

# Model DSP-Ex

Intrinsically Safe Portable Dewpoint Hygrometer

## Features :-

- Intrinsically Safe - ATEX Ex ia IIC T3 / T4
- Overall Range -110°C to +20°C Dewpoint
- User Friendly - Simple Operation
- Portable - Fully Self Contained
- Self-Diagnostics on Start-up
- Digital Indication
- Automatic Switch Off
- Quick Connect SS Coupling
- "C" Type Disposable Batteries
- Excess of 250 Hours of Continuous Operation
- Desiccant Dry-Down Chamber For Rapid Measurements
- Selectable Engineering Units in °C, °F, ppb(v), ppm(v), ppm(w), g/m<sup>3</sup> & lb/MMSCF



**Model DSP-Ex** is a fully self-contained portable hygrometer from Alpha Moisture Systems which will deliver the most dependable moisture measurement in industrial and laboratory applications. Designed with the operator in mind, **Model DSP-Ex** is extremely easy to use and the digital *dewSMART*<sup>™</sup> technology ensures accurate and reliable readings over long periods with little or no maintenance. The incorporation of stainless steel quick connect fittings, together with the Desiccant Dry-down Chamber, allows rapid measurements which saves both time and cost.

**Model DSP-Ex** is certified intrinsically safe to Ex ia IIC T3/T4 for use in hazardous areas without the need for any additional accessories. Designed to operate at atmospheric pressure, **Model DSP-Ex** is available in a total of six different ranges, encompassing an overall range from -110°C to +20°C dewpoint, with the display selectable in various engineering units:- °C, °F, ppm(v), ppb(v), ppm(w), g/m<sup>3</sup> & lb/MMSCF. Parts per million (weight) can be programmed for gases other than those pre-programmed (Air, Ar, H<sub>2</sub>, SF<sub>6</sub>, CO<sub>2</sub> & N<sub>2</sub>) by simply inputting the molecular weight of the gas under test.

Full interchangeability of the *dewSMART*<sup>™</sup> Sensor ensures guaranteed accuracy and reliability without the need to return the whole unit back to base for calibration and setup.

**Model DSP-Ex** is supplied ready for use with batteries

installed, calibration certificate traceable to National and International Humidity standards, two metres of stainless steel braided PTFE sampling hose, instruction manual and an anti-static carrying case.

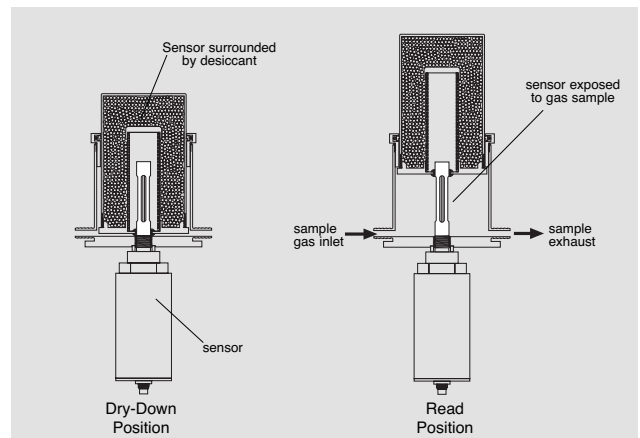


figure 1  
Desiccant Head assembly

To allow rapid spot checks it is essential that the measuring sensor is kept drier than the sample to be measured. The desiccant dry-down chamber is designed to do just this by keeping the sensor surrounded by desiccant when the instrument is not in use, only exposing it to the sample gas when taking measurements. At no stage is the sensor allowed to come into contact with ambient air.

## Alpha Moisture Systems

Alpha House, 96 City Road  
Bradford, BD8 8ES  
England



INVESTORS IN  
PEOPLE UK

Tel	+44 (0) 1274 733100
Fax	+44 (0) 1274 733200
Email	info@amsystems.co.uk
Website	www.amsystems.co.uk

# MODEL DSP-Ex - Intrinsically Safe Portable Dewpoint Hygrometer

## Specifications

### SENSOR TYPE

Model DDHS - Aluminium Oxide Ultra High Capacitance Digital Sensor

### INTRINSIC SAFETY CERTIFICATION

Code : Ex ia IIC T4 (Ta = -20°C to +37°C)  
Ex ia IIC T3 (Ta = -20°C to +50°C)

Certificate No.: Sira 02ATEX2132X



### RANGE

Six different ranges encompassing an overall range of -110°C to +20°C dewpoint (-148 to +68°F).

Corresponding ranges in ppm(v), ppb(v), ppm(w), g/m<sup>3</sup> & lb/MMSCF. Parts per million (weight) programmable for different gases.

### DISPLAY

Industrial specification, 2 x 20 Character LCD with programmable bright & dark contrast.

### DISPLAY RESOLUTION

0.1°C dewpoint / 0.1ppm

### POWER SUPPLY

9V DC - Six "C" type disposable batteries.

