Monitors humidity



SIGNAL OUTPUT

4 ... 20 mA
Modbus/RTU



DISPLAY OPTION

For on-site values



HIGH-TECH APPLICATIONS

QCM + Polymer
-100 ... 20 °C Td



DUALES SENSOR SYSTEM

High precision over the whole range



Benefits

- ✓ Compact size makes them ideal for dryer installations.
- ✓ Optional display for on-site values. Display can be rotated by 340° to fit your needs.
- ✓ User friendly signal outputs:
2-wire analog 4 ... 20 mA or 3-wire analog 4 ... 20 mA + Modbus/RTU
- ✓ IP65 casing provides robust protection.
- ✓ Low maintenance costs due to stable and reliable measurements which increase calibration intervals.
- ✓ Measured values available in several units:
°C Td • g/m³ • mg/m³ • ppmv • g/kg
(@ reference pressure) • % RH and more, please ask our support for other measurement units.

1 Display Option

The OLED display directly mounted on the sensor provides on-site real time values. The display can be easily rotated by 340° to fit your application.

2 Robust Materials

The main body is made from high class aluminum alloy with a soft finish. The process connection is a 1.4301 (SUS 304) stainless steel connection, made to last forever.

Top cover made from aluminum at the same quality as the main body. The optional display cover is made from robust Polycarbonate with ABS reinforcement to withstand the rough environment.

3 Unique QCM Sensor

Our QCM sensor is the result of years of high-tech research and development. The sensor was especially designed for low dew point applications where other sensor types fail.

The combination of QCM and the well known Polymer sensor makes the S220 the worlds first model to measure accurate over the whole range, from -100 °C Td up to +20 °C Td by switching automatically between the two sensor elements as needed.

By fitting additionally a pressure sensor into the measurement unit, SUTO is combining 4 sensor elements (Polymer, QCM, Pt100, pressure) into a single dew point sensor.

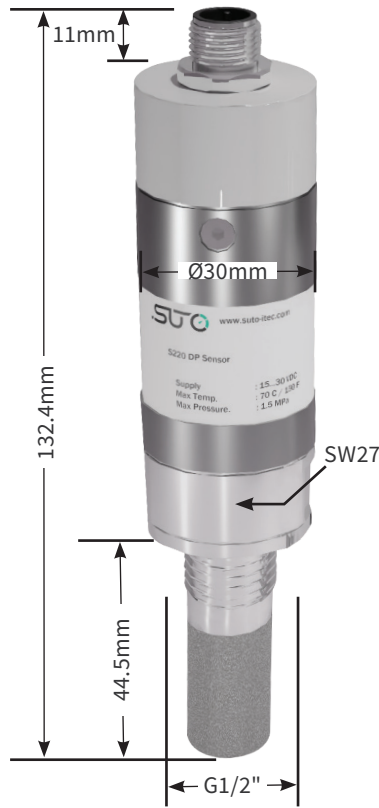


Dimensions

With display



Without display

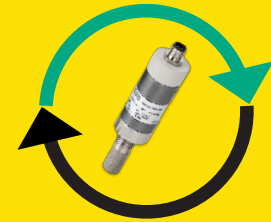


Exchange Service

No Downtime anymore!

The exchange calibration service eliminates down time and enables users to have a seamless record of their dew point measurements.

The user receives in advance a calibrated sensor unit with calibration certificate and the same sensor settings. The onsite sensor is then switched against the calibrated one and returned to the supplier.

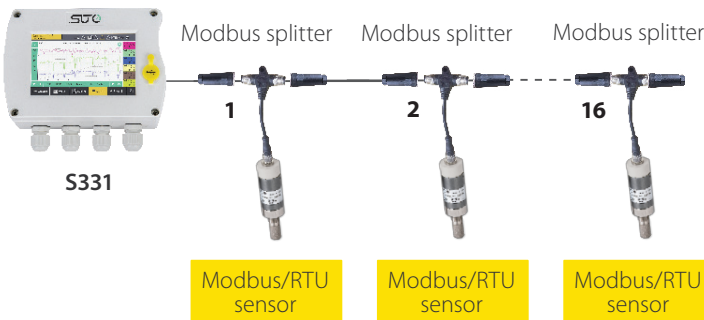


SUTO | Exchange Service

Modbus Sensor Network with S331

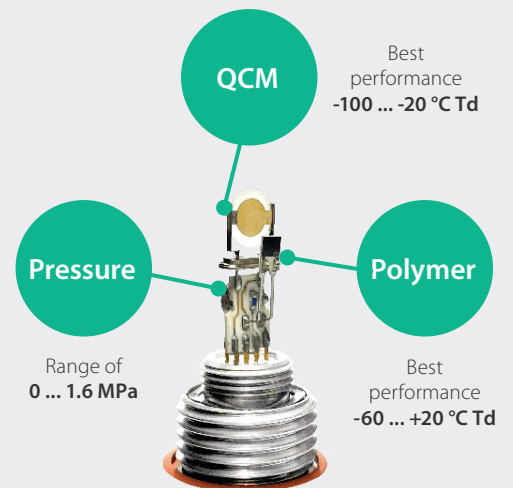
The Modbus/RTU bus allows to connect several sensors to a single bus line via Daisy-Chain. For example up to 16 sensors to a S331.

The S331 is a very powerful yet cost effective new data logger and display solution.



Unique triple sensor

With the S220 OEM, SUTO is combining three sensors into a single measurement unit, making it unique and the most advanced sensor available on the market.



