



Adventurer™ Grain Scale Instruction Manual



TABLE OF CONTENTS

1. INTRODUCTION	3
1.1 Description	3
1.2 Features	3
1.3 Definition of Signal Warnings and Symbols	3
1.4 Safety Precautions	3
2. INSTALLATION	5
2.1 Unpacking	5
2.2 Selecting the Location	5
2.3 Leveling the Equipment	5
2.4 Connecting Power	6
2.5 Connecting the Interface	6
2.6 Initial Calibration	6
3. OPERATION	7
3.1 Overview of Display, Home Screen	7
3.2 Principal Functions and Main Menu	8
3.3 Overview of Parts and Features	9
4. APPLICATIONS	10
4.1 Weighing	10
4.1.1 Item Settings	11
4.1.2 Sample Name	12
4.1.3 Save to USB	12
4.2 Test Weight	12
4.2.1 Units	13
4.3 Dockage	13
4.3.1 Item Settings	14
4.3.2 Store	14
4.4 Additional Features	15
4.4.1 Weigh Below	15
5. MENU SETTINGS	16
5.1 Menu Navigation	16
5.1.1 Changing Settings	17
5.2 Calibration	18
5.2.1 Calibration sub-menu	18
5.2.2 Span Calibration	18
5.2.3 Linearity Calibration	18
5.2.4 Calibration Test	18
5.3 Scale Setup	19
5.3.1 Scale Set-up sub-menu	19
5.3.2 Language	19
5.3.3 User Setting	19
5.3.4 Filter Level	20
5.3.5 Auto Zero Tracking	20
5.3.6 Auto Tare	20
5.3.7 Graduations	20
5.3.8 Date & Time	20
5.3.9 Approved Mode	20
5.4 Weighing Units	21
5.4.1 Units Sub-menu	21
5.5 Data Maintenance	22
5.5.1 Data Maintenance sub-menu	22
5.6 Communication	23
5.6.1 Communication Sub-menu	23
5.6.2 Baud Rate	23
5.6.3 Transmission	23
5.6.4 Handshake	23
5.7 GLP and GMP Data	25
5.7.1 GLP Data Sub-menu	25
5.7.2 Header	25
5.7.3 Scale Name	26
5.7.4 User Name	26
5.7.5 Project Name	26

5.8	Factory Reset	26
6.	LEGAL FOR TRADE (LFT).....	27
6.1	Settings	27
6.2	Verification.....	27
6.3	Sealing	27
7.	PRINTING	28
7.1	Connecting, Configuring and Testing the Printer/Computer Interface	28
7.2	Output Format	28
7.3	Printout Examples	29
8.	MAINTENANCE	30
8.1	Calibration	30
8.2	Cleaning	30
8.3	Troubleshooting	30
8.4	Service Information	30
9.	TECHNICAL DATA	31
9.1	Specifications	31
9.2	Drawings and Dimensions	33
9.3	Parts and Accessories	33
9.4	Communication	34
9.4.1	Interface Commands	34
9.4.2	RS232 (DB9) Pin Connections.....	35
9.5	The USB Interface.....	35
10.	SOFTWARE UPDATES	36
11.	COMPLIANCE.....	37

1. INTRODUCTION

1.1 Description

The Adventurer Grain Scale is a precision weighing instrument that will provide you with years of service if properly cared for. The Adventurer Grain Scale has a capacity of 4200 grams.

1.2 Features

Touch Controls: Quick, graphical access to all control functions, applications and many features.



1.3 Definition of Signal Warnings and Symbols

Safety notes are marked with signal words and warning symbols. These show safety issues and warnings. Ignoring the safety notes may lead to personal injury, damage to the instrument, malfunctions and false results.

Signal Words

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

Warning Symbols



General Hazard



Electrical Shock Hazard



Alternating current



Direct current

1.4 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 power to be used.
- Make sure that the power cord does not pose a potential obstacle or tripping hazard.
- The Scale is for indoor use only.
- Use the Scale only in dry locations.
- Do not drop loads on the pan.
- Use only approved accessories and peripherals.
- Operate the equipment only under ambient conditions specified in these instructions.
- Disconnect the equipment from the power supply when cleaning.
- Do not operate the equipment in hazardous or unstable environments.
- Service should only be performed by authorized personnel.
- Do not position the Scale such that it is difficult to reach the power connection.

2. INSTALLATION

2.1 Unpacking

Carefully remove your Adventurer Grain Scale and each of its components from the package. The included components vary depending on the Scale model (see table below). Save the packaging to ensure safe storage and transport. Please read the manual completely before installing and using the Adventurer Grain Scale to avoid incorrect operation.

Included Components

- Scale
- Power Adapter
- Warranty Card
- Software Compact Disk

2.2 Selecting the Location

Avoid excessive vibrations, heat sources, air current, or rapid temperature changes. Allow sufficient space.



2.3 Leveling the Equipment

The Adventurer Grain Scale has a level bubble in a small round window beside the display.

To level the Scale, adjust the 4 **Leveling Feet** until the bubble is centered in the circle.

See the Level Assist section below on information about how and which feet to turn.

Be sure the equipment is level each time its location is changed.

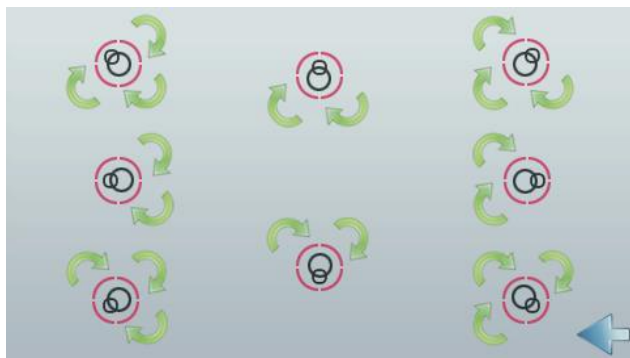


Level Assist

A level assist function is available to help leveling the Adventurer Grain Scale. There are two ways to access the function:

1. **Weighing Application** -> **Item Settings** -> **Level Assist**. See section 4.1.1 for more information.

2. **Main Menu** -> **Scale Setup** -> **User Settings** -> **Level Assist**. See section 5.3.3 for more information.



Rotate the feet according to the image above depending on the location of the level bubble until the bubble is centered.

2.4 Connecting Power

Connect the DC output connector to the power receptacle on the rear of the Scale. Then connect the AC power cord to a suitable electrical outlet.



CAUTION: For use with CSA certified (or equivalent approved) power source, which must have a limited current output.

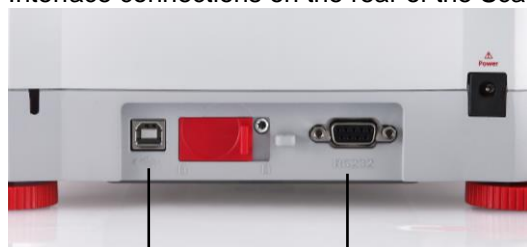


Attention: For optimal weighing performance, allow the Scale to warm up for 60 minutes prior to use.

2.5 Connecting the Interface

Use the built-in RS-232 Port to connect either to a computer or a printer with a standard (straight-through) serial cable. Or connect using the Scale's USB port.

Interface connections on the rear of the Scale:



USB1

RS232

USB connection on the front of the Scale:



USB2

USB1: Used to connect to PC only

USB2: Used to connect a USB flash driver only

RS232: Used to connect to PC or Printer

Note: For configuration and interface commands, see the Communication Menu Settings section. For Connecting, Configuring and Testing the Printer/Computer Interface, and for sample Print Output Formats, see the Printing section.