### BATTERY LIFE

In excess of 250 hours during continuous operation.

### ELECTRONICS ACCURACY

Better than ± 1% of range.

### WARM UP TIME

15 Seconds

### SENSOR CALIBRATION ACCURACY

Better than ±2°C dewpoint. All units supplied with certificates documenting factory calibration against known moisture levels traceable to National & International humidity Standards.

### REPEATABILITY

± 0.1°C dewpoint.

### TYPICAL RESPONSE TIME

95% of reading within 20 seconds in normal operation.

### OPERATING CONDITIONS

Temperature : -20°C to +50°C  
Humidity : 0-98% RH, Non-condensing  
Storage Temperature : -50°C to +70°C  
Operating Pressure : Atmospheric to 0.5 barg

### ELECTROMAGNETIC COMPATIBILITY (EMC)

Immunity : Complies with EN 61000-6-1:2007  
Emissions : Complies with EN 61000-6-3:2007

### FLOW RATE TO SENSOR

2 to 20 litres/minute

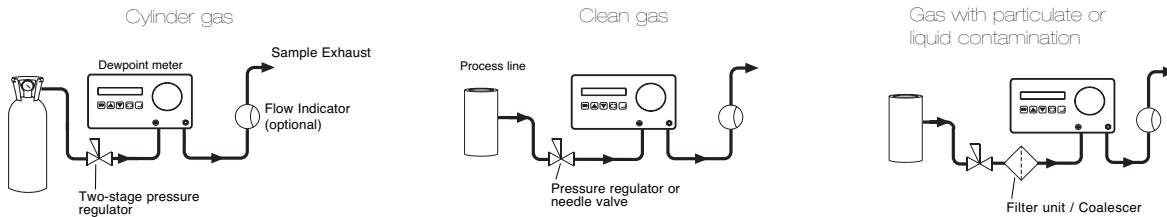
### CONNECTIONS

Swagelok quick-connect stainless steel coupling and 0.25" overall diameter compression tube fitting.

### WARRANTY

2 years from date of delivery against faulty material or workmanship.

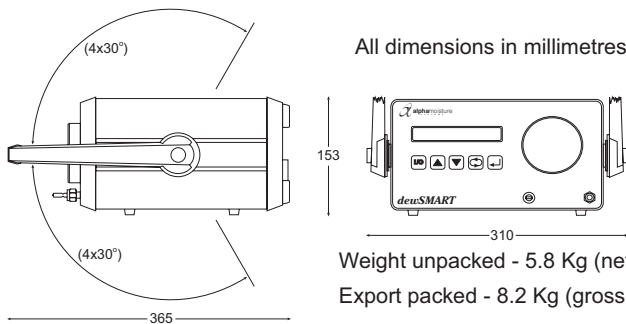
## Installation



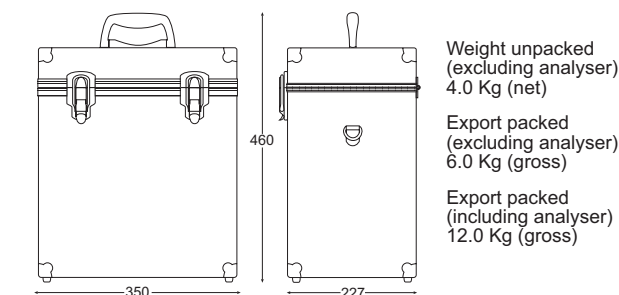
For details on additional accessories please see Accessories specification sheet

## Weights and Dimensions

### INSTRUMENT



### TRANSIT CASE (OPTIONAL)



## Corrosive Gases

The Sensor should not be exposed to corrosive gases (or corrosive contaminants in the main gas sample) as they would chemically attack the sensor and render it useless.

Examples of such gases are mercury (Hg), ammonia (NH<sub>3</sub>), chlorine (Cl<sub>2</sub>) and wet acid vapours i.e. acid vapours in gas with moisture content greater than 100ppm(v). Strong oxidising agents such as ozone (O<sub>3</sub>) should also be prevented from coming into contact with the sensor.

## Ordering Information

### INSTRUMENT

#### Model DSP-Ex-

RANGE	PL
PURPLE -110 to +20°C	PL
SILVER -110 to -20°C	SR
BLUE -80 to +20°C	BL
GREY -80 to 0°C	GY
RED -80 to -20°C	RD
YELLOW -60 to 0°C	YW
GOLD -50 to +20°C	GD
GREEN -30 to +20°C	GN

### TRANSIT CASE (OPTIONAL)

#### Model DSP-Tc

Example : If your requirement is for a dewpoint transmitter with an operating range of -80°C to -20°C dewpoint then please order as : **Model DSP-Ex-RD**

Product specification may be subject to change, without prior notice, as part of our ongoing product development programme.