Technical Data

Measurement

Dew Point

Accuracy	± 1 °C Td (0 ... 20 °C Td) ± 2 °C Td (-60 ... 0 °C Td) ± 3 °C (-100 ... -60 °C Td)
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Selectable units	°C, °F, bar(g), MPa(g), psi(g), % rH, g/m ³ , mg/m ³ , g/m ³ atm., mg/m ³
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Measuring range	-100 ... +20 °C Td
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Sensor	Polymer + QCM
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Response time (t90)	0 °C Td → -80 °C Td ≤ 420 sec -80 °C Td → 0 °C Td ≤ 90 sec @ 4 l/min
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Pressure

Accuracy	0.5 % FS
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Measuring range	0 ... 1.6 MPa
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Sensor	Piezoresistive type
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Temperature

Accuracy	± 0.3 °C
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Measuring range	-30 ... +70 °C
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Sensor	Pt100
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Reference conditions

Selectable conditions	Pressure Dew Point, Atmospheric Dew Point
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Signal / Interface & Supply

Analog output

Signal	4 ... 20 mA 2-wire + SDI, 4 ... 20 mA 3-wire + Modbus/RTU
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Scaling	4 mA = -100; 20 mA = +20 °C Td; freely adjustable
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Load	250R
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Update rate	3/sec
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Fieldbus

Protocol	Modbus/RTU
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Update rate	1/sec
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Supply

Voltage supply	15 ... 30 VDC
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Current consumption	2-wire: 4 ... 20 mA 3-wire: 40 mA @ 24 VDC 3-wire with Display: 50 mA @ 24 VDC
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Measurement

Configuration

PC Software	S4C-DP Application
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Display

Integrated	0.66" OLED display, indicates the measured value and unit
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Material

Process connection	Stainless steel 1.4301 (SUS 304)
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Housing	Display cover: PC + ABS
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Sensor	Polymer + Quartz-Crystal
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Metal parts	Sinter filter (stainless steel)
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Miscellaneous

Electrical connection	M12, 5-pole
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Protection class	IP65
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Approvals	CE
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Process connection	G 1/2" (ISO 228/1) or UNF 5/8" (ANSI B1.1)
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Weight	180 g
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Operating conditions

Medium	Air, Argon, O ₂ , N ₂ , CO ₂ *
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Medium quality	ISO 8573-1: 4.6.3 or better
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Medium temperature	-30 ... +70 °C
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Medium humidity	≤ 20 °C Td
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Operating pressure	0.1 ... 1.6 MPa
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Ambient temperature	0 ... +50 °C
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Ambient humidity	0 ... 100 % rH
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Storage temperature	-20 ... +50 °C
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Transport temperature	-30 ... +70 °C
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* CO₂ medium:

The S220 must be set to CO₂ ex works or by using the S4C-DP Service Software + Service Kit (please state at the order if S220 will be used in CO₂)

Accessories



Measuring chamber for easy installation through quick coupling



By-pass measuring chamber with 6 mm hose connections as in- and outlet



M12 Sensor cable with open ends 5 m or 10 m

Ordering

Please use the following tables to assist in placing your order with our sales staff.

Dew Point Transmitter with 2-wire analog output

Order No.	Description
S699 2201	S220 OEM Dew point sensor, -100 ... +20 °C Td, 2-wire 4 ... 20 mA output, G 1/2" process connection
S699 2204	S220 OEM Dew point sensor, -100 ... +20 °C Td, 2-wire 4 ... 20 mA output, UNF 5/8" process connection

Dew Point Transmitter with 3-wire analog output and SDI

Order No.	Description
S699 2202	S220 OEM Dew point sensor, -100 ... +20 °C Td, 3-wire 4 ... 20 mA output, G 1/2" process connection

Dew Point & Pressure Transmitter with 3-wire analog output and Modbus/RTU*

Order No.	Description
S699 2203	S220 OEM Dew point sensor, -100 ... +20 °C Td, with Pressure sensor 0 ... 1.6 MPa, 3-wire 4 ... 20 mA + Modbus/RTU output, G 1/2" process connection
S699 2206	S220 OEM Dew point sensor, -100 ... +20 °C Td, with Pressure sensor 0 ... 1.6 MPa, 3-wire 4 ... 20 mA + Modbus/RTU output, UNF 5/8" process connection

Display Option

	Without Display
A1386	OLED Display option for S220 OEM 3-wire Analog and Modbus version (only for S699 2203 & S699 2206)

* Standard Modbus Settings:

Slave Address: last two digits of the serial number / Communication settings: 19200 baud, 8 / N / 1

If your applications needs other settings, please state it at the order or use the Service Kit to set the sensor on site

Output Unit

The dew point sensor is available with different measurement units for dew point, humidity, temperature and pressure.

Standard is: **Dew point = °C Td / Temperature = °C / Pressure = bar**

If you would like to have a different unit as output, please specify it at the order or use the optional Service Kit with the Service Software to change the output unit. For example pressure in PSI or humidity in ppmv.

