



# **Navigator™ Series Balances Instruction Manual**



## 1. INTRODUCTION

This manual contains installation, operation and maintenance instructions for the Navigator™ Series. Please read the manual completely before using the balance.

### 1.1 Definition of Signal Warnings and Symbols

**WARNING** For a hazardous situation with medium risk, possibly resulting in injuries or death if not avoided.

**CAUTION** For a hazardous situation with low risk, resulting in damage to the device or the property or in loss of data, or injuries if not avoided.

**Attention Note** For important information about the product  
For useful information about the product



General hazard



Electrical shock hazard

### 1.2 Safety Precautions



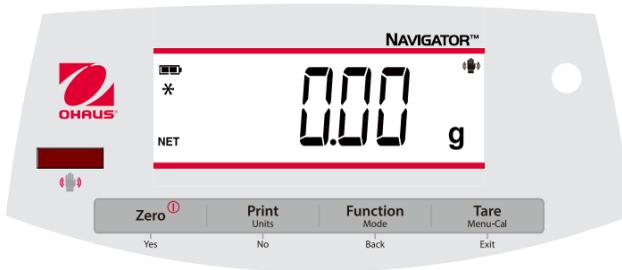
**CAUTION:** Read all safety warnings before installing, making connections, or servicing this equipment. Failure to comply with these warnings could result in personal injury and/or property damage. Retain all instructions for future reference.

- Verify that the AC adapter's input voltage range and plug type are compatible with the local AC mains power supply.
- Position the instrument such that the AC adapter can be easily disconnected from the wall socket.
- Position the power cord so that it does not pose a potential obstacle or tripping hazard.
- Operate the equipment only under ambient conditions specified in these instructions.
- The equipment is for indoor use only.
- Do not operate the equipment in hazardous or explosive environments.
- Only use the equipment in dry locations.
- Only use approved accessories and peripherals.
- Disconnect the equipment from the power supply when cleaning.
- Service should only be performed by authorized personnel.

### 1.3 Intended Use

Use the instrument exclusively for weighing as described in the operating instructions. Any other type of use and operation beyond the limits of technical specifications without written consent from OHAUS, is considered as not intended. This instrument complies with current industry standards and the recognized safety regulations; however, it can constitute a hazard in use. If the instrument is not used according to these operating instructions, the intended protection of the instrument may be compromised and OHAUS assumes no liability.

## 1.4 Controls



Button	Functions
<b>Zero</b> ① <b>Yes</b>	Short Press (when on): Sets display to zero (when off): Turns balance on Long Press (when on): Turns the balance off Short Press (in Menu): Selects/accepts displayed setting
<b>Print</b> <b>Units</b> <b>No</b>	Short Press: See Interface Manual for operation description. Long Press: Toggles through active units Short Press (in Menu): Toggles through available settings
<b>Function</b> <b>Mode</b> <b>Back</b>	Short Press: Selects function setting Long Press: Selects active Mode Short Press (in Menu): returns to previous settings
<b>Tare</b> <b>Menu-Cal</b> <b>Exit</b>	Short Press: Enter / clear a Tare value Long Press: Enters User Menu Short Press (in Menu): Quickly exit User Menu
<b>IR Sensor *</b>	IR Sensors can be programmed to act as a “touchless” button. See the User Menu section 4.3 for the available settings.

The IR Sensors can be activated by a hand or other object that is placed about 12mm (½ inch) above the sensor location. The sensor activation distance will vary based on the reflective nature of the object. If unwanted activations occur due to unique situations the sensor can be turned off.

\*Availability of IR Sensor is dependent on model and region.

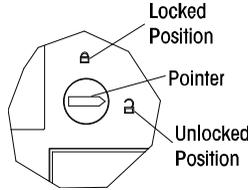
## 2. INSTALLATION

### 2.1 Package Contents

- Balance
- Power Adapter
- Warranty Card
- Pan
- User Guide

### 2.2 Transportation Lock

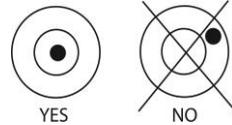
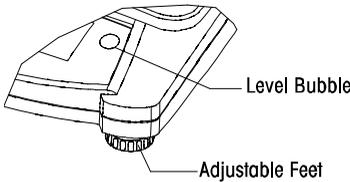
The Transportation Lock is located under the balance. Rotate the pointer to the unlocked position.



