

SWS-SD3 Weatherproof Sample System

The SWS-SD3 weatherproof sample system is designed for gas or general compressed air sampling and allows the sensor to operate at ideal sampling conditions, whilst protecting your hygrometer from high pressures and contaminants, particularly in hydrocarbon applications.

Housed in an IP65 weatherproof cabinet, the SWS-SD3 combines: pressure regulation, filtration, flow control, a three port sample selection valve, sensor holder, dewpoint sensor and dewpoint meter.

Both the dewpoint sensor and dewpoint meter (as illustrated) are housed inside the cabinet protecting them from the elements.

Electrical connections are made through 1 x STB 16 gland (mains) and 3 x M13 glands (signal lines) to terminal rail. Pneumatic connections to 3 x 1/8" NPT bulkhead fittings with a choice of 1/4", 1/8" or 6 mm compression fittings if required.

Features

- Designed for gas or general compressed air sampling
- Combines pressure regulation, filtration and flow control
- Allows the dewpoint sensor to operate at atmospheric pressure
- Dewpoint meter protected from the elements when housed inside the cabinet
- IP65 weatherproof rating
- Wall or pedestal mounting
- Choice of compression fittings



Shaw Moisture Meters Sample Systems

Shaw Moisture Meters Sample Systems are engineered solutions for extracting and analysing a representative sample of the process air or gas, which is then either vented off to atmosphere or returned to the process.

This range of sample systems has been developed through over 60 years of experience in industrial moisture analysis and all systems are built using the highest quality components to ensure long term performance and reliability in even the toughest of applications.

Our standard range of sampling systems can be viewed at www.shawmeters.com. However, if your particular requirements are not met by any of those shown, please contact us and our engineers will be happy to advise and custom design a system for your specific application.



MOISTURE METERS

Specifications

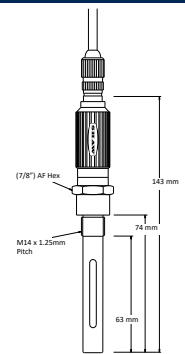
SWS Sample System Enclosure

- **Type:** IP65 weatherproof housed inline hygrometer, for wall or pedestal mounting, including dewpoint meter and sample system comprising three port sample selection valve, filter unit, pressure regulator, flow indicator, sensor holder and sensor.
- **Electrical connections:** 1 x STB 16 gland (mains) and 3 x M13 glands (signal lines) to terminal rail.
- **Pneumatic connections:** 3 x 1/8" NPT bulkhead fittings with a choice of 1/8", 1/4" or 6 mm compression fittings if required.
- **Sensor Connection:** Low loss coax cable (75 ohms max capacitance of 50pF per metre)
- **Power Supply:** 110 or 220 V AC single phase 50 or 60 Hz, 24 V DC
- **Outputs:** Alarms: Two single pole changeover contacts (NO/C/NC), rated at 10 A at 240 V AC. Alarm trip at set point with 0.1 °C (or equivalent) hysteresis to eliminate relay chatter.
Signal: Isolated 4-20 or 0-20 mA Linear
- **Accuracy:** Meter: 1% across meter range
Sensor: For sensor accuracy see Moisture Sensor specification sheet
- **Sampling:** Input Pressure (PR): 200 Bar (Med), 400 Bar (Hi)
- **Dimensions (H x W x D) Overall:** 400 x 400 x 200 mm
- **Weight:** 11.3 kg
- **Display:** Superdew 3
- **Calibration:** AutoCal on all but Blue range

Dewpoint Sensor

- **Accuracy:** Better than $\pm 2^\circ\text{C}$ over the full range
- **Operating Temperature:** -20°C to $+50^\circ\text{C}$
- **Storage Temperature:** -50°C to $+70^\circ\text{C}$
- **Operating Humidity:** 0-90% RH non-condensing
- **Mechanical Connections:** M14 x 1.25 mm pitch
- **Electrical Connection:** Male coaxial plug
- **Dimensions:** Overall length: 141 mm, protruding 68 mm
- **Weight:** Approximately 100 g
- **Sensor Connection:** Low loss coax cable (75 ohms max capacitance of 50pF per metre)
- **Sensor Materials:** High purity aluminium, gold, nylon, silver and stainless steel
- **Ranges:**
 - P (Purple): -100 to 0°C (-148 to $+32^\circ\text{F}$) DP 0-6,000 ppm(V)
 - S (Silver): -100 to -20°C (-148 to -4°F) DP 0-1,000 ppm(V)
 - R (Red): -80 to -20°C (-112 to -4°F) DP 0-1,000 ppm(V)
 - G (Grey): -80 to 0°C (-112 to $+32^\circ\text{F}$) DP 0-6,000 ppm(V)
 - B (Blue): -80 to $+20^\circ\text{C}$ (-112 to $+68^\circ\text{F}$) DP 0-23,000 ppm(V)
- **Certification:** II 1G, Ex ia IIC T6 Ga (Ta = -20°C to $+50^\circ\text{C}$)
- **Approvals:** CE 0598 UK CA 1180
- **Calibration:** National Physical Laboratory (NPL) traceable calibration available

