



# OEM Products 2021/2022

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



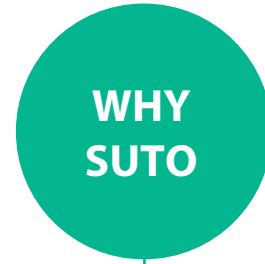
LEAKAGE MANAGEMENT



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 Dew Point Sensor (-60 ... +50 °C Td)



P. 4

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

### S220 OEM Dew Point Sensor (-100 ... +20 °C Td)



P. 7

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

### S402 OEM Thermal Mass Flow Sensor



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 In-Line Thermal Mass Flow Sensor



P. 16

The S415 OEM flow sensor 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 Compressor Flow Sensor for Wet Air



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 Dew Point Sensor (-60 ... +50 °C Td)



Made for your application —  
**designed to fit your needs**

## Features



**COMPACT DESIGN**  
Makes it easy to fit into the application



**PRECISE MEASUREMENT**  
Long lasting sensor accuracy



**DEW POINT**  
In the range you need it



**OEM SENSOR**  
Cost effective version



## Benefits

- ✔ Small size makes it ideal for dryer installations
- ✔ Measures dew points down to -60 °C Td
- ✔ 4 ... 20 mA 2-wire, 3-wire output or Modbus/RTU
- ✔ IP65 casing provides robust protection in rough industrial environment
- ✔ Very fast response time ensures safe and reliable indication whenever dew points are out of valid ranges
- ✔ Can be installed directly into dryers through G 1/2" thread
- ✔ High accuracy of 1 ... 2 °C dew point
- ✔ Sensor withstands condensation
- ✔ M8 / M12 connector and cable with open wires

## Long term stable measurements

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

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, physical units, can be set ex factory.

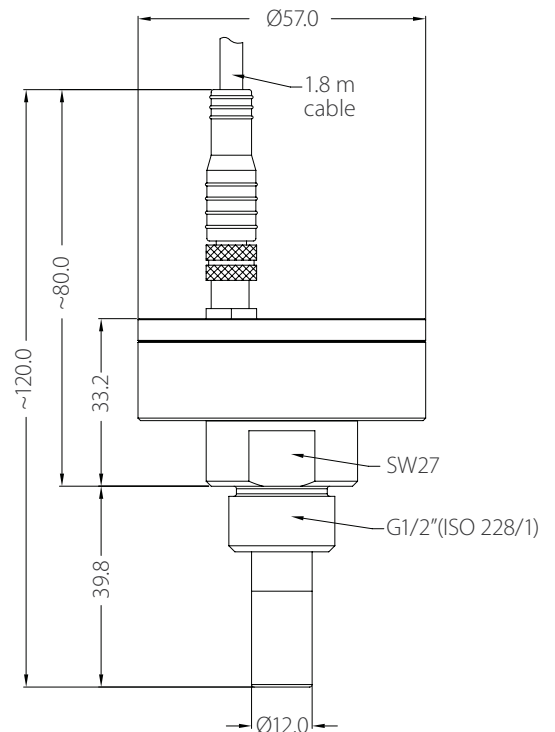
## Designed for OEM applications

It's designed for OEM applications in desiccant and refrigeration dryers. 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.



S217 OEM Dew Point Meter

## Dimensions



## 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 ... 95 %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 tables to assist in placing your order with our sales staff.

### S217 OEM Dew Point Sensor (-60 ... +50 °C Td)

Order No.	Description
S699 2176	S217-6, dew point sensor, 4 ... 20 mA (2-wire), -60 ... +20 °C Td, G 1/2" thread, 5.0 MPa, M8
S699 2173	S217-3, dew point sensor, 4 ... 20 mA (2-wire), -20 ... +50 °C Td, G 1/2" thread, 5.0 MPa, M8
S699 2177	S217-7, dew point sensor, 4 ... 20 mA (3-wire), -60 ... +20 °C Td, G 1/2" thread, 5.0 MPa, M8
S699 2174	S217-4, dew point sensor, 4 ... 20 mA (3-wire), -20 ... +50 °C Td, G 1/2" thread, 5.0 MPa, M8
S699 2178	S217-8, dew point sensor, Modbus/RTU, -60 ... +20 °C Td, G1/2" thread, 5.0 MPa, M8
S699 2179	S217-9, dew point sensor, Modbus/RTU, -20 ... +50 °C Td, G1/2" thread, 5.0 MPa, M8