S220 Accessories

Order No.	Description
A699 3491	Measuring chamber with quick connector, up to 1.6 MPa, 2 l/min purge @ 0.8 MPa, for G1/2" sensor
A699 3493	Measuring chamber by-pass, up to 1.6 MPa, 6 mm hose connection as in- and outlet, for G1/2" sensor
A553 0104	Sensor cable 5 m with M12 connector, open end wires, AWG 24 (0.2 mm ²)
A553 0105	Sensor cable 10 m with M12 connector, open end wires, AWG 24 (0.2 mm ²)

Calibration

Order No.	Description
R699 3396	Re-calibration dew point sensor, incl. certificate of calibration

S402 OEM

Thermal Mass Flow Meter

Insertion



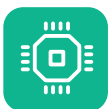
SMARTPHONE APP

For remote configuration



ACCURATE RESULTS

Very fast response time



EASY PROCESS MONITORING

Effective and inexpensive measurements



TOTAL FLOW

High accuracy and reliable measurements



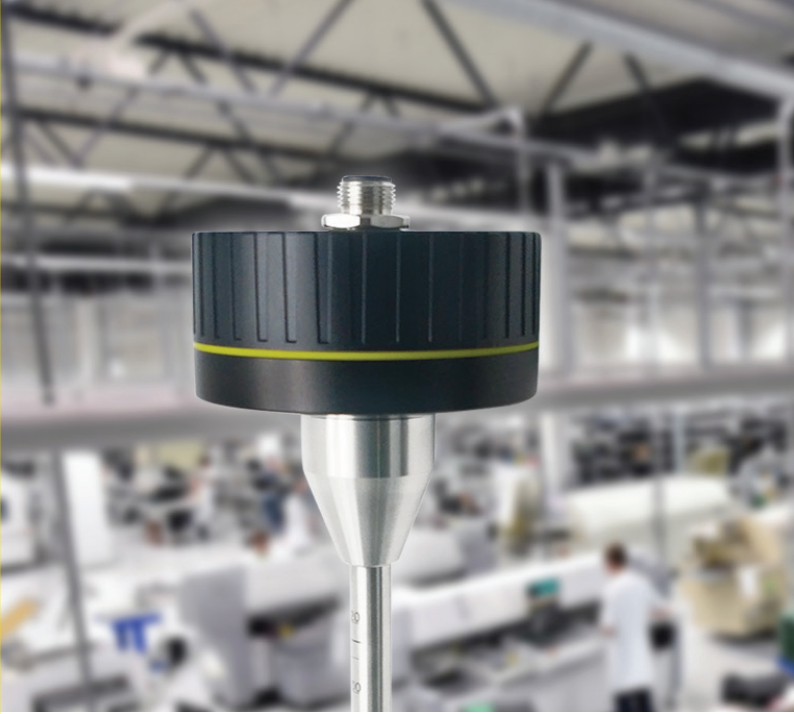
EASY INSTALLATION

Under pressure



IP65 CASING

Provides robust protection



Benefits

- ✔ High accuracy and wide measuring range
- ✔ Fits any pipe size from DN25 to DN500
One shaft length fits all (for bigger pipes > DN250 sensor is inserted 100 mm)
- ✔ Easy installation under pressure without interrupting the process
- ✔ Various signal outputs allow users to connect the sensor to any system
- ✔ Compact and robust design for long lifetime

Cost-efficient flow measurement

The S402 OEM offers reliable and cost-efficient standard flow, mass flow and consumption measurement of compressed air and gases.

Due to the thermal mass flow principle, the sensor is independent of pressure and temperature changes. It also features very fast response time, high accuracy and wide measuring range.

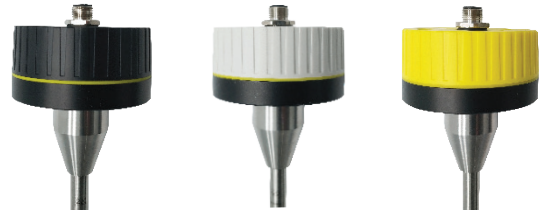
The compact IP65 casing provides robust protection in rough industrial environment for constant measurement results. The gas type can be easily selected. Some gases require real gas calibration.

The S402 OEM also offers various output signals:

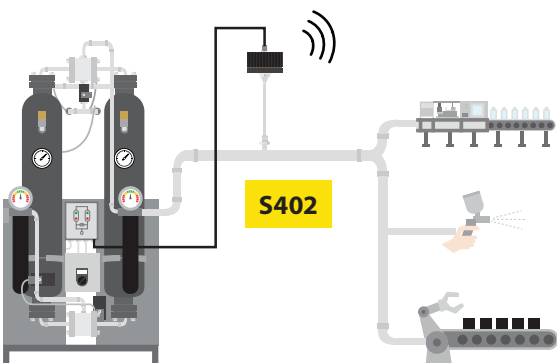
- Isolated 4... 20 mA & Pulse
- Modbus/RTU
- Modbus/TCP
- M-Bus

Three colors available

Private label version available with different colors, labels and features (MOQ required)



Compressed Air Measurement



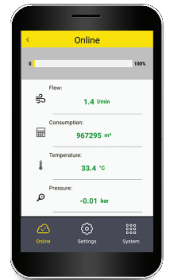
High tech
Compressed Air Dryer

Compressed Air
Usage

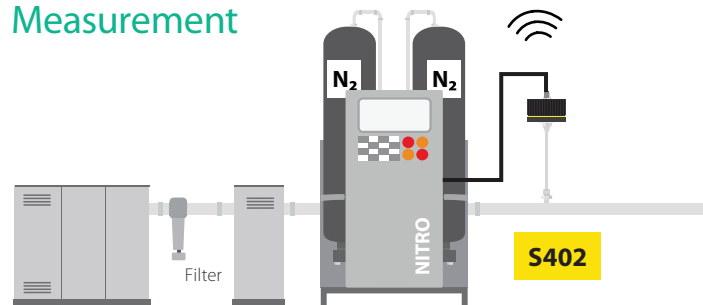
S402 OEM Thermal Mass Flow Meter

Smartphone App

Through the wireless interface, the flow meter can be connected to the smartphone by the S4C-FS app. This allows users to easily read live data and configure the S402 via their smartphone.



