



# HG-101

## HIGH ACCURACY HUMIDITY CALIBRATOR



### RELATIVE HUMIDITY FROM 5 TO 95 %RH

- . Simple and fast operation up to 50 °C
- . Stability 0.2 %rh and temperature homogeneity in the test chamber 0.1 °C



### PATENTED RDSA TECHNOLOGY

- . RDSa is a unique and patented rotary flow mixing system for controlling %rh
- . Fast stabilization and response. Quiet operation



### REFERENCE HYGROMETER

- . Ready for MBW 473 chilled mirror integration
- . ISO17025 calibrated control rh sensor



### ECONOMIC

- . Very low operating cost, low maintenance.
- . Regenerative desiccant



### USB COMPATIBLE

- . Power and control through USB, PC & Android softwares included
- . Ability to program automated sequences (values, dwell times, ramps)



### MODULAR AND FLEXIBLE

- . Interchangeable probe ports and test cells to fit most types of instrument
- . Calibration of up to 7 sensors simultaneously

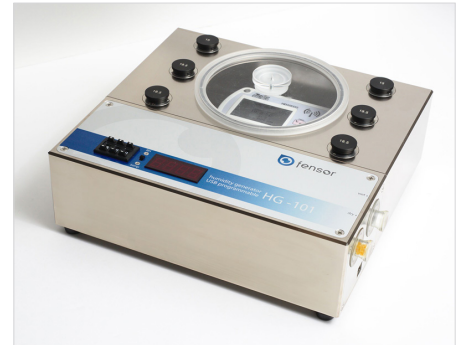


### PORTABLE

- . Compact and easily transportable for use on-site
- . Battery operation with standard USB power modules



## HG-101 HIGH ACURACY HUMIDITY CALIBRATOR



### FOR ALL TYPES OF HYGROMETERS

The HG-101 allows simple and rapid realization of relative humidity calibration of sensors, probes, loggers and recorders from any manufacturer.

Interchangeable probe ports are available to fit most types of instrument and the measuring chamber is replaceable allowing Metrologists validate most types of measurement equipment.

The standard probe test cell has 7 ports for probes up to 30mm in diameter. Test cells with up to 7 probe ports and customized solutions to suit different instrument types such as loggers with integrated sensors are available.

### EASY TO OPERATE, STABLE MEASUREMENT, FAST RESPONSE TIME

Once the instruments under test are inserted in to the test cell, the operator just needs to set the required humidity value using the panel mounted switches or by software through the USB interface. Free apps for Android and Windows.

The HG-101 is very fast to reach a target RH value in typically 30 seconds thanks to the innovative RDSa mixing system. Stability is better than  $\pm 0.2$  over the range 10 to 90 %rh. Over the full 5 to 95 %rh range, extended stabilisation time is necessary to reach the best performance.

The HG-101 humidity generator does not use a liquid water reservoir, so it can be used in different positions depending on the requirements of the calibration. Similarly, no particular care (emptying, cleaning, drying) is required between uses or during transportation.

### LOW RH UNCERTAINTY UP 50°C

Humidity calibration can be performed over a temperature range of 5 to 50 °C by placing the HG101 in a climatic chamber. Set points can be changed remotely through the HG101s USB interface and control software installed on a PC, tablet or smartphone.

The HG-101 is designed to be used within a thermostatically controlled chamber or enclosure, without compromising the homogeneity of the temperature inside the HG101 measuring chamber. To do this, the materials used for the calibrator were selected to promote thermal diffusivity and low hygroscopicity.

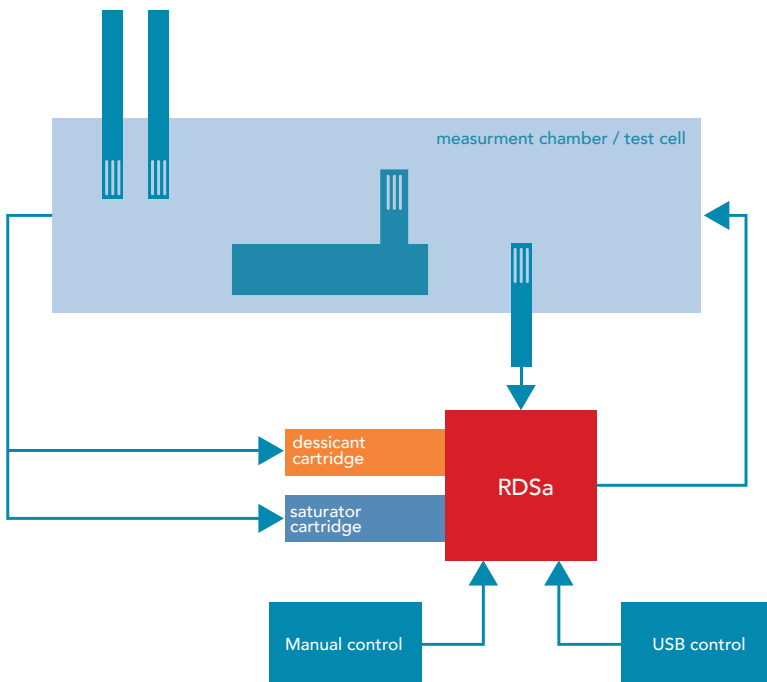
To reduce uncertainty and external influences, the structure is configured to minimize cold spots, promote heat distribution and ensure consistency in temperature. As relative humidity is so temperature dependent, this means the temperature related contributions to RH calibration uncertainty are minimised.



