

Ohaus Corporation 29 Hanover Road Florham Park NJ 07932-0900

Scout II

Electronic Balances





NOTICE:

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 the 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.

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus", ICES-003 of the department of communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques", NMB-003 édictée par le ministre des communications.

Unauthorized changes or modifications to this equipment are not permitted.

This device corresponds to requirements stipulated in 73/23/EEC and features radio interference suppression in compliance with valid EC Regulation 89/336/EEC. Note: The displayed value may be adversely affected under extreme electromagnetic influences, eg. when using a radio unit in the immediate vicinity of the device. Once the interference has been rectified, the product can once again be used for its intended purpose.

Cet appareil correspond aux exigences selon la norme 73/23/CEE et est déparasité conformément à la directive de la CE 89/336/CEE en vigueur. Remarque: Dans des conditions d'influences électromagnétiques extrêmes, par exemple en cas d'exploitation d'un appareil radio à proximité immédiate de l'appareil la valeur d'affichage risque d'être influencée. Une fois que l'influence parasite est terminée, le produit peut être de nouveau utilisé de manière conforme aux prescriptions.

Dieses Gerät entspricht den Anforderungen nach 73/23/EWG und ist funkentstört entsprechend der geltenden EG-Richtlinie 89/336/EWG. Hinweis: Unter extremen elektromagnetischen Einflüssen z.B. bei Betreiben eines Funkgerätes in unmittelbarer Nähe des Gerätes kann eine Beeinflussung des Anzeigewertes verursacht werden. Nach Ende des Störeinflusses ist das Produkt wieder bestimmungsgemäss benutzbar.

TABLE OF CONTENTS

DESCRIPTION	4
UNPACKING	4
INSTALLATION	5
Power	5
Pan Installation	5
Weigh Below Hook	6
IMPORTANT INFORMATION	6
TURNING THE BALANCE ON	7
TURNING THE BALANCE OFF	7
WEIGHING	7
TARING	7
MENU DESCRIPTION	8
AUTO SHUT-OFF ACTIVATION	8
SPAN CALIBRATION	9
LINEARITY CALIBRATION	9
ACTIVATING UNITS	. 10
PARTS COUNTING	. 10
PRINT MENU	. 11
SETTING PRINT MENU FUNCTIONS	. 12
Entering the Print Menu	. 12
Power On/Off	. 12
Baud Rate	. 12
Data Bits	. 13
Parity Bit	. 13
Stop Bits	. 13
Auto Print	. 13
Stable Data Output Only	. 14
PRINTING	. 14
RS232 INTERFACE	. 14
Hardware	. 14
RS232 Commands	. 15
Output Formats	. 15
Error Codes	. 16
CARE AND MAINTENANCE	. 16
TROUBLESHOOTING	. 16
PARTS INFORMATION	. 17
REPLACEMENT PARTS	. 17
ACCESSORIES	. 17
SPECIFICATIONS	. 18
WARRANTY	. 19

DESCRIPTION

Scout *II* balances are precision weighing instruments, designed to provide years of service. Features include front panel controls, simplified menu, automatic shutoff, multiple weighing units, parts counting and a weigh below hook. A total of ten models are available with full capacity ranges of 200g to 6000g. Five of the models are available with RS232 communications for operation with external computers or printers. The balance can be operated by a 9 Volt battery or with the AC Adapter supplied. High capacity model is shown below.



- 1. Carefully unpack the balance, verify that all items are on hand. Save the packing material for transporting the balance.
- 2. Remove the retaining band and cardboard insert from the pan support.
- * Calibration masses are not supplied with 1200g and 6000g balances.

INSTALLATION

For best performance, the balance should be used in a clean, stable environment. Do not use the balance in environments with excessive drafts, near magnetic fields or equipment that generates magnetic fields, rapid temperature changes, vibrations or corrosive vapors.

Power

Connect the AC Adapter at the rear of the balance. For portable operation, install a 9 V battery in the battery compartment as shown in the illustration.



Pan Installation

Place the pan over the pan support as shown in the illustration.



(400g, 600g, 1200g, 6000g Balances Illustrated)

INSTALLATION (Cont.)

