

FRISTADEN LAB

FristadenLab.com
support@fristadenllc.com

Analytical Balance User Manual

Model: HC2104N
0.0001g (0.1mg) Accuracy
210g Capacity
Automatic Internal Calibration



Made in China

FRISTADEN LAB

Owned and operated by
Fristaden & Company, LLC
401 Ryland Street, Suite 200-A
Reno NV, 89502 USA

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WARRANTY

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The Analytical Balance has a 1 Year Manufacturer's Warranty. Please contact the Fristaden Lab customer service department at support@fristadenllc.com for more information.

ABOUT US

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Fristaden Lab is a lab and scientific equipment retailer established in 2013 in Chicago, Illinois.

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We sell an array of popular products, including analytical balances, centrifuges, glassware, hematology counters, hot plates, magnetic stirrers, pH meters, pipettes and pressure pumps.

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We stand behind all of our products, offering a 1-2 year warranty, 30-day returns, and a responsive customer service team committed to solving any questions or issues you may have.

CONTACT

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Maintenance

MAINTENANCE AND STORAGE

- The balance is a highly precise instrument and should be handled carefully.
- Do not disassemble the balance.
- Power off and unplug before cleaning or storing it.
- Cover the balance after use.
- Do not clean the machine with elements that may corrode the machine. Use a mild detergent and a wet, smooth cloth to clean.
- Make sure no liquid enters the balance.

Summary

IMPORTANT!

Thank you for purchasing the Analytical Balance. Please read the User Manual carefully before use and follow all operating and safety instructions!

PRODUCT FEATURES

SAVE TIME AND MONEY WITH INTERNAL CALIBRATION: How much is your or your employees' time worth? A high precision balance demands frequent, often time-consuming, calibration to stay accurate. The Fristaden Lab Analytical Balance automatically calibrates itself - accounting for changes in temperature, stability, time, location, gravitational pull and voltage. Internal calibration saves time and stress, while delivering accurate results.

RESULTS YOU CAN TRUST - TO 0.0001g: Every part of the analytical balance's design is dedicated to giving you accurate and precise results. The laboratory balance features an electromagnetic load cell that is tested for repeatability and linearity before sale. The internal calibration mechanism accounts for even the smallest fluctuations in the environment, which is essential at the sub-microgram level. The glass windshield protects against wind currents and a level bubble shows if the surface is flat and stable.

Summary

PRODUCT FEATURES

CONNECT DATA TO YOUR COMPUTER: Link readings from the digital lab balance to your computer printer with a RS-232 connection. The scientific weighing scale's data collection feature makes it easy to organize and analyze your results.

MANY FEATURES, INTUITIVE CONTROLS: The scientific balance can be used for weighing and counting parts. Results are displayed on a LCD Touch Screen. Easily convert units, schedule internal calibration, save data to your computer and more. The laboratory balance can be set up in under 15 minutes and comes with a detailed, user-friendly instruction manual.

Summary

SPECIFICATIONS

Brand	Fristaden Lab
Model	HC2104N
Calibration	Auto Internal Calibration
Sensor	High Accuracy Electromagnetic Force Sensor
Capacity	210g
Accuracy	0.1mg
Readability	0.0001g
Linearity Error	±0.0003g

Troubleshooting

NO DISPLAY

REASON	SOLUTION
<ul style="list-style-type: none">No power.	Plug in the power adapter.
<ul style="list-style-type: none">AC/DC main transformer is broken.	Contact the manufacturer for a replacement power adapter.

DISPLAYED VALUE IS UNSTABLE

REASON	SOLUTION
<ul style="list-style-type: none">Poor working environment.	Move away from vibrations or breezes.
<ul style="list-style-type: none">The chamber door is not closed properly.	Close the balance's chamber door.
<ul style="list-style-type: none">Power source exceeds limit.	Connect an external AC main stabilizer.

INACCURATE WEIGHING RESULT

REASON	SOLUTION
<ul style="list-style-type: none">The balance is not calibrated.	Calibrate the balance.
<ul style="list-style-type: none">The display is not at 0 before weighing.	Press TARE to return display to 0.
<ul style="list-style-type: none">The balance is not leveled.	Adjust the feet to level the balance.

Operation

PRINTING FUNCTION

- Connect the balance to the printer using the RS-232 port.
- Press PRT.
- Select how you would like data to be printed.

-p r t-0	Press PRT to print data manually.
-p r t-1	Print one time after the weight is stable.
-p r t-2	Print every 2 minutes.
-p r t-3	Print every 3 minutes.
-p r t-4	Print continuously.

COMPUTER CONNECTION

- Connect the balance to the computer using the RS-232 port.
- Download the XCOM V2.2 software. You should receive this in an email with your purchase. If not, contact support@fristadenllc.com.
- Select how quickly you would like data to be entered.

-p r t-0	Press PRT to enter data manually.
-p r t-1	Enter one time after the weight is stable.
-p r t-2	Enter data every 2 minutes.
-p r t-3	Enter data every 3 minutes.
-p r t-4	Enter data continuously.

Summary

SPECIFICATIONS (CONTINUED)

Warm Up Time	30 minutes
Preheating Temp.:	20°C ±2.5°C
Stabilization Time	≤ 8s
Pan	Stainless Steel
Features	Tare/Counting
Unit Conversion	ct, g
Overload Alarm	Yes
Error Indication	Yes
Pan Diameter	80mm
Dimensions	360mm x 205mm x 330mm
Base	Aluminum
Body	ABS Plastic
Shield	3 Glass Wind Resistant Doors
Leveling Bubble	Yes
Leveling Feet	Yes
Working Temp.	15-25 °C
Power	100-240V
N.W./G.W.	6.5kg/7.6kg

Safety

WARNING!

