

## S220 OEM

# Dew Point Transmitter

-100 ... +20 °C Td



### COMPACT DESIGN

Makes it easy to fit into the application



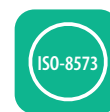
### PRECISE MEASUREMENT

± 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/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.

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.

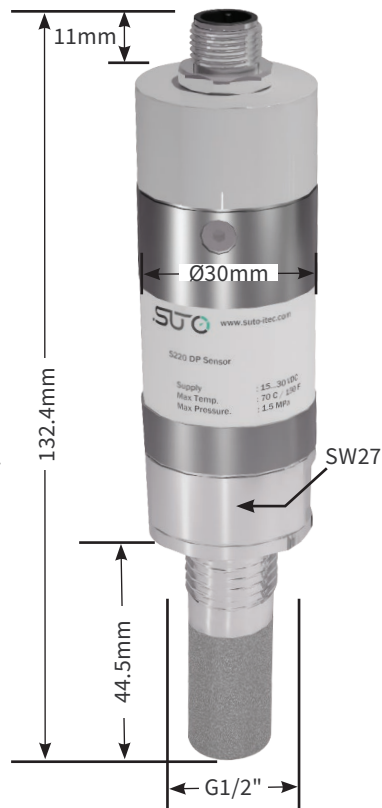


## Dimensions

### With display



### Without display

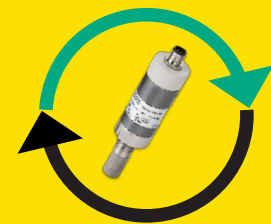


## Exchange Service

### 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.

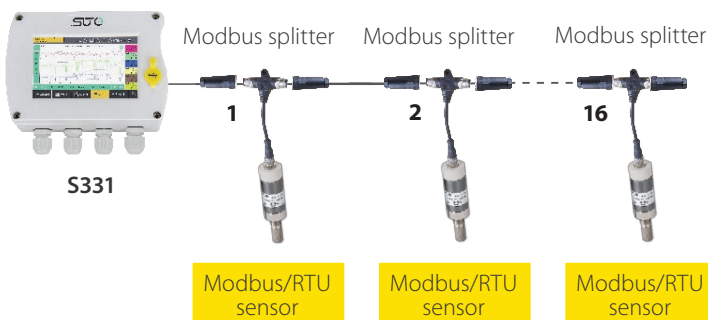


**SUTO** | Exchange Service

## Modbus Sensor Network with S331

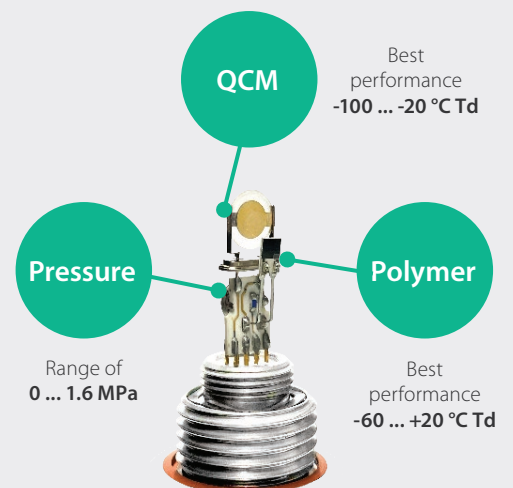
The Modbus/RTU bus allows to connect several sensors to a single bus line via Daisy-Chain. For example up to 16 sensors to a S331.

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 <sup>3</sup> , mg/m <sup>3</sup> , g/m <sup>3</sup> atm., mg/m <sup>3</sup>
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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	Piezo resistive 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 <sub>2</sub> , N <sub>2</sub> , CO <sub>2</sub> *
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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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### \* CO<sub>2</sub> medium:

The S220 must be set to CO<sub>2</sub> ex works or by using the S4C-DP 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



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 Transmitter with 3-wire analog output and Modbus/RTU\*

Order No.	Description
S699 2207	S220 OEM Dew point sensor, -100 ... +20 °C Td, -0.1 ... 1.6 MPa, 3-wire 4 ... 20 mA + Modbus/RTU, 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)

### 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 <sup>2</sup> )
A553 0105	Sensor cable 10 m with M12 connector, open end wires, AWG 24 (0.2 mm <sup>2</sup> )

### Calibration

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

\* **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 Wireless DP Transmitter Adapter and the S4C-DP App 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 Wireless DP Transmitter Adapter and the S4C-DP App to change the output unit. For example pressure in PSI or humidity in ppmv.