### 2.3 Location

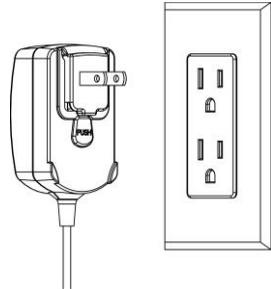
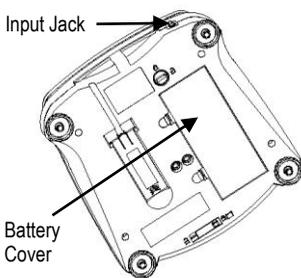
Use the balance on a firm, steady surface. Avoid locations with excessive air current, vibrations, heat sources, or rapid temperature changes.

Adjust the leveling feet so the bubble is centered in the circle.



### 2.4 Power

The AC Adapter is used to power the balance when battery power is not needed.



Connect the AC Adapter plug to the input jack.

Connect AC Adapter to the proper AC supply.

**Battery installation** (without optional internal battery):

Remove battery cover and install 4 batteries using the polarity indications as shown in the compartment.

**Optional rechargeable battery**

Balances with the optional rechargeable battery will need to be charged for 12 hours before the balance can be operated on battery power for the first time. The battery is protected from overcharging so the balance can remain connected to the AC power. When the battery is fully charged the battery indicator on the display will stop blinking.

To remove the rechargeable battery option and install C cell batteries, reference the Recharging Battery Option instruction manual for step by step instructions as well as disposal instructions.



**CAUTION:** Risk of explosion can occur if the rechargeable battery is replaced with the wrong type or if it is not properly connected.

**Note:**

After power on, it is recommended to warm up the balance for at least 5 minutes before using it.

**2.5 Initial Calibration**

When the balance is first installed it should be calibrated to ensure accurate results.

Press and hold **Menu-Cal** until [**МЕНЮ**] (Menu) is displayed. When the button is released, the display will display [**С.Р.Л.**]. Press **Yes** to accept, [**SPAN**] will then be shown. Press **Yes** again to begin the span calibration. [**- - -**] blinks while zero reading is stored. Next, the display shows the calibration weight value. Place the specified calibration mass on the pan. [**- - -**] blinks while the reading is stored. The balance returns to the previous application mode and is ready for use.

Required Span Calibration Mass (sold separately)					
Capacity	Mass	Capacity	Mass	Capacity	Mass
200 g – 420 g	200 g	1.6 kg – 2.2 kg	1 kg	16 kg – 22 kg	10 kg
600 g – 620 g	300 g	3.2 kg – 4.2 kg	2 kg		
1 kg – 1.2 kg	500 g	6 kg – 12 kg	5 kg		

### 3. OPERATION

All modes except for weighing must be activated in the User Menu before they are available, see Section 4.

#### 3.1 Weigh Mode

1. Press and hold **Mode** until [**WEIGH**] (Weigh) is displayed.
2. If required, place an empty container on the pan and press **Tare**.
3. Add material to the container. The display shows the weight of the material.

#### 3.2 Parts Counting Mode

This mode counts large numbers of items based on the weight of a reference count.

1. Place an empty container on the pan and press **Tare**.
2. Press and hold **Mode** until [**Count**] (Count) is displayed. [**CLR.APW**] (Clear Average Piece Weight) will then display.
3. Press **No** to use the stored APW. Proceed to step 6.
4. Press **Yes** to establish an APW. The balance will then display the stored sample size, i.e. [**Part ID**]. Press **No** or **Back** to toggle the choices (5, 10, 20, 50 or 100).
5. Put the indicated number of pieces on the pan then press **Yes** to calculate the APW. The display shows the piece count. Note: Press **Function** to view the current APW.
6. Add additional pieces until the desired count is reached.
7. To clear the stored APW press and hold **Mode** until [**Count**] is displayed. Press **Yes** when [**CLR.APW**] is displayed.

#### 3.3 Percent Mode

This mode measures the weight of a sample as a percentage of a reference weight.

1. Place an empty container on the pan and press **Tare**.
2. Press and hold **Mode** until [**Percent**] is displayed. [**CLR.rEF**] (clear reference) will then display.
3. Press **No** to use the stored reference weight and proceed to step 6.
4. Press **Yes** to establish a new reference. Balance will now display [**Part.rEF**].
5. Add the desired reference material to the container. Press **Yes** to store the reference weight. The display shows 100%.  
Note: Press **Function** to view the current reference weight.
6. Replace the reference material with the sample material. The display shows the percentage of the sample compared to reference weight.
7. To clear the stored reference press and hold **Mode** until [**Percent**] is displayed. Press **Yes** when [**CLR.rEF**] is displayed.

