![GEO Calibration - Humidity Control Company]

MODEL 4000 EXP
User Manual

English

Deutsch

Francais

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

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INTRODUCTION

MESSAGE FROM GEO CALIBRATION

Thank you for purchasing the GEO Calibration Model 4000 EXP 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 start using your GEO Model 4000 EXP immediately, you may proceed to our **Quick Start Guide (page 15).**

For a deeper review of the Model 4000 EXP, See our **Calibration Technical Recommendations (page 21).**

Regards,
GEO Calibration Service Team

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 4000 EXP from its external packaging, please visually inspect the unit for damage. If damage is found, please immediately contact your supplier.

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 system, purchased directly or from an authorized reseller, and does not apply to fuses, disposable batteries, desiccants, distilled water, 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-use customers only but have no authority to extend a greater or different warranty on behalf of GEO Calibration. **Warranty support requires activation and registration at:**

https://www.geocalibration.com/register

and is purchased through a GEO Calibration authorized sales outlet or Buyer has purchased unit directly from GEO Calibration. 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, shipped Ex Works FOB Suffolk County NY.

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.

UNPACKING INSTRUCTIONS

Once you have removed the Model 4000 EXP 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 4000 EXP 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 10 % up to 90 %, while the temperature range is +/- 5°C from room temperature (Typical room temperature is 23°C).

See the full technical specifications (page 21).

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

The Model 4000 EXP can calibrate many hygrometer types, including but not limited to:

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

Please review the dimensions of the calibration chamber to ensure compatibility with the size requirements of any Hygrometers you intend to calibrate.

STANDARD PACKING CHECK LIST

✓	QTY	Part Number	Description
Within the Shipped Case			
	1	01-450-00-0000	Model 4000 EXP Expansion Chamber
	1	01-450-01-0034	Desiccant Tank
	1	01-450-01-0041	Model 4000 EXP Power Supply
	1	01-450-07-0039	Model 4000 EXP Acrylic Base
	1	01-200-36-0002	Control Probe
	1	01-200-01-0035	Model 4000 EXP Accessories Kit
	1	01-200-36-0013	GEO Accessories Box
	1	01-450-01-0023	Model 4000 EXP Shelf
	1	02-350-07-0005	Clear Door
	1	01-450-01-0030	Spring Loaded Accessory (For Hair Hygrometer)
	1	N/A	Calibration Documents / Trace Paperwork

✓	QTY	Part Number	Description
Within the Accessories Bag			
	1	01-200-69-0001	Type A Male to Type A Male USB Cable
	1	01-200-46-0001	Mains Power Cord (220Vac or 110Vac)
	1	01-450-36-0003	Fill Syringe (50 mL)
	2	01-200-85-0001	4 AMP Fuse (1 pack) (Fast Acting)
	1	01-450-75-0001	Ultrasonic Wick
	1	01-450-01-0019	Ultrasonic Transducer (1 pack)
	1	01-450-36-0002	Ultrasonic Extraction Tool (1 pack)

STANDARD PACKING CHECK LIST

Within the Accessories Box			
✓	QTY	Part Number	Description
	1	01-001-00-0017	6 Port Door Square with 6 Plugs
	4	01-001-66-0001	GEO Knobs (1 pack)
	1	01-200-01-0036	GEO Bungs (7 pack)

Calibration Documents			
✓	QTY	Part Number	Description
	1	N/A	Factory Calibration Report
	1	01-999-99-0001	3rd Party Calibration Certification (IF ORDERED)

VISUAL ITEM CHECK LIST

Listed below are standard contents included with the purchase of a new Model 4000 EXP.
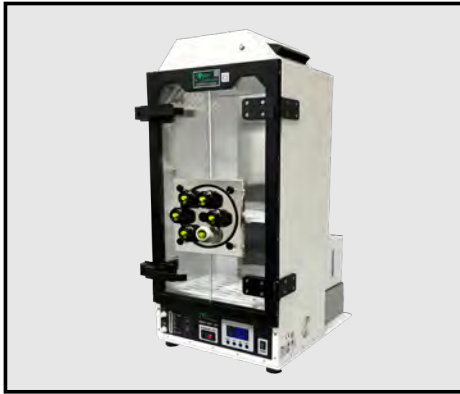
Humidity Generator
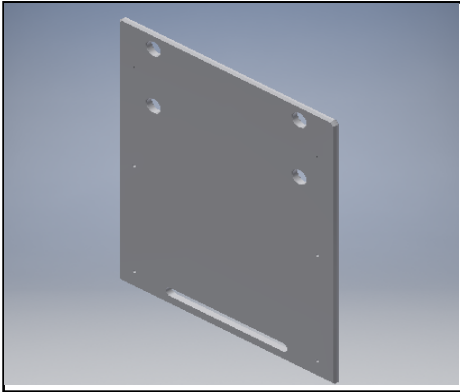
GEO Calibration
Model 4000 EXP
P/N:01-450-00-0000