### Custom range

A1390	S217, customized measuring range
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### High pressure option

A1391	S217, high pressure option 35 MPa (350 bar)
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### 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)
C198 0002	Sinter cap stainless steel



[www.suto-itec.com](http://www.suto-itec.com)



[sales@suto-itec.com](mailto:sales@suto-itec.com)

# S220 OEM Dew Point Sensor (-100 ... +20 °C Td)

Very fast response time — ensures safe and reliable measurements



## Features



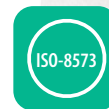
**COMPACT DESIGN**  
Makes it easy to fit into the application



**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 CD



**DUAL 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/m<sup>3</sup> • mg/m<sup>3</sup> • 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.

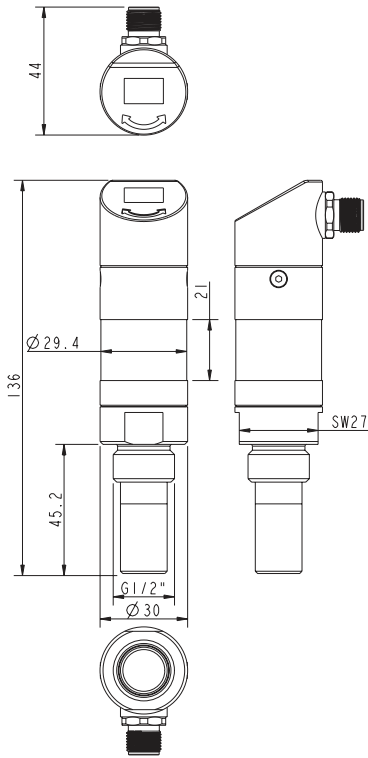
The combination of QCM and the well known Polymer sensor makes the S220 the worlds first model to measure accurate over the whole range, from -100 °C Td up to +20 °C Td by switching automatically between the two sensor elements as needed.



