

# DEW POINT SENSORS

## S211 / S215 / S220



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

# Very fast response time — ensures safe and reliable measurements



## DEW POINT SENSOR FEATURES

	<b>COMPACT DESIGN</b> Makes it easy to fit into the application		<b>PRECISE MEASUREMENT</b> ± 2 °C Td Accuracy
	<b>SIGNAL OUTPUT</b> 4 ... 20 mA Modbus/RTU		<b>DISPLAY OPTION</b> For on-site values
	<b>PRESSURE SENSOR</b> integrated as option		<b>AIR QUALITY</b> Monitors humidity

## S211 FEATURES

**FOR DESICCANT DRIERS**  
Measures down to -60 °C Td

## S215 FEATURES

**FOR FRIDGE DRIERS**  
Measures down to -20 °C Td

## S220 FEATURES

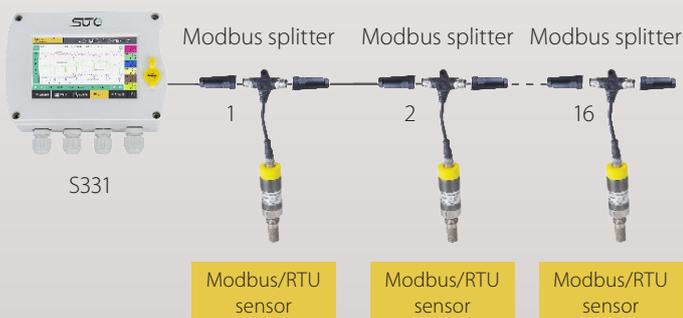
**HIGH TECH APPLICATIONS**  
QCM + Polymer  
-100 ... 20 °C Td CD

**DUAL SENSOR SYSTEM**  
High precision over the whole range

## DEW POINT SENSOR 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.

## MODBUS SENSOR NETWORK



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 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.





## 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.



## SENSOR PROTECTION

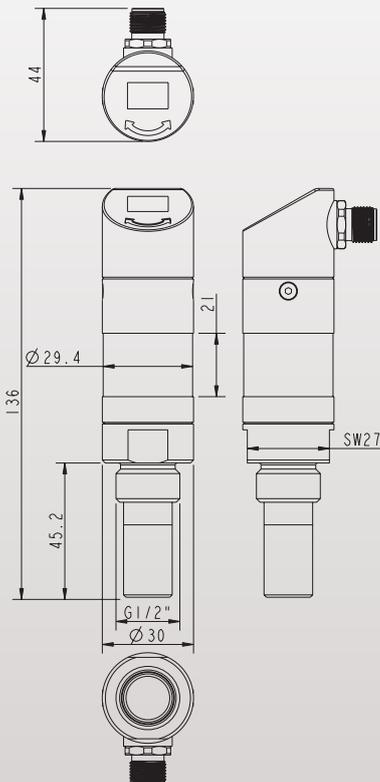
The stainless steel sinter filter cap protects the sensor from dust and other impurities. At the same time it offers fast response times and reliable measurement results.

## ROBUST MATERIALS

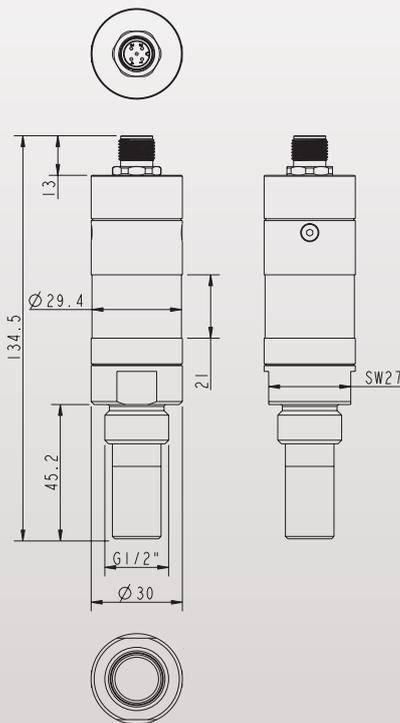
The main body is made from high class aluminum alloy with a soft finish. The process connection is a 1.4301 (SUS 304) stainless steel connection, made to last forever. Top cover made from aluminum at the same quality as the main body. The optional display cover is made from robust Polycarbonate with ABS reinforcement to withstand the rough environment.



## DIMENSIONS WITH DISPLAY



## WITHOUT DISPLAY



## UNIQUE SENSOR ELEMENTS

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 world's first model to measure accurately 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.