Weigh Below Hook

For below balance weighing applications (eg. density determination), the weigh below hook may be installed at the bottom of the balance as shown.

Do not over tighten the screw, tighten finger tight. Place the balance on a suitable stand which will allow below balance weighing.



Security Bracket

A security bracket is provided at the rear of the balance which allows the balance to be secured by the optional cable and lock accessory.

IMPORTANT INFORMATION

Scout *II* balances are sensitive, precision devices and when shipped, occasionally require calibration before they are used. The balances are calibrated at the factory and due to rough handling and vibration during shipping, the balance may display an ERR1 or ERR4 when first turned on.

This does not mean that the balance is defective. We recommend you perform span calibration for an ERR1 indication and linear calibration for ERR4 before you call for service. If the balance does not span calibrate, try linear calibration.

Linear calibration requires two masses to be used. The 200g, 400g and 600g balances are shipped with one mass, you will require a second mass which can be ordered from Ohaus. 1200g and 6000g balances are not shipped with masses. Refer to the accessory table at the rear of the manual for the required calibration masses.

Review the Menu and then perform both Span and Linear calibration. Span calibration does not require entering the Menu. Linear calibration (LIN) does require entering the Menu.

In the event the balance fails to operate properly, please call Ohaus Corporation toll-free at (800) 526-0659 for service or parts.

TURNING THE BALANCE ON

Press **Zero On.** All segments will appear briefly followed by a software revision number and then *00*^{*g*}. Allow 5 minutes warm-up time.



TURNING THE BALANCE OFF

To turn the balance OFF, press and hold **Mode Off** until the display indicates **OFF**, then release.

WEIGHING

The balance is shipped from the factory ready to weigh in g, oz, oz t, dwt and lb.

- 1. Select the desired weighing unit by momentarily pressing Mode Off.
- 2. If it is necessary to rezero the display, momentarily press Zero On.
- Place item(s) to be weighed on the pan and read the weight on the display.
 The stability indicator * appears when the reading is stable.

TARING

When weighing items that must be held in a container, taring subtracts the container's weight from the total weight on the pan. Remember, the weight of the container and the material it holds must not exceed the capacity of the balance.

- 1. With an empty container on the pan, press Zero On to zero the display.
- 2. As material is added to the container, the net weight is displayed. Tared weight remains in balance memory until **Zero On** is pressed again.
- 3. If the container is no longer used and is removed from the balance, the display indicates a negative weight which was the container's weight. Press Zero On to zero the display.

MENU DESCRIPTION

The User Menu permits you to activate the Auto Shut-off feature, select weighing units, select parts counting, select printing parameters on RS232 equipped models and perform Linearity calibration and store settings. Bolded items shown in the menu are factory default settings. Each menu item is covered in a separate procedure in this manual, to enter an individual menu item and select it requires alternating between the **Mode Off** and **Zero On** buttons.

To enter the menu, start with the balance OFF, press and hold **Zero On** until *MENU* is displayed, then release it. The first menu item *A. OFF* (automatic shutoff) is displayed. Refer to the individual procedures to select and enable menu items.

MENU

-A.OFF - Set to On or Off.
-UNITS - g, oz, lb, oz t, dwt, pc, set each to On or Off.
-PRINT*-Power - On or Off.
Baud Rate - 300, 1200, 2400, 4800, 9600
Data Bits - 7 or 8
Parity Bit - Odd, Even or None
Stop Bits - 1 or 2
Auto Print - Continuous, On Stability, or Off
Stable Data Output Only - On or Off
End.
-LIN - Performs linearity calibration.

-END - Exit menu and store settings.

*RS232 models only.

AUTO SHUT-OFF ACTIVATION

When Auto Shut-off is activated, the balance will shut off after three minutes of non use. To activate auto shut-off, proceed as follows:

- 1. Start with the balance OFF. Press **Zero On** until **MENU** is displayed. When **Zero On** is released, **A. OFF** is displayed.
- 2. With *A. OFF* displayed, press Zero On to view current state (ON or OFF).
- 3. Press Mode Off to change the displayed setting to either On or OFF.
- 4. To accept the displayed setting, press **Zero On**. The display returns to *A.OFF*.
- 5. Press **Mode Off** until *End* is displayed, then press **Zero On** to store and save setting. Balance is now in a weighing mode.