Nitrogen Measurement

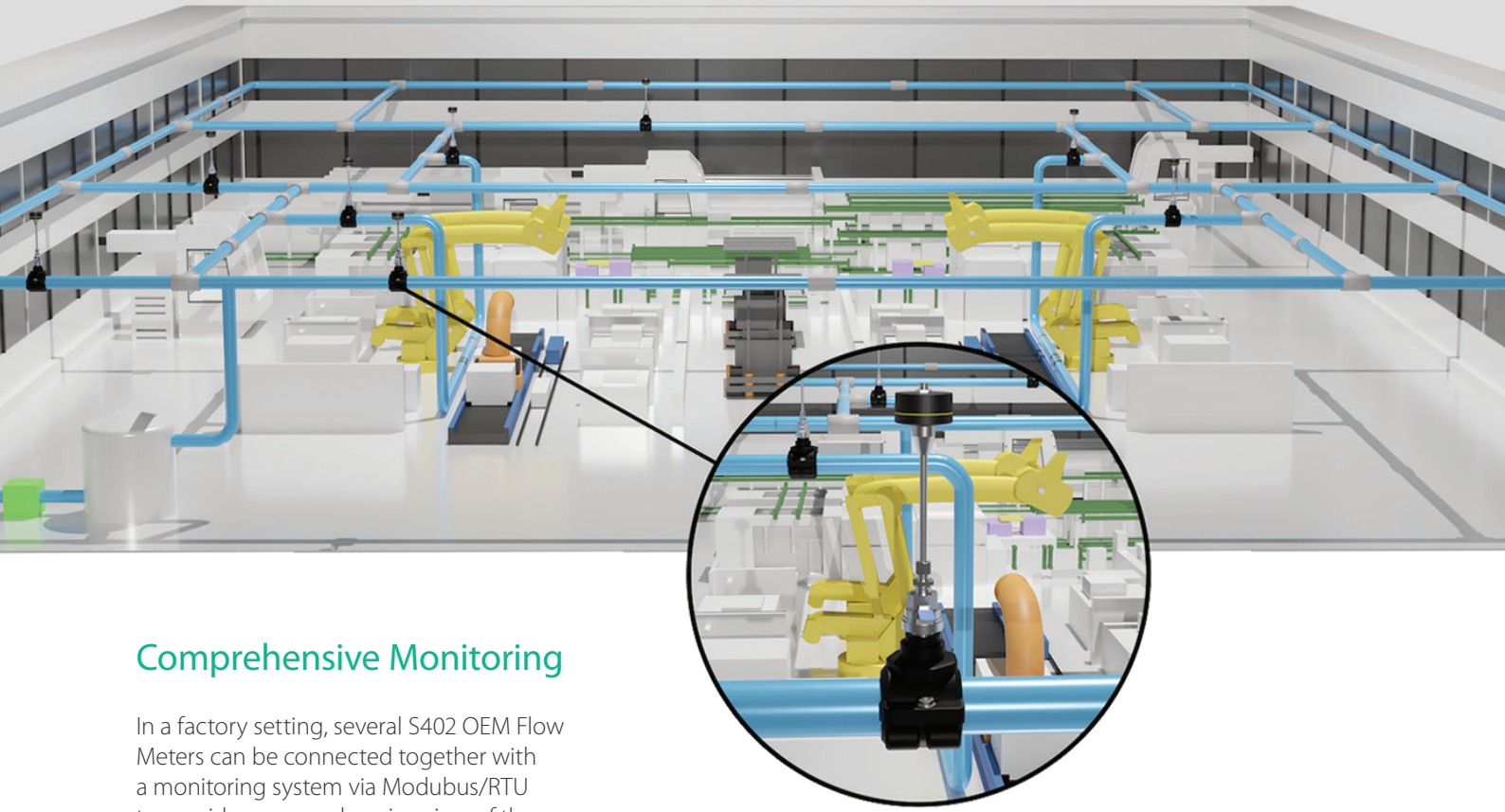


Compressor

Dryer

Nitrogen
Generator

Nitrogen
Usage

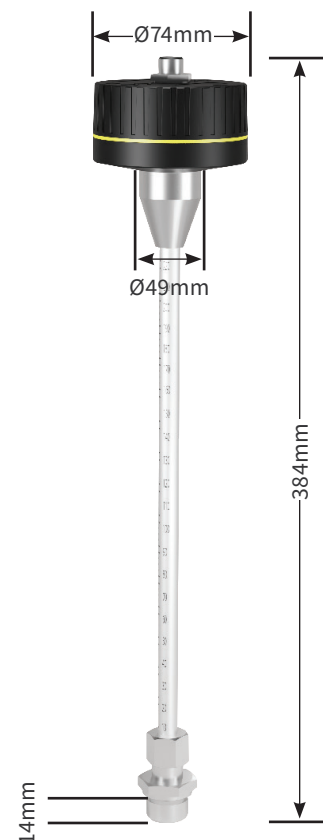


Comprehensive Monitoring

In a factory setting, several S402 OEM Flow Meters can be connected together with a monitoring system via Modbus/RTU to provide a comprehensive view of the compressed air usage and flow.

