



MODEL 2000 SP

User Manual



English

Deutsch

Francais

GEO Calibration Inc.
2190 Smithtown Avenue
Ronkonkoma, NY 11779
USA

STANDARD PACKAGE LISTING

Contents of the Standard Supply Package

- GEO Calibration Model 2000 SP Humidity Generator / Calibrator
- 1 Model 2000 SP desiccant cell filled with indicating molecular sieve (pre-installed)
- Power Cable
- Water Fill Syringe
- Capacitive Control Probe with calibration certificate
- Chamber Door (Per customer order)
- USB A to A cable
- USB Stick containing the following:
 - GEO Model 2000 SP Product Manual
 - GEO Software Manual
 - GEO RH Automatic Ramp / Soak Software
 - Model 2000 SP Drivers for Windows

WARRANTY

LIMITED WARRANTY AND LIMITATION OF LIABILITY

Each GEO Calibration product is warranted to be free from defects in material and workmanship under normal use and service. The warranty period is one year and begins on the date of shipment. Parts, product repairs, and services are warranted for 90 days. This warranty extends only to the original buyer or end-user customer of a GEO Calibration authorized reseller, and does not apply to fuses, disposable batteries, or to any product which, in GEO Calibration's opinion, has been misused, altered, neglected, contaminated, or damaged by accident or abnormal conditions of operation or handling. GEO Calibration does not warrant that software will be error free or operate without interruption.

GEO Calibration authorized resellers shall extend this warranty on new and unused products to end-user customers only but have no authority to extend a greater or different warranty on behalf of GEO Calibration. Warranty support is available only if product is registered at

<https://www.geocalibration.com/register>

and is purchased through a GEO Calibration authorized sales outlet or Buyer has paid the applicable international price. GEO Calibration reserves the right to invoice Buyer for importation costs of repair/replacement parts when product purchased in one country is submitted for repair in another country. GEO Calibration's warranty obligation is limited, at GEO Calibration's option, to refund of the purchase price, free of charge repair, or replacement of a defective product which is returned to a GEO Calibration authorized service center within the warranty period.

To obtain warranty service, contact your nearest GEO Calibration authorized service center to obtain return authorization information, then send the product to that service center, with a description of the difficulty, postage and insurance prepaid (FOB Destination). GEO Calibration assumes no risk for damage in transit. Following warranty repair, the product will be returned to Buyer, transportation prepaid (FOB Destination). If GEO Calibration determines that failure was caused by neglect, misuse, contamination, alteration, accident, or abnormal condition of operation or handling, including over voltage failures caused by use outside the product's specified rating, or normal wear and tear of mechanical components, GEO Calibration will provide an estimate of repair costs and obtain authorization before commencing the work. Following repair, the product will be returned to the Buyer transportation prepaid and the Buyer will be billed for the repair and return transportation charges (FOB Shipping Point).

THIS WARRANTY IS BUYER'S SOLE AND EXCLUSIVE REMEDY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. GEO CALIBRATION SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING LOSS OF DATA, ARISING FROM ANY CAUSE OR THEORY.

Since some countries or states do not allow limitation of the term of an implied warranty, or exclusion or limitation of incidental or consequential damages, the limitations and exclusions of this warranty may not apply to every buyer. If any provision of this Warranty is held invalid or unenforceable by a court or other decision-maker of competent jurisdiction, such holding will not affect the validity or enforceability of any other provision.

GEO Calibration Inc.
2190 Smithtown Avenue
Ronkonkoma, NY, 11779
U.S.A.

INTRODUCTION



Thank you!

Thank you for purchasing the GEO Calibration Model 2000 SP humidity and temperature generator/calibrator. We look forward to providing you the highest quality technical support as you become familiar with your new humidity and temperature calibrator.

To better familiarize yourself with the Model 2000 SP, please [take our product tour](#).

To get you calibrating right away, you can skip straight to our [quick start guide](#).

Looking to go a bit deeper? Jump to see our [calibration technical recommendations](#).

As you read through this product manual, please familiarize yourself with our warnings and recommended best practices. By following the proper procedures, you will ensure your unit performs to its highest potential.

WARNING



As you read through this product manual, please familiarize yourself with our recommended best practices. By following the proper procedures, you will ensure your unit consistently performs to its highest potential.

Once you have removed the Model 2000 SP from its external packaging, please visually inspect the unit for damage. If damage is found, please immediately contact your supplier.

PRODUCT OVERVIEW

Once you have removed the Model 2000 SP from its external packaging, please visually inspect the unit for damage. If damage is found, please immediately contact your supplier.

Calibrator Applications

The GEO Model 2000 SP Humidity Calibrator generates and maintains a controlled humidity and temperature environment for the purpose of testing or calibrating humidity and temperature sensors, also known as hygrometers. The humidity calibration range is 5% up to 95%, while the temperature range is from 5°C to 55°C.

The system's accuracy is achieved via a NIST traceable internal control and reference probe.

The Model 2000 SP can calibrate many hygrometer types, including but not limited to:

- Probes
- Data-loggers
- Chart Recorders
- Additional Assorted Hygrometers

Before purchasing a Model 2000 SP, please review the dimensions of the calibration chamber to ensure compatibility with the size requirements of any Hygrometers you intend to calibrate.

ITEM CHECK LIST

Listed below are standard contents included with the purchase of a new Model 2000 SP.



Humidity Generator

GEO Calibration
Model 2000 SP



Desiccant Canister

Pre-Filled with molecular sieve



Fill Tube

-



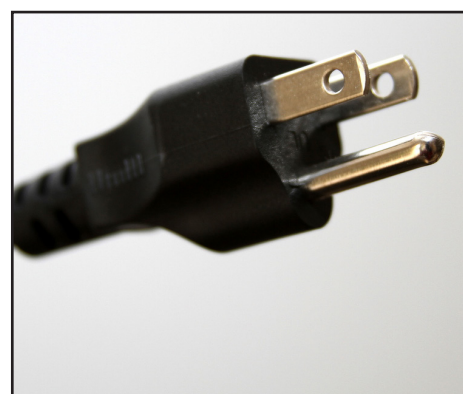
Chamber Door

With bung set
(Pre-Installed)

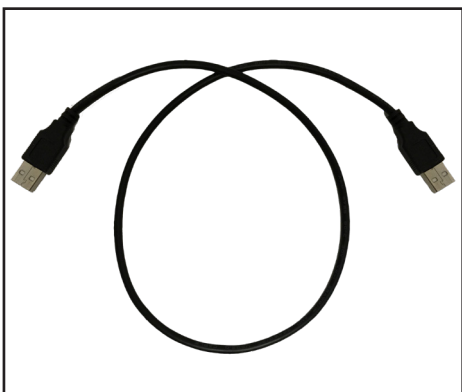


Control Probe

HC2-S HygroClip
control probe (pre-installed
with calibration certificate)



Power Cable



USB Cable

(A to A)



