PAJ Series

NTEP / MC
Certified Models

Instruction Manual

1. INTRODUCTION

1.1 Safety Precautions

Please follow these safety precautions:

- Verify that the AC Adapter input voltage matches the local AC power supply.
- Use the balance only in dry locations.
- Do not operate the balance in hostile environments.
- Do not drop loads on the platform.
- Do not place the balance upside down on the platform or platform mounting cone.
- Service should be performed only by authorized personnel.

1.2 Controls

Button:	Functions:	
Zero - On	Short Press:	Turns balance on, sets display to zero
Off	Long Press:	Turns balance off
Yes	Short press (Menu):	Selects or accepts setting
Unit	Short Press:	Steps through active units and modes
Menu	Long Press:	Enters Menu
No	Short press (Menu):	Steps through available settings
	Long press (Menu):	Exit menu or abort out of menu item
Tare	Short Press:	Performs Tare function
	Long Press:	no function
Print	Short Press:	Sends data
Cal	Long Press:	Initiates Span Calibration

2. INSTALLATION

2.1 Package Contents

Gold Models
Instruction Manual
Power Adapter
Balance
Pan
Pan Support
Wind-Ring
Warranty Card

Carat Models
Instruction Manual
Power Adapter
Balance
Pan
Glass Doors and Panels
Gem Scoop (Carat models only)
Warranty Card

2.2 Install Components

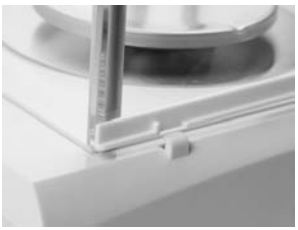
Gold Models

1) Install Wind-Ring

2) Install Pan Support

3) Install Pan

Carat Models



1) Install Side Doors - Insert fully into Top Frame then down over retainer.

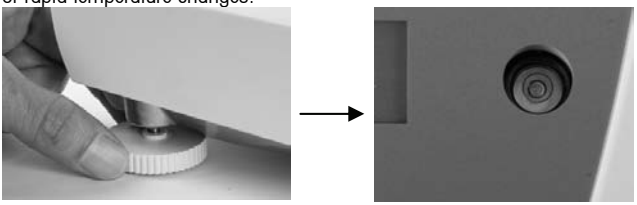
2) Install Front and Rear Panels - Insert bottom edge in groove then press until locked.

3) Install Top Door

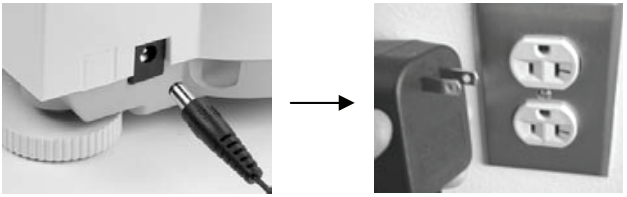
4) Install Pan

2.3 Level Balance

Level the balance on a firm, steady surface. Avoid locations with excessive air current, vibrations, heat sources or rapid temperature changes.



2.4 Connect Power



For use with CSA Certified (or equivalent approved) power source, which must have a limited circuit output.

2.5 Initial Calibration

Without InCal - Power on the balance by pressing **O/T**. Press and hold **Print/Cal** until [CAL] is displayed. The display flashes the calibration mass needed. To select the alternate calibration weight press **No**. Put the calibration mass on the pan. The display flashes [bUSY], then [CLEAr PAn]. Remove the mass. When calibration is complete, [dONE] is displayed.

InCal - Press and hold **Print/Cal** until [CAL] is displayed. The display flashes [bUSY], when calibration is complete, [dONE] is displayed

Note: Calibrations should be performed after a warm up time of 60 minutes.

3. OPERATION

Count, Percentage or specific units of measure must be activated in the MODE or UNIT menus if they are not initially available.

3.1 Weighing Mode

Repeatedly press **Unit** until the desired unit icon is displayed.

Press **Zero** to zero the balance and then place objects to be weighed on the pan.

Press **Tare** to zero the weight of a weighing container.