This helps factory managers and operators to identify and address any issues quickly, ultimately improving the overall efficiency of the production process.

Dimensions



Volumetric Flow Ranges

Inch	DN	Di (mm)	Standard (m ³ /h)	Max (m ³ /h)
1"	DN25	27.3	0.5 ... 147	0.6 ... 294
1¼"	DN32	36.0	0.9 ... 266	1.2 ... 531
1½"	DN40	41.9	1.2 ... 366	1.5 ... 731
2"	DN50	53.1	2.0 ... 600	2.5 ... 1197
2½"	DN65	68.9	3.5 ... 1026	5.0 ... 2048
3"	DN80	80.9	5.0 ... 1424	7.0 ... 2842
4"	DN100	100.0	10 ... 2183	12 ... 4357
5"	DN125	125.0	13 ... 3419	18 ... 6824
6"	DN150	150.0	18 ... 4930	25 ... 9838
8"	DN200	200.0	26 ... 8785	33 ... 17533
10"	DN250	250.0	40 ... 13743	52 ... 27428
12"	DN300	300.0	60 ... 19814	80 ... 39544

The table shows flow ranges up to 300 mm pipe diameter at standard conditions in air. Other standard conditions and gases flow ranges are available on request. In larger pipe diameters flow can also be measured.

Technical Data

Measurement

Flow

Accuracy	2 % of reading \pm 0.3% FS
Selectable units	m ³ /h, m ³ /min, l/min, l/s, cfm, kg/h, kg/min, kg/s
Measuring range	see table below
Repeatability	0.25 % o.RDG
Sensor	Thermal mass flow sensor
Sampling rate	3 samples / sec
Turndown ratio	1:100
Response time (t90)	0.5 sec

Consumption

Selectable units	m ³ , ft ³ , l
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Reference conditions

Selectable conditions	20 °C 1000 mbar (ISO1217), 0 °C 1013 mbar (DIN1343) freely adjustable
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Signal / Interface & Supply

Analog output

Signal	4 ... 20 mA, isolated
Scaling	0 ... max flow, freely adjustable
Load	Max. 250R
Update rate	1/sec

Pulse output

Signal	Switch output, normally open, max. 30 VDC, 20 mA
Scaling	1 pulse per consumption unit

Fieldbus

Protocol	Modbus/RTU
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Supply

Voltage supply	15 ... 30 VDC
Current consumption	200 mA

General data

Configuration

Wireless	S4C-FS App for mobile phones
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Material

Process connection	Stainless steel 1.4404 (SUS 316L)
Housing	PC + ABS
Sensor	Ceramic, glass coated
Metal parts	Stainless steel 1.4404 (SUS 316L)

Miscellaneous

Electrical connection	A1415: M12 (6 pole) other options: M12 (5-pole)
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Protection class	IP65
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Approvals	CE, RoHS, FCC
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Process connection	G1/2" (ISO 228/1)
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Weight	0.9 kg
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Operating conditions

Medium	Air, N ₂ , O ₂ , CO ₂ and other gases
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Medium quality	ISO 8573: 4.4.3 or better
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Medium temperature	-30 ... +140 °C
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Medium humidity	< 90 % rH, no condensation
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Operating pressure	Max. 1.6 MPa(g)
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Ambient temperature	-30 ... +70 °C
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Ambient humidity	< 99 % rH
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Storage temperature	-30 ... +70 °C
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Transport temperature	-30 ... 70 °C
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Pipe sizes	½" ... 12" (bigger pipes on request)
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S402 comes with a safety line made by steel to prevent from shooting out while uninstalling



Ordering

Please use the following tables to assist in placing your order with our sales staff.

S402 Thermal Mass Flow Meter (OEM Version)

Order No.	Description
S695 4105	S402 Thermal Mass Flow Meter, 220 mm shaft, G ½" connection
Output	
A1415	Isolated analogue 4...20 mA and pulse, 6 pole
A1416	Modbus/RTU, 5 pole
A1417	MBUS, Analogue 4 ... 20 mA, 5 pole
A1418	Modbus/RTU, Analogue 4 ... 20 mA, 5 pole
A1419	Analogue 4 ... 20 mA and pulse, 5 pole (compatible S400)
Range	
A1430	Standard range version (92.7 m/s)
A1406	Max range version (185 m/s)
Gas type	
A1007	Air
A1008	CO ₂
A1009	O ₂ (Oil- & grease-free cleaned)
A1010	N ₂
Casing color	
A1421	Casing color yellow
A1422	Casing color light gray
A1423	Casing color black

Accessories

Order No.	Description
A695 0008	NPT ½" thread adapter (former A1005)
A695 0009	PT ½" thread adapter (former A1006)
A553 0104	Sensor cable 5 m, M12 and open ends, 5 pole
A553 0105	Sensor cable 10 m, M12 and open ends, 5 pole
A553 0144	Sensor cable 5 m, M12 and open ends, 6 pole
A554 0008	½"G type ball valve

Ordering Example

Example	S402 220mm shaft, Modbus/RTU, Standard range calibration, For air, Yellow casing.
Order Code	S695 4105. A1416. A1430. A1007. A1421