USB Stick

Contains GEO Software



Calibration Documents

ACCESSORIES



Replacement
Desiccant

P/N: 3-DEC



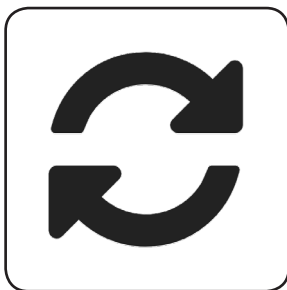
Replacement
Fill Tube

P/N: RHG-A-FT



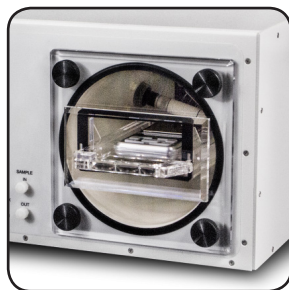
Replacement
Control Sensor

P/N: RHG-A-SCP



System
Recalibration

P/N: RHG-A-CAL



Door Variations



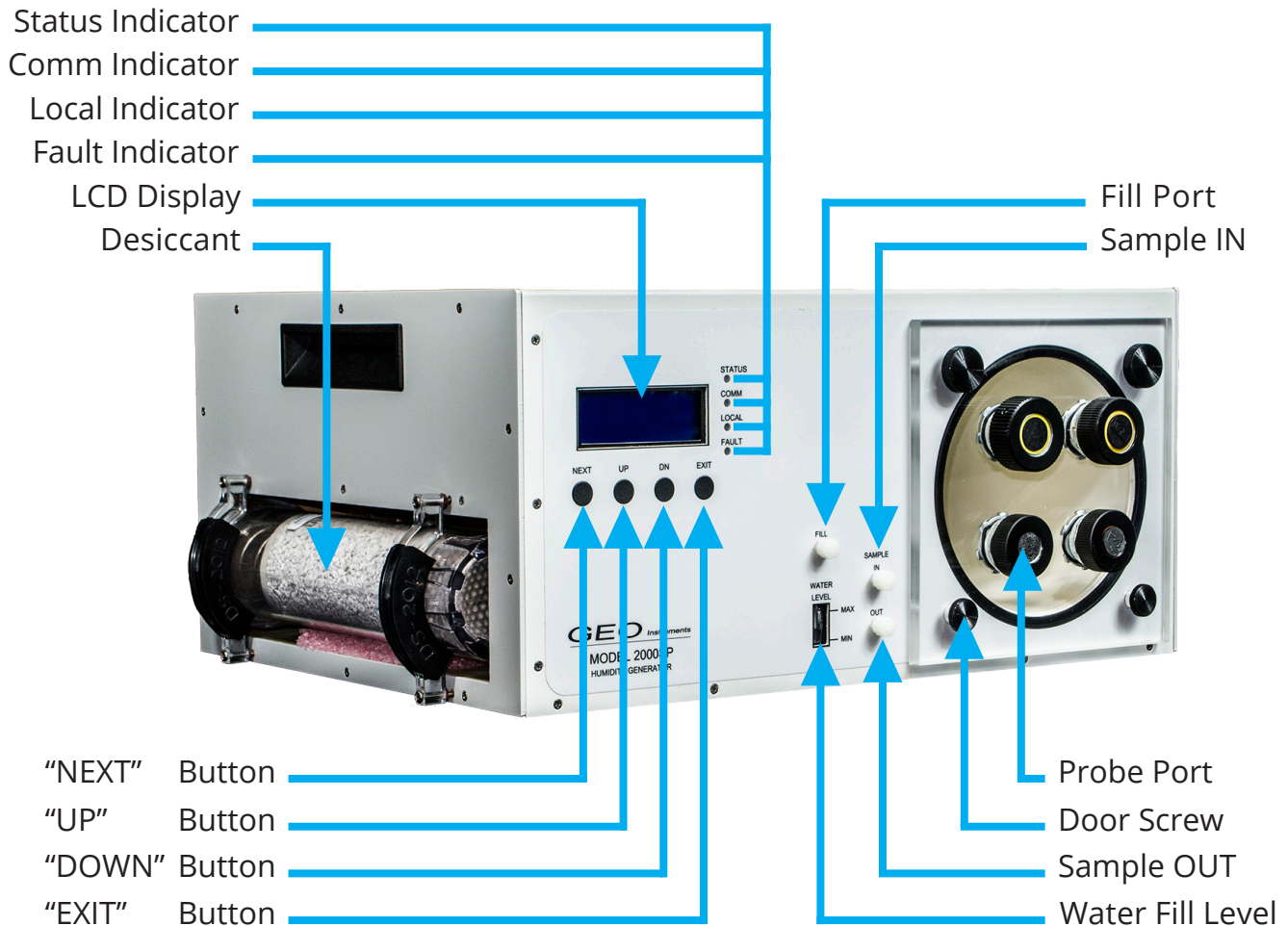
Silicone
Adapter Kits

P/N: RHG-A-BNG

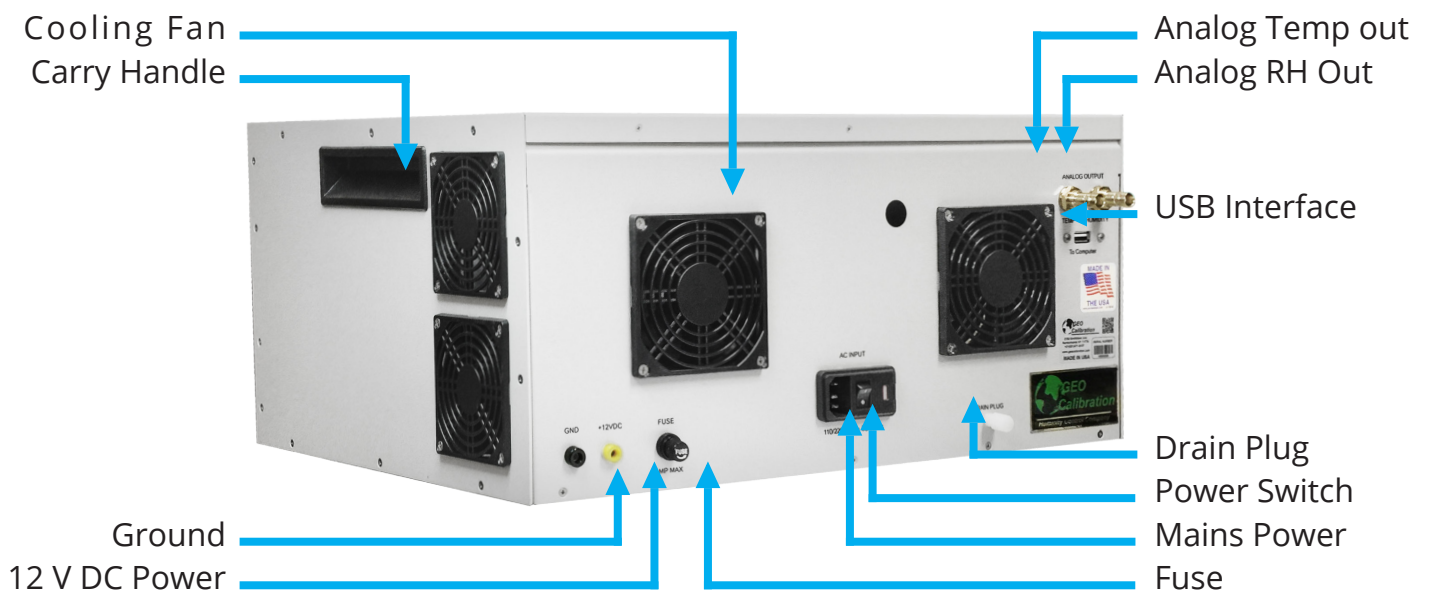
UNIT DIAGRAM & PARTS LISTING

Below you will find a diagram of the Model 2000 SP's various operational parts.