Sensor Diagram



Superdew 3 Hygrometer

- **Sensor:** SHAW Ultra High Capacitance Aluminium Oxide Sensor
- **Ranges:** Please check Moisture Sensor specification for ranges available.
- **AutoCal:** Field calibration/span check facility. Activated and operated via potentiometer on the front of the instrument.
- **Approvals**
- **Factory Calibration:** Supplied with Certificate of Calibration traceable to National & International Standards at the National Physical Laboratory (NPL)
- **Accuracy:** $\pm 2^\circ\text{C}$ ($\pm 3.6^\circ\text{F}$) dewpoint NPL traceable -90°C to $+20^\circ\text{C}$ (-130°F to $+68^\circ\text{F}$)
- **Resolution:** 0.1°C , 0.1°F DP or 0.1 ppm(v)
- **Repeatability:** Better than $\pm 0.3^\circ\text{C}$ ($\pm 0.54^\circ\text{F}$) DP
- **Operating Temperature:** -20°C to $+60^\circ\text{C}$ (-4°F to $+140^\circ\text{F}$)
- **Storage Temperature:** -20°C to $+70^\circ\text{C}$ (-4°F to $+158^\circ\text{F}$)
- **Response Times:** Wet to dry: -20°C to -60°C - less than 120 secs. Dry to wet: -100°C to -20°C - less than 20 secs
- **Sample Flow Rate:** Flow independent but ideally 2-5 litres/min Max: 25 litres/min
- **Calibration Warranty:** 12 months from date of despatch

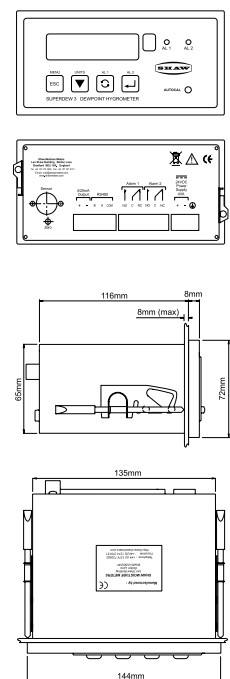
ELECTRICAL

- **Electromagnetic Compatibility (EMC):** Immunity: Complies with EN 61326:2006, Emissions: Complies with EN 61326:2006
- **Warm Up Time:** 5 seconds
- **Fault Conditions:** Short circuit/over range: display reads "Short" and output drives to 24.0 mA
- **Output Signal:** Isolated 4 - 20 or 0 - 20 mA Linear
- **Operating Voltage:** 90 to 250 V AC 50/60 Hz or 24 V DC
- **Display:** 5 character LED
- **Alarms:** Two single pole changeover contacts (NO/C/NC), rated at 10 A at 240 V AC. Alarm trip at set point with 0.1 °C (or equivalent) hysteresis to eliminate relay chatter
- **Cable:** Supplied with 2 metre low loss coaxial cable

MECHANICAL

- **Operating Pressure:** From 1kPa (0.01 barA) to maximum 35,000 kPa (350 barA)
- **Operating Humidity (External):** Maximum - 95% RH non-condensing
- **Enclosure (H x W x D):** 72 x 144 x 116 mm (d) DIN style, ABS case
- **Mounting:** Panel mount 138.0 x 68.0 mm (DIN 43700)
- **Sensor Protection:** 16 sintered stainless steel filter - 50 micron
- **Probe Material (Wetted Parts):** 316 stainless steel
- **Weatherproof Classification:** Front panel only - IP54
- **Mechanical Warranty:** 24 months in case of faulty workmanship and defective parts

Superdew 3 Diagram



Related Products

Superdew 3 Hygrometer

A single channel online hygrometer designed to measure dewpoint in process gases and compressed air, providing an overall system accuracy of ± 2 °C (± 3.6 °F). The panel mounted enclosure provides panel protection to IP54.