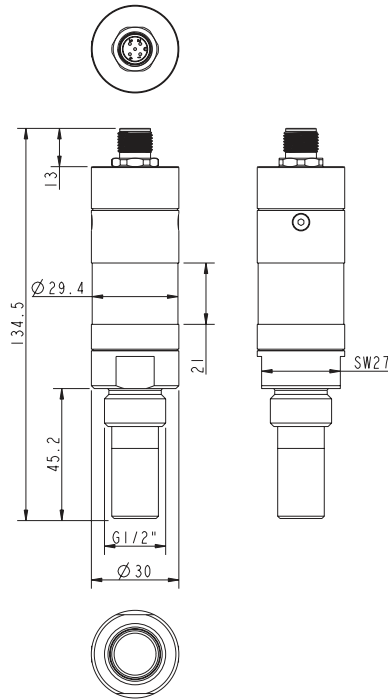


## Dimensions

### With display



### Without display

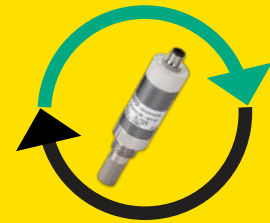


## Exchange Service

### 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.

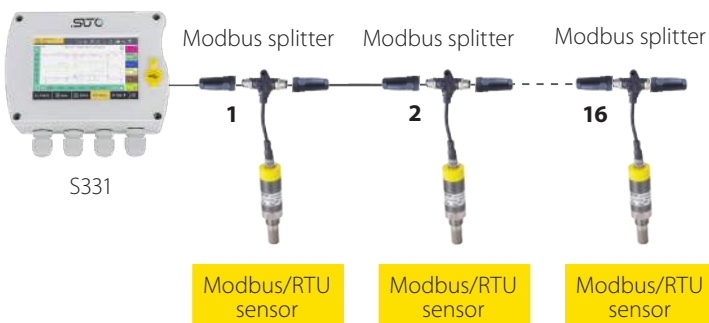


**SUTO** | Exchange Service

## Modbus Sensor Network with S331

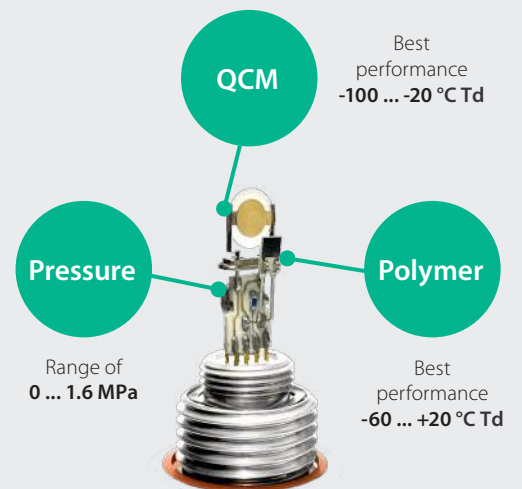
The Modbus/RTU bus allows to connect several sensors to a single bus line via Daisy-Chain. For example up to 16 sensors to a S331.

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

## Specifications

Measurement Range	Dew point: -100 ... +20 °C Td Temperature: -30 ... +70 °C Pressure: 0 ... 1.6 MPa	
Dew point sensor	Polymer + QCM	
Operating Pressure	-0.1 ... 1.6 MPa	
Accuracy	Dew point: +/- 1 °C Td (0 ... 20 °C Td) +/- 2 °C Td (-60 ... 0 °C Td) +/- 3 °C Td (-100 ... -60 °C Td)	Temperature: +/- 0.3 °C Pressure: 0.5% FS
Process connection	G 1/2" (ISO 228/1), stainless steel 1.4301 (SUS 304)	
Operating conditions	Medium Temp.: -30 ... +70 °C / Ambient Temp. : 0 ... +50 °C / Ambient Humidity: 0 ... 100 % rH	
Materials	Casing: Aluminum alloy / Process thread: Stainless steel 1.4301 (SUS 304) / Display cover: PC + ABS	
Classification / Approval	IP65 / CE	
Sensor protection	Sinter filter (stainless steel)	
Transport & Storage	Transport Temperature: -30 ... + 70 °C / Storage Temperature: -20 ... + 50 °C	
Weight	180 g	
Measured gases (Medium)	Air, Argon, O <sub>2</sub> , N <sub>2</sub> , CO <sub>2</sub> *	
Output Signal	4 ... 20 mA 2-wire + SDI, 4 ... 20 mA 3-wire + SDI, 4 ... 20 mA 3-wire + Modbus/RTU	
Sensor types	Temperature sensor: Pt100 / Pressure sensor: Piezo resistive type	
Display option	0.66" OLED display, indicates the measured value and unit	
Supply Voltage	15 ... 30 VDC	

**\* CO<sub>2</sub> medium:**

If the S211 is used in CO<sub>2</sub> the range is limited to -40 °C Td

The S220 must be set to CO<sub>2</sub> ex works or by using the SFA Service Software + Service Kit (please state at the order if S220 will be used in CO<sub>2</sub>)

## Accessories



Measuring chamber for easy installation through quick coupling



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



High pressure measuring chamber for applications up to 35.0 MPa



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 sensor with 2-wire analog output

Order No.	Code	Description
S699 2201	S2201	S220 OEM Dew point sensor, -100 ... +20 °C Td, -0.1 ... 1.6 MPa, 2-wire 4 ... 20 mA output

## Dew point sensor with 3-wire analog output and SDI

Order No.	Code	Description
S699 2202	S2202	S220 OEM Dew point sensor, -100 ... +20 °C Td, -0.1 ... 1.6 MPa, 3-wire 4 ... 20 mA output