FRONT



REAR



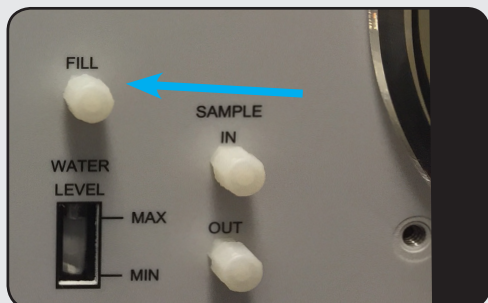
QUICK START - FILLING RESERVOIR

Supplies Needed

Distilled Water



Fill Syringe



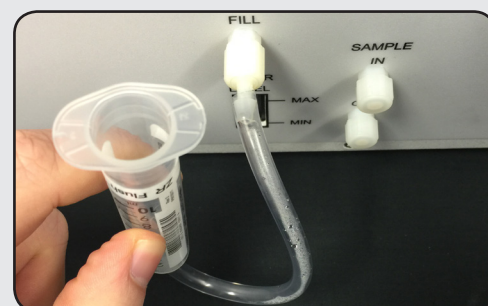
1. Locate the Fill Port

The port is labeled and located on the middle lower portion of the front panel.



2. Remove the Fill Cap

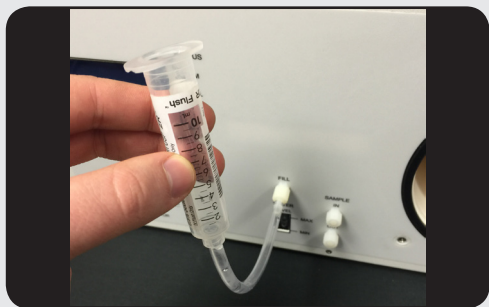
Rotate Counter-Clockwise to remove.



3. Attach Fill Syringe to Fill Port

Press the fill syringe tip into the fill port, then rotate the cap clockwise to secure.

QUICK START - FILLING RESERVOIR



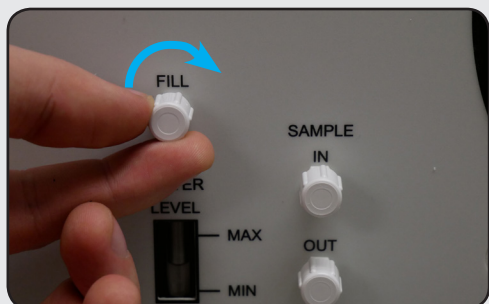
5. Elevate and Fill Syringe

- Pour distilled water into the elevated tube body.
- Take care not to insert any air into the reservoir.
- Monitor the water level indicator while filling.



6. Loosen and Remove Syringe

Turn the fill syringe tip counter-clockwise to loosen.



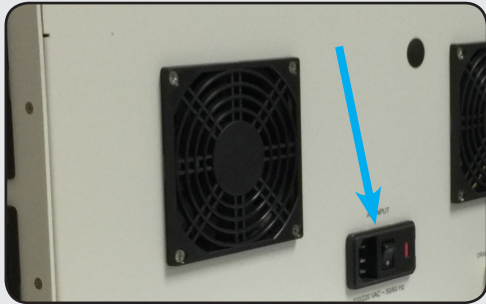
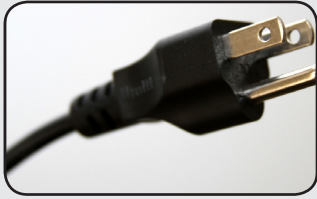
7. Re-Install the Fill Cap

Turn the cap clockwise to tighten the cap and seal the fill port.

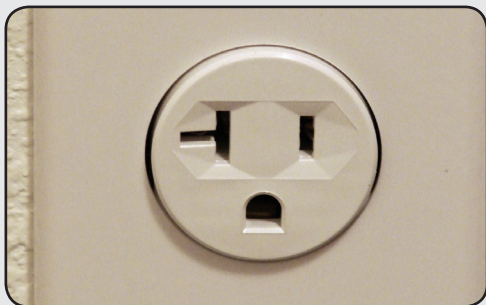
QUICK START - POWERING THE UNIT

Supplies Needed

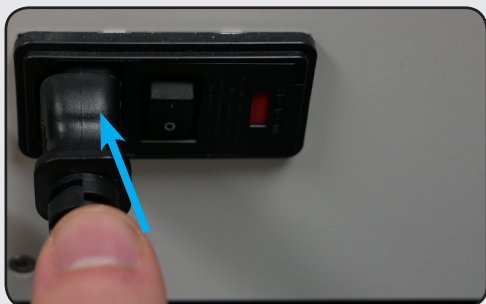
Power Supply
Cable



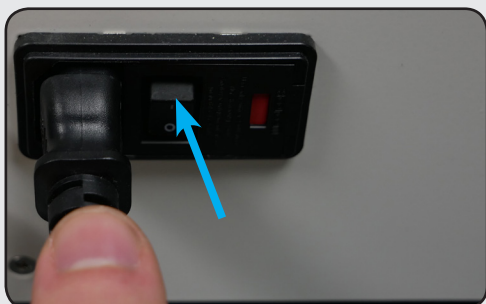
1. Locate the Power Input



2. Plug Power Supply into Wall



3. Plug Power Supply into Unit



4. Set Power Switch to "ON"

QUICK START - UNIT OPERATION



1. Boot Screen

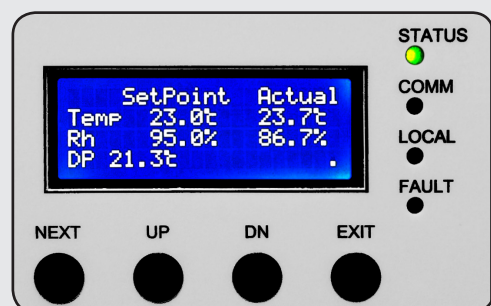
Our Company Name

Model Number

Serial Number

Firmware Version Number

QUICK START - UNIT OPERATION



2. Observe the Display

Current Temperature
Current Relative Humidity
Programmed Temperature
Programmed Relative Humidity
Calculated Dew Point

Top Right
Middle Right
Top Left
Middle Left
Bottom Left

Button Operation

The unit has 4 push buttons located below the LCD screen. The push buttons are labeled, 'NEXT', 'UP', 'DOWN' and 'EXIT'.

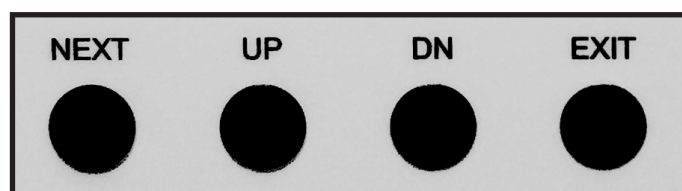


Figure 2 Pushbuttons

The 'NEXT' button advances the cursor to either the next user editable value or to the next menu. Depressing the button briefly activates a field into editing mode so that it may be modified. When a field is in edit mode it will flash. To edit the next field on the screen depressing the 'NEXT' button again and the next field will flash indicating it is in edit mode. To exit edit mode either press the 'EXIT' button or wait 30 seconds and the field will automatically exit edit mode.

Holding the 'NEXT' button depressed for more than 3 seconds will advance to the next menu.

The 'UP' button is active when a field is placed in edit mode. Pressing the 'UP' button increases the value of the field while pressing the 'DOWN' button decreases the value. Holding either the 'UP' or 'DOWN' button for more than one second will advance the value of the field at a high rate allowing the user to quickly change a field's value.

