Model 6020 Dewpoint Hygrometer

Single Channel Advanced On-Line Dewpoint Hygrometer

Model 6020 is a single channel, panel mounted, online hygrometer designed to accurately measure trace moisture in process gases utilising a range of dedicated, ultra high capacitance, field mountable sensors.

The system incorporates an automatic calibration (AutoCal) facility and encompasses measurement needs from -110°C to +20°C dewpoint.

The sensor has been designed and conditioned for long term stability, and together with its high sensitivity, allows use of up to 1km cable length between sensor and instrument.

Additionally, the sensor is ATEX certified for intrinsic safety so can be used in hazardous environments with a suitable Zener barrier in the safe area.

Offering full field interchangeability, each Model 6020 unit is factory calibrated with sensor to better than ±2°C accuracy and is supplied with a certificate of calibration traceable to International Humidity Standards.

There are three Hot Key front panel key functions to gain rapid access to set alarms trip points and choice of displayed engineering units. These functions can be locked to prevent unauthorised tampering.

Users may choose to view the trace moisture levels in °C dewpoint, °F dewpoint, ppm(v), ppm(w), g/m³ or lb/MMSCF on the 5 digit, seven segment LED display.

The factory calibrated, but fully configurable, analogue current output is automatically linearly correlated with all the selected engineering units.

Model 6020 contains two independent, fully user programmable alarm contacts to provide all the versatility required for any application. A digital communication channel is provided via a RS485 serial connection for remote interrogation of measured values and status of alarms and instrument.

Should the need arise to set up the instrument differently to the factory provided configuration then a highly flexible, user configurable setup menu is built in. The features within the setup menus are protected by user configurable passwords to limit access and protect against unauthorised changes.

Features

- Works with a range of sensors covering an overall range from -110°C to +20°C dewpoint (-166°F to +68°F)
- Units selectable for °C T_d, °F T_d, ppm(v), ppm(w), g/m³ or lb/MMSCF
- System accuracy better than ±2°C dewpoint equivalent
- Calibrations traceable to International Humidity Standards
- AutoCal calibration adjustment to maintain accuracy between laboratory calibrations
- On board pressure dewpoint calculator, including data for Natural Gas
- Molecular mass pre-loaded for ppm(w) in common gases, other gases can be entered
- Two fully programmable alarms with 10A relay contacts and status LEDs
- An analogue current output linear and range configurable for selected units
- RS485 port for digital output of measured value
- Large, easy to read, 5-digit LED display
- Hot Key functions for rapid access to set alarms and units, can be locked to prevent tamper
- Ex certified sensors for Hazardous Area use (via Zener barrier in Safe Area) <Ex>
- Sensor cable length can be up to 1 km

Specifications Model 6020

DISPLAY

Type: Red 7-segment 5-digit primary display, and secondary display.

Height: 14mm (0.71inches) primary display, 7mm (0.3 inches) secondary display.

Annunciators: Alarm 1 and Alarm 2 status LEDS.

SENSOR

Standard Dewpoint Ranges

Available: Various between –110°C to +20°C (1.6ppb(v) to 23,000ppm(v))

Accuracy: Better than ± 2°C over full range

Operating Temperature: –20°C to +50°C

Storage Temperature: –50°C to +70°C

Operating Humidity: 0-90% RH non-condensing

Mechanical Connections: M14 x 1.25mm pitch

Electrical Connection: Standard male coaxial plug to sensor with BNC coax connection to display.

Approvals: CE certified.

RELAY OUTPUT 1 AND 2

Contact Type: Single pole, changeover (SPCO)

Rating: 10A resistive, 120/240V, 50/60Hz

Lifetime: >100,000 operations at rated voltage/current

Isolation: 1000 Vrms

LINEAR (RE-TRANSMITTED) OUTPUT

Ranges Available: 0-20mA and 4-20mA

Accuracy: ±0.5% max of display value

Load Impedance: 500Ω max

LOGGING SOFTWARE

Type: See Manual 2062 for full specifications.

SERIAL COMMUNICATIONS

Type: Serial asynchronous, UART

Data Format: Open; one start bit, even parity, seven data bits and one stop bit.

Physical Layer: RS485.

Maximum No. of addresses: 99.

Baud Rate: Selectable – 1200, 2400, 4800 or 9600.