3.2 Count Mode - Use the Count mode to count parts of uniform weight.

To access Count Mode, press **Unit** until the display shows [Count].

Establish an Average Piece Weight (APW) - Each time a new type of part is to be counted, the nominal weight of one piece (APW) must be established using a small quantity of pieces.

With [CLr.APW] displayed, press **No** to use the previously saved APW, or press **Yes** to establish a new APW. The display indicates the number of pieces to be used to establish the new APW. If a different sample size is preferred, press **No** until the desired sample size is displayed (10, 20, 50 or 100). Put the specified number of pieces on the pan. Press **Yes** to accept new APW or **No** to abort.

Count - Place the quantity to be counted on the pan.

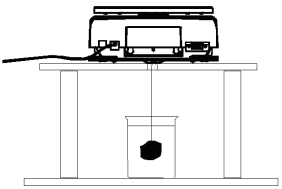
APW Optimization - Since the weight of each piece varies slightly, APW Optimization may be used to increase

the accuracy of the count. The balance automatically recalculates the Average Piece Weight when the number of parts on the pan is less than three times the original sample size. The display shows [APWJ.OPT] each time the APW is optimized.

3.4 Weigh Below Feature

Remove Weigh Below Cover

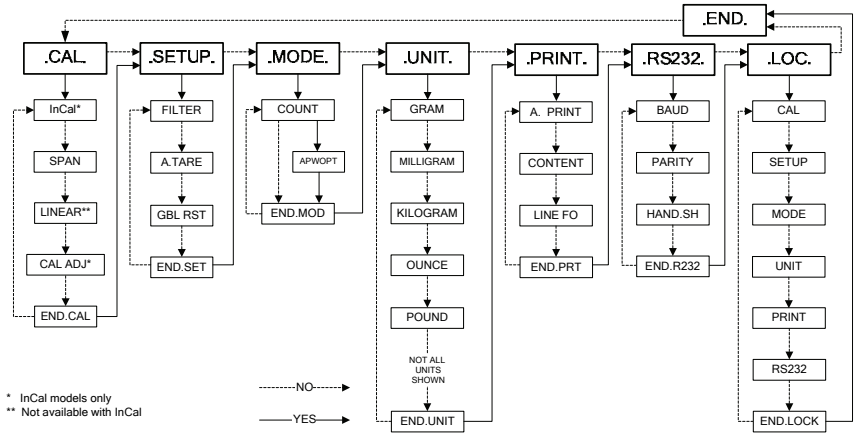
Attach wire or string to Hook



Suspend sample

4. SETTINGS

4.1 Menu Navigation



ENTER MENU - When the balance is on, press and hold **Unit/Menu** until [MENU] appears. Release the button and the Calibrate [.CAL.] menu will display.
MENU NAVIGATION - Select menus, menu items and settings through use of the **Yes** and **No** buttons. Solid arrows point to the content displayed when **Yes** is pressed, Dashed lines when **No** is pressed.
CHANGE SETTINGS - To select the displayed Setting, press **Yes**. To move to the next Setting, press **No**.
EXIT MENU - When [.End.] is displayed, press **Yes** to exit the menu function, or press **No** to return to the Cal menu. Note: Press and hold **No** at any time to exit quickly.

4.2 Calibration Menu [.CAL.]

InCal or Span calibration should be performed daily and when the room temperature changes.

InCal [InCAL] calibrates the balance using an internal mass. (InCal models only)

Span Calibration [SPAN] uses two weight values: zero and a weight between 50% and 100% of the capacity of the balance.

Linearity Calibration [L in] uses three weight values: zero, 50% of the capacity and full capacity. Generally this calibration is not required unless testing shows thet the linearity error exceeds the linearity tolerance in the specification table. (Not available in InCal models.)

Calibration Adjust [CAL AdJ] allows adjustment to the result of the internal calibration by ± 99 divisions. (InCal models only)

4.3 Setup Menu [.SEtuP.]

Filter [F iLtEr] - Use the low setting (SET LO) when environmental disturbances are not present. Use the medium setting (SET MED) for normal environments. Use the high setting (SET HI) when vibrations or air currents are present.