Depressing the 'EXIT' button will exit the editing mode. Depressing the 'EXIT' button for 3 seconds will advance to the previous menu.

The 'EXIT' button has one additional use when the Model 2000 SP is first started it may not have sufficient water vapor to allow the setting of higher relative humidity values. In this case the front panel will flash the word 'WARMING'. During this time the unit will NOT control the chamber's temperature or humidity. To bypass this warm up time and go directly to controlling the chamber press the 'EXIT' button on the main screen. The word 'WARMING' will cease flashing and the unit will begin controlling the chamber.

QUICK START - UNIT OPERATION

Status Lights The four status lights located to the right of the LCD screen indicate the following.



The 'STATUS' light indicates the unit is active.

The 'COMM' light indicates the unit is receiving commands from the GEO Model 2000 SP Windows application.

The 'LOCAL' light indicates that the unit's environmental condition is being modified locally from the front panel. That is the current chamber environment has overridden the setting made by the GEO-DFB application.

The 'FAULT' light indicates that the BIT (Built in Test) has detected a condition which will not allow control of the chamber. See appendix Error code for the possible fault conditions.

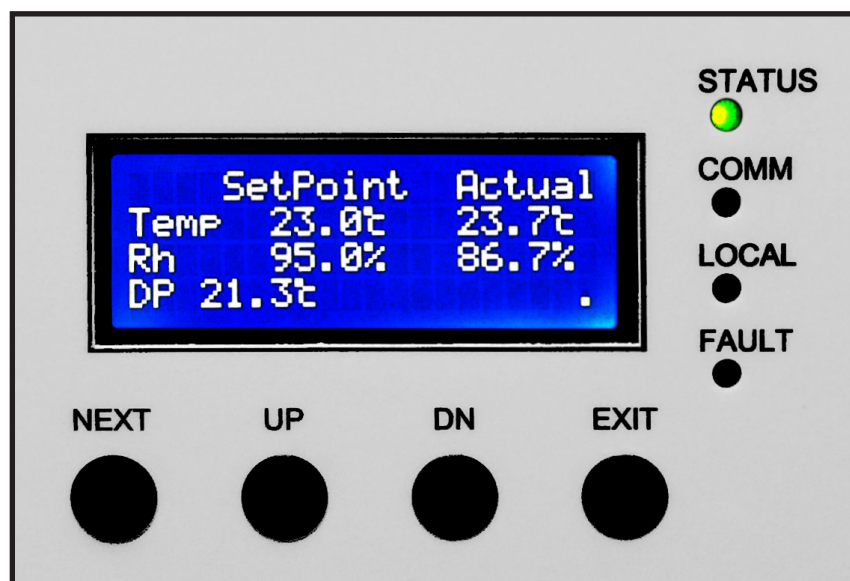
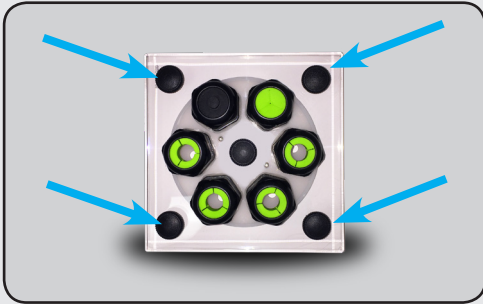


Figure 1 Main menu

Entering Temperature and Humidity Set-points

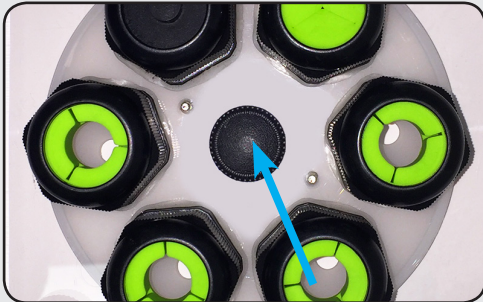
From the Main Screen press the 'NEXT' Button. The current set point temperature will flash indicated by the color red in the figure below

QUICK START - CHANGING DOOR



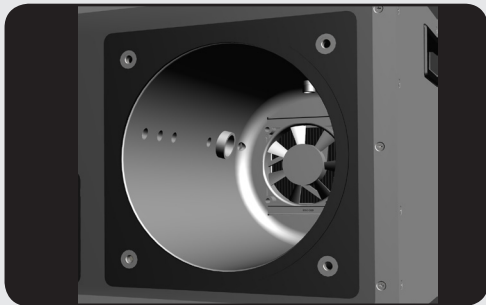
1. Unscrew the Corner Screws

Remove screws by turning in a counter-clockwise motion.



2. Loosen Center Screw

In some door variations, there is a center screw that serves the purpose of creating a tighter seal. If this screw exists, it must also be loosened using a counter-clockwise motion before the door can be removed.



3. Remove the Door

The best removal method is to pull from the top of the door to break the seal. Once the top is loose, lift and pull to full remove the door.

UNIT CONFIGURATION

Control / Reference Probe Configuration

The probe calibration screen allows the user to introduce a calibration offset to the internal probe used to control the GEO Calibration 2000 SP chamber. This allows the user to calibrate the internal probe to an external reference.

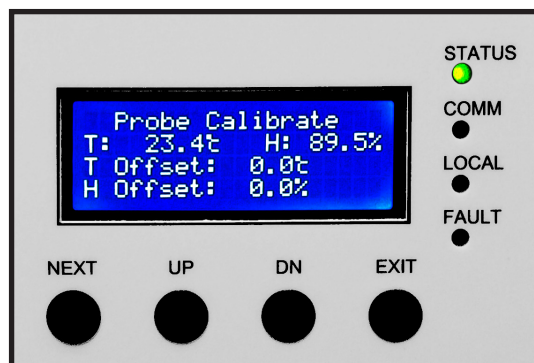


Figure 5 Control Probe Calibration

In the image above the current probe offset is 0.1° C and the offset is -0.1% RH. The current chamber temperature and humidity are displayed for reference. Once the offsets are configured the values are permanently stored in the unit and do not need to be reset when the unit is subsequently powered on.

BUILT IN TEST HEAD EXCHANGER CONFIG

The GEO Calibration 2000 SP Heat exchanger removes the heat generated when the peltier element is cooling the chamber. To prevent damage the unit monitors the temperature of the heat exchanger and will stop control if the temperature exceeds a configurable threshold. It is not recommended to change these values as they are pre-configured for the optimal operation of the unit. The thresholds are nevertheless configurable as shown in the figure below.

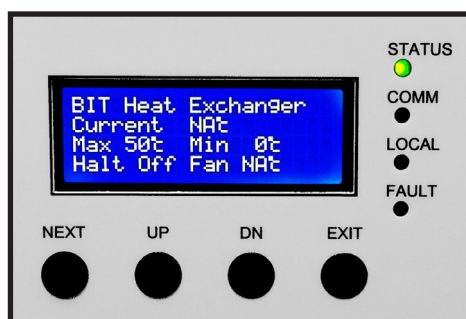


Figure 6 BIT Heat exchanger configuration

The screen displays the current temperature of the heat exchanger 15°C in the example above. The maximum and minimum allowed temperature are configured along with whether the control should be halted if the chamber conditions are exceeded. In addition the temperature threshold at which the chassis fan should start is configurable. Note: the unit may override the settings depending on the exact model.

ERROR CODES

The Model 2000 SP displays error codes through the secondary display.

These are intended to communicate machine status to the user.

