HYGROGEN2

AIR
CHIP

TECHNOLOGY

REFERENCE GENERATOR FOR CALIBRATION OF HUMIDITY AND TEMPERATURE INSTRUMENTS

BASED ON AIRCHIP DIGITAL TECHNOLOGY

TRANSPORTABLE HUMIDITY AND TEMPERATURE CALIBRATION LABORATORY

- Generates stable humidity and temperature conditions
- Calibration solution for the laboratory and on-site
- Humidity equilibrium typically in 5 minutes
- Calibrate up to 6 probes simultaneously
- «AutoCal» automated calibration (optional)
- Integrated touch screen PC with 9 USB ports
- Integrated FDA 21 CFR part 11 compliant Rotronic HW4 software

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MEASUREMENT SOLUTIONS

HYGROGEN2:
THE BENCHMARK FOR HUMIDITY CALIBRATION

Since its launch, HygroGen has defined the standard for portable humidity and temperature calibration systems. Hundreds of users worldwide have identified that this tool for rapid generation of stable temperature and humidity conditions can save significant amounts of time in performing calibrations of all types of humidity instruments. The HygroGen2 further satisfies the stringent demands of quality and compliance regulations with its ability to calibrate instruments over their full working range, and is embraced throughout the pharmaceutical industry as the leading instrument in its class. Being portable and robust, it can be set up at the installation location allowing for complete system qualification.

HygroGen2

Standard Features:

- HygroGen2 has a temperature control range of 0...60 °C and humidity range of 5...95 %RH. Temperature gradients are less than 0.1 °C across the full range and it has a temperature control stability at equilibrium better than ± 0.02 °C with humidity control stability better than 0.1 %RH. Speed of repsonse is such that equilibrium is established typically within 5 minutes.

- External heated sample points for connection of a chilled mirror reference hygrometer are standard. This allows the user to precisely verify the calibration of the HygroClip control probe at any time, or to reduce overall calibration uncertainty.

- Touch screen interface
- Easy to use
- LC display

- Humidity generation is by a piezoelectric element with digital PID control allowing optimized response across the temperature range. At equilibrium rh control is better than or equal to ±0.1 %RH.

- Integrated USB ports for the connection of peripheral devices such as a mouse and keyboard. Rotronic probes with USB cables can also be connected.

- The HygroGen2 manual includes an uncertainty framework to allow users to derive their own calibration uncertainty.

- User programmable set-points allow automatic changes of temperature and humidity set-points with pre-defined dwell times. Once set, this ramp/soak function enables instruments to be calibrated at multiple points without further user intervention.

- Integrated FDA 21 CFR part 11 compliant Rotronic HW4-P data acquisition and calibration software provides automatic collection of measured values and digital adjustment of compatible probes.

AutoCal+ / Dew Point Mirror MBW 473

New HygroGen2 software version 2.1 further extends the utility of the instrument, with the ability to use MBW chilled mirror hygrometers as the AutoCal calibration reference.
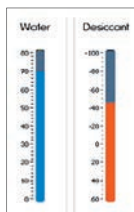
Rotronic has worked with MBW - the world's leading chilled mirror manufacturer - to integrate their products with the HygroGen2. Particularly well suited is the MBW 473 Dew Point Mirror, whose RP2 measuring head is designed to be directly inserted into the working volume of the HygroGen2, and works across its full range (Not part of the setup. To be purchased separately).

Remote Control

Remote Control allows a larger screen interface to be used via another device, and is cross platform, allowing access from Windows, Mac, iOS, and Android.

- The internal water reservoir now incorporates on-screen level monitoring so the user can monitor and control the water level for the duration of a calibration.

- An integrated UV sterilisation system within the water reservoir eliminates any issues caused by waterborne contaminants.

- A new door design with increased insulation and secure locking mechanism. Flexible probe insertion ports with sleeves for almost any probe diameter are available.

- Dry air is supplied from an internal desiccant cell that has integrated condition monitoring so the user can identify when the desiccant needs to be regenerated or replaced.
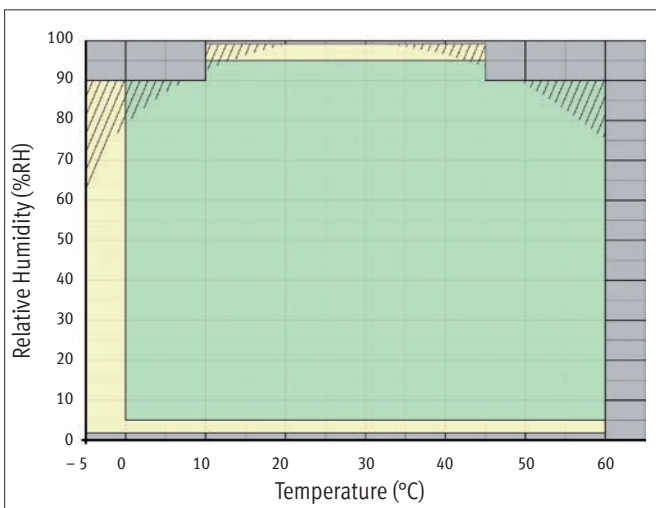
GET EVEN MORE OUT OF YOUR HYGROGEN2 WITH THE LATEST ENHANCED FEATURES

For 10 years Rotronic has led the temperature and humidity calibration market with its HygroGen series of instruments. Continuous development and improvement led to the introduction of the HygroGen2 in 2009, the flagship instrument which is universally acknowledged to be the world's leading portable temperature and humidity calibrator. Its speed to set point changes, stability and minimal temperature gradients set it apart as by far and away the leader in its class.