Auto Tare [A-tArE] - The initial item placed on the balance is assumed to be a container so it is zeroed out. The next item is then weighed. When the pan is cleared the balance resets, waiting for a container. (SET OFF, SET ON). Local weights and measures authorities may require that Auto Tare be disabled.

Global Reset [GbL rSt] - Resets all settings to factory default values. (RESET)

4.4 Mode Menu [.ModE.]

Count Mode [Count] - [SET ON, SET OFF]

Average Piece Weight (APW) Optimization [APW.OPT] - (SET ON, SET OFF)

4.5 Unit Menu [.Un it.]

The Unit menu is used to enable or disable a specific unit. (SET ON, SET OFF) The unit is indicated by a small character next to Unit in the display (g = grams).

4.6 Print Menu [.Pr int.]

Auto Print [A.Pr int] - Data will be continuously sent when [Cont inu] is set. Interval [IntEr] sends data every 1 to 3600 seconds. When Stable [StAbLE] will send data when the balance detects a new stable reading. This can be a weight value only [LOAd] or it can also include a stable zero [L+Zero]. [OFF] disables automatic printing.

Content [CONtENt] - The content in the data transmission can be modified. Each of the following settings can be set on or off. Number Only [nuMbEr] will only send the numeric result. Balance ID [bAL. Id] will add the Balance serial number for traceability purposes. Reference [rEFEr] will add reference information relevant to the current mode. GLP [GLP] will send additional items to allow proper documentation of laboratory results.

Line Format [LinE Fo] - Single line format [SinGLE] will put all the data in one line separating each output with a comma (,). Multi line format [MuLt i] will put each data output on a new line. Multi +4 [M-4LF] will add 4 line spaces between each output.

```
^^^^^^^^^^^^^^^^^^^^^^^^
User ID: ..................
Bal ID: 123456789
Proj ID: ..................
Time: ……:……:…….
Date: …../ ….. / …..
 120.01 g
^^^^^^^^^^^^^^^^^^^^^^^^
```

___ GLP (ON)
___ Balance ID (ON)
___ GLP (ON)
___ GLP (ON)
___ GLP (ON)
___ Result
___ Multi Line Format with 4 line feeds
___ Line Feed-2
___ Line Feed-3
___ Line Feed-4

4.7 RS232 Menu [.rS232.]

Baud [bAUd] - The RS232 baud rate can be set to 600, 1200, 2400, 4800, 9600 and 19200.
Parity [PAr itY] - Parity can be sent to 7 bits-even parity [7 EUEN], 7bits-odd parity [7 odd], 7bits-no parity [7 no] or 8bit-no parity [8 no].
Handshake [HAndSh] - Handshake can be set to off [SEt OFF], X on–X off [on-oFF], or hardware [HArdwJr].

4.8 Lock Menu [.LOC.]

When a Lock Menu item is set on the indicated menu cannot be changed.

[Loc CAL] - Calibration menu lock
[Loc SEt] - Setup menu lock
[Loc.mod] - Mode menu lock
[Loc.Un it] - Unit menu lock
[Loc Prt] - Print menu lock
[Loc 232] - RS232 menu lock

5.0 LEGAL FOR TRADE

When the balance is used in trade or legally controlled applications it must be set up, verified and sealed in accordance with local weights and measures regulations. It is the responsibility of the purchaser to ensure that all pertainent legal requirements are met.

5.1 Settings

Before the verification and sealing perform the following steps:
1. Verify the menu settings meet the local weights and measures regulations.
2. Perform a calibration as explained in Section 2.5.
3. Set the position of the security switch as shown in Section 5.3.

Note: When the security switch is set on the following menu settings cannot be changed: CAL, SETUP, MODE, UNIT and LOC.

5.2 Verification

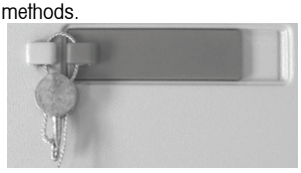
The local weights and measures official or authorized service agent must perform the verification procedure.

5.3 Sealing Access to the Balance Settings

The local weights and measures official or authorized service agent must apply a security seal to prevent tampering with the settings. Refer to the illustrations below for the sealing methods.