Codes and Descriptions

Error Code	Description
"No Analog Detected"	Internal Hardware Fault Detected
"Internal Probe Fail"	Internal Hardware Fault Detected
"No Peltier Temp"	Temperature probe fault. Fans will run persistently.
"No HumGen Temp"	Temperature probe failure.
"HumGen Low Limit"	The temperature of the ambient environment is too low for unit operation.
"HumGen High Limit"	The humidity generator has exceeded a high unit. Perform maintenance check of ambient environment and water supply.
"Peltier High Limit"	The cooling sensor inside the unit is above its limit.
"EEPROM Cfg Reset"	The unit configuration settings have been reset to factor default.
"EEPROM Cal Reset"	Factory calibration data reset to default.
	For questions, please contact GEO Calibration.

SPECIFICATIONS

MECHANICAL AND ELECTRICAL

Model 2000 SP | BODY

DIMENSIONS	Metric	Depth 37.00 cm	Width 46.00 cm	Height 23.00 cm
ENCLOSURE	Material	Powder Coated Aluminum		

Model 2000 SP | CHAMBER

DIMENSIONS	Metric	Depth 19.00 cm	Diameter 14.50 cm	
ENCLOSURE	Material	Insulated Plastic		
CAPACITY		6 RH Probes	6 - 25 mm	
PROBE PORTS		6 Ports		

Model 2000 SP | ENTIRE ASSEMBLY

POWER SUPPLY	Universal 100 - 260 VAC - 50/60 Hz			
WATER		Reservoir Spill Resistant Water Quality Est Refill Period Fill Indicator	150 mL Yes Distilled Only 1 Week Low Warning Front View	*Typical *Screen Icon
DESICCANT		TYPE	Indicating Molecular Sieve	
EXTERNAL INTERFACE		USB	Cable and Software Included	
WEIGHT	Unit Weight	METRIC IMPERIAL	14.00 KG 30.90 LB	

CALIBRATION

UUTs (Units Under Test)

Port Adapter



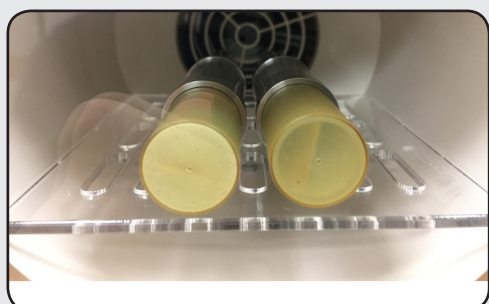
Supplies Needed

UUT
[Unit Under Test]



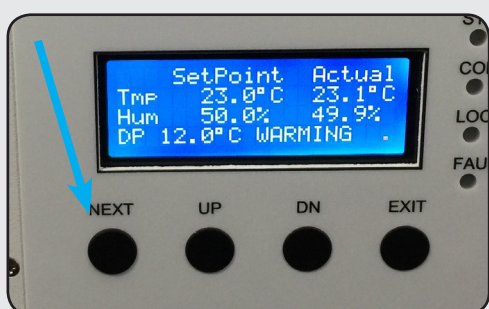
1. Select Port Size Adapter

Measure the diameter of the UUT and select the appropriately sized silicone adapter. Unscrew the Model 2000 SP door and replace the adapter if necessary. Ensure the door is securely fastened to the chamber.



2. Insert UUT

Insert your UUT at least 3 inches into the Model 2000 SP chamber.



3. Program Unit Set-points

Allow the unit to reach the programmed set-points and settle. To best preserve desiccant, it is advised that you begin multi-point calibrations with low humidity set-points.



4. Compare Readouts

Follow the manufacturer's recommendation for recalibration and programming offsets.

REFERENCE RECALIBRATION

Control Probe / Reference Sensor

Overview

The Model 2000 SP functions through the use of a dual PID controller. This controller takes the humidity and temperature values from an internal capacitance probe and further performs calculations that are then used to generate the user entered humidity and temperature set points. This sensor is factory calibrated, and upon request, additionally calibrated by an ISO 17025 accredited laboratory using either a chilled mirror or two-pressure primary reference standard.

When calibrating the Model 2000 SP, the chamber must be measured at a variety of temperatures and relative humidity levels. It is recommended that you measurements use a 70 % guard band to “guard” against any measurement uncertainties. The Model 2000 SP’s humidity and temperature offsets must be changed if the control probe’s readings are found to be outside of the allowed tolerances when compared to the reference.

Recalibration Intervals

The scope and uncertainty requirements of this calibration will vary per customer. The capacitance probes that we use have an average drift of 1.0% RH per year. You should account for this interval, as well as your laboratory’s uncertainty budget when calculating out your desired recalibration interval. The table below illustrates accuracy drift after 6, 12 and 24 months.

Timeframe	6 Months	12 Months	24 Months
Drift (%RH)	0.5% RH	1.0% RH	2.0% RH

Based on this information, you may wish to shorten or lengthen your calibration interval to respectively increase accuracy or decrease costs.

Self Re-calibration Overview

We advise that you return your reference probe to GEO Calibration for recalibration. However, for customers that are international or operate where policy restricts the use of international services, self recalibration is an option.

The following supplies are needed to recalibrate the internal control/reference probe.

- HW4 Calibration Software
- HygroClip DI Adapter Cable HC2 Pbe/USB, 6Ft
- A calibration reference with uncertainties of 0.5% RH or better.

REFERENCE RECALIBRATION

Self Recalibration Procedure

To read the recalibration procedure of the control / reference probe, please refer to the unit's user manual, and the HW4 software manual found at the following URLs:

https://s.campbellsci.com/documents/ca/manuals/hc2-s3-1_man.pdf

<https://goo.gl/n7qE1G>

<https://www.instrumart.com/assets/rotronic-hygroclip2-probes-manual.pdf>

Before recalibration of any control probe, ensure that the unit and probe have both completely settled at 23°C for at least ten minutes.

Maintaining Probe Accuracy

The following text is the recommended maintenance best practices from Rotronic.

“The HC2S3 probe requires minimal maintenance, but dust, debris, and salts on the filter cap will degrade sensor performance. Check the white filter on the end of the sensor for debris. If dirt or salt is engrained into the filter, it should be cleaned with distilled water or replaced. Make sure the filter is connected firmly with your fingers — do not over tighten.

Check the radiation shield monthly to make sure it is free from dust and debris. To clean the shield, remove the sensor from the shield. Dismount the shield. Brush all loose dirt off. If more effort is needed, use warm, soapy water and a soft cloth or brush to thoroughly clean the shield. Allow the shield to dry before remounting.

Replace corroded, discoloured or clogged filters. To replace the filter, unscrew the filter from the probe and pull it straight away, being careful not to bend or damage the sensors. Before putting on the replacement filter, check the alignment of the sensors with the probe, and if necessary, carefully correct the alignment before installing the filter.

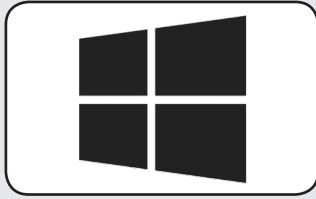
The Teflon filter is recommended when the sensor is installed in close proximity to the ocean or other bodies of salt water. A coating of salt (mostly NaCl) may build up on the radiation shield, sensor, filter and even the sensors. A build-up of salt on the filter or sensors will delay or destroy the response to atmospheric humidity.

Long term exposure of the relative humidity sensor to certain chemicals and gases may affect the characteristics of the sensor and shorten its life. The resistance of the sensor depends strongly on the temperature and humidity conditions and the length of the pollutant influence.”