### 3.4 Checkweigh Mode

This mode sets low and high weight limits for portion control processes.

1. Press and hold **Mode** until [**CHECK**] (Check) is displayed. [**CLr.rEF**] (clear references) will then display.
2. Press **No** to use the stored reference weight limits and proceed to step 5.  
Note: Press **Function** to view the low and high reference weight limits.
3. Press **Yes** to establish new reference values. The balance will then display [**SEt. Lo**]. Press **Yes** to view the “Low” limit value. Press **Yes** to accept or **No** to edit the “Low” limit value. The stored value then displays with the first digit highlighted [**000.000** kg]. Repeatedly press **No** until the desired number appears. Press **Yes** to accept and highlight the next digit. Repeat until all the digits are correct. Press **Yes** to accept the “low” limit value, [**SEt. Hi**] will be displayed.
4. Repeat the same procedure to accept or edit the “high” value.
5. Place sample material on the Pan. The “Accept” indicator will now show that the sample weight is within the acceptable range.
6. To clear the stored reference values press and hold **Mode** until [**CHECK**] is displayed. Press **Yes** when [**CLr.rEF**] is displayed.

## 4. SETTINGS

The User Menu allows the customizing of balance settings.

Note: Additional Sub-Menus may be available if Interface Options are installed. See Interface User Manual for the additional setting information.

### 4.1 Menu Navigation

User Menu:

<i>Sub-Menus:</i>	<i>.C.a.l.</i>	<i>.S.e.t.u.p.*</i>	<i>.M.o.d.e.</i>	<i>.U.n.i.t.*</i>	<i>.E.n.d.</i>
<i>Menu Items:</i>	<i>Span</i>	<i>A-off</i>	<i>Count</i>	<i>g</i>	
	<i>Lin</i>	<i>Disply</i>	<i>Percnt</i>	<i>kg</i>	
		<i>Bright</i>	<i>Check</i>	<i>...</i>	
		<i>IR.Func**</i>			
	<i>End</i>	<i>End</i>	<i>End</i>	<i>End</i>	

\* Note: Available settings vary by models and regions

\*\*Availability of IR Sensor is dependent on model and region.

Press and hold Menu until [**MENU**] (Menu) is displayed. When released the first sub-menu [**CLC.L**] (Cal) will be shown.

Press **Yes** to enter the displayed sub-menu or press **No** to advance to the next.

Selecting a sub-menu will display the first menu item. Press **Yes** to view the menu item setting or press **No** to move to the next menu item. When viewing the setting, press **Yes** to accept the setting, or press **No** to change the setting. When [**End**] is displayed, press **Yes** to return to the sub-menu selections or **No** to return to the first item in the current menu.

### 4.2 Cal Sub-Menu

- Span [**SPAN**] (yes, no) - Initiates a span calibration procedure (zero and span). A span calibration is important when initially setting up the balance.
- Lin [**Lin**] (yes, no) - Initiates a linearity calibration procedure (zero, mid-point and span).

### 4.3 Setup Sub-Menu

The backlit LCD display will have different menu items or settings based on the functionality.

- Auto Off [**A-Off**] (on, off) - When Auto Off is set to “on” the balance will turn off automatically after 5 minutes of inactivity. Auto off is used to save battery power.
- Display [**d SPLy**] (on, auto, off) - This setting controls the LCD backlight; constant on, automatic turn off after 5 seconds of balance inactivity, or always off.
- IR Sensor [**Ir.Func**] (Off, Tare, Function, Print, Zero, Display) - These settings determine the role of the IR Sensor. “Zero”, “Print”, “Function” or “Tare” allows the IR sensor to act the same as the related button. “Display” activates the display if Display-Auto is set. “Off” disables the sensor.\*

\*Availability of IR Sensor is dependent on model and region.

### 4.4 Mode Menu

This sub-menu activates modes so they will be available for use with the Mode button. Weigh mode is always active.

- Parts Count [**COUNT**] (on, off) - Set on for the mode to be active.
- Percent [**PERcent**] (on, off) - Set on for the mode to be active.
- Check Weigh [**CHECK**] (on, off) - Set on for the mode to be active.