SPAN CALIBRATION

Scout *II* balances are calibrated before shipment, however calibration can be affected by changes in location, temperature, or rough handling. Check the balance with the calibration mass supplied. If calibration is required, proceed as follows: **NOTE**: *1200g and 6000g balances are not supplied with masses.*

 With the balance ON, press and hold Zero On until CAL is displayed then release it. -C- is momentarily displayed followed by the value of the mass which must be placed on the pan.

Do not disturb the balance while -*C*- is displayed.

- 2. Place the required mass on the pan and momentarily press Zero On.
- 3. When the weight on the pan is displayed with the stability indicator, the balance is calibrated. Remove the mass from the pan. If **Err1** and/or **Err4** is displayed, perform linearity calibration.

LINEARITY CALIBRATION

- 1. With the balance OFF, press Zero On until MENU is displayed.
- Repeately press Mode Off until *Lin* is displayed, then press Zero On.
 -C- is momentarily displayed followed by the value of the mass which must be placed on the pan.

Do not disturb the balance while -C- is displayed.

- 3. Place the displayed value of the first mass on the pan and momentarily press **Zero On**. -*C* is displayed, then the value of the second mass to be placed on the pan is displayed.
- 4. Place the displayed value of the second mass on the pan and momentarily press **Zero On.**
- 5. When the weight on the pan is displayed with the stability indicator, the balance is calibrated. Remove the mass from the pan.

When Linearity calibration is completed, the balance automatically exits the menu and stores any changes you have made.

ACTIVATING UNITS

- 1. Start with the balance OFF. Press Zero On until MENU is displayed.
- 2. Press Mode OFF until UnitS is displayed.
- 3. With *UnitS* displayed, press **Zero On** to display the grams indicator "g" with its current setting or *On* ^g or *OFF* ^g.
- 4. To change the displayed setting, press Mode Off.
- 5. To accept the displayed setting, press **Zero On**. The display will advance to the next weighing unit.
- 6. Repeat steps 4 and 5 for each weighing unit and parts counting. When the last unit has been accepted, the display will again indicate *UnitS*.
- Repeatedly press Mode Off to change to another menu item or to exit, press Mode Off until End is displayed, then press Zero On to store settings.

PARTS COUNTING

Parts counting must be turned ON before using this procedure. Refer to Activating Units. The balance will count parts based on the weight of a reference sample of 5, 10, 20 or 50 parts. For optimum results, the parts should be uniform in weight.

- 1. Start with the balance ON in a weighing mode.
- 2. Place a container on the pan and press Zero On to tare it.
- Press Zero On until SEtPC is displayed. When Zero On is released, SEt 5pc, or 10pc, 20pc, 50pc is displayed depending on what was last entered.
- 4. Repeately press **Mode Off** to change the reference sample to either 5, 10, 20 or 50 parts.
- 5. Add the selected reference number of parts to the container, then press **Zero On**. The display shows the number of parts added.
- 6. Add parts to be counted and read the quantity on the balance display.

PARTS COUNTING (CONT.)

- 7. To read the weight of the parts, press **Mode Off** to change to any of the activated weighing units.
- 8. To return to a weighing mode, press Mode Off to select a weighing unit, the display indicates the weight of the container as a negative value. Simply press Zero On to tare the balance. Taring the balance does not affect the sample weight which is stored and retained as long as the balance remains on.
- 9. You can return to parts counting at any time by repeatedly pressing Mode Off until the parts counting indicator is displayed. To count similiar parts, place a container on the pan and press Zero On, then place parts in the container. The balance displays the number of parts.

PRINT MENU

The Print menu is used to configure and customize the RS232 interface parameters for your requirements on balances equipped with this function. The following table shows the sequence in which submenus appear on the Print Menu. Factory settings are in bold.

PRINT MENU TABLE

POWER	When set ON, enables the operation of the RS232. Not recommended for battery operation.
Baud Rate	Specifies baud rate of either 300, 1200, 2400 , 4800, or 9600.
Data Bits	Specifies number of data bits, 7 or 8.
Parity Bit	Specifies parity type, Odd, Even, or None.
Stop Bits	Specifies the number of stop bits, 1 or 2.
Auto Print	Enables either continuous, on stabilty, off or automatic printing.
Stable Data	Enables/disables printing stable data only feature.
End	Used to exit the Print menu and store your selections.

