



MOISTURE METERS

## SDHmini

**The Model SDHmini portable hygrometer sets new industry standards for dewpoint measurement.**

A portable dewpoint hygrometer which offers quick and reliable spot-check measurements of dewpoint and trace moisture content for industrial applications. This robust and lightweight instrument features an intuitive menu structure and advanced features which enable the user to perform measurements in the toughest of environments, quicker and easier than ever before.

The robust housing not only contains the moisture sensor, desiccant chamber and gas sample ports but also incorporates the signal conditioning circuitry, memory management and a full colour graphics LCD. The on-board rechargeable lithium-ion battery provides over 150 hours of continuous operation.

The unit operates with the following ten language options: English, German, French, Spanish, Portuguese, Russian, Italian, Chinese, Japanese and Korean.

Powerful microelectronics provide automatic calibration with real time data viewing graphical formats.



### Features

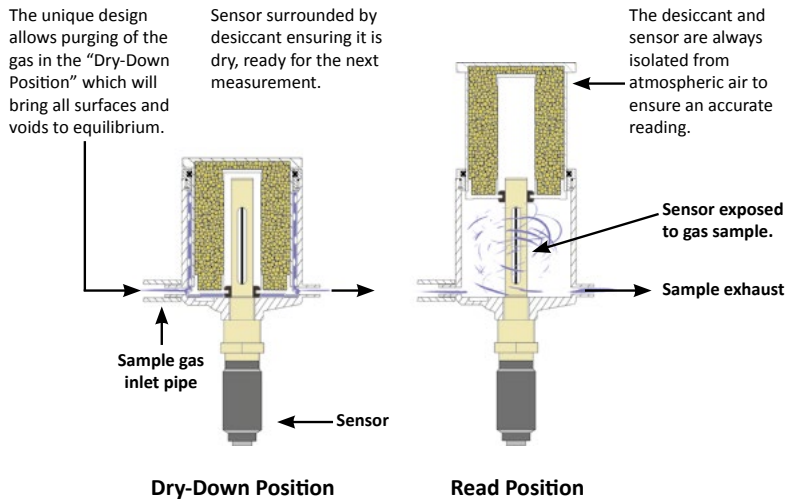
- Automatic Calibration (AutoCal)
- Desiccant dry down assembly for high speed measurements
- User selectable engineering units - °C, °F, ppm(v), ppm(w), g/m<sup>3</sup>, lbs/MMscf
- Accuracy of  $\pm 2$  °C ( $\pm 3.6$  °F)
- Full colour graphics LCD display, with secondary display
- 10 language options
- Various measurement ranges available from -100 °C to +20 °C dewpoint
- Rechargeable battery - over 150 hours of continuous operation on full charge
- Robust and durable enclosure, designed for use in the toughest environments
- Truly portable and lightweight: less than 1.75 kg (3.8 lbs)
- Calibration Certificate traceable to National & International Humidity Standards



MOISTURE METERS

## Desiccant Dry-Down Technology

## General Assembly Diagram



Keeping the sensor dry between tests ensures that the SDHmini is ready to carry out rapid spot checks. The unique design of the desiccant head achieves this by surrounding the sensor with desiccant, keeping the sensor dry. The head is then lifted for sampling, exposing the sensor to the sample gas.

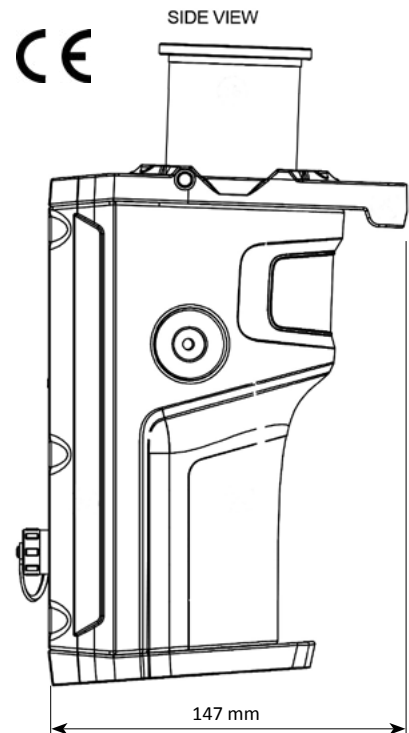
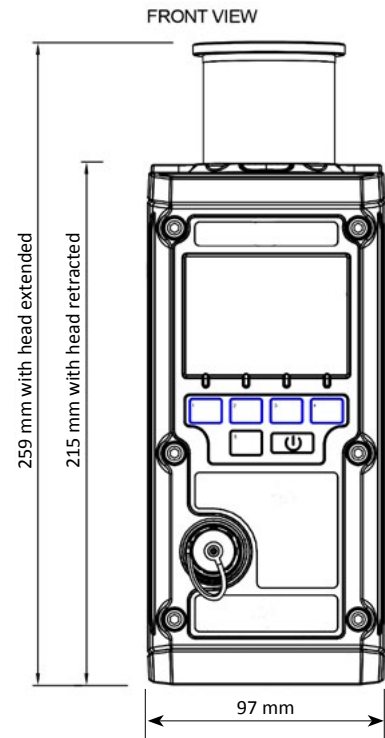
Between tests, the sensor is not allowed to come into contact with ambient air. The chamber is designed so that the void space and chamber wall surfaces are purged with sample gas before exposure of the sensor, giving faster, more accurate and reliable results.