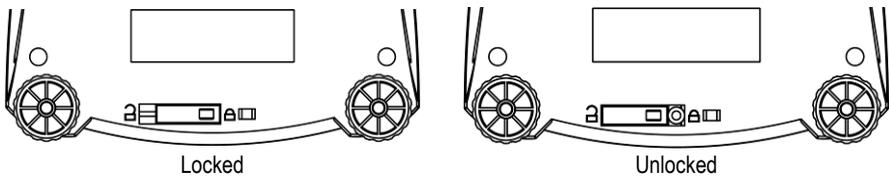
### 4.5 Units Menu

This sub-menu activates units so they will be accessible with the **Units** button. The units in the menu must be turned “on” to be active.

Note: Available units and modes vary by model and local regulations.

### 4.6 Sealing access to balance settings

The Menu Lock switch limits changes to the Cal, Setup, Mode and Unit menus. The switch in type approved models may set some balance settings as required by the approval agency. The switch may be secured using paper seals, wire seals or plastic ties.



## 5. MAINTENANCE

### 5.1 Cleaning



**WARNING:** Electric Shock Hazard. Disconnect the equipment from the power supply before cleaning.

Make sure that no liquid enters the interior of the instrument.



**Attention:** Do not use solvents, harsh chemicals, ammonia or abrasive cleaning agents.

The exterior surfaces of the instrument may be cleaned with a cloth dampened with water and a mild detergent.

### 5.2 Troubleshooting

The following table lists common problems and possible causes and remedies. If the problem persists, contact OHAUS or your authorized dealer.

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 weight	Move the balance to suitable location Use correct calibration weight
Cannot access mode	Mode not enabled	Enter menu and enable mode
Cannot access unit	Unit not enabled	Enter menu and enable unit
Lo rEF	Reference weight is too low	Increase reference weight.
rEF Err	Parts counting– sample weight <1d.	Shows error - exits mode or goes to [CLr.APU].
Err 3.0 CAL	Incorrect calibration weight	See section 2.5 for correct weights
Err 4.4 Full	RS232 buffer is full	Set Handshake on, see Interface User Manual.
Err 8.1 ~LoAd	Power on zero range exceeded	Clear pan, check Shipping Lock setting
Err 8.2 ~LoAd~	Power on zero under range	Install pan, check Shipping Lock setting
Err 8.3 ~LoAd	Overload (>cap+9e)	Load exceeds balance maximum capacity
Err 8.4 ~LoAd~	Under load	Reading below min. range - Re-install pan.
Err 8.6 999999	Displayed value >999999	Result exceeds display capability.
Err 9 dAtA	Internal data error.	Contact an authorized service agent
Err 13 01E01	Fail to write EEPROM.	Contact an authorized service agent
Err 53 CSum	Invalid checksum data	Contact an authorized service agent

### 5.3 Service Information

If the troubleshooting section does not resolve or describe your problem, contact your authorized OHAUS service agent. For service assistance or technical support in the United States call toll-free 1-800-526-0659 between 8:00 AM and 5:00 PM EST. An OHAUS product service specialist will be available to provide assistance. Outside the USA, please visit our web site, [www.ohaus.com](http://www.ohaus.com) to locate the OHAUS office nearest you.

## 6. TECHNICAL DATA

### Equipment Ratings:

- Pollution degree 2;
- Installation category II;
- Altitude 2000m;
- Humidity: Maximum 80% for temperatures up to 31°C decreasing linearly to 50% at 40°C; non-condensing;
- Electrical supply: Rated 12VDC 500mA for use with a Certified/Listed power adapter or battery operated;
- Indoor use only;
- Temperature range: 10°C to 40°C, Approved models (M) 0°C to 40°C
- The mains supply voltage fluctuations are not to exceed  $\pm 10\%$  of the nominal supply voltage.

### 6.1 Specifications

#### Typical specifications:

Stabilization Time	$\leq 1$ seconds
Tare range	To capacity by subtraction
Application Modes	weigh, percent, parts count, check weigh
Weighing Units*	Non-Approved: ct, g, kg, gm, lb, oz, lb:oz, ozt, N, dwt, tael (3), tola, tical M models: g, kg, ct
AC Power	AC Adapter (supplied) - 12 VDC, 500 mA output
Battery Power	4 C (LR14) batteries (not supplied) or rechargeable battery option
Calibration	Digital with external weight
LCD Display	6-digit 7-segment LCD with white LED backlight
Display Size	20 mm / 0.78" digits
Keypad	4-button overlay plus one programmable IR sensors
Pan Size (W x D)	<b>NV:</b> Ø145 mm / 190 mm x 144 mm <b>NVT:</b> 230 mm x 174 mm
Net Weight	<b>NV:</b> 1.0 kg / 2.2 lb <b>NVT:</b> 1.5 kg / 3.3 lb
Shipping Weight	<b>NV:</b> 1.5 kg / 3.3 lb <b>NVT:</b> 2.3 kg / 5.1 lb