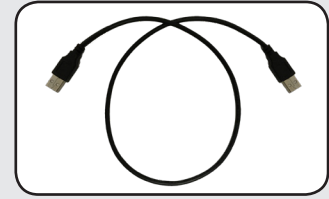
ENTERING MODEL 2000 SP OFFSETS

Supplies Needed

Windows PC with
USB Port



USB Cable



Unit Offset Calibration via Hyper-terminal

The Model 2000 SP also allows users to make two, single point adjustments for both temperature and humidity. It is recommended that users recalibrate their unit as needed to fit their overall uncertainty requirements.

The reference sensor used for this recalibration should be either a two-pressure or chilled mirror primary measurement standard.

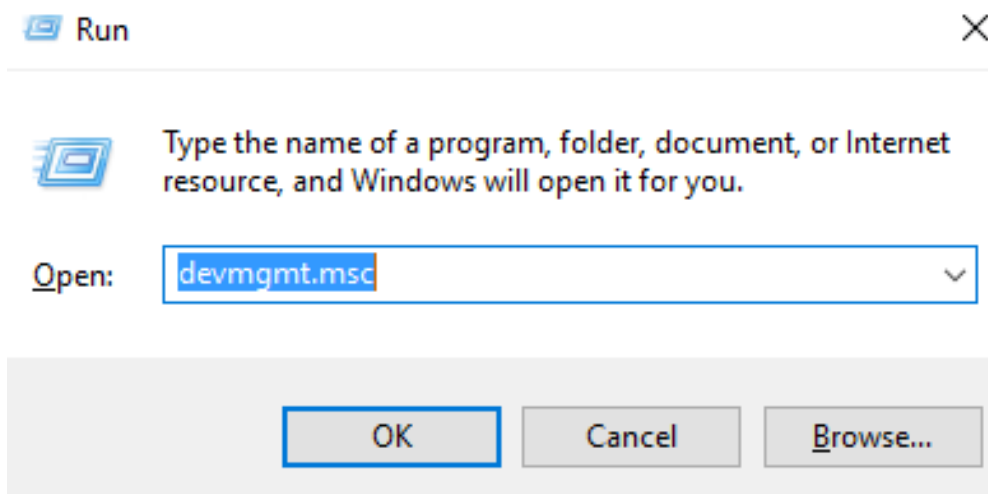
The following software items are required for this recalibration:

- Windows Device Manager
- PuTTY *

Accessing the Device Manager

Press and hold the Windows key, tap R, then release both keys.

A Run window will appear. Type **devmgmt.msc** into this window, then hit Enter on your keyboard.



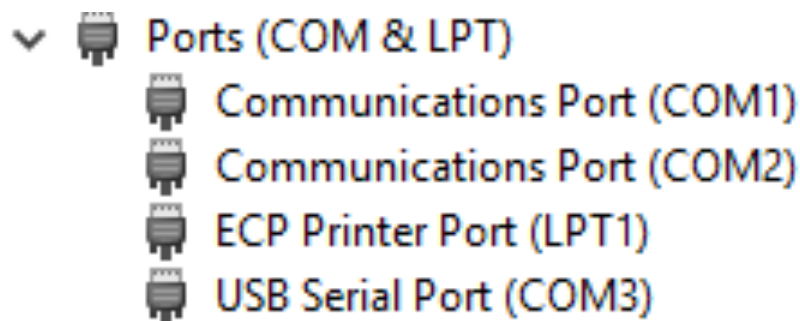
* PuTTY is a free and open-source terminal emulator. It is distributed under the MIT Software License, and is completely free for unrestricted commercial use. For more details on the PuTTY license, [click here](#).

ENTERING MODEL 2000 SP OFFSETS

Reading the COM Port

At this time, plug the unit's power supply into an approved power source.
Plug the USB mouse and keyboard into the Unit.
Toggle both the power switches to the "ON" position.

With Device Manager open, expand the Ports (COM & LPT) menu. While watching the expanded Ports sub-menu, plug the free end of the USB cable into the computer. A new entry will appear, called USB Serial Port. To the right of this text, will be parenthesis. Remember the text enclosed within these parenthesis. This is your COM Port, and will be referenced in the following sections.



Installing PuTTY

Visit www.ninite.com/putty to download the PuTTY installation executable file.

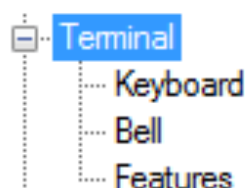
Run the executable and follow the automatic installer instructions to install PuTTY.

Once the installation is complete, run PuTTY by double clicking on the newly created desktop icon.

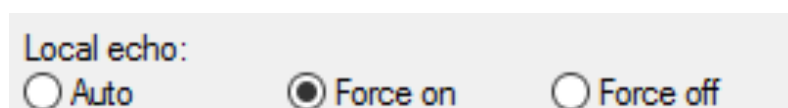
PuTTY Setup

Ensure that PuTTY is running on your computer.

From the Category option on the left side of the window, click Terminal menu item to expand the sub-menu.



Under Local echo, select the Force on button



ENTERING MODEL 2000 SP OFFSETS

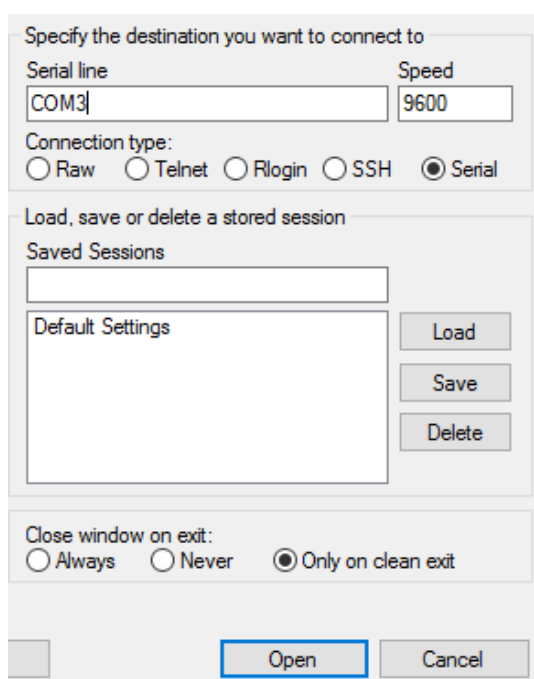
Connecting Through PuTTY

In PuTTY, select **Session** menu under Category on the left

Input your COM Port (reference **Reading the Serial Port** instruction from above) into the **Serial line** field

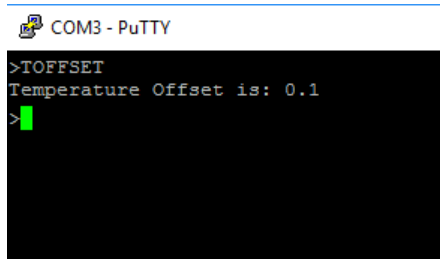
Under **Connection type**, select **Serial**

Click **Open**

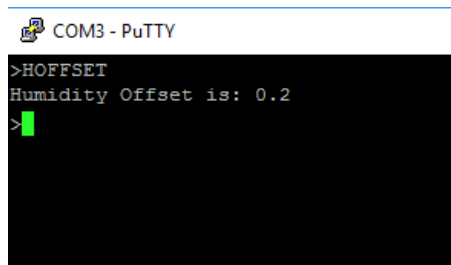


Reading Temperature and Humidity Offsets

Temperature: type **TOFFSET** and press the enter key. The unit will query and display the temperature offset