Desiccant Tank

Pre-Filled with molecular sieve
P/N: 01-450-01-0034

Power Supply

P/N: 01-450-01-0041

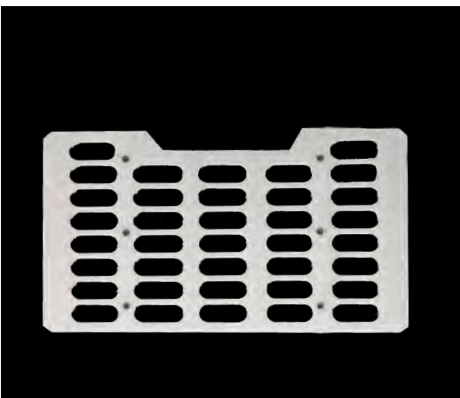**Model 4000 EXP Acrylic Base**

P/N: 01-450-07-0039

Control Probe

HC2-S HygroClip
control probe (pre-installed with
calibration certificate)
P/N:01-200-36-0002

Clear Door

P/N: 02-350-07-0005

Internal Shelf

P/N: 01-450-01-0023
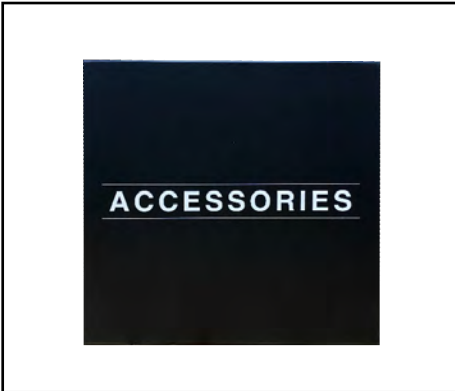

Spring Loaded Accessory
(For Hair Hygrometer)

P/N: 01-450-01-0030

M4000 EXP Accessories Kit

Contents:
See Page 11
P/N: 01-450-01-0044

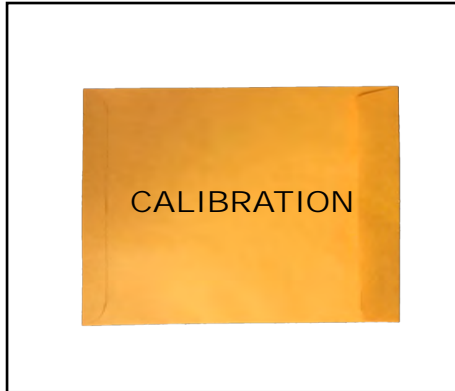## VISUAL ITEM CHECK LIST

M4000 EXP Accessories Box
Contents:
See Below
P/N: 01-200-36-0013

Calibration Documents

ACCESSORIES BOX CONTENTS

6 Port Door Square with 6 Plugs

P/N: 01-001-00-0017

4 Piece GEO Knob Kit
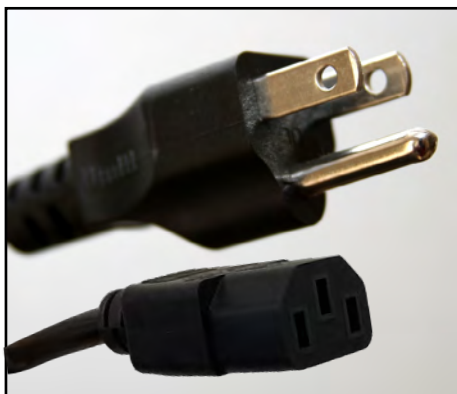
P/N: 01-001-66-0001

7 Piece Bung Kit

P/N: 01-200-01-0036

ACCESSORIES BAG CONTENTS

USB Cable

(A to A)
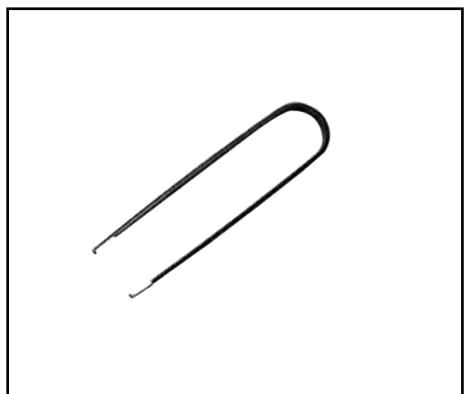
P/N: 01-200-69-0001

Mains Power Cord

P/N: 01-200-46-0001   US
P/N: 01-200-46-0002   EUR

Fill Syringe (50 mL)
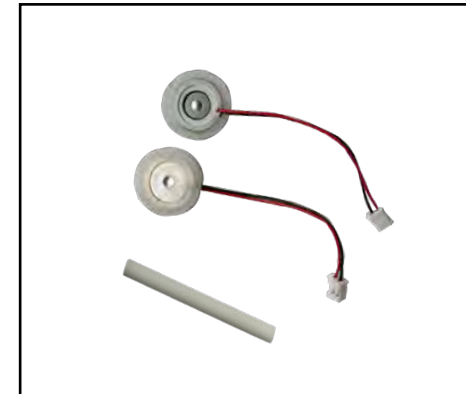
P/N: 01-450-36-0003