Range Extensions and AutoCal

In the last 2 years, both the instrument's temperature and humidity ranges have been extended, and automation added with AutoCal. Users are able to pre-program a series of desired set points, and leave the instrument to automatically calibrate and adjust the whole range of Rotronic HygroClip2 RH probes, generating a customisable PDF certificate detailing all the calibration data.
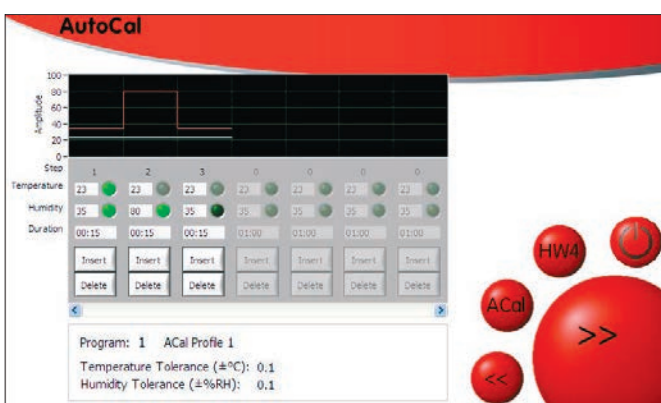
These Enhanced Features are available to all HygroGen2 users, by the application of a simple unlock code, which can be purchased from your Rotronic dealer.

Standard operating range
Optional upgraded operating range
Condensation possible in chamber (dependent on ambient)

Range Extension

- Temperature range extension -5...60 °C
  (Standard 0...60 °C)
- Humidity range extension 2...99 %RH
  (Standard 5...95 %RH)

AutoCal

Automated calibration of up to 6 HC2 probes connected via AC3001 USB adaptor:
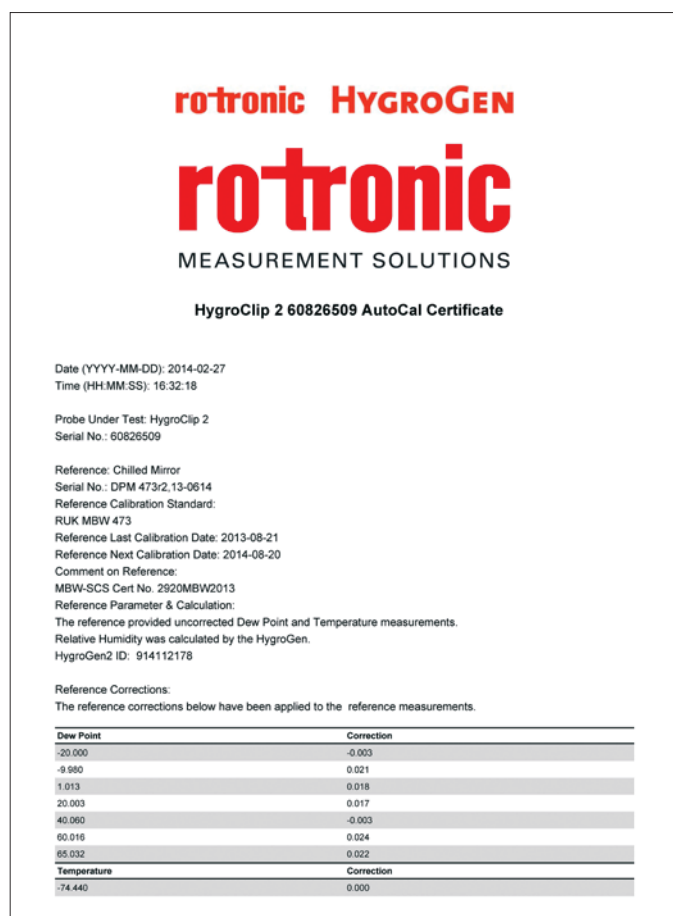- Option to automatically adjust 1 temperature and 10 humidity points
- Creates PDF calibration certificate for each probe under test
- 20 user programs (up to 200 set points per program)

GET EVEN MORE OUT OF YOUR HYGROGEN2 WITH THE LATEST ENHANCED FEATURES

NEW Remote Control

Version 2.1 further enhances the user experience with the ability to connect the HygroGen2 to your network LAN and operate it from remote locations, including – with appropriate WIFI networking - using mobile devices. Using open standard VNC protocol, multiple HygroGen2s can be controlled and monitored from a single PC as long as network access is permitted. The remote control of HygroGen2 is possible with Windows, Mac, iOS and Android.

