

m

HG-1

## Humidity Calibrator

From the Calibration Range

A low-cost, easy to use and fully integrated system for the calibration of dew-point and relative humidity sensors from 2 to 90 % relative humidity, -30 to +20 °C dew point



*HG-1  
Humidity Calibrator*

### Features

- Totally portable
- Easy to use
- Range 2 to 90 % rh, -30 to +20 °C dp
- Traceable to national standards
- Integrated cooled mirror reference hygrometer\*
- Accuracy  $\pm 0.2$  °C dew point

\* See separate datasheet for details

### Importance of Calibration

Calibration integrity in the field of humidity has never been more important than today. Product quality, process effectiveness, system maintenance and even human safety are all dependent on the knowledge that humidity is measured correctly - whether you are using low cost relative humidity probes to monitor manufacturing or storage facilities, or providing a high level trace moisture calibration service to a nationally accredited level. Our history of traceability goes back to 1982 when our systems were first compared with the NIST standard in Washington USA, and to 1986 when we became the first laboratory to be granted accreditation by the National Physical Laboratory, London under the United Kingdom Accreditation Service (UKAS). UKAS is the United Kingdom member of European Co-operation on Accreditation (EA), the International Laboratory Accreditation Cooperation (ILAC) and the International Accreditation Forum (IAF).

### Principle of Operation

Operation of the HG-1 Humidity Calibrator is based on a simple yet reliable principle. A source of dry air is split into two streams, one of which is humidified by bubbling it through a water saturator. The two air streams are then volumetrically mixed to produce a resultant airflow of variable humidity dependent upon the mixing ratio selected on the HG-1's front panel-mounted flowmeters.

The HG-1 can be customised to provide integral air dryer, pressure control, external dry air feed, integral cooled mirror reference dew point measurement and even a temperature controlled humidity chamber. Any combination of these options can be selected to produce an HG-1 Humidity Calibrator that meets your requirements exactly.

Maintenance of the HG-1 is simple too. When saturated, the desiccant colour changes from blue to pink indicating the need to re-generate, by heating in an oven. Saturator water level can also be monitored from the rear of the unit and an easy top-up arrangement is provided. No other regular maintenance is necessary.

### Easy to Use and Fully Portable

The HG-1 Humidity Calibrator offers truly portable, local calibration of humidity sensors and instruments, backed up by traceability to NPL and NIST Humidity Standards. Michell's long history in providing humidity calibration systems, coupled with the integrity associated with being the only humidity calibration system manufacturer with UKAS accreditation, makes the HG-1 an ideal choice. The integrated design of the HG-1, requiring only a suitable mains power source, means that it can be used almost anywhere - making it an ideal laboratory or field calibrator.

### Fast Response and High Accuracy

The unique design of the HG-1 makes it extremely fast to respond and therefore a huge benefit when a large number of humidity sensors need to be calibrated. Typically, the chamber will respond from wet to dry (90 to 2 % rh) in less than ten minutes - often faster than the humidity sensors it is used to calibrate! The integrated Optidew Dewpointmeter provides the accuracy and traceability of the calibration. Typical accuracy is  $\pm 0.2$  °C dew point and, with zero drift the whole unit only needs periodic re-certification to maintain traceability to International Standards.

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## Flexible, Modular Design

We know that you want a calibrator to be perfectly suited to your own needs. That's why we have designed the HG-1 in a modular way, so that various options and variants can be easily incorporated.

The standard HG-1 includes an integrated air pump and single column, indicating re-chargeable desiccant cartridge. In single-pass mode this arrangement will give days of operation at a minimum dew point of below  $-30\text{ }^{\circ}\text{C}$ . The HG-1 also has the facility to input dry air or calibration gas, such as bottled nitrogen, to boost its low-end capability down as low as  $-40\text{ }^{\circ}\text{C}$  dew point. The integrated test chamber can accommodate up to six humidity sensors simultaneously. The Optidew reference sensor is also located within the chamber. It is very important that the cooled mirror dew-point hygrometer reading be used as the reference value. This is the calibrated device - the generator setting values are only approximate and will vary depending on exact operating conditions.

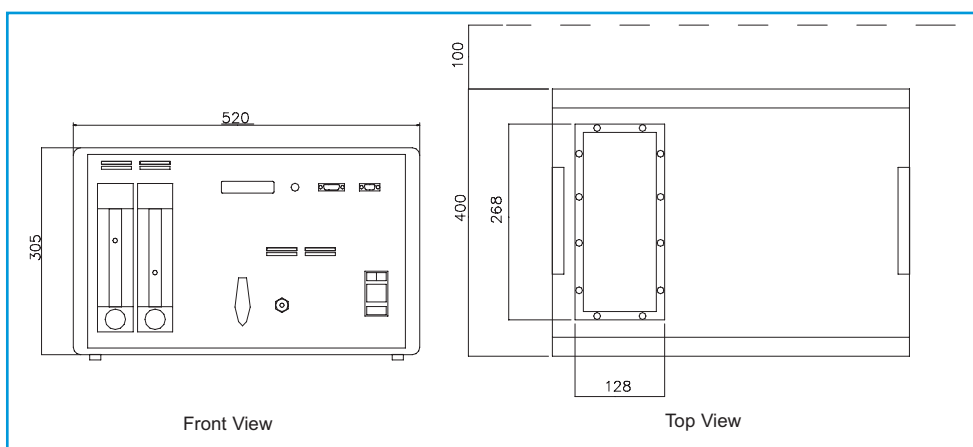
As an alternative to the integrated calibration chamber, the HG-1 can be supplied with only a gas-outlet feed to supply calibration air to an external sensor or system. Optionally, the HG-1 can also be supplied with a separate re-circulating temperature control bath to allow humidity calibrations to be performed at temperatures other than the prevailing ambient.

From the Calibration Range

## Technical Specifications

Calibration Range	2 to 90% rh at room ambient temperature ( $-30$ to $+20\text{ }^{\circ}\text{C}$ dew point)
Accuracy	Typically $\pm 2\%$ of reading (% relative humidity), $0.2\text{ }^{\circ}\text{C}$ dew point, $0.1\text{ }^{\circ}\text{C}$ ambient temperature (with Optidew reference hygrometer)
Calibration	Through certified calibration of integrated Traceability Optidew reference hygrometer, to NPL and NIST
Operating Temp	$10$ to $35\text{ }^{\circ}\text{C}$ ambient (note - temperature control of the measurement chamber can be specified as an option).
Power	110 V or 240 V, 50 - 60 Hz, 60 VA
Calibration chamber	Steel with gasket seal, 120W x 120H x 250D
Overall dimensions	Painted aluminium case, 520W x 320H x 400D
Weight	20kg approx

## Dimensions



Dimensions mm

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