HygroGen2 Specifications		HG2-S	HG2-XL
Chamber volume		2 litres	20 litres
Working volume		1.5 litres	17 litres
Humidity changes (<±0.1 %rh stability)	5…95 %rh	<5 minutes	<15 minutes
Temperature changes (<±0.01 °C stability)	23…50 °C	<5 minutes	<15 minutes
	23…0 °C	<25 mins	<35 minutes
Thermal gradients	15…50 °C	<±0.05 °C	<±0.05 °C
	5…60 °C	<±0.1 °C	<±0.1 °C
	0…5 °C	<±0.15 °C	<±0.15 °C
Probe mounts		Up to 6 probes through door ports	Up to 19 probes through door, plus internal shelf racks
Weight & Dimensions		13Kg, 45x41x21cm	37Kg, 80x62x41cm
Generation method	Mixed flow with desiccant drier cell and piezoelectric humidifier; peltier thermoelectric element with radial chamber mixing fan		
Control probe specification	±0.8 %rh(23 °C ±5), ±2 %rh (0…60 °C) ±0.1K (23 °C ±5), ±0.3K (0…60 °C)		
Typical calibration uncertainty	±1.5 %rh (k=2) at 23 °C, ±0.15 °C (k=2) 15-50 °C		
Sensor	HygroClip2-S, capacitive RH sensor, Pt100 temperature sensor		
Control type	Embedded multiple PID controller, touch screen graphical user interface		
Programmer function	20 user program memory, up to 200 set-point changes per program		
External sample loop	Temperature controlled outlet and inlet, 6mm fittings		
USB ports	7 front, 2 rear		
Integrated Software	Rotronic HW4 (FDA 21 CFR part 11 compliant)		
Water level	Low and high alarm, bar graph status indication		
Water quality	UV sterilisation, auto time cycling		
Desiccant condition	Condition monitored during control operation		
USB ports	7 front, 2 rear		
Reference connection	Temperature controlled outlet and inlet sample loop, 6mm fittings		
Optional Enhanced Features	Temperature and Humidity Range Extensions (-5…60 °C, 2..99 %rh), AutoCal, External MBW/RHS reference integration, Remote Screen Sharing, Remote API		
Power	110-240VAC 50/60Hz, 3A (240VAC) 6A (110VAC)		
Enclosure	Powder coated aluminium and steel, IP20		
Operating Conditions	10-35 °C, <2000m altitude or less		
CE	Safety: EN 61010-1:2001 EMC: EN 61326-1:2006EN 61326-1:2006 &EN 61000-6-1:2007		

ORDER CODES	
HG2-S	HygroGen2 with touch screen, calibrated control/reference probe, set-point control & programmer function, heated sample loop, desiccant cell, fill syringe, embedded HW4-P. Order chamber door separately
HG2-XL	HygroGen2-XL with touch screen, calibrated control/reference probe, set-point control & programmer function, heated sample loop, 2 x desiccant cell, fill syringe, embedded HW4-P.
Chamber doors / probe sleeves / bungs	
HG2-D-11111	HG2 door 5 x 15 mm ports (for 5 HygroClips) with 5 bungs, order specific B1 sleeves for smaller probe diameters
HG2-D-888888	HG2 door 6 x 30 mm ports with 6 bungs, order specific B8 sleeves to suit smaller probe diameters
HG2-D-HFW	HygroGen probe door for HF3 and HF4 wall mount transmitters, also HP21 hand held with fixed probe
HG2-DP-00000	HG2 clear acrylic door (no ports) for instruments with displays
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 diameter 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 diameter codes)
HG2-D-xxxxx	HG2 fully custom door for › 30 mm ports, see xx diameter codes
HG2-Bxx	Custom bung
HG2-Bxx-xx	Custom probe adaptor sleeves (all types)
HG2-D-888888-Map	HG2-D888888 door with detachable mapping rig
Accessories	
HG2-TB	HygroGen2-S transit bag, lightweight
HG2-TC	HygroGen2-S heavy-duty transit case
HG2-AC3001-L/050	HygroClip2 calibration cable, 50 cm, USB
HG2-AC3001-L/050 (5)	HygroClip2 calibration cable, 50 cm, USB. Bundle of 5 pieces HG2-AC3001-L/050
HG2-PRT-ring	PRT mounting ring for permanent monitoring of HG2-S using external temperature reference
Service & Consumables	
HG2-DES-3	Molecular sieve desiccant (3 kg)

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HygroGen2

HygroGen2-S HygroGen2-XL

Reference generators for calibration
of humidity and temperature instruments

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MEASUREMENT SOLUTIONS

HygroGen2

Humidity and Temperature Calibration System for Laboratory and Onsite Applications

Since its launch in 2010, the Rotronic **HygroGen2-S** has defined the standard for portable humidity and temperature calibration systems. Hundreds of users worldwide have identified that this tool for the rapid generation of stable temperature and humidity conditions can save significant amounts of time in performing calibrations of all types of humidity instruments from all manufacturers.
Satisfying the stringent demands of quality and compliance regulations and with its ability to calibrate instruments over their full working range, it is embraced throughout the pharmaceutical industry as the leading instrument in its class and is favoured in ISO17025 humidity calibration laboratories across the world.
The rock solid stability, minimal thermal gradients, and rapid time for set-point changes of **HygroGen2-S** are now replicated in a new member of the family: **HygroGen2-XL**, which boasts a chamber with 10 times the capacity.

