Model DS2000
Single Channel Hygrometer

A complete on-line solution for continuous measurement of dewpoint in process gas and compressed air, offering powerful functionality via a simple interface.

- Advanced functionality with user-friendly design

- Accuracy ±2°C Dewpoint

- Automatic Calibration

- RS485 serial communications

- 2 Independent, fully programmable alarm relays

- Linear retransmission signal of current or voltage

- Cable Length of up to 1km to sensor

- Calibration Traceable To National & International Standards

The *dew*TEC Model DS2000 from Alpha Moisture Systems is a single channel, online hygrometer designed to accurately measure dewpoint in process gases and dry compressed air. This panel mounted DIN style dewpoint meter combines advanced digital technology with the industry leading ultra high capacitance aluminium oxide sensors - the acknowledged industry benchmark for trace moisture measurement in process gases.

The combination of advanced display electronics and full specification sensors makes this the unit of choice for a wide range applications due to it's flexibility and high configurability and ease of use through its menu driven operation.The instrument can be factory configured to order to read in °C dewpoint, °F dewpoint, ppm(V), g/m³ or lb/MMSCF .

The measured dewpoint is displayed by means of a large 5½ digit, seven segment LED display. Model DS2000 also offers two independent, fully user programmable alarm contacts and open collector outputs to provide all the versatility required for any application. The factory set, analogue, current or voltage output, that is linear with dewpoint, is available as well as RS485 serial connection with 1-99 address settings. The *dew*TEC DS2000 is a fully self-contained display system in 1/8 DIN panel mounted case providing front panel protection to IP66 (NEMA 4).

The *dew*TEC DS2000 can be supplied together with any one of a range of dedicated, ultra high capacitance, sensors incorporating automatic calibration and covering an overall range from -110ºC to +20ºC dewpoint. The sensor has been conditioned for long term stability so ensuring a long

and trouble free service life. Additionally the high sensitivity and linear output of the sensor allow up to 1km cable length between sensor and *dew*TEC DS2000 instrument. The sensor is ATEX certified for intrinsic safety so can be used in hazardous environments with a suitable Zener barrier in the safe area.

The long lasting sensing element offers excellent sensitivity, repeatability and response speed - especially on dry down. Each unit is calibrated to ±2 ºC accuracy and is supplied with a calibration certificate traceable to International Humidity Standards.

The *dew*TEC DS2000 incorporates two fully programmable alarm relays to control external devices, including process high, process low, direct acting, reverse and logical OR. The alarms can be independently set across the full operating range of the sensor with variable hysteresis for the chosen engineering unit.

The dewTEC Model DS2000 Dewpoint Hygrometer is supplied fully configured according to the customer's specifications and ready to use, with calibration certification traceable to national and international standards, instruction manual and 2 meters of connecting cable as standard.

An optional sensor holder can be ordered with the instrument. Additional sensor cable upto 1000m can be ordered separately.

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COMPANION COMPANY

INVESTORS IN PEOPLE UK

Specifications

Model DS2000 - Dewpoint Hygrometer

DISPLAY
Type: Red/green, 7-segment, 5-digit primary display, 1-digit secondary display.
Height: 18mm (0.71inches) primary display, 7mm (0.3 inches) secondary display
Annunciators: Alarm 1 and Alarm 2 status

SENSOR
Dewpoint Range: From –110°C to +20°C
Accuracy: ± 2°C over full range
Operating Temperature: –10°C to +50°C
Storage Temperature: –50°C to +70°C
Operating Humidity: 10-90% RH non-condensing
Mechanical Connections: M14x1.25mm pitch
Electrical Connection: Male coaxial plug
Approvals: CE, Atex -

HYGROMETER INPUT
Sampling Rate: 10Hz
Resolution: 14-bits
Sensor short circuit detection: Detected within two seconds. All alarms become active

TRANSISTOR OUTPUTS
Type: NPN open collector. Output 1 tied to Alarm 1. Output 2 tied to Alarm 2.