Ultrasonic Extraction Tool

P/N: 01-450-36-0002

4 AMP Fuse Set

P/N: 01-200-85-0001

Ultrasonic Wick And Ultrasonic Transducer

P/N: 01-450-75-0001
01-450-01-0019

AVAILABLE ACCESSORIES
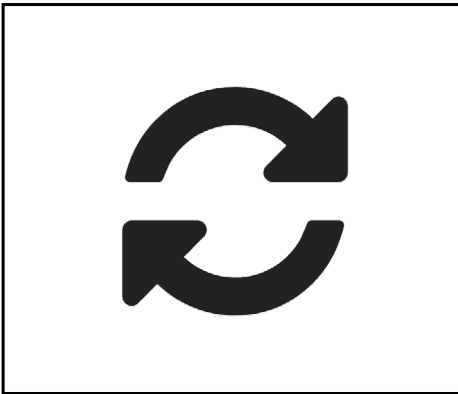
Replacement Desiccant

P/N: 01-450-36-0004

Replacement Fill Tube

P/N: 01-450-36-0003

Replacement Control Probe

HC2-S HygroClip control probe

P/N: 01-200-36-0002

ISO 17025 System Recalibration

P/N: 01-999-99-0004

971 Door

P/N: 01-001-00-0029

Chilled Mirror Door

P/N: 01-001-00-0010
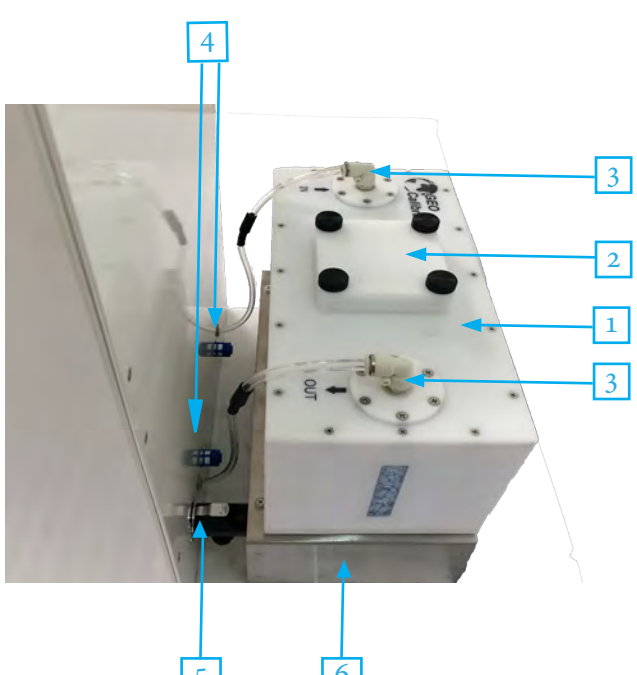
Drawer Door

P/N: 01-001-00-0026

Silicone Adapter Variations (Regular and Slimline)

AVAILABLE ACCESSORIES

Part Number	Type		Bung Size		Port Size	
Grommets / Bungs						
M36 are for Standard Hygrometers **PG36 are for Chilled Mirror Adapters**						
			mm	in	mm	in.
01-004-09-0001					0.000	0.000"
01-004-09-0002					3.175	0.125"
01-004-09-0003					6.350	0.250"
01-004-09-0004					9.525	0.375"
01-004-09-0005	Regular	M36	31.00	1.22"	12.700	0.500"
01-004-09-0006					15.875	0.625"
01-004-09-0007					19.050	0.750"
01-004-09-0008					22.225	0.875"
01-004-09-0009					25.400	1.000"
01-004-09-0020					3.175	0.125"
01-004-09-0021					6.350	0.250"
01-004-09-0022					9.525	0.375"
01-004-09-0023	Slimline	M36	31.00	1.22"	12.700	0.500"
01-004-09-0024					15.875	0.625"
01-004-09-0025					19.050	0.750"
01-004-09-0026					22.225	0.875"
01-004-09-0027					25.400	1.000"
01-004-09-0034					00.000	0.000"
01-004-09-0028					12.700	0.500"
01-004-09-0029					15.875	0.625"
01-004-09-0030	Regular	PG36	44.45	1.75"	19.050	0.750"
01-004-09-0031					25.400	1.000"
01-004-09-0032					31.750	1.250"
01-004-09-0033					34.290	1.350"
01-004-09-0035					9.525	0.375"
01-004-09-0036	Slimline	PG36	44.45	1.75"	15.875	0.625"
01-004-09-0037					25.400	1.00"

UNIT DIAGRAM AND PARTS LISTING

Below you will find a diagram of the Model 4000 EXP's various operational parts.

FRONT	DESCRIPTIONS
	1 Transparent Door 2 Fill Port 3 Drain Port 4 Fill Level Indicator 5 Ultrasonic Test 6 Control Panel 7 Power Switch 8 Control / Reference Probe 9 Clear Door 10 Peltiers for Temp Control 11 Shelf 12 Light Button 13 Spring Loaded Accessory
REAR	DESCRIPTIONS
	1 External Desiccant Canister 2 Desiccant Fill Port 3 EXT Desiccant Connectors 4 EXT Desiccant Receivers 5 DC Connector Port 6 Power Supply

QUICK START GUIDE

Read Before Turning On The Unit

1.