2.6 Initial Calibration

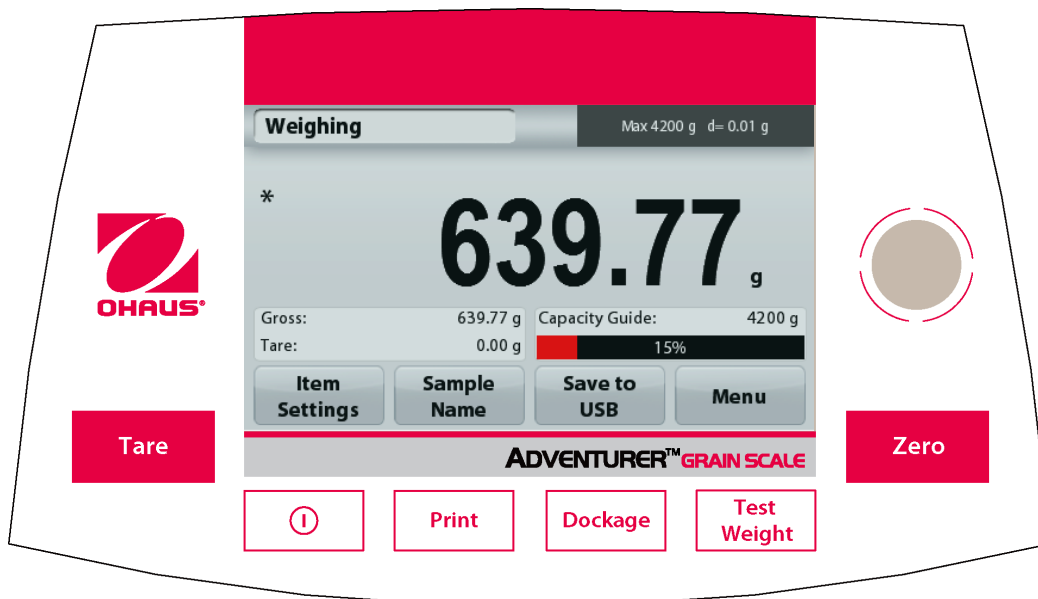
When the Scale is first installed, and when it is moved to another location, it must be calibrated to ensure accurate weighing results. Have the appropriate calibration masses available before beginning calibration. Refer to the Calibration Section for calibration procedure.

3. OPERATION

3.1 Overview of Display, Home Screen

This equipment utilizes a touch-sensitive display with *Touch* areas and Buttons to control the equipment’s functions.

CONTROLS



Button	Action
	Short Press (if powered Off): Turns on the Scale Long Press (if powered On): Turns off the Scale Note: The Scale will automatically power on when power is connected.
	Short Press: Prints the present data to a printer or a computer.
	Short Press: Enters Dockage application
	Short Press: Enters Test Weight application
	Short Press: Perform Zero operation
	Short Press: Perform Tare operation

Main Application Screen

Application		Capacity and readability
Instructional Messages Stability (*), Net (NET), Gross (G) and/or center of zero (>0<) indicators		Result Field: Information varies by application Touch g to change unit
Reference Fields		Application Buttons: Functions vary by application

3.2 Principal Functions and Main Menu

Weighing: Press **Zero** to set the display to zero. Place an item on the pan. Display indicates gross weight.

Taring: With no load on the pan, press **Zero** to set the display to zero. Place an empty container on the pan and press **Tare**. Add material to the container and its net weight is displayed. Remove container and container's weight appears as a negative number. Press **Tare** to clear.

Zero: Press **Zero** to zero the Scale

MENU & SCREEN NAVIGATION

Touch **Menu** to open the menu list.



Calibration:

Touch to view calibration options.



Scale Setup:

Touch to view and change Scale settings.



Weighing Units:

Touch to view and change weighing units.



Data Maintenance:

Touch to view data maintenance settings.



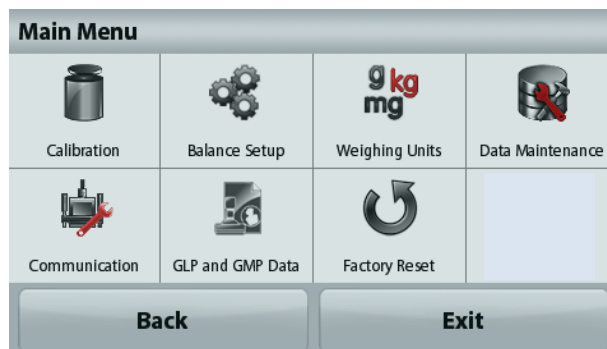
GLP and GMP Data:

Insert user data for traceability.



Communication:

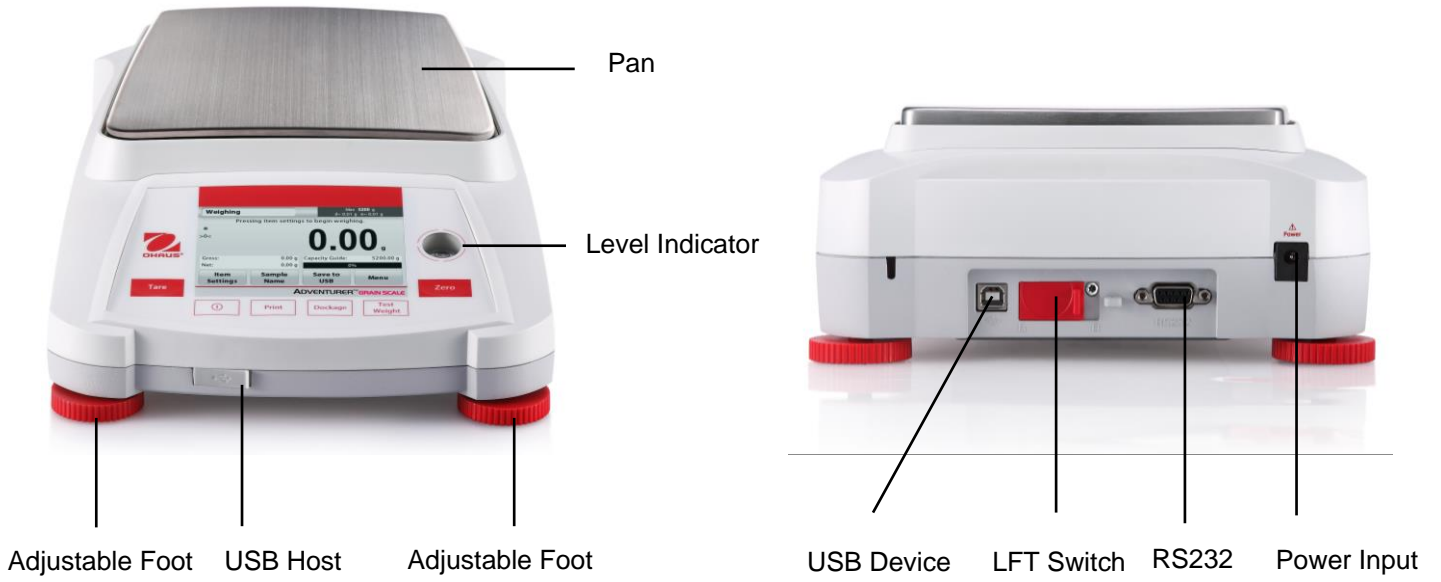
Touch to view COM Device Settings and Print Settings.



Factory Reset:

Touch to do a Factory reset of menu settings.

3.3 Overview of Parts and Features



4. APPLICATIONS

The Scale can be configured to operate in various Application modes. Touch the top left Application field (weighing in the example below):



The Adventurer Grain Scale has 3 application modes, as follows:



Weighing



Dockage



Test Weight

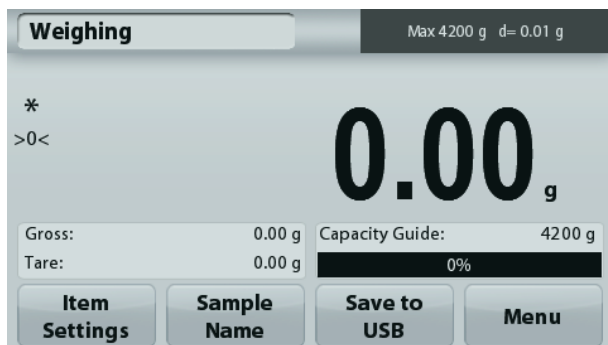
4.1 Weighing

Note: Before using any application, be sure the Scale has been leveled and calibrated.

Use this application to determine the weight of items in the selected unit of measure.

Weighing

1. In the upper left portion of the home screen, select Weighing (this application is the default).
2. Press **Tare** or **Zero** if necessary to begin.
3. Place objects on the pan to display the weight. When stable, the * appears.
4. The resulting value is displayed in the main Display Line in the active unit of measure.



The **WEIGHING** Home screen

Main Display Line

Touch **g** to change unit

Reference Fields

Application Buttons



Application Icon

4.1.1 Item Settings

To view or adjust the current settings

Touch the **Item Settings** button. The Settings screen appears.

Minimum Weight: establish a minimum weight value to be used to verify a reading. If an actual weight is below the established Minimum Weight value, it is flagged by a color change: **yellow**.

To adjust the Minimum Weight value, touch the **Minimum Weight** button.

A numeric input window appears.

Use the keys to enter the desired Minimum Weight, then press **Save**.

The display reverts to the previous screen.

