

# S211 / S215 / S220

## Dew Point Transmitters

**S211**

-60 ... +20 °C Td

FOR DESICCAN DRYERS

**S215**

-20 ... +50 °C Td

FOR FRIGIDE DRYERS

**S220**

-100 ... +20 °C Td

FOR HIGH-TECH APPLICATIONS



**SIGNAL OUTPUT**  
4 ... 20 mA  
Modbus/RTU



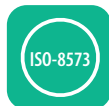
**DISPLAY OPTION**  
For on-site values



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



**PRESSURE SENSOR**  
integrated as option



**AIR QUALITY**  
Monitors humidity



**PRECISE MEASUREMENT**  
± 2 °C Td Accuracy



## 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 to connect to process controls or monitoring systems
- ✓ 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 Reliable Measurement

SUTO can rely on a 20+ years experience in developing dew point sensors used in compressed air systems and pressurized gases. During that period of time, the engineers have continued to develop new measurement methods and even developed own sensor elements for our innovative dew point meters.

### 2 Various Output Signal

The Dew Point Meters are perfectly suited to be integrated into process controls or high-level monitoring systems. Various output options are offered for a seamless integration:

- 4 ... 20 mA 2-wire + SDI
- 4 ... 20 mA 3-wire + SDI
- 4 ... 20 mA 3-wire + Modbus/ RTU

### 3 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.

### 4 Display Option

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



### 5 S220 with 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.

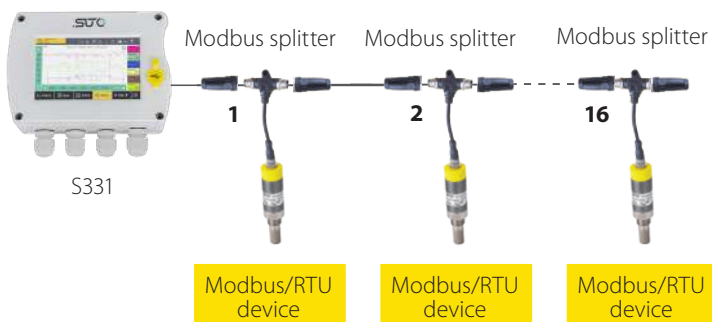
The combination of QCM and the well known Polymer sensor makes the S220 the worlds first model to measure accurate over the whole range, from -100 °C Td up to +20 °C Td by switching automatically between the two sensor elements as needed.

## Measurement Ranges and Applications

| Model       | S211                | S215              | S220                                     |
|-------------|---------------------|-------------------|------------------------------------------|
| Dew point   | -60 ... +20 °C Td   | -20 ... +50 °C Td | -100 ... +20 °C Td                       |
| Temperature | -30 ... +70 °C      | -30 ... +70 °C    | -30 ... +70 °C                           |
| Pressure    | 0 ... 1.6 MPa       | 0 ... 1.6 MPa     | 0 ... 1.6 MPa                            |
| Application | In desiccant dryers | In fridge dryers  | In high tech requirements and conditions |

## Modbus Sensor Network with S331

The Modbus/RTU bus allows to connect several devices to a single bus line via Daisy-Chain. For example up to 16 devices to a S331. The S331 is a very powerful yet cost effective new data logger and display solution.



## Dimensions

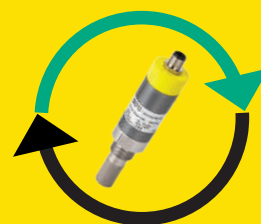


## Exchange Service

### No Downtime anymore!

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

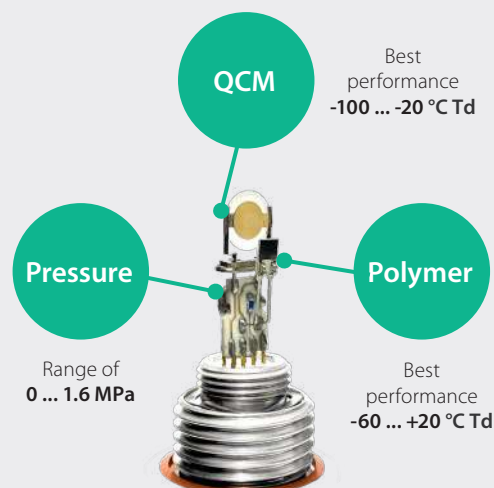
The user receives in advance a calibrated instrument with calibration certificate and the same instrument settings. The onsite instrument is then switched against the calibrated one and returned to the supplier.



**SUTO** | Exchange Service

## S220 with unique triple sensor solution

With the S220, SUTO is combining three sensors into a single measurement unit, making it unique and the most advanced sensor available on the market, with a full range of -100 ... +20 °C Td.



