OEM Products 2023/2024

Malaalaa

Reliable Measurement Technology for Compressed Air and Gases in OEM Applications



-

d.

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

WHY **SUTO**

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.

AIR AND POWER MACHINE & SYSTEM CONSUMPTION MONITORING PURITY LEAKAGE MONITORING MANAGEMENT **DISPLAY & LOGGER** SUPPORT SERVICES TECHNOLOGY **AND CALIBRATION**

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.

www.suto-itec.com/oem

Products and Applications

S217 OEM Compact Dew Point Transmitter

(-60 ... +50 °C Td)



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)



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)

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)



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)



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.

.SUC



S217 OEM

Compact Dew Point Transmitter



COMPACT DESIGN Makes it easy to fit into the application



PRECISE MEASUREMENT Long lasting sensor accuracy

000



IO-LINK OPTION Intelligent Communication Plug and Play







OEM SENSOR Cost effective version

S217 OEM Compact Dew Point Transmitter

4/26



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



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.



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 Temperature	-60 +20 ℃ Td -20 +50 ℃ Td -30 +70 ℃		
Dew point sensor	Polymer			
Temperature sensor	NTC			
Pressure sensor	N/A			
Accuracy	Dew point Temperature	±2 ℃ Td 0.3 ℃		
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 rang	ge
A1390	S217, customized measuring range (please specify your range and scaling request)
High pressu	re option
A1391	S217, high pressure option 35 MPa (350 bar)
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)



sales@suto-itec.com



S220 OEM

Dew Point Transmitter

-100 ... +20 °C Td





525





SIGNAL

OUTPUT



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.

Display Option

1

The OLED display directly mounted on the sensor provides on-sit 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 $^{\circ}$ C Td up to +20 $^{\circ}$ 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



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 \$331.

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



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.



UO Exchange Service

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.



Measurement

Dew Point	
Accuracy	± 1 °C Td (0 20 °C Td)
	± 2 °C Td (-60 0 °C Td)
	± 3 °C (-10060 °C Td)
Selectable units	°C, °F, bar(g), MPa(g), psi(g), % rH, g/m³, mg/m³, g/m³ atm., mg/m³
Measuring range	-100 +20 °C Td
Sensor	Polymer + QCM
Response time (t90)	0 °C Td -> -80 °C Td ≤ 420 sec -80 °C Td -> 0 °C Td ≤ 90 sec @ 4 I/min
Pressure	
Accuracy	0.5 % FS
Measuring range	0 1.6 MPa
Sensor	Piezo resistive type
Temperature	
Accuracy	± 0.3 °C
Measuring range	-30 +70 °C
Sensor	Pt100
Reference condition	s
Selectable conditions	Pressure Dew Point, Atmospheric

Dew Point

Signal / Interface & Supply

Analog output	
Signal	4 20 mA 2-wire + SDI,
	4 20 mA 3-wire + Modbus/RTU
Scaling	4 mA = -100; 20 mA = +20 °C Td; freely adjustable
Load	250R
Update rate	3/sec
Fieldbus	
Protocol	Modbus/RTU
Update rate	1/sec
Supply	
Voltage supply	15 30 VDC
Current consumption	2-wire: 4 20 mA
	3-wire: 40 mA @ 24 VDC
	3-wire with Display: 50 mA @ 24 VDC

Measurement

Configuration	
PC Software	S4C-DP Application
Display	
Integrated	0.66" OLED display, indicates the measu- red value and unit
Material	
Process connection	Stainless steel 1.4301 (SUS 304)
Housing	Display cover: PC + ABS
Sensor	Polymer + Quartz-Crystal
Metal parts	Sinter filter (stainless steel)
Metal parts Miscellaneous	Sinter filter (stainless steel)
Metal parts Miscellaneous Electrical connection	Sinter filter (stainless steel) M12, 5-pole
Metal parts Miscellaneous Electrical connection Protection class	Sinter filter (stainless steel) M12, 5-pole IP65
Metal parts Miscellaneous Electrical connection Protection class Approvals	Sinter filter (stainless steel) M12, 5-pole IP65 CE
Metal parts Miscellaneous Electrical connection Protection class Approvals Process connection	Sinter filter (stainless steel) M12, 5-pole IP65 CE G 1/2" (ISO 228/1) or UNF 5/8" (ANSI B1.1)