SETTING PRINT MENU FUNCTIONS

This procedure permits you to set one or all of the RS232 communication parameters on balances equipped with RS232. Each parameter can be entered and set individually.

ENTERING THE PRINT MENU

- 1. Start with the balance OFF. Press Zero On until MENU is displayed.
- 2. Press Mode OFF until Print is displayed.
- 3. With *Print* displayed, press Zero On until *PoWr* is displayed. You may now select to change any of the parameters in Power, Baud Rate, Data Bits, Parity Bit, Stop Bits, Auto Print, Stable Data or End which saves all settings.
- 4. By repeately pressing **Mode Off**, you can enter any one of the above print menu items. See following procedures.

POWER ON/OFF

- 1. With *PoWr* displayed, press Zero On.
- 2. Press Mode Off to change the displayed setting to On or OFF.
- To accept the displayed setting, press Zero On. The display returns to *PoWr*. To advance to Baud Rate, press Mode Off. If you don't want to change any other settings, press Mode Off until *End* is displayed, then press Zero On to save settings.

BAUD RATE

- 1. With *bAud* displayed, press **Zero On** until either *300, 1200, 2400, 4800* or *9600* is displayed.
- 2. Press **Mode Off** to change the displayed setting to either *300, 1200, 2400, 4800* or *9600* baud.
- To accept the displayed setting, press Zero On. The display returns to bAud. To advance to Data Bits, press Mode Off. If you don't want to change any other settings, press Mode Off until End is displayed, then press Zero On to save settings.

SETTING PRINT MENU FUNCTIONS (CONT.)

DATA BITS

- 1. With *dATa* displayed, press Zero On until -7- or -8- is displayed.
- 2. Press Mode Off to change the displayed setting to either -7- or -8-.
- To accept the displayed setting, press Zero On. The display returns to *dAtA*. To advance to Parity Bit, press Mode Off. If you don't want to change any other settings, press the Mode Off until *End* is displayed, then press Zero On to save setting.

PARITY BIT

- 1. With *PAr* displayed, press Zero On until *Odd, EvEn* or *nonE* is displayed.
- 2. Press **Mode Off** to change the displayed setting to either **Odd**, **EvEn** or **nonE**.
- To accept the displayed setting, press Zero On. The display returns to PAr. To advance to Stop Bits, press Mode Off. If you don't want to change any other settings, press the Mode Off until End is displayed, then press Zero On to save setting.

STOP BITS

- 1. With StoP displayed, press Zero On until either -1- or -2- is displayed.
- 2. Press Mode Off to change the displayed setting to either -1- or -2-.
- To accept the displayed setting, press Zero On. The display returns to StoP. To advance to Auto Print, press Mode Off. If you don't want to change any other settings, press the Mode Off until End is displayed, then press Zero On to save setting.

AUTO PRINT

- 1. With *APrnt* displayed, press Zero On until *OnStb, OFF* or *Cont* is displayed.
- 2. Press Mode Off to change the displayed setting to either , *OnStb, OFF* or *Cont*.
- To accept the displayed setting, press Zero On. The display returns to *APrnt*. To advance to Stable Data, press Mode Off. If you don't want to change any other settings, press the Mode Off until *End* is displayed, then press Zero On to save setting.

SETTING PRINT MENU FUNCTIONS (CONT.)

STABLE DATA OUTPUT ONLY

- 1. With *PrStb* displayed, press Zero On until On is displayed.
- 2. Press Mode Off to change the displayed setting to either On or OFF.
- To accept the displayed setting, press Zero On. The display returns to *PrStb*. If you don't want to change any other settings, press the Mode Off until *End* is displayed, then press Zero On to save settings.

PRINTING

Models of Scout*II* balances equipped with an RS232 interface for communication can print the balance display results by pressing **Zero On** until *-P-* is displayed then release.