After receiving the unit, open the door to let the chamber dry for 10 minutes. Use soft paper tower to wipe the water in the chamber if needed.

2.

Turn on the unit and set the temperature to 30 °C and humidity to 30 % to let the unit settle, approximately for 20 minutes (first time only).

PLEASE NOTE:

1. Do not use alcohol inside the chamber.
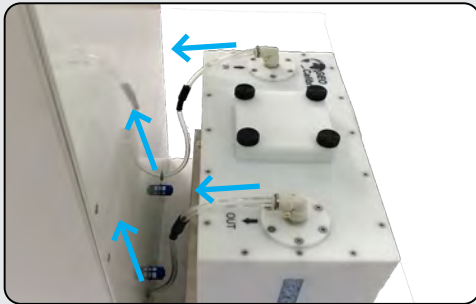2. The above instruction must be followed to ensure unit is dry from any changes during shipping.

Supplies Needed

Desiccant

Desiccant Tank
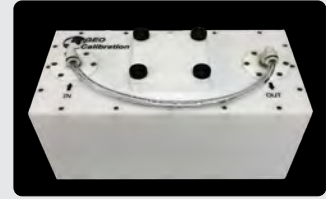
1. Remove the Desiccant Canister

Remove the tubes from both unit and desiccant canister. To remove the tubes from desiccant, press the fitting first and pull to remove.

2. Locate the Desiccant Seal

Remove the seal screws by turning clockwise and pull to remove.
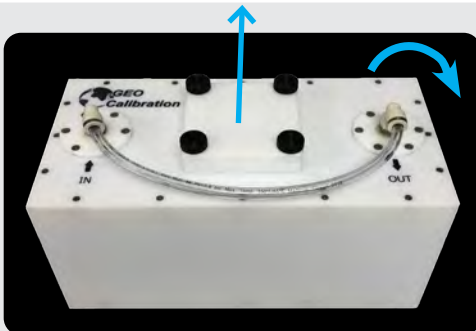
3. Remove the Desiccant Material

Invert the desiccant canister and shake it to remove all desiccant material in it.

4. **Fill with Desiccant**

The desiccant canister takes approximately 12.5 lbs of desiccant material.

5. **Reseal the Desiccant Canister**

Put the cover back and reseal the screws.

FILLING THE RESERVOIR
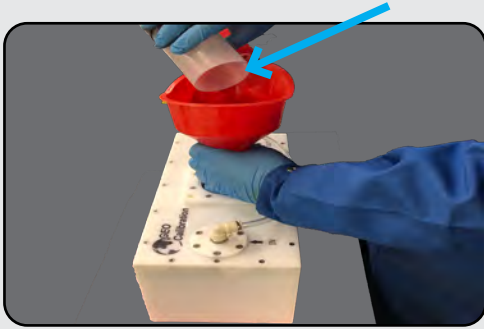
Supplies Needed

Distilled Water Only

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. Fill Syringe with Distilled Water

4. Attach Fill Syringe to Fill Port

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

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.
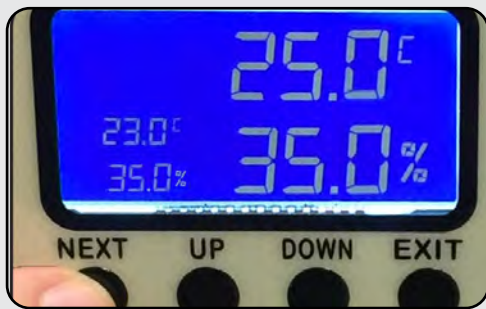
6. Loosen and Remove Syringe

Turn the fill syringe tip counter-clockwise to loosen.

7. Re-Install the Fill Cap
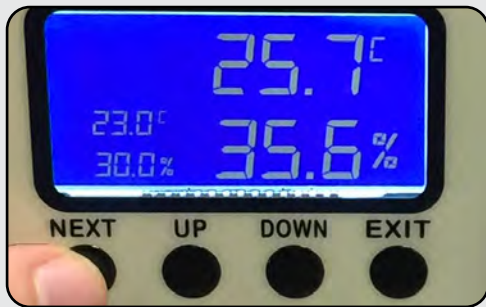
Turn the cap clockwise to tighten the cap and seal the fill port.

UNIT OPERATION (PID CONTROLLER)

1. **Observe the Display**

Current Temperature	Top Right
Current Relative Humidity	Bottom Right
Programmed Temperature	Middle Left
Programmed Relative Humidity	Bottom Left

2. **Changing Humidity & Temperature**

Pressing the "Next" button activates the set-point toggle. The selected field will repeatedly flash its current programmed value. Repeated presses will toggle between the Humidity and Temperature fields.
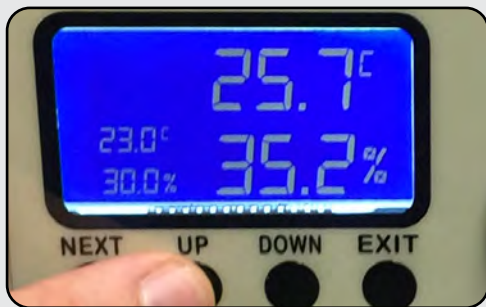
3. **Raise the Desired Set-point**

Pressing the "UP" key will raise the selected set-point.
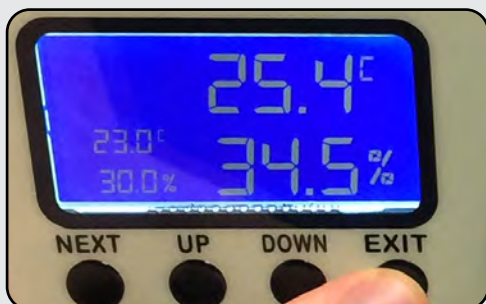
Holding the "UP" key will rapidly raise the selected set-point.