## Automatic Calibration

The most important and unique feature of the SHAW system is the automatic calibration facility. Each SHAW sensor is precisely manufactured to saturate with water vapour at its design maximum. Hence, when the sensor is exposed to moisture above its maximum operating range, it will rapidly come into equilibrium and cease to respond to any further increase in moisture. This forms the basis of automatic calibration.

The SHAW sensor can be checked by simply exposing it to any atmosphere which is wetter than the operating range of the sensor (usually room air is sufficient) by raising the desiccant chamber and performing the automatic calibration feature on the instrument. The sensor is now set up with the instrument and ready for use.

Automatic calibration can be carried out in-situ and without the need for any special equipment or skilled personnel. The net result is reduced downtime, minimal calibration costs and immediate verification of the system.





## MOISTURE METERS

### Specifications

#### DEWPOINT SENSOR

- **Sensing Element**  
SHAW Ultra High Capacitance Aluminium Oxide Sensor
- **Ranges**  
Dewpoint = 0.1 °C/0.1 °F resolution  
P (Purple): -100 to 0 °C dewpoint, 0-6,000 ppm(v)  
S (Silver): -100 to -20 °C dewpoint, 0-1,000 ppm(v)  
G (Grey): -80 to 0 °C dewpoint, 0-6,000 ppm(v)  
R (Red): -80 to -20 °C dewpoint, 0-1,000 ppm(v)  
B (Blue): -80 to +20 °C dewpoint, 0-23,000 ppm(v)
- **AutoCal**  
Field calibration/electronic span check facility. Performed by user following simple menu driven instructions.
- **Accuracy**  
± 2 °C (± 3.6 °F) dewpoint  
NPL traceable -90 °C to +20 °C (-130 °F to +68 °F)
- **Sensor Calibration**  
Supplied with Certificate of Calibration traceable to National and International Standards.
- **Pressure Correction**  
Integral calculator to display pressure dewpoints. Gauge pressure can be entered in kPa, kg/cm<sup>2</sup>, bar or psi.
- **Temperature Coefficient**  
Temperature compensated for operating range.
- **Repeatability**  
Better than ±0.3 °C dewpoint

#### Response Times

Wet to dry: -10 °C to -60 °C - less than 120 seconds  
Dry to wet: -100 °C to -20 °C - less than 20 seconds

#### Sample Flow Rate

Flow independent but ideally 2 to 5 litres per minute. Max: 10 litres/min

#### Calibration Warranty

12 months from date of dispatch

#### ELECTRICAL

- **Electromagnetic Compatibility (EMC)**  
EMC Directive 89/336/EEC, amended 95/31/EEC

#### Display

Full colour graphics LCD, 320 x 240 (24 bits) resolution

#### Power Supply

Rechargeable Li-ion battery. Battery charger included.