RS232 INTERFACE

Certain models of Scout*II* balances are equipped with a bi-directional RS232 compatible interface for communication with printers and computers. When the balance is connected directly to a printer, displayed data can be output at any time by using the Auto Print feature.

NOTE: The AC Adapter is recommended to power the balance when the RS232 interface is used.

Connecting the balance to a computer enables you to operate the balance from the computer, as well as receive data such as displayed weight and weighing mode. The following sections describe the hardware and output signal formats provided with the balance.

Hardware

On the rear of the balance, a 9-pin subminiature "D" connector is provided for interfacing to other devices. The pinout and pin connections are shown in the adjacent illustration.

The balance will not output any data unless pin 5 (CTS) is held in an ON state (+3 to +15 V dc). Interfaces not utilizing the CTS handshake may tie pin 5 to pin 6 to defeat it.



RS232 INTERFACE

RS232 Commands

All communication is accomplished using standard ASCII format. Only the characters shown in the following table are acknowledged by the balance. Any other commands, control characters or spaces are ignored. Commands sent to the balance must be terminated with a carriage return (CR) or carriage return-line line feed (CRLF). For example, a tare command should appear as shown in the adjacent diagram. Data output by the balance is always terminated with a carriage return - line feed (CRLF).

- 1 N/C
- 2 Data Out (TXD)
- 3 Data In (RXD)
- 4* Tare (External signal)
- 5 Clear To Send (CTS)
- 6 Data Terminal Ready (DTR)
- 7 Ground
- 8 Request To Send (RTS)
- 9* Print (External signal)
- * External PRINT and/or TARE switches may be installed as shown in the diagram. Momentary contact switches must be used.

TARE COMMAND





Output Formats

Data output can be initiated in one of two ways: 1) Using the Auto Print feature; 2) Sending a print command ("P") from a computer.

The output format is illustrated in the RS232 command table which follows.

?	Print current mode.		
nnnnA	Set Auto Print Feature to "nnnn"		
	nnnn=0 turns feature OFF		
	nnnn=S	output on stability	
	nnn=C	output is continuous	
	nnnn= 1-3600	sets auto print interval	
С	Begin span calibration		
L	Begin linearity calibration.		
хМ	Place balance in unit "x"		
	(x=0 gram, x=1 ounces, x =2 troy ounces,		
	x=3 pennyweights, x=4 parts counting, x=5 pounds)		
Т	Same effect as pressing Zero On		
V	Print software version		
EscR	Resets setup and print menus to factory default. Resets		
	RS232 configuration.		
Р	Print display data.	=	
LE	Shows last error co	ze. Response: Err: Error Number	
xS	Print stable data on	y. Where x=0 for OFF, x=1 for ON	

RS232 COMMAND TABLE

RS232 INTERFACE (Cont.)

Error Codes

) or Underload
ould occur in parts counting)
le weighs <1d. balance shows ing.
-
balance for servicing.

CARE AND MAINTENANCE

To keep the balance operating properly, keep the housing and platform clean. If necessary, a cloth dampened with a mild detergent may be used. Check under the sub platform for debris and remove. Keep calibration masses in a safe dry place. Unplug the AC Adapter when not in use. For long term storage, remove the battery.

TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	REMEDY
No Display.	1.Power Adapter not connected.	1.Connect AC Adapter.
	2.Battery is dead.	2. Replace battery.
BAT Indicator is on.	Battery is weak.	Replace battery.
Incorrect weight reading.	 Balance out of cali bration. 	1. Calibrate the balance.
	 Balance was not rezeroed before weighing. 	2. Press Zero On with no weight on the pan, then weigh item.
Calibration procedures	Incorrect calibration	Use correct masses.
Unable to display weight in a particular weighing unit.	masses being used. Weighing unit not activated in menu.	See error codes note. Use Units menu to set desired units ON (see menu)
Balance won't store selections made in menu.	END selection was not used to exit menu.	You must use END to exit menu and save selections.
Balance readings unstable.	Balance location may have wind from air conditioning vents or vibration from other appliances nearby af fecting operation.	Either move or shield balance from external air currents or vibra tion.
Error code is displayed.	Various internal and external problems may be the cause.	Review error code table and take appro- priate action.