Un-Locked


Locked with Paper Seal


Locked with Wire Seal

6.0 MAINTENANCE

6.1 Troubleshooting

Symptom	Possible Cause	Remedy
Cannot turn on	No power to balance	Verify connections and voltage
Poor accuracy	Improper calibration Unstable environment	Perform calibration Move balance to suitable location
Cannot calibrate	Unstable environment Incorrect calibration masses	Move the balance to suitable location Use correct calibration masses
Cannot access mode	Mode not enabled	Enter menu and enable mode
Cannot access unit	Units not enabled	Enter menu and enable units
Err 5	Average Piece Weight too small	Add additional samples
Err 7.0	Time out	
Err 8.1	Pan has load during power on	Remove weight from pan and re-zero
Err 8.2	Pan was removed prior to power on	Install pan and re-zero
Err 8.3	Weight on pan exceeds capacity	Remove weight from the pan
Err 8.4	Pan was removed during weighing	Re-install pan
Err 9.5	Factory calibration data corrupted	Contact the authorized dealer
Err 9.8	Factory calibration data corrupted	Perform calibration
Error 53	EEPROM Checksum error	Contact the authorized dealer
REF Err	Reference Weight is too small	Add additional samples
LOWrEF	Reference Weight is too low for accurate parts counting or percent weighing	Add additional samples or continue to weigh with less accurate results

6.2 Service Information

If the troubleshooting section does not resolve or describe your problem, contact your authorized Ohaus service agent. Please visit our web site, www.ohaus.com to locate the Ohaus office nearest you.

6.3 Accessories

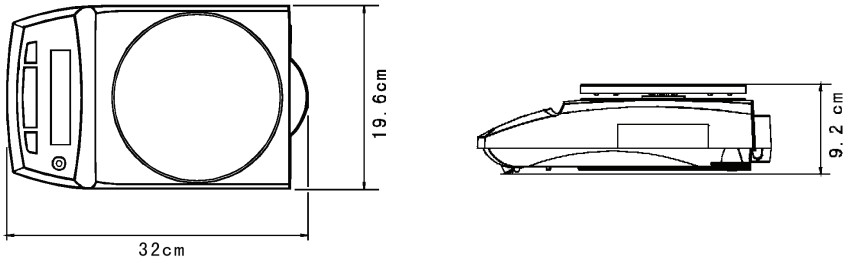
Security device	76288-01
Auxiliary Display	PAD7
Printer – Thermal	STP-103
Printer - Impact	CBM-910 or SRP275
Cable Kit - STP-103	80252581
Cable Kit - CBM-910	80252571
Data collection Software	SW12
Ohaus Collect	80500746

7. TECHNICAL DATA

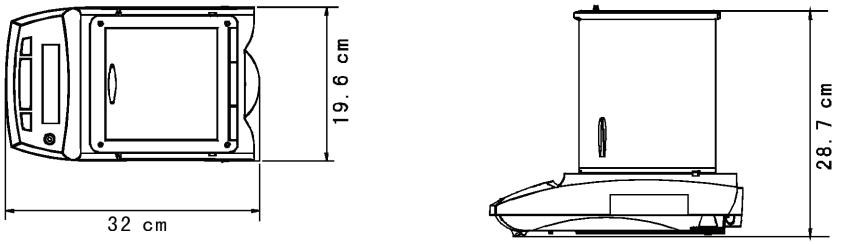
Ambient conditions - The technical data is valid under the following ambient conditions:
Ambient temperature: 10°C to 30°C
Relative humidity: 15 % to 80 % at 31°C non-condensing, decreasing linearly to 50% at 40°C
Height above sea level: Up to 2000 m
Operability is assured at ambient temperatures between 5°C and 40°C
Power - AC adapter, Balance power input 8-14.5 VAC, 50/60Hz 4VA or 8-20 VDC, 4W
Protection - Protected against dust and water, Pollution degree: 2, Installation category: Class II