HygroGen2

- 5...95 %rh
- 2...99 %rh with Range Extension
- 0... 60 °C
- -5... 60 °C with Range Extension
- Minimal thermal gradients
- Rock solid stability
- Rapid set-point changes
- Integrated Rotronic HW4
- FDA 21 CFR part 11 compliant
- Log to network drive support*

HygroGen2-S

HG2-S
- Chamber volume: 2 litres
- Working volume 1.5 litres
- Humidity changes (5...95 %rh, 0.1 %rh stability): ‹5 minutes
- Temperature changes (23...50 °C, 0.01 °C stability): ‹ 5 minutes

HygroGen2 -XL

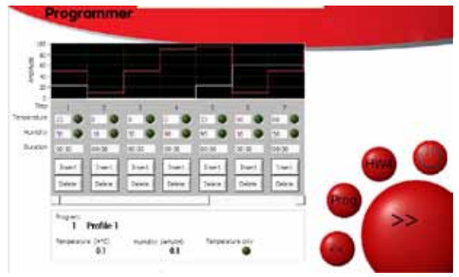
HG2-XL
- Chamber volume: 20 litres
- Working volume 17 litres
- Humidity changes (5...95 %rh, 0.1 %rh stability): ‹15 minutes
- Temperature changes (23...50 °C, 0.01 °C stability): ‹ 15 minutes

Remote control and automation enhancements, including **AutoCal** and now an API* - which enables remote logging and control with third party software - have since been added, saving further time for the user and creating the most versatile and easy to use humidity calibration system on the market.

*currently in beta testing. Available later in 2016.

Standard Features

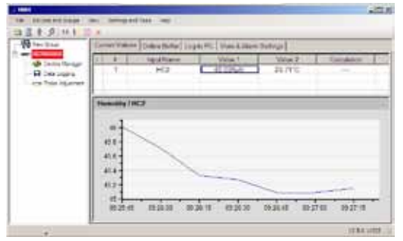
- Both HygroGen2 models have a standard temperature control range of 0...60 °C and humidity range of 5...95 %rh. Optional range extensions are available.
- Humidity generation is by a piezoelectric element with digital PID control allowing optimized response across the temperature range. At equilibrium RH control is better than ±0.1 %rh.
- Touch screen interface
- Integrated USB ports for the connection of peripheral devices such as a mouse and keyboard. Rotronic HygroClip2 probes with USB cables can also be connected.
- 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.



- External heated sample points for connection of a chilled mirror reference hygrometer allow the user to precisely verify the calibration of the HygroClip control probe at any time, or to reduce overall calibration uncertainty. Sample ports can also be used to provide stable humidity conditions for external applications.

See supplemental HG2-Enhanced Features datasheet for further details.

- Remote Support - By connecting the HygroGen2 to an internet connected network, remote support and training is available (previously only available with Remote Enhanced Feature).
- 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. Now includes logging of control HygroClip2*.



- An integrated UV sterilisation system within the water reservoir eliminates any issues caused by waterborne contaminants.
- 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.
- Standard configuration doors (HG2-S: 6 x 30mm, HG2-XL: 8 x 30mm ports) as well as custom designs are available (e.g. HG2-XL: 19 x 30mm). A series of probe sleeves to fit every manufacturers' probes are available. Perspex clear door available for HG2-S.
- With the HG2-XL, probes and loggers can be mounted on modular shelves as well as through the door.

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

Optional Enhanced Features

- Temperature and Humidity Range Extensions (-5...60 °C, 2...99 %rh)
- AutoCal – automated calibration, adjustment and certificate generation for HC2-S probes
- External MBW/RHS reference integration
- Remote Screen Sharing
- Remote API

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MEASUREMENT SOLUTIONS

Upgrade your HygroGen2 with ENHANCED FEATURES

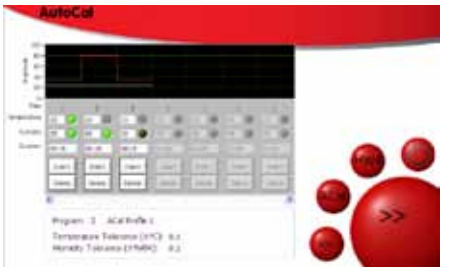
HygroGen2

HygroGen2-S HygroGen2-XL

A number of optional Enhanced Features are available for all HygroGen2 models.
These are applied using a machine specific software unlock code – available from your Rotronic dealer - and can be purchased and applied on units at a later time.

