

# S230 / S231

## Dew Point Transmitters for Ex Applications

**S230**

-100 ... +20 °C Td

**S231**

-50 ... +20 °C Td



**EX APPROVED**  
IECEX, ATEX &  
GB Ex



**PRECISE MEASUREMENT**  
Unique QCM  
sensor technology



**LOW DEW POINT**  
Measures down  
to -100 °C Td



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



## Benefits

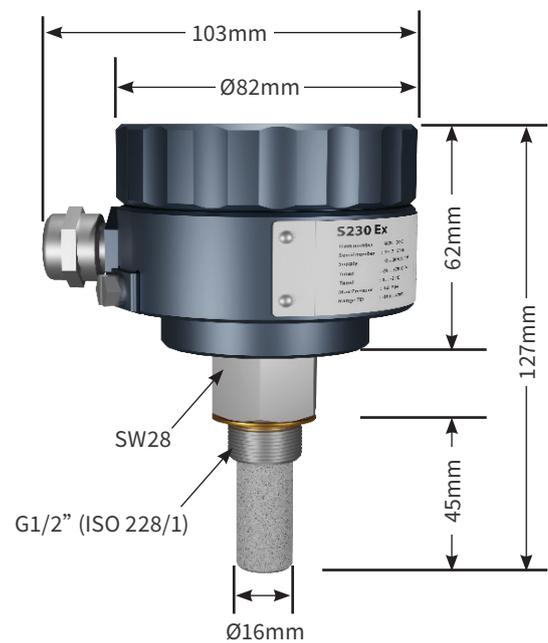
- ✔ Dew Point Transmitter made for Ex-Applications (IECEX, ATEX, GB Ex)
- ✔ Robust enclosure for the use in rough industrial environments
- ✔ Dual sensor technology for the highest accuracy over the full range of -100 ... +20 °C Td
- ✔ G1/2" Stainless steel process connection
- ✔ 4 ... 20 mA analog and Modbus/RTU digital outputs for highest flexibility

## Reliable dew point monitoring

The S230 / S231 dew point sensor from SUTO offers reliable and customer-oriented measurement technology in a robust housing. The sensor is used in harsh industrial environments and, thanks to the compact housing, offers easy integration into existing processes.

The unique dual sensor system combines two measurement methods in one sensor. The sensor offers highest precision and accurate measurement results over the entire measuring range. The intelligent measurement technology automatically selects the appropriate measurement method, thus ensuring the reliability of the measurement results.

The S230 / S231 is preset at the factory and is ready for immediate use. The output signals available are an analog 4 ... 20 mA signal and a digital Modbus/RTU signal. We will be pleased to set the parameters to suit your application. Alternatively, you have full access to all settings via the service kit.



## Accessories

Measuring chamber with inlet / outlet valve and compression fitting for gas supply



## Cable connection



Screw terminals with signal labels inside the connection chamber

# 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)
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> atm., ppm(v), g/kg, °C Td atm.
Measuring range (model depending)	S230: -100 ... +20 °C Td S231: -50 ... +20 °C Td
Sensor	Polymer + QCM
Response time t90 (@ 4l/min)	-20 °C Td → -60 °C Td = < 240 sec -60 °C Td → -20 °C Td = < 30 sec

### Temperature

Accuracy	0.3 °C
Measuring range	-30 ... +70 °C
Sensor	NTC

### Reference conditions

Selectable conditions	Pressure Dew Point, Atmospheric Dew Point
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## Signal / Interface & Supply

### Analog output

Signal	4 ... 20 mA (isolated) Modbus/RTU
Scaling	S230: 4 mA = -100 °C Td; 20 mA = +20 °C Td S231: 4 mA = -50 °C Td; 20 mA = +20 °C Td
Load	250R
Update rate	3/sec

### Fieldbus

Protocol	Modbus/RTU
Update rate	1/sec

### Supply

Voltage supply	10 ... 30 VDC
Current consumption	45 mA @ 24 VDC

## General data

### Configuration

PC Software	S4C-DP Application
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### Material

Process connection	Stainless steel 1.4301 (SUS 304)
Housing	Aluminium alloy
Sensor	Polymer, Ceramic

### Miscellaneous

Electrical connection	Screw terminals
Protection class	IP67
Approvals	II 2G Ex db ib IIC T4 Gb II 2D Ex ib tb IIIC T135°C Db CE

Process connection	G 1/2" thread (ISO 228/1)
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Weight	728 g
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### Operating conditions

Medium	Air, Argon, O <sub>2</sub> , N <sub>2</sub> , CO <sub>2</sub> *
Medium quality	ISO 8573-1: 4.6.3 or better
Medium temperature	-30 ... +70 °C
Medium humidity	≤ 20 °C Td
Operating pressure (model depending)	-0.1 ... 1.6 MPa (S230) -0.1 ... 35 MPa (S231)
Ambient temperature	-20 ... +50 °C
Ambient humidity	0 ... 100 % rH
Storage temperature	-20 ... +50 °C
Transport temperature	-30 ... +70 °C

Stated accuracy under following conditions:

- Ambient temperature 23 °C ±3 °C
- Process temperature 23 °C ±3 °C
- Ambient humidity < 95 %, no condensation
- Airflow > 2 l/min at sensor tip

# Ordering

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

## S230 Dew Point Transmitter (-100 ... +20 °C Td)

Order No.	Description
S699 0230	S230 Dew Point Transmitter, -100 ... +20 °C Td, G 1/2" thread, 1.6 MPa, 1 x 4 ... 20 mA, RS-485 (Modbus/RTU)
A1480	Ex option ATEX
A1481	Ex option IECEx
A1482	Ex option GB3836
A1483	No Ex option

## S231 Dew Point Transmitter (-50 ... +20 °C Td)

Order No.	Description
S699 0231	S231 Dew Point Transmitter, -50 ... +20 °C Td, G 1/2" thread, 35 MPa, 1 x 4 ... 20 mA, RS-485 (Modbus/RTU)
A1480	Ex option ATEX
A1481	Ex option IECEx
A1482	Ex option GB3836
A1483	No Ex option

## S230 / S231 Accessories

Order No.	Description
A554 2301	Measuring chamber with inlet / outlet valve and compression fittings for gas supply, 1.6 MPa
A554 2302	Measuring chamber with insertion type sampling tubes (for applications where purge losses are not acceptable), 1.6 MPa
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

## Ordering Example

**Example:** S230 Dew point transmitter, -100 ... +20 °C Td with ATEX approval

**Order Code:** S699 0230.A1480



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