Operating conditions

Medium	Air, Argon, O_2 , N_2 , CO_2^*
Medium quality	ISO 8573-1: 4.6.3 or better
Medium temperature	-30 +70 °C
Medium humidity	≤ 20 °C Td
Operating pressure	0.1 1.6 MPa
Ambient temperature	0 +50 °C
Ambient humidity	0 100 % rH
Storage temperature	-20 +50 °C
Transport temperature	-30 +70 °C

$* CO_2$ medium:

The S220 must be set to CO_2 ex works or by using the S4C-DP Service Software + Service Kit (please state at the order if S220 will be used in CO_2)

Accessories





Measuring chamber for easy installation through quick coupling



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

Accessories

Description

Description

calibration

Order No.

A699 3491

A699 3493

A553 0104

A553 0105

Calibration

Order No.

R699 3396



M12 Sensor cable with open ends 5 m or 10 m

Measuring chamber with quick connector, up to

1.6 MPa, 2 I/min purge @ 0.8 MPa, for G1/2" sensor Measuring chamber by-pass, up to 1.6 MPa, 6 mm

hose connection as in- and outlet, for G1/2" sensor

Re-calibration dew point sensor, incl. certificate of

Sensor cable 5 m with M12 connector,

open end wires, AWG 24 (0.2 mm²) Sensor cable 10 m with M12 connector,

open end wires, AWG 24 (0.2 mm²)

Ordering

Order Ne

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 SD

oruer 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*

Description

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	on	
	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

 \bowtie

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.



sales@suto-itec.com



S402 OEM

Thermal Mass Flow Meter

Insertion









EASY PROCESS MONITORING Effective and inexpensive measurements



EASY INSTALLATION Under pressure



 \checkmark

(+)

IP65 CASING Provides robust protection

ACCURATE

response time

TOTAL FLOW

High accuracy

and reliable measurements

RESULTS

Very fast



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

Compressed Air Measurement



High tech Compressed Air Dryer

Compressed Air Usage

Three colors available

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



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.





Comprehensive Monitoring

In a factory setting, several S402 OEM Flow Meters can be connected together with a monitoring system via Modubus/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 (m³/h)	Max (m³/h)
1″	DN25	27.3	0.5 147	0.6 294
11⁄4″	DN32	36.0	0.9 266	1.2 531
11⁄2″	DN40	41.9	1.2 366	1.5 731
2″	DN50	53.1	2.0 600	2.5 1197
21⁄2″	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.

Measurement

Flow	
Accuracy	2 % of reading \pm 0.3% FS
Selectable units	m³/h, m³/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	m³, ft³, l
Reference conditions	
Selectable conditions	20 °C 1000 mbar (ISO1217), 0 °C 1013 mbar (DIN1343) freely adjustable

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
Protocol Supply	Modbus/RTU
Protocol Supply Voltage supply	Modbus/RTU 15 30 VDC

General data

Configuration	
Wireless	S4C-FS App for mobile phones
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)
Protection class	IP65
Approvals	CE, RoHS, FCC
Process connection	G1/2" (ISO 228/1)
Weight	0.9 kg
Operating conditions	
operating contaitions	
Medium	Air, N ₂ , O ₂ , CO ₂ and other gases
Medium quality	Air, N2, O2, CO2 and other gases ISO 8573: 4.4.3 or better
Medium quality Medium temperature	Air, N2, O2, CO2 and other gases ISO 8573: 4.4.3 or better -30 +140 °C
Medium quality Medium temperature Medium humidity	Air, N₂, O₂, CO₂ and other gases ISO 8573: 4.4.3 or better -30 +140 ℃ < 90 % rH, no condensation
Medium quality Medium temperature Medium humidity Operating pressure	Air, N₂, O₂, CO₂ and other gases ISO 8573: 4.4.3 or better -30 +140 °C < 90 % rH, no condensation Max. 1.6 MPa(g)
Medium Medium quality Medium temperature Medium humidity Operating pressure Ambient temperature	Air, N₂, O₂, CO₂ and other gases ISO 8573: 4.4.3 or better -30 +140 °C < 90 % rH, no condensation Max. 1.6 MPa(g) -30 +70 °C
Medium quality Medium quality Medium temperature Medium humidity Operating pressure Ambient temperature Ambient humidity	Air, N₂, O₂, CO₂ and other gases ISO 8573: 4.4.3 or better -30 +140 °C < 90 % rH, no condensation Max. 1.6 MPa(g) -30 +70 °C < 99 % rH
Medium Medium quality Medium temperature Medium humidity Operating pressure Ambient temperature Ambient humidity Storage temperature	Air, N₂, O₂, CO₂ and other gases ISO 8573: 4.4.3 or better -30 +140 °C < 90 % rH, no condensation Max. 1.6 MPa(g) -30 +70 °C < 99 % rH -30 +70 °C
Medium Medium quality Medium temperature Medium humidity Operating pressure Ambient temperature Ambient humidity Storage temperature Transport temperature	Air, N₂, O₂, CO₂ and other gases ISO 8573: 4.4.3 or better -30 +140 °C < 90 % rH, no condensation Max. 1.6 MPa(g) -30 +70 °C < 99 % rH -30 +70 °C -30 +70 °C