\* Availability vary by models and regions

**Non-Approved Models:**

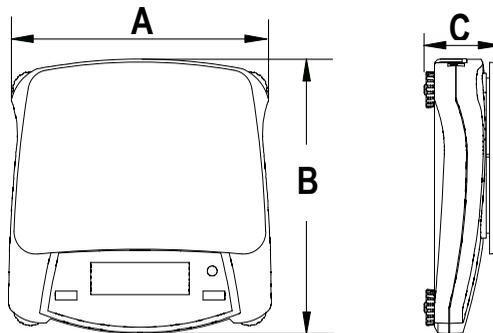
Model*	Capacity	Readability (d)	Repeatability (Std. Dev.)	Linearity	Span Cal. Wt.	Lin. Cal. Wt.
NV222	220g	0.01g	1d	±2d	200g	100g, 200g
NV422	420g	0.01g	2d	±2d	200g	200g, 400g
NV622	620g	0.01g	2d	±2d	300g	300g, 600g
NV221	220g	0.1g	1d	±2d	200g	100g, 200g
NV621	620g	0.1g	1d	±2d	300g	300g, 600g
NV1201	1200g	0.1g	1d	±2d	500g	500g, 1kg
NV2201	2200g	0.1g	1d	±2d	1kg	1kg, 2kg
NVT2201	2200g	0.1g	1d	±2d	1kg	1kg, 2kg
NVT4201	4200g	0.1g	2d	±2d	2kg	2kg, 4kg
NVT6201	6200g	0.1g	2d	±2d	5kg	3kg, 6kg
NVT2200	2200g	1g	1d	±2d	1kg	1kg, 2kg
NVT6200	6200g	1g	1d	±2d	5kg	3kg, 6kg
NVT12000	12000g	1g	1d	±2d	5kg	5kg, 10kg
NVT22000	22000g	1g	1d	±2d	10kg	10kg, 20kg

**Approved Models:**

Model*	Max=	e=	Approval Class	Span Cal. Wt.	Lin. Cal. Wt.
NVT1601M	1600g	0.5g	III	1kg	1kg, 1.5kg
NVT3200M	3200g	1g	III	2kg	2kg, 3kg
NVT6400M	6400g	2g	III	5kg	3kg, 6kg
NVT16000M	16000g	5g	III	10kg	10kg, 15kg

\* Availability is dependent on region.

**6.2 Drawings**



	A	B	C
NV	230 mm / 9 in.	204 mm / 8 in.	70 mm / 2.8 in.
NVT	240 mm / 9.5 in.	250 mm / 9.8 in.	74 mm / 2.9 in.

**6.3 Compliance**

Compliance to the following standards is indicated by the corresponding mark on the product.

Mark	Standard
	This product complies with the EU Directives 2011/65/EU (RoHS), 2014/30/EU (EMC), 2014/35/EU (LVD) and 2014/31/EU (NAWI). The EU Declaration of Conformity is available online at <a href="http://www.ohaus.com/ce">www.ohaus.com/ce</a> .
	This product complies with the EU Directive 2012/19/EU (WEEE). Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment. For disposal instructions in Europe, refer to <a href="http://www.ohaus.com/weee">www.ohaus.com/weee</a> .
	EN 61326-1

**Verified weighing instruments in the EU**

When the instrument is used in trade or a legally controlled application 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 pertinent legal requirements are met.

Weighing Instruments verified at the place of manufacture bear the following supplementary metrology marking on the descriptive plate.



Weighing Instruments to be verified in two stages have no supplementary metrology marking on the descriptive plate. The second stage of conformity assessment must be carried out by the applicable weights and measures authorities.

If national regulations limit the validity period of the verification, the user of the weighing instrument must strictly observe the re-verification period and inform the weights and measures authorities.

As verification requirements vary by jurisdiction, the purchaser should contact their local weights and measures office if they are not familiar with the requirements.

**FCC Note**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**Industry Canada Note**

This Class B digital apparatus complies with Canadian ICES-003.

**ISO 9001 Registration**

The management system governing the production of this product is ISO 9001 certified.

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## 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.

### Product Registration

Protect your investment. Register your product with your local OHAUS dealer. In the US and Canada register online at [www.ohaus.com](http://www.ohaus.com).