To return to the Weighing home screen, touch **Exit** at the bottom of that screen.

Capacity Bar: When set to ON, a capacity bar is displayed in the reference field. The capacity guide will show the current weight as a percentage of Scale capacity.

If Capacity Bar is set to OFF, the reference field will show Minimum Weight and Sample Name.

Weighing Units: Change the displayed unit. See section 5.4 for more information

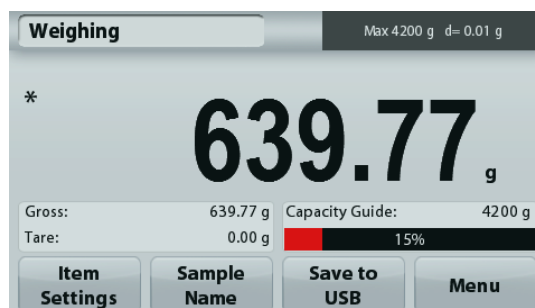
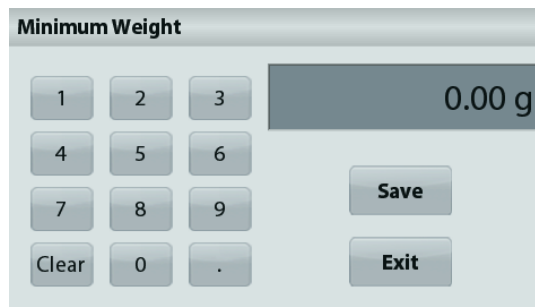
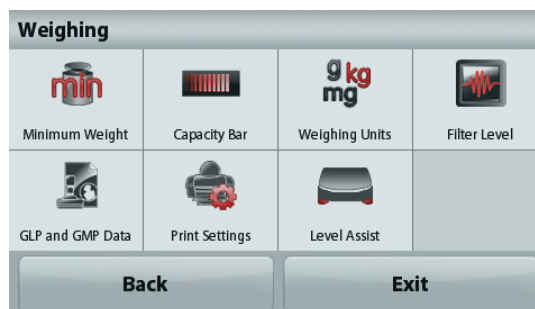
Note: Touching the weighing unit from application home screen will also open the Weighing Units screen.

Filter Level: Change Filtering level. See section 5.3.4 for more information


GLP & GMP Data: See section 5.7 for more information

Print settings: Change printing settings. See section 7 for more information.

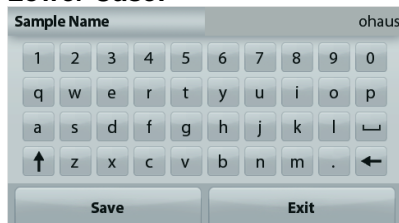
Level Assist: Instructions on how to move the Scale feet to level the Scale.



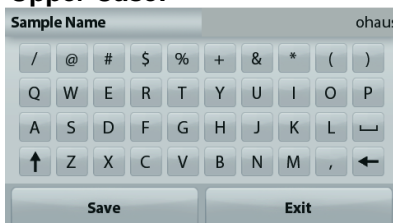
4.1.2 Sample Name

Press this button to add a sample name. An alphanumeric input window appears. Press  to alternate between Lower and Upper case characters.

Lower Case:



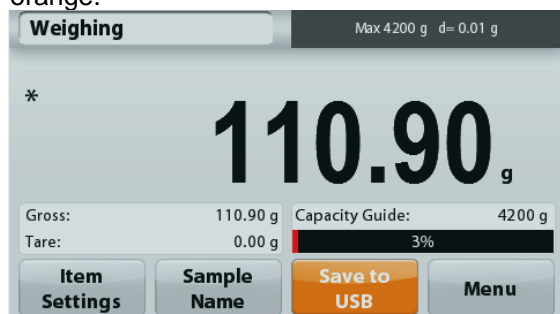
Upper Case:



Key in the desired sample name and press Save to save the name and return to weighing home screen.

4.1.3 Save to USB

Insert the USB flash drive into the USB slot located on the front of the Scale. Next, press the Save to USB button to save the data to the USB flash drive. Once saved, the button will momentarily change color to orange.



Notes: The first time a USB flash drive is connected to the Scale there might be some delay time before the button **Save to USB** works. This is due to that the Scale is creating the necessary folders on the USB flash drive where the data will be stored.
The Density Determination and Check Weighing applications do not have a Save to USB button.



CAUTION:

The weighing data will be saved to USB every day. However, if different weighing modes are used the data will be separately saved to individual files.
Depending on the USB drive used, all data might not be transferred from the Scale or the display might freeze. If this happens, unplug the USB flash drive and try another USB flash drive.
Ohaus takes no responsibility if data on USB flash drive is erased or if the USB flash drive breaks while it is connected to the Scale.
To minimize the risk of problems arising, Ohaus suggests using a high quality USB flash drive.

4.2 Test Weight

Note: Before using any application, be sure the Scale has been leveled and calibrated.

The Test Weight Mode allows the measurement of the density of a sample using one of four standard container sizes. Test Weight values can be displayed as follows:

lb/bu (qt) = pounds per bushel based on a quart container.

lb/bu (pt) = pounds per bushel based on a pint container.

kg/hL (L) = kilograms per hectaliter based on a liter container.

kg/hL (0.5L) = kilograms per hectaliter based on a half liter container.

Test Weight

In the upper left portion of the home screen, select Test Weight. Alternatively, short press the Test Weight button on the function label.

Place the empty container on the Scale pan and press **Tare** or **Zero** to tare the container.

Remove the container from the Scale and fill it with the test sample.

Place the container with sample on the pan. The display shows the actual test weight (density) with the unit.



The **Test Weight** Home screen

Main Display Line

Reference Fields

Application Buttons



Application Icon

4.2.1 Units

To view or adjust the units displayed

Touch the **Units** button. The Units screen appears.

- lb/bu[qt]:**
- lb/bu[pt]:**
- Kg/hl[l]:**
- Kg/hl[0.5l]:**



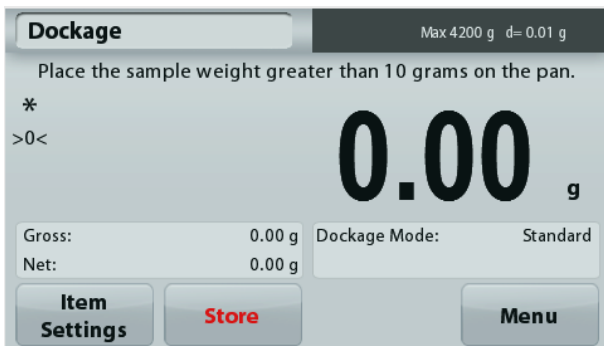
4.3 Dockage

Note: Before using any application, be sure the Scale has been leveled and calibrated.

Dockage is used for material other than the predominant grain that can be easily removed with sieves and cleaning devices. The dockage mode is used to determine the percent of waste material contained in the sample.

Dockage

In the upper left portion of the home screen, select Dockage. Alternatively, short press the Dockage button on the function label.



The **Dockage** Home screen

Main Display Line

Reference Fields

Application Buttons



Application Icon

4.3.1 Item Settings

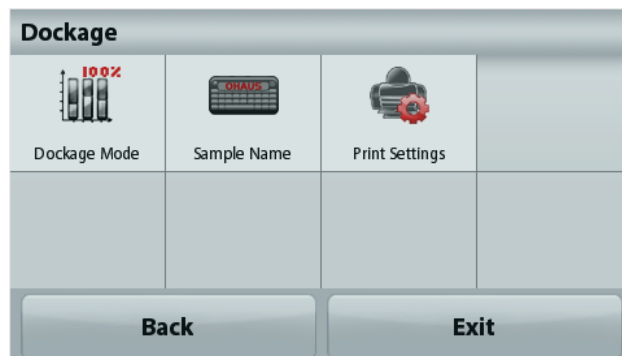
To view or adjust the current settings

Touch the **Item Settings** button. The Settings screen appears.

Dockage Mode: Set the dockage mode to either standard (positive) or reciprocal (negative), standard being the default mode. See section 4.3.2 for additional information about the two modes.

Sample Name: See section 4.1.2

Print settings: Change printing settings. See section 7 for more information.



4.3.2 Store

Store Dockage Reference Weight.

Place the container on the pan and tare by pressing the **Tare** button. The tare weight is stored in memory. Fill the container with sample material and press the **Store** button.

If the current weight is less than the minimum allowed reference weight (10 grams), the display shows between “Min Weight Error”. Press **Back** to return to current mode.