## Dew point & Pressure sensor with 3-wire analog output and Modbus/RTU

Order No.	Code	Description
S699 2203	S2203	S220 OEM Dew point sensor, -100 ... +20 °C Td, with Pressure sensor 0 ... 1.6 MPa, 3-wire 4 ... 20 mA, Modbus/RTU*

### Display Option

Order No.	Code	Description
	A	Without Display
A1386	B	OLED Display option for S220 OEM 3-wire Analog and Modbus version (only for S699 2203)

### \* 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.

## Accessories

Order No.	Description
A699 3491	Measuring chamber with quick connector, up to 1.5 MPa, 2 l/min purge @ 0.8 MPa
A699 3493	Measuring chamber by-pass, up to 1.5 MPa, 6 mm hose connection as in- and outlet
A699 3590	High pressure measuring chamber, up to 35.0 MPa, G 1/4" inner thread process connection
A553 0104	Sensor cable, 5 m , M12 connector, open end wires
A553 0105	Sensor cable, 10 m , M12 connector, open end wires

## Calibration

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

# S402 OEM Thermal Mass Flow Sensors

Measure consumption  
and flow —

**Private Label, OEM  
Version**

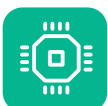
## Features



**SMARTPHONE  
ANDROID APP**  
For remote  
configuration



**ACCURATE  
RESULTS**  
Very fast  
response time



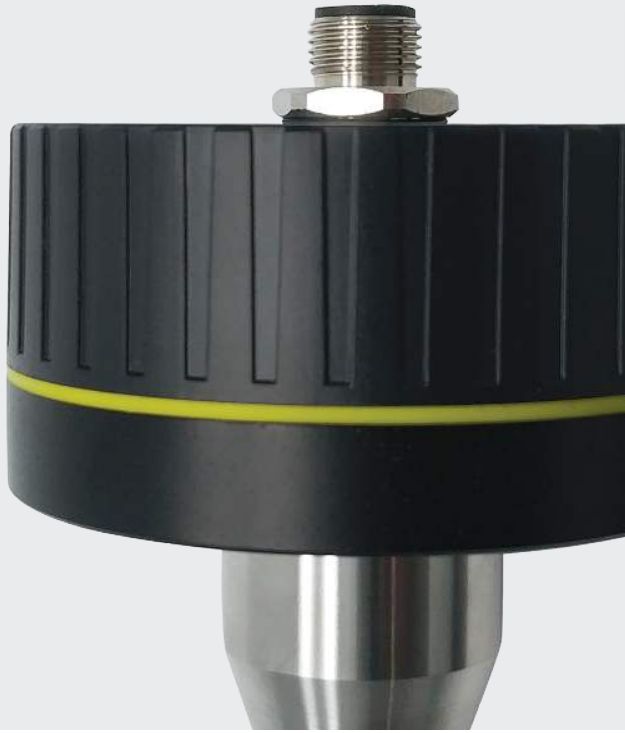
**EASY PROCESS  
MONITORING**  
Effective and  
inexpensive  
measurements