# TECHNICAL DATA

General Specifications	
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
Supply voltage	15 ... 30 VDC
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, 4 ... 20 mA 3-wire + Modbus/RTU
Current consumption	2-wire: 4 ... 20 mA 3-wire: 40 mA @ 24 VDC 3-wire with display: 50 mA @ 24 VDC
Accuracy	Dew point: +/- 1 °C Td (0 ... 20 °C Td) +/- 2 °C Td (-60 ... 0 °C Td / +20 ... +50 °C Td) +/- 3 °C Td (-100 ... -60 °C Td) Temperature: +/- 0.3 °C Pressure: 0.5% FS
Sensor types	Temperature sensor: Pt100 / Pressure sensor: Piezo resistive type
Display option	0.66" OLED display, indicates the measured value and unit

Model Specifications	S215	S211	S220
Measurement Range	Dew point: -20 ... +50 °C Td Temperature: -30 ... +70 °C Pressure: 0 ... 1.6 MPa	Dew point: -60 ... +20 °C Td Temperature: -30 ... +70 °C Pressure: 0 ... 1.6 MPa	Dew point: -100 ... +20 °C Td Temperature: -30 ... +70 °C Pressure: 0 ... 1.6 MPa
Dew point sensor	Polymer	Polymer	Polymer + QCM
Operating Pressure	-0.1 ... 1.6 MPa -0.1 ... 35.0 MPa optional	-0.1 ... 1.6 MPa -0.1 ... 35.0 MPa optional	-0.1 ... 1.6 MPa

\* 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>)

## USEFUL 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

# DEW POINT SENSOR ORDERING



Visit our website or e-mail us:  
[www.suto-itec.com](http://www.suto-itec.com)  
[sales@suto-itec.com](mailto:sales@suto-itec.com)

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 1215	S1215	S215, Dew point sensor, -20 ... +50 °C Td, -0.1 ... 1.6 MPa, 2-wire 4 ... 20 mA output
S699 1211	S1211	S211, Dew point sensor, -60 ... +20 °C Td, -0.1 ... 1.6 MPa, 2-wire 4 ... 20 mA output
S699 1220	S1220	S220, Dew point sensor, -100 ... +20 °C Td, -0.1 ... 1.6 MPa, 2-wire 4 ... 20 mA output
Operating Pressure		
	A	Standard pressure range -0.1 ... 1.6 MPa
A1381	B	High pressure range -0.1 ... 35.0 MPa (for S211 & S215 only)

Dew point sensor with 3-wire analog output and SDI		
Order No.	Code	Description
S699 2215	S2215	S2215, Dew point sensor, -20 ... +50 °C Td, -0.1 ... 1.6 MPa, 3-wire 4 ... 20 mA
S699 2211	S2211	S1211, Dew point sensor, -60 ... +20 °C Td, -0.1 ... 1.6 MPa, 3-wire 4 ... 20 mA
S699 2220	S2220	S2220, Dew point sensor, -100 ... +20 °C Td, -0.1 ... 1.6 MPa, 3-wire 4 ... 20 mA
Operating Pressure		
	A	Standard pressure range -0.1 ... 1.6 MPa
A1381	B	High pressure range -0.1 ... 35.0 MPa (for S211 & S215 only)
Display Option		
A1383	A	Without Display
A1384	B	With Display

Dew point sensor with 3-wire analog output and Modbus/RTU		
Order No.	Code	Description
S699 3215	S3215	S215, Dew point sensor, -20 ... +50 °C Td, -0.1 ... 1.6 MPa, 3-wire 4 ... 20 mA, Modbus/RTU*
S699 3211	S3211	S211, Dew point sensor, -60 ... +20 °C Td, -0.1 ... 1.6 MPa, 3-wire 4 ... 20 mA, Modbus/RTU*
S699 3220	S3220	S220, Dew point sensor, -100 ... +20 °C Td, -0.1 ... 1.6 MPa, 3-wire 4 ... 20 mA, Modbus/RTU*
Operating Pressure		
	A	Standard pressure range -0.1 ... 1.6 MPa
A1381	B	High pressure range -0.1 ... 35.0 MPa (for S211 & S215 only)
Pressure Measurement		
	A	Without pressure sensor
A1382	B	With pressure sensor, 0 ... 1.6 MPa (operating pressure is limited to max. 1.6 MPa)
Display Option		
A1383	A	Without Display
A1384	B	With Display

**\* 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: <b>Dew point = °C Td / Temperature = °C / Pressure = bar</b> 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.

## DEW POINT SENSOR ORDERING

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