S415 OEM

Compact Thermal Mass Flow Meter

Inline



COMPACT DESIGN

Can be installed anywhere



SMARTPHONE ANDROID APP

For remote configuration



POINT-OF-USE INSTALLATION

No straight pipe section required



TOTAL FLOW

No bypass measurement



ACCURATE RESULTS

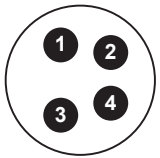
Integrated flow conditioner



Benefits

- ✓ Convenient installation, great flexibility, can be installed anywhere
- ✓ Available as DN8, DN15, DN20, DN25 and DN32 G (G-thread, female)
- ✓ Accuracy of 3 % o.RDG, turn down ratio 50: 1
- ✓ The economic thermal mass flow solution
- ✓ Integrated flow conditioner - no straight inlet sections needed
- ✓ Various signal outputs allow users to connect the sensor to any system

Connection

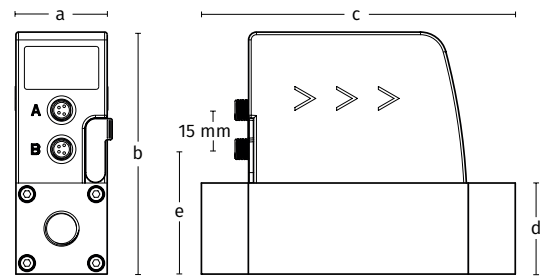


Every sensor includes the 5m cable M8 with open ends
 Sensor with Modbus/MBUS include 1 cable
 Sensor with Analog output includes 2 cables

Pin assignment connector plug M8

Output Version	Connector	Pin 1	Pin 2	Pin 3	Pin 4
Modbus	A	D-	-VB	+VB	D+
	B	D-	GND	NA	D+
Pulse and analog	A	I-	-VB	+VB	I+
	B	I-	P	P	I+
M-bus	A	M-bus	-VB	+VB	M-bus
	B	M-bus	NA	NA	M-bus
Wire colour		brown	white	blue	black

Dimensions



Dimensions in mm	a	b	c	d	e
DN8/DN15	35.0	93.0	120.4	35.0	48.0
DN20/DN25	48.0	106.0	178.0	48.0	61.0
DN32	60.0	118.0	222.0	60.0	73.0

Display Direction



Technical Data

Measurement

Flow

Accuracy	3 % o.RDG ±0.3 % FS
Selectable units	l/min, cfm, kg/h, m3/h
Measuring range	see table below
Repeatability	1 % o.RDG
Sensor	Thermal mass flow sensor
Sampling rate	3/sec
Turndown ratio	50:1
Response time (t90)	2 sec

Consumption

Selectable units	m ³ , ft3, l, kg
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Reference conditions

Selectable conditions	20 °C 1000 mbar (ISO1217) 0 °C 1013 mbar (DIN1343) freely adjustable
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Signal / Interface & Supply

Analog output

Signal	4 ... 20 mA, isolated
Scaling	0 ... max flow
Load	250R
Update rate	3/sec

Pulse output

Signal	Max 30 V, 200 mA
Scaling	1 pulse per consumption unit

Fieldbus

Interface/Protocol	RS-485/Modbus/RTU M-Bus
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Supply

Voltage supply	15 ... 30 VDC
Current consumption	120 mA @ 24 VDC

S415 OEM Measuring Range

Standard Configuration

Process connection	DN8	DN15	DN20	DN25	DN32
Standard range (S)	250	1000	2000	3500	6000
Low range (L)	50	200	400	700	1200

Stated measuring ranges for S415 OEM under following conditions:

- Standard flow in air in l/min
- Reference pressure: 1000 mbar
- Reference Temperature: +20 °C

General data

Configuration

Wireless	S4C-FS App for mobile phones
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Display

Integrated	4 digit LED
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Material

Process connection	Aluminum alloy
Housing	PC + ABS
Sensor	Glass coated resistive sensor
Metal parts	Aluminum alloy

Miscellaneous

Electrical connection	2 x M8 (4 pole)
Protection class	IP54
Approvals	CE, RoHS, FCC
Process connection	G-thread
Weight	0.45 ... 1.3 kg (depends on model)

Operating conditions

Medium	Air, N ₂
Medium quality	ISO 8573: 4.4.3 or better
Medium temperature	0 ... 50 °C
Medium humidity	< 90 % rH, no condensation
Operating pressure	0 ... 10 bar(g)
Ambient temperature	0 ... 50 °C
Ambient humidity	< 95 % rH
Storage temperature	-30 ... 70 °C
Transport temperature	-30 ... 70 °C
Pipe sizes	DN8, DN15, DN20, DN25, DN32

Ordering

Please use the following tables to assist in placing your order with our sales staff.

S415 OEM Thermal Mass Flow Meter (Inline)

Order No.	Description
E695 415	S415 OEM mass flow meter G inner thread, 3 % o. RDG, 24 VDC, 5 m cable with M8 connector and open ends included
Size	
E695 4150	DN8
E695 4151	DN15
E695 4152	DN20
E695 4153	DN25
E695 4154	DN32
Range	
A1464	Standard range version
A1453	Low range version
Output	
A1450	Analog 4 ... 20 mA, Pulse Output
A1451	Modbus/RTU output
A1452	M-Bus output
Gas type	
A1007	Air
A1010	N ₂
Units	
A1466	With SI units Standard
A1458	With imperial units
Display direction	
A1462	Standard display direction
A1460	Reverse display direction
Example:	S415 OEM DN8, Modbus/RTU, Air, imperial units
Order Code:	E695 4150.A1451.A1007.A1458

S415 OEM Accessories

Order No.	Description
A554 3315	T-BOX for S415 Modbus/M-Bus systems, including 2 m cable with M8 connector
A554 0109	Mains power supply 100-240 VAC / 24 VDC, 0.5 A, 2 m cable with M8 connector
A553 0137	Connection cable to S551, 5 m