4. **Lower the Desired Set-point**

Pressing the "DOWN" key will lower the selected set-point.

Holding the "DOWN" key will rapidly lower the selected set-point.

5. **Commit Your Changes**

Pressing the "EXIT" key will commit your changes.

The Unit will also commit your changes if left alone for 30 seconds.

GENERAL SPECIFICATIONS

CALIBRATION TO (17025 TRACEABLE TO NIST)	**TRANSFER STANDARD**	**No Charge**		
	CERTIFICATE	17025 Validation (Additional Fees Apply)		
CONTROLLED RANGE	**TEMPERATURE**	**Ambient +/-5 °C**		
	HUMIDITY@18 °C	**10 % to 70 % RH**		
	HUMIDITY@23 °C	**10 % to 90 % RH**		
	HUMIDITY@28 °C	**10 % to 70 % RH**		
CALIBRATION SYSTEM ACCURACY	**TEMPERATURE**	**± 0.3 °C Or Better**	***Based on Probe Accuracy**	
	HUMIDITY	**± 3.0 % RH Or Better**	***Based on Probe Accuracy**	
	CONTROLLER TYPE	**PID Controller**		
UNIFORMITY	**TEMPERATURE**	**0.3 °C @ 23°C**		
	HUMIDITY	**3.0 % RH @ 23°C**		
STABILITY	**TEMPERATURE**	**0.2 °C**		
	HUMIDITY	**1 % RH @ 23°C**		
RESOLUTION	**DISPLAY**	**Temperature**	**0.1 °C**	
		Humidity	**0.1 % RH**	
RAMP / SOAK RATE OF CHANGE *Depends on ambient and desiccant conditions	**TEMPERATURE**	**High → Low**	**0.5 °C / minute**	***Typical (Based on Desiccant)**
		Low → High	**1 °C / minute**	***Typical (Based on Desiccant)**
	HUMIDITY	**High → Low**	**1 % RH / minute**	***Typical (Based on Desiccant)**
		Low → High	**1 % RH / minute**	***Typical (Based on Desiccant)**

SPECIFICATION ANNOTATIONS

If the desired humidity set-point is higher than 70%,
   *   Set the temperature to your desired point first, and let the chamber stabilize. Next, set the humidity to the desired set point.
   **   To achieve low temperature with high humidity, you must first set the humidity value to 70% or lower, and let the chamber stabilize. Then, set the temperature to the desired set point. This avoids condensation appearing within the chamber.
Note:
If condensation is formed in the chamber:
   A. Open the chamber door and wipe any visible water away with a paper towel.
   B. Set humidity to 30% and temperature to 30 °C then let the unit dry and stabilize.

CONSUMABLES

WATER	**RESERVOIR**	600 ml		
	SPILL RESISTANT	No		
	REQUIRED FLUID	Distilled Water Only		
	EST. REFILL PERIOD	1 Week (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	External		
	FASTENER	Connect with Tube		
RECALIBRATION	**FREQUENCY**	Depends on User Uncertainty Requirements		
		Once Per Year Recommended		

MECHANICAL

BODY ENCLOSURE	**Material**	Powder Coated Aluminum		
GENERATOR DIMENSIONS	**Measurement Type**	Depth	Width	Height
	Metric	51.43 cm	41.76 cm	83.21 cm
	English	20.25 in	16.44 in	32.76 in
CHAMBER DIMENSIONS AND VOLUME	**Measurement Type**	Depth	Width	Height
	Metric	20.03 cm	31.77 cm	53.41 cm
	English	7.89 in	12.51 in	21.03 in
	Volume	30 Liter Effective Working Volume		
CHAMBER ENCLOSURE	**Material**	Insulated Acrylic		
WEIGHT	**Metric**	28 kg		
	English	61.75 lb		
POWER SUPPLY	Universal 100 - 260 VAC - 50/60 Hz			
EXTERNAL INTERFACE	**USB**	Cable		

CALIBRATION

UUTs (UNITS UNDER TEST)

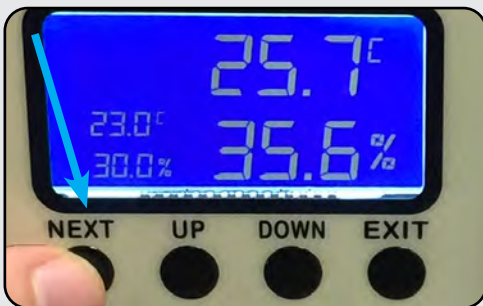### Supplies Needed

UUT
[Unit Under Test]
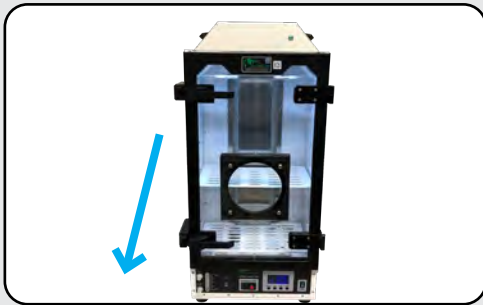
1. Open the Chamber Door

Measure the diameter of the UUT to ensure it will fit inside the chamber. Ensure the door is securely fastened to the chamber.