**TOTAL FLOW**  
High accuracy  
and reliable  
measurements



S402 OEM Flow/Consumption Sensors



## Benefits

- ✔ 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

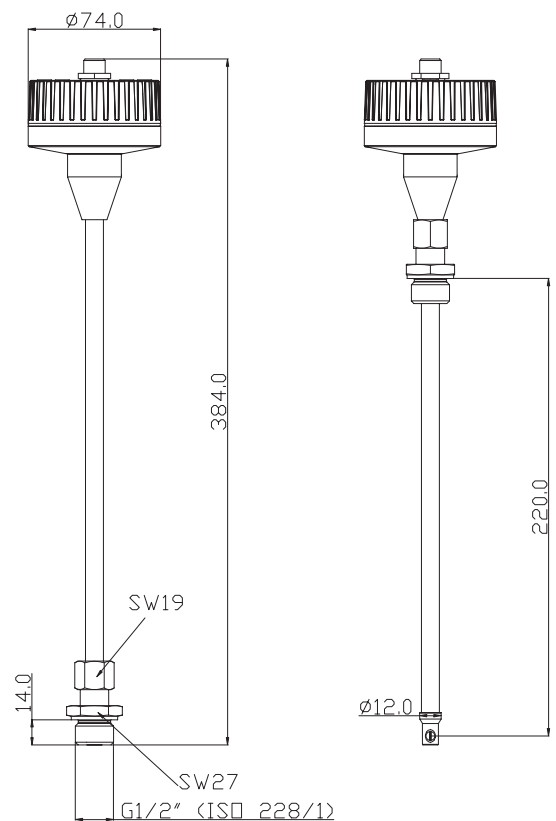
- Measures standard flow, mass flow and consumption
- Thermal mass flow, independent of pressure and temperature changes
- IP65 casing provides robust protection in rough industrial environment
- Very fast response time
- High accuracy and wide measuring range
- Isolated mA and pulse output signals and Modbus/RTU interface
- Selectable gas type (Some gases require real gas calibration!)

## Three colors available

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



## Dimensions



## Technical Data

### General Specifications

Accuracy	2 % of reading + 0.3 % full scale	
Repeatability	0.25 % of reading	
Sampling rate	> 3 samples / sec	
Reference conditions	Can be set by user. Standard conditions are Ps = 0.1 MPa and Ts = 20 °C	
Humidity of the meas.medium:	< 90 % no condensation	
Transport Temperature:	-30 ... +70 °C	
Material	Metal parts 1.4404 (SUS 316L) Casing PC + ABS Sensor: Ceramic with glass coating	
Classification	IP65	
Electrical connection (depending on the chosen signal output):	A1415: M12 6-pole (cable included) A1416: M12 5-pole (plug included) A1417: M12 5-pole (plug included) A1418: M12 5-pole (plug included) A1419: M12 5-pole (plug included)	
Approvals	CE, RoHS, FCC	
Operating temperature	-30 ... +140 °C fluid temperature -30 ... +70 °C casing	
Operating pressure	0 ... 1.6 MPa	
Analogue output	Signal:	4 ... 20 mA
	Scaling:	0 ... max flow
	Max load:	250R
Pulse output	Isolated switch output, normally open, max 30 VDC, 20 mA 1 pulse per consumption unit	
Modbus/RTU	Isolated RS-485 with Modbus RTU protocol	
Power supply	15 ... 30 VDC / 200 mA	
Process connection	G 1/2" (ISO 228/1)	

### Volumetric flow ranges

Inch	DN	Di (mm)	Standard (m <sup>3</sup> /h)	Max (m <sup>3</sup> /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.

# 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.	Code	Description
S695 4105	S402	S402 Flow sensor, 220mm shaft
<b>Connection thread</b>		
Standard	A	G1/2"
A1005	B	NPT 1/2" Adapter
A1006	C	PT 1/2" Adapter
<b>Output</b>		
A1415	A	Isolated analogue 4...20 mA and pulse, 6 pole
A1416	B	Modbus/RTU, 5 pole
A1417	C	MBUS, Analogue 4..20mA, 5 pole
A1418	D	Modbus/RTU, Analogue 4...20 mA, 5 pole
A1419	E	Analogue 4...20 mA and pulse, 5 pole (compatible S400)
<b>Range</b>		
Standard	A	Standard range version (92.7 m/s)
A1406	B	Max range version (185 m/s)
<b>Gas type</b>		
A1007	A	Air
A1008	B	CO <sub>2</sub>
A1009	C	O <sub>2</sub> (Oil- & grease-free cleaned)
A1010	D	N <sub>2</sub>
<b>Casing color</b>		
A1421	A	Casing color yellow
A1422	B	Casing color light gray
A1423	C	Casing color black

## Accessories

Order No.	Description
A553 0104	Sensor cable 5m, M12 and open ends, 5 pole
A553 0105	Sensor cable 10m, M12 and open ends, 5 pole
A553 0144	Sensor cable 5m, M12 and open ends, 6 pole

