



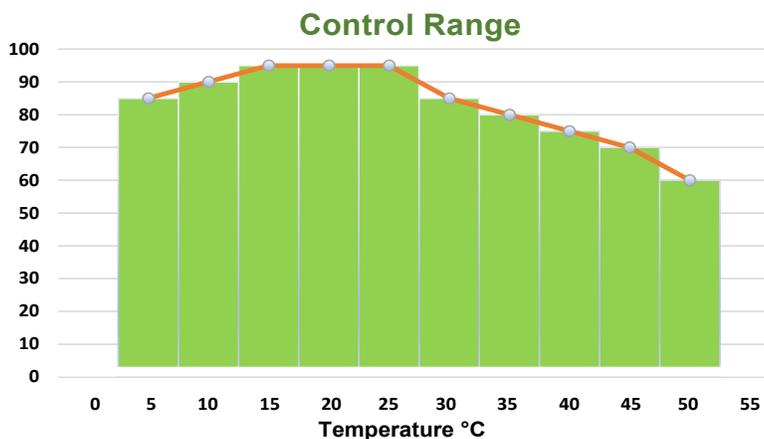
# **GEO** *Calibration*

## **HygroMatic I**

PRODUCT OVERVIEW

# GENERAL SPECIFICATIONS - HygroMatic I

CALIBRATION TO (17025 TRACEABLE TO NIST)	TRANSFER STANDARD	No Charge		
	CERTIFICATE	17025 Validation (Additional Fees Apply)		
OPERATING AMBIENT CONDI- TIONS	TEMPERATURE	18 °C to 28 °C		
	HUMIDITY	Up to 80 % RH		
STORAGE CONDITIONS	TEMPERATURE	-20 °C to 50 °C		
	HUMIDITY	0 % to 95 % RH (non-condensing)		
ALTITUDE	2000 m			
CALIBRATION SYSTEM ACCURACY	TEMPERATURE	± 0.10 °C Or Better	Typically ± 0.05 °C	*Based on Probe Accuracy
	HUMIDITY	± 1.00 % RH Or Better	Specially tuned systems can be as good as ± 0.60 %	*Based on Probe Accuracy
	CONTROLLER TYPE	PID Controller		
UNIFORMITY	TEMPERATURE	0.10 °C Or Better	Typically ± 0.05 °C	
	HUMIDITY	0.30 % RH @ 18 °C to 28 °C Or Better Typically ± 0.25 %		
STABILITY	TEMPERATURE	0.05 °C		
	HUMIDITY	0.15 % RH @ 18 °C to 28 °C		
WARM-UP PERIOD	AMBIENT CONDITIONS	30 Minutes Maximum		
	COLD	30 Minutes		
RESOLUTION	DISPLAY	Temperature	0.01 °C	
		Humidity	0.01 % RH	
		Dew Point	0.01 °C (Calculated)	
	USB	Temperature	0.01 °C	
		Humidity	0.01 % RH	



## RAMP / SOAK RATE OF CHANGE

\*Depends on ambient and desiccant conditions

TEMPERATURE	High → Low	1.50 °C / minute *Typical
	Low → High	5.00 °C / minute *Typical
HUMIDITY	High → Low	5.00 % RH / minute *Typical
	Low → High	10.00 % RH / minute *Typical

## CONTROL RANGE\*\*\*Extended Range (See Page 3)

TEMPERATURE	2 °C to 58 °C		
HUMIDITY@ 18°C	2% to 98 % RH	HUMIDITY@ 35°C	5 % to 80 % RH
HUMIDITY@ 23°C	2 % to 98% RH	HUMIDITY@ 40°C	5 % to 75 % RH
HUMIDITY@ 30°C	2 % to 90 % RH	HUMIDITY@ 50°C	5 % to 60 % RH

## CONSUMABLES

WATER	RESERVOIR	200 ml
	SPILL RESISTANT	Yes
	REQUIRED FLUID	Distilled Water Only
	EST. REFILL PERIOD	15 Days to 1 Month (Typical) *Depends on Usage
	FILL INDICATOR	Floating Ball
DESICCANT	TYPE	Molecular Sieve
	REPLACEMENT	When Indicating Desiccant is 3/4 Used
	REPLACEMENT FREQUENCY	Depends Entirely on User Workload
	LOCATION	Left Side Mounted
	FASTENER	Desiccant Mounting Bracket Provided
RECALIBRATION	FREQUENCY	Depends on User Uncertainty Requirements Once Per Year Recommended

\*\*Information subject to change, please visit our website for updates at [www.geocalibration.com](http://www.geocalibration.com).