ENVIRONMENTAL

Approvals: CE

EMC: Certified to BS EN61326-1

Safety: Complies with BS EN 61010-1

Front Panel Seal: To IP54

PHYSICAL (CONTROL UNIT)

Reference Conditions

Supply Voltage: 90 – 250V, 50/60Hz or 24Vdc

Power Consumption: AC=10VA/DC=4VA max

Operating Conditions

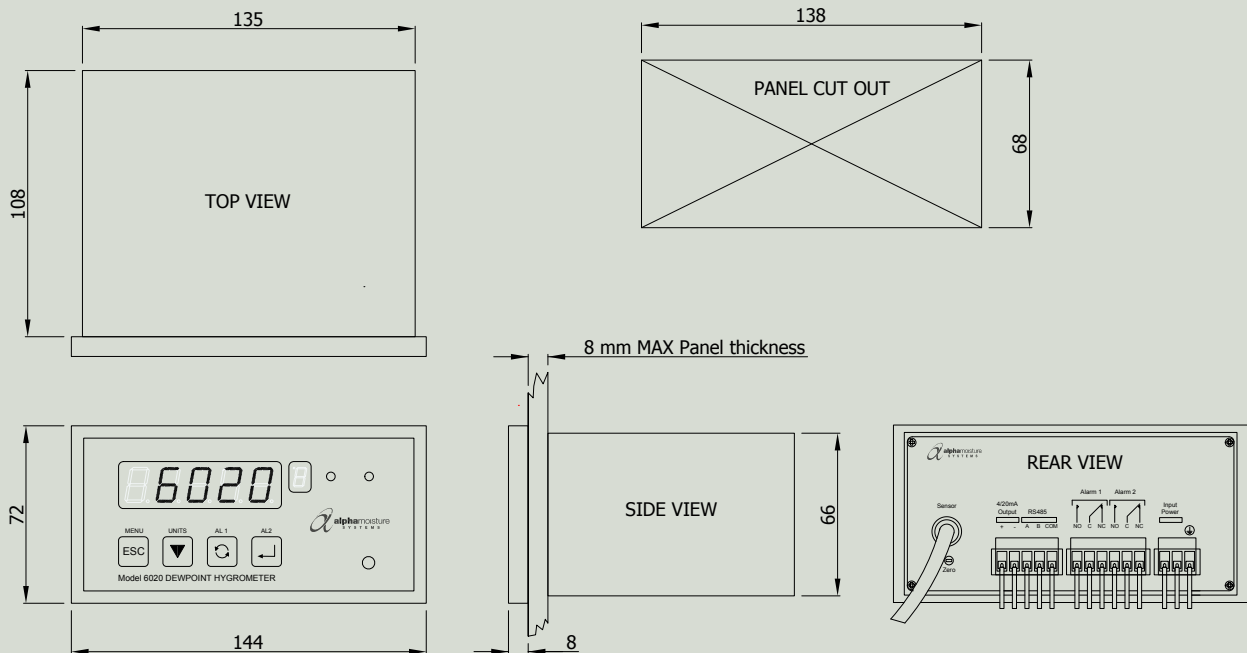**Temperature:** -20°C to 60°C

Relative Humidity: 0-95% non-condensing

Dimensions: **Height** – 66mm, **Width** – 135mm, **Depth** – 108mm without sensor connector. See below drawing.

Weight: 0.47 kg max.

Mounting: Panel-mount; press-fit fixing.

Panel cut out size: 68mm x 138mm.

Terminals: Screw type

TOP VIEW

PANEL CUT OUT

135 · 108 · 138 · 68

8 mm MAX Panel thickness

SIDE VIEW · 66 · 72 · 144 · 8

REAR VIEW

Model 6020 DEWPOINT HYGROMETER

Logging Information

Model 6020 External Logger Software v1.

- Easy install using Install Wizard from CD
- Multi function graph tools
- PC specification: PC should be running , WindowsXP®, Windows Vista®, Windows 7® & Windows 10® (all 32 bit compatible). For 64 bit versions please contact your distributor.
- Minimum screen resolution of 1024 x 768 pixels.
- Kit components include:-
  CD installation disk + Manual
  USB to USB cable
  Male 9 way 'D' type on USB - RS485 Converter unit.
Cable from Display Unit to RS485 connection is not included*

* When placing order indicate length of cable, example: 3 meters.