If the sample weight is greater than or equal to 10 grams, the sample weight is established as the Dockage Reference weight and is stored in memory as the 100% reference weight for the dockage calculation. Additionally, the tare weight is stored in memory as the dockage tare weight.

With the sample still on the pan, the primary display shows 100.00 if Standard Dockage is selected in the Dockage menu.

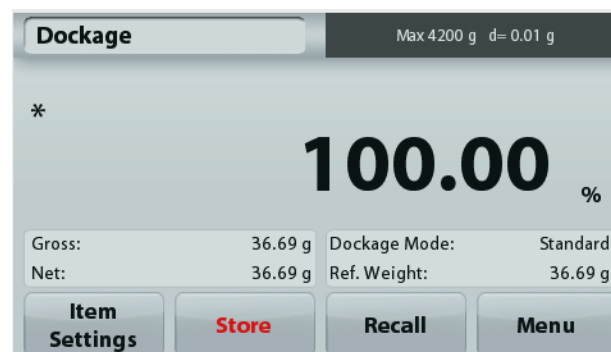
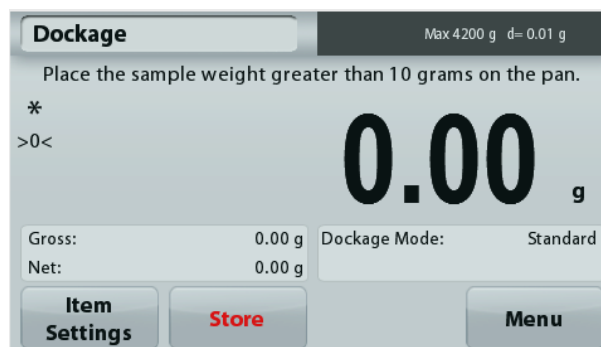
If Reciprocal Dockage is selected, the primary display shows 0.00%.

The user can process the sample to remove any undesirable material. After processing, place the container back on the pan, and the display will read the dockage value.

Recall Dockage Reference Weight

If a Dockage Reference Weight is stored in memory it can be recalled from memory by pressing the **Recall** button. This may become necessary if the Scale is used for normal weighing or test weighing while the sample is being processed.

To recall stored dockage reference weight, the container with the processed sample is placed on the pan and the reference weight is recalled from memory by pressing the **Recall** button. The display shows the percent dockage of the sample based on the previously established dockage reference weight and dockage tare weight.



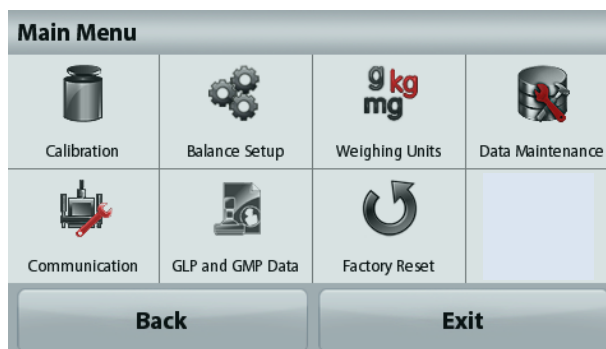
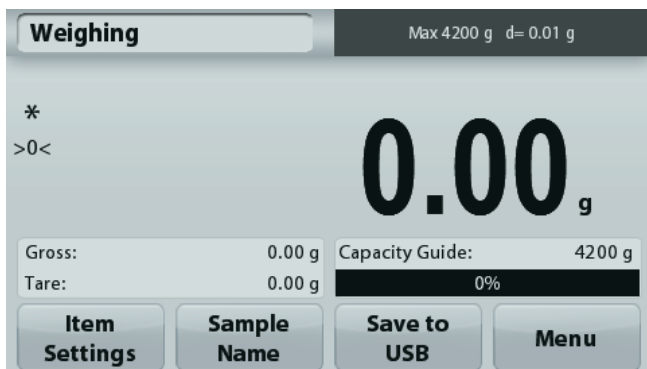
5. MENU SETTINGS

5.1 Menu Navigation

User menu structure:

Application Modes	Main Menu	Calibration	Scale Setup	Weighing Units	Data Maintenance	Communication	GLP and GMP Data	Factory Reset
Weighing App	Calibration	Span Cal	Language	Gram	Export to USB	RS232 Standard	Headers	
Min Weight	Scale Setup	Linearity Cal	User Settings	Kilogram	App. Mode Settings	Baud Rate	Header 1	
Capacity Guide	Weighing Units	Cal Test	Touch Calibrate	Carat	Menu Settings	2400	Header 2	
Units	Data Maintenance		Brightness	Ounce	Import from USB	4800	Header 3	
Filter Level	Communication		Beep	OunceTroy	App. Mode Settings	9600	Header 4	
GLP and GMP Data	GLP and GMP Data		Auto Dim	Pound	Menu Settings	19200	Header 5	
Print Settings	Factory Reset		Level Assist	Pennyweight	Scale_Info	38400	Scale Name	
Level Assist	Lockout		Filter Level	Grain		Transmission	User Name	
Test Weight			Auto Zero Tracking	Newton		7 E 1	Project Name	
lb/bu[qt]			Auto_Tare	Momme		7 E 2		
lb/bu[pt]			Graduation	Mesghal		7 N1		
Kg/h[l]			Date & Time	HKTael		7 N2		
Kg/h[0.5l]			Date	SGTael		7 O 1		
Dockage			Time	TWTael		7 O2		
Dockage Mode			Approved Mode	Tical		8 N1		
Sample Name				Tola		8 N 2		
Print Settings				Baht		Handshake		
				Custom1		Print Settings		
				Unit Name		Print Output		
				Factor		Stable Weight Only		
				Exponent		Numeric Value Only		
				10 ⁻³		Single Header Only		
				10 ⁻²		Print Options		
				10 ⁻¹		Auto Print		
				10 ⁰		Auto Print Off		
				10 ¹		On Stability		
				10 ²		Interval (seconds)		
				10 ³		Continuous		
				LSD		Print Content		
				0.5		Selection		
				1		Header		
				2		Date & Time		
				5		Scale ID		
				10		Scale Name		
				100		User Name		
						Project Name		
						Application Name		
						Sample Name		
						Result		
						Gross		
						Net		
						Tare		
						Information		
						Signature Line		
						Line Feed		
						Save To USB		

All menu navigation is performed by touching the display. To enter the Menu, touch **Menu** from any Application Home screen. The Main menu appears, with buttons for **Back** and **Exit**. Continue touching the appropriate list item to navigate to the Menu items.



5.1.1 Changing Settings

To change a menu setting, navigate to that setting using the following steps:

Enter the Menu

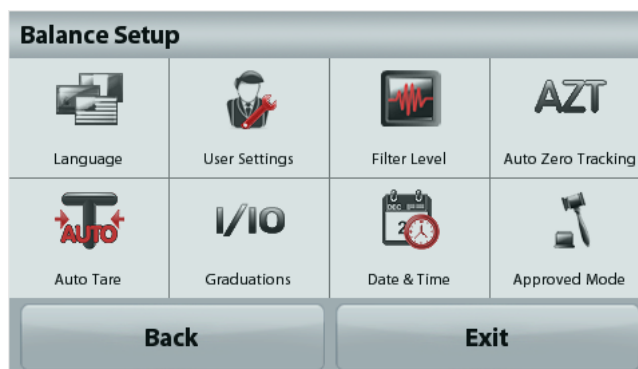
From any Application screen, Touch **Menu**. The Main Menu List appears on the display.

Select the Sub-Menu

Find the item of the Main Menu List and touch it. The Sub-Menu appears.

Select the Menu Item

Continue until the desired setting is chosen in the Menu list. Touch the setting to change it. The changed setting will be displayed as highlighted yellow for about 1 second to confirm the changed value.

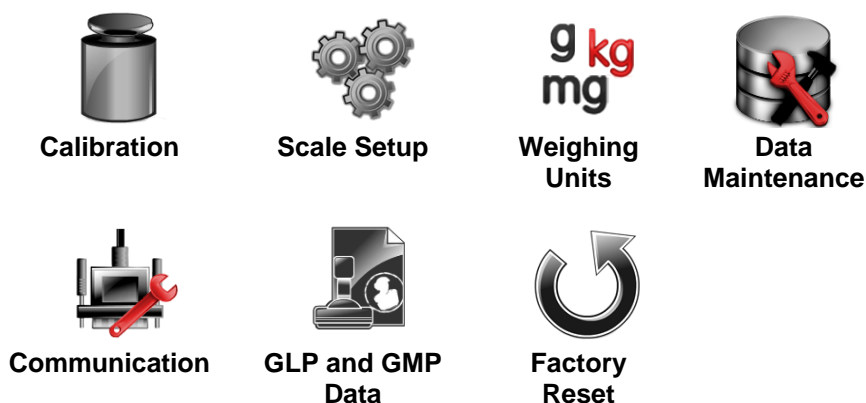


Exit the Menu and Return to the Current Application

After the setting is confirmed, touch **Exit** to return to the Application.