The Superdew 3 can be user configured to display in °C, °F, ppm(V) or lb/MMSCF on an easy to read five character LED display. An isolated 4 - 20 mA analogue output is supplied as standard. The span of this output can be configured across the range of the sensor. The system allows for the Superdew 3 instrument to be sited in excess of 1,000 metres from the sensor.

Moisture Sensor

The aluminium oxide sensor, used for measuring trace moisture in air and gases is an excellent example of why you can put your trust in SHAW.



Construction of the aluminium oxide sensor is critical to the performance and reliability of systems. Our methods are tried, tested and trusted. Involving layering and treating high quality components in such a way that we can control the sensor's speed of response, sensitivity and base capacity.

The sensor's base layer is manufactured with precision to ensure stability, reliability and a drift free dewpoint sensor. Continuous research and development enables us to manufacture uniform and water vapour specific pores for a rapid and predictable response.

The overall measurement range covered by the sensor is -100 °C to +20 °C (-148 °F to +68 °F) dewpoint which corresponds to 0.001 ppm to 0.2 percent by volume.

If your particular requirements are not met by any of those shown, please contact us and our engineers will be happy to advise and custom design a system for your specific application.

Ordering Information

Model SWS-SD3-(R)-(PR)-(F)-(F)

Select required range = R:

| | | |
|--------------------|------------------------|-------------------|
| P (Purple): | -100 to 0 °C dewpoint | 0 - 6,000 ppm(V) |
| S (Silver) | -100 to -20 C dewpoint | 0 - 1,000 ppm(V) |
| R (Red): | -80 to -20 °C dewpoint | 0 - 1,000 ppm(V) |
| G (Grey): | -80 to 0 °C dewpoint | 0 - 6,000 ppm(V) |
| B (Blue): | -80 to +20 °C dewpoint | 0 - 23,000 ppm(V) |

Select required input pressure = (PR)

Me: 200 Bar **Hi:** 400 Bar

Select inlet and outlet connection fittings size (¼" fittings supplied as standard) = F - F:

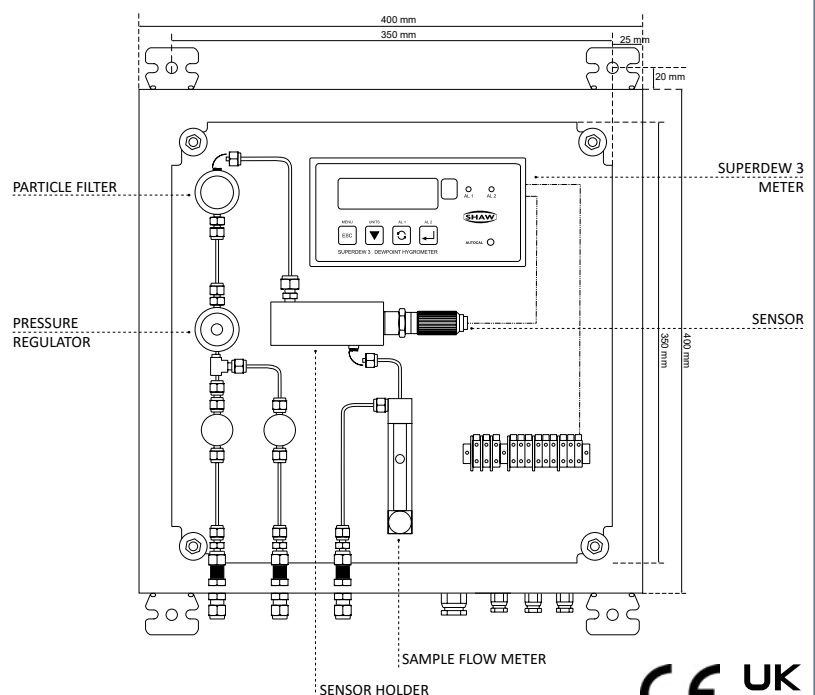
| | | | |
|-----------------|--------------|--------------|----------------|
| Inlet Fitting: | 4: ¼" | 8: ⅜" | 6: 6 mm |
| Outlet Fitting: | 4: ¼" | 8: ⅜" | 6: 6 mm |

Example:

To order a SWS-SD3 with a measuring range of -80 to 0 °C dewpoint (grey sensor), 200 Bar, with ¼" inlet and ¼" outlet fittings, please order as **SWS-SD3-G-Me-4-4**

SWS-SD3 sample system includes as standard: a three port sample selection valve, filter unit, pressure regulator, flow indicator, Superdew 3 hygrometer, sensor holder, sensor, pressure calculator and screwdriver.

SWS-SD3 General Assembly Diagram



SWS-SD3_Iss2.1