Screen

How to Order

Model 6020 + [XX] + [XX] + [X]m + [X/X] + [X]

Range   Type   Cable   Holder   Logging
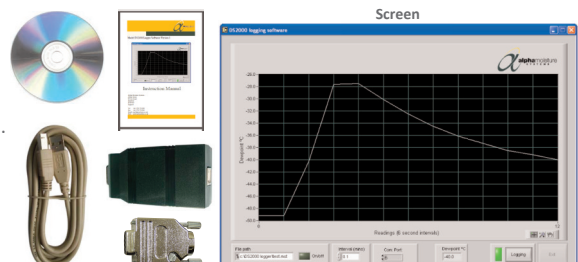
Select a Standard Range Below

SILVER	-110 to -20°C	(-166°F to -4°F)	SR
PURPLE	-100 to +0°C	(-148°F to +32°F)	PL
RED	-80 to -20°C	(-112°F to -4°F)	RD
GREY	-80 to 0°C	(-112°F to +32°F)	GY
YELLOW	-60 to 0°C	(-76°F to +32°F)	YE
BLUE	-80 to +20°C	(-112°F to +68°F)	BL

Select Power Type

AC
DC

Select a Longer Cable (optional)

–
3
4
5
10
12
15
25

Note: Model 6020 is supplied with 2 metres of Coaxial Sensor connecting cable with BNC connection to display as standard. For longer cables specify here.

Other lengths are available - please specify.

Select a Sensor Holder (optional)

| No Sensor Holder needed	–
Sensor Holder No Fittings needed (Note: Ports are 1/8" NPT)	0/0
With 1/4" Swagelok® Stainless Steel Compression Fittings	4/4
With 1/8" Swagelok® Stainless Steel Compression Fittings	8/8
With 6mm Swagelok® Stainless Steel Compression Fittings	6/6

Yes
No

Ordering Example: To order **Model 6020** with a range of **-80°C to 0°C dewpoint**, with AC power and 5 metres connecting cable and sensor holder with 1/4" Swagelok® fittings the order would look like this: **Model 6020 - GY - AC - 5m - 4/4**
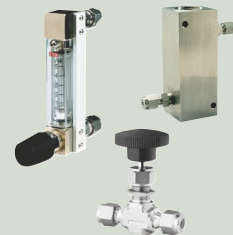
RELATED PRODUCTS

Basic Sample Systems
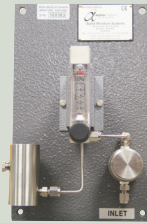
Model SS-B Built for multiple applications

Made to Order Sample Systems

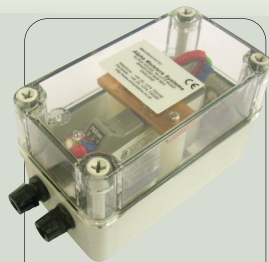**Sample Systems** for Ideal Gases, Natural Gas and Aggressive Gases

Large Range of Accessories

High quality components that are built to last. See our website for more.

See also our websites **www.amsystems.co.uk** or **www.dew-point.com** for a range of Dewpoint Sample Systems to suit hazardous and non-hazardous applications.

Zener Barriers for Ex Environments
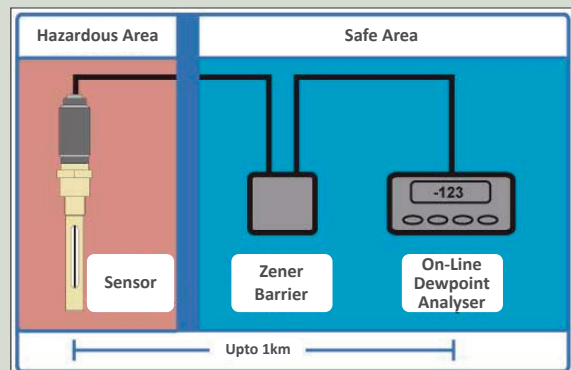
The Zener Barrier Unit comes in a custom enclosure. A Zener Barrier (shunt diode safety barrier) should be used when installing the sensor in a hazardous area.

The Model AZB is a DIN rail mounting zener barrier for installation in existing systems. The Model AZB-C includes a customer enclosure for stand alone installations.

The connection from the moisture sensor to the Zener Barrier is via low loss coaxial cable. The Zener Barrier can also be supplied without the enclosure for direct installation into an existing bus bar system.

To the right is a simple drawing highlighting the location of a Zener Barrier Unit or an Isolator.

Model AZB-C
Shown here is used for stand alone installations.

Order Model AZB for DIN rail applications.

Hazardous Area	Safe Area
Sensor	Zener Barrier / On-Line Dewpoint Analyser

Upto 1km

-123

1930 Model 6020 pd270616-Iss-6

CERTIFICATE No. FM35600
BS EN ISO 9001:2008

Institute of Measurement and Control
Companion Company

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