S402 comes with a safety line made by steel to prevent from shooting out while uninstalling

Ordering

.SUO

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 Thermal Mass Flow Meter, 220 mm shaft	
Connection	h thread		
Standard	А	G1/2"	
A1005	В	NPT 1/2" Adapter	
A1006	С	PT 1/2" Adapter	
Output			
A1415	А	Isolated analogue 420 mA and pulse, 6 pole	
A1416	В	Modbus/RTU, 5 pole	
A1417	С	MBUS, Analogue 4 20 mA, 5 pole	
A1418	D	Modbus/RTU, Analogue 4 20 mA, 5 pole	
A1419	Е	Analogue 4 20 mA and pulse, 5 pole (compatible S400)	
Range			
Standard	А	Standard range version (92.7 m/s)	
A1406	В	Max range version (185 m/s)	
Gas type			
A1007	А	Air	
A1008	В	CO ₂	
A1009	С	O ₂ (Oil- & grease-free cleaned)	
A1010	D	N ₂	
Casing colo	or		
A1421	А	Casing color yellow	
A1422	В	Casing color light gray	
A1423	С	Casing color black	

Accessories	;
Order No.	Description
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

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

☆ sales@suto-itec.com



S415 OEM

Compact Thermal Mass Flow Meter

Inline







TOTAL

FLOW

No bypass

measurement



SMARTPHONE ANDROID APP For remote configuration

ACCURATE

Integrated flow

RESULTS

conditioner



POINT-OF-USE INSTALLATION No straight pipe section required





Benefits

Dimensions

- 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
Modbuc	А	D-	-VB	+VB	D+
Moubus	В	D-	GND	NA	D+
Pulse and	А	-	-VB	+VB	+
analog	В	-	Р	Р	+
Mibuc	А	M-bus	-VB	+VB	M-bus
IVI-DUS	В	M-bus	NA	NA	M-bus
Wire colour		brown	white	blue	black

Dimensions in mm	а	b	с	d	е
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



SI units



SI units

Standard direction

d



Imperial units

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	m³, ft3, l, kg		
Reference conditions			
Selectable conditions	20 °C 1000 mbar (ISO1217) 0 °C 1013 mbar (DIN1343) freely adjustable		

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
Scaling Fieldbus	1 pulse per consumption unit
Scaling Fieldbus Interface/Protocol	1 pulse per consumption unit RS-485/Modbus/RTU M-Bus
Scaling Fieldbus Interface/Protocol Supply	1 pulse per consumption unit RS-485/Modbus/RTU M-Bus
Scaling Fieldbus Interface/Protocol Supply Voltage supply	1 pulse per consumption unit RS-485/Modbus/RTU M-Bus 15 30 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 I/min
- Reference pressure: 1000 mbar
- Reference Temperature: +20 °C

General data

Configuration	
Wireless	S4C-FS App for mobile phones
Display	
Integrated	4 digit LED
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

.SUO

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 direc	tion
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	

Or





S431 OEM

Pitot Tube Compressor Flow Meter

Inline



....

1111



Benefits

- Measures compressed air delivery of compressors at the compressor outlet
- Installation either inside the compressor or right after it
- The robust design makes it withstand high temperatures and vibrations
- Convenient setup and maintenance through the wireless connected smartphone app
- Easy installation on a welding nipple

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
- User calibration through mobile app at compressor test stand
- Analogue and pulse output or Modbus/RTU

Easy Sensor Exchange

Sensor installation and removal on a welding nipple.