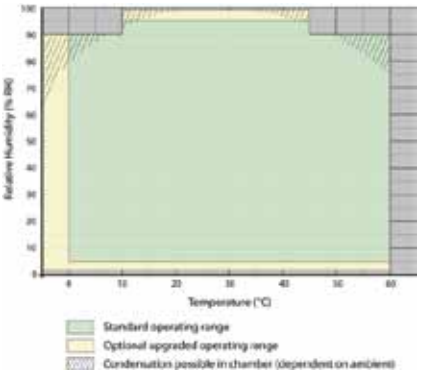
AutoCal

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.



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

AutoCal has the option to integrate an MBW/RHS chilled mirror as the eternal reference, to further improve measurement uncertainty (requires MBW reference integration – see below).



Range Extensions

Range extensions are available as follows:

- Low Temperature Range Extension -5...60 °C (Standard 0...60 °C)
- Humidity Range Extension 2...99 %rh (Standard 5...95 %rh)

rotronic HygroGen

<YOUR LOGO HERE>

HygroClip 2 60851098 AutoCal Certificate

Date (YYYY-MM-DD): 2013-01-16
Time (HH:MM:SS): 21:04:40

Probe Under Test: HygroClip 2
Serial No.: 60851098

Reference: HygroClip2
Serial No.: 60851173
Reference Calibration Standard:
UKAS calibration cert number: 12345678
Reference Last Calibration Date: 2012-12-31
Reference Next Calibration Date: 2114-12-30
Comment on Reference:
Sample
HygroGen2 ID: 912542.65

AutoCal Program Number: 1
Descriptor: ACal Profile 1
Autocal Program Structure:

Step:	Temperature SP (°C):	Humidity SP (%):	Step Duration (HH:MM):	Adjust Temperature:	Adjust Humidity:
1	23.0	35.0	01:00	Yes	Yes
2	23.0	50.0	01:00	No	Yes
3	23.0	80.0	01:00	No	Yes
4	23.0	35.0	01:00	No	No

Tolerance to Set Point at which step duration timing will occur (zero = no tolerance applied).
SP Temperature Tolerance (°C): 0.1
SP Relative Humidity Tolerance (%): 0.1

Probe Actions Recorded:

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MEASUREMENT SOLUTIONS

ENHANCED FEATURES

HygroGen2
HygroGen2-S HygroGen2-XL

Remote API

Remote API is a new feature to allow granular command line control and logging of the HygroGen2 via a series of commands over TCP/IP.
This allows users to integrate the HygroGen2 into their own or third party systems, e.g. Beamix and/or write software scripts to automate the calibration process.

MBW/RHS External Reference Integration (formerly AutoCal+)

External MBW/RHS Reference Integration further extends the utility of the generator, with the ability to integrate MBW chilled mirror hygrometers as the AutoCal calibration reference or within the Remote API.

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, measurement uncertainty of less than 0.7 %rh at ambient conditions is easily achieved.

Remote Screen Share
(formerly Remote Control)

Remote Screen Share 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 the open source 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.

Order Code	Description
HG2-AutoCal-Code	AutoCal function, activation code
HG2-ExtRef-Code	MBW/RHS External Reference - extension to enable MBW chilled mirror as external reference. NB Requires AutoCal or RemoteAPI, activation code
HG2-RemoteSS-Code	LAN Remote Control (Screen Share) – remote control access via VNC, activation code
HG2-TempExt-Code	Low Temperature Range Extension -5...60 °C, activation code
HG2-HumiExt-Code	Humidity Range Extension 2...99 %rh, activation code
HG2-RemoteAPI-Code	LAN Remote Control (API) – remote control application programming interface, activation code
HG2-EF-Bundle1	Enhanced Feature Bundle 1 [Temp/Humi/AutoCal], activation code
HG2-EF-Bundle2	Enhanced Feature Bundle 2 [AutoCal/Ext Ref/RemoteSS], activation code
HG2-EF-Bundle3	Enhanced Feature Bundle 3 [Temp/Humi/AutoCal/Ext Ref/RemoteSS], activation code
HG2-EF-Bundle4	Enhanced Feature Bundle 4 [RemoteAPI/Ext Ref/RemoteSS], activation code
HG2-EF-Bundle5	Enhanced Feature Bundle 5 [Temp/Humi/RemoteAPI/Ext Ref/RemoteSS], activation code
HG2-EF-Bundle6	Enhanced Feature Bundle 6 [Temp/Humi/AutoCal/RemoteAPI/Ext Ref/RemoteSS], activation code

Enhanced Features can be unlocked by purchasing an activation code from ROTRONIC.
Visit www.rotronic.co.uk or contact your Rotronic distributor for more details.

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