2. Insert UUT

Insert your UUT at least 3 inches into the Model 4000 EXP 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 STANDARD RECALIBRATION

Control Probe / Reference Sensor

Overview

The Model 4000 EXP 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.

Capacitive 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 STANDARD 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 as of publication of this manual:

https://s.campbellsci.com/documents/ca/manuals/hc2-s3-l_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 23ºC for at least ten minutes.

Maintaining Probe Accuracy

The following text is the recommended maintanence 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."
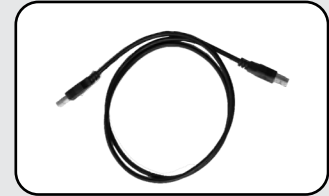
ENTERING MODEL 4000 EXP OFFSETS

Supplies Needed

Windows PC with
USB Port
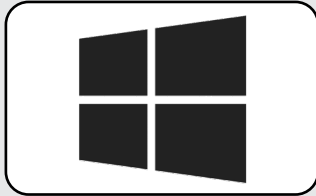
USB Cable

Unit Offset Calibration via PuTTY

The Model 4000 EXP 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.
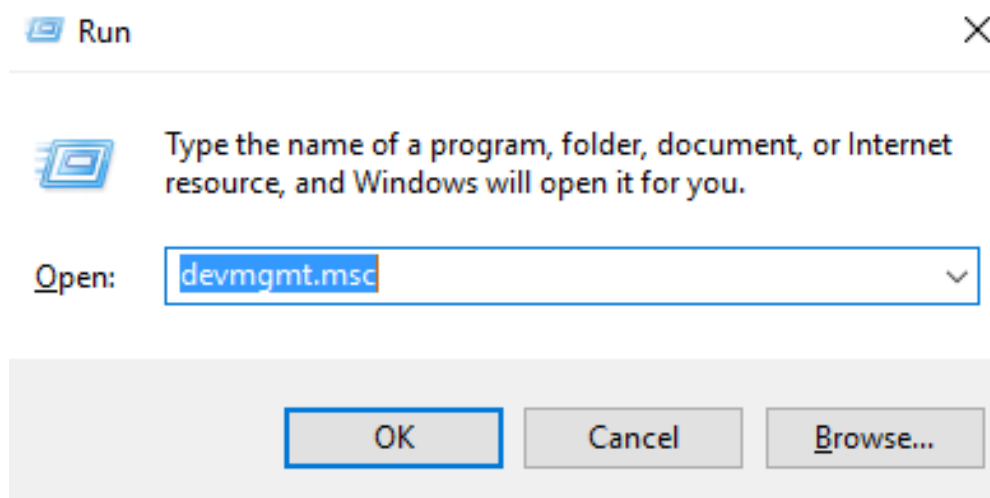
The following software items are required for this recalibration:
- Windows Device Manager
- PuTTY *

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.

Run   ✕

Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.

Open: devmgmt.msc

OK   Cancel   Browse...

---

* 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 4000 EXP 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.

Ports (COM & LPT)
    Communications Port (COM1)
    Communications Port (COM2)
    ECP Printer Port (LPT1)
    USB Serial Port (COM3)

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.

Terminal
    Keyboard
    Bell
    Features
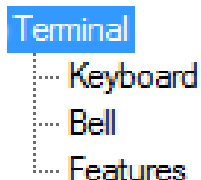
Under Local echo, select the Force on button

Local echo:
◯ Auto   ◉ Force on   ◯ Force off
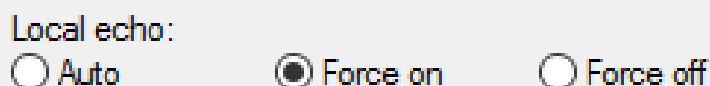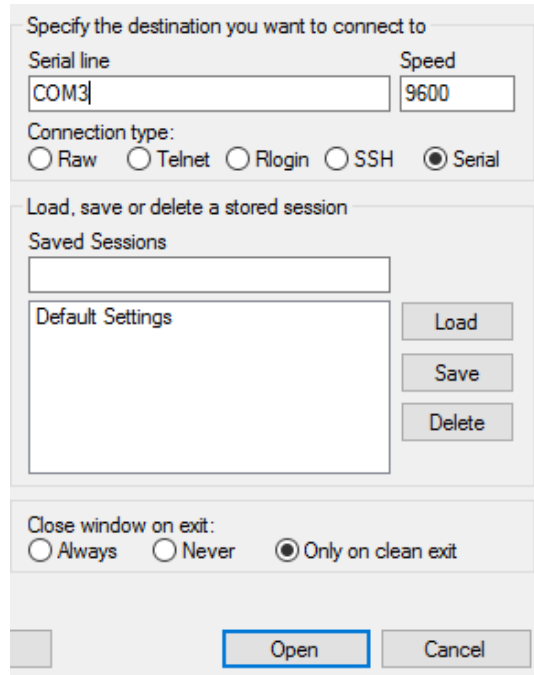
ENTERING MODEL 4000 EXP OFFSETS