### Example: **S402ABBAA**

S402, G1/2" connection, Modbus/RTU, Max range calibration, for air, yellow casing

### Stated measuring ranges under following conditions:

- Standard flow in air
- Reference pressure: 1000 hPa
- Reference temperature: +20 °C



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# S415 OEM Thermal Mass Flow Meter

Monitor consumption  
at point of use —

**optimize compressed  
air and vacuum system  
efficiency measurement**



## Features



**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

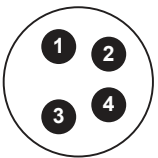




## Benefits

- ✓ 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

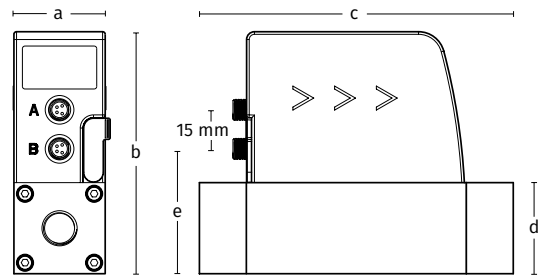


Every sensor includes the 5m cable M8 with open ends  
 Sensor with Modbus/MBUS include 1 cable  
 Sensor with Analog output includes 2 cables

### 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 <sup>3</sup> , 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

Protocol	Modbus/RTU
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#### Supply

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

### 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
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Housing	PC + ABS
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Sensor	Glass coated resistive sensor
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Metal parts	Aluminum alloy
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#### Miscellaneous

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

Medium	Air, N <sub>2</sub>
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Medium quality	ISO 8573: 4.4.3 or better
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Medium temperature	0 ... 50 °C
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Medium humidity	< 90 % rH, no condensation
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Operating pressure	0 ... 10 bar(g)
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Ambient temperature	0 ... 50 °C
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Ambient humidity	< 95 % 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	DN8, DN15, DN20, DN25, DN32
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### S415 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

# Ordering

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

## S415 OEM Thermal Mass Flow Meter (Eco Version)

Order No.	Code	Description
S695 415	S415	S415 OEM mass flow meter G inner thread, 3 % o. RDG, 24 VDC 5 m cable with M8 connector and open ends included
<b>Size</b>		
S695 415	0	DN8
S695 415	1	DN15
S695 415	2	DN20
S695 415	3	DN25
S695 415	4	DN32
<b>Range</b>		
	S	Standard range version
A1453	L	Low range version
<b>Output</b>		
A1450	A	Analog 4 ... 20 mA, Pulse Output
A1451	B	Modbus/RTU output
A1452	C	M-Bus output
<b>Gas type</b>		
A1007	A	Air
A1010	D	N <sub>2</sub>
<b>Units</b>		
	A	With SI units Standard
A1458	B	With imperial units
<b>Display direction</b>		
	A	Standard display direction
A1460	B	Reverse display direction

## 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

### Example: S4150SBAB

DN8, Standard range, Modbus/RTU, Air, imperial units



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[sales@suto-itec.com](mailto:sales@suto-itec.com)

# S431 OEM Compressor Flow Sensor

Measures Air  
Delivery at  
compressor  
discharge —

**installation  
inside  
compressors**



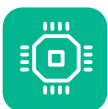
## Features



**SMARTPHONE  
ANDROID APP**  
For remote  
configuration



**ACCURATE  
RESULTS**  
Very fast  
response time



**EASY PROCESS  
MONITORING**  
Effective and  
inexpensive  
measurements



**TOTAL FLOW**  
High accuracy  
and reliable  
measurements



## Benefits

- ✓ Wet Air flow meter for compressor makers
- ✓ Pitot tube flow meter for wet and dirty air
- ✓ Measures directly at the discharge of the compressor
- ✓ Robust design to withstand high temperatures and vibrations inside a compressor
- ✓ Auto-calibration removes any temperature or aging drifts
- ✓ Setup and maintenance through wireless smartphone app