# MECHANICAL

GENERATOR DIMENSIONS	Measurement Type	Width	Depth	Height
	Metric	24.65 cm	40.65 cm	55.33 cm
	English	9.70 in	16.02 in	21.78 in
CHAMBER DIMENSIONS	Measurement Type	Diameter	Depth	
	Metric	14.50 cm	20.00 cm	
	English	5.71 in	7.87 in	
WORKING DIMENSIONS AND VOLUME	Measurement Type	Diameter	Depth	
	Metric	12.50 cm	10.90 cm	
	English	4.92 in	4.29 in	
	Volume	1.5 Liter Effective Working Volume		
WEIGHT	Unit Only	Metric	15.5 kg	
		English	34.0 lb	
POWER SUPPLY	12 Volt DC @ 1A			
STANDARD PORT QUANTITY	Depends on doors	Availability: 6 Ports, 5 Ports, 4 Ports, 2 Ports		
CHILLED MIRROR PORTS	In and Out			
PROBE ANALOG OUTPUTS AVAILABLE	0 - 1 Volt		Probe Range	Actual Unit Range
		Temperature	- 40.00 to + 60.00 °C	+ 5.00 to + 60.00 °C
		Humidity	0 to + 100.00 %	+ 5.00 to + 95.00 %

## \*\*\* Extended Ranges for Temperature and Humidity

Upon users request GEO is Offering the extended ranges for both Temperature and Humidity which are as following:

EXTENDED CONTROL RANGE			
TEMPERATURE	2 °C to 58 °C (Normal is 5 °C to 55 °C)	HUMIDITY@ 35°C	2 % to 80 % RH (Normal is 5% to 80%)
HUMIDITY@ 18°C	2 % to 95 % RH (Normal is 5% to 95%)	HUMIDITY@ 40°C	2 % to 75 % RH (Normal is 5% to 75%)
HUMIDITY@ 23°C	2% to 98% RH(Normal is 5% to 95%)	HUMIDITY@ 50°C	2 % to 60 % RH (Normal is 5% to 60%)
HUMIDITY@ 30°C	2 % to 85 % RH (Normal is 5% to 85%)		

1.The Temperature ranges are not guaranteed if the environment Temperature is not controlled to 23 °C. User will see stable and extended results if environmental temperature is controlled at 23 °C or 72 °F. The normal temperature working ranges in Model 2000SP are 18 °C to 28 °C for different Humidity ranges. The Extended Ranges can help the user to test Hygrometers for lower or higher temperature values, although for Rh it may not be a great use at the extended temperature ranges.

2.The Humidity ranges are affected by the temperature especially for the high humidity above 70%. On high humidity if the temperature drops, it can go to Dew Point and can form the Condensation. To prevent condensation, user must bring the temperature to desired value first and then bring the Humidity to desired value. The extended Rh ranges are offered for the Hygrometers that needed to be calibrated below 5% or above 95%. It will not get the best calibration tolerances because the probe goes out of linear range.

Note: To go to the lower Rh, such as 2%, user must make sure the Desiccant is reasonably good. For high Rh, such as 98%, user have to use the insulated door only.

3.The following table shows the order how user should set the set points to get the best results without getting the Dew Point condition or Condensation , avoiding the unnecessary use of Desiccant and make the system more efficient.

Table Temperature vs Humidity relationship and how to get the best result:

Temperature	Humidity
NO Change	Set Rh Hi/LO within Specification Range
Low to High	Set Rh Hi/LO within Specification Range
High to Low	If Rh is Higher than 70%, Set Rh to 70% first. Set the temperature to desired value and then Set Rh to desired value within Specification Range

\* Complete Accessory List is Available at [www.geocalibration.com](http://www.geocalibration.com)

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**GEO**  
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