In order to offer further support for the HygroGen2 unit, the remote control funtion allows Rotronic support personal to log into the device and check the HygroGen2 settings and trouble shoot any issues that may possibly occur.

NEW
Further Enhanced: Lower Measurement Uncertainties with AutoCal+

New HygroGen2 software version 2.1 further extends the utility of the generator, with the ability to use MBW chilled mirror hygrometers as the AutoCal calibration reference. MBW Instruments are widely acknowledged as the definitive humidity calibration reference, and are used as the default transfer standard all the way up to the highest level of measurement – National Metrology Institutes, including NPL, NIST, PTB, NML. With the ability to add an external reference with stated accuracy of 0.1 °C dew point, though in reality considerably better, AutoCal+ is able to achieve measurement uncertainty of less than 0.7 %RH at ambient conditions.

TECHNICAL INFORMATION

HygroGen2 Specification	Relative Humidity	Temperature
Control		
Sensor	HygroClip2-S, capacitive RH sensor, Pt100 temperature sensor	
Type	Embedded multiple input PID controller, touch screen graphical user interface	
Range	5…95 %RH (2…99 %RH with range extension option)	0…60 °C (-5…60 °C with range extension option)
Stability at equilibrium	‹0.1 %RH	‹0.02 °C
Chamber temperature gradients	‹0.05 °C (15…50 °C), ‹0.1 °C (5…60 °C), ±0.15 °C at 0 °C	
Generation method	Mixed flow with desiccant dryer cell and piezoelectric humidifier	Peltier thermoelectric element with radial chamber mixing fan
Performance		
Response time	3 mins (35 to 80 %RH change)	5 mins (20 to 30 °C change)
Control probe specification	±0.8 %RH (23 °C ±5) ±1.5 %RH (0…60 °C)	±0.1 °C (23 °C ±5) ±0.2 °C (0…60 °C)
Typical calibration uncertainty	±1.5 %RH (k=2) at 23 °C	±0.15 °C (k=2) 15…50 °C
Standard Features		
Water level	Low and high alarm, bar graph status indication	
Water quality	UV sterilization, auto time cycling	
Desiccant condition	Condition monitored during control operation	
USB ports	7 front, 2 rear	
Reference connection	Temperature controlled outlet and inlet, 6 mm fittings	
Programmer function	20 user program memory, up to 200 set-point changes per program	
Optional Features	AutoCal , AutoCal+, Range Extension, Remote Control	
Mechanical & Electrical		
Chamber volume	2 litres, effective working volume 1.5 litres, Ø 110 mm, 145 mm deep	
Power	110…240 VAC 50/60 Hz, 3 A	
Enclosure	Powder coated aluminium / steel, IP20, 450 x 406 x 205 mm (max.)	
Weight	13 kg	
CE	Safety: EN 61010-1:2001 EMC: EN 61326-1:2006EN 61326-1:2006 & EN 61000-6-1:2007	

Ordering Information:

For the full range of options and current pricing, please contact Rotronic or your local distributor. (Details at www.rotronic.com)

Order code	Description
HG2-S	HygroGen2 with touch screen user interface, calibrated control/reference probe, set-point control and programmer function, heated sample loop, 1x desiccant cell, 1x fill syringe, embedded HW4-P software. Order chamber door separately.
HG2-V2.X.UPGRADE	HG2-V2.x Software and HW4-V3.x upgrade USB stick (activation codes must be purchased separately)
	Doors & Fittings
HG2-D-11111	Door 5x15 mm ports (for 5 HygroClips) with 5 bungs, order specific B1 sleeves for smaller probe diameters
HG2-D-888888	Door 6x30 mm ports with 6 bungs, order specific B8 sleeves to suit smaller probe diameters
HG2-D-xxxxx	Fully custom door for ›30 mm, see xx diameter codes
HG2-B1	15 mm bung for HG2-D-11111
HG2-B1-xx	B1 probe sleeves for HG2-D-11111 (15 mm external, internal probe diameter see xx codes)
HG2-B8	30 mm bung for HG2-D-888888
HG2-B8-xx	B8 probe sleeves for HG2-D-888888 (30 mm external, internal probe diameter see xx codes)
	Spares
HG2-DC	Additional desiccant cell, pre-filled with molecular sieve
	Accessories
HG2-AC3001-L/050	HygroClip2 calibration cable, 50 cm, HC2 to USB
HG2-TB	Transit bag, lightweight
	Optional Features
HG2-AutoCal-Code	Auto calibration function, license code only
HG2-AutoCal+-Code	AutoCal+ - extension to enable MBW chilled mirror as external reference, license code only. NB Requires AutoCal
HG2-TempExt-Code	Temperature extension -5…60 °C, license code only
HG2-HumiExt-Code	Humidity extension 2…99 %RH, license code only
HG2-Remote-Code	LAN remote control, license code only

Subject to technical change without notice. Errors and omissions excepted.

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