Installation

Removal



Installation Options



Sensor Installation inside the compressor



2 S

Sensor Installation outside of the compressor



Dimensions



Horizontal Pipe Installation - S695 4310

S4695 4310 Horizontal Pipe Installation





Horizontal Pipe Installation - A4319

A4319 Horizontal Pipe Installation Option

Flow Direction (reverse)

Valid installation angle from 20 ... 90 °



Vertical Pipe Installation - S695 4311



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	- _{isolated}	GND_{M}	blue
Pin 2	-VB	-VB	white
Pin 3	+VB	+VB	red
Pin 4	SW	D+	yellow
Pin 5	SW	D-	green
Pin 6	+I _{isolated}	N/A	black

Welding nipples for all pipe sizes







DN50...DN80 for horizontal pipes

DN100...DN900 for horizontal pipes

DN50...DN80 for vertical pipes

DN100...DN900 for vertical pipes

Technical Data

Measurement

Flow	
Accuracy	1.5 % o.RDG ±0.3 % FS
Selectable units	
Volumetric Flow:	m³/h, m³/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	m³, ft³, t, lb, l, kg
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

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
Supply	
Voltage supply	21 27 VDC
Current consumption	60 mA, 1.5 W

General data

Configuration	
Wireless	S4C-FS App for mobile phones
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 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	m³/h		m³/min		cfm	
		Min	Max	Min	Max	Min	Max
2″	53.1	121	1,298	2.0	21.6	71	764
21⁄2″	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 $^{\circ}$ 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 4310	S431-OEM, Pitot Tube Compressor Flow Meter for horizontal pipe installation, flow direction standard	
A4319	Horizontal pipe installation, flow direction reverse	
S695 4311	S431-OEM, Pitot Tube Compressor Flow Meter for vertical pipe installation, flow direction down to up	
Output Opti	ons	
A4314	Analogue/Pulse output	
A4315	Modbus/RTU	

			•	
AC	COC	CCO	111	00
AC	CC:	50		22

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
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.



A sales@suto-itec.com

.SUC

www.suto-itec.com/oem

SUTO iTEC GmbH

Grißheimer Weg 21 D-79423 Heitersheim Germany Tel: +49 (0) 7634 50488-00 Fax: +49 (0) 7634 50488-19 Email: sales@suto-itec.com

SUTO iTEC (China) Co. Ltd.

D3 Building, Unit A, 11/F, TCL International E City 1001 Zhongshanyuan Road, Nanshan, Shenzhen, China Tel: +86 (0) 755 8619 3164 Fax: +86 (0) 755 8619 3165 Email: sales.cn@suto-itec.com

SUTO ITEC (MALAYSIA) SDN.BHD.

NO.1-2-20, Krystal Point Corporate Park, Lebuh Bukit Kecil 6, Bayan Lepas, 11900 Penang, Malaysia Tel: +04 643 1522 Fax: +04 643 1518 Email: sales.my@suto-itec.com

SUTO iTEC (Thailand) Co., Ltd.

18/6 Wayra Biznet, Romklao Road, Khlong Sam Prawet, Lat Krabang, Bangkok 10520, Thailand Tel: +66 (0)2108 9658 Fax: +66 (0)2108 9658 Email: sales.th@suto-itec.com

SUTO iTEC (ASIA) Co. Limited

Room 10, 6/F, Block B, Cambridge Plaza, 188 San Wan Road, Sheung Shui, N.T., Hong Kong Tel: +852 2328 9782 Fax: +852 2671 3863 Email: sales.asia@suto-itec.com

SUTO iTEC Inc.

5460 33rd St SE Grand Rapids, MI 49512 USA Tel: +1 (616) 800-SUTO Tel: +1 (616) 800-7886 Email: sales.us@suto-itec.com

PT. SUTO ITEC INDONESIA

Cempk Mas Office Tower, 8th Floor-RM 8B Jl. Letjend Suprapto, Jakarta Pusat, 10640 Indonesia Tel: +6221 428 03853 Fax: +6221 428 03853 Email: sales.id@suto-itec.com

Your local SUTO iTEC Agency