## Features at a glance

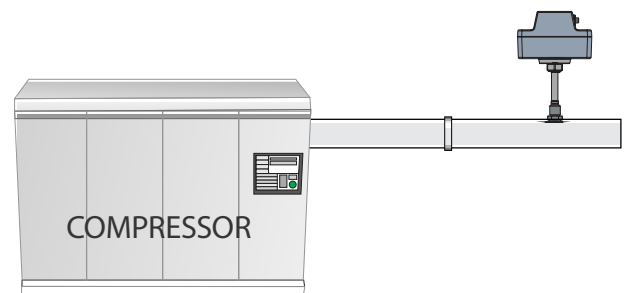
- Flow, pressure, temperature measurement at compressor discharge
- Measures wet and high temperature air
- Calculates total consumption
- No straight pipe requirements
- Easy installation on welding nipple
- Robust design for harsh environment: ambient temperatures up to 90 °C, vibration proofed
- No mechanical wear parts
- One sensor for DN50 ... DN900
- Auto-calibration: sensor adjust itself regularly
- User calibration through mobile app at compressor test stand
- Analogue and pulse output or Modbus/RTU

## Installation Options

### 1 Sensor Installation inside the compressor



### 2 Sensor Installation outside of the compressor



## Easy Sensor Exchange

Sensor installation and removal on a welding nipple.

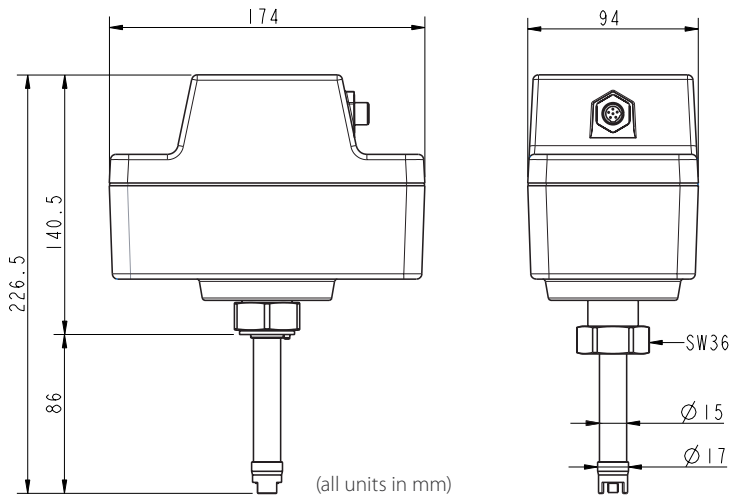
### Installation



### Removal



## Dimensions

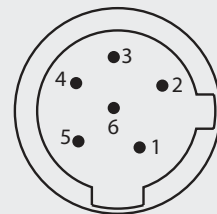


## Mobile App

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



## Connection



6-pole M12 cable with open ends included

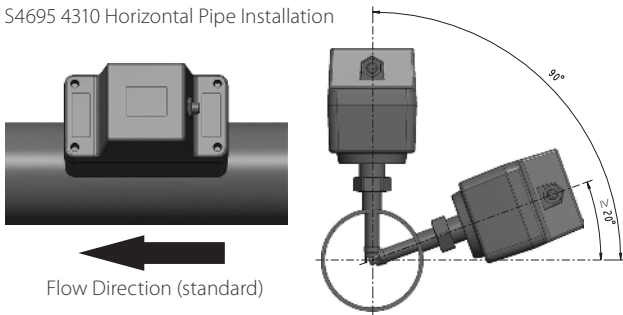
Output Version	Analog Version	Modbus Version	Wire colour
Pin 1	-I <sub>isolated</sub>	GND <sub>M</sub>	blue
Pin 2	-VB	-VB	white
Pin 3	+VB	+VB	red
Pin 4	SW	D+	yellow
Pin 5	SW	D-	green
Pin 6	+I <sub>isolated</sub>	N/A	black