RELAY OUTPUT 1
Contact Type: Single pole, double throw
Rating: 2A resistive, 120/240V, 50/60Hz
Lifetime: >500,000 operations at rated voltage/current
Isolation: Inherent

RELAY OUTPUT 2
Contact Type: Single pole, double throw
Rating: 2A resistive, 120/240V, 50/60Hz
Lifetime: >500,000 operations at rated voltage/current
Isolation: Inherent

LINEAR (RE-TRANSMITTED) OUTPUT
(VOLTAGE OR CURRENT IS A FACTORY SET OPTION)
Ranges Available: 0-5V, 1-5V, 0-10V, 2-10V, 0-20mA and 4-20mA
Accuracy: ±0.5% max of display value
Load Impedance: 500. max for mA ranges, 500. min for voltage ranges

SERIAL COMMUNICATIONS
Type: Serial asynchronous, UART to UART
Data Format: Open ASCII; one start bit, even parity, seven data bits and one stop bit.
Physical Layer: RS485
Maximum Number of zones: 99
Baud Rate: Selectable – 1200, 2400, 4800 or 9600

PERFORMANCE
Reference Conditions
    Supply Voltage: 90 – 264V, 50Hz
    Power Consumption: 7.5VA max
Operating Conditions
    Ambient Temperature: 0°C to +55°C
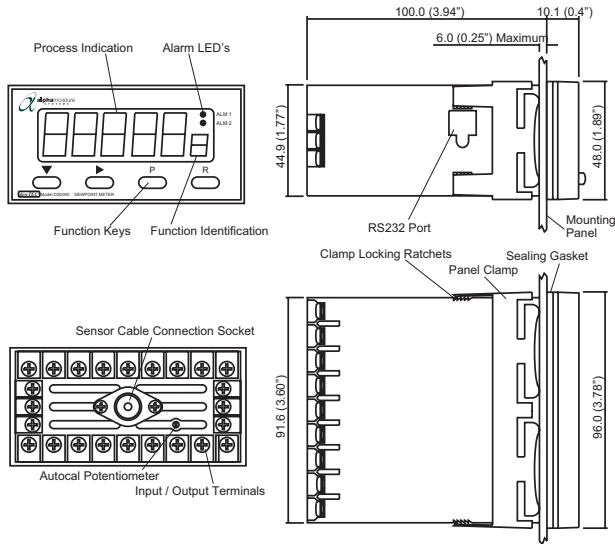   Relative Humidity: 10 – 95% non-condensing

ENVIRONMENTAL
Approvals: CE
EMC: Certified to EN61326
Safety: Complies with EN61010-1
Front Panel Seal: To IP66

PHYSICAL
Dimensions: Height – 48mm
Width – 95mm
Depth – 110mm without sensor connector.
Weight 0.21 kg max.
Mounting: Panel-mount; press-fit fixing. Panel cut out – 45mm x 92mm.
Terminals: Screw type

Dimensions

Process Indication — Alarm LED's

100.0 (3.94") — 10.1 (0.4")
6.0 (0.25") Maximum
44.9 (1.77")
48.0 (1.89")

ALM 1
ALM 2

Function Keys — Function Identification

RS232 Port

Mounting Panel

Clamp Locking Ratchets
Panel Clamp
Sealing Gasket

Sensor Cable Connection Socket

91.6 (3.60")
96.0 (3.78")

Autocal Potentiometer
Input / Output Terminals

Your Local Distributor

Ordering Information

Model DS2000- [XX] - [X] - [X] - [XX] - [XX] - [X]

RANGE = XX
SR: -110°C to -20°C (-166°F to -4°F) dewpoint
PL: -100°C to 0°C (-148°F to +32°F) dewpoint
RD: -80°C to -20°C (-112°F to +32°F) dewpoint
GY: -80°C to 0°C (-112°F to +32°F) dewpoint
BL: -80°C to +20°C (-112°F to +68°F) dewpoint

DISPLAY UNITS = X
C: °C Dewpoint
F: °F Dewpoint
V: ppm(V)
L: lb/MMSCF
G: g/m³

RETRANSMISSION OUTPUT = X
V: Voltage Output
A: Current Output

ALARM 1 CONFIGURATION = XX
HD: High Alarm, Direct action (normally de-energised relay)
HR: High Alarm, Reverse action (normally energised relay)
LD: Low Alarm, Direct action (normally de-energised relay)
LR: Low Alarm, Reverse action (normally energised relay)

ALARM 2 CONFIGURATION = XX
HD: High Alarm, Direct action (normally de-energised relay)
HR: High Alarm, Reverse action (normally energised relay)
LD: Low Alarm, Direct action (normally de-energised relay)
LR: Low Alarm, Reverse action (normally energised relay)

SENSOR HOLDER
N: None
4: 1/4" Swagelok® Stainless Steel Compression Fitting
8: 1/8" Swagelok® Stainless Steel Compression Fitting
6: 6mm Swagelok® Stainless Steel Compression Fitting

Example: To order device with range -80°C to -20°C dewpoint, with retransmission set to current output, both alarms to trip on rising dewpoint with normally de-energised relays and sensor holder with 1/4" Swagelok® fittings, order as :

Model DS2000 - RD - C - A - HD - HD - 4