PARTS INFORMATION

If you require replacement parts or would like to purchase accessories, please call Ohaus Corporation toll-free at (800) 526-0659. An Ohaus Product Parts Specialist will be available to help you.

REPLACEMENT PARTS

	Part No.
AC Adapters:	
100/120 V ac US Plug	90524-66
220 V ac Euro Plug	90524-63
240 V ac UK Plug	90524-64
240 V ac Australian Plug	90524-65
Pan for 200g Scout II , 4.0" (10cm) dia.	77064-00
Pan for 400g and 600g Scout II, 5 x 5.75" (12.7cm x 14.6 cm)	300007-010
Weigh Below Hook	5227-04
200g Calibration Mass (200g and 400g Scout II)	51025-06
300g Calibration Mass (600g Scout II)	51035-05

Part No.

ACCESSORIES

Calibration I	Masses:	
100g (200g Scout <i>II</i>)		51015-05
200g (400g Scout <i>II</i>)		51025-06
300g (6	00g ScoutII)	51035-05
500g (1	200g Scout//)	51055-06
1000g (1200g Scout/I)	51016-06
2000g (6000g Scout/I) (2 required)	51026-02
Security De	vice	76288-01
Hard Shell (Carrying Case	77256-01
Impact Printer		AS142
Impact Printer Paper 5 pack		78204-01
Cable for AS142 Printer		AS017-06
Cable, PC 25 Pin		AS017-02
Cable, PC 9 Pin		AS017-09
Cable, for A	pple [®] , IIGS/Macintosh	AS017-10
Scoops:	Aluminum,	
	3.62 x 4.50 x 1.0"/9.20 x 11.34 x 2.54 cm	4590-10
	Black anodized, aluminum,	
	4590-30	
	Aluminum,	
1.5 x 2.00 x 0.43"/3.81 x 5.08 x 1.11 cm		5076-00
	Gold anodized aluminum,	
	5077-00	

SPECIFICATIONS

Capacity (g)	200	400	600	1200	6000
Readability (g)	0.01	0.1	0.1	0.1	1
Weighing modes	g, oz, oz t, dwt, pc g, o			g, oz, ozt	dwt, lb, pc
Repeatability (std. dev.) (g)	0.01	0.1	0.1	0.1	1
Linearity (g)	±0.01	±0.1	±0.1	±0.1	±1
Tare range	To capacity by subtraction				
Over range capacity	103%				
Stabilization time (seconds)	3				
Sensitivity drift (%/°C)	±0.005	±0.02	±0.02	±0.009	±0.2
Zero point drift (g/°C)	±0.03	±0.5	±0.5	±0.2	±5.0
Operating temperature	50° to 104° F/10° to 40° C				
Operating humidity range	10% to 85% RH				
Power requirements	AC Adapter (supplied with balance) 100, 120, 220 or 240 V ac, 50/60 Hz				
	or one 9 V battery (not included)				
Display (in/cm)	LCD (0.7/1.8 high)				
Pan size (W x D) (in/cm)	4/10.2 dia 5 x 5.75/12.7x14.6				
Dimensions (W x H X D) (in/cm)	6.75 x 2.4 x 8.25/17.1 x 6.2 x 21				
Net weight (lb/kg)	1.5/0.7	1.8/0.8	1.8/0.8	1.8/0.8	1.8/0.8
Shipping weight (lb/kg)	3.2/1.5	3.5/1.6	3.7/1.7	3.7/1.7	3.7/1.7
Item No. without RS232	SC2020	SC4010	SC6010	SCA210	SCF0A0
Item No. with RS232	SR2020	SR4010	SR6010	SRA210	SRF0A0

CONVERSION FACTORS FOR UNITS OF MASS

The following conversion table of weights and measures of mass is provided for your work and study when using the balance.

To Convert from GRAMS	
то	Multiply by
Grains	
Carats	5.000
Pennyweights	0.643 014 9
Avoirdupois Drams	0.564 383 4
Avoirdupois Ounces	0.035 273 96
Troy Ounces	0.032 150 75
Troy Pounds	0.002 679 23
Avoirdupois Pounds	0.002 204 62
Milligrams	<u>1000</u>
Kilograms	<u>0.001</u>

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.



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