Note: at any time the **Back & Exit** buttons can be touched to navigate to the desired area of the menu or return to the current Application. Continue until the desired setting is chose in the menu list.

The Adventurer Grain Scale Main menu structure is illustrated below.



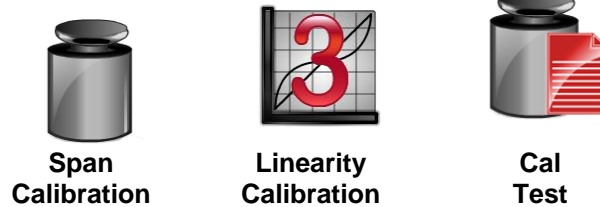
5.2 Calibration

Adventurer Grain Scales (InCal models) offer a choice of three calibration methods: Span Calibration, Linearity Calibration and Cal Test (Calibration Test).

Note: The calibration unit is always in grams.

Attention: Do not disturb the Scale during any calibration.

5.2.1 Calibration sub-menu



5.2.2 Span Calibration

Span calibration uses two calibration points, one at **zero load** and the other at **specified full load** (span). For detailed calibration mass information please see the specification tables in section 9.

Note: Factory default settings are shown in bold.

With the Scale turned ON and no load on the pan, touch Span Calibration to initiate the procedure. Additional calibration values to be used are shown on the display. The best accuracy is achieved using the mass closest to the full span value.

Note: To change the span calibration point, touch the alternate weight shown on the display. Follow the screen instructions and place the specified calibration weight on the Scale when prompted to do so. When complete, the display shows the Span calibration status and returns to the current application.

5.2.3 Linearity Calibration

Linearity calibration uses three calibration points, one at zero load and the others at specified loads.

With no load on the Scale, press Linearity Calibration to begin the process.

The Scale captures the zero point, and then prompts for the next weight.

Continue to follow the instructions on the display until the calibration is completed.

To cancel at any time, press **Cancel**.

5.2.4 Calibration Test

Use Calibration Test to compare a known calibration weight against the stored span calibration data.

With no load on the Scale, press **Cal Test** to begin the process.

The Scale captures the zero point, then prompts for the span value.

The display shows status, followed by the difference between the current calibration weight and the stored calibration data.

5.3 Scale Setup

Enter this sub-menu to customize Scale functionality.

5.3.1 Scale Set-up sub-menu



Language



User Settings



Filter Level

AZT

Auto Zero Tracking



Auto Tare

1/10

Graduations



Date & Time



Approved Mode

Factory default settings are shown below in bold.



5.3.2 Language

Set the language displayed for menus and displayed messages.

- English
- German
- French
- Spanish
- Italian
- Russian
- Chinese
- Japanese
- Korean



5.3.3 User Setting

Use this sub-menu to change the setting for:

Touch Calibrate

“Runtime calibration, please touch the screen at the center of the ring”
(First top-left, then bottom-right.)

Screen Brightness:

- LOW = low screen brightness.
- MEDIUM** = normal screen brightness.
- HIGH = high screen brightness.

Beep:

- OFF** = disabled
- ON = enabled

Auto Dim (Dims the display if no Screen Activity for x minutes)

- OFF** = disabled
- 10 min
- 20 min
- 30 min

Level Assist: Instructions on how to move the Scale feet to level the Scale.



5.3.4 Filter Level

Set the amount of signal filtering.

- LOW = faster stabilization time with less stability.
- MEDIUM** = normal stabilization time with normal stability.
- HIGH = slower stabilization time with more stability.



5.3.5 Auto Zero Tracking

Set the automatic zero tracking functionality.

- OFF = disabled.
- 0.5 D** = display maintains zero up to a drift of 0.5 graduation per second
- 1 D = display maintains zero up to a drift of 1 graduation per second.
- 3 D = display maintains zero up to a drift of 3 graduations per second.



5.3.6 Auto Tare

Set the automatic Tare.

- OFF = disabled.
- ON = enabled.

'Place container on the pan' will be displayed when an Automatic Tare is about to start.

A **Deactivate** button is displayed underneath the text. Press this button to deactivate the Automatic Tare function



5.3.7 Graduations

Set the displayed readability of the Scale.

- 1 Division** = standard readability.
- 10 Divisions = readability is increased by a factor of 10.

For example, if the standard readability is 0.01g, selecting 10 Divisions will result in a displayed reading of 0.1g.



5.3.8 Date & Time

Set the current Date and Time.

Change the format (if desired), then enter the current value.

Press **Save** to confirm the new value.



5.3.9 Approved Mode

Use this menu to set the Legal for Trade status.

- OFF = standard operation.
- ON = operation complies with Legal Metrology regulations.

Note: When Approved Mode is set to ON, the menu settings are affected as follows:

Calibration Menu:

AutoCal internal Calibration is forced to ON and hidden. Internal Calibration and Calibration Test functions are available. All other functions are hidden.

Scale Setup Menu:

- Filter Level is locked at the current setting.
- Auto Zero Tracking is limited to 0.5 Division and OFF. The selected setting is locked.
- Auto Tare is locked at current setting.
- Graduations is forced to 1 Division and the menu item is hidden.

Communication Menu (Communication->Print Settings->Print Output):

- Stable Weight Only is locked ON.
- Numeric Value Only is locked OFF.

Communication Menu (Communication->Print Settings->Auto Print):

- Auto print mode selections are limited to OFF, On Stability, and Interval.
- Continuous is not available.

Data Maintenance Menu:

- Export to USB is hidden
- Import from USB is hidden

Lockout Menu:

- Menu is hidden

Note: The security switch located at the rear of the Scale must be in the locked position to set Approved Mode to ON. The security switch must be in the unlocked position to set Approved Mode to OFF. See Section 6.



Weighing application main screen with LFT turned ON.

5.4 Weighing Units

Enter this sub-menu to activate the desired units of measure. This menu can also be accessed by pressing the unit symbol in an application home screen.

Note: Due to national laws, the Scale may not include some of the units of measure listed.

5.4.1 Units Sub-menu

g gram	kg Kilogram	ct carat	oz ounce	ozt ounce troy	lb Pound
dwt pennyweight	Grain Grain	N Newton	mom momme	msg mesghal	HKt Tael (HK)
SGt Tael (SG)	TWt Tael (TW)	tical tical	tola tola	bht baht	CT Custom Unit 1

Note: If Approved Mode is set to **ON**, some units will not be displayed.

Use the Custom Unit to display weight in an alternative unit of measure. The custom unit is defined using a conversion factor, where the conversion factor is the number of custom units per gram expressed in scientific notation (Factor x 10^{Exponent}).

For example: To display weight in troy ounces (0.03215075 troy ounces per gram) enter a Factor of 0.3215075 and an Exponent of -1.

The Custom Unit's name can be customized up to 3 characters.

5.5 Data Maintenance

Enter this sub-menu to customize data transfer settings.

5.5.1 Data Maintenance sub-menu

The Export and Import functions

Setting up multiple Scales is simple by exporting the profile from a master Scale via a USB drive. The data maintenance tool allows you to save user and application settings to a USB, which can be easily transferred to other Adventurer Grain Scales. The data can then be used to configure additional Adventurer Grain Scales with the data imported from original Scale.



Export to USB



**Import from
USB**



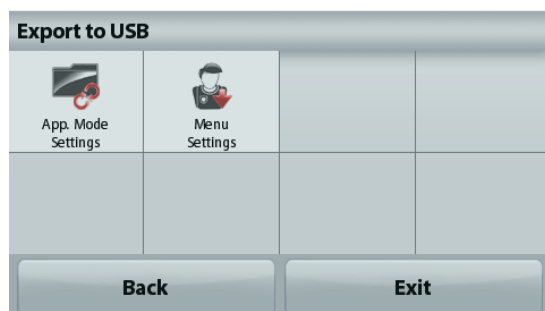
Scale Info



5.5.2 Export to USB

Export weighing data to a USB flash drive. Two types of data can be exported:

- Application settings (APW, Ref. weight and etc.)
- Menu settings (Scale setup function and etc.)