## Welding nipples for all pipe sizes



## Horizontal Pipe Installation - S695 4310

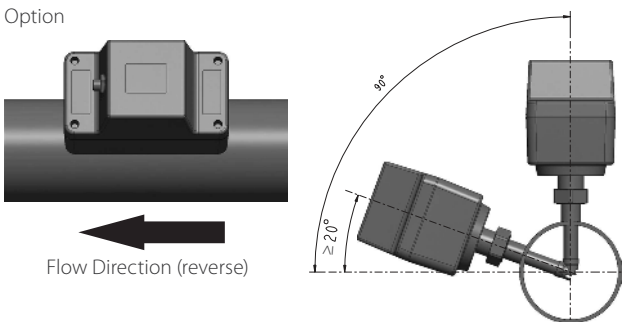
S4695 4310 Horizontal Pipe Installation



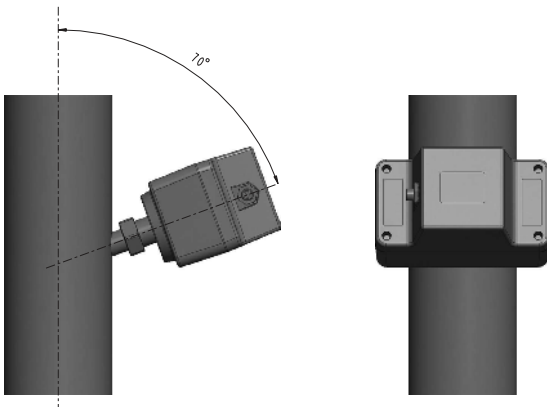
## Horizontal Pipe Installation - A4319

A4319 Horizontal Pipe Installation Option

Valid installation angle from 20° ... 90°



## Vertical Pipe Installation - S695 4311



# Technical Data

## Measurement

Flow	
Accuracy	1.5 % o.RDG ±0.3 % FS
Selectable units	
Volumetric Flow:	m <sup>3</sup> /h, m <sup>3</sup> /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 <sup>3</sup> , ft <sup>3</sup> , t, lb, l, kg
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## Pressure

Accuracy	0.5 % FS
Selectable units	bar, psi, kPa, MPa
Measuring range	0 ... 16 bar(g)
Sensor	Piezzo resistive sensor

## Temperature

Accuracy	0.5 °C
Selectable units	°C, °F
Measuring range	-40 ... +230 °C
Sensor	Pt1000

## Reference conditions

Selectable conditions <sup>a</sup>	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	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	21 ... 27 VDC
Current consumption	150 mA (1.5 A peaks for 3 sec)

## 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 (6 pole)
Protection class	IP65
Approvals	CE, RoHS, FCC
Process connection	M32 x 1.5 welding nipple
Weight	1.4 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 bar(g)
Ambient temperature	-20 ... +90 °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 <sup>3</sup> /h		cfm		
		Min	Max	Min	Max	Min	Max
2"	53.1	130	1298	2.16	21.6	76	764
2½"	68.9	227	2274	3.79	37.9	134	1338
3"	80.9	318	3175	5.29	52.9	187	1869
4"	100.0	488	4880	8.13	81.3	287	2872
5"	125.0	763	7625	12.71	127.1	449	4488
6"	150.0	1099	10993	18.32	183.2	647	6470
8"	200.0	1961	19611	32.69	326.9	1154	11543
10"	250.0	3064	30642	51.07	510.7	1804	18035
12"	300.0	4412	44125	73.54	735.4	2597	25971

Flow range for Air at 6 bar(g), 50 °C and 90 % humidity. For other gas and condition please download Flow Range software from [www.suto-itec.com](http://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 Flow Meter

#### Order No. Description

S695 4310	S431-OEM, inline compressor flow meter for horizontal pipe installation, flow direction standard
A4319	Horizontal pipe installation, flow direction reverse
S695 4311	S431-OEM, inline compressor flow meter for vertical pipe installation, flow direction down to up

#### Output Options

A4314	Analogue/Pulse output
A4315	Modbus/RTU

#### Accessories

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
R200 4310	Re-calibration S431 (in batches of 5 units, price per unit)
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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