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

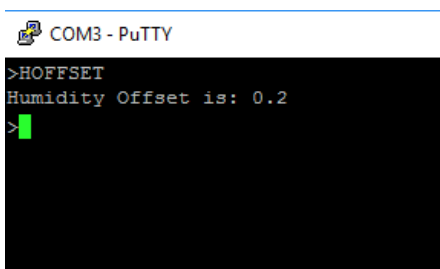Under **Connection type**, select **Serial**

Click **Open**
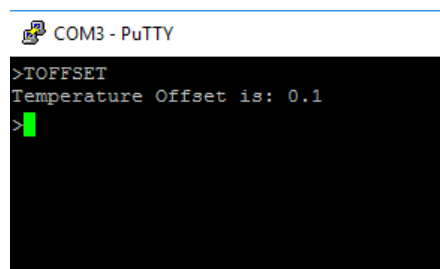
Reading Temperature and Humidity Offsets

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

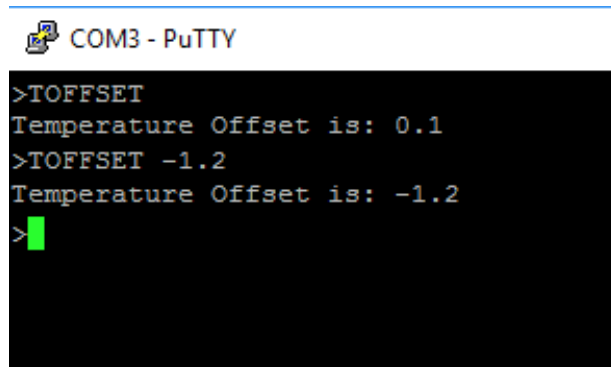# ENTERING MODEL 4000 EXP OFFSETS

Changing Humidity and Temperature Offsets

PLEASE NOTE:
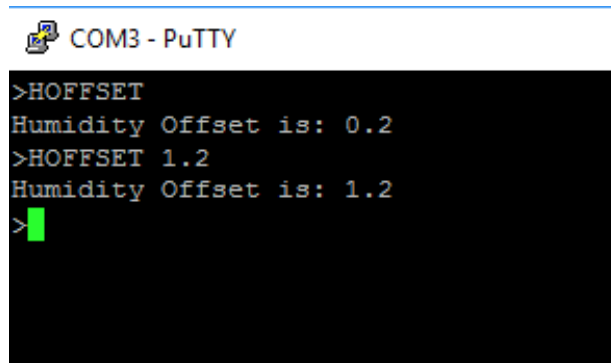
#.# is a placeholder

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.

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.

SAFETY WARNING

General Safety Information

- Read all provided and available safety information before you use the Model 4000 EXP.

- Carefully read all available instructions.

- Use only the power cord and supply approved for the voltage for the Model 4000 EXP.

- 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 4000 EXP only as specified, or the protection supplied by the Product can be compromised.

- Do not put the Model 4000 EXP where access to the power cord isn't possible.

- Immediately cease using and disable the Model 4000 EXP if it is damaged.

- Do not use the Model 4000 EXP if it operates in an incorrect way.

- Do not operate the Model 4000 EXP with unit casing removed. Hazardous voltage exposure is possible.

- Use only specified GEO Calibration replacement parts.

- The Model 4000 EXP may only be repaired by approved technicians.

- The Model 4000 EXP reservoir must be completely emptied before shipment.

- Do not use the Model 4000 EXP 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.

TECHNICAL SUPPORT

Locations

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 PROCEDURES

- **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 barcode to the outside of the shipping package, so that it is visible**
- **Include a copy of all GEO communication documentation 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 service center. 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 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, USA

MAINTENANCE

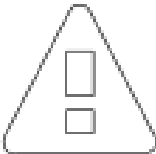## SERVICE SCHEDULE

- **Maintenance Recommendations:**
  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 Ultrasonic Humidity Generator does not have scaling and is free of other detritus.		
Ensure the Desiccant Ports contain at least one fresh canister.		

INDICATION ICONS

The 4000 EXP does not display error codes.

Instead, the unit utilizes a series of on-screen icons to communicate machine status to the user.

Name	Icon	Indication	Action
WET WARNING	WET	The unit is not adding humidity at a sufficient rate.	Check reservoir fill level.
DRY WARNING	DRY	The unit is not drying at a sufficient rate.	Check desiccant. Replace if desiccant is fully saturated.
COMM		Unit is receiving commands from the GEO Software Application	No Action Required
FAULT		The BIT (Built in Test) has detected a condition which will not allow control of the chamber.	
For questions, please contact GEO Calibration.You may also visit our website at www.geocalibration.com for more assistance.			