Note: The function Save to USB needs to be set to ON to enable data transfer to USB. Please see section 5.6 for more information.



5.5.3 Import from USB

Import weighing data from a USB flash drive.



5.5.4 Scale Info

Enter to view information about the Scale. Information displayed includes: Scale Type, Scale ID, Capacity, Readability and Software Version.

5.6 Communication

Enter this menu to define external communication methods and to set printing parameters. Data may be output to either a printer or PC.

Factory default settings are shown in bold. Enter to view information about the Scale.

5.6.1 Communication Sub-menu



RS-232 Standard



Print Settings



Save to USB

RS-232 Standard:

Enter this sub-menu to customize RS-232 Standard settings.



5.6.2 Baud Rate

Set the baud rate (bits per second).

2400	= 2400 bps
4800	= 4800 bps
9600	= 9600 bps
19200	= 19200 bps
38400	= 38400 bps



5.6.3 Transmission

Set the data bits, stop bit, and parity.

7 EVEN 1	= 7 data bits, even parity, stop bit 1
7 ODD 1	= 7 data bits, odd parity, stop bit 1
7 EVEN 2	= 7 data bits, even parity, stop bit 2
7 ODD 2	= 7 data bits, odd parity, stop bit 2
7 NONE 1	= 7 data bits, no parity, stop bit 1
8 NONE 1	= 8 data bits, no parity, stop bit 1
7 NONE 2	= 7 data bits, no parity, stop bit 2
8 NONE 2	= 8 data bits, no parity, stop bit 2



5.6.4 Handshake

Set the flow control method.

NONE	= no handshaking
XON-XOFF	= XON/XOFF handshaking
HARDWARE	= hardware handshaking

Print Settings

Enter this sub-menu to customize data transfer settings.

Print Settings sub-menu



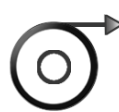
Print Output



Auto Print



Print Content



Feed



Format



5.6.5 Print Output

Stable Weight Only

Set the printing criteria.

- OFF** = values are printed immediately, regardless of stability.
ON = values are printed only when the stability criteria are met.

Numeric Value Only

Set the printing criteria.

- OFF** = All Result and G/N/T data values are printed. See section 7.2 for more information
ON = Only numeric data values are printed

Single Header Only

Set the printing criteria.

- OFF** = Headers will be printed for every print requirement
ON = Headers will be printed once a day

Print Options

Set the printing criteria.

- Printer** = Print data to a printer
PC = Print data to a PC



5.6.6 Auto Print

Set the automatic printing functionality.

- OFF** = disabled
ON STABILITY¹ = printing occurs each time the stability criteria are met.
INTERVAL² = printing occurs at the defined time interval.
CONTINUOUS = printing occurs continuously.

¹When ON STABILITY is selected, set the conditions for printing.

- LOAD** = Prints when the displayed load is stable.
LOAD ZERO = Prints when the displayed load and zero reading is stable.

²When INTERVAL is selected, set the time interval using the numeric keypad.

Settings of 1 to 3600 seconds are available. Default is 0.

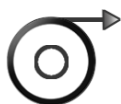


5.6.7 Print Content
 Define the content of the printed data.

Selection
 Set the status.

Deselect All = all are set to OFF
Select All = all are set to ON

- Header**
- Date & Time**
- Scale ID**
- Scale Name**
- User Name**
- Project Name**
- Application Name**
- Sample Name**
- Result**
- Gross**
- Net**
- Tare**
- Information**
- Signature Line**



5.6.8 Feed
 Set the paper feed.

1 LINE = move the paper up one line after printing.
4 LINE = move the paper up four lines after printing.



5.6.9 Format
 Set the paper feed.

Single Line = print on a single line.
Multiple Lines = print on multiple lines.

Save to USB
 Set the status.

OFF = the data will not be saved to USB
ON = the data will be saved to USB

5.7 GLP and GMP Data

Enter this menu to set the Good Laboratory Practices (GLP) data and the Good Manufacturing Practices data.

5.7.1 GLP Data Sub-menu



Header



Scale Name



User Name



Project Name

5.7.2 Header

Enables the printing of GLP headings. There are up to 5 headings available.



Alphanumeric settings up to 25 characters are available for each Header setting.



5.7.3 Scale Name

Set the Scale identification.

Alphanumeric settings up to 25 characters are available. The default setting is **Adventurer**.



5.7.4 User Name

Set the user identification.

Alphanumeric settings up to 25 characters are available. The default setting is **blank**.



5.7.5 Project Name

Enter this menu to set the Project identification.

Alphanumeric settings up to 25 characters are available. The default setting is **blank**.

5.8 Factory Reset

Use this sub-menu to reset the all menu settings to their Factory default settings.

Note: Calibration data is not affected.

- Reset All = resets all menus to their factory default settings.
- Exit = return to application main screen without resetting any menus.

6. LEGAL FOR TRADE (LFT)

When the Scale 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.

6.1 Settings

Before verification and sealing, perform the following steps in order:

1. Verify that the menu settings meet the local weights and measures regulations.
2. Verify the units turned **On** meet the local weights and measures regulations.
3. Perform a calibration as explained in Section 5.
4. Set the position of the Security Switch to the locked position.
5. Set Approved Mode to ON in the Scale Setup menu.

Note: When Approved Mode is set to ON, external calibration can't be performed.

6.2 Verification

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

6.3 Sealing

After the Scale has been verified, it must be sealed to prevent undetected access to the legally controlled settings. Before sealing the device, ensure that the security switch is in the Locked position and the Approved Mode setting in the Scale Setup menu has been set to ON.

If using a paper seal, place the seal over the security switch and Bottom Housing as shown.

If using a wire seal, pass the sealing wire through the holes in the security switch and Bottom Housing as shown.

Un-Locked



Locked with Paper Seal



Locked with Wire Seal



7. PRINTING

7.1 Connecting, Configuring and Testing the Printer/Computer Interface

Use the built-in RS-232 Port to connect either to a computer or a printer. If connecting to a computer, use HyperTerminal or similar software like SPDC described below.

(Find HyperTerminal under **Accessories/Communications** in Windows XP.)

Connect to the computer with a standard (straight-through) serial cable.

Choose **New Connection**, “connect using” COM1 (or available COM port).

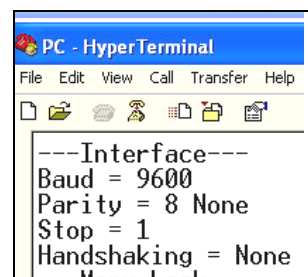
Select **Baud=9600; Parity=8 None; Stop=1; Handshaking=None**. Click **OK**.

Choose Properties/Settings, then ASCII Setup. Check boxes as illustrated:

(**Send line ends...**; **Echo typed characters...**; **Wrap lines...**)

Use RS232 Interface Commands (Section 9.6.1) to control the Scale from a PC.

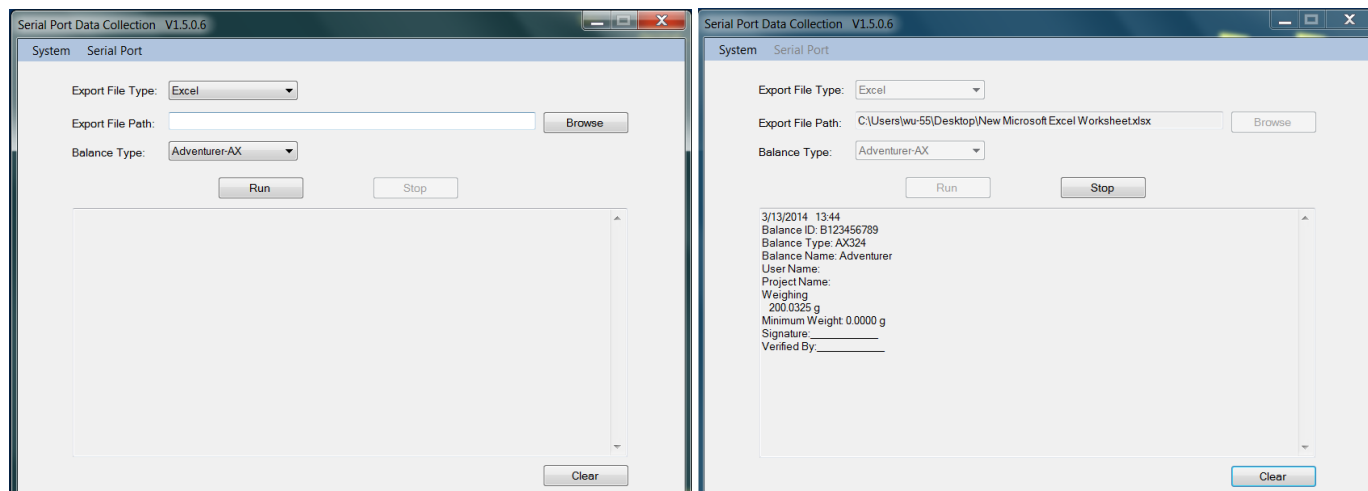
Note: When the HyperTerminal configuration is complete, it will automatically print the results of a **Cal Test** operation, and echo print commands sent to the Scale.