#### Battery Life

In excess of 150 hours of use on full charge

#### Time to Full Charge

12 hours

#### Resolution

0.1 °C, 0.1 °F dewpoint or 0.1 ppm(v)

#### Repeatability

Better than ±0.2 °C dewpoint

#### MECHANICAL

#### Dimensions and Weight

Overall dimensions: 97 mm (w) x 147 mm (d) x 211 mm (h (259 mm with head extended)) (3<sup>13</sup>/<sub>16</sub> x 5<sup>25</sup>/<sub>32</sub> x 8<sup>9</sup>/<sub>16</sub> (10<sup>13</sup>/<sub>64</sub> inches) 1.75 kg (3.8 lbs)

#### Operating Pressure

Maximum 0.3 bar/4 psi

#### Operating Pressure

Maximum 0.3 bar/4 psi

#### Operating Humidity (External)

Maximum - 95% RH non-condensing

#### Operating Temperature

-20 °C to +50 °C (-4 °F to +122 °F)

#### Storage Temperature

-30 °C to +70 °C (-22 °F to +158 °F)

#### Sensor Protection

316 sintered stainless steel filter - 50 micron

#### Weatherproof Classification

IP66/NEMA 4X

#### Mechanical Warranty

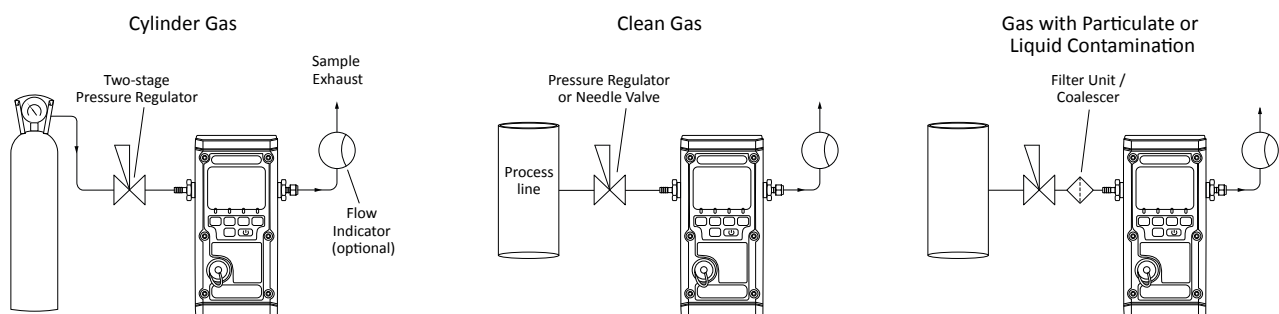
24 months in case of faulty workmanship and defective parts

#### SHAW SDHmini USER TOOL SOFTWARE

#### Data Display

Numerical and graphical

### Guide to Installation



## Ordering Information

### Model SDHmini - (X) - (X) - (X)

**Choose required range in dewpoint = X**

- P (Purple):** -100 to 0 °C dewpoint 0 - 6000 ppm(v)
- S (Silver):** -100 to -20 °C dewpoint 0 - 1000 ppm(v)
- G (Grey):** -80 to 0 °C dewpoint 0 - 6000 ppm(v)
- R (Red):** -80 to 20 °C dewpoint 0 - 1000 ppm(v)
- B (Blue):** -80 to +20 °C dewpoint 0 - 23000 ppm(v)

**SAMPLE CONNECTION = X**

- 4:** 0.25" (1/4") Swagelok SS Compression Type
- 6:** 6 mm Swagelok SS Compression Type
- 8:** 0.125" (1/8") Swagelok SS Compression Type
- F:** Fir Tree connection to suit 6 mm PTFE sample tube

**PLEASE NOTE:**

If not specified at time of order, 1 x 1/4" and 1 x Fir Tree will be supplied.

**EXAMPLE:**

To order device with range -80 °C to 0 °C dewpoint with 6 mm pipe connection, for use in UK, order as:

**Model SDHmini - G - 6 - UK**

**MAINS PLUG TYPE -**

**For Battery Charger = X**

**UK, US, EU, AU, KR, AR, IN, CN, BR, ZA** (please see diagrams below)



United Kingdom Type (UK)



United States of America Type (US)



European Union Type (EU)



Australian Type (AU)



Korea Type (KR)



Argentina Type (AR)



India Type (IN)



China Type (CN)



Brazil Type (BR)



South Africa Type (ZA)

## Related Products

**Service Kit Includes:**

- Desiccant
- Head seal kit
- Grommet
- Silicone grease
- Batteries



## Includes as Standard

- SDHmini instrument
- Anti-static carry case
- Allen Key
- USB charging cable
- Fir Tree fitting plus 1 x fittings as ordered
- AC/DC adaptor
- Calibration Certificate
- Two metres PTFE sampling hose
- Instruction manual
- Pressure calculator
- USB flash drive with Shaw SDHmini User Tool software
- Instruction Manual