## USB - SOFTWARE

Thanks to the USB port and the software for Android and Windows, it is possible to automate calibration, reducing operator time.

With the software's programmer function, the user has the possibility to create sequences containing up to 10 points, with variable dwell times.



## REFERENCE CHILLED MIRROR HYGROMETER

The HG-101 humidity calibrator controls to the user set point with a precisely adjusted RH probe supplied with a COFRAC or SCS traceable calibration certificate. However, to achieve the lowest possible uncertainty, Metrologists would use a transfer standard reference for verification of the generated humidity and temperature.

The HG101 has been configured to work with the MBW 473-RP2 dew point mirror. The RP2 dew point measuring head fits directly in to 30mm test cell ports, and the cable mounted Pt100 temperature probe can be positioned according to the user's preference using specific adapters.

MBW Gecko software is compatible with the HG-101 and 473. It provides data display, graphing and acquisition, as well as the functionality to change set points and run profiles. Gecko can also be used to apply corrections from calibration certificates issued by ISO17025 accredited laboratories such as COFRAC, SCS, DKD, UKAS, ACCREDIA etc. Gecko is included within the supply of the 473.

## PATENTED RDSA TECHNOLOGY

The RDSa rotary dilution system is specifically developed and patented to allow the relative humidity generator HG-101 to control the relative humidity with high speed and high stability.

Indeed, the response time for a ramp from 20 to 80% is performed in 30 seconds.

Reaches the level, the stability of the measurement is better than 0.2% RH.

RDSA performs the dilution in a closed circulation loop, which contributes to the excellent stability obtained but also to ensure low consumption of desiccant silica gel and thus a high degree of autonomy.

Furthermore, the system RDSA not involving pump, its operation is completely silent, a very appreciable peculiarity in the laboratory.

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## LOW MAINTENANCE

The HG-101 calibrator RDSa humidity control system includes desiccant and humidifying cartridges that are easily removed and simple for the user to maintain, even whilst generating humidity. When performance diminishes, the user can replace the desiccant material and apply distilled water to the wetted media in the HG-101 humidifier.

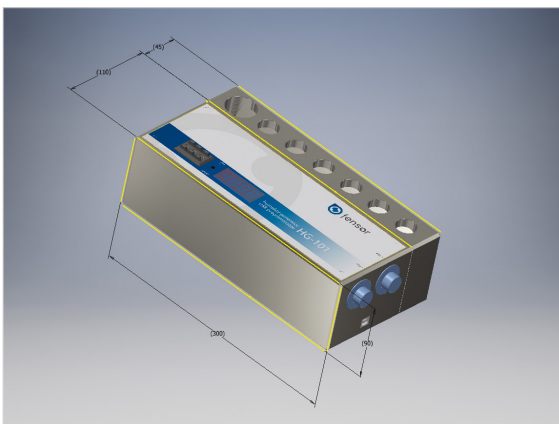
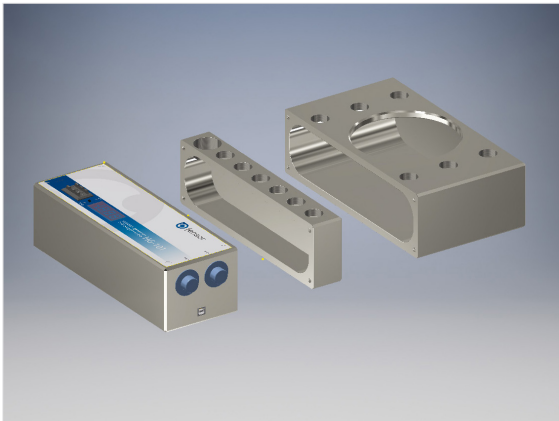
HG-101 generator operates in a closed loop, so it is particularly economical in terms of desiccant and distilled water consumption. Users can recycle the desiccant by regeneration in an oven at 130 °C. Internal cleaning when needed can be easily performed. These factors mean the HG-101 has extremely low operating costs.

## TRANSPORTABLE

With a compact size and robust design, the HG101 is ideal for use on site. Also a rechargeable battery cell allows 48 hours of autonomous operation.

The RDSa flow generation system does not need liquid water, so the HG101 can be used in various positions as required in on-site calibrations.

No special procedures in terms of emptying, drying or cleaning are needed between use or during transportation so the system is ready for immediate use once powered up.



## TECHNICAL SPECIFICATIONS

### METROLOGICAL FEATURES

Humidity generation range	5 to 95% rh
Response time	30 seconds for a set point from 20 to 80 %rh
Control stability	≤ 0.2 %rh
Temperature homogeneity	≤ 0.10 °C (at +21 °C)
Operating temperature	+5 to +50°C
Operating principle	RDSa (Rotary Dilution System), unique patented technology

### GENERAL FEATURES

Set point change	Manually or through USB interface
USB interface	Used for power supply, external battery pack, control via PC, tablet, smartphone (Android & Windows)
Test cells (measuring chamber)	interchangeable
Input ports probe	HG-101-CH7 : 7 ports, diameters from 10 to 24 mm (adapters) other available configurations (see order code document)
Display	LED high contrast, 14 mm digit height
Power supply	5 VDC 60mA (100 to 240 VAC, 50/60 Hz adapter included)
Power consumption	< 0,3 W
Dimensions	300 x 155 x 100 mm (in transport case 450 x 300 x 200 mm)
Poids	4,9 Kg

