

ADG400

Advanced Dew-Point Generator

The ADG400 is designed for use as part of a hygrometry calibration system. It is capable of repeatable generation of dew points across a range of $-80\text{ }^{\circ}\text{C}$... $+20\text{ }^{\circ}\text{C}$, when used in conjunction with the Michell Instruments PSD2 pressure swing dryer.

The generation technique is based on the volumetric mixing of dry and wet gases. It gives the fastest response when changing between set points in comparison to other dew-point generator technologies (such as two-temperature, two-pressure or a combination of both).



Highlights

- Full-color touch-screen HMI
- 11-point factory programmed dew-point setpoint table from $-80\text{ }^{\circ}\text{C}$ to $+20\text{ }^{\circ}\text{C}$ at $10\text{ }^{\circ}\text{C}$ intervals
- 13-point user programmable dew-point setpoint table
- 3 programmable 13-point automatic calibration profiles with customizable timings
- Change set points using serial commands via built-in USB port
- Remote Access mode allows HMI to be operated using a connected PC
- Temperature-controlled enclosure to ensure output stability and repeatability

Powerful user-friendly HMI

The ADG400 features a full color touchscreen, making setup and operation quick and simple. The main screen shows status and diagnostic information, and allows Manual, Profile or Remote modes to be selected and set-points changed at the touch of a button. 11 factory-programmed set points at $10\text{ }^{\circ}\text{C}$ intervals enable standard calibrations to be carried out quickly and easily, while 13 user-customizable set points enable intermediate points to be generated based on specific calibration requirements. The built-in set-point editor gives complete control over the output to the user.

Remote control and operation

Remote mode allows the ADG400 to accept serial commands over the USB port to change set points, allowing the dew-point generator to be completely integrated with a customer's own software calibration system. In addition, the HMI can be mirrored on a PC via the USB port, which offers another flexible option for remote operation, for instance over a remote desktop connection.

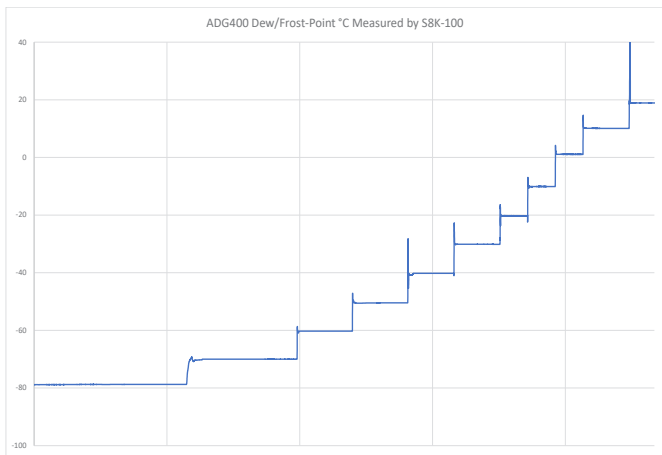
Save time and reduce costs with unattended calibrations

In Profile mode, unattended calibrations are made possible when the ADG400 is used in conjunction with a Michell S8000 RS or S8K -100 reference chilled mirror hygrometer. A built-in profile editor allows timings to be customized, and set points from either the factory or user tables can be selected as desired. The time and cost-saving benefits are obvious, as calibrations can be run overnight or during the day without user intervention.

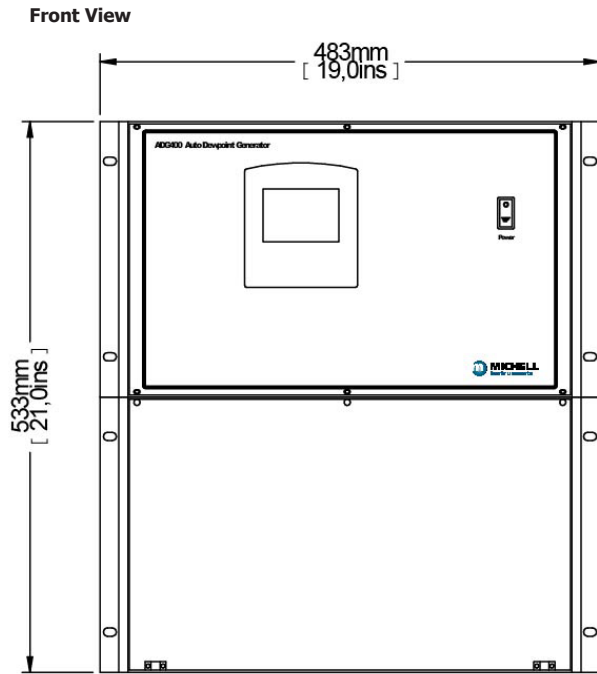
Operating principle

The first mixing stage in the ADG400 uses a parallel configuration of high-precision mass-flow controllers to precisely control dry and saturated air flow rates. This stage enables the generation of dew points from $+20\text{ }^{\circ}\text{C}$ to $-30\text{ }^{\circ}\text{C}$. The second mixing stage uses an additional two mass-flow controllers to dilute the output of the first stage with additional air from the dryer. This allows dew points from $-40\text{ }^{\circ}\text{C}$ to $-80\text{ }^{\circ}\text{C}$ to be generated.

Technical Specifications	
Performance	
Output Range	-80 °C...+20 °C dew point
Output Stability	< 0.05 °C
Repeatability	0.5 °C
HMI	Full-color touch screen
Set Points	11-point factory setup set-point table @ 10 °C intervals. 13-point user configurable set-point table
Operating Modes	Manual, Timed Profile, Remote Command
Electrical Specifications	
Digital Communications	USB (Virtual Serial Port) for remote operation of HMI via a PC, or changing set points via remote commands
Power Supply	IEC Socket 80...264 V AC (47...63 Hz) or 113...370 V DC
Power Consumption	400 VA Max.
Operating Specifications	
Operating Temperature	23 °C ±3 °C (73.4 °F ±5.4 °F)
Storage Temperature	5 °C...50 °C (41 °F...122 °F)
Gas Input Requirements	Compressed air from PSD2 Pressure Swing Dryer, set up with ADG400 as matched pair
Gas Input Pressure	2.0 barg (29.0 psig)
Gas Input Flow Rate	7 NI/min
Gas Input Moisture Content	< 0.4 ppm _v
Gas Output Flow Rate	5 NI/min from -80 °C...-10 °C frost point, 4 NI/min at 1 °C decreasing to 1 NI/min at +20 °C dew point
Mechanical Specifications	
Enclosure	Painted aluminum
Dimensions	19" Subrack, 12U Height, ~360 mm Depth
Filtration	Inlet particulate filter
Gas Connections	6 mm Swagelok® Tube
Weight	23 kg



ADG400 automatic calibration profile measured by an S8K -100 chilled mirror reference instrument



Michell Instruments adopts a continuous development programme which sometimes necessitates specification changes without notice.
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