Ensure everyone operating the machine reads the user manual and understands the operating instructions, cautions and dangers associated with the machine. Only trained staff should operate the machine.

Safety

IMPORTANT!!

- Operate the machine in a safe environment away from hazards. Do not operate in a flammable, magnetic or dangerous environment. Keep the machine away from magnetic parts (e.g. watches, pacemakers, etc.)
- Check the machine and accessories prior to each use for damage. Do not use the machine if damaged. Contact the manufacturer.
- Before plugging the machine into an electrical outlet, make sure the voltage and frequency matches that of the machine.
- Place the machine on a flat and spacious work surface.
- Operate the machine in a safe, dry and well ventilated environment.
- Always power off and unplug the machine when not in use. Store it in a safe place away from hazards
- Do not exceed the max weight (210g) to avoid damaging the sensor.
- Do not use sharp or rough objects to avoid damaging weighing sensor.

Operation

COUNTING FUNCTION

*Used to count number of parts by extrapolating from original sample.

- Press and hold PCS.
- The balance will display 5, 10, 15 and 20 in succession.
- Place the corresponding number of units on the scale. For example, if you choose 10, then place 10 units on the scale.
- Press CAL key to confirm.
- The balance will display ---, then the weighing number.
- Remove pieces, and the balance will display 0.
- Add or remove pieces from the pan and the scale will display the number of pieces used. For example, add 3 and the scale will display 13.
- Press PCS again to exit counting function.

TARE

- Place empty container on the pan. It will display the weight.
- Press TARE until 0 is displayed.
- Place additional objects in the container to find the net weight.
- When you remove the empty container, the scale will display a negative number.
- Press TARE again and the weight display will return to zero.
- Press TARE before weighing to ensure accurate reading (starting from 0).

Operation

UNIT CONVERSION

- Hold UNIT until the units are displayed.
- Choose the unit you prefer.

INTERNAL CALIBRATION SPEED

- The internal calibration procedure can be done at different speeds.
- Faster calibration can be used for daily use, but the balance should periodically be fully calibrated with the slowest internal calibration speed.
- There are four modes to choose from:

INT-0	Fastest
INT-1	Fast
INT-2	Slow
INT-3	Slowest

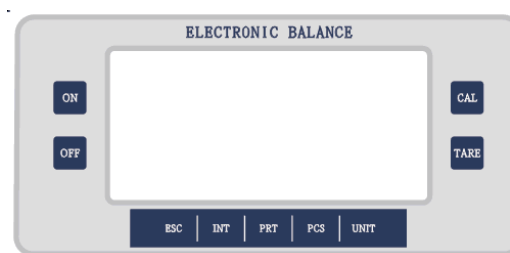
STABLIZATION ADJUSTMENT

- The balance can be stabilized to different degrees of precision.
- NOTE: Use the internal stabilization adjustment instead of stabilizing the balance manually.
- There are four modes to choose from:

ASD-0	Most Sensitive
ASD-1	Sensitive
ASD-2	Less Sensitive
ASD-3	Least Sensitive

Display and Controls

DISPLAY



CONTROLS

ON	Turn device ON.
OFF	Turn device OFF.
CAL	Calibrate the scale (internally).
TARE	Reduce gross weigh to tare weight.
ESC	Adjusting sensitivity.
INT	Adjusting the speed.
PRT	Print the data.
PCS	Counting function.
Unit	Change the unit between g and ct.

Operation

PACKING LIST

- Analytical Balance
- Weighing Pan
- Glass Shield
- Power Adapter
- User Manual

Operation

INSTALLATION

CHECK FOR DAMAGE - Open the package and ensure no parts were damaged during delivery. Make sure all parts shown in the packing list are included.

- Place the balance on a flat, stable working platform.
- Install sample pan holder and pan.
- Observe the position of the level bubble. If it is offset, adjust the feet until it is level.
- Attach power cord and plug in device.
- The scale accepts 110-220V. Please confirm the correct voltage before using the scale.
- Do not overload the full capacity of the balance.
- If there is an error, calibrate the scale.

GETTING STARTED

- Place on a stable surface. Screws on the bottom of balance can be adjusted to stabilize instrument.
- Press the ON button to turn instrument on.
- Allow the unit to warm-up for 30 minutes.
- While warming up, the display will show: 00-01(02/03/04...). At this time, press ON.
- Once 0.0000g is displayed, you can begin weighing.
- When the balance is in sleep mode, the display will show "Close". To enter weighing mode, press ON.
- Wait until the display no longer shows INT-CAL. Then press TARE. Once it displays 0.0000g, you can begin weighing.

Operation

CALIBRATION

*NOTE: The balance should be normally calibrated using internal calibration.

AUTO (INTERNAL) CALIBRATION

- When the balance displays "0.0000g", press and hold CAL.
- Stop pressing CAL once the display shows CAL-INT
- Wait for about 15 seconds for the balance to complete internal calibration.
- Once the balance displays "0.0000g" you can begin weighing.

EXTERNAL CALIBRATION (WITH CALIBRATION WEIGHT)

- Press and hold ON and CAL at the same time.
- The screen will display "---CAL---".
- The screen will display a weight. Place the corresponding calibration weight on the weighing pan.
- Once the weight is stable, remove the calibration weight. The calibration is finished.

WEIGHING

- Once the scale is warmed up, calibrated and displays ZERO, you can begin weighing.
- Place the sample on the weighing pan and wait for the displayed weight to stabilize.