7.1 Drawings

Gold Models



Carat Models



7.2 Specifications

External Calibration Models

MODEL	PAJ2003N	PAJ812N	PAJ2102N	PAJ2101N	PAJ3102N	PAJ3101N	PAJ4102N	PAJ4101N
Max	2000ct	810g	2100g		3100g		4100g	
Min	1ct	5g						
d=	0.005ct	0.01g		0.1g	0.01g	0.1g	0.01g	0.1g
e=	0.05ct	0.1g						
Approval	Class II							
Tare Range	To capacity by subtraction							
Stabilization	3 Seconds							
Span cal mass	200g or 400g	500g or 800g	1000g or 2000g		2000g or 3000g		2000g or 4000g	
Lin. cal masses	200g, 400g	500g, 800g	1000g, 2000g		2000g, 3000g		2000g, 4000g	
Pan Size	∅4.7in/∅12cm	∅7.1in / ∅18cm (PAJ models 6.1 x 7.1in / 16.8 x 18cm)						
Net Weight	10.1 lb / 4.6kg	10 lb / 4.5kg						

InCal Models

MODEL	PAJ603CN	PAJ1003CN
Max	600ct	1000ct
Min	0.2ct	
d=	0.001ct	
e=	0.01ct	
Approval	Class II	
Tare Range	To capacity by subtraction	
Stabilization	3 Seconds	
Span cal mass	50g or 100g	100g or 200g
Lin. cal masses	50g, 100g	200g, 500g
Pan dia.	∅3.5in / ∅9cm	
Net Weight	10.1 lb / 4.6kg	

7.3 Communication

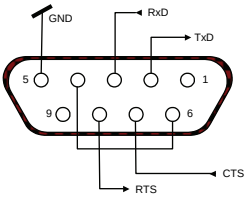
7.3.1 Commands

The RS232 Interface allows a computer to control the balance as well as receiving data such as the displayed weight. The balance will return "ES" for invalid commands.

Command	Function
IP	Immediate Print of displayed weight.
P	Print displayed weight (uses stable on/off menu setting).
CP	Continuous Print.
xP	Interval Print x = Print Interval (1-3600 sec)
T	Same as pressing Zero Key.
ON	Turns balance ON.
OFF	Turns balance OFF.
PSN	Show Serial Number.
PV	Version: Print product name, software revision and LFT ON (if LFT is set ON).
PU	Print current mode/unit
x#	Set PC ref wt (x) in grams
P#	Print PC ref wt
x%	Set % ref wt (x) in grams
P%	Print % ref wt

7.3.2 RS232 (DB9) Pin Connections

Pin 2: Balance transmit line (TxD)
Pin 3: Balance receive line (RxD)
Pin 5: Ground signal (GND)
Pin 7: Clear to send (hardware handshake) (CTS)
Pin 8: Request to send (hardware handshake) (RTS)



7.4 Compliance

Compliance to the following standards is indicated by the corresponding mark on the product.	
Mark	**Standard**
C US	CAN/CSA-C22.2 No. 61010-1-04; UL Std. No. 61010A-1

FCC Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Industry Canada Note

This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

ISO 9001 Registration

In 1994, Ohaus Corporation, USA, was awarded a certificate of registration to ISO 9001 by Bureau Veritus Quality International (BVQI), confirming that the Ohaus quality management system is compliant with the ISO 9001 standard's requirements. On May 15, 2003, Ohaus Corporation, USA, was re-registered to the ISO 9001:2000 standard.

LIMITED WARRANTY

Ohaus products are warranted against defects in materials and workmanship from the date of delivery through the duration of the warranty period. During the warranty period Ohaus will repair, or, at its option, replace any component(s) that proves to be defective at no charge, provided that the product is returned, freight prepaid, to Ohaus.

This warranty does not apply if the product has been damaged by accident or misuse, exposed to radioactive or corrosive materials, has foreign material penetrating to the inside of the product, or as a result of service or modification by other than Ohaus. In lieu of a properly returned warranty registration card, the warranty period shall begin on the date of shipment to the authorized dealer. No other express or implied warranty is given by Ohaus Corporation. Ohaus Corporation shall not be liable for any consequential damages.

As warranty legislation differs from state to state and country to country, please contact Ohaus or your local Ohaus dealer for further details.