SPDC Software

The Serial Port Data Collection or SPDC software is provided by Ohaus and can be used on operating systems that do not have the HyperTerminal software mentioned above.

Choose the export file type and export file path and then press Run as shown below.



Note: The SPDC software only supports English language.

7.2 Output Format

The Result Data, and G/N/T data, is output in the following format.

Field:	Label ¹	Space ²	Weight ³	Space ²	Unit ⁴	Space	Stability ⁵	Space	G/N ⁶	Space	Term. Characters ⁷
Length:		1	11	1		1	≤ 1	≤ 1	≤ 3	0	≤ 8

1. The length of the label field is not fixed.
2. Each field is followed by a single delimiting space (ASCII 32).
3. The Weight field is 11 right justified characters. If the value is negative, the “-” character is located at the immediate left of the most significant digit.
4. The Unit field contains the unit of measure abbreviation up to 5 characters.
5. The Stability field contains the “?” character if the weight reading is not stable. The Stability field and the following Space field are omitted if the weight reading is stable.
6. The G/N field contains the net or gross indication. For net weights, the field contains “NET”. For gross weights, the field contains nothing, “G”.
7. The Termination Characters field contains CRLF, Four CRLF or Form Feed ASCII 12), depending on the LINE FEED menu setting.

7.3 Printout Examples

Weighing

Header 1
 Header 2
 Header 3
 Header 4
 Header 5
 1/15/2014 13:16
 Balance ID: B234567890
 Balance Type: AX4202N
 Balance Name: Adventurer Grain
 User Name: ohaus
 Project Name: ax grain
 Weighing
 Sample Name: apple
 1.3651 g NET
 Gross: 3.9199 g G
 Net: 1.3651 g NET
 Tare: 2.5548 g T
 Minimum Weight: 0.0000 g
 Signature: _____
 Verified By: _____

Test Weight

Header 1
 Header 2
 Header 3
 Header 4
 Header 5
 1/15/2014 14:27
 Balance ID: B234567890
 Balance Type: AX4202N
 Balance Name: Adventurer Grain
 User Name: ohaus
 Project Name: ax grain
 Test Weight
 Test Weight: 12.7987 lb/bu [pt]
 Gross: 97.1846 g G
 Net: 90.7091 g NET
 Tare: 6.4755 g T
 Density Unit: lb/bu [pt]
 Signature: _____
 Verified By: _____

Dockage

Header 1
 Header 2
 Header 3
 Header 4
 Header 5
 1/15/2014 14:28
 Balance ID: B234567890
 Balance Type: AX4202N
 Balance Name: Adventurer Grain
 User Name: ohaus
 Project Name: ax grain
 Dockage
 Percentage: 13.81 %
 Gross: 19.0005 g G
 Net: 12.5250 g NET
 Tare: 6.4755 g T
 Dockage Mode: Positive
 Ref. Weight: 90.7090 g
 Signature: _____
 Verified By: _____

8. MAINTENANCE

8.1 Calibration

Periodically verify calibration by placing an accurate weight on the Scale and viewing the result. If calibration is required, refer to section 5.2 for instructions.

8.2 Cleaning



WARNING: Disconnect the Adventurer Grain Scale from the power supply before cleaning. Make sure that no liquid enters the interior of the Scale. Clean the Scale at regular intervals.

Housing surfaces may be cleaned with a lint-free cloth slightly dampened with water or a mild cleaning agent.

Glass surfaces may be cleaned with a commercial glass cleaner. Please follow the steps below on how to remove and install the sliding doors.



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

8.3 Troubleshooting

TABLE 8-1. TROUBLESHOOTING

Symptom / Display	Possible Cause	Remedy
Scale will not turn on	No power to Scale	Verify connection and voltage
Poor accuracy	Improper calibration Unstable environment	Perform calibration Move Scale to suitable location
Cannot calibrate	Calibration Menu locked Approved Mode set to on Unstable environment Incorrect calibration masses	Turn Calibration menu lock off Turn Approved Mode off Move Scale to suitable location Use correct calibration masses
Cannot change menu settings	Sub-menu locked Approved Mode set to on	Unlock sub-menu Turn Approved Mode off
Low Reference weight	Reference weight too small The weight on the pan is too small to define a valid reference weight.	Increase sample size
Invalid Piece Weight	Average piece weight is too small	Increase average piece weight
Operation Timeout	Weight reading is not stable	Move Scale to suitable location
-----	Busy (tare, zero, printing, waiting for a stable weight)	Wait until completion

8.4 Service Information

If the troubleshooting section does not resolve your problem, contact an Authorized Ohaus Service Agent. Please visit our website www.ohaus.com to locate the Ohaus office nearest you. An Ohaus Product Service Specialist will be available to assist you.

9. TECHNICAL DATA

9.1 Specifications

Ambient conditions

- Indoor use only
- Altitude: Up to 2000 m
- Specified Temperature range: 10°C to 30°C
- Humidity: maximum relative humidity 80 % for temperatures up to 30°C decreasing linearly to 50% relative humidity at 40°C
- Mains supply voltage fluctuations: up to $\pm 10\%$ of the nominal voltage
- Installation category II
- Pollution degree: 2

Materials

- Bottom Housing; die-cast Aluminum, Painted
- Top Housing: Plastic (ABS)
- Weighing Platforms: 18/10 stainless steel
- Draft Shield: Glass, plastic (ABS)
- Feet: Plastic (ABS)

TABLE 9-1. SPECIFICATIONS

MODEL	AX4202N/E(GN)
Max	4200g
Min	0.5g
d=	0.01g
e=	0.1g
Approval Class	II
Repeatability (std. dev.) (g)	0.01g
Linearity (g)	±0.02g
Span Calibration Points (g)	1000g, 2000g 3000g, 4000g
Calibration	External
Weighing units	gram, kilogram, carat, pennyweight, grain, pound, ounce, troy ounce
Applications	weighing, dockage, test weight
Stabilization time (typical)	≤1.5 seconds
Sensitivity Temperature Drift (PPM/K)	3
Typical Minimum Weight USP (u=0.1%,k=3)	20g
Optimized Minimum Weight USP (u=0.1%,k=3) SRP**≤0.41d	8.2g
Display	Full-Color WQVGA Graphic LCD
Display size	4.3 in / 10.9 cm (diagonal)
Backlight	White LED
Controls	4-wire resistive touch screen
Communication	RS-232, USBx2
Scale power input	12 VDC, 0.5A
Power supply	AC Adapter Input: 100-240 VAC 0.3A 50-60 Hz AC Adapter Output: 12 VDC 0.84A
Platform size (diameter)	175x195 mm/6.9x7.7 in
Assembled dimensions (W x D x H)	354x230x100 mm 13.9x9.1x4.0 inch
Shipping dimensions (W x D x H)	557x392x301 mm 22.0x15.5x11.9 inch
Net weight	3.9Kg/8.6lb
Shipping weight	5.8Kg/12.8b

Note: *The value for SRP is the standard deviation for n replicate weighing's (n ≥ 10),