# Technical Data

## Specifications

| Model                       | S211                                                                                                |                                                                                                                | S215                         |                   | S220                          |                    |
|-----------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------------------------------|-------------------|-------------------------------|--------------------|
| Measurement Range           | Dew point                                                                                           | -60 ... +20 °C Td                                                                                              | Dew point                    | -20 ... +50 °C Td | Dew point                     | -100 ... +20 °C Td |
|                             | Temperature                                                                                         | -30 ... +70 °C                                                                                                 | Temperature                  | -30 ... +70 °C    | Temperature                   | -30 ... +70 °C     |
|                             | Pressure                                                                                            | 0 ... 1.6 MPa                                                                                                  | Pressure                     | 0 ... 1.6 MPa     | Pressure                      | 0 ... 1.6 MPa      |
| Dew point sensor            | Polymer                                                                                             |                                                                                                                | Polymer                      |                   | Polymer + QCM                 |                    |
| Operating Pressure          | -0.1 ... 1.6 MPa                                                                                    |                                                                                                                | -0.1 ... 1.6 MPa             |                   | -0.1 ... 1.6 MPa              |                    |
|                             | -0.1 ... 35.0 MPa optional                                                                          |                                                                                                                | -0.1 ... 35.0 MPa optional   |                   |                               |                    |
| Response time (t90)@4 l/min | 0 °C Td → -60 °C Td ≤ 280 sec                                                                       |                                                                                                                | 0 °C Td → -20 °C Td ≤ 50 sec |                   | 0 °C Td → -80 °C Td ≤ 420 sec |                    |
|                             | -60 °C Td → 0 °C Td ≤ 65 sec                                                                        |                                                                                                                | -20 °C Td → 0 °C Td ≤ 35 sec |                   | -80 °C Td → 0 °C Td ≤ 90 sec  |                    |
| Accuracy                    | Dew point                                                                                           | +/- 1 °C Td (0 ... 20 °C Td)<br>+/- 2 °C Td (-70 ... 0 / +20 ... +50°C Td)<br>+/- 3 °C Td (-100 ... -70 °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 S211 and 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 S211 and 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.

| Transmitter Model and Range                      | 2-wire Analog & SDI output |       | 3-wire Analog & SDI output |       | 3-wire Analog & Modbus/RTU* <sup>3</sup> output |       | 3-wire Analog & Modbus/RTU* <sup>3</sup> output<br>With Pressure Sensor |       |
|--------------------------------------------------|----------------------------|-------|----------------------------|-------|-------------------------------------------------|-------|-------------------------------------------------------------------------|-------|
|                                                  | Order No.                  | Code  | Order No.                  | Code  | Order No.                                       | Code  | Order No.                                                               | Code  |
| S215 Dew Point Transmitter<br>-20 ... +50 °C Td  | S699 1215                  | S1215 | S699 2215                  | S2215 | S699 3215                                       | S3215 | S699 4215                                                               | S4215 |
| S211 Dew Point Transmitter<br>-60 ... +20 °C Td  | S699 1211                  | S1211 | S699 2211                  | S2211 | S699 3211                                       | S3211 | S699 4211                                                               | S4211 |
| S220 Dew Point Transmitter<br>-100 ... +20 °C Td | S699 1220                  | S1220 | S699 2220                  | S2220 | S699 3220                                       | S3220 | S699 4220                                                               | S4220 |
| <b>Options</b>                                   |                            |       |                            |       |                                                 |       |                                                                         |       |
| Operating Pressure<br>0 ... 1.6 MPa (Standard)   | -                          | A     | -                          | A     | -                                               | A     | -                                                                       | A     |
| Operating Pressure<br>0 ... 35.0 MPa             | A1381* <sup>1</sup>        | B     | A1381* <sup>1</sup>        | B     | A1381* <sup>1</sup>                             | B     | N/A* <sup>2</sup>                                                       | B     |
| Without Display (Standard)                       | -                          | C     | -                          | C     | -                                               | C     | -                                                                       | C     |
| With OLED Display                                | N/A* <sup>2</sup>          | D     | A1387                      | D     | A1388                                           | D     | A1388                                                                   | D     |

\*<sup>1</sup> A1381: The high pressure option is only available for the models S215 and S211. The S220 can not be used in pressure applications > 1.6 MPa

\*<sup>2</sup> N/A: This option is not available for these models

\*<sup>3</sup> Standard Modbus/RTU Settings are Slave Address: last two digits of serial number / Com. Settings: 19200 baud, 8/N/1

## Order Example

**Code:** S211 Dew point Transmitter, -60 ... +20 °C Td,  
3-wire Analog & Modbus/RTU output, Operating  
Pressure 0 ... 1.6 MPa, with OLED Display  
**S3211 AD**

## Output Unit

The dew point Transmitter 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                                       |

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## Calibration

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