S431 OEM

Pitot Tube Compressor Flow Meter

Inline



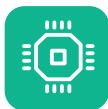
SMARTPHONE ANDROID APP
For remote configuration



ACCURATE RESULTS
Very fast response time



NO MECHANICAL WEAR PARTS
Withstands high temperatures and vibrations



EASY PROCESS MONITORING
Effective and inexpensive measurements



TOTAL FLOW
High accuracy and reliable measurements



EASY AND FLEXIBLE INSTALLATION
Fits pipe sizes from DN50 up to DN900



PITOT TUBE
Measurement in wet and dirty air



Benefits

- ✓ Measures the air delivery of compressors at the compressor outlet
- ✓ Installation either inside or immediately after the compressor
- ✓ Rugged design withstands high temperatures and vibration
- ✓ Wirelessly connected smartphone app for convenient setup and maintenance
- ✓ Easy to install on to a welding nipple

Features at a glance

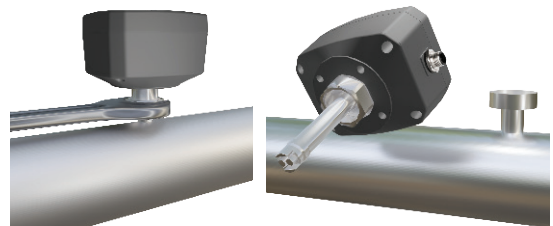
- Measurement of flow, pressure and temperature at the compressor outlet
- Measures wet air and air at high temperatures
- Calculates total consumption
- No straight piping required
- Easy to install on welding nipples
- Rugged design for harsh environments: ambient temperatures up to 90°C, vibration proof
- No mechanical wear parts
- One sensor for DN50 ... DN900
- User calibration via mobile app on compressor test bench
- Analogue and pulse output or Modbus/RTU

Easy Sensor Exchange

Installation and removal of the sensor on a welding nipple.

Installation

Removal

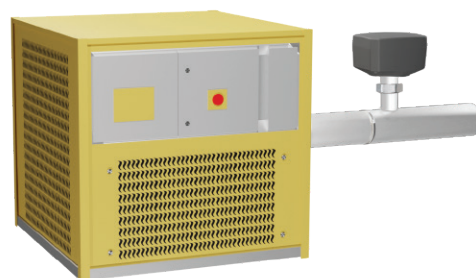


Installation Options

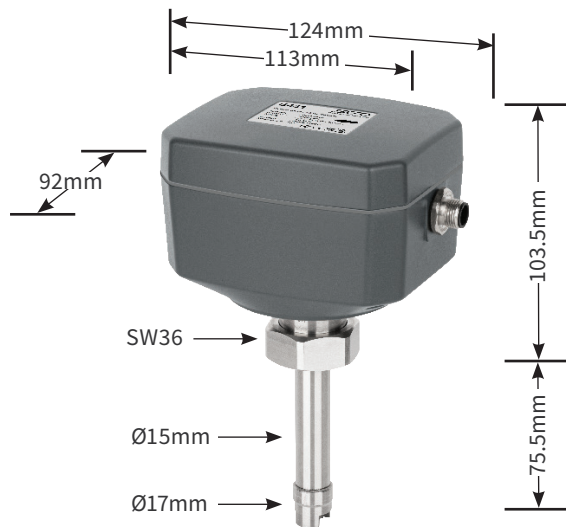
1 Sensor Installation inside the compressor



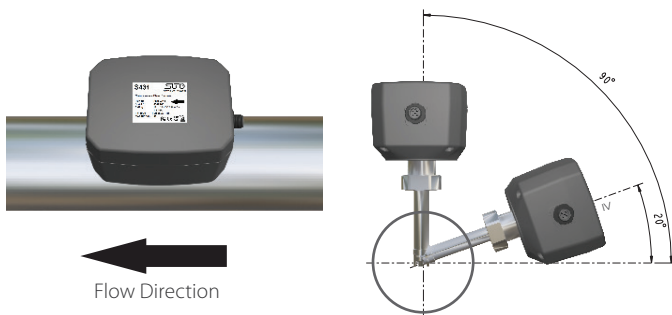
2 Sensor Installation outside the compressor



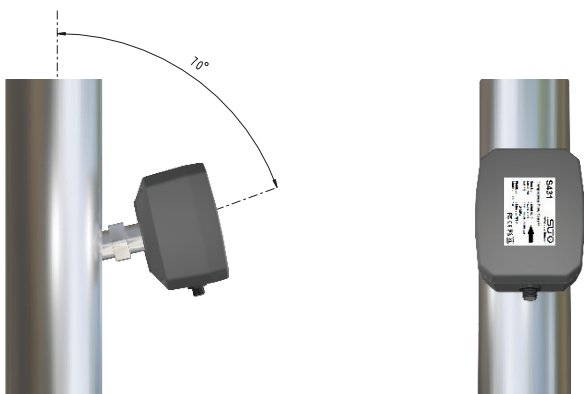
Dimensions



Horizontal Pipe Installation

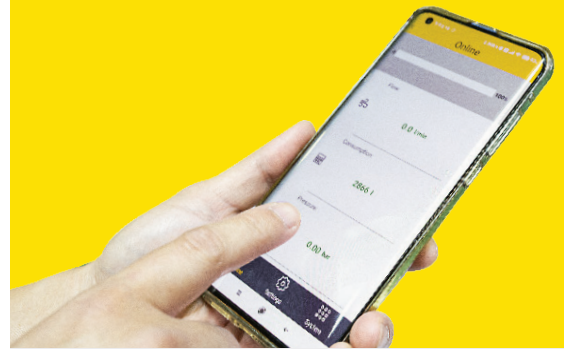


Vertical Pipe Installation

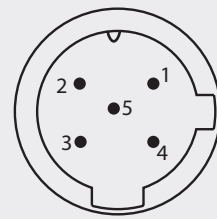


Mobile App

Mobile phone app for settings, in-system calibration and online readings.