9.2 Drawings and Dimensions

Fully assembled dimensions

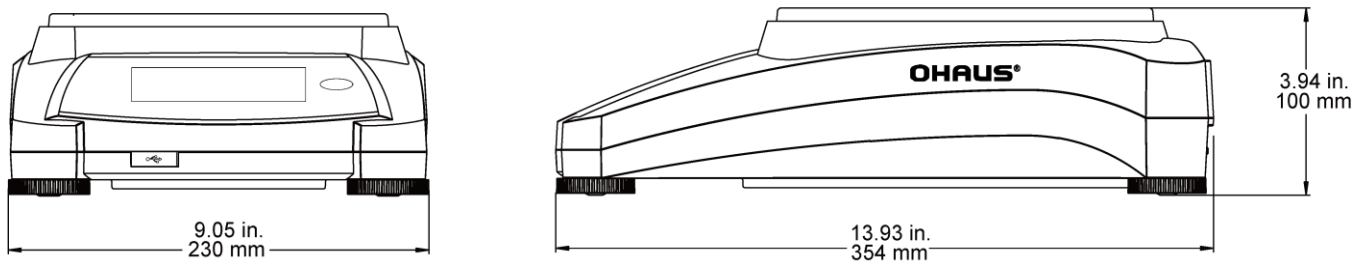


Figure 9-2. Adventurer Grain Scale Dimensions

9.3 Parts and Accessories

TABLE 9-5. ACCESSORIES

DESCRIPTION	PART NUMBER
Auxiliary Display	80251396
Density Kit	80253384
Cable, USB Device (Type A-B)	83021085
Security Device (Laptop Lock)	80850043
RS232 Cable, PC 25 Pin	80500524
RS232 Cable, PC 9 Pin	80500525
Dust Cover	30093334

9.4 Communication

9.4.1 Interface Commands

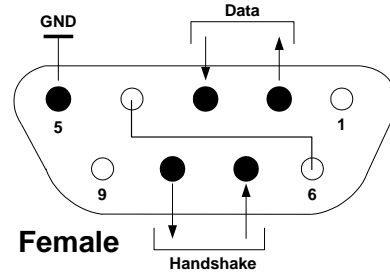
Commands listed in the following table will be acknowledged by the Scale.
The Scale will return "ES" for invalid commands.

TABLE 9-6. ADVENTURER GRAIN SCALE INTERFACE COMMAND LIST

Command Characters	Function
IP	Immediate Print of displayed weight (stable or unstable).
P	Print displayed weight (stable or unstable).
CP	Continuous Print.
SP	Print on Stability.
SLP	Auto Print stable non-zero displayed weight.
SLZP	Auto Print stable non-zero weight and stable zero reading.
xP	Interval Print x = Print Interval (1-3600 sec) 0P ends interval Print
0P	See above
H	Enter Print Header Lines
Z	Same as pressing Zero Key
T	Same as pressing Tare Key.
xT	Establish a preset Tare value in displayed unit. X = preset tare value. Sending 0T clears tare (if allowed).
PT	Prints Tare weight stored in memory.
ON	Brings out of Standby
OFF	Goes to Standby.
C	Begin Span Calibration
IC	Begin internal Calibration, same as trigger from calibration menu.
AC	Abort Calibration. Attention: when LFT ON, the operation is not allowed.
PSN	Print Serial Number.
PV	Print software version and LFT ON (if LFT is set ON).
xS	0 = print unstable data, same as IP; 1 = print stable only ¹⁾ , same as SP.
xRL	0 = disable response; 1 = enable response. This command only controls the "OK!" response.

9.4.2 RS232 (DB9) Pin Connections

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



9.5 The USB Interface

The Ohaus USB Interface is a unique solution to the problem of connecting a Scale to a computer using a Universal Serial Bus (USB). USB devices are categorized into classes such as disk drives, digital cameras, printers, etc. Scales do not have a commonly used class so the Ohaus USB interface uses a generic interface based on the RS232 serial standard.

Data sent from the Scale to a computer is in USB format. The USB data is directed to a *virtual port*. This port then appears as an RS232 port to the application program.

When sending a command from a computer to the Scale, the application program sends a command to the *virtual port* as if it were an RS232 port. The computer then directs the command from the *virtual port* to the computers USB connector where the Scale is connected. The port receives the USB signal and reacts to the command.

The USB Interface includes a CD with the software drivers to create the required *virtual port* on the computer.

System Requirements

- PC running Windows 98®, Windows 98SE®, Windows ME®, Windows 2000®, Windows XP®, Windows 7® or Windows 8® (32-bit).
- Available USB port (Type A, 4-pin, female)

USB Connection

The Scale’s USB port terminates with a 4-pin, female, USB Type B connector. A USB Cable (type B/male to type A/male) is required (not supplied).

1. Ensure that the Scale is powered on and working properly.
2. Power on the computer and verify that its USB port is enabled and working properly.
3. Plug the cable’s USB connectors into the computer’s USB port and the Scale’s USB port. Windows® should detect a USB device and the New Hardware Wizard will be initialized.

Virtual Port Software Installation

1. Insert the supplied CD into the computer’s CD drive.
Different versions of Windows® have slightly different steps to load the driver that is on the CD. In all versions the New Hardware Wizard guides you through the required steps to select the driver that is located on the CD.
2. After clicking Finish, the virtual port should be ready for use.
Windows® typically adds the virtual port in sequence after the highest number COM port. For example, on PC’s equipped with up to 4 COM ports, the virtual port will be COM5.

When using the USB interface with programs that limit the number of COM port designations (e.g. Ohaus MassTracker allows only COM1, 2, 3, & 4), it may be necessary to assign one of these port numbers to the new virtual port.



Example of Windows XP Hardware Wizard

This can be done in the Port Settings of the Device Manager utility, found in the Windows Control Panel.

USB INPUT

The Scale will respond to various commands sent via the interface adapter. Terminate the following commands when with a [CR] or [CRLF].

Adventurer Commands

zC	perform span calibration
0S	print unstable data
1S	print stable data only
P	same as pressing Print
SP	print stable weight only
IP	immediate print of displayed weight (stable or unstable)
CP	Continuous print of weights
SLP	Auto-print stable non-zero weight only
SLZP	Auto-print stable non-zero weight and zero reading
xP	Auto-print on 1 to 3600 second intervals (x = 1 to 3600)
0P	Ends interval print
T	same as pressing Tare
Z	same as pressing Zero
PV	print software version

Auto-Print Operation




Once Auto-Print is activated in the menu, the Scale will send data as required. If there is data in the print buffer the printer will finish printing this data.


10. SOFTWARE UPDATES

Ohaus is continuously improving its Scale software. To obtain the latest release, please contact your Authorized Ohaus Dealer or Ohaus Corporation.

11. COMPLIANCE

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

Mark	Standard
	This product conforms to the EMC Directive 2004/108/EC, the Low Voltage Directive 2006/95/EC and the Non-automatic Weighing Instruments Directive 2009/23/EC. The complete Declaration of Conformity is available online at http://europe.ohaus.com/europe/en/home/support/compliance/ce-declaration-of-conformity.aspx .
	AS/NZS CISPR 11, AS/NZS 61000.4.3
	CAN/CSA-C22.2 No. 61010-1-12 UL Std. No. 61010-1 (3rd edition)

 	<p>Important notice for verified weighing instruments</p>
 	<p>Weighing instruments verified at the place of manufacture bear one of the preceding marks on the packing label and the green 'M' (metrology) sticker on the descriptive plate. They may be put into service immediately.</p> <p>Weighing instruments to be verified in two stages have no green 'M' (metrology) on the descriptive plate and bear one of the preceding identification marks on the packing label. The second stage of the initial verification must be carried out by the approved service organization of the authorized representative within the EC or by the national weights and measures (W+M) authorities.</p> <p>The first stage of the initial verification has been carried out at the manufacturer's work. It comprises all tests according to the adopted European standard EN45501:1992, paragraph 8.2.2.</p> <p>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 respective W+M authorities.</p>

FCC Note

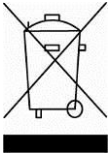
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, 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-001.

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 June 21, 2012, OHAUS Corporation, USA, was re-registered to the ISO 9001:2008 standard. In conformance with the European

**Disposal**

In conformance with the European Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE) this device may not be disposed of in domestic waste. This also applies to countries outside the EU, per their specific requirements.

The Batteries Directive 2006/66/EC introduces new requirements from September 2008 on removability of batteries from waste equipment in EU Member States. To comply with this Directive, this device has been designed for safe removal of the batteries at end-of-life by a waste treatment facility.

Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment.

If you have any questions, please contact the responsible authority or the distributor from which you purchased this device.

Should this device be passed on to other parties (for private or professional use), the content of this regulation must also be related.

For disposal instructions in Europe, refer to
<http://europe.ohaus.com/europe/en/home/support/weee.aspx>

Thank you for your contribution to environmental protection.

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.



Ohaus Corporation
7 Campus Drive
Suite 310
Parsippany, NJ 07054 USA
Tel: (973) 377-9000
Fax: (973) 944-7177

With offices worldwide.
www.ohaus.com



P/N 30127998 B © 2014 Ohaus Corporation, all rights reserved.