Humidity: type **HOFFSET** and press the enter key. The unit will query and display the humidity offset



ENTERING MODEL 2000 SP OFFSETS

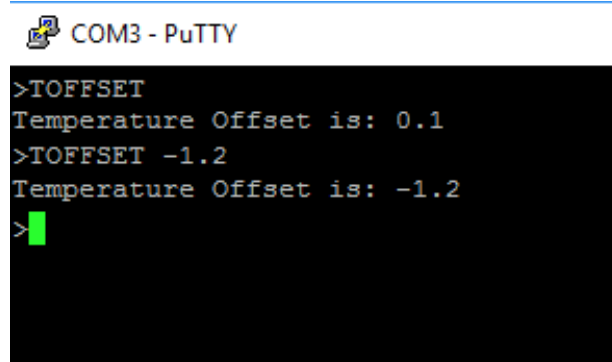
Changing Humidity and Temperature Offsets

PLEASE NOTE:

is a placeholder

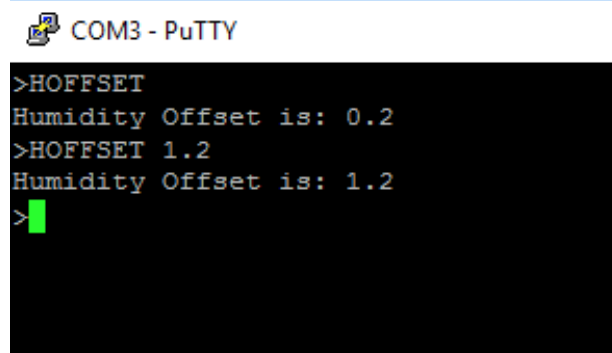
In the following instructions, replace # with your desired integers.
(For example, ## would become 1.2 or -0.2)

Temperature: type **TOFFSET ##** and press the **Enter** key. The unit will query and display the temperature offset. Ensure it has been changed by typing in **TOFFSET** . Press the **Enter** key.



```
COM3 - PuTTY
>TOFFSET
Temperature Offset is: 0.1
>TOFFSET -1.2
Temperature Offset is: -1.2
>
```

Humidity: type **HOFFSET ##** and press the **Enter** key. The unit will set the humidity offset to the new value given by the argument. Ensure it has been changed by typing in **HOFFSET** . Press the **Enter** key.



```
COM3 - PuTTY
>HOFFSET
Humidity Offset is: 0.2
>HOFFSET 1.2
Humidity Offset is: 1.2
>
```

SAFETY WARNING

General Safety Information

- Read all provided and available safety information before you use the Model 2000 SP.
- Carefully read all available instructions.
- Use only the power cord and supply approved for the voltage for the Model 2000 SP.
- Replace the power cord if the insulation is damaged or if the insulation shows any signs of wear.
- Make sure the ground conductor in the power cord is connected to a functioning ground. Disruption of the ground could put voltage on the chassis that could cause death.
- Use the Model 2000 SP only as specified, or the protection supplied by the Product can be compromised.
- Do not put the Model 2000 SP where access to the power cord isn't possible.
- Immediately cease using and disable the Model 2000 SP if it is damaged.
- Do not use the Model 2000 SP if it operates in an incorrect way.
- Do not operate the Model 2000 SP with unit casing removed. Hazardous voltage exposure is possible.
- Use only specified GEO Calibration replacement parts.
- The Model 2000 SP may only be repaired by approved technicians.
- The Model 2000 SP reservoir must be completely emptied before shipment.
- Do not use the Model 2000 SP around explosive gas, vapor, or in damp or wet environments.

SAFETY WARNING

Disposal Safety Information

European Union—Disposal Information



The symbol above means that according to local laws and regulations your product and/or its desiccant shall be disposed of separately from household waste. When this product reaches its end of life, take it to a collection point designated by local authorities. The separate collection and recycling of your product and/or its desiccant at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

Locations

GEO Calibration Inc.
2190 Smithtown Avenue
Ronkonkoma, NY
USA

Tel.: +00/(1) 631 / 471 - 6157
Fax: +00/(1) 631 / 471 - 6158
support@geocalibration.com
www.geocalibration.com



GEO Calibration Inc
2190 Smithtown Avenue, Ronkonkoma, NY 11779, USA
Tel.: +001 (631) 471 - 6157 • Fax: +001 (631) 471 - 6158
support@geocalibration.com • www.geocalibration.com

REPAIRS

Unit Repair Procedure

- Contact GEO Calibration and request an RMA #.
- Have the Product information ready such as the purchase date and serial number to schedule the repair.
- Ship the unit to GEO in the original shipping container or one designed specifically for "Safe Travel".
- Apply your RMA # on the outside of the shipping package in large numbers.
- Apply the top right portion of your quotation with RMA # and bar-code to the outside of the shipping package, so that it is visible.
- Include a copy of this email quote inside your package.
- Estimated Return Ship-Date is 15 business days from the date both the unit and a valid method of payment is received.
- On the Purchase Order, please ensure the "Vendor Name" is GEO Calibration Inc., and the address is 2190 Smithtown Avenue, Ronkonkoma NY 11779.
- Payment Terms are "Immediate Payment" from Date of Invoice, FOB Origin, the respective Dollar Amounts, and any return shipping instructions are completed. (Please, do not send a copy of your internal "Purchase Requisition" as we need the actual "Purchase Order" with the above items included).
- Reference the RMA # on the completed PO and forward a copy via fax (631.471.6158) or email to: service@geocalibration.com
- If credit card is being used for payment and has not been provided as yet, please call +1 (631) 471 - 6157 and provide information; referencing your RMA # when you call.
- ** Exception pricing may apply upon evaluation by the lab. If applicable, this will be presented in a formal re-quote before proceeding.
- Please note that a "Payment Method" must be on file, reviewed and approved before any service work may begin on your item. If you have
- If you have any questions do not hesitate to call or email us.

Please ship the unit to:

Attn: Repairs

GEO Calibration Inc.

2190 Smithtown Avenue

Ronkonkoma, NY, 11779

The United States of America

UNIT MAINTENANCE

Maintenance Schedule

- GEO Recommendation**

GEO Calibration recommends that the unit be annually shipped back to our facility for general maintenance.

Daily	Semi-Annual	As Needed
General Cleaning (Use Proper Cleaning Materials)	Control Probe Calibration	Refill Reservoir with Distilled Water
Ensure the Water Reservoir is Filled		Replace Desiccant Canister
Ensure the Desiccant Ports contain at least one fresh canister.		

MAINTENANCE GUIDE

Desiccant

Overview

The Model 2000 SP ships with a fresh desiccant canister. Each time the Model 2000 SP dries the internal volume of air, the desiccant will become more saturated with water. For optimal performance, the user must periodically replenish or replace the used desiccant. The desiccant type is molecular sieve, which may be regenerated by the user through heating.

The user must replace the desiccant as soon as they see drying performance begin to degrade. To aid in this process, the Model 2000 SP has an on-screen indicator that displays once sub par drying performance is detected. In addition to the on-screen indicator, the desiccant itself also contains a chemical that changes color from blue to pink when saturated with water. The user should change the desiccant once approximately 75% of the molecular sieve has changed in color from blue to pink.

Desiccant Change Procedure

We advise that you purchase extra replacement desiccant canisters directly from GEO Calibration. It is possible to purchase the desiccant in bulk, disassemble the canister and replace the used desiccant with unused desiccant, however, this procedure requires the user to carefully re-assemble the desiccant canister. If this re-assembly is done incorrectly, then air leaks may occur and the unit performance may suffer.

For visual instructions on how to perform a refill of a desiccant canister, please see the next page.

Additional instructions can also be found on the website of the desiccant supplier.

<https://secure.drierite.com/catalog3/page19b.cfm>

MAINTENANCE GUIDE - DESICCANT CHANGE

Changing the Desiccant

Instructions



1. Power Off the Unit

Ensure that the unit is powered off before proceeding with a desiccant change.



2. Loosen Hook & Loop Straps



3. Firmly Grasp Desiccant

This will cause the old desiccant canister to slide from the female adapters. Remove this desiccant completely from the housing and set aside.



4. Locate New Desiccant Canister

Remove the used desiccant canister and replace with the fresh desiccant canister.

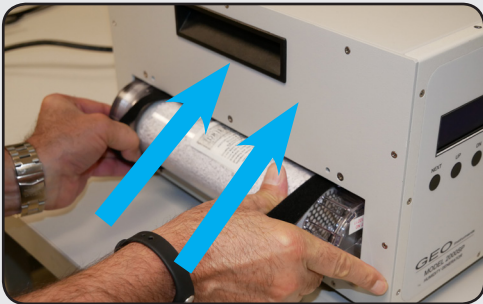
MAINTENANCE GUIDE - DESICCANT CHANGE

Changing the Desiccant - Continued



5. Firmly Insert Desiccant Canister

Ensure the hose barbs properly line up with the sockets on the inside of the desiccant housing.



6. Press with Force to Ensure

Firmly press the seal with both thumbs into the canister housing.



7. Secure Hook & Loop Straps

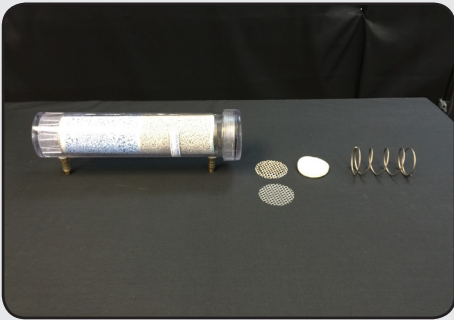
MAINTENANCE GUIDE - DESICCANT REFILL

Desiccant Refill Instructions



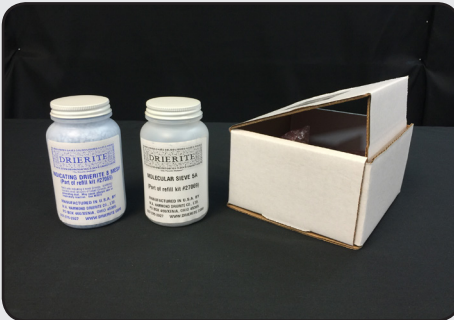
1. Remove Desiccant

Follow the initial steps from the previous section entitled "Desiccant Change".



2. Open Top Cover of Desiccant

Save the spring, the sieve and the three white felt filters. Discard previous desiccant. Wipe the inside of the desiccant canister with a clean cloth. Beat filters clean of debris. Clean the sieve and the spring.



3. Fill Canister with Desiccant

Put the white filter at the bottom. Put the white desiccant inside. Gently tap. Put another filter. Add blue desiccant. Put one more filter. Put one more sieve. Put the spring. Tighten the cover.

MAINTENANCE GUIDE - DRAINING THE UNIT

Draining the Unit



1. Locate the Main Drain Port

Turn the cap counter-clockwise to remove.



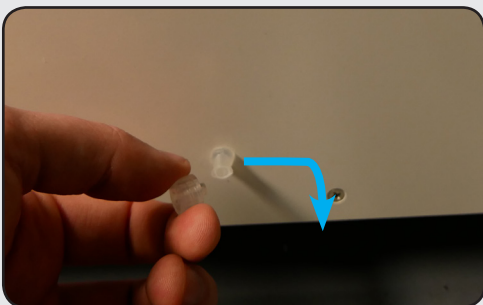
2. Move the Unit to Table Edge

Position a bowl shaped object underneath the unit to catch the drained water.



3. Remove the Drain Cap

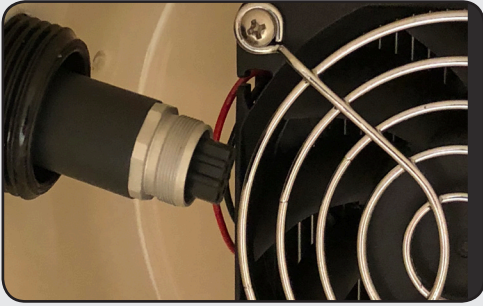
Tilt the unit to ensure maximum water removal.



4. Replace & Tighten Drain Cap

Tighten the drain cap in a clockwise motion. Ensure that the drain cap has a tight seal and no water is leaking.

MAINTENANCE GUIDE - PROBE REPLACEMENT



1. Locate Probe Connector



2. Press Probe into Connector

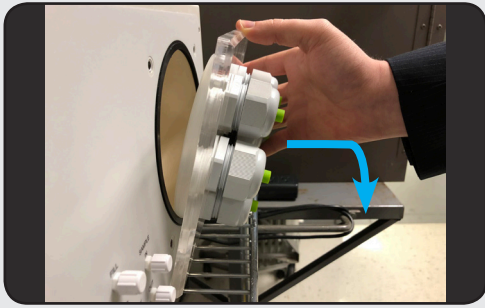
Slowly rotate the probe head as you press into the cabling body. You will feel the probe “seat” itself once the male - female parts align.



3. Secure Metal Connector

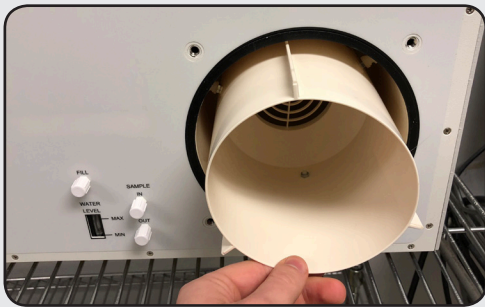
Twist the metal connector away from the chamber entrance to secure the probe head to the probe cabling body.

MAINTENANCE GUIDE - PROBE REMOVAL



1. Open Chamber Door

Turn the screws counter-clockwise to loosen.
Remove the door.



2. Remove Chamber Insert



3. Loosen Metal Connector

Twist towards the chamber opening to loosen.



4. Remove Probe Head

MAINTENANCE GUIDE - CONDENSATION

Condensation in the Chamber



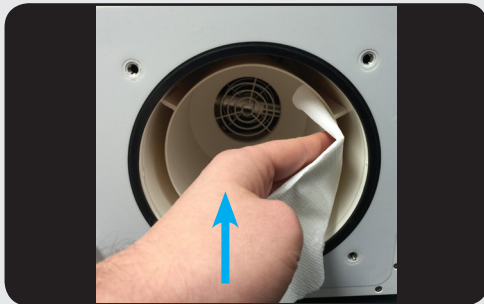
1. Power Off the Unit

Ensure that the unit is powered off. This is so that no desiccant is wasted while the unit is not in operation.



2. Open the Chamber Door

Follow the door opening procedure from the quick start guide.



3. Remove Condensation

Clean all condensation with an absorbent cloth such as a paper towel or bath towel.

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GEO Headquarters



**Proudly Made
in the USA**



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