Connection



5-pole M12 cable with open ends included

Output Version	Analog Version	Modbus Version	Wire colour
Pin 1	I+	GND _M	brown
Pin 2	-VB	-VB	white
Pin 3	+VB	+VB	blue
Pin 4	SW	D+	black
Pin 5	SW	D-	grey

Welding nipples for all pipe sizes



Technical Data

Measurement

Flow

Accuracy	1.5 % o.RDG ±0.3 % FS
Selectable units	
Volumetric Flow:	m ³ /h, m ³ /min, l/min, l/s, cfm
Mass Flow:	kg/h, kg/min, kg/s, t/h, lb/h
Actual Velocity:	m/s, ft/min
Measuring range	see table below
Repeatability	0.5 % o.RDG
Sensor	Differential pressure sensor with pitot tube
Sampling rate	3/sec
Turndown ratio	10:1
Response time (t90)	2 sec

Consumption

Selectable units	m ³ , ft ³ , t, lb, l, kg
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Pressure

Accuracy	0.5 % FS
Selectable units	bar, psi, kPa, MPa
Measuring range	0 ... 1.6 MPa(g)
Sensor	Piezzo resistive sensor

Temperature

Accuracy	0.5 °C
Selectable units	°C, °F
Measuring range	-40 ... +120 °C
Sensor	Pt1000

Reference conditions

Selectable conditions	20 °C 1000 mbar (ISO1217) 0 °C 1013 mbar (DIN1343) freely adjustable
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Signal / Interface & Supply

Analog output

Signal	4 ... 20 mA
Scaling	0 ... max flow
Load	250R
Update rate	1/sec

Pulse output

Signal	Max 30 V, 200 mA
Scaling	1 pulse per consumption unit

Fieldbus

Protocol	Modbus/RTU
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Supply

Voltage supply	12 ... 36 VDC
Current consumption	60 mA, 1.5 W

General data

Configuration

Wireless	S4C-FS App for mobile phones
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Material

Process connection	Stainless steel 1.4404 (SUS 316L)
Housing	PC + ABS
Sensor	Stainless steel 1.4404 (SUS 316L)

Miscellaneous

Electrical connection	1 x M12 (5 pole)
Protection class	IP65
Approvals	CE, RoHS, FCC
Process connection	M32 x 1.5 welding nipple
Weight	1.7 kg

Operating conditions

Medium	Wet/dry air, other gases
Medium quality	non corrosive
Medium temperature	-20 ... +120 °C
Medium humidity	no requirements
Operating pressure	0 ... 1.6 MPa(g)
Ambient temperature	-20 ... +85 °C
Ambient humidity	< 95 % rH
Storage temperature	-30 ... 70 °C
Transport temperature	-30 ... 70 °C
Pipe sizes	>=DN50

Flow Ranges

Tube	Volumetric Flow						
	Inch	mm	m ³ /h		cfm		
			Min	Max	Min	Max	
2"	53.1	121	1,298	2.0	21.6	71	764
2½"	68.9	206	2,218	3.4	37	121	1,305
3"	80.9	287	3,084	4.8	51	169	1,815
4"	100	443	4,760	7.4	79	261	2,802
5"	125	697	7,500	11.6	125	410	4,414
6"	150	1,009	10,853	16.8	181	594	6,387
8"	200	1,812	19,482	30.2	325	1,066	11,465
10"	250	2,833	30,465	47.2	508	1,667	17,929
12"	300	4,079	43,870	68	731	2,401	25,818

The flow is calculated based on medium conditions of air, 6 bar(g), 70 °C, and 90% humidity. For other gas and condition please download Flow Range software from www.suto-itec.com

Stated measuring ranges under following conditions:

- Standard flow in air
- Reference pressure: 1000 mbar
- Reference Temperature: +20 °C

Ordering

Please use the following tables to assist in placing your order with our sales staff.

S431 OEM Pitot Tube Compressor Flow Meter

Order No.	Description
S695 4312	S431-OEM, Pitot Tube Compressor Flow Meter

Output Options

A4315	Modbus/RTU
A4314	4 ... 20 mA + Pulse output

S431 OEM Accessories

Order No.	Description
A4310	Welding nipple DN50 ... DN80 for horizontal pipe installation
A4311	Welding nipple DN100 ... DN900 for horizontal pipe installation
A4312	Welding nipple DN50 ... DN80 for vertical pipe installation
A4313	Welding nipple DN100 ... DN900 for vertical pipe installation
A695 4310	Welding fixture DN50 ... DN80 for horizontal pipe installation
A695 4311	Welding fixture DN100 ... DN900 for horizontal pipe installation
A695 4312	Welding fixture DN50 ... DN80 for vertical pipe installation
A695 4313	Welding fixture DN100 ... DN900 for vertical pipe installation

Welding Fixtures



For welding the installation nipple on the pipe, we offer a welding fixture to ensure a proper positioning.



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