1. Locate the Main Drain Port
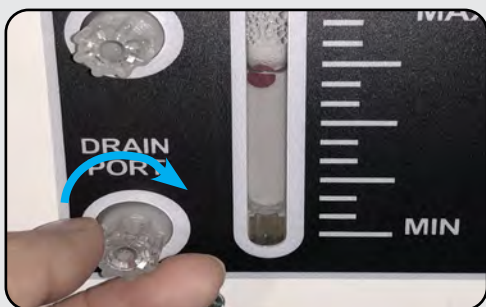
Turn the cap counter-clockwise to remove.

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.

Adjusting Shelf Height

The Model 4000 EXP features a removable shelf system. The instructions below detail how to change or remove the shelves to accommodate the different kinds of hygrometers you may encounter as a calibration technitian.
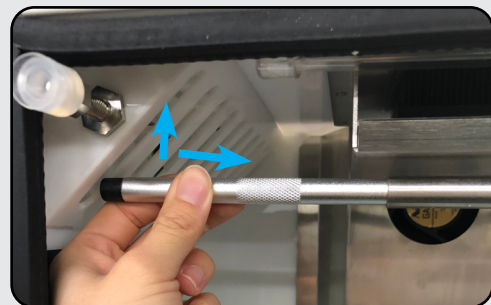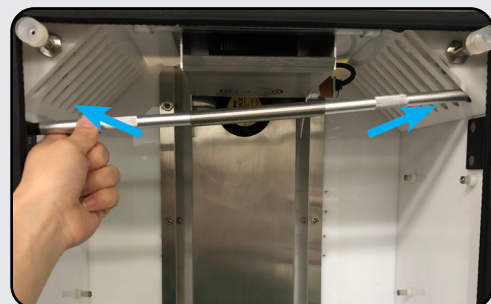

1. ## Lift One Side of the Shelf
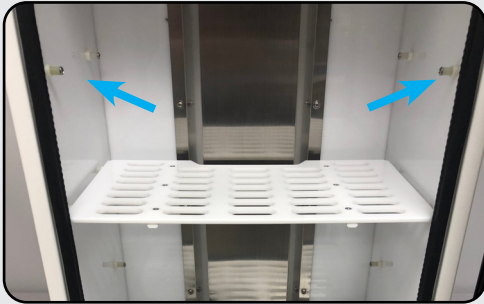
2. ## Remove Shelf from Anchors

You may, remove, change or replace any of the shelves using the existing anchor points.

Adjusting Spring Loaded Accessory

1. ## Lift and Press One Side of the Accessory

2. ## Remove Accessory from Anchors

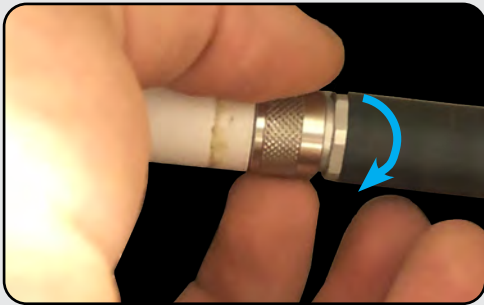You may, remove, change or replace the accessory using the existing anchor points.

1. **Locate Probe Position**

2. **Free Probe from Brackets**

3. **Loosen Metal Connector**

Twist towards the chamber opening to loosen.

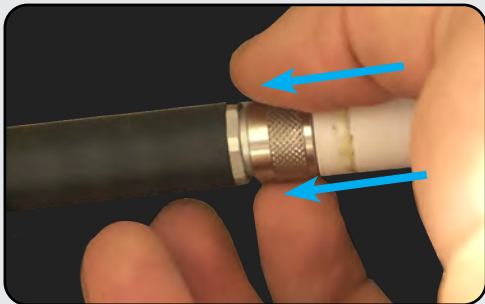4. **Remove Probe Head**

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.

4. Secure Probe in Brackets

INDUSTRIES

**PHARMACEUTICAL
MANUFACTURING**
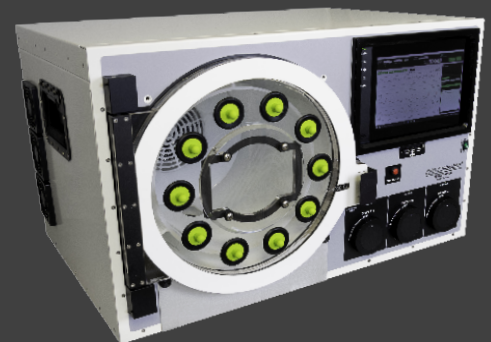
CALIBRATION LABS

BIOMEDICAL

**R&D
FACILITIES**

FOOD PRODUCTION

**AUTOMOTIVE
MANUFACTURING**

AEROSPACE

HOSPITAL / MEDICAL

CLEAN ROOMS

**For a complete product and accessory review,
please visit our website: www.geocalibration.com**

CONTACT US:

**GEO
Calibration**
Humidity Control Company

Email: Sales@GeoCalibration.com

Website: www.